The Journal

OF THE

American Medical Association

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A MEDICAL JOURNAL CONTAINING

THE OFFICIAL RECORD OF THE PROCEEDINGS OF THE ASSOCIATION, AND THE PAPERS READ AT THE ANNUAL SESSION, IN THE SEVERAL SECTIONS, TOGETHER WITH THE

MEDICAL LITERATURE OF THE PERIOD

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GEORGE H. SIMMONS, LL.D., M.D.

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VOLUME LXVI : : : : : JANUARY—JUNE, 1916

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 1 CHICAGO, ILLINOIS JANUARY 1, 1916

OCCUPATIONAL INJURIES DUE TO RADIUM

REPORT OF CASES

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During the past two years, the Cancer Commission of Harvard University has been engaged in obtaining data concerning the therapeutic value of radium. Owing to the great variety in type of lesions to be treated and in their distribution, the methods of application have been varied, chiefly as to differences in filtration and protection. This has necessitated in the application the frequent manipulation of highly radioactive tubes and applicators.[1]

Rutherford[2] says:

> Walkhoff first observed that radium rays produce burns of much the same character as those caused by Roentgen rays. Experiments in this direction have been made by Giesel, Curie and Becquerel and others with very similar results. There is at first a painful irritation, then inflammation sets in, which lasts from ten to twenty days. This effect is produced by all preparations of radium, and appears to be due mainly to the alpha and beta rays. Care has to be taken in handling radium on account of the painful inflammation set up by the rays. If a finger is held for some minutes at the base of a capsule containing a radium preparation, the skin becomes inflamed for about fifteen days and then peels off. The painful feeling does not disappear for two months.

Although these rather *acute* reactions due to radium are apparently well known to *physicists* working with radioactive substances, and considerable experimental work has been done on animals by biologists, very little attention has been paid to the more chronic changes. The purpose of this paper is to record a detailed description of symptoms and signs from the *clinical* point of view, and to emphasize the importance of these as occupational injuries, so that more serious effects may not result in those engaged in the application of radium as a therapeutic procedure.

Personal observation in London and Vienna and in Germany while I was investigating the status of clinical work with radium had led me to note the possibilities of discomfort and injury from contact with radioactive substances.

In London at the Radium Institute the plan was adopted of rotation in service each month for the nurses handling the applicators. Attention had been called to the effects on the fingers of those handling the radium by sensory disturbance in the form of pain and anesthesia, first noticed by the difficulty experienced in preparing eggs at the table according to the English custom. This may seem a trivial instance, but it well illustrates a peculiar sensitiveness to heat and the difficulty of delicate manipulation with the affected fingers.

On the other hand, severe injury was observed in Vienna in the case of one who had handled large quantities of radium. The thumb, forefinger and middle finger of the left hand showed severe lesions, particularly in the form of atrophy and intractable ulceration.

In Paris at the Laboratoire biologique du radium, particular inquiry was made as to the effect of radium on the hands, and it is interesting to note that one of the attendants who had been making almost daily surface applications for over two years had up to that time experienced no injurious effects whatever. This is probably due in part to the type of applicators used in this clinic.

From this it will be seen that injurious local effects were anticipated so that the changes to be described were not acquired unwittingly but in spite of caution. The increasing use of large quantities of radium warrants a detailed description and record of these changes, not only because of the annoyance and discomfort caused, but also as a warning from analogy to the Roentgen ray of more serious late effects, such as atrophy, intractable ulceration and even cancer. Already in certain instances there has been caused not only great annoyance from discomfort but actual impairment in manual dexterity in performing delicate manipulations because of persistent local anesthetic effects.

Throughout the first year of the radium work at the Huntington Hospital, a considerable proportion of the applications were made by the physician in charge. As a result of manipulation due to the clinical applications of radium in the variety of cases referred to above, a few weeks after beginning there was noticed slight though gradually increasing sensory disturbance in the finger tips, particularly on the ulnar side of the first phalanx of the thumb and the radial side of the terminal phalanges of the index and middle fingers of each hand.

These symptoms occurred very insidiously, and consisted of blunting of sensibility of the finger tips, paresthesia, such as increased sensitiveness to heat and pressure, amounting at times to actual pain, and anesthesia of varying degrees.

The subjective disturbances were out of all proportion to the objective findings, which included flattening

1. Ordway, Thomas: The Use of Radium in Cancer and Allied Conditions at the Huntington Hospital, Boston Med. and Surg. Jour., Nov. 19, 1914.
2. Rutherford, Ernest: Radioactive Substances and Their Radiations, New York, G. P. Putnam's Sons, 1913, p. 327.

of the natural ridges on the affected fingers with consequent changes in the characteristic markings of the finger prints, thickening of the horny layer of the epidermis with scaling, failure of the tips of the fingers to resume their normal shape after pressure, a sort of pitting, and upgrowth of the cuticle at the base of and underneath the nails, which were easily cracked, extremely brittle, and tended to stand off from the fleshy part of the fingers.

Each assistant and nurse before engaging in the clinical application of radium was warned of the annoying and possibly dangerous effects, and told not to handle the active tubes of emanation with the fingers but to make use of forceps. In spite of this, a certain amount of handling was unavoidable in changing the radium tubes for suitable filtration and protection in the different cases.

Nurses and assistants, and also members of the commission have been asked to describe carefully and independently the subjective and objective changes produced. The onset, variety and annoyance of the effects may be best understood and appreciated by the individual descriptions to be cited, for the most part in the sequence of their occurrence.



Fig. 1 (Case 7).—Photograph showing the flattening of the ridges on the tips of the index and middle fingers compared with the ring and little fingers, left hand.

CASE 1 (C. O. 15.20).—A physician began making routine applications of radium during the early part of November, 1913. These continued in increasing numbers until the latter part of January, 1914. Since that time, applications have been made only in special cases.

After a few weeks the tips of the thumbs, particularly toward the ulnar side, and the fore and middle fingers, especially toward the radial side, gradually became numb and felt unnatural from the blunting of sensibility. They were very tender on pressure so that buttoning small buttons was not only difficult because of the anesthesia but also painful. Hyperesthesia was also noted in a markedly increased sensitiveness to heat. There was paresthesia in the form of a peculiar unnatural feeling of the finger tips and awkwardness in using the fingers for delicate manipulation. Because of the anesthesia, small objects were frequently dropped, and difficulty was noted in taking pulses with the affected finger tips, which are those commonly used. These subjective symptoms have been very pronounced, persistent and out of all proportion to the objective findings.



Fig. 2 (Case 4).—Finger prints of fingers of the left hand. Note that the characteristic ridges are less marked and show more breaks on the thumb, index and middle fingers, particularly on the extreme tips; left hand; from left to right: little finger, ring finger, middle finger, index finger and thumb.

The affected portions of the fingers described above became smooth and shiny, and the ridges giving the characteristic finger prints became less marked and almost obliterated (Figs. 1 and 2). Later the epidermis was thickened, dry and parchmentlike, and on pressure the pad of the finger tip remained indented for some seconds instead of immediately resuming its rounded form (Fig. 3).

The thickened horny layer became wrinkled and cracked, and scales of varying size repeatedly desquamated. The nails stood off from the fleshy part of the affected fingers, and there was a marked tendency for the upgrowth of the tissue beneath the nail (Figs. 4 and 5).

At the present time, although the patient has actually handled the radium for clinical application only occasionally for almost a year, the pain, tenderness and sensitiveness to heat and the objective signs have largely disappeared; notwithstanding this interval, the dryness, parchmentlike feeling, partial anesthesia and slight tenderness of the affected finger tips persist.

CASE 2 (C. O. 15.21).—A nurse began making routine applications of radium in December, 1913, and continued this until the last of February, 1914. After that time occasional applications were made with an interval of three months on vacation. "Two weeks after first handling the radium tubes, dryness of the skin was noted. A little later the flesh on the finger tips of both hands, especially the thumbs and forefingers, looked yellow and was easily indented on pressure. In about a month the skin over the finger tips began to crack and peel, and the dryness of the skin extended down the fingers to the palms of the hands. The flesh grew more rapidly than normally at the base of and below the free edge of the nails, which became very brittle. Numbness developed in the finger tips of both hands, awkwardness in picking up articles, pain on buttoning clothing, sensitiveness to heat, and later hot throbbing sensations extending the entire length of the fingers on handling radium. At present there is no tenderness, but marked paresthesia and slight anesthesia, slight peeling, dryness and marked numbness of the tip of the thumb, index and middle finger of each hand. Great annoyance is caused and difficulty in delicate manipulation."

CASE 3 (C. O. 15.22).—A nurse began making routine clinical applications of radium in February, 1914, and continued until June, 1914.

"After a few weeks the tips of the fingers became yellowish-white, gradually growing whiter until the fingers looked as if they had been burnt. The skin about and under the nails hardened and grew thicker. The fine lines on the finger tips began slowly to disappear, leaving the tips tight, white and swollen. The finger tips remained white, and minute cracks appeared. Then from the whole tip of the fingers the skin peeled off, leaving the ends smooth, pink and shiny (Fig. 6).

"The tips of the middle finger and thumb of the left hand again became swollen and hard; the thumb appeared yellow as if calloused; the skin is dry and cracked and there is a spot on the thumb 1 by 2 cm. that is red and smooth where the upper layer of skin is cracked and peeled off.

"The left forefinger is swollen, hard and yellowish brown with minute cracks as if the skin were too tight; the fingers are not wholly straight, but curved a bit toward the palm. The nails seem to stand out from the fingers (Fig. 4). The cuticle is dry and white, cracked in some places and inclined to grow down around the nail. The finger tips dent on pressure.

"Subjectively it is noted that the fingers were sensitive to pressure especially on the nail. They gradually became stiff and were tender on bending. Definite pulsation was felt about a month after first using the radium. The fingers were very hot and felt much as a mildly septic finger feels; they gradually became oversensitive to heat, and the sense of touch was not so sure. Articles would drop from the fingers.

"This has been persistent up to the present time, and it is hard to pick up pins or button anything. Pressure on the nail and on the very tip of the finger is painful. The fingers feel very hard, stiff and awkward. It is difficult to tie and loosen hard knots. The hand is dry and rough, and feels big."

CASE 4 (C. O. 15.23).—An assistant, medical student, began making routine clinical applications of radium, June 3, 1914.

"The work consisted in transferring glass capillaries of emanation from one steel jacket to another, or to flat applicators (Fig. 7) in fixing silver sheaths over the steel, in arranging a number of steel tubes between pieces of lead, paper and gauze and then wrapping all together in rubber sheeting and adhesive. Tubes of emanation were also placed in various special applicators. In unscrewing the tubes they were held in dressing forceps by the left hand, and the points and eyes were held by the right hand occasionally between the thumb and forefinger, but almost always straight half length hemostats. The applicators were held in the left hand and fastened with adhesive by the right hand. Glass capillaries have never been picked up or held by the fingers, and only rarely in the early part of the work were the steel tubes so held and then for not more than a few seconds. The number of applications per day has varied from five to sixteen, average ten. This indicates approximately the number of times a day that the tubes were handled or changed.

"During the first three weeks there was no noticeable effect. Then gradually the tips of the thumbs and index fingers assumed a smooth shiny appearance with flattening of the ridges (Figs. 1 and 2). This became noticeable at the end of the fourth week. Up to this time there was no unusual sensation. During the fifth week a very thin layer of epidermis loosened and peeled off the tips of the thumb and index fingers from the nail to half way to the second phalanx; this scaling took a week, during which the finger tips affected became somewhat swollen, and there was a sense of fulness in them. They were warmer to touch than the other fingers of either hand. There was slight sensitiveness to pressure and a tendency to drop small objects, such as pins, if picked up in the usual manner. During the sixth and seventh weeks the fulness and discomfort disappeared. In the eighth week the swelling increased and the skin became tense; the sense of fulness returned, and pain was experienced on touching a small object, such as the head of a pin. There was also some difficulty in picking up small articles and holding them, especially if not directly thinking of them. After the eighth week of making radium applications a vacation of two weeks was taken; during this time, in which no radium was handled, the outer layer of skin on the affected finger tips again became white, hard and peeled off, leaving the fingers much more sensitive to pressure, either gradual or sudden, and to heat. Indeed, severe pain was felt when taking up a cup of hot coffee, a heated test tube or on washing the hands in water of such a temperature as was not at all painful to the unaffected parts of the skin.



Fig. 3 (Case 1).—Photograph showing the tip of the thumb remaining indented after pressure indicating the hardening and "empty" feeling of this finger; a late effect; moderately anesthetic.

"Similar process of swelling of the finger tips, hardening of the superficial layers, cracking and peeling was repeated in the thirteenth, fifteenth and seventeenth weeks. Each time during and immediately following the peeling there was marked tenderness and acute pain on striking or pinching any object; occasionally a throbbing sensation, more marked if the arms were hanging down, was felt in the affected fingers. The tenderness was so severe that it was difficult to button small buttons, or to tie or untie knots, such as shoe strings and necktie; in one instance a room mate's assistance was required in undoing a tighly drawn necktie. At present the skin of the tips of both thumbs and index fingers and small areas of the left middle and ring fingers is smooth and shiny, the ridges are flattened or absent, and the surface is cracked in appearance. When pressed on the flesh of these finger tips remains indented for an appreciable time. There is no apparent difference in vascularity as judged by their color.



Fig. 4 (Case 3).—Photograph showing the flattening of the ridges of the tips of the index and middle fingers of the left hand. Note how the free ends of the nails stand away from the fleshy part of the finger tip; also note on the forefinger the upgrowth of the skin beneath the nail.

"The index finger and thumb of the left hand, which is most affected, are distinctly tapering in contrast to the flat blunt tips of the other fingers and to their own condition before June 1. On fully extending these two fingers and to a less extent the index finger of the right hand, there is a marked pulling sensation at the junction of the flesh and the nail. The finger tips are at the present time only moderately tender."

CASE 5 (C. O. 15.24).—Assistant, medical student, began making clinical applications of radium, July 4, 1914. "First noticed slight tenderness in the tips of left thumb and index finger. This gradually increased to pain on touching objects. Otherwise there was no abnormal sensation. About Aug. 8, 1914, felt in the finger tips a very distinct pulsation which made it impossible to take the pulse for blood pressure estimation in the usual way. About this time a slight darkening of the color and numbness was noticed. This involved also the tip of the middle finger of the left hand. The tenderness disappeared, but the numbness increased until there was such marked anesthesia that it was impossible to button the shirt without looking because the buttonhole could not be felt with the forefinger or the button with the thumb. The finger tips when pressed on would retain the impression much longer than usual. About a week later a small white spot appeared on the tips and became almost 1 cm. in diameter. This was picked off out of curiosity; it resembled a callus of the palms. The skin beneath was smooth, bright red to pinkish in color, dry and extremely tender. Three areas similar to this appeared. One cracked open, but there was no tendency to bleed. The tenderness was so great that it was necessary to bandage the fingers for a week, when the cracked area healed. On the three fingers of the right hand the superficial layer of skin peeled from the tip to the middle phalanx. At present date the fingers appear normal except for smooth, glossy appearance and a tingling sensation which seems to spread over the whole finger tip when a small object such as the head of a pin is touched."

CASE 6 (C. O. 15.25).—Assistant, medical student, made no routine clinical applications of radium, but on one occasion brought the day's supply of radium emanation from the physical laboratory to the hospital and thoughtlessly put the active tube in his pocket. "On July 28, 1914, I carried a tube containing 32 millicuries of radium emanation in the left pocket of my trousers for about one hour. On Aug. 4, 1914, I noticed an irregularly oval red spot on the anterolateral aspect of my left thigh. It was about 2 cm. long and 1 cm. wide. At this time there was no tenderness. The red spot gradually became tender, at first only to marked pressure and later to a slight touch. The skin in the center of this spot became yellowish, and by Aug. 12, 1914, there was a yellowish spot surrounded by a red border which faded into the surrounding normal skin.

"At this time the spot was very tender and felt warm. About August 15 the yellowish skin had scaled off, leaving

a bright glistening yellowish-red area (Fig. 8) which soon became covered with a crust. This was frequently rubbed off and reformed, each time being smaller, until September 5, when the crust disappeared, leaving a smooth somewhat glistening area a little more red than the adjacent skin and surrounded by a margin of slight pigmentation. September 28 the redness is gradually fading. December 16 the area is now smooth, white and there has been no tendency for the hair to grow out again."

Case 7 (C. O. 15.26).—A physicist reports: "My first finger burns from the radioactive substances occurred six or seven years ago, and I do not remember their symptoms in

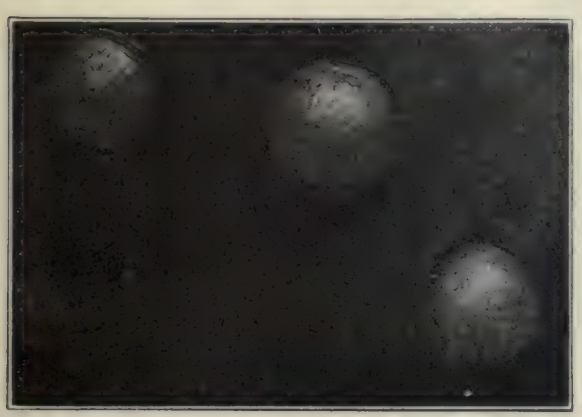


Fig. 5 (Case 1).—Photograph showing the free edge of the nails standing away from the fleshy part of the finger tips and also indicating the upgrowth of horny skin beneath the nails. Compare index and middle with ring finger.

detail. They came from handling large quantities of emanation—from 200 to 250 millicuries.

"Since then six of my fingers have been burned six or seven times, severely enough for the skin to peel off. I have noticed the following symptoms in varying degrees of intensity: sensitiveness to pressure and heat lasting several days, sometimes so much that it becomes impossible to button buttons and hold warm eggs. Occasionally there has been continuous dull pain without pressure or heat. Each finger has been slightly red with a small yellowish spot at the point of the most severe burn. After four or five days the pain and sensitiveness passed away, and the fingers gradually become calloused. After several weeks the skin peeled off over a considerable area, leaving fresh skin that was quite sensitive for a few days. The lines that previously disappeared returned, and the finger tips were smaller than normal for a time, but gradually filled out. In no case has a finger ulcerated.

"There is sometimes a desire to hold the hands closed tighter than they usually rest. On the whole my fingers appear to be less sensitive to touch, etc., than they used to be."

Case 8 (C. O. 15.27).—A physicist devotes a part of his time in the laboratory daily to pumping the radium emanation into capillary glass tubes, and sealing these into lengths suitable for applicators. During this time the activity is comparatively slight, and they are retained in the laboratory three hours until the maximum intensity develops, when the measurement of the activity is made. "I so frequently burn the tips of my fingers while blowing glass that I was never quite certain, during the early stages of a radium burn, whether the pain was caused by a heat burn or a radium burn. The two sensations are, however, dissimilar. The pain of a radium burn is not at the surface; it is probably better described as 'soreness.' The nearest approach to it in heat burns are the burns caused by holding a glass tube which is just hot enough to cause a burn after four or five minutes. Radium burns, like heat burns, are sensitive to heat. I find it difficult to hold glass in the flame for glass blowing. Radium burns are more painful in the morning. I first notice them while dressing. The explanation of this seems to be that they are relieved by massage, manipulation of the flesh removing the soreness. As the burn progresses, the skin becomes hard and horny. The surface layers later peel off. It has seemed to me that as the burns are getting well, the burned tissue is not as firm as normal tissue; it feels as if there was a hollow space in the end of the finger. Up to March 26, 1914, I have had seven burns."

Case 9 (C. O. 15.28).—An assistant, medical student, reports: "On Sept. 1, 1914, I first began to use radium, but it was not until October 1 that I began to apply it daily in the routine work of the hospital. From then on to the present time I have done part of the outpatient work and some of the work on the house cases. The applicators used were of all sorts, steel tubes, silver tubes and flat applicators. Knowing the effects on others employed in radium application, I have been extremely careful throughout not to expose my fingers unduly, using forceps whenever possible. About December 1 I first began to notice some tenderness in the tips of the index and middle fingers and thumb of the left hand, but the index finger was more tender than the others (I am left handed). A short while afterward the affected finger tips began to feel numb, and sensation was deadened as if a finger cot were drawn over each. The finger tips appeared red, when pressured they felt pulpy, and when the pressure was removed the skin remained depressed like parchment.

"During the last week of December I accidentally seared the tip of my left index finger with a match. The burn was slight and under ordinary circumstances would have healed in a few days. Contrariwise, in two or three days it began to peel, and by January 1 the whole palmar surface of the terminal digit and on the sides toward the nail had peeled, leaving a smooth reddened surface which was exquisitely tender. It was especially sensitive to heat, warm water almost causing me to cry out in pain.

"Three days ago the left thumb showed a tiny break in the skin on the palmar surface toward the tip of the index finger. Within two days it had peeled off entirely, as did the index finger, and the symptoms were the same.

"I have had some relief by applications of 'white wash' left on over night.

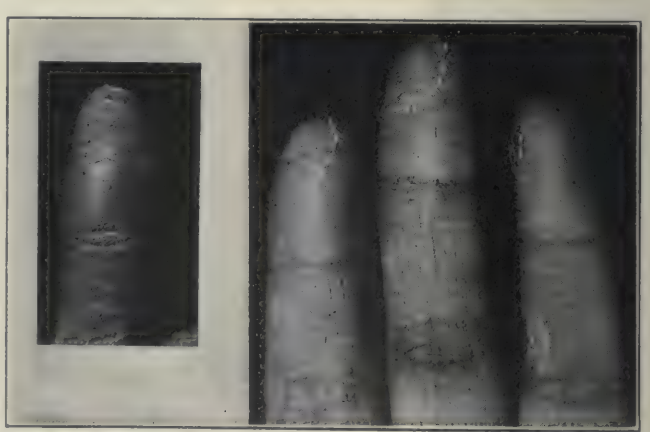


Fig. 6 (Case 3).—Photograph of thumb, index, middle and ring fingers of left hand showing the scaling of the thickened superficial layer of the skin on the radial side of the terminal phalanges and also a similar small area on the second phalanyx of the ring finger.

"The fingers of the right hand show slight smoothing out of the papillae, especially on the thumb and index finger, but no redness or marked tenderness. The sensation of touch is numbed, but not to such a marked degree as in the left fingers.

"It is difficult to state just where to look for the errors in technic to bring about the above burns. At first I thought it might be caused by brief exposures when screwing the eyes into small unscreened steel tubes. The more likely cause it seems is in putting up special applicators or flat applicators where it is almost necessary, under our present technic, to run one's fingers over the tubes or to hold them while a piece of adhesive is being put in place."

COMMENT

In these individual descriptions of the symptoms and signs, the similarity is striking. In certain instances, however, Cases 5, 6, 7 and 8, the injurious effects were due for the most part to acute reactions. In Cases 3 and 4 the changes were chronic with superadded acute, while in Cases 1 and 2 there were no acute burns, but the changes were the slow and insidious effect of repeated exposures. Indeed, in Case 1 there seems at the present time to be a peculiar susceptibility to slight exposure, even after a long interval in which radium has been but rarely handled.

Various general symptoms, such as headache, malaise, weakness, undue fatigue, unusual need of sleep, increased excitability, fretfulness, irritability, disorders of menstruation, attacks of dizziness, etc., have been said by Gudzent and Halberstaedter[3] to be caused by repeated and long-continued exposure to radioactive substances. Such symptoms are, however, common in many persons at times, and as they cannot be accurately and objectively recorded, there is doubt if they can be definitely proved to be due to exposure to radium. They may be due to close confinement, tiring routine and lack of outdoor exercise and other causes. The exposures of some of the cases reported were doubtless large; some were assistants in "fabriks" for manufacture of radium apparatus, and some had been engaged for years during the entire day in work with radioactive substances. It is probable, therefore, that certain general symptoms did occur as a result of this exposure. These symptoms, however, will not be considered in this paper.

BLOOD EXAMINATIONS

Case	Date	Hemoglobin, Per Cent.	Red Blood Cells	White Blood Cells	Polymorphonuclears	Lymphocytes	Large Mononuclears	Eosinophils	Mast Cells
1	8/25/14	100	5,300,000	6,800	46.3	50.7	2.0	0.8	0.2
	9/ 3/14	94	4,708,000	6,900	49.5	47.2	1.0	2.0	0.2
2	1/ 4/15	99	4,464,000	7,400	55.5	34.5	7.0	2.5	0.5
3	8/21/14	99	4,480,000	7,200	60.2	35.7	2.8	0.5	0.8
4	8/18/14	100	5,400,000	9,000	73.6	23.6	2.2	0.2	0.4
	1/ 6/15	100	5,108,000	7,000	61.	30.5	7.75	0.25	0.50
5	1/15/15	.....	5,792,000	8,000	64.5	26.	6.0	1.0	2.5
6	9/ 2/14	100	4,900,000	5,500	53.3	43.8	1.4	0.7	0.8
7	8/21/14	100	5,100,000	6,600	49.8	45.7	3.8	0.5	0.2
8	8/25/14	100	5,600,000	6,000	59.2	33.7	2.6	4.2	0.3
	8/31/14	100	5,400,000	7,800	52.4	39.3	4.8	3.0	0.5
9	2/13/15	.....	.....	8,000	51.	45.	3.	1.	0.
Control A	8/27/14	100	5,500,000	8,400	67.6	28.5	2.9	1.0	0.
Control B	1/ 7/15	72	4,112,000	8,800	67.5	26.	6.0	0.25	0.25

Changes in the blood of radium workers were observed by Gudzent and Halberstaedter.[3] Most striking was the relative and absolute increase in lymphocytes: from 36 to 63 per cent.; average of ten cases, 46.4 per cent.; a relative and absolute decrease in neutrophils, average 50.3 per cent. There was little change in red blood corpuscles, slight diminution in white cells and the hemoglobin was lowered in only two cases, 70 and 71 per cent., respectively.

The blood examinations in the cases detailed above are recorded in the accompanying table.

Although the changes are not striking in all instances, in Cases 1 and 7 the findings correspond with those mentioned above. In the other cases the changes are less marked, though suggestive. Case 4 (in which the assistant had just returned from a vacation away from radium exposure) and Control Case A under similar confining laboratory conditions, but not engaged in routine handling of radium, do not show such blood changes. Case 4 at a later time showed an increase in lymphocytes.

3. Gudzent and Halberstaedter: Deutsch. med. Wchnschr., March 26, 1914, p. 633.

DETERMINATION OF SENSORY THRESHOLD

Although the sensory changes in the affected fingers, as described above, were marked, it seemed desirable to check these up by a determination of the "sensory threshold" of the affected compared with the unaffected fingers. These determinations were kindly made by Mr. John P. Richards under the supervision and direction of Prof. E. G. Martin, who devised special electrodes for the finger tips for use with the Martin apparatus which has been previously described.[4] Dr. Martin reported that of the cases studied (Cases 1, 2, 3, 4 and 8), all except Patient 8, who was quite insensitive on all fingers, showed rather striking differences

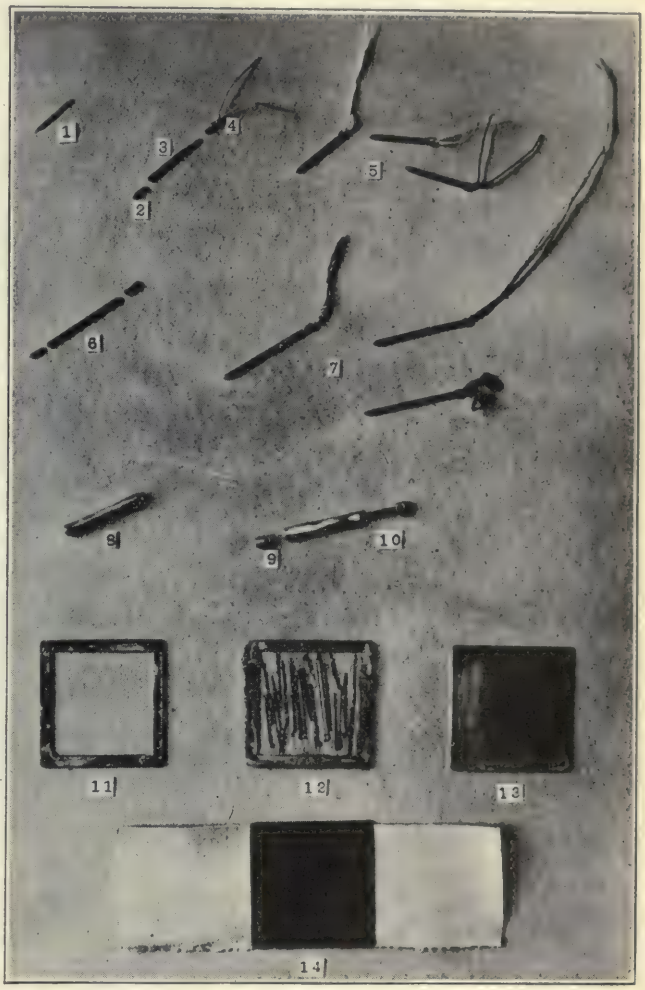


Fig. 7.—Applicators utilized in routine radium treatment (two-thirds natural size): 1, small capillary glass tube containing emanation; 3, thin steel tube to protect 1 from breaking; it is closed by screw ends, 2 and 4; 2 is pointed and 4 has a small eye; 5, same as 3, showing ends closed; one end is tagged with a piece of colored thread for identification as to the measurement of its activity; 5, short steel tubes with pointed ends containing emanation tubes similar to 1; 6 and 7, similar to 5, but twice as long; 8, silver sheath for 7, walls 1 mm. in thickness for filtration; 9 and 10, large rounded ends to prevent perforation of rubber covering; 11, frame of surface applicator; 12, surface applicator containing small emanation tubes, 1, which have become too weak to use in single containers; the small tubes are placed on adhesive plaster, which is applied to the steel frame, 11; 13, square of metal which may be applied to 12 by adhesive, as indicated in 14, for protection or filtration.

4. Martin, E. G.: Measurement of Induction Shock, New York, 1912.

between the radiated and normal fingers, the former being much more insensitive. This relative insensitiveness to the faradic current might suggest injury to the nerve rather than to the terminal sensory end organs. It may, however, be due in some cases to increased resistance of the skin because of thickening of the horny layer.

With the idea of determining whether demonstrable histologic changes occurred in the chronically affected and relatively insensitive finger tips, Oct. 7, 1914, under aseptic precautions, without anesthesia, fragments of skin, including a portion of the corium, were excised with scissors from the tip of the right forefinger and little finger of Case 1; in the first instance there was very slight bleeding and little pain, while in the latter there was rather marked bleeding, soaking through a dressing, and considerable pain. The fragments were potted in Zenker's fluid. Both finger tips healed readily in a few days. Paraffin sections stained in eosin and methylene blue showed numerous nerves and terminal special sense organs. No marked difference was evident between the fragment from the



Fig. 8 (Case 6).—Superficial ulceration on thigh; a reaction from the accidental application of radium, due to keeping radium tube (32 millicuries) in trouser's pocket for an hour.

control fingers by this technic, and specimens were not available for Weigert and Marchi methods.

AVOIDANCE OF INJURY

Various methods have been devised, particularly by Dr. W. T. Bovie, for avoiding these injurious local effects by the least possible contact of the fingers with the radium. Forceps or special vises are used for holding tubes and screwing in or out the tips and eyes; special applicators in the form of metal boxes have been constructed so that the active tubes may be added after the filtration and protection have been arranged, and the surface applicator is then slipped by forceps into a special rubber envelope and fastened with adhesive. This is particularly to avoid wrapping them up by hand in sheet rubber. Leaded gloves, fingers, etc., are clumsy and are not readily worn.

In placing active tubes in special applicators, it will probably not be possible to avoid all contact with radium, and as the effects are not apparent at once, as when handling very hot objects such as heated glass, but only after a period of days or even weeks, it will be difficult to train a worker to avoid contact with the active apparatus.

In the work of making routine applications of radium there should be a rotation in the staff, and persons affected should be freed at least temporarily from such work.

In order to avoid possible general disturbance, the body should be protected as far as possible by metal screens in form of boxes or plates about the radium; there should be frequent ventilation of work rooms, particularly if there is radium emanation present, and a change of duty, shorter hours and periodic physical examination of those working with radioactive substances with special reference to the blood examination is indicated.

SUMMARY AND CONCLUSIONS

From the foregoing it is evident that marked changes may occur on the fingers of those engaged in routine work with radioactive substances. These local objective changes consist chiefly of flattening of the characteristic ridges, thickening and scaling of the superficial layers of the skin and even atrophy and intractable ulceration. These lesions are usually slight compared with the marked subjective symptoms, such as paresthesia, anesthesia of varying degree, tenderness, throbbing and even pain. The persistence of such effects is noteworthy.

Various general systemic symptoms and also blood changes may be produced by exposure to radioactive substances. To avoid such local and general disturbance, special protective and preventive measures have been devised, and those engaged in routine handling of radioactive substances are particularly cautioned.

THE PHYSICIAN AND THE WEATHER BUREAU*

FORD A. CARPENTER, LL.D.
LOS ANGELES

INTRODUCTION

Hippocrates, the Father of Medicine, about 600 years before Christ, wrote a strangely interesting and powerful book on "Airs, Waters and Places." "Such a title immediately suggests climatology," says Dr. De Lancey Rochester[1] in a paper read before this association three years ago, entitled "Climatology as Practiced by Hippocrates," and he believes that this was one of the genuine works of Hippocrates the Great.

Hippocrates, in his introduction to this work, says:

> Whoever wishes to investigate medicine properly should proceed thus: In the first place consider the seasons of the year, and what effects each of them produces (for they are not all alike, but differ much from themselves in regard to their changes). Then the winds, the hot and the cold, especially such as are common to both countries, and then such as are peculiar to each locality. We must also consider the qualities of the waters, for as they differ from one another in taste and weight, so also do they differ much in their qualities. In the same manner when one comes into a city to which he is a stranger, he ought to consider its situation, how it lies as to the winds and rising of the sun; for its influence is not the same whether it lies to the north or to the south, to the rising or to the setting sun.

* Read before the Thirty-Second Annual Meeting of the American Climatological and Clinical Association, San Francisco, June 18, 1915.

1. Rochester, De Lancey: Tr. Am. Climatol. Assn., 1912, xxviii.

HOW THE PHYSICIAN MAY UTILIZE THE WEATHER BUREAU

Dr. Charles F. Marvin, the chief of the United States Weather Bureau said in a recent address, "The Functions of the Weather Bureau of the United States Department of Agriculture are so many, so widespread is its scope that it may be said to encompass practically all fields of life and work." From the very extended nature of the work of the bureau it seems opportune that the medical profession be shown some of the ways in which this service may aid them. The object of this paper, then, is to suggest means by which the medical profession may utilize the vast storehouse of climatic data accessible at Washington and at all weather bureau stations; to prove the readiness of the personnel of the bureau to assist the physician; to present some applications of these data from a layman's point of view and to offer an account of some intensive climatic studies which have been prosecuted by the writer during the past few years.

Every one is familiar with the ordinary health resort advertising literature, a perusal of which gives one the impression that ideal weather conditions only prevail in that locality. Now physicians want facts as to this. They prefer to make their own deductions. They do not want idealizations. The weather bureau presents these facts. The question is, How may these facts be obtained?

THE SOURCE OF METEOROLOGIC DATA IN THE UNITED STATES

The source of weather data is from the regular stations of the bureau, and from the special or cooperative stations. There are about two hundred of the regular stations, and over four thousand of the special stations scattered over the United States. The geographic distribution of these regular and cooperative stations may be noted from Table 1 and Figure 1.

Each of the regular stations of the bureau represents from 1 to 15,000 square miles of territory. There is no limit to the special stations except the securing of congressional appropriation for purchase of instruments, and the securing of a satisfactory observer who will proffer his services in a locality where observations are desired. These special stations, however, must be 20 miles apart. In number of stations, of all kinds, California takes the lead, having a total of 511 meteorologic stations of all classes.

Located at each of the weather bureau stations are one or more trained observers; such stations are equipped with barometers, thermometers, wind-vanes, rain and snow gages and anemometers, and nearly all have sunshine recorders, barographs, thermographs and other apparatus which make a continuous automatic record of the local weather conditions.

HOW THE WEATHER MAP MAY BE UTILIZED

The prime object of the regular stations is to make simultaneous meteorologic observations from which the twice-daily weather map is prepared and weather forecasts are deduced. The duties of the noncommissioned and unpaid observers comprise daily temperature and precipitation observations, so that from both classes of observations it may be possible to construct a satisfactory climatology. So we may say it takes a lot of weather to make a climate.



Fig. 1.—Weather bureau stations in the United States. The geographic position of the regular stations is shown by circles; the approximate number of cooperative stations is designated by figures.

The regular stations of the bureau, in addition to being clearing-houses for meteorologic information, prepare, twice a day, complete weather observations which are telegraphed to Washington and to certain district centers preparing weather maps. Over a hundred of such stations publish these daily maps. The weather map may be most useful to the physician who keeps track of the storm movements and gathers first-hand information as to existing and coming weather conditions over the United States. He will soon learn to associate stormy, cloudy and comparatively warm weather with those atmospheric whirls called "lows," and fair, sparkling, comparatively cool weather with the whirls called "highs."

As to the further application of this weather map: One of the large California citrus fruit growers times the shipment of his orange and lemon cars so that they will have the advantage of the cool and dry weather

TABLE 1.—APPROXIMATE NUMBER OF COOPERATIVE STATIONS OF THE UNITED STATES WEATHER BUREAU LOCATED IN THE VARIOUS PARTS OF THE UNION

Alabama	61	Md. and Del.	46	Ohio	117
Arizona	80	Michigan	125	Oklahoma	84
Arkansas	47	Mississippi	71	Oregon	137
California	315	Minnesota	82	Pennsylvania	115
Colorado	126	Missouri	78	South Carolina	53
Florida	75	Montana	111	South Dakota	89
Georgia	68	Nebraska	133	Tennessee	69
Idaho	101	Nevada	50	Texas	206
Illinois	96	New England	85	Utah	139
Indiana	70	New Jersey	45	Virginia	57
Iowa	106	New Mexico	160	Washington	136
Kansas	134	New York	111	West Virginia	58
Kentucky	47	North Carolina	87	Wisconsin	94
Louisiana	62	North Dakota	81	Wyoming	77

The cooperative stations enumerated in this list are taken from Climatologic Data from the United States by Sections, ii, No. 3, March, 1915. As all such stations report precipitation, and some statisticians report this element only, the totals were prepared by considering the precipitation stations. Total number in the United States, 4,083.

of the weather-map "highs" in their eastern journey. There is no reason why a physician should not do likewise and take advantage of the weather map and route his patients according to the great atmospheric movements and thus avoid deleterious weather conditions. It ought to be a common occurrence for the physician to consult the weather bureau as to the railroad altitudes and average weather conditions along their lines

TABLE 2.—SPECIMEN OF THE MONTHLY METEOROLOGIC SUMMARY ISSUED AT ALL STATIONS OF THE UNITED STATES WEATHER BUREAU, AND AVAILABLE FOR THE USE OF THE PUBLIC.*

U. S. Department of Agriculture Weather Bureau. C. F. Marvin, Chief.
Monthly Meteorological Summary, Los Angeles, for May, 1915.

Date	Temp. Highest	Temp. Lowest	Temp. Mean	Precipitation (Inches)	Character of Day	P. ct. pos. sunshine	This month since 1877 Year	Mean Temp.	Total Precipitation
							1877		
1	56	41	48	.03	Cloudy...	31	1878	63	0.66
2	55	44	50	.54	Cloudy...	13	1879	62	0.24
3	65	48	56	.00	Pt. Cldy.	67	1880	65	0.04
4	61	51	56	.29	Cloudy...	8	1881	64	0.01
5	61	48	54	.00	Pt. Cldy.	37	1882	64	0.63
6	63	52	58	.00	Cloudy...	13	1883	64	2.02
7	65	54	60	.00	Pt. Cldy.	54	1884	64	0.35
8	69	53	61	T.	Pt. Cldy.	57	1885	66	0.06
9	68	54	61	.00	Pt. Cldy.	62	1886	65	0.00
10	70	55	62	.00	Pt. Cldy.	59	1887	65	0.20
11	74	55	64	.00	Clear.....	72	1888	63	0.02
12	74	55	64	.00	Clear.....	80	1889	63	0.62
13	67	55	61	.00	Pt. Cldy.	59	1890	63	0.03
14	69	53	61	.00	Clear.....	100	1891	62	0.31
15	82	57	70	.00	Clear.....	100	1892	62	2.06
16	78	57	68	.00	Pt. Cldy.	81	1893	63	0.06
17	64	54	59	.02	Cloudy...	33	1894	60	0.20
18	70	51	60	.00	Clear.....	79	1895	64	0.19
19	70	51	60	.00	Clear.....	99	1896	63	0.30
20	69	51	60	.00	Clear.....	76	1897	63	0.10
21	70	51	60	.00	Pt. Cldy.	79	1898	60	1.75
22	69	52	60	.00	Pt. Cldy.	69	1899	60	0.04
23	71	51	61	.00	Pt. Cldy.	36	1900	64	1.81
24	68	54	61	.00	Pt. Cldy.	61	1901	60	1.50
25	68	54	61	.00	Pt. Cldy.	68	1902	61	0.03
26	77	54	66	.00	Clear.....	87	1903	61	T
27	95	64	80	.00	Clear.....	100	1904	62	T
28	85	59	72	.00	Pt. Cldy.	91	1905	61	0.95
29	69	59	64	.00	Cloudy...	9	1906	60	1.02
30	71	58	64	.00	Pt. Cldy.	65	1907	61	0.07
31	72	55	64	.00	Pt. Cldy.	60	1908	60	0.25
							1909	60	0.00
							1910	63	0.00
							1911	61	0.02
							1912	63	0.12
							1913	61	0.05
							1914	60	0.43
							1915	62	0.88

Summary

Barometer.
Mean, 29.91 inches; highest, 30.14 inches, 9th; lowest, 29.66 inches, 28th.

Temperature.
Highest 95, on 27th; lowest 41, on the 1st; greatest daily range 31, on 27th; least, 10, on the 4th; normal for this month, 62.5; absolute highest this month for 38 years, 103, (25th, 1896); lowest, 40, (16th, 1883); average daily deficiency of this month as compared with normal, 0.1; accumulated excess since January 1, 184.

Precipitation.
Total for this month, 0.88; snowfall, 0; greatest precipitation, 24 hrs., 0.57, 1st-2d; normal for this month 0.48; total for September 1, 1914 to date, 17.04; normal from Sept. 1 to date, 15.57; excess from Sept. 1, 1914 to date, 1.47; average seasonal (37 years) 15.55.

Wind
Prevailing direction, SW; total movement, 4,732 miles; average hourly velocity, 6.3 miles; maximum velocity (for 5 mins.), 28 miles per hour, from NW. on 19th.

Mean highest temp. 69.7
Mean lowest temp. 53.2
Mean temp. for month... 61.5
Total inches of precipitation during this month 0.88

Weather.
Number of clear days, 9; partly cloudy, 16; cloudy, 6; on which .01 inch, or more, rainfall occurred, 4.
Mean mthly. rel. humidity, 74 p. ct.

Sunshine.
Number hrs. actual sunshine, 265.2
Number hrs. possible 432.1
Percentage of possible..... 61

Phenomena.	Dates.
Auroras.....	0
Solar Halos.....	3
Lunar Halos.....	0
Hail.....	0
Fog, light.....10, 11, 12, 23, 31	
Fog, dense.....	23
Thunderstorms.....	0
Frost, light.....	0
Frost, heavy.....	0

Note.—"T" indicates trace of precipitation.
A. W. P. FORD A. CARPENTER.
Form 1030.—Met'l Local Forecaster.
* Physicians may be placed on the mailing list on application to the official in charge of the station from which climatic data are desired.

so that advantage could be taken of railroad routes having low altitudes, warm winter and cool summer weather.

THE SCOPE AND AVAILABILITY OF CLIMATOLOGIC DATA

As to the climatologic work of the bureau we have from the central office of the weather bureau[2] the following data:

Although the 200 regular observing stations, each representing about 15,000 square miles of territory, furnish sufficient data on which to base the various forecasts, observations at many intermediate points are necessary before the climatology of the United States can be properly studied. This need has given rise to the establishment of an important and interesting feature of the Weather Bureau in its Climatological Service, which is divided into 44 local sections, each section, as a rule, covering a single state, and having for its center a regular observing station. These centers each month collect temperature and precipitation observations from more than 4,500 cooperative and other stations, and publish each a monthly and an annual summary, giving a large amount of climatological data for each month and the year.

It is thus seen that the cooperative observers through long periods of temperature and precipitation observations have enabled the bureau to perfect extensive records. In addition to publishing monthly climatologic data in the *Monthly Weather Review* (the first volume was issued with the first of the year 1873) special contributions in climatology and meteorology are published along with the usual profiles, charts and tables. Bulletins prepared by the scientific staff are also issued by the bureau; no less than seventy have been published. One of these bulletins is the incomparable "Climatology of the United States."[3] The eminently practical arrangement and the thoroughness of this volume makes it one to be earnestly recommended to the physician interested in climatic study. A copy of this book will be found in the station library of any weather bureau office. While the local libraries are as complete as circumstances may permit, and form a veritable mine of climatic data, these half a thousand volumes are insignificant when compared with the central office library in Washington with its 32,000 titles in meteorology. This is the largest meteorologic library in existence. It is available to students of meteorology generally, who either consult it personally or through correspondence. This correspondence feature makes it possible to readily consult rare and ordinarily unavailable books.

Local offices of the weather bureau have complete records covering continuous registration of the meteorologic elements. An abstract of these records is issued at all stations of the service on the first day of the month following. One of these summaries is given in Table 2.

In addition to placing the available meteorologic records at the disposal of the applicant, the weather bureau officials throughout the country will be found prompt and courteous in their treatment of applicants for data in person or by correspondence. In many instances they will render unexpectedly valuable aid to the physician in giving him clear and concise data perhaps not comprehended in their official routine, yet none the less accurate and satisfactory. From their technical training they are keen observers and their judgment on climatic matters is free from local prejudice.

SOME POPULAR MISCONCEPTIONS RELATING TO CLIMATE AND HEALTH

Air Pressure Does Not Directly Affect Health.—From the multitude of problems recently presented, the one considering the relationship between air pressure and health appears now to be the most popular. There is considerable misconception regarding this subject occasioned primarily by confusing effect with cause. The mere change in atmospheric pressure from day to

2. The Weather Bureau, 1915, Washington, Govt. Printing Office.

3. Henry: Bull. Q. Climatology of the United States, Washington, 1906.

day has nothing whatever to do with one's physical well-being. The recent publicity given to this subject during the last few months is simply a revival of a myth laid a generation ago by Thomas.[4] For example, in a recent public bulletin it is stated that when the barometer drops from 30 to 29 inches from one day to the next the human body is relieved of half a ton of atmospheric pressure, with resulting depression of spirits, etc. In the first place it is quite unusual for the barometer to drop 1 inch in so short a time, and in the second place experiments have proved that the influence on the body of variations in pressure are greatly overestimated.

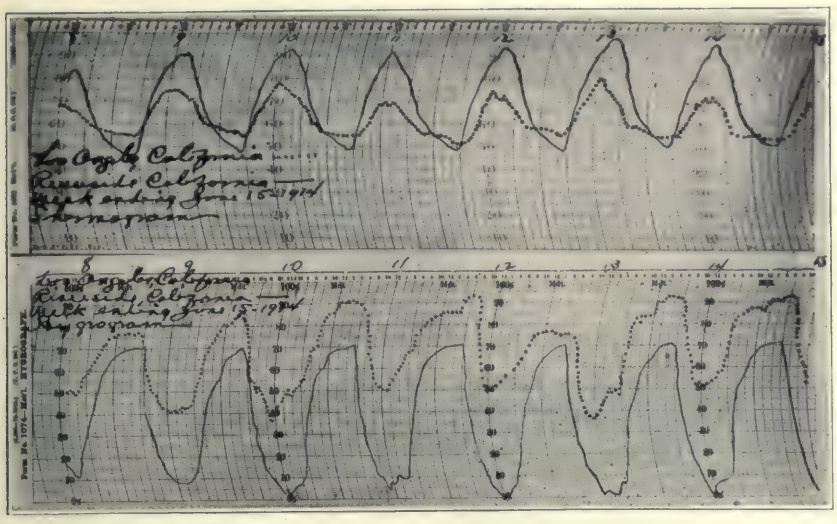


Fig. 2.—Weekly thermograph and hygrograph tracings. Variations in temperature and relative humidity between Los Angeles (10 miles from the sea) and Riverside (65 miles from the sea) for the week ending June 15, 1914.

Hann,[5] in his handbook on climatology translated by Prof. Robert De C. Ward, quotes Thomas and says that in experiments with pneumatic chambers, pressure changes amounting to 300 mm. (over 11 inches in barometric values) a day have been produced without causing any injurious effects on the sick persons concerned in these experiments. Although these experiments were made nearly half a century ago, the pressure myth has persisted, and even this year has found its way into sober-minded periodicals. If a local example is needed to demonstrate further the untenability of the pressure theory, we have only to recall that in Los Angeles, for example, the range of the barometer from day to day averages a tenth of an inch of the mercurial column, equaling the variation experienced when riding in an elevator from the ground floor to the top of office buildings. If there was anything in this theory we would have an "elevator disease" among the elevator conductors who continually experience excessively rapid fluctuations in bodily pressure.

It is rather the fair weather and decreased humidity which accompany rising barometic pressure that elevate one's spirits, or the cloudy threatening weather and increased humidity which accompany a falling barometer that affect the human system. Dr. C. C. Browning[6] noted this when his studies showed that the tuberculous patients became pessimistic and some very unreasonable in their demands during days with little or no sunshine and hopeful of recovery during bright days and moderately low humidity.

Sunshine and Ventilation of More Importance Than Relative Humidity.—I believe that the location of the home or office, the exposure of the living or workroom has much more more to do with the health of the occupant than whether or not the relative humidity is much below or above normal. Exposure to sunshine and ample ventilation are all important. A friend complained of ill health and blamed the humidity of his office room. He said that it was too damp and asked me to investigate. I took my psychrometer and made a series of observations, finding that there was actually less humidity in his private office than out in the street. I studied the situation and eliminated temperature, humidity, air pressure, etc. Then I turned to air movement, and found the ventilation very bad. I suggested a simple air chang-

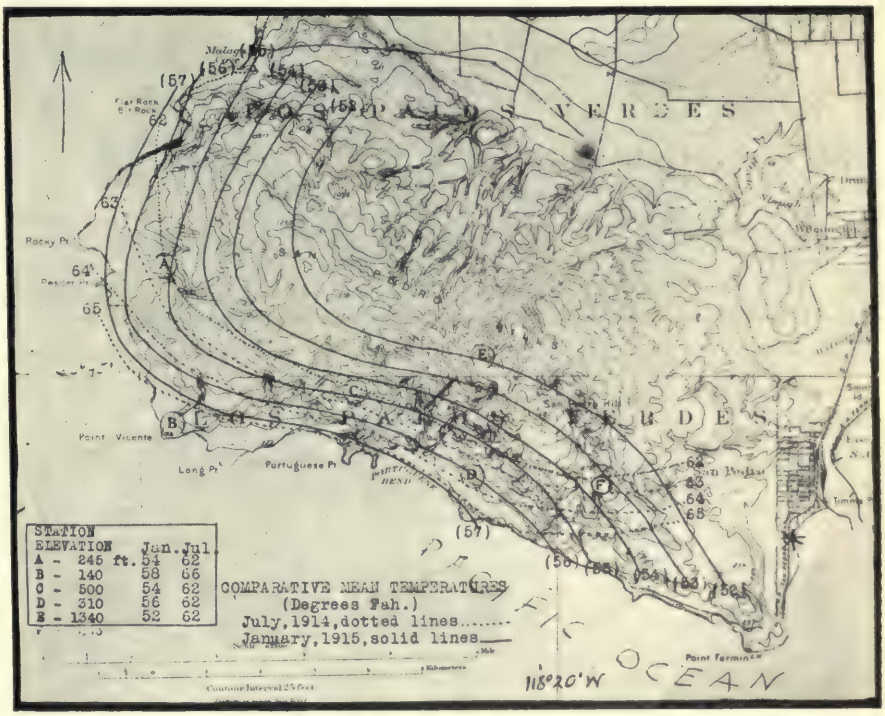


Fig. 3.—Mean temperatures for January and July at Los Palos Verdes, near Los Angeles.

4. Thomas, quoted by Hann: Beitr. z. Allg. Klimatol., Erlangen, 1872.

5. Hann, M. Y.: Beitr. z. Allg. Klimatol., Erlangen, 1872.

6. Browning, C. C.: Tr. Am. Climatol. Assn., 1913, xxix.

ing system and my friend regained his health in a few weeks, and was still enjoying his private office when I last heard from him.

Living Quarters and Air Drainage.—Facing houses with relation to natural air drainage is also a most important point in selecting a home. Many a home, otherwise healthful and satisfactory in every other respect, has been abandoned because the architect and owner did not consider the principles laid down by Hippocrates two thousand years ago.

Dr. Estes Nichols at last year's meeting of this association said in his paper on "Housing and Its Relation to Climate"[7]: "Can any climate rise above its housing conditions? I offer no theories concerning the building of houses, as theories are apt to be overthrown by each succeeding year. I only offer the one fact that has been well established, and that is the vital necessity of plenty of room, as well as plenty of light and air, even to the remotest part of our dwellings."

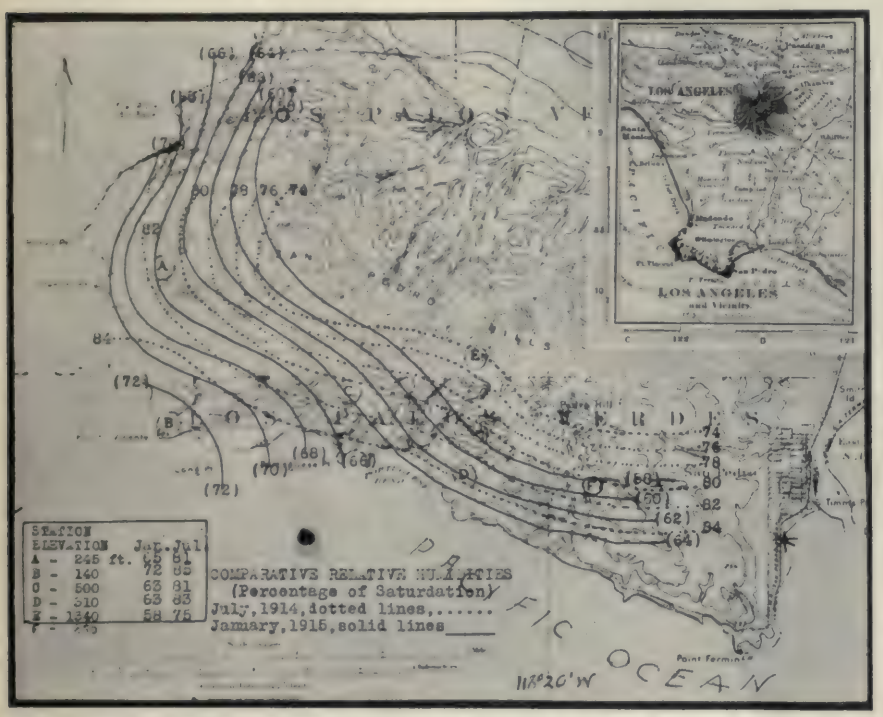


Fig. 4.—Mean relative humidities for January and July, at Los Palos Verdes, near Los Angeles.

PROBLEMS FOR THE CLIMATOLOGIST

Investigation by the Physician.—There are other opportunities for the study of health and its relation to climate, as further transactions of this association show. In the light of augmented data, a few of them might be, for example, the proper selection of sanatorium sites, sensible temperature (wet-bulb thermometer readings) and infant mortality; acute infectious diseases and sunlight (using the sunshine charts of the weather bureau), etc. These are within the scope of the medical profession; the weather bureau, however keenly interested, can assist only with its climatic data.

Intensive Studies by the Climatologist.—There is one phase of the relationship of the physician to the weather bureau in which the balance of proof falls on the weather service, and that is in the matter of intensive climatic investigation. Primarily, owing to the extensive citrus fruit culture in which the United States Department of Agriculture is deeply interested, some of these studies have been taken up in southern California during the past year by the local office of the weather bureau at Los Angeles. Indirectly the mass of data is of much value to the medical profession.

Southern California is about equal in area to Indiana, and within the boundaries of this region may be found all kinds of varieties of healthful weather. This is owing to the mountains, the sea and the desert, as well as the latitude. Scattered over this one portion of California are a dozen stations equipped with thermographs and hygrographs, rain gages, etc. An examination of the curves of temperature and relative humidity as automatically traced is a most interesting study. Two sets of these curves are illustrated in Figure 2. They show simultaneous tracings of temperature and relative humidity during a week in June. One of these stations, Los Angeles, is within 10 miles of the sea and shows lower range in temperature and higher relative humidity, and the other, Riverside, which is 55 miles further east toward the desert, illustrates most clearly the influence of the desert in its range in temperature and low humidity, and above all its remarkably regular oscillations. Such a graphic representation of the diversity of climate within so short a distance would be well-nigh impossible save in southern California.

Intensive Meteorology to the Aid of Colonization and Health.—For the first time in history climatic surveys are being made to determine land values. This is a practical, business-like, commercial application of meteorology to colonization and intensive farming. This climatic survey was begun in June, 1914, on the old Spanish grant of 16,000 acres, the Palos Verdes, which is just south of Los Angeles and between San Pedro (Los Angeles harbor) on the east and Redondo beach on the west. Six complete sets of meteorologic instruments comprising standard thermographs, hygrographs, rain gages, anemometers, and a photographic sunshine recorder were erected at various elevations from 100 to 1,300 feet above the sea, and from the seashore to several miles inland. The readings of these instruments have been plotted and comparative charts of temperature and humidity for January and July are shown in Figures 3 and 4. With such intensive study it is believed possible to chart the climate for every 10-acre plot. The climatic charts will show without error not only proper location of dwellings with relation to air drainage, temperature, humidity, etc., but will give positive information as to soil drainage, and all of this in addition to the all-important agricultural and horticultural feature.

WHAT THE WEATHER BUREAU SHOULD DO FROM A PHYSICIAN'S POINT OF VIEW

In closing this paper I feel that a physician friend who has long practiced medicine in one of the towns in California has clearly stated some of the ways the

7. Nichols, Estes: Tr. Am. Climatol. Assn., xxx, 17.

physician may properly claim the assistance of the weather bureau. This eminent physician says:

I believe the field has been but little explored. We physicians are guilty of many things; among them is guessing. If the U. S. Weather Bureau will prove some of this guessing true or false it will add one more good thing to its past fine record. I think that the time is near at hand when our health officers will be required to be specialists. They will then have the time, the special training and other equipment to go into the subject in conjunction with your bureau and give us some scientific findings. I think the state should be plotted showing the real atmospheric conditions of all localities and showing the influence on the functions of the body. Whether the old east wind of Boston is accountable for all of the vile things charged to it or not nobody really knows, but it should be investigated. That altitude, temperature, humidity, prevailing and unusual winds have much effect on many individuals there is no doubt. The nasal and pulmonary mucous membranes are constantly affected by atmospheric conditions. Locally I have observed that semichronic bronchial coughs that do not yield readily in the city will often clear up in a few hours in the mountains and foothills east of the city. A congested nasal mucous membrane that will kick up a rumpus much of the time in the mountains will disappear promptly at a lower elevation near the coast. Some patients with bronchial asthma that is incurable in the business section of the city will be very comfortable a short distance out of town and in a higher, drier location. Two hot dry days last month have been charged up with some rather serious pulmonary conditions in aged people. These are a few instances of hundreds coming to my mind that I have observed in my years of practice. The subject should be worked out by a union of effort of the Weather Bureau and the medical profession.

U. S. Weather Bureau.

TARDY OR LATE PARALYSIS OF THE ULNAR NERVE

A FORM OF CHRONIC PROGRESSIVE NEURITIS DEVELOPING MANY YEARS AFTER FRACTURE DISLOCATION OF THE ELBOW JOINT

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The type of neuritis which is the subject of this paper is peculiar, in that it develops many years after fractures and dislocations about the elbow joint. For this reason it has been termed "tardy" or "late" paralysis. Usually, the injury to the joint has been received in childhood, the first symptoms of ulnar neuritis making their appearance in adult life. Thus, an interval which may vary from six to thirty-five years elapses between the initial injury and the first symptoms of ulnar neuritis, which are then gradually progressive.

This remarkably long latent period excludes the group of cases, not uncommon, in which secondary paralysis follows redundant callus formation, vicious union, or other mechanical complications of fracture which jeopardize the integrity of neighboring nerve structures.

The curious, and at the same time characteristic, feature of the late paralysis is its appearance so long after reception of the original injury that a direct connection between the two conditions might be open to question, and a natural skepticism as to the etiologic relationship may lead to diagnostic doubts and errors. This is especially true on account of the gradual and progressive atrophy of the small muscles of the hand which is the essential symptom, the sensory disturbance being very slight, or in the earlier stages even absent. Under these circumstances, the possibility of progressive muscular atrophy may be seriously considered, and in one case of my series this diagnosis was made by several neurologists of wide experience and training.

It is of historical interest to note that Duchenne, the great authority on muscular atrophy and of the hand muscles in particular, confessed that he had once diagnosed spinal amyotrophy in such a case, an error which he subsequently recognized and corrected. This little incident of the past, confided to Panas,[1] who first described the condition, will serve to emphasize the special importance of this group of cases from the diagnostic standpoint.

The later literature of the subject will receive consideration in the discussion of the symptomatology.

REPORT OF CASES

CASE 1.—*Fracture of the elbow joint at the age of 5 followed by cubitus valgus and deformity in region of the internal condyle. Thirty-six years later without apparent exciting cause, slow development of ulnar neuritis, with atrophy, pain, paresthesias and disturbance of epicritic sensibility limited to the distribution of the ulnar nerve.*

History.—The patient is a man aged 45, married, and a stock broker by occupation. His wife has had three healthy children; no miscarriages. He is moderate in the use of alcohol and denies syphilis. At the age of 5, he incurred a fracture of the right elbow joint which was treated by the best methods in vogue at that time. The joint never regained complete freedom of movement, flexion remaining somewhat restricted, and the internal line of the arm presenting an angular deformity (cubitus valgus). He played baseball, however, and indulged in most of the athletic exercises of youth. Occasionally, after a strain, he would feel some stiffness and pain in the affected joint, and in later years, these symptoms have been especially conspicuous after cranking an automobile.

Onset.—In the summer of 1912, thirty-six years after the original injury to the elbow joint, he first noticed a slight weakness of the right hand. At that time there was no pain, numbness or tingling of the fingers. The weakness progressed very gradually, and in August, 1913, he experienced an aching pain in the three ulnar fingers of the right hand with numbness. The aching pain was especially localized in the palm of the hand on the ulnar side. The weakness was accompanied by a progressive atrophy of the small muscles of the hand, especially apparent in the first interosseous space. There was often pain and cramping of the muscles of the hand while writing.

Examination.—A strong, robust man of good muscular development. Gait and station are normal. The pupils are equal and react to light and accommodation. There are no tremors, and the tendon reflexes of the upper and lower extremities are equal on the two sides and are of normal intensity. The skin reflexes, abdominal, cremasteric and plantar, are also normal; no Babinski.

The general motor power is normal, save for the right hand, which is weak and atrophic. On holding out the hand there develops the posture typical of ulnar palsy with atrophy of the interossei and hypothenar. The thenar eminence is of normal volume. No fibrillary twitchings are apparent at any time. There is complete paralysis of the muscles of the hypothenar, and marked paresis of the interossei. The adductor pollicis is paralyzed, as is also the palmaris brevis muscle. There is, however, good ulnar flexion of the wrist.

The general sensory examination is normal, except for alterations of the epicritic sensibility in the right ulnar dis-

1. Panas: Sur une cause peu connue de paralysie du nerf cubital, Arch. gén. de méd., 1878, ii, 12.

tribution. There is loss of light tactile impressions over the hypothenar, little finger and adjacent portion of the ring finger of the right hand. The pain sense is preserved in this area, but is more intense and diffused than on the sound side. The temperature sense is normal. There are subjective sensations of pain and tingling in this distribution, but no secretory or trophic manifestations are evident.

Electric stimulation of the ulnar nerve at the elbow joint produces strong contractions of the flexor carpi ulnaris, but less than on the left side. There is, however, no response to either faradic or galvanic currents in the muscles of the hypothenar or the interosseous groups. Direct galvanic stimulation of the hypothenar and interosseous muscles (10 ma.) induces slow contractions, anodal closure contractions greater than cathodal closure contractions (complete reactions of degeneration).

The Elbow Joint: Flexion movements of the elbow joint are somewhat restricted, and there is observed a distinct internal angular deformity (cubitus valgus). Roentgenoscopy reveals an old fracture of the external condyle, together with the resulting cubitus valgus deformity (Fig. 1).

The region of the internal condyle is also deformed, and the ulnar groove is shallow and partially obliterated, so that the nerve occupies a comparatively superficial position. It is about two and a half times the thickness of the normal nerve, and this spindle-like enlargement may be palpated an inch above and below the internal condyle. Pressure on the nerve at this point produces a tingling sensation in the ulnar distribution.



Fig. 1 (Case 1).—Fracture of the external condyle and valgus deformity of elbow.

The urine is normal; the Wassermann reaction is negative, and roentgenoscopy of the neck region reveals an absence of cervical ribs.

Comment.—This case is of interest because of the exceedingly long interval of thirty-six years which had elapsed between the injury to the joint and the onset of the first symptoms of ulnar neuritis. This fact, taken in conjunction with the very slight disturbances of sensibility, and the gradual progressive atrophy of the hand muscles, had given rise to serious doubts in the minds of a number of neurologists as to the real nature of the muscular atrophy, so that medical history repeats itself and the same doubts which Duchenne had experienced regarding this type of case finds its counterpart even in these days of neurologic enlightenment.

The deformity of the elbow joint is of the type most commonly associated with the late paralysis, namely, an ancient fracture of the external condyle with resulting valgus deformity and alteration of the configuration of the ulnar groove. No definite exciting cause could be found to explain the late onset of the neuritis. It appeared mysteriously and progressed insidiously without apparent reason, as is the usual history of these cases.

CASE 2.—*A saleswoman, aged 65, fractured right elbow at the age of 16; fair recovery with insufficient power of flexion. At the age of 55, that is, thirty-nine years after the injury, symptoms of ulnar neuritis appeared and progressed gradually, namely, weakness, atrophy and disturbance of epicritic sensibility limited to the ulnar distribution of the hand. There is cubitus valgus, the ulnar groove is shallow and deformed, and the nerve is thickened.*

History.—The patient is a saleswoman, aged 65, who was referred to me with involution melancholia of ten months' duration. Except for the occasional presence of rheumatoid pains in late years, she had enjoyed excellent health. In childhood the left elbow was fractured, and at the age of 16 she had also fractured the right elbow. The latter injury was followed by marked angular projection of the joint (cubitus valgus) and a restriction of flexion which cannot be carried beyond an angle of 120 degrees. The movements of pronation and supination are well preserved.

For many years she has been saleswoman in a millinery shop; during this period she has done considerable writing, but no special handwork such as sewing or cutting.

Onset: Ten years ago, at the age of 55, she first noticed slight wasting of the muscles of the right hand, which progressed in a very gradual manner. From the beginning there had been slight numbness in the ulnar distribution, but at no time pain, either in the elbow joint or along the course of the nerve.

Examination.—The ulnar nerve on the right side is situated in a shallow groove, and is the seat of fusiform thickening. Pressure causes tingling in the distribution of the nerve, but the nerve trunk itself is quite free and movable.

The atrophy of the hand is distinctly limited to the ulnar distribution, and is most conspicuous in the first interosseous space, and to a lesser degree in the other metacarpal grooves. There is also well-marked atrophy along the ulnar side of the hypothenar eminence and of the adductor pollicis. The wasting is also very apparent on the palmar aspect of the hand. She can extend, fairly well, the distal and middle phalanges of the right hand, but is unable to separate or approximate the little or ring fingers, or flex the basal phalanges. There is slight power of contraction in the abductor minimi digiti. Adduction of the thumb is lost, as is also the function of the palmaris brevis. There is good ulnar flexion of the wrist.

Sensory examination shows a loss of epicritic sensibility to light tactile impressions, in the digital distribution of the ulnar nerve. The sensations of deep pain and extremes of temperature are normal. There are no trophic or secretory disturbances.

Electric Examination: There is no muscle response to galvanic or faradic stimulation of the ulnar nerve at the elbow, except ulnar flexion of the wrist. The intrinsic muscles of the hand supplied by the ulnar do not react to strong faradic currents, while strong galvanic currents produce vermicular response with reversal of the poles (reactions of degeneration).

Roentgen Examination (Dr. A. H. Busby): Any evidences of early bone injury to the right elbow joint are confused by the changes of osteo-arthritis which are present. There is considerable hypertrophied bone in the region of the internal condyle and head of the radius (Fig. 2). The left elbow joint shows old fracture of the external condyle, with moderate amount of callus formation. There are evidences of hypertrophic osteo-arthritis on the internal condyle and head of the radius. Slight evidences of osteo-arthritis are also present on some of the bones of the wrist and hand.

The general neurologic examination is negative. Pupils react normally and the tendon and skin reflexes are normal. Save for the atrophy of the right ulnar distribution, the musculature is well developed and of good power. No fibrillary twitchings are noted at any time. The urine is free from albumin and sugar.

Comment.—This case presents the characteristic history and course of the tardy ulnar palsy. Unusual is the

extremely long latent interval (thirty-nine years) which separates the original injury and the first symptoms of ulnar palsy. Otherwise, the clinical picture corresponds to the usual type, namely, cubitus valgus, a deformed and shallow ulnar groove with fusiform thickening of the superjacent nerve trunk, and the insidious development of progressive neuritis, with preponderance of motor symptoms. In such a case, a knowledge of the symptomatology of tardy ulnar palsy is of especial importance in the differentiation of spinal amyotrophy. It is possible that the lesions of osteo-arthritis, which were also present, may have facilitated the production of the ulnar neuritis.

CASE 3.—*Fracture of the elbow joint at the age of 16. Six years later, gradual development of ulnar neuritis with atrophic paralysis and epicritic anesthesia. Palpation shows cystlike tumor in the ulnar groove associated with enlargement and deformity of the internal condyle. Operation, with removal of a cyst. Pathologic diagnosis, chronic bursitis.*

History.—The patient is 21 years of age, single and a journalist by occupation. He is moderate in the use of alcohol, and has had no venereal infection. At the age of 15, he fell from a horse and fractured the left elbow joint. This was a simple fracture and the arm was fixed in flexion. After removal of the splint, the joint was stiff for a time, but this gradually improved, and considerable motion was eventually obtained. His recovery was such that he could play baseball and enter into other sports of similar nature. At times, however, particularly after sudden and violent movements of the arm, he experienced pain and a little stiffness in the joint, but never any symptoms which would indicate pressure on or involvement of the ulnar nerve trunk.

Onset: In January, 1911, six years after the original injury to the elbow joint, he first noted the wasting of the small muscles of the left hand. This was accompanied by a numb pain in the cutaneous distribution of the ulnar nerve. The atrophy and weakness gradually increased. In September, 1911, he consulted Dr. George Woolsey, who referred him to me for examination.

Examination.—Sept. 11, 1911, there is pronounced weakness and atrophy of the intrinsic muscles of the left hand supplied by the ulnar nerve, namely, the hypothenar eminence and the interossei, including the adductor pollicis. The muscles of the forearm are not atrophied, and no fibrillary twitchings are visible.



Fig. 2 (Case 2). — Valgus deformity of elbow and evidences of bone hypertrophy, in part osteo-arthritic.

On extending the hand and fingers, the little and ring fingers remain continuously somewhat flexed, and scarcely any movements of separation or apposition are possible. The ulnar flexion of the wrist is not diminished, and all the other movements of the left upper extremity, including those of the thenar eminence, are perfectly normal.

Sensation: The epicritic sensibility to light touch is lost over the little finger and adjacent portion of the ring finger in the ulnar distribution. The protopathic sensibility, pain and extremes of heat and cold are preserved in this area, and there are corresponding sensations of pain and paresthesias.

The movements of the elbow joint are free, except for extension, which is somewhat limited; pronation and supination are normal. The internal condyle is enlarged and is displaced from its normal position. The nerve is palpable in the ulnar groove, and beneath it is distinguished a small cystlike swelling. Pressure produces characteristic tingling in the course of the nerve. A general physical and neurologic examination is otherwise negative.

Electric examination shows reactions of degeneration in the atrophied muscles of the hand innervated by the ulnar nerve.

Operation.—This was performed by Dr. Woolsey, Oct. 17, 1911, ten months after the onset of neuritis. A longitudinal incision was made over the olecranon which exposed a firm cystic tumor the size of a hazelnut beneath the ulnar nerve, compressing and pushing it forward. During the dissection, this cystic formation burst and discharged a yellow gelatinous fluid. The walls of the cyst were smooth, and there was no evident communication with the joint. It was apparently a hernia from the joint synovial membrane which had been constricted. Two minute daughter cysts lay beside the principal one. The nerve was somewhat flattened by pressure, but otherwise was not injured. The wound was closed and healed without accident. The pathologic report of the cyst wall was chronic bursitis.

Note: February, 1915, Dr. H. J. Wynkoop, the family physician, reported that recovery of function was complete and there had been no recurrence of ulnar nerve symptoms.

Comment.—The chief interest of this case is the etiologic factor, namely, a small localized cystic tumor originating from the synovial membrane of the joint and compressing the nerve which passed over it. The possibility of such a complication should be considered in cases of late paralysis and its relief by surgical intervention. Not only was there a cyst beneath the nerve, but also the internal condyle was deformed and enlarged, as in so many of these cases, and this may have been a contributory cause in the production of the palsy.

GENERAL REMARKS

These cases illustrate very well the nature of the various joint lesions, the long interval of latency and the general course and symptomatology of the ulnar neuritis in this group of late palsies. As has been previously emphasized, the special and characteristic feature is the long period of time which separates the two phases of the clinical picture, the early injury and the late neuritis.

Another rather curious fact is the special predisposition of the ulnar nerve to this form of palsy; and while it has been observed in the median nerve in one case, in combination with ulnar neuritis (Bernhardt[2]) it is so rare in that distribution as to constitute a clinical curiosity and not a definite clinical type. In other nerve distributions, so far as I am aware, it does not occur.

In the case just mentioned recorded by Bernhardt, a woman aged 42 developed atrophy with disturbances of sensibility in the median nerve distribution of the hand, thirty years after an injury of the elbow joint received in childhood, which resulted in a fracture of the head of the radius, cubitus valgus, and callus formation about the internal condyle. In this patient, who was a cook, there were also distinct evidences of ulnar nerve involvement, and in view of the great rarity of late neuritis of the median under these circumstances, it is quite possible that the ulnar paresis, by throwing an additional strain on the thenar region, had produced a true occupation neuritis of the median

2. Bernhardt: Ueber Medianus Lähmung als spät Folge einer Ellenbogen Gelenk Verletzung, Neurol. Centralbl., 1910, xxix, 178.

nerve, which complication was therefore not a direct result of the joint lesion. A similar combination of ulnar and median neuritis, in a carpenter, aged 69, with an ancient fracture of the elbow joint, has also been recorded by Huet.[3] He regarded the condition as an occupation or professional neuritis and not directly related to the old joint lesion.

SYMPTOMATOLOGY

The late neuritis of the ulnar nerve does not differ in symptomatology from other forms of progressive neuritis. As is usual in compression, the motor nerves are more vulnerable than the sensory fibers, motor symptoms dominating the clinical picture and often preceding any evidence of sensory involvement. Usually there is an atrophic paralysis of gradual development with changes in the electrical excitability corresponding to the degree and duration of the muscle degeneration. The sensory symptoms, both subjective and objective, may be very slight, and when present are typically neural in distribution. Even in advanced cases, the anesthesia is of the epicritic type, the protopathic sensibility being well preserved. In the absence of pain, this scarcely perceptible disturbance of tactile sensibility may be overlooked and lead to the suspicion of progressive muscular atrophy, more especially as the wasting of the small muscles of the hand is slowly progressive.

Here, however, the absence of fibrillary twitchings and the strict limitation of atrophy to the ulnar nerve distribution, together with the disturbances of sensibility, should be sufficient to remove all doubt and make the diagnosis clear.

In the diagnostic differentiation, it may be well to recall the *hypothenar type of neural hand atrophy* from chronic pressure neuritis of the deep palmar branch of the ulnar nerve.[4] This branch of the nerve is *purely motor,* and the resulting atrophy is strictly limited to the small muscles of the hand supplied by the ulnar nerve. In this type, as in the tardy paralysis, the course may be slowly progressive; and with the absence of all sensory symptoms, both subjective and objective, a clinical picture is produced which may closely resemble an early stage of progressive muscular atrophy. Attention, however, to the strictly neural distribution of the atrophic paralysis and the absence of fibrillary tremors will serve to make the diagnosis clear.

ETIOLOGY

The essential etiologic factor in these cases is the deformity and malposition of the elbow joint, usually the result of fracture-dislocations in early life. The most frequent deformity is the cubitus valgus, which in many cases is associated with evidences of old fracture of the external condyle of the humerus. Mouchet,[5] in particular, has emphasized this combination of lesions.

In the cases with valgus deformity, there is also some dislocation of the structures forming the ulnar groove, the olecranon is often displaced inward, and the bony channel between it and the condyle is shallower than normal. As a result, there is produced an alteration in the course and bony relationship of the ulnar nerve in this region.

Another frequent deformity concerns the internal condyle, which may be displaced or united in bad position with callus formation, thus impairing the relationships in the ulnar groove.

It is of interest that tardy paralysis may also follow deformity of the elbow joint from old arthritis. In a case of this kind recorded by Webber,[6] the elbow was ankylosed in semiflexion and the ulnar groove almost obliterated. In a similar case described by Sherren,[7] old arthritis had followed measles terminating in marked valgus deformity. It is very evident in the arthritic cases, as in fractures, dislocations and epiphyseal separations, that deformity of the ulnar groove and cubitus valgus play the important rôle.

THE ULNAR NERVE

Usually the nerve is perfectly free and movable in its shallow or partially obliterated bony groove, and is the seat of a fusiform swelling. This spindle-shaped tumefaction of the nerve is from 2 to 3 inches long, its central portion corresponding in a general way to the tip of the olecranon.

In Murphy's[8] case a small osteomalike growth was found beneath the nerve, and in Case 3 of my series, a small cystic tumor. Such findings, however, are rare and usually there is only the fusiform thickening of the nerve in its shallow groove, associated with valgus deformity of the joint.

In two of the recorded cases in which the diseased portion of the nerve had been excised during surgical intervention (Sherren[7]), microscopic studies showed the presence of an interstitial neuritis with irregular areas of sclerosis in the perineurium and endoneurium. In the sclerosed patches there was well-marked atrophy of the nerve fibers.

PERIOD OF LATENCY

The peculiar and unusual feature of this group of cases is the long interval of time elapsing between the original injury and the development of the first symptoms of ulnar neuritis. This may range all the way from six to thirty-five years. In one of my cases, thirty-nine years elapsed before the atrophy of the hand muscles became apparent. The reasons for this long delay are not definitely known.

It has, however, been pointed out that a similar interval is usually present in cases of cervical rib, which, although a congenital deformity, usually gives rise to no symptoms until adult life. It is not unlikely that with the increase of connective tissue in later life, not only is there greater susceptibility to irritative lesions, but also the nerve structures are themselves less elastic and do not take so kindly to mild chronic irritative traumas, as in early life. The very vagueness of these explanations only emphasizes our real lack of knowledge as to the underlying factors. That it is a mechanical and irritative reaction cannot be doubted. So much is clear from the localization of the neuritic process and the corresponding joint changes.

Elsewhere, I have described[9] a *neural type of thenar atrophy* from compression neuritis of the small thenar branch of the median nerve, as it emerges from beneath the anterior annular ligament of the wrist.

3. Huet: Neurites professionelles du nerf median et du nerf cubital chez un ouvrier menuisier porteur d'une ancienne fracture du coude, Arch. de Neurol., 1900, ix, Series 2, p. 531.
4. Hunt, Ramsay: The Thenar and Hypothenar Types of Neural Atrophy of the Hand, Am. Jour. Med. Sc., February, 1911.
5. Mouchet: Paralysie tardive du nerf cubital a la suite des fractures du condyle externe de l'humérus, Jour. de chir., 1914, xii, 437.
6. Webber: Zur Etiologie peripheralen Ulnaris und Medianus Lähmungen, Deutsch. Ztschr. f. Nervenh., 1899, xv, 18.
7. Sherren: Chronic Neuritis of the Ulnar Nerve Due to Deformity in the Region of the Elbow Joint, Edinburgh Med. Jour., 1908, xxiii, 500.
8. Murphy, J. B.: Neuroma of Ulnar Neuritis, the Result of Trauma Incident to Fracture at the Elbow Joint, Clinics, 1914, iii, No. 2.
9. Hunt, J. Ramsay: The Neural Atrophy of the Muscles of the Hand, Without Sensory Disturbances, Rev. Neurol. and Psych., 1914, xii, 137.

In this group of cases, an occupation may have been carried out for many years without untoward symptoms, when without apparent exciting cause the muscles of the thumb begin gradually to waste. It is very probable that we have here a somewhat similar pathologic tendency, that is, a greater susceptibility to connective tissue irritation in later life with less resistance on the part of nerve tissue. In a case of thenar atrophy of this type, Marie and Foix were able to demonstrate a small nodule of chronic neuritis, just where the nerve passes under the edge of the anterior annular ligament.

In certain cases, some change of occupation or other exciting cause has been suggested in possible explanation of the tardy paralysis. Such explanations, however, are by no means susceptible of general application, and as a rule there has been nothing of this nature to explain the occurrence of the palsy after the long latent interval. It usually appears in early adult or middle life, quite spontaneously and without apparent exciting cause.

TREATMENT

It would appear that, after the neuritis has once been established, it is likely to progress slowly and steadily unless the mechanical irritation is relieved by some form of surgical intervention. In one of my patients the condition had been slowly progressing over a period of ten years, and yet a physician had never been consulted, and her efficiency as saleswoman was not impaired. A case of this character naturally does not take kindly to the suggestion of operation. No doubt, something might be accomplished by massage and electric treatment under these circumstances. The prospect of cure or even of delaying the progress of the malady would be very slight with such measures, which should, therefore, be regarded as merely temporizing or palliative in nature.

In those cases in which a cystic tumor or growth of bone is compressing the nerve, the surgical indication is clear. When the ulnar groove is deformed and shallow, it may be necessary to enlarge and deepen it by surgical means. This has been done in a number of cases, in some with good results.

The nerve has also been transposed by carrying it forward and attaching it to the anterior surface of the internal condyle, thus relieving the mechanical strain to which it is necessarily subjected in a shallow ulnar groove.

Sherren[7] has also excised the thickened portion of the nerve with restoration of the anatomic continuity, in one case with good results. By this procedure alone there is nothing to prevent a return of the neuritis, and its value as a surgical method would seem doubtful.

In an arthritic case Sherren performed an excision of the elbow joint with fair restoration of neural function.

The most pretentious surgical procedure has been devised by Mouchet,[5] and is especially advocated by the French school. This consists of a supracondyloid cuneiform osteotomy of the lower end of the humerus, at the same time deepening and enlarging the ulnar groove. By this method the vicious mechanical factors are eliminated, and it is probably the operation of choice in certain cases.

CONCLUSIONS

The tardy or late paralysis of the ulnar nerve is a well-defined clinical type of chronic interstitial neuritis, consequent on old injuries and deformities about the elbow joint.

The interval of time elapsing between the reception of the original joint lesion and the onset of neuritic symptoms may vary from six to thirty-nine years.

During this latent period there are no symptoms other than those referable to the deformity and restricted movements of the elbow joint.

The joint lesions most commonly associated with this form of neuritis are those resulting from old fractures and dislocations about the elbow joint, and very rarely old arthritis.

Especially frequent is the fracture of the external condyle with cubitus valgus and alterations in the configuration of the ulnar groove.

The neuritic symptoms are slowly progressive and run an extremely chronic course. They consist of atrophic paralysis limited to the ulnar distribution with corresponding sensory disturbances. The sensory symtoms, both subjective and objective, may be insignificant and in the earlier stages even absent.

The diagnosis rests on the presence of an old joint lesion and the neuritic character of the symptoms. In differential diagnosis the progressive spinal atrophies and the *hypothenar type of neural atrophy* (compression neuritis of the deep palmar branch of the ulnar) will demand consideration.

Surgical measures are usually necessary to check the progress of the atrophy and restore function. Among the procedures advocated in the different types of cases are: enlargement and remodeling of the ulnar groove; resection of the thickened portion of the nerve trunk; transposition of the ulnar nerve to the anterior surface of the internal condyle, and supracondyloid cuneiform osteotomy of the humerus to correct the valgus deformity.

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HYPERTRICHOSIS, VARIATIONS IN FEMALE SECONDARY SEXUAL CHARACTERISTICS, AND INTERNAL SECRETIONS *

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Recently on the gynecologic service of Dr. L. E. Frankenthal, at Michael Reese Hospital, we observed a marked case of hypertrichosis, and it is with the intent of determining the connection between abnormal hair development and genital changes that this paper is written.

History.—The patient, Mrs. E. S., Russian, married, aged 63, was admitted to the hospital complaining of pain in the right lower quadrant of the abdomen. Since the age of 10 she had experienced this dull intermittent pain at intervals of a week or two. It radiated to the groin and down the thigh, lasting three or four hours at a time, and was always independent of gastro-intestinal and urinary disturbances. She stated that her menstruation, appearing from two to four months' intervals, always intensified her pain.

Her first confinement (normal) occurred at the age of 19, and was followed in two years by a second, which was likewise normal. Since then the abdominal pain has been continuous and of a dragging nature. She visited a gynecologic clinic in Vienna, where a diagnosis of ovarian tumor was made (its nature unknown to her).

* From Michael Reese Hospital.

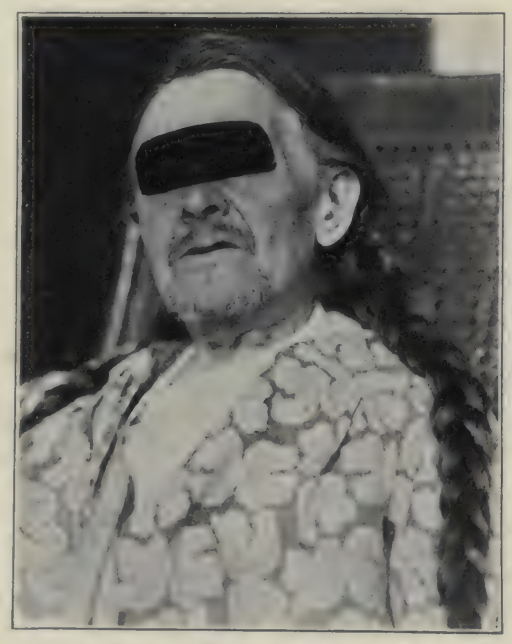
About this time she noticed an increased growth of hair on the upper lip. Four years later a beard developed, and she was accustomed to shave about every week. There were never any other hypertrichotic changes noticed. The family history reveals a similar condition in a daughter, aged 43, who has observed an increased growth of hair on the upper lip for the past thirteen years.

Examination.—There was an excessive growth of grayish hair on the upper lip and chin, and a moderate increase on the cheeks. No other anomalies of hair development were present. The individual hairs, thickly set, were of coarse, bristly character and measure from 1 to 1.5 cm. in length.

Bimanually a firm mass was felt in the right pelvis, but it was impossible to define accurately its connections because of the accompanying excessive ascites. Remainder of examination was practically negative. A probable diagnosis of ovarian cyst was made and operation decided on, for the increasing pain, nausea, pulse of 120, and temperature of 101.6 were regarded as symptoms of a twisted pedicle.

Operation and Result.—Under nitrous oxid anesthesia a suprapubic incision was made, and, after allowing approximately 3 liters of thin yellowish fluid to escape, a bilobed tumor mass about the size of a fetal head was found. The lower lobe occupied the right pelvis, while the other was situated in the right lower quadrant of the abdomen and was attached to the lateral wall. The mass was found to arise from the right ovary. The pedicle was clamped and cut and the tumor removed. Before closing the abdomen it was noticed that everywhere on the peritoneum and intestines were present irregularly shaped, slightly raised whitish areas which were considered as malignant changes, a pathologic condition which accounted for the secondary ascites. The patient made a slow but uneventful recovery.

The boggy tumor was covered by connective tissue and lined by ciliated columnar epithelium. Within was a thick, viscid, brownish, semifluid substance containing grayish hair and some whitish flakes similar to those found at times in amniotic fluid. No bone or nails were found. A pathologic diagnosis of dermoid cyst was made.



Patient with marked facial hypertrichosis.

The observation that abnormal hair development associated with anomalies of menstruation dates back to ancient times, and while with advancing years it was fully agreed that such a connection does exist, it has not been until recent times that an effort was made to determine just what the nature of this association is. Scheuer's[1] observations on twenty-five women showing hypertrichosis illustrate this point nicely, for fifteen had amenorrhea, six had dysmenorrhea, and four showed metrorrhagia.

A few introductory remarks may be of worth regarding the growth of hair, which, according to Scheuer, develops in three stages, namely, the woolly, the children's and the terminal.

Excepting those places (palms and soles) which remain hairless throughout life, there develops during fetal life over the entire body the woolly hair which is marked by its soft texture and lanugo character. In addition to the former a growth of thick, coarse pigmented hair develops on the head and eyebrows at about the eighth month of intra-uterine life. So at birth children's hair is marked by irregularities in growth, displaying a general lanugo development with localized coarse additions. This children's hair retains its purity until puberty, when in males the terminal hairs develop in the axilla and on the pubis, cheeks, lips and chin. In the female, however, terminal hair is confined to the axilla and pubis, the remainder being of the childish character. Thus it is in women that deviations of hair formation must be considered pathologic, for the nonappearance of terminal hair shows a persistence of childish characteristics, and an excessive amount, resembling the male type, represents a local hermaphroditism or hypertrichosis.

As the development of terminal hair occurs at the time of sexual ripening, it is but natural to think of a connection between the two. So Friedenthal believes that waste products of metabolic activity of the sex glands have an effect on the growth of the terminal hair. Ikeli states that catabolic products, circulating in the blood shortly before the time of sexual ripening, reach the skin and there call forth the growth of hair. Still, as Scheuer says, while theories are numerous little is really known, but it appears probable that the glands of internal secretion have an intimate connection with these phenomena.

Thus the ripening of the sex glands has been generally accepted as being the cause of the appearance of secondary sexual characteristics. This view applies primarily to the changes at the time of normal puberty, but in addition pertains to cases of premature development, as was noted by Lesser[2] (case of well-developed patient aged 6 who menstruated first at her third year); by Glynn[3] (hypernephromas in children), and by others. Halban,[4] however, from his observations on cases of aplasia of the sex glands and in hermaphroditism, has come to an opposite conclusion, that is, that the existence of secondary sexual characteristics is not connected with the presence of homologous sex glands. Rather, he says, we must assume that the same factor or factors which determine sex must in a similar way be responsible for the formation of the primary and secondary sex characteristics. Von Lenhossek[5] takes a similar though less positive view, namely, that secondary sex characteristics are deeply founded and develop according to inherited laws; but, nevertheless, for the complete formation of these characteristics, the corresponding sex glands have a so-called protective action. In this sense a well-functioning testicle is important for the growth of terminal hair on the face, and a well-functioning ovary is important for the limitation of such hair to the

1. Scheuer: Hautkrankheiten sexuellen Ursprungs bei Frauen, 1912.

2. Lesser: Ztschr. f. klin. Med., 1900, xli, 122.
3. Glynn, F.: Quart. Jour. Med., 1912, v, 157.
4. Halban, quoted by Cohn, F.: Monatschr. f. Geburtsh. u. Gyräk., 1913, xxxviii, 93.
5. Quoted by Scheuer (Footnote 1).

axilla and pubis. Conversely, we see cases of retarded development of secondary characteristics when the testicles are either poorly developed or poorly functioning. Also, when the ovarian function is at a low ebb, as in sterile women, women at the menopause, and in women whose menstruation is imperfect, we see hypertrichotic changes due to a derangement of the protective action of the ovarian secretion. So the views of von Lenhossek are a matter of not uncommon observation. Why men should have a facial growth of terminal hair, and why in women it is normally restricted to the axilla and pubis are attributed by Darwin through evolutionary changes to sexual selection.

The older view, that secondary sexual characteristics are due to the ripening of the sex glands, is tenable for the reason that in practically all cases such changes develop normally. This theory, however, cannot be accepted in toto, for, after Halban's reports on cases of aplasia of the sex glands, we see that there must necessarily be other factors concerned. Von Lenhossek's views also seem quite plausible that sex characteristics develop after deeply founded inherited laws. Still, while accepting the reasonable view of hereditary influence, it seems more probable with our present knowledge that derangements of the glands of internal secretion play a large part; for it is now well known that glandular changes, as suprarenal and pineal neoplasias, occasion or at least are closely connected with the development of sexual characteristics.

Deviations from the normal female sex characteristics will now be considered especially as regards abnormal hair development.

Among the earliest causative factors of hypertrichosis were mentioned uterine reflex, pelvic disease, irritation, congenital anomalies and heredity. As examples of congenital anomalies are uterus duplex (Hegar[6]), uterus unicornis (Freund[7]), uterus infantilis (Hilbert[5]), and infantile pelvis (Hildebrand[8]). Of course we now know that such conditions are concomitant features rather than causative factors. Heredity, however, must be taken into consideration, for Lesser[5] reports three cases (in sisters) all of which showed distinct hypertrichosis.

Next were reported cases whose causation was attributed solely to ovarian changes, as bilateral cystic ovaries (Röten[5]), ovarian tumor (Alberti[9]), and enlarged ovary (Lesser[10]). Soon, however, cases with an entirely different etiology were recorded, namely, hyperplasia of the suprarenal (Bortz[5]), pineal tumor (von Frankl-Hochwart[5]) and hypophysial tumor (Hochenegg[5]). Thus it is, as Scheuer says, that our ideas must be modified and derangements of the glands of internal secretion be considered as factors in the etiology of hypertrichosis.

The cases of Thumin,[11] Bortz and Goldschwend[5] show that suprarenal changes are intimately connected with abnormal hair formation and genital changes, either wholly or partially as causative factors. Their cases show uterine and ovarian atrophy accompanying hypertrichosis. That the connection between the suprarenal and the genitals is a true one and not one of mere coincidence has been proved by von Theodosieff,[12] who has shown suprarenal hypertrophy subsequent to ovariectomy in dogs. Further, it is also known that the suprarenal is in some way functionally connected with sexual development, for it increases in size during menstruation and in pregnancy; it is decreased in volume when accompanied by defective sexual development, and tumors of it are associated with precocious sexual growth, overgrowth of fat, and with an increased hair formation.

Among the first who devoted their efforts toward determining the association between the suprarenal and the development of sex characteristics, Bullock and Sequeira[13] stand out as pioneers. From their observations they reached the conclusion that the premature development in children of the beard and pubic hair is accompanied by the premature ripening of the sex organs. In such cases they found suprarenal changes either of a hyperplastic or a neoplastic nature, the latter being carcinomas or hypernephromas. In addition they found the reverse to be true, that suprarenal atrophy is associated with defective genitalia and failure of development of the pubic hair. It should be added that they did not invariably find these changes present, for lymphosarcomas were often not accompanied by premature sexual development.

Apert[14] next showed that the manifestations of suprarenal hyperplasia or neoplasia vary with the age at which such changes occur. Thus in infancy he noted hypertrichosis in cases accompanied by a hypertrophied clitoris, a small uterus, and poorly developed ovaries. Up until puberty the triad symptoms were seen — hypertrichosis, adiposity and sexual changes (premature development and precocious puberty). After puberty the cases showed abnormal hair development, adiposity and arrest of menstruation. Late cases were accompanied only by adiposity.

Glynn made similar observations, and found that in children with hypernephromas there is a tendency of the male primary and secondary sexual characteristics to increase at the expense of the female. With males the reverse does not hold true. He advanced a step further and showed that it is the cortex which is so intimately concerned. Glynn also shows that it is the suprarenal involvement per se which occasions the altered features and not the neoplasm, for hypernephromas of the kidney never lead to modified facial changes.

It is now only natural to ask if all cases of corticosuprarenal hypertrophy, benign or malignant, are invariably accompanied by the development of male characteristics and precocious growth in female children. Glynn was able to find only one case not associated with such changes. When hypernephromas occur in adults, before and after the menopause, the changes are of course not so marked as in children, but, as he says, this does not necessarily negative the view that hypernephromas either directly or indirectly occasion such changes; for here as in other pathologic conditions, the same lesions do not invariably produce the same results. Also after the menopause, sex characteristics have become stereotyped through age and so cannot exhibit prominent changes.

Recently Pinard, Launois and Gallais[15] reported a peculiar case of a patient, aged 19, in whom hypertrichosis was accompanied by dystrophy adiposogenitalis similar to the syndrome of Frölich. At necropsy the ovaries, tubes and uterus were small, but the left

6. Hegar: Beitr. z. Geburtsh. u. Gynäk., 1901, iv, 21.
7. Freund: Beitr. z. Geburtsh. u. Gynäk., 1900, iii, 181.
8. Quoted by Hegar (Footnote 6).
9. Alberti: Beitr. z. Geburtsh. u. Gynäk., 1905, ix, 339.
10. Lesser: Lehrbuch der Haut- und Geschechtskrankheiten.
11. Thumin: Berl. klin. Wchnschr., 1909, xlvi, 103.
12. Quoted by Thumin (Footnote 11) and by Scheuer (Footnote 1).
13. Quoted by Glynn (Footnote 3).
14. Apert: Bull. méd., Paris, 1910, xxiv, 1161.
15. Pinard, Launois and Gallais: Gaz. d. hôp., Paris, 1911, lxxiv, 649.

suprarenal was involved by a large epithelioma. The pituitary was normal, thus excluding the possible hypophysial origin of the genital dystrophy. So here we have a case of suprarenal neoplasia exhibiting marked genital changes after the age of puberty, thus differing from the usual types as described by Apert and Glynn.

Now that it has been shown that a connection does exist between the corticosuprarenal hyperplasia and the sex glands, it may be asked, What is the primary cause of altered sexual characteristics? Are the suprarenal hyperplasias the primary cause? Do the sexual changes occasion the former? Or do both arise from a common origin?

On this point there is naturally a diversity of opinion varying between a suprarenal and an ovarian primary etiologic factor. Goldschwend believes that the development of secondary masculine characteristics is due to an excessive suprarenal secretion which overcomes that of the ovary. This theory is tenable because atrophic ovarian changes were found in cases of suprarenal hypertrophy. It is further substantiated by a case reported by Thornton[16] in which excessive hair disappeared after the removal of a suprarenal tumor. Apert holds the same view, for he states that while genital changes are observed in derangements of other glands of internal secretion, hypertrichosis is particularly characterized by accompanying lesions of the suprarenal.

On the opposite side are Scheuer, Hegar and others who believe that in hypertrichosis there is always in the ovary a primary change, for example, atrophy, which leads to secondary changes in the suprarenal and hypophysis, and later to the development of secondary masculine characteristics. Or, as is more plausible, the diseased ovaries are not able to hinder the appearance of these abnormal sex features. This view has an analogous basis in some work of Tandler and Gross,[17] who found experimentally that the interstitial substance of seminiferous tubules seems to occasion the secondary sex characteristics.

The more probable cause is, as Glynn says, a derangement of the glands of internal secretion, for while it is now certain that there exists an intimate connection between sexual characteristics and suprarenal changes, it is further true that other glands are likewise associated and that the real solution will be found only when the interrelationship of these glands is better understood.

Next will be considered the connection between the hypophysis and the genital glands. Tandler and Gross noted in animals an increased hypophysial growth following ovariectomy and an increase during pregnancy due in the latter condition to the multiplication of the chromophobe or clear cells, according to von Bonin.[18] Cushing[19] observed that in dogs, removal of the anterior lobe is often succeeded by shedding of hair, lessening of sexual activity and atrophy of the ovary or testicle. Conversely, hypertrichosis follows anterior lobe hyperplasia.

Thumin, Bychowski[20] and others have observed that in man hypophysial tumors are often accompanied by poorly developed genitals, and that amenorrhea is usually an early symptom of pituitary neoplasm. That such tumors do have an intimate connection with the menstrual cycle is shown by Thumin, Hochenegg and Exner,[5] who report cases in which there was a return of the menses after extirpation of the tumor.

According to Cushing, it is in anterior lobe deficiency that we find such changes as persistence of infantile sexual characteristics when hypophysial neoplasm occurs during childhood, or, in later years a tendency toward the loss of the acquired signs of adolescence. To this same category belongs Frölich's syndrome of dystrophy adiposogenitalis, whose exact etiology is as yet unsettled, as evinced by the numerous theories, as those of Frölich, von Erdheim, B. Fischer, Stumme and Cushing; but, nevertheless, some hypophysial lesion is universally accepted as being the fundamental cause.

As a rule, hypophysial lesions are accompanied by symptoms in direct antithesis to those obtained in suprarenal hypertrophies, as in poorly developed as contrasted with highly developed secondary sexual characteristics, and hypotrichosis rather than hypertrichosis. While, however, the latter is usually true, it is not invariably so, for Hochenegg and Exner observed hypertrichosis in their cases of pituitary neoplasm, and also that the anomaly of hair formation disappeared after operation. Why hypertrichosis appears in some cases of hypophysial lesion and not in others may be explained according to Cushing's theory, which, consisting in a functional differentiation of the two lobes, attributes hypotrichosis to an anterior lobe hyperplasia and hypotrichosis to posterior lobe deficiency.

So while genital changes, usually of a hypoplastic nature, are seen to be occasioned or at least accompanied by hypophysial alterations, the variance in the secondary sexual characteristics here, as with the suprarenal, speaks more not only for an interglandular relationship, but also for some complete relationship between the two lobes of the hypophysis.

From the previously mentioned case (pineal tumor) of von Frankl-Hochwart, we see that the comparatively little thought of pineal gland must have a place in the development of sexual characteristics, for in his patient were noted overdevelopment of the genitalia, sexual precocity and early hair formation. Others have observed similar cases, the tumors being sarcomas, gliomas, teratomas and cystic psammosarcomas.

Kidd,[21] basing his ideas on a review of the literature on the pineal gland, believes that it must have some function and is a metamorphosed rather than a rudimentary organ. To it he ascribes a prepuberal function which consists in the inhibition of premature genital development and sexual characteristics, a function which disappears at the time of sexual ripening, thus allowing the postpuberal changes to develop. If this be true it is then but natural to conclude that the pineal function is decreased and finally nullified by the increase and maturity of the genital secretion. Kidd's ideas are based largely on clinicopathologic observations and are further substantiated by the experimental work of Foa.[22] The latter showed that in chicks, aged from 3 to 5 weeks, there was a premature development of the primary and secondary sexual characteristics succeeding pineal removal. With our experimental knowledge as a foundation, attempts

16. Thornton, cited by Richards, O.: Guy's Hosp. Rep., lix, 217.
17. Tandler and Gross: Wien. klin. Wchnschr., 1910, xx, 459; also quoted by Scheuer (Footnote 1).
18. Von Bonin: Quart. Jour. Med., 1913, vi, 125.
19. Cushing, Harvey: The Hypophysis Cerebri, THE JOURNAL A. M. A., July 17, 1909, p. 249.
20. Bychowski: Deutsch. med. Wchnschr.,
21. Kidd, L. J.: Rev. Neurol. and Psychiat., 1913, xi, 55.
22. Foa: Arch. ital. de biol., Turin, 1914, lxi, 79.

are now being made in some of the Chicago public schools to stimulate the physical and intellectual development of subnormal children by the use of pineal gland extract, but so far no results have been published. Dana and Berkeley, however, working along the same line, have reached the conclusion that pineal gland given early enough leads to increased general, intellectual and sexual growth.

In conclusion, as Kidd says, it is highly probable that there exists some relationship between the pineal gland and secondary sexual characteristics, and that probably a connection exists between it and the pituitary and suprarenal cortex, and possibly with the thyroid, thymus and ovaries.

Ovarian changes, cysts and neoplasms, seem to demonstrate a connection between the ovary and secondary sexual characteristics, as in the cases of Freund and Alberti. These occurred well after puberty and were accompanied by marked hypertrichotic changes; but similar conditions were observed by Lesser in a patient who menstruated first at her third year and who at the fourth developed a strong generalized growth of hair.

While it is seen that altered ovarian states are at times accompanied by abnormal characteristics, such changes as the latter are a rarity, judging from the many cases we see of cystic degeneration and neoplasms; and we must conclude that other glands play a large part in such altered states. What part of the ovary is connected with these deviations is theoretical, but, by analogy, the previously mentioned views of Tandler and Gross may be thought of; or the ideas of McIlroy, who looks on the lutein cells as having the most active influence on the body by reason of their blood pressure raising property.

We now know that the thyroid is closely associated with sexual activity, for in deficient secretion sexual desire is frequently lost, and amenorrhea is often a concomitant symptom. Amenorrhea is also a common sign in increased secretion; so, as with the hypophysis, altered thyroidal secretions are succeeded by a similar menstrual disturbance. Additional evidences of a functional connection are seen by an increased growth of the thyroid gland during puberty, menstruation and pregnancy, a time when heightened sexual activity is present. Regardless of whether it is the altered ovarian secretion which influences the thyroid or vice versa, we have been unable to find, except in cretinism with its infantile genitalia, cases of thyroidal deviations accompanied by the markedly changed sexual characteristics so frequently observed in suprarenal, and, less often, in pineal neoplasms.

The thymus, like the thyroid, does not seem to be so intimately connected with sexual characteristics, but does have some association, as it is persistent in eunuchs. Possibly like the pineal it has a limited prepuberal function.

SUMMARY

From a review of the data, one may ask, What is the fundamental cause leading to those marked variations in sex characteristics? In reply I will say that it is evidently a disturbed pluriglandular equilibrium, for at times we see a suprarenal causation, at others a pineal, and occasionally a hypophysial. According to Falta,[23] these glands form a connected system; therefore it is to be expected that just as is the case in the hematopoietic system, a pathologic system, a pathologic process which becomes established in one part will cause disease to a greater or lesser extent in the other. As he explains it, the internal secretion of one gland reaches another through the circulation, and there either directly increases or inhibits functional activity, or increases or decreases its efficiency; or, again, it reaches the central nervous system, and there produces impulses which indirectly influence the secretory cells. Dennison[24] offers a similar explanation in that the hormones act through the blood on the nervous system, which in turn arranges and distributes impulses to the ductless glands, for example, action of epinephrin on the nervous system.

The function of the suprarenal, pituitary, pineal and thymus act in an inverse proportion to that of the ovary, or, as Dennison says, in a compensatory or synergistic manner. For with hypertrophies of the former we see atrophy of the latter. Thus Goldschwend's case of suprarenal hypersecretion was followed by ovarian atrophy and menstrual cessation, and Thumin's case of bilateral suprarenal involvement was succeeded by similar conditions. The clinical reports of Thumin and Bychowski illustrate the hypophysial relationship. The theories of Biach and Hulles show the pineal association, and the thymic hypertrophy subsequent to castration demonstrates the thymogonadial connection. Such a synergistic action exists not only between the ovary and this group of glands, but also between these glands themselves, for there is a pituitary hypertrophy following thyroidectomy, and acromegaly with suprarenal atrophy.

The thyroid and ovaries, on the other hand, have an antagonistic or neutralizing action on each other, for their functions vary in direct proportion; that is, the thyroid hypertrophies when the ovaries are most active, as in puberty, pregnancy and menstruation.

If we accept such an interrelationship, it is justifiable to assume that the suprarenal is the gland principally concerned with sexual characteristics, the pineal next, and then the hypophysis, ovary, thymus and thyroid, in order of importance. That one functionally imperfect gland alone is unable to produce marked hypertrichotic changes is seen by a case, reported by Pitt, of four suprarenal capsules; by cases of hypophysial lesions, and by numerous cases of ovarian cysts, the great majority of which never are accompanied by hypertrichosis. Rather we must conclude that at the basis must be some profound and complex disturbance of the antagonistic and synergistic pluriglandular equilibrium.

5 South Wabash Avenue.

23. Falta: Am. Jour. Med. Sc., 1909, cxxxvii, 496.

24. Dennison: Colorado Med. Jour., 1912, ix, 65.

Fresh Air and Chronic Laryngeal Stenosis.—An experiment with good results is reported in the bulletin of the New York Department of Health. Eighteen children with chronic laryngeal stenosis, compelled to wear tubes from two to eight years, were sent during the summer from the Willard Parker Hospital to the Otisville tuberculosis sanatorium, where they were given outdoor life on the farm. Physicians and nurses were in constant attendance. None of these children were able to go without the laryngeal tube for more than two months at a time. At the end of the first month in the country all but four children were able to go without tubes, and nearly half gave no evidence of difficulty in respiration. September 25, eighteen of them did not wear tubes. Two months later thirteen were still without tubes and appeared to be cured. The hospital authorities will provide quarters at Otisville for these children, at least during the spring, summer and autumn.

INTRAMUSCULAR INJECTIONS OF WHOLE BLOOD IN THE TREATMENT OF PURPURA HEMORRHAGICA *

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Sixteen hours after the injection of fresh whole blood into the deep muscular tissues of a patient suffering from a severe progressive purpura hemorrhagica, improvement was so marked as to alter the prognosis from doubtful to favorable. Despite the possible *post hoc ergo propter hoc* criticism, it is safe to assume that the sudden change from a persistent marked hematuria of seven days' duration to the passage of a clear urine, and the cessation of hemorrhages into the skin and mucous membranes a few hours after the injection of whole blood, were in this case directly due to the treatment.

The therapy of all forms of blood disease, whether primary — dependent on some inherent fault of the hematopoietic organs, or secondary — dependent on toxic, bacterial or other factors, is still in its infancy. A contribution to any phase of this subject, especially if based on the actual results of treatment as well as on theoretical considerations, should therefore be of value.

Purpura hemorrhagica, or morbus maculosus Werlhofii, has been found to be associated in most cases with a deficiency in the number of platelets in the circulating blood. Whether this "essential thrombopeny" [1] produces the symptoms of the disease, or is itself secondary to some causal agent still unknown, is, of course, the vital issue. Considering the deficiency in blood platelets as the important factor, the rational therapy in purpura hemorrhagica would be to supply to the circulation the lacking element. It is a well-recognized fact in hematology that when a foreign blood is to be supplied, the fresher the injected or transfused blood, the more efficient the results. Administration of the extract of plood platelets[2] (the coagulen of Kocher-Fonio) theoretically fulfils the first requirement, that of supplying the deficient element, but lacks the second requirement, the quality of freshness. Transfusion of blood, by any of the various methods in vogue, fulfils both essentials but requires preliminary agglutination and hemolysis tests. Subcutaneous injection of human serum, rich in platelets, possesses a drawback, in necessitating delay while the blood is standing or centrifugalizing. These disadvantages may be obviated and the same if not more beneficial results expected, in selected cases, by the immediate, subcutaneous or better, intramuscular[3] injections of whole blood. It was because of this line of reasoning, because injection of blood is considered a stimulus to regeneration of thromboplastic substances, because injection of whole blood intramuscularly is so simple and rapid compared with transfusion and other methods, and also because several observers have reported good results with this form of therapy, that it was decided to employ it in the case to be cited, after the ordinary drugs and the usual modes of treatment had failed.

REPORT OF CASE

History.—The patient, C. S., was a boy, aged 5½ years. The family history was carefully investigated for the existence of a possible blood diathesis; but there had been no purpura, hemophilia or other abnormal blood condition. The previous history of the child was absolutely negative, except for the occurrence of measles, two years before the present illness. There had never been any previous similar complaint or any tendency to prolonged bleeding from a cut or other wound; there had been no nose bleeding, no hematuria, no tendency to bruising of the skin, and no rheumatism.

Present Illness.—The first sign of illness was the appearance of a mild macular eruption on the chest, neck and abdomen of the child, which rash, the mother said, "looked like measles," but which was not accompanied by fever, coryza or malaise. Three days after the onset, there was slight bleeding from the gums. The macular eruption began to fade somewhat in five days, at which time the child was permitted to get out of bed. The next day, after a fall on the knees, the patient developed several large ecchymotic spots, at the site of the trauma. During the next few days, several more ecchymotic spots appeared on the body, and the character of the rash changed from macular to papular and hemorrhagic. There were no rheumatic joint pains, fever or abdominal crises.

Physical Examination.—I saw the patient, for the first time, on the tenth day of his illness. That morning the child had cried out suddenly from pain in the pubic region and then had voided, with considerable distress, a large quantity of almost pure blood. On examination, I found the child covered with petechiae, larger purpuric spots and ecchymoses. There was hardly one square inch of skin which did not show some evidence of the hemorrhagic tendency. The spots seemed to have no particular predilection for the neighborhood of the joints. There were numerous petechiae in the conjunctivae and on the mucous membrane of the mouth. Blood was oozing from the urethra. There were crusts in the nose from previous bleeding. The general condition of the patient was good. There was a slight fever, 100 F., and slight anemia, but no prostration and no distress except when the child voided. On these occasions, which were frequent —every ten or fifteen minutes—the pain was terrific; the little fellow would cry out in distress, and beads of perspiration would roll from his forehead at each jet of pure blood from the urethra. The physical examination was otherwise negative except for a slight murmur over the base of the heart. The spleen was not enlarged. There were no enlarged glands. There were no signs of joint inflammation.

Treatment and Subsequent Course.—After the immediate sedative treatment, the usual remedies reputed to be of benefit in bleeding cases were administered. Calcium lactate in large doses, epinephrin, arsenic and codein were all given a fair trial. Absolute rest in bed, a bland diet, gelatin and an abundance of fresh fruit juices were insisted on.

For a week, expectant treatment was followed. During that time, the general condition of the patient became somewhat worse. The hemorrhages in the skin and mucous membranes increased in number; while a few spots faded, many new ones constantly appeared. The urine, voided very frequently, continued to be full of blood, both fresh and clotted, the hematuria being so marked as to give cause for grave anxiety. At no time were there any other visceral manifestations. There was never any macroscopic or microscopic blood in the feces. There were never any casts in the urine. Ophthalmologic examination failed to reveal any retinal hemorrhages. The hemoglobin fell from 80 to 55; the erythrocytes from 4,200,000 to 3,600,000. The leukocytes numbered 7,200 on one occasion, 6,800 on another. The differential count was normal, the polynuclear cells averaging about 60 per cent.

* Read before the Hunterian Medical Society of New York City, Oct. 12, 1915.

1. Frank, E.: Die essentielle Thrombopenie, Berl. klin. Wchnschr., 1915, lii, 425.

2. Halpern, J.: Erfahrungen mit Koagulen (Kocher-Fonio), Beitr. z. klin. Chir., 1915, xcv, 324.

3. Meltzer, J. S., and Auer, J. (The Rate of Absorption from Intramuscular Tissue, Jour. Exper. Med., 1905, vii, 59) showed that absorption from muscle occurred with much greater rapidity than from subcutaneous tissues. Morgenroth and Levy confirmed this observation. (Morgenroth, J., and Levy, R.: Ueber die Resorption des Diphtherieantitoxins, Ztschr. f. Hyg. u. Infectionskr., 1911, lxx, 69).

There was no anisocytosis or poikilocytosis. Certain objections were raised to the frequent taking of blood for thorough and systematic examination of the blood platelets, so that investigation along this line was not attempted. The coagulation time was normal—from five to six minutes. The bleeding time[4] was ten minutes, somewhat beyond the normal limits.

In addition to the drugs mentioned above, coagulen in gram doses was given by mouth, but failed to check the hemorrhagic process. It was not tried subcutaneously or intravenously. Subcutaneous injections of 10, 20 and 30 c.c., respectively, of horse serum were administered without the least evidence of improvement. In the presence of the steady progression of symptoms, despite treatment, it was then decided to adopt a more radical method of therapy.

Injection of Whole, Fresh, Human Blood.—Twenty c.c. of blood were withdrawn by means of a record syringe (lubricated with sterile petrolatum) from the median cephalic vein of a relative whose Wassermann test had been reported negative, and were immediately injected into the gluteal region of the patient. Because of the possibility of clotting within the syringe, the time-saving element became an important factor in the technic; a second needle had been previously inserted into the tissues of the patient; therefore, it was necessary merely to discard the needle used in the withdrawal of blood from the donor, connect the blood-containing syringe with the needle in the tissues of the recipient, and inject. There was not the slightest evidence of clotting in the syringe, after this procedure.

There were no untoward effects, either local or constitutional, as a result of the treatment. About twelve hours after the injection, the urine, which for seven days, had been dark brown, almost black at times, became much lighter in color. Four hours later, that is, sixteen hours after the injection, the child voided urine which, to the eye, was perfectly clear, and which even microscopically contained only a few red blood cells. During the remainder of that day, the urine voided was again smoky, but was much lighter than before the injection. The following day, several clear specimens were voided. From that time, improvement became more and more marked, until at the end of ten days from the date of injection, no specimen, voided at any time during the day, contained even microscopic blood. The improvement in the skin condition, although less striking, was just as steady and as marked. An occasional new crop of petechiae or a fresh ecchymotic spot would appear; but the great majority gradually faded. Attempts to walk or to allow the legs to hang down for any length of time would occasionally produce fresh hemorrhages, but this tendency also gradually disappeared, so that six weeks after the onset of the disease, the patient having had no further blood injections, all evidence of the hemorrhagic diathesis had entirely disappeared.[5]

COMMENT

Whether recovery would have occurred, in this particular instance, under expectant treatment only, is questionable, regardless of the fact that spontaneous cures in this disease are not infrequent. It is not logical to assume that the sudden cessation of the progressive hemorrhagic tendency, a few hours after the treatment as described above, was purely coincidental.

Although not the first time this method has been used successfully, the records of previous trials in this particular disease are rare. In a man aged 20 years, suffering from purpura hemorrhagica, Howard[6] reported good results from the use of whole blood in large amounts. He gave from 28 to 90 c.c. of blood in a series of four injections, over a period of six days, on two occasions employing two donors. Peterson[7] injected 20 c.c. of whole blood in a patient with purpura hemorrhagica, while waiting for the hemolysis and agglutination tests, preliminary to a transfusion by the Lindeman method.[8]

Injection of whole blood has not, by any means, been confined to the treatment of purpura hemorrhagica. Schloss and Commiskey,[9] beginning their studies in 1908, reported good results with this procedure in several cases of hemorrhage of the new-born. Curtis,[10] employing the injection of whole blood especially for uterine hemorrhages, suggests that it should prove of great value in any hemorrhage of moderate severity, where bleeding has not reached the point of exsanguination, and believes that its repeated use in chronic anemias, wasting diseases and infections might prove even more efficient than transfusion. Zingher[11] makes use of convalescent and normal whole blood in the treatment of scarlet fever, and advises its employment in other infections and in blood diseases, and Kaiser[12] reported excellent results in a case of severe erysipelas after the injection of whole blood from a convalescent erysipelas patient. Injections of defibrinated blood have also been used successfully in severe cases of anemia.

Of the other methods reputed to be of benefit in purpura hemorrhagica, subcutaneous injections of coagulen (Kocher-Fonio[2]), of sterilized gelatin, of Witte's peptone,[13] and of animal[14] and human blood serum, intravenous injection of human serum, and transfusion[15] by any of the various methods[16] now in vogue are the most important. Frank[1] employs intravenous injection of large amounts of normal human blood serum. After preliminary tests, from 400 to 500 c.c. of blood from the donor are received in a vessel, covered with enough leech extract to prevent coagulation (10 mg. herudin to 75 c.c. blood), placed on ice or slowly centrifuged, and the plasma drawn and infused into a vein of the patient. This method and transfusion of either ordinary or citrated blood are perhaps the ideal measures when the patient is almost exsanguinated, or when the disease is rapidly progressive and fulminating. But taking into consideration the time and skill required to make preliminary tests as well as to perform the transfusion itself, it would seem most rational to employ first, in every case associated with this blood diathesis, the simple method of intramuscular injection of fresh whole blood, reserving the more complicated methods for emergencies or when several trials of the simpler

4. Duke, W. W.: The Pathogenesis of Purpura Hemorrhagica with Especial Reference to the Part Played by Blood Platelets, Arch. Int. Med., November, 1912, p. 445.

5. At the present date—three months after the cessation of all hemorrhages—the patient is perfectly well, having had no sign of a recurrence.

6. Howard, C. C.: Purpura Hemorrhagica Treated with Subcutaneous Injections of Pure Blood, Kentucky Med. Jour., 1914, xii, 606.

7. Peterson, E. W.: Purpura Hemorrhagica Treated by Blood Transfusion, Post-Graduate, New York, 1914, xxix, 499.

8. Lindeman, Edward: Simple Syringe Transfusion with Special Cannulas, a New Method Applicable to Infants and Adults, Am. Jour. Dis. Child., July, 1913, p. 28.

9. Schloss, O. M., and Commiskey, L. J. J.: Spontaneous Hemorrhage in the New-Born, Am. Jour. Dis. Child., April, 1911, p. 276.

10. Curtis, A. H.: The Treatment of Hemorrhage by Injection of Blood, THE JOURNAL A. M. A., Jan. 23, 1915, p. 332.

11. Zingher, Abraham: The Use of Convalescent and Normal Blood in the Treatment of Scarlet Fever, THE JOURNAL A. M. A., Sept. 4, 1915, p. 875; A Simple Syringe Method for the Transfer of Blood from Donor to Recipient, Arch. Pediat., 1914, xxxi, 912.

12. Kaiser, A. D.: Case of Erysipelas Treated with Whole Blood from Convalescent Patient, Arch. Pediat., 1915, xxxii, 519.

13. Osler and McCrae: Modern Medicine, Ed. 2, Philadelphia, Lea & Febiger, 1913, iv, 728.

14. Weil, P. E.: Des injections de sérums sanguin frais dans les états hemorrhagipares, Tribune méd., Paris, Jan. 12, 1907.

15. Ottenberg, R., and Libman, E.: Blood Transfusion, Indications, Results, General Management, Am. Jour. Med. Sc., 1915, cl, 36.

16. Lindeman (Note 8). Weil, Richard: Sodium Citrate in the Transfusion of Blood, THE JOURNAL A. M. A., Jan. 30, 1915, p. 425. Lewisohn, R.: Blood Transfusion by the Citrate Method, Surg., Gynec. and Obst., 1915, xxi, 37. Unger, L. J.: A New Method of Syringe Transfusion, THE JOURNAL A. M. A., Feb. 13, 1915, p. 582.

measure have proved of no avail. If repeated injections should be desired, without withdrawing the blood a second time from the donor, it would be simple enough, inasmuch as citrated blood remains fluid for several days, to take a large quantity of blood from the donor at one time, citrate it, and inject from every twelve to twenty-four hours for two or three days.

No less instructive than the therapy of purpura hemorrhagica is the experimental and laboratory work done in recent years, leading to a more complete knowledge of the pathogenesis and nature of this disease. As early as 1887 Deny observed a reduction in the number of blood platelets in purpura hemorrhagica. Somewhat later Hayem, and since then various other workers in this field, have corroborated Deny's discovery. The normal number of blood platelets is variously estimated as between 200,000 and 300,000 per cubic millimeter.[17] In Duke's[4] series of purpura patients the blood platelet count was below 10,000 in the severe, and between 20,000 and 65,000 in the mild cases, a decided reduction from the normal.

Experimenting with animals, Ledingham[18] produced a condition resembling purpura in guinea-pigs by inoculation of an antiserum prepared by immunizing rabbits with guinea-pig blood platelets. Duke[4] produced a similar condition in rabbits and incidentally decreased the number of blood platelets by repeated injections of diphtheria antitoxin and of benzol. He concludes that the condition may apparently be caused by any agent which reduces the platelets to a sufficient degree. That purpura depends in great part on a deficiency in the number of platelets in the circulating blood is shown by the fact that transfusion benefits, and the improvement persists, as long as the platelet count is at a high level, but the symptoms return if the platelet count again falls sufficiently low.[4]

Hayem has described a remarkable and interesting phenomenon[19] occurring in practically all cases of purpura hemorrhagica. Normally, a blood clot quickly retracts from the sides of the vessel in which it is contained, and expresses serum. The clot in purpura hemorrhagica does not retract, nor is there any extrusion of serum. The coagulation time in purpura is usually not prolonged, thereby helping to distinguish this disease from hemophilia; but the bleeding time,[4] determined by estimating the length of time a needle prick will bleed, after blotting up the clot at the bleeding site every thirty seconds, may be prolonged from normal (which is from one to three minutes) to as long as several hours.

From this brief outline, it may be seen that, although the study of purpura hemorrhagica, especially as regards etiology and treatment, is still in its infancy, the excellent work of various observers in the last few years has shown the way to a better understanding of the whole subject, and has awakened a hope that the solution of many of the problems associated with this disease may not be far distant.

17. Wright, J. H., and Kinnicutt, Roger: A New Method of Counting the Blood Platelets for Clinical Purposes, THE JOURNAL A. M. A., May 20, 1911, p. 145. The ordinary Thoma-Zeiss hemacytometer is employed, using the red cell pipet, and diluting the blood 1:100. The diluting fluid consists of two parts brilliant cresyl blue and three parts aqueous solution of potassium cyanid (1:1,400). The nuclei of the white blood cells stain dark blue, the protoplasm light blue; the red cells are decolorized and appear as "shadows"; the platelets appear as small lilac-colored, oval or elongated bodies.

18. Ledingham, J. O. G.: Experimental Production of Purpura in Animals by the Introduction of Anti-Blood-Plate Sera, Lancet, London, 1914, i, 1673.

19. Hayem, G.: Du Caillot non rétractile: suppression de la formation du serum sanguin dans quelque états pathologique, Compt. rend. Acad. d. sc., 1896, cxxiii, 894.

CONCLUSIONS

1. The best methods of treatment of purpura hemorrhagica, in addition to the usual measures are: (*a*) subcutaneous or intravenous injection of human blood serum; (*b*) transfusion, and (*c*) intramuscular injection of whole fresh human blood.

2. The intramuscular injection of whole blood is a simple, harmless, effective procedure, and should be employed before other radical measures in all cases of severe purpura hemorrhagica; it may also have a wide field of usefulness in hemophilia and other blood diseases; in bleeding from various parts or organs of the body; in wasting diseases, and in many infections.

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PROTEOLYTIC FERMENTS OF THE BLOOD SERUM IN TABES DORSALIS AND GENERAL PARESIS*

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Of late a large amount of work has been done with the Abderhalden test, different tissues being used as substrate in an endeavor to obtain specific reactions which might be of value in diagnosing various obscure conditions. The field of nervous diseases especially has attracted considerable attention. In this respect, for example, dementia praecox and some other nervous disorders have been said to give specific reactions, such tissues as ovary, testicle, brain and other organs being used as substrate.

Abderhalden reports some results which seem to confirm these statements, and his explanation is that in the various diseases which he enumerates a disturbance of the function of certain glands of internal secretion occurs which causes them to produce their secretion in a manner abnormal either in quality or quantity. In these conditions he believes there are mobilized, in the blood of the affected individual, ferments which have a specific action on the substance of the gland whose secretion is disturbed.

This theory has been eagerly embraced by many men, and from the glowing accounts which emanated from the various clinics during the early part of last year, the men not engaged in this work were led to believe that at last many if not all of the dark spots in the field of nervous diseases were to be illuminated.

As might have been expected by any one familiar with the principles of biologic reactions and serologic tests, these predictions have failed of realization.

It has been demonstrated by myself[1] and others that similar positive reactions can be obtained by using placental tissue prepared according to Abderhalden's directions for use in the test of pregnancy.

This speaks strongly against the specificity of the ferments that are present in these bloods. If they are mobilized against proteins from certain organs, then they should be specific and digest only those organs. This was the first blow delivered against the theory in this country. Not only is it true for the test in certain nervous diseases, but also it has been shown that blood in nearly all pathologic conditions will give

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1. Falls, F. H.: A Study of the Ferment Activity of the Blood Serum, THE JOURNAL A. M. A., Oct. 3, 1914, p. 1172.

a positive Abderhalden test when placenta is used as a substrate.

Recently another blow has been dealt at the theory in Europe by De Waele[2] and Plaut,[3] and in this country by the excellent work of Jobling, Eggstein and Petersen,[4] and by Bronfenbrenner.[5]

These investigators have demonstrated that the various tissues used as substrate in the Abderhalden test are not digested by the ferments in the blood serum. On the contrary, they are even more resistant to tryptic digestion than the same tissue not exposed to the action of the serum. The explanation of this phenomenon is that the tissue used as a substrate plays a purely passive rôle in the experiment and acts by adsorbing certain antitryptic substances in the serum which are of lipoidal nature, thus allowing the trypsin to digest the serum proteins present in the blood. According to De Waele, the trypsin of the blood has a specific affinity for the globulin fraction of the serum protein.

From these facts it is obvious that we are forced to change our views regarding the ferment activity of the blood in these conditions. One point, however, is apparently settled, and that is that in many of these conditions there is an increase in the ferment content

TABLE 1.—TABES DORSALIS

No.	Duration of Disease	Last Meal, Hrs.	Incubation Period, Hrs.	Ninhydrin Reaction	Control Reaction	Remarks	Age, Yrs.
1	2 yrs.	5	20	++++	0	Stood at room temp. 28 hours	26
2	2 mos.	5	20	++++	0	Stood at room temp. 28 hours	34
3	4 mos.	5	20	+++++	0	Stood at room temp. 28 hours	35
4	1 yr.	4	24	+	0	.....	52
5	.....	4	24	++	0	.....	55
6	3 yrs.	4	24	0	0	Slight hemolysis.....	46
7	3 to 4 yrs.	6	23	Very faint	0	Gastric crisis.....	40
8	4 mos.	4	23	++	0	.....	25
9	1 yr.	4	23	+	0	.....	38

of the blood. This fact is admitted both by the men who have worked with the antitrypsin method of determination, and by those who have worked with the Abderhalden dialysis method.

Whether or not this phenomenon is of practical value as a diagnostic measure, its theoretical importance is obvious. These fundamental facts have a significance which, even though the present state of our knowledge regarding them is incomplete and difficult to interpret, nevertheless can hardly be disregarded. It is from a further study along this line that we may hope to gain a clearer conception of the underlying pathologic processes concerned in the production of these diseases.

EXPERIMENTAL

I wish to report a series of cases of tabes dorsalis and general paresis which I have recently studied by the Abderhalden method. These cases were first observed when I was trying to determine what pathologic conditions would give a positive Abderhalden test and therefore would have to be ruled out when applying the test in a case of suspected pregnancy.

2. De Waele, H.: Ztschr. f. Immunitätsforsch., 1915, xxii, 171.
3. Plaut, F.: München. med. Wchnschr., 1914, lxi, No. 5.
4. Jobling, J. W.; Eggstein, A. A., and Petersen, William: Serum Proteases and the Mechanism of the Abderhalden Reaction, Studies on Ferment Action, XX, Jour. Exper. Med., 1915, xxi, 239.
5. Bronfenbrenner, J.: Jour. Exper. Med., 1915, xxi, 227.

I was greatly surprised to find that the blood serum contained tryptic ferments in excess of the normal in practically all of these cases. In these tests I followed the technic used by the Abderhalden school as closely as possible, so that results obtained might be comparable. Human placental tissue was used as substrate in all tests. For details regarding the technic and preparation of the various constituents entering into the test, reference is made to my article of last year.[1]

TABLE 2.—GENERAL PARESIS

No.	Duration of Disease	Last Meal, Hours	Incubation Period, Hours	Ninhydrin Reaction	Control Reaction	Remarks	Age
1	Information not reliable	3½	22	+	0	Doing well under salvarsan	33
2	Information not reliable	3	22	++++	0	.....	35
3	Information not reliable	3	22	+++	0	.....	42
4	Information not reliable	5	24	+++	0	Cerebrospinal syphilis	44
5	Information not reliable	3	22	++++	0	Congenital tabes Optic atrophy	15
6	Information not reliable	4	22	++++	+	Taboparesis.....	34

Most of these patients were adults and all were males. The patients were from the nervous services at the Cook County Hospital, Chicago, to the attending men of which I take this opportunity of expressing my thanks for free access to the clinical material. None of the patients were suffering from any preexisting or concomitant disease as far as could be determined.

Tabes dorsalis was first investigated. The cases were all in adult males; all were under treatment. A few had received salvarsan; others were under mercury and the iodids. The reaction was positive in all but one case. The reason for its absence in the one case I cannot explain from the facts adduced. The strength of the reactions in the first three cases in Table 1 cannot be fairly compared with the others, because the tubes were incubated twenty hours, and then allowed to stand at room temperature twenty-four hours, before dialyzation was interrupted. As would be expected, the reactions were stronger than in the other cases.

TABLE 3.—MENINGITIS

No.	Duration of Disease, Weeks	Last Meal, Hours	Incubation Period, Hours	Ninhydrin Reaction	Control	Remarks	Age	Remarks
1	?	Several	22	Negative	0	Semicomatose	37	Tuberculous?
2	?	3½	22	Faint trace	0	Pneumococcal or epidemic	50	Chronic nephritis
3	?	Several	24	Negative	0	Epidemic.....	25	Delirious
4	2½	4	21	Faint trace	0	Tuberculous..	20	
5	.....	3½	22	Negative	0	Wassermann+	30	Possibly syphilitic

Neither the age of the patient nor the duration of the disease appeared to have any effect on the reaction obtained. In general the reactions may be said to be relatively weak in this disease.

The reactions were stronger in the cases of general paresis, as is shown in Table 2. This is as we would expect from a knowledge of the clinical course of the disease. It is as a rule relatively rapidly progressive, and the processes are more destructive than in tabes. Hence by analogy with the results obtained in other

acute infectious diseases, one would expect to obtain relatively strong reactions.[6]

I have incorporated in this paper a series of cases of meningitis which may be regarded as control experiments, inasmuch as they all gave negative or very faint reactions. This is a peculiar fact and to my mind can be explained only on the assumption that the greater part of the reaction to the infection occurs outside of the blood stream in these infections and that therefore there is relatively slight variation in the ferment content of the blood under these conditions.

I have also incorporated for comparison a series of pregnancy cases in Table 4. These control tests were made under the same conditions as the tests in the cases of tabes and general paresis. It will be seen that certain of the latter reacted fully as strongly as some of the cases of pregnancy.

The results seem to indicate that the ferment activity of the blood is increased in both tabes dorsalis and general paresis. The reactions were relatively weaker in the cases of tabes than in the cases of general paresis. This corresponds with our knowledge of the diseases, tabes being a relatively benign form of the infection, and usually of long duration and relatively slow tissue changes.

TABLE 4.—PREGNANCY CASES

No.	Length of Gestation, Months	Last Meal, Hours	Incubation Period, Hours	Nin. hydrin Reaction	Control	Remarks
1	5	5	22	+++	I.S+P* 0	Clinical examination confirmed diagnosis
2	9¼	4	16	+++	S† 0	
3	9¾	5	16	+++	I.S+P 0	
4	10	4	16	+++	S 0	
5	9¼	4	16	+++	S 0	
6	9¾	5	16	++	S 0	
7	8¾	4	16	++	S 0	Placenta praevia
8	9	4	16	++	S 0	
9	5	5	22	+++++	I.S+P 0	Threatened abortion
10	4	5	21	++++	I.S—P 0	Threatened abortion

* I.S+P = Inactivated serum + placenta used as control.
† S = Serum alone used as control.

General paresis, on the other hand, is a malignant form of the infection. The progress is rapid, and tissue changes are intense. This coincides with my findings as regards the tryptic power of the blood serum in the acute infectious diseases.

The demonstration of the presence of an increased amount of ferment in the serum is one thing. The interpretation of this fact and its clinical and pathologic significance is quite another matter. Will the presence or absence of the reaction be of value from the standpoint of diagnosis or prognosis? Will it be of value in regulating the time and amount of treatment? Will attempts artificially to vary the ferment content of the blood have any effect on the course of the disease?

These are all questions that demand investigation. I am well aware that the present series is too short from which to draw hard and fast conclusions. It is intended more to point out the fundamental facts, and also to correct certain misconceptions that have arisen from the early work along these lines.

It seems to me that the present method is rather cumbersome and demands too much time on the part of the investigator. Although I have had no personal experience with the antitrypsin method, from a study of the work of others it would seem that more rapid and equally reliable results could be obtained by this method. From the amount of work that is being done, this point should soon be settled.

6. It has occurred to me that the administration of iodids to these patients might theoretically be considered as the cause of the positive reaction, since it has been shown that iodin, by uniting with the unsaturated bonds of the antitryptic lipoids, increases the tryptic activity of the serum.

CONCLUSIONS

1. The ferment activity of the blood serum is increased above the normal in tabes dorsalis and general paresis.

2. This increase is greater in general paresis than in tabes dorsalis.

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THE NATURE OF PHARMACEUTIC NAPHTHENE OIL (LIQUID PETROLATUM)

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The recent increase in the use of liquid petrolatum as a laxative, particularly in cases of intestinal stasis, taken together with the fact that water-white oils, intended for internal use, are now being largely manufactured in this country, seems to warrant the publication of the following notes on the chemical character, properties, mode of manufacture and testing of oils of this class.

The claim has been frequently and persistently made that the Russian oils, presumably those derived from the Baku district, consist of naphthene hydrocarbons (sometimes erroneously confused with hydrocarbons of the benzene series), whereas American oils consist chiefly of hydrocarbons of the methane or paraffin series and that, therefore, liquid petrolatums made from "American oils" have not the same properties and should not be substituted for the Russian liquid petrolatum. Although the crude petroleums obtained from the world's various producing districts vary greatly in composition, America has great quantities of petroleum of the same general character as the Baku oil. The claim that the Russian or Baku petroleum consists essentially of naphthene hydrocarbons is equally true of certain American oils. In general, as the fractional distillation of the crude petroleum proceeds, the distillates become poorer in hydrogen, the predominating constituents of the successive fractions being represented by the empiric formulas C_nH_{2n+2}, C_nH_{2n}, C_nH_{2n-2}, C_nH_{2n-4}, etc. The hydrocarbons contained in petroleum distillates may be grouped together as follows:

1. *Paraffin Hydrocarbons,* C_nH_{2n+2}.—These hydrocarbons predominate in the gasoline and kerosene fractions obtained from most crudes. The simpler compounds are liquid, but the hydrocarbons of this series which boil above about 300 C. are solid at ordinary temperatures and constitute the ordinary paraffin of commerce: example, tetracosan, $C_{24}H_{50}$, melting point from 50 to 51 C., isolated by Mabery from paraffin from Pennsylvania oil.

2. *Naphthene Hydrocarbons,* C_nH_{2n}.—These hydrocarbons rarely predominate in the gasoline and kerosene fractions except in the case with certain crudes. Thus, the gasoline fraction from Baku oil contains from 80 to 90 per cent. of naphthenes. The lighter kerosene fraction of the Ohio Trenton limestone oil contains about 65 per cent. of naphthene ($C_{12}H_{24}$ to $C_{17}H_{34}$). The fraction of the Santa Barbara (Calif.) crude oil, which boils below 170 C., consists almost exclusively of naphthenes, and Coates[1] has shown that the lighter fractions of the Jennings (La.) petroleum consist almost entirely of naphthenes. Chemically, naphthenes are, as a rule, as inert as the paraffin hydrocarbons.

3. *Polynaphthenes,* C_nH_{2n-2} and C_nH_{2n-4}. — The higher boiling, viscous oils, such as are employed for lubricating, and the so-called liquid petrolatum oils belong to this class. Such lubricating oils may or may not contain a small quantity, usually not more than 2 per cent., of paraffin, which crystallizes out when the oil is chilled.

4. *Benzene Hydrocarbons.*—These hydrocarbons, of which benzene and toluene are well known examples, occur in very small amounts in all crude petroleums which have been thoroughly examined. In the rigorous refining to which all oils of the liquid petrolatum class are subjected, the benzene homologues are completely removed.

5. *Olefin Hydrocarbons.*—These substances also are represented by the empiric formula C_nH_{2n}, but, in contrast with the naphthenes, are unsaturated, containing the olefin group $\diagdown C = C \diagup$. They are very reactive chemically, are usually very irritating to the mucous membranes, and the gastric irritation, which may be very severe, which follows the swallowing of unrefined oils, has been attributed to their presence. Turpentine or pinene is an example of such an unsaturated hydrocarbon. When oils are refined by concentrated or fuming sulphuric acid, as is customarily the fundamental operation in the manufacture of oils for pharmaceutic use, these unsaturated hydrocarbons are completely removed.

6. *Fluorescent and Coloring Matter.*—As a rule, the fluorescence of mineral oils is completely removed incidental to the process of refining it to such a degree as to remove the petroleum taste. The substances causing fluorescence are present only in traces, and are readily sulphonated by concentrated or fuming sulphuric acid, and may be removed[2] in this way. A trace of tarry matter in solution suffices to give the oil a yellow tinge and usually, though not always, a bad taste. Some preparations of the nature of petrolatum may be quite yellow and yet be practically tasteless. Final removal of color may be accomplished by filtration through fullers' earth or by distillation with superheated steam. In pharmaceutic oils a slight color should not be objected to, provided the oil is sufficiently good with respect to taste.

There is great need that some proper and uniform nomenclature be adopted to designate the viscous, water-white, tasteless mineral oils usually designated as white paraffin oil, liquid petrolatum and by a score or more of trade names. As has been pointed out by Marcusson,[3] *most oils of this class contain no paraffin hydrocarbons whatever,* being made up of hydrocarbons of the naphthene, C_nH_{2n}, and polynaphthene, C_nH_{2n-2} and C_nH_{2n-4} class. Such an oil made by Marcusson by the action of concentrated and fuming sulphuric acids on a light lubricating oil yielded a finished product having the specific gravity 20°/4° of 0.8827 and which showed the following analysis:

Found	Calculated for $C_{30}H_{58}$
C.....86.74	86.33
H.....13.43	13.67

I have made such pharmaceutic oils from the lubricating oil distillates of several American crudes, and while some of them contain a small amount of paraffin which crystallizes out on chilling, it should be mentioned that many American oils, such as most of the oils of the Gulf region, contain no paraffin whatever. Even when prepared from typical Pennsylvania oils, the customary refinery method of removing the paraffin wax, namely, chilling, suffices to free the oil of paraffin wax to such an extent that a pharmaceutic oil prepared from such low cold test Pennsylvania oils would be practically free from paraffin. Such an oil would therefore be a true naphthene and polynaphthene oil. I suggest, therefore, that in order to avoid confusion and to designate properly oils of this class, they be called "white naphthene oils." The claim that *only* Russian oils belong in this class has no basis of fact and has been advanced presumably for business reasons.

The facts cited above may serve to explain the results reported by Dr. W. A. Bastedo, of the Council on Pharmacy and Chemistry of the American Medical Association:[4]

> The results of this clinical investigation appear to warrant the conclusion that so far as therapeutic results are concerned the differences in the action of the three varieties of liquid petrolatum, namely, light Russian liquid petrolatum, heavy Russian liquid petrolatum and American liquid petrolatum, are too slight to be of importance. Hence, the choice between the lighter and the heavier oils, and between the Russian and the American is an open one, to be determined not by therapeutic differences, but by palatability, depending on the degree to which the refinement of the oil is carried out.

To this it may be added that the promiscuous sale for internal use of the lighter oils, lighter than the specific gravity 0.885, is to be condemned owing to the fact that trouble due to leakage, as reported by Dr. Bastedo, is much more common with the lighter oils. Leakage will rarely result if the original recommendations of Sir Arbuthnot Lane be followed, and only the more viscous oils of 0.885 specific gravity, or heavier, be employed for internal use.

In regard to testing oils of this class, the most important tests are undoubtedly taste, keeping quality and viscosity; but since the specific gravity is roughly a measure of the viscosity and since the former determination is much more easily and quickly carried out, it may be substituted for the viscosity measurement. In regard to taste I am able to confirm the experience of others that masticating the oil with ordinary white bread brings out the petroleum taste, making this test for taste more delicate and enabling one to distinguish between oils which are nearly identical in this respect.

One of the most important tests that can be made is for keeping quality. Many oils are perfectly color-

1. Coates: Jour. Am. Chem. Soc., 1906, p. 384.
2. Brooks and Bacon: Jour. Indust. and Engin. Chem., 1913.
3. Marcusson: Chem. Ztg., 1913, p. 550.
4. Bastedo, W. A.: Clinical Experience with Liquid Paraffin (Liquid Petrolatum), THE JOURNAL A. M. A., March 6, 1915, p. 808.

less and tasteless when freshly prepared, but after standing, particularly if exposed to the light, acquire an objectionable taste and a light yellow color. Exposure to daylight in loosely stoppered bottles will develop very marked differences within from four to ten days in the case of oils which originally are excellent and apparently identical in quality.

Various chemical tests have been proposed, such as treatment with sulphuric-nitric acid mixture. In my opinion, none of these tests is of any significance whatever. Thus, in regard to the sulphuric-nitric acid test, it may be mentioned that, as Gurwitsch[5] states, "in general it may be said that the reaction with nitric acid proceeds somewhat more readily with the naphthenes than with the paraffins." If the purpose of the test is really nitration, then it should be carried out differently, since, as Namjetkin has shown, dilute nitric acid alone, specific gravity about 1.30, is best for nitrating paraffins and naphthenes. The usefulness of such a test is not apparent, and I believe that the simple tests suggested above are easily sufficient to enable one to pass judgment on the relative merits of oils of this class. The freezing test for detecting the presence of paraffin has also been proposed; but if paraffin does not separate from the oil at room temperature, it certainly could not do so in the body. The presence of a small amount of paraffin indicates that the oil has probably been prepared from one of the so-called "paraffin base" crudes, not added as an adulterant.

Mellon Institute of Industrial Research.

5. Gurwitsch: Wissenschaftliche Grundlagen der Erdölbearbeitung, Berlin, 1913.

CANDY MEDICATION *

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The idea of presenting medicine in candy form is as old as are confections and lozenges. Candy medication is also in extensive use, most especially in the form of a great variety of phenolphthalein preparations from phenolax and purgen to zam zam and ex-lax. Two facts, however, that are not sufficiently known are: first, that a large number of other medicaments may be administered in the same form; and, secondly, that candy medicaments can be prepared extemporaneously by any good pharmacist.

It is now quite a number of years since, delighted with the results obtained from the administration of the candy medicaments that could then be found on the market — and they were few indeed — I commenced a systematic search for medicaments that could be given in candy form.[1] I soon learned that, to be a real advance in therapeutics, candy medication must meet the following requirements:

1. It must be a perfectly delicious sweet, attractive in form, color and odor, and free from the suspicion of disagreeable or medicinal taste or odor.

2. It must disintegrate rapidly in the mouth, for a sick child will usually not suck candy as a healthy youngster would.

3. It must be possible for the average pharmacist to prepare the medicament extemporaneously, so that the physician may be able to fit the dose and combination of the medicine to suit the case, that the patient may receive a fresh and perfect preparation at all times, and that the pharmacist may not be forced to carry in stock a large assortment of these more or less perishable goods.

In view of these exacting requirements, it may be rather surprising that over fifty different medicaments are at present available for administration in candy form. This has been accomplished by taking advantage of the fact that some medicines are practically tasteless; that modern synthetic chemistry has enriched our resources in this direction by the production of a considerable number of tasteless or almost tasteless and yet active substances, and that many of the isolated active principles are easily disguised.

In some cases a chemical trick is successful, for example, using a little alkali or a little acid to render the substance less soluble in the mouth. Quite a number of almost insoluble substances of slight but lingering taste can be made perfectly pleasant by impregnating them with saccharin by trituration with a 3 per cent. alcoholic solution of saccharin, and permitting the alcohol subsequently to evaporate.

I have experimented considerably to find a candy form that would lend itself to extemporaneous preparation, and yet yield tolerably stable products. I have found it in sugar tablets, for which I have proposed the name "sweet tablets" (Latin, tabellae dulces).[2]

To prepare these, the pharmacist needs no greater equipment than a ten-dollar tablet machine. Were a universal formula for a base for sweet tablets desired, it might be found in the following formula:

VANILLA CACAO SUGAR

Tincture of vanilla	5.00 c.c.
Cacao powder	10.00 gm.
Dextrose	10.00 gm.
Sugar, powdered	80.00 gm.

Mix thoroughly by trituration in a mortar, and preserve in a well-stoppered bottle.

Mixing this sugar preparation with the proper amount of medicament in such proportion that it is contained in 0.30 gm. yields a powder that is ready for compression in the tablet machine.

For substances that have a slight flavor of their own, such as thyroid, sulphur or podophyllum, cinnamon cacao sugar is better. The latter may be prepared by substituting 0.5 c.c. of 10 per cent. spirit of cinnamon for the tincture of vanilla.

Inasmuch as variety in flavor and appearance is quite desirable in this form of medication, I have experimented to find a substitute for cacao that would lend itself as well to extemporaneous tablet making as that substance, when added to sugar. I have found it in what I propose to call "fat starch," for which the following formula might be given:

FAT STARCH

Alcoholic solution of saccharin, 3 per cent.	15.00 c.c.
Liquid petrolatum	25.00 c.c.
Starch	75.00 gm.

Mix the starch with the solution of saccharin, and permit the alcohol to evaporate completely. Then incorporate the liquid petrolatum.

* From the Department of Pharmacology, University of Illinois, College of Medicine.

1. Fantus, Bernard: Candy Medication, THE JOURNAL A. M. A., Sept. 14, 1912, p. 842.

2. Fantus, Bernard: Tabellae Dulces, Jour. Am. Pharm. Assn., May, 1914.

This fat starch added to sugar to the extent of 20 per cent. yields a powder that is ready for compression in the tablet machine. By appropriate coloring and flavoring, quite a variety of sweet tablets can be elaborated.

To give these formulas in detail would lead beyond the limits of this article. They have been published elsewhere.[3]

For the purposes of the physician, the naming of the medicaments available in this form and some discussion of their use will probably suffice. The dose given is generally as much as can well be administered in this form; and, wherever possible, that suitable for a child of 3 years of age, in no case, however, exceeding it. Smaller dosage could easily be given, larger dosage only in case of a few. Combinations have purposely been avoided, but could easily be effected in many instances.

THERAPEUTIC USES OF SWEET TABLETS

It may be of interest to see how many indications may be met, confining oneself entirely to the list of candy medicaments.

1. For effect on the *alimentary tract,* we have the choice of the following *antiemetics:* sweet tablets of: cocain, 0.001 gm. (1/60 grain); anesthesin, 0.015 gm. (1/4 grain); morphin, 0.0006 gm. (1/100 grain); bismuth subnitrate or subcarbonate, 0.20 gm. (3 grains), and cerium oxalate, 0.12 gm. (2 grains).

Among these the most important, no doubt, are the bismuth salts, though anesthesin possesses a most interesting and possibly useful benumbing effect in the throat as well as in the stomach.

Emetics.—If enough of the sweet tablets containing the nauseant expectorants, apomorphin, tartar emetic or emetin be given, vomiting could be induced. However, the syrup of ipecac answers all the requirements of an emetic for children; and sweet tablets would scarcely be used for this purpose.

Antacids.—The doses of the antacids that can be administered in form of sweet tablets are possibly too small to be of much use. For instance, not more than 0.06 gm. (1 grain) of sodium bicarbonate can be made palatable in this form. But soda mint tablets used by adults contain only 0.30 gm. (5 grains). The sweet tablets of magnesia contain only 0.06 gm. (1 grain), yet they represent one-third teaspoonful of milk of magnesia. Sweet tablets of chalk contain only 0.12 gm. (2 grains) of chalk; this, however, represents one-half teaspoonful of the official chalk mixture, and in a much more permanent form.

Charcoal may be of no use as an adsorbent in pediatrics. I should like to point out, however, that if charcoal is of any use in practice, that contained in the tablets prepared after my formula is in dry and finely powdered form, and is therefore much more likely to act as adsorbent than the granulated charcoal generally used in tablet making. The ordinary charcoal tablet contains 0.30 gm. (5 grains) of charcoal. Sweet tablets may be made, containing 0.18 gm. (3 grains) of this substance.

We have a fair number of candy *cathartics* to select from, though the first three named below are probably the most successful: sweet tablets of: calomel, 0.006 gm. (1/10 grain); mercury with chalk, 0.03 gm. (1/2 grain); phenolphthalein, 0.06 gm. (1 grain); elaterin, 0.0006 gm. (1/100 grain); resin of podophyllum, 0.001 gm. (1/60 grain); resin of jalap, 0.03 gm. (1/2 grain); senna, 0.06 gm. (1 grain), and sulphur, 0.06 gm. (1 grain).

I have not had much occasion to use the others. The dose of the last two is probably too small to be of much use; and yet sulphur tablets used by adults contain only 0.30 gm. (5 grains).

Intestinal antiseptic action can be obtained from the above-named mercurials and from the salicylates to be discussed below.

It may be of interest to know that 0.06 gm. (1 grain) of lactic acid bacilli may be put up in the form of sweet tablets.

Among the *anthelmintics* santonin 0.03 gm. (1/2 grain) may readily be given in this form.

2. Among the medicines used to affect the *respiratory tract,* cough remedies are, of course, the most important. Of these, we have a fair assortment in candy medication.

We have the following *expectorants:* sweet tablets of: tartar emetic, 0.0006 gm. (1/100 grain); apomorphin, 0.0006 gm. (1/100 grain); emetin, 0.0012 gm. (1/50 grain); sajodin, 0.06 gm. (1 grain), and terpin hydrate, 0.03 gm. (1/2 grain).

Of these, the first three are useful to loosen up a dry cough during the acute stage of bronchitis. Sajodin, an iodin preparation, has the expectorant value of potassium iodid; it is useful, therefore, in subacute dry bronchitis. Terpin hydrate, on the other hand, is more likely to be useful when expectoration has become freely established.

The use of opiate is, of course, not advisable in the treatment of cough in children. Should it, however, be required, sweet tablets of heroin up to 0.0006 gm. (1/100 grain) or of morphin up to 0.0006 gm. (1/100 grain) would be available. If a less decided *sedative* be desired for an excessive cough, sweet tablets of sabromin 0.06 gm. (1 grain), a bromin preparation, may be tried. For antispasmodic action, atropin 0.0003 gm. (1/200 grain) is available.

3. For effect on the *circulatory system.*

Of *stimulants* for the circulatory system we have the following assortment in the form of sweet tablets: digitalis, 0.008 gm. (1/8 grain); strophanthin 0.00003 gm. (1/2,000 grain); atropin, 0.0003 gm. (1/200 grain); strychnin, 0.0003 gm. (1/200 grain), and caffein 0.006 gm. (1/10 grain).

The digitalis is in form of the powdered leaf, which probably, after all, if biologically tested, is the most reliable form of digitalis. The strychnin used is an adsorption compound of strychnin with fullers' earth,[4] which, though less active than strychnin, is still capable of developing strychnin action.

Should a *depressant* to the circulation be desired, it would be available in form of aconitin, 0.00003 gm. (1/2,000 grain). For *vasodilator action,* we have sweet tablets of nitroglycerin, 0.0003 gm. (1/200 grain).

4. For effect on the *urinary system:* For *diuretic* action, diuretin is available in doses of 0.015 gm. (1/4 grain), though even this dose is rather hard to disguise. It is perhaps the least satisfactory of the sweet tablets. Caffein could be given in dose of 0.006 gm. (1/10 grain). It is probably not needed, however, as we could administer coffee even more readily.

3. Fantus, Bernard: Candy Medication, St. Louis, C. V. Mosby Company, 1915.

4. Fantus, Bernard: Fullers' Earth: Its Adsorptive Power, and Its Antidotal Value for Alkaloids, THE JOURNAL A. M. A., May 29, 1915, p. 1838.

The *urinary antiseptic* hexamethylenamin lends itself very well to this form of administration, it being possible to give as much as 0.06 gm. (1 grain) per tablet.

As *antispasmodic* for the urinary tract, for instance, in the treatment of certain forms of enuresis, atropin, 0.0003 gm. (1/200 grain) is available.

5. For effect on the *skin,* pilocarpin, 0.0012 gm. (1/50 grain) can be administered in this form; and it would probably serve better as *diaphoretic* than Dover's powder, 0.03 gm. (½ grain), which latter, however, inasmuch as it has other uses, is perhaps an interesting addition to the candy materia medica. Should *anhidrotic* action be desired, we have atropin.

6. For effect on the *nervous system,* we have depressants as well as stimulants. The general nerve *depressant* action of bromids may be obtained, in a mild way, from sabromin, the dose of which, 0.06 gm. (1 grain) per tablet, is, however, rather small.

For *hypnotic* action, we have adalin 0.03 gm. (½ grain), and sulphonmethane, 0.03 gm. (½ grain), to choose from, the former lending itself better to this form of administration than the latter. Scopolamin, 0.00006 gm. (1/1,000 grain) and morphin, 0.0006 gm. (1/100 grain), are also available if required.

As *stimulants* to the nervous system we have: strychnin, 0.0003 gm. (1/200 grain); atropin, 0.0003 gm. (1/200 grain) and caffein, 0.006 gm. (1/10 grain).

7. For *antipyretic* action we have the following to choose from: sweet tablets of acetphenetidin, 0.06 gm. (1 grain); antipyrin, 0.015 gm. (¼ grain); acetylamidosalol (salophen), 0.06 gm. (1 grain); aconitin, 0.00003 gm. (1/2,000 grain), and aristochin, 0.06 gm. (1 grain).

Of these the most pleasant and efficient are the sweet tablets of acetylamidosalol (salophen). Antipyrin, on the other hand, is rather difficult to disguise completely.

8. The following hematinics can be offered in candy form: sweet tablets of: reduced iron, 0.06 gm. (1 grain); iron carbonate, 0.02 gm. (⅓ grain), and arsenic trioxid, 0.0006 gm. (1/100 grain). So pleasant are these that it is difficult to see why either iron or arsenic should be given in any other form. Iron and arsenic may also be given combined.

9. *Tonics.*—Physicians have such faith in the tonic properties of iron, quinin and strychnin that it may be of interest to many that this combination may be given in the form of sweet tablets. By using the strychnin preparation discussed above and aristochin (see below) we can obtain a sweet tablet that represents 1 c.c. (15 minims) of elixir of iron, quinin and strychnin in form of a slightly bitter chocolate tablet.

10. *Specifics,* no doubt the most important kind of medicament, fortunately lend themselves well to this method of administration. For the treatment of *malaria,* we have sweet tablets of aristochin, 0.06 gm. (1 grain), by means of which it is possible to give this arch-type of bitter drugs in form of perfectly delicious chocolate tablets, and yet there can be no reasonable doubt as to the activity of this preparation. Saloquinin, 0.06 gm. (1 grain), of which sweet tablets can also be prepared, is perhaps more useful because of the salicylate it contains in the treatment of *rheumatic fever,* for which also the following other salicylates are available: sweet tablets of: acetylsalicylic acid (aspirin), 0.015 gm. (¼ grain); novaspirin, 0.03 gm. (½ grain); acetylamidosalol, 0.06 gm. (1 grain), and magnesium salicylate, 0.03 gm. (½ grain). Of these, acetylamidosalol, a combination of salicylic acid and phenacetin, is the most successful, certainly from the standpoint of perfect disguise and probably also from that of efficiency.

For the treatment of *syphilis* we have sweet tablets of sajodin, 0.06 gm. (1 grain), as well as the following mercurials: sweet tablets of: yellow mercurous iodid, 0.003 gm. (1/20 grain), red mercuric iodid, 0.001 gm. (1/60 grain); mercury with chalk, 0.03 gm. (½ grain), and calomel, 0.006 gm. (1/10 grain).

For the treatment of *cretinism* we have thyroid, of which 0.06 gm. (1 grain) may be given in almost perfect disguise in the form of a cinnamon chocolate tablet.

For those who have never used candy medication, there is a revelation in store in the positive enjoyment and eagerness with which children take these sweet tablets. Their only serious drawback actually lies in their pleasantness, which leads to the possibility of a child poisoning itself by surreptitiously eating too many of them at one time. This danger must be guarded against by never prescribing more of these tablets at one time than would constitute a safe dose, if they were all eaten at one time.

No doubt, the method is not yet perfect. Its further development requires the cooperation of those in actual practice, from whom inquiries, suggestions and criticisms will be most welcome.

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THE ACUTE TYPHOID ABDOMEN

WITH ESPECIAL REFERENCE TO SURGICAL COMPLICATIONS

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Occasional operative reports and more frequent necropsy reports have fairly well demonstrated that the occurrence of acutely inflamed appendixes in typhoid fever is more than a coincidence. It is not difficult to imagine the occurrence of the complication when one recognizes the pathology of the primary disease. There are two factors contributing mainly to the appearance of this condition: (1) inflammatory edema of the ceco-appendiceal opening with consequent retention of its secretions within the latter organ, together with the associated circulatory and inflammatory complications usually found under such conditions which may or may not be due to the activity of Eberth's bacillus, and (2) the actual involvement of the appendiceal lymphoid tissue by the typhoid bacilli in a method similar to that seen in Peyer's patches. Either may be entirely responsible for an associated attack of acute appendicitis. The unraveling of such a complication involves some of the prettiest diagnostic problems in acute abdominal surgery, for it involves not merely the diagnosis of an acute abdominal condition per se, but rather its diagnosis through the veil of signs and symptoms pertaining to another existent acute abdominal condition, if we may class typhoid as such.

It is fair to say that many typhoid patients exhibit increased tenderness on the right lower abdomen. This may be expected when one recalls the usual situation of the lesions, the lower ileum. Hence, tenderness

in the right iliac fossa may be only the result of localized patches of peritoneal inflammation due to underlying intestinal ulceration in this region. Fever usually exists, since the occurrence of this complication is to be expected more frequently when the typical lesions are most pronounced. When one inspects the peritoneal surface of the diseased ileum, in the third week, for instance, and sees the localized areas of peritonitis corresponding to the multiple ulcerations, the presence of fibrin, and fibropurulent deposits, and the purulent free fluid of variable quantity, it is easy to believe that an additional inflammation in an adjacent portion of the intestine — I refer to the appendix — may not change the symptomatology materially. It is enough that the most closely watched patients may sometimes develop even a perforation and die without the slightest inkling being given of a change in the abdominal features. In view of this, there is no clinical aids of any value at all which should be dismissed, and yet one often finds that on account of the depleted condition of the patient many of the usual clinical aids will fail in the test.

It is hardly a question in typhoid conditions as to whether a patient has appendicitis or perforation. It is merely a question as to whether the patient is in such a condition that, one or the other of these being suspected, the presence of either being a potential fatality, exploratory operation should be undertaken.

In a series of nine cases of typhoid in which I operated for suspected perforation, four (Table 1) showed acute appendicitis, in one of which (Case 2) there was a large perforation near the tip of the appendix. In passing, it is interesting to note that a fifth patient (Case 5, Table 2) on whom I operated, who had the usual signs of subacute appendicitis of two days' standing, showed a perfectly normal appendix; but numerous large swollen glands in the lower mesentery—evidently the cause of the tenderness—proved later to be the first demonstrable sign of a subsequent typical attack of typhoid fever.

Of the five remaining cases, brief notes are given in Table 3. It is to be observed that in no case was there an attempt to distinguish between appendicitis or suspected perforation. Rather the point common to

TABLE 1.—ESSENTIAL POINTS IN FOUR CASES OF ACUTE TYPHOID ABDOMEN SHOWING ACUTE APPENDICITIS

Case	1. W. J.	2. M. M.	3. B. S.	4. M. L.
Age	15	34	14	25
Week	Sixth	?	Third	Fifth.
Diagnosis	Typhoid intestinal perforation	Typhoid intestinal perforation	Typhoid intestinal perforation	Typhoid intestinal perforation.
Onset of symptoms	Rigidity of abdominal muscles	Increasing rigidity and increasing distention; diminution in liver dulness	Hemorrhage; falling temp.; increased abdominal rigidity	Sudden pain in right iliac fossa; marked resistance in right iliac fossa; diminished liver dulness.
Tenderness	General increase	General increase, especially over lower right rectus	General increase not well localized	Well localized in right iliac fossa.
Leukocytosis	7.480			5.120.
Temperature	No especial change	No especial change	Rapidly falling	No change.
Pulse	92 (fair volume)	Poor; rapid	Fair quality; no change	120 (fair quality).
General condition	Fair	Poor	Fair	Fair.
Operative findings	Appendicitis,acute; distended gallbladder	Appendicitis, acute, gangrenous; perforation	Appendicitis, acute	Apendicitis, acute.
Free fluid	Considerable; turbid	Large quantity of foul smelling fluid	None	None.
Lower ileum	Markedly ulcerated	Markedly ulcerated	Markedly ulcerated	Markedly ulcerated.
Operative measures	Appendectomy; cholecystostomy	Appendectomy	Appendectomy; no drainage	Appendectomy; no drainage.
Results	Well	Patient died 12 hours after operation	Well	Operative result good.*
Operative date	Sept. 8, 1910	Sept. 2, 1911	Sept. 6, 1910	Sept. 3, 1910.

* Patient died eleven days afterward of the intercurrent fever.

Theoretically, leukocytosis, absent in typhoid, should indicate the presence of an inflammatory lesion. Nevertheless, one cannot depend on this feature for two reasons: first, the so-called appendicitis may be due to a typhoid ulceration in this organ with the possibility of little associated inflammation and, second, if this be a frank case of acute inflammatory appendicitis, the general system may be so disturbed as not to show the usual increase in white corpuscles. Increase in temperature exists, and this, likewise, may be disturbed so that we cannot depend on this feature even should the typhoidal temperature be low to start with. Tenderness, perhaps one of the most prominent symptoms of inflammatory conditions, may or may not be increased. It would hardly be justifiable to expect this, should the lesion be solely typhoidal with no associated inflammatory reaction in the organ as a whole; but, theoretically, we may expect an increase if the appendicitis is general. Practically, however, the general state may be such that the insensitiveness to pain may throw one entirely off the track in searching for this feature. Localized pain may mean appendicitis, an increasing peritonitis about the ulcerated ileum, perforation, or it may be entirely unreliable and signify nothing definite.

all cases consisted in the signs of increasing peritoneal irritation in the right iliac fossa suggesting peritonitis, appendiceal involvement, periintestinal irritation from ulceration, or direct perforation, and the important question for decision was always, Can we justifiably decide against exploration; in other words, Do we know that a fatal lesion does *not* exist? To distinguish between these various lesions may be distinctly impossible, and in my full series the operation was performed always with the diagnosis of suspected perforation, though in two cases the onset of a sudden, severe abdominal pain in the third week of typhoid with a rising leukocytosis placed the possibilities of perforation, whether intestinal or appendiceal, on what I thought to be a fairly firm basis, only to find in one of these merely an acutely inflamed appendix, though in the second a typical ileal perforation existed.

Increasing distention, increasing resistance to pressure, and increasing tenderness in the right iliac fossa, pain in the lower abdomen, and a diminution in liver dulness seem to be the cardinal danger signals, and if we may, by temperature, pulse, facial changes, and by increasing leukocytosis clinch more strongly the diagnosis of peritoneal inflammation, so much the more accurate will our diagnosis be.

Three patients died within the first twelve hours. Each had general peritonitis with quantities of foul smelling purulent fluid and intestinal contents throughout the peritoneal cavity. Little may be expected in cases at this stage. This merely argues for early interference. Two other patients died, one eleven days later from the typhoid fever, after making an excellent operative recovery. Another died on the eighth day, after making a similar recovery, at which time we did not recognize the value of using silver wire as a suture

TABLE 2.—FINDINGS IN CASE 5

Onset Symptoms	Operative Findings	Result
Pain and tenderness in right iliac fossa; slight increase of temperature	Normal appendix; enlarged, swollen, mesenteric lymph glands in lower ileum	Cure; no disturbance due to operation.

in such cases, and on the seventh day the wound parted, allowing the intestines to extrude under a full dressing.[1] The stain on the dressing was not interpreted, and when seen, eight hours afterward, the patient was in a state of shock that could not be overcome by the replacement and resuturing, and he died on the eighth day. Four patients were discharged well after recovering from operation and the typhoid fever.

Statistics are deceiving. Suffice it that with the danger signs of peritoneal inflammation appearing, the possibilities must be carefully weighed, for without

TABLE 3.—FINDINGS IN FIVE CASES OF ACUTE TYPHOID ABDOMEN SHOWING ILEAL PERFORATION

Case	Age	Onset Symptoms	Operative Findings	Results	Date of Operation
6. H. B.	21	Hippocratic facies; abdominal distention not well localized	Large amount of foul, dirty, free fluid; ileal perforation	Patient died 3 hours later	Sept. 7, 1910
7. J. H.	17	Sudden, severe pain in right iliac fossa followed by rise in temperature and pulse and marked increase in tenderness in both iliac fossae	Much free turbid, yellowish fluid; ileal perforation	Cure.....	Feb. 5, 1911
8. P. Y.	36	Pain in lower abdomen; exquisite tenderness in right iliac fossa; distention	Ileal perforation	Cure.....	May 19, 1911
9. W. H.	25	Rapid distention. Exquisite tenderness in right iliac fossa	Ileal perforation; spreading peritonitis	*	Sept. 16, 1911
10 C. I.	40	Face ashy gray; cold sweat; thready pulse; distention; marked tenderness in right iliac fossa	Ulcerated ileum; general peritonitis; ileal perforation	Death in three hours	Oct. 5, 1910

* Patient did excellently for seven days when the wound broke, and the intestines protruded under a heavy dressing. This was not recognized for eight hours, and operative measures at this time could not overcome the shock, and the patient died in twelve hours.

extreme care in the diagnosis we may be consigning to his death a patient who has chances of 1:2 or 1:3 of getting well should he be subjected to the surgical intervention indicated by the lesion.

Finally, the more carefully one studies this condition and the greater the endeavors to forestall death from surgical complications, the more the possibility of opening a typhoid abdomen showing no actual existent surgical complications. Yet, without belittling the effects of such operative procedures, I believe that it can be fairly said that this danger may be almost completely discounted when one realizes the desperate condition into which the patient may rapidly sink should the suspected lesion be present. In two thirds of our cases, actual perforation was found. In the remaining third, a lesion was found which might or might not have gone on to perforation. In no case in which operation was performed was there absence of surgical complication,[2] so that, with extreme care on the part of the physician, the possibility of unnecessary operating will be a negligible factor, far less to be feared than permitting the patient to pass a certain point beyond which there is no hope for cure.

1. A recent abdominal case, in which epidemic cerebrospinal meningitis was contracted after operation, and the wound parted on the seventh day, with absolutely no evidence of healing, still further emphasizes that in operations in intercurrent abdominal complications during acute fevers, silver wire or, at least, some nonabsorbable suture, must be used, as we cannot depend on the healing properties of the wound itself when subjected to these conditions.

THE ETIOLOGY OF THE CURRENT EPIDEMIC OF RESPIRATORY INFECTIONS IN CHICAGO

A PRELIMINARY NOTE *

GEORGE MATHERS, M.D.
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The current epidemic of respiratory infections has become so widespread that a large percentage of the population of various cities in the United States has been temporarily incapacitated, and business has been seriously crippled. These outbreaks of so-called grip or influenza consist of acute infections of the respiratory tract, especially the nasopharynx, larynx and larger bronchi, with occasional involvement of the accessory sinuses and the lungs. The importance of such epidemics from the standpoint of public health cannot be overestimated, and it is surprising that so little that is definite is known concerning the etiologic factors involved.

Various organisms, such as *Bacillus influenzae, Micrococcus catarrhalis* and the pneumococcus, have been described in connection with such infections, but the evidence in each instance is inconclusive and the etiology remains more or less problematic. Before specific measures either of a prophylactic or of a curative nature can be developed, the causative agents must be determined. The etiologic problems presented by these acute infections demand complete bacteriologic study of the mucous surfaces of the infected air passages, which unfortunately under normal conditions often harbor virulent bacteria. Is the etiologic factor a new organism that has a special affinity for these tissues, or do these diseases represent new pathogenic characters that have been acquired by a normal bacterial inhabitant of the respiratory tract?

A careful bacteriologic examination has been made in a considerable number of cases of respiratory infection during the current epidemic in Chicago, and the results seem sufficiently interesting to merit a brief report.

In this work cultures were made from the sputum, nasal discharge and the pharyngeal mucosa. Human blood agar plates and slants were used, and in many

2. With the exception of Case 5, in which operation was performed for subacute appendicitis, which showed a normal appendix and enlarged mesenteric lymph glands due to typhoid fever, unrecognized at the time of operation.

* From the Memorial Institute for Infectious Diseases.

instances anaerobic cultures were made. The material to be cultured was carefully washed through several changes of sterile normal salt solution, and the surface of the culture mediums inoculated. The cultures were allowed to incubate at 37 C. for from twenty-four to forty-eight hours.

Examinations of this kind have been made in twenty-four cases of respiratory infection, and in seventeen instances a hemolytic streptococcus has been found to be the predominating organism. This organism grows in small white semitranslucent colonies on blood agar plates, surrounded by a clear zone of hemolysis from 1 to 3 mm. in diameter. In stained smears these organisms are small gram-positive micrococci arranged in pairs and chains. Chain formation is marked, however, in broth cultures. The strains examined culturally present all the characteristics of the common *Streptococcus pyogenes* type. Green-producing streptococci and pneumococci have uniformly been found also in these cultures. Four of the pneumococcus strains have been studied biologically, and three of these were found to belong to the atypical group commonly present in the normal mouth. The fourth strain exhibited all the characteristics of *Pneumococcus mucosus,* and the patient from whom it was isolated died with a complicating lobar pneumonia. It is interesting to note that *B. influenzae* and *Micrococcus catarrhalis* have not been found in any of these cultures.

Since pneumococci and green-producing streptococci are inhabitants of the normal mouth, and hemolytic streptococci are uncommon in infections of this nature, except tonsillitis, these results are suggestive. The striking frequency with which a hemolytic streptococcus has been isolated in the acute stages of this infection indicates that this organism may be of primary importance in the etiology of the current epidemic in Chicago.

Before any definite conclusions can be drawn, however, many other possibilities must be excluded. Tunnicliff has described a peculiar bacillus which she found in connection with rhinitis. Many of the infections begin with a severe coryza; hence, before *B. rhinitis* can be excluded, many cultures must be made in very early cases. Furthermore, the associated pneumococci must be studied as to their biologic reactions, and the antibody content of the patient's serum must be investigated in relation to the hemolytic streptococci. Observations along these lines, as well as cultural observations in a larger series of cases are being made, the results of which will appear in a later communication.

These preliminary findings emphasize the importance of careful bacteriologic examination in such diseases. Before the usual diagnosis of grip or influenza is justifiable, some attempt at bacteriologic study should be made, for it is a striking fact that the diagnosis of influenza is rarely corroborated by bacteriologic findings.

These observations, however, give rise to new problems, the solution of which would be of great value in the explanation of these epidemics of acute respiratory infections. The development of specific therapeutic measures, either of a prophylactic or of a curative nature, for such diseases obviously depends on a thorough understanding of the etiology of these diseases.

637 South Wood Street.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

CALCIUM PHENOLSULPHONATE (See N. N. R., 1915, p. 245).—The following non-proprietary preparation has been accepted:

Calcium Phenolsulphonate-P. W. R.—Manufactured by Powers-Weightman-Rosengarten Co., Philadelphia.

FERROUS LACTATE (See N. N. R., 1915, p. 164).—The following non-proprietary preparation has been accepted:

Iron Lactate-Merck.—Manufactured by E. Merck, Darmstadt, Germany (Merck and Co., New York).

SODIUM ACID PHOSPHATE (See N. N. R., 1915, p. 346).—The following non-proprietary preparation has been accepted:

Sodium Phosphate, Monobasic-Merck.—Manufactured by E. Merck, Darmstadt, Germany (Merck and Co., New York).

PHLORIDZIN (See N. N. R., 1915, p. 248).—The following non-proprietary preparation has been accepted:

Phloridzin-Merck.—Manufactured by E. Merck, Darmstadt, Germany (Merck and Co., New York).

SULPHANILIC ACID (See N. N. R., 1915, p. 350).—The following non-proprietary preparation has been accepted:

Sulphanilic Acid-Merck.—Manufactured by E. Merck, Darmstadt, Germany (Merck and Co., New York).

EXTRACT OF ERGOT, PURIFIED (See N. N. R., 1915, p. 116).—The following non-proprietary preparation has been accepted:

Ergotin-Merck.—Manufactured by E. Merck, Darmstadt, Germany (Merck and Co., New York).

ANTITHYROIDIN-Moebius (See N. N. R., 1915, p. 39).—The following dosage form has been accepted:

Antithyroidin-Moebius Tablets, ¾ gr.—Each tablet contains antithyroidin-Moebius ¼ grain. Prepared by E. Merck, Darmstadt, Germany (Merck and Co., New York).

EUQUININE (See N. N. R., 1915, p. 258).—The following dosage forms have been accepted:

Euquinine Tablets, 2 grs.—Each tablet contains euquinine 2 grains. Prepared by Vereinigte Chininfabriken, Zimmer & Co., Frankfort, a.M., Germany (Merck and Co., New York).

Euquinine Tablets, 5 grs.—Each tablet contains euquinine 5 grains. Prepared by Vereinigte Chininfakriken, Zimmer & Co., Frankfort, a.M., Germany (Merck and Co., New York).

FERRATIN (See N. N. R., 1915, p. 165).—The following dosage form has been accepted:

Ferratin Tablets, 7½ grs.—Each tablet contains ferratin, 7½ grains. Prepared by C. F. Boehringer & Soehne, Waldhof, Mannheim, Germany (Merck and Co., New York).

STYPTICIN (See N. N. R., 1915, p. 82).—The following dosage forms have been accepted:

Stypticin Hypodermic Tablets, ¾ gr.—Each tablet contains stypticin ¾ grain. Prepared by E. Merck, Darmstadt, Germany (Merck and Co., New York).

Stypticin Sugar-Coated Tablets, ¾ gr.—Each tablet contains stypticin ¾ grain. Prepared by E. Merck, Darmstadt, Germany, (Merck and Co., New York).

Stypticin Dental Tablets, ¾ gr.—Each tablet contains stypticin ¾ grain. Prepared by E. Merck, Darmstadt, Germany (Merck and Co., New York).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET . . . CHICAGO, ILL.

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SATURDAY, JANUARY 1, 1916

THE RESUSCITATION OF THE HEART AFTER ARREST

It is well known that there are circumstances under which an arrest of the heart's action, and consequent death, may occur when this organ itself is not irremediably beyond the power of recovery. The difficulty in the situation is that as soon as the circulation is stopped by a cardiac failure there is no entirely satisfactory practical way of bringing stimuli to bear on the arrested organ that will cause it to resume its function and restore the circulation. Respiratory failure, with its attendant lack of oxygen and accumulation of carbon dioxid, is easily remedied by any of several methods of artificial respiration. Attempts to start the heart in these emergencies have involved massage, electric stimulation and the use of drugs. The latter procedure has encountered almost insuperable obstacles, owing to the difficulty of getting any drug into intimate contact with the whole heart so long as there is no circulation to carry it. Even intravenous injection into a vein near the heart is unlikely to bring a dissolved substance into contact with more than the chambers of the right side: in order to be effective it should be carried through the pulmonary circulation to the left side and into the aorta, from which it can permeate all parts of the cardiac musculature through the coronary vessels. Reverse injection into the arteries near the heart has also been attempted to accomplish the same purpose, but with little practical success. The attempt to resuscitate the heart by injection directly into its interior or its musculature is an uncertain and somewhat dangerous process, and gives no assurance that the substance introduced will reach that portion of the organ responsible for originating the beat.

It has occurred to Gunn and Martin,[1] of the pharmacologic laboratory at the University of Oxford, to try another method of getting stimulating substances to an arrested heart, namely, by injection into the pericardial sac. It appeared that by this procedure, combined with massage, a solution of a drug could be brought into contact with the exterior of the whole heart. To what extent drugs thus brought into the pericardial cavity will actually permeate the visceral epicardium has remained to be experimentally ascertained. One is reminded, in the method suggested, of the familiar experiments in the physiologic laboratory in which the frog's or turtle's heart is commonly "bathed" in a solution of drugs for pharmacologic study. Obviously it might be expected that a higher concentration of any drug would be required in order to reach the myocardium from the exterior, rather than by intravascular channels of perfusion. Gunn and Martin have found that atropin, pilocarpin and epinephrin, when injected into the pericardial sac of animals as proposed, can rapidly produce their characteristic effects on the heart up to a certain point. The immediate action is a local one, and is not due to an absorption of the drugs into the general circulation.

With the possibility of a helpful method thus demonstrated, it has remained to combine the method with massage of the heart, a procedure long ago proposed and often employed in the resuscitation of this organ.[2] When massage of the arrested heart is performed with a view to reviving spontaneous contractions, the compression should be gradual and relaxation abrupt, according to Gunn and Martin. It acts both as an artificial circulation and as a mechanical stimulus to the heart muscle. Massage should be regularly interrupted at short intervals for a few seconds to allow the spontaneous beats to develop.

According to the Oxford pharmacologists, massage of the heart can be performed in the following ways, stated in order of efficacy: (1) by direct compression of the heart through an opening in the thoracic wall; (2) by compression of the heart above the diaphragm through an opening in the abdominal wall; (3) by simple compression of the abdomen, and (4) by simple compression of the thorax. When one of these procedures is combined with the intrapericardial injection of epinephrin, the heart can be revived even in cases of severe chloroform poisoning in animals, and even after ten or more minutes have intervened since the last heart beat. The significance of shortening this interval to the utmost is now realized as the result of the demonstration that the central nervous system of the higher animals and man cannot survive complete anemia very long without permanent injury to the brain cells.

The sequence of events suggested by Gunn and Martin in the treatment of cardiac arrest is as follows: artificial respiration, intrapericardial injection of epinephrin, and massage of the heart through an opening in the abdomen. If, when the heart has been started, the blood pressure continues low and the

1. Gunn, J. A., and Martin, P. A.: Intrapericardial Medication and Massage in the Treatment of Arrest of the Heart, Jour. Pharmacol. and Exper. Therap., 1915, vii, 31.

2. For the literature on resuscitation of the heart see, Pike, F. H.; Guthrie, C. C., and Stewart, G. N.: Jour. Exper. Med., 1908, x, 38.

heart beats consequently remain feeble, speedy and permanent improvement can be obtained by intravenous injection of either epinephrin or pituitary extract. There are no serious reasons apparent why a similar procedure should not be applied to the human subject in conditions like chloroform poisoning in which general recovery might be anticipated to result from resuscitation of the heart. One can scarcely speak of any risk involved when the human heart has stopped beyond the power of spontaneous recovery. The resuscitation procedure indicated as most rational by experiments on animals is likely to be the one offering the greatest prospect of success in averting permanent death under similar conditions in man.

HUMAN MILK

To any one who seriously considers the unique rôle of milk in the dietary of man, particularly in the early period of growth, it must come as wholly unexpected to find how scanty is our knowledge of certain important features of the subject. It is not enough to say that milk is an important food; it is well nigh indispensable at certain ages. A superiority for the nutritive requirements of the growing infant is almost universally conceded to human milk. For cow's milk, the most prominent substitute for human milk, hundreds of more or less superficial analyses are available, so that the general variations in fundamental components are fairly well understood in the case of the most familiar breeds of cattle. The paucity of reliable data regarding human milk becomes apparent as soon as one attempts a compilation of what has been published on the subject.

There are, it is true, numerous isolated analyses dealing either with one or a few components of the milk or with samples of the mammary secretion collected without special reference to the period of lactation or other physiologic considerations. With few exceptions, scarcely any representative number of statistics have been reported in relation to the composition of a twenty-four-hour sample of human milk. In addition to fats, proteins and sugar, both cow's and human milk contain organic substances which have little or no nitrogen, and which are soluble in ether or alcohol as well as water, but of which the chemical nature still remains unknown. The amount of these substances in human milk is said to be about 1 per cent. at the beginning of lactation and about 0.5 per cent. in the middle period of lactation. At this time cow's milk is reported to contain about 0.3 per cent. of such substances which are possibly of importance in nutrition.

These facts alone speak for the desirability of more intensive study in this field of physiologic chemistry. Many of the published analyses of breast milk are open to criticism because of the small samples used for examination. This objection applies in particular to the estimation of the inorganic constituents where the analytic methods call for representative portions. Pediatrists will therefore welcome the valuable series of painstaking analyses completed on a large number of twenty-four-hour samples of human milk by Holt and his collaborators[1] at the Babies' Hospital, New York.

Many of the facts elicited have been anticipated; but this elaborate investigation of more than thirty large samples gains in value by its representative character. They show that, in the colostrum period, woman's milk has high protein and high ash with rather low fat; in the transition period the protein and ash are lower while the fat is higher; in the mature period (after one month) the composition of normal milk does not vary in any essential or constant way quite up to the end of lactation. The only striking feature of late milk is a decline in quantity, though there is noted a slight fall in all the solid constituents except the sugar. Of the different constituents of milk, the least variation both in individuals and in periods is seen in the sugar. The proportion of this is somewhat higher than the generally accepted 7 per cent.; 7.5 per cent. is nearer the correct figure. The greatest individual variations are seen in the fat, though the period variations in fat are not marked. The protein is highest in the colostrum period, and falls to a little over half the proportion in mature milk, during which period it is seldom over 1.25 per cent.; of this about one third is casein and two thirds are lactalbumin. The high ash of the colostrum period is chiefly due to the amount of sodium and potassium.

Of the salts which make up the ash, the greatest individual, as well as the greatest period, variations are seen in the sodium; the least individual and period variations are seen in the calcium, the proportion of which is nearly constant throughout the period of lactation. The largest constituent of the ash of woman's milk is potassium; this with the calcium together make up more than half the total ash. Although in amount the total ash of cow's milk is about three and one-half times as great as that of woman's milk, the proportion of different salts which make up the ash is nearly the same, the only exceptions being that cow's milk has more phosphoric acid and less iron.

The content of iron is worthy of a little independent consideration. It is reported that, according to the most accredited analyses, human milk contains only 1.7 mg. of iron in a liter, while cow's milk has barely one third as much — really a negligible quantity. By these figures iron forms but 0.00007 per cent. of the ash of cow's milk, and 0.00015 per cent. of the ash of woman's milk. These facts give additional confirma-

1. Holt, L. E.; Courtney, A. M., and Fales, H. L.: A Chemical Study of Woman's Milk, Especially Its Inorganic Constituents, Am. Jour. Dis. Child., October, 1915, p. 229.

tion to what has occasionally been emphasized in The Journal in respect to the danger of a paucity of iron in the diet of adults whenever cow's milk and other foods notably deficient in this element furnish the preponderant part of the diet.

DEATHS OF PHYSICIANS IN 1915

During 1915 the deaths of 2,451 physicians in the United States and Canada were noted in The Journal. Reckoning on a conservative estimate of 156,000 physicians, this is equivalent to an annual death rate of 15.71 per thousand. For the thirteen previous years the death rates were as follows: 1914, 14.41; 1913, 14.64; 1912, 14.13; 1911, 15.32; 1910, 16.96; 1909, 16.26; 1908, 17.39; 1907, 16.01; 1906, 17.20; 1905, 16.36; 1904, 17.14; 1903, 13.73 and 1902, 14.74. The average annual mortality for the period from 1902 to 1915 inclusive was, therefore, 15.71 per thousand. The chief death causes in the order named were the same as for last year, namely: senility, heart disease, cerebral hemorrhage, pneumonia, accident and nephritis. The age at death varied from 21 to 102, with an average of a little over 59 years. The general average of age at death since 1904 is 59 years, 6 months and 11 days. The number of years of practice varied from 1 to 79, the average being 32 years, 4 months and 26 days. The average for the past twelve years is 32 years, 2 months and 13 days.

Causes of Death.—There were 227 deaths assigned to general diseases; 276 to diseases of the nervous system; 293 to diseases of the circulatory system; 173 to diseases of the respiratory system; 115 to diseases of the digestive system; 124 to diseases of the genito-urinary system; 400 to senility; 44 to suicide; 104 to accident; 21 to homicide, and 88 after surgical operation. Among the principal assigned causes of death are senility, 400; heart disease and cerebral hemorrhage, each 218; pneumonia, 154; accident, 104; nephritis, 90; malignant disease, 65; tuberculosis, 62; suicide, 44; angina pectoris, 28; septicemia, diabetes, appendicitis and arteriosclerosis, each 22; homicide, 21; typhoid fever and gastritis, each 15; uremia, 14; meningitis and intestinal obstruction, each 12; myocarditis, 11; cholecystitis, 10; influenza and paresis, each 8; anemia and bronchitis, each 6; rheumatism, insanity, endocarditis, peritonitis and prostatitis, each 5; embolism, 4; typhus fever, dysentery, erysipelas, epilepsy, acute dilatation of the heart, gastric ulcer, hernia and cirrhosis of the liver, each 3; pellagra, leukemia, arthritis deformans, drug addiction, paralysis, paralytic dementia, mastoiditis, asthma, atrophy of the liver, ptomain poisoning and dropsy, each 2, and malaria, scarlet fever, diphtheria, tetanus, alcoholism, cerebrospinal fever, locomotor ataxia, neuritis, aneurysm, pleurisy and gangrene of the lung, each 1. Two physicians died in prison, and 9 lost their lives either in battle on land or by the sinking of ships on which they were medical officers.

The causes assigned for the 104 deaths from accident were: automobile, 23; falls and drowning, each 16 (of the latter, 5 physicians were drowned in attempting to save lives); poison, 11; automobile and railway, and railway, each 10; burns, 4; firearms and by animals, each 2, and asphyxiation, sunstroke, privation, lightning and explosion, one each. The 44 physicians who ended their lives by suicide selected the following methods: firearms, 17; poison, 15; cutting instruments, 5; cause not stated, 3; strangulation, 2, and asphyxiation and jumping from a high place, each one. Of the twenty-one homicides, 18 were due to firearms, one to hanging, and 2 to other means, and of these deaths, 7 occurred in feuds or affrays.

Ages.—Of the decedents, 69 were between the ages of 21 and 30; 220 between the ages of 31 and 40; 341 between 41 and 50; 485 between 51 and 60; 519 between 61 and 70; 415 between 71 and 80; 212 between 81 and 90; 30 between 91 and 100, while one physician attained the age of 102 years. The greatest mortality occurred at the age of 61, when 68 deaths were recorded; at 70 with 65 deaths; at 62 with 63 deaths; at 55 with 58 deaths; at 60 with 56 deaths; at 75 with 54 deaths; at 56, 58 and 64 with 53 deaths; at 54 with 51 deaths, and at 44, 59 and 66, when 50 died. There were 9 deaths at 91, 7 each at 92 and 93; 3 at 94; 2 each at 96 and 98, and one death at 102 years.

Years of Practice.—By periods of ten years, physicians died as follows during the year: in the first decade, 172, of whom 2 had been in practice less than one year and 16 less than two years; in the second decade, 356; third decade, 511; fourth decade, 598; fifth decade, 453; sixth decade, 221; seventh decade, 101, and eighth decade, 9, of whom 5 had been in practice 70 years, 2, 75 years, and one each 78 and 79 years.

Military Service.—During the year, 256 physicians died who had served in the Civil War, and of these 68 had followed the fortunes of the Confederacy, one having been the surgeon of the Confederate cruiser *Alabama* during her historic cruise of destruction; 86 had been medical officers of United States Volunteers; one a medical cadet; 11 had served in the hospital corps and 2 had been army nurses. There were 5 veterans of the Mexican War; 2 had served in campaigns against Indians; 22 had been in the Spanish-American War, and 20 had seen service in foreign wars. The Medical Corps of the Army lost 4 officers, of whom one had been surgeon general; 3 had been members of the Medical Reserve Corps, and 18 had been contract or acting assistant surgeons. The Navy lost 12 medical officers, the Public Health Service 8 officers; the Indian Service, 6 physicians, and the

organized militia, 36 medical officers, of whom 8 had attained the grade of surgeon general.

Medical Positions.—Medical colleges sustained the loss of 148 professors, lecturers, instructors or demonstrators; hospitals lost 355 members of staffs; municipalities, townships and counties, 194 health officers, and boards of education or school boards, 77 members. There were 54 deaths of members of state boards of health, medical examination and registration, and charities; 47 of coroners and medical examiners, and 123 of railway surgeons.

Civil Positions.—Of those who died, one had been a member of Congress; 2, governors of states; 4, United States consuls; 11, members of state senates; 39, members of the lower houses of legislatures; 35 had been mayors; 33, aldermen; 62 had served as justices of the peace, as clerks in the government service, or in various other civil positions; 15 had been postmasters; 24, editors of medical or lay journals; 19 had been clergymen, of whom 4 were foreign missionaries; 4 had been attorneys; 107, druggists; 40, bankers; 16, medical directors of life insurance companies; 10, dentists; 3, presidents of railway companies; 6, surgeons on steamships, and 4, chemists.

Association Fellowship.—Of the 437 Fellows of the American Medical Association who died during 1915, one had been president, one had been a member of the Judicial Council, and two had been members of the House of Delegates.

COMPLEMENT FIXATION IN TUBERCULOSIS

Stimson has recently reviewed the literature of complement fixation in tuberculosis and contributed some important original work to this subject.[1] The complement fixation test in syphilis — the Wassermann reaction — has proved itself to be a great practical aid in both the diagnosis and therapy of this disease, in spite of certain rather serious limitations and uncertainties. As its limitations become better understood and the technic of its performance more uniform, its value, already great, will undoubtedly still further increase. It has unquestionably been such a distinct and helpful advance over former methods that its practical application, *mutatis mutandis,* to some other diseases, with anything like an equal degree of success, would be welcome. This is especially true of tuberculosis. Much work has been done with complement fixation methods in tuberculosis, and while success so far has not been achieved, there is nevertheless a distinctly hopeful aspect in the literature on the subject. Stimson thinks that the method even now could be used with advantage in institutions.

In this work, as in the Wassermann test for syphilis, the multiplicity of antigens is a disturbing factor. The and different antigens vary greatly not only in their degree but also in their kind of sensitiveness. The selection of an antigen, therefore, becomes a matter of great importance. Such a selection can be made with satisfaction only after wide experience and the correlation of laboratory experience with clinical findings and results. An antigen may give results of poor value in diagnosis, yet of high value in prognosis and therapy, and vice versa. Of the many antigens used in complement fixation in tuberculosis, Stimson gives first place to Besredka's egg medium antigen[2] for purposes of diagnosis. This antigen appears to be difficult to prepare, and is reported by many to give fixation with syphilitic antibodies also, though Bronfenbrenner[3] in his work did not find this true. Other important antigens are those composed of suspensions of tubercle bacilli in salt solution, antigens elaborated by Calmette[4] and his co-workers, especially his peptone-soluble antigen, and antigens described as alcohol or alcohol-soluble ether extracts.

As for the other elements of the reaction, the Wassermann type of technic has been generally employed, with the use of sheep cells, rabbit hemolytic amboceptor and guinea-pig complement. Stimson, in his work, made use of four different antigens. His technic was of the Wassermann type. He tested a large number of serums, and his tabulated results are interesting and important.

A consideration, in a general way, of the status of complement fixation work in relation to tuberculosis leads to the conclusion that, from a practical standpoint at least, this method for the present leaves much to be desired. With increasing experience, however, the employment of a uniform technic, the careful estimation of the value of different antigens, and especially the ability to interpret correctly the results obtained, the method may, at no remote time, prove of much significance in the diagnosis, prognosis and management of tuberculous cases. The interpretation of the findings just now seems to be surrounded with peculiar difficulty, and the influence of many different factors must be carefully considered.

Depending on the antigen and technic employed, positive fixation in tuberculous cases can be demonstrated from a maximum of 95 per cent. of cases down to a much lower figure. The antigens giving the higher percentages are of more value in diagnosis; those giving the lower figures may often be of value in imparting information as to the stage, extent and activity of the process. "Positive reactions are not indicative of immunity, and the reaction should not be described as an immune reaction." The increase of

1. Stimson, A. M.: Complement Fixation in Tuberculosis, Bull. 101, Hyg. Lab., U. S. P. H. S., 1915.

2. Besredka: Ztschr. f. Immunitätsforsch., 1914, xxi, 77.

3. Bronfenbrenner, J.: The Complement-Deviation Test with Besredka's Tuberculin, and the Occurrence of Tuberculosis Among Syphilitics as Diagnosed by this Test, Arch. Int. Med., December, 1914, p. 786; Ztschr. f. Immunitätsforsch., 1914, xxiii, 2, 221.

4. Calmette and Massol: Compt. rend. Soc. de biol., 1912, 1913; Ann. de l'Inst. Pasteur, 1914, No. 4, p. 339.

complement fixing bodies due to the therapeutic use of products derived from the tubercle bacillus, strange to say, does not necessarily indicate improvement in the condition of the patient — indeed, the evidence is sometimes rather in the opposite direction. It would seem that information of value can be more readily gained from repeated tests along with careful consideration of all the clinical factors. It should be fully appreciated that negative reactions seem to have no value in excluding tuberculous infection.

It may be mentioned, finally, as of interest that some authors, notably Debré and Paraf,[5] have attempted, with some apparent degree of success, to demonstrate tuberculous antigens in certain secretions and exudates, such as urine and pleuritic exudates, using as a test fluid a serum known to contain tuberculous antibodies. This sort of reverse application of the reaction may in time prove of value in the diagnosis of the seat of the lesion, especially in genito-urinary tuberculosis.

PROTEINS AND ANAPHYLAXIS

The condition of abnormal sensitiveness produced in an animal by the injection of a foreign protein — the phenomenon now commonly designated as anaphylaxis or allergy — is believed to exhibit a high degree of specificity with respect to the substances used to provoke a response. A preliminary injection of serum renders the animals hypersensitive to serum but not to milk or other protein-containing materials; a preliminary treatment with milk induces sensitiveness to milk proteins but not to serum, and so on. On the basis of information acquired along these lines, the anaphylactic response has been used as a test for proteins from individual sources, as in the identification of blood.

The extensive researches of Wells and Osborne,[6] in particular, have shown that these unique reactions of the proteins are undoubtedly connected with their chemical make-up rather than their biologic origin. This has been demonstrated as the result of an elaborate study of vegetable proteins from diverse sources, carefully purified in order to separate them as completely as possible from all other substances. The anaphylaxis reaction has been obtained between fluids and extracts of tissues of plants or animals of different though closely related species. These fluids have been composed of mixtures of so many substances of practically unknown chemical constitution that attention has heretofore been directed almost exclusively to the biologic relations of the substances causing the anaphylaxis reaction, and relatively little consideration has been given to their chemical relations. In the case of the gliadins from wheat and rye, and the hordein of barley, however, a common anaphylaxis reaction is developed by two chemically distinct, but similar, proteins of different biologic origin. This indicates clearly that the specificity of such a reaction is determined by the chemical constituents of the protein rather than by its biologic origin. Wells and Osborne have pointed out that this is in harmony with the fact that chemically closely related proteins have, as yet, been found only in tissues which are biologically nearly related. They have also observed that the "group reactions," characteristic of biologic reactions between closely related species, which have usually been interpreted as indicating the presence in related organisms of identical as well as distinct proteins, can really be exhibited by single isolated proteins from related organisms. As they express it, biologic relationship and chemical relationship seem to be much the same.

When native proteins are chemically altered so that new artificial derivatives are produced, their anaphylactogenic properties appear to be lost. Proteoses and peptones, for example, prepared from albumins by digestion or other hydrolytic procedures, are practically inert in the direction of developing hypersensitiveness. They do not cause intoxication of animals sensitized with the original proteins. It has long been stated that "proteoses" occur naturally in a variety of plants; at any rate, proteins having their characteristic solubilities and other properties have been isolated from a diversity of seeds. Wells and Osborne[7] have observed that, unlike the familiar digestion derivatives, these vegetable preparations, commonly designated as "proteoses" because their solubilities are like those of the proteoses produced by the action of pepsin or trypsin on native proteins, exhibit strong anaphylactogenic properties. Indeed, their potency exceeds that of most vegetable proteins studied, probably because of their great solubility in the body fluids. The products of hydrolysis, that is, the proteoses, prepared from companion vegetable proteins seem to have no anaphylactogenic properties. Wells and Osborne conclude, therefore, that the vegetable "proteoses" belong to a group of proteins which are chemically different from any heretofore recognized. They resemble highly soluble native proteins in their anaphylactogenic capacity, and are probably quite as complex in their chemical constitution. Their designation as "proteoses" is consequently improper.

The facts here cited tend to enhance the value of the anaphylaxis reaction and give it added significance. Its specificity becomes the more striking in the differentiation of so many of the "proteose" preparations from other proteins in the same seeds. The demonstration of the dependence of the specificity on chemical constitution is an important contribution.

5. Debré and Paraf: Compt. rend. Soc. de biol., 1911, p. 228.

6. Their papers were published in the Journal of Infectious Diseases as follows: I, 1911, viii, 66; II, 1913, xii, 341; III, 1913, xiii, 103; IV, 1914, xiv, 364; V, 1914, xiv, 377.

7. Wells, H. G., and Osborne, T. B.: The Anaphylactic Reaction with So-Called Proteoses of Various Seeds: The Biologic Reactions of the Vegetable Proteins, VI, Jour. Infect. Dis., 1915, xvii, 259.

Current Comment

THE POSSIBILITIES OF POISONING WITH CARBON MONOXID

The progress of science and the improvement of industrial conditions have made possible the prevention and elimination of many hygienic dangers that beset man in his daily life. At the same time, newer modes of living and processes of manufacture have brought novel and often unanticipated menaces to the welfare of those who are concerned with them. An illustrative instance of this is the history of carbon monoxid as a source of poisoning. This product has long been known as a harmful admixture in certain combustion products; and, when attention was directed to it from time to time, steps were taken to avoid the danger involved. Mild types of ordinary combustion product poisoning still occur occasionally in homes as the result of heating apparatus with poor drafts, in gas plants, and in other places, but they are recognized and subsequently averted by proper ventilation. The installation of large electric furnaces, such as those in use at Niagara Falls, brought the possibility of carbon monoxid poisoning in an unusual way. Tons of the gas are liberated in these plants every day, but provision is made for its prompt oxidation to carbon dioxid so that no harm whatever is threatened except when there is an occasional temporary imperfection in the oxidation and ventilation arrangements. The danger from illuminating gas has increased with the augmented use of "water gas" in this country. This is particularly harmful because of its large content of carbon monoxid. It furnishes a considerable proportion of the deaths by poisoning. A "miner's disease" of some interest has been associated with carbon monoxid derived principally from explosives used in blasting. The domestic forms of poisoning with carbon monoxid gas from the use of defective heating appliances are not always of moderate severity. Usually headache, nausea and circulatory failure are the sole symptoms; but the cases may often assume a more serious aspect. This is possibly owing to the subtle ways in which the poison gains unsuspected entrance into the system. There may be repeated exposure to danger which does not reveal itself until a careful investigation is made. It is sometimes almost impossible to detect the presence of the gas and to determine what part it plays in symptoms of malaise. Even small percentages of carbon monoxid become a menace to health when the intoxication takes a chronic form. For this reason, if no other, every source of poisoning with this gas should be ascertained when possible. That carbon monoxid can arise in connection with cooking by gas has been demonstrated anew by Meyer.[1] Whenever a gas flame comes into contact with cold surfaces the possibility of imperfect combustion arises, and the products will include more or less carbon monoxid. Conditions for this are found in the arrangement of many of the gas water heaters that have attained considerable popularity in recent years. Complaints of headache and mild symptoms of carbon monoxid poisoning are sometimes presented by kitchen or laundry workers who are accustomed to remain in poorly ventilated rooms containing modern household devices of the sort referred to. The institution of suitable hoods and drafts is an essential part of any larger outfit of such gas heating appliances. The danger of combustion gas poisoning is thereby averted. The gas engine and the gasoline motor have also brought with them the unanticipated possibility of inducing intoxication from carbon monoxid. Whenever the explosion of the combustible mixture is incomplete or of moderated intensity, this gas may be formed in not inconsiderable amounts. Outdoors this is of little consequence; but indoors carbon monoxid as well as other combustion gases of the omnipresent motor may produce dangerous contamination of the atmosphere. This should now be widely recognized in the interests of hygiene.

1. Meyer, L. G.: Ueber Luftverunreinigung durch Kohlenoxyd, mit besonderer Berücksichtigung einiger weniger bekannter Quellen derselben, Arch. f. Hyg., 1915, lxxxiv, 79.

THE EXCRETORY FUNCTIONS IN CHILDREN

The occurrence of uric acid infarcts or deposits of uric acid and urates, in the kidneys of a large number of infants dying within the first few days of life, has given occasion for various speculations. At one time this phenomenon was explained on the hypothesis of a lessened oxidative power on the part of the very young, whereby less of the uric acid formed in intermediary metabolism was destroyed, and therefore more accumulated in the organism. Along with this theory went the assumption of a poor solvent power of infant's urine for uric acid. The explanation fails to satisfy us because there is no real evidence of impaired oxidative capacity in the young; and, quite aside from this, there is today no reason for considering the possibility of a further oxidation of uric acid in the body. In man this purin derivative is regarded, not as an intermediate substance, but as an end-product which is ordinarily excreted with considerable ease.[1] Another explanation for the infarcts must be sought. A more direct way of ascertaining the excretory capacity of the kidneys in children has been followed by Tileston and Comfort[2] of Yale University School of Medicine. In a variety of both healthy and sick children they have estimated the rate of phenolsulphonephthalein excretion in the urine and also the nonprotein nitrogen content of the blood. The latter designates the nitrogen of those substances remaining in the circulating medium after removal of the proteins, and includes the urea, creatinin, amino-acids, uric acid and ammonia of the blood. The outcome of these investigations appears to indicate a better secreting capacity of the child's kidney than that of the adult. There are, of course, numerous statistics now available in respect to all of these excretory or retention factors determined by the methods just cited in both health and disease in the adult. The procedures have already found a place in the routine

1. The Effect of Purin Foods on the Uric Acid Content of the Blood, Current Comment, THE JOURNAL A. M. A., Dec. 18, 1915, p. 2172.

2. Tileston, Wilder, and Comfort, C. W.: The Total Nonprotein Nitrogen and the Urea of the Blood, and the Phenolsulphonephthalein Excretion in Children, Am. Jour. Dis. Child., October, 1915, p. 278.

of careful clinical examinations. Inasmuch as few data have as yet been reported for children, it seems worth while to cite added conclusions of Tileston and Comfort. The determination, they say, of the total nonprotein nitrogen and urea of the blood is of great assistance in the diagnosis of uremia, and as a guide to the treatment of nephritis, a marked increase in these substances indicating actual or impending uremia, and calling for a diet low in protein. In the diagnosis of nephritis it is inferior to other methods, because many cases of nephritis show no retention of nitrogen. The phenolsulphonephthalein test is valuable in the diagnosis of nephritis, showing probably better than any other method the degree of impairment of renal function. In the diagnosis of uremia and as a guide to diet it is inferior to blood analysis, for a low phenolsulphonephthalein output may occur without retention of nitrogen.

"WHOSE BREAD I EAT, HIS SONG I SING"

Last September the United States Department of Agriculture issued a press bulletin describing the work of the Bureau of Chemistry in prosecuting the vendors or manufacturers of fraudulently exploited "patent medicines." At the end of the bulletin was a tabulated list of "other preparations against which the government's charge that they were falsely or fraudulently labeled was sustained by the federal courts." Tucked away in the list was a product often euphemistically described as an "ethical proprietary" but none the less essentially a "patent medicine" — "Gray's Glycerine Tonic." The editor of the *Atlanta Journal-Record of Medicine,* apparently not having read the bulletin with any great degree of care, published it verbatim. Thus it was that the *Atlanta Journal-Record of Medicine* for September, 1915, presented the interesting sight of a half-page advertisement of "Gray's Glycerine Tonic" in the same issue that contained the government's article classifying "Gray's Glycerine Tonic" among the false and fraudulent products! What happened? In the very next issue the *Atlanta Journal-Record of Medicine* apologized thus editorially:

> "In our September issue, Gray's Glycerine Tonic Comp. was inadvertently included in a list that seemed to be under the ban of the Government and very likely an injustice has been done the Purdue Frederick Company which we desire to undo as far as possible."

Did the editor mean by "inadvertently included," that he would have omitted "Gray's Glycerine Tonic" from the government's list had he noticed it in time? If so, on what grounds? It is a fact that "Gray's Glycerine Tonic" was one of the "Fifty Falsely Labeled Medicines"; it is also a fact that it is one of the products that government officials and the federal courts have declared to be sold under claims that are "false, fraudulent and misleading." If "Gray's Glycerine Tonic" was fraudulently exploited — and the government and the courts have so declared it — why is it necessary for the editor of a medical journal to apologize to his subscribers for having told them so? The only reason that occurs to us is expressed in the caption to this article.

WHAT IS LIQUID PETROLATUM?

The use of liquid petrolatum in chronic constipation, which has recently become the vogue, has naturally been commercialized; as a result, also naturally, claims of superiority of one brand over another have been made. Some of these claims may have been well founded; others certainly are not. Some have claimed superiority for those products made from Russian oil over those made from American oils. As naphthene hydrocarbons predominate in Russian crude petroleums, and paraffin hydrocarbons in many or most American crude petroleums, it was assumed that the petrolatums derived from these sources differed from each other in like manner. Both the naphthenes and the paraffins are chemically inert; but some unexplained therapeutic superiority has been assumed to reside in the naphthenes. Consequently, it has been urged that the American liquid petrolatums should not be used internally. So far these claims and counterclaims have been based on much theory and little fact. The Journal publishes this week a contribution by Benjamin T. Brooks,[1] Senior Fellow in charge of petroleum investigations at Mellon Institute, Pittsburgh. Brooks calls attention to the fact that Marcusson in 1913 pointed out that most of the so-called "mineral oils" used for therapeutic purposes contain no paraffin hydrocarbons whatever; that they consist solely of naphthenes and polynaphthenes. Brooks confirms this statement so far as American liquid petrolatums are concerned. He states that many American petroleums, such as most of those from the Gulf region, are like the Russian in containing no paraffin; and that, in the case of those petroleums that do contain it, the customary refinery method of removing paraffin is sufficient to produce true naphthene and polynaphthene petrolatums. "The claim that only Russian oils belong in this class," he says, "has no basis in fact and has been advanced presumably for business reasons." The name "paraffin oil" applied to these liquid petrolatums, then, is a misnomer. The new name, "white naphthene oils," suggested by Brooks, seems superfluous, however, since the pharmacopeial title, "liquid petrolatum," is subject to no such objection.

PROTONUCLEIN ONCE MORE

Eight years ago the Council on Pharmacy and Chemistry[2] published a painstaking and exhaustive report on Protonuclein and other products of Reed and Carnrick. This report, one of the most admirable and scientific published by the Council, shows conclusively that the whole "theory of Protonuclein therapy" is a tissue of pure speculation, into whose texture are woven only a few slender threads of fact. And yet, what has this report accomplished? If it has been read by the medical profession at large, it has been but little heeded, for not only are these products still being advertised, but also the firm has increased its list of products. The Council therefore now issues a second report on

1. Brooks, Benjamin T.: The Nature of Pharmaceutic Naphthene Oil (Liquid Petrolatum), The Journal A. M. A., this issue, p. 24.
2. Reed and Carnrick's Methods, The Journal A. M. A., Oct. 5, 1907.

Protonuclein, in which, also, is discussed a later Reed and Carnrick preparation, Protonuclein Beta.[3] The fact that the firm of Reed and Carnrick is putting forth new products while pushing the sale of the old is proof that it is still receiving the patronage of a certain portion of the medical profession. Is the medical profession proud of the fact?

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ILLINOIS

Personal.—Dr. George P. Gill, Rockford, who has been on duty with the Chicago unit of physicians in France, left for home, December 15.——Dr. Joseph S. Lundholm, Rockford, has been appointed medical director to the Municipal Antituberculosis Sanatorium.

Resolutions Regarding Fairbrother.—At a meeting of the St. Clajr County Medical Society held in East St. Louis December 17, resolutions were adopted expressing appreciation of the late Dr. Henry C. Fairbrother and the loss sustained by the medical profession and the community at large by his death.

Northwestern District Society to be Formed.—At a meeting of the physicians of northwestern Illinois held in Freeport, December 16, the principal address was delivered by Dr. Joseph B. De Lee, Chicago, and it was decided to effect a permanent district organization, to include physicians in Stephenson, Carroll, Ogle and Jo Daviess counties.

Work of the State Board.—Dr. C. St. Clair Drake, secretary of the State Board of Health, mentions among the important achievements of the board, the authority given to municipalities to levy a special tax for the disposal of garbage; the progress made in the facilities for registration of births and deaths; the establishment of branches of the state laboratory at Mount Vernon and Chicago; the revision of the rules and regulations for the control of communicable diseases, and the additional propaganda through the monthly bulletin of the board.

Chicago

Fenger Memorial Fund.—The directors of the Fenger Memorial Fund announce that $550 has been set aside for medical investigation in 1916. This will be used to pay all or part of the salary of a worker, the work to be done under direction in an established institution, which will furnish the necessary facilities and supplies free of cost. It is desirable that the work undertaken should have a direct clinical bearing. Applications should be addressed to Dr. Ludvig Hektoen, 637 South Wood Street, Chicago.

Gorgas in Chicago.—The Chicago Medical Society, Chicago Single Tax Club and medicomilitary organizations of Chicago have united to give a dinner to Major-General William C. Gorgas, Surgeon-General, U. S. Army, at the Auditorium Hotel, January 10. A reception will be held from 6 to 6:30. Dr. William A. Evans will officiate as toastmaster and places may be secured by communicating with Mr. Ernest Batten, 508 Schiller Building.——The annual meeting of the Geographic Society of Chicago will be held January 8, at 7 p. m., in the gold room of the Congress Hotel. On this occasion General Gorgas will be presented with the gold medal of the society, the presentation address being made by Dr. Frank Billings. General Gorgas will deliver an address on "Sanitation in Its Relation to Geography."

KENTUCKY

Memorial to Dr. Vance.—It is proposed by the friends of the late Dr. Ap Morgan Vance, Louisville, to endow a bed in the Children's Free Hospital, in his memory.

Trachoma Clinic.—Surg. John McMullen, U. S. P. H. S., who has been conducting trachoma clinics in East Louisville, held a free clinic in Greenville, December 21 to 23, assisted by Dr. Joseph N. McCormack of the State Board of Health, at which many persons affected with trachoma or kindred disease of the eye, were treated.

Society Elections.—The Muldraugh Hill Medical Society, whose membership is made up of the counties of Bullitt, Breckenridge, Grayson, Green, Hardin, Hart, Jefferson, Larue, Marion, Meade, Nelson and Washington, convened for its annual meeting in Elizabethtown, December 9, elected Dr. Samuel H. Ridgway, Shepherdville, president, and reelected Dr. Gaylord C. Hall, Louisville, secretary.

Health Officers Meet.—The second annual meeting of health officers of Kentucky was held in the Armory, Louisville, the first week in December when 121 out of the 135 health officers of the state were in attendance. Attendance at this meeting is mandatory and the expenses are borne by the county.——The semiannual examination for license to practice medicine was held at this time by the State Board of Health.

Personal.—Dr. J. M. Jameson, Bowling Green, who has been under treatment at St. Joseph's Hospital for several months on account of injury to the hip, is reported to be making satisfactory progress toward recovery.——Dr. John R. Murnan, Covington, underwent operation for appendicitis at Lakeside Hospital, Cleveland, Ohio, November 30.——The residence of Dr. Hugh E. Prather, Hickman, was burned, November 25, with a loss of $4,000.

LOUISIANA

Antituberculosis League Election.—At the eighth annual meeting of the Louisiana Antituberculosis League held in New Orleans, December 16, the following physicians were elected to office: president, Dr. J. George Dempsey; vice president, Dr. Otto Joachim; secretary, Dr. G. Farrar Patton; treasurer, Dr. Everard W. Mahler; and other members of the executive council: Drs. Arthur I. Weil, Benjamin A. Ledbetter; Sidney K. Simon, George S. Brown, Charles L. Chassaignac, Ernest A. Robin, G. Farrar Patton, William H. Seemann, Edward L. McGehee, George S. Bel and Everard W. Mahler.

State Should Own Laboratory.—At the quarterly meeting of the State Board of Health, December 18, the board adopted the suggestion of President Oscar Dowling that a bacteriologic laboratory be established. From this laboratory are to be shipped, to every board of the state, antitoxins and serums which will be furnished to the poor free of charge. The board also made recommendations that additional employees be engaged, that midwives be organized and that assistance be given to them; that financial assistance be given to local units providing they will double the amount offered by the board, and that a board of reference be established to act in questions of doubt.

MARYLAND

Hopkins Gift Attacked.—Argument has begun in the circuit court of Baltimore, on the question whether the late Miss Mary E. Garrett had an absolute interest or only a life estate in certain property she inherited from her father and a part of which she bequeathed to Miss M. Carey Thomas for life and then to the Johns Hopkins University, as a part of a permanent endowment of its medical school.

Personal.—Dr. William H. Welch of the Johns Hopkins University, who is on his way home from China, has been decorated with the Third Order of the Sun by the Mikado of Japan.——Dr. Martin F. Sloan, medical superintendent of the Eudowood Sanatorium at Towson, has returned from a trip to California and through the South.——Dr. Charles E. Fox, formerly connected with the Maryland State Board of Health, concerning whose welfare in Serbia there were many rumors, is safe in Uskub, where he is a member of the American Sanitary Commission that left Saloniki, Greece, after completing a campaign against typhus.——Dr. William J. Todd, who has been medical adviser to both the faculty and students of Mt. St. Agnes College at Mount Washington, for a quarter of a century, has been presented with a silver chocolate service.—Dr. Christopher C. Wingo celebrated his ninety-second birthday recently at his home in Baltimore.——Dr. Charles A. Overman, Baltimore, who has been ill at the University Hospital for the past five months, is able to leave the hospital.——Dr. Marshall B. West, Catonsville, who was operated on recently at the Maryland University Hospital for appendicitis, has returned home convalescent.——Dr. Holliday H. Hayden, Baltimore, who was operated on for appendicitis, December 2, at Mercy Hospital,

3. This issue, page 48.

is convalescent.——Dr. Charles F. Nolen, Baltimore, who was recently operated on at the Union Protestant Infirmary, has recovered and returned to his home in Relay.

MASSACHUSETTS

Leprosy.—A case of leprosy was discovered in Boston, December 11. Another case was discovered five weeks earlier. The latest victim was a sailor 72 years old, born in this country, but who had followed the sea for many years and who had visited many Asiatic ports.

Staff Appointments.—The following appointments have been made to the medical staff of the Boston Dispensary: Dr. Charles H. Hare, consulting surgeon; associates, Drs. Edward L. Trombley, Robert L. De Normandie and Stephen Rushmore; assistant surgeons of the gynecologic department: Drs. Alonzo K. Paine, John B. Swift, Jr., and John T. Williams; assistants, Drs. Raymond S. Titus and Foster S. Kellogg.

Medical School Changes.—In Harvard Medical School the following appointments are announced: Dr. David Cheever, associate in surgery; Drs. James L. Huntington, Frederick C. Irving, Foster S. Kellogg, and John B. Swift, Jr., fellows in obstetrics; Dr. Samuel C. Harvey, Cabot fellow in charge of the laboratory for surgical research.——Dr. Walter W. Palmer, Boston, has resigned as fellow in medicine; Dr. Townsend W. Thorndike, as fellow in dermatology, and Dr. Gilbert Harrax, as Cabot fellow.

Personal.—Dr. Paul H. Provandie has been elected a member of the school board of Melrose Highlands, and associate medical examiner of Middlesex County.——Dr. William S. Boardman, Boston, was seriously injured, December 10, by being knocked down by a street car in Jamaica Plains.——Dr. Edward H. Bushnell has been elected school physician at large of Quincy.——Prof. Selsker M. Gunn of the Massachusetts Institute of Technology has been appointed chief of the new department of hygiene by State Commissioner of Health McLaughlin. The duties of the division consist of the direction of child welfare work, public health nursing, the promotion of traveling exhibits, public lectures and the distribution of health bulletins and pamphlets.

Consultation Clinic at Hospital.—The Massachusetts General Hospital will open a consultation clinic for people of moderate means on January 25. Every Tuesday and Friday afternoon at 2 o'clock patients referred by their physicians will be received at the outpatient department on Fruit Street for consultation and diagnosis only. These are hours apart from those of the regular outpatient clinic. Physicians are requested, if possible, to accompany their patients. When a physician is unable to accompany his patient, he will be expected to send a letter referring him to the hospital. This letter will be answered and as far as possible the diagnosis given and treatment suggested. The clinic is designed for the benefit of families with small incomes. A fee of $5 will be charged. When a Roentgen-ray examination is needed, a fee of $2 to $3 will be charged in addition. For certain other laboratory tests, charges not to exceed $1 will be made. The $5 admission fee includes more than one visit when these are necessary for a diagnosis.

Free Medical Lectures at Harvard.—Announcement is made of an annual series of free public lectures to be given under the auspices of the faculty of medicine and Harvard University at 4 o'clock on Sunday afternoons at Harvard Medical School. The schedule is as follows:

Jan. 2—Dr. Robert B. Greenough: Cancer.
Jan. 9—Dr. W. H. Potter: Military dentistry; experiences in a three months' service in the American Ambulance Hospital, Paris.
Jan. 16—Dr. Richard P. Strong: Progress in combating epidemics of some infectious diseases.
Jan. 23—Dr. Robert B. Osgood: Orthopædic problems presented by the European War.
Jan. 30—Dr. James A. Honeij: Leprosy. Cambridge.
Feb. 6—Dr. C. Morton Smith: Syphilis.
Feb. 13—Dr. Frederick H. Verhoeff: Some simple facts regarding the eyes that everyone should know.
Feb. 20—Dr. William H. Robey, Jr.: The value of physical examination to the individual.
Feb. 27—Dr. Charles J. White: Occupation as a contributing factor to certain skin diseases.
March 5—Dr. W. R. Bloor: The rôle of fat in the nutrition of man.
March 12—Dr. Franklin S. Newell: The care of pregnancy. (To women only.)
March 19—Dr. Joseph L. Goodale: Hay fever and asthma.
March 26—Dr. Franklin W. White: Chronic indigestion.
April 2—Dr. James R. Torbert: A comparison of the methods for the relief of pain in childbirth. (To women only.)
April 9—Dr. P. G. Stiles: The present conception of an adequate diet.
April 16—Dr. George B. Magrath: Death by accident; some of its causes and how to eliminate them.
April 23—Dr. Harris P. Mosher: The management of foreign bodies in the trachea, bronchi and esophagus.
April 30—Dr. Charles V. Chapin: What the individual can do to protect himself from infection.
May 7—Dr. Roger I. Lee: The importance of physical examination in health as shown by the examination of Harvard students.

MICHIGAN

Midwives.—At Detroit a midwife was convicted of practicing midwifery without a license and fined $25. The health officer, Dr. William H. Price, contends that the health board has a right to compel midwives to register and to regulate their practice. The court in this case upheld the contention.

Appropriation for Tuberculosis.—As an aid in the fight against tuberculosis, the common council of Detroit, November 23, appropriated from the contingent fund an additional sum of $13,020. This appropriation is to cover the care of thirty-five patients from December 1 to July 1.

Medical Scholarship Established.—The board of regents of the University of Michigan has been notified that W. R. Wooden, Battle Creek, has established a scholarship in medical research for one year in memory of C. C. Beach, Battle Creek. This scholarship has been awarded Dr. Carl C. Warden, Ann Arbor.

Drink Cure for Prison Inmates.—It is reported from Lansing that Governor Ferris and the State Board of Pardons, after a study of the records of men imprisoned in the penitentiaries of that state, have come to the conclusion that drink and drugs are responsible for much of the crime which causes many of the men to be sent to prison. The governor is quoted as expressing the opinion that prisoners addicted to either of these habits should be given treatment while in prison.

Personal.—Dr. J. T. Stewart Hamilton, for four years medical director of the Harper Hospital, Detroit, has been elected superintendent to fill the vacancy caused by the death of Dr. O. Wayne Smith.——Dr. Don M. Griswold, Grand Rapids, has gone to Trinidad where he will study the hookworm disease in the interest of the International Commission of Rockefeller Institute. Later Dr. Griswold will go to London for a course of study in the School of Tropical Medicine and after completing this course he will go to Mahe, India.——Dr. George C. Bassett, Detroit, has been elected medical director of the Order of the Amaranth.——The $10,000 damage suit instituted by Dr. Louis N. Yerkes, Elk Rapids, against the estate of Edward Leszynski, et al., in which the physician sought to recover damages for injuries sustained when his motor car collided with the automobile of the plaintiff, resulted in a verdict of $3,000 against the estate.——Dr. Karl Dubpernell, Detroit, fractured his right arm while attempting to crank his motor car, recently.——Dr. Edward J. Strick, Holland, has returned after several years' residence as a medical missionary in Amoy, China.——Dr. Frederick J. Larned, for several years physician and surgeon in the Upper Peninsula of Michigan, who has served as an intern in the Infants' and Children's Hospital, Boston, for nearly two years, has located in Grand Rapids.

NEBRASKA

Personal.—Dr. Harry J. Pittock, Falls City, has been appointed resident physician of the La Vina Sanatorium, Pasadena, Calif.——Dr. John W. Duncan, Omaha, was injured recently in a collision between his automobile and a coal wagon.

Health Officers to Meet.—The Nebraska Public Health Association will hold its annual convention at the Hotel Rome, Omaha, January 25 and 26. The meeting is under the auspices of the State Board of Medical Examiners and the State Board of Health, and every one interested in the conservation of health is invited to be present.

Honor Von Mansfelde. — Seventy-five physicians of Nebraska gathered at Ashland, December 21, to pay tribute to Dr. Alexander S. von Mansfelde on the occasion of his seventieth birthday. Dr. von Mansfelde was presented with a purse containing $100 in gold, the presentation speech being made by Dr. Walter O. Henry, Omaha. Dr. Edward U. Rowe, Lincoln, president of the State Medical Society, officiated as toastmaster of the banquet, and Dr. von Mansfelde was eulogized by eight speakers and made a fitting response.

NEW YORK

Vaccination.—A somewhat novel question in the administration of the vaccination law was raised at Rochester by a man who refused to permit his daughter, aged 8, to be vaccinated as required by the vaccination regulations. The man had repeatedly sent his daughter to school but she was sent

home on account of not having been vaccinated. Her father agreed to have her vaccinated if the city of Rochester would assume all responsibility and award proper compensation in case her health was destroyed. He was arrested for violation of the compulsory education law and demanded a jury trial. It is the intention to make this a test case.

Governor Approves Health Budget.—Governor Whitman has endorsed the work of State Health Commissioner Biggs, and has approved of practically all of the requests for health extension work laid out by him for the coming year. Dr. Biggs submitted requests for appropriations amounting to $626,525, as against $380,775 expended this year. The increased expenditures are largely in the departmental laboratories and for personal service. It is planned to greatly increase the laboratory service. It is announced that free pneumonia serum will soon be available. The governor has also approved a request for a physician to make physical examinations of employees of the Civil Service Department.

New York City

Correction.—Dr. F. E. Sondern, New York City, writes that he is not a member of the staff of the "Radium Sanatorium," as stated in THE JOURNAL, Dec. 11, 1915, p. 2097.

Personal.—Dr. John S. Billings, Jr., has been appointed deputy health commissioner of New York.——Dr. Simon Flexner of the Rockefeller Institute was honored by the emperor of Japan with the decoration of the Third Order of the Sacred Treasure in recognition of the help and guidance he had given to Japanese medical students in the United States.

City Faces Milk Shortage.—The milk supply has fallen 40,000 quarts a day below the average, which makes a serious shortage. It affects, however, only Grade B milk from which condensed milk is manufactured. This shortage is due to the purchase of enormous quantities of condensed milk for the Allies and also to some extent to the effect of the recent cold weather on the cows.

Hospitals Must Report Communicable Diseases.—The commissioner of health has, by a letter, notified all hospital superintendents in the city that hereafter they will be held strictly accountable for failure to report communicable diseases as required by the regulations of the sanitary code. It is said that delay in reporting these diseases, particularly typhoid fever, by the superintendents of hospitals as required by section 86 of the sanitary code has handicapped the health department in applying measures for the prevention of the spread of this and other diseases.

Diphtheria Cure Faker Convicted.—After a two days' trial in the court of special sessions in New York City, George W. Felter of Brooklyn, manufacturer of "Dr. E. H. Barton's Antidote," which was described on the package as "a certain and speedy cure for scarlet fever, diphtheria and sore throat," was convicted and fined $100 on the ground of making false and misleading statements with regard to the therapeutic effect of this nostrum. Chemical analysis showed that it contained common salt, sugar, vinegar, caramel coloring, oil of peppermint and an extract, probably of red pepper.

Doctor Witthaus Leaves Estate to Academy of Medicine.—The will of Dr. Rudulph A. Witthaus, whose estate is valued at about $150,000, leaves the residuary estate after the death of a beneficiary and after deducting a bequest of $20,000, to the New York Academy of Medicine. He also bequeathes all of his scientific books to the Academy of Medicine with the request that a portion of the income from the fund left the Academy of Medicine be devoted to maintaining the library accessible to readers during the seasonable hours of every day in the year, especially including Sunday. This, however, is not a condition of the receipt of said trust fund.

Good Housekeeping Wins Suit.—The fight waged by the magazine *Good Housekeeping* against fake cures and nostrums has been upheld by a verdict rendered in the supreme court of New York, December 20. The suit was brought by one Mrs. Jean Downs Abernethy Bishop, trading as "Jean Downs," maker of a nostrum known as "Get Slim," against the American Home Magazine Company, publisher of *Good Housekeeping*. The plaintiff claimed that *Good Housekeeping* and Dr. Harvey W. Wiley had damaged her business to the extent of $50,000 by condemning "Get Slim" as an injurious concoction that would not legitimately reduce weight. The jury rendered a verdict against the plaintiff.

Report from Crocker Research Laboratories.—Dr. Francis C. Wood has recently made public a report of the work done by the laboratories during the past year. The attention of the laboratory staff has been engaged during this time along the line of therapeutics, the investigation of the nature of cancer and the production of immunity. In conformity with the terms of the gift of the Crocker fund, investigations have been carried out as to the effectiveness of certain so-called cures for cancer. Not one of these agents has been shown to possess the slightest influence on tumors in animals. Some of them have been tested in hopelessly inoperable carcinoma in man with equally unsatisfactory results. In connection with the radium experiments alone 12,000 mice and 2,500 rats have been used. Altogether some 52,000 mice, 10,000 rats, 1,200 chickens and 1,000 guinea pigs have been used during the year. A somewhat unexpected development has been that physicians from various parts of the country have been sending patients for treatment with radium. Many of these cases are found to be operable and are transferred to St. Luke's and other hospitals for operation with most satisfactory results. This relationship with St. Luke's Hospital has made it possible to use the income of the Crocker fund for purely experimental purposes.

Changes in Sanitary Code.—The Board of Health, at its meeting December 23, made several changes in the sanitary code. The most radical was that of revoking the present section that prevents the sale in this city of horse flesh as food. Dr. Emerson stated that the Health Department did not exactly recommend the eating of horse meat, but desired to open the way for placing on the market an inexpensive and healthy food supply. He pointed out that the horse never suffers from tuberculosis and practically never communicates a malignant disease to human beings, and for this reason the sale of horse flesh would not have to be placed under the same rigid constrictions that now hedge about the sale of sheep, cows and poultry. Other changes made at this meeting were the following: The requirement that all private schools in the city must operate under a permit from the Board of Health after Sept. 1, 1916; persons suffering from typhoid fever are forbidden to engage in the handling of food; retail milk stores are exempted from the requirement of obtaining permits from the Department of Health, owing to the belief that the present rigid control of the wholesale milk supply and imperative pasteurization furnishes sufficient safeguard for the city's milk supply; the manufacture and sale of toilet preparations containing lead, mercury, arsenic and other substances detrimental to health is forbidden; a standard of purity for bathing pools has been established; it is required that all water tanks be covered in order to prevent the breeding of mosquitoes; hotels are compelled to use wooden containers for garbages in order to avoid the noise caused by the handling of metal cans.

NORTH CAROLINA

State Examination Board Meeting.—At a special meeting of the State Board of Medical Examiners held in Raleigh, December 7, Dr. Edwin G. Moore, Elm City, was elected a member to succeed Dr. Charles T. Harper, Wilmington, deceased. The next regular session of the board will be held in Raleigh, June 26 to 30.

Baptist Publication Discontinues "Patent Medicine" Advertising.—The stockholders of the corporation which publishes the *Biblical Recorder*, the leading organ of the Baptist denomination of North Carolina, at a recent meeting in Raleigh, ordered the discontinuance of all "patent medicine" advertisements when contracts already entered into have expired.

Personal.—Dr. Herman G. Heilig, Salisbury, fell down a flight of stairs recently and sustained painful injuries.——Dr. Fred C. Hyatt, city health officer of Greensboro, while paying a professional visit in the country, suffered a concussion of the brain by the overturning of his automobile.——Dr. Daniel E. Sevier, Asheville, health officer of Buncombe County, was painfully injured by the overturning of his automobile in Asheville, December 13.——Dr. Hubert B. Haywood, Jr., has been elected physician to the Agricultural and Mechanical College, Raleigh, succeeding Dr. Henry McKee Tucker, deceased.

PENNSYLVANIA

Nurses' Home Dedicated.—William Howard Taft, former president of the United States, and Dr. J. Chalmers DaCosta of Jefferson Hospital, Philadelphia, made the addresses at the dedicatory exercises of the new nurses' home for the Allentown Hospital, December 23. This structure, representing an investment of $140,000, was erected through the bequest of the late Judge Edward Harvey of Lehigh County courts.

Personal.—Dr. George W. Mellon, Monaca, who returned from medical service in the Balkans about two months ago, has started for New York City on his return to the war zone in Greece.——Dr. Mary A. Naylor has been appointed by the board of public education of Pittsburgh as medical examiner of teachers applying for retirement.——Dr. Samuel G. Dixon was elected president of the Academy of Natural Sciences at the annual meeting December 22.

Hospitals Must Insure Employees.—An opinion relative to insurance in the state workmen's compensation system was rendered to State Treasurer Young, chairman of the Insurance Fund Board, by Deputy Attorney-General Hargest, December 10. It holds that the state hospitals and similar state institutions receiving separate appropriations must insure their employees out of their own funds, and cannot have the cost of such liability insurance taken out of the appropriation of $15,000 made for state employees under the compensation act.

Philadelphia

To Relieve Dope Fiends.—The executive board of the Society for Organizing Charity has appointed H. K. Landis, agent of the Narcotic Drug Committee, to investigate drug cases for their ultimate relief.

New Course Offered by Woman's Medical College.—The new course offered by the Woman's Medical College of Pennsylvania, for social workers and club women, which includes practical field work and textbook theory, will be inaugurated the first week in January. Special exercises January 7, at the college, will mark the formal opening of the course.

Personal.—Dr. Ralph Luikhart, who has been with the Red Cross in Serbia, returned home December 22.——Dr. Richard H. Harte, ex-director of Public Health and Charities, will sail for France early in January and will work for an indefinite period at the American Ambulance Hospital.——Dr. J. William White, who has been ill in the University Hospital for several weeks, is improving.

Woman's College Buys Site.—The Woman's Medical College of Pennsylvania, which is situated at the corner of Twenty-First and Seybert Streets, has purchased the dwellings, 1338-40 N. Twenty-First Street, together with the dwellings in the rear numbered 2101-03-05-07-09-11 Seybert Street, occupying a lot 31 by 148 feet, directly opposite the college, which will be used for an additional building.

Memorial Plaque Dedicated.—A bronze portrait plaque was formally dedicated and placed on the walls of the Evans Dental Museum of the University of Pennsylvania, December 22, in memory of Willoughby D. Miller, dental surgeon, who graduated from the dental school in 1879. The plaque was the gift of the National Dental Federation, and a replica of it will permanently adorn the walls of the Zahnartlich Institute, Berlin.

RHODE ISLAND

Intern Year Required.—A report from the Rhode Island State Board of Health states that after Jan. 1, 1917, no physician will be allowed to register in that state unless he has served one year in a hospital having at least fifty beds and has attended at least ten maternity cases.

Ophthalmia Neonatorum. — Superintendent of Health Charles V. Chapin has warned physicians that ophthalmia neonatorum is a notifiable disease, and failure to report cases coming under their observation will subject physicians to a penalty. In every case attended by a midwife in which ophthalmia develops a visiting nurse will be sent immediately on receipt of the birth certificate.

WASHINGTON

State Medical Examination.—The next Washington medical examination will be held at the Davenport Hotel, Spokane, January 4, and not in Walla Walla as erroneously stated in THE JOURNAL under the heading "Medical Education and State Boards of Registration."

Personal.—Dr. Nevin D. Pontius, Seattle, has started for Europe for Red Cross service with the Allies.——Dr. Martin J. Lacey has been selected as mayor of Auburn.——Dr. A. Eddie McDowell, Spokane, expects to leave for England about January 1 for service with the allies in the war zone.——Dr. Daniel M. Stone, Seattle, has been appointed president of the State Board of Medical Examiners, succeeding Dr. Robert Percy Smith, Seattle, resigned.——Dr. George M. Horton, Seattle, was operated on recently at Rochester, Minn., and is reported to be doing well.——Dr. Albert E. Stuht, Spokane, has been appointed chief of staff of the new tuberculosis hospital of Spokane County.

WEST VIRGINIA

Personal.—Dr. Frank LeMoyne Hupp, Wheeling, expects to go to Europe to take charge of a French Red Cross Hospital.——Dr. Page A. Gibbons, Morgantown, while hunting fell down a hill, fracturing his leg.

Qualifications for License.—An official communication received from the West Virginia Public Health Council states that at a meeting held November 30 the council adopted a resolution requiring that all applicants for a license to practice medicine in West Virginia who matriculate in the session of 1916-17 and thereafter must present evidence of preliminary qualifications including one year of collegiate work, in addition to an accredited four-year high school education. This requirement, therefore, will apply to all graduates of 1920 and thereafter.

WISCONSIN

Maternities Must be Licensed.—Under the new state law, which becomes effective January 1, the hospitals which regularly handle confinement cases and maintain maternity wards must secure licenses.

New Superintendent of Sanatorium.—The State Board of Control on December 18 elected Dr. Frank Brockway, Oshkosh, superintendent of the State Tuberculosis Sanatorium, Wales, succeeding Dr. Norman F. Hoffman, resigned.

Personal.—Dr. Albert F. Young, newly appointed superintendent of the Milwaukee County Hospital for the Insane, Wauwatosa, has reappointed the following assistants: Drs. Frederick F. Fowle, Parker T. Trowbridge and Harry W. Sargeant.

Sanatorium Control Conferred.—The Tuberculosis Sanatorium at Humboldt and Keefe Avenue, Milwaukee, which was taken over by Milwaukee County a few months ago, has been turned back to the Social Workers Sanatorium Association and the institution will receive persons in the incipient stage of tuberculosis.

CANADA

Ontario Medical Association.—The thirty-sixth annual meeting of the Ontario Medical Association will take place in Toronto, May 30 to June 2, in connection with the annual meeting of the Provincial Health Officers' Association. A more determined effort than ever is being made to line up the county medical societies into branches of the Ontario Medical Association and it is expected this will finally be accomplished at the coming meeting.

College Items.—The Royal College of Surgeons of England has decided to add the universities of Toronto, Queen's at Kingston, and Dalhousie at Halifax, N. S., to the list of universities whose graduates in medicine and surgery may present themselves for examination for college fellowship without first becoming members.——Dr. Frederick Etherington, in command of Queen's Stationary Hospital at Cairo, Egypt, has cabled the dean, Dr. J. C. Connell, Kingston, that the hospital, now of 600 beds, is to be increased to 1,000 and will be converted into a general hospital.

Drug Habit in Toronto.—The revenue collector of Detroit states that Toronto, Windsor, Chatham and London, Ont., are headquarters for drug rings. It is stated in the Toronto public press that the police of that city believe this to be true and that they have been waging campaigns against the selling and unlawful prescribing of drugs in that city. Four Toronto doctors have been convicted and some pedlers have been sent to jail. It is said that although the conditions have been laid before the Ontario Medical Council, that body has so far taken no action. The police state they intend to continue the campaign against illicit sales of morphin, cocain and heroin until the practice is stamped out of Toronto.

Appeal in Vaccination Case Lost.—The judicial committee of the privy council, London, Eng., has dismissed the petition of a Montreal woman who requested special leave to appeal against the judgment of the king's bench, Quebec, in favor of the city of Montreal. The counsel who appeared for the widow before the judicial committee stated that the case raised for the first time before the courts of the province of Quebec the question of the responsibility of muncipal corporations arising out of the enforcement of compulsory vaccination bylaws. The petitioner brought an action against the city of Montreal, claiming $10,000 damages on the grounds that she was obliged to cause her son to be vaccinated, that

he was vaccinated by medical men employed by the city of Montreal with vaccine supplied by the city, and that owing to alleged negligence and bad quality of the vaccine used her son's health was so seriously and permanently impaired as to prevent him from earning his livelihood. The city denied negligence, and pleaded that the boy was vaccinated with care and skill, and that the vaccine was the best in existence.

Personals.—Major Daniel P. Kappele, Hamilton, Ont., who is abroad as second in command of the Fifth Field Ambulance, has been promoted to the command of a field ambulance of his own and gets the rank of lieutenant-colonel.——Dr. Leeming Carr is the new chairman of the board of education, Hamilton, Ont.——Lieut.-Col. David W. McPherson, Toronto, who was in command of No. 2 Canadian Field Hospital in France with the First Division, has been placed in command of the Canadian Convalescent Hospital at Woodcote Park, Epsom, Surrey, England. Colonel McPherson was given a farewell dinner by his fellow officers in France, and presented with cut glass mounted in silver.——Dr. William D. Sharpe, Brampton, Ont., has returned home from Serbia.——Maj. Frederick B. Carron, a graduate of McGill University, and who was in practice in Brockville, Ont., before leaving for England with the second Canadian contingent, has been appointed supervisor of military hospitals in England.——Dr. J. R. Goodall, Montreal, has been appointed medical officer of the Second Brigade of the Canadian Expeditionary Forces, which comprise the Fourth, Fifth and Sixth Canadian Mounted Rifles, now in France.——Capt. James Roberts, M.O.H., Hamilton, Ont., is in charge of a base hospital at the Dardanelles. He has recovered from a recent illness.——Dr. John E. Hett has been reelected mayor of Berlin, Ont.——Dr. Charles C. Bell, Chatham, Ont., has accepted the appointment of assistant director of medical services at London, Ont.——Dr. David R. Moore, Stanley, N. B., has volunteered for active service.——Dr. J. F. Adamson, Edmonton, Alta., is attached to the Floriana Hospital at Malta.

Ontario Universities and the Medical Commission.—Prof. Alexander McPhedran gave evidence before the Ontario Medical Commissioner last week. He held that the final university examination was a more thorough test than that of the medical council. Professor McPhedran declared: "We put each student at the University of Toronto through a course of work with six patients and we make him demonstrate that he has a good working knowledge of the various diseases. Further, the student's final year is wholly practical rather than scientific. A record is kept of the student's work, so that it becomes impossible for him to make a pass showing during the year unless his standing is good." Professor McPhedran also stated to the commissioner that sometimes when the total percentage was not sufficient to qualify, the examiners would, if the student's record was exceptionally good, raise the percentage so many points to permit of him going through. President Falconer considered that the dual control of examinations by the universities and the medical council was humiliating, as once a student gets his degree he should be entitled to practice. Dr. Hibbert W. Hill for the Western University, London, agreed with the position taken by the University of Toronto. Mr. Osler, for the College of Physicians and Surgeons, pointed out that the representation of the universities on the council of the province would be proportionately larger when those which did not now teach medicine, would cease to be represented. He also maintained that the final examination by the council was necessary in order to show that after his five years' tuition at the university the student was really efficient for practice. He contended that there must be some common examination board before which the holder of the degree must go before being entitled to become a registered practitioner.

GENERAL

Cancer Research.—The ninth semiannual meeting of the American Association for Cancer Research will be held at the New Ebbitt Hotel, Washington, D. C., January 5, as a symposium on cancer research in conjunction with the Pan-American Scientific Congress.

Personal.—Asst. Surgeon-General Henry R. Carter, U. S. P. H. S., who has been ill with dengue in Porto Rico, has returned home convalescent.——Dr. Rudolph Tuesler, chief surgeon to St. Luke's Hospital, Tokyo, Japan, was the chief speaker at a dinner of the Church Club of the Episcopal Diocese of Michigan, at Detroit, December 9.

Coyotes Spread Rabies.—Surg. John S. Boggess, U. S. P. H. S., on December 20, was appointed executive officer to lead a campaign against rabies originating in coyotes and now said to be a menace to people and stock in California, Oregon, Nevada and Idaho.——Thirty persons supposed to have contracted rabies by the bites of coyotes have recently been treated at the State Hygienic Laboratory, Reno, Nev.

Organization of Indian Service Physicians.—A general organization of the physicians of the United States Indian Medical Service is being perfected by several physicians of that service. Because of inadequate compensation, insufficint authority in medical and sanitary matters, absence of reasonable expectation of promotion and coordinate organization, the physicians of this service, through its association, are planning an active campaign which will put the Indian Medical Service on a higher plane. The organization will ask for a chief medical officer whose authority in matters pertaining to his office is supreme; organization to be based on that of the higher government services; increase in salary and rank, which will be determined by length of service and efficiency. Former and active officers of the service are requested to correspond with the Temporary Secretary, "Association of the U. S. Indian Medical Service," Shiprock, N. M., or the treasurer of the association at Crozier, N. M.

Bequests and Donations.—The following bequests and donations have recently been announced:

Delaware and Homeopathic hospitals, Wilmington, Del., each $1,000, by the will of Sarah C. Hagany, Wilmington.

Boston Dispensary, a gift of $5,000, to the endowment fund from Shepart Brooks.

St. Luke's Hospital, Chicago, and Church Home for Aged Persons, each $5,000 to endow a free bed to be known as the Alma L. Kimball Bed, by the will of Miss Louise Edsall Kimball.

Maimonides Hospital, Chicago, an annual donation of $5,000 for maintenance of the hospital.

Laconia (N. H.) Home for the Aged, $50,000; Laconia Hospital, $10,000; Florence Crittenton Home Society, $2,000; Boston Floating Hospital, $1,000, by the will of Edward E. Taylor, Boston.

St. Christopher's Home for Babies, Brooklyn, $25,000, and also a trust fund of $125,000 on the death of certain beneficiaries.

Hospital for Deformities and Joint Diseases, New York City, $1,000, and bequests of $500 or $250 to ten other charitable institutions of New York and Brooklyn, by the will of Herman N. Flurchheimer, New York City.

Hospital of the University of Pennsylvania, Philadelphia, $3,000, to endow a bed in the Children's Ward in memory of Mr. G. Lee Knight, by the will of Helen T. Knight.

Seven charitable institutions of Philadelphia, provisional bequests in the will of Martin H. Stutzbach.

Belgian Scholarship Committee.—The Belgian Scholarship Committee has issued a circular letter of appeal for a fund to enable scholars, research workers, literary men and artists of Belgium to resume their work. It is proposed to give these worthy individuals assistance in England, Holland, France or wherever they may be, but in a few cases it is proposed to have the workers brought to this country. The committee has already received assurance from the George Washington University, Clark University and the state universities of Missouri and Florida that they will give free tuition to Belgian students. Belgian professors have also been temporarily engaged by Princeton, George Washington, Harvard and Yale universities and the University of Pennsylvania, the University of Chicago, and the Baltimore branch of Carnegie Institute. In one of these cases the honorarium has been partly paid by the committee. The committee undertakes to centralize all information and to act as a clearing bureau between the educational institutions of the United States and the Belgian victims of the war. The committee appeals especially to men interested in the development and diffusion of knowledge and art, and hopes that a liberal response will follow the appeal. Checks should be drawn payable to the Belgian Scholarship Committee, John Joy Edson, treasurer, 309 Wilkins Building, Washington, D. C.

FOREIGN

French Academy of Sciences Awards Prize to Wright.—The Académie des Sciences awarded seven prizes of from $100 to $10,000 at its recent annual meeting. The Le Conte prize, the largest one, was given to Sir Almroth Wright for his share in the introduction of systematic vaccination against typhoid. The Lannelongue prize of $400 was divided between Mmes. Cusco and Rück.

Prizes Offered by the Buenos Aires Academy of Medicine.—In commemoration of the centennial of the independence of Argentina, 1816-1916, the Academia de Medicina offers three prizes of 1,500 pesos each for the best works on biologic sciences, medicine or surgery, received in competition from Argentine scientists. It also offers a prize of 2,500 pesos

for the best unpublished work on a medical subject presented at the Congress of Social Sciences which is to be held at Tucuman, Argentina, July 9, 1916. This prize is open to any American member of the congress.

Deaths Abroad.—F. Tauszk, privat-docent of internal medicine at the University of Budapest, editor and publisher of the journal *Tuberculosis*, and general secretary of the Hungarian organization of the public sanatoriums for pulmonary affections, aged 50.——A. Blin, professor at the University of Rennes, aged 63.——U. Rose, instructor in internal medicine at the University of Strassburg, aged 44.——M. Nussbaum, director of the biologic laboratory of the University of Bonn, aged 65.——R. Ulrich, formerly professor of ophthalmology at the University of Strassburg, aged 67.——J. Erismann, professor of hygiene at the University of Zurich, aged 73. ——P. Baj, editor of the *Pensiero Medico* of Milan, aged 30.

Typhus in Mexico.—Reports from Mexico state that following the famine, typhus has broken out and that its fatalities are particularly heavy on account of the impoverishment of the people and the filth conditions prevalent. It is reported at Pachuca that there are about seventy deaths a day and it is said that typhus is causing as many deaths as starvation in the suburbs of the city of Mexico. Notices have recently been posted telling the public how to avoid typhus, but ignoring the principal cause of typhus, the body louse.——A telegram from Washington, December 24, states that the United States Public Health Service has learned that typhus fever has crossed the Rio Grande in Texas. Three cases have been found in Laredo where many Mexican refugees have gathered.

WAR NOTES

Surgical Dressings Shipped.—The surgical dressings committee of the Zander Ward of the Peter Bent Brigham Hospital, Boston, shipped seventeen cases of hospital supplies to the war zone last week.

New Ambulances.—The Vacation War Relief Committee has cabled to Mrs. Edith Wharton in Paris, the $12,000 contributed by Mrs. Daniel Guggenheim to equip five hospital motor cars for the use of the French army in Alsace.

Frauds in Medical Supplies.—A dealer in physicians' and hospital supplies was recently arrested at Milan for handling contraband drugs and for adulterating drugs. The Serbian government was one of the complainants, testifying that the goods supplied the Serbian army on a $40,000 order did not correspond in any way to the specifications.

Hospital Mortality Lowered.—Dr. Jacques Bertillon, director of medical statistics of the French army, in a special report, states that the mortality of the sick and wounded in hospital has been, for this year, only 18 to the 1,000. Last year the mortality was 53 to 1,000 and in peace time, the Paris hospitals showed a mortality of 106 to 1,000.

The Siegfried League.—With this name, a new society has been organized at Stuttgart, the members of which pledge themselves to abstain from intoxicating liquors as long as the war lasts. The officers include Professors von Froriep and von Grützner. The name was chosen because the mythical Siegfried had only the one vulnerable spot where the dragon's blood had not touched him.

Aid Asked for War Hospital.—Dr. James E. Stowers, Millersburg, Mo., and Dr. Ralph R. Fitch, Rochester, N. Y., who are conducting at their own expense, a hospital at St. Valery en Caux, Seine Inférieur, France, have appealed for help. The American Red Cross withdrew from the hospital, October 1. Drugs, hot-water bottles and hospital supplies are needed. The hospital has a capacity of about 150.

Exchange of Medical Prisoners of War.—According to an agreement between the German and British governments, a number of German physicians and pharmacists taken prisoners by the British in southwestern Africa have been exchanged for a corresponding number of British medical men in German hands. Seventeen German physicians with their families from Africa have thus reached Berlin by way of Rotterdam.

Hospital Ships Reported Sunk.—The steamer *Cambria*, formerly owned by the London and Northwestern Railway Company, but recently transferred to the admiralty service as a hospital ship, is said to have been sunk in the English Channel, December 20.——The British hospital ship *Anglia* is reported by an Associated Press telegram to have been sunk by a mine in the English Channel, November 17. Three hundred men were saved out of a total of 385.

Losses of the University of Berlin in the War.—According to the *Klinische-therap. Wochenschrift* of November 1, there have been twenty-seven victims of the war among the students in the medical department, 129 in the department of philosophy, thirty-one in theology and forty-eight in the law department. Five of the members of the teaching force have also been victims, Professors Piper, Jochmann and Kramer, and the assistants at the physiologic and Pharmaceutic institutes, Drs. Frankfurther and Shaw.

Recovery of Wounded Soldiers and Return to the Ranks.—The *Münchener medizinische Wochenschrift* quotes a Russian daily to the effect that there is great complaint in Russia that only 18 per cent. of the wounded soldiers recover sufficiently to return to the ranks, while the Germans report that 60 per cent. are returned to the front. The Russians regard this ratio of 60 to 18 as testifying to superior technical skill in treating the wounded. Our exchange comments, "The German physician-surgeon and the German technician may prove to be the most powerful force which the Allies have to combat."

Financial Aid for Civilian Physicians Serving in the War.—Collections and other schemes for ensuring pecuniary aid to the families of the medical men who have gone to the front are being inaugurated on an extensive scale in the countries of all the belligerents. The profession in each country is struggling with the problem, and facing the additional problem of support for the physicians when they return home after the war until they regain their financial footing. The fund being raised by the Vienna Medical Society for the purpose was started with the $400 recently received by E. Pick as the Goldberger prize for his research on anaphylaxis.

News of Relief Parties.—Final arrangements are being made for the departure of a party of twelve physicians and nurses which is being sent to the aid of the suffering inhabitants of Montenegro. More than 600,000 pounds of food supplies and medicine have been collected and already sent to Montenegro.——The Harvard surgical unit left London, December 6, to begin its duties on the western war front.——A second detachment of physicians and nurses sent for relief work in Germany and Austria by the American Physicians' Expeditions Committee, sailed for Europe, November 25, on the *Heilig Olav*.——Miss Emma Duensing, head nurse of the first American medical relief expedition which was sent to Germany early in September, died from septicemia at Oppeln, Silesia, November 5.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, for the week ended Dec. 25, 1915, lists the following contributions:

Brooklyn Medical Society, Brooklyn, N. Y.	$ 25.00
Receipts for the week ending December 25	$ 25.00
Previously reported receipts	7,905.86
Total receipts	$7,930.86
Previously reported disbursements:	
1,625 standard boxes of food at $2.20	$3,575.00
1,274 standard boxes of food at 2.30	2,930.20
353 standard boxes of food at 2.28	804.84
Total disbursements	7,310.04
Balance	$ 620.82

F. F. Simpson, M.D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh.

Red Cross Activities.—The American National Red Cross has transmitted to the secretary of the state, a petition asking that safe conduct of a shipment of milk, for babies in Germany and Austria-Hungary threatened by starvation by the shortage of milk in that country, be arranged with the allied powers, and that if such safe conduct be granted, the distribution of the milk shipped will be made by the Red Cross or in any other way that may be acceptable to the allies. This petition was transmitted at the request of the Citizens' Committee for Food Shipments, a charitable organization with headquarters in New York City.——The Austrian Red Cross has fitted out two volunteer relief and medical bodies for service in the Balkans. One will take charge of the 500-bed hospital which has been established in the Gladstone Gymnasium School at Sofia and the other will be available for field work.——During the first year of the war the American National Red Cross sent to Europe 671 medical men and 253 nurses for this work. Of this body, 5 units were sent to France, 2 to Russia, 2 to Germany, 2 to Austria, 3 to Serbia and 2 to Belgium.

BERLIN LETTER

BERLIN, Nov. 16, 1915.

Personal

Prof. Jakob Wolff, a practicing physician of Berlin, who made extensive historical researches on the subject of cancer, was awarded the Martin Brunner (Nuremberg) prize of 1,800 marks (about $430). This foundation was established about three years ago by Mr. Brunner, an artist of Nuremberg. He donated 50,000 marks (about $12,000), the interest of which was to be awarded as a prize annually to the person who contributed the best work on the etiology and treatment of cancer. The present award is the first one to be made.

Krupp Family Gives to Charity

The Krupp family of Essen has donated 50 million marks ($12,500,000) representing the increase in profits, the result of the war, for civil betterment work. Of this sum, 21 million marks ($5,250,000) was to be set aside as a fund for the families of those killed in the war or of those severely injured. Besides this, 4 million marks ($1,000,000) have been set aside to be used to help those suffering by and through the war, especially the inhabitants of the eastern marches, and the income from 25 million marks ($6,250,000) is to be applied especially to the officials and workmen of the Krupp factories.

Prices of Food in Berlin

The manifesto issued by the government regulating the price and distribution of foods and food products appears to have created the impression that Germany is hungry or that such a state of affairs is imminent. How little truth there is in statements based on such belief is shown by consulting the price lists issued in Berlin, November 11. The considerable decrease in the price of foods shows conclusively not only that there is sufficient food on hand, but also that the higher prices prevailing previously were the result of the business methods of producers and dealers. Finally, we must appreciate the fact that the government regulation of food prices is of immense value to the people, inasmuch as foods are now being sold at their actual value and not at an inflated value created by individuals who are desirous of earning large profits. The average price per hundred pounds of living calves fell from 94 marks ($23.50) to 77½ marks ($19.37) during the week of October 25-30 and November 1-6; for pigs, the price fell from 145 marks ($36.25) to 102½ marks ($25.62); for one pound of butter it fell from 2.77 marks (69.25 cents) to 2.53 marks (63.25 cents).

The Law and "Christian Science"

In spite of the great interest commanded by the war situation, the law suit in Berlin against two female Christian Scientists has commanded a considerable share of public attention. These two women were charged with having contributed through negligence to the death of two well-known actresses, one of whom was suffering from diabetes and the other from mycosis fungoides. Both patients were doing very well under medical care, but, acting on the advice of relatives and friends, they turned to Christian Science, and while being treated by the two Christian Science practitioners mentioned above their condition became progressively and continuously worse until it was too late to render medical assistance. After several days of discussion in the courts, the two women were sentenced to six months' imprisonment. The basis for this sentence imposed by the judge will probably be of interest to the readers of THE JOURNAL. As was shown repeatedly during the course of the trial, "Christian Science" had its origin in America. The cult claims a large number of followers, and our American colleagues therefore probably come in contact with "Christian Science" more often than we do over here. The ruling of the court was as follows: The court holds that this teaching, so far as it applies to treatment of disease in general, is a mistaken one (*Irrlehre*). Opposed to this belief is the testimony of witnesses who claim to have been healed from a variety of diseases. The statements of these witnesses, however, are based not on facts but on opinions. Further, these opinions are based on wrong conclusions, or the conclusions are not interpreted correctly. It must be admitted that under certain conditions this teaching and its promulgation is productive of favorable results, but only in cases in which there is needed strengthening of energy or self-confidence as, for instance, in the case of those who are suffering from imaginary ills, in hypochondriasis, nervousness, hysteria and similar mental states; perhaps, too, in the early stages of organic lesions but not in the case of a severe organic lesion. The question arises, therefore, whether the two defendants are directly responsible for the death of their patients by having shortened their term of life. Expert opinion has shown that if these patients had remained under the care of physicians, the first one could have lived for years, and the death of the second could have been postponed. The question is: Can a verdict be rendered against the defendants? It is the opinion of this court that the defendants are guilty of grave negligence because of having undertaken the treatment of such serious diseases when they were wholly ignorant of the subject from a medical standpoint. Furthermore, they also committed a breach against the teachings of Christian Science which says that practitioners should withdraw from the treatment of any patients when it is evident that the disease is taking an unfavorable course and they are warned to observe closely whether the disease is growing worse. The testimony in these cases has shown that the condition of both patients had become so much worse that it was noted by other persons. Therefore, the defendants surely should have noted it. The rapidly increasing severity must have shown the defendants that death might take place if the patients remained in their care. They were not asked to secure a physician, but it was undoubtedly their duty to inform their patients that they were unable to do anything more for them, and further actions would depend on the patients themselves. If this had been done, these patients would undoubtedly have sought medical advice, and had such been secured, the patients, although perhaps they might not have been cured, would have had their lives prolonged. The case, then, is one of involuntary homicide. With regard to the punishment there enter into consideration these circumstances: that this is a form of treatment that is not based on any actual knowledge, that it is a treatment which has nothing in common with the German spirit, German ways and German feelings; it is based on an assumption and is not in unison with the justice of God and far removed from real Christianity as well as from science. Furthermore, the victims were two highly gifted artists, favorites of the public and of the royal stage.

PARIS LETTER

PARIS, Dec. 2, 1915.

The War

AMERICAN AID IN THE EDUCATION OF WAR CRIPPLES

Under the presidency of Mr. William D. Sharp, ambassador from the United States, a meeting of the American colony in Paris was recently held at the American chamber of commerce. Mr. G. J. Shoninger, president of the Union des colonies étrangères en France en faveur des victimes de la guerre, explained the purpose of the society and requested the aid of Americans in the work of giving practical instruction to crippled soldiers so as to enable them to earn their living. The amount required to supply the needs of a crippled soldier during the necessary period of apprenticeship is about 500 francs ($100). From subscriptions already received, the society is now able to count on an annual revenue of 30,000 francs ($6,000).

The meeting unanimously voted for the formation of an auxiliary American committee to collect funds. It was decided, moreover, that the society would endeavor to cooperate closely with the governmental authorities and the other societies in France to coordinate all efforts for this purpose.

IMMEDIATE TREATMENT OF PATIENTS SUFFERING FROM CHLORIN GAS POISONING

At a recent session of the Société médicale des Hôpitaux de Paris, Dr. G. Lion, physician of the hospitals, who witnessed a German attack with chlorin gas October 19, read an interesting paper on this subject. He emphasized particularly the predominance of acute pulmonary edema among the serious immediate results. He laid stress on the necessity in certain cases of bleeding the patient immediately. The first sensation experienced is a strong odor of chlorin, then a pricking of the eyes, the nose, the pharynx and larynx, then a more or less painful cough, oppression and some palpitation. In the lighter cases these are all the manifestations. In the medium cases there are signs of bronchitis and some zones of fine râles. In serious cases cyanosis, dyspnea and abundant frothy, yellowish expectoration indicate acute pulmonary edema. In certain cases a soldier at first affected by gas feels capable of going back on duty but in the evening all at once he presents serious pulmonary edema. In the medium cases the soldier should be imme-

diately taken to the ambulance, if possible. Moreover, there is little to be done to prevent serious complications (injection of milk or of hot water to produce vomiting; the use of ipecac is disputable and is to be reserved for patients not too greatly depressed). When serious conditions are presented early, bleeding is indicated to counteract a marked degree of pulmonary edema. Lion found bleeding easy, the blood spurting out in a jet; but he thinks that if bleeding is too much delayed it may become impossible. Bleeding will obviate, at least for a certain time, the danger of death from acute asphyxia. Lion advises, moreover, injections of ethero-camphorated oil and of oxygen but not injections of morphin. He concludes that, in spite of all efforts, therapeutics will often be powerless and that prophylactic means cannot be too greatly perfected.

FROZEN FEET IN THE WAR

At a recent session of the Société de médecine de Paris, Dr. Léon Salignat spoke of the symptomatology, etiology, pathogenesis and treatment of frozen feet, which are particularly frequent in the present war. He emphasized especially circulatory and trophic disturbances. From results that he has obtained in his service Salignat recommends treatment by local vapor bath. He believes that it would be easy and not expensive to construct a movable apparatus for vapor baths. The treatment begun in the hospitals at the front should be completed, at the end of four or five days, in the base hospitals. This would make it possible to avoid amputations and to send back speedily to the armies many men completely restored to strength.

SOLDIERS' BEDS IN TRENCHES

This subject was recently discussed by the Société de médecine de Paris. Dr. Klotz remarked that the straw which is used for the soldiers' beds is rarely renewed. He suggested giving the men hammocks like those of sailors. Dr. Butte agreed with Dr. Klotz; he has observed a case of syphilis which could be explained only by infection of this kind. Dr. Berillon thought it would be practical to replace the hay by turf, which is antiseptic, inexpensive and easy to obtain.

MEASURES FOR THE AID OF TUBERCULOUS SOLDIERS

A law has just been promulgated which gives the minister of the interior a fund of 2,000,000 francs ($400,000) for assistance during the war for soldiers dismissed for tuberculosis. The municipal council of Paris has just voted 60,000 francs ($15,000) for hospital care for tuberculous soldiers.

Death of Dr. Millard

Dr. A. Millard, former physician of the hospitals of Paris, has just died, aged 85. He was the oldest of the physicians of the hospitals of Paris, and had instructed pupils among whom he had the good fortune of counting twenty physicians of the hospitals and professors. He gave his name to the sign of alternate hemiplegia (syndrome of Millard-Gubler). For nine years he had represented his colleagues on the advisory board of the Assistance publique of Paris.

The Moxon Gold Medal Awarded to Professor Dejerine

The Royal College of Physicians of London has awarded the Moxon gold medal to Dr. Dejerine, professor of the clinic of the diseases of the nervous system at the Faculté de médecine de Paris. This medal is awarded every three years to the scientist whose observations and researches in clinical medicine are deemed to render him most worthy of this distinction. The award of the medal is not reserved for scientists of British nationality, but up to the present it has been given only to English clinicians: Sir Alfred Garrod (1891), Sir William Jenner (1894), Sir Samuel Wilkes (1897), William Tennant Gairdner (1900), John Hughlings Jackson (1903), Jonathan Hutchinson (1906), Sir William Richard Garvers (1909), Sir William David Ferrier (1912).

Operating by Red Light in Connection with Roentgenoscopy

At a recent session of the Académie des sciences, Dr. J. Bergonié, professor of biologic physics and of the clinic of medical electricity at the Faculté de médecine de Bordeaux, explained a new method which, after repeated trials, appears to meet the needs of surgical roentgenoscopy (in the removal of foreign bodies), while not interfering with the work of the operator and his assistants. The operation is performed in a darkened room. The operative field is lighted up by intense saturated red light coming from a source analyzed by the spectroscope and giving neither green nor yellow rays. Not only do the surgeon and his assistants operate easily in this light but also their visual sensibility is conserved or augmented during the operation. The colors of the radiations emitted by the fluorescent screen played on by the Roentgen rays are green and yellow, and the green roentgenoscopic images afford a sharp contrast to the red light. Thus when the red light is turned off and the Roentgen rays below the operative field substituted for it, the images on the screen are immediately and clearly perceived by all. As soon as the indications furnished by this momentary roentgenoscopy have been thoroughly observed, discussed by the assistants, if this is necessary, the screen protected by sterile tissue is removed from the operative field and the operation continues by red light. Thus by successive alternations of brief roentgenoscopies and operation by red light, roentgenoscopy guides the surgeon and his assistants whenever they need it, their hands being easily kept outside of the Roentgen-ray field and the active part of the operation being performed by red light altogether. It is to be noted that by monochromatic red light tincture of iodin is almost colorless, arterial blood is slightly tinted, venous blood is quite different and the slightest beginning of asphyxia in anesthesia is evidenced by an almost black coloration.

LONDON LETTER

London, Dec. 10, 1915.

Death of Dr. Millican

I regret to announce the death at the age of 62 of Dr. Kenneth William Millican, B.A. (Cantab.), M.R.C.S., L.R.C.P., assistant editor of the *Lancet*, and formerly assistant editor of The Journal. He was born at Leicester and graduated with honors in the classical tripos at Cambridge. He was appointed laryngologist at the Infirmary for Consumption and the West End Hospital for Paralysis. He wrote an essay on the development and evolution of morbid germs in which he anticipated on theoretical grounds many of the views subsequently held by bacteriologists. In 1892 he left London and became in succession a ship surgeon and medical officer to mining works in Mexico and California. In 1897 he became associate editor of the *New York Medical Journal*, and six years later editor of the *St. Louis Medical Review*. He next joined the staff of The Journal. In 1911 he returned to England on being appointed subeditor of the London *Lancet*. He was a man of a modest and ingenuous disposition, most genial and courteous, but outspoken in denunciation of what he conceived to be wrong. His loss will no doubt be as much regretted by his wide circle of American friends as it is on this side of the Atlantic.

The Mortality of Childbirth

A report on the mortality of childbirth has just been published by Dr. A. Newsholme, medical officer of the Local Government Board. He shows that in some parts of the country this is still excessive. The majority of the deaths are due to puerperal fever, hemorrhage or convulsions. The death rate of mothers in the last four years from complications of pregnancy and childbirth amounted to 4 per thousand births—one third of which were due to puerperal infection. The mortality from conditions other than puerperal fever is much higher in the provinces than in London, probably because of the much greater accessibility of skilled assistance in the latter. On the other hand, the records of London with regard to puerperal fever are no better than those of the provinces. A substantial reduction in puerperal mortality has been secured in the present generation. The rate is now 30 per cent. lower than in 1871. It is far from satisfactory, however, that in 1914 one mother out of every 644 lost her life from puerperal fever. The mortality from childbirth is higher in Wales than in England (5.75 against 4), but in certain parts of England, textile towns in particular, the mortality is still higher than in Wales. This difference is attributed to a lower standard of cleanliness of midwives or other women who assist the mother. The lowest mortality prevails in London and the south of England, where it is 3 per thousand births.

Shortage of Dental Practitioners

The institution of a diploma in dental surgery took place comparatively recently in this country. The result is that the number of qualified dentists is far short of the requirements of the population, and that a large number of unquali-

fied men practice. They are not prevented from doing this, but they must not call themselves dentists. This is a very small drawback, as they can exhibit sets of teeth and call themselves "tooth specialists." At a meeting of the General Medical Council, Mr. Tomes, chairman of the Dental Education and Examination Committee, submitted a report on the shortage of dentists. Communications had been made with the various licensing bodies for the possibility or curtailment of the curriculum without lowering the standard of dental practice. Some of the bodies questioned the existence of any shortage, pointing out that many qualified men are not fully occupied, the public being unconvinced of their advantage over the unqualified. Attention was also drawn to the lowering of the social status which arose from the intrusion of great numbers of unqualified persons, and to the fact that business men who had acquainted themselves with the existing state of things often considered that from a business point of view qualification was worthless or even a hindrance, and so did not put their sons at dental schools. The Incorporated Dental Hospital of Ireland alone considered the possibility that the simpler dental requirements sought by the poorer classes might perhaps be met by a lower grade of practitioner, though this was also suggested in one of several letters sent by private practitioners. The main conclusion was that no appreciable increase in the members of the dental profession can be looked for until the law gives further protection to the qualified man against the unqualified. A very insidious form of deception was pointed out. An unqualified man dare not put on his plate "dental surgeon," as this would render him liable to prosecution. This is avoided by putting beneath his name "dental surgery," which can be done with impunity.

Mortality from Measles Doubled

The Local Government Board issued an order applying throughout England and Wales a system of notification of measles and German measles, and enabling local authorities to undertake measures for the care of patients suffering from these diseases. It is hoped that health officers, as soon as this order comes into operation, will keep the local military authorities advised of cases of measles in their districts in the same way as is now done in regard to other notifiable infectious diseases. During the present year there has been a large increase in the mortality from measles. The average number of deaths occurring annually from this disease in recent years in England and Wales is 11,000, of which the great majority are deaths of children under 5 years of age. During the first half of the present year the number of deaths reached a total of 12,414. Representations have also been made by the Army Council that measles has caused a large amount of disablement among the troops in this country, and that accurate information of the presence of the disease among the civil population would be of the utmost benefit to the military authorities.

Latin Not Necessary for Medical Degree

At the annual meeting of the court of governors of Sheffield University it was agreed, in view of the great demand for physicians, to give effect at once to a resolution that a knowledge of Latin should be no longer required as a condition of admission to the medical faculty. A new ordinance was agreed to, giving the senate power to waive the examination for the bachelor's degree in any faculty other than that of medicine in the case of any student whose studies had been interrupted by war service.

Marriages

WILLIAM SPENCER HARVEY, M.D., Chicago, to Mrs. Allie McHenry Cartwright of Nashville, Tenn., at San Francisco, December 11.

EDWARD FRANKLIN YOUNGER, M.D., Lynchburg, Va., to Miss Florence Tait Walmer of Bluffton, Ind., December 8.

JAMES JAY TYLER, M.D., Warren, Ohio, to Miss Ruth Marguerite Meals of Oil City, Pa., December 8.

GEORGE B. BREEDLOVE, M.D., Martinsville, Ind., to Mrs. Callie M. Mitchell at Indianapolis, December 8.

CLAUDE MEEK POFF, M.D., to Miss Christine Holly Stoltzfus, both of Tuleta, Texas, December 8.

OTTO J. YELT, M.D., Toulouse, France, to Mdlle. Rita Gay at Rouen, France, November 9.

Deaths

Martin L. Belser, M.D. University of Michigan, Ann Arbor, 1891; aged 46; formerly a Fellow of the American Medical Association; a member of the Michigan State Medical Society; a veteran of the Spanish-American War, in which he served as lieutenant in the Thirty-First Michigan Volunteer Infantry; for five years major and surgeon in the Michigan National Guard, and from 1891 to 1895 an instructor in his alma mater; a well-known practitioner of Ann Arbor, Mich.; died in Hickory, N. C., December 15.

Henry Clay Fairbrother, M.D. Washington University, St. Louis, 1872; aged 70; a Fellow of the American Medical Association; a veteran of the Civil War; originator of the East St. Louis park system; a director of the Illinois State Bank; surgeon to many of the railways centering in East St. Louis; for several terms a member and president of the local school board; died at his home, December 15, from heart disease.

Mary Hawes, M.D. Laura Memorial Women's Medical College, Cincinnati, 1899; aged 50; formerly a Fellow of the American Medical Association; lecturer on histology and embryology and assistant in gynecology in the Denver and Gross College of Medicine, Denver; physician in charge of the Florence Crittenton Home; assistant in gynecology at St. Anthony's Hospital, Denver; died at her home in Denver, December 8.

Charles Henry Bushnell, M.D. Bennett Medical College, Chicago, 1896; aged 55; a Fellow of the American Medical Association; president of the Illinois State Eclectic Medical Society in 1909; attending obstetrician to Cook County Hospital, attending gynecologist to Lake View Hospital and attending surgeon to the Chicago Union Hospital; died at his home in Chicago, December 19, from heart disease.

Charles Alfred Haffner, M.D. College of Physicians and Surgeons in the City of New York, 1896; aged 40; a member of the Medical Society of the State of New York; attending physician to the Roosevelt Dispensary and Bloomingdale Clinic, New York; died at his home in New York City, December 14, from pneumonia following an operation for appendicitis.

Hubbard Kavanaugh Hinde, M.D. Washington University, St. Louis, 1857; aged 81; for twenty-four years a member of the staff and superintendent of the Fulton State Hospital; a veteran of the Civil War; well known as an educator and president of Howard-Payne College, Fayette, Mo.; died at the home of his daughter, in Fulton, Mo., December 10, from pneumonia.

Herman Peter Gerbert, M.D. College of Physicians and Surgeons in the City of New York, 1883; aged 57; ex-president of the Orange Mountain (N. J.) Medical Society; city physician of Orange from 1905 to 1908; president of the Orange Memorial Hospital Dispensary; was found dead from heart disease in his apartment in Orange, December 19.

Charles Marcus Compton, M.D. Northwestern Medical College, St. Joseph, Mo., 1893; aged 55; formerly a Fellow of the American Medical Society; a member of the Oklahoma State Medical Association; a physician in the United States Indian Service; was found dead from heart disease at his home in Coyle, Okla., November 8.

Henry Francis Dunlavy, M.D. Missouri Medical College, St. Louis, 1871; aged 70; formerly a Fellow of the American Medical Association; a member of the Iowa State Medical Society and once president of the Taylor County (Iowa) Medical Society; a veteran of the Civil War; died at his home in Bedford, Iowa, December 3.

George William Peck, M.D. Rush Medical College, 1890; aged 74; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of California; a practitioner of California for half a century and a veteran of the Civil War; died at his home in Sawtelle, Calif., December 14.

John Hamilton Kemp, M.D. University of Pennsylvania, Philadelphia, 1900; aged 36; a Fellow of the American Medical Association and assistant at the Medical Dispensary of Howard Hospital, Philadelphia; died at the home of his sister in Philadelphia, December 14, from disease of the kidney.

Christopher Algernon Harvey-Sparks, M.D. Meharry Medical College, Nashville, Tenn., 1910; aged 32; was instantly killed in an explosion of gasoline which devastated the city of Ardmour, Okla., September 27.

George I. Mays, M.D. Marion-Sims College of Medicine, St. Louis, 1899; aged 47; of Joplin, Mo.; city physician from 1902 to 1904; also a member of the board of public works; died in St. John's Hospital, Joplin, December 10, from pneumonia, following an operation for the removal of gallstones.

Henry S. Metcalf, M.D. Northwestern University Medical School, 1886; aged 62; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; died at his home in Mount Carroll, Ill., December 15, from septicemia due to an operation wound.

Frank Holly Stuart, M.D. Kentucky School of Medicine, Louisville, 1887; aged 67; for many years a member of the surgical staff of the Northern Pacific and division surgeon to the Great Northern Railroad; died at his home in Baudette, Minn., December 7, from heart disease.

Robert Ansley, M.D. Rush Medical College, 1902; aged 43; a Fellow of the American Medical Association, and a veteran of the Spanish-American War; at one time health officer of Indiana Harbor; died at his home in Indiana Harbor, December 15, from hemorrhage of the stomach.

Robert Bruce House, M.D. Homeopathic Hospital College, Cleveland, 1869; aged 69; a member of the staff of the City Hospital, Springfield, Ohio; for many years a member of the local board of health; died at his home in Springfield, December 11, from ptomain poisoning.

Walter Ernest Seymour, M.D. University of Pennsylvania, Philadelphia, 1898; aged 40; formerly a member of the Rhode Island Medical Society; of Riverside, R. I.; died at his home in East Providence, R. I., December 6, following an operation for appendicitis.

Charles J. Frazier, M.D. Albany (N. Y.) Medical College, 1873; aged 65; a member of the Medical Society of the State of New York; health officer of Cobleskill and coroner of Scoharie County; died at his home in Cobleskill, October 21, from pneumonia.

Matthias Riser Perry, M.D. Jefferson Medical College, 1866; aged 72; for many years a practitioner of Russellville, Ky., but for two years a resident of Southport, Ky.; died at the home of his son in that place, December 4, from cerebral hemorrhage.

David A. Cox, M.D. Medical College of Ohio, Cincinnati, 1890; aged 50; formerly a Fellow of the American Medical Association; secretary of the Board of Health of Howell, Ind.; died at his home in Howell, December 17, from septicemia.

Leonard L. Knapp, M.D. University of Michigan, Ann Arbor, 1883; aged 64; formerly a member of the State Medical Society of Wisconsin; died in St. Luke's Hospital, St. Paul, December 14, from pneumonia complicating typhoid fever.

John Harold Hay, M.D. University of Michigan, Ann Arbor, 1913; aged 27; resident pathologist at St. Francis' Hospital, Pittsburgh; died at St. Francis' Hospital, December 2, from complications following an operation for duodenal ulcer.

O. S. Ewing, M.D. Gate City Medical College, Texarkana, Texas, 1907; aged 40; a member of the State Medical Association of Texas; for two terms health officer of Fannin County; died at his home in Leonard, Texas, December 11.

John N. Taylor, M.D. Missouri Medical College, St. Louis, 1878; aged 66; founder of the Boys of Woodcraft and a well-known practitioner and druggist of Jacksonville, Fla.; died at his home in that city, December 11.

William Epapthroditus Thomas, M.D. College of Physicians and Surgeons in the City of New York, 1895; aged 52; of Brooklyn; died in the German Hospital in that city, December 14, from pneumonia.

A. M. Parsons (license, West Virginia, 1899), aged 49; of Branchland, W. Va.; who is said to have shot a neighbor on October 3; was shot from ambush and instantly killed by the neighbor's son an hour later.

Benjamin F. Hart, M.D. University of Louisville, Ky., 1852; aged 85; formerly of Sweet Springs, Mo.; died at the home of his daughter in Seattle, December 9, from cerebral hemorrhage.

Ellen C. Brensinger, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1885; aged 69; of Philadelphia; died suddenly, December 5, while in church, from heart disease.

James H. Wright (license, New Jersey), died at his home in Newark, N. J., October 17.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

PROTONUCLEIN AND PROTONUCLEIN BETA

Report of the Council on Pharmacy and Chemistry

The Council has adopted the following report and authorized its publication. W. A. PUCKNER, Secretary.

Protonuclein, with other products of Reed and Carnrick, was examined by the Council in 1907 and found ineligible for admission to New and Nonofficial Remedies. According to the patent specifications, it is prepared "from the thyroid and thymus glands, brain (pineal glands and pituitary body), bone-marrow, pancreas, spleen, liver, salivary glands, Brunner's glands, Lieberkühn's follicles and peptic glands." These various glandular bodies, it is said, are dried at a temperature below 130 F. (preferably between 100 and 110); the fat is removed by ether, the dried glands disintegrated, the connective tissue removed by sifting and the resulting powder coated with an ether solution of benzoin and mixed with milk sugar. The dose is three to ten tablets (9 to 30 grains) daily.

Protonuclein Beta is said to be produced by the addition to Protonuclein of an equal amount of nucleoplasm and protoplasm of the spleen. The dose is from two cubes (each 5 grains) three times a day to three cubes four times a day (30 to 60 grains daily).

Special advantages over ordinary nuclein are attributed to Protonuclein, in which, it is claimed, certain unaltered cells remain that are more easily assimilated by the leukocytes than are ordinary proteins, thus leading to a multiplication of cells. In the early advertising Protonuclein was claimed to be:

". . . an exact physiological product derived from the lymphoid structures of the body without the use of chemical agents. . . . So delicate is Protonuclein that any chemical agent is liable to disturb its cellular activity."

After its examination of the product in 1907 (THE JOURNAL, Oct. 5, 1907, p. 1198), the Council concluded that any distinction between the action of Protonuclein and that of ordinary nuclein was purely speculative and highly improbable. "If the active ingredients are really so unstable that they are destroyed by all chemical agents, as claimed, it seems impossible that the activity would be preserved when Protonuclein is given by mouth and therefore subjected to the very profound changes of digestion."

At that time the importance of thyroid as an ingredient had not been emphasized. The following year, however, Hunt and Seidell (THE JOURNAL A. M. A., Oct. 24, 1908) reported the results of an investigation which showed that Protonuclein was a diluted thyroid preparation, as skilfully disguised as in the antifats Rengo and Marmola. Hunt later pointed out (THE JOURNAL, Feb. 1, 1913, p. 384) that the amount of nuclein contained in a dose of Protonuclein probably would not have the slightest effect, especially when given by mouth.

The following are extracts from the Protonuclein advertising matter:

"For cancer, infectious fevers (measles, scarlet fever, typhoid and septicaemia) and as a prophylactic."

"Protonuclein: An ideal prophylactic for all infectious Diseases."

"A true alterative and tissue builder."

"The value of Protonuclein depends upon its ability to increase cell power and promote tissue strength. It is therefore needed whenever the organism is below the normal standard, more especially in Anaemia, Typhoid, Neoplasms and as a Prophylactic."

All the foregoing claims and recommendations are supposed to be based on certain alleged discoveries which the Council has previously characterized as "a tissue of vague speculations . . . in direct conflict with the known facts

of physiologic chemistry." As for the third claim, Hunt and Seidell have commented on the danger of recommending thyroid, the most powerful tissue-destroying drug known, as a "tissue builder."

Protonuclein Beta, it is said:

". . . combines the reconstructive action of Protonuclein with the action of the vital principle of the spleen, making it a distinct product for use in all tubercular troubles, including phthisis, localized joint affections and scrofular conditions."

This product, according to the manufacturers, is based on the work of a certain Dr. Bayle of Cannes, France. Dr. Bayle said that he had treated tuberculous patients with fresh ground up spleen of hogs (25-100 grams per day), mixed with fruit preserve or bouillon; in cases in which this brought on gastro-intestinal disorders, extract of the spleen pulp was administered hypodermically. Bayle reported extraordinary improvements in the physical and mental conditions of his patients even after a few days of this treatment; over 90 per cent. of his tuberculous patients, according to him, improved or were cured. This applied to all types and stages of tuberculosis in man. "With the spleen pulp treatment tuberculous glands disappear like syphilis lesions on administration of mercury and iodids."

This "spleen specific" of Bayle lacks scientific foundation; Bayle's own cases were not adequately controlled, and no notice has been taken of Bayle's report by experts on tuberculosis. Hence it practically lacks both confirmation and contradiction.

The spleen is invaded by tubercle bacilli quite as frequently as are the kidneys and the liver; it has no special toxic action on these bacilli. Nor is there any reason to believe that the end products of gastric and intestinal digestion of spleen pulp, after absorption into the blood, exert such toxic action. It cannot be assumed that these end products indirectly aid the healing processes through improved metabolism, for there is no evidence that they have any specific nutritive or stimulating action after such absorption. Altogether, what we know of the physiology and pathology of the spleen does not warrant us in looking for a "specific" against tuberculosis in this organ.

If, however, the known facts did justify any hope that the spleen might furnish such a specific, manufacturers would not be warranted in exploiting or physicians in prescribing spleen products as a remedy for tuberculosis until control experiments on animals had confirmed the therapeutic value of these products. In a chronic disease like tuberculosis, no conclusions that are scientifically valid can be drawn from clinical cases until many cases have been observed for years under suitable conditions. Right here it may be said that the clinical "evidence" offered in favor of Protonuclein Beta is worthless. The observations which have been reported on this product are not such as to permit any valid final conclusions to be drawn with regard to its value.

The rational method of proving the worth of an alleged new specific such as this is by animal experimentation. So far as we know, neither Dr. Bayle nor the Reed and Carnrick company has performed any such experiments with "spleen pulp" or Protonuclein Beta; nor are we aware that any competent investigator has done so. There is, to the best of our knowledge, no scientific evidence on which to base the claims for Protonuclein Beta.

The Council reaffirms its former action with regard to Protonuclein. The objections made to Protonuclein apply with equal force to Protonuclein Beta. In view of the lack of evidence, the claims for Protonuclein Beta are unwarranted and the product is ineligible to N. N. R. on account of noncompliance with Rules 1, 6 and 8.

Marriage Among Defectives.—Marriages of people of different social rank, even of one who is rich with one who cannot bring a sufficient sum of money to the joint exchequer, are daily prohibited, and the world approves such caution. Yet we look on complacently to see a man or woman mated with one coming from a stock unsound to the core, and we have not the courage to cry out at such inhumanity toward their offspring.—E. M. Sandwith, *Clinical Jour.*, Sept. 1, 1915.

Correspondence

"Practical" Medical Publications

To the Editor:—From the standpoint of the general practitioner, it is regrettable that there are physicians in practice who do not regularly receive and read THE JOURNAL. It is the one periodical publication which seems absolutely indispensable, the one which keeps a man abreast of the times.

It is still more regrettable that there are so many of those publications which some practitioners call "practical," and which no one of reasonable understanding can read without disgust. For instance, let me quote one or two items from the December, 1915, number of a medical publication which purports to cost one dollar a year, but somehow comes indefinitely once the publisher obtains your address, and never appears to require a payment on subscription. These quotations are from the bona fide reading matter, if we may so call it, and not from the advertising or fake reading notice pages.

On the cover appears this gem:

Dr. ———, of ———, writes:—I cannot get along without the ———.

From an editorial article on the treatment of pneumonia:

Carbonate of ammonia (sic) was at one time supposed to exert a liquefying effect upon the blood. . . . It is also a useful stimulant and quick in action. . . . The room should also be saturated with the fumes of ammonia, which seem to soften the air and make breathing easier.

Think of it—an editorial in a medical journal! Further the article suggests that it is well to:

Keep the patient in a prone position with his head not too high.

In other words, make him bite his pillow!

Then there is a little item credited to Sajous, as follows:

Nasal polypi can sometimes be destroyed by:

℞ Acid carbol ..... miii
Aquae ..... 1 ounce

M. Sig.: Inject a few drops into substance of polypus.

The idea, evidently, being to save wire and make the patient realize the seriousness of his affliction.

On another page we discover this therapeutic gem:

FOR RIGIDITY OF PERINEUM

℞ Chloroform ..... 2 parts
Ether ..... 1 part
Eau de cologne ..... 1 part

M. Sig.: For external use.

It would be instructive, and perhaps also amusing, to have a seat in the grandstand and watch the remarkable effects of such counterirritation on the victim of the rigid perineum.

These very "practical" medical publications which give the doctor so much more for his money than he can extract from reputable journals are always interesting, even if they tend to make one ashamed of his profession. Indeed, they vie with Medical Pickwick as a source of humor. And the fact that they keep coming, month after month, year after year, no matter how long you neglect to send your dollar, puts them above reproach. They are not out after subscribers alone. They must have some other goal in view.

But b. t. a. i. m., aren't they practical?

WILLIAM BRADY, M.D., Elmira, N. Y.

Nitrous Oxid Versus Ether

To the Editor:—It is often necessary to make allowance for the enthusiasm (often exaggeration) of nitrous oxid anesthetists. While the description of the manufacture of "gas" is interesting, the claims made by Dr. A. R. Warner in THE JOURNAL, Dec. 4, 1915, are decidedly overdrawn.

It is true that gas will *usually* anesthetize a patient more quickly than ether; but once in six or ten times the addition or substitution of the latter is necessary.

The "familiar scenes of delirium with orderlies holding the struggling patient," etc., are decidedly unfamiliar in Akron and other cities of the United States and Canada in

which I have witnessed and administered anesthetics. If they be common occurrences in Cleveland, the Lakeside Hospital is in sore need of competent anesthetists. In Akron we find one nurse sufficient while we administer the anesthetic. In my own practice, giving several anesthesias daily, only rarely have I required more than one nurse, and equally rarely does she do more than stand beside the patient. An orderly present is even more rare. The only preliminary hypodermic is morphin ⅙ grain, atropin 1/150 and often none at all. Only twice during the present year were several assistants required to hold the patient; in each case the patient was a hysterical woman who fought as soon as she entered the anesthetic room and before any anesthetic had been given.

During my practice I have witnessed only two cases of "vomiting in the halls" and one in the elevator. If it occurs frequently in Lakeside Hospital, I repeat, that institution requires competent anesthetists. My experience as described is the same as that of the other Akron anesthetists.

Any anesthetic has had and will always have its good and bad features. In endeavoring to create favor for gas and the opposite for ether, Dr. Warner has gone to extremes. We shall continue to use ether satisfactorily.

Finally, ether when properly given will not cause vomiting in from 70 to 80 per cent. of cases, a percentage in every way the equal of that of gas if the truth were admitted and not concealed. A. S. McCormick, M.D., Akron, Ohio.

Classification of Pneumonia Cases

To the Editor:—In The Journal, Nov. 20, 1915, Dr. J. G. Cross gives an analysis of pneumonia cases, but does not mention where he received the scheme for classification. While senior intern at the Minneapolis City Hospital, Dr. Cross suggested to me that I work up an outline for division of cases in a sort of table form. With the aid of my junior, Dr. Sig. Engh, we worked up a table, and Dr. Cross made use of this and never even mentioned either Dr. Engh or myself.

Harry A. Salzman, M.D., Chicago.

[A proof of the preceding was sent to Dr. Cross, who replies:]

To the Editor:—I am glad to supply the omission to which Dr. Salzman has called attention. In preparing the analysis of cases of pneumonia, which appeared in The Journal, November 20, I received a great deal of help from my assistant, Dr. Stanley J. Seeger, and my secretary, Miss Hazel Packard, as well as from the interns at the Minneapolis City Hospital.

As to the table for classifying these cases, it can hardly be claimed that it is original with any of us, and I am sure Dr. Salzman would not wish to be so understood. During Dr. Salzman's service he kept records of twelve cases of lobar pneumonia, according to this table, which was the product of the ideas on the subject of the staff and interns on my service at that time.

I am very glad to acknowledge the part that Dr. Salzman and Dr. Engh had in this work.

J. G. Cross, M.D., Minneapolis.

Death Certificates by Unlicensed Healers

To the Editor:—In Queries and Minor Notes (The Journal, Dec. 4, 1915, p. 2026), in your answer to "J. W. R.," you say: "Christian Scientists are regarded as practicing medicine when treating for pay, and hence would be considered as physicians and as authorized to sign death certificates as such." You then quote the case of *Bandel* v. *Health Department*, 193 N. Y. 133; N. E. 1067. I have no doubt that you base this statement on Chapter 120 of the Acts of the General Assembly of Maryland of 1908, entitled "An Act to Repeal Section 101, Article 43 of the Code of Public General Laws title 'Health,' etc.," which defines specifically certain acts which will be considered, by law, practice of medicine. This act was drafted to prevent the practice of Christian Science, osteopathy, optometry or any other practice or cult which was not at that time properly regulated by legislation. If any person practiced a healing art and accepted a fee he was under the provisions of this act made a practitioner of medicine, which made it necessary for him to procure a proper certificate from the State Board of Medical Examiners, certifying to the fact that he had successfully passed the examination prescribed by that board or subjected him to the fines and penalties of the medical practice act for practicing without proper license.

So far as this law conveys authority to Christian Scientists to sign certificates of death, it also conveys equal authority to each and every other citizen in the state to sign certificates of death if he meets the requirements of the medical practitioner as prescribed by the other sections under the same title, that is, proper licensure and registration.

As a matter of fact, no certificate of death has ever been accepted in this state signed by a Christian Scientist. This act prohibits the recognition of the practice of Christian Scientists as such, and makes it an unlawful deed to practice Christian Science for pay.

We have in this state a law recognizing the practice of osteopathy, but only to a limited extent, and in that law there is a provision making osteopaths liable for the observance of all laws and regulations of the State Board of Health relating to infectious diseases and sanitation, and in this section there is another provision prohibiting the execution of a certificate of death by a practitioner of osteopathy. See Sections 130 and 301 of inclosed code of laws.

Frederic V. Beitler, Baltimore,
Chief, Bureau of Vital Statistics, Maryland Department of Health.

To the Editor:—In Queries and Minor Notes (The Journal, Dec. 4, 1915, p. 2026), among the answers, I find the following:

> For example, in Maryland, Christian Scientists are regarded as practicing medicine when treating for pay, and hence would be considered as physicians and as authorized to sign death certificates as such.

You are evidently in error in regard to the Maryland law in reference to Christian Scientists. In 1908 the definition of what constitutes the practice of medicine was made much broader with a special view to including Christian Scientists. This amendment was made at the instance of two active anti-Christian Scientists, one a druggist and one a newspaper man, each of whom happened to have wives of that faith, and each of whom had had distressing personal experience with Christian Science practice.

If you care to look up the definition of the practice of medicine in Maryland you will find it in Section 101, page 641, of the Fourth Edition of the A. M. A. Directory.

We have a good many Christian Scientists in Maryland and they do practice, but unlawfully, and no death certificate from one could be accepted.

Herbert Harlan, M.D., Baltimore.
President, Board of Medical Examiners of Maryland.

Pancreatin in Exophthalmic Goiter

To the Editor:—In connection with the recent demonstration of quite a uniform hyperglycemia in exophthalmic goiter, and the communication of Dr. O'Day (The Journal, Dec. 18, 1915, p. 2185), it is noteworthy that in two of my cases there was a complete cessation of exophthalmic symptoms with recession of goiter on rectal administration of pancreatin (dosage about 15 to 20 grains two or three times a day). This occurred in a series of cases of diabetes mellitus. Max B. Leviton, M.D., Chicago.

Measles Not Inevitable.—It is entirely profitless and aside from the question to argue that children will have measles anyway, and that it is better for them to have it early in life and get it over with. This is a most pernicious doctrine, which could have been applied with equal force to any of the more serious contagious diseases, such as diphtheria or smallpox or typhoid, before we learned how to control them. Measles is at present a sufficiently important cause of death to warrant strenuous measures for its control.—Harold Farnsworth Gray, *Jour. Infect. Dis.*, November, 1915.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DIPHTHERIA AMONG SCHOOLCHILDREN

To the Editor:—What is the most approved method of dealing with a diphtheritic in school? Is it necessary to close the school, or will an ordinary quarantine answer the purpose?

C. J. MARCH, M.D., Fordyce, Ark.
County Health Officer.

ANSWER.—There is no doubt that the school is often an important factor in the spread of diphtheria. This is frequently due to the occurrence among the schoolchildren of carriers of diphtheria bacilli. Closing the schools is now generally regarded as a less effective means of combating the spread of infection than the detection and isolation of the diphtheria carriers. In case of a diphtheria outbreak, the throat and nose of pupils, teachers and others in the school known to have been in contact with the infected children should be examined. The examination should consist in inspection for "sore throat," and also in taking cultures from the nose and throat. Those with a "sore throat" should be at once isolated and not be permitted to attend school until proved by bacteriologic examination to be free from diphtheria bacilli. Proved carriers, with or without sore throat, should be isolated until two successive negative tests are obtained. In a number of instances, measures of this character have been more effective in checking diphtheria outbreaks in schools than a closing of the schools and resort to the ordinary methods of fumigation (Ward and Henderson: *California State Jour. Med.*, August, 1897. Lind: *Am. Jour. Pub. Health*, 1913, iii, 976).

The Schick test has been found of great value in detecting susceptible persons in an epidemic of diphtheria. This consists in injecting superficially beneath the skin one-fifteenth dose of diphtheria toxin fatal for a guinea-pig. In a susceptible person a red spot develops at the site of injection in about forty-eight hours. If no reaction occurs, it is assumed that the person is immune to diphtheria. Under some conditions a prophylactic dose of 1:1,000 diphtheria antitoxin units should be given to exposed persons, although this is generally found more applicable in institutions than in public schools. It is not yet clear what are the best methods for freeing diphtheria carriers from virulent bacilli. Spraying with antiseptics has not always given satisfactory results. Special attention to the hygiene and cleansing of the mucous membranes of the throat and nose, accompanied by frequent washing with large volumes of physiologic salt solution, is likely to be of service. It may be emphasized, finally, that the most important single step to be taken in checking the spread of diphtheria in all schools and institutions is the detection and isolation of carriers. Arbitrary quarantine of those exposed and of convalescents, without bacteriologic examination, is not likely to be successful.

STUART'S CALCIUM WAFERS

To the Editor:—Can you tell me the composition of a proprietary remedy known as Stuart's Calcium Wafers? I believe they are manufactured at Battle Creek. I am particularly interested to know whether there is any arsenic in this remedy.

C., Ann Arbor, Mich.

ANSWER.—Stuart's Calcium Wafers are made by the F. A. Stuart Company, Marshall, Mich. The label of a specimen recently purchased on the open market reads: "Stuart's Calcium Wafer Compound—For Constipation, Blood Disorders, Skin Affections, any Derangement of Blood, Bowels, Kidneys or Liver."

The specimen was examined in the Association's Laboratory and the chemist reports:

> "Stuart's Calcium Wafer Compound consists of small brown coated tablets weighing on the average 0.0813 gm. (about 1⅕ grains). The interior of the tablet is composed of an olive-colored material, which when moistened emits hydrogen sulphid. The material has a very bitter and unpleasant taste resembling aloes or aloin. Qualitative examination indicates that the 'wafers' consist essentially of calcium sulphid and aloes or aloin. No arsenic could be detected."

Like other so-called "blood purifiers," Stuart's Calcium Wafers evidently are essentially cathartic.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 11. Sec., Dr. W. H. Sanders, Montgomery.

ALASKA: Juneau, Jan. 4. Sec., Dr. Harry C. DeVighne, Juneau.

ARIZONA: Phoenix, Jan. 4-5. Sec., Dr. John Wix Thomas, National Bank of Arizona Bldg., Phoenix.

CALIFORNIA: Sacramento, Jan. 11. Sec., Dr. Charles B. Pinkham, Room 527 Forum Bldg., Sacramento.

COLORADO: Denver, Jan. 4. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, Jan. 11. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

ILLINOIS: Chicago, Jan. 13-15. Sec., Dr. C. St. Clair Drake, Springfield.

INDIANA: Indianapolis, Jan. 11. Sec., Dr. W. T. Gott, 84 State House, Indianapolis.

IOWA: Des Moines, Feb. 8-10. Sec., Dr. G. H. Sumner, State House, Des Moines.

KANSAS: Topeka, Feb. 8. Sec., Dr. H. A. Dykes, Lebanon.

MINNESOTA: Minneapolis, Jan. 4-7. Sec., Dr. Thomas S. McDavitt, 814 Lowry Bldg., St. Paul.

NEW MEXICO: Santa Fé, Jan. 10. Sec., Dr. W. E. Kaser, East Las Vegas.

NEW YORK: Albany, Buffalo, New York and Syracuse, Jan. 25-28. Chief, Examinations Division, Mr. Harlan H. Horner, State Education Bldg., Albany.

NORTH DAKOTA: Grand Forks, Jan. 4-7. Sec., Dr. G. M. Williamson, Grand Forks.

OKLAHOMA: Oklahoma City, Jan. 11-12. Sec., Dr. R. V. Smith, 502 Daniel Bldg., Tulsa.

OREGON: Portland, Jan. 4. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.

PENNSYLVANIA: Philadelphia, Jan. 18-20. Sec., Mr. Nathan C. Schaeffer, Harrisburg.

RHODE ISLAND: Providence, Jan. 6-7. Sec., Dr. Gardner T. Swarts, Providence.

SOUTH DAKOTA: Pierre, Jan. 11. Sec., Dr. P. B. Jenkins, Waubay.

UTAH: Salt Lake City, Jan. 3. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

VERMONT: Montpelier, Feb. 8-11. Sec., Dr. W. Scott Nay, Underhill.

WASHINGTON: Spokane, Jan. 4. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.

WISCONSIN: Madison, Jan. 11. Sec., Dr. J. M. Dodd, 220 E. Second St., Ashland.

Maryland June Report

Dr. J. McP. Scott, secretary of the State Board of Medical Examiners of Maryland, reports the written examination held at Baltimore, June 21, 1915. The total number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 97, of whom 78 passed and 19 failed. Fifteen candidates were licensed through reciprocity. Two candidates were granted reregistration licenses. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Georgetown University	(1911) 75; (1915)	86
Howard University	(1913)	75
Chicago College of Medicine and Surgery	(1915)	83
Rush Medical College	(1905)	89
College of Physicians and Surgeons, Baltimore	(1913) 76; (1914) 76; (1915) 75, 77, 83, 84, 91.	
Johns Hopkins University	(1906) 87; (1909) 92; (1912) 82; (1913) 86, 86; (1914) 75, 77; (1915) 75, 75, 77, 78, 78, 78, 79, 80, 80, 80, 80, 81, 84, 84, 84, 85, 87, 87, 87, 88, 89, 89, 89, 89, 89, 91.	
University of Maryland	(1912) 85; (1914) 79; (1915) 75, 76, 76, 77, 79, 79, 80, 80, 80, 81, 82,-82, 82, 83, 83, 83, 84, 84, 85, 85, 85, 86, 86, 86, 88, 88, 90, 91.	
University of Virginia	(1913)	75
Jefferson Medical College	(1915)	79
Temple University	(1915)	82

FAILED

Howard University	(1914) *, 69, 73
Bennett Medical College	(1914) *
University of Louisville	(1912) *
College of Phys. and Surgs., Baltimore	(1913) 73; (1914) †, *, 69
Maryland Medical College	(1910) *; (1912) 64, *; (1913) *, *
University of Maryland	(1914) *; (1915) 72
Harvard University	(1915) 71
Medical College of Virginia	(1912) 55; (1914) *

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Bennett Medical College	(1914)	Illinois
University of Louisville	(1911)	Tennessee
Baltimore Medical College	(1898) West Virginia; (1909) (1913) West Virginia.	Arkansas;
Johns Hopkins University	(1912) Virginia; (1913)	Missouri
Maryland Medical College	(1904) Maine; (1911) (1912) Maine.	W. Virginia;
University of Oklahoma	(1913)	Oklahoma
Jefferson Medical College	(1896)	W. Virginia

Medico-Chirurgical College of Philadelphia	(1914)	Delaware
Memphis Hospital Medical College	(1906)	Tennessee
University College of Medicine, Richmond	(1901)	W. Virginia

* No grade given.
† Examination incomplete.

Virginia June Report

Dr. J. N. Barney, secretary of the Virginia State Board of Medical Examiners, reports the written examination held at Richmond, June 22-25, 1915. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 91, of whom 82 passed, including 3 osteopaths, and 9 failed, including 2 osteopaths. Seventeen candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Howard University	(1914)	79, 81
Kentucky School of Medicine	(1907)	77
University of Louisville	(1915)	75
Johns Hopkins University	(1914) 88; (1915)	88
College of Physicians and Surgeons, Baltimore	(1915)	82
University of Maryland	(1915)	81
Columbia University, College of Phys. and Surgs.	(1915)	86
New York Homeo. Med. Coll. and Flower Hosp.	(1915)	87
Jefferson Medical College	(1914) 78; (1915)	85
Meharry Medical College	(1914)	75
Medical College of Virginia	(1914) 75, 76, 79; (1915) 75, 75, 75, 75, 75, 75, 75, 75, 76, 76, 76, 76, 76, 76, 76, 77, 77, 77, 78, 78, 78, 79, 79, 79, 80, 80, 80, 81, 81, 81, 81, 82, 82, 83, 83, 84, 84, 85, 85, 86, 86, 87, 87, 88, 88, 89, 92, 93.	
University College of Medicine, Richmond	(1903)	75
University of Virginia	(1877) 83; (1915) 79, 81, 81, 84, 84, 84, 85, 86, 86, 87, 88.	

FAILED

Howard University	(1914)	71
North Carolina Medical College	(1915)	62
Meharry Medical College	(1915)	64
Vanderbilt University	(1915)	*
Medical College of Virginia	(1915) 67,	70, 72

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
George Washington University	(1914)	Dist. Columbia
Atlanta Medical College	(1914)	Georgia
Chicago Homeopathic Medical College	(1899)	Oklahoma
Hahnemann Med. Coll. and Hosp., Chicago	(1911)	Oklahoma
Hospital College of Medicine, Louisville	(1906)	W. Virginia
University of Louisville	(1912)	Kentucky
Baltimore Medical College	(1913)	W. Virginia
College of Phys. and Surgs., Baltimore	(1910) (1912)	Maryland
University of Maryland	(1904)	Florida
Harvard University	(1888)	Mass.
North Carolina Medical College	(1913)	N. Carolina
University of Pennsylvania	(1902)	Penna.
Chattanooga Medical College	(1905) (1908)	Tennessee
Meharry Medical College	(1912)	Tennessee
Medical College of Virginia	(1896)	Kentucky

* Withdrew.

Colorado October Report

Dr. David A. Strickler, secretary of the Colorado State Board of Medical Examiners, reports the oral and written examination held at Denver, Oct. 5, 1915. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 8, of whom 5 passed, including 1 nongraduate and 1 osteopath, and 3 failed. Sixteen candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Colorado	(1914)	83.3
Columbia Univ., Coll. of Phys. and Surgs.	(1915)	87.4
Vanderbilt University	(1915)	84.4
Nongraduate		79.6

FAILED

Keokuk Medical College, Coll. of Phys. and Surgs.	(1905)	*
University of Pittsburgh	(1912)	*
University of Nashville	(1882)	*

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
George Washington University	(1905)	Dist. Colum.
Chicago College of Med. and Surg.	(1909) (1910)	Illinois
Hahnemann Medical Coll. and Hosp., Chicago	(1903)	Iowa
Rush Medical College	(1901) Ohio; (1902) Kansas; (1911)	Minnesota
Tulane University of Louisiana	(1903)	Texas
Boston University	(1889)	Connecticut
Univ. of Michigan Medical School	(1890)	Michigan
Marion-Sims-Beaumont Medical College	(1903)	Missouri
Univ. and Bellevue Hosp. Medical College	(1912)	New York
Cincinnati College of Med. and Surg.	(1902)	Ohio
Meharry Medical College	(1908)	Florida
University of Nashville	(1904)	Arkansas
University of Texas	(1911)	Texas

* No grade given.

Book Notices

MICROBES AND MEN. By Robert T. Morris, M.D. To-Morrow's Topics Series. Cloth. Price, $2 net. Pp. 539. Garden City, N. Y.: Doubleday Page & Co., 1915.

This is the first of a series of three books by the same author entitled "Tomorrow's Topics." The original draft of notes was intended for physicians, but subsequent elaboration of points "followed a line of least resistance into the field of lay interest." The author believes that "Microbes and Men" may "appeal particularly to the readers who are fond of ultrascience." This may be true, for the minds of the great majority of laymen are not trained to scientific thought; but to one accustomed to weighing evidence it could only appeal in the sense that the absurd may momentarily interest one by way of contrast. That many of the views expressed are ultrascientific will be readily admitted, with the accent on "ultra." The dominant thought is that all the mental and physical activities of man are dependent on the microbe. "The description of all mental and physical activities of man as being dependent upon the microbe rests upon a basis of fact which is known to a few men." If the fact is known to a few men, these favored few have been very careful to keep the facts to themselves. If the author is one of the few, he too has kept the facts to himself; at least he has not divulged them in "Microbes and Men." The author evidently believes, as he says, "that one may sometimes get a right conclusion out of faulty premises if his logic is bad enough," and no one will question that his premises are faulty and his logic bad; but a "right" conclusion based on faulty premises is far from being evidence of truth. Definitions frequently are so loosely drawn that they give the author, as he says, "as large a charter as the wind." What could give one greater latitude when dealing with chemistry than to define it as "everything that is going on"? It certainly would allow one's fancy to roam as free as the wind. Further analysis of the logic, or rather lack of logic, is unnecessary, for the author does not ask any one to agree with him, and admits that "it has been necessary to allow highly speculative theories, accepted facts and tenable hypotheses to run along side by side in mixed company. Each reader, then, may exercise his own judgment in selecting what appeals to him out of his personal experience." This generosity on the part of the author would indicate that he does not expect to carry conviction to any one, and in this respect he probably will not be disappointed. The book cannot be looked on as a scientific production, but rather as the disconnected thoughts of a busy surgeon who feels that he has messages to deliver to the world. The messages as defined in the preface are good, but they are so smothered in the text that they run great chances of being missed entirely.

THE CLINICAL ANATOMY OF THE GASTRO-INTESTINAL TRACT. By T. Wingate Todd, M.B., Ch.B., F.R.C.S., Henry Willson Payne Professor of Anatomy in the Western Reserve University, Cleveland. Cloth. Price, $1.75 net. Pp. 264, with 32 illustrations. New York: Longmans, Green & Co., 1915.

This volume, as the author says, "embodies the substance of the course of lectures on the alimentary canal as given in the anatomical laboratory of Western Reserve University"; but it deals with much more than the clinical anatomy. The author discusses the physiology of the alimentary tract, as well as many operations and the effect of these operations on the physiology of the organs involved. One can get deadhouse anatomy from the dissecting room and the textbook; but what is wanted is not deadhouse anatomy but living anatomy; living anatomy is inseparable from physiology or function. This little work teaches living anatomy as well as it is possible to do away from the operating table. A surgical operation is something more than a mechanical procedure on an inanimate object; it is a mechanical procedure on living active tissues, and a reading of this book will do much to disabuse one's mind of the idea that anatomy is inanimate. The too frequent alternating use of the term

"gullet" and "esophagus" for the same structure is confusing at times. For instance, we find: "The gullet has no tactile sensibility. Carminatives, hydrochloric, lactic and acetic acids produce no sensation in it. The esophagus is sensitive to thermal stimulation; alcohol produces a burning sensation in the gullet," etc. These small criticisms, however, detract little from the merit of the work as a whole.

TEXT-BOOK OF NERVOUS DISEASES, FOR THE USE OF STUDENTS AND PRACTITIONERS OF MEDICINE. By Charles L. Dana, A.M., M.D., LL.D., Professor of Nervous Diseases in Cornell University Medical College. Eighth Edition. Cloth. Price, $4.25 net. Pp. 632, with 262 illustrations. New York: William Wood & Co., 1915.

The existence of this book for twenty-three years has established it as a standard teaching book on nervous diseases. As the author says, the production of general and special textbooks on the anatomy of the nervous system since the first edition, as well as the newer developments in neurology, has permitted and required some change in the plan of the book. From this edition much of the anatomy has been left out, only revised descriptions useful in diagnosis and for reference being retained; in the revision of the remainder of the work there have been added new chapters on poliomyelitis and on tumors of the spinal cord and brain, and the newer information of syphilis of the nervous system—paresis, tabes, etc., and the serology of nervous diseases, in which the author acknowledges the assistance of several collaborators. Methods of diagnosis and examination and description of symptoms have been revised, and a list of the growing collection of eponymic signs and syndromes has been provided. Therapeutics, particularly drug therapeutics, has been practically left out of the book, and many physical methods of treatment have been merely mentioned, the physician or student being left to obtain the details of such methods from the numerous available books devoted to them. Many new illustrations have been added. The book is so well and favorably known that it needs no recommendation.

TEXT-BOOK OF FORENSIC MEDICINE AND TOXICOLOGY. By R. J. M. Buchanan, M.D., F.R.C.P., Professor in Forensic Medicine and Toxicology, University of Liverpool. Eighth Edition. Cloth. Price, $3.25 net. Pp. 417, with 46 illustrations. New York: William Wood & Co., 1915.

The present edition of this work is a continuation of the volume formerly issued under the title of Husband's "Forensic Medicine." It has been thoroughly revised, many alterations and additions appearing throughout. While it is not so comprehensive as many similar works, it covers the ground in a sufficiently extensive manner for the student and younger practitioner, for whom it is primarily intended. The book is divided into two sections, the first of which contains sixteen chapters on forensic medicine, and the second section fifteen chapters on the general and special methods of toxicology. The numerous tables outlining differential tests and symptomatology are especially worthy of mention, and the photomicrographs are excellent. The book is clearly and concisely written, and should prove valuable to students and practitioners in enabling them to obtain a general idea of this important subject.

A TEXT-BOOK OF CHEMISTRY AND CHEMICAL URANALYSIS FOR NURSES. By Harold L. Amoss, S.B., S.M., M.D. Cloth. Price, $1.50 net. Pp. 268. Philadelphia: Lea and Febiger, 1915.

The author believes that chemistry is not given the attention in graduate and undergraduate instruction of nurses that its importance merits, and that the more chemistry a nurse knows the greater her value to the patient and to the physician. Along some lines, dietetics, for example, this may be true; but the majority of physicians send specimens for analysis to a properly equipped laboratory for examination; a nurse seldom if ever possesses the necessary equipment, and hospital laboratories are generally in charge of properly qualified men. This particular book, however, is clear and concise, and seems well adapted for use as a textbook for nurses.

Medicolegal

Common Law Basis for Ordering Physical Examinations—Some Rules for Them

(*Williams vs. Chattanooga Iron Works* (*Tenn.*), *176 S. W. R. 1031*)

The Supreme Court of Tennessee affirms a judgment holding that a trial court has the right to compel the physical examination of a plaintiff suing for personal injuries. The court says that the power is affirmed in the following jurisdictions: Alabama, Arkansas, California, Colorado, Georgia, Indiana, Iowa, Kansas, Kentucky, Maryland, Michigan, Minnesota, Missouri, Nevada, Ohio, Oklahoma, North Dakota, Washington and Wisconsin. It is authorized by statute in New York, New Jersey and Florida. It is denied in Illinois, Montana, South Carolina, Utah, Texas and in the Supreme Court of the United States. One of the chief questions discussed in the cases is the basis of the right to make the examination. In some it is insisted that it is a right inherent in the courts for the purpose of effecting justice, and in those which object to the right it is insisted that no such power inheres in courts, and that it can be conferred only by statute. It is denied in the negative cases that such practice is recognized in the common law. But the Supreme Court of Tennessee believes the right was exercised at common law, although not in precisely the same way in which it is practiced at this time. At common law there was an old action known as an appeal of mayhem, which was for any hurt done to a man's person, whereby he was rendered less able in fighting to annoy others, or defend himself. The demand was set forth in a declaration, describing the offense with the greatest certainty, also showing in what part of the body the wound was given, and certain excerpts from early authorities seem to indicate an ancient practice of having a personal examination of an injured plaintiff, generally by the court, sometimes by the court and jury, generally without the aid of medical men, but sometimes with their aid. This court here finds what seems to it the germ of the present practice. It has been developed and extended in modern times like other principles to meet the needs of the business transacted in modern courts.

In the cases cited which recognize the doctrine, it is applied with great restraint, and with a careful attention to the rights of the plaintiff. He must first be asked to submit to an examination, and the court can be applied to only after his failure to consent. The application to the court must be made before the trial, and so as not to create unnecessary delay. The examination cannot be ordered on mere motion. The application should be supported by affidavit setting forth pertinent facts and reasons. The examination cannot be had merely to obtain cumulative evidence. It must be made to appear that it is necessary in order that justice may be done to the defendant. It should affirmatively appear that the examination can be made without danger to the plaintiff, or any serious pain. Proper inquiries on these heads should be made by the trial judge before ordering the examination, and his conclusions should be written down in the order. Being thus prepared for the proper exercise of his discretion, he may act, and either grant or disallow the application.

If the application be granted, the physician or surgeon must be selected by the trial judge, and he must be one of competent skill, and indifferent between the parties. In the conduct of the examination, the privacy of the plaintiff's person must be preserved as far as possible. In the case of a woman, there should be female physicians, if they are accessible. If application be made therefor, the plaintiff's own physician should be permitted to be present at the examination. And while the expense must be borne in the first instance by the defendant making the application, the fee should be fixed in advance, and paid into court, to be paid to the expert when he files his report. The expert should file a report, stating in detail the result of his examination, but not for use as evidence, except in the crossexamination of the expert, if made a witness.

Liability for Death Attributed to Negligence in Loss Internally of Drainage Tube

(Sontag vs. Ude (Mo.), 177 S. W. R. 659)

The St. Louis (Mo.) Court of Appeals affirms a judgment for $3,500 damages in favor of the plaintiff for the death of his son, about 13 months of age, attributed to the alleged negligence of the defendant physician in losing internally and failing promptly to recover a drainage tube. The original verdict was for $5,000, from which to prevent a new trial being awarded, the plaintiff remitted $1,500. His petition stated that the defendant was called about February 14 to treat the child for bronchial pneumonia. In the course of the treatment the defendant made an incision in the region of the fourth and fifth ribs, under and a little behind the left arm, April 13 opening this incision and inserting a tube about 5 inches long for the purpose of drainage, on which latter date the tube was lost. The child thereafter grew worse, but the defendant failed to discover that the tube was in the child's body until April 30, when the defendant removed the tube by an operation performed therefor, after which the child died, May 7. The plaintiff charged that the death of the child was directly caused by the negligence and unskilfulness of the defendant in so placing the tube in the incision in the body of the child that it could and did slip inside his body, and in failing to locate and remove the tube within a reasonable time. From the evidence it appeared that the incision for drainage was first made March 6, and that the defendant "anchored" the tube by sticking a safety pin into it and through the skin of the child, but, the plaintiff protesting against this, the pinning to the skin was discontinued. It appeared also that when the defendant discovered the loss of the tube, April 13, he told the plaintiff that it had dropped into the baby and that they would have to operate right away to get the tube out, but the plaintiff doubted this, and they searched all over the premises in an effort to find the tube; that the plaintiff insisted on having the child examined under Roentgen rays, but that the defendant said that rubber would not show, or the tube might be lying back of a rib, and would not show. April 16, with the assistance of the same two surgeons who had assisted in the first operation, the defendant removed part of a rib, but did not find the tube. The plaintiff insisting on the use of the Roentgen rays, that was finally done, the tube being thereby located and removed April 29. Moreover, it was in evidence that while the child had apparently completely recovered from the effect of the first operation, he began to fail after April 13, when the tube fell in, and gradusually grew worse, becoming mere skin and bones; took no nourishment; had a high fever, and, as the father testified, "lay like a stone," until he died. The defendant introduced no testimony. But, with the testimony given by the plaintiff and the nurse before them, although unaided by professional expert evidence, the court thinks that the jury, as intelligent men, were competent to say whether the conduct of the defendant was proper. The negligence charged was the insertion of a rubber tube in the wound and leaving it there unsecured, so that it slipped inside the body; that was the primary negligence charged; then followed the charge that this tube was allowed to remain in the cavity so long that death resulted when it was finally removed. Whether these were acts of negligence, was for the jury. Whether these acts were the proximate cause of the death was within the competency and intelligence of the jury to determine. No professional—no opinion—evidence was necessary, so far as the plaintiff's case was concerned. If these matters were not the cause, if the defendant's conduct was that of a reasonably skilful surgeon and physician, it was for him to have put in his proof. The facts in evidence, if believed by the jury, were of sufficient probative force to warrant the jury in holding the defendant liable for the negligence charged, if those facts were undisputed.

Emotion and Life.—A life without emotion would be a dead calm, a vegetative, worthless existence.—*Monthly Health Letter.*

Miscellany

The Massachusetts Dispensary Law

Massachusetts has a law requiring each city and town having a population of 10,000 or over to maintain a free dispensary for the discovery, treatment and supervision of needy persons resident within its limits and afflicted with tuberculosis. The law is mandatory, and following a notice served on all cities and towns with the population named by the state commissioner of health early in the present year, such dispensaries have been established. This has been a considerable undertaking in towns of small population. In some of the smaller cities and towns the need of a full-time, skilled tuberculosis worker is apparent, but in others the need has not been so evident. The discussion of the dispensary problem in the *Public Health Bulletin* of the Massachusetts State Department of Health says that to meet the situation it has been the policy of the department, when the cooperation of the local authorities could be secured, to encourage a broadening of the functions of the dispensary so that they would include all functions that could be considered those of a public health social service center, and it is believed that such will be the logical evolution of most of the tuberculosis dispensaries of the smaller cities and towns. Combining the services of school nurse, factory nurse, board of health nurse and baby hygiene or district nurse in one person will, it is believed, be a satisfactory solution of the problem. The weakness of this plan is the danger of underestimating the local needs in many of these lines of public health service, resulting in inadequate or superficial work and in the overloading of a single worker. As to the results of the state-wide tuberculosis dispensary policy, it is, perhaps, too early to make an estimate. The following figures, however, are given in the *Bulletin:* The tuberculosis dispensaries report a total of 2,778 individuals who have had first examinations since July 1. Of these, 27 per cent. were made by dispensaries which were not in existence before July; 32 per cent. are reported from Boston, and 68 per cent. by the other dispensaries of the state. The actual examinations are believed, however, to be only a rough index of the activity and value of the dispensaries. The work so far is really preliminary, and nurses and all others connected with the dispensary work are making a study of the tuberculosis situation in the various communities. They have hardly begun to get patients into the dispensary for examination, to say nothing of contacts. In future, scores of cases will be brought into touch with dispensary service. A large percentage of the patients already examined have been found to be advanced. It is emphasized that the nurse should not confine her field work to dispensaries alone, but in every city and town she should cooperate with practicing physicians.

Dust and Tuberculosis

In an article on tuberculosis in *Public Health Reports*, Oct. 29, 1915, Dr. George M. Kober considers the influence of dust on the prevalence of disease, particularly tuberculosis. The tuberculosis rate among 472,000 males in the United States exposed in fifteen occupations to the inhalation of organic dust was 2.29 per thousand, against a rate of 1.55 for all occupied males; 42.05 per cent. of the deaths of printers, lithographers, and pressmen, who died at ages between 25 and 44, were from tuberculosis, as compared with 21.88 per cent. for farmers, planters and overseers.

In Berlin, as shown by Sommerfeld, the average tuberculosis death rate was 4.93 per thousand of the population. In nondusty trades it was 2.39, and in dusty trades 5.42.

In Vermont in towns where granite and marble cutting is carried on, in a population of 34,899 the tuberculosis rate was 2.2 per thousand, against a rate of 1.3 for the entire state.

Kober says it is estimated that industrial workers, constituting about one third of the population, contribute about one half of all the deaths from tuberculosis. By factory sanitation and effective methods for the prevention and removal of

dust, fully one half of these lives could be saved. That this is not speculative is indicated by the figures from Solingen, Germany, where the population is made up largely of employees in the cutlery industry. The mortality had been reduced from 20.63 per thousand in 1885 to 9.3 per thousand in 1910, and the tuberculosis rate from 5.4 in 1885 to 1.8 in 1910 per thousand population. In the German cement works also diseases of the respiratory organs have been reduced from 9.3 to 3.3 per cent. after the installation of dust-preventing apparatus.

Society Proceedings

AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY

Sixth Annual Meeting, held in Philadelphia, Nov. 10-12, 1915

DR. CHARLES A. FIFE, Philadelphia, in the Chair

RESPIRATORY DISEASES

Statistical Study of Respiratory Diseases as a Factor in the Causation of Infant Mortality

DR. WILLIAM C. WOODWARD, Washington, D. C.: The importance of the part played by diseases of the respiratory system in causing deaths during the first year of life has been to a considerable extent overlooked. In the registration area of the United States in 1913, diseases of the respiratory system caused 15.85 per cent. of the total mortality in the first year of life, approximately one quarter of the total mortality from these diseases at all age periods taken together. A campaign against diseases of the respiratory system in infancy will form an important factor in any campaign that may be inaugurated against such diseases generally. Bronchitis and pneumonia caused 95 per cent. of all deaths in the first year of life due to diseases of the respiratory system. Deaths from diseases of the respiratory system apparently occur to a greater extent during the third week of life than during any other weekly period, while the heaviest month's toll was levied in the first month of life, with a percentage of 18.62.

Prevention of Respiratory Diseases

DR. ROYAL STORRS HAYNES, New York: In the prevention of respiratory diseases, two important factors are destruction or exclusion of the infecting organism, and preservation of the resistance. Transference by contact is the method of infection in most instances, and this may be avoided by real cleanliness. In connection with the second factor, the preservation of a perfectly functionating vasomotor system is of the greatest importance. I suggest the appointment of a committee on the prevention of respiratory diseases, whose duties should be: (*a*) to supervise the conduct of an intensive investigation of respiratory affections in a selected area in a selected city; (*b*) to arrange for the publication of articles in the medical and lay press dealing with the importance of these affections, acquainting the laity with the loss of time, money, health and life which the diseases cause; (*c*) to investigate the health laws of the various states with the view of determining the present legislation on these subjects and where desirable to improve it; (*d*) to inaugurate an educational campaign by lectures for those which the printed articles will not reach, and (*e*) to stimulate the care of the child before entering the school age by laying greater emphasis on his medical supervision between the milk station and school age.

Treatment of Respiratory Diseases: Value of Fresh Air

DR. JOHN LOVETT MORSE, Boston: Great confusion prevails as to the use of the term "fresh air." It may be defined as air which is in motion, dry and cool. It is not necessarily outdoor air. Fresh air and cold air are not identical. In certain diseases of the respiratory tract, cold air acts as an irritant to the respiratory mucous membrane. Cold air is a stimulant to the vasomotor system. It has been thought to be of advantage in pneumonia on this account. Recent investigations show that blood pressure is not lowered in pneumonia and that the vasomotor system is not impaired. Fresh air is of advantage in all diseases of the respiratory tract. Cold air does harm in acute stages of nasopharyngitis, laryngitis and bronchitis. It may or may not be of advantage in the later stages of these conditions and in bronchopneumonia. It is questionable whether in pneumonia it lowers mortality. As it is not possible to treat all diseases of the respiratory tract in the same way, cold air must be used with discrimination.

Discussion on Respiratory Diseases

DR. L. EMMETT HOLT, New York: We cannot too strongly emphasize the importance of quarantine of the infant when other members of the family have colds. This particularly obtains in connection with premature infants. Against the contagiousness of pneumonia our efforts must be directed largely to raising the resistance of the infant. There have been almost as many deaths caused by cold air as there have been cures effected. Cold air is a means of treatment to be used with great discrimination. I have seen a great amount of harm done by the treatment of acute respiratory diseases, especially in young infants, by exposure to cold air.

DR. S. M. HAMILL, Philadelphia: I want to caution you in regard to the use of vaccines in the prevention of colds. The whole question of vaccine therapy is so undecided at the present time, and the dangers connected with the use of vaccines so manifest, that the subject should never be presented to an audience, especially one composed largely of laymen, without a word of caution against their promiscuous use. Also, the promiscuous use of any form of nasal douche is apt to do more harm than good. I am in entire sympathy with Dr. Morse in believing that fresh air has been incautiously employed. Dr. Morse defines fresh air as cool, dry and moving air. I believe that the proper way to obtain this is through the open windows and not by a ventilating system. This is especially true in the homes of the poor, among whom diseases of the respiratory system are especially prevalent.

DR. J. P. CROZER GRIFFITH, Philadelphia: It never has been proved that the universal employment of cold air, or fresh air, or open air, for the treatment of pneumonia or other respiratory diseases is the correct measure. The excessive use of cold air for the treatment of respiratory diseases has been a fad and has gone beyond the medical profession into the hands of nurses, hospital managers and the laity in general. If among medical men there is doubt concerning the cases in which this treatment may be used, certainly the measure is not safe in other hands. I am a believer in fresh air for many diseases of the respiratory system, but it must be used with the greatest judgment. I agree with Dr. Holt that we see patients who are made worse by its indiscriminate use. We see others who improve only by this treatment.

DR. CRESSY L. WILBUR, New York: The foundation of the work of the prevention of infant mortality is the registration of births and deaths. It is a shame to this country that the births of its infants are not registered. The only exception to this lack is the state of Pennsylvania, and I want to congratulate the people of this commonwealth and municipality on their influence in compelling legislation in this matter.

THE MIDWIFE

The Education, Licensing and Supervision of the Midwife

DR. J. CLIFTON EDGAR, New York: The midwife for traditional, social and economic reasons attends about 40 per cent. of confinements in this country and is at present a necessary evil. The solution of the question in the rural districts is in the inclusion of midwifery service in rural district nursing should a physician not be available. In illustration of this we have the proposed course of midwifery in the Washington University Hospital in St. Louis. The midwife should never be regarded as a practitioner. Her only legitimate functions are those of a nurse plus the attendance on a normal delivery when necessary. No unlicensed women should be permitted to practice, and even as a temporary

measure only properly qualified women should be granted a license. Even licensed midwives should be supervised by the local department of health as is done in Buffalo, Pittsburgh and Providence, the system following closely that in operation in England and New Zealand, where infant mortality is conspicuously low.

Is the Midwife a Necessity?

Dr. J. M. Baldy, Philadelphia: This country contains several groups of foreigners who have been accustomed to the midwife, and until immigration ceases and these peoples are evolved into Americans, the midwife will be demanded. The question resolves itself into the proper education and control of the midwife. Results are obtained by meeting existing conditions and improving them. There is no state, city or town in the United States in which by the passage of laws it has been possible to eliminate the midwife. Any measurable degree of success has come only through education and control.

Progress Toward Ideal Obstetrics

Dr. Joseph B. De Lee, Chicago: I am opposed to any movement to perpetuate the midwife. She is a relic of barbarism, and her perpetuation demands a compromise between right and wrong. She is a drag on the progress of the science and art of obstetrics, her existence stunting the one and degrading the other. The foreigner is becoming enlightened on the value of medical attendance and demanding it. The visiting nurse does an amount of maternity and prenatal work not fully recognized. There are thousands of young physicians who would take cases now cared for by midwives were it not considered undignified work, and also undignified to accept such a small fee for the service. In educating the midwife we assume the responsibility for her, we lower standards and compromise with wrong, and I for one, refuse to be *particeps criminis*.

Discussion on the Midwife

Dr. William R. Nicholson, Philadelphia: Without inspection of every case we cannot control the midwife. We have in Philadelphia five inspectors, graduates in medicine, who inspect every case after delivery has taken place. It seems to me that an association of this sort could do an immense amount of good if its members worked on a common ground. To me the question at issue is the benefit of the women now attended by the midwife. We do not believe that the midwife can be eliminated at present, and all we are doing is carrying out a *police* supervision—there is no other word for it. The women are brought to account for any infraction of requirements. We have saved the lives of babies and mothers, and improved obstetrics by our work, which may be regarded as a temporary expedient. I believe that if we had a certain number of English speaking, intelligent young women trained to care for women in labor, we would be able to get rid of a number of the midwives. We have nine such young women who have been in training from six to eight months. They attend lectures given by one of the inspectors, and must see and deliver twenty patients under inspection. This is an experiment which Dr. Baldy has given us permission to try out, and we believe that the result in a year or two will be good.

Dr. J. Whitridge Williams, Baltimore: When you come to face the inspection of midwives in the big cities, unless there is a competent man at the head of the work the effort is going to be a miserable failure. One of the greatest advantages in modern obstetrics is the development of prenatal care. Further development of obstetrics lies in supervision of the woman after confinement, but this prenatal and postnatal service involves the work of the obstetrician, the pediatrist and the social service worker. The crux of the matter is the proper education of doctors to be competent obstetricians. We have just begun to understand in this country what the obstetrician is. It is much more than a "man midwife." The man who invented the obstetric forceps was named Chamberlen. He called himself Hugh Chamberlen, "man midwife." "Man midwife" and "accoucheur" are two terms that rouse my ire. The "man midwife" has disappeared and the "accoucheur" is disappearing; what we want is the scientific obstetrician. We can get him only by the development of medical education. We need a large, thoroughly equipped woman's hospital where everything pertaining to women and childbearing is studied from the point of view of teaching that which we now know and for the acquisition of new knowledge. Such a hospital has been endowed in Pittsburgh and this should set the pace for other cities.

Dr. S. Josephine Baker, New York: My interest in the midwife is solely to make her as nearly as we can a fit person to give the mothers and babies their essential care; but it is an absolute impossibility to abolish her in the city at the present time. In New York, the mortality and morbidity of mothers and babies attended by midwives is in most instances, in proportion, less than that among those attended by physicians. We are coming to the better education of the medical student, but in the interim we are doing, just so far as we are able, that which seems the most efficacious and most nearly protects the mother and baby. The midwife is being eliminated. We have in New York only half as many as there were seven years ago. It is probable that this elimination will come about by making the standard so high that none of the ignorant and untrained women can reach it. At present the women will practice whether you want them, whether licensed or not, and it is infinitely better to see that the care given by the midwives is at least adequate. In prenatal work my experience is that the midwife is one of our best cooperators in referring the mother to us for instruction; and, contrary to what has been said, the women do engage the midwife quite as early as women engage the doctor. We are having meetings with the midwives for purposes of instruction, and they are beginning to look on the health department, not as something to be feared, but as something which is a very definite help to them. Through such cooperation we believe we shall obtain reforms more effective than those obtained by radical measures.

Dr. Arthur B. Emmons, Boston: Nothing is being done in Massachusetts to eliminate the midwife. Our law registers physicians, and if a midwife wants to qualify before the board of licensure she must pass the examination. It is interesting to note that the daughter of one midwife has already taken a course in medicine and qualified as a physician. I believe that the plan which we have in Boston is an answer to the question of eliminating the midwife. We have been working out a plan of holding prenatal clinics and conferences. From among the graduates of the lying-in hospital we select a number of young physicians who attend these patients, receiving from $5 to $10, depending on the section in which the women live. The follow-up work is done by the visiting nurse, and I am satisfied with our results from a medical point of view. I have worked the idea out with graduates in medicine with the thought of its adoption in other parts of the country. Pennsylvania is leading this country in its requirements for medical licensure.

Dr. George W. Kosmak, New York: There is no stronger argument for the elimination of the midwife than the statement that she should be under supervision.

Dr. Williams, New York: There is no demand for obstetric hospitals or dispensaries in the rural districts; there is a demand for good midwives. I expect to see the midwife in the state of New York for some time, and I intend to see that some such supervision as that developed by Dr. Baldy is established.

Wages and Employment as Factors in Infant Mortality

Mr. Sherman C. Kingsley, Chicago: Districts which have the largest measure of poverty also have a higher mortality from all causes than have localities better circumstanced. It is difficult to assess baby deaths definitely against low income, but poverty involves housing, overcrowding, quality and amount of food, sunlight, air and wholesome leisure for mothers. With the baby, as with communities, life and health are purchasable. Figures show that babies of families living in one room have less than half the chance of those living in four; and the infant whose father receives less than

$10 a week has about half the chance of life as the one whose father earns twice this amount. Our life-saving advice to the mother must be accompanied by an industrial order which gives a living wage to the father.

Maternity Insurance

DR. LEE K. FRANKEL, New York: From the thirteenth century, provision, either in the home or in hospitals, was made under the auspices of philanthropic agencies for the care of indigent women in childbirth. Changed industrial conditions have necessitated legislation protecting women working prior and subsequent to maternity. In practically all European countries such legislation has been enacted under which women are forbidden to work for periods varying from two to six weeks before and after confinement, while in the United States in only four states has such legislation been established. These states are New York, Vermont, Massachusetts and Connecticut. The next logical step to this compulsory legislation was the development of a scheme of insurance for the lying-in period to replace the wages lost. Such schemes of insurance have been organized in nearly every European country. In Italy alone has the insurance plan developed as a distinct maternity insurance to which both employer and employee contribute. In other countries, insurance against maternity is a phase of general sickness insurance, the dues being paid by all members of the scheme. It has been estimated that under a sickness insurance scheme in which practically all of the working element of the population are members, it would be possible to give maternity benefits for a period of from four to six weeks, and in addition, medical care and medicine at a cost varying from 0.5 to 1.5 per cent. of the wages. I believe that if a scheme of maternity insurance were developed in the United States, it would be wiser to make it a general sickness insurance scheme rather than a specific maternity insurance.

To What Extent May the Mother Substitute Proprietary Preparations for the Advice of a Physician?

DR. CARL L. ALSBERG, Washington, D. C.: The mother in giving proprietary remedies is governed by false ideas of economy and convenience, and the truth should be presented to her by all possible means. The physician has a public and professional duty in the education of the public on this vital question. The dealer is concerned solely from the business standpoint. The solution lies in an educated public opinion.

Baby Saving Activities

DR. GAVIN S. FULTON, Louisville, Ky.: In our babies' milk station we have done away with the rule of giving free milk to everybody and give it only to those in great need. This change has made no difference in attendance, and the interest in the teaching side has not abated. We have five stations in which a weekly clinic is held with a doctor and nurse in attendance. We have had a death rate among the children seen in these clinics of 1.2 per cent.

DR. J. H. MASON KNOX, Baltimore: We have been able to enlarge our work during the past year by the addition of four new welfare stations. We have a supervising nurse in the central office where the matter of publicity is looked after. We have in connection with the Johns Hopkins clinic a nurse visitation service, and we are undertaking the visiting of all dispensary cases. We have access to the birth registrations of the city, and every week our nurse visits the homes of the new-born babies. In this way we shall be able to keep the latter under skilful advice for the first year of their existence.

DR. THOMAS B. COOLEY, Detroit: An interesting new departure which we made in Detroit was to establish a health center in a manufacturing village on the edge of our city. In the first quarter the mortality for the village as a whole was reduced from approximately 27 per cent. to 17, and in the district where intensive work was done, the mortality dropped from 25.8 per cent. to 12.6.

MISS CARR, Montreal: We have twenty-three French and five English stations, all supported by the city. We have people coming to them of almost every nationality in the world.

DR. JOSEPH S. WALL, Washington, D. C.: We have had an increased attendance at our welfare stations of from seventy-six in the first year to 1,749 in the present year. We established the prenatal work two and a half years ago, and the total number of mothers reached is 244. We have added to our nursing staff a prenatal nurse and a field nurse. Every one of our mothers has had the ability to feed the baby at the breast, and satisfactory results have been obtained by instituting the four hour nursing schedule when the mothers were working away from home. We have an eight hour law in our city, and this gives the baby one nursing if the mother can go home or have the baby taken to her. We have three and four conferences a week in our milk stations. We try to make the stations as attractive as possible, and look on them as mothers' clubs.

DR. HENRY F. HELMHOLZ, Chicago: I can report for Chicago an increase of from 5,400 to over 8,000 cared for at our milk stations. We have worked successfully in cooperation with the Illinois Home and Aid Society. A special nurse visits all the homes in which the aid society has placed its babies and sees that the foster mothers come to an infant welfare station once every two weeks.

DR. WILLIAM N. BRADLEY, Philadelphia: Among the newer activities of our baby welfare work is an investigation of the manner of control of homes for children under 3 years of age, and a plan has been worked out for their government. An effort has been made to have hospitals adopt certain regulations helpful to child welfare, in the matter of number and lengths of visits to children in the hospitals, the wearing of gowns by visitors entering the wards, and in the answering of inquiries by some one in intimate charge of the patient with the least possible delay. One other activity has been the establishment of a wetnursing bureau under the control of the new department of child hygiene which has come about largely through the efforts of the Babies' Welfare Association.

DR. J. HERBERT YOUNG, Boston: The work of our baby welfare association has grown from 738 babies under our care in 1909 to 4,679 for the year ending October, 1915. This means that approximately 25 per cent. of the entire infant population of Boston is now receiving milk and nursing at our twelve stations. Our medical staff has increased from fourteen to twenty-four physicians. Almost without exception these men are specialists in the care of infants and children. Although we are still unable to pay our physicians, these appointments are highly esteemed.

MISS MARY ARNOLD, New York: Our Babies' Welfare Association is a federation of all organizations affecting babies directly or indirectly. Our board of health sends a letter to all mothers losing their babies asking if they would like to nurse another. A nurse makes an inspection, and if the conditions are satisfactory the mother is sent another baby to nurse. The association acts as a clearing house in the federation. We have now fifteen hospitals which report their babies to us on discharge. The nurse in the milk station waits to see whether the mother brings her baby to us, and if she does not, visits the home so that in the first month of life the baby may receive the care it needs.

DR. COLLINS H. JOHNSTON, Grand Rapids, Mich.: Our death rate has not been above 10 per cent. in the last five or six years. We have two outdoor clinics and will have two more this fall.

DR. GEORGE W. GOLER, Rochester: We are trying to link up our baby welfare work with the schools, placing the emphasis chiefly on education. We also have a day nursery for the care of women obliged to work away from home, and in one school we have thirty-five children under 3 years of age. Our aim is prenatal and postnatal work, with the care of the child after it leaves the milk station. At five years when entering the school, the school physician will follow it up until it goes to work. This should be the real aim of welfare work.

MRS. MAX WEST, Washington, D. C.: The Federal Children's Bureau is preparing for a nation-wide baby week next

spring. We have prepared a circular of information which we are glad to furnish on application. The Children's Bureau is especially anxious to deal with the rural problem.

Infant Welfare Work; Its Purpose, Opportunities and Agencies

MR. HOMER FOLKS, New York: Infant welfare work is preventive rather than remedial. In a very few years the infant welfare movement has changed from the dealing with the few for curative purposes to dealing with the multitude for preventive purposes. From every point of view, infant welfare must be regarded as raising the level at which the struggle for existence occurs, and not simply a concession to humanitarian instincts. From the point of view of the largeness of opportunity, we find great encouragement from the history of recent years that infantile illness and mortality are preventable with relatively little effort and expense. Compared with other large public health movements, the reduction of infant mortality is simplicity itself. The New York State Health Department states that there are about 300,000 deaths per annum in the United States among infants under 1 year of age, and that 150,000 of these are preventable. For this work elaborate institutions are not required. We need chiefly plenty of paper, printers' ink, and trained nurses. Baby saving is the bargin counter of philanthropy. Infant welfare work is the great opportunity of the moment to do something in which everybody must believe. Just how much we can do is uncertain because of many factors, chief among which is the lack of vital statistics. Concerning the agencies for this work, we find that the bulk of effort is being done by private initiative, receiving in many cases some public aid, with the tendency toward the transference of the work to public responsibility. The job is clearly a public one. Public health generally is certainly a public function, and infant welfare is an integral part of the public health problem.

Institutions as Foster Mothers for Infants

DR. ALFRED F. HESS, New York: The sweeping denunciation of the institutional care of infants is not justified. If the administration is poor, the babies will suffer whether in homes or in asylums, and there is nothing inherent in either system which leads to health or to disease. At present there is no established statistical basis of approach to the question, as there is no approved method of calculating the death rate in an institution.

A Community Program of Public Health Nursing and Social Service

MR. RICHARD P. BORDEN, Fall River, Mass.: Social agencies should be coordinated so that each shall work in its special department and all work together. Health is fundamental in community efficiency. Hospitals are expensive, and it pays to avoid the necessity of hospital care. Therefore, visiting nurses are necessary adjuncts of hospitals. Sources of accident and disease are ignorance and improper methods of living. Settlement houses teach the family that it is cheaper to prevent disease than to cure it, and in consequence, hospital costs are reduced. Day nurseries, children's societies and other social organizations are directly related to the hospital and its kindred agencies. While it is valuable to preserve entities of social organizations, business and benevolence should combine.

MISS ELIZABETH GORDON FOX, Washington, D. C.: Believing that the old plan of specialization in public health nursing was wasteful, confusing and inefficient, in 1914, the Visiting Nurse Association, the Tuberculosis Society and the Department of Health of Dayton, Ohio, "pooled" their interests, and combined the three staffs of nurses into one under one superintendent, in one headquarters. While each governing body retained its own autonomy and raised its own budget, the work of the three was administered as a unit. The nursing specialties were eliminated, the city was divided into small districts, one nurse to a district, and each nurse did all kinds of nursing in her own district. The infant welfare work was greatly increased in quantity and quality as a result of this plan of centralization and generalization. The infant mortality rate fell from 133 during the four summer months of 1913 to eighty-five during the same period of 1914. This was felt to be largely due to the efficiency of the new plan of administration.

Special Versus General Nursing in Infant Welfare Work

DR. H. J. GERSTENBERGER, East Cleveland, Ohio: The best results in public health and social work are to be secured by placing all of the work of a district in the hands of one worker who shall be supervised and directed by a physician who, on the basis of knowledge and common sense, is competent to have such supervision and direction.

MISS MARIE PHELAN, Chicago: The infant welfare nurse must be interested in the family and in the sanitary conditions of the home that she may create a proper environment for the baby. It is through her influence that the father is referred to the tuberculosis clinic and the nurse is welcomed to give information concerning the conditions of the home. The question of more than one nurse coming into the home has been greatly overestimated; in reality there is little fear of overlapping. In only two families in eighteen districts were the infant welfare nurse and the district nurse visiting at the same time. I think but few nurses are capable mentally and physically to look after every branch of nursing.

DR. S. JOSEPHINE BAKER, New York: If we are going to deal only with the sick baby, our ideas will be so diverted from the main purpose that our well baby is going to stand in the background. In our municipal work when we have tried to keep the well baby well our mortality has dropped sharply. The public health nurse from the point of view of the department of health is a sanitary officer with the education of a nurse. She is a teacher, but she is not like the district nurse, a nurse of the sick. There is great danger of overspecialization, but not necessarily so, if our ideals are kept clearly in mind.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany (N. Y.) Medical Annals

November, XXXVI, No. 11, pp. 517-566

1 Albany Hospital: Report of Department for Mental Diseases, for Year Ending September 30, 1915. J. M. Mosher, Albany.

American Journal of Public Health, Boston

November, V, No. 11, pp. 1103-1194

2 American Achievements and American Failures in Public Health Work. W. T. Sedgwick, Boston.
3 Public Health. C. S. Whitman, New York.
4 Development of American Public Health Endeavor. S. Smith, New York.
5 Appreciation of Henry Lomb. C. A. Barbour, Rochester, N. Y.
6 Responsibility of City in Tuberculosis Movement. T. B. Sachs, Chicago.
7 Increasing Organic Disease — New Public Health Problem. E. E. Rittenhouse, New York.
8 Marriage Health Certificate, Deeply Rooted Social Problem. O. Dowling, New Orleans.
9 Certain Sanitary Aspects of Candy Manufacture. E. H. Cummins, Boston.
10 Report of Committee on City Wastes; Economics of Waste Collection and Disposal. P. M. Hall, Minneapolis.
11 Improvement in Composition of Lactose Bile. T. W. Melia, New York.
12 Testing of Disinfectants. S. Rideal, London, and J. T. A. Walker, New York.

Annals of Surgery, Philadelphia

December, LXII, No. 6, pp. 641-776

13 *Hemangioma of Spinal Cord. S. Cobb, Boston.
14 *Conservative Treatment of Intrinsic Cancer of Larynx by Thyrecricotomy or Thyrotomy; Report of Three Cases. G. D. Stewart, New York.
15 Suppurative Pericarditis. G. B. Rhodes, Cincinnati.
16 Abdominal Skin-Flap in Radical Amputation of Breast. C. A. Elsberg, New York.
17 *Splenectomy for Splenic Anemia in Childhood and for Splenic Anemia of Infancy. H. Z. Giffin, Rochester, Minn.
18 Primary Sarcoma of Gallbladder; Report of Case. N. B. Carson and G. M. Smith, St. Louis.

19 Resection of Cardia for Carcinoma; Report of Cases. W. Meyer, New York.
20 Obturator Hernia; Report of Case. C. G. McMahon, Copperhill, Tenn.
21 Prostate Gland in Old Age. O. S. Lowsley, New York.
22 Giant-Cell Tumors of Tendon Sheaths; Report of Cases. F. Beekman, New York.
23 *Fascia Transplantation in Treatment of Old Fractures of Patella. D. B. Phemister, Chicago.
24 Case of Decompression Under Local Anesthesia. H. P. Cole, Mobile, Ala.
25 *Action of Radium on Transplanted Tumors of Animals. F. C. Wood and F. Prime, Jr., New York.

13. **Hemangioma of Spinal Cord.**—Six reported cases and one personal case are analyzed by Cobb. He says that the onset is usually slow, the paralysis not reaching its maximum for days or even months. In two instances, weakness of the feet was the first symptom, preceding paralysis of the legs by two weeks and by six months; in another, weakness of the right hand preceded the paralysis by two days. In three of the cases pain came on suddenly but was not followed by the paralysis for five days in one, two weeks in another, and five months in the third. A history of recurrent attacks after partial recovery appeared twice, while in four of the cases a single attack seemed sufficient to cause a permanent paralysis. Four of the histories note an onset with flaccid paralysis, described as "weakness," the spastic symptoms not coming on for a considerable time—two months, six months, and fourteen years in three of these, while in the fourth the patient died in the flaccid state. In short the symptomatology appears to be that of hemorrhage into the spinal cord or canal, generally recurrent if the patient survives the first paralysis. Death in two of the cases was due to respiratory failure, in two to decubitus, and in two others to operation, while one has no clinical history, and the other patient is alive at present.

Pathologically it is striking that in all of the cases the tumor involved the pia; in two the dura was also involved, and in two the cord substance was invaded. The level of the angiomas on the cord is variable; three were lumbar, one cervical, one cervicodorsal, two dorsal, and one was found on the corda equina. The tendency seems, therefore, to be toward a low position. In two of the cases there was widening of the vertebral canal in the region of the tumor. One of the most interesting features of Cobb's case is the occurrence of nevi on the skin in the same metamere as the angioma of the cord; that is to say, the membranes of the spinal cord in the vicinity of the tumor are supplied by the same nerve roots as the skin on which the nevi are found.

14. **Intrinsic Cancer of Larynx.**—According to Stewart laryngofissure is applicable to over one third of all cases of laryngeal cancer. It is exclusively adapted to endolaryngeal cancer in its incipient stages. A circumscribed movable tumor near the center of one vocal cord represents the most favorable case for laryngofissure. The operation is sometimes extended to cancer still movable but which has attacked the anterior commissure, the ventricle or the subglottic space. Laryngofissure is absolutely contraindicated in all cases in which the arytenoid cartilage and the interarytenoid fold are involved, also in other extrinsic cancer. It is not often enough performed and is sometimes attempted too late. Its extent should be absolutely determined beforehand, otherwise one should be prepared for a semi or complete laryngectomy. The mortality is small—0.2 per cent. Speech is always possible, often satisfactory.

17. **Splenectomy for Splenic Anemia.**—Because infancy is a transition period during which a reversion to the fetal type of hemopoiesis is likely to occur, Giffin maintains that the normal lymphocytosis of the infant's blood and its decided reaction to various toxic agents is always to be taken into account in the consideration of any case of infantile anemia. The adult form of splenic anemia as it occurs in children and the splenic anemia of infancy have many characteristics in common, and also certain distinctive differences, but splenectomy has been performed in only a few instances of the adult form of splenic anemia occurring in the first decade of life. One case of this character is reported by Giffin. A review of the literature of the splenic anemia of infancy (anemia pseudoleukemica of von Jaksch) shows that splenectomy has been performed in four instances of severe types of the disease, with marked immediate improvement.

23. **Fascia Transplantation in Old Fracture of Patella.**—In the case reported by Phemister after the greatest possible apposition of the fragments of the patella had been accomplished, there still remained a defect of 1 inch. This defect was bridged over by a free transplantation of the fascia lata. It was sutured above to the quadriceps, below to the tibiopatellar tendon, and at the sides to the lateral ligaments of the joint. Aseptic wound healing occurred.

25. **Action of Radium on Transplanted Tumors.**—According to Wood and Prime three factors only are important in the action of radium on tumors; time of exposure, amount of radium element, and distance between the radium tube and the tumor tissue. The removal of suitable filters of the larger part of the beta rays diminishes proportionately the effect of the radium, but the effect of the gamma rays is in accordance with the same general law which governs the beta rays. Sublethal exposures slow the growth of tumor cells for some time, while still shorter treatments seem to stimulate the cellular activities. Experiments show that when only pure gamma rays are used the necessary exposure is eight times as long as that required when the gamma and hard beta rays combined are employed, but as the latter are largely absorbed by 1 cm. of tissue, the gamma rays alone must be used for all deep work. The effect of radium radiations on tumor cells in vitro is less marked than is that on isolated cellular elements. This explains the fact that an exposure which will destroy a small metastatic nodule in man is quite ineffective in the case of a well vascularized primary carcinoma.

Archives of Internal Medicine, Chicago

December, XVI, No. 6, pp. 893-1073

26 Large Personal Factor in Blood Pressure Determinations by Oscillatory Method. E. S. Kilgore, San Francisco.
27 Analysis of Dr. Kilgore's Paper. J. Erlanger, St. Louis.
28 Quantitative Determination of Personal Factor in Blood Pressure Measurements by Auscultatory Methods. E. S. Kilgore, H. K. Berkley, A. H. Rowe and W. H. Stabler, San Francisco.
29 Fractional Method of Blood Pressure Determination — Contribution to Study of Blood Pressure in Cardiac Arrhythmias. E. S. Kilgore, San Francisco.
30 *Clinical Studies on Respiration; Acidosis of Chronic Nephritis. F. W. Peabody, Boston.
31 *Action of Vagi on Heart in Paroxysmal Tachycardia. G. C. Robinson, St. Louis.
32 *Carbohydrate Metabolism in Hyperthyroidism as Determined by Examination of Blood and Urine. H. R. Geyelin, New York.
33 *Production of Atrioventricular Rhythm in Man After Administration of Atropin. F. N. Wilson, Ann Arbor, Mich.
34 *Case in which Vagus Influenced Form of Ventricular Complex of Electrocardiogram. F. N. Wilson, Ann Arbor, Mich.
35 Oidiomycosis in California, with Special Reference to Coccidioidal Granuloma. E. C. Dickson, San Francisco.
36 Case of Acute Miliary Tuberculosis Showing Blood Picture of Acute Myelogenous Leukemia. M. Marshall, Ann Arbor, Mich.
37 Uric Acid Solvent Power of Urine Containing Hexamethylenamin (Urotropin) as Compared with that of Normal Urine. H. D. Haskins, Portland, Ore.
38 *Oxydase Reaction on Blood Smears. F. A. Evans, Baltimore.

30. **Acidosis of Chronic Nephritis.**—In mild cases of uncomplicated chronic nephritis, in which the phenolsulphonephthalein test shows a normal renal function, Peabody claims that there is usually little or no acidosis. More advanced cases, showing moderate or even extreme decrease in the phenolsulphonephthalein output, show an acidosis by the "alkali tolerance" test, but there may be no fall in the alveolar carbon dioxid tension. Only in very advanced cases is the acidosis usually so marked as to cause a decrease in the alveolar carbon dioxid tension. Most cases in which the alveolar carbon dioxid tension is below normal show a phenolsulphonephthalein output which is below 10 per cent. in two hours. On the other hand cases showing a phenolsulphonephthalein output of "traces" or less may have a normal alveolar carbon dioxid tension. The acidosis of chronic nephritis Peabody believes is due to a retention, resulting from inefficient renal excretion. Acidosis is probaby a very constant feature of uremia, but only in a limited number of cases is it of sufficient grade to cause definite

clinical symptoms analogous to those seen in advanced diabetes. In these cases the symptoms caused by the acidosis may be relieved by alkali therapy.

31. **Action of Vagi on Heart in Paroxysmal Tachycardia.**—Robinson reports observations on two cases of paroxysmal tachycardia in which the rapid heart rate could not be influenced by vagus pressure. These two cases are representative of those in which vagus pressure fails to abolish the tachycardia. The cause of the ineffectiveness is not, however, any permanent derangement of the cardiovagal inhibitory mechanism, as in both cases the heart rate was slowed by vagus pressure and increased by vagus paralysis with atropin. Robinson regards these cases as evidence that the influence of the vagi differs in degree on different parts of the heart, and that this difference probably depends on their anatomic distribution.

32. **Carbohydrate Metabolism in Hyperthyroidism.**—Twenty-seven cases of hyperthyroidism were studied by Geyelin. These varied from very severe to extremely mild ones, but all had sufficient symptoms or history or both to warrant the diagnosis. To control these observations, twenty-five other individuals have been studied. These include healthy adults and patients convalescing from various diseases. In only three of the twenty-five control cases, was there any glucosuria, either spontaneous or alimentary. Of the twenty-seven cases of hyperthyroidism, the first twenty ranged from cases of moderate severity to severe ones, while the last seven were mild, and in one case, there was some doubt as to the diagnosis. A majority of the symptoms, however, pointed to hyperthyroidism. Eighteen show a hyperglycemia, either fasting or from two and a half to three hours after breakfast. They all show either an alimentary or spontaneous glucosuria; in most of the cases both. And further, all those on whom the test was made show an increase above the preexisting blood-sugar level two hours after 100 gm. of glucose, which was proportionally much greater than in any of the normal controls, most of whom showed a return to preformed values after this test. The alimentary glucosuria was usually quite marked, and in one patient persisted for three days. Of the mild cases, three show distinct lowering of the carbohydrate tolerance, as shown by alimentary and spontaneous glucosuria, and in two cases there was an alimentary hyperglycemia.

A blood-sugar reading of 0.1 per cent. or over, Geyelin says, is to be considered a hyperglycemia. Hyperglycemia is a common accompaniment of hyperthyroidism. In the moderate and severe types of this disease, it occurs in 90 per cent. of the cases studied. In mild cases or during latent periods, normal blood-sugar values are commonly obtained. Glucosuria, either spontaneous or alimentary (100 gm. of glucose), is an equally constant symptom, and encountered much more often than has been observed hitherto. Alimentary hyperglycemia (two hours after 100 gm. of glucose) and alimentary glucosuria are found not uncommonly in the mild cases, whereas hyperglycemia (fasting or postprandial) and spontaneous glucosuria are usually absent. As compared with normal individuals, there is a slower return to fasting blood-sugar values after doses of glucose have been given. This is more marked in proportion to the severity of the case. Thyroid extract when fed to patients with myxedema, who previously showed normal blood-sugar values, produces hyperglycemia similar to that found in cases of hyperthyroidism. The diagnostic significance of lowered tolerance to carbohydrates in hyperthyroidism is of great importance. The finding of glucosuria and hyperglycemia in other pathologic conditions, such as fever, alcoholism, asphyxia, neurasthenia and in the various endocrinopathies, somewhat nullifies its significance; but if these conditions can be excluded, its presence is highly suggestive.

33. **Atrioventricular Rhythm in Man.**—It was found possible by Wilson to produce A-V rhythm in a large proportion of young persons by vagus stimulation during the intermediate period between the hypodermic injection of atropin and the appearance of its maximum effect. In three cases, one normal and two cardiac cases, A-V rhythm appeared spontaneously under this drug. In none of the individuals of the present series who had apparently normal hearts was it possible to produce A-V rhythm before the drug had been given. This was possible, however, in two patients with cardiac disease. It was not possible to produce A-V rhythm after the atropin effect had reached its maximum in any of the subjects investigated. The special susceptibility of the heart toward A-V rhythm during the early action of atropin is due to a selective action of this drug on the vagus terminations in the A-V node, in that it paralyses these before it paralyses those in the sinus node. In two pathologic cases the A-V rhythm which appeared after atropin exhibited unusual features. Three patients complained of marked palpitation as a result of simultaneous contraction of auricles and ventricles during A-V rhythm.

34. **Ventricular Complex of Electrocardiogram.**—The case reported by Wilson showed at different times four distinct rhythms and at least three types of ventricular complexes. In the first rhythm the ventricular complexes were normal and the pace-maker was in the normal location. In the second rhythm the ventricular complexes were characteristic of a block in the right branch of the His bundle. These abnormal ventricular complexes were usually but not always associated with an atrioventricular rhythm originating in the upper levels of the junctional tissues. Both the A-V rhythm and the abnormal ventricular complexes could be produced by vagus stimulation and when spontaneously present could be abolished in favor of the normal rhythm by the administration of atropin. Rhythm 3 appeared during the early stages of atropin action and at no other time. The ventricular complexes of this rhythm were abnormal and suggested a block in the left branch of the His bundle. The pace-maker was situated in the region of the A-V node. Ventricular complexes transitional in form between those of the normal rhythm and those of Rhythm 3, occurred, however, while the pace-maker was situated at the sinus node. It is probable therefore that the abnormality of the ventricular complexes of Rhythm 3 did not depend on the abnormal site of origin of this rhythm. Rhythm 4 was a paroxysmal tachycardia which originated at the same point as Rhythm 3 and which was associated with the same type of ventricular complex. The various changes in the mechanisms of the heart beat observed in this case occurred, in a great measure at least, in response to changes in vagus control.

38. **Oxydase Reaction on Blood Smears.**—Evans summarizes his method as follows: 1. Use blood smears as fresh as possible, and certainly not more than six weeks old. 2. Fix six to eight hours in the vapor of 4 per cent. formaldehyd solution in a closed jar. 3. Stain eight minutes in a saturated aqueous safranin or a 2 per cent. aqueous pyronin solution; wash, and dry immediately. 4. Examine the smear and become familiar with the appearance of the various cell types with the nuclei thus stained. 5. (a) Put one drop of Solution 1 (less than three weeks old) and one drop of Solution 2 (less than four days old) on a slide, mount the smear in this and examine at once; or (b) Mount the smear film side upward on a slide and put Solutions 1 and 2 directly on the smear, watch the reaction with the low power objective progress to its height, and at the end of two minutes dry and examine with the high dry objective. Evans has found this procedure a convenient and reliable method on blood smears for demonstrating the presence or absence of oxydase granules in many varieties of white blood cells, and by reason of the differentiation between cells of myeloid and lymphoid origin made possible, gives a preparation that is of great value in determining the status and origin of white blood cells of uncertain identity.

Archives of Ophthalmology, New Rochelle, N. Y.

November, XLIV, No. 6, pp. 611-705

39 Position of Sclerotomy with Especial Reference to Danger from Late Infection. T. H. Butler.
40 Ciliary Glands. W. C. Finnoff, Denver.
41 Malignant Uveitis Treated with Thyroid Extract. J. Bordley, Jr., Baltimore.
42 Gram Negative Diplococci Occurring in Conjunctival Sac. R. Blue, Chicago.
43 Primary Tumor of Optic Nerve Successfully Removed, with Preservation of Eyeball, by Kroenlein Method. A. Knapp, Chicago.
44 Case of Cyclical Third-Nerve Paralysis. G. Groethuysen, Munich.

Arizona Medical Journal, Phoenix

November, III, No. 11, pp. 1-33

45 Relation of Cancer Research to Clinical Medicine. W. O. Sweek, Phoenix.
46 Chronic Appendicitis in Contradistinction to Subacute Form. C. S. Vivian, Humboldt.
47 Cesarean Section; Report of Two Cases. A. J. Murrietta, Jerome.
48 Surgical Indigestion. A. L. Blesh, Oklahoma City.

Arkansas Medical Society Journal, Little Rock

November, XII, No. 6, pp. 139-161

49 Why We Fail to Diagnose Tuberculosis at Proper Time. S. E. Thompson, Carlsbad, Texas.
50 Visceroptosis. M. D. Ogden, Little Rock.
51 General Anesthesia. M. G. Daly, Little Rock.

Boston Medical and Surgical Journal

December 9, CLXXIII, No. 24, pp. 867-904

52 Medical and Social Aspects of Syphilis of Nervous System. A. Post, Boston.
53 Examination and Prophylaxis for Syphilitic Patients and Their Families. (To be continued.) H. M. Wright, Boston.
54 *Bladder Tumors in Young. R. F. O'Neil, Boston.
55 *Study of Kroenig's Isthmus in Pulmonary Tuberculosis. W. C. Klotz, Los Angeles.
56 Intussusception. W. E. Ladd, Boston.
57 Some Uncommon Types of Skin Disease. A. J. Nute, Boston.

December 16, No. 25, pp. 905-940

58 *Disinfection of Septic Joints. F. J. Cotton, Boston.
59 *Bacterin Treatment of Certain Chronic Pyogenic Dermatoses. C. C. Dennie, Kansas City, Mo., and J. H. Bufford, Boston.
60 Alopecia Syphilitica. D. W. Montgomery, San Francisco.
61 Examination and Prophylaxis for Syphilitic Patients and Their Families. H. M. Wright, Boston.
62 Estimate of Cost of Social Work in Connection with Examination and Treatment of Other Members of Families of Syphilitic Patients. M. C. Jarrett, Boston.
63 Economic Facts of Syphilis Problem. D. Gregg, Boston.
64 Case of Fracture of Transverse Processes of Fifth Lumbar Vertebra. L. T. Brown and W. J. Dodd, Boston.
65 Case of Dermatitis Medicamentosa. W. S. Walsh, Providence, R. I.
66 Chemical Aid in Securing Spirocheta Pallida from Syphilitic Lesions. H. D. Lloyd, Boston.

54. **Bladder Tumors in Young.**—Vesical tumors in children, O'Neil says, are a very great rarity. The great majority appear before the fifth year. They are of the connective tissue type and are clinically and pathologically malignant, except in rare instances. Difficulties of micturition are generally the earliest symptom; in the absence of stricture they should excite suspicion. Straining is common. Early diagnosis and operation offer the only hope of recovery.

55. **Kroenig's Isthmus in Pulmonary Tuberculosis.**—Klotz maintains that unless the disparity of the apical percussion field, as expressed in terms of Kroenig's isthmus is marked, it does not necessarily point toward tuberculosis of the corresponding side; that such disparity is also of much less significance on the right side than it is on the left; and that in most instances the disparity of the apical percussion fields is simply due to anatomic changes, unrelated to tuberculosis.

58. **Disinfection of Septic Joints.**—The technic which Cotton emphasizes in the surgical treatment of infected joints may be summarized as follows: Opening of the joint; irrigation for fifteen minutes (by the watch) with a full stream of 1 to 15,000 corrosive sublimate; a flushing out of the excess with salt solution; then a water-tight closure of the capsule by mattress and single sutures in such a way as to leave the synovial membrane cut edge to cut edge, as accurately as may be. Usually the membrane is so swollen as to make this really possible. The external wound is left wide open or nearly so, for the author says, real disinfection of the external soft tissues is not practicable. After operation there may or may not be an effusion into the joint; if an effusion comes it goes again within one to three days, and is not accompanied by temperature or by any considerable discomfort. Cotton has not in these cases, with two or three exceptions, resorted to traction for the separation of joint surfaces. There has seemed to be no pain factor constituting a clinical demand for such treatment, and no theoretical reason for it, for these joints show little or no spasm. About two dozen cases have been treated by this technic, excluding gonococcus cases, not less than fifteen of them representing infections by staphylococci or streptococci; the majority staphylococcus infections. There have been two failures; one a punctured wound of the knee in a male adult. Regaining in the end a good leg. The second case was a knee with an epiphyseal staphylococcic infection in a boy of 3; cleaned out and sutured; later the joint broke down and an ankylosis resulted.

59. **Bacterin Treatment of Pyogenic Dermatoses.**—Seventy cases were selected by Dennie and Bufford for the experiment: acne vulgaris, thirty-five cases; furunculosis, twenty-one cases; folliculitis, fourteen cases. The seventy cases were roughly divided into two groups, one of which was to receive only autogenous and the other stock preparations. In both instances, however, the bacterins employed were made by the authors themselves. No commercial products were used. When the autogenous bacterins were made, a large amount was prepared and the excess used as the stock preparations. An initial dose of not less than one hundred million and not over four hundred million killed organisms was given. The last injection was often two billion. The total number of doses rarely exceeded ten and the interval between was from four to ten days. The administration of bacterins was governed by the local reaction at the point of injection. If this reaction did not occur either at the first or any of the subsequent injections, a new preparation was made and administered. The general reaction was usually so slight that it escaped the attention of the patient. When there was an increase in the intensity or number of eruptive elements, the following dose was much smaller and was given when the untoward symptoms had subsided. If the patient improved up to certain point and then remained at a standstill, a new bacterin was prepared and administered. If the patient grew progressively worse after each injection of bacterin, this mode of treatment was discontinued.

The best results were secured in furunculosis. The action of bacterins in the treatment of sycosis was erratic; in one case of twenty years' duration in which external treatment had been faithfully used for five years and in which stock bacterins had been administered, autogenous bacterins were used with remarkable success. On the other hand two cases were much aggravated by this form of treatment. The average number of doses administered in successful cases was, eight in acne, four in furunculosis and four in sycoses. In nearly all cases the initial dose was two hundred million, and the final, one to two billion, killed organisms. The most favorable interval between doses was found to be five days in acne, four days in furunculosis and seven days in sycosis.

Bulletin of Johns Hopkins Hospital, Baltimore

December, XXVI, No. 298, pp. 391-422

67 *Diagnostic Value of Colloidal Gold Reaction; Method of Preparation of Reagent. S. R. Miller, N. D. Brush, J. S. Hammers and L. D. Felton, Baltimore.
68 *Case of Pulmonary Moniliasis in United States. T. R. Boggs and M. C. Pincoffs, Baltimore.
69 Mixed Tumors (Chondrofibro-Epithelioma) of Choroid Plexus. W. H. Burmeister, Chicago.
70 *Case of Heart Block; Recovery. E. W. Bridgman and J. T. King, Jr., Baltimore.
71 Valuable Additions to Library of Johns Hopkins Hospital. H. A. Kelly, Baltimore.

67. **Diagnostic of Colloidal Gold Reaction.**—This study confirms the conclusions advanced by Miller and Levy in 1914.

68. **Case of Pulmonary Moniliasis.**—With a negative family and personal history the patient whose case is cited by Boggs and Pincoffs applied for treatment on account of what she called a "boil" in the left axilla, which had been present and gradually increased during the three months previous. She had had little or no pain, nor had there been any discharge. On examination a tumor was found in the left breast and the diagnosis of mammary carcinoma with axillary metastases was made. The patient refused operation. Eight months afterward a large fluctuating axillary abscess was incised and drained. At this time there was no cough nor expectoration observed. Four days later she was discharged and told to return for dressings. This she was unable to do, and after five days at home she was admitted to the hospital. During this interval she had developed a severe cough with profuse expectoration of a reddish gray material. The patient was very ill; temperature, 102. The left mammary

gland was larger than the right, and in its lower right quadrant there was a hard, irregular mass; this was freely movable over the underlying tissues and the skin was not adherent to it. The nipple was not retracted and not apparently connected with the mass. The remainder of the gland was of a firmer consistency than normal. The right breast was normal. About 5 cm. from the left arm on the anterior axillary border there was a sinus-opening about 1.5 cm. in diameter; the sinus tract extended upward and posteriorly for about 4 cm. There was a slight sanguineous discharge from it. The infraclavicular and supraclavicular fossae were obliterated by brawny edema of the tissues, which were reddened and hot to the touch. The shoulder and upper arm were diffusely swollen and there was some edema and cyanosis of the forearm and hand. At the end of the third week after a profuse hemorrhage from the sinus, without any hemoptysis the patient died.

In the tissues examined the authors found an organism in close relation to *Monilia candida* (Bonorden). They have adopted the generic name *Monilia* as distinguishing it from *Endomyces albicans* which it somewhat resembles, ascosporulation being an accepted determining feature of the latter genus. Their *Monilia* is morphologically indistinguishable from that described by Ashford for tropical sprue. The organism is actively pathogenic for rabbits, intravenous injection producing disseminated lesions in the kidney cortex, intestinal lymph follicles and liver, as well as in the striped and unstriped muscles, death occurring in one to eight days. Intratracheal injection in rabbits led to localized pneumonia-like lesions in the lungs with pleurisy and late involvement of other viscera. The organism has been recovered in pure culture from the experimental lesions of rabbits.

70. **Case of Heart Block.**—The case reported by Bridgman and King is that of a negro man, with complete heart block, Adams-Stokes syndrome, and a strongly positive Wassermann reaction, who, after antisyphilitic treatment for a period of less than five weeks, developed practically normal conduction time and became symptomatically well, the Wassermann reaction being negative on two occasions four months later. Of special interest was the appearance of electrophonograms which show auricular sounds during complete block, and after normal rhythm had been resumed. The time of the auricular sound is just after the onset of auricular systole, and no sound is apparent at the end of auricular systole.

California State Journal of Medicine, San Francisco

December, XIII, No. 12, pp. 455-496

72 Amputations and Their After-Treatment. L. Eloesser, San Francisco.
73 Clinical Records. E. S. Kilgore, San Francisco.
74 Application of Anoci-Association to Obstetrics. C. L. Hoag, San Francisco.
75 Treatment of Congenital Syphilis. H. Lisser, San Francisco.
76 Routine Roentgenographic Demonstration of Gallstones. C. W. Lippman, San Francisco.
77 Use of Roentgen Ray as Aid in Surgical Diagnosis. F. R. Fairchild, Woodland.
78 Which Is Preferable Operation, Perineal or Suprapubic Prostatectomy? C. R. Harry, Stockton.
79 Twilight Sleep. M. Cosgrove, San Francisco.
80 Glandular Polypus of Colon. G. H. Aiken, Fresno.

Cleveland Medical Journal

October, XIV, No. 10, pp. 631-712

81 Fight Against Tuberculosis in Cleveland. R. H. Bishop, Jr., Cleveland.
82 Opportunities for Social Service at Cleveland City Hospital. H. Wright, Cleveland.
83 Importance of Prophylaxis in Care of Infants and Young Children. C. W. Wyckoff, Cleveland.
84 Possibilities of Future Development in Service Rendered by Hospital to Community. A. R. Warner, Cleveland.
85 Prevention of Systemic Diseases Arising from Mouth Infections and Purpose and Plan of Research Institute of National Dental Association. W. A. Price, Cleveland.
86 Prevention of Blindness. H. L. Leete, Cleveland.
87 Problem of Feebleminded, Insane and Epileptic. H. H. Drysdale, Cleveland.
88 Treatment for Crippled Children at Rainbow Hospital, Cleveland. A. Patton, Cleveland.
89 Hospital and Public Pocket Book. E. Street, Cleveland.

Delaware State Medical Journal, Wilmington

September, V, No. 10, pp. 1-26

90 Use of Liquid Chlorin for Sterilizing Water. J. A. Kienle, Wilmington.
91 Retrorectal Infections. C. F. Martin, Philadelphia.

Journal of Cutaneous Diseases, New York

December, XXXIII, No. 12, pp. 787-866

92 Precancerous Dermatoses; Sixth Case of Type Recently Described. J. T. Bowen, Boston.
93 Pathology of Syphilis. J. A. Fordyce, New York.
94 *Comparative Toxicity of Various Preparations of Mercury. J. F. Schamberg, J. A. Kolmer and G. W. Raiziss, Philadelphia.
95 Cutaneous Lesion Caused by New Fungus (Phialophora Verrucosa). C. G. Lane, Boston.
96 *Heliotherapy in Diseases of Skin; Report of Cases. H. P. Towle, Boston.

94. **Toxicity of Mercury.**—It is stated by the authors that the toxicity of the various mercurial salts is directly proportionate to the amount of pure mercury contained, and that the inorganic salts, as represented by mercuric chlorid, are no more toxic than the numerous organic combinations that are commonly employed. The differences in the molecular structure of the mercury compounds tested by the authors were found to be of relatively little importance as affecting their toxicity. Mercuric chlorid was fatal, on the average, in intravenous doses above 2 mg. per kilogram of body weight; administered intramuscularly it was fatal on the average, above 6 mg. per kilogram of body weight. The average relationship as to the toxicity between the intravenous and intramuscular administration of mercury, in general, was about 4 to 1.

The authors found that the insoluble preparations such as gray oil, calomel and the salicylate of mercury are absorbed at the rate of a little over 1 per cent. of the injected amount per day. Even at the end of six or seven weeks, almost 50 per cent. of the mercury of insoluble preparations may be unabsorbed at the site of the injection, hence the injection of the usual doses of insoluble mercurial compounds at weekly intervals, must invariably lead to accumulation of the drug in the tissues. It is advised that insoluble mercurial injections be given only by the skilled physician after careful consideration of the dose and of the intervals of administration. Mercury has a great affinity for the cells of the kidney, and this organ is one of the earliest involved in mercurial intoxication; hence during the intensive treatment with mercury, the necessity of careful examination of the urine from time to time should be emphasized. Calcification of the degenerated tubular cells has been found within forty-eight hours after the administration of mercury, and always occurs in severe mercury nephritis, irrespective of the salt administered or the route of injection.

96. **Heliotherapy in Diseases of Skin.**—So far as the series of a case cited by Towle shows, the lesson is that graded exposures of the body to the rays of the sun promote general bodily vigor, discourage the growth of bacteria, decongest inflammation, encourage resorption of pathologic exudates and of scar tissues, stimulate epidermization, cellular multiplication and reconstruction, and, above all, tend to relieve pain. Several varieties of pus-forming affections were treated by heliotherapy, invariably with positive results.

Lancet-Clinic, Cincinnati

November 20, CXIV, No. 21, pp. 445-464

97 Report of Neurologic Department of Cincinnati Hospital from 1894 to 1914, Inclusive. R. Ingram, Cincinnati.
98 The Crystalline Lens System and Its Relation to Cataract Formation. L. Stricker, Cincinnati.

November 28, No. 22, pp. 465-484

99 Etiology and Treatment of Heart Disease. P. D. White, Boston.
100 Four Cases of Acute Abdomen; Four Necropsies; Four Surprises. J. F. Baldwin, Columbus.
101 Principles of Harelip and Cleft Palate Surgery. J. R. Eastman, Indianapolis.
102 Psychotherapy of Inoperable Cancer. E. O. Kane, Kane, Pa.
103 Rest; Most Important Single Factor in Treatment of Tuberculosis. L. B. Morse, Hendersonville, N. C.

Maine Medical Association Journal, Portland

November, VI, No. 4, pp. 169-192

104 Senile Heart. H. R. Farris, Oxford.
105 Blood Pressure and Some of Its Clinical Values. C. H. Witherell, Oakland.

Medical Record, New York

December, 4, LXXXVIII, No. 23, pp. 945-990

106 Milk-Borne Septic Sore Throat — New Health Problem. H. M. Biggs, New York.
107 Some of Automatic Balances in Human Body. R. C. Newton, Montclair, N. J.
108 Women in Medical Profession. M. Glasgow, New York.
109 Fermented Milk and Whey in Infant Feeding. A. E. Mucklow, Brooklyn.
110 Connellan-King Diplococci Infections of Throat, with Especial Reference to Rheumatism; Report of Cases. J. J. King, New York.
111 Rectal Operations. W. F. Burrows and E. C. Burrows, New York.

December 11, No. 24, pp. 991-1032

112 Case of Spontaneous Pyopneumothorax Complicated by Hydropneumopericardium or Pyopneumopericardium. A. Meyer, New York.
113 Case of Auricular Flutter Accompanying Acute Endopericarditis. S. Neuhof, New York.
114 Five Teaspoons Removed from Intra-Abdominal Abscess After Perforating Small Intestine. B. T. Tilton, New York.
115 Ideal Nasolaryngeal Inhaler. C. E. Dressler and A. Kahn, New York.
116 Causes and Cure of Infective Diseases of Kidneys. D. B. McCartie, Newark, N. J.
117 Study of Psychoses Associated with Cerebral Arteriosclerosis. J. Nack, Washington, D. C.
118 Gastro-Albumorrhea in Gastric Cancer. M. Kahn and I. Jacobowitz, New York.
119 How to Blow the Nose. E. H. Griffin, New York.

Military Surgeon, Chicago

November, XXXVII, No. 5, pp. 411-522

120 Asphyxiating Gases in Warfare. G. A. Lung, U. S. Navy.
121 Brain Surgery in War. J. Frank, Chicago.
122 Transportation of Ambulance Companies. E. C. Jones, U. S. Army.
123 An Endeavor to Improve On First Aid Tag Now in Use in United States Army. H. H. Smith, U. S. Army.
124 Real Medical Reserve Corps. G. M. Blech, Chicago.
125 Syphilis as Cause of Mental Disease in Military Service. L. L. Smith, U. S. Army.

New York Medical Journal

December 4, CII, No. 23, pp. 1121-1168

126 Arteriosclerosis as Cellular Disease. L. F. Bishop, New York.
127 Prostatisme Sans Prostate. (To be continued.) A. Randall, Philadelphia.
128 Bollinger Case. H. J. Haiselden, Chicago.
129 Puerperium. J. O. Arnold, Philadelphia.
130 Duodenal Ulcer. S. F. Mullins, Danbury, Conn.
131 Syphilis of Cardiovascular and Renal Systems. J. H. Barach, Pittsburgh.
132 Case of Persistent (Eleven Years) Gonococcus Infection. M. Zigler, New York.
133 Gastro-Enterostomy. J. B. Haeberlin, Chicago.

December 11, No. 24, pp. 1169-1216

134 History of Pellagra. C. H. Lavinder, Ellis Island.
135 Epidemiology of Typhus. J. F. Anderson, New Brunswick, N. J.
136 Typhus in Serbia. J. Rudis-Jicinsky, Chicago.
137 Prostatisme Sans Prostate. A. Randall, Philadelphia.
138 Dislocation of Semilunar Bone; Report of Case. E. L. Bebee, Buffalo.
139 Artificially Fed Infants. I. H. Goldberger, New York.
140 Nontoxic Antiseptic. D. H. Stewart, New York.
141 Diabetes. L. H. Levy, New Haven, Conn.
142 Chauffeur's Knee. G. F. Boehme, Jr., New York.

December 18, No. 25, pp. 1217-1264

143 Maternity Insurance. L. K. Frankel, New York.
144 Soluble Radium Salts in Organic Nervous Diseases. A. Gordon, Philadelphia.
145 Roentgen Ray Diagnosis of Gastric Lesions. J. W. Squires, Charlotte, N. C.
146 New Tonsil Depressor. J. H. Heacock, New York.
147 Treatment with Mixed Vaccines. A. A. Thibaudeau, Buffalo.
148 Retroversion of Uterus. A. N. Clagett, Chicago.
149 Allen Treatment in Diabetes Mellitus. A. Bookman, New York.
150 Weight Increase. R. H. Rose, New York.
151 Tetany in Adult Following Poisoning from Ergot. H. W. Emsheimer, New York.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

November, XXI, No. 5, pp. 183-226

152 First Aid Conference. J. C. Bloodgood, Baltimore.
153 Three Pseudonyms of Early Tuberculosis. F. H. Smith, Abingdon.
154 Obstructive Hyperemia as Substitute for Irrigation and Packing in Certain Infections. M. P. Rucker, Richmond.
155 Diphtheria Diagnosed Therapeutically. O. C. Brunk, Richmond.

Ophthalmic Record, Chicago

November, XXIV, No. 11, pp. 547-600

156 Ocular Phenomena Accompanying Three Cases of Gastro-Intestinal Disorder. H. Woods, Baltimore.
157 Iritis Due to Influenza. W. Reber, Philadelphia.
158 Systemic Diseases Affecting Ocular Tissues. F. Brawley, Chicago.
159 Relations of General Diseases to Ophthalmology. C. P. Small, Chicago.
160 Operation for Secondary Cataract. A. S. Green and L. D. Green, San Francisco.
161 Congenital Aphakia with Microcornea. E. Adams, Chicago.

Pennsylvania Medical Journal, Athens

November, XIX, No. 2, pp. 65-148

162 Public and Medical Profession, Square Deal. H. B. Favill, Chicago.
163 *Treatment of Fractures, Lost Art. J. B. Roberts, Philadelphia.
164 Treatment of Complicated Fractures and Present Opinion of Operative Treatment. J. B. Lowman, Johnstown.
165 *Rectal Anesthesia in Thyroidectomy. W. Lathrop, Hazelton.
166 *Heart of Athlete; Its Prospect and Protection. R. N. Willson, Philadelphia.
167 Evil Effects of Delayed Operation in Malignancy. C. B. Longenecker, Philadelphia.
168 *Report of Commission on Cancer. J. M. Wainwright, Scranton.
169 Syphilis of Nose and Throat. C. P. Grayson, Philadelphia.

163 and 165. Abstracted in THE JOURNAL, Oct. 16, 1915, pp. 1399 and 1400.

166 and 168. Abstracted in THE JOURNAL, Oct. 9, 1915, pp. 1304 and 1303.

Public Health Journal, Toronto

November, VI, No. 11, pp. 533-590

170 Medical Profession and War; Cancer Problem. W. H. B. Aikins, Toronto.
171 Duty of City to Child. C. S. Walters, Hamilton.
172 History of Organization of Babies' Dispensary Guild, Hamilton. J. H. Mullen, Hamilton.
173 Scope and Function of Medical Staff of Babies' Dispensary, Hamilton. W. L. Cody, Hamilton.
174 Possibilities of Women's Work in Relation to Babies' Dispensary, Hamilton. H. M. W. Smith, Hamilton.
175 Opportunities of Medical Health Officers. W. H. Hattie, Nova Scotia.
176 Immigration of Mentally Unfit. J. D. Page, Quebec.

Texas State Journal of Medicine, Fort Worth

November, XI, No. 7, pp. 361-412

177 Drainage of Peritoneal Cavity. W. W. Grant, Denver.
178 Intestinal Paresis with Special Reference to Postoperative Complications. F. W. Parham, New Orleans.
179 Anatomy and Physiology of Colon from Surgical Standpoint. K. H. Aynesworth, Waco.
180 Relation of Appendicitis and Duodenal Ulcer. C. W. Flynn, Dallas.
181 Sliding Hernia of Colon. R. W. Knox, Houston.
182 Peritoneal Adhesions, Preoperative and Postoperative. T. J. Bennett and Z. T. Scott, Austin.
183 Use of Fascia in Plastic Mastoid Work. E. R. Carpenter, El Paso.
184 Important Symptoms which Require Labyrinthine Operation; Report of Cases. J. W. Head, Fort Worth.
185 Two Cases of Labyrinth Disease with Operations. J. H. Foster, Houston.
186 Splanchnoptosis. C. A. L. Reed, Cincinnati.

Washington Medical Annals

November, XIV, No. 6, pp. 297-383

187 Scarlet Fever; Morbidity and Fatality. H. H. Donnally, Washington, D. C.
188 Case of Hereditary Syphilis. M. A. Reasoner, U. S. Army.
189 Evolution of Man in Light of Recent Discoveries and Its Relation to Medicine. A. Hrdlicka, Washington, D. C.
190 Two Cases of Spastic Paralysis. R. F. Dunmire, Washington, D. C.
191 Rectal Examinations During Labor. P. Willson, Washington, D. C.
192 Feeding the Sick, Well and Economical Feeding. P. S. Roy, Washington, D. C.
193 *Case of Boric Acid Poisoning. P. Willson, Washington, D. C.
194 Nitrous Oxid and Oxygen in Obstetrics. J. A. Talbott, Washington, D. C.
195 Case of Amputation of Right Upper Extremity Including Clavicle, Scapula and Humerus. G. T. Vaughan, Washington, D. C.
196 Case of Congenital Visceral Syphilis. B. M. Randolph, Washington, D. C.
197 Why Members of Medical Profession Should Receive Higher Compensation Than Other Professions and Scientific Workers. G. H. Heitmuller, Washington, D. C.

193. **Case of Boric Acid Poisoning.**—A baby 7 weeks and 6 days old was given about 3 ounces of a saturated solution of boric acid instead of boiled water. Shortly after this the baby was nursed, but vomited during the nursing, so that this was discontinued and 3 more ounces of the boric acid solution were given. This was in the afternoon. In the evening

the baby had many copious movements which soon became nothing but clear, jelly-like mucus. The vomiting and purging continued for about thirty-six hours, gradually decreasing in severity. The day following the administration of the poison there was a little blood in the movements and once a considerable stain in the vomitus. The baby refused to nurse and rapidly lost weight. There was no fever. So far the picture was one of an acute gastro-enteritis of moderate severity, from a chemical irritant. Two days after the first ingestion there appeared a slight miliary eruption on the neck, chest and back. The disease ran its course rapidly and the peeling was completed in about ten days. The baby rapidly regained a normal condition.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

July, XXXVIII, Parts I-II, pp. 1-190

1 Hughlings Jackson on Aphasia and Kindred Affections of Speech. H. Head.

British Journal of Children's Diseases, London

November, XII, No. 143, pp. 321-352

2 Congenital Heart Block. T. R. Whipham.
3 *Occurrence of Acidosis in Children. E. C. Williams.
4 Case of Primary Bronchial Diphtheria. W. M. Smith.
5 Two Cases of Lymphangioma of Conjunctiva. E. M. Maxwell.

3. **Occurrence of Acidosis in Children.**—Williams has analyzed the symptoms in thirteen cases. Of these cases five occurred in boys, the remainder being girls. All the children were under 11 and over 3 years of age. Three patients presented on admission symptoms suggestive of meningitis, but on examination of the cerebrospinal fluid, which was under considerable pressure, showed no cytologic changes or organisms; examination of the urine, however, showed the presence of acetone and diacetic acid in varying degrees. Two cases of mussel poisoning (mytiloxtoxin) and one case of ice-cream poisoning showed marked acidosis. In the two cases of mussel poisoning nervous symptoms were predominant, whereas in the ice-cream poisoning there was pyrexia with great remissions of temperature. In one patient acidosis preceded pneumonia (for seven days) and in another patient the acidosis occurred during the course of a pneumonia, and in a third patient whose urine was found on admission to contain sugar, the sugar quickly disappeared, but the patient developed signs of pneumonia with acidosis, which were followed by an empyema. In one case admitted in a practically moribund condition, the postmortem revealed suprarenal hemorrhage. One patient sent into the hospital as dysentery suffered from vomiting, colicky pains in the abdomen, with blood and mucus, symptoms suggestive of an intussusception; the intense acidity of the urine and the quick response to treatment by alkalies showed the symptoms to be caused by acidosis due to some unknown cause. A child admitted into the hospital drowsy and irritable, with a high temperature developed at the end of a week a systolic murmur. The urine on admission was acid and contained acetones and diacetic acid (no salicylates were given); alkali treatment and glucose caused loss of drowsiness.

Williams urges that it is important in all cases of doubtful origin in young children that the urine should always be carefully examined for diacetic acid and acetones, as well as for the *Bacillus coli*. Treatment consisted of sodium bicarbonate in doses up to 1 dram hourly in an effervescent mixture, and potassium citrate, half a dram, with glucose, 1 dram, by rectum every four hours.

British Medical Journal, London

November 27, II, No. 2865, pp. 769-800

6 Spinal Injuries of Warfare. G. Holmes.
7 *Malignant Tumor of Kidney. R. J. Willan.
8 *Easy Method of Detecting S. Pallida and Other Spirochetes. A. C. Coles.
9 Simple Method for Cultivation of Anerobic Organisms. L. Dimond.
10 Treatment of Wound Infections by Antiseptics. C. A. Morton.

7. **Malignant Tumor of Kidney.**—Excluding children, 63.2 per cent. of the fifty-nine cases analyzed by Willan occurred between the ages of 45 and 65. Ten cases occurred in children under the age of 10; in each case the condition was sarcoma. Of the 49 adult cases, 14 occurred between the ages of 45 and 55, a percentage of 28.5. Of the series 63.8 per cent. were males. In thirty-one instances the malignant growth affected the left side and in twenty-six the right side. In two cases the side affected was not stated. In seven cases of the series the actual onset symptom is not stated. Of the remaining fifty-two cases, painless hematuria was observed in fourteen cases. In ten cases the illness was ushered in by acute renal colic, while in ten other cases a painless swelling found in the flank was the first evidence of anything wrong; nine cases began with chronic pain in the flank, while five patients suffered from cachexia before any sign of malignant growth of the kidney became manifest. In two cases there was increased frequency of micturition at onset, another went to his physician for a varicocele, while the remaining one had "swelling of the bowels." In eleven instances there had never been any pain before the case came under observation. Either painless hematuria or the accidental discovery of a flank swelling, separately or in combination, led the patient to think there was something amiss.

Hematuria is an important link in the chain when making a diagnosis of malignant disease of the kidney; this symptom was definitely present in twenty-four cases out of fifty-two; that is, in 46 per cent. A renal swelling was present in forty-nine cases; in four cases it was definitely stated that no tumor could be palpated, while in six cases the records are incomplete. Cachexia was an onset symptom in five cases. In three cases there was a left-sided varicocele, in addition to a malignant renal tumor on the same side. Two of the patients had retention of urine due to clotting following painless hematuria, and in each case the physician was only called in when the patient had complete retention. One case of sarcoma was complicated by persistent glucosuria; he did well after nephrectomy. Several of the cases had chronic nephritis.

8. **Method of Detecting Spirochetes.**—Coles claims that the method which he has devised renders the detection of *S. pallida* or any other spirochete as easy as that of the tubercle bacillus in sputum. It depends on the following principles. 1. That structures which are colored with a fluorescent dye—for example, eosin, fuchsin, fluorescein, etc.—when examined on a dark ground, stand out prominently, while blue-stained structures are inconspicuous. 2. That if the medium in which the red-stained organisms lie be of low refractive index, they are exceedingly conspicuous by dark ground illumination, and can be detected with a comparatively low power, but if mounted in balsam, cedar oil, parolein, or water, they are only seen with the greatest difficulty. The method briefly consists in examining a film containing spirochetes, stained in the usual way with Giemsa or Leishman's stain, dry, not mounted in any medium, with dark ground illumination, using a dry lens of medium power.

Dublin Journal of Medical Science

November, III, No. 527, pp. 321-400

11 Royal College of Surgeons in Ireland and War. F. C. Dwyer.
12 Use of Salvarsan. H. C. Smyth.

Glasgow Medical Journal

November, LXXXIV, No. 5, pp. 321-400

13 Case of Erythremia. G. H. Clark.

Lancet, London

November 27, II, No. 4813, pp. 1173-1232

14 Common Intestinal Protozoa of Man. C. M. Wenyon.
15 *Recognition and Isolation of Meningococcus in Nasopharynx of Cerebrospinal Fever Contacts. J. McIntosh and W. E. Bullock.
16 Double Episiotomy During Labor. J. Phillips.
17 Nitrogen Balance in Diabetes Mellitus and Its Importance in Treatment. P. J. Cammidge.
18 Ophthalmic Notes in General Hospital in Egypt. C. W. Wirgman.

15. **Meningococcic Carriers.**—Apart from the fact that the meningococcus presents no distinctive staining reactions, there are several other bacteria occurring in the throat which can

be differentiated from it only by complicated reactions, and perhaps not always even then. After giving extensive trials to a number of different mediums, the one which McIntosh and Bullock have found most satisfactory is serum agar of the following composition: nutrient 3 per cent. agar, 3 parts; horse serum, unheated, 1 part. The nutrient agar should be neutral to phenolphthalein and made from beef broth. On this medium the meningococci will grow with great rapidity, and after having undergone one or two subcultivations will live several weeks without further subculturing. The authors are convinced that meningococcus carriers are less frequent than is generally believed; and given an easy, rapid and definite means of detecting the meningococcus in the nasopharynx, it should be possible to check an epidemic of cerebrospinal fever in any small community or body of men, namely, a military unit in which the movements of individuals are under control.

Sei-I-Kwai Medical Journal, Tokyo

November, XXXIV, No. 11, pp. 53-58

19 *Primary Carcinoma of Liver. M. Okazaki.
20 Case of Acute Pancreatitis. T. Tsuuno and S. Takahashi.
21 Roentgen Ray in Surgery. H. Hida.

19. **Carcinoma of Liver.**—Okazaki examined the accounts of 721 postmortem cases in the pathologic laboratory of Tokyo Charity Hospital medical college and obtained twelve cases of primary cancer of the liver, 1.7 per cent. Splenic enlargement was present in 41.7 per cent.; ascites in 91.7 per cent.; edema in 66.7 per cent.; jaundice in 58.3 per cent. The tumor almost always occurred in the right lobe and was either single or multiple. The dissemination through the liver was constant, but in one case the tumor was limited to the right lobe. In nine cases out of twelve the liver was enlarged. It was normal in one case and atrophied in two cases. Metastasis was noticed in seven cases, seven cases also had a cirrhosis of the liver.

Archives de Médecine des Enfants, Paris

October, 1915, XVIII, No. 10, pp. 517-572

22 *Origins of Sydenham's Chorea. J. Comby.
23 Malformation of Skull and Face with Exophthalmos and Divergent Squint in Mother and Son. (Dysostose cranio-faciale héréditaire.) O. Crouzon.
24 Another Family with Malformation of Skull and Face in Seven Members in Two Generations. O. Crouzon.
25 Mongolian Blue Spot in Brazilian Children. (La tache bleue mongolique a São Paulo.) C. Ferreira.

22. **Multiple Origin of Chorea.**—Comby found evidence of syphilis in only seven of thirty-nine children with chorea; the skin tuberculin test was positive in twenty-four of the thirty-nine, and there was a history of acute articular rheumatism in six, but there were evidences in eight that the heart had been touched. All promptly recovered under two weeks' quiet in bed, a cup of milk every two hours as the only food, and arsenic pushed to the limit of tolerance in progressive doses for five days, then beginning the series anew, keeping up the arsenic for nine days.

Bulletin de l'Académie de Médecine, Paris

Nov. 9, 1915, LXXIV, No. 45, pp. 509-528

26 *Tetanus Restricted to Nerves in Injured Limb. (Une observation de tétanos localisé précoce.) S. Pozzi.
27 *Acute Nephritis in the Troops in Active Service. J. Parisot and P. Ameuille.
28 *Heliotherapy of the Wounded. (Action biotique de la lumière solaire; cure solaire des blessés en hiver.) M. de Laroquette.
29 *Local Treatment of Wounds with Horse Serum. (Le traitement des plaies par le sérum de cheval, quelques considérations sur son action et son mode d'emploi.) J. Lignières. (Buenos Aires).
30 Alcohol an Important Factor in Abnormally High Blood Pressure. (L'alcoolisme, cause d'hypertension artérielle.) C. Lian.

26. See Paris Letter, Dec. 11, 1915, p. 2102.

27. **Acute Nephritis Among the Soldiers on Active Service.**—Parisot and Ameuille relate that 1 per cent. of the soldiers in the base hospitals present evidence of acute nephritis of rapid development, with large amounts of albumin, but never any tendency to hematuria. In some the onset of the nephritis was marked by extreme edema, but under rest and dieting the storm entirely subsided in a week or two. In other cases the symptoms suggested meningeal trouble or typhoid stomach derangement, but it proved to be the work of a latent uremia. These cases, with 4 or 6 gm. of albumin each day and early anuria generally terminated fatally within a few days. In a third group of cases, there were no symptoms but fever and headache, and the discovery of the intense albuminuria was a surprise. It subsided completely in a week while the fever also subsided. The blood seemed to be sterile and agglutination tests were negative. The cause of the nephritis was a mystery in all these groups. The hypochlorite sterilization of the water could not be incriminated as this water was used only occasionally in making coffee, the men having native wines to drink. The typhoid inoculation six, eight or ten months before could not be responsible for the nephritis after such an interval. Most of the cases were in warm weather, so abnormal chilling was not a factor. The only plausible explanation seems to be that the stress of the campaign had rendered the kidneys more susceptible. The urine should be examined for albumin during periods of physical and mental stress as regularly as the temperature is tested. The course of the nephritis in his case seemed to be milder, the earlier treatment was instituted.

28. **The Biologic Action of Sunlight.**—De Laroquette's study of plants kept in greenhouses with colored glass has convinced him that the manifestly favorable action of sunlight on the tissues is not due exclusively nor even mainly to the chemical rays. Plants thrived in yellow light and did not thrive in blue light. The luminous rays are most active and the yellow are the most active of all. Exposure to the sun's rays in a greenhouse avoids chilling from wind while the heliotherapy proceeds undisturbed, the glass filter not cutting off the effect. He urges that well-ventilated greenhouses should be utilized in the care of the wounded, graduating the glare with photographers' screens. Yellow glass can be used at first, as this is less irritating. When there is no sunshine, the exposures can be continued with artificial light.

29. **Horse Serum in Treatment of Wounds.**—Lignières has been studying since 1905 the action of horse serum in treatment of wounds. He tried it first on the horse and was amazed at the rapid healing under it. He also discovered that serum drawn twenty-four hours after the first blood-letting had always a greater curative action than serum from the first. This is due probably to the regenerating processes going on after the first blood-letting. Carnot calls serum drawn in this way "hemopoietic serum." He advises keeping one or two horses for the purpose, drawing 5 or 6 liters one day and the same amount the next day. This can be repeated every fifteen or twenty days according to the demands. Compresses are dipped in the serum thus derived without heating, and are changed once or twice in the twenty-four hours. If it is to be kept for some time or transported he advises adding phenol, less than 0.5 per cent.

Lyon Médical, Lyons

October, 1915, CXXIV, No. 10, pp. 313-344

31 The Food of the French Army. (L'alimentation aux armées.) G. Mouriquand.

November, No. 11, pp. 345-376

32 *Semeiologic Importance of Modification of Tendon Reflexes Under Chloroform. J. Babinski and J. Froment.

32. Summarized in these columns, Dec. 11, 1915, p. 2124.

Paris Médical

Nov. 13, 1915, V, No. 27, pp. 465-480

33 *Medical Geography in Serbia. (Les fièvres danubiennes: Notes sur la constitution médicale endémo-épidémique serbe.) P. Gastou.
34 Staff for Plaster Casts. (Appareils plâtrés en staff.) V. Aubert.
35 Ferrous Sulphate Test for Picric Acid in the Urine with "Picric Jaundice." A. le Mithouard.
36 Scrap of Shell in Tongue Without Reaction. L. Ferrand.

33. **Medical Geography in Serbia.**—Gastou relates that in his recent experience with an ambulance corps in Serbia he

noticed that in the northern part of the country epidemics and diseases in general seemed to have a special character under the influence of the pathogenic microbes infesting the soil and water under local climatic conditions. He discusses in turn the periodically recurring types of the regional fevers, the endemic septicemic and gastro-intestinal types, malaria, and other types suggesting Malta fever or kala-azar.

Presse Médicale, Paris

Nov. 22, 1915, XXIII, No. 57, pp. 465-472

37 The Practical Application of Experimental Medicine. H. Roger.
38 Refractometer in Diagnosis of Acute Meningitis from Cerebro-spinal fluid. (La réfractométrie du liquide céphalo-rachidien.) A. and A. A. Babes.
39 Compass Technic for Localization of Foreign Bodies. (Technique, observations et résultats de l'emploi du compas de Hirtz dans la localisation et l'extraction des corps étrangers.) B. Desplas and D. Chevalier.

Deutsche medizinische Wochenschrift, Berlin

Oct. 21, 1915, XLI, No. 43, pp. 1265-1296

40 *Plastic Operation on the Thyroid Cartilage Corrects Consequences of Paralysis of One Vocal Cord. (Plastik am Schildknorpel zur Behebung der Folgen einseitiger Stimmbandlähmung.) Payr.
41 Improved Technic for Amputations. (Verbesserung des Grittischen Amputationsstumpfes.) M. Wilms.
42 Experimental Infectious Jaundice. (Zur Aetiologie der Weilschen Krankheit.) Huebener and Reiter.
43 Production of Immune Bodies by Various Typhoid Vaccines. (Immunkörperbildung verschiedenartiger Typhusimpfstoffe.) O. Löwy.
44 Old and New Problems in Regard to Tetany in Infants. E. Klose.
45 *Simplified and Rapid Method for Determination of Albumin and Sugar in the Urine. (Schnellmethoden zur quantitativen Bestimmung von Eiweiss und Zucker im Harn.) E. Lenk.
46 Principles for Construction of Artificial Legs. J. Dollinger. Commenced in No. 42.
47 Artificial Leg After Wladimiroff-Mikulicz Amputation. Gaugele.
48 War and the Public Health. (Krieg und Gesundheitsfürsorge.) A. Gottstein. Commenced in No. 42.

November 4, No. 45, pp. 1325-1356

49 *Study of an Epidemic of Typhus. Otto.
50 *Vaccination Against Typhoid and Diagnosis of Typhoid in the Vaccinated. (Typhusschutzimpfung und Typhusdiagnose.) Hage and Korff-Petersen.
51 *Enlargement of the Spleen After Vaccination Against Typhoid. (Impf-Milzschwellung und Typhusdiagnose.) C. Hirsch.
52 Treatment of Gunshot and Shell Wounds of the Chest. (Zur Beurteilung und Behandlung der Brustschüsse.) W. von Brunn.
53 Search for and Removal of Projectiles. (Das Aufsuchen und die Entfernung von Geschossen.) C. Schwenk.
54 New Viewpoints in Surgery. E. Engel.
55 *Chronic Pancreatitis. M. Einhorn (New York). Commenced in No. 44.
56 *Necessity for Individualizing in Infant Feeding. (Das individuelle Moment in der Säuglingsernährung.) A. Niemann.
57 The Declining Birth Rate and the Medical Profession. (Die Stellung der Aerzte zur Frage des Geburtenrückgangs.) T. Hoffa.

40. **Plastic Operation to Correct Paralysis of Vocal Cord.**—Payr gives an illustrated description of the technic with which he succeeded in curing a young man who had suffered for two years from the effects of unilateral paralysis of the recurrent nerve. The voice is now permanently good.

45. **Simple Tests for Albumin and Sugar in the Urine.**—The albumin test is complete in ten and the sugar test in three minutes by Lenk's technic. Albumin, enzymes, etc., are adsorbed by negative substances like kaolin, charcoal, pulverized pumice stone, etc. If these are mixed with the urine after addition of Esbach's reagent, as the particles settle to the bottom of the dish they carry the albumin down with them. This proceeds more rapidly the heavier the substance. He uses pulverized pumice-stone; this drops rapidly to the bottom of the dish and carries the albumin with it, so that in ten minutes the albumin is precipitated as completely as not until after twenty-four hours by the usual technic. The Esbach reagent is a mixture of 5 gm. picric acid with 10 gm. citric acid in 500 c.c. water. His simplification of the Fehling test for sugar is to apply it to a single drop of the urine on a watch glass. This shows in three minutes the characteristic changes in tint without waiting for it to occur in a larger amount of the fluid. The minute details of these simplified tests are given.

49. **Typhus.**—Otto describes the measures taken in a large camp of war prisoners to stamp out typhus which was constantly being imported anew. The measures were directed to "unlousing" the men, thorough soaping, bathing and shaving while the barracks were being washed out with hot 5 per cent. kresol soap solution, and their clothing and bed sacks were being disinfected with steam, and the straw filling burnt. Before a man was admitted to the hospital he was bathed anew and examined for lice. The hospital quarters were thus kept free from vermin and no contagion occurred in the hospital personnel, but some contact cases developed among the attendants in charge of the unlousing. As there were only sixty-five cases in all, epidemiologic features could be studied with exceptional completeness.

50. **Diagnosis of Typhoid in the Vaccinated.**—This communication reports the conclusions from extensive, parallel application of the various diagnostic tests to determine their reliability after antityphoid vaccination. They are to the effect that agglutination is of no use whatever under these circumstances; the deviation of complement is also useless soon after vaccination, and is never a reliable substitute for the agglutination test; the blood picture cannot be relied on until from four to six weeks after the last vaccination, but the urochromogen in the urine does not seem to be modified by the vaccination, so that Weiss' potassium permanganate test has the same diagnostic significance as under other conditions. Typhoid bacilli were cultivated from the blood in ten of twelve cases, but only with repeated attempts in some.

51. **Enlargement of the Spleen After Vaccination Against Typhoid.**—Hirsch remarks that active immunization against typhoid may alone cause the spleen to enlarge temporarily.

55. Practically the same as article in The Journal, July 10, 1915, p. 149.

56. **Individualizing in Infant Feeding.**—Niemann declares that the proportion of women who are unable to suckle their infants is certainly smaller than the percentage of infants who are unable to nurse or do not thrive on breast milk. Attention has been concentrated hitherto on the preparation of the artificial food for such infants, and too little heed paid to the infants themselves. Our premises as to infant feeding are based on averages, but the babe at the breast does not get an average milk, but a particular milk from a particular woman at a particular time. The milk comes out of the darkness and disappears into the darkness without anyone seeing it. The child gets its food thus fresh and unmodified by air and light, which we know soon start destructive processes in the fat of milk even when the milk seems still fresh and sweet.

The child gets varying amounts of milk from the breast at different times, and the composition of the milk probably fluctuates from time to time. This entails a variety in the infant's food which Nature evidently intends, but which is lacking in artificial feeding. The better the care given the bottle baby, the greater the monotony in the regular amounts and in the composition of the artificial food given it, and Niemann queries whether this monotony may not be the cause or one of the causes why bottle babies do not thrive so well as the breast fed, especially in institutions. It seems to be impossible for institutions to show such fine specimens of artificially fed infants as are often raised on the bottle even in the homes of the poor. Some variety in quality and quantity according to the individual needs at the time is certainly advisable for a certain proportion of infants at least.

Niemann relates further experiences which demonstrate that certain infants thrive better on less water than others. In combating a tendency to vomit, he has given quite young infants the usual milk mixture without the water, thus more like a thick soup, and the children thrived well on it. The chart of one is given showing the regular increase in weight on half the usual amount of water. During the fifth month the weight became stationary and increasing the amount of water did no good, but the development became normal again when the amount of the milk mixture was increased

Other children need even more than the ordinary amounts of fluid; Heubner has reported a case in which the child did not thrive on its mother's unusually concentrated milk until it was given the lacking water, in the form of tea. It is our task to learn which infants need more and which less water. The same applies to carbohydrates and fats.

There must be constitutional factors at work. Some infants react to a test dose of carbohydrates with reduced output of urine. In some the same dose runs up the sugar content of the blood, while in others neither the diuresis nor the blood picture shows any modification. Unfortunately, determination of these reactions is not practicable as a routine measure in general practice, where they would prove of such assistance. He says that fat is the most inconvenient element of the food; either too little or too much may lead to severe nutritional derangement. The sensitiveness in regard to fat seems an individual property, and it persists the same throughout infancy. He has encountered it both with and without signs of the exudative diathesis, and has seen infants with the exudative diathesis in a pronounced form who bore fat well.

In short, he remarks in conclusion, no one diet formula will fit all infants or even one infant at all times. The only secret of success in infant feeding is by study of what is attainable with a given food and a given infant. And for this, wide practical experience along these lines is the best guide. Those without this will often be puzzled as to the right course to pursue, even with the most modern food mixtures at their disposal. Those with sufficient experience get along with the simplest measures. Pediatrists at the head of infant institutions generally give the preference to certain methods of feeding—sometimes methods introduced by themselves. In their hands their method proves successful because they have had so much experience with it that they recognize the indications and contraindications for it, and can interpret the results obtained and be guided by them in the management of the individual infant. In other hands the identical method may not accomplish as much. Hence, he adds, it must be reiterated again and again that students and physicians can never be given opportunities enough to collect experience by their own observation in the line of infant feeding. Only in this way will they become familiar with the indications for a particular method of infant feeding and be able to estimate the results obtained with it—all of which is simply indispensable in practice.

Medizinische Klinik, Berlin

Oct. 17, 1915, XI, No. 42, pp. 1147-1172

58 Treatment of Acute Intestinal Disease in the Troops on Active Service. (Akute Darmerkrankungen im Feld und ihre Behandlung, insbes. mit Suprarenin.) J. Strasburger.
59 Therapeutic Electropalpation. (Ueber palpatorische Anwendung elektrischer Ströme.) M. Kahane.
60 Typhus in Camp of War Prisoners. (Die Fleckfieberepidemie im Gorlitzer Kriegsgefangenenlazarett.) W. G. Rondke.
61 Nervous Affections in the Soldiers on Active Service. (Neurologisches während des Feldzuges.) L. Sztanojevits.
62 Serotherapy of Dysentery. (Die Serumbehandlung der Ruhr.) A. Klesk.
63 Cherry Stones Accumulated in Man's Rectum; 1,874 Removed. J. Falk.
64 Gins' Modification of Neisser Technic Facilitates Showing up of Diphtheria Bacilli. (Zum Nachweis von Diphtheriebacillen im Originaltupferausstrich.) W. Schürmann and E. G. Pringsheim.
65 *Clinical Value of the Miostagmin Reaction in Diagnosis of Cancer. A. Balcarek.

65. **The Miostagmin Reaction.**—Balcarek studied the course of the case in connection with the miostagmin reaction in three cases of sarcoma and forty-three of cancer, as also in 135 patients with various other affections, the ordinary cases of a general medical hospital. The response was negative in these 135 miscellaneous cases, and negative also in the few cases of cancer displaying a tendency to scirrhus. But it was distinctly positive with all the other cancer patients and gave the sole clue to successful treatment in a number of dubious cases which he describes in detail. A positive reaction was obtained further in four cases of nephritis in the uremic stage, in a case of pulmonary tuberculosis and in one of a valvular defect. In these last two cases the test was made at the height of menstruation, which possibly may be the explanation of the puzzling positive reaction. In a case of intercurrent pneumonia with cancer of the pancreas, the response was negative but veered to positive as soon as the pneumonia subsided. Effusions and transudates did not always give a positive reaction with cancer when the serum findings were strongly positive.

Münchener medizinische Wochenschrift, Munich

Nov. 9, 1915, LXII, No. 45, pp. 1525-1560

66 *Treatment of Infectious Diseases by Substances Which Activate the Protoplasm. (Ueber die unspezifische Therapie von Infektionskrankheiten.) W. Weichardt.
67 *Venesection in Treatment of Hot Flashes, etc., of the Menopause. (Zur Behandlung der Ausfallserscheinungen.) E. Engelhorn.
68 Intravenous Injection of Dilute Lactic Acid in Treatment of Blood Infection. (Zur Behandlung der Blutinfektion.) F. Jessen.
69 The By-Effects of Neosalvarsan. H. E. Kersten.
70 *Artery of Donor Slipped Directly into Recipient's Vein for Transfusion of Blood. Sauerbruch.
71 Bacillary Dysentery. (Zur Klinik der Bazillenruhr.) M. Matthes.
72 Night Blindness Among the Troops in the Field. Paul.
73 Naphthalin for Extermination of Lice. F. Lenz.
74 Sexual Abstinence. (Sammelforschung der Deutschen Gesellschaft zur Bekämpfung der Geschlechtskrankheiten über die Frage der sexuellen Abstinenz.) A. Neisser.
75 Care of Stump After Amputation. (Kriegschirurgisches über den Amputationsstumpf.) D. P. Janssen. Commenced in No. 44.

66. **Nonspecific Treatment of Infectious Diseases.**—Weichardt has continued his research on activation of the protoplasm by injection of small amounts of various substances, such as the cleavage products of albumin or even simple salt solution. The heart, for example, is stimulated to extra functioning by injection of a certain small amount of deutero-albumose; when a larger amount is injected, the temperature falls, the respiration rate is retarded, and there is somnolency. The phenomena observed are exactly like those with vaccine therapy of typhoid, for instance. The response is not at all specific; it occurs the same with typhoid vaccine, colon bacillus vaccine and various other substances. It can be instructively studied with the kymographion, and a number of tracings with this are reproduced, showing the much increased action of the isolated frog heart under the influence of a stimulating dose of albumose or salt solution.

67. **Venesection for Climacteric Nervous Disturbances.**—Engelhorn noted abnormally high blood pressure in certain cases of cardiovascular disturbances in women at the menopause. This suggested that withdrawal of blood might aid in restoring the balance in the vasomotor system. Hufeland (1839) extolled the advantages of venesection every six to twelve weeks during the menopause, and others since have commended it. Engelhorn has applied it in a number of cases and the annoying "hot flashes," sensation of heat and attacks of sweating and redness all subsided. These results were the more striking as the women did not know the purpose of the constriction of the arm and puncture of the vein. Analogous nervous phenomena are sometimes encountered at puberty, and evidently are due to the same deficit or perversion in ovarian functioning, manifested by amenorrhea, dysmenorrhea, infantilism, chlorosis or other disturbance. In some cases of this kind, after failure of other measures, he has resorted to venesection with gratifying results. He never draws more than 100 c.c. at a time, but had occasion to repeat the venesection in a few cases.

70. **Simplified Technic for Transfusion of Blood.**—Sauerbruch isolates the radial artery of the donor and slips it into the recipient's median vein, like a cannula. He works the artery loose for a stretch of 5 or 6 cm. and cuts it as far as possible from the elbow. The distal stump is ligated, the proximal left open and after about 1 c.c. of blood has flowed into a measuring glass and the time this required has been recorded, the bleeding end of the artery is pushed for 1 or 2 cm. into a slit in the vein. By the size of the artery and the time-unit, the amount of blood passing into the vein can be estimated. It usually takes ten or twelve minutes for transfusion of from 120 to 200 c.c. of blood. The

artery is then drawn out, a ligature thrown around the upper part of the exposed section, the free end is cut off and the skin sutured. Sauerbruch has applied this method a number of times, even in the field hospital. The recipient reclines with his arm fastened to a small table. The donor sits on a high chair so that he can place his wrist close to the other's arm. The technic is so simple, he says, that any practitioner can apply it. An illustration shows the tip of the artery being pushed into the vein.

Wiener klinische Wochenschrift, Vienna

Oct. 28, 1915, XXVIII, No. 43, pp. 1153-1184

76 Improved Technic for Enhancing and Testing Virulence of Pneumococci, etc., by the Use of Tissues Surviving Outside the Organism. S. Baecher.
77 Artificial Light in Treatment of Pemphigus. (Künstliche Höhensonne bei Pemphigus vulgaris.) Brandweiner.
78 Physical Examination to Detect Tendency to Epilepsy. (Die Methoden der Kephaloskopie und Kephalometrie bei Epileptikern.) M. Benedikt.
79 Devices to Aid in Overcoming Consequences of Wounds in War. (Heilgeräte für Folgen nach Kriegsverletzungen.) F. Riedl. (Federstreckapparat für Hand und Finger bei Radialislähmung.) A. Saxl.
80 Device to Connect Garment with Electric Current or Portable Storage Battery; the Electrowarmer. (Neues Kälteschutzmittel.) M. Beck and H. von Schrötter.

Zeitschrift für klinische Medizin, Berlin

1915, LXXXII, Nos. 1-2, pp. 1-198. Last Indexed Sept. 18, p. 1065

81 *Retention of Salt Without Retention of Water. (Organuntersuchungen sowie experimentelle Studien über anhydropische Chlorretention.) J. Leva.
82 Dwarf Growth Probably Due to Disturbances in Internal Secretion. (Nanosomie und innere Sekretion.) M. Levy.
83 *Symptomatology and Diagnosis of Rheumatic Heart Block. T. v. Podmaniczky.
84 *Influenza Pneumonias. (Beobachtungen bei kruppöser Pneumonie im Felde.) Arneth.
85 *Elimination of Certain Elements of the Urine with Liver Disease. (Ausscheidung einiger Harnbestandteile bei Lebererkrankungen.) W. v. Moraczewski and E. Herzfeld.
86 *Tests of Kidney Functioning with Orthostatic Albuminuria and in Nephritis in Children. H. Zondek.
87 Epidemic Paratyphoid of Type A. E. Lehmann, Mäulen and Schricker.
88 Immunity to Typhoid and Antityphoid Vaccination. F. Noack.
89 *The Edema with Chronic Kidney Disease. (Ueber das Brightsche Oedem.) L. Hess.

81. **Retention of Salt Without Edema.**—Leva describes the necropsy findings in two cadavers with normal kidneys and in twelve with heart or kidney disease or both, but without any tendency to dropsy. The organs were found to contain two or three times the normal sodium chlorid content, and research on rabbits confirmed the possibility of extreme retention of salt without retention of water.

83. **Rheumatic Heart Block.**—The heart block occurred transiently in the course of acute articular rheumatism in one young man. The attack came on suddenly, with dizziness; the radial and carotid pulse dropped to 32 while the pulse in the jugular vein was 94 at the same time. The pulse was full and regular. The next day the pulse was 50, both carotid and jugular beating together. In a second case the man of 29 had had heart trouble for ten years since the articular rheumatism. The actual pulse was 40, while there was a pulsation in the jugular vein with a beat of 70 or 80 to the minute. The heart symptoms had grown gradually worse till they had entered a stationary phase which had persisted for years. There seems to be total permanent heart block left by a rheumatic myocarditis.

84. **Influenza Pneumonia.**—Arneth gives the histories of forty-two cases of pneumonia with influenza bacilli in the sputum or evidence of influenza otherwise. In 65 per cent. more than one lobe was involved, and in 32.5 per cent. the pneumonia was crossed. The pectoral fremitus was found less attenuated the milder the process, and thus it served as a guide to prognosis and treatment. The latter consisted mainly in watching over and strengthening the heart.

85. **Elimination of Elements of the Urine with Abnormal Liver Conditions.**—In one series of tests, healthy persons on a starvation diet eliminated more uric acid, acetone, indican, fat acids and ammonia. This is accepted as a sign that the liver was suffering from the comparative inanition, the functioning being affected as if the liver had been exhausted from overwork. Six patients with liver disease and seven with diabetes or some blood disease were also tested, the findings confirming the important influence of impaired liver functioning on the metabolic processes. There does not seem to be any specific elimination exclusively characteristic of liver disease; the characteristic feature is the grouping of the various abnormalities, the elimination being abnormal of practically all the elements of the urine, as he shows by the tabulated details.

86. **Kidney Functioning in Nephritis in Children.**—Among the practical results of the extensive research on orthostatic albuminuria and nephritis here reported, is that the elimination of salt and of nitrogen have a reciprocal influence. It is possible to modify one by artificially augmenting the other, and also by augmenting the intake of water. This interdependence of the metabolism of nitrogen and of salt renders it possible to influence the functioning of the tubules and glomeruli separately. If, for instance, the nephritis is of the vascular type, the tubules have to share in the elimination of the salt and urea which the glomeruli are unable to cope with. The tubuli, therefore, accomplish this task as far as possible in addition to their own regular task. By reducing the intake of salt, the extra task thrown on the tubuli is thus lightened, and they are able to concentrate their forces on the elimination of nitrogenous substances. The reverse also occurs; the elimination of salt is promoted by lessening the task of nitrogen elimination. Hence it is not necessary to exclude salt and nitrogen at the same time from the diet in kidney disease; one alone is enough. Still less is it necessary or advisable to restrict the patient to an exclusive milk diet. We can tranquilly allow salt to nephritics, even when there is edema, if we restrict the intake of albumin to correspond, and vice versa. The amount we can thus permit varies with the extent of the damage of the kidney in the individual case, and should be determined by the metabolic findings.

Treatment on these principles has been highly successful in Zondek's experience. Some children with edema were allowed up to 5 gm. of salt or more, but the edema subsided and the proportional elimination of salt proceeded satisfactorily—provided the intake of albumin was restricted to the empirically determined amount. In the same way, the residual nitrogen in the blood declined while the child was getting 80, 100 or 120 gm. of albumin every day but no salt or very little. In this way the diet can be varied and kept palatable. One child with severe insufficiency of the kidneys had been kept on a liter of milk daily, and the dropsy kept increasing, while it began to go down as soon as the child was given less albumin than corresponds to a liter of milk. Under no other conditions is strict individualization so necessary, he declares, as in the dietetic treatment of kidney disease. Recovery is not complete until the kidney is able to take charge of the amounts of salt, albumin and water, corresponding to the patient's age, given together and eliminated together, the same or following day.

89. **Edema in Bright's Disease.**—This communication from the third university medical clinic of Vienna, in charge of Chvostek, fills fifty pages and emphasizes the importance of injury of the walls of the vessels as a factor in dropsy. Another point emphasized is the lack of dependence between edema and diuresis. Abnormally protracted elimination after lactose tests is a sign of constitutional inferiority of the cardiovascular system. This delayed elimination of lactose is the rule with orthostatic albuminuria and in obstinate Bright's edema. In some cases—the details of which are tabulated—the nephritic edema began with acute onset and assumed from the start the character of stasis edema, of the cardiac type, and yet the heart showed no signs of any serious derangement, but the patients were of the thymicolymphatic type, with narrow arteries. In these and some other cases without manifest nephritis, the patients were evidently of abnormal constitution and the edema displayed abnormal features.

Zeitschrift für Tuberkulose, Leipzig

November, 1915, XXIV, No. 6, pp. 401-484

90 *Heliotherapy and Pigment. A. Jesionek.
91 *Origin of Apical Tuberculous Processes. VI. (Betrachtungen über die Entstehung der tuberkulösen Lungenspitzenphthise.) C. Hart.
92 Tuberculosis in Children. (Zur Statistik der Tuberkulose im Kindesalter in Elsass-Lothringen.) E. Stern.

90. **Heliotherapy and the Pigment Generated in the Skin.**—Jesionek declares that we must get it fully into our minds that light can have no biologic action unless it is absorbed. He also presents evidence that the main factor in the therapeutic action of the light rays is the pigment found in the epidermis under their influence; not the pigment inside the cells but the excess of pigment granules formed and thrown off by the cells. His assumption is thus that certain substances are formed in consequence of the action of light on the skin, and that the excess of these substances gets into the circulation and thus reaches in time the tuberculous foci and acts on them. He does not ascribe a therapeutic action to the stable pigment but to that which gets into the circulation. The way in which the tanned skin tends to recover its whiteness when it is no longer exposed to the sunshine, testifies to the rapidity of absorption of the pigment. There can be no doubt, he states, that this absorbed pigment has more or less of an influence on physiologic and pathologic processes in the body. Light is not the only pigment-producing element, but under all circumstances the pigment is the product of a specific faculty of the cells derived from the ectoderm. The pigment is not inherited, but the faculty to produce it and in certain proportions is inherited. Negroes as well as whites generate more pigment under exposure to sunlight, and the excess is absorbed just as in whites. Removed from their natural environment and exposure of the body to the light, negroes no longer generate pigment in abundance and the system may feel the lack of this pigment supply to which the cells have been accustomed. This may be the cause for the peculiar susceptibility to tuberculosis of the negro race in civilization.

Experimental research will help to solve this question. He says further that attention should be paid also to the fact that, among whites, individuals of a pronounced brunette type—and hence with greater pigment-producing faculty—acquire tuberculosis less frequently than blondes, whose skin does not generate pigment so readily. For these and other reasons cited, he ascribes to the melanotic pigment of the epidermis decisive importance in the success of heliotherapy. He adds that further research and experience will reveal whether a specific immunizing action can be ascribed to the pigment and its derivatives. It is certain that more exposure to sun and light than is common with our present modes of life can do no harm but rather benefit, when not carried to excess. Aside from the pigment—the importance of which, at least as a protection against exogenous injuries (Solger), is being recognized more and more—light probably influences absorption processes in the epidermis, and in this way affects the vascular system and through this the nutrition and metabolism of the skin.

91. **Mechanical Predisposition to Tuberculosis Gives Basis for Effectual Prophylaxis.**—In his sixth article on the origin of apical tuberculosis, Hart reiterates that mechanical factors are responsible for the localization of the tubercle bacilli at the apex, and that it is in our power to do away with the mechanical conditions affording the predisposition. He cites Sumita's experience that even as late as in the thirties the development of the chest is not completed, and it is susceptible of being modified by functional stimulation to growth. He quotes further the remark of a sanatorium director that not one of the patients who have come there for treatment knew how to breathe properly. Hart insists that a child entering school has a right to the best physical training available, as well as the development of the mind, and especial pains should be taken to develop the chest. If this were done systematically, there would be no mechanical predisposition to apical disease in the next generation and tuberculosis might die out from lack of material. Systematic breathing exercises, gymnastic exercises done while singing loud, are the main reliance for children who are not robust. The importance of loud singing for the development and expansion of a child's chest has been emphasized for years, but little heed was paid to it until the Roentgen rays demonstrated the healing of apical processes as the chest expanded.

He regards the compulsory military service as of inestimable value in overcoming a mechanical predisposition to apical disease, saying that experience has repeatedly shown that young men backward in physical development may catch up with and surpass their mates during their last phase of growth, during their military service. The benefit for the health of the populace from compulsory military service is appreciated far too little at present, he reiterates. Since preventive medicine has made such progress, camp diseases need no longer be feared, while the military training impresses hygiene and right living on the men and returns them to civil life healthy and settled, to found their own hearth and family. This applies particularly to the prophylaxis of tuberculosis, and Hart pleads that youths be allowed to enter voluntarily on military service at an age somewhat younger than the age limit for the compulsory service. This would give the young a chance to get out from the bad air and cramped attitudes of the store and factory during the years of the most important phase of growth. Young men with chests of the phthisical type are now rejected by recruiting officers, but he urges that these are the very ones who might benefit most, and the earlier they are accepted the better. Hart would like to have the measures for physical development in all circles made compulsory. He calls on physicians to be leaders in this prophylaxis, "which, beyond everything else, documents the ideal trait in the medical profession. Now that the importance of the mechanical predisposition to apical disease is recognized and the means to overcome this predisposition are known, our task lies clear before us."

Zeitschrift für Urologie, Leipzig

August, 1915, IX, No. 8, pp. 281-320

94 Development of Clinical Diagnosis of Disease of the Urinary Apparatus. (Zur Entwicklung der klinischen Harndiagnostik.) E. Ebstein. Concluded.
95 German Urology in the War. H. Lohnstein. Continued.

September, No. 9, pp. 321-360

96 *Primary Localization and Mode of Spread of Tuberculous Process with Chronic Renal Tuberculosis of Blood-Borne Origin. G. Ekehorn (Upsala).

October, No. 10, pp. 361-400

97 Wounds of the Bladder in War. (Zur Kenntnis der Blasenschüsse.) P. Goldberg.
98 German Urology in the War. H. Lohnstein. Continued.

96. **Primary Localization of Tuberculosis in the Kidney.**—Ekehorn concludes from his study of two cases that the primary lesion was in one small cavity in one kidney, probably the result of an infected embolus, the only process directly of blood-borne origin. From this cavity the infection spread by continuity, and the urine sweeping away the bacilli from the spreading focus, laved the hilus and thus sowed infection over its surface. No primary cavity could be found in the other case but he thinks there must have been and always is some single focus of blood-borne origin to start with.

Zentralblatt für Chirurgie, Leipzig

Nov. 6, 1915, XLII, No. 45, pp. 801-816

99 *Sheath Made from the Cicatricial Tissue in Suture of Severed Nerve. (Naht durchtrennter Nerven mittels Einhülsung im Eigengewebe.) H. Hans.

99. **Sheath for Sutured Nerve.**—Hans loosens up the nerve and slits lengthwise the club-shaped cicatricial tissue in which the stump of the nerve is embedded. This club-shaped end is then hollowed out to form a shell or cup which fits over the other stump and is fastened to it with four or five stitches. The exact technic is shown in two illustrations; it is claimed that by this method the special fibers of the nerve are coaptated with more precision.

Zentralblatt für Gynäkologie, Leipzig

Nov. 6, 1915, XXXIX, No. 45, pp. 779-794

100 War Affords Data on Duration of Pregnancy. (Zeitpunkt der Konzeption und die Dauer der Schwangerschaft.) F. Ahlfeld.

Nov. 13, No. 46, pp. 795-826

101 *Intracranial Hemorrhage from Birth Trauma. (Die intrakraniellen Blutungen des Neugeborenen infolge der Geburt.) A. Mayer.

101. **Intracranial Hemorrhage in the Newly Born.**—This number of the *Zentralblatt* is devoted almost entirely to Mayer's analysis of the literature on this subject and report of three cases from his own experience and discussion of the source of the bleeding and the causes. The forceps had been used in each of Mayer's cases, and necropsy showed that the tentorium had been lacerated in each case. The pelvis was of normal size in two of the cases, but premature rupture of the bag of waters and inadequate labor contractions finally compelled operative delivery. Pressure from temple to temple and also from the frontal to the occipital bone may be dangerous, but cases are known in which the hemorrhage occurred with smooth normal delivery in women with wide birth passage and normal pelvis, who had already borne children. He cites twelve cases of this kind, remarking that they show that there must be some predisposition on the part of the child. It is possible that letting the child lie on its side may compress the veins and induce venous hyperemia, thus aggravating a tendency to hemorrhage in the tentorium region which the newly born might otherwise survive. The pressure from the accumulating blood explains the cases in which slightly asphyxiated newly born children became more and more asphyxiated, and explains also the sudden deaths of not asphyxiated newly born who seemed to be normal for a time and then died suddenly.

The symptoms vary as the hemorrhage is above or below the tentorium, and the reports of operative removal of the accumulated blood before irreparable damage has been done sound encouraging. He thinks that we may be able to save many of the children by prompt intervention. With hemorrhage above the tentorium the symptoms are more of a cortical nature, principally in the domain of the facial, oculomotor and accessorius nerves and in the extremities. With hemorrhage below the tentorium, the symptoms are from the spinal nerves, such as rigid extremities, erection of the penis and wrinkling of the skin on the scrotum. Spasms have differential value only when restricted to one side or one extremity. With hemorrhage below the tentorium the children are strikingly quiet and somnolent, and there may be cyanosis; the fontanels do not bulge and the lumbar puncture fluid usually shows blood. Puncture of the subdural space through the large fontanel at the point farthest toward the side may decide the question, while it seems perfectly harmless and saves much time. With hemorrhage above the tentorium the children are restless and scream from the stretching of the dura; the greater fontanel bulges, and the vagus center, the vasomotor center and the respiration center show signs of irritation. If the children survive to the stage of paralysis the spasms subside, there is general relaxation, the reflexes die out, and the respiration becomes of the Cheyne-Stokes type. If the hematoma is not very extensive, it may be possible to aspirate the blood out through the fontanel or release it by lumbar puncture. Dutreix has reported three out of five cured by repeated puncture, and other French writers have published successful cases of this kind. Mayer has had no personal experience in this line but his review of the literature encourages more active measures than have been the rule hitherto.

Gazzetta degli Ospedali e delle Cliniche, Milan

Nov. 4, 1915, XXXVI, No. 76, pp. 1185-1200

102 Abbreviation and Symbols for Early Care and Records of the Wounded. (Sul regime delle medicazioni nelle formazioni sanitarie di guerra.) O. Cipollino.

Nov. 7, No. 77, pp. 1201-1216

103 Cerebral Embolism with Congenital Mitral Stenosis in Boy of 16; Recovery Under Quinin and Iodid. C. Pascale.

Nov. 10, No. 78, pp. 1217-1232

104 *Interpretation of Findings with Galactose Test of Liver Functioning. (Sul rapporto tra funzionalita epatica ed ascite nella cirrosi.) G. A. Pari.

Nov. 12, No. 79, pp. 1233-1248

105 *Prophylaxis of Malaria. (In tema di malaria.) A. De Blasi.

104. **Galactose Test of Liver Functioning.**—Pari's further experience has confirmed the fluctuations in the response to the galactose test in the same person at different times. Hence a single test has comparatively little significance. He reports in detail three cases of cirrhosis of the liver tested repeatedly for alimentary galactosuria. The response demonstrated that the liver was able to do its work better at some times than at others, its functioning fluctuating contemporaneously with the amounts of ascitic fluid produced but in the inverse direction.

105. **Prophylaxis of Malaria.**—De Blasi expatiates on the importance of rainy seasons and mild winters as favoring the spread of malaria and rendering the type graver. He insists that too much reliance should not be placed on quinin in prophylaxis, but that all other preventive measures should be given due importance, the sick isolated, and rooms they have used disinfected before the nonmalarial are allowed to occupy them. In the cases rebellious to quinin, he has often found methylene blue effectual and places great reliance on it. The alleged cyclic recrudescence of malaria he ascribes exclusively to climatic conditions.

Riforma Medica, Naples

Nov. 6, 1915, XXXI, No. 45, pp. 1233-1260

106 Heart Block. (Aritmie dromotrope: Disordini di conduzione.) G. Rummo.

107 Primary Perithelioma of Lymphatic Gland Rapidly Fatal. G. D'Oria. Commenced in No. 44.

Nov. 13, No. 46, pp. 1261-1288

108 Pulsus Alternans. (Aritmie inotrope; Disordini di contrattilita.) G. Rummo.

109 *Differential Importance of Precipitin Reaction in Epidemic Cerebrospinal Meningitis. M. Cassella.

110 Pathogenic Relations Between Blood Diseases and Some of the Products of Intestinal Putrefaction. O. Cantelli. Commenced in No. 45 and to be continued.

109. **Precipitin Reaction in Diagnosis of Meningitis.**—Cassella shows by eight clinical cases the extreme importance of the precipitin reaction in the lumbar puncture fluid in obscure cases of epidemic meningitis. He found the zonal technic most reliable, and that it was immaterial whether it was applied cold or by the thermoprecipitin technic. The patient's serum during the disease never responded positively either to cerebrospinal fluid or to filtrates of meningococcus cultures, but serum from convalescents had high precipitating power for both, especially with the zonal technic. Ascoli's method for the thermoprecipitin reaction, Vincent's and the zonal technic were applied in each of the eight cases.

Boveri's zonal color reaction was positive in all but one case, and in this the precipitin tests were all negative. (Boveri's reaction was described in these columns, July 11, 1914, p. 205.)

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Aug. 14, 1915, II, No. 7, pp. 1021-1092

111 Pseudomotor Nerve Action; Vulpian's Paradoxic Tongue Sign. (Onderzoekingen over spiertonus en spiertonusinnervatie. I. Het paradoxe tongverschijnsel van Vulpian.) G. van Rijnberk.

112 Experiences with Cancer of the Breast: Mammectomy Successful in Forty Per Cent. of Fifty-Six Cases. (Eenige gevallen van amputatio mammae.) S. M. Kropveld.

113 Symmetrical Dysmenorrheic Dermatitis; Eighth Case on Record. H. A. M. E. Lommen.

Ugeskrift for Læger, Copenhagen

Nov. 18, 1915, LXXVII, No. 46, pp. 1785-1842

114 Recovery Under Magnesium Sulphate in Severe Case of Tetanus. K. Lehmann.

115 *Localization of Abscesses in the Lungs. E. Petersen.

115. **Localization of Abscesses in the Lungs.**—Petersen compares the findings with various tests and the clinical course in 111 cases of a pulmonary abscess. Differential and topical diagnosis is usually difficult and the localization is sometimes nearly impossible, and yet the success of operative treatment depends on exact knowledge as to where the abscess will be found. All clinical diagnostic measures must be tried and the findings compared. The stethoscope and the Roentgen rays are the main reliance.

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 2 — CHICAGO, ILLINOIS — JANUARY 8, 1916

THE TREATMENT OF RESPIRATORY DISEASES IN INFANCY AND CHILDHOOD

WITH SPECIAL REFERENCE TO THE VALUE OF FRESH AIR *

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There seems to be a great deal of confusion in the use of the term "fresh air." Some writers apparently mean by this term pure air without regard to its temperature, others seem to mean cold air without regard to its purity, others air which is both pure and cold, and still others apparently do not attach any definite meaning to it. It is necessary, therefore, before speaking of the value of fresh air, to determine exactly what fresh air is. In common parlance the opposite of "fresh air" is "bad air" or, as is sometimes said, the air is "close." One appreciates that one is not as comfortable in a room which is shut up as in one in which the ventilation is good. One also appreciates that he is not as comfortable in a room in which there are a considerable number of people, if the ventilation is poor, as he is when he is alone in the same room. Why? What is there or is there not in the air of the "close" room which makes it uncomfortable?

It was formerly supposed that the discomfort felt in a close room was due to the presence of toxic organic constituents derived from the breath, or to an excess of carbon dioxid in the air. There is much difference of opinion as to the presence of organic matter in the expired breath. The weight of evidence seems to show that it contains very little if any. However this may be, it has been proved conclusively experimentally that the symptoms experienced in a badly ventilated room are not due to poisons excreted in the breath.[1] It has also been proved that people can breathe for many hours without discomfort air containing a very much larger proportion of carbon dioxid than is ever present in a room, provided the temperature of the air is low and that it is in motion.[2] Recent experiments seem to show, on the other hand, that the discomfort is due to a disturbance of the normal thermal relations of the body, the symptoms experienced in a close room being very similar to those felt on a hot, damp day.[3] The cause of the discomfort is apparently an interference with the normal rate of loss of body heat. Three factors are concerned in this interference: the high temperature of the air, its high moisture content, and the lack of movement in the air. It is evident, therefore, that as fresh air is the opposite of bad or close air, the essential characteristics of fresh air are not freedom from carbon dioxid or a hypothetical organic poison, but coolness, dryness and motion of the air. Therefore, fresh air may be defined as air which is cool, dry and in motion.

It is evident, therefore, that fresh air need not necessarily be pure air, if by pure air is meant air which does not contain bacteria or dust. Both of these may be present in air and yet it will be fresh.

It is self-evident that if the well feel better in fresh air than in close air, fresh air is better than close air for the sick, whether or not suffering from diseases of the respiratory tract. It is also evident that air which is free from dust is more suitable in these conditions than air which is full of dust. It is also evident that improper ventilation increases the dangers of reinfection from the patient and of infection from other patients or attendants.

Coolness is one of the essential elements of fresh air. Cool air is not, however, cold air. Does cold air have a different action from cool air, and, if so, what is the action of cold air? The action of cold air may in this connection be divided into two parts — that which it has on the respiratory mucous membrane and that which it exerts on the system as a whole.

Very little is known accurately as to the action of cold air on the respiratory mucous membrane. Clinical experience shows, however, that when the mucous membrane of the respiratory tract is acutely inflamed, as in the early stages of nasopharyngitis, laryngitis or bronchitis, cold air acts as an irritant, increasing the cough and the symptoms of heat and tightness of the chest. Clinical experience shows also that in nasopharyngitis after the acute stage is passed and the mucous membrane is swollen, cold air relieves congestion and diminishes the discomfort. Cold air cannot under ordinary conditions have any action on the mucous membrane of the respiratory tract below the trachea or largest bronchi, because it will be warmed before it reaches it.

It is well known that the application of cold to the surface of the body acts as a stimulant to the vaso-

* Read at the Sixth Annual Meeting of the American Association for the Study and Prevention of Infant Mortality, Philadelphia, Nov. 10, 1915.

1. Rosenau and Amoss: Jour. Med. Research, 1911, xxv, 35. Crowder, T. C.: On the Reinspiration of Expired Air, Arch. Int. Med., October, 1913, p. 420. Weisman: Biochemical Studies of Expired Air in Relation to Ventilation, Easton, Pa., 1913. The Toxicity of Expired Air, Current Comment, THE JOURNAL A. M. A., Jan. 24, 1914, p. 304.

2. Paul: Ztschr. f. Hyg., 1905, xlix, 405. Benedict: Bull. 175, Office of Experiment Station, U. S. Dept. Agric., p. 235.

3. Heating and Ventilation, editorial, THE JOURNAL A. M. A., Sept. 16, 1911, p. 980; The Reinspiration of Inspired Air, Nov. 20, 1913, p. 1986.

motor system. Howland and Hoobler[4] have shown that in pneumonia in children the exposure of the face of the children to cold air produces a rise in the blood pressure. They found that when the children were put out of doors in warm weather the blood pressure was not raised. They concluded, therefore, that the all important factor in raising the blood pressure was the temperature of the air (not its freshness). They state that there is "no doubt that an increase in the blood pressure, when it is abnormally low, which is constant and continuous and which is brought about without exhaustion or bad effects, is of the greatest value."

It is generally believed by clinicians that failure of the peripheral circulation is a frequent cause of death in pneumonia. This belief rests on the assumption that the blood pressure is abnormally low in persons dying of pneumonia, and on certain experiments which seem to show that the vasomotor nervous mechanism is paralyzed in fatal pneumonia. Weigert,[5] from his own experience and from the study of the literature, concluded, however, in 1911, that no rule can be established for the blood pressure in pneumonia, and consequently blood pressure readings are of no prognostic value. Newburgh and Minot,[6] in 1914, from a study of a considerable series of cases, found that the systolic pressure in the fatal cases was continuously above the systolic pressure in the persons who recovered. They conclude, therefore, that failure of the peripheral circulation cannot be a common cause of death in pneumonia. The experimental work of Porter and Newburgh[7] has also shown that the vasomotor center is not impaired in fatal pneumonia in animals. It is evident, therefore, that whatever systemic action cold air may have in pneumonia, it is not through its action on the vasomotor system.

Having considered the action of fresh air and cold air, we are now in a position to speak of the use of fresh air and cold air in the treatment of diseases of the respiratory tract. It is evident from what has been stated that the elements of freshness and coldness in the air must be considered separately. On account of the paucity of scientific data, it is necessary to rely almost entirely on the results of clinical observation. The conclusions which I have arrived at as the result of my own observations are as follows:

In the early stages of acute nasopharyngitis, cold air increases the irritation of the mucous membrane and consequently the symptoms, but in the later stages, when the mucous membrane is swollen, it relieves the discomfort to a certain extent. Cold air predisposes to affections of the ears. Fresh air is of advantage. Children with acute nasopharyngitis should, therefore, be kept in the house in cold weather, in well ventilated rooms at a temperature of about 60 F. if they are in bed, and between 65 F. and 68 F. if they are out of bed.

In acute laryngitis, cold air has a strong irritant action on the inflamed mucous membrane, and in the early stages increases the symptoms very materially. Cold air is not indicated, but does no harm in the later stages. Patients are more comfortable when the air is moist than when it is dry. Children with acute laryngitis should, therefore, be kept in well-ventilated rooms, at a temperature of about 70 F., the air being kept moist.

In the early stages of acute bronchitis, cold air increases the cough and the sense of constriction of the chest and of heat under the sternum. The cough is less troublesome when the air is moist than when it is dry. Children in the early stages of acute bronchitis should, therefore, be kept in well-ventilated rooms at a temperature of from 60 F. to 70 F. with the air moistened. During the later stages, cold air ceases to act as an irritant, but there is no apparent advantage in cold air over air which is warmed. Moisture is of no importance, because the mucous membrane of the bronchi is already moist. The temperature of the room is of less importance at this time. During the later stages of bronchitis they should, therefore, be kept in well-ventilated rooms in which the temperature of the air is moderate, but not cold.

In very acute bronchitis associated with dyspnea and cyanosis, the contraindications to the use of cold air are the same as in the milder cases. There is never any lack of oxygen in the air, therefore there is no advantage in out-of-door air. There is no more oxygen, moreover, in cold air than in warm air. The only possible advantage to be derived from cold air is, therefore, from its action as a vasomotor stimulant. It is problematical, moreover, whether this action is of value. The comparative disadvantages of cold air as an irritant to the mucous membrane and its advantages as a vasomotor stimulant must be weighed in each case.

When bronchopneumonia has developed, the most acute stage of the causative bronchitis is usually passed. There is, therefore, no contraindication to the use of cold air. There is, however, no advantage in it, unless there is vasomotor paralysis. The advantage even then is questionable. A child with severe bronchopneumonia is very likely to be weak and depressed. It may be further weakened and depressed by exposure to cold air. Children with bronchopneumonia may be chilled and injured by exposure to cold in the same way that well children may be. There is, therefore, no invariable rule as to the use of cold air in the treatment of bronchopneumonia in children. They are, however, unquestionably benefited by fresh air. As a rule, children with bronchopneumonia are probably better off in well-ventilated rooms at a temperature of between 50 and 60 F. than they are out of doors in cold weather, unless there is vasomotor paralysis. The advantages and disadvantages of cold air must, then, be weighed in each case and the decision made on the evidence on the two sides.

The bronchial mucous membrane is not involved in lobar pneumonia, therefore there is no contraindication in this disease to the use of cold air. There is no question that in this disease the general stimulant effect of cold air is of advantage. There is also no question that children with lobar pneumonia are much more comfortable in cold air than they are in warm air. Children with lobar pneumonia should, therefore, be treated out of doors or near open windows. While children with lobar pneumonia are undoubtedly more comfortable when treated with cold air, it is doubtful whether the mortality of lobar pneumonia in childhood has been lowered materially, if at all, by the cold air treatment. The statistics at present available are insufficient to show the influence of this form of treatment on the mortality. If children with lobar pneumonia are exposed to cold air, whether out of

4. Howland and Hoobler: The Effect of Cold Fresh Air on the Blood Pressure in Pneumonia of Children, Am. Jour. Dis. Child., May, 1912, p. 294.
5. Weigert: Samml. klin. Vortr., 1911, p. 459.
6. Newburgh and Minot: The Blood Pressure in Pneumonia, Arch. Int. Med., July, 1914, p. 48.
7. Porter and Newburgh: Am. Jour. Physiol., 1914, xxxv, 1.

doors or in the house, they must be dressed for it. They, in the same way as children with bronchopneumonia or even well children, may be injured by exposure to cold. It is sufficient to expose the face. The body must be warmly covered and protected.

In conclusion: Fresh air is of advantage in the treatment of all diseases of the respiratory tract. It is also of advantage to have the air pure, that is, free from bacteria, dust and smoke. Cold air is of advantage in some conditions, but harmful in others. It must be used with discretion. It is not possible to treat all diseases of the respiratory tract in the same way.

70 Bay State Road.

PROGRAM FOR THE PROMOTION OF THE PHYSICAL WELFARE OF CHILDREN AND THE PREVENTION OF TUBERCULOSIS AMONG THEM*

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Director Elizabeth McCormick Memorial Fund
CHICAGO

At the meeting of the Mississippi Valley Tuberculosis Conference in St. Louis in 1914, a resolution was passed calling for the appointment of a committee which should formulate a program of activities for the promotion and safeguarding of the physical welfare of children and the prevention of tuberculosis among them.

We do not assume that all the features of such an outline will be immediately applicable to any one locality, but we believe that a program can be suggested which will give greater definiteness of purpose and unity of action, and that its various features can be gradually realized.

The states comprising this Conference territory are: Arkansas, Colorado, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Montana, Nebraska, North Dakota, Ohio, South Dakota, Tennessee, Wisconsin and Wyoming.

Before attempting to offer definite suggestions, let us first propound a few questions and state certain facts concerning the children in our Conference territory.

1. How many children are there?
2. Where do they live?
3. What tuberculosis organizations and agencies are now in the field?
4. Do these organizations reach the country child?
5. Is the country child so healthy that he needs no attention?
6. Have these agencies a program of activities which already covers the field?
7. Are there agencies in the field that can be enlisted for service, or for larger service, in promoting the physical welfare of children?

There are many other similar questions, but these seem to be, perhaps, especially pertinent.

Here are some facts about the children in our Conference territory:

NUMBER OF CHILDREN AND CHARACTER OF LOCALITIES IN WHICH THEY LIVE

The 1910 census says there were at that time in the United States 29,499,136 children under 15 years of age, and the figures we shall use relate to children under that age. Of this number 11,824,801 children lived in the states constituting the Mississippi Valley Conference territory. The Handbook of Federal Statistics of Children issued in 1913 by the National Children's Bureau gives the distribution of children in the United States by size of cities, as follows:

18.3 per cent. live in cities of 100,000 and over.
7.5 per cent. live in cities of 25,000 to 100,000.
13.5 per cent. live in towns and cities of from 2,500 to 25,000.
60.7 per cent. live in towns of less than 2,500 and in the country.

The Bureau of the Census classifies those living in communities of 2,500 or more as urban and those living in communities of less than 2,500 and in the country as rural.

Here, then, are the facts about our Conference territory: In 1910, 4,065,188 children under 15 years of age lived under urban conditions and 7,799,613 under rural conditions. In other words, 34.24 per cent. were in towns of 2,500 or more, and 65.76 per cent. in communities of less than 2,500 and in the country, almost two to one. In only two states of our Conference territory do the children living under urban conditions outnumber those living under rural conditions. These two states are Ohio and Illinois. The total number of children under 15 years of age in these two states was 3,009,788, and of this number 1,647,525 are urban and 1,362, 263 rural, or 54.73 per cent. urban and 45.27 per cent. rural. If we deduct the children living in these two states from the total number in the Mississippi Valley Conference territory, we find that 27.36 per cent. of the remaining children are living under "Urban" conditions and 72.64 per cent. under "Rural" conditions, nearly three to one.

TABLE 1.—CHILDREN UNDER 15 YEARS OF AGE LIVING UNDER URBAN AND RURAL CONDITIONS—UNITED STATES CENSUS, 1910

	Per Cent. Urban	Per Cent. Rural
North Dakota	8.10	91.90
Arkansas	9.32	90.68
South Dakota	9.77	90.23
Tennessee	13.3	86.7
Kentucky	14.5	85.5
Idaho	16.29	83.71
Nebraska	20.63	79.37
Kansas	24.27	75.73
Iowa	24.82	75.18
Wyoming	28.78	71.22
Montana	33.77	67.23
Minnesota	32.89	67.11
Missouri	34.19	65.81
Indiana	37.2	62.8
Wisconsin	38.74	61.26
Michigan	43.37	56.63
Colorado	43.75	56.25
Ohio	55.8	44.2
Illinois	57.05	42.95

Table 1 gives the figures for each of our nineteen states.

Perhaps the figures in Table 1 will help to indicate the nature of our problem, for antituberculosis workers in each of the above states will know at once how effectively their programs reach 100 per cent. of the children.

HOW THE FIELD IS COVERED BY THE PRESENT ANTITUBERCULOSIS ORGANIZATIONS IN THE MISSISSIPPI VALLEY CONFERENCE TERRITORY

Table 2 is a tabulation of the tuberculosis organizations in the Mississippi Valley Conference territory

* Read at the Mississippi Valley Tuberculosis Conference, Indianapolis, 1915.

taken from the 1911 directory of the National Association for the Study and Prevention of Tuberculosis, and the supplement of 1913. The table does not bring the figures quite down to date, but it gives a fairly adequate idea of our present machinery.

In all but four instances each state has a state association. There are 323 local associations and 181 hospitals and sanatoriums, 75 dispensaries and 87 open air schools. As a rule the state association is located in a prominent city and a majority of the local associations are in communities of considerable size. One hundred and thirty-four of these are county associations, but there are 1,466 counties in our nineteen states. Eleven states have state sanatoriums. The dispensaries, however, are local and the majority of them are in cities of over 25,000. The open air schools, likewise, are in cities of considerable size. The total capacity of the hospitals and sanatoriums is about 8,728. There are approximately 2,175 children in the open air schools. It is well known that while most of this tuberculosis machinery is in congested centers, even in these places it is entirely inadequate. Then when we recall that between two and three children live under rural conditions to every one under urban conditions in our Conference territory, we can get some notion of the inadequacy of our present program.

TABLE 2.—TUBERCULOSIS ORGANIZATIONS IN MISSISSIPPI VALLEY CONFERENCE TERRITORY

	State Associations	Local Associations	Sanatoriums and Hospitals	Beds	Number of Dispensaries	Open Air Schools	Approximate Number of Pupils
Arkansas	1	4 (2 County)	1	74	..	..	.....
Colorado	1	1	23	1,695	2	3	75
Idaho	..	...	1	45	..	..	.....
Illinois	1	27 (7 County)	21	2,201	14	29	725
Indiana	1	83 (79 County)	12 (1 State)	457	2	3	75
Iowa	1	8	11 (1 State)	305	1	4	100
Kansas	1	1	4 (1 State)	23	1	..	.....
Kentucky	1	11 (4 County)	7	106	6	3	75
Michigan	1	51 (8 County)	17 (1 State)	303	8	9	225
Minnesota	1	34 (8 County)	11 (1 State)	518	3	5	125
Missouri	1	17 (13 County)	14 (1 State)	454	14	8	200
Montana	1	2	1 (1 State)	32	..	..	.....
Nebraska	1	3	1 (1 State)	62	1	..	.....
North Dakota	1	...	1 (1 State)	25	1	..	.....
Ohio	1	28 (10 County)	31 (1 State)	1,458	13	16	400
South Dakota	..	...	2	64	..	..	.....
Tennessee	..	3 (1 County)	11	514	2	..	.....
Wisconsin	1	50 (2 County)	12 (1 State)	392	7	7	175
Wyoming	..	...	...	.....	..	..	.....
Total	15	323 (134 County)	181 (11 State)	8,728	75	87	2,175

THE PHYSICAL WELFARE OF THE COUNTRY CHILD

There seems to be a general assumption that being born in the country gives one a clean bill of health and eliminates children from the health problem. We are at a disadvantage on this point because so little health work has been done in the country and small towns. There are practically no organizations which take cognizance of the physical welfare of country children. Public interest, however, is beginning to be aroused in regard to rural conditions and a number of local studies on the definite question of health of country children have been made.

Perhaps the most significant of these is the survey made by the Committee on Health Problems in Education of the National Council of Education and the American Medical Association. The report was prepared by Dr. Thomas D. Wood, of Columbia University, chairman of the Committee on Health Problems of the National Education Association, last year.

In Table 3, taken from official reports of districts in Massachusetts, New Jersey, Pennsylvania, Idaho and Virginia, Dr. Wood contrasts the percentages of mental and physical defects between city and rural children.

In all but two instances of the sixteen classes of defects enumerated in Table 3 the percentage of defectiveness is greater for the country child than for the city child.

Dr. Wood further says:

> No one actually knew how bad the country schoolhouse was until the National Education Association made a survey. The results have been amazing and in many instances appalling. These results pointed to the fact that we are neglecting the health of the country child to a serious degree, for wherever urban and rural statistics concerning the health of schoolchildren were contrasted, the country child was found to be anywhere from 5 to 20 per cent. more defective than the city child. . . .

In a recommendation for further study, Dr. Wood's committee states:

> As a result of our preliminary studies we have demonstrated:
>
> 1. That the rural school is, in sanitation and general fitness for its important use, relatively the worst type of building in the whole country, including in this category not only all types of building used by human beings, but also those used for live stock and all domestic animals.
>
> 2. That the rural schoolchildren are less healthy, and are handicapped by more physical defects than the children of the cities (including all the children of the slums). . . .
>
> At present, the country schoolchild at home and in school receives on the average less intelligent and effective health care than the city child. Relative to their importance, the country children receive less careful attention than all the other living things that grow on the farm.

Activities in the infant welfare field also throw light on this question. New York City, through its milk stations, through its efficient Bureau of Child Hygiene in the health department and through the cooperation of many child-caring agencies, has reduced its death rate below 100 out of each thousand. In the country as a whole it is somewhere around 145. Chicago, Cleveland, Philadelphia and other large cities, through similar activities, have lowered their baby death rates well below that for the country as a whole. Such indications, together with the studies made by Dr. Wood and other people, seem to answer the ques-

tion as to whether the physical welfare of country children needs attention. It is not urged that the city child is intrinsically more healthy than the country child. Any better showing that the city can make on the health side is doubtless due to the greater attention and care given to the city child.

Any program that comprehends the physical welfare of 100 per cent. of the children, then, must take cognizance of such facts, and it must be broad and comprehensive. Tuberculosis workers become in a sense residuary legatees or preferred creditors for all the array of diseases which lessen bodily tone and weaken resistance, for they are all likely to become contributory to tuberculosis. All such diseases and conditions must be reckoned as enemies to be combated in the general tuberculosis campaign. The work of prevention must be exalted into a real cause.

A SUGGESTED PROGRAM FOR THE GRADUAL REGULATION AND CONTROL OF TUBERCULOSIS IN CHILDREN

The work naturally divides into two divisions or classes of activity:

1. The creation and promotion of institutions and agencies for the care and relief of those who are vic-

TABLE 3.—AVERAGE PERCENTAGE OF DEFECTS IN ALL THE STATISTICS TABULATED

	Percentage, City	Percentage, Rural
Heart disease	0.40	0.745
Mental defects	0.15	0.8
Lung disease	0.32	1.25
Anemia	1.5	1.65
Curvature	0.13	3.5
Breathing defects	2.1	4.2
Ear defects	1.28	4.78
Enlarged glands	13.01	8.28
Nasopharynx	7.5	15.9
Malnutrition	7.65	16.6
Nasal-septum defects	14.4	20.75
Eye defects	13.43	21.08
Adenoids	12.5	23.4
Throat defects	20.4	26.5
Tonsil defects	16.42	28.14
Teeth defects	33.58	48.8

tims of the disease, and for safeguarding their families and associates.

2. The conduct of a vigorous department of education and propaganda.

The first step after a preliminary survey of the local conditions will be the organization of a clinic. Through its activities the society will come in vital touch with tuberculosis sufferers and all the problems involved. These contacts will afford that first hand knowledge and conviction which is the motive power of the fight, for most communities want their sufferers cared for as a first consideration and can be led farther and faster into constructive measures through experience in working out the problem.

Activities:

a. Careful medical examination of patients, and through children's clinics all children in families of tuberculous persons. Home visitation, care and supervision, with special attention to preventive work among the children.

b. Sufficient and efficient hospital provisions for advanced cases by municipalities and counties, under provision of a state law providing for such institutions.

c. Sanatoriums for incipient cases, with adequate and appropriate provisions for children. Special cottages or quarters separate and apart, with a régime suited to children's needs.

d. Open air schools. As a rule from 2 to 10 per cent. of schoolchildren have physical defects and special needs requiring such special attention as is given in open air schools. Also get fresh air for 100 per cent. of your children, by frequent opening of windows.

e. Sanatorium extension work, equipment of porches, roofs, etc., and special home relief, including cooperation with city and county relief agencies and charities of the community.

f. Medical examination of employees. Save the fathers and mothers of children by the early detection and treatment of disease. Attention to factories and working places promotes shop sanitation and wholesome working conditions. Make use of shops and factories as places for lectures to both men and women.

g. Christmas seal campaign. Back of the Red Cross Christmas seal is the best thought and the goodwill of our country for the health and welfare of all the people. Make its message in the fight against tuberculosis known to every home, every teacher and child in your community.

h. Infant welfare. Proper care and protection of babies yields maximum health results. If there is no agency in your community for this work, get it started.

Our second division of work is the Department of Education and Propaganda. That tuberculosis worker is strong and efficient who most effectually enthuses, arms and sets to work the already organized forces of his community. The following are agencies usually found in our scheme of government and in the social machinery of our different communities:

1. The public school with its teachers and officers.
2. Boards of health, state and local.
3. Boards of county commissioners.
4. City or county medical societies.
5. The country editor.
6. Granges and farmers' alliances.
7. Labor unions and fraternal orders.
8. Women's clubs.
9. Church organizations.

All of these agencies afford opportunities for the most vital cooperation. Definite study should be given to the plan of approach and to the preparation of material for the different groups.

Here are some facts about the different organizations enumerated:

a. The Public School.—There are 277,148 school buildings in the United States and 565,463 school teachers. There are 248 normal schools, with an average of 94,000 persons training to be teachers. There are many other teacher training schools. Then there are school officers: state superintendents, county superintendents and school boards. There are 250,000 country school districts in the United States, each with its three trustees. Then there are stated meetings of teachers, county institutes and school associations.

There are 20,000,000 schoolchildren in the United States. Compulsory education laws require them to spend from six to ten years at least in the presence of schoolteachers and to spend an aggregate of 2,283,000 years in school houses every twelve month. Perhaps the first and most important step is to make sure that you have medical inspection in your schools, or if a beginning has been made, strengthen and perfect the work.

The summaries of medical inspection so far carried on show that 60 per cent., or over 12,000,000, of the schoolchildren in the United States have physical defects serious enough to interfere with their school work. More detailed studies in a number of places indicate that something like 1,000,000 of these children are so physically defective as to render their school experience practically useless unless something more is done. Our program should call for medical inspection of a high order, for school nurses, for school clinics and agencies for the correction of physical defects of the children. Our aim should be to make the whole army of over a half million schoolteachers allies in promoting the physical welfare of children. Each worker should cultivate those in his own field.

Similar definitely directed efforts should be made to reach boards of education, county superintendents and other school people. Our efforts should not stop with a square deal for the debilitated child, but we should demand their fresh air and hygienic rights for the whole 100 per cent. of the schoolchildren. There is always plenty of fresh air outside of school buildings and we should help to get it on the inside by the proper use of the old household device, the window.

It is very desirable to have an open air school or some special effort of its kind connected with every normal school or teacher training school, so that teachers in the making may come to understand the whole needs of children, and that they should not be treated in segments, as half mind and half body, but to realize that the physical and mental must go through the world together and that the world is demanding 100 per cent. efficiency in both, as never before.

b. Boards of Health, State and Local.—Similar efforts should be made to study the possibilities of boards of health. The Rockefeller Foundation in its fight against hookworm endeavored, not to create new organizations, but to vitalize boards of health, state and local, thus utilizing existing machinery. There is a great lesson for tuberculosis workers in this effort.

c. Boards of County Commissioners.—In our form of government county commissioners are responsible for the poor relief and charity service of their respective counties. The possibilities of cooperation here should also be definitely studied and material presented especially for their use.

d. City and County Medical Societies.—The physician is charged with the responsibility of the health of the community. The possibilities of cooperation and mutual helpfulness should be fully realized.

e. The Country Editor.—Health writers and health departments in metropolitan journals are creating a demand for similar activities in the smaller local papers. The country editor will gladly use vital material and will open his papers for question and answer departments and special material on health subjects.

f. Granges and Farmers' Alliances.—In most of the states of our Conference territory are to be found granges and farmers' alliances, or some kindred organization. The purposes of these are both social and for promoting community welfare, and their cooperation can be enlisted by well defined efforts.

g. Labor Unions.—Besides concerning themselves with hours and wages, labor unions are interested in ventilation, housing, and general shop conditions. They offer one of the most promising fields for cooperation in the crusade against tuberculosis.

h. Women's Clubs.—All the women's clubs have taken a prominent part in the tuberculosis campaign, as well as in many other health movements, and stand ready to do even a more vital work if definite things are given them to do.

i. Church Organizations. — Tuberculosis Sunday, special sermons on health subjects, the church as a meeting place and in many other lines, is another resource in this campaign.

If we are to reach these agencies, proper attention must be given to lectures, special pamphlets, lantern slides, moving pictures and exhibit material. This whole matter should be carefully studied by the ablest people that can be gotten together and the material and the facts now known should be so tabulated and correlated that the most vital use can be made of them.

If prevention is ever to prevent, a more completed and effectual work must be done with the children. Our program must begin with them when they are babies. Infant welfare work should be made universal in this country, as it is in New Zealand, where through such efforts the death rate of babies has been reduced to fifty-one out of a thousand for the whole country.

The next great goal is to see to it that in the school period, when organized society compels the children to come in and sit from six to ten years in front of duly appointed agents, the teachers, that the needs of these children are recognized and understood. We should fight the fight in the earlier and more promising and hopeful period of childhood and not wait until the same defects and conditions which produced failure in school become again the causes of failure in after life.

We have become accustomed to caring for trouble after it has happened. We recognize the necessity of training people to become hospital superintendents, managers of institutions, wardens of jails, superintendents of charitable organizations, and we spend vast sums of money in creating institutions for taking care of chronic illness and finished dependents. We must recognize that if we are to win this fight in the childhood period it will require thought, care, money and technic. Irving Fisher has stated that the total annual economic loss from tuberculosis alone is $1,100,000,000. The total cost of running the public schools of the United States is a little over $500,000,000 annually, or less than half the other sum. We can and should work out a preventive program which will rob this older order, with its hospitals, sanatoriums, its almshouses and jails of much of its present clientage. Spend your service and your money in giving children a chance.

Standard Diets for Hospitals.—An experiment by the health department of New York City in establishing standard dietary methods in its hospital service has proved successful. A standard menu, basic dietary table and rules and regulations for the guidance of employees in kitchens and dining rooms was prepared by a committee appointed for the purpose. The new methods were introduced in January, 1915, and have given complete satisfaction both with regard to the quality of food and the economy of the proposition. A saving of $10,000 in nine months in the contagious disease hospitals alone has been effected. This amounts to a reduction of 3⅞ cents on the average per capita food cost. The saving has been accomplished by reducing the amount of high-priced food (meat) and substituting other foodstuffs equally nutritious and agreeable; by eliminating waste in the preparation of food through the use of standard menus; giving the employees the kind of food they want thus reducing plate waste.

THE EPIDEMIOLOGY OF TUBERCULOSIS

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Tuberculosis, referred to by Hippocrates as "the greatest and most dangerous disease and the one that proved fatal to the greatest number," antedates medical history. That the tubercle bacillus, like its congeners the hay, milk, butter and timothy bacilli, was originally saprophytic is extremely probable. Whether it became pathogenic when man forsook the tree tops for caves or when he began to clothe his body or cook his food, whether he acquired it from his bovine associates or they from him we have no means of knowing. It is commonly believed that wild animals and uncivilized men have always been found free from tuberculosis until infected by contact with civilization. Tuberculosis was acquired or developed possibly through a combination of many factors, some of which can only be conjectured. It is not even known with certainty whether man and the tubercle bacillus are slowly approaching a biologic adjustment such as exists, for instance, with the colon bacillus, or whether their relations are becoming more hostile. There are those who believe that an increasing tolerance of the human host for the bacillus is evident, as when the case mortality of the Jew and the Indian is compared. The comparison is not altogether fair, since it is a comparison of sagacity, of husbandry, of skill in combat rather than the weighing of racial immunity. On the whole, however, there is reason to believe that a biologic compromise is being approached rather than lost, and this view finds some support by analogy in the apparently lessening virulence of leprosy and syphilis.

The great antiquity of tuberculosis finds confirmation in the relationship of the bacillus to its host, in its adaptability, its perfect though antagonistic symbiosis. As examples of this may be mentioned:

1. Its varieties, avian, piscian, bovine and human. The question of its transmutation need not be considered here.

2. Latency. It will remain alive but dormant and harmless in the tissues of both man and animals for an indefinite period.

3. Low virulence and habit of compromising with its host. Invalids with open tuberculosis for ten years or more are not uncommon.

4. Resistance to decomposition. In earth and in water at all natural temperatures the tubercle bacillus successfully resists destruction for long periods of time, its waxy capsule protecting it from destruction in the open as it does in its host in what is probably a purely mechanical way. A saprophytic form which is morphologically and tinctorially different may exist, although evidence thereof is far from satisfactory, and for all practical purposes the saprophytic form is not at all necessary to the tubercle bacillus for its perpetuation.

THE INFLUENCE OF CLIMATE AND TOPOGRAPHY

Early ideas of the epidemiology of tuberculosis were quaintly erroneous. The belief that certain regions of the earth were free from tuberculosis because of some occult influence or peculiar circumstance has persisted even to our own day. The one time freedom from the disease of the inhabitants of the Hebrides was early noted and explanation offered that the smoke of the particular kind of peat burned there on open hearths had antiseptic properties. To the lime kiln region of England was ascribed special virtues on account of the prevailing gases found in the atmosphere. Iceland, before it became infected, was thought to possess certain qualities due to its snow and cold; the arid Southwest and other desert regions, because of dryness and sunshine; mountainous districts because of altitude, and sea air because of iodin and other salts suspended in the atmosphere. Usually an "immune zone" is merely uninfected territory, although sometimes the absence of those natural conditions conducive to density of population, predisposing trades, extreme poverty, intemperance, and unhealthful forms of amusement is sufficient to inhibit successfully the development of tuberculosis. This is true of certain parts of the arid Southwest, where in spite of contact with large numbers of cases of open tuberculosis among health seekers, heavy infection among native born whites is not apparent. It is not necessary to look beyond the social state of these people to account for their immunity; and if economic conditions arise in the Southwest similar to those found in the large industrial centers, there is no reason to believe that climatic peculiarity will afford any protection worthy of practical consideration.

It is not profitable to study further the influence of geographic location, of soil, of ground water or other topographic features so laboriously dealt with in the very extensive literature devoted to this subject in the last half century. These matters have no bearing on the epidemiology of tuberculosis except in the small degree wherein they affect the habits and wealth and general health of mankind, which matters can best be considered by themselves. It is sufficient to say that while depressing natural influences weaken physical resistance and so predispose to tuberculosis, the absence of such depressing influence in no wise gives immunity whenever other conditions favorable to infection occur.

PREVALENCE OF INFECTION

The tubercle bacillus is commonly referred to as ubiquitous, but always with the reservation that it does not multiply outside the animal body. The experiments of Rosenau and others show that it is readily killed by heat and chemical agents but its resistance in both the dried and moist states to natural agents, including light and direct sunlight, is not to be lightly regarded, though it has been frequently underestimated. The sputum from patients with open pulmonary tuberculosis is without doubt the commonest source of infection. There is reason to believe that freshly shed bacilli suspended in moist spray from a coughing consumptive are particularly virulent, and that bacilli contained in dust or in contaminated food are somewhat less dangerous. The common occurrence of the bacillus in feces and urine not only in open but also, occasionally at least, in closed cases adds a larger aspect to its ubiquity.

It is customary to speak of tuberculosis as a house disease. Flick attaches the utmost importance to that period before death when a consumptive is bedridden and helpless, and calls this the time when seed is sown which produces a harvest of new cases. Only the careless or helpless consumptive is feared. What value will ultimately be assigned to casual infection

such as occurs through the agency of street dust, flies, water and fomites can only be conjectured. Certainly there is no scientific evidence which would justify us in regarding it lightly. For the present, however, in practical work it must be to a certain extent ignored. A direct, intense, intimate and prolonged contact is believed to be necessary for infection, although (to repeat) this may be found incorrect. The tendency at present is to attribute less and less importance to indirect transmission of any disease.

MANNER OF INFECTION

It is believed that infection usually occurs either through inhalation or ingestion. There is some question whether bacilli suspended in spray or dust may by inhalation reach the finer bronchi or the alveolar spaces directly but it is generally conceded that a smaller dosage will infect by inhalation than by ingestion. This has not been scientifically proved. On the other hand, it is no longer doubted that tubercle bacilli may, especially when suspended in fatty particles, pass through the intact mucous membrane of the intestinal canal and produce disease of the lungs or other distant parts without necessarily causing abdominal tuberculosis. It is known that the lymph glands are often (perhaps always) the first seat of disease, and that these glands are organs of defense. The frequent presence of living tubercle bacilli in the lymph glands of nontuberculous cadavers and their persistence indefinitely in healed lesions, even those of the most minute character, have been demonstrated. That bacilli are distributed throughout the body, usually by the lymph channels but often by a true bacillemia, must also be accepted. All these facts have a bearing on the epidemiology of the disease. If a few bacilli may be harbored for many years in a lymph gland and finally liberated at an opportune moment to produce disease, latent infection becomes a vital question, the danger of minute dosage may be a very present one, continuous sensitization has a new significance and the maintenance of vigorous physical defense a still greater importance.

TIME OF INFECTION

The majority of all persons are infected before the age of 12, and in slum districts and other places where the sick are numerous and contact intimate, almost universal infection is accomplished much earlier. The age at which infection occurs among the better protected classes of society is not definitely known. Just what the relation of this early infection is to the disease which may appear a few years later, in the time of stress, is not certain, but there is a growing conviction that it is directly causative. Baldwin's dictum is now widely accepted: "Childhood is the time of infection, youth the time of superinfection, and that from extension of the primary disease." He, together with Bushnell, Brown, Bernard and others, believes that adults are comparatively little endangered by exposure to tuberculous infection because they are vaccinated against tuberculosis by accidental inoculation in early life. But for this protection, acquired of course at great risk to the child, it is presumed by some that adult human beings would be as susceptible to first infections as the adults of other animals are known to be. The immunity of adults is therefore no great cause for congratulation; it is attained at too great a price. About 10 per cent. of all deaths among children under 15 years of age are due to the various forms of this disease. It is known that tuberculosis increases in frequency but decreases in fatality with each year of life during childhood. There is some reason to believe that under a certain age resistance to the disease is not developed, and this independently of the influence of acquired protection from accidental vaccination. This, together with the difficulty of preventing gross infection of the exposed infant, has led to the suggestion that infants and young children should be given absolute protection by immediate removal from tuberculous environment until the rather arbitrarily fixed age of 4. That an infant or young child may quickly succumb to an overwhelming dose of tubercle bacilli is known. There is experimental evidence also to show that continued small dosage, such as might result from frequent contact with a consumptive, is even more apt to produce disease than a single large dose.

BOVINE TUBERCULOSIS

About 8 per cent. of deaths from tuberculosis in man are caused by bovine bacilli, most of the victims being children. Raw market milk of the cheaper grades in most cities frequently contains bovine tubercle bacilli. Opinion has fluctuated concerning the importance of bovine infection, from von Behring's theory that all tuberculosis is due to bovine infection acquired in infancy, to the idea that it might safely be ignored and was even desirable. It seems definitely settled that while the danger from this source has been sometimes exaggerated, it is a distinct menace and there remains only the question as to how it can best be avoided It is an amazing fact that with full knowledge of the epidemiology of tuberculosis among cattle, the disease has not been eliminated in a single state in this country. The practical difficulties have appeared too great to be overcome. The disease is so widespread among cattle, it is so often a benign infection, the cost of destroying all infected animals is so great that the policy is now forming of segregating infected animals and keeping those only slightly affected for limited but definite usefulness. They are entirely suitable for breeding purposes, calves removed from the infected herd at birth showing in after life no evidence of tuberculosis. In Germany the flesh of tuberculous cattle is marketed and readily sold, proper label being affixed and suitable instructions for thorough cooking being given. In this country there is a growing disposition to permit the sale of milk from tuberculous cows if properly pasteurized and so labeled. The ultimate eradication of the disease among cattle depends on segregation and on making the uninfected animals as resistant as possible by proper stabling, water, food, exercise and air.[1] The analogy between the problems presented by the disease in man and animals, respectively, is too clear to require comment.

PREVALENCE AND FATALITY OF THE DISEASE

Tuberculous infection, conceded as practically universal among adults, causes disease only under certain fairly well known conditions. These, in a word, are those which exhaust vitality, which drain the physical resources; they are fatigue and depletion. The ages, occupations, habits, social conditions and economic states of those chiefly affected all point to this important fact.

1. Report of the International Commission of the American Veterinary Medical Association on the Control of Bovine Tuberculosis, September, 1910.

Age.—About one third of all deaths between 20 and 40 are due to tuberculosis. The rate is also almost as high in women between 15 and 20, and wherever work or other deleterious condition is imposed on those either younger or older than the conventional age a mortality rate comparable to that experienced in mid-adult life is commonly found. There is scarcely need to point out that the period covered by these years is the age of greatest stress, the time of supreme endeavor. Between 20 and 40, ardent desires, intense ambitions, passions, both good and evil, drive the human machine relentlessly. The desire to excel, to marry well, to be admired, pride, instinct and vanity, all conspire to stimulate activity. The ambition to make money, obtain place and secure power, leads to self denial and to immoderate exertions — to depletion and fatigue. Whether a man's capital is brain or brawn, whether he has mental force or physical strength to invest, the midperiod of life finds him spending, spending lavishly, of the best he has. Whether he succeeds or fails, his expenditures, if he is ambitious, are limited only by his physical resources. With women no less than with men is this a critical period, and it will not be strange if, owing to more active participation in life's struggle, the slight difference in the mortality rate from tuberculosis which is now in the female's favor should shortly disappear. At this age, too, the fullest opportunity is found for indulgence of every passion prejudicial to general good health. Here the most abundant temptations appear to exhaust physical resources. Alcoholism and venery now take their greatest toll of life's chiefest possession. Be he then virtuous or vicious, filled with consuming ambition or merely the prey of evil passions, man finds himself between 20 and 40 more frequently than at any other time in a condition of anergy to tuberculous infection and succumbs to it more frequently than to any other disease.

Occupation.—While there are certain occupations which predispose to tuberculosis, especially pulmonary tuberculosis, it is generally true that those occupations in which a high mortality occurs are those calling for excessive effort or often by reason of poor pay, accompanied by privation. The predisposing trades which should by all means be given due place are, first, the dusty occupations, and, second, the trades to which bad air, excessive heat or noxious gases are peculiar. Stone cutters, dry grinders and workers in wood and certain textiles have long been known to be particularly susceptible to pulmonary tuberculosis, presumably as a result of mechanical injury or irritation to the lungs. Although miners are not usually included in this class, exceptions are occasionally noted; Lanza of the Public Health Service reports an excessively high mortality rate among the miners at Joplin, Mo., where peculiarly dusty rock strata are encountered.

The other trades in which deleterious influences are directly encountered are glass blowing, cigar making, printing, bookkeeping, the making of hats and caps, etc. Some of these are in reality dusty trades, and glass blowing may easily cause mechanical injury to the lungs. A large number of trades often mentioned as predisposing are simply representative of those in which employees are underpaid or overworked or which are sought by the physically unfit or by those mentally unqualified to conserve their physical resources. Of the occupations in which predisposing influences are actually found, it can be said that here are conditions most easily remedied of all that the epidemiologist will encounter. In most cases only physical conditions are to be combated, dust, heat, poor construction and insanitary practices. The conditions to be corrected are usually simple for a sanitarian. It is among those classes whose problems are entirely social and economic that the epidemiologist will sometimes despair. Large numbers of eminent men of genius have fallen victims to tuberculosis. "Nearly all hard zealots in the fields of letters, law, love, medicine and religion" were victims of consumption, according to Bonney. Just as, at the other end of the scale, unintelligent toilers are driven by their necessity, their improvidence or their fate beyond the limits of safe physical expenditures, so men of genius are spurred by high endeavor to commit identical error and meet a common fate in tuberculosis. In those professions, trades and other occupations, characterized alike by comfortable living and moderate exertions, is found the lowest mortality from tuberculosis. The death rate from tuberculosis among contractors and builders is about half that of their laborers, among planters and overseers less than half that among agricultural laborers (Warren); it is much less among merchants, brokers and bankers than among salesmen, clerks and bookkeepers; among authors and journalists than typesetters and printers. Again we are forced to the conclusion that fatigue and depletion are the real predisposing causes, except in a few occupations in which deleterious influences per se are encountered, and that the daily grind of physical or mental exertion, coupled with a low wage and hence a low or mediocre standard of living, are the most important factors in occupational predisposition.

Habits and Social Conditions.—The ascetic and the roué are both common victims of tuberculosis. Their habits, though directly opposed, possess the common property of producing fatigue and depletion. The high mortality from this disease among the nuns of certain orders may be due in very small part to heavily infected environment; but according to more recent conceptions of the epidemiology, it is largely due to the mortification of the flesh, self-imposed penalties, long fasts and exceedingly depressing conditions under which the inmates live. The members of a particularly fast social set, in which dissipation is excessive, may closely duplicate the experiences of the ascetic sisterhood. The society belle exhausted by exacting social duties, the humble sweatshop seamstress exhausted by long hours of toil, the student burning the midnight oil and exhausting his physical endowment by too persistent application to his subject, the worthless profligate wasting his patrimony and depleting through dissipation his forces of resistance, fall easy victims to tuberculosis. Chronic fatigue, whether from excessive toil or excessive amusement, disordered metabolism, whether from starvation or overindulgence, anxiety, whether due to religious fervor, business emergencies or games of chance, all are potent predisposing factors.

Race may properly be considered with habits and social condition, although we have no disposition to deny that race, in itself, has a bearing on the epidemiology of tuberculosis. Eliminating the other and more important considerations than blood, clinical experience indicates that there is some difference in the resistance which men of a few races show to the disease, that there are at least two races especially vul-

nerable and several especially resistant. It is certain, however, that habits and social conditions peculiar to these races have deeper significance than race itself. The mortality from tuberculosis among the plains Indians of New Mexico is much greater than that of the Pueblos of the same state. The former, notably the Apaches, are improvident, nomadic and indifferent to their own comfort. They lack resourcefulness in meeting emergencies inimical to health, and are bound by numerous prejudices, such as a dislike for fish, milk, eggs and certain kinds of meat. They are lazy, and their habits of personal hygiene are such that indigestion and diarrhea are frequent. They are, moreover, intemperate when occasion offers. The Pueblos, among whom the mortality from tuberculosis is less than half that among the Apaches, are thrifty farmers and householders with a desire for comfort and a full stomach. Housebroken for centuries, they are comparatively clean in their habits. They are better clothed, better housed and much better fed than their more primitive neighbors. There seems no reason to doubt that the difference in their death rates is due largely to different ideals and habits. Likewise in the habits of the negro, as regards housing, general hygiene, temperance, providence, etc., will be found many things which bulk large among the predisposing causes, and this is true of most races called susceptible. Consider the Chinese as found in America, living in squalor, hoarding at the expense of his physical upkeep, exhausting himself by excessive labor and often given over to vice. His mortality from tuberculosis is quite comparable to that of the negro; an ancient race under similar conditions suffers just as a more primitive one does. Whatever the effect of race may be, it is not profitable to study since obviously there is no remedy for its influence. In the habits peculiar to a race, frequently of far greater import than blood, are found matters amenable to change and fruitful study for the epidemiologist.

Economic State.—Rosenau calls tuberculosis a class disease. It has long been known as an associate of poverty. It is both a result and a cause of low economic state. Warren of the Public Health Service has plainly pointed out the fact that poverty and a low standard of living are responsible for the high death rate among negroes in perhaps greater degree than any other factor. Our own observations among the Indians are similar. Among the most valuable observations made are those mentioned by Knopf in Berlin, where it was found that 42 per cent. of all cases of tnberculosis occurred in families occupying only one room, and 40 per cent. in families whose means allowed but two rooms. Only 6 per cent. of the cases were found in families living in establishments consisting of four or more rooms. It is, indeed, a disease of fatigue and depletion which may be caused by many conditions, but by none more frequently than by poverty. It seems almost unnecessary to recount why poverty predisposes to tuberculosis. Poverty is associated with overwork and undernourishment, a forced acquiescence in unhygienic working conditions and a low standard of physical comfort at home. Here child labor and the employment of others physically unfit are most frequent. All times are times of stress. The poor may not pause to nurse themselves for a minor illness or to complete recovery from a serious one; the best medical skill is not always available and proper nursing seldom had. The diseases which particularly predispose to tuberculosis run riot among them owing to intimate contact of the crowded poor. The effects of alcoholism and other vices are aggravated by poverty, and with the loss of physical fitness which welcomes tuberculosis in one generation there is the heritage of exhausted physical endowment for the next. Sorrow, anxiety, fear, discouragement and discontent, physical exhaustion and physical discomfort, ignorance, vice and often inherited poor physical endowment, what better soldiers could this Captain of the Men of Death require!

Application

As has been well said, "What is most needed at the present time is not so much more research but a more general application of the results already at hand." Our knowledge of the epidemiology of tuberculosis, while not complete, is sufficient for a comprehensive campaign against it. I cannot agree with Landis and Kaufman, who say, "We know very little about its etiology." What we know should be taught the general public, which should be well grounded in the general knowledge of prevention.

By a general knowledge of prevention is meant something more than the crude and elementary knowledge necessary to avoid gross infection. It implies a deeper and more subtle insight into the principles of the conservation of bodily resources. To properly acquire such a knowledge, an intelligent people must be carefully instructed by well-trained teachers thoroughly versed in all the principles of preventive medicine and in complete harmony concerning the prevention, diagnosis and treatment of tuberculosis. Such instructions cannot be accomplished in one generation. It will take many years, but a good start has been made. Comparing the present general knowledge of tuberculosis with that of twenty years ago, there is no reason to doubt that success will ultimately crown the work. The public schools will naturally be one point of vantage for instruction. This instruction will include a comprehensive knowledge of all the principles of hygiene. The public must be taught to view with intelligent concern the common sources of tuberculous infection; to apportion properly the relative hazards encountered in ordinary daily life and to avoid the most important; to recognize the susceptible ages, the predisposing causes, the critical periods of tuberculous infection; to know the folly of inordinate efforts and the dangers of fatigue. The layman of the future must possess as commonplace information the principles of the prevention of tuberculosis held in trust now by the most expert students of the disease.

The application of our present knowledge of its epidemiology to the suppression of tuberculosis involves, first, the avoidance of gross infection; second, earlier diagnosis, and third, the prevention of predisposing causes. The first needs only some modification of principles already widely applied and the mitigation of some unnecessary precautions. The second embodies more than might at once appear to the casual reader. The third embraces a vast multitude of considerations, some of which lie at the very foundation of modern society.

The Avoidance of Gross Infection

Within recent years, frequent protest has been made against a rather common phthisiophobia, and it now seems probable that some current precautionary measures will be found unnecessary or at least unjustified. Certainly we should abandon the idea of attempting the destruction of all tubercle bacilli and the isolation

of all consumptives, measures which were actually contemplated by some. This subject, which has too long occupied the whole field, must be relegated to its proper place. Unlimited protection should be given infants up to 2 years, preferably to 4, and as much later as possible. Intensive work is necessary to accomplish this. Public funds should be freely spent, both in the collection of necessary data (registration, etc.) to make it practicable, and in providing measures for its execution. When the new idea has taken practical form, we may expect an increase in the number of public nurseries and children's preventoriums. We will witness a selection, for segregation in public sanatoriums and hospitals, of consumptives from families containing young children. Laws will be passed applying to tenements, boarding houses and other community dwellings prohibiting the housing of young children with the tuberculous, and minimum hygiene requirements for the care of infants will be fixed by statute.

It does not seem probable that vaccination against tuberculosis will ever become of great practical use. The inoculation of young children with living tubercle bacilli will always be an exceedingly serious thing, although it is possible that allied but wholly nonpathogenic bacteria may be found to sensitize. At present we should be content with absolute protection during infancy and, if possible, until the time when frequent periodic physical examinations are instituted.

Only an extremely guarded exposure should be allowed until after puberty. After that, safety will depend on other factors. I freely admit that the practice of relying on accidental vaccination through casual exposure during childhood is an extremely unsatisfactory method of securing that degree of immunity which is considered by some to result therefrom in the adult. We may one time find that adult tissue depends for its resistance to extraneous infection on other factors and that even first exposures after a certain age are not very dangerous. (This matter was briefly referred to above.) However that may be, expediency at present prevents us from hoping to protect children indefinitely from casual contact with the tubercle bacillus. Protection from the pneumococcus, the meningococcus and pus organisms offer almost analogous problems.

An attempt to segregate all consumptives is somewhat similar to an effort to destroy all rats in a plague-threatened city. The task in both cases is unending; a fresh supply of advanced consumptives and of rats constantly appears. Plague is best combated by rat proofing all buildings and food supplies, thereby making an ineradicable enemy innocuous and preventing his multiplication. It involves a certain amount of toleration. In the same way, when we have proofed society against conditions which beget tuberculosis, we may tolerate with equanimity a dwindling number of consumptives.

EARLY DIAGNOSIS AND MORE INTELLIGENT TREATMENT

With proper treatment, those with very early cases of tuberculosis usually recover; those with advanced disease seldom do so. Routine physical examination for the early detection of tuberculosis and other diseases seems almost certain to become universal. A multitude of eminent men now stand sponsor for the idea. A certain excellent organization (the Life Extension Institute) exists largely for the purpose of promoting such a policy. A good beginning has been made. It will be simple to effect it in the schools. It would not be difficult to enforce it throughout life, just as the performance of other public duties is required. The educational value of a complete physical examination (not inspection), made quarterly or at least semiannually during the entire school age, if accompanied by proper advice concerning its purpose, would have tremendous significance to the impressionable child and far reaching effects in later life.

The difficulty of making an accurate positive or negative diagnosis of tuberculosis in children is well known, but a positive diagnosis will not always be necessary. Any condition of ill health, malnutrition, anemia, chronic fatigue or fever in the presence of insanitary surroundings will call for appropriate relief. The preventorium, the open air school, the school nurse, the family physician, the arm of the law to effect more radical changes when necessary, will provide the remedy. When early diagnosis is made in adult life, necessary and intelligent provision to prevent the development of the disease as it is now clinically known must be at hand. A diagnosis should be made at least a year, often several years earlier than now common. The necessity for prolonged sanatorium treatment could then be often forestalled by a rest, a change of habits, a conservation of physical resources, by the simplest of hygienic measures. This would be intelligent treatment. The time may never come when human derelicts with advanced tuberculosis will not seek refuge in those havens of refuge now known as sanatoriums for the treatment of tuberculosis. The weak, the badly advised, the ignorant, the indifferent and the vicious will always be with us. But the time will surely come when some one will be held responsible for allowing the ordinary case of tuberculosis to progress beyond early incipiency before it is discovered.

There is no easily applied test for clinical tuberculosis. A negative physical examination is not conclusive, and a prolonged observation of the general health is often necessary. It would appear that some perfected means of measuring fatigue or determining the vital capacity will offer the best solution of the difficulty. With a proper standard of physical efficiency predetermined for each individual and adequately controlled, the time may come when the necessity for an accurate diagnosis of tuberculosis will not be considered important even in the adult. In fact, that is the case now when physiologic abnormality from indefinite causes is encountered among those of sufficient means to meet general indications.

Sickness insurance, toward which the country is said to be definitely moving, may be expected to provide opportunity for averting impending physical calamity when timely indicated. Insurance such as described by Warren and by Schereschewsky and such as has been in times past successfully operated in Germany will be an indispensable part of the new propaganda. It should be universal and compulsory among all of low economic status, and should be a provision for something more than mere hospital relief. It will be an invaluable means of safeguarding against one of the end-results of poverty, a large number of otherwise helpless individuals.

PREVENTION OF PREDISPOSING CAUSES

Other Diseases.—It is well known that when measures are taken to prevent any one disease, the death rate from some others, notably tuberculosis, is also

affected. The decline in the general death rate after typhoid eradicative measures known as the Mills-Reincke phenomenon finds some explanation in recent observations on the death rate among typhoid survivors, which was as 54 to 26.45 among normal people. Of the deaths, 39 per cent. were due, in the first three years after typhoid, to tuberculosis. There is no disease, acute or chronic, which does not lend its influence to tuberculosis. In measles and scarlet fever, allergy itself is temporarily lost, and resistance to the tubercle bacillus greatly lessened for several months. In pertussis, pneumonia and influenza, the mucous membrane of the respiratory tract is often damaged, trauma of the pulmonary tissue occurs and other grave changes may result, leaving a vulnerable body. Diabetes, carcinoma, hookworm, malaria, chronic indigestion and dysentery, like typhoid, greatly impair nutrition and create conditions most favorable for the development of tuberculosis. The further reduction of economic waste from serious sickness must also be considered.

Every influence which increases the hygienic standard of living will therefore assist in reducing tuberculosis. Vaccination, pure water supplies, sanitary privies, infants' milk stations, open air schools, multiplied public parks, dispensaries, hospitals and all laws and other measures calculated to control disease are adjuvants in the campaign against tuberculosis. The physician will support, as he has always done, every movement to regenerate mankind, but it should be well understood that to eliminate the chief predisposing cause of tuberculosis the efforts of any one body of men will be futile.

Stress.—"Fundamentally sanitation and health are economic problems." The eradication of tuberculosis is largely an economic problem. Stress is the predisposing cause paramount, and while the physician may perhaps ease the stress incident to unwise sanitary practices, and the moralist allay that due to vicious habits, the great causes of stress, before which all others dwindle into insignificance, belong to the economist and sociologist.

The present surgeon-general of the army is quoted as advocating the single tax on land as a health measure, together with other similar radical measures, which may not find general acceptance. The suggestion at least emphasizes the great importance now placed on economic conditions in controlling disease.

To eradicate tuberculosis we must combat poverty itself and the causes of poverty. Society must be partially reconstructed. A greater humanity and a truer wisdom must prevail. Our humanity and our wisdom may not be equal to the problem. Human progress is not assured, and it is by no means certain that tuberculosis will ever be completely elminated. If the poor are always to be with us, it seems probable that there will always remain, in spite of all direct methods of combat, a residual tuberculosis proportionate to the amount of physical stress which always accompanies poverty.

Infant Mortality as an Index to Civilization.—Sir Francis d'Ivernois observes that, "if the various states of Europe kept and published annually an exact account of their population, noting carefully in a second column the exact age at which the children die, this second column would show the relative merit of the government, and the comparative happiness of their subjects. A simple arithmetical statement would then perhaps be more conclusive than all the arguments that could be adduced."—Malthus, Essay on Population (1789).

THE UROCHROMOGEN REACTION AS AN AID TO PROGNOSIS

IN PULMONARY TUBERCULOSIS AND NON-TUBERCULOUS DISEASE

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The following communication presents a study of the relation of the occurrence of urochromogen reaction in the urine of tuberculous and nontuberculous patients to the stage of the disease present, and to the ultimate prognosis. The work has been carried out primarily with a view to investigating the reaction in advanced tuberculosis, and has been done in the Tuberculosis Department of the Providence City Hospital. In addition, however, the test has been adopted as a routine on all urines coming to the laboratory from the other departments of the hospital, which deal principally with cases of diphtheria, scarlet fever and measles. The number of tests carried out in studying 171 patients suffering from advanced tuberculosis was 469; in studying 650 cases of nontuberculous disease, 1,030 tests.

The test is performed as follows: To 5 c.c. of urine in a test tube, 10 c.c. of tap water are added, and mixed by being poured into another tube and back several times. The mixture is divided equally between the two tubes, and to one of them, 3 drops of a 1:1,000 solution of potassium permanganate are added. The other tube serves as a control. A positive reaction is indicated by the appearance, in the first tube, of a distinct and persisting yellow color. If the yellow is pale, or does not persist, the reaction is regarded as doubtful or suggestive.

The test for urochromogen in the urine was introduced by Moritz Weisz in 1911, after an exhaustive study of the diazo-reaction of Erhlich. He concluded that the latter reaction depends on the presence of urochromogen, the mother substance of urochrome, which is the normal coloring matter of the urine. He noted further that another substance is present at times, evidently an antecedent of urochromogen, and that this substance fails to give the diazo-reaction. This fact, in his judgment, helps to explain the fickleness of the latter test. Both urochromogen and its antecedent he then found to give a yellow color on the addition of a few drops of a weak solution of potassium permanganate. This test is therefore much the more reliable in the detection of cases in which the normal formation of urochrome has failed to take place.

Weisz believed that defective oxidation of urochromogen to urochrome was due in tuberculosis to massive doses of tuberculous toxin, or to marked decrease in resistance to such toxin. A positive test must, therefore, indicate an advanced and dangerous lesion. The grave prognostic import of a repeatedly positive diazo-reaction has been generally recognized since it was pointed out by Ehrlich more than a quarter of a century ago. Similarly, in regard to the urochromogen test, which depends on the same condition as does the diazo-reaction, Weisz believes that a positive test, persisting after the institution of treatment, denotes a hopeless prognosis, and its constant appearance means rapid progress to a fatal end. In this country, the

reaction has been investigated by Heflebower[1] and by Metzger and Watson.[2] The conclusions of these investigators in the main agree with those of Weisz. In addition to his opinion in regard to the gravity of a positive test, Heflebower states that "a constant negative result points to a case that is progressing favorably," and similarly Metzger and Watson conclude, "its [the reaction's] absence is generally, though not invariably (regardless of how sick the patient seems) of good prognostic import." Ferrannini[3] also believes that "a faint and inconstant reaction offers a favorable prognosis."

As regards nontuberculous conditions, the urochromogen reaction is apparently of no value in determining the prognosis. Bruni[4] has reported a number of tests in nontuberculous cases, and in patients with bone and joint tuberculosis. He regards the results of these tests as valueless in diagnosis and prognosis.[5]

Among the 1,030 reactions in nontuberculous cases included in this report, there were but twenty-six positive. A study of the case records of the patients whose urines showed the presence of urochromogen at any time revealed nothing remarkable as regards the severity or the course and ultimate outcome of the disease in each case. It was impossible to discover any relation between the clinical condition present and the occurrence of a positive reaction. Every case which showed a positive or doubtful test for urochromogen, and in which subsequent reactions were performed, showed a prompt disappearance of the substance from the urine, with the remission of the acute clinical symptoms. The conclusion is, therefore, justified that in cases of nontubercular disease studied the urochromogen test proved of no clinical value.

SUMMARY OF TESTS IN TUBERCULOUS CASES

1. Cases Showing One or More Positive Reactions: Of the 469 tests on 171 patients with advanced tuberculosis, ninety tests were positive. Of the 171 patients, those who showed a positive test at least once during the course of the disease were fifty-five in number.

The outcome of these fifty-five cases is given in the accompanying tabulation.

OUTCOME IN FIFTY-FIVE CASES OF TUBERCULOSIS SHOWING A POSITIVE UROCHROMOGEN REACTION

Outcome	No. of Cases
Died within 3 months	30
Died within 6 months	6
Died after more than 6 months	1
Left hospital, condition worse	5
Left hospital, condition unrecorded	2
Still alive after less than 3 months	8
Still alive after 3 to 6 months (condition worse)	1
Still alive after 10½ months (much worse)	1
Still alive after 10½ months (unchanged)	1

Thus, of patients showing at least one positive reaction, more than 50 per cent. have died within three months, and only three, as far as is known, have lived more than six months. One of these three died early in the seventh month, and another, after ten and one-half months, is rapidly failing. The third is still alive at the end of ten and a half months, and her condition has not materially changed. Since her positive test, Nov. 1, 1914, her urine has been negative to six subsequent tests. She is the only patient whose condition either has remained stationary or has improved, who has not showed a negative reaction at every examination.

2. Fatal Cases: In all, 169 tests have been carried out on the urine of fifty-eight patients who have subsequently died. Of these tests sixty-six were positive, eighty-two negative and twenty-one doubtful. In twenty-six of these patients, the urine was examined at least three times at varying intervals before death. Only four of this group showed a constantly positive, and three a constantly negative, reaction. In the rest there was noted a change from positive to negative reaction (or to doubtful) or the reverse, without any evidence of variation in the continuously unfavorable progression of the clinical course of the disease. This change in the reaction was seen to occur in some instances even from day to day. Evidently, even in the rapidly fatal cases the excretion of urochromogen is rarely continuous, and it is probable that none of the cases would fail to show an occasional reaction if the urine from each passage were tested separately. Though it is probable that every such patient excretes urochromogen at times, it is not at all rare for repeated tests to be negative, despite the evident rapid approach of a fatal issue. The obvious conclusion is that a negative reaction does not necessarily indicate that the tuberculous process has become quiescent, or that in the absence of clinical improvement, such a reaction is to be considered as a favorable sign. Notwithstanding the opinion of certain other observers to the contrary, a negative test appears to be of no value as regards prognosis.

It is interesting, however, to note that with the exception of the one woman mentioned above, every patient whose clinical condition has remained stationary, or has shown improvement, has exhibited a negative reaction at every test. On the other hand, the appearance of urochromogen in the urine of a person in whom the disease has been at a standstill or but slowly progressing has usually accompanied definite clinical evidence of renewed activity of the lesion, and has always indicated the approach of a rapid decline to a fatal issue.

CONCLUSIONS

1. The urochromogen reaction is of no value in determining the prognosis in diphtheria, scarlet fever and measles.

2. In advanced tuberculosis, a positive reaction indicates a severe and actively progressing lesion which will probably lead to death in from three to six months.

3. In advanced tuberculosis, a negative reaction is of no value.

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1. Heflebower, R. C.: Am. Jour. Med. Sc., 1912, cxliii, 221; abst., THE JOURNAL A. M. A., Feb. 24, 1912, p. 587.
2. Metzger, Jeremiah, and Watson, S. H.: An Aid to Prognosis in Pulmonary Tuberculosis, THE JOURNAL A. M. A., June 13, 1914, p. 1886.
3. Ferrannini, A.: Riforma med., 1915, xxxi, 479; abstr., THE JOURNAL A. M. A., June 12, 1915, p. 2029.
4. Bruni, A.: Gazz. d. osp., 1915, xxxvi, 401; abstr., THE JOURNAL A. M. A., May 15, 1915, p. 1693.
5. Considerable research is also reported by Balduzzi, A., and Ballero, A.: Gazz. d. osp., 1914, xxxv, No. 133; abstr., THE JOURNAL A. M. A., Jan. 23, 1915, p. 377.

Rural Health and "Patent" Medicines.—As the schools grow progressively in adjustment, successive generations will have the higher standards. But while this transformation as an outlook is encouraging, we cannot but realize the dire need of present action. Why can we not teach the farmer and his wife the danger of the use of Peruna, Swamp Root, or Madam Winslow's Soothing Syrup? Why can we not reach the rural home with the good tidings of how to escape typhoid fever, hookworm disease, or malaria? If we can, the obligation is ours.—Oscar Dowling, *American Journal of Public Health*, May, 1915.

THE SYNDROME OF TOXEMIA

AN EXPRESSION OF GENERAL NERVOUS DISCHARGE THROUGH THE SYMPATHETIC SYSTEM

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The human body under normal conditions has a perfect physiologic balance. One part or organ is in a state of perfect, balanced relationship with every other part or organ. A disarrangement of this equilibrium produces pathologic conditions and dysfunction. These derangements are indicated by symptoms and signs, which, when grouped, give us a picture of a definite disease.

The explanation of well-known symptoms is often wanting, the practitioner being compelled to learn them as a part of the syndrome belonging to a certain disease instead of being able to point out the exact force operating to produce them. An etiologic classification of symptoms leads us to a better understanding of the disease in question and facilitates diagnosis.

In analyzing the symptoms and physical signs in pulmonary tuberculosis, I found that they could all be classified etiologically in three groups: 1, those due to toxemia; 2, those due to reflex action; and, 3, those due to the tuberculous process per se, as in the table.

ETIOLOGIC CLASSIFICATION OF SYMPTOMS AND PHYSICAL SIGNS IN TUBERCULOSIS

Group 1.—Toxemia	Group 2.—Reflex Action	Group 3.—Tuberculous Involvement per se
Malaise	Hoarseness	Frequent and protracted colds
Lack of endurance	Tickling in larynx	Spitting of blood
Loss of strength	Cough	Pleurisy
Nervous instability	Circulatory disturbances	Sputum
Lack of appetite	Digestive disturbances	Temperature
Digestive disturbances	Loss of weight	
Loss of weight	Chest and shoulder pains	
Rapid pulse	Flushing of face	
Night sweats	Apparent anemia	
Temperature		
Anemia		

In this manner we classify some twenty-five or thirty symptoms which belong to tuberculosis in three groups so that each symptom in the individual group is due to a common etiologic factor. Such a classification simplifies diagnosis. It offers an explanation for the fact, which has long been observed, that symptoms are variable, in that the same ones are not always present, and when present, are not always equally prominent.

When studying these three groups of symptoms I was impressed with the fact that there is nothing distinctive of tuberculosis in that group which is due to toxemia. The same symptoms could be due, as well, to an infection of the tonsil, the prostate, the fallopian tube, a toxemia from intestinal stasis or an acute infectious disease. They are, in short, a part of the syndrome of infections in general. I was further impressed with the fact that the second group, those of reflex origin, all point to organs other than the lung, but that they belong to organs which are supplied by the vagus and sympathetic nervous systems, both of which supply the lung. *A further analysis of the group which is due to toxemia shows that these symptoms are identical in distribution and effect with a general discharge of nervous impulses through the sympathetic nervous system.*

To make this clearer it is necessary to recall that the autonomic nervous system supplies impulses to structures which are not controlled by the will. These are the organs supplied by smooth muscle such as the stomach, intestines, blood vessels, ducts of glands; and also certain organs possessing striated muscle fibers such as the heart, the beginning and terminal portions of the alimentary canal, and the generative organs.

The autonomic system is divided into three groups: 1, the cranial and bulbar, which are spoken of as the vagus system; 2, the thoracic and upper lumbar, known as the sympathetic system; and, 3, the lower lumbar and sacral, known as the sacral system.

The vagus system is the system which conserves life. It contracts the pupil, increases salivary secretion, slows the heart beat, causes an increase of gastric and intestinal juices, and furnishes motor power for the gastrointestinal tract. The sacral system controls the emptying of the lower bowel and bladder and presides over the generative functions. The sympathetic sends branches to all organs supplied by the vagus and sacral systems; and where the fibers from these different systems meet there is an antagonistic action between the sympathetic and other two systems. If the sympathetic stimulation is sufficiently strong, it overcomes the vagus and sacral tonus. If this control is only momentary or of short duration, as it is in fear and anger, as shown by Cannon,[1] the general strength of the individual is increased. He possesses for the time being a power greater than normal. On the other hand, if this sympathetic control continues, a general inhibition of function in the organs supplied by the sympathetic system takes place and the individual's powers suffer a diminution; thus, the dry mouth, lack of desire for food, stoppage of digestion and rapid heart's action, which are temporary in the presence of the major emotions, are emphasized and prolonged during toxemia and are expressed as a more or less continuous absence of appetite, coated tongue, retarded digestion, constipation, rapid heart action and tendency to perspiration.

While impulses may be carried directly from the brain and cord to the skeletal muscles, insuring immediate and selective response, and through the vagus and sacral systems through the intervention of a single ganglion, causing response limited to a certain organ, in the case of the sympathetic nervous system numerous ganglia are interposed and the response is shown in widely distributed parts. These ganglia act as modifiers or transformers of the impulse and make its distribution general, which accounts for the fact that so many organs and parts are involved in sympathetic irritation.

Whether a toxemia acts wholly, centrally, on the sympathetic nervous system is open to some question. While the expression is that of general sympathetic discharge, yet we must bear in mind that it is possible that this may be partly due to, or at least partly prolonged by, certain internal secretions which are engendered by, the same stimulation as that which produces the general sympathetic stimulation. Cannon has shown that the emotional states such as anger and fear, while being an expression of general sympathetic discharge, may be kept up by adrenin in the blood. The adrenal glands are supplied through the splanchnics; and impulses which cause a general sympathetic stimulation stimulate these glands also. A minute amount of adrenin poured into the blood stream has the effect of producing a prolongation of the condition which is brought about by direct sympathetic stimulation; thus adrenin

1. Cannon, W. B.: Bodily Changes in Pain, Hunger, Fear and Rage, Appleton, New York, 1915.

will cause a dry mouth, impaired digestion, intestinal stasis and a rapid heart. That toxemia, like the emotional states, acts by stimulating the sympathetics and by prolonging the action through the stimulation of the adrenals seems quite certain. It may also be found on further study that disturbances in other internal secretions may have a part in this general picture; but, even should this prove true, it will not alter the fact that the syndrome of toxemia is an expression of general sympathetic discharge.

SOFT EYEBALL IN DIABETIC COMA*

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Quite accidentally I tried one day the ocular tension in a case of diabetic coma, and was startled to find the eyeball of almost doughy consistency. On looking over the literature of diabetes I found that this symptom was first described by Krause[1] in 1903. He did not observe it in simple diabetes or in cases of acidosis unassociated with coma. In experiments on animals with acetone, diacetic acid and oxybutyric acid he failed to produce hypotonia of the eyeball; and he did find it in a dog rendered diabetic by pancreatectomy. Since Krause's first paper, few articles on the subject have appeared. Heine,[2] an ophthalmologist, refers to it in several publications. The observations of Lea Gite Schütz[3] are the most accurate, for they were made not with the finger but with the tonometer of Schiötz. She found that the tension varied from day to day, but that at the height of the coma it was extremely low or even nil. Few of the systematic writers speak of the symptom. Lépine[4] merely mentions it, referring to the papers of Krause and Heine. Among the many works on ophthalmology that I consulted, only the small monograph of Groenouw,[5] the book of Römer[6] and the article of Heine[7] speak of it.

Hertel[8] made a number of interesting experimental observations bearing on the symptom. He found, for example, that the electric conductivity of the soft eyeball was raised, showing that osmotic changes had taken place. By lowering the molecular concentration of the blood of animals, he succeeded in producing a hypotonia similar to that of diabetic coma in man. The degree of hypotonia could be varied by modifying the amount of substance introduced and the time consumed in its introduction. Various sodium salts, urea and sugar were the agents employed. Ehrmann[9] brought about hypotonia by injections of sodium butyrate and sodium isovalerianate, but in Hertel's opinion the hypotonia is not a specific effect of these salts as the same result can be obtained with sodium chlorid, sodium phosphate, urea and sugar. Chemical examination of the eyes showed that the substances injected had penetrated into the eyeball.

The soft eyeball in diabetic coma is not due to blood pressure changes; it is also not an agonal phenomenon, for it is not present in persons dying from other causes. Whether the ketone bodies play a part in its production is not definitely established. In acidosis without coma the symptom is not present. As, however, in acidosis with coma the acetone bodies are probably retained in large quantities, they may have a share in the production of the soft eyeball. In one of my cases of diabetic coma, in which ketone bodies were not found in the urine at any time, the soft eyeball was not present. In a recent case of diabetic coma in my care, that of a woman aged 41, with intense acidosis, the intern and I tested the tension repeatedly and found that it varied, as shown by the following records:

Oct. 26, 1915, on admission, the patient is conscious but lethargic; breath exhales a strong fruity odor. The urine contains sugar and diacetic acid in large quantities. Tension of eyeballs practically normal.

October 28, the patient is in coma. The pupils are contracted; the tension is greatly diminished in both eyeballs.

October 29, the patient is profoundly comatose. The tension of the eyeballs is somewhat greater than yesterday, but still markedly below normal.

Krause,[10] who observed it in twenty-two cases of coma, was of the opinion that the soft eyeball was a bad prognostic sign, but Schütz found that in one of her three cases recovery took place. Regardless, however, of prognostic value, the sign is important from the diagnostic standpoint. Heine[7] goes so far as to say that whenever found in a case of coma it proves the coma to be diabetic. Further observations are necessary before such a strong statement can be fully accepted.

As to the constancy of the sign in diabetic coma I cannot speak; in the last three cases of coma under my observation — the only ones in which I tested for it — I found it twice. One would hardly expect it to be present in every case, for constant symptoms are rare not only in diabetes but in all diseases.

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* Read before the Section in Medicine of the College of Physicians of Philadelphia, Nov. 22, 1915.

1. Krause: Ueber ein bisher nicht bekanntes Symptom bei Coma diabeticum, Verhandl. d. 21. Kong. f. inn. Med., Leipzig, 1904, p. 439.
2. Heine: Ueber Augenstörungen im Coma diabeticum, Versamml. d. ophth. Gesellsch., Heidelberg, 1903; Ueber Lipaemia retinalis und Hypotonia bulbi im Coma diabeticum, Klin. Monatsbl. f. Augenh., 1906, ii, 451.
3. Schütz, L. G.: Untersuchungen über den Augendruck beim Coma diabeticum, Inaug. Diss., Strassburg, 1913.
4. Lépine: Diabète Sucré, Paris, 1909, p. 578.
5. Groenouw: Augenleiden bei Diabetes mellitus, Halle, 1907.
6. Römer: Lehrbuch der Augenheilkunde, Berlin, 1910, p. 647.
7. Heine: Lehrbuch der Augenheilkunde, T. Axenfeld, 1915, p. 755.
8. Hertel: München. med. Wchnschr., 1913, p. 1191.
9. Ehrmann, quoted by Hertel (Footnote 8).
10. Krause: Deutsch. med. Wchnschr., 1907, p. 84.

A STRANGULATED EPIGASTRIC HERNIA*

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Any protrusion of tissue through a defect in the linea alba between the ensiform cartilage and the umbilicus is designated an epigastric hernia. Most of these hernias occur in the first 3 inches above the umbilicus, while those near the xyphoid are exceedingly rare. The relative frequency of epigastric hernia when compared with other types varies according to different statistics from 0.19 per cent. (Macready[1]) to 1.37 per cent. (Berger[2]). Coley[3] reports twelve cases from the Hospital for Ruptured and Crippled. These were observed in 3,383 cases of hernia (0.33 per cent.). In the last 1,000 hernia cases in which operation was performed at the Presbyterian Hospital of Chicago, there have been nine epigastric hernias, or 0.9 per cent.

Four types or varieties are usually described. The most common type is the protrusion of a small mass

* From the Surgical Clinic of Rush Medical College.

1. Macready, quoted from Keen's Surgery, 1912, iv, 90.
2. Berger, M. Paul: Traité de Chirurgie, 1892, p. 797.
3. Coley, W. B.: Keen's Surgery, 1913, vi, 588.

of subperitoneal fat without any sac. The mechanism of production of this variety has been described by Moschowitz, who shows that the subperitoneal fat is usually derived from that between the peritoneal layers of the falciform ligament of the liver. Such a hernia is always small and appears as a protrusion of fat through a short transverse slit in the linea alba, following the course of a small perforating blood vessel. The same writer states that he rarely diagnoses a true hernia with a sac prior to operation. The second type includes in addition to the subperitoneal fat a process of the peritoneum attached to it, making a true sac, but without contents. The third variety resembles the second with the addition of omentum in the sac. The fourth and least common type contains intestine as well as omentum.

Strangulation of epigastric hernias is exceptionally rare. Moschowitz[4] reports one case, and after a careful analysis of the literature, he has been able to find only ten others. Small intestine was contained in six of these eleven cases. Transverse colon was present in four. Omentum and strangulated bowel were found in four cases and omentum alone in one. It will be noted that the stomach was not present in a single case, although protrusion of this viscus into the hernial sac is often assigned as one of the causes of the distress complained of by the patient. It is much more likely that such distress is due to traction on the parietal peritoneum, or to increased pressure within the peritoneal sac.

The symptoms of epigastric hernias vary greatly. In many cases there are practically no symptoms, while in others nausea and vomiting, dragging pains in the epigastrium, and distress after meals may be severe enough totally to incapacitate the patient. The symptoms in cases of strangulation do not differ from those of any other hernia similarly strangulated.

The diagnosis is usually not very difficult. Lipomas occurring in this region can usually be demonstrated to have no connection with the abdominal cavity. Strangulation of the contents of an epigastric hernia may simulate an abscess in the anterior abdominal wall.

The following case belongs to the fourth variety of hernias of the linea alba between the ensiform and the umbilicus:

History.—A. S., man, aged 40, a Slav, and a laborer by occupation, entered the Presbyterian Hospital, April 9, 1915, on the service of Dr. A. D. Bevan. Three days prior to admission, the patient was seized with a continuous severe pain in the upper abdomen, and a swelling about as large as a lemon was noticed midway between the umbilicus and the xyphoid cartilage. This mass had remained unchanged since first noticed, except that it had become very tender. Vomiting began shortly after the onset of the pain, and had been almost continuous. The patient complained bitterly of thirst, and stated that he had been unable to retain anything for three days. A small lump in the epigastrium had been present since the patient was a child. He stated that this appeared immediately after an accident in which a wagon passed over him. He also described a number of somewhat similar attacks, none of which had lasted more than a few hours. In each attack the above-mentioned swelling became larger and very painful.

Physical Examination.—The patient was a well-nourished man, retching and vomiting continuously. There was an acetone odor to his breath. His temperature on admission was 99.2 F., but his skin was cold and clammy. The abdomen was moderately distended. There was no fecal matter in the rectum. About 2½ inches above the umbilicus, there was a firm ovoid mass measuring 2½ inches in diameter. This mass was fixed to the abdominal wall in the median line, and was very tender to the touch. The overlying skin was reddened, but this was attributable to the use of hot applications. The diagnosis of strangulated epigastric hernia was made, and an immediate operation performed by Dr. Bevan.

Operation.—Under novocain (1:200) and epinephrin chlorid (1:100,000) infiltration anesthesia, a transverse incision 6 inches in length was made 3 inches above the umbilicus. The subcutaneous fat was carefully divided until a firm lemon-sized mass was reached. This mass was freed of all fat down to its base. It was found to be a hernial sac protruding through an almost circular aperture in the linea alba. The diameter of this aperture was approximately 1 inch. When the sac was opened, a small amount of dark brown fluid escaped. The peritoneal lining was reddened, granular and lustreless. Within the sac were almost 4 inches of small intestine, probably upper jejunum, in addition to some adherent omentum. The bowel was brownish-black, but improved markedly in color after the constricting ring had been enlarged by a lateral incision. A gray band 1½ inches long and one-fourth inch wide, which showed no tendency to change color, was covered over by Lembert sutures and the bowel replaced. The adherent omentum was ligated and resected. There was a small mass of fat adherent to the upper part of the sac. This may have been subperitoneal fat from the falciform ligament, though no effort was made to determine its origin. Closure was made by the Mayo[5] method, imbricating from above downward by means of three mattress sutures of heavy catgut. The free margin of the flap was sutured to the aponeurosis below by means of interrupted catgut. A small gutta percha drain was placed in the center of the wound, and closure made with interrupted silk sutures. Primary union was obtained, and the patient made a complete recovery.

Occasionally these hernias are confused with the umbilical type, which are much more common. The extreme rarity of strangulation of the epigastric variety, I believe, justifies this brief report. As far as I have been able to ascertain, this is the twelfth case of strangulation of an epigastric hernia to be reported, and the fifth case in which both omentum and intestine were present.

4. Moschowitz, A. V.: Surg., Gynec. and Obst., October, 1914, p. 520.

5. Mayo, W. J.: Further Experience with the Vertical Overlapping Operation for the Radical Cure of Umbilical Hernia, THE JOURNAL A. M. A., July 25, 1903, p. 225.

A NEW METHOD OF INTESTINAL ANASTOMOSIS

WITH A STUDY OF THE INTESTINAL MOVEMENTS AFTER ITS USE *

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There is considerable difference of opinion as to the choice of methods of intestinal anastomosis. Some of the advantages claimed for the lateral method are: First, that it permits approximation of broad surfaces of serous membrane; second, that a union can be made without regard to the relative size of the ends of the cut intestine; third, that the opening can be made as large as desired.

Although the opening can be increased in size, as advised by Abbe,[1] there is an extensive cutting of the circular muscular fibers and lack of mechanical reestab-

* From the Department of Experimental Surgery, University of Minnesota Medical School.

1. Abbe, Robert: Med. Rec., New York, 1892, xli, 365.

lishment, which necessarily impairs the peristaltic activity.

Some of the disadvantages, as observed by animal experimentation, are that indigestible substances, bones, straw and hair (Senn,[2] Reichel[3]) may accumulate in the blind proximal end of the bowel. The distal end may become invaginated until this portion fills the opening and produces obstruction (Cannon,[4] Ashton and Baldy,[5] Robinson[6]), especially if the blind ends are long and not carefully fixed. There may also be danger of interference with the blood supply to the blind ends if too little of the bowel is left beyond the opening (Corbett[7]). Cannon and Murphy[8] found stasis in the region of the lateral anastomosis as determined on animals which were kept for four days after operation on a waste-free diet and to which they gave an admixture of bismuth in thin boiled starch, observations being made with the Roentgen ray. They found stasis of this fluid, even after twenty-four hours, in the region of the anastomosis after all of the other unabsorbed material was in the colon. Stasis, as described above, was usually found in animals after from ten days to two weeks. They therefore thought it evident that the two united intestinal loops did not act in unison to propel the food, which in the region of the dilated lumen was pushed forward by peristalsis in the intact intestine, acting on the food proximal to the anastomosis. That there is a tendency of all lateral anastomoses to undergo cicatricial stenosis is generally recognized. Bloodgood[9] has recently ascribed failures, when anastomoses were done in resection of atonic colons, to the two blind extremities becoming tense and painful diverticuli.

As to the end-to-end anastomosis, it may be more quickly done. Cannon and Murphy[8] were able to observe at no time a stasis of food after the end-to-end union of the severed bowel, and therefore recommend this procedure in preference to the lateral anastomosis because of the rapid resumption of normal function. Their observations were made on cats and performed with the Connell suture. Küttner, Senn[2] and Gibson[10] asserted that it is not possible to get this wide contact of serous surfaces, which is desired, without narrowing the lumen of the bowel so much that obstruction is probable, or that stenosis due to contracture or to a diaphragm may result. There is also the possibility of producing ischemic necrosis from interference with the circulation of the mesenteric vessels. The danger resulting from insufficient approximation of serosa is indicated by a case reported by Elsberg[11] in which the end-to-end anastomosis was found, at the secondary operation performed at the end of ten days, to have failed at one point.

Other methods of intestinal anastomosis have not come into general use, and some of them are open to serious objections. Some of the better known are perhaps those of Maunsell,[12] Cheattle,[13] Ferguson,[14] Grant with Turk's modification,[15] Soresi,[16] Horsley,[17] Maury's[18] twine triangular stitch, and Bloodgood's[19] side-to-side ends together; and there are numerous others.[20] The artificial aids, according to Reder,[21] may be convenient in occasional conditions of intestinal surgery, and they are usually either dissolved or passed. In the end-to-side or lateral implantation, Reder states that the technic is more difficult than the end-to-end or lateral union, and besides has the serious drawback of frequently resulting in stenosis.

On account of the foregoing objections to these methods of intestinal union, I have modified the technic of the end-to-end anastomosis and devised a new method. Before I describe the technic, some of the other modifications may be mentioned.

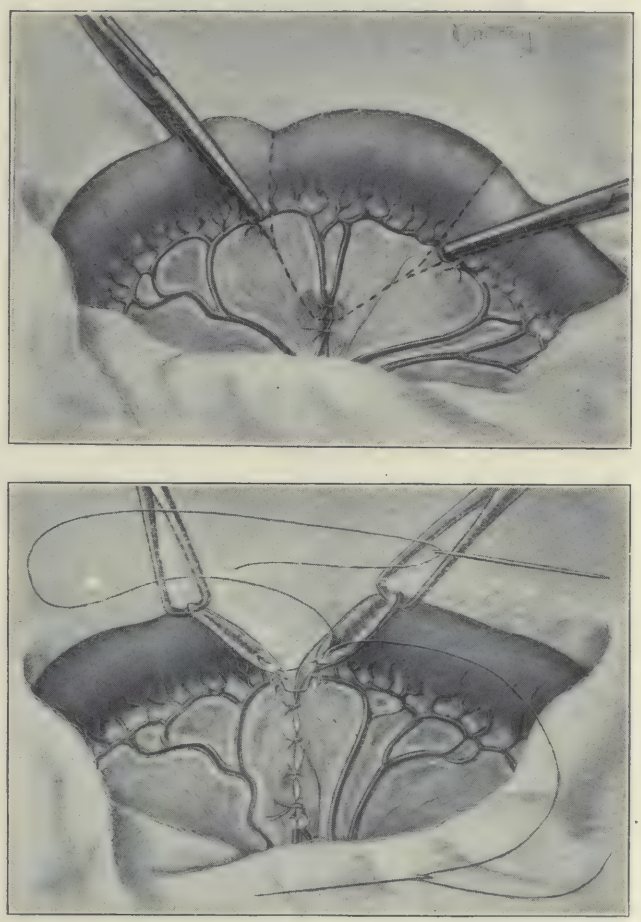


Fig. 1.—In the upper illustration, the dotted lines between the clamps indicate the direction of the usual division of the intestine. The clamps are put on at a 45-degree angle. The dotted lines on the healthy bowel side of the clamps indicate the sites of division. In the lower illustration, the mattress suture to occlude the uncovered area has been introduced, with a needle on both ends to approximate the richer vascular portions first.

2. Senn: Ann. Surg., vii, 13.
3. Reichel, quoted by Cannon and Murphy: Ann. Surg., 1906, xliii, 519.
4. Cannon, W. B.: The Mechanical Factors of Digestion, p. 140.
5. Ashton and Baldy: Med. News, 1891, lviii, 235.
6. Robinson, F. B.: Med. Rec., New York, xlii, 188.
7. Corbett, J. F.: Personal communication.
8. Cannon and Murphy: Ann. Surg., 1906, xliii, 512.
9. Bloodgood, J. C.: Condition of Patients After Partial or Complete Resection of the Colon, abstr., THE JOURNAL A. M. A., July 10, 1915, p. 193.
10. Gibson: Ann. Surg., lii, 116.
11. Elsberg: Ann. Surg., lii, 116.
12. Maunsell, quoted by Moynihan: Abdominal Operations, 1914, i.
13. Cheattle: Lancet, London, 1897, i, 1403.
14. Ferguson: Am. Gynec. and Obst. Jour., 1900, xvi, 488.
15. Turk: Surg., Gynec. and Obst., xvi, 324.
16. Soresi: Surg., Gynec. and Obst., xv, 110; ibid., 1915, xx, 225.
17. Horsley, in Fowler: Treatise on Surgery, 1907, ii, 65.
18. Maury: Ann. Surg., June, 1905, p. 914.
19. Bloodgood: Ann. Surg., February, 1909, p. 161.
20. Lundholm, E. M.: A New Instrument for Intestinal Anastomosis, THE JOURNAL A. M. A., Sept. 27, 1902, p. 769. Gilbert: Med. Rec., New York, 1904, lxvi, 957. LaPlace: Philadelphia Med. Jour., 1898, i, 1120. Downes: Philadelphia Med. Jour., 1899, iii, 285. O'Hara, M. G.: Ann. Surg., 1901, xxxiii, 170. French: Am. Med., 1902, iv, 90. McGraw, T. A.: Upon the Use of the Elastic Ligature in the Surgery of the Intestines, THE JOURNAL A. M. A., May 16, 1891, p. 685. Senn, William: Pressure Clamp for Lateral Anastomosis, THE JOURNAL A. M. A., April 20, 1907, p. 1350.
21. Reder: Lancet-Clinic, 1914, cxii, 662; abstr., Surg., Gynec. and Obst., May, 1915, p. 490.

In the oblique enterorrhaphy described by R. T. Morris[22] and M. E. Connell,[23] with the 180-degree mesenteric twist, the ends are cut more or less obliquely to give a larger internal diameter and lessen the danger of gangrene and stenosis. F. G. Connell[24] cut the ends slightly convexo-oblique in some experimental unions. Madelung[25] was the first to cut the ends obliquely, in the end-to-end unions, to avoid gangrene and give a larger lumen. Parker and Kerr[26] cut the ends of the bowel obliquely, uniting them with their basting stitch method. They state, however, that after making the union, absolutely no angulation was apparent, and even at later removal of these specimens, the bowel at the site of suture was apparently straight. As the method of cutting the ends more or less obliquely is not new, though perhaps not emphasized enough now, the application of it, in securing a right angle result, may aid in impressing its value.



Fig. 2.—This specimen with a right angle union (Experiment 3) was removed sixty-seven days after operation. The angle of the union when removed was practically the same as when the operation was performed. There were no adhesions.

The technic of the right angle is modified from the circular end-to-end, in that the bowel is cut at an angle of 45 degress leaving the oblique mesenteric sides. The mesenteric portions are approximated first by a mattress suture, which when tied on the inside occludes the uncovered area of the bowel and invaginates the edges. With a needle on each end of this suture, they are continued around so that this mesenteric half is first sutured accurately with a hemostatic buttonhole stitch. These are then continued as Connell sutures, ending at that portion of the bowel opposite the mesentery. A Dupuytren's stitch is now taken outside the first stitch to approximate a wide area of serosa. A few stitches join the mesenteries. If the ends are of unequal size, one may be cut more obliquely or an incision may extend up opposite the mesentery, as Curtis[27] suggested in the end-to-end union. Where a lateral implantation is desired, the end may be cut obliquely as above (Figs. 1, 2, 3 and 7). The right angle union has advantages over the usual end-to-end in that it not only has a richer blood supply, but the angle of the blood vessels toward the union lessens the danger of the second row of sutures causing gangrene of the inverted margin of the bowel. There is, therefore, less danger of leakage at the suture line, and also of contraction and stenosis. This can be done as simply as the circular union. Senn[2] asked, "Does simple flexion, even if acute, without diminution of the lumen of the bowel, give rise to symptoms of obstruction?" He experimentally observed that it did not. There is a flexion of the bowel, perhaps to more than a right angle, in the "elbow anastomosis" of Jeannel,[28] in which in an injury to the bowel opposite the mesenteric portion that near the mesentery is left intact and angular union effected.

C. C., aged 8 years, entered the University Hospital, Jan. 6, 1915, and was operated on for a ruptured gangrenous appendix with drainage of abscess. February 6, he returned with symptoms of obstruction, for which an enterostomy was done. March 13, he was operated on by Dr. Ritchie for closure of the enterostomy. This was dissected out, and conditions requiring a small resection found; the right angle technic described above was used. The patient made an uneventful recovery, and was discharged, April 3. July 12, 1915, the boy was in perfect health and gaining in weight.



Fig. 3.—This specimen of a right angle union from Experiment 3 sixty-seven days after operation is shown after having been divided longitudinally. The lumen at the union is distinctly larger than the remainder.

In the new method of notch enterorrhaphy, the area to be resected is decided on, soft jawed clamps covered with rubber may be applied to prevent the intestinal contents escaping, and the field is packed off with moistened gauze. The mesenteric vessels supplying the bowel to be resected are ligated. Double clamps are put on the ends of that portion to be resected. The bowel is cut between the clamps with a cautery, leaving them temporarily on the ends to be united. The ends of the bowel that are to be united are overlapped for union as far as desired, restoring the direction of peristalsis. The overlapping of about 2 inches is usually satisfactory. A Dupuytren's stitch taken along the sides near the mesenteries approximates them. The clamps temporarily holding the ends of the bowel closed may now be cut away, leaving healthy bowel ends. The sides of the intestines which approximate each other are nearly cut away, beginning at the end of the lumen, leaving a

22. Morris, R. T., in Smith, Stephen: Operative Surgery, 1887, p. 502.
23. Connell, M. E.: Med. Rec., New York, xlii, 335; ibid., xliii, 125-413.
24. Connell, F. G.: Philadelphia Med. Jour., 1899, i, 37.
25. Madelung: Arch. f. klin. Chir., 1881-1882, xxvii, 277.
26. Parker and Kerr: Bull. Johns Hopkins Hosp., xix, 136.
27. Curtis, B. F.: Med. Rec., New York, xli, 419.
28. Jeannel, in Moynihan: Abdominal Operations, 1905, p. 364.

small edge of the side near the mesentery for the approximation of serosa by an inner stitch through all of the coats of the bowel. A similar width of the bowel is left on the convex side for approximation and invagination by sutures. These notched sections of bowel left should have rounded corners in order that they may be accurately approximated, though nearly a rectangle has been removed. A hemostatic buttonhole stitch is started on the side near the mesentery through all of the coats of the bowel, and continuing around the other side as a Connell suture invaginating their edges. The Dupuytren's stitch previously started is now continued around the first suture line, approximating a safe margin of serosa and completely reestablishing the bowel both as to shape and size. The edges of the two overlapping mesenteries are stitched down with a few interrupted stitches (Figs. 4, 5, 6 and 7).

There are very definite advantages to be gained in the notch intestinal anastomosis in that a large opening can be secured as well as one that functions satisfactorily. Therefore, there is no danger from stenosis and contracture. There is an excellent mechanical and a good physiologic union of their fibers. There are no blind ends, which may be sources of danger, as shown above, in the lateral anastomosis, even though later the ends may atrophy and the lateral opening become more axial (Edmunds and Ballance[29]). There is a good blood supply, as each notched end has its own mesentery intact. There is less danger of interference with the blood supply of the mesentery from injury than in the end-to-end union, and no danger of injuring the blood supply to blind ends, as in the lateral union, which might result disastrously.

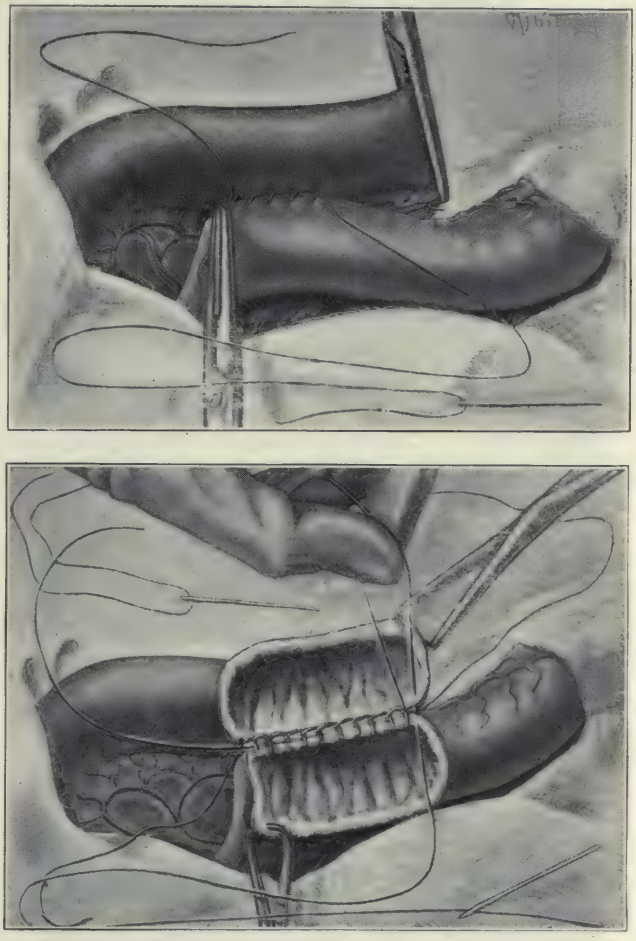


Fig. 4.—In the upper illustration, the sides of the two overlapped ends are being approximated near the mesenteries. The two clamps will be cut off with their enclosed crushed bowel, leaving healthy ends, after this suture has been completed near the mesenteries. In the lower illustration, the clamps have been cut away and the sides of the bowel have been cut out, except a narrow margin along the mesentery and also along the convex side for invagination. The inner suture with the buttonhole stitch has been completed and the Connell stitch for the remainder of closure begun. The serous surfaces are swung together by tension on the sutures only when they are on the mucous sides of the bowel. This loop is held till the needle again comes out on mucosa. It is of advantage to have needles on both ends of the inner stitch. Only one is shown above.

The animals operated on had nothing to eat for twenty-four hours, and with few exceptions were given a moderate physiologic dose of morphin about forty-five minutes before the operation. Ether was used throughout. Following the operation, they were given a general diet, except bones, as desired. The ones used for Roentgen-ray work had not been fed for twenty-four hours. In operating, care was used to prevent drying of the peritoneum, and injury. In the cases used for the Roentgen ray, efforts were made to avoid any unnecessary stimulation and trauma, so all stripping of the intestine to remove contents was avoided, and no clamps were applied to the bowel. In using the Connell stitch, which was used on the last half of the union of the bowel ends, I found it of value to keep this suture taut by tension on the thread only on the mucosal side. The loop and needle thread can be used as a hammock to swing the serous surfaces together, where they are held by tension on the loop, until the needle comes out of the mucosa on the other bowel. This allows more accuracy in getting the stitches even, and prevents distortion of the edges (Fig. 4, lower illustration). For suture material chromic catgut was found satisfactory for the inner suture, and Pagenstecher linen for the second seromuscular row.

PROTOCOLS OF ANIMAL EXPERIMENTS

EXPERIMENT 1 (A. E. 668).—Dog, weighing 18 kg., was operated on, March 1, 1915, the section and a right angle union of the ileum being performed. Convalescence was uncomplicated. The animal was chloroformed, March 18, 1915, and at necropsy there were no adhesions except one small area on the suture line to the omentum. The union was nearly at a right angle, and there was no evidence of stasis. On sectioning, the union was found healed and practically the same size as the bowel.

EXPERIMENT 2 (A. E. 687).—Dog, weighing 8.7 kg., was operated on, March 15, a high intestinal section being made just below the duodenojejunal angle with a right angle union. Convalescence was uncomplicated. March 24, the dog was chloroformed. At necropsy, the abdomen was found to be clean. There was a small adhesion of the omentum at a part of the suture line. There was no evidence of stasis. On section, a good healed lumen of at least normal size was found. March 16, twenty-four hours after operation, a meal containing 60 gm. of bismuth subnitrate in 300 c.c. of buttermilk was given. At twenty-five and forty minutes after the meal, roentgenoscopy revealed that the shadow of the bismuth had passed the pylorus and had reached about 10 and 15 inches below the duodenojejunal angle, beyond the site of the union, with no evidence of stasis or dilatation. March 19, four days after operation, a similar meal was given. Twenty minutes later, on roentgenoscopy, the bismuth shadow was about 15 inches below the duodenojejunal angle. There was a shadow of bismuth in the colon from the previous meal. Thirty-five minutes after eating, before which the dog had vomited part of the meal, there was some advancement in the bowel. The shadow was lacking somewhat in the fundus and body

29. Edmunds and Ballance: Med.-Chir. Tr., lxxix, 254.

of the stomach, but the antrum was well filled as before. There was very little difference in this good motility on the first and fourth days after this high intestinal section.

EXPERIMENT 3 (A. E. 703).—Dog was operated on, March 26, 1915, a section just below the duodenojejunal angle and a right angle union being made. Convalescence was excellent. The dog was chloroformed, June 2, 1915, and at necropsy there were no adhesions present; the right angle was practically the same as after operation. There was no evidence of stasis; peristalsis could be elicited in this region before death. The union was healed. On the same day of the operation, one hour and thirty minutes after its completion, the usual bismuth meal was given. On roentgenoscopy, ten and twenty minutes later, there were contraction rings and a very little shadow beyond the incisura angularis. There was no shadow beyond the pylorus. Forty minutes after eating, roentgenoscopy revealed the antrum filled, and there was a shadow of bismuth 5 inches below the pylorus in the duodenum. Contraction rings were present in the stomach.



Fig. 5. — This specimen with a notch method union, Experiment 6, was removed 115 days after operation. The only adhesion present is shown. This is a small area on the suture line to the omentum. The size of the bowel at the union is the same as the day when the operation was completed.

EXPERIMENT 4 (A. E. 750).—Dog was operated on, April 30, 1915. No morphin was given. A section just below the duodenojejunal angle was made, and the oblique ends joined at a right angle. At necropsy, May 13, 1915, there was a small area of two loops of bowel adherent some distance from the union, and a small adhesion of the suture line to the omentum. There was no evidence of stasis or dilatation; the union was still nearly a right angle. On section, the lumen was good and healed over. On the day of the operation, one hour and thirty minutes after its completion, the dog was given the bismuth meal. Twenty minutes after eating, roentgenoscopy revealed the stomach filled with bismuth; a contraction ring was present and the bismuth extended through the pylorus about 5 or 6 inches into the duodenum. On roentgenoscopy thirty-five minutes after eating, a contraction ring was present in the stomach, and there was some advancement of bismuth in the duodenum. On roentgenoscopy one hour and five minutes after eating, there was a definite advance of the bismuth to only about 10 inches.



Fig. 6.—This specimen of a notch method union from Experiment 6 was split slightly to one side of the middle. The suture lines cannot be seen on the mucosal side. The slight increase in size of the lumen was made at the operation. There is no place where the lumen is narrowed.

EXPERIMENT 5 (A. E. 519).—Cat was operated on, March 8, 1915, a piece of the ileum being resected, and the ends united by the notch method, described above. Convalescence was good. The cat was chloroformed, May 7, 1915, and at necropsy the bowel at the union was found of normal size, straight, and there were no adhesions. There was no evidence of stasis. On section, the healed suture lines could be seen by a slight inverted edge along them; the bowel was very well reestablished.

EXPERIMENT 6 (A. E. 683).—Dog was operated on, March 12, 1915, a section of the jejunum being made close below the duodenojejunal angle, and the ends united after the above-described notch method. The resulting reestablished bowel was slightly larger than the normal. Convalescence was excellent. July 6, 1915, the dog was operated on again. There were no adhesions except one very small area on the suture line to the omentum. The bowel at the union resembled that above and below, although a slightly larger diameter in the region of union. Peristalsis at the union could be elicited. The specimen was resected and examined: at no place was there found a decrease in the lumen at the region of the anastomosis, and it was completely healed. On the day after the first operation, March 13, a bismuth meal was given. On roentgenoscopy fifty minutes after eating, the bismuth had passed the pylorus and reached a point about 15 inches below the duodenojejunal angle. There was no evidence of obstruction. On roentgenoscopy sixty minutes after eating, there was some advancement, which was also present at seventy minutes after eating. March 16, four days after operation, a bismuth meal was given. On roentgenoscopy thirty minutes after eating, the bismuth extended about 30 inches, or about twice as far as on the first day after operation, with no evidence of stasis at the union.

EXPERIMENT 7 (A. E. 746).—Dog was operated on May 7, 1915, a lateral anastomosis being performed just below the duodenojejunal angle. This dog is still living. On the same day of the operation, an hour and a half after its completion, a bismuth meal was given. On roentgenoscopy twenty-five minutes after eating, there was very little bismuth in the antrum and none beyond the pylorus. On roentgenoscopy sixty minutes after eating, the antrum was filled and a contraction ring was present. There was no bismuth beyond the pylorus.

EXPERIMENT 8 (A. E. 773).—Dog was operated on, June 7, 1915, to note the movements and passage of bismuth after an operation on the stomach, a typical posterior short loop gastrojejunostomy being done. On the day of the operation, thirty minutes later, a bismuth meal was given. On roentgenoscopy ten minutes after eating, the bismuth extended very slightly into the antrum, and from this a bismuth shadow extended through the newly made opening about 10 or 12 inches into the jejunum. There was no bismuth beyond the pylorus. On roentgenoscopy forty minutes after eating, there was little change except some advancement in the jejunum. On roentgenoscopy one hour and forty minutes after eating, there was little change in the stomach, still no bismuth below the pylorus, but there was advancement to about 15 or 20 inches in the jejunum below the newly made opening. There was a small contraction ring in the stomach.

EXPERIMENT 9 (A. E. 683).—Dog was operated on, July 6, 1915, a specimen of union being resected from just below the duodenojejunal angle and the proximal end invaginated and closed tightly. The distal end was cut obliquely and

anastomosed to the posterior surface of the stomach near the pylorus. The dog was not lively after this operation, and became emaciated. The dog was chloroformed, July 15. At necropsy the stomach was markedly distended with clear fluid, and the duodenum very markedly distended to the tied end of the jejunum. The gastrojejunostomy opening was patent, of good size, and when the stomach was lifted, the fluid contents ran into the jejunum through this opening. The lumen was practically healed and about the size of normal bowel in this region.

MOVEMENTS OF THE STOMACH AND INTESTINES AFTER HIGH SECTION AND UNION BY THE FOREGOING METHODS

The right angle unions done close to the duodenojejunal angle caused from no apparent delay of food at the pylorus to slightly over twenty minutes. In the one instance a lateral anastomosis caused a delay of over sixty minutes. In both instances of appreciable delay, morphin had been given. Twenty-four hours and four days after operation by the right angle and notch methods, there was no delay observed at the pylorus, as observed by the Roentgen ray.

In contrast to the foregoing, Cannon and Murphy,[8] in observations on cats after a high intestinal section and union, found a delay of five or six hours at the pylorus, although gastric peristalsis was good all of the time. They ascribe a protective function to the pylorus, in that its closure prevents the stomach contents coming into contact with any wound of the peritoneum until the peritoneal surfaces have been agglutinated, as after five or six hours they may afford efficient support (Abbe[30]). They observed only a very small effect on movements of the stomach and small bowel due to etherization, to section of the abdominal wall, exposure to the air, or unusual cooling.



Fig. 7.—The specimens of a right angle union sixty-seven days after operation, and a notch method union 115 days after operation, are shown filled with bismuth. The union in neither case has narrowed the normal lumen of the bowel.

Motor function of the stomach, evidenced by rings of contraction, was present in all of my cases, although when delay at the pylorus occurred there was an early imperfectly filled antrum. In the posterior short loop gastrojejunostomy, in which surgical handling and section of both the stomach and jejunum were done, the bismuth was delayed at the pylorus over two hours after the meal, though the bismuth passed almost immediately through the newly made stoma into the jejunum, where advancement was sluggish. After the most gentle handling of both stomach and intestines, Cannon and Murphy observed no movements of the stomach and no discharge from the pylorus for three hours, while rougher handling caused a longer period of loss of motor function. They observed a local paralyzing effect of section and union of the intestine in that no food came closer than 5 or 6 inches during the seven-hour period of observation.

30. Abbe, quoted by Cannon and Murphy (Footnote 8), p. 516.

The localized loss of propulsing peristaltic contraction waves was present in all of my cases of intestinal section and union from immediately after operation to an hour and over, which was the limit of my observations. However, in the case of the gastro-enterostomy, the bismuth passed the union without noticeable delay, although the advancement in the jejunum was sluggish.

The local loss of motor function after intestinal section and suture may be due largely to the handling, and this stimulation excites possibly Bayliss and Starling's law of the intestines, that of inhibition below and contraction above a point of stimulation. The nerve mechanism for the propulsing peristaltic contraction wave, alone, may be inhibited or fatigued, while possibly the rhythmic pendular movements are not thrown out, as these are probably myogenic in origin. It is probable that a general inhibition of the intestines can be produced reflexly, through the splanchnics, by stimulation of the intestines and also probably of any sensory surface (Bayliss and Starling[31]).

Cannon and Murphy found a twenty-four hour stasis at the site of union on cats fed on a waste-free diet, even four days after operation, when a lateral anastomosis was done. This was more marked on a general diet two weeks later. They found no stasis in the end-to-end union twenty-four hours after operation or later, and recommend its use when a rapid resumption of normal bowel function is desired.

In the foregoing observations on the right angle and the notch methods, there was no evidence of stasis at the union, and these methods are also recommended when a rapid resumption of normal bowel function is desired.[32]

CONCLUSIONS

1. There are distinct advantages of the notch and right angle over the circular end-to-end and lateral anastomoses.

2. There is as early a resumption of physiologic function in the notch and right angle anastomoses as in the circular end-to-end.

3. The pylorus, if controlled in dogs by a special protective mechanism, does not delay the food there from five to six hours after a high intestinal union, while the gastric peristalsis is active, as described by Cannon and Murphy in cats. There may be from no demonstrable delay to a short delay in certain cases.

31. Bayliss and Starling: Jour. Phys., xxiv, 108, 114, 121.

32. In addition to the references already given, the following are of interest:
George: Jour. Michigan State Med. Soc., September, 1910, p. 431; Am. Jour. Surg., November, 1909.
Hedblom and Cannon: Ann. Surg., cxxxviii, 504.
Gatch, W. D., Aseptic Intestinal Anastomosis, THE JOURNAL A. M. A., July 20, 1912, p. 185.
Walker, F. B.: Intestinal Anastomosis: Presentation of a New, Simple and Aseptic Method, THE JOURNAL A. M. A., Aug. 15, 1908, p. 546.
Keen's Surgery, 1914, iv, 713-725; vi, 535-539.
Binnie's Operative Surgery, 1912.
Murphy, J. B.: Med. Rec., New York, xlii, 665.

4. Following any intestinal anastomosis, a localized loss of motor function remains, and possibly a general reflex sluggishness of the intestinal tract, varying to some extent with the degree of trauma, emphasizing the importance of delicate surgical technic.

5. There may not, necessarily, be a complete temporary loss of gastric motor function after necessary surgical handling for union to the bowel.

LINITIS PLASTICA HYPERTROPHICA (LEATHER BOTTLE STOMACH)

REPORT OF A CASE *

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Linitis plastica hypertrophica is the rather fanciful name given by Dr. William Brinton in 1854 to a condition of the stomach in which there is great thickening of the walls at the expense of its lumen, due to a fibrosis involving principally the submucous, but to a lesser degree all the coats except the mucosa. The interlacing strands of fibrous tissue, which resemble in appearance coarse linen, suggested the name to Brinton.

Two forms of the disease are recognized, one localized, the other diffuse. In the localized form the pathologic change is limited to a certain area of the stomach, usually the pyloric region, although the indurated plaques may occur anywhere in the wall. The diffuse form involves the entire stomach, which is most often shrunken but may retain the normal size or may be dilated. The wall is rigid, and thickened to six or eight times its normal size. The thickening is sharply limited to the stomach, while the thin walled normal duodenum affords a striking contrast. This rigid thick walled contracted stomach suggested the synonym given to the disease.



Fig. 1.—Linitis plastica, showing the dense fibrosis of the submucosa and the segmentation of the muscularis by the white fibrous partitions. The specimen is the resected pyloric region from a patient with the localized form of the disease. (Photograph by Schapiro.)

In gross appearance, the stomach in this disease shows a smooth, pearly white, dull peritoneal surface. The thick wall cuts with a creaking sound, and the limits of the different layers are distinctly shown, a distinction from the scar tissue of a healed ulcer. The glistening bands of the new connective tissue are visible to the naked eye. The mucous membrane is normal or thin. Atrophy and ulceration are said to be rare, but Thomson and Graham[1] state that in seven of nine specimens examined "there is situated in the center of the affected area a deeply punched out ulcer; the surrounding mucosa, instead of being as soft as velvet, freely movable on the subjacent coats, and showing prominent rugae, is firm and unyielding, is closely adherent to the submucosa, and presents a hillocky surface, corresponding to variations in thickness of the fibromatosis in the submucous coats."

The submucosa shows the greatest change. This loose layer of areolar tissue becomes solid and tough, and so thick that it makes up a great portion of the gastric wall. Segmentation of the circular muscle by the fibrous tissue is easily seen, the colored muscle bundles separated by the partitions of white fibrous tissue standing out clearly. This segmentation is characteristic of linitis plastica, and distinguishes the hypertrophy of the layer of circular muscle in this disease from that occurring in obstruction of the pylorus. Late in the disease the mucous membrane always shows the effects of long continued circulatory disturbance.

Microscopically the connective tissue proliferation is the most striking feature. The irregular, interlacing bands of fibers surround the blood vessels and traverse the various layers of the stomach. The endarteritis occasionally observed is probably an evidence of syphilis, which is an unquestioned etiologic factor in some of the cases reported. These cases are all of the localized variety, and probably should be kept in a separate group.

The effect of the fibrosis on the mucous membrane gives a varying microscopic appearance. The difficulty of distinguishing between the microscopic appearance of cancer and that of isolated glands separated from their fellows by connective tissue proliferation is so great that it probably accounts for part of the controversy regarding the benign or malignant nature of this disease. Lyle has made an exhaustive study of linitis plastica, and has collected reports of seventy benign cases and sixty additional cases reported as linitis plastica which are malignant.

The difficulties of microscopic diagnosis have been noted, and further confusion is added by the fact that in several cases in which the microscopic picture was considered definite, the patients are living and well so long after operation that the malignant nature of their

* Read at the semiannual meeting of the Medical and Chirurgical Faculty of Maryland, at Westminster, Oct. 28, 1915.

1. Thomson and Graham: Ann. Surg., 1913, lviii, 10.
2. Lyle: Ann. Surg., 1911, liv, 625.

disease must be questioned. Many times the operations were deliberately planned for palliation only, but the end-result proved that the patient had been cured.

It is not unlikely that we have both benign and malignant forms of this disease. The diffuse scirrhous carcinoma of the stomach should be considered a separate entity. Stasis and ulceration are frequent associates in pathologic process. Both have a marked effect on connective tissue proliferation. Bland-Sutton,[3] discussing leather bottle stomach, compares the change in the stomach with that occurring in the shrunken gallbladder of cholecystitis, and notes a similarity. There can be no doubt that an ulcer, either directly by admitting irritant or infectious material into the submucous tissue, or indirectly by occluding the pylorus, originates a sequence of pathologic changes which will ultimately result in fibrosis. In certain individuals this fibrosis takes the peculiar arrangement noted in linitis plastica. Similarly, a cancer, either by obstruction or ulceration, may lead to the same change. Finally, the cancer originating in an ulcer may complicate the picture, especially should the malignant development follow that of the fibrosis. In the latter event, as Thomson and Graham show, the local cancerous growth is so modified by the fibrosis that it may be difficult to recognize except by most careful microscopic examination. The tumor cells, however, permeate the lymphatics and invade the neighboring lymph glands. Here the carcinoma is easily recognized. At the present time, therefore, the examination of the lymph nodes and detection of metastases in them seems the only evidence we may secure to make certain the malignant nature of a specific case.

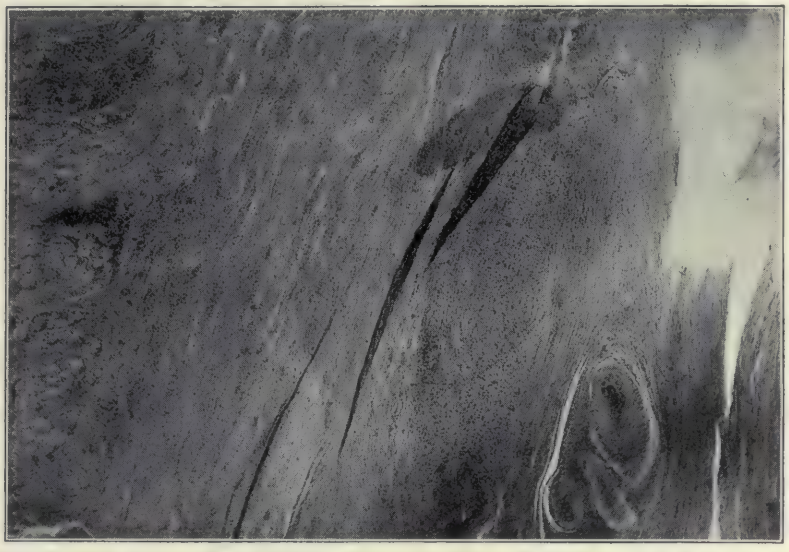


Fig. 2.—Microscopic picture of linitis plastica, showing the fibrosis of the submucosa, the involvement of the muscularis, and the effect on the mucosa. (Photomicrograph by Schapiro.)

The disease is one of adult life. Lyle's statistics show that the greatest number of cases occur between the ages of 40 and 60 years, and about twice as often in men as in women. Some form of disease associated with general circulatory stasis is frequently noted in the previous history of the patient.

The symptoms of onset are generally slight, indefinite dyspepsia (Lyle), loss of appetite, epigastric distress on taking food, and eructations. The symptoms gradually become marked and progressive, reaching those of definite stenosis, and if unrelieved end in anemia, starvation, cachexia and death.

Occasionally the onset is quite abrupt, and the obstructive symptoms come on rapidly.

Gastric examination shows a diminished capacity of the stomach, and the stomach cannot be distended. The thick stomach has been palpated as a sausage-shaped tumor in the epigastrium. Chemical examination of the contents usually shows diminished acidity with little or no free hydrochloric acid. Lactic acid may be present. Blood in either stomach contents or feces is unusual. Roentgen examination offers the best means for recognizing the lesion. The shadow of a small stomach shows a sharp outline, with little or no peristaltic contracture. Serial pictures indicate the degree of stenosis. Sailer[4] notes a rapid emptying of the stomach, owing to the bismuth flowing through the rigid tube of stomach almost immediately into the duodenum.

Gastrectomy is the operation of choice for the localized form of the disease. When the patients are feeble, the two-stage operation, preliminary gastro-enterostomy and secondary gastrectomy, is advised. Thomson and Graham suggest the removal of a lymph gland at the first operation to serve as a guide for subsequent procedure. They state that a metastasis in the gland is the indication for secondary resection. This teaching, however, would leave unoperated the class of cancers in which cure is most likely to follow partial gastrectomy, namely, those which have not yet metastasized to lymph glands. Therefore, although the surgeon should remove the gland for diagnosis, his judgment regarding resection should be based on the conditions observed in the abdomen. Dense adhesions to the peritoneum or to other viscera, if due to cancer, make the complete removal impossible and indicate a palliative operation, while a doubtful mass, not adherent, should always be excised.

For the diffuse form, complete gastrectomy has been performed a few times. The usual operation is gastro-enterostomy and occasionally jejunostomy.

REPORT OF CASE

The patient (Surgical No. 40090, Mercy Hospital, Abdomen, Stomach, Linitis Plastica Hypertrophica Diffusa) was a white woman, aged 22, transferred from the service of Dr. J. Friedenwald. There was a previous history of typhoid fever ten years ago. The onset of the present illness was abrupt, twenty days ago. The initial symptom was vomiting, which continued daily, with acrid eructations occurring almost constantly. There were slight pain in the abdomen and marked constipation. There has been a progressive loss of weight.

The patient was greatly emaciated, the abdomen scaphoid. There were no masses or tender points. The liver was not enlarged. The thoracic viscera were normal.

Analysis of stomach contents showed a total acidity of 10, with absence of hydrochloric and lactic acids. Blood examination revealed: red blood cells, 3,240,000; hemoglobin, 60; white blood cells, 8,000. The Wassermann reaction was negative. Roentgen examination revealed a small vertical stom-

3. Bland-Sutton: Brit. Med. Jour., 1914, i, 229.

4. Sailer: Tr. Am. Gastro-Enterol. Assn., 1914, p. 31.

ach, pyloric stenosis, retention and diminished peristaltic contracture.

The possibility of linitis plastica was considered because of the small stomach, the evident obstruction and the improbability of scirrhous cancer at the age of 22.

A posterior gastro-enterostomy was done. When the abdomen was opened, the stomach was found small and not adherent. The peritoneal surface was a dull grayish purple, the walls rigid and very thick. The pylorus would not admit the little finger. It was impossible to close the gastro-enterostomy clamp in the usual way, and therefore the one on the stomach was not used. After the usual two posterior rows of linen sutures were in place, the stomach and jejunum were opened. The stomach wall was about 15 mm. thick, and each layer stood out distinctly, the muscularis showing especially the glistening fibrous bands. The mucous membrane was thin and friable, and the strings of white fibrous tissue running up from the submucosa showed plainly as they ran into the cyanotic mucous membrane, and seemed to anchor it to the deeper layers. In contrast, the jejunum was thin walled, and the mucous membrane protruded from the incision. A continuous catgut suture united the mucous layers, and the two rows of linen sutures were carried around on the front of the anastomosis. The mesocolon was sutured in place, and the wound closed in layers.

The patient made an uneventful recovery, taking solid food on the tenth day. She is now in perfect health, two and one-half years after the operation.

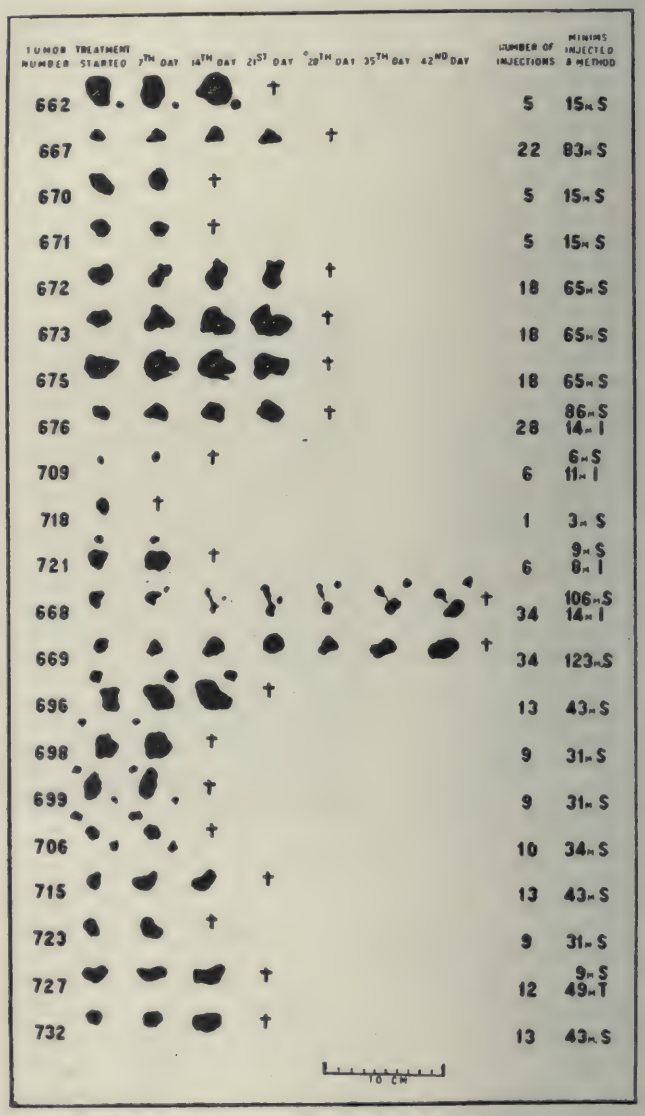
114 West Franklin Street.

ACTION OF "AUTOLYSIN" ON MOUSE TUMORS *

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The use of "autolysin" in the treatment of cancer has been so widely heralded, in both the lay and the professional press,[1] that it was deemed proper to conduct the following experiments in order to determine whether the preparation has any action on tumors in mice, the malignancy and clinical course of which are quite comparable to those of human cancer. Twenty-one animals bearing spontaneous tumors were used in the test. It is generally agreed that spontaneous tumors in mice very rarely regress, and this has been our own experience, since we have never noted a regression in about 800 spontaneous mouse tumors observed. Accurate measurement shows that these neoplasms grow progressively, though an apparent recession may be produced by the contraction and absorption of the hemorrhages that so often occur in them. These extravasations, when they first take place, lead to a sudden augmentation in the dimensions of the tumors, which, though it suggests an increase in growth energy, is just as illusory as the subsequent contraction. When disturbing factors such as these are disregarded, the growth of the neoplasms is found to be steadily progressive in practically every case, death occurring within a few months. The decrease in the size of Tumors 668, 669, 671 and 723, as shown in the accompanying chart, is explained by the foregoing observations, and cannot be attributed in any way to the action of "autolysin," since it is, as has just been stated, of frequent occurrence in untreated mice.

No tests were made on mice bearing transplanted tumors, for the reason that a number of such growths may spontaneously disappear after the tumor has reached a certain size. Though this does not always occur in all strains of transplanted mouse tumors, some of which after inoculation grow progressively and kill the animals, yet it was felt that it would be wiser to use in the experiments a type of tumor in regard to which no question could be raised as to spontaneous disappearance and therapeutic effect. Attention has been called, not only to the publications of this laboratory,[2] but also in the monographs of the Imperial Cancer Research Fund and of a number of other laboratories where careful records of the course of growth in tumors are kept, to the disadvantage of using transplanted tumors of unknown biologic qualities. Despite these warnings, reports are constantly made of the successful treatment of 10 or 20 per cent. of animals inoculated with tumors whose regression percentage may normally quite exceed these figures.



Spontaneous tumors treated with "autolysin": † died; *M*, minims; *S*, subcutaneous; *I*, intravenous; *T*, into the tumor.

* From the George Crocker Special Research Fund, Columbia University.

1. Beebe, S. P.: New York Med. Jour., 1915, ci, 981; ibid., 1915, cii, 689.

2. Wood, F. C., and McLean, E. H.: The Effect of Phloridzin on Tumors in Animals, Proc. Soc. Exper. Biol. and Med., 1915, xii, 135. Woglom, W. H.: Diet and Tumor Growth, Jour. Exper. Med., 1915, xxii, 766. Rohdenburg, G. L.: Colloidal Silver with Lecithin in the Treatment of Malignant Tumors, Jour. Med. Research, 1915, xxxi, 331. Rohdenburg, G. L., and Bullock, F. D.: The Influence of Autolytic Products on Tumor Growth, Med. Rec., New York, 1915, lxxxviii, 233.

Spontaneous neoplasms were employed, furthermore, because a transplanted tumor is composed of the cells of one animal proliferating in the body of another, while the problem to be solved in the cure of human cancer is to destroy a group of cells belonging to the individual himself. To these conditions the spontaneous new growths of mice exactly correspond while the transplanted tumors do not.

As a preliminary, test injections were made on normal mice to determine the toxicity of the "autolysin." The dose orally suggested for these animals by Dr. Beebe and Dr. Horowitz, who kindly supplied the "autolysin" used in this study, was from 3 to 5 minims (0.2 to 0.4 c.c.), which in a mouse weighing 30 gm. is equivalent to 7,200 minims (445 c.c.) in a 150 pound man. A period of five weeks in the life of a mouse is equivalent to 110 weeks in the life of a man, the expectation of life being for a mouse about two and one-half years and for a man fifty-five years. These facts should be borne in mind when comparisons are made with human cases, as they show that the doses administered to the mice were in some instances proportionately too large to be administered to men. It was found that the drug was apparently nontoxic for mice, even in intravenous doses of 1 c.c. (equivalent to 2,500 c.c. in a 150 pound man). Injections were made daily, so that no anaphylactic phenomena were observed. A local reaction was produced by subcutaneous injections, as was shown by a considerable thickening which remained for some days.

The chart shows the amount of the dosage in minims in each instance, the appended letter indicating whether the injection was made subcutaneously, intravenously, or into the substance of the tumor itself. The charting of the tumors was done by a person who does nothing but this work, and who was entirely unaware of the nature of the experiments; this avoids any personal bias in the measurements. The dimensions of the growths were determined by calipers, and their outlines plotted in a book of records on the day when treatment began and on every seventh day thereafter. Our experience with this method of charting has shown that a high degree of accuracy can be obtained by an experienced worker.

After the death of the animal, it was examined at necropsy, and microscopic examinations were made of the tumors and of the various organs. All of the tumors proved to be mammary adenocarcinomas, with the exception of No. 671, which was a mixed-cell sarcoma.

Clinically there was no evident change in the condition of the animals as the result of the treatment. Their weight fluctuated within about a gram, as is the case with untreated mice bearing spontaneous tumors. Enumeration of the red and white blood cells was not made. Twenty-one animals in all were treated over periods varying from one day to five weeks, with a total dosage in each case of from 3 to 123 minims (0.2 to 7.5 c.c.) of the "autolysin." The number of injections varies from one to thirty-four.

No gross changes were observed in the tumors which were not also found in neoplasms from untreated controls. The liver, kidney, spleen and other organs of the animal showed no gross alterations which were not observed in a series of 100 untreated spontaneous tumors.[3]

Microscopic examination of the site of injection showed a fairly extensive necrosis with dense leukocytic infiltration. The chlorophyl in the "autolysin" was not wholly absorbed; that which remained in the tissues incited a mesothelial reaction with the formation of giant cells similar to those growing about lipoid substances, oils or paraffin. Microscopic examination of the organs showed no lesions not met in the control animals.

Sections of the tumors studied microscopically showed that the tissues of the neoplasm were in an active state of growth, as indicated by the number of mitotic figures and the morphology of the cells. This growth was particularly well marked in Tumors 672 and 678, which were the longest under treatment. Even in Tumor 727, in which injections were made into the tumor itself, there remained a very wide margin of healthy, growing tumor cells. Areas of necrosis were not found more frequently than in untreated controls.

The accompanying chart shows the size of the tumor at different stages, the day of death of the animal, marked by a cross, the total dose, and the site of injection. It is evident that there was no demonstrable effect on the course of the tumor, all the animals dying ultimately and all the tumors showing distinct expansive growth. The number of metastases observed did not differ from that in a similar series of spontaneous tumors. It may be added here that about three years ago, in a series of unpublished experiments, thirty mice bearing transplanted tumors were treated with subcutaneous and intravenous injections of pure chlorophyl, but no therapeutic effect could be demonstrated.

CONCLUSION

"Autolysin," either in small or in very large doses, does not affect malignant tumors in mice.

3. Rohdenburg, G. L., and Bullock, F. D.: A Histological Study of the Internal Secretory Glands in Mice Bearing Spontaneous Tumors, Jour. Med. Research, 1915, xxxiii, 147.

THE EXTENT AND SIGNIFICANCE OF GONORRHEA IN A REFORMATORY FOR WOMEN

AND THE CONSIDERATION OF THE TREATMENT OF VENEREAL DISEASE AMONG DELINQUENTS *

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Being confronted with the extremely difficult problem of giving adequate treatment to 200 women infected with gonorrhea, out of a population of 350, in an institution equipped for education and industry rather than for purely medical work, it was thought worth while to study the situation in detail and ascertain the facts concerning the following points.

1. The prevalence of the disease among 500 delinquent women who have recently been in the institution and the nature and extent of the infection in each positive case.

2. The length of time the disease had existed without treatment and the time needed for the disappearance of the clinical symptoms.

3. The prevalence of the disease among women serving sentence for different types of offenses.

* From the Reformatory for Women.

4. The comparative prevalence of gonorrhea and syphilis among,

a. Alcoholics.
b. Prostitutes.
c. Delinquent women in general.
d. Mentally defective delinquents of the segregable type.

While this study shows the prevalence of the disease among delinquent women and the serious consequences to the women themselves, no effort has been made to estimate the far-reaching effects of their infectiousness in the community. The seriousness of the conditions found, however, has seemed sufficient reason for renewed interest in the situation quite as much from a community as from an institution standpoint.

1. *The prevalence of the disease and the nature and extent of each infection.*—Five hundred twenty-two women have been examined to discover the extent of the infection, with the results shown in Table 1.

TABLE 1.—EXTENT OF INFECTION IN 522 WOMEN

	Number	Per Cent.
Cases positive by clinical history and bacteriologic examination	370	70.8
Cases positive by clinical history alone	18	3.5
Cases positive by bacteriologic examination alone	7	1.4
Total number of positive cases	395	75.7

The 75.7 per cent. of positive cases may be considered a conservative estimate. It represents those cases which presented symptoms during the entrance examination and does not include cases which may have recovered, or which were latent at that time unless clinical symptoms returned later and were admitted by the patient.

The management of a gynecologic clinic of the size necessary for even routine treatment with this number of positive cases will be appreciated by those who are familiar with the difficulties of institution life, especially in a custodial institution in which a large number of women represent unstable types. For example, the average number of treatments given each week is 450, or 1,000 each month. As large as this looks on paper, it is still more appalling in actuality.

The detailed study of 268 positive cases shows *the duration of the disease and its course* to be as follows:

The greatest length of time which had elapsed since the initial infection was twenty-six years, while the average length of time was four years and five months. Seven patients had had the disease over twenty years, while only eleven patients came to us during the first three months of the infection. The average length of time of the first attack was three years and ten months, while the average length of time that clinical symptoms have been present in each case was four years and three months. It was found that in 82.7 per cent. of the cases there had been no cessation of clinical symptoms since the initial infection. Such a proportion as this is evidence that the infectiousness in the community has been continuous and also that there is little tendency to spontaneous cure by nature's methods alone.

In the 11.3 per cent. of cases showing recurrences or reinfections, some cases gave a history of as many as eight, while the average number was two. The longest interval in which the patient had been free from discharge was four years, while the average length of the interval was seven months.

The information which we have obtained may be inaccurate on account of the large proportion of mental defectives among the patients, the length of time which had elapsed in many cases since the initial infection, and the intentional minimizing or concealment of symptoms, in some cases, in order to obtain an earlier release. Notwithstanding this, the results of the study have been surprisingly consistent.

As will be seen from the accompanying table (Table 2), the 303 positive cases which it was possible to study in detail have been divided into six classes according to the length of time the disease had been present before treatment was begun, to discover, if possible, differences in the virulence and the nature of the disease at various periods.

The classification is as follows:

Class 1 had been infected from one to three months before being treated.
Class 2, from four to six months.
Class 3, from seven to eleven months.
Class 4, from one to five years.
Class 5, from six to nine years.
Class 6, ten years or longer.

The total results of this table show that 52 per cent. of the whole number had had the disease from one to five years without treatment; 19 per cent. had had it from six to nine years, and 14 per cent. had had it over ten years. Fifteen per cent., only, received treatment during the first year of the disease.

It will be seen at the outset how little realization the patients have had of the seriousness of the disease and how handicapped any method of treatment is which is begun at such a late date.

Regarding recurrences or reinfections, it will be noted that in Classes 1 and 2 (from one to six months)

TABLE 2.—SHOWING 303 CASES OF GONORRHEA AMONG DELINQUENT WOMEN, CLASSIFIED ACCORDING TO THE DURATION OF THE DISEASE BEFORE TREATMENT WAS BEGUN

Duration Before Treatment	Number of Cases with Recurrences		Cases Having Pain in Both Iliac Regions		Cases Having Pain in Either Iliac Region		Cases Having Pelvic Operation		Cases Needing Pelvic Operation		Total Number of Surgical Cases		Total of 303 Cases	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Class 1, 1-3 months	...	...	2	18	11	100	1	9	1	9	2	18	11	4
Class 2, 4-6 months	...	...	4	33	12	100	1	8	1	8	2	16	12	4
Class 3, 7-11 months	2	9	4	18	21	95	2	9	3	14	5	23	22	7
Class 4, 1-5 years	43	27	47	29	91	57	37	23	41	24	78	47	160	52
Class 5, 6-9 years	14	25	14	25	35	61	14	25	9	16	23	41	57	19
Class 6, 10 years +	5	12	12	29	37	93	6	15	8	20	14	35	41	14
Total	64	21	83	27	207	68	61	20	63	21	124	41	303	...

there was universally an uninterrupted course, a few recurrences appearing in Class 3 (from seven to eleven months) while the largest number, 27 per cent. and 25 per cent., respectively, was found in Classes 4 and 5 (groups having had the disease from one to five and from six to nine years). After this period their memory of recurrences did not appear so vivid and only 12 per cent. gave such a history.

Of the total number 68 per cent. have had pelvic inflammation in one iliac region, while 27 per cent. have had it on both sides. A nearly equal number of cases showed inflammation of the left and the right sides (left, 147 cases; right, 143 cases). Practically all in the first three classes gave a history of pelvic inflammation. This may have been diffuse pelvic inflammation rather than an inflammation of the tube or ovary. Nevertheless, about 9 per cent. of the first three classes had been operated on, while from 8 to 14 per cent. needed operation.

TABLE 3.—HEART LESIONS IN 580 WOMEN

	No.	Per Cent.	Cardiac No.	Cases Per Cent.
Gonorrheics	440	75.9	123	27.9
Nongonorrheics	140	24.1	40	28.5
Totals	580	100	163	28.1

According to statistics gathered by 678 physicians,[1] 40 per cent. of all female gonorrheics suffer from pelvic symptoms. Other statistics, gathered by six different authors,[2] show that pelvic complications occur in 25 per cent. of the acute and in 50 per cent. of the chronic cases. The previous negligence of our patients, however, would easily account for their relatively larger number, namely 68 per cent.

Of the 303 cases, 20 per cent. have had an abdominal operation to relieve a pelvic condition due to this infection, while 21 per cent. more are suffering from a chronic condition which can be relieved only by surgical measures. Thus, out of the whole number there were 41 per cent. of surgical cases. It is interesting that the largest proportion of surgical cases (47 per cent.) was in Class 4 (one to five years). In Class 5 (six to nine years) the proportion was nearly as high (41 per cent.)—the number actually operated on being higher, while those needing it were fewer than in the preceding class. In Class 6 (ten years and over) 35 per cent. were surgical cases, 20 per cent. of which had already been operated on. Such figures serve to emphasize the virulence of the disease, in its later stages especially, when it has been neglected for so long a time.

TABLE 4.—COMPARISON OF COMPENSATION OF CARDIAC CONDITIONS

	Compensation		
	Good Per Cent.	Fair Per Cent.	Poor Per Cent.
Nongonorrheics	38.2	40.6	21.2
Gonorrheics	50.0	30.0	20.0

1. Report of Committee of Seven, Med. News, Dec. 21, 1909.
2. Menge, F.: Handbuch der Geschlechtskrankheiten, Vienna, 1910.

A special study of 580 cases including 440 gonorrheics was made to ascertain the prevalence of heart lesions. No gross evidence, however, could be found of endocarditis which was caused by the disease, the proportion of heart lesions being practically the same in both classes. The results are found in Table 3.

That is, 440 cases of gonorrhea showed 27.9 per cent. of cardiac cases, while 140 cases without gonorrhea showed 28.5 per cent. of cardiac cases. As the cases without gonorrhea have, generally speaking, taken better care of themselves than the class that has had the disease, the fact that the latter class shows the larger percentage is the more significant.

A comparison of the compensation of the cardiac conditions was made in the two classes, with the results shown in Table 4.

Contrary to what might be expected, the percentage of the poorly compensated cases is higher among the first class than among the second.

Six of the heart cases, however, gave no history of other causes besides gonorrhea to which the condition could be attributed. Although this is a difficult diagnosis to prove, it has been sufficiently often demonstrated at necropsy to leave no doubt as to the possibility of its existence, and is extra evidence of the organism's capacity for harm in the community.

TABLE 5.—BIRTH RATE AMONG GONORRHEIC AND NONGONORRHEIC WOMEN

	Gonorrheics		Nongonorrheics	
	No.	Per Cent.	No.	Per Cent.
No children	161	40.7	46	35.4
One child	140	35.4	19	14.6
Two children	42	10.6	14	10.8
Three children	22	5.5	9	6.9
Four children	17	4.3	11	8.5
Five or more children	14	3.5	31	23.8
Total	396		130	
Total number of children	439		365	
Average number of children	1.1		2.8	

The percentage of sterility which is caused by the disease seemed perhaps the most important subject for investigation. While the result, if positive, might be considered desirable among our women who are mentally or socially inefficient, still, the sterility which is caused indirectly by them in the community would doubtless be considered most undesirable. Here we might add that Neisser[3] states that 30 per cent. of all women who have gonorrhea have been infected by their husbands. Norris[4] says that, by sterilization and abortion, gonorrhea does more to depopulate the country than any other one cause; other authorities say that from 30 to 50 per cent. of all childless marriages are directly caused by gonorrhea.

The figures in Table 5 show the birth rate among 396 gonorrheics and 130 nongonorrheic women.

The average number of children for each nongonorrheic will be seen to be 2.8, while for each gonorrheic it is 1.1. The high percentage of families of five or more children among the nongonorrheics (23.8 per

3. Neisser, Quoted by Mullowney, J. J.: China Med. Jour., March, 1912.
4. Norris: Gonorrhoea in Women, W. B. Saunders Company, 1913, p. 127.

cent. as compared with 3.5 per cent. among the gonorrheics) is significant; also the 35.4 per cent. of "one child sterilities" as compared with 14.6 per cent. among the nongonorrheics.

The figures in Table 6 show the proportion of the children of 396 gonorrheics, born before and after infection.

Here it will be noticed that the number of children born before the infection is over twice the number

TABLE 6.—PROPORTION OF CHILDREN BORN BEFORE AND AFTER INFECTION

Birth Rate	Before Infection		After Infection	
	No.	Per Cent.	No.	Per Cent.
No children	231	58.3	326	82.4
One child	102	25.8	38	9.6
Two children	32	8.1	10	2.5
Three children	14	3.5	8	2.0
Four children	7	1.8	10	2.5
Five or more children	10	2.5	4	1.0
Total number of children	295		144	
Average number of children	0.7		0.4	

born after the infection, and that the average number before infection was 0.7, while after infection it was 0.4.

A further study was made of the effects of pelvic symptoms on the birth rate. The results are shown in Table 7.

These results would seem to signify, as might be expected, that uncomplicated gonorrhea affects the birth rate less than gonorrhea which involves the uterine adnexa, particularly if it calls for surgical interference. The cases in which operation was performed show the smallest average number of children (0.1) while the average of those patients needing operation is not much higher (0.2).

While it is realized that these results might be made more valuable with the consideration of much more detail than has been attempted here—such as comparative ages, proportion of married and single women, etc.—still it is believed that they serve to demonstrate in a general way that what is already known of the characteristics of the disease holds true in our present problem.

It is interesting that with such a large percentage of Neisser infections, during three years there has been no case of vulvovaginitis or urethritis among the thirty-five children and babies. There have been five acute eye infections and one case of gonorrheal iritis of hematogenous origin. It may be well to keep in mind, however, the fact that, estimated conservatively, from 30 to 50 per cent. of all blindness[5] is caused by this disease.

2. *The length of time the disease had existed without treatment and the time needed for the disappearance of the clinical symptoms.*—The following facts show how little treatment the disease has had in the community:

Of 378 cases giving a clinical history of gonorrhea, only four patients (1.0 per cent.) had received adequate medical treatment. Five patients (1.3 per cent.) had received some medical treatment besides taking douches, and 47.6 per cent. had taken douches but had had no medical advice. This means that 52.3 per cent. had had no treatment whatever, while 95.0 per cent. had had inadequate treatment.

When one knows that the majority of the 500 women have at some time been in prostitution, the lack of medical supervision among this class can readily be seen. The fact that douches were taken in over 47 per cent. of the cases seems neither to have prevented the disease nor to have had marked effect on the symptoms.

The question may be raised whether our class of women is representative of the so-called "high-grade" prostitute. Skilled investigators on the various vice commissions, however, report that the same conditions exist among all grades.

The treatment of the disease, after it has run such a long course, has been in our experience most unsatisfactory. In a class of women including so many psychopaths, too strenuous treatment had to be abandoned; hence we have found it impracticable to use anything as strong as silver nitrate solutions. The method which usually has been employed is thorough cleaning of the vagina and cervix and the application to the cervical canal and the vaginal walls of Churchill's tincture of iodin. This has been supplemented with a tampon of boroglycerin, ichthyol and glycerin or a saturated solution of picric acid. For months at a time the picric acid alone has been used on tampons with good results. It seems to have the desired effect of causing the mucous membrane of the vagina to slough off in a wholly painless way, apparently reaching the part of the mucosa in which the organisms are imbedded. In many cases where there is pelvic inflammation, frequent long, hot douching (every two hours) with a strong solution of potassium permanganate has been used, supplemented by the ice bag when necessary. Cases which do not yield to such medical treatment, with eventual cessation of all

TABLE 7.—EFFECTS OF PELVIC SYMPTOMS ON BIRTH RATE

	Cases Operated on Per Cent.	Cases Needing Operation Per Cent.	Cases with Iliac Pain, but Operation Unnecessary Per Cent.	Cases with No Iliac Pain Per Cent.
No children	90.3	92.0	77.5	67.4
One child	9.7	4.0	14.2	18.6
Two children	0	0	3.0	4.6
Three children	0	0	2.1	3.4
Four children	0	0	1.1	3.4
Five or more children	0	4.0	2.1	2.6
Average number of children	0.1	0.2	0.4	0.6

5. Norris: Gonorrhoea in Women, W. B. Saunders Company, 1913, p. 128.

pain, are considered operative cases and are treated surgically.

As the routine medical treatment of gonorrhea gives unsatisfactory results at best when the organism has already invaded the tissues to any extent, more active treatment of the uterine mucosa—such as curettage and iodinization—seems the only method that offers hope of satisfactory results. How practical such treatment would be in a penal institution, however, remains to be proved. Vaccine therapy, even in children, in whom it is supposed to give the best results, has not, in our experience,[6] produced the results that are claimed for it. This tends to make us rely the more on the actual treatment of the infected tissues themselves.

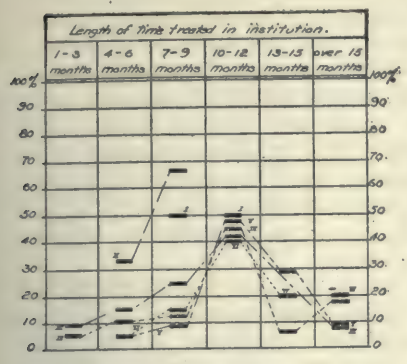


Chart 1.—Graphic representation of 111 cases of gonorrhea (Table 8), showing length of time treatment was necessary before clinical symptoms disappeared. Classes 1 to 6 refer to duration of disease before treatment was begun. Class 1, one to three months; Class 2, four to six months; Class 3, seven to eleven months; Class 4, one to five years; Class 5, six to nine years; Class 6, over ten years.

The 303 positive cases studied in detail (Table 2) are divided into two groups: (a) those in whom the clinical symptoms have disappeared and who, after being found negative bacteriologically, have been discharged from treatment, and (b) those who are still under treatment because of the persistence of clinical symptoms.

Table 8 shows 111 cases which have cleared up clinically classified according to the duration of the disease before treatment was begun. It shows how long in each class treatment was necessary before the clinical symptoms disappeared.

Classes 1 and 2 have very little value because of the small number included in each. It is interesting, however, that the total course of the disease in both of these classes, including periods both with and without treatment, appears to be about the same, the minimum being about eight months and the maximum about fifteen. From this one might judge that if the organism becomes well imbedded in the tissues (and no case comes to us until at least a month after the initial infection), the disease is bound to run a definite course even under fairly favorable treatment. In Class 3 in which the infection has lasted from seven to eleven months without treatment, 42 per cent. needed ten to twelve months' treatment, while 8 per cent. had to be treated longer than ten months. Here again the minimum time seems to correspond with that of the two previous classes, that is, about eight months.

In Classes 4, 5, and 6 the largest per cent. of cases required ten to twelve months' treatment. As the time during which the cases were untreated increases, the length of time needed to clear up clinical symptoms will be seen to increase proportionately, giving much larger percentages in the last columns. It will also be noted that in the last two classes (5 and 6) there were no cases in which the symptoms disappeared during the first three months. The seriousness of the problem in the institution is increased by the fact that 43 per cent. of 111 cases in which the clinical symptoms have disappeared required from ten to twelve months' treatment each.

Chart 1 shows graphically the data in Table 8.

Perhaps the most noticeable thing in this chart is the consistency of Classes 3 and 4, which show relatively larger percentages clearing up in the early months than do Classes 5 and 6. It also demonstrates the large number in each class requiring from ten to twelve months' treatment.

TABLE 8.—CLASSIFICATION OF 111 CASES OF GONORRHEA, SHOWING LENGTH OF TIME TREATMENT WAS NECESSARY BEFORE CLINICAL SYMPTOMS DISAPPEARED

Duration Before Treatment	Treated 1-3 Months		Treated 4-6 Months		Treated 7-9 Months		Treated 10-12 Months		Treated 13-15 Months		Treated Over 15 Months		Total of 111 Cases	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Class 1, 1-3 months	...	...	...	...	1	50	1	5	...	...	...	...	2	1
Class 2, 4-6 months	...	...	1	33	2	67	...	...	...	...	...	...	3	1
Class 3, 7-11 months	1	9	2	16	3	25	5	42	...	...	1	8	12	4
Class 4, 1-5 years	3	6	6	11	7	13	24	45	4	7	9	18	53	17
Class 5, 6-9 years	...	...	1	5	2	9	10	48	6	29	2	9	21	7
Class 6, 10 years +	...	...	1	5	3	15	8	40	4	20	4	20	20	7
Total number and percentage of 111 cases	4	4	11	10	18	16	48	43	14	13	16	14	111	100

Table 9 shows 192 cases at present under treatment. Classification A to F is made according to time treated.

Thus class A has been under treatment from one to three months.

Class B has been under treatment from four to six months.

Class C has been under treatment from seven to nine months

Class D has been under treatment from ten to twelve months.

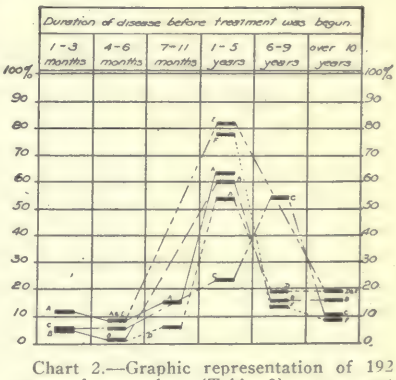


Chart 2.—Graphic representation of 192 cases of gonorrhea (Table 9), at present under treatment, showing length of time treated and duration of disease before treatment was begun. Classes A to F refer to length of time patients have been under treatment. Class A, one to three months; Class B, four to six months; Class C, seven to nine months; Class D, ten to twelve months; Class E, thirteen to fifteen months; Class F, over fifteen months.

Class E has been under treatment from thirteen to fifteen months.

Class F has been under treatment longer than fifteen months.

6. Spaulding, E. R.: Vulvovaginitis in Children, Am. Jour. Dis. Child., March, 1913, p. 248.

It will be noted that 56 per cent. of the total number had the disease from one to five years before treatment was begun, and that 18 per cent. had it from six to nine years, while 11 per cent. had it over ten years.

Chart 2 shows the same percentages graphically.

Here again the same general consistency is seen. The classes which have been under treatment longest were latest in beginning treatment. Again the "one to five year" period appears to furnish the most resistant cases.

3. *The prevalence of the disease among women serving sentences for different types of offenses.*—In order to learn more of the significance of the disease socially, the 470 cases have been divided into the following three groups:

Class 1.—The first group includes all women serving a sentence for an offense which probably has a sex basis. This includes "Stubborn Child," "Vagrancy," "Lewdness," "Common Night Walker," "Fornication," "Keeping Disorderly House," etc. This group is 67.6 per cent. of the total number of cases.

Class 2.—The second group includes those who give a history of promiscuous sex relationship but are serving sentence for some other offense. This group is 19 per cent. of the total number.

Class 3.—The third group includes those who give no history of sex promiscuity and who are serving sentences for other offenses (13.7 per cent. of the total).

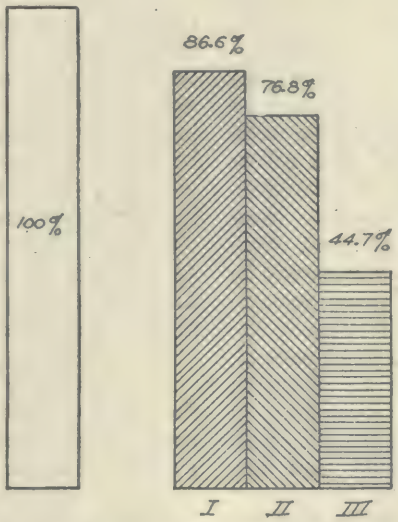


Chart 3.—Showing prevalence of gonorrhea among 500 delinquent women classified according to offense. Class 1 includes women whose offense has a probable sex basis (67.6 per cent. of 500). Class 2 includes women who give history of promiscuous sex relationship, but are serving sentences for some other offense (19 per cent. of 500). Class 3 includes women without such history or such offense (13.4 per cent. of 500).

The proportions of the positive cases in the three groups are shown in Table 10.

Chart 3 presents graphically the percentages in the three classes.

A detailed study of the forty-five cases, making up the 13.4 per cent. of negative cases in Class 1, may be of interest here.

Thirteen per cent. of the negative cases have a positive Wassermann reaction, even though they have escaped gonorrhea. Eight per cent. of the cases were committed on charge of "Stubborn Child," which, while it probably had a sex basis, may not have signified promiscuous relationships. Two per cent. of the cases came from country districts where venereal disease was not common. Of the remaining fifteen per cent., two cases are serving prostitution charges but evidently escaped both diseases, and the remaining cases, although arrested on a charge of sex basis, gave no history of promiscuousness.

This shows that if this group had included only prostitutes, the percentage of gonorrhea would have been higher. This has been already demonstrated in a previous report.[7] Among 243 women who could have been called prostitutes at some time in their lives over 98 per cent. had gonorrhea.

Class 2 shows 76.8 per cent. of positive cases. This is lower than Class 1, as would be expected, but nearly twice that of Class 3.

Class 3, which includes no women who have been known to live immorally, has 44.7 per cent. of gonorrheics. This might seem high were it not for the fact that Neisser[2] believes that 45 per cent. of all women have gonorrhea. Other authors, however, give much lower percentages among women in general, one giving 4.5 per cent.,[3] another 12 per cent.[4] Such figures make the per cent. of the last class seem high.

SUMMARY OF GONORRHEAL DATA

The following facts, which stand out as the result of our study of gonorrhea among delinquent women, seem important in considering the disease with reference to its relation to the community.

TABLE 9.—CLASSIFICATION OF 192 CASES OF GONORRHEA AT PRESENT UNDER TREATMENT, SHOWING LENGTH OF TIME TREATED AND DURATION OF DISEASE BEFORE TREATMENT WAS BEGUN

Time Under Treatment	Duration of Disease Before Treatment Was Begun												Total of 192 Cases	
	1-3 Months		4-6 Months		7-11 Months		1-5 Years		6-9 Years		10 Years +			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Class A, 1-3 months	5	12	4	9	7	16	27	63	...	...	...	...	43	22
Class B, 4-6 months	2	5	1	2	...	...	23	60	6	16	6	16	38	20
Class C, 7-9 months	2	6	2	6	...	...	8	23	19	54	4	11	35	18
Class D, 10-12 months	...	...	1	2	3	7	22	53	8	19	8	19	42	22
Class E, 13-15 months	...	...	1	9	...	...	9	82	...	...	1	9	11	6
Class F, 15 months +	...	...	...	...	...	...	18	78	3	13	2	9	23	12
Total number and percentage of 192 cases	9	5	9	5	10	5	107	56	36	18	21	11	192	100

Sixty-two per cent. of the negative cases are women who are serving sentences for adultery or cohabitation. Fifteen included in the 62 per cent. are foreigners who have been in this country but a short time. Most of these are good types of women whose lives in every other respect have been law-abiding. For various reasons their unions have not been legalized, but they have not been guilty of promiscuous immorality. The absence of disease in these cases is to be expected.

Prevalence.—Among delinquent women in general 75 per cent. at least have a gonorrheal infection. This represents only that proportion who show symptoms of the disease while under our supervision and often during a single examination. It is a conservative estimate of the number who at some time have had the disease. Among the prostitute class, however, the

7. Spaulding, E. R.: Mental and Physical Factors in Prostitution, Women's Med. Jour., July, 1914.

proportion of gonorrheics increases to over 98 per cent.

Important Complications.—1. Sixty-seven per cent. of the positive cases present symptoms of pelvic inflammation while 40 per cent. become surgical cases.

2. The birth rate appears to be diminished over one half on account of the disease, and 35 per cent. of the positive cases present "one-child sterilities."

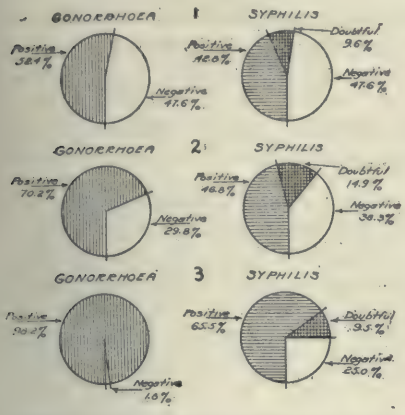


Chart 4.—Graphic representation of prevalence of venereal disease (1) among sixty-three women (12.5 per cent. of 500 consecutive cases) arrested for alcoholism only; (2) among ninety-four women (18.4 per cent. of 500 consecutive cases) arrested for alcoholism and other offenses; (3) among 243 women previously studied (60.8 per cent. of 400 consecutive cases), who at some time had been in prostitution.

3. Gonorrheal ophthalmia and endocarditis are among the serious complications.

Period of Infectiousness in the Community.— The majority of cases have apparently run an uninterrupted course sometimes for a period of twenty-five years, without having had any treatment. During that time the women have been a prolific source of infection in the community, causing indirectly the same complications of surgical conditions, sterility and blindness among the innocently infected which they themselves have had.

Prognosis.—The amount of treatment needed for the disappearance of clinical symptoms depends on the duration of the disease before treatment is begun. The average length of time that these cases were untreated was over four years. After the disease had lasted from four to six months without treatment, the majority of cases require from ten to twelve months' treatment before symptoms subside and the bacteriologic examination becomes negative (Chart 1 and Table 8). The majority of those whom it has been necessary to treat over one year had the disease from one to twenty years before treatment was begun (Chart 2 and Table 9). During the "one to five year" period, the vaginal discharge is most resistant to treatment, the tendency being to lessen in virulence after that period. The tendency to pelvic complications, however, seems to continue actively for at least ten years, and in many cases much longer.

TABLE 10.—CASES POSITIVE FOR GONORRHEA

Class	Total Per Cent. of Positive Cases	Positive Clinically and Bacteriologically Per Cent.	Positive Clinically Alone Per Cent.	Positive Bacteriologically Alone Per Cent.
1	86.6	74.2	10.9	1.5
2	76.8	65.5	7.2	4.2
3	44.7	31.4	11.8	1.5

4. *The comparative frequency of gonorrhea and syphilis among different types of delinquents.*

Chart 4 shows the prevalence of venereal disease among three classes of offenders.

1. Women arrested for alcoholism alone.
2. Women arrested for alcoholism and other offenses.
3. Women who have been in prostitution.

1. Among sixty-three women (12.5 per cent. of 500 consecutive cases) arrested for alcoholism only, we find gonorrhea 52.4 per cent. and syphilis 42.8 per cent., while 9.6 per cent. show a doubtful Wassermann reaction. These are high percentages for alcoholism alone and tend to substantiate the belief that alcoholism seldom remains the only offense.

2. Among ninety-four women (18.4 per cent. of 500 consecutive cases) who were arrested for alcoholism and for other offenses also, gonorrhea was found in 70.2 per cent. and syphilis in 46.8 per cent. with 14.9 per cent. showing a doubtful Wassermann reaction.

3. Among 243 prostitutes (60.8 per cent. of 400 consecutive cases) we find gonorrhea 98.2 per cent. and syphilis 65.5 per cent., with 9.5 per cent. showing a doubtful Wassermann reaction. These are appalling percentages from the standpoint of the community as well as from that of the individual, and make one realize the menace of the two diseases in their social aspect.

Chart 5 shows the problem of venereal disease as it relates to delinquent women in general.

Among 500 consecutive cases we find 75.7 per cent. with gonorrhea, 44.7 per cent. with syphilis, and 9.3 per cent. with a doubtful Wassermann reaction. At the New York Reformatory for Women,[8] Bedford Hills, New York, 73 per cent. of the women had gonorrhea and 51 per cent. had syphilis. These results, which represent the work of different laboratories on different groups of women, show surprisingly uniform percentages.

In 119 women (24 per cent. of 500), who on account of mental defect should be permanently segregated, we find gonorrhea 90.8 per cent. and syphilis 61.3 per cent. with 6.7 per cent. with doubtful Wassermann reactions.

CONCLUSIONS

Three methods present themselves as means of dealing with venereal disease among delinquents:

1. The medical problem of venereal disease is very closely associated, as has already been seen, with mental and social problems. Among the 24 per cent. of our women[9] who, after careful study, have been considered candidates for permanent segregation, syphilis was found to be about 61 per cent. while gonorrhea was over 90 per cent. These women have proved themselves to be irresponsible members of the community. They are all defective intellectually according to psychologic tests. They have, besides a bad social record, no home where

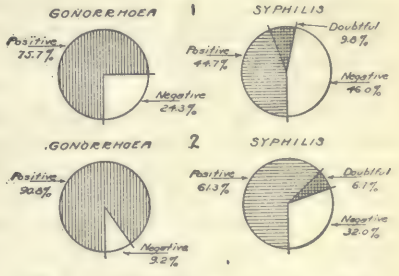


Chart 5.—Graphic representation of prevalence of venereal diseases (1) among 500 delinquent women (consecutive cases); (2) among 119 cases (24 per cent. of the 500 cases), who on account of mental defect should be permanently segregated.

8. Davis, K. B.: Proceedings of the Annual Congress of the American Prison Association, Indianapolis, 1913.
9. Spaulding, E. R.: Our Criminal Problem from the Standpoint of Classification and Segregation, Boston Med. and Surg. Jour., Oct. 7, 1915.

they can be given suitable supervision. If we provide for their segregation, we not only remove their immoral influence from society and prevent the continuance of similar types in the next generation, but we remove just so much actual disease from the community.

The argument may be brought forward, particularly by the layman, that most of our women, especially in our mill towns, associate only with their own type, which does not endanger society as a whole. Even if this were true, they would tend to infect individuals who, if crippled mentally or physically by disease, would become public charges and an additional expense to the taxpayer. This would be an additional argument, economically, for the permanent segregation of mental defectives, especially among delinquents.

Before such segregation is possible, however, greater facilities must be furnished by the state for their care, and the judges, through whom the commitments must be made, must be shown the need of their segregation.

2. The second method of combating the disease would be the early diagnosis and the intensive treatment of all persons who pass through the courts and are detained in public institutions on any charge.

The ideal treatment of prisoners according to our most advanced criminologists is the mental, physical and social examination of all persons before they are seen by the judge. When such information is obtained before trial, the fact that the prisoner needs treatment for diseases so dangerous to public welfare should influence the judge in his decision, especially when the offense of the prisoner tends to spread such disease. As a help toward this, a law[10] is already in existence in Massachusetts which provides for the treatment of syphilitics while the disease is in a communicable form.

As over 25,000 persons were sentenced to penal institutions during the year ending September 30, 1914, it would seem possible, by suitable treatment, to accomplish much under the present régime. This should include the universal application of the Wassermann test and the bacteriologic tests for gonorrhea, with insistent treatment for the two diseases while in the institution. The indeterminate sentence makes it possible usually to hold gonorrheics until they have cleared up clinically, while the law mentioned above enables us to hold syphilitics as long as it seems necessary.

3. The third and most important method would be the provision of hospitals throughout the country for the treatment of such persons, if necessary, free of charge, before they become our patients. Even in the time of Henry VIII there were six hospitals in London devoted to the treatment of venereal patients. Even though, in this present generation, hospitals for the exclusive treatment of venereal disease are not considered feasible on account of the stigma which would be attached to them, there seems to be no argument against special wards in all hospitals where such treatment could be given.

While we do not recommend a segregated district and attempted medical supervision of prostitutes, we do believe in limitless opportunity for treatment in the place of the at present existing conditions. Fortunately, in Massachusetts the hospitals are beginning to admit patients with these two diseases.[11]

10. Revised Laws of Massachusetts, 1902, i, Chap. 75, Sec. 48.
11. Post, Abner: Syphilis, Boston Med. and Surg. Jour., July 29, 1915, p. 161.

The three methods of treatment which have just been described lie in the province of the physician. Although it is outwardly a social problem, and calls for legislation and much social effort, it is fundamentally a medical one and will only progress as the physician appreciates his responsibility and enlists his interest and influence.

THE INCIDENCE OF SYPHILIS AMONG JUVENILE DELINQUENTS

ITS RELATION TO MENTAL STATUS *

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The Wassermann tests of serum obtained from the Boys' Industrial School and the Girls' Industrial Home, in Ohio, herein reported, were made by Dr. Walter McKay, assistant physician of the Institution for the Feeble Minded, Columbus, Ohio, and the specimens of blood were collected by Dr. Walter A. Noble of the Bureau of Juvenile Research. Dr. Noble also made the physical examinations reported. To the careful work of these gentlemen is due the credit for the work here presented. The technic of the Wassermann tests, as executed by Dr. McKay, is that "described and recommended by Captain Charles F. Craig, of the U. S. Army Medical Corps, Bulletin 3, published by the surgeon general," with one change. Dr. McKay used sheep's blood amboceptor and corpuscles. His method of reading the reaction is the one outlined by Dr. W. T. Mefford of the Wassermann Laboratory, Chicago, calling the strongest positive reaction four plus (+ + + +), and the weakest positive reaction one plus (+), while the three plus (+ + +) and two plus (+ +) reactions are judged by the appropriate dilutions. Throughout the work Dr. McKay used controls as described by Dr. Mefford.

TABLE 1.—BOYS AND GIRLS EXAMINED

	Boys	Girls	Total
Total number tested	147	218	365
Number of positive and doubtful Wassermanns	34	42	76
Percentage of positive and doubtful Wassermann reactions	23.1	19.2	20.8

Table 1 exhibits the numbers of boys and girls whose serums were examined, the numbers yielding positive and doubtful results and the percental relations of these numbers to the total numbers examined. There was no selection of these cases. They were taken, as nearly as could be, in groups as admitted to the institutions.

Table 2 exhibits the distribution of cases according to numbers of tests made on each individual, and the character and strength of the reaction. Nine of the boys were tested twice. Of the girls, fourteen were tested but once, twenty were tested twice, and eight were tested three times.

In some cases the first negative reaction was suspected of being faulty, on account of technic, and later examination proved this to be true. For example, it may be noted that two cases yielding a negative reaction in the first test, on the second testing yielded a four plus reaction. Likewise, two cases, first reported

* From the Bureau of Juvenile Research, Columbus, Ohio.

negative, yielded three plus reactions on both second and third testings. In general, repetitions were made for removing all doubt in already positive cases.

In regard to the character of the reaction, it is interesting to note the relatively large numbers of subjects yielding four plus and three plus reactions. Out of the total of seventy-six positive or doubtful reactions obtained, we find forty of these to be either four plus or three plus reactions.

Table 3 exhibits the distribution of these seventy-six boys and girls with respect to chronological ages. The age is reckoned in each case as being of the nearest birthday. For example, a boy who is 12 years and 5 months of age is reckoned as 12 years old. On passing 12 years and 6 months he is reckoned as 13 years of age, and is considered 13 years of age until he reaches 13 years and 6 months, so that under each year of age we may have individuals varying in age from six months previous to that year to the six months after that year. The largest number of boys is found at 15 years. The largest number of girls is found at 16 and 17 years, there being twelve individuals in each one of these age groups. The average age of the

TABLE 2.—CASES ACCORDING TO NUMBER OF TESTS

	Once Tested		Twice Tested			Three Times Tested			
	Reaction	No. of Cases	Reaction		No. of Cases	Reaction			No. of Cases
Boys	++++	6	++++	++++	3				
	+++	14	++	++	3				
	++	5	+	+	2				
	.....	..	++	—	1				
Girls	+++	2	++++	++++	2	++++	++++	++++	1
	++	7	++++	+++	2	++++	+++	+	1
	+	5	++++	++	1	++++	++	++	1
	.....	..	+++	+++	1	+++	+	+	2
	.....	..	++	++	6	++	+	+	1
	.....	..	++	+	1	—	+++	+++	2
	.....	..	—	++++	2				
	.....	..	—	++	2				
	.....	..	.....	+	3				

thirty-four boys is 14 years and 11 months. The average age of the forty-two girls is 15 years and 11½ months.

In regard to the social status of these individuals, they are all cases committed to reform schools because of delinquencies of various sorts.

Table 4 presents a summary of the complaints and offenses mentioned in the commitment papers of the boys and girls yielding the positive and doubtful Wasserman reactions. Some commitment papers mention more than one offense; hence the sum of offenses more than equals the total number of boys and girls. With boys the leading offense is that of larceny—seventeen cases. With girls, on the other hand, sexual offenses lead with a total of seventeen. To these should probably be added four cases of immorality. This usually means sexual immorality. Seven boys and ten girls are set down as incorrigible. It is safe to assume that a large percentage of these ten girls are immoral. The distribution of offenses in this group of delinquents yielding positive Wassermann reactions is not, in any wise, different from the distribution of these offenses among the total number of admissions to these reform schools. The same may be said concerning the ages. The ages indicated in Table 3 are typical of the total number of admissions to these reform schools.

It is required by law that every person committed to a reform school shall have been examined by a physician, and be accompanied by a medical certificate. An examination of the medical certificates of thirty-three of the girls yielding positive or doubtful Wassermann reactions yielded the data exhibited by Table 5. We find thirteen of these girls certified as being in good health. A physician's O. K. is put on each one of these thirteen cases. In four cases vision is certified as impaired; in ten cases it is stated that there is a

TABLE 3.—AGES IN POSITIVE OR DOUBTFUL REACTIONS

	Year of Age						
	12	13	14	15	16	17	18
Boys	..	5	5	12	6	4	1
Girls	1	..	5	8	12	12	4

"vaginal discharge," or she "has gonorrhea," or "has had gonorrhea;" in four cases a question is raised in respect to venereal disease; in one the girl is "said to have had a profuse eruption on limbs;" and one has been "treated for syphilis in a hospital."

Thus, out of thirty-three cases in which the Wassermann tests yielded definite evidence of syphilitic infection, only one girl is known to have had syphilis, one is thought to have had symptoms of the primary stage of syphilis, and in four cases there is a question of venereal disorder; but this question seems to have gravitated entirely in the direction of infection by the gonococcus. This is certainly striking evidence both of the value of the Wassermann reaction in the study of such institution cases, and of the imperative need for its use. This value and this need are both in the service of the therapeutics of the individual and for social protection. In no institution case should the person be allowed to go at large until the positive reaction has been changed to a negative.

Even less indication of syphilitic infection is obtained in the subjects' accounts of their previous illnesses. This, of course, tallies with general hospital experience, especially in the cases of females. In a large percentage of cases there can be no doubt that the female

TABLE 4.—OFFENSES OF BOYS AND GIRLS YIELDING POSITIVE OR DOUBTFUL WASSERMANN REACTIONS

Offenses	No. of Boys	No. of Girls
Robbery or burglary	3	..
Larceny; stealing; theft	17	5
Picking pocket	1	..
Delinquent or juvenile disorderly person	3	7
Incorrigible	7	10
Truant	3	..
Assault	1	..
Immorality or immoral acts	1	4
Sexual offender	..	17
Attempt to rape	1	..

patient is and remains entirely unaware of the nature of the syphilitic infection. The primary stage of syphilis, in many cases, passes unrecognized, and in other cases, while recognized by the profession, the patient remains in ignorance of it. In these accounts of their own illnesses the patient was asked in a general way to name her previous illnesses. No specific question in regard to venereal disorder was asked. Under these circumstances it is hardly to be expected that any hint would be obtained of syphilitic infection. One of the forty-two girls acknowledged having had treatment for gonorrhea. No other patient mentioned any venereal

disorder or referred to any disorder of the mucous membrane or the skin. The ailments mentioned are measles, diphtheria, scarlet fever and other childhood disorders, smallpox, pneumonia, typhoid fever, malaria and spinal meningitis.

In regard to physical examinations of thirty of these forty-two girls, it is interesting to note the negative evidence in regard to congenital syphilis. No case exhibits Hutchinson's teeth or saddle nose. In regard to reflexes, not one of the thirty cases shows any disturbance of pupillary reflexes. Pupils are equal and react normally to light and accommodation in every case. The examination of deep reflexes does show remarkable anomalies. Only three of the thirty cases show both triceps and patellar reflexes normal. Four cases show normal triceps and exaggerated patellars. Two cases show normal triceps and absent patellars. Two cases show exaggerated triceps and normal patellars. One case shows absence of triceps and normal patellars. One case shows exaggerated triceps and diminished patellars. One case shows diminished triceps and exaggerated patellars. Three cases show both triceps and patellars greatly exaggerated. Five other cases show both triceps and patellars exaggerated. In six cases there is shown an absence of both patellars and triceps. Presenting the facts more *en masse*, as in Table 6, we find exaggerated triceps and patellars in over 40 per cent. of the cases examined, and absent patellars and reflexes in about 28 per cent. of the cases examined, while about the same percentage present normal triceps and patellar reflexes. In only three cases were ophthalmoscopic examinations made, and two of these were judged cases of early optic atrophy.

TABLE 5.—PHYSICAL CONDITION OF THIRTY-THREE GIRLS YIELDING POSITIVE OR DOUBTFUL WASSERMANN REACTIONS

Physical Condition	No. of Cases
Physical condition certified "all right"	13
"Vision not perfect," or "needs glasses"	4
"Has vaginal discharge," or "has gonorrhea," or "has had gonorrhea"	10
"A question of venereal disease"	4
"Said to have had profuse eruption on limbs"	1
"Treated for syphilis in hospital"	1

It seems from these facts concerning the ages of the girls in question, and the complaints on which they were sent to the reform schools, to be highly probable that many of these cases of syphilitic infection are acquired. The evidence has not excluded congenital syphilis in any single case, but it opens the possibility for individual acquirement of the infection. These girls have exposed themselves to such infection. Every one is probably guilty of sexual immorality on repeated occasions, and with various individuals. As further evidence making for the probability of individual infection, we may cite the cases of two girls not comprised in this report, both of whom exhibited mucous membrane lesions to such an extent that the designation "mucous patch" was no longer applicable. More than half of the mucous membrane of the mouth and visible pharynx was involved. An exceedingly uncomfortable looking ulceration prevailed in this mucous membrane. In one of these cases a strong positive reaction was obtained. In the other a negative reaction was obtained in January when the ulcerated mucous membrane had been cleared up by treatment since the previous October. One of these girls belongs to a well known family of high grade feebleminded persons, and while we cannot report Wassermann tests on other members of the family, we have reason to doubt that any of them, comprising a large family of siblings of this case, have recently had any such exhibition of primary syphilis as that of the case in question. This girl, furthermore, is known to have exposed herself. It is impossible to charge the feeblemindedness in this family to syphilitic infection until further evidence is forthcoming.

We have under investigation a girl of 16, with a mental development of about 8 years, and her father, a man of 47 years with a mentality of 9, confined in the state penitentiary for incest with this daughter. These individuals belong to large fraternities of feebleminded persons with criminal tendencies, and their ancestors, so far as traceable, have been found to be low in mentality — shiftless mountain people, and costly to the state and community because of their criminal tendencies. Both of these subjects yield negative Wassermann reactions in their serums. With a prevalence of the tendency of sexual immorality and the low grade of mentality, it is certainly surprising to find both of these individuals free from syphilitic infection. Such, however, is the case. The possibility of immunity from syphilis must have consideration in these cases. This family certainly suggests the need of caution in attributing etiologic significance to syphilis in cases of feeblemindedness.

As further evidence of the need of caution in considering any of these cases congenital, we may cite the cases of two pairs of sisters, coming at different times to the institution, the sisters in each pair coming at the same time. In each of these cases one sister yielded a positive Wassermann reaction, and the other a negative reaction. Of course, such facts are not incompatible with congenital syphilis. Many cases of younger children, in which individual infection was very highly improbable, have yielded similar results, one member of the family yielding a positive reaction, and other members being negative.

One of the girls comprised within this list of positive reactions, yielding on three different examinations a four plus, a one plus and a three plus, has a father in another institution. His blood yields a negative reaction, according to Dr. Kramer. He is in the penitentiary for manslaughter, accused of poisoning his wife. The girl is 17 years of age, and is committed as incorrigible, a sexual offender and alcoholic. Until evidence is forthcoming that the deceased mother was syphilitic, it is reasonable to assume that this girl has contracted syphilis by her own loose living.

TABLE 6.—REFLEXES IN GIRLS YIELDING POSITIVE OR DOUBTFUL WASSERMANN REACTIONS

	Normal	Exaggerated	Absent
Triceps reflexes	10	12	8
Patellar reflexes	7	13	9

Another case of an 18-year-old girl yielding a four plus Wassermann, and being normal in her intelligence, though very unstable in her moral organization, seems to point the way to her infection. Her account of her fraternity indicates that she is the youngest of ten living children. Most of the others are married and have children. All seem to be straight except her next older

sister, who, she says, has pursued the same methods as herself. As for herself, she acknowledges having married about two years ago in a southern state, having left her husband in a few weeks, and having lived at different times with eight or nine different men. This case in itself is not evidence for individual infection, but the family should not have the burden of syphilis laid on it until more is known about the case. She, herself, has taken scores of chances of contracting syphilis.

In regard to the mental status of the individuals herein reported as yielding positive Wassermann reactions, Table 7 shows the distribution into classes, the definitely defective, the subnormal, and those showing no intelligence defect. This distribution has been made as the result of the combined point scale and year scale examinations. The distribution follows pretty closely that of the general populations of these two institutions into these three groups. Roughly, they are about one third in each group. There is a preponderance of defective girls in this group of forty-two, sixteen being 38 per cent. of the total group. These figures do not warrant one in drawing any inference as to the cause of feeblemindedness being syphilitic infection. The close correspondence of this distribution, as shown in Table 7, to that of all the persons coming to these institutions, seems to exclude congenital syphilis as a cause or associated cause of

TABLE 7.—MENTAL STATUS IN CASES YIELDING POSITIVE WASSERMANN REACTIONS

	Defective	Subnormal	No Intelligence Defect
Boys	12	12	10
Girls	16	14	12

feeblemindedness. I do not mean to put this forth as a piece of logic, but rather to indicate that the question must be left an open one, and that the burden of proof is with those who would prove congenital syphilis a cause of feeblemindedness. Such delinquents are, no doubt, delinquents because they are defective. They may be syphilitic because they are defective, their low intelligence and easy influenceability making them easy prey to infected persons. On the other hand, however, they may be defective because the family stock has been syphilitic. This may even be a latent syphilis which cannot be found by examining the serum. Some of these cases yielding positive serums are very likely cases of congenital origin. Many others of our feebleminded delinquents may be feebleminded because of impaired germ plasm in their parents, being permanently lamed and handicapped because of parental syphilis, and yet not infected themselves. They have inherited the results without inheriting the organism itself. This, however, may remain in the speculative stage until more evidence is forthcoming.

One of the important lines of evidence needed is that to be gathered from the exhaustive clinical studies and family histories of families having members, some of whom are feebleminded, some psychopathic, and some syphilitic. Cooperative work of this sort between clinicians, laboratory workers and field workers, in institution cases, should clear up some of these mooted questions

For the present, we have undoubted evidence of syphilitic infection among delinquent boys and girls committed to these reform schools in about one fifth of the cases examined, as a matter of routine, on or soon after admission. This percentage is difficult to compare with the percentage among the population at large, because data so far collected are either from institutions, or from practice in which patients come because of clinical symptoms. That it is an extraordinary percentage seems to be beyond question, however, for the percentage of positive and doubtful Wassermanns obtained in the year 1913, as the result of routine examinations in about 1,600 cases, including practically all the admissions to the Boston Psychopathic Hospital, was 14.7 per cent. These 1,600 cases embrace practically all of the acute mental disorders occurring in the metropolitan district about Boston, comprising about one third of the population of the state of Massachusetts. Such cases would naturally comprise all mental disorders due to syphilitic infection, which we know to be a large percentage of freshly occurring cases. It would comprise all new cases of general paralysis of the insane coming for state care. The percentage of positive Wassermann reactions in such a hospital population one would reasonably expect to be far beyond the percentage of positive reactions in the community at large. This percentage, then, of over 20 per cent. found in 365 cases examined in reform schools in Ohio seems to indicate a large preponderance of syphilitic infection among these juvenile delinquents — much larger than in the community at large.

In conclusion, therefore, from the evidence at hand, it seems impossible to charge congenital syphilis as a cause of the mental impairment in these cases of delinquents.

SUMMARY

1. No larger percentage of those yielding positive Wassermann reactions are defective in intelligence than in the general population of these reform schools.

2. There is complete absence of evidence of the signs of congenital syphilis in thirty positive cases examined.

3. Cases of positive Wassermanns, with sister or father yielding a negative Wassermann, point to individual infection.

4. In a feebleminded family, of criminal tendency, and especially sexual offenders, father and daughter yield negative serums.

5. The court charges against the girls in a majority of the cases, and the extent of sexual immorality, allow of abundant opportunity for individual infection.

6. The absence of evidence of syphilis in personal history and in the medical certificates can be given no weight either for or against individual infection.

7. The absence or exaggeration of deep reflexes without difference in the two sides of the body, and without disturbance of the light reflex of the pupil, indicates that if these signs are due to syphilis of the nervous system, they are early signs, and so far tend toward evidence for individual infection.

Automobile Fatalities.—The *Weekly Bulletin* of the Newark Department of Health gives a tabulation of deaths from automobile accidents. From 1909 to 1914 there were deaths as follows: Buffalo, 125; Chicago, 493; New York City, 1,120; Newark, 54; Pittsburgh, 140; Providence, 80; St. Louis, 116; San Francisco, 116; Washington, 84.

FULLERS' EARTH IN THE INTESTINAL DISORDERS OF INFANTS*

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Of late the use of kaolin has been recommended for the treatment of a variety of disorders.[1] It has been reported to have therapeutic value in enteritis, in furunculosis and in vaginitis, and, more recently, has been recommended for application to the nose and throat in infections of these organs.[2]

The underlying basis of this type of therapy—the use of nonabsorbable substances—is not thoroughly understood; some believe that its value is due to the inhibition of the growth of bacteria, and others that, because of its adsorptive property, it possesses antitoxic value. Influenced by these favorable reports I prescribed kaolin in the intestinal disorders of infants. For this purpose it was either mixed with the milk or was given by the teaspoon. The results in either case were disappointing. In normal infants, kaolin occasioned only a slight degree of constipation, and in those manifesting diarrhea it was found not to reduce the number of stools materially. Dissatisfied with the results of kaolin I turned to the use of fullers' earth. Although these two substances are considered synonymous in the United States Dispensatory and the National Dispensatory they are by no means alike, either in their composition or physiologic action. It is difficult to give a standard analysis of fullers' earth, as it differs considerably, depending on the location in which it is obtained. However, the following analysis of this earth, as well as that of kaolin may be regarded as typical:

	SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO	Alkalies	Water
Kaolin	45.40	37.34	1.92	0.44	0.20	0.52	14.0
Fullers' earth..	57.26	18.33	1.87	2.58	1.06	....	18.4

It will be seen that there is a considerable difference between the two substances, the main distinction being that kaolin has a far greater amount of hydrous aluminum silicate, and fullers' earth considerably more calcium. They are different, however, not only in their chemical composition, but also in their physical properties. One of the most noteworthy characteristics of these earths is their power to absorb various alkaloids. In view of this fact, they have been recommended[3] as antidotes in the case of various alkaloidal poisonings. In this respect fullers' earth stands preeminent, as it is characterized by its porosity and, as shown by Parsons[4] "carries an unusually large proportion of colloids of high adsorptive power." In this quality various specimens of earth are by no means uniform. This adsorptive property can most readily be tested by determining the quantity of earth required to remove from solution a given amount of dye. In making tests of this kind, we followed the procedure recently recommended by Fantus,[3] in which a 1 per cent. malachite green and 0.25 per cent. morphin solution are employed. It seems hardly necessary in a paper presenting a clinical view to give the data of these various examinations. The results may be summarized by the statement that fullers' earth possessed a greater degree of adsorptive power than kaolin, but that among the six specimens of earth which were obtained from various parts of the United States, there were marked individual variations.

It was realized, however, that the value of these earths in the intestinal tract cannot be determined by their ability to adsorb dyestuffs, but must be learned by direct clinical observation and experience. Accordingly, fullers' earth was given to a considerable number of normal infants, in order to test its physiologic effect; to this end, 1 ounce of the earth was given in the day's feeding. This mixture was taken without difficulty by the infants, and was found to occasion no disorder whatsoever. Its sole effect, which may be stated to have been constant, was that it induced constipation. The stools became firm, dry and formed; indeed, in some cases the constipation became so marked that the addition of the earth had to be discontinued. The preparation was then given to infants suffering from indigestion, as manifested by diarrhea, accompanied in some instances by vomiting. In these cases, the earth was either added to the food, consisting of the diluted milk, or it was given by teaspoon every hour or two. Either or both of these methods can be used. No difficulty was experienced in giving the powder suspended in a little water, especially when it was sweetened by means of saccharin (two-fifths grain to 1 ounce of fullers' earth). In severe cases of enteritis, no food whatsoever was given, but merely teaspoonful doses of this preparation as often as every half hour. In some cases it was fed through the stomach tube — 1 or 2 tablespoons being introduced in this way three times a day.[5]

As in every type of therapy, success is not invariable. We may state, however, that this therapeutic agent has had a greater effect on inhibiting the diarrhea than has bismuth, chalk mixture or other drugs which are commonly used for this purpose. In some cases it has also seemed to exert a sedative effect on the stomach, as judged by the fact that vomiting ceased in the course of this treatment. In no instance were any harmful effects noted, although the earth was given to patients suffering not only from enteritis, but also from pneumonia and nephritis.

When we turn to consider the modus operandi of this treatment, we tread on ground that is by no means firm. We know that this earth, as Fantus has shown, is "capable of lessening in the human the absorption of substances that are readily absorbed." It is therefore possible that this property is of value in its therapeutic application — that it adsorbs toxins and bacteria, which would otherwise be harmful for the body. In this connection we may add that experiments carrried out with solutions of dye showed that casein likewise possesses adsorptive properties to a considerable extent. This naturally raises the question whether casein does not exert an influence on the intestinal tract and its contents owing to its physical as well as to its chemical composition, and whether we are not giving too little thought and credit to this point of view in our dietetic treatment of diseases. It may well be, for example, that part of the therapeutic success which is so regularly obtained by the use of albumin milk (casein or

* From the Research Laboratory, Department of Health, New York.

1. Hektoen, L., and Rappaport, B.: The Use of Kaolin to Remove Bacteria from the Throat and Nose, THE JOURNAL A. M. A., June 12, 1915, p. 1985.

2. In three diphtheria carriers in which kaolin was applied to the pharynx in order to rid it of bacilli, it seemed to exert no effect, although it was used many times a day for several days.

3. Fantus, Bernard: Fullers' Earth: Its Adsorptive Power, and Its Antidotal Value for Alkaloids, THE JOURNAL A. M. A., May 29, 1915, p. 1838.

4. Parsons, C. L.: Mineral Technology, Bull. 71, Bureau of Mines, Dept. of the Interior, October, 1913.

5. Lloyd's reagent, a preparation composed of very fine particles of fullers' earth, was given to a number of infants, but did not seem to possess any advantages over the inexpensive common specimens of fullers' earth.

protein milk), is the result, not only of the antifermentative action of the casein, but of its adsorptive properties as well. However this may prove to be, I wish to point out the difference in therapeutic efficiency between kaolin and fullers' earth, and also to recommend the use of the latter in the gastro-intestinal disorders which are so common in early infancy.

16 West Eighty-Sixth Street.

THE TREATMENT OF INTUSSUSCEPTION

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The treatment of intussusception is that of acute bowel obstruction, and therefore always surgical. At present, laboratory research has established two facts of considerable importance, which make clear the necessity for early operative intervention. These facts are, first, that death is due to the entrance into the body of a certain toxin or toxins, the exact origin of which, whether chemical or bacterial, has not been definitely established. Some believe the toxin exists under normal conditions in the intestine, while others believe it to be formed after the obstruction. It does not matter, if this point is remembered, that "every case of obstruction is absorbing a poison, which if too long continued will kill, in spite of any treatment yet devised."

Second, this toxin can be absorbed only when the epithelial cells of the mucosa are damaged, as they are by the mechanical closure of the bowel, and the resulting distention. The greater the amount of damage to the epithelial cells, the more toxin is absorbed, and the more danger to the patient. Admitting these statements, who of us will undertake to say how much toxin is being absorbed in a given case, or how much poison the patient can stand, any more than one would try to prophesy the outcome of a case of appendicitis, treated medically? Early operation will save practically every patient. Late operations are hopeless, for the reasons just stated.

The following technic is the one which I have used in seven cases. First let us take the simple case seen during the first twelve hours, usually a baby or a young child. As soon as the diagnosis is made, all fluids by mouth are withheld, the abdomen is painted one coat of tincture of iodin U. S. P., and a hypodermic of morphin and atropin given in appropriate dose.

The operating room is then fully prepared, instruments laid out, needles threaded, subcuticular salt solution made ready, and provision made for every emergency which may arise, so that no time will be lost. The surgeon, assistants and nurses are scrubbed and masked, and gloves and gowns donned before the anesthetic is started. Just before anesthesia, the stomach is washed out if frequent vomiting is taking place. The anesthetic, drop ether, preceded by a few drops of oil of orange for the psychic effect, has been the one used.

As soon as the patient is etherized, subcutaneous salt solution is started, the abdomen repainted with tincture of iodin, sheets placed, and the incision made, usually a high median, and unless good relaxation is secured easily, the muscle is infiltrated with novocain. The intestines are not allowed to escape from the abdominal cavity if they can be prevented. Usually, however, this is not wholly possible, and as fast as they appear they are wrapped in gauze moistened in hot salt solution. The intussusception is found and delivered. If much bloody serum is encountered in the peritoneal cavity, it indicates a marked degree of interference with the blood supply. The reduction is accomplished by gently squeezing the intussusception from below, and at the same time making gentle traction on the intestine above. After reduction, if of the ileocecal type, and the appendix is quite dark and congested, it is removed, and at the same time the cause of the intussusception sought for. In babies and very young children, abnormalities of the cecum and appendix or enlarged lymph nodes at the ileocecal junction have been mentioned by writers as important etiologic factors, and must be treated accordingly. The combination of all three was present in my last case. In the adult, intestinal adenoma, polyp or Meckel's diverticulum are too frequently present to be ignored, and careful search must be instituted if a recurrence is to be avoided. The intestine is then returned to the abdomen and the wound closed in the usual manner. Recurrence is extremely unlikely; should this be feared, however, the ileum and cecum can be tacked to the peritoneum by a couple of fine chromic gut sutures.

Drainage of the upper loop may at times be necessary to relieve distention, which aids in limiting the absorption of toxin. However, for the reason stated above, no fear need be felt in allowing the toxic contents of the upper bowel to flow on down over normal mucous membrane.

After the operation, the salt solution is continued, or, in the case of a small baby, given at intervals by an antitoxin syringe, until the patient's condition is satisfactory. This treatment may be necessary for several days. Fisher's solution, consisting of sodium carbonate (crystalline) 10 gm., sodium chlorid 14 gm. and water to make 1,000 c.c., is administered by rectum, by the Murphy drip, to supply fluid and neutralize starvation acidosis. As soon as possible, fluid is given by the mouth, and nourishment started, especially in a baby. Morphin or its derivatives is used in sufficient doses to quiet the patient. If vomiting continues, lavage of the stomach and colon at frequent intervals is carried out, and large amounts of fluids given subcutaneously and by rectum. Draper has found that the feeding of epithelial cells scraped from the duodenum of a freshly killed dog or frog seems to possess the power of neutralizing this toxin, which is responsible for the continuance of the vomiting, and this method of treatment should be tried. The latter forms of treatment would be especially indicated in the middle cases which just escape resection.

It is not my object to discuss the technical methods of operative procedure in cases demanding resection, which would be of interest only to the operating surgeon, but simply to make a plea for a more careful study and earlier diagnosis than have been accorded this condition in the past. True, progress is rapidly being made in diagnostic methods, but there is still room for improvement, and the statistics which I have collected are illuminating. Among fifty-three patients operated on by a considerable number of Buffalo surgeons, twenty-three were operated on in from three to twenty-four hours. Out of these, twenty-two recovered and one died. This was a 3-months-old child,

on whom I operated twenty-three hours after onset, a resection being necessary. In none of the twenty-two cases in which the patients recovered were resections done. The remaining thirty patients were operated on in from one to ten days after the onset, the average being from two to four days. Of this number nine recovered and twenty-one died.

It must in fairness be stated that these statistics cover a period of nearly ten years, and were the best obtainable, which will account for the large number of late cases, and the consequently high mortality.

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POTT'S DISEASE TREATED BY OPERATION

A REPORT OF SIX HUNDRED AND EIGHTY-TWO CASES *

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Until within the past four years the treatment of tuberculosis of the spine was limited to an attempt at external fixation at the site of disease by means of apparatus, and an ankylosis of the diseased portion of the spine was awaited to bring about a gradual subsidence of the symptoms. In the large majority of the cases this was associated with great deformity, especially in the dorsal region. In a small percentage of the cases, however, an arrest of the symptoms was secured with very little, if any, deformity, and with practically a normal range of motion; but in the most of these cases the disease involved only two or three vertebrae.

In tuberculosis of the spine, as in tuberculosis of the hip or knees, the securing of a firm bony ankylosis gives the patient the best insurance against a recurrence of the symptoms, after the disease has once been arrested. That many years usually elapse before this ankylosis is obtained when the ordinary methods of conservative treatment are used is a well-known fact.

With the object of hastening this formation of ankylosis and thereby shortening the duration of treatment, the Albee and Hibbs operations were introduced. The phenomenal results, reported by both Albee and Hibbs following these operations, naturally attracted the attention of the profession, and doubtless influenced many surgeons to attempt these new operative procedures.

A report of the results obtained by many of these surgeons throughout this country will doubtless be of interest and value. Through the courtesy of Dr. V. P. Gibney, I was permitted to send out from the Hospital for the Ruptured and Crippled circular letters to something like seventy-five surgeons who, it was known, were interested in or had done either the Albee or Hibbs operation. The letters contained question blanks which, when filled out, would indicate the number of cases in which operation had been performed, the location of the disease, what percentage of the cases were benefited by the operation, as well as the percentage not so benefited, and the cause of failure if known. An inquiry was also made as to the postoperative complications, as meningitis, abscesses and paraplegia, and also as to the postoperative treatment, whether support was discontinued or continued, and if so, how long. A special effort was made in every case to learn from the reporting surgeon his personal opinion as to the efficiency of the operation used, and in what class of cases he deemed the operation indicated. In this way the following data were obtained:

Dr. Edward W. Ryerson of Chicago reports sixty cases in which the Albee operation was used. The patients ranged in age from 2 to 47 years. The location of disease was not given in these cases. Twenty-four, or 40 per cent., were reported as having the disease arrested, fifteen, or 25 per cent., as improved, seven, or 12 per cent., unimproved, and ten too recent to report. There were four deaths, one of fat embolism, one of miliary tuberculosis twenty-three months after operation, and one of amyloid degeneration one year after operation. Dr. Ryerson says, "It is only fair to state that many of those now classed as improved, or too recent to report, will undoubtedly make a complete recovery." There were three cases of reoperation, one because the graft was too short and in two cases to refasten a loosened end. In three cases there were preexistent abscesses which later opened into the operative field. In two cases there was septic infection from operation, and in one case from scarlet fever. In three instances there was necrosis of the graft. Five paraplegics were operated on and all improved, but two later had recurrence. Paraplegia developed in one case one year after operation. In concluding his report Dr. Ryerson says, "The older children have shown more gratifying results than the younger ones, while the adults have done remarkably well."

Dr. J. T. Rugh of Philadelphia reports forty Albee cases, of which 74 per cent. were benefited; the other 26 per cent. were not improved by the operation. There were two cases of paraplegia; one patient died, and the other was removed and lost track of. One patient developed paraplegia three months after operation and died of tuberculous meningitis sixteen months after operation. One graft was lost, the cause not being given. There was no suppuration in any case. Several patients died of pulmonary tuberculosis. In these cases the spinal condition was almost always benefited by the operation, but the constitutional state was at fault and they failed because of this. Support was used in all cases. Children under 14 years of age require longer support than patients over this age.

Dr. M. S. Henderson[1] of Rochester, Minn., reports thirty-nine cases with operation in the Mayo Clinic from July, 1912, to July, 1914, thirty-three by the Albee method and six by the Hibbs method. The youngest patient was 2 years of age and the oldest 53, with an average age of 27. The average duration of disease before operation was three years and four months. The location of disease was: one high dorsal, seven middorsal, eight low dorsal and sixteen lumbar. Of these thirty-nine patients, twenty-six, or 62 per cent., were improved, one unimproved, nine are too recent to report, one has not been traced, and one improved patient later developed an acute pulmonary tuberculosis and died. The postoperative treatment was recumbency for from four to six weeks in adults and from two to six months in children. After this a brace for at least one year following the operation, but preferably one year after cessation of all symptoms.

* Read before the Orthopedic Section of the New York Academy of Medicine, Oct. 15, 1915.

1. Henderson, M. S.: Some Observations on the Operative Treatment of Tuberculosis of the Spine, St. Paul. Med. Jour., October, 1914.

The conclusions as stated by Dr. Henderson were that either operation definitely shortened the treatment of Pott's disease by hastening the ankylosis, but they should not be allowed to supplant recognized orthopedic appliances.

Drs. H. M. Sherman and G. J. McChesney[2] of San Francisco report thirty operations done on twenty-seven children — three children who had double lesions having a Hibbs operation in the dorsal region and an Albee in the lumbar at the same time. Of these twenty-seven children, sixteen, or 60 per cent., were benefited. Seven of these are up and about without support, and among these are the three children having the double operations and lesions. Nine patients are in a satisfactory condition, but still wear jackets. Two patients are up without support, but their general condition is unimproved. Five have been put back in recumbency because of return of active symptoms. Two paraplegics failed to improve after operation. In one case an oncoming paraplegia cleared up, but in another, paraplegia developed after operation. Abscesses cleared up after operation in three cases, and in two remained unimproved. In one case an abscess appeared after a normal healing of the operation wound. In four Hibbs and two Albee cases there has been an increase in the deformity after operation. Of the deaths, one patient died of tuberculous meningitis five weeks after operation and another died of sepsis eight months after operation. All but one case healed by first intention; in this instance there was a septic sinus in the operation field and from it the wound became infected, resulting in a necrosis of the graft; but the ultimate result, so far as the spinal reinforcement was concerned, was most satisfactory.

Dr. W. W. Plummer of Buffalo reports thirty-two cases, eighteen of which were Hibbs and fourteen Albee operations. Of these 60 per cent. were in the middorsal and lower dorsal, and 40 per cent. in the lumbar region. In these cases, support was continued until all active signs of disease had abated. In twenty-nine, or 90 per cent., there were varying degrees of improvement following the operation. Two patients remained unimproved, and one died of tuberculous meningitis twelve weeks after operation. In six cases there were abscesses present at the time of operation, and in two of these the abscesses have resisted all treatment, with improvement in the others.

Dr. Henry Ling Taylor reports sixteen Albee operations; 62.5 per cent. were benefited by the operation, but the remaining 37.5 per cent. were not benefited. The postoperative treatment was recumbency for six weeks, and then a Taylor brace as long as there was evidence of active disease. One patient developed an abscess six months after operation. There was infection without harm in two cases, one paraplegic failed to improve after an Albee operation, and another died of tuberculous meningitis six weeks after operation. Dr. Taylor concludes his report by saying that his general impression is favorable to the operation, especially in adults.

Dr. F. J. Gaenslen of Milwaukee reports twenty-three Albee cases, all of which were dorsal, except one in the sacral region. Of these twenty-three patients, twenty-one, or 91 per cent., were satisfactorily benefited by the operation. One of the patients not benefited developed a new focus of disease three vertebrae higher up in the spine, necessitating a second operation which has apparently controlled the condition to date. One patient developed a stitch abscess which later communicated with a preexisting tuberculous abscess, resulting in a sinus. There was infection at the time of operation in three cases. In one case there was necrosis of the upper end of the graft, and in another case of the lower end. The first five patients had no postoperative support, but in all of the other cases a plaster-of-Paris jacket was worn for from six to eight months.

Dr. Andrew R. MacAusland of Boston reports twenty-one Albee cases. Eighteen, or 85 per cent., were benefited; of the other three cases, one failed of success because of infection, one patient died of miliary tuberculosis, and in the third case, although the graft is in good condition, a paraplegia has developed from an extradural abscess.

Dr. James C. Wilson of Hartford, Conn., reports twenty Albee cases, seventeen of which were dorsal and three lumbar. All the patients received varying degrees of benefit from the operation. Postoperative support was not used in any case. No complications were reported, except that one patient subsequently developed a tuberculous hip. One paraplegic improved very slowly, probably because the graft was broken at the time of operation.

Dr. C. F. Painter of Boston reports six cases, all in the dorsal or lumbar regions. In all, postoperative support was used. No complications were reported, except in one case in which the periosteum was separated from the graft, the graft later sloughing out. Good fixation of the spine was secured in all of the other cases, but no benefit was noted as the course of the disease was not shortened, nor was the treatment modified or abbreviated in any way by the operation.

Dr. Hoke of Atlanta, Ga., reports fifteen Albee cases, the history of five of which has not been followed. All of the rest, or 66 per cent., of the patients have been benefited by the operation. All patients are first placed on a corrective frame in the open air for from one to three months before operation. The operation is only done when the general condition is satisfactory. There were no infections or complications except in one case, in which the patient developed a small skin slough. Dr. Hoke expresses himself as having the highest opinion of the Albee operation as a phase of the treatment of Pott's disease. He considers postoperative support necessary, and lays great stress on the importance of choosing the proper time for operation.

Dr. W. W. Hoyt of Chicago reports twelve Albee operations, from eleven of which, or 88 per cent., the patients were benefited. One patient had a double lesion, eight were middorsal and three dorsolumbar. Postoperative support was not used. Two patients had abscesses at the time of operation. Uremia was given as the cause of failure in the case in which the patient was not benefited. Dr. Hoyt reports himself as being favorably impressed by the results he has thus far obtained.

Dr. R. W. Billington of Nashville, Tenn., reports eight Albee cases, in five of which, or 62 per cent., the patients were benefited. Two were low cervical, three dorsal and three lumbar. Two of the patients had abscesses at the time of operation. The postoperative treatment was seven weeks in recumbency on a frame or plaster-of-Paris bed, followed by a plaster-of-Paris

2. Sherman, H. M., and McChesney, G. J.: Bone Splinting in Vertebral Tuberculosis, California State Jour. Med., December, 1914.

jacket for four to sixteen weeks. One patient, having a sharp kyphosis, developed a skin slough baring the lower end of the graft, the removal of which was followed by prompt healing of the wound. In one of the lower lumbar cases the graft failed to unite to the sacrum. The third patient, having a pulmonary tuberculosis at the time of operation, showed a postoperative improvement for one year, after which the pulmonary infection again became very active. This patient then developed a lumbar abscess and died eighteen months after operation.

Dr. Packard of Denver reports three Albee cases, in all of which the patients have been benefited by the operation. Two of the cases were dorsal, the other dorsolumbar. Postoperative support was used. No complications followed.

Drs. Lord and Orr of Omaha report one case, in which the patient benefited by an Albee operation. Recumbency for several weeks, and then a jacket, was the postoperative treatment used.

Dr. Albee reports 198 cases in which operation was performed by him before Jan. 1, 1915. The age varied from the youngest of twenty months to the oldest of 65 years. In 184 cases of the 198, or 92 per cent., the disease was reported as being arrested, in two there was some improvement, and up to the present time twelve patients have died. Of these, six were said to have been relieved of all symptoms of active disease, dying from some intercurrent complication. One, a child of 6 years, died the day following operation, probably from shock. In this case mallet and chisel were used to remove the graft from the tibia. Another patient died four days following operation from acidosis, one from status lymphaticus, and another died two years following operation from suppurative meningitis which was secondary to middle ear disease. In this case necropsy showed a complete cure of the tuberculous spine. Another patient died of pneumonia one week after operation. Amyloid degeneration of the viscera and tuberculosis of the lungs each caused a death, and the remaining patient died of some acute abdominal condition.

The report of 158 cases in which operation was performed by Dr. Hibbs was furnished by Dr. Benjamin Farrell.[3] Of these, twenty-two patients were operated on during the year 1911, seventy-two during 1912 and sixty-four during 1913. They ranged in age from 18 months to 41 years. The duration of the disease before operation varied from four weeks to thirteen years, and the range of deformity varied from three to fourteen vertebrae. Of previous treatment, twelve had been wearing plaster-of-Paris jackets, ninety-two others had worn some other form of spinal support, and one had been on a Bradford frame. Two had undergone bone transplants from the tibia, and four had previous osteoplastic operations, and in all six of these cases an insufficient number of vertebrae had been included in the operations.

Twelve patients had psoas abscesses at the time of operation, forty-eight had psoas spasm and the reflexes were increased in forty. There were three cases of paraplegia included in this series.

Of the 158 patients, 144, or approximately 90 per cent., had an apparent arrest of the disease and were able to carry on their usual avocations of life, whether work or play, without apparatus one year after operation. The three patients with paraplegia were still reported as being unable to walk. Four other patients were operated on again, and seven died. The causes of death in these seven cases were given as follows: Three died of miliary tuberculosis, in two cases eighteen months after operation, and in the third twelve months after operation. Three patients died of tuberculous meningitis, one six months, another sixteen months, and the third twenty-two months after operation, this patient having been infected before he was admitted to the hospital. It should be noted that the cause of death was extrinsic in every case and apparently not due to the operation itself. In the six cases referred to in which reoperation was necessary, the secondary operation was successful as in the other cases.

3. Farrell, B. P.: Hibbs' Osteoplastic Operation for Pott's Disease, THE JOURNAL A. M. A., Jan. 30, 1915, p. 398.

SUMMARY

A summary of the report of the results obtained in the 642 operative cases shows that 538 patients, or 83 per cent., were benefited by the operation. If we exclude the reports of Albee and Hibbs, we still have a report of 286 cases in which operations were performed by fourteen surgeons located throughout this country. Of these 286 patients, 209, or 73 per cent., received benefit as a result of the operative treatment. Of the entire series, nineteen cases were too recent to report, and six had been lost track of.

Abscesses were present at the time of operation in twenty-eight cases, in seven of which improvement was reported after operation. In only five instances was there postoperative development of abscess. Paraplegia was present at the time of operation in thirteen cases, in seven of which there was improvement, but in two later a recurrence. In the other six cases there was no postoperative improvement of the paraplegia to date. Paraplegia developed after operation in three instances. There were thirty deaths, or approximately 5 per cent. mortality. The disease in six of these cases was reported as having been arrested at time of death. The causes of death were given as follows: tuberculous meningitis in seven cases, pulmonary tuberculosis in three cases, miliary tuberculosis in five, pneumonia in one, septic meningitis in one, fat embolus in one, status lymphaticus in one, acidosis in one and pyemia in one case. In the remaining cases the cause of death was not given. In the tuberculous meningitis cases it is difficult to say whether or not the operation was a factor in the etiology. In the seven meningitis cases, death followed operation in five weeks in one case, in six weeks in another and in the other cases three, four, six, sixteen and twenty-two months, respectively. It is doubtful if the trauma occasioned by either of these operations was sufficient to cause a meningitis. Even granted that this is possible, it is very doubtful if sufficient time elapsed in two of these instances at least for the development of the complication to such a point as to cause death; but in the other cases in which over three months elapsed, it is possible.

That tuberculous meningitis is accompanied by miliary tuberculosis throughout the viscera in a large percentage of the cases, and that meningitis is very frequently caused by an extension of the miliary process to the meninges, has been proved by necropsy. Unfortunately there was no necropsy report in any one of these cases, so a positive conclusion cannot be reached as to this point in these instances.

Dr. Ryerson reports the death from fat embolus. He thinks the embolus had its origin in the tibia and

advises the use of a tourniquet on the leg from which the graft is to be obtained, thus preventing a repetition of this complication.

There were nine infections at the time of operation, seven instances of necrosis of the graft, or a portion of it, and in two cases there were small skin sloughs.

Of the sixteen surgeons reporting, twelve considered postoperative support necessary and considered the operative procedure as a most valuable aid to the treatment of Pott's disease in selected cases. Four considered the postoperative support unnecessary after the period of recumbency, accepting Dr. Albee's idea that a certain amount of motion would stimulate and hasten the formation of ankylosis. One surgeon reported uniformly unsatisfactory results, so far as the abbreviation of the period of treatment was concerned.

CONCLUSIONS

This report of operative cases is intended to be only a preliminary report. It was impossible to give a more detailed report because of the limited amount of information obtainable from the data gathered from the question blanks sent to the various surgeons. As stated before, information only on the major points of interest was asked, and a special attempt was made to obtain the personal opinion of each contributor as to the value of the operative procedure used in the treatment of Pott's disease. It is undoubtedly too early at this time to attempt a more detailed report of operative cases, as such a report should not be undertaken until there has been at least three years of postoperative observation. Since twelve of the sixteen contributors continued supportive measures after operation, in these instances it is difficult to estimate just how much credit should be given the operation, and how much should be reserved for the support when it continues to be a phase of the postoperative treatment. On the other hand, those surgeons deeming postoperative support unnecessary report as great or even a greater percentage of cases having the disease arrested; so in these instances, at least, we must place much of the credit to the operation.

After a careful consideration of the facts obtained from various sources, it would seem that we might safely draw the following conclusions from this preliminary report:

1. There can be no reasonable doubt that these operations, in a large percentage of the cases, abbreviate the treatment of tuberculosis of the spine by definitely hastening the curative ankylosis so necessary in this disease.

2. By hastening ankylosis, the likelihood of an increase in the deformity is proportionately decreased, since deformity depends on destruction of osseous tissue, and this in turn depends to a large extent on the duration of the active disease process.

3. These operations are undoubtedly best adapted to the treatment of Pott's disease that involves the cervicodorsal, dorsal, or dorsolumbar regions, since they are probably one of our best means at the present time of preventing the marked degree of deformity which develops in approximately 75 per cent. of these cases, if treated only by the conservative method. Ankylosis of several vertebrae in this region is not associated with any serious amount of limitation of motion if unattended by marked deformity. On the other hand, as approximately 75 per cent. of Pott's disease involving the cervical and lumbar regions develop but a slight degree of deformity when treated by external appliances, and since the development of ankylosis of several vertebrae by operation in either of these regions would be associated with marked restriction of motion in a majority of the cases, it would seem best not to be too hasty in advising operation in either of these regions. This applies especially to children.

4. It seems to be the general opinion of the majority of the contributors that the operations should be considered only as one phase of the treatment for Pott's disease, and that postoperative support should be continued until all signs of active disease have disappeared.

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THE ANATOMIC DISTRIBUTION OF CUTANEOUS NEOPLASMS*

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In determining clinically the variety of any new growth in the skin, a certain amount of consideration may properly be given to the known relative frequency and the known elective site of the different varieties of cutaneous neoplasms. With this fact in mind, it has seemed worth while to note these points while collecting and classifying the skin tumors sent to the laboratory for examination. During the past nine years there have been recorded histologic diagnoses on 352 tumors of the skin, which may be grouped as follows:

Papillomas (including 3 corns and 3 cutaneous horns)		44
Epitheliomas	Papillary ..... 3 Basal cell ..... 57 Squamous 62	122
Pigmented moles		28
Melanocarcinoma		11
Carcinoma metastasis		1
Cyst, implantation		15
Cyst, dermoid		5
Cyst, sebaceous		18
Fibro-epithelial (composite) tumors		3
Keloids		9
Granuloma		7
Lipoma		5
Angioma		22
Fibroma		38
Sarcoma	Fibro .... 11 Angio .... 2 Pure 11	24
Total		352

Many of these specimens were sent to the laboratory merely to add to the collection, but the majority, perhaps, were sent with the idea of determining the character of the tumor; and it is interesting to note that 45 per cent. of the whole number showed definite histologic evidence of malignancy.

Epithelioma.—An examination of the anatomic distribution of the epitheliomas shows that 24 were on the forehead, 21 on the cheek, 13 on the nose, 11 on the lip, 9 on the neck, 9 on the hand, 7 on the scalp, 7 on other parts of face or neck, and the rest scattering. About 75 per cent., then, of the epitheliomas were located above the clavicle, and 84 per cent. of all were on uncovered surfaces of the body.

As between the squamous and the basal cell type, two striking differences appear with regard to their chosen sites. For while epitheliomas of forehead, scalp and cheek are quite evenly divided between the

* From the Laboratory of Surgical Pathology, Columbia University.

two types, all of those on the lip and nearly all of those on the neck (7-2) and hand (8-1) were squamous, but eleven out of the thirteen on the nose were basal cell. Among the other tumors, the total of each variety was so small and the location so diverse that it seemed sufficient to condense the many regions into four broad divisions of Head and Neck, Trunk, Upper Extremity and Lower Extremity.

Papillomas.—The papillomas of this series stand next in number to, and have clinically been confused more often with, epitheliomas than have any of the other tumors.

Of 41 papillomas whose location was given, 20 were on the head and neck. Fourteen (10 of which occupied the hand) were from the upper extremity, 3 from the trunk, and three from the lower extremity — the location of choice was the hand (10). In other words, 49 per cent. were above the clavicles and 75 per cent. in all were on the unclothed surfaces of the body.

Fibromas.—The location of 35 fibromas was given as follows: 11 on the head and neck; 15 on the upper extremity; 2 on the trunk and 7 on the lower extremity. Thus only 31 per cent. were above the clavicle and 40 per cent. on unclothed surfaces.

Sarcoma.—The little series of sarcomas was still more evenly distributed, 5 sarcomas having been found on the head and neck (four of them on the forehead), 6 on the upper extremity, 3 on the trunk and 7 on the lower extremity; 24 per cent. were above the clavicles and 33 per cent. on unclothed surfaces.

Angioma.—The angiomas, on the other hand, show a decided preference for the upper portion of the body, 12 out of 22 coming from the head or neck and 7 from the upper extremity. Of these, 57 per cent. were above the clavicle and 81 per cent. on unclothed surfaces.

Pigmented Moles.—It is difficult to imagine pigmented moles being removed simply as such, and therefore I have grouped them with melanotic carcinomas with which they were most probably confused. Of these two varieties of tumors there were removed, in all, 13 from the head and neck (only one of which was carcinomatous); 5 from the upper extremity (of which, also, 1 was malignant); 8 from the trunk (of which 2 were malignant), and 7 from the lower extremity (5 of which proved to be melanocarcinomas). Four moles and 2 melanocarcinomas were from unknown locations. Only 11 per cent., then, of the melanocarcinomas whose sites were stated were located above the clavicles, and the same percentage were from unclothed surfaces. The far higher percentage of pigmented moles (54 per cent.) removed from unclothed surfaces suggested that some may possibly have been excised for cosmetic reasons.

On combining these results, it appears that, of malignant tumors, the epitheliomas alone show a distinct preference for the head and neck while the sarcomas and melanocarcinomas prefer the trunk and extremities, particularly the lower. Moreover, the epitheliomas are overwhelmingly in favor of unclothed surfaces of the body, while sarcomas and melanocarcinomas generally choose covered parts.

It is interesting to find also that the large majority of epiblastic type of tumors, irrespective of malignancy, occur on unclothed surfaces while those of doubtful or frankly mesoblastic type occur preponderatingly on the covered parts.

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ARTIFICIAL PNEUMOTHORAX FOR PULMONARY HEMORRHAGE

JOHN R. LITTLEFIELD, M.D., CUMBERLAND, MD.

Man, aged 33, physician, with a large tuberculous cavity of the right lung, lost over a pint of blood, Oct. 7, 1915, but refused artificial pneumothorax. Ten c.c. of normal horse serum were given, and three-eighths grain of morphin. At 5 p. m. another hemorrhage occurred about as copious as the preceding one.

Horse serum and morphin were repeated October 8; at 3 p. m., there was a still more copious hemorrhage. Two injections of horse serum, 10 c.c. each were administered. At 11 p. m. another hemorrhage occurred, and it was thought that the patient could not survive. One-fourth grain of morphin and one-fiftieth grain of atropin sulphate were administered.

October 9 at 5 p. m. and again at 10:30 p. m., hemorrhages recurred. The patient was then persuaded to submit to an artificial pneumothorax.

A 2-inch needle was connected with the atomizer bulb of a blood-pressure apparatus. The skin was sterilized with tincture of iodin, and cocainized in the sixth interspace in the posterior axillary line. Before puncture, the skin was slid aside so that it would have somewhat of a valvelike effect in preventing the escape of air. Several thicknesses of gauze were placed over the air inlet valve of the atomizer bulb.

As the needle entered the skin, air pressure was made and continued until the patient showed the first signs of dyspnea, which required complete compression of the atomizer bulb seventeen times. The bleeding immediately ceased, and the patient stated that he was far more comfortable, as he had a feeling of support in that lung. Half an hour after compression, a soft clot half the size of a hen's egg was coughed up. For the next eighteen hours the sputum was blood streaked. The patient was admitted to the tuberculosis sanatorium October 25, and is growing stronger and bleeding has not returned. The singular part of his history is that he did not suspect tuberculosis until the first hemorrhage occurred.

SHORTENING OF THE SUSPENSORY LIGAMENT OF THE LIVER FOR PTOSIS BY THE "ROUND LIGAMENT" METHOD

GASTON TORRANCE, M.D., BIRMINGHAM, ALA.

In doing Rovsing's operation for visceral ptosis, it is often necessary to elevate the liver also.

It occurred to me, while operating in a case in which the liver was very low, that the suspensory ligament might be treated as the round ligament is done in shortening the uterine supports.

A long curved forceps is pushed through the posterior layer of fascia just below the tip of the ensiform cartilage; the suspensory ligament is caught and pulled back through this small opening, and drawn down tight enough to bring the liver up snugly against the diaphragm, and is sutured to the fascia and muscles.

In a series of sixteen cases in which I have done Rovsing's operation, modified, I have done the "round ligament" operation four times, with most excellent results.

In one case in which the left lobe was very long, I passed sutures through the liver and attached it to the diaphragm also.

Cruelty and Research.—The experimenter, even if he were really cruel, would usually defeat his own ends by the infliction of pain (*a*) because the pain impulses would cause disturbance of the normal functions which he seeks to discover, and (*b*) because the struggles of a suffering animal would disturb the adjustment of apparatus and prevent the desired observation. It is the total ignorance of the real situation that causes so much emphasis to be laid on this point by the opponents of research.—Samuel S. Maxwell, *Science.*

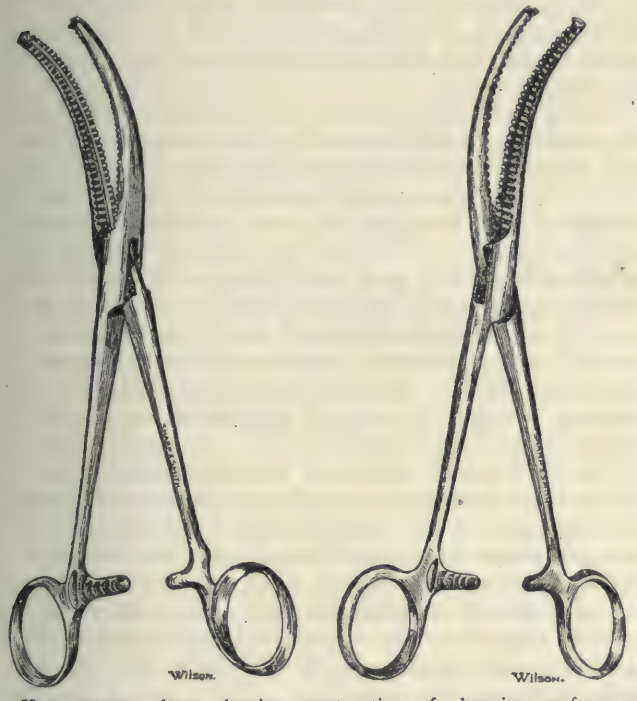
New Instruments and Suggestions

A USEFUL HYSTERECTOMY CLAMP

MAURICE J. GELPI, A.B., M.D., NEW ORLEANS

The clamp illustrated here was designed for the special purpose of preventing the possibility of slipping of an inaccessible pedicle, which is likely to retract beyond the reach of the operator. It offers distinct advantages in dealing with such a pedicle in the course of vaginal or abdominal hysterectomy, or nephrectomy.

The clamp combines several of the distinctive features of other clamps in common use. It has the durable "box" lock, the curve of the Péan, the tip of the Kocher, and in addition to the usual transverse teeth, there is a single longitudinal ridge, fitting into a corresponding groove in the opposite blade. The combination of these features affords almost perfect security against slipping, even though the



Hysterectomy clamp showing construction of clamping surfaces of blades.

pedicle is quite thick and under considerable tension. The cuts show clearly the details of both blades as well as other points in construction, so that no further description seems necessary.

Audubon Building.

A NEW TONSIL KNIFE

H. V. DUTROW, M.D., DAYTON, OHIO

This knife was worked out by Dr. D. F. Reeder of Ancon Hospital, Canal Zone, and myself, during our term of service with the United States government in the eye, ear, nose and throat department of that institution. The desire for such an instrument came about at the time that might well be termed the evolution in tonsil surgery, namely, the substitution of tonsillectomy for tonsillotomy. We were more than 2,000 miles from medical centers, and had read of Dr. Ballenger's sharp dissection method with scalpels and various other methods of complete enucleation. A Ballenger's knife was procured, but was not entirely satisfactory in that we felt the need of a concave cutting edge more than a convex; hence the double edged knife as shown in the accompanying illustration. With this instrument it is possible to remove completely by sharp dissection every type of tonsil that we encounter. It is especially serviceable in delivering from its bed a completely submerged tonsil by dissecting back the mucous membrane and pillars overlying the tonsil, thereby preserving every vestige of mucous membrane, which is so valuable in covering the fossa and reducing the amount of scar tissue. The knife is especially valuable when used in conjunction with the snare. I very rarely, if ever, do a tonsillectomy by dissection alone. After the mucous membrane and pillars have been separated and the upper lobe of the tonsil freed from its fossa, the snare wire is thrown around the pedicle, and the enucleation completed. It is also possible with this knife to do all the separation necessary without the use of any other knives or blunt dissectors. The end of the handle is constructed



The Reeder-Dutrow tonsil knife.

in such a way that it may be used when the stripping back of the mucous membrane and pillars is desired or any blunt separation is required. If in any case the operator desires not to use the convex edge of the knife, and if he strikes the patient's lip or palate, cutting them, he may dull this edge or grind it down to avoid this unpleasant feature, using only the concave edge for his operative procedure.

The laryngologists of today are about equally divided as to sharp versus blunt dissection. This knife belongs decidedly to that class of men favoring sharp dissection. With it one is enabled to cut the tissues without mauling and tearing them, as is the case with blunt dissection. Sharp dissection places the operation of tonsillectomy strictly within the class of distinctly surgical operations with clean-cut dissection, thereby preserving the integrity of the parts and a consequent shorter period of convalescence. In removing the left tonsil I prefer to stand on the patient's right, and change position to the other side in removing the right tonsil.

922 Reibold Building.

STAINING DISH FOR COVER GLASS PREPARATIONS

F. MACBETH ENDE, M.D., NEW YORK

This simple device is easily made by fixing an ordinary glass ligature spool to the center of a Petri dish. The ordinary cover glass forceps, the jaws of which are usually covered with a film of old dry stain, frequently spoil results by precipitation, leaving a granular residue at one corner of the cover glass, the excess running down the arm. Dishes, while doing away with this and other disadvantages, require a large amount of stain.

In making this dish, a few chips of sealing wax are placed in the center of the Petri dish, and it is held over an alcohol flame until the glass is heated and the wax melts. A liga-



Staining dish for cover glass preparations.

ture spool, the end of which is about 1 cm. in diameter, previously heated to prevent breaking, is pressed into the molten wax, which is allowed to harden. If a few drops of water are placed on the top of the spool, a cover glass is held firmly from slipping or tipping when the stain is dropped on. Dilution and washing can be done, the excess flowing into the dish. To minimize the action of the alcohol or ether on the wax, a small amount of water is placed in the dish to dilute it as it overflows.

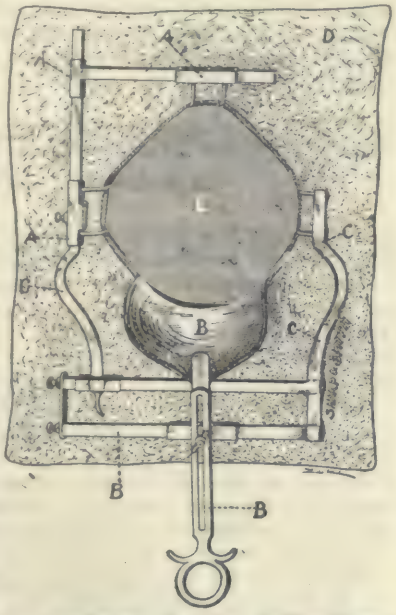
302 West Eighty-Seventh Street.

AN ATTACHMENT FOR THE BALFOUR-GOSSET, MAYO-SIMPSON AND OTHER ABDOMINAL RETRACTORS

J. RAWSON PENNINGTON, M.D., CHICAGO

"A" in the accompanying figure is an adjustable arm and blade, which I have had made for the Balfour-Gosset, Mayo-Simpson and other retractors.

"D" is a rubber laparotomy sheet with a sleeve, and is similar to all other rubber laparotomy sheets. This sheet with its sleeve extending into the abdominal cavity is placed over the incision. The blades of the instrument are then passed through the sleeve and the instrument opened, exposing the cavity "E."



Attachment for the Balfour-Gosset, Mayo-Simpson and other abdominal retractors.

Advantages: This combination of retractor and rubber sheet equalizes the pressure on the incision and aids in controlling hemorrhage. It prevents contamination of the operator's gloves by the patient's skin. It protects the edges of the wound, traumatizes the tissues less than the ordinary hand retractor, lessens the danger of infection, facilitates primary union, gives better view and control of the field of operation and supplants one assistant.

31 North State Street.

COCAIN ANESTHESIA FOR SUBMUCOUS RESECTION OF NASAL SEPTUM

A. M. PAINTER, M.D., YOUNGSTOWN, OHIO

While cocain intoxication in this operation is usually limited to loquacity and slight mental exhilaration, in some rare cases disagreeable hysterical symptoms, extreme nervousness, crying, restless movements and even hysterical transient paralysis occur and render the limiting of the amount of the drug used desirable.

The application of cocain over the entire operative field in the form of a mud of cocain and epinephrin, as advised by Freer, makes an intense insensibility possible with the use of much less cocain than when the usual 10 per cent. solution is employed. I have found, however, that even less of the drug, merely a minimal amount, will produce profound local anesthesia if the cocain mud be applied directly over the nerve trunks supplying the septum at their entrance on the septum, where they are quite superficial. The most important of these nerves is the septal branch of the anterior ethmoidal nerve, which is found about opposite the anterior end of the middle turbinated body where it descends from the cribriform plate over the septum. To this place the cocain mud is applied on a cotton applicator, the mud being carried as high up on the septum as possible, to reach the nerve trunk near the cribriform plate. The second nerve trunk to be reached is the nasopalatine nerve, which descends over the septum about along the anterior border of the vomer. The anesthesia is complete in about three minutes, and will last during quite lengthy operative procedures. To perfect ischemia the epinephrin is then applied to the site of the incision only.

Therapeutics

EPILEPSY

Epileptic fits caused by traumatism, by cerebral congestion and inflammation, by uremic or other poisoning, by tumors, and by degenerated cerebral arteries do not constitute the disease of epilepsy. True epilepsy, sometimes called idiopathic (a word now so much restricted as to have almost reached the vanishing point) epilepsy, has as yet shown no real pathology. The hereditary factor has recently been studied by Thom.[1] He found that 126 cases of 157 investigated showed direct heredity, namely, the parents or grandparents had had epilepsy. He also found that there were 293 hereditary defects in the 157 cases, sometimes a member of a family having more than one defect. Epilepsy was associated with alcoholism in 38 per cent. of the cases, with insanity in 27 per cent. of the cases, and feeblemindedness in 10 per cent. of the cases.

Aside from the hereditary tendency, the etiology of true epilepsy is still unproved. However, lately several papers have appeared which seem to show that there are possibly several causes of true epilepsy, among which is intestinal stasis and consequent absorption of the toxins. It has long been recognized that an epileptic patient must have free bowel movements, and should generally have his protein food reduced in amount, and frequently have all meat withheld, if his fits are to be reduced in frequency and in intensity; but Reed[2] claims that epilepsy may apparently be stopped by proper surgical treatment of intestinal stasis.

Reed became interested in the subject of the treatment of true epilepsy by needed abdominal operations, because almost all epileptics are constipated, and because when their constipation has been cured he found many patients ceased to have epileptic attacks. He also found that replacement and fixation of a ptosed colon by his "retroperitoneal implantation method" cured persons with epilepsy.[3] He also has cured epilepsy by colectomy. He learned, by his abdominal findings, operative interference and consequent results, that "a ptosic condition of the mesocolon, whether affected by the weight of the loaded colon or by that of a fat omentum or by both, could produce obstructive angulation of the duodenum, and second, that the specific poison of epilepsy, whatever its character, was elaborated in the duodenum." He decided that it was wise to do colectomy at two stages, at first doing an "iliosigmoidostomy or short-circuit procedure" and later, at a considerable interval, to remove the colon. After the first operation he finds there is always a relief of constipation and a lessening of the epileptic attacks. Later, in some instances, which he explains by the poison-carrying, small intestine contents reaching the inactive colon, there occur severe convulsive attacks which render necessary the elimination of this useless colon.

Contrary to the investigation of Thom,[1] Reed found that his cases of epilepsy with intestinal stasis did not show heredity. The symptoms in his patients seem to

1. Thom: Boston Med. and Surg. Jour., Sept. 23, 1915.
2. Reed, C. A. L.: The Probable Cause and Logical Treatment of Epilepsy, THE JOURNAL A. M. A., March 27, 1915, p. 1047.
3. Reed, C. A. L.: Fixation of the Ptosic Stomach and Colon by Retroperitoneal Implantation, THE JOURNAL A. M. A., March 28, 1914, p. 999.

show distinctly the absorption of intestinal toxins. There is lassitude, mental depression, dizziness, symptoms of what may be termed biliousness, often high blood tension, and always a constant tendency to the formation of intestinal gas of very offensive odor.

Certainly, Reed's claim that he has succeeded in diminishing the number of epileptic attacks and in curing many cases by abdominal operations to relieve intestinal stasis must make an impression on clinicians. The necessity for the prevention of constipation, and often for the withholding of meat proteins, and a possible operative interference, in suitable cases, should be considered. Whether or not the results would be as satisfactory in patients who have apparently inherited the tendency to epilepsy must be decided later.

The intestinal origin of some cases of epilepsy has recently been emphasized by the investigations of Cornwall.[4] He finds that Roentgen examinations in epileptic cases will often show colon displacements, and medical or physical treatments aimed at relieving constipation will diminish the epileptic attacks. Of course, in these conditions of ptosis, constipation may be prevented by abdominal supports, but the ptosis can be cured only by operative interference.

Another point of view of the origin of many cases of true epilepsy has been presented by L. Pierce Clark[5] after years of study of this disease. Clark believes that true epilepsy is a psychosis, and that each case should be studied with that idea in mind. He finds that the analysis of disturbing dreams and then tracing these dreams back to childhood, with the patient's aid, may show a distinct cause first for the fear, then for the dreams, then for the dread, then for the temper and moroseness, and finally for the fit. Many of the fits he finds to be due to an unanalyzed sexual desire; others to a distinct desire to get near to the mother for protection against some imaginary danger, that is, during the attack there is a distinct return, whatever the age, to infantile desires and fears.

This conception of the cause of the disease of epilepsy is novel and may not be generally accepted by clinicians; but Clark's studies certainly show that this disease must be analyzed much more carefully than it has been, and from the psychic standpoint. Psychic analysis is advancing so rapidly as to have far outstretched the understanding of most of us, but by such expert analysis many obscure conditions have been clarified.

Clark says that while bromids will slow up and often stop, temporarily at least, epileptic convulsions by stupefying the nervous centers ("the sensorimotor portion of the cortex"), after they have been pushed for a time the pent up, unexploded desires may burst forth again in a series of explosions or fits. Also, neurologists assert that bromids interfere with their study of the fits and the cause of the fits.

Bromids surely damage the brain, the cord, the muscles and the general nutrition; hence we record a failure when we give bromids for a long time in epilepsy. A patient who has long taken bromids requires many months to eliminate them completely from his system.

A study of Clark's thesis presents the following practical conclusions:

1. Abnormal fear, timidity, undue adherence to one individual (generally the mother), attacks of temper, violent crying, more or less constant disagreeableness, more or less constant misbehavior, and all forms of hysteria should be studied as psychoses that may lead to epilepsy.

2. Fits should be studied from every standpoint, and if no tangible cause can be discovered, they should be considered to be epilepsy.

3. The epileptic should be removed from mental strain (too much school), should be given a country life if possible, should be allowed no tea, coffee or other cerebral stimulants, should be given a minimum amount of animal protein, should be given alkalies, as lime (the parathyroids may not infrequently furnish an abnormal secretion, though this is not mentioned by Clark), and sodium bicarbonate or potassium citrate. The bowels should move freely, daily. There should be daily warm baths, and the physical exercise should be sufficient for the age and temperament.

4. If this regimen does not stop the fits, then a careful psychic analysis should be started. The whole previous life should be studied through the patient, mother, nurse and other members of the family. Dreams, desires, fears, sexual tendencies, the epileptic cry, the character of the convulsions, etc., must all be analyzed. Even the particular way the head turns, or which arm begins to twitch first may all be found to have a tangible infantile or childhood cause, and may not at all mean a cerebral localization, as once thought.

5. If the physician in charge of an epileptic is not skilled in psychic analysis, the patient should be sent to an up-to-date institution for study and treatment. This also is frequently advisable for home reasons.

6. Bromids and other sedatives should be given only temporarily, and then with regret. They may be useful for a time, but they cannot cure epilepsy, and they are responsible for a great deal of serious harm and even permanent injury.

Another point of view as to the cause of some cases of epilepsy is related to the fact, long presented by some physicians, that there can be all grades of hypersecretion and hyposecretion of the thyroid gland. Logically all of the internal secreting glands may present the same long range of variations in their secretions, and these variations may cause varying kinds of disturbances as yet but little understood and often ascribed to hysteric, neurotic, toxic, or other vague cause. In this connection the work of McKennan, Johnston, and Henniger[6] on epilepsy should be described.

These physicians examined, by Roentgen ray photographs, the skulls of 115 epileptics, and found bony changes in the region of the sella turcica in 80 per cent. of these cases, while in a number of nonepileptics bony changes were found in only 10 per cent. — a striking difference. Some skulls showed pituitary enlargement or tumors, some thickening of the clinoid processes alone, others thickening of the bones of the anterior fossa of the base of the skull as well as thickening of the clinoid processes, and some also showed thickening of the body of the sphenoid bone. In twenty of the above 115 cases no bone disturbance was found, but ten of these were cerebral cases, three of which showed internal hydrocephalus, while in two cases the radiograms were taken very soon after the epileptic attacks had first developed.

4. Cornwall: Arch. Diagnosis, July, 1915.
5. Clark, L. P.: New York Med. Jour., 1915, ci, 385, 442, 515, 567, 623.
6. Pennsylvania Med. Jour., March, 1915, p. 429.

These findings are remarkable, and may show by future corroborative evidence that there is frequently disturbance in the sella turcica region in true epilepsy.

The average age of the patients examined was 23 years. The authors found no history of evidence of inflammatory cause for the bone thickening, and believe that it must be due to a disturbance of the pituitary gland. As hypertrophy of this gland has not been generally found in postmortems in epileptics, they conclude that the disturbance is hyposecretion of the posterior lobe of the pituitary due to a disturbed venous blood flow causing a passive congestion. They think the disturbance of the pituitary would account for the local increase in bone growth, and that a general acromegaly is not caused because the whole pituitary gland is not sufficiently involved. As in all cases of hyposecretion of the posterior lobe of the pituitary, they found there was an increased carbohydrate tolerance in all of the cases studied for this symptom, namely, in fourteen of their epileptic patients. Hence these physicians conclude "that so-called idiopathic or essential epilepsy is due to a mechanical injury of the pituitary gland." They did not find that feeding pituitary posterior lobe substance was of any benefit in controlling the epilepsy.

It has frequently been noted that epileptic attacks may occur in women at the time of the menopause, or in girls and young women when there is amenorrhea or delayed menstruation. The cause has been thought to be due to an intoxication caused by the changed metabolism, due either to insufficient elimination of nitrogenous waste products by menstruation, or due to a relative insufficiency of the thyroid gland at these times, and the thyroid is known to have detoxicating power. This inference has been borne out in many instances by thyroid feeding diminishing the number of epileptic attacks, and even curing some cases. It is possible in this polyglandular disturbance of ovaries, corpora lutea and thyroid that the pituitary gland becomes involved, and its disturbance may cause the epileptic attacks.

TREATMENT

It is evident that the treatment of the epileptic cannot be successful unless the etiologic factor in the individual case is determined and eradicated if possible. A study of all possible cerebral causes should be made, including roentgenograms of the skull taken in various positions. If the history of the case or the roentgenograms show that operations on the cranium are likely to be of value, expert cerebral surgery should be done.

Roentgenograms should be taken of the intestine after bismuth feeding. Finally, the patient should be studied psychically. The hereditary factor, the intestinal factor and the psychic factor have just been described. The greater the hereditary tendency to the disease, probably the worse generally is the prognosis of entire recovery. Permanent incurable lesions in the brain or meninges make the prognosis bad. The importance of intestinal stasis causing absorption of toxins and the curability of such stasis medicinally, mechanically or operatively has been emphasized. The necessity of psychic study and psychic treatment of epileptics has also been emphasized.

The importance of epileptic colonies and public institutions for the study and care of epileptics is now being recognized, and has already been inaugurated by a number of states. The importance of good, clean air, of outdoor work, or of indoor work under the best hygienic surroundings, has been shown to be very important for the epileptic, and will diminish the number of his attacks. It is also well known that such patients as are not idiotic will care for each other during an epileptic attack; therefore the nursing care of these patients in detention colonies is not great.

Constipation must be prevented, and the diet should be such as to cause the least possible production of toxins in the intestine. Generally, the lower the meat diet, the better for the patient, and all foods that contain large amounts of nuclein bodies, such as sweetbreads, liver, shad roe, etc., should be tabooed. Milk, eggs, fresh fish, peas, beans, vegetables, cereals and fruits make the best food for the epileptic. It is wise, when there is an opportunity, to individualize a patient's diet by ascertaining, under the different foods, the character of the digestion by examining the twenty-four hours' urine and the twenty-four hours' feces, but in public institutions where a large number of epileptics are handled, such examinations are almost impossible. The determination of the amount of indican in the urine, however, is indicative of the amount of intestinal indigestion, and indican in the urine in any amount should cause a change of diet and the administration of foods or drugs that will cause more profuse movements of the bowels.

Lastly, drugs must in many instances be given to the epileptic, and the most valuable are the bromids. It probably is not often true that a combination of several bromids acts better than one bromid. The main point to remember, as so well emphasized by Clark, is that bromids may do a great deal of harm as well as a great deal of good. Sodium bromid can probably be taken longer without causing harm than can potassium bromid. There is no possible advantage of strontium bromid over sodium and potassium bromid; it is more expensive, but is absorbed less rapidly, and more of it is probably lost in the intestinal canal. This has caused the belief that strontium bromid causes less unpleasant symptoms than either sodium or potassium bromid. However, dose for dose, less strontium bromid is active than sodium bromid or potassium bromid. If the dose of either of the last two is reduced, the unpleasant symptoms will be no more in evidence than with strontium bromid. Ammonium bromid is intensely disagreeable to take, and has no advantage over the sodium and potassium bromid. The other bromids are not worth mentioning. Calcium bromid and zinc bromid should be dropped from the pharmacopeia as entirely unnecessary drugs.

The enormous doses of bromids given not only do harm, but also are entirely unnecessary, and it is probably a fact, the same as is true of enormous doses of iodids, that only a certain amount will be absorbed and circulate in the blood; the large residue of enormous doses of salts passes out of the system unutilized. It has also been well proved that if sodium chlorid is partially or entirely removed from the diet, smaller doses of bromid are effective, because they are absorbed more readily and act when there are less salts in the system. The smaller the dose of bromid that will cause a diminution in the number of epileptic attacks, the less is the nutrition of the body disturbed, the less are the internal secreting glands disturbed, the less are the blood-forming organs disturbed, the less is the skin irritated by the bromid, and consequently the less are eruptions likely to occur, and the

less is the kidney disturbed by not being compelled to excrete large amounts of salts.

It should once more be emphasized that the administration of bromids will probably always reduce the frequency of the attacks, and in some instances may apparently cure epilepsy; but this symptomatic treatment is always to be regretted. In some cases due to nervous irritability and attacks due to some nervous reflex, bromids may be curative; but the future of long bromid treatment means mental and physical deterioration.

If the patient is in a condition of status epilepticus, large doses of chloral may be immediately needed, and under certain conditions morphin must be injected. If the convulsions are very severe, inhalations of chloroform are necessary. Hypodermic injections of scopolamin hydrobromid may be of value. Such a condition is an acute illness and must be treated as any other acute disease by such measures as are deemed necessary. Prolonged hot baths and free catharsis may relieve the intense cerebral irritation of these patients. Also, large amounts of water should be drunk to eliminate if possible the irritants in the blood. It is possible that venesection followed by a saline transfusion might be of value in relieving the brain of the toxins that are causing such a condition as that of status epilepticus.

The importance of the subject of epilepsy is shown by Graves,[7] ex-president of the National Association for the Study of Epilepsy when he states that by conservative estimate there is one epileptic for each 400 of the population of the United States and Canada, and that there are 250,000 epileptics among our 100,000,000 of population. He stated that in special colonies for epileptics only 7,000 could be cared for, while perhaps 125,000 of these epileptics need such colonization treatment.

It is very important that the general practitioner should recognize that an epileptic patient is perhaps not incurable; that he generally is not feebleminded, although he may become so; that he deserves to be studied and treated scientifically, and that the reward will not infrequently be a cured patient and a happy family. This is not to urge the patient or his family to believe that, even if cured, he can assume any walk of life that carries with it hard mental work, responsibility or anxiety. Such a cured patient should, also, not be compelled to do very laborious work. The lifework selected should be as agreeable to the patient as possible, and should not be strenuous, either mentally or physically.

7. Graves: Ill. Med. Jour., October, 1914, p. 373.

Better Control of Communicable Diseases.—A plan for securing better control of measles, whooping cough, scarlet fever and typhoid fever is being put into operation by Dr. F. M. Meader, director of the Division of Communicable Diseases of the New York State Department of Health. As soon as the cases and deaths are compiled for the previous month, the case rate and the fatality rate are worked out for each county. Where the case rate is high a circular letter will be sent to all physicians of that county notifying them of the unusual prevalence of the disease and offering the facilities of the laboratory for obtaining diagnosis in obscure cases. If the case fatality rate is high, it is assumed that the cases have not been reported, and the attention of the physician is called to the fact that the law requires that all cases, even suspicious ones, must be reported to the local health authorities.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

DIONIN (See N. N. R., 1915, p. 209).—The following dosage forms have been accepted:

Dionin Tablets, ¼ gr.—Each tablet contains dionin ¼ grain. Prepared by E. Merck, Darmstadt, Germany (Merck and Co., New York).

Dionin Tablets, 1 gr.—Each tablet contains dionin 1 grain. Prepared by E. Merck, Darmstadt, Germany (Merck and Co., New York).

ACET-THEOPHYLLIN SODIUM (See N. N. R., 1915, p. 375).—The following dosage form has been accepted:

Theophyllin Sodium Acetate Tablets, 0.15 Gm.—Each tablet contains theophyllin sodium acetate 0.15 Gm. Prepared by C. F. Boehringer & Soehne, Waldhof, Mannheim, Germany (Merck and Co., New York).

TRIPHENIN (See N. N. R., 1915, p. 242).—The following dosage form has been accepted:

Triphenin Tablets, 5 gr.—Each tablet contains triphenin 5 grains. Prepared by E. Merck, Darmstadt, Germany (Merck and Co., New York).

TROPACOCAINE HYDROCHLORIDE (See N. N. R., 1915, p. 38).—The following dosage form has been accepted:

Tubes Tropacocaine Hydrochloride, Sterilized, 1 gr.—Each tube contains tropacocaine hydrochloride 1 grain. Prepared by E. Merck, Darmstadt, Germany (Merck and Co., New York).

VERONAL-SODIUM (See N. N. R., 1915, p. 93).—The following dosage form has been accepted:

Veronal-Sodium Tablets, 5 gr.—Each tablet contains veronal-sodium 5 grains. Prepared by E. Merck, Darmstadt, Germany (Merck and Co., New York).

IODIPIN (See N. N. R., 1915, p. 160).—The following dosage form has been accepted:

Iodipin Tablets, 3 min.—Each tablet contains iodipin 3 minims. Prepared by E. Merck, Darmstadt, Germany (Merck and Co., New York).

APIOL-MERCK.—A non-proprietary brand complying with the standards for apiol. (See N. N. R., 1915, p. 226.)

Manufactured by E. Merck, Darmstadt, Germany (Merck and Co., New York).

CREOSOTE CARBONATE-MERCK.—A non-proprietary brand complying with the standards for creosote carbonate. (See N. N. R., 1915, p. 84.)

Manufactured by E. Merck, Darmstadt, Germany (Merck and Co., New York).

PHENOLPHTHALEIN-MERCK. — A non-proprietary brand complying with the standards for phenolphthalein. (See N. N. R., 1915, p. 244.)

Manufactured by E. Merck, Darmstadt, Germany (Merck and Co., New York).

QUININE TANNATE-MERCK. — A non-proprietary brand complying with the standards for quinine tannate.

Manufactured by E. Merck, Darmstadt, Germany (Merck and Co., New York).

SODIUM NUCLEINATE-MERCK. — A non-proprietary brand complying with the standards for sodium nucleate. (See N. N. R., 1915, p. 215.)

Manufactured by E. Merck, Darmstadt, Germany (Merck and Co., New York).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET . . . CHICAGO, ILL.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, JANUARY 8, 1916

AT WHAT TIME OF LIFE DOES TUBERCULOUS INFECTION OCCUR?

The fundamental importance of infection during childhood for pulmonary tuberculosis in adults seems to be more and more generally supported by those who have especially to do with large clinical studies of the disease. Repeated demonstration of the well-nigh constant presence of healed or latent tuberculous lesions in nontuberculous adults, the evidence of the tuberculin reaction as to the high percentage of infections in childhood, and the observations of experimental pathology that the anatomic peculiarities of human pulmonary phthisis depend on the fact that the disease is developing in a subject already partially immunized to the disease, all have given support to the view advanced especially by von Behring that primary tuberculous infection occurs usually in children and rarely in adults.

From the clinical side, evidence both in support and in opposition to this concept has been advanced, the disagreements being understandable in view of the difficulty of securing accurate information from the histories of so chronic and insidious a disease as tuberculosis. On the whole, however, the evidence seems to be largely in favor of the principle stated. A particularly interesting clinical study of the effect of exposure in childhood on the occurrence of tuberculosis in adults has been reported recently by Wallgren[1] from the pulmonary clinic at Upsala. This investigation consisted of a comparison of 100 consumptives and 100 healthy persons as to their exposure during childhood to obvious opportunities for infection from tuberculous associates. Such a study is to be considered quite apart from the numberless investigations of the incidence of familial tuberculosis in tuberculous patients, for in the latter studies there is no consideration as to whether the tuberculous relatives were in contact with the patient, whether their tuberculous lesions were opened or closed, or whether the contact was in childhood or later; furthermore, not a little of the dangerous exposure comes from sources outside the family, as nurse maids, servants and schoolmates.

1. Wallgren: Beitr. z. klin. Tuberk., 1915, xxxiv, 173.

Wallgren considers only cases in which it can be shown definitely that during childhood the patient was in intimate contact with some one coughing from chronic pulmonary disease, which in all probability was pulmonary or laryngeal tuberculosis. As far as possible, nontuberculous disease was excluded. The subjects were about equally divided as to sex. Of the hundred tuberculous patients, fifty-one gave evidence of childhood contact with tuberculous associates, whereas of the hundred normal individuals, such contact was found in but thirteen. Allowing for the usual unavoidable errors of statistical studies based on clinical histories, the disparity here seems to be far too great to be merely fortuitous, and must be considered as strong evidence for the importance of childhood infection. The statement of Pollak that the earlier the infection the more serious the outcome also receives support from Wallgren's statistics, for of the fifty-one consumptives, fifteen had been exposed during the first five years of life, whereas, of the thirteen healthy persons who gave a history of exposure, in but one case had that exposure been before the sixth year. While statistical studies of this sort are extremely difficult and time-consuming, if conducted with enough care and controls to be worthy of consideration, their value in the vital problem of the control of tuberculosis is so great as to make them well worth the effort of those who have access to suitable material, and it is to be hoped that larger series of statistics on this topic will soon be forthcoming to settle definitely this fundamentally important question.

THE CAMPAIGN AGAINST TUBERCULOSIS

Among the various phases of the public health movement in this country of the last decade or two, the effort toward the gradual eradication of tuberculosis stands out prominently in its comprehensive planning and organization. The field that, ten years ago, was almost barren of any organized machinery for the control of the disease, includes at present 1,200 local antituberculosis organizations, 575 hospitals and sanatoriums, 450 special dispensaries, 1,000 dispensary physicians, 4,000 nurses and 400 open air schools. The total cost of creating and operating this machinery represents an outlay of over $100,000,000 of public and private funds.

The results so far achieved are shown in (1) the steadily growing enlightenment of the people on the subject of tuberculosis, its cause, methods of prevention and treatment; (2) the gradually falling mortality from the disease (in the registration area[1] in 1902, the rate was 16.3 per 10,000; in 1911, 13.2), and (3) the impetus given to the entire public health move-

1. Hoffman, Frederick L.: The Decline in the Tuberculosis Death Rate, 1871 to 1912, Ninth Annual Report, National Association for the Study and Prevention of Tuberculosis.

ment through concentration of public attention on a disease, the gradual eradication of which, by virtue of its etiology, is dependent on the realization of higher general health standards. The present lower mortality marks the effect of the intensive educational campaign, of the steadily expanding system of institutional and home control of the disease, and of the general improvement in the sanitary and economic conditions of the people. Tuberculosis, however, is still with us, with its appalling, though reduced mortality, and with some of the fundamental problems in its etiology still awaiting solution.

During the last ten years a gradual change has been taking place in the conception of the relative importance of the various causative factors in the present prevalence of the disease, and it is becoming apparent that further clinical, laboratory and sociologic investigations are likely to result in considerable modification or amplification of the methods directed at present toward its control. For instance, the grave etiologic importance of massive infection, through prolonged close contact with "open" cases of tuberculosis, particularly in crowded, unhygienic surroundings, has been well ascertained, through statistical, clinical and laboratory study. The question of the relative importance of "chance" infection, through infected dust, in public streets or places, or through casual contact with a consumptive, is still, however, in need of further elucidation. The growing incidence of tuberculous infection in children, with each successive year of the child's life, has been established by postmortems and, in recent years, by the greater frequency of tuberculin reactions with the advance of age. The relation of these implantations in childhood to the development of "adult" tuberculosis has been brought forward by von Behring, Baldwin and others. The character of the relationship or the modus operandi are still, however, in the realm of unsolved problems. Closely interwoven with this question is the partially solved problem of immunity in tuberculosis in its various theoretical and practical aspects.

The comprehensive system for the control and gradual eradication of tuberculosis, in the process of formulation at present, is built on facts ascertained chiefly in the last three decades of investigation and experience. Based on our present knowledge, Surgeon F. C. Smith,[2] of the U. S. Public Health Service, emphasizes chiefly the following important aspects of a campaign against tuberculosis: (1) control of sources of "gross" infection by hospitalization of advanced cases, particularly of those in contact with children; removal from tuberculous surroundings of children under 2 years, preferably under 4, and as much later as possible, and creation of special institutional provisions for such children; (2) earlier diagnosis of the disease, rendered possible by the universal application of the principle of periodic physical examinations of children and adults, and a system of industrial insurance permitting the worker to take cognizance of incipient symptoms of disease; (3) reduction in the prevalence of all those diseases which create a predisposition to tuberculosis, and (4) further improvement of industrial sanitation, with removal from industries of conditions causing undue "stress and depletion."

Because of its great prevalence and its baneful effects on the general health standards of this country, tuberculosis must be combated with the active participation of every available agency. The services of the federal government should be utilized particularly to establish a national effort against this disease. While the outline of Smith in its entirety is perhaps difficult of attainment, especially with relation to its immediate utilization as a plan of campaign, certainly if put into effect it would tend to decrease greatly the number of new infections through the propagation from old cases.

2. Smith, F. C.: The Epidemiology of Tuberculosis, THE JOURNAL A. M. A., this issue, p. 77.

THE ALLEGED SECRETORY NERVES OF THE THYROIDS

To the physiologist there is always a strong temptation to postulate secretory, trophic or regulatory nerves as the direct controlling factors in the functioning of the various organs of the body. A little careful analysis usually shows, however, that variations in the blood supply are of themselves often sufficient to account for changes of function without the necessity of assuming any direct or specific nervous effects on the active cells involved. Thus it is a familiar fact that the kidney is sensitive and promptly responsive to alterations in the vascular conditions in that organ. Again, recognized chemical substances circulating in the blood may become stimulants or depressants to glandular activity independent of any specific nervous influence. All of these possibilities tend to make it difficult in some cases to decide whether one is dealing with vasomotor nerve, sensory nerve or hormone effects in certain organs.

Lately there has been renewed activity in the attempts to interpret the mechanism of thyroid function. Here there is an added difficulty in the fact that no characteristic physiologic response reveals itself in the form of easily measured phenomena like blood-pressure changes or the flow of some external secretion. Inasmuch as the iodin in the thyroid has currently been associated with its function, it has become customary to estimate the iodin content and draw conclusions regarding changes in the activity of the gland from variations in this element. On this basis Rahe, Rogers, Fawcett and Beebe[1] believed that they could demonstrate the presence of secretory nerves to the thyroid because an unquestioned effect of stimulation was noted on the iodin content.

1. Rahe, Rogers, Fawcett and Beebe: Am. Jour. Physiol., 1914, xxxiv, 72. The Nerve Control of the Thyroid Gland, editorial, THE JOURNAL A. M. A., July 25, 1914, p. 325.

Watts[2] has properly pointed out that such data cannot be construed as proving the presence of true secretory nerves until it is shown that the vasomotor changes in the thyroid induced by stimulation of the thyroid nerves are not by themselves capable of inducing the changes in the content of iodin. In experiments which he has conducted in the Hull Physiological Laboratory at the University of Chicago, it was demonstrated that although a decrease in iodin can actually be brought about by appropriate nerve stimulation, the latter induces vasoconstriction in the thyroid gland. But a similar decrease can also be brought about by decreasing the thyroid blood flow by purely mechanical means.

The changes in the thyroids thus far shown to be caused by stimulation of thyroid nerves can accordingly all be accounted for by vascular changes. Histologic alterations indicative of specific glandular activity are not apparent in any of these cases. Carlson has remarked in relation to these new observations that they appear to place the thyroids in the same category as the liver, that is to say, as organs very delicately balanced in relation to the local circulation, irrespective of any secretory nerves. The fact that the thyroids have a greater blood supply than any other organ in the body, and that relatively transient disturbances in the vascular conditions bring prompt responses in the way of "secretory discharge," deserves to be noted. This indicates, as Carlson reminds us, how difficult it is to decide whether one is dealing with vasomotor effects or specific secretory nerves in certain organs.

2. Watts, C. F.: Changes in Iodine Content of the Thyroid Gland Following Changes in the Blood Flow Through the Gland, Am. Jour. Physiol., 1915, xxxviii, 356.

COFFEE AND PROTEIN METABOLISM

Coffee is one of those dietary adjuncts which modern man has employed, like tea, alcohol, tobacco — and perhaps one ought to add the ubiquitous chewing gum — presumably to increase the pleasure of his existence quite independently of any need which they might serve in the organism. The demand for all of these products is created by an artificial rather than a natural appetite. Purveyors of the various articles of commerce have expended considerable effort and money to indicate on billboards and in other advertising spaces wherein the human mechanism is benefited and life made worth living by some particular brand of cigaret, whisky, tea, coffee, etc. There has at length arisen an amusing competition in which alcohol-free beverages, detannated or decaffeinated coffee, and even nicotin-free tobacco are extolled for the supposed advantages without the alleged defects of the respective products concerned.

In the midst of this extravagant bid for consideration, statements of merit or detriment are freely made as suits the case, and always with some semblance of scientific authority. On the one hand, it has been stated that coffee has a protein-sparing action on the body, and older literature is quoted in support of this contention. On the other hand, opponents of this view insist on the stimulating effect of coffee, and declare that it naturally tends to accelerate the metabolic processes. The facts are that many years ago experiments were reported to indicate that caffein, the most potent ingredient of coffee, depresses the protein metabolism. This was before the days of accurate balance experiments by which intake and output of food and excreta are carefully measured. The now classic experiments of Carl Voit,[1] like those of Hoppe-Seyler before them, demonstrated that there is no significant increase or decrease of protein destruction under the influence of coffee.

There has never been any serious occasion to doubt these negative results so far as any effect of coffee on protein metabolism is concerned. Nevertheless new experiments have been conducted on man in a somewhat different manner in the Polyklinik at Basel by Liwschitz.[2] The effect of ingested decoctions of coffee, chicory and caffein-free coffee, and of caffein itself on the rate of metabolism of large intakes of the protein casein were in these cases also ascertained to be nil.

Voit once remarked that the drinking of coffee and tea is sometimes defended on the supposition that they effect an economy of protein in the body. There is no evidence that they do this. He wisely concluded, therefore, that coffee is drunk because of its effect on the nervous system — and on this basis it must continue to be defended even today. The danger of propaganda, whether in health documents or in advertising circulars, lies in the perversion of truth. We need to know the truth about all of the fads and habits which are involved in our current mode of living. The truth will serve the cause better in every way. Enthusiasm should never be allowed to wander beyond the safe boundaries of demonstrable knowledge in matters of public or personal hygiene — or elsewhere.

1. Voit, Carl: Untersuchungen über den Einfluss des Kochsalzes, des Kaffees, etc., 1860.
2. Liwschitz, O.: Ueber den Einfluss des Kaffees auf den Eiweissstoffwechsel beim Menschen, inaug. diss., Basel, 1914.

THE RODENT PROBLEM OF CITIES

The connection between rodents and plague has led to the accumulation of information regarding the frequency of their association with human habitations, as well as their destructiveness. Studies have been made which throw light on the question of the number of parasites which have been permitted through carelessness to exist in the immediate neighborhood of man. Until these comparatively recent investigations, scarcely any one would have believed how large a number of rodents find a means of livelihood for

themselves in our cities and towns, especially those which have a series of docks and wharves. A special report[1] of plague eradication work at New Orleans, made by the surgeon in charge of the United States Public Health Service work at that point, contains rather startlingly illuminating facts concerning these parasites.

The total number of rodents captured up to November 13 of the past year runs up to 497,983. Some idea of the immense labor and the meticulous care required for thoroughness in sanitary work may be gathered from the fact that over 300,000 of these rodents had been examined up to the same date, and, though altogether only 265 cases of rodent plague were discovered, it is easy to understand how much of a danger for the dissemination of the disease these animals were. Until the actual report, it would have been almost impossible to believe that a city like New Orleans, with its half million rodents, actually harbored a larger population of rats and mice than it did of human beings.

New Orleans is probably no worse in this regard than most of the coast cities of the southern part of the country, at least, and it is probable that as careful a hunt for the creatures would reveal their presence in proportionate numbers even in many of the towns of the interior. It is scarcely necessary to call attention to the fact that this immense number of parasites, which so often get at food materials, constitute a distinct danger not alone as regards plague, though their direct connection with human diseases has been traced only with this great scourge. It is almost needless to say, too, that when existing in such immense numbers they are eminently destructive directly and indirectly, and represent one factor in the waste of food materials which makes for want in this country and is adding to the high cost of living. Undoubtedly what is taken to feed these rodents, or what is thrown out and serves them for sustenance, would keep from serious want many a human family that feels the pinch of lowered nutrition.

Coast cities like New Orleans, San Francisco, Seattle and some of the other towns on Puget Sound have been compelled to take up the problem of obliteration of their rodent parasites by the occurrence of plague. It would seem well worth while, however, for health authorities in other towns and cities to face this problem frankly before it becomes a source of actual immediate danger to health, because there is no doubt that the presence of these pests is extremely insanitary in many ways besides being seriously wasteful. If it should prove that the rodent population of most of our towns and cities, as in the case of New Orleans, was nearly if not quite as numerous as the human population, the significance and urgent importance of this problem would be readily understood.

1. Plague-Prevention Work, Pub. Health Rep., Dec. 3, 1915, p. 3552.

EXERCISE AND THE GROWTH OF ORGANS

Although physical exercise is universally admitted to have a profound and, as a rule, beneficial influence on the human body, an adequate physiology of exercise still remains to be written. Generalities and platitudes characterize most of the scanty literature on the real effects of muscular activity on the bodily structures and functions. We read about the marked influence of exercise on "constitutional vigor," the improvement of "general nutrition," the strengthening of the muscles, the increase in "tonicity," the development of "alertness of mind," and similar results which are about as undeniable as they are indefinable. A few of the functions can be studied directly, in man, in their relation to muscular exercise. The effects on the size and strength and working capacity of skeletal muscles can be observed and measured with some accuracy. The influences on the circulation and respiration also permit of reasonably direct determination. Beyond these, however, there are numerous organs and reactions which have as a rule escaped accurate consideration even in the scientific treatment of the influence of exercise.

In large measure the lack of more extensive data on the important topics related to the effects of exercise is due to the impossibility of suitable experimentation on man. The changes in the size of specific muscles have been measured, and alterations in blood pressure have been ascertained, but the influence of exercise on the size of internal organs can be determined only in indirect ways. The modification of the skeletal muscles like those of the arms and legs as a result of exercise are familiar. Severe and long-continued exercise is also recognized quite universally to lead to a hypertrophy of the cardiac muscle. The conjectures which must remain in reference to the modification of other organs, such as the liver, lungs, kidneys, etc., besides the heart, can be strengthened now from the results of extensive studies made at the Wistar Institute by Hatai[1] on albino rats. This species, which has been the subject of very extensive anatomic and physiologic investigation in recent years, has much in common with man in the correlation of its parts and the general features of its growth and functions. Comparisons are, therefore, not without value despite what might seem to the uninitiated as an enormous disparity of conditions. Hatai made determinations of various external measurements, visceral organs, ductless glands, etc., in comparable animals, some of which had been allowed to exercise vigorously in revolving cages while their companions belonged to a nonexercised group. It is very clear from the results that long-continued exercise (equivalent to a period of from seven to fourteen years in man) in the albino rat produces many striking alterations in the organs.

1. Hatai, S.: The Influence of Exercise on the Growth of Organs in the Albino Rat, Anat. Rec., 1915, ix, 647.

Among them, the following may be mentioned: In the animals allowed to exercise, the heart, kidneys and liver show an average excess of about 20 per cent. in size, while the spleen shows a similar amount of deficiency. The brain weight shows an average excess of 4 per cent., but no change has been noticed in the spinal cord. The ovaries gave an excess of 84 per cent., the testes, 12 per cent.; but the response of the hypophysis and suprarenals was variable. It is interesting to note that the weight of the heart and the amount of exercise are highly correlated. These results are striking, and make one wish that the investigation of such consequences of possible importance to health and hygiene might be extended to man. It is one of the problems of the popular field of physical education.

Current Comment

"THE LIE WITH CIRCUMSTANCE"

It is an axiom that the great bulk of the "patent medicine" business is fraudulent. False and misleading advertisements are the life-blood of the business. Before the public was as well informed on the "patent medicine" hoax as it now is, bald, blatant lies characterized nostrum advertising. As the public became more critical and as certain legal restrictions, state and federal, began to be operative, a change came over the "patent medicine" advertising "copy." The "lie direct" gave place to the "lie with circumstance," and today we find in this class of advertising lying by inference developed to a fine art. "Eckman's Alterative" is a fraudulent "consumption cure"; THE JOURNAL has said so a good many times and will continue to say so. It is one of the few products of this type that are sold, not on the mail-order plan, but through drug-stores and, presumably, because certain druggists are sharing in the blood money wrung from consumptives, this wretched nostrum has had thrown over it a cloak of quasi-respectability. Our readers have been shown[1] how, in advertising this preparation, the exploiters have quoted from THE JOURNAL on the subject of the use of calcium in tuberculosis. The advertisements are so designed that the average lay reader is likely to get the impression that THE JOURNAL has endorsed "Eckman's Alterative." One of the latest advertisements put out by the concern is headed in large type "Dr. Osler on Tuberculosis." This, too, will convey the idea that Osler may endorse the use of "Eckman's Alterative." How this style of advertising appeals to decent advertising men is pretty well expressed in a recent number of *Printers' Ink*, a journal devoted to the art of advertising. To quote in part:

"'Dr. Osler on Tuberculosis,' is the headline of an advertisement that probably does quote exactly what Dr. Osler had to say about one phase of pulmonary disease. By careful wording, the inference is built up that the preparation advertised meets a condition named by the eminent physician in connection with the treatment of tuberculosis. Actually, the advertisement does not set up the claim that the patent remedy is a positive cure for tuberculosis, but its indirect claims are probably more appealing to victims of the Great White Plague than a bold, direct claim would be. The continuance of that kind of copy indicates that the ever-hopeful consumptives send on their dollars. . . . If there is anything more cruel and outrageous than consumption-cure advertising, the Schoolmaster has yet to hear of it. If the bald facts were not before us, it would be hard to believe that any publisher or advertising man would want to pay for his cigars or his golf privileges with dollars wrung from that source. How long, O Lord, how long?"

The opinion here expressed we believe to be the attitude of the modern, conscientious advertiser. If it is, the outlook for the public is as bright as the prospect for the fraudulent "patent medicine" business is dark.

1. THE JOURNAL'S articles on the Eckman product have been reprinted in the pamphlet "Consumption Cure Fakes," which can be had, postpaid, for 10 cents.

THE ACTION OF SALICYLATES

Few drugs find more frequent application in the daily routine of practice at the present time than the salts and other derivatives of salicylic acid. Most persons who prescribe these products would, we believe, be at a loss to offer an approximately tenable theory of their pharmacologic behavior. Salicylic acid itself is an antiseptic comparable in many ways with its chemical relative, phenol or carbolic acid. It is irritating to tissues and it functions as a protoplasmic poison. On the other hand, the salts of salicylic acid do not exhibit equally strong disinfectant or irritant features. Nevertheless the current descriptions of the therapeutic potency of salicylates still suggest that these drugs "are used to produce a degree of germicidal action within the body, and their presence is specifically detrimental to the growth and development of the species that lead to the production of rheumatism, in which disease the salicylates have their greatest therapeutic application."[1] It is an observation familiar to laboratory investigators that salicylates provoke a significant increase in the excretion of uric acid.[2] This fact has formed the basis for the exploitation of proprietary "cures" for rheumatism as well as for the clinical treatment of the disease. Fine and Chace,[3] of the New York Post-Graduate Medical School and Hospital, were the first to show by the modern methods of accurate blood analysis that this well-known increase in the urinary output of uric acid is accompanied by a commensurately lowered concentration of uric acid in the blood comparable to what has been observed after administration of atophan (phenyl-quinolin-carboxylic acid). This fact has further been verified by Denis[4] at the Massa-

1. Quoted from Greene, C. W.: Handbook of Pharmacology, New York, 1914, p. 247. A similar view is intimated by Meyer, H., and Gottlieb, R.: Die experimentelle Pharmakologie, Vienna, 1911, p. 477, when they say: "The effect of salicylic acid in acute articular rheumatism is in all probability an etiotropic one. This cannot be asserted positively, however, as knowledge of the cause of the disease is wanting" (Auch die Wirkung der Salicylsäure bei akuten Gelenkrheumatismus ist aller Wahrscheinlichkeit nach eine ätiotrope. Mit Bestimmtheit kann dies freilich nicht behauptet werden, da die Kenntnis des Krankheitserregers fehlt).

2. Hanzlik, P. J.: The Salicylates: Annual Report of the Therapeutic Research Committee of the Council on Pharmacy and Chemistry, Am. Med. Assn., 1914.

3. Fine, M. S., and Chace, A. F.: Proc. Soc. Exper. Biol. and Med., 1915, xii, 95; Jour. Biol. Chem., 1915, xxi, 371.

4. Denis, W.: The Influence of Salicylates on the Elimination of Uric Acid and Other Waste Products from the Blood, Jour. Pharmacol. and Exper. Therap., 1915, vii, 225.

chusetts General Hospital. Small doses of sodium salicylate or acetylsalicylic acid are apparently far less effective in reducing the blood content of uric acid than are quantities (from 6 to 8 gm. of salicylate) which approach the limits of therapeutic comfort. It is well known that the augmentation in the output of uric acid under the action of salicylates disappears when the drug is discontinued and may be reproduced by renewal of the dosage. Theobromin sodium salicylate, quinin and colchicum do not alter the concentration of uric acid of the blood. It is important to appreciate clearly this now well-established effect of the salicylates, particularly when an examination of the blood is being made as a diagnostic test for gout, and thus when the failure to take into account any simultaneous medication with salicylates or acetylsalicylic acid (aspirin) might easily deceive the observer. The increased output of uric acid in the urine following salicylate administration is clearly due to a lowered threshold value of the kidney for circulating urates. Denis ventures the further assumption that the excretion of other waste products as well may be facilitated. Such being the case, she adds, it may well be that the beneficial effects resulting from the use of salicylates in acute rheumatic fevers may, in part at least, be due to the power enjoyed by this class of drugs of increasing kidney permeability, thereby facilitating the rapid and more or less complete excretion of the as yet unknown toxins which produce symptoms of these diseases.

THE CONSTITUTION AS A CLOAK

New York City's ordinance regulating the sale of "patent medicines" went into effect the first of this year. It requires that the names (not quantities) of all potent ingredients in "patent medicines" shall be either printed on the label or given, in confidence, to the Department of Health. While many reputable wholesale druggists and dealers in "patent medicines" are complying with the law, the "patent medicine" exploiters generally are fighting it. We understand that applications have been made for a temporary injunction against the enforcement of the ordinance by at least two New York drug concerns. The Proprietary Association — the "patent medicine" combine — is, of course, behind the action of these individual concerns. The grounds on which the "patent medicine" interests are attacking the ordinance is that it is unconstitutional! The argument is a pretty one. A federal law, which has been in effect nine years, requires manufacturers of "patent medicines" to print on the label not only the names but also the quantities of certain specified ingredients — and nobody has even suggested that this was unconstitutional. The principle may be illustrated thus: If a man puts up a headache powder composed of acetanilid, sodium bicarbonate and caffein he has, under the federal law, to declare the presence and quantity of acetanilid — which he does without a whimper. When, however, he is asked to declare the presence — not amount — of caffein and baking soda, he appeals to the Constitution of the United States for protection. Or again: If a man wishes to furnish suffering women in dry territories with a "tonic" consisting of alcohol and the extractives from a few innocuous and long discarded herbs, he does not consider that his "property" has been taken from him "without due process of law" because it is necessary to declare the presence and amount of alcohol; but should he have to give the names of the weeds he uses for making his tonic he immediately cries to high heaven that the Fourteenth Amendment of the Constitution of the United States has been violated. It is a curious fact that whenever a particularly profitable fraud is about to be restricted by legal enactment, the cry at once arises: Un-American! Unconstitutional!

TYPHOID FOLLOWING TYPHOID VACCINATION

Considerable publicity has been given to the fact that several cases of typhoid fever occurred last fall among students at Delaware College, Newark, Del., shortly after they had received protective inoculation against typhoid fever. On inquiry of the president of Delaware College we are informed that in 1915, 106 men and 22 women were inoculated. Three of the young men subsequently developed typhoid fever, one after the first inoculation, one after the second, and one after the third. Illness in the first case occurred in "less than ten days after the inoculation"; illness in the second case, "in less than ten days after the second inoculation," and in the other, "almost immediately after the third inoculation." It is stated that all these young men came from localities in which there is or has been typhoid fever. From the facts as indicated, it appears possible that the infection may have been received shortly before or during the inoculation period. Exact dates as to day of onset and days of inoculation are not given, the source of the vaccine is not stated, and apparently no detailed investigation of probable sources of infection has been made. It is plain that instances of this sort are employed to discredit the practice of typhoid vaccination, and it is much to be wished that all such occurrences should be investigated and a careful statement of facts placed on record. Newspaper reports of such happenings which reach us from time to time, and the experience recently described by Sawyer,[1] show the need for all the information we can obtain regarding the practical application and value of antityphoid inoculation.

THE WEAKNESS OF THE STRONG

THE JOURNAL has repeatedly called attention to the dangerous trend of modern competitive athletics, especially to the effect of such competition on the heart. The sudden death last week from pneumonia of a famous all-round athlete is sad confirmatory evidence of the basis for such warning. The ordinary man attacked by dread pneumonia has a "fighting chance"; the great athlete whose heart has survived the battering wear of strenuous athletic struggle falls a sudden victim to the attacks of this "captain of the men of death."

1. Sawyer, W. A.: The Efficiency of Various Antityphoid Vaccines, THE JOURNAL A. M. A., Oct. 23, 1915, p. 1413.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ILLINOIS

Knox County Hospital.—The almshouse committee of the board of supervisors of Knox County has established a hospital at the County Almshouse, Knoxville, which will be in charge of Miss Nannie Campbell.

Personal—Dr. Martin W. Cushing, formerly physician of the State Penitentiary, who has been ill with erysipelas in St. Joseph's Hospital, Joliet, has left the hospital convalescent.——Dr. R. P. Grim, Canton, underwent operation, December 13, in Mercy Hospital, Chicago, and is now said to be convalescent.——Dr. George N. Lucas, formerly of the staff of the Elgin State Hospital, has accepted a position on the staff of the Wilgus Sanatorium, Rockford.——Dr. Emil Lofgren, Rockford, is ill at his home with erysipelas.——Dr. Hamilton T. King, Joliet, who has been threatened with pneumonia, is reported to be convalescent.

School for Health Officers.—With the beginning of the new year, the enlarged service of the State Board of Health will be fully organized on a permanent basis. This increased service will be brought about by the employment of district health officers, the state epidemiologists and the newly organized Bureau of Sanitary Engineering. For district health officers service the state has been divided into five districts, each of which will have its own full time health officer and each of these officers will be expected to establish in his district a conference or school for health officers to meet at least twice a year and to carry out programs or papers and discussions of such character as will serve to enlighten local health officers as to the latest and most approved methods of public health administration. There will also be held an annual conference of all the health officers of the state. At these annual meetings it is the purpose of the board to bring sanitarians and health authorities of prominence to speak on special subjects.

Chicago

Morbidity.—January 2 it was reported that there were 2,035 patients presented for treatment at the County Hospital, chiefly on account of the prevailing epidemic of influenza. This is said to be the largest number handled in one day since the opening of the Cook County Hospital.

Osteopath Fined.—It is reported that Daniel C. Ward, an osteopath of Chicago, was fined $100 and costs for practicing medicine without a license. The evidence included the alleged fact that he used the title of "Doctor" on his office door, on his business stationery, and in the telephone book and in the city directory, without holding a physician's license.

Statistics of Cook County Hospital.—According to the report of the Warden of Cook County Hospital, 61,622 patients were accommodated during 1915. Of this number, 28,719 were cared for in the main hospital, while the others received minor attention; 3,286 were insane patients in the psychopathic hospital, and 21,457 applicants for hospital attention were rejected.

Leper in County Jail.—George O. Hartman, the St. Louis leper, who escaped two years ago from the Leprosy Colony at Koch, Mo., is isolated in a wing of the Cook County jail. Since his escape from the leper colony, Hartman has been working at various trades, and in November opened a restaurant in Chicago and also kept a rooming house. He was arrested to answer to an indictment for robbery, and on the usual physical examination, the disease was discovered.

Coroner's Inquests.—According to the annual report of the Coroner of Cook County, there were 6,235 unnatural deaths during 1915, as compared with 5,591 in 1914, the 812 drownings in the *Eastland* disaster being given as the cause of the increase. Because of the *Eastland* disaster the greatest of deaths from any single cause was from drowning. Gas poisoning caused the death of 242 persons. Other poisons killed 109 persons. Automobiles killed 225, as compared with 143 the year before. During 1915 fifty-eight children were victims of burns and scalds, as compared with 135 during the previous year.

INDIANA

Chiropractor Fined.—Pearl B. Winters, a chiropractor, is reported to have been fined $40 and costs in the circuit court for practicing medicine without a license.

Gorgas in Indianapolis.—Major-General William C. Gorgas, Surgeon-General, U. S. Army, is to be the principal speaker at the joint convention of the Indiana Engineer Society and the Indiana Sanitary and Water Supply Company, to be held at the Claypool Hotel, Indianapolis, February 2 to 5.

Personal.—Dr. William P. Harter, Anderson, who has been seriously ill with pneumonia, is reported to be convalescent.——Dr. Daniel Yingling, Huntington, fell December 23, fracturing his left hip.——Dr. Clarence H. Mead, health officer of Bluffton, who has been ill with diphtheria, is reported to be convalescent.

Hospital Notes.—The new King's Daughters Hospital at Madison, erected at a cost of $40,000, was dedicated December 19. It takes the place of the old building which the King's Daughters have supported for the last fourteen years.——The Giorgi Hospital, Gary, was damaged by fire, recently, but no one was injured.

Tuberculosis Notes.—The Lake County Medical Association has petitioned the county commissioners to make an immediate appropriation for the establishment of a tuberculosis sanatorium for the county. The petition has been signed by several thousand voters. It is proposed at present to have only an executive building erected with tents and cottages for the patients.——Work has already been commenced at Camp Fort Recovery, the Allen County Tuberculosis Sanatorium, on three additional cottages which, when finished, will make the total number fifteen. Patients will be removed to the new buildings as soon as they are ready for occupancy.

IOWA

Fire at Serum Laboratory.—Fire in the Waterloo Serum Laboratories November 30 caused a loss estimated at $10,000.

Hospital Burns.—The Bellevue Hospital, Muscatine, was burned December 22, with a loss of about $5,000. The patients were removed without casualty.

Smallpox Closes School.—The Iowa City Board of Education has ordered the Third Ward School closed temporarily on account of the appearance of smallpox.

New Officers.—The new officers of the Monona County Medical Society are: president, Dr. Emil C. Junger, Soldier; vice president, Dr. M. O. Stouch, Whiting, and secretary-treasurer, Dr. Frederick S. Spearman, Whiting.

Memorial Hospital.—W. M. Greeley, president of the Union National Bank of Ames, is preparing to build a hospital in memory of his wife. The building will cost $15,000, will be of brick, fire-proof, three stories and basement, and will contain thirty rooms and two wards.

State Board Publications.—Two most notable publications have just been issued by Dr. G. H. Sumner, secretary of the State Board of Health. The first is a nurses' bulletin which, in addition to a number of articles, contains a complete list of nurses of the state, and the second is a poster on typhoid fever, illustrating the various means by which typhoid infection is carried.

Keokuk Physicians Organize.—At a meeting held at the Hotel Iowa, Keokuk, December 10, the Physicians' Club of Keokuk was organized with an initial membership of twenty-six, and the following officers were elected: president, Dr. Robert M. Lapsley; vice presidents, Drs. Lee M. Coffey and Henry A. Gray; secretary, Dr. Frank M. Fuller, and treasurer, Dr. Charles A. Dimond.

Personal.—Dr. Russell M. Young, Sidney, sailed for London, December 21, where he expects to spend a year in the study of diseases of children.——Dr. George F. Severs, Centerville, was seriously injured by a fall on a slippery sidewalk, December 21.——Dr. Wilton McCarthy, Des Moines, who was injured some time ago in an automobile accident, has recovered and resumed practice.——Dr. and Mrs. Albertus J. Burge have left Iowa City for Mason City, where Dr. Burge has accepted a position on the surgical staff of the new Mercy Hospital.——Dr. Rex V. Henry, Hedrick, was operated on for appendicitis, December 8.——Dr. John B. Heles, Dubuque, sustained a fracture of the clavicle in a collision between his automobile and a street car December 1.

——Dr. Frank C. Carle, Garrison, was operated on recently for hernia in Iowa City and is making a good recovery.

KENTUCKY

The Vance Memorial.—Up to December 21, $5,732.00 had been contributed to the Ap Morgan Vance memorial, which is to be used as a permanent endowment fund for the Children's Free Hospital.

Hospital Notes.—It is proposed to erect a modern, fireproof hospital in Danville to cost $40,000. Of this amount $22,500 has already been raised and a lot on which to erect the building has been donated.

Disposal of Lexington Sewage.—Passed Asst. Surg. Wade H. Frost, U. S. P. H. S., in charge of the Ohio River investigation, and Sanitary Engineer H. R. Crohurst, U. S. P. H. S., have been directed to proceed to Lexington to study local conditions and advise in regard to proposed plans for sewage disposal of the city.

MARYLAND

Personal.—Dr. William H. Welch, president of the board of directors of the Rockefeller Institute for Medical Research, arrived in San Francisco from China, December 27.——Dr. William J. Coleman, superintendent of the University Hospital, fractured and dislocated his finger in a struggle with a violently insane patient, December 17.——Christmas tableaux were given December 21, at Mount St. Agnes' College, Mount Washington, in honor of Dr. William J. Todd, who has been medical adviser of the college for more than a quarter of a century.

Urges United States Quarantine.—Surg. James A. Nydegger, in charge of the local United States Public Health Service, has strongly indorsed the plan for the federal government to take over the quarantine station at Baltimore. New York and Baltimore are now the only Atlantic ports that retain control of the quarantine. It is planned, in the event that the federal government takes over the station, to make some arrangement with the government by which smallpox patients can be received at quarantine, as there is no other hospital at Baltimore to receive such cases.

Additions to Staff.—Dr. C. Reid Edwards, Baltimore, has been appointed superintendent of the James Lawrence Kernan Hospital and Industrial School for Crippled Children, and Dr. Louis A. Buie, resident surgeon. In the report of the surgeon-in-chief, Dr. R. Tunstall Taylor, there are recorded 21,938 days of hospital care given crippled children from Oct. 1, 1914, to Oct. 1, 1915. Two hundred and thirteen children were treated in the hospital, 152 were operated on, requiring 241 different operations; 5,016 dispensary visits were paid, and 1,024 visits to the homes made by the Social Service nurses. More than 300 are on the list of patients.

MONTANA

Personal.—Dr. George J. Marquette, Deer Lodge, has been appointed coroner of Powell County, to succeed O. B. Roberts, removed.——Dr. Daniel J. Donohue, Glendive, has located for practice in Butte.

New Railway Hospital at Livingston.—It is announced that a branch hospital will be established by the Northern Pacific Beneficial Association at Livingston and it is planned to use the Livingston Hospital on South Third Street for this purpose.

Surgical Institute at Lewistown.—Local physicians headed by Dr. Fred F. Attix are working on a plan to establish a medical and surgical institute at Lewistown with provision for laboratory work. The building with equipment will cost $40,000.

Chiropractor Tried.—Charges are reported to have been filed by the Montana State Board of Medical Examiners against W. R. Hopkins, a chiropractor in Helena, who is alleged to have been tried last May in the district court and found guilty, but filed an appeal which is still pending.

Tuberculosis Colony Planned.—Dr. Thomas C. Witherspoon, Butte, suggests a plan of colonization against tuberculosis. With a contribution of $1 a month from each miner in Butte a large tract of ground could be purchased which could be divided into small farms and used as homes for the families of men suffering from tuberculosis. The factors necessary for the success are, an amount of ground which can be made reasonably productive; the presence of a physician in the immediate neighborhood who is interested in the work, and sufficient capital to provide housing for the patients and their families.

NEW YORK

Plan to Enlarge Hospital.—A fund of $22,000 has been subscribed for an addition to the Southampton Hospital, at Southampton, L. I. Work will be begun in the near future.

Personal.—Dr. H. H. Mitchell, Canisteo, has returned after six months' work with the Red Cross in Serbia.——Health Commissioner Francis E. Fronczak of Buffalo injured his leg severely while boarding a street car, December 7.

Tribute to Trudeau.—At the annual meeting of the trustees of the Adirondack Cottage Sanatorium, December 21, Dr. Walter B. James, New York City, was elected president; Dr. Edward R. Baldwin, Saranac Lake, vice-president; Mr. George S. Brewster, secretary-treasurer, and Dr. Frederick H. C. Heise, Trudeau, resident physician. The trustees adopted a resolution paying tribute to the memory of Dr. Edward L. Trudeau and directing that this tribute be spread on the records of the meeting.

Chiropractor Denounced.—R. D. Lytel, a chiropractor at Rochester, is reported to have been denounced recently at a coroner's inquest for malpractice on the deceased, a man named Wilkinson. Wilkinson, according to testimony, had been ill for some months and was persuaded to go to the chiropractor who placed him on a table and with his knee made what was called a "spinal adjustment." It was stated that paralysis from the waist down followed this treatment, and physicians who were then called found that the patient's back had been broken. The autopsy showed that the patient had been suffering from a gastric ulcer and peritonitis. The health commissioner of Rochester is quoted as saying: "For a chiropractor to have worked on this man in the condition he was in, was nothing short of murder."

New York City

Personal.—Dr. Earl B. Downer, who has been in Serbia for several months in connection with the American Red Cross, reached New York, December 15, on the *Espagne*. Dr. Downer was in Belgrade during the bombardment of the city.

Police Psychopathic Laboratory.—The police commissioner of New York, after two months experimental work, has established a laboratory for the purpose of examining prisoners so as to determine which among them are mentally defective. The laboratory will be situated at police headquarters and will be under the direction of Dr. Louis Bisch, who has been conducting the experimental work.

Department of Health Labels Patent Medicines.—The "Goldwater Registry Law," requiring that all patent medicines have a proper declaration label on the outside or that the seller declare the contents to the board of health, went into effect on Jan. 1, 1916. Several days before this date 300 inspectors from three bureaus of the department of health started to canvass 2,494 drug stores in Greater New York, and place labels on 5,000,000 packages of patent medicines. Druggists have been urged to give inspectors their cooperation in enforcing this ordinance.

Prize for Public Health Work.—The jury of awards has just published the official list of prizes awarded at the Panama-Pacific Exposition. Among these is the Grand Prize to the Department of Health of New York City for its work in health and sanitation. Among other first prizes which this department has received are the first prizes at the World's Fair in Chicago, the Louisiana Purchase Exposition in St. Louis, and the International Congress on Hygiene and Demography in Washington. The department of health is the only individual department in the city to receive a grand prize.

Increased Death Rate from Influenza and Pneumonia.—The death rate from influenza and pneumonia has taken a jump. According to figures compiled by the department of health the noteworthy feature of the mortality report for the week ended December 25 is the abnormally high death rate from influenza and pneumonia. The number of deaths from influenza is five times as many as during the corresponding week of last year, and twice as numerous as the deaths from this cause during the previous week. There were nearly 200 more deaths from pneumonia last week than during the corresponding week of 1914. If we estimate that the mortality of pneumonia is about 20 per 100, there were about 2,000 cases of pneumonia in the city last week.

Reorganization of Cumberland Street Hospital.—Commissioner of Charities John A. Kingsbury has requested the resignation of the fifty-seven members of the medical staff of the Cumberland Street Hospital, Brooklyn. This action

is not to be considered as casting any reflection on the reputation or efficiency, but is the result of a plan to do away with a bulky medical staff and to substitute a board of men who will devote their whole time to the interests of the hospital. Under the new system the medical staff will be divided into four departments as follows: department of surgery, under the charge of Dr. J. Hubly Schall; department of medicine, Dr. E. Rodney Fiske; department of obstetrics, Dr. Herbert C. Allen, and department of gynecology, Dr. J. Francis Ranken. Commissioner Kingsbury has announced that he is considering a plan for a similar reorganization of all the hospitals directly under his control. The chief feature of the proposed reorganization is the substitution of paid chiefs of departments for the large medical boards of nonsalaried physicians and surgeons

Adenoid and Tonsil Operations in Schoolchildren.—Several years ago, because of lack of adequate facilities for the operative treatment of diseased tonsils and adenoids, the department of health established a number of clinics where schoolchildren needing operative treatment could be suitably cared for. Nearly one third of all the operations for tonsils and adenoids performed on schoolchildren during the last three years have been performed in the clinics of the department. In the judgment of the board of Estimate and Apportionment, the time has come when the dispensaries and hospitals should take care of this work and accordingly no provision is made for the maintenance of these clinics. This matter has been taken up by the Associated Out Patient Clinics, the State Charities Aid Association and the Public Health Committee of the New York Academy of Medicine who have called the attention of the various clinics to this subject. These organizations are agreed: (1) that all adenoid and tonsil operations on children should be done under general anesthesia; and (2) that hospitals where these operations are performed should be equipped to keep their patients for at least eighteen hours after the operation.

NORTH CAROLINA

Personal.—Dr. Gaillard S. Tennent, Asheville, after several weeks in the ophthalmic clinics in the east, has returned and resumed practice.——Dr. Julius A. Dosher, Southport, has been reelected physician of Brunswick County.

Buncombe County Physicians Elect Officers and Dine.—The twentieth annual meeting and banquet of the Buncombe County Medical Society was held in Asheville December 21, with more than sixty present. Dr. M. Hall Fletcher, Asheville, president of the Medical Society of the State of North Carolina, was the guest of honor. Dr. C. Hartwell Cocke, officiated as toastmaster. At the annual meeting the following officers were elected: president, Dr. Charles L. Minor; vice president, Dr. Lewis W. Elias, and secretary-treasurer, Dr. Gaillard S. Tennent.

District Society Meetings.—The Ninth District Medical Society held its annual meeting in High Point and elected Dr. John Bynum president, and Dr. Wingate M. Johnson, secretary, both of Winston-Salem. The 1916 meeting of the society will be held in Winston-Salem.——The annual meeting of the Seventh District Medical Society was held in Rutherfordton December 13 and 14, and the following officers were elected: president, Dr. Montgomery H. Biggs, Rutherfordton; vice president, Dr. Henry D. Stewart, Monroe, and secretary-treasurer, Dr. Silas R. Thompson, Charlotte. Monroe was selected as the next place of meeting.

OKLAHOMA

Addition to Oklahoma City Hospital.—A state-wide campaign has been inaugurated to raise funds with which to build a four-story addition to St. Anthony's Hospital, Oklahoma City, and to establish a medical research laboratory. The plans under consideration will involve an expenditure of from $100,000 to $125,000.

Central Oklahoma Physicians to Meet.—The annual meeting of the Central Oklahoma Medical Association will be held in Enid, January 11. Dr. LeRoy Long, dean of the medical school of Oklahoma University, will deliver an adress on "Oklahoma's Medical Schools," and Dr. John W. Duke, state health commissioner, will speak on "Small Town Sanitation."

Higher Entrance Standard Adopted.—A letter from the president of the University of Oklahoma states that two years of collegiate work will be required for admission to the school of medicine of that university after Jan. 1, 1917, this college work to include courses in physics, chemistry, biology and French or German. This standard has been aproved by the State Board of Education of Oklahoma.

OREGON

Personal.—Dr. Harry A. Beauchamp has been elected mayor of Stayton.——Dr. R. E. Lee Steiner, Salem, superintendent of the Oregon State Hospital for the Insane, has been unanimously reappointed for a term of four years.

Portland Physicians Elect.—At the annual meeting of the Portland City and County Medical Society held in Portland, December 15, Dr. George S. Whiteside was elected president; Dr. Alvin W. Baird, vice president; Dr. J. Guy Strohm, secretary, and Dr. Katherine C. Manion, treasurer, all of Portland.

Medical Buildings for University Assured.—Four business men of Portland have contributed $25,000 toward the establishment of new buildings for the Medical Department of the University of Orgeon, Portland. This makes available the $50,000 appropriated by the state. The officials of the college now propose to begin a campaign for an additional $100,000.

State Board Election.—At the annual meeting of the State Board of Health in Salem, December 20, Dr. Willis B. Morse, Salem, was elected president; Dr. Alvane C. Seely, Roseburg, vice president; and Dr. David N. Roberg, Portland, secretary and registrar (reelected). The board endorsed the action of the State Board of Health of California in appointing a committee to look into conditions in that state with a view to urge the government to establish a leprosarium.

PENNSYLVANIA

Personal.—Dr. Samuel G. Dixon has been elected president of the Academy of Natural Sciences, Philadelphia, for the twenty-first time and executive curator for the twenty-fifth time.——Dr. Edward Ryan, Scranton, who has been working against typhus in Serbia, has reached Geneva on his way back to the United States.——Dr. W. Knowles Evans has been appointed supervisor of health and Dr. Joseph R. T. Gray, Jr., city bacteriologist of Chester.——Drs. John S. Monohan, William N. Stein and Arthur J. Burkheiser have been appointed by the Philadelphia and Reading Coal and Iron Company to care for their injured from the collieries in Shenandoah and Shenandoah Valley, under the new compensation law which took effect January 1.

Philadelphia

Deaths—During the week ended Dec. 30, 1915, there were 971 deaths in the city, nearly one half of which were due, it is said, to influenza and pneumonia, the prevailing infections. December 27 there were 262 deaths reported.

University of Pennsylvania Men in the War Zone.—The record of the University of Pennsylvania reports that more than 600 students and alumni of that institution are either fighting or doing medical work in the war zone. Drs. Ralph H. Luikart and Clarence S. McKee, recent graduates of the institution, have been on duty in the typhus epidemic in Serbia.

Personal.—Dr. R. Norton Downs was elected president of the board of supervisors of Horsham Township at a recent meeting.——Dr. Charles B. Penrose, who was recently appointed a member of the Fairmont Park Commission to fill the expired term of the late Peter B. Widener, is reported to be seriously ill with bronchopneumonia at the Hotel Belvidere, Baltimore.

TENNESSEE

Influenza.—December 14 it was reported from Memphis that there were 2,500 pupils absent from the schools on account of an epidemic of "grip."

Pellagra Hospital.—At Chattanooga architects have been employed by the city to draw up plans and specifications for a hospital for the treatment of pellagrous patients. The hospital will not be elaborate, but comfortable and well equipped for the purpose. It will cost about $5,000.

Personal.—Dr. Reuben S. Toombs, Memphis, is reported to be seriously ill with pneumonia at his home.——Dr. John Minor Blackford, Rochester, Minn., read a paper before the Chattanooga and Hamilton County Academy of Medicine, December 10, on "Newer Cardiac Pathology and Diagnosis."

Hospital Notes.—At a meeting of the Chamber of Commerce at Clarksville, December 9, it was decided to establish

a hospital in Clarksville with a capital stock of $5,000. Nearly one half of the amount was subscribed at or immediately after the meeting.——The $200,000 campaign for the Galloway Memorial Hospital, Nashville, has been postponed until April, 1916.

Tuberculosis Notes.—The new tuberculosis sanatorium for Nashville and Davidson County, the erection of which was commenced last March, is now completed and ready for occupancy. It is a three-story structure, and on the first and second floors there are sixty beds available for patients, while the nurses will be accommodated on the third floor. ——The City Council of Memphis and the Shelby County Commissioners have agreed to erect a joint tuberculosis hospital of sufficient size to care for all patients in the county. The details were fixed at a meeting January 3.

TEXAS

Honors Memory of Member.—At the regular meeting of the Harris County Medical Society at Houston, December 23, resolutions were adopted regarding the late Dr. Forrest B. Smith.

Malarial Survey.—Surg. Rudolf von Esdorf, U. S. P. H. S., will come to Dallas early in the spring to make a malarial survey of the city and to give practical advice on the extermination of the mosquito.

State Board to Meet in Temple.—The State Board of Medical Examiners at its recent meeting in Dallas voted to meet in Temple, March 1, for reorganization and the election of officers. Examinations will be held in San Antonio after the meeting in Temple.

Surgical Society Incorporated.—The Texas Surgical Society has been incorporated at Houston without capital stock by James E. Thompson, W. Burton Thorning and John T. Moore. The purpose assigned is cultivation and improvement of the science and art of surgery.

Tuberculosis Items.—The members of the Texas Tuberculosis Commission have awarded a contract for the construction of four new buildings at the State Sanatorium, Carlsbad, for $57,400. Two of the buildings are to be dormitories, a third a subsistence building and the fourth a dairy barn.——The city council of Fort Worth has appropriated $8,000 toward the construction of eight cottages for tuberculosis at the Tarrant County poor farm.

Typhus Fever.—It is reported that typhus fever has reached Texas from Mexico. December 24 three cases were reported at Laredo, where hundreds of Mexican refugees have gathered. The United States Public Health Service has detailed special agents to all towns along the border, and at these places a rigid quarantine will be established. Dr. C. C. Pierce of the Public Health Service has been ordered from San Francisco to Laredo to take charge of the situation. The Red Cross has taken up the question of attempting to render assistance should it be needed. The State Board of Health of Texas is likewise alive to the situation and orders have been issued to all quarantine stations to enforce the twelve-day detention rule on all persons coming to Texas from the infected districts and from Mexico, and to disinfect and fumigate all baggage and railroad cars. State Health Officer Collins visited Laredo December 24, and gave instructions for the enforcement of quarantine and for the care of the patients there.

CANADA

Examination of Cooks and Waiters.—Dr. Charles J. Hastings, M. O. H., Toronto, as a means of safeguarding the purity of the food given to people who eat in public dining rooms, has ordered that the 2,000 odd cooks and waiters in Toronto hotels and restaurants shall be physically examined twice a year to ascertain that they are free from disease.

Care of Defectives in Ontario.—To a deputation which recently waited on the provincial secretary of Ontario in connection with the care of defectives, the Hon. W. J. Hanna declared that to handle in an adequate manner the problem of the feebleminded in that province would require a capital expenditure of $1,000,000. He favored the matter being undertaken in a provincial rather than in a municipal way. The deputation, which included Dr. Charles K. Clarke of the Toronto General Hospital, and Dr. Helen MacMurchy, assistant inspector of public institutions, recommended classes for backward children in the public schools, a register of all mental defectives in the city, an education clinic where medical investigation might be carried on, an institution of the farm colony type at a cost of $25,000 to $50,000 per cottage of fifty inmates. It was pointed out that there were 83 mentally defective children in public homes in Toronto and others in the industrial schools. It was estimated by the chief inspector of Toronto that no fewer than 250 to 300 mentally defective children were in attendance in the public schools in Toronto.

War Personals.—Surg.-Gen. Carleton Jones, Ottawa, now on active service, has been knighted by King George V.—— Lieut.-Col. John D. Courtenay, Ottawa, is now in command of the Canadian Eye and Ear Hospital at Folkstone, England; Maj. Perry G. Goldsmith, Toronto, is second in command, and Captain Bell, Winnipeg, adjutant. Among other Canadian medical men with the hospital are Major Laviolette, Montreal; Captain Courtenay, Ottawa; Captain Taylor, Port Arthur; Captain Harrison, Hamilton, Ont.; Captain Hunter (consultant), Winnipeg, Man.——George G. Nasmith, Ph.D., chief of the city laboratories, Toronto, and who was sanitary officer with the first Canadian Overseas Force, now in Toronto on furlough, appears among the honor roll of Sir John French. Others of the medical corps also in the honor roll are: Colonel Bridges, Col. Murray MacLaren, St. John, N. B.; Major McKinnon, Major Young, Captain Gibson, Captain Macdonald, Captain Smith and Lieutenant Hart.—— Surg.-Gen. James A. Roberts is in command of the University of Toronto Base Hospital, which is situated 5 miles from Saloniki on the road to Monastir. Owing to the severity of the weather, considerable suffering has been occasioned the unit, but all are well and cheerful. As soon as the hospital tents were pitched they admitted forty to fifty patients; those numbers were rapidly increased and the unit has been caring for, on the average, between 400 and 500 patients. Recently, however, owing to the severity of the weather, many cases of frost bite have been admitted and the numbers have been in the neighborhood of 1,300.——Dr. Dr. Robert M. Simpson, Winnipeg, Man., prominent in public health medicine, chairman of the Manitoba Board of Health for a number of years, and at one time president of the American Public Health Association, appeared in the Bow Street Court, London, England, charged as a fugitive from justice in the province of Manitoba. Dr. Simpson is alleged to have received $100,000 of the moneys of the province and to have used the same for election purposes. The charge which Dr. Simpson, who has been serving his country in France, is under, is claimed by him to be a purely political one.——Dr. James D. Macdonald, liberal candidate for Muskoka, Ont., is to be medical officer of the One Hundred and Twenty-Second Battalion, with the rank of captain.——Capt. James Moore, Listowel, Ont., has been transferred to the Thirty-Third Battalion now at Quebec, to succeed the late Maj. A. V. Beecher, London, Ont., as medical officer.——Dr. James Roberts, M. O. H., Hamilton, Ont., is home from the Dardanelles after many months' service. He has leave of absence for one month. Dr. Roberts says sanitary conditions at the Dardanelles are frightful. Every one of the 120 men in his unit suffered from typhoid and dysentery within a short time of their arrival at the Straits. ——Lieut.-Col. Charles A. Peters, Montreal, who has been officially authorized to raise and command No. 9 Field Ambulance to be recruited with the Fourth Canadian Division, has secured the services of Maj. Alfred T. Bazin, Montreal, consulting surgeon at the Montreal General Hospital, to be second in command.

GENERAL

Northwestern Surgeons Meet.—At the annual meeting of the Chicago and Northwestern Railway Surgeons' Association, held in Rochester, Minn., December 10 and 11, Dr. C. W. Hargens, Hot Springs, S. D., was elected president.

Seaman Medal Awarded.—The Louis Livingston Medal for progress and achievement in the promotion of hygiene and the mitigation of occupational diseases, has been awarded this year by the American Museum of Safety to William A. Fairburn, New York City.

Southwestern Physicians Meet.—At the annual meeting of the Southwestern Medical and Surgical Association held in El Paso, N. M., December 11, Dr. Abraham G. Shortle, Albuquerque, N. M., was elected president, and Drs. William W. Watkins, Phoenix, Ariz., and Robert E. McBride, Las Cruces, N. M., were elected vice presidents.

Canal Zone Medical Society Meeting.—The Medical Association of the Isthmian Canal Zone held its annual meeting, December 16, and elected the following officers: president, Dr. Lewis B. Bates; vice president, Dr. Herbert C. Clark,

and secretary-treasurer, Dr. Frazer F. Monroe, all of Ancon. The next meeting will be held in Ancon, Dec. 16, 1916.

Northern Pacific Surgeons Hold Meeting.—The Northern Pacific Surgical Association at the annual meeting in Spokane, December 17, elected the following officers: president, Dr. James R. Yocom, Tacoma; vice presidents, Drs. George S. Gordan, Vancouver, B. C., and G. L. Whiteside, Victoria, B. C.; and secretary-treasurer, Dr. Edward A. Rich, Tacoma. Tacoma was selected as the next place of meeting.

Southern Surgeons Elect New Officers.—At the annual meeting of the Southern Surgical and Gynecological Association held at the Hotel Gibson, Cincinnati, December 14 and 15, Dr. Thomas O. Cullen, Baltimore, was elected president, and Drs. Robert S. Hill, Montgomery, Ala., and Willard Bartlett, St. Louis, were made vice presidents. White Sulphur Springs, W. Va., was selected as the place of meeting for next year.

Foes of Alcohol Meet.—At the forty-fifth annual meeting of the American Society for the Study of Alcohol and Other Narcotics, held in Washington, December 15, the following officers were elected: president, Dr. De Lancy Carter, New York City; vice president, Col. L. Mervin Maus, U. S. Army (retired), Frankfort, Ky.; corresponding secretary-treasurer and editor of the journal, Dr. Thomas D. Cruthers, Hartford, Conn., and recording secretary, Dr. Alfred Gordon, Philadelphia.

Personal.—Dr. John F. Anderson, formerly surgeon U. S. P. H. S., has returned from Europe. His present address is New Brunswick, N. J.——Dr. Ferdinand Shoemaker, assistant medical examiner in the United States Department of Indian Affairs, with headquarters in Salt Lake City, has gone to Skull Valley to investigate trachoma among the Indians.——Dr. Thomas W. Jackson, who has been on duty which the American Red Cross in Serbia, spent the Christmas holidays with his family in Akron, Ohio.

Public Health Hospitals.—It is announced that President Wilson will submit to Congress a plan for a new system of public health hospitals to take the place of the present condition of contract care of patients and government hospital service. The first step will be to take over the meteorological research station at the summit of the Blue Ridge, Mount Weather, Va., and convert it into a hospital for sailors and other patients from the Atlantic seaboard. Within another year locations will be selected for hospitals in Southern California and the southeastern part of the United States.

Eugenic News.—The *Eugenic News* is a new publication of the Eugenics Record Office at Cold Spring Harbor, New York. It is at present a four-page sheet. The first number contains an editorial on the purpose of the new publication and news concerning the doings of the Eugenics Record Office, news concerning field workers and general news of the eugenics movement. It is hoped that by having a medium of communication between the various eugenic organizations and workers that much duplication of effort may be avoided and the whole movement promoted.

Baking Powder.—January 14, at the bureau of chemistry, Washington, D. C., there will be a hearing by the joint committee on definitions and standards regarding baking powder. At the hearing all interested parties will be given an opportunity to present their views as to what should constitute the proper definition or standard for baking powder. The joint committee is composed of representatives of the department of agriculture, the Association of American Dairy, Food and Drug Officials, and the Association of Official Agricultural Chemists. The standards established by this committee are for the guidance of federal and state officials in the enforcement of the food and drugs law.

Rabies.—The department of agriculture is said to be acting through the biologic survey and the forest service in combating the serious wave of rabies among wild and domestic animals in the regions of the national forests of the West. The chief source of the spread of the disease is said to be coyotes. The eradication of coyotes in a rough country is said to be exceedingly difficult. Congress last year provided a fund of $125,000 to be spent by the biologic survey for the eradication of predatory animals on the public domain. Rabies first appeared in parts of Eastern Oregon, Washington and Northern Idaho and has now extended into Northern Nevada and Northern California. In California, Modoc and Lassen counties have been placed under quarantine by the state board.

China Educational Expedition Return.—Dr. Simon Flexner, New York, director of the Rockefeller Institute for Medical Research, Mr. Frederick Taylor Gates, chairman of the board of trustees; Dr. William H. Welch, Baltimore, president of the board of directors, and Mr. Wallace Buttrick, executive secretary of the general education board, reached San Francisco, December 27, on the *Tenyo Maru*, after a visit to China in connection with the work of the China Medical Board of the Rockefeller Foundation. The trip to China was to make a survey of the medical resources of the country that they might be enabled to investigate conditions and suggest betterments which they might find desirable. During the stay of the commission in China, they assisted at the dedication of the hospital at Chang Sha.

Bequests and Donations.—The following bequests and donations have recently been announced:

Massachusetts General Hospital, Boston, $5,000, for the establishment of free beds to be known as the Ella Channing free beds by the will of Ella Channing, Milton, Mass.

Leonard Morse Hospital, Natick, Mass., $5,000; and Carney Hospital, Boston, $1,000, by the will of Patrick H. Cooney, Natick.

Highland Park (Ill.) Hospital, donation of $10,000, toward the building fund by Walter C. Hately, Highland Park.

University of Kansas, for the benefit of the medical department, the remainder of the estate, real and personal, amounting to about $25,000, for the establishment of an annual scholarship to be known as the Dr. J. L. Porter scholarship, by the will of the late Dr. Joseph L. Porter, Paola.

Weeping Water (Neb.) Hospital, a contingent bequest of $7,500, by the will of Seymour A. Reed, Weeping Water. The will provides that the legacy will be in force provided $12,500 is raised for the hospital by the citizens of Weeping Water.

New York Medical College and Hospital for Women, a donation of $1,000, for laboratory equipment by Dr. Marshall O. Terry.

New York Medical College and Hospital for Women, a bequest of $10,000 by W. W. Cole; a donation of $2,000 by Dr. Cornelia C. Brant, Brooklyn, and donations of $1,000 by Dr. William E. Diefenbach, New York City; Dr. Walter Gray Crump, New York City, and Miss Anna Spring.

Biltmore (N. C.) Hospital, a bequest of $100,000 by the will of E. S. Bacon, New York City.

For a hospital for the Presbyterian State Orphanage, Barium Springs, N. C., a donation of $15,000 by James and W. H. Sprunt, Wilmington, N. C.

Public Health Report of the Secretary of the Treasury.—Among recommendations in the annual report for 1915 of the secretary of the treasury with reference to the Public Health Service are the following: (1) An increase in the appropriation for field work. It is said that there is great need of additional medical officers. The number of requests for advice and assistance in health problems from states and municipalities during the year far exceeded those of any similar period in the history of the service. In many instances the department was unable to comply. The field investigations in the Public Health Service have served as a stimulus to state and local health agencies. (2) Appropriation for an additional building for the hygienic laboratory. It is said that the work of this institution has been greatly extended in the direction of the examination of viruses, serums and the analogous products. A great demand for these products has been stimulated by the war abroad. An appropriation of $25,000 is therefore recommended to enable the department to carry out the law relating to the examination of these products. (3) The establishment of a national leprosarium. It is said that the United States is the only government of importance which does not provide for the care and isolation of lepers. (4) Additional clerical assistance is needed by the public health bureau.

National Tuberculosis Association.—At a meeting of the board of directors of the National Association for the Prevention of Tuberculosis, held in October, a report of which has not hitherto been printed, the following measures were adopted and recommended: A committee on medical education for physicians was appointed. It consists of Drs. H. R. M. Landis, Philadelphia; Dr. W. Gilman Thompson, New York; Dr. George Blumer, New Haven; Dr. John Ritter, Chicago, and Dr. Charles P. Emerson, Indianapolis. The committee will consider a course on tuberculosis for use in medical schools. A committee on education of nurses was also created for the purpose of considering a standard course on tuberculosis for nurses' training schools. Annual medical examination of the office force of the association, including new employees, was authorized. A committee was appointed to consider and formulate standards for the diagnosis of tuberculosis in children. Dr. James Alexander Miller, New York, was made chairman. A committee to consider standard hospital and other records was also proposed, the committee to be appointed later. A committee was provided for research in tuberculosis with a fund of $1,000. Dr. Edward R. Baldwin, Saranac Lake, N. Y., was made chairman, and the remainder of the committee was selected

by him. The next annual meeting was fixed for May 11-12, 1916, at Washington, D. C., immediately following the sessions of the Triennial Congress of Physicians and Surgeons.

FOREIGN

Deaths in the Profession Abroad.—W. A. Borger, assistant director of the Pasteur Institute and vaccination service in Java, aged 40. He succumbed to laboratory infection in research on bubonic plague.——B. Wicherkiewicz, professor of ophthalmology at the University of Cracow, aged 58.

Norway's Supply of Medical Men.—*The Norsk Magazin for Lægevidenskaben* states that there are now 1,221 physicians in that country, to a population of 2,400,000. This is equivalent to 5.09 to each 10,000 inhabitants, very nearly the same proportion as in Germany in 1913, namely, 5.11 per 10,000. The total for Germany was 34,136 physicians to a population of 66,800,000.

WAR NOTES

Physicians Needed in Bulgaria.—The Bulgarian embassy in the Netherlands has appealed to Netherlands physicians for medical aid in Bulgaria where it is urgently needed for the populace at large. An appeal has also been made to Swiss physicians, and E. Bircher, chief of the surgical service at the Aarau Cantonal Hospital, applied for two months' leave of absence to serve in Bulgaria, but the authorities said that he could not be spared from his post.

Losses of the University of Paris in the War to Date.—The *Presse Médicale* gives an illustration of the large tablet to be erected under the arcade of the great staircase of the medical department of the University of Paris. In October the design, already in place, contained the names of six members of the faculty, victims of the war (Galland, Legrand, Moog, Pelissier, Schrameck and Reymond—the latter the aviator). There are also inscribed the names of forty-seven students, and of twenty-six former graduates of the institution. Landouzy comments on this total of seventy-nine medical victims that the new methods of warfare have incredibly increased the dangers and privations of the medical men with the army. They keep right with the men in the trenches and toil on while others sleep.

LONDON LETTER

LONDON, Dec. 13, 1915.

The War

THE DEARTH OF MEDICAL STUDENTS

An appeal has been made by a number of distinguished university representatives, including Sir Clifford Allbutt, Prof. J. N. Langley, Sir Frederick Treves and others, against the government policy of recruiting medical students in their first three years as combatants. It is pointed out that during the war and after it there will be a greater need for physicians than has existed for many years, and it will be impossible to satisfy this need. The result must be tragic to the fighting line, to those who are supplying their needs at home, and to the general public. Even if all medical students remain at their work, the position will still be one of anxiety, but if these young men are all called up there will be a catastrophe. Certain restrictions might, of course, be enforced to prevent shirkers from taking advantage of the medical schools, and it might be arranged that no medical schools should take a larger number of students than three quarters of the average of the last three years. It could also be arranged that no students should be allowed to go on with their studies, who, in the opinion of their teachers, are not capable of qualifying at the normal time. The curriculum might be modified, at any rate for a time, and certain studies not directly of use in the fighting line could be for a time omitted. In all cases, students should receive military recognition and be trained in dressing, ambulance work, etc., so as to form a corps of skilled men when needed. For men who have passed their examinations in anatomy and physiology it might be possible to provide as is done in the navy, where they serve as surgeon probationers on the ships for six months and then have six months at home preparing and probably passing one by one their final examinations. Nobody can foretell the length of this war, and to empty our medical schools is to gamble on the chance that the war will be over within a year, or at most a year and a half. The stakes are high, for they are the lives and health of our forces in the field and ultimately the lives and health of our whole people.

THE SHORTAGE OF PHYSICIANS

The extent to which the shortage of physicians has gone is illustrated by an inquest on a child of 14 months who died at Westminster Hospital after an operation for adenoids. The house surgeon, who was an American physician (it has been pointed out in a previous letter that it is only since the shortage was created by the war that house appointments in the hospitals of this country have been thrown open to Americans), said that owing to the shortage of physicians he was obliged to act as both anesthetist and surgeon. Before the war the hospital had ten qualified anesthetists; now there were only three. "Just to give you an idea of the state of affairs," said the American physician to the coroner, "I do the resident medical officer's work for two days in the surgical department, give one day to the physician's work, two days to the outdoor department, one evening to another physician's work, and operations last until late in the day. I also have to finish the anesthetist's work in the theater."

AN EPIDEMIC OF ACUTE NEPHRITIS IN THE ARMY

Though the general health of the expeditionary force on the European continent has been very good, a curious outbreak of acute nephritis has occurred. Up to the end of last June the number reported was 1,062. Few cases were observed till February, when 72 cases were reported, 138 in March, 220 in April, 211 in May, and 326 in June. This distribution negatives one of the most generally held causes of acute nephritis—exposure to wet and cold—for during the winter with much wet weather the cases were few and the disease did not assume epidemic proportions until the weather was better. The water supply was investigated without result. The sources from which the patients had obtained water were extremely variable; some had been careful about boiling water, others had not. At St. Bartholomew's Hospital, where some of the patients were admitted and fifty-eight cases were investigated, Prof. F. W. Andrewes, the pathologist, found that all the glomeruli showed some evidence of inflammation, but that some were affected more than others. There was extensive damage in the convoluted tubules. The interstitial tissue of the kidney was edematous and infiltrated with lymphocytes and polymorphonuclears. The change was apparently recent, for there was no fibrosis. No micro-organisms could be found in stained sections. He concluded that the appearances were those of a fairly recent subacute diffuse nephritis, and that there was nothing to suggest that it was of an unusual type. There was no evidence of the nephritis having been set up by an ascending infection, or by a blood infection, the stress of which fell on the kidney. In view of the association between tonsillitis and nephritis, cultures were taken from the throats of some of the patients who complained of soreness, and from some who did not. In every case streptococci grew in abundance, but the throats of the soldiers suffering from nephritis were bacteriologically in a better condition than the throats of civilians, and the throats of the soldiers with and without nephritis were closely similar. Moreover, there was no excess of streptococci in the blood. As bacteriologic evidence of the origin of the disease was thus wanting, the suggestion has been made that it is due to a filter-passing ultramicroscopic organism. On the whole, the disease ran a favorable course. Only one of the fifty-eight cases was fatal. Most of the patients felt quite well as soon as the edema subsided, though some complained of headache, cough and digestive disturbances for a week or more. Yet many of those who felt and looked quite well were still passing albumin, blood and casts. A curious feature was the tendency to relapse; the albuminuria and hematuria recurred, generally without ascertainable cause. In only a few cases did chronic nephritis remain.

AUSTRALIAN PHYSICIANS AND THE WAR

When it was realized that many would be called on to undertake naval and military duties, resolutions were passed in every branch of the British Medical Association throughout Australia that the interests of these men should be safeguarded by their colleagues during their absence. It was agreed that no one should take advantage of the altered conditions to increase his own practice, and that patients should be induced to return to their former advisers when they returned from the war. But the position has assumed an unexpected aspect. The profession is becoming depleted to an alarming extent. The civil population and the troops are making calls on physicians which can scarcely be met. Over 500 physicians have joined the Australian Army Medical Corps; a further 200 are serving with the Army Medical Corps of the British Army, and the Australian Navy is using

a considerable number. The total number of physicians in Australia is under 3,000, so that approximately 25 per cent. have withdrawn from civil practice. In order to meet the resulting difficulties of civil practice, it has been proposed to arrange for the temporary pooling and distribution of medical work on a topographic basis.

BERLIN LETTER

BERLIN, Nov. 23, 1915.

Water Supply of the Troops in the Field

One of the army corps has done some remarkable work in the matter of supplying itself with water. It was realized that there was an absolute necessity for an ample supply of drinking water and, if possible, to carry it to the combatants. The necessary material to carry out the plan was derived partly from Germany and partly from the field of operation. The engineers and their assistants were drawn from the troops, the laborers from the Belgian civil population. Within a few days groups of workmen were working all along the proposed waterway. Within a few weeks there had been laid 70 kilometers of water piping which in the meantime has undoubtedly extended to more than 100 kilometers. The water was derived from a number of deep wells situated on the properties of manufacturing companies. Some of these wells are 200 meters deep. At least 5½ million liters of water are obtained daily. The chemical examination has shown that the water is potable. In the district occupied by this army corps there were during the summer of 1915 over 200 water stations, and if necessary, this number can easily be increased. Engines of more than 350 horse power are used to furnish the necessary pressure because of the fact that there is a difference of 240 meters between the highest and the lowest well supply. This enormous pressure makes it possible to secure a uniform water supply in all parts of the district irrespective of the location of the well.

The Birth Rate and Infant Death Rate in German Cities

In a previous letter (THE JOURNAL, Dec. 25, 1915, p. 2253) I discussed this question at some length referring briefly, however, to the city of Essen where there was an increase in the number of births instead of a decrease. This increase was about 20 per cent. and I mention it again to call attention to the fact that Essen is the home of the Krupp works and naturally one would expect a considerable increase in the population because of the additional employees imported by the Krupps. In March, 1915, Essen had a population of about 345,000 and in April the population numbered 477,000. Proportionately, however, the birth rate was lower than before, although relatively there was an apparent increase. In Cologne the decrease in the birth rate was less noticeable than elsewhere, the percentage being 94.2 during the period from April 4 to July 31 as compared with 100 for the same period of the previous year. In Cologne and in Essen the death rate was higher during the observation period under the age of two years than in the previous year whereas in all other cities there was not only a decrease in the birth rate but also a decrease in the mortality during the first year of life. In most of the cities including Berlin, Munich, Leipzig and Breslau the percentage of decrease in the total number of live born children varied between 80 and 90 : 100. In Duisburg, Dresden, Frankfurt a. M., New Cologne, Nürnberg, the birth rate during the observation period of 1915 had fallen off 20 per cent. over the same period in the previous year, Nürnberg showing the greatest fall, 68.8. The decrease was less in Breslau, Königsberg, Munich, Kiel, Düsseldorf, Berlin-Schöneberg and Hannover. In Stettin the decrease in the death rate during the first year of life was so considerable as to counterbalance more than one half the decrease in the birth rate. Naturally, one would expect to find a diminution in the birth rate during the war, and taking the question of birth rate and death rate among infants on the whole, the percentages are not alarming.

VIENNA LETTER

VIENNA, Nov. 30, 1915.

The War Hospitals in Vienna

A year ago, when the most urgently wanted hospital beds were scarce, the danger of epidemics was most threatening. More wounded soldiers than had been counted on returned to the capital, and with them the possibility of an outbreak of dysentery, typhoid and cholera. The municipality of Vienna quickly built pavilions accommodating 1,300 beds, but these were, of course, insufficient. The chief requirement was to prevent the spread of contagion, and to house all suspicious cases so that the general public might remain free from danger. This was effected by the Ministry of the Interior within a few months, and two huge modern hospitals, each for over 3,000 infectious cases, were built and stand waiting for their inmates. Luckily, the hospitals are as yet nearly empty, and the expenditure, about $2,000,000, is rather more in the nature of an insurance premium than anything else, for the expected infectious cases have not made their appearance as yet. But the secret of success is to be ready for every emergency, and the sanitary measures adopted for the protection of the health of the population were so efficacious that the "infection hospitals" remain nearly empty. The leading idea of the new hospitals was the prevention of the spread of contagion. For this purpose the hospitals are on the principle of division into a clean part and an infected part. Furthermore, the separation of the patients' housings from that of the sanitary and the administrative personnel and the offices is complete. Each one of the two hospitals consists of about ninety different pavilions, built partly on the system of permanent buildings, partly as half permanent barracks. The group of the clean pavilions is separated by a wall from the infectious group, with a few passages in the wall. These passages consist of buildings built on the system of division.

The patient on coming to the hospital enters first the receiving hall. If he can walk or sit he enters the first receiving hall, where he is at once bathed, his hair cut and he and his clothing carefully cleared of lice and other insects. The clothing is carefully disinfected and stowed away, and the patient is given refreshment or food, as required. In the receiving hall a large number of water closets are provided, for at the beginning of the war, when large numbers of dysentery patients were brought to the hospitals, the few water closets then at the disposal of the patients were instantly occupied by the poor men suffering from incessant tenesmus, and the remainder could not do otherwise but soil the receiving halls in such a manner as to drive the nurses and the servants to despair. If the patient is unable to walk or sit, he is brought into the second receiving hall, where he is laid on a stretcher consisting only of metal and linen which can be thoroughly washed and sterilized. Otherwise, the patient is treated on the same lines as the patient from the first receiving hall: he is bathed, his hair is cut, and refreshments are given, chiefly hot tea or coffee. No patient enters the wards in an unclean state. After his bath, each newcomer receives a new set of linen clothing, and is seen at once by the house physicians. The dejecta are directed into special reservoirs, where they are thoroughly disinfected before they pass into the drainage system of the city. Attention is paid to frequent change of linen, which so often becomes soiled by patients suffering from enteritis, dysentery or typhoid. Next to each ward is a special space where soiled linen is kept in a large tank of cement, containing a 5 per cent. dilution of compound solution of cresol. This linen is then transported in wet condition into the laundry, which is situated in the wall between the clean and unclean part of the hospital. In the kettles of the laundry the soiled linen is sterilized by steam. The kettles are built in such a way that they consist of two halves, a clean one and an unclean one. When the unclean part is charged with linen, the clean part is locked automatically in such a manner that it cannot be opened until the temperature of the steam has reached a certain degree insuring complete sterilization of the contents. The linen passes into the clean part, which itself can be reached only from the clean side of the laundry, and then the sterilized linen is washed and ironed. The same procedure takes place with everything coming from the unclean side. Table utensils, knives, forks, plates, medicine bottles, bandages, instruments and papers must be sterilized before they are allowed to pass on to the clean side. Doctors, nurses, servants, everybody passing from one part of the hospital to the other clean part must disinfect himself. For this purpose, the passage house has been built. It consists of twenty sections. Each section has on the unclean side a room for undressing, then a douche and bathroom, then the person comes into another dressing room, where he finds a clean suit, and so he is allowed to pass on to the clean side of the hospital. The water from the passage house is also disinfected before it enters the main drainage pipes; of course, hot water is always to be had in these twenty baths. For the bodies of those who die in the hospital, a special mortuary has been erected, which is accessible from outside the hospital also. Thus funerals may take place from the mortuary without the hospital itself being entered.

The dead bodies come into the mortuary from the unclean side. There they are put into the coffin and allowed to pass a narrow slit in the wall, all precautions being taken against spread of infection. Also the people engaged in the mortuary behind the wall can leave this building only through the passage house, which is on the other end of the hospital.

The clean part of the hospital comprises the gigantic kitchen, the steam laundry, the administrative barracks, and the barracks for the doctors, nurses and servants. It is understood that all persons engaged in the hospital must also live in it, so as to prevent the transmission of disease to the population. Naturally, the clean part comprises also the apothecary's laboratories, the storehouse for the disinfected clothing and the storehouses for all the remainder of the things required in such a huge hospital, for as soon as an article is used, it is at once replaced, as a certain quantity of every article must always be at hand. Of course, the problems of heating and illumination have been solved in the most up-to-date manner. Electricity is paramount, and gas stoves are the rule everywhere. The number of hospitals in Austria built on the same principle is now about twenty. When the war is over, it is hoped that these hospitals will be allowed to remain as public hospitals, and thus once for ever do away with the dreary problem of lack of hospital beds, of which complaint has so often been made.

Arrival of the Serbian Mission of the American Red Cross in Vienna

After having stayed in Serbia for over eight months, the mission of the American Red Cross, which had worked at Belgrade, arrived safely in Vienna. The victorious attack of the Austrian army surprised the American group in one of the Serbian war hospitals, and the members were treated in the most friendly and kind way by our troops. They had been working all over the country, having arrived there at the time when the epidemic of typhoid was at its height. The members of the mission were reluctant to give any information to the private press as regards their experiences in Serbia, but they admitted that the death rate from epidemic disease was very high in the unhappy country. Not only soldiers and prisoners, but also the population suffered severely from the lack of medical men and of remedies.

The Nobel Prize for Dr. Bárány

Docent Dr. Bárány, the scientist and otologist, whose classes on the physiology and pathology of the labyrinth were so much frequented by the American students in Vienna, volunteered at the beginning of the European war and did active service in the famous fortress of Przemysl, where he was taken prisoner by the Russians. He was awarded the Nobel prize for medicine for 1914, and in a wire to his wife in Vienna, Dr. Bárány states that the Russian government informed him of the fact one day after it was known in Europe. Dr. Bárány is working as a surgeon to prisoners of war in a hospital situated at Merv, and it is hoped that the Russian government will release him and send him back. Dr. Bárány has continued his scientific work both while in the Austrian army and during his involuntary stay in the Asiatic hospital.

PARIS LETTER

PARIS, Dec. 9, 1915.

The War

TRADE SCHOOLS FOR WAR CRIPPLES

I mentioned (THE JOURNAL, March 13, 1915, p. 923; May 15, 1915, p. 1671; June 26, 1915, p. 2152, and Sept. 25, 1915, p. 1124) the schools which have been organized at Lyons and at Paris (Saint Maurice) for the industrial education of war cripples. Since then other schools of this character have been organized at Marseilles, at Clermont-Ferrand, at Havre, and in centers of special industries, like Elboeuf (cloth trade), Thiers (cutlery), Cluses (national school of watch making), Oyonnax (comb making and manufacture of celluloid articles), etc. Some of these schools give instruction in quite a large number of trades. Thus at the school at Marseilles instruction is given in shoe making, tailoring, bookkeping, clerical work, stenography, typewriting, copying, mechanical drawing, wood and metal turning, carpentry, modeling, industrial design, electricity, tin smithing, foundry work and coppersmithing. The instructors are soldiers from the ranks of noncommissioned officers who must be good workmen. Having been pronounced unfit for service or sent back from the front on account of wounds or disease, they have been assigned to these schools of physical reeducation.

The pupils of these schools have followed all kinds of vocations previously, but peasants (farm workers) predominate among them. A man who has lost a leg cannot very well go on cultivating the soil. In a workshop, however, he may make a good carpenter or excellent shoemaker. Men who have lost their right hands learn to write with the left, and some among them make very good bookkepers or mechanical draftsmen. The schools for cripples, if well managed and taught, may really become a center for physical reeducation.

In addition to these schools, which are intended chiefly to train workmen, special sections for the training of war cripples are to be organized in the commercial and agricultural schools.

THE WAR AND THE PROPHYLAXIS OF DIPHTHERIA

During its last session, the Council on Hygiene took under consideration a report from Dr. H. Dubief, principal medical inspector of epidemics in the department of the Seine, with regard to the prophylaxis of diphtheria on a large scale by preventive inoculation of diphtheria antitoxin. Recently, in various places around Paris (Chevilly and Orly, where Belgian children are being cared for, Saint Denis and the little commune of Pavillons-sous-Bois), little outbreaks of diphtheria have appeared, which, because of the numbers of mobilized soldiers or refugees from the invaded territories gathered in the outskirts of Paris, may give rise to dangerous epidemics. While the customary measures of disinfection were applied, an extensive application of diphtheria antitoxin was also employed, 2,646 preventive inoculations being made. The progress of the disease was immediately checked. This experience was certainly conclusive and most encouraging for the systematic organization of a campaign against diphtheria.

Professor Chantemesse called the attention of the Council of Hygiene to the exaggerated fear, among the medical profession, of possible anaphylactic complications. The facts reported by Dr. Dubief show that such complications are very rare and not to be feared. Dr. Vaillard, medical inspector-general of the military medical service, emphasized the necessity of making a diagnosis as early as possible in diphtheria. Bacteriologic examination, which may easily be obtained without delay in the laboratories of the city of Paris or of the service of epidemics of the suburbs, is the only reliable guarantee in this respect.

OPHTHALMOLOGIC REQUIREMENTS IN THE MARINE SERVICE

Up to the present the wearing of glasses has been a disqualification for the marine service. A degree of visual acuity differing according to the special branch has been required, but correction by spherical glasses has not been authorized. This has appreciably hampered recruiting. The minister of the marine has just modified this rule. The different branches of the service have been divided into three classes, and the present rules with regard to visual acuity are maintained only for the first class, including pilots, gunners, etc.

THE FIRST CASE OF FROZEN FOOT IN THE AUTUMN OF 1915

Last year there was much discussion on the respective shares of cold, humidity and compression in the production of the troubles known as "frozen feet." Dr. E. de Massary, physician of the hospitals, has just shown before the Société médicale des hôpitaux de Paris a man affected with these lesions at a time during this autumn when the mercury had not gone below 12 C. (53.6 F.). In this case the cold cannot be blamed. This case seems to show that the theory set forth by Dr. Témoin of Bourges is the correct one (THE JOURNAL, March 6, 1915, p. 843), and that these so-called freezings are trophic troubles produced, in subjects predisposed by previous vascular or nervous conditions, by humidity or by constriction due to shrinking of shoes, to bands worn too tight or to prolonged standing. The lesson is a valuable one, especially now, when bad weather threatens a renewal of the troubles of last winter if they are not guarded against.

THE ENLISTMENT OF THE 1917 CLASS

The young men belonging to the class of 1917—that is those aged 18—are to be called under the flag, January 5. The *Journal Officiel* has just published the instructions of the minister of war, General Galliéni, with regard to the measures to be taken in this connection. Because of the youth of these soldiers, and because they are called under

the flag during the winter, particular attention is to be paid to their lodging, bedding, dress, food, the healthfulness of their environment and the wise gradation of their military instruction and training.

The rooms which they are to occupy are to contain at least 17 cubic meters (about 600 cubic feet) per man. Underlinen and warm knit articles such as jerseys and socks are to be distributed in sufficient quantity. During the cold season the lavatories are to be warmed after reveille. The young soldiers are to receive a meat ration of not less than 400 gm. a day.

The instruction of the recruits is to be very carefully conducted according to a progressive system adapted to weather conditions and to individual constitutions. Differences of physical vigor, aptitude and temperament of the young soldiers are to be carefully taken into account in assigning recruits to different parts of the service. The total duration of instruction of the young soldiers is not necessarily to be uniform, and the dates of their assignment to active service are to be arranged in accordance with an elastic schedule.

General Galliéni adds that the young men should be discouraged from frequenting cabarets and that drunkenness must be strictly suppressed. Therefore it is desirable to encourage, or if necessary to arrange, outside of the barracks social centers where the young soldier may pass his leisure hours in a comfortable, agreeable atmosphere, under moral and patriotic influences which will protect him against the temptations of the cabaret and other harmful influences.

PERSONAL

Dr. Monprofit, professor of the surgical clinic at the Ecole préparatoire de médecine et de pharmacie d'Angers, and at present head surgeon of an automobile ambulance, has just been mentioned for gallantry in the *Journal Officiel* in the following terms: "An eminent surgeon and head of service, of indefatigable activity and devotion, in the army since the beginning of the war, although under no military obligation, distinguished himself notably from Sept. 25 to Oct. 10, 1915, by his devoted care to the wounded, a great number of whom owe their life to his surgical skill. He remained at his post until he reached the point of complete exhaustion."

Dr. Louis Bazy, surgeon of an automobile ambulance, has been mentioned for gallantry in the following terms: "Although under no military obligation, he has since the beginning of the war displayed the greatest devotion in the ambulances at the front and, especially during the bombardment of Furnes, has given proof of remarkable professional qualities and of the highest courage." Dr. Louis Bazy is a son of Dr. Pierre Bazy, surgeon of the hospitals of Paris and member of the Académie de médecine.

Marriages

George Henry Mueller, M.D., Jersey City, N. J., to Miss Helene Ten Broeck of Asbury Park, N. J., at New York City, October 25.

James Tickell Downs, M.D., Jr., Dallas, Texas, to Miss Elizabeth Florence Erich of Allentown, Pa., December 14.

Bernard Oscar Harris, M.D., Detroit, to Miss Ida Tilya Muscovich of Mount Clemens, Mich., December 19.

Thomas Adam Lawson, M.D., to Miss Mattie M. Mellinger, both of Dallastown, Pa., at York, Pa., December 13.

Irwin L. Chipman, M.D., Wilmington, Del., to Miss Marguerite E. Rockey of York, Pa., December 21.

Selim Walker McArthur, M.D., Chicago, to Miss Jean Dean Gillett Barnes of Decatur, Ill., January 1.

Julius Raymond Fernandez, M.D., New Orleans, to Miss Florence Picard of Biloxi, Miss., December 7.

Henry Thomas Lee, M.D., Jr., to Miss Anna Chance Clark, both of New York City, December 22.

William Edward Morgan, M.D., Chicago, to Mrs. Kate I. Berry of Bradford, Pa., December 22.

Richard Pearson Strong, M.D., Boston, to Mrs. Agnes Leas Freer of Brooklyn, January 1.

Frank William Spicer, M.D., to Miss Madeline Miller, both of Duluth, Minn., December 11.

John Paul Ham, M.D., St. Louis, to Miss Elva Finch of Pana, Ill., December 25.

Deaths

Henry Lowry Emilius Johnson, M.D. Medical Department of the George Washington University, Washington, D. C., 1882; aged 57; died suddenly from heart disease, December 21, at his home in Washington. He was born in Washington, Nov. 11, 1858, and was graduated from the George Washington University, Department of Medicine, in 1882. He served as president of the Medical Association of the District of Columbia, and chairman of the Board of Councilors, and he was for some time a member of the Board of Medical Examiners of the Medical Society of the District. He was a Fellow of the American Medical Association, and a member of its Board of Trustees from 1898 to 1908. He was chairman of the Committee on National Legislation for three terms.

Dr. Johnson was a member and one of the organizers of the Pan-American Medical Congress and served for three terms as vice president, for four terms as member of the International Executive Commission and for one term as member of the International Committee on Public Health; he also was a member of many other learned societies and was a frequent contributor to the medical literature. Dr. Johnson was elected coroner of the District of Columbia in 1889. From 1889 to 1905 he was professor of gynecology and clinical gynecology in his alma mater; he was also one of the founders and professor of gynecology in the Post-Graduate School of Medicine of the District of Columbia and one of the founders of the Washington Post-Graduate Medical School and of the Clinico-Pathological Society of the District of Columbia. He was consulting gynecologist to Providence Hospital and the United States Government Hospital for the Insane and represented the United States Department of State at the International Congress of Hygiene in Berlin in 1907, the Sanitary Conference of the American Republic in Mexico in the same year, the International Medical Congress at Budapest in 1909, and served in addition as vice president of the First, Second and Third International Sanitary Conventions of American Republics.

Of late years Dr. Johnson has been much interested in aviation and patented in 1912, a safety aeroplane, a ship and aeroplane compass and an inclinometer. Dr. Johnson was a man of varied accomplishments, loyal and enthusiastic, and in his death the medical profession of the United States loses one of its most valuable working members.

Rudolph August Witthaus, M.D. Chemist and toxicologist of world-wide eminence; aged 69; died in his apartment in New York City, December 20, from heart disease. Dr. Witthaus was born in New York, Aug. 30, 1846, obtained his A.B. degree in 1867 and his A.M. degree in 1870, from Columbia University. He then entered the University Medical College and after the full course of study and in addition, two years of work at the Sorbonne and the Collége de France, Paris, was graduated with the degree of M.D. in 1875. From 1876 to 1878, Dr. Witthaus was associate professor of chemistry and physiology in his alma mater; in 1882 he was made professor of physiologic chemistry, and in 1886, professor of chemistry and physics. He was also professor of chemistry and toxicology in the University of Vermont from 1878 to 1898; professor of chemistry and toxicology in the University of Buffalo from 1882 to 1888. In 1898 he was appointed professor of chemistry and physics in Cornell University Medical College, New York City, and served in that capacity until 1911 when he was made professor emeritus. Dr. Witthaus was a Fellow of the American Association for the Advancement of Science and a member of many of the chemical societies of this country and Europe. He was the author of several standard textbooks on chemistry, notably the "Essentials of Chemistry" which appeared in 1879; "General Medical Chemistry" which appeared in 1881; "Manual of Chemistry" which was issued in 1879, and the sixth edition of which appeared in 1908; and "The Laboratory Guide in Urinalysis and Toxicology" which was published in 1886. He was also the editor of "Witthaus and Becker's Medical Jurisprudence," in four volumes, of which he wrote the introduction and the entire fourth volume which was devoted to toxicology. He was also the author of a number of monographs on his specialties. Dr. Witthaus was one of the most noted experts in the world in cases of death supposed to be due to poison.

David Williams Cheever, M.D. Harvard Medical School, 1858; aged 84; one of the most distinguished of the old-time surgeons of Massachusetts; died at his home in Boston, December 27. Dr. Cheever graduated from Harvard Uni-

versity in 1852 and occupied the time between graduation and his entrance to Harvard Medical School in studies in Europe. He served his alma mater continuously from 1861 when he was appointed demonstrator of anatomy. In 1868 he was made adjunct professor of clinical surgery; in 1875, professor of clinical surgery; in 1882, professor in surgery and was made emeritus professor in 1893. He was appointed on the staff of the Boston City Hospital at its opening in 1864 and was made professor emeritus in 1893. He was also surgeon of the Boston Dispensary for five years and served for a few months during the Civil War as surgeon of United States Volunteers. His society affiliations included the Massachusetts Medical Society of which he was president in 1888 and 1890, and the American Surgical Association of which he was president in 1889. He was an overseer of Harvard College for twelve years; a fellow of the American Academy of Arts and Sciences; and an honorary fellow of the American College of Surgeons. Dr. Cheever was a prolific contributor to the literature of surgery; he was the author of the "Medical and Surgical Report of the City Hospital" in five volumes and also of "Lectures in Surgery." Dr. Cheever was a distinguished surgeon, a reliable physician, a clear thinker, a terse writer, an impressive speaker, admirable teacher, a loyal member of the medical profession, and a good citizen.

Joseph John O'Connell, M.D. Long Island College Hospital, Brooklyn, 1887; aged 50; a Fellow of the American Medical Association; health officer of the port of New York; died at his home in the Quarantine Station at Staten Island, January 1, from myocarditis. Dr. O'Connell was for many years sanitary inspector in charge of the Contagious Disease Bureau of the Brooklyn Board of Health and had a large general practice in Brooklyn. He made a specialty of neurology and psychiatry and was examiner in lunacy for the city of New York and alienist of the Kings County Hospital until his appointment as health officer. He was also lecturer on hygiene in the New York University and lecturer on public health in the Long Island College Hospital, and ex-officio a member of the New York City Board of Health. During Dr. O'Connell's term of office as Health Officer of the Port of New York he effected several important changes in the quarantine service; chief among these was the construction of the Quarantine Pathological and Bacteriological Laboratory and the working out of the scheme of cleansing the persons and clothing of typhus patients to prevent the spread of the disease. Dr. O'Connell was also visiting physician at St. Mary's Hospital and the Hospital for Mental and Nervous Diseases and surgeon to St. Mary's Female Hospital. He was the author of a number of monographs on hygiene and sanitation, "The Possibility of Choleraic Infection of the Waters of New York Bay"; "The World War and Maritime Commerce" and other cognate subjects.

William Lincoln Ballenger, M.D. Bellevue Hospital Medical School, 1886; aged 54; of Chicago; a Fellow of the American Medical Association; well known as a specialist on diseases of the throat, nose and ear; professor of laryngology, rhinology and otology in the College of Physicians and Surgeons, Chicago; secretary of the American Academy of Ophthalmology and Oto-Laryngology from 1899 to 1902; president from 1902 to 1904 and since that time councilor; and of the Chicago Laryngological and Otological Society; professor of otology in the Chicago Eye and Ear College; a member of the International Otological Congress; author of a standard text book on diseases of the nose, throat and ear which was published in 1900; died in Economy, Ind., from diabetes, December 21.

Alexander Grant Sinclair, M.D. College of Physicians and Surgeons in the City of New York; 1869; aged 73; a Fellow of the American Medical Association; formerly vice president of the American Medical Editors' Association, dean and emeritus professor of ophthalmology, otology, laryngology and hygiene in the Memphis (Tenn.) Hospital Medical College, ophthalmic and aural surgeon and laryngologist to St. Joseph's Hospital and St. Peter's Orphan Asylum and ophthalmic surgeon to the Old Ladies' Home and City Hospital, Memphis; an ophthalmologist of Memphis since 1880; died in the Baptist Memorial Hospital in that city, December 18, from pneumonia.

John Orlando Roe, M.D. University of Michigan, Ann Arbor, 1870; College of Physicians and Surgeons in the City of New York, 1871; aged 66; a Fellow of the American Medical Association and of the American College of Surgeons; and a member of the American Laryngological Society, American Chemical Society, New York Academy of Medicine and other learned societies; who had made an especial reputation in plastic surgery of the nose; one of the organizers of the Rochester (N. Y.) Academy of Medicine; for many years laryngologist to the Rochester General Hospital; died at his home in Rochester, December 24, from anemia.

William Philip Spratling, M.D. College of Physicians and Surgeons, Baltimore, 1886; aged 52; from 1894 to 1908 medical superintendent of the Craig Colony for Epileptics, Sonyea, N. Y., and later a practitioner of Baltimore, and professor of physiology and nervous diseases in the College of Physicians and Surgeons, Baltimore, from 1908 to 1909; formerly president of the National Association for the Study of Epilepsy; the author of a work on "Epilepsy and Its Treatment"; but for the last four years a resident of Welaka, Fla.; died in that place, December 22, from the effects of a gunshot wound accidentally self-inflicted while hunting.

James William Rabe, M.D. University of Pennsylvania, Philadelphia, 1888; aged 48; a Fellow of the American Medical Association; local surgeon at Akron, Ohio, for the Baltimore and Ohio, Pittsburgh and Western, and Columbus, Hocking Valley and Toledo railroads; surgeon to the Akron City Hospital; one of the most prominent practitioners of northern Ohio; died at his home, December 16, from myocarditis.

John Anderson Davis, M.D. University of Michigan, Ann Arbor, 1873; aged 68; a Fellow of the American Medical Association; a well-known practitioner of central Illinois; a member of the Illinois Central and Yazoo and Mississippi Valley Railway Surgeons' Association; local surgeon at Farmer City for the Illinois Central Railroad since 1899; died at his home in Farmer City, December 20, from pneumonia.

Arthur W. Dunning, M.D. College of Physicians and Surgeons, Chicago, 1885; aged 55; a Fellow of the American Medical Association and president of the Ramsey County (Minn.) Medical Society in 1910; instructor in neurology in the City and County Hospital, St. Paul, and neurologist to St. Luke's Hospital and the St. Paul Free Dispensary; died at his home in St. Paul, December 21, from heart disease.

Paul Neumann, M.D. University of Breslau, Germany, 1866; University of Greifswald, Germany, 1878; aged 71; and a veteran of the Schleswig-Holstein, Prusso-Austrian and Franco-German wars; a surgeon and colonel in the German service from 1866 to 1896; for twenty-three years a practitioner of Wichita, Kan.; died at the home of his son in South Bend., Ind., December 15.

Francis Marion Letcher, M.D. Tulane University, New Orleans, 1861; aged 78; formerly a member of the Medical Association of the State of Alabama, a surgeon in the Confederate service throughout the Civil War; for many years a practitioner of Shorter, Ala., but since his retirement a resident of Montgomery; died at his home in that city, December 11.

Cary Rees Montgomery, M.D. Columbus (Ohio) Medical College, 1880; aged 65; formerly physician in charge of the Ohio State Penitentiary, Columbus; died in the Buena Vista Sanitarium, San Francisco, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent while despondent on account of ill health.

Adolphus M. Scheel, M.D. University of Munich, Bavaria, 1876; aged 64; a Fellow of the American Medical Association; died at his home in Belleville, Ill., December 16, from heart disease. The Belleville Medical Association at a special meeting December 18 adopted resolutions recognizing the sterling worth of Dr. Scheel and regretting his death.

Claude Aloysius Quina, M.D. Tulane University, New Orleans, 1915; aged 26; intern in the Charity Hospital, New Orleans, and assistant demonstrator of pathology and bacteriology in his alma mater; was lost at sea on the United Fruit Company's steamer *Marrowijne* when it foundered in a tropical hurricane in the Gulf of Mexico, August 15.

Frank Grant Mason, M.D. Rush Medical College, 1890; aged 50; for eight years chief adjustor of the Pacific Mutual Life and Accident Insurance Company and North American Accident Insurance Company; also a graduate in pharmacy; died at his home in Chicago, December 23, from heart disease.

Denis F. Ragan, M.D. Cooper Medical College, San Francisco, 1887; aged 54; a Fellow of the American Medical Association and a well-known practitioner of San Francisco; died at his home in that city, December 19, from pernicious anemia.

Stephen Cramer Quinby, M.D. Louisville (Ky.) Medical College, 1899; aged 47; formerly assistant to the chair of pediatrics in the Kentucky University, Louisville, and Arizona Medical Association; died in the Phoenix State Hospital, recently, as the result of a nervous breakdown.

Erdmann N. Brandt, M.D. College of Physicians and Surgeons in the City of New York, 1889; aged 48; a member of the Medical Society of the State of New York; attending physician to the Tarrytown (N. Y.) Hospital; died at his home in that city, December 23, from pneumonia.

Emmett J. Cole, M.D. Hahnemann Medical College, Chicago, 1896; aged 64; a member of the Illinois State Medical Society and of the State Medical Society of Wisconsin; for four years mayor of Rockton, Ill.; died at his home in that city, December 22, from heart disease.

James Francis Kearns, M.D. McGill University, Montreal, 1894; aged 52; a Fellow of the American Medical Association and at one time mayor of La Junta, Colo., and president of the La Junta City Hospital Association; died in La Junta, December 24.

Thomas Joseph Leahy, M.D. Harvard Medical School, 1892; aged 46; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; died at his home in Cambridge, Mass., December 25, from pneumonia.

George Otto Heffter, M.D. Eclectic Medical College of the City of New York, 1887; aged 53; a practitioner of Harlem, New York City, for more than thirty years; also a pharmacist; died at his home in Harlem, December 21, from pneumonia.

Bentley Silas Bourne, M.D. Niagara University, Buffalo, 1890; aged 49; a Fellow of the American Medical Association and for twenty-five years a practitioner of Hamburg, N. Y.; died in Salisbury, Md., December 25, from heart disease.

Falk Tennyson, M.D. University of Minnesota, Minneapolis, 1893; aged 48; formerly a druggist, but for the last twenty-two years a practitioner of North Minneapolis, Minn.; died at his home in that city, December 17, from meningitis.

William F. Stokes, M.D. Rush Medical College, 1897; aged 47; a Fellow of the American Medical Association and one of the medical staff of the West Side Hospital, Chicago; died at his home in Chicago, December 26, from pneumonia.

James Tuttle Owen, M.D. Tulane University, New Orleans, 1915; aged 28; of White Castle, La.; was lost at sea on the United Fruit Steamer *Marrowijne* when it foundered in the Gulf of Mexico on August 15, 1915.

Fred F. Sovereign, M.D. Rush Medical College, 1869; aged 69; for more than forty years a practitioner of Three Oaks, Mich.; died in St. Anthony's Hospital, Michigan City, Ind., December 22, from diabetes.

Philip R. Hengst, M.D. College of Physicians and Surgeons, Baltimore, 1883; aged 59; of Waco, Texas; died in his apartment in Baltimore, December 13, from cerebral hemorrhage.

Willis Fremont Moore, M.D. Rush Medical College, 1880; aged 59; for twenty-seven years a practitioner of Chattanooga, Tenn.; died in a hospital in that city, December 15.

Joseph A. Miles, M.D. College of Physicians and Surgeons, Baltimore, 1907; aged 43; of Baltimore; died in Mercy Hospital in that city, December 14, from tuberculosis.

Gilbert F. Parks, M.D. Detroit College of Medicine and Surgery, 1886; aged 59; of Junction City, Ore.; died in Eugene, Ore., September 26, from gallstone disease.

Daniel M. Craig, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1876; aged 62; was found dead from heart disease in his office in Garnett, Kan., December 15.

Caroline Lincoln Guild, M.D. Hahnemann Medical College of the Pacific, San Francisco, 1888; of San Mateo, Calif.; died in San Francisco, November 24.

Alfred A. Weber, M.D. University of Vienna, Austria, 1885; aged 58; died at his home in Chicago, December 19, from heart disease.

John P. Siegfried, M.D. Hahnemann Medical College, Chicago, 1888; aged 60; died at his home in Ashtabula, Ohio, December 13.

Jack J. Shipley (license, Texas, Act of 1907), aged 43; died at his home in Hemming, Texas, December 9, from heart disease.

Emma Pownall, M.D. Curtis Physio-Medical Institute, Marion, Ind., 1896; died recently at her home in Bremen, Ind.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE ASSOCIATION'S EXHIBIT AT SAN FRANCISCO

The educational exhibit made by the American Medical Association at the Panama-Pacific Exposition is thus described in the issue of the *Pacific Pharmacist* recently received:

"By the time the present number of the *Pacific Pharmacist* will be in the hands of our readers it is likely that the Panama-Pacific International Exposition will have closed its gates forever. In speaking of this event one naturally recalls the words of Prospero:

> Our revels now are ended. These our actors,
> As I foretold you, were all spirits, and
> Are melted into air, into thin air;
> And, like the baseless fabric of this vision,
> The cloud-capp'd towers, the gorgeous palaces,
> The solemn temples, the great globe itself,
> Yea, all which it inherit, shall dissolve,
> And, like this insubstantial pageant faded,
> Leave not a rack behind.

"To the warring nations of Europe this exposition was a grand object lesson, teaching them that: 'Peace hath her victories no less renowned than those of war.' While to those of us who had the time and opportunity and the intellectual training to take advantage of the thousands of treasures therein exhibited it was a priceless boon and one not likely to be repeated in the lifetime of any who now walk the earth.

"There was one exhibit at the Fair that must have appealed to all philanthropists, pharmacists and physicians—that was the one the American Medical Association installed in the Educational Building. It was an exposé in connection with their Propaganda for Reform in Proprietary Medicines. Though somewhat of a misnomer the words patent medicines are the words most generally used to designate this line of merchandise. In examining this exhibit one must be struck with the fact that the most popular of these preparations are those which contain the most whiskey. Standing by many of these patent medicines there was a flask of whiskey, whose alcoholic contents represented the amount contained in the proprietary preparation there exhibited. To those who have acquired the liquor habit and are denied the use of liquors these patent medicines often furnish a satisfying substitute.

"The patent medicine business has been a curse to pharmacy and it is to be regretted that many pharmacists, somewhat in the nature of a tacit endorsement, have, over their own names from week to week, advertised these preparations, selling them at reduced rates as if by so doing they were conferring a favor on the public. Some also have given their show windows to displays of these quack remedies, receiving in return for so doing a few bottles of the nostrums. And again some of the less reputable journals have allowed the use of their columns to advertise these preparations.

"The federal laws and the laws of our state have done a great deal to suppress this patent medicine evil, but which still remains to be done, and each one in his own sphere can lend a helping hand so that eventually the laws in our land will be as strict as they are in such countries as France, Germany and England.

"But for the assistance of pharmacists the patent medicine business never could have attained the proportions it has today. It is to be hoped that now there will be a turn in the tide and pharmacists will no longer be obliged to encumber the shelves of their pharmacies with these generally useless if not harmful preparations.

"It was the intention of the writer to give a description of the most prominent patent medicines exploited in the American Medical Association's exhibit, but as the same subject is most fully explained in the literature published by that society it was thought advisable not to do so.

"We would advise such of our readers who have not this literature to write to the American Medical Association, 535 North Dearborn Street, Chicago, and get copies of the following: 'The Great American Fraud,' by Samuel Hopkins

Adams; 'Nostrums and Quackery,' the many pamphlets published under the name of 'Medical Fakes and Fakers,' and also their excellent work, 'New and Nonofficial Remedies.'

"We are told that success is everything in the eyes of the vulgar and it is useless to deny the fact that some of those who have resorted to non-ethical and unscientific pharmaceutical methods have obtained financial success, but in these days of higher education, of colleges of pharmacy and medicine, he is but a poor member who would degrade his noble calling to the level of charlatans and quacks and where the principal claim to the good will and the respect of his neighbors is the fact that he sells quack medicines at cut rate prices."

HYDROPSIN

Report of the Council on Pharmacy and Chemistry

The Council has adopted the following report and authorized its publication. W. A. PUCKNER, Secretary.

Hydropsin is marketed by the Ernst Bischoff Company, Inc., New York. Its composition is thus described:

"Hydropsin is the standardized dialysate of Digitalis purpurea, Betula alba, Scilla maritima, Juniperis communis, and Herniaria glabra; or, stated otherwise, it is the juice of these drugs, dialyzed and physiologically standardized."

"Each fluid dram represents Digitalysatum 7 gtts., and 2 gtts. each of the dialysates of Betula, Herniaria, Juniper and Scilla."

The composition of Hydropsin must be considered essentially secret since the amounts of the several constituent drugs in a given amount of "dialysate" are not disclosed. The active principle of juniper is a volatile oil which is practically insoluble in water; it is difficult to believe that the "juice" of juniper submitted to dialysis could contain any material amount of the active constituent. No information is given as to the method used whereby the several dialysates are "physiologically standardized." It therefore remains to be proved that the manufacturer of Hydropsin possesses any method whereby the dialysates of juniper (Juniperis communis), birch (Betula alba, the common European birch) and knot weed (Herniaria glabra) are so standardized. The claim is made that:

"Herniaria has long been recognized as one of the most valuable drugs in the treatment of dropsical affections due to cardiac impairment."

On the contrary, Herniaria belongs to that large class of drugs which have been tried, found wanting and abandoned. It is a very old remedy, and the claims made for it are an inheritance from the early herbalists, with whom it was very popular. According to King's American Dispensatory, it was "principally employed to cure *hernia* (hence its name) and to increase the flow of urine. It was also said to increase the flow of bile. . . . Internally and externally, it was praised in *snake-bites,* and the powdered plant was employed to kill maggots on unhealthy *sores* of horses. It was reputed to 'crush' and expel calculi from the kidneys and bladder. . . ."

The Ernst Bischoff Company says that:

"Betula exerts both an antiseptic and stimulating influence on the urinary passages and is particularly serviceable where a catarrhal condition of the bladder exists. When combined with other diuretics, as in Hydropsin, the drug affords highly satisfactory results in the treatment of ascites, cardiac dropsy and hydrothorax."

Birch is another drug which has been discarded. Few textbooks on materia medica even mention it. That it can materially affect the action of such powerful drugs as squill and digitalis is exceedingly doubtful.

An unwarranted implication—that in this preparation the powerful drugs digitalis and squill have been deprived of their dangerous qualities—is the assertion:

"Dialysis, removing all resins and colloidals, results in better tolerance on part of sensitive patients, and in more rapid absorption and elimination; which, in turn, means early therapeutic effects and little or no fear of toxic accumulation."

That removal of colloids and resins materially affects the tolerance of these drugs is improbable. To claim that because of their removal, there need be "little or no fear of toxic accumulation" is utterly without warrant. The claim that one preparation containing digitalis is less likely to produce cumulative effect than any other digitalis preparation is contradicted by a mass of evidence.

It is claimed that Hydropsin affects "favorably all forms of DROPSY or Edema that are at all amenable to medical treatment." There can be no question but that squill and digitalis, or, better, either singly, used in suitable cases, may relieve dropsical effusions; but to claim that such a complex mixture as Hydropsin can favorably affect all forms of dropsy that are amenable to medical treatment is on its face unwarranted.

The claim is made that:

"By reason of its unusual potency and relative harmlessness, Hydropsin may be employed to great advantage in all cases where it is desirable to increase the volume of urine without injury to the renal structures."

On the basis of the claimed composition, the action of Hydropsin must be essentially that of digitalis or of digitalis and squill. Consequently, if it possesses "unusual potency," it cannot possess "relative harmlessness," and vice versa. Neither digitalis nor squill should be employed "in all cases" of nephritis, even if it is "desirable to increase the volume of urine."

The composition claimed for Hydropsin brands it as an irrational mixture in which potent drugs are combined with, and more or less covered up by, others that are obsolete and inefficient. The name, instead of indicating its composition, suggests diseases in which it may be thoughtlessly and indiscriminately used. The claim that the danger of toxic or cumulative action has been removed, if accepted by physicians, tends to uncritical use with possible disastrous results. Hydropsin is ineligible for New and Nonofficial Remedies because of conflict with Rules 1, 2, 6, 8 and 10.

DIGITALYSATUM

Report of the Council on Pharmacy and Chemistry

The Council has adopted the following report and authorized its publication. W. A. PUCKNER, Secretary.

Digitalysatum is sold in the United States by Ernst Bischoff Company, Inc., New York. The firm claims that it is a dialysate prepared from the juice of freshly gathered digitalis, containing all the active principles, and representing the fresh plant weight for weight. It is said to be standardized physiologically and to contain 12 per cent. alcohol. Sterisol-Digitalysatum, intended for injection, appears to be the "dialysate" without alcohol, diluted with equal parts of physiologic sodium chlorid solution. The Council some years ago found both products ineligible for New and Nonofficial Remedies because of unwarranted therapeutic claims. The preparations are still being advertised to physicians under claims which imply superiority to all other digitalis preparations. For instance:

"Digitalysatum is the diuretic *par excellence* in cardiac insufficiency . . ."

"Digitalysatum as a diuretic and cardiac stimulant is in a class by itself, being quick of action, uniform in strength, and well tolerated."

"Digitalysatum differs from other forms of digitalis in these respects: . . . Digitalysatum is free from fat, resins and colloids, and is therefore well-borne by sensitive patients—the young and the feeble—and is quickly absorbed and eliminated. . . ."

The Council has elsewhere[1] expressed the conviction that tincture of digitalis produces the full therapeutic effects of digitalis; that, when properly made, the tincture is as stable as any liquid preparation of digitalis now available, and that attempts to enhance the reputation of proprietary products by exaggerating the disadvantages of the official preparation are to be deplored. No adequate evidence is offered of the claimed superiority of action of Digitalysatum.

1. Report on Proprietary Digitalis Preparations, THE JOURNAL A. M. A., Dec. 4, 1915, p. 2024.

By implication, the claim is made that Digitalysatum is superior to other digitalis preparations in respect to toxicity:

"Free from fat, resins and colloidals, it is always well borne and is quickly absorbed and eliminated. No case of toxic accumulation (faulty elimination) has ever been reported."

That Digitalysatum is free from the dangers of toxic cumulation is highly improbable; in fact, it is inconsistent with the statement that the preparation contains all the constituents found in the fresh plant. Even if instances of cumulative action have not been reported this does not prove that such cumulative action does not occur. The tincture of digitalis has the systemic side-effects of digitalis in no greater degree than the various proprietary preparations. Attempts to create the impression that Digitalysatum possesses all the virtues of digitalis without its chief disadvantage are to be condemned as likely to lead to incautious use of the preparation.

These exaggerated claims are in the main made indirectly, but they are none the less inimical to sound therapy. The Council therefore declared Digitalysatum ineligible for New and Nonofficial Remedies and voted that this report be published.

STILL AT IT

"Under the deceptive heading 'Making Cod Liver Oil Palatable,' the *Charlotte Medical Journal* in its December issue prints a boost for 'Cord. Ext. Ol. Morrhuae Comp. (Hagee),' or, as it is generally known to the drug trade, 'Hagee's Cordial of Cod Liver Oil.'

"The boost intimates that this is a preparation in which cod liver oil has in some way been rendered palatable, and then goes on to say that this is a cod liver oil product which 'has not suffered the least loss of those essential elements which make the crude oil such a high-class reconstructive.'

"At first sight one might question whether a cod liver oil product which contains absolutely no cod liver oil had not suffered the loss of essential elements. But a closer reading discloses a significant qualification, namely, the phrase, 'those elements which make the crude oil such a high-class reconstructive.'

"The boost is misleading from beginning to end. The manufacturers have not succeeded in this preparation in 'making cod liver oil palatable,' nor does their preparation in any way possess the virtues of cod liver oil. These claims have again and again been refuted, but they continue to be published—at a price, but rarely in reputable medical journals."

The above is quoted from the *Weekly Bulletin* of the Department of Health of the City of New York. The *Bulletin* is issued for the enlightenment of the public.

Correspondence

Bloodless Operation for Hemorrhoids

To the Editor:—According to an abstract of an article in the *Zentralblatt für Chirurgie* by G. Tillmann on this subject (The Journal, Nov. 20, 1915, p. 1860), "Tillmann seizes the well everted nodule with a long clamp and takes a mattress suture back and forth in the tissues just below the clamp. The nodule is cut off close to the clamp and the raw edges are sutured together," etc.

In the essential points the Tillmann operation appears to differ little, if any, from that performed for many years by Dr. Samuel T. Earle of Baltimore. From 1902 to 1904 I saw Dr. Earle perform many times an operation which he called his own "modification of Whitehead's operation." The chief advantage over the Whitehead operation was the prevention of considerable further loss of blood in patients who were already greatly weakened by months or years of bleeding hemorrhoids. My observation of his work and results convinced me of the truth of every claim Dr. Earle made for his operation.

The operation as done by Dr. Earle was, in brief, as follows: The hemorrhoidal area to be removed was brought down in the usual way. An ingeniously curved rectal clamp of his own design was clamped on it for about one-third the areal circumference. With Hebb's specially curved scissors, also very ingeniously designed, the area thus clamped was removed. With the clamp still in position, a running catgut suture was used, sewing through skin and mucous membrane and around the clamp. Removing the clamp, this continuous suture was drawn taut by rapid and successive traction on the several loops, thus approximating the wound edges and arresting hemorrhage simultaneously. An assistant kept the suture taut while the operator repeated the steps just described in removing the hemorrhoids. About three such clampings were usually necessary. It was remarkable how practically bloodless the whole operation was. A detailed description of the operation will be found in the section on rectal surgery, Bryant and Buck's "Surgery," written by the originator of the operation.

Richard M. Nelson, M.D., Atlanta, Ga.

Concise Writing

To the Editor:—May I preach a short sermon on concise writing. The necessity for it may be found in almost any medical journal opened at random. I will select as my text the last paragraph of an excellent article in a recent number of The Journal. The writer states, in effect, that in fifty cases of skin disease on ordinary diet, the blood examined after meals showed little if any increase of sugar, and adds:

"And since the dermatologic manifestations of diseased conditions are frequently dependent in part on internal conditions, it is felt that a further study of this problem may throw light on certain forms of dermatoses in which a high sugar content will infer a probable alimentary hyperglycemia, the proper treatment of which may help solve the all-too-frequent difficulty of the dermatologic therapy."

When I was at school a boy asked the teacher why it rained on a certain day in many successive weeks. The latter replied that it was owing to the hebdomadal periodicity of the meteorological phenomena. Many of us are tempted to write as that teacher talked, and some unfortunately yield to the temptation. Long words are indeed impressive, and incomprehensible sentences are often judged to be very profound but skipped by the hasty reader.

After a hard struggle with the sentence quoted, I have decided that the writer wished to say that, since skin diseases are often of internal origin further study may show that certain ones with hyperglycemia are due to excess of sugar in the food, the removal of which may aid the cure. My translation of the sentence may not be absolutely correct. If so, it is perhaps less my fault than that of the writer, who overlooked the dictum that "perspicuity is the fundamental element of style." I trust he will forgive this criticism of his diction, since I fully appreciate the importance and excellence of the work he is doing, and write this letter with no desire to be either pedantic or disagreeable, but for the benefit, as I hope, of those who write, and particularly those who read, our current medical literature.

George Henry Fox, M.D., New York.

Editorial Sins

To the Editor:—One almost fears to incur editorial displeasure by offering unsolicited criticism. I like The Journal, its form and the character of its reading matter, and I may add that through the medium of its editorials I like the editor. As a subscriber I feel an interest, and as a Fellow a just pride in the weekly issue. Because of this any faultiness in editing is the more likely to arrest attention and convey an impression.

The editorial sins to which I have reference and which are the motive of the present communication are to be found in the issue of Dec. 11, 1915. On the first page in paragraph 3, line 3, "drank" should be "drunk." On page 2078, Hassin's article, paragraph 2, description of Gennerich's method, the dose of neosalvarsan to be given intraspinally as described would, I believe, be fatal. There is ambiguity at the end of this paragraph, a very serious matter in connection with a

therapeutic measure demanding caution and precision of technic. And again, for an example of awkwardness of statement and contradictory conclusion kindly permit me to refer you to the footnote at the bottom of the first column on page 2081, Warden's article. Even a footnote is sometimes important, and demands quite as much care as the text of which it is so frequently explanatory. If some such revision as the following had been made, the substance of the note might have been intelligible on first reading: It has been a matter of common observation that autolysates distinctly inhibit the growth of the gonococcus. Should conditions within the body and in artificial culture be at all comparable, it may be postulated (not "seen") that the presence of such antibodies may be detrimental to the continued existence of gonococci in the tissues.

I hope that in calling your attention to these offenses I in turn have given none. My criticism is meant in the kindliest spirit, and arises from a desire to see a splendid journal made better.

MELVILLE SILVERBERG, M.D., San Francisco.

Eczema and Formic Acid

To the Editor:—In the summer, noticing that some of the dahlias in my garden failed to grow well, I went literally to the root of the matter and found there the troublesome inset, *Aphis radicis* with *Formica flava,* the yellow ant, encouraging its depredations. I crushed numbers of the ants with my fingers, noticing at the time the pungent odor which they emitted, which was of course due to formic acid, especially abundant in this species.

At about this time, my hands began to present symptoms of eczema—itching (much aggravated after the taking of salted food) and formation of vesicles, with subsequent thickening and cracking of the skin. I did not associate these symptoms with the handling of the ants until they had recurred under the same circumstances for several seasons. I now avoid the annual attack of pseudo-eczema by avoiding the yellow ants.

The facts appear to me to suggest the dependence of genuine cases of eczema on the presence of formic acid, since this acid has been detected by various chemists in the perspiration.

E. M. B. T., New Bedford, Mass.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SENDING NARCOTICS BY MAIL

To the Editor:—In your answer to R. D. Z. (Queries and Minor Notes, THE JOURNAL, Dec. 18, 1915, p. 2187) you are correct as to the provisions of the Harrison act in re delivery of narcotics by U. S. mail, but I believe that you will find that the postal regulations specifically prohibit the shipment of these drugs by mail.

H. E. GOETZ, M.D., Knoxville, Tenn.

To the Editor:—R. D. Z. asks in regard to delivery of drugs by mail. I suppose he means narcotic drugs. It is not a violation of the Harrison law as you say, but is a violation of another forbidding the transportation of narcotic drugs in any form or amount by mail.

M. T. CLARK, M.D., Temple, Okla.

ANSWER.—Several similar letters have been received, questioning the validity of the statement in THE JOURNAL for December 18, and asserting that while the Harrison Narcotic Law itself did not prohibit the shipping of drugs by mail, such a prohibition was to be found in the federal postal laws. An examination of these laws will show that the general shipping of poisons by mail is prohibited. But this prohibition in no way applies to the shipment of drugs and anesthetics for bona fide medicinal purposes. The postal laws and regulations specifically provide that physicians, dentists and veterinary surgeons may send drugs by mail if properly identified, such as by placing on the package the name of the physician, the contents of the package, the purpose for which it is intended, and that it is a poisonous substance. A druggist can fill a physician's prescription and mail the drug to the designated patient, provided he complies with the requirements as above set forth.

HOW TO RETURN A MANUSCRIPT—TWO EXAMPLES

There is no more difficult task for an editor than that of returning manuscripts; he is an adept who can do it without giving offense. The following is an example of the way a Chinese editor did it. We have already printed this communication, but reproduce it again for the sake of comparison.

"Most venerable brother of the sun and the moon, your slave bows at your feet. I kiss the earth before you. I implore your permission to speak and to live. Your most venerated manuscript passed before our eyes, and we were ravished by it. With fear and trembling I return it. If I ventured to publish it the emperor would order me to take this jewel as a model and never depart from it or have the audacity to publish anything inferior to it. But my long experience of letters has taught me that such pearls can be produced once, and once only, in ten thousand years. So I must return it. I entreat you to forgive me. I am at your feet, the slave of slaves."

While we doubt if an Occidental will ever be able to compete with an Oriental in this matter, we have one editor in this country who comes very near equaling our Chinese editor. The recipient of the letter printed below forwarded it with his manuscript when submitting it to THE JOURNAL:

"My Dear Doctor:

"If you knew how many times I had read your paper on ——— and how much thought I had given it, you would appreciate the regret that it gives me to return it to you without publishing it.

"It is an excellent story, well told, and contains an immense amount of food for thought, but I am foregoing the pleasure of printing it because it is not a story that would appeal to that class of people who look to ——— for their inspiration.

"I am sorry that I kept the paper so long, but I know that any medical journal will be eager to publish it, and it is as good now as it was when I first got it; indeed, it is a paper that will grow better and for many years will not lose its thought breeding and inspiring character.

"Regretting that the paper is not for the columns of ———, and regretting also that I have kept you waiting so long, I am

"Sincerely yours,

"_____."

REFERENCES TO ARTICLES ON SYPHILIS OF THE STOMACH

To the Editor:—Please refer me to literature on gumma of the stomach.

L. F. CARLTON, M.D., Tampa, Fla.

ANSWER.—The following are references on syphilis of the stomach:

Jores: Demonstration von gummöser Magensyphilis, *Verhandl. d. deutsch. path. Gesellsch.,* 1907, Jena; 1908, xi, 319.

Meyer, J. S.: Syphilitic Tumors of the Stomach, *Weekly Bull. St. Louis Med. Soc.,* 1910, iv, 134.

Arkin, A.: Acquired Syphilitic Ulcers of the Bowel, *Tr. Chicago Path. Soc.,* 1912, viii, No. 7.

Villacian, L., and Bazan, F. A. C.: Syphilis of the Stomach, *Semana méd.,* June 6, 1912.

Meyers, J.: Syphilis of Stomach, *New York State Jour. Med.,* September, 1912.

Meyers, J.: Syphilis of Stomach, *Albany Med. Ann.,* October, 1912; abstr., THE JOURNAL, Nov. 9, 1912, p. 1742.

Morgan, W. G.: Syphilis of Stomach: Report of cases, *Am. Jour. Med. Sc.,* March, 1915.

Einhorn, M.: Syphilis of Stomach: Report of cases, *Med. Rec.,* New York, March 13, 1915.

Downes, W. A., and LeWald, L. T.: Syphilis of the Stomach: Report of Eight Cases with Roentgenologic Findings, THE JOURNAL, May 29, 1915, p. 1824.

Einhorn, M.: Syphilis of the Stomach, *Arch. f. Verdauungskr.,* June, 1915.

Mühlmann, E.: Syphilitic Contracted Stomach, *Deutsch. med. Wchnschr.,* June 17, 1915, abstr., THE JOURNAL, Aug. 7, 1915, p. 564.

Smithies, F.: Syphilis of the Stomach: A Clinical Study of Twenty-Six Instances of Dyspepsia, Associated with Positive Wassermann-Noguchi Reactions, THE JOURNAL, Aug. 14, 1915, p. 572.

Fischer, L. C.: Syphilis of Stomach and Intestines: Report of Cases, *Georgia Med. Assn. Jour.,* September, 1915.

Examine Teachers for Suspected Tuberculosis.—The department of health of New York City, in cooperation with the city superintendent of schools, has devised a plan by which teachers suspected of having tuberculosis will be examined by physicians of the department of health. Principals of schools are requested to report teachers who are in such physical condition as to be unable properly to do their work and whom there is reason to regard as probable subjects of tuberculosis. A woman physician will be detailed to examine women teachers if they so desire.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 11. Sec., Dr. W. H. Sanders, Montgomery.

California: Sacramento, Jan. 11. Sec., Dr. Charles B. Pinkham, Room 527 Forum Bldg., Sacramento.

District of Columbia: Washington, Jan. 11. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Illinois: Chicago, Jan. 13-15. Sec., Dr. C. St. Clair Drake, Springfield.

Indiana: Indianapolis, Jan. 11. Sec., Dr. W. T. Gott, 84 State House, Indianapolis.

Iowa: Des Moines, Feb. 8-10. Sec., Dr. G. H. Sumner, State House, Des Moines.

Kansas: Topeka, Feb. 8. Sec., Dr. H. A. Dykes, Lebanon.

New Mexico: Santa Fé, Jan. 10. Sec., Dr. W. E. Kaser, East Las Vegas.

New York: Albany, Buffalo, New York and Syracuse, Jan. 25-28. Chief, Examinations Division, Mr. Harlan H. Horner, State Education Bldg., Albany.

Oklahoma: Oklahoma City, Jan. 11-12. Sec., Dr. R. V. Smith, 502 Daniel Bldg., Tulsa.

Pennsylvania: Philadelphia, Jan. 18-20. Sec., Mr. Nathan C. Schaeffer, Harrisburg.

South Dakota: Pierre, Jan. 11. Sec., Dr. P. B. Jenkins, Waubay.

Vermont: Montpelier, Feb. 8-11. Sec., Dr. W. Scott Nay, Underhill.

Wisconsin: Madison, Jan. 11. Sec., Dr. J. M. Dodd, 220 E. Second St., Ashland.

Medical School Mergers

The amalgamation of medical institutions, a process which has been going on in America for more than a decade, is happily still in progress. Nearly all of our independent medical colleges have either formed a union with a university or have become defunct, the principal exceptions being a few of the larger detached schools in the eastern part of the United States. It is only natural that the latter should be seeking an honorable amalgamation with universities, realizing, as they must, that the remaining independent medical schools are being put to a great disadvantage as the result of previous mergers in other parts of the country, and also in consequence of the trend toward higher educational standards.

The project to merge the Medico-Chirurgical College of Philadelphia with the University of Pennsylvania, the former to become the graduate department of the latter, is being seriously considered. This union would be in line with the trend of modern progress in medical education elsewhere throughout the country. It is hoped by those advocating the merger that ultimately the Philadelphia Polyclinic and the Jefferson Medical Colleges will also be consolidated with the University of Pennsylvania. Such a triple amalgamation would increase the efficiency of the individual units, and is therefore altogether desirable. That there are still more so-called undergraduate colleges than are required in this country, in view of the changed conditions of medical practice, is undoubted. On the other hand, larger opportunities for graduate instruction with ample modern laboratory equipment and clinical facilities are still needed. This deficiency, however, has been recognized by certain institutions, notably Harvard University, the Johns Hopkins University, the University of Minnesota and the Tulane University of Louisiana. These institutions have organized departments of graduate instruction, but there is room for additional schools if properly organized, well equipped and well officered.

In order to obtain the best educational results, however, these courses demand a separate physical plant, made up of a hospital with ample clinical facilities and appropriate laboratories, in which they are to be conducted, for the convenience and economy of time, of the graduate students. It is an encouraging sign of the times that the process of amalgamation of faculties and equipment in the United States bids fair to be carried to a logical conclusion. With a proper combination of forces and activities throughout the country, America should, within a short period of time, lead the world in both undergraduate and postgraduate education.

Maine July Report

Dr. Frank W. Searle, secretary of the Maine State Board of Registration of Medicine, reports the written examination held at Augusta, July 6-7, 1915. The total number of subjects examined in was 10; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 42, of whom 41 passed and 1 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Bowdoin Medical School	(1915) 80, 80, 81, 81, 81, 82, 83, 83, 84, 84, 85, 85, 85, 86, 86, 86, 87, 87, 88, 89, 92.	
College of Physicians and Surgeons, Baltimore	(1914)	83
University of Maryland	(1914)	91
Boston University	(1903) 82; (1915)	83, 86
Coll. of Phys. and Surgs., Boston	(1913) 76; (1915) 81, 81,	82, 83
Harvard University	(1913) 87; (1914) 79; (1915) 87,	87, 89
Tufts College Medical School	(1914)	83
Dartmouth Medical School	(1914)	86
University of Pennsylvania	(1913)	85
University of Vermont	(1882)	80
National School of Medicine, Mexico	(1910)	79
FAILED		
Eastern University*	(1913)	57

* This college was officially reported as not recognized by the Maryland State Board of Medical Examiners.

Massachusetts July Report

Dr. Walter P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, reports the oral, practical and written examination held at Boston, July 13-15, 1915. The total number of subjects examined in was 13; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 156, of whom 128 passed, including 13 osteopaths, and 26 failed, including 8 osteopaths. One candidate's papers were laid on the table and one was not rated on account of false oath. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University	(1915)	80.6
Atlanta Medical College	(1915)	78.3
University of Kansas	(1912)	78.7
Tulane University of Louisiana	(1910)	78.2
Bowdoin Medical School	(1915)	75.7, 79
Baltimore Medical College	(1898)	75
College of Phys. and Surgs., Baltimore	(1886) 77.5; (1913) 76.5; (1915)	76.4
Johns Hopkins University	(1913)	82.2
Boston University	(1903) 75; (1915) 75, 76.1, 76.8, 77.2, 77.6, 78.5, 79, 80.4,	81.6, 82.4
College of Phys. and Surgs., Boston	(1915)	76.6
Harvard University	(1912) 78.4; (1913) 83.2; (1914) 76.5, 77.1, (1915) 75, 75.3, 75.8, 76.5, 76.5, 78, 79.1, 79.1, 79.7, 79.7, 80.1,	80.2, 80.3, 80.5, 80.5, 81.5, 81.7, 82.6, 82.7, 82.8, 83, 83.1, 83.5, 84.1, 86.9
Tufts College Medical School	(1911) 75.6; (1914) 76, 76.7, 77.5; (1915) 75, 75, 75, 75, 75.2, 75.3, 75.7, 76.2, 76.3, 76.4, 76.5, 76.6, 76.6, 76.8, 77.1, 77.2, 77.5, 77.7, 77.9, 78.6, 78.6, 78.7, 78.9, 79, 79, 79.5, 79.7, 79.8, 80.1, 80.1, 80.1, 80.5, 80.7, 80.7, 80.9, 81, 81.1, 81.1,	82, 82.1
St. Louis University	(1913)	78.1
Columbia University, College of Phys. and Surgs.	(1915)	79.6
Long Island College Hospital	(1914)	80
New York Homeo. Med. Coll. and Flower Hosp.	(1915)	78.3
University and Bellevue Hospital Med. Coll.	(1908)	78.6
University of Buffalo	(1907)	76.6
Starling-Ohio Medical College	(1910)	82.2
Western Reserve University	(1909)	81.2
Jefferson Medical College	(1914)	76.2
Temple University	(1913)	81
University of Pennsylvania	(1899)	75
Woman's Medical College of Pa.	(1910) 78.5; (1915)	83.4
Memphis Hospital Medical College	(1911)	75
University of Vermont	(1906) 76.2; (1908) 75.4; (1912)	77
University of Toronto	(1907)	75.7
Catholic University of Louvain	(1894)	80.2
FAILED		
Georgetown University	(1913)	72.2
Hahnemann Med. Coll. and Hosp., Chicago	(1901)	62.8
Bowdoin Medical School	(1915)	72.7
College of Phys. and Surgs., Baltimore	(1915)	73.1
Maryland Coll. of Eclectic Med. and Surg.*	(1914)	56, 65.1
Maryland Medical College	(1913) 64.8,	66.2, 69.8
College of Phys. and Surgs., Boston	(1911)	69.7
Tufts College Medical School	(1914) 71.7; (1915) 70.7,	71.7, 72.6
University of the South	(1902)	65
University of West Tennessee	(1913)	67.2
Laval University	(1915)	71
Montreal School of Med. and Surg	(1915)	65.6

* This college was officially reported as not recognized by the Maryland State Board of Medical Examiners.

New Mexico July Report

Dr. W. E. Kaser, secretary of the New Mexico Board of Health and Medical Examiners, reports the written examination held at Santa Fé, July 12, 1915. The total number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. Twelve candidates were licensed on credentials and 1 through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Total No. Licensed
University of Colorado	(1914)	(1915) 2
Atlanta Medical College	(1914)	1
Northwestern University	(1913)	1
Kansas Medical College, Topeka	(1907)	1
Kentucky School of Medicine	(1893)	1
Louisville Medical College	(1901)	1
Washington University	(1913)	1
Miami Medical College	(1903)	1
Jefferson Medical College	(1904)	1
University of Pittsburgh	(1909)	1
McGill University	(1881)	1

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Memphis Hospital Medical College	(1904)	Oklahoma

Book Notices

THE BABY'S FIRST TWO YEARS. By Richard M. Smith, M.D., Assistant in Pediatrics, Harvard Medical School. Cloth. Price, 75 cents. Pp. 156, with illustrations. Boston: Houghton Mifflin Company, 1915.

Although the author claims no originality for the material in his book, it is unique in arrangement and expression of thought. The book is divided into three parts, the first giving rules for the care and feeding of infants, the second consisting of general suggestions which, the author states, may be modified to meet the requirements of the individual baby, and the third containing recipes and charts. Included in the second part is a calendar illustrating the typical day of a healthy baby. Such a calendar is especially valuable in its indication of the regularity and system which should mark the care of the infant.

The author considers proprietary baby foods as of two kinds, "those to be made with milk and those to be made without milk." The former, he says, are expensive additions to modified cow's milk and are not necessary. The latter do not furnish a satisfactory food. On the whole, the use of these preparations should be limited to the rare instances when an infant cannot digest cow's milk, and they should then be used only with the advice of the physician.

Though brief, the text of the book omits nothing which the inquiring mother might wish to or should know. The book is a practical one, and worthy of recommendation to the intelligent.

DISEASES OF INFANTS AND CHILDREN. By Henry Dwight Chapin, A.M., M.D., Professor of Diseases of Children, New York Post-Graduate Medical School and Hospital, and Godfrey Roger Pisek, M.D., Sc.D., Professor of Diseases of Children, New York Post-Graduate Medical School and Hospital. Third Edition. Cloth. Price, $3.25 net. Pp. 578, with 179 illustrations. New York: William Wood & Co., 1915.

In this edition the authors have revised several portions of their book. Among the new topics added are albumin milk feeding, the Schick test and the luetin test. Matter of minor importance, such as the rarer diseases and various laboratory tests, is printed in small type; such material forms about one tenth of the text. Much of it is laboratory diagnostic technic which appears more detailed in books devoted wholly to this subject. The chapter given to therapeutics is especially sane, and indicates that the authors have kept abreast of recent progress in treatment. The illustrations, especially the colored plates, are excellent, but the plate showing a comparison of various types of indicanuria seems somewhat far fetched, inasmuch as numerous skeptics are inclined to question the interpretation of any indican test. As a text for students or a guide to the practitioner, this book may be advised for its brevity, directness and general up-to-dateness.

Medicolegal

Damages Allowed for Injuries Causing Convulsions

(*Sherwood vs. Crescent Creamery Co. (Minn.), 153 N. W. R. 525*)

The Supreme Court of Minnesota says that the plaintiff, a young woman stenographer earning $50 a month, was injured, in April, 1914, by an automobile truck belonging to the defendant. It was not claimed that the evidence did not justify a finding that the defendant was negligent, or that there was any negligence on the plaintiff's part. The principal contention on this appeal was that the damages awarded by the jury, $6,750, were excessive. Before the accident, the plaintiff was a strong, healthy girl. After the accident, she had frequently recurring fainting spells, attacks that were called by her expert "epileptoid," and by the experts for the defendant, "hysterical convulsions." That they were genuine, and not feigned, attacks, was not doubted by the defendant's experts.

The plaintiff had not been able to go out alone, and had to be watched the entire time. She was pale and had lost weight. The causal connection between the accident and her condition at the time of the trial was proved. In short, the evidence justified a substantial verdict. But there was no organic trouble, and the evidence as to the probable duration of the plaintiff's condition was that she would entirely recover.

The plaintiff's expert testified that the prognosis would be fair, and the probabilities were that she would get over the attacks. As to when, the witness said that this would depend on her regaining her lost weight, and her general health, and that the end of this litigation would be an important factor in her recovery. The defendant's experts agreed on this.

The court was unable to find any evidence that would warrant a finding that the plaintiff's injuries were permanent, or that her condition, serious at it was, would last for any length of time in the future. Under these circumstances, the court thinks that $5,000 would be ample compensation, and that the evidence would not sustain any verdict in excess of that sum. Wherefore a consent within ten days to a reduction of the verdict was required, under the penalty that otherwise a new trial would be granted.

Not Entitled to Recover for Cystitis

(*Moses vs. St. Barnabas Hospital (Minn.), 153 N. W. R. 128*)

The Supreme Court of Minnesota affirms an order denying the plaintiff a new trial after this action, brought by her to recover damages for injuries alleged to have been sustained by her while a patient in the defendant hospital, was dismissed at the close of her case. The court says that the only question demanding attention was whether any evidence was presented which would justify submitting to the jury the issue of the competency, qualifications, or negligence of the nurses who were assigned to the care of the plaintiff. This court's examination brought to light no such evidence. The contention of the plaintiff was that she contracted cystitis by the negligent use by the nurse of an unclean catheter. While the evidence showed that a catheter was employed in her treatment, by two of the nurses, there was no evidence whatever that it was unclean or not in proper condition for use. No witness gave any testimony tending directly or indirectly to establish that fact. The opinion of the physician, called by the plaintiff, that in his opinion the plaintiff's trouble was occasioned by the use of a "dirty catheter," was not founded on any evidence in the case, and was the naked conclusion of the witness. Cystitis does not necessarily follow from the use of a catheter; it may be contracted in other ways, and no inference could be indulged in this case that its use was the cause of the plantiff's infection, or that it was unclean and not in proper condition for use. Wherefore the court holds that the evidence failed to sustain the allegations of incompetence or negligence, and that the action was properly dismissed.

Society Proceedings

NORTH SIDE BRANCH OF THE CHICAGO MEDICAL SOCIETY

Regular meeting, held Nov. 12, 1915

The President, DR. CLARENCE L. WHEATON, in the Chair

Auricular Fibrillation

DR. JAMES B. HERRICK: The ordinary train of events in the undiseased heart, whether the beat be slow or rapid, is for the auricles to contract before each ventricular systole, an appreciable interval of about 0.15 second intervening, during which time the stimulus is traveling the bundle of His and its branches. Under certain conditions, the auricle remains distended in diastole; its power of contracting as a unit has gone; its muscular action is represented by numerous quiverings or twitchings of fibers and small patches of muscle. This is auricular fibrillation. So far as ability to propel blood through the atrioventricular orifice is concerned, the auricle is paretic, the blood passes these openings by virtue of gravity, the *vis a tergo* in the veins, the suction effect of ventricular diastole, etc. The signs to be sought for in auricular fibrillation are: 1. A rapid action of the ventricle—this is generally found. 2. An absolute irregularity in the time of the beats. 3. An irregularity also as to the strength of the beats as revealed by the pulse, the cardiac impulse or the cardiac sounds. 4. Without instruments of precision it is practically impossible to show the absence of auricular systole and the presence of the twitching of the auricular musculature, the fourth characteristic feature. 5. Not only is there the absence of the auricular wave in the phlebogram, with a venous pulse of the ventricular or positive type, but at times a true tricuspid incompetence with the ventricular venous pulse still more pronounced. A positive venous pulse may be present with tricuspid incompetence, when the auricle is not in fibrillation. 6. The absence of auricular systole will sometimes materially alter the murmurs of valvular disease, the particularly striking example being the change of the murmur of mitral stenosis from its presystolic, that is, auricular systolic location, to a place early in diastole. 7. One is reasonably safe in saying that a plain irregularity of the heart, when the beat is over 120 to the minute, is due to auricular fibrillation. Flutter and tachycardia are rhythmic. Extrasystoles generally disappear as the heart becomes as rapid as 120. When the heart is comparatively slow, as under the influence of digitalis, the beats may seem equal in strength and in time between beats, or they may resemble extrasystole. 8. With extrasystole an increased rapidity of the heart beat will generally cause extrasystole to disappear. Sometimes in patients undergoing examination, the increased rapidity of the heart will cause the irregularity to disappear wholly or partly. With auricular fibrillation the opposite is the rule. The heart, unless steadied by treatment, is fit to do its work in only a poor way. Evidences of decompensation are more or less in evidence. 9. Often there is a combination of cardiac irregularities. I have seen in the terminal incompetence of mitral stenosis a most pronounced fibrillation, with numerous extrasystoles, with little runs, like tachycardia. Instances of heart block with auricular fibrillation are also recorded. Perhaps 50 per cent. of cardiac irregularities are due to auricular fibrillation. No single lesion has been found postmortem to explain it, though acute and chronic inflammatory and degenerative changes are described at times in the sino-auricular node, and in various places in the auricles. As strikingly seen in mitral stenosis, in which valve lesion auricular fibrillation is a frequent event, the auricle is often greatly distended, and a condition of fatigue may, perhaps, be assumed as having been present. In some instances an auricle that is anatomically without flaw has been found. The prognosis has been generally held to be bad, though the condition may last for years, even ten or more. By contrast, extrasystole has been viewed as more benign and of good prognosis. Fibrillation of the auricle has been known to occur, and then permanently disappear, as in pneumonia. The prognosis must be based on the size of the heart, the valvular, pericardial or myocardial disease in evidence, the presence or absence of dyspnea, cyanosis, engorged liver, etc., as indicating cardiac incompetency. Another point to be kept in mind is that many cases of fibrillation are peculiarly amenable to the good influences of digitalis, and from this point of view the condition is favorable.

Treatment of Auricular Fibrillation

DR. ROBERT H. BABCOCK: Excepting in certain acute infections, when there may be a paroxysmal auricular fibrillation, when fibrillation of the auricles is fully established, the heart's rhythm rarely if ever becomes normal. In this class of cases digitalis achieves its most brilliant results. Digitalis impedes the transmission of the incoordinate impulses of the auricles through the conducting fibers to the ventricles; therefore, it slows the contractions of the ventricle, and permits a longer period of diastole. It also probably affects the musculature of the ventricles in such a way as to strengthen the ventricular contractions, thereby improving the force of the pulse, regulating it to some extent, and overcoming in a measure the dilatation which is a result of the auricular fibrillations. This type of arrhythmia is encountered most commonly in connection with mitral disease. Three indications are to be met in these cases: (1) relief of the insomnia and dyspnea; (2) relief or lessening of visceral engorgement, and (3) slowing down and strengthening the heart's action. The first is best accomplished by giving a hypodermic injection of morphin, heroin or codein. The second indication is met by the use of a cathartic, say, 10 grains of blue mass with one-half grain of hyoscyamus at night, followed the next morning by a saline. So long as the visceral congestion continues, the cathartic should be given daily. The third indication is met by the use of digitalis or strophanthus. Regarding the Carrell diet in these cases, limiting the patient to 20 ounces of milk a day, I customarily give more than 20 ounces, namely, 6 or 8 ounces every three hours during the day, for the first two or three days.

As to digitalis, when prompt effect is desired, it should be given intravenously. Very close watch must be kept for the first signs of digitalis intoxication, and in this the pulse is a very reliable guide. The heart should be examined every day. When the patient is allowed to get up and resume his ordinary occupation, digitalis should be continued in carefully supervised dosage. Regarding strophanthus, one may administer a milligram, a whole cubic centimeter or a half cubic centimeter intravenously. The great drawback to the use of this drug, however, is that it is exceedingly irritating, and if any of it leaks into the tissues it produces much pain and serious infiltration of the tissues. It cannot be given intramuscularly as may the digitalis. One must not throw strophanthus into the vein of a patient who has been taking digitalis until sufficient time has elapsed for the elimination of the digitalis. There is positive danger of the heart being brought to an arrest by the strophanthus. These patients must be taught to adjust their habits of life to the ability of the heart to endure strain. The prognosis in many of these cases is good, but if the effects of digitalis or strophanthus are badly borne, or the action promptly lost, the prognosis is bad, and the most that can be done is to rely on such means as will tend to overcome the unpleasant effects of the back pressure and greatly restrict the patient's habits as to exercise, diet, etc.

DISCUSSION

DR. FRANK BILLINGS: Auricular fibrillation is the most common irregularity of the heart. One can separate the other irregularities from it often, even without an instrument. Extrasystole is sometimes associated with auricular fibrillation, but more often not. Heart block is not difficult to recognize, and while heart block may be associated, it is rare, unless it is brought about by digitalis. But the time has come in diagnosis of heart diseases, when one must

make use of instruments of precision. The electrocardiograph is the best of them all, but the polygraph also is a useful instrument. Auricular fibrillation associated with recognizable organic heart disease, especially mitral stenosis, is unfavorable for diagnosis. The presystolic murmur and the thrill of an ordinary typical mitral stenosis may disappear with auricular fibrillation, and especially with decompensation, or, often, what appears to be a mitral insufficiency with a murmur may be simply a relative murmur. In that event the prognosis is very much better than with mitral stenosis. I agree with what Dr. Babcock said regarding the use of morphin and the treatment of visceral stasis. Regarding the Carrell diet, some modifications must be made. I attempt to limit the liquid intake in twenty-four hours to a liter. In auricular fibrillation with mitral stenosis, my experience has been that the digitalis group is almost contraindicated because of the mitral stenosis.

DR. CHARLES SPENCER WILLIAMSON: The difficulty of a diagnosis of auricular fibrillation is a little overestimated. One can find cases in which auricular fibrillation is combined with an extrasystolic arrhythmia, and those cases will defy diagnosis by the ordinary means. But in the average case the condition can be diagnosed without the electrocardiograph in the great majority of cases. In very severe cases of auricular fibrillation, when one needs prompt action, strophanthus is sometimes the remedy *par excellence*, although purgatives should be given every day.

DR. N. S. DAVIS: I have been interested recently in trying to ascertain what may be the action of digitalis which produces the good effect in these cases. Probably the good effect is due to an improved circulation through the heart muscle itself, or to a relief of the dilatation of the heart, but I wish to suggest one other possible explanation. In these cases there is practically no rest for the heart. The period ordinarily occupied by rest is filled with the constant contractions of the auricle. In the normal wave there is a time during which the conduction from the bundle of His is taking place from the auricle to the ventricle. In the cases in which digitalis was given this time was very much lengthened, thus giving the heart a rest—not a period of rest in the normal place or extent, but still a period of rest. Thus, if we can cause a period of rest, whether or not by digitalis or in the right place, we are going to help the heart muscle.

Diagnosis and Medical Treatment of Exophthalmic Goiter

DR. STEPHEN R. PIETROWICZ: I have seen fifty-two cases which exemplify the various stages of this syndrome. Forty-nine of these were in women and three in men. In none was a history of congenital goiter obtained. Hereditary influence was noted in five, on the mother's side. In fifty-two patients some infection was present in the mouth, tongue, teeth, nose, tonsils, pharynx and larynx, and in thirty-five of this group when the infection prevailed on the right side, the right lobe of the thyroid was found to be more enlarged than the left, and in ten, in which the seat of infection was left-sided, an enlargement of the left lobe of the thyroid was noted.

A large percentage of patients of the milder type will recover with absolute rest, both mental and physical, isolation, subdued light, partly forced feeding, and the removal of any pathologic foci existing within the oral cavity. The judgment of a careful, competent and thorough laryngologist should be sought, and whatever surgical measures necessary should be carried out scrupulously in order to rid the patient of the absorption of toxins. All our patients were put on lactic acid ferments, and a marked influence was noted on the general condition of the patient, evidenced in the marked slowing of the heart and decided diminution of nervous symptoms and relief of gastro-intestinal symptoms. We advised the use of fresh buttermilk; lactic acid ferments from artificial mediums may be employed as a substitute. Hydrotherapy is of value, and frequently a change of environment and climate is beneficial. The administration of sodium phosphate and sodium bromid and magnesium sulphate for sedative effect may be advised. One should be very cautious in the administration of the iodids, as the iodin content of the gland is great, and may produce constitutional iodism and overstimulate the thyroid. The injection with boiling water should be left in the hands of a competent surgeon. The use of serum has been successful only in the hands of certain men, and is of questionable value, and as yet cannot be applied as a routine measure. The application of local agents has been a profound failure.

Surgical Treatment of Exophthalmic Goiter

DR. A. J. OCHSNER: For surgical treatment, those patients should be selected who are not curable by the methods which Dr. Pietrowicz has just indicated, and then other patients who are left, in whom the heart is not hopelessly destroyed, dilated, as a result of long-continued hyperthyroidism. When the heart is in a hopeless condition the patients are not benefited much. The general condition of the patient will improve enormously after the hyperthyroidism is removed, but the degenerative conditions do not improve to any marked extent. As regards the time of operation in a given case, we must remember that in these cases there is a definite margin of safety, and it requires the highest class of surgical judgment to determine whether that margin of safety is sufficient for the amount of strain that the proposed treatment will bring to bear. Operations at the time when the margin of safety is relatively great will have a very much lower mortality than in cases in which this feature is not considered. The same principle will also indicate how far the surgeon can go in the operation that has been planned. Bearing all these factors in mind, the sources of danger must be considered, and first of these is the danger from the anesthetic. If the surgeon can quiet the apprehension of the patient by suggestion, then the local anesthetic is to be preferred, especially if the operation is to continue for a long period of time. On the other hand, if he has not this personality, then the fact of the patient being awake will very much more than counterbalance the danger from the anesthetic. The danger from the anesthetic is from three sources: First, from giving too much anesthetic during the time when the manipulations are progressing on the thyroid gland itself. In many of these cases a condition develops during operation which seems to leave an effect on the patient from which he does not recover. This can be avoided by the following plan:

The patient is given one-quarter grain of morphin and $\frac{1}{100}$ grain of atropin half an hour before anesthesia is begun, and then is anesthetized by means of the ether drop method. After the patient has been thoroughly anesthetized in the horizontal position, the head is elevated 45 degrees, so as to secure an anemia of the brain, and the operation is begun. No further anesthetic is given. The patient exhales the ether taken during the time she was thoroughly anesthetized, and the anemia of the brain from the position maintains this anesthesia, so that the operation can be completed without pain to the patient, without shock to the nervous system, and with perfect safety from the anesthesia. This form of anesthesia eliminates the further danger of inspiration of mucus, which in operations of this character is secreted in considerable amount. The hypodermic administration of $\frac{1}{100}$ grain of atropin reduces the flow of mucus. The third danger, that of pneumonia, is also eliminated. Since we have applied this method of anesthesia we have operated in many hundred cases and have not had one case of pneumonia following the thyroidectomy. The mortality has been reduced correspondingly. Next in importance is traumatism. If a surgeon is gentle in his manipulations, the traumatism naturally is much less, and also the postoperative hyperthyroidism, than if he is a violent surgeon. Another danger which must be guarded against is injury to the recurrent laryngeal nerve and the parathyroids.

DISCUSSION

DR. A. C. CROFTAN: I was interested in Dr. Pietrowicz' reference to finding evidences of infection of the tonsils, alveolar processes, etc., in view of the great importance which these focal infections have acquired, from the thera-

peutic standpoint. I was disappointed that he did not enter further into the treatment of these cases; for instance, nothing was said of the use of autogenous vaccines.

DR. FRANK BILLINGS: While we are satisfied that the complex of symptoms that we call exophthalmic goiter is due to overthyroid secretion, we really, so far as knowledge of the cause of the disease or the diminution of its incidence are concerned, are not much better off now than before. We ought to study a little more systematically what causes the goiter. We can say that there is a glandular involvement of the thyroid that is compensatory. It occurs in the boy and girl, about the time of puberty, when the physical needs of the body call for more secretion. That physiologic enlargement we recognize as compensatory. Then in more recent years we have recognized a real hyperplasia, that is, an infected gland occurring in the course of infectious diseases, generally. Hyperplasia occurs in acute or chronic focal infections, and out of this hyperplasia come these symptoms. We also know that certain environment and certain drinking water produce it. It is possible, of course, that on top of the gland enlargement, physiologically, there may occur a hyperplasia. In discussing this question, one man will say, "This is a medical goiter"; another will say, "This is a surgical goiter." There are no such terms. They are both diseases of the thyroid. The symptoms of exophthalmic goiter represent simply the reaction of the body. We are not going ahead when we spend so much time in discussing the technic of the medical management or the technic of the surgical management of these cases. We want to get at the cause.

DR. COLEMAN G. BUFORD: There is nothing that will clear up this question except experimental work. We have been discussing goiter from too many angles. All of these cases of enlargement, if not outside of the neoplasm proper, are merely different steps in the pathogenesis. What helps to prove this? The very fact that in so many of the cases the facial expression changes, and changes in the size of the thyroid gland take place after the administration of the thyroid extract alone. We have been watching the goiters of children. They come on about the time that tonsils and adenoids have had their damaging cumulative effect on the system. The symptoms manifested in these cases are nothing more than toxic.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION

Twenty-Eighth Annual Meeting, held at Cincinnati, Dec. 13-15, 1915

The President, DR. BACON SAUNDERS, Fort Worth, Texas, in the Chair

High Versus Low Degrees of Heat as Palliative Treatment for Advanced Cases of Cancer of Uterus

DR. HERMAN J. BOLDT, New York: The galvanocautery treatment, originated by the late Dr. Byrne of Brooklyn, gives more satisfactory results in such cases than any other method of treatment. Radium and Roentgen rays have not been so satisfactory. It has been proved that patients receiving galvanocautery treatment live longer and are free from distressing symptoms. It is comparatively safe when used in cases in which the disease has not advanced so far that the bladder and rectum will probably be injured by a thorough application. Dr. Percy asserts that the application of lower degrees of heat for a longer time has a deeper destructive influence. I gave his method a thorough test for two years, but did not see in any case a superior clinical advantage. A careful study of the tissues from a woman who died eight days subsequent to the heat application for two and a half hours showed it to be a fallacy. Directly beyond the cauterized zone were actively proliferating cancer cells. The application of heat so low as not to char the tissues is of no more value in hindering cell growth in the depth of the tissues than are high degrees of heat. The technic advocated by me has the advantage of being able to do the cauterizing in from twenty to thirty minutes, and I believe that the destruction of tissues is carried deeper, leaving only a shell of the cervico-uterine structures. The degree of heat employed by me is much higher than that advocated by Byrne. I keep the electrode at a cherry-red heat while it remains in contact with the tissue, and when a fairly thick layer of carbonized structure has been produced, more current is turned on to raise the heat of the dome electrode to a light red. The electrode must be taken off during the process of burning to determine how much tissue has been burnt out, and to burn off the layer of carbon accumulated on the electrode. It requires from one to two weeks for the carbonization eschar to be thrown off, and then there is a slight sanguineous oozing which may be controlled by the use of acetone, or a strip of styptic gauze may be packed into the cavity. But what is still better is to resort to the desiccation process by the slow heat method. The heat should not be used more than from twenty to thirty minutes, and no carbonization must be caused. One must be careful not to use too much pressure with the electrode, since, if the first treatment has been properly done, only a shell of cervico-uterine structure is left. Opening of the abdomen is not necessary for the second cauterization or rather desiccation. For additional after-treatment, radium should be used. Ligating the internal iliac arteries, as originally advised by Pryor, and oophorectomy as a preliminary step, are good procedures. Ligation of the arteries lessens the bleeding and the discharge in cases of inoperable carcinoma of the uterus.

DISCUSSION

DR. THOMAS S. CULLEN, Baltimore: In cases in which we have used heat and got rid of the sloughing area of the growth, we have been amazed to see the inoperable growth contract down until one could move it from side to side; this was not due to the marked diminution of the cancer, but in getting rid of the suppurating area, and there is not the same absorption in the broad ligament.

DR. J. WESLEY BOVÉE, Washington, D. C.: I have used galvanocauterization of the cervix for cancer for several years. I have devised a water cooled speculum for this purpose, but it is not so satisfactory as Percy's. Since 1898, in my radical operations, I have been ligating the internal iliacs with the ovarian vessels, and I have never operated in a case yet in which I did not have to contend vigorously with bleeding which came from the branches of the inferior hemorrhoidals. If the internal iliacs are cut off, the ovarian vessels are still left above, which connect with the uterine vessels, and a blood supply is obtained just as though the internal iliacs had not been touched.

DR. CHARLES H. MAYO, Rochester, Minn.: Our method for many years has been to do a hysterectomy in the early cases of cancer of the cervix, and in the late cases, with large fungating growths filling the upper vaginal vault, we have used heat. We have dealt with the local condition and have advised the use of acetone to stop hemorrhages. We have brought about palliation in seventy cases, and of this number we subjected twenty patients to hysterectomy later.

DR. J. SHELTON HORSLEY, Richmond, Va.: Vaccination might be included with the Percy cautery treatment in cases of cancer, and good temporary results obtained. A few cases have been reported in which there have been apparent cures of adenocarcinoma of the uterus after vaccine treatment.

DR. CHARLES R. ROBINS, Richmond, Va.: After I began the use of the Percy method I adopted the procedure of having a microscopic examination made of the tissue before and after the application of the cautery, and in cases which were not too far advanced, there was an absence of cancer cells in the uterus after the treatment.

DR. C. JEFF MILLER, New Orleans: I have used white heat, dull heat, and in a limited number of cases the Percy cautery, but for the last nineteen months I have been using radium in the advanced cases. I have treated twenty-six cases thus far with radium, and as a primary measure I believe radium is the best treatment for the advanced cases.

DR. W. P. CARR, Washington, D. C.: There is a great difference in cancer. Some cases are much more amenable to heat, radium and the Roentgen ray than others. I have had two cases of inoperable carcinoma of the uterus so

treated. One patient has remained well for four years; the other was not benefited.

Results of Operations for Exophthalmic Goiter

DR. E. STARR JUDD and DR. J. D. PEMBERTON, Rochester, Minn.: Because it is difficult to say when a case of exophthalmic goiter has been cured, cases in which operation was performed more than five years ago (1909) have been selected for this study. Our report embraces 121 unselected cases which we were able to trace. About 46 per cent. of the patients have remained entirely well and show no evidence of their old symptoms; about 23 per cent. were practically cured, although a slight trace of their old trouble persists or temporarily returns under severe nervous strains, etc.; between 4 and 5 per cent. were somewhat improved by operative interference, while about 5 per cent. reported that they had received no benefit. We ligated the superior thyroid vessels in some patients simply as a preliminary measure, and advised them to return in three weeks for thyroidectomy; in some instances so much improvement followed this procedure that they did not come back; we observed, however, that late recurrence of symptoms is more frequent among these patients than among those who have had resections of the thyroid. Frequently, in mild cases, ligation of the superior thyroid vessels is all that is necessary. Several patients, who had a resection of the gland, have since reported the birth of normal children; one woman has borne three normal children. Seven of the twenty-one patients who died were never able to leave the hospital, and were extremely toxic at the time of operation. The remaining fourteen patients lived an average of 14.1 months after operation, and death probably ensued from irreparable damage in the heart, liver and kidneys, due to continued intoxication. A more general education of the public, resulting in earlier interference in these cases, will greatly increase the percentage of cures.

Sarcomas in Unusual Situations

DR. HUBERT A. ROYSTER, Raleigh, N. C.: I have had six cases in which sarcomas were discovered in unusual locations: (1) a fibrosarcoma of the sheaths of the musculospiral and median nerves; (2) a rhabdomyosarcoma of the trapezius muscle; (3) a fibrosarcoma of the breast; (4) a single-celled sarcoma of the abdominal wall; (5) a lymphangiosarcoma of the coccygeal region, and (6) a myxosarcoma of the buttocks.

Subcutaneous Dermic Fistula in the Treatment of Ascites

DR. WALTER C. G. KIRCHNER, St. Louis: My cases were not especially well suited for a successful trial of the Oberst method, but in one of the four cases a satisfactory result was obtained, there being no return of the ascites. In this case the ascites resulted from alcoholic cirrhosis of the liver. The operations were readily performed under local anesthesia. In principle, the operation consists in the employment of a pedunculated portion of the skin from the abdomen, which is buried subcutaneously in such a manner that a flap projects into the abdominal cavity. Thus no substance foreign to the body is used in providing continuous drainage.

(To be continued)

NEW YORK ACADEMY OF MEDICINE

Meeting held Dec. 2, 1915

The President, DR. WALTER B. JAMES, in the Chair

Acidosis, with Special Reference to That Occurring in the Diseases of Childhood

DR. JOHN HOWLAND and DR. W. MCKIM MARRIOTT, Baltimore: It has been assumed that the acetone bodies are very abnormal and that their presence signifies an unusual complication in the course of disease, whereas, in many instances, we may liken the mere presence of acetonuria to fever, for it occurs in most of the infectious diseases of childhood with much the same regularity that fever does. In order to understand how acidosis may be brought about, it is necessary to consider the method by which the body maintains its equilibrium, in which there is a preponderance of bases over acids. To guard against the deleterious influence of acids formed or introduced into the body, a most efficient mechanism is available, which it is only necessary to consider from the standpoint of the blood since this serves to regulate the reaction for the entire body. Acids displace sodium bicarbonate from the blood and set carbon dioxid free. The excess of carbon dioxid is removed by the increased pulmonary ventilation, leaving a neutral salt to be removed by the kidneys, which remove acid phosphate and save the base. The third means of defense is afforded by the proteins, and is dependent on their amphoteric character. These three means act synchronously and reside in the blood itself. A further means of defense is the ability of the body to neutralize acids by the production of alkali in the form of ammonia. The means by which acidosis is recognized are, first, examination of the urine or the blood for the presence of abnormal acids, and, second, search for evidence of unusual activity of the body's defenses, determining the amount of ammonia excreted in the urine and its relation to the total nitrogen excretion. A high ammonia coefficient arouses the suspicion of acidosis, but unless this can be confirmed in some other way it should not be regarded as conclusive.

The methods which we have made use of are chiefly the determination of the carbon dioxid in the alveolar air, Sellard's test, the alkaline tolerance, and the determination of the hydrogen ion concentration of the serum and the oxygen combining power of the hemoglobin. We have considered acidosis in connection with recurrent vomiting and the diarrheal diseases more particularly since the conditions are more obscure and less understood than in diabetes, and have found that infants with severe diarrhea may die with no evidences of acidosis whatever. This was true of the majority. On the other hand, a number of infants with severe diarrhea developed evidence of acidosis, and the majority of these died. The clinical evidence of acidosis is hyperpnea. When there has been deep labored breathing without cyanosis, we have always been able to obtain other proof of acidosis. We believe that we have been the first to estimate the carbon dioxid tension in the alveolar air in infants, and we have been able to do this by a modification of the Plesch method, making it applicable for use with infants. The carbon dioxid tension of the alveolar air in normal infants varies between 35 and 42 mm., while in acidosis it is less than this, frequently between 15 and 25 mm., and with these infants the Sellards test is positive. There is also a great tolerance for alkali, so that relatively large amounts of sodium bicarbonate must be administered in order to change the reaction of the urine. In all the severe cases the reaction of the blood by the indicator method has shown a distinct shifting of the reaction in the direction of acidity.

Finally, evidence has been obtained of an alteration in the reaction of the blood by determining a great lowering of the combining power of the hemoglobin. There is one striking evidence of acidosis of infancy, and that is a diminution of the output of urine. Complete anuria is by no means unusual. This seems to offer an explanation of the accumulation of acids. The recognition of acidosis in older children is not difficult, the character of the respiration being usually sufficient to arrest one's attention, and one or two relatively simple laboratory tests will quickly determine the question. Older children react promptly and sometimes permanently to alkali therapy. It may be possible to stop the clinical and laboratory evidence of acidosis in infants, but they usually die. For this reason we should give infants with severe diarrhea from the beginning sodium bicarbonate in sufficient quantities to render the urine alkaline and to keep it so. The alkalies may be given by mouth, by rectum, subcutaneously or intravenously. The intravenous method is the method of choice when rapidity of action is desired, and with acidosis rapidity of action is always desirable. If facilities for intravenous injection are not at hand, the injection may be made subcutaneously. A 4 per cent. solution is employed for the intravenous and a 2 per cent. for subcutaneous use, the amount to be gaged to meet individual indications.

DISCUSSION

DR. DONALD D. VAN SLYKE: In acidosis accumulation of acids occurs from the failure of elimination to keep pace with the production of acids. It may result, as in diabetes, from an overwhelmingly rapid production of acids, which even a normal eliminating mechanism cannot keep up with; or it may, as in some cases of nephritis, result from failure of the eliminating mechanism to dispose of even the amount of acid formed in ordinary metabolism. Whatever the cause, the direct result is the lowering of the bicarbonate content of the body fluids, since retention of any of the metabolic acids other than carbonic acid results in the decomposition of an equivalent amount of bicarbonate in the fluids. Because of this fact, the determination of the bicarbonate content of the blood plasma is the most direct method for detecting the presence and severity of an acidosis. According to our experience and to the definition, the severity of acidosis is proportional to the fall below normal of the bicarbonate content of the plasma. The methods which are of real value in the detection of acidosis are either those for direct estimation of the bicarbonate content of the blood or the indirect estimation of its value. The direct determination of the plasma bicarbonate is simply made by acidifying a known volume of plasma, usually 1 c.c., and measuring the amount of carbon dioxid set free. In the normal adult we obtained carbon dioxid gas equal to from 55 to 75 volume per cent. of the plasma from which it is set free. When this falls to 30, acidosis is becoming dangerous. When it falls as low as 20 per cent., it seems nearly certain to be fatal. The alveolar carbon dioxid is an indirect measure of the carbon dioxid content of the plasma. In order to keep the hydrogen ion concentration of the plasma at its proper level, the respiratory center maintains the ratio between the amount of carbon dioxid in the form of free carbonic acid and bicarbonate, respectively, 1:20. Thus a normal plasma contains about 60 volume per cent. of bicarbonate carbon dioxid, and 3 volume per cent. of carbon dioxid dissolved as free carbonic acid. If acids accumulate sufficient to reduce the bicarbonate carbon dioxid to 30 per cent., respiration and circulation are so stimulated that the carbonic acid carbon dioxid is reduced to 1.5 per cent. The concentration of carbon dioxid gas in alveolar air is, in accordance with the solubility of carbon dioxid, about twice the concentration of the free carbonic acid in the blood with which the alveolar air is in equilibrium. Consequently, in normal individuals we have approximately 60 per cent. of bicarbonate carbon dioxid, in the plasma one twentieth or 3 per cent. of carbonic acid carbon dioxid, and in the alveolar air 6 volume per cent.

If the bicarbonate carbon dioxid is reduced one half, the respiratory mechanism reduces the carbonic acid carbon dioxid of the plasma also one half. For this reason the alveolar carbon dioxid is an indirect measure of the bicarbonate, and is useful as an accurate measure of the plasma bicarbonate. In normal individuals the alveolar carbon dioxid indicates within a limit of error of about one part in five the level of the plasma bicarbonate. The same limit of error holds good for diabetics, so that the alveolar carbon dioxid is of use in diagnosing diabetic acidosis when it is not desirable to draw blood for the direct determination. In certain other pathologic conditions, the alveolar carbon dioxid is no measure at all of the plasma bicarbonate or of acidosis, since its value is dependent on the normal function of the entire respiratory and circulatory apparatus. The alkaline tolerance method of estimating the bicarbonate carbon dioxid as used by Sellards, Henderson and Palmore is also an indirect measure of the plasma bicarbonate. The value of this test depends on the normal function of the kidneys. The determination of the hydrogen ion concentration of the blood even by the most accurate methods now available appears to be of less value as a warning of the presence of acidosis than any of the foregoing methods. Only after the bicarbonate concentration has fallen to so low a level that the respiratory apparatus can no longer keep the free carbonic acid down to its normal ratio of one twentieth the bicarbonate does the hydrogen ion concentration of the blood actually increase, and by this time the acidosis is very severe. In cases in which acidosis is caused by retarded elimination, the urine gives especially fallacious indications of the condition of acidosis. A patient may be sinking in acidosis steadily toward coma, with only normal excretion of acids in ordinary metabilism. What ever the cause, the direct result this excretion becomes increased and apparently as a result of the greater excretion. The significance of urinary analyses in giving evidence of abnormal metabolism should not be minimized, but they do not show whether or not acids are accumulating in the organism.

GRAHAM LUSK: Two forms of organic acids are produced from the metabolism of the foodstuffs, the acetone bodies, represented by beta-hydroxybutyric acid, and lactic acid. Fats produce beta-hydroxybutyric acid, and carbohydrates produce lactic acid. Proteins produce both classes of acids, beta-hydroxybutyric acid from leucin or tyrosin, for example, and lactic acid from glucose, which may be formed from alanin, glutamic acid, etc. Dr. Howland spoke of the possibility of there being other organic acids than beta-hydroxybutyric acid and it may be interesting to suggest the possibility of the formation of lactic acid in the cases he has cited. Lactic acid has been found to be a constant constituent of the human blood after exercise (Fries) and after ascending high mountains (Bancroft). In dogs it appears in the blood after cramps produced by strychnin or after phosphorus poisoning. Spiro's observation in 1877 of the presence of lactic acid in the human urine after exercise has been confirmed by Ryffel, and by Hill. Underhill finds a large elimination of lactic acid in dogs in consequence of the activity which follows the administration of cocain. He also reports only a slight increase in the ammonia output, the amount of which is usually held to be the criterion of the intensity of acidosis. That lactic acid which is produced under all these conditions is derived from glucose follows from the fact that if one gives strychnin to a depancreatized diabetic dog, violent convulsions ensue without any production of lactic acid; and if one produces phlorizin glucosuria in a dog poisoned with phosphorus, lactic acid disappears from both blood and urine. In 1901, Munzer and Loewy administered sodium bicarbonate to dogs poisoned with phosphorus, and in consequence ammonia almost disappeared from the urine, indicating that the urea-forming function was normal. In many ways the children described by Dr. Howland recall the behavior of dogs poisoned with phosphorus. Possibly a search for lactic acid in this disease, as well as in other pathologic states involving acidosis when the acetone bodies are absent, may lead to new information on this subject.

DR. L. EMMETT HOLT: I would like to emphasize what Dr. Howland said regarding the frequency of acetone in the urine in children, often without any clinical significance. A member of the house staff of the Babies' Hospital tabulated 200 consecutive urines of young children examined, and found that acetone was present in 30 per cent. of the cases. Of those suffering from lobar pneumonia, 70 per cent. showed acetonuria. In a series of cases studied at the Babies' Hospital, the ammonia nitrogen content of the urine, the carbon dioxid combining power of the blood and the acetone in the urine were determined. The ammonia nitrogen in the urine ran quite parallel with the carbon dioxid combining power of the blood, but there was no constant relation between these two and the acetone bodies in the urine. It is not uncommon to find acidosis in infants fed for a long time on high percentages of fats, which, it has been stated, and I think rightly, is due to loss of bases from the body in combination with fats in the stools.

DR. OSCAR M. SCHLOSS: My experience with acidosis has been confined almost entirely to intestinal intoxication in young infants. In a small group of such cases I have determined the carbon dioxid content of the blood, the ammonia content of the urine and the tolerance to sodium bicarbonate. The results obtained are in accord with those of Dr. Howland and Dr. Marriott. In several cases the relatively slight importance of acetone and diacetic acid in the urine was

well shown, in that despite a great reduction of the carbon dioxid of the blood and increased tolerance to sodium bicarbonate, the urine contained no acetone or diacetic acid. Dr. Howland mentioned the uncertainty of the urinary ammonia as an index to the presence or degree of acidosis. This has been true in several of my cases, and is in accord with Sherman and Gettler, who found that when a subject is fed on a diet productive of high acidity, only a very small portion of the calculated acid appeared in the urine combined with ammonia, the greater portion being excreted as acid or acid salts. It is of interest in this connection that the ash of cow's milk has relatively slight basic properties. During the past summer the patients with intestinal intoxication with marked dyspnea admitted to the service of Dr. LaFetra at Bellevue Hospital were treated by the administration of large doses of sodium bicarbonate. In all, forty-two cases were treated, of which thirty-one terminated fatally. Four patients recovered completely, three left the hospital in an improved condition, and three were taken home unimproved. Of the thirty-one fatal cases, sixteen showed very marked improvement, so that recovery seemed probable. Death was usually due to a recurrence of the intoxication, which appeared suddenly and was of short duration. The alkali influences symptoms but not the underlying nutritional disorder.

DR. HERMAN SCHWARZ: Three types of acidosis have been seen and studied: (1) that secondary to a gastro-enteric condition; (2) that which is commonly called recurrent or periodical vomiting, and (3) that type following or in conjunction with infectious diseases, especially grip. The last form was usually secondary to an infection of the nasopharynx, and has a tendency to recur with other attacks of nasopharyngitis, and was thus mistaken for a true form of periodic vomiting. An interesting differential point was the polymorphonuclear leukocytosis which occurs in the infectious type, and a lymphocytosis which is invariably present in cases of cyclic or recurrent vomiting, either during the attack or in the interval. I have studied these three types of acidosis from the standpoint of blood sugar content, and on the way the blood sugar reacts on the administration of sugar in these children. Either the blood sugar may be normal, or when sugar is present in the urine, there may be a hyperglycemia. In these cases of acidosis the same rapid rise in the blood sugar content of the blood is noted immediately after the administration of sugar as is seen in normal children and adults, but after three or four hours or even more, the blood sugar may be much above what it was before the administration of the sugar, while in the normal individual it had dropped to normal by the end of two hours after the administration of sugar. This may be explained by the impairment of the kidney function, or, as shown by Epstein, the ability of the liver and muscles to build up glycogen is either impaired or destroyed. Interesting points observed in giving sugar to these patients were that they would retain this solution of glucose when they vomited everything else, and that the acetone and diacetic acid in the urine immediately disappeared for some hours. The giving of casein caused the acidosis to disappear in some of these cases.

DR. WILDER TILESTON, New Haven, Conn.: I want to call attention to the contrast between the effects of the same degree of acidosis as measured by the carbon dioxid tension of the alveolar air, under different circumstances. Thus the English observers, Kennaway, Pembrey and Poulton, found in diabetes a day or two before the onset of coma a sudden drop to 18 or 14 mm., and they consider values below 25 mm. as indicating a grave condition in this disease, and those below 20 mm. as foreshadowing imminent coma. On the other hand, Haldane, Henderson and Douglass at the top of Pike's Peak found that the carbon dioxid tension dropped to 18 or 20 mm., as the result of the high altitude, without any serious effects. In starvation, Benedict found a tension of 26 mm. It is evident that the gravity of the situation does not depend entirely on the degree of acidosis, but partly on the underlying cause. With reference to the relation of dyspnea to acidosis, Lewis and his co-workers have recently described a type of dyspnea without cyanosis, occurring in elderly people with cardiorenal lesions in which they found a high degree of acidosis. Nocturnal attacks of dyspnea and Cheyne-Stokes breathing were common. In young persons with uncomplicated cardiac insufficiency, although dyspnea was present, there was no acidosis. Evidently the state of the respiratory center is also of importance, for Peabody found a high degree of acidosis in the terminal stages of uremia without dyspnea. Benedict found marked acidosis without increase in the total ventilation in a man undergoing a prolonged fast, and in the men taken to Pike's Peak, the dyspnea disappeared after they became acclimatized, although the low tension of the alveolar carbon dioxid persisted even after descending to a lower level.

DR. ABRAHAM JACOBI: What Dr. Howland said in connection with overfeeding with fats as a cause of acetone and diarrhea is correct. Lactose used in any quantity always produces acetone. I do not give milk without carbohydrates. This is the third point that will prevent acidosis.

DR. W. MCKIM MARRIOTT, Baltimore: It is to be clearly understood that the acetone bodies beta-oxybutyric and aceto-acetic acid are in themselves not essentially toxic, and that they can prove harmful to the body only by removing the bases. The appearance of acetone bodies in the urine in large amounts is, of course, evidence that there has been a large production in the body; but this may have been completely compensated for by the defenses that the body possesses. A consideration of the blood gives us further information. By examining the blood for acetone bodies we are enabled to determine how much acid has been accumulated. If we find an accumulation of acids, it indicates that the kidneys are not excreting the acid as fast as it is being produced, and that a considerable portion of the base of the blood has been claimed by the abnormal acid and that therefore a considerable amount of alkali must be administered to supply the deficit. The result of the administration of the alkali in such cases is usually to increase the excretion of acetone bodies in the urine, and at the same time to diminish the concentration in the blood, this being coincident with improvement in the condition of the patient. Graham Lusk mentioned lactic acid as a possible cause of the acidosis of nutritional disturbances in children. Following his suggestion, we have been looking for excessive lactic acid production in these children; but with the methods available we are unable to state positively whether or not lactic acid enters in as a factor. I wish to make it very clear that acidosis in the diarrheal diseases of children is in itself not necessarily the cause of death. It is probably not the cause of death in most cases. In many cases, however, it is in itself of sufficiently grave character to bring about a fatal outcome. By curing the acidosis we do not cure the primary disease, and even if the acidosis has been completely removed, death may and usually does occur from the primary condition. I would also emphasize the importance of an acyanotic dyspnea, more correctly, hyperpnea, as the most easily recognized indication of acidosis. Probably the simplest laboratory test and one which gives valuable information by detecting even slight degrees of acidosis is the determination of carbon dioxid tension in the alveolar air. We have modified the method of determination so that the gas analysis apparatus may be dispensed with and the determination carried out in a very few minutes by a person without laboratory training. The hydrogen ion concentration of the blood or of the serum may be determined in a few minutes, and with less than a cubic centimeter of material by the indicator method. We have recently modified this method so that one can determine by it not only the actual hydrogen ion concentration but also the bicarbonate reserve of the blood and the carbon dioxid tension. This method further serves to differentiate between an acidosis due to carbon dioxid and to nonvolatile acids. No complicated apparatus is required. Sellards' test serves to indicate an acidosis of severe degree. The experimental administration of alkali serves both as a diagnostic and as a therapeutic measure.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

December, 1915, LXXII, No. 6, pp. 945-1116

1 *Treatment of Dysmenorrhea. F. B. Block, Philadelphia.
2 *Chorio-Epithelioma Following Long Period of Latency After Last Preceding Pregnancy. G. W. Outerbridge, Philadelphia.
3 Hydrops Universalis Fetus; Report of Case. E. A. Schumann, Philadelphia.
4 *Conservative Surgery of Chronic Intestinal Stasis. H. D. Meeker, New York.
5 Malignancy of Uterus. X. O. Werder, Pittsburgh.
6 Case of Leimyofibroma, Complicating Pregnancy. J. N. Bell, Detroit.
7 Atypical Chorio-Epithelioma. B. R. McClellan, Xenia, Ohio.
8 Fibroid Tumor Completely Obstructing Uterine Canal; Dead Fetus Long Retained without Infection. O. G. Pfaff, Indianapolis.
9 *Combined Operation for Interruption of Pregnancy and Sterilization. P. Findley, Omaha.
10 Hemorrhages in Children. H. B. Mills, Philadelphia.

1. Treatment of Dysmenorrhea.—Block's results in the treatment of a limited number of cases of dysmenorrhea treated with atropin have been most satisfactory. The method of administration which he employs is to direct the patient to take one hundredth grain of atropin sulphate two or three times a day for two days before the expected period and continue it after the flow appears until relieved of symptoms. In addition to this, the proper attention is paid to the lower intestinal tract and general personal hygiene. Block's plea is for the careful differentiation of the various types of dysmenorrhea and, having accomplished this, to give the patient the benefit of that method of treatment which has been shown to be of avail in the particular type from which she is suffering.

2. Occurrence of Chorio-Epithelioma.—A case is reported by Outerbridge of the occurrence in a woman, aged 43 years, of a vaginal tumor presenting the histologic structure of a malignant, chorio-epithelioma eight and a half years after the last demonstrable pregnancy. Outerbridge accounts for such a condition on the theory that, whereas in the vast majority of cases all fatal elements are destroyed by the maternal tissues within a comparatively short time after the termination of pregnancy, in exceptional instances fetal epithelia may remain dormant in the maternal organism, either at the placental site or elsewhere, for months and years, than to be by some unknown agency stimulated to malignant proliferation.

4. Surgery of Chronic Intestinal Stasis.—Unfortunately, Meeker says, there appears to be a growing tendency in the profession to associate the surgery of intestinal stasis with one of two procedures—either an ileocolostomy or a colectomy. The therapeutic possibilities of conservative plastic surgery has received but little attention. The principles of repair consist in relieving fixation of the gut, and covering over all denuded areas with peritoneum. Fixation bands are divided transversely and sutured longitudinally, the peritoneal margins being inverted. The band to be divided should be picked up by delicate forceps, the peritoneum nicked with blunt-pointed scissors and the cellular tissue and any underlying blood vessels pushed out of harm's way before the band is completely divided. Very fine round needles should be used, threaded with fine paraffined linen, the oil allowing the thread to be passed with the minimum amount of tissue trauma. Each case is a problem in itself.

9. Abstracted in The Journal, Oct. 2, 1915, p. 1214.

American Journal of Roentgenology, Detroit

November, 1915, II, Nos. 8, 9 and 10, pp. 793-868

11 Roentgen Diagnosis of Indurated Gastric Ulcer. L. G. Cole, New York.
12 Technic of Deep Roentgen Therapy. J. T. Case and L. L. Jones, Battle Creek.
13 Safe Interpretation of Roentgenograms of Gallbladder Region. E. W. Caldwell, New York.
14 Rôle of Roentgen Ray in Diagnosis of Obscurer Forms of Heart Disease. H. Wessler, New York.
15 Diagnosis of Stomach Conditions by Roentgen Ray. H. W. Van Allen, Springfield, Mass.
16 Accessory Sinus Angle Finder. F. M. Law, New York.

Archives of Diagnosis, New York

October, 1915, VIII, No. 4, pp. 301-402

17 *Significance of Thrombophlebitis in Thrombo-Angeitis Obliterans. L. Buerger, New York.
18 Diagnosis of Borderland Psychoses: Warning. L. H. Mettler, Chicago.
19 Diagnosis of Abnormalities of Myocardial Function. T. S. Hart, New York.
20 Hypo-Adrenia Miscalled Neurasthenia; Diagnosis and Prognosis. T. A. Williams, Washington, D. C.
21 *New Symptom of Ulcer at or About Duodenal Portion of Pylorus. H. Stern, New York.
22 Rare Forms of Pericarditis. G. Singer, Vienna Austria.
23 Diagnosis of Genito-Urinary Conditions in Women by Means of Roentgen Ray. G. S. Peterkin, Seattle, Wash.
24 Urinalysis and General Practitioner. R. Kilduffe, Jr., Chester, Pa.

17. Thrombophlebitis.—From the investigation on twenty-five exsected superficial veins, with a comparative study of the lesions in the deep vessels, Buerger concludes that an acute inflammatory stage is the initial manifestation of the pathology of the disease, thrombo-angeitis obliterans. Certain purulent foci are developed, strongly suggesting the presence of some specific toxin, or, more probably, some microbial agent. The destructive influence of these foci is evidenced in their action on the angioblasts, whose true purpose is thwarted, the result being the elaboration of a morphologic complex, distinctive and characteristic for the disease. Just as in tuberculosis, and doubtless in Hodgkin's disease, certain well-known structural products represent the specific reaction of the tissues to some organism, so here, too, the changes described are absolutely typical and diagnostic. Besides these changes, the production of aseptic, bland clot plays a part in the development of the occlusive tissue; while the infiltration of the media and adventitia make for the adhesive fibrosis in the deep vessels, and the distinctly palpable products of periphlebitis in the subcutaneous veins. The change of the acute into the healed connective stage is rapid, a type of occlusion resulting which has for a long time been regarded as due to an "endarteritis obliterans."

21. Ulcer of Duodenum.—The symptom described by Stern is both of an objective and subjective nature. It is subjective because it is a reaction to pyloro-epigastric discomfort or pain; it is objective because it is a visible evidence that the patient voluntarily or involuntarily assumes that posture which gives him most comfort. This posture constitutes the sign or symptom. The patient, trying to stretch out his epigastrium on account of the relief obtained thereby, often prefers standing to sitting; when in discomfort while resting on a chair he sits in a slanting position in such a manner that chest, abdomen and legs form a perfect incline. When experiencing discomfort while in bed, the patient tries to lie as straight as possible, often on the left, but never on the right side. The symptom or sign is of especial value in differential diagnosis. It is not present in gastric ulcer. In gallstone colic, the patient usually lies on his left side with legs drawn up. In appendiceal colic, as well as in the common affections of the cecum and the colon in general, the body of the patient, when sitting is bent over; when lying, his legs are more or less flexed.

Archives of Pediatrics, New York

November, 1915, XXXII, No. 11, pp. 801-880

25 *Gonococcus Vaginitis. M. E. Trist and J. A. Kolmer, Philadelphia.
26 *Proper Position of Tonsillectomy in Pediatrics. S. Blum, San Francisco.
27 *Tonsils Excretory Organs for Cervical Glands. S. Blum, San Francisco.
28 Six Cases of Hemorrhage in Newly-Born Babies. J. B. Manning, Seattle, Wash.
29 Physician and Child Labor. E. N. Clopper, New York.
30 Unusual Case of Epididymo-Orchitis in Infant. A. G. Mitchell, Philadelphia, and N. J. Quinn, Atlantic City, N. J.

25. Gonococcus Vaginitis.—The method of vaginal washing in the smear diagnosis of gonococcus vaginitis, Trist and

Kolmer believe, has its greatest value in the diagnosis of chronic cases and cases under treatment. In these cases the secretions are likely to be scanty, especially about the vulva and vaginal introitus, whereas considerable amounts may be present in the vaginal canal and about the cervix. In vaginal washing these secretions are secured and this explains the success of the method. Diagnosis by means of vaginal washing is, however, frequently difficult, and in all cases in which the discharge is free direct vaginal and cervical smears are to be preferred. Vaginal washings usually disclose a higher percentage of pus cells in vaginitis than simple smears, and these alone aid greatly in diagnosis. In subacute and chronic vulvovaginitis with scanty discharge vaginal washings will disclose gonococci in from 20 to 25 per cent. of cases when direct smears are negative; the percentage of positive findings is increased after irritation of the vaginal mucosa with silver nitrate after the method of Norris. The absence of gonococci in vaginal washings gives greater assurance of the absence of gonococcus infection and treatment guided by these examinations is likely to be more thorough, although greatly prolonged.

26. **Proper Position of Tonsillectomy in Pediatrics.**—Blum claims that tonsillectomy has become more than a therapeutic procedure; it has become a menace. He says it is performed not only in cases in which definite indications are present, but also for the most trifling reasons (witness reports of reputable physicians that they consider anorexia, faucial hyperemia, restless nights, indications for tonsillectomy), and sometimes for no reason. The present indiscriminate practice of tonsillectomy is unjustified because it is empiric; many of the alleged morbid symptoms attributed to diseased tonsils have not been proved to be caused by them; its results in Blum's observation have been unsatisfactory in many cases; it is dangerous. He says that tonsillectomy is contraindicated in hemophilia, status lymphaticus, diabetes, during epidemics of diphtheria and scarlet fever, during acute tonsillitis, during active cervical adenitis, at the time of adjacent local inflammatory affection. It should be the operation of choice in malignant disease of the tonsils. It may be indicated in recurrent peritonsillar abscess. It should not be performed in infants. It should only in exceptional cases be performed before the eighth year. Between the eighth and fourteenth years if positive evidence of serious local or systemic injury emanating from diseased tonsils can be adduced, and if the tonsillar affection does not yield to conservative treatment, enucleation is indicated.

27. **Tonsils Excretory Organs for Cervical Glands.**—In a series of experiments on guinea-pigs, Blum claims to have demonstrated that the tonsils are excretory organs for the cervical glands. Chemical substances which he has injected into the cervical glands of guinea-pigs were subsequently found in the tonsils of these animals. Furthermore, Blum has subsequently found the chemical injected into the glands of these animals in their oral cavities. He has also recovered from their oral secretions and has seen in their tonsils bacteria previously injected into the cervical glands of the animals.

Boston Medical and Surgical Journal

Dec. 23, 1915, CLXXIII, No. 26, pp. 941-978

31 Symmetrical Synovitis in Hereditary Syphilis; Report of Case. A. Post, Boston.
32 Some Modern Ideas About Anesthesia. F. L. Richardson, Boston.
33 Episiotomy. J. T. Williams, Boston.
34 Wanter — A Fad. R. T. Edes, Reading.
35 Mental Features of Congenital Syphilitics. J. H. Bazeley and H. M. Anderson, Boston.
36 Diagnostic Value of Lange's Gold Sol Test. H. C. Solomon, H. O. Koefod and E. S. Welles, Boston.
37 Salvarsan Apparatus. C. F. Denny, St. Paul, Minn.

Canadian Medical Association Journal, Toronto

November, 1915, V, No. 11, pp. 949-1044

38 Medical Ideals in Ancient World. J. P. McMurrich, Toronto.
39 Character and Treatment of Wounds in War. H. E. Munroe, Edinburgh.
40 Delivery by Hysterotomy; Report of Five Cases. H. E. Kendall, Halifax, N. S.
41 Dyspnea in Cardiorenal Disease. T. F. Cotton, Montreal.
42 Case of Acute Edema of Lungs. A. G. Nicholls, Amherst, N. S.
43 Case of Severe Pharyngitis in Association with Erysipelas. H. S. Muckleston, Montreal.

Colorado Medicine, Denver

November, 1915, XII, No. 11, pp. 315-352

44 Methods of Estimating Functional Efficiency of Liver. C. B. Van Zant, Denver.
45 Effects of High Altitude on Heart Affections. A. Zederbaum, Denver.
46 Triumphs of Preventive Medicine. J. W. Amesse, Denver.

Florida Medical Association Journal, Jacksonville

November, 1915, II, No. 5, pp. 129-160

47 Tonsillectomy. O. H. Johnson, Jacksonville.
48 Presenility of Eyes and Effects of Light on Eyes in Latitude. F. J. Walter, Daytona.
49 Progress of Intranasal Surgery. L. C. Ingram, DeLand.
50 Motor Nerves and Their Importance in Affections of Eye. F. P. Hoover, Jacksonville.
51 Tuberculosis; Disease of Double Origin. H. Byrd, Princeton.
52 Rare and Incomplete Forms of Epilepsy. W. P. Spratling, Welaka.

Illinois Medical Journal, Chicago

November, 1915, XXVIII, No. 5, pp. 321-400

53 Treatment of Tuberculous Disease of Spine. H. B. Thomas, Chicago.
54 Incipient Phthisis in Childhood. L. A. Juhnke, Chicago.
55 Treatment of Laryngeal Tuberculosis. E. E. Edmondson, Mt. Vernon.
56 Tuberculosis. J. C. R. Wettstein, Effingham.
57 Tuberculosis in Children. O. W. McMichael, Chicago.
58 Medical College Training in Tuberculosis. C. P. Emerson, Indianapolis.
59 Urochromogen Reaction in Pulmonary Tuberculosis. M. Biesenthal, Chicago.
60 Best Tuberculosis Prevention from Patient's Standpoint. S. M. Teague, Bloomingdale, Ind.
61 Tuberculosis Prevention from Physician's Standpoint. J. G. Lamont, Dunseith, N. D.
62 Early Diagnosis of Tuberculosis. A. J. Lanza, U. S. P. H. S.
63 Bacteriology of So-Called Intestinal Influenza. A. J. Hinkelmann, Galesburg.
64 Roentgenography of Skull. M. J. Hubeny, Chicago.
65 Etiology and Diagnosis of Brachial Plexus Lesions. G. W. Hall, Chicago.
66 Blood Pressure from Clinical Standpoint. G. Richter, St. Louis.
67 Interpretation of Blood Films. A. L. Mann, Elgin.
68 Constitutional Inferior Individual and Public. C. C. Atherton, Watertown.
69 Submerging Asphalt at Temperature of Three Hundred and Sixty F., with Recovery. O. F. Scott, Argo.

Indiana State Medical Association Journal, Fort Wayne

November, 1915, VIII, No. 11, pp. 499-536

70 Relation of Spleen to Certain Anemias. W. J. Mayo, Rochester, Minn.
71 Our Obligations as Specialists. W. N. Sharp, Indianapolis.
72 *Vesical Calculi in Children; Report of Case. H. O. Mertz, Laporte.
73 Interesting Kidney Case. J. Y. Welborn, Evansville.

72. Abstracted in THE JOURNAL, Nov. 20, 1915, p. 1846.

Iowa State Medical Society Journal, Des Moines

November, 1915, V, No. 10, pp. 467-506

74 Medical Progress. P. E. Gardner, New Hampton.
75 Fixation of Femur Fragments with Lane Plate When Using Bone Transplant After Excision. J. F. Clarke, Fairfield.
76 Recurrent Corneal Ulcers. L. Kinnier, Dubuque.
77 Hydrocephalus. H. M. McClanahan, Omaha.
78 Eye Symptoms and Their Value in Chronic Sinusitis. J. E. Reeder, Sioux City.
79 Treatment of Retention of Urine. J. Crawford, Cedar Rapids.
80 Indications for Cesarean Section. W. L. Allen, Davenport.

Journal of Biologic Chemistry, Baltimore

December, 1915, XXIII, No. 2, pp. 413-527

81 *Probable Nature of Substance Promoting Growth in Young Animals. C. Funk and A. B. Macallum, Toronto, Canada.
82 Calcium in Permeability and Irritability. J. Loeb, New York.
83 Salts Required for Development of Insects. J. Loeb, New York.
84 *Occurrence of Pituitary Extract and Epinephrin in Fetal Pituitary and Suprarenal Glands. C. P. McCord, Detroit.
85 *Resumption of Growth After Long Continued Failure to Grow. T. B. Osborne and L. B. Mendel, New Haven, Conn.
86 Determination of Urea in Urine by Urease Method. C. H. Fiske, Boston.
87 Preparation of Protein-Free Milk. H. H. Mitchell and R. A. Nelson, Urbana, Ill.

88 Time Required for Reduction of Oxyhemoglobin in Vivo. D. F. Harris and H. J. M. Creighton, Swarthmore, Pa.
89 *Nondestructibility of Uric Acid in Human Organism. M. S. Fine, New York.
90 Hydrogen Electrode Vessel. W. M. Clark, Washington, D. C.
91 Refractive Indices of Solutions of Certain Proteins. C. L. A. Schmidt, Berkeley, Calif.
92 Reduction of Oxyhemocyanin in Serum of Limulus Polyphemus L. C. L. Alsberg, Woods Hole, Mass.
93 Studies on Relative Digestibility and Utilization by Human Body of Lard and Hydrogenated Vegetable Oil. C. A. Smith, R. J. Miller and P. B. Hawk, Philadelphia.
94 *Chlorids in Diabetes After Pancreatectomy. J. E. Lebensohn, Chicago.

81. **Nature of Substance Promoting Growth in Young Animals.**—The new series of experiments reported by Funk and Macallum clearly show the absolute inability of either butter or purified butter fat to stimulate the growth of young rats. The addition of yeast stimulates, directly or indirectly, the appetite. The calorific determination of the food and feces shows in all cases a practically complete absorption of the food by the digestive tract, as the calorific value of the feces represents but from 2.5 to 5 per cent. of the calories taken in by the animals. Whether yeast alone without butter (replaced by lard) will produce normal growth in rats, and whether there are one or more components in yeasts which stimulate growth, is under investigation.

84. **Pituitary Extract and Epinephrin in Fetal Pituitary and Suprarenal Glands.**—Physiologic reactions characteristic of extracts of pituitary and suprarenal glands were obtained by McCord from bovine fetal glands during all developmental stages in which the macroscopic recognition of the glands is possible. For the pituitary gland, this period is from the eighth week to full term; for the suprarenals the period is from the sixth week to full term. The presence of the active principles of these glands at so early a developmental period suggests that the fetus in utero may be under the influence of its own internal secreting glands as well as the maternal glands.

85. **Resumption of Growth.**—Osborne and Mendel found that the growth impulse, or capacity to grow, can be retained and exercised at periods far beyond the age at which growth ordinarily ceases. In the case of experimental animals, albino rats in which increment of body weight ordinarily ceases before the age of 300 days, resumption and completion of growth were readily obtained at an age of more than 550 days. The period of growth may be greatly prolonged by inadequacies in the diet, so that growth becomes very slow without being completely inhibited. Though the time of reaching full size is thus greatly delayed, growth, as expressed by suitable body weight, can ultimately be completed even during the course of long-continued retardation.

89. **Uric Acid in Human Organism.**—Fine points out that, contrary to the findings of Schittenhelm and Wiener, uric acid can be demonstrated in considerable concentrations in human tissues. The method for determining uric acid in the tissues used by Fine was essentially that employed for the blood.

94. **Chlorids in Diabetes After Pancreatectomy.**—The diabetes was produced by Lebensohn in dogs either by total pancreatectomy in one step, or by removal of the pancreas in two stages after the method of Hedon. Not only was the chlorid excretion independent of diabetes and the degree of glucosuria, but it likewise seemed to bear no relation to the ammonia excretion. If the increased ammonia excretion in the diabetes after pancreatectomy of dogs be considered an index of acidosis, Lebensohn says, these negative findings may be taken as failing to confirm Fischer's theory chlorid retention. That ingestion of large amounts of NaCl does not change the amount of chlorid excreted in the feces indicates that in diabetes after pancreatectomy there is no change in the chlorid absorptive power of the intestine.

Journal of Cutaneous Diseases, New York

November, 1915, XXXIII, No. 11, pp. 731-786

95 Ringworm of Scalp in Chicago; Bacteriologic Study of One Hundred Cases. B. B. Beeson, Chicago.
96 Use of Mercury in Verruca Plana Juveniles. C. J. White, Boston.
97 Chronic Superficial Excoriation of Tongue, or Moeller's Glossitis; Report of Two Cases. F. G. Harris, Chicago.
98 Pellagra in New York and Its Vicinity; Report of Two Cases. F. Wise and M. F. Lautman, New York.

Kansas Medical Society Journal, Topeka

November, 1915, XV, No. 11, pp. 329-358

99 Early Recognition of Ruptured and Unruptured Ectopic Pregnancy. W. A. N. Dorland.
100 Toxemia of Pregnancy; Report of Two Cases. E. A. Reeves, Kansas City.
101 Some Practical and Economical Features Facing Medical Man. W. G. Norman, Cherryvale.
102 Epidemic Influenza in Children, with Special Reference to Gastro-Intestinal Complications. F. H. Smith, Goodland.
103 Sugar as Normal Constituent of Urine. C. F. Nelson, Kansas City.

Laryngoscope, St. Louis

November, 1915, XXV, No. 11, pp. 739-802

104 Operation for Draining Lachrymal Sac and Nasal Duct into Unciform Fossa. H. P. Mosher, Boston.
105 Improved Technic in Application of Thiersch Graft in Radical Operation for Chronic Middle-Ear Suppuration. E. B. Dench, New York.
106 Spontaneous Cure of Six Cases of Unrecognized Sinus Thrombosis Accidentally Discovered During Operation. E. W. Day, Pittsburgh.
107 Bacillus of Perez as Etiologic Factor in Ozena. W. R. Murray and W. P. Larson, Minneapolis.
108 Labyrinthine Fistula; Operation; Recovery. J. L. Maybaum, New York.
109 Case of Abnormal Bone in Throat. W. O. LaMotte, Wilmington, Del.
110 New Suction Apparatus for Nose, Throat and Ear Operations. T. E. Carmody, Denver.
111 Tonsil Enucleator. W. D. Byrne, Chicago.

Medical Record, New York

Dec. 18, 1915, LXXXVIII, No. 25, pp. 1033-1078

112 Blood Pressure with Special Reference to Diastolic. L. F. Mackenzie, Newark, N. J.
113 *Stigmata of Tuberculosis. C. J. Holeman, U. S. Navy.
114 Transient Attacks of Manicdepressive Insanity. M. S. Gregory, New York.
115 Conservation Work as Applied to Life Insurance. F. C. Wells, New York.
116 Metastatic Carcinoma of Brain with Unusual Ocular Symptoms. S. H. Brown, Philadelphia.
117 Tuberculin as Aid in Surgical Tuberculosis. C. B. Burke, Atlantic, Iowa.
118 Indicanuria and Sulphates. J. C. Warbrick, Chicago.

113. **Stigmata of Tuberculosis.**—During several years of observation of the tuberculous, the fact that the majority of them exhibit those signs that are described as stigmata of degeneration impressed itself on Holeman. And of these stigmata, the most common, as well as the most striking and easily observed, are the various malformations of the pinna. Next to these, ill-formed palates and gross facial asymmetries abound. Search of the records of 189 cases revealed a note of such stigmata in 117 cases, or 61.9 per cent. Of 233 patients now in the hospital, 188, or 80 per cent., show stigmata of the kind mentioned. The following classical types of deformities of the pinna were observed: Darwin, 16; Wildermuth, 16; Stahl No. 1, 11; Blainville, 7; Morel, 5; Stahl No. 2, 2. Holeman concludes that the "stigmata of degeneration" of the psychiatrist may be accepted as "stigmata of susceptibility" by the phthisiologist. Should further evidence be demanded, the fact that the insane—the possessors of confirmed external stigmata—are of all individuals most preyed on by tuberculosis is confirmatory.

In view of this relation between mental disease, tuberculosis and external stigmata, is it not likely that there is some fundamental cause operating on the tissues at a time when ectoblastic (furnishing central nervous system and skin with its appendages) and entoblastic (furnishing bronchopulmonary system) derivatives were still directly subject to the same influences, that is prior to the primary differentiation of the layers? Of blastophthoric influences alcohol easily stands first. Among other blastophthoric influences syphilis lead and other cachexias are important, as are also tuberculosis and insanity themselves. Perhaps, too, psychic influences, concerning which few data are available, as fright, fear and anger on the part of the mother, might be included.

Modern Hospital, St. Louis

November, 1915, V, No. 5, pp. 311-386

119 New San Francisco Hospital. R. G. Brodrick, San Francisco.
120 Social Survey of Dispensary Patients in Philadelphia. B. Jobes and F. Hostetter, Philadelphia.
121 Treatment of Mental Disease in General Hospital. J. M. Mosher, Albany, N. Y.
122 Condensed Milks and Casein Preparations. J. P. Street, Cincinnati.
123 Architecture and Equipment of Barre City Hospital. E. F. Stevens, Boston.
124 Medical Libraries for Modern Hospitals. G. W. Myers, Boston.
125 Principles of Hospital Construction. M. J. Sturm, Chicago.
126 Purchase of Hospital Supplies. L. H. Burlingham, Boston.
127 Company Hospital. R. W. Corwin, Pueblo, Colo.
128 Books for Hospital Library. E. K. Jones, Waverly, Mass.

New York Medical Journal

Dec. 25, 1915, CII, No. 26, pp. 1265-1304

129 Cottage Hospital in Rural Communities. C. P. Noble, Philadelphia.
130 William Konrad Roentgen. I. S. Hirsch, New York.
131 Short History of Roentgen Rays. P. M. Brown, Boston.
132 Influence of Roentgen's Discovery on Medicine. L. Kast, New York.
133 Physics of Roentgen Radiation. J. S. Shearer, Ithaca.
134 Roentgen's Discovery. W. D. Coolidge, Schenectady.
135 Thyroid Disease. S. P. Beebe and J. W. Beveridge, New York.
136 Case of Pharyngeal Stenosis. H. Hallarman, New York.
137 Decayed Teeth and Cancer. A. M. Nodine, New York.

New York State Journal of Medicine

December, 1915, XV, No. 12, pp. 457-500

138 *What Stomach Symptoms Justify Surgical Intervention. M. B. Tinker, Ithaca.
139 *Pathologic Study of Syphilitic Aortitis and Its Serology. J. H. Larkin and I. J. Levy, New York.
140 Treatment of Vaginal Discharge. G. Chandler, Kingston.
141 Pancreatic Cysts; Report of Two Cases. G. B. Broad, Syracuse.
142 Foreign Bodies Left in Abdomen and in Surgical Wounds. M. D. Mann, Buffalo.
143 Mouth Infections as Related to Systemic Disease. S. M. White, Minneapolis.

138. Abstracted in THE JOURNAL, May 22, 1915, p. 1789.

139. **Study of Syphilitic Aortitis.**—Forty-two aortas were examined by Larkin and Levy and the serums of these cases tested serologically before death. Nineteen of these gave positive Wassermanns; twenty-three were negative. Of the nineteen positive cases, seventeen aortas gave microscopic evidence of syphilitic aortitis namely, 90 per cent. of their positive reaction (those serums fixing complement according to the method above described), have, at least, a definite pathologic explanation, based on changes in the aorta which are pathognomonic of syphilis. It is interesting to note that fifteen of the nineteen patients died as a result of a syphilitic process—about 80 per cent.; while eleven of the nineteen died from their syphilitic aortitis—about 60 per cent. The four patients dying from syphilis other than aortitis were one case of syphilitic cerebral endarteritis; one of meningomyelitis; one of tabes and one of ulcerating gumma of the larynx. Of four patients with positive Wassermanns dying of nonsyphilitic conditions, but showing perivascular infiltration, two died of carcinoma of the bronchus; one of chronic ulcerative tuberculosis and one of interstitial nephritis. The authors are of the opinion that it is highly probable that about 90 per cent. of individuals dying with a positive Wassermann, if the infection is not of recent origin, have, at least, from the histologic point of view, syphilitic aortitis. That about 60 per cent. of them die from their aortitis, giving clinical evidence of cardiac decomposition or rupture of an aneurysm, and that about 80 per cent. of these individuals die of syphilis. Since only one case of perivascular cellular infiltration gave a negative Wassermann in their series, it is fair to assume that 94 per cent. of individuals suffering from syphilitic aoritis would give a positive reaction in their serum.

Northwest Medicine, Seattle

November, 1915, VII, No. 11, pp. 339-372

144 Cerebellar Localization with Reference to Nystagmus and Vertigo as Localizing Signs. F. Epplen, Spokane.
145 Cesarean Section Operation of Choice. E. F. Tucker, Portland, Ore.
146 Present Status of Salvarsan and Allied Products in Treatment of Syphilis from Standpoint of General Practitioner. J. R. Brown, Tacoma.
147 Fracture of Jaw in Children and Importance of Preserving Six-Year Molars. J. B. McNerthney, Tacoma.
148 Mesenteric Cysts. L. W. Chilton, Canyon City, Ore.
149 Medical Organization in Idaho. J. N. Alley, Lapwai, Idaho.
150 Physician and Public. R. S. Joyce, Ogden, Utah.

Ohio State Medical Journal, Columbus

November, 1915, XI, No. 11, pp. 675-746

151 Psychic Factor in Deafness. P. D. Kerrison, New York.
152 Surgical Conditions of Great Omentum. C. A. Hamann, Cleveland.
153 *Recent Results in Roentgen Ray Treatment of Menorrhagia and Uterine Myoma. S. Lange, Cincinnati.
154 Ectopic Gestation. J. W. Fitch, Portsmouth.
155 Tumors of Lachrymal Gland; Report of Case with Operation. J. L. Washburn, Youngstown.

153. Abstracted in THE JOURNAL, Nov. 6, 1915, p. 1670.

South Carolina Medical Association Journal, Anderson

November, 1915, XI, No. 11, pp. 337-368

156 Simplified Anorectal Surgery and Anorectal Constipation (Stasis). S. G. Gant, New York.
157 Better Way of Putting Diaper on Baby. S. A. Visanska, Atlanta, Ga.
158 Diseased Tonsil Factor in Production of Systemic Diseases. L. O. Mauldin, Greenville.
159 Etiology and Symptoms of Pellagra. J. S. Fouche, Ninety-Six.
160 Skin Diseases of Childhood. I. Schayer, Columbia.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

November, 1915, XXIII, No. 11, pp. 309-344

161 Early Pathologic Changes and Their Relationship to Clinical Symptoms and Physical Signs in Pulmonary Tuberculosis. F. M. Pottenger, Monrovia, Calif.
162 Surgical Treatment of Chronic Gonorrhea. C. W. Tedrowe, Elk City.

Tennessee State Medical Association Journal, Nashville

November, 1915, VIII, No. 7, pp. 295-337

163 Chronic Ulcer of Leg. W. S. Farmer, Cookeville.
164 Classification of Irregularities of Heart Beat. L. Smith, Nashville.
165 Egg Membrane Substitute for Bone Grafts, et al., in Traumatic Defects of Skull. B. B. Cates, Knoxville.
166 Sporotrichosis; Report of Case. H. F. Friedman, Nashville.
167 Pityriasis Rosea. J. H. King, Nashville.
168 Autogenous Serum in Certain Diseases of Skin. J. M. King, Nashville.
169 Most Used and Abused Muscle of Human Body. A. C. Lewis, Memphis.
170 Trachoma Public Health Problem. F. J. O'Connor, Jackson.
171 Bichlorid Poisoning from Local Absorption. H. P. Larimore, Chattanooga.
172 Use and Abuse of Vaccines. H. Spitz, Nashville.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Dec. 4, 1915, II, No. 2866, pp. 801-844

1 Gas Poisoning. L. Hill.
2 Treatment of Gunshot Wounds of Abdomen. A. W. Mayo-Robson.
3 Field Ambulance Work at Anzac. C. M. Begg.
4 Recruit's Heart. J. Mackenzie.
5 *Supposed Soluble Toxin, Produced in Artificial Culture by Bacillus of Malignant Edema. G. Barger and H. H. Dale.
6 *Antiseptic Action of Hypochlorites. H. D. Dakin.
7 *Splint for Compound Fractures of Arm. G. M. Giles.
8 *An Adjustable and Standardized Splint for Treatment of Fractures. W. B. Hayes.
9 Electrical Treatment of Disabilities Due to Wounds. J. J. Grace.
10 Typhus in Serbia. B. W. Howell.
11 *Case of Leprosy Diagnosed by Roentgen Rays. A. Neve.
12 Spinal Injuries of Warfare. G. Holmes.

5. **Soluble Toxin Produced in Artificial Culture of Malignant Edema.**—The material used by Barger and Dale was obtained by growing the organism for five to six days at 37 C. on minced ox heart, previously sterilized in the autoclave. The culture was started in hydrogen and provision made for the escape of gases, which the culture soon produced in abundance, by a tube leading from the cultural jar into a trap filled with sulphuric acid. The semifluid, evil-smelling product was filtered first through paper-pulp, and then through a Berkefeld candle. A nearly clear brown filtrate was obtained. This filtrate produced the acute intoxication described by Besson when injected into guinea-

pigs, the fatal dose for an animal weighing about 300 gm. varying from 3 to 5 c.c. with different preparations.

6. **Antiseptic Action of Hypochlorites.**—Dakin claims that this "new antiseptic" was discovered in 1788 by the French chemist, Berthollet. He obtained a liquid with bleaching and disinfecting properties by the action of chlorin on aqueous alkalis. The composition of the mixture was obscure, but Berthollet presumed that additive compounds were formed between the halogen and alkali—for example, Na_2OCl_2. Berzelius in 1808 expressed the view that the product formed was a mixture of a salt of an unknown acid or chlorin with sodium chlorid. The discovery of this acid—hypochlorous acid—in 1834 by Balard definitely settled the composition of Berthollet's fluid as a mixture of sodium chlorid and sodium hypochlorite. Four years after Berthollet's discovery in 1792 the corresponding potassium salts were made commercially by Percy at the Javel works near Paris by passing chlorium into crude potashes. The product sold as eau de Javel, and its use as a disinfectant was advocated by Berthollet and by Guyton de Morveau. In 1820 Labarraque prepared a fluid similar to Berthollet's by the action of chlorin (1 mol.) on an aqueous solution of sodium carbonate (2 mols.). This preparation containing much free alkali became known as "Liqueur de Labarraque," or "Labarraque's disinfecting fluid." At a later date solutions of the hypochlorites of sodium and potassium were largely replaced by the more stable solid "chlorid of lime." a combination of calcium chlorid and calcium hypochlorite. It was with this substance that Semmelweis in 1846 succeeded in eradicating endemic puerperal fever from his clinic.

7. **Splint for Compound Fractures of Arm.**—Giles' splint is made from stout wire and scraps of tin. The essential point of the contrivance is a long marrow extension, which is brought up and bent over the acromion and fixed there in position directly over the head of the humerus by means of a pair of body straps.

8. **Splint for Treatment of Fractures.**—The splint which Hayes describes is practically the Thomas splint made completely adaptable. It is adjustable to any size limb and can be adapted to either the right or the left side. Being made from one pattern and in one size, it is therefore standardizable.

11. **Leprosy Diagnosed by Roentgen Rays.**—In Neve's case the disease was so atypical as to remain in doubt, even when examined by experts, until the Roentgen rays showed clearly the well marked osseous lesions of leprosy. The points that raised a suggestion of leprosy were (a) a little clubbing of the fingers, of which the terminal joints were not quite straight and symmetrical; (b) the toes appeared slightly shortened, and one of them was crooked. He was carefully examined for certain signs, which were all negative. A roentgenogram showed entire disappearance of the terminal phalanges of most of the toes.

Edinburgh Medical Journal

December, 1915, XV, No. 6, pp. 385-464

13 *Angina Pectoris. B. Bramwell.
14 French Country Practitioner of Old School. J. B. Adams.
15 Foreign Bodies Removed from Bronchus and Esophagus. J. S. Fraser.
16 Case of Failure of Union Between Vas Deferens and Testis. C. H. Whiteford.

13. **Angina Pectoris.**—Bramwell's view of the mode of production of the pain in angina pectoris is: 1. That in the ordinary typical cases in which the pain radiates down the left arm, the afferent nerves of the heart distributed to or over the left ventricle are irritated; that the exact manner in which this irritation is excited (whether localized spasm, increased tension in the cavity of the ventricle, etc.) is still undecided; that the exciting cause of the pain in this and indeed in all types of angina pectoris is usually increased blood pressure, whether actual or relative (walking uphill, against a wind, etc.); that over-distention of the stomach (walking after a full meal, flatulent distention, etc.) is a frequent exciting cause of the attacks; that in some cases emotional excitement is the exciting cause; that in other cases there is no apparent exciting cause. 2. That in the exceptional cases in which the pain is reflected to the right arm alone, the afferent nerves distributed to the aorta or passing over the aorta from the right side of the heart are irritated; that perhaps in some of these cases (though this seems to be less likely), the afferent nerves distributed to and over the right ventricle are directly irritated in the same way that the nerves distributed to or over the left ventricle are irritated in the ordinary cases included in group 1. This seems to be supported by Bramwell's clinical experience, which, he says, shows that in the cases included in this group (2) and in the next group (3), lesions of the aorta are much more frequently present than in the cases included in group 1. 3. That in some of the cases in which the pain is referred to both arms, the irritation first passes to the left side and then over to the right side of the spinal cord, and so first to the left and then to the right arm; in other cases the irritation first passes to the right side and then to the left side of the spinal cord, and so first to the right arm and then to the left arm.

An analysis of 178 cases of angina pectoris is made by Bramwell. In forty-eight, or 26.9 per cent., of the 178 cases no definite lesion was detected either in the heart or aorta; in twenty-eight cases, or 15.7 per cent., the heart's action was weak and the muscular wall of the heart apparently degenerated (fatty, fibroid, etc.); in twelve cases, or 6.7 per cent., the heart was enlarged without obvious valvular lesion; in forty-four cases, or 24.7 per cent., a valvular lesion was present; in one case, or 0.5 per cent., the pericardium was adherent, and in forty-five cases, or 25.2 per cent. the aorta was either dilated or aneurysmal.

Indian Medical Gazette, Calcutta

November, 1915, L, No. 11, pp. 401-440

17 Suprapubic Lithotomy in Treatment of Vesical Calculus. V. B. Bennett.
18 Irrigation After Extra-Capsular Extraction of Cataract. E. A. R. Newman.
19 Combined Vaccinations. A. Castellani.
20 Blackwater Fever; Report of Three Cases. C. E. P. Forsyth and E. T. Jameson.
21 Outbreaks of Epidemic Dropsy in Mofussil. S. L. Sircar.
22 Examination of Rectum and Anal Canal. P. C. Chapman.
23 Radical Treatment of Hydrocele without Excision of Sac. B. Madhab De.

Lancet, London

Dec. 4, 1915, II, No. 4814, pp. 1233-1282

24 Gunshot Wounds of Lungs; Report of Cases. W. H. White.
25 *Urea as Bactericide and Its Application in Treatment of Wounds. W. St. C. Symmers and T. S. Kirk.
26 Perforation of Gastric and Duodenal Ulcers. R. Warren.
27 Investigation on Nature of Ultra Microscopic Viruses. F. W. Twort.
28 Method of Drop Measuring Liquids and Suspensions. R. Donald.
29 Roentgenographic Method of Localizing and Measuring Depth of Foreign Bodies. F. J. Stansfield.
30 Spontaneous Rupture of Uterus with Unruptured Membranes and Accidental Hemorrhage. E. Macirone.
31 *Prolapse of Lung Through Deficiency in Anterior Portion of Diaphragm. J. N. Kilner.

25. **Urea as Bactericide in Wounds.**—According to Symmers and Kirk we have in urea a substance which in the dry state is permanently stable, which is practically nonpoisonous, which is highly diffusible, and which even in low concentration (3 per cent.) affects the growth of bacteria, is inhibitive to growth at about 8 to 10 per cent., and which is markedly bactericidal to nonsporing bacteria in the higher percentages. This bactericidal effect is active in the presence of blood and such like organic fluids. Moreover, urea is nonirritating to living tissues, the dry substance may be sprinkled over wounds to almost any extent without any injury to the parts. During the last four years the authors have been using urea clinically, at first in fresh 100 per cent. watery solution. The only cases in which this gave results of undoubted value were those of diphtheria carriers, in which it was used as a wash. In surgical cases they never got really good results until the urea was used in the solid form, and used very liberally; and the solution of it in the blood or serum in the wounds kept closely in contact with the tissues, either by closing the wound with continuous sutures or covering it with some protective material such as oil silk in order to

prevent drainage. Dry dressings on the top of the urea absorbed the solution and prevented its action on the tissues. It is entirely innocuous to the living animal tissues, even when used in large quantities in the solid forms. Symmers and Kirk have proved this by using it on Thiersch's epithelial skin grafts on healthy ulcers it has never caused any necrosis of the grafts.

In many cases of radical cure for inguinal hernia urea has been placed between the different layers of tissue without doing any damage thereto. In one case of radical cure for hernia in a man with a chronic staphylococcic blood infection the urea was sprinkled between the layers of tissue, and these layers were closed with continuous sutures so as to prevent all drainage. Since October 4, all the wounded soldiers under their care in the Ulster Volunteer Force Hospital have been treated with urea and it has been found that sloughing infected wounds dressed with urea once in twenty-four hours give better results than similar cases treated in any other way. In wounds treated with urea under protective tissue, there is absence of the venous congestion of the tissues that occurs in cases treated with ordinary wet dressings, continuous irrigation, or frequent baths. The circulation in the tissue is normal, and repair seems to be much more rapid than under the conditions produced by fomentations, etc. There is also no irritation of the skin. The drawbacks to its use are that in some cases it produces a considerable amount of pain, and urea absorbs moisture somewhat quickly and becomes caked. It can be carried for a long time in envelopes made of protective tissue, and put up in this way it could easily be adapted as a first-aid dressing for use on the firing line.

31. **Prolapse of Lung.**—Kilner's patient a male, about 30 years old, had suffered for two years from epigastric pain brought on by food. He often obtained relief by inducing vomiting. A swelling occasionally appeared above and to the right of the umbilicus. During examination pain was elicited by deep pressure at a point external to the right rectus abdominis muscle and about 2 inches below the costal margin. The uppermost segment of the right rectus was slightly rigid. An ill-defined thickening could be felt along the lower edge of the liver in the region of the ninth costal cartilage. Immediately after the examination has been concluded a tumor, measuring about 2 inches by 1½ inches, suddenly appeared at the point of intersection of the mid-Poupart and infracostal lines. The long axis was transverse. The swelling rapidly spread up to the middle line and showed irregular movements, which, passing from right to left, were puzzling and difficult to explain. On palpation the tumor was ill-defined, soft and boggy. It could not be reduced. There was no pain or tenderness. The percussion note was flat. After remaining visible for some minutes the swelling vanished.

The abdomen was opened by an incision to the right of the middle line. A bubble of gas, 2 or 3 c.c. in volume, appeared for a moment beneath the peritoneum just as this was incised. Nothing abnormal was found in the abdomen until the gas bubble appeared again from beneath the costal margin and was found to lie between the folds of the falciform ligament of the liver. It was followed immediately by a pyramidal mass of tissue, of which a portion 3 inches long and 3 inches broad at the base presented below the costal margin. This, which was evidently right lung, was dull red in color, firm and elastic to the touch, and easily reduced into the thorax through an oval opening in the diaphragm. The opening admitted three fingers and was bounded in front by the posterior surface of the lower part of the body of the sternum, and behind by a right arch. The xiphisternal and adjacent costal fibers of the diaphragm appeared to be deficient. A finger passed through the opening toward the left rested on the pericardium. No attempt could be made to close the opening in the diaphragm. The abdominal wound was sewn up, and it healed by first intention. A week after the operation the patient had a severe hemorrhage from the lungs. A second hemorrhage, nearly as profuse, occurred forty-eight hours later. Recovery from the effects of the bleeding was rapid. When he left the hospital a month later his general condition was satisfactory and there had been no recurrence of either tumor or pain.

Practitioner, London

December, 1915, XCV, No. 6, pp. 729-860

32 Pitfalls in Appendicitis. D. Power.
33 Recent Work in Connection with Anesthetics. J. Blumfeld.
34 Venereal Diseases as We See Them Today. J. E. R. McDonagh.
35 Prostatic Obstruction and Its Sequelae. J. S. Joly.
36 Hematuria. R. Thompson.
37 Recent Work in Dermatology.—Bullous Diseases. J. M. H. Macleod.
38 Alopecia Areata. D. Freshwater.
39 Alopecia and Its Treatment. W. K. Sibley.
40 Mitral Stenosis and Its Peculiarities. A. Graham-Stewart.
41 Generalized Anasarca with Ascites, Complicating Exophthalmic Goiter. H. V. Mitchell.
42 *Treatment of Septic Wounds by Silver Nitrate. W. J. S. Ingram.

42. **Treatment of Septic Wounds.**—Removing the foreign material by fomentations, if necessary, Ingram applies silver nitrate over the bed of the ulcer and along any sinus, paying particular attention to thoroughness of application along the course of the sinus. For the next twenty-four hours, he puts on an ordinary dry dressing of biniodid gauze. After twenty-four hours, the bed of the ulcer is covered with a brownish, slimy slough; in some cases, the margin of the ulcer is inflamed and angry looking. For the next twenty-four hours, apply fomentations three times, and, as the result, the marginal inflammation has gone or largely subsided, the slough separates and the bed of the ulcer is covered with clean, healthy, granulation tissue. Healing then proceeds rapidly. Later, Ingram tried fomentations after the application of the silver nitrate, and found that, in most cases, the slough separated during the first twenty-four hours, the same healthy granulation tissue resulting. In deep wounds or ulcers, or in which hypergranulation tissue was abundant, two or three applications of silver nitrate was necessary, allowing an interval of three days between each application.

Archives de Médecine des Enfants, Paris

November, 1915, XVIII, No. 11, pp. 573-628

43 Vaccine Therapy in Forty-Six Cases of Typhoid in Children. E. Ortiz, M. Acuña and L. Belloc. To be continued.
44 Cerebrospinal Meningitis in Two Infants and One Young Woman; Prompt Benefit from Serotherapy. Condat.
45 Sarcoma of Prostate in Child under Five. B. de Saussine and others.

Bulletin de l'Académie de Médecine, Paris

Nov. 16, 1915, LXXIV, No. 46, pp. 529-554

46 Visual Disturbance in Diagnosis of Wounds of the Brain. (Les troubles visuels dus aux lésions des voies optiques intracérébrales dans les blessures de l'encephale par coup de feu.) P. Marie and C. Chatelin.
47 *Protection for Vaccination Pustule. (Pansement vaccinal protecteur. Pansement de nécessité et pansement de complaisance.) L. Camus.
48 Deafness from Explosion of Shell in Vicinity. (Surdités de guerre.) A. Castex.
49 Morphology of Typhoid and Paratyphoid Bacilli Cultivated in Human Cerebrospinal Fluid in Vitro. Daumézon.
50 *Toxicity of Extracts of the Prostate. (Note sur l'action désintoxicante de l'ablation des adénomes de la prostate, correspondant au pouvoir hypertoxique des extraits de cette glande.) P. Thaon.

Nov. 23, No. 47, pp. 555-593

51 Discussion on Wording of Circular Warning Against Venereal Diseases. Letulle and others.
52 Partial Tetanus. (Tétanos localisé.) C. Monod.
53 *Favorable Experiences from Utilization of Cytophylactic Action of Magnesium Chlorid in Treatment of Wounds. A. Pinard.
54 Tetanus Simulating Ileus Developing Ninety-Seven Days After the Wound. Brochet.
55 A Year's Experience with Antityphoid and Antiparatyphoid Vaccination. G. Maurange.
56 Devices to Correct Effects of Paralysis. (Note sur la prothèse fonctionnelle des membres.) Pierre-Robin.
57 The Oscillometer in Estimating Permeability of Arteries. A. Cawadias.

47. **Protection for Vaccination Pustule.**—Camus uses an oblong of adhesive plaster with the adhesive substance on both sides, covered with gauze. Three large round holes are cut in a row in the oblong, leaving only a narrow margin like a frame. The gauze is stripped from one side and this side is applied to the arm. Then the gauze is turned back

from the other side and the vaccination is done through the holes and the gauze veil replaced.

50. **Toxicity of the Prostate.**—Thaon reports the results of additional experimental research which confirm his previous announcements in regard to the extreme toxicity of extracts of the prostate. A maceration of 20 or 25 centigrams of bull prostate kills in three or four seconds a rabbit weighing 2,500 gm. He is convinced that part of the clinical picture seen with enlargement of the prostate is due to some direct toxic action from the prostate. He cites further Bazy's experience to the effect that the disturbances resulting from hypertrophy of the prostate may be alleviated more or less by providing drainage for the bladder, but that they never subside entirely until the prostate has been removed. The general health is liable to improve so remarkably after prostatectomy, in comparison to the previous condition, that there is little doubt that other factors besides the mechanical are involved.

53. **The Cytophylactic Dressing for Wounds.**—A few months ago Delbet called attention to the remarkable way in which phagocytosis was intensified by a 12.1 per thousand solution of anhydrous magnesium chlorid. Pinard here reports that he has been utilizing this property in treatment of the wounded in his service. He uses 18 gm. of crystallized magnesium chlorid to 1,000 gm. sterilized water, and irrigated the wounds with this twice a day at first and then once a day, covering afterward with a thin layer of absorbent cotton also moistened with the solution. The wounds healed far more rapidly than with any other treatment, as also phlegmons and other lesions. He declares that limbs and lives have been saved in his service by this treatment which he regards as great progress. (Delbet's announcement of what he called the cytophylactic action of magnesium chlorid was summarized in these columns, October 23, p. 1492.)

Lyon Chirurgical, Lyons

October, 1915, XII, No. 4, pp. 397-564. Military Surgery Number

58 *Injury of Retina or Choroid with Intact Eyeball. (Lésions des membranes profondes de l'œil par blessures de guerre avec intègrité du globe.) E. Rollet and L. Mangini.
59 Tardy Tetanus After Preventive Serotherapy; Four Cases. L. Bérard and A. Lumière.
60 *Sodium Persulphate in Treatment of Tetanus. A. Lumière.
61 Tardy Traumatic Tetanus. (Cas de tétanos retardé.) P. Vallette. (Cas de tétanos tardif à symptomatologie fruste.) R. Leriche.
62 Gas Gangrene, Gas Phlegmons and Gas Pleurisy. (Quelques observations d'infections gazeuses.) L. Tavernier.
63 Localization of Foreign Bodies. (Quelques opérations de repérage des corps étrangers par le compas de Hirtz.) L. Desgouttes and R. Dupont.
64 Decalcification and Wasting of Bone After Shattering Wound. (Atrophie osseuse calcaire consécutive aux fracas osseux par projectile de guerre.) L. Pech.
65 Treatment of Pseudarthrosis of Forearm Consecutive to Wound; Sixteen Cases. G. Nové-Josserand.
66 Resection of Shattered Hip Joint. (Technique pour la résection de la hanche en chirurgie de guerre.) L. Bérard.
67 *Treatment of Wounds of Bones and Joints. (Lésions osseuses et articulaires par armes à feu.) M. Gangolphe. (Technique pour la résection de la hanche en chirurgie de guerre.) L. Bérard. (Résection du genou d'emblée comme traitement de la fracture comminutive par balle de l'extrémité inférieure du fémur.) C. Viannay. (Sur la résection primitive dans les coups de feu articulaires avec fracture.) R. Leriche. (Des résections très étendues de l'humérus dans les éclatements de cet os au niveau de l'épaule.) R. Leriche.
68 *Obliteration of Lateral Sinus to Arrest Venous Hemorrhage in Wounds of the Neck. Lannois and Patel.
69 Spontaneous Evolution and Treatment of Wounds of the Chest. (Plaies de poitrine par projectiles de guerre.) L. Thévenot and F. Dumarest.
70 Immediate Operations for Abdominal Wounds. J. Murard.
71 *Emergency Transfusion of Blood by Aid of Quill. (Procédé simple et pratique de la transfusion du sang à l'aide d'une plume de poulet.) A. Rendu.

58. **Injury of the Deep Membranes of the Eye with Apparently Intact Eyeball.**—Rollet and Mangini have encountered ninety-six cases of this kind among the wounded in their charge. They give here twenty-four colored plates of the findings. They are those of detachment of the retina or rupture of the choroid or of hemorrhages in either, with their consequences. In general vision gradually improved, but in some cases it grew worse and the papilla atrophied. The eyeball is so elastic that it does not suffer as much as the retina and choroid from the contre-coup from a projectile in the vicinity.

60. **Sodium Persulphate in Treatment of Tetanus.**—Lumière has been studying for years the action of oxidizing agents on tetanus toxin. The results in vitro and also in the guinea-pig, dog, goat and ass have all demonstrated, he states, that the greatest destruction of the toxins is realized with the alkaline persulphates. His experiments on hundreds of animals all testified to the superior efficacy in this respect of sodium persulphate. It displayed always a favorable action, attenuating or suspending completely the spasmodic contractions. During the thirteen years before the war this drug was used at Lyons in eight clinical cases, and six of the patients recovered. When tetanus became so frequent during the first months of the war, thirty-three tetanus patients were given an intravenous injection of 20 c.c. of a neutral 5 per cent. solution of sodium persulphate once or twice a day as indicated. The spasms were considerably attenuated or entirely arrested, but the permanent contractions did not seem to be influenced. The trismus, the contracture of the abdominal wall and the stiffness of the neck persisted, but the patients had no further convulsions and lay quiet and tranquil. Even this is a great gain. Forty-one cases are tabulated; eight did not receive the sodium persulphate; four died of their wounds when the tetanus seemed under control; sixteen recovered, and thirteen died. The tables show that the incubation period in the cases of recovery ranged from nine to twenty-seven days; in the fatal cases from five to thirteen days, omitting the cases of flaring up of the infection after an operation. A number of cases of tardy tetanus developing after an operation suggest the necessity for repeating the preventive dose of antitetanus serum as a preliminary to further surgical intervention.

67. **Wounds of Bones and Joints.**—Gangolphe remarks that a statue at Lyons does honor to the memory of one of its surgeons, A. Bonnet, for having introduced the practice of immobilization into the treatment of arthritis. "The bronze still stands, but what he taught has been forgotten." . . . "In the last few years eight out of every ten cases of joint disease that have reached the hospital, had had months of inunctions, and other local applications, heliotherapy, etc., but without immobilization—" the one thing needed.

Wounded joints in war require the same thing, a good plaster cast; a plaster trough obviates any constriction. The advantage from immobilization surpasses that even from asepsis, he declares. In the joint lesions of peace, drainage is merely the complement of operative measures, but in war the operation is usually to provide drainage. For the shoulder, elbow, wrist and thigh, resection is "the highest expression of drainage," but this is not the case with the knee. He emphasizes the vast difference between wounded joints and diseased joints. Only one thing unites them from the therapeutic point of view, namely, the benefit which both derive from immobilization. The article discusses wounds of the bones in general and is illustrated.

68. **Obliteration of the Lateral Sinus to Arrest Hemorrhage After Wounds of the Neck or Preliminary to Operations.**—Lannois and Patel describe the modes of access to the lateral sinus, through or back of the mastoid process, and means to obliterate the sinus by tamponing with gauze wicks. The wall is easily compressed against the solid background. In some cases the sinus was first punctured to ensure a little clotting. The anatomy and physiology of the region permit this obliteration, and the results in the twelve cases reported were most gratifying. The procedure was applied six times on the right side and six on the left. There were no by-effects except, in one case, transient swelling of the superficial veins in the brow. The twelve cases are described in detail and the method commended as harmless and liable to prove very useful in removal of the parotid gland or other tumor in the neck. The circulation in the jugular vein is arrested almost entirely, enough for any operation required.

71. **Emergency Technic for Transfusion of Blood.**—Rendu was able to save by this means a patient almost moribund

from hemorrhage after injury of the thigh. A segment of the larger end of a quill was slipped on over the stump of the donor's artery, and the end of the stump was turned back over on the quill, like a cuff, and held with a ligature. The stump of the recipient's vein was then slipped over the quill-stiffened artery, and transfusion proceeded smoothly.

Presse Médicale, Paris

Nov. 18, 1915, XXIII, No. 56, pp. 457-464

72 The Histologic Mechanism of Tardy Rupture of Artery. G. Petit.
73 *The Effect of the War Environment on the Mind and the Healing of Wounds. (Les retentissements psycho-organiques de la vie de guerre et les soins à donner aux blessés.) Haury.
74 Study of Paratyphoid Fever; Fifty Cases. J. Lévy-Valensi.

Nov. 25, No. 58, pp. 473-480

75 Wounds of the Knee. (Traitement des plaies pénétrantes du genou.) X. Delore and Kocher.
76 Typhoid in the Vaccinated. A. Tournade.
77 Radiotherapy in Treatment of Certain Traumatic Lesions of the Nervous System. R. Cestan and P. Descomps.

Dec. 2, No. 59, pp. 481-488

78 *Pus in the Ventricles of the Brain in Meningitis. (La pyocéphalie cause d'insuccès dans le traitement sérothérapique de la méningite à méningocoques.) Chiray.
79 Improved Technic for Walking Extension Apparatus for Fractured Femur. Lamare.

73. **The Environment as Affecting Healing of Wounds.**—Haury declares that in the early treatment of the wounded too much attention is liable to be paid to the wound and too little to the man's mental state. The wounded are not merely so many pounds of anatomic tissues requiring surgical measures; the brain is a "trophic center," and when its balance has been upset by the stress of the campaign and the wound, the man may be unable to rally from even a comparatively simple operation. Give the brain time to steady itself, and the man may then be able to stand extensive operations and recover rapidly when this phase of transient blasting of the tissues and brain is past, and they have thrown off the psycho-organic reflection of the war environment.

78. **Pus in the Ventricles of the Brain.**—Chiray explains the failure of serotherapy in certain cases of meningococcus meningitis as due to accumulation of pus in the ventricles of the brain. The pus lies there even after the meningitis may have entirely subsided, and this pyocephalus, as he calls it, may lead to a fatal outcome when otherwise the patient would have recovered. The inflammation of the ependymal cells, the retention of the purulent fluid with resulting distention of the ventricle walls, and the consequent interference with the communication between the intracranial cavities, cooperate in inducing an unmistakable train of symptoms, usually after the meningitis symptoms have subsided. At first it seems as if the meningitis had flared up anew, but resumption of serum treatment is futile. The general depression and wasting of muscles are extreme, the emaciation surpassing that with almost any other condition. The skin is dry and scales off, and there is almost constant somnolency or partial coma, with incontinence of urine and feces. The tendon reflexes are attenuated or abolished, the pulse accelerated, and there may be vomiting. The temperature may be normal or of an intermittent febrile type (the brain ventricle type). The symptoms may keep up for from two to five months before the cachexia is fatal, but the whole syndrome could probably be arrested by puncture of the ventricle if done in time. In three of Chiray's forty cases of meningitis necropsy revealed this accumulation of pus in the ventricle, and the conditions showed that it might probably have been easily removed by trephining. He declares that this is not such a serious intervention as it seems, and it may save many otherwise doomed patients. Lumbar puncture in these cases of pyocephalus may reveal that the cerebrospinal fluid is typical of progressing convalescence from the meningitis, in contrast to the serious clinical picture. Or it may be difficult to obtain any fluid by lumbar puncture. If the fluid is still yellow after injection of serum, this shows that the latter is shut off from the spinal cavity by some obstruction. Another sign of the pyocephalus is the marked contrast between the spinal and the cerebral fluid, when the two can be compared.

Revue de Gynécologie et de Chir. Abdom., Paris

July, 1914, XXIII, No. 1, pp. 1-96. Last indexed Sept. 12, 1914, p. 975

80 *Ovarian Pregnancy. L. Sencert and M. Aron.
81 Ovarian Dermoid Cyst Taken from Woman of Sixty-Four. Latteux and Thevenard.
82 *Twenty-Five Years' Operative Treatment of Uterine Cancer. C. Waegeli.
83 Chorio-Epithelioma Consecutive to Hydatidiform Mole. Gruget and X. Bender.
84 Pyelonephritis of Appendicular Origin. R. Proust.
85 Colloid Epithelioma of the Transverse Colon; No Recurrence in Four Years to Date. R. Proust and X. Bender.

80. **Ovarian Pregnancy.**—The development of the placenta and its persistence for two years after the death of the embryo in the case reported illustrate the independence between the development of the placenta and that of the fetus. The young woman had long pleaded for operative relief from pains in the pelvis and amenorrhea, but as nothing could be found to explain them the operation was deferred from time to time until a tumor became evident in the region of the ovary. The uterus was found atrophied to a considerable extent. The patient had an abortion nearly a year after the ovarian tumor had been removed.

82. **Operative Treatment of Uterine Cancer.**—Waegeli reviews the 358 cases of cancer that have been received during the last twenty-five years in the gynecologic clinic connected with the University of Geneva, Switzerland. Only 28.17 per cent. were found operable cases. The experiences related demonstrate anew that after removal of a cancer of the cervix, when the patient has once weathered the dangerous cape of the third year, she can be regarded as almost certainly definitely cured. The limits of operability have been constantly enlarging, but still the proportion of operable cases is lower than in Germany. This he ascribes to the energetic propaganda which has been carried on in Germany in favor of early recognition and treatment of uterine cancer. Steps in this line have been taken in Switzerland, but the campaign for education of the public has not been waged so vigorously as in Germany.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Nov. 13, 1915, XLV, No. 46, pp. 1441-1472

86 *Lessons from the War in Regard to Organization of the Army Medical Department. (Lehren des Weltkrieges für unser Armeesanitätswesen.) Hauser.
87 Ophthalmologic Notes from History. T. v. Speyr.

86. **Lessons from the War.**—Hauser has made a special study on the spot of the organization of the medical department of both the German and French armies, and summarizes here certain lessons drawn from what he has seen. He says that surgical measures close to the firing line are growing constantly more radical as the war progresses, particularly for tangential wounds of the skull, for abdominal wounds, and wounds of the vertebrae and spinal cord. The reverse is the case, however, in the base hospitals. The German plan of a large medical staff for a whole division is not so convenient or useful, he thinks, as the Swiss and French organization of a separate, small medical staff for each infantry regiment. The French have further large corps of stretcher-bearers which are grouped by the divisions, and are distributed for service as occasion arises. The organization of the dressing stations and of the transportation force are thus kept entirely separate. He thinks that this grouping is less convenient—for Switzerland, at least—and that the less tendency to centralization the better.

Hauser has been impressed with the lack of preliminary training in hygiene among the medical forces of the army, and expatiates on the necessity for remedying this, saying that defective army hygiene avenges itself as much, if not more, than defective military surgery. The advice of trained geologists and engineering experts should also be available. He declares that military hygiene can be learned only from actual experience with the troop. When the sanitary officer appreciates his task aright he will always have plenty to do even when few of the men require treatment. Every troop must have enough sanitary officers to ensure the exact compliance with proper hygiene at all times.

The war has confirmed further the advantages of specialist centers and also of large rather than small, scattered hos-

pitals. Accommodations for the wounded are easily improvised in school buildings and factories with the aid of the equipment of the hotels in the region. The war has further shown that men with certain physical handicaps, even men past the age limit, are able to do excellent work, so that he urges the authorities not to reject any recruits but to train for military service all the possibly available men.

Antisepsis has been shown to be indispensable in military surgery; quite different from surgery in peace times. The experiences in the various armies with vaccination against typhoid have shown that it certainly has reduced the morbidity, and that the disease is much milder and leaves fewer after-effects. Antityphoid vaccination has not been introduced into the Swiss army as yet, hygienic prophylaxis having proved effectual.

Deutsche medizinische Wochenschrift, Berlin

Nov. 11, 1915, XLI, No. 46, pp. 1357-1384

88 Typhus Epidemic. (Beobachtungen bei einer Fleckfieberepidemie.) Otto. Commenced in No. 45.
89 *Exanthem and Recurrence with Epidemic Meningitis. H. Morgenstern.
90 Epidemic of Smallpox. E. Hesse.
91 *Tuberculin Does Not Cause Irruption of Tubercle Bacilli into the Blood. (Tuberkelbazillen im Blute. III.) C. Moewes.
92 Technic for Plaster Casts of Feet and Toes. (Der Fuss- und Zehenverband.) F. Schultze.
93 Wounds of the Head. (Zur Beurteilung der Kopfschüsse.) W. von Brunn.
94 Comparative Ages of Husband and Wife and the Number of Children. (Gegenseitiges Alter der Ehegatten und Kinderzahl.) F. Prinzing.
95 *Liquid Petrolatum Cleans Alcohol. A. Pohl.

89. **Recurrence of Epidemic Meningitis.** — Morgenstern describes a case of epidemic cerebrospinal meningitis accompanied by an eruption and hemorrhagic patches. The exanthem kept up for a week and the meningitis was of moderate severity. After an interval of five weeks the whole syndrome returned, but was less severe and subsided earlier. There was another case of recurrence among his thirty patients with epidemic meningitis, and here the recurrence was far more serious than the primary attack.

91. **Tubercle Bacilli Not Driven Into Blood by Tuberculin.**—Moewes examined repeatedly the blood of thirty tuberculous patients under tuberculin but found no evidence that the tubercle bacilli had been mobilized by the treatment. None were found in the blood of those who had been taking the tuberculin for some time and only twice after a provocative injection, at the height of the reaction or at necropsy several days later. The blood was tested for the bacilli by injection of animals. The findings were thus positive in 6.6 per cent. under tuberculin. In 40 other cases in which no tuberculin had been given, tubercle bacilli were found in the blood in 5 per cent. of the cases. These figures do not include 10 cases of miliary tuberculosis in which the bacilli were found in the blood in 50 per cent. Tests of 22 tuberculous guinea-pigs showed tubercle bacilli in the blood in 64 per cent. of the 14 not given tuberculin and in 68 per cent. of the 15 with tuberculin.

95. **Mechanical Cleansing of Alcohol with Liquid Petrolatum.**—A few drops of liquid petrolatum shaken up with the alcohol in a bottle will carry down with the petrolatum all the impurities in the alcohol as it settles to the bottom. Or a drop or two of the petrolatum can be rolled around in a shallow tray of alcohol and then lifted out. The petrolatum can be seen taking up the impurities, like an enormous phagocyte, as it is rolled around. The same method would probably prove effectual also in cleansing any other fluid lighter than the petrolatum.

Medizinische Klinik, Berlin

Oct. 24, 1915, XI, No. 43, pp. 1172-1198

96 *Acute Articular Rheumatism and Its Complications in Children. B. Bendix.
97 Influence of the War on the Provision Supply and the Public Health in Germany. (Einfluss des Kriegs auf Ernährung und Gesundheit des deutschen Volkes.) N. Zuntz. Concluded in No. 44.
98 Treatment of Wounds of Bones and Joints. (Schussfrakturen langer Röhrenknochen und Gelenkschüsse im Feld und in der Heimat.) W. Böcker.
99 Epidemic of Dysentery in Poland. (Ueber die Ruhrepidemie 1914-1915 auf Grund des Spitalmaterials.) M. Gieszczykiwicz.
100 Deep Electrotherapy—Diathermia—of Duodenal Ulcer. M. Rubens.

Oct. 31, No. 44, pp. 1199-1224

101 Enlargement of Muscles Subject to Cramps. (Ueber Muskelhypertrophien hyperkinetischen Ursprungs bei toxischer Polyneuritis.) H. Curschmann.
102 *Experimental Research on Infectious Jaundice. (Die sogen. Weilsche Krankheit—ansteckende Gelbsucht.) Uhlenhuth and Fromme.
103 *Scarcity of Milk and Children's Diet. (Milchknappheit und Kindernährung.) O. Heubner.
104 Military Discipline in Hospitals as Factor in Healing of Wounds in War. (Lazarettdisziplin als Heilfaktor.) W. Hellpach.
105 Apparatus for Extension with Fracture of the Femur and Injury of Spinal Cord. A. Partos.
106 Filariasis in Russian Prisoners of War. E. Rodenwaldt and M. Bockhorn.

96. **Acute Articular Rheumatism in Children.** — Bendix remarks that the clinical picture is the same in children as in adults, but that the heart is touched more frequently in children. Besides the endocardium and pericardium, other serous membranes may be affected also, especially the pleura and meninges. Chorea may precede the acute articular rheumatism by months or years, or may follow it. A rudimentary form of acute rheumatism is not uncommon and may pass unrecognized, or the slight and transient disturbances be regarded as "growing pains." The joints may not swell at all in this rudimentary type. Acute articular rheumatism is rare in infants, but when it occurs the symptoms usually are restricted to the heart. Otherwise unexplainable findings in the heart may be the only manifestation of the disease. The heart may be affected in children even in the apparently mildest forms of the disease. Children also are liable to have it in an extremely severe form, frequently recurring, and involving the various serous membranes, or the disease may assume a chronic course, affecting the large and small joints, including possibly the vertebrae. With complicating chorea, the heart is especially liable to be affected. Among other complications that have been observed are meningitis, bronchitis, pneumonia, nephritis, tonsillitis, and purpura near the affected joints. Besides the bacteria involved, an inherited predisposition, getting chilled, and a damp house are auxiliary factors in the development of polyarthritis. Measures for prophylaxis of the disease and to ward off recurrence are required with special urgency in families known to have a tendency to rheumatism. Bendix has found air baths, with dry rubbing, most effectual in hardening children, followed by tepid baths, swimming in a warmed tank and later swimming in a river. These hardening procedures may include finally sea bathing and winter sports.

During the acute attack the child must be kept in bed until fever, swelling and pain are gone; getting up too early may bring back the joint trouble anew. The affected joints are smeared with oil or ointment and placed on cotton or in a splint. He says that the temperature of the sick room should not be above 18 C. (64.4 F.). The diet during the febrile stage should be milk, vegetables, fruit, bouillon and gruels, with lemonade and mineral waters at will, resuming a mixed diet as the fever subsides. The salicylates should be given on the same principles as to adults. Their action is enhanced by a warm bath followed by wrapping the child up dry and warm. The drug is given three times a day until there is profuse perspiration. In the severer and the irregular forms the salicylates may fail, and they are of no aid in the heart complications. He has never witnessed any serious untoward effects from them in children, so that large doses can be given without apprehension. The chronic form requires potassium iodid and local or full electric baths. Hot sand, superheated air, mineral mud, mild massage and other local applications may also render good service. The heart affection requires the usual measures.

102. **Infectious Jaundice.**—Uhlenhuth and Fromme announce that this disease can be transmitted to animals and hence that there is a prospect of successful immunization against and treatment of infectious icterus. The blood of patients is infectious during the first week; animals could also be successfully inoculated with urine from patients. The virus was refound in guinea-pigs in the bile and organs as well as in the blood and urine. It was able to penetrate into the

body through the intact mucosa and also through scarified skin.

103. **Effect on Children's Development of Scarcity of Milk and Meat.**—Heubner discusses the actual requirements of children for milk, saying that ½ liter cow's milk is ample during the first three months and also after the second year. Between these periods, ⅘ liter should be the standard. For schoolchildren ⅓ liter is enough. He says in regard to meat, that the experiences at the Breslau vegetarian orphan asylum have been permanently favorable. The institution was endowed with the understanding that the children were to be brought up without meat. They get ⅕ liter milk every day and occasionally a little more, with one egg a few times during the week. The rest of the time only vegetable food. Dr. Steinitz has been in charge of the institution for years and reports that the children thrive satisfactorily. Heubner adds that the food supply in Germany during the war, for all ages, suffers from a scarcity of fats, and that housewives would do better to purchase fat rather than meat for their children when they have not means for both.

Münchener medizinische Wochenschrift, Munich

Nov. 6, 1915, LXII, No. 46, pp. 1561-1596

107 *Structure of Callus as Guide to Treatment. (Ueber die diagnostische und therapeutische Bedeutung der feineren Details der Frakturbilder.) H. Wachtel.
108 *Antitoxin Content of Serum in Tetanus. H. Wintz.
109 Improved Bile Culture Medium for Diphtheria Bacilli. (Ergebnisse der Diphtherieuntersuchung mittels des Galle-Serum-Nährbodens v. Drigalski und Bierast.) K. E. F. Schmitz.
110 Poisoning from Celluloid Lacquer in Making Air Craft. (Gewerbliche Vergiftungen durch Zelluloidlacke in der Flugzeugindustrie.) F. Koelsch.
111 *Hematuria Without Known Cause. O. Weber.
112 *Calcium Chlorid Prevents Night Sweats. (Chlornatrium und Chlorkalzium als Antihydrotika.) H. Peperhowe.
113 *Apparatus for Testing the Hearing. (Neuer Gehörmesser.) A. Stocker.
114 Further Experiences with Gas Phlegmons. Fessler.
115 Orientation Method of Locating Projectiles in Tissues. (Die operative Entfernung von Geschossen mittels einer neuen Lokalisationsmethode—Orientierungsmethode.) C. Kunz.
116 Iodin Fumes for Sterilization of Skin and Wounds. (Hautdesinfektion und Wundbehandlung mit Joddämpfen nach Jungengel.) A. Bulling.
117 Injury of Retina from Air Concussion. (Zur Kenntnis der Netzhautschädigung durch erhöhten Luftdruck.) A. H. Pagenstecher.
118 Treatment of Compound Fracture of the Leg. E. Bamberger.
119 Three-Day Fever; Thirty-Two Cases. (Eine eigenartige Epidemie.) J. Kapp.
120 Prothesis for Fractures and Amputations. (Eine neue, aus Linoleum hergestellte provisorische Prothese für die untere Extremität.) H. Neuhäuser. (Schultergelenksprothese bei Schlottergelenk mit grossem Humerusdefekt.) J. Lewy. (Ueber Suspensionsbehandlung komplizierter Verletzungen der oberen Extremität, mit Extensionsschiene.) W. Purrucker.

107. **Therapeutic Indications from the Structure of the Callus After Fractures.**—Wachtel shows how with roentgenoscopy we are able to tell exactly what processes are going on in the callus as a fracture heals, and when simple reduction is all that is needed. The shadow of the structure of the callus shows when there is post-traumatic osteomyelitis or osteomyelitic pseudarthrosis. Suppuration interferes with the healing process, and hence the importance of its early detection and draining.

108. **Production of Antitoxin in Tetanus.**—The experiences related by Wintz confirm that an antitoxin is generated during convalescence from tetanus, but it seems to be in such minute amounts that it offers no prospects for utilization in therapeutics.

111. **Hematuria of Unknown Cause.**—Weber sifts the literature on "essential hematuria," declaring that this term is applicable only when even with microscopic examination of the kidneys no cause for the hematuria can be discovered. He then describes a case which he prefers to entitle "hematuria from an unknown cause." This patient is a youth of 17 with a history of diphtheria at 3, measles at 5, and scarlet fever at 6; otherwise healthy except for the hematuria which came on suddenly at the age of 2 and has persisted uninterruptedly to date. Exercise seemed to benefit, and Weber now reports improvement amounting nearly to a cure after an eight months course of reclining, at a mountain resort, with an hour or two each day spent in walking. Calcium lactate (1 gm. three times a day) apparently aided in the benefit. No cause for the hematuria could be discovered.

112. **Calcium Chlorid Prevents Night Sweats.**—At least this has been Peperhowe's experience. He experimented with sodium chlorid and calcium chlorid, and found the latter most effectual. Patients who used to be dripping with sweat at the morning visit were found dry and cheerful under the influence of the calcium chlorid, and they now clamor for it. He theorizes to explain its action; one element is the tranquilizing effect on the nervous system, as we know that the night sweats are the result of disturbance of vasomotor control from the influence of the products of the bacteria. Other elements in the benefit are the tonic and astringent properties of the calcium salts. Be this as it may, no injurious by-effects were noted in any instance, while it displayed an unmistakable tonic influence, he reiterates, justifying its continued use.

113. **Water Drop Test for Hearing.**—As the water drops on the slanting metal saucer, the metal rings and this affords a means of testing the hearing with greater precision than with the whispering voice. The small vessel holding the water can be adjusted at various heights above the metal saucer, thus graduating the test. It discloses in an unmistakable, objective manner even the slightest impairment in the hearing.

Zeitschrift für Geburtshülfe und Gynäkologie, Stuttgart

August, 1915, LXXVII, No. 3, pp. 537-790

121 *Care of the Umbilicus. (Zur Nabelversorgung.) R. Müller.
122 Present Status of Criminal Abortion. (Ueber kriminelle Fruchtabtreibung. W. Benthin.
123 Fat Embolism After Ovariotomy; Recovery. J. Praeger.
124 The Scientific Life-Work of R. von Olshausen. G. Winter.
125 The Mortality from Puerperal Fever Since 1900. P. Buess.

121. **Care of the Umbilicus.**—This communication from the Maternity at Basel in charge of von Herff reports the results of thorough trials of different methods of managing the umbilicus. In the last three years, among the 5,000 children, there has been no mortality from infection of the umbilicus. This, Müller declares, is the largest "clean" series on record. In this series the main reliance was on cutting the cord short and using Peruvian balsam.

Zentralblatt für Chirurgie, Leipzig

Nov. 13, 1915, XLII, No. 46, pp. 817-832

126 Advantages of Ventral Decubitus in After-Treatment of Laminectomy. (Vorteile der Bauchlage in der Nachbehandlung der Laminektomie.) F. de Quervain.

Zentralblatt für Gynäkologie, Leipzig

Nov. 20, 1915, XXXIX, No. 47, pp. 827-842

127 Fatal Gangrene of Segment of Intestine Utilized for Artificial Vagina by Baldwin's Technic. H. Guggisberg.

Gazzetta degli Ospedali e delle Cliniche, Milan

Nov. 28, 1915, XXXVI, No. 84, pp. 1313-1328

128 The Italian Soldier's Ration. (L'alimentazione del nostro soldato in guerra.) A. Pugliese.

Policlinico, Rome

November, 1915, XXII, Medical Section, No. 11, pp. 481-528

129 *The Suprarenal Capsules and Lactation. (Capsule surrenali ed allattamento.) C. Verdozzi.
130 *Multiple Myelomas with Bence-Jones Albumosuria. (La malattia di Kahler-Bozzolo, con illustrazione di un nuovo caso.) A. Martiri. Commenced in No. 10.

129. **Suprarenal Capsules and Lactation.**—Verdozzi examined the capsules of virgin and gravid and lactating guinea-pigs. He found that the cortical substance of the suprarenals increased regularly in size and weight during lactation. This occurs so constantly, he says, that we are justified in accepting it as the general rule in mammals, and hence can assume that the cortex of the suprarenals represents an important factor in the development and general nutrition of the animal organism.

130. **Myelomatosis with Bence-Jones' Albumosuria.**—The case of multiple myelomas described was diagnosed first as intercostal neuralgia and then as sciatica, but the pains in

the chest finally suggested ectasia of the aorta and tabes. The pains were increased by movements; there was a slightly pulsating tumor at the base of the sternum and roentgenoscopy disclosed dilatation of the arch of the aorta, and the iris and tendon reflexes behaved abnormally. The progress of the case, however, especially the appearance of Bence Jones' albumosuria, confirmed the case as a typical example of the systematic affection of the bone marrow, of the nodular hyperplastic-neoplastic type, probably of toxic-infectious origin, with or without involvement of the rest of the blood-producing apparatus. The various other diseases that might be confused with it are analyzed and the differential points enumerated for each in turn.

Semana Medica, Buenos Aires

June 24, 1915, XXII, No. 25, pp. 775-802

131 *Effectual Vaccine Therapy of Ozena. (Vacunoterapia del ozena.) A. Quadri.
132 Lipomatous Myxosarcoma in the Mesentery. A. Villanueva.

Sept. 2, No. 35, pp. 267-298

133 *Stroganoff's Prophylactic Method of Treating Eclampsia. N. P. Costa.
134 Serotherapy of Bubonic Plague. III. J. Moreno.

131. **Vaccine Therapy of Ozena.**—Quadri relates favorable experiences in thirty-two cases of ozena in which vaccine treatment was systematically applied once a week. Seventeen of the patients improved with less than five injections, and only two failed to show benefit.

133. **Stroganoff's Method of Treating Eclampsia.**—Costa has applied Stroganoff's method alone in 21 cases of eclampsia and in 19 others supplemented by venesection. In 13 of the 40 cases it developed during the pregnancy; in 9 during labor, and in 6 after the child had been born. Twenty-nine of the women were already in coma when first seen and only 7 were fully conscious. Eleven died, but necropsy revealed such serious lesions in most of them that recovery would have been out of the question. In 2 of them pulmonary edema was the cause of death; acute anemia in a third. The minute details of 40 cases are tabulated for comparison, Costa's impressions being decidedly favorable for the Stroganoff method. It certainly reduces the convulsions, and these are the great danger in eclampsia. It also gives opportunity and time for needed obstetric measures. In short, he concludes, the efficacy and simplicity of the Stroganoff technic render it the best means at our command for management of eclampsia (The method was described in The Journal, July 3, 1909, p. 86).

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Oct. 16, 1915, II, No. 16, pp. 1815-1894

135 The Clinical Importance of the Wassermann Reaction in Neurology and Psychiatry. F. S. Meijers.
136 Scraping Center of Nail Thin in Treatment of Ingrowing Nail. (Een eenvoudig middel tegen unguis incarnatus.) E. C. Van Leersum.
137 Roentgenography in Detection of Subdural Hematoma. A. M. van de Graaf.

Oct. 23, No. 17, pp. 1895-1990

138 Favorable Experiences with Roentgenotherapy of Cancer; Fifty-Six Cases; Twelve Cures. G. F. Gaarenstroom.
139 Rhythm and Metabolism of the Heart Muscle. (Rhythmiek en metabolisme van de hartspier.) S. de Boer.
140 Advantages of Plastic Operation on the Conjunctiva to Ward Off Sympathetic Ophthalmia After Injuries. (Bindvliesplastiek bij doordringende verwondingen van het oog en de kans op sympathische oogontsteking.) A. Verwey.

Nordisches medizinisches Archiv, Stockholm

1915, XLVII, Surgical Section, No. 3. Last indexed May 22, p. 1803

141 *Treatment of Cleft Palate. (Zur Frage von der Behandlung angeb. Gaumendefekte.) S. Hybbinette.
142 *Operation for Primary Tumors of the Vertebrae; Ninth Case on Record. (Wirbelkörpertumoren.) E. Key.
143 Transpleural Resection of the Cardia and Esophagus. J. Borelius.
144 *Ovarian Tumors Obstructing Delivery. S. Lindqvist.
145 Tumor of the Brain Simulating Eclampsia. (Fall von Gehirntumor.) E. Alin.
146 *Plastic Operations on the Thorax for Pulmonary Tuberculosis. (Thorakoplastik bei Lungentuberkulose.) C. Löwenhjelm and G. Nyström.
147 *Necropsy Findings after Exclusion of Tuberculous Bladder. (Exclusio vesicae bei schwerer Blasentuberkulose.) E. Key and C. Sundberg.
148 Uterine Cancer Apparently Cured by Radium Exposures. N. V. Akerblom.

141. **Correction of Cleft Palate.**—Hybbinette applied Brophy's technic in one case, Langenbeck's in seven, and in eight others a combination of the latter and Lane's technic. He operated at two sittings with this latter method and found conditions better when the interval was ten or twelve days. Healing was by primary intention and with good anatomic results in all, but functional training in speaking is indispensable to obtain satisfactory results. The three technics are compared, with diagrams of each showing the various steps.

142. **Primary Tumors of Vertebrae.**—Key summarizes and compares eight operative cases with one from his own experience. Three of the patients, including his own, did not survive the operation. Two others succumbed to recurrence two or ten years later. Two others were known to be free from recurrence the tenth and eleventh months after the operation, and Israel's patient was permanently cured. The trouble was not recognized until too late in many instances. The tumor was an enchondroma in four of the nine cases. Metastasis of cancer in the spine generally proceeds from a primary tumor in the breast in women and in the prostate in men. Fraenkel called attention to the cloudlike spots in the peripheral portion of the Roentgen picture of enchondroma, but others have not found them so prominent. The paravertebral technic seems the most promising mode of access. This permits better radium treatment, which he regards as practically indispensable. Tumors originating in the vertebrae seem to grow very slowly and to be relatively benign, so that the outlook for a complete cure is good with early Roentgen diagnosis and postoperative radium treatment.

144. **Ovarian Tumors Preventing Delivery.**—Lindqvist tabulates the details of 116 cases he has found in the literature, 1897-1914, including Keyes', published in The Journal, 1909, lii, 463. Analysis of this material shows that attempts to conclude delivery past the tumor are dangerous and usually futile. The ovarian cyst ruptured, with fatal results, in 8 per cent. of the 183 cases reported by McKerron. Cesarean section supplemented by ovariotomy is the procedure Lindqvist advocates as a rule. In his case the woman was delivered by abdominal cesarean section and the dermoid cyst in the right ovary was removed. At her second pregnancy the uterus ruptured. His second patient was also delivered by cesarean section, the pelvis being completely filled up with an ovarian cyst.

146. **Operations on the Chest Wall for Pulmonary Tuberculosis.**—The indications for the technic and the results of plastic operations on the chest wall are discussed in this article which reports also four personal cases. The impression is decidedly favorable to this method for providing more favorable conditions for the natural healing of a tuberculous process in the lung. Improvement was pronounced in two of the cases described, a woman of 30 and a man. Ten ribs were resected in the latter case. The third patient was a man of 20 and no improvement was evident after resection of a total of 80 cm. of ribs except that the amount of sputum was somewhat reduced. This patient died about three months later and the necropsy findings are described. The fourth patient seemed to be improved at first; the temperature dropped to normal and expectoration was reduced but the woman had an extensive hemorrhage from the lung three months later. All were advanced cases and the thoracoplastics was the last resort.

147. **Exclusion of Tuberculous Bladder.**—In the first of the two cases reported the tuberculous kidney was removed and the patient was restored to clinical health by this and exclusion of the bladder. In the other case the kidney was not removed, and the patient has succumbed since to uremia. In both cases the opening into the ureter to exclude the bladder answered the purpose perfectly and the bandage held tight. No harm seemed to result from leaving the catheter projecting into the ureter for such a long time. There was no irritation such as is inevitable when the urine comes in contact with the skin at the mouth of the fistula.

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 3 CHICAGO, ILLINOIS JANUARY 15, 1916

VESICULOTOMY AND VESICULECTOMY

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CHICAGO

The indications for surgical attack on the seminal vesicles still remain uncertain. In the past few years, however, much has been accomplished toward a more thorough understanding, and it appears that more or less definite results following operative interference will permit of establishing strict indications and contraindications. Fuller is given credit for insisting on the drainage and perfecting a direct method of procedure for drainage of the vesicles. At the same time he has established his views as to the character of cases in which operation should be performed. Belfield, who has done more than any one else to point out the conditions arising from diseases of the vesicles, must be equally recognized as a pioneer in this field. He has demonstrated a method of draining the vesicles without directly attacking them, in contradistinction to all other methods used with this purpose in view.

On account of anatomicopathologic conditions, it may be that vasotomy, even when correctly carried out, may not always be beneficial whenever performed. But on account of its simplicity and the magnitude of the direct attack on the vesicles, and also on account of its uncertainty, it should always be considered in all of those cases except those in which it can be ruled out as inefficient at the time of examination. It is needless to state that vesiculotomy is not always successful as regards results, and for this reason complete removal, or vesiculectomy, has been advised in selected cases.

Tuberculosis of the seminal vesicles caused attention to be drawn to these organs, and operative procedures were developed. Only thirty-five years have elapsed since the first vesicles were removed. During this time, operations were rather few in number. Occasionally some surgeon would become enthusiastic and describe wonderful results, but operations for this condition never became recognized as a necessity. We owe to Fuller and Belfield, above all others, our knowledge as regards the gonorrheal inflammation of the vesicles, and particularly their surgical treatment. Although the anatomy and physiology of the vesicles have received much attention, it may be said that only recently has the anatomy been thoroughly described. Picker has shown the anatomy to be variable — that the tubes may be twisted or straight with or without diverticula, and furthermore that many anomalous conditions are not uncommon.

The pathology of these gonorrheal or secondarily involved organs must be similar to that of other organs which are similar in structure. Naturally problems concerning the character of the involving organism, whether it is of low or great virulence, whether the course is acute or chronic, whether or not there is occlusion of the ejaculatory duct, whether or not there is formation of sterile pus or involvement of other parts, and many other problems arise. Squier reports calculi in the vesicles in a large percentage of cases. I have always believed that the prostate is usually, but not necessarily, involved in the course of gonorrhea. If the inflammatory process surrounds and causes obstruction to the outlet of the semen, infection easily gains access to an organ thus prepared. It may be that no infection takes place at once, but that the occlusion is complete and that calculi will easily develop. Of course it may be that infection then takes place, or the reverse and stone formation follows. If this is true, and there scarcely can be any doubt that infection of the seminal vesicle permits of systemic infection, this focus should always be considered. I believe the importance of this distributing focus has been demonstrated. Hence, by virtue of its importance and on account of the great frequency of inflammatory diseases of the vesicle, greater attention has been given to the surgery. Here the minute anatomy as well as the rather obscure location has favored their development as well as concealed them, and I am inclined to believe that these facts and not the belief of their inaccessibility were the real cause for the rather late acceptance of surgical interference.

It is probable that the direct or indirect drainage of these organs has even as yet not received the attention which will come in due course of time.

The observations of others, as well as my own, show that the gonococcus is not the germ which is the one most often found. In the acute state the gonococcus may pave the way for secondary infection, but it soon becomes extinct and the secondary infectious germs are the cause of the resultant condition and symptoms. In order of frequency these are the staphylococcus, the streptococcus and the colon bacillus. I do not mean, however, that the gonococcus is ever absent in the chronic cases. In cases of toxemia, whether manifested by involvement of joints or elsewhere, if cultures as well as smears, and finally if the complement-fixation test is negative, how is it possible to conclude correctly that the focus of dissemination is in the vesicles? Furthermore, even if they are pathologically involved, from what I have already stated it can be seen that drainage cannot be ideal and spontaneous cure cannot be expected. Is it a wonder that the urologist is giving much time and attention to this subject?

THE SYMPTOMATOLOGY OF SEMINAL VESICULITIS

For a thorough appreciation of the attitude taken in regard to the surgery, the symptomatology of seminal vesiculitis must be understood. I know of no better classification that that of Belfield, who has grouped all symptoms as referable to (1) the genital organs, (2) urinary organs, (3) rectum, and (4) abdomen, or as (5) systemic.

1. All the sexual signs and symptoms should be taken into consideration: painful erections, painful orgasm, premature ejaculation, weak orgasm, impotence, sterility due to absence of spermatozoa, pyospermia, hemospermia and epididymitis. The latter is to me always a positive indication of a vesiculitis on the corresponding side. Blood in the semen is equally as positive, in my opinion. I wish to impress the fact that if the secretion gained following stripping of the posterior adnexa shows only microscopic red blood cells with the presence of pus, with or without the presence of spermatazoa, it is an indication of an inflammation of the vesicle, even if the examining finger does not detect a pathologic condition. Pains in the testes, epididymes, groins or perineum or in the region of the vesicles should be considered. Colicky pains have been mistaken for ureteral colics, and I am aware of several instances in which patients have been operated on. Spermatorrhea is not uncommon in cases of spermatocystitis, and may be either micturitional or defecational in character.

2. The urinary symptoms include painful urination, the pain usually terminal, and often accompanied with tenesmus; frequency of urination day or night, dribbling, with a weak stream and often with no terminal force, and colicky pains which simulate ureteral or appendiceal colics and often cannot be distinguished. In advanced cases there are a trigon cystitis and cystitis over the area of diseased vesicles, and signs and symptoms of a cystitis. Even partial or complete retention of urine, particularly the former, is rather common. Discharge from the urethra, varying in microscopic appearance, can, of course, be the cause of reinfection of the urethra.

3. Rectal symptoms are feeling of itchiness, warmth, fulness or even pain; sensation of feeling a lump or presence of obstruction, and at the time of bowel movement a bearing down sensation. Proctitis may result. Anal irritation is not uncommon.

4. Abdominal symptoms are chiefly intestinal in character. Peritoneal symptoms are not uncommon. Attacks of pain, with the concomitant signs and symptoms, have frequently been mistaken for appendicitis. I know of numerous cases in which operations have thus been performed.

5. Systemic symptoms in acute attacks are ushered in with chill, fever, malaise, headache, loss of appetite and constipation. The most common systemic symptoms in the acute, but particularly so in the chronic cases, are the various types of involvement of the joints or tissues around them, toxic, nutritive or trophic in character. The formation of spicules on the bones which are particularly subject to intermittent pressure, as on the astragalus, is a common occurrence. Pains, which are referred to often as "rheumatic," may be produced anywhere in the muscular as well as in the bony part of the body.

It is only natural that some of the symptoms or signs of the various groups may be present or absent in one or all of the cases. It might be stated that no two cases are identical.

With all this, another group of symptoms referable to the nervous and mental system may be correlated. These patients are frequently regarded as sexual neurasthenics.

CLASSIFICATION OF CASES

In selecting cases for the operation of vesiculotomy, Fuller has grouped them according to prominence of clinical symptoms, rather than in accordance with pathologic lesions, into (1) urinary, (2) genital, (3) nervous and mental, and (4) rheumatic.

Squier, with operative drainage purposes in view, has grouped them into (1) the pus type, (2) the pain type, and (3) the rheumatic type.

METHODS OF PROCEDURE

I believe that if a patient has an involvement of one or both vesicles which does not result in a spontaneous cure, he should receive surgical consideration. This applies also in case all the regular treatment, including the stripping prccess, has been carried out carefully and systematically over a variable period of time, depending on the individual, but has not resulted in recovery.

I wish to impress the fact that no undue haste need be exerted. Every recognized procedure should be used to assist in attaining the desired results. I have seen many apparently severe cases which have resulted in a freedom of symptoms by adhering to systematic, often intermittent, treatment covering a period of years. In cases with pronounced sexual disturbances as the chief complaint, great care should be exercised in deciding on operation.

I am still of the belief, here as elsewhere in surgery, that if minor procedures can give relief, these steps are always the method of choice. I refer particularly to vasotomy. If up to the present time there is no known method, at least in a large group of cases, of determining beforehand what drainage through the vas can do, and this must be admitted, it stands to reason that where this procedure has been demonstrated to be without ill results, vasotomy in this group of cases should always be carried out, even if only as a preliminary step to vesiculotomy or vesiculectomy. I might state that, if unsuccessful, it would act as a preparatory mode of treatment, similar to a suprapubic drainage previous to the removal of the prostate gland.

It is wrong to assume, as some enthusiasts already have done, that one should abandon all the time honored methods of treatment, and even also vasotomy, and immediately on the diagnosis of spermatocystitis proceed to the drainage of the vesicles with the belief that it is always correct to attack the focus of infection in a surgical manner. This view cannot be too strongly condemned, at the present state of our knowledge. Vesiculotomy, in the acute type of cases in which there can be no question of a pseudo-abscess and with the presence of grave symptoms, should always be performed. I am quite certain that it would not be correct to wait and watch. Puncture by rectum in the light of modern surgery would not be correct, and perineal vesiculotomy would unquestionably be the method of choice.

These cases should not be handled too conservatively. All records agree that excellent results follow. Pain is immediately relieved, and it has been demonstrated that the anatomic results are satisfactory. Take, on

the other hand, a long-standing case with marked systemic symptoms, in which there is an infiltration of a pronounced type: If, as one suspects and finds at the time of operation, there is perivesiculitis, and the vesicle wall is thoroughly riddled with miliary abscesses, one need not hesitate to do a vesiculectomy.

In cases of marked infiltration in which the vesicles are adherent to surrounding parts, even in the absence of systemic symptoms, but in which signs of an involvement of the bladder are present, I am in favor of vesiculectomy rather than vesiculotomy. Naturally, extirpation may be difficult; it is in my opinion nevertheless, the only correct procedure.

To enumerate a few more instances in which operative treatment is absolutely indicated, I may mention those cases complicated with colicky pains, those simulating ureteral or appendiceal colics. Infection is usually present, although calculi are to be always suspected in these cases. Here removal of stone and drainage or even complete excision may be demanded. I believe that the types of cases mentioned are strictly surgical in character, and that the indications for operation are clear.

How about the indications and contraindications for operation in all of the remaining cases—those which one meets most often in daily practice? I have already outlined my views, so I need not repeat. I have simply expressed my personal views when I state that each individual case must be thoroughly considered. I have always hesitated, for instance, whenever nervous or mental symptoms were present. Certainly if they predominate, one should be inclined to refuse operation, particularly if the accompanying symptoms are minor in character.

That either of these operations is an operation of considerable gravity all must admit, considering the accidents, complications, the acknowledged results, and the necessity as a rule of a general anesthetic. It is at present still advisable to be conservative with all cases excepting those mentioned. A fair amount of treatment, followed by vasotomy, and further treatment if necessary for all the remaining cases, and then a not too prolonged interval of rest, should decide the necessity of operative interference. It is not always possible to advise correctly, even in the types enumerated, at the first time of examination. I have frequently seen patients with infiltrated and sensitive vesicles recover fully with the ordinary treatment. Again, there are instances in which cases with symptoms of grave character clear up quickly with the usual treatment.

In order that there may be no misunderstanding, I wish to refer also to the undisturbed functional results. The functional results of the operations on the vesicles have not as yet been thoroughly studied, but my first impression would be that sterility could easily result. But the question arises whether this would not result without operation. Furthermore, perineal prostatectomies have demonstrated that wide exposure necessitates the weakening of the perineum and the frequent sequence of superinduced symptoms, besides untoward results, such as fistulas with their train of undesirable symptoms. In taking all the foregoing into consideration, and if all the treatment has been of no avail, the individual case must be analyzed. It is always desirable to classify by considering the predominating symptoms. The case may be sexual, urinary, rectal, abdominal, systemic or nervous and mental. If, after all treatment has been carried out as suggested, and if the patient still remains a sufferer, I can only advise that every angle again be scrutinized. Then and only then should surgical intervention be undertaken.

ANATOMY OF VESICLES

In taking up the surgery of the seminal vesicles, there are certain anatomic conditions which must be thoroughly grasped in order definitely to establish operative procedures which may then be carried out with ease and precision.

In textbooks the position of the ureter in relation to the ampullae and vesicles is frequently shown incorrectly. The upper portion and then only the lateral portion of the vesicle covers the ureter, yet distinctly separated by the capsule of the vesicle and with fat tissue. The ureter does not come in contact with the ampulla, but there is a relationship to the ductus deferentes. The ureter passes from behind forward to the bladder, and the duct from in front backward, and it necessitates crossing at the lateral bladder wall, where it joins the fundus.

The rectovesical fold covers the upper third and in some instances the upper half of the seminal vesicles. This depends entirely on their size, distention and lateral degree of divergence. In the area of the pars interampullaris it dips downward. I wish to state that I have seen gross anatomic specimens in which it has covered the prostate and almost passed downward close to the anus.

There is a venous plexus covering the vesicles, and it is connected with the vesicoprostatic plexus. The arterial supply comes from the inferior vesical, median hemorrhoidal and deferential. Their entrance and distribution are variable, however; most frequently the larger vessel appears to pass downward from the apex of the vesicle.

The location of the vesicles and ampullae with the relation of the adjoining parts should be thoroughly understood. They are encapsulated, directly over the prostate between rectum and bladder. The ampullae run parallel to the median border of the vesicles. The ampullae practically come together at the median line and diverge so that at their upper angle they are 6 or 7 cm. apart and almost come in contact with the lateral pelvic wall. Here both ampullae and vesicles are in contact with the fundus of the bladder, and the lower portions in contact with the trigon. Their posterior surface comes in contact with the fascia rectovesicalis or the fascia of Dénonvillier, and this is separated from the rectum with little connective tissue. Finally, the anatomy of the perineum should be thoroughly understood.

SURGERY OF VESICLES

In the development of the surgery of the vesicles, for spermatocystitis, all the surgery which was carried out for tuberculous processes as well as for new growths has been of great help. Considering that the vesicles are situated in the pelvis and surrounded by important structures, it is needless to state that many methods of approach were advanced. All, however, can be classified as either from above or from below.

For our purposes all the methods from above need not be considered. Furthermore, the methods of approach from below, the sacral and the ischiorectal, need not seriously be studied. It may be true that there may be instances which might necessitate considera-

tion of any one of these. I have been fortunate in having had sufficient experience to believe that the perineal route is the route of choice, although it must be admitted that there are disadvantages to this procedure, just as there are to any surgical interference of a major character. I may be mistaken, but I am rather inclined to believe that a thorough inspection which permits of exactness permits of accurate incisions into the vesicles or their removal under direct observation, and complete hemostasis is preferable to operative interference which does not allow all of this. Fuller maintains otherwise, and with his remarkable results to his credit one could not expect him to do otherwise. It is needless to argue the reasons; but when one is sufficiently capable to attach these organs, one must also decide as to whether one prefers the one or the other of the procedures.

TECHNIC OF OPERATION

The operative interference which has given me satisfactory results is as follows:

1. The patient should be placed in the extreme lithotomy position. This appears to me as the most essential point. To attempt to do an operation with exactness and ease necessitates that the patient shall be in this position. He should also be immobilized.

2. The skin incision should be either the semilunar or the inverted V incision, practically extending from tuberosity to tuberosity. Other incisions may be made, however, provided good access can be attained.

3. The median tendon should be exposed and divided.

4. With blunt dissection the fossae either side should be opened and then the urethrorectal muscle divided. This then permits of exposure of the prostate and the vesicles which are hidden by the fascia of Dénonvillier. I have practically always found that surgical interference to the vesicles could then be carried out. Squier, however, advises at this stage of the operation that a needle threaded with heavy silk be passed through the tissue at the juncture of prostate and bladder, one on each side. By pulling downward and forward, the floor of the bladder with the vesicles covered by the fascia are brought into better view. Tenaculum forceps can be used in a similar manner. Young has increased the length of his tractor, and passes it through the urethra into the bladder, spreads the blades and exerts pressure in the arch of the pubes, in this manner accomplishing the same thing.

These procedures all tend to fix the parts, bring them nearer the surface and allow of easier manipulation. Depending on what is necessary, the fascia is picked up with a tenaculum and incised first over one vesicle, and punctures or incisions into the vesicles and their diverticula according to their anatomy are made. A drainage tube of small caliber is placed in the vesicle and held in place by being sewed with catgut to the fascia. The opposite vesicle may be attached and a portion of the fascia covering the vesicle may be excised, and if found necessary the vesicle can be removed. It is desirable to enucleate from above downward and to cut off close to the ampulla. Drainage can be placed. The muscles and tendon and skin are united, the drainage to pass out at either angle of the skin wound. The after-treatment consists of permitting the drain to remain in place from ten to fifteen days.

There can be no doubt that injuries to an anomalously placed peritoneum is possible, hemorrhages may occur, ureters may be severed or injured, the bulb injured or its arteries severed, and the urethra, bladder or rectum may be entered. In the latter instances fistulas may result, which might demand further attention.

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THE SIGNS AND SYMPTOMS OF IMPENDING DEATH*

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To all men death must come soon or late, and there is an old saying that death always comes unexpectedly. But to tell when death will surely occur is the most difficult problem in the whole art of medicine. It is quite true that we know that the ultimate outcome of certain diseases, such as hydrophobia, Addison's disease, cancer, etc., is death, and that death will occur within a certain more or less definite period of time; yet when we come face to face with the ordinary serious case in practice, how many of us can say that the patient will die of this disease, or that he cannot recover from this illness and will die shortly? In spite of the millions of observations made on the approach of death, the literature on this phase of the subject is almost nil. I am afraid that the public is frequently a better judge of this imminent danger than the physician. I am quite sure that women sense the appearance of the fearful scythe bearer much more keenly than do men. This is particularly true of the woman relative who nurses the sick one, even though we admit that sometimes she conjures up the grim shadow when there is no cause for alarm. If we could mentally see the possibility of death in every severe case, we should less often miss the prognosis.

To point out all of the combinations wherein death will almost certainly take place would necessitate the summary of a whole practice of medicine. For that reason I shall confine myself rather to a discussion of symptoms and syndromes than to diseases, as there are certain symptoms which are present to a greater or less degree in every sick person. In no instances are the signs identical, yet several are common in most cases. Most of these signs were noticed by Hippocrates, and, strangely, there have been very few signs added since his time of an occurrence that has been observed by millions of people an innumerable number of times. I believe that most of us think that we recognize the onset of death instinctively, but this is not so. It must be as a result of previous observations, and it is my endeavor to bring together the facts on which we make this judgment.

Most of us are timid in making the pronouncement of death in any case unless the patient is already at the fatal moment, because of the traditional statement about such and such a man who was given up to die, but recovered and eventually outlived the medical jurist who sentenced him to die. I believe that the older physicians made this error more than the present day practitioner. I know that any one can cite isolated

* Read before the Harlem Medical Association, April 5, 1914.

instances, extreme cases, in which everything seemed to point to the fact that death was imminent, and yet the patient recovered. Such instances will always occur, no matter what principles are laid down; but they are comparatively rare. Typhoid fever, cholera, pulmonary phthisis and wet brain furnish exceptions to almost every rule, so far as the onset of death is concerned. In the present knowledge of medicine, no one can foretell the sudden fatal outcome in many cases such as develop in the course of myocarditis, cerebral hemorrhage, angina pectoris, nephritis, post-operative thrombi, etc. These accidents happen daily in all hospitals. Often a patient is just about to be discharged, and he falls over dead with no apparent reason. These, however, are rather the exception, and it is not of this class of cases that I wish to speak.

Yet the question of being able to foretell in cases of a chronic or subacute, or even acute, character whether the patient will die within a day or two is of the utmost importance. In New York no patient may be transferred from one hospital to another who is likely to die within forty-eight hours, and the visiting physician who signs such a transfer commits a misdemeanor and is liable to fine. For that reason, in many of our hospitals, patients are kept for weeks and even months because there are signs or symptoms present sufficient to make death a possibility within forty-eight hours. This is particularly true of pulmonary tuberculosis.

Much has been written on how death occurs, and to discuss this would lead us too far afield. Suffice it to say that death usually occurs as a result of (1) failure of heart, (2) failure of respiration, (3) asthenia, (4) vagus failure, or (5) shock, and that almost always the centers in the medulla are the controlling factors rather than the organs themselves. In general, the process of death begins at the periphery and ends at the center, so that the symptoms of approaching death are generally first observed at the periphery and later can be traced to the center. Smell is the first sense to go; then follow taste and sight, and hearing last.

There are few single symptoms pathognomonic of death, but a combination of two or more symptoms will often lead us to make a positive statement as to its approach. In the following résumé I shall consider those danger signals which commonly precede death. When any one of these symptoms is present there are generally others also evident. It is well to remember never to give an absolutely fatal prognosis in typhoid fever or cholera so long as there is life left in the body.

PULSE

By impending death is meant death within a day or two. The pulse has always been considered the most reliable single indicator of approaching death. A pulse which is irregular for the first time in disease is a cause for grave alarm, provided it is not due to either sinus arrhythmia or premature contractions; when the patient is in the recumbent position and the pulse disappears from the wrist for the first time, he rarely recovers. This is not true in cardiac disease, or in sudden severe hemorrhage, as recovery often occurs after such a disappearance of the pulse. In hemorrhage, it is ominous; but if there is no jactitation there is always hope. If there is much jactitation present, death practically always occurs whether operation be performed or not. Pulsus alternans, when it can be appreciated by the finger (except in some rare cases of cardiorenal disease), always means death within a short interval. In cardiac disease it usually means death within at least a month. When pulsus alternans can be determined only by instrumental means, the patient may survive for a long time. I have noticed a pulse closely simulating this, which has always been followed shortly by a fatal issue. There are four or five regular beats of fairly good tension; then all at once the beat will sink under the finger with about one half the tension of the former beats. Auscultation shows that it is not due to an extrasystole. I have noticed this in patients dying of various diseases, but it has been more common in cases of fractured skull.

Except in heart block, a pulse under 80 in an adult means that death in any event is probably at least more than twelve hours off. This is not true of the aged. A slow pulse is quite often present in these patients up to the moment of death. On the other hand, in these old persons a pulse of 140 means death within a few hours at most. In children, if the pulse is under 120, death is extremely rare within six hours. Even in coma a pulse of 100 usually means that death is at least eight or ten hours off.

Of course these statements do not mean that death will occur, but rather that the patient is safe for at least that length of time. In an adult, with the exception of paroxysmal tachycardia, exophthalmic goiter, pericarditis and pulmonary tuberculosis, a pulse of 140 continued for more than an hour and not due to some accidental complication means death. Except in pericarditis, any pulse gradually mounting to 160 per minute presages a fatal termination. In general, in acute diseases a pulse that is steadily increasing in frequency hour by hour portends early dissolution, provided other signs of serious illness are present. One cannot foretell the approach of death by the pulse in either the aged or in children with the same degree of certainty as in the adult; likewise the pulse is an uncertain guide as to the termination of tuberculosis. Old cardiacs with auricular fibrillation, causing all sorts of combinations of the rate and strength of the pulse, are apt to deceive us. In such cases, often at first sight it appears as though a fatal outcome is only a matter of hours, yet treatment carries them on to recovery; while the next time the fatal issue may occur with much the same general appearance and symptoms.

Cases of auricular flutter deceive every one. This is especially true if the patient looks ill. Such pulses of 150 or more per minute, with attendant prostration, seem almost incompatible with continued existence. The prognosis of an early fatal termination in these cases is a mistake, for the patients often live for months and even years. Fortunately, it is a very rare condition, and occurs chiefly in those far advanced in years.

In a very sick patient not suffering from cardiac disease, if the pulse disappears from the wrist when the hand is raised vertically above the head, the end can be confidently predicted within twenty-four hours.

Gallop rhythm, not associated with rheumatic carditis, is always fatal. In the case of a very ill patient whose pulse has been rapid for weeks and then drops down to 50 or 60 with no marked amelioration of symptoms, except in paroxysmal tachycardia, a fatal termination may be expected shortly. Persistent firm pulse in coma associated with hemiplegia is a fatal sign. In all infectious diseases, a sharp, strong, distinct pulmonary valve sound means that death will not take place for at least twelve hours.

BLOOD PRESSURE, RESPIRATION, ETC.

At first sight one might think that this would be a valuable means of scenting the universal evil, but unfortunately thus far it has not been of much practical value. While it is usually true that in most cases of impending death there is a steady drop in blood pressure, practically it is not possible to have blood pressure readings done as often as would be necessary to arrive at a conclusion. In such cases, other symptoms almost always presage the approaching end quite as well. We do know that a very high blood pressure—say of 230—which falls suddenly below 100 without any sign of hemorrhage, usually means a fatal issue, and also that a blood pressure in any adult steadily falling to 40 is usually synonymous with a fatal outcome. In pneumonia, Gibson's rule, that when the blood pressure falls numerically below the pulse rate danger is near, is not always a safe guide. It is of more value in young strong adults than in children or the aged.

Next to the pulse, the respiration—being of equal import as far as the function of life is concerned—claims our attention. I am quite well aware that the Cheyne-Stokes phenomenon does occur in healthy human beings, but the appearance of a well-marked Cheyne-Stokes type of respiration in a sick patient is practically always a sign that death is at the door. Very rarely does the patient recover, and only when he is suffering from uremia or cardiorenal disease. Less rarely death may be deferred for a few weeks, but it always comes shortly. The Cheyne-Stokes phenomenon occurring in auricular fibrillation does not have the same fatal prognosis as in other conditions. If the heart will react to digitalis—and it usually does so—the patient may recover and live for many years. When it occurs in coma other than uremic coma, it is always a fatal sign. Even in uremic coma, recovery is rare. In any case, when rapid breathing follows the onset of the Cheyne-Stokes phenomenon, death is at hand. From a limited number of observations, it has seemed to me that a relatively rapid breathing—over 40 per minute—during the phenomenon itself means an early lethal termination.

A marked disproportion in length of inspiration over expiration is of itself a very suggestive sign. When it is coupled with a rapid pulse, except in shock or hemorrhage, the combination is uniformly fatal. This type of respiration finds its highest exemplification in the air hunger of Kussmaul in diabetes. Continued sighing respiration under the same conditions as mentioned above has almost the same significance. In an obviously sick person not suffering from asthma or any mechanical obstruction to breathing, sternocleidomastoid breathing is likewise a forerunner of a fatal issue, and death is seldom long postponed. Cold respiration from mouth and nose is generally a terminal symptom.

The persistent up and down motion of the Adam's apple, such as is seen temporarily in normal patients in the act of swallowing, in a sick patient, means, according to the late Dr. John Shrady, a rapidly fatal issue. I take it that the phenomenon is due to a failing of the vagus center. It is so commonly associated with other signs that it is not of much value except when present in a sleeping patient. The so-called "death rattle" of the laity is positively a fatal sign. This is, of course, associated with pulmonary edema. True pulmonary edema is not of itself always fatal, but is generally so. In cardiac and renal disease, recovery frequently occurs. When it persists for four or five hours, recovery is very rare. When it occurs in an unconscious patient, it is always fatal.

The presence of black or bloody tinged saliva running out of the side of the mouth in a comatose patient is a fatal omen.

In the last few minutes of life, sometimes there is an enormous quantity of white frothy fluid flowing in a steady stream from the nostrils. When this occurs, death is only a matter of minutes.

EYE

I should consider the eye signs as next in value from a prognostic standpoint. In any very sick patient whose pupillary reflexes were previously normal, and in whom there is now no reaction of the pupil to light, death is at hand. To this general statement there are some exceptions, namely, in the spinal myosis of the aged, syphilis or its sequelae, brain diseases, optic atrophy, fainting and hemorrhage. A sluggish reaction under the same circumstances is serious but not necessarily fatal. A dilated pupil under the same circumstances, not reacting to light, means that death is at the door. In most diseases, just before death the pupil dilates widely. Tennyson states this well when he says, "As unto dying eyes the hollow casement slowly grows a glimmering square," meaning thereby that the dilated pupil is unable to distinguish sharply the window panes.

A glazed pupil usually means that death is at hand. The presence of a film over the eye is always a fatal sign. The death stare or fixed eye is probably due to the dilated nonreactive pupil, although sometimes if the patient's attention is directed to it he can actually count the fingers of the hand. It is a fatal sign. Tight closing of the eyes with a firm and rapid pulse, excepting in hysteria, is said to be a sign of an impending fatal issue. When the eyes are half open during sleep, the patient is not necessarily *in extremis,* but it is a sign of much gravity, especially if it is not due to prostration from diarrhea. Passive congestion of the conjunctival vessels in a child means approaching death. A tendency of the eyes to turn out occasionally presages death within a few hours.

OTHER SIGNS

The facies described by Hippocrates as indicative of approaching death is still as awesome as it was 2,500 years ago. When this occurs, death is opening the door, and every one knows his knock. There is a noted pallor of the face, with pinched nostrils, sunken and hollow eyes, collapsed temples, cold and transparent ears, with the lobes turned out, dropping of the lower jaw, haziness of the cornea, and the eyes fixed on some object. To this picture, the late Austin Flint added the following: persistent lividity of the lower lip, spasmodic inspiration not due to hysteria or lung disease, loss of power of swallowing; skin about the forehead rough, distended and pasty, and the face green, black, livid or lead-colored.

A temperature of 108 F. is not recovered from except in heat stroke. A temperature of 107 lasting more than two hours is rarely recovered from. A rising temperature on the second day after the occurrence of hemiplegia is fatal. A temperature in these cases of 106 at any time within the first three or four days means death. The existence of extensive chronic renal disease with a severe continued fever makes recovery a rarity.

Loss of sphincter control is always a grave sign, especially when coma is not present. When both vesical and rectal sphincters are paralyzed, recovery is uncommon, except in coma and nervous diseases.

Fifty per cent. of badly coated tongues are serious cases. A tongue with a bright yellow discoloration like the yolk of an egg is a fatal sign in peritonitis.

If when a patient is swallowing food a sound is made like the dropping of a foreign body in a well, there is little hope for the patient. A loud churning noise with each respiration, as if the abdomen contained much fluid, is a fatal sign in the pneumonia of children, and often in that of adults.

The vomiting of frothy mucus mixed with blood, except in acute hemorrhage or in convulsions, is a fairly certain sign of approaching death. A continuous coffee-ground colored vomit, except in gastric ulcer, is also a fairly fatal sign. The black vomit of yellow fever has the same significance. A black vomit coming on forty-eight hours after operation is practically always fatal in its outcome. In apoplectic coma when mucus, not saliva, comes from the mouth at each expiration, a fatal ending is near.

Hematogenous jaundice following fevers, snake bites, typhoid, etc., is generally fatal. Petechiae, especially if large and in an exhausted patient, particularly in cancer or renal disease, mean that the end may generally be expected within a month or two at the most. Aphthous stomatitis in any wasting disease generally means approaching death.

Persistent and uncontrollable hiccup in any serious illness is usually the harbinger of death. Profuse sweating at the commencement of an acute febrile disease, except in rheumatic fever, while the temperature remains permanently high, indicates great weakness and adds much to the gravity of the case. If along with this there is a cyanotic hue of the face, ears and nails, the outlook is extremely grave. The appearance of large amounts of indican in the blood or in transudates is a fatal sign.

The loss of more than half of the body weight means that the patient cannot recover. Gritting of the teeth in the course of fever in adults, unless it be a former habit, is a sign of serious omen. Subsultus tendinum, due to irregular spasm of the muscles, and carphologia are of very grave import, but patients who have thus suffered recover when these occur in the course of typhoid fever. Recovery is rare in other diseases.

In narcotic poisoning and in freezing, the desire of the patient to be let alone is a bad sign.

Convulsions lasting four days are uniformly fatal, excepting occasionally in epilepsy.

Fibrillary tremor of the heart in electric shock is always followed by death.

The disappearance of the peripheral reflexes, except in disease of the central nervous system, is often a harbinger of death.

Edema of the glottis in a patient over 45 years of age is followed by death within a few hours.

Just before death there is a peculiar odor of the breath in many patients. It closely resembles the odor of acetone. It is very difficult to describe this odor, but once noticed it will generally be recognized thereafter. Some describe it as being similar to the odor of horseradish. By others, the odor is described as like that of decayed apple blossoms. The odor of death is not so noticeable in hospital patients as in private practice because the ventilation is different. One appreciates it better when coming in quickly out of the air into a closed sick room.

Aside from the suffering due to pain, the appearance of great mental distress is a bad sign. Of this expression of anxiety, the patient himself is usually entirely unconscious. It would seem as if the body recognized danger when the mind did not. Fortunately, few persons realize that they are going to die. In general, in adults the seriousness of the prognosis depends more on the appearance of mental symptoms than on any other group of symptoms. Whatever the predominant passion was during life is apt to show itself in some way or other during the last few hours. Loss of interest in things that formerly interested the patient is a bad sign.

In any disease, the presentiment of a fatal issue by the patient at the onset is a bad omen. This is particularly true if severe pain is not present. I have often tried to argue with the patient in an attempt to eradicate this seeming delusion from his mind, but in most instances, I am sorry to say, the delusion of hopefulness really existed in my own mind. It gives me a psychic shiver when a patient who is well balanced mentally and who is suffering from a serious but not necessarily fatal illness says, "Doctor, I am going to die. I know it." Likewise, when a patient shows no interest in a consultation held over his bedside, there is grave cause for alarm. When a uremic patient becomes jolly and joyous, a serious condition is present, and very often a fatal termination is near at hand.

There is a great deal of folk lore among the laity relative to this subject. Of course, much of it has very little foundation in fact; but many times these sayings suggest to us a fatal prognosis when our ultrascientific methods fail to make us think of the likelihood of death. When the skin over the forehead is tense and shiny, the old nurse wisely shakes her head and says it is a bad sign. When the patient wants to go home or wants to go back to green fields, etc., he generally does; but it is not to the home or the green fields of his youth. When the patient is constantly wishing to be changed from bed to bed, or when in the absence of pain and nervousness he is constantly wishing to change his position in the bed, a serious outcome may be expected. This is a very common symptom of serious import in heart disease if dyspnea is not present. Picking at the bedclothes is usually viewed as a symptom betokening a fatal termination. Excepting in typhoid fever it is truly a sign of great gravity. Shakespeare well describes the death of Falstaff thus:

"After I saw him fumble with the sheets, and play with flowers, and smile upon his fingers' ends, I knew there was but one way, for his nose was as sharp as a pen." Again, he speaks of coldness of the ear tips and of the nose, followed later by coldness of the patellae. Old nurses are very apt to call our attention to coldness of the feet and knees when a case has taken a serious turn. Especially is this true if there be a high temperature present at the same time.

The hunger of death is an abnormal appetite occurring in the last few hours or days of life, and probably represents an effort to overcome the sense of exhaustion or goneness in the epigastrium. It is mostly seen, as far as my experience goes, among consumptives, although sometimes it occurs in typhoid fever. Such patients rarely eat much of the food that they order. It is a symptom not often encountered. Sliding down

to the foot of the bed is a sign commonly believed to be a bad omen.

Left unilateral dropsy, beginning at the foot and extending up the body, is credited with being a harbinger of early death.

When a burn involves more than one third of the body, death is a certainty. If the burn be confined largely to the face, then a burned area much less than one third of the body means death.

In scarlet fever, an ashy tint of the countenance with a purple hue of the nails, distinctive white lines about the mouth, and whispering voice portend early death.

In apoplexy, even after the tenth day, if the patient is irritable and restless, death will shortly occur. A convulsion occurring in apoplexy generally means death. Most of these patients are bathed in a cold sweat just before death.

In tuberculous meningitis, it is said that the disappearance of the eosinophils from the blood is a sign that death is very near.

Coma is the commonest form of death. About 60 per cent. of patients die in coma. When coma occurs in acute disease, except in typhoid fever and meningitis, one is generally safe in predicting a fatal issue. It may not be amiss to mention the forms of death in most acute diseases.

Usually, just before the fatal issue there is a lowering of blood pressure. This is generally accompanied by increased rapidity of the heart; shortly afterward tympanites becomes marked. The patient now looks as though he had been bled excessively and has all the appearances of profound shock. The pulse becomes irregular, and this is often followed by delirium, restlessness, hallucinations and later by stupor and coma. Occasionally the heart becomes slower, but in most instances its rapidity increases. The patient invariably dies when this syndrome is developed.

Less often one sees another form of death in acute disease. Here the patient is cyanotic and there is great dyspnea. The jugulars are full and pulsating and there is often marked pulsation over the heart. The heart dulness is increased to the right, and the lower dulness increases downward. Rarely is such a patient saved.

Finally, when a rattle persists after coughing, the end is near.

CONCLUSION

I can only repeat the idea expressed at the commencement, that there is no "no" or "never" in medicine—that occasional patients will present one or many of the signs mentioned above as indicative of approaching dissolution and yet will recover. But rules in life cannot be negatived because of occasional exceptions, and in the main the foregoing is a true summary of the subject for the average case.

220 West One Hundred and Thirty-Ninth Street.

Prizes for Health Posters.—The Bureau of Public Health and Hygiene of the Association for Improving the Condition of the Poor of New York City has offered medals and cash prizes to public school pupils for posters to be used for teaching the dangers of spreading disease by sneezing. Leaflets giving the particulars concerning the contest have been distributed in all the schools. It is believed that this constitutes an excellent plan for stimulating interest in health matters and should bring a very large return for a little money.

RESUSCITATION BY MEANS OF PRESERVED LIVING ERYTHROCYTES IN EXPERIMENTAL ILLUMINATING GAS ASPHYXIA*

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The number of accidental deaths resulting from carbon monoxid asphyxiation has increased to a considerable extent within the last decade. The proper treatment of patients in whom life is not yet extinct is not universally agreed on. This probably, in a measure, is due to the fact that clinicians and pathologists are not yet in unison as to the cause of death in these cases. Whether death is due to a direct action on the central nervous system by the carbon monoxid, as contended by Sibelius,[1] Traube[2] and many others, or whether the central nervous system changes are secondary to the more evident blood change as contended by Haldane,[3] is still a subject of controversy at this late date. It would seem, however, that Haldane's experiments are most conclusive. The color change occurring in the blood in cases of carbon monoxid poisoning has long been recognized as characteristic. It was in 1864 that Hoppe-Seyler noted the carbon monoxid hemoglobin spectrum. That a very definite chemical change takes place in the blood of such patients is not now a matter of dispute. The action of the carbon monoxid on the blood is a displacement of the oxygen of oxyhemoglobin by the carbon monoxid. The affinity of the carbon monoxid molecule for hemoglobin is 210 times as great as that of the oxygen molecule. It is because of this great affinity that erythrocytes will take up carbon monoxid and retain it at the expense of their oxygen content, even though the amount of carbon monoxid present in the inspired air be less than 0.10 per cent. Air mixtures containing as little as 0.05 per cent. are said to be definitely toxic.[4]

Haldane's experiments proved conclusively that death in these cases is essentially one of asphyxiation. Hemoglobin, the oxygen vehicle of the blood, ceases to perform its physiologic function because of a relatively stable chemical change. Unless an effective restoration of this oxygen carrying power of the hemoglobin can be brought about, or unless some oxygen vehicle can be substituted, death must surely occur. If this restoration to the hemoglobin of its physiologic function or the substitution of a new oxygen carrier is delayed too long, secondary asphyxia changes may have occurred in vital parts of the body such as the central nervous system, and these may then result in death, or, at best, recovery with an irreparably defective nervous system. The important factor in the treatment of these cases would therefore seem to be to supply the individual with a new oxygen vehicle and to do so as speedily as possible. It is interesting to note that as early as 1864 this was recognized by Kuehne,[5] who was remarkably successful in resuscitating animals experimentally asphyxiated with carbon monoxid. The clinicians of that day attempted to apply Kuehne's principles practically. The method chosen by most of them was the indirect transfusion of defibrinated blood. Results were disappointing, probably not so much because of crude tech-

* From the Department of Pathology of the University of Illinois.

1. Sibelius: Zentralbl. f. klin. Med., 1903, xlix, 111.
2. Traube: Verhandl. d. Berl. med. Gesellsch., 1865, i, 67.
3. Haldane: Jour. Physiol., 1895, p. 201.
4. Kobert: Lehrbuch der Intoxikationen, 1906, ii, 869.
5. Kuehne: Centralbl. f. d. med. Wissensch., 1864, ii, 134.

nic, but rather, it would seem, because the amount of blood transfused was absurdly small. Frequently, because of lack of faith in the new treatment, transfusion was not resorted to until it became absolutely certain that death was imminent. Thus Friedberg[6] reports three cases, all ending fatally. He suggests the advisability of seeking some method of preserving human blood or of using blood of other animals. Mosler[7] reports one case which terminated fatally. Martin and Badt[8] succeeded in saving one patient with carbon monoxid asphyxiation by indirect transfusion. Wagner and Sommerbrodt[9] are said to have failed.

Following Kuehne's work up to 1874, fifteen cases of carbon monoxid poisoning treated by transfusion were reported,[10] six of these successfully, nine unsuccessfully. Loewenthal condemns transfusion, advocating instead, as more efficacious, intravenous saline infusion. Subsequently, with the perfection of superior technic in direct transfusion in this country, this method of treatment for carbon monoxid asphyxiation was employed. In 1900 Darrah[11] reported thirteen direct transfusions in dogs in experimental carbon monoxid asphyxiation with recovery. Thirteen control animals died. The dogs were transfused with an amount of blood equal to one-fifth to one-seventh their total volume of blood. Crile and Lenhart[12] used direct transfusion in experimental carbon monoxid asphyxiation with recovery in 70 to 80 per cent. The mortality in the controls in which attempts to resuscitate with all other recognized measures were made was 100 per cent. By Crile's method transfusion was not begun until it was without question apparent that all other methods of resuscitation would fail. Theoretically success would seem to depend directly on the quantity of transfused erythrocytes and indirectly on the length of time which elapses before the transfusion is begun. The difficulty, however, of obtaining donors for transfusion of blood in an emergency, where every minute counts, combined with the necessary delay entailed in the performance of a direct transfusion, even though a most skilled technician and a suitable donor be at hand, must always remain a great obstacle to successful treatment by this method. With this in mind, following the appearance of Hustin's[13] and Weil's[14] work on the indirect transfusion of citrated blood, I determined to adopt their method in the treatment of so-called "gas cases."

The following is a preliminary report of the experimental phase of this work. Weil[15] transfused blood in amounts of 250 to 1,400 c.c., the strength of sodium citrate varying from 0.3 per cent. to 1 per cent. It was possible to use blood three to six days after it had been obtained. Lewisohn[16] has estimated that a 0.15 per cent. to 0.2 per cent. solution of sodium citrate is sufficient to prevent coagulation of blood in test tubes for a period of three days. He further estimates that a total amount of 15 gm. of sodium citrate would prove fatal to an individual weighing 110 pounds. Lewisohn therefore advises the use of a less concentrated citrate solution rather than the 1 per cent. solution as originally used by Weil. Rous and Turner[17] have also found transfusions of blood in a citrated plasma occasionally highly toxic for animals. By using Ringer's solution containing 2.5 per cent. dextrose they found further that erythrocytes could be preserved for a longer period of time than they could in citrated plasma or in citrated Ringer's plasma.

The blood used in these experiments was obtained by bleeding dogs from the femoral artery under ether or morphin narcosis. This blood was received directly into a sterile flask which contained 25 c.c. of a 10 per cent. sodium citrate solution in water. The blood was allowed to flow in until the flask contained 250 c.c. of blood citrate mixture. To this was then added 250 c.c. of sterile Ringer's solution containing 2.5 per cent. dextrose. After gently mixing the contents by oscillating, the flask was placed in the dark at + 4 C. until the time of its transfusion. The bottle and its contents were centrifuged just before transfusion and the supernatant fluid, together with the layer of white corpuscles, was removed. This left usually 125 to 150 c.c. of a rather thick erythrocyte suspension. In this manner dogs' corpuscles were kept three or four weeks without any gross or microscopic evidence of deterioration. Occasionally the corpuscles of some dogs were slightly hemolyzed, or the corpuscle mixture in the bottom of the bottle became darkly discolored, although the mixture remained sterile. After the addition of Ringer's dextrose solution and following slight shaking, the blood usually remained a bright red in color. Only such blood was used in the transfusions. The rabbit blood used in the series of rabbits recorded below was obtained from normal rabbits by cardiac puncture. Because of the relatively small amount of blood necessary in the rabbit transfusions, proportionately ten to twelve times as much Ringer's dextrose solution was added to the blood citrate mixture. In this manner the sodium citrate, which undoubtedly is somewhat injurious to the corpuscles after a shorter or longer interval of time (apparently varying with the corpuscles), was very materially reduced in concentration. Rabbit's corpuscles thus treated remained intact and were successfully used even after ten weeks. Human or other corpuscles treated in this way would undoubtedly remain viable for relatively long periods of time.

EXPERIMENTS WITH RABBITS

My earliest work was with rabbits. These were placed in an air-tight compartment into which illuminating gas was admitted in amount sufficient to cause death in the controls within five to ten minutes. Twenty rabbits, inclusive of the controls, were treated in this way. The gas compartment was constructed in part of window glass so that the animal's respirations, and, in addition, its cardiac pulsations, could be observed. The rabbit's heart would usually continue to beat two to four minutes after its respirations had completely ceased. As soon as it was noted that the cardiac thrust against the thorax wall ceased, the animals were removed and suspended by their hind legs from a bracket fixture. The skin over a marginal vein in one of the ears had previously been prepared for an intravenous injection by removal of hair and cleansing with alcohol. While the rabbit was being suspended it was positively determined by palpation that the heart had ceased to beat. Rhythmical thorax compression, both for the purpose of artificial respiration and cardiac stimulation, was instituted. Meanwhile 20 c.c. of rabbit's erythrocytes, obtained as previously described, were injected intravenously into the marginal vein. The reaction in most instances was almost instantaneous.

6. Friedberg, H.: Vergiftung durch Kohlendunst, 1866, p. 166.
7. Mosler, Fr.: Ueber Transfusion defibrinirten Blutes, 1867.
8. Badt: Verhandl. d. Berl. med. Gesellsch., 1866, i, 301.
9. Wagner and Sommerbrodt: Cited by Badt, see Note 8.
10. Cited by Loewenthal: Wien. klin. Wchnschr., 1892, v, 378.
11. Darrah: Proc. Path. Soc. Phila., 1900, xxi, 29.
12. Crile: Hemorrhage and Transfusion, 1909.
13. Hustin: Ann. Soc. Roy. d. soc. méd. et nat. de Brux., 1914, iv, 104.
14. Weil, R.: Sodium Citrate in the Transfusion of Blood, THE JOURNAL A. M. A., Jan. 30, 1915, p. 425.
15. Cited by Otenberg, Libman: Am. Jour. Med. Sc., 1915, cl, 68.
16. Lewisohn: Surg., Gynec. and Obst., 1915, xxi, 40.
17. Proc. Soc. Exper. Biol. and Med., 1915, xii, 106 and 122.

The animal would begin to breathe and the heart would begin to contract in a few seconds most vigorously, despite the fact that previous artificial respiration and cardiac massage had been ineffective. The rabbit was released and placed in its cage and usually within three to thirty minutes would nibble at its food, and within an hour was quite as active as before the experiment. Full-grown rabbits weighing 1,800 to 2,500 gm. were used. Twelve rabbits were injected in this way. The corpuscles in all cases had been obtained not less than ten days before. In four instances they were three weeks old, in two they were ten weeks old. These six rabbits recovered, and at this date, four months later, are alive and apparenly normal. Of the twelve rabbits treated with erythrocytes, three died. One was found dead in its cage fifteen hours after transfusion. Necropsy revealed no gross changes other than the typical cherry red color of all the blood-containing tissues. Two rabbits died within five minutes following the transfusion. Immediate necropsy disclosed an extensive hemorrhage in the peritoneal cavity, undoubtedly secondary to the rupture of some small mesenteric vessel, though the vessel could not be found at the time.

From Haldane's work I had concluded that venesection, which has always been recommended in addition to transfusion by the advocates of the latter, was not necessary. Illuminating gas may, and probably does, contain toxic substances other than carbon monoxid, which can be taken up by the blood and act harmfully on other tissues. This being true, extensive bleeding prior to or at the time of transfusion would seem to be indicated. From the standpoint of the carbon monoxid content, however, blood removal would not seem necessary. The removal of an amount of blood equal to that injected, thus preventing a sudden overloading of a delicate vascular system, would, I believe, have saved the lives of the two rabbits which died with the intraperitoneal hemorrhage. Of the eight control rabbits, it was possible to resuscitate one by artificial respiration and external cardiac massage alone.

Crile objected to Kuehne's results because by Kuehne's method one could not be absolutely positive that in event of recovery the animals might not have recovered without transfusion. This would seem also to be a legitimate criticism to my rabbit series. Crile's method, while it assured him that his animals would surely have succumbed had they not been transfused, appeared objectionable because his animals could not be allowed to live more than an hour or two following the resuscitation because of the method employed.

EXPERIMENTS ON DOGS

To eliminate such criticism I determined to asphyxiate future animals slowly, taking from sixty to ninety minutes for the procedure, in order to imitate as nearly as possible the conditions under which human beings are asphyxiated and die.

Dogs were used in this series of experiments. An air-tight compartment 3 feet by 3 feet by 3 feet, made of wood and glass, was used. This was fitted with an inlet cock which permitted a regulation of the flow of gas into the compartment. The dog was placed in the compartment and sufficient gas allowed to flow in so that complete consciousness was lost in five to ten minutes. The dog was kept in the compartment, with the frequent addition of gas, until respirations had unquestionably ceased. If this occurred in less than sixty to ninety minutes, the dog was removed and artificial respiration instituted, and if resuscitation in this way was possible, the dog was again placed in the gas filled compartment. To insure as nearly as possible complete saturation of the hemoglobin by the carbon monoxid, only such dogs were used for the transfusions as had been in the compartment not less than sixty minutes. For a quantitative analysis of blood from such dogs I am indebted to William D. McNally, who found saturations of 19 to 40 per cent.[18]

My method of artificial respiration was slowly and rhythmically (six to eight per minute) to inflate the lungs with an ordinary foot bellows through a glass tube inserted from the mouth between the vocal cords into the trachea. Gunn and Martin,[19] in a recent work, found that they could resuscitate rabbits, following chloroform inhalation, by means of intrapericardial injections of epinephrin, combined with artificial respiration and cardiac massage. They were successful in doing this even though the heart had ceased to beat and respirations had been suspended for a period of fifteen to sixty minutes. It has been held generally that complete cessation of the blood flow through the central nervous system of mammals for more than fifteen minutes is fatal. I determined to supplement my transfusions with intrapericardial epinephrin medication.

Forty dogs were used in this second series. Preliminary tests to determine the presence of iso-agglutinins or hemolysins were ignored, inasmuch as it was determined to imitate as nearly as possible the conditions of extreme emergency as found when human beings are asphyxiated. A rapid and simple method for testing for agglutinins and hemolysins, recently devised by Rous and Turner[20] could, however, probably be completed before the transfusion was begun in a great many cases of human beings. Some of these individuals live from ten to twenty-four hours or longer before death occurs.

Dogs weighing from 4 to 7 kg. were used in these experiments. After the dog had been in the gas compartment sixty to ninety minutes and respiration had ceased, he was immediately removed and artificial respiration begun. If the heart had ceased beating, or as soon as it did cease (and it ultimately always did cease despite the artificial lung inflation), 1.5 c.c. to 2.5 c.c. of a 1:10,000 epinephrin solution was injected directly through the anterior thoracic wall, at the point where the last cardiac thrust had been palpated. Following this, in dogs in which the heart had just ceased beating, invariably pulsations would again begin if stimulated by forceful lateral thorax compression from both sides. This could usually be done by gripping the thorax with the palm of the hand over the sternum while the fingers were on one side and the thumb on the other side of the thorax. By forceful compression the heart could be felt as it slipped in its serous sac between the finger tips and thumb. Occasionally a rib was fractured where too much force was exerted. However, if resuscitation was ultimately attained this was of little moment in the end-result. If the heart could not again be started in this way it was useless to proceed further. This was true in the case of eight control dogs of the series.[21] Where, however, the cardiac pulsations had not ceased for more than two to three minutes it was usually possible again to start the contractions. During all of this time artificial inflation and deflation of the lungs was practiced. Frequently at this stage there would be an indication of beginning respiratory effort which might ultimately increase until a breathing rate of 1 to 4 per minute had been established. By working rapidly it was possible now to lay bare the external jugular vein, make a small incision and insert into it, before the heart again ceased beating, a small glass cannula. The cannula was equipped with a rubber tube attachment which could be fitted on to a large Lüer syringe. The erythrocyte suspension to be transfused had been previously warmed to 37 C. To 100 c.c. of corpuscles was now added 1 c.c. of a 1:10,000 epinephrin

18. The lower percentage by the Palladous Chlorid Method, the higher percentage by Haldane's Colorimetric Method; .380 c.c. of carbon monoxid gas was obtained at 0 C., 760 mm. pressure, per 100 c.c. of blood. Human beings who have died of carbon monoxid asphyxiation possess blood containing 5 to 28 per cent. as determined by the Palladous Chlorid Method.

19. Gunn and Martin: Jour. Pharmacol. and Exper. Therap., 1915, vii, 31.

20. Rous, P., and Turner, J. R.: A Rapid and Simple Method of Testing Donors for Transfusion, The Journal A. M. A., June 12, 1915, p. 1980.

21. One of these at necropsy was found to have an extensive fresh intraperitoneal hemorrhage.

solution. Depending on the size of the dog, 125 to 175 c.c. of corpuscle suspension were then slowly injected into the vein toward the heart. While the transfusion was in process about 100 c.c. of blood were allowed to flow from an incision in the vein peripheral to the point of injection. It was necessary to work rapidly. If the heart again ceased to contract before the transfusion was begun, it was usually impossible to effect a return of rhythmical contractions even though intrapericardial epinephrin injection and cardiac massage were once more resorted to. In only two instances out of a total of seven dogs did the continuance of the injection of the corpuscles plus epinephrin start the cardiac contraction. Of the five dogs which were not resuscitated by the transfusion after their heart contractions had ceased a second time, it is interesting to note that at immediate necropsy in two cases the right ventricle and auricle were found distended with clots of blood which were distinctly darker than the fluid blood also present.

Fifteen dogs in which the transfusion was begun before the heart had again ceased to pulsate lived. Five control dogs, in which it was possible to stimulate a return of cardiac and respiratory activity as above, in which, however, no transfusions were performed, died within two to four minutes following the temporary resuscitation. Four control dogs in which 125 c.c. of Ringer's dextrose solution plus epinephrin were injected intravenously instead of the corpuscle suspension, died within from three to five minutes after the intravenous injection, despite the fact that cardiac contractions had again been established, as had also a return of the respiration.

Of the fifteen dogs that lived following the erythrocyte transfusion, two failed to regain consciousness. One died after thirty-six hours, of coma. It is interesting to note that at necropsy the right heart was found distended by a bright cherry red fluid blood in which were many small, dark or black, irregularly-formed coagula. The branches of the pulmonary artery contained here and there fragments of such coagula, though there were no gross evidences of lung infarction. The second dog which failed to regain consciousness lived twelve hours. This dog was ill before experimented on, but was used because of a scarcity of available dogs at that time. At necropsy a severe purulent rhinitis and purulent bronchitis and lobular pneumonia were found. The remaining thirteen dogs recovered consciousness usually before the vein had been tied or the skin suture completed. They either lay quietly or staggered about unsteadily. On the following morning they were apparently normal except for local reactions about the neck wound. One of the thirteen dogs appeared abnormal mentally immediately following the experiment. Following his transfusion and removal from the table he was able to run about quite vigorously. However, he snapped and bit at inanimate objects, ate his feces, and four days following his transfusion killed and partially disemboweled one of the other transfused dogs in his cage. He had to be killed before he could be removed from the cage. I regret to say that his brain was not examined. Five of the transfused dogs were killed seven to ten days after their transfusion because of a severe cervical cellulitis, due probably in part to imperfect surgical asepsis at the time of transfusion. Aside from their local infection, the dogs apparently had recovered from the experimental asphyxia. The six remaining dogs showed no after-effects either direct or indirect.

From the foregoing it will be noted that of the fifteen dogs transfused, twelve recovered with apparently no ill after-effects that could be attributed to the asphyxia. Two of the fifteen transfused dogs died without regaining consciousness. One of these was probably fatally ill before the experiment. From necropsy findings of the second it might be suggested that death may have been due to agglutinins in his blood for the corpuscles with which he was transfused. The third dog developed symptoms quite typical of the manias sometimes seen in human beings following acute carbon monoxid asphyxiation. The possibility of an incidental rabies in this animal cannot, however, be ruled out, because the animal was disposed of before the brain could be examined.

The erythrocytes used in these transfusions had been preserved from three to seventeen days. Two dogs were transfused with corpuscles obtained seventeen days earlier, one dog with sixteen-day corpuscles, three with fourteen-day corpuscles, four with six-day corpuscles, and five with three-day corpuscles. The two dogs which died without regaining consciousness and the one which developed maniacal symptoms had been transfused with three-day corpuscles. Observations to detect hemoglobinuria, temperature disturbances, changes in the microscopic blood picture, etc., were not made. All of the control animals died.

CONCLUSIONS

Erythrocytes of some animals can be preserved intact over extended periods of time.

These corpuscles can again assume their physiologic function in another animal of the same species, and can successfully prevent death in carbon monoxid asphyxiation of this second animal, in about 75 per cent. of all cases in which indirect transfusion is begun while cardiac contractions can still be elicited.

The establishment of emergency stations where human erythrocytes could be obtained, just as pulmotor stations are now being maintained, should prove of invaluable service in saving the lives of human beings the victims of illuminating gas asphyxiation.

FOOD POISONING BY THE BACILLUS PARATYPHOSUS B

AN EPIDEMIC DUE TO THE ORGANISM ISOLATED FROM PIE

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During July, 1915, an epidemic of food poisoning occurred at Westerly, R. I., and in an adjacent township of Connecticut. The epidemic was characterized by symptoms of an acute gastro-enteritis. The symptoms followed the eating of pie, which was obtained at a restaurant in Westerly. It is estimated that sixty persons were made seriously ill, four of whom died.

At the inquiry, many witnesses testified to having eaten pie, purchased from the restaurant in question, and yet remained unaffected. It was, nevertheless, firmly established that all those who were affected traced their symptoms to the pie. The owner of the restaurant stated that the dough was mixed Friday, July 2, and that a batch of pies was made on the following day for Sunday and Monday. This batch consisted of coconut-custard, custard, squash, lemon, chocolate, berry and apple pies. The preparation of these food products differed in no way from that employed for many years previously.

The symptoms appeared from twelve to nineteen hours after eating. In some cases the symptoms appeared as early as four and a half hours. They were characterized by epigastric pain, a burning sensation

from fauces to stomach, extreme thirst, and spasmodic contractions of the calves of the legs. Vomiting was a constant symptom and was of about six days' duration. The vomitus was green. Diarrhea was also present and was associated with tetanus. The stools were of a pea-soup consistency, greenish, and extremely foul smelling. The green color of the stools persisted for many days. The number of the dejections varied from ten to twenty daily. The temperature was elevated, reaching 103 in some cases. The pulse was normal. Two of the patients had a herpetic eruption around the mouth, and in one other a generalized erythema appeared for twenty-four hours. One child of 8 was rendered unconscious for two or three days, and presented a marked rigidity of the neck. In one of the fatal cases, there was a suppression of urine. Most striking of all was the mental depression. Convalescence was protracted.

Two men and one woman died within four days after the onset of symptoms. The fourth person, a man, died three weeks later. The persons who died were all beyond middle age. The first fatal case was that of a man aged 49. Symptoms of marked severity came on seven hours after eating and proved fatal in thirty-six hours. Two other members of the family, who had eaten pie at the evening dinner, became ill, whereas four other members, who had not had any pie, were unaffected.

There was no unusual taste or odor to the pies to excite suspicion; and the symptoms followed the eating of all the different kinds of pie of which this particular batch consisted. The gradual increasing number of cases of poisoning gave rise to much alarm. The State Pure Food and Drug Commission united with the officials of the State of Connecticut to determine the cause of the epidemic. Sanitary surveys were made; samples of pies and materials used in their preparation were submitted for chemical analysis. Prof. Clifford B. Morrison of the Connecticut Experiment Station reported the absence of arsenic or heavy metals and of poisonous alkaloids or other organic compounds. A similar report was made by Prof. Franklin N. Strickland of Providence. Samples were also submitted to our laboratory for examination. It is noteworthy that the laboratory investigations were conducted after the acute stage of the epidemic had passed. No field work, which might have enhanced the value of this epidemiologic study, was rendered possible.

The following samples were received in half-pint jars, partially filled: (1) milk; (2) dough; (3) pie-shortening; (4) coconut-custard pie; and in addition there was a small quantity of (5) egg flour, contained in a paper package. The small amount of material precluded any attempt to isolate a ptomain by chemical means. Accordingly, the bacterial content of the specimens merited inquiry.

The milk had a sour odor; a moderate amount of curd was formed. Smears from centrifugalized portions showed a few cells; no streptococci were present. The bacterial count was 7,820,000 organisms per cubic centimeter. Smears were made direct from each of the four remaining specimens; bouillon, plain-agar slants, dextrose-agar stab cultures, and plates of plain-agar, dextrose-agar, and Endo medium were inoculated. Anaerobic cultures were also made; and some of the inoculated mediums were incubated at room temperature. One c.c. of each of the four bouillon cultures, containing the initial bacterial growth, was injected into the peritoneal cavity of guinea-pigs. The two animals, inoculated with the growth obtained from the pie mixture and dough, died after eighteen hours. Postmortem examination revealed marked edema of the abdominal wall and a diffuse peritonitis. Cultures from the heart's blood showed a mixed infection in which the *Bacillus coli communior* and streptococcus were present. The guinea-pigs inoculated with the bouillon cultures, derived from the pie shortening and egg flour, survived.

The twenty-four hours' growth on the Endo plates, which were seeded with an emulsion of the pie, contained a mixture of red and of transparent, colorless colonies. The latter were transplanted on slant-agar. They yielded a profuse growth of gram-negative bacilli. These bacilli in subsequent cultures showed a slight tendency to pleomorphism. They possessed motility and showed the following cultural characteristics: Litmus milk at first became slightly acid, the acidity giving way to a permanent alkalinity. Gelatin was not liquefied, but gas was produced therein. With Hiss carbohydrates serum-water mediums, dextrose, lactose, galactose, mannite and maltose showed acid and gas formation; lactose, saccharose, dextrin and salicin were unchanged.

An eighteen-hour bouillon culture of the organism, thus isolated from the pie mixture, and termed for convenience "Strain 4," was employed in the determination of its pathogenicity. Three animals were each inoculated with 1 c.c.: one rabbit subcutaneously, one guinea-pig subcutaneously, and one other guinea-pig intraperitoneally. The two guinea-pigs died over night. A diffuse peritonitis was present in each animal. The organism recovered from the heart's blood and peritoneal cavity possessed the same cultural characteristics as the one injected. It was a gram-negative, motile coccobacillus, producing colorless transparent colonies on Endo plates and a permanent alkalinity in litmus milk. The rabbit died seventy-two hours after injection. Cultures taken from the heart's blood and peritoneal cavity, twenty-four hours postmortem, were in turn transplanted on Endo plates. Colorless colonies were obtained identical in character with Strain 4.

Feeding experiments were also performed. A kitten was fed with portions of the pie and suffered no ill effects. Another kitten was fed on sterile milk, which had previously been inoculated with Strain 4. A mild enteritis resulted.

Through the courtesy of Dr. A. S. Briggs of Ashaway, a specimen of blood was received from a patient, aged 20, who "had quite severe symptoms after eating pie." The blood was collected twenty-four days after the onset of symptoms. It is particularly noteworthy that this patient gives no history of any illness of over two or three days' duration prior to the attack of food poisoning. The blood serum from this patient agglutinated the typhoid bacillus, the paratyphoid bacillus B and Strain 4 in the dilutions of 1 : 10, 1 : 40, 1 : 80, 1 : 100 and 1 : 200 (the latter dilution showed partial clumping). The paratyphoid bacillus A was agglutinated only in dilution of 1 : 10. The patient's serum also agglutinated the organism recovered from the hearts' blood of the guinea-pigs and of the rabbit which had been inoculated with Strain 4. Moreover, Strain 4 was agglutinated by an antityphoid serum.

Thanks to Dr. G. T. Swarts, ten dried specimens of blood were received from individuals who similarly had suffered ill effects from eating the pie in question. The

specimens were collected one month after the onset of symptoms. Five of the specimens caused complete agglutination of Strain 4, three produced partial clumping, and two were negative. The question whether the organism isolated was capable of producing a soluble toxin invited solution. Accordingly a forty-eight-hour bouillon culture of Strain 4 was filtered through a Berkefeld filter. Two guinea-pigs and one rabbit were each inoculated with 1 c.c. of the bacteria-free filtrate. The animals developed no symptoms. Two animals were used as control, one guinea-pig was injected with sterile bouillon, and one other guinea-pig with the bouillon containing the growth of Strain 4. The latter died over night. All other observations were similarly controlled and repeated. In each instance, the observations found corroboration.

It is to be recalled that of the mixed cultures made from the ingredients of the pie, the bouillon inoculated with the dough proved fatal to a guinea-pig, as did the mixed culture from pie. The animals died either from the toxins in the food products or from the organisms present. It may well be assumed that Strain 4, if present, may have been overgrown by the streptococcus and the *Bacillus coli communior*. Since Strain 4 has been isolated only from the pie, the presumptive evidence is that the dough, also, contained the organism.

Thus the organism isolated from the pie mixture possesses the morphologic, cultural, pathogenic and immunologic characteristics of the Salmonella group. This group is composed of the *Bacillus paratyphosus* B, the *Bacillus suipestifer* and the *Bacillus enteritidis* Gaertner. It is noteworthy that the German school regards the *Bacillus paratyphosus* B, and the *Bacillus suipestifer* as identical species, applying the former designation if derived from human sources, and the latter if derived from animal sources. The English school, however, by means of agglutination and absorption tests, distinguishes between the two organisms. These tests of necessity were applied to Strain 4, as there was no opportunity forthcoming to determine the source of the food infection.

Rabbits were accordingly immunized against Strain 4, the *Bacillus paratyphosus* B, and the *Bacillus suipestifer*. A culture of *Bacillus suipestifer* was obtained through the courtesy of the American Museum of Natural History, New York. Three intravenous injections of a twenty-hour bouillon culture of each of the three organisms were administered to rabbits at fifteen-day intervals. The animals were bled approximately one week after the last inoculation. The first injection consisted of 0.001 c.c. of the living culture, the remaining two of 0.01 c.c. Rabbits injected with Strain 4 succumbed shortly before the second injection became due. The organism was recovered from the heart's blood and stools. Fortunately it was possible to obtain blood from one rabbit after it had survived a second injection of Strain 4. At that time the animal had a paralysis of the lower limbs and of the urinary bladder. This may account for the relatively low titer in the agglutinating properties of the serum.

The accompanying table indicates the agglutinating powers of each serum against Strain 4, the *Bacillus paratyphosus* B and the *Bacillus suipestifer;* also the effect on the specific agglutinin and co-agglutinins of each serum after saturation with each one of the three organisms in question. The similarity of the serum reactions, thus made evident, between Strain 4 and the *Bacillus paratyphosus B* establishes definitely the identity of the former. The *Bacillus enteritidis* Gaertner was not agglutinated by any one of the immune serums.

It will be noted, however (under heading 2), that Strain 4 does not remove all the agglutinins for the *Bacillus paratyphosus* B from a paratyphoid B serum. Repetition of the test yielded constant results. A similar anomalous reaction is recorded by Hutchens and Tulloch[1] in a strain of the *Bacillus paratyphosus* B isolated from yeast in a brewery. This yeast had been used as food for farmyard animals and produced symptoms of an acute enteritis.

The agencies whereby the *Bacillus paratyphosus* B gained access to the pie must of necessity remain a matter of conjecture. The cases of poisoning were limited to persons who purchased the food-product at this Westerly restauratnt. There had been no change in the personnel of the restaurant for several months, which makes the restriction of the epidemic in point of time difficult to explain. If we accept the view of Bainbridge, the infection originated from a human source, possibly a paratyphoid carrier.

The distribution of the *Bacillus paratyphosus* B in nature has given rise to much discussion. In Germany, bacilli of the paratyphoid group have been isolated from milk by Fischer (1903), from water by Conradi (1904) and by Priefer and Keyser (1902), from sausage by Hübener (1908) and by Rommeler (1909), and from goose by Sobernheim (1911). Moreover, Uhlenhuth (1908) and Seiffert (1909) have obtained the organism from the intestinal contents of healthy pigs.[2] It was noted by Conradi that food containing these organisms could be eaten by human beings without the production of untoward symptoms. Morgan, Savage and Bainbridge, however, have obtained negative results in the examination of pigs' feces.

TABLE OF ABSORPTION TESTS

Serum	Agglutination Limits for		
	Strain 4	B. Paratyphosus B	B. Suipestifer
1. Strain 4, original titer.....	1,600	800	100
Absorbed with B. suipestifer....	1,600	400	<100
Absorbed with B. paratyphosus B	<100	<100	<100
Absorbed with Strain 4.....	<100	<100	<100
2. Bacillus paratyphosus B, original titer	3,200	6,400	1,600
Absorbed with B. suipestifer....	800	6,400	<100
Absorbed with B. paratyphosus B	<100	<100	<100
Absorbed with Strain 4.....	<100	800	<100
3. Bacillus suipestifer, original titer	1,600	800	6,400
Absorbed with B. suipestifer....	<100	<100	<100
Absorbed with B. paratyphosus B	<100	<100	6,400
Absorbed with Strain 4.....	<100	<100	6,400

The prevalence of the organism in man has been the subject of much investigation. Conradi found the bacilli present in twenty-nine cases out of 250 typhoid convalescents, in patients suffering from tuberculosis and other diseases, and in healthy individuals. Prigge and Sachs-Muke[3] examined the stools of 5,252 individuals and found the paratyphoid bacilli present in 108 cases, only thirty-eight of which showed symptoms of paratyphoid infection. Hubener and Viereck, in an examination of the stools of 4,000 soldiers, encountered the organism thirteen times in individuals who never

1. Hutchens, H. J., and Tulloch, W. J.: An Anomalous Strain of B. Paratyphosus (B), Jour. Path. and Bacteriol., 1913-1914, xviii, 431.
2. Quoted from Bainbridge, F. A., and O'Brien, R. A.: On the Paratyphoid Group of Bacilli, Jour. Hyg., 1911, xi, 68.
3. Prigge and Sachs-Muke: Paratyphusbazillenausscheidung bei Kranken und Gesunden, Klin. Jahrb., 1909-1910, xxii, 237.

presented signs of paratyphoid fever. Hubener recovered the organism twice in seventy-five examinations of the nasopharynx.[4] Negative findings, however, were obtained by Sobernheim, who searched for the *Bacillus paratyphosus* B in 1,000 samples of feces of normal individuals, by Seiffert who examined 600 specimens of feces, and by Morgan in a study of 303 stools from children.[5]

Bainbridge and O'Brien, in criticism of the findings of German investigators, have submitted the organisms which the latter isolated from varied sources to absorption tests. As a result, the organisms fall into two groups. The first group, the *Bacillus suipestifer,* consists of those strains which were derived from food or food-poisoning cases. The second group, the *Bacillus paratyphosus* B, was obtained from cases of paratyphoid fever or chronic carriers. Bainbridge and O'Brien are disposed to regard "the human alimentary canal (including the bile passages) as the normal habitat of *Bacillus paratyphosus* B, while admitting that paratyphoid 'carriers' may cause infection not only directly but also by contaminating sound food, just as is the case with typhoid carriers. Under these circumstances, it is to be expected that the bacilli may occasionally be found in food, polluted by a carrier, although they have not met with such an instance." [2] Moreover, they are convinced that the presence of the *Bacillus paratyphosus* B in healthy human beings is unknown in England. In this connection, the findings of Bonhoff are of unusual interest. In the bacteriologic examination of the heart's blood in 6,476 cases at necropsy, he isolated the *Bacillus paratyphosus* B from twenty-nine cases. Five of the twenty-nine cases fall into a group which the author classifies as bacteremia as a coincident finding (*reine Bakteriämien als Nebenbefund*). This group comprised one case each of senility, pulmonary tuberculosis and chronic alcoholism, and two cases of inoperable carcinoma.[6]

The importance of carriers of paratyphoid bacilli has been further emphasized by epidemics which owe their origin to them. Thus, Konrich[7] described an epidemic of paratyphoid fever affecting forty-four children in a surgical ward. A young girl, recently admitted to undergo treatment for rachitis, was held responsible because of the presence of the organisms in her stools. A similar outbreak of paratyphoid (B) fever, verified bacteriologically, involved sixteen surgical cases at a hospital in Roanoke, Va.[8] A colored boy who was employed as a helper in the kitchen was the probable source of the infection, "which was spread by finger conveyance from case to case in the wards." The first outbreak in England of an acute gastro-enteritis due to the *Bacillus paratyphosus* B is recorded by Bainbridge. The symptoms were identical with those described in the Westerly epidemic. Fourteen persons in four households became seriously ill. The organisms were isolated from two specimens of stools, and their identity determined by absorption tests. No food was held responsible, as the dates of onset varied. The exchange of visits between the households at the time of the epidemic suggests strongly the intervention of a carrier.[9]

In addition to the infections by contact mentioned above, there are epidemics recorded in which food material proved to be the vehicle of infection, because of contamination by paratyphoid carriers. Sacquépée and Bellot describe an epidemic of paratyphoid fever affecting nineteen in a French army corps of 250. The cook in camp had recovered a short time previously from an attack of paratyphoid fever. His blood agglutinated the *Bacillus paratyphosus* B, which persisted in his stools.[5] Similar epidemics of paratyphoid fever occurred in various Japanese camps on the island of Waiawa. A native who brought vegetables to these camps proved to have the bacilli in his stools, although he gave no history of any illness during the two previous years.[10] Of forty-five individuals who were taken sick after drinking some light beer, thirty-three agglutinated the *Bacillus paratyphosus* B; and in the stools in eight cases, the organism was present. It is supposed that the brewer had infected the product, which was of domestic manufacture.[11] French pastry was productive of acute symptoms in thirteen cases. The baker of the pastry was a recent convalescent from an attack of paratyphoid fever, which he had contracted from his son. The organisms were found in the urine of the baker. The food itself was not available for bacteriologic examination.[12] A fatal case, that of a private in the German army, yielded the *Bacillus paratyphosus* B in cultures from the intestinal contents, urine and spleen. The clinical symptoms were most acute in character. At the same time, there were among the civil population twenty cases of food poisoning due to the ingestion of sausages. From the stools of one of the victims, the *Bacillus paratyphosus* B was isolated.[13]

It may not be amiss to cite two other epidemics of food poisoning in which the organisms were recovered from the food product. Fried eel was responsible for symptoms in a family of six. Paratyphoid bacilli were obtained from specimens of the eel. The organisms were more numerous, however, in the center of the fried portions.[14] Most noteworthy of all is the food infection which occurred at Wrexham, England, in August, 1910. Many of the features of this epidemic was strikingly similar to ours at Westerly.[15] One hundred and seven persons in fifty-six families became seriously ill as the result of eating pork pies. Of this number five died. The symptoms were those of an acute gastro-enteritis, associated with herpes and mental depression. The pork pies originated from the same bakeshop. The *Bacillus paratyphosus* B was found in two specimens of suspected pork pies, and agglutinins for the organism in five persons who had eaten the pie in question.[16] The organism was also

4. Quoted from Job, M. E.: Les infections à paratyphus B: étude nosologique et épidémiologique, Rev. de méd., 1913, xxxiii, 181.
5. Quoted from Bainbridge, F. A.: The Etiology and Epidemiology of Paratyphoid Fever and Food Poisoning, Proc. Roy. Soc. Med., London, 1910-1911, iv, Epidemiolog. Sec., p. 51.
6. Bonhoff, F.: Ueber Paratyphusbazillenbefunde an der Leiche, Virchows Arch. f. path. Anat., 1914, ccxvi, 321.
7. Konrich: Eine Paratyphusepidemie in einem Krankenhause, Klin. Jahrb., 1908, xix, 247.
8. Lumsden, L. L.; Freeman, A. W., and Foster, W. B.: Paratyphoid Fever: Report of an Outbreak in a Hospital at Roanoke, Va., Pub. Health Rep., 1913, xxviii, 1041.
9. Bainbridge, F. A.: An Outbreak of Gastro-Enteritis Due to B. Paratyphoid B, Brit. Med. Jour., 1910, ii, 1515.
10. Sinclair, A. N.: An Epidemic of Paratyphoid Fever, Origination from a Carrier and Dissemination by Vegetables, Am. Jour. Trop. Dis. and Prev. Med., 1914, i, 612.
11. Kling, C., and Petterson, A.: Verbreitung von Paratyphus und ähnlichen Darmkrankheiten durch Dunnbier, Centralbl. f. Bakteriol., Part I, 1914, lxxiv, Orig., p. 467.
12. Prigge and Sachs-Muke: Beobachtungen bei zwei Nahrungsmittel verursachten Paratyphusepidemien, Klin. Jahrb., 1909, xxi, 225.
13. Oesterlen, O.: Zur Kasuistik der Paratyphus B, Deutsch. mil. ärztl. Ztschr., 1911, xl, 655.
14. Müller, R.: Fischfleischvergiftung durch Bakterien der Paratyphus-Enteritisgruppe, München. med. Wchnschr., 1914, lix, 471.
15. Williams, D. L.: Food Infection at Wrexham, Jour. Roy. Inst. Pub. Health, London, 1910, xviii, 725.
16. Trommsdorff, R.; Rajchman, L., and Porter, Agnes E.: A Severe Outbreak of Food Infection Caused by a Paratyphoid Carrier, Jour. Hyg., 1911, ii, 89.

found in the stools of the head cook. She gave no history of ever passing through any typhoidlike illness, and to the best of her belief, she had never before caused a similar outbreak.

It must not be overlooked that food may continue to harbor active pathogenic organisms, even after subjection to cooking temperatures. Of course, the method of preparation and the physical character of the food determine the extent of penetration by heat. In the interesting experiments performed by Sawyer,[17] it was shown that a pan of spaghetti baked for half an hour in an oven, the temperature of which ranged between 207 and 214 C., had a temperature of only 28 C. in the middle, and 48 C. near the bottom. The spaghetti had been inoculated, for the purpose of investigation, with a culture of typhoid bacilli. Living bacilli were recovered from a depth of 2½ inches.

SUMMARY

The purport of this communication is:

1. To record an outbreak of food poisoning due to the *Bacillus paratyphosus* B which affected sixty individuals, of whom four died.
2. To indicate that the vehicle of infection was pie, from which the organism was isolated.
3. To emphasize the necessity of protecting public food supplies from "disease carriers."

17. Sawyer, W. A.: Ninety-Three Persons Infected by a Typhoid Carrier at a Public Dinner, THE JOURNAL A. M. A., Oct. 31, 1914, p. 1537.

MULTIPLE METASTATIC SARCOMAS OF THE LUNGS

WITH REPORT OF A CASE

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Sarcoma of the lung whether primary or secondary is very rarely found. So few cases come under the observation of any one individual that the study of sarcoma of the lung depends almost entirely on reported cases. The literature on the subject is very limited. The study of various records seems to give such different results that the complaint is general that too few cases are reported and those few not carefully enough.

The clinical aspects of metastasis secondary to malignant disease are of considerable interest and importance. When the existence of a primary tumor is obvious, or when such a tumor has been more or less recently removed, evidences of disease in other organs must necessarily excite alarm and arouse suspicions of a metastatic manifestation.

Such a relatively straightforward sequence of events, however, very rarely exists. The primary growth may have been overlooked or the nature of the tumor, removed by operation, may have been in doubt. Again the interval between the primary growth and the secondary development may be so considerable that suspicion is at rest.

The case reported here, fortunately, has been observed throughout the course of its malignant developments and the history is complete from the very beginning of the primary growth to the fatal termination due to multiple metastatic sarcomas of the lungs.

S. S. Burt[1] in 1900 reviewed all cases of metastatic sarcomas of the lungs recorded in the *Johns Hopkins Reports, the Proceedings of the Pathological Society of Philadelphia* and the *Boston Medical and Surgical Journal,* and reports one himself. In all there are twenty cases. In only three are the metastases multiple and in two of these there is other involvement than just the seat of the primary tumor and the lungs. His own case is very similar to the one reported here, in that the primary growth involved an extremity, which was amputated because of it, and that there followed multiple metastases in the lungs, without any recurrence of the growth at the site of amputation or elsewhere than in the lungs.

F. R. Greenwood[2] in 1899 reports a case in which the same order of events prevails, with, however, this striking difference that in his case there was a general glandular involvement.

A. A. Stevens[3] gives a brief but comprehensive review of data collected by different observers. He discusses both primary and secondary malignancies of the lungs and reports three cases which came under his own observation, one a primary sarcoma of the right lung, one an endothelioma of the right pleura with metastases in the right lung, the third a hypernephroma of the left kidney with secondary sarcoma of the left lung.

A case recently reported is one by T. M. Martin[4] in which the findings in the lungs were secondary to sarcoma of the uterus.[5] The following case was observed in the Cincinnati General Hospital:

History.—V. B., a widow, aged 54, was admitted to the West Medical Service, May 16, 1915. Her chief complaint was pain in the left lower chest, through and through the lung at the scapular level.

Family History.—Her father had died of pneumonia after a brief illness, her mother of old age. She was one of a family of eleven children, three of whom died in infancy; the others were living and well. Her husband had been shot through the lung in the Spanish-American War. He died in 1908 of pulmonary hemorrhage. There was absolutely no history of tuberculosis or malignancy.

Past History.—In early childhood the patient had had measles, chickenpox, whooping cough and mumps. At the age of 22 she was ill with a slight attack of peritonitis, from which she fully recovered. At the age of 44 she had an attack of pneumonia with pleurisy, which ran an acute course and went on to prompt and complete recovery.

In the summer of 1912 patient noticed a firm swelling which appeared over the upper part of the right tibia just below the knee. This lump gradually grew in size and in September, 1913, was opened to allow drainage. No pus was found. The incisions were allowed to heal and had almost closed when there was evidence of an active tissue proliferation with protrusion of the tumor substance at the site of the first openings. The diagnosis of sarcoma was made, and Dec. 19, 1913, the leg was taken off above the knee by Dr. W. D. Hamilton at Mount Carmel Hospital, Columbus, Ohio. Dr. Coon, pathologist to that hospital, reported the specimen to be oat-grain cell sarcoma.

Onset.—During the winter of 1914-1915 patient began to feel pain under the left shoulder blade and under the left

1. Burt, S. S.: Philadelphia Med. Jour., 1900, vi, 545.
2. Greenwood, F. R.: Birmingham Med. Rev., 1899, xlvi, 88.
3. Stevens, A. A.: Med. and Surg. Rep. Episc. Hosp., 1913, i, 333.
4. Martin, T. M.: Brit. Med. Jour., 1913, ii, 939.
5. In addition to the references already given, the following will be found of interest:
Prentiss, D. W.: Tr. Assn. Am. Phys., 1893, vii, 191; Med. News, Phila., 1893, lxiii, 13.
Treutlein, A.: Centralbl. f. allg. Path. u. path. Anat., 1902, xiii, 520.
Zinn: München. med. Wchnschr., 1894, xli, 197.

arm. She took one cold after another. She coughed considerably in spells but expectorated very little and seldom. During one severe coughing spell she brought up an old blood clot with some phlegm. She lost weight steadily and rapidly. There were no night sweats. There were no gastric or bowel symptoms.

Examination.—Patient was a well developed but very poorly nourished white woman, aged 54 years, pulse 80, respiration 28, temperature 101. Her face was very emaciated and gaunt looking although her expression was cheerful and hopeful. Her voice was clear.

The right leg had been amputated in the middle third of the thigh. This was the only deformity found. With the exception of the chest findings, the examination revealed nothing abnormal. There were no glandular enlargements. There was no enlargement of the liver or spleen.

The chest findings were interesting. The respirations, as noted above, were somewhat rapid. The expansion was fairly good but the excursions were more limited on the left side. The supraclavicular and infraclavicular fossae were deep and well marked, especially on the left side. There was dulness over both apices and dull areas scattered over both lungs. There was a large area of dulness in the left axilla extending anteriorly. The breath sounds were roughened and the breathing bronchovesicular over the dull areas with medium moist and dry râles during and at the end of expiration.

The heart showed nothing other than an accentuation of the second aortic sound and an almost imperceptible arrhythmia at times.

The examination of the urine was negative for pathologic findings.

The blood findings were as follows: hemoglobin, 95 per cent.; erythrocytes, 4,460,000; leukocytes, 10,250; polymorphonuclears, 70 per cent.; large lymphocytes, 3 per cent.; small lymphocytes, 25 per cent.; systolic blood pressure, 122 mm.; diastolic, 76 mm.; Wassermann reaction, negative; Abderhalden malignancy test, positive.

No tubercle bacilli were found in the sputum.

The clinical diagnosis was made of metastatic sarcomas of the lungs, and this was confirmed by the Roentgen-ray findings.

Roentgenoscopic Findings.—Dr. Sidney Lange, official roentgenologist to the Cincinnati General Hospital, reported on the Roentgen-ray examination as follows: Roentgenogram shows multiple rounded opaque areas scattered throughout both sides of chest. These areas vary in size from that of a 5-cent piece to that of a silver dollar. They look typically like malignant metastatic deposits, in all probability sarcoma.

Treatment.—The treatment was entirely palliative, narcotics and sedatives. The patient was cheerful throughout, but failed steadily. The course of the illness was uneventful, the patient at times running a slight elevation of temperature, but at no time more than 101.5. Toward the end she refused nourishment and finally fell into a deep stupor. She died June 20, 1915, without regaining consciousness.

Necropsy.—Dr. P. G. Woolley, pathologist to the Cincinnati General Hospital, reports on the necropsy as follows: The body was that of a slight, emaciated, decidedly anemic woman, 5 feet high. The right leg had been amputated a few inches above the knee for some considerable time, for the scars were atrophic and well formed. There was no enlargement of the remaining part of the femur, and dissection showed no abnormality of the bone or periosteum. The eyes were normal. There were no evidences of trauma or injuries of any sort on the body. The peripheral lymph glands were not palpably enlarged. Postmortem lividity and rigidity were present. There was a slight bulging of the thorax to the right of the median line. The mammary glands were atrophic.

When the chest was opened the lungs did not collapse. The diaphragm reached to the fifth rib on the left and to the fifth interspace on the right. In the left pleural cavity there were recent fibrinous adhesions laterally and anteriorly above the level of the nipples; in the right there were similar adhesions over the posterior part of the upper lobes. All these adhesions were over nodular masses situated in the lungs beneath the pleura. Beneath the sternum in the right lung were several of these nodules between which and the sternum were well-formed fibrous adhesions.

Both lungs were filled with large and small nodular growths, which varied in size, from a small pea (in one case) to a small orange (8 cm.). In the left lung most of the nodules were softened and, when traction was put on the lung, they ruptured and the contents came forth looking somewhat like moist cottage cheese. In one instance, a nodule was situated in an infarct caused (apparently) by pressure of another mass on the vessels of the part. The smaller, better nourished growths were clear, pearly white in color, were rounded or oval, and had something of the appearance of soft fibromas; that is, they were indistinctly striated or lamellated and juicy. Older ones, which had not undergone distinct softening, were often darker in color, sometimes with lines of greenish or olive across the grayish surface of the growths. The pleura above all the subpleural nodules was inflamed.

The other organs showed no noteworthy changes. All were atrophic and pale and apparently fibroid. This was especially true of the kidneys, spleen and heart. In the aorta, at the arch, was a patch of senile sclerosis with calcification. There were a few plaques elsewhere in the aorta.

The uterus was fibroid; in the wall were several small fibroids. The endometrium was hyperplastic, especially in the fundus, where there were two polypi, a few millimeters long and pedunculated. The right ovary was cystic.

The mesenteric lymph glands were not enlarged. The intestines showed no abnormality except that the transverse colon passed across the cavity 2 inches below the navel.

Microscopic examination of the tumor masses showed them to be spindle cell fibrosarcomas, of the short spindle cell variety, with a marked tendency to perivascular arrangement.

The interest in this patient centers in the completeness of the study of the case, which we were able to follow from the very beginning of the illness to the final microscopic examination.

CREEPING ERUPTION (LARVA MIGRANS) OF THE SKIN

PARTICULARLY IN REGARD TO ITS HISTOLOGIC FEATURES, INCLUDING THE DEMONSTRATION OF THE BURROW AND THE LARVA IN THE EPIDERMIS *

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The various dipterous invasions which lead to a destructive or purulent inflammation, resembling furuncles, abscesses and doughy tumors, such as are caused by the African cayor worm, the larva of *Ochromyia anthropophaga* (Blanchard), the various muscidae, the *Hypoderma bovis,* ver-macque, etc., are so diverse in their clinical aspect from the present case that they will not be considered in this communication.

Creeping eruption which is a special variety of animal parasitic infection is of rare occurrence. The causative larva has been discovered by but five investigators, namely, Sokolow,[1] Samson,[2] Wosstrikow and Bogrow,[3] and Rudell,[4] the first four being Russians

* From the Ayer Laboratory of the Pennsylvania Hospital. Read before the College of Physicians of Philadelphia, Nov. 3, 1915.

1. Sokolow: Arch. f. Dermat. u. Syph., 1897, xxxviii, 153.
2. Samson: Arch. f. Dermat. u. Syph., 1897, xli, 367.
3. Wosstrikow and Bogrow: Arch. f. Dermat. u. Syph., 1908, xc, 323.
4. Rudell, G. L.: Creeping Eruption, THE JOURNAL A. M. A., July 26, 1913, p. 247.

and the fifth an American. The histologic examination has been successfully carried out in but three cases, including the present instance. Complete microscopic findings, including the demonstration of the burrows, have been presented by Lenglet and Delaunay,[5] Rille and Riecke,[6] and myself. The efforts



Fig. 1.—Creeping eruption involving the right labium majus.

of Dickinson, T. Fox and Duckworth, who examined the tissue from Lee's first case, were negative.[7] Hamburger[8] was able to demonstrate, in his example of the affection, only the phenomenon of an acute inflammation of the skin. I, alone, have been able to discover the larva in sections.

The first case of this disease was reported by Robert Lee in 1874, under the caption "creeping eruption"; Crocker[9] recorded an instance in 1892, terming the disease "larva migrans"; Sokolow mentioned cases in Russia in 1888; Neumann[10] reported an instance in 1895; Kaposi[11] recorded the first case in Austria in 1898. The first American cases were reported by Van Harlingen[12] in 1902, Stelwagon[13] in 1903, and Hamburger in 1904. Other American cases have been recorded by Shelmire,[14] Hutchins,[15] Moorhead,[16] Gosman,[17] Haase[18] and Kirby-Smith.[19] The disease has also been reported from Bulgaria, France, the Kongo and Arabia. The disease is rather prevalent in Russia, particularly the eastern portion. Samson saw nine cases in three years; Sokolow has seen from two to three yearly; Wosstrikow and Bogrow have encountered from two to three cases each year during the last two decades.



Fig. 2.—Creeping eruption involving the right buttock. Note the gyrating character of the track. The two dark spots are areas in which nitric acid was unsuccessfully employed.

The disease is particularly prone to attack children, although in Russia young peasants working in the fields furnish most of the cases. According to Hamburger, of eleven cases in other countries than Russia up to 1904, eight occurred in children.

The seat of predilection for the attack is the uncovered portions of the body, particularly the hands, the feet and the face, although quite a number of instances have been recorded on the buttocks or near the genitalia; five out of eleven cases developed in the latter region (Hamburger). According to Rille and Riecke, the axillae and pubic regions may be attacked. No burrows have ever been reported as occurring on the scalp or bearded regions. Samson has recorded cases in which the mucous membranes of the mouth, the nose and the conjunctiva have been attacked.

Creeping eruption may be initiated with an itching sensation, but more often the case comes to observation a considerable period after the burrowing has been inaugurated. Frequently a red creeping line reveals itself without subjective symptoms. More often, however, a red spot the size of a finger nail appears, from which the line takes its beginning. Lee demonstrated a small slightly reddened papule, pinhead in size. According to Van Harlingen it starts as a vesicle.

The beginning line is light red, while the older portions of the channel are of a dark red shade. The line is from 1 to 4 mm. in width and elevated approximately 0.5 mm. Both Hamburger and Van Harlingen found vesicles capping the line which suggested somewhat the burrow of scabies. Lee and also Stelwagon found a bead-like appearance, suggesting in the former's case the appearance of a lymph channel. Bruno[20] discovered little irregularities along the track of the line which he considered as points of defecation, thus heightening the resemblance to the lesions of scabies. In most of the cases the burrows are unbroken.

The characteristic symptom is the progressive character of the burrow. Sokolow believes that the beginning burrowings are always in a straight line, and



Fig. 3.—Drawing of excised skin, showing the appearance of the burrows through a magnifying glass.

toward their end they become wavy. In the majority of cases only one red line is discernible. In the cases of Crocker, Rille, Stelwagon, Haase and Rudell two lines were present; while in those of Kaposi, Schmidt[21]

5. Lenglet and Delaunay: Ann. de dermat. et de syph., 1904, iv, 107.
6. Rille and Riecke: Handbuch der Hautkrankheiten, Mracek, 1909, iv, Part 2, p. 178.
7. Lee: Tr. London Clin. Soc., 1874, viii, 44; ibid., 1884, xvii, 74.
8. Hamburger: Jour. Cutan. Dis., 1904, p. 217.
9. Crocker: Diseases of the Skin, Ed. 2, p. 926.
10. Neumann: Verhandl. d. V Cong. d. Deutsch. dermat. Gesellsch., 1895 (1896), p. 95.
11. Kaposi: Wien. klin. Wchnschr., 1898, p. 399.
12. Van Harlingen: Am. Jour. Med. Sc., September, 1902.
13. Stelwagon: Jour. Cutan. Dis., 1903, p. 502; ibid., 1904, pp. 359, 381.
14. Shelmire: Jour. Cutan. Dis., June, 1905.
15. Hutchins: Jour. Cutan. Dis., 1906, p. 270; ibid., 1908, p. 521.
16. Moorhead: Texas Med. News, February, 1906.
17. Gosman, G. H. R.: Two Cases of Creeping Eruption, THE JOURNAL A. M. A., Jan. 1, 1910, p. 38.
18. Haase: Jour. Cutan. Dis., 1910, p. 393.
19. Kirby-Smith: New York Med. Jour., March 13, 1915.
20. Bruno, quoted by Samson (Footnote 2).
21. Quoted by Hamburger (Footnote 8) and also by Rille and Riecke (Footnote 6).

and myself three lines were demonstrated. The development of the line takes place with a rapidity which varies, now curving and looping, now adopting a straight course and traversing in twenty-four hours from 1 to 17 cm., the greatest progression having been observed in Crocker's and Lee's cases, 7 and 4½ inches, respectively.

The line does not branch. It may remain passive for hours and even days, and then may resume its gyrations. The progression of the line may be observed only during the night, as in Haase's case, or greater progress may be made during this period, as noted by Rudell. As the red line proceeds the older portions fade, leaving a pigmented tract behind. As a rule the burrows are superficial and the erythema is generally removable under pressure. Notable exceptions were, however, observed by Sokolow, who recorded a case in a brunette which showed a distinct scarring. Schmidt also recorded a resulting cicatrix.

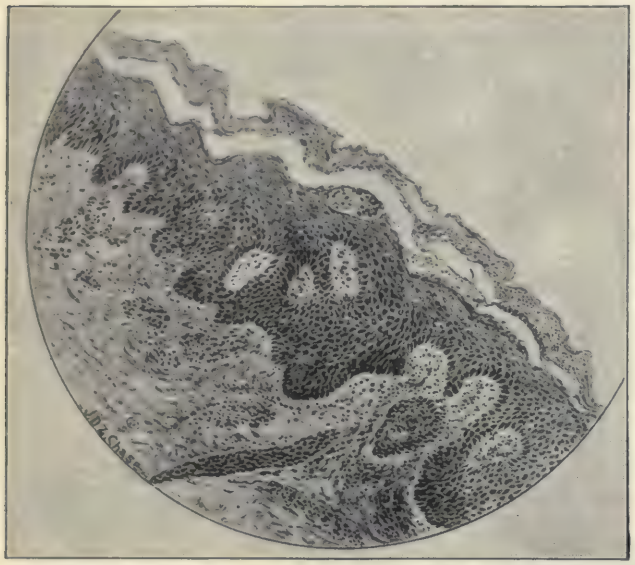


Fig. 4.—Drawing made from the microscope, showing a newly-made burrow. The oval body with the clublike projection, in the central and lower portion of the burrow, may be noted; also the elongation and broadening of the rete pegs and a round cell infiltration in the papillae and the upper corium, chiefly in the neighborhood of the blood vessels.

In regard to the length of progression of the larva, in Crocker's case the burrowing was followed over a period of two and one-quarter years; after covering a large portion of the cutaneous surface, it ceased its activity only by its destruction because of an accidental suppuration in the neighborhood. The reverse was observed in Matchinsky's case,[21] in which the activity of the larva was limited in its gyrations to the cheek, for a period of two months.

According to the Russian authorities, the larva resides from 0.5 to 1 cm. from the end of the burrow. Samson states that by putting pressure on the skin and by employing a magnifying glass the larva can be seen in some cases as a black point, in the unaffected skin, slightly in advance of the actively extending end of the channel. This black point was observed immediately in advance of one of the burrows in the present case.

Two instances of this affection have been under my care, both occurring in children, the second of which forms the basis of this communication.

G. D., a well-formed girl, aged 20 months, visited my office, Sept. 6, 1912, with a typical case of creeping eruption, which had started August 22. The serpiginous, gyrating lines (there were three distinct burrows) involved palm-sized areas on both buttocks and the upper portion of the mons veneris. The vaginal mucous membrane was unattacked. An attempt was made to destroy the larvae with nitric acid, and as both applications proved a failure, Dr. Edward B. Hodge excised all three tracts. Four days after excision, insufficient tissue having been removed in front of the advancing end of one of the burrows, the larva made a fresh progression at the edge of the excision on the left buttock and burrowed down toward the lower edge of the left mons veneris, traveling a distance of 2 inches in twenty-four hours. Since the last operation there has been no recurrence.

I have had an unusual opportunity for the study of the histopathologic features of creeping eruption, as all of the passages were excised in their entirety. All of the tissue was cut serially, and 3,000 sections have been examined during many hours of the last three years. Quite a number of stains have been employed in order to bring out to the greatest advantage the various salient features. The investigation has been crowned with success, in that fully 150 sections show excellent views of the burrows, and thirty present various portions of the larvae. The excellent treatises of Rille and Riecke, and of Langlet and Delaunay pertaining to this disease, particularly that of the former, have been consulted freely and frequently, and their findings coincide almost absolutely with mine, excepting that in addition, I have been successful in finding the larvae in sections. Their deductions form a partial basis for my results.

All varieties of passageways were found, longitudinal, transverse, and because of the winding character of the burrows and the various planes in which they were cut, those of a very irregular shape. Some of the channels were clear of contents, resembling markedly those found in scabies (Hartzell), others were partially filled, while the majority were entirely blocked up. The burrows were, however, quite different from those made by the *Acarus scabiei* in that they were much larger and were located in the lower portion of the horny layer at the junction with the rete and also in the upper portion of the rete Malpighii,

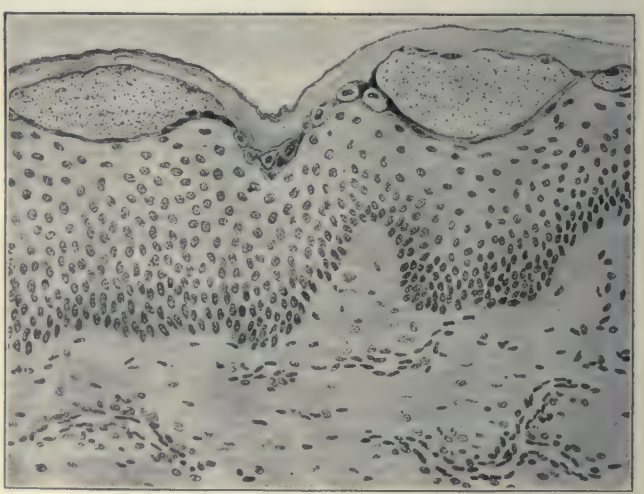


Fig. 5.—Photograph of histologic drawing from the case of Rille and Riecke, showing a transverse section of three burrows, two large and one small, at the junction of the horny and rete layers (Mracek's Handbuch der Hautkrankheiten).

rather than as in scabies in the middle and upper portion of the stratum corneum.

As a general rule the upper boundary of the passageway consisted of a few flattened, dark granular cells together with the horny layer. The floor was composed of rows of rete cells; in no place was the burrow in contact with the corium. The microscopic picture shows the passages in almost all sections to be located in the upper portion of the rete. The undermining work of the parasite was also found, in a few sections, in the lower portion of the horny layer exclusively. The diameter of the burrow varied from 0.25 to 0.75 mm.

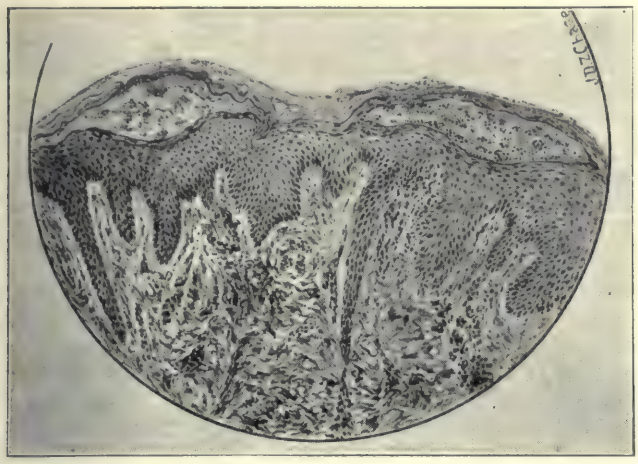


Fig. 6.—Histologic drawing of the author's case, showing a transverse section of two burrows at the junction of the horny and rete layers. Older burrows than the other depicted (Fig. 4), the cavity completely filled. There is widening of some of the rete pegs, elongation and narrowing or others. There is round cell infiltration in upper corium. Compare with Figure 5.

The stratum corneum is not changed from the normal in breadth and thickness, excepting that it is bulged over the passageways. It was intact in all sections. The covering of the passage consisted of elongated granular cells without a sharp contour but very distinct nuclei. These nuclei were flattened and some almost linear. The lateral and outer boundaries were chiefly composed of separate cells of the stratum germinativum, epithelial cells with distinct nuclei which are also mostly flattened. Both the upper and lower bounds of some of the passages consist of cells of the granular layer. Three or four rows below the burrows the cells have a normal configuration. The remaining cells of the stratum germinativum and the basal layer are somewhat edematous, and the nuclei are found in a large degree to be undergoing mitosis.

The character of the contents of the passageways varies considerably; the new channels may be entirely free and open, but as they become older they are observed to be more and more completely blocked. There is observed in comparatively newly bored channels a refracting uniform substance which is broken up with numerous small round granules. Later these granules are observed to be of unequal size and shape, round, irregularly long or oval. They are found in large numbers without a vestige of regular arrangement or grouping. Rille and Riecke suggest that they are of cell derivation, probably a degeneration of the granules of the cell nuclei. It has occurred to me as a possibility that some at least are the fecal discharge from the larva, as is found in sections of scabies. The passageways also contain swollen, degenerated, indistinctly outlined epithelial cells; numerous nuclei without a cellular surrounding, which vary considerably in their staining characteristics, some distinct while others are only faintly colored; eosinophils, and less numerously lymphocytes and polymorphonuclear leukocytes. The Mallory connective tissue stain brings out vividly a considerable amount of fibrin contents in the burrows. There is also a large amount of granular and cellular débris.

In the neighborhood of the burrows the rete pegs are either contracted and elongated or broadened, and there is therefore a corresponding contraction and narrowing of the papillae. These changes are, however, found in only a portion of the sections. There is a considerable diversity of pathologic findings in the various fields; in some the corium is absolutely normal, while in others there is an inflammatory accumulation of cells in the papillary layer. In some sections, there is an aggregation of cells in the immediate neighborhood of the capillaries of the papillae. These cellular infiltrations have also been observed surrounding the other blood vessels of the cutis; peripherally around the hair follicles and also the sebaceous glands. A few round cells were noted, in some sections, around the coils of the sweat glands. In a few instances the broadened pegs of the rete were invaded by a dense cellular infiltration which also extended considerably down in the corium. The greatest round cell accumulations are found in the neighborhood of the papillary bodies, and then only in a few sections, and only to a much lesser degree in other portions of the corium. The blood vessels are dilated, with a surrounding cellular infiltration, some filled with blood corpuscles and others empty. The elastic fibers and collagen are normal.

As the parasite which burrows in creeping eruption has never been discovered in sections, I have had to base my study on the characteristics of the larva picked from the burrow and examined microscopically, and for a working basis have had to study the *Acarus scabiei,* although quite different from the present larva, as it appears in skin tissue.

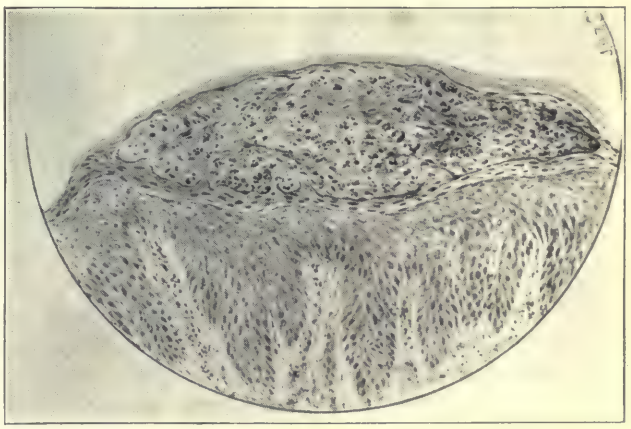


Fig. 7.—Drawing under high power, showing a transverse section of a burrow, filled with irregularly shaped granules, swollen, degenerated, indistinctly outlined epithelial cells, numerous free nuclei, eosinophils, lymphocytes, polymorphonuclear cells, fibrin and cellular and granular débris. Elongation of the rete pegs and a round cell infiltration in the corium are also seen.

In about thirty sections, cut serially from the different passages, there was found in the upper portion of the rete, with a few flattened epithelial cells above and the normal rete cells below, an oval body of a definite

structure consisting of a granular looking material and several dark points around the circumference and an attached clublike projection closely conforming to the tail of the larva. This oval body with a distinct capsule was found in eight serial sections, and is thought to be either an egg of the larva or a portion of the parasite itself. In another series of sections, from another track, there were twelve serially cut, which showed three of these oval bodies, closely in contact, with the same characteristics of the one just

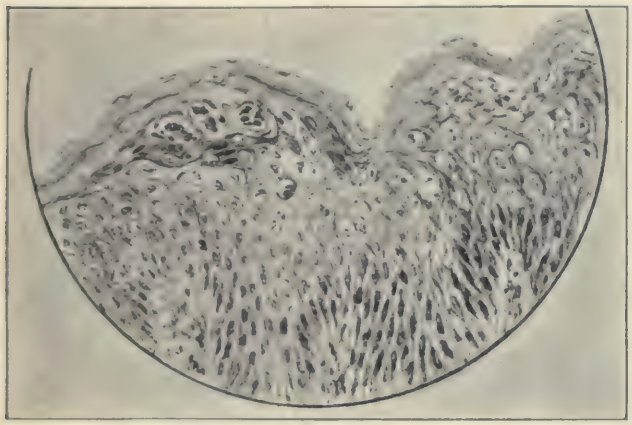


Fig. 8.—Drawing showing the three oval bodies, close together, in the rete, probably sections of the larva cut transversely, referred to in the text. Mitotic figures in the nuclei of the rete cells are distinctly shown.

described and in the same position in the rete. In still a third series of sections, from the remaining burrow, ten showed six complete segments of varying size, oval and somewhat irregular in shape, of the same texture of those just described, with two distinct clublike processes, the latter evidently the tail attachments of the larva. The latter was found in the upper portion of the rete in the same relative position as those that have just been mentioned.

The *Acarus scabiei* has been carefully studied in section (Unna), and the organized body formation closely conforms to the first body depicted, although it has not the clublike projection. The latter series of oval and irregularly shaped bodies with the typical clublike processes conform so closely to the description of the larva migrans (Sokolow) that I have no hesitancy in stating that all of these oval-like bodies are sections of this parasite, some, because of the gyrating channel and the various planes of the sections, showing a transverse, others a transverse and partially longitudinal, and still others an almost complete longitudinal view of the organism. Some of these oval-shaped and irregular bodies lay directly in the burrow; others were in immediate contact with it, while others were in the same location in the epidermis as the burrow was found.

The organism causing this affection was originally discovered by Sokolow, and this author states that it measures from 1 to 1.5 mm. in length and 0.5 mm. in width, it has ten segments, and is provided with hooklets, better developed at the head end, which apparently possesses two suckers. At the tail end are two clublike processes. In the interior are two tubes.

The zoologic classification of the parasite causing creeping eruption is still not definitely settled, although the majority of dermatologists and entomologists, particularly Cholodkowsky[22] and Porchinsky,[23] regard either the *Gastrophilus hemorrhoidalis* or the *Gastrophilus pecorum* as causative, notwithstanding the suggestion of Brauer and Handlirsch[23] that it is of the genera Tetrangchus and the species Telarius. As Sokolow found black nits on the hairs, it points strongly toward the *Gastrophilus hemorrhoidalis.*

Samson and also Hamburger give an explanation of the manner in which, probably, the patient is infected by the larva of the gastrophilus. The *Gastrophilus hemorrhoidalis,* a species of oestrus, deposits its eggs on the lips and the nose of the horse, and the larvae attach themselves to the bowel as well as the anus. The bot-fly lays its eggs in the latter part of the summer, and the larvae are probably transmittted to the stomach of the horse, where they attach themselves in varying numbers to the mucous membranes and there they remain during the winter season. The next summer they loosen their hold, pass through the intestine, and burrowing into the ground, they further undergo metamorphosis into the pupa, from which the imago or adult bot-fly emerges in a few weeks.

A considerable number of the cases of this affection appear during the summer months, thus carrying out the theory that they are derived from the ground after passing through the intestine of the horse. Crocker and also Lenglet and Delaunay thought the snails resident in the vineyard were the hosts of the parasites. Stelwagon states that five patients of his, attacked by the affection, had been residents of a watering resort. As the majority of all of the cases have been reported in Russia, in those laboring in the fields, this again tends to support the theory of origin as promulgated by Samson.

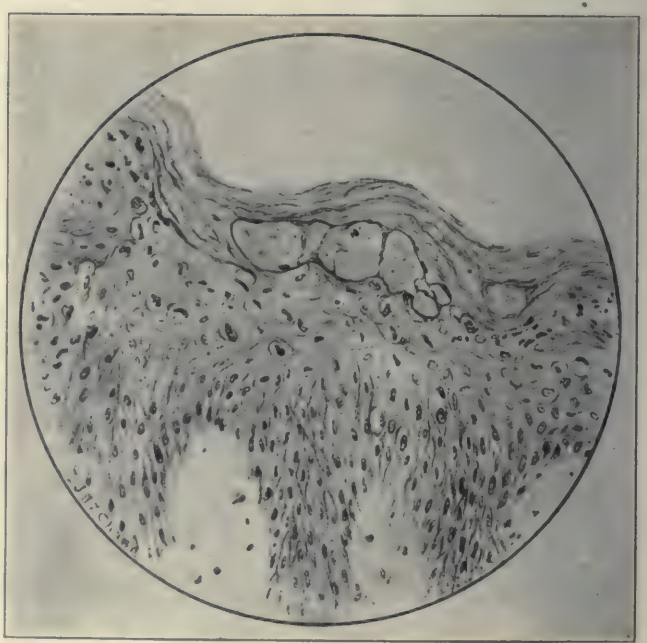


Fig. 9.—Drawing showing a longitudinal section of the larva. Six sections of the body and the two clublike projections, which are characteristic of the tail of the organism, are distinctly shown, located in the upper portion of the rete layer of the epidermis. The rete pegs are elongated, and numerous mitotic figures are observed in the nuclei of this layer.

The incubation of the disease is unknown. Crocker believed it to be from four to six weeks. Samson

22. Cholodkowsky, quoted by Sokolow (Footnote 1).
23. Quoted by Rille and Riecke (Footnote 6).

thought the shortest period of incubation to be six days. In the instance reported by Brodier and Fouquet[23] it seemed to be less than twenty-four hours, while Lenglet and Delaunay set a period of three days.

There is still a considerable amount to be learned in regard to this interesting affection. Creeping eruption is gradually, however, being elucidated; first, with the finding and probably correct classification of the organism (Sokolow); second, with the determination of the location of the burrow in the skin and the other pathologic findings, and third, by the present investigation, which shows the larva in epidermic tissue.

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TRANSPLANTATION OF BONE FOR NONREGENERATION OF THE TIBIAL SHAFT

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A girl, aged 6 years, was brought to the Mayo Clinic for consultation and treatment, Nov. 20, 1912. Seventeen months before she had had a typical attack of acute osteomyelitis of the left tibia. On the seventh day an abscess was opened and during the next fortnight several more collections of pus were incised and evacuated. Two months after the onset a subperiosteal resection of the entire shaft of the left tibia was performed by the attending surgeon. At the time of our examination there was nonregeneration to the extent shown in Figure 1. The child was wearing a brace which enabled her to walk without crutches. The fibula was quite enlarged as a result of the increased function demanded of it. Since the sinuses had been healed only two months, we advised deferring operative interference for three months to make sure that the infection had become quiescent, and to see if by any chance more regeneration would occur, thus eliminating surgery. At the end of this time the leg still looked clean, but no further regeneration had occurred.

Feb. 14, 1913, a piece of bone 4½ inches long and three-eighths inch wide was removed from the opposite tibia and placed in a warm salt cloth while the bed was prepared for it in the affected leg. The periosteum was retained on the transplant, which was wedged into the upper fragment, and side-to-side apposition to the lower fragment was secured. Holes were bored in the transplant and silver wire used to hold it in place, a suture now rarely used in our bone surgery. Figure 2 shows the graft three months later firmly united above and below with only slight increase in the size of the transplant. During this convalescent period the child wore a cast and was provided with crutches.

Two weeks after the roentgenogram (Fig. 2) was taken the child stepped rather heavily on the left foot while playing and felt and heard something snap. No particular pain was complained of, but a month later (June, 1913), her parents brought her to the clinic for examination. Figure 3 shows a fracture where the silver wire was thrown around the graft and the lower fragment. The nonabsorbable silver wire had caused an osteoporosis here which finally resulted in fracture at the instigation of an unusual strain. Casts and crutches were used for a year in the hope that the fractured graft would unite. In July, 1914, fibrous union only had occurred, but there was marked increase in the size and density of the transplant. Figure 4 shows the somewhat wild attempt of Nature to bring about union.

It was decided again to remove a piece of bone from the sound tibia as a graft to bridge the fracture in the original transplant, and July 23, 1914, a piece of bone 2½ inches long by three-eighths inch wide was transplanted. The silver wire that was easily accessible was removed. A cast was worn until March, 1915, though weight-bearing was permitted in three months. Figure 5 shows the condition, April 26, 1915. Note the beginning formation of a medullary cavity in the transplanted area. The child now has complete restoration of function.

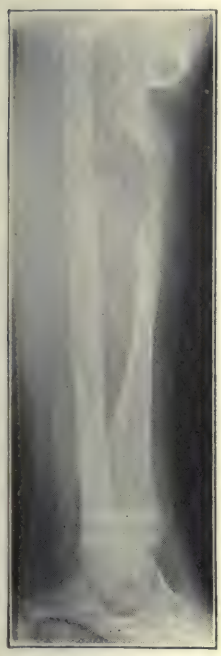


Fig. 1. — Incomplete regeneration of the shaft of the tibia following subperiosteal removal twenty-one months before.



Fig. 2. — The graft three months after operation, firmly united above and below.



Fig. 3. — A month later than Figure 2, four weeks after the fracture of the transplant.



Fig. 4. — One year after the fracture of the transplant. Note the callous formation.



Fig. 5. — Restoration eight months after the second operation. Note the beginning formation of the intramedullary canal.

The case is thought worthy of report for the following reasons:

1. It emphasizes the fact that nonregeneration frequently occurs after a subperiosteal resection, as advised by Nichols.[1]

1. Nichols, Edward H.: Acute, Subacute and Chronic Infectious Osteomyelitis: Its Pathology and Treatment, THE JOURNAL A. M. A., Feb. 13, 1904, p. 439.

2. The operation as recommended by Phemister[2] was probably not done on this child at the right time (two months after onset). A little later enough osteoblasts and new bone might have been attached to the periosteum to insure the regeneration of the entire shaft.

Empirically, no definite time can be set for removal of the shaft. The Nichols operation probably is not used as often as it should be because of this indefiniteness as to the time the shaft should be removed. It would be better to remove the entire shaft, especially in children, and quickly eradicate the disease if we could be at all sure that regeneration from the periosteum would follow. While in this case the patient has been submitted to three operations, she now has a practically normal tibia and not the hard eburnated tibia so prone to reinfection that occurs in the old chronic cases of osteomyelitis.

It may be better to accept the chance of nonregeneration in these cases of acute osteomyelitis of the tibia involving the large part of the shaft, since bone transplantation or the use of the fibula, as advised by Huntington,[3] offers such ready means of controlling the deformity and disability. But these methods cannot so readily be advised, for example, in the humerus and the femur, for here there is no second bone as the fibula to assist in maintaining alinement and growth. However, this is not an insurmountable difficulty.

3. Figure 5 shows how the transplanted bone has taken on the function of normal bone and its attempt, and failure, at union.

HAS SECRETIN A THERAPEUTIC VALUE?*

A. J. CARLSON, PH.D., J. E. LEBENSOHN, M.S., AND S. J. PEARLMAN, B.S.

CHICAGO

It is well established that acid chyme in the duodenum is the normal stimulus to the secretion of pancreatic juice.[1] Interaction of the acid with the duodenal mucosa liberates into the blood stream a substance which, circulating through the pancreas, excites the latter to activity. This exciting substance has been termed "secretin." It can be prepared artificially by macerating duodenojejunal mucosa in 0.4 per cent. hydrochloric acid, neutralizing the boiling mixture, and filtering. A few cubic centimeters of the filtrate injected into a vein produce invariably a powerful secretion of pancreatic juice.[2] That a "chemical messenger" is at the basis of the duodenal acid reflex has been proved by even more crucial experiments—transfusion (Wertheimer,[3] Enriquez and Hallion[4]), cross circulation (Fleig,[5] Matuso[6]), and perfusion of the isolated pancreas (Huston[7]).

2. Phemister, D. B.: Subperiosteal Resection in Osteomyelitis: an Experimental and Clinical Study, read in the Section on Orthopedic Surgery at the San Francisco Session of the American Medical Association, June, 1915.

3. Huntington, T. W.: Case of Bone Transference; Use of Segment of Fibula to Supply a Defect in the Tibia, Ann. Surg., 1905, xli, 249.

* From the Hull Physiological Laboratory of the University of Chicago.

* Owing to lack of space, this article is abbreviated in THE JOURNAL by omission of the bibliographic references. The complete article appears in the authors' reprints, a copy of which may be obtained by sending a stamped addressed envelope.

* This investigation was undertaken at the request of the Council on Pharmacy and Chemistry. The following report, having been submitted to the Council, received its endorsement (see report of the Council on Pharmacy and Chemistry, "So-Called Secretin Preparations," Propaganda Department, this issue).

PROPERTIES OF SECRETIN

Prosecretin.—Secretin is soluble in water, yet a watery extract of intestinal scrapings is without action,[2] even after being submitted to acid treatment.[8] Starling therefore holds that secretin exists in the intestinal mucosa in an inactive form, as "prosecretin." The content of the intestine in prosecretin decreases from the duodenum down, so that one is unable to demonstrate any prosecretin in the last 2½ feet of the ileum. Prosecretin is insoluble in water, acetone, absolute alcohol or ether. Secretin, on the other hand, is readily soluble in water, normal salt solution and diluted alcohol (70 per cent.), but likewise insoluble in absolute alcohol and ether.

Preparation.—All of the more dissociated acids liberate secretin from intestinal mucosa on boiling. Their action is dependent on the degree of dissociation,[9] carbonic and boric acids being inactive.[10] Secretin can also be prepared with strong soaps (from 10 to 30 per cent. sodium oleate), alcohol (70 per cent.,[11] 0.6 per cent. sodium chlorid[6]). The acid and soap in the duodenum produce secretion; there is no necessary correspondence between the action of a substance in the intestine and that obtained by injection after boiling mucosa with it. The sodium chlorid, bile, maltose and glucose produce some secretion by the latter method yet none by the former.[6] On the other hand, ether, chloral and oil of mustard excite secretion when in the intestine, but no secretin can be prepared from boiled mucosa by their action. The irritation of the lining cell has produced the necessary hydrolysis.[8] In well-controlled experiments, Wertheimer and LePage[12] found that after the introduction of acid, secretin is secreted into the lumen of the intestine. Matuso[6] confirmed their results, and found this a satisfactory method for the preparation of secretin. It is said that secretin can be obtained by merely boiling the mucosa with water, but the results are inconstant.[13]

Action.—Secretin is an excitant not only of the pancreatic juice but also of the liver and the intestinal mucosa. The flow of bile is markedly accelerated (Henri and Portier,[14] Enriquez and Hallion[15]), likewise that of succus entericus (Delezenne and Frouin,[16] Bottazzi and Gabrielle[17]), and intestinal peristalsis is stimulated (Enriquez and Hallion,[18] Falloise[19]). Injections of secretin produce a marked vasodilatation, but the secretory effect is independent of the blood pressure changes. The pancreas is not readily fatigued by secretin. Bayliss and Starling[2] have obtained undiminished flow after eight hours of continuous injection. Our experience confirms this result. Also, equal doses of secretin give corresponding results at various intervals. Moreover, anesthesia does not affect the flow. Secretin is unrecoverable from the glands even after two hours of continuous injections.[22] The juice obtained by secretin has been subjected to many studies.[23] It is of high alkalinity (about seventh normal), contains all the pancreatic ferments, and corresponds in all respects to the juice obtained in digestion from permanent pancreatic fistulas.[24]

Specificity.—In a maceration of the duodenojejunal mucosa, such as we have in secretin, the known substances are proteoses and peptones, acid amins, bile salts, beta-imidazolethylamin, cholin, gelatin and inorganic salts. These substances, individually and severally, together with their derivatives, are devoid of secretory action. Chemically, secretin is then a specific entity. But like epinephrin, in its distribution, it

is nonspecific. Active preparations have been made from an extraordinary variety of animals among the different classes of vertebrates (Camus,[25] Bayliss and Starling,[26] Chapman[27]). It is likewise found in the new-born and in the fetus.[28] Its action, however, like its chemical composition, is markedly specific. It stimulates the flow of pancreatic juice, bile and succus entericus. Its effect on the gastric glands is negative, and on the saliva likewise.[29] On the other hand, no other extracts produce pancreatic secretion. Dr. Koch, who, in collaboration with Dr. Keeton and Dr. Luckhardt, has done the most recent work on gastrin[30] (a substance that most nearly resembles secretin) and has isolated an extremely active preparation, finds that gastrin injection has likewise no effect on the pancreas. Camus and Gley,[31] with crude preparations, had previously obtained a similar result.

Lability.—Neutral secretin is but feebly attacked by a temperature of 100 C. If heated in an autoclave (so as to prevent oxidation), this temperature can be continued for thirty minutes without any change in its activity. Increasing the temperature increases the speed of destruction, so that at 140 C. the destructive action is marked.[32] Autoclaving at 15 pounds for fifteen minutes, as in ordinary sterilization of culture mediums, produces, we found, a distinct though not serious decrease in activity. Secretin acidified to fifth-normal with hydrochloric acid loses 60 per cent. of its activity on fifteen minutes boiling. Secretin, alkalinized to fifth-normal with sodium hydroxid loses 95 per cent. of its activity in five minutes' boiling; decreases to a trace in thirty minutes, and disappears entirely in sixty minutes. At room temperature, with fifth-normal alkalinity, 80 per cent. of secretin is destroyed in eight hours.[32] The destruction probably means a secondary cleavage of the secretin molecule itself.

Secretin is oxidized readily. If left standing uncovered for a summer's day, the preparation will be inactive.[22] Even if kept in the ice-chest (no other precaution being taken), its activity is lost in a very few days. Sunlight undoubtedly hastens the oxidative process. If care is taken as to sterility, and the secretin is kept in the ice-chest, well stoppered and in a dark flask, it will retain its activity for several weeks.

Dixon and Hamill[11] claimed that secretin disappears quantitatively on passage through a Berkefeld filter at 5 mm. pressure. Lalou,[21] using higher pressure, was unable to confirm the finding, but obtained a marked decrease in activity. Our results are in accord with those of Lalou.

Analogy to Epinephrin.—The analogy of secretin to epinephrin does not generally receive enough emphasis. Both substances are nonspecific in distribution, but specific chemically, and especially physiologically, epinephrin acting on the myoneural junctions, secretin on intestinal digestion. They are both relatively simple substances of low molecular weight, and subject to rapid oxidation whereby their properties disappear. The action in both cases is very transient. They are the two examples of what Starling calls the "acute hormones," in which it is essential that reaction take place immediately, and shall disappear as soon as the exciting cause is removed."[33]

CLINICAL USE OF SECRETIN

Diabetes Mellitus.—Moore, Edie and Abram[34] were the first to suggest a therapeutic value for secretin, having obtained favorable results with secretin administration in diabetes. They argued that the internal secretion of the pancreas *may* be stimulated by secretin, and that some cases of diabetes *may* be due to lack of this necessary excitant. Owing to the importance of the question, their announcement was followed quickly by numerous investigations by other observers. Previously, Spriggs, at the suggestion of Starling, had tried intravenous injections of secretin, free from depressor substance in a diabetic patient, and had obtained negative results. Moore, Edie and Abram gave their secretin by mouth over long periods. Of the five cases cited in their first paper, two were negative. The third was that of a man, aged 25, who received daily 30 c.c. of secretin. After a latent period of three weeks, the sugar suddenly fell, and after four months the urine was sugar-free. Six months later a relapse occurred with the development of phthisis and death. The other two patients were a boy, aged 7, and a girl, aged 9, whose urine in from three to five weeks became sugar free during the secretin treatment in spite of severe diabetes. One of these patients later relapsed.[35] Bainbridge and Beddard[36] gave secretin a thorough trial in three cases with negative results, and are disposed to attribute the results of Moore to dieting. Dakin and Ransom[37] cited one case, secretin being given for twelve weeks, with negative results; Foster,[35] nine cases, all negative; Charles,[38] three cases, all negative. Crofton,[39] however, gave secretin a trial in one case with favorable results. Moore, Edie and Abram, in a later paper,[40] report a large number of cases tried with the majority of results negative, though in some cases an improvement in the digestion, and in certain cases an increase of weight was noted.

One method of testing the basis of Moore's theory would be by examining the prosecretin content of the intestine in diabetics. Bainbridge and Beddard found, in the paper referred to,[36] that from five of the six cases of diabetics examined postmortem, little or no secretin could be prepared; but in a subsequent report of seven cases,[41] they found only one in which the secretin obtained was scanty. The failure to obtain secretin in some cases they claim is probably due to the rapid postmortem degeneration of diabetic tissue. Evans,[42] in Starling's laboratory, found that in dogs made recently diabetic by total pancreatectomy, but little secretin could be obtained. Hedon and Lisbonne,[43] and Pemberton and Sweet[44] report, on the contrary, that the duodenum of diabetic dogs is rich in prosecretin. Bainbridge and Beddard,[41] working on a diabetic cat, likewise found prosecretin to be present in normal quantity.

Digestive Disturbances.—Secretin for digestive disturbance was first used in the "acid duodenal medication of Enriquez.[45] This consisted in the giving of tartaric acid in thick keratin capsules, the acid not being liberated until the duodenum was reached, where it provoked the formation of secretin. "The secretin mechanism," he says, "is probably capable of pathologic disturbance as would result, for example, with diminished acidity of chyme, disturbance of the normal motility of the stomach or pylorus, or diminished prosecretin in the mucosa. Such a condition would produce disturbance of the pancreatic, biliary and intestinal secretions, and interfere with intestinal movements, with a clinical syndrome of intestinal dyspepsia as a result, among the chief and most constant symptoms of which would be constipation." "The

acid duodenal medication" was submitted to wide clinical use, and very favorable results in certain obstinate cases of constipation were reported. In regard to "diminished prosecretin in the mucosa," Wentworth[46] has claimed that in infantile atrophy such is the condition, but Sweet and Pemberton[47] have found that the difficulty of preparing secretin from human duodenums is such as to render Wentworth's findings inconclusive.

Beveridge[48] suggests the use of secretin in (*a*) pyloric stenosis, (*b*) pancreatic insufficiency, (*c*) hepatic stimulation and cirrhosis of the liver (*d*) to stimulate peristalsis in colonic stasis, (*e*) in gastro-enterostomy and short-circuiting of the intestines. He claims to have used it in over a hundred cases with "brilliant results," and cites four typical histories. The G. W. Carnrick Company, which manufactures "Secretogen," an alleged secretin preparation, cites a number of authorities[49] as also recommending secretin for digestive disorders. Harrower, who is or was connected with the Carnrick Company, in clinical journals[50] has ardently advocated the use of secretin for a large number of maladies.

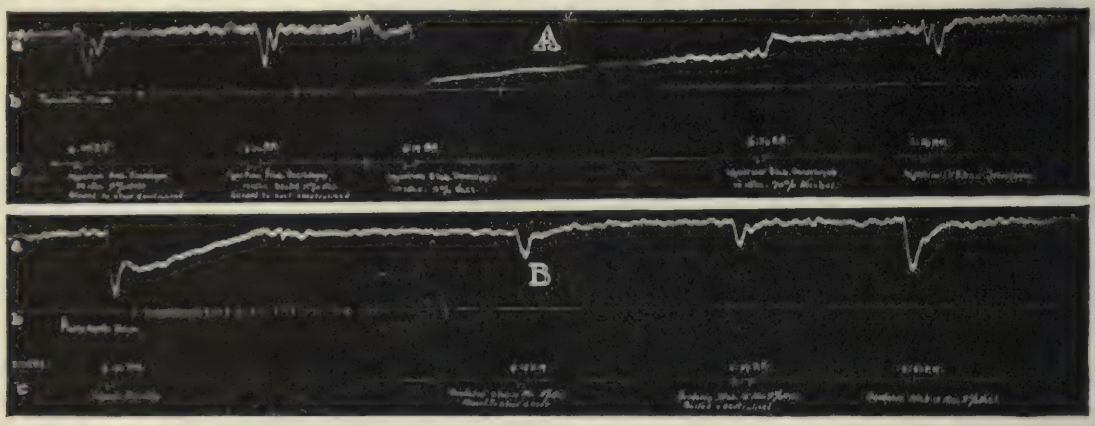


Fig. 1.—Tracings (reduced two-thirds) showing failure of Secretogen, Elixir Secretogen, and Duodenin to stimulate the flow of pancreatic juice even when administered intravenously in amounts three times greater than that recommended to be given by mouth. Dog; light ether anesthesia; cannula in the pancreatic duct; *a*, carotid blood pressure; *b*, flow of pancreatic juice in drops; *c*, signal showing where the intravenous injections were made. Tracing A: Reading from left to right, the five intravenous injections are: (1) three tablets of Secretogen digested with 15 c.c. 0.4 per cent. hydrochloric acid and neutralized; (2) three tablets of Secretogen boiled in 15 c.c. 0.4 per cent. hydrochloric acid and neutralized; (3) three tablets of Secretogen in 15 c.c. 0.9 per cent. sodium chlorid; (4) three tablets of Secretogen in 15 c.c. of 70 per cent. alcohol; (5) 15 c.c. Elixir Secretogen. Tracing B: reading from left to right, the four intravenous injections are: (1) 5 c.c. secretin made fresh from dog's duodenal mucosa; (2) three tablets of Duodenin digested in 15 c.c. 0.4 per cent. hydrochloric acid and neutralized; (3) three tablets of Duodenin boiled in 15 c.c. 0.4 per cent. hydrochloric acid and neutralized; (4) three tablets of Duodenin in 15 c.c. sodium chlorid (0.9 per cent.).

PHYSIOLOGIC CONSIDERATIONS

Throughout its clinical use, secretin has been given by mouth; *but its direct introduction into the intestine of a dog under anesthesia in even enormous quantities is without effect.* This fact, first observed by Bayliss and Starling,[2] was confirmed by Fleig,[51] and Matuso,[6] and our personal experiments have convinced us of its truth. Matuso found that ordinary secretin and that obtained from intestinal lumen gave equally negative results. Large quantities of active secretin, moreover, acidified to 0.2 per cent. hydrochloric acid, and left in the ileum for fifteen minutes, were still negative. Wertheimer and Duvillier,[52] in a previous paper on this subject, had likewise found that acid solutions of secretin (which might be considered more normal for the intestine than when neutral), when introduced into the ileum gave negative or inconstant results. They conclude that it is more likely that the pancreas does not respond to such minimal stimuli, than that the secretin is not absorbed.

The destructive action of the digestive enzymes leads us to believe that it is in inactive form that secretin is absorbed. Like epinephrin, it cannot pass through the digestive tract. Bayliss and Starling state that it is destroyed by one hour's tryptic digestion. Lalou[21] worked with the action on secretin of pepsin, dog's gastric juice, pancreatic juice, succus entericus and erepsin, and found in each case a destructive effect, even almost after mixing; and after five minutes over 75 per cent. of the activity had disappeared. Matuso[6] introduced 30 c.c. of active secretin into the intestine, removed it five minutes later, and found that no activity remained.

Other methods of administration have been tried. Subcutaneous injections are practically negative (Matuso,[6] Hallion[53]) and intrapleural injections are likewise negligible (Bayliss and Starling[26]).

Starling[33] finds that continued intravenous injections of secretin in a healthy dog produce after a time severe symptoms of collapse, which, he believes, are due to change in the intestinal mucous membrane caused by the entry and non-neutralization of the strongly alkaline pancreatic juice.

Intestinal digestion seems little affected in achylia gastrica (Stockton,[54] Ehrman and Lederer,[55] Bayliss and Starling[2]). This may be due to other secretin stimulants as fats, or to the action of the nervous mechanisms (Meltzer[56]).

THE DESTRUCTION OF SECRETIN BY HUMAN GASTRIC JUICE

We have carried out in detail experiments on the digestive effect of human gastric juice on secretin. Our results in every respect confirm the findings of Lalou,[21] who worked with commercial pepsin and dog's gastric juice, but are even more striking because of the much superior quality of pure human gastric juice.

Methods.—The human gastric juice was obtained from Mr. V., the gastric fistula case of our laboratory. The chemical and digestive characters of his juice are discussed in a recent paper.[57] In the different experiments, different samples of gastric juice were used. The secretin employed was always freshly prepared.

Digestion was carried out in the incubator at 38 C. with the reaction of 0.4 per cent. acid, and the end of the period was marked by either boiling the mixture or (in the first two experiments) by turning the mixture alkaline. The action of the preparation, we proved, was not influenced by the method used. The dogs on which the preparations were tested were prepared for carotid blood pressure, injection into the external jugular vein, and cannula in the pancreatic duct, essentially the methods of Bayliss and Starling[2] being employed. The preparations were injected at body temperature after being neutralized and filtered. Except for the addition of normal salt solution instead of gastric juice, the control injections of secretin were submitted to exactly the same treatment as the other preparations.

Results.—Our results are embodied in Table 1. We assured ourselves before beginning the series that incubation of secretin with *boiled* gastric juice produced no change. It is to be noted in the table that each experiment is a unit complete in itself, beginning and ending with a control injection of secretin. *Special attention is called to the marked destruction that follows contact of human gastric juice with secretin for merely one minute.* In Experiment 4, using 1 c.c. of human gastric juice, the action fell to 14 drops from an original secretion of 21; in Experiment 5, using 8 c.c. of gastric juice, the action fell to 6 drops from an original secretion of 20. Of interest also is the rate at which we get *complete* destruction of secretin. This is practically 2 hours for 2 c.c. with a secretin giving originally 110 drops (Experiment 2, Fig. 1), or 30 minutes for 5 c.c. with a secretin giving originally 53 drops (Experiment 6). These results are practically parallel, though they were obtained with different samples of gastric juice and in different experiments.

TABLE 1.—THE DESTRUCTION OF SECRETIN BY HUMAN GASTRIC JUICE

No. of Experiment	Quantity of Gastric Juice Used c.c.	Secretion of Pancreatic Juice in Drops						
		10 c.c. Secretin Control—Beginning Experiment	The Secretin after Incubation with Human Gastric Juice					10 c.c. Secretin Control—End of Experiment
			Dig. Time Hrs.	Secretion Rate	Dig. Time, Hrs.	Secretion Rate	Dig. Time, Hrs.	Secretion Rate	
1	2	28	6	0	4	0	2	0	16
2	2	110	2	7	1½	18	1	18	41
3	2	40	1	7	¾	7	¼	8	31
4	1	21	½	11	¼	12	1/60	14	18
5	8	20	½	1	¼	3	1/60	6	18
6	5	53	½	2	..	..	..	..	..

TABLE 2.—EXPERIMENT 7*

Preparation	Pancreatic Juice Drops
10 c.c. secretin	20
10 c.c. secretin digested with 0.5 c.c. gastric juice	15
10 c.c. secretin digested with 3 c.c. gastric juice	13
10 c.c. secretin digested with 10 c.c. gastric juice	8

* The digestive time was kept constant at fifteen minutes. (The gastric juice used had been *diluted* with stomach washings.)

We also tried the effect of keeping the digestive time *constant* and varying the amount of gastric juice employed. Increasing the quantity of gastric juice used increases the quantity of secretin destroyed (Table 2).

The reader will observe in Table 1 that the results obtained from the control injection of secretin at the beginning of the experiment is uniformly greater than after several injections of digested secretin.

In view of the established fact that equal quantities of secretin can generally be relied on to produce results,[21] one might suggest that the injections of the split products of secretin has inhibited to some degree the action of the pancreas. We can submit the data in Table 3 in support of this view, showing among other things that the action of secretin is not influenced by previous injections of inert depressor substances, though it is by the injection of the cleavage products of secretion. (The various injections in the experiments were made at about fifteen-minute intervals).

TABLE 3.—EXPERIMENTS 8 AND 9

Preparations	Pancreatic Juice Drops
Experiment 8:	
10 c.c. secretin, five injections of inert depressor substances	29
10 c.c. secretin, two injections of completely digested secretin	28
10 c.c. secretin, eight injections of inert depressor substances	16
10 c.c. secretin	16
Experiment 9:	
10 c.c. secretin (control, beginning of experiment)	21
10 c.c. secretin, after thirty minutes incubation with 1 c.c. *boiled* gastric juice	27
10 c.c. secretin, after thirty minutes incubation with 1 c.c. *fresh* gastric juice	11
10 c.c. secretin (control, end of experiment)	18

We have carefully analyzed the reaction in blood pressure that follows the injection of the various preparations. We find no constant effect. Digested secretin gives a fall in blood pressure that is at times less, at times equal, and at other times greater (Fig. 1) than that produced by the original preparation.

Besides the bearing that it has on *the therapeutic use of secretin,* this destructive action of the digestive enzymes is also of prime physiologic interest. Failure to realize it has led to misconceptions as to the intrinsic nature of secretin. The findings of Lalou, confirmed by us, explain the anomaly that has led Delezenne[58] to put forward the antisecretin theory.

SECRETIN HAS NO ACTION WHEN GIVEN BY MOUTH

It is a constant claim that so many and complex are the factors concerned in physiologic processes, that it is not unusual for clinical deductions to establish themselves in the face of *a priori* laboratory dicta. We considered it desirable, therefore, to test the action of secretin, orally administered, in the most direct manner, and the one freest from possible criticism. With this in view, we performed a series of experiments on normal unanesthetized dogs having permanent pancreatic fistulas.

Method.—In the operations for permanent pancreatic fistulas we followed closely the technic developed by Pawlow,[59] and with excellent results. The dogs maintain themselves in splendid condition if proper care is taken. This consists in feeding them only

with bread and milk, and giving sodium bicarbonate daily. The dogs were given this treatment in the evening so that experimental procedure might be carried on in the day with an empty stomach under constant conditions. Freshly prepared secretin in large quantities was given by stomach tube to these dogs, and the response of the pancreas studied and compared with the response obtained from control preparations. The same preparation was generally not given on consecutive days.

Results.—We have data from six dogs with a total of seventy-six experiments. As shown in Table 4, the administration of secretin causes an increase in the flow of pancreatic juice, *but* the administration of inert substances as extracts of colon, gastric mucosa or muscle causes a like increase. The activity of the secretin may be reduced to a low value by exposure to sunlight, or filtering through a Berkefeld filter, yet the response of the pancreas is not correspondingly reduced. The secretion that occurs in the control cases, every one will admit, is but secondary to the production of gastric juice with its accompanying hydrochloric acid, that is, excited by virtue of the extractives and water in the preparations. Such, we can prove, is the only action of secretin. A mixture of gelatin, peptone and salt water, the chief incidental constituents of a secretin preparation, gives as striking results as ever obtained from secretin administration. Yet the objection may be made that the response of the pancreas that is due to the incidental constituents of secretin is maximal, and that the secretin consequently has no opportunity to display its particular potency. But, as inspection of the accompanying tables illustrates, the administration of hydrochloric acid shows that the response is by no means maximal. Let us cite a striking experiment. For three hours before the administration of hydrochloric acid, the secretion in cubic centimeters was respectively 29.4, 11.75 and 35.4 c.c.; for the three hours after, 88.0, 49.0 and 40.5 c.c.

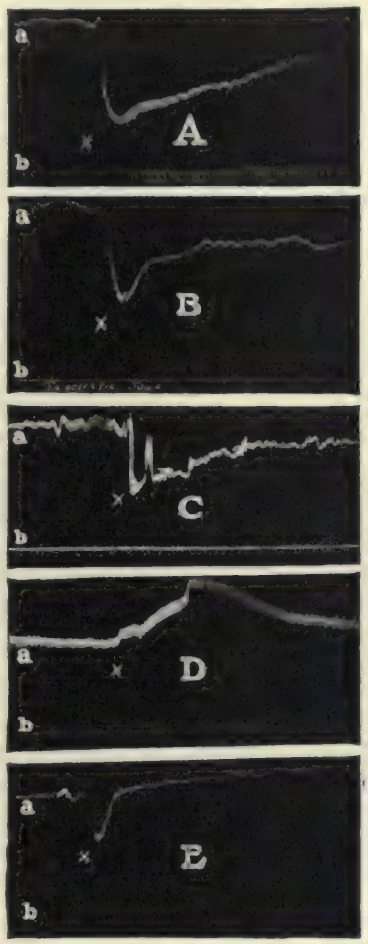


Fig. 2.—Tracings (reduced one-half) showing no stimulation of the pancreas by Secretogen, Elixir Secretogen, and Duodenin, even when administered intravenously in quantities 100 times greater than the therapeutic dose by mouth. Dog. Light ether anesthesia; cannula in the pancreatic duct; *a*, carotid blood pressure; *b*, flow of pancreatic juice in drops. Tracing A: at *x*, intravenous injection of 10 c.c. secretin prepared from duodenal mucosa of dog. Tracing B: at *x*, intravenous injection of 100 tablets of Secretogen digested with 0.4 hydrochloric acid and neutralized. Tracing C: at *x*, intravenous injection of 100 tablets of Secretogen, prepared as in Tracing B. Tracing D: at *x*, intravenous injection of 50 c.c. Elixir Secretogen. Tracing E: at *x*, intravenous injection of 100 tablets of Duodenin (dissolved in 0.9 per cent. sodium chlorid).

It is possible by large doses of sodium bicarbonate given shortly before the administration of a preparation so to depress the stomach that it does not respond with the usual production of hydrochloric acid. Under these conditions the administration of secretin is uniformly negative, but the administration of hydrochloric acid on the contrary still serves to increase the pancreatic secretion (Table 6).

COMMERCIAL PREPARATIONS OF SECRETIN

Secretogen and Elixir Secretogen.—The Carnrick Company offers Secretogen[60] for use in a large number of conditions. The following indications for the use of the preparation purport to be based on clinical tests covering a period of several years: dyspepsia, and the indigestions generally, fermentative disorders, gastric catarrh, flatulence, nausea; pancreatic insufficiency, intestinal indigestion; gastric secretory deficiencies, apepsia; constipation and hepatic torpor; intestinal stasis; diarrhea; infantile diarrhea, "summer complaint," marasmus, inanition and malnutrition; gastric atony and dilatation; cholecystitis and gallstones, nephritis, neurasthenia, cachexia and cancer; epilepsy and high blood pressure. Testimonials are presented as to results in most of these conditions.

A quantity of "Secretogen" and "Elixir Secretogen" was bought in the open market, and the preparations were tested on suitably prepared dogs. The tablets were ground, thoroughly macerated with the solvent used (water, normal salt solution, alcohol, or 0.4 per cent. hydrochloric acid), and filtered. If hydrochloric acid was used, the pulverized tablets were boiled with it, in the manner that secretin is made from duodenal mucosa, and the preparations neutralized previous to injection. The injections were made in from 15 to 20 c.c. of the solvent. All the operations were carried on immediately before the experiment, and as rapidly as possible, so as to avoid oxidation. Elixir Secretogen was injected directly, without dilution.

TABLE 4.—DETAIL OF TYPICAL EXPERIMENTS

Dogs with pancreatic fistulas, showing that secretin given by mouth has no action on the pancreas.

Material Fed by Stomach Tube	Rate of Secretion of Pancreatic Juice in c.c. Per Hour					
	Continuous Secretion Before Feeding			Continuous Secretion After Feeding		
	First Hour	Second Hour	Third Hour	First Hour	Second Hour	Third Hour
150 c.c. active secretin, slightly acid	6.5	3.6	3.9	20.0	6.0	8.0
150 c.c. active secretin, slightly alkaline	13.0	11.0	5.0	23.0	26.0	12.0
150 c.c. secretin passed through Berkefeld	7.8	7.5	7.4	23.0	13.0	11.0
150 c.c. extract of colon	11.6	12.0	11.4	30.0	19.6	14.8
150 c.c. extract of gastric mucosa	10.0	7.0	8.0	23.0	7.5	4.0
150 c.c. extract of muscle	6.9	11.0	6.4	35.0	5.0	7.0
150 c.c. 0.4% HCl (diluted to 250 c.c.)	6.0	8.0	4.0	33.0	36.0	17.0

Results.—In only one case was a slight response obtained; the others gave none. Small and large doses were equally inert (Table 7, Figs. 2, 3). The preparations, though inert, always produced a depression in blood pressure, sometimes even greater than that caused by active secretin. Among our many tests, one bottle was found, however, to be a little different from the rest (Experiment 4). Its entire content, 100 tablets, had been ground and boiled in 0.9 per cent. sodium chlorid. The extract on injection was found to have a small but unmistakable secretin reaction, equivalent to about 2 c.c. of the control secretin used. But repeated experiments were unable to duplicate this result. The "Secretogen" and "Elixir Secretogen" were all supposedly fresh preparations, hepatic and intestinal secretion is desired. It is of specific value in proteid digestion on the theory that secretin and enterokinase stimulate the pancreas and activate its secretion."

We bought a quantity of Duodenin in the open market, and carried out on this product the same series of experiments as that used in the case of Secretogen. The results were similarly negative (Table 8).

In regard to both Secretogen and Duodenin, we assume that the manufacturers have tried to put secretin in them, but have been unable because they have failed, in all likelihood, to check their methods by physiologic standardization. These firms do not give any details as to the procedure they employed in their manufacture of secretin. Desiccated secretin of

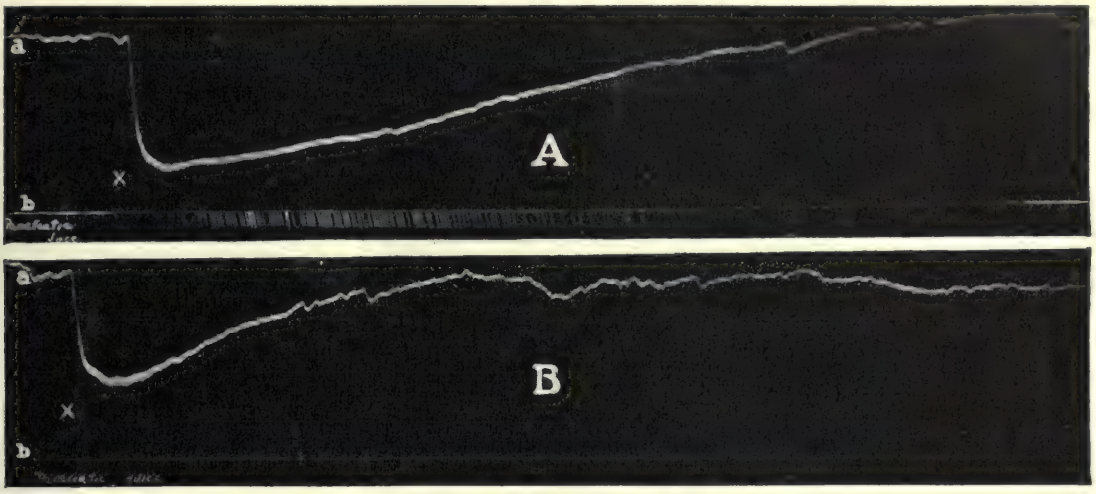


Fig. 3.—Tracings (reduced one-half) showing practically complete destruction of secretin by the gastric juice. Dog under light ether anesthesia; cannula in the pancreatic duct; *a*, carotid blood pressure; *b*, record of flow of pancreatic juice in drops. Time, twenty-five minutes. Tracing A: intravenous injection of 10 c.c. secretin (prepared fresh from dog's duodenal mucosa) at *x*. Tracing B: intravenous injection (at *x*) of 10 c.c. of the same secretin as in Tracing A, after being digested in normal human gastric juice at 37 C. for two hours.

the retail drug store informing us that a fresh supply was obtained from the wholesale house each week.

Secretogen, then, contains practically no secretin, and even if it did contain secretin, it can have no effect on the pancreas when taken by mouth. The indications for Secretogen, therefore, are based on false premises, and the testimonials are worthless.

Duodenin.—This is a preparation manufactured by Armour & Company, which purports to be "secretin plus enterokinase." The claims for this product are similar to those for Secretogen, but somewhat less sweeping. According to the manufacturers, "Duodenin (Armour) is recommended in the treatment of intestinal disorders where an increased flow of pancreatic, extreme potency has been prepared by various physiologists,[61] 1 mg. ($\frac{1}{64}$ grain) of which is active when given intravenously. It is difficult to conceive that any of these methods were used in the preparation of Secretogen or Duodenin.

CONCLUSIONS

1. Secretin is quickly destroyed by gastric juice and by trypsin.

2. Secretin is not absorbed in active form from the alimentary tract.

3. The presence of secretin or prosecretin cannot be demonstrated in the commercial preparations "Secretogen," "Elixir Secretogen" and "Duodenin" even

TABLE 5.—SUMMARY OF EXPERIMENTS

Dogs with pancreatic fistula, weight 14 kg. Secretin given by mouth

No. of Experiment	Material Fed	Rate of Secretion of Pancreatic Juice in c.c. Per Hour		Increase in c.c.
		Three Hours Before Feeding	Three Hours After Feeding	
3	Secretin slightly acid	5	11	6
5	Secretin slightly alkaline	24	30	6
4	Secretin passed through Berkefeld	18	23	5
1	Secretin exposed to sun for four hours	16	29	13
2	Extract of colon (rabbit)	19	29	10
3	Extract of gastric mucosa	14	23	9
3	Extract of muscle	8	16	8
2	Mixture of gelatin, peptone and salt	23	33	10
1	1 per cent. peptone solution	6	8	2
4	0.2 per cent. hydrochloric acid	13	37	24
3	Milk and bread	7	20	13

when the therapeutic dose of the preparations is given intravenously. In the case of "Secretogen," intravenous injection of 100 times the therapeutic dose reveals occasionally an insignificant trace of secretin.

DISCUSSION OF RESULTS

It is, of course, objectionable that preparations containing no secretin should be advertised to the medical profession as containing this substance. The more important blunder, however, consists in the attempt to offer such preparations for oral administration, because even chemically pure secretin would be equally ineffective when taken by mouth. There is as yet no reliable evidence that lack of secretin is a primary or important factor in any disease. Even should this be established, secretin therapy, to be effective, must be intravenous. Secretin has not yet been prepared in sufficiently pure state to render possible intravenous injection in man without injurious effects. And even when this has been attained, the very fleeting action of secretin will in all probability render secretin therapy as futile in all the diseases in which it is theoretically indicated as epinephrin therapy is in Addison's disease.

But there remains the alleged favorable effect from secretin therapy by mouth in various diseases in man. It is, perhaps, impertinent for laboratory men to comment on these clinical results. The ordinary "testimonials" need not be considered, but we should like to ask the serious worker who thinks he has actually obtained good results from secretin therapy how certain he is of the causal relation between the giving of secretin or alleged secretin and the abatement of the disease.

When a therapeutic measure not only lacks a positive basis in physiology and pathology but runs contrary to all the well-established experimental facts in these fundamental medical sciences, is it too much to ask that positive clinical findings be subjected to more than usual critical analysis before acceptance? *"Clinical tests,"* it is said, "covering a period of several years have proved that neither the condition in the stomach during digestion nor those in the intestine

TABLE 6.—SECRETIN IN EXPERIMENTAL "ACHYLIA GASTRICA"

Exp. No.	Material Fed	Rate of Secretion of Pancreatic Juice in c.c. Per Hour					
		Continuous Secretion Before Feeding *			Secretion After Feeding		
		First	Second	Third	First	Second	Third
1	150 c.c. secretin	8.7	7.5	6.8	3.0	1.0	4.8
2	150 c.c. secretin	4.5	6.5	10.0	6.0	7.5	7.6
3	150 c.c. secretin	15.6	8.1	16.0	3.9	4.9	2.9
1	150 c.c. 4% HCl (diluted to 250 c.c.)	9.8	7.0	6.0	65.1	28.0	7.1
2	150 c.c. 4% HCl (diluted to 250 c.c.)	17.4	13.5	17.0	34.0	18.0	20.0

* Five gm. Na HCO_3 given at beginning of each first two hours.

TABLE 7.—SUMMARY OF TYPICAL EXPERIMENTS SHOWING THE ABSENCE OF SECRETIN IN "SECRETOGEN" AND "ELIXIR SECRETOGEN" EXCEPT IN OCCASIONAL TESTS WHEN ADMINISTERED IN ENORMOUS DOSES

Dogs under ether anesthesia

Exp. No.	Quantity of Secretogen and Elixir Secretogen Used *	Secretion of Pancreatic Juice in Drops, Following Intravenous Injection						
		Control 10 c.c. Secretin	Secretogen in				Elixir	Control 10 c.c. Secretin
			Distilled Water	0.4% HCl	70% Alcohol	0.9% NaCl		
1	Secretogen, 1 tablet; Elixir, 15 c.c.	109	0	0	0	0	0	69
1	Secretogen, 6 tablets	...	..	0	..	..	..	..
2	Secretogen, 3 tablets; Elixir, 15 c.c.	16	0	0	0	0	1 (?)	16
3	Secretogen, 5 tablets	...	..	1 (?)	..	..	..	..
4	Secretogen, 25 tablets	14	..	1 (?)	..	..	..	8
5	Secretogen, 100 tablets	110	..	..	..	21	..	67
6	Secretogen, 100 tablets; Elixir, 125 c.c.	19	..	5	..	1	2 (?)	8
7	Elixir, 50 c.c.	...	..	..	..	..	1 (?)	..

* One to three tablets is (according to the label) the therapeutic dose of Secretogen; 4 to 12 c.c. the dose of Elixir Secretogen.

TABLE 8.—SUMMARY OF TYPICAL EXPERIMENTS SHOWING THE ABSENCE OF SECRETIN IN "DUODENIN"

Dogs under ether anesthesia

Exp. No.	Number Duodenin Tablets Used	Secretion of Pancreatic Juice in Drops, Following Intravenous Injection					
		Control 10 c.c. Secretin	Duodenin in				Control 10 c.c. Secretin
			Distilled Water	0.4% HCl	70% Alcohol	0.9% NaCl	
1	3	29	0	0	0	1 (?)	28
1	6	...	..	1 (?)	..	..	..
2	18	16	..	6	..	..	16
3	5	14	..	0	0	0	8
3	25	...	..	1 (?)	..	..	..
4	100	110	..	0	..	..	67
5	150	19	..	0	..	0	8

prevent the secretin from entering intact into the circulation." When we meet claims such as this, should we not scrutinize the "tests" as well as the men who make them?

We are indebted to Dr. J. H. Moorehead for assistance in part of the surgical work.

TRICHOKYPTOMANIA

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KANSAS CITY, MO.

Of the various unusual disorders which occupy a position on the borderline of dermatology, none are of greater interest than those neurodermatoses characterized by habit spasm. In addition to the "tic de l'epilation" of Raymond[1] (trichomanie,[2] or trichotillomania[3]), and the "dermatothlasia" of H. Fournier,[4] there exists a third type, which may be designated as "trichorrhexomania" or better, "trichokyptomania."



Fig. 1. — Trichokyptomania, showing character and extent of hair loss on right side of head.



Fig. 2. — Trichokyptomania, showing character and extent of hair loss in orbital and palpebral regions.



Fig. 3. — Trichokyptomania, showing character and extent of hair loss on left side of head.

It is probable that in many instances the condition is present as a complication of either trichotillomania or dermatothlasia, but occasionally, as in the following instance, it exists alone:

C. S., woman, aged 18, single, stenographer, a native resident of Kansas, referred to me by Dr. Eugene Carbaugh of Kansas City, during the past two years has been the subject of a peculiar patchy form of baldness of variable degree. The family history is negative with regard to both nervous and cutaneous diseases. The father is living and well at 44, and the mother enjoys excellent health at 42. There is one other child, a girl of 16, who has never experienced a serious illness. The patient is a robust, well-nourished girl, with brown hair and eyes. She has always been of a nervous temperament, and as a child frequently sucked her fingers and chewed her nails. She has never been troubled with adenoids or other obstructive disorders of the upper air passages. She first menstruated at the age of 14 years, and since that time her monthly illnesses have occurred regularly and painlessly. During the past two years the patient's associates have noted the presence of a peculiar, irregular, patchy type of baldness, which at first involved only the eyebrows and the lashes, but later extended also to the parietal and the postauricular regions. It was for relief from the alopecia that advice was sought.

A careful general examination revealed nothing abnormal. The patient was intelligent and mentally alert, and presented no stigmata of degeneration. The unbroken hair shafts were smooth, and apparently normal in every way, and exhibited no tendency to trichorrhexis nodosa, monilethrix or other parasitic or trophic disorder. The hair loss was fairly symmetric, and involved the eyebrows and upper lashes, and the right and left parietal and postauricular regions. In these localities the shafts were short and stiff, and the distal extremities of many were jagged or split. The tips of a considerable number were broken squarely across, however, as if the filament had been clipped off with a pair of sharp shears.

The patient at first disclaimed all responsibility for the presence of the condition; but later, when the matter was fully explained to her, and her cooperation sought, she consented to demonstrate the method employed in getting rid of the shafts. One or two, rarely more, of the filaments were firmly grasped between the tips of the thumb and forefinger, and quickly twisted into the form of a small figure 8, probably for the purpose of securing additional leverage. The shafts were then swept across the sharp, saw-like edge of the nail in such a manner that they were broken off short, at a distance of from 0.2 to 0.5 cm. from the surface of the skin. The girl asserted that epilation rarely if ever occurred, and a careful examination of the discarded shafts bore out the truthfulness of her statement. The nervous affection was most troublesome when the patient was worried or idle, and alone. During these periods she would sit and gaze into space, often for hours at a time, meanwhile breaking off and throwing away one hair shaft after another.

The patient was referred to Dr. Andrew L. Skoog's service in the Neurological Department of the University of Kansas School of Medicine. Under a course of psychotherapy, appreciable progress toward recovery has been made in the course of a few weeks.

728 Lathrop Building.

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3. Hallopeau: Ann. de dermat. et de syph., 1889, x, 440; ibid., 1894, p. 541. Brocq, Traité elementaire de dermatologie pratique, Paris, 1907, ii, 398. Reme: Thèse de Paris, 1906. Yvernogeau: Thèse de Bordeaux, 1905. Sutton, R. L.: Trichotillomania, THE JOURNAL A. M. A., Dec. 12, 1914, p. 2126. Martin, J. C.: Trichotillomania, ibid., April 10, 1915, p. 1236.
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New Instruments and Suggestions

LIMITED PULMONARY EXPANSION IN APICAL INVOLVEMENT

ITS ACCURATE MENSURATION WITH THE THORACIMETER, A NEW DEVICE

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The intensive study of tuberculosis by medical men particularly interested in this field has established statistically and otherwise that the apex of the lung is the point of predilection in early pulmonary involvement. A study of the physical signs which would make the early recognition of apical impairment possible is, therefore, of the highest importance. In 100 cases which I have closely observed, comparing the healthy with the affected side, I find that retraction, partial atrophy of the muscles and limited expansion are special diagnostic factors; my findings, I may say, also tally with those of Dr. Woods Hutchinson, namely, that the circumference is increased at the dorsoventral diameter between the ensiform cartilage and the angle of the scapula.

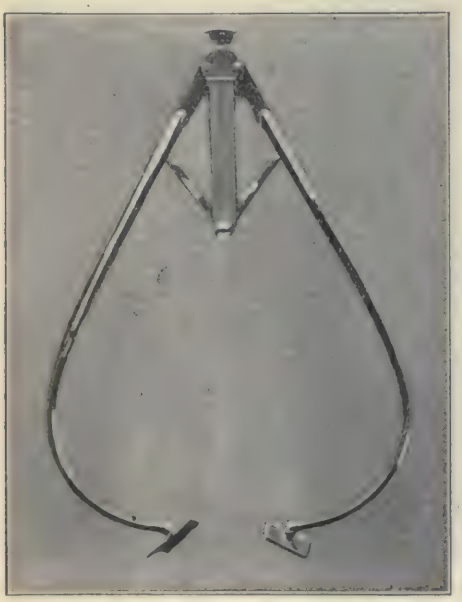


Fig. 1.—Thoracimeter, showing attachment of plates to the round edges of the pelvimeter.

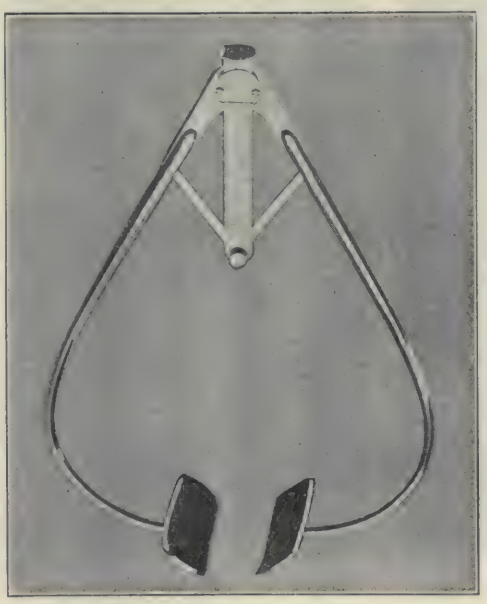


Fig. 2.—Thoracimeter, showing the metal plates in position.

Williams of Boston, in 1897, pointed to the interference in the respiratory activity of the diaphragm as an early sign of pulmonary tuberculosis. Various theories have been advanced as a reason for this impairment in function: Hofbauer suggested that the diminished expansion was due to the decreased elasticity of the affected lung; de la Camp ascribed it to the fact that the phrenic nerve was bound down by the adhesions at the apex; others look on the extensive area of retraction as the result of the absorption of pleuritic exudates, and Jessen regards the partial atrophy of muscles as the outcome of nerve changes.

Unilateral limitation of diaphragmatic movement is undoubtedly an early pathognomonic sign of apical involvement caused, most likely, by the induration of the parts; Krönig maintains that indurations at the apices are of tuberculous origin, while K. Blumel insists that the corps of medical men in the German army should make a repeated examination of the apices, especially with reference to respiratory inhibition, for the early recognition of tuberculosis in the soldiers and would-be recruits.

A diminution in the expansive power of the lung, no matter what the particular explanation for it may be, is now unanimously regarded one of the early signs of apical disease. The gaging of the exact degree of expansibility and its variations from the normal is therefore of vital importance in diagnoses. Unfortunately we have been compelled up to now to estimate this variation more or less blunderingly. The eye and the tape-measure are not sufficiently reliable in the detection of slight changes in expansion, in the supraspinal and infraclavicular regions. What we require is an instrument of precision, one that is portable, simple in design, inexpensive and accurate. I believe that I have devised an instrument which will meet these requirements.

I have utilized an ordinary pelvimeter as the basis of what I call my "thoracimeter." To each bulbous end, from which a section has been removed, I have attached, by means of a short cross-piece and rivet, a pliable oblong metal plate, 1 inch wide by 2½ inches long, with rounded corners. When the instrument is held perpendicularly, by virtue of a hinge joint, these plates enjoy a wide amplitude of up and down motion. The readings are clearly visible on the upright bar and are given in inches and centimeters.

It can be readily appreciated that these metal rests, because of their flexibility and wide range of movement, can be firmly applied against the varying outlines of even the most angular chest. Accurate mensuration of the expansive ability of any part of the lung is, therefore, easily obtained. The modus operandi for testing the apices which I have found perfectly satisfactory is as follows: One plate is placed firmly against the anterior part of the chest, just below the clavicle, midway between the sternum and the head of the humerus; the other plate is placed firmly on the posterior aspect just above the spinous process at the side corresponding with that of the anterior plate. We take note of the measurement in quiescent respiration. Then the patient is instructed to expand his chest to its fullest capacity, and the difference in the two measurements is computed. The same process is gone through with on the other side. By comparing the two figures we can easily perceive which side is lacking in expansion and to what extent.

It is well, however, to bear in mind that normally there is a slight increase in the anteroposterior diameter of the right side; in left-handed persons the increase is in the left side. This difference is no doubt due to better muscular development on the side which is subject to more use, but the expansion is the same on the two sides. The instrument which I have perfected, in order to obviate some difficulties in my own practice, has afforded me much satisfaction. I hope it will prove of as much benefit to other members of the profession as it has to myself.

I hope in the near future to obtain sufficient data to establish the normal comparative expansion and retraction according to age and weight.

145 South Orange Avenue.

Heredity in Neuropaths.—Insanity, or a neuropathic hereditary tendency in a parent, tends to reappear in his children, not always in insanity, but in one of the forms of nervous instability. . . . It must, however, be kept in mind that, where insanity or any such nervous disorder is due to an accident which has injured the brain, or to malnutrition of the brain during development, it is not transmissible.—F. M. Sandwith, *Clinical Journal.*

A PRACTICAL DEVICE FOR USING THE SAFETY RAZOR BLADE TO CUT CELLOIDIN SECTIONS *

O. T. MANLEY, M.D., AND DAVID MARINE, M.D., CLEVELAND

One of the drawbacks to the more extensive use of routine celloidin or frozen sections has been the problem of keeping microtome blades in good condition. Almost any assistant with a week's practice can block, cut and stain sections as a routine; but it is difficult to teach laboratory assistants to sharpen and care for microtome blades, and with the more

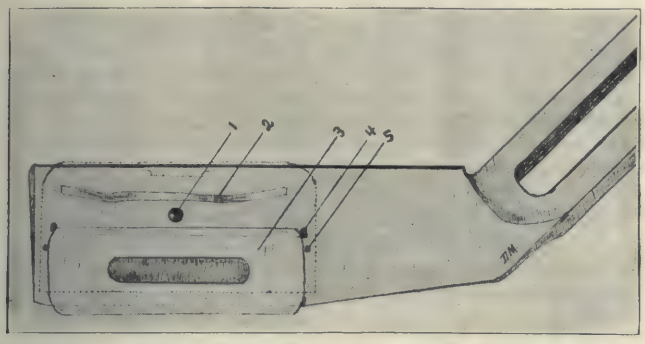


Fig. 1.—Instrument with blade holder removed. 1, Position of set screw holding the spring steel plate; 2, small steel spring to lift plate when set screw is loosened; 3, safety razor blade; 4, one of the posterior and internal pair of posts controlling position of razor blade; 5, one of the anterior and external pair of posts controlling position of razor blade.

extensive employment of women for such work the problem has become acute. Also, the cost of having the blades sharpened outside may be prohibitive or the work unsatisfactory, and if done by a trained assistant it is time-consuming.

To meet these conditions, several men have attempted to utilize the safety razor blade as a microtome. One of the chief troubles has been the vibration, especially with the paraffin technic, and so far as we know no satisfactory method has been devised to get around this difficulty.

For the preparation of celloidin or frozen sections from large numbers of animal experiments, we have found the following simple device highly satisfactory: As a holder we use an old Walbe blade after straightening the edge, and having it reground if badly worn. The edge is dulled except for the portion covered by the razor blade. We have tried the several types of razor blades, and on account of the length (5.7 cm.)



Fig. 2.—Instrument ready for use.

and double edge have found the Durham Duplex the most satisfactory. A longer blade would have advantages, but it is not necessary. The blade (3, Fig. 1) is laid on the holder so that the edge of the holder extends to the beginning of the bevel on the razor blade, allowing a free border of about 2 mm. This position is maintained by two pairs of pins set into the holder and so placed that the posterior pair (4, Fig. 1) engages the curved corners of the razor blade to prevent its slipping back, and yet does not touch the cutting edge. This pair of pins also penetrates the spring steel plate which grips the blade. The second pair of pins (5, Fig. 1) is placed slightly external to and 0.5 cm. in front of the first pair. These act as guides for the razor, facilitating its insertion and preventing any lateral motion that might allow the cutting edge to hit the posterior pair of pins. A plate (represented by a broken outline, Fig. 1) of spring steel, tapering to a thin edge anteriorly and slightly convex to permit the ends to engage first, grips the razor blade throughout its entire length about 0.5 cm. back of its cutting edge.

This plate is tightened by a set screw (1, Fig. 1) as shown in Figure 2. A small spring (2, Fig. 1) placed posterior to the set screw, between the holder and the plate, facilitates changing or adjusting the razor blade.

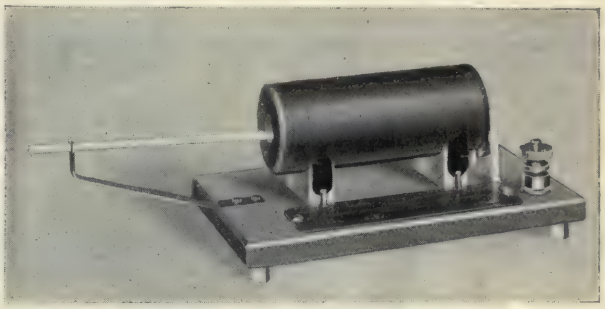
This modified microtome has been in use for some months. Any one can obtain sections from 15 to 20 microns thick at a very low cost, and for the routine section work with our animal experiments it has replaced the standard microtome blades.

* From the Laboratory of Experimental Medicine, Western Reserve University.

AN ELECTRICAL FURNACE FOR STERILIZING INOCULATING LOOPS *

H. J. CORPER, M.D., CHICAGO

In inoculating culture tubes or making sputum smears, the spattering occasioned by flaming the platinum loop in the Bunsen burner has long been a bugbear. This danger has been overcome by first plunging the loop into strong phenol (carbolic acid) solution, shaking off the excess material and



Electric furnace for sterilizing inoculating loops.

then flaming. The main objection to this method, however, has been the fact that it is time-consuming, adding another movement to the flaming procedure, and that vaporized phenol is not pleasant to inhale. With the advent of electricity, these undesirable features can be overcome by the use of a small electric furnace.

This furnace is simple of construction, being composed of a small lavite tube 3 inches long, three-eighths inch inside diameter and one-half inch outside diameter, with thirty-two threads to the inch on the external longitudinal surface, which is wound with No. 30 nichrome wire for its full length. Externally there is a brass tube 1¼ inches in diameter, at each end of which two slate plugs are placed with three-eighth-inch holes the same size as that in the lavite tube. The space between the lavite tube and the brass tube is filled with a mixture of 85 per cent. magnesium oxid and 15 per cent. pure asbestos wool. One end of the lavite tube is plugged with a mixture of potassium silicate, kaolin and the magnesium oxid and asbestos wool combination. The furnace rests on a slate platform with four lavite legs, and can be connected with either direct or alternating current by means of two special nondetachable binding posts. Thus prepared, a bright red heat is obtained in the inside of the lavite tube. At present a V-shaped metal shoot (not shown in the illustration) is used, which leads directly into the furnace opening, so that the loop may be literally thrown into the furnace. The flaming with this furnace requires only a few moments and is complete, removing all carbonized material.

* From the Laboratories of the Municipal Tuberculosis Sanitarium.

AN AUTOMATIC SPINNING DEVICE FOR THE HARVARD KYMOGRAPH

G. BACHMANN, M.D., ATLANTA, GA.
Professor of Physiology, Emory University (Atlanta Medical College)

The object of the device is to provide a cheap, simple and accurate means of automatically spinning a kymograph drum for one revolution. The essential parts of the device consist of a "trigger" to release and arrest the drum and an ordinary rubber band, 6 mm. wide. The trigger (Fig. 1) consists of a brass rod, 1 cm. in diameter and 18 cm. long, near the center of which is soldered a strip of spring brass 1.5 mm. thick and 10 mm. wide, shaped as shown in the diagram. A copper rivet 12 mm. long is passed through a hole in the spring at

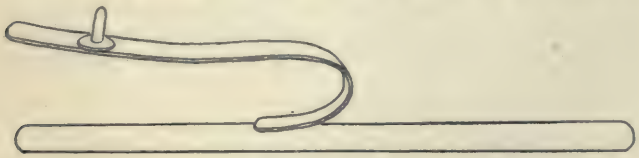


Fig. 1.—Trigger.

a distance of 30 mm. from its free extremity. In order to insure strength and rigidity, the burr is driven in and solder made to flow to all points of contact. Three slight modifications are made in the Harvard drum, namely, the spring clip which serves to hold the drum to the axle is replaced by a sleeve and thumb screw (seen above the drum in Figure 2); a steel pin 5 mm. in diameter and 20 mm. long is screwed into the bottom of the drum near the periphery; finally, a bent wire is soldered to the top of the base of the kymograph overhanging the edge, or this bent wire may be held in a binding post as shown in Figure 2.

The trigger is firmly mounted on a stand in such a position that the pin at the base of the drum will pass along the

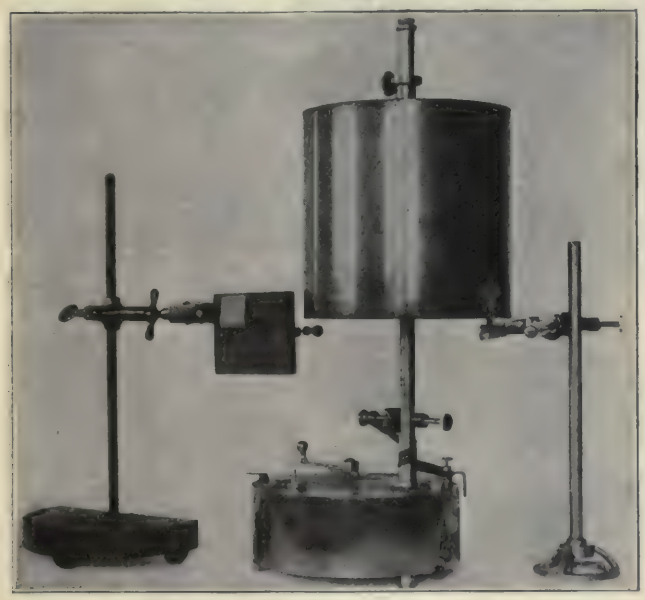


Fig. 2.—Kymograph with automatic spinning device.

curve of the spring with slight friction and be stopped by the projecting rivet. One end of the rubber band having been placed in the jaw of a double clamp fixed to the drum axle and the other end passed under the bent wire, the drum is rotated by hand from left to right until the pin has passed the rivet. This rotation twists the rubber band as seen in Figure 2. The drum can then be allowed to spin for one rotation by simply pressing on the trigger with the thumb and then releasing it. Automatic stimulation by a break induction shock can be obtained by placing the hard rubber handle of Porter's simple key in the path of the pin projecting from the bottom of the drum, the simple key being, of course, in circuit with the primary of the inductorium. The key is held by means of a buret clamp.

As it is absolutely necessary that the apparatus shall be perfectly stationary, the kymograph and the stand holding the trigger must be fastened either to the table or, when this is objectionable, to a board of appropriate size. The simplest way of making the kymograph stationary is to bore three holes adapted in position and size to the feet of the base. Holes of the proper size can be made with an auger-bit seven-sixteenths inch in diameter. When the feet are placed firmly in these holes, rotation or tilting cannot take place. The stand holding the trigger is made of what is known in the electric fixture trade as a crow's foot and a piece of one-eighth inch pipe (internal diameter). The crow's foot is fastened to the table or board by means of stove bolts.

This device can be used for recording superimposed curves. The recording points must, of course, be removed from the smoked surface after each curve is recorded before rotating the drum "backward" for the purpose of twisting the rubber band as explained above. In order to insure a return of the writing points to their starting position on the smoked surface, a perpendicular line should be drawn on the latter with a kymograph T-rule after the apparatus has been adjusted as shown in Figure 2. The writing points should be made to fall on this perpendicular line. The recording levers having been mounted on an adjustable stand, it is then an easy matter to move the levers to and from the smoked surface with accuracy as to position and degree of pressure.

Excellent spinning devices for the Harvard kymograph have been described by Jackson (A Drum-Spinning Attachment for an Ordinary Kymographion, THE JOURNAL, June 10, 1911, p. 1705) and by Guthrie (Contributions to Practical Physiology and Pharmacology, published by the author, pp. 51-65); but the one here presented, it is believed, is simpler in design and has given very satisfactory results in the hands of our students.

A DIRECT ROUTE FOR DRAINAGE OF THE PANCREATIC AREA

WALTER D. WISE, M.D., BALTIMORE

A case of acute pancreatitis was diagnosed as appendicitis and a McBurney incision made. The appendix not being at fault, a high right rectus incision determined the diagnosis. Drainage was provided through the foramen of Winslow and also through the McBurney incision. The lower incision was chiefly depended on for the drainage, as it could be seen that this line was very direct, the pancreas being exposed by lifting the great omentum and transverse colon.

This procedure is recommended for conditions of the pancreas demanding drainage.

The advantages are:

1. Its simplicity (as compared with the costovertebral incision).

2. It is more direct than the tract through the foramen of Winslow, and is more in the line of gravitation.

3. By drainage through the foramen of Winslow or through the costovertebral angle, the lower abdomen, if contaminated, might not be drained.

4. It is anatomically the correct line, as fluids from the pancreatic region (if in the peritoneal cavity) are directed to the right iliac region by the oblique shelf-like attachment of the mesentery.

1800 North Charles Street.

Water Pipes of Ship Polluted.—Surgeon J. Oliver Cobb has announced that hardly a single steamer in interstate commerce on the Great Lakes has an unpolluted water supply. The intake system is polluted while the ships are in port and even after hours of steady pumping, pure water taken in mid lake is contaminated by the bacteria in the polluted tubes and water tanks.

Therapeutics

THE CAUSE AND TREATMENT OF THE PRESENT EPIDEMIC OF "GRIP"

ETIOLOGY

The epidemic of influenza or grip of 1890 and succeeding years, which was characterized by pains and aches in the bones, inflammation of mucous membranes, fever, prostration often out of all proportion to local physical signs, and frequent complications involving gastro-intestinal and nervous systems, made a profound impression on both the profession and the public. The word "grip" has become a popular term, readily accepted as a diagnosis of more or less severe infection not explained on any other more exact etiologic basis.

Pfeiffer isolated and described a small gram-negative bacillus, *Bacillus influenzae,* to which he ascribed the etiologic rôle in the causation of the disease. Since then, this bacillus has been found in numbers of cases, but extensive bacteriologic studies by many workers indicate that while the influenza bacillus may occur in large numbers in the mucous membranes of the sufferer of grip, there are often other organisms associated with it which probably have a causative relation to the infection. Six years ago, when cases clinically like grip were prevalent, studies of the bacterial flora in the discharges from nose and bronchi showed at the onset almost pure cultures of streptococci; later in the disease after the acute symptoms had subsided, organisms culturally like *B. influenzae* appeared in enormous numbers. Cultural studies of *B. influenzae* show that it often grows much better when mixed in culture with other organisms.

This apparent symbiosis may explain in part its pathogenic power when associated with other organisms, or, on the other hand, may be used as an argument that the real cause of the illness is another organism, such as the streptococcus, and that the influenza bacillus appears only later, growing readily on a soil prepared for it by the original infecting germ.

Mathers,[1] in an instructive preliminary report on the bacteriology of the present epidemic in Chicago, found the predominating organism, in seventeen of twenty-four cases, a hemolytic streptococcus associated with other green producing streptococci and pneumococci. In none of these cases was *B. influenzae* found. Similar results showing the prevalence of hemolytic streptococci have been obtained by other observers. While it is probable that the influenza bacillus may be found in some cases, the foregoing findings indicate that a considerable proportion of sufferers in the present epidemic may charge their woes to other organisms than the influenza bacillus, and that the streptococcus is probably largely concerned in the disease. The prominent clinical facts are the wide distribution of the infection, affecting persons in all stations of life, the evident highly contagious nature of the infection, and the great discomfort of the sufferers, due in part to the local disturbances from invasion of the several portions of the respiratory tract, and in part to the general malaise and prostration which accompany the local disease.

1. Mathers, George: The Etiology of the Current Epidemic of Respiratory Infections in Chicago, THE JOURNAL A. M. A., Jan. 1, 1916, p. 30.

SYMPTOMATOLOGY

Early in the epidemic many patients complained only of local irritation, either in the nose with later mucopurulent and sometimes blood-tinged discharge, or in the throat with dry red pharyngeal mucosa on which lymph follicles were prominent, or in the trachea and upper bronchi, with resulting laryngitis, and dry, harassing, unproductive cough. Some of these patients suffered later from more severe second attacks, in which malaise, aching of bones and general constitutional disturbances were prominent.

In those who escaped early in the epidemic, and have later suffered from the infection, the symptoms have been of varying severity, with apparently a larger proportion in which the more severe general symptoms including prostration and fever have been present. Up to date the virulence of the infection has seemed to increase rather than diminish. It is probable that the proportion of severe cases will soon begin to decrease if this epidemic follows the course of previously studied epidemics.

Complications have been numerous, as so often happens in streptococcal infections. Suppuration of the various sinuses have been frequent, and tracheitis, bronchitis, going on to bronchopneumonia, quinsy, and occasionally deep phlegmons of the neck have occurred. At the height of infection, streptococci have been isolated from the blood in the severer cases, and arthritis has been noted in a few instances. Otitis media has also occurred frequently, especially in younger patients and those who had been previously sufferers from this condition.

The man whose back is aching and chest sore with coughing is not to be considered consoled with an academic discussion of the various germs probably concealed in his larynx. He knows something is wrong, whether *B. influenzae* or *Streptococcus hemolyticus* is responsible, and he wants relief.

PROPHYLAXIS

In such a widespread epidemic, it might seem almost useless to attempt prophylaxis, particularly among those who are forced by their occupations to mingle with others on crowded cars, and in places of business. One of the chief reasons for the spread of the disease lies in the fact that many of the infected persons are not severely ill, and so are able to go to and from their work, sneezing and coughing and thus transmitting the disease to others. Much, however, can be accomplished by voluntary effort of those who cough and sneeze and expectorate, to protect those about them. Those not infected should be instructed to avoid so far as practicable exposure in crowds, or in badly ventilated, overfilled rooms and meeting places. Those who have recovered from a first mild attack may also profit by this advice, for experience shows that they are by no means immune, and that the subject of one attack not infrequently suffers from a second more severe infection.

TREATMENT

The prevention and treatment of influenza was discussed in this department of THE JOURNAL, Jan. 23, 1915, p. 341.

It is often difficult to convince the patient with a beginning tracheitis or coryza that he should exercise special care in avoiding further exposure. A day or two at home, with rest and the usual simple remedies

applied to a cold, will often be all that is necessary for a rapid convalescence. A few days' care may prevent a long illness. Those more severely afflicted with fever, chill, aching bones and cough are more easily persuaded to remain indoors. When there is marked prostration or fever, rest in bed should be enforced. Even though the infection is not severe enough to cause alarm, it leaves the body weakened and an easier prey to pneumonia, which has been prevalent during recent months.

Anything which makes the patient warm improves his condition. He may be given hot malted milk, hot tea or hot lemonade, at more or less frequent intervals. The patient may be given a hot tub bath and then put into a warm bed in a warm room as an efficient means of making him comfortable. Hot water bags at the feet and extra coverings to the bed are often needed.

The drug treatment of the attack is, of course, largely symptomatic. Preparations of salicylic acid are perhaps the most widely used by many, and are believed to exert a favorable action on the course of the disease. Acetyl salicylic acid (aspirin) in doses of from 5 to 10 grains every four hours gives relief from the general malaise and initial headache. Other drugs such as acetanilid, antipyrin and acetphenetidinum are sometimes of benefit, provided that the patient is not subjected to exposure. None of these drugs should be long continued; the most depressing is acetanilid, and perhaps the least depressant is acetphenetidinum. Should depression occur, circulatory stimulants such as camphor or caffein should be given. A hypodermic injection of strychnin, one-thirtieth grain, may be given to stimulate the nerve centers. In persons unduly susceptible to salicylates, special care must be used in regulating the dosage. In a small number of cases in which the nasal mucosa is chiefly affected, with much coryza, small doses of the extract of belladonna (from 1/20 to 1/10 grain) may be cautiously used with good effect. A combination of aspirin, camphor and Dover's powder will sometimes be found of value:

	gm. or c.c.	
℞ Ac. acetyl. salicylic.....	6	ʒ iss
Pulv. camphorae.....	7	gr. x
Pulv. ipecac. et opii (Dover)..	4	ʒ i

M. et fac. capsulas xx.
Sig.: One capsule every three hours.

The following prescription is suggested:

	gm. or c.c.	
℞ Acetphenetidini	1|50	
Phenylis salicylatis.....āā	1|50	gr. xxv

M. et fac chartulas 5.
Sig.: One powder every three hours.

Where there is much irritation of the throat, gargles of salt solution and mild alkaline solutions are advised. Thus a mixture of hydrogen peroxid, alcohol and glycerin may be prescribed in the following combination:

	gm. or c.c.	
℞ Aquae hydrogenii dioxidi....		
Alcoholis		
Glycerini		
Aquae cinnamomi.....āā	50	ʒ ii

M. Sig.: Use as a gargle diluted with four or more parts of water.

When there is pain or headache suggesting involvement of the nasal sinuses, sprays containing epinephrin will often give relief by allowing the escape of retained secretions. Free evacuation of the bowels should be secured by the use of a mild saline cathartic.

The general treatment must be supportive, conserving as far as possible the strength of the patient. Indications for diet will depend on the severity of the illness. For cases of ordinary severity, not confined to bed, a light nutritious diet should be ordered as soon as appetite for food begins to return. Moderation of eating and avoidance of greasy and otherwise undigestible food, so important even in health, is especially important at this time.

As soon as the patient begins to convalesce, he should be given tonics.

COMPLICATIONS

From the standpoint of complications, this epidemic bears the earmarks of a streptococcus infection. All patients should be carefully watched for complications, so that these may be met at the earliest moment. As already noted, extensions of the infection to the accessory sinuses have been frequent, and the physician should be on the alert to interpret properly new symptoms such as an increase in headache, particularly when it is localized at some definite point. Cellulitis of the tissues of the neck by extension from the throat, often without frank suppuration, has been noted. Middle ear infections must also be kept in mind. Whenever the course of the disease is prolonged or recurrence of symptoms of infection are noted, a painstaking search will often be rewarded by the discovery of some unsuspected complication which may be relieved by appropriate treatment.

THE MORPHIN HABIT

In our discussion of this subject,[1] not enough emphasis was laid on the necessity of making a careful general examination of the morphin habitué before he is subjected to the withdrawal of the drug or to the severe treatment that is necessary to promote that object. Cancer with pain, and any intense pain that will be present after the desire for morphin has been removed, precludes the necessity for treatment to remove the habit. It was not sufficiently emphasized that old age, with its degenerations, and myocardial degeneration at any age must preclude all strenuous treatment in attempting to cure the morphin habit.

A correspondent has called our attention to the fact that degeneration of the kidneys, as Bright's disease, is a serious complication in attempting to treat the morphin habit. Certainly, any acute inflammation of the kidneys would contraindicate the treatment of the habit. Also, it should be recognized that if the elimination of the kidneys is interfered with by disease, all eliminative methods used in the morphin cure will not act as satisfactorily as when the kidneys are healthy. On the other hand, most of the elimination in these "cures" is through the intestine; also the toxins, which imperfect metabolism due to the morphin produces, must more or less aggravate chronic nephritis. Hence it would seem that without chronic pain, the patient who has the morphin habit and chronic nephritis would be much better off when the morphin habit was removed. The rapidity and intensity of the treatment should not be so great in these cases, and the synthetic hypnotics and narcotics should be used with more care or replaced by some other drugs, when the elimination of the kidneys is imperfect.

1. The Morphin Habit, Therapeutics, THE JOURNAL A. M. A., Nov. 20, 1915, p. 1815; Nov. 27, 1915, p. 1912.

Dr. H. E. Goetz of Knoxville, Tenn., the correspondent referred to, writes:

To the Editor:—Not every patient who comes to our hands with the simplest diseases can be permanently relieved. Morphinism is by no means a simple disease; I regard it as one of the most complex diseases, and therefore we must select cases properly if we hope to cure. The worst barrier, I find, is disease of the kidney, and especially Bright's disease. Next in importance is heart disease, and third, diseases of the respiratory tract. Chronic painful diseases, such as cancer, would completely preclude treatment. Old age, in itself, is not a barrier, but old age plus some organic disease would be a barrier.

After we are assured that our prospective patient has none of the diseases mentioned, the treatment is begun by the administration of three compound cathartic pills, U. S. P., containing each 1 grain of calomel, with 10 grains of blue mass, and 1/15 grain of strychnin sulphate. Six hours later this dose is repeated, minus the strychnin, and six hours following two ounces of castor oil. The usual amount of narcotic is administered in the mode most acceptable to the patient during this period. A few minutes following the administration of the castor oil, 3 grains of luminal are administered, and twelve hours later, the compound cathartic pills, without the strychnin, are repeated. Three compound cathartic pills, with the strychnin, are repeated at the end of the forty-eighth hour from the beginning of the treatment. Beginning with the dose of castor oil, or at the eighteenth hour of the treatment, luminal is given in 3-grain doses every six hours until the patient is quiet and will sleep if allowed to. No set time can be named for the withdrawal of the narcotic. It should be withdrawn, however, as soon as the patient is sufficiently under the influence of the luminal, which may be stated as the time when the patient fails to ask for it, which is generally about the sixtieth hour of the treatment. After the forty-eighth-hour-dose of the compound cathartic pills is given, magnesium sulphate is administered each morning, before breakfast time, in 2-ounce doses, until the end of the treatment, or the twenty-eighth day. Spartein sulphate in 1-grain doses every six hours I believe is a renal stimulant, and we have followed this method with good results.

These patients frequently become so thoroughly narcotized that their condition closely resembles that of chloroform anesthesia—the surgical stage—and in most cases after the luminal has been given for five or six consecutive days, they will sleep four or more days before the luminal is eliminated to the extent of their voluntarily awakening. During this sleeping stage, one should watch the elimination, the circulation and the respiration. The respiration is usually quickened to 20, and the heart beat is from about 70 to 90. Slight rises of temperature are frequently seen. The catheter should be freely used in case the patient does not void as often as every six hours.

The patient should be fed with a stomach tube, liquid of large bulk being used. We have found that hot coffee 1 pint, milk 1 quart, sugar 2 ounces, every six hours, answers admirably. When the tube is passed for feeding, it is our practice to wash out the stomach before the food is administered, as there are frequently present large quantities of bile which should be removed.

On about the fourteenth to the sixteenth day, we usually put the patient on Blaud's mass with arsenic, three times a day.

Electric light baths, to assist in elimination, are given three times a week, or oftener according to the patient's condition. I cannot place too much stress on elimination. Morphin is found in the urine of addicts as late as nine days after the last dose has been taken, and in the liver, brain and kidneys as late as fourteen days. During the reconstruction period, good food, exercise, shower baths, massage and some form of amusement assist in bringing the patient to a prime condition both mentally and physically, both of which are necessary for an ideal result.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

DIPHTHERIA IMMUNITY TEST (SCHICK TEST).—This test is intended to determine those persons who have not in their blood an amount of diphtheria antitoxin sufficient to render them immune to diphtheria. The test depends on the phenomenon that when a small amount of diphtheria toxin is injected intradermally into a person who has no free antitoxin in his blood, a circumscribed area of redness and infiltration from 1 to 2 cm. in diameter develops at the site of injection. Should the patient have free antitoxin in his blood, no reaction occurs. The reaction occurs in twenty-four to forty-eight hours, and is at its height in forty-eight to seventy-two hours. It remains for six to twelve days, and is followed by slight scaling, and leaves a brownish, pigmented spot. In some persons, a pseudoreaction may occur, which may be differentiated by its earlier appearance and disappearance, and the facts that it is less circumscribed and is not followed by pigmentation.

The test is of special value for use in institutions and among groups of persons exposed to diphtheria, in order that it may be determined which individuals should be given an immunizing dose of diphtheria antitoxin. It is also of value in the diagnosis of other conditions simulating diphtheric infections.

Diphtheria toxin in dilute solutions, such as are necessary for the test, soon loses in potency.

H. K. Mulford Co., Philadelphia.

Diphtheria Toxin Standardized (Schick Test).—Marketed in sealed capillary tubes each containing a solution of one-fiftieth of a minimal lethal dose for guinea pigs of diphtheria toxin, put up with a sterilized needle for intradermal injection.

TYPHOID VACCINE (see N. N. R., 1915, p. 324).—Swan-Myers Co., Indianapolis, Ind.

Swan's Typhoid Bacterin (No. 44) (Prophylactic).—Marketed in packages (hospital) of thirty-six vials, of which twelve contain each 500 million killed typhoid bacilli and twenty-four contain each 1,000 million killed typhoid bacilli; in packages (board of health) of seventy-two vials, of which twenty-four contain each 500 million killed typhoid bacilli and forty-eight contain each 1,000 million killed typhoid bacilli.

RADIO-REM, OUTFIT No. 5.—An apparatus designed for the production of radioactive drinking water by the action of radium sulphate. It imparts about 3.6 microcurie (10,000 Mache units) to 500 Cc. water daily. (The exact efficiency is stated and guaranteed at the time of sale.)

Actions, Uses and Dosage.—See general article on radium, New and Nonofficial Remedies, 1915, p. 262.

Radium Therapy Corporation, New York (Schieffelin and Co., New York). U. S. patents Nos. 1,032,951 and 1,032,779 (July 16, 1912; expire 1929). U. S. trademark No. 99,507.

Radio-Rem Outfit No. 5 consists of two wide-mouthed glass-stoppered bottles of about 250 Cc. capacity, each containing a fired, porous clay (terra cotta) plate, stated to contain radium sulphate. While each plate is designed to impart about 1.8 microcurie (5,000 Mache units) to the water which fills the bottle in twenty-four hours, the efficiency of each tablet is stated at the time of sale, and the manufacturers agree to replace the tablets and to pay for the test, if examination by the U. S. Bureau of Standards shows them to be deficient.

A test made for the Council demonstrated that during the impregnation of the water with radium emanation, no radium is dissolved in the water, the radioactivity being due to the presence of the emanation.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, JANUARY 15, 1916

THE MECHANISM FOR INCREASING THE NUMBER OF RED BLOOD CELLS

The number of red corpuscles circulating in a unit volume of blood adjusts itself to a variety of bodily and environmental factors. As an illustration of the latter, the effect of a transition to a region of lowered atmospheric pressure may be cited. When one goes to high altitudes, there is an increased blood count which may be immediate, and due to a concentration of the blood through diminution of its plasma or to a sudden discharge of sidetracked corpuscles into the blood stream; or there may be a slower and more gradual increment attributable to the activity of the hemopoietic organs and resulting in a more permanent and real increase in the total number of blood corpuscles of the body. An instance of the influence of bodily factors on the blood count is exhibited in the alleged effects of massage and athletic exercise on the circulation.[1]

There has been much speculation and not a little experimentation and observation directed to the discovery of the mechanism by which these changes and particularly the rapid adjustments, in the blood count, are brought about. Lamson[2] has summarized the possibilities as follows: If we consider the circulation to be a closed system, the number of red cells per unit volume of blood may be increased by (1) a decrease in plasma volume; (2) an actual increase in the number of red cells by new production of them or by division of old ones; (3) if the red cells are unequally distributed throughout the circulation, being packed away in certain regions in greater concentration than in the circulating blood, a stirring up of these, causing a more uniform distribution, will relatively increase the blood count; (4) a combination of any of these factors.

Lamson has carefully investigated the possible contribution of the various hypothetic factors enumerated. His studies at the Johns Hopkins Medical School emphasize anew the fact that the number of red cells per unit volume of blood is not so constant, under physiologic conditions, as is generally supposed. Under such circumstances as changes in atmospheric pressure, exercise, and emotional states such as fright or anger, oscillations in the number of cells are continually taking place. The object of this, Lamson believes, is to be found in the attempt of the body to maintain the oxygen content of the blood constant. He concludes that there is a mechanism for the regulation of the red corpuscle content of the blood, under nervous control, and reacting to the lack of oxygen as a stimulus. The suprarenal glands are believed by Lamson to play a dominant part in this mechanism, and the liver is the organ which supplies the body with red cells to meet its acute demands.

It will be interesting to examine some of the evidence relating to this postulated regulatory mechanism. Lamson has contrived various experimental devices which will produce a prompt increase in the blood count. Some are entirely foreign to the body, and others include injections of chemical substances physiologically found. Epinephrin, for example, produces a decided polycythemia. This is due entirely to the contribution of the liver. If the arterial circulation of this organ is temporarily occluded, the effect of epinephrin in bringing about the usual increase in the blood count fails; but as soon as the obstruction to the arterial blood supply of the liver is removed, the customary polycythemia ensues. Inasmuch as the polycythemia produced by injection of epinephrin can be attained even after removal of the spleen, the entire intestine and its mesentery, the omentum and the pancreas, and it can be shown by other evidence that the bone marrow, muscles, lungs, kidneys and skin play no part in epinephrin polycythemia, the assumed rôle of the liver becomes the more probable. In part the increase in blood count thus produced is due to red cells not previously present in the general circulation, for they are observed to be different in size and make-up from those present before its production. Signs of new red cell formation, such as the presence of nucleated red cells, are absent. Perhaps the phenomenon involves a splitting of red cells. The liver also appears to have some ability to decrease the plasma volume after epinephrin injection.

In Lamson's opinion respecting the mechanism by which the red count may be regulated, epinephrin is likely to be one of the most effective stimuli capable of increasing the red count. All of the prominent physiologic and pathologic conditions which might call for an increase in the oxygen content of the blood can stimulate the suprarenal glands and cause an increased output of epinephrin. Thus massage of the abdomen, a procedure known to increase the number of red cells, is believed to act by reflex stimulation of the suprarenals, rather than by an actual mechanical driving of corpuscles from the reservoirs in the abdomen. Fright

1. Exercise and the Blood, editorial, The Journal A. M. A., May 1, 1915, p. 1501.
2. Lamson, P. D.: The Rôle of the Liver in Acute Polycythemia: A Mechanism for the Regulation of the Red Corpuscle Content of the Blood, Jour. Pharmacol. and Exper. Therap., 1915, vii, 169.

and other emotional states are known to stimulate discharge of suprarenal secretion. They also induce polycythemia. Evidence for the theory is found, further, in the absence of polycythemia after fright, asphyxia and other conditions in animals in which the suprarenals have been removed, and also by the fact that the removal of the suprarenals completely upsets the control of the red count in a few hours.

Theoretically, says Lamson, a mechanism operating by any decrease below the normal oxygen content of the blood, stimulating the splanchnic nerves and acting on the suprarenal glands causing an increased output of epinephrin, and a direct action of this substance on the liver, and thus increasing the red cells, is possible. The blood after obtaining the necessary content of oxygen would then cease to stimulate the suprarenals, the epinephrin output would fall, and consequently the stimulation of the liver would cease, and the count would then decrease until the oxygen content became sufficiently low again to cause suprarenal stimulation, and an increase in the number of red cells. Furthermore, on the hypothesis here advanced, the body would not necessarily need to wait until the oxygen content of the blood is below normal before responding by an increase in the number of red cells. The outpouring of suprarenal secretion as a result of the major emotions might lead to a preparation for eventualities even before there is any asphyxia or actual lack of oxygen. This would be in harmony with the rôle of the suprarenals in relation to the mobilization of blood sugar for muscular emergencies, as it has been suggested by Cannon and his collaborators.[3]

MIXED ANTITYPHOID AND ANTIPARATYPHOID INOCULATION

Assuming the prophylactic value of inoculation with a killed culture (vaccine) of *Bacillus typhosus* against typhoid fever, the propriety and feasibility of using, instead of the typhoid vaccine alone, a mixed vaccine containing the specific organisms of the two closely allied diseases, paratyphoid A and paratyphoid B, naturally follow. The intent, of course, is to protect an individual by one series of inoculations against all three diseases. The clinical type of disease produced by these three organisms is so similar as hardly to permit differentiation at the bedside. The causal microorganisms, however closely allied, are nevertheless severally specific, and possess definite differentiating characteristics. Each stimulates the production of its own peculiar antibodies, and an immunity acquired or produced against one does not protect against the others. These biologic principles seem well established. They accord with clinical experience and harmonize with laboratory data.

The idea of using a combined vaccine is quite natural, and the suggestion, while more or less recent, is yet old enough to have accumulated a literature comprising several titles. Apparently it has attracted little attention in this country despite the work done here with antityphoid inoculation. The prevalence of both paratyphoid A and paratyphoid B infections in parts of the European war zone has reawakened considerable interest in the subject, and the advisability and feasibility of the procedure have been the subject of some discussion in the foreign medical press. Paratyphoid infections, at least paratyphoid A infections, are sufficiently common to render this question worthy of our serious consideration. If, other things being equal, we can by one and the same procedure protect an individual against three serious infections, it would seem the part of wisdom to do so. The matter, however, is hardly so simple as all this. The principles that underlie the use of killed micro-organisms, both in therapy and in prophylaxis, and the most effective methods of applying them, are not as yet fully understood. The body's defenses against disease are anything but simple; on the contrary, they are usually multiple and complex. It has been pointed out by thoughtful men that the introduction into the human body, by the parenteral route, of any foreign protein, however small the quantity, is not a matter to be undertaken too lightly. It sets in motion complex chemical reactions, the ultimate effects of which we can but dimly appreciate. And the careful scientist, well aware that he is treading a hazy way, looks somewhat askance at mixed vaccines of whatever kind or purpose. Nevertheless, so far as concerns our present comprehension of these matters, the use of the mixed vaccine suggested seems entirely reasonable. Admitting, then, the need of such protection (and this is quite evident with regard to typhoid and paratyphoid A infections), would it be advisable to adopt the use of a mixed vaccine?

Of course, several questions immediately suggest themselves. Is there any evidence of the practicability of the procedure, of its harmlessness, of the degree of protection afforded against the several diseases? What is to be the dosage employed? How much reaction is to be expected from this dosage? These pertinent queries may be answered with at least some degree of satisfaction.

Kabeshima,[1] basing his work on animal experimentation, put into practice in the Japanese navy the use of a mixed vaccine. This was prepared of equal numbers of the three bacteria in question, but the dose given did not exceed in total numbers the dose given of the typhoid vaccine alone. The reactions observed, both local and general, do not seem by this method to have been severe, and were quite comparable to what occurs in the administration of the typhoid vaccine alone. Much care was taken, however, and the inoculated were

3. Cannon, W. B.: Bodily Changes in the Emotions of Fear, Pain, Hunger and Rage, New York, 1915. The Emotions and Alimentation, Current Comment, THE JOURNAL A. M. A., Feb. 27, 1915, p. 749.

1. Kabeshima: Centralbl. f. Bakteriol., Part 1, Orig., 1914, lxxiv, 294.

kept at rest for a short period. Use was first made of separate vaccines, successively given, and later resort was made to the combination. From 1908 to 1911, in the Japanese navy, among a force of about 45,000 men, there were inoculated, by these methods, 28,343 men against typhoid, 18,834 against paratyphoid A and 11,884 against paratyphoid B. From 1909 to 1911 there were observed in Japanese naval hospitals 367 cases of typhoid, of which 68 were among inoculated persons, with 5 deaths, and 299 among uninoculated persons, with 40 deaths; 289 cases of paratyphoid A, of which 71 were among inoculated persons, with 2 deaths, and 218 among uninoculated persons with 5 deaths; and 447 cases of paratyphoid B, all among uninoculated persons, with no deaths.

Vincent[2] states that in an experience of about 4,000 inoculations with a mixed vaccine, the results have been good, and the immunity is as high for paratyphoid as for typhoid. He says that the same results have been established in the Italian army. He suggests that it is just as reasonable to vaccinate simultaneously against typhoid and the paratyphoid fevers as against typhoid and smallpox, which is commonly done.

Widal,[3] after a review of the subject, speaks favorably of his own experience with a mixed vaccine, but is cautious in the expression of his opinions. Chantemesse[4] is of a similar opinion. Since the paratyphoid fevers are less frequent and more benign than typhoid, he suggests a mixed vaccine containing 50 per cent. of *Bacillus typhosus,* 30 per cent. of *Bacillus paratyphosus* A and 20 per cent. of *Bacillus paratyphosus* B, avoiding in this way the objection of possible severe reactions to be expected if the full dose of all three is administered.

If careful consideration is given to the opinions expressed in the rather meager literature, and to the broader view of the entire question, attention is focused on certain salient points which are determinative in character. In the first place, the prophylactic value of the typhoid vaccine, despite a protesting minority, is very generally admitted and endorsed. The prevalence of the paratyphoid infections, especially paratyphoid A, is by no means restricted, and in all likelihood they are more widespread than is appreciated. Their differentiation is dependent entirely on the laboratory, which is not so generally available, and in its absence the paratyphoid fevers often go diagnosed, doubtless, as typhoid.

It seems evident both on theoretical and on practical grounds that just as good immunity may be produced by vaccination against the paratyphoid infections as against typhoid, either by successive vaccinations with the corresponding micro-organisms, or by the mixed vaccine. Moreover, the observations of several[5] support the view that successive vaccinations with the different organisms will not produce so satisfactory immunity as will the combined method, especially with regard to those last injected, unless there intervenes a considerable time interval between the various vaccinations. And this seems to be unaffected by the order in which they are given.

The dosage of the mixed vaccine does not appear yet to be satisfactorily determined. The desire, of course, is to give the full dosage of each; but when combined, the resulting number to be injected forms a very large dose. As noted, several methods have been used and others suggested. This practical point remains to be determined with more exactitude in order to avoid serious or dangerous reactions. Perhaps smaller doses with a greater number of repetitions might achieve the desired result. In any event, very severe reactions must be in some way avoided.

Of course, one must realize that there are limitations to all things, and vaccinations of this character must not be allowed to run riot, which is a danger more real than imaginary. Neither vaccination nor any other procedure should be carried to extremes. Reason and judgment, however, at present would seem to approve the idea of using a mixed vaccine for the typhoid and paratyphoid infections; and it especially commends itself to us here in the United States, where so much good work has been done with the typhoid vaccine. If a practical method of using this mixed vaccine can be devised, it seems to promise results worthy of our effort.

2. Vincent: Bull. de l'Acad. de méd., 1915, lxxiv, 33, 194.
3. Widal: Bull. de l'Acad. de méd., 1915, lxxiv, 32, 148, 216.
4. Chantemesse: Bull. de l'Acad. de méd., 1915, lxxiv, 35, 229.

AN ANCIENT NARCOTIC

Among the menaces, aside from liquor and disease, to which some of the American Indians are said to be exposed at the present time, is the use of a natural product variously known as mescal buttons, peyote or pellote. This consists of parts of a succulent spineless cactus, shaped like a carrot with a hemispheric head. When they are chewed and swallowed, or used in the form of a tea-like decoction, a peculiar form of intoxication or seminarcosis is brought about. The use of these plant products has become a part of certain ceremonials among some of the Indians. They attribute divine powers to the drugs contained in the peyote, and the ceremony attending its use is of the nature of a religious rite in which many of the tribes of the southern plains take part. Diguet[6] has described the manner in which some of the Indians of the northern regions of Mexico eat the plant and induce the hallucinations which are a part of its effect. They chew the pulp, which has been cut into small pieces, and speedily spit out the saliva, which at first dissolves a bitter substance. Then they swallow subsequent portions, from

5. Dreyer, Georges; Walker, E. W. A., and Gibson, A. G.: Lancet, London, Feb. 13, 1915, p. 324.
6. Diguet, L.: La Sierra du Nayarit et ses indigènes, Nouvelles arch. missions sc., 1899, ix, 622.

which the active principle is dissolved little by little and absorbed. The almost miraculous properties, resembling the behavior of hashish or Indian hemp, make the plant appear to the Indians as a food for the soul, through the use of which they can communicate in their hallucinations with the gods. The drug is said to ward off the feeling of fatigue, and its use is greatly varied.[7]

As might be expected in the case of a substance of such unique narcotic properties, its use has tended to spread far beyond the southern tribes which first collected the plant. The parcel post has begun to be a factor in distribution, and agents of the United States government have traced shipments in this way from Texas to the Menominee Indian Reservation in Wisconsin.

So far as is known, no therapeutic or remedial value of the plant used, *Lophophora,* has been demonstrated. Its chemical and toxicologic properties have been somewhat investigated, and a number of alkaloid-like and resinous compounds have been isolated from it.[8] The accounts of the effects differ considerably, but agree in the statement that the drugs produce beautiful color visions. The pupils become dilated. Depression of the muscular system, and partial loss of tactile and other senses has been described. Some of the isolated alkaloids, described under the names mescalin, anhalonidin, anhalonin, etc., by Lewin and Heffter produce comparable effects.

According to Safford[9] of the Bureau of Plant Industry, this "mescal button" of Texas is identical with what was known as the teonanacatl or "sacred mushroom" by the Aztecs. Like the Indians of the present day, these tribes of centuries ago obtained their supply of the narcotic drug through the medium of messengers, who observed certain rites in collecting it and who were received with ceremonial on their return. The mails now serve as the messenger to the Indians of our northern reservations, yet these people attribute to the drug the same divine properties as did the ancient Mexicans, and they combine its worship with the religion they have received from Christian missionaries. That a narcotic cactus should have been mistaken by the early Spaniards in Mexico for a mushroom is not regarded as surprising by Safford, because of the remarkable resemblance of the dried "buttons" to peltate fungi. The knowledge of botany among the Aztecs furnished no distinction between a flowering plant and a fungus so long as they looked alike.

7. Mooney, J.: The Mescal Plant and Ceremony, Therap. Gaz., 1896, xx, 7.

8. Lewin, L.: Arch. f. exper. Path. u. Pharmacol., 1888, xxiv, 401; 1894, xxxiv, 374. Heffter, A.: Ibid., 1894, xxxiv, 65; 1898, xl, 384. Dixon, W. E.: Jour. Physiol., 1899, xxv, 19. Prentiss, D. W., and Morgan, F. P.: Therap. Gaz., 1895, xix, 579. Ewell, E. E.: Jour. Am. Chem. Soc., 1896, xviii, 624. Mitchell, S. W., and Eshner: Brit. Med. Jour., Dec. 5, 1896, p. 1625. Ellis: Lancet, London, June 5, 1897, p. 1540. The plant is sometimes described as Anhalonium lewinii.

9. Safford, W. E.: An Aztec Narcotic (Lophophora Williamsii), Jour. Heredity, 1915, vi, 311.

THE ACTION OF COCAIN

Aside from its action as a local anesthetic, and its stimulating and then depressing action on various parts of the central nervous system, cocain has three effects which have especially aroused the interest of clinicians and pharmacologists. These are the dilation of the pupil, the local constriction of certain blood vessels, and the acceleration of the heart sometimes seen in cases of poisoning by this drug. The first two are of very practical importance. Cocain is in constant use as a mydriatic, and extensive use is also made of its constricting action on the dilated vessels of the conjunctiva, etc. Its advantages as a local anesthetic over its more recent rivals are in part attributed to its local vasoconstricting effect. Since the introduction of mixtures of novocain, etc., and epinephrin, however, this inherent advantage of cocain has become of less importance; the epinephrin adds to these mixtures an important action not possessed by the anesthetics alone.

There has been much discussion as to just how cocain brings about dilatation of the pupil and the local constriction of blood vessels. For many years the view has been current that it stimulates the endings of the sympathetic nerves in the iris. This view was based chiefly on the observation that after these nerves were cut and allowed to degenerate, cocain had a much less dilating effect on the pupil, or none at all. This explanation has never been entirely satisfactory; all writers have had to admit that it does not explain all the observed facts. It has been accepted, however, as the more plausible explanation for the major part of the facts, and recent writers seem to have been little disturbed by the facts which it does not explain. The other actions, the vasoconstricting and the acceleration of the heart, have not been the subject of much investigation, but there has been a tendency to explain them also as a result of an increased activity of sympathetic nerve endings.[1] In fact, cocain is now frequently grouped with epinephrin as a drug having a selective stimulating action on the endings of the true sympathetic nervous system.[2]

It appears, however, from recent work carried out by Kuroda,[3] in the pharmacologic laboratory of Professor Cushny of London, that such a generalization was premature and not sufficiently well supported by experimental facts. Kuroda showed that the action of cocain differs widely from that of epinephrin or sympathetic nerve stimulation: thus it dilates the vessels when perfused through an organ, whereas epinephrin or sympathetic nerve stimulation causes an intense constriction; it depresses the action of the isolated heart, whereas sympathetic nerve stimulation or epinephrin powerfully stimulates this organ; small doses

1. Meyer, H. H., and Gottlieb, R.: Pharmacology, Clinical and Experimental, p. 158.

2. See, for example, Wolfsohn, J. M.: The Normal and Pathologic Physiology of the Visceral Nervous System, THE JOURNAL A. M. A., May 16, 1914, p. 1535.

3. Kuroda: Jour. Pharmacol. and Exper. Therap., 1915, vii, 423.

of cocain augment the activity of the intestine, and large doses depress it, whereas with epinephrin or sympathetic nerve stimulation there is only a depression. There is a similar lack of correspondence between the action of cocain and of epinephrin or sympathetic nerve stimulation in the case of the stomach, uterus, bladder and salivary glands. In nearly all cases, cocain was found first to increase the activity of unstriated muscle and then to depress it, whatever may be the nature of the sympathetic control; in some instances the phase of increased activity was not observed. In view of these results and the fact that the explanation that the dilatation of the pupil results from a stimulation of the endings of the sympathetic nerve has always been regarded as inadequate, Kuroda argues that the dilatation of the pupil under cocain also arises from a direct depressing action of the drug on the muscle of the iris. The vasoconstricting action of cocain which is seen when the drug is applied directly to a congested mucous membrane is not so readily explained, but it is evidently of a different character from that caused by epinephrin or sympathetic nerve stimulation; the effects of the latter agencies are very evident in isolated organs, and are always readily obtained, whereas cocain causes a dilation of blood vessels under similar conditions. The acceleration of the heart in the intact animal is evidently not due to a direct action of the drug on the cardiac muscle or on the sympathetic nerve endings, and so is not analogous to the action of epinephrin; it may be due to an action on the central nervous system.

At first thought it may seem rather discouraging that there should still be so much doubt as to the true action of such a widely used mydriatic as cocain; but it should be remembered that such problems are very complex and that the number of men seriously working to elucidate them are few.

FURTHER FACTS ABOUT PLASMAPHAERESIS

Some time ago THE JOURNAL explained[1] the term "plasmaphaeresis," which was introduced into medical literature to describe a mode of plasma removal, from the circulating blood, as devised by investigators at the Johns Hopkins Medical School. The underlying idea was to institute repeated removals of considerable quantities of blood, separate the corpuscles by vigorous centrifugalization, replace the plasma by Locke's solution, and reinject this together with the sedimented blood cells. A procedure of this sort gave promise of removing large quantities of the circulating fluids of the body and accomplishing many of the underlying aims of venesection without the serious danger which is promptly caused by greatly reducing the oxygen-carrying capacity of the blood represented in the blood corpuscles. It seemed possible, in view of the evident survival of the reinjected erythrocytes, to attain the desired benefits of venesection, particularly in some types of toxemia, without introducing attendant harmful consequences which have been responsible for the abandonment of bloodletting in all but few cases.

There are many details of a method so promising and yet so serious in its physiologic aspects which deserve and demand to be investigated before the clinician would be justified in considering any applications to human therapy. Some of these have been supplied in more recent studies at Baltimore by Turner, Marshall and Lamson.[2] These show that the maximum total amount of blood which can be removed by plasmaphaeresis may be considerably greater than was reported earlier.[1] As much as five times the original volume of blood has been withdrawn in the course of five days by repeated bleedings and return of the corpuscles. The danger of collapse appears to be greatest when the bleeding is very rapid. The blood pressure is progressively lowered in plasmaphaeresis. Warning of danger may be obtained by watching this carefully, and the possibility of collapse from overbleeding thereby averted.

One of the first effects of plasma removal by the method of the Baltimore school is uniformly to raise the count of the blood corpuscles. The rise in number may occur even during withdrawal of the blood, and the effect is increased in some degree by the return of the corpuscles abstracted. In spite of the periodic increments caused by successive operations of plasmaphaeresis, the cumulative effect soon gives place to a slight downward tendency. No evidence of acute destruction of the red corpuscles reinjected has been seen at any time. The change in the number of leukocytes shows, as might be expected, a very different picture from that of the red cells. With few exceptions, the effect of plasma removal is to reduce the number of white corpuscles considerably. This, the investigators remind us, is possibly due to the fact that, being harder to separate from the plasma in the centrifuge, many are lost. A slight rise in temperature has been observed during each day of plasmaphaeresis, with a return to normal at night. This may be due to the saline injections alone, since they have been observed to produce slight febrile reactions.

One result of this mode of "washing out" the vascular system with saline solution, while leaving the corpuscles intact, is the lowering of the protein content of the plasma in every case, as might be expected. The quantitative results, however, are not precisely such as would be obtained by washing out an inanimate system containing the same volume of blood. There is a speedy partial restoration of protein into the diluted

1. Plasma Removal — Plasmaphaeresis, editorial, THE JOURNAL A. M. A., Feb. 6, 1915, p. 514.

2. Turner, B. B.; Marshall, E. K., Jr., and Lamson, P. D.: Observations on Plasmaphaeresis, Second Paper, Jour. Pharmacol. and Exper. Therap., 1915, vii, 129.

residual plasma. Contrary to what might be anticipated, the urea and nonprotein nitrogen in the blood after profound plasma removal do not decrease, but may actually show a rise. What the significance of this unexpected phenomenon is remains to be determined. It may be that there is a depressed renal function and a reduction of urea excretion by the kidneys after plasmaphaeresis; or there may be a stimulation of nitrogenous metabolism leading to the increase in catabolites noted. The apparent ineffectiveness of plasmaphaeresis in lowering such significant components as urea and nonprotein nitrogen needs to be explained before the procedure can merit favorable consideration as a method of withdrawing waste or toxic products from the organism.

Current Comment

TIGER-BONE THERAPY AND "CLINICAL EXPERIENCE"

In China the administration of powdered tiger-bone is — or was — a favorite form of treatment in cases of supposed cardiac weakness. The theory is, presumably, that the cardiac strength of the tiger would be a good thing for the patient to acquire. Since many patients have recovered after taking tiger-bone, and no one has proved that they might not have died had they failed to take it, "clinical experience" stands back of the treatment; and where is the skeptic so rash as to challenge that? The Chinese physician believes in his tiger-bone therapy, and, with the best interests of his patient at heart, insists on obtaining absolutely true and authentic tiger-bone. Not satisfied with the assertions of the dealers, the conscientious Chinese physician subjects his tiger-bone to a kind of physiologic standardization. He offers the bone in question to a dog! If it is an ox-bone — a frequent form of substitution — the dog will seize and eagerly gnaw it, whereas, according to all the teachings of Chinese pharmacognosy, if it is a tiger-bone the dog will depart hurriedly with his tail between his legs. Very foolish? Yes! But before we smile superciliously at the Chinese medical man, let us turn over a few pages to the report of the Council on Pharmacy and Chemistry on "So-Called Secretin Preparations."[1] After reading this report let us put to ourselves, squarely and honestly, the question: Has the attitude toward secretin therapy, of a certain portion of those who represent Western modern medicine, really been much more scientific than that of the Chinese medical profession toward tiger-bone therapy? On the basis of a hypothesis scarcely less crude and unsubstantiated than that which assumes that tiger-bone is of value in heart disease, it has been assumed that secretin is of value in gastro-intestinal diseases. On the ground of "clinical evidence" scarcely more critical than that exhibited by our confrères in the antipodes, it has been asserted that alleged secretin preparations actually are efficacious. Indeed, in one respect the methods of the Chinese physician appear more scientific than those of his Western brethren. To the best of his ability, the Oriental at least makes sure that he is administering genuine tiger-bone; he does not rely on the unverified word of his dealer alone. The American physician has not been making the least effort to ascertain whether his supposed secretin preparations are truly such and, as a matter of fact, scientific investigation seems to indicate that some of these products contained no secretin at all! Whatever one may think of the validity of his test, the Chinese physician does his best according to his lights. As to "clinical experience": Dr. Jacobi has well said that some people make the same mistake a hundred times and call it "experience."

1. Propaganda for Reform Department, THE JOURNAL A. M. A., this issue, p. 208.

CARRIERS OF THE ORGANISMS PRODUCING PNEUMONIA

It has not been easy to understand how pneumonia of the lobar type spreads and maintains its high incidence from year to year. Transmission by the ordinary method of immediate contact will certainly not account for the occurrence of a large number of the cases; it has become necessary, therefore, to consider other modes familiar in the spread of infectious diseases. The existence of an intermediate host has not appealed as likely to the students of the epidemiology of pneumonia. Accordingly, attention has lately been focused on the possibility of healthy carriers as agencies for the otherwise unexplained transmission. The study of the subject is complicated by the fact that there is an abundant bacterial flora normally found in the upper respiratory passages and by the added fact that there is a great variation in the virulence of different strains of pneumococci, the group which includes the organisms responsible for lobar pneumonia. Those strains which are indistinguishable from ordinary sputum pneumococci produce at most a mild form of pneumonic disease. Therefore it is desirable to know something about the distribution of the more virulent types which can be held responsible for the severer manifestations of infection. According to Dochez and Avery[1] of the Rockefeller Institute for Medical Research, lobar pneumonia in 75 per cent. of instances is due to specific types of pneumococci possessed of a high degree of pathogenicity. Although pneumococci occur in the mouths of 60 per cent. of normal individuals, such organisms are readily distinguishable from the highly parasitic types of pneumococcus responsible for the severe forms of lobar pneumonia, a convincing proof that infection in this disease is, in the majority of instances, not autogenic in nature, but is derived from some extraneous source. In a high percentage of instances, according to the New York investigators, healthy persons intimately associated with cases of lobar pneumonia harbor the disease-producing types of pneumococcus. In

1. Dochez, A. R., and Avery, O. T.: The Occurrence of Carriers of Disease-Producing Types of Pneumococcus, Jour. Exper. Med., 1915, xxii, 105.

every such instance carefully investigated, the pneumococcus isolated has corresponded in type with that of the infected individual. Convalescents from pneumonia carry for a considerable length of time the type of pneumococcus with which they have been infected. The investigations of Dochez and Avery thus show that there are two sources of danger in the spread of the pneumococcus infection. One lies, as they point out, in the occurrence of healthy carriers of disease-producing pneumococci among individuals associated with cases of pneumonia. The other source is indicated in the fact that patients recovering from the disease harbor the responsible organism for a considerable length of time. Under such circumstances it is not easy to trace a given case to the carrier responsible for it. The sporadic occurrence of lobar pneumonia is explained by the same features that have made it difficult to establish a well-defined epidemiology of the disease. The recognition of the nature of the carriers that may exist marks an important step in the direction of progress.

THE SHERLEY AMENDMENT IS CONSTITUTIONAL

A few weeks ago[1] THE JOURNAL described the attempt on the part of the exploiters of "Eckman's Alterative," a fraudulent "consumption cure," to cripple the Food and Drugs Act by attacking the constitutionality of the Sherley Amendment. This amendment declares that a drug product shall be deemed misbranded if false and fraudulent therapeutic claims are made for it. The Eckman concern, which was found guilty of making false and fraudulent curative claims, carried the matter up to the Supreme Court of the United States attacking the constitutionality of the Sherley Amendment. Last Monday (January 10) Justice Hughes delivered an opinion for the court, every member of the Supreme Court having agreed to it. "We find no ground," Justice Hughes is reported as stating, "for saying that Congress may not condemn interstate transportation of swindling preparations accompanied by false and fraudulent statements, as well as lottery tickets." The decision is one that means much to the health and safety of the public and will have the unqualified approval of all except the "patent medicine" fakers and their satellites.

THE DETECTION OF MALARIAL PLASMODIA

A method for obtaining malarial plasmodia in blood for diagnostic and other purposes, which was devised several years ago by Bass and Johns, has recently been described in detail by these investigators.[2] It involves the concentration of the "crescents" by their stratification into a distinct layer when blood containing them is centrifuged at a high speed. The fundamental principles involved are the fact that a malaria plasmodium with its host erythrocyte is larger than the nonparasitized erythrocytes, and that when centrifuged at proper speed for a sufficient length of time, the larger cells rise to the top of the cell column, while the smaller cells collect beneath. Most of the leukocytes are still larger than most of the parasitized cells, and accordingly rise to a higher level in the cell column or even to the surface. In a sufficiently centrifuged tube the successive layers thus include nonparasitized erythrocytes, parasitized red cells, leukocytes and serum. If citrated blood is used, platelets may be suspended in the plasma. Helpful newer details respecting this ingenious procedure, by which almost innumerable plasmodia may sometimes be brought into a single microscopic field, may be consulted in the original paper. The method has an added usefulness in that it offers the possibility of obtaining large quantities of plasmodia for experimental purposes either directly from the the blood stream or from cultures in vitro.

1. Attempting to Cripple the Food and Drugs Act, editorial, THE JOURNAL A. M. A., Nov. 20, 1915, p. 1822.

2. Bass, C. C., and Johns, F. M.: A Method of Concentrating Malaria Plasmodia for Diagnostic and Other Purposes, Am. Jour. Trop. Dis., 1915, iii, 298.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ILLINOIS

Ask Sanitary Surveys.—The mayors and health officers of Champaign and Urbana have requested the bureau of sanitary engineers of the State Board of Health to make a sanitary survey of these cities.——Jacksonville has also asked for a sanitary survey.

Personal.—Drs. Ora L. Pelton, Ora L. Pelton, Jr., and Samuel L. Gabby, Elgin, are arranging for a third story to be added to the new Rittberger Building which will be used for their offices, laboratory and a small hospital.——Dr. William J. Riley, Jr., has been appointed an assistant physician on the staff of the Elgin State Hospital.——Dr. William J. Uppendahl, Peoria, who has been attached to the British Hospital Service in Europe for six months, now writes that he will remain in the war zone for a second six months.——Dr. Victor A. Bles of the staff of the Elgin State Hospital, who has been seriously ill, is reported to be improving.

Chicago

Bids for Hospital Addition.—Bids were opened January 3 for the County Hospital addition consisting of the finishment of basement, refrigerator plants, modern kitchen and bakery and a complete tunnel system. The lowest bid was $527,000.

Study of Tuberculosis.—The Robert Koch Society for the Study of Tuberculosis, affiliated with the Chicago Tuberculosis Institute, will hold its seventeenth meeting at the Morrison Hotel, January 19 at 12 noon. Dr. Harry J. Corper of the Municipal Tuberculosis Sanatorium will read a paper on "Complement Fixation in Tuberculosis" and the discussion will be opened by Dr. Ludvig Hektoen.

Personal.—Drs. James M. Neff and Philip S. Chancellor, members of the Chicago unit, have been commended in general orders by General Sir John French for "superlative service" with the American Hospital Units in France.——Dr. William A. Evans, who was operated on for disease of the gallbladder, January 4, is reported to be making satisfactory progress toward recovery.——Dr. Arthur D. Black has accepted an invitation of the University of California to give a course of lectures during January in that institution.——Dr. Coleman G. Buford delivered an address before the Galesburg Medical Society, January 4, on "The Goiter Question."

Gorgas in Chicago.—Major-General William C. Gorgas, Surgeon-General, U. S. Army, spent a busy six days in Chicago and whether it was a continuous round of pleasure or not, there is no question as to the continuity of the entertainment. In addition to luncheons, dinners and it may be

breakfasts, at which he was the guest of honor each day during his stay in Chicago, General Gorgas appeared before the Geographic Society of Chicago on January 7 and had presented to him the society's gold medal on account of his work in transforming living conditions in the Panama Canal Zone and making it habitable for white men. Mr. Henry J. Patten, president of the society, was toastmaster; Dr. Frank Billings made the presentation address and General Gorgas spoke on "Sanitation in Its Relation to Geography." On January 10 he was the guest of honor at a banquet given under the auspices of the Chicago Single Tax Club and nine other medical and lay organizations of the city. On this occasion Dr. John B. Murphy presided and General Gorgas spoke on "Sanitation and Single Tax," stating his belief that single tax by taxing land values will bring unoccupied land into use and thereby relieve congestion in cities and increase wages. He also spoke entertainingly on the sanitary problems in Havana and in the Canal Zone, narrating the way in which they had been met and disease conquered. He was entertained at luncheon by the City Club on the afternoon of January 10, and on January 11 he was the guest of honor at a dinner given at the Quadrangle Club of the University of Chicago at which he spoke on "Sanitation in Relation to Poverty." General Gorgas returned to Washington on January 12.

KANSAS

Food and Drugs Inspections.—According to the December *Bulletin* of the Kansas State Board of Health during October and November, 1915, the inspectors of the department made 1,984 inspections covering all classes of food and drug establishments. Of 359 food products inspected, 181 were classed as passed and 78 as illegal. Of 73 drug products examined, 58 were passed and 15 were illegal.

Personal.—Dr. Lucullus R. Sellers, who has been connected with the State Hospital at Larned for twelve years and who resigned to take effect January 1, has been prevailed to withhold his resignation until the first of March. ——The office of Drs. Charles R. Silverthorne, Maplehill, was burned December 12.——Dr. John P. Kaster, Topeka, has been appointed a member of the National Board of First Aid Standardization.

State Hospital Association Organized.—The hospitals of Kansas have organized a state association which held its first meeting December 30 at Topeka when a constitution and by-laws were adopted and the following officers were elected: president, Dr. John T. Axtell, Newton; vice presidents, Drs. Samuel Murdock, Jr., Sabetha; John C. Hall, McPherson, and Frank W. Shelton, Independence; and secretary-treasurer, Dr. William R. Dillingham, Halstead. This association will be affiliated with the American Hospital Association.

MARYLAND

Doctor Held Under Drug Act.—Dr. Hugh M. Boring, Baltimore, was held in $1,000 bail for a hearing on January 14 on the charge of violating the Harrison Narcotic Law by furnishing prescriptions for opium and other drugs without putting on them the correct names and addresses of the persons for whom they were intended. It is alleged that Dr. Boring sold the prescriptions indiscriminately.

Personal.—Dr. William H. Welch of the Johns Hopkins University arrived in Baltimore on January 5, after a six month's trip to the Orient.——Dr. Karl H. Van Norman, formerly of the Johns Hopkins Hospital and now a captain in the Royal Canadian Army Medical Corps, is in charge of a British hospital division at Ramsgate, England. The hospital at Ramsgate has 600 beds and Dr. Van Norman has medical supervision of over 125 patients, all war victims. ——Dr. C. Reid Edwards has been appointed superintendent and Dr. Louis A. Boie, resident surgeon of the Kernan Home for Crippled Children.——Dr. Charles A. Overman, Baltimore, who has been ill at the University Hospital for five months, is reported to be convalescent.

Changes in the Staff at the Hopkins.—Two important changes in the hospital staff have been announced at the Johns Hopkins Hospital. The resignation of Dr. Leonard G. Rowntree, associate professor of medicine, was accepted, and the appointment of Dr. Lysander P. Holmes of the health department of New York City as third assistant superintendent, was given out. Dr. Rowntree has been appointed professor of medicine at the University of Minnesota. The appointment of Dr. Holmes is to fill the vacancy which was caused by the resignation of Dr. Karl H. Van Norman, first assistant superintendent, about two months ago. Dr. Ralph B. Seem, Baltimore, second assistant, was promoted to Dr. Van Norman's place and Dr. Lewis A. Sexton, third assistant, was put in Dr. Seem's position. Dr. Holmes comes from the Riverside Hospital, which is operated by the New York Health Department.

MICHIGAN

Red Cross Must Not Be Used.—The National Red Cross has lodged a complaint with the attorney-general that fifty-seven physicians of Saginaw are violating the federal law by using the Red Cross emblem on their motor cars.—— Physicians of Muskegon are changing the Red Cross on their motor cars to a green emblem of similar design.

Personal.—Dr. Alfred H. Boon, Painesdale, has resigned from the Copper Range medical staff and left on January 6 to join the Royal Army Medical Corps.——Dr. John C. Brown, Battle Creek, has declined reappointment to the state advisory board of pardons.——Dr. Ralph C. Apted, Grand Rapids, recently underwent further operation in Augustana Hospital, Chicago, and is said to be doing well. ——Dr. David L. Trear has resigned as president of the National Bank of Commerce of Adrian to accept a position as head of the welfare work among the employees of the General Motor Company, Flint.

MINNESOTA

First Students for Mayo Foundation.—The first delegation of students to go to the Mayo Hospital, Rochester, under the Mayo Foundation plan, will leave the University of Minnesota, April 1.

State Board Appointments.—Drs. David N. Jones, Minneapolis, and Werner Hemstead, Brainerd, have been appointed members of the State Board of Health, to succeed Drs. Frank Burton, Minneapolis, and Olaf J. Hagen, Moorhead, and L. P. Wolf, St. Paul, has been reappointed a member of the board.

New Officers.—Olmsted County Medical Society has elected Dr. Walter D. Shelden, president; Dr. William C. MacCarty, vice president, and Dr. Henry W. Meyerding, secretary-treasurer, all of Rochester.——Hennepin County Medical Association, at Minneapolis, January 3: president, Dr. John G. Cross; and vice presidents, Drs. Arthur S. Hamilton and Fred L. Adair.——Red River Valley Medical Association, at Crookston, December 16: president, Dr. William S. Anderson, Warren; vice president, Dr. J. Frank Norman, Crookston, and secretary-treasurer, Dr. Franklin M. Dryden, Crookston.

Personal.—Dr. Kenneth Taylor, St. Paul, has returned after work of more than a year in the American Ambulance Hospital and the hospital of Dr. Blake at Ris Orangis.—— Dr. Sheridan G. Cobb, Merriam Park, St. Paul, who underwent operation for appendicitis, January 1, is reported to be doing well.——Dr. Arthur J. Dohm, St. Paul, fractured his right forearm while cranking his automobile, December 25. ——Dr. Adrien J. Kirghis, St. Cloud, who while visiting France was pressed into the army service, returned from France, December 17.——Dr. Carl A. Scherer of the University of Minnesota has resigned and will move to Fargo, N. D., where he will specialize in diseases of children.—— Drs. George E. Sutton and Zerah P. King, Minneapolis, have started for Europe where they will serve in the American Ambulance Hospital at Neuilly, France.——Dr. Charles A. Hobbs, Minneapolis, deputy coroner of Hennepin County, is ill with scarlet fever in the contagious ward of the City Hospital.——Dr. Rudolph A. Beise, Brainerd, was operated on recently at Rochester for gastric ulcer and is reported to be doing well.——Dr. James S. Gilfillan, St. Paul, was operated on for appendicitis, recently.——Dr. Fred C. Eakins, Rochester, has left for Winnipeg for overseas medical service.

MISSOURI

Hygienist School to Open.—A school for hygienists will be opened in Kansas City this month at which two classes of students will be received, those wishing certificates of proficiency to be issued by the Hospital and Health Board after regular examinations, and those who attend only to obtain personal information.

School Inspectors.—Special commissions as medical inspectors of schools have been issued to forty-six physicians of Kansas City, who will preform this service without pay. About thirty dentists will also be appointed for this work.

Dr. Fred B. Kyger has been appointed chief of staff and Dr. Herbert F. Vanorden, secretary of the staff.

Revision of Health Laws.—A tentative committee to serve under Dr. Paul Paquin, health director of Kansas City, has been appointed by the City Club with the object of eliminating unfit and unpractical laws in the health ordinance. The committee consists of Drs. Homer O. Leonard, Jr., William L. Gist, Mr. C. T. Thompson and Mr. T. M. Finn.

Personal.—Dr. Walter C. Overstreet, Sedalia, is seriously ill with influenza at the Missouri, Kansas and Texas Hospital, Sedalia.——Dr. Fabian L. Pratt, Kansas City, has returned after several months in the war zone.——Dr. Walter S. Sutton, Kansas City, chief surgeon of the Whitney Hospital, Juilly, France, has returned to the United States.

Antituberculosis Notes.—The Municipal Tuberculosis Hospital for Kansas City erected at a cost of about $140,000 and with a capacity for 120 patients, located 10 miles from the business district of the city, was formally opened on December 25. Dr. Paul Paquin, Kansas City, has been appointed general superintendent of the hospital.——The State Board of Health will petition the legislature for an appropriation to erect an additional ward at the State Tuberculosis Sanatorium, State Park.

St. Louis

New Officers.—At the annual meeting of the St. Louis Medical Society the following officers were elected: president, Dr. Louis C. Boisliniere; vice presidents, Drs. Walter Baumgarten and William H. Stauffer; and secretary, Dr. John A. Seabold.

Personal.—Dr. Norman Bruce Carson, who has completed his fifty years of service in the St. Louis-Mullanphy Hospital, was the guest of honor at a dinner at the hospital, November 24. Dr. Carson was presented with a golden loving cup by the medical staff, Dr. Elsworth Smith, Jr., making the presentation address. Among other gifts to Dr. Carson was a golden casket from the Sisters of Charity, who conduct the hospital.——Dr. Nathaniel Allison has returned after three months' service in the American Ambulance, Paris.——Dr. Frederick Hagler has returned after war service in Serbia.

MONTANA

New Hospital.—Local physicians headed by Dr. Frederick F. Attix, Lewistown, have completed plans for the erection of a building for medical, surgical and laboratory purposes. The building and equipment will represent an outlay of $40,000.

Personal.—Dr. Rex R. Frizzell, Great Falls, has gone to California with his father, Dr. John W. Frizzell, who is convalescent after an automobile accident.——Dr. Benoni A. Place, Great Falls, has been appointed physician of Cascade County.——Dr. Herbert H. Judd, Bozeman, has been appointed physician of Gallatin County.——Dr. Percy F. Kearney, Great Falls, received an impacted Colles fracture recently while cranking his automobile.——Dr. Clarke S. Smith, Kalispell, has returned after six months service in the Royal Army Medical Corps.

NEW JERSEY

Health Board Slogan.—A stamp, reproducing the badge of the board of health commissioners of Newark, has been adopted by the board and will be used on its mail matter in the future. In the center of this stamp is printed "Get the Health Habit. Help Us to Help You."

Personal.—Mayor Mount has appointed Dr. Ephraim R. Mulford a member of the Burlington Board of Health.——Dr. and Mrs. Theodore E. Townsend, Westwood, are taking a trip to Bermuda.——Dr. Charles Browne has been elected mayor of Princeton and assumed office January 1.——Dr. Charles E. MacDonald, Ft. Mott, has returned after war service in Germany.——Dr. H. Crittenden Harris, for twenty-one years president of the Glen Ridge Board of Health, has declined to accept reappointment.——Dr. George E. McLaughlin, Jersey City, has been elected president, and Dr. Edward Guion, Atlantic City, secretary of the New Jersey Sanitary Association.

NEW YORK

Health Board Consolidation Favored.—The Phelps Town Board at its meeting, December 28, adopted a resolution recommending the consolidation of the town and village boards of health.

Appropriation for Tuberculosis Hospital.—The Saratoga County Board of Supervisors has appropriated $17,000 for the county tuberculosis sanatorium. This is a reduction of more than $1,500 in the amount asked for by the institution, but is $5,000 more than the appropriation made last year.

Personal.—Dr. Douglas M. Dodd, Elmhurst, a member of the Columbia University unit in Serbia, is now said to be working under the Bulgarians in an attempt to eradicate typhus fever at Nish, Serbia.——Dr. Adolph F. Konther, Brooklyn, has been bequeathed $500 by the will of Rosalie Hentscher, Buffalo.

New York City

Harvey Society Lecture.—The fifth lecture of the present course was given January 15 by Dr. Donald D. Van Slyke of the Rockefeller Institute for Medical Research. His subject was "Present Significance of the Aminoacids in Physiology and Pathology."

Herter Foundation Lectures.—Dr. Victor C. Vaughan of the University of Michigan delivered a course of five lectures on "Poisonous Proteins" at the Carnegie Laboratory, from January 10 to 14, inclusive, under the Herter Foundation of the University and Bellevue Hospital Medical College.

Medical Society of the County of Kings Elects.—At the fifty-ninth annual meeting of this society, held in Brooklyn, Dec. 21, 1915, the following officers were elected: president, Dr. Ralph H. Pomeroy; vice president, Dr. Albert M. Judd; secretary, Dr. Charles E. Scofield; and treasurer, Dr. Stephen H. Lutz.

Neurologists Elect Officers.—At the annual meeting of the New York Neurological Society, January 4, the following officers were elected: president, Dr. William M. Leszynsky; vice presidents, Drs. Frederick Tilney and Robert F. Kennedy; corresponding secretary, Dr. J. Ramsay Hunt, and recording secretary and treasurer, Dr. Charles E. Atwood.

To Build Maternity Clinic.—A three-story fireproof building is to be erected on the north side of One Hundred and Third Street, and 185 feet east of Park Avenue, at a cost of $35,000, which is to used as a free out-door maternity clinic. Operations will not be performed in this clinic but patients will be examined and prepared for operation elsewhere.

Mental Clinic Established.—Announcement was made January 3 by the superintendents of the Long Island State Hospital, Flatbush, and Kings Park State Hospital, that arrangements have been made for a free clinic for the treatment of nervous and mental disorders at the Williamsburgh Hospital, Bedford Avenue and South Third Street, at 10 o'clock on each Saturday morning. For the present at least, Drs. Elbert M. Somers, Brooklyn, and William Austin Macy, Kings Park, will be in charge of the clinic. The Long Island State Hospital already maintains two clinics, one at the institution from 10 to 3 o'clock on Saturdays and the other at the Polhemus Memorial Clinic, Long Island College Hospital, on Fridays at 2 p. m.

Personal.—Dr. William F. Mathews, Brooklyn, deputy health officer of the port of New York, has been designated acting head of the service by Governor Whitman, pending the appointment of a successor to the late Dr. Joseph J. O'Connell.——Dr. Charles A. Whitney returned from abroad, January 2.——Dr. Selden I. Rainforth has been appointed physician to the street cleaning department.——Dr. Katharine B. Davis, formerly commissioner of correction, has been appointed by the mayor, a member of the new parole board.——Dr. John S. Billings, Jr., director of the Bureau of Preventable Diseases of the Health Department, has been designated deputy commissioner of health. He has been succeeded by Dr. Bertram H. Waters, formerly chief of the division on tuberculosis, and Dr. Waters' post has been filled by the appointment of Dr. Clifford Martin.

To Test Validity of "Patent Medicine" Ordinance.—On January 1 the ordinance of the board of health went into effect requiring the manufacturer of proprietary remedies sold in this city either (1) to print on the label on the bottle, package, or other container, the names of all the ingredients to which the therapeutic action of the remedy is ascribed, or, (2) to register this information with the board of health. As anticipated, certain manufacturers of proprietary preparations determined to test the validity of this ordinance. On Dec. 31, 1915, there was served on the department of health a notice of a move for a temporary injunction to be applied for in the supreme court on January 5. This notice was served in the interests of the Charles H. Crittenden Company, manufacturers of Hale's Honey of Horehound and Tar. A similar notice was served on behalf of H. Planten & Son, Brooklyn, manufacturers of Medicated Capsules. In these

notices the usual claim was made of the great value attaching to secrecy in the formula of "patent medicines." The department announces that it is not at all disconcerted by this action on the part of "patent medicine" manufacturers since the ordinance was framed by former Health Commissioner Goldwater and trained lawyers from the office of the corporation counsel. It believes that there is no reason to fear that the ordinance will be declared unconstitutional.

NORTH DAKOTA

New Officers for District Society.—At the annual meeting of the Sixth District Medical Association held in Bismarck, the following officers were elected: president, Dr. Gustav A. Mathews, Napoleon; vice president, Dr. Hugo O. Altnow, Mandan, and secretary-treasurer, Dr. William H. Bodenstab, Bismarck.

Recommendations Regarding Health Administration.—After a study of public health administration and organization in North Dakota in the fall of 1915, Surg. Carroll Fox, U. S. P. H. S., says that it may be concluded that there is a great lack of organization and funds with which to carry on public health work in the state. The health measures which have been enacted are more or less scattered among different branches of the government. They should be coordinated and their enforcement imposed on a single state health organization. He therefore makes a number of recommendations looking to improvement in the health service of the state. Among these are that public health activities now performed by the State Board of Health and the public health laboratory and other state agencies be brought together in a department of health which should be divided into a number of bureaus such as communicable diseases, public health engineering, vital statistics, etc. This report is similar to the reports heretofore made by members of the public health service in regard to health administration in various states.

OKLAHOMA

Health Propaganda.—Dr. John W. Duke, Guthrie, state commissioner of health, has enlisted the cooperation of more than 400 daily and weekly newspapers of Oklahoma which will publish short popular articles on hygiene and public health at frequent intervals.

Personal.—Dr. Robert L. Mitchell, Vinita, was thrown from his buggy, recently, in a runaway accident, fracturing his left leg.——Dr. Ernest R. Cavett, Kiel, fractured his clavicle by the overturning of his automobile.——Dr. William R. Butler, Maud, was thrown from his buggy in a runaway accident and was severely injured.——Dr. Walter Penquite, Chickasha, is convalescent after a severe attack of influenza.——Dr. Lee W. Cotton, Enid, was slightly injured and his automobile was demolished in a collision with a Santa Fe train, recently.

Hospital News.—Dr. Fred S. Clinton, Tulsa, is making plans to build a hospital in that city to cost $75,000.——St. Anthony's Hospital, Oklahoma City, has launched a campaign to raise $150,000 for the erection of a four-story addition to the hospital and to establish therein a clinical laboratory to be under the charge of Dr. Abraham Sophian, Oklahoma City.——Dr. Walter E. Wright, Tulsa, has purchased a 50-foot lot on which he will erect a Roentgen-Ray and pathologic laboratory to cost about $25,000. It will be ready for occupancy early in June.

OREGON

Hospital Burned.—The Harney County Hospital, Burns, was destroyed by fire, recently, with a loss of $12,000. One patient lost his life in the fire.

Personal.—Drs. Garrett L. Hynson and John T. LeFevre, Portland, have been under treatment in the Portland Sanitarium on account of septicemia, but are now convalescent.——Drs. Frank E. Boyden, Heppner, and Lawson L. Truax, Klamath Falls, are spending the winter in postgraduate work in the East.

SOUTH CAROLINA

Personal.—Dr. Gottlob A. Neuffer, Abbeville, has been appointed a member of the board of visitors of the State Hospital for the Insane, Columbia.

Minnesota Surgeon in South Carolina.—At the meeting of the Fourth District Medical Society in Wilson last month, Dr. Louis B. Wilson, director of the pathologic laboratory of the Mayo Clinic, Rochester, Minn., was one of the speakers.

Tuberculosis Items.—The new tuberculosis camp near Ridgewood is now being occupied by patients. The ravages done by the windstorm, November 18, have been repaired and the camp has been reconstructed. No harm was done to the patients by the storm and no one was injured by the falling tents.——The Greenville County Antituberculosis Camp was opened November 4. It is the plan of the Antituberculosis League to build several cottages on the grounds for the treatment of private patients. The camp has an initial capacity of twenty-five patients.

State Board Work.—In his annual report to the legislature, Dr. J. Adam Hayne, Columbia, secretary of the State Board of Health, praises the work which is done at the South Carolina Sanatorium, State Park.——During the year a bureau of vital statistics was established and is now in successful operation. The townships of every county in the state are now represented by local registrars. The board is comfortably housed in the University of South Carolina and in the Palmetto Building. From January 1 to October 31, there were 37,642 births and 20,704 deaths reported to the bureau.

SOUTH DAKOTA

Personal.—Dr. Ole W. Rood, Watertown, has started for France where he will enter a military hospital.——Dr. Bert Menser, Bridgewater, has disposed of his practice to Dr. James G. Kennedy, Plankinton. Dr. Menser was the guest of honor at a banquet given by the Commercial Club at Bridgewater, December 1, at which he was presented with a gold-headed cane.——Dr. Harry A. Murnan, Gregory, has been appointed local surgeon of the Northwestern System.

District Society Meetings.—The Fourth District Medical Society at Pierre, December 15: president, Dr. Guy H. Langsdale, Highmore; vice president, Dr. Alfred H. Youngs, Pierre; secretary-treasurer, Dr. Samuel B. Stegeman, Onida.——Seventh District Medical Society at Sioux Falls, December 14: president, Dr. Edwin L. Perkins, Sioux Falls; vice president, Dr. Harry R. Hummer, Canton; secretary-treasurer, Dr. Goldie E. Zimmerman, Sioux Falls.——Watertown District Medical Association at Watertown, December 14: president, Dr. Raymond W. Mullen, Florence; vice president, Dr. Harry C. Parsons, Watertown, and secretary-treasurer, Dr. Harry M. Freeburg, Watertown.——Mitchell District Medical Society at Mitchell, November 16: president, Dr. Andrew H. Hoyne, Salem; vice president, Dr. Frank H. Stewart, Kimball, and secretary treasurer, Dr. Floyd D. Gillis, Mitchell.——Black Hills Medical Association at Lead, November 10: president, Dr. Francis E. Clough, Lead; vice president, Dr. Frederick W. Minty, Rapid City; secretary-treasurer, Dr. Frederick A. Richards, Whitewood.

PENNSYLVANIA

Main Line Physicians Organized.—Fifty prominent physicians of main line towns have organized the Main Line branch of the Montgomery Medical Society, with headquarters at the Merion Cricket Club, Haverford, meetings to be held twice monthly. Dr. Walter Chrystie of Bryn Mawr has been elected president; Dr. Henry F. Smyth of Wayne, corresponding secretary, and Dr. John Harvey of Bryn Mawr, recording secretary.

State to Help Guard Health of Employees.—Commissioner Jackson of the State Department of Labor and Industry is making an appeal for cooperation on the part of employers and employees to fight off occupational diseases that annually claim a large toll in money and lives in this state. A series of pamphlets, entitled "Timely Hints," showing what the diseases are, what causes them and the best method of combating them, is being sent out.

Philadelphia

Educational Director Wanted.—An educational director for nurses' training schools in the state of Pennsylvania will be elected on or about March 1, 1916. Persons wishing to apply for this position should write to the Pennsylvania State Board of Examiners for Registration for Nurses.

New Officers.—At the meeting January 5 the following officers were chosen for the College of Physicians of Philadelphia: president, Dr. Richard H. Harte: vice president, Dr. William J. Taylor; secretary, Dr. Francis R. Packard; treasurer, Dr. John B. Roberts, and honorary librarian, Dr. Frederick P. Henry.

Popular Courses. — The Women's Medical College announces the following popular courses, open to women: "Health Problems of Everyday Life." Twelve lectures deal-

ing with such subjects as personal health, food, and care of children. Wednesdays at 4 p. m., beginning January 12. "First Aid." Twelve lectures and demonstrations, Mondays at 4 p. m., beginning January 10.

Rush Society Lecture.—The thirteenth Rush Society lecture will be delivered at the College of Physicians and Surgeons, Twenty-Second and Chestnut streets, January 21, at 8:30 p. m., by Dr. Frederick M. Allen of the Rockefeller Institute for Medical Research on "Investigative and Scientific Phases of the Diabetic Question with Their Probable Relations to Practicable Problems of Clinical Medicine."

Department Physicians Selected.—January 7, Dr. Wilmer Krusen, the new director of health and charities, confirmed the appointments of physicians in the department, made by his predecessor, Dr. S. Lewis Ziegler. These consisted of Dr. William P. Hearn as visiting chief on the surgical staff of the Philadelphia General Hospital, and Dr. Robert Goodman, Dr. Jacob E. Ellinger and Dr. Maximilian E. Smukler, assistant school medical inspectors.

Thanks for Donation of Instruments.—The roster of the County Medical Society contains a notice of thanks from the committee for the collection of surgical instruments for the small French hospitals which has met with such generosity on the part of the profession in Philadelphia and the surrounding states. The committee, through its spokesmen, Drs. Joseph Leidy, William W. Keen and J. William White, will be glad to receive further contributions, being in constant touch with these hospitals where the demand still greatly exceeds the supply.

Personal.—Dr. Edward B. Gleason was sworn in as president of Common Council of the city on January 3.—— Dr. Charles B. Penrose, who has been ill with pneumonia at the Johns Hopkins Hospital, Baltimore, returned to his home January 5.——Dr. Santos Fernandos, Havana, president of the Academy of Science of Cuba, addressed the Ophthalmic Society of the Wills Eye Hospital, January 4. ——Dr. Richard H. Harte, former director of health and charities, sailed from New York, January 8, his destination being the American Ambulance Hospital at Paris, where he will serve until April at least.——A tablet has been placed in the Church of St. Luke and the Epiphany in memory of Dr. Charles Lester Leonard, among the first men in this city to experiment with Roentgen rays, and an early victim.

WEST VIRGINIA

West Virginia Medical Journal Adopts New Policy.—The *West Virginia Medical Journal,* the official organ of the West Virginia State Medical Association, with the issue of January, 1916, comes under the management of a new editor who states that "there are some changes in the policy of our journal which it has now become necessary to make. No advertisements of pharmaceutical products should be printed which do not conform to the standards of the Council on Pharmacy and Chemistry of the American Medical Association. In order to adopt this standard and bring the *West Virginia Medical Journal* into harmony with the journals of other state medical associations (with one exception, we believe) we have entered into an agreement with the Cooperative Medical Advertising Bureau which is conducted under the auspices of the American Medical Association at Chicago, to advertise only those products which are approved by the Council. To do this, it has been necessary to cancel quite a number of contracts, which have been excellent paying ones. However, it is the determination of your editor, during his term of service to the state association, to 'hew strictly to the line' in advertising policy."

CANADA

Local Examiners for Recruits.—Instructions have been sent to all recruiting centers in Canada from the militia department at Ottawa that the services of local doctors be secured to examine recruits instead of depending on the services of one doctor for a whole recruiting district. These doctors will be appointed on the recommendation of the minister of militia.

Medical Pension Board in Montreal District.—Announcement is made of the appointment of a medical board for the fourth military district. Dr. J. Alexander Hutchinson, Montreal, has been appointed chairman of the board. He will have the temporary rank of lieutenant-colonel. His associates will be Maj. G. F. Shaw, St. Andrews, Que., and Dr. Edmond M. von Eberts, Montreal.

Free Serum.—The Ontario Board of Health announces that on and after February 1, the public will be supplied free of charge through local boards of health and medical officers of health with various biologic products. Hospitals and physicians will be supplied direct only when they cannot obtain the serums from the local officers of health. Physicians are requested to cooperate by early reporting of all cases of communicable diseases.

Health Administration of Toronto.—Ten years ago the city of Toronto spent $60,000 annually on its health administration. Last year it spent over $309,000, but the medical officer of health has always given good value for the money and contends that a municipality can have just as much health as it is willing to pay for. Toronto spends annually as well about $75,000 on the medical inspection of public schoolchildren. It has long been considered that there has been overlapping in the matter of inspection in regard to infectious and contagious diseases. The latter is not under the department of health but is controlled by the board of education. Toronto's municipal expert considers that much money could be saved the taxpayer if the medical inspection of schools was placed under the department of health. The city has had a considerable epidemic of measles, there having been 2,000 to 3,000 cases. Some people are asking what is medical inspection for, if there is to occur an epidemic of such widespread distribution and extent?

GENERAL

Interstate Society Organized.—The physicians of Snake River Valley have organized a medical society to be known as the Idaho-Oregon Medical Society. Dr. Rollo O. Payne was elected president, and Dr. William J. Weese, secretary, both of Ontario, Ore.

Guarding Against Typhus.—Surgeon-General Rupert Blue, U. S. P. H. S., is taking great precautions against the introduction of typhus fever through the Mexican boarder. Senior Surg. Claude C. Pierce has been ordered from San Francisco to Laredo, Tex., where a quarantine against typhus has been established.

Decrease in Medical Books.—The annual report of the committee on library of the New York Academy of Medicine, issued January 1, shows a great decrease in the average of medical books published in Europe during 1915. During 1913 the academy received 704 French and German publications but during 1915 only 435.

Western Surgeons Meet.—At the annual meeting of the Western Surgical Association at Davenport, Ia., Dr. Lawrence W. Littig, Davenport, Ia., was elected president; Drs. Arnold Schwyzer, St. Paul, and Henry H. Sherk, Pasadena, Calif., were made vice presidents; and Dr. Arthur T. Mann, Minneapolis, was elected secretary-treasurer.

Rabies in the West.—Representatives of the California Board of Health, the United States Forest Service in Oregon, Nevada and California, the United States Biological Survey, the governor of Nevada, the secretaries of the State Board of Health of Oregon and Nevada, and cattlemen of Oregon, Nevada and California, met in San Francisco, December 20, to discuss plans to stamp out rabies in the coast states.

Honor to Botanist.—Dr. T. J. Burrill, professor emeritus of botany at the University of Illinois, Champaign-Urbana, was installed as president of the American Society of Bacteriology at the closing session of the convention, December 23. Dr. Burrill was also further honored in resolutions congratulating him on his pear-blight investigations which have resulted in the creation of plant pathology as a science.

Memorial to Trudeau.—Announcement has been made of a fund established by Samuel Mather of Cleveland to found a school for the graduate study of tuberculosis as a memorial to the late Dr. Edward L. Trudeau. The school will probably be located at Saranac Lake, N. Y., and courses will be offered to physicians who wish to become proficient in the diagnosis of tuberculosis. Cooperating agencies for special study will also be established in New York City.

Society Awards Prizes.—The Tri-State Medical Society of Arkansas-Louisiana-Texas has awarded the gold medals for the three best papers on original research work presented to the society, as follows: first prize, Dr. Thomas E. Wright, Monroe, La.; second prize, Dr. Herbert L. McNeil, Galveston, Texas, and third prize, Dr. Truman C. Terrell, Fort Worth, Texas. The society has voted to renew its offer for the next meeting which will take place at Texarkana in December, 1916.

The de Roaldes Prize.—The American Laryngological Association announces that the de Roaldes prize, a gold medal, valued at $100, the object of which is to encourage the advancement of the sciences of laryngology and rhinol-

ogy, is now open for competition to practitioners in regular standing in the United States and Canada, not members of the American Laryngological Association. Essays must be typewritten, the customary means being taken to prevent disclosure of the author's name. They must be placed in the hands of the secretary of the association, Dr. Harmon Smith, 44 West Forty-Ninth Street, New York, prior to April 20, 1916.

Bequests and Donations.—The following bequests and donations have recently been announced:

New York Infirmary for Women and Children, $6,000; American Social Hygiene Association, $5,000, by the will of Miss Grace Hoadley Dodge of New York City.

Chautauqua County, (N. Y.) Tuberculosis Sanatorium, $150,000, for construction and equipment, by the will of Mrs. Elizabeth M. Newton.

Boehne Antituberculosis Camp near Evansville, Ind., $1,000, by the will of Mrs. Mary Stockwell.

Grinnell College, Grinnell, Ia., a donation of $150,000, by Dr. LeRoy Dibble, Kansas City, Mo.

Fund for the relief of destitute Polish in the war zone, a donation of $1,000 by J. A. Patten of Evanston, Ill.

Various Red Cross services abroad, a donation of $1,000 by Mr. Robert Allerton of Chicago.

United Hebrew Charities and Mt. Sinai Hospital, New York City, each $1,000, by the will of Isaac Metzger.

Brooklyn Eye and Ear Hospital, $5,000; Brooklyn Hospital and Brooklyn Home for Consumptives, each $2,500, by the will of Colonel R. W. Woodward.

Congress on Medical Education, Public Health and Medical Licensure.—A congress on medical education, public health and medical licensure, participated in by the Councils on Medical Education, and on Health and Public Instruction of the American Medical Association, the Federation of State Medical Boards of the United States and the Association of American Medical Colleges, will be held at the Congress Hotel, Chicago, Feb. 7 and 8, 1916.

On Monday, February 7, the Council on Medical Education will hold its twelfth annual conference. The conference will open at 9 o'clock with an address by the chairman, Dr. Arthur Dean Bevan, followed by a report from the secretary, Dr. N. P. Colwell. The balance of the morning will be devoted to a symposium on "Relation of the Laboratory Courses to the Work of the Clinical Years." The speakers in this symposium will be Dr. E. P. Lyon, dean of the University of Minnesota Medical School; Dr. L. F. Barker, professor of clinical medicine, Johns Hopkins University Medical School; Dr. James Ewing, professor of pathology, Cornell University Medical College, and Dr. Charles H. Frazier, professor of surgery, University of Pennsylvania, School of Medicine.

In the afternoon there will be a joint conference between the Federation of State Medical Boards and the Council on Medical Education. The entire afternoon will be taken up with a symposium on "The National Board of Medical Examiners." The speakers will be Dr. W. L. Rodman, President of the American Medical Association; Surgeon-General W. C. Gorgas, W. C. Braisted and Rupert Blue, respectively, of the United States Army, Navy and Public Health Service; Dr. Herbert Harlan, president of the Maryland State Board of Medical Examiners; Dr. Victor C. Vaughan, dean of the University of Michigan Medical School, and Dr. Isadore Dyer, dean of the Tulane University of Louisiana, School of Medicine.

On Monday evening, at 8 o'clock, the Federation of State Medical Boards of the United States will hold a conference. The program will consist of an address by the president, Dr. Charles H. Cook of the Massachusetts Board of Registration in Medicine; a Report on Uniform Preliminary Requirements, by Dr. Beverly D. Harison, secretary of the Michigan State Board of Registration in Medicine; a paper on "What the Federation Could Accomplish," by Dr. Otto V. Huffman, secretary of the Long Island College Hospital; another on "The Regulation of Drugless Practitioners," by Dr. George H. Matson, secretary of the Ohio State Medical Board; and a third on "Standardization of Hospitals," by Dr. John M. Baldy, president of the Pennsylvania Bureau of Medical Education and Licensure.

On Tuesday, February 8, the Council on Health and Public Instruction of the American Medical Association will hold its annual conference. At the morning session, Prof. Irby Hudson of Nashville, Tenn., secretary of the board of preliminary examination, will present a paper on the results of this plan. The remainder of the forenoon will be devoted to a symposium on "A Model Medical Practice Act." The speakers will be Dr. Horace D. Arnold of Boston, representing the Council on Medical Education; Dr. Walter L. Bierring of Iowa City, Iowa, secretary of the Federation of State Medical Boards of the United States; Dr. W. J. Meanes of Columbus, Ohio, representing the Association of American Medical Colleges; Dr. Royal D. Copeland of New York City, representing the homeopathic school; Dr. John K. Scudder of Cincinnati, representing the eclectic school; and Hon. Thomas S. Hogan of Chicago, attorney for the Illinois State Board of Health.

The afternoon program will be devoted to a discussion of state public health organization. Dr. Charles V. Chapin, commissioner of health of Providence, R. I., and special representative of the council, will present a paper on "State Public Health Organization," embodying the results of his recent survey of state public health work. Dr. J. W. Kerr of Washington, D. C., assistant surgeon-general of the United States Public Health Service, will discuss the "Relation Between Federal and State Public Health Organization." These papers will be discussed by Dr. H. M. Bracken of St. Paul, secretary of the Minnesota State Board of Health; Dr. A. G. Young, Augusta, Maine, secretary of the Maine State Board of Health and president of the conference of state and provincial boards of health; Dr. Samuel G. Dixon of Harrisburg, Pa., commissioner State Department of Health; Dr. W. S. Leathers of University, Miss., state director of public health; Dr. John A. Ferrell of New York City, assistant director of the Rockefeller International Health Commission; Dr. S. J. Crumbine of Topeka, Kan., secretary of the State Board of Health of Kansas, and Dr. J. N. Hurty of Indianapolis, secretary of the State Board of Health of Indiana.

On Tuesday afternoon, beginning at 2 o'clock, there will be a joint meeting of the Association of American Medical Colleges and the Federation of State Medical Boards, which will be held in the south parlor of the Auditorium Hotel. The program is as follows: "Teaching of Preventive Medicine," Dr. M. P. Ravenel, professor of medical bacteriology and preventive medicine, University of Missouri, School of Medicine; "The Teaching of Applied Therapeutics," Dr. Francis H. McCrudden, assistant professor of applied therapeutics, Tufts College Medical School; "Clinical Teaching of Medicine," Dr. Frank Billings, professor of medicine, Rush Medical College; and "Clinical Teaching of Surgery," Dr. A. C. Stokes, associate professor of clinical and experimental surgery, University of Nebraska, College of Medicine.

In the evening, Dr. Cressy L. Wilbur, special agent of the Federal Bureau of the Census, will give an illustrated lecture on "The Doctor and Vital Statistics."

These annual conferences have elicited an increased interest since they were begun by the Council on Medical Education in 1905. A large attendance this year is anticipated.

FOREIGN

Havana Flyless.—In *Current Reports*, Special Agent Garard Harris states that the fly or mosquito is a real rarity in Havana and that screens are not necessary and the absence of these pests is simply the result of municipal cleanliness and care.

Typhus in Mexico.—Telegrams to the Mexican consulate in El Paso, Texas, state that official records in Mexico City and suburbs show 3,241 typhus cases in December with total deaths in the city proper of 305. In November the total number of cases was 2,199 with 400 deaths.

Gift from American Surgeon to Medical Assembly Building at Berlin.—According to the *Allgemeine med. Central-Zeitung*, Dec. 4, 1915, Professor Halsted of the chair of surgery of the University of Baltimore has donated 2,000 marks (about $500) through Professor Kocher of Bern to the Langenbeck-Virchow Haus at Berlin.

Deaths in the Profession Abroad.—A. Ceccherelli, one of the leading surgeons of Italy, chief of the surgical clinic of the University of Parma, professor of surgery since 1883, and frequently a delegate from Italy to international scientific gatherings, succumbed recently to a lingering illness.——L. Makara, professor of surgery at the University of Klausenburg, Hungary, aged 53.

Foundation of Pediatric Society at Madrid.—The president of the newly organized society is Dr. B. G. Alvarez, on the editorial staff of the *Pediatria Española*. In his opening address he called attention to some of the most pressing problems in pediatrics, and announced the foundation of a prize to be awarded for the best work, based on original research, on the hemorrhagic diathesis.

WAR NOTES

Cholera in Austria.—The *Wiener klinische Wochenschrift* states that in Galicia and Bukowina there were 6,840 cases of cholera reported in September, with 4,346 deaths. There

were also 1,803 cases of smallpox during the same period. Only 35 cases of smallpox were reported elsewhere in the empire.

Toronto University Men in Active Service.—President Falconer of the University of Toronto addressed the student body last week. He stated that thirty-one undergraduates had left the previous week to take commissions with the imperial army. There are now about 1,700 varsity men on active service. Of the university staff, seventy-three are serving as officers and eight are in the ranks. Graduates numbering 746 are officers and 171 hold other ranks. There are 284 undergraduates serving as officers and 381 in the ranks.

Summary Repression of Publications Denouncing Vaccination, Etc.—Our German exchanges state that in a number of army corps regulations have recently been adopted prohibiting the printing, the issuing and the distribution of circulars in which the efforts of scientific medicine or the medical measures enforced by the authorities are belittled or denounced. The penalty may be up to a year's imprisonment. The regulations at first applied merely to antivaccination propaganda, but recently a general order has been issued prohibiting any propaganda by circulars against the medical measures endorsed by the state.

Scarcity of Clinical Thermometers in France.—At a recent meeting of a Paris medical society, Netter reported that vulvovaginitis had not been encountered for many years in his scarlet fever service but that now it was prevailing, and he had traced the epidemic to the use of thermometers in common. There are too few thermometers on hand for individual use, as is the custom. He related that before the war all the thermometers had been imported from Germany. At present they are being obtained from America, but the American thermometers are considerably more expensive and more fragile. He urged the authorities to take steps to put an end to this *pénurie de thermomètres* as the army as well as the civilian population is suffering from it. French manufacturers are ready to undertake to make them if they can get hold of some skilled workmen.

Personal.—Maj. H. H. Alger, Stirling, Ont., medical officer to the Eightieth Battalion, has been promoted to be lieutenant-colonel.——Dr. Herbert G. Murray, Owen Sound, Ont., medical health officer, has been appointed to the Canadian Army Medical Corps to be attached to Queen's University Hospital, with the rank of captain. He reports at Kingston at once and will sail for Cairo, Egypt, in the near future.——Lieut.-Col. James C. Connell, dean of the medical department of Queen's University, Kingston, Ont., has been overwhelmed with applications for places in the reinforcements to be sent to their base hospital at Cairo. The reinforcements are necessitated by the fact that the hospital has been increased to one of 1,040 beds. Dr. Albert P. Chown, Kingston, has applied and will be given the rank of captain and will become the druggist of the hospital.——Dr. George Hanley, medical officer for Fort Henry Detention Camp at Kingston, Ont., has been given a commission in the R. A. M. C. and will leave for England immediately.——Dr. R. W. Bruce Smith, Toronto, inspector of hospitals and public institutions in Ontario, has been confined to his house by illness for several months.——Dr. J. Ernest Carmichael, Collingwood, Ont., has been appointed to the Canadian Army Medical Corps with the rank of captain. He will be attached to Queen's University Base Hospital now at Cairo, Egypt.——Dr. Ferguson, Smith's Falls, Ont., has arrived in Kingston, Ont., to take commission as captain with Queen's reinforcements for their base hospital in Cairo.

PARIS LETTER

PARIS, Dec. 16, 1915.

The War

LOCALIZED TETANUS

In a previous letter (THE JOURNAL, Dec. 11, 1915, p. 2102) I mentioned a report by Professor Pozzi of a case of localized tetanus. Dr. Routier, surgeon of the hospitals of Paris, has just called the attention of the Académie de médecine to this particular form of tetanus. Routier declares that, in spite of preventive injections of antitoxin, tetanus may manifest itself within a few days after the wound or still later; the nature of the wound may furnish no indication by which it would be possible to foresee the outbreak. The attention of the surgeon, however, may be attracted by the sudden outbreak of violent pain in a limb, which may not be near the wound. In such cases contracture soon follows, accompanied by reflexes and epileptoid trembling. This form of tetanus is as serious as the classic generalized tetanus. The temperature is not so high, however. Routier isolates the patient and gives chloral in doses of 10 gm. per day and three subcutaneous injections every twenty-four hours of a saline solution composed of sodium persulphate and calcium phosphate containing enough phosphoric acid to render the mixture soluble in ten parts of water. These injections are painful. To diminish the pain, Routier combines them with injections of morphin.

Dr. C. Monod, honorary surgeon of the hospitals of Paris, reported the case of a patient with localized tetanus who was treated successfully by heavy doses of chloral and intraspinal injections of magnesium sulphate, the calming effects of which were remarkable. Dr. Vaillard, medical inspector-general of the military medical service reported two cases of delayed and localized tetanus.

Dr. Brachet, naval physician at Rochefort, reported the case of a man who was attacked with localized tetanus ninety-seven days after his wound.

ARTICULAR STIFFNESS AND ANKYLOSIS AFTER WOUNDS BY FIREARMS

Dr. Delorme, medical inspector-general of the military medical service, presented before the Académie de médecine a paper on this subject, which was especially interesting because it reported a large number of cases of stiff joint or ankylosis. There unfortunate results will seriously affect the future of the patients. The ordinary causes are too prolonged immobilization, neglect or insufficient oversight of articular gymnastics and the use of exercise to the neglect of other measures. According to Delorme, exercise is too exclusively employed in these cases of stiffness and ankylosis; its use is too much delayed and the methods are not adapted to the circumstances and conditions. Delorme believes that in a large number of cases orthopedic surgery should be used instead. The characteristics of the method used by Delorme are that, immediately after operation for the ankylosis, he systematically employs energetic compression of the joint by wadding alternately with mobilization. This method has given him the best of results. In hundreds of cases of ankylosis treated without result by other methods, he has obtained a cure.

UNATTACHED NURSES

Recently various periodicals have published a statement that M. Justin Godart, assistant secretary of the war department for the military medical service, intends to license the nurses of the three societies of the Red Cross (Société de Secours aux Blessés Militaires, Association des Dames Françaises, Union des Femmes de France). This report is not true. A certain number of male nurses having been called into the army service, M. Godart has been endeavoring to utilize to the best advantage the services of the unattached female nurses—the women, numbering several thousand, who, although not belonging to any society, wish to aid in the care of sick or wounded soldiers, and who have offered their services directly to the war department. Many of these women nurses have been in service for many months in the hospitals of the interior. It has been thought, however, that they might be employed nearer the front. About fifty of those chosen among the best are now at Marseilles about to join the army in the east. Others will be sent nearer the front.

THE CROSS OF WAR AND THE MEDICAL STAFF

A few months ago a special decoration was created called the Cross of War. It is intended for the soldiers who have been mentioned for gallantry. Complaints have been made of abuses of this decoration, which has sometimes been awarded to persons who have remained in the interior of the country.

A CANADIAN HOSPITAL FOR FRENCH SOLDIERS

The French Canadians, desiring to show their affection for the country of their origin, have requested that one of the hospitals founded by them be placed at the disposition of France for the care of French soldiers. Mr. Robert Borden, prime minister of Canada, has accordingly directed General Jones, director of the Canadian medical service, to place Stationary Hospital No. 4 at the service of France. This hospital is at present located at the hippodrome of St. Cloud. It is composed of 14 double-walled buildings and 110 tents, and also occupies the buildings of the racing society. Six hundred patients can be cared for there. All the staff belongs

to the British army and is composed solely of French Canadians. There are 15 physicians and 168 nurses, and other subordinates. The hospital, which will probably open its doors during January, has been placed at the disposal of the medical service exclusively for French patients.

LONDON LETTER

LONDON, Dec. 20, 1915.

The War

THE SUPPLY OF ARMY SURGEONS

The number of army surgeons amounts to about 10,000, of whom three fifths hold temporary commissions. Thus, about a third of the whole profession in the United Kingdom is engaged in war service. In addition, the colonies are employing with their armies about a fifth of their physicians. But there is still a demand for more. In this country the Central Medical War Committee (an organization formed by the profession and recognized by the government) is organizing the profession so as to enable every fit physician to serve the country in such a manner as to turn his qualification to the best possible use and to deal with all matters affecting the profession arising in connection with the war. The committee has conferred with various government departments, and particularly with the national health insurance commissioners (who are now responsible for the treatment of the greater part of the industrial population) in order that recruiting may be carried out with careful regard to the needs of every locality. Taking the country generally, there is an ample supply of physicians of military age to meet any demands that seem likely to be made. But these men are unequally distributed; some are in areas never too well supplied with physicians at any time, so that the withdrawal of comparatively few might cause serious difficulties. Some are in areas in which the proportion of physicians to the population is such that a large number could be spared with comparatively little inconvenience to the community. The task before the Central Medical War Committee is so to adjust the demands in each area as to convince both physicians and the general public that these demands are equitable. If the supply of physicians is found weak in any particular area, a warning is given not to recruit in that one. In the big cities and towns there are many physicians willing to go to the front, but they have contracted liabilities, such as the rent of an expensive house, or the unpaid part of the purchase money of a practice. They are faced with the considerable falling off of patients when they return. Suggestions have been put forward to facilitate their joining the army. Those who practice at watering places could often leave their practices for six months with little loss. On the other hand, in urban districts the need for physicians is often reduced in the summer. In some cases two men are willing to take service turn about, one doing the home work while the other is away, but the War Office has not yet seen its way to accept such offers of joint service. Another suggestion is for multiple war partnership. Several men, say six neighbors, might unite for the duration of the war and for five years after. Two or three could be released for war service while the others worked the practice. The military pay could be paid into the general account, and the whole divided in an agreed proportion. This plan has the advantage of securing to each man the good will of his practice, because for the five years after the war he would have ample opportunity to regain any that he had lost. A third system is for physicians gone on war service to leave behind a list of their patients who will be attended by neighboring practitioners on their behalf and restored on their return, all fees to be divided equally with the absentee. A fourth system is the establishment of a central clinic; but this would be suitable only for insurance and other patients of the industrial classes.

RELIEF WORK BY ENGLISH QUAKERS IN FRANCE

Their religious principles prevent Quakers fighting in war (although the circumstances of the present war have caused some of them to waive their objections). Whether because of their well-known philanthropy or because they think that abstention from war specially imposed on them duties in connection with it, they have always organized relief for the victims. In the Franco-German War of 1870 they did a great deal in many ways, including help in the rebuilding of destroyed homes. In the present war they have formed a War Victims' Relief Committee, of which the work in France is of four kinds—medical, building, relief and agriculture. On the medical staff there are two doctors, eight fully trained nurses, nine partly trained nurses and midwives, and two assistants, who are engaged at five centers of work: at Châlons-sur-Marne and Sermaize, they are doing hospital work; at Bettaincourt a fine chateau has been lent and a convalescent home established for fifty children; in the devastated villages in the departments of Marne and Meuse and at Bar-le-Duc, medical and district nursing are being done. At Châlons the number of maternity patients had lessened very much since March, and an average of only ten babies had been born each month. A small ward containing eight cots has been devoted to the care of sick babies, and has proved an invaluable adjunct to the work of the Châlons Civil Hospital, which has been overfull. Their work has received the warmest encomiums from the French authorities and the French people.

THE PROBLEM OF INDUSTRIAL FATIGUE AMONG MUNITION WORKERS

The war has created a demand for munitions out of all proportion to anything contemplated previously in this country. Overtime on a large scale and even Sunday labor became the rule, and soon statements were made that the health of the workers was being injured by the long hours. The government therefore appointed a committee of physicians, physiologists, officials and others to consider and advise on questions of industrial fatigue, hours of labor and other matters affecting the health and physical efficiency of munition workers. A report has been published on Sunday labor and industrial canteens, and a report is in preparation on such subjects as welfare supervision, hours of labor, the employment of women, sickness and accidents. With regard to Sunday labor, the committee has come to the conclusion that it should be everywhere discontinued except for the tending of furnaces and other work which must be continuous. Except for quite short periods, continuous work is, in their opinion, a profound mistake, not only on social and religious grounds, but also economically, as the output is not increased. This is so not only because men become bored and wearied with monotony of the work, but also because over a large period the actual number of hours worked is found to be greater when the regulation weekly hours are reduced. Thus, in one case the regulation hours were reduced from 78½ to 65½ per week, yet the average number actually worked during the three months succeeding the change was 60 per week, while the average in the preceding six months was 59¼. The committee also thinks that the foremen and even the higher management require definite periods of rest even more than the manual workers.

On the subject of food the committee considers that industrial alcoholism is partly due to the lack of cheap good food. The provision of dining rooms near the factory and industrial canteens has been found to be a great improvement on going home for meals. After their establishment a reduction in sickness, less absence and broken time, less tendency to alcoholism, and increased efficiency in output were observed.

Marriages

CONSTANTINE GEORGE PSAKI, M.D., New York City, to Miss Frances de Chantal Vogel of Jersey City, N. J., in New York City, recently.

HARRY GRIFFITH HIRSCHLE, M.D., to Miss Leota L. Harless, both of Canton, Ill., in Chicago, December 18.

SESSLER HOSS, M.D., Muskogee, Okla., to Miss Irene Morrow of Nashville, Tenn., December 25.

EDWARD JOSEPH BUXBAUM, M.D., Jamaica, N. Y., to Miss Theresa Gross of Brooklyn, December 23.

HERBERT JOHN SCHMOYER, M.D., Bethlehem, Pa., to Mrs. Bessie M. Mitchell, at Allentown, Pa., November 5.

THEODORE EVELYN TOWNSEND, M.D., to Mrs. Ethel D. Naylor, both of Westwood, N. J., December 24.

CHARLES MCVEA BUCKNER, M.D., Huntington, W. Va., to Mrs. Dorothy Brinton of Philadelphia.

LAFE HELMUTH FRITZ, M.D., Dubuque, Iowa, to Miss Janet McElroy of Pittsburgh, December 29.

LUTHER A. REXFORD, M.D., to Mrs. Pearl David, both of Minneapolis, December 22.

MILES JOHN BREUER, M.D., to Miss Julia E. Strejo, both of Lincoln, Neb., January 4.

Deaths

George Thomas Jackson, M.D. College of Physicians and Surgeons in the City of New York, 1878; aged 63; a Fellow of the American Medical Association and one of the most noted dermatologists of the United States; died at his home in New York City, January 3, from pneumonia; Dr. Jackson was born in New York City, Dec. 19, 1852, and after his graduation in medicine spent two years in post-graduate study in Berlin, Vienna and Strassburg. On his return he was in general practice in New York until 1884, after that time devoting himself entirely to his chosen specialty of dermatology. In 1890 he was appointed professor of dermatology at the Women's Medical College and New York Infirmary; in 1895 he accepted a similar position in the University of Vermont, Burlington, returning to New York two years later to become instructor in dermatology in his alma mater, and in 1905 he was made professor of dermatology. He was consulting dermatologist to the Presbyterian Hospital and New York Infirmary for Women and Children; the author of works on "Diseases of the Hair and Scalp" and "The Ready Reference Handbook of Dermatology." He was a Fellow of the American Medical Association, once president of the American Dermatological Association and the New York Dermatological Society and was honorary librarian of the New York Academy of Medicine.

Charles Clifford Barrows, M.D. University of Virginia, Charlottesville, 1879; New York University, New York City, 1880; aged 58; a Fellow of the American Medical Association and American College of Surgeons; once president of the Bellevue Hospital Alumni Association and New York Clinical Society; from 1882 to 1887 acting assistant surgeon, U. S. Army, and thereafter a practitioner of New York City; assistant professor of clinical surgery in Cornell University Medical Department; a member of the New York Obstetrical Society and New York Academy of Medicine; surgeon to the Manhattan Maternity Hospital; assistant gynecologist to Bellevue Hospital and consulting surgeon to the New Rochelle and Peekskill hospitals; died at his home in New York City, January 2, from pneumonia.

James Clarke White, M.D. Harvard Medical School, 1856; aged 82; a prominent dermatologist of Boston; a member of the Massachusetts Medical Society, American Academy of Arts and Sciences and many foreign scientific organizations; first president of the American Dermatological Society in 1902 and 1903 and president of the International Dermatological Association; died at his home in Boston, January 6. Dr. White was a native of Belfast, Me., studied for a year in Vienna after his graduation in medicine and then began practice in Boston. He became lecturer on chemistry in Harvard Medical School in 1863, was made adjunct professor of chemistry in 1866, instructor in medical chemistry in 1871, and was professor of dermatology from 1871 until 1902 when he became professor emeritus.

Isaac Ott, M.D. University of Pennsylvania, Philadelphia, 1869; aged 68; a Fellow of the American Medical Association; fellow in biology in Johns Hopkins University in 1879; lecturer on physiology in the University of Pennsylvania in 1878; professor of physiology in 1884 and dean in 1895 and 1896 of the Medico-Chirurgical College of Philadelphia; a member and formerly president of the American Neurological Association; chairman of the physiologic section of the Pan-American Congress; consulting neurologist to the State Hospital, Norristown, Pa.; author of a number of monographs on diseases of the nervous system, the last of which, a work on "Internal Secretions," was published in 1910; died at his home in Easton, Pa., January 1, from pneumonia.

William B. Graham, M.D. Rush Medical College, 1861; aged 80; a member of the Indiana State Medical Association and said to have been the oldest practitioner of Hamilton County, Ind.; surgeon of the One Hundred and First Indiana Infantry, U. S. V., during the Civil War and for three months a prisoner in Libby Prison, Richmond, Va.; who, on the occasion of his semicentenary of practice in 1911, was the guest of honor of the Hamilton County Medical Society and was presented with a gold-headed cane; for thirty-five years local surgeon at Noblesville, Ind., for the Lake Erie and Western Road, and for several terms secretary of the board of health of Noblesville; died at his home in that city, December 29.

Robert Stormont Anderson, M.D. Kentucky School of Medicine, Louisville, 1884; aged 54; a Fellow of the American Medical Association and president of the Gibson County (Ind.) Medical Society; for many years a practitioner of Princeton, Ind., and health officer of Princeton and Gibson County; local surgeon to the Southern, and Chicago and Eastern Indiana systems; for several years a member of the board of education of Princeton; died at his home, December 23, from appendicitis. At a meeting of the Gibson County Medical Society, December 23, a committee was appointed to draft suitable resolutions regarding the death of Dr. Anderson.

Charles Heady Beard, M.D. University of Louisville, Ky., 1887; aged 60; a Fellow of the American Medical Association and American College of Surgeons; a member of the Mississippi Valley Medical Association, Chicago Ophthalmological Society of which he was once president, American Ophthalmological Society and Physicians' Club of Chicago; chief surgeon of the Illinois Charitable Eye and Ear Infirmary and head of the ophthalmologic staff of the Passavant Memorial Hospital; for more than thirty years a specialist on diseases of the eye and ear; died at his home in Chicago, January 3, from carcinoma of the stomach.

Granville T. Collins, M.D. Medical College of Virginia, Richmond, 1894; aged 57; a Fellow of the American Medical Association and Richmond Academy of Medicine and Surgery; a well-known practitioner of Highland Springs, Va.; who was injured, December 25, in a collision between his automobile and a passenger train of the Chesapeake and Ohio Railway at Laundry Crossing; died in St. Luke's Hospital, Richmond, December 26. The Richmond Academy of Medicine and Surgery held a special meeting, December 27, to take suitable action and draw up resolutions of sympathy for the bereaved family.

William J. Ashenfelter, M.D. University of Pennsylvania, Philadelphia, 1870; a member of the Medical Society of the State of Pennsylvania and of the Association of Military Surgeons of the United States; formerly surgeon of the Sixth Infantry, Pa. N. G., and also brigade surgeon; major surgeon of the Sixth Pennsylvania Volunteer Infantry, during the Spanish-American War; for many years chief of staff of the Pottstown, Pa., Hospital; a well-known and beloved practitioner of Pottstown; died at his home in that city, Jan. 1.

Charles Townshend Dade, M.D. College of Physicians and Surgeons in the City of New York, 1891; aged 56; a Fellow of the New York Academy of Medicine and a member of the New York Dermatological Society; consulting dermatologist to Roosevelt Central Islip, Englewood and Vassar Brothers hospitals; chief of the dermatologic clinic of St. Luke's Hospital, New York City; and for many years connected with the Vanderbilt Clinic; died at his home in New York City, December 26.

William W. Blair, M.D. Medical College of Ohio, Cincinnati, 1850; aged 88; a member of the Indiana State Medical Association and one of the oldest practitioners of the state; who was the guest of honor of the Gibson County Medical Society in 1910 on the occasion of the sixtieth anniversary of his entrance into the practice of medicine; surgeon of United States Volunteers for four years during the Civil War; died at his home in Princeton, Ind., January 2.

Rose Talbott Bullard, M.D. Northwestern University Woman's Medical School, Chicago, 1886; aged 51; a Fellow of the American Medical Association and formerly president of the Los Angeles County Medical Association; secretary of the Los Angeles Antituberculosis League, and one of the most prominent woman surgeons and gynecologists of the Pacific Coast; died in California Hospital, Los Angeles, December 22, a week after an operation for peritonitis.

Edgar Reeve Bryant, M.D. Hahnemann Medical College, Philadelphia, 1889; aged 49; professor of surgery, registrar and a member of the board of directors of the Hahnemann Medical College of the Pacific, San Francisco; surgeon to the San Francisco City and County Hospital; died in Lane Hospital, San Francisco, December 30, from injuries received in a fall through a skylight in the California Building of the Panama-Pacific Exposition, December 4.

Josiah Lee McComas, M.D. University of Maryland, Baltimore, 1858; aged 80; acting assistant surgeon, United States Army, throughout the Civil War; a founder and vice president of the Pan-American Medical Congress; health officer of Garrett County, Md., and local surgeon at Oakland for the Baltimore and Ohio System for many years; died at the home of his son in Oakland, Md., December 20.

Fenner H. Peckham, M.D. Yale University, New Haven, Conn., 1866; aged 71; a member of the Rhode Island Medical Society; for many years active as a practitioner and banker

of Providence, R. I.; president of the Providence Public Park Association and chairman of the Metropolitan Park Commission of Rhode Island since 1905; died at his home in Providence, December 26, from heart disease.

Charles H. Emmerling, M.D. University of Jena, Germany, 1857; aged 82; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; for more than half a century a prominent practitioner of Pittsburgh and a member of the medical staffs of the Passavant, Pittsburgh and West Penn hospitals; died at his home in Pittsburgh, December 27.

George Suttie, M.D. Detroit College of Medicine and Surgery, 1893; aged 63; assistant to the chair of ophthalmology and otology and professor of botany in the department of pharmacy of his alma mater; lecturer on chemistry in the Detroit Technical Institute; a specialist on diseases of the eye and ear; died in Harper Hospital, Detroit, January 1, from pneumonia.

William McKinnon Goodlove, M.D. Medical College of Ohio, Cincinnati, 1872; aged 69; a veteran of the Civil War; appointed surgeon in the Bureau of Pensions, Washington, D. C., in 1885; and since that time a clerk in the Public Debt and Customs Division of the Treasury Department, Washington, D. C.; died at his home in Washington, December 26.

Henry Herbert Atkinson, M.D. Cooper Medical College, San Francisco, 1900; aged 45; a missionary of the American Board of Commissioners for Foreign Missions at Mezerek, Mamurette-ul-Aziz, and later at Harpoot, Turkey-in-Asia, where he was in charge of the Annie Tracy Riggs Memorial Hospital; died in Harpoot, January 1, from typhus fever.

John Henry Silvey, M.D. Cincinnati College of Medicine and Surgery, 1877; Bellevue Hospital Medical College, 1878; aged 70; a Fellow of the American Medical Association; formerly a druggist and practitioner of Wheeling, W. Va., but for the last three years a practitioner of Sharpsburg, Pa.; died at his home in that place, December 27.

William Clifton Drein, M.D. University of Pennsylvania, Philadelphia, 1899; aged 39; physician-in-chief to the Stetson Hospital, Philadelphia, and a member of the Philadelphia Medical Club; died in the Episcopal Hospital, Philadelphia, January 1, from disease of the lungs for which operation had been performed five days before.

Edward Beach Crowell, M.D. College of Physicians and Surgeons in the city of New York, 1853; aged 86; later a practitioner of Paris, France; and afterward a lawyer of New York City; died at his home in New Brighton, S. I., January 2, from the effects of injuries sustained a month before in a fall in a street car.

George Dallas Barrett, M.D. Dartmouth Medical School, Hanover, N. H., 1878; aged 69; formerly a member of the Medical Society of the State of New York and Massachusetts Medical Society; health officer of the town of Galen, N. Y.; died at his home in Clyde, N.Y., December 23, from uremia.

Lawrence Anderson, M.D. Tulane University, New Orleans, 1890; aged 55; a dentist of Lake Charles, La., and later a practitioner of Tulsa, Okla.; formerly a member of the Louisiana State Medical Association; died at his old home in Lake Charles, recently, from diabetes.

James Lisle, M.D. Cincinnati College of Medicine and Surgery, 1873; aged 76; from 1884 to 1888 a representative in the Ohio State Legislature from Licking County; a veteran of the Civil War; died at his home in Columbus, Ohio, December 22, from cerebral hemorrhage.

Pliny W. Blanchard, M.D. Berkshire Medical College, Pittsfield, Mass., 1854; aged 86; assistant surgeon of the Forty-Ninth Wisconsin Infantry, U. S. V., throughout the Civil War; for sixteen years health officer of Harvard, Ill.; died at his home in Harvard, December 17.

Samuel Stille, M.D. University of Pennsylvania, Philadelphia, 1875; Pennsylvania Medical College, Gettysburg, 1857; aged 86; a pioneer practitioner of Atlantic City and senator from Atlantic County, N. J., from 1863 to 1865; died at his home, December 23, from pneumonia.

Maximilian Kuznik, M.D. College of Physicians and Surgeons, Chicago, 1903; aged 36; professor of clinical diagnosis in Hering Medical College, and the Chicago College of Medicine and Surgery; died at his home in Chicago, January 4, from rheumatic endocarditis.

Roderick Fraser, M.D. Bellevue Hospital Medical College, 1897; aged 45; formerly of New York City, but for three years a resident of Saranac Lake, N. Y.; died at his home in that place, December 16, from tuberculosis.

Charles Eugene Norris, M.D. University of Michigan, Ann Arbor, 1886; aged 57; a Fellow of the American Medical Association and treasurer of the Summit County, Ohio, Medical Society for four terms; died at his home in Akron, Ohio, December 29, from pneumonia.

George W. Bennett, M.D. University of Louisville, Ky., 1882; aged 57; died at his home in Fort Sumner, N. M., December 26, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent, while despondent on account of ill health.

William Ernest Montgomery, M.D. Memphis Hospital Medical College, 1900; aged 37; a member of the Mississippi State Medical Association; of Norfield, Miss.; died suddenly while returning from a professional call near Bogue Chitto, December 25, from heart disease.

Caleb M. Chalfant, M.D. Western Reserve University, Cleveland, 1857; aged 82; for nearly half a century a practitioner of Cleveland Heights; surgeon of Volunteers during the Civil War; died in the Lutheran Hospital, Cleveland, December 29, from pneumonia.

Daniel Morrison Benonia Thorn, M.D. Rush Medical College, 1874; aged 71; for forty-one years a missionary of the American Board of Commissioners for Foreign Missions in Mardin, Turkey, where he was in charge of a hospital; died in Sivas, Turkey, December 6.

Otto Stuckert, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1890; aged 53; of Whiteside, Mo.; died in the Missouri Baptist Sanitarium, St. Louis, December 20, from the effects of a self-inflicted gunshot wound of the head.

Henry Laurens Metcalfe, M.D. Tulane University, New Orleans, 1878; for five years a resident of South America and thereafter a practitioner of Natchez, Miss.; died at the home of his brother in that city, December 14.

David L. Deal, M.D. Medical Department of the University of the Pacific, San Francisco, 1861; Cooper Medical College, San Francisco, 1882; aged 73; died at his home in Pacific Grove, Calif., December 16.

George B. Bristol (license, Connecticut, 1893), health officer of Middlebury, Conn.; for more than thirty years a practitioner of that place; died at his home, December 1, from cerebral hemorrhage.

Eugene W. Beebe, M.D. Hahnemann Medical College, Chicago, 1866; aged 75; of Milwaukee; a specialist on diseases of the eye and ear; died at his home, December 19, from cerebral hemorrhage.

James Allen Jones, M.D. University of Louisville, Ky., 1890; aged 48; a Fellow of the American Medical Association; of D'Hanis, Texas; was shot and killed at his home, in that place, December 17.

Alfred Victor Brailly, M.D. College of Physicians and Surgeons in the City of New York, 1875; aged 63; died at his home in the Bronx, New York City, December 22, from pneumonia.

Owen C. Morris, M.D. University of Virginia, Charlottesville, 1896; aged 52; died at his home in Iron Gate, Va., from a glioma of the brain for which operation had twice been performed.

Elliot Benjamin Smith, M.D. Bellevue Hospital Medical College, 1867; aged 80; for nearly half a century a practitioner of Greeneville, Tenn.; died at his home, December 17.

William A. Swimley, M.D. Cincinnati College of Medicine and Surgery, 1876; aged 70; of Winchester, Va.; died at the home of his son in Staunton, Va., December 18.

Willard H. Greene, M.D. Jefferson Medical College, 1865; aged 89; a veteran of the Civil War; died at his home in Cumberland, R. I., December 21.

Cora E. Taylor, M.D. Pulte Medical College, Cincinnati, 1884; aged 62; died at her home in Chicago, December 22, from cerebral hemorrhage.

Richard H. Galphin, M.D. Medical College of Georgia, Augusta, 1884; of Beech Island, S. C.; died at a hospital in Augusta, December 15.

Samuel Omar Duncan, M.D. Rush Medical College, 1896; aged 48; died at his home in Forest, Ind., December 18, from tumor of the brain.

Frank Ellett Bell, M.D. Medical College of Virginia, Richmond, 1908; aged 31; died at his home in Wilmington, Va., December 18.

Edward S. Fowler, M.D. McGill University, Montreal, 1894; died suddenly at his home in Staples, Minn., December 18.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

SO-CALLED SECRETIN PREPARATIONS

Report of the Council on Pharmacy and Chemistry

The Council authorized the following report for publication, and voted to endorse the work of Professor Carlson discussed therein. W. A. Puckner, Secretary.

The Council has not accepted for inclusion in New and Nonofficial Remedies any preparations said to contain secretin or prosecretin as their active ingredient. A report giving the reasons for the rejection of one (the first of the so-called secretin preparations marketed) was published early last year;[1] an article on secretin, based on work undertaken at the request of the Council on Pharmacy and Chemistry, is now published.[2]

Lest the appearance of this detailed study of secretin, after the rejection of so-called secretin preparations, should be interpreted (as manufacturers whose products have been rejected have endeavored to interpret such action) as a case of first condemning a preparation and then getting the facts, the Council's methods, and their application in this case, may be briefly stated. The Council maintains that, when a manufacturer places a product on the market, the burden of proof is on that manufacturer to show that the properties of his product are in accordance with his claims for it. As stated in the introduction to N. N. R., "it is . . . manifestly impossible for the Council to investigate the composition of every complex pharmaceutical mixture, or to check thoroughly every therapeutic claim; it can give only an unbiased judgment on the available evidence." Acting on this principle, the Council examined the claims made for Secretogen, an alleged secretin product manufactured by the G. W. Carnrick Company. The conclusion was that these claims were in absolute conflict with the available evidence as to the action of secretin.

It is not necessary to review this subject again. It will suffice to state that the claims made for Secretogen rest on two fundamental propositions: (1) that deficiency of secretin (or, rather, of prosecretin) in the intestinal mucosa is a factor in gastro-intestinal diseases; (2) that secretin given by the mouth is absorbed and produces increased secretion of the pancreatic and intestinal juices and of the bile.

From an examination of the evidence available, including that submitted by the manufacturers, the Council concluded: "1. No evidence has been presented that the absence of secretin is a cause of gastro-intestinal disease. 2. There is no evidence that secretin in any form is physiologically active when administered by mouth." That these conclusions were justified is shown again by the review given by Carlson of the literature, much of which was also reviewed in the Council's previous report.

Since the claims of the Carnrick Company were not supported by any satisfactory evidence, no further investigation on the Council's part was necessary to warrant rejection of the product. The Council did not undertake to determine, for instance, whether or not Secretogen and similar products actually contain secretin; the determination of this point was immaterial here, in view of the conclusiveness of the evidence that secretin given by mouth has no physiologic action.

Since firms other than the G. W. Carnrick Company are manufacturing alleged secretin preparations, and since recommendations for the use of secretin preparations in gastro-intestinal diseases have even crept into textbooks, it seemed desirable to obtain further information on certain points. The Council therefore requested Prof. A. J. Carlson of the University of Chicago to check the results of previous investigators with regard to the action of secretin administered by mouth or directly into the intestine, and, in addition, to investigate the secretin content of certain alleged secretin preparations.

Carlson and his co-workers, like all previous investigators, found that secretin given by the mouth, or introduced even in enormous doses directly into the intestine, is entirely inactive. They also found that marked destruction of secretin followed contact for one minute with human gastric juice and that secretin is rapidly oxidized and rendered inert in contact with the air.

Further, they were unable to demonstrate the presence of secretin in samples of Secretogen and another supposed secretin preparation (Duodenin) bought on the open market. In the case of Secretogen there was one exception: one bottle was found which contained a little secretin, but it was necessary to administer (by intravenous injection, of course) the entire contents of the bottle (100 tablets) to obtain "a small but unmistakable secretin reaction."

In these studies the methods employed were those by which secretin was discovered. It is only by the use of such methods that the presence or absence of secretin can be determined. Apparently the manufacturers who place so-called secretin preparations on the market do not make use of these methods, by which alone even the composition of their products can be determined.

Carlson and his collaborators conclude:

"There is as yet no reliable evidence that lack of secretin is a primary or important factor in any disease. Even should this be established, secretin therapy, to be effective, must be intravenous. Secretin has not yet been prepared in sufficiently pure state to render possible intravenous injection in man without injurious effects. And even when this is attained, the very fleeting action of secretin will in all probability render secretin therapy as futile in all the diseases in which it is theoretically indicated as epinephrin therapy is in Addison's disease."

In short, secretin is as ineffective taken by mouth as it would be rubbed on the skin.

The referee recommends that the work of Professor Carlson be endorsed.

1. Secretogen, The Journal A. M. A., May 1, 1915, p. 1518.
2. Carlson, Lebensohn and Pearlmann: Has Secretin a Therapeutic Value? The Journal A. M. A., this issue, p. 178.

Correspondence

Drainage of Small Abscesses—Pneumatic Band as a Tourniquet

To the Editor:—Two little details of technic are perhaps too trivial to report, and quite likely have been used by others. I make no claim for originality beyond the fact that I have never happened to see them used elsewhere; and I have found them as satisfactory as they are simple.

Many small abscesses are hard to drain, on account of the tendency of the incision to make valvular closure. This is particularly true in the palmar and plantar regions, in which drainage in the ordinary method, in order to be effectual, may be painful. Here, I cut out a wide elliptic piece of integument, making its width vary somewhat with its thickness. I thus produce an opening which cannot possibly close until it fills up from the bottom, making drainage easy, and often unnecessary.

Since the use of a wide pneumatic band with the sphygmomanometer has become general, and I have noticed the ease and precision with which the arterial pressure may be regulated, I have used one of those bands as a tourniquet on the thigh and arm in amputations and other operations. The result is ideal. With no confusion to the external coverings, an assistant, with a light turn of the screw or a slight pressure on the bulb, can maintain just exactly enough pressure to produce hemostasis, and no more. No injury is done to the large vessels, and during ligation the pressure may be alternately raised and lowered, so as to give perfect control. Augustin A. Crane, M.D., Waterbury, Conn.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

COFFEE AND COFFEE SUBSTITUTES

To the Editor:—Many substitutes for coffee are being advertised, among which are "Vacuum Improved Coffee," "Kaffee Hag," "Postum" and "Monco." In what way do these differ from ordinary coffee? Please do not use my name. ENQUIRER, Columbus, Ohio.

ANSWER.—The extensive advertising of a certain coffee substitute opened the market for various forms of coffee and coffee substitutes. Each promoting concern, in its own interest, attempts to create a prejudice against ordinary coffee. Of the actual chemical constitution of coffee we know little. Ordinary coffee is made by subjecting the green bean to heat, in a rotating cylinder, until the bean has been browned to the right color. This process is one of destructive distillation. That is, the oils (aroma), etc., are formed as a result of the breaking up of organic substances at a high temperature. Some of these oils are retained in the bean, while a portion of the oils and a portion of the caffein are volatilized and escape. The amount of organic matter lost in the process of roasting is about 10 per cent.

"Vacuum Improved Coffee" is said to differ from ordinary coffee in that the bean is first subjected to the action of superheated steam, and then placed in a vacuum. The steam swells the grain and causes hydrolysis of some of the complex organic compounds. Immediately following this, the bean is subjected to negative pressure (a so-called vacuum) which removes some of the products of hydrolysis, notably furfurol. The caffein, it is claimed, is not removed. This preliminary treatment permits the roasting (during which process the aromatic oils are formed) to be done at a lower temperature than is ordinarily the case. This method is supposed to enhance the flavor and lessen the astringency. The question of the relative toxicity in comparison to ordinary coffee has not been scientifically investigated. The caffein content is practically the same as in ordinary coffee.

"Kaffee Hag" is a so-called "decaffeinated coffee." It is claimed to contain only 5 per cent. of the *original* amount of caffein, but otherwise to be the same as ordinary coffee. The processes of making both "Kaffee Hag" and "Vacuum Improved Coffee" are patented.

"Postum" or "Postum Cereal" is a "coffee substitute." It contains no alkaloids. According to a pamphlet issued by *Collier's,* it is stated to be "made from roasted and ground bran, wheat and molasses — mostly bran." Exaggerated claims have been made for the product.

"Monco" is another so-called "coffee substitute." According to information which has come to us, it is prepared from French chicory and roasted grains and vegetables (such as carrots, sweet potatoes, barley and rye). Tests made in the laboratory of the American Medical Association demonstrated the absence of caffein.

THE TOXICITY OF METHYL ALCOHOL

To the Editor:—Will you inform me what is the poisonous element in wood alcohol? I have seen many cautions as to its use and its dangerous elements, but never as to the poisonous one. I have used much of it in an alcohol stove for sterilizing instruments and heating water, and have never had any ill effects. Is there harm in using it in this way? Can the open flame be deleterious?

A. I. LAWBAUGH, M.D., Calumet, Mich.

ANSWER.—In the past, opinion has been divided as to the cause of the toxic effects produced by the ingestion of methyl alcohol. Some have held that these toxic effects were due to some of the contaminations, such as acetone, which are almost always present except in highly refined products, rather than to the methyl alcohol itself. The known facts with regard to this substance, however, indicate that it is in itself a highly toxic agent. The end-product of its combustion in the body (formic acid) is also toxic. Ordinary grain spirit or ethyl alcohol when taken in small quantities is largely burnt up in the body to carbon dioxid and water, and the unburnt excess is eliminated through the kidneys and the respiratory exchange. Methyl alcohol, on the contrary, is incompletely burnt up to the irritating formic acid (Pohl: *Arch. f. exper. Path. u. Pharmakol.,* 1893, xxxi, 281; editorial, THE JOURNAL, Nov. 30, 1912, p. 1974). The unburnt residue after a moderate dosage may not be completely eliminated after two days (Völtz and Dietrich: *Biochem. Ztschr.,* 1912, xl, 15; editorial, THE JOURNAL, July 20, 1912, p. 200). This accumulation of methyl alcohol in the system and its slow elimination possibly constitute the reasons for the special toxicity of methyl alcohol. This applies especially when methyl alcohol is given in repeated small doses. A single large dose of methyl alcohol may be less toxic than a similar dose of ethyl alcohol. Except in cases of idiosyncrasy, the superior toxicity of methyl alcohol is manifest chiefly under chronic conditions.

There is no reason to believe that methyl alcohol as a fuel possesses any special dangers or disadvantages. The products of its complete combustion are the same as those of the combustion of ethyl alcohol, namely, water and carbon dioxid.

VALUE OF ROUTINE FUMIGATION

To the Editor:—During a recent epidemic of scarlatina in this vicinity, a number of the "B. & B. Solidified Formaldehyde fumigators" were used. These apparently gave satisfactory results, as there have been no infections from the places where they were used. I am writing to ask whether or not these are considered efficient? I consider them more efficient than the so-called sheet method recommended by the state board of health.

This epidemic was among the schoolchildren at this place, and some of them became sick at the schoolhouse. The schoolhouse was not fumigated. I maintain that it should have been, and so expressed my opinion, but as I am not the health officer I did not try to enforce my ideas.

Will you kindly furnish me information along these lines?

M. B. GALLOWAY, M.D., South English, Iowa.

ANSWER.—The value of routine fumigation of rooms as a means for preventing the spread of infectious diseases has been seriously questioned of late years. The experience of the health authorities at Providence, R. I., extending over many years, indicates that the abandonment of room disinfection is not followed by any noticeable increase in the number of secondary cases. In New York City, terminal disinfection has been omitted since 1913 in cases of scarlet fever and several other diseases. Milwaukee, Boston and other cities have followed the example set by the authorities of Providence and New York, and in no case has there been evidence of the increase of diseases like diphtheria, measles and scarlet fever in consequence of the discontinuance of room fumigation. New York City has now adopted a definite program for study in this field, and the results, when available, will constitute an important contribution to this question of public health administration.

POISONING FROM INHALATION OF BENZIN

To the Editor:—I have a patient who now has to work in a room 20 by 100 in which he is exposed to the fumes and vapors of benzin for eight hours each day. It seems to affect him as follows: After getting to work he begins to get drowsy, head begins to swim and begins to feel light, and he gets dizzy. This effect is slight at first but gets increasingly worse, and soon the muscles of his arms feel tired and "all in" and gradually his legs become affected. He soon has some difficulty in breathing and if he goes to the open air, as he occasionally does, he falls to the ground, his legs giving way, and he feels "giggly" and foolish. He has no desire for food, always feels tired and drowsy, though unable to sleep well, feels thirsty and has a desire to void frequently, passing urine that is strongly odorous of benzin. He looks haggard and worn. Please let me know how deleterious to health this apparent benzin poisoning is, how to prevent it and how to rid the system of it. H. I. B.

ANSWER.—Few textbooks discuss benzin poisoning, probably because it has been infrequent until comparatively recently. Holland ("Medical Chemistry and Toxicology," Ed. 3, p. 380) mentions general debility, palpitation of the heart, staring eyes, hallucinations, cough and chronic bronchitis as among the effects produced on workers in oil refineries and rubber factories by inhalation of benzin. Oliver ("Dangerous Trades," 1902, p. 492) says that women are more susceptible than men. Fatal cases are said to be rare. Persons vary in susceptibility to the toxic effects of benzin. The only means of prevention that have been suggested are ventilation of the workrooms and, for susceptible persons, change of employment. The system rids itself of benzin through the lungs; hence persons affected should be given fresh air.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

IOWA: Des Moines, Feb. 8-10. Sec., Dr. G. H. Sumner, State House, Des Moines.

KANSAS: Topeka, Feb. 8. Sec., Dr. H. A. Dykes, Lebanon.

NEW YORK: Albany, Buffalo, New York and Syracuse, Jan. 25-28. Chief, Examinations Division, Mr. Harlan H. Horner, State Education Bldg., Albany.

PENNSYLVANIA: Philadelphia, Jan. 18-20. Sec., Mr. Nathan C. Schaeffer, Harrisburg.

VERMONT: Montpelier, Feb. 8-11. Sec., Dr. W. Scott Nay, Underhill.

Louisiana June Report

Dr. E. L. Leckert, secretary of the Louisiana State Board of Medical Examiners, reports the written examination held at New Orleans, June 3-5, 1915. The total number of subjects examined in was 11; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 57, of whom 41 passed and 16 failed. Two candidates were licensed through reciprocity. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Howard University	(1914)	81.1
Tulane University of Louisiana	(1914) 83.5, 86.3; (1915)	76.1, 76.3, 76.5, 77.4, 78.2, 78.7, 79.5, 80.3, 80.4, 80.6, 81.6, 81.8, 82.1, 82.1, 82.2, 83.2, 83.2, 83.3, 83.4, 83.5, 83.7, 83.7, 83.9, 84.3, 84.5, 84.6, 85.7, 85.8, 85.8, 86.2, 86.3, 86.6, 86.9, 87.2, 87.7, 87.9, 88.1.
Meharry Medical College	(1915)	77

FAILED		
University of Alabama	(1912)	69.6
Howard University	(1912)	77.4*
Atlanta College of Physicians and Surgeons	(1913)	58.3
Atlanta School of Medicine	(1911)	75.4*
Chicago College of Medicine and Surgery	(1915)	78.7*
Tulane University of Louisiana	(1915) 73.9, 75*,	76.7*
Meharry Medical College	(1912)	59.9
Memphis Hospital Medical College	(1912)	74.3
University of Tennessee	(1900)†; (1913) 61.9; (1914) 64.6, 68.8,	76.6*
College of Phiysicians and Surgeons, Dallas	(1907)	57.1

LICENSED THROUGH RECIPROCITY		
College	Year Grad.	Reciprocity with
Rush Medical College	(1906)	Illinois
University of Louisville	(1913)	Kentucky

* Fell below the required average in one subject.

† Examination incomplete.

The following questions were asked:

CHEMISTRY

1. What are the properties of urea? 2. How would you test for urea in the urine? 3. (*a*) What are the leukomains or purin bodies? (*b*) Name some of them. 4. What are the principal globulins, and what part do they play in the coagulation of the blood? 5. (*a*) What are amido-acids; (*b*) Name the most important one of them. 6. In what form, and in what manner, does arsenic prove poisonous? 7. What does hydrogen sulphid form with metals? 8. Where, and how, does hydrogen sulphid form in the body? 9. What boron compound is of medical interest, and what are its chemical properties? 10. (*a*) What is hydrocyanic acid? (*b*) What is the toxic effect of this acid?

ANATOMY

1. Describe the occipital bone. 2. Name the principal ligaments of the hip joint. 3. Give origin and insertion of trapezius, omohyoid, tibialis anticus, transversalis and pronator quadratus. 4. Name the principal muscles of respiration. Give origin and insertion of any two. 5. Describe the spleen. 6. Name the abdominal viscera (*a*) completely covered by peritoneum, (*b*) partially covered by peritoneum. 7. Give the histology of a hepatic lobule. 8. Give origin and distribution of great sciatic nerve. 9. Name and give location of the principal glands of the small intestine. 10. What arteries form the circle of Willis?

PHYSIOLOGY

1. (*a*) What are the essentials for the clotting of blood? (*b*) Describe the process of coagulation. 2. (*a*) Where is lymph formed? (*b*) What is the difference between lymph and serum? 3. Describe what is meant by internal respiration. 4. (*a*) Where is the respiratory center situated? (*b*) What phenomena occur in a division of the spinal cord above the phrenic nerve? (*c*) What occurs if the cord is divided below the phrenic nerve? 5. Where and how is bread, where and how is butter, digested? 6. Name the secretory nerve of the stomach; what result follows its stimulation by the presence of food in the stomach? 7. Compare the effect of dividing the renal nerve with that of stimulating them (*a*) in regard to the blood supply, and (*b*) with reference to the secretion of urine. 8. What is the function of the third cranial nerve? State what muscles are innervated by it. 9. What are the functions of the cerebellum? 10. What are the constituents of the pancreatic fluid, and what part does each play in digestion?

MATERIA MEDICA

1. Name three vermicides. Give dose and state for which variety of worms used. 2. Diphtheria antitoxin: How prepared? Define unit. Give immunizing and curative doses for a child 3 years old. 3. Name the digitalis group. In what condition of the heart are the digitalis bodies especially indicated? 4. What is posology? Define Cowling's rule. Give an example using Cowling's rule. 5. Give the difference between an irritant and counterirritant. 6. Give symptoms of carbolic acid poisoning occurring by absorption. 7. Give physiologic action of chloral. 8. Give an example of a pharmaceutic incompatibility and a therapeutic incompatibility. 9. Give dose and usages of ricini oleum. 10. Give antidote, incompatibility and usages of argenti nitras.

GYNECOLOGY

1. How would you prepare a woman for a pelvic examination? Give also the various manipulations employed in the examination. 2. Under what conditions is the Sims speculum of decided advantage? 3. What changes may salpingitis undergo? 4. In what way does the tubercle bacillus find its way to the tube in a case of primary and secondary tuberculosis of the fallopian tube? 5. What are the terminations of a tubal gestation? 6. Give causes and treatment of sterility. 7. How would you diagnose a case of coccygodynia? 8. Name the various urinary fistulas. 9. Describe clinically and pathologically three types of endometritis. 10. What pathologic conditions demand hysterectomy?

SURGERY

1. Give symptoms of fracture of the base of skull. 2. What is cholelithiasis? How would you diagnose the condition? 3. Differentiate between obstruction of the common and cystic duct. 4. Describe the operation of phlebotomy. 5. Define a hematoma, a thrombus, a phlegmon, a furuncle, an embolus. 6. Give symptoms and treatment of mastoiditis. 7. How would you diagnose glaucoma? 8. What is hyperthyroidism? Give symptoms. 9. Give signs and symptoms of popliteal aneurysm. 10. Name four complications liable to occur in a male suffering from gonorrhea.

PATHOLOGY

1. Give the pathology of peptic ulcers. Where are the most unfavorable ulcerations situated? 2. What is the most common form of tumor of the brain? From where does it usually arise? 3. Define edema, giving clinical causes for same. 4. In carcinoma of the female breast, describe the gross and the microscopic appearance of a common variety, and give the usual points of metastasis. 5. Name four diseases in which the relative number of leukocytes are increased, and four in which they remain stationary or decreased. 6. Locate and describe the changes in the brain in bulbar paralysis, and describe the effect on other parts of the body. 7. Explain briefly the pathology of both lobar and lobular pneumonia. 8. What are the conditions predisposing to intestinal stasis? 9. Give the pathology of osteomyelitis. Where does it usually begin? 10. By what are malignant tumors characterized?

OBSTETRICS

1. (*a*) What structures enter into the formation of the pelvic floor; (*b*) how protect same during labor? 2. Name the bones, divisions, straits and symphyses of the obstetric pelvis. 3. What symptoms and signs would be suggestive of a pregnancy of two months' duration in a primipara? 4. What are the causes of dystocia occurring, respectively, in the uterus, vagina, pelvis and vulva? 5. A primipara fourth day after full term delivery, evidence of uterine infection, no hemorrhage, retained ovular remnants suspected: What would be the treatment? 6. (*a*) Define presentation, position and posture. (*b*) What causes may modify each and cause an abnormal labor? 7. What injuries may occur in the birth-canal incident to labor? How and when are they best discovered, and how should they be treated? 8. (*a*) What are the causes of hemorrhage before and after labor? (*b*) Treat in detail one of the conditions mentioned. 9. (*a*) What are the symptoms of impending eclampsia? (*b*) Treatment. (*c*) The treatment, should convulsions ensue? 10. State the management of posterior positions of vertex presentations.

PHYSICAL DIAGNOSIS — THEORY AND PRACTICE OF MEDICINE

1. (*a*) In estimating the various percussion sounds, what elements are to be considered? (*b*) What are the attributes of percussion elicited over an air-containing viscus? (*c*) Over an airless viscus? 2. Describe four of the principal heart murmurs, stating the lesion, the area of maximum intensity, the rhythm, the area of audition, and the direction of transmission of each. 3. What are the characteristics of accidental (hemic) murmurs? 4. What are the evidences of impending death? 5. (*a*) Name the various diseases associated with gross splenic enlargement; (*b*) differentiate any two of the diseases mentioned. 6. Show the differential features between chronic parenchymatous nephritis and chronic interstitial nephritis. 7. State the symptoms and early diagnosis of hip-joint disease. 8. Summarize the diagnosis of gastric carcinoma. 9. (*a*) What is the period of incubation and the character of the rash of scarlatina? (*b*) What are the frequent complications and sequelae? 10. Treat a case of pellagra.

HYGIENE

1. Name the sources of impurities in the air. 2. The parasitic diseases due to meat are caused by what organisms? 3. What are the causes of the unfitness of meat as food? 4. What should be the specific gravity of cow's milk for human consumption, and how is it rendered higher or lower in gravity? 5. What bacteria are capable of producing chemical changes in milk? 6. Upon what factors does the hygienic importance of waste matter depend? 7. What are the most dangerous elements of all waste matter? 8. What are the objections to sea-disposal of sewage? 9. What pathogenic bacteria may be found in water? 10. Name some of the trade infections, and state how they can be reduced or prevented.

California July Report

Dr. Charles B. Pinkham, secretary of the Board of Medical Examiners of the State of California, reports the written examination held at Los Angeles, July 12-16, 1915. The total number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 84, of whom 57 passed, including 7 osteopaths and 3 drugless practitioners, and 27 failed, including 10 osteopaths and 6 drugless practitioners. Twenty-two candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
California Eclectic Medical College	(1915)	76.8, 77, 79.9, 88.1
College of Medical Evangelists	(1914)	76.5, 86.9; (1915) 76.5, 79.4, 82.3, 86.1, 86.3, 87.7, 87.8
College of Physicians and Surgeons, Los Angeles	(1914)	80.3, 80.8; (1915) 77.9, 81.8, 82.4, 82.9, 83, 83.2, 85.8, 87, 87, 87.4, 87.4, 87.4, 88.5, 88.9, 89.3, 89.4, 90.7, 90.5, 93.4
Hahnemann Medical College of the Pacific	(1915)	82.5
Oakland College of Physicians and Surgeons	(1915)	81.1, 81.4, 81.4
Northwestern University	(1914)	89.5
Barnes Medical College	(1911)	75.1
St. Louis College of Physicians and Surgeons	(1910)	75
Columbia Univ., Coll. of Phys. and Surgs.	(1911)	90.1
Cornell University	(1915)	92.5
New York Homeo. Med. Coll. and Flower Hosp.	(1913)	96.2
Jefferson Medical College	(1915)	81.5
Woman's Medical College of Pennsylvania	(1913)	87.3

FAILED

College		
California Eclectic Medical College	(1914)	71.3; (1915) 55.8, 58.2, 62.4, 71.3
College of Phys. and Surgs., Los Angeles	(1914)	72.5
Atlanta School of Medicine	(1907)	35*
Tufts College Medical School	(1903)	63.2
Meharry Medical College	(1913)	37.9
Vanderbilt University	(1889)	40
University of Toronto	(1870)	66

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Gross Medical College	(1900)	Nebraska
Yale University	(1900)	Connecticut
College of Phys. and Surgs., Chicago	(1898)	Iowa; (1904) Illinois
Dunham Medical College, Chicago	(1900)	Illinois
National Medical University, Chicago	(1897)	Illinois
Rush Medical College	(1900, 2)	Illinois
Keokuk Medical Coll., Coll. of Phys. and Surgs.	(1908)	Nevada
University of Maryland	(1868)	Georgia
Detroit College of Medicine	(1888)	Washington
University of Michigan Medical School	(1894)	Michigan
University of Mich., Homeo. Med. School	(1886)	Michigan
Eclectic Medical College, Cincinnati	(1873) Ohio; (1880) Indiana; (1886) Ohio;	(1889) Tennessee
Homeopathic Hospital College, Cleveland	(1893)	Ohio
Medical College of Ohio	(1892)	Illinois
Homeopathic Medical College of Pennsylvania	(1881)	Iowa
Western Pennsylvania Medical College	(1897)	Penna.
University of Vermont	(1896)	R. Island

* Official information states that this candidate is not a graduate.

Oklahoma July Report

Dr. Ralph V. Smith, secretary of the Oklahoma State Board of Medical Examiners, reports the written examination held at Oklahoma City, July 13-14, 1915. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 70. The total number of candidates examined was 30, of whom 22 passed and 8 failed. Twenty-one candidates, including 1 osteopath, were licensed through reciprocity. Two candidates were granted reregistration licenses. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Chicago College of Med. and Surg.	(1915)	75.5, 77, 80.5
University of Illinois	(1915)	78
University of Louisville	(1915)	88
Ensworth Medical College	(1907)	83
Missouri Medical College	(1887)	73
Leonard Medical College	(1913)	74
University of Oklahoma	(1915)	76, 79, 81.3, 82.5, 83, 83.5, 84.2, 85, 86, 89.7.
Meharry Medical College	(1909)	71.7
Baylor University	(1915)	86, 87
Southern Methodist University	(1915)	84.2

FAILED

College		
University of Arkansas	(1912)	72*; (1913) 74*
Chicago College of Medicine and Surgery	(1915)	75*
University of Oklahoma	(1915)	79*
Meharry Medical College	(1914)	54
University of Tennessee	(1914)	70.5*; (1915) 78*, 81*

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of Arkansas	(1914)	Arkansas
Atlanta College of Physicians and Surgeons	(1912)	Georgia
University of Louisville	(1894) Tennessee; (1907)	Kentucky
College of Physicians and Surgeons, Baltimore	(1893)	W. Virginia
Eclectic Medical University	(1902)	Missouri
Northwestern Medical College, St. Joseph	(1893)	Kansas
Univ. Med. Coll., Kansas City	(1909) Tennessee; (1910)	Kansas
Washington University	(1910)	Missouri
Jefferson Medical College	(1886)	W. Virginia
Meharry Medical College	(1903)	Arkansas
University of Nashville	(1905)	Arkansas
University of Tennessee	(1895) Texas; (1907)	Tennessee
Vanderbilt University	(1893) Arkansas; (1912)	Kentucky
Baylor University	(1913)	Texas
Dallas Medical College	(1902)	Texas
University College of Medicine, Richmond	(1901)	W. Virginia

* Fell below the required average in one or more subjects.

Book Notices

VAGOTONIA. A Clinical Study in Vegetative Neurology. By Dr. Hans Eppinger and Dr. Leo Hess. Authorized Translation by Drs. Walter Max Kraus, A.M., M.D., and Smith Ely Jelliffe, M.D., Ph.D. Paper. Price, $1. Pp. 93. Nervous and Mental Disease Monograph Series No. 20. New York: Nervous and Mental Disease Publishing Company, 1915.

The authors attempt to reduce certain so-called neuroses of internal organs to a definite syndrome with a definite physiologic and pathologic etiology. The physiologic and pharmacologic considerations which lead them to evolve the neurosis of the autonomic nervous system, vagotonia, are exceedingly interesting. Even a synopsis of these would exceed the limits assigned to this review. We cannot refrain, however, from giving a summary of the authors' therapeutic observations. The therapeutic measures are directed, they say, not against vagotonia as a constitutional condition, but against those symptoms of irritation in the autonomic system which may be considered as irritative states superimposed on the constitutional condition.

"Atropin is the best antidote for the spastic states. It is of therapeutic as well as diagnostic value, and should be tried in all diseases due to or associated with vagotonia. . . . It may be used to great advantage in bronchial asthma, in which small doses may be used without danger for many weeks. It should be given in doses of 1 to 2 mg. a day, subcutaneously, which may be increased to 3 mg., after which the former dosage is resumed. Vagotonic gastric disturbances, gastric ulcer, as well as gastric crises, are benefited by the administration of atropin. Likewise, the gastric disturbances following the use of infusion of digitalis, certain cardiac disturbances, and the troublesome subjective symptoms of extrasystolic arrhythmias, are ameliorated by the use of atropin."

The authors plead for a more extensive administration of atropin, especially in those varied obscure and troublesome complaints which, owing to lack of anatomic basis, are called "nervous." If a patient suffering from vagotonia is not benefited by atropin or substances containing it, the reason may be that the dosage is too small. The authors feel that atropin is only a substitute for some physiologic "atropin" which is circulating in the body. The limitations of its use are that it does not affect all branches of the autonomic system equally, the pelvic nerve being but slightly affected. The beneficial effect of epinephrin in many spastic states of the autonomic system (bronchial asthma, many forms of gallstone colic and diarrhea) is a good proof that both symptomatically and etiologically vagus paralysis and sympathetic stimulation are closely allied. This certainly sounds like an optimistic expression of belief in a drug therapy based on a new medical conception of disease. The authors seek the real causation of vagotonia in some disturbance of the internal secretions. They state that not only has an insufficiency of the chromaffin system been proved to exist in certain types of endocrinopathic individuals, but also it has been shown that these individuals show anomalies in the lymphatic system. Thus, they see a relationship between the vagotonic constitution and status thymicus, and further, they are convinced that vagotonia is the expression of an inferior constitutional make-up. This research in so-called visceral neurology, which bids fair to become of practical value to the general practitioner, deserves careful study and reexamination. We may, therefore, be thankful for the translation of what promises to become an oft-quoted work on vegetative neurology.

THE MEDICAL CLINICS OF CHICAGO. Paper. Bi-monthly. Price, $8 for 6 numbers. Philadelphia: W. B. Saunders Company.

These clinics are patterned after the Murphy Clinics; they differ from the latter in that this enterprise covers general medicine, and includes reports of clinics conducted by many men, whereas the others are the clinics of one man and are devoted to surgery. Three numbers have already been issued, and the subjects discussed include general medicine, pediatrics, ophthalmology, neurology and dermatology. They represent the clinics of ten physicians, conducted in four different institutions, the chief of which is the Cook County

Hospital. Naturally, the character of the clinics varies: in some the men make their talks in brief, concise form, and give a clear conception of the cases, with emphasis on the important points connected with each; others are not so careful in the presentation of their cases. From the former, of course, the reader gets a clear concept of the case; the latter, while not valueless, are not so practical as they otherwise might be. Some have a tendency to the bizarre and picturesque, and the reader's attention is distracted by the emphasis laid on unimportant things. In some of the clinics, questions and answers between the physician, the intern, the student and the patient seem to have taken up the greater portion of the time. We see no reason why space should be occupied with what are, in some instances, trivialities. This applies, however, in only two or three instances. While the vast majority of the cases have been well selected, a few would seem to be of no value.

There is an apparent lack of editorial revision. If these clinics are to take the place which the publishers, editors and contributors desire they shall take, those responsible should remember that insignificant comments, absurd questions, and the use of ungrammatical language should be eliminated. The foregoing criticisms are intended to be constructive, not destructive.

This method of instruction has a distinct place in medical literature, and, on the whole, this series of clinics is a worthy exponent of its type; the general practitioner will find this series of decided practical value, full of instruction, elementary as well as technical.

Medicolegal

Father-In-Law Not Liable for Medical Services

(Morse et al. vs. Friend (Colo.), 149 Pac. R. 618)

The Supreme Court of Colorado says that this suit was instituted by Dr. Friend on an account for professional services, judgment being obtained by him for $84 against both J. W. Morse and William Morse, father and son. Both men had families and lived in separate dwellings during the period for which the services were rendered. They were engaged in some sort of a business partnership under the firm name of J. W. Morse & Son. Dr. Friend had for several years prior been the family physician of J. W. Morse. The services over which the dispute arose were rendered in the treatment of the wife of William Morse. This was not at the instance or request of J. W. Morse. The basis of the claim against J. W. Morse was proof that he had in other instances made payment to Dr. Friend for services rendered to his children, including William Morse, and on a letter written by J. W. Morse to Dr. Friend, which was in effect: "Just received statement of William Morse account. Please find enclosed check for $25. I can't spare any more at present. I think your charges are rather high. I have talked with M.D.s, and they say that fever cases generally are from $35 to $60 per case. But I will do the best that I can. You know that Will hasn't anything." The check referred to was signed J. W. Morse & Son, and drawn on the firm account. This was not such a promise as is contemplated by the statute of frauds, requiring promises to answer for the debts of others to be in writing, etc., and the mere fact that J. W. Morse had paid former accounts did not create a liability. Besides this, it appeared that the account was entered and rendered as against William Morse alone. It appeared also that William Morse had, prior to payment made by his father, personally made a payment of $50 on the account by means of a check signed by him, as J. W. Morse & Son, and drawn on the firm account. Furthermore, J. W. Morse had, after the services involved in this case were rendered, and before this suit was instituted, paid by him personal check to Dr. Friend the sum of $120.50, and on the face of the check it was written: "For professional services to date." This check was accepted and cashed by Dr. Friend, who himself testified that he rendered no services for either of the Morses subsequent to the date of that check. It was error to instruct the jury in effect that if it appeared that, at any time in years past, the plaintiff had served as a physician in the family of J. W. Morse, and that, in so doing, had attended some members of the family of William Morse, and that J. W. Morse had paid for such services, and if J. W. Morse had given the check for $25 above referred to, then the jury must find J. W. Morse liable. Wherefore the judgment recovered as hereinbefore stated is reversed, with instruction to dismiss the case as to J. W. Morse, and to render judgment against William Morse for the amount so found by the jury to be due the plaintiff.

What Constitutes Severance at "Joint"

(Newman vs. Standard Accident Insurance Co. (Mo.), 177 S. W. R. 803)

The Kansas City (Mo.) Court of Appeals reverses a judgment obtained by the plaintiff on an accident policy of insurance which contained the provision: "For the loss of thumb and index finger of either hand by severance at or above metacarpophalangeal joints, one third of the principal sum" of $7,500. While hunting, his gun had been discharged into his left hand so that it became necessary to amputate the thumb and the index finger. The actual cutting, or severance, was through the bone of the thumb and finger two-eighths and three-eighths inch, respectively, below the articulation, or, to express it differently, below the point at which the ends of the bones in the body of the hand and in the thumb and finger came together. It was far enough below to leave two stubs of the thumb and finger bones plainly to be seen in a roentgenogram taken of his hand, and plainly showing two ends or heads of the bones jointed together, the articulation not being disturbed in either the thumb or the finger. The evidence also showed that the plaintiff could move, or work, these joints. He claimed the right to recover one third of the principal sum under the clause quoted. But the court holds that was a mistake. In grading compensation to the character of the injury, the company had a right, the court says, to stipulate that the severance should be at the exact point specifically stipulated, before the sum named for that character of injury should be due. The contract, in using the word "joint," fixed a place, a point, of severance. It had no reference to the structures which must exist in order that a joint might be made. The court does not mean to hold that for the severance to be "at the joint," within the meaning of the policy, it must follow and coincide with the line of articulation, but only that it must be such as destroyed the joint as a joint; that is, as an anatomic mechanism. That is to say, the joint must be dismembered. It was error to admit the testimony of surgeons, as experts, to prove the anatomic, or scientific, meaning of the word "joint" as applied to the finger, and that the amputation below the place of articulation was at the joint. There was no ambiguity in the contract, and it was for the court, not the jury, to say what it meant.

Liability of Surgeon for Burning of Patient During Operation

(Reeves vs. Lutz (Mo.), 177 S. W. R. 764)

The St. Louis Court of Appeals, on the second appeal of this case, reverses a judgment obtained by the defendant, who was sued for alleged malpractice when employed to remove a cancer from the breast of the plaintiff's wife. The court says that the evidence was that the defendant personally adjusted a hot water bag between the lower limbs of the patient immediately before commencing the operation, and that the bag was permitted to remain there without examination for as much as an hour and a half or two hours, for the operation, which was an extensive one, consumed so much time. As a result, one of the limbs was severely burned. All the evidence was that it was a proper practice employed by the most enlightened members of the profession in the locality to use such hot water bags in like circumstances. The hot water bag was wrapped with a towel, and the patient was clad with a cotton flannel garment to protect the skin at

the time, and such, too, was the usual practice. It appeared, however, that the patient had varicose veins in the limb burned, and the evidence was that they render one more liable to be burned than if not so afflicted; that the defendant knew of this condition and of the likelihood to enhanced susceptibility to burns from that cause. Besides, there was evidence that the patient moved and kicked some, but no examination was made during the entire time as to whether the hot water bottle was disturbed in its position so as to injure her. Then several expert witnesses were permitted to testify, on behalf of the defendant, that burns are frequently inflicted on patients during operations. The court holds, however, that the questions and answers as framed were prejudicial, for they in no wise discriminated the case wherein a burn might have been inflicted through carelessness, in which event liability to respond therefor would appear, from one which occurred when ordinary care was exercised by a skilful surgeon as through unexpected movement of the patient during the operation which caused the burn, and therefore could not have been obviated by due care, and on account of which no liability may be entailed. The mere fact that all surgeons may be careless at times does not relieve another from performing his duties with due care in the particular case. Four separate instructions given for the defendant iterated and reiterated the same proposition of law to the jury, though in different phraseology, to the effect that the defendant was required to exercise only reasonable care; that is, such as an ordinarily skilful and careful surgeon is accustomed to exercise in like surgical operations under similar circumstances in the same locality, and that he should be acquitted of fault if he did this. The proposition of law was well enough, but, when coming from the court repeatedly in instructions on evidence tending to show that all surgeons frequently burned their patients in like cases, it would seem to mislead the jury into believing that the defendant could not be required to respond, though remiss in the particular case, for his conduct was to be measured only by what such average physicians and surgeons usually do.

Conditions Not Rendering City Liable for Typhoid Fever

(City of Duncan vs. Tidwell (Okla.), 150 Pac. R. 112)

The Supreme Court of Oklahoma reverses a judgment for $675 obtained by plaintiff Tidwell, against the city of Duncan, as damages for typhoid fever suffered by members of his family, and alleged to have been caused by the defendant's negligence in respect to the condition of its dumping ground, which was on a lower plane and 1,940 feet southeast from the plaintiff's dwelling house, about 2½ miles northeast of the defendant city. In this dumping ground it appeared that dead animals and human excrement, with other garbage, perhaps, were deposited in trenches 4 or 5 feet deep, the dead animals being covered with dirt and the excretions with lime and, when the trenches were about full, with dirt, although more or less of both were sometimes exposed. There was also some evidence tending to show an abundance of flies both at the dumping ground and at the plaintiff's house. The court holds that, in the absence of evidence reasonably tending to exclude other sources from which the *Bacillus typhosus*, causing typhoid fever, might have been derived, or to show that such bacillus existed in any of the matter deposited in the defendant city's dumping ground, it could not be inferred that members of the plaintiff's family contracted said disease from said dumping ground, located as above stated, notwithstanding that the winds had blown from that direction toward the plaintiff's dwelling house, and that there was an unusually great number of flies at said ground and at said house during the summer preceding the attack of such fever. The court says that it ventures no opinion on the question as to whether the jury might have found that flies or dust could have carried typhoid bacilli from the dumping ground to the plaintiff's dwelling house, or to any place where the afflicted persons were, but it contents itself with pointing out that there was no evidence reasonably tending to prove that they did so, or that these grounds were the source from which the disease was contracted.

Miscellany

A "Sonnet from the Portuguese"

Dr. Ennes publishes a communication in the *Medicina Contemporanea* of Lisbon describing the exalted task of the physician and its importance to the community and to the individual. "No career is so high in its ideals and few require such preliminary training. . . . The medical career should ensure prosperity and security beyond all others. It should, but it does not. . . . The practice of medicine is always the eternal surprise, both in the evolution of the affections we are treating and in the behavior of the patients themselves. . . . The best physicians may fail to make a success of their career where mediocre ones succeed. Aside from the principles of dignity and honor indispensable for all, success, in our profession, seems to be almost always a matter of chance." He cites a number of personal experiences showing the ways of successful Lisbon physicians, now dead. Dr. Baldy always explained to the family, after coming out of the patient's room, the nature of the disease, the differential diagnosis and the reasons for the treatment instituted, generally including a Latin quotation. Dr. Theotonio replied to questions by saying that he was due in his lecture room, but he would have leisure to answer questions between 10 and 11 at his office on Saturday, and then took his leave with extreme deference. Barral was most suave and tactful, and Bizarro gruff and morose; but the latter was the one called most in consultations. All these men were eminent in medical practice in Lisbon for years, with their widely differing clinical technic, showing that the favor of public opinion is not a thermometer of anything in the medical career. "The physician has to steer between Scylla and Charybdis: If his wife makes no calls, people say she is haughty; if she makes calls, that she is drumming up trade for her husband. If he writes many prescriptions, they say he is in league with the druggist; if not, that he does not study his patient's case enough. If he goes into politics, they say he had better stick to his profession; if he keeps out of politics, they say it is from lack of public spirit and culture. If he repeats his visit to the patient, it is to run up a bigger bill; if he does not call again, he is neglecting his patient. When he renders his bill, the total is always denounced as too high. When he asks for a consultation, the public says that this proves his incompetency; when he does not call for a consultation, they say it is because he does not care to display his ignorance to his colleagues. When the patient gets well he ascribes his recovery to Nature, but, if he dies, the family denounce the physician." Ennes concludes with the exclamation that even with all these drawbacks and the overcrowding of its ranks, yet he can enthusiastically declare that the medical profession is the most beautiful of all: "Quem não quererá ser medico!"

Overcrowding Building Space

John Ihlder, field secretary of the National Association on City Housing, says that the tendency to build tenements in cities up in the air instead of spreading them out on the ground really only offers temporary profit to those who sell or rent. It raises values in a restricted area by preventing those values from being spread over a larger area, and constitutes really a false basis of economy. As items of this false economy he mentions more rapid depreciation and extra cost for maintenance. To this must be added on the part of the community all the cost for increased sickness, inefficiency and immorality; for hospitals, charity and police. He gives it as his experience in studying the question of housing in the various cities and the tendency to overcrowd the building space, that when he went into a city where the rule was widely spaced, single family cottages, he found the real estate men saying that they could make no money by following the rule, that they must put their cottages closer together or even build terraces. In a city where the terraces had developed into the row-houses, as in Philadelphia, he found them argu-

ing for two-family houses. Where two-family houses had been the rule, as in large areas of Brooklyn, he found them arguing for the three-family house, and so on, until in Manhattan, where the six-story row-tenement is the standard, he found them arguing for weaker regulations, which would permit them to build higher and to fill their lots more completely. To a question asked a real estate man in Manhattan as to whether there was any stopping point short of one solid building filled with dark rooms, in which people would die as fast as they could move in, and so establish an equilibrium, he received no answer. In Philadelphia, where he asked the same question, a real estate man replied that the trouble was due to the failure to realize that there is just as great if not greater profit to be made by building a city out as by building it up. Ihlder says that perhaps therein lies the secret—provision of space may be made to run with, and not against, profit. The question of profit to the real estate owner seems to be still the chief consideration. Ihlder says that the extra profit from building up is only temporary, because as soon as new values are established, he must again build higher in order to conserve or increase his profits. All that is permanent under this procedure is a lower standard for the city's housing.

Digestibility of Animal Fats

In Bulletin 310 of the United States Department of Agriculture, C. F. Langworthy and A. D. Holmes give the history and results of some experiments on the digestibility of lard, beef fat, mutton fat and butter. It is said that, notwithstanding that fats as sources of energy are from two to four times as effective as either proteins or carbohydrates, their use in diet has received less attention from investigators than other nutrients, that it has been taken for granted that favorable combinations of fat are thoroughly assimilated, and that they do not differ much in their digestibility. These experiments were undertaken, therefore, to determine the thoroughness of digestion of fats, the specific dynamic effect of diet rich in fats of different kinds, the relation of availability to total energy value of fats, and the relation of domestic ways of using fat to the quality of foods. In these experiments the fats were incorporated in cornstarch pudding, which was carefully colored and flavored so that the fatty odors and flavors of the different varieties of fats were disguised, and the healthy medical and dental students, between 20 and 30 years of age, employed in the experiments were not apprised of what they were eating; in this way, any possible psychic effect was eliminated. It was found desirable to incorporate the food containing the fat in a simple mixed diet, as the ordinary individual soon tires of any single food. In these mixed diets were included a commercial wheat biscuit, fruit, tea or coffee and a little sugar. Each test period included three days, for nine meals, a period which it was found was long enough for the purpose but not of sufficient duration to make the diet distasteful. The ration was served for one test period in each week followed by a rest of four days, during which the subjects lived on the ordinary mixed diet. Data were recorded with reference to the physical condition of the students both before and after the experimental periods. The amounts and kinds of foods eaten during each three-day experimental period and the total quantity of feces were recorded and samples of both food and feces were analyzed to determine the quantity of protein, fat, carbohydrate and mineral matter retained and assimilated by the body.

Results with the different fats employed may be summarized as follows: The coefficients of digestibility, making allowance for metabolic products extracted from the feces in addition to the fat eliminated, were, for lard, 97.3 per cent.; for beef fat, 93.1 per cent.; from mutton fat, 87.6 per cent.; for butter, 97.1 per cent. The average energy value available per man per day, as calculated by the usual factors, was 2,235 calories for lard, 2,730 calories for beef fat, 2,145 calories for mutton fat and 2,420 calories for butter. These values, it is said, might be insufficient for severe muscular activity, but would meet the needs of persons following sedentary occupations. The average coefficients of availability of energy for the total ration including the fats named were, respectively, lard, 93 per cent.; beef fat, 92.7 per cent.; mutton fat, 91.5 per cent.; butter, 93.9 per cent. These values, it is said, are somewhat higher than the 91 per cent. which has been found to represent the coefficient availability for the ordinary mixed diet. It is concluded, therefore, that the different fats did not exercise any unusual effect on the digestibility of the other constituents of the rations. It was also found that fats of low melting point are more capable of complete assimilation than those of a high melting point, and that fats differ in their melting point according to the portion of the body from which they are taken. In the experiments when the amount of beef fat was 140 grams or over, a laxative effect was experienced which disappeared when the amount was decreased. This result was not noted with the other fats, and it was thought that this indicates a higher limit of tolerance for the other fats. The experiments also indicate that, contrary to popular belief, lard is not less digestible than other fats.

Society Proceedings

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION

Twenty-Eighth Annual Meeting, held at Cincinnati, Dec. 13-15, 1915

(*Concluded from page 143*)

Treatment of Lymphosarcoma with Radium

DR. HOWARD A. KELLY and DR. CURTIS F. BURNAM, Baltimore: Lymphosarcoma begins as a local infection, and, growing more or less rapidly metastasizes, finally invading the lymphatic system, and invariably causing death in from several months to a couple of years. It is beyond the reach of surgical relief.

We have had a series of twenty cases, all but two identified by a microscopic examination of the tissues. Most of the patients were in an extremely advanced stage of the disease. Twelve had been operated on, and these with one exception had rapidly recurring masses in the neck. Out of this group of twenty, thirteen, or 65 per cent., are apparently cured. Six patients have died of the disease. Five of this group had been operated on, and all were advanced cases but one. On the basis of this experience we believe that lymphosarcoma ought not be operated on, but should be subjected to radium therapy at the earliest possible moment. The results improve if the cases are obtained early. The amount of radium used varied. While in the early cases the diseased area alone was treated, in the later cases the entire lymphatic system of the neck, axillae and torso were included. There were several instances of primary extensive lymphosarcoma of the mediastinum. These responded as readily as those more superficially placed.

Conservative Pelvic Surgery

DR. FLOYD W. MCRAE, Atlanta, Ga.: I have done conservative operations on 338 women. I have been able to get reports to date from only ninety-three, thirty-two of whom have reported pregnancies. Practically all have gone to full term and been delivered of healthy children. One woman has had three children, another two, and another has had three or more induced abortions. Another was delivered of a living child by cesarean section on account of uremic convulsions. Both mother and child are now in good health. Of the 338 women, seventeen have had subsequent operations done. I have included in this record only the women whose pelvic organs were left in a state compatible with possible future pregnancies. It does not include women whose tubes or uteri were removed, or in whose cases partial hysterectomies were performed precluding pregnancy. I have resected cystic ovaries, preserving all healthy stroma, suturing accurately with fine catgut. I have endeavored to separate adhesions, embedded ovaries and tubes in such a way as to leave the least possible area of raw surface, hanging up prolapsed

ovaries, plicating the ligaments, and so readjusting uterus, tubes and ovaries as to approach as nearly as possible the normal arrangement. A very large majority of these women have been relieved of their suffering and restored to healthful womanhood.

Cholecystostomy Versus Cholecystectomy

DR. CHARLES H. MAYO, Rochester, Minn.: That there is still an opportunity for improvement in the treatment of gallbladder and gallduct disease is shown by the fact that of 370 patients seen during July, August, September and October, 1915, forty-eight had been previously operated on, some of them twice, for the same disease. The mode of infection is still under discussion. The experimental researches of Rosenow, however, have proved that the more common method of invasion is by bacteria conveyed through the general circulation. Cholecystostomy and the removal of stones cure symptoms of mechanical obstruction. Cholecystostomy does not cure chronic cholecystitis and cannot restore the destroyed walls of the gallbladder, or free the gallbladder from adhesions. For these and for all cases in which infection is the major feature either with or without stones, cholecystectomy is the better method of treatment. In large groups of cases the mortality will be lower than that which follows cholecystostomy. Chronic pancreatitis with gastric symptoms may persist following cholecystectomy.

Advantage of Separate Suture of the Mucous Membrane in Gastric Surgery

DR. RICHARD A. BARR, Nashville, Tenn.: It is very easy to divide the peritoneum and the muscle down to the submucosa and to separate them from it without cutting through. In the region of the pylorus a submuscular resection of the submucous and mucous coats may be made with less technical difficulty than is encountered in doing a pylorectomy, and in many cases serves much the same purpose. In pylorectomy and partial gastrectomy, division down to the submucosa, and suture of this structure and the mucosa before dividing them prevents soiling, give very satisfactory control of hemorrhage, and the completed suture line is much less rigid and less thick than that obtained by the usual method.

Moschcowitz's Operation by the Inguinal Route for Femoral Hernia

DR. J. D. S. DAVIS, Birmingham, Ala.: If the same precautions are resorted to in femoral hernia that are utilized in inguinal hernia (high ligature of sac, secure closure of the internal ring from above, and aseptic wound healing) relapse would be as rare as in inguinal hernia. The inguinal route of approach renders resection and anastomosis a very easy procedure compared to a resection in an operation by the crural route. The supplementary abdominal incisions so often necessary in resection when the crural operation is made need not for a moment even be considered when the inguinal operation is made. When femoral hernia is attacked by a high incision (inguinal route), anatomic exposure of the femoral ring can be made from above, bringing into view Cooper's ligament, which is utilized in the closure of the ring. The skin incision is not unlike that made for the Bassini operation, except when the sac is found adherent, when the incision may be extended down into the thigh so as to give room for extirpation of the sac.

A Clinical and Experimental Study of Postoperative Ventral Hernia

DR. WILLARD BARTLETT, St. Louis: The causes of postoperative ventral hernia are incisions in defiance of anatomic and physiologic principles, improper wound closure, needless drainage and tamponade, postoperative increased intra-abdominal pressure and wound infection. Experiments on dogs produce no sign of hernia when one layer is preserved. In the human subject the hernial tendency is corrected preoperatively by reducing intra-abdominal fat and intestinal contents, with rest in bed, liquid diet and free catharsis. The best postoperative procedure leaves the sac intact, utilizing the sac wall and scar tissue; but, if necessary, the abdominal contents may be reduced. If there is undue tension on the reconstructed wall, or interference with the movements of the lower ribs, failure is sure. The after-treatment is of vital importance, dealing chiefly with meteorism or straining of any kind.

DISCUSSION

DR. JOHN YOUNG BROWN, St. Louis: I have had occasion to do the operation described by Dr. Davis once, and I agree with him fully that it does away with the necessity of a supplementary abdominal incision.

DR. J. GARLAND SHERRILL, Louisville, Ky.: One point which I should like to emphasize as perhaps explaining the causation of postoperative hernia is interference with the nerve supply of the abdominal wall. In primary operations we should always avoid, as far as possible, damaging the nerve trunks, because muscle or fascia that is not supplied with nerve force will always be weak. About ten years ago I began the treatment of cases of strangulated femoral hernia according to the plan described and proposed by Dr. Davis, and I have found it to be exceedingly valuable.

DR. CHARLES H. MAYO, Rochester, Minn.: The point brought out by Dr. Davis regarding the cure of femoral hernia by the inguinal route is very important in certain cases of strangulation; still, the old methods of treatment of femoral hernia are successful.

Adenomyoma of Round Ligament and Incarcerated Omentum in all Inguinal Hernias Forming One Tumor

DR. THOMAS S. CULLEN, Baltimore: The patient, a woman aged 43, complained of a lump in her groin for several years. It was very firm and appeared to be cystic. It was about 4 cm. long, 2 cm. broad and somewhat lobulated. She also complained of pain in the appendical region. I found the rectum firmly adherent to the left ovary over a considerable area. The omentum passed down through the hernial opening near the right internal inguinal ring, and then directly out into the adipose tissue of the anterior abdominal wall. The tumor consisted of numerous cysts, some filled with clear colored contents, others with slightly turbid fluid, and quite a number with chocolate-colored fluid, strongly suggesting adenomyoma.

Unilateral Hematuria Associated with Fibrosis and Multiple Microscopic Calculi of the Renal Papillae

DR. R. L. PAYNE, JR., Norfolk, Va.: I wish to report a case of symptomless unilateral hematuria in which bisection of the kidney showed macroscopically a normal cortex or parenchyma, every papilla, however, presenting a cherry red appearance typical of angioma. The kidney was removed, and careful microscopic studies disclosed an absence of pathologic findings in the cortex or parenchyma proper; but the papillae showed definite chronic inflammatory changes. These changes consisted of (1) an overgrowth of connective tissue; (2) multiple microscopic calculi; (3) dilated capillaries with the small calculi in close apposition or the capillaries surrounded by the connective tissue proliferation, and (4) a network of dilated capillaries on the surface of the papillae, many of which were ruptured with free blood escaping. These numerous, though small, varices were evidently the source of the hemorrhage, and the inference is that the numerous calculi, aided by the connective tissue which they had originated, succeeded in causing an obstruction to the venous return with a subsequent dilatation of the capillaries and resulting varicosities.

Pancreatic Cyst

DR. JOSEPH RANSOHOFF, Cincinnati: The tumor was situated in the left upper quadrant, projecting into the loin, distinctly fluctuating and of slow growth. When first seen it was nearly as large as an adult head. Cystoscopic examination showed a bloody stream of urine issuing from the left ureteral orifice. Indigocarmin injection demonstrated equal function on the part of the two kidneys. A diagnosis was made of cystic sarcoma of the left kidney. Lumbar exposure of the kidney showed it to be normal. Median incision then displayed the cyst of the pancreas, projecting between colon and stomach with the spleen six or eight times its normal

size. The hematuria disappeared after the operation. The pressure of the pancreatic cyst on the renal and splenic vein had produced the hematuria and the enlargement of the spleen.

DISCUSSION

DR. FRANCIS R. HAGNER, Washington, D. C.: In splitting a kidney from pole to pole we are doing a partial nephrectomy. The destruction of the kidney from that incision is really remarkable. In Dr. Ransohoff's case, I believe the hemorrhage was due to pressure on the renal vein. Recently I had a patient on whom a prostatectomy was done three years ago, and he came back with hemorrhage from the left ureter. I catheterized the ureter and found a stricture just at the entrance of the ureteral orifice, while on the other side, the urine was clear. This stricture was dilated and a catheter passed up to the kidney. The urine was still clear, and the next day hemorrhage stopped. This patient has had three recurrent hemorrhages in that way, but after dilation of the ureter, the hemorrhage ceased.

DR. JOHN T. MOORE, Houston, Texas: I have had one case of cyst of the pancreas about the size of one's head, that did not give rise to hematuria.

Hydatid Cysts of the Liver with Report of Two Cases

DR. GEORGE BEN JOHNSTON, Richmond, Va.: We have had two cases of hydatid cysts of the liver during the past two years, and about six months ago another case was reported in a Richmond hospital. Prior to 1913 only two cases of tenia echinococcus infection were reported from Virginia, and 250 from the United States and Canada. The Virginia cases occurred in Alexandria and Staunton. There was, however, another case in which infection occurred in Virginia, but was reported from Buffalo by Cary and Lyons. Our two patients came from the rural districts, and were exposed to infection both from dogs and from meat which was not inspected properly. Surgery is the only method of treatment for this condition. Wherever possible, it is always best to remove the cyst in toto; if this is impossible, to remove as much of the cyst as possible and drain, and if this is impossible, to aspirate the cyst.

Intussusception in Infants

DR. LEWIS S. MCMURTRY, Louisville, Ky.: In dealing with a case of suspected intussusception in a baby, the physician should, if possible, decide the diagnosis before leaving the house. The fate of the patient depends on early diagnosis. When abdominal section is done, success will depend more on the operator's expedition and skill, with refinement of manipulation, than perhaps in any other abdominal operation. The young infant is easily shocked. It is very important that the invagination should be reduced by pressure from the apex of the intussusception, so that it is pushed out from within instead of being pulled out. The appendix should not be removed unless absolutely necessary, and every effort made to abbreviate the operative procedure. When an irreducible invagination is found, the best procedure is to establish an artificial opening in the intestine and wait until a later date for the resection of the invaginated bowel.

Operative Treatment of Pyloric Obstruction in Infants

DR. WILLIAM A. DOWNES, New York: This report includes sixty-six cases in which operation was performed in five and one-half years. All presented the characteristic symptoms. A tumor was palpated in every case before operation, and this finding was verified at the time of operation. The theory best explaining the syndrome is that a true malformation is present at birth consisting of an abnormal thickening of the circular muscle of the pylorus, and to this is added an edematous condition ten days, or later, after birth. The edema probably results from the increased activity of the stomach necessary to force an increasing amount of food through the narrowed and elongated pyloric lumen. Gastro-enterostomy was performed in thirty-one of the sixty-six cases, operation in the remaining thirty-five being performed according to the method of Rammstedt. Of the thirty-one cases in which gastro-enterostomy was done there were eleven deaths, a mortality of 35 per cent. Of the twenty patients discharged as cured, two died afterward of gastro-enteritis, and one of diphtheria. The remaining seventeen are well and have developed normally. Roentgen examination shows the stomata working satisfactorily, and little or no bismuth passing through the pylorus. Of the patients dying in the hospital, a number began to vomit late in their convalescence; reoperation and necropsy offered no satisfactory explanation for the return of symptoms. After this unsatisfactory experience it was decided to give the partial pyloroplasty of Rammstedt a thorough trial. This operation has been done in the last thirty-five cases. In this series there were eight deaths, a mortality of 23 per cent. Of the twenty-seven discharged as cured, two have died since leaving the hospital. The remaining twenty-five are well extending over a period from a few weeks to one and one-half years. In no case has there been a return of the symptoms.

Colon Resection and Its Indications

DR. FRANK MARTIN, Baltimore: The operation should be undertaken only in obstinate and exaggerated cases, but should not be delayed so long as to bring about a toxemia that will of itself defeat the good effects of the operation. It is too hazardous to be undertaken purely for the relief of constipation alone. It is best in these cases to deal with the localized obstruction or the actual sharp angulation, which is presented in so many of these obstinate cases, rather than do a complete and total resection. In most of the cases a considerable portion of the colon is always left, the sigmoid, and in a good many cases a part of the descending colon, if necessary, which is sufficient to compensate for and take on the function of the portion that has been removed, and with this amount maintained, and free drainage established, intestinal toxemia ceases. I have not observed that thirst was complained of in any of my cases. Nor have I observed diarrhea as a fact, or any serious physiologic derangements in those cases that are done while there is still chance of recovery. The patients have gained in strength and in weight.

Use of Iodin in Combating the Peritonitides

DR. J. A. CRISLER, Memphis, Tenn.: My experience in the use of this drug leads me to believe that the infected fluids that are free in the cavity are at once sterilized, and that the absorption of toxins is immediately terminated for at least twenty-four hours. Also an outpouring of serum and new phagocytes is encouraged. Furthermore, there is an abundant serous drainage following, which is in excess of usual drainage common in other methods. This tends to disgorge and in a measure wash out the subserous, cellular tissues, which may receive some beneficient, antiseptic effect through a process of osmosis directly from the iodin that has come in contact with the inflamed serosa. Iodin has never appeared in the urine earlier than the eighteenth hour after its use in the abdomen, and then only in very small quantities. The height of elimination is attained at about the seventy-second hour. From Dec. 1, 1914, to Dec. 1, 1915, we operated in 678 abdominal cases with twenty-three deaths. In this number of operations we had 104 pus cases, slightly over 15 per cent.

Salpingitis Secondary to Appendicitis

DR. JAMES E. MOORE, Minneapolis: A number of years ago my attention was first called to the possibility of appendicitis being the cause of salpingitis. Since that time I have observed a number of cases that have confirmed my conviction that some cases of salpingitis are due to an infection from the peritoneal side caused by an appendicitis.

Pseudomucinous Cysts of the Appendix, and Ruptured Pseudomucinous Ovarian Cysts

DR. FRED WARREN BAILEY, St. Louis: I have seen two cases of pseudomucinous cysts of the appendix, one case complicated by ruptured pseudomucinous ovarian cyst. There is no record of malignancy following ruptured pseudomucinous cysts of the appendix, but the danger is far greater in those of ovarian origin. Protection against such tumors lies in early exploration of all surgical abdominal lesions.

Genital Elephantiasis Following Extirpation of Inguinal Glands

DR. J. T. WINDELL, Louisville, Ky.: One of my two patients presented an enormous elephantiasic enlargement of the entire scrotum and penis which he said began early in 1910. The scrotum measured 16 inches in circumference; the penis was 11 inches in length, and at its largest part 12 inches in circumference. The patient contracted syphilis in 1903, and according to his statement, he has been under antisyphilitic treatment continually since then. Two surgical operations had been performed for the removal of enlarged and infiltrated inguinal glands, one in 1905, the other in 1909, but for what condition the patient did not know. Dense fibrous tissue scars, adherent to the underlying structures, were present in both inguinal regions. The scar tissue was more abundant in the left groin, which probably explained the greater scrotal enlargement on the corresponding side. Local treatment consisted of an appropriate suspensory apparatus and antiseptic dressings. At no time was there any acute inflammation of the penile tissues; but the scrotum, owing to continuous exudation of lymph from its surface, at times became infected and exhibited evidence of acute inflammation, which was relieved by suitable antiseptic applications.

In the second case, three months after bilateral inguinal adenectomy for enlarged and suppurating glands, probably of tuberculous origin, the patient presented an immense hypertrophy of the penis. It was unaccompanied by redness or pain, and the scrotal tissues were apparently uninvolved. Several deep scars were present in each groin from the previous operations.

WESTERN SURGICAL ASSOCIATION

Twenty-Fifth Annual Meeting, held at Des Moines, Iowa, Dec. 17-18, 1915

The President, DR. JOSEPH RILUS EASTMAN, Indianapolis, in the Chair

Ascending Renal Infection

DR. DANIEL N. EISENDRATH and DR. JACOB V. KAHN, Chicago: We have just completed a series of twenty-seven experiments on dogs and rabbits which demonstrate that infection travels from the bladder to the kidneys and perinephritic tissue by way of the lymphatics in the wall of the ureter. We have attempted to imitate the environment as found in the human being by injecting an emulsion, made by mixing the scrapings of agar slant cultures of the organisms commonly found in urinary infections with sterile salt solution, into the bladder of animals. Paraffin sections were taken from a number of places in the bladder and kidney, and were studied serially. In order to trace the infection upward, along the ureter every portion of the latter was cut longitudinally as well as serially, so that no areas would be omitted. In the early stages of infection the infiltration is found in the submucous layer of the bladder, and is especially dense around the smaller vessels in this layer. The connecting link between the lymphatics of the ureter and those within the kidney is along the lymphatics of the subareolar tissue which surrounds the blood vessels as they enter the kidney tissue. They follow the organ itself, the course of the intertubular, periglomerular and perivascular lymphatics.

Accurate Localization of Foreign Bodies in the Chest, and the Method of Their Removal

DR. EMIL G. BECK, Chicago: In seven cases I removed foreign bodies from the chest cavity, first localizing them by means of stereoscopic roentgenograms. Wire localizers were placed on the skin within the suspected vicinity of the foreign body. The foreign bodies were removed through external operation. In a case of lung abscess from which a pin tack had been removed, I implanted a flap of skin 5 inches long into the lung abscess cavity, thus keeping it open to permit the cauterization with actual cautery of the bronchi which lead into the compartments of this abscess cavity.

DISCUSSION

DR. LAWRENCE W. LITTIG, Davenport, Iowa: There is one important point to remember, and that is, that foreign bodies which have passed through the mouth frequently are followed by a period of calm and quiet. Many cases have come to the postmortem table with a diagnosis of tuberculosis or abscess of the lung in which a stereoscopic examination was not made, and in which a correct diagnosis was not arrived at because of the deceptive period of calm. Whenever lung trouble of any kind is discovered, and disturbance follows the swallowing of a foreign body, a Roentgen examination should be made.

DR. CHARLES H. MAYO, Rochester, Minn.: I recall cases in which foreign bodies, like tacks and nails, have been swallowed and retained for years, and then abscesses would form, and when an abscess forms, an external operation with drainage is the best method to pursue. A foreign body will stay in a bronchus for three or four years and not produce abscess. The bronchus will contract above it. I have seen Dr. Plummer remove a foreign body with the aid of a bronchoscope after it had been present four years and after two unsuccessful surgical operations for its removal.

DR. L. L. MCARTHUR, Chicago: Many of these cases of chronic abscesses, called frequently chronic empyemas, for which resection of the ribs and collapsing of the wall are made without cure, now have some hope of cure by Dr. Beck's method of marsupialization of the abscess cavity, so that one can see the connection between the bronchus and the abscess cavity, destroying the mucous membrane, and curing the abscess cavity permanently.

DR. WILLIAM FULLER, Chicago: I should like to ask Dr. Beck the object of implanting skin so deeply in the lung, and what becomes of it in the final healing of the wound.

DR. E. G. BECK, Chicago: The object of implanting skin is to keep the cavity open for treatment, because otherwise it would close, and even the insertion of a tube would not keep it open. As to what becomes of it, there will be a long dimple of skin growing in afterward. When I destroy all the mucous membrane of these bronchi, they close up.

Thrombo-Angiitis Obliterans (Intermittent Claudication)

DR. LEWIS L. MCARTHUR, Chicago: There occurs in the relatively young in cases not of diabetic, syphilitic or angioneurotic types, a spontaneous gangrene termed thromboangiitis by Buerger, and spontaneous gangrene of the young by Koga, a common occurrence among his countrymen, and almost limited in this country to the Jewish race. Mayesima determined the constant high viscosity of the blood in all cases of gangrene. Acting on this, Koga confirmed Mayesima's findings and reduced the viscosity by diluting the blood with physiologic solutions (Ringer's). Cases, which in the past were invariably condemned to high amputation, he succeeded in curing by the simple expedient of hypodermoclysis of a sufficient quantity of Ringer's solution and over a sufficient period of time to reduce the viscosity of the patient's blood. The testimony of all those who have faithfully carried out Koga's recommendation verify his claims.

Dislocation of the Knee

DR. JOSEPH RANSOHOFF, Cincinnati: A man fell from a height of approximately 48 feet, sustaining an anterior and external dislocation of the knee, with rotation to an angle of 90 degrees, and also a fracture of the lower jaw. The circulation of the leg was interfered with, although pulsation could be felt in both dorsalis pedis and posterior tibial arteries. The dislocation was easily reduced, and the functional result at the end of six weeks practically restored. In a large traumatic service of the Cincinnati General Hospital, this was the third case which had been admitted in twenty-seven years. Such dislocations are easy of reduction and are perhaps often reduced by the first aid Samaritans before patients are admitted to the hospital, or seen by the surgeon. Reports of not more than 250 cases can be collected from the literature. The gravity of the injury depends on the damage done to the popliteal vessels. Of this there was a suspicion in the case presented, but evidently there was only a temporary pressure on the vein. In many instances gangrene followed rupture of the artery or vein, or both.

DISCUSSION

DR. EARL R. HARE, Minneapolis: I wish to report a case of partial posterior dislocation of the knee joint due to severe traumatism of the leg and rupture of the anterior crucial ligament. I do not believe it is possible to have a dislocation of the knee joint in any direction without laceration of the anterior crucial ligament. This ligament prevents forward dislocation of the leg; the posterior crucial ligament prevents posterior dislocation, so that I believe these cases of injury to the knee joint are more common than we have been led to believe.

DR. ALBERT E. HALSTEAD, Chicago: I have seen two cases of backward dislocation of the knee joint. Last fall I saw a man who claimed that an automobile had passed over both his legs. He had an anterior dislocation of one knee, with gangrene of the leg from the rupture of blood vessels. The physician in charge said the man had dislocation of both knees; that he had reduced the other dislocation and had failed to reduce the one in which gangrene occurred. On account of swelling he did not recognize the nature of the injury. The knee had been dislocated because of great relaxation and free mobility of the joint. Apparently the man could put the knee in almost complete dislocation without any difficulty.

Foreign Bodies in the Urinary Bladder

DR. E. STARR JUDD, Rochester, Minn.: The seven cases include (exclusive of pieces of broken catheter, or surgical instruments) three hairpins, a 0.22 rifle bullet, a piece of chewing gum, a fragment of bone, and a part of a jack-knife blade. Bodies lodged in the bladder are prone to incrustation from salt deposits, though some materials, as bone, seem to be immune. The stone with the foreign body as a nucleus is usually of considerable size before the patient's symptoms compel him to seek the aid of a physician. Pain and burning on micturition, pus and sometimes blood, frequency or retention and marked urgency are frequently the symptoms complained of. Attention is called to the fact that foreign objects found in the bladder have usually gained entrance through the urethra, though in two cases, the bone and jack-knife blade, this could not have occurred. There is no question that these foreign bodies got into the bladder through the side wall, producing few, if any, symptoms, during the time they were passing in, though very careful examination of the inner lining of the bladder at the time of the operation did not reveal any scars or permanent injury to the bladder wall.

Nails and Screws in Joint Surfaces

DR. ARTHUR T. MANN, Minneapolis: Nails and screws are tolerated in joint surfaces in man as in the experimental cases in dogs. They remain firmly embedded in every specimen. We lost no patients. There was an occasional infection in the skin, but no joint was infected. Gloves were used in most cases, but bare hands in some of them. All specimens were recovered. In every case in which nails and screws have projected out of the joint surface, the condyle has overgrown to meet the projection. In some cases there was slightly more than a projection. That is Nature's response to the rigid metal projecting into the joint. The overgrowth in the condyle is apparently entirely of bone. Practically all of the covering of soft tissue over the nails and screws has reverted to the connective tissue type and is not entirely of the cartilaginous type, so that we have some specimens 6 months old. In each case the groove made by the projecting nail or screw has gradually filled up as the projection has become less and less by the overgrowth of the condyle.

Osteomyelitis Involving the Hip Joint, a Condition Heretofore Designated Acute Epiphysitis

DR. JAMES E. MOORE, Minneapolis: The disease, which begins at or near the epiphyseal line, described by Macnamara under the name epiphysitis, is an acute osteomyelitis. The symptoms all point toward an acute inflammation of the hip joint. There are excruciating pain and high temperature, followed by deformity and swelling. There is apt to be an early separation of the epiphysis, with rapid destruction of the hip joint. The treatment consists of free incision and drainage. The opening should be made large enough to admit a finger, in order to ascertain whether or not the epiphysis is separated or not. If separation has taken place, the epiphysis should be removed at once. This is a grave disease, but with prompt treatment I have seen patients recover who were seemingly beyond help. This disease does not begin in the epiphysis, but in the neck of the femur. It may begin in the shaft of the femur. The reason the name "epiphysitis," originally suggested by Macnamara over twenty-five years ago, still is in vogue is that osteomyelitis is quite rare in this location, and the diagnosis is not made until the joint has become involved and the epiphysis has separated from the neck. When the joint is opened, the floating epiphysis at once attracts the operator's attention, and the original opening into the neck of the femur can easily be overlooked.

Some Experiments with Rubber Gloves

DR. CARL E. BLACK, Jacksonville, Ill.: How much does the use of rubber gloves interfere with the tactile sense? I have made 144 observations on six blind pupils who read entirely with their fingers. The average time in which the pupils could read the text with the bare fingers was forty-eight seconds, while the average time when the hands were covered with rubber gloves of medium weight and well fitting was seventy seconds. With the hands covered with oil and then the gloves put on, the time was reduced to sixty-eight seconds, while with the gloves put on with the hands wet the time was still further reduced to sixty-five seconds. The average time for reading with gloves, under all conditions, was seventy seconds. In one observation an excess of powder was put in the glove, while in another observation very loose fitting gloves were used. With loose, ill fitting gloves the average time for reading 100 words was eighty-six seconds. These observations present some interesting facts about the gloves, and show the difference between the carefully fitted medium weight gloves and the loose, badly fitting thick gloves. They also emphasize the fact that gloves put on with the hands wet impair the sense of touch less than gloves put on dry.

A Paradox in Cancer

DR. C. E. TENNANT and DR. CASPER F. HEGNER, Denver: Notwithstanding the long and continued presence of carcinoma extending over a period of ten years, and two operations for recurrence; notwithstanding the possibility of metastasis and a constitutional predisposition to carcinoma, and the coexistence of a very chronic ulcer at a site most favorable to a development of carcinoma, and that too during the cancer decades of life, carcinoma did not develop.

Since the age of 16 years the patient, now 58, had been having attacks of stomach trouble with nausea and vomiting. These had been severe and almost constant since 1905. When 23 years of age, while nursing her infant, the nipple of the left breast become sore, and abscess developed, which was lanced through the nipple. In 1900, twenty-one years after the abscess, the same nipple became sore again. This continued until 1907, when the condition was diagnosed as Paget's disease and treated with the Roentgen ray without improvement. In March, 1910, there was a superficial pigmented and fibrosed ulceration. The nipple and ulcer area were then excised. In December, 1911, twenty-one months after the nipple excision, the patient returned with a mass in the upper inner quadrant of the same breast. This was the size of a hen's egg and adherent to the skin and deeper structures. A complete operation was made, removing the breast, muscle, axillary and supraclavicular lymph glands. Dr. R. C. Whitman examined sections of this tissue and reported scirrhous carcinoma with glandular involvement. Four years after this operation the patient is free from recurrence. In April, 1915, she presented herself for stomach trouble which had existed since she was 16 years old. Pain and distress were almost constant, vomiting frequent and a loss of 10 pounds in weight. At operation, the pyloric end of the stomach, the pylorus and the first part of the duodenum were fused into a firm mass firmly adherent to the surrounding structures. The stomach (pyloric end) and the first

portion of the duodenum were resected. The mass was excised in wide limits and a posterior gastro-enterostomy was performed. The history and the appearance of the tissues strongly indicated carcinoma, and at the time its presence was considered certain. Sections examined by Dr. Hegner proved this last lesion to be one of chronic duodenal ulcer with encroachment on the pyloric end of the stomach.

Further Study of Malignant Disease of the Ovaries

DR. MILES F. PORTER, Fort Wayne, Ind.: As a result of large experience, I am inclined to disagree with those who advise the removal of a healthy ovary because its companion is cystic. This should never be done except perhaps in women near the menopause. Fluid in the abdomen, which cannot otherwise be accounted for, should lead to exploratory operation. A negative laboratory report should not be allowed to outweigh a positive diagnosis of malignancy based on the clinical history and examination of the gross specimen. On the other hand, many tumors will show little or no signs of malignancy clinically which on microscopic examination are found to be unquestionably malignant. I have seen several malignant ovarian tumors without ascites. Rapidly growing tumors are most likely to cause ascites. Ascites does not mean involvement of the peritoneum. Malignant ovarian tumors may cause amenorrhea, menorrhagia or metrorrhagia, or may exist without interfering with the menstrual function. In some cases there is a history of amenorrhea followed by menorrhagia, and vice versa. A bloody vaginal discharge years after the menopause has been noted. Irregularity of the menses is more common in malignant than in nonmalignant tumors of the ovary. I have found one case supporting Wermuth's statement that sarcoma in the young may cause premature signs of puberty. This was in a girl aged 6 years, who menstruated regularly. Operation revealed a vascular sarcoma and a uterus of adult size.

DISCUSSION

DR. LEONARD FREEMAN, Denver: The case reported by Dr. Tennant is interesting, but neither unusual nor paradoxical. It is the nature of cancer to occur in only one spot as a primary growth in any given individual at any given time.

DR. CHARLES H. MAYO, Rochester, Minn.: Carcinoma is most common in the stomach, yet with a continuous muscularis and continuous mucosa, it is rare to find carcinoma of the duodenum. The process will metastasize in the liver, the glands, the colon and the pancreas, but, as a rule, it will leave the duodenum alone.

DR. DANIEL N. EISENDRATH, Chicago: A woman was sent to me with retraction of the nipple which had existed for three months with no induration to be felt at first around the nipple. Immediately surrounding the nipple there was a light yellowish parchment induration which looked like elephantiasis of the leg. Believing in the theory that the primary affection in Paget's disease is a ductile carcinoma with secondary involvement of the skin, I made a diagnosis of primary carcinoma of the ducts, with secondary involvement of the skin, the first stage of Paget's disease. The breast was removed completely. There was tremendous edema of the skin, with typical vacuolated cells. The ductile carcinoma radiated from the nipple, and was of such a nature that it was impossible to feel this mass because it was so deep in the breast.

DR. J. W. ANDREWS, Mankato, Minn.: Solid tumor of the ovary is very rare. I have encountered but one case. That tumor weighed 4 pounds, and on section proved to be a fibroid.

DR. DONALD MCCRAE, Council Bluffs, Iowa: When a woman has Paget's disease or an old ulcer of the nipple, without involvement of the glands of the axilla, I should not hesitate to remove the breast. If we are to get ahead of cancer of the breast, we must remove the disease early.

DR. WILLIAM T. REYNOLDS, Kansas City, Mo.: I was forced to operate on a woman, aged 32, for acute intestinal obstruction produced by a rapidly growing tumor occupying the entire pelvis. She had a villous carcinoma of the ovary on both sides, and an adenocarcinoma at the junction of the descending colon and sigmoid.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany (N. Y.) Medical Annals

December, 1915, XXXVI, No. 12, pp. 567-612

1 Control of Cancer. R. Derby, New York.
2 *Blood Coagulation in Infancy. H. L. K. Shaw and F. J. Williams, Albany.

2. **Blood Coagulation in Infancy.**—Shaw and Williams made examinations in 108 healthy infants under 2 years of age by the Dale and Laidlaw method and found the determinations were between one minute fifteen seconds and one minute forty-eight seconds, and the average coagulation time was one minute thirty seconds, which is a slightly shorter time than in adults. They observed no difference in the clotting time before and after eating, nor at different periods of the day. There was no difference in blood taken from various parts of the body: ears, fingers or toes. They found that the first drop clotted somewhat more quickly than succeeding ones and a slight hastening of the coagulation time was noted when the tissues surrounding the needle prick was squeezed and manipulated to force out the blood. With the Boggs instrument they could find no appreciable difference in the clotting time whether the glass surface was warmed or cooled before applying the blood. The results by both the Dale-Laidlaw and Russell-Brodie methods were remarkably constant and Shaw and Williams believe they have established a normal coagulation time for infants and hope in a later communication to compare these results with those obtained in various disease conditions.

American Journal of Diseases of Children, Chicago

January, XI, No. 1, pp. 1-84

3 *Nature and Quantitative Determination of Reducing Substance in Normal and Pathologic Cerebrospinal Fluid. O. M. Schloss and L. C. Schroeder, New York.
4 *Familial Syphilis. P. C. Jeans, St. Louis.
5 Some Interesting Facts Plainly Brought Out by Chart Method of Studying and Managing Cases of Diabetes Mellitus in Children. D. H. Sherman, Buffalo.
6 *Etiology of Pachymeningitis Hemorrhagica Interna in Infants; Report of Case. A. B. Schwartz, Chicago.
7 *Parapneumonic Empyema. L. Gerdine, Chicago.
8 *Nutritive Value of Boiled Milk. A. L. Daniels, S. Stuessy and E. Francis, Madison, Wis.
9 Congenital Syphilis, Simulating Mongolism, in One of Twins. F. Van Der Bogert, Schenectady, N. Y.
10 Case of Traumatic Rupture of Left Kidney. C. J. Bloom and R. E. Stone, New Orleans.
11 Recent Advances in Anatomy, Physiology and Pathology of Childhood. J. B. Holmes, Baltimore.

3. **Reducing Substance in Normal Cerebrospinal Fluid.**—The observations cited by Schloss and Schroeder indicate that there is no basis for the belief that the reducing substance in normal cerebrospinal fluid is pyrocatechin. Moreover, their results indicate that this agent is a monosaccharid, probably dextrose. The results for normal fluids were obtained from a study of material from forty-five infants and children on whom lumbar puncture was done as a diagnostic procedure. There were a number of cases of meningism, but all fluids showed a normal cell count and no increase of globulin (Kaplan, Noguchi). The maximum amount of sugar found in normal cerebrospinal fluid was 0.139 per cent., the minimum 0.054 per cent. According to Schloss and Schroeder the reducing substance in cerebrospinal fluid is a fermentable, dextrorotatory sugar, probably dextrose. In infants and children free from meningeal disease the cerebrospinal fluid sugar ranges from 0.05 to 0.134 per cent. (dextrose), approximately the same figures which obtain for blood sugar. There is no decrease in the reducing power of the cerebrospinal fluid in meningism. A large proportion of the cases of tuberculous meningitis show a decrease in the sugar content of the cerebrospinal fluid at some stage of the disease. In a few cases, however, the sugar is normal at all times or diminished but slightly. A decrease only is of diagnostic value.

4. **Familial Syphilis.**—It does not seem likely to Jeans that germ transmission of hereditary syphilis ever occurs. He thinks it is highly probable that all the mothers of syphilitic children have been infected with syphilis. Of eighty-five mothers of syphilitic children 86 per cent. gave positive Wassermann reactions. All of the remaining cases but six gave a history of infection or treatment, or both. Five of these six patients were examined at least ten years after the birth of their last syphilitic children and the infection is probably dying out. Of the mothers 87 per cent. deny all knowledge of the infection. The mothers are for the most part infected during the latent stage of the father. Of 331 pregnancies in 100 families, 30 per cent. were abortions, 9 per cent. stillbirths, 61 per cent. living births. Of the living births 24 per cent. had died. Of those living 80 per cent. had syphilis. Of the total pregnancies 90 per cent. were presumably syphilitic and although 10 per cent. seem free from syphilis, there is no proof that they all are. The total syphilis in these families amounts to 93 per cent. of the entire family. For the most part these families followed Kassowitz's rule; namely, decreasing grades of infection in the children. In case of syphilitic mothers bearing non-syphilitic children, Jeans thinks it is probable that the infection in the mother is localized in places in which it is not readily transmitted. The idea that there are different strains of spirochetes receives some support from these families. Transmission to the third generation, though not proved, is distinctly an occasional probability.

6. **Pachymeningitis Hemorrhagica Interna in Infants.**—Pachymeningitis hemorrhagica as it occurs in infancy Schwartz believes is an infectious disease, which may be caused by the meningococcus or other organisms. The case reported is one in which the meningococcus was demonstrated in the spinal fluid on several separate examinations.

7. **Parapneumonic Empyema.**—In a series of fifteen cases of typical lobar pneumonia or bronchopneumonia, in children under 4 years of age, exploratory punctures of the chest were made by Gerdine as early as possible in the course of the disease. The needle was put in over the area of greatest impairment as shown by physical signs and roentgenograms. In only one of the cases in which fluid was not found at the first puncture, were subsequent trials made, and no fluid was found until the twenty-second day, when a typical metapneumonic empyema was found. In six of these fifteen cases (40 per cent.) fluid was recovered by puncture before the seventh day of the disease, always before the crisis. Five of the six fluids were opaque and yielded a large clot. They contained a large number of cells, between 70 and 80 per cent. polymorphonuclear leukocytes. No micro-organisms could be demonstrated in them by smears. Cultures on agar, milk, bouillon, and with some on blood-agar, gave no growths. Inoculations into mice were without harmful results, except in one case in which the mouse died within twenty-four hours, but no lesions were found and no organisms could be grown from its heart's blood or serous cavities. In all five cases the fluids were absorbed spontaneously, as was shown by later punctures and roentgenograms. The clinical course of the disease was never noticeably affected by the presence of these fluids.

8. **Value of Boiled Milk.**—The results obtained by the authors point to the conclusion that milk heated to the boiling temperature or thereabouts is an inadequate food. Rats fed on boiled milk grew to about half their normal size. Although they have been able to keep these experimental animals for many months on boiled milk, in no case have they got reproduction, nor have any of the animals reached the normal weight for adult rats. Milk which is kept at the boiling temperature for forty-five minutes is no less efficient as a food than milk boiled for much shorter periods—ten minutes or one minute. The chemical changes which make heated milk an inadequate food are brought about at the boiling temperature or thereabouts. The value of pasteurized milk as a food, therefore, will depend on the temperature to which it is heated during the pasteurization process. Heating milk to a higher temperature than boiling (114 C.) makes it even less valuable as a food.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

December, 1915, III, No. 6, pp. 311-366

12 Influence of Tropical Medicine on General Medicine. H. J. Nichols, U. S. Army.
13 Accomplished Tasks of Tropical Medicine. J. M. Swan, Rochester, N. Y.
14 *Few Cases of Blackwater Fever and of Peculiar Enterocolitis. E. F. Otis, La Romana, Dominican Republic.
15 *Tuberculosis in Negro of Panama Canal Zone. H. C. Clark, Ancon, C. Z.

14. **Cases of Blackwater Fever.**—Otis describes an interesting syndrome that appeared in Santo Domingo in the past year without determining symptoms and of virulent nature. The only cases he has met thus far have occurred in children between the ages of 5 and 10 years. One case began with a slight indisposition for one day; however, these attacks usually began abruptly without any premonitory symptoms. The patient becomes nervously agitated and it may pass on to a convulsion. The fever sometimes rises to 104 F., and above, and remains there more or less constantly for from three to six days. It is not a pure enteritis. The bowels have a marked tendency to obstipation. It is apparently not a food toxemia. In none of the more typical cases had there been digressions from the regular foods taken by the other members of the family. Nor did it particularly select weaklings, for, excepting one boy with malnutrition, all were exceptionally strong. Some were of poor parents; others lived in comfortable homes. It was essentially toxic; and resulted in an almost complete cessation of peristalsis. This was, with difficulty and only partially, overcome by doses of eserin in combination with various laxative procedures. It was enteric in that such bowel movements as appeared were completely surcharged with mucus. All cases had a distinctive odor to the bowel movements similar to that of fresh beef. The urine was uncommonly free from microscopic abnormalities; also the feces. This affection is also clinically interesting as to its termination. The fever may be raging for hours at 104 F. or above, in spite of a reasonable amount of antipyretic measures. Sometimes, after days, it drops to about 100 F. About this time the patient can only with difficulty be persuaded that it is necessary to remain in bed. He feels well; but the low subnormal temperature usually continues for many days. On exertion the patient discovers that his physical endurance is at a low ebb.

15. **Tuberculosis in Negro.**—Tuberculosis is a common disease on the Isthmus of Panama. In a period of about five years it has led all other single factors by a wide margin as a cause of death, if the anatomic records at Ancon can be taken as a safe index. Based on an examination of the past and present anatomic records, Clark says, it would appear that the disease is increasing among the negro population. The duration of the course of tuberculosis in the negroes of this region can be better represented by months rather than by years as is so frequently the case in the white race. The disease is more often widely disseminated in the negro than in the other races of this region. There is but little evidence offered; in the study of this material of an arrested or healed process in the negro, yet such findings are frequent in the other races. Overcrowding, poverty, ignorance and race appear to be important factors in the propagation of the disease in this region. Much evidence found indicates that many of the cases of tuberculosis in this group acquired their infection on the Isthmus. Bone, joint and cutaneous types of tuberculosis are less common here than in the United States. The pulmonary type of the disease, becoming rapidly disseminated, is the common form occurring in the negroes on the Isthmus.

Boston Medical and Surgical Journal

Dec. 30, 1915, CLXXIII, No. 27, pp. 979-1018

16 Foot Strain and Other Common Foot Defects. H. W. Marshall, Boston.
17 Prognosis of Incipient Senile Cataract. D. W. Wells, Boston.
18 Radical Treatment of Peritonsillar Abscess by Tonsillectomy During Acute Stage of Disease. H. A. Barnes, Boston.
19 Significance of Changes in Cellular Content of Cerebrospinal Fluid in Neurosyphilis. H. C. Solomon and H. O. Koefod, Boston.

Cleveland Medical Journal

November, 1915, XIV, No. 11, pp. 713-792

20 Smaller Nursing Districts for All Public Health Work, vs. Larger Districts for Specialized Work. H. J. Gerstenberger, Cleveland.
21 Medical Inspection of School Children. E. A. Peterson, Cleveland.
22 Protection of Cleveland's Food Supply. F. V. Ball, Cleveland.
23 Rôle of Pure Milk in Prevention of Disease. A. F. Furrer, Cleveland.
24 Welfare Work in Modern Factory. W. A. Haldy, Cleveland.
25 Safeguarding Quality of Medicines. J. F. Woolsey, Cleveland.

Colorado Medicine, Denver

December, 1915, XII, No. 12, pp. 353-384

26 Senile Parenchymatous Hypertrophy of Breast. C. A. Powers, Denver.
27 Evolution and Present Status of Mental Therapeutics. E. J. A. Rogers, Denver.
28 Five Cases of Relapsing Fever Originating in Colorado, with Positive Blood Findings in Two. C. N. Meader, Denver.
29 *Use and Abuse of Drugs. W. T. Little, Canon City.
30 Immunity in Tuberculosis. G. B. Webb and G. B. Gilbert, Colorado Springs.
31 Triumphs of Preventive Medicine. J. W. Amesse, Denver.

29. **Use and Abuse of Drugs.**—Little summarizes his paper as follows: Pharmacology is a branch of medical science second to none other in importance. It is essential to know disease, its cause and its natural history before we can successfully control it; but its prevention and cure is the ultimate purpose of all our efforts. By physical and chemical means we endeavor to restore to their normal function organs damaged by disease, and only when their functions are destroyed should we cut them away. Drugs are of the greatest value in modifying and restoring function, but they should be used with a precision that can come only from an exact knowledge of their action. The pharmacologic laboratories are gradually weeding out those drugs of uncertain value, as the expectorants, the hypophosphites, viburnum, strychnin, etc.; and hard as it may be to part with old friends, it is our duty to do so if we are to maintain the highest state of medical efficiency. A knowledge of the physiologic action of a drug is essential to its correct use. We should know that our drugs are both active and pure. We should give drugs only when they are clearly indicated. In judging the worth of a remedy always maintain an attitude of scientific skepticism.

Georgia Medical Association Journal, Augusta

December, 1915, V, No. 8, pp. 171-192

32 Country Physician. J. R. Robins, Siloam.
33 Physician as First Aid in Detection of Crime. C. W. Gould, Atlanta.
34 Final Report of Work Leading to Eradication of Uncinariasis in Georgia. A. G. Fort, Atlanta.
35 Commercialism of Pharmacy and Reason. A. D. Little, Thomasville.
36 Possible Danger of Roentgen Ray in Latent Pellagra. G. M. Niles, Atlanta.
37 Hygiene vs. Medicine in Treatment of Skin Diseases. C. Swanson, Atlanta.

Illinois Medical Journal, Chicago

December, 1915, XXVIII, No. 6, pp. 401-472

38 Diphtheria Treatment in General Practice. R. R. Ferguson, Chicago.
39 Value and Limitations of Schick Diphtheria Reaction in General Practice. A. Levinson, Chicago.
40 Value of Specific Treatment in Croupous Pneumonia. J. L. Miller, Chicago.
41 Diagnosis and Medical Treatment of Exophthalmic Goiter. S. R. Pietrowicz, Chicago.
42 Goiter and Indications for Its Treatment. A. A. O'Neill, Chicago.
43 Serum Treatment for Physiologically Defective Thyroids, Clinical Reports. R. Watkins, Chicago.
44 Better Milk at Better Price. C. J. Whalen, Chicago.
45 Enlarged Public Health Activities in Illinois and Relation of Medical Profession Thereto. C. St. C. Drake, Springfield.
46 Reciprocal State Laws Regarding Marriage of Diseased Individuals and Mental Defectives. A. M. Corwin, Chicago.
47 Intraspinal Therapy of Syphilis of Nervous System. R. B. H. Gradwohl, St. Louis.
48 Loss and Waste from Inadequate and Inconsistent Planning of State Hospitals. R. Dewey, Wauwatosa, Wis.
49 Interstitial Gingivitis and Pyorrhea Alveolaris. E. S. Talbot, Chicago.
50 Cancer. E. C. Franing, Galesburg.
51 Acute Frontal Sinusitis. R. H. Good, Chicago.
52 Pyelonephritis. F. S. Cary, Chicago.
53 Sugar Treatment of Ozenal Rhinitis. C. B. Younger, Chicago.
54 Retrospect. C. F. Smith, Kankakee.

Journal of Experimental Medicine, Baltimore

January, XXIII, No. 1, pp. 1-147

55 *Immunologic Studies in Pneumonia. R. Weil and J. C. Torrey, New York.
56 *A Skin Reaction in Pneumonia. R. Weil, New York.
57 *Experimental Study of Effect of Cholecystgastrostomy on Gastric Acidity. E. G. Grey, Boston.
58 Pathologic Study of Syphilitic Aortitis and Its Serology. J. H. Larkin and I. J. Levy, New York.
59 Etiology of Rat-Bite Fever. F. G. Blake, Boston.
60 *Antiblastic Immunity. A. R. Dochez and O. T. Avery, New York.
61 Atheroma and Other Lesions Produced in Rabbits by Cholesterol Feeding. C. H. Bailey, San Francisco.
62 Relation of Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice. Changes in Blood Following Diversion of Splenic Blood from Liver. Control Study of Effects of Splenectomy. E. B. Krumbhaar, J. H. Musser, Jr., and M. M. Peet, Philadelphia.
63 Id. Resistance to Hemolytic Agents of Dogs in Which Splenic Blood Has Been Diverted from Liver. E. B. Krumbhaar and J. H. Musser, Jr., Philadelphia.
64 Quantitative Analysis of Influence of Size of Defect on Wound Healing in Skin of Guinea-Pig. K. C. Spain and L. Loeb, St. Louis.
65 Intestinal Obstruction. G. H. Whipple, F. H. Rodenbaugh and A. R. Kilgore, San Francisco.
66 *Icterus. C. W. Hooper and G. H. Whipple, San Francisco.

55. **Immunologic Studies in Pneumonia.**—The serum derived from human cases of pneumonia has been used by Weil and Torrey to sensitize guinea-pigs passively. As antigen an autolysate of a pneumococcus culture was employed. By means of Dale's method it has been possible to show with considerable regularity that the blood contains sensitizing antibodies during the course of pneumonia, but none after the crisis. Patients suffering from other diseases have failed to give this reaction, as have also normal individuals.

56. **A Skin Reaction in Pneumonia.**—Weil describes the results observed when pneumococcus antigen, prepared in the same way as for the anaphylactic experiments was injected intracutaneously into a series of pneumonia patients and into controls. The autolysate was kept in the ice-box, and was never used more than one week aftere its preparation. During this period no change could be detected in its effects when injected into the skin. The amount injected varied from 0.1 to 0.2 c.c. depending on the texture of the skin. The injection is immediately followed by a superficial, ill defined, cutaneous blush. This is present in pneumonia cases as well as in controls. It is believed to be due to a local irritant effect, and is not considered as a true reaction. The subsequent course of events at the site of injection varies under different circumstances. The superficial erythema may fade within a few hours, and nothing further may develop. Such a course is denominated as an absence of reaction, and the case is called negative. On the other hand, within the twenty hours following the injection further changes may occur at the site of injection. A fairly well circumscribed area of erythema, with slight infiltration and elevation of the skin surrounding the point of puncture, may develop. If the infiltration is marked, a true papule results. These changes may persist for forty-eight hours or more. They are described as a reaction and a case presenting this is called positive. During the course of the disease the skin presents no reaction to the injection. After the subsidence of the disease, a considerable percentage of the cases do present a reaction. From a diagnostic standpoint, the reaction has no significance. The fact that it is absent during a pneumonic process does not sufficiently establish the bacterial etiology of the disease.

57. **Effect of Cholecystgastrostomy on Gastric Acidity.**—The purpose of the investigations reported by Grey has been to determine the effect of bile on the acid chyme of the stomach. By means of a cholecystgastrostomy with ligation and division of the common bile duct in six dogs the bile was diverted from the duodenum into the stomach. The secretion of gastric juice and the acidity of the gastric contents throughout the period of digestion were followed before and after the anastomoses. For this purpose three of the dogs were provided with Pawlow stomach pouches. In the three remaining animals the test meals were recovered by using apomorphin injections. The results from the two

series of experiments agree. They indicate, at least with a diet of meat and water, that bile when it is present in the stomach throughout the course of digestion has no appreciable effect on the acidity of the gastric contents. While the anastomosis of the gallbladder to the stomach occasioned some temporary anorexia and vomiting in two of the dogs, the four remaining animals bore the operation well. Three or four weeks subsequent to the operation the digestion and the nutrition appeared normal in each instance. Postmortem examinations revealed no pathologic changes in the gastric mucosa.

60. **Antiblastic Immunity.**—Dochez and Avery state that antipneumococcus serum possesses the power of inhibiting for a certain period of time the multiplication of pneumococci. It also has the capacity of inhibiting the proteolytic and glycolytic functions of pneumococci. This power is acquired for the first time or appears in increased amounts in human serum at the time of crisis in lobar pneumonia. The retardation of bacterial growth is thought to be dependent on the inhibition of metabolic function due to the presence of antienzymotic substances in antipneumococcus serum. To this phenomenon the authors have applied the term antiblastic immunity.

66. **Icterus.**—The experiments made by Hooper and Whipple show that hemoglobin can be changed to bile pigment within the pleural or peritoneal cavities. This transformation can usually be detected after eight hours, and the amount can often be estimated quantitatively after an interval of twenty-four hours. These experiments demonstrate the importance which may attach to extrahepatic bile pigment formation. That bile pigments can be formed without direct liver activity is established beyond doubt. The authors suggest that it is highly probable that endothelium as well as mesothelium (serous cavities) can transform hemoglobin into bile pigment. It is possible that this property may reside in cell protoplasm in general.

Journal of Infectious Diseases, Chicago

January, XVIII, No. 1, pp. 1-128

67 *Use of Brilliant Green for Isolation of Typhoid and Paratyphoid Bacilli from Feces. C. Krumwiede, Jr., J. S. Pratt and H. I. McWilliams, New York.
68 *Mechanism of Abderhalden Reaction with Bacterial Substrates. G. H. Smith and M. W. Cook, Glenolden, Pa.
69 *Nonspecific Complement Fixation by Normal Rabbit Serum. J. A. Kolmer and M. E. Trist, Philadelphia.
70 *Nonspecific Complement Fixation by Normal Dog Serum. J. A. Kolmer, M. E. Trist and G. D. Heist, Philadelphia.
71 Influence of Splenectomy and Anesthetics on Nonspecific Complement Fixation Sometimes Shown by Normal Rabbit and Dog Serums. J. A. Kolmer and R. M. Pearce, Philadelphia.
72 *Relation of Serum Lipoids and Proteins to Nonspecific Complement Fixation with Normal Rabbit and Dog Serums. J. A. Kolmer, Philadelphia.
73 Effect of Heat on Normal Rabbit and Dog Serums in Relation to Antilytic and Nonspecific Complement Fixation Reactions. J. A. Kolmer and M. E. Trist, Philadelphia.
74 *Complement Fixation in Intestinal Parasitism of Dogs. J. A. Kolmer, M. E. Trist and G. D. Heist, Philadelphia.
75 *Epidemiology and Symptomatology of Outbreak of Septic Sore Throat in Westchester County, New York. C.-E. A. Winslow and L. W. Hubbard, Albany, N. Y.
76 Value of Virulent Salt Solution in Production of Antihog-Cholera Serum by Intravenous Method. R. Graham and L. R. Himmelberger, Lexington, Ky.
77 Filterable Organism Isolated from Tissues of Cholera Hogs. D. J. Healy and E. J. Gott, Lexington, Ky.

67. **Brilliant Green for Isolation of Typhoid Bacilli.**—With an easily prepared agar, two concentrations of brilliant green being used, the authors found it possible markedly to increase the per cent. of positive typhoid isolation from stools. This has given much better results than the employment of brilliant green broth alone, although the dye-broth enrichment method may give positive results when the agar alone fails. The methods can be applied to the isolation of the members of the paratyphoid enteritidis group from stools.

68. **Abderhalden Reaction with Bacterial Substrates.**—The work of Smith and Cook confirming the studies of Bronfenbrenner, demonstrates that the Abderhalden reaction may be divided into two phases. The first phase involves a sensitization of substrate by its specific serum. The second phase represents an autodigestion of the serum, which is not due to specific causes. In the sensitization of substrate an absolute specificity obtains. Whether or not this sensitization is of the nature of an antigen-antibody reaction forms at present the subject of a further investigation.

69. **Nonspecific Complement Fixation by Normal Rabbit Serum.**—Fresh, active serums from normal rabbits in doses of 0.1 c.c. showed nonspecific complement fixation with lipoidal extracts in 5 to 15 per cent. of serums. When these same serums were inactivated by heating them in a water bath at 55 to 56 C. for thirty minutes, complement fixation occurred in 38 to 49 per cent. of the serums. With both active and inactivated serums the highest percentage of positive reactions was observed when alcoholic extracts of heart muscle reenforced with cholesterin were used as antigens; alcoholic extracts of syphilitic liver gave the second highest, and an extract of acetone insoluble lipoids gave the lowest, percentage of positive reactions. With bacterial antigens of staphylococci and colon and typhoid bacilli, fresh, active rabbit serums showed some degree of complement fixation in 31 to 42 per cent. of instances; when these serums were inactivated, positive reactions occurred in 51 to 62 per cent.

The degree of complement fixation with normal rabbit serum and lipoidal and bacterial antigens is usually moderate or slight, as about 50 to 85 per cent. of reactions show 50 per cent., or less, inhibition of hemolysis. The reacting state of a rabbit's serum when the animal is on an average diet is usually constant, in that 80 per cent. of their animals reacted persistently negatively or persistently positively when examined at intervals of three days to a month. Emphasized by Kolmer and Trist that when rabbits are employed for experimental studies with a view to using their serums for complement fixation tests, their serums should be tested one or more times, before inoculation, preferably with the particular antigen to be used, and only those selected that react negatively.

70. **Nonspecific Complement Fixation by Normal Dog Serum.**—The authors found that dog serum in both an active or fresh condition and after heating or inactivation is capable of absorbing complement, in a relatively large percentage of instances, with various lipoidal and bacterial antigens.

72. **Relation of Serum Lipoids and Proteins to Rabbit and Dog Serums.**—Kolmer summarizes this paper as follows: Both the serum lipoids and proteins are concerned in the antilytic and nonspecific complement fixation reactions with normal rabbit and dog serums. The rôle of the serum lipoids in these processes is indicated in the observation that extraction of suitable serums with ether and chloroform usually diminished the antilytic and complement fixing powers of a serum, whereas the enteral and parenteral administration of lipoids increased the antilytic and complement fixing powers. Serums that are extracted with ether are rendered primarily more antilytic; after heating an extracted serum the antilytic titer is generally reduced, as compared with the titer of plain heated serum. Both the globulin and albumin (filtrate) fractions of normal rabbit and dog serums possess thermostabile antilytic and complement fixing properties, usually the former to a slightly greater degree. The antilytic and complement fixing substances of normal rabbit and dog serums are not dialyzable.

74. **Complement Fixation in Canine Parasitism of Dogs.**—According to the results of complement fixation tests with the serums of infested dogs the authors believe that production of antibodies may occur after infestation of the intestines with the common parasites. Production of antibodies was especially in evidence in infestations with tapeworms; to a less degree with the ascarides or round worms, and to a slight extent with the whipworm. These complement fixations have tended to show a biologic relation between the tapeworms *Tenia serrata* and *Dipylidium caninum* and between *Ascaris canis* and *Strongylus gigas,* although on account of the wide morphologic differences they leave it an open question; it is probable, therefore, that complement fixation tests will not differentiate with the usual technic between related species of parasites, although they may show the presence of a parasite. The authors suggest that com-

plement fixation tests may be of value in the diagnosis of intestinal parasitism of man, and they are now making investigations in this field.

75. **Outbreak of Septic Sore Throat.**—An outbreak of 905 cases of septic sore throat occurred in 4 neighboring communities of Westchester County, New York, in the spring of 1915, reaching its maximum between February 15 and March 22. The distribution of cases of the disease over a long period of time and the absence of any common food or milk supply for a majority of the cases Winslow and Hubbard believe indicates that it was spread, for the most part, by contact and in prosodemic fashion. The fact that at the height of the outbreak (February 15 to March 8) there was an increase in the proportion of cases in households supplied by a certain milk dealer, that the family incidence in these households was unusually high, and that the severity of the disease in them was accentuated, indicates that a small milk or cream epidemic was then superimposed on the general prosodemic spread of the disease. Septic sore throat tends to affect females much more than males. Septic sore throat usually affects all ages without marked preference. In the Westchester County outbreak 83 per cent. of the cases showed reddening of the throat, 60 per cent. tonsillar involvement, 50 per cent. glandular involvements, 47 per cent. prostration, 37 per cent. a high temperature (over 102 degrees), 20 per cent. false membrane, 11 per cent. rheumatism, 9 per cent. quinsy, 8 per cent. ear infection, 7 per cent. relapses, 3 per cent. nephritis, 2 per cent. erysipelas, and 0.4 per cent. endocarditis. High temperature, prostration, relapses, rheumatism, erysipelas, and nephritis were symptoms more common among the old; involvements of glands and ears, among the young. When septic sore throat is spread by contact, multiple cases in a household are less numerous than when it is spread by milk. Septic sore throat is generally more severe when milk-borne than when spread in prosodemic fashion.

Journal-Lancet, Minneapolis

Dec. 1, 1915, XXXV, No. 23, pp. 649-677

78 Open-Air Treatment in Surgery. J. W. Markoe, New York.
79 Therapeutic Effects of Radium. D. T. Quigley, Omaha.
80 Psychotherapy. G. J. Gislason, Grand Forks, N. D.
81 Two Hundred Cases of Pulmonary Tuberculosis. J. G. Lamont, Dunseith, N. D.
82 Anuria for Five and One-Half Days in Patient on Whom Left Nephrectomy Had Been Done. G. J. Thomas, Rochester.

Kentucky Medical Journal, Bowling Green

December, 1915, XIII, No. 13, pp. 583-648

83 *Plea for More Thorough Examination of Cases Presenting Symptoms Referable to Pulmonary Tuberculosis. O. O. Miller, Louisville.
84 *Medical Treatment of Incomplete Abortion. B. J. O'Connor, Louisville.
85 Facts in Ophthalmology Essential to General Practitioner. T. W. Moore, Huntington, W. Va.
86 *Focal Infection. N. T. Yager, Louisville.
87 *Complications of Middle Ear Suppuration. L. S. Givens, Cynthiana.
88 Head Cold; Parts Involved, and Some of the Results. C. A. Moss, Williamsburg.
89 Diseased Tonsils, What Shall We Do With Them? C. E. Purcell, Paducah.
90 Roentgen Ray in Diagnosis of Bone and Joint Lesions. J. B. Mason, London.
91 Interstitial Nephritis; Its Cause and Prevention. S. Lambert, Owensboro.
92 Puerperal Eclampsia; Report of Four Cases. W. H. Joyner, East Bernstadt.
93 Rheumatism. T. A. Pease, Kirbyton.
94 Menorrhagia. T. C. Nichols, Morgan.

83. Abstracted in THE JOURNAL, Oct. 16, 1915, p. 1397.

84, 86 and 87. Abstracted in THE JOURNAL, Oct. 16, 1915, p. 1398.

Medical Record, New York

Dec. 25, 1915, LXXXVIII, No. 26, pp. 1079-1124

95 *Rôle of Roentgen Rays in Diagnosis of Ureteral Calculus. W. Meyer, New York.
96 Surgery of Gastric and Duodenal Ulcer in Relation to Insurance Risk. H. Gage, Worcester, Mass.
97 Severely Impaired Audition in Childhood. L. M. Hubby, New York.
98 Correlation Between Olfactory and Genital Functions in Human Female. J. A. Hagemann, Pittsburgh.
99 *Torsion Injuries of Muscles of Abdominal Wall; Report of Cases. G. F. Boehme, Jr., New York.
100 Mental Defectives; Their Importance. H. V. Wildman, Jr., New York.

95. **Roentgen Rays in Diagnosis of Ureteral Calculus.**—Meyer believes that Roentgen rays represent a wonderful assistance to the surgeon in diagnosing the presence of ureteral stones and stones in the urinary tract in general, but insists that the Roentgen-ray examination should be stereoscopic, whenever possible, and include both sides of the urinary tract. In order to do full justice to the patient and to avoid disappointment to surgeon and patient alike, cystoscopy with ureteral catheterization should follow the Roentgen-ray examination. A scratch on the wax-tipped ureteral stilette or catheter furnishes additional reliable proof of the presence of a stone. A negative Roentgen ray result plus missing scratch on the wax-tipped ureter stilette may be accepted as proof of the absence of a ureteral stone in the given case.

99. **Torsion Injuries of Muscles of Abdominal Wall.**—Boehme means any injuries to them or their attachments, caused by the sudden rotation of the body on its vertebral axis laterally, or the sudden extension of the abdominal muscles by a movement in the vertical plane. The four cases he has seen were brought about by the sudden throwing of a weight with the twisting of the body laterally. The traumatism was occasioned by the sudden contraction of the muscles of the abdominal wall against a resistance. There was a sense of something giving way with a sharp pain, and these were found to be an inability to repeat the attempt. In some instances breathing, where of the abdominal type, was painful and markedly limited. On examination a point of tenderness was made out, either in the rectus injured or in the oblique muscles (three cases). Sometimes a slight separation, as evidenced by a dimplelike depression on attempting to use the muscle, could be made out. Movements using these muscles were much limited by pain at the site of the injury. The pathology of the process is simple. Apparently with the intense muscular strain certain fibers in the recti or oblique muscles are ruptured and the tear creates a painful area within the muscle bodies. An adhesive plaster dressing was employed which has proved eminently satisfactory. An adhesive band, 2 inches in width, was started just external to the anterior superior spine of the uninvolved side and carried in the general line of the external on the involved side, around the body to the opposite side of the vertebral column. This was applied during complete expiration. From the opposite anterior superior spine a similar band was carried in the direction of the uninvolved external oblique, crossing the first band at the medium line and ending on the opposite in the back. As many bands were carried up the body as was necessary to immobilize the abdominal wall and to relieve the pain. The relief was instantaneous, the patient was able to resume work of a general variety, although torsion movements were interdicted. As a rule, recovery ensured in about two weeks.

Michigan State Medical Society Journal, Grand Rapids

December, 1915, XIV, No. 12, pp. 597-630

101 Tuberculosis in Children. J. B. Jackson, Kalamazoo.
102 Miliary Tuberculosis of Lungs in Senile Period. E. Rawlings, Kalamazoo.
103 Artificial Pneumothorax in Treatment of Pulmonary Hemorrhage. C. H. Johnston, Grand Rapids.
104 Retrocecal Appendicitis. H. W. Hewitt, Detroit.
105 Congenital Hypertrophic Stenosis of Pylorus. A. O. Hart, St. Johns.
106 Intraspinal Injections of Mercuralized Serum for Cerebral Syphilis. C. F. Karshner, Big Rapids.

Missouri State Medical Association Journal, St. Louis

December, 1915, XII, No. 12, pp. 517-574

107 Factors That Make for Better Results in Cranial Surgery. E. Sachs, St. Louis.
108 *Tumors of Carotid Body; Report of Case. C. W. Russell, Springfield.
109 Chronic Cystic Mastitis. O. L. Castle, Kansas City.
110 *Dealing with Abdominal Adhesions. F. G. Nifong, Columbia.
111 Experiences with Scopolamin-Narcofin Narcosis. R. S. Tilles, St. Louis.
112 Use of Scopolamin-Narcofin During Labor. G. Gellhorn and W. Kerwin, St. Louis.

113 Scopolamin-Narcofin Seminarcosis. O. H. Schwarz, St. Louis.
114 Unusual Extra-Peritoneal Abdominal Neoplasm (Lipoma). J. Geiger, St. Joseph.

108 and 110. Abstracted in THE JOURNAL, June 26, 1915, p. 2162.

Modern Hospital, St. Louis

December, 1915, V, No. 6, pp. 387-462

115 St. Louis Children's Hospital. S. S. Goldwater and B. S. Veeder, St. Louis.
116 Work of Surgical Team in Hospital. N. R. Harlan, Freeport, Ill.
117 State of New York Develops an American Spa. A. W. Ferris, New York.
118 Hospital Floors — Costs, Advantages and Practical Points. R. E. Schmidt, Chicago.
119 Libraries and Their Management in State Hospitals. M. E. Carey.
120 Physicians' Hospital of Thief River Falls, Minnesota. H. W. Froehlich.
121 Chocolate and Cocoa — Their Composition and Food Value. J. P. Street, New Haven, Conn.
122 Medical and Surgical Efficiency in Large General Hospitals. F. A. Washburn and J. F. Bresnahan, Boston.
123 Medical Education. B. F. McGrath, Milwaukee, Wis.

New Jersey Medical Society Journal, Orange

December, 1915, XII, No. 12, pp. 585-636

124 Relation of Dentistry to Neurology. C. C. Beling, Newark.
125 State Care of Insane. B. D. Evans, Morris Plains.
126 Contusions of Abdomen. J. A. Maclay, Paterson, N. J.
127 Urticaria in Children. C. J. Hailperin, Newark.
128 Cleaning of Hand. G. K. Dickinson, Jersey City.
129 Chronic Rhinitis; Its Treatment. M. J. Weiss, Bayonne.
130 Half-Forgotten Heroes. F. W. Owen, Morristown.
131 Surgical Triangle. C. B. Kelley, Jersey City.

New Orleans Medical and Surgical Journal

December, 1915, LXVIII, No. 6, pp. 359-430

132 Diseases of Indians of Southwest and Their Treatment. R. I. Geare.
133 Uncinariasis at Cuyamel. N. Barlow, Cuyamel, Honduras.
134 Interesting History of Kidney Stone. J. F. Oechsner, New Orleans.
135 Tarsal Massage in Trachoma. T. J. Dimitry, New Orleans.
136 Fracture, Dislocations of Cervical Vertebrae. J. T. O'Ferrall and W. P. Bradburn, New Orleans.
137 Case of Hemoptysis, Evidently of Syphilitic Origin. A. L. Levin, New Orleans.
138 Radium an Asset to Surgery. C. W. Allen, New Orleans.
139 Extraction of Exploring Needle Broken in Attempting to do Spinal Puncture for Diagnostic Purposes; Case Report. L. H. Landry, New Orleans.

New York Medical Journal

January 1, CIII, No. 1, pp. 1-48

140 Headache in Its Relation to Nasal Disease. W. Freudenthal, New York.
141 Study of Drug Action. T. J. Mays, Philadelphia.
142 Salvarsan in Primary Syphilis. A. A. Uhle and W. H. Mackinney, Philadelphia.
143 Old Case of Chronic Insomnia. W. R. Riddell, Toronto.
144 Some Puzzling Features of Empyema. J. H. Pryor, Buffalo.
145 Sugars and Starches in Infant Feeding. T. S. Southworth, New York.
146 Headache. F. Neumann, New York.
147 Physiologic vs. Symptomatic Therapy. A. C. Geyser, New York.
148 Simple Guides for Artificial Feeding of Infants. M. H. Edelman, New York.

Northwest Medicine, Seattle

December, 1915, VII, No. 12, pp. 373-406

149 Roentgen Examination of Chest. J. H. Snively, Seattle.
150 Use of Roentgen Ray as Aid in Diagnosis of Pulmonary Tuberculosis. R. W. Matson, Portland, Ore.
151 Tuberculin Therapy. E. S. Jennings, Spokane.
152 Autoserotherapy vs. Artificial Pneumothorax in Treatment of Pleurisy with Effusion. E. A. Pierce, Portland, Ore.
153 Fascial Transplantation; Report of Unusual Case (Desmoids and Ventral Hernia). H. A. Shaw, Seattle.
154 Hypernephroma of Kidney. E. O. Houda, Tacoma.
155 Medical Ethics. S. E. Bruce, Lewiston, Idaho.

Oklahoma State Medical Association Journal, Muskogee

December, 1915, VIII, No. 7, pp. 217-249

156 Nervous and Mental Diseases of Children. J. L. Day, Norman.
157 Examination of School Children by Teachers. W. E. Dixon, Oklahoma City.
158 Empyema in Childhood. G. A. Wall, Tulsa.
159 Importance of Recognizing and Appreciating Diseased Tonsils as Factor in Constitutional Diseases. V. C. Tisdal, Elk City.
160 Development of Child. C. Puckett, Pryor.
161 Hygiene in Home and School. T. A. Rhodes, Goltry.
162 Tuberculosis of Kidney. J. Overton, Tulsa.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

December, 1915, XII, No. 144, pp. 353-392

1 Efficacy of Antimeningococcal Serum in Present Epidemic of Cerebrospinal Meningitis. A. Netter.

British Medical Journal, London

December 11, 1915, II, No. 2867, pp. 845-880

2 Psychic Mechanism of Voice in Relation to Emotions. F. W. Mott.
3 Organic Lesions from Shell Concussion. J. J. Evans.
4 Bilateral Iridodialysis with Amblyopia and Contracted Fields Due to Exploding Shrapnel. F. D. Bennett.
5 *Prophylaxis of Tetanus. A. T. MacConkey.
6 Control of "Diphtheria-Bacillus Carrying"; and Jasmin Oil Method. W. Ewart.
7 Spinal Injuries of Warfare. G. Holmes.

5. **Prophylaxis of Tetanus.**—The experience gained during the first year of the war, MacConkey says, has confirmed the opinion that from 500 to 1,000 United States Army units of tetanus antitoxin is a sufficiently large prophylactic dose for the majority of cases, and that it is advisable in severe wounds to repeat the dose once or twice at intervals of a week. Occasionally cases occur in which antitoxin appears to have little preventive effect. Those cases of tetanus which develop some weeks after the receipt of an injury may be due to the reactivation of a quiescent focus by too early or too energetic active or passive movement. As regards operating in cases of tetanus the opinion before the war was against doing so, and nothing has occurred since to change that opinion. When an operation is proposed in wounded who may have been infected with tetanus bacillus it is imperative to bear in mind that there may be toxin circulating in the body. A large prophylactic injection is consequently necessary, and it should be given in such a way as to ensure that there is no free toxin in the blood at the time of the operation and for some time after. Subcutaneous injections, except as supplementary agents, are out of the question here because of the slow rate of absorption. If the injection be given intramuscularly, then the operation should not take place for several hours. An intravenous injection permits of the operation being performed at once, and as it bears on the question it is of interest to note a statement of Behring's (1915) to the effect that the amount of antitoxin present in 1 c.c. of blood a few minutes after an intravenous injection of antitoxin remains constant for nearly sixty minutes.

Glasgow Medical Journal

December, 1915, LXXXIV, No. 6. pp. 401-476

8 *Cause and Similarity of Origin of Scarlet and Rheumatic Fever. W. Watson.
9 Two Famous Lanarkshire Obstetricians. S. J. Cameron.
10 Action of Medicinal Doses of Lead Acetate. F. Charteris.

8. **Origin of Scarlet and Rheumatic Fever.**—The close similarity of complications and sequelae in such diseases as rheumatic fever, scarlet fever and malignant endocarditis suggests to Watson a common factor in their cause. He says that every symptom of scarlet fever points to an acute intestinal catarrh, fatal in severity in malignant cases, productive of intense irritation in the ordinary cases; and often in the later stages of such, a condition appears which closely resembles enteric fever. In such cases there is a remittent temperature, constipation or diarrhea and rapid wasting which often ends in death. He has seen distinct ulceration of the intestine. This ulceration differs from enteric or tubercular ulceration in being more irregular, less extensive and attacking the solitary glands as well as Peyer's patches, in cases in which the resulting ulceration has left small shallow pits in the mucous membrane. This condition, although not common, Watson believes, justifies the assumption that this portion of the bowel plays a large part in scarlet fever and that it is affected at an early stage. The poison of scarlet fever is a rapidly acting one, and among its first manifestations is catarrh of the alimentary tract, in malignant cases so acute as to cause death before any other symptom has

had time to appear, and in the ordinary cases causing a toxic rash, often albuminuria, a red glazed tongue, and an inflammation of all the visible lymphoid tissue of the alimentary tract. If the resisting power of the patient is sufficient, with the end of the fever resulting from the struggle the invasion may be at an end, but there may be from indiscreet dieting, exposure to cold or other causes new developments which often are of a more serious nature. These developments are similar to, if not identical with, in many cases, the symptoms of rheumatic fever.

There are acute articular painful swellings and a tendency to endocardial and pericardial mischief. In other cases nephritis occurs. The albuminuria may be simple, and is usually associated with constipation, or there may be actual tissue changes in the kidney; and from the presence of such a virulent toxin in the blood, and the great tendency to anasarca, it is probable that the malpighian bodies are first affected. During this period there is rapid wasting and anemia, thrombosis, ulcerative stomatitis, sometimes suppuration of the inflamed joints, septic ulceration of mucous membranes, septic thrombi or emboli causing noma; in short, all the symptoms of acute septicemia. The blood changes in these three diseases are the same, there being a polymorphonuclear neutrophilic leukocytosis in each. Watson feels warranted in concluding that in all these cases there is a septic infection of the lymphoid tissues in the region of Peyer's patches. In scarlet fever the attack is acute, but may be prolonged into a chronic ulcerated condition, giving rise to a continuous septic absorption into the blood stream and causing similar changes to those found in rheumatic fever. He suggests that chronic rheumatic arthritis in all probability is due to a somewhat similar action, though it causes no rise in temperature.

Journal of Pathology and Bacteriology, Cambridge

October, 1915, XX, No. 2, pp. 85-213

11 *Histologic and Experimental Observations on Destruction of Tumor Cells in Blood Vessels. T. Iwasaki.
12 *Pathology of Lipomatosis. Y. Matsuoka.
13 Atrophy in Adipose Tissue; Histogenesis of Fat Cells. Y. Matsuoka.
14 *Part Played by Acid of Gastric Juice in Pathologic Processes of Gastric Ulcer. C. Bolton.
15 Pathology of Trench Frost-Bite. J. L. Smith, J. Ritchie and J. Dawson.
16 Pathologic Anatomy of Lungs in Beriberi (Kakke). Y. Matsuoka.

11. **Destruction of Tumor Cells.**—Iwasaki examined postmortem forty-eight cases of various kinds of malignant tumor and selected sixteen cases, including eleven cases of sarcoma (seven lymphosarcoma, and four other sarcoma), two cases of carcinoma, two cases of hypernephroma and one case of chorionepithelioma-like tumor of the liver for microscopic study. The blood-vessel contents of tumor origin are divided into the following groups: 1. The first group includes the naked tumor-cell emboli. These have newly entered into the vessels and are still free in the blood stream. 2. To this group belong those tumor emboli with comparatively fresh thrombotic covers. These are found either in the blood stream or already fixed to the vessel walls. 3. The third group contains those thrombi in which the process of organization is visible. 4. The process of organization advances further. The contents of the vessels consist of fibrous tissue with capillaries newly developed, and tumor cells. 5. In this group, Iwasaki includes those fibrous contents of vessels in which no trace of tumor cells is now to be seen. The organization and tumor cell destruction are complete and the lumina are for the most part reopened by new capillaries, in which sometimes again new tumor emboli are found. 6. The tumor cell mass is here covered by a thin layer of endothelium continuous with the intima. Iwasaki concludes that the destruction of tumor cells in blood vessels by means of thrombus organization is not restricted to carcinoma, but is common to all malignant tumors. The destruction of cells occurs also in blood vessels by direct action of the plasma. The thin cell layers that directly cover tumor masses are of endothelial nature, and do not consist of tumor cells. When the encapsulation takes place the tumor cells proliferate, and the mass is not disintegrated by organization and degeneration. In such cases the covering layer of endothelial cells may possibly act as a protection of the tumor cells from the cytolytic action of the plasma.

12. **Pathology of Lipomatosis.**—Material was obtained by Matsuoka from seventy cases examined postmortem. He divides cases of lipomatosis into two large groups. In Group 1 the forcing of the increased adipose cells from the surrounding tissue into the affected organ plays a relatively important rôle, while the proliferation of fat cells in the interstitium of the organ is generally less important. The invasion by fat cells can be prevented by a thick fascia or strong capsule. Lipomatosis occurs readily in places which are physiologically rich in fat, or in organs with a thin coating, or in muscles of all kinds, and in many lymphatic or lymphoid organs, etc. In Group 2, lipomatosis follows replacement fibrosis in all cases. The fibrous tissue produced through chronic inflammation often shows a tendency to become fat. Lipomatosis in this group is the transformation of connective tissue cells in fat cells. In Group 1, the increase of adipose cells is primary and the atrophy of the parenchyma occurs secondarily. While in Group 2 lipomatosis appears as replacement only, in Group 1 there is invasion of the surrounding tissues, the proliferating fat cells generally passing into the tissue, or, if not, accumulating on its surface and causing pressure atrophy. While the organs with lipomatosis, Group 1 show pseudohypertrophia in spite of the atrophy of their parenchyma, those with lipomatosis, Group 2, usually prove to be at most only of normal size and are often subnormal in bulk.

While the lipomatosis, Group 2, accompanies fibrosis, in Group 1, there is destruction of fibrous tissue to be observed; in the heart, Group 1, occurs more frequently in the right ventricle, while Group 2 occurs chiefly in the left ventricle. While cases of general obesity always show lipomatosis of Group 1, Group 2 takes place in emaciated persons. Heart lipomatosis of Group 1, which occurs constantly in cases of general obesity, is observed also as a local lipomatosis, which does not disappear in spite of general emaciation; the definition of so-called fatty heart—that it occurs only in fat subjects and not in others—is on this account incomplete. In a series of cases the degree of invasion of the myocardium, through lipomatosis in different parts of the heart, is quite parallel with the degree of thickness of the epicardial fat in loco. In cases of lipomatosis showing marked atrophy of the parenchyma, regenerating processes are often seen in the parenchyma; for example, the direct nuclear division is skeletal muscle of heart muscle. The enlargement of Langhan's islands in lipomatosis of the pancreas is an example of compensatory hypertrophy. Active hyperemia and a rich supply of blood vessels are generally associated with lipomatosis. The causes and the seats of lipomatosis are other than those of fatty degeneration, and usually lipomatosis occurs without the accompaniment of marked fatty degeneration.

14. **Pathology of Gastric Ulcer.**—Bolton states that the gastric juice is not only concerned in the initiation of a gastric ulcer, but also in its tendency to spread and to become chronic. It is thus responsible for the anatomic peculiarities which distinguish this ulcer from ulcers in other parts of the body. The gastric juice owes its destructive power primarily to the hydrochloric acid contained in it, and the damage done to the wall of the stomach varies in proportion to the strength of the acid present. Although the hydrochloric acid is usually only a factor in the initiation of an ulcer, some damage being also inflicted on the gastric cells by other means, it is occasionally, when of a percentage of 0.39 and upward and combined with motor insufficiency, the actual cause of the ulcer. The spread of an ulcer is due to persistence of the original cause, but it is more likely to spread when the gastric juice is hyperacid than when of normal acidity. The gastric juice is able to attack the connective tissue base of an ulcer by virtue of the hydrochloric acid contained in it, and when hyperacid, to produce various degrees of delay in the healing of the ulcer as a consequence. This effect is added to when retention of food in the stomach or hypersecretion of the gastric juice is present.

In this way may be explained the condition of delayed healing of acute ulcer in man.

Bolton suggests that it is probable that in human pathology a complete arrest in healing and a resulting chronic ulcer may be similarly brought about, since the experimental methods available for producing hyperacidity are not so effective as the condition present in man. An ulcer heals with difficulty in proportion to its chronicity, and the more chronic ulcers may be kept open by the normal gastric juice. An important point in favor of this view is the similarity between the two conditions. The experimental ulcer is delayed in healing by the necrotic condition of its base, brought about by the hydrochloric acid, and it is precisely the fibrotic base covered with necrotic tissue which prevents the healing of human ulcer. The treatment aimed at reducing the acidity of the gastric contents and facilitating the emptying of the stomach is that which is successful in healing a human gastric ulcer. Associated with chronic gastric ulcer in the human subject are commonly the two conditions: (1) hyperacidity and (2) gastritis. The association of the three conditions has in the past given rise to much speculation with regard to the relation which they bear to one another. It is proved by Bolton's experiments that continued hyperacidity gives rise to gastritis, and, on the other hand, it is well known clinically that if gastritis affects the acidity of the gastric juice the latter is diminished.

Bolton says it seems reasonable, therefore, to assume that the hyperacidity precedes the gastritis and causes it. Gastritis in ulcer may of course be due to irritants in the food, but the regularity of its occurrence suggests that some constant factor is usually its cause. It is obvious that a gastric ulcer does not give rise to diffuse gastritis, and it is equally obvious from these experiments that follicular ulcers, occurring as a part of gastritis, cannot become chronic by continued hyperacidity. Diffuse gastritis, therefore, is neither the cause nor the effect of the ulcer, but results from the irritant action of the hydrochloric acid, or perhaps in other cases from one of the well-known causes of the affection. It is evident that hyperacidity is concerned as a factor in each of the pathologic processes of gastric ulcer, and, on the other hand, although it has been suggested, proof has never been afforded that an ulcer gives rise to hyperacidity.

Journal of Tropical Medicine and Hygiene, London

December 1, 1915, XVIII, No. 23, pp. 265-276

17 Streptococcus Equinus Septicemia in Anglo-Egyptian Sudan. A. J. Chalmers and G. Haddad.
18 Castellani's Bronchospirochetosis; Report of Case. G. A. Lurie.
19 Case of Malarial Fever with Motor Paralysis of Legs. W. H. Heard.

Lancet, London

December 11, 1915, II, No. 4815, pp. 1283-1330

20 Review of Modern Gynecologic Practice. V. Bonney.
21 Cases of Traumatic and Arteriovenous Anastomosis. G. A. Wright.
22 Diagnosis and Treatment of Mediastinal Pleurisy. L. Renon.
23 Clinical Results of One Thousand Intravenous Injections of Galyl. H. Spence.
24 Epidemic of Jaundice Occurring at Alexandria. E. B. Gunson and J. W. C. Gunn.
25 Pneumosan in Treatment of Pulmonary Tuberculosis. A. E. A. Carver.
26 Development of Oöcyst of Human Coccidium; An Addendum. C. M. Wenyon.

Annales de Gynécologie et d'Obstétrique, Paris

November-December, 1915, XI, Nos. 11-12, pp. 669-727

27 *Care for Child Welfare in Paris and Vicinity During the Early Months of the War. A. Pinard.
28 *Is Partial Resection of Sclerous Ovaries Justified? J. P. de Figueiredo. Commenced in No. 7.

27. **Child Welfare Work in Paris.**—This article appeared elsewhere and was reviewed in these columns April 3, 1915, p. 1197.

28. **Partial Resection of the Ovaries.**—Figueiredo describes the microscopic findings in the resected portion of the ovary from a large number of operative gynecologic cases. The work supplements a previous report from the same clinic describing twenty-three ovaries. The final conclusions are thus based on microscopic and clinical study of sixty-one ovaries corresponding to fifty operative cases. The vitality of the follicles was found impaired as a rule and abnormal findings in the stroma were constant, with a single exception. Hemorrhagic foci, cysts in the corpora lutea, islets of interstitial cells, and other morbid changes were frequent. They justify resection when the ovary is seen to be sclerous or sclerocystic, as there is reason to assume that the changes would progress or entail other lesions. Resection is thus indicated, and the more so as the procedure seems to be absolutely harmless. In most of the cases cited the resection was done in connection with an operation for fibroma or salpingitis. For example, a woman of 35 had disease of the right ovary and tube, which were removed, as also a fibroma in the anterior wall of the uterus. The left ovary was enlarged, hard and cystic, and located very low down. Part of this ovary was resected, and the stump fastened to the parietal peritoneum, the uterus to the abdominal wall. The outcome has been excellent.

Bulletin de l'Académie de Médecine, Paris

November 30, 1915, LXXIV, No. 48, pp. 595-662

29 Localized Abnormal Tetanus; Seven Cases. A. Routier.
30 The Respective Rôles of Mechanotherapy and Orthopedic Surgery in Restoring Function to Stiff Joints. (Des raideurs articulaires et des ankyloses consécutives aux blessures de guerre.) E. Delorme.
31 Educating Blinded Soldiers to Write. (L'éducation des aveugles par blessures de guerre.) Monprofit.
32 Extraction of Projectiles in the Pericardium or Heart. O. Laurent; (Extraction d'une balle dans l'oreillette droite du cœur.) Couteaud and Bellot.

Paris Médical

Oct. 16, 1915, V, No. 23, pp. 389-404

33 Effects of Asphyxiating Gases and Treatment. F. Rathery and R. Michel.
34 Curative Action of Antitetanus Serum. G. Milian and Lesure.
35 *Rest and Moist Heat in First Treatment of the Wounded. (Aperçus sur le traitement des blessés dans une ambulance de première ligne.) M. de Laroquette.

October 23, Nos. 24-25, pp. 405-448

36 Legislation Against Depopulation. G. Linossier.
37 Commotion from Explosion and Its Consequences for the Nervous System. P. Sollier and M. Chartier.
38 Psychiatry in the Active Army. P. Chavigny.
39 Simulation of Nervous Affections; Simulation Continued After Recovery from Actual Nervous Affections; Simulation of Deaf and Dumbness. J. A. Sicard.
40 Posttraumatic Contracture and Surgery in War. L. Duvernay.
41 Prognosis of Fracture of the Skull by Projectile. F. M. Cadenat.
42 Organic Paraplegia from Explosion of Large Shell Without External Wound. C. Joubert.

35. **The Ambulance Near the Firing Line.**—Laroquette gives a number of photographs of field hospitals and sorting stations only a few miles from the firing line, and describes his own experiences in one of the ambulances near the front. The method of treating the wounded which has given the best results in his hands is to apply a large dressing dipped into a very hot 1 per thousand solution of permanganate or a 3 per cent. solution of sodium bicarbonate. The relief of pain under this moist heat is marked. The man is kept under strict surveillance as he is in bed, the wounded region immobilized, and wrapped in this voluminous moist dressing. If local or general signs of infection are detected within twenty-four to forty-eight hours, then the wound is thoroughly cleared out. This became necessary only in 30 per cent. of the seton cases and in 80 per cent. of the fracture cases. In order to have this method applied it is necessary that the wounded should be kept at the ambulance for a few days. The rest is good for the wounded; they do much better when they can be left in peace in a bed or on a pile of straw, with a little morphin, soup and milk, and allowed to sleep off the first effects of the shock they have undergone. Even with the marvels of the hospital train, the "transportable" wounded do better for a few days of repose, and Laroquette urges that school and farm buildings, factories or villas should be set apart for the wounded in sufficient numbers to permit this armed expectancy during the first few days.

Revue de Gynécologie et de Chir. Abdom., Paris

August, 1914, XXIII, No. 2, pp. 97-208

43 Eight Years of Abdominal Hysterectomy for Cancer of Uterine Cervix. A. Maurer.
44 Pain in Left Side with Appendicitis as Sign of Rupture of Pelvic Abscess. (Cas d'appendicite avec point de coté gauche.) R. Proust and J. Paris.
45 Primary Cancer in Appendix of Young Woman. X. Bender.

June, 1915, No. 3, pp. 209-272

46 *Restricted Hysterectomy Completed by Radium Exposures in Treatment of Uterine Cancer; Six Cases. S. Pozzi and G. Rouhier.
47 Tuberculous Nodule in Breast. X. Bender.

October, 1915, No. 4, pp. 273-352

48 *Mishaps with Tubal Pregnancy. (Accidents de la grossesse tubaire.) C. Lenormant and G. Hartmann.

46. **Partial Hysterectomy Plus Radium Therapy for Uterine Cancer.**—Pozzi and Rouhier analyze the literature on the simultaneous application of operative measures and radium therapy, and report six cases from Pozzi's service. They regard this combination as very promising, vaginal hysterectomy plus radioactive drainage yielding results in the long run surpassing those of the more extensive abdominal operations which have such high operative mortality.

48. **Tubal Pregnancy.**—Among the thirty-seven cases related here in detail, there was a history of genital lesions preceding the abnormal pregnancy in fully a third of all the cases. The cases demonstrate anew that the first hemorrhage in such cases is rarely fatal. There are generally several periods of hemorrhage. Metrorrhagia was common in these cases and simulated an ordinary abortion. This led to the blunder of curetting the uterus in one case. In eleven cases there was an encysted hematocele, palpable as a tumor, soft or hard, and in the infected cases there was fever. In two cases the interval since the hemorrhage was probably two months, and even at this late date the hemorrhage may start up anew during the operative maneuvers. In one case a residual abscess in the pouch of Douglas testified to the dangers liable with conservative surgery. This case is interesting as an example of recurrence of tubal pregnancy on the other side.

Berliner klinische Wochenschrift

Nov. 29, 1915, LII, No. 48, pp. 1225-1248

49 *Origin and Cure of Itching. (Kriegsaphorismen eines Dermatologen. Entstehung und Beseitigung des Juckens.) P. G. Unna. Commenced in No. 42.
50 Camp Diseases and Importance of Contact Infection. (Ueber die Kriegsseuchen.) Menzer. To be continued.
51 *Tests of the Functional Capacity of the Heart. (Zur Funktionsprüfung des Herzens.) Rehfisch.
52 Localization of Anatomic Parts with the Roentgen Rays. M. Levy-Dorn.

49. **Cause and Treatment of Itching.**—Unna states that recent research has explained the mechanism of itching. It results from irritation of the free nerve terminations in the blood capillaries in the papillary layer. Cocain and epinephrin abolish itching and pain, but leave the sensation of touch unimpaired, while saponin banishes the latter, but does not modify pain and itching. In order for itching to occur, therefore, there must be papillae containing blood vessels and a horny layer above, as otherwise there is no pressure on the vascular papillae. It is impossible to induce itching in the surface of an ulcer and of granulations, but as they heal over and epidermis forms, and as the horny layer presses on the granulations, the region itches until the pressure of the capillaries and of the horny layer reaches a balance. If a blister forms, itching ceases, so that continuity between the horny layer and the papillary blood apparatus is necessary for itching to occur.

Whenever the pressure of the horny layer increases along with the capillary pressure, itching follows. Hence there is itching with dry eczema, lichen and prurigo papules, and incipient folliculitis and furuncles. Simple thickening of the horny layer, without increased capillary pressure, does not alone entail itching. But when the temperature changes, and thus a change in the capillary pressure is brought about, the region may begin to itch. Salicylic acid, soaps, etc., relieve itching by their action on the epidermis; as they soften it the pressure on the tissues below grows less. Itching can be combated also by reducing the pressure in the capillaries, as with epinephrin or cocain, electricity, or withdrawal of blood by venesection, or by scratching. The blood can also be driven out of the capillaries by pressure from without, as with collodion, elastic stockings, binders, plasters and bandages. On the other hand, the release from the pressure of the clothes, in undressing, may start varicose veins to itching by the gravity hyperemia that follows, bringing increased pressure in the capillaries.

Anemic surfaces never itch, but when the Esmarch bandage, for instance, is removed there is liable to be itching, as also after the skin has been chilled. The cold contracts the vessels, the veins yield to it more readily than the arteries on account of the higher pressure in the latter. The consequence is a slowing of the blood stream and actual stasis hyperemia in the region chilled. As the region warms up, the capillaries become distended and press against the horny layer, thus inducing irritation of the nerve terminations and itching is liable to follow, as when the skin of the face or hands itches when we enter a warm room or settle down in bed. Warmth does not induce itching unless there has been previously a stasis hyperemia. He says further that the itching that accompanies the hot flashes of the menopause can be arrested, along with the hot flashes, by cold compresses, as this reduces the supply of blood to the paralyzed musculature of the arteries. Cold applications, however, increase the itching after frost bite, as the cold causes the musculature of the skin to contract and thus increases the resistance of the epidermis to the capillary pressure below.

When the horny layer has become thickened from disturbances in its blood supply from contracture of the musculature of the skin, as in lichen and prurigo, the horny layer exerts great pressure. Then if at any point beneath it the arterial walls become paralyzed, so that there is excessive inflow of blood, or if there is inflammatory exudation, the resulting itching is the severest and most tenacious we know.

[This article on "Itching" seems to have been continued in five installments. Four of the November numbers of the *Wochenschrift* have failed to arrive, but we summarize as above the three installments received. A review of one of the missing numbers in another exchange states that Unna commends monochlorbenzol as a very effectual and nontoxic means to relieve the conditions which cause itching. He uses it in a 1, 2 or 5 per cent. alcoholic solution, adding 2 per cent. castor oil if the skin is very dry.]

51. **Tests of the Functional Capacity of the Heart.**—Rehfisch strives to learn by auscultation whether or not the pressure in the aorta is sinking while it is rising in the left atrium. We know that this occurs in animals when the left ventricle is becoming insufficient. When a healthy person exercises his knees ten times a larger amount of venous blood flows into the right auricle and there is force enough to pass on the whole quantity; the left ventricle also expels it all in turn, and normal conditions prevail again. This is manifested in the aortic sound being louder than the second pulmonic sound. This occurs because the pressure in the arterial system is about a third higher than in the pulmonary. Hence the louder aortic sound testifies to a functionally capable heart after this standard knee-bending exercise. If the left ventricle is unable to expel all the blood wave, some blood is left behind and passive dilatation follows; the blood pressure drops and the second aortic sound becomes less accentuated. Comparison with the findings with the Katzenstein and other tests of heart functioning always confirmed the reliability of this attenuation of the second aortic sound as the most pregnant sign of insufficiency of the left ventricle. If it is unable to expel all its contents, the auricle is unable to force all its contents into the ventricle, and the auricle becomes over-distended and the blood pressure within is forced higher and higher. If the right ventricle is still normally capable, it is able to overcome this increased resistance in the left auricle, but the extra effort it makes to accomplish this is evident in the accentuation of the second pulmonic sound. It becomes louder than the second aortic sound, contrary to the normal findings.

When this is the case, we can assume that the right ventricle is going to be able to compensate to a certain extent for the deficit in the left ventricle's functioning. If the right ventricle is unable to do this, it dilates and the second pulmonic sound grows weaker. The prognosis is correspondingly graver.

Rehfisch adds that when the vasomotor center is inclined to be unstable, the first aortic sound is usually considerably louder than the second. This center may be injured by toxic influences or by concussion, and it may induce constriction of the vessels instead of the normal and beneficial dilatation, constriction not only of the peripheral but of the coronary vessels. Evidence of the latter is the pain in the chest region, similar to angina pectoris. "This assumption requires confirming with the plethysmograph." Arteriosclerosis detracts from the import of the auscultation findings. Mönckeberg found evidence of arteriosclerosis in 43 per cent. of 53 cadavers of soldiers between 20 and 30, not only of the aorta but often of both coronaries, and especially of the left. This presclerosis is thus much more common among young soldiers than hitherto supposed, and it should be borne in mind in the study of heart affections of the type we usually classify as purely nervous. It is difficult to detect, as there may be no hypertrophy or high blood pressure, but roentgenoscopy often reveals pronounced enlargement of the entire arch of the aorta.

Medizinische Klinik, Berlin

Nov. 7, 1915, XI, No. 45, pp. 1225-1252

53 *Typhoid Disturbance in Hearing. (Die Typhusschwerhörigkeit.) Rhese.
54 Lacunar Hyperkeratosis. E. Urbantschitsch.
55 Typhus in Prisoners' Camp. (Ueber Fleckfieber.) O. Müller. To be continued.
56 Stomach Wounds Absolutely Fatal Without Operative Treatment. (Die Prognose der Magendarmschüsse ist ohne Operation absolut schlecht.) Böhler.
57 Extension with Triangular Support for Fracture of Upper Arm. W. Burk.
58 Artificial Light in Treatment of Wounds, Especially Wounds in War. (Behandlung von Wunden unter bes. Berücksichtigung von Kriegsverletzungen mit künstlichem Licht.) Breiger.

53. Typhoid Deafness.—Rhese does not mention the number of cases of typhoid in his service but he states that there was bilateral deafness in 14.9 per cent. with the middle ear intact. In 4 per cent. there was otitis media with perforation, and without perforation in 1.1 per cent. There figures do not include the cases with transient deafness. In all his cases the deafness was bilateral. It developed usually in the second, third or fourth week but sometimes as late as the seventh. It subsided completely as a rule in time, but in some cases left permanent deafness. Any measures that reduce the toxic action of the disease aid in dispelling the deafness, and consequently the otologists are watching with interest the attempts to treat typhoid with vaccines. Mild courses of pilocarpin gave favorable results, as also sodium iodid as soon as the intestines could bear it. When symptoms indicated pressure, lumbar puncture aided in combating meningitic symptoms and also the otitic. Vaccination against typhoid has reduced the frequency and the severity of complications on the part of the ear. The deafness is of five different types, as he explains in detail, discussing the prognosis with each form of neuritis or labyrinthitis.

Münchener medizinische Wochenschrift, Munich

Nov. 23, 1915, LXII, No. 47, pp. 1597-1632

59 *Transfusion of Own Extravasated Blood. (Eigenbluttransfusion bei Extrauteringravidität und Uterusruptur.) Lichtenstein.
60 Peculiar Action of Minute Proportions of Copper. (Die oligodynamische Wirkung des Kupfers.) K. Spiro.
61 *The Mercury Vapor Lamp in Treatment of Skin Disease. (Ueber therapeutische Erfolge mit der Quarzlampe.) G. Stümpke.
62 Cure of Cancroid of the Vulva with Zeller's Caustic Paste Plus Silicic Acid Internally. (Heilung eines Vulvakarzinoms mit dem Zellerschen Verfahren.) W. Reusch.
63 Holder for Slides. (Behalter zum Aufheben der Objektivträger.) H. L. Heusner.
64 Advantages of Combining Vaccination Against Both Typhoid and Cholera. G. Seiffert.
65 Injury of Vision from Wounds in War. (Beurteilung der Kriegsverletzungen des Sehorgans.) L. Schreiber.
66 Neurotic Alopecia Areata in Wounded Soldier. A. Pöhlmann.
67 Means to Restore Functioning after Wounds in War. (Zur Prophylaxe der Deformitäten.) Nieny; (Zur Mobilisierung versteifter kleiner Gelenke.) W. Goebel; (Einfache Handstützschiene.) Langemak; (Apparate zur Verhütung und Behandlung der Spitzfussstellung und zur Extensionsbehandlung der Unterschenkelfrakturen.) K. Alexander.
68 *Epinephrin in Local Treatment of Wounds. (Beeinflussung der Wundheilung durch Suprareninlösung.) A. Wildt.
69 *Renal Tuberculosis in the Troops. (Nierentuberkulose bei Feldzugsoldaten.) C. Schneider.
70 Sterilizing Newspapers for Surgical Work. (Verwendung steriler Zeitungen für Operationszwecke.) G. Rüdiger.
71 Impressions of a German Physician in Moscow during the Last Year. (Ein Jahr ärztlicher Kriegseindrücke in Moskau.) Anon.

59. Autotransfusion of Blood After Severe Gynecologic Hemorrhage.—Lichtenstein comments on the old view that the death from hemorrhage was due to the lack of sufficient oxygen bearers in the blood left, not enough to supply sufficient oxygen to the nerve centers, especially the respiration center. A newer view ascribes the fatality to the loss of fluid; the heart is unable to functionate with a much smaller volume of circulating fluid, and transfusion of 100 or 200 c.c. of blood does not help much after losses of 1,000 or 1,500 c.c. of blood. Saline infusion is relied on to restore the circulating fluid to approximately its former bulk, but this does not restore its former composition to the blood and does not always ward off death after severe hemorrhage. Some even assert that the extreme dilution of the blood may be actually responsible for the fatal outcome.

In gynecology, extra-uterine pregnancy and rupture of the uterus are the main causes of the hemorrhages which prove fatal. He had two fatalities from a ruptured tubal pregnancy in 1913 and 1914, although both women were operated on almost at once. Since then he has adopted J. Thies' suggestion to collect the fluid blood in the abdomen and, after diluting it 3:2 with salt solution, to reinject this into the patient. Thies thus saved three pulseless women, reinjecting their own blood into the subcutaneous tissue of the thigh, a vein in the arm, or a vein in the mesentery. The pulse rapidly regained tone and there was no fever. Lichtenstein has been equally successful with this method of "own blood transfusion" in seven cases of extra-uterine pregnancy and one of rupture of the uterus. In four, at least, of the cases the condition seemed to be as grave as in the two fatal cases described from the preceding years, and there is every reason to assume that the reinjecting of the patient's own blood enabled them to weather the storm. All the patients thus infused recuperated remarkably fast. No chill followed the transfusion in any instance, and the general condition improved so much that no physician would have guessed that the patient had just had a severe internal hemorrhage. None of them complained of weakness when they got up by the eighth day. The abdominal cavity in a previously healthy woman can be regarded as sterile in cases of fresh hemorrhage from a ruptured tubal pregnancy. This is dubious with a ruptured uterus; in the one case of this kind the rupture occurred in a cesarean cicatrix and the bag of waters was still intact. The bleeding came from a part of the placenta that had been torn loose. Even when conditions are less favorable than this, the question of reinjecting the loose fluid blood should be considered. There have been six fatal cases of this kind at the clinic recently.

The blood is ladled out of the abdominal cavity into a wide jar containing a little Ringer's fluid. It is then beaten with little sticks, and strained into a vessel containing enough warm Ringer's solution to bring it to the proper dilution. The vessel is then set in a water bath while the abdominal operation is being concluded. The blood mixture is then allowed to run into a vein in the left arm from a glass funnel and tube. In the exsanguinated it is difficult to locate the vein; he seeks it through a transverse incision, then loosens the tissues above and below with the back of the knife, and lifts the vein with two catgut threads passed beneath it with an aneurysm needle. He has recently devised a valve apparatus on the principle of the syringe used for injection of salvarsan, and has found this a great improvement over the rather primitive funnel technic.

61. Therapeutic Success with the Mercury Vapor Lamp.—Stümpke has been using both the Kromayer quartz lamp and

the lamp known as the artificial mountain sun *(Quarzlampe* and *künstliche Höhensonne)*, and has applied this form of radiotherapy in new fields and with promising results. The itching in refractory prurigo and pruritus was materially reduced by repeated exposures to the quartz lamp, while clinical improvement was evident in other ways. He has often seen cases rebellious to arsenic, Roentgen and other measures yield surprisingly to the quartz lamp. He has had the same experience with neurodermitis, and in a number of cases of subacute and chronic eczema on a constitutional and seborrheic basis. In the latter group the ultraviolet rays seem to modify the tissues in some way which permits the ordinary measures then to display their efficacy. Rheumatism and sciatica are also favorably influenced. He applies the lamp at a distance of 50 cm. for ten or twenty minutes for exposure of a large surface.

68. **Epinephrin in Local Treatment of Wounds.**—Wildt relates that he has been using since 1910 a 1:100,000 solution of epinephrin applied directly to granulating surfaces, and states that this keeps the granulations soft and velvety, as they consist mostly of newly formed blood vessels. He has continued this method of treating wounds during the war, and has applied it in the last six months to 421 wounded soldiers. There were never any injurious by-effects and the wounds made a better showing than those treated by hot air, scarlet red, ultraviolet rays, etc.

69. **Tuberculosis of the Kidney in Soldiers.**—Schneider protests against the too frequent overlooking of tuberculous nephritis. Men are treated for weeks and months for supposed catarrh of the bladder, and precious time is wasted before the true trouble is diagnosed. He impresses on physicians that every long continuing case of catarrh of the bladder in the young, with the urine findings he describes, should be regarded and treated as of tuberculous origin until the contrary is proved. Even the suspicion of renal tuberculosis, with the symptoms of catarrh of the bladder, is a long step toward the correct diagnosis. The patient notices unusually frequent desires to urinate, day and night, and during or after micturition there are pains in the perineum or lower abdomen and occasionally a drop of blood shows in the urethra afterward. There is usually a history of tuberculosis in the family and of some slight pulmonary catarrhal process or attack of costal pleurisy as a child. The amount of urine voided may be above the normal, from 2 to 3 liters a day are not unusual, and the single portions are larger than with gonorrhea. The urine is more regularly turbid, not flaky or creamy; sometimes it is bloodstained, but the odor is normal. The microscope shows in the unstained specimen numerous leukocytes and occasional fresh red cells, but no bacteria. If there are peculiar long narrow epithelium scraps in large numbers, tubercle bacilli must be sought with a staining technic, examining specimen after specimen. Animals can be inoculated, but this often fails under these circumstances. A small provocative injection of tuberculin will often drive out tubercle bacilli so they can be found in the urine in the next few days. The tubercle bacilli are slenderer than smegma bacilli, and sometimes they lie crossed or one above another.

Renal tuberculosis is of more common occurrence than generally surmised, and hitherto latent cases flare up under the stress of the campaign. Injection of indigo carmin generally shows which side is affected, even without catheterization of the ureters. Another differentiating procedure is tentative treatment of the bladder with a silver nitrate solution. This improves the catarrhal condition in the bladder if it is of simple gonorrheal origin, while it aggravates tuberculous processes.

Therapeutische Monatshefte, Berlin

November, 1915, XXIX, No. 11, pp. 589-644

72 *Modern Treatment of Eclampsia. P. Werner.
73 *Treatment of Acute Empyema. R. Massini.
74 Radiotherapy at the Breslau Gynecologic Clinic. (Die physikalischen, technischen und klinischen Grundlagen der Strahlentherapie der Breslauer Frauenklinik.) F. Heimann.
75 *Test for Adsorbent Properties. (Neue Methode zur Prüfung des Adsorptionsvermögens von Tierkohle und anderen Adsorptionsmitteln.) M. Guggenheim.

72. **Modern Treatment of Eclampsia.**—Werner reviews the experiences at the second gynecologic clinic of the University of Vienna. He emphasizes certain facts which testify against the assumption that the fetus or placenta is the source of the severe intoxication of practically all parts of the body which we know as eclampsia. Among these negative proofs are the occurrence of eclampsia with a hydatidiform mole and no fetus, and its development in the puerperium after fetus and placenta have been expelled. Most convincing of all are the so-called intercurrent cases during a pregnancy in which the eclampsia subsided while the pregnancy continued its course. For these and other reasons it is no longer regarded as necessary to empty the uterus as the first and indispensable measure in treatment of eclampsia as was formerly the rule at the clinic. Since this has been abandoned, in 120 cases the maternal mortality was 15.8 per cent. and the fetal mortality 44.3 per cent. up to 1913. Since then there have been 38 cases of eclampsia and the mortality has been only 5.2 per cent. among the mothers and 14.65 per cent. among the children. The routine treatment is now to isolate the eclamptic at once in a darkened, absolutely quiet room. The obstetric examination is made under slight general anesthesia, during which the urine is drawn with a catheter for examination. Venesection then follows, drawing from 400 to 600 c.c. of blood, followed by injection of 0.02 gm. morphin and, two hours later, 3 gm. chloral in an enema. If the fetus presents in a position favorable for prompt delivery, the child is taken with forceps or by expression in order to spare the patient the stress of the labor contractions. The venesection may have to be repeated, and the morphin and chloral continued; if diuresis is not adequate it is stimulated. It has never been found necessary to resort to decapsulation. When the eclampsia develops during pregnancy, delivery is brought about with a bougie or is accelerated with the inflatable bag.

73. **Treatment of Empyema.**—Massini emphasizes the importance of the after-treatment for the outcome of the case. More depends on this, he declares, than on the primary operation, and it has to be individualized for each case. He gives the details of seventeen cases including four with fatal outcome from cancer or pulmonary tuberculosis. The method followed was a simple puncture, using a trocar with an inner diameter of 7 mm. followed by aspiration drainage according to Perthes. The pus seems to be the thickest with staphylococcus empyema, and it is most fluid with putrid empyema from anaerobic infection. It is important to bear this in mind as the heart is affected most in this latter type and is liable to be displaced by gas, so that sudden reduction of pressure might be perilous. After puncture and aspiration of the pus, one is justified in waiting for three or four days to see if the empyema becomes spontaneously absorbed. If not, the drain, which he has introduced for 20 to 30 cm. is connected with a water jet, interposing a self-regulating manometer. He uses an ordinary cylindrical jar for this, with three openings in the stopper, one for the right angled tube connected with the drain, another connected with the water jet. The third is a straight and open tube in the center of the stopper extending down for about 6 cm. into the water with which the jar is half filled.

As the empyema is seldom primary, the underlying process must be discovered and remedied; aside from this, the mechanical factors generally determine whether healing is to take days or weeks. When the outflow stops, the trouble is generally not in the drainage system but inside the chest. When nothing else helps to start the outflow he flushes out the empyema cavity with a 1:5,000 solution of potassium permanganate under low pressure, not pouring in more than 10 or 20 c.c. at a time, but continuing this until a few hundred c.c. have thus been introduced and the fluid is then allowed to flow out. He warns that the opening grows up so fast that it is best not to take out the drain. In one of his cases an intercostal artery became eroded, but the hemorrhage was arrested by tamponing and a new opening made for the drain. Development of adhesions later is warded off by the care to have the lung expanded to the utmost. Pains in the joints are usually of toxic origin and may yield to the salicylates, unless there is metastatic suppuration. He allows the patient

to get up when there is no further fever and not more than 5 c.c. fluid drains away. At this time or even earlier the water jet may be disconnected at night. Later, the drain tube may be shortened and the water jet connection applied only for a few hours, but with a higher negative pressure, up to 20 cm. water. It is time then to start breathing exercises and gymnastics. What can be accomplished by the latter measures is illustrated by one of his cases in which a fistula had persisted for a year after resection of ribs for an extensive empyema with several pockets. The side of the chest now expands and is movable nearly to the same extent as the sound side. These exercises for the lungs also ward off secondary trouble in later years, and preexisting lesions are favorably modified. He regards Roentgen examination and control as especially important.

75. **Tests for Adsorbent Capacity.**—Guggenheim applies Magnus' experimental technic which records the movements of the guinea-pig intestine outside of the body when the bowel is treated with a chemical substance, before and again after it has been mixed with blood charcoal or other adsorbent substance. The action on the bowel of the chemical in question is annulled if the chemical is fully adsorbed. He has found beta-imidazolylethylamin particularly adapted for the purpose of the test.

Wiener klinische Wochenschrift, Vienna

Nov. 4, 1915, XXVIII, No. 44, pp. 1185-1216

76 *Epileptic and Hysteric Seizures Brought on by Brief Test Compression of the Carotid Arteries. C. Tsiminakis.
77 *Skin Reaction Indicating Protection against Typhoid. (Diagnostische Hautreaktion bei Typhusrekonvaleszenten, Typhuskranken und Schutzgeimpften mit "Typhin" nach Gay and Force.) E. Pulay.
78 Differential Importance of the Hemolysin Reaction in the Cerebrospinal Fluid in Meningitis. (Weil-Kafkasche Reaktion.) G. Salus.
79 Relations between Ozena and Disease of the Nasal Accessory Sinuses. L. Rethi.
80 Mechanical Devices to Aid in Overcoming Consequences of Wounds in War. (Heilgeräte für Folgen nach Kriegsverletzungen.) F. Riedl. Commenced in No. 43.
81 Adaptation of Farm Wagons for Carrying Several Reclining Wounded. (Zur Frage des Verwundetentransportes in der vorderen Linie.) F. Tintner.

November 25, No. 47, pp. 1273-1308

82 *Industrial Skin Lesions in Workers on Munitions. (Hautschädigungen in Munitionsfabriken mit bes. Berücksichtigung der Quecksilberwirkung.) M. Oppenheim.
83 *Streptococcus Lacticus Enteritis. (Kokkenenteritis.) R. R. v. Wiesner.
84 Histology of the Exanthem in Typhus. J. Kyrle and G. Morawetz.
85 *Antitoxin Production during Tetanus. (Zur Tetanusimmunität des Menschen.) O. Löwy.
86 Principles for Apparatus to Restore Functioning after Wounds in War. (Heilgeräte für Folgen nach Kriegsverletzungen.) O. Bum.
87 Operations on a Hospital Train. (Zur Frage eines Operationswagens auf einem Spitalzuge.) V. C. Irk.
88 Suggestions to Improve Equipment for Field Hospitals. (Vorschläge für Reformen in der Ausgestaltung des chirurgischen Apparates der Feldsanitätsanstalten.) P. Odelga.

76. **Compression of Carotid in Relation to Epilepsy and Hysteria.**—Tsiminakis assumes that the casual slight internal or external irritation which brings on the epileptic seizure does this by inducing some momentary functional disturbance in the epileptic focus, and it is during this disturbance that the seizure occurs. If this be true, then artificially inducing such a similar transient disturbance in the circulation in the epileptic focus would induce the same functional disturbance and be liable to bring on a seizure. The disturbances in question cannot be of the nature of hyperemia as Bier has never witnessed an epileptic seizure brought on, even in epileptics, by the constricting band around the neck to induce local hyperemia. There is considerable evidence which indicates that deprival of the normal supply of blood modifies the epileptic focus enough to bring on seizures, and Tsiminakis found this assumption confirmed by his experiments on epileptics, hysterics, and normal controls. His aim was to induce transient anemia in the brain by compressing the carotid arteries. He applied his thumbs to the arteries with sudden force, to shut off abruptly the circulation in the part of the brain nourished by the carotid arteries. In thirty healthy persons momentary unconsciousness followed the compression, usually in about half a minute. He never kept up the compression for longer than a minute. The unconsciousness noted in the healthy was accompanied by complete relaxation of the entire musculature, the head drooping to the side or forward. This brief compression of the carotids was applied further in 116 patients, mostly epileptics. The epileptics became unconscious more quickly than others, at latest, in thirty seconds, and the onset of the unconsciousness was followed at once by epileptiform convulsions or local spasms, struggling and kicking movements for from ten to forty seconds; later these were followed by the characteristic fixed stare such as is seen toward the close of an epileptic seizure and in cases of epileptic somnambulance *(Absenz)*. The patient came to himself in from one to five minutes, and then complained of oppression in the head, dizziness and depression of varying intensity, as with spontaneous seizures. The healthy complained only of momentary dizziness after their brief loss of consciousness while the carotids were compressed; consciousness returned at once as the carotids were released from the pressure. In seven cases of jacksonian epilepsy there were local spasms in the group of muscles involved, followed by tingling and tremor as with the spontaneous spasms. In forty-two cases of hysteria the compression of the carotids brought on a typical hysteric convulsion in all; suggestion was excluded. Pressure at other points never induced the convulsions.

He says in conclusion that the epileptic seizures induced by the anemia from compression of the carotids are never as long nor as severe as the spontaneous seizures in the same patient, but they are so characteristic that they are of great moment for the differential diagnosis, as well as for the pathogenesis and mechanism of the seizure and possibly may afford a basis for treatment.

77. **Skin Reaction Indicating Protection Against Typhoid.**—Pulay gives summaries of the response to the skin test with typhoidin in 28 healthy persons, 6 typhoid patients, 35 convalescents, 39 men vaccinated against typhoid and 5 who had a history of typhoid long ago. This experience confirms the statements of Gay and Force in regard to the differential value of this skin reaction.

82. **Industrial Affections from Manufacture of Munitions.**—Oppenheim comments on the increase in industrial skin affections in Vienna since the beginning of the war. In the leather, canning, textile and laundry industries they have attracted attention but they are most marked in the workers manufacturing munitions. One reason for this is that unaccustomed workmen are employed, and even quite young girls and women, whose skin is more sensitive to injury. The skin affections encountered in those making explosives, bombs, shrapnel and grenades all bear such a common likeness they must be regarded as occupational affections. The most interesting are those resulting from poisoning with mercury in the manufacture of shells *(Zündkapseln)*. Besides acute dermatitis of the face and hands, the workers present the syndrome familiar from mercurial poisoning in therapeutic administration. The mercurial poisoning manifested itself first as a redness of the face and back of the hands followed by more or less pronounced edema of the face. There was seldom any severe dermatitis unless other irritating substances were handled. On suspension of the work all the phenomena subsided in a week or two. He tabulates the details of 26 cases of this kind. In 5 cases the dermatitis was accompanied by pustules or blisters. In 10, there was stomatitis which progressed to ulceration only in one case. In 6, mercury was found in the urine. In 18 cases the work was the production of mercury explosive *(Knallquecksilber)*; this work was done with moisture; in 3 the workers had been making powder *(Schwarzpulver)*, and the disturbances were milder. In 5 other cases the workers had had to clean and polish metal articles with petroleum, acids, turpentine, benzol or ammonia. Cooperating factors were the use of alcohol, antimony, potassium chlorate, solution of glue and nitric acid. The finger nails of some showed characteristic changes from the effect of the acid in lifting the shells out of the cleansing solution. The hands of those

making fuses present series of cracks parallel to the ulnar edge. Burns from the explosions leave sometimes a peculiar yellowish discoloration from nitric acid. In one case a woman had irregular ulcerations on the back of all the fingers of the right hand with which she dipped up shells from a mixture of soapy water with acid. There were large numbers of cases of acne, folliculitis and furunculosis, resembling in every respect the common petroleum acne and crude oil acne. In these cases the workers had to clean and lubricate machines, shells, etc. One man whose task was the filling of gas bombs, supposedly with xylol and hydrobromic acid *(Bromwasserstoff)*, had acne pustules and furuncles on brow and cheeks and neck until he had to give up the work. As the workers learned to protect themselves, this occupational injury became less frequent and milder. Prophylaxis should be the same as in mercurial medication, greasing the exposed skin, wearing gloves, exercising in the open air after work and thorough ventilation of the workrooms.

83. **Coccus Enteritis.**—Wiesner relates that in the efforts to keep cholera, typhus, etc., from getting a foothold in Vienna, bacteriologic examinations have been conducted by the hundreds, and this systematic wholesale work has revealed a number of new facts. Among them he mentions that the *Streptococcus lacticus* was found in over 50 per cent. of 650 stools examined; it was in pure culture in 72 of the 397 positive cases. His research on endotoxins, agglutination, etc., compared with the clinical course, confirms the assumption that the *Streptococcus lacticus* has pathogenic properties when conditions in the intestines favor its proliferation to an unusual extent. It may alone induce enteritis, but it generally exerts its pathogenic action only after typhoid, dysentery or stasis hyperemia, so that it may be regarded as almost a specific secondary infection. The endotoxin in small amounts is not harmful for man, but when produced in large amounts, it irritates the bowel. These coccus stools showed local and time features suggesting epidemiologic influences.

85. **Antitoxin in Blood of Tetanus Convalescents.**—Löwy found no evidence of an antitoxin in the serum from 4 patients with tetanus (drawn before antitetanus serum had been injected), nor in 5 normal serums, but the tests were positive in the serum from 10 among 15 convalescents. Excluding the 5 whose serum reacted positively to horse precipitinogen, this leaves 5 with an unmistakable antitoxin content in their serum, capable of neutralizing the dose of toxin fatal for the mouse. This antitoxin does not last long; by the thirty-seventh day it failed to neutralize the toxin effectually and the mouse died. No connection between the antibody production and the course of the tetanus or location of the wound could be detected.

Gazzetta degli Ospedali e delle Cliniche, Milan

Nov. 18, 1915, XXXVI, No. 81, pp. 1265-1280

89 *Improved Technic for Differential Staining of Urine Sediment, etc. (Colorazione differenziale a fresco dei sedimenti orinari.) E. U. Fittipaldi.

November 21, No. 82, pp. 1281-1296

90 Symmetrical Spontaneous Gangrene of the Extremities. (Malattia di Raynaud.) G. De G. Giunta.

November 25, No. 83, pp. 1297-1312

91 *Industrial Accidents and Workman's Compensation. (Sugli infortuni del lavoro.) M. Zannini.

89. **Differential Stain for Urine Sediment.**—Fittipaldi has been studying to find differential stains that would act simultaneously. With the technics in vogue the various stains act at irregular intervals, which is apt to blur the conclusions from the findings. At first he used indulin with eosin, and obtained fairly satisfactory results. But the outcome is proving still better, he reports, with a triacid staining solution containing three stains, anilin blue w, aurantia, and eosin. The anilin blue w solution is made with 1 part of the stain, 90 parts distilled water and 10 parts alcohol; the aurantia solution with 0.2 parts aurantia, 90 parts distilled water and 10 parts alcohol; the eosin is used in a 1 per cent. distilled aqueous solution. The triple stain is prepared by mixing 20 parts of the eosin solution, 35 of the aurantia and 45 of the anilin blue solutions. The stain keeps well for months; only the eosin grows a little less active. This staining technic can be applied without heating to urine sediment, puncture fluids, sputum, tissue juices, blood, etc. A small amount of the stain is placed with a glass rod on the specimen to be examined. With the same rod a small drop of physiologic salt solution containing 2 per cent. acetic acid is stirred into the specimen on the slide. This decolors the vehicle while fixing the stain on the morphologic elements. The specimen is then slightly heated.

91. **Industrial Accidents.**—Zannini describes the features which distinguish an industrial accident from an occupational affection, but adds that the distinction in reality is artificial and only for business purposes. The industrial accident may be defined as any injury in the course of the day's work that could not have been foreseen at the time the workman assumed the work. He discusses further concomitant factors, saying that the workman on assuming the work is supposed to be free from defects and disability, but that this theoretical requirement is practically impossible of realization. Accidental dislocation of the patella, for example, requires a week's repose even if the dislocation has occurred at some time before, just as much as if this were the first time.

Brazil-Medico, Rio de Janeiro

Oct. 30, 1915, XXIX, No. 41, pp. 321-328

92 *Improved Technic for Staining Tubercle Bacilli. (Sobre um novo methodo de coloração do bacillo de Koch.) D. Cerqueira.

November 6, No. 42, pp. 329-334

93 *Leukemia a Mycosis. (Pesquizas etiologicas na leucemia. II.) E. Dias.

94 Tropical Bubo. (Bubão climatico.) F. Luz. Commenced in No. 41.

92. **Improved Technic for Staining Tubercle Bacilli.**—Cerqueira stains the specimen as usual with fuchsin, according to the usual technic, heating one minute, then decolors with nitric acid, ⅓, and rinses in running water. Without drying, it is then treated with tincture of iodin for one minute and then rinsed. The specimen is then immersed in pure ammonia for a few seconds. The specimen is then rinsed in a 2 per thousand solution of sodium hyposulphite and dried slowly over an alcohol flame or Bunsen. The tubercle bacilli show up pale pink and the granulations are distinctly evident, stained a bluish violet. This technic also eliminates other germs which are susceptible to the destructive action of acid, alcohol or alkali. Another advantage of this technic is the pale tint of the background which throws the bacilli into better relief.

93. **Leukemia a Mycosis.**—Dias reports here another case of leukemia, the peripheral blood showing 648,000 leukocytes with positive findings in the blood and certain glands, confirming his conclusions from his two other cases that leukemia, of the myelogenous type, is the work of a fungus, a mycosis. He calls it the *Adenomyces leukemiae*. Laboratory animals injected with blood and lymph from his three patients all died, the pathologic findings being the same in all, and the more pronounced the longer the interval after the experimental inoculation.

Russkiy Vrach, Petrograd

Sept. 26, 1915, XIV, No. 39, pp. 913-936

95 *Serodiagnosis of Rabies. (Reaktzie Abderhaldeñ'a pri bieshenstvie.) V. I. Nedrigailoff and M. A. Scheremezinskaia.

96 Syringomyelia with Acromegalic Changes, but without Actual Acromegaly. A. K. Schenk.

97 Dermoid of the Frontal Bone. M. O. Friedland.

98 *Symptoms and Treatment of Tetanus. (Stolbnyak.) Z. R. Feinman.

99 Action of Pointed Small Caliber Bullets as Observed during the Balkan War. N. I. Kochetoff.

95. **Protective Ferments in Diagnosis of Rabies.**—The blood was taken from diseased animals three or four hours before the institution of the experiments, from rabbits just before death, from dogs when the symptoms were at their height. The antigens were prepared from brain tissue of patients with rabies and of infected rabbits, dogs, a cow, calf and cat. The brain fat was removed with petroleum ether

in Soxhlet's apparatus. The results of the numerous experiments were as follows: (1) in rabid dogs protective ferments were found in the blood against antigens obtained from (*a*) brains of diseased and (*b*) healthy animals, and from the salivary glands of (*c*) rabid and (*d*) healthy dogs. 2. In diseased rabbits and men the same ferments were found except the ferment *d*. 3. In dogs infected with hydrophobia subdurally, in the eye, or in the sciatic nerve, ferments were detected as early as twenty-four or forty-eight hours, after the infection, against *a, b, c,* while ferment *d* was found only just before the development of the morbid symptoms. 4. In rabbits infected subdurally, ferments were found in their blood within twenty-four hours except the *d* variety. 5. The latter did not seem to develop in the patients given prophylactic treatment against hydrophobia, but ferments were found that digested brain tissue from rabid and healthy animals within twenty-four hours; those against salivary glands of mad dogs were found only for ten or twelve days after treatment. 6. Abderhalden's reaction may thus be of service not only for scientific research on rabies but also for diagnosis.

98. **Tetanus in the Russian Army.**—Of 66,110 wounded soldiers treated in the hospitals of Dvinsk during the first eleven months of the war, 95 (0.134 per cent.) suffered from tetanus. Feinman thinks this to be a rather low figure, as tetanus in other regions was more common among the wounded. It depends largely on the locality (of battles). Some battle grounds furnished no tetanus whatever; on others it was unusually frequent. Of the 95 tetanus patients, 74, that is, 78 per cent. died and 21 recovered. Parts covered gave tetanus 7½ times oftener than uncovered portions of the body, and shrapnel wounds twice as often as others. The incubation period was from five to thirty-eight days. Those that occurred during the first eight days gave 100 per cent. mortality. A bad omen was profuse sweating; in 22 per cent. the initial symptom was not trismus, but local spasms in the wounded arm, leg, abdominal muscles, etc., which frequently showed from one to seven days prior to the general convulsions. Of the 21 patients with local convulsions as an early sign, 17 died. The best symptomatic results were obtained with chloral hydrate, from 1 to 7 gm. daily given by the mouth or rectum. For spasmodic contracture of intestines and bladder hypodermic injection of from 0.5 to 1 gm. of a pituitary extract gave good results. Warm baths at 100 F. also proved effectual in symptomatic treatment. No benefit could be detected from treatment with antitetanus serum, intravenous or intraspinal; from 3 per cent. phenol solution; suspension of pigs' brains; calcium lactate three times daily in doses of 30 drops of a 10 per cent. solution, or from magnesium sulphate in hypodermic injections of from 2 to 14 c.c. of a 25 per cent. solution, or by intraspinal injection of 15 c.c. of a 10 per cent. solution.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Oct. 30, 1915, II, No. 18, pp. 1991-2086

100 *Experimental Research on Localization of Sensory Functioning in the Brain. (Proefondervindelijke onderzoekingen over de localisatie der sensibiliteit in de schors der groote hersenen.) J. G. D. de Barenne.

101 Disappointing Experiences with Rosenbach's Tuberculin in Diagnosis and Treatment of Children. J. C. Schippers.

November 6, No. 19, pp. 2087-2178

102 The Straub-Hermann Biologic Reaction Not Specific for Morphin as Claimed. J. R. F. Rassers.

103 Advantages and Disadvantages of Roentgen Treatment of Uterine Fibromyomas. (De vrouw en het essentieel vrowelijke bij de roentgenbehandeling van baarmoederfibromyomen.) N. Voorhoeve.

November 13, No. 20, pp. 2179-2270

104 The Conception of Space. (Zintuigen en ruimtevoorstelling.) T. E. Ter Kuile.

105 *Differential Diagnosis of Typhoid. E. P. Snijders. Commenced in No. 19.

106 Value of the Wassermann Reaction in Neurology and Psychiatry. T. Passtoors.

107 *Hypernephroma and Precocious Sexual Characters. (Hypernephroom-hypergenitalisme.) A. A. H. van den Bergh.

100. **Localization of Cerebral Function by Local Application of Strychnin to the Cortex.**—The report of De Barenne's research is to appear in full in the *Quarterly Journal of Experimental Physiology.* He here describes the remarkable crossed effect of application of a minute amount of strychnin to some spot on the cortex. He made thirty-four experiments, all on cats. The symptoms induced were exclusively sensory. For instance, application of the weak solution of strychnin to the left posterior sigmoid convolution apparently caused no disturbance for ten minutes; then the cat shook its right front paw and acted as if this paw hurt, and tests of this paw indicated unmistakable hyperesthesia and hyperalgesia, but there were no motor disturbances and no exaggeration of the reflexes. The left front paw also shared to a lesser extent in the sensory disturbances. This method of local strychninization of small areas in the cortex he thinks is liable to prove very useful in the study of cerebral sensory functioning.

105. **Differential Diagnosis of Typhoid.**—Snijders concludes his long study of the various newer differentiating measures in typhoid with the statements that agglutination is the most constant and bacteriemia the most reliable sign of typhoid known to date, but even these must be considered in relation to the clinical syndrome. The diagnosis of typhoid should never be based on the bacteriologic findings alone. Cultivation of the typhoid bacilli from the blood is extremely important for an early diagnosis. He declares that no typhoid patient should be let loose on society again without finding out whether he is a carrier or not. Examination of the urine for typhoid bacilli is of great epidemiologic importance, and every practitioner with very little trouble can obtain the information as to the positive or negative findings in the individual case. Snijders thinks there can be little doubt that, when typhoid bacilli are found persistently in the urine there must be some typhoid focus in the urogenital organs, and he appeals to urologists to pay special attention to this possibility. The bacilli are found most numerous in the excreta during the third week, as a rule, and the danger of infecting others would seem to be greatest at this time. Conradi and others have demonstrated, however, that the most contagious period is during the first and second week. The reason for this is one of the many still obscure points in our knowledge of this, the most intensively studied of all diseases. A number of dubious and clinically latent cases are described.

107. **Precocious Genital Development with Hypernephroma.**—Van den Bergh remarks that the time may not be far distant when surgeons will find it possible to remove successfully a tumor in the pineal gland and large hypernephromas, and hence clinicians must be studying the syndromes induced by such in order to diagnose them early enough for successful removal. He gives an illustrated description of a case of hypernephroma in a 3 year old girl with a large, hard, retroperitoneal tumor palpable in the left abdomen, which entailed fever and progressive weakness. The child was 4 or 5 inches taller than the average, and the general aspect suggested that of an adult, especially the external genital organs. The skin was normal as also the fundus and skull findings, and there was nothing to suggest precocious functioning of the sexual organs. On these findings a left hypernephroma was assumed and its removal attempted, although the dangers were realized. The tumor weighed 2,000 gm. and measured 22x16x12 and there seemed to be metastasis in the stump of one or more veins. The child bore the operation well at first but died the following night. He reviews the cases on record in which a malignant hypernephroma was accompanied by precocious development of the external genital organs, tabulating the details of eighteen, including his own case. The ages ranged from 14 months to 14 years, and in all but three of fifteen cases the tumor was on the left side. Two girls of nearly 5 and 9 are said to have had beards, and extreme obesity is mentioned in a number of the cases. He comments on the fact that of the eighteen cases, over one half were reported by English writers. The microscope shows the great difference between hypernephroma and sarcoma of the suprarenals. Neither the latter nor the Grawitz type of tumors in the kidney are ever accompanied by the changes in the secondary sexual characters observed with hypernephromas in children.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 4 CHICAGO, ILLINOIS JANUARY 22, 1916

CARDIOSPASM

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NEW YORK

The esophagus, possessing the simple function of being the passageway for food from mouth to stomach, has an uncomplicated structure, being poor in lymphatics and having no digestive glands. It is, therefore, seldom subject to infectious and inflammatory diseases, even by extension from the neighboring organs, such as mouth, pharynx and stomach.

The passing of food from mouth to stomach, accomplished as it is by the act of deglutition, as shown below is chiefly under the control of the nervous system; hence disturbance of the nervous system may give rise to difficulty in deglutition.

One of the diseases of the esophagus which causes obstruction in the passage of food from esophagus to stomach, resulting mostly from a disturbance in the nervous system, is cardiospasm.

By cardiospasm we understand a spastic contraction of the cardia of shorter or longer duration, sometimes lasting for weeks and even months, and leading to hypertrophy and dilatation above the contraction. Spasms of an equal etiologic nature may also occur in one of the three main physiologic narrowings of the esophagus, that is, at the cricoid cartilage (esophagus mouth, Killiani) at the bifurcation of the trachea, and at the entrance of the opening of the diaphragm (hiatus). Such a condition is termed esophagaspasm.

Cardiospasm from an etiologic standpoint is in the vast majority of cases of a purely functional nature. In order, therefore, fully to comprehend how cardiospasm is brought about, understand its pathology and symptomatology, and employ intelligent therapeutic measures, it is absolutely essential to review the physiology of the esophagus in relation to the act of deglutition and the influence of the nervous system on this important function.

ACT OF DEGLUTITION

The esophagus, as the word implies, serves mainly as a carrier of the food from mouth to stomach. This is brought about by the act of deglutition. The proper understanding of deglutition was made clear by the untiring experimental studies of Kronecker,[1] Meltzer,[2] Cannon,[3] Falk, Schreiber[4] and others.

The normal deglutition in men was studied by F. Krauss[5] and his pupils by means of the Roentgen ray. Originally the propulsion of food from mouth to stomach was explained as being divided into three parts — the furtherance of the bolus from mouth to pharynx being accomplished by the mylohyoid muscles and tongue; from pharynx to esophagus by the middle and lower constrictors, and through the esophagus proper by its own peristalsis.

In 1880 Falk and Kronecker advanced the theory that the most important part is the propulsion of the food from mouth to stomach by the rapid contraction of the muscles of the mouth, while the esophageal peristalsis is of secondary importance. Later Kronecker and Meltzer experimentally demonstrated this fact by showing that the manometric pressure of 20 cm. of water which exists in the buccal cavity at the beginning of swallowing is also present in the esophagus. Other experiments by the same authors verified their assertions; and they therefore concluded that liquids and semisolids are not conveyed down the esophagus by peristalsis but are "squirted" into the stomach by the contractions of the muscles of the mouth. They maintain that the constrictors of the pharynx and the musculature of the cervical part of the esophagus can be wholly removed without disturbing deglutition.

It is thus seen that only the function of the mylohyoid suffices to propel the food from mouth to stomach. At the present time there is still a controversy between the school of Kronecker and Meltzer and that of Schreiber. The latter asserts that all the muscles concerned in the act of deglutition grasp the bite like wheels and teeth, some of the muscles hermetically closing the area of swallowing so as not to allow the food to come back into the mouth. The esophagus proper also participates in propelling the food further down.

Meltzer determined the resistance at the cardia by listening with a stethoscope over the ensiform cartilage when fluid was swallowed. Six or seven seconds after, normally a sound was heard; if that sound was heard sooner he concluded that an insufficiency of the cardia existed.

While the ingenious studies of Kronecker and Meltzer have laid the entire foundation of the physiology of deglutition, further evidence confirming their assertions and adding more information was supplied by Cannon and his co-workers by studying the act of swallowing by means of the Roentgen ray on animals, and by F. Krauss and his pupils in their Roentgen studies on men. Cannon proved that there is a differ-

1. Kronecker and Falk: Arch. f. Physiol., 1880, p. 296.
2. Meltzer: Centralbl. f. Physiol., xix, No. 26; xxi, No. 3. Meltzer and Auer: Proc. Soc. f. Exper. Biol. and Med., Dec. 10, 1906. Kronecker and Meltzer: Arch. f. Physiol., 1883, p. 337; Berl. klin. Wchnschr., 1884, No. 34.
3. Cannon: Am. Jour. Physiol., xix, No. 3; Med. News, 1905, No. 20.
4. Schreiber: Arch. f. exper. Path. u. Pharmakol., 1911, lxvii, 72.
5. Krauss and Ridder: Erkrankungen der Mundhoch und Speiserohre, Vienna, 1913. Krauss, F.: Deutsch. med. Wchnschr., 1912, No. 9; Ztschr. f. exper. Path., 1912, No. 10.

ence in the propulsion time through the esophagus, depending on whether fluids, semisolids or solids are administered.

The length of time in propelling different kinds of food varies in different animals, and in different parts of the esophagus in the same animal. This depends on the histologic structure of the esophagus. In geese, for example, in which the entire esophagus consists of nonstriated muscle, the propulsion is slower and accompanied by peristalsis. In animals in which striated and nonstriated musculature exists, the part of the esophagus possessed of the striated musculature (upper part of the esophagus) propels the food rapidly without peristalsis, while in that part possessed of striated muscles (lower part), propulsion is slower and peristalsis is seen. This is also the case in human beings.

The kinematographic studies of Krauss by means of the Roentgen ray have aided a great deal in the understanding of the physiologic act of deglutition. From such studies, Krauss divides the act of deglutition into two periods: (*a*) the buccopharyngeal period, and (*b*) the esophageal period. The first period corresponds to the squirting action (Meltzer) and lasts only about one second, during which the food gets into the esophagus. If the morsel is large enough it fills the entire esophagus, almost reaching the mouth of the esophagus (Killiani), with some air seen on top of the food. This period lasts from five to seven seconds. The closure of the cardia is at first maintained, allowing only a thin, threadlike stream to pass into the stomach. Contraction waves are seen to run through the esophagus, by which within five or seven seconds the esophagus is seen entirely empty, or with but a few spots in the physiologic narrowings.

Our own Roentgen-ray observations fluoroscopically convince us (corresponding to the studies of Cannon) that fluids and semisolids traverse the esophagus more quickly than do solids. We must state, however, that an exact visualizing of contraction waves fluoroscopically under physiologic conditions is by no means positive. When we recall that the esophagus is seen only as a shadow from the contrast substance, it is clear that unequal distribution of the contrast substance in the course of its moving downward may simulate contractions. If contractions in the lower part of the esophagus were responsible for the propulsion of food into the stomach, solid food or the overfilling of that part of the esophagus by quick drinking would show even stronger contraction. This does not correspond to our findings. Normally, when the lower part of the esophagus is overfilled, we see that it presents itself in a sausage form without visible contractions, and that empty swallowing causes the food to drop down in a mass. We believe, therefore, that the teaching of Meltzer—that the act of deglutition is chiefly a squirting action, and that the contractions in the first act of swallowing cause inhibition and thereby opening of the cardia—is correct.

The fact that the food stays at the cardia for a few seconds does not prove that contraction of the lower part of the esophagus is necessary to propel it, but it rather shows that, depending on the consistency of the food, one or more contractions in the buccopharyngeal part of deglutition are necessary to cause inhibition of the cardia. This explains satisfactorily that the esophagus can be entirely stripped of its musculature if only the mylohyoid muscle is left and the nerves controlling deglutition are intact. Swallowing is undisturbed unless the animal is deeply anesthetized, when a reflex act cannot be accomplished. The act of deglutition is thus a reflex one, and the propulsion of food through the esophagus, as shown by Meltzer, is determined by the intracentral nervous connections, the center of which is in the medulla oblongata.

This brings us to a discussion of the nervous control of deglutition.

Deglutition being a reflex act, it naturally involves afferent and efferent paths. The afferent impulses arise at different points along the mouth, pharynx and esophagus. Experimental studies on animals, especially carried out by Kahn, demonstrated that there are so-called chief spots and accessory spots from which afferent impulses arise if a local stimulus is exercised. The chief spots are shown to be on the natural path from mouth to pharynx; the accessory spots lie in out-of-the-way places into which particles of food may be driven. The nerve supplying the chief spots is the glossopharyngeus.

The glossopharyngeus, the second branch of the trigeminus, and the superior laryngeal nerve control the accessory spots. Wasselieff demonstrated on himself the reflex character of deglutition and its dependence on impulses from special spots in the mouth and pharynx by swallowing a sponge moistened with cocain attached to a thread which he immediately withdrew, thereby deadening the sensation of the chief spots. For some minutes he was unable to swallow even his own saliva.

The afferent impulses are carried to the center, situated in the floor of the fourth ventricle. From here the motor impulses pass out, distributed by a number of nerves, and the bolus gets its initial start to continue on its course.

By the hypoglossus nerve impulses pass to the tongue; by the third branch of the trigeminus to the mylohyoid; by the glossopharyngeal branch of the vagi to the muscles of the pharynx and by several vagus branches to the entire length of the esophagus.

Special attention must be paid to the innervation of the lower esophagus and cardia. The chief supply for the motor function of the lower esophagus and cardia is also derived from the vagus. The influence of sympathetic nerve fibers on the lower esophagus is today also conceded. The existence, however, of intrinsic nerves of the lower esophagus and cardia, able to carry out the function independent of whether or not the chief nerve supply (vagus) is intact, was demonstrated by Cannon. These nerves are important when they are called on to take up the expulsion of the food from the lower part of the esophagus into the stomach when there is obstruction at the cardia on account of an organic disease of the vagus. We thus see the important rôle played by the vagus or its allied nerves in controlling the act of deglutition.

The deglutition disturbances due to organic affection of the vagus and its allied nerves, either centrally or peripherally, are well known. But functional diseases of the vagus may also bring about disturbances in the act of deglutition, either by a functional disturbance of the vagus directly supplying the esophagus, or by way of reflex. Reflex disturbances need not originate in the vagus; they may also originate in the sympathetic system, because of the intimate relation of the vagus and sympathetic supply of different organs.

In order to understand how a reflex disturbance in the vagus-sympathetic system supplying other organs can bring

about cardiospasm, it is deemed wise to review briefly the physiologic anatomy of that system as described by Langley,[6] the pharmacologic tests as outlined by Meyer and Gottlieb,[7] and its clinical significance as first pointed out by Eppinger and Hess.[8]

The vagus system (autonomic nervous system or parasympathetics, Langley) has three centers. Fibers originate in the midbrain which run through the oculomotor nerve to the ciliary ganglion; from the medulla oblongata there originate fibers which in the chorda tympani supply secretory and vasodilator fibers to salivary glands and mouth; and from facial and glossopharyngeal nerves, secretory and vasodilator fibers reach the trigeminus and supply the mucous membrane of the mouth, nose and pharynx. From the medulla oblongata there originate the fibers which run through the vagus proper supplying the thoracic and abdominal viscera. They are inhibitory fibers for the heart, constrictor fibers for the bronchi and motor fibers for the esophagus, stomach and intestines, and secretory fibers for the stomach and pancreas.

The vagus supply just described is also called the craniobulbar vagus system. Finally there is the so-called sacral part of the vagus, consisting of the first sacral nerves originating from the lower spinal column and supplying the colon descendens, rectum, anus, bladder and genital organs. This part of the vagus is also known as the nervus pelvicus.

To recapitulate, we may say that the autonomic nervous system has three divisions: that of chorda tympani and glossopharyngeal for the oral cavity; vagi for the alimentary tract from pharynx to colon, and the pelvic nerves for lower abdominal and pelvic viscera.

The sympathetic system is composed of a chain of ganglia lying on each side of the vertebral column, each spinal nerve root having one ganglion. In the cervical region these ganglia are condensed into two—the superior and inferior cervical ganglia united by the cervical sympathetic trunk. The upper three or four thoracic ganglia on each side join to form the stellate ganglion; for the coccygeal vertebra there is the coccygeal ganglion. In the abdomen a second system of ganglia exists, that is, the semilunar or solar ganglia and the superior and inferior mesenteric ganglia. In the organs a third system of ganglia exists. The three systems of ganglia are known as the lateral, collateral and terminal ganglia, respectively.

The ganglia of the sympathetic chain are connected with all the spinal nerves after they have given off their posterior divisions by means of rami communicantes. The latter consist of medullated and nonmedullated fibers. The medullated or white rami are formed by fibers originating in the spinal cord and perhaps in the posterior root ganglia; the gray or nonmedullated rami arise in the sympathetic ganglia, and run back to join the spinal nerves.

The fibers derived from the cervical ganglia supply the parotid, submaxillary and sublingual glands. Fibers from the stellate ganglia supply the muscles of the heart. Fibers from the epigastric ganglion (solar plexus) supply the lower esophagus, cardiac sphincter, liver, pancreas and their duct, and the small intestine. These fibers also supply the vasomotor apparatus of the stomach and intestine. Fibers from the superior and inferior mesenteric ganglia supply the colon and rectum.

The sympathetic nervous system has four stations: the first is situated in the brain and spinal cord; the second in the lateral ganglia; the third in the collateral ganglia, and the fourth in the viscera.

The autonomic and the sympathetic systems in a general way are antagonistic to each other. Stimulation of the autonomic system causes contractions of the organs, and by its vasomotor fibers dilates the blood vessels of the organs. Stimulation of the sympathetic system inhibits contraction of the viscus, and contracts the blood vessels.

The pharmacologic tests which serve to demonstrate the respective effects of the two systems were first studied on animals by Langley, and later by Meyer and Gottlieb, Meltzer and others. Langley showed that nicotin paralyzes the ganglia, whether it is introduced by the blood or applied locally. Meyer and Gottlieb succeeded in isolating pharmacologically the function of the sympathetic and vagus systems. They demonstrated that the sympathetic is stimulated by epinephrin or the hormone known as chromaffin contained chiefly in the suprarenal cortex and the sympathetic nervous system itself. Drugs that paralyze the sympathetic system have as yet not been demonstrated. Drugs which stimulate the vagus system belong to the cholin group, for example, pilocarpin, physostigmin and muscarin. Atropin paralyzes the vagus.

The application of the study of the vegetative nervous system in relation to the clinic was first carried out by Eppinger and Hess. They found that normal individuals are not influenced by the physiologic dose of drugs which stimulate or paralyze the autonomic or sympathetic systems. In such persons the antagonism of the vagus and sympathetic systems is complete, and the persons are of a normal tonus.

Eppinger and Hess showed that, depending on the response to the drugs influencing the vagus and sympathetic systems, one can differentiate a vagotoniac from a sympatheticotoniac. By a vagotoniac they understand an individual who is very susceptible to drugs stimulating or paralyzing the vagus (physostigmin, pilocarpin or atropin). Sympatheticotoniacs are those who are susceptible to the administration of drugs stimulating the sympathetic (epinephrin).

Pilocarpin is used to determine the status of the vagotoniac, epinephrin that of the sympatheticotoniac. Pilocarpin in the dose of 0.01 gm. subcutaneously causes in the vagotoniac the following symptoms: excessive salivation, perspiration, slowing of the pulse, gastric disturbances as a result of increased gastric secretion, dyspnea, or even bronchial asthma, narrowing of the pupils, diarrhea and vesical and rectal tenesmus.

Epinephrin (1:1,000) from 10 to 15 drops intramuscularly, produces in the sympatheticotoniac, tachycardia, increase of blood pressure, exophthalmos, polyuria and glucosuria.

The same authors have also taught us to differentiate the vagotoniac and sympatheticotoniacs clinically:

The vagotoniac shows some or all of these symptoms: narrow pupils, narrow palpebral fissures, salivation, perspiration, acrocyanosis of hands, rarely of feet or face, clammy hands, dermographia, bradycardia, extrasystole, respiratory arrhythmia, Aschner[9] symptom (slowing of pulse on pressure on the eyeballs), Erb's symptom (slowing of pulse when patient is made to bend forward), and Goldscheider symptom (slowing of the pulse with bending of knees and holding of the breath). Eosinophilia is quite common.

The sympatheticotoniac shows protrusive bulbi, dilated pupils, dryness in the mouth, high blood pressure, dry skin and no eosinophilia.

We have dwelt exhaustively on the vagus-sympathetic disturbance and its clinical recognition because the existence of one or the other type often leads to the interpretation of the patient's complaint, makes us determine the underlying etiologic factor, and serves as a guide in therapeutics.

It must, however, be strongly emphasized that a distinct type of vagotoniac or sympatheticotoniac is rather the exception than the rule. Most individuals are of a mixed type, one or the other predominating. The predominance of the type depends often on the age of the patient and the sex. Young people are often vagotoniacs who at a later age may become sympatheticotoniacs. The female sex is particularly prone to present at an early age a syndrome characterized by vagus disturbance, and at the time of menopause a sympathetic disturbance.

It must also be borne in mind that in order to signify one or the other type it is not necessary for all stigmata to be

6. Langley: Jour. Phys., 1898, xxiii, 240; Jour. Phys., 1911-1912, xliii, 173.
7. Meyer and Gottlieb: Experimentelle Pharmacologie, Vienna and Berlin, 1912.
8. Eppinger and Hess: Zur Path. u. Veget. Nerven-Systems, Ztsch. f. klin. Med., p. 205; ibid., lxviii, 345.
9. Aschner: Wien. klin. Wchnschr., 1908, No. 44.

present, and finally—this is of especial importance—that such individuals are not to be stamped as diseased persons; they possess a distinct status and have a predisposition to certain diseases.

ETIOLOGY

Having discussed more or less fully the anatomy and physiology of the vegetative nervous system, as well as its pharmacologic test and clinical entity, the etiologic factor is easily comprehended.

Generally it can be stated that cardiospasm is primarily the outcome of a hyperirritability of the vagus. The underlying factors bringing about such a state may be divided into five groups:

In the first group are the patients whose vegetative nervous system is below par through inheritance. Almost throughout their lives they have some physical disturbance brought about by an unstable vagus or sympathetic, and are also subject to cardiospasm. Although physically perfectly healthy, such people are found to have objective signs of vagotonia or sympatheticotonia, or the two mixed, and in the history we will hear that from childhood almost all organs supplied by the vegetative nervous system have at one time or another been subject to a functional disorder (enuresis nocturna, periodic vomiting, laryngospasm, urticaria, etc.).

To the second group belong the cases in which the vegetative nervous system becomes involved because of an inborn status asthenicus or status thymicolymphaticus. It is true that the status just named not rarely presents an inborn instability of the vegetative nervous system, but in a considerable number of cases we have found that the disturbance in the various organs brought on by hyperirritability of the vagus and sympathetic is secondary. These individuals are not born to the task of great responsibilities, either physical or mental, and when overtaxed they need not necessarily acquire organic diseases, but they become subject to functional derangement in the vegetative nervous system. This may manifest itself in any of the organs supplied, and with equal frequency in the esophagus, causing cardiospasm. In this group belong the cases of gastroptosis, especially "long stomach" (langmagen) in which traction on the esophagus is the causative factor (Rovsing[10]). Here, also, belong cases of cardiospasm resulting from sudden psychical trauma in individuals previously apparently healthy.

The third group contains the cases which show cardiospasm due to reflex irritation from other diseased organs (ulcus ventriculi, carcinoma of the fundus and lesser curvature, gallstones, kidney stones, diseases of the generative and genito-urinary organs, pancreatitis chronica, or left-sided diaphragmatic pleurisy). Here, too, the underlying disturbed vegetative nervous system is a predisposing agent.

In the fourth group belong the cases of cardiospasm due to infections by toxic and metabolic agents (nicotin, lead, uremia, parasites, gout, chorea, lyssa).

In the final group belong the cases in which a local esophageal disease is the causative factor (fissure, erosions, scar tissue formation, ulcus pepticum esophagi).

This disease is more commonly found in younger individuals. With the exception of globus hystericus (spasm of the esophagus mouth, Killiani) the spasm, especially of the cardia, is almost as frequent in men as in women.

10. Rovsing: Ref., München. med. Wchnschr., 1913, p. 1111.

PATHOLOGIC ANATOMY

Most observers (Stark,[11] Krauss, Baillie and Howship,[12] Rosenheim[13]) found postmortem no changes in the esophagus or cardia at all. Rumpell and Leichtenstern observed a persistent spasm of the cardia shortly after death, necessitating some force to overcome resistance. When the disease had persisted for a long time hypertrophy and dilatation above the obstruction were found.

Symptoms.—These vary a great deal in the degree of severity. It is characteristic that in most cases the onset of deglutition disturbance is sudden. Like the spasm of the mouth of the esophagus (globus hystericus), the cardiospasm may be of sudden onset and of a very transient nature. In other cases the onset is equally sudden but of longer duration; the attack may last for hours, days, weeks and even months. In cases of longer duration we often hear that the degree of deglutition disturbance is not always the same. Usually the patient tells us he finds that solids go down easily, while fluids do not pass at all. At other times part of the food remains above the cardia, and when the patient continues to eat, the food suddenly begins to go down. When the disease persists, food stagnates in the esophagus, giving rise to epigastric distress, substernal pressure and even pains in the chest, and also belching of air and regurgitation of unchanged food. When localized or generalized dilatation of the esophagus takes place, the patient may subjectively feel relieved because he can partake of a meal of moderate quantity without experiencing deglutition disturbances. This is due to the fact that there is enough room in the dilated esophagus for the food to accumulate; but soon after his meals, or if he partakes of a little more than the esophagus can hold, he begins to regurgitate his food (especially when in a reclining posture) into the mouth absolutely unchanged and without nausea. In more progressive cases the contents of the esophagus show evidence of fermentation and decomposition, manifesting itself by the presence of lactic acid, butyric acid, sugar and a foul odor. Loss of weight and even extreme emaciation are present in severe cases.

Pain as a symptom may or may not be present, depending on the coaffection of the sensory nerve apparatus. If present, the pain is entirely out of proportion to the degree of the disease and nature of the food taken. A little cold water will often cause severe pain in the region of the ensiform process radiating to the soft palate, uvula, epiglottis, etc.), or both sides of the lower thorax, especially the left. When the spasm accompanies a fissure, erosion or ulcer of the esophagus, pain on deglutition is a very prominent symptom.

While the symptoms described above are present in most of the cases, we must remember that even such minor complaints as epigastric pressure and fulness right after meals, continuous belching and moderate deglutition disturbance often indicate the existence of a minor degree of cardiospasm, and should lead us to make a thorough investigation in order to establish a diagnosis.

The subjective complaints just described would lead us only to suspect the existence of functional spasm. In order to establish the etiologic factor and the seat and nature of the lesion, the objective examination is the most important part. To this belongs, first, an

11. Stark: Lehrbuch der Krankheiten der Esophagus, p. 136.
12. Howship: Practical Remarks on Indigestion, London, 1825.
13. Rosenheim: Krankheiten der Speiserohre und des Magens, Vienna, 1896.

exact examination of the vegetative nervous status; second, auscultation; third, examination by stomach tube and sound; fourth, esophagoscopy, and fifth, roentgenoscopy.

The understanding of the exact status in relation to vagotonia or sympatheticotonia or the mixed type will often more than any other method lead to the proper diagnosis of functional cardiospasm. More or less of the clinical manifestations indicating instability of the vegetative nervous system will give us a clue to the underlying cause. It is self-evident that people with stigmata of a disturbance of the vegetative nervous system may be suffering from organic disease of the esophagus, and therefore an examination by all possible methods to establish a positive diagnosis should be made. We agree with von Bergmann that people with vagotonia are very much predisposed to spasmodic ulcer of the stomach, which often brings about a reflex spasm of the cardia. The reflex cardiospasm in cases of cholelithiasis is undoubtedly of a vagotonic nature, just as is the pylorospasm in such cases.

Auscultation reveals that the second sound on swallowing elicited at a point where the left costal margin joins the xyphoid process, or posteriorly at a level of the tenth dorsal vertebra to the left of the median line is very much prolonged, delayed, or replaced by a continuous confused bubbling with a grating note, or is entirely absent. We hear, on empty swallowing of the patient, gurgling sounds coming down to the stomach in case the cardia opens.

Sounding.—The soft stomach tube of not less than 10 mm. in width is first introduced. At the seat of spasm we encounter resistance, sometimes giving us the sensation that the tube is tightly caught so that even its withdrawal is made difficult. In many cases the spasm relaxes suddenly, and we feel the tube sliding down. This is even more the case if a solid sound with an olive not less than 10 mm., a rather larger one, is employed. It quite frequently happens and is even one of the characteristics of the disease that the first sounding is unsuccessful, but a second time we succeed without difficulty. In some cases the sound passes the obstruction if the patient is told to swallow empty a few times while the sound is in the esophagus. In other cases the passage of the sound is facilitated by the preliminary use of oil by mouth, and if this is not successful, a milligram of atropin or 0.015 gm. of papaverin in several doses, administered one or two days before the use of the sound, will facilitate the passage of the sound and clear up the diagnosis.

Esophagoscopy.—Even such men as H. Stark, Rosenheim, Krauss, Janeway and Yankauer, who use the esophagoscope with such skill, do not give us any definite characteristics of the esophagoscopic picture in cardiospasm. Rosenheim and Stark observed in some cases hyperemia, in others ischemia above the spasm, and also folds enclosing a narrow half-moon slit or even a pin-point opening. It is most essential that this method should be employed only by those most versed in its use and interpretation of findings.

Roentgenoscopy.—In addition to the other methods described, but at the expense of less inconvenience to the patient, and in a great number of cases the gaining of more complete information than by any other method, there is the Roentgen examination. In order to visualize the esophagus, the contrasting substance used must be such as to coat the entire esophagus and give the entire outline of the viscus and its mode of action, and still be of such a consistency as to pass through even considerably obstructed areas. For this purpose the bismuth suspension advocated by I. S. Hirsch is very useful. It is made as follows: One tablespoonful of bismuth subcarbonate is treated with 1 teaspoonful of mucilage of acacia and stirred long enough to form a fine creamlike suspension. Other methods, like the use of the bismuth capsule, the Bassler cardioplugger, the Stewart "sausage filler" and the lead sound, have all too many disadvantages and no advantages.

Next in importance in the Roentgen examination of the esophagus is the position of the patient. The anterior-posterior position only serves to demonstrate the contrast substance passing from pharynx to esophagus; the rest of the esophagus cannot be seen in this direction because the shadow of the large vessels and heart anteriorly, as well as the spine posteriorly, obstruct its view. Holzknecht,[14] who has made himself so deserving of consideration in Roentgen diagnosis of the gastro-intestinal tract, first advised the positions by which most of the course of the esophagus can be made visible. For this purpose he utilizes two positions: the first diagonal (right shoulder to screen and left to tube, patient's arms over head), the patient assuming a fencing position; the second diagonal (left to screen and right to tube). The latter position was suggested for the study of foreign bodies in the esophagus.

Besides this, Sturtz[15] advised the anterior-posterior position for the study of the subdiaphragmatic part of the esophagus. We have noticed that to visualize the entire length of the esophagus and even to see it more distinctly and somewhat magnified, the best position is the following: The patient is placed with the back to the screen and the face to the tube; then his left shoulder is rotated gradually anteriorly until a light zone is seen between the spine in front and heart and blood vessels in the back. When the patient now swallows the contrast substance, the entire course of the esophagus, from mouth to entrance into the stomach, is seen. It is true that the esophagus viewed in this position shows a somewhat less distinct shadow, but we find that this can be overcome by giving the patient a more concentrated form of the contrast substance.

The Roentgen-ray characteristics of cardiospasm and spasm in the other parts of the esophagus can be cleared up if we utilize the physiologic studies of Friedrich Krauss made by means of the Roentgen ray. He taught us the importance of the peristaltic action of the healthy esophagus. The degree of peristaltic action, its existence or complete absence, accompanying an obstruction to the passage of the food in the esophagus, will indicate to us whether the obstruction is due to spasm (hyperirritability of the vagus), atony of the esophagus (paralysis of the vagus), or infiltration into the wall of the esophagus. In an esophagus subject to spasm, peristalsis is maintained, or even increased, while in carcinomatous infiltrations, idiopathic dilatation or obstruction due to tuberculosis, syphilis, etc., the musculature of the esophagus above the obstruction weakens quickly, leading to localized or general dilatation, even diverticula formation and finally to perforation. Bearing this in mind, it becomes possible to diagnosticate cardia and esophageal spasm by means of the Roentgen ray with a fair degree of certainty.

14. Holzknecht: Deutsch. med. Wchnschr., 1900, No. 36.
15. Sturtz: Med. Klin., 1911, xlviii.

There will still remain a certain number of cases in which the differential diagnosis between organic and functional obstruction will not be possible.

We differentiate roentgenologically two kinds of spasm: incomplete and complete. The former manifests itself fluoroscopically and roentgenographically as follows: The contrast substance is seen to hold at a point of obstruction, and the esophagus above fills in an irregular spindle-shaped form exceeding its normal width two or threefold. For a few minutes nothing may be seen to pass through the obstruction; then a narrow, ribbon-shaped stream, also in the form of a spindle, dribbles down the esophagus below the obstruction. This characteristic spindle-shaped form below the obstruction indicates that the contrast substance maintains its shape brought about by the peristaltic enclosure of the esophagus above the obstruction. It is also noticed that repeated empty swallowing by the patient facilitates the passage of the food through the obstruction. In the second form, or complete obstruction, which occurs most commonly at the lowest end of the esophagus, a uniform dilatation with visible contractions is seen above the obstruction. The dilatation is in direct proportion to the food taken, because the esophagus by virtue of the peristalsis surrounds the contents actively. Through the obstructed area nothing may be seen to pass—or a very thin streak of contrast meal, or sometimes even a very small dimple. If the condition persists for a very long time, dilatation may be so advanced as to permit the esophagus to fill with from 200 to 300 c.c. of fluid. We can then see the fluid in the esophagus even without contrast substance.

When cardiospasm is overcome by divulsion or, as often happens, spontaneously, the contrast substance is seen to drop suddenly into the stomach. As long as peristalsis is maintained, and this is usually the case for a great length of time, active regular contractions are seen along the organ above the obstruction. This is an important differentiating point from obstructions resulting from infiltrating diseases of the wall of the esophagus and idiopathic dilatation. This explains to us why a persistent cardiospasm with the resulting loss of peristalsis causes such a dilatation that it is impossible to differentiate from carcinoma of the cardia—or idiopathic dilatation.

Roentgenoscopic Differential Diagnosis.—In the Roentgen examination, the greatest importance must be attached to differentiating cardiospasm from malignant obstruction. It is out of the sphere of this paper to go into a detailed description of the roentgenoscopic signs of malignant obstruction of the esophagus, but a few leading points in the differential diagnosis will be discussed.

Owing to the fact that carcinomatous invasion of any portion of the esophagus causes a loss of peristalsis of the infiltrated part as well as the musculature above, the dilatation above the obstruction is an early symptom, and it is out of proportion to the narrowing of the lumen. We thus see that notwithstanding the fact that food is passing through the obstructed area after the short delay in a rather considerable quantity, still a dilatation above is quite marked. The loss of peristalsis also explains the absence of contraction in the vicinity of the cancer, although the musculature may not be involved by the carcinoma. The accumulation of air so often visible in the esophageal part above the obstruction can also be explained because of the loss of peristalsis. There is no contractile power on the part of the esophageal musculature to force the air out in either direction. In the later stages of malignant obstruction this air accumulation is due to the decomposition of the accumulated food.

Another very valuable differentiating diagnostic point for carcinoma is the mode in which the contrast substance is seen below the obstruction. The characteristic feature in spasm is mentioned above. In carcinoma it was F. Krauss who showed that unless the obstruction is complete the cardia is open, if the carcinoma is in the lower third of the esophagus, and one sees, therefore, that notwithstanding the delay, with considerable dilatation the stomach receives a great part of the food flowing through a wide opening. Krauss compares the phenomenon of the cardia in carcinoma of the esophagus to the open pylorus in carcinoma ventriculi and the open sphincter ani in carcinoma in the rectum. This phenomena seems to us to be due to the associated atony of the cardia either because of primary muscular weakness or because of vagus paralysis. The irregularity of the outline of the shadow above the obstruction may be present in a carcinomatous obstruction, and if so is due, according to Elsner and Ury,[16] to periesophagotis.

The so-called idiopathic dilatation of the esophagus (atony of the esophagus, Rosenheim) should be differentiated from cardiospasm by means of the Roentgen ray. In atony of the esophagus, a dilatation of various degrees is observed, with a delay of the passage of the contrast substance through the entire length of the esophagus. Holzknecht and Olbert[17] showed that semisolid food slides down slowly in a ribbon-shaped mass spread out over the esophagus, while fluids come down quickly, although the passage through the cardia may not be involved at all. The degree of dilatation is also out of proportion to the clinical symptoms. When a secondary cardiospasm accompanies the atony of the esophagus, a differential diagnosis is impossible. We encounter cases in which the symptoms point to an obstruction in the esophagus while the lesion is at the cardiac end of the stomach. In these cases the food really accumulates above the cardia, and gives rise clinically to deglutition disturbance. The Roentgen ray shows dilatation above the obstruction.

The differentiating points by means of the Roentgen ray are: The dilatation above the obstruction is more or less localized, often simulating a diverticulum. The dilatation, although localized, may reach such a size as to hold from 300 to 500 c.c. of food. Also, by the inflation of the stomach either directly through the sound or by sodium bicarbonate and tartaric acid (a teaspoonful of each), the cardia of the stomach becomes more visible, and defects can be localized.

Through personal communication with I. S. Hirsch and his kind permission, we are in position to call attention to the fact that a uniform dilatation of the esophagus may be the result of a stomach completely contracted by fibrous tissue formation due to syphilis. Such dilatations of the esophagus in scirrhous carcinoma of the entire stomach are well known.

Cardiospasm due to traction on the esophagus by a ptosed stomach can be diagnosticated by studying the esophagus and stomach roentgenologically. Cardiospasm resulting from erosions, fissures or ulcer of the

16. Elsner and Ury: Arch. f. Verdauungskr., 1915, No. 4.
17. Holzknecht and Olbert: Ztschr. f. klin. Med., lxxi, lxxii.

esophagus, or reflexly because of gallstones, renal colic, uterine trouble or genito-urinary diseases and those of toxic and metabolic nature, can be diagnosticated only after a careful history and complete examination of the patient.

Treatment.—This must be directed first of all against the etiologic factor. Whenever we have any suspicion that the cardiospasm is of a reflex nature, be it, as cited in literature, from tonsils, middle-ear disease, or on account of an intra-abdominal condition, or worms, or if resulting from metabolic infections and toxic diseases, it should be treated accordingly.

We shall especially detail the therapeutic procedure in that great class of cases of cardiospasm which are due to functional disturbance in the vegetative nervous system, particularly the vagotonia. In these cases systemic treatment is most essential. An attempt should be made to influence favorably the nervous system by hydrotherapeutic measures, change of climate and mental and physical rest. Psychotherapeutic measures and all other forms of suggestive treatment may have to be resorted to.

Very important is the mode of feeding. Early in the disease, and if we succeed in gaining the full confidence of the patient, it is often possible to have him partake of practically all kinds of food, thereby proving to him that there is no serious cause for the deglutition disturbance. This, however, is possible only in the minority of cases. In the great majority we must give the patient strict directions as to the kind of food, mode of taking it and the intervals at which it should be taken.

With H. Strauss, we believe that sparing the organ is indispensable, and may by itself without any other therapeutic agents lead to a cure.

Diet.—The food should be of a nonirritating, semisolid and highly nourishing nature, and should include cream, plenty of butter, well-prepared cereals in milk, cream soups, fine vegetables (spinach, carrots, green peas, cauliflower) prepared in butter or cream, and soft-boiled eggs. Meat should be given scraped or minced, and bread in the form of toast or zwieback or biscuit, the patient allowing it to dissolve in the mouth before swallowing. The temperature of food and drinks should be neither too hot nor too cold.

When experiencing difficulty in getting food down, dry swallowing, as advised by Rosenheim, will often bring about an inhibition of the cardia and so allow the food to come down. It is best to give the patient small quantities of food at frequent intervals.

The length of time during which such a sparing diet is to be maintained must be judged according to the individual case. It should really be carried out until the symptoms have disappeared and the confidence of the patient that he can take coarser food is established. Change from the sparing to the exercise diet should be gradual. For a long time we must interdict all spicy and irritating foods, liquors and even strong, effervescent drinks. We prohibit smoking, chewing and tobacco snuffing. In some cases pure olive oil in tablespoonful doses three times daily before meals serves as a soothing agent, and facilitates the passage of the food.

Medicinal.—Vagotonia being in these cases the causative factor, atropin is a most useful drug. It should be given in doses of from 0.0005 to 0.001 gm. hypodermically, once, twice or three times daily until the full physiologic effect is produced. When the patient is even much improved, 0.5 mg. of atropin sulphate every second day can be given for at least one month. When subcutaneous treatment can for some reason not be carried out, extract of belladonna in the dose of from 0.015 to 0.03 gm. in the form of suppositories is to be employed. Bromids, valerian and tonics such as arsenic, iron and anesthesin, may have to be used if warranted by indications.

Instrumental Treatment.—When the treatment outlined above, carried out conscientiously for five or six days is of no avail alone, we must resort to the stomach tube or sound. In using the stomach tube one of at least 20 mm. caliber is to be employed. On meeting the obstruction we should not try to force it down, but have the patient breathe and swallow quietly, and this will often relax the spasm and the tube will slide down. One such successful treatment may impress the patient so that the spasm will not return. If, however, we find that there is a tendency to a recurrence of the spasm, it is advisable to feed the patient for a few days through the stomach tube. If by means of the stomach tube we do not overcome the spasm, an esophageal sound with a large sized olive is to be employed. When this fails, the Gottstein, Einhorn, Elsner, or Krause esophageal dilator is to be resorted to. It is sometimes surprising what one single divulsion by means of one of these dilators can accomplish even in protracted cases. In long-standing cases in which the food accumulates in sacculated portions of the esophagus, esophageal lavage is indispensable. In the severest cases, gastrostomy and stretching from below must be resorted to, and finally vagolysis (W. Meyer) may have to be employed.

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THE RELATION OF OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY TO THE PUBLIC WELFARE*

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To be selected chairman of any section of the American Medical Association is an honor which a man may be proud of; to be named the presiding officer of this very important section was a compliment I little dreamed of, and I am deeply grateful for the confidence placed in me.

An artist from time to time steps back from his easel to get a good view of the painting he has in progress. The business man at regular periods takes stock to see what are his assets and liabilities. We in like manner should at frequent intervals leave our labors and, figuratively speaking, ascend the mountain peak whence we may overlook the plain of our daily labors and may be able not only to see what has been accomplished but also to detect the weak spots, the points at which our endeavors have fallen short.

In the time allotted to the presiding officer I shall briefly give a panoramic view of obstetrics, gynecology and abdominal surgery as I saw them twenty-five years ago, and shall then compare them with the same branches of medicine as we find them today.

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* Chairman's address, read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Sixth Annual Session of the American Medical Association, San Francisco, June, 1915.

THE OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY OF TWENTY-FIVE YEARS AGO

Obstetrics.—In many localities, obstetrics and diseases of children were still linked together, the accoucheur not only looking after the child at birth but also attending to it during its early years. With the gradual awakening to the fact that childrens' sore throats were often streptococcic in origin, that a case of puerperal fever might follow the too close association of the obstetrician with a case of scarlet fever, that diphtheria was due to a definite germ; and further, with the rapid development of pediatrics into an important specialty, it was deemed wiser to separate the practice of diseases of children from that of obstetrics. Thus at the time of my graduation, just a quarter of a century ago, we had one relatively small, although splendidly equipped, lying-in hospital in a city of about 125,000. It was presided over by a most capable physician who limited his work almost exclusively to obstetrics. He not only obtained excellent results but was also a most able teacher—a man who left his impress on all those who had the privilege of his instruction. Few obstetric teachers did more conscientious work than did Adam Wright who, I am glad to say, is still with us.

Gynecology.—In my student days the pupils learned that there were anteversions, anteflexions, retroversions and retroflexions and that some of the displacements might be relieved by appropriate pessaries. We were told of erosions of the cervix and had the value of zinc chlorid or Churchill's tincture of iodin as the proper agents in the treatment for such conditions drilled into us day after day. Much stress was laid on laceration of the cervix, and many repairs were done. Now and again a torn perineum was also treated surgically.

Abdominal gynecologic operations were limited almost entirely to the removal of large ovarian cysts. An occasional myomatous uterus was removed, but the fatality in this class of cases was so high that the operation was rarely attempted. We occasionally heard of cancer of the cervix or of carcinoma of the body of the uterus, but the only operative procedures we were familiar with for this dread disease were curettage, and cauterization of the carcinomatous cervix. To entirely remove the uterus for this condition was not thought of.

Abdominal Surgery.—Fractures were well handled and the surgery of the outside of the body and lateral lithotomy were successfully and dextrously performed, but abdominal operations were undertaken with great trepidation. Surgery of the stomach was rarely if ever seen. Gallstones were not removed, and I have seen a leading medical consultant watch an appendix abscess for over a week, hoping that it would soon rupture externally. The appendix was rarely, if ever, removed. As an intern in the medical ward, I watched a patient with a perforation due to typhoid ulcer for seven days — until the woman's death — when the diagnosis was verified at necropsy. One of the abdominal cases most vividly impressed on my mind was that of a thin, elderly man with definite intestinal obstruction. He was in good condition when he entered the hospital, but gradually grew worse and died after a few days. Through a small hole in the mesentery a short loop of the small bowel had passed. Even at necropsy this loop could be pulled back with the utmost ease.

The experiences I have just related occurred in a large institution presided over by most capable medical men and surgeons. I have mentioned them in no spirit of criticism whatsoever. Their modes of treatment were similar to those carried out in nearly all the hospitals throughout the land, and the same hospital today is doing first-class up-to-date surgery. To you who have been in practice these many years our former failures are too well known. For those of you who have graduated within the last fifteen or twenty years it is well to realize what great strides have been made in abdominal surgery and gynecology during the last two decades.

I will now pass to the consideration of the obstetrics, gynecology and abdominal surgery of today — a theme with which you are much more familiar.

THE OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY OF TODAY

Obstetrics.—The recognition of the absolute necessity of a thorough obstetric training is realized throughout the land, and adequate lying-in hospitals are being furnished in numerous cities — not in all, I am sorry to say. The medical students in many of the schools not only see a large number of births but individually must look after a certain number of obstetric patients. In addition, they receive a systematic course of instruction in obstetric pathology. The fundamental handling of obstetric cases has naturally not undergone so marked a change as has the treatment of gynecologic and abdominal cases, because gynecology and abdominal surgery are relatively new fields.

Gynecology.—To the older members of the profession the "gynecologist" may still suggest the pessary and Churchill's tincture of iodin; and it is hard for them to realize that at the present day the surgical procedures dealing with the perineum and of the pelvis are on just as firm and stable a basis as is the surgery of other portions of the body. The fundamental knowledge we owe in large measure to the pathologist, who has traced out the pathologic conditions from the beginning and has indicated the paths along which the disease may travel. For example, given a patient with a gonorrheal infection, we have only to remember that the germ comes from without. It may invade Skene's glands and the urethra; it may implicate Bartholin's glands, and then in succession the vagina, the cervix, the body of the uterus, the tubes and finally the pelvic peritoneum. Knowing the mode of progression of this infection, we can the more intelligently adopt the appropriate medical or surgical procedure.

We now know that a perineal operation alone may be of little value in the treatment of a case of prolapsus, and that failure will often follow if we do not at the same time shorten the round or uterosacral ligaments.

Our knowledge of tubal and ovarian diseases is sufficiently accurate to enable us in many cases to do conservative operations instead of unsexing the woman. Our studies of uterine tumors supplemented by an improved technic now enables us to do a supravaginal hysterectomy with little risk to the patient. When a patient complains of uterine hemorrhage we can usually within twenty-four to forty-eight hours tell her with a surprising degree of accuracy the cause of this hemorrhage.

Twenty-five years ago cancer of the uterus was nearly always fatal; today it is far more amenable to treatment. Fully two thirds of all cancers of the body

of the uterus can be permanently cured if operated on early, and some surgeons have been able to report 25 per cent. of their patients operated on for cancer of the cervix as well five years later. When the splendid work being done by the American Society for the Control of Cancer, the Cancer Campaign Committee of the Clinical Congress of Surgeons, and the Cancer Committee of the Council on Health and Public Instruction of the American Medical Association has sunk deep into the minds of the laity of this country, the results will be even more encouraging.

I might dwell at length on the fundamental advances made by Howard A. Kelly and others in the methods of studying diseases of the bladder and kidney, but with these far-reaching contributions to gynecology you are also thoroughly familiar.

Abdominal Surgery.—The advances in abdominal surgery during the last twenty-five years have been so marked that they are almost overwhelming. Even fifteen years ago the ruptured appendix with or without a peritonitis was exceedingly common. The general practitioner has become such a champion of early operation that in many clinics, if the appendix happens to be ruptured when the abdomen is opened, he at once chides himself for any possible delay that may have occurred. Just here I should like to say that I am thoroughly convinced that in the past the one or more doses of calomel and the subsequent dose of salts have been in a large measure responsible for the appalling conditions found at operation. Thus far I have never seen a patient die who was operated on for appendicitis before the appendix ruptured.

Twenty-five years ago few operations were performed on the gallbladder. Now if there be any prolonged discomfort or distress in this region, the gallbladder is promptly explored, in the vast majority of cases with permanent relief. The stomach washings, which were so prevalent even a decade ago, have in a large measure disappeared as a result of the prompt removal of the appendix or drainage of the gallbladder according to the nature of the case, and are, as a rule, resorted to only when it is necessary to make gastric analyses.

Operations on the stomach were formerly rarely undertaken. Now gastro-enterostomy is a common and relatively safe procedure. Ulcers are removed, strictures relieved, and where carcinoma is suspected, an exploratory operation is done at the earliest possible moment.

Inseparably coupled with the advances made in this branch of surgery are the names of William J. Mayo, John M. T. Finney, W. L. Rodman and many others.

Intestinal surgery twenty-five years ago was in the experimental stage, and we in this country are indebted to Nicholas Senn, William S. Halsted, Franklin P. Mall, John B. Murphy and others for their pioneer experimental work in this direction. When intestinal obstruction develops, we do not now fold our hands, saying that the case is hopeless, but at once do an enterostomy and, when the patient has improved sufficiently, hunt for the cause of the obstruction if nature has not in the meantime corrected it. I might describe the advances made in the surgery of other parts of the abdomen, but with these you are also familiar. The great strides made in abdominal surgery and in gynecology have of course been rendered possible by the fundamental labors of Louis Pasteur and Joseph Lister, and by those of Robert Koch,[1] who in 1878 published his important paper on the causation of diseases from wound infection. Dr. W. W. Ford,[2] in speaking of this work says:

> In this paper Koch puts forward clearly the exact state of knowledge on the subject of surgical infections; he explains the difficulties which had to be overcome in working out their etiology and describes the results which others before him had achieved.

To those of you who have had a share in this great advance it must have been the source of the utmost satisfaction. To have lived during this period has been a great privilege. The progress in abdominal surgery of the last twenty-five years has without a doubt been greater than will ever occur in a similar period. The immediate death rate has been reduced from about 25 per cent. to 2 or 3 per cent.; thus, if we temporarily relieved all patients we could reduce our mortality only 3 per cent. more.

There is no reason, however, why we should be in the least complacent. Many of our patients suffering from tuberculous peritonitis are only temporarily relieved. We are helpless in our cases of general peritoneal carcinosis, and many cases of cancer of the stomach, intestine, uterus and ovaries are beyond our control. There is still much to be accomplished.

THE ALIGNMENT OF OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY

With the rapid development in these three branches, new problems have arisen, and it may be well for us to consider briefly the relation that these three branches in question should bear to one another.

Obstetrics.—A thorough knowledge of this art is infinitely more important to the student than is a clear understanding of gynecology. The vast majority of medical students after graduation attend obstetric cases. These young general practitioners, if living in a fair-sized town or city, may when in trouble be able to consult with an obstetric expert, but often the practitioner's time for temporizing is so limited that he must rely absolutely on his own initiative. The physician living in the small town or in the country must pilot his patient through the dangerous shoals, relying entirely on the knowledge he has obtained from his former teachers, coupled with his own liberal supply of good horse-sense.

Gynecologic cases rarely call for such speedy treatment. If the general practitioner is uncertain as to his diagnosis and does not know just what to do, he can, as a rule, temporize for a day or two and in the meantime have a consultation with a gynecologist. Furthermore, most of the gynecologic patients are well enough to journey to the city to see the consultant at his office or at the hospital.

In obstetric cases the vast majority of the physicians are obliged to take full charge of the case irrespective of its gravity; hence the absolute necessity of our turning out graduates of medicine thoroughly grounded in the theory and practice of obstetrics. Dr. J. Whitridge Williams[3] has given us a most comprehensive summary of the obstetric teaching in this country, and

1. Koch, Robert: Untersuchungen über die Aetiologie der Wundinfektionskrankheiten, 1878.
2. Ford, W. W.: Bull. Johns Hopkins Hosp., 1911, xxii, 420.
3. Williams, J. Whitridge: Has the American Gynecological Society Done Its Part in the Advancement of Obstetrical Knowledge? THE JOURNAL A. M. A., June 6, 1914, p. 1767.

pointed out in no uncertain terms the growing need for better methods and facilities.

In years past some of the prominent members of the profession tried to confine their labors to obstetrics and gynecology. A few succeeded, but as their practices increased the majority either became obstetricians or confined their work almost entirely to gynecology. This was but natural, as these two branches cannot be well handled together. In fact, obstetrics is similar to emergency surgery. No one can decide exactly when the birth will take place, nor can he determine with any degree of accuracy how long labor will last.

Supposing the surgeon who practices these two specialties arranges for four abdominal operations for tomorrow morning, and that just as he is leaving for the hospital to operate he receives an urgent call to come and see one of his primiparas who is in labor. If this confinement lasts several hours, these four operations have to be postponed, the postponement causing much added anxiety not only to the four patients but also to the various relatives. A few such delays as this, and the friends of the patients will naturally look for surgeons that can be relied on to fulfil their engagements promptly. In a way this is very unfair to the obstetrician, inasmuch as the delay has been in no way his fault; and yet the fact remains that it has been due entirely to an attempt on his part to combine two specialties that are not compatible with one another.

Again, let our surgeon arrange for a Wertheim operation on a cancer patient for tomorrow morning. This is without doubt one of the hardest abdominal procedures. The surgeon should be in the pink of condition, and it should be his first operation for the day. During the night he is called out to an obstetric case and is detained several hours. If he operates in the cancer case on schedule time, is he doing justice to himself or to his patient?

Is there any wonder that many physicians have given up this combination of obstetric and gynecologic practice? When asking your young medical men what line of work they are doing, they will often say that they are at the present time paying particular attention to obstetrics, hoping later to enter the surgical ranks; and many of the older men, who have good obstetric practices, are relegating that work to associates as their surgical practice increases. Do you blame them? Few there are who would not do likewise. When we look at the subject squarely, it is clearly evident that the obstetric specialist is the true missionary of the medical profession, and the most unselfish member in its ranks. Even though he be the head of his department, his time is not his own and there is no hour of the day or night when he may not be called.

From what Dr. Williams has told us, the obstetric training in America is not what it should be. Is it going to be improved if the head of the department, whenever possible, naturally but gradually drifts over into surgery, leaving the obstetric teaching, both practical and theoretical, largely in the hands of his associates? It is the duty of this Association to so improve the facilities and opportunities of the obstetrician that he will devote all his energies to the furtherance of this all-important branch of medicine. I say "all-important," because on his teaching and practice depends in large measure the life and happiness of the coming citizens of this land.

With the rapid progress in medicine and surgery, the needs of the obstetric clinics have been in large measure relegated to the background. All large hospitals should have capacious and well equipped lying-in departments and I feel confident that in the near future even the smaller towns will erect up-to-date lying-in hospitals.

The young obstetrician in his preparatory training should include a thorough knowledge of medicine, pathology and bacteriology, and should also serve as a surgical assistant for a relatively long period before taking up his work in obstetrics. When he starts out as a trained obstetrician, he should be able at once to meet any abdominal or perineal surgical emergency that he may encounter. The obstetrician has the right to demand that every possible facility be afforded him. Not until this fact is so thoroughly realized that it is acted on by the profession, will the best men be content to remain in this important but arduous field of labor.

If it could be so arranged that all private obstetric patients were delivered in maternity hospitals, the wear and tear on the obstetrician would be greatly lessened, and he would then have more time to work out the many important and still unsolved problems connected with this branch of medicine. Some of the problems extend over into other branches. Menstruation is undoubtedly one of these. Much has been said about it, but thus far little is known. It seems to me that it will require the combined labors of the anatomist, physiologist, physiologic chemist, obstetrician and gynecologist, together with much experimental work, before our knowledge on this subject becomes in any way complete.

Gynecology and Abdominal Surgery.—In the early days in this country travel was confined to the seaboard and rivers. If one wished to go from Baltimore to New York, the journey was made almost exclusively by water, and was one extending over several days. Gradually paths were carried back into the wilderness for a short distance, and later primitive roads were built and finally good stage roads. It was then possible to travel by fast relaying from Baltimore to New York in a few days. Now our express trains require four hours between these two points.

The progress in abdominal surgery and gynecology bears a striking resemblance to the gradual evolution in travel. In the beginning, only the outer surface of the abdomen and the vagina could be operated on. At a later date an occasional excursion was made into the abdomen, as successfully carried out by McDowell. With the epoch-making discovery of asepsis, the motive power was furnished, enabling us to traverse all parts of the abdomen. Since that date the "civilizing" influences have been gradually extended until the abdomen and its contents are fairly well understood: There still remain, however, a certain number of dismal swamps and everglades.

The greater part of gynecology deals with the surgery of the lower abdomen. Sometimes the operation is entirely confined to an exploration of the abdomen, but frequently, as in prolapsus cases, in order that a satisfactory result may be obtained, it is also necessary to carry out some vaginal operation in connection with that in the pelvis. Where large tumors exist, the confines of the pelvis are temporarily carried far up into the abdomen, occasionally as high as the liver, and now and then the intestines are densely adherent and may require resection.

In a no mean percentage of the cases, digestive disturbances are associated with a pelvic lesion, and naturally require investigation at the time of operation. The surgeon, who largely confines his labors to the upper abdomen, not infrequently finds pelvic lesions which he little suspected before the abdomen was opened.

If the gynecologist confines his work entirely to the pelvis, he will not infrequently overlook lesions in the upper abdomen, and the surgeon in like manner will miss serious pelvic trouble.

When you or I take a watch to the jeweler, we expect him to overhaul it thoroughly, examining all portions of its mechanism. If he returns it saying that the mainspring which was broken has been repaired, but the watch still will not go, we are naturally dissatisfied and will try a more competent man. If we do not carefully explore the abdomen in all cases, we are bound to overlook many little-dreamed-of pathologic conditions — conditions that will still render the patient uncomfortable.

Suppose I have done some pelvic operation and have overlooked gallstones or a duodenal ulcer. The patient will usually be far from well and will in a few weeks or months decide to call in a man capable of properly treating the upper abdominal lesion. What does this lack of preparedness on my part entail for the patient? Twice the length of time in the hospital, twice the amount of pain, twice the amount of hospital expense and two operation fees, not to speak of the added risk of the second operation. This is an age of economy, an age of short cuts, and an age when by-products are utilized to the limit. It will not be long before the laity will demand that any one who enters an abdomen must be capable of doing everything necessary in that abdomen, and in those cases in which, on account of the lesion present, a second operation is required, it will be necessary for us to explain carefully just why the abdomen must be opened again. Some one will say, "This is all very well; you should make an accurate diagnosis beforehand." This might be perfectly plausible if the anterior abdominal wall were made of plate glass, but even then, as we all know, sometimes, when the abdomen has been opened, it requires considerable search to find the exact location of the trouble. Now and then, when visiting the clinics of well-known surgeons, I cannot help feeling a twinge of wicked pleasure on seeing that their diagnoses do not always tally with the findings — it makes me feel thoroughly at home. The only abdominal surgeon who makes no mistakes in diagnosis is either the one who has no practice or the one who has given up the scalpel.

In recent years, business men have been greatly aided by economy or efficiency experts. Strangers come in, look over the business and see where, by more efficient methods, more may be accomplished, often with diminished labor. If we called in such an expert, what would he say? In the first place, he would point out that it is not necessary for two classes of surgeons to work in one abdomen — a space the confines of which nature has so well defined. In the second place, he would say to both the surgeon of the upper abdomen and to the surgeon of the lower abdomen: "You have spent long years in preparing yourselves for doing abdominal surgery, you have mastered the fundamentals of medicine, you have a good knowledge of bacteriology and pathology and have perfected yourselves in the methods of operation; and yet, because one pelvis happens to contain a small round muscular body with two smaller bodies on the sides, one of you confines your work in large measure to men, the other to women. You are only running half capacity. There is absolutely no reason whatsoever why you should not both do abdominal surgery in the two sexes. It is practically the same, the only difference being that there is no operation in abdominal surgery that can compare in difficulty with a complicated Wertheim operation for cancer of the cervix." After seventeen years' experience in abdominal surgery in men and women, I myself am absolutely convinced that pelvic surgery offers many more difficulties and is harder of execution than is the surgery of the upper abdomen.

THE TRAINING OF THE ABDOMINAL SURGEON

Every man who aims to make abdominal surgery his life work should have a most thorough training in general medicine. He will then not forget that pain in the right iliac fossa does not always mean appendicitis. He will know that occasionally this soreness is present in an early stage of typhoid fever. He will remember that there is such a thing as lead colic and that in children severe abdominal pain may be the precursor of a pneumonia. A thorough knowledge of this most fundamental and broadest branch of medicine will save him from many pitfalls.

In addition to his course in general pathology he should have an extensive knowledge of the pathology of all the abdominal structures. The abdominal surgeon of the future must be a well-grounded pathologist; two years in the necropsy room would be of inestimable value to him. Then he should pay particular attention to the bacterial flora associated with the various abdominal lesions. He has now finished his apprenticeship, and should become an assistant of an abdominal surgeon. Here he will not only learn the various operative procedures and perfect himself in these, but he will also become experienced in the preparatory and after-treatment of the patients. The after-treatment, by the way, is of great importance, the postoperative journey often being rough and tempestuous, or relatively smooth, according to the manner in which the assistant handles the case. After several years spent in this way, the assistant is thoroughly competent to start out on his career. The surgery of the United States has made wonderful strides during the last decade. We must prepare ourselves to become the graduate school for the world.

CONCLUSION

In the brief time at my disposal I have hastily scanned the salient points relating to obstetrics, gynecology and abdominal surgery, the subjects treated in our section. Necessarily much has been omitted. The points that I want to leave with you are:

1. Obstetrics must be made more attractive, so that those entering this branch will not be tempted to leave it for less laborious fields.

2. Any surgeon opening the abdomen should be capable of doing everything necessary in that abdomen. In other words, gynecology and abdominal surgery logically belong together.

3. This realignment of abdominal surgery is absolutely necessary if we are to accomplish the maximum amount of good for the patient.

20 East Eager Street.

EDWARD LIVINGSTON TRUDEAU

IN MEMORIAM

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Dr. Edward Livingston Trudeau, whose father was a prominent practitioner in New York, was born in this city October 5, 1848. The father, being of French descent, decided to give his son a thorough knowledge of this beautiful language, and sent him to Paris to get his preliminary education. There he attended the celebrated Lycée Bonaparte. After the completion of his studies in the French capital, he returned to New York.

Young Trudeau came back to the United States in 1867, undecided what career to choose. He finally secured an appointment as midshipman to the Naval Academy, but remained there a very short time. His brother had become ill, and the disease proved to be tuberculosis. Trudeau's career as an antituberculosis fighter began by his nursing the hopelessly ill brother with that self-sacrifice and devotion characteristic of all the things he did throughout his long and eventful life. He cared for his brother until the latter's death, hardly ever leaving his bedside. Precautions to avoid infection were then unknown, and open windows and fresh air were contraindications. There is no doubt that Edward contracted tuberculosis from his brother, yet one cannot help feeling that a Divine Providence ordained it to be thus, for his brother's illness led young Trudeau to choose medicine as a career, and his own illness made him a pioneer in the life-saving open-air treatment, a master of phthisiotherapy in general, a brilliant student of tuberculotherapeutics, a beloved physician, a savior of countless lives, and last but not least, the teacher of a large number of men who are now carrying on the work in all parts of the United States.

How did all this come about? After graduating from the College of Physicians and Surgeons in 1871, Trudeau started in general practice, becoming an associate to Dr. Fessenden Otis. He worked hard to gain a foothold in practice, but the disease he had contracted from his brother became seriously active and he was obliged to give up. He consulted Professors Loomis and Janeway, who advised a climatic change. He went South, but returned to New York with very little if any improvement.

Recalling the delightful times he had during vacations when hunting and fishing in the Adirondacks, and having always been an ardent lover of nature, he decided to spend his last days in the midst of what was to him the most congenial of environments. He had given up all thought of practicing medicine. Nevertheless, the Adirondack climate and the outdoor life with good, sound judgment to guide him not to overdo, and much complete rest, whenever possible, restored the young physician to almost absolute health within a few years, to the surprise of himself as well as his friends. The winter, which was feared by all other invalids who came to the Adirondack Mountains, did even more for him than the summer, and to the astonishment of the inhabitants of Paul Smith's, where the doctor had made his home, he remained with them through the most rigorous winters.

Trudeau proved on himself the curability of tuberculosis in pure air independent of the seasons of the year by means of a careful, regulated outdoor life. A mind like that of Trudeau's could not be idle, and a heart like his could not see a suffering patient without offering help. But he had his own notions of how to prescribe for the poor. Thus it is told of him that once, in the early days, Fitz Halleck, a friend and neighbor, came in to tell the doctor that a poor family who lived back in the woods were in trouble and had sent him to get them medicine. The doctor took a prescription pad and wrote on it: "A sack of flour and a strip of bacon," and said: "Here is some money; get that prescription filled at the store and take it to them."

The writings of Hermann Brehmer of Germany on the open-air, hygienic and dietetic treatment of tuberculosis in closed institutions (sanatoriums) and the discovery of the tubercle bacillus by Koch awoke in Trudeau an ardent desire to devote his entire life to the study and cure of tuberculosis. The story of how he established his first laboratory to confirm Koch's experiments by finding the bacilli in the sputum of the tuberculous, and later carrying on original experiments in the hope of producing artificial immunity, is full of romance. He selected a little room in his own house which he called a laboratory, and made his own thermostat, which was heated by a kerosene lamp. The laboratory was heated by a wood stove which on many a cold night the doctor had to get up to replenish. Yet, in spite of all these difficulties he succeeded in isolating the tubercle bacillus. In 1893, while Trudeau was on a visit in New York, word reached him that the lamp which was connected with the thermostat had exploded and his home and laboratory had burned to the ground. When Osler heard of the misfortune, he wrote the following characteristic lines: "Dear Trudeau: Sorry to hear of your misfortune, but take my word for it there is nothing like a fire to make a man do the phenix trick." And in reality, it was not very long thereafter that a magnificent building of stone and tile was erected at Saranac Lake which compares well with any of the best equipped laboratories of the country.

There has, perhaps, never been a physician who had so many kind-hearted and wealthy friends and grateful patients as Trudeau. Mr. George C. Cooper built the laboratory, and Mr. A. A. Anderson endowed it, and Mr. Horatio W. Garrett of Baltimore presented the institution with a splendid library.

From the laboratory many valuable contributions by Trudeau himself and by his associates and pupils, E. R. Baldwin, Lawrason Brown, I. H. Hance, H. M. Kinghorn, P. A. Levene, D. C. Twitchell, F. H. C. Heise and others, have gone out into the world and have done honor to American antituberculosis research. In 1908, on the occasion of Trudeau's sixtieth birthday, his former pupils and assistants presented him with a *Festschrift* containing many valuable contributions as a result of work done in that laboratory. Trudeau's own careful studies on the use of tuberculin as a therapeutic agent have done much to show the danger of its indiscriminate use in the hands of inexperienced practitioners. Trudeau's conservatism and painstaking care in all his investigations made him the ideal phthisiotherapeutist.

But if the history of the laboratory, of which Trudeau remained director until his death, is interesting

and far-reaching, the story of the sanatorium itself is of as great if not greater importance. It was in 1884 that the guides and residents of Saranac Lake donated money enough to buy five acres of land near the village in a spot selected by Trudeau because, as he told me on my first visit to the institution, he could always light his pipe there, showing it was sheltered from the strong winds by the conformation of the hills and woods. Two little shacks were erected which constitute the nucleus of what is today one of the greatest and most splendidly equipped institutions for the treatment of the tuberculous poor and those in moderate circumstances in the United States if not in the world.

Although a great admirer of the teachings of Brehmer as to outdoor life and of Dettweiler's theory of the rest-cure, Trudeau never favored the one-house system characteristic of the German sanatorium, and it is to him that we are indebted for what is known as the cottage plan sanatorium for the treatment of tuberculous patients. Over forty cottages accommodating from four to six patients each, an administration building, a library, a nurses' home and a church, called "St. Luke's the Beloved Physician," besides the laboratory already mentioned, comprise today the institution officially known as the Adirondack Cottage Sanitarium. It has served as a model to most of the existing sanatoriums now in operation in the United States. The number of patients who, passing through this institution, have gained their health and been restored to their earning capacity, thanks to the genius of Trudeau, can be numbered only by the thousands. How Trudeau, with virtually no means of his own, was nevertheless able to build this vast institution and maintain its workings has been a wonder to the world. The explanation is to be found in his optimism and in the generosity of his countless wealthy friends who were always willing to give when he asked for money for the building of a cottage or for this or for that.

Patients from all over the world flocked to Trudeau for counsel and advice. One of the most distinguished of them was Robert Louis Stevenson. On Oct. 13, 1915, a memorial tablet was unveiled in Saranac Lake in honor of this great poet. Owing to illness, Trudeau could not be present at the ceremony. Trudeau and Stevenson were friends and fellow sufferers at one time, and it was gratifying to Trudeau to see his friends' memory thus honored. He sent the following message, which was probably the last of his public utterances:

> It is a great regret that illness prevents me from attendance on the ceremony of unveiling the tablet to Stevenson. I think the memorial most appropriate, and naturally am greatly pleased that it should be placed here in Saranac Lake. No better tribute could now be made to him, and it is a great satisfaction to me to have lived to see it done.

Those who came into close contact with Trudeau will recall his personal charm. Tall, slender but wiry, with a wonderful head and pleasing smile, he was the ideal physician and friend. His humor never left him no matter how trying the hour. A few years ago when he had had one of his unpleasant relapses he wrote me as follows: "I am still on my chair on my porch to which I am glued like the fly on the fly paper, and still have a nurse. I am afraid I don't 'enjoy' poor health as some people seem to, and it is much preferable to play the part of doctor than that of patient."

Few men of the medical profession were so greatly beloved and honored as he. His alma mater, the College of Physicians and Surgeons, now the medical department of Columbia University, conferred on him the honorary degree of M.Sc. in 1899, and the McGill University of Montreal gave him the degree of LL.D. in 1905. In 1910 he was tendered the presidency of the Congress of American Physicians and Surgeons, one of the highest honors within the gift of the medical profession. In May, 1913, he received the degree of LL.D. from the University of Pennsylvania. Custom requires the presence of those about to receive the degree, but in this case, owing to the doctor's illness at the time, precedent was waived and the degree conferred "in absentia," an added honor.

At the International Congress on Tuberculosis in Washington, Trudeau received an ovation whenever he appeared on the platform, and what he said then as greeting to the delegates will typify the man's labors and great modesty. Speaking of the achievements in the tuberculosis work from the time when he started his professional career up to that day, he said:

> For thirty-five years I have lived in the midst of a perpetual epidemic, struggling with tuberculosis both within and without the walls, and no one can appreciate better than I do the great meaning of such a meeting. I have lived through many of the long and dark years of ignorance, hopelessness and apathy, when tuberculosis levied its pitiless toll on human life unheeded and unhindered; when, as Jacoud has tersely put it, "The treatment of tuberculosis was but a meditation on death." But I have lived also to see the dawn of the new knowledge, to see the fall of the death rate of tuberculosis, to see hundreds who have been rescued, to see whole communities growing up of men and women whose lives have been saved, and who are engaged in saving the lives of others. I have lived to see the spread of the new light from nation to nation until it has encircled the globe and finds expression today in the gathering of the International Congress of Tuberculosis, with all that it means to science, philanthropy and the brotherhood of men.

The services which Trudeau has rendered to the antituberculosis cause, to the medical profession, and to mankind at large cannot be too highly estimated. His example has been followed by many. In 1885 his was the only institution in the United States deserving the name of sanatorium and consecrated to the exclusive treatment of the tuberculous. Today there are in the United States 600 sanatoriums and hospitals for the exclusive care and treatment of this class of patients. Aside from these 600 institutions, there are 450 dispensaries which take care of the ambulant tuberculous patients, and a great number of day camps, night camps, open-air schools and preventoriums.

Trudeau was elected the first president of the National Association for the Study and Prevention of Tuberculosis. It is due to his inspiration that we count today in this country 1,500 associations which look up to the national association as their mother society.

Of late Trudeau suffered a great deal as a result of his old tuberculous lesion. When artificial pneumothorax came into vogue a few years ago, he submitted himself to this treatment, and for a time it gave very gratifying results. It was my privilege to see him shortly after he had ceased the treatments. With the enthusiasm of a teacher, he showed me a series of roentgenograms of his own chest taken before and after fillings with the nitrogen gas, explaining to me what was obscure or interesting, quite

oblivious that he was talking of his own case. I ventured to ask him why he had stopped the treatment. For a moment he became sad and then said, "It did not do me any more good; I have not been able to sleep at night since the last operation," and then he added smilingly, "You men who are doing artificial pneumothorax are far from knowing all about it." In this he was only too right. And then the conversation turned; he forgot again that he was a sufferer, and his thoughts were yonder with his patients in the sanatorium. He talked of his anxiety concerning the completion of an endowment fund for his beloved institution. May it be forthcoming.

Though illness and the loss of two beloved grown-up children — a son and a daughter — had left an impress of sadness on Trudeau, he kept up admirably, was optimistic and cheerful most of the time, and until the very last took the keenest interest in the institutional and laboratory work of the Adirondack Cottage Sanitarium.

We are indebted to him for a most remarkable address on "The Value of Optimism in Medicine," which should be read and reread by every physician.[1] I venture to quote two of the most striking paragraphs from this wonderful address, delivered before the Congress of American Physicians and Surgeons in 1910:

> Optimism is a product of a man's heart rather than of his head; of his emotions rather than of his reason; and on that account is rather frowned upon by many physicians whose scientific training naturally leads them to depend safely upon the qualities of the intellect, and look with suspicion upon any product of the emotions. We doctors are too apt to look upon "brains"—that is, a man's purely intellectual attainments—as the criterion of his chances for achievement in life, and to ignore and even deprecate those qualities which are closely related to his emotions as rather likely to mislead and hamper him in his career. And yet optimism is a prominent factor in anything a man may achieve in life. It is a mixture of faith and imagination, and from it springs the vision which leads him from the beaten paths, urges him to effort when obstacles block the way, and carries him finally to achievement, where pessimism can see only failure ahead. Optimism means energy, hardships and achievement; pessimism, apathy, ease and inaction. Optimism may, and often does, point to a road that is hard to travel, or to one that leads nowhere; but pessimism points to no road at all. . . .
>
> The practicing physician and surgeon must have optimism if he is to develop a full degree of efficiency in meeting the terrible emergencies of acute illness and accidents, or the long-drawn-out struggle with lingering and hopeless disease, and at the same time inspire his patients with a degree of optimism which means everything to them in the ordeals they have to pass through. To the practicing physician and surgeon, optimism is even more necessary than to the scientists, for besides molding the doctor's character and guiding him in his decisions as to the case, his optimism is at once reflected in the patient and influences his condition accordingly. How great this influence may be we are learning more and more to appreciate. In his hour of need the patient has no means of judging of the physician's intellectual attainments; it is faith that radiates from the doctor's personality that he seizes upon and that is helpful to him. Any encouragement that emanates from the physician will help keep up the patient's courage and carry him through long days of illness and suffering to recovery; and, where recovery is impossible, if the doctor's optimism—that is, his faith—is of the kind that extends to the future, not only here but hereafter, it may dispel for the patient much of the darkness and despair which brood over the end of life, and perhaps even illumine for him that vast forever, otherwise so shrouded in impenetrable gloom.

Now to give the full weight and meaning to this address on optimism, let me quote from one of Trudeau's biographers, Mr. Alfred L. Donaldson, the description of the circumstances under which this address on optimism saw the light of day:

> It was my privilege to be calling on the doctor shortly after he had delivered it, and our talk veered around to it. Laughingly, with no thought of anything but the grim humor involved, he told me the story of its composition. He had been suffering from one of his most serious relapses—high fever, acute coughing spells and broken sleep. He woke in the small hours of each morning, and lay tossing uncomfortably on his bed. Then it occurred to him that instead of lying there idly between coughs, thinking of himself and his troubles, he might better concentrate his mind on some preparation for the great meeting over which he had been asked to preside. So he turned on the light near his bed, reached for pad and pencil, and began the rough draft of this notable address on optimism. Not long after, he was able to leave his bed and deliver it in person. What it means to turn out optimistic literature under such conditions only those who have tasted them can realize; but the unusual feat is essentially typical of Dr. Trudeau's whole career.

The same all-pervading optimism, faith in God, and faith in his friends and colleagues, faith in the present and the future, permeated the life of this beloved physician from the beginning to the end of his earthly career when his great soul passed out, Nov. 15, 1915, at the age of 67. He showed us by his own life, with its sufferings and trials, how to forget self, and taught us that by consecrating our lives to high ideals and true service to our fellow men we are rendering the highest service to God.

A few weeks before his death there occurred an event that must have tended to make the last hours of the great Trudeau supremely happy. An ardent admirer of his, Mr. Samuel Mather of Cleveland, made it possible, through a magnificent gift, for a post-graduate medical institution, to be known as the Trudeau School for Instruction in Tuberculosis Science, to be established ere long in Saranac Lake. Thus, Trudeau's noble wish to spread the best scientific knowledge of the prevention and cure of tuberculosis has become realized.

I deem it an honor to have been privileged to write this memorial to one so universally beloved and esteemed as Dr. Trudeau. What his friendship, inspiration and example have meant to me personally, how he encouraged me in my labors at the beginning of my career as an antituberculosis worker, how he stood by me in hours of trial, anxiety and discouragement, I shall never forget. The many messages of cheer and encouragement he wrote me during the twenty years of our acquaintance will always remain to me precious and grateful souvenirs of a valued friend, a great teacher, and lover of his kind.

Some day, when the Great White Plague — that disease of the masses due to poverty, want, ignorance and social injustice — will be no more, the name of Edward Livingston Trudeau will be gratefully remembered as one who taught us how to fight and conquer this great enemy of mankind.

1. This address was printed in the Transactions of the Congress of 1910, Volume VIII, and in the American Journal of the Medical Sciences, July, 1910.

Pellagra.—It is reported that there were 1,306 deaths from pellagra in South Carolina from Jan. 1 to Oct. 31, 1915, giving an annual death rate from this cause of 81.2 per hundred thousand.

THE DIAZO AND UROCHROMOGEN REACTIONS IN PULMONARY TUBERCULOSIS *

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This investigation of the diazo and urochromogen reactions in pulmonary tuberculosis was suggested mainly by an article in which Schäffle[1] pointed out, as significant features of his examination, the "difference in mortality percentages between the positive and negative cases and particularly the high death rate among those with a negative diazo and positive urochromogen test."

Schäffle also referred to the original work of Weiss, who, after seven years of investigation, confirmed the observations of Koch that death invariably followed the persistent presence of the diazo reaction in the urine of the tuberculous. Weiss also refers to the frequent disappearance of the diazo reaction shortly before death in tuberculous cases.

The investigation of these reactions was further instigated by the statement of Webster,[2] that "the presence of urochromogen is a contraindication to the tuberculin treatment in tuberculous conditions."

The investigation, therefore, had a twofold purpose: (1) to discover, if possible, the value of the diazo and urochromogen reactions in the prognosis of pulmonary tuberculosis, and (2) to determine whether or not the presence of one or both of these reactions afforded a reliable indication for or against tuberculin treatment in this disease.

The investigation covers 146 cases of pulmonary tuberculosis; the results obtained with reference to the diazo and urochromogen tests are given in Table 1.

Of the 146 cases examined, only one examination was made in forty-two cases, owing to death occurring shortly or other preventing cause.

Successive examinations were made in 104 cases, these 104 cases giving the results shown in Table 2.

Of the twenty-nine cases successively examined showing originally a negative diazo and negative urochromogen (which for clearness I shall call normal) reaction, fourteen showed a later change, and in all these instances this change was to a diazo negative and urochromogen positive. Of this fourteen, eight improved, five were progressive and one patient died (Table 3). Of the seven patients showing a positive reaction to both tests originally, a change was noted in none and all died.

Of the ten patients showing a positive diazo and negative urochromogen originally, six changed. Two changed to normal; one, in a day or two, showing a second change to a negative diazo and positive urochromogen (a reversal of the original reaction) and improved. The other remained normal, and died in a few days.

The remaining four were followed at once by a diazo negative and urochromogen positive (a reversal of the original reaction) and two of the four improved, although one showed a versatility in the art of changing, this diazo negative and urochromogen positive being succeeded first by normal and later by a diazo negative and urochromogen positive.

One of the remaining two was followed by normal and progressed; the other by a positive diazo and negative urochromogen (the original reaction) and died.

TABLE 1.—RESULTS OF INVESTIGATION

Reactions	Total No.	Improved No.	Improved Per Cent.	Progressed No.	Progressed Per Cent.	Died No.	Died Per Cent.
Both negative	38	27	71	7	18.4	4	10.6
Both positive	7	..	....	..	....	7	100
Diazo +, urochromogen —	23	5	25.7	6	26.1	12	48.2
Diazo —, urochromogen +	78	62	79.5	12	15.4	4	5.1

TABLE 2.—RESULTS OF SUCCESSIVE EXAMINATIONS IN 104 CASES

Reactions	Total No.	Improved No.	Improved Per Cent.	Progressed No.	Progressed Per Cent.	Died No.	Died Per Cent.
Both negative	29	21	72.4	6	20.7	2	6.9
Both positive	7	..	....	..	....	7	100
Diazo +, urochromogen —	10	4	40	3	30.3	3	30.3
Diazo —, urochromogen +	58	45	76	11	19	2	5

TABLE 3.—CHANGES IN REACTION

Reaction				Improved	Progressed	Died
Original	No.	Change	No.			
D —, U —	29	D —, U +	14	8	5	1
D +, U +	7	.....		..	..	7
D +, U —	10	D —, U —	2	1*	..	1
		D —, U +	4	2†	1‡	1§
D —, U +	58	D —, U —	20	18	..	2
		D +, U —	2	..	1	1

* Followed by D —, U +.
† One patient changed to normal and later to D —, U +.
‡ Followed by normal.
§ Followed by D +, U — (original reaction).

* Read before the Hawaiian Territorial Medical Society, Nov. 6, 1915.

1. Schäffle, Karl: A Comparison Between the Urochromogen and Diazo Tests in the Prognosis of Tuberculosis, THE JOURNAL A. M. A., Oct. 10, 1914, p. 1294.

2. Webster, R. W.: Diagnostic Methods, Chemical, Bacteriological and Microscopical, Ed. 4, Philadelphia, P. Blakiston's Son & Co., 1914, p. 245.

Of the fifty-eight cases showing originally a negative diazo and positive urochromogen, twenty-two cases showed a change in reaction.

Of these twenty-two, twenty were to normal (negative to both tests) of which eighteen improved and two patients died. The remaining two cases showed a reversal to a diazo positive and urochromogen negative; one progressed and one patient died (Table 3).

So far as prognosis is concerned, therefore, my results do not agree with those of the authors quoted above. The results disagree in two important particulars:

1. I have not found a particularly high death rate among those patients showing a negative diazo and positive urochromogen. On the contrary, from 76 to 79 per cent. of patients showing this reaction have improved.

2. I have not found any case in which the diazo and urochromogen tests were both positive in which the diazo disappeared before death. This observation is admittedly of little value, as only seven such cases were observed. On the other hand, when the diazo is present but not the urochromogen reaction, the peculiar fact is observed, from the limited data collected, that in fatal or progressive cases the diazo does here disappear; but should the urochromogen take its place, a favorable prognosis may be ventured.

The second purpose of this examination, to discover the value of the urochromogen reaction as an indication for or against tuberculin treatment, has also resulted in findings contrary to those of the author quoted.

During the year there were admitted to hospital fifty-nine patients with pulmonary tuberculosis with the urochromogen reaction and with the following stadia: L 1 S, 4; L 2 S, 44; L 3 S, 10; L 3 S, 1.

Of this fifty-nine, twenty-three were (according to the temperature and other indications) favorable for and received tuberculin treatment and their stadia were as follows: L 1 S, 4; L 2 S, 19; L 3 S, 0.

The result is given in Table 4.

TABLE 4.—RESULT OF TUBERCULIN TREATMENT IN TWENTY-THREE CASES

Stage	Improved	Progressed	No Change	Died	Total
L 1 S.....	4	0	0	0	4
L 2 S.....	15	1	3	0	19

Of the nineteen cases in which there has been improvement, the urochromogen reaction has disappeared in seven and will probably disappear in others as treatment progresses. Thus it would appear that almost 40 per cent. of those treated with tuberculin would not have received such treatment if the urochromogen reaction had been accepted as a contraindication to such treatment, and as 82 per cent. of those with the urochromogen reaction improved markedly under tuberculin treatment, the urochromogen reaction would not appear to be of much value as a contraindication.

On the other hand, the urochromogen reaction appeared in six cases while under treatment; four of these patients improved and in two there was no change or progression. An interesting fact in regard to the last two is the fact that tuberculin treatment was stopped some time before the appearance of the urochromogen reaction, the inference being, in these cases, that other factors contraindicated tuberculin treatment before the urochromogen reaction.

It has further been observed that patients with a urochromogen reaction may, under tuberculin or other treatment, improve to the extent of presenting the physical signs of a healed lesion and all other indications of an arrested case, and the urochromogen reaction still be positive.

Since the urochromogen reaction is undoubtedly an indication of abnormal metabolism, it may be that no patient can be classified as arrested who still presents the urochromogen reaction. This sign, therefore, may yet prove of value in this connection.

Concerning the diazo reaction as a contraindication to tuberculin treatment, it should suffice to say that while the diazo reaction has never been taken into consideration as a factor in deciding on tuberculin treatment, no patient with tuberculosis noted as having the diazo reaction has been treated with tuberculin.

Although this investigation may seem to have led nowhere, this is not the case, as the following conclusions can be drawn from it:

1. The only favorable change from normal (both tests absent) is to a negative diazo and positive urochromogen.

(This would also mean that at an original examination it is the only favorable deviation from normal.)

2. A change from either negative diazo to either positive diazo is most unfavorable.

3. The appearance of both reactions is of most grave portent. Such patients generally die.

4. When there is a change from a positive diazo and a negative urochromogen, the only favorable one is a reversal (that is, to a negative diazo and positive urochromogen).

When the change is to positive to both tests a fatal issue is prognosticated. On the other hand, a change to normal (contrary to what we would expect) is of very grave prognosis. If the urochromogen reaction does not appear concomitantly with the disappearance of the diazo (or at least in a day or two) the prognosis is of the worst.

5. The disappearance of the diazo reaction (when both tests have been positive) has not been observed as heralding a fatal issue.

6. The disappearance of the diazo may be grave or favorable (a corollary to No. 4)—grave if the urochromogen does not take its place, favorable if it does.

7. The urochromogen reaction is probably of little value as a contraindication to tuberculin treatment, and should it be of any value at all, the probabilities are that other factors show such treatment to be contraindicated better and earlier than the urochromogen reaction.

8. This also applies to the diazo reaction as a contraindication to treatment.

9. Should the urochromogen reaction eventually prove of any value in the tuberculin treatment, I believe it will be for a diametrically opposed purpose to that referred to (as a contraindication to beginning tuberculin treatment): in other words, its presence may be a valuable contraindication to discontinuing tuberculin treatment in cases to which all other signs point as arrested. On this point I have not sufficient material as yet to say definitely. I can only state that it appears here to be of value, and I hesitate now to discontinue tuberculin in arrested cases which show this reaction.

ANAPHYLACTIC FOOD REACTIONS IN DERMATOLOGY

PRELIMINARY REPORT *

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The constitutional phenomena of hypersensitiveness were observed long before the process was understood. In its infancy, toxicity, embolism and other factors were held responsible for the occurrence of these symptoms. It was Richet who first coined the term "anaphylaxis," by which we mean a condition of unusual or exaggerated susceptibility of the organism to foreign proteins.

Eli Moschowitz[1] thus summarizes the essential attributes of anaphylaxis:

1. There is previous susceptibility, which may be congenital or acquired.
2. The reaction is specific.
3. The reaction can be obtained by mouth as well as by injection; also by cutaneous inoculation, such as rubbing into abraded surfaces.
4. Acquired susceptibility can be transferred by heredity to posterity.
5. The constitutional symptoms are respiratory disturbance, dyspnea, edema, tonic muscular spasms, glandular swellings, joint effusions, albuminuria, and hyperemic and urticarial skin eruptions.
6. All skin conditions thus far considered as anaphylactic are associated with eosinophilia, such as urticaria, eczema, prurigo, Duhring's disease, pemphigus, psoriasis and pellagra.

In 1839 Magendi found that rabbits which had been injected with egg albumin died after a repetition of the injection. Sixty-five years later Theobald Smith observed similar phenomena following injections of horse serum. In 1898 Hencourt and Richet found that repeated injections of eel serum into dogs caused increased susceptibility in these animals. In 1903 Arthus showed that, when rabbits were injected at first subcutaneously and later intravenously or intraperitoneally with milk or serum, serious symptoms of dyspnea, convulsions, diarrhea or even death ensued. Rosenau and Anderson observed that guinea-pigs sensitized with watery extract of peas reacted violently to subsequent injections of the same material; three out of five died.

Raubitschek sensitized rabbits with saline extracts of lentils and beans and obtained severe and often fatal reactions on subsequent intravenous injections of homologous extracts. Karasava showed that guinea-pigs can be made susceptible to rice and wheat, and dogs can be made anaphylactic to rice extracts.

Feeding of cow's milk, ox blood and dried egg to guinea-pigs for from three to eight weeks renders them sensitive to these substances, and this hypersusceptibility is specific.

The first observation of the local phenomena of anaphylaxis was that of Jenner in 1798, when he wrote of an "efforescence of a palish color," about the parts where variolous matter had been injected into a woman who had cowpox thirty-one years before. In 1903, Arthus described the local phenomena of anaphylaxis, which are redness, swelling and a wheal, and this has been named "Arthus' phenomenon of anaphylaxis."

In our studies the extracts of the following foods were prepared: beef, pork, mutton, fish (porgy), clams, lobster, wheat, oatmeal, cow's milk, egg white, barley, rice, tomato and strawberry, in all fourteen food products. The method of preparation was as follows:

PREPARATION OF THE EXTRACTS

Beef.—Ten gm. of fresh beef were cut up finely and ground with sand in a sterilized mortar until the fibers were broken down. After this process was completed, 200 c.c. of alkalinized sodium chlorid containing 0.1 per cent. tricresol were added, and the entire suspension was placed in a sterile flask in the incubator, where it remained for thirty-six hours. It was taken out, and the material placed in small sterile flasks containing sterile beads and placed in a shaking machine for two hours; at the expiration of this time the flasks were again transferred to the incubator, where they remained for another period of thirty-six hours. This mixture was then filtered through sterilized filter paper into another sterile flask, and the amount of the filtrate measured. In the case of beef it was 55 c.c., and to this 20 c.c. of absolute alcohol were added. The solution was placed in a rather flat evaporating dish and placed on a water bath at 80 C. to drive off the fluid and leave the solid residue. The dried material was scraped off the surface of the dish and placed in a desiccator, to make absolutely certain that all the water had been driven off, and that the residue was perfectly dry; 5 gm. were carefully weighed out and dissolved in 100 c.c. of sterile distilled water containing 0.25 c.c. of tricresol.[2] The entire amount of beef residue did not go into solution, and it was determined to find out accurately just how much did go into solution. The contents were filtered through a sterile filter, which had been previously weighed; in the case of beef it was 1.260 gm., but with the beef extract it weighed 1.131 gm., showing that 0.129 gm. did not go into solution, and that, subtracted from 0.5 gm., left 0.371 gm. in solution.

The solution was cultured in glucose agar for three days, and proved to be sterile and was placed in sterile bottles ready for use.

Pork.—The same steps were followed. Twenty gm. of the material were used with 200 c.c. of salt solution containing 0.5 per cent. phenol (carbolic acid). The filtrate was 154 c.c., and to it 60 c.c. of absolute alcohol were added. The residue with filter weighed 1.1 gm., while the filter weighed 1.015, leaving 0.085 gm. which did not go into solution, and that subtracted from 0.5 gm. showed that 0.415 gm. were dissolved in the sterile. The solution was cultured as above and proved sterile.

The nitrogen determination of the residue showed 3.82 per cent., and of protein 23.9 per cent.

Mutton.—Twenty gm. of this material were employed. with 200 c.c. of normal salt solution plus 0.6 per cent. phenol. The amount of filtrate was 145 c.c., to which 60 c.c. of absolute alcohol were added. Five-tenths c.c. of dried material was dissolved in 100 c.c. of sterile distilled water plus 0.25 c.c. of tricresol. The solution was filtered and the weight of the filter was 1.19 gm., and the weight of the residue plus the filter was 1.120. The amount not in solution was 0.03 gm. Subtracting this from 0.5 gm. leaves 0.47 gm. in solution. The solution was cultured and proved sterile. The percentage of nitrogen mutton residue was 3.63 per cent., and the protein percentage was 22.7.

Fish.—Twenty gm. of porgy were rubbed up with sand and 200 c.c. of salt solution plus 0.5 per cent. phenol. After put-

* From the Laboratories of the Philadelphia Polyclinic and College for Graduates in Medicine.

* Read before the Pathological Society of Philadelphia, Nov. 11, 1915, and reactions shown before the Philadelphia Pediatric Society, Oct. 12, 1915.

1. Moschowitz, Eli: Eosinophilia and Anaphylaxis, New York Med. Jour., 1911, xciii, 15.

2. The nitrogen determination of the residue shows it to contain 4.72 per cent. nitrogen or 29.5 per cent. protein, which percentage compared very favorably with the amount of protein found in beef.

ting this solution through the same procedure as the materials described above, it was found that the filtrate amounted to 159 c.c., and to this 60 c.c. of absolute alcohol were added. Five-tenths gm. of the dried residue was dissolved in 100 c.c. of sterile distilled water plus 0.25 c.c. of tricresol, and the solution filtered; the amount of the residue which did not dissolve was 0.025 gm., and this subtracted from 0.5 gm. showed 0.475 gm. in solution. The solution proved sterile. The percentage of nitrogen was 3.23, and the percentage of protein was 20.2.

Crab.—Twenty gm. of crab were rubbed up with sand, and 200 c.c. of the normal salt phenol solution added. After shaking, incubating and filtering, it was found that the chlorid, 500 c.c.; normal sodium hydrate, 5 c.c.; phenol, 0.5 c.c. [0.1 per cent.]. The solution was added little by little during the process of trituration. The solution was placed in a flask in an incubator for three days, during which time it was shaken for two hours in a shaking machine. The solution was filtered, and 289 c.c. was found to be the amount of the filtrate. To this 100 c.c. of absolute alcohol were added. The solution was placed in an evaporating dish on a water bath. The dried residue was removed from the dish and 0.5 gm. dissolved in 100 c.c. of the tricresol sterile distilled water. It was filtered, as all did not dissolve, and the amount of undissolved residue was 0.15 gm.; that subtracted from 0.5 gm. shows that 0.35 gm.

CASE REPORTS

Case	Diagnosis	Extent	Duration	Materials Used in Injection	Reactions	Diet
1. A. G.	Seborrheic dermatitis....	Generalized...	8 years; recurrent	Egg, cow-casein, fish, pork, beef, tomato, clam	Negative after 48 hours	For 2 years, coffee, bread, butter.
2. M. C.	Eczema.....	Hands and face	3 weeks.....	Beef, cow-casein, fish, egg, tomato, pork	Negative after 48 hours	
3. J. F.	Papular eczema.....	Both arms....	.....	Tomato, pork, beef, wheat, egg, cow-casein, clam, oatmeal, barley, alkaline solution	Negative.	
4. M. P.*....	Seborrheic eczema.....	Face, scalp and body	Several years	Egg, beef, wheat, cow-casein, clam, tomato, oatmeal, alkaline solution, pork, barley	Positive to milk	
5. F. R.†....	Eczema..:.....	Face.....	.....	Egg, beef, wheat, cow-casein, clam, tomato, oatmeal, alkaline solution, pork, barley	Milk, positive; wheat, weakly positive	Milk, bread-pudding and butter.
6. L. H.	Papular eczema.....	Generalized...	1 year.....	Egg, beef, wheat, cow-casein, clam, tomato, oatmeal, pork, barley, alkaline solution	Negative.....	General.
7. J. F.	Eczema.....	Arms and legs	2 years; recurrent	Beef, wheat, egg, cow-casein.....	Negative.	
8. T. P.	Chronic eczema.....	Generalized...	22 years.....	Tomato, pork, wheat, egg, beef, cow-casein, clam, oatmeal, barley, alkaline solution	Tomato, positive	General.
9. B. McB. ..	Eczema.....	Generalized...	9 months.....	Cow-casein, egg, wheat, beef, clam, tomato, oatmeal, alkaline solution, pork, barley	Negative.....	General.
10. A. C., private case	Eczema.....	Generalized...	3 weeks.....	Cow-casein, egg, wheat, beef, clam, pork, tomato, oatmeal, alkaline solution	Suggestive; positive to pork	General.
11. M. F., private case‡	Eczema.....	Arms and hands	4 years; recurrent	Crab, fish, pork, egg, mutton, rice, beef, tomato	Tomato, positive; fish, crab, suggestive	General.
12. M. T.	Eczema.....	Generalized...	5 years.....	Fish, beef, egg, pork, wheat, mutton....	Negative.	
13 J. C.	Eczema.....	Hands and feet	6 months.....	Strawberries, oatmeal, fish, beef.....	Negative.....	General.
14. M. McG. .	Eczema.....	Arms and legs	3 months.....	Tomato, egg, pork, milk, fish, clam....	Positive to fish	General.
15. Mr. F. ...	Urticaria; squamous eczema of hands	Generalized...	1½ years; eczema, 6 months	Tomato, pork, cow-casein, fish, egg, clam, rice, oatmeal, crab, mutton, beef, barley	Suggestive to beef; not well marked	General.
16. W. C.	Dermatitis herpetiformis	Generalized...	18 years.....	Beef, wheat, cow-casein, egg, clam, tomato, pork, alkaline solution, barley	Clam, positive; oatmeal, casein, suggestive	General.
17. J. C.	Dermatitis herpetiformis	Generalized...	Many years...	Beef, wheat, cow-casein, egg, clam, oatmeal, alkaline solution, pork, barley	Beef, cow-casein, positive; egg, wheat weakly positive	General.
18. J. C.	Psoriasis.....	.....	.....	Clam, tomato, oatmeal, pork, barley, alkaline solution	Negative.....	General.
19. S. R.	Psoriasis.....	.....	.....	Beef, cow-casein, wheat, egg.....	Negative.....	General.
20. J. R.	Psoriasis.....	.....	.....	Beef, wheat, egg, cow-casein.....	Negative.....	General.
21. N. M.	Psoriasis.....	.....	.....	Beef, egg, milk, fish.....	Negative.	
22. N. N.	Psoriasis.....	.....	7 years.....	Fish, milk, egg, pork, beef.....	Negative.....	Low protein.
23. B.	Psoriasis.....	.....	.....	Fish, cow-casein, egg, pork, beef.....	Negative.	
24. Mrs. B. ..	Psoriasis.....	.....	.....	Fish, cow-casein, egg, pork, beef.....	Negative.....	Low protein.
25. G. M.	Psoriasis.....	.....	6 months.....	Beef, cow-casein, fish, egg, tomato, pork	Cow-casein, positive	General.
26. M. S.	Acne vulgaris.....	Face.....	.....	Rice, fish, beef, pork, barley, egg, cow-casein	Negative.....	General.
27. E.	Acne vulgaris.....	Face.....	.....	Pork, egg, wheat, cow-casein.....	Negative.....	General.
28. R. P.	Acne vulgaris.....	Face.....	.....	Beef, egg, fish, cow-casein.....	Negative.....	General.
29. F. S.§....	Urticaria.....	.....	4 days.....	Fish, beef, crab	Positive to crab	

* Diet corrected and patient made marked improvement.
† Diet corrected, eczema cleared up, except around the ears.
‡ Tomato withdrawn from diet and patient got well in two weeks and remained well.
§ Gave history of attack following eating of crabs.

filtrate amounted to 122 c.c., and to this 55 c.c. of absolute alcohol were added. Five-tenths gm. of the dried residue was dissolved in 100 c.c. of the tricresol sterile distilled water mixture, and it was found that it all dissolved. It was cultured in glucose agar, proved sterile and was ready for use. The percentage of nitrogen was 2.61, and of protein 16.3.

Lobster.—The same procedure and the same quantities which were employed in preparing crab were also employed in preparing lobster. The dried residue was all dissolved. The percentage of nitrogen was 4.73, and of protein 16.3.

Wheat.—Eighteen gm. of wheat (flour) were rubbed up with 200 c.c. of alkalinized sodium chlorid (normal sodium were in solution. The solution proved sterile on culture. The percentage of nitrogen was 1.77, and that of protein 11.1.

Oats.—Nine gm. of oatmeal were rubbed up with 150 c.c. of alkalinized sodium chlorid solution. After incubation, shaking and filtering it was found that the filtrate amounted to 212 c.c. To this, 80 c.c. of absolute alcohol were added. Five-tenths gm. of the dried residue was dissolved in 100 c.c. of tricresol sterile distilled water and filtered. The amount which did not dissolve amounted to 0.07 gm., showing that 0.43 gm. were in solution. The nitrogen percentage was 1.13, and the protein 7.06.

Rice.—Rice powder (rice flour of Smith, Kline & French) was obtained; of this product 10 gm. were rubbed up with

200 c.c. of alkalinized sodium chlorid plus tricresol. After incubating and shaking and then filtering it twice, rice, 161 c.c., plus 53 c.c. alcohol, one-third volume of absolute alcohol, were added. Precipitation was slight. The preparation was placed in an evaporating dish; the material was scraped off and 0.5 gm. dissolved in 100 c.c. of tricresol distilled sterile water. Practically all dissolved. The percentage of nitrogen was 0.569, and that of protein 3.56.

Barley.—Ten gm. of Robinson's prepared barley was ground up with 200 c.c. of alkalinized sodium chlorid solution plus tricresol, incubated, shaken and filtered. The amount of filtrate was 158 c.c., and to this 52 c.c. of absolute alcohol were added. The solution was evaporated on a water bath, and of the dried residue 0.5 gm. was dissolved in 100 c.c. of tricresol sterile distilled water. Practically all went into solution. The solution was culturally sterile. The nitrogen percentage was 0.695 and the protein 4.34.

Strawberries.—Good firm strawberries were selected. These were ground up and put in the incubator to dry out. The dried material weighed 9 gm. It was rubbed up with 200 c.c. of alkalinized solution plus tricresol. It was incubated and shaken; then it was decided to add 200 c.c. of the alkalinized solution in order to thin the mixture. It was filtered, and the filtrate amounted to 289 c.c.; to this 100 c.c. of absolute alcohol were added. The solution was evaporated on a water bath, and 0.5 gm. of the dried residue was dissolved in 100 c.c. of tricresol sterile distilled water. It did not go into solution, 0.06 gm. remaining undissolved, leaving 0.44 gm. dissolved in the 100 c.c. of solution. Culturally it was sterile. The percentage of nitrogen was 1.31, and of protein 8.2.

Tomatoes.—Tomatoes were cut into small slices and placed in a dish in the incubator to dry. The material was then scraped from the dish. The material collected weighed just about 10 gm. It was rubbed up with 200 c.c. of tricresol alkalinized salt solution, incubated, shaken and filtered. A second filtration was necessary. The filtrate amounted to 140 c.c., and to this 46 c.c. of absolute alcohol were added. The solution was placed on an evaporating dish on a water bath. Great difficulty was experienced in drying this product; 0.5 gm. was dissolved in 100 c.c. of tricresol sterile distilled water and the material went into solution at once. Cultures were sterile.

Cow-Casein.—One gm. of Hammerstein's cow-casein was mixed with 100 c.c. of alkalinized salt solution plus tricresol, placed in a sterile flask, incubated and shaken for two hours. The solution was filtered, tested for albumin and found positive. Cultures were negative.

Egg White.—Five-tenths gm. of egg albumin was crushed and powdered in a sterile mortar and dissolved in 100 c.c. of normal salt containing 0.25 per cent. tricresol. The solution filtered very slowly. Some of the egg did not go into solution, and it was found that 0.465 gm. was dissolved. The solution was culturally sterile.

ANAPHYLACTIC REACTIONS

The most important factor in the study of anaphylactic reactions is the determination of what constitutes a positive reaction. From our studies we conclude that unless a reaction remains for forty-eight hours, it cannot be called positive. We must emphasize the fact that the element of time constitutes the most important factor in the determination of a positive reaction.

We have seen reactions well marked, remain twenty-four hours and disappear completely after a lapse of another twenty-four hours. These spurious reactions constitute probably a hypersusceptibility and are not due to the irritant effect of the solution injected. This increased sensibility might have been inherited, as seems probable from certain animal experiments on anaphylaxis, or might result from disease or other factors. Dr. Kolmer and Dr. Mosaghe have shown that patients recovering from scarlet fever will often show a spurious Schick reaction.

Ten patients received 0.1 c.c. of the alkaline solution used in preparing food products, and in every instance the reactions were negative, nothing appearing after either twenty-four or forty-eight hours.

We also injected 0.1 c.c. of our various food products in apparently healthy children to determine whether or not the substance used would give positive reaction. Practically every patient injected reacted negatively. A summary of our results follows:

Egg.—Seven children varying in ages from 33 days to 2 years were injected, and all reacted negatively, after both twenty-four and forty-eight hours. Dose, 0.1 c.c.

Pork.—Three children were injected, one 6 years old, one 5 years and the other 5 months; all reacted negatively. Dose, 0.1 c.c.

Wheat.—Four children from 6 years to 3 months were injected; all reacted negatively. Dose, 0.1 c.c.

Cow-Casein.—Three children, aged about 2 months, were injected with cow's milk. All were breast fed. Dose, 0.1 c.c.; all were negative except one, who showed a spurious reaction.

Oatmeal.—Three children were injected; all reacted negatively.

Strawberries, beef, fish and oatmeal were all negative, except oatmeal, which showed one spurious reaction.

Mutton, clam, lobster, tomato, rice and barley all proved negative. From three to five children were injected for each substance employed. The dose was 0.1 c.c.

We were forced to conclude from these results that, unless the substance injected was in some manner concerned with the pathologic condition from which the child was suffering, there would be a negative result; for instance, if we obtained a positive reaction in an eczema or other skin affection, we would conclude that the foodstuff employed was in some way concerned in the causation of the affection of the skin in question.

Next to the element of time, we believe that infiltration or the presence of a papule is necessary for a positive reaction, and lastly erythema. These latter two phenomena, however, must be seen forty-eight hours after injection; if they disappear after twenty-four hours we do not believe that it constitutes a positive test. To recapitulate, therefore, a positive test means the presence of infiltration and erythema which persist forty-eight hours after injection, the degree of positiveness being judged by the size of the infiltration and redness. In the course of our experiments we gave injections to fifteen patients suffering from eczema.

CONCLUSIONS

1. As a result of our experiments we believe that the anaphylactic food reactions, when properly interpreted, are a valuable guide in determining the dietary factors operative in the production of diseases of the skin.

2. Our experience would lead us to believe that the reactions are specific.

3. In any case in which foodstuffs are suspected of being the cause of the pathologic conditions present, the cutaneous tests offer a ready means of confirming or negativing the suspicion.

4. The tests constitute a basis for the scientific regulation of the diet in such cases.

5. The tests must be carefully and conservatively interpreted in order that one be not deceived by pseudo-reactions.

6. A note of warning should be sounded to the effect that a positive reaction to a certain foodstuff does not

of necessity indicate that the morbid phenomena under consideration are due to this foodstuff. Just as a syphilitic subject with a positive Wassermann reaction may develop a skin affection which is unrelated to his systemic infection, so a patient with a positive food anaphylactic reaction may develop a cutaneous affection due to other factors than his diet.

7. Further studies in anaphylactic food reactions may shed considerable illumination on the etiology of certain diseases of the skin.

8. Hundreds and perhaps thousands of patients must be studied before any general deductions can be drawn as to the relation between particular skin diseases and food poisoning.

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THE RELATION OF MORPHIN TO POST-OPERATIVE COMPLICATIONS AND IMMUNITY*

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Because of their knowledge of the depressing influence of morphin on general metabolism, many surgeons have been inclined to blame its use for a long list of disorders appearing in the course of and following on operations, especially operations done under general anesthesia. With the object of testing the reasonableness of this idea, a study was made of the records of 469 patients operated on in the Presbyterian Hospital and of the immunity curves (opsonic and lytic) of a series of morphinized animals. Particular attention was directed to the possible relationship of morphin to postoperative shock, postoperative ileus (paralytic), postoperative acute dilatation of the stomach, postoperative retention of urine, and immunity.

Physiologists have been unable to explain adequately the mechanism of shock.[1] Among clinicians, surgical shock is usually defined as a condition of depression following painful injury or strong mental emotion, the symptoms varying from a slight feeling of weakness accompanied by nausea, and perhaps a temporary loss of consciousness, to complete paralysis of all the vital processes resulting in speedy death.[2] According to this definition, and in conformity with the current theories of the cause of shock,[3] sensory stimulation, symbolized by the word "pain," appears to be the trigger which sets off the shock sequences. The argument follows, therefore, admitting for the moment the correctness of the preceding assumption, that the question of the prevention of shock becomes a question of the interruption of the centripetal paths to the nerve centers, or a modification of those centers such that they are not irritated to a dangerous degree by the pain impulses. Local anesthesia blocks the centripetal paths, and, when practicable, appears to be the best known preventive of shock in surgical operations. General anesthesia depresses the nerve centers but appears to be somewhat less effective than local anesthesia in warding off shock, although it is often difficult to differentiate between the effects of the trauma of the operation and those of the anesthetic. Morphin, owing to its power to reduce the poignancy of centripetal impulses, has been regarded as a valuable adjuvant to local anesthesia. The committee on anesthesia[4] of the American Medical Association, reporting in 1912, recommended the routine administration of morphin preceding the induction of general anesthesia, recognizing at the same time that the imposition of one powerful depressant of the medullary centers, namely, morphin, on another, namely ether, might have disadvantages for which its antishock action could not compensate. The following observations are presented for study in connection with the preceding statements.

While the recognition of shock is based on the presence of a group of signs and symptoms no one of which in itself is diagnostic, there are several easily determined signs which, under certain conditions, may be assumed to be quite suggestive. Of these, the pulse rate appears to be the only one which is observed as a part of the postoperative routine in the Presbyterian Hospital, and this sign, therefore, was chosen as the shock indicator for the present study. The following arbitrary standard was adopted: A pulse rate on return from the operating room of 100 or more per minute was assumed to indicate some degree of shock; a pulse rate of 99 or less was assumed to be negative for shock. Cases were taken at random, the only condition being that they must not show evidences of shock preceding the operation. Morphin, when administered, was given in conjunction with atropin. Study of tables constructed in part according to this standard and in part showing the number of patients requiring active measures to combat postoperative shock suggests that morphin, in ordinary doses, may exert a slight influence against the induction of shock by operative procedures.

The figures are as follows: Of 89 patients undergoing radical amputations of the breast, 20 were given morphin one hour before operation; of these 11, or 55 per cent., were returned to bed with a pulse rate of 100 or more. Sixty-nine patients did not receive morphin before operation, and of these 48 per cent. were returned with a pulse rate of 100 or more. Of the 20 morphinized patients, none required active measures to combat shock, while one out of 72 nonmorphinized patients did. In 126 laparotomies, 25 patients were given preoperative morphin and 101 were not. Of the morphinized patients, 68 per cent. were returned to bed with a pulse rate of 100 or more, while but 50 per cent. of the nonmorphinized patients exhibited a similar rate. Of a total of 283 laparotomies, preoperative morphin was administered in 94 cases; 2 of these patients required active antishock treatment after operation. Of the 189 laparotomies in which no preoperative morphin was given, 5 required active measures to combat shock after the operation. The following operations were included among the laparotomies: gastrostomy, 5 cases; anterior gastro-enterostomy, 8; posterior gastro-enterostomy, 24; exploratory (carcinoma of the stomach), 25; pylorectomy, 14; acute appendicitis, 8; cholecystostomy, 22; cholecystectomy, 7; pelvic operations with appendectomy, 114; miscellaneous intra-abdominal operations, 19; appendectomies (chronic), 21; chronic intestinal obstruction (carcinoma and adhesions), 2; colostomy (carcinoma), 6; intestinal resection, 8.

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1. Bevan, A. D.: The Choice and Technic of the Anesthetic, The Journal A. M. A., Oct. 23, 1915, p. 1418.
2. Brewer: Text Book of Surgery, 1909, p. 106.
3. Henderson: Proc. Soc. Exper. Biol. and Med., 1909-1910, vii, 41. Crile: Ibid., p. 87.
4. Report of Committee on Anesthesia, The Journal A. M. A., June 15, 1912, p. 1908.

The evidence is conflicting, and the balance in favor of the conclusion drawn is very meager, so meager that possibly a Scotch verdict might be given with justice. More weight has been attached to the figures showing the number of patients requiring active measures to combat shock than to those dealing with the pulse rate because it was felt that the addition of atropin to the morphin might have influenced the cardiac mechanism of the morphinized patients independent of shock, and because the former figures are absolute, while the latter are based on a standard which is open to criticism.

Because of its effectiveness in retarding gastro-intestinal peristalsis, morphin has been considered one of the contributing causes of postoperative constipation and gas pains. Morphin produces constipation, first, by occasionally causing a spastic contraction of the pylorus, thus delaying the passage of food from the stomach into the duodenum as much as four or five hours.[5] According to the observations of Dr. B. W. Sippy,[6] nausea from any cause retards gastric peristalsis. As morphin may cause nausea and vomiting in men and in dogs, this, rather than pyloric spasm, may be responsible for the delayed emptying of the stomach noted above. Secondly, morphin produces a considerable diminution in the rate and force of intestinal peristaltic waves. Thirdly, some evidence has been presented which suggests that the threshold for the defecation reflex may be considerably raised, or the reflex may be abolished by morphin, so that feces tend to accumulate in the sigmoid and rectum.[7] Morphin, then, definitely, decreases gastro-intestinal motor activity and, so far as that is true, may be of considerable importance in the production of gastro-intestinal paralysis. It must not be forgotten, however, that there are other factors involved in the initiation of this condition. Extensive handling of the bowel is of great importance. Drying of the bowel by exposure to the air or the introduction of hot or cold water into the abdomen produce nothing more than a transient disturbance, but stripping the intestine between the fingers or operations on the bowel, particularly resections, inhibit peristalsis for several hours longer than etherization and laparotomy alone delay it.[8] Paralysis of the bowel wall supervenes in the late stages of most cases of dynamic ileus associated frequently with important local vascular changes.[9] The most extreme grade of acute intestinal paralysis, constituting the important factor in paralytic ileus, is found usually in association with severe local or generalized intraperitoneal suppuration. Epinephrinemia to an extent insufficient to produce a minimal sustained rise in blood pressure brings intestinal peristalsis to a complete standstill and produces extreme intestinal dilatation.[10] Pain or marked sensory disturbances or disturbances which induce fever are apt to cause epinephrinemia. Morphin diminishes pain, and in full doses decreases the rate of the discharge of epinephrin into the blood.[11] May it not be, therefore, that morphin is an enemy rather than an ally of the forces which induce postoperative intestinal atony?

Acute dilatation of the stomach is usually attributed to "a rapid dilatation of the stomach with increased secretion; later the pressure of the gastric tumor on the movable small intestines, forcing them downward, and producing thereby tension on the root of the mesentery, which in turn compresses the third portion of the duodenum against the spine and causes more or less occlusion. Kinking of the duodenum from prolapse of the distended stomach may also be a factor of importance. . . . The primary dilatation of the stomach is probably caused by a muscular paresis from toxemia due to acute or chronic disease, or from surgical operation or shock. The exciting cause may be an indiscretion in diet, or the ingestion of food or water too soon after operation, before the stomach wall has had time to regain its muscular tone."[12] The rôle played by morphin in relation to this condition may be a very minor one indeed, but its tendency to induce nausea and vomiting in certain individuals — nausea always retarding gastric motility[6]—and its demonstrated ability to delay gastric evacuation into the bowel, suggest that its use, postoperatively, may be associated with some danger. The fact that acute dilatation of the stomach occurs under conditions similar to those under which intestinal atony develops justifies the application of the statements made concerning the latter to the gastric syndrone.

In consideration of the conditions outlined in the foregoing discussion, tables were compiled in which an attempt was made to trace a relation between morphin administered and the incidence, time of onset, duration and severity of postoperative nausea and vomiting, tympanites and gas pains, and postoperative disturbances of the urinary apparatus due, when induced by morphin, to the abolition of the sphincter reflex.[13]

The patients were taken at random, only those being excluded in whom preoperative symptoms were of such a nature as to suggest their continuance after operation, and possible confusion in consequence with the so-called postoperative symptoms on which observations were desired. Patients who were given morphin (from one-sixth to one-fourth grain hypodermically) before operation received at the same injection atropin (from $\frac{1}{150}$ to $\frac{1}{120}$ grain); such injections were made not in selected cases but as a part of the routine of the operator. Patients who were given morphin, from one-eighth to one-fourth grain, or heroin, from one-twelfth to one-sixth grain — the terms being used synonymously — postoperatively usually received the injection not as a matter of routine, but because their postoperative discomfort demanded relief. The average number of such injections to each patient so treated was about 3.6 in the course of thirty-six hours. Those who received no morphin postoperatively were patients who either suffered but little discomfort or at least made but little complaint. It was not possible to make even a reasonably accurate record of patients who vomited before their return from the operating room and before waking from the anesthetic. Patients who were recorded as being free from nausea and vomiting were those who did not develop these symptoms after regaining consciousness. Those in whom nausea and vomiting were recorded as severe exhibited acutely dilated stomachs and required more or less strenuous gastric lavage for relief. Among the so-called moderate cases were included all grades of nausea and vomiting from mild attacks of ten minutes' duration up to the borderland of the severe types. The same gen-

5. Zunz: Bull. de l'Acad. roy. méd. de Belgique, 1909, xxiii, 353.
6. Sippy, B. W.: Personal communication to the author.
7. Shapiro: Arch. f. d. ges. Physiol., 1913, cli, 65.
8. Cannon and Murphy: Ann. Surg., 1906, xliii, 515.
9. Davis, B. F.: Ann. Surg., 1915, lxi, 261.
10. Hoskins and McClure: Am. Jour. Physiol., 1912, xxxi, 59.
11. Hitchings, Sloan and Austin: Cleveland Med. Jour., 1913, xii, 684.
12. Brewer: Text Book of Surgery, 1915, p. 519.
13. Cushny: Pharmacology and Therapeutics, 1906, p. 214.

eral scheme was followed in classifying the gas pains. The severe cases included all lasting without intermission for a number of hours and requiring vigorous measures for relief. The moderate types include all from those sufficient to cause somewhat more than just a passing complaint up to the severe cases.

NAUSEA AND VOMITING

As is the case with other conditions studied, dogmatic assertions probably are not warranted; but it seems to be reasonably evident that, with the possible exception of operations done under local anesthesia, postoperative nausea and vomiting is very little influenced by morphin administered in the manner and dosage already described, but is markedly and principally influenced by the depth and duration of the anesthetic (ether). The nature of the operation and the organs operated on are doubtless of importance in special instances, but are overshadowed by the importance of the ether. In operations of this series requiring the deepest and most prolonged anesthesia, that is, laparotomies and amputations of the breast, only 48 per cent. of the patients were free from nausea and vomiting; following the more shallow and less prolonged anesthesias for the miscellaneous extraperitoneal cases and herniotomies, approximately 75 per cent. were free from these symptoms. Of herniotomies done under local anesthesia without the previous administration of morphin, 100 per cent. of the patients were not nauseated and did not vomit. When local anesthesia first came to be used extensively in the Presbyterian Hospital, it was uniformly preceded by an injection of scopolamin and morphin. Patients so treated commonly suffered more or less from postoperative nausea and vomiting. This being noted, the scopolamin was omitted. Still these symptoms appeared postoperatively in about 20 per cent. of the patients. Then the preoperative morphin was discontinued, and from that time postoperative nausea and vomiting has been almost eliminated in operations under local anesthesia, excepting in thyroidectomies for hyperthyroidism, in which, of course, a special type of patient is encountered. Even here, however, as experience leads to improvement in the technic of local anesthesia, the postoperative discomfort decreases. With the elimination of the general anesthetic (ether), and improvement in the technic of local anesthesia, postoperative nausea and vomiting decreases to a minimum.

TYMPANITES AND POSTOPERATIVE GAS PAINS

The importance of morphin in relation to the production of these symptoms in the present group of cases, taken as a whole, appears to be relatively insignificant. The really important factors are, first, the tissues involved by the operation, and second, the general anesthetic. Operations involving the peritoneum, whether done under a general or a local anesthetic, are followed by gas pains of varying grades of severity in approximately 45 per cent. of the cases. In operations in which a general anesthetic is employed, but in which the peritoneum is not traumatized, about 10 per cent. of the patients have postoperative gas pains; while following operations in which both peritoneum and ether are avoided and local anesthesia is used, tympanites and gas pains do not appear.

VOIDING OF URINE

Ether and injury to the peritoneum seem to be the two great causes of postoperative retention of urine; morphin may play a part, but, at the most, an insignificant one.

In 283 laparotomies, 79 per cent. of the patients were free from postoperative urinary disturbances; in ninety-two radical amputations of the breast, 87 per cent. of the patients urinated spontaneously; of forty-one patients undergoing extraperitoneal operations, nineteen being done with ether anesthesia, 100 per cent. were free from urinary disturbances; in thirty-six herniotomies under local anesthesia, 94 per cent. of the patients urinated spontaneously, while but 77 per cent. in seventeen cases under ether anesthesia were able so to do.

IMMUNITY

An important question with regard to the use of morphin after operations is that of its influence on the ability of the body to withstand infection. Lancelin[14] found that rabbits and guinea-pigs, when subjected to repeated injections of morphin, became considerably more susceptible to the attack of streptococci, staphylococci and "vibrion septique" than normal control animals. The leukocytosis was about equal in all animals, but the activity of the leukocytes appeared to be distinctly retarded. Diapedesis of leukocytes through vessel walls and their accumulation at points of local infection seemed to be much less prompt and of lesser degree in morphinized than in normal animals. Death was due to an arrest of phagocytosis through the inhibition of the activity of the leukocytes by morphin. Catacuzene[15] previously reported results which quite agree with those of Lancelin with reference to the retardation of leukocytic activity in morphinized animals reacting to infections. According to Arkin,[16] morphin sulphate has a depressing action on phagocytosis of streptococci by human leukocytes up to 0.01 per cent. and to a slight degree up to 0.001 per cent. This action is largely on the leukocytes, for leukocytes treated with 0.1 per cent. morphin sulphate gave a phagocytic index of 0.63 as compared with 1.0 for leukocytes treated only with salt solution. That this depressing influence of morphin may be masked by the coincident action of drugs which accelerate phagocytosis has been suggested by the work of Smith,[17] who used a mixture of morphin hydrochlorid and quinin hydrochlorid in the proportion of one-eighth grain of the former to 10 grains of the latter. It was calculated that a 10-grain dose given to a person weighing 140 pounds, if entirely absorbed, would represent in the blood a proportion of 1:7,500. The influence of this solution (1:7,500) on the phagocytosis of different kinds of pathogenic organisms (for example, streptococci, staphylococci, pneumococci, *Bacillus influenzae*, *B. pseudodiphtheriae* and *B. tuberculosis*) was contrasted with that of weaker and stronger solutions. In the majority of experiments there was an increased phagocytosis, always most marked with the 10-grain dose. Instead of inhibiting phagocytosis, the addition of quinin and morphin, in what may be considered the ideal dose, greatly increased it. Smaller doses in all experiments were less effective. Very large doses (from 30 to 40 grains of quinin and from three-eighths to one-half grain of morphin), instead of increasing, diminished phagocytosis, sometimes to the extent of 50 per cent.

14. Lancelin: Morphinisme et infections, rôle des leucocytes, Bordeaux Theses, 1902-1903, No. 37.
15. Catacuzene: Recherches sur le mode de destruction des vibrion cholérique dans l'organisme, Thèse de Paris, 1894.
16. Arkin: Jour. Infect. Dis., 1913, xiii, 408.
17. Smith: Lancet, London, 1910, ii, 1342.

In view of the unanimous testimony of workers in the field of experimental medicine in confirmation of the theory that morphin diminishes the activity of the defensive forces of the body, affecting the leukocytes especially, it became of interest to determine whether morphin administered to animals in therapeutic doses would produce changes measurable by methods introduced since the work of Lancelin was finished. This appeared to be advisable because all of the later work seems to have been done in vitro, very little attention being paid to the effect of morphin on the opsonic or lytic curves in the serum of animals responding to immunizing injections of antigen.

OPSONINS AND LEUKOCYTIC ACTIVITY

To one partner of each of four pairs of dogs, a quantity of morphin sulphate corresponding to about one-sixteenth grain for 20 pounds of dog was administered subcutaneously daily. The morphin injection was occasionally followed within five minutes by emesis and defecation; for the ensuing two or three hours the animal remained somewhat torpid, but not markedly depressed, and thereafter acted in a normal manner until the succeeding injection was made. As the period of injection extended over a couple of months there was a gradual loss of weight and strength shared by all of the animals, a result of the rather close confinement to which they were subjected, but rather more marked in the morphinized than in the control dogs.

During the two weeks preceding the morphin injections, serum and washed leukocytes from each animal were tested (according to the Wright technic) against those of its partner, using a streptococcus as antigen according to the subjoined form:

Leukocytes (morphin dog) + serum (morphin dog) + bacteria.
Leukocytes (morphin dog) + serum (no morphin dog) + bacteria.
Leukocytes (no morphin dog) + serum (no morphin dog + bacteria.
Leukocytes (no morphin dog) + serum (morphin dog) + bacteria.

The morphin injections were then proceeded with and the tests continued twice a week for two weeks longer. Then a large immunizing dose of killed streptococci of the strain used from the first was administered, and tests continued twice weekly for the succeeding three weeks.

As a result of these experiments, no constant difference was noted between the activity and opsonizing power of the leukocytes and serums from the morphinized and the control animals.

HEMOLYSIS

Four rabbits, two of which were receiving one-sixteenth grain of morphin sulphate hypodermically per kilogram daily throughout the experiment, were immunized to chicken erythrocytes by intravenous and intraperitoneal injections. Dilutions of the immune serums were then made, and comparative observations taken of the dilution beyond which morphinized and nonmorphinized serums failed to produce hemolysis, using a chicken-rabbit-guinea-pig system. Then tests were repeated twice weekly for two weeks after the last injection of erythrocytes. At no time was there any suggestion that morphin exerted an influence on the hemolytic curve.

From these experiments it seems probable that morphin administered in doses which, judging from their depressing effect on the cerebral and bodily activity of the animals, were analogous to those given to the patients referred to in the preceding sections of this paper, does not retard the production of hemolysins and opsonins in response to the usual stimuli; it does not interfere with the activity of these bodies when they are produced; in the concentration in which morphin was present in the serums of these animals, it does not decrease leukocytic activity. As ordinarily used, therefore, morphin probably does not decrease the ability of the body to defend itself against infection.

SUMMARY

The combination of morphin (from one-eighth to one-sixth grain) and atropin (from $\frac{1}{150}$ to $\frac{1}{120}$ grain) hypodermically before operations is of very little importance so far as the prevention of postoperative shock is concerned, and, in the general run of cases, plays a negligible part in the production of postoperative nausea and vomiting, tympanites and paralytic ileus, and postoperative retention of urine. It has practically no effect on immunity. Morphin alone, preceding local anesthesia, adds nothing to the efficiency of the anesthetic, and causes postoperative nausea and vomiting in 25 per cent. of the patients; it makes the patient "dopey" and hence deprives the operator of the cooperation of the patient, which at times may be valuable.[1] In view of these conditions and in view of the disadvantages of imposing one powerful depressant of the medullary centers, namely, morphin, on another, namely, ether, the preoperative use of morphin should be abandoned. In view of the same conditions, morphin in therapeutic doses, that is, from one-eighth to one-sixteenth grain, to an adult of average size, repeated at intervals of not less than six hours, should not be denied to patients whose postoperative suffering cannot be controlled otherwise.

THE STATUS OF THE CHILD IN OBSTETRIC PRACTICE

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The thoughts expressed herein have been of gradual growth, mainly gained by the experience of standing sponsor for the welfare of the maternal offspring after the obstetrician has completed his task and by every good word and deed has brought to a successful ending a period of great anxiety.

Some time ago, in a discussion, I had occasion to remark on the number of children whose health had been impaired by birth injuries, and was immediately taken to task by one of our accomplished obstetricians, just as though I had accused my obstetrical confrères of acts of assault and battery on the babies they were assisting into the world. My intent, far from this, had been simply to ascribe to injuries of the cranial contents during the act of labor those distressing afflictions appearing later in infant life, namely, idiocy, paraplegias, hemiplegias, and the like, which are now known to be due to intracranial traumatism at birth.

It cannot be charged against us as it was in the earlier days of medicine that the interests of the child are entirely subservient to those of the mother. The abandonment of craniotomy on the living child was in itself an acknowledgment of infantile rights, which, thanks to modern advancement in medical science, have attained a station hitherto unknown, so that now the

mortality to the child is mentioned in the same breath with that to the mother in almost all obstetric conditions and procedures involving a question of mortality.

I am of a mind that there is still room for improvement in judging the rights of the unborn child, and certainly enormous opportunities for advancement in the consideration and attention bestowed on the little individual after birth.

There are certain prenatal, natal, and postnatal facts which may furnish food for reflection.

As a general theme I would ask that the product of conception be given a greater measure of consideration in all matters obstetric when the safety or life of mother and child are considered coincidentally, and when balancing one's procedures to be enforced to effect the desideratum for the mother, all things being equal (or nearly so), as in high forceps or cesarean section, to weigh gravely one responsibility to the child, rather than to lose sight of it entirely in the greater vision of the safety of the mother.

"PERNICIOUS" VOMITING OF PREGNANCY

In prenatal matters perhaps the first to call into question the sacrifice of the offspring is the vomiting of pregnancy. The indication for induced abortion is in most instances determined entirely by the alarming condition of the mother, and yet how many of us have seen cases of pernicious vomiting belie their name except in the extent and distress of their symptoms. the term "pernicious" in medicine usually means fatal; for example, pernicious malaria, pernicious anemia, etc. My only observation would be for a readjustment of the medical and obstetric idea of pernicious, for I remember in past years having seen quite a few patients with so-called pernicious vomiting get well without the induction of abortion.

VIABILITY

Another obstetric word needing readjustment, or the readjustment of the obstetrical mind, is "viability." Whoever outraged nature in the past by thrusting into our medical dictionary this elastic and meaningless term, was neither a naturalist nor an obstetrician.

What is meant by "viability?" Along about the seventh month, as commonly accepted, it is believed that the fetus has sufficiently developed to bear separation from the maternal connection which has maintained its life up to that period. In an older and fortunately obsolete interpretation, it was construed as the period before which the child theoretically had no moral or material station, and after which its rights were to be respected pari passu with the conscience possessed by the physician. It would be well either to relegate the term viability to oblivion, or to fix its occurrence at one of two periods in fetal growth — either at the moment of fecundation of the female ovum, or at a point 280 days from that time, coincident with the termination of the second stage of labor. Such a conception of viability, especially the latter, would render unto the world a lessened number of prematures, and if constantly borne in mind, even in cases of urgency from the maternal standpoint, would enhance the child's safety by postponing, as long as justifiable, measures involving accouchment forcé.

Those of us who have had anything to do with the care of prematures would ask of obstetricians that the period of prematurity be made as short as possible, if it is within their hands so to shorten it.

The induction of premature labor to avoid a threatened eclampsia is a well-recognized and thoroughly-admitted procedure. If, however, obstetric genius by well-directed treatment can postpone the necessity for such a procedure until the latest period of pregnancy consistent with the safety of the mother, the pediatrists will be duly grateful.

It is a fact that incubators are passé, except at county fairs and sideshows. It is a fact that practically all prematures entrusted to institution care die. It is a fact that in the city of Washington the deaths from prematurity reach 31.54 per thousand births, exceeding every other cause of death during the first year of life, and being 50 per cent. greater than the group of deaths from diarrheal diseases in the same period. In Holt's[1] analysis of ten thousand births at the Sloane Maternity, over 54 per cent. of deaths in the first two weeks of life were from prematurity.

SYPHILIS

Many women have a history of having had one or several stillbirths. The occurrence of one stillborn child in the obstetric history of a mother should excite suspicion and should warrant every effort, especially by Wassermann tests, to ascertain the presence of syphilis in either parent.

In an analysis by Williams[2] of 705 fatal deaths occurring in 10,000 births, 186, or 26.4 per cent., were due to syphilis, a preventable cause of infant death. This study was based on all deaths occurring between the seventh month, "the so-called period of viability," and full term, as well as those in the two weeks following delivery. Eighteen per cent. of Williams' patients died from unknown causes, but because one-half of these were macerated when born, he believes that probably 40 per cent. of the unknown group were deaths due to syphilis.

In Washington during 1914, 1,140 babies passed under the observation of the infant welfare stations of the Washington Diet Kitchen Association. In all there were eleven deaths, counting among those who died every baby who had ever visited a station a second time. Three of the deaths were from congenital syphilis. One died of "probable congenital syphilis." Thus it appears that four, or nearly 40 per cent., of all of these deaths, were from certain or probable syphilis.

Herein lies an opportunity for the obstetrician to work untold good by the recognition and certain diagnosis of syphilis, in order that the offspring of syphilitic parents may be born healthy, because of suitable and effective treatment of their forbears.

PRENATAL CARE OF BREASTS

When one recognizes the vast importance of maternal nursing, and when one witnesses, especially in primiparas, the difficulties and abandonment of nursing because of underdeveloped, inverted, fissured and painful nipples, the pediatrist would certainly suggest greater prenatal care of the breasts and so a reduction of the number of babies who must be robbed of their rightful inheritance of maternal nourishment because of the factors mentioned.

Not only is prenatal thought and encouragement and constant suggestion necessary to convince many mod-

1. Holt, L. E., and Babbitt, E. C.: Institutional Mortality of the New-Born. A Report of Ten Thousand Births at the Sloane Hospital for Women, New York, The Journal A. M. A., Jan. 23, 1915, p. 287.
2. Williams, J. W.: The Limitations and Possibilities of Prenatal Care Based on the Study of 705 Fetal Deaths Occurring in 10,000 Consecutive Admissions to the Obstetrical Department of The Johns Hopkins Hospital, The Journal A. M. A., Jan. 9, 1915, p. 95.

ern mothers of the importance of nursing their offspring, but in the far more important fortnight of postnatal care, which period is almost always solely under the obstetrician's guidance, a greater effort should be put forth by moral suasion as well as by material means to insure breast feeding and not artificial nourishment of the child. Of this I will speak later.

MOTHER'S DIET

Again, during the prenatal period, if there is cause to believe that the child will be unusually large, or if some degree of pelvic contracture exists, or if there has been a history of dystocia in previous births due to the great size of the child, it is a principle advanced by some that the amount and character of the mother's diet during pregnancy may be so regulated as to exert a beneficial restraining effect on the growth of the child. How serviceable such agencies may be I am unable to say, but there may exist here an opportunity for prenatal care which might enhance not only the safety of the mother, but especially of the child.

I have repeatedly heard it stated that the average colored baby rarely reaches 7 pounds in weight at term, and may not this deviation from the normal average of the weight of the new-born be due to natural restrictions in diet through want and necessity? Could the same factors of subnutrition inherent in this race be invoked artificially to restrain excessive fetal growth if the obstetrician is fearful of some disparagement between the pelvic and fetal measurement?

BIRTH INJURIES AND PALSIES

The conditions presented during the actual time of delivery are of necessity those wherein the obstetric art has the greatest sway. Prenatal and postnatal epochs are further removed from the direct supervision of the obstetrician, the former largely because of the belief of many women that a physician's care is not paramount previous to labor; the latter because only too quickly the infant passes under the almost exclusive domination of the nurse and not infrequently becomes the object of casual inquiry on the part of the medical attendant.

It is during delivery that results are looked for by the mother, and in so far as the accoucheur is concerned in producing the desired results, he employs various procedures of recognized obstetric practice to effect the accomplishment of delivery, when such are necessary.

The first serious condition from the standpoint of the child is prolonged and tedious delivery. That the largest number of hopeless cerebral palsies, for example, the terrible affliction of Little's disease, is produced by prolonged pressure on the fetal head I think is an unquestioned fact.

Kerley,[3] a man of broad pediatric experience, states that:

> Trauma at birth, whether due to use of forceps or to compression of the head in a prolonged or abnormal delivery, may result in meningeal hemorrhages causing cerebral palsy. An immense number of cases are thus caused. The obstetrician should always keep in mind that with him rests the possibility of making a hopeless invalid or an idiot of the child he is about to deliver. It is fully appreciated that under unusual conditions in obstetric practice certain risks of head injury must be taken for the sake of the immediate demands of the mother or the child, but the large number of cases of cerebral palsy and idiocy which I have seen have impressed on me the necessity of treating the child's head during delivery with the utmost care.

When one sees, as I have frequently seen, a hopeless, helpless little creature, who at 2 or 3 years of age cannot hold its head up unsupported, whose spine is bowed, who at 5 or 6 years must be supported to walk on its atrophied, spastic and crossed extremities, whose mind is a blank and its future equally so, one is constrained to reflect on the importance of a warning note.

FORCEPS, VERSION AND CESAREAN SECTION

The boon of forceps must be tempered with the thought as to the utility of "high forceps operations," into a discussion of which I am not qualified to enter. I believe, from a limited obstetrical reading and hearing of discussion, that the old high forceps application is nearing its well-deserved death. From the baby's standpoint an illustrative case might prove an object lesson.

A girl baby of 4 weeks was recently referred to me for supervision. This child had been delivered by cesarean section as a method of choice, weighed 7 pounds 9 ounces at birth, was perfect in every respect, and has since progressed lustily on breast feeding.

The mother of this child, whose birth weight I do not recall, weighed 25 pounds at 3 months of age. Four years ago her first-born, a baby weighing 11 pounds at birth, and 19 pounds at 6 months, was delivered by high forceps after a tedious labor. He now has a terrible scar on the right forehead involving the bone as well as the soft structures, a depression of the orbital arch, strabismus, and total blindness in the right eye. The election of abdominal cesarean section was made from the standpoint of the child, who in after years will no doubt be grateful to the obstetrician, as is the mother at present.

The advent into this world of a martial figure now large in the public eye was complicated by the failure of delivery of a note to the skilled accoucheur selected to attend the queen mother, so that the post of obstetrician fell to the lot of an obscure physician who has borne, perhaps unjustly, the stain of creating an Erb's palsy in the arm of his royal charge.

There are many Erb's palsies less widely heralded, but none the less real and crippling, which have been due to haste and lack of skill in effecting delivery, and where the status of the child has received scant notice, in the mental and manual efforts of the obstetrician.

The indications for cesarean section, abdominal or vaginal, when weighed in the balance of obstetric judgment, should take into account fully the status of the child as well as that of the mother in determining the proper procedures. It is gratifying to note a general tendency toward the employment of cesarean section as a method of election in doubtful cases, no doubt because the obstetric mind has become convinced that this operation is highly desirable, as it is accompanied with practically no fetal mortality.

If the status of the child be given its proper weight, there would be fewer versions and more sections in late placenta praevias. I well remember a distressing case of puerperal mania due to great loss of blood, and mostly I believe, to the mental anguish of loss of the first-born, in a patient with placenta praevia delivered at term by high forceps.

3. Kerley, C. G.: The Practice of Pediatrics, W. B. Saunders Co., Philadelphia, 1914, p. 495.

The employment of version to effect delivery is well known to increase the dangers to the offspring, yet until recent years this was the recognized procedure in cases of placenta praevia.

When one considers the danger of trauma, of asphyxia both from intra-uterine bleeding and from cord compression, the status of the child is relegated to the background in this method of accouchement forcé.

TWILIGHT SLEEP

There is another obstetric procedure now being widely discussed by women as well as by physicians, namely, "twilight sleep," which is yet in an experimental stage, but which should receive the earnest thought of all who practice obstetrics. The amount of attention which this subject has received from the feminine standpoint is bound sooner or later to elicit from the profession some definite stand for or against, and it would seem but fair that every endeavor should be made by obstetricians to pass judgment on this procedure by scientific inquiry, conducted under the most stringent conditions as to technic, which its supporters deem so necessary. It is only by such exhaustive investigation that the real worth or harmfulness of this measure can be determined, nor should it be left to the investigation and exploitation of those who are unfitted to determine its place among obstetric procedures.

In determining the usefulness of "twilight sleep," it would seem that the sine qua non of its employment rests with the ultimate effects, harmful or innocent, of the drugs on the child.

There is every reason to believe that the fetus is profoundly affected by the remedies employed to produce the necessary state of seminarcosis. It is believed by some who have used this method that these effects are transient and devoid of lasting influence.

In a report by Gauss[4] of his first 500 babies, 316, or 63 per cent., were lively, that is, normal, at birth. Four were born prematurely and died within a short time. One hundred nineteen, or 24 per cent., showed the condition known as oligopnea.

Dr. Jacobi holds to the belief that every moment of asphyxia in the new-born is fraught with the utmost danger as concerns its subsequent cerebral development. It is possible that later years will testify to the truth or falsity of this belief as applied to the peculiar asphyxia found in "twilight sleep" babies.

Gauss further says:

> I do not believe that this intoxicated condition harbors any serious dangers to the organisms. I have, nevertheless, taken occasion to avoid it experimentally by modifying the dosage. On the strength of my observations I thought that the intoxicating effect was due to the morphin, and I tried therefore to lessen the amount given or even avoid it altogether whilst maintaining or eventually increasing the dose of scopolamin. . . . If the quantity of scopolamin was increased beyond a certain limit, eventually even omitting morphin entirely, slight intoxicating effects were observed in the child, which were the more pronounced, the dimmer the state of consciousness of its mother. If the first injections were heavily overdosed, the intoxicating effect on the child took place sooner than in its mother; while the latter still retained unclouded consciousness, the former was eventually born in a state of apnea. Morphin by itself sometimes causes deep apnea in the child at birth.

In a later report of 3,000 cases, Gauss claims that the oligopnea is devoid of danger if not caused by large doses of morphin, to which the infant is extremely susceptible. His fetal mortality in this series was 1.3.

Brodhead[5] reports 46 cases at the Harlem Hospital in which 31 babies cried immediately after birth, 14 cried after some manipulation, several babies required hot and cold baths, artificial respiration, etc., and one child died thirty-six hours after birth, the necropsy showing venous engorgement of the brain and all the viscera. At the Post Graduate Hospital he reports 20 cases; two in the series had stillborn babies; one baby died thirty-six hours after birth. This child was in deep narcosis at birth and it required one hour and a quarter to make it breathe.

Such instances as cited will serve to call attention to the possible harmful effects on the child of this method of analgesia, but only the collection of a much larger series of carefully studied cases can determine the final judgment of its utility. The last analysis will obviously consider the status of the child alone as determining the recognition, if any, which will be ultimately accorded it.

POSTNATAL CARE OF INFANT

Granting that the skill and wisdom of the obstetrician have combated the dangers and avoided the accidents to the child during its prenatal and natal period, and that it has entered the world a healthy, lusty being, there are more postnatal pitfalls in store for this tender person, offspring, perhaps he should be called, for he has now undertaken a separate existence.

During the period of his parasitic life, one may call it, the altered conditions in the mother incident to his presence and growth have been the object of solicitude on the part of the obstetrician. The vomiting of pregnancy has been watched lest it become "pernicious"; the urine repeatedly examined, lest his presence be no longer tolerated because of possible eclampsia; in his very passage through the parturient canal his tender head may have been forcibly assisted by compressing forceps, or if not, it has been crowded up against the pubes, lest the perineum of the mother might suffer.

His process of exfoliation is complete with the severance of the cord and he is handed into the arms of the waiting nurse, who from that instant becomes his mentor, guide, and friend. Too often, I believe, this ritual between obstetrician and nurse betokens the presentation of an object from one to the other which is regarded largely in the light of a white elephant by the former.

Altogether too often the obstetrician's attention, so far as the child is concerned, ceases from the moment of its birth. To the nurse is entrusted the instillation of antiseptics into the eyes. Those who have properly performed this operation on the new-born know the difficulties sometimes met with in actually opening the lids to reach the conjunctival sac. Too often someone has blundered, and no preventive treatment directed toward ophthalmia has been instituted. Bear witness the patients admitted to our hospital wards with this serious malady.

Among the most fatal of all diseases of the new-born is to be found the group of septic infections. Many of these infections gain entrance through the umbilicus, and yet the toilet of this absorptive structure is almost always left to the nurse, no matter how competent or

4. Gauss: Arch. f. Gynäk., 1906, lxxviii, Part 3.

5. Brodhead: Post-Graduate, February, 1915, p. 87.

incompetent she may be to enforce the principles of strictest asepsis.

The avoidance of infection of foci other than the umbilicus may sometimes fall within the preventive care of the obstetrician. A few months since I was called to see, with another physician, a baby who had erysipelas, the disease subsequently proving fatal. The infection had gained entrance through an ear puncture made within the first few days of life to insure proper apertures for earrings when the child had attained sufficient size to embrace these features of barbaric adornment.

One might question the inclusion of such a matter within the scope of preventive measures on the part of the physician, but one might be answered by the fact that, in the case in point, the physician himself had made the ear punctures!

The obstetrician who practices strict asepsis, who wears snowy gowns and sterile gloves, who would stand aghast should the nurse dare to touch the maternal parts, by common practice neglects to extend to the infant in the toilet of its tender, susceptible body those features of modern asepsis which he would not fail to apply to the mother because of the danger of puerperal sepsis.

FEEDING

My last plea on behalf of the new-born is in regard to feeding. The knowledge that according to estimate, the artificially-fed baby stands from one-tenth to one-sixth less chance in early life than the nursling, should influence the obstetrician to use every means within his command, by moral suasion, by psychic appeal, by material treatment of the mother, to secure breast feeding for her offspring. This desideratum cannot always be attained, but the ability to secure it — granted that it is possible — rests almost alone with the obstetric attendant, to whom, for the first three or four weeks after delivery, the mother looks for guidance for her baby as well as for herself.

With the failure of the only nourishment ever intended for the human offspring, and never imitated in its entirety by the formulas of man, the question of putting the baby on the bottle arises.

Should this be necessary, it is a matter of supreme importance that all imitations of mothers' milk should be fabricated by the mind of the physician and not by the nurse. I recently had occasion to see a three-weeks-old baby who was receiving, as prescribed by the nurse, several ounces of rich top milk diluted with water, but further enriched by four ounces, namely a quarter of a pound, of sugar, the whole with rather disastrous results.

Medical nomenclature has coined the term "feeding cases," which include a great proportion of all illnesses and conditions met with during the first year of life. The adjustment of such now comprises a good part of pediatric practice and the evolution of a feeding case frequently begins within the first month of life.

Wile[6] has stated that 90 per cent. of physicians graduating are deficient in pediatric training. As an "apologia" to my obstetric confrères, for any criticism heretofore expressed, I would venture to assert that a large number of these 90 per cent. of physicians were deficient in their ability to properly direct infant feeding because of the incomprehensible teachings of pediatrists in former years; because of the unintelligible array of figures and algebraic formulas heretofore presented whereby infants were fed x + y and sometimes z; by the disease-producing fad of top-milk feeding and cream mixtures in an attempt to imitate the fat percentage in mothers' milk; and finally, because the makers of proprietary foods were far-seeing enough to place on their labels directions for simple dilution of milk which needed but the average comprehension of a mother, and not the mind of a statistician, to properly observe.

It is a stain on the past years of pediatrists that fat curds were so long regarded as protein curds, and that algebra, a science mastered in school years, was a process of educational gymnastics and not a method of administering nourishment to unoffending infants.

Be it said to the glory of the pediatric art that a time of awakening has come; that in artificial feeding, simple dilutions of cows' milk under simple and rational restrictions as to quantity will give the greatest service in the majority of cases.

These are the methods of feeding which the average practitioner can understand, so that the mental chaos created by fats, proteins, sugars, calories, topmilk, bottommilk, and whey, with which he was formerly befogged, and because of which so frequently the aid of the nurse or food manufacturer was invoked — has been dissipated by simple, intelligible methods.

Reuben[7] says, in a study of 1,500 milk-station infants:

> In all our bottle babies we used simple dilutions of whole milk. . . . In feeding the healthy artificially-fed infants we usually began with a one-in-three mixture. Seldom was it necessary to prescribe a more dilute mixture. The quantity at each feeding we increased one ounce every fourth week; the strength was increased as the weight and the symptoms indicated.

Grulee[8] feeds 1½ ounces per pound weight in twenty-four hours, diluted out to make the proper amount at each feeding.

This is not a paper on infant feeding, but the foregoing statements of exceedingly simple methods which succeed in the majority of cases are made to direct attention to the possibilities within the grasp of the obstetrician to initiate proper and harmless substitute feeding methods when necessary, in place of complicated, harmful combinations, and to plead that the physician himself dictate the beginnings of the infant's nutritional regimen, not relegating the foundation of what may mean health or disease to the hands of the nurse or the manufacturer of patent foods.

There is now being erected in Washington a modern ideal hospital costing some hundreds of thousands of dollars, to be called a "lying-in hospital" — a place to which women may go to be surrounded by every detail of safety during the birth of their babies, and presumably an institution for enhancing the safety of the child as well as the mother.

On its staff are the names of skilful obstetricians and gynecologists, and yet, in this theater of beneficent activity, there is a Hamlet left out — there is no pediatrist to assure to the new-born its just measure of scientific protection during a period of its early life so fraught with danger.

2017 Columbia Road.

6. Wile: Tr. Am. Assn. for Study and Prev. of Inf. Mort., 1900, p. 218.

7. Reuben: Arch. Pediat., March, 1914.

8. Grulee, C. G.: Infant Feeding, W. B. Saunders Co., Philadelphia, 1912, p. 137.

DRAINAGE OF CEREBROSPINAL FLUID AS A FACTOR IN THE TREATMENT OF NERVOUS SYPHILIS*

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PHILADELPHIA

The discovery of the spirochete in the nerve tissue itself was of great value in confirming the opinion already held that paresis and tabes were due to syphilis. The discovery of salvarsan added an important remedy to the therapeutics of syphilis. Notwithstanding these two great advances, tabes and paresis remain incurable. The discovery by Swift and Ellis of a method whereby the remedies could be applied directly to the nervous tissue by way of the cerebrospinal fluid was hoped to be the solution of the problem.

At the session of the American Medical Association in 1914, in the Section on Nervous and Mental Diseases, some glowing reports were read on the results of the treatment of paresis by the serosalvarsan intraspinal method, but at the close of the discussion one was impressed with the fact that many men of experience were convinced that the treatment had little effect on paresis.

The question naturally arises why, if either arsenic or mercury are present in the blood and produce good results in all other forms of syphilis, no such results are obtained in syphilis of the nerve tissue. The answer is given that after the administration of either drug by way of the mouth, skin or blood vessels, neither drug was to be found in the cerebrospinal fluid. Why? Is it because the choroid plexus will not allow substances such as arsenic and mercury to pass, or is it because, if they do pass into the cerebrospinal fluid, it must be by osmosis, and this does not take place because the pressure of the cerebrospinal fluid equals the pressure of the blood in the venous sinuses and capillaries?

If the latter is the case why not saturate the patient's blood with either salvarsan or mercury, and at intervals drain off the cerebrospinal fluid by lumbar puncture, lower the pressure in the cerebrospinal sac, and thus cause the drugs to osmose through the capillaries?

While on service at the Philadelphia Hospital in July, 1914, we tried to work on this idea, but as we were on duty for only one month, there was insufficient time to accomplish anything.

One year ago we asked Dr. F. X. Dercum why cases of paresis and tabes could not be benefited by drainage of the cerebrospinal fluid, and he immediately suggested that the subject be investigated. Because of his cooperation and interest in the work, and his kindness in placing at our disposal the material of the Jefferson nervous clinic, we are able to make a preliminary report on our work and present reports of three patients who have been treated according to this method.

Dr. Earley has made the laboratory studies and has overseen the drainage of the cerebrospinal fluid.

* Read before the Philadelphia Neurological Society, Oct. 22, 1915.

In the investigation of this subject one is handicapped by a lack of knowledge of the origin and function of the cerebrospinal fluid. Gray states it to be a clear, limpid fluid having a saltish taste, slightly alkaline reaction, 98½ parts water and 1½ parts solid matter, animal and saline. Its chief use is probably to protect mechanically the nerve centers and prevent effects of concussion from without. Morris states that the cerebrospinal fluid fills the subdural, subarachnoid space, and cavities of the brain and cord. It is a clear, transparent liquid of a faint yellow color and a specific gravity of from 1.007 to 1.015. The origin of the fluid is not known, but it is believed that it exudes into the ventricles from the choroid plexuses, and from the blood vessels of the spinal cord and brain into their perivascular lymph spaces which open into the arachnoid space, and possibly the fluid which lies in the subdural space passes into it from the lymphatic channels in the dura mater.

McIntosh and Fildes believe that the subarachnoid space is a closed cavity, filled with a relatively stagnant cerebrospinal fluid which acts simply as a water cushion to the spinal cord and brain; that it serves no lymphatic function and is shut off from the lymphatics of the brain, cord and roots by the endothelium covering the walls of its containing space. They state that the origin of the fluid is unknown but that it is probably a secretion of the endothelium lining the subarachnoid space.

Frazier and Peet believe it can be demonstrated almost without question that the cerebrospinal fluid is almost if not entirely secreted within the ventricles and that absorption does not take place until the fluid has escaped from the ventricles. They found that the cerebrospinal pressure varies with the pressure of the blood in the venous sinuses and is practically identical with it.

Weed states that around the cerebral vessels are spaces which extend to the capillaries and communicate with the subarachnoid spaces, and that if the direction of the flow of fluid in these perivascular spaces could be determined, light would be thrown on another possible source of cerebrospinal fluid. Then by injection, under varying pressures, into the subarachnoid space, he demonstrated that by making sufficient pressure he could recover stain granules even in the lumen of the capillaries. These results point, it would seem, to a flow from the capillaries into the perineuronal and perivascular spaces and thence into the subarachnoid space, where the fluid mixes with that from the ventricles. These results point clearly to a dual source of the cerebrospinal fluid, namely, the choroid plexus and the cerebral capillaries.

The intraspinal serosalvarsan treatment gives brilliant results in tabes, at least as far as checking the progress of the disease is concerned, but how many careful observers see any such results in paresis? The brain is accessible to drugs such as alcohol, morphin and caffein when introduced into the blood, and alcohol has been found in the cerebrospinal fluid in delirium tremens.

Why is the brain not affected by arsenic or mercury given in the same manner? Why does the cerebrospinal fluid remain free from arsenic, as shown by a number of investigators? It would seem that the same mechanism which prevents the entrance of serum albumin, sugar, urea, ammonia, etc., which normally exist in the blood but do not enter the cerebrospinal

fluid, appears also to prevent the entrance of arsenic and mercury into the cerebrospinal fluid.

Is it not reasonable, then, to think that if we reduce the pressure within the cerebrospinal cavity we may succeed in bringing foreign substances through the capillary walls and thus secure the direct effect of drugs such as arsenic and mercury on the nerve tissue itself?

In carrying out the treatment we have tried to drain our patients once a week. We drain off as much cerebrospinal fluid as will flow: from 20 c.c. as high as 40. We place the patient on the side in bed. The needle used is sterilized with dry heat. The needle is inserted at the second or third lumbar interspace. The first 5 c.c. of fluid are used for testing. In the cell count the Fuchs-Rosenthal counting chamber is used. Cells are stained with methyl violet, 0.1, glacial acetic acid, 2, and distilled water, 50 parts. The specimen for the lymphocyte count is fixed at the bedside. Nonne and Noguchi tests are used for globulin. If red cells are found, the specimen is thrown out and a new specimen secured the following day. The gold-chlorid test is not considered of sufficient importance to be used, as the Nonne and Noguchi tests are sufficient for all practical purposes.

In the Wassermann test for the blood and fluid, alcoholic extract of syphilitic liver is used for the antigen; 0.1 c.c. of serum and 0.2 c.c. of spinal fluid are used. We have had no bad results in draining our patients except a slight headache in one patient, and we have drained him several times since with no untoward results.

CASE 1.—Man, aged 35, white, married, who has no children and whose wife has never been pregnant, was admitted to the clinic Feb. 25, 1914. There was a history of chancre

LABORATORY EXAMINATIONS, CASE 1

Date	Blood	Cells	Globulin	Spinal Fluid
11-17-14	Positive, plus 3.....	16	Positive	Negative
12-10-14	Positive, plus 3.....	21	Positive	Negative
12-29-14	Positive	..	Positive	Negative
3-16-15	Positive, plus 1.....	14	.....	.....
4- 1-15	Negative	12	Positive	Negative
5-19-15	Negative	12	Positive	Negative
10-21-15	Negative	8	Positive	Negative

nine years ago. He was treated for two years. At present he complains of tremor in legs and body noticed at night after a hard day's work. Pain in legs has been intermittent in character for the past seven months. He has twitching in the arms, and headache at times, especially on the right side. There is no history of gastric, bowel or bladder disturbance. He feels tired, and is unable to work as well as formerly. His memory is not so good as before the onset of the illness. He does not worry. He believes he is treated justly, and has a general air of well-being. He has worked at the same place for the past seven years.

Examination shows a fine tremor of the tongue. There is no ataxia of gait or station. The pupils are unequal, the left dilated, with slight reaction to light. The right pupil does not react to light, and both react to accommodation. The knee jerks are equal and normal, and no Babinski is present. The memory is found deficient on examination. The blood Wassermann Feb. 27, 1914, was plus 3. The patient was put on mercury by inunction and was considered to have a case of early paresis. On account of his bearing and air of great importance we hesitated about taking him into the ward for a serosalvarsan treatment, and in November, 1914, decided to use drainage of the cerebrospinal fluid in addition to mercury by inunction. He was drained once every two or three weeks.

The patient at present is holding a position requiring mental exactness, and his mental condition appears to be normal. His pupils show no change since beginning treatment.

CASE 2.—O. L., man, aged 52, white, bookkeeper, was admitted to the clinic, March 22, 1915, complaining of loss of memory and dizziness. He gave a history of chancre thirty-one years ago. He is married and has two children, and his wife had one miscarriage.

The present trouble began one year ago. He noticed paralysis of an eye muscle which cleared up in a month under treatment. Last summer he noticed that he was losing his memory when attempting to add a column of figures, and he felt nervous, irritable and easily tired. At times he had incontinence of urine during the night. He feels tired in the legs, and notices on walking that the legs become weak. He has difficulty in walking, which he calls dizziness.

LABORATORY EXAMINATIONS, CASE 2

Date	Blood	Cells	Globulin	Spinal Fluid
3-30-15	Positive, plus 4..	152	Positive	Positive, 0.2 c.c.
4-23-15	Positive, plus 4..	...	Positive	Positive, 0.2 c.c.
5-22-15	.....	106	Positive	Positive, 0.2 c.c.
7- 8-15	.....	96	Positive	Positive, 0.2 c.c.
7-27-15	.....	72	Positive	Positive, 0.2 c.c.
9- 8-15	Negative	...	Positive	Positive, 0.2 c.c.
10-21-15	Weakly positive.	36	Positive	Positive, 0.2 c.c.

On examination the gait and station are ataxic, knee and Achilles are absent, and the pupils are contracted and do not react to light, but do to accommodation. The memory is found deficient. Patient is greatly depressed, and worries over his condition.

The patient was given serosalvarsan intraspinally after salvarsan intravenously, April 1 and 23, May 22 and June 4. Clinically, he showed no improvement, though his cell count dropped. His bladder control was not improved, his gait was unchanged, and his mental depression and memory defect were as marked as on admission. He was then put on mercury by inunction during June and July, with drainage of the cerebrospinal fluid once weekly. By August he went back to work at bookkeeping, walked better, felt better and had lost his mental depression. He is still at work, though his last examination shows he needs more treatment. We believe that he has taboparesis.

CASE 3.—S. M., man, aged 43, white, was admitted to the clinic, May 12, 1915. His chief complaint was stiffness of the knees with pain. He has three healthy children, and his wife has had no miscarriages. He was married at 20 and denies all knowledge of chancre. He admits the frequent smoking of other men's pipes.

On admission he makes the statement that the present trouble began with pain and stiffness of the knees four years ago. He has had shooting pains in the legs, and has been

LABORATORY EXAMINATIONS, CASE 3

Date	Blood	Cells	Globulin	Spinal Fluid
5-14-15	Negative	46	Positive	Positive, 0.2 c.c.
6-21-15	Negative	33	Positive	Positive, 0.2 c.c.
7- 8-15	Negative	30	Positive	Positive, 0.2 c.c.
7-27-15	Negative	24	Positive	Positive, 0.2 c.c.
9- 9-15	Negative	8	Positive	Negative
10-12-15	Negative	0	Positive	Negative, 0.5 c.c.

unable to walk well during the past year. He has had difficulty in starting the stream of urine for the past six months. He states that he is unable to go up or down-stairs without holding on the stair rail. He suffers from severe lightning pains. His appetite is poor. He has lost 25 pounds' weight. His gait and station are ataxic; the pupils exhibit the Argyll Robertson phenomenon; knee jerks are absent.

A diagnosis of tabes dorsalis was made, and the patient was put on mercury by inunction without any salvarsan.

He was given 2 drams daily of the official unguentum hydrargyrum, to which he responded by tenderness of the gums in three weeks. The cerebrospinal fluid has been drained by lumbar puncture fourteen times.

At present he is free from pain, has regained his normal weight, and though still ataxic when subject to test, he can go up and down-stairs with no trouble. He looks and feels well and is anxious to get back to work. The results in his treatment have been just as good as in any case we have treated with the Swift-Ellis method.

We realize that these three cases prove nothing. We know that the time of observation is too short to eliminate the improvement in a case of paresis which may be due only to a remission, but we see that from a clinical and laboratory point of view these three patients as well as others we have under treatment are improved, and we feel that we are justified in making this preliminary report in order to stimulate work in this field. We do not see any improvement in reflexes such as the knee-jerk and pupillary reactions. We see marked improvement in mental and physical health with lessening of the ataxic symptoms.

A CASE OF HEMIPARESIS, ATAXIA AND ASTEREOGNOSIS ASSOCIATED WITH ARACHNOIDAL EDEMA *

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AND
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The following case is presented because of the interesting correlation of the symptomatology, gross pathologic findings and postoperative results.

History.—B. H. R., a landscape gardener, aged 49, was practically well until eighteen months prior to examination. Fifteen years ago an abscess ruptured from the left ear, and a low grade otitis media followed. The patient had been a hard drinker for several years, but had become much more temperate three months before examination.

The onset of the present illness was gradual and consisted chiefly of dizziness. After a few months the vertigo became so severe that the patient fell, striking his head and becoming unconscious. The fall ruptured an abscess in the left ear (where the previous abscess had ruptured years before), and the patient was carried to a hospital, where he remained two months. His memory at examination was poor concerning the two months spent in the hospital; but it appears that the patient gradually gained strength until he was able to return to work temporarily. Dizziness, tinnitus and marked headache, however, slowly increased during the three or four months which elapsed from the time he left the hospital until he presented himself for examination.

Occasionally, nausea and vomiting were associated with the ever-present headache which was referable to the left side of the head. Visual acuity gradually decreased till at examination it was 20/50 in both eyes. The patient had fallen several times since leaving the hospital, but seldom became unconscious.

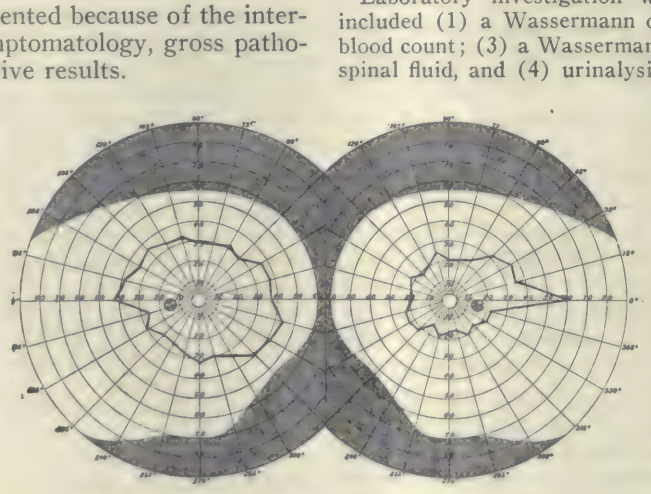


Chart of visual fields, showing concentric contraction.

Examination.—Mentally, the patient was amnesic for recent events, and said that his memory had been impaired since his first fall. Also he was despondent, irritable and suicidally inclined. Speech was not impaired, except in so far as the amnesia affected it. There was no motor aphasia, no word deafness. The patient repeated sentences fairly well, except when his memory failed him.

The right hand of the patient underwent frequent spasmodic flexor movements and was incapable of performing the finer manipulations, as shown by his handwriting. The finger-nose test brought out incoordination and intention tremor of the hands, but more marked in the right. The heel-knee test revealed incoordination of the lower extremities, but much greater in the right leg. The patient volunteered that the right leg had been somewhat wasted two years ago. Muscular weakness was evident from tests of both legs, but was more marked in the right. Now and then the right leg was spasmodically flexed, while the head and spine were suddenly extended. The grip in the right hand was impaired.

The tendon reflexes were exaggerated, especially the right patellar, and there was some spasticity of the legs. Romberg's sign was positive.

There was defective hearing and a "clicking sound" in the left ear; the vision was impaired in both eyes, the visual fields exhibiting an irregular concentric contraction as shown in the accompanying chart; but the eyegrounds were normal, showing no edema or evidence of choked disk.

There was pain from the elbow down and from the knee down, particularly on the right side; and the right hand was deficient in the stereognostic sense, the patient not being able to recognize a pencil by its feel in the right hand, though he recognized it readily enough by feeling it with his left hand. There was no anesthesia, nor disturbance of cranial nerve functions, other than optic and auditory. Neither the pulse nor the blood pressure was abnormal.

Laboratory investigation was uniformly negative. This included (1) a Wassermann of the blood; (2) a differential blood count; (3) a Wassermann and cell count of the cerebrospinal fluid, and (4) urinalysis.

Summary of Symptoms and Tentative Diagnosis.—1. It was decided that the lesion in this case was on the left side of the cerebrum, involving the motor area for hand and leg, and including the angular gyrus where the stereognostic perceptive center is located. Whether the pain in the right forearm and leg were referable to the sensory areas back of the rolandic fissure or merely to muscular irritation from spasm of the muscles in the forearm and leg was doubtful.

2. The dizziness, headache and nausea indicated some intracranial pressure, even though the eyegrounds, pulse and blood pressure were negative in this respect. Therefore, it was thought that a diffuse accumulation of fluid of some sort existed over the left side of the brain, extending as far forward as the prerolandic region and as far posteriorly as the angular gyrus, near the extremity of the sylvian fissure.

3. Brain abscess was suggested by the history of recurrent middle ear abscess, but the blood count was negative, and the idea of abscess was not accepted without reservation. A diffuse cyst was more confidently expected, a view somewhat supported by the history of prolonged alcoholism.

4. Finally, a localized traumatic meningitis was considered, inasmuch as the patient had sustained a blow on the left side of the head in falling, sufficient to render him unconscious and to rupture an abscess of the middle ear.

In view of the foregoing findings, operation was advised.

Exploratory craniotomy; leptomeningitis chronica; arachnoidal edema and pseudocystic formation associated with

* Presented at the August, 1915, meeting of the Atlanta Neurological Society.

superficial focal cerebritis situated principally on the posterior border of the rolandic fissure. Multiple arachnoidal scarification; temporary drainage.

Operation.—(Dr. Charles M. Remsen, Aug. 8, 1915. Gas-oxygen-ether anesthesia.) Left craniotomy performed by the usual technic. The bone was excessively vascular, and the hemorrhage could only be controlled by bone wax. After reflecting the flap a rather tense dura presented, and there was a distinct tendency toward herniation of the underlying tissue through the opening. Instead of a normal cortex presenting, covered with the normal leptomeninges, one saw somewhat enlarged cortical vessels faintly shimmering through a cloudy, edematous, membranous meshwork, Accompanying the vessels, and usually to either side, could be seen white diffuse streaks suggesting delicate connective tissue thickening. The overlying edematous membrane showed flecks of yellow irregular plaques which also seemed to have a distinct relation to the underlying vessels. The convolutions were barely discernible. This condition seemed to be a rather diffuse process extending from the region somewhat anterior to the fissure of Rolando to a region 4 or 5 cm. posterior to this fissure. The exact relation to the fissure could not be ascertained on account of the edema or fluid collection within and under this arachnoidal membrane. Careful inspection of the cortex necessitated multiple punctures of the overlying membrane, great care being taken to avoid even the most minute blood vessels in order not to have the field disturbed by the presence of the slightest hemorrhage. Gentle gauze pressure brought about the escape of a large amount of fluid through the puncture holes, and this allowed the arachnoid to approach more closely its normal state, permitting a careful inspection of the underlying cortex. More accurate orientation was now possible, and the location of this accumulation, whether edema or cerebrospinal fluid, was ascertained, being greatest along the posterior belt of the rolandic fissure, especially in the direction of the fissure of Sylvius, but reaching upward toward the great longitudinal fissure and extending downward onto the temporal lobe. It reached forward several centimeters onto the frontal lobe, and backward as far as the ascending limb of the cerebral fissure. The underlying cortex showed a slight edema and was irregularly spotted with cloudy deposits, suggesting faint connective tissue thickening in the pia. The appearance, as a whole, denoted a diffuse, partially localized area of marked edema of the arachnoid with perhaps an excess accumulation of cerebrospinal fluid directly underlying it. Underneath this lay a somewhat swollen cortex, suggesting a chronic leptomeningitis and superficial cerebritis with slight connective tissue formation, the edema automatically causing a pressure on the underlying nervous tissue. Though diffuse, this area of arachnoidal edema or chronic leptomeningitis was most marked just posterior to the fissure of Rolando, at which point the deeper leptomeninx showed more evidences of connective tissue thickening than elsewhere; the arachnoidal meshwork was more markedly distended with fluid; the underlying cortex was more edematous, and showed a greater tendency to bulge on the relief of pressure, and the connective tissue formation about the blood vessels was more pronounced.

Brain puncture revealed no deep cystic accumulation. We were forced to consider the condition as a superficial lesion, and accordingly by multiple scarification of the outer leptomeninx we were able to release the fluid from its confines, and allow the arachnoid to sink into its normal position in approximation with the pia and cortex.

A small protective wick was led from this region, through a dural cleft after the reposition and resuturing of this flap. This took care of the excess fluid for about five days, following which there was no discharge. The osteoplastic and skin flaps were replaced in the usual manner and healing was per primam.

Before closing, a small section of bone was removed anterior to the flap to serve as a slight decompressive vent. The convalescence was uneventful and the patient left the hospital on the seventh day.

During that period the only symptom of note was some stuttering, which for the first four days was markedly increased, following which there was a rapid vanishing of this symptom, which has never reappeared.

Outcome.—At this time, three months after operation, examination shows the following improvement and changes in symptoms:

1. Motor: Disappearance of the spasmodic movements of hand and leg; almost complete clearing up of ataxia, so that the finger-nose test shows no abnormality, and the patient neither stumbles nor falls.

2. Sensory: Diminution of pain below elbow and knee; relief from headaches; complete relief from astereognosis.

3. Mental: Great improvement in memory; lessened irritability; cessation of suicidal impulses.

Finally, the patient's general improvement is such that he has been able to return to work.

PASTEURIZATION OF MILK SUPPLIES AS A PROTECTION AGAINST TYPHOID FEVER

REPORT OF AN EPIDEMIC

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AND
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Pursuant to instructions received from the office of the secretary of the California State Board of Health, an investigation was made of a number of cases of typhoid fever which were occurring in Richmond, Calif. The health officer had previously informed the California State Board of Health that a number of cases were traceable to a dairy in Richmond, which will be known as Substation 1. Unfortunately, instructions were given to him to close this dairy. At our initial conference with the health officer, he submitted evidence that the source of infection of the majority of the cases of typhoid fever reported in Richmond was the milk supply coming from Substation 1.

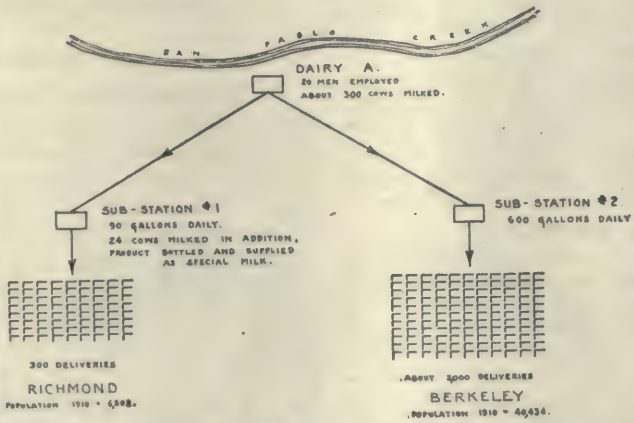
The number of cases in this outbreak was approximately 12, with no deaths. The majority of the patients came down with symptoms on or about Nov. 1, 1915.

Substation 1 is a dairy situated on the outskirts of the city of Richmond, and makes approximately 300 deliveries a day in the city proper. Twenty-four cows of its own are milked, and the resulting product is bottled and supplied as a special milk to babies. They also receive from Dairy A, on San Pablo Creek, Contra Costa County, 90 gallons of milk a day, which is sold separately from milk obtained from their own cows. The conditions at Substation 1 were excellent. The records were so kept that we were able to demonstrate conclusively that the persons with typhoid fever were supplied by milk that came from Dairy A.

Dairy A is a large dairy employing twenty men and milking approximately 300 cows. It is situated on San Pablo Creek, about three miles from the city of Richmond and ten miles from the city of Berkeley. This dairy supplies 90 gallons of milk a day for delivery in Richmond to Substation 1, and 600 gallons daily to Substation 2, for delivery in Berkeley. Substation 2, in Berkeley, has approximately 2,000 deliveries daily. It could be considered that at least 6,000 per-

sons received milk obtained from this source and possibly 500 from Substation 1.

There were no persons ill at Dairy A at the time of our investigation, except that a milker who came under our observation had a streptococcus infection of the hand. The majority of the men employed were non-English speaking Portuguese. By diligent inquiry we learned that the head milker, a Portuguese by the name of Azevedo, had been ill for a few days and was in the care of a physician, whose name was not known, in a hospital in Berkeley. At the hospital the man was found in such a condition that we were unable to obtain any information from him whatever. The hospital records showed that he was brought into the hospital by Dr. X of Richmond, Oct. 26, 1915. The diagnosis on the hospital chart was given as typhoid fever, and positive Widals had been obtained at the Berkeley City Laboratory. On subsequent inquiry of Dr. X it was learned that this man came to him, October 26, with a high temperature and feeling very bad. The patient was immediately placed in the hospital, but the case was not reported to the health officer of Richmond or to the health officer of Contra Costa County, though typhoid fever was suspected at the time. From our conversation with Dr. X we obtained the impression that he know, or had heard, that this case came from Dairy A on San Pablo Creek. From Dr. X it was learned that this man was evidently ill a week before he came to consult him, proving that the appearance of symptoms in the majority of the cases was consistent with the incubation period of typhoid fever, and the probable time of infection. It was impossible to trace the infection of this case, as there was no one else ill with typhoid fever at the dairy; but from the owner it was learned that as head milker it was necessary for him to take trips to the different cities in the bay region, as he bought provisions and hired help. The water supplies were checked bacteriologically, and one well was condemned. Subsequent field investigation showed this well to have undoubtedly received its contamination from sources other than human beings. It is situated in a depression in an isolated field used as a grazing ground for cattle.



Relation of Dairy A to the Richmond and Berkeley milk supplies. All the cases of typhoid were at Richmond, supplied by Substation 1, at which the milk is not pasteurized. At Berkeley, supplied by Substation 2, at which the milk is pasteurized, there were no cases.

An interesting observation noted was the small number of cases in Richmond, twelve, in comparison to the number of persons receiving the infected milk, 500. A previous milk-borne epidemic of typhoid fever in California was reported to the state board of health, in which the cases, as in this epidemic, were few in number, with no fatalities.[1]

The twelve cases of typhoid fever occurring in Richmond were traceable to the milk coming from Dairy A. In contrast, there were no cases of typhoid fever in the city of Berkeley traceable to this milk supply, notwithstanding the fact that 600 gallons of milk, undoubtedly infected with the typhoid bacillus, were supplied daily to Substation 2. This is evidently due to the fact that, although receiving the same milk that caused the outbreak of typhoid fever in the city of Richmond, the milk supplied to Substation 2 in the city of Berkeley was pasteurized. This constitutes a unique and unparalleled experiment with human beings — accidental, of course, but demonstrating conclusively the practicability of pasteurization of milk supplies as a factor in diminishing typhoid fever. The absolute protection that pasteurization gave to customers of Substation 2, thousands in number, who were supplied with milk so treated, is an indisputable argument against the use of raw milk when it is not possible to compel thorough medical examination of dairy employees at frequent intervals.

1. Geiger, J. C.: A Milk-Borne Typhoid Fever Outbreak at Colusa in May, 1915, Bull. California State Board of Health, June, 1915.

SUBDELTOID BURSITIS ASSOCIATED WITH THE DEPOSITION OF LIME SALTS

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In roentgenograms of the shoulder region one or many shadows, varying in size, are not infrequently found on the outer side of the head of the humerus between the greater tubercle and the acromion process. These shadows may be unaccompanied by symptoms or they may be associated with so much pain that the patient is practically incapacitated. Two of the eight patients observed by Stieda were obliged to take to bed because of the severity of the pain. Notwithstanding the similarity between the cases that have been reported, there is considerable difference of opinion as to the etiology of the lesion associated with the deposition of lime salts, and also as to the structures involved. Painter, Haenisch and Stieda believe that the lime salts casting the shadow are deposited within the wall or cavity of the subdeltoid bursa, while Wrede, Codman and Brickner believe that they are deposited in the tendon of the supraspinatus or even, in some cases, in that of the infraspinatus muscle, and that they are deposited after a contusion or laceration of the tendons just mentioned. Brickner in a recent article makes the statement that the shadow seen roentgenographically is never due to thickening of the bursal walls; that it is always caused by calcareous deposits; that this deposit is never in, but always beneath, the bursa in or on the supraspinatus or sometimes the infraspinatus tendon; that removal of the bursa is unnecessary and that its complete excision as recommended in some books is impossible except by mutilating dissection.

The following case is reported because both the clinical and the Roentgen-ray findings indicated a bursitis associated with calcium deposits, which disproves many statements made concerning the lesion.

Brickner, Wrede and others believe that this rather peculiar lesion is always associated with some injury of the supraspinatus, or at times infraspinatus, tendon. The findings revealed by operation were so typical that there could be no doubt as to the anatomic structure involved.

REPORT OF CASE

History.—Mrs. E. G., aged 42, was admitted to the service of Dr. Dean Lewis at the Presbyterian Hospital, Aug. 19, 1915. She complained of severe pain in and about the left shoulder and fixation of the arm to the side of the chest. The pain in the shoulder was first noted in the spring of 1909, when it was regarded as rheumatic in character. The patient at this time took treatment at Mount Clemens for four weeks, after which she was comparatively free from pain for six months. The pain then reappeared and subsequently a course of treatment at Mount Clemens was repeated without relief. During the past few months the pain has been so severe that the patient has required narcotics, and her general health has been impaired because of constant suffering and loss of sleep. While there has been some pain the year around, it has increased in intensity during the autumn and spring.

The pain is severe, often shooting in character. It is most marked over the region of the shoulder anteriorly, but radiates downward to the elbow and the flexor surface of the forearm and into the neck along the course of the brachial plexus. There are no sensory or motor disturbances of the nerves of the left upper extremity.

Examination.—The arm is held tightly to the chest and when abduction is attempted a vigorous muscle spasm develops which prevents any abduction whatsoever unless considerable force is employed, and then the pain is greatly increased. Both external and internal rotation of the arm are limited.

When pressure is made over the greater tubercle of the humerus, marked tenderness is elicited. The point of maximum tenderness corresponds to a distinct localized swelling about the size of a silver dollar, which in position and extent would seem to be caused by an enlargement of the subdeltoid bursa.



Roentgenogram of shoulder structures in author's case.

The Roentgen-ray examination (made by Dr. Hollis E. Potter) revealed a distinct shadow capping the greater tubercle of the humerus and extending upward beneath the acromion. The shadow is very distinct in outline and separated from the tubercle by a distinct space. The space between the shadow and the humerus is so wide that it would scarcely seem possible that the lime salts responsible for it could be within the tendon of either the supraspinatus or infraspinatus tendons. There is a distinct projection from the upper end of the shadow, apparently into the cavity of the bursa.

Because of the duration and intensity of the symptoms, without relief from therapeutic measures formerly employed, extirpation of the subdeltoid bursa was decided on.

Operation.—A vertical incision between 4 and 5 inches in length was made from the middle of the acromion process downward over the prominence already mentioned toward the external condyle. The deltoid muscle was exposed and its fibers separated by blunt dissection, the axillary nerve being exposed in the lower angle of the wound. As the muscle fibers over the swelling were exposed, a peculiar mottled tissue was found, into which some recent small punctate hemorrhages had occurred. The amorphous masses of lime salts were deposited in the upper wall of the bursa, which was considerably thickened. By wide retraction of the separated edges of the deltoid muscle, the subacromial extention of the bursa could be dissected out. Notwithstanding the statement of Wrede and Brickner, extirpation of the bursa is possible if the separated muscle edges are retracted widely. The calcium deposits were confined to the upper wall of the bursa. The wall lying on the humerus and supraspinatus tendons was intact and the tendon of the supraspinatus muscle appeared normal.

After extirpation of the bursa a thin fat transplant was dissected up from the edges of the wound and transplanted free into the space formerly occupied by the bursa and fixed in position by some fine catgut sutures. No immobilizing dressing was applied.

The pain subsided immediately after the operation. The patient when seen seven weeks after the operation had fairly free motion of the arm. Although abduction was somewhat limited, the arm could be carried away from the body to 60 or 65 degrees.

Microscopic Examination.—Microscopically the tissue removed presents distinct inflammatory changes. There are numerous large giant cells and the changes are much like those described by Benecke in gouty foci. In the clinical examination no evidences of gouty deposits were found in other parts of the body. Although no chemical tests were made, the amorphous mass in the wall of the bursa corresponded to those described by Stieda and others, which proved to be calcium carbonate and phosphate.

No distinct etiologic factor could be determined in this case. Trauma involving the bursa or supraspinatus tendon could be excluded. The only probable etiologic factor is repeated attacks of tonsillitis about the time the pain appeared in the shoulder.

There is a difference of opinion as to the method of treatment to be employed in these cases. The lime deposits may disappear, as has been noted by Haenisch. Some of the large shadows observed by him had practically or totally disappeared when the patient was examined a few weeks subsequently. The symptoms may improve under muscle and capsular massage and dry or moist heat applied locally. I believe that the best treatment, however, is excision of the bursa, which is possible even without a mutilating operation.

This case is so typical both in Roentgen-ray and operative findings as to leave no doubt that the bursa is the structure primarily involved, and disproves the rather dogmatic statements of both Wrede and Brickner that the lime deposits in these cases always occur in the supraspinatus tendon following contusion or laceration of that structure.

Diabetes Death Rate.—During 1914, according to a bulletin of the Bureau of the Census, diabetes caused 10,666 deaths, or 16.2 per 100,000. The rate from this disease has risen almost continuously since 1900, when it was 9.7 per 100,000.

FILARIA SANGUINIS HOMINIS

WITH REPORT OF A CASE

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The *Filaria sanguinis hominis* (*Filaria nocturna, Filaria bancrofti*) was first described in 1863, when Demarquay discovered the parasites in chylocele fluid. Later (1866) it was demonstrated in chylous urine by Wucherer. It was not until 1872, however, that its presence in the blood was noted, by Lewis, and in 1876 Bancroft's investigations explained the disappearance of the parasite from the blood during the daytime by its migration to the lungs. Two years later Manson found filariae in mosquitoes. Further work by Manson, Bancroft, Low, and Fülleborn, and also by Grassi and Noé, who inoculated healthy dogs by means of infected mosquitoes, has given us our present knowledge of the life history of the parasites.



Fig. 1.—Photomicrograph of filaria, × 500.

In the human host the parasites (mostly females) lodge in the lymphatic system, especially of the scrotum, extremities, cord, epididymis and testicles. The eggs, after leaving the uterus, where they are present in all stages of development, are carried through the lymph stream to the peripheral circulation. During the daytime they resort to the lungs, being seen in the blood only at night. It is of interest, however, to note here that in individuals whose work requires them to be up at night and to sleep during the day, the time of appearance of the microfilariae is reversed, and they appear in the circulation, in these cases, during the day. This refutes the idea that the parasite has accommodated itself, for self-preservation, to the habits of the mosquito, and we must fall back on such indefinite explanations as circulatory or metabolic changes coincident with sleep.



Fig. 2.—Drawing of filaria: *A*, sheath; *B*, mouth; *C*, head; *D*, nerve ring (anterior break in cell column); *E*, anterior "V-spot" (excretory pore); *F*, posterior "V-spot" (genital pore); *G*, tail.

Seen in a specimen of fresh blood, the parasite looks like a very active worm or small snake, wriggling violently and knocking the corpuscles about, but altering its relative position little, if any. The length varies from 150 to 300 microns, and the breadth from 7 to 11 microns. It is enveloped by a sheath, or vitelline membrane, and has a blunt head and a tail which tapers off to a point, both anterior and posterior ends having clear, non-nucleated areas. There are the "V-spots," or genital and excretory pores, and through the center of the parasite, running longitudinally, may be seen a central viscus occupying usually about half the length. In the fresh specimen, transverse striations are made out over the body.

After the filaria has entered the mosquito's stomach, together with the blood ingested, the vitelline membrane is dissolved by the gastric juice, enabling the parasite to pierce the stomach wall with the sharp spine at its head and escape into the thoracic musculature, where it develops and is later carried to the salivary glands of the mosquito, ready to be inoculated into the next human being who is bitten.

In the following case of filariasis, the patient came to my office and was referred from there to the Boston City Hospital, so that he might be observed as long as necessary into the night.

REPORT OF CASE

History.—Man, aged 20, single, actor, born in Spain, who had traveled extensively, especially in the tropics, with a good family history containing no suggestion of tuberculosis, cancer, epilepsy or insanity, stated that he had had no illness, except measles when a child, until three years ago, when, while in British Guiana, he noticed an increasing spinal curvature, for which he was fitted to a plaster jacket two years ago, wearing the jacket for about a year. His habits were good, and he denied having had any venereal disease.

After wearing the plaster jacket for about six months, the patient noticed slight swellings in both groins, which have gradually increased, finally involving the left testicle also. He was absolutely free from all other symptoms; he had no cough, night sweats, dyspnea, edema, loss in weight, or disturbance in micturition. The appetite had been good and the bowels had moved regularly.

Physical examination.—The patient was well nourished and well developed except for a moderate left scoliosis. There was marked pallor of the skin, but the mucous membranes were of good color. The pupils reacted normally. The teeth were good, and the mouth and throat normal. There was no cervical glandular enlargement. The lungs were resonant throughout; there was no modification of the normal breath sounds, and no râles were heard. Heart: Dulness extended 2.5 cm. to the right of the midsternal line and 9.5 cm. to the left; the action was regular, and no murmurs were heard. The systolic blood pressure was 125 (all the impulses coming through), and the diastolic 85. The abdomen showed nothing abnormal. The liver and spleen were not felt. The extremities showed no edema. The reflexes were normal. There was a soft, irregular mass the size of half an orange in the left groin and a corresponding one on the right, half that size. Neither side was tender. The left testicle was about twice the size of the right, but was not tender. The urine was normal. The Wassermann reaction was negative.

There were no parasites seen until 9 p. m., when an occasional one could be demonstrated. At 11 p. m. there were two or three in practically every field. Hemoglobin was 95 per cent.; red count, 4,704,000; white count, 12,600; differential white count showed 74 per cent. polymorphonuclear neutrophils, 13 per cent. small lymphocytes, 5 per cent. large lymphocytes, 6 per cent. eosinophils, 1 per cent. transitional cells, and 1 per cent. mast cells.

On the following morning the patient was given 0.4 gm. of salvarsan intravenously. Repeated examinations of the blood during the following night failed to show the presence of any parasites.

Although I felt at the time that a cure could not be claimed from the administration of salvarsan because of my inability to observe the case after a longer period of time, I have since discovered that the drug was given in nineteen cases by Edmund R. Branch[1] with excellent results in all instances. In only

1. Branch, E. R.: Salvarsan in Filariasis, Jour. Trop. Med., 1913, xvi, 364.

two of his cases seen afterward were the parasites found, and it may perfectly well have been due to reinfection, as the patients lived in a country in which filariasis was endemic.

The marked pallor of the skin in the case described was undoubtedly due to "superficial ischemia and not to a deficiency in the total quantity, or in any particular constituent of the blood," as mentioned by Chamberlain.[2]

The photomicrograph was made from a specimen stained with Wright's blood stain; the drawing was of a specimen stained faintly with an aqueous solution of methylene blue.

536 Commonwealth Avenue.

COMPLETE EXCLUSION OF THE LARGE BOWEL

SUBMUCOUS FREE FASCIAL TRANSPLANT METHOD, WITH ILEOSIGMOIDOSTOMY *

ALFRED A. STRAUSS, M.D.
CHICAGO

It is my object to show a new and simple method for completely excluding the large bowel when ileo-

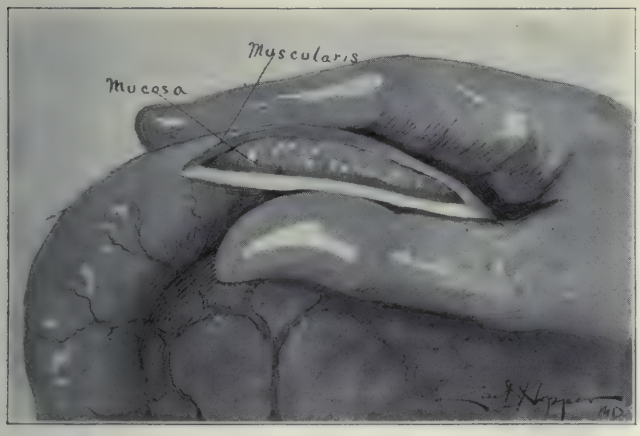


Fig. 1.—Incision through muscularis down to mucosa.

sigmoidostomy or colectomy is considered. In general, the indications for ileosigmoidostomy and colectomy are as follows:

1. Chronic obstruction along the course of the colon produced by adhesions or cicatrization, which cannot be freed sufficiently to absolutely relieve the obstruction.
2. Certain well-selected cases of Hirschsprung's disease.
3. Long-continued chronic inflammatory conditions of the colon, especially those which produce chronic diarrhea in spite of medical treatment.
4. Chronic ulcerative colitis.
5. Malignant disease of the colon.

It has long been recognized from Roentgen study that ileocolostomy alone nearly always results in a certain amount of regurgitation of some of the contents along the colon and cecum, but a greater part of this, I believe, passes by the ileosigmoidostomy along the ileum and follows its normal route, in spite of the ileosigmoidostomy. For this reason, many surgeons advise colectomy. Prominent among these advocates is Sir Berkeley Moynihan of Leeds. Sir Bertram Dawson[1] of London says:

The best results from colectomy were seen when the large bowel was definitely affected. However, the colon must not



Fig. 2.—Peeling muscularis from mucosa.

be regarded as a useless organ, which is just as well removed as left. Aside, too, from the mortality, which was considerable, it was often followed by persistent and severe bowel derangement. The situation as regarded colectomy was that the operation was distinguished by brilliant success and just as striking failures. When an appendix was removed and the symptoms continued, at all events, no harm had been done to the patient. A gastro-enterostomy, which was unsuccessful, could be undone; but a colectomy, founded on mistaken diagnosis, could never be undone.

It is exactly for these reasons, as stated above, that I want to present this method, for, as will be shown later, on complete exclusion of the colon by this method, the normal course of the colon can be reconstructed again by a secondary operation, should the condition warrant, to reestablish the course of the intestinal contents along the colon. The methods here-

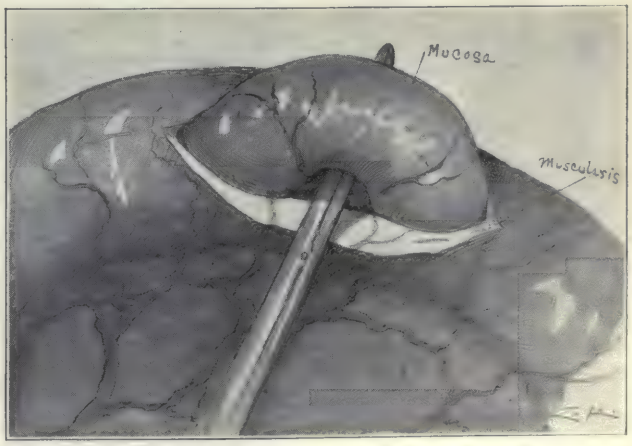


Fig. 3.—Passing forceps between muscularis and mucosa between mesenteric vessels, without injury to vessels.

tofore used when the bowel was divided are those of Doyen's purse-string; of Moszkowicz, who used an enterotribe, cauterized the edges, and inverted them

2. Chamberlain, W. P.: The Red Corpuscles and the Hemoglobin of Healthy Adult American Males Residing in the Philippines, Philippine Jour. Sc., Sec. B, 1911, vi, 467.

* Read before the Chicago Medical Society, Feb. 10, 1915.

* From the Department of Experimental Surgery, Morris Institute for Medical Research, Michael Reese Hospital.

1. Dawson, Bertram: Discussion on Intestinal Stasis, at the Clinical Congress of Surgeons of North America, 1914.

with interrupted Lembert sutures while the enterotribe was still in place; and of von Klapp, who modified this method by rolling the edges over after cauterization, suturing the rolled-over intestine with continuous suture. The methods used when the bowel was to be stenosed or obliterated in its continuity are those of Mosetig, who used a heavy piece of silk around the colon, burying this with several rows of Lembert sutures. It has been shown, however, that

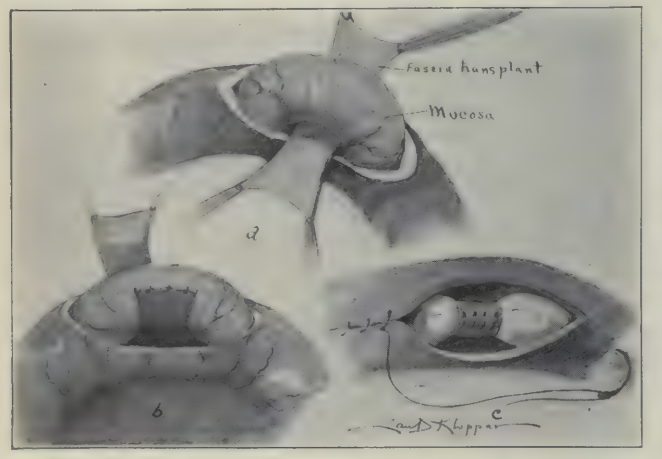


Fig. 4.—*a*, Fascial transplant placed around mucosa; *b*, fascial transplant sutured to mucosa; *c*, free end of fascial transplant sutured over attached portion, making the closure complete.

this does not hold, since the sutures slough into the lumen of the bowel. Bogoljuboff took a narrow piece of fascia, which he tied around the bowel and buried it with Lembert sutures. In repeating Bogoljuboff's work I found that if a narrow strip of fascia was taken it often did not hold, especially in the large bowel, and if a wider strip of fascia, from one-half to three-quarters inch in width, was taken, I could not close the bowel over this broad area.

In performing several of these closures by this method, without closing the bowel over the fascial transplant, I found that extensive adhesions formed, and several animals had acute intestinal obstruction. It is for this reason that I want to demonstrate the following method, which in principle is practically the same as the one which I have demonstrated for pyloric closure[2]:

An incision was made in the midline below the umbilicus. The anterior sheath of the rectus was exposed. A flap was resected, three-quarters inch by 1 inch. The ileum was picked up about 3 inches from the ileocecal valve, and tightly grasped between the thumb and index finger. An incision was then made on the convex surface of the ileum, opposite the mesentery, about 1 inch in length (Fig. 1), which divided both muscular coats down to the mucosa. Great care must be taken in making this incision or the mucosa will be punctured. Two strokes with the scalpel on each side between the mucosa and muscularis freed the mucosa sufficiently so one could grasp each edge of the divided muscle and peel it away from the mucosa down to its mesenteric attachment. It peeled exactly as one would peel an orange. The muscularis peeled off surprisingly easily and without the slightest hemorrhage (Fig. 2). An artery forceps was passed through between the mucosa and muscularis at its mesenteric attachment. I found that by selecting a portion of the bowel between two mesenteric arteries, the mucosa was practically not attached to the muscularis, and the forceps pass through with ease and without injury to the mesenteric vessels (Fig. 3). The free fascial transplant from the anterior sheath of the rectus was placed around the mucosa (Fig. 4, *a*). One end of this transplant was sutured with interrupted sutures to the mucosa (Fig. 4, *b*). On the other end traction was made, which collapses the mucosa and rotates it about one eighth of a turn on its longitudinal axis. This aids in making it a complete closure. The other end of the transplant was sutured with interrupted sutures to the surface of the attached portion just tightly enough to hold it in a collapsed condition, and a third row to hold down the edge (Fig. 4, *c*).

The mucosa was now replaced in its normal position within the muscularis and was closed by continuous or interrupted sutures. An ileosigmoidostomy was then performed in the usual manner.

Twelve dogs were operated on by this method. They were kept on fluids and milk for six days, and then given a full diet. All of them remained in good health, and many of them gained tremendously in weight. At the end of three months four of them were fluoroscoped. The ileosigmoidostomy was working perfectly, and no bismuth or food could be detected higher up in the colon than just immediately around the ileosigmoidostomy. These animals were then killed. Necropsy showed that the colon was not distended, was free from fecal contents, and appeared normal in every way. The closure at the ileum distal to the ileosigmoidostomy was absolutely perfect, as shown by placing the bowel under the hydrant and trying to force water through it.

Four more animals were killed at the end of six months. They showed exactly the same condition, with the exception that two of them had a slight amount of regurgitation of bismuth into the colon, but on necropsy the colon was found normal and collapsed.

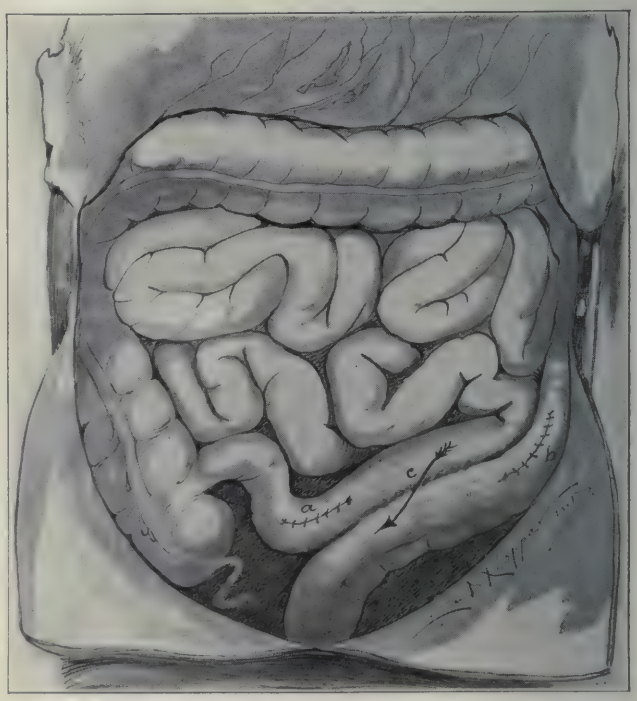


Fig. 5.—Complete exclusion of colon: *a*, closure near ileocecal valve; *b*, closure of colon above ileosigmoidostomy; *c*, ileosigmoidostomy.

A few fine, weblike adhesions were present in three of these animals, between two loops of ileum and the ileosigmoidostomy.

Four more animals were fluoroscoped at the end of nine months. None of these showed any regurgitation

2. Strauss, A. A.: Two New Methods of Closure of the Pylorus for Pyloric and Duodenal Ulcer, THE JOURNAL A. M. A., Oct. 31, 1914, p. 1525.

along the colon. On necropsy, the colon was found to be empty and perfectly normal in its appearance. The site where the ileum was closed by the submucous free fascial transplant was absolutely free from adhesions, and one could hardly tell that the ileum was



Fig. 6.—Showing complete occlusion of lumen of bowel.

closed except for the cordlike contraction of the ileum from the point of closure to the ileocecal valve.

Ten more animals were operated on by the same method, with the exception that the colon was also closed in exactly the same method as the ileum, so that the entire colon was completely excluded, as in Figure 5. We found that the mucosa shells out in the colon even with greater ease than it does in the ileum. Six of these animals were given a dose of apomorphin hydrochlorid hypodermically fifteen minutes before anesthesia. This caused a thorough evacuation of the large bowel, the object being to have the closed-off colon not filled with intestinal contents. The other four animals were operated on, excluding the colon above and the ileum below the ileosigmoidostomy without emptying the bowel, in order to see what effect the intestinal contents would have in the closed-off colon upon the general health of the animal.

Two of the first six animals died from a peritonitis, which was due to a colon infection following immediately after operation. The other eight animals made uneventful recoveries; all of them seemed to be well nourished, and many of them gained in weight. Four of the first six animals were fluoroscoped three months after operation. The ileosigmoidostomy seemed to be working perfectly, and no intestinal contents or bismuth could be seen in the closed-off colon. At necropsy, there were found a few fine, weblike adhesions between the loops of ileum and the ileosigmoidostomy in one animal; the rest were perfectly free. Only three of these four animals were killed, one being held for further study. The colon was contracted down, and had a cordlike appearance. There were practically no secretions, only a slight moisture found in the completely closed-off colon. The closures at both the colon and the ileum were found to be absolutely water-tight by the hydrant test.

The other four animals in which the intestinal contents were left in the closed-off colon were fluoroscoped five months after operation. The ileosigmoidostomy seemed to be working perfectly, and nothing could be found abnormal in the colon. At necropsy the closed-off colon seemed perfectly normal and contracted down, the same as in the previous animals, except at the lower portion above the closure of the colon. Here was found a hard, inspissated mass, simulating an enterolith, which, however, seemed to have no ill effects on the animal or produce any gaseous distention of the colon. The intestines of all these animals were subjected to the water test, and the closures found to be absolutely water-tight.

One animal was just recently killed, fourteen months after operation. The abdomen was perfectly free from adhesions; the ileum distal to the closure and the entire portion of the closed-off colon were contracted down and cordlike in appearance. There were also no adhesions of any sort found where the fascial transplant was inserted, and on first examination it was difficult to detect that any transplant was inserted, except for the cordlike contraction of the bowel between these closures.

On cross-section (Fig. 6), the lumen of the ileum was completely closed and microscopic sections (Fig. 7) showed the fascial transplant to be perfectly organized between the mucosa and muscularis, and the mucosa appeared normal.

On transverse section of the colon through the transplant, the colon was completely closed, and the

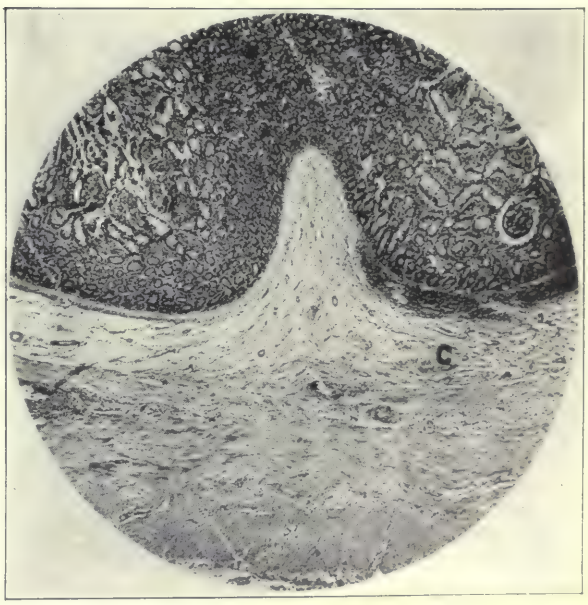


Fig. 7.—Fascial transplant: *c*, fascial transplant perfectly organized with that of mucosa.

fascial transplant perfectly organized (Fig. 8). The mucosa appeared normal.

Figure 9 is a photograph of a specimen from an animal, fourteen months after operation, showing the contracted cordlike bowel between the two closures.

The foregoing experiments demonstrate the ease with which the colon can be excluded when a condition is present which warrants it. It also demonstrates beyond a doubt that, in the dog at least, it is perfectly safe to exclude the colon by closing off at



Fig. 8.—Photomicrograph through closed-off colon: *c*, fascial transplant perfectly organized; the mucosa of the colon perfectly normal.

the ileocecal valve, and above the sigmoid by this submucous transplant method, with an ileosigmoidostomy. The animals which did not have the colon emptied before this procedure did just as well as those in which the colon was emptied before closing it off.

These results are in direct variance with the clinical experience reported by von Eiselsberg and others, who excluded the colon by dividing the bowel completely at the ileocecal valve and above the sigmoid. Each end was closed and an ileosigmoidostomy performed. In from one to several days the colon in these patients became so tremendously distended that a second operation had to be performed to relieve it. Why there should be this difference of conditions between man and dog is surely not very clear, for, from an anatomic and physiologic standpoint, there is certainly no great difference in the function of the colon in dog and man. Our animals that were operated on certainly were fed on a mixed diet, the same as the patients in a hospital, including vegetables, meat and bread, so the physiology of digestion and absorption should be exactly the same in the dog as in man.

It is possible, however, that when the colon was excluded in man, by dividing the entire bowel near the ileocecal valve and above the sigmoid, a paralysis is produced which causes this distention, while by this new submucous fascial transplant method, in which the musculature and mucosa were not divided, no such paralysis occurs. This question we are now trying to answer by further investigation.

At the necropsy of all these animals, we were absolutely convinced that where the bowel is closed off by this submucous free fascial transplant method, the mucosa is not destroyed and the lumen of the bowel can easily be reconstructed by resecting away the fascial transplant or its resulting cicatrization, and then suturing the longitudinal incision made into the bowel transversely. So, if the ileosigmoidostomy needs to be undone, the intestinal contents can again take their normal course through the colon.

This method is certainly a very useful one in cases in which the rectum or the sigmoid needs to be closed off and an artificial anus produced above the closure, especially in cases of carcinoma, where it is highly desirable that none of the secretions should flow through the carcinomatous bowel and keep on irritating it.

CONCLUSIONS

1. This method of excluding the colon by submucous fascial transplant is very efficient and simple. Each end of the bowel can be easily closed off in between five and ten minutes. The operation is absolutely free from hemorrhage, or chance for infection.

2. In the dog, at least, it does not seem to make any difference whether the closed-off colon is full of intestinal contents or not. This method has the advantage



Fig. 9.—Photograph of specimen from an animal, fourteen months after operation: *a*, closure at ileocecal valve; *b*, closure of colon above ileosigmoidostomy; *c*, ileosigmoidostomy. The closed-off bowel between points *a* and *b* is cordlike and contracted, while the bowel below *b* is perfectly normal.

that the lumen can easily be reconstructed by a secondary operation.

3. From the fluoroscopic study, we believe that, while some of the contents regurgitate into the colon,

most of the contents found in the colon are due to the food passing by the ileosigmoidostomy along the ileum into the cecum and colon. It seems, therefore, that simple closure of the ileum below the ileosigmoidostomy would suffice in most cases, and this would be safe in man; while, where both ends are closed, the appendix must be brought out in a separate wound for appendicostomy, should the colon become distended.

30 North Michigan Avenue.

PURPURA HEMORRHAGICA (MORBUS MACULOSUS WERLHOFII)

REPORT OF A FATAL CASE OF UNKNOWN ORIGIN

P. M. KELLOGG, M.D., ROGERS, N. D.

History.—W. V., aged 20, a farm hand, came to me, Aug. 11, 1914, complaining of slight nosebleed which had started about twelve hours before and which he had been unable to stop. The bleeding, he stated, was not severe but rather bothersome. Examination revealed a small bleeding area on the right side of the nasal septum, apparently from a slight erosion of the mucous membrane. I applied epinephrin and packed the nose with a small gauze pack, telling the patient to remove it on the following morning. I prescribed fluidextract of ergot, 1 dram three times a day until the hemorrhage had ceased, and told the patient to remain quiet for the rest of the day.

The patient again appeared the following morning, rather alarmed. He said that the bleeding from the nose had not ceased and that he was bleeding from his mouth also. He gave the following history: His father and mother were both living and well, natives of Germany. Of a large family one sister had become suddenly insane during childbirth, and was at present in a sanatorium. The family history was otherwise negative. There was no history of a hemorrhagic tendency. The patient stated that he had lived in North Dakota all his life working on a farm, and had always been well. He had frequently cut or scratched himself, but had never noticed undue bleeding. A recent cut on his hand stopped bleeding promptly. At present he felt perfectly well although slightly weak. The bowels had been regular and the appetite good. He had never had rheumatism, but thought that he felt a little stiff in the knees. He had not had any abdominal pain or diarrhea. He had never had any disease of the upper respiratory tract or been troubled with sore mouth or gums.

Examination.—This revealed a well-nourished man of about 160 pounds. The temperature was 98.4, pulse 84, respiration 18. He was intelligent, but looked nervous and worried. The skin of the face, hands and body, with the exception of the abdomen, was covered with purpuric spots, ranging in size from that of a pinhead to that of a dollar. On the right hip was a large area of discoloration about the size of the palm of the hand and slightly raised in the center. The spots were more numerous on the back and the extensor surfaces of the arms and legs. On the face the spots were more discrete, assuming the character of blood-filled vesicles. The mucous membrane of the mouth, lips, cheeks, and hard and soft palate was covered with them, and gave the appearance of being studded with small birdshot. Blood was oozing from the gums and from several points on the mucous membrane of the cheeks. The right tonsil was swollen and discolored, but showed no tenderness. Blood was flowing from several of the tonsillar crypts. The left tonsil was normal in size and appearance. There was almost a complete line of vesicles at the mucous margin of the lower lip, extending from one angle of the mouth to the other. There was a slight hemorrhage into the conjunctiva of the right eye. The heart and lungs were normal. Abdominal examination was negative. There was no indication of splenic or lymphatic enlargement. Reflexes were normal.

The urine was of a light straw color; specific gravity, 1.012; reaction, alkaline; albumin and sugar, negative; indican, trace; acetone, negative. There were no casts or cellular elements.

The hemoglobin was 80 per cent., red blood cells 3,900,000, leukocytes 8,500. A differential count was not made. The lobe of the ear where the blood was withdrawn for examination bled until the patient's death two days later in spite of astringents and other measures to stop the hemorrhage.

Treatment and Result.—I again applied epinephrin to the bleeding surfaces, but aside from a slight blanching of the mucous membrane I could see no result from its application. I prescribed calcium chlorid, 1 dram in a 4-ounce emulsion, to be taken in dram doses throughout the day until all was taken. I told the patient to go home and to remain perfectly quiet in bed.

On the following morning he returned to my office saying that he felt better but was still bleeding from the nose and mouth. He had slept well during the night. His appetite was good and his bowels had moved once during the preceding day. He stated that the movement was formed, but dark in color. He had had no pain or discomfort at any time, and asked me if he could not go to work on the following day.

A general examination revealed nothing new. The temperature was 98.1, the pulse 95. He looked anemic and anxious. The purpuric spots on the body had not increased to any noticeable extent. The bleeding from the mouth and gums was more pronounced than on the previous day, many of the small vesicles having broken down, disclosing bleeding points. There was no sign of joint or intestinal involvement. What little stiffness he had noticed on the previous day had disappeared. Hemoglobin was 70 per cent. No blood count was made. Urine was negative.

I injected one 10-c.c. tube of antidiphtheric serum as advised by Goldstein *(Laryngoscope,* 1914, xxiv, 1). I directed the patient to remain quiet in bed and to continue with the calcium chlorid.

The following morning he telephoned me that he felt weak and had a headache. An hour later I found him in bed. The pillow and bedclothing were saturated with blood, and he had vomited about a quart of bright red blood. He was in a semiconscious condition, extremely anemic and the picture of hemorrhagic shock. The temperature was 96, the pulse 90. The abdomen was retracted and rigid. There was no sign of hemorrhage from the bowels, but he was bleeding profusely from the nose and mouth. About one hour before he had been up and about the house. He had complained to the family of nothing except that he felt weak and had a headache.

I injected another tube of antidiphtheric serum, 10 c.c. Heat was applied externally, and morphin and atropin hypodermically. Shortly afterward he vomited again about a quart of bright red blood. He rapidly passed into deep coma and died in about an hour. Postmortem was not allowed.

The interesting features in this case are:

1. The sudden onset, with no previous history of hemorrhagic tendency up to four days before onset.
2. The lack of any ascertainable causative factor.
3. The absolute lack of fever at any time during the course of the disease.
4. Save for a slight stiffness in the knees, the absence of joint involvement at any time.
5. The lack of any intestinal symptoms, as diarrhea, pain or abdominal tenderness.
6. The absence of pain or discomfort at any time, and the ability of the patient to be about until two hours before his death.

Tuberculosis.—Great and grave as the problem may appear, there is certainly hope when we recall the fact that the death rate from tuberculosis has apparently been reduced from 326 per 100,000 in 1880 to 147.6 in 1913.—George M. Kober, M.D., *Public Health Reports,* Oct. 29, 1915.

New Instruments and Suggestions

TECHNIC FOR MAKING THE SUPRAPUBIC "STAB WOUND"

FRANCIS REDER, M.D., ST. LOUIS

The suprapubic "stab wound" is one of the most efficient and most satisfactory methods of draining the abdominal cavity. Such drainage is imperatively indicated in septic conditions with their concomitant pus accumulations. Patients who are to be subjected to an operative measure for the

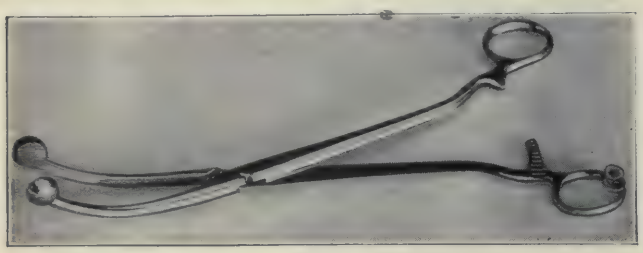


Fig. 1.—Ball-end forceps open.

relief of a septic peritonitis are usually very ill, and consequently poor operative risks. The surgeon keenly appreciates every minute of the time his patient is on the operating table.

A suprapubic stab should be clean-cut; injury to any underlying viscus must not occur. The peeling off of the parietal peritoneum from the abdominal wall during the attempt to penetrate it must be avoided. Such traumatism creates an additional absorption area. Lastly, the directing finger of the operator, which is usually introduced into the abdominal cavity to "see" that no important viscus is concealed at the point of the stab and to steady the tissues where the point of the knife is to penetrate, must not be pricked, lest an infection result.

To facilitate the establishing of a suprapubic stab wound and to obviate any danger of the operator pricking his



Fig. 2.—Showing point of knife caught in ball-end of forceps, a convenient method of enlarging the stab wound.

directing finger during its performance, a heavy forceps of good length—a pedicle forceps about 12 inches in length has answered the purpose admirably—that it may be readily manipulated with a firm grasp, and having a ball of soft metal, the size of an ordinary marble fused at the end, has proved a satisfactory aid. With it the "stab wound" can be made quickly and without danger to any viscus.

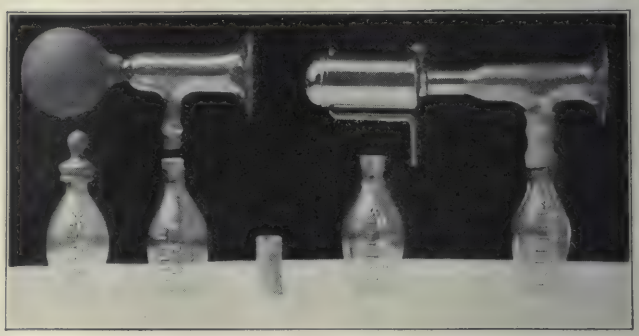
The technic is simple. Introducing the forceps through the abdominal wound into the abdomen, the ball-end of the forceps is firmly pressed against the point of the abdominal wall where the suprapubic "stab wound" is to be placed. With a knife, an incision is made down on the ball-end of the forceps. The incision should be sufficiently large to accommodate the drainage tube. As soon as the peritoneum is reached, pressure upward with the forceps will force the ball-end, covered with the peritoneum, into the incision. The peritoneum is easily incised on the ball, and the stab wound is made. The ball-end of the forceps is now gently pressed into the wound, and the blades of the forceps are spread sufficiently far apart to allow the ball-end to grasp the drainage tube. In this manner the drainage tube can be easily drawn into the abdominal cavity.

Should the stab wound prove too small it can without difficulty be enlarged by having the ball-end of the forceps, while in situ, catch the point of the knife, and with a gentle sawing motion safely and readily create a wound of any desired size.

AN IMPROVED BREAST-MILK COLLECTOR

JULIUS H. HESS, M.D., CHICAGO

This milk collector has been devised for use by wetnurses and mothers who have to feed premature and debilitated infants who are too weak to nurse at the breast.



Improved breast-milk collector.

The collector is of great value for use when the nurse is unable to express the milk by hand, which is not infrequently the case in private practice.

The pump is made in two types, the first fitted with a large rubber bulb of a size considerably larger and of better quality than is ordinarily sold with a breast pump, and, second, with an attachment to which the Holz vacuum pump can be fitted. In place of the ordinary collecting bulb at the lower surface, an arm is so constructed as to allow the milk to drain into it and pass directly into specially designed graduated 2-ounce milk flasks. The neck of these flasks is of the proper size to take the ordinary nursing nipple. The lower half of the pump drain is made to fit on the inside of the nursing bottles, and an air tight contact is produced by a heavy piece of rubber tubing which is first slipped over the neck of the bottle and then pushed up over the pump-drain until the small flange in the center of the latter rests on the neck of the bottle. This flange and one at the rim of the bottle's neck allow a good firm contact between the pump and the nursing bottle, so that there is no danger of the bottle falling away from the pump.

ADVANTAGES

Any number of bottles can be purchased with a single pump, and individual feedings can be collected and set aside for future use, in required amounts. The milk passes directly from the pump into the flasks without reaching the air and coming into contact only with glass surfaces which are so constructed as to allow of easy cleansing.

The apparatus can be obtained from Sharp and Smith, 155 North Michigan Avenue, Chicago.

5514 Indiana Avenue.

BOBBIN NEEDLE FORCEPS AND RETENTION CANNULA

J. SHERMAN WIGHT, B.S., M.D., BROOKLYN

The bobbin needle forceps (Fig. 1) is designed for ligating or suturing down in a narrow cavity where it is difficult to pass a needle or use a carrier. The illustration shows the bobbin in position, threaded, and in the left hand jaw. On closing the jaws the bobbin passes through the opening in the opposite jaw. The sliding lock on this jaw, which moves up and down and has the ring attached, is raised until it catches the bobbin by its arrow head. On opening the jaws the bobbin remains in the right hand jaw and leaves the left hand jaw as shown in the dotted figure, in which the thread is seen passing around the artery. The bobbin is withdrawn with the forceps and is then released by drawing back the sliding catch. The suture may be tied or the bobbin may be replaced in its receptacle in the left hand jaw and again passed around the tissues as a continuous suture.

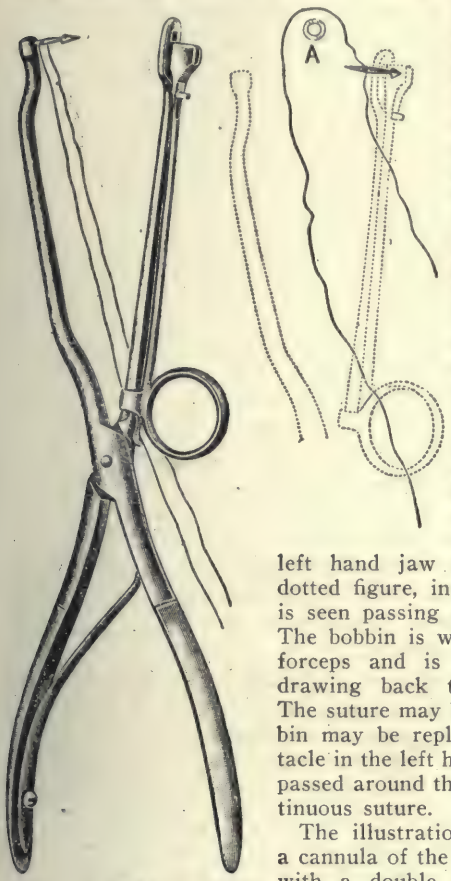


Fig. 1.—Wight bobbin needle forceps.

The illustration (Fig. 2) shows a cannula of the Kaliski type fitted with a double spring steel wire running from the top center of the shield, *K*, and ending in two sharp hooks curved backward and straddling the cannula at *A*, where it enters in the vein, *V*, and prevents the withdrawal of the needle.

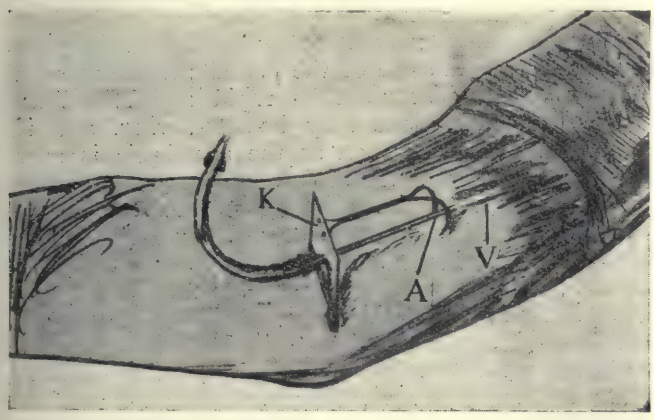


Fig. 2.—Wight retention cannula.

30 Schermerhorn Street.

Available Resources.—It is true that the resources of medical knowledge are not as yet fully available for the public weal. This is, however, in no sense a reproach to the medical profession but is distinctly a defect of social organization.—Henry B. Favill, *Pennsylvania Medical Journal*, November, 1915.

Therapeutics

PEDICULOSIS

This troublesome condition has long been treated by applications of kerosene oil. The best method of using kerosene oil on the head is perhaps that of Sobel, of New York. His method is outlined in THE JOURNAL, Dec. 19, 1914, p. 2229.

A more recent method of eradicating lice, first recommended by Sabouraud,[1] is the use of xylene. Xylene (xylol of dimethylbenzine) is a colorless liquid coal-tar product. It has a penetrating but not unpleasant odor, and mixes with alcohol and ether, but not with water. It is a strong parasiticide, will rapidly destroy lice, and will penetrate their ova and destroy them. When undiluted, it causes a sharp, burning sensation when applied to the skin; but the pain which it thus causes does not last long, and it does not seem to blister or cause dermatitis. It evaporates when exposed to the air or when applied on the surface of the body, and is highly inflammable; consequently it should not be used near a fire, or in the evening if the artificial light is other than electric.

Although, as stated, xylene may be used in certain places in certain instances in full strength, it is better to apply it in combination, and a mixture of equal parts of xylene, alcohol and ether is recommended by Faniel[2] as safe and efficient.

For the removal of lice from the head, cotton is soaked in this mixture and the scalp is thoroughly gone over with this cotton sponge, and all the strands of the hair are drawn through the sponge. Generally with one application, and certainly with two applications of this treatment, all the parasites and nits are destroyed. The disease may be cured in half an hour, even when the hair is long, as in women and girls.

If scratching has caused eczema and scabs on the scalp, these may be softened by the application of petrolatum, and the scabs may be removed later. On these excoriated places the mixture of xylene mentioned above is too strong treatment, and Lane[3] recommends in these cases the following:

	Gm. or c.c.
℞ Xylene	4
Petrolatum	30

M. Sig.: Use externally as directed.

The day after this ointment is applied to the scalp it may be washed off, and the strands of the hair treated with the mixture of xylene, alcohol and ether; and then it may be well to apply this ointment once more. As a final treatment of the pediculosis capitis a fine-tooth comb may be run through the hair and the nits thus removed for cosmetic purposes, although the ova have been killed.

In pediculosis of the pubis or axillae the same mixture of xylene, alcohol and ether should be used, and by the same method. It is well, however, to precede the treatment by a warm, cleansing bath, and to follow the treatment by another bath. On the scrotum and vulva and in the deep axillae the xylene mixture is rather painful for a short time, and should be applied gently and with care, but the burning will last but a few hours. If there are excoriated places on the skin in these regions, the ointment recommended by Lane should be used in place of the xylene solution.

1. Sabouraud, Entretiens Dermatologiques, Paris, 1913, pp. 315, 419.
2. Faniel: Presse méd., July 22, 1915, p. 268.
3. Lane: New York Med. Jour., Oct. 16, 1915, p. 804.

CONVULSIONS OF YOUNG CHILDREN

As an etiologic, predisposing factor in convulsions of young children, a neurotic or an epileptic history or a mentally unbalanced state in the parents is common. Children with rickets seem predisposed to convulsions. These convulsions in rickets may be due to impaired nutrition, to imperfect food, or to an insufficiency of the parathyroid glands. The relationship of the thymus to rickets has not been positively determined and it has not been shown that any disturbance of the parathyroids is present in rickets. In rickets, however, there is an insufficiency of normal calcium metabolism, and the thymus gland apparently has something to do with the perfection of this metabolism in childhood. It has long been demonstrated that in insufficiency of the parathyroids convulsions may occur, and that the administration of calcium will prevent these convulsions.

The convulsions in young children may be divided into: (1) Those due to cerebral irritation (spasmophilic); (2) those due to cerebral inflammation; (3) those due to acute cerebral congestion or to severe toxemia, and (4) epileptic.

1. The spasmophilic type is the most frequent, and may occur as a complication of any condition or disease. Irritation due to the eruption of the teeth is a rare cause of convulsions, unless there is some other etiologic factor present. Worms do not frequently cause convulsions, unless sufficient alimentary disturbance occurs simultaneously.

Infants with this type of convulsions often have been artificially fed. Gastro-intestinal disturbances are the most frequent exciting cause of convulsions in children. If meningismus to the extent of convulsions occurs at the beginning of, or during, some acute disease, it still may represent an irritation of the cerebrum from improper food or from improper care of the bowels, or from bad general hygiene, as bad air, insufficient bathing, skin irritations, or other general causes. In other words, convulsions rarely occur in the beginning of the exanthems in normal children. Probably a mild acidosis may be an underlying cause, especially if the child has been vomiting and has not had sufficient carbohydrate nutrition for a number of hours.

Spasmophilic convulsions may be recognized by increase of all reflex irritability, restlessness and sleeplessness. If a test is made, there will be found to be also an increase of electric irritability.

Some spasmophilic children may have convulsions with very mild exciting causes, as an acute indigestion, or the beginning of one of the exanthems, or with the high fever of a tonsillitis or a bronchitis. Later in life these individuals are likely to have high fever with the least infection, and may be delirious with any high temperature. They are likely to be neurotic, high strung, irritable, and to display temper as children. A breast-fed baby is often immune against such spasmophilic attacks. This emphasizes the importance of the absorption of toxins or irritants from the intestines as an exciting factor in spasmophilic convulsions. The most frequent age at which these convulsions occur is the age when an artificially fed infant is most likely to have gastro-intestinal disturbance, namely, from about the third month to about the end of the second year. Of course they may occur at any age thereafter.

After a spasmophilic convulsion the patient does not sleep as he does after an epileptic convulsion, and the spasmophilic patient may have what has been termed spasmodic croup, or laryngospasm. This laryngeal tetanic condition may be sufficiently prolonged to cause death.

True epileptic attacks may begin in infancy, and even in very young infants. The diagnosis may be made by the fact that spasmophilia rarely occurs in infants under 3 months of age, that contractions of the face and spasm of the larynx do not occur in epilepsy, and that increased electric excitability is a sign of spasmophilia. Also, as just stated, after a spasmophilic attack the patient generally does not sleep. Spasmophilic convulsions are likely to be multiple in number, while in the young child the epileptic convulsion is generally single, with longer or shorter periods of complete freedom from convulsions.

The treatment of spasmophilic convulsions is purgation, unless the child has already had a severe diarrhea. Breast milk should be given if possible, if the patient is an infant; otherwise, the food should be starchy, as barley water or thin oatmeal gruel. Some alkali, as potassium citrate, is advisable, such as:

	gm. or c.c.	
℞ Potassii citratis.....	2	gr. xxxvi
Aquae menthae piperitae.	100	fl℥ iv

M. Sig.: A teaspoonful, in water, every three hours.

Lime water should be given in teaspoonful doses five times a day. As stated above, it is quite probable that the parathyroids are disturbed in all cases of spasmophilia, and calcium is a sedative to these glands as well as to the nervous system.

If a mild sedative is deemed advisable, bromid may be given, best as sodium bromid, about .065 gm. (1 grain) for every year of the child's age, best given in plain water and repeated every two hours until the child is asleep; then the drug should be stopped altogether, if possible. In severer cases bromid is not successful, even in large doses, and chloral must be given, better by rectum, perhaps 0.13 gm. (2 grains) in an ounce of warm water and repeated in four hours, if needed. This dosage is for a child from 1 to 2 years of age.

The convulsions may be so severe and so frequent as to endanger the life of the patient; hence in such cases the treatment must be rapid and strenuous. Chloroform inhalations may be life-saving, and if convulsions recur as soon as the anesthesia is over (often primary anesthesia is all sufficient), it may be necessary to give opium in some form. A hypodermic injection of a small dose of morphin, depending on the age of the child, may be given. At the same time it should be remembered that morphin may act excessively in young children.

The quieting effect of a tepid bath or of warm sponging must not be forgotten. If the child is exhausted it may be revived by stimulating the respiration by ice cold ablutions to the chest and abdomen.

2. Convulsions due to inflammations of the meninges or to localized abscesses are much more frequent in children than in adults. First, the ears should be carefully examined, as an abscess of the middle ear may not have been suspected, and may be the cause of the condition. Trouble in the ears or mastoid being eliminated, spinal puncture should be done and a careful examination made of the fluid withdrawn.

The treatment of convulsions from some cerebral tangible cause is that of the disease found. Warm baths and bromids, and an ice cap to the head may alleviate the cerebral irritation.

3. That young children often have one or more convulsions in the first stage of an acute infection is a fact, but such convulsions are not so frequent as many textbooks would lead one to suppose. Such convulsions are often perhaps due to an exaggerated anaphylactic reaction caused by the toxins of the infecting germ. Or, in a patient who has inherited a neurotic tendency and is of spasmophilic type, sufficient cerebral congestion may be caused by a severe introductory chill to produce a convulsion. Many times, however, it is associated intestinal indigestion and the absorption of toxins from the intestine that cause the convulsion.

The treatment is simply cool or tepid sponging to lower the temperature, which is generally developed by the time the child is seen, and a small dose of some antipyretic, as acetanilid, perhaps 0.015 gm. (one-fourth grain) to a child 4 years old, every two hours for four doses.

Terminal convulsions in severe illness represent serious toxemia, and can be combated only by treatment aimed at the general condition present, namely, to reduce very high temperature; to stop excessive pain (often forgotten in a child); to relieve intestinal stasis; to brace a failing heart; to prevent collapse, if possible, and to combat uremia, if present, etc.

4. It should be remembered that true epilepsy may begin in infancy; consequently, if a child has an occasional convulsion, and no acute inflammatory cause can be found, and especially if it is decided to be a true epileptic convulsion, every reflex irritant cause must be looked for and removed, if possible. There may be several factors causing epilepsy. A family history of epilepsy, chorea, alcoholism and mental disturbances, or instances in the family of mental defect will aid in the presumptive diagnosis that the child is beginning the disease of epilepsy. While the first sign of a true epilepsy may be a distinct convulsion, many times, especially in older children, the disease is preceded by a series of fainting spells or other petit mal attacks.

A possible recurrent acidosis must be considered; hence the diet of a young child should be so modified as to supply plenty of carbohydrates, and it may be wise to give alkalies for a prolonged period. In increasing systemic alkalinity, however, it must be remembered that too much alkali may allow inflammations of the skin and bladder irritability.

The mouth, nose, throat and genitalia must all be proved normal or else must be under suspicion as irritating causes of the convulsions. Headaches must, of course, be explained or seriously considered, if there is a history of such. Because there has been an injury, or because some slight depression on the skull is found, it does not follow that such is the cause of the epileptic attack. A careful study of the part of the body in which the convulsion begins will often show the motor center that is in trouble, and may give the indication for operative interference.

On the other hand, Clark[1] has shown that in many cases the first movements of an epileptic attack are caused by some move to get near the mother or away from some feared object when frightened. An epileptic child should be carefully studied at home or in a hospital to obtain data that will suggest the proper treatment. A child with epilepsy who is neglected will generally become an incurable epileptic. A child with epilepsy who is loaded with bromids for a considerable period deteriorates mentally as well as physically.

1. Clark: New York Med. Jour., Feb. 27, 1915.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

DIMAZON.— Diacetylaminoazotoluene. — $CH_3.C_6H_4.N:N.C_6H_3(CH_3)N(CH_3CO)_2$.

Actions and Uses.—Dimazon is claimed to have a marked power of stimulating the proliferation of epithelial cells. It is said to be useful to promote the growth of epithelium in the treatment of burns, wounds, chronic ulcers, etc. The claim is made that Dimazon may be used with benefit also in indolent varicose ulcers, ulcerating syphilides, tuberculous and diabetic ulcers and eczema of all types. The evidence for these claims needs further confirmation.

Dosage.—Dimazon is generally used in the form of a 2 per cent. ointment made with petrolatum as a base (see below). It is also used dissolved in a fatty oil or mixed with talcum as a dusting powder (see below). It is stated that the preparation does not stain and that it may be removed from linen by the use of soap and water.

Manufactured by Kalle and Co., Aktiengesellschaft, Biebrich a.Rh., Germany (Heilkraft Medical Co., Boston, Mass.). U. S. patent applied for. U. S. trademark No. 89,119.

Dimazon Oil.—It is composed of Dimazon 2 parts and olive oil 98 parts. Prepared by the Heilkraft Medical Company, Boston.

Dimazon Ointment.—It is composed of Dimazon 2 parts and petrolatum 98 parts. Prepared by the Heilkraft Medical Company, Boston.

Dimazon Powder.—It is composed of Dimazon 5 parts and talcum 95 parts. Prepared by the Heilkraft Medical Company, Boston.

Dimazon is prepared by the acetylization of amidoazotoluene. It is an orange colored crystalline powder, insoluble in water, but readily soluble in alcohol, ether, chloroform, acetone and benzene, oils, fats and petrolatum. It can be removed from cloth by washing with soap and water. It melts at 75 C.

When hydrolyzed with a dilute alcoholic solution of sodium hydroxide, dimazon loses an acetyl group with formation of the insoluble monoacetylamidoazotoluene, which has a melting point at 186 C. Prolonged treatment with an alcoholic alkali solution results in loss of the second acetyl group with formation of amidoazotoluene, melting point 100 C.

Treated with fuming hydrochloric acid, dimazon yields monoacetylazotoluol which is precipitated on dilution with water. Prolonged heating with the acid forms amidoazotoluene and eventually the hydrochloride of the latter.

If dimazon be boiled with alcohol for a long time an acetyl group is removed with formation of ethyl acetate, which may be recognized by its odor.

ICHTHALBIN (see N. N. R., 1915, p. 151).—The following dosage form has been accepted:

Ichthalbin Tablets, 5 gr.—Each tablet contains ichthalbin 5 grains. Prepared by Knoll and Co., Ludwigshafen a/Rh., Germany and New York (Merck and Co., New York).

TRIFERRIN (see N. N. R., 1915, p. 167).—The following dosage form has been accepted:

Triferrin Tablets, 5 gr.—Each tablet contains triferrin 5 grains. Prepared by Knoll and Co., Ludwigshafen, a/Rh., Germany and New York (Merck and Co., New York).

BETANAPHTHOL BENZOATE-ROCHE.—A non-proprietary brand complying with the standards for betanaphthol benzoate (see N. N. R., 1915, p. 210).

Manufactured by F. Hoffmann-LaRoche and Co., Basel, Switzerland (The Hoffmann-LaRoche Chemical Works, New York).

BETAIN HYDROCHLORIDE-ROCHE.—A non-proprietary brand complying with the standards for betain hydrochloride (see N. N. R., 1915, p. 145).

Manufactured by F. Hoffmann-LaRoche and Co., Basel, Switzerland (The Hoffmann-LaRoche Chemical Works, New York).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET . . . CHICAGO, ILL.

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SATURDAY, JANUARY 22, 1916

BACTERIA OF LYMPHATIC GLANDS

Considerable interest has been manifested of late in the bacterial flora of the lymphatic glands. In some cases, notably in Hodgkin's disease, a pleomorphic diphtheroid bacillus has been isolated with sufficient frequency to permit the suggestion that this organism may bear some specific relation to the disease. This view was further fostered by Bunting and Yates, who first emphasized the suggested etiologic relationships in Hodgkin's disease, when they succeeded, after injections of cultures of their isolated organisms into monkeys, in developing a chronic progressive lymphadenitis bearing some resemblance to the original disease in man.[1] They also were able to produce a progressive general glandular enlargement, with fever and leukocytosis, leading to the death of animals from which the diphtheroid bacillus could be recovered in pure culture.[2]

Subsequent investigators have also found comparable micro-organisms in the lymphatic glands; but the problem of the causal relationships has been complicated, on the one hand, by the fact that a variety of bacteria can frequently be cultivated from the lymph nodes. In cases of Hodgkin's disease, for example, the diphtheroid organism has been reported to be associated frequently with staphylococci. On the other hand, all of these types of organisms appear to invade the tissues in a variety of disorders which are by no means synonymous with Hodgkin's disease.[3]

As the result of an attempt to classify the bacteria obtained from lymph glands, Bloomfield,[4] of the Medical Clinic of the Johns Hopkins Hospital, has come to the conclusion that extreme conservatism should be maintained in attributing to any micro-organism an etiologic rôle in relation to specific diseases involving the glands. He agrees with previous workers in noting that organisms can frequently be cultivated *intra vitam* from lymphatic glands. It has long been known that the regional lymphatic glands can filter out bacteria from an infected area, and it has been shown conclusively with reference to numerous organisms by simultaneously cultivating them from the two situations. More generalized invasion of glands in the agonal and postagonal states is, as Bloomfield reminds us, also a matter of common experience. In certain specific diseases, furthermore, the causal organisms may be present in the glands in association with the characteristic changes, notably in tuberculosis.

Bloomfield has found that a considerable number of organisms seem to be parasitic but nonpathogenic in relation to the lymphatic glands. Perhaps certain types of gland lesions predispose the glands to invasion by furnishing a suitable soil for the bacteria. In any event, saprophytic organisms identical with or closely allied to surface flora of the body are frequently filtered out, or, perhaps, constitute a more or less permanent flora of lymph glands. Organisms are frequently isolated which seem by their biologic characteristics to be suited to live in relatively avascular areas, and which may tend to invade diseased glands, although they are not limited to them. In Bloomfield's experience there is a higher proportion of successful cultures from definitely diseased glands than from those approaching a normal condition.

None of the twenty-nine strains of micro-organisms isolated by Bloomfield could be shown to be the cause of specific disease. Nevertheless the recurring reports of finding diphtheroid organisms in diseased lymph glands from time to time will not allow the suspicion that such occurrence is something more than merely fortuitous to die out. Very recently Bunting and Yates[5] have reported the isolation of a diphtheroid bacillus in a case of chronic lymphatic leukemia and a case of acute lymphosarcoma (or pseudoleukemia). These investigators emphasize the necessity of still further research in this field by the comment that the etiologic relationship of this much discussed diphtheroid organism to the diseases mentioned must perhaps remain for a time *sub judice*. Admitting that the occurrence of similar organisms in a variety of diseases would certainly seem to be an argument against their etiologic importance, they maintain that in their experience this type of organism is found with readiness only in one general group of apparently related diseases and in these without fail, when the technic employed is adequate. In this group Bunting and Yates

1. Bunting, C. H., and Yates, J. L.: An Etiologic Study of Hodgkin's Disease, THE JOURNAL A. M. A., Nov. 15, 1913, p. 1803.
2. Bunting, C. H., and Yates, J. L.: An Etiologic Study of Hodgkin's Disease, Second Note, THE JOURNAL A. M. A., Feb. 14, 1914, p. 516.
3. Billings, Frank, and Rosenow, E. C.: The Etiology and Vaccine Treatment of Hodgkin's Disease, THE JOURNAL A. M. A., Dec. 13, 1913, p. 2122. Rosenow, E. C.: The Newer Bacteriology of Various Infections as Determined by Special Methods, THE JOURNAL A. M. A., Sept. 12, 1914, p. 903. Lanford, J. A.: Am. Jour. Trop. Dis. and Prev. Med., 1914, ii, 191. Steele, A. E.: Boston Med. and Surg. Jour., 1914, clxx, 123. Rhea, L. J., and Falconer, E. H.: A Report of the Bacteriologic Examination of Enlarged Lymph Nodes Removed from a Patient with Hodgkin's Disease, Arch. Int. Med., March, 1915, p. 438.
4. Bloomfield, A. L.: The Bacterial Flora of Lymphatic Glands, Arch. Int. Med., August, 1915, p. 197.
5. Bunting, C. H., and Yates, J. L.: Bacteriological Results in Chronic Leukaemia and in Pseudoleukaemia, Bull. Johns Hopkins Hosp., 1915, xxvi, 376.

include Hodgkin's disease, lymphogenous leukemias, the pseudoleukemias (lymphosarcoma), Banti's disease and probably also mycosis fungoides. Outside of this group, they add, if the organism is found, there is also some histologic evidence of its activity.

A MEDICOLEGAL STUDY OF BLOOD STAINS

A question, not only of great theoretical but also of important medicolegal and practical interest, is the determination of the origin of blood stains on various articles. Chemical, biologic and immunologic research have been called on to aid in this study. Sutherland[1] has recently reported the results of the examination of 6,566 articles suspected of being blood-stained in relation to 2,643 medicolegal cases. The question at issue in 1,650 of these cases was murder; in 284, assault; in 189, rape, and in other cases the questions involved practically every aspect of human life. The articles examined included the various body discharges —saliva, urine, feces, etc.—and virtually every form of animate and inanimate material. The determinations showed that various stains were due to the blood of such animals as the sheep, goat, ox, buffalo, dog, horse and pig, and various combinations.

The stains on 6,566 articles were examined, and 1,380 were found not due to blood. One aspect of the question associated particularly with local conditions in India concerns the fact that 632 specimens of earth were sent for examination, of which 467 were blood-stained. The floors of most dwellings in India are composed of rammed earth, and as no rain falls over large tracts for many months at a time, the blood which is spilled outdoors is likely to remain and not be washed away. Of the 467 blood-stained specimens of earth, no opinion could be given as to the source in fifty-six specimens, because of the rapidity with which the elements of the blood are disintegrated by bacteria in the soil. Of 3,254 articles of stained clothing, 552 were not blood-stained. In 295 cases no opinion could be given as to the source of the blood found on the garments, owing to the fact that the clothing had been repeatedly washed.

The process of examination included the inspection of articles by daylight and artificial light; microscopic study of special specimens of the stain for the observation of possible undamaged erythrocytes; a spectroscopic study for the observation of bands due to blood constituents, and immunologic reactions to determine, if possible, the animal from which the specimen originated. The following is in brief the technic of the immunologic study: Antiserums are prepared by injecting a fowl with the serum of man or a domestic animal. Extracts of the stains are made with normal salt solution. The stain extracts are diluted so as to approach as nearly as possible the 1 : 1,000 dilution of normal serum. The diluted extracts are placed in tubes, down the side of which are allowed to run two drops of the antiserum. The first antiserum to be employed is an antihuman one. The tube contents are then viewed from time to time, and if a zone of reaction is seen in any one of them within twenty minutes, that tube's content is noted as "positive" human. The same procedure is carried out with antiovin, antihircin and other antiserums.

Numerous cases are described by Sutherland as illustrative of the great difficulty in obtaining the truth from witnesses as to the source of various specimens. These results are a further evidence of the practical, almost vital importance of some of the more highly technical researches of modern medicine.

1. Sutherland: Note on 2,643 Medicolegal Cases in which 6,566 Articles Suspected to be Blood Stained Were Examined, India Jour. Med. Research, 1915, iii, 205.

THE TECHNIC OF ORAL HYGIENE

"Dentistry, which is a highly specialized branch of surgery, should use the two factors, asepsis and anesthesia, which have made possible the wonders of modern surgery, with skill and precision equal to that of surgeons." This is the theme emphasized by Hasseltine[1] of the U. S. Public Health Service as the result of an investigation, undertaken at the request of prominent dentists, to work out a detailed method for sterilizing dental instruments and appliances, keeping in mind the important factors simplicity, efficiency, and duration of the process of sterilization. Any one trained in modern methods of asepsis who has watched the technic at present employed in the usual routine of dental treatment will have observed the errors which are almost inevitably allowed to creep in, and the attendant possibility of bacterial contamination and transmission of infection from one patient to another. The entire question of oral sepsis and mouth hygiene has been put into even greater prominence of late by the attention centered on the unexplored possibilities of infection through the mouth. The situation has been analyzed by the statement that "from the standpoint of efficiency the modern mouth is out of adjustment with modern conditions — or, perhaps we should say, modern conditions are out of adjustment with it. Notwithstanding the numerous bacteria that flourish within its portals, mouth secretions and the mucous membranes do not seem to have the protecting power which is often manifest in other regions of the body and which protects an animal in a state of nature." [2]

The danger from focal infections in which streptococci are present in the tonsils and about the teeth is becoming more widely appreciated now that the possibilities for harm in such chronic foci are being recognized on the basis of careful scientific investigation. In referring to what may be called "internal

1. Hasseltine, H. E.: The Sterilization of Dental Instruments, Bull. 101, Hyg. Lab., U. S. P. H. S., 1915, p. 53.
2. How to Live, New York, Funk and Wagnalls, 1915, p. 78.

streptococcal metastasis" attended by the localization of mouth streptococci in the interior of the body, it was pointed out recently[3] that the efforts now made to detect and then to obliterate all forms of focal infection in the mouth and throat as well as elsewhere in the body, for preventive as well as curative purposes, besides being in accord with sound reasoning from general principles, receive the support also of strong experimental evidence.

As illustrations of the possibility of transmission of mouth organisms from one person to another through the medium of dental practices, Hasseltine[1] mentions the placing of sterilized instruments on a swinging tray or glass plate which has not been sterilized, the cleaning of burrs on a scratch wheel which has not been sterilized since the burrs used on the previous patient have been cleaned on it, and the frequent handling of the cable of the dental engine, which receives contamination from one patient through the operator's hands and in turn returns a portion of this contamination to the operator's hands when used on subsequent patients. These familiar errors, as Hasseltine expresses it, emphasize the necessity of having everything which comes in contact with the instruments or hands of the operator free from organisms obtained from previous patients in order to prevent transmission of infection from one patient to another. Every dentist or oral surgeon will find useful hints and practical suggestions in the outcome of the investigation of the Hygienic Laboratory.[4] The recommendations for the sterilization of dental instruments point out that moist heat is our best disinfecting agent for the sterilization of all metal instruments. For the destruction of nonspore-bearing bacteria, moist heat at 80 C. (176 F.) is nearly as efficient as boiling, and for practical purposes can be used in place of boiling. Instruments constructed of metal, whose complicated mechanism has heretofore caused them to be considered as nonsterilizable, can be sterilized by moist heat, provided the water is removed from them by immersing in alcohol subsequent to sterilization. Instruments whose construction does not permit of boiling can be sterilized by chemical disinfectants. In the latter procedure, immersion in 5 per cent. solution of phenol (carbolic acid) for at least sixty minutes is recommended; and in those cases in which the mechanical construction makes it difficult to remove excess of water, instruments can be placed in 95 per cent. alcohol for a few minutes to remove water, and then allowed to dry.

The courses of instruction in dental surgery of today are giving attention to the bacteriology of the subject and its relation to mouth hygiene as well as to general health. It is, however, a distinct advantage to have the practical results of actual tests of sterilizing agents available for professional men who have little opportunity for personal experience in the laboratory work involved. Hasseltine well remarks that the student usually forms the opinion that any sterilizing agent is effective, and does not learn to check his sterilization by bacteriologic tests. For this reason he believes that in dental schools and clinics there is need for the giving of more practical instruction in the methods of sterilization, and the subsequent testing of these by bacteriologic methods.

3. The Localization of Streptococci, editorial, THE JOURNAL A. M. A., Nov. 13, 1915, p. 1732.

4. Applications for the publication referred to should be addressed to the Surgeon General, U. S. Public Health Service, Washington, D. C.

THE FORMULATION OF ANTIMALARIAL MEASURES

The varying complexity and unlike character of the problems raised in the control of the individual infectious diseases, as they manifest themselves in different parts of the world, offer one of the best arguments in favor of specially trained experts in the work of public health conservation. The true cause of malaria is now known, and the mode of its transmission by certain species of mosquitoes is accepted as demonstrated. Nevertheless the practical question of combating the disease from the standpoint of public hygiene rather than that of the cure of the infected individual presents a diversity of features which cannot be answered in the same way in all places. Obviously the ideal of antimalarial sanitation would be to exterminate the pernicious insect that spreads the parasite of the disease; but this mode of prevention is beyond the bounds of even remote possibility in certain regions. Here the most potent makeshift is to protect the individual by suitable methods of screening where this is possible. Furthermore, where more permanent antimalarial means are impracticable, as in certain inaccessible malarious districts of the tropical jungle, quinin prophylaxis may be of some value. Even here, in order to obtain satisfactory results, organized efforts must often be instituted to make quinin available at a low cost to the population to be protected.

The malaria problem is one that seriously concerns the inhabitants of our insular possessions in the Far East, and it is interesting to note the manner in which it is being attacked. The outlook for the possible success of any antimalarial work in the Philippines, as elsewhere, depends largely on a proper understanding of the local features of the mosquito problem. It appears that the distribution of malaria in the islands, as indicated by thousands of examinations of the spleen or blood of schoolchildren by the American health officials, is by no means universal, but is most abundant in such regions as afford breeding places for two species of mosquitoes, *Anopheles febrifer* and

Anopheles maculatus.[1] There is probably no locality in the Philippines where *Anopheles rossi* does not breed at some season of the year, in most places plentifully. Yet many such regions are apparently free from malaria; the newest survey, therefore, seems to confirm the conclusion of investigators in India that this species is responsible for little if any transmission of malaria.

Inasmuch as the results obtained at the Bureau of Science in Manila indicate that the transmission of the disease is due to a species of mosquito of rather limited habitat, and that the distribution of malaria agrees, in general, with the distribution of *Anopheles febrifer,* antimalarial measures are accordingly to be based on the results of this mosquito survey and a knowledge of the habits of the species involved. The contiguity of the breeding places of anophelines to inhabited places, the character of the surroundings, and other factors often indicate the remedial procedures to be employed. A swamp cannot be attacked in the same way as a stream or shore line. The chief carrier in the Philippines, *Anopheles febrifer,* is a stream breeder widely distributed. Its distance of flight is "at least 170 paces." It is house-seeking and readily bites human beings. Apparently the best single measure for relief in this situation is the destruction of the larvae in the breeding and lurking places of the stream breeders. Even in the case of Philippine streams, the use of larvicides appears to be practicable. As a rule the breeding places do not occupy the whole margin of the brooks, but occur here and there where vegetation offers some protection. The Philippine sanitary experts state that the cleaning out of such places is a far easier task than the clearing of the jungle. Permanent good has already been accomplished in some places by clearing the stream bed so as to make it narrower and swifter, and thus do away with some of the pools and quieter water where the larvae breed. The "ditch" or "canal" towns offer a more formidable difficulty. The ditches are excellent breeding places for *Anopheles febrifer,* but they can be combated by eliminating the channels and seeking water from other sources.

The foregoing review indicates how futile an antimalarial campaign is likely to be in any locality without a suitable biologic survey. Successful work in this field calls for more than routine medical knowledge. The health officer must not only be an expert in entomological disciplines, but should also have an appreciation of the requirements of sanitary engineering. To the degree in which special training in public hygiene is encouraged, successful prosecution of its conservation work is likely to follow.

1. These conclusions, as well as other facts here referred to, are derived from the studies of Barber, M. A.; Raquel, A.; Guzman, A., and Rosa, A. P.: Malaria in the Philippine Islands, II, Philippine Jour. Sc., Sec. B., Trop. Med., 1915, x, 177. See also Walker and Barber: Ibid., 1914, ix, 381.

NEW FATS FOR HUMAN USE

The food fats which appear in commerce in an approximately pure state are closely similar to those which enter into our consideration of the food values of meats, milk and cereals, if not identical with them. Hence, according to one expert on food products, there is no occasion to question the general wholesomeness and food value of such staple food fats as butter, oleomargarin, lard, olive oil and cottonseed oil; and we need only consider whether these are of equal value with each other and whether their liberal use is likely to make the total fat content of the diet excessive or the dietary one-sided in any way.[1] In fact, the choice of fats of special origin in everyday use seems to depend more on questions of cost, flavor and texture than on any purely physiologic considerations. Custom — perhaps we ought to add advertising — is not without influence in determining the sort of fats that are purchased in American households. In cooking, fat is necessary as a medium for the sauté and for deep fat frying. The best fats for the latter purpose are considered by many culinary experts to be the vegetable oils which are liquid at ordinary temperatures; yet in some quarters these highly prized fats are rejected in favor of the animal varieties. Even in the case of closely related fats of similar texture, local or inherited prejudices are hard to overcome. This is seen in the current attitude toward cottonseed oil and olive oil. The highest quality of refined cottonseed oil costs from a third to half as much as a medium grade olive oil, and has essentially the same food value, since both are practically pure fats.

Of late there has been an extensive development of the production of "hydrogenated" oils on a commercial scale. This involves the transformation of liquid glycerids of unsaturated fatty acids, such as olein, into the corresponding saturated compounds which are solids, with resultant thickening or hardening of the fat containing such glycerids. Cottonseed oil is the material chiefly used in this country, and the "hydrogenation" is accomplished by heating with hydrogen in the presence of nickel as a catalytic agent, the process being carried to such a point as to yield a product of the appearance and consistency of lard.[1] The catalytic mixture of nickel salts and infusorial earth (kieselguhr) is filtered out after hydrogen has been added to the desired point, and the hydrogenated fat is thoroughly deodorized.

Both in Germany[2] and in this country,[3] investigations have already been instituted to ascertain the physio-

1. Sherman, H. C.: Food Products, New York, 1914, p. 388.
2. Lehmann, K. B.: Chem. Ztg., 1914, xxxviii, 798. Thoms, H., and Müller, F.: Ueber die Verwendung gehärteter Fette in der Nahrungsmittelindustrie, Arch. f. Hyg., 1915, lxxxiv, 54. Süssmann, P. O.: Sind die gehärteten Oele für den menschlichen Genuss geeignet? Arch. f. Hyg., 1915, lxxxiv, 121.
3. Smith, C. A.; Miller, R. J., and Hawk, P. B.: Gastro-Intestinal Studies, XI, Studies on the Relative Digestibility and Utilization by the Human Body of Lard and Hydrogenated Vegetable Oil, Jour. Biol. Chem., 1915, xxiii, 505.

logic properties of these new products. They have all shown that the investigated hydrogenated vegetable oils (from peanut oil, sesame oil and cotton oil) are digested and utilized quite as well as lard by normal men. From this point of view the reports are satisfactory. Owing to the method of preparation, the products hitherto marketed contain traces of nickel ranging to a maximum of 6 mg. per kilogram, as far as the published reports have indicated. Since the daily total of fat intake of all sorts almost always is below even half a kilogram, the question arises whether the traces of nickel thus ingested will be of noticeable detriment to the human organism. This feature of the subject needs to be more rigorously controlled by long-continued feeding experiments before the final verdict can be rendered. Perhaps improvements in the manufacturing technic involved will help to solve the problem by excluding even more satisfactorily the slightest occasion for uncertainty or criticism.

Current Comment

THE PITUITARY AND SUPRARENAL GLANDS IN EARLY LIFE

Although there is no direct vascular communication between the fetal and maternal circulations, the placenta functions as a fetal organ for respiration, nutrition and excretion. Through the placental circulation the needs which the fetus has of a liberal supply of foodstuffs are satisfied. Regarding the changes or the exact mechanism involved in the transference of the desired compounds in this indirect way from the maternal to the fetal blood in a form best adapted for the uses of the developing organism, little is known. The essential fact is that oxygen and sources of energy are passed on through the epithelium covering the fetal villi which are immersed in the maternal blood. On the other hand, there is more or less evidence that the fetus may in turn at times contribute chemical substances to the maternal circulation. Marked changes are often exhibited in the physical and mental condition of the mother, and characteristic nutritional changes are not infrequently manifested. Some of these have been attributed to a purely reflex or nervous origin; others have been assigned to a chemical cause arising through a sort of reversed placental exchange. It is, of course, an attractive hypothesis to attribute metabolic and related changes in the organism to the so-called endocrine glands, or the structures exhibiting an "internal secretion." It is conceivable that some of the physiologic disturbances characteristic of pregnancy may be due to an overfunctioning of certain organs of internal secretion, such as the thyroid, pituitary or other glands, or even to a transference of comparable secretory products from the newly developed fetal organism over to the maternal circulation. It has been contended that the added strain incident to pregnancy is evidenced in the mother's glandular system by such functional hyperplasias as the frequently observed hyperthyroidism or the altered facies indicative of a mild, transient acromegaly from hyperpituitarism. Growth itself has been associated with the influence of the "ductless" glands. Can these glands in the developing embryo have the function of stimulation? It is necessary, in answering this question, first to determine at what period of development the presence of the glandular secretions can be demonstrated in the fetus. In an effort to establish the stage at which these glands commence the elaboration of their active principles, McCord[1] has examined the pituitary and suprarenal glands of bovine fetuses, from full term or as far back as the macroscopic recognition of the glands was possible. Physiologic reactions characteristic of extracts of pituitary and suprarenal glands have been obtained from bovine fetal glands during all developmental stages in which the macroscopic recognition of the glands is possible. For the pituitary gland, this period is from the eighth week to full term; for the suprarenals the period is from the sixth week to full term. The presence of the active principles of these glands at so early a developmental period suggests that the fetus in utero may be under the influence of its own internal secreting glands as well as the maternal glands.

COMPLEMENT FIXATION IN PULMONARY TUBERCULOSIS

It has been demonstrated that antibodies appear in the blood after injections of tuberculin, and Citron suggested that a similar process may take place in active tuberculosis, and that complement-binding bodies might be present in varying amounts. This has been found to be true; and since Besredka worked out a suitable antigen, much work has been done on fixation of complement in tuberculosis. A brief statement of the results obtained by Craig[2] may be of interest. Craig prepared his antigen as follows: Several strains of tubercle bacilli of the human variety were grown in alkaline broth to which was added 1 dram each of egg white and yolk per 250 c.c. After the growth was well advanced, an equal volume of 95 per cent. alcohol was added, the mixture shaken for twelve hours and incubated at 37 C. (98.6 F.) for twenty-four hours, and then shaken six hours and filtered through a fine filter. The filtrates of different strains were mixed and titrated for the anticomplementary, hemolytic and antigenic properties. The antigen soon loses its properties unless kept in the cold. The human hemolytic system was used, the technic in general being the same as for the Wassermann test. The tubes were examined from one to two hours after the last incubation in order to avoid confusion on account of late laking occurring in tubes showing fixation of complement. Craig made observations in 166 cases of pulmonary tuberculosis, grouped into three classes, the incipient, the moderately

1. McCord, C. P.: The Occurrence of Pituitrin and Epinephrin in Fetal Pituitary and Suprarenal Glands, Jour. Biol. Chem., 1915, xxiii, 435.

2. Craig, C. F.: Am. Jour. Med. Sc., 1915, cl, 781; abstr., THE JOURNAL A. M. A., Dec. 25, 1915, p. 2260.

advanced, and the far advanced, each class being then divided into active and inactive groups. The results show that of 25 incipient cases, 24 inactive gave a positive reaction in 58.3 per cent., the single active case giving a positive result; of 85 moderately advanced cases, 32 inactive were positive in 68.7 per cent. and 53 active in 96.2 per cent.; of 56 far advanced cases, 3 inactive all gave positive results, and 53 active gave 96.2 per cent. positive results. Generally speaking, the strength of the reaction seemed to be in proportion to the amount of lung involved. For control purposes, 100 healthy persons and 150 patients suffering from diseases other than tuberculosis were examined, all giving negative results with the exception of two syphilitics, in whom careful subsequent examination revealed a coincident tuberculosis. In view of the uniformly negative results in healthy individuals and the positive results obtained in active tuberculosis, it appears that so long as the test continues positive in a given case, the patient cannot be considered cured although all clinical signs have disappeared. A test which gives a positive reaction in 60 per cent. of cases of incipient tuberculosis should prove to be a valuable aid in making an early diagnosis.

HYPERTRICHOSIS OF TRAUMATIC ORIGIN

In observing the convalescence of a large number of the wounded at one of the military hospitals in Paris, Gley and Loewy[1] have called attention to a phenomenon of considerable scientific interest which has been reported by others under somewhat different conditions. They noted an exaggerated growth of hair and sometimes also of the nails, accompanying the repair of severe wounds involving the limbs and in particular the arms. The hypertrichosis was observed not only in cases in which there were attendant nervous lesions, but also following injuries in which damage to the nervous tissue was absent or certainly not the conspicuous feature. In comparing the forearms, for example, where one of them had been severely injured, decided increases in the number and size of the hairs are frequently observed in the neighborhood of the scars, so that the two forelimbs exhibit a marked contrast in appearance; and sometimes the growth of the hair crops out in locations on the skin where one would ordinarily expect only slight manifestations. In the past, both clinical and experimental investigators of the nervous system have reported hypertrophies of this sort consequent on neuritic irritation. Thus Dejerine[2] notes that the growth of hair may be accelerated, or atrophy and disappearance of hair may ensue in neuritis, particularly in traumatic neuritis. Paralysis of cutaneous nerves may result in the complete disappearance of hair.[3] The association of the hypertrichosis observed in the military wounded with neuritic causes will not suffice to explain many of the instances observed, according to Gley and Loewy. Hypertrichosis was observed, it is true, in many cases in which pain was a prominent symptom; but this was usually not of the neuritic type, being rather referred to the bony structures or to distention of the tissues. Sometimes no pain whatever was reported. The French investigators are therefore inclined to place these phenomena of localized hair growth in the same category as the recuperative growth of tissues following severe infections like typhoid fever. They might be considered as a sort of localized convalescence phenomenon. In such instances the prominent determinative factor is doubtless found in the formation of new blood vessels or in an exaggerated vascularity which brings about greatly improved local nutritive conditions by augmentation of the local circulation. From this point of view, the better nutrition facilitated by better vascular conditions, rather than trophic nervous influences communicated to the parts concerned, is the most likely explanation of a localized hypertrichosis of traumatic origin.

1. Gley, E., and Loewy, R.: La croissance des phanères au cours de la réparation des plaies de guerre (hypertrichose d'origine traumatique), Compt. rend. Soc. de biol., 1915, lxxviii, 204.
2. Dejerine, J.: Sémiologie des affections du système nerveux, Paris, 1914, p. 1097.
3. Compare Claude, H., and Chauvet, St.: Sémiologie réelle des sections totales des nerfs mixtes périphériques, Paris, 1911, p. 74.

IODIDS IN SYPHILIS

Attention was directed in a recent issue[1] to the apparent association of the enzyme-inhibiting power of the blood serum with lipoidal derivatives of unsaturated fatty acids. Removal of these with lipoid solvents, such as chloroform or ether, destroys the antitryptic potency of serum, and gives any proteolytic enzyme present full play to digest the proteins present. Furthermore, saturation of the desaturated fatty acid groups with iodin also destroys their antitryptic function. Jobling and Petersen[2] believe that the foregoing facts, to which their own investigations at the Vanderbilt University, Medical Department, have contributed liberally, shed considerable light on the behavior of iodin and its salts in the body. Their experience shows that iodids administered to human beings cause a very considerable reduction of the antitryptic activity of the blood. Iodin medication is known to facilitate the absorption of necrotic material such as is found in the gummas. This is interpreted by the assumption of a saturation of the ferment-inhibiting lipoid substance, so that the antienzymatic properties of the tissues are reduced and the removal of dead tissues by autolysis is permitted. Large doses of iodids, it is suggested by Jobling, may cause the inactivation of the antiferments in localized areas or in the cell walls, with the consequent destruction of cells by the unrestrained ferments present and with the liberation of lipoids. Herein may lie a toxic action of iodids. If this hypothesis of the action of iodin remains tenable, it will help to explain the admitted fact that in syphilis iodids are not curative in the sense that they prevent a return of the lesions. Success follows only the combination of iodids with some other form of treatment. Probably they merely induce the resolution of the process, causing the disappearance of even large gummas by permitting autolysis. The local

1. The Antiferments of the Blood, editorial, THE JOURNAL A. M. A., Oct. 30, 1915, p. 1554.
2. Jobling, J. W., and Petersen, W.: A Study of the Ferments and Antiferments of the Body and Their Relation to Certain Diseases, Bull. Johns Hopkins Hosp., 1915, xxvi, 362.

action of enzymes is made less difficult by the reduction of the content of antienzymes in the circulating blood through saturation with iodin. The infecting organisms are not destroyed but are free to produce similar lesions. We are reminded that iodids are not as effective in the earlier stages of syphilis when necrosis of tissue is not so evident. A good working hypothesis always is a great help in testing any therapeutic procedure. Jobling and Petersen's view is summarized by them as follows: Iodin neutralizes the action of the agents which prevent resolution and absorption of diseased or necrotic tissue in syphilis, and at the same time lays bare to the action of the real germicidal agent the infecting organism which previously had been protected by necrotic tissue. With the exposure of the infecting organism, such agents as mercury and salvarsan would be much more effective.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Trachoma.—According to figures of the United States Indian Service about 24 per cent. of the Indians in Arizona are afflicted with trachoma. The disease exists among the schoolchildren at Jerome, and has increased this year over last. The local authorities have sought the cooperation of the State Board of Health and the National Committee for the Prevention of Blindness. At Douglas systematic inspection and treatment of the pupils is wiping out the disease. In 1914 there were seventy-eight cases, whereas only five are under treatment now, and only four new cases have been discovered this year.

CALIFORNIA

New Marine Hospital.—The erection of a new marine hospital at San Francisco, at a total limit of cost not exceeding $500,000, is provided for in a bill introduced into congress on January 4. The old hospital buildings will be demolished if this bill becomes a law.

Revoked Certificates.—California reports that licenses have been revoked from the following physicians on the dates given: C. V. P. Watson, June 15, 1914; H. P. Crocker, June 15, 1914; Charles R. Baker, Dec. 7, 1914; Gideon M. Freeman, April 12, 1915, and A. L. Hunt, June 16, 1915. Two licenses were reported to have been suspended: That of R. J. Schirman suspended Jan. 12, 1915, for six months and that of C. B. Putnam suspended April 12, 1915, for one year.

Tuberculosis Experts to Meet.—Tuberculosis experts of the state will meet in San Francisco, January 27, to discuss the many phases of the campaign. Meetings have been arranged by the California and San Francisco Association for the Study and Prevention of Tuberculosis. The day will be concluded with a dinner at which local speakers will express their views, including Dr. Harry M. Sherman, president of the State Medical Society; Rev. F. M. Clampett and Rev. Joseph McQuaide.

Personal.—Dr. Samuel W. Means has been appointed assistant medical director of the Metropolitan Life Insurance Company and assigned to duty at the Pacific Coast office in San Francisco.——Dr. Clarence H. McDonnell has succeeded Dr. Charles B. Jones as county physician of Sacramento County.——Dr. Lloyd B. Crow, Berkeley, who has been serving as surgeon in the French army, has returned to his home in Merced.——Dr. Philippe Alfred Gay, San Francisco, has been decorated with the Cross of War and recommended for the Legion of Honor on account of his bravery under fire on the battlefields of France.

Popular Medical Lectures.—Stanford University Medical School announces the following subjects for the thirty-fourth course of popular medical lectures which will be given in Lane Hall on alternate Friday evenings at 8 o'clock:

January 14. Medical Research and Its Relation to General Medicine. Dr. George H. Whipple, San Francisco, Director of the Hooper Foundation for Medical Research.

January 28. The Economic Aspect of Disease. Murray S. Wildman, Ph.D.

February 11. Disease Carriers. Dr. Wilbur A. Sawyer, Sacramento, Secretary, California State Board of Health.

February 25. The Relation of Hospitals to the Community. Dr. George B. Somers, San Francisco.

March 10. Locomotion in Health and Disease. Dr. Walter F. Schaller, San Francisco.

March 24. Mental Hygiene. Lillien J. Martin, Ph.D.

ILLINOIS

Personal.—Dr. Paul M. Miller, German Valley, is convalescent at his home after an attack of pleuropneumonia.——Dr. Edwin R. Strong, Plainville, was thrown from his horse January 4, breaking his left leg below the knee.

Illinois Pure Food Law Upheld.—The supreme court of the United States has affirmed a decision of the supreme court of Illinois declaring constitutional the Illinois pure food and drugs act which prevents the sale of anything containing "any added poisonous or other added deleterious ingredient which may render such article injurious to health." Under this law boric acid was held to be unwholesome and injurious. A dealer was convicted of selling a preservative for canned fruit and vegetables which contained boric acid. He contended that the article sold was not a food and that it had not been proved unwholesome or injurious. The state supreme court held that the law was broad enough to prohibit the sale of any preservative for food which contained boric acid. The supreme court of the United States upheld this decision.

Serum Blamed for Foot and Mouth Outbreak.—In the governor's message to the assembly January 11, he mentioned the menace to the live stock interests by the infection of foot and mouth disease among cattle, sheep and swine, for which slaughter of the infected and exposed herds was performed and cleaning of disinfected premises. The first outbreak of the disease, which affected 763 herds located in fifty-two counties, was between Nov. 1, 1914, and May 8, 1915, at an approximate cost to the state of $1,211,232. This second outbreak on Aug. 8, 1915, was unquestionably due, he says, to the sale, distribution and use of antihog-cholera serum contaminated with the virus of foot and mouth disease. This outbreak has also been successfully controlled, though during its continuance it was necessary to slaughter 6,581 cattle, 811 sheep and 12,454 swine appraised at $593,634.32.

Chicago

Tuberculosis Fight.—The Chicago Tuberculosis Institute announces that from all indications it will have between $25,000 and $30,000 to spend in its war on tuberculosis during 1916, the largest sum ever collected for this purpose by the sale of Red Cross Christmas seals.

Personal.—Dr. Edward Cunat was a member of the relief expedition for Montenegro on the Steamship *Italia* which was sunk in the Mediterranean recently. He fortunately was saved after being three hours in the water.——Dr. Dean D. Lewis gave an illustrated lecture on "Principles of the Transplantation of Tissue" in the amphitheater of the Cincinnati General Hospital, January 5.

Deaths in 1915.—According to the Bulletin of the Chicago School of Sanitary Instruction there were 34,730 deaths in Chicago in 1915 as compared with 33,932 in 1914. The natural increase and an increase of 800 in the population through annexation of territory make the death rate the same in both years, 14.18 per thousand. Omitting the 812 deaths due to the Eastland disaster, the death rate would be 13.85, which is said to equal the rate in 1904, the lowest ever recorded. The deaths from pneumonia during the year were 23 per cent. below the ten-year average, notwithstanding the increase in deaths from this cause during the latter part of the year. Typhoid fever caused 133 deaths which is 55 per cent. below the average of the decade. Deaths from nephritis decreased over 14 per cent., but tuberculosis was higher in 1915 than in any year since 1910. Deaths from diarrheal diseases of infants under 2 years of age were said to have decreased over 19 per cent. Scarlet fever decreased over 85 per cent., whooping cough 65 per cent., diphtheria, 16 per cent. Measles showed an increase of 20 per cent., heart disease nearly 11 per cent. and cancer 7 per cent.

INDIANA

Wishard Recovered.—Dr. William N. Wishard, Indianapolis, who has been ill for some time at the Methodist Episcopal Hospital, has completely recovered.

Physicians Building for South Bend.—The new Crockett Building, South Bend, which has just been completed, has been fitted up expressly for the use of physicians, seven of whom have secured accommodation therein.

Cited to Appear Before Board.—At the meeting of the State Board of Medical Examination and registration two physicians were asked to appear before it to show why their licenses should not be revoked, namely, Dr. Elmer B. Moser who practiced at Windfall and Dr. Mary A. Whery of Fort Wayne.

New State Board.—At the meeting for reorganization of the state medical board the following officers were elected: Dr. James M. Dinnen, Fort Wayne, president, Dr. William A. Spurgeon, Muncie, vice president; Dr. Moses S. Canfield, Frankfort, treasurer, and Dr. William T. Gott, Crawfordsville, secretary.

Needs of Methodist Episcopal Hospital.—At a meeting of the board of trustees of the Methodist Episcopal Hospital in Indianapolis, January 4, it was decided to raise $115,000 for the purposes of putting in a water and lighting system, adding one story to the main building and furnishing the north wing of the present building which has just been completed.

Fake Advertiser Fined.—Judge A. B. Anderson of the federal court, Indianapolis, is said to have fined Dr. William H. Dings, Fort Wayne, $300 and costs. The defendant styled himself "The Wayne Medical Specialist" and was charged with having used the United States mail with a scheme to defraud. On being arraigned, he pleaded not guilty, but afterward changed his plea and was fined $300 and costs.

Flower Mission Hospital.—The Indianapolis Flower Mission is planning to build a hospital for tuberculous children. The officers of the organization are proposing to establish an endowment fund for its maintenance. About twenty-five tuberculous children are listed who should be in an institution where they might receive proper treatment for the disease. Definite plans have not been announced but it is proposed to construct a building costing not less than $50,000.

Physician Wins Suit.—Dr. Frederic W. Mitchell, formerly of Valparaiso, is said to have recovered judgment from the Fidelity and Casualty Company, New York City, for injuries suffered when he was thrown from the upper berth of a sleeping car. The policy called for the payment of $12,000 a year if totally disabled. The company paid him for the first year, and then stopped. A court in Toronto, where Dr. Mitchell at present resides, is said to have rendered judgment against the company for $19,150.

Appellate Court Reverses Decision.—Dr. Arthur G. Tullar was awarded a judgment of $362.22 against the town of New Carlisle by the St. Joseph Circuit Court for medical services rendered persons suffering from smallpox in 1907. At that time Dr. Tullar was secretary of the New Carlisle Board of Health and received a yearly salary of $850. The Indiana Appellate Court has reversed the decision, the text of the decision being as follows:

> "It is apparent that the secretary of the board of health in his official capacity owes high and important duties to the public. His responsibilities not only involve the health and sanitary conditions of the citizens generally, but in determining when it is necessary to act and the nature and extent of the measures to be employed, he necessarily determines questions which reach and affect the public treasury. When measures have been taken and treatment been given at the expense of the public he is charged with general supervision and must likewise determine when such measures or treatment may be discontinued. . . Whenever a public officer enters into a contract, the execution of which may make it possible for his personal interests to become antagonistic to his faithful discharge of public duties, such contract is held void on the ground that it is against public policy."

IOWA

Personal.—Dr. Robert P. Parriott, Des Moines, who has been ill at his home with influenza, is reported to be improving.——Drs. Ulysses G. Grigsby and William P. Mower, Perry, have been reappointed local surgeons for the Chicago, Milwaukee and St. Paul System.——Dr. Emmett E. Richards, Hamburg, was seriously injured by the overturning of his automobile near Grange Hall, December 20.

Chiropractors Indicted.—Two chiropractors, James F. McGinnis and H. R. Timpe, are reported to have been indicted January 7, by the Jackson County grand jury, on charges of practicing medicine without a license. It seems that Iowa has three colleges turning out "doctors" of chiropractic, but their graduates must go to other states having easy laws which permit them to secure the right to practice.

New State Hospital Law in Operation.—The first patient to be sent to the State University Hospital, Iowa City, under the law passed by the last legislature providing that children under 15 years of age whose parents are unable to pay for surgical aid may be sent to the State University Hospital, is the daughter of a teamster who goes to the hospital for a deformity of the right foot as the result of an attack of spinal tuberculosis.

New Hospital Dedicated.—St. Joseph's Mercy Hospital, Mason City, was formally dedicated, January 4, by Archbishop Keane of Dubuque. The opening reception continued throughout January 4 and 5, and on the evening of the fourth there was a banquet for the out-of-town guests. The building is four stories and basement in height, of fireproof construction and contains fifty-four private rooms and four wards besides the operating rooms, kitchen, nurses' apartments, etc., and a chapel.

Special Bulletin.—A special bulletin of the Iowa State Board of Health is devoted to the interests of the registered nurses in Iowa. It contains a schedule of the minimum requirements for nurses and training schools, and outlines of a preliminary three months' course and also the regular three-year course for the training of nurses in hospitals. This is the course as found in the teaching hospitals of Iowa. The bulletin, as an inspiration to the candidates for the nurses' diploma, gives a sketch with two illustrations of Florence Nightingale. There is also a description of the principal infectious and contagious diseases, information relating to quarantine and State Board of Health rules and regulations and much general information regarding the nursing profession. The pamphlet is illustrated by numerous pictures from hospitals, a picture of a model county hospital as it has been built in Iowa, and a list of the graduate nurses holding certificates in Iowa with the name of the training school issuing the diploma. This is a valuable and interesting pamphlet for the nurses of the state.

MARYLAND

Plans Per Diem System for Maryland.—An anticipated saving to the state ranging between $150,000 and $200,000 is calculated by the Board of State Aid and Charities as the result of the establishment of the proposed per diem system of pay for hospitals instead of the flat annual appropriations. Serious opposition from the counties is anticipated. The savings and economies to the state which are anticipated by the new schedule lie in the apportionment of 50 cents a patient a day on the counties participating. An analysis of the records of the last decade indicates that county free patients participated in at least 300,000 hospital days in the year as an average.

Phthisis Campaign Planned.—The state-wide tuberculosis committee appointed in May, 1915, to study the problem of consumption in Maryland and to make recommendations for a definite state policy in regard to its most important phases, held a meeting, January 15. Dr. John S. Fulton presided, and the subcommittee, composed of Drs. Louis Hamman and Victor F. Cullen and secretary, Robert C. Powell, made its report on the half year's investigation. The report favored the establishment of county hospitals for negro tuberculous patients as the most effective and economical means of fighting the disease, such hospitals to be established in connection with the present county institutions; also for the equipment of wards for negro tuberculous patients in the hospitals in Baltimore and eight other cities of the state receiving government aid. It suggested that the cheapest investment the state could make in the prevention of the spread of the disease is the appropriation of $20,000 each to the hospitals in the eight cities and $50,000 to the Baltimore hospitals to construct these wards, and the allowance of $1 a day for maintenance of each patient.

MASSACHUSETTS

To Bar Substitutes.—In its annual report the Massachusetts Board of Registration in Medicine calls attention to the absence of any provision in the practice act for punishing those who enter the licensing examinations as substitutes for others.

New Maternity Building Dedicated.—The Jennie M. Robinson Maternity Building of the Massachusetts Homeopathic Hospital was dedicated January 1. The exercises consisted of addresses by the president of the trustees; Wallace Fullam

Robinson, the donor of the building, and Dr. William F. Honan, chief surgeon of the Metropolitan Hospital, New York City.

State Health Department Activities.—The State Department of Health recommends legislation to provide for the appointment by the health commissioner, of a physician to supervise medical inspection in the public schools whenever requests to that effect shall be made by the board of education. The department also recommends an appropriation of $10,000 for the purchase of salvarsan for free distribution to boards of health, hospitals, dispensaries and physicians for use within the commonwealth.

Cooperative Health Department.—Seven cities of the state, Wellesley, Framingham, Weston, Melrose, Needham, Winchester and Canton have combined their resources to establish a single public health department consisting of a general administrative officer, a chemist, a bacteriologist, and an inspector of plumbing and sanitation together with the necessary assistants. By this method each city secures more efficient medical inspection and sanitation at a less cost than was possible when each maintained an independent bureau of public health.

Unidentified Disease.—Eight deaths of children in Boston, seven of them in the Brighton section, have stirred the health authorities of the city to efforts to identify the cause, the nature of which has not been clear. The disease is characterized by intense thirst, vomiting and later diarrhea. Until January 1 there had been about 100 cases in the city. By some it is regarded as a form of influenza, while others speak of it as acidosis, similar to the trouble which caused a large number of cases and a good many deaths at Concord, N. H., a year ago. Necropsies and bacteriologic examinations have been made.

Harvard Medical Changes.—The president and fellows of Harvard College announce the following changes in the medical faculty: Drs. George Richards Minot, Harry Linenthal and Harold Bowditch, assistants in medicine; Drs. Ernest G. Grey and Albert Ehrenfried, assistants in surgery; Dr. Robert Bayley Osgood, instructor in surgery; Dr. Raymond Stanton Titus, alumni assistant in obstetrics; Dr. William Richard Ohler, Austin teaching fellow in bacteriology; Dr. Francis Weld Peabody, consulting physician to the Collis P. Huntington Memorial Hospital; Dr. Robert Battey Greenough, surgeon in charge of the Collis P. Huntington Memorial Hospital; Dr. Edward Hammond Risley, assistant surgeon to the Collis P. Huntington Memorial Hospital; Dr. Henry Lyman, research fellow in chemistry of the cancer commission of Harvard University, and Dr. James Patrick O'Hare, changed from fellow to assistant in medicine.

Personal.—Dr. Perley F. Gardiner, Boston, was knocked down by an automobile truck recently and suffered wounds of the scalp and contusions of the arm.——Dr. Michael F. Sullivan, Lawrence, has been elected a member of the executive committee of the Massachusetts Chapter of the American-Irish Historical Society.——Dr. William S. Boardman, Boston, who was seriously injured a few days ago by being struck by an electric car at Jamaica Plain, is making good progress toward recovery.——Dr. Chauncey M. Marstin, Braintree, was seriously injured by the breaking of the steering gear of his automobile, December 23.——Dr. Stanley H. Osborn, Peabody, who has been appointed health officer for the Berkshire District, is on his way from Nish, Serbia, to assume the duties of his new position.——Dr. Frank M. del Castillo, Cambridge, plunged into Jamaica pond and rescued from drowning five children who had ventured out on the thin ice.——The residence of Dr. John J. Egan, Gloucester, was burned January 4, with a loss of about $12,000.

MICHIGAN

Personal.—Dr. H. C. Richey, Urbandale, who was about to leave to take charge of a hospital at Moline, Ill., is reported to be seriously ill in the Battle Creek Sanatorium with angina pectoris.——Dr. R. Genung Leland, physician to the Kalamazoo Antituberculosis Society, was operated on for appendicitis in the Bronson Hospital, Kalamazoo, January 3, and is said to be doing well.

Medical Report of Ford Company.—During the year ending July 31, 1915, the Ford Company in Detroit had 15,088 employees, which number has since been increased to over 24,000. The report of the medical department shows that there were treated during the fiscal year 164,331 cases, of which two-thirds were injuries and one-third cases of a medical character. The vast majority of the accidents were of a minor nature, and there were no fatalities. During the year 11,845 men were employed, each of whom had to pass a careful physical examination before being accepted. It is said that 667 roentgenograms were made for the diagnosis of fractures and dislocations, and fifty-four persons addicted to drug habits were sent to the Ford General Hospital for treatment. Including the treatment of medical cases of the families of Ford workmen by the medical department, 206,324 cases were taken care of. Fifteen beds are maintained in the Detroit Tuberculosis Sanatorium for the treatment of employees with tuberculosis. It has been found that men with incipient tuberculosis have improved when transferred to the heat treatment department with a high temperature and a humidity said to average 450. Proper instructions are given as to hygienic living.

MINNESOTA

Personal.—Dr. Louis S. B. Robinson, St. Paul, formerly assistant superintendent of the Minnesota State Sanatorium for Tuberculosis, Cass County, has been appointed superintendent of the Nebraska State Sanatorium, Kearney.——Dr. Gerhard A. Dahl, Mankato, was operated on recently in Rochester, Minn., for gastric ulcer.

NEBRASKA

Smallpox at Wymore.—Churches, billiard and pool halls, moving picture houses and schools have been closed in Wymore on account of the prevalence of smallpox in that place where eighteen cases have been reported.

Typhoid Source Located.—The source of typhoid infection in Lincoln is believed to have been located. The health department has discovered a case of ambulatory typhoid in a factory where potato chips and other foodstuffs have been manufactured and fifteen out of the twenty-two families where typhoid has been reported, had been eating potato chips prior to the onset of the disease.

Personal.—Dr. Simon C. Beede, David City, retired from active practice January 1, but will continue to make his home in David City.——Dr. DeWitt C. Bryant, oculist of Omaha for thirty years and for twenty years dean of Creighton Medical College, Omaha, has moved to California and will spend the most of his time on his ranch at Clearmont, near Los Angeles.——Dr. Mark W. Baxter, superintendent of the Ingleside State Hospital, has resigned to take effect February 1.——Dr. Ralph H. Luikert, Norfolk, who has been working with the American Red Cross in Serbia since June last, has returned home and will practice in Omaha.——Dr. John W. Duncan, Omaha, was seriously injured in a collision between his automobile and a delivery wagon, December 17.

NEW JERSEY

Fights on Health Officers.—The Supreme Court on January 4 dismissed the proceedings instituted by Dr. Thomas A. Clay contesting the order of the commission for the reinstatement of Dr. J. Alexander Brown as health officer of Paterson.——There is said to be a contest between the State Board of Health and the Civil Service Commission on the question as to whether the state board can place any barrier in the way of the municipal government selecting a man as health officer. Dr. William C. Woodward, formerly director of health of Washington, is said to be a candidate for health officer of Newark succeeding Dr. Charles V. Craster. The civil service test was scheduled to take place January 8.

Mosquito Extermination.—The third annual report of the Atlantic County Mosquito Extermination Commission shows gratifying progress in the extermination of the two varieties of mosquitoes which infect that county and have been a source of great annoyance to the residents and visitors to Atlantic City and the other seaside resorts in Atlantic County. The mosquitoes found there chiefly are the house mosquito (*Culex pipiens*) and the white-banded salt marsh mosquito (*Aedes sollicitans*). The commission began its work three years ago of eradicating the house mosquito by abolishing breeding places in fresh water pools, rain barrels and numerous other receptacles for water and the marsh mosquito by draining the salt marshes about the city. The work was thoroughly organized both with reference to the city inspection and the ditching of salt marshes. Two mechanical ditching machines have been in operation and over two million lineal feet of ditch have been constructed, 825,100 feet of which were made in 1915. The region about Atlantic City with its numerous inlets and tidal marshes offers about as difficult a problem for mosquito eradication as can be found anywhere, but the work of the commission has shown that even these difficulties may be overcome. When the work of

ditching has extended to the contemplated limits beyond the city, it is believed that almost absolute freedom from the mosquito pest will be experienced unless in exceptional seasons. The tides which periodically flood the ditches and marshes keep the mosquito larvae on the move and also bring in large schools of minnows which feed on the larvae. The entire elimination of the house variety of mosquito, which breeds within the city and causes most of the annoyance to the inhabitants, depends on careful inspection and the cooperation of the people.

NEW YORK

Trudeau's School of Tuberculosis.—Opportunity for the study of tuberculosis at Saranac Lake is to be provided in what is known as the Trudeau School of Tuberculosis, of which Dr. Edward R. Baldwin of Saranac Lake is to be director.

Personal.—Drs. Henry T. Williams and Charles R. Barber have been appointed consulting surgeons, and Dr. David B. Jewett has been appointed consulting physician, and Dr. Edwin S. Ingersoll, consulting laryngologist on the staff of the Iola Sanatorium for Tuberculosis, Rochester. There are at present forty patients in the sanatorium.——Dr. William G. Bissell, chief of the department of bacteriology of the Buffalo Board of Health, recently visited Cleveland to study the bacteriologic branch of the Cleveland Health Department.

Lectures on Insanity.—The mental hygiene committee of the State Charities Aid Association announces that, in the interest of a state-wide campaign of education for the prevention of insanity, plans have been made for public lectures. Certain specialists in mental diseases have been appointed to deliver such lectures. Among these are Drs. Stewart Patton, Smith Ely Jelliffe, August Hoch, Thomas Henry Williams, Menas S. Gregory, Charles S. Little, Thiells, William Mabon, James V. May, Albany; Herman G. Matzinger, Buffalo, and others interested in social and educational work.

Governor Whitman Urges Quarantine Transfer.—Governor Whitman has sent a letter to President Wilson requesting the immediate assignment of a federal officer to the post of quarantine physician, made vacant by the recent death of Dr. Joseph J. O'Connell. It is further reported that President Wilson has directed Sur.-Gen. Rupert Blue to take over the station at New York and has designated Asst. Sur.-Gen. Leland E. Cofer to take charge. The price to be paid to New York State by the federal government will have to be decided by a conference of representatives of the national and state governments.

State Death Rate Low.—The summary of returns for births and deaths for the state for 1915 computed on the new estimate of population furnished by the director of the United State Census Bureau shows that the deaths numbered 145,552, giving a rate of 15 per 1,000 population, the lowest rate in the history of the state. The rate for the state outside of New York City was 14.9 as compared with 15.2 for 1914 and 15.8 for 1913. For the first time in many years the death rate outside of New York City is lower than that of the city. The report states that the promise of the state commissioner of health that with proper support he would save 25,000 lives in New York state outside of New York City in five years seems in a fair way of realization.

New York City

City Wins Grand Prize.—The Health Department of New York City won the grand prize awarded at the Panama-Pacific Exposition for its work and records in health and sanitation.

Personal.—Dr. John A. Ferguson is seriously ill with pneumonia at his home in Brooklyn.——Dr. Lysander P. Holmes has been appointed assistant superintendent of Johns Hopkins Hospital, Baltimore.

Health Department Pharmacy Transferred.—The drug laboratory and pharmacy of the Department of Health passed out of existence January 1 and its functions were transferred to the general drug department of charities.

Medical College Acquires Property.—The New York Medical College and Hospital for Women has purchased the apartment house adjoining the college property on West 101st Street. This gives the institution a total frontage of 200 feet.

Seaside Hospital Open.—It has been announced by the trustees of St. John's Guild that the Seaside Hospital at New Dorp, Staten Island, reopened for the reception of sick and convalescent children January 18 and will remain permanently open.

Pilcher Celebration.—The Medical Society of the County of Kings has adopted formal resolutions to hold a Lewis Stephen Pilcher semicentennial within the next few months to pay tribute to Dr. Pilcher's ability as a surgeon, soldier, teacher, author and editor.

Quarter of a Million for Health Fund.—At the ninth annual celebration of the founding of the Hospital for Deformities and Joint Diseases, subscriptions of $250,000 were pledged. These pledges are the beginning of a fund of $1,000,000 which is to be raised for a new building. Ten directors of the institute subscribed $10,000 each. Dr. Harry Finkelstein was made adjunct attending surgeon of the institution.

Tuberculosis Clinic Physicians.—The Tuberculosis Clinic Service of the Department of Health has hitherto been dependent upon the voluntary assistance of unsalaried examiners, who have been appointed in the order of efficiency and seniority to the salaried staff as rapidly as vacancies occur. Clinic physicians have now been placed under civil service regulation and it is probable that in the near future a competitive examination will be held to secure an eligible list from which appointments to vacancies will be made. Applications should be made to the Bureau of Preventable Diseases, Department of Health, 139 Centre Street, Manhattan.

Instruct Public in Importance of Birth Registration.—The Department of Health has inaugurated a plan by which it may reach the public at large and set them to thinking of the importance of birth registration and the saving of infant life. Hereafter upon the receipt of the birth certificate in the Bureau of Records an acknowledgment will be sent to the parents in the form of a letter from the commissioner of health, a certificate showing the record of the birth, and educational literature giving an outline of the essential features of child care. Postal acknowledgment of all births reported by physicians and midwives and institutions will obtain as heretofore. Parents will be urged to keep the certificate sent them since it will be of value to the child later on entering school or obtaining an employment certificate at the legal working age of 14 years.

Cornell Surgical Service Reorganized.—Cornell University Medical College has recently reorganized a surgical service at Bellevue Hospital. There is now one visiting surgeon in charge, two visiting surgeons, two assistant visiting surgeons, one junior surgeon, one surgical pathologist and one assistant in experimental pathology. The following is the staff as at present constituted: Dr. John A. Hartwell, assistant professor of surgery, visiting surgeon in charge; Dr. George Woolsey, professor of clinical surgery, visiting surgeon; Dr. John Rogers, professor of clinical surgery, visiting surgeon; Dr. Kenneth Bulkley, instructor in clinical surgery, associate surgeon; Dr. James Worcester, instructor in clinical surgery, associate surgeon; Dr. Fenwick Beekman, instructor in operative surgery, junior surgeon; Dr. Benjamin Vance, instructor in pathology, surgical pathologist, and Dr. J. W. McMeans, assistant in surgery, assistant in experimental surgery.

Amendment of Sanitary Regulation of Sale of Milk.—The section of the sanitary code on the sale of milk, cream, condensed milk or concentrated milk, condensed skimmed milk and modified milk, has been amended so as to do away with the requirement on the part of retail stores to secure permits from the Department of Health for the sale of milk, cream, etc. The amendment affects approximately 14,000 stores in the city. It is not to be interpreted, however, as indicating that the department will no longer supervise the sale of milk in these stores. On the contrary they will probably be supervised more frequently than ever. The reorganization of the Bureau of Foods and Drugs has made it possible to visit all stores where food is sold at least once every three months and this has made it unnecessary to continue the system of permits for stores selling milk at retail. The final paragraph of the section reads: "The provisions of this section do not apply to milk and cream sold in hotels, restaurants and retail stores, nor to condensed milk or condensed skimmed milk when contained in hermetically sealed cans."

OHIO

Memorial to Old Practitioner.—Dr. J. Arthur Hines, Van Wert, has presented to the Van Wert County Hospital, a bronze tablet in memory of his father, Dr. Philip John Hines, the first physician of Van Wert.

Merger Planned.—At a meeting of the Muskingum County Academy of Medicine at Zanesville, December 29, a motion

was passed asking merger with the Muskingum County Medical Society. The society has not yet passed on the proposition.

Marine Hospital May Be Sold.—The present Marine Hospital Reservation in Cleveland, Ohio, and the improvements thereon, may be sold by the secretary of the treasury, if a bill recently introduced into Congress becomes a law. The proceeds of the sale will be available for the provision of a new Marine Hospital at Cleveland.

State Board Officers.—Dr. Lester E. Svemon, Cleveland, was elected president of the State Board of Medical Examiners, January 4; Dr. John H. J. Upham, Columbus, was reelected vice president, and George H. Matson, Columbus, secretary.——Dr. Wallace W. Ryall, Youngstown, was appointed a member of the State Board of Health for a term ending Dec. 13, 1922, succeeding Dr. Robert H. Grube, Xenia.

Personal.—Dr. Argus B. Swisher, Marysville, recently underwent an operation in a Columbus hospital for the removal of a tumor.——Dr. Richard L. Jett has returned to Cleveland after a year's service with a British Red Cross Hospital in Serbia.——Dr. Edwin A. Hamilton, Columbus, recently returned from service with the German Red Cross in Silesia.——Dr. Walter H. Rieger, Cleveland, is spending six months in graduate work in Harvard Medical School.——Dr. Frederick N. Garand, Toledo, was operated on in the Toledo Hospital for malignant disease of the lip recently.——Dr. Alexander H. Beam, Hillsboro, has retired from practice and expects to continue to reside in Hillsboro.——Dr. Thomas C. Hoover, Columbus, is reported to be seriously ill at his home.——Dr. Joseph R. Thompson, Cleveland, has returned after service in a war hospital in Serbia.

Cleveland

Quack Refused Retrial.—Federal Judge John M. Clarke is said to have overruled a motion for a new trial in behalf of Dr. Charles M. Simpson of the "Dr. Chas. M. Simpson Medical Institute," 1840 W. Fortieth Street, Cleveland, found guilty of violating the Pure Food and Drug Act and making fraudulent claims for an epilepsy cure. A fine of $200 and costs was imposed.

Western Reserve News.—Dr. O. O. Van der Stricht, professor of histology and embryology, University of Ghent, Belgium, has just arrived from Holland to accept the post of fellow in cytology in the Anatomical Laboratory, Medical School, Western Reserve University. Professor Van der Stricht will devote his full time to research.——Dr. Gaius E. Harmon, instructor in hygiene and preventive medicine in the Medical School, has been appointed assistant registrar and chief of the bureau of vital statistics to the Cleveland City Division of Health.——Western Reserve University has purchased thirteen acres of land lying adjacent to the university campus, on which the erection of a complete new medical plant is contemplated. The present downtown hospital and school sites, it is said, will eventually be abandoned. Upon the same campus will be housed also the dental and possibly the pharmacy schools, which are at present affiliated and located downtown. A new dental school building is about to be constructed. Other institutions will be added from time to time.

New Dental Research Institute.—The trustees of the National Dental Association have purchased a large private residence as temporary quarters for a new Research Institute until adequate buildings can be erected. The Research Institute is supported entirely by the association, and the plan of organization is a corporation with a membership of sixty, twenty-seven of whom are elected by the trustees of the National Dental Association and known as commission members, and thirty-three are permanent members and are selected by the corporation. The board of nine trustees has chief responsibility for the conducting of the work in the institution and carried on under grants. They are assisted by an advisory board of eighteen, composed of leading men of science, leaders in business and philanthropy. It is said to be the first institution of its kind in the world. Various problems contemplated for study are: Pyorrhea, dental caries, mouth infections, relation of baby foods to tooth structure, relation of glands of internal secretion to defective tooth structure, staining of teeth, etc. Part of the work will be the collecting and distribution of information for educational work, particularly for the medical and dental professions. The present officers are: Dr. W. A. Price, Cleveland, president and managing director; Dr. Thomas P. Hinman, Atlanta, vice president; Dr. Clarence J. Grieves, Baltimore, secretary; Lefa A. Beman, Cleveland, assistant secretary, and Edward A. Petrequin, Cleveland, treasurer.

Cincinnati

Academy Election.—At the annual election of the Cincinnati Academy of Medicine January 3, the following officers were elected: president, Dr. Charles T. Souther; vice presidents, Drs. Derrick T. Vail and J. Edward Pirrung; secretary, Dr. William R. Abbott, and treasurer, Dr. Alexander G. Drury.

Public Health Laboratory for Cincinnati.—The Cincinnati Chamber of Commerce has taken up the endorsement of the United States Public Health Service and will ask favorable consideration of an estimate made by the secretary of the treasury for $20,000 for repairs to the old Marine Hospital, Cincinnati, that a permanent laboratory may be established for the prosecution of further studies of the pollution of streams, disposal of domestic sewage and industrial wastes and other problems relating to sewerage.

Personal.—Dr. John M. Withrow has been reelected president of the Cincinnati Board of Education.——Dr. Charles A. Stammel has succeeded Dr. Ellis R. Bader as receiving physician at the Cincinnati General Hospital.——Dr. Erwin O. Straehley has been appointed a member of the board of trustees of the Cincinnati University.——Dr. Samuel J. Goldberg has been appointed clinical director of laryngology and otology in the medical department of the university. He has also been made assistant clinical director of laryngology and otology in the Ohio-Miami Medical College.

UTAH

State Chemist Moves.—State Chemist Harms has moved into his new office and laboratory in the State Hospital. His suite adjoins that of the State Dairy and Food Commission.

Richfield Wins Clean-Town Contest.—Richfield, Sevier County, obtained the highest score in the state-wide clean-town contest recently conducted by the State Board of Health with a score of 73.5. Salt Lake City came second with 72.5.

Trachoma.—Twenty-five cases of trachoma were found among the Indians at Deep Creek by Asst. Med. Supervisor Ferdinand Shoemaker, assistant examiner of the U. S. Indian Service. December 14 Dr. Shoemaker left for Skull Valley to treat the Indians there found to have trachoma.

Personal.—Dr. Clarence M. Clark, assistant physician at the State Mental Hospital, Provo, has resigned and moved to American Fork.——Dr. Robert T. Jellison, Jr., Salt Lake City, formerly of Bingham, has succeeded Dr. Clark at the hospital.——Dr. Hardie Lynch has been appointed pathologist of Salt Lake County, succeeding Dr. Claude L. Shields, resigned. Dr. Lynch is also city bacteriologist of Salt Lake City.

WASHINGTON

State Board Election.—At the annual meeting of the Washington State Board of Medical Examiners, January 4, the following officers were elected: president, Dr. Royal A. Gove, Tacoma; vice president, Dr. Daniel M. Stone, Seattle; secretary, Dr. Conrad N. Suttner, Walla Walla, and treasurer, Dr. H. R. Morse, Wenatchee.

Personal.—Dr. William W. Brand, Rosalia, who has been seriously ill with erysipelas, is convalescent and has resumed practice.——Dr. George M. Horton, Seattle, was operated on for gallstones in St. Mary's Hospital, Rochester, Minn., recently.——Dr. Walter Gellhorn, who left Seattle November 17 to join the German Red Cross, is said to have been taken prisoner by the British government on December 9. It is said to be alleged that he was carrying plans for military inventions and chemical formulas to Germany.

WISCONSIN

State Compensation Law.—During the last fiscal year the physicians and hospitals of the state received $400,000 for services rendered under the state compensation law. This sum was almost half the total amount paid directly to injured workmen or their families.

Personal.—Dr. James S. Stitt, Milwaukee, is reported to be seriously ill with pneumonia in Trinity Hospital.——Dr. George H. Fellman, Milwaukee, has resigned as physician at the Home for Dependent Children.——Dr. Frank Brockway, Oshkosh, has been appointed superintendent of the State Tuberculosis Sanatorium, Wales.

CANADA

Patriotic Medical Aid Bureau.—A patriotic medical aid bureau has been organized by the physicians of Regina, Sask., which will give medical assistance to all dependents of those

who have gone to the front. Patients will be sent to the office of one of the physicians of the bureau or to the outpatient department of the General Hospital, or in emergency or serious illness, a physician will visit the patient. If nursing is required the patient will be either sent to a hospital or a nurse will be supplied by the patriotic fund. If assistance is required in the home, a nurse will be sent by the fund under the supervision of a visiting attendant.

GENERAL

Hospital Ship for Fishing Banks.—The coastguard cutter *Androscoggin*, which is being used as a hospital ship for deepsea fishermen on the banks, sailed from Charlestown Navy Yard last week for Shelburne, N. S.

Embargo Removed.—According to *Commerce Reports* January 11 the embargo formerly placed by the British government on shipments of logwood from Jamaica has been removed. The embargo was declared in December, 1915.

Appropriation Asked for Rural Sanitation.—On behalf of the United States Public Health Service, Secretary McAdoo on January 4 transmitted to the House of Representatives a recommendation for an emergency appropriation for $100,000 to promote rural sanitation. The money is especially desired to combat the spread of pellagra and typhoid fever.

Building Exposition.—*Commerce Reports* announces a semiofficial exposition of methods and materials for the reconstruction and improvement of houses, factories, farms, highways, etc., to be held in Paris under the patronage of the president of France in May, June and July. The United States is the only foreign country that has been asked to participate.

New Editor.—The American Orthopedic Association announces the appointment of Dr. Mark H. Rogers, Boston, as editor of the *American Journal of Orthopedic Surgery*. The journal will henceforth be issued monthly, the first number being that of January, 1916. The office of publication has been transferred from Philadelphia to Boston where it is published by Mr. Ernest Gregory, 126 Massachusetts Avenue.

Pacific Roentgenologists Meet.—The second semiannual meeting of the Pacific Coast Roentgen Ray Society was held in San Francisco, December 11 and 12: president, Dr. Albert Soiland, Los Angeles, in the chair. Resolutions of regret were adopted on account of the death of Dr. Robert E. Austin, San Diego, a charter member of the society. The first day was spent in the presentation of papers and the second day in visiting the Roentgen laboratories of the hospitals of San Francisco and observing the practical work.

Prevention of Malaria.—The prevention of the dissemination of malaria and other diseases among the several states is the nominal basis of a bill introduced into Congress on January 4. The bill provides for the establishment of a drainage fund of $10,000,000 for the construction of drainage works to reclaim wet, overflowed and swamp lands. As the lands are to be made available for agricultural purposes, the administration of the proposed law is vested in the secretary of agriculture, and the bill was referred to the committee on agriculture.

Conference of United States Public Health Service With State Health Officers.—The Surgeon-General of the Public Health Service has called a conference of state health officers to meet in Salt Lake City, Utah, February 2. The call is issued under authority of an act to increase the efficiency and change the name of the United States Marine Hospital Service, approved July 1, 1902, and is based on requests filed by seven Rocky Mountains states. The purpose of the conference is to consider rabies, spotted fever and other public health matters. The call is not limited to the states that joined in the request for the conference, but every state has been invited to send one delegate.

Warning.—Dr. William T. Collette, Versailles, Ky., warns the members of the American Medical Association against the Western Supply Company of Indianapolis, and its representative, Mr. B. L. Strong, who on payment of a service fee of $10.00, issued a certificate that the Western Supply Company agreed to furnish Dr. Collette with all automobile supplies at cost f.o.b. factory for one year from date. On inquiry by Dr. Collette's bank, the Western Supply Company is found to be unknown. We note that the certificate is dated Jan. 1, 1917. We do not know whether this postdating is intentional or not, but at all events, members should be on their guard against dealings with any company which does not have a recognized commercial standing.

Millions Spent in Tuberculosis Fight.—The National Association for the Study and Prevention of Tuberculosis reports that during 1915 more than $22,500,000 was spent in the antituberculosis campaign, an increase of $17,500,000 as compared with a decade ago. The work of the association has increased from the care of tuberculosis patients, which was its sole function, until last year more than $1,000,000 was spent in organization and education; more than another million in the examining, giving advice to and treating patients; more than $350,000 was spent in teaching and treating tuberculous children, while nearly $750,000 was spent in the care of the tuberculous insane and criminals. The bulk of the amount spent in the antituberculosis campaign was, of course, expended in sanatoriums and hospitals, nearly 600 of which expended $19,250,000.

National Leprosarium.—The desirability of a national leprosarium is recognized in a bill now pending in Congress. The Surgeon-General of the Army, the Surgeon-General of the Navy, and the Surgeon-General of the Public Health Service are constituted a board to report on the selection of a suitable site. For erection and maintenance $500,000 is provided. The establishment is to be administered by the Surgeon-General of the Public Health Service, whom it authorizes to receive into the leprosarium any leper who presents himself for admission or who may be apprehended or detained under authority of the United States quarantine laws. He may also, upon application of the authorities of any state or of the District of Columbia, send for any leper and place him in the leprosarium for treatment. The bill was referred to the committee on appropriations.

Pollution of Streams.—In a suit for damages brought by the property owners of the village of Batavia, N. Y., on account of the pollution of a stream by the emptying of the village sewage into it, the supreme court confirmed a judgment awarding damages to the plaintiffs. The court said: "The inhabitants of a city or village, collectively, have no more right to pollute the waters of a stream than a single individual, and where a city empties its sewer system into a living stream, as the defendant has done in this case, and damage results to the riparian owners, it must respond in damages. If such acts are continued, and a proper case is made out, an injunction should issue restraining such unlawful acts; and if the village persists in defiance of the injunction, the village and local authorities responsible for such violation should be punished for contempt."

National Child Labor Conference.—The annual conference of the National Child Labor Committee will be held in Asheville, N. C., February 3 to 6. The program of the meeting is not yet complete, but among those who will read papers are Dr. Felix Adler of the Ethical Culture Society, New York; Homer Folks, chairman of the National Association for the Prevention of Tuberculosis; Lillian D. Wald, Florence Kelley, Stephen S. Wise, Owen R. Lovejoy, A. J. McKelway and E. N. Clopper, the latter three of the staff of the National Child Labor Committee. The general topic of the meeting will be "Safeguarding American Childhood." Attention will be given by the conference to the Keating-Owen federal child labor bill which is now in Congress. All state health, factory inspection and school officers have been invited to attend and the governor of each state has been asked to send five delegates.

Bequests and Donations.—The following bequests and donations have recently been announced:

Mission Hospital, Asheville, N. C., an endowment of 20,000, by the will of Mrs. Charles Francis.

Philadelphia County Medical Society for the aid of Philadelphia physicians, principally graduates of the Medico-Chirurgical College of Philadelphia, a contingent bequest of the greater part of the estate of Dr. William B. Banks.

Elmyra County (N. Y.) Tuberculosis Sanatorium, $5,000, toward the cost of a new hospital, contingent upon the raising of $17,000 additional, by the board of supervisors, by Charles E. Rapelyea.

Reading (Pa.) Hospital, $1,000, by the will of Emily A. Smith.

Abington (Pa.) Hospital, an additional gift of $250,000, by George W. Elkins, president of the board. This makes his contributions to the hospital $708,000.

German Hospital, New York City, $1,000, by the will of Casper A. Stock.

Jewish Hospital, Philadelphia, contingent bequest of the residue estate of the late Isaac Silvernail.

Philadelphia Jewish Hospital, Mount Sinai Hospital and Eaglesville (Pa.) Sanatorium for Tuberculosis, each $500, and Federation of Jewish Charities, $1,000, by the will of Bernard Harburger.

Railway Accidents in 1915.—According to *Accident Bulletin 56* of the Interstate Commerce Commission there was, during the year to June 30, 1915, a total of 170,661 casualties on steam railways of the United States. Of this number 8,621 represent persons killed and 162,040 the number injured. This is a decrease over the figures of 1914 of 1,681

in the number of persons killed and 30,622 in the number injured. The number of employees killed was 343 and the number injured was 99,192 in "industrial accidents" which are defined as accidents not connected with train operation but occurring to railway employees other than train men on railway premises. Of the total number of persons killed 2,152 were employees, 222 passengers and 6,247 other persons including both trespassers and nontrespassers; thus there was a decrease over the figures of 1914 of 1,107 employees killed, 43 passenger and 531 other persons. Of the persons injured 138,092 were employees, 12,110 passengers and 11,838 other persons. This is a decrease in the figures of 1914 of 27,120 injuries to employees, 3,011 to passengers and 491 to other persons.

FOREIGN

Prize Awarded by Netherlands Society to Sir David Bruce.—The Netherlands Academy of Sciences has recently awarded to the surgeon-general of the British army, Sir David Bruce, the Leeuwenhoek medal. It is awarded every tenth year, and this is the first time it has been given to a British scientist although Leeuwenhoek himself was a foreign member of the British Royal Society. The greater part of his discoveries were published in the transactions of the British society. The previous recipients of the medal were Ehrenberg, 1875; F. Cohn, 1885; Pasteur, 1895, and Beyerinck, 1905.

Free Meals for Schoolchildren.—According to *Commerce Reports,* dinners are served to the Leeds, England, children of sixteen schools, the cost of which is defrayed, one half from the city rates and one half from the government grant by the board of education. For the four weeks beginning with November, 1914, there were 48,055 dinners served. In the corresponding period in 1915, the number declined to 8,889. Typical menus were as follows: Irish stew, brown and white bread, currant cake, pea soup; brown and white bread, parkin; crust pie, brown and white bread, currant cake, etc.

Memorial to Eustachius.—A bronze tablet was recently unveiled with much ceremony in the great quadrangle of the University of Rome to the memory of Bartolommeo Eustachio, discoverer of the eustachian tube, who died in 1574. Prime Minister Salandra, the minister of public instruction, the mayor of Rome, and other notables were present. The tablet is on one of the pillars supporting the upper portico, and represents Eustachius in relief, seated, ready to begin lecturing, garbed in the academic robes and holding a human skull. His arm rests on charts showing the structure of the internal and middle ear. The inscription, besides the name and dates, states "Artis anatomicae lumini," and below, "Senatus Academicus—Quartis feriis secularibus."

Number of Physicians to Population in France and Italy.—The *Riforma Medica* of Naples states that the number of registered physicians in Italy is 22,705, which represents, to a population of nearly 36,000,000, 6.3 physicians to each 10,000 inhabitants. In Naples the proportion is 12 to each 10,000 inhabitants; Rome, 9.9; Milan, 7.1; the Como district, 4.4, and the Syracuse district, 4.3 per cent. There are about 130 foreign physicians. Among them are 25 licensed to practice only among their compatriots as they have no diploma from Italian medical schools. About 85 have obtained an Italian degree, and 20 are graduates of British schools entitled to practice by reciprocity arrangements. Our exchange cites further statistics which show that in France, before the war, there were about 20,000 physicians; 3,000 were settled in Paris. Of this latter number, only 5 or 6 had an income of $40,000 or $60,000 a year; 1,200 had an income of less than $1,600, and the great majority did not make $800 a year. The present French Chamber of Deputies has 80 medical members.

Death of Leading Italian Physician and Statesman.—The cable brings word of the death of Guido Baccelli, professor of clinical medicine at the University of Rome and chief of the great general hospital, the Policlinico, the erection of which was mostly his work, aged 84. His father was a physician and his family long famous in the history of Rome. As a member of parliament and minister of public instruction, he revolutionized the teaching of medicine in Italy and was mainly instrumental in the great excavation works undertaken at Rome and elsewhere in Italy to preserve historical edifices. The sanification of the Italian marshes was also initiated and promoted by him, and he has been a leader in all movements to improve conditions in the medical profession. He served at one time as professor of the history of medicine and later succeeded in overcoming the opposition to the teaching of pathologic anatomy, and was the first incumbent of the newly founded chair at Rome. The biographical dictionaries of 1901 state that at that date he had published over sixty works on various phases of medicine and pathologic anatomy, auscultation of the whispering voice, etc., but he is best known by his pioneer work on intravenous injection of heroic drugs and his phenol treatment of tetanus. The latter proves so uniformly successful in Italy that some conclude that tetanus in that country is less virulent as the Baccelli method does not answer so well elsewhere.

Interesting Newspaper from the Orient.—The *China Press* printed at Shanghai, for Sunday, Oct. 3, 1915, gives an account of the meeting of the members of the China Medical Board of the Rockefeller Foundation, headed by Dr. Wm. H. Welch, with the leading citizens of Shanghai on the occasion of their recent visit to that city. The paper contains the complete address of Dr. Welch on that occasion. The *Press* is largely an American enterprise, is in charge of Americans as managing and associate editors and is promoted by both American and Chinese capital. It has achieved a leading position among the foreign press in China and compares as a newspaper favorably with the American papers. A Sunday edition is printed and among its features is a colored supplement which speaks well for the mechanical equipment of the paper. Another example of the enterprise of this American newspaper plant in China is a special edition in the form of a supplement called "The Rebirth of a Nation." This is a large pamphlet of half the size of a newspaper page with a gorgeous cover in gold and colors printed on heavy paper and containing an article in Chinese (with translation) by Yuan Shih Kai, then president, and now emperor of China, besides a large number of other articles on various subjects important to the new empire of China by various government officials, military officers, American officials and others. Among these articles is one by Dr. John R. Taylor on sanitation, health and safety service for China; one on the suppression of the opium traffic, by General J. Chang, and also an article on preventive medicine and hygiene as taught at the Tsing Hua College. This supplement is abundantly illustrated by portraits of Chinese statesmen, military officers, American trade representatives and others, and scenes in the development of the new China. The supplement is an example of newspaper enterprise that is highly complimentary to the American promoters of the *China Press.*

LONDON LETTER

London, Dec. 30, 1915.

The War

THE SHORTAGE OF MEDICAL STUDENTS AND PHYSICIANS

The shortage of medical students, owing to those of the first, second and third years joining the army as combatants, and the shortage of physicians because of the creation in this country for the first time of an army on the continental scale, continue to be burning topics. Even if the war ends in the next year or two, the situation in the profession will be serious enough, owing to the heavy drains on it. But if the war is still further prolonged, the fact must be faced that after about the end of 1916 no present student will become qualified, except a few men medically unfit for military service, during the whole of the war period. The demand has therefore been put forward that first and second year students should be relegated to so late a class in the reserved groups that their calling up will not occur except in case of the most desperate need. As regards physicians, the position is this: There are now 10,000 army surgeons, most of whom have been withdrawn from civil life for service with the armies, which number 3,000,000, while only 20,000 are left to serve 40,000,000 civilians, who include all the aged, infirm and "medically unfit." Moreover, there is the prospect that a further increase of the army may lead to a demand for 15,000 army surgeons. The physicians under the insurance act are now greatly overworked, as they have the care not only of their own patients but also of their colleagues who have joined the army. The staffs of the large hospitals are so denuded that an operator recently had to act as his own anesthetist. On the other hand, it is frequently stated that the army in the field is oversupplied with surgeons. Many have come home disappointed with the small opportunities provided for putting their professional skill and experience at the service of the fighting men. But it must be remembered that a staff much too large under the present condition of trench warfare might all be required after a big battle. The suggestion, therefore, has been made that it is unnecessary to maintain permanently such a big staff, as after a battle the staff at the front could be temporarily reinforced from this country in a few hours.

THE HIGH PRICE OF DRUGS, AND OTHER HOSPITAL DIFFICULTIES

Another difficulty of the hospitals is the high price of drugs. Epsom salt has gone up 50 per cent., salicylic acid costs nearly twenty times as much, phenol (carbolic acid), owing to its use in the making of explosives, is procurable only on the special authority of the War Office. The difficulties of the hospitals extend also to mechanics, dispensers, clerks and porters, who have joined the army in considerable numbers.

"CLEARING STATIONS" AT THE FRONT

"Clearing stations" are a new development in the army which have first been put to trial in the present war. They are situated a few miles from the firing line just outside the range of shell fire. They were originally intended to enable the field ambulances to clear themselves and then pass on the wounded to the stationary hospitals or to the base. But the circumstances of this war showed that they could be made much more useful. They have been transformed into well equipped hospitals capable of dealing with all urgent operations, and of retaining and nursing patients whom it is desirable not to move. Thus in cases of wounds of the abdomen, laparotomy can be performed within a few hours of receipt of the injury.

Death of Sir Henry Roscoe

Sir Henry Roscoe, F.R.S., has died at Leatherhead in his eighty-third year. Though not a member of the profession, his name was well known to medical men in consequence of his textbooks on chemistry. In 1857 he was appointed professor of chemistry at Owen's College, Manchester. He was a most lucid teacher, and adopted the system of encouraging every student to undertake a research under his guidance or that of some other member of the staff. In pure chemistry some of his most important published memoirs are those dealing with vanadium. He showed that the substance supposed by Berzelius to be metallic vanadium was in reality an oxid of that metal; he carried out an extensive research on the vanadium compounds, and showed the relationship of certain vanadates with the phosphates, arsenates, etc. Among his other researches may be mentioned those on the distillation of dilute acids and on perchloric acid. But it was as a writer of textbooks that he most distinguished himself. His "Elementary Lessons on Chemistry," first published in 1866, were an extraordinary success and were translated into many languages. Later he collaborated with Schorlemmer in producing in 1877-1888 their great "Treatise on Chemistry."

Women Dentists

The rapid entry of women into the dental profession, which has been going on for some years, has, like their entry into the medical profession, been accelerated by the war, which has withdrawn male dentists from civil practice. How keen women are in their work is shown by the facts that at the National Dental Hospital the gold medal for the best student has been won two years running by a woman student, and that in a recent examination in histology a woman student received a rank of 98 per cent., the men students' usual average being between 70 and 80 per cent. In the extraction room at the school on a recent day the women had a record of 139 teeth removed under gas. One student alone removed thirty-eight teeth from nine patients, and was contemplating golf as a medium for increasing the power of her forearm. Women are being sought for the school clinics, where the advertised salary starts at $1,250, but so far most of those who have qualified have preferred to set up in private practice, in which they have been very successful. Most of them marry dentists and share a family practice.

Crude Eugenics

At the Eugenics Education Society, Sir John Macdonell recently delivered an important address on "Eugenics and Law." He deprecated hasty legislative action based on imperfect knowledge. There was such a danger as science in a hurry. Had the precepts as to eugenics in Plato's "Republic" been carried out, Isaac Newton would probably have been made away with when an infant as a degenerate. Much of the best and highest work of the world had been done by the physically feeble, whom the crude eugenics of savage communities and rash theorists would condemn. The lecturer took exception to the drastic legislation in some states of the American Union directed against certain classes of criminals. Such measures were needless. Segregation was sufficient. He then asked if the great estrangement between different races, which lapse of time in some countries seemed only to widen, was based on a sound instinct or the perception of a biologic truth? No clear answer was forthcoming. There was a school of writers, represented by Comte de Gobineau, who maintained that purity of race was the secret of eugenics. There were many signs that a social and economic struggle between races was in progress, for the whole world, including the backward races, was restless and in motion as it never was before. Should the true *jus connubii* for races be that formulated by de Gobineau and his followers, a capital sentence on many races would be pronounced. They would be authoritatively branded as inferiors with the knowledge on their part that they are inferiors. But mixture of races had led to past progress. Who knew that eugenics might not disclose a rational *jus connubii,* such as neither Roman law nor any other system conceived, based on the fusion of allied races, one which would level up some backward races without debasing the advanced?

Major Darwin, the chairman, said that when they came to the half-caste it was generally found that one of the parents was an undesirable specimen of the race selected. He instanced Eurasians, and declared that the Indian mother was generally below the average of her race, and the origin of the statement that half-castes were inferior was probably due to the unhappy selection of the parents in that way. "If I may quote my father's view" added Major Darwin, "he did not publish it because he had not sufficient information at the time; but it is an impression I gathered from his conversations that he was distinctly of opinion that a slight admixing of race was beneficial; but I think he was equally clear that a large admixture was harmful." Major Darwin added that he himself was against the mixing of races, because, while they might bring up the lower of the races, he could not see how they were to avoid bringing down the higher of the two.

PARIS LETTER

PARIS, Dec. 30, 1915.

Personal

At the session of December 21, the Académie de médecine held its elections. Dr. Gustave Bouchardat was almost unanimously elected vice president for 1916 (and consequently president for 1917). Dr. Bouchardat was born in Paris, June 4, 1842, and received his doctor's degree in 1869 on a thesis which indicated his inclination toward chemistry. He was at that time an assistant of Berthelot in whose laboratory he worked five years. He was appointed agrégé professor at the Faculté de médecine de Paris in 1873 and in the Ecole de pharmacie in 1874. He became the first professor of hydrology and mineralogy in the latter school in 1882. He is at present honorary professor, a member of the Conseil d'hygiène et de salubrité du département de la Seine and has been a member of the Académie de médecine since 1882. His principal works have had to do with sugars (mannite, dulcite and glucose) and essences. He published the first work leading to the manufacture of synthetic rubber and laid the foundation for synthetic camphor. It is interesting to note that Gustave Bouchardat will reach the presidency of the Académie de médecine fifty-one years after his father, A. Bouchardat, professor of hygiene at the Faculté de médecine de Paris.

The War

DISCHARGES FROM THE ARMY FOR TUBERCULOSIS

Up to the present the army has simply discharged tuberculous soldiers and sent them home. This meant on the one hand a wretched life of invalidism for these unfortunate men and on the other the danger of contagion for the surrounding healthy population. M. Honnorat has presented a bill in the chamber of deputies intended to avoid this double danger. At present there is an interval of three months between the time when the man affected with tuberculosis is designated for discharge and the time when he actually receives his discharge. According to the bill, these three months are to be devoted to the patient's care and instruction in an antituberculosis régime. This treatment and this hygienic instruction require much money. As I mentioned in a previous letter (THE JOURNAL, Jan. 1, 1916, p. 45) the chamber of deputies voted 2,000,000 francs ($400,000) for this purpose. The military medical service has offered also 3 francs (60 cents) per day. As M. Brissac, director of public charities and hygiene in the interior department, recently remarked before the Alliance d'Hygiène Sociale, there are at present twenty-three sanitary stations for the tuberculous, due in part to private generosity, which are ready to operate. Under present conditions 2,000 tuberculous patients may be cared for at a time in these new institutions. The duration of the patient's stay there ought to be three months, that is,

8,000 patients can be given hospital care there each year. These patients sent there will be either soldiers about to be discharged referred directly by the military medical service or soldiers already discharged for tuberculosis referred by the civilian authorities. Only curable patients or at least those whose condition is capable of being improved will be received. The medical staff will consist of the civilian physicians of the region with perhaps some military physicians returned from the front to recuperate, and the nursing staff, of nurses furnished by the Société des infirmières visiteuses de France. Departmental committees of assistance will take charge of the tuberculous soldiers when they leave the sanatoriums.

MODIFICATIONS IN THE ARRANGEMENTS FOR SENDING PHYSICIANS TO THE FRONT

The undersecretary of the war department (medical service) has introduced some modifications in the arrangements for sending physicians to the front which are based especially on the following considerations: (1) duration of previous sojourn at the front (those who have been there only a short time should return sooner than those who in the first place remained at the front for many months); (2) family responsibilities (it is only just that bachelor physicians should be called to the front before those men who are married or widowers with children depending on them, and that account should be taken of the number of children). Each physician in the military service who is now in the interior of the country has been invited to fill out an individual record showing his age, the length of his service at the front, the number of children in his care, and the number of his living children.

THE WAR AND THE HIGH PRICES OF DRUGS

Our medicinal chemical substances have come almost altogether from Germany. Accordingly, ever since the end of August, 1914, there has been great scarcity in the most indispensable drugs: quinin, antipyrin, chloroform, morphin, etc. As I mentioned previously (The Journal, Nov. 20, 1915, p. 1831) an office des produits chimiques et pharmaceutiques was founded in the war department under the direction of Professor Béhal, who at once organized or adapted factories, made purchases in America and succeeded in restoring our supplies of medicines. Medicines, however, have remained at a price which is prohibitive for many patients. For instance: aspirin, which was worth 5 francs ($1) per kilogram (2 pounds) fifteen months ago, is worth 200 francs ($40) at present. Other drugs have risen proportionately. Why? Simply because the authorities have not chosen to take advantage of the facilities offered by the Office des produits chimiques et pharmaceutiques by informing the office of their needs or commissioning it to make their purchases. Instead, they have used the pernicious method of requisition. The office has been allowed to take great trouble to acquire a stock of medical supplies; then, at the moment when it is about to distribute its supplies among the pharmacists who depend on it, the authorities requisition the whole amount. The pharmacists, thus left in the lurch, are obliged to supply their wants the best way they can and to pay whatever the middlemen ask. So patients continue to pay very high prices for medicines.

A GUIDE FOR RECKONING INCAPACITY FROM DISEASE OR WOUNDS

As I mentioned in a previous letter (The Journal, Aug. 14, 1915, p. 636) the medical experts called on to estimate the reduction in capacity for work resulting from wounds of war have been invited to refer as much as possible to the figures established by writers and by legal decisions based on the law with regard to industrial accidents. Inspection of recent records shows, however, that the estimates of experts vary greatly for cases of similar character and seriousness. To remedy these inconveniences, the war department has published a Guide-Barême des invalidités intended to produce a certain uniformity in the estimates of experts. It is not intended to impose on the medical experts an absolute valuation of each lesion or infirmity in terms of incapacity; it is intended merely, as its name indicates, to serve as a guide, to reenforce personal experience and memory, etc.

MEASURES AGAINST FAVORITISM

A physician superintendent of a hospital abused his position to give special favor to the soldiers and noncommissioned officers under his care. One of these, habitually received at the table of this physician, remained at the hospital six months with the privilege of going out when he liked. Another, nominally at the hospital for three months, really passed almost all the time with his wife at home, where the physician in question was frequently a guest at his table. For these reasons and also because of the unsatisfactory conditions which prevailed in the hospital where these events took place, General Galliéni, minister of war, has given this physician a punishment of sixty days' imprisonment and he will be dismissed at the end of his term of imprisonment. His chiefs, who are responsible for having permitted such abuses through failure to exercise oversight and who left the minister to discover the facts after they had become matters of almost public notoriety, have been relieved of their functions.

In bringing these facts to the attention of medical inspectors, the minister calls their attention to the importance of verifying during their visits to hospitals the conditions there, and of severely repressing any tendencies toward laxness.

INJECTIONS OF PETROLATUM AND SOFT PARAFFIN IN FISTULOUS TRACTS PRODUCED BY WOUNDS OF WAR

Dr. Marquis of Rennes has reported to the Société de chirurgie de Paris some excellent results given by injections of a mixture of petrolatum and soft paraffin in cases of serious lacerations, the repair of which seems difficult or likely to be indefinitely prolonged and especially in large fistulous tracts where drains had been placed for a long time. After various attempts at forming a mixture with a higher melting point than petrolatum, which, melting at 40 C. (104 F.), is absorbed by the dressing, Marquis decided on a mixture of nine parts of petrolatum and one of soft paraffin. This petrolatum and paraffin mixture, melted in a water bath, is injected into the fistula with a syringe of 20 c.c. while a tampon closes the opposite orifice of the fistula. These injections are repeated every day or every two days. Before this treatment, fragments of projectile, of clothing and of bone should be carefully removed from the wounds. It is not necessary to wait until suppuration has completely ceased but it should not be profuse.

These injections of petrolatum and paraffin are painless, and they shorten the time of healing of fistulous tracts considerably.

LIGHT AND UNRECOGNIZED FORMS OF MALARIA IN THE ARMY

Some gastro-intestinal and infectious conditions observed at the front have sometimes been designated by the name of "fever of the trenches." According to a communication made by Dr. Paul Sainton, physician of the hospitals of Paris, to the Académie de médecine, some of the cases consist of light and unrecognized forms of malaria. Only the examination of the blood taken at the time of the attack of fever permits the recognition of the presence of malarial parasites. The cases observed by Sainton come from the region of Flanders where conditions favorable to malaria abound: mosquitoes, disturbed conditions of the soil, and floods in the presence of old centers of malarial infection.

A NEW FRENCH RED CROSS STAMP

The French Red Cross has just had made for 1916 a new special stamp to be sold for the benefit of the wounded. This stamp represents a soldier wearing a helmet on his head. The red cross appears against the yellow background of the stamp, which bears the two following inscriptions: "Société française de secours aux blessés militaires, 1916," and, below the vignette, "Ils se battent pour nous: soignons leurs blessures." The stamps are sold in packages of twenty for 1 franc (20 cents) or 5 centimes (1 cent) per stamp. The public is invited to use this supplementary stamp not only for correspondence within the country but also for letters sent to the front which are franked by the postoffice.

THE GOLDEN BOOK OF THE PARIS MEDICAL SCHOOL

The Faculté de médecine de Paris has decided to record in a Book of Gold the deaths and the memorable actions of its students, employees, teachers and graduates. Meanwhile a tablet of honor has been installed on which are inscribed the names of seventy-nine students, doctors and other persons connected with the school.

THE BRAILLE SYSTEM PREFERABLE TO OTHER SYSTEMS FOR THE EDUCATION OF THE BLIND

The number of those who have been blinded by wounds of war is striking. Recently Professor Monprofit of Angers explained to the Académie de médecine the principles of the method established by Mlle. Mulot, former head of the Ecole d'aveugles d'Angers, for the education of the blind and has

emphasized the advantages of this method. It may be questioned, however, if this method is really preferable to instruction by the Braille system. Lieut.-Col. H. de Castries, a competent judge of such matters, does not think so. According to Mlle. Mulot, her method is revolutionary; it removes all barrier between the seeing and the sightless and permits the instruction of both in the same classes and under similar conditions. As a matter of fact, Mlle. Mulot has merely invented a kind of compartmented guide, which permits the blind to trace in relief the characters of ordinary writing. Similar devices are already in existence, and differ very little from one another in value. They permit the blind people to produce writing which may be read by those who have their sight, and therefore they should not be neglected in the education of the blind. But this method of writing is only an accessory, not at all capable of replacing the Braille. The Braille alphabet is different from these other systems in utilizing point relief, while they utilize line relief. The public is apt to think that since the writing of those who have their sight consists of a combination of lines, this kind of writing is preferable to teach to the blind. The blind themselves, however, do not think so. All of the blind will testify that for the sense of touch there is a great difference between the sensation of the point and the sensation of the line. The former is exact and precise; the latter is always uncertain, for the fingers grope to find the extremities of the line. While books written in Braille over fifty years ago are still legible under the finger of the blind, a page of ordinary written characters traced in relief by one of the other methods becomes difficult to read at the end of a very short time. It is, of course, agreeable to receive from a blind friend or member of the family a letter which may be easily read, but if one gives this letter to another blind person it is more than probable that he will not be able to read it readily. Moreover, even waiving this difficulty, what advantage is there in the cursive character methods over the Braille method? The former does not remove the barrier between the seeing and the sightless; it does not enable one of the former class to write to a blind friend without becoming acquainted with the guide which he uses, and it takes just as long to learn this guide system as it does to learn the Braille alphabet. It should be added that there is no music notation for the blind except in the Braille method, and therefore none of the other systems permit the blind person to read music. Lieutenant-Colonel de Castries remarks that the Conseil général du département de Maine et Loire investigated Mlle. Mulot's method some years ago. It appeared that none of the blind pupils educated in Mlle. Mulot's institution during almost twenty-five years was provided with the means of earning his livelihood. All became dependent, to a greater or less extent, on the Assistance publique. In view of these negative results, the département de Maine et Loire decided to support no more scholarships at Mlle. Mulot's school.

Marriages

WALTER STANLEY JONES, M.D., New Bedford, Mass., to Miss Florence Esther Rowell of Fitchburg, Mass., at Groton, Mass., December 29.

LEO MOLTKE KNAUBER, M.D., Tower City, Pa., to Miss Clara A. Woolridge of Shamokin, Pa., at Reading, Pa., December 28.

ARTHUR GUY TROTTER, M.D., Greenwood, Miss., to Miss Mary Mellet Provost Grayson of Westfield, N. J., January 4.

JOHN MCNEILL SMITH, M.D., Rowland, N. C., to Miss Roberta Olyvia Andrew of Harmon, Md., November 17.

ELIAS WILLIAM ABRAMOWITZ, M.D., New York City, to Miss Anna Estelle Perlman of Brooklyn, December 26.

LINCOLN SMITH HEMMINGS, M.D., Cleveland, to Miss Hazel Scott of Cuyahoga Falls, Ohio, December 30.

JOHN CHARLES WILLIAMS, M.D., to ALICE BALDRIDGE LEWIS, M.D., both of New York City, July 24.

FRANK F. NEWELL, M.D., Burlington, Wis., to Miss Marie Barney of Charlotte, Mich., January 5.

COVA R. GRAHAM, M.D., Bryant, Ind., to Miss Hazel Jane Macklin of Geneva, Ind., January 1.

PAUL WILLIAM ASCHNER, M.D., to Miss Emily Robinson, both of New York City, January 4.

CLYDE MARTIN BALSLEY, M.D., Joplin, Mo., to Miss Ruth Barr of New Orleans, January 2.

Deaths

Joseph Hendley Townsend, M.D. Yale University, New Haven, Conn., 1887; aged 53; a Fellow of the American Medical Association; secretary of the Connecticut State Board of Health; major and chief surgeon of the National Guard of Connecticut; a member of the Association of Military Surgeons of the United States and American Public Health Association; assistant secretary and treasurer of the Connecticut Medical Society; secretary of the New Haven Medical Association from 1893 to 1896 and president in 1897 and 1898; clerk of the New Haven County Medical Association from 1892 to 1901; vice president in 1901 and president in 1902; an active participant in civic and university affairs in New Haven; assistant in the medical clinic of his alma mater from 1890 to 1892; demonstrator of obstetrics from 1892 to 1894 and thereafter lecturer on hygiene; died at his home in New Haven, January 7, from pneumonia.

Achilles Rose, M.D. College of Physicians and Surgeons in the City of New York, 1872; aged 76; a member of the Medical Society of the State of New York, and a Fellow of the New York Academy of Medicine; for more than forty years a practitioner of New York City; well known throughout the United States as a philologist and purist in Greek; died in a private hospital in New York, January 10, from pneumonia. Dr. Rose was born in Ruhla, Germany, and came to this country at the age of 22. He was the author of several books and monographs advocating Greek as the universal language for physicians.

Robert Newton Willson, M.D. University of Pennsylvania, Philadelphia, 1897; aged 42; a Fellow of the American Medical Association and a member of the American Association of Pathology and Bacteriology; a specialist on diseases of the heart and lungs; author of several books dealing with sex hygiene; a member of the staff of the Philadelphia General Hospital; pathologist to the Presbyterian Hospital, Philadelphia, and in 1900 representative of the United States Government at the International Tuberculosis Congress in Maples; died in the German Hospital, Philadelphia, January 1.

Benjamin L. Millikin, M.D. University of Pennsylvania, Philadelphia, 1879; aged 64; a Fellow of the American Medical Association and American College of Surgeons; a member of the American Ophthalmological Society; formerly dean and senior professor of ophthalmology in the Western Reserve University, Cleveland; senior ophthalmic surgeon to the Lakeside Hospital and consulting ophthalmic surgeon to the Charity Hospital, Cleveland; died at his home in Cleveland, January 6.

LeRoy Dwight Farnham, M.D. College of Physicians and Surgeons in the City of New York, 1878; aged 65; of Binghamton, N. Y.; a Fellow of the American Medical Association and Binghamton Academy of Medicine and for several terms president of the Broome County Medical Society; president of the staff of the Binghamton City Hospital; died in Johns Hopkins Hospital, Baltimore, January 3, from cerebral hemorrhage.

John George Dearborn, M.D. New York University, New York City, 1858; aged 80; a member of the Massachusetts Medical Society; assistant surgeon in the Navy during the Civil War; from 1869 to 1872 surgeon to the Charlestown (Mass.) State Prison; for sixteen years school physician of Charlestown and for several years a member of the school committee; died at his home, January 4, from pneumonia.

Thomas Francis Kelleher, M.D. State University of Iowa, Iowa City, 1878; aged 60; a Fellow of the American Medical Association; president of the advisory board of Mercy Hospital, Des Moines, and medical director of the American Life Insurance Company of that city; a leading member of the medical profession of Des Moines; died at his home in that city, January 3, from arteriosclerosis.

Charles Stanley Crane, M.D. University of Michigan, Ann Arbor, 1889; aged 53; a Fellow of the American Medical Association and a member of the House of Delegates from North Dakota at the San Francisco meeting; a specialist on diseases of the eye, ear, nose and throat; and a prominent practitioner of Grand Forks, S. D.; died in that city, January 1, from Addison's disease.

Frank Willard Grafton, M.D. Dartmouth Medical School, Hanover, N. H., 1896; aged 45; a Fellow of the American Medical Association and American College of Surgeons; assistant on the surgical staff of the Margaret Pillsbury

Hospital, Concord, N. H., and attending physician at the Odd Fellows Home, Concord; died in that city, November 15, from septicemia due to an infection from the prostate gland.

John Butler Dodge, M.D. University of Michigan, Homeopathic Medical College, Ann Arbor, 1880; aged 57; a member of the Michigan State Medical Society; for twenty-three years a practitioner of St. John's, Mich.; city health officer and physician of Clinton County; died in the Harper Hospital, Detroit, January 5, from disease of the intestines for which an operation had been performed a week before.

Charles Zeigler Weber, M.D. Jefferson Medical College, 1882; aged 59; a member of the Medical Society of the State of Pennsylvania, and for six years secretary of the Montgomery County Medical Society; a member of the staff of the Norristown Hospital and physician for the Montgomery County Prison for ten years; died at his home in Norristown, January 3, from pneumonia.

Joseph Franklin Condon, M.D. University of Michigan, Ann Arbor, 1892; aged 49; a Fellow of the American Medical Association; surgeon to the Colorado and Southern Railroad at Breckenridge, Colo.; health officer and coroner of Summit County and town physician; died in a hospital in Leadville, Colo., December 5, from diabetes.

James C. Dougherty, M.D. Baltimore University, 1898; aged 43; a private and acting hospital steward in the Hospital Corps, U. S. Army, during the Spanish-American War; a Fellow of the American Medical Association; on duty in the U. S. Army Transport Service at San Francisco; died in that city, January 5, from heart disease.

William Byrd Tate, M.D. Medical College of Georgia, Augusta, 1884; aged 56; a member and once vice president of the Medical Association of Georgia; a trustee of the Ninth District Agricultural College near Clarksville, and a prominent practitioner of Pickens County; died at his home in Tate, Ga., January 6.

Henry Thatcher Boutwell, M.D. Harvard Medical School, 1870; aged 71; a Fellow of the American Medical Association; for many years a well-known practitioner of Manchester, N. H., but for the last few months retired on account of ill health and residing in Santa Barbara, Calif.; died December 21.

Henry Clement Hache, M.D. Kentucky School of Medicine, Louisville, 1893; aged 47; a Fellow of the American Medical Association and for twenty years an esteemed practitioner of Somerville, Mass.; died January 8 in the Massachusetts General Hospital, Boston, where he had gone for an operation.

Smith L. Hogan, M.D. Memphis (Tenn.) Hospital Medical College, 1903; aged 48; of Pottsboro, Texas; a Fellow of the American Medical Association and a well-known practitioner of Grayson County, Texas; was shot and instantly killed by his brother-in-law in Pottsboro, Texas, January 2.

Leonard Hughes Robinson, M.D. Washington University, St. Louis, 1907; aged 30; of Warrensburg, Mo.; died at the home of his father in the city, December 31, from the effects of a gunshot wound of the heart, self-inflicted, it is believed, with suicidal intent, while despondent on account of ill health.

Robert Gray Kinnier, M.D. Jefferson Medical College, 1880; aged 60; for several years chief medical examiner for the John Hancock Life Insurance Company; died at his home in Philadelphia, December 31, from spinal disease as the result of an injury sustained nine months before.

Walter Leander Capshaw, M.D. St. Louis University, 1907; aged 30; professor of anatomy in the Oklahoma University, Norman, and health officer of Cleveland County; a member of the Oklahoma State Medical Association; died at his home in Norman, Okla., December 25.

Richard Francis O'Connell, M.D. Georgetown University, Washington, D. C., 1894; aged 47; formerly superintendent of the State Hospital for Epileptics, Gallipolis, Ohio, but for the last six years a practitioner of Columbus, Ohio; died at his home in that city, January 5.

Frederick Douglas Shepard, M.D. University of Michigan, Ann Arbor, 1881; aged 60; a missionary of the American Board of Commissioners for Foreign Missions in the Central Turkey Mission at Aintab since 1882; died in Aintab, January 11, from typhus fever.

Robert Emmitt McCauley, M.D. College of Physicians and Surgeons in the City of New York, 1871; aged 71; a veteran of the Civil War; for many years local surgeon for the Pennsylvania System at Apollo, Pa.; died at his home in that place, December 23.

James C. Dignan, M.D. Ohio Medical University, Columbus, 1896; aged 41; who fell from a ladder in his office in Wellington, Ohio, December 17, suffering severe cuts and bruises; died at his home in Elyria, Ohio, January 5, from cerebral hemorrhage.

Abraham J. Van Heekeren, M.D. University of Bonn, Germany, 1853; aged 88; for twenty-five years a resident of Portland, Ore., and prior to that a practitioner of Paris, France, and Sydney, Australia; died at his home in Portland, Ore., December 29.

Edward Beach Crowell, M.D. College of Physicians and Surgeons in the City of New York, 1853; aged 86; for a few years a practitioner of medicine in Paris, but later an attorney of New York City; died at his home in New Brighton, Staten Island, January 2.

Edward Charles Kroos, M.D. New York University, New York City, 1892; aged 53; a Fellow of the American Medical Association and a resident of Brooklyn for more than twenty-five years; died at his home in that city, December 30, from pneumonia.

William Plattfaut, M.D. University of Wurzburg, Germany, 1879; aged 61; a member of the Ohio State Medical Association and one of the leading practitioners of Dayton, Ohio; died at his home in that city, January 1, from pulmonary edema.

George Washington Burket, M.D. Western Reserve Medical College, Cleveland, 1857; Bellevue Hospital Medical College, 1867; aged 83; a member of the Medical Society of the State of Pennsylvania; died at his home in Tyrone, Pa., November 2.

Matthew Bonner Flinn, M.D. New York Hygeio-Therapeutic College, New York City, 1865; aged 72; for many years a practitioner of Worcester, Mass.; died at the home of his daughter in Oakland, Calif., October 5, from cerebral hemorrhage.

Dosson Lycurgus McIlravy, M.D. New York University, New York City, 1880; aged 63; for many years a practitioner and druggist of Magnolia, Ohio; died at the home of his sister in Des Moines, Iowa, December 22, from cerebral hemorrhage.

Harry Charles Vaught, M.D. University of Pittsburgh, 1909; aged 34; a Fellow of the American Medical Association; a well-known practitioner of Sharpsburg and Aspinwall, Pa.; died at his home in Aspinwall, January 5, from pleuropneumonia.

Lyman Louis Deck, M.D. University of Michigan, Ann Arbor, 1878; aged 65; a well-known ophthalmologist of Salamanca, N. Y., and health officer of the city; a director of the Salamanca Trust Company; died at his home, January 3.

Arnold Gustave Leo, M.D. College of Physicians and surgeons in the City of New York, 1895; aged 43; a member of the Medical Society of the State of New York; died at his home in New York City, December 31, from heart disease.

Leora Johnson, M.D. State University of Iowa, College of Homeopathic Medicine, Iowa City, 1890; aged 59; clinical assistant and anesthetist to the hospital connected with her alma mater; died at her home in Iowa City, December 29.

St. Elmo Rutledge Glover, M.D. Medical College of the State of South Carolina, Charleston, 1911; aged 28; at one time city physician of Charleston, S. C.; died in the St. Francis Xavier Infirmary in that city, December 25.

Christopher C. Burke, M.D. New Orleans School of Medicine, 1860; aged 78; a practitioner of Texarkana, Texas, since 1878; alderman, mayor and member of the local school board; died at his home in Texarkana, December 26.

Bunyan S. Ezell, M.D. Tulane University, New Orleans, 1893; aged 45; a member of the State Medical Association of Texas; died at his home in Kosse, Texas, November 11, after an operation for the removal of gallstones.

Charles Grove Sprinkel, M.D. Starling Medical College, Columbus, Ohio, 1894; aged 48; a practitioner of Effingham, Kan.; died in St. Joseph's Hospital, Kansas City, Mo., December 19, after an operation for appendicitis.

Ephraim Koch Blanck, M.D. Jefferson Medical College, 1873; aged 64; formerly of Reading, Pa.; for nearly a quarter of a century postmaster of Vinemont, Pa.; died at his home in Vinemont, December 20, from heart disease.

James L. Trimm, M.D. University of Alabama, Mobile, 1881; aged 64; one of the oldest practitioners of Tuscaloosa, Ala.; formerly a druggist and practitioner of Northport, Ala.; died at his home in Tuscaloosa, December 18.

Howard G. Bonwill, M.D. Jefferson Medical College, 1886; aged 53; died at his home in Camden, N. J., January 3, from disease of the throat for which he had recently undergone operation at the Philadelphia Hospital.

Daniel C. Wilson (license, Missouri, 1883), aged 76; said to have been a practitioner since 1869; a veteran of the Civil War; of Marysville, Mo.; died at the home of his sister-in-law in West Alhambra, Calif., December 17.

Orie Pottinger McHenry, M.D. Eclectic Medical Institute, Cincinnati, 1886; aged 54; coroner of Butler County, Ohio, for two terms; died at his home in Hamilton, Ohio, December 29, from cerebral hemorrhage.

Thomas Lee Bondurant, M.D. University of Pennsylvania, Philadelphia, 1857; aged 81; a veteran of the Civil War and for many years a practitioner of Mount Vinco and Garrett, Va.; died in Dillwyn, Va., December 30.

James A. Hutchinson, M.D. Cincinnati College of Medicine and Surgery, 1878; aged 76; a veteran of the Civil War; and since 1871 a resident of Salamonia, Ind.; died at his home in that place, January 5.

Charles A. Ware, M.D. Medical College of Virginia, Richmond, 1863; aged 74; for forty years a practitioner of St. Louis; died at the home of his sister in Berryville, Va., December 23, from heart disease.

William Baker Banks, M.D. Medico-Chirurgical College of Philadelphia, 1891; aged 66; a Fellow of the American Medical Association; died at his home in Philadelphia, December 28, from pneumonia.

George W. Kester (license, Ohio, 1896), aged 78; of Shiloh, Ohio; a veteran of the Civil War; was struck by a passenger train and instantly killed, at a grade crossing in Shiloh, about December 27.

Thomas E. Tomlinson, M.D. University of Tennessee, Nashville, 1878; aged 58; a member of the Missouri State Medical Association; died at his home in Morley, Mo., January 3, from pneumonia.

James J. McMahon, M.D. Detroit Medical College, 1880; aged 67; for six years county physician of Wayne County, Mich.; died at his home in Detroit, December 25, from cerebral hemorrhage.

Jackson M. Gilbert, M.D. Tulane University, 1860; aged 87; formerly a member of the State Medical Association of Texas; died at his home in Louisville, Texas, November 17, from myocarditis.

John Dickenson Puffer, M.D. Rush Medical College, 1889; aged 61; for twenty-five years a practitioner and druggist of Ashland, Wis.; died at his home in Ashland, December 25, from pneumonia.

William Corns, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1863; aged 81; coroner of Tama County, Iowa, for several terms; died at his home in Tama, December 20.

Pasquale Felitti, M.D. Eclectic Medical College of the City of New York, 1898; aged 46; for twenty years a physician and druggist of New York City; died at his home, December 25.

Arthur Linwood Reeve, M.D. Long Island College Hospital, Brooklyn, 1896; aged 45; died at his home in Brooklyn, January 4, from the effects of a self-inflicted gunshot wound of the head.

Leonard Kip VanDyck, M.D. Albany Medical College, 1915; aged 25; senior medical intern in St. John's Hospital, Brooklyn; died in that institution, December 30, from pleuropneumonia.

Edmond Emmett Ryan, M.D. Milwaukee, Wis., Medical College, 1900; aged 48; died at his home in Milwaukee, December 30, from pneumonia following an attack of influenza.

Michael B. Garver, M.D. Homeopathic Hospital College, Cleveland, 1871; aged 72; a veteran of the Civil War; died at his home in Ephrata, Pa., January 1, from cerebral hemorrhage.

Middleton E. Pickens, M.D. Detroit College of Medicine and Surgery, 1906; aged 39; an esteemed colored practitioner of Muskogee, Okla.; died at his home, December 30.

Robert Manson Murray, M.D. Vanderbilt University, Nashville, Tenn., 1881; aged 55; died at his home near Trezevant, Tenn., December 23, from cerebral hemorrhage.

Edward M. Talbott, M.D. University of Louisville, Ky., 1857; aged 87; a Confederate veteran; a well-known practitioner of Cotula, Texas; died at his home, December 23.

Richard G. Stretch, M.D. University of Pennsylvania, Philadelphia, 1869; aged 74; of Philadelphia; died in the German Hospital in that city, January 4, after an operation for appendicitis.

Charles Marion Hollopeter, M.D. State University of Iowa, College of Homeopathic Medicine, Iowa City, 1890; aged 64; died at his home in Portland, Ore., December 30.

Adolph P. Johnson, M.D. Rush Medical College, 1891; aged 41; formerly of Tacoma, Wash.; died at his home in Alhambra, Calif., about December 26, from nephritis.

William N. L. Armstrong (license, Kentucky, 38 years of practice, 1898), aged 87; died at his home, Pye's Hill, Latonia, Ky., December 30, from senile debility.

Warren B. Palmer, M.D. Albany (N. Y.) Medical College, 1880; aged 58; of Brooklyn; died in the Prospect Heights Hospital, Brooklyn, January 7, from pneumonia.

David Arthur Sims, M.D. Vanderbilt University, Nashville, Tenn., 1887; aged 65; of Fort Smith, Ark.; died in St. Joseph, Mo., December 20, from pneumonia.

W. A. Priest, M.D. Miami Medical College, Cincinnati, 1872; aged 71; a pioneer practitioner of Southwestern Iowa; died at his home in Emerson, Ia., December 24.

Mordecai Myers Willson, M.D. Detroit College of Medicine and Surgery, 1889; aged 50; died in his apartment in Des Moines, Iowa, January 5, from influenza.

George Denholm Brownlee, M.D. Tulane University, New Orleans, 1887; aged 63; died at his home in Mokelumne Hill, Calif., December 9, from cerebral hemorrhage.

Augustus Ahlborn, M.D. Michigan College of Medicine and Surgery, Detroit, 1890; aged 49; died at his home in Eloise, Mich., December 25, from pneumonia.

Alexander O. Spence, M.D. Western Reserve University, Cleveland, 1890; aged 58; died at his home in Cleveland Heights, Ohio, December 30, from influenza.

Emmett J. P'Pool, M.D. University of Nashville, Tenn., 1875; aged 69; a member of the Arkansas Medical Society; died recently at his home in Forrest, Ark.

James K. Denman, M.D. Columbus, Ohio, Medical College, 1876; aged 64; died at his home in Sherwood, Ohio, December 30, from cerebral hemorrhage.

John Hampden Maxwell, M.D. Jefferson Medical College, 1854; aged 84; of Greenville, S. C.; died at the home of his nephew in Atlanta, Ga., December 30.

John L. Beavers, M.D. Tulane University, New Orleans, 1868; aged 76; of Wesson, Miss.; died in Jackson, Miss., January 4, after a surgical operation.

William Sigsbee, M.D. Castleton (Vt.) Medical College, 1852; aged 87; a practitioner of Illinois since 1868; died at his home in Mendon, Ill., January 1.

Charles L. Hale, M.D. Chicago College of Medicine and Surgery, 1913, aged 28; died at his home in Oak Grove, Ark., December 23, from pneumonia.

Samuel V. Horner, M.D. University of Tennessee, Nashville, 1886; aged 66; died at his home in St. Clair, Tenn., November 18, from pneumonia.

Hiram Carnahan, M.D. Rush Medical College, 1860; aged 85; of Compton, Ill.; died at the home of his daughter in Mendota, Ill., January 3.

Sylvester A. Coffman, M.D. Beaumont Hospital Medical College, St. Louis, 1888; aged 57; died at his home in Franklin, Kan., December 20.

Jesse William Thatcher, M.D. Hahnemann Medical College, Philadelphia, 1871; aged 65; died at his home in Philadelphia, December 29.

John A. Jacobs, M.D. American Medical College, St. Louis, 1874; aged 70; died January 4, at his home in Mount Lebanon, Pittsburgh.

Howard M. Lawrence, M.D. Tulane University, New Orleans, 1892; aged 48; died at his home in Longview, Texas, December 21.

Henry H. Lowrie, M.D. Georgetown University, Washington, D. C., 1863; aged 74; died at his home in Plainfield, N. J., January 3.

George Evelyn Morgan, M.D. Hahnemann Medical College, Philadelphia, 1871; died at his home in Austin, Chicago, December 23.

John Sibbald, M.D. Jefferson Medical College, 1875; died at his home in Fox Chase, Philadelphia, December 29.

Louis A. Kelly, M.D. Jefferson Medical College, 1878; died recently at his home in Pittsburgh.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE SHERLEY AMENDMENT CONSTITUTIONAL

How Some Newspapers View the Supreme Court's Decision

Last week THE JOURNAL referred editorially to the decision handed down by the Supreme Court of the United States declaring the Sherley amendment to the Food and Drugs Act constitutional. This decision is of the highest importance to the welfare of the nation. The following quotations are typical of the editorial opinions of newspapers on the subject:

NEW YORK TRIBUNE

It is well that the supreme court has established the validity of the Sherley amendment to the pure food and drugs act, for without it there would be no way of dealing with some of the most pernicious frauds on the market. To understand the importance of the amendment we have only to recall a decision of the supreme court in a case that was brought before it in 1911. There was no denying that the remedy in question was fraudulent: it is sufficient to say that it was one of the many so-called cancer cures. But the question to be decided was, in effect, whether, under the food and drugs act a manufacturer or vender was at liberty to lie about the virtues of his preparations. The supreme court decided that he was; that the law, in fact, was "aimed not at all possible false statements, but only at such as determine the identity of the article, possibly including its strength, quality and purity."

Obviously those who framed the act meant it to be much more comprehensive—comprehensive enough at least to control fraudulent remedies—but by this decision their purpose was utterly defeated. There was no longer any way of disciplining those who put up cancer cures, tuberculosis cures or diabetes cures provided they did not lie about the ingredients of their precious mixtures. In the case of the cancer cure the supreme court admitted "in a certain sense the statement on the label was false, or at least misleading," but by some odd legal turn the falsity was condoned on the ground that it was apparent not in point of established or demonstrable fact, but only in the "commendatory and prophetic aspect."

The practical consequences of such nice legal subtleties can readily be imagined. One who shipped Croton water as mineral water would be liable under the act; but if instead of specifying its source he contented himself with labeling it a sure cure for consumption or Bright's disease, the law could not touch him, because he had confined his lying to considerations that were merely "commendatory and prophetic." Clearly, then, by this decision all hope of regulating the traffic in fraudulent remedies was blasted. The quacks were free to lie as much as they pleased as long as they did not misrepresent the contents of their bottles and packets.

As soon as this important fact had been established Mr. Sherley of Kentucky proposed an amendment "to make the pure food law embrace those cases of interstate shipments of worthless medicines and drugs fraudulently held out to the public as possessing curative properties." The amendment was approved by the House Committee on Interstate and Foreign Commerce, and since then the rascals who prey on the sick have done their best to defeat it, on the ground that Congress had exceeded its powers.

In the lucid decision handed down by the supreme court it is established that there is "no ground for saying that Congress may not condemn the interstate transportation of swindling preparations designed to cheat credulous sufferers, and make such preparations, accompanied by false and fraudulent statements, illicit with respect to interstate commerce, as well as, for example, lottery tickets."

Thus it is at last determined that the quacks and impostors are to be held in check and that swindling will no longer be tolerated on the prophetic score.—(Jan. 12, 1916.)

NEW YORK EVENING MAIL

The United States Supreme Court, after a legislative and judicial battle which has lasted for ten years, has signed the doom of the cure-all, which extorts money from the poor and then but too frequently kills them. It has ruled that Congress, in attaching the Sherley amendment to the pure food and drugs act, had adopted a measure as valid and reasonable as the exclusion of the lottery traffic from the mails and from interstate commerce. Under the provisions of the Sherley amendment the practice of misbranding and misrepresentation of the contents or properties of drug preparations is prohibited and made punishable. As false representations of the power to cure is the main stock of the charlatans who trade in the credulity of fools or unfortunates, the decision of the court will constitute a death blow to the entire traffic in human lives.

America for many years has been the paradise of the swindler who puts alluring labels on preparations which are either impotent to cure disease or positively destructive of health and life. This swindler, the meanest of his tribe because he exploits the most vital instinct of mankind—the instinct of life-preservation—will now find his paradise closed to him and the law will stand with a flaming sword at the gate to see that he does not return.—(Jan. 12, 1916.)

CHICAGO EVENING POST

The Sherley amendment to the pure food law has been sustained by unanimous decision of the supreme court, voiced in an opinion that was written by Justice Hughes.

The amendment forbids misbranding of food products or drugs and has been a thorn in the side of unscrupulous manufacturers who sought to foist worthless wares on the public under promises of impossible performance. Misbranding, by the court's decision, is held to apply to false claims for the virtues of an article, such as the curative value of a so-called remedy, and to include pamphlets or circulars distributed with the package in which the article is contained as well as the wording on the actual label.

By thus sustaining the law and giving it broad interpretation the court has made it an effective instrument for the prosecution of fakers and the protection of honorable manufacturers. The people have now a weapon with which they can fight those who prey on the fears engendered by disease or profit by the ignorance of the public and its gullibility.

Gradually, by sentiment and by law, the way of the transgressor in business is being made so hard that many feet are constrained to avoid it, and the principle of public security against the impositions of greed is being established as a function of government.—(Jan. 13, 1916.)

CHATTANOOGA TIMES

The Supreme Court of the United States, in a decision just handed down, has struck a solar plexus blow to a large and hitherto prosperous line of patent medicines. In effect the court sustains the act of Congress which undertook to regulate statements as to the curative effects of medicines in interstate commerce. The question came before the court in a case from the federal district court of Nebraska, wherein stuff had been shipped from Chicago to Omaha accompanied by labels and circulars describing it as a compound which the proprietors and makers "knew had cured and would cure consumption." The alleged medicine had been seized and confiscated under the Sherley act of 1912, which prohibited "any misstatement either on the label or on printed circulars accompanying medicines." In other words, it will be unlawful hereafter for patent-medicine makers to label their goods as "sure cures" for anything, and as the labels on these medicines and the accompanying circulars constitute about the only virtue of most of them, the business of the large majority of them is going to be very properly interfered with.

The justification for such a law is that the government has a right to and should protect the people against fraud and swindling carried on under its interstate commerce regulations or through its mail service. Such patent medicines as may have real virtue will not suffer for these do not depend altogether upon the advertising they get for their popular use, but upon the curative value of the compound. The fraudulent kind—and the most of them are that—will be finally compelled to go out of business.—(Jan. 12, 1916.)

THE NATION

The Supreme Court's decision upholding the amended Food and Drugs Act deals another heavy blow to the quacks and

swindlers who prey on the credulity of the ignorant and the tendency of the sick to grasp at any straw. As the law originally stood, it condemned only those who misstated the compounds of patent decoctions. That bore harshly enough upon those who were compelled to confess to 60 per cent. alcohol and 40 per cent. commonplace and obviously harmful drugs in some wonder-working bitters or root extract. It did not reach those who, like the makers of the "Alterative" which figured in the case just closed, could find a profitable market among illiterate or careless people who overlooked the table of compounds while swallowing the assurances of a cure for pneumonia or tuberculosis. Justice Hughes states that the Supreme Court sees no difference between the "interstate transportation of swindling preparations designed to cheat credulous sufferers," when accompanied with false and fraudulent statements, and the interstate transportation of lottery tickets. There is no difference. It cannot be said, for example, that the makers of such medicines have the right to "express an opinion" as to the virtues of their alleged curatives in such form as to constitute a definite promise of results absolutely impossible of realization.—(Jan. 13, 1916.)

Correspondence

Dr. Crile's Kinetic Drive

To the Editor:—In the address entitled "The Kinetic Drive," which was delivered recently before the Academy of Medicine of New York and published in THE JOURNAL (Dec. 18, 1915, p. 2129), the inceptor of the "kinetic system" theory explains the operation of this principle as a major factor in the causation of diverse diseases, and describes the application of the theory to the prevention and cure of these diseases.

The author of the theory has on another occasion conventionally expressed the expectation that this theory will in the course of time "doubtless be subjected to many alterations." Few, indeed, there will be among the readers of this address to whom a thought of this kind will not come, namely, that the modifications which this theory must undergo will be something more than the mere usual matter of course. We even venture the opinion that in receiving this latest presentation, many readers will question whether or not the very nucleus of the theory deserves to be countenanced.

The theory and its proposed application cannot at this time be subjected to a detailed critical review, as this has been forstalled by the author himself in that he has so far withheld the publication of the complete experimental evidence for it. As yet the evidence has been merely hinted at in detached portions, though the theory, in something like its present form, was enunciated at least two years ago. To be sure, an account of some operative applications of the theory are given in this address, but we dare say that the author himself would hardly stake the acceptance of his theory on the impression made by his recital of operative results in this address—though elsewhere in his writings we read: "No theory is worth more than its yield in practice." For example, he cites the case of one diabetic rendered sugar free by the Allen treatment and then subjected to the following surgical procedures: (1) section of the right cervical sympathetic; (2) excision of the left suprarenal, and (3) excision of the left cervical sympathetic with partial thyroidectomy. In the meantime the patient continued on the Allen treatment, gained 4 pounds in weight and gained in sugar tolerance. The final comment is made that "to obtain the surgical net result we must subtract from this striking improvement the undetermined factor of the Allen treatment." The Allen treatment is no longer an "undetermined factor" in rendering most diabetic patients sugar free and raising their sugar tolerance, at least for a considerable period. If, then, we subtract the well-established factor of the Allen treatment in this case, what appears to be left as a "surgical net result" is the mutilation of the patient.

But even though they have been denied his complete evidence for the theory thus far, those readers who weigh the present address will find enough in its revelation of the author's scientific methods and general attitude of mind to enable them to begin an "evaluation" of the theory without further delay. Is it not probable that the formulation of the theory has been attended by the same easy-going scientific judgment and by the misapplication of true scientific data that are manifested here? And what confidence is to be placed in the author's own fund of laboratory data that we have been tantalized with so long? A few examples of the author's methods and judgment will suffice to justify our intimation of these misgivings.

We read: "Reasoning from the secure facts of the clinic and the less secure data of the laboratory, etc." This has very much the ring of an attempt to play on a certain prejudice that he assumed—we trust errantly—his readers entertain, too. But supposing that we were not to lay such a stricture on that utterance; we might, then, expect one who holds such an estimate of laboratory data to be very circumspect in the use he makes of them. But what do we behold in fact? He snatches on such laboratory data as suit his views without using any critical discrimination, or without weighing the value of contrary data, no matter of how long standing, or of how good repute. Who but this author has so casually taken up as a demonstrated fact the recent isolated attempt to show that the nerve impulse is an electric current—despite the fact that practically all the recent work in that line points to the nerve impulse as primarily a chemical process? It serves his theory of anesthesia and also a notion which he holds about the effect of thyroid secretion on nerve tissue, to regard the nerve impulse as an electric current—so out on your finickiness about demonstrated principles!

Less arbitrary, perhaps, though of more serious consequence, is his unhesitating acceptance of other laboratory findings before they are definitely established, for example in the matter of secretory nerves of the thyroid gland. The extremely complex question of the physiology and pathology of the thyroid glands becomes simplicity itself to Dr. Crile by the serene assumption that thyroid hyperplasia and alleged hypersecretion are due to an overdischarge of impulses through hypothetic secretory nerves. Dr. Crile must be conversant with the fact that when the conditions in the body are such as induce thyroid hyperplasia, the development of this hyperplasia takes place wherever a piece of thyroid may be lodged in the body and irrespective of nerve connections. Since all thyroid disorders are due to the "kinetic drive" via the secretory nerves, what can be more logical than to cure these disorders by section of the nerves? But unless we are greatly mistaken, this method of controlling exophthalmic goiter has already been tried and found wanting by French workers.

But a feature that will do most to break down whatever regard the readers of this address may have had heretofore for the author's speculations is his allusion to Osterhout's work. Because Osterhout has found that iodin causes an increased permeability of living vegetable tissue to the passage of electricity, the positive conclusion is drawn that the thyroid secretion has the same effect on the cells of the animal organism. It being settled in the author's mind that the nerve impulse is a discharge of electromotor force, the rôle of the thyroid secretion is plain to him: it makes the irritable tissues of the organism more susceptible to nervous excitation by facilitating the passage of electric currents into them. Now, Professor Osterhout is a botanist who has been pursuing some studies, of great value to plant physiology and general biology, on the effect that various *inorganic* compounds have on the permeability of vegetable cells by an electric current. He found that sodium iodid, which by dissociation yields iodin ions, increases the electrical permeability of vegetable cells. But he also found that sodium chlorid and other inorganic compounds have similar effects; thus the effects are hardly peculiar to iodin. He has made no tests with *organic* iodin compounds, and especially none with iodothyrin or thyreoglobulin for these effects. Our author must therefore have found in the behavior (which was not at all unique) of dissociable iodin in Osterhout's experiments a proof of similar behavior of

undissociable iodin, organically bound or "masked" in thyroid constituents, a similarity which even a tyro in modern biochemistry should know better than to expect. According to the present status of our knowledge of physical chemistry, the application of Osterhout's work to such an explanation of the action of thyroid secretion is well nigh unthinkable. Ascribing to thyroid secretion such an influence as raising the electrical conductivity of tissues appears, then, as a product of most superficial reasoning.

It is stated, also on the basis of some very facile reasoning, that adrenin and oxygen combine with constituents of certain brain cells, and further it is explained that this combination "causes the electrical discharge that produces heat and motion." We are told that strong nervous activity causes abnormally great discharges of adrenin and of thyroid secretion, and these in turn still greater nervous activity. It might be wondered why this continuous acceleration in rondo form does not drive the animal engine to complete destruction. It is the resultant acidosis that comes to the rescue. Through it a check is put on the drive thus: A nerve impulse being an electrical discharge, the nerve impulses from the brain depend on a difference of electrical potential between the brain and the end-organs, and the potential difference depends on a difference of chemical reaction between these two points; now when acidosis arises and raises the acidity in the brain, this difference of potential becomes impossible and hence the nervous discharges from the brain become weaker and finally fail. The behavior of the cells of the respiratory center, however, is a complete antithesis to that of the brain cortex cells, so far as the influence of acidity on them is concerned. Though with rising acidosis there should also be an approach to equalization of potential between the respiratory center and the respiratory muscles, here diminishing differences of potential is followed by more powerful nervous (electrical) discharges to the respiratory muscles! Do physicists know of anything to parallel this, like conditions associated with completely contrasted effects, or will the author's experimental data—whenever they appear—also disclose the surprising fact that nervous impulses which leave the respiratory center, and for that matter, too, all afferent nervous impulses, are quite different fundamentally from those that are discharged from the cerebral cortex? One might also ask this author how, with his conception of the nerve impulse as a discharge of electrical energy, which in the end-organ sets off a greater discharge of energy, he accounts for the undoubted nervous inhibitory processes; but such a query is precluded by the singular habit he has of using the word "inhibition" as though synonymous with "paralysis" or "abolition of function."

The suprarenals constitute one of the mainstays of the "kinetic drive." Unless we are mistaken Dr. Cannon does not dignify the excess discharge of adrenin and slight temporary glucosuria that may be induced by strong emotional stimulation even as a minor ailment. On the contrary, he looks on it as an admirable device by Nature to preserve the life of the individual. If any one has the evidence that even the greatest possible emotional "drive" of the suprarenals is a primary factor in any disease, the world is certainly entitled to know it.

As for the attempt to bring such a wide range of diseases together into a group to which a single factor, the "kinetic drive," is assigned as the essential cause, this will probably be resisted by the "diehards" with the same show of obstinacy that they are yet presenting to certain other theories of disease that also have the advantage of simplicity. Especially the workers in diabetes, who have been led on so long by the idea that distinctive factors are involved in this disease, will be loath to acknowledge that they have been making a mountain out of a molehill.

But we wished to concern ourselves in this commentary principally with pointing out the fallacies and facile assumptions that are used to explain the modus of the "kinetic drive." We may be met with the rejoinder that these failings do not necessarily invalidate the theory as a whole. This we admit. But there is little that can be engaging about a mere theory that is explained in terms of simpler processes that are at variance with reality, or, at least, are not known to be true. One cannot, therefore, now continue in an attitude of openmindedness toward it. Dr. Crile intimates repeatedly that only a fraction of his laboratory and clinical evidence in support of his "kinetic theory" has so far been reported. We submit that, under the circumstances, the publication of *all* this evidence is overdue.

A. J. Carlson, Ph.D.,
Associate Professor of Physiology, University of Chicago.
Albert Woelfel, M.D.,
Instructor in Physiology, University of Chicago, Chicago.

[The foregoing communication was referred to Dr. Crile, who replied:]

To the Editor:—A considerable part of the communication of Professor Carlson and Dr. Woelfel does not relate to the subject-matter of my paper. Since the part that so relates concerns details, not the principle of my thesis, I will comment only on the principal points in their discussion.

1. The Case of Diabetes Surgically Treated: It is now seven months since our diabetic patient received the tentative surgical treatment mentioned in "The Kinetic Drive." For two and one-half months he has been in a sanatorium receiving the dietetic and hygienic treatment for tuberculosis. During this time he has not received the Allen treatment. During six months in Lakeside Hospital before the day of operation he was never sugar-free. *He is at present sugar-free.* Even though this fortunate result were a mere coincidence, what bearing would that have on the kinetic theory?

2. As to the Nature of Action Currents: It is worth while to mention that the positive statement accredited me by Professor Carlson does not appear in my text. Even if the action currents were chemical only, and not electric, what bearing would that have on the validity of the kinetic theory? But the point is arguable. Professor Carlson apparently does not appreciate the significance of the work of that productive investigator, Ralph S. Lillie, or of the evidence regarding action currents secured by the use of the Einthoven string galvanometer. Apparently he has not taken into account the electric insulation of nerve fibers or the chemical difference between the axis cylinder and the medullary sheath; or the fact that electric stimulation of muscles and organs alone induces functional activity identical with that produced by action currents; or that electric currents are absent alike in skeletal muscles and in motor plants under anesthesia and in death. He has evidently overlooked the facts that the chemical activity which, as Tashira has shown, occurs simultaneously with action currents, may well be the evolved method by which the electric charge is transmitted unchanged, and that the leading phenomena of nerve cell action are in accord with the process by which electricity is generated in a battery. He apparently has not taken into account the viewpoint of physicists that chemical action is but a phenomenon of electric action; that all matter and all force are only manifestations of the play of electrons, of which in an ultimate analysis all matter consists; and that therefore even the heat as well as the light of his own exposition are electric phenomena.

3. It is interesting to note that Professor Carlson invented the statement attributed to me that the thyroid is stimulated *only* through its nerve supply. Obviously, the thyroid may be stimulated by hormones or by chemical agents; but I am willing to challenge Professor Carlson's implication that the work of the thyroid is not also modified through the nerves which are abundantly supplied to *(a)* the walls of the blood vessels and *(b)* the bases of the acini. This anatomic fact points to function as certainly as horns or hoofs or wings point to function. But there is other evidence as well: *(a)* Emotional stimuli may cause an immediate swelling of the gland; these stimuli travel over nerve paths before they stimulate the thyroid directly or indirectly through hormone action; *(b)* in exophthalmic goiter the diminution of stimuli (rest cure) often is followed by a marked decrease in the size of the thyroid and in the symptoms of the disease; *(c)* many surgeons believe that part of the obvious benefit resulting

from ligation of the superior thyroid arteries is due to the interruption of the nerves running in the vessel wall because (1) the division of the cervical sympathetic alone probably has clinical merit; (2) in a few weeks after ligation of the superior thyroid arteries the gland at the upper pole is as vascular as before and little or no histologic change is seen, while the patient is better; (3) the patient with bilateral ligation—producing nerve block as well as closure—of the superior thyroid arteries endures the following kinetic drives with lessened thyroid or general phenomena—emotion, infection, surgical operation; and finally, even if the rich nerve supply to the thyroid had nothing to do with its function and the thyroid acted chemically like the lungs or the liver, what possible bearing would that have on the validity of the kinetic theory?

4. Iodin: The illuminating work of Professor Osterhout is well known to surgeons. They hold that some of the most significant work of the day as applying to their problems has been done by plant physiologists, by physicists and by physical chemists; that physiology is but a temporary bridge for communication between surgery and physical chemistry; that when surgery has crossed that bridge it will make terms with physical chemistry directly. Professor Carlson's conception of Professor Osterhout's significant work seems to me to be wholly inadequate. Since other chemical agents besides iodin have produced increased electric permeability, Professor Carlson seems to think that therefore the processes of adaptation through natural selection could not have evolved in the animal body a gland adapted to the special metabolism of iodin, but that such a gland must also metabolize sodium; he implies that since iodin is *biologically adapted* to the animal organism, it ought to act with equal effect on the *unadapted* plant. Professor Carlson has evidently overlooked that great principle in physical chemistry introduced by Ehrlich, i. e., that to carry the heavy molecules of metals, such as silver, arsenic, antimony and mercury, into living cells, it is necessary to combine them with other chemical agents that have an affinity for the living protein molecule. Physical chemists have used this as a chemical weapon in attacking certain problems of therapeutics. Equally may the sphere of iodin, though not a heavy metal, be increased by the special gift of the thyroid. The work of Kendall in the Mayo Clinic adds to this probability. I had supposed it was well established, at least in the minds of clinicians, that the specialized iodin fabricated by the thyroid measurably controlled the rate of metabolism of the body, i. e., it is a pacemaker of the *kinetic system.*

5. Adrenin: If Professor Carlson can show (*a*) that adrenin does not cause increased metabolism, increased temperature, increased heart action, increased blood pressure, sweating, increased respiration, increased mobilization of glycogen, increased acid excretion in the urine; that repeated large doses over short periods of time do not cause acute acidosis; that in repeated doses and over longer periods it does not cause myocarditis, glucosuria, nephritis, certain degenerative changes in the walls of the blood vessels, etc.; or if Professor Carlson can prove (*b*) that adrenin causes no change in the brain cells and no rise in the blood pressure when in a crossed circulation adrenin circulates in the brain only (an observation which, made in my laboratory, must stand as a pure direct adrenin action on at least a part of the brain cells), or if Professor Carlson can prove *(c)* that emotion, foreign proteins, infection, or exertion can cause no increased output of adrenin, then and only then can he dissociate adrenin from its rôle as an activator of the kinetic system and as a potent factor in the phenomena of health and of disease, unless he believes that the phenomena of health and disease are unrelated, or unless he holds a creationist point of view as to the origin of disease.

6. Effect of H-Ions on the Brain: Professor Carlson is of the opinion that the nerve cells of the cortex and the nerve cells of the respiratory center cannot react differently to acidosis, that is, to increased H-ion concentration of the blood. For the sake of argument let us grant the premise that in the body an electric current flows from a higher toward a lower potential, i. e., from the nerve cells to the muscles. It is logical to suppose, then, that there has been evolved in the respiratory center a mechanism by which the potential is raised in response to increased H-ion concentration, and equally logical to suppose that the driving, energy-transforming, acid-producing cortical cells would be simultaneously depressed. I am unable to agree with Professor Carlson that all tissue and all nerve cells respond alike to H-ion concentration. For example: The acid gastric juice has a selective action on the nerve mechanism of the pylorus. If this nerve mechanism shows specific reaction to acid, why may not other nerve tissue do the same? Again, under inhalation anesthesia the H-ion concentration of the blood is increased, but cerebral action is *diminished,* respiratory action *increased;* in emotion, infection, exertion, or injury, producing increased H-ion concentration, and in acidosis induced by the intravenous injections of hydrochloric acid and acid sodium phosphate, there are seen brain cell changes; these changes are most marked in the cerebral cortex, and least in the medulla: here is direct evidence of a chemical difference in acid effect. Again, the intravenous injection of acids causes *increased* respiratory action and *diminished* cerebral action—another example of the antithetic action of H-ions on the respiratory center and on the cortex. It may be, however, that Professor Carlson does not accept one or more of the three following propositions: (1) that increased H-ion concentration increases the activity of the respiratory center; (2) that increased H-ion concentration diminishes the activity of the higher centers; (3) that electricity flows from a higher to a lower potential.

In closing, I may repeat that nothing in medicine is worth more than its yield in practice; that laboratory data and theories as applied to medicine must take the crucible of the clinic where truth and falsehood are separated. The kinetic theory has been thus tried on a large scale. Up to the present time in my clinic the kinetic theory has proved true, as is evidenced (*a*) by the prevention and control of surgical shock; (*b*) by the treatment of peritonitis and other acute infections; (*c*) by the interpretation and increased control of acidosis; (*d*) by the operative and nonoperative control of exophthalmic goiter, and in general by the course of more than 10,000 surgical cases. The kinetic theory harmonizes the phenomena of many diseases, and relates them to physical chemistry rather than to physiology.

G. W. CRILE, M.D., Cleveland.

[Dr. Crile's reply was referred to Drs. Carlson and Woelfel, who state:]

To the Editor:—It is stated in the foregoing that our commentary does not touch the principle of the "kinetic drive" theory; with reference to one or two particular points we are asked what bearing they have on the validity of the theory. We have already stated plainly that our commentary does not purport to offer a direct refutation of the theory. We have pointed out why that cannot be undertaken just yet and by whose course of action it is hindered, and we note with what silence our remonstrance against this course of action is passed over. We reiterate also: Our sole aim was to call attention to some of the forced assumptions and misapplications of experimental data that are necessary to explain the modus of the kinetic drive, believing that these faults alone are enough to warrant any one in questioning the standing of the theory.

Our comments on the diabetic case were of course based on the data furnished in the address; the subsequent history of the patient does not call for a retraction of those comments. We would not think it necessary to refer to the charges of misrepresentation made against us, believing that they may safely be left to the judgment of readers but one of the misrepresentations is said to touch on "action currents." Our comment does not even mention "action currents." We have discussed nerve impulses, however. In the face of other confusions of the issues—though they are not quite so glaring as that just pointed out—of the long series of rhetorical questions on the A B C's of physiology and biology, and of the overweight of irrelevancies in the rejoinder further response from us will hardly be expected.

A. G. CARLSON, PH.D.
ALBERT WOELFEL, M.D.

Death Rates in the Registration Area

To the Editor:—I notice in an editorial of THE JOURNAL, Jan. 8, 1915, p. 118, a quotation of the reduction in the tuberculosis rate in the registration area. I have recently written an article on tuberculosis in which, among other things, I draw attention to the fact that this quotation of a reduction of death rate in the registration district is misleading.

Constantly the point is made that the death rate in the registration area at present is very different from that which existed in 1880, and apparently those who quote these facts assume that this reduction in rate is due to a diminished number of deaths from disease.

Such a statement would be true if the registration area of today were the same as that in 1880. As a matter of fact, however, in 1880 there were only three divisions in the registration area, namely, Massachusetts, New Jersey and the District of Columbia. Every state which has been added to the registration area since 1880 has had a lower death rate at the time that it was added than existed in the three districts named. Hence, the very addition of these states would reduce the death rate in the registration area.

It is fair to quote the records of individual states to show the reduction in mortality rate from tuberculosis. It is misleading to quote the difference in the registration area as an evidence of reduction of mortality.

H. M. BRACKEN, M.D., St. Paul.
Executive Officer, Minnesota State Board of Health.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

COAGULATION TIME OF BLOOD

To the Editor:—1. What is the most efficient, practical and simple method of estimating the coagulation of the blood?

2. What is the technic of the drop-on-the-slide method? X. Y. Z

ANSWER.—1. Coagulation time tests are described in all books on laboratory methods. Almost all the methods described require special apparatus, an exception being a method described in the book of Webster. This test is performed with a vacuum bottle and capillary tubes.

2. The drop-on-the-slide method consists of collecting drops of blood on a slide and then holding the slide, blood drops beneath, over a vessel containing water at body temperature. The slide is held in a vertical position from time to time; after coagulation has taken place the contour of the blood drop will not be changed by tilting the slide. Duke's method is like this, except that by using a slide with uniform sized disks on it, uniform sized drops of blood can be obtained. It has also been proposed, instead of observing the contour of the blood droplets, to dip the point of a fine capillary tube into them; as long as the blood is still fluid it will rise in the capillary tube.

AMMONIUM HYDROGEN FLUORID

To the Editor:—I would like some information regarding the therapeutic action of ammonium fluorid. The crystals of this compound are used in an aqueous solution for the removal of stains and calculi from the teeth. I would appreciate a formula for this use.

ROLAND B. MILLER, D.M.D., Lebanon, Ore.

ANSWER.—There are two ammonium fluorids, normal or "neutral" ammonium fluorid (NH_4F) and acid ammonium fluorid, ammonium hydrogen fluorid or ammonium bifluorid ($NH_4F.HF$), a combination of one molecule of ammonium fluorid and one molecule of hydrogen fluorid (hydrofluoric acid). The latter appears to be the salt used in dentistry. Ammonium hydrogen fluorid has been recommended for use as a solvent of tartar deposits on the dental enamel, and also as an amebicide in pyorrhea alveolaris; in the latter use it has been largely supplanted by emetin hydrochlorid.

A formula said to be satisfactory is:

Ammonium hydrogen fluorid	20 gm.
Hydrofluoric acid (40 per cent.)	10 gm.
Water, enough to make	100 c.c.

The mixture should be kept in a wax or gutta-percha bottle.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

IOWA: Des Moines, Feb. 8-10. Sec., Dr. G. H. Sumner, State House, Des Moines.

KANSAS: Topeka, Feb. 8. Sec., Dr. H. A. Dykes, Lebanon.

NEW YORK: Albany, Buffalo, New York and Syracuse, Jan. 25-28. Chief, Examinations Division, Mr. Harlan H. Horner, State Education Bldg., Albany.

VERMONT: Montpelier, Feb. 8-11. Sec., Dr. W. Scott Nay, Underhill.

Washington July Report

Dr. C. N. Suttner, secretary of the Washington State Board of Medical Examiners, reports the written examination held at Seattle, July, 6, 1915. The total number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 64, of whom 48 passed, including 8 osteopaths, and 16 failed, including 2 osteopaths and 2 chiropractors. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
California Eclectic Medical College	(1914)	84.5
College of Physicians and Surgeons, Los Angeles	(1914)	87.6
Cooper Medical College	(1909)	84.5
George Washington University	(1912)	88.8
Bennett Medical College	(1912) 78.8; (1913) 89.5; (1914) (1915) 85.3, 86.	80.9;
Chicago College of Medicine and Surgery	(1915)	79.5
Hahnemann Med. Coll. and Hosp., Chicago	(1895) 75; (1910)	89.4
Northwestern University	(1911)	84.3
Rush Medical College	(1914)	88.9
University of Illinois	(1914)	80, 93.7
College of Physicians and Surgeons, Kansas City	(1904)	79.4
Kansas Medical College	(1913)	81
Johns Hopkins University	(1915)	82.4
University of Michigan Medical School	(1913)	92.6
University of Michigan Homeo. Medical School	(1913)	89
University of Minnesota	(1894) 75.5; (1914) 81.2; (1915)	89.6
University Medical College, Kansas City	(1903)	89.6
Washington University	(1901) 75; (1911)	88.1
John A. Creighton Medical College	(1915)	86.6
University of Nebraska	(1903)	84.7
College of Phys. and Surgs. in the City of New York	(1892)	81.5
University and Bellevue Hospital Medical College	(1899)	86
University of Oregon	(1905) 81.4; (1915)	76.2, 85.4
Jefferson Medical College	(1915)	84.5
Woman's Medical College of Pennsylvania	(1915)	90.6
Marquette University	(1913)	75, 81.6
University of Toronto	(1915)	91.5
McGill University	(1914)	87

FAILED		
College of Physicians and Surgeons, Chicago	(1905)	*
Northwestern University	(1898)	60.7
Rush Medical College	(1892)	49
Western Eclectic College of Medicine and Surgery	(1908)	55.7
St. Louis College of Physicians and Surgeons	(1910)	70.5
University Medical College, Kansas City	(1897) *; (1903)	*
University of the City of New York	(1885)	61.8
University of Pennsylvania	(1910)	78†
Nagasaki Special Medical School	(1905)	71
Okayama Special Medical School	(1907)	69.6
Tokyo Charity Hospital Special Medical School	(1911)	52.4

* No grade given.
† Fell below the required average in one or more subjects.

The following questions were asked:

TOXICOLOGY

1. In conducting postmortem examinations, outline your order of autopsy. 2. How would you determine sex between two adult skeletons of equal height? 3. Differentiate between antemortem and postmortem ecchymoses. 4. Differentiate postmortem appearance of death from heat stroke (insolation) and stroke by lightning. 5. In criminal abortion how would you determine same by the examination of the woman (living)? 6. How would you in a railway injury differentiate between corporeal and psychic shock? 7. Differentiate acute arsenical poisoning from chronic phosphorus poisoning. 8. Potassium chlorate lethel dose (approximately); symptoms of, eliminated how? Postmortem findings? 9. Mention five vegetable poisons. 10. Differentiate opium from strychnin poisoning. 11. What poisons are found in adulterated (commercialized) foods? 12. Give chemical test for arsenic.

CHEMISTRY

1. What are alkaloids? What are the general properties of the natural alkaloids? 2. Describe subnitrate of bismuth and explain the dark color of the stools resulting from its administration. 3. To what class of chemical substances does glycerin belong? 4. Define normal salt, acid salt, basic salt. What is a decinormal solution? Give example. 5. Carbon dioxid and carbon monoxid; give formula and general properties of each. 6. Give the chemical formula and general properties of plaster-of-Paris. Explain the process of "setting." 7. Give general properties and name antidote for phenol, construct its graphic formula and show its relation to benzene. 8. Give in full one test for the presence of sugar in the urine. 9. How is ferric hydrate prepared, and for what is it principally used? 10. Name the chemical constituents of gallstones, and give in detail a reliable test for bile in the urine.

11. Give two reliable tests for detecting albumin in urine, and one method for obtaining the quantitative estimation of the same. 12. What are purin bodies, where found, and of what significance to the physician?

HYGIENE

1. What is the economic value of taxation for public health work? 2. Define endemic, epidemic and pandemic. 3. Describe five methods of preserving meat. 4. Outline an efficient rule for municipal milk supply. 5. Discuss morbid conditions dependent upon diet. 6. Arrange a sleeping apartment; outline care in detail. 7. Outline a diet in cholera infantum, marasmus and constipation. 8. What physical conditions would retard advancement of schoolchildren? 9. What hygienic precautions would you give in pregnancy? 10. What would you do in case of outbreak of pertussis? 11. What precautions would you give in lobar pneumonia? 12. Differentiate between three contagious skin diseases, and give method of care to prevent their spreading.

BACTERIOLOGY

1. Describe method of obtaining pure culture. 2. What do you understand by mixed infection? Give example. 3. Define spore, protoplasm, nucleolus, karyokinesis and immunity. 4. Name and describe agents causing la grippe, bubonic plague, glanders and tuberculosis. 5. Give technic of a positive diagnosis in diphtheria. 6. What are ptomains and toxins? 7. Give characteristics of *Bacillus tetani* and its distribution in nature. 8. How are bacteria divided with reference to need of oxygen in growth? Name and describe. 9. What physical effects are produced by bacterial growth? 10. Discuss bacteriology of septic sore throat. 11. Differentiate *B. coli, B. enteritidis, B. typhosus.* 12. Differentiate the different forms of malarial parasites.

PATHOLOGY

1. Name five natural agencies by which the body protects itself from bacterial invasion. 2. Give the physical changes due to senility. Give the postmortem changes in the body tissues. 3. Give Koch's laws for determining the causal organism in an infectious disease. 4. What do you understand by following terms: heart compensation, heart block, pulse pressure? 5. Explain how obstructive diseases of coronary arteries may cause myocardial degeneration. 6. Discuss infarct formation. Give difference between arterial and venous infarction. Give five possible results of infarction. 7. Give the pathology of pyonephrosis. 8. What morbid results may occur from diseases of the pituitary gland? 9. Describe the process occurring in necrosis of bone. How does it differ from caries? 10. Give the characteristics of a growth that indicate malignancy. Give a classification of malignant tumors. Upon what principle is this classification based? 11. Give the pathology of the common lesion in typhoid fever in various stages. 12. Give short descriptions of the following conditions: acute transverse myelitis, acute bulbar paralysis, pachymeningitis, leptomeningitis.

ANATOMY

1. Describe briefly the antrum of Highmore. 2. Give the surface workings of the following organs: (*a*) spleen, (*b*) pancreas, (*c*) heart, (*d*) right kidney, (*e*) left kidney. 3. Describe the lacrimal apparatus. 4. Name the arteries, and nerves which supply the duodenum. What veins drain the region? 5. Describe the knee-joint. Give blood nerve supply, and action. 6. Give the characteristic points of cervical, dorsal and lumbar vertebrae. 7. Describe the prostate gland, and give its anatomic relations. 8. Give the boundaries of the fourth ventricle. 9. Name the parts severed in amputation about the middle of the forearm. 10. What is the fissure of Rolando, and how may it be located on the cranium? 11. Describe the portal system of veins. 12. Give number and name of the coats of the large intestine.

GYNECOLOGY

1. What constitutes the pelvic floor? 2. What are the indications for curettage? 3. What are the causes for sterility in the female? 4. Differentiate ovaritis, right-sided renal colic and appendicitis. 5. Define subinvolution of the uterus and give symptoms. 6. Give symptoms of vesicovaginal fistula, urethral caruncle, endocervicitis and metritis. 7. What is the differential diagnosis between acute pyosalpinx and pelvic cellulitis? 8. Name the varieties and causes of tubal gestation. 9. Classify tumors of the uterus. 10. What are the most frequent causes of pelvic cellulitis? 11. Name the indications for abdominal hysterectomy. 12. What is the etiology of metrorrhagia? 13. What is cystocele? What are its causes? What are its symptoms? Differentiate it from vaginal tumor. What is its prognosis?

HISTOLOGY

1. Name four salivary glands. To what type do they belong? 2. Name and describe the coats of the gallbladder. 3. What is the nature of the tissue forming Peyer's patches? (One word sufficient.) 4. What cells do we find in the glands of the mucous coat of the cardiac end of the stomach that are not present in the pyloric end? 5. Name and describe two methods of cell division. 6. Name the three blastodermic layers, and tell what is derived from each. 7. What white blood cells are most numerous? What is their percentage of the whole? How do you account for the shape of their nuclei? Explain the mechanism of their ameboid movement. 8. Locate Gower's tract and the crossed pyramidal tract in the spinal cord. Give cellular composition of neuroglia and tell where found. 9. Describe cardiac muscle. 10. Describe three types of cartilage, and give one instance of where each is found. 11. describe a cross-section of the bladder wall. 12. Describe the fallopian tube.

OBSTETRICS

1. Differentiate: pregnancy, uterine fibroid, ovarian cyst. 2. What are the clinical phenomena of abortion? How would you proceed in a case of threatened abortion? 3. Define and diagnose extra-uterine pregnancy. 4. Outline your care of the mother during the puerperal state. 5. What are the causes of subinvolution? 6. Give the most common causes of puerperal hemorrhage. 7. Give symptoms of puerperal sepsis. 8. What are indications for induction of premature labor? 9. When should version be resorted to? 10. Describe the pathology of phlegmasia alba dolens. 11. Diagnose a breech presentation from a vertex. 12. What is meant by inversion of the uterus?

PHYSIOLOGY

1. Describe a neuron, mention some of the large cells, some small cells. Where are they found? 2. What are the principal varieties of connective tissue, in what parts of the body are they found, and what purpose do they serve. 3. Describe the normal mechanism of the secretion of the gastric juice. 4. What are the normal secretions of the liver? State the normal amount of urea excreted daily. 5. Discuss the excretion of urine. 6. Discuss the functions of the spinal cord. 7. What is the function of the cerebrospinal liquid? State the amount normally present in an adult. 8. Discuss coagulation of the blood, and mention a method of hastening and a method of retarding coagulation. 9. Name the forces concerned in the circulation of the blood. 10. Discuss the process known as ovulation. 11. Give origin and distribution of auditory nerve. Discuss the function of tympanic membrane; eustachian tube. 12. Name the reflex centers in the medulla oblongata.

GENERAL DIAGNOSIS

1. How would you differentiate between organic disease and functional disturbance of the heart? 2. (*a*) What is primary anemia? Name four diseases. (*b*) What is secondary anemia? Name four conditions producing the same. 3. How are acute miliary tuberculosis and typhoid fever to be distinguished from one another? 4. Give distinctive clinical symptoms between hypertrophy and dilatation of the heart. 5. How are facial erysipelas and herpes zoster of forehead and face to be differentiated? 6. How is tubercular pharyngitis to be distinguished from syphilitic sore throat? 7. Differentiate intercostal neuralgia from acute pleurisy? 8. Differentiate between appendicitis in a woman and cystic tumor of the right ovary. 9. Give differential diagnosis between labyrinthine vertigo and epilepsy. 10. How are cerebrospinal fever and tetanus to be differentiated? 11. Give most probable causes of phlyctenular conjunctivitis, and differentiate it from other types. 12. Name several causes for middle ear deafness, and reasons for same.

Massachusetts September Report

Dr. Walter P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, reports the oral, practical and written examination held at Boston, Sept. 14-16, 1915. The total number of subjects examined in was 13; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 55, of whom 42 passed, including 3 osteopaths, and 13 failed, including 2 osteopaths; one candidate's papers were not considered on account of fraud. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Georgetown University	(1914)	79.2
Chicago College of Med. and Surg.	(1911)	77
Hahnemann Med. Coll. and Hosp., Chicago	(1901)	75
Bowdoin Medical School	(1915)	76.7
College of Phys. and Surgs., Baltimore	(1903) 75; (1915)	76.9
Johns Hopkins University	(1909) 76.2; (1911) 81.2; (1913) 78.3,	80.5
University of Maryland	(1914)	77.5
Boston University	(1915) 75,	79.5
College of Phys. and Surgs., Boston	(1913)	75
Harvard University	(1909) 82.7; (1913) 79.2, 82.4; (1915) 78.5, 80, 80.2,	81.3
Tufts College Medical School	(1913) 79.9; (1914) 77.5; (1915) 75, 75.2, 75.2,	80
Columbia Univ., Coll. of Phys. and Surgs.	(1913) 81,	85.1
Cleveland Pulte Medical College	(1914) 75,	75
Jefferson Medical College	(1910)	79.8
Medico-Chirurgical College of Philadelphia	(1915)	78.6
Temple University	(1914)	83.2
University of Pennsylvania	(1915)	77.3
Woman's College of Pennsylvania	(1914)	80.8
University of Vermont	(1915)	76.4
McGill University	(1914)	78.3
Laval University	(1915)	75

FAILED College		
Georgetown University	(1913)	72
Maryland Coll. of Eclectic Med. and Surg.*	(1914)	64
Maryland Medical College	(1913)	72.7
University of Maryland	(1915)	†
Woman's Medical College of Baltimore	(1909)	65.8
College of Phys. and Surgs., Boston	(1911) 71.2; (1914)	69.9
Tufts College Medical School	(1913) 72.2; (1915)	70
Montreal School of Med. and Surg.	(1915)	65.3

* This college was officially reported as not recognized by the Maryland State Board of Medical Examiners.

† Did not complete the examination.

District of Columbia October Report

Dr. Edgar P. Copeland, secretary of the Board of Medical Supervisors of the District of Columbia, reports the oral, practical and written examination held at Washington, Oct. 12-14, 1915. The total number of subjects examined in was 16; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 20, of whom 15 passed and 5 failed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Georgetown University	(1913) 76.5; (1915) 76.8, 77.6,	78.9
George Washington University	(1915) 76.9, 80.8, 81.1, 84.6, 87.6,	90.6
Howard University	(1915) 80.5,	86.8
Chicago College of Medicine and Surgery	(1914)	82.1
Johns Hopkins University	(1915)	80.4
University of Virginia	(1910)	78.7

FAILED		
Howard University	(1914) 71.8,	72.2
University of Michigan Medical School	(1894)	73.8
Fordham University	(1913)	72.7
New York Homeo. Med. Coll. and Flower Hosp.	(1912)	71.7

Book Notices

PHYSIOLOGICAL CHEMISTRY. A Text-Book and Manual for Students. By Albert P. Mathews, Ph.D., Professor of Physiological Chemistry in the University of Chicago. Cloth. Price, $4.25 net. Pp. 1040. New York: William Wood & Co., 1915.

This book includes not only a discussion on physiologic chemistry, but also a section devoted to the methods of work of the biochemist. The outstanding feature is the special treatment of the ultimate aspects of chemical interactions in living matter. New matter and points of view are used which will prove instructive to those interested in biochemistry. The intimateness of the exposition is fascinating, the explanation of the processes of past biologic thought are laid bare, and the questions which furnish the motives of present day investigations are clarified.

The usual chapters on the detached chemistry of carbohydrates, lipins and proteins are relatively more expanded than usual. This greater allotment is due in slight degree, if at all, to the inclusion of matter that can be said to be of only distant interest to biology. On the contrary, it is necessitated by a more searching inquiry than usual into the biologic importance of a more detailed knowledge of the generation, ultimate structure and possible transformation of these classes of compounds. For instance: under carbohydrates there is the usual treatment, in appropriate measure, of these compounds, but there is also a consideration of their behavior, based on the ionic theory, which may furnish much to account for their fate in the animal organism. It is suggested why and how it is possible for these compounds, apparently so stable in neutral form, to undergo fragmentation after they have come into relations with alkali and have entered into salt forms in protoplasm, how it is possible for the fragments to be oxidized, or, if oxygen fails to enter into condensation products, how they can probably serve as the agents of anaerobic respiration in the organism. The biologic rôles of the lipins and proteins are likewise discussed with reference to the finer details of their structures; and how profitable this is—especially with the proteins—is borne in on the reader with exceptional clearness. The chapter on the physical chemistry of protoplasm should prove most gratifying to medical readers. In it there has been unified a very lucid account of the most important physicochemical principles that so far have been turned to account in biology. How many publications called "physical chemistry for physicians" have been offered in the last twelve or fifteen years which, consisting of random descriptions of physicochemical phenomena without any clear implication of their relations to biology, have only proved futile. Here, however, with the author's intimate style of presentation, an understanding of the physicochemical phenomena he describes and an appreciation of their bearings on biology should readily be gained. A reading of this chapter is sure to leave one with a wish that there had been more.

In the parts of the work covering the special chemistry of the organs and tissues, the same features of treatment as those already pointed out are also usually to be found. Any opportunity to apply knowledge of finer chemical structure to action is hardly ever missed. In some regions of physiology, however, especially internal secretion and coagulation, the chemism has of course to be dealt with in empiric terms. The author seems to hold the view that the danger in this condition of things, namely, that it can give rise to grossly mistaken conceptions, probably applies to theories of coagulation. This is the only topic on which any marked deviation by the author from generally current opinion is noted. Here he entertains heresies and asserts them. The statement of his views and evaluation of past work on coagulation is most instructive, but it hardly furnishes justification for the little impugnment of some of the present principles of immunology that bobs up here. Though there is a chapter entitled "Absorption," this function is treated quite summarily and not at all with the aid of physicochemical considerations, as might have been expected. Nor are lymph formation and secretion so handled. One can explain to himself why such treatment of these topics has not been included in this book, but not why the discussion of fat metabolism has been limited to that which it receives when the bare chemistry of the fats has been disposed of. The metabolism of the inorganic salts has also received scant attention, about all there is of this being introduced incidentally. On the whole, however, the treatment is so well conceived and so vivid, and the author has such a gift of being able to impart something to his readers, that with the excellent outlines of laboratory work appended to it, the book should meet a wide adoption as a working manual for young students, though, for the same reasons, all students of biochemistry of whatever standing should be attracted to it. Besides that which has already been pointed out to older medical readers as of special worth to them in this book, the laboratory outlines will cover some methods that can be used for diagnostic purposes, but which have not yet found a place in manuals of diagnostic methods.

AN INTRODUCTION TO NEUROLOGY. By C. Judson Herrick, Professor of Neurology in the University of Chicago. Cloth. Price, $1.75 net. Pp. 335, with 137 illustrations. Philadelphia: W. B. Saunders Company, 1915.

This handy little volume, intended by the author to serve as an introductory treatise on neurology in a literal sense, has turned out to be nearly a textbook on the anatomy and physiology of the nervous system. It is certainly remarkable what an amount of matter he has succeeded in placing into 335 pages. Everything contained in this book is modern in every respect and represents the last word said in each field whereof it treats. As the author is himself an indefatigable worker and original investigator in the domain of theoretical neurology, it was to be expected that the biologic portions would be excellent. As he is not a clinician, much credit is due him also for the manner in which he makes his theorectical knowledge apply to the practical needs of the medical student. The book is divided into twenty-one chapters, each of which can be studied separately. Intended to serve as a guide to students in several different fields—medicine, psychology, sociology, education, general zoology, comparative anatomy and physiology—each class will be in a position to appropriate that which it needs. In our opinion, nothing can be omitted without loss to the reader. For conciseness of description this book has few equals. Thoroughly abreast of the entire literature, the author appends only the most important sources at the end of each chapter—a great help to those wishing to pursue the subject farther. Especially to be commended is the chapter on pain and pleasure. We believe not only students of neurology, but also practitioners of medicine will derive much benefit from a careful study of the contents of this book.

THE ROENTGEN DIAGNOSIS OF SURGICAL LESIONS OF THE GASTRO-INTESTINAL TRACT. By Arial W. George, M.D., Assistant Professor of the Department of Roentgenology, Tufts Medical School, and Ralph D. Leonard, A.B., M.D., Assistant in the Roentgen Department of the Boston City Hospital. Cloth. Price, $10. Pp. 280, with 357 illustrations. Boston: The Colonial Medical Press, 1915.

Too much prominence is given to the serial plate method. The fluoroscope can safely eliminate many unnecessary costly plates, and at times reveal facts that are not possible by the other method. Besides the great value of palpation with the fluoroscopic screen, the visualization of moving organs is frequently of diagnostic importance. The entire clinical story and laboratory findings are omitted from the text, and the diagnosis is based on the Roentgen findings alone. This is undoubtedly possible in many cases, as the plates shown are definite and clear. What, however, of the many cases which the authors have failed to recognize because of lack of Roentgen evidence? There are many diseases of the gastrointestinal tract that cannot be discovered by the Roentgen ray alone. The clinical and laboratory findings deserve, at least, equal prominence in the final diagnosis. The text is clear and concise. The illustrations are copies of the original plates, gathered from a rich clinical material. Probably both the number of illustrations and the space allotted to them, could, without loss, be reduced, making a smaller, compact volume.

Medicolegal

Proof of Physician's Account in Action Against Executor

(Colburn vs. Parrett (Cal.), 150 Pac. R. 786)

The District Court of Appeal, Second District of California, reverses a judgment obtained for medical services rendered to the party of whose estate the defendant was sued as executor. The court says that at the trial the plaintiff was sworn as a witness, and identified an account book which he said was used by him "in the course of his business and profession," and all the items therein were in his own handwriting. Against the objections of the defendant, the witness was permitted to testify that the items contained in this account book were entered at or about the time the transactions took place, and that these items were true and correct. Against like objections, the entries referred to, covering a series of items of service to the patient, were admitted in evidence. Section 1880 of the Code of Civil Procedure of California provides that parties or assignors of parties to an action or proceeding, or persons in whose behalf an action or proceeding is prosecuted, against an executor or administrator on a claim or demand against the estate of a deceased person cannot be witnesses as to any matter or fact occurring before the death of such deceased person. The court agrees that the plaintiff would have been entitled to testify that he kept such book of account at the time stated, and that the book was the one kept by him; and, if this had been supplemented by evidence other than the testimony of the plaintiff establishing the trustworthiness of the account book, it then would have been receivable in evidence. But, on the record as it appeared, the objection to the introduction in evidence of the account book should have been sustained. It is established by abundant authority that, when books of account are offered in evidence to establish items of account, it is necessary to show by other evidence the correctness of the books. This may be done by testimony of those who have dealt and settled with the party from his books of account that he keeps fair and honest books of account, or, according to the later decisions, the correctness of the entries may be shown by the testimony of any one who is able of his own knowledge to testify to their correctness.

Construction of Statute with Reference to Diagnosing of Diseases

(Martin et al. vs. Baldy et al. (Pa.), 94 Atl. R. 1091)

The Supreme Court of Pennsylvania says that a majority of the court are of the opinion that the decree of the court below should be affirmed on the opinion of the presiding judge of said court, and it is so ordered. The opinion referred to states that the court entered a decree enjoining the defendants as members of and constituting the bureau of medical education and licensure of the department of public instruction of the commonwealth of Pennsylvania from enforcing the regulations affecting the practice of optometry adopted at their meeting held July 24, 1914, and from adopting or enforcing any other regulations or plans under the authority of the act of June 3, 1911, as amended by the act of July 25, 1913, affecting the practice of optometry within the commonwealth. This was based on the conclusion that the plaintiffs and those engaged in the same occupation as themselves are not covered by the provisions of the statutes and that even if they were, the acts of assembly, as far as they apply to the plaintiffs, are unconstitutional, because of an inadequate title. The court cannot regard the fact that the work done by the eye specialist physician and that done by the optometrist, to a certain limited extent, lap over each other, constitutes the optometrist a practitioner in medicine. A good deal was made in the case of the prohibition in the first section of the act of 1911 applicable to persons who "diagnose diseases." The word, etymologically and in its general interpretation, signifies a discrimination, a passing of judgment, as to physical conditions. In a sense, it may be said that a mother having a child giving signs of whooping cough or some febrile condition passes judgment on the case. Is that diagnosis within the meaning of the statute? If a barber finds that the man in his chair shows signs of a diseased scalp or skin, does he diagnose the disease in reaching such a judgment? The court thinks not. It thinks that a fair and usual construction and interpretation of the words "diagnose diseases," such as it ought to give to them in determining the meaning of the acts of assembly in question, is that the mental act involved in the matter of diagnosis should be something more than the mere determination that there are indications of disease. The proofs in the case were to the effect that optometrists, examining the eye of a patient, either with or without the aid of artificial means, in case they find that the interior of the eye is clouded and gives ground for suspicion that there is some disease of the eye, inform the patient that, for his own protection and safety, he should consult a physician. It seems to the court that it would be applying a severe rule and stretching language beyond its natural force to say that such action on the part of an optometrist is "diagnosing diseases." The use of the plural noun seems to indicate what otherwise would appear to be a proper construction, that to "diagnose diseases" means to distinguish, discriminate, between two or more diseases. If, however, that is too narrow a view to take of the case, the quoted phrase must involve the act of determining what disease exists.

Death From Typhoid Fever After Injury

(St. Louis, I. M. & S. R. Co. vs. Steel (Ark.), 178 S. W. R. 320)

The Supreme Court of Arkansas reverses a judgment obtained by plaintiff Steel, as administrator, for the death of a car repairer from typhoid fever, in August, after he had been injured in the railroad company's service the preceding October. The court says that all human bodies are subject to weakness, disease and death, and, although it was doubtless true, as one of the physicians testified, that the vitality of the injured man was so lowered and his system so weakened by the suffering from the injury caused him by the negligence of the railroad company that he was more susceptible to disease and less able to resist it than he otherwise might have been, still the verdict could not be sustained unless there was some testimony from which it could be reasonably inferred that his death was occasioned by germs or disease caused by the injury or resulting from it as the natural and probable consequence thereof. But all the physicians stated that typhoid fever could not have been produced by the injury, or as an effect arising from it; that it is never of traumatic origin. So far as the law and the facts are concerned, the railroad company was no more responsible for the man's death from typhoid fever, and it was no more the natural and probable consequence of the injury, than if he had died from having been shot with a gun while in the weakened condition caused by the injury. The possibility that he succumbed more readily to the disease causing death than he otherwise would but for the injury, was insufficient to support the verdict, and the jury should not have been told that, if death resulted from typhoid fever contracted because of impaired health occasioned by the injury, rendering his system more liable to the disease and less able to resist it, it was legally attributable to the injury. The typhoid fever was an intermediate cause disconnected from the primary or original injury and self-operating which produced the death, and the negligence of the railroad company causing the injury was not the proximate cause of the death, so that the jury should have been given the company's requested instruction that it was not liable for the death.

"Personal" Letters to Physicians

(Kilmer vs. Dr. Kilmer & Co. (N. Y.), 154 N. Y. Supp. 977)

The Supreme Court of New York, Special Term, Broome County, holds that it ought to be known that a letter marked "Personal" is intended for the physician whose name appears on the letter, no matter what prefix or affix appears with the

name thereon; it ought to be known that when a person writes to any address containing the name or designation of a physician, and marks it "Personal," that letter contains a private and confidential communication not intended to pass through the hands of those who have no knowledge of medicine and have no right to know about the malady with which the writer is afflicted.

Miscellany

Report of the Surgeon-General of the United States Army

The report of the Surgeon-General of the Army for the calendar year 1914 shows that the mean enlisted strength of the army, as shown by the medical department records, both white and colored American troops, was 87,228. These American troops were stationed in the United States proper, Philippines, China, Alaska, Hawaii and the Canal Zone. Besides, there were native troops in Porto Rico and the Philippines. On account of the garrisons in the tropics which constitute a large percentage of the military forces, the general admission and noneffective rates are of more than ordinary significance. The report shows that for the period named the admission rate for the entire army was 660.45 per thousand, the lowest on record. The rate for American troops was 665.83, as compared with 671.78 in 1913. The admission rate was highest in China (1,080.23) and Panama (955.22) and lowest in Alaska (422.95). It is said that the constantly noneffective rate is the true index of the loss of efficiency from disease and injury. For the entire army in 1914 the rate was 23.78, the lowest on record. For the American troops the rate was 24.02, as compared with 24.33 for 1913. The rate was 37.30 in Panama and 10.52 in Alaska. The rate for discharge for disability for the entire army was 12.99 as against 12.97 for 1913. The death rate of the entire army was 4.40. In 1913 it was 5.15. A series of charts and tables set forth an analysis of the health conditions in great detail. These show continued progress in stamping out typhoid fever in the army. In a total mean strength of 98,649 men, only seven cases of typhoid fever occurred, and only two of these received the complete course of vaccination. The admission rate for tuberculosis was 3.50, the lowest on record, and in the United States alone the rate was 2.69. The rate for venereal diseases was 89.84. The act of Congress stopping the pay of those incapacitated for this cause has had the effect of reducing the number of these diseases, and the rate was only slightly higher than for 1913. The figures showing the prevalence of alcoholism in the army was lower for 1914 than for any previous year, being 13.64 per thousand. The rates for malarial fever continued low. For the entire army the rate was 29.48. The United States rate was 10.79, a slight advance over 1913. The Surgeon-General again calls attention to the necessity of rendering the hospital corps more attractive by its reorganization. It is said that the work performed at present demands more than formerly of the hospital corps personnel, and the lessons of the European war demonstrate the need of a sufficiently trained corps. Although new sanitary units were organized in 1914 and were in service on the Mexican border, it is said that there still remains a marked shortage of model sanitary units. The international nomenclature of diseases and injuries adopted by the department is used in this report for the third time.

Report of Surgeon-General of the Navy

The annual report of Surgeon-General Braisted of the United States Navy indicates a slight increase in both admission and death rates for 1914. The average admission rate per thousand for the years 1901-1910 was 897.35; for 1912 it was 787.46, for 1913 it was 760.03 and for 1914 it was 886.58. The death rate for 1901-1910 was 5.38; for 1912, 4.08; for 1913, 3.82, and for 1914, 4.18. The admission rate for the last year was lower than the average admission rate for the ten year period. The death rate was still low considering that during this period many men were stationed at Vera Cruz in tropical waters for seven months. Among the more important diseases that showed an increase were acute arthritis, acute bronchitis, chancroid, furunculosis, gonorrhea, gunshot wounds, malaria, pneumonia, rheumatic fever and tonsillitis. There was a decrease in diseases of the circulatory system, eye and adnexa, motor system and the following special diseases: diphtheria, measles, mumps, syphilis, tuberculosis, typhoid fever and valvular diseases of the heart. Of typhoid fever it is said that its practical elimination from the navy is due to prophylactic inoculation. While the reduction in morbidity has been coincident with the improvement in the large cities of the United States, due to general prophylactic and sanitary measures, as shown in the tables printed in The Journal, which are quoted, yet the improvement in the navy has been still greater, due to the prophylactic inoculations. Hospital provisions made for large numbers of typhoid cases were appropriated to other uses. The inoculation procedure recommended and now in use in the Navy, is to inoculate on entry into the service, and on every reenlistment (or period of four years), for all under 45 years of age. The rate of primary admission for venereal disease was greater than in 1913, but below the rate for 1909, 1910, 1911 and 1912. In 1903 when the complement was 37,248, the admission rate was 21.90; with an increasing number of men the rate rose and fell till 1910, when it was 22.54, increasing to 27.11 in 1911 and falling in 1914 to 19.83, when the complement was 67,141. The scheme of prophylaxis was proposed in 1907 but only generally adopted in 1909, when all cases that came up for treatment were recorded, whether the men were excused from duty or not. Chancroid and gonorrhea showed a slight increase in 1914, while syphilis showed a slight decrease, being lower than for any year during the preceding five. The admissions for mental diseases were the same as for 1913, 4.11 per thousand. Among a total personnel of 67,141 the admissions were 276, among whom the fireroom force led with 52; among the marines there were 50, and apprentice seamen 32. It is said that the mentally unfit betrays himself by his inability to cope successfully with service conditions. Probably some of the 276 mentally unsound entered the service in that condition, but the great majority must have entered with the mental bias already actually or potentially established. It is said that a method will soon be devised of keeping these men out of the service. Many other subjects are discussed in the report and tables giving detailed information of diseases and injuries are included.

The Care of Dependent Children

Notwithstanding the great improvement that has been made in handling and caring for dependent children by state and municipal authorities and private welfare agencies, the problem is still far from being solved in a satisfactory manner.

The August bulletin of the Ohio State Board of Charities is devoted to this subject and shows what has been done in Ohio for the welfare of dependent children. A review is given of the work of 253 institutions and agencies which receive and care for such children, and the provisions of the laws of Ohio relating to the institutional care of dependents are analyzed, and the manner in which they are administered is set forth.

Severe criticism is made of many features of the care and placing of institutional children as at present carried out, and particularly to be noted is the criticism concerning the indifference or careless attitude of some physicians toward dependent children. It is said that the board has discovered that it is not an uncommon thing for physicians to take it on themselves to place in homes infants born in public institutions or maternity hospitals without first obtaining the consent of the authorities or the mothers so to do. This is in violation of the statutes of the state. Instances are given of this practice in which physicians have refused to give the mothers information as to where their children had been placed. Sometimes this placing is done when the infant is

only 2 weeks old, and the board cites this as an instance of unlawful and inhumane practice and says that in many such instances, even in the case of illegitimate children, these infants could be nursed and cared for by their mothers.

In an effort to interest communities in their proper responsibility in the care of dependent, delinquent and neglected children, the board has been instrumental in having mass meetings held in a number of counties in the state, and many public addresses have been given by members to religious and civic organizations. Much literature has also been distributed.

The great number of requests from various parts of the state for assistance in meeting the varied problems connected with dependent and neglected children indicate that the situation is unsatisfactory in Ohio, and conditions are doubtless no better in many other states. Failure properly to care for these wards of the state not only entails an economic loss, but also constitutes a grievous neglect of humanitarian duty.

Report of the Children's Bureau

The third annual report of the federal Children's Bureau, just issued, emphasizes the need for developing standards for rural child welfare work, physical standards for children in industry and standards of laws for the protection of children. Three fifths of the 30,000,000 children in the United States, we are told, live outside of the cities. But we are also told that the percentage of illiteracy in rural communities according to the 1910 census is double that in the cities, and where rural child labor is extensively employed, the percentage of child illiteracy is increased. Juvenile delinquency laws in most states are ineffective because rural probation officers are lacking. With reference to infant mortality, the report says that two items of inquiry completed during the past year reveal an average infant death rate of 134 out of 1,000 infants in a steel-making and a coal-mining town, as against a rate of 84 out of every thousand in a residential suburb. It is said that even a greater contrast is found between the most congested section and the choicest residential section in each of these communities. The report comments that "the more favorable the civic and family surroundings and the better general conditions of life, the more clearly are they reflected in a lessened infant mortality." The bureau is pursuing its inquiry into the relations of babies' deaths to wages and social conditions. As a constructive measure in the effort to improve infant mortality conditions, the bureau has prepared for distribution pamphlets on prenatal care and infant care which are sent on request to inquirers. The bureau's work during the year comprises eight different phases of child welfare: causes of infant mortality, child hygiene, cooperation in a general test of birth registration, social care of mental defectives and of illegitimate children, principles of community provision for recreation, compilation of laws relating to children, analysis of the administration of child labor laws, and detailed studies of rural child welfare and the physical effects of child labor.

Studies in Blood Pressure in Physically Trained Persons

Dr. G. V. Dearborn has recently announced the results of some studies of blood pressure among gymnasium athletes in Hemenway Gymnasium of Harvard University (*Am. Phys. Educ. Rev.*, June, October, 1915). The subjects were thirty-nine in number, twenty-eight of whom were females ranging in age from 11 to 32 years, and eleven males, the youngest 21 and the oldest 60. The latter were well-trained athletes, all being students or instructors in the physical education department of the summer school of Harvard University. The experiments were conducted during the warm weather of July, the majority of the measurements being made in the afternoon after a moderately strenuous day of mental and physical work. The experiments, it is believed, represent normal conditions in healthy, active men and women between the ages named. Blood pressures were taken with the Stanton wide-cuff instrument, under the usual conditions of blood pressure taking. Dearborn sets forth a thorough analysis of the findings in these experiments in both tabular and textual form. He summarizes his findings as follows: The posterior tibial blood pressure when the leg is horizontal is about 118 per cent. of the "sitting" brachial pressure; when the leg is in the usual standing position, about 133 per cent., and when the leg is held vertically upward, about 70 per cent., or frequently much less. These numbers seem to corroborate the supposition of a pumping mechanism in the muscle masses of the thigh. Strenuous gymnastic feats are most often followed by raised brachial blood pressure, in 58 per cent. of the cases here reviewed, less often by lowered pressure, 39 per cent., while seldom is there no change or slight change. The reactions are so various and uncertain as to imply (especially as the results of overturning exercises) vasomotor reactions far too complex to be as yet explained. Forty-four trained males, with an average age of 32.7 years, had an average brachial pressure of 120.3 mm., while sixty-eight trained females, with an average age of 25.2, had 114.1 mm. One hundred forty-seven untrained young women, with an average age of 19.8 years, had an average pressure of 107.9 mm. In these two sets of numbers there is evidence that adequate physical training raises the blood pressure to a definite maximum of efficiency, which, however, is not high. It is possible, however, that age has a part in this difference. As a very rough rule (with almost as many exceptions as corroborations, perhaps) from the age of 10, each of the following twenty years is represented by 1 mm. rise of brachial pressure above 100.

Society Proceedings

WESTERN SURGICAL ASSOCIATION

Twenty-Fifth Annual Meeting, held at Des Moines, Iowa, Dec. 17-18, 1915

(*Concluded from page 219*)

Bleeding Nipples

DR. DEAN LEWIS, Chicago: Seven bleeding nipples have been studied. Five of these have been operated on. The youngest patient was 35 years of age, the oldest 51. In two instances a cyst the size of a hazelnut was situated superficially about three-fourths inch from the nipple. When pressure was made on the cyst, drops or a stream of blood or serum could be expressed. A radical operation was performed in both instances. In one, beginning malignant degeneration of an intracanalicular papilloma was found. In the other instance a benign papilloma was found. In two cases no definite tumor could be found, but when a plastic resection of the breast was performed an intracanalicular papilloma, not much larger than a barley seed, was found deep in the duct. In two instances the bleeding was associated with a chronic interstitial mastitis. In one of these cases a plastic resection of both breasts was performed. In the other case cysts had been removed from both breasts five years before the discharge was noticed. This patient had nothing done, and the discharge has practically ceased for some weeks. In the seventh case the patient noticed some bleeding from the breast. The bleeding soon stopped, being replaced by an occasional watery discharge. No tumor could be palpated. We are apparently dealing in this case with a small intracanalicular papilloma situated deep in the breast. Bleeding from the nipple occurs most frequently with intracanalicular papillomas. It also occurs with the adenocystic type of abnormal involution, with papillary growths in the acini. Both conditions may be grouped together, as they are apparently different manifestations of the same process. Conservative plastic operations can be performed in these cases when seen early.

Etiology and Prophylaxis of Carcinoma

DR. HENRY T. BYFORD, Chicago: I have clinical and statistical facts to show that carcinoma is an infection. The germ is found in the surface soil and dirt of populous districts, and enters the system in the majority of cases with the food.

Recommendations by way of prophylaxis: 1. Carcinoma should be considered an infectious disease. 2. Precautions against the spread of the infection should be taken by the community as well as by the individuals affected. 3. Foods, particularly fruit and vegetables, should be protected from contamination after their source and in transit. All fruits and vegetables from general sources should be sterilized before being eaten, except such as have a complete covering or hard external surface that can, after a thorough cleansing, be removed. The use of human excrement as a fertilizer should be prohibited by law. 4. The disposal of human excrement in suburban and populous rural and manufacturing districts should be such as to avoid possible contamination of the surface soil. The feces of patients with carcinoma of the alimentary canal and pelvic organs should receive the same attention as those of patients from typhoid or cholera. Women should be taught the infectious nature of normal stools, with particular reference to keeping the perineum free from contamination. They should also be taught to spend a considerable portion of their time washing their hands. 5. The number of cats and dogs in populous districts should be restricted, and they should not be allowed to roam about the streets by day and night. The excess should be killed. Means should be taken for the extermination of rats, mice, cockroaches and other vermin. 6. Individuals whose occupations are known to expose them to great risk of infection from carcinoma should be taught that it may get into their systems either through the irritated skin or by way of the alimentary canal. They should be taught to keep the skin free from chronic lesions, should wash their hands very thoroughly before eating, and should wash and disinfect their hands very thoroughly and change their working garments when they leave their work for the day. All workers in dirt should observe these rules. 7. All epithelial areas affected with chronic irritation and erosion should be attended to. An attempt might also be made to prevent infection of ulcerated and eroded surfaces in the alimentary canal. Patients with such lesions should avoid all unsterilized food that might be contaminated. Whether or not it would be useful to give a large dose of trypsin or something with a similar catabolic or germicidal action once or twice daily in cases of ulcer of the stomach, or some nonpoisonous substance that might be found to have a destructive action on carcinomatous cells and parasites, is a question that deserves consideration. 8. Municipal authorities should put carcinoma on the list of diseases to be reported in order that the patients may be traced and taught how to take care of themselves and their infected discharges, and that none of those living with them may be allowed to handle foodstuffs for the market. 9. The blood of patients with carcinoma should be exhaustively studied with reference to the discovery of something that will increase immunity, for until we learn more about the germ, the establishment of immunity would seem to afford the best hope of preventing infections and recurrences. 10. The time would seem to be ripe for teaching the public something concerning the erroneous notions about diet that are prevalent among the idle rich and prosperous poor in order that they may stop manufacturing the serious forms of gastro-intestinal disease that have of late years shown such an alarming increase in frequency, the seeds of which are sown in adolescence and the fruits of which are harvested at maturity and in senescence. In this way the danger of infection by contamination might be greatly diminished. 11. Women who have not borne children for several years should be warned of the danger of developing carcinoma, and should not only be on the lookout for symptoms but should also submit to a pelvic examination at least twice a year until it is evident that their mucous membranes are healthy and are remaining so.

The Relation of Skin Transplant to Carcinoma, Especially to Its Recurrence

DR. A. C. STOKES, Omaha: Skin grafts on the surface of wounds from which carcinoma has been detected should be thin grafts, because they carry no blood vessels or lymphatics with them, and for the further reason that they do not completely cover the surface of the wounds. The Thiersch graft should be used on fresh surfaces, and the Reverdin graft on granulated surfaces. The recurrence of carcinoma in skin grafts is comparatively rare, and these grafts seem to exert a special influence against the return of carcinoma.

Excision Versus Gastro-Enterostomy in the Treatment of Gastric Ulcer

DR. VAN BUREN KNOTT, Sioux City, Iowa: As the tissue changes attending most chronic gastric ulcers are permanent, and the larger proportion of ulcers of the stomach are planted on an ulcer base, in every case of ulcer treated surgically, the ulcer should be excised when possible. An additional reason for the radical treatment of gastric ulcer is the fact that about one third of the cases treated by gastro-enterostomy without excision or pylorectomy require a second operation at which one of these procedures should be applied. Ulcers situated near the pylorus, on the anterior wall of the stomach, along the lesser curvature involving both anterior and posterior walls, and on the posterior wall, even though at times adherent, may in many, but not in all instances, be excised. Gastro-enterostomy must frequently accompany excision of an ulcer or ulcers, but whenever excision is possible within safe limits, it should be made and the fate of the patient not left to gastro-enterostomy alone.

Early Diagnosis of Intussusception in Children Under Three Years of Age

DR. A. W. ABBOTT, Minneapolis: Twelve children, 3 years of age or under, were observed. A sudden violent abdominal pain, accompanied by a regurgitation of its stomach contents, in a child otherwise well, initiated the attack in 100 per cent. of the cases. Recurring pains, varying in intensity, but regular in periodicity, accompanied by the assumption of peculiar positions, generally the prone, in those strong enough to move about, occurred in 100 per cent. of those noted. In those cases beginning in collapse, 25 per cent., these periodic pains were often indicated only by regularly repeated moans and drawing up of the limbs. An abdominal tumor could be made out somewhere in the course of the colon in 92 per cent. The stools did not contain feces in 91 per cent. Mucus stools are recorded in 83 per cent. These indications should strongly suggest intussusception within forty-eight hours after the attack. Blood in the stools adds to this certainty of diagnosis, but it may be absent in 77 per cent. until after the second day. Instead of distention, we may expect a flaccid, scaphoid abdomen. Recurring vomiting is not usually one of the earliest symptoms, being absent in 81 per cent. until the second day, or later in our cases, and in exceptional cases there is no vomiting. The positive identification of the intussusceptum by the finger in the rectum is absolutely pathognomonic, but may be demonstrable in only 55 per cent. The virulence of the disease and its mortality depend not so much on the time elapsed before operation as on the intensity of the strangulation of the mesenteric circulation. Of the 12 patients, 8 recovered, 4 died. Of the noncollapsing cases, 8 patients recovered, and 1 died. Of those beginning in collapse, none recovered, 3 died.

Use of Suprarenalin and Transfusion in Treatment of Shock

DR. J. F. CORBETT, Minneapolis: I limit the use of suprarenalin and transfusion to those cases of postoperative and traumatic shock in which there are present pallid mucous membranes, low blood pressure, unconsciousness when anesthetic is discontinued, and threatened failure of respiration. The use of the suprarenalin should be so guarded as never to raise the blood pressure to over 90 or 100 mm. of mercury. It is advised that this treatment should be used only in cases in which there has been loss of blood volume either as a result of shock and hemorrhage or in pure shock resulting from transudation into the tissues without hemorrhage. After the vessel tone has been established, transfusion should be done.

This recommendation is based on a long series of animal experiments and on the results of three clinical cases.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

January, CLI, No. 1, pp. 1-156

1 *Open-Air Treatment of Pneumonia and Anemia in Children. R. G. Freeman, New York.
2 *Pneumonia in Children; Its Epidemiology. G. R. Pisek and M. C. Pease, New York.
3 *Case of Acute Cerebellar Ataxia in Children. J. P. C. Griffith, Philadelphia.
4 *Pneumotyphoid; Report of Case. F. Billings, Chicago.
5 *Mild Diabetes in Children. D. Riesman, Philadelphia.
6 Functional Renal Tests in Orthostatic Albuminuria. L. F. Barker and F. J. Smith, Baltimore.
7 *Effect of Water Intake on Nitrogen Retention in Nephritis. N. B. Foster and H. B. Davis, New York.
8 *Differentiation of Nephropathies, Cardiopathies and Allied Conditions. E. E. Butterfield, F. Erdwurm and W. H. Braddock, New York.
9 Relation Between Functional Tests and Pathologic Anatomy of Kidney in Chronic Nephritis. C. Frothingham, Jr., Boston.
10 *Relationship of Pathologic Histology and Iodin Compounds of Human Thyroid. L. B. Wilson and E. C. Kendall, Rochester, Minn.
11 *The Uric Acid in Blood in Gout. J. H. Pratt, Boston.
12 *Four Cases of Hematomyelia. H. Brooks, New York.
13 Use of Duodenal Catheter in Diagnosis. H. L. McNeil, Galveston, Tex.
14 Syncope. L. Langstroth, San Francisco.

1. Abstracted in THE JOURNAL, July 3, 1915, p. 133.

2. Abstracted in THE JOURNAL, June 26, 1915, p. 2167.

3. **Acute Cerebellar Ataxia in Children.**—The noteworthy features in Griffith's case are: The rapid development of symptoms without discoverable cause, unless possibly the child had suffered from influenza; the uncommon degree of nystagmus; the ataxia of the extremities; disturbance of sensorium; affection of speech, slight increase of reflexes, and the rapid recovery, complete in one month from the onset. Such systemic disorders as Friedreich's ataxia and the cerebellar ataxia of Marie were out of the question. Tumor and abscess of the cerebellum, at first thought to be possibilities, were excluded by the course of the disease and by the examination of the eyegrounds; and that the nystagmus was not otitic in origin was shown by the application of Bárány's tests. Treatment consisted on admission in the administration of a purgative and of sodium bromid. After this, on the ground that the condition might be toxic, bicarbonate of soda was given every four hours and enteroclysis every six hours. This treatment was continued until recovery was well advanced.

4. **Pneumotyphoid.**—The notable events of the history of Billings' case are as follows: The patient was seized suddenly with chill and fever and presented all of the physical phenomena one week later of a frank right lower-lobe pneumonia. A palpable enlarged spleen was found. The leukocytosis on admission became less, with an increase of the consolidated area of the lung. On the seventeenth day in the hospital there was a positive typhoid blood culture, and on the next day almost a pure typhoid growth was found in the sputum. The typhoid bacteremia and typhoid bacilli in the sputum persisted for more than three months, and were probably present at the time of death. The typhoid bacillus was not found at any time in the stools or in the urine. Therefore, Billings concluded, that this patient presented an example of typhoid presenting its primary manifestations in the lung in the form of a frank, outspoken croupous pneumonia.

5. **Mild Diabetes in Children.**—Riesman is convinced that there exists a mild type of diabetes in childhood and adolescence. The disease is peculiar in its tendency to occur in several members of the same family. The glucosuria is usually moderate, although nervous excitement and other disturbing factors may augment it. Other diabetic symptoms are often slight and may be wanting. The disease is not progressive and may remain stationary or end in apparent recovery. In its general features, it corresponds to the so-called renal diabetes.

7. **Effect of Water Intake in Nephritis.**—The retention of nitrogen is one of the common phenomena associated with a large percentage of the cases of nephritis observed in hospitals. Whether this retention characterizes also, in lesser degree and periodically, earlier stages of the disease is not at present clear; but this is generally assumed to be true and is held accountable for some symptoms, whether correctly one may not assert. At those periods of nephritis when patients are forced to seek hospital aid the retention of nitrogen outside of convalescence appears to precede and lead up to either frank uremic manifestations or to the graver complications of renal disease. Furthermore, a careful study of a large number of cases by Foster and Davis disclosed many in which the metabolic disturbances seem confined to the protein economy; that is to say, the notable failure in elimination is in respect to nitrogen, and this retained nitrogen is found not only in the blood but also in the tissues. With some of these cases water metabolism is either normal or approximately normal and the total nitrogen elimination then appears to depend directly on the volume of water that passes through the kidneys. This is simply another way of stating an accepted fact; that the diseased kidney can not excrete a concentrated urine, namely, the power of concentration is impaired. If under these conditions the nitrogen of the diet be reduced to about half the normal and the fluid ingested be increased there results first a sweeping out of retained nitrogen and later normal approximations toward equilibrium. Reduction of nitrogen intake alone does not suffice, nor does the ingestion of large amounts of water if the diet nitrogen be not curtailed.

8. **Differentiation of Nephropathies, Cardiopathies and Allied Conditions.**—In this study the determination of the freezing point, refractive index, and specific gravity have been supplemented by the authors by determination of the protein content and dry residue of the serum. While these supplementary determinations do not add materially to the results, they furnish a striking demonstration of the relatively large variations which are possible in the solid constituents of the blood serum in different diseases.

10. **Iodin Compounds of Human Thyroid.**—Wilson and Kendall present some new evidence in the solution of the problems of the relationships between the clinical, pathologic and chemical findings in cases of human goiter. The scope of their study is limited to 566 cases, from which specimens have been analyzed chemically in the course of a general investigation of the iodin compounds of the thyroid. The cases were not selected, but were taken at random in the order as operated on from the patients under treatment in the Mayo Clinic during 1914. In addition to the determination of the total iodin, the dried thyroid substance of fifty-eight thyroids was hydrolized by a method already published. This hydrolysis splits the proteins into simpler products and divides the total iodin into two chemically different groups. The a-iodin compound is insoluble in acids. The b-iodin compound is soluble. Both a-iodin and b-iodin are in organic combinations, and there is evidence that b-iodin is not a decomposition product of th a-iodin compound, but that the two forms exist independently in the gland. Physiologic tests have shown that the a-iodin compound produces the typical effects of desiccated thyroid, but that the b-iodin compound has no toxic action.

The data obtained furnish additional proof of the statements previously made, that the symptom complex, which is generally recognized as "typical Graves' disease," "exophthalmic goiter," etc., and sharply denoted by Plummer as hyperplastic toxic goiter is constantly parallel in all its stages of development and regression with similar stages of development and regression in the parenchyma of the thyroid. This parallelism is shown in the average duration of goiter, the average duration of toxic symptoms, and in the progressive and regressive histologic changes. From previous investigations there seemed to be little doubt that the clinical picture of exophthalmic goiter is produced, either directly or indirectly, by hyperactivity of the thyroid; but until some definite substance had been isolated from the normal thyroid and from the pathologic glands and shown to be toxic in its nature, no final conclusion could be arrived at. The isolation in pure

form of a compound containing 60 per cent. of iodin and the proof that this substance is highly toxic in nature, emphasized the importance of an investigation concerning the amount and nature of the iodin containing compounds of the thyroid. It has been shown that the iodin in the glands exists in two independent forms of combination, only one of which, the a form, is toxic. Our conception of the physiologic action of the iodin compounds must therefore be enlarged to include the action of this one the toxicity of which is vastly greater than that of any other hitherto described.

It is significant to find that this a-iodin compound is present in the actively hyperplastic glands of advanced hyperplastic toxic goiters in only one twentieth to one fifteenth the amount in which it is present in normal thyroids. This must be interpreted not as a reduced production of the toxic substance but as the result of its greatly increased diffusion from the gland into the blood stream. In actively hyperplastic glands the amounts of iodin and a-iodin are low, but in cases in which regression has occurred the amounts of iodin are high. In contrast to this it was found that the amount of iodin in the nonhyperplastic toxic glands is higher than in the nonhyperplastic atoxic glands. The clinical picture, in its most severe type, of patients with nonhyperplastic toxic goiter approaches in many respects the picture of patients with hyperplastic toxic goiter. Assuming the same toxic substance to be the cause for all thyroid intoxication, the factors involved to produce varying clinical pictures, are the daily amount of absorption of the toxic substance, the length of time during which this intoxication occurs, and the personal resistance of the patient.

11. **Uric Acid in Blood in Gout.**—In the sixteen cases of gout studied by Pratt no relation could be traced between the amount of uric acid in the blood and the severity or character of the disease. Two of the patients had many large deposits of sodium urate beneath the skin in different parts of the body. The blood of both contained less than the average amount of uric acid found in gout; one had 2.4 mg. on a purin-free diet, the other 2.2 mg. These findings show that the presence of many tophi is no indication that hyperuricemia exists. In typical gout the uric acid may be low at times, even when atophan has not been taken. In one of Pratt's patients the first analysis showed only 1.7 mg. of uric acid (purin-free diet), and in the blood of another patient on a mixed diet there was 1.9 mg. In four cases of gout in which the uric acid concentration at the first examination was below the upper limit of normal, 2.5 mg., the blood after this test meal contained a large amount of uric acid. Exogenous purins in five gouty patients produced a marked hyperuricemia twenty-four hours to three days after they were fed, while in individuals who did not have gout the uric acid concentration was practically unchanged twenty-four to forty-eight hours after the purin meal. The increase in the uric acid content of the blood in gout after feeding a purin meal may not appear for twenty-four hours or more, and an initial fall has been observed in two cases of gout in which the blood was examined four to eleven hours after a sweet bread meal. In two nongout cases in which Pratt examined the blood four to five hours after the sweet bread meal, not only did this drop in the uric acid not occur, but there was a distinct increase in the amount of uric acid. The blood of a healthy man three hours after taking an ordinary portion of chicken contained 3.9 mg. of uric acid. Ten days later only 1.3 mg. was present.

12. **Hematomyelia.**—Brooks claims that the dominant agent in the immediate determination of the hemorrhage is that of strain, involving spinal activity or tension.

American Journal of Public Health, Boston

December, 1915, V, No. 12, pp. 1195-1284

15 Social Aspects of School Hygiene. D. B. Armstrong, New York.
16 Principles of Administrative Control of Communicable Diseases in Large Cities. J. S. Billings, New York.
17 Use of Unemployed in Field of Sanitation. J. F. McCrudden, Philadelphia.
18 Prevention and Arrest of Diseases of Cardiorenal Vascular System. E. L. Fisk, New York.
19 Cooperation in Public Health Administration at LaSalle, Peru and Oglesby, Illinois. G. F. Ruediger, LaSalle, Ill.
20 Registration of Communicable Diseases. F. M. Meader, New York.
21 Investigation of Methods of Storing and Dispensing Milk. O. W. H. Mitchell and G. E. Hannett, Syracuse, N. Y.
22 Report of Committee on Standard Methods of Testing Disinfectants. E. B. Phelps, Rochester, N. Y.
23 Milk Situation in South. B. L. Arms, Galveston, Tex.
24 Mortality Statistics and Physician. G. H. Van Buren, Washington, D. C.
25 Report of Committee on Organization and Functions of Municipal Health Departments. J. A. Vogleson.
26 Report of Committee on Standard Methods for Bacterial Examination of Milk. M. P. Ravenel, H. W. Conn, W. H. Park, J. F. Anderson and R. S. Breed.

Arizona Medical Journal, Phoenix

December, 1915, III, No. 12, pp. 1-14

27 Medical Citizen. J. E. Bacon, Miami.
28 Trifacial Neuralgia; Its Successful Treatment without Major Operation. R. Moore, San Francisco.
29 Treatment of Tuberculosis. R. B. Homan, El Paso, Tex.

Arkansas Medical Society Journal, Little Rock

December, 1915, XII, No. 7, pp. 163-188

30 Care of Patient Before and After Surgical Operation. R. L. Saxon, Little Rock.
31 Carbon Dioxid Snow in Dermatology. D. W. Goldstein, Fort Smith.
32 Papilloma of Bladder and Its Management. A. E. Cox, Helena.
33 Pellagra. J. T. Perry, Greenwood.

Boston Medical and Surgical Journal

January 6, CLXXIV, No. 1, pp. 1-36

34 Medical Testimony. J. W. Courtney, Boston.
35 Simplified Methods of Transfusion. E. H. Risley, Boston.
36 Insanity by Contagion. B. H. Mason, Worcester.
37 Latent Neurosyphilis and Question of General Paresis. (To be continued.) E. E. Southard and H. C. Solomon, Boston.
38 Treatment of Headache. J. Herold, New York.

Delaware State Medical Journal, Wilmington

October, 1915, VI, No. 11, pp. 1-26

39 Syphilis; Early, Late and Serum Diagnosis. R. W. Tomlinson, Wilmington.

Indiana State Medical Association Journal, Fort Wayne

December, 1915, VIII, No. 12, pp. 537-590

40 Local Anesthesia in Major Surgery. C. O. Bechtol, Marion.
41 Surgical Tuberculosis of Abdominal Cavity. V. A. Funk, Vincennes.
42 Surgical Anatomy of Cleft Palate. J. R. Eastman, Indianapolis.

Journal of Nervous and Mental Disease, Lancaster, Pa.

December, 1915, XLII, No. 12, pp. 785-848

43 Case of Central and Peripheral Neurofibromatosis. P. Bassoe and F. Nuzum, Chicago.
44 Postnatal Growth of Brain Under Several Experimental Conditions. H. H. Donaldson, S. Hatai and H. D. King, Philadelphia.
45 *Extra-Pyramidal Motor Disturbances; Report of Case with Necropsy. J. H. W. Rhein, Philadelphia.
46 Mental Disturbances in Feebleminded. W. N. Bullard, Boston.

45. **Extra-Pyramidal Motor Disturbances.**—Rhein's patient, a woman of 43, became paralytic in the left arm and leg at the age of 8 and remained in this condition until the time of her death. Symptoms at the time of death consisted of paresis of the left arm and leg, contracture of the Achilles tendon and spasticity of the knee-joint, contractures at the shoulder joint, flexor contractures of the left elbow and wrist, retraction of the lower jaw, indistinct and spastic speech, moderately fine, rhythmic tremor in the left arm and leg and tremor of the jaw; increased knee-jerk more on left without Babinski phenomenon or clonus. The right side was unaffected. Pathologically there was a lesion of the right putamen in its inferior and posterior portion; degeneration of the right ansa lenticularis, right red nucleus, left superior cerebellar peduncle and left dentate nucleus. The left inferior olive was totally degenerated, the right to a slight degree and the right corpus restiforme was smaller than the left.

Journal-Lancet, Minneapolis

Dec. 15, 1915, XXXV, No. 24, pp. 679-704

47 Radium in Dermatology. S. E. Sweitzer, Minneapolis.
48 Single Licensing Examination. H. E. French, University, N. D.
49 *Syphilitic Disease of Heart and Aorta. R. D. Mussey, Rochester.
50 Treatment of Diabetes Mellitus. W. F. Wilson, Lake City.

49. **Syphilitic Disease of Heart and Aorta.**—Of 1,379 patients with syphilis examined in the Mayo Clinic during the five years ending Jan. 1, 1915, there were fifty-nine with diseases of the heart, aorta, and mediastinum which were

attributed to the specific disease, and fourteen in whom heart lesions were noticeable, but of secondary importance. Only cases in which a definite diagnosis could be made are included in this report by Mussey and a number have been discarded because the history and findings were not sufficiently clear cut for the purpose of tabulation. A large number of early cases in this way are possibly not included. In fifty-three of the fifty-nine cases there were positive Wassermann reactions, a majority with total inhibition; and in the remaining 6 there were positive histories of syphilis. In connection with this incidence it is of interest that many of the patients as they presented themselves were past the secondary stage. Other infections may have played a part, yet only four patients had had scarlet fever, four typhoid, three chronic and two acute rheumatism and two gave a history of attacks of tonsillitis. Fifty of the patients were men and nine were women. The oldest was 67, the youngest 27, and the average age was 47 years. There were sixteen heart and mediastinal cases. Of this group fifteen patients complained chiefly of dyspnea, five needing extra pillows when reclining. The same number complained of pain, which was described as dull, sore, sticking or catchy, usually in the chest, but in two patients it was noted in the abdomen. Other of the prominent symptoms were dizziness, congestion of the face, and gastric disorders. In three there was a history of edema. The longest duration of symptoms was twelve years, the shortest two months; average, twenty-one months.

Aortitis, 18 cases. No special symptoms were prominent in this group. Pain, dyspnea, heart, and gastric disorders and weakness were most frequently mentioned. Pain was noted in 12 cases; a history of edema in 3. Two patients were so dyspneic as to be unable to lie flat. The longest duration of symptoms was six years, the shortest two months; average, two and one-half years. In 11 cases the illness was constant; in 9, worse at times. Aneurysm, 25 cases. Pain was noted as the predominant complaint in 15 of these patients, and was present in all but 1. It was mostly precordial in 14 patients; down the left or right arm in others; to the back in 18, being described as dull, severe, progressive, or gripping; taking the breath in 1, nocturnal in 3, anginal in 1. Among other symptoms were abdominal disturbance in 2; swelling (aneurysmal mass) in 6; cough in 4; pressure, weakness, or dyspnea alone in 3. Three patients gave a history of edema. Four needed pillows, 2 because of pain and 2 because of dyspnea. The longest duration of symptoms was twelve years, the shortest three months; average, six years and eight months. In 23 of the 25 the complaint was constant, in 11 worse in spells. In 24 of the total 59 cases comprising the series, pain was increased by exertion. The prominent findings in the heart and mediastinal group were irregularity of the pulse and a tendency to tachycardia, the average rate being 98. In only 2 was the pulse noted as normal. In the aortitis group irregularity of pulse was observed once only while the water-hammer was noted seven times in the 18 cases. The average pulse rate was 87. A thrill over the aortic area or carotid was noted in 7 cases.

Kansas Medical Society Journal, Topeka

December, 1915, XV, No. 12, pp. 359-388

51 Practical Points Regarding Wassermann Test for Syphilis. C. F. Craig, Fort Leavenworth.
52 Appendicitis Complicating Pregnancy, Labor and Puerperium; Report of Four Cases. A. J. Weaver, Concordia.
53 Torsion of Pedicle of Ovarian Cyst Simulating Ruptured Extra-Uterine Pregnancy. E. M. Miers, Saline.
54 Bilateral Ovarian Sarcoma in Child Five Years Old with Large Retroperitoneal Metastasis. H. Wilkinson, Kansas City.
55 Nitrous Oxid-Oxygen Anesthesia. G. C. Mosher, Kansas City.

Kentucky Medical Journal, Bowling Green

January, XIV, No. 1, pp. 1-56

56 Study of Secretions of Mammae. W. E. Gary, Louisville.
57 *Limitations of Nitrous-Oxid-Oxygen in Surgery and Its Recent Use in Obstetrics. W. H. Long, Louisville.
58 Present Status of Surgical Treatment of Goiter. J. R. Wathen, Louisville.
59 Surgery of Infected Hand. W. L. Gambill, Jenkins.
60 *Diagnosis and Medical Treatment of Gastric and Duodenal Ulcers. J. T. McClymonds, Lexington.
61 *Gastric and Duodenal Ulcer (Surgical). M. Casper, Louisville.
62 Importance of Posture in Examination, Operation and Treatment of Rectal Lesions. G. S. Hanes, Louisville.
63 Plea for More Conservative Surgery on Female Generative Organs. A. H. Barkley, Lexington.
64 Acute Suppurative Cholecystitis Complicating Typhoid. J. W. Price, Jr., Louisville.

57. **Use of Nitrous-Oxid-Oxygen in Obstetrics.**—Nitrous oxid is the safest and best agent for producing analgesia or anesthesia in labor. The author says it has no cumulative action, is under the complete control of the administrator at all times, has no untoward effect on the lung, heart or kidney, and is immediately eliminated on withdrawal. The depth of its action can be readily controlled, and any degree from a light analgesia to a true anesthesia can be quickly produced at will, and an analgesia may be maintained as such indefinitely; it does not merge into a deep anesthesia unless the diluent, and pure oxygen has preference over the air, is diminished, thereby concentrating the nitrous oxid. If version, forceps, or any operative procedure becomes necessary the analgesia may be merged into anesthesia, which ordinarily may be continued indefinitely. There is no danger to the child if the gas is in the hands of one expert in its use. This, Long says, is the concensus of opinion on this question.

60 and 61. Abstracted in THE JOURNAL, Oct. 23, 1915, p. 1484.

Laryngoscope, St. Louis

December, 1915, XXV, No. 12, pp. 803-866

65 Frontal Sinus: Opening it Through Nose for Chronic Suppuration. O. T. Freer, Chicago.
66 Etiology of Pansinusitis. J. G. Wilson, Chicago.
67 Nonoperative Treatment of Accessory Sinuses. L. A. Coffin, New York.
68 Technic of Suspension Laryngoscopy. R. C. Lynch, New Orleans.
69 Posttyphoid Ulceration and Stricture of Esophagus. R. L. Moorhead, Brooklyn.
70 Case of Excessive Bleeder. L. M. Hurd, New York.
71 Direct Laryngoscopic Spatulum. O. Glogau, New York.
72 Antrum Trocar and Irrigating Cannula. G. B. New, Rochester, Minn.

Maine Medical Association Journal, Portland

December, 1915, VI, No. 5, pp. 193-220

73 Treatment of Facial Neuralgia with Deep Injection of Alcohol. W. D. Williamson, Portland.
74 Space Sense and Labyrinth. E. M. Holmes, Boston.

Medical Record, New York

January 1, LXXXIX, No. 1, pp. 1-46

75 Morbid Somnolence and Its Relation to Endocrine Glands. C. L. Dana, New York.
76 Dyspituitarism, Particularly of Posterior Lobe. W. L. Niles, New York.
77 Spasmodic Stricture with Dilatation of Lower Esophagus. T. W. Grayson, Pittsburgh.
78 Treatment of Rheumatic Fever. B. Robinson, New York.
79 Incest Epic of Freudians. G. M. Parker, New York.
80 Frontal and Maxillary Sinusitis and Sequelae, Due to Staphylococcus Pyogenes Albus. R. Opdyke, New York.

January 8, No. 2, pp. 47-88

81 *Period of Life at which Infection from Tuberculosis Occurs Most Frequently. S. A. Knopf, New York.
82 Medical Organization of Sickness Insurance. M. M. Davis, Jr., Boston.
83 Mercury Elimination in Bichlorid Poisoning. K. M. Vogel and O. I. Lee, New York.
84 Case of Unilateral Hydrocephalus. E. L. Hunt, New York.
85 High Frequency Current in Service of General Practitioner. L. Cohn, New York.
86 Use of Steam in Treatment of Superficial Cancer. W. J. Gillette, Toledo.
87 *Practical Method for Estimating Protein Content of Cerebrospinal Fluid. J. A. F. Pfeiffer, Washington, D. C.

81. **Period of Life at which Infection from Tuberculosis Occurs Most Frequently.**—Knopf wrote letters of inquiry to well-known internists, specialists in tuberculosis and pediatrics. From statistics and impressions gathered from the replies to those letters and from the perusal of the latest literature on the subject as well as from the results of his own experience, the following conclusions are drawn: Tuberculous disease in childhood, compared with tuberculous infection, is relatively rare (36 per cent.); on the other hand, tuberculous infection is exceedingly frequent, generally speaking. The frequency of infection increases with the age of the child, and is affected by environment. Lungs and lymph nodules are primarily most frequently involved. Pre-

natal infection, while considered rare, is perhaps much more frequent than statistics show. Nearly all the authorities consulted united in the opinion that in order to combat tuberculosis successfully in the young and old alike, we must diminish the sources of infection in childhood. To accomplish this end, amend the federal and state laws which make it a criminal offense for a duly licensed physician in good standing to give advice concerning the means of preventing conception. All cases of open tuberculosis, particularly the pulmonary and laryngeal types, should be required by law to be reported to the health authorities who in turn should be authorized to send the patient directly or through the attending physician carefully worked out instructions to prevent infecting others. Cases which cannot be properly taken care of in the home, or when it is evident that they constitute centers of infection, should be transferred to sanatoriums, special hospitals, or at least to special wards in general hospitals.

For the pregnant tuberculous woman there should be a maternity sanatorium or a special ward in existing maternities in which the prolonged antituberculosis treatment can be effectually carried out, and in cases in which mothers can receive such instructions as will guard their offspring from postnatal infection. In cases in which there is the slightest suspicion of tuberculous infection of the infant by the mother, the child should have a healthy wetnurse or should be bottle fed. Medically supervised country homes for poor tuberculous mothers and their children where they may remain until they can safely return to city environments, should be provided. All children under 5 years of age should be subjected annually or semiannually, to the von Pirquet test, and those who react positively and have in addition symptoms and physical signs should be placed under proper treatment. All children between 5 and 15 years of age, particularly those attending public schools, should be subjected to a careful physical examination on entering as a pupil and an annual reexamination thereafter, always accompanied by a von Pirquet test. Open-air instruction should be practiced whenever feasible. The school authorities should have the right to investigate the home of any child attending public school when the teacher or school physician thinks that underfeeding, bad sanitary home environments, or child labor at home, are responsible for a poor physical condition of the pupil which might develop into tuberculosis.

Child labor in factories, mines, canneries, stores, workshops, in the street or at home, must be abolished. There should be an obligatory examination for tuberculosis and other serious diseases of every boy or girl prior to entering college or any occupation. There should be periodical examinations for tuberculosis of all employees. For those weeded out as tuberculous or afflicted with other diseases which incapacitate them for their usual work under ordinary conditions, there should be agricultural and industrial colonies in which these semi-invalids nevertheless have an opportunity to earn a livelihood. There should be state insurance and obligatory private insurance against accident, old age, and diseases including tuberculosis for all earning less than $1,000 per annum, so that those fearing temporary or total loss of earning capacity will not be afraid to seek proper treatment in tuberculosis institutions. We should have uniform bovine laws enforced by federal authorities in all states of the Union alike. A continued propaganda for the education of the masses along these lines.

87. **Method for Estimating Protein Content of Cerebrospinal Fluid.**—Sulphosalicylic acid has been utilized by Pfeiffer for sometime in the routine examination of the cerebrospinal fluid for protein in the following manner, which has proved to be a most convenient, practical and satisfactory method: 3 c.c. of a 4 per cent. solution of sulphosalicylic acid are placed in a test tube 1 cm. in diameter, and 0.5 c.c. of cerebrospinal fluid allowed to flow down the side of the tube onto the surface of the acid, when a characteristic white ring appears, if an excess of protein be present, which reaches its greatest intensity in two minutes. An approximate estimation as to the degree of excess may be obtained by performing the test in several tubes, with dilutions of the spinal fluid from one to five, and comparing the results.

Michigan State Medical Society Journal, Grand Rapids

January, XIV, No. 1, pp. 1-56

88 *Newer Methods of Diagnosis in Surgery of Kidney. D. N. Eisendrath, Chicago.
89 Recent Ideas Concerning Infection and Immunity. V. C. Vaughan, Sr., Ann Arbor.
90 Obstetrics from Modern Viewpoint. A. M. Campbell, Grand Rapids.
91 *Osteoma of Frontal Sinus; Report of Case. V. A. Chapman, Muskegon.
92 Gonorrhea in Pregnancy and Puerperium. C. H. Judd, Detroit.
93 Case of Anthrax Serum Therapy. W. E. Chapman, Cheboygan.
94 Technical Improvement in Lange's Colloidal Gold Test. Formaldehyd Vapor Method. H. S. Hulbert, Ann Arbor.
95 *Effect of Potassium Iodid on Luetin Reaction. J. W. Sherrick, Ann Arbor.
96 Case of Primary Carcinoma of Appendix. C. G. Darling, Ann Arbor.
97 Case of Congenital Cyst of Stomach. W. Lyon, Jackson.

88 and 91. Abstracted in The Journal, Sept. 25, 1915, p. 1137.

95. **Effect of Potassium Iodid on Luetin Reaction.**—Sherrick states that a positive pustular or nodular luetin reaction can be obtained in 99 per cent. of all cases irrespective of the presence of syphilis, by the administration of potassium iodid, either simultaneously, or shortly before, or after the intradermal test. Other substances, such as agar and starch, when injected intradermally, will give a similar reaction when potassium iodid is administered, but with these substances the potassium iodid must be administered within a shorter time than is the case with the luetin. Other drugs containing iodin have a similar influence on the luetin reaction.

New Mexico Medical Journal, Las Cruces

December, 1915, XV, No. 3, pp. 85-132

98 Treatment of Pulmonary Hemorrhage. A. G. Shortle, Albuquerque.
99 Types of Pulmonary Tuberculosis Wherein Only Much Granules Occur in Sputum. R. C. Matson, Portland, Ore.
100 Two Duties of Physician in Southwest Toward Tuberculosis Problem. C. E. Edson, Denver.
101 Plea for More Extensive Use of Tuberculin in Treatment of Tuberculosis. W. T. Murphey, Albuquerque.
102 Tuberculosis of Larynx. I. D. Loewy, Silver City.

New Orleans Medical and Surgical Journal

January, LXVIII, No. 7, pp. 431-500

103 Abuse of Charity in Charity Hospitals. W. D. Phillips, New Orleans.
104 Abuse of Charity in Indoor Service. J. A. Danna, New Orleans.
105 Employers' Liability and Hospital Charity. M. Bradburn, New Orleans.
106 Abuse of Charity from Standpoint of Liability Companies and Workmen's Compensation Act. H. Rightor, New Orleans.
107 Abuse of Charity from Standpoint of Hospital Management. A. B. Tipping, New Orleans.
108 Existing Fallacies Regarding Mental Disorders. R. P. Truitt, New Orleans.
109 Causes and Pathology of Insanity. E. M. Hummel, New Orleans.
110 Diagnosis of Early General Paresis. H. Daspit, New Orleans.
111 Three Procedures of Assistance in Gynecologic Technic. H. W. Kostmayer, New Orleans.
112 *Case of Purpura Hemorrhagica Simplex Treated with Emetine Hydrochlorid. J. C. Cole and P. L. Querens, New Orleans.

112. **Emetin Hydrochlorid in Treatment of Purpura Hemorrhagica.**—The most striking feature in the case cited by Cole and Querens was the bleeding from the gingival margins of the superior incisor and bicuspid teeth. The ecchymotic area extended almost to the frenum of the mucous membrane, and the gums were bleeding freely; on having the patient hold his head in position so the blood could drop into a basin the rate was 40 drops per minute. The gums on both margins showed an advanced pyorrheal condition. On the right edge of the tongue near the tip there was a small ecchymotic spot the size of a pea. The throat was negative. As a local application to the gums, glycerite of tannin was tried; no improvement resulted in twenty-four hours, so the drug was discontinued. A 1:1,000 solution of epinephrin chlorid was substituted, which seemed to alleviate the condition slightly. Calcium lactate in the powdered form, 15 grains every four hours, proved valueless. The following day one-half grain of emetin hydrochlorid was administered intramuscularly, and almost immediately a hematoma about the size of a small peach formed at the site of puncture in the right arm. Eight hours afterwad a similar condition occurred on the left arm, following a second administration. The next day, on repeating the emetin, the results were

the same. The patient's condition failed to improve and the ecchymotic areas increased in number and size; the calcium also had been continued. Intravenous administration of the emetin was begun and one-half grain was given directly from the ampule, undiluted, into the median basilic vein; only a small ecchymotic spot formed at the site of puncture. Six hours afterward the injection was repeated, and on the following day improvement was noticed in the gum condition and the failure of any more spots to appear. The drug, same dosage, was repeated twice daily, alterating from right to left arm for each injection. The hemorrhagic areas began to undergo the various colors associated with blood degeneration and no new spots appeared; the patient's general condition began to improve and he claimed that he felt better. The emetin was continued until ten doses were given, when it was discontinued altogether, owing to the absolute disappearance of all symptoms.

New York Medical Journal

January 8, CIII, No. 2, pp. 49-96

113 Common Diseases of Ear. S. M. Smith, Philadelphia.
114 *Present Status of Tuberculin Therapy. H. L. Shively, New York.
115 Medical Treatment of Exceptional Children. T. A. Williams, Washington, D. C.
116 Sarcoma of Inferior Maxilla. J. D. Whitall, Philadelphia.
117 Minor Communicable Diseases. S. W. Newmayer, Philadelphia.
118 Normal Stomach. C. W. Perkins, New York.
119 Causes of Rickets; The Roentgen Ray Findings. W. Jacobsohn, New York.
120 Syringing the Ear. M. Lubman, New York.

114. **Present Status of Tuberculin Therapy.**—Shively believes in tuberculin therapy. He says that for the production of good results from the action of tuberculin, it is necessary that there should not be too great a depression of the normal physiologic functions. Patients with severe mixed infection or with grave complications, such as diabetes or nephritis, cases of acute miliary tuberculosis, and rapidly advancing cases of pulmonary tuberculosis with areas of softening and recent cavities, cannot be expected to react favorably to tuberculin. Also many incipient cases do sufficiently well with the ordinary dietetic and hygienic treatment, with the medical supervision and regulation of their mode of life, which can usually be best obtained in a well conducted sanatorium. The special field, then, for tuberculin is that large group of patients with fairly good resistance, with little or no fever, stationary or slowly progressive, who are ineligible for, or cannot go to the sanatorium, or who have failed to attain a cure or arrest of their disease while at the sanatorium. Shively believes the time has arrived when every tuberculosis clinic at least should have its tuberculin class. Any well trained physician who is capable of administering vaccines or diphtheria antitoxin is also competent, with the exercise of good judgment and the necessary patience, to give the tuberculin treatment. The problems in tuberculin therapy are essentially clinical and not of the laboratory, and the physician's best guide is a carefully recorded observation of his patient's temperature, pulse, weight, and general condition. Many physicians are too busy, some are too impatient, others perhaps are too lazy properly to administer tuberculin treatment. They should not attempt it.

New York State Journal of Medicine

November, 1915, XV, No. 11, pp. 415-456

121 Pathology of Syphilis. J. A. Fordyce, New York.
122 Treatment of Syphilis in Primary Stage. E. L. Keyes, Jr., New York.
123 Methods of Teaching Syphilology. W. T. Corlett, Cleveland.
124 Determination of Relative Position of Rest, by Prolonged Occlusion of One Eye. F. W. Marlow, Syracuse.
125 Tonsil in Its Relation to Rheumatic Infections. T. H. Halsted, Syracuse.
126 *Pyelitis; Its Clinical Significance. E. J. Wynkoop, Syracuse.
127 Can Pneumonia in Children be Aborted? T. W. Clarke, Utica.
128 Some Practical Questions on Metabolism. C. G. Stockton and J. L. Butsch, Buffalo.

126. Abstracted in THE JOURNAL, May 22, 1915, p. 1790.

Ohio State Medical Journal, Columbus

December, 1915, XI, No. 12, pp. 747-842

129 *Diagnosis and Medical Treatment of Gastric and Duodenal Ulcer. J. D. Dunham, Columbus.
130 *Diagnosis and Surgical Treatment of Gastric and Duodenal Ulcers. F. E. Bunts, Cleveland.
131 Factors Entering into Diagnosis and Treatment of Gastric and Duodenal Ulcer. W. D. Haines, Cincinnati.
132 Reminiscences of Treatment of Eye. S. C. Ayres, Cincinnati.
133 Gastric Lavage in Diabetes Mellitus. J. P. Sawyer, Cleveland.
134 Some Practical and Modern Points on Dietetics. T. W. Grayson, Pittsburgh.
135 Ohio Industrial Commission and Country Physician. C. A. Hough, Lebanon.
136 Intraspinous Injections of Salvarsanized Serum for Syphilis. H. M. Brundage, Columbus.
137 Reorganization of Toledo Health Department: Replacing Sanitary Police with Public Health Nurses. D. W. Iford, Toledo.
138 Typhoid Situation in Toledo. C. S. Mundy, Toledo.
139 *Heart Affections from Gallbladder Disease and Appendicitis. M. J. Lichty, Cleveland.
140 Nasal Obstruction and Its Treatment. C. O. Jaster, Elyria.
141 Diphtheria in Ohio. F. G. Boudreau, Columbus.

129. **Medical Treatment of Gastric and Duodenal Ulcer.**—Dunham closes his paper as follows: Simple gastric and duodenal ulcer without stenosis should be treated medically by absolute rest in bed over a period of three weeks with an added residence in the hospital of three weeks. Not until such rigid measures are employed should surgical intervention be considered. Patients with an actual stenosis or with evidences of its onset should be subjected at once to surgical intervention. The internist and not the surgeon is able to determine the percentage of cures following gastro-enterostomy for gastric and duodenal ulcer. The recurrences over a period of five to ten years are rarely seen by the operator. The brilliant reports in gastric surgery would lose some of their glamour were results known after an interval of ten years. The confidence of the internist in the surgical treatment of these diseases will be enhanced when the surgeon is willing to excise the ulcer bearing area as well as to perform a gastro-enterostomy. In Dunham's small experience he has seen three patients develop carcinoma on an ulcer following gastro-enterostomy. These patients exhibited no suggestion of a beginning carcinoma at the time of operation. The percentage of permanent cures in gastric and duodenal ulcer is sufficiently low by either medical or surgical methods to justify a closer and more intimate cooperation between internist and roentgenologist, surgeon and the research worker.

130. **Surgical Treatment of Gastric and Duodenal Ulcers.**—Bunts holds that the possibility of cures under medical treatment must always be taken into consideration when deciding the question of operation. Undoubtedly, he says, cures do occur under purely medical and dietetic lines of treatment, but the well-known periodicity of symptoms makes it probable that many of the medical cures are really attributable to this factor. Surgeons agree that medical measures should always receive first consideration, but recurring attacks should positively determine the necessity of surgical intervention. Particularly is this true if severe pain, vomiting of small amounts of coffee-ground material or continuous hemorrhage be present. Bunts is convinced, too, that persistent stomach trouble which has failed to respond to intelligent medical treatment and in which the diagnosis is so obscure as to prevent positive conclusions, demands an exploratory operation, at least.

139. **Heart Affections from Gallbladder Disease and Appendicitis.**—Cases are cited by Lichty to show that many cases of functional and organic disease of the heart are caused by disease of the appendix and gallbladder. Surgery is often the only method by which these diseased hearts may be improved or restored to health. These hearts are not improved much or permanently by purely medical treatment. (Vaccines may have their indication.) It is surprising, says Lichty, to see how well many of these cases bear operation, even though the patient is found in extremis, and the operation hazardous. Under these circumstances a good surgeon, a skilled anesthetist, and a competent internist are essential for safety and a favorable termination. If the heart is to be benefited, it is just as important to operate early and before the patient's condition becomes incurable, as it is important to do any other surgical operation at an early period. Whenever surgery of the gallbladder or appendix is indicated, but deferred until the heart is seriously damaged, somebody is responsible, be it physician, surgeon or patient.

Old Dominion Journal of Medicine and Surgery Richmond, Va.

December, 1915, XXI, No. 6, pp. 237-276

142 Phases of Problem of Alcoholism Based on Previous Personal Investigations. A. Gordon, Philadelphia.
143 Diagnostic Significance of Alterations in Blood Pressure. F. M. Hodges, Richmond.
144 The Prostatic Portion of Male Urethra. C. O. Abernethy, Raleigh.
145 Verumontanumitis. L. T. Price, Richmond.

Pennsylvania Medical Journal, Athens

December, 1915, XIX, No. 3, pp. 149-230

146 Hospital and Home Isolation. D. L. Richardson, Providence, R. I.
147 Quarantine of Home as Practiced by Department of Health in Pennsylvania. S. G. Dixon, Harrisburg.
148 *Hemoptysis in Pulmonary Tuberculosis; Its Treatment. E. H. Funk, Philadelphia.
149 Clinical Findings of Foreign Body in Air Passages of Children. H. T. Price, Pittsburgh.
150 Intramuscular Injections of Antitoxin. S. S. Woody, Philadelphia.
151 *Acute Surgical Diseases of Pancreas. J. B. Deaver, Philadelphia.
152 Ethmoiditis; Its Varied Effects and Their Probable Prevention; or When Fully Established, Their Possible Cure. J. L. Davis, Philadelphia.
153 Some Points on Applied Anatomy of Temporal Bone. D. G. Metheny, Philadelphia.

148. Abstracted in The Journal, Oct. 30, 1915, p. 1579.

151. Abstracted in The Journal, Oct. 16, 1915, p. 1399.

South Carolina Medical Association Journal, Anderson

December, 1915, XI, No. 12, pp. 370-403

154 Clinical Significance of Albuminuria. J. J. Watson, Columbia.
155 Diseased Kidney; Infections in General, with Special Reference to Acute Pyelonephritis Complicating Pregnancy. M. H. Wyman, Columbia.
156 Pyelitis; Its Diagnosis and Treatment. W. R. Barron, Columbia.
157 Endoscopy; Its Value in Urologic Practice. C. A. Mobley, Rock Hill.
158 Plea for More Thorough Examination of Urologic Cases. E. C. Baynard, Charleston.
159 Functional Capacity or Efficiency of Kidneys. C. F. Ross, Anderson.
160 Puerperal Septicemia. A. W. Browning, Elloree.
161 Use of Emetine Hydrochlorid as Abortive in Treatment of Typhoid. O. D. Busbee, Springfield.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

December, 1915, XX, No. 7, pp. 209-242

1 Value of Electrocardiograph in Diagnosis of Diseases of Heart. G. E. S. Ward.
2 Gas in Tissues. J. M. W. Morison.
3 Alternating Current from Public Mains in Treatment of Neuritis and Muscular Atrophy. H. Bordier.
4 New Apparatus for Localization of Foreign Bodies. R. Hallam.

British Medical Journal, London

Dec. 18, 1915, II, No. 2868, pp. 881-912

5 *Classification of Meningococci Based on Group Agglutination Obtained with Monovalent Immune Rabbit Serums. A. W. M. Ellis.
6 *Grouping of Strains of Meningococcus. J. A. Arkwright.
7 Some of Effects of Exposure to Wet Cold and Their Prevention. S. Delépine.
8 Carrier Problem at Home in Time of War. E. C. Hort.
9 Chronic Poisoning by Emetine. H. H. Dale.

5. Classification of Meningococci.—Ellis summarizes his paper as follows: The causative agent of cerebrospinal fever, the meningococcus, is of at least two types. These two types are, as regards the one immune reaction tested, agglutination, absolutely independent. In a study of forty-six strains of meningococci, obtained from various sources, all were of one or other of these two types. Both types are widely distributed, having been found in each of six epidemic foci. They may occur with equal frequency. Both types have been found in the nasopharynx of healthy carriers. Ellis has designated these two types Types I and II. In so far as evidence is available, Type I has been more frequently the cause of the disease in the recent epidemics than has Type II. In view of the wide distribution of the two types, both must, however, be held equally responsible as causative agents of cerebrospinal fever. The organism Ellis describes as Type II, he suggests is probably identical with the parameningococcus of Dopter. It is also suggested that in the treatment of cerebrospinal fever better results might be obtained, and more exact knowledge of the adequacy of serum treatment gained, if monovalent horse serum of appropriate type, and therefore known to be active against the infecting organism, were employed in place of the polyvalent serums at present in use.

6. Grouping of Strains of Meningococcus.—Thirty out of thirty-two strains of meningococci tested by Arkwright agglutinated with a polyvalent rabbit serum prepared with six strains isolated in the same epidemic. Thirty strains isolated during the present epidemic fall into two main groups according to agglutination tests. Five other strains presented difficulties in their classification. These two main groups correspond to Dopter's classification into meningococcic and parameningococcic. The numbers falling into the two groups—meningococcic and parameningococcic—were 18 and 12, respectively, that is, 3 to 2. There is some evidence that two of the five unclassified strains were intermediate in character between the two main groups. Neither group was more frequently found among cases from one district than from another. Rapidly fatal cases of meningitis occurred with infection with either type of meningococci.

Indian Journal of Medical Research, Calcutta

October, 1915, III, No. 2, pp. 205-396

10 Note on Two Thousand, Six Hundred and Forty-Three Medico-legal Cases, in which Six Thousand, Five Hundred and Sixty-Six Articles, Suspected to be Blood Stained were Examined. W. D. Sutherland.
11 Effect of Hemolytic Drugs, Toxines and Antiserums on Hemolytic Point (So-Called Isotonic Point) and Association Between this Point and Hemoglobinuria. S. R. Christophers and K. R. K. Iyengar.
12 Sumatran Culicida. A. T. Stanton.
13 *Production of Gallstones in Rabbits Following Intravenous Inoculations of Cholera-Like Vibrios. E. D. W. Greig.
14 Epidemiologic Significance of Repeated Infections and Relapses. A. G. McKendrick.
15 Epidemiologic Significance of Splenic Enlargement in Malaria. A. G. McKendrick.
16 *Treatment of Snake-Bite. H. W. Acton and R. Knowles.
17 Pilotaxy of Anopheles. S. R. Christophers.
18 Male Genitalia of Anopheles. S. R. Christophers.
19 Occurrence of Stygeromyia Maculosa at Kasauli and Its Breeding Place. J. L. Mitter.

13. Gallstones Produced by Vibrios.—The lesions of the gallbladder of rabbits following intravenous injections of vibrios described by Greig, he believes no doubt form centers round which the calculus is deposited. The animals in which the lesions described occurred, were both immunized with cholera-like vibrios; in the one case with a vibrio derived from the stools of a case of cholera and in the other from a tank the water of which is used by pilgrims.

16. Treatment of Snake-Bite.—With the remedies at present available for the treatment of bites from poisonous snakes, if properly applied, Acton and Knowles states that it should be possible to save a large percentage of the cases which now prove fatal. The general line of procedure suggested is as follows: 1. Apply a firm ligature immediately. 2. Impregnate the whole area of the bite with a hypodermic injection of a strong solution of gold chlorid. 3. Inject from 100 to 200 c.c. of antivenene intravenously, if the biting snake be suspected to have been a cobra or Russell's viper. If symptoms of venom intoxication come on, further and even larger injections of antivenene should be given intravenously. With serums concentrated 10 times, a dose of 20 to 60 c.c. should save every case of cobra bite.

Lancet, London

Dec. 18, 1915, II, No. 4816, pp. 1331-1384

20 Superstitions of Menstruation. R. Crawfurd.
21 Early Operative Treatment of Gunshot Wounds of Alimentary Canal. C. Wallace.
22 Responsibility for Crime. B. Donkin.
23 *Incidence of Renal Retinitis in Soldiers Suffering from Epidemic Nephritis. R. F. Moore.
24 Bullet Wound of Esophagus. A. W. Nuthall.
25 Subcutaneous Injection of Distilled Water for Multiple Ulcers. G. A. Stephens.

23. **Renal Retinitis in Soldiers Suffering from Epidemic Nephritis.**—The result of the ophthalmoscopic examination of 119 soldiers suffering from epidemic nephritis is analyzed by Moore. In 5 cases renal retinitis either was present or developed while the patient was under observation. Of the remaining 114 there were 7 in whom small retinal hemorrhages were present, and 107 with normal fundi. The retinal hemorrhages in the seven cases were small and few. The average systolic blood pressure in 70 men with normal fundi was 143 mm., whereas that of the 5 men in whom retinitis developed was 180 mm. The average interval between the date of the onset of symptoms and the ophthalmoscopic examination in those without retinitis was five and one-half weeks. In the case of the 5 men in whom retinitis developed, the interval between the onset of symptoms of nephritis and the development of retinitis, as near as could be judged, was seven weeks. The retinitis which developed did not differ in appearance in any essential from the retinitis of chronic nephritis. In each of the men in whom it occurred the general symptoms were severe, and in general, the more severe these symptoms the more extensive were the changes in the retina. In three cases detachment occurred, and of these two cases of the transparent globular type, which are due to the presence of serous fluid in the subretinal space. In one case the detachments were of the flat variety, such as are due to the presence of solid exudate under the retina. Circular pigment spots which are produced by the proliferation of the pigment epithelium, and which are seen in a retinitis of some standing were present in two cases. There is no doubt in Moore's mind that the great majority of these 119 men were suffering from a primary acute nephritis, and were not the subjects of a preexisting chronic nephritis. In four cases, in three of which retinitis was present, the blood serum was opalescent and in two of them it was especially dense. This opacity was found to be due to the presence of lecithin globulin. The fundi in these cases did not show the characteristic picture of "lipemia retinalis."

Journal de Médecine de Bordeaux, Paris

December, 1915, LXXXVI, No. 2, pp. 21-36

26 *The Histologic Processes Involved in the Healing and Restoration of Function in Traumatized Nerves. A. Pitres.

26. **Suture of Severed Nerve.**—Pitres has made an extensive microscopic study of the histologic processes involved in the restoration of function in sutured nerves, and declares that suture of the nerve during the hours that follow the traumatism is logical and often useful. It facilitates repair but, no matter how perfect, it does not prevent the degeneration of the peripheral stump. Any cases reported of immediate or ultra rapid restoration of function in a severed nerve are unable to stand criticism. Tardy suture rarely gives favorable results because this can be done only by profoundly disturbing the healing processes proceeding in the central stump. Resection of the central stump at this time is rarely useful and almost invariably does harm by destroying the histologic work already accomplished by the true nerve fibers here.

Paris Médical

Nov. 6, 1915, V, No. 26, pp. 449-464

27 Gunshot and Shell Wounds of the Chest. (Plaies pénétrantes de poitrine par blessure de guerre.) E. Rémond and R. Glénard.
28 Extermination of Lice. (Les Poux: Destruction, procédés divers et leur mode d'action). H. Labbé and M. Wahl.
29 *Typhus in Serbia. M. J. Minkine.

November 27, Nos. 28-29, pp. 481-524

30 *Present Status of Treatment of Wounds in War. (Le traitement des plaies de guerre.) Soubeyran.
31 Folding Stretcher for the Trenches. (Brancard articulé.) Barthélemy.
32 Arrangements for Early Care of the Wounded. (L'organisation et le fonctionnement d'un poste de secours régimentaire.) L. Binet; (Le fonctionnement des ambulances dans les services de l'avant.) M. Barthélemy; (Fonctionnement d'un service de chirurgie dans un hôpital de l'avant.) E. Vayssière; (Un mois de chirurgie abdominale au front.) Delay and Lucas-Championnière.
33 Two Roller Sheets for Wounded Man; Rods Introduced at Sides and Braces Head and Foot Transform Them into Stretcher, Leaving Wounded Area Accessible from Above and Below. (Brancard démontable pour mobilisation des grands blessés couchés.) Garipuy.
34 *Meningitis Service in a Field Hospital. (Fonctionnement d'un service de meningites cérébro-spinales dans un hôpital de l'avant.) J. Pignot and J. Terrasse.
35 *To Promote Healing of Wounds on Feet Subject to Morbid Sweating (Cicatrisation des plaies chez les hommes atteints de sudation des pieds.) Le Tanneur.

29. **Typhus.**—Minkine noticed that a sudden change of mood, glumness and depression, was sometimes the first sign of typhus. One evening he felt weary and quarrelsome, without any special malaise, but a general disinclination to any effort. A week or ten days later the typhus infection manifested itself clinically. During this incubation period the temperature assumed the tuberculosis type in one physician who had been systematically taking his temperature morning and night for months. During the eight days that preceded the fatal attack of typhus there was an evening rise of temperature. The clinical picture of typhus is dominated by the symptoms on the part of the heart. Three fourths of those who die succumb to heart failure developing suddenly toward the twelfth day. Immediate injection of 20 or 30 c.c. of ether-camphorated oil, without waiting to send for help, when syncope of this kind was noted in a typhus patient, reduced the mortality by more than 60 per cent. The internal ear evidently suffers in typhus, as more or less deafness was left in the majority of cases he had in his charge.

30. **Treatment of Wounds in War.**—Soubeyran is convinced that the artificial nutrient fluids, such as Ringer's and Locke's, afford the best conditions for repair of wounds. He reviews the various methods of treatment in vogue and reiterates that nothing in his experience gives such good results as these nutrient fluids. The wound must first be opened up and effectually cleaned out—the mechanical stage of the treatment. This is followed by the antiseptic stage, striving to disinfect the wound with some antiseptic solution, keeping the strength below the concentration that will injure the cells. Then comes the physiologic stage, when everything aims to promote repair, and here the artificial nutrient serums afford the best possible conditions. For months he has been using Schiassi's serum for the purpose, as this contains calcium and potassium to strengthen the cells, sodium to combat acidosis, and sugar as a tonic and nutrient. The formula is 6.5 gm. sodium chlorid; 0.3 gm. potassium chlorid; 1 gm. fused calcium chlorid; 0.5 gm. sodium bicarbonate; 1.5 gm. glucose and 1,000 gm. distilled water.

34. **Epidemic Meningitis.**—A service for serotherapy of epidemic meningitis was organized close to the firing line and all suspects in the region are sent there at once. This permitted prompt recognition of other causes for the meningitic symptoms in some cases, and prompt trephining, releasing extravasated blood, soon cured the patients of their supposed epidemic meningitis. Painful stiffness of the back of the neck, sometimes only when the head is passively moved, was the most reliable early sign. There is no photophobia, as with tuberculous meningitis, but hyperesthesia and hyperalgia were constant and in some cases there was opisthotonos like that of tetanus. The pulse was unstable from moment to moment but not retarded. A number of the patients developed symptoms indicating a toxic action from the serum, as the sterile spinal fluid showed that the cocci had been conquered. In other cases the spinal fluid disclosed that the disease had relapsed. Of the twenty-six patients with meningitis received during four months, all recovered but four. The head and shoulders were lowered for forty-five minutes after the intraspinal injection of serum and no drugs were given except 1 gm. of hexamethylenamin and 250 gm. of salt solution with 0.10 or 0.15 gm. spartein to stimulate diuresis at need. Vegetable soup and milk formed the only diet during the acute phase. The men were sent home to convalesce after a few weeks during which measures to disinfect the nose and throat were vigorously applied.

35. **Healing of Wounds on Feet Subject to Excessive Sweating.**—Le Tanneur has found that the excessive sweating prevented normal healing, and was able to combat this effectually by having the man hold his feet in very strong sulphurated water for ten or fifteen minutes a day.

Presse Médicale, Paris

Dec. 9, 1915, XXIII, No. 60, pp. 489-496

36 Fiftieth Anniversary of Villemin's Experimental Demonstration of the Specific and Contagious Virulence of Tuberculosis. (Le cinquantenaire à l'Académie de Médecine de la démonstration expérimentale de A. Villemin sur la virulence spécifique et contagieuse de la tuberculose.) L. Landouzy.

37 Complete Separation of Head of Femur in Small Boy; Treatment as for Congenital Dislocation. (Décollement épiphysaire complet de l'extrémité superieure du fémur.) A. Broca.

Revue Médicale de la Suisse Romande, Geneva

November, 1915, XXXV, No. 11, pp. 605-912. C. Roux Souvenir Number

38 *The Early History of the Medical Department of the University of Lausanne. (Les débuts de l'école de Lausanne.) G. Delay.

39 *The Birth of Appendicitis. (La naissance de l'appendicite.) C. Krafft.

40 *Methods for Fixation of the Uterus and Their Obstetrical Consequences. G. Rossier.

41 The Prognosis of Pulmonary Tuberculosis. J. Taillens.

42 Fatal California Blastomycosis in Dairyman. (La blastomycose californienne—Oidium coccidiodes.) P. Campiche (San Francisco).

43 *Sterilization to Arrest Progressing Pulmonary Tuberculosis. (Tuberculose pulmonaire et stérilisation. Etude à propos de neuf cas.) E. Olivier.

44 *Flushing the Bowels by Way of the Appendix in Treatment of Paralysis from Acute Peritonitis Following Gastro-Intestinal Perforation. (Quelques cas personnels d'appendicostomie.) J. Roux.

45 Salpingostomy; Seven Cases. O. J. Rapin.

46 Typical Traumatic Lesion of the Internal Condyle of the Femur. H. Vulliet.

47 Mistaken Diagnoses of Appendicitis. (Zur Lehre der Fehldiagnosen bei Appendicitis.) O. Burckhardt.

48 Heliotherapy for Wounds in War. (La cure solaire en chirurgie de guerre.) P. Reinbold.

49 *Resection of Posterior Spinal Roots Cures Old Sciatica Incapacitating for Six Months. (Contribution au traitement chirurgical de la sciatique chronique rebelle—opération de Förster.) A. Métraux.

38-39. **C. Roux Number.**—Seventy of the nearly three hundred pages of this *numéro jubilaire* are devoted to the achievements of the medical department of the University of Lausanne in honor of the twenty-fifth anniversary of César Roux's connection with the teaching force. The use of cotton in dressings (1832) and the name "catheter" (1835) date from the early days of the school, and Roux, himself, was one of the first to recognize that the prevailing methods of treating suppuration back of the colon were wrong. No one thought of incising the abdomen until fluctuation could be palpated, and the patient was usually dead before this occurred. Roux was one of the first to advocate and do appendicectomy. In 1888 a thesis was written on it under his inspiration by C. Krafft. It was published in the October issue of this same *Revue*. Krafft recalls these facts and remarks, "The baby was born, but the Americans—who have not the time to be classic—gave it its bastard name. Appendicitis today salutes one of its most authentic sponsors in Prof. César Roux."

40. **Fixation of the Uterus.**—Rossier discusses the influence on deliveries later of the various methods in vogue for fixation of the uterus, remarking that van der Velde found 217 different technics on record. The literature and statistics are compared with the personal experiences at Lausanne with delivery after abdominal fixation in 25 cases; in 4 cases after intra-abdominal shortening of the round ligaments, and once after drawing up the round ligaments in another way. There were sixty deliveries later among these 30 women and only eight of them were spontaneous; these were unduly prolonged. With the Alexander-Adams technic alone there was no dystocia. Many writers preach that ventrofixation and vaginofixation are too dangerous to be attempted.

When the retroflexion is immovable, the Pestalozza technic —pelvic hysteropexy—is simple and easy, and Rossier is not aware of any instance of consecutive dystocia. Pestalozza's latest report on 121 cases was published in 1913, and others have applied it until there are over 200 cases on record. In the twenty-one cases in which there was delivery later it proceeded normally. With this abdominal technic, a cap of serosa, muscle and connective tissue is fitted over the fundus of the uterus and sutured to it, thus holding it in excellent anteflexion but leaving it absolutely free to enlarge. The cap is made from a serous fold at the upper limit of the inferior segment of the uterus. The fold is incised transversely and the incision is carried to right and left a little beyond the uterus, until it clips the anterior layer of the broad ligament. The incision must be carried down through the serosa into the subjacent fibromuscular layer. The sheet of tissue thus obtained is separated with the finger up to the bladder and then it is sutured to the fundus, carrying it over on the posterior aspect of the uterus.

43. **Sterilization for Women with Progressing Pulmonary Tuberculosis.**—Olivier gives the details of nine cases in which she advised an operation to prevent future childbearing, believing that sterilization is indicated for multiparae of the working classes, on account of the high mortality during childbearing, the inefficacy of measures for contraception in these classes, the transient effect of therapeutic abortion, and the harmlessness of tubal sterilization done when abortion is necessary. The nine women whose history is related improved materially after the operation and extol the improvement and relief from coughing and taking medicine that have followed. Five similar cases from other clinics make an equally good showing, as also five women who were sterilized on account of tuberculous lesions in the genital organs. Olivier reiterates that the foregoing indications apply exclusively to multiparas of the wage-earning class. The matter appears under an entirely different aspect in the homes of the well-to-do.

44. **Flushing the Paralyzed Bowel by Way of the Appendix.**—In one of the ten cases reported by J. Roux, the bowel had been perforated at eight points by a bullet; in two other cases the men had been run over by a vehicle. Most of the others were perforated gastric ulcers. In one case the interval before the laparotomy was twenty-seven hours, and one patient was a man of 60 with strangulated right femoral hernia. The abdomen was first opened and repaired, and then the irrigation was arranged by the drop method through the appendix. In one case of fracture of the spine, no lesions could be found in the abdomen but there was grave paresis of the bowel for several days until it yielded to the continuous irrigation. The open appendix releases gases, while the fluid is absorbed by the cecum in such amounts that the patient does not need any by other routes. Peristalsis is stimulated in its natural direction, and as soon as the water issuing from the rectum is colored by bile, the paresis is conquered.

49. **Resection of Spinal Roots for Sciatica.**—The man of 30 had suffered more or less from left sciatica for five years, but during the last six months the pain had become agonizing, totally incapacitating the man and rebellious to all measures, including treatment for syphilis. As a last resort, Förster's operation was proposed, and in October, 1914, through an incision from the second lumbar to the first sacral spinous process, the second sacral posterior root and the fifth lumbar were resected for from 1.5 to 2.5 cm. Tamini of Buenos Aires has demonstrated that the last large root of the cauda equina is the second sacral root, and that this second sacral root is only half the size of the first sacral, whose diameter is the same as that of the last lumbar roots. The second sacral was thus easily located, and not more than 25 c.c. of fluid was lost during the operation. The patient was kept lying prone for twenty-four hours, and the stitches were removed the eighth day. There was then pronounced paresis of the left leg, but no single group of muscles seemed paralyzed, and motor functioning was gradually regained. Two months afterward the patient could take long walks without fatigue and there has been no return of the pain, and the sciatic is not tender. The patient is said to be "enchanted with the results." The back of the thigh and inner margin of the foot have had the sensibility reduced, and there is an occasional burning sensation in the sole of the foot.

Berliner klinische Wochenschrift

Dec. 13, 1915, LII, No. 50, pp. 1273-1296

50 *Gravity Hyperemia as Aggravating Itching. (Das durch Blutstauung und Blutsenkung verstärkte Jucken. V. Senkungshyperämie durch die Schwere.) P. G. Unna.

51 Vaccination against Typhoid and Cholera. (Schutzimpfung bei Typhus und Cholera.) F. Hueppe.

52 Summer Diarrhea. (Ueber Sommerdurchfälle. Kritische Gedanken eines Bakteriologen.) E. Marx.
53 Camp Diseases and Importance of Contact Infection. (Ueber die Kriegsseuchen.) Menzer. To be concluded in 51.

50. **Mechanism and Treatment of Itching.**—See abstract 49 in THE JOURNAL, Jan. 15, 1915, p. 227.

Deutsche medizinische Wochenschrift, Berlin

Dec. 2, 1915, XLI, No. 49, pp. 1445-1476

54 *Twenty-Five Years of Antitoxin Serotherapy. H. Kossel.
55 Lessons from War Experiences to Date in Field of Internal Medicine. (Ergebnisse der bisherigen Kriegserfahrungen auf dem Gebiete der inneren Medicin.) Reckzeh.
56 Lessons from War Experiences to Date in Military Surgery. (Ergebnisse der bisherigen kriegschirurgischen Erfahrungen.) H. Matti. To be concluded in No. 50.
57 *Tardy Tetanus. (Spättetanus nach frühzeitiger prophylaktischer A-T-Injektion.) O. Teutschlaender.
58 Typhoid in Soldiers. (Zur Symptomatologie und Therapie des Unterleibstyphus.) H. Scholz.
59 Ophthalmologic Service in the War. (Die augenärztliche Tätigkeit im Kriege.) H. Feilchenfeld.
60 The Toxic Action of Salvarsan is Alleged to Correspond in every way to Toxic Action of Arsenic. (Ueber Todesfälle nach Salvarsan.) F. Lube.
61 Dosage of Roentgen Rays. H. E. Schmidt.
62 Furstenau's Intensimeter. F. M. Meyer.

54. **Twenty-Five Years of Antitoxin Serotherapy.**—Kossel quotes the modest statement with which Behring announced in the *Deutsche medizinische Wochenschrift* of Dec. 4, 1890, the birth of serotherapy, curative and prophylactic. The article was signed by von Behring and Kitasato, and was entitled "Ueber das Zustandekommen der Diphtherieimmunität und der Tetanusimmunität." The importance of the announcement was not realized at first, except in research laboratories. Kossel traces the various steps of von Behring's work culminating in the production of diphtheria antitoxin and, with Kitasato's aid, in the production of antitetanus serum. In studying the action of iodoform on infectious processes he became convinced that it did not act on the germs but it annulled the toxicity of their products. He also noticed that the blood serum of rats naturally immune to anthrax had a destructive action on anthrax germs, but that the serum of guinea-pigs that had passed through diphtheria and were left immune did not kill diphtheria bacilli. An antitoxic action was evident, however.

Cattle-breeding interests saw such possibilities in serotherapy for tetanus that the state was induced to finance further research. Ehrlich's work on ricin and abrin, artificially increasing the immunity, also aided the progress of serotherapy. In April, 1893, were published the first cases of antitoxin-treated diphtheric children. This was in the Leipzig clinic for children's diseases, in charge of Heubner. To Ehrlich is due the method of testing the antitoxin content of the therapeutic serum, and this placed the whole matter on a practical and stable basis in 1894. A chart is given showing the mortality from diphtheria in German cities of over 15,000 inhabitants. It ranged from 85 to 130 per 100,000 inhabitants during the years 1886 to 1894, but dropped the year antitoxin came into clinical use, 1895, to 50 and since 1899 has never reached 30, keeping on a level line between 21 and 29. Antitetanus serum has not fulfilled the hopes for its curative action, but this war has demonstrated most emphatically its value in prevention. Antitoxic serotherapy has been applied by Calmette for snake-bite, by Kempner for botulism and by Dunbar for hay fever. Behring's discovery led to closer study of the serum, and discovery of whole series of specific antibodies.

57. **Tardy Tetanus.**—Teutschlaender reports a case in which a young man developed fatal tetanus five months after a grenade wound of the chest. He had been given antitetanus serum at the time but the germs had evidently slumbered for 145 days as then, in changing dressings, there was collapse and tetanus developed, fatal in twenty-four hours. It was evidently a tardy recurrence of an abortive tetanus. A scrap of the grenade had healed in the musculature of the back and tetanus bacilli on this scrap were responsible for the disease, as the encapsulated foreign body had eroded the capsule and thus permitted the germs direct access to the spinal cord.

Medizinische Klinik, Berlin

Dec. 5, 1915, XI, No. 49, pp. 1337-1364

63 *Treatment of Eclampsia in the Home. (Behandlung der Eklampsie durch den praktischen Arzt.) G. Winter.
64 Syringomyelia in Father and Son. J. P. Karplus.
65 Improvement under Large Doses of Iodin in Case of Acromegaly. C. Fürth.
66 Serous Meningitis Follows Chilling of the Head in Young Man Six Years after Severe Malarial Infection; Scarlet Fever Becomes Manifest Two Weeks Later. O. Lindbom.
67 *The Grippe. (Ueber die Grippe.) Stepp.
68 *The More Modern Methods of Treating Typhus. (Neuere Behandlungsmethoden des Fleckfiebers.) B. Coglievina.
69 Bacteriologic Diagnosis of Typhoid. (Die Brauchbarkeit des Kongorotserum- und Drigalskiserumagars zur bakteriologischen Typhusdiagnose.) W. Schürmann.

December 12, No. 50, pp. 1365-1390

70 Rigid Arteries and Drop-Shaped Heart from Standpoint of Fitness for Military Service. (Rigide Arterien, Tropfenherz und Kriegsdienst.) O. Müller.
71 Paratyphoid. (Klinische Beobachtungen über Paratyphus.) A. v. Reuss.
72 Experimental Basis for Specific Treatment of Infectious Jaundice. III. (Experimentelle Grundlagen für eine specifische Behandlung der Weilschen Krankheit.) Uhlenhuth and Fromme.
73 Treatment of Disturbance of Speech Following Wounds in War. (Eine sprachärztliche Kriegsabteilung.) E. Fröschels.
74 Quickly Improvised Splints for Fractured Upper Arm or Thigh. (Schienenverbände bei Schussbrüchen des Oberarmes und Oberschenkels.) Busalla.
75 *Is the Wassermann Reaction Elicited by Thrombosis in the Non-syphilitic? Leven.
76 Remarkably Beneficial Action of Treatment of Extensive Grenade Wounds as for a Deep Burn. (Die "Bardella"-Binde bei Granatschusswunden.) H. Weiss.

63. **Treatment of Eclampsia by the General Practitioner.**—Winter expatiates on the revolution that has been wrought in the treatment of eclampsia by Stroganoff's insistence that certain elements in the treatment which hitherto had been disregarded as of comparatively minor importance were in reality the main therapeutic and prophylactic factors. Winter's article is based on nearly 400 cases of eclampsia in his own service in Königsberg, and on several thousands in the literature. He classifies and discusses this material from various points of view, and draws the conclusion that delivery should always be induced at once if the os is sufficiently dilated. If not, the woman should be sent to a maternity for further treatment, or the Stroganoff method should be applied, always starting by venesection, withdrawing 600 c.c. of blood. This alone may postpone further seizures. There are 53 cases on record with only 10 per cent. mortality, in which venesection alone was attempted. But it is better to follow at once with the Stroganoff treatment. It is complicated, and requires trained nursing and such attentive supervision on the part of the physician that he is amply justified in sending the patient to the maternity. At the same time, the physician is armed against the disease, and he is no longer dependent on operative measures.

Pure pregnancy eclampsia is rare; he has had only 12 cases and could find only 50 on record. The prognosis is better on account of the absence of labor contractions which have a seriously aggravating influence on eclampsia. He brings on delivery as a prophylactic measure when women at term have extreme albuminuria, headache with vomiting and disturbance in vision, extreme motor restlessness and slight psychic changes. It seems probable that this has warded off eclampsia in many cases, but proof is not forthcoming. Most cases of eclampsia are not seen by the physician until after delivery. In 57 cases in this group the mortality was 10 per cent. He reassures the general practitioner therefore that he is fully justified in taking the treatment of eclampsia, and, in cooperation with the operative obstetrician, may obtain excellent results.

(Stroganoff's technic was described in these columns July 3, 1909, p. 86.)

67. **The Grippe.**—Stepp insists that influenza and grippe are distinct morbid entities. Influenza swept across Europe in three great epidemic waves in the 110 years ending with 1900. Grippe, on the other hand, is a mixed infection and does not display the essential contagiousness of influenza although numerous cases usually develop about the same time. Langstein has recently published a monograph on grippe in children under 2; above this age the conditions are about the

same in children as in adults. When a person with an apparently mild simple catarrh of the upper air passages tires extremely readily, there is probably a substratum of grippe. Many affections of various organs may owe their origin to a latent or unheeded grippe. In puzzling cases of sickness, the long persistence of a temperature rather below the normal suggests the presence of grippe. Treatment must meet the varying conditions encountered. He mentions only "drugs to promote resolution, inhalation apparatus and quinin" as proving serviceable.

68. **Various Methods of Treating Typhus.**—Coglievina describes the favorable effect of exposure of the skin to the direct rays of the sun for an hour, with cold compresses to the head. This heliotherapy seems to annul the toxicity of the circulating blood. The temperature drops by one degree C. but as the effect passes off the toxic influence is felt again. Roubitschek has reported that under subcutaneous injection of normal horse serum a hyperleukocytosis is induced which was evidently a factor in the reduction of his mortality from 30 to 6 per cent. Mollow has also reported favorable results from a sensitized vaccine. Coglievina has been using hexamethylenamin extensively, giving it in 1 gm. doses at first three times, then four times and then, continuously, five times a day. The influence of this treatment was actually excellent. It seemed to aid in the sterilization of the lungs as well as combating the serious cerebral symptoms of the disease. He waits for a wider experience before going further into details.

75. **Is the Wassermann Reaction Induced by Thrombosis?**—There was nothing to suggest syphilis in the two cases of old thrombosis reported, but the Wassermann reaction was positive in both. The thrombosis in the man was in the leg, apparently a relic of typhoid years before. The other patient was a young woman with phlebitis of unknown origin in the right leg. The striking positive responses in these cases suggest that thrombosis alone may elicit a positive reaction.

Münchener medizinische Wochenschrift, Munich

Nov. 30, 1915, LXII, No. 48, pp. 1633-1668

77 *Pituitary Treatment Proves Specific in Case of Diabetes Insipidus. (Beziehung des Diabetes insipidus zur Hypophyse und seine Behandlung mit Hypophysenextrakt.) G. Hoppe-Seyler.
78 Roentgen Localization of Foreign Bodies. (Neue Methode der Fremdkörperlokalisation.) W. Neumann.
79 Differential Diagnosis of Mercury and of Salvarsan Eruptions. (Verwechslung von Quecksilber- und Salvarsanexanthemen.) W. Wechselmann.
80 Open Puncture of the Pleura. (Zur Verständigung über die offene Pleurapunktion.) A. Schmidt.
81 Filters for Light. (Lichtfilter.) F. Schanz.
82 Relation of Life to Light. (Beziehungen des Lebens zum Licht.) Stellwaag.
83 *Epidemic Meningitis; Twenty-One Cases. F. Goebel and O. Hess.
84 Open, Dry Treatment of Gas Infection. (Offene, austrocknende Wundbehandlung bei Gasinfektion, insbes. bei Gasgangrän.) H. Schloessmann.
85 Fracture of the Femur. (Zur Frage der Versorgung der Oberschenkelschussbrüche im Felde.) H. Rummel.
86 Examination of Troops for Cholera. (Ueber Choleramassenuntersuchungen.) P. T. Müller.
87 Disease in Cattle and Other Domestic Animals Resembling Gas Gangrene. (Rauschbrand und Gasbrand.) Steinbrück.
88 Injury of the Ears in War. (Ueber Kriegsschädigungen der Ohren.) E. Weil; (Zur Behandlung der Ohrerschütterungen.) O. Hamm.
89 Carrying the Wounded in the Trenches. (Ueber die Beförderung von Verwundeten im Schützengraben.) F. Zieglwallner; (Neue Transportschienen.) H. Kloiber.
90 Elastic Dressings to Prevent Deformity. (Elastische Verbände.) J. Fuchs.
91 *Campaign against Syphilis in Bosnia. (Bekämpfung der Syphilis.) V. L. Neumayer.
92 *Always Bandage Both Eyes after Injury of One. (Ratschläge für Augenverletzungen.) Weber.

77. **Relations Between Diabetes Insipidus and the Pituitary Body.**—Hoppe-Seyler reports treatment with pituitary extract of diabetes insipidus in a man of 25. Marked improvement was evident; not only the amount but the concentration of the urine returned more to normal. Under atropin the amount of urine voided was less but the urine also became less concentrated. This confirms the assumption that vasomotor nervous influences are responsible for the polyuria and not lesions in the kidney cells. The response to the pituitary treatment was prompt, marked and constant, and the improvement stopped and retrogressed when it was suspended. Even very small doses were followed by such benefit that it seems beyond question that the pituitary extract supplied some missing element. We can assume confidently, he says, that the hypophysis in this case is functioning inadequately although nothing abnormal in it can be detected by roentgenoscopy, and tests for syphilis and tuberculosis are negative. No effect was realized with pituitary treatment by the mouth; the extract had to be given by subcutaneous injection. The favorable therapeutic effect is comparable to that of thyroid treatment in myxedema. The urine findings day by day over several months are shown in a chart.

83. **Epidemic Meningitis.**—Goebel and Hess comment on the striking absence of contact infection in the cases of meningitis they encountered in 1915. One patient was for almost two weeks in a room with other sick, but no infection resulted. Headache was a constant symptom. The onset of the disease in one case was accompanied by delirium amounting to actual mania, but the man recovered. In another case the joints swelled and acute rheumatism was diagnosed at first. In one fulminating case the Kernig sign did not appear, and, in another, not until the disease had dragged along for two months. Besides intraspinal serotherapy, they had the men take the serum into the nose, and gargle with it. They gave it by subcutaneous injection also in some cases at first. But they warn that as soon as the severest phase of the infection is past it is best to be cautious with renewed serotherapy. Too long continued, it seems to rouse the infection to flare up anew. With persisting headache, fluid can be withdrawn down to normal pressure without further injection of the serum. All their patients were kept out of doors during the day and slept with open windows at night. Of the six fatal cases, four were almost moribund when first seen and the other two did not get serotherapy until the disease had been under way for eight or ten days. Necropsy revealed in one case pneumonia with the meningococcus in pure cultures; in another case there had been pronounced cerebral symptoms, evidently merely of toxic origin as the brain was found intact and only the spinal cord found affected. Excluding the moribund cases, the mortality was 11.8 per cent.; even including them, it represented a great improvement over the preserotherapy days.

91. **The Public Combating of Syphilis.**—A physician writes from Bosnia to describe the measures taken there against syphilis. About seven years ago a systematic campaign was undertaken by the authorities. Once a year all the inhabitants of each community are assembled and the district physician examines each one for syphilis. As the disease is acquired mostly by extragenital infection, it can usually be detected by examination of the visible skin and mucosae. Only in dubious cases is it found necessary to extend the examination to other parts of the body. Those found infected are registered and they are supposed to be reexamined once a month the first, once every two months the second year, and so on until they have been free from manifestations for five years. The writer relates that as his district was the most infected, he has accumulated a unique mass of data which he is now working up for publication. In connection therewith he begs all who have published statistical articles on the fate of syphilitics to send him reprints of their works. At this remote post he is cut off from the medical literature of the world. Address Dr. Vic. L. Neumayer, Kljuc, Bosnia.

92. **Injury of the Eyes.**—Weber expatiates on the necessity for bandaging the sound eye as well as the injured eye. The main reason is to protect against infection, but almost equally important is the sparing the injured eye the coordinated movements in accommodation which necessarily occur when the sound eye is allowed to function.

Therapie der Gegenwart, Berlin

November, 1915, LVI, No. 11, pp. 401-440

93 Suppurative Colitis and Chronic Ulcer of the Rectum. G. Klemperer and L. Dünner. To be continued.
94 *Vagotony in the Soldiers. (Die Vagotonie, eine Kriegskrankheit.) C. von Dziembowski.

95 The Rhythm of Health in the Subconsciousness. (Vom Rhythmus der Gesundheit und vom Standort des Menschen.) C. Widmer.
96 Chronic Infectious Processes in the Mouth as Reducing Fitness for Service. (Die chronischen Infektionen im Bereiche der Mundhöhle und der Krieg, insb. ihre Bedeutung für die Wehrfähigkeit und für die Beurteilung von Rentenansprüchen.) H. Pässler.
97 Open Air Wards in General Hospitals. (Krankenbehandlung im Freiluftsaal.) L. Dünner.

94. **Vagotonia a War Malady.**—Von Dziembowski relates that the combination of symptoms which result from morbidly exaggerated tonus in the autonomic nervous system is being encountered very frequently in the military hospital to which he is attached at Posen. It is a well defined neurosis of the vegetative nervous system, and it may occur alone or associated with other troubles. The symptoms often suggest organic disease and thus may prove misleading. This is particularly important as the vagotony syndrome can be easily and promptly dispelled by reducing the tonus of the vagus nerve with atropin. The symptoms of vagotony may be manifest in any or all of the viscera, in the heart, respiratory apparatus, etc., but its most typical manifestation is bronchial asthma, he says, and in no other of its manifestations is the characteristic blood picture so pronounced. The blood picture alone, he adds, is enough to differentiate vagotony. Besides notable eosinophilia, there is a relative increase in the numbers of lymphocytes and a relative reduction of polynuclear cells. The figures usually were from to 5 to 12 per cent. eosinophils; 35 to 50 per cent. lymphocytes and 45 to 55 per cent. polynuclears, and this combination seems to be pathognomonic. As a rule vagotony is encountered with other signs of physical inferiority, but some of the men with it were powerfully built. They are all young men. Bradycardia on pressure of the eyeballs is scarcely ever lacking. The pulse also may grow slower as the man bends far forward. The pulse also is liable to be accelerated and smaller during inspiration, while it slows up and becomes higher during expiration.

Spasmodic contraction of the esophagus and stomach may simulate a stricture, but normal conditions return at once under a course of atropin. This seems to be the only means to differentiate vagotonic spasm of the pylorus with hypersecretion from actual gastric ulcer. Excessive sweating, spastic constipation or diarrhea and orthostatic albuminuria are liable to be other features of the vagotonic picture. The sweat poured from the axillae in two men he was examining until there was a wet space the size of one's hand on each side on the floor. The palate in those inclined to vagotony may be arched high, the ear lobules grown to the cheek, the head and face inclined to asymmetry, the brow prominent, the hair growing low down. The pupils are narrow but the distance between the eyelids is over normal, the mucosa of the throat is pale and not very sensitive. The follicles of the tongue are prominent, and the tonsils are usually enlarged. Such persons tire easily and their musculature is sensitive. He regards it as great progress that we are able to decide as to the harmless nature of albuminuria, as a rule, when it occurs with other symptoms of vagotony. When the vagotonic disturbances occur in paroxysms, he gives the atropin subcutaneously at first and then continues with small doses by the mouth, kept up a long time. With chronic vagotony he gives it by the mouth in fractioned doses. The effect is prompt and striking unless secondary anatomic lesions have developed, as in old cases of asthma.

Wiener klinische Wochenschrift, Vienna

Nov. 11, 1915, XXVIII, No. 45, pp. 1217-1248

98 Injuries of the Eyes in War. E. v. Grosz.
99 Immunization with Formaldehyd-Treated Tetanus Toxin; Improved Technic for Production of Antitetanus Serum. (Ueber Immunisierung mit durch Formaldehyd verändertem Tetanustoxin.) M. v. Eisler.
100 Injuries of the Ear in War. (Kriegsverletzungen des Ohres.) I. Hofer.
101 Intravenous Saline Infusion in Typhoid. M. Engländer.
102 Apparatus for Distinguishing between True and Simulated Deafness. (Apparat um Taubheit-Simulierende zu entlarven.) J. Kindlmann.

November 18, No. 46, pp. 1249-1272

103 *Fitness for Service with Heart Disease. (Ueber die Konstatierung bei Herzkranken.) L. Braun.
104 Fatal Paratyphoid Enteritis; Four Cases. L. R. v. Korczynski.
105 *Disturbances in Urinary Apparatus from Getting Chilled. (Kriegserfahrungen über Erkältungskrankheiten der Harnorgane.) V. Blum.
106 *Vital Staining of Spirochetes. (Die Vitalfärbung zum raschen Nachweis der Spirochaete Obermeieri.) O. Weltmann.
107 Care of Fractured Femur. (Versorgung der Oberschenkelfrakturen im Felde.) K. R. Werndorff.
108 The Large Instrument Kit in the Austrian Army. (Der grosse Instrumentenkasten, Modell 1900.) K. Springer.

103. **Differentiation of Functional and Organic Heart Disturbances.**—Braun has to pass judgment on the capacity for military service of soldiers presenting disturbances on the part of the cardiovascular system, and he expatiates on the aid afforded in differentiation by roentgenoscopy, electrocardiography and other modern methods of examination. In respect to extrasystoles, for instance, the graphic tracings permit the exact diagnosis of any tendency to heart block and thus, when this can be excluded, show that the extrasystoles are a harmless irregularity, not impairing the fitness for service. When there is a systolic murmur at the orifice of the aorta, growing louder after exertion, and the Wassermann test is positive, syphilis may be assumed without further evidence. An attack like that of angina pectoris may occur at any moment. If the man is an officer, such an attack during some military crisis might lose a battle. In a private soldier the attack would be less liable to have more than private personal import. Neurasthenic heart disturbances may be hard to differentiate from the organic, especially when both are associated.

We are in the habit of designating neurasthenia by the organ to which the patient refers his main symptoms, as for example we speak of nervous dyspepsia, cardiac neuroses, spinal or sexual neurasthenia, etc. Braun emphasizes, however, that we must bear in mind always that neurasthenia is a general, constitutional affection, characterized by abnormal irritability and readiness to fatigue of the central nervous system. We have to distinguish in it further the purely subjective from the objectively evident physical symptoms induced by the general nervous overexcitability. Neurasthenia consequently must be judged not from the partial symptoms of the concrete case but from the general mental and psychic disposition of the individual. In estimating the import of heart disturbances, therefore, the first step is to exclude neurasthenia or, if this is present, to exclude organic disease.

Among the objective features of arrhythmia for which the neurasthenia alone is responsible are (1) the respiratory type of the arrhythmia, that is, the pulse is accelerated during inspiration while it lags during expiration. With deep breathing this becomes quite marked. (2) The radial pulse grows smaller, with or without any modification of its frequency, when light pressure is applied with the finger-tips to the heart region. As the pressure is released, the next pulse beat, sometimes the second or third, is higher, often much higher than the following beats. (3) Modification of the interval of time between the contraction of the auricle and that of the ventricle. This of course requires a graphic tracing of the venous pulse. (4) Change in the size of the area of dulness when the right lower margin of the heart is percussed. As this phenomenon is due to change in the size of the auricle, there are parallel fluctuations in the height of the auricle peak in the venous pulse tracing. Braun is now studying these four phenomena, trying to correlate them with special degrees of neurasthenia, and also with combinations of neurasthenia and various heart changes.

105. **Urinary Disturbances from Getting Chilled.**—Blum relates that a thorough warming of the body in a bed or hot bath usually corrected the mildest degree of such disturbances from getting thoroughly chilled. The disturbances may range from merely increased desires to urinate to the severest form of incessant and distressing desires day and night, with power to void only a few drops every five minutes of an apparently normal urine, with disagreeable sensations, smarting in the posterior segment of the urethra, a condition of permanent drizzling of urine with the bladder

empty. There seems to an abnormal spastic condition. When this progresses until there is residual urine, then the bladder muscle may show hypertony accompanied by rectal tenesmus. He noticed that the overwhelming majority of the soldiers presenting these urinary disturbances after getting chilled had been subject to excessive sweating of the feet. The symptoms resemble those of the so-called irritable bladder, and the same factors are probably at work in both except that the getting chilled is the exciting factor. With the spastic disturbances, recovery is soon complete under treatment, as a rule, but permanent residual urine debars the man from active military service. The catheter, by revealing the residual urine excludes malingering.

106. **Vital Staining of Spirochetes.**—Weltmann refers to the spirochete of relapsing fever. It is shown up bright blue and lively in its movements when a drop of the blood, on a cover glass, is laid on a slide coated with a concentrated alcoholic methylene blue solution. A drop of the stain is spread over the warmed slide by the edge. The spirochetes in contact with the stain show up bright blue in contrast to the yellowish green blood corpuscles, but the spirochetes soon lose their motility. They retain it for several hours by Leporsky's original technic in which the stain in the form of powder (a mixture of brillantkresyl blue and Sudan III) is added to the drop of blood and a cover glass is placed on the slide and the edges closed with vaselin. Mouth spirochetes show up better with a half saturated solution of gentian violet, but they lose their motility. The pale spirochete does not take stains so well. He has had no opportunity to apply this technic to it.

Policlinico, Rome

Nov. 21, 1915, XXII, No. 47, pp. 1569-1604

109 *Pellagra and its Prophylaxis. P. Rondoni.
110 *Paralysis Agitans. (Caso di malattia del Parkinson.) G. A. Rizzuto.

November 15, Surgical Section No. 11, pp. 509-556

111 *Proliferation of Lymphatic Tissue in the Kidney. (Sulla iperplasia e sulla neoformazione di tessuto linfatico nel bacinetto renale e nel rene.) O. Finzi.
112 Scattered Nodules in Neck Metastases of Lip Cancer. (Caso di metastasi atipica da epitelioma del labbro inferiore.) A. M. Caruso.
113 *Deviation of Complement Test in Echinococcus Disease. (La prova di Bordet e Gengou nella infestione echinococcica dell'uomo.) L. C. Zapelloni. Commenced in No. 6.
114 Mixed Tumors of the Palate. G. Morone. To be continued.

109. **Pellagra.**—Rondoni discusses the various theories as to the causes of pellagra, saying that evidence is accumulating in favor of a too one-sided diet as undoubtedly an important factor in the development of the disease. Consequently he urges the authorities to educate the public into more hygienic habits in regard to food, promoting the cultivation of vegetables and the dairy, poultry and cattle industries. The high price of wheat at present, he adds, is driving people more and more to the cheaper corn meal, and pellagra will probably prevail even more than in the past unless physicians and the authorities in general rouse to more vigorous measures to induce the people to make greater use of green vegetables, rabbit meat and other inexpensive articles of food.

110. **Paralysis Agitans.**—Rizzuto emphasizes that the hypertonicity of the muscles, rather than the tremor, is the main feature of shaking palsy. It seems to be comparatively rare in Italy, and he reports a case in which after a few months of unusual business worry, a man of 48 was assaulted by bandits and the syndrome gradually developed of Parkinson's disease, progressing till his death at 85. Rizzutto reviews the various theories as to the nature of shaking palsy and describes the various treatments instituted in this case and given thorough trials, all to no avail. He remarks that the nature and seat of the process responsible for shaking palsy is still a mystery and that no authentic case of recovery is known.

111. **Lymphatic Tissue Nodules in the Kidney.**—Finzi describes a case in which bunches of lymphatic tissue were found under the mucosa of the renal pelvis. The bunches were not of the nature of neoplasms in the three known cases but were aberrant scraps of lymphatic tissue that had undergone hyperplasia. The patients were women of 23, 40 and 42, and hematuria was the first appreciable indication of abnormal conditions. In Soliero's case the hematuria had kept up for six months; it had returned at intervals during two years in Taddei's case, and during thirteen years in the present case, and there were signs of chronic nephritis in the last two cases. Complete recovery followed removal of the kidney involved. The positive Wassermann reaction in Rizzuto's case suggests that syphilitic infection may have been the exciting cause that started the lymphoid tissue to proliferating.

113. **Serodiagnosis of Echinococcus Disease.**—Zapelloni concludes his long study of this subject by personal research and sifting of the literature, with the statement that the response to the deviation of complement test is so constant and so specific that it is the most fortunate application in clinical medicine of Bordet and Gengou's principle of diagnosis by the serum. He has applied the test in 60 cases of echinococcus disease before operative treatment, and again later in 54 cases, and obtained negative responses in 167 controls, and has compiled from the literature corresponding figures totaling about 500 in the first group, 200 for the second, and 1,600 controls. A negative response was always obtained with nonechinococcus affections, even tapeworm. A positive response was obtained in 93 per cent. of all echinococcus cases, while eosinophilia was manifest only in 60 per cent. of the cases. The article has been continued through five numbers.

Riforma Medica, Naples

Nov. 20, 1915, XXXI, No. 47, pp. 1289-1316

115 Auricular Fibrillation and Absolutely Irregular Pulse. (Sulla terapia delle cardiopatie. V. Aritmie complesse.) G. Rummo.
116 *Pulsus Alternans Developing under Atropin and Amyl Nitrite. A. Fulchiero.
117 Pathogenic Connection between Disease of the Blood and Certain Products of Intestinal Putrefaction. O. Cantelli. Commenced in No. 46.

116. **Pulsus Alternans Developing Under Atropin or Amyl Nitrite.**—Fulchiero's patients were men of 28 and 39. The first had had acromegaly for six years, and the general weakness, dyspnea and failing memory compelled him to enter the hospital. The pulse was 65 when a test injection of epinephrin was given. By the next day the pulse was 48 and the pressure had been reduced from 95 to 90. He was then given a test injection of 0.0015 gm. atropin sulphate. The pulse rate increased, reaching 102 in half an hour. Two hours later a weak systole was evident to every two normal contractions, and then the pulse became of a regular alternating type. The second patient was a man of 39 with myocarditis with some arrhythmia, dyspnea and edema. As he improved under the usual measures, he was given a dose of 6 drops of amyl nitrite to inhale. At once there was slight total headache and dyspnea, and the pulse jumped from 60 to 125. The pulse tracings showed a pronounced alternating type thereafter; not at once, but after the pulse had returned to its previous rate, showing that the vagus was no longer under the influence of the drug.

Brazil-Medico, Rio de Janeiro

Nov. 13, 1915, XXIX, No. 43, pp. 337-344

118 *Intravenous Sodium Iodid Treatment of Tropical Bubo. (Iodotherapia endovenosa no bubão tropical.) A. A. da Matta.
119 *Tuberculosis and Pregnancy. (Subsidio ao estudo da tuberculose na puerperalidade.) A. Farani. Commenced in No. 40.

November 27, No. 45, pp. 353-360

120 Protozoa in Human Pathology. (Algumas molestias produzidas por protozoarios.) O. Cruz. Commenced in No. 44.

118. **Intravenous Iodin Treatment of Tropical Bubo.**—Da Matta applied the usual measures in vogue in treatment of fourteen patients with tropical bubo, but the tedious course of treatment required, and the lack of benefit in some cases, caused him to seek for something better. A trial of intravenous injections of sodium iodid gave remarkable results, as he describes in detail, in four cases. One patient was given three injections of 10, 15 or 20 gm. of sodium iodid, and was completely cured in a week of bilateral tropical inguinal bubo with intense pains and fever for two days before the treatment was started. Da Matta declares that the sodium iodid has antiseptic and antitoxic action; it is a tonic and

restorative, an energetic sedative, and a therapeutic drain, accelerating the elimination of noxious elements as is shown by the rapid resolution of the acute or chronic inflammation of the glands. He ascribes the method to Klemperer, reiterating that it seems to be the true specific medication for tropical bubo.

119. **Tuberculosis in the Puerperium.**—Farani's analysis of the literature and two new personal cases confirm the assumption that the puerperal state has an aggravating influence on the bacillary process in the majority of cases. He is confident that improved technic will soon render it possible for us, from the power of the organism to produce antibodies, opsonins, etc., to determine which cases are coming through successfully and the cases in which the vitality is at too low an ebb for this to occur without help from without. Until we have some certain guide like this, he advocates action aiming to keep the woman in good condition, regardless of the fetus. He would sacrifice the fetus to the mother the more readily, the better the tuberculous mother's condition. He would not wait until term, but believes in terminating the pregnancy early. The abortion should be induced at the period when laboratory tests show the antibody, opsonin and other defensive reactions most pronounced. The woman once freed from the pregnancy which was dragging her down, should then have every means applied to help her to throw off the tuberculosis itself. Unless there is some prospect of this, he advises waiting in the interests of the fetus. He does not approve of routine sterilization of tuberculous women as the tuberculosis may be thrown off later. A tuberculous woman who has had abortions induced may recover and bear healthy children. When the disease is localized in the placenta, hysterectomy may be indicated, but otherwise not.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Nov. 20, 1915, II, No. 21, pp. 2271-2366

121 *Participation of the Liver in Formation of Urea from Amino Acids. (Over de functie der lever bij de vorming van ureum uit amino-zuren.) B. C. P. Jansen.

122 *Is the Stomach Content Much Abnormal with the Bismuth Contrast Meal? (Vormt het gebruik van een contrast-maaltijd een abnormallen maaginhoud?) C. Bles.

121. **Share of the Liver in the Formation of Urea out of Amino-Acids.**—Jansen has been testing the mechanism of protein metabolism in cats and dogs, especially the share of the liver in the process. He experimented with the surviving liver after its vessels had been flushed clean with warm Ringer's solution. He describes the various steps of the technic employed with charts of the outcome of the tests. His results seem to contradict those of Folin obtained under similar conditions, and they do not harmonize with Fiske and Karsner's findings. His research apparently demonstrates that the liver may play a very important part in the forming of urea out of amino acids. This is particularly evident when we consider that in different tests, 300 or 500 mg. urea were found, which corresponds to a production of from 7 to 8 gm. a day.

122. **The Contrast Test Meal.**—Bles has been experimenting to learn whether the bismuth test meal caused such abnormal conditions in the stomach that conclusions based on them could not apply to other conditions. He found that this is not the case; the contrast test meal does not form an abnormal content. At least, the difference between the content with the contrast test meal and with an ordinary test meal is so slight as to be negligible.

Hospitalstidende, Copenhagen

Nov. 24, 1915, LVIII, No. 47, pp. 1203-1226

123 *Repeated Ligation of Varicose Veins on Leg. (Behandling af Varicer paa Underekstremiteterne efter Kuzmik-Schedes Metode.) K. Secher.

December 1, No. 48, pp. 1227-1250

124 *Importance of Ether in Bacteriologic Diagnosis of Typhoid and Paratyphoid. (Undersøgelser over Petroleumsæterens Betydning for Diagnosen af Tyfus- og Paratyfusbakterier i Fæces.) H. C. Hall. Commenced in No. 47.

125 The Colorimeter in Exact Determination of Albumin Content. (Den kolorimetriske Aeggehvidebestemmelse som exakt analytisk Metode og dens Anvendelighed for Autenrieth-Koenigsbergers Kolorimeter.) M. Claudius. See abstract 133 below.

December 8, No. 49, pp. 1251-1274

126 Tests of the Cerebrospinal Fluid in Syphilis. (Undersøgelse over Lymphocytose, Hyperalbuminose og Wassermann's Reaktion i Cerebrospinalvædsken ved Syphilis.) C. With. To be continued.

127 *Hemoptysis in Croupous Pneumonia; Three Cases. G. E. Permin.

123. **Multiple Ligation of Varicose Vein.**—This is Secher's second report on the application of the Kuzmik-Schede technic, described in these columns May 22, 1915, p. 1803. The aim is to induce thrombosis along the whole varicose stretch, while the multiple ligatures reduce to the minimum the danger of embolism—a danger which is imminent with other methods of obliterating varicose veins. The walls of the varicose vein are abnormal and hence they do not contract properly. The weight of the column of blood forces the insufficient valves, and edema, ulceration, eczema and weariness follow or persist after other modes of operation. The larger the varicose enlargement and the longer its duration, the greater the difficulty in obliterating the vein. But by throwing a ligature around the vein at regular intervals, all these disadvantages are obviated and the vein is obliterated regardless of the degree of dilatation. He gives an illustration of an extreme case of varicose enlargement of the entire saphenous vein, with ulceration, in a man of 66, that had proved refractory to various courses of hospital and operative treatment. A second illustration shows the apparently normal aspect of the limb after multiple ligation of the vein. Even in the obese and with much edema, it is possible to palpate the vein and ligate it, and the outcome has been a pronounced success in every instance. On the other hand, the technic is simpler, he declares, than with any other method, and it is applicable in any and every case. He prefers to ligate with silk rather than catgut, as greater force can be applied to bring the stiff vessel walls together to obliterate the lumen. The silk is passed through the skin and around beneath the vein. The ends are tied together over the skin or over an interposed roll of gauze.

124. **Ether in Bacteriologic Examination of Stools.**—Hall's article is based on examination of the stools from 124 persons, including 69 typhoid patients, 39 suspects, 4 paratyphoid and 12 paratyphoid B stools. He has modified Bierast's technic, and the results apparently testify that his modification is much more reliable and decisive. It shows up typhoid and paratyphoid bacilli without fail in corresponding cases, while it is never positive in paradysentery and cholera cases. The ether checks the growth of colon bacilli, and does this proportional to the boiling point of the ether, the effect being most marked the lower the boiling point. By checking the growth of colon bacilli, typhoid and paratyphoid bacilli are given a chance to proliferate at will. According to his modified technic, a lump of feces about as large as a nut is stirred into 7 or 8 c.c. bouillon in a reagent glass. The suspension of feces is then decanted into a centrifuge glass and the glass is filled up with about 4 or 5 c.c. ether. The glass is then centrifuged (whirling about 150 times a minute) for half an hour, and then the glass is set aside for one or two hours at room temperature. A few drops of the mixture from the bottom of the glass are then transferred to culture medium plates. After from sixteen to twenty hours in the thermostat the typhoid or paratyphoid bacilli are usually found in pure cultures, the ether having prevented colon bacilli from developing and the crystal violet in the Conradi-Drigalski plate having prevented any growth of cocci. Bierast's original technic took a longer time.

127. **Hemoptysis in Pneumonia.**—Permin reports two cases in which the patient presented hemoptysis and was brought to the tuberculosis ward, but the trouble proved to be pneumonia with a crisis the fourth or six day and subsidence of all pulmonary symptoms. The patients were men of 21 and 29, and one had had similar symptoms at an attack of pneumonia four years before. In a third case actual pulmonary tuberculosis developed with an onset mistaken for pneumonia at first. The patient was a young woman apparently healthy until she suddenly developed high fever, slight cough and dyspnea and herpes labialis. The findings in the lungs were like those with incipient pneumonia but there was no sputum. The diazo first suggested the tuberculous nature of the trouble, confirmed by roentgenography.

Norsk Magazin for Lægevidenskaben, Christiania

December, 1915, LXXVI, No. 12, pp. 1473-1672

128 *Splenomegaly in Children. (Splenomegalier i barnealderen.) A. Brinchmann.
129 *Induced Therapeutic Pneumothorax. (Om pneumothoraxbehandling.) E. Grundt.
130 Case of Stenosis of Lower Trachea. N. Barth.
131 *Foreign Bodies in the Appendix. (Fremmedlegemer i appendix: Haggel-appendicit, oxyurisappendicit.) N. B. Grøndahl.
132 *Overpressure Apparatus for General Anesthesia by Intratracheal Insufflation. (Et overtryk-narkoseapparat bygget paa Meltzer's og Auer's princip for intratracheal insufflation.) R. Ingebrigtsen.

128. **Splenomegaly in Children.**—Brinchmann comments on the peculiar susceptibility of the spleen in children, not only to become enlarged but also to undergo histologic changes. It is liable to enlarge with acute and chronic infectious diseases, with certain affections of the liver, and with twelve different diseases of the blood-producing apparatus. In a case described, a boy of 8 was brought to the hospital for symptoms suggesting an inoperable tumor in the mediastinum. There was no sign of hemorrhages in the skin, and the mucosae were apparently normal, but the spleen was much enlarged and the blood picture was that of lymphatic leukemia. After periods of improvement and aggravation, he died two and a half months after the first symptoms. Necropsy revealed general infiltration of lymphocytes around all the organs examined; the leukemic gland was not always swollen even when qualitatively typically abnormal. The diffuse infiltration of cells and perivascular lymphomas are never encountered with Kundrat's lymphosarcomatosis which had been the first diagnosis at necropsy. Another case reported, in a boy of 4 or 5, was even more typical.

Acute lymphatic leukemia is not such a rare disease in children. Sluka in 1907 had collected 55 cases in children under 14. Escherich found evidences of it in 2 among 150 cadavers. Seiffert and Lomme have each reported an inherited case, but a leukemic mother may bear a nonleukemic child. The various other affections involving the blood-producing apparatus are discussed in turn, citing from the literature, including Yates and Bunting's article in The Journal, June 12, 1915, p. 1953. In a recent case of what seemed to be Banti's disease in a boy of 8, there was pronounced anemia and lymphopeny, but no myelocytes were found and Banti himself has never found normoblasts. On the whole, Brinchmann recapitulates, the pathology of the spleen does not differ much in children and in adults only that the pathologic conditions are more acute in children. Pernicious anemia is more a disease of adults, and no case of myelogenous leukemia is known in young children. On the other hand, pseudoleukemic anemia of the von Jaksch-Hayem type has never been encountered in an adult. He gives the details of five cases, including two with an atypical course. The blood shows the embryonal type both for the red and the white corpuscles.

He thinks there is much to sustain the assumption that there is no special virus which induces each of these diseases. It is more probable that there is but one virus, and that it affects the organism differently in different cases, according to the conditions it encounters at the time. Ellermann found that the virus of fowl leukemia induced leukemia and other typical blood diseases when animals were inoculated with it. In some instances the leukemia was of the lymphatic, in others of the myelogenous type. The reaction to experimental blood intoxication (pyrogallol, Reckzeh) differs as the animals are young or old, and there is much to indicate that the spleen plays an important rôle in the development of disease of the blood.

129. **Induced Pneumothorax.**—Grundt's experiences were so favorable in his twenty-eight cases that he regards it as a duty to offer this method of treatment to every patient with advanced pulmonary tuberculosis, after fully explaining its dangers and disadvantages. The outcome must be regarded as excellent in 8 or 9 of the 28 cases. In 3, adhesions prevented its successful application; in 4 there was transient improvement but the disease progressed, as also in 5 other cases—the mortality to date being thus 13 in 28 cases.

131. **Foreign Bodies in the Appendix.**—Grøndahl states that in 10 of his 400 operations on the appendix in the last three years, a foreign body was found, in 6 there was a living oxyuris; these patients were girls between 6 and 17 with the exception of two women of 32 and 24. In the other cases the foreign body was a hair, a scrap of the head of an oat, a sliver of wood, a grapestone, a blackberry stone or small shot. In all these cases there had been chronic disturbance from the appendix. One girl of 15 had had vague pains in the region for seven months, but no tenderness. A hair was found in the tip after the appendix had been removed. There has been no further disturbance in any instance. In only 2 of the 5 oxyuris cases was there any evidence that the helminths could possibly have been responsible for the inflammation. Fruit stones were found thus only in 2 of the 400 cases. The experiences related show that the appendicitis in these foreign body cases is inclined to be unusually mild unless the foreign body is a sharp scrap of metal or enamel; these are liable to be dangerous at any point in the bowels.

132. **Intratracheal Insufflation for General Anesthesia Under Overpressure.**—Ingebrigtsen has devised a home-made apparatus for this purpose which seems to be working perfectly. The principle is much the same as in Elsberg's or Fischer's apparatus. With it he was able to open the pleura in his experimental research and resect the esophagus without the lung's collapsing.

Ugeskrift for Læger, Copenhagen

Nov. 25, 1915, LXXVII, No. 47, pp. 1843-1876

133 *Claudius' Quantitative Determination of Albumin. (Om Claudius' kvantitative Aeggehvidebestemmelse.) A. Norgaard.

December 2, No. 48, pp. 1877-1914

134 *Importance of Milk in Diet with Chronic Intestinal Disease. (Nogle Bemærkninger om Diæten ved kroniske Tarmsygdomme.) A. Borgbjærg.
135 Trichocephalus Dispar Found in 43 Per Cent. of 160 Children in Denmark. (Undersøgelser over Trichocephalus dispar hos Børn med Sammenligning af Telemann's og Schroeder-Jørgensen's Metode.) K. M. Hansen.

133. **Claudius' Quantitative Colorimeter Test for Albumin.**—Norgaard has been giving this method a thorough trial, and here tabulates the findings in 100 specimens of urine and in some other organic fluids. The adsorption increases with cooling and declines with heating. Comparative tests showed that with an albumin content below 1 per thousand there may be a difference up to 10 per cent. of the findings on analysis by weight. With an albumin content above 1 per thousand, the difference may rise to 20 or 30 per cent. There is thus a possible error averaging up to 2.5 per cent. (Claudius describes the exact technic in the article listed as No. 125 above.)

134. **Diet with Chronic Bowel Trouble.**—Borgbjærg emphasizes the importance of the diet as a factor in the successful management of chronic intestinal disturbance. Schmidt and Strasburger have demonstrated the nature of dyspepsia from intestinal fermentation and the means to bring it under control. Borgbjærg here discusses colitis, saying that the primary cause is often to be found outside of the colon. Cure of this is followed by the healing of the bowel trouble. The same applies only in higher degree to extreme constipation. It is often merely one symptom from a gastric ulcer, appendicitis or gallstone trouble, and subsides with relief from the primary trouble, especially when proper dietetic treatment is instituted. Even when it is primary, there are many factors that have to be considered. He advocates extensive use of milk in the diet with chronic bowel trouble, especially colitis, cautiously increasing the doses and examining whether it tends to induce diarrhea or constipation or neither in the individual case. The idea that milk is poison for the bowels, he says, is a mistake. It is a good and nourishing food, and inability to assimilate it properly may be due to the absence of the normal bowel content of lactase. Weinland noticed that in mammal animals, lactase was produced only so long as milk sugar was obtainable in the diet, that is, only during the suckling period. The physician too often depends merely on the patient's statements as to constipation, etc., and orders a diet rich in waste which is certain to aggravate abnormal conditions already installed.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 5 CHICAGO, ILLINOIS JANUARY 29, 1916

THE USES OF MEDICAL BIBLIOGRAPHY AND MEDICAL HISTORY IN THE MEDICAL CURRICULUM*

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WASHINGTON, D. C.

If you owe a small debt for a purchase delivered by one of our modern commercial establishments, such as a drug store, a book store or a music store, which knows you well enough to trust you, you will often, on paying your bill, be handed a small card or a bundle of memoranda, from a card index of accounts, certifying that your bill is discharged and that the account is a closed incident so far as the establishment is concerned. In the light of this very common commercial procedure, which keeps track of the smallest details in order to compass large results, it is hardly necessary to emphasize the importance and usefulness of bibliography, whether for the preservation and easy accessibility of records of all kinds, the location and citation of things difficult to come at, or the conduct of a scientific investigation.

Bibliography, as its derivation implies, is only an enlarged system of bookeeping. Shops and police courts, recruiting stations and battleships, laboratories and libraries all now employ the card system more or less as the handiest, most sensible, economical and dependable method of keeping records. A French physician, who was studying hospital systems in this country, summed up his experience to me by saying: "The American hospital revolves around a telephone and a card index." The English mathematician, Arthur Cayley, once defined bookkeeping as a perfect science, because its theory and practice are in absolute accord, so that the detection of sources of error becomes only a matter of expert skill. But bibliography, as Helmholtz said, "hardly deserves the name of science, because it neither enables us to see the complete connection nor to predict the result under conditions yet untried." Yet our efficiency experts have shown us that almost any business can be run in a scientific manner when each of its expert agents becomes himself a sort of specialized card index of his particular department. We are disagreeably reminded of this fact in connection with the present European war, for on this simple idea is based the whole Prussian system of "efficiency"; the idea that, in war or business, every slightest detail is important, the duties of the milkman, baker, printer, or mechanic, as well as those of the soldier and strategist. It was this system which caused the Austrian general Benedek to exclaim, at the outbreak of the Seven Weeks' War, in 1866, "The Prussians are expert people, and we have learned nothing!" (*Die Preussen sind studirte Leute, und wir haben nichts gelernt!*) Any one who has made haphazard notes on any subject in a commonplace book, and has had occasion to compare his attempts to bring order out of this chaos with the ease with which he can arrange and rearrange, or even reject, information recorded on cards, will never think twice as to his choice in any future venture of this kind. It is a game of solitaire which has the advantage of stimulating, instead of depressing the mind, and will always bring in substantial winnings to those who use it with intelligence and discretion.

"There is," said Leonardo da Vinci, "no result in Nature without a cause; understand the cause, and you will have no need of the experiment." Long before Kant, that same great universal genius made the following acute observation: "There is no certainty where one can apply neither any of the mathematical sciences nor any of those which are based on the mathematical sciences." In the conduct of a scientific investigation, it is hardly necessary to state that three methods are commonly pursued by modern workers, namely, the inductive plan of proceeding by experimental "trial and error," reasoning *a posteriori* from particular cases to general propositions, from isolated heterogeneous facts to the natural laws behind these facts; from the consequences of a truth to the truth itself; the deductive method, in which, having established some fundamental proposition by a rigorous proof, we reason *a priori* from the established law to the consequences which flow from it, from general propositions to particular cases, thus predicting the possible from the certain or the probable; and the historic or bibliographic method, in which, before attempting either of these things, we take account of stock, as it were, and find out what actually is known before presuming upon assumptions, assertions or predictions of any kind, and especially to avoid rushing into public utterance or print with statements which are gratuitous or otherwise "ancient history." This is the principal function of the bibliographic and historical method, which alone can furnish the guiding thread through the great mazes of ancient and modern literature, whether it be science and medicine, the fine arts and the drama, the law and municipal government, the whims and oddities of mankind, the psychology of the lower animals and of different human races, or the spiritual and supernatural phases of existence.

* Read at the opening exercises of the Medical College of Syracuse University, Sept. 21, 1915.

* Owing to lack of space this article is abbreviated in THE JOURNAL. The complete article appears in the author's reprints.

THE BIBLIOGRAPHIC METHOD

To confine ourselves to medicine, it is only necessary to mention Harvey's immortal essay on the circulation of the blood, or Beaumont's work on the gastric juice, as examples of a scientific investigation in which the inductive method was precedèd by the bibliographic. Both Harvey and Beaumont prefaced their work by a careful and thoroughgoing review of all that their predecessors had done before taking hold of the problems immediately before them. The appendixes to Bretonneau's book on diphtheria, which placed this disease on its modern footing at the beginning of the nineteenth century, show that this eminent physician had carefully pondered all that the physicians of the past had to say before publishing any express views of his own, and, much to the discontent of his pupils, he held back his manuscript for six years before printing it, even as Harvey had lectured on the circulation at least twelve years before he published his essay. The consequence is that these works are true medical classics in the best sense of the term. What the authors have to say is said so well and so conclusively that it would be difficult to improve on it from the point of view of the time in which they wrote.

In the words of Augustus De Morgan:

> All the men who are now called discoverers, in every matter ruled by thought, have been men versed in the minds of their predecessors, and learned in what had been before them. There is not one exception. I do not say that every man has made direct acquaintance with the whole of his mental ancestry; many have, as I say, only known their grandfathers by the reports of their fathers. But even on this point, it is remarkable how many of the greatest names in all departments of knowledge have been real antiquaries in their several subjects.[1]

In our modern medical literature, particularly that of Germany, it has become so much the fashion to preface a monograph or *Arbeit* with a historical "introduction" that the latter sometimes seems commonplace or perfunctory. But without rendering just such an honest account to himself of what is due his predecessors, it would be impossible for any modern physician to be sure that he is saying anything particularly new or true; and there are some medical writers, as Virchow has shown, who have actually falsified their bibliographies by inserting bogus, erroneous or misleading footnote references to books and papers which they have never seen.

Aside from original investigations, much of modern medical literature, as you know, is made up of abstracts or rearrangements of the work of other men. Some of these essays have been well described as little more than extended bibliographies; others, while ephemeral, have a distinct value as mediums for fertilizing the soil of current-day medicine, bringing many complex, abstruse or recondite things down to the level of comprehension of busy overworked men who run but may not read. The only essential is that such essays should be accurate, comprehensible or attractive in style, and that their writers should honestly state the sources of their information.

In the gigantic task of cataloguing and arranging the literature for this and other purposes, medicine has been mainly indebtèd to the self-sacrificing labors of four men — Haller, who catalogued medical, surgical, anatomic and botanic literature up to the end of the eighteenth century, Callisen, who catalogued the books and the contents of medical periodicals from Haller's time up to the end of the first third of the nineteenth century, and Billings and Fletcher who, in the Index Catalogue, listed the whole medical literature of the world from the earliest times down to the present, by authors and subjects, and arranged that the current medical literature of the world should be accessible to the medical profession in the monthly *Index Medicus*.

It is not likely that the undergraduate student will have occasion to use the larger medical bibliographies to any extent, and then only under the direction of his teachers. Is it then necessary or desirable that he should employ the methods of bibliography in his early work? I venture to say that this could be done with some advantage, according to the industry or enthusiasm of the individual pupil. He begins his studies with anatomy and physiology. Whether these subjects be taught by lectures and class room recitations, supplemented by dissecting and laboratory work, or exclusively in the dissecting room and laboratory, he will, in any case, have to arrange and coordinate the knowledge he acquires for examination purposes or for future use in his active life. He studies, for instance, the occipital bone by means of a detached specimen and the description in Gray's "Anatomy," the ramifications of the external iliac artery or the outflow of the cerebral nerves in the cadaver, or the electrophysiology of muscle and nerve in a laboratory preparation. Suppose, now, that he attempts to write down an account of what he has seen and learned, not by the book, but from his own inner consciousness. Obviously, this is the most effective way in which he can render to himself an account of the exact state of his knowledge. For, as Lord Bacon said, "Reading maketh a full man, speaking a ready man, and writing an exact man." By oral quizzing bouts with his fellows, the student may acquire facility of expression, freedom from embarrassment, and even those evasive or prevaricating tactics which sometimes embarrass the professor; but if he is to be quite honest with himself, he will wish to keep a private account of his own knowledge for his own satisfaction. If he acquires an ordinary paper box of envelope size, and an outfit of blank cards which loosely fit into this box, or of stiff paper cut up into the appropriate size by some paper warehouse, he will have all that is necessary for accomplishing this end in any subject. If, now, he writes down on one of these cards all that he wishes to know or hopes to retain about the occipital bone, electrotonus, etc., he will have a series of nuclei for future study or work, which he can arrange under each subject in alphabetical order. At times, he may wish to rearrange or enlarge his knowledge of any one of these individual subjects. In this case, it will only be necessary to rewrite a particular card and throw out the original, which cannot be done in an ordinary student's notebook without defacing the page or making a very complex mess of it.

If one had to study medicine again, many older men would have followed this plan as a strictly labor-saving device; and while, in after life, no one would care to lumber up his domicile with piles of boxes of this kind, there are still many important facts, many odds and ends of knowledge, many scraps of information, which could be kept in this way for ready reference. Indeed, most scientific physicians working in hospitals and laboratories today do keep extensive records of this kind on card indexes of standard size, contained

1. De Morgan, Augustus: A Budget of Paradoxes, Ed. 2, Chicago, 1915, p. 5.

in special cabinet cases made for this purpose by our library bureaus.

MEDICAL HISTORY

As one learns to use one's mind through the Latin grammar and mathematical problems, as one learns to play a musical instrument by practicing scales and chords, so the medical student who works in this way will have acquired special technic for keeping his office and hospital records when he becomes a practitioner or teacher. If he wishes to keep his patients or keep in touch with them, he must keep track of them, and this is usually done, at least in important cases, by means of systematic alphabetical records. The time may come when he wishes to use such cases and records in writing a medical paper or in preparing a discussion of a paper in a medical society, and this brings up the question whether it is worth while to make these students' records historical, in the sense of adding to each record, as time or inclination permits, such historical data about the separate items as may seem of interest to the individual student. I venture to say that this would be the readiest way in which the undergraduate student can get in touch with medical history. The idea of teaching medical history in the medical curriculum by means of set lectures to the students has been tried and tested often enough and, in most cases, found wanting; mainly because the subject is so vast and complex that any attempt to present it in concise and precise form, in a few lectures, is almost inevitably dry and disappointing, unless backed up by unusual eloquence or a fascinating personality. Just on account of this dryness, students have been found to avoid such lectures, as pupils at musical conservatories are said to avoid the classes in harmony and counterpoint. The medical student, in particular, is so crowded with other subjects in his courses that the additional lectures on medical history might very well prove the last straw to break the camel's back.

One very conclusive objection to lecturing neophytes on medical history is that such lectures swarm with those unfamiliar names which as Coleridge said, "are nonconductors and stop all interest."

The very fact that most physicians, however experienced or learned, have usually taken up this subject late in life goes to show that the student would gain nothing whatever by the attempt to throw it at his head in one indigestible lump. It is usually studied in detail, and to best advantage, not by solemnly beginning with the Egyptians, the Hebrews, the Greeks and the dreary narrative down to the beginnings of modern scientific medicine in the period of Vesalius and Harvey, but by attacking the subject anywhere, in direct connection with one's actual studies, and sometimes by studying it backward.

At the Johns Hopkins University, medical history is taught directly in the laboratory and the clinic, by deliberately interweaving it point for point, or contrapuntally, as the musical theorists say, with subjects of special interest, no matter how accidentally or incidentally these may come up. If the subject is Addison's disease, or Skoda's resonance or the significance of Gaskell's experiments on the heart in heart disease, the student is expected to interest himself in the lives and personalities of these great men, and to know something about them as part of his medical culture. In this manner, he gets in the way of reading into medical history and of expanding his studies in this field through a naturally acquired interest. This is the method which was introduced by Dr. Osler and Dr. Welch, and it is also the method which has been introduced at Harvard through the influence of Dr. Cushing. Osler is said to have required his advanced students to read and report on some of the foreign medical journals and, in his evenings at home with his "boys," he brought them in touch with the cultural phases, the ethics and the etiquette of their future profession in a very delightful and informal way. Supplementary to all this is the Johns Hopkins Hospital Historical Club, at which set papers, sometimes by outside physicians, sometimes by the professors or students, are read, for the benefit of the classes and afterward discussed by Professor Welch and others. In this method, too, the centric idea is to attack the subject from any angle that may come up, and not to exploit it by the systematic, formal and chronological plan which has proved so dull and tiresome.

Every medical student should provide himself, if possible, with a comprehensive medical dictionary, of the flexibly bound kind of which there are so many good examples nowadays, and familiarize himself with the names of the great physicians as they come up in his work, especially in connection with the so-called eponyms or diseases, operations, procedures, etc., which are named after these physicians. The advantage of the eponym for the medical student lies not only in what it denotes, the particular man it stands for, but also in what it connotes, that is, the secondary idea or implication which it conveys to the mind, and this association of ideas may be extended to almost any term of importance which may be encountered during the student's medical courses. Thus, the name McDowell denotes a pioneer physician of Kentucky, but it connotes the first successful ovariotomy; salvarsan denotes a synthetic drug, but it connotes its discoverer Ehrlich and the disease in which it is used; vesicovaginal fistula denotes a certain distressing condition in women, but it should connote the name of Marion Sims, who founded operative gynecology by first treating this condition successfully; the Argyll Robertson pupil denotes a certain condition of the eye, but connotes locomotor ataxia, general paralysis and a certain Scotch ophthalmologist; the ophthalmoscope ought to suggest the name of Helmholtz or vice versa. Along such lines as these, the student might, if he chooses, begin to add little biographical or historical notes about these men to his memorandum cards, as he goes along, and he may find these historical clues not cumbersome baggage but actual aids to memory.

It is possible that the plan suggested here may sometimes prove too large a contract for the student during his periods of overwork; but if he does never so little, on the principle of *nulla dies sine linea* — a few lines every day — it will not be wasted labor. The illustrations given are very rudimentary indeed, and are based on the assumption that the student really wishes to know something of the cultural history of his profession from the start. Are there any special advantages in acquiring such knowledge? First and foremost, there is the all-important point that what we learn in youth is apt to stick by us more closely, to be a more essential part of our mental furniture, than anything we attempt to acquire in later years. The names we have heard in our medical courses, the jokes and anecdotes the professors told us, some striking clinical exposition, some impressive scene in the surgical amphitheater, remain with us forever, and many things, learned in these earlier years, which we think

we have forgotten, come to the surface again in a surprising way when we have any occasion to use them. "The knowledge which a man can use," said the historian Froude, "is the only real knowledge, the only knowledge which has life and growth in it, converts itself to practical power. The rest hangs like dust about the brain or dries like rain-drops off the stones."

Some of you, in future years, will take part in the papers and discussions of medical societies and medical congresses at which you will meet men to whom this special cultural knowledge of your profession is a matter of course. Most well-trained and well-equipped physicians of today, in fact, have this knowledge. You will not wish to meet them at a disadvantage to yourself. But, over and above this, you will not be doing justice to yourself, if you do not wish to know the broader aspects of medicine for your own satisfaction. We dislike to be burdened with new studies, but this is an essential part of modern medical training in the German and Swiss universities, at Oxford and Edinburgh, at Harvard and Johns Hopkins, at Philadelphia and St. Louis. At most of these universities, the supplementary medical history club has delightful social features, because it brings the students into closer human relations with their teachers, relations of which we of twenty-odd years ago never had the advantage. But you must do the greater part of the work yourself.

As you study the different diseases, try to learn something of the histories of these diseases in that great storehouse of knowledge, Hirsch's "Geographical Pathology," which has been admirably translated by Dr. Charles Creighton for the Sydenham Society. As you study the various drugs, learn their history from Flückiger's "Pharmacographia" and from Trousseau's great treatise on therapeutics. Learn the history of physiology from Schäfer's monumental textbook. Learn the history of the surgical operations from Gurlt, Mott's Velpeau, and Billings' monograph in Dennis' "System of Surgery." Learn the history of gynecology from von Winckel, Howard Kelly, and Allbutt's System of Gynecology. Learn the history of obstetrics from Engelmann and Whitridge Williams. The monumental histories of Gurlt (surgery), Fassbender (obstetrics), Hirschberg (ophthalmology) and Politzer (otology) are so supremely well done that they will hardly be improved on by any later hands. Meyer's "Geschichte der Botanik" is of enormous value, because it deals with the subject mainly in its relation to medicine. Organize a small library of medical history for your college, to contain at least some of these books, which will be of more practical use to you, at this stage of your career, than the long set histories of medicine, such as those of Haeser, Baas and Neuburger.

Should you wish to read medical history systematically, you will find Neuburger's, in the Oxford translation, the best of the larger and more modern treatises. Of the older systems, that of Sprengel is unrivaled for its close rendering of the facts of ancient medicine and the unimpeachable accuracy of its footnotes. Haeser is solid, dull and not so reliable, but the third volume, on epidemic diseases, is invaluable. Pagel's "Introduction" has been purged of much inaccuracy and brought up to modern standards by Sudhoff (1915). Withington and Léon Meunier are the best of the shorter histories published in England and France, respectively. The brief and little known sketches by William Farr (1839) and Edwin Klebs (1868) are highly original and suggestive. To keep track of medical events in order of time, the chronologies of Ludwig Choulant (1822), Casimir Broussais (1829), William Farr (1836-1838), M. S. Krüger (1840), Chinchilla (1844) and Julius Pagel (1908), are useful, as also the remarkably detailed chronologies of medicine in the histories of William Black (1782), Kurt Sprengel (1792-1803) and E. Isensee (1840-45). Of all these, those of Choulant, Broussais, Farr and Pagel are the most reliable. For medical biography, you may use Éloy (1778), Jourdain (1820-1825), Bayle and Thillaye (1855), Hirsch (1884-1888) and Pagel (1901); and for American names, Thacher (1828), Gross (1861), Atkinson (1878), Stone (1894), Watson (1896) and Kelly (1912); but you will find the best individual biographic references under the separate author entries in the Index Catalogue.

FINDING REFERENCES

Let us now take one or two concrete examples of the value of these tools:

You wish to find the exact bibliographic reference to some minute detail of ancient medicine. You will usually find it in the footnotes to Sprengel's "History." For example, the textual sources of the different papal ordinances governing medicine in the middle ages will be found in the footnotes at the bottom of pp. 484-485 (1823, vol. 2), and nowhere else. Sprengel is reliable for data of this kind up to the eighteenth century.

For nineteenth century books and pamphlets, use the author-titles (roman type) and for periodical literature, the subject-titles (in nonpareil type) in the Index Catalogue (1880-1915), or the annual indexes of the *Index Medicus* (1879-1915), supplemented by the superb and infallible "Catalogue of Scientific Papers," published by the Royal Society of London (1867-1915), which, when completed, will give the whole of the strictly scientific periodical literature of the nineteenth century (1800-1900), indexed by authors in alphabetical order.

To find references in the later periods, use either Callisen or the Index Catalogue.

THE LITERARY SIDE OF MEDICINE

Learn printers' marks. Acquire the proofreader's eye for errors and blunders, and study the effective exploitation of type.[3] Learn to criticize silently the syntax and style of every page you read. Remember that every modern writer who is a stylist probably became such by picking to pieces the things he perused.

Medical papers are written and published by the thousands and most of them speedily forgotten. The time may come when you have a paper for publication. An eminent medical editor once gave me his criteria for selecting or rejecting papers, not of the highest scientific order, but of mean average merit, as they were sent to his journal for publication. "I read a few pages over," he said, "and as I do so, I keep in mind two standards: Does the article rivet my attention or does the mind begin to wander away from it unconsciously? In the latter case, I invariably reject the article." Before sending your maiden effort to a medical journal, read it over critically yourself, or have some acute person read it over, to see if "the mind begins to wander." Some of you may become medical editors in time, and if so, the importance of this criterion will sink into your mind; for a writer on medicine who is inaccurate in matter is lacking in respect for his subject; if he is careless in style and manner he is lacking

3. Perhaps the most remarkable example of the effective use of different fonts of type for bibliographic purposes is to be found in Isak Collijn's catalogues of the incunabula in the University Library at Upsala (1907) and the Royal Library at Stockholm (1914), the style of which has already been copied by the Prussian commission in the specimen fasciculi of its forthcoming "Gesamtkatalog" of incunabula (Halle, 1914).

in respect for his readers and consequently for himself, like a man on the sidewalk who makes himself conspicuous by slovenly attire.

The need for medical men who will specialize in medical bibliography and history, and devote themselves exclusively to medical journalism and medical literature, is becoming more apparent every day. Advanced teachers, like Professor Cushing at Harvard, are already beginning to encourage some of their pupils to take up the literary side of medicine, as a set-off to an ordinary success as internists or surgeons exclusively.

THE CULTURAL HISTORY OF MEDICINE

Should you be able to organize a medical history club, which might meet, as at Harvard or Johns Hopkins, in one of the university rooms, or as at New York and Washington, in private residences, you will then be actually studying the subject from two different angles, the biographic and cultural in the club, and the technical in your own private work; and the little historical library you get together may prove the nucleus of a larger and more valuable medical library for the students of the future.

The variety of subjects which might be discussed in a medical history club is almost inexhaustible, for medicine touches human activity at almost every point. There have been medical astronomers, medical mathematicians, medical botanists and zoologists, medical geologists, medical novelists and poets, medical musicians, medical lexicographers, medical statesmen and political adventurers, and, in the past, clerical physicians or medical clergymen. In the Renaissance period, many physicians were astrologers and makers of almanacs. Some of the first school arithmetics ever printed were made by medical men.[4] Some phases of medical knowledge, such as the physiology of respiration or the physics of vision, were worked out almost entirely by mathematicians, physicists and chemists. Much of the earlier materia medica was made by medical botanists; many therapeutic devices of practical moment, such as the use of cinchona in malarial fever, inoculation and vaccination against smallpox, catheterization of the eustachian tube, exhibition of digitalis in cardiac dropsy, and the use of lime-juice in scurvy, were introduced in the first instance by laymen or even through the intuitions of semicivilized people. The greatest figure in modern medicine, Pasteur, was not a doctor but a chemist. Florian Heller, Hoppe-Seyler, Salkowski, Kossel, Ehrlich, Emil Fischer and Abderhalden worked out results of greatest importance to medicine in chemical laboratories.

In ancient times, the physician was a priest or the priest a physician; in the middle ages, when not a cleric, he had the status of a menial and sat below the salt; in the eighteenth century, he wore the "austere scarlet" of the clergy, or the velvet and brocade of the aristocracy, and mingled with the best; in the modern period, the age of money and money worship, he became something of a business man. Among the Greeks, the surgeon was a warrior chieftan; in the middle ages, he was a barber or bath keeper; in the seventeenth century, he was sometimes a headsman or executioner; in eighteenth century Germany, the army surgeon was called *Feldscheerer*, because he had to shave the officers of the line; in our own time, the surgeon stands at the topmost round of the medical profession and is sometimes an experimental physiologist. In the Renaissance period, the anatomist was a free thinker; in the seventeenth century, he was an experimental physiologist; in the eighteenth century, he was usually a surgeon and an illustrator of books; in the nineteenth century he became a microscopist and morphologist. The ancient Egyptians had a doctor for every disease or a disease for every doctor. Among the Babylonians, the patient was brought into the market place and any passerby could have some say as to diagnosis and treatment, if he chose. As Montaigne said, "The whole people was the physician." The same condition obtained after the French Revolution, when all the medical schools and medical societies of France were abolished by vote (1792), and any mountebank or ignoramus could qualify for practice on application.[6] The spirit of the mob has always been disastrous to medicine. Asclepiades, a Greek physician of the second century, B. C., introduced the idea that there are really no diseases but only constricted and relaxed, tonic and atonic, sthenic and asthenic states of the body, and this amazing theory was revived at least four times through the ages by Hoffmann, Brown, Broussais and Rasori, the latter two in the early part of the nineteenth century. Bloodletting, even to the point of killing the patient by exhaustion, was the standard remedy for one of these conditions, and was a disgrace to therapeutics for three centuries. Now we know, from the copious drafts of water the patients required, that the rationale of this procedure, when temperately employed, was simply to wash the blood, to relieve it of the "peccant humors" or toxins of disease. Abel surmises that the error of extensive and intensive bloodletting lay, not in depriving the patient of his blood serum, which could be supplied by the ingestion of water, but in relieving him of most of his red blood corpuscles, which cannot be supplied. One of the great aims of modern historical medicine is to get at the underlying folk intuition, in all these things. We trace the origin of internal medicine in the medicine man's solemn powwowings and incantations against the demons of disease; of diagnosis and pathology in the augur's inspection of the entrails at sacrifice, or the origin of study of the cholemic diathesis in the Babylonian terra-cotta models of the liver and the Galenic and Arabian interest in black and yellow bile. We trace the origins of operative surgery in the thorns, sharp roots and accidentally sharpened flints of the savage; obstetrics in the natural postures which, as Engelmann has shown, all savage and primitive women instinctively assume in labor.

These few trite examples may perhaps serve to indicate the interest which attaches to the cultural history of medicine, and they will at once suggest to your mind that it is not necessary to pursue the subject in the usual dryasdust way, by rule and line, piling up facts, dates and unfamiliar or uninteresting names in chronological order. This method, the bibliographic, is of great use and value in libraries and in research work, but the history of medicine itself is coextensive with the history of the human race, and only a part of the general history of human culture. Bibliographic methods will prove of immense value in keeping your private records, but, in the medical history club or possibly

4. For an account of these, see Smith, D. E.: Rara Arithmetica, Boston, 1908, passim.

6. Wickersheimer, E.: Un examen de médecine en l'an xii, Paris méd., 1912-1913, x, suppl., 749; translation: THE JOURNAL A. M. A., Nov. 29, 1913, p. 2001.

in some symposium at the home of your professor, you may, as Emerson says, "Take hold anywhere."

The gold-headed cane, St. Anthony's fire, the red and white stripes on the barber's pole, the duels of physicians, the blood suckers who attended duelists in the eighteenth century in order to suck their wounds, the wound drinks of the middle ages, the purgative inks of the Arabians, the anodyne necklaces, quassia and antimony cups of the past as compared with the medicated milks, iodated foods and diuretic wines of the moderns, cupping and leeching, the seton and the moxa, the sympathetic powder for healing wounds at a distance, the use of the bare foot as a thermometer in the middle ages, the introduction of Dover's powder by a buccaneer, the statues erected to the memory of great physicians and the streets named after them, the quacks of the eighteenth century, the medical graduation ceremony, the use of botanical gardens to teach materia medica, hex-doctoring in Pennsylvania, the medical superstitions and folk-ways of different races, any one of these subjects, taken at random as a starting point and closely studied, will throw you into the full current of medical history. It is worth while to remember, in this connection, that some of the most valuable records of historical medicine which we have are often contained in the actual scientific writings of great physicians and surgeons. Hippocrates and Celsus, Sydenham and Wiseman, Harvey and Sanctorius, Haller and Morgagni, Heberden and Lettsom, Bretonneau and Trousseau, Malgaigne, Nicaise and Gurlet, Virchow and Edwin Klebs, Osler, Welch and Jacobi, Charcot and Weir Mitchell, are saturated with medical history, if we understand by the term something which is alive and living and not a mere dead record. As an example, a paragraph from the obituary of the late Professor Minot by Professor Porter of Harvard illustrates the ephemeral status of biologic hypotheses:

> The history of thought is strewn with broken dreams. They rise like the mirage. The weary traveler, toiling through arid facts, as numerous and as unrelated as the sands of the Sahara, sees afar off the shining lakes of Theory. There, on the horizon, is that which shall fit the desert to be the abode of men. The traveler presses on. The mirage dissolves, and from afar the Sphinx, inscrutable, looks down on the immemorial sand. The biologist may dress himself tastefully in the plumage of the physiologist and the anatomist, but this will not create him a new species.[7]

There is more medical history in this paragraph than in hundreds of dull pages which give us only a detailed account of all these theories. A philosophical generalization of widest sweep is made in a way to set the mind in motion and start us thinking for ourselves; and that is how medical history has usually been written by the master physicians. "The knowledge of past time and of the position of the earth," said Leonardo da Vinci, "is the adornment and food of human minds." To know the cultural history of a great profession, his own, is a worthy ambition for any medical man. The young student who begins early may live to realize the sentiment of Thoreau:

> We should oftener look over the tafferel of our craft, like curious passengers, and not make the voyage like stupid sailors picking oakum. . . . How worn and dusty, then, must be the highways of the world, how deep the ruts of tradition and conformity. I did not wish to take a cabin passage, but rather to go before the mast and on the deck of the world, for there I could best see the moonlight amid the mountains. I do not wish to go below now.

7. Porter: Boston Med. and Surg. Jour., 1915, clxxii, 468.

THE CARBOHYDRATE FACTOR IN THE CAUSATION AND TREATMENT OF HYPERACIDITY AND ULCER

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In connection with the causation and treatment of gastric hyperacidity and ulcer, I wish briefly to mention certain observations relative to the dietetic and medical management founded on the following:

1. The great increase per capita of sugar during the past fifty years.

2. The possible relationship existing between this increase of sugar consumption and the apparent increased incidence of gastric and duodenal ulcer.

3. The influence of restricted carbohydrate diet in the treatment of uncomplicated hyperacidity and on ulcer. This excludes those in whom some remote pathologic condition may exert reflex influence on the gastric secretion, such as syphilitic ulcer, gallstones, chronic appendicitis, uterine malposition or new growth, pelvic adhesions, intestinal kinks or abdominal hernias.

So far as I am aware, Deeks,[1] in 1912, first called attention to the influence of an excessive sugar and starch diet in the causation of hyperacidity and ulcer. This article has received only scant attention, judging from the current gastro-enterologic literature. In the fall of 1913, while in Panama, I discussed with Deeks the results obtained, and examined a number of patients then under his care in Ancon Hospital. My interest in the subjects dates from that time.

Whatever may prove to be the ultimate explanation of the sequence of pathologic changes leading to ulcer formation in the stomach and duodenum, it is well recognized that hyperacidity has in probably every case, at some time, been a factor of at least contributary importance. In my experience, reflex causes in the abdomen have served as an explanation for the hyperchlorhydria and hypersecretion in at least 50 per cent. of the cases. In the remainder, a faulty dietary with an excess of carbohydrates has, I am certain, been a factor. At least this much may be said: A majority of such patients are relieved of many of their symptoms, such as hunger-pain, pyrosis and flatulence, by restricting their carbohydrate intake. When the hyperacidity and hypersecretion have existed for a considerable period of time with periodic intervals of improvement and relapse, definite ulcer is, of course, suspected. A large majority of ulcer cases are amenable to medical treatment. About 25 per cent., however, become chronic with undermined edges which show difficulty of repair. Such patients, because of the chronicity and slow repair, are given greater relief by competent surgical intervention. This does not refer to the complications such as extreme hemorrhage or perforation, many times calling for emergency surgery. Such surgical relief is indicated if sufficient appropriate medical treatment has been tried and found wanting, and if such patients have suffered seriously in nutrition as a result of their chronic dyspepsia.

According to the U. S. Department of Agriculture,[2] the annual consumption of sugar has increased three-

1. Deeks, W. E.: New York Med. Jour., Nov. 30, 1912.
2. For the figures here given, I am indebted to L. M. Eastbrook, chief of the Bureau of Crop Estimates, U. S. Department of Agriculture. The per capita consumption has been computed by adding the production of a given country to its imports and subtracting its exports. See also Bull. 66, U. S. Dept. Agric., March 10, 1914.

fold to 82 pounds per capita during the past fifty years. This has been due, in part, to cheaper production and in part to the increased taste for candies, preserving syrups, condiments and pastries. Starchy foods have also greatly increased, especially in the form of finely divided cereals from which the hull or shell of the grain has been removed. Fifty years ago, sugar was a luxury, while today it has become a necessity. The average individual feels that he must have sugar on nearly everything he eats. Modern civilization has made us a nation of sugar eaters. The consumption of sugar, per capita, in the United States in 1819 was 4 pounds, in 1821, 7 pounds. In 1912, the per capita consumption of sugar was about ten times the per capita consumption ninety years ago, that is, 82 pounds. In the United Kingdom, the average consumption in 1821 was 16 pounds per capita; in 1831, 18 pounds per capita, while in 1911, the per capita consumption was 92 pounds.

The accompanying table shows the marked increase in sugar consumption in the United States, United Kingdom, France and Germany, since 1871.

ESTIMATED AVERAGE PER CAPITA CONSUMPTION OF SUGAR IN FOUR IMPORTANT COUNTRIES *

Year	United States,† Pounds	United Kingdom‡ (Net imports), Pounds	France,‡ Pounds	Germany,§ Pounds
1871.....	36	44	17	12¶
1881.....	43	64	22	15
1891.....	61	78	26	21
1901.....	71	91	24	27
1911.....	77	92	39	42
1912.....	82.4	..	..	..

* U. S. Dept. of Agriculture, Bureau of Crop Estimates, Crop Records Division. April 30, 1915. "Consumption" includes all uses in households, in factories, and elsewhere. Figures for United States and United Kingdom refer partly to raw and partly to refined sugar; for France, figures for 1871, 1881 and 1891 refer to raw and for 1901 and 1911 to refined sugar; for Germany, figures in 1871 and 1881 refer to raw and other figures to refined sugar. This table was compiled from the Statistical Abstract of the United States; Statistical Abstract of the United Kingdom; Annuaire statistique (France), and Statistiche Jahrbuch für das deutsche Reich (Germany).

† For years ending June 30.

‡ For years ending December 31.

§ For years ending August 31.

¶ 1872.

In this connection it may be recalled that the stomach has no provision for the digestion of carbohydrates, with the result that under normal conditions a carbohydrate meal is rapidly passed through the stomach for digestion in the intestines. With a mixed meal, however, a considerable portion of the carbohydrate constituents remain during the process of protein digestion in the stomach. The gastric juice is without action on starch except to a very limited extent. Deeks has contended that an excess of carbohydrates, especially saccharose, favors bacterial decomposition during this period of protein digestion. The decomposition products which result are largely organic diffusible acids, such as lactic, acetic, propri-onic, butyric and valeric acid. These products, because of their irritating character on the gastric mucosa, promote hypersecretion. This is especially true when bacterial decomposition of carbohydrates occurs as a result of the retention of starch and sugar during the digestion of the protein constituents of a mixed meal. The symptoms of hyperchymification and hyperacidity occur, as is well known, toward the end of the period of protein digestion in the stomach.

Such symptoms are supposed to be due to the fact that the stomach has emptied itself and that, in most instances, with a patulous pylorus, there remains little food to bind the acid of the gastric juice, which, according to the experiments of Carlson,[3] is continuously secreted. As a matter of fact, gastric lavage within thirty minutes after a heavy carbohydrate meal has shown repeatedly, in my hands, an excess of organic acids. It appears that the hyperchlorhydria and the hypersecretion which follows can be more rationally explained in such cases as a result of the elaboration of irritating organic acids from sugar fermentation than from any other cause. It has been rare in my experience to encounter hypersecretion or hyperchlorhydria and ulcer in diabetic patients, who, because of the nature of their illness, partake sparingly of carbohydrates.

Pawlow,[4] in his work on the "minature stomach" in dogs, found that butyric acid strongly excites gastric secretion. On the other hand, an excess of hydrochloric acid inhibits butyric acid fermentation within the organ. With an ordinary amount of carbohydrates taken with a well balanced ration under normal conditions, but little butyric acid fermentation would probably occur because of the inhibitory action of the hydrochloric acid. With a mixed meal containing an excess of carbohydrate which remains in the stomach during protein digestion, the inhibitory action is insufficient, and bacterial organic acid fermentation occurs. The monosaccharids, such as dextrose, levulose and galactose, are fermented by yeast into alcohol and carbonic acid. Lactic acid is also formed by the action of the *Bacterium lactis*. The disaccharids, such as saccharose, maltose and lactose, are not fermented by yeast but may be broken up into lactic acid by the *Bacterium lactis* or butyric acid by the *Bacterium butyricum* of Pasteur or the micrococci of butyric acid fermentation discovered by Fitz. Of the polysaccharids, starch is likewise subject to bacterial fermentation with the formation of organic acids.

Pawlow has demonstrated that the ferment digestive power and likewise the total acidity of the gastric juice varied according to the nature of the diet. The juice secreted after bread contained much more ferment than after meat, but the acidity was greatest after meat (0.56 per cent.), and lowest with bread (0.46 per cent). He found, however, that the hourly intensity of gland work was much less with bread, which means that the time required for the digestion of its protein constituents is longer and that the duration of gastric secretion is correspondingly protracted. We have, therefore, in the type of carbohydrate digestion manifested by bread and cereals a relatively low acidity with protracted secretion. These factors probably have much to do with bacterial decomposition of carbohydrates when the latter are present in excess.

In the consideration of the apparent increased incidence of gastric and duodenal ulcer during the past fifty years, it is realized that statistics may be made to prove almost anything. It is interesting to note, however, that in Bennett's "Practice of Medicine," published in 1859 (Edinburgh), a classic of its time and containing many postmortem descriptions, only one perforative duodenal ulcer was mentioned (p. 774). He says, also, "From what I have observed of postmortem examinations in the Royal Infirmary of Edinburgh, it does not appear to me that chronic

3. Carlson, A. J.: Contributions to the Physiology of the Stomach, XXI, The Secretion of Gastric Juice in Man, Am. Jour. Physiol., 1915, xxxvii, 50.

4. Pawlow: The Work of the Digestive Glands, London, 1902.

ulcer of the stomach is a common disease here." Contrast this opinion founded on a large clinical experience at the Royal Infirmary, making due allowance for improved methods of diagnosis, with the last annual report of St. Mary's Hospital, Rochester, Minn., where 302 duodenal and 169 gastric ulcers, or a total of 471, were diagnosed during 1914. It is interesting to note that the incidence of ulcer patients requiring surgical interference has increased to the greatest extent judging from the literature, in the two English speaking countries in which the consumption of sugar has been greatest during the past twenty-five years. The operative records of the Mayos, Finney and others in this country, and of Moynihan and Mayo-Robson in England seem to bear out this statement.

From a practical standpoint, patients with hyperacidity and ulcer do better with an almost starch and sugar free diet, at least during the time of active symptoms. The diet which I have recommended in the treatment of hyperchlorhydria, not due to reflex causes from remote pathologic conditions elsewhere, if these can be excluded, is as follows (none of the articles of food contain more than 10 per cent. carbohydrates, while as a rule the available carbohydrates in the vegetables of this group vary from 3 to 5 per cent.): fresh fruit pulp and fruit juices, such as grapefruit, orange, peaches and watermelon without sugar; broth, soft boiled or poached eggs, fish and chicken, broiled or baked meats, bacon, milk, tea, cream, butter, green vegetables such as asparagus, spinach, cauliflower, watercress, endive, squash, carrots, turnips, lettuce, fruit and lettuce salads with olive oil dressing containing a very small amount of lemon juice, Brazil nuts, pecans or filberts. The following are prohibited: candy, sugar, syrups and condiments; the fresh fruits which contain more than 10 per cent. carbohydrates, such as apples, pears, bananas, cherries, currents, plums; of the vegetables, peas, parsnips, baked beans, potatoes, green corn, the cereals, boiled rice, macaroni, bread, crackers, cocoa, chocolate, and coffee.

If the symptoms do not rapidly subside by thus restricting the intake of carbohydrates, and if hypersecretion persists, a glass of milk is administered between meals and a powder consisting of magnesium oxid (calcined magnesia) and sodium bicarbonate, of each 20 grains after each feeding. Bismuth subcarbonate may be added to the powder if diarrhea is present. It is, of course, difficult to rid the stomach of the bacteria of starch and sugar fermentation, and if the organic acids persist, as evidenced by flatulence and pyrosis, gastric lavage may be employed, a liter of a weak solution of salicylic acid 1:1,000 once daily, one hour before the principal meal, being used.

In the treatment of active ulcer, rest in bed is secured and rectal alimentation carried out during a period of three or four days, or until vomiting or signs of hemorrhage have ceased. A liquid diet is then begun, consisting of albumin water and fruit juices without sugar, milk and broth, administered in small quantities of 2 or 3 ounces every two hours. The medication consists of bismuth subcarbonate, magnesium oxid, and sodium bicarbonate. An alkaline water, such as the artificial Vichy, is also used. When signs of tolerance are established, the quantities are increased until usually after a week or ten days the patient is gradually allowed to take the softer articles of the diet outlined above. Stress is laid on the feeding of small quantities at frequent intervals, usually from one and one-half to two hours, since the hypersecretion seems to be diminished by such a plan. If the patient is suffering seriously from starvation and malnutrition, commonly ascribed in general terms to "acidosis," and especially if surgical intervention is contemplated, more or less continuous enteroclysis by the drop method is used. The solution consists of ordinary tap water containing 1 ounce each of dextrose and sodium bicarbonate to the quart.

Attention to the coexisting constipation is important in the general treatment of hyperchlorhydria and chronic ulcer. The plan which has given me most satisfaction has been the use of liquid petrolatum with fruit juice once or twice daily, together with copious water drinking and attention to regular habits. The important point in the medical treatment of hyperchlorhydria and ulcer appears to be to decrease the intake of sugar and starchy foods and to use such means as will limit bacterial decomposition in the stomach. The essential point I wish to bring out is that organic acid decomposition of sugars and starches appears to play an important rôle in the production of hyperchlorhydria and its sequelae.

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THE EPIDEMIC OF TYPHUS EXANTHEMATICUS IN THE BALKANS AND IN THE PRISON CAMPS OF EUROPE*

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PITTSBURGH

The epidemic of typhus exanthematicus which spread over Serbia from December, 1914, to the end of July, 1915, was, in proportion to the territory involved and the population affected, the most severe that Europe has ever experienced. The spread of this epidemic from the Danube to the Greek boundary, involving every hospital, prison camp, soldiers' barracks and almost every home, was due entirely to preventable causes, to inexcusable indifference on the part of the Serbian civil and military authorities, and to carelessness which amounted to crime.

It is impossible to tell how many were afflicted with this disease, as there are no reliable statistics available. The military reports do not include the civil population and those who were ill and died of this disease unattended by physicians where no diagnoses were made. Conservatively, one out of every five of the two and a half million population was attacked by typhus, and 135,000, including 30,000 Austrian prisoners, died of typhus during this epidemic. The hospital mortality ranged from 19 to 65 per cent. No part of the country escaped, and every city, town and village in Serbia contributed to the morbidity and to the consequent mortality.

The unreliability of the estimates in this epidemic is further increased by the fact that the Serbian physicians classified typhoid fever as typhus abdominalis, relapsing fever as typhus recurrens, and typhus fever as typhus exanthematicus, and they used the term

* Read before the Section on Public Health and Medical Science of the Pan-American Scientific Congress, Washington, D. C., Dec. 28, 1915.

"typhus" vicariously to indicate any one of these three diseases. Lack of physicians in hospitals and among the civil population caused the diagnosis of typhus to be made in almost any case with increase of temperature, and was given as the cause of death in many cases in which it did not exist.

The word "typhus" covered a multitude of sins in diagnosis, as well as a world of ignorance and carelessness. This does not apply, however, to the better hospitals under Serbian control, or to those managed by the American Red Cross units, or to Red Cross missions sent from other countries.

INCIDENCE AND TRANSMISSION OF TYPHUS

Typhus is transmitted by the louse. The body louse is completely incriminated, the head louse probably so, and the crab louse not at all. While no human experiments were made in Serbia, still the observations made in those cases of typhus occurring in hospitals and private homes gave no evidence that the disease is transmitted in any other manner than through the bite of the infected louse. Measures looking to the eradication of lice from people and from their habitations, the improvement of personal and community cleanliness and hygiene, and the isolation of people afflicted with the disease, within a short time placed the epidemic under complete control. Like cholera, typhus is one of the easiest infections to prevent, and should it creep in, it is one of the easiest to eradicate when conditions favor, and when our present knowledge of the control of the disease is scientifically applied. It is essentially a disease of winter months, and no sanitary measures at present known are better or more efficacious than warm weather and sunshine, when the poor can leave their crowded quarters for the open air, and when bathing can be accomplished frequently, when clothing can be washed and changed frequently, and when lice leave because of the heat which they cannot endure. As the colder months, with their congested conditions, immediate want and squalor, are ideal conditions favoring a typhus epidemic, so warm weather, accompanied by the sunshine, which permits the population of homes and communities to seek more hygienic living conditions, to take better care of their clothes and persons, and to destroy the lice with which they have been infested, are the conditions which favor the control and eradication of this disease. Want, squalor and the overcrowding of people, soldiers and prisoners afford conditions which are ideal for the breeding of lice and the propagation of this dangerous infection, where the facilities for bodily cleanliness and personal hygiene are denied, where filth and squalor exist and is added to by each incoming guest, and when the climate is so severe that heavy clothing with infrequent changing is imperative.

Typhus has an incubation period of about fourteen days, probably a little under fourteen days than a longer period. Eruption follows the onset closely, and reaches it maximum intensity on the fifth day. It is during this five day eruptive period that the presence of the infected louse becomes dangerous to the non-immune; after this period of the disease and during the convalescence, there is little or no danger of the louse becoming infected after feeding on the patient. The disease reaches its climax, and if death does not ensue, a long and difficult convalescence is experienced. The mental distress and disturbance, often serious in character, invariably follow. Gangrene of the extremities, at times necessitating amputation, complicates convalescence. Severe emaciation attends the convalescent stage, and a general neuritis is often noticed. The disease seems to be a general septicemia, but nothing has been discovered at necropsy to throw any light on the pathology of this disease, with the exception of the recovery from cultures taken from the spleen of an organism resembling the Plotz organism.

Sex influences the incidence of typhus. Adult males are particularly susceptible; adult females form a very small percentage of those infected, and a still smaller percentage of those who die of the disease. Usually the disease when attacking females is mild in type, and the severe sequelae which follow the disease in males is not noticed among the females who have suffered from this infection. Children are seldom attacked. The greater opportunity which women and children have, and which they exercise, for the cleanliness of their clothes and persons, and which men, especially soldiers on campaign and prisoners in barracks, are usually deprived of, undoubtedly affords protection to the weaker sex; so also those who live in sanitary surroundings, and who have an opportunity to live in comparatively good hygienic conditions, are equally protected.

With proper precautions, large numbers of those who are not immune can live in the midst of a typhus epidemic and escape the disease. In Monastir, during the period of the epidemic, our American missionaries maintained a school and orphanage having an attendance of 140 pupils. Their school is located in the center of the city and within a stone's throw of four of the largest hospitals, accommodating at one time 3,000 typhus patients. In addition, typhus was present in the homes of many of the immediate neighbors, and the teachers in this school and the senior pupils visited the hospitals regularly two or three times a week, to minister to the sick, and yet there was not a single case of typhus among the pupils or faculty of this school. In Belgrade, a foundlings' home, containing forty children, is located just across the street from the civil hospitals, and Dr. Ryan's Red Cross Hospital, where thousands of cases were treated in the course of the epidemic, and no case of typhus occurred in this orphanage. The insane asylum in Belgrade, containing 180 males and 150 females, is located adjacent to the civil hospital, and is separated from it only by a high stone wall. The inmates of the asylum performed manual labor in and about the hospital grounds, yet during the entire epidemic only four cases of typhus occurred in the asylum, and the progress of the epidemic was immediately checked.

THE EPIDEMIC IN SERBIA

Only where the conditions for hygienic living were provided did the Serbian people escape. All classes and professions were affected. The medical profession in Serbia suffered more from the disease and consequent mortality than any other profession, in proportion to its number. Overworked and exhausted by the endless labor of caring for their sick, these civil heroes lost 160 of their number out of a total of 340 at the beginning of the war. To these self-sacrificing men and women a glory as great as any gained on the battlefield or in fire shelled trench is due. They spared themselves not, they spared no effort and no labor, but worked until exhausted and the disease attacked them. Among our own American physicians who went to the aid of the stricken people of Serbia, five died, two of whom, Drs. Donnelly and MacGruder, were

members of the American Red Cross units. The nurses did not escape; they too performed heroic deeds, and in one of our Red Cross units eleven out of fourteen were stricken with typhus; happily none of them died. The physicians and nurses which other countries sent to Serbia suffered as heavily.

The conditions for the spread of the epidemic in Serbia were ideal. During the Balkan War, typhus had invaded Serbia and had never been completely eradicated. Here and there scattered through the country, especially in the northern districts, were sporadic cases, and from these foci of infection the epidemic had its origin. The people were exhausted from previous wars; they had been invaded by a large army, and the civil population had retreated as the army fell back. Belgrade in normal times has 100,000 people; during the war only 30,000 remained. The smaller cities and villages in central and southern Serbia soon became congested and overcrowded. The lack of bathing facilities in the homes of the better class of Serbians, their entire absence in the homes of the middle and poorer classes, the crowded conditions in which they were forced to live, the cold months of the winter, all favored the intense spread of the epidemic which had started. Then came their military success. The Austrian army was thrown back through the invaded territory and across the Save River, and 70,000 Austrian prisoners were taken captive. These prisoners, starved, exhausted and vermin infested, were distributed in the little cities and villages of central and southern Serbia, thus further increasing the already overcrowded conditions.

In December, 1914, a sick soldier was sent to his home in Belgrade and was confined to his bed for three days before a physician was called and a diagnosis of his case made. His home was in one of the thickly populated quarters of Belgrade, and many of the members of his family, and his curious but well meaning neighbors, visited him during this period of his illness. When a physician was called the patient was found to be in the fourth or fifth day of the eruptive period of typhus. No effort was made to isolate or quarantine this patient, and people were permitted to visit the patient as before until he died. Within two weeks in this particular section of the city, dozens of cases of typhus developed, and the epidemic spread through all quarters of the city.

In six months it was estimated that 7,000 cases of typhus occurred in the city of Belgrade alone, the civil hospital caring for 1,850 of them, with a mortality of 19 per cent., which was the lowest hospital mortality of which I know in any hospital in Serbia. At the same time in other cities of Serbia, among soldiers, prisoners and the civil population, the epidemic was increasing at a fearful rate, and by the middle of January practically the whole of Serbia was involved. The overcrowded conditions in the hospitals in northern Serbia led the Serbian authorities to distribute the surplus sick suffering from typhus among the hospitals in the cities and villages of central Serbia and Macedonia, in many instances infecting cities in which the disease had not existed up to that time. Owing to lack of room in hospitals, soldiers and others connected with the army becoming infected with typhus were sent to their homes in whatever part of Serbia they might live, in this manner carrying the disease broadcast with them.

From this time there was no possibility of controlling the epidemic with such means as the Serbian authorities had at their command. Such efforts as were made by the medical authorities were feeble and unavailing; indeed, the epidemic had grown to such proportions that the entire time and labor of the few physicians in Belgrade and throughout Serbia were devoted to waiting on those already infected with the disease. The Serbian authorities lacked organization, capacity and direction, and the most inexcusable and unexplainable things were permitted to be done by them. Trainloads of typhus patients were sent from northern Serbia to all parts of the country, even to the extreme southern boundary, in this manner invading many localities with the infection which were comparatively free from the disease. The cities in which the few cases of typhus had already made their appearance might have been protected by prompt isolation, disinfection and efficient quarantine. All these measures were entirely neglected. Their hospitalization was miserable. The regular hospital establishments were too few in number and of too small capacity to accommodate those who had been wounded or taken ill during the military campaign, and schools, colleges and public buildings of all kinds were hurriedly converted into emergency hospitals, to accommodate those who were becoming infected with typhus. Two beds were placed side by side together and a single mattress placed over them, in this manner affording accommodation for three patients where only two could have been accommodated before. No wards were segregated for the special use of treating typhus patients, but the incoming patients were scattered indiscriminately throughout the hospitals in whatever section or ward an empty place could be found. Often a patient suffering from typhus in the active stage of the disease was placed between two patients on the same bed who were not suffering from the disease, and in the due course of time all became infected. Every hospital became a hotbed of infection. Few of them had anything like sanitary arrangements, and in them only military patients were accommodated.

The civil population was almost entirely neglected; only such attention in a professional way was given to patients in their homes as could be given by physicians already overworked by their duties in the military hospitals. In one section of Macedonia, containing a population of 250,000 people, there were only eight physicians, all of whom were attached to the military service, and not a single one was left to give any attention to the civil population. Hundreds of new cases were reported daily, and the deaths reached an alarming total. The people, long inured to hardship and misfortune, became disheartened and discouraged at the fearful danger that was threatening them with extermination. Starvation and squalor added their terrors to the frightful picture, and the people were without hope.

WORK OF THE RED CROSS

It was amid such surroundings and at such a time that the American Red Cross Sanitary Commission and the commissions sent by the governments of England, France and Russia arrived in Serbia during the month of April, and began their energetic campaign to combat and control the disease. There were never more favorable conditions for the spread of an epidemic than those existing in Serbia at this time. With these commissions came what was far more valuable to the suffering people and far more effective in the control of the disease — the warmer weather and the sunshine. With every warm day the disease lessened.

The people left their crowded homes. the prisoners were permitted to leave their congested barracks, and the soldiers had greater and more opportunities and time for the promotion of personal and community cleanliness. These new conditions, aided effectively by the activities of the American Red Cross Sanitary Commission, under the energetic, experienced and versatile director, Dr. R. P. Strong, soon placed the infection in that portion of Serbia which was assigned to the American Red Cross Sanitary Commission for the field of its labors under good control, and a few weeks later the disease was completely eradicated.

Serbia, for the purposes of controlling the epidemic, was divided into four sections; the northern and eastern sections were assigned to the French and Russians, respectively, the central section was assigned to the English, and the southern, comprising practically half the area of Serbia and many of its larger and more important cities, was assigned to the American Red Cross Sanitary Commission. Immediately after arrival, the Americans began their campaign in Uskub, Veles, Prizien, Pristina and Monastir; and while on the first day of May there were 3,000 cases in Uskub, 1,500 in Veles, 1,000 in Prizien, 1,000 in Pristina, and 2,000 in Monastir, three months later, August 1, there were not a dozen active cases in all of these cities or in the remaining parts of Macedonia.

The measures taken by the American commission consisted in fumigating all hospitals, barracks, schools, and other foci of infection. The patients in the hospitals were bathed with soap and water and kerosene, and their clothes were disinfected by steam at a temperature of 115 C. (239 F.) for thirty minutes. After this process the patient was returned to a clean and vermin-free ward. This process was repeated as necessary. Soldiers and prisoners in barracks were bathed and their clothing disinfected in a like manner. Houses in which typhus was present were fumigated, and the patients were quarantined and isolated, or removed to the typhus lazarettos connected with the local hospitals. A general sanitation of towns and cities was instituted, bath-houses were built, sewers were constructed, and proper disposal of sewage and garbage was insisted on. Emergency hospitals were abandoned as rapidly as possible, and patients suffering from typhus were segregated and sent to hospitals or wards especially dedicated to the treatment of these cases. General sanitation and hygiene were insisted on throughout the territory, and conditions rapidly improved. With the coming of the warm months of summer the disease disappeared, and it is worthy of note that it disappeared coordinately in all parts of Serbia, in those districts in which the missions from other countries were laboring, to the same gratifying degree as in the district to which the American Sanitary Commission was assigned. Only in the thickly populated districts of northern Serbia was an isolated case here and there reported, and it does not seem to have been completely eradicated in this territory. In the event that conditions such as existed during the past winter repeat themselves during the coming winter, Serbia, or at least the northern part, will again experience an epidemic of typhus.

PREVENTION OF SPREAD TO NEIGHBORING COUNTRIES

As magnificent as were the results which attended the labors of the American Red Cross Sanitary Commission, not less worthy of credit, and certainly more marvelous, were the accomplishments of the countries bordering on Serbia, in keeping the disease from getting a foothold within their borders. A number of cases, probably a thousand or two, were reported in those parts of Austria-Hungary adjacent to Serbia, but the epidemic was not permitted to spread, and after a time was eliminated entirely in the localities in which it had made its appearance.

In Roumania, which is the highway of travel between Serbia and the southern part of Europe and Russia, the energetic measures taken in the quarantine station at the Roumanian-Serbian border completely prevented the entrance of the disease into this country.

Bulgaria, with its highly developed corps of physicians and sanitarians, which bounds Serbia for almost its entire length on the east, and which is another highway of communication between southern and western Europe, succeeded in preventing any typhus from crossing its boundary line.

The most creditable of all, however, was that of the Greek physicians and quarantine officers and sanitarians. Greece bounds Serbia on the south, and since the beginning of the war the only communication which Serbia had with the rest of western Europe and America was through the port of Saloniki, a city of 200,000 people, with an additional 40,000 refugees of all classes, located in buildings and barracks within and about the city. Saloniki is connected with Serbia by two lines of railroads, and the old Via Romana highway affords another means of communication between Monastir and Saloniki. Hundreds of thousands of people traveled in and out of Serbia through this port, and were exposed constantly to the disease while in Serbia during the lifetime of this epidemic; yet such were the carefully executed measures established by the Greek quarantine officers and sanitarians, that less than 200 cases were reported in Saloniki and in the remaining cities of Greece while the epidemic in Serbia existed. At each point of entrance into Greece, the Greek authorities had instituted quarantine stations equipped with disinfecting plants and isolation wards, and every passenger on every train, and every one crossing the boundary line on foot or by conveyance of any kind, was stopped at these stations, examined by competent quarantine physicians, his clothing and baggage disinfected, and all suspicious cases with increase of temperature, due to any cause, held for an incubation period of fourteen days before being permitted to continue the journey into Grecce.

Any traveler from Serbia or Saloniki, or any other city in Greece, was again examined by a physician, who issued him a card on which were blanks for the recording of temperature for the five succeeding days, and under heavy penalty for failure to carry out the instructions, the traveler was ordered to report daily to the local physicians for the recording of his temperatures. In the city of Saloniki, where a majority of the cases reported made their appearance, the authorities handled the situation in a correct and scientific manner. Every case in the city with rise of temperature from any cause was reported to the health officer, who held the attending physician to a strict account for the faithful reporting of progress and diagnosis in the case.

In any case of doubtful diagnosis, expert professional advice from the health office was tendered without charge to the patient, and in case a diagnosis of typhus was made, the patient was called for by an ambulance, taken to a central disinfecting plant, where his clothes were taken from him and disinfected in an autoclave, the patient given a hot water, soap and

kerosene bath, his hair cut, and new hospital clothes given to him, and in a different ambulance from that which conveyed him to the disinfecting station, he was removed to a typhus lazaretto located at the edge of the city, and there remained until his recovery. He was not permitted to receive any visitors or any article sent from the outside, and was waited on during his illness by a competent force of physicians and hospital attendants. The feat which these efficient sanitarians accomplished in preventing the epidemic from gaining a foothold in their city, which was at that time the greatest and busiest port in the Levant, is a wonderful demonstration of what proper hygiene and sanitation will do.

THE CARE OF PRISONERS

Among the problems which confront all the countries engaged in this war are the care, treatment and preservation of the health of the prisoners which they take captive. These men, brought together from all parts of the world, and suffering all the hardships of long and arduous campaigns, under the most unfavorable living conditions, especially when engaged in trench warfare, are, when they are taken prisoners, usually in a state bordering on starvation, exhausted in mind and body, and almost without exception vermin infested. To the country which takes these men captive comes the great problem of preventing the bringing in of contagious and infectious diseases, which threaten the health and lives not only of other prisoners, but also of their own soldiers and civil population. So far as typhus is concerned, these countries handled the situation with wonderful success.

One of the countries having upward of 2,000,000 prisoners, and in which prison camps accommodating forty or fifty thousand prisoners are not unusual, has succeeded in keeping typhus from coming in, excepting in one or two camps. In the camps in which the epidemic has occurred, it has been controlled with a minimum degree of sickness and loss of life. Their methods for controlling this disease are simple but very effective when consistently carried out. On the entrance of a number of new prisoners into any prison camp, they are immediately isolated in a section of the camp separate from the remaining barracks, for a period of fourteen days. On admission to these isolation barracks each prisoner has his hair cut, is taken to a central bath-house, disinfecting plant and laundry, located in the center of the isolation compound, where he is bathed with cresolized soap and water, and afterward with kerosene, during which process his clothes are disinfected with live steam at a temperature of 135 C. (275 F.) for twenty minutes. After his bath his clothes are returned to him and he departs from the building through an exit in the rear of the bath-house. This process is repeated during the fourteen day period every four or five days. At the end of that time the prisoners are mustered for personal inspection by the prison physicians, and if they are in condition they are sent to their permanent barracks in the other compounds.

In the event that any case of infectious disease occurs in any part of the prison camp, the patient is at once removed to a well equipped hospital attached to the prison, and is there isolated and quarantined until he is free from danger to the other prisoners. The American Red Cross Commission, sent to Germany for sanitary work in the prison camps in that country, personally inspected camps in which there were 125,000 prisoners. They mustered, for personal inspection of clothing and persons, hundreds of prisoners of different nationalities in the different camps; they personally inspected hundreds of barracks in which prisoners were quartered, and thousands of beds and bunks on which the prisoners slept, and not a single louse or bedbug was discovered. This demonstrates the wonderful care and application which the authorities of this government use in preventing the incidence of contagious diseases of any sort among its prisoners, and illustrates most forcibly what energetic and correct measures will accomplish when scientifically applied in the prevention of infection.

The greatest hotbed of typhus and other infections existing in Europe before the outbreak of the epidemic in Serbia was in Galicia and Poland, along the Russian battle front. With the overrunning of these two immense provinces by the contending armies, the danger from the spread of the disease to the remaining parts of Europe became greater and more apparent each day. When finally the Russians were driven back beyond the borders of Galicia and Poland, and the current of travel between important points of these two provinces again began to flow, it became necessary for the German and Austrian governments to make great preparations and take the most effective measures to prevent the ingress of infection. On this front is built what the Germans call a "louserin," which was completed at a cost of 5,000,000 marks, ($1,250,000), and was paid for out of the private fortune of the German emperor. To this great establishment all persons, of whatever age, nationality or rank in life, going from Germany into Poland or Galicia, and from those provinces returning into Germany or Austria, are sent and are detained for five days, during which period they are bathed daily, and their clothes disinfected in large autoclaves with each bath. At the end of the five day period each traveler is given a personal examination, and on being found to be free from disease or vermin, is given a certificate which permits him to continue his journey across the frontier. No exception is made in the case of any traveler, no matter what his rank or station in life may be, the imperial family being just as amenable to the rules of this great establishment as the poorest subject of Poland or Germany.

DISEASES COMMUNICATED BY FLIES AND OTHER INSECTS

In Serbia, in addition to typhus, relapsing fever, which is transmitted by the bedbug, was prevalent in large numbers. The sanitary methods applied by the American Red Cross Sanitary Commission in combating the typhus epidemic went very far toward the elimination of relapsing fever, especially the fumigation and disinfection of barracks, hospitals, beds and clothing. It did not disappear with the approach of summer, but decreased to a very great degree. Typhoid fever was constantly present — not in epidemic form, but in sufficient numbers and covering a sufficiently wide range of territory to become a serious problem. The cities and villages of Serbia, without exception, are built on rapid running streams, usually on both banks of the river, which serves the common purpose of sewer, bath, laundry and drinking water supply. Only the fact that the water which supplies these streams comes from the mountains, and that generally the streams are rapidly running over gravelly beds, and the water has a tendency to purify itself quickly, is a greater incidence of water-borne diseases prevented.

The fly problem is always serious, and the natural habits of the peasants and their living conditions all tend to the increase of fly breeding. Manure of all sorts is carefully saved for the fertilization of the fields, and other purposes. Human and animal feces is carefully conserved, mixed with straw enough to hold it together, made into large circular cakes, and pasted against the outside walls of the habitations of the people, there to remain until dry and hard, and in this condition to be carefully saved for fuel purposes during the succeeding winter. Every house, every alley, every street, every place, was a breeding place for flies, and typhoid fever has probably been one of the current diseases in Serbia and Macedonia for generations.

The country is farmed by irrigation. Every valley has its mains and laterals running through it, all the ditches grass-grown and shaded to prevent evaporation, affording ideal places for the breeding of mosquitoes. Malaria, during the months of July, August, September and October, is prevalent to an unusual degree. It is peculiarly pernicious in its forms, and I know of more deaths resulting from malaria infection in Serbia during the six months I was present there than occurred in Panama during any one of the nine years of the American occupation.

In addition to all these diseases, Uskub and other cities of Serbia experienced epidemics of pappataci fever — a three or four day fever, not fatal in character, communicated by the pappataci gnat, which is prevalent along the Adriatic shores and in this section of the Balkans. The patient suffers severely from headaches, back and body pains, and congestion of the conjunctiva, throat and nasal passages, and has a temperature of 104 F. for two or three days, which then subsides, and a rapid convalescence ensues. The treatment for this fever is purely symptomatic; no measures have been discovered other than general sanitation and hygiene to combat this disease.

Cholera did not make its appearance in Serbia during the past year.

TREATMENT OF TYPHUS

The treatment of typhus fever is unsatisfactory. It is supportive and symptomatic in character. The use of the serum prepared by Nicolle, or the vaccine prepared from the Plotz organism, seems to have a tendency to abort the disease, and seems to have a therapeutic value. Plenty of water should be given to the patient, and a saline infusion should be constantly at hand for use at any period succeeding the eruptive stage and the climax of the disease. The severe emaciation which attends all these cases should be carefully managed. The diet should be carefully selected and carefully administered, and every precaution to support and stimulate the patient judiciously should be taken. The nervous and mental systems, which are very much disturbed, should be carefully cared for, and this disturbance, often continuing for six months following convalescence, should never be neglected.

The prophylactic measures which were employed in Serbia by the American Red Cross Sanitary Commission, and those which are used in the prison camps in Europe and in the quarantine stations of the countries bordering on Serbia, afford an effective prophylaxis in this disease. The value of the Plotz vaccine in immunizing against typhus infection is problematic. It probably has a value which will be fully demonstrated before typhus is eliminated from the Balkans. It was interesting to note that out of two or three hundred people not immune to typhus, who found it necessary to go to this part of Europe during the epidemic, all of whom were inoculated with the Plotz vaccine, among which number were all of the members of the American Red Cross Sanitary Commission, with but one exception, and the members of the mission which Columbia University sent to Serbia, and many others who were exposed at some time or another to a greater or less degree to the infection, not one case of typhus developed.

CONCLUSION

The lessons which this epidemic teaches is particularly valuable to the sanitary world, especially to those localities which are from time to time subject to an epidemic of typhus fever. It demonstrates beyond any question of a doubt that the disease can be kept out of a country by instituting proper quarantine and sanitary measures, and by the proper observance of personal and community cleanliness and hygiene. It has demonstrated with equal certainty that if it should at any time secure a foothold in any locality, it can be easily limited and eradicated in a short time. With our present knowledge of the measures which control this disease, we can take a very optimistic view of the future, and assert with confidence that the epidemic of typhus which Serbia has so recently experienced is probably the last one which will occur in Europe, unless conditions favoring an epidemic are worse than ever before existed in the history of the continent.

STRONTIUM SALICYLATE*

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The salicylate of strontium has had a therapeutic reputation for which there is no satisfactory foundation discoverable. It has enjoyed a vogue that is largely due to the propaganda of manufacturers rather than to the writings of any experimenters or carefully observing clinicians. The literature on strontium is quite meager and not at all convincing. The standard works on therapeutics are quite uniform in the statements regarding the use of strontium, so uniform in fact that it suggests the probability that they are from the same original source and that strontium has been "lugged along" from one edition to another from no well established starting point. For instance, Wood[1] says:

> The strontium salicylate, nonofficial, is a valuable compound, which slowly yields up its salicylic acid in the alimentary canal, and has the great advantage of being much less apt to derange the digestion. It is, however, too slow in its influence to be used when a quick, powerful effect of the salicylates is desired.

Hare[2] says:

> The salicylate of strontium is a valuable preparation, because it is not so disagreeable to the taste as the corresponding salt of sodium; and more important still, it is far less apt to disorder the stomach than salicylic acid itself or any of its other salts. The author has found it for these

* From the Medical Service, Lakeside Hospital.
* The subject of this research was suggested by the Committee on Therapeutic Research of the Council of Pharmacy and Chemistry of the American Medical Association.

1. Wood, Horatio C.: Therapeutics: Its Principles and Practice, Ed. 11, p. 582.
2. Hare, Hobart Amory: Text-Book of Practical Therapeutics, Ed. 11, p. 428.

reasons very useful in acute articular rheumatism when the progress of the patient was delayed by the inability of his stomach to retain the ordinary antirheumatic remedies. The salicylate of strontium is best given in capsule or cachet, and should always be followed by a draught of milk or water to prevent its coming in contact with the stomach in too concentrated form. The dose is, for all practical purposes, identical with that of the salicylate of sodium.

Strontium itself is acknowledged to be inert, although it was at one time asserted to be "valuable in Bright's disease."

Wood and Arnold[3] found that only minute traces of any strontium salt appear in the urine when given internally, and that no salt of strontium is absorbed from hypodermic injections.

As to the salicylate of strontium, the same experimenters can be quoted. Horatio C. Wood[4] says:

> In the experiments of Wood and Arnold it was found that when a solution of strontium salicylate was added to the 0.1 per cent. solution of hydrochloric acid practically all of the salicylic acid is at once set free. Also, that when strontium salicylate is given to man the urine in an hour contains much of the acid, but only a trace of the base. As the 0.1 per cent. hydrochloric acid solution is considerably less acid than is normal gastric juice, it is evident that the strontium salicylate is at once decomposed in the stomach, and that the strontium acts almost solely as a carrier. There is reason for believing that the strontium is a feeble antiseptic, and that when in the alimentary canal it acts favorably on the digestive glands and muscles, so that in the case of the official salts, strontium bromid, strontium iodid, and the nonofficial strontium salicylate, the base is useful as a carrier which yields the substance with which it is in combination to absorption and at the same time improves digestion.

Beyond this and one or two similar statements, very little can be found favorable to strontium even as a carrier for salicylic acid. Obviously the only claim clinically and experimentally for strontium is that it modifies favorably the action of the anion — especially its action on digestion.

The claim or impression that strontium diminishes digestive disturbance and perhaps slows or moderates absorption could be well tested on the salicylate. The actions of the salicylate ion are so definite, and have been so extensively studied, quantitatively as well as qualitatively, that any differences in the effects could be easily discovered.

It was with the hope of finding if strontium salicylate was any different therapeutically from any other salicylate, taken internally, that it was used in the medical wards at Lakeside Hospital for this report. It was used in the treatment of rheumatic fever, tonsillitis, and endocarditis mainly, in the same wards and practically under the same conditions obtaining when observations were made on the toxicity of salicylates as reported by Hanzlik.[5] In all cases the patients were above 12 years of age, and the drug was given in 20 grain doses combined with an equal amount of sodium bicarbonate, hourly, until symptoms of intoxication appeared. The bicarbonate was added, since this is the routine practice of the service with sodium salicylate, and was therefore necessary for the purposes

TABLE 1.—SUMMARY OF TWENTY-THREE CASES TREATED WITH STRONTIUM SALICYLATE IN COMBINATION WITH EQUAL AMOUNTS OF SODIUM BICARBONATE

Name	Age	Sex*	Diagnosis	Dosage				Anti-pyresis	Relief of Pain	Diapho-resis	Ear Symptoms	Gastric Symptoms	Delirium
				Total Grains	Grains	Inter-val	No.						
S. S.	34	♀	Acute articular rheumatism	280	20	1 hr.	14	Marked 3.5°	Marked	Marked	Ringing deafness	Nausea and vomiting	Slight
D. M.	20	♀	Gonorrheal arthritis.....	100	20	1 hr.	5	1°	Slight	Slight	Ringing deafness	Nausea and vomiting	None
F. M.	25	♀	Sciatic neuritis.....	140	20	1 hr.	7	0.5°	Very slight	None	Marked tinnitus	None	Marked
S. S.	34	♀	Acute articular rheumatism	380	20	1 hr.	19	1°	Marked	Marked	Distinct deafness	Slight nausea	Talkative and hilarious
J. R.	16	♀	Acute articular rheumatism; acute endocarditis	260	20	1 hr.	13	3°	Marked	Marked	Slight	Very nauseated	Slightly irrational
M. N.	16	♀	Acute endocarditis.....	500	20	1 hr.	25	1.5°	Marked	None	Marked	Slight nausea	None
M. L.	22	♀	Erythema nodosum.....	180	20	1 hr.	9	None	None	.....	.....	Nausea	None
R. S.	14	♀	Cervical adenitis.....	180	20	1 hr.	9	Slight	Slight	.....	.....	Nausea	None
M. M.	48	♀	Lobar pneumonia.....	160	20	1 hr.	8	Slight	Slight	.....	.....	Nausea	Slight
E. M.	16	♀	Chronic arthritis.....	220	20	1 hr.	11	None	Slight	.....	.....	Nausea	None
M. R.	15	♀	Chronic endocarditis.....	200	20	1 hr.	10	None	None	.....	.....	Nausea	None
M. G.	27	♀	Acute articular rheumatism	220	20	1 hr.	11	Slight	Marked	.....	.....	Nausea	None
A. G.	15	♀	Chronic endocarditis.....	140	20	1 hr.	7	None	None	.....	.....	Nausea	None
I. J.	19	♀	Chronic endocarditis.....	140	20	1 hr.	7	Slight	None	.....	.....	Nausea	None
G. P.	26	♂	Acute articular rheumatism	300	20	1 hr.	10	Marked	Marked	Slight	Tinnitus; deafness	Nausea	Slight
G. P.†	26	♂	Acute articular rheumatism	200	20	1 hr.	10	Slight	Slight	Slight	Tinnitus; deafness	None	None
I. S.	26	♂	Acute rheumatic myositis...	140	20	1 hr.	10	2°	Marked	None	Slight deafness	None	None
F. M.	14	♂	Acute articular rheumatism	120	20	1 hr.	6	None	Marked	None	.....	Nausea	None
J. C.	23	♂	Chronic articular rheumatism	240	20	1 hr.	12	Slight	Slight	.....	.....	Nausea	None
J. P.	22	♂	Acute articular rheumatism	340	20	1 hr.	17	Marked	Marked	.....	.....	Nausea	None
J. S.	24	♂	Acute articular rheumatism	440	20	1 hr.	22	None	None	.....	.....	Nausea	Slight
J. C.	23	♂	Chronic articular rheumatism	240	20	1 hr.	12	Slight	Slight	.....	.....	Nausea	None
H. H.‡	12	♂	Acute endocarditis.....	120	20	1 hr.	6	None	Slight	.....	Slight tinnitus	Nausea	None
H. H.	12	♂	Acute endocarditis.....	100	20	1 hr.	5	None	.....	.....	.....	Nausea	None
H. H.	12	♂	Acute endocarditis.....	100	20	1 hr.	5	None	.....	.....	.....	Nausea	
H. H.	12	♂	Acute endocarditis.....	120	20	1 hr.	6	None	.....	.....	.....	Nausea	
H. H.	12	♂	Acute endocarditis.....	80	20	1 hr.	4	None	.....	.....	.....	Nausea	
H. H.	12	♂	Acute endocarditis.....	100	20	1 hr.	5	None	.....	.....	.....	Nausea	
L. P.	20	♂	Endocarditis (chronic).....	280	20	1 hr.	14	None	None	.....	.....	Nausea	None

* In the table, ♀ means female, and ♂ male.
† Medication repeated after five days.
‡ Medication repeated after intervals of one, two, four, six, and six days, respectively.

3. Wood and Arnold: Philadelphia Monthly Med. Jour., April, 1899.
4. Wood, Horatio C.: Therapeutics: Its Principles and Practice, Ed. 11, p. 687.
5. Hanzlik, Paul J.: A Study of the Toxicity of the Salicylates, Based on Clinical Statistics, THE JOURNAL A. M. A., March 29, 1913, p. 957.

of comparison. The nursing staff was instructed to report the signs of intoxication, and when the patients showed definite signs of nausea or vomited, administration was stopped. The usual records were kept at the bedside, including in every case an accurate account of the amount taken. The ward physician on a separate form kept a record of the data contained in Table 1.

The powdered form was given mixed with the sodium bicarbonate, both being placed on the tongue and washed down with from 2 to 4 ounces of water. Water was given freely between doses, and a liquid or soft diet when possible. The powders were weighed and put up by the resident pharmacist.

It will be seen by Table 1 that the extremes of the toxic dose are 80 and 500 grains. The mean dose is 180. The mean dose giving marked relief of pain is 260. Comparing these figures with those given for the mean toxic dose of other salicylates, it is seen that they are all very much the same. Hanzlik[5] reported the mean toxic doses of the various salicylates for adult males and females as in Table 2.

TABLE 2.—MEAN TOXIC DOSES OF THE VARIOUS SALICYLATES

	Males	Females
Synthetic sodium salicylate	180 grains	140 grains
"Natural" sodium salicylate	200 grains	135 grains
Methyl salicylate	120 minims	120 minims
Acetyl salicylic acid (aspirin)	165 grains	120 grains
Salicylosalicylic acid (diplosal)	100 grains	83 grains

It is to be remembered, however, that the salicyl content of strontium salicylate is about four-fifths that of sodium salicylate based on the amount of available anion. The mean effectual dose in rheumatic fever is seen to be 260 grains, which is slightly higher than the figure given for the same dose of sodium salicylate.

The mean dose producing tinnitus, vomiting, delirium, etc., is in this series of little value owing to the limited number of cases, but it is quite obvious that such toxic symptoms readily occur.

The same limitation also makes deductions as to antipyresis and diaphoresis of no value.

The drug was easily given in all cases, and no more than the usual protest was made about the taste. It is very sparingly soluble in water, so that no concentrated stock solution could be made for use in the wards, as is our custom with the sodium salicylate. The powders are less convenient, therefore, to give accurately.

CONCLUSIONS

From the data at hand we can conclude that:

1. The mean toxic dose of strontium salicylate is the same as that for sodium salicylate.
2. Strontium salicylate produces the same gastric and other toxic symptoms produced by any salicylate.
3. It is no more effectual in relief of pain.
4. It is not so convenient to give as are the more soluble salicylates.

The Pupils.—The value of the pupils in diagnosis has been greatly overestimated. There are, in fact, comparatively few conditions in which they yield us important diagnostic evidence, for, although they are very often abnormal, the abnormalities are seldom characteristic of any single pathologic condition and throw little light on the diagnosis.—Richard C. Cabot.

PARALYSIS OF THE RECURRENT LARYNGEAL NERVE RESULTING FROM MITRAL STENOSIS *

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It is only recently that recurrent laryngeal paralysis has been known to be caused by mitral stenosis. Oertner[1] in 1897 presented two cases of this condition. Heretofore this etiology was unheard of. One can judge how rare the syndrome is by the fact that in the literature there are only eleven cases confirmed by necropsy. The mechanics of the paralysis are explained by the necropsy findings in selected reported cases. The cases are two of Oertner's, one each of Hofbauer, Frischhauer, Kraus, Freystadtl and Stranz.

In the first case of Oertner, the lumen of the left auricle was distended to the size of a man's fist. The enlarged auricle in its filled state caused compression of the left bronchus, the recurrent laryngeal nerve, and the aortic arch. At the point of compression, the nerve for about 2 mm. was grayish, transparent and thinned out, and microscopically showed degeneration.

In the second case of Oertner, the left auricle was similarly distended to about the size of a man's fist. The aorta was of normal width. The left recurrent laryngeal nerve was on the upper wall of the distended left auricle, and was compressed against the aorta. The nerve at this point had degenerated to a thin band.

From these two cases Oertner came to the conclusion that in certain cases of mitral stenosis the left auricle is so dilated that the recurrent laryngeal nerve is compressed against the aortic arch. As a result the nerve degenerates and paralysis of the left vocal cord follows.

The findings in Hofbauer's[2] case showed the left auricular appendage compressed between the pulmonary artery and the aorta; and the resulting compression caused degeneration of the recurrent laryngeal nerve. As in Oertner's cases, the dilated left auricle was the direct cause of the paralysis.

Frischhauer's[3] case showed that the markedly dilated left auricle did not directly press the nerve against the aorta; but only through the interposition of the pulmonary artery, degeneration and paralysis resulting.

In Kraus'[4] case, the etiology was different: marked dilatation of the right ventricle caused enlargement of the heart to such an extent as to alter the anatomic relations of the heart, pulmonary artery, ligamentum arteriosum and the aortic arch; the nerve was strangulated by the ligamentum arteriosum. The nerve at this point appeared thin and grayish. The left auricle, even though markedly dilated, was 4 cm. from the point of compression. The paralysis in this case followed compensation, while in the other case it followed decompensation.

The ductus arteriosus can cause the paralysis in other ways than that described above. This is seen in the case of von Schrötter,[5] in which the paralysis was caused by incarceration of the nerve between the aorta and the patent ductus. The pulsations of the

* From the medical service of Dr. Leon Louria.

1. Oertner: Wien. klin. Wchnschr., 1897, p. 753.
2. Hofbauer: Wien. klin. Wchnschr., 1902, p. 1065.
3. Frischhauer: Wien. klin. Wchnschr., 1905, p. 1383.
4. Kraus: Verhandl. d. XIX Kongr. f. inn. Med., p. 608.
5. Von Schrötter, H.: Ztschr. f. klin. Med., xliii, p. 160.

vessels caused the paralysis. In this case there was also a slight mitral stenosis that played but a small part in the etiology. That paralysis of the recurrent laryngeal nerve can result from a patent ductus arteriosus is affirmed by Gerhardt in his classic description of ductus arteriosus patency.

The mechanics in Freystadtl and Stranz'[6] case was similar to that of Oertner's cases.

Hofbauer[7] observed paralysis of the recurrent laryngeal in a case of slight mitral stenosis which did not come to necropsy, and that in certain positions the hoarseness would vary. In lying on the right side or back the hoarseness was less than when lying on the left side or bending forward. He explained this by the fact that in certain positions the nerve was compressed more than others. Freystadtl and Stranz take exception to this view, because in the cases that came to necropsy the nerve and laryngeal muscles showed degeneration which was complete; mere change in position could not have produced the degeneration.

As heretofore shown, paralysis of the recurrent laryngeal nerve can be caused in mitral stenosis by the direct pressure of the left auricle, or, indirectly, through the pressure of the pulmonary artery, and finally the changed position of the heart can cause the ligamentum arteriosum to strangulate the recurrent nerve. As seen from the literature, a lesion of the mitral valve producing dilatation of the ventricle (mitral insufficiency) will not alone produce the condition; there must be associated with it such a lesion of the mitral valve as will produce rather a dilatation of the auricle (mitral stenosis).

Case 1.—H. F., a boy aged 4½ years, was admitted March 6, 1914; died Jan. 6, 1915. The family history was negative.

Past History.—Chickenpox two years, measles one year, prior to admission; no complications.

Present History.—Six weeks previous to admission the child became ill, with malaise, fever, vomiting, pains all over body, more marked in the knee joints. This persisted six days; since then he has been short of breath on slight exertion, with attacks of palpitation. One month before admission the mother noticed that the child became hoarse.

Physical Examination.—Fairly well nourished; slight dyspnea; no cyanosis; skin and mucous membranes are pale; lymph glands slightly palpable; no pulsation in vessels of neck.

Lungs: Normal pulmonary resonance; breathing is exaggerated, especially on inspiration; a few subcrepitant râles at left base.

Heart: Right border at the right border of sternum; upper border at the second interspace; left border at mammary line; apex is visible and palpable in the sixth interspace 7.5 cm. from the median line; a presystolic thrill is felt over the apex. At the apex the sounds are replaced by murmurs, a soft blowing systolic transmitted to the axilla, and a presystolic murmur heard within the apex. Over the fourth left interspace near the sternum there is a rough systolic murmur; a soft blowing systolic murmur is present over the aortic area; the second pulmonic sound is accentuated.

Abdomen: Negative; liver and spleen not felt.

Extremities: No clubbing; no edema.

Urine: Faint trace of albumin; no sugar; no casts.

Blood: Hemoglobin 70 per cent.; red blood cells, 3,900,000; white blood cells, 5,900.

Differential Count: Polynuclears 60 per cent., lymphocytes 40 per cent.

Roentgenogram taken March 7 showed the heart greatly enlarged, about 2½ fingers' breath to the right of the sternum, and the left border at its inferior point reaches just within the anterior axillary line.

Laryngeal Examination: Left abductor paralysis; left vocal cord drawn to median line; true and false cords pale; right cord moves normally.

The condition of patient improved markedly under treatment. He had a temperature as high as 101 F. for the first two weeks, and after that between 98 and 100. The hoarseness remained unchanged. He left the hospital in May, 1914, and felt well up to the early part of December, when he had a recurrence of his symptoms, and was readmitted to the hospital Dec. 14, 1914. Laryngeal examination December 19 showed the same findings as before. Despite active treatment he died Jan. 6, 1915. Necropsy was not permitted.

Case 2.—A. A., aged 27, bartender, was admitted May 20, 1915; died May 31, 1915. Family history negative.

Past History.—The patient does not recall any of the diseases of childhood. Never had any of the acute infectious diseases. About four years prior to admission the patient had difficulty in breathing, but had no precordial pain or palpitation. This lasted three days; he then coughed up a little blood, after which he felt better. In the following three years he had several similar attacks, but they were mild. A year ago, however, he suffered a more severe attack that necessitated his confinement to bed for one week; his condition improved and continued so until two months before admission. Good habits.

Venereal: Had repeated attacks of gonorrhea, the last one five years ago; no syphilis.

Present History.—Illness began about two months ago with dyspnea, cough, palpitation and precordial pain. These symptoms continued and after treatment in a sanatorium for seventeen days he felt very much better. During this time he coughed and spat up some blood. About four weeks ago he went to Lakewood, N. J., and while there was more active than advised to be. After one week he went home, where he remained for two weeks. About three or four days before admission he became more dyspneic, and the symptoms became worse. He developed swelling of the ankles the day before admission.

Physical Examination.—General condition poor; anemic; dyspneic and cyanotic; cyanosis especially marked in ears and mucous membranes; venous pulsations visible and palpable; arterial pulsations marked.

Eyes: Pupils equal and react to light and accommodation.

Lungs: Dulness, subcrepitant and crepitant râles; distant voice and breath sounds over both bases.

Heart: Right border 5 cm. from midsternal line. Left border, 15 cm. from midsternal line. Apex beat situated in sixth left intercostal space; somewhat diffuse. At apex a presystolic thrill is palpable. The sounds are variable in force, irregular in rhythm, and of poor muscular quality; over apex a presystolic murmur is heard, not transmitted; also a systolic murmur transmitted to the left axilla. The second pulmonic sound is accentuated. The second aortic is accompanied by a diastolic murmur transmitted along the left border of the sternum, and best heard on the fourth left interspace near the margin of the sternum.

Pulses irregular, fair tension, equal; vessels moderately thickened.

Abdomen: Distended; otherwise negative.

Liver: Palpable about 10 cm. below the costal margin, tender, with transmitted pulsations.

Spleen and kidneys not palpable.

Edema over ankles; knee-jerks normal.

Roentgenogram taken seven days after admission showed marked cardiac dilatation to the right and left. The left ventricle and auricle were enlarged and the markings lost.

Blood culture, sterile.

Blood Counts	5/20	5/25
White blood cells.....	16,600	9,800
Lymphocytes	14 per cent.	12 per cent.
Polynuclears	86 per cent.	88 per cent.

Blood pressure 130 to 150.

6. Freystadtl, B., and Stranz, J.: Monatschr. f. Ohrenh., 1902, v, 557.
7. Hofbauer: Wien. klin. Wchnschr., 1905, p. 1385.

Urine: Acid; marked albumin; no sugar; many finely and coarsely granulated casts; occasional white blood cell. Bile present in urine May 24 and thereafter.

Patient was admitted in extreme stage of decompensation; was put on sedatives and seemed to improve a little; but on the fourth day he was markedly jaundiced, and two days later he became hoarse. The larynx showed the left true vocal cord in a stationary position (abductor paralysis). The temperature ranged from 102 to 103 F. and pulse 130 to 160; respirations 24 to 26. He was put on active stimulation, with no response, and died May 31.

In this case no necropsy was permitted so that the mechanics of the condition could not be determined.

RADIAL PULSE DIFFERENCE AND LEFT RECURRENT NERVE PARALYSIS DUE TO MITRAL STENOSIS *

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AND
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The history and the result of the examination of our patient was as follows:

J. R., woman, aged 25, married two years, with no children or pregnancies, had a severe attack of inflammatory rheumatism thirteen years ago. There were no cardiac symptoms until three years ago; at that time palpitation began. During the last year, she has also become somewhat dyspneic. Her hoarseness commenced six months ago. Examination of the larynx showed that the left vocal cord was immovable and somewhat shortened and in the so-called cadaveric position, owing to recurrent paralysis. The voice on phonation was indistinct and hoarse. The examination of the cardiovascular system revealed the following: There was a noticeable difference between the right and left radial arteries on palpation, particularly when the arms were extended above the head. The systolic and diastolic blood pressures of the right brachial were respectively 110 and 80 mm. of mercury, of the left, 82 and 70 mm.; of the right popliteal, 118 and 85 mm., of the left, 105 and 70 mm. There was no perceptible difference in the carotid pulsations. The pulse was regular, the rate 100 per minute. There was vigorous visible precordial pulsation, a diastolic thrill was felt and a loud rumbling presystolic murmur was heard at the apex. The aortal sounds were normal. Over the pulmonary area, there was a somewhat rough systolic murmur and an exceedingly accentuated snappy second sound; the sharp click of pulmonary valve closure was also evident on palpation. A dry pericardial friction rub was heard over the lower sternum; three weeks later, there was also evidence of a fresh pericarditis over the pulmonary area. There was no systolic apical retraction. Orthodiascopic examination (Fig. 1) revealed a short aortal bulge (*A*); the outline of the aorta was apparently encroached on by the very much dilated pulmonary artery (*P A*). The left auricle (*L A*), though not enlarged in the tracing, overlapped the pulmonary artery to some extent. The left ventricle (*L V*) and the right side of the heart were also somewhat dilated. The electrocardiogram (Fig. 2) showed a negative R (S, according to Lewis) in Lead 3, presumed evidence of left ventricular preponderance,[1] and a notched, enlarged P in the first lead; when the latter is found in the second lead, it is sometimes regarded as evidence of auricular hypertrophy. There was no edema. The Wassermann examination of the blood was negative. Summarizing, the patient had left recurrent laryngeal paralysis, differences in the pressure of the right and left radial and popliteal arteries, mitral stenosis, dry pericarditis, dilated pulmonary artery, an aorta somewhat dilated, and an enlarged left ventricle and left auricle.

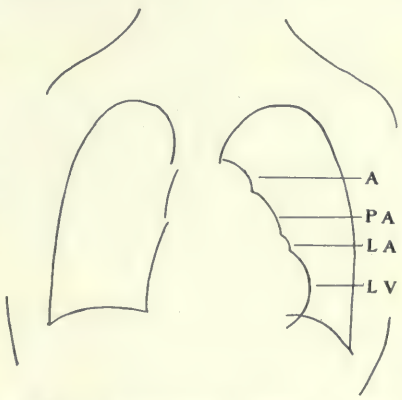


Fig. 1.—Orthodiascopic tracing: *A*, aortal outline; *P A*, outline of pulmonary artery; *L A*, outline of left auricle; *L V*, outline of left ventricle.

Ortner[2] in 1897 first described the connection between mitral stenosis and paralysis of the left recurrent nerve. Since then, reports of thirty-two cases have been collected from the literature by Cuisset[3] up to 1912. The various theories held accountable for the paralysis may be recapitulated as follows:

1. Ortner's[2] Theory: The paralysis is due to pressure of the enlarged left auricle on the recurrent nerve.

2. Kraus'[4] Theory: The right ventricular dilatation present in mitral stenosis causes displacement of the heart to the right, with consequent dragging on the aortic ligament and arch and resultant stretching and paralysis of the nerve.

3. Alexander's[5] Theory: The pulmonary artery by its own enlargement, or indirectly by enlargement of the left auricle, is pressed against the nerve and aortal arch.

4. The nerve may be compressed and caught between bands of pericardial and mediastinal adhesions.

All these theories have had some necropsy support.[3] Normally, the pulmonary artery is situated and divides immediately beneath the aortic arch; below the pulmonary artery is the left auricle. It therefore seems improbable that the left auricle, even when extremely enlarged, can directly exert sufficient pressure to produce recurrent paralysis, unless it is jammed between or adherent to the pulmonary artery and aorta. This happened in one case that came to necropsy.[6] In another case,[7] the left auricle was the size of a small fist and was found pressing against the nerve. From careful anatomic studies of frozen sections, Fetterolf and Norris[8] state that the effect of left auricle dilatation would be pressure of the left pulmonary artery against the aorta, and the left pulmonary vein against the pulmonary artery, thus forcing the latter against the aorta. They believe that direct pressure alone of the enlarged left auricle can scarcely produce paralysis unless squeezed in between or adherent to the pulmonary artery and aorta. They conclude that anything which will dilate or force upward the left auricle, the left pulmonary vein or left pulmonary artery will tend to produce paralysis, and that the latter must finally be caused by the nerve being "squeezed between the left pulmonary artery and aorta or aortic ligament." This conclusion bears out

* Presented at the Academy of Medicine, Section on Laryngology and Rhinology, May 25, 1915, by Dr. John Guttman.

1. Lewis: Clinical Electrocardiography.
2. Ortner: Wien. klin. Wchnschr., 1897, No. 33, p. 763.
3. Cuisset: Thèses de Paris, 1912, 1913.
4. Kraus: Verhandl. d. XIX Cong. f. inn. Med., 1900, p. 607.
5. Alexander: Berl. klin. Wchnschhr., 1904, p. 135.
6. Herrick: Chicago Med. Recorder, 1898.
7. Osler: Arch. d. mal. du cœur, 1909, p. 74.
8. Fetterolf and Norris: Am. Jour. Med. Sc., 1911, cxii, 625.

the common knowledge of the normal close juxtaposition of pulmonary artery and aorta. A similar conclusion was reached by Frischauer[9] who, in a case at necropsy, found the nerve squeezed between the left pulmonary artery and aorta by the pressure of the dilated left auricle and pulmonary vein.

In our case, there was no evidence of abnormal right ventricular enlargement; the heart was dilated to the left, as revealed by roentgenoscopy and corroborated by the electrocardiogram. These facts would tend to discredit Kraus' theory as to the etiology. The orthodiascopic findings and physical signs over the pulmonary artery allow us to conclude that the recurrent paralysis was due to dilatation and pressure of the latter; whether or not the left auricle was a factor in pushing the pulmonary artery against the aorta it is impossible to state. Lian and Marcorelles[10] insist on the presence of old thrombosis of the left auricle or of mediastinitis as contributory causes. Pericarditis was present in our case; it was at first confined to the precordial area over the lower sternum, and later involved the pulmonary area. This may have been an added factor in binding down the dilated pulmonary artery.

A unique feature was the presence of a marked difference in the two brachial blood pressures and in the two radial pulses; this in conjunction with laryngeal paralysis formed a striking resemblance to the clinical syndrome of aortic aneurysm. Lian and Marcorelles[10] mentioned that Popoff had seen or described these complications in mitral stenosis, but we have been unable to find this reference in a thorough search of the entire literature. Our opinion is that the dilated pulmonary artery was probably wedged in with sufficient force under the aortal arch and especially opposite the origin of the left subclavian artery to cause interference with the circulation of the latter and consequent difference between the two sides in the brachial blood pressures and in the radial arteries. To a lesser extent, the blood supply in the left leg was similarly interfered with by encroachment on the aortic lumen.

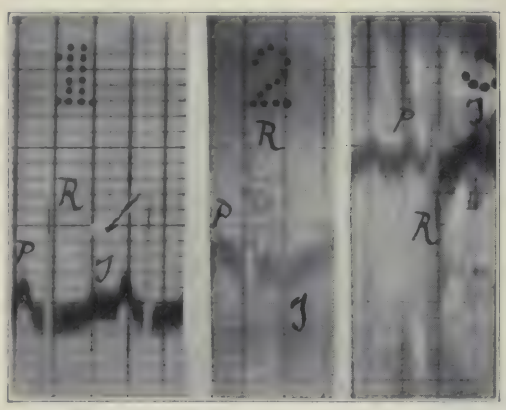


Fig. 2.—In the electrocardiogram, *P* indicates the auricular complex, *R-T* the ventricular complex; 1, 2 and 3 refer to the different leads; the vertical lines measure one-fifth second; the auricular complex *P* is enlarged and notched in the first lead. The direction of *R* is negative in Lead 3.

9. Frischauer: Wien. klin. Wchnschr., 1905, xviii, 1383.
10. Lian and Marcorelles: Arch. d. mal. du cœur, 1913, p. 561.

Treatment of Ringworm of Scalp and Body.—Dr. Eugene G. Mattison, Pasadena, Calif., writes: In THE JOURNAL, Nov. 13, 1915, there is an article on the prevention and treatment of ringworm and favus of the scalp. There is a very simple and efficacious method of treating ringworm of the body as well as of the scalp which a number of others and myself have used here for a number of months. First, the infected area is cleaned up. If it is of the scalp it must of course be shaved. It is then cleaned with ether; this is followed by an application of 50 per cent. tincture of iodin, and then the infected areas are frozen with ethylchlorid. One treatment is sufficient for body ringworm, two or three for ringworm of the scalp. In favus I have never had the opportunity to try this treatment, as those cases are a rarity with us.

DIAGNOSTIC METHODS AND PATHOLOGIC CONSTANTS IN IDIOPATHIC EPILEPSY

SECOND REPORT *

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CINCINNATI

That constipation due to mechanical interference with the fecal current is an early if not an initial cause of epilepsy was set forth in my preliminary report.[1] I then announced my intention to submit supplementary reports based on further experience. It has occurred to me that my next report, the present one, ought logically to deal with, first, methods of diagnosis; next, the connection of cause and effect between the constipation and the epilepsy; third, the determination, if possible, of certain pathologic constants of the disease, and, finally, if possible to find the essential etiologic factor and thus to indicate the logical basis for comprehensive yet specifically directed treatment.

DISCLAIMER AND PLEA

In submitting this report, care is taken to make clear the fact that data for my generalizations are derived entirely from a study of my own cases. These records now number over 700, of which only 168 patients have been submitted to operative treatment. I ought to add that, during the last ten years, I have had occasion to operate also for intestinal conditions on over 300 nonepileptic constipated patients. I realize that these epileptics have been referred to me by their family physicians, first, because my former report dealt with constipation as a cause of epilepsy, and next, because the patients thus referred have had both constipation and epilepsy. In this way, possibly, it has come about that my epileptic clientele has been uniformly of one class. In other words, it would seem that the cases that have come to me may be grouped under the old and absurd title of "idiopathic epilepsy." I do not assume, therefore, that my experience has covered the entire field of epilepsy. At the same time I cannot ignore the significance of the constant relationship of conditions that I have encountered. These facts furnish ample reason why my observations should go to the profession as a basis for the careful investigation of epileptics along these new and, I trust, more fruitful lines.

In outlining what seems to me to be the real syndrome of epilepsy, as least of so-called idiopathic epilepsy, I ask, specifically, that others interested in the subject and with large clinical opportunities for its elucidation may cooperate with me to the extent of applying the

* Amplified from remarks before the Seventh Pan American Medical Congress, San Francisco, June 19, 1915, and read before the Columbus (Ohio) Academy of Medicine, Sept. 27, 1915.

* Owing to lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the author's reprints. A copy of the latter may be obtained on request.

1. Reed, Charles A. L.: The Probable Cause and Logical Treatment of Epilepsy, a Preliminary Report, THE JOURNAL A. M. A., March 27, 1915, p. 1047; Constipation and Epilepsy, Lancet-Clinic, July 25, 1914.

diagnostic methods that comprise the basis of this report, with the object of determining the constancy or inconstancy of conditions which I shall describe, and the validity or invalidity of conclusions which, it would seem, are justified by my really exceptional experience. Only in this way may it be possible to dissipate the



Fig. 1.—Masked stasis showing the barium in the transverse colon forty hours after ingestion in a patient who had "regular action of the bowels" once and sometimes twice every day. The last of the barium in this case passed eighty-two hours after ingestion. The roentgenogram shows the causative ptosis with retardative angulation.

darkness and bring light and hope to the most pathetic class of sufferers that it has ever been my misfortune to encounter.

THE GENERAL HISTORY OF THE CASE

The routine investigation of the case naturally begins with details concerning sex and age. Occupation is important as showing a probable cause of visceral states, to which I shall refer at greater length. Accidents and injuries have a similar significance. Heredity is interesting as showing that less than 2 per cent. give history of parental epilepsy. In other words, direct heredity may be disregarded as a cause and that, too, for reasons which shall become obvious. The general nutrition will usually be found from fair to good, although in certain cases there is a history of loss of flesh. The appetite is generally excessive, and is ordinarily much greater than the nutritional results. I have, however, had a few cases of hypernutrition with marked obesity. The temperature will be subnormal more frequently than otherwise, often registering as low as 97 F., in rare cases as low as 96. When the temperature is at 97 or lower, the patient may be considered as in the imminence of an attack. The blood pressure is generally low, ranging from 80 to 110, and is more frequently below than above the latter figure.

The pulse rate, in the absence of disease of the heart or blood vessels, generally correlates with the temperature and blood pressure. The secretions are, of course, investigated by methods and with results which I shall present in detail in connection with special clinical features of these cases.

SPECIAL PHYSICAL EXPLORATION

After having ascertained these general facts, it is necessary to proceed with a more special physical exploration. The cranium is examined for possible malformations, lack of symmetry, and depressed fractures. The scalp is examined for scars that may be significant of deeper injury. The eyes are taken into consideration for possible motor or visual defects, which some observers have thought to have a causal relationship to epilepsy. The teeth, gums, tonsils, fauces and sinuses are inspected. The ears are at least inquired about, particularly as to whether or not they are catarrhal, and as to the existence of tinnitus. The neck is gone over, and the condition of the thyroid and of the cervical lymphatics is determined. The lungs and heart are examined. The object is, of course, to determine the possible existence of foci of infection or of "centers of irritation," with the result that such conditions are found in about the same ratio as in non-epileptics. In other words, their inconstancy, as well as their order of occurrence, when they do exist, would seem to exclude them as definite etiologic factors. Then the lungs and heart are examined. The abdomen is gone over by methods of which I shall speak in detail. The pelvis is carefully examined to determine uterine, ovarian, cystic and prostatic conditions according to the sex of the patient.

Then the usual neurologic exploration is made with reference to sensation, coordination, the reflexes and muscular power. The whole examination is concluded with a judgment, to which the entire investigation has conduced, as to the mental state of the patient and as to whether any apparent mental deterioration is transient or permanent, whether it is congenital or due to secondary changes, or whether it is the consequence of drug habituation.



Fig. 2.—Barium in the colon ninety-eight hours after ingestion in an epileptic with "regular movement of the bowels" once and sometimes twice every day.

In reviewing my observations in now a large number of these cases, I may say that, with the exception of conditions within the abdomen, the temperature range and the blood pressure, there is nothing revealed by this routine examination that is constant, and anything that is not constant is not characteristic. In other

words, we are left just where we began, with no interpretation of such associated phenomena as are uniformly present, with no conception of the relation of such phenomena to underlying physical states; in short, we are left simply with the knowledge that our patient



Fig. 3.—Case of ileac stasis (indicated by arrow) associated with mobile cecum and retardative angulations, the roentgenogram being taken fifty-two hours after ingestion.

has fits, or is threatened with fits, or with something like fits.

CONSTIPATION AND EPILEPSY

In view of the unsatisfactory results thus far realized, it would seem the part of wisdom to follow the clinical trail in the further prosecution of our inquiries. This trail begins, of course, with the epileptic phenomena. We strike it again the moment we begin to inquire into associated conditions, the most obtrusive and persistent of which relate to the excretory and eliminative functions. The first of these functions to be brought to our attention is that of the intestines. The patient, generally without waiting to be asked, complains of constipation. He says that he was constipated possibly from infancy, or since he had a fall, or a strain, or a blow on the abdomen; that his constipation began before his epilepsy; that his epilepsy is worse when his constipation is worse; that he takes physic continually; that he has constantly to increase its dose, and that he is worse as soon as he fails to "dynamite" his bowels. As a matter of actual observation, constipation exists in practically 100 per cent. of the epileptics that come to me. I have seen but few apparent exceptions, and they were apparent and not real. In one case there was hyperperistalsis, induced by conditions within the duodenum, the transverse colon and the sigmoid, but with demonstrable retardation in the terminal ileum. The other apparent exceptions were simply cases of masked stasis. An example of this kind was that of a man who assured me that his bowels moved normally once and sometimes twice every day. The Roentgen ray and a barium meal revealed a transit of eighty-two hours. In other words, in these cases of masked stasis, the "regular" daily movement is simply one section of a slowly moving procession that is from several hours to several days behind schedule time.

THE PHYSICAL CAUSE OF CONSTIPATION IN EPILEPTICS

If, as we find, constipation is a constant feature of these cases, it is obviously of first importance that its cause shall be ascertained. In this connection, it should be remembered that this constipation, while worse at some times than at others, is in no sense an acute or transient condition, but that, on the contrary, it has persisted for periods varying from a year to forty years, or even longer. It has persisted, too, in spite of the best of treatment addressed to sluggishness or so-called atony of the intestines. The question of mere functional inefficiency, or of atony, except as in some measure the necessary result of the long use of cathartics, or of injections, or of secondary defective innervation, or of hyperabsorption demanded by tissue thirst, all primarily induced by conditions that I shall describe, is not, therefore, to be taken into consideration.

THE ABDOMEN IN EPILEPTICS

These patients may or may not tell of recurrent pains which may or may not have been severe, located in one or the other or in all four quadrants of the abdomen. This pain, possibly only a discomfort, will generally have been of the come-and-go variety, but persists in returning over either the cecum, the hepatic flexure, the splenic flexure or the sigmoid. When the patient stands up with the abdomen exposed, we



Fig. 4.—Case of gastrocoloptosis with dilated and mobile cecum, the barium here seen in the transverse colon having been ingested seventy-eight hours previously. That in the stomach was ingested for purposes of demonstration immediately before the roentgenogram was taken.

observe a flattening on either side, just outside the recti muscles, at about the level of the linea semilunaris. The abdomen is either actually pendulous, or, it would seem, is trying to be pendulous, as shown by

the fact that palmar palpation reveals a more or less relaxed abdominal wall made tense by internal pressure or weight. With the patient still standing, percussion reveals the complete absence of gastric and intestinal resonance in the upper zone of the abdomen, the



Fig. 5.—A strikingly variant type of colon with large sigmoidal loop, the former being the obvious mechanical cause of stasis as demonstrated in Figure 2.

few exceptions to this rule being generally explainable by the presence of abnormal volumes of gas in some part of the tract. On the other hand, the cecal note can generally be heard low down, often indeed as low as Poupart's ligament. The colonic note may or may not be elicited, but when it is, it is always below the umbilicus, often indeed as low as the pubes. The gastric note is to the left of the umbilicus and sometimes far below the crest of the left ileum.

If, now, the patient is placed in the Trendelenburg position, the loci of these notes will be changed respectively about as follows: the cecal note will be at or near the crest of the ileum, the hepatic flexure note will be at the right costal margin, the gastric note will be near the ensiform — all approximately normal in position. The lower zone and especially the left lower quadrant will now be free from resonance. If this restitution of the organs to approximately normal position is not effected by the change in position, the fact may be indicative of adhesions, or of massive redundancies, or of overdistention from either gas or barium. The findings as indicated are, however, sufficient of themselves to justify the diagnosis of displacement of the stomach and large bowel; or, in the absence of the stomach sign, of displacement of the cecum and colon; or, possibly, with complications at the sigmoid. In any event, a strong presumptive diagnosis of fecal stasis due to mechanical conditions within the intestines may be based on this examination alone, when conducted by one who has become familiar with the technic and whose ear has been educated to the sounds.

ROENTGEN FINDINGS IN THE ABDOMEN OF EPILEPTICS

Although this physical examination of the abdomen may satisfy one that the stomach or the intestines or both are in malposition, and that this malposition is responsible for the functional disturbance, I feel that it is never fair, either to the patient or to myself, not to subject the case to every method of accuracy and precision in diagnosis. In accordance with this rule, I look on a Roentgen examination in these cases as essential not only for purposes of record as to conditions already obvious — and my cases with operation are all thus of record — but also to determine conditions not otherwise ascertainable, and, finally, to serve as a guide in any surgical procedure that may be undertaken for their relief. I prefer to begin this examination by giving a barium meal, preferably supper, and observing the transit thereafter at intervals varying from twelve to twenty-four hours. At the final examination, with the patient in the upright position, some barium may be taken to show the position of the stomach. When there is any suspicion attaching to stomach clearance, the earlier observations should be made at shorter intervals. When the transit has been accomplished and the observations duly made and recorded, the colon is emptied either by a brisk laxative or a high enema, after which it should be slowly filled to the cecum with a barium enema. Pictures should then be made with the patient in both the erect and Trendelenburg postures. This method of examination, following the physical examination already described and confirmed by subsequent surgical exploration of the abdomen, has brought me the surprising information that, with the rare exceptions previously noted, some form of mechanical retardation of the fecal current exists in 100 per cent. of the epileptics that have come under my observation.



Fig. 6.—Extreme ptosis of the colon and cecum with stasis in both the large intestine and the ileum sixty hours after ingestion.

I have said that some form of mechanical retardation exists in every case. The details, however, are distinctly variable. Space here permits me to mention only the chief conditions that are thus encountered, namely, ptosis of the colon with retardative

angulations; large, flabby and mobile cecum; dilated ascending colon; atrophied transverse colon; redundancy of the transverse colon; retardative angulation of the splenic flexure; ileocecal insufficiency; retardative angulation with or without adhesion at or near the terminal ileum; redundancy with or without adhesions of the sigmoid, and, occasionally, marked patulousness with or without malposition of the vermiform appendix. The transit studies show retardation at either one of several of the various points which I have just enumerated. The stasis thus shown may vary from twenty-four hours to a week or more. This may be true even in the cases of masked stasis, by which I mean the cases of regularity of bowel action with retardation of bowel content, of which I have already spoken. In this connection, it should be urged that interpretation of the plates or of fluoroscopic demonstrations should be attempted only by persons who are conversant not only with such demonstrations, but also with their actual meaning, as shown by experience in subsequent exploratory operations. In no instance should the opinion of Roentgen operators who are not physicians be accepted without competent professional confirmation.

THE TOXEMIA OF EPILEPSY

Clinical demonstrations thus establish the fact that in epilepsy there exists a mechanical distortion of the alimentary canal and an always present and persistent retardation of the fecal current. That this retardation is mechanical rather than either "atonic" or "reflex" is amply proved by the prompt disappearance of the constipation and its resultant symptoms in the great majority of cases after correction of the mechanical defect. This point settled, we need now to discuss the next equally demonstrable effects of the constipation. Thus, constipation necessarily implies that the watery element has largely disappeared from the intestinal content. It can have gone in only one direction, and that is through the absorbents into the general circulation. It has also necessarily carried with it all substances which it has held in solution. These embrace a certain residuum of food elements, certain secondary products of ordinary chemical change in the food elements, certain abnormal fermentative products and, what is clinically even more important, certain toxins of bacterial origin (decomposition). Probably the most important because the most toxic single element thus elaborated in the ileum and absorbed either from the ileum or the colon, or both, is betaiminazo, shown by Mutch to have its origin in the small intestine in cases of ileac stasis studied by him at Guy's Hospital. In addition to the foregoing, the absorbent current carries with it back into the system certain secreted products from the liver, pancreas and the gastro-intestinal glands, embracing even the saliva. It is not demonstrated that, under normal conditions, normal bacteria of the intestines ever find their way thence into the circulation; but, as I shall show, it does carry bacteria into the circulation under abnormal conditions.

With this understanding of what, in part at least, must necessarily take place in the presence of intestinal stasis and which must take place *in degree relative to the persistence and duration of the stasis,* we are prepared properly to interpret the symptoms which we next encounter. As I have previously pointed out,[1] epileptics under my observation have a low mean average of temperature (97.2) with a tendency to vacillate between 96 and normal, as determined by observations extending over a period varying from a week to ten days, or longer in each case. When, as rarely occurs, the temperature goes to 100 or a trifle higher, the fact implies an intercurrent low grade infection. There is a tendency to cold feet and cold hands. Occasionally, there is a cold, clammy perspiration of the forehead and extremities, although, for the most part, these patients sweat but little, if any, under circumstances when they ought to sweat. When perspiration is forced, it is generally acid in reaction to litmus, smells sour and, at the time of a seizure, becomes peculiarly offensive. The tendency of these patients to hebetude and mental depression is a feature that they at times possess, always in kind and sometimes in degree, with the victims of the more generally recognized special toxemias associated with the acute infections. The therapeutic test of active elimination, especially by cathartics and by forced sweating, with resulting temporary amelioration of the symptoms, has a distinct diagnostic value. In short, the general clinical picture presented by these cases, if carefully studied, will impress the practitioner as being closely analogous to one that he has long since learned to recognize as that of a low grade infection with associated toxemia.

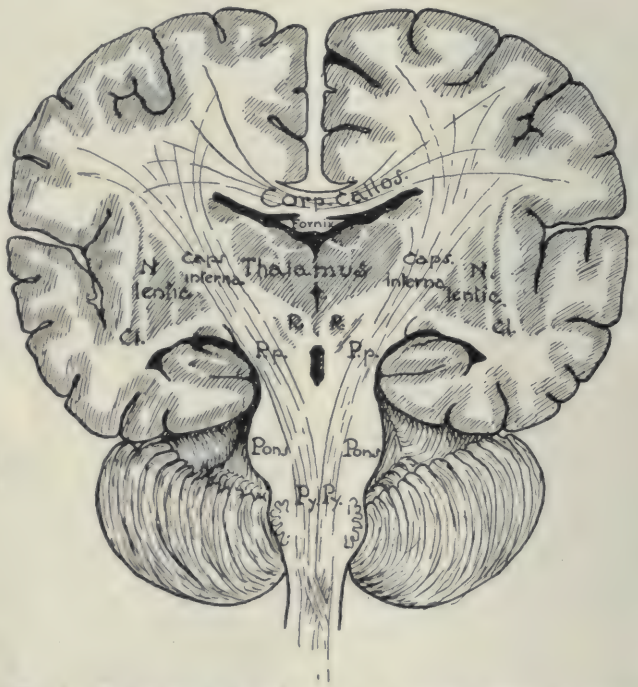


Fig. 7.—The gateway of the brain or the internal capsule, a frontal section of which is here made to show the course of the long conduction cables or fiber tracts, and the continuation of the internal capsule into the Pes peduncle (*Pp*); *Cl* is the claustrum; *R*, the nucleus ruber; *Py*, the pyramidal tract. (After Villiger, Emil: Brain and Spinal Cord, translated by G. A. Piersol, Philadelphia, J. B. Lippincott Company, 1912, p. 62.)

THE CHRONIC ACIDOSIS OF EPILEPSY

Our next question concerns the inevitable result of the toxemia. Here again our detection and interpretation of symptoms may well be based on accepted physiologic concepts. The first and most fundamental of these concepts is that the normal integrity of the tissues depends on the normal oxygen-carrying power of the blood. The next and equally important concept is that an inhibited supply of oxygen to the tissues results

in the formation of various acid products within the tissues. As there is a wide range between a normal supply of oxygen to the tissues and a supply so inhibited that life can merely be sustained, so must there be a correspondingly wide range in the degree of resulting acid formation within the tissues. It is also equally axiomatic in this, as in other vital processes, that the persistence of the effect is relative to the persistence of the cause. It is likewise axiomatic that, if the resulting products of a vital process are not disposed of as rapidly as they are formed, they necessarily become cumulative and in that sense progressive. It is known, too, that toxins by direct action on the tissues, themselves tend to form acid within the tissues, and thereby augment the development and persistence of acidosis. We know, furthermore, that certain toxins seem to have a selective action on certain tissues and that, as a result, a more or less focalized acidosis may exist in such tissues, even in the presence of a general systemic acidosis.

Turning now to the case in hand, we find that the toxemia of epilepsy, like all other toxemias, diminishes the oxygen-carrying power of the blood. It must, therefore, in that way as well as by direct action of the infection itself, not only favor, but inevitably cause the development of acid in the tissues. The evidence of this process, which, be it remembered, takes place in the tissues and not in the blood current, much less in the secretory glands, is, however, to be found in the high acid index of various secretions. The saliva, normally alkaline, is acid in exactly 100 per cent. of the epileptics that come under my observation, the findings in each case being based on frequent litmus reactions during a series of days. To avoid error, care is taken to cleanse the mouth and to test the saliva in situ as it flows from the sublingual glands. The value of this index is confirmed by the fact that after deacidation of the system by appropriate treatment, the reaction of saliva to litmus, even on the tongue and without the precautions mentioned, becomes consistently alkaline. The urine, as determined by litmus, methyl red or other indicators, also has a persistently high acid index with but slight vacillations under the influence of diet or medication. The perspiration, where it can be provoked, is likewise acid. Hyperacidity of the stomach is also a frequent but not constant complaint, and the siphoned contents of the stomach often yield positive findings as to an excess of hydrochloric acid.

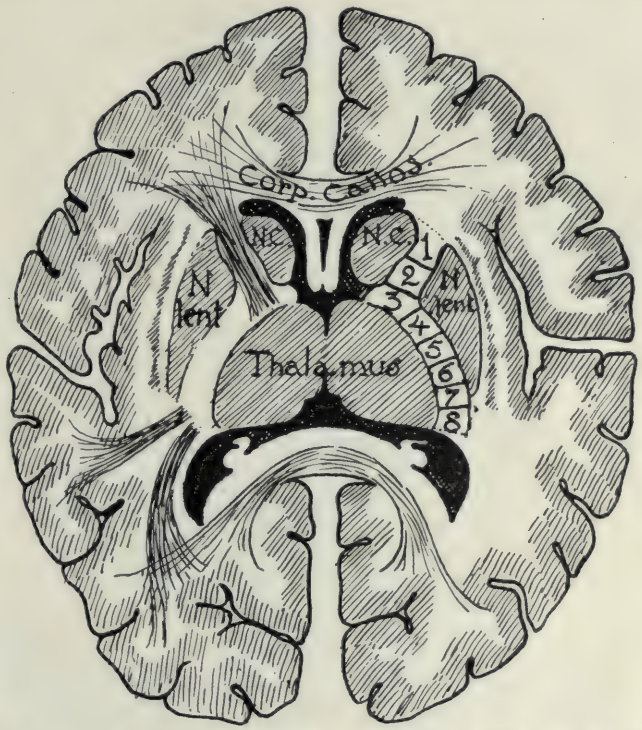


Fig. 8.—The gateway of the brain, or the internal capsule, the courses of the conduction tracts through which are shown by the numbered areas as follows: 1, frontothalamic fibers; 2, frontopontile tract; 3, corticobulbar tract (vii, xii); 4, corticospinal tract (arm); 5, corticospinal tract (leg); 6, tegmental tract; 7, occipitotemporopontile tract; 8, auditory and visual tract. The edematous deinsulation or short-circuiting of any one of these conduction cables would cause disturbance in the area to which it is ultimately distributed, while the same process involving all the conduction cables here represented would necessarily inhibit consciousness and provoke clonic spasm of practically the entire muscular system. (After Villiger, ibid., p. 142.)

FOCALIZED EDEMA AND THE EPILEPTIC SEIZURE

Our discussion needs next to consider the consequences of acid intoxication. Here, again, we may profitably pause to examine a few fundamental facts and thus possibly revise a few of our earlier concepts. Thus, the epoch-marking researches of Martin H. Fischer at the University of Cincinnati have shown that ultimate pathology, at least in many disease processes, must be found in changes in the colloids constituting the tissues. We now know that cells, cell walls, nuclei, nucleoli, capillaries and perivascular spaces, while of unquestioned importance as structure units in gross pathologic processes, were, together with the older conceptions of circulatory pressure, transudation, infiltration and osmosis, stumbling blocks in the way of comprehending many of the ultimate tissue changes incident to disease. Thus, we now know that acids developed in the tissues as a result of defective oxidation, when sufficiently developed in quantity, have a tendency to attract water (hydration). We now also know that, under such circumstances, the colloids simply suck up the water, just as do the ultimate atoms of starch, or of glue, subject only to such modifications in degree but not in kind as may be determined by the density and other properties of the tissues involved. This is edema. It may and does involve the colloids of such structures as the capillary walls, their surrounding connective tissue, cell walls, their protoplasmic contents, nerve fibers or axons and their investment membrane; in short, the given area, the area of focalized acidosis, the area in which the acid formation has gone to the extent necessary to incite this hydrating action, may become water-soaked just as the general system becomes water-soaked, for instance, in the presence of the general acidosis of eclampsia.

This brings us to a consideration of the possible acidosis edema of our epileptic subject. A careful survey will doubtless fail to give any external manifestation of the process, although certain of these subjects have a tendency to swelling of the legs when they are long on their feet, and to puffiness about the eyes on arising. Many of them complain of a sense of fulness, stopping short of actual pain in the head, while others, comparatively few, have severe headaches.

These symptoms, as well as the epileptic seizures themselves, whatever their grade of intensity, bring us to a consideration of the brain itself as the probable seat of the edema.

We recognize that the brain is made up of cells and fibers or axons; that each cell is in a sense a storage battery; that each axon is a conductor or a wire connecting with one of these batteries; that each wire or axon is able to act as a conductor only by virtue of its perfect insulation; and, finally, that these axons or



Fig. 9.—Case of tractional constriction with stasis in the duodenum due to ptosis of the colon and associated with ileac stasis as indicated by the flocculi in the central field.

wires are arranged in the brain in the form of bundles or cables, known as conduction paths. These conduction paths or striae or cables converge into the callosum, the thalamus, the pons, the corpus striatum, or, more specifically, the internal capsule which is the gateway through which pass the larger number of convergent tracts. The mechanism is rather aptly illustrated, practically paralleled, by an intercommunicating dictograph, which I happen to have in my office. The master instrument, connected with a storage battery, is on my desk and is in turn connected with other instruments located variously in the laboratories, consultation rooms and secretary's desks of the suite. The connecting wires, about twenty in number, each carefully insulated, are bundled together into a single cable. If, now, I drop this cable into some acid and then into water, or into water alone and leave it there until it is soaked through, I shall have destroyed the insulation, and I shall have done it by establishing a condition of edema. If, then, with the wires thus short-circuited and cross-circuited, I try to call up any one room, I shall simply ring up all the rooms without being able to establish intelligent communication between any of the terminal instruments and myself: in other words, I shall have provoked a sort of electric convulsion with complete isolation of myself as the center of consciousness. This is obviously what, in effect, happens in an epileptic seizure. The subcortical location of this evanescent lesion seems to be in harmony with the findings of Maxwell, who has demonstrated that convulsions in animals are excited by disturbance of the conduction paths rather than of the cortex.

THE UNITY OF EPILEPTIC PHENOMENA

We can now, in the light of this analogy, understand the phenomena of an epileptic seizure, slight or severe, by the existence of an acidosis edema, slight or severe, involving the conduction paths in the brain. We can understand the various auras, when they exist, by the deinsulating process. We can understand the involvement of various specialized fibers or axons to the exclusion of other specialized fibers or axons in this deinsulating process. We can understand the involvement of special muscles or groups of muscles in certain cases of so-called "partial epilepsies," by the more exclusive involvement of their axons in the edematous process. We can understand the short duration of the attacks by the speedy exhaustion of energy in the cells. We can understand why these patients, after an attack, must sleep as they do sleep, thus to recharge the emptied cells. And, finally, we can understand that the edema in the conduction paths is, for the time being, dissipated by the nervous explosion, or succession of explosions, just as the evanescent edema of the mucous membrane of the nose is dissipated by a sneeze, or a succession of sneezes which are, in fact, but another form of nerve explosion. From these considerations, it would seem that the epileptic phenomena are themselves the diagnostic criteria, the pathognomonic symptoms of the focalized acidosis edema for which we are searching, and furthermore, that they are one in essence and in kind. Here, then, ends our diagnostic inquiry, for here we have completed the circle, here we have come to the end of the clinical trail.

OTHER PATHOLOGIC CONSTANTS OF EPILEPSY

In the course of my surgical exploration of the abdomen in epileptics, I have found that enlargement and induration of the retroperitoneal lymphatics, especially retrocecal lymphatics, exists in 100 per cent. of cases (Figs. 11 and 13). This is ordinarily associated

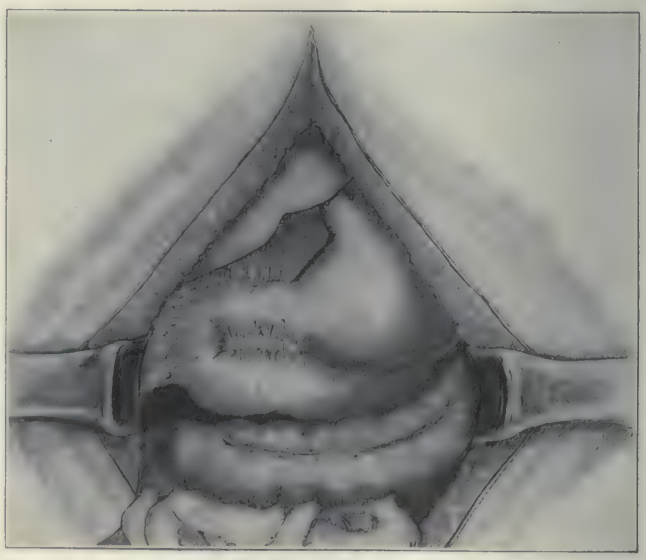


Fig. 10.—Dilatation of the duodenum with exudative periduodenitis. The dilatation is generally much more pronounced than is shown in this case.

with obvious hypertrophy of the solitary glands in all cases in which I have had occasion to make resection of the ileum (Fig. 12). A frequently pronounced, although less constant, obvious lesion is hypertrophy with resulting hyperactivity (catarrh) of the mucous follicles of the colon, giving rise to mucous colitis. In

every case in which I have had occasion to explore the upper zone of the abdomen in epileptics, I have found dilatation of the duodenum, ordinarily with resulting inflammatory exudate (Fig. 10). In certain cases it would seem that traction by the ptosic colon produces obstructive constriction of the duodenum, as shown in a roentgenogram kindly furnished me by Dr. Garrett of Buffalo (Fig. 9).

THE QUESTION OF SPECIFICITY IN EPILEPSY

The clinical phenomena arising from toxemia of intestinal origin, including those found to be due to betaiminazo, are in varying degree common to all persons with chronic constipation. They have consequently occurred with uniformity in all epileptics under my observation. But they have not been peculiar to epileptics. I have had occasion to operate on more non-epileptic than epileptic persons who were constipated. Now, why does the chain consisting of mechanical constipation, hyperabsorption, toxemia, acidosis and edema lead to convulsive manifestations in one case and to something else in other cases? Or, to put it another way, why does the edema, the final link in this pathologic chain, focalize, let us say, in the internal capsule and cause epilepsy in one case, or in the sensory centers and cause intense headaches in another, or in the wider areas of the cortex and cause simple melancholia and other mental disturbances in still other cases? Or, why in the kidneys causing nephritis? Or why in the fundus of the eye causing choked disk? Or why in the muscles and joints causing certain symptoms of the rheumatoid complex? Or why in the thyroid, or possibly, in the suprarenals or the pituitary, causing modifications not merely of their structural elements, but also of their hormones with resulting perturbation of balance in the kinetic system? In short, what is the factor that determines the locus of the focalization in each instance?

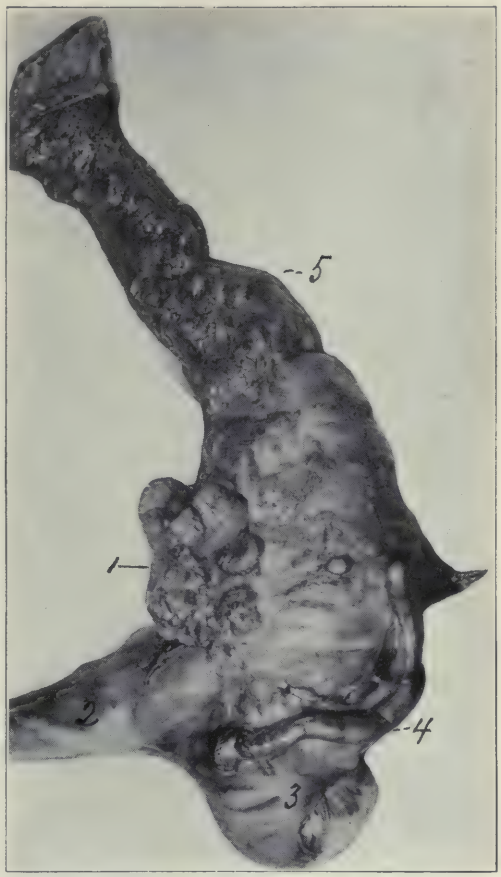


Fig. 11.—Part of specimen removed from an epileptic child of 11, showing: 1, enlarged and indurated lymphatics beneath the cecum (a much larger mass having been left beneath the peritoneum); 2, terminal (caudad) ileum; 3, head of the cecum; 4, the vermiform appendix; 5, the lower end of the ascending colon. In this case the mesocecum and the mesocolon were both very long, causing extreme ptosis with mechanical retardation of the fecal current in the ileum and cecum. This form of lymphatic enlargement in some degree is a pathologic constant of epilepsy.

The facts that, in my experience, less than 2 per cent. of epileptics have epileptic parents excludes direct heredity; that the disease occurs in all types of both men and women at once excludes both sex and temperament; that it occurs in the young and the old excludes age as a factor, and that changes in the brain are always inconstant and, when they do occur, are secondary logically eliminates both of them from etiologic relationship to the disease. Is the explanation to be found in the law of selective action, in conformity to which certain organisms or their respective bacterins, or even certain medicaments or poisons exercise a dominant, if not exclusive, effect on certain organs or structures? We know, for illustration, that meningitis, tetanus, rabies, diphtheria and typhoid are caused in this way. We know that morphin, strychnin and atropin produce their effects by selective action. We know that the whole system of therapeutics is largely built on the same principle. The possible application of this principle to the occurrence of recurrent and evanescent edema of the inner capsule is of next importance to our inquiry.

THE EPILEPTICOCCUS

In my earlier articles on this subject, I called attention to the logical necessity for the existence of some micro-organism which would at once account for the general phenomena of infection present in these cases and act as the determining factor in producing the convulsion. In an endeavor to isolate such an organism, bacteriologic study has been made of the intestinal content, the ileac glands, the mesenteric and mesocolic lymphatics, and the blood in certain of my cases. The details of these investigations are beyond my present purpose, although it is important to state that the earlier findings, when positive, were inconstant and unsatisfactory, while in the majority of instances they were entirely negative. The work was accordingly discontinued, but was later resumed in my own laboratory in charge of Dr. E. P. Hyatt. In later cases there was found in the colon, solitary glands, the lymphatics and the blood an organism which consisted of granular bodies, sometimes arranged in diplococci, sometimes in clusters, sometimes in chains, while in certain cases, all these forms were present in a single case. I felt that this was the essential organism of the disease—the epilepticoccus—but its apparent inconstancy made me hesitate in announcing my conviction. Shortly after the finding of this organism, I accidentally found that the whole field had been covered and that an organism of apparently identical morphology had been discovered by Bra[4] quite fourteen years ago. This important communication was made to the French Academy of Sciences at that time, but, marvelous as it may seem, its significance has been ignored by the profession up to the present moment, just as Mendel's great discovery of the law of heredity went without recognition until it was rediscovered by De Vries sixteen years later. The significance of Bra's work which, with illustrations and text occupied only five small pages, will be recognized when it is remembered that he isolated the organism,

4. Bra: De la presence d'un parasite dans le sang des epileptiques, Compt. rend. Acad. d. sc., Jan. 2, 1902.

from the blood in seventy out of 100 cases; that he found it only in epileptics; that he found it in them only preceding or immediately following a crisis; that it entirely disappeared from the blood in the interval; that it was often demonstrable in the fresh blood; that it was cultivable in ordinary mediums; that it was reproduced when injected into the blood of rabbits, and, finally, that rabbits thus treated developed convulsions which in every particular were identical with grand mal seizures in the human subject—all of which has been confirmed at my own hands. He emphasized the fact that this organism seemed to sustain the same relation to the epileptic seizures that the plasmodium does to the malarial crises. This fact and the associated disappearance of the organism from the blood during the interval explains why our findings were negative in so many of our early cases from which the blood was taken irrespective of attacks, and why they are positive in our later cases. The further study of this organism in my own practice and its relation to a rational therapy must be the subject of a subsequent report. In this connection, however, it is important here to state that it has come about in my practice that, *as a means of ultimate diagnosis, the epilepticoccus has the same relative importance to epilepsy that their respective etiologic organisms have to malaria, tuberculosis, tetanus, diphtheria or typhoid.*



Fig. 12.—The interior of the terminal (caudad) ileum from an epileptic subject, showing enteritis with marked hypertrophy of the solitary glands—a condition of frequent occurrence, although not a pathologic constant in epileptics.

SECONDARY CHANGES IN EPILEPSY

There are certain changes in both the intestines and the brain of epileptics that may, I think, be looked on as purely secondary, especially in view of the now demonstrated infectious nature of the disease. Those in the intestines are very marked, although there is but one of them that I have come to look on as a pathologic constant, the others being very variable. Dilatation of the duodenum with chronic duodenitis characterized by exudation and adhesion and involving the first and second parts of the duodenum occurs in 100 per cent. of epileptics in whom I have had occasion to make surgical exploration of the upper zone of the abdomen. I look on this fact as significant, in view of the discovery of the organism of Bra in the retroduodenal lymphatics in several of my cases. The constant presence of this dilatation with periduodenitis in epileptics is furthermore significant, in view of the additional fact that it but rarely occurs in nonepileptic persons who are constipated. In certain cases similar exudates are encountered at the duodenaljejunal juncture, the head of the jejunum being at times adherent to the mesocolon, to the extent of an inch or more from the foramen. In a few instances, I have found similar exudates involving the lower and — in one case as much as the lower 12 inches — of the ileum, with complete agglutination of proximal surfaces.

CONCLUSIONS

The clinical phenomena which I have here recorded, the pathologic constants which I have here presented, considered in connection with the now demonstrated organism, especially in the absence of facts of contrary significance, seem to justify tentative conclusions as follows:

1. Idiopathic or essential epilepsy is an infection.
2. The infecting organism, whatever may be its primary habitat, finds its way under circumstances of forced absorption from the alimentary canal into the blood.
3. The conditions that enforce absorption from the alimentary canal consist in mechanical distortions with resulting constipation in the form of either obvious or masked stasis.
4. These conditions point to a logical line of treatment as follows: (*a*) The organism should be isolated in each case with reference to the development of an antigen and the possible immunization of the patient. (*b*) In the absence of such immunization or in recurrence after apparent immunization, but in certain otherwise favorable cases, the mechanical conditions of the intestines responsible for the enforced absorption should be surgically corrected and a stop thus put to the farther intake of the organisms by restoring the normal drainage of the bowel. (*c*) Postoperative treatment should be instituted to neutralize and eliminate the residual infection already established in the glands and blood of the patient. (*d*) In this connection it is of the highest importance to insist that the intercurrent chronic acidosis, which exists without exception in these cases, shall be as nearly as possible

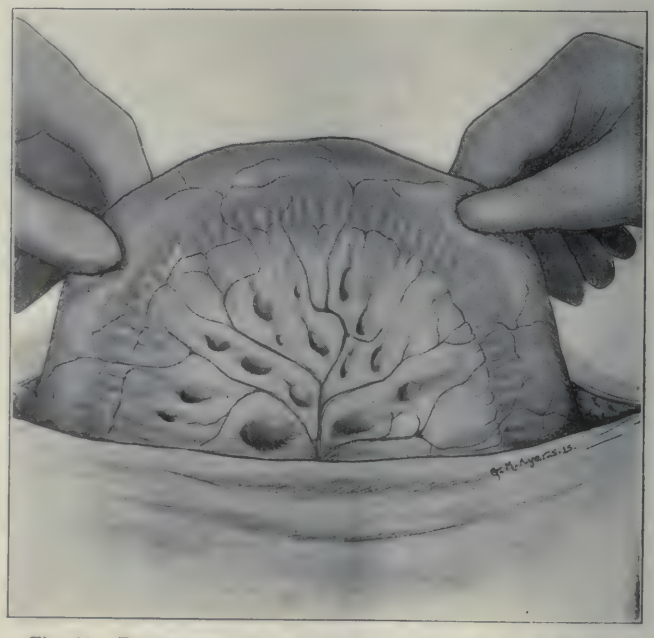


Fig. 13.—Enlargement of retrojejunal lymphatics in an epileptic girl of 16 with grand mal seizures of great frequency and severity.

reversed as can sometimes be done, although only temporarily, by appropriate treatment preliminary to surgical interference. Failure to observe this precaution will result in a high surgical mortality. The details of this treatment must comprise the subject-matter of a later report.

Union Central Building.

A CONTRIBUTION TO THE SUBJECT OF SKULL FRACTURES

ANALYSIS OF ONE THOUSAND CASES AT THE COOK COUNTY HOSPITAL, AND A REPORT OF SEVENTY-FOUR CASES EXAMINED AT NECROPSY

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Medical history, in its earliest records, shows a knowledge of skull fractures, and volumes have been written on the subject, yet our views are constantly changing regarding this condition, and the change is in direct proportion to the additions made to our knowledge through experimentation, research and clinical experience.

Through the courtesy of the coroner's physicians, the late Dr. Warren Hunter and Dr. E. R. LeCount, I have been able to observe and secure notes and drawings from necropsies of seventy-four consecutive cases of skull fracture. My purpose is to analyze carefully these cases seen at necropsy and to consider the clinical histories of 1,000 cases treated at the Cook County Hospital.

Skull fracture is one of the most common injuries, and there are about 100 cases admitted annually into Cook County Hospital. When one realizes that the mortality, as shown by these records, is 53 per cent., it stimulates serious thought toward a betterment of these results.

I am desirous of considering first the mechanism of skull fracture and to advance a new theory as to the manner in which the applied force produces the solution of the continuity of the bone. The mechanism of fractures of the skull is a subject that has commanded a great deal of interest, and extensive investigations have been carried on by many workers who have spent much time in experimental study and clinical observation, directed toward the elucidation of the principles governing this condition. The present and accepted theories regarding the mechanism are based on and embody two definite principles:

1. The inbending of the skull at the point of contact of the blow.

2. The bursting of the skull at a point some distance from the applied force.

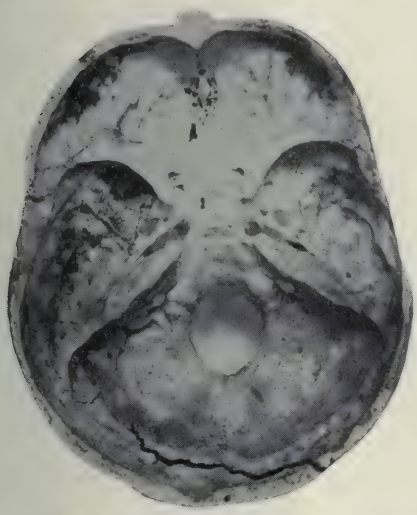


Fig. 1.—Fracture in Case 1. On opening skull about 8 ounces of soft clots and an equal amount of liquid blood were found external to dura over right hemisphere. A linear fracture extended through occipital bones from above downward and from right to left, continuous with left lambdoid suture. The inner plate had evidently sprung inward and back, catching a portion of the dura.

The brain showed little injury.

Posterior branch of middle meningeal had been injured, and the brain was slightly lacerated about one-half inch from the sulcus centralis, corresponding to upper extremity of fissure of Rolando on right side. Cerebral vessels at this point torn. Scalp showed contusion over right occipital. Hematoma beneath scalp at this point.

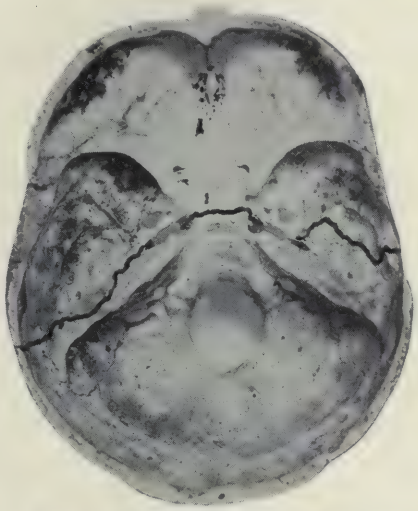


Fig. 2. — Fracture in Case 2. No sign of external wound. As scalp was incised, a hematoma was revealed over left parietal region. On removing skull cap a clot containing about 4 ounces of blood was found, covering and compressing slightly the right motor area. It seemed to come up from base, and no rupture of middle meningeal could be demonstrated. A clot of several ounces occupied right middle fossa and had produced a marked softening of the brain. Brain saved and preserved at college. A fracture of base was revealed. It commenced externally at base of mastoid process of left side and passed downward to tip, splitting it into two equal parts; the fracture then passed inward along anterior aspect of petrous portion, crossing the hypophysial fossa and terminating in middle cerebral fossa of right side.

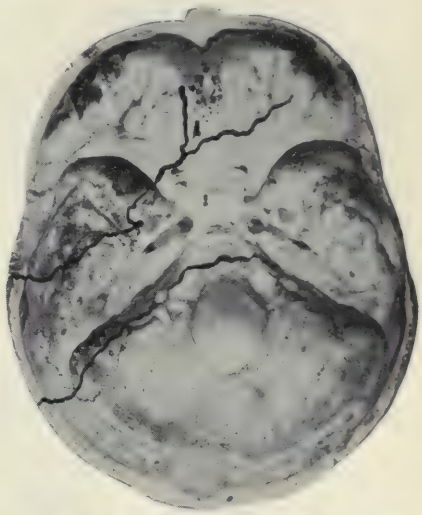


Fig. 3. — Fracture in Case 3. The scalp over left side of head had been shaved, and a lacerated wound over left occipital region existed. No operation on skull. Left outer ear filled with dried blood. Removal of skull cap exposed a dark clot over left motor area and a tear in anterior branch of middle meningeal. A large quantity of bloody fluid escaped. Brain showed a laceration of both temporal lobes on inferior outer aspect. There was extensive hemorrhage beneath pia over anterior portion of right hemisphere. The fracture commenced on left parietal and extended downward just posterior to petrous, crossing to opposite side just in front of foramen magnum. Another line of fracture extended anterior to petrous to foramen rotundum, and from there forward to orbital plates on both sides.

The bursting theory has to do largely with fractures of the base, and has for its foundation the underlying physical law that when a hollow sphere is compressed, the tendency is for it to fracture in a meridian parallel to the applied forces. This has been worked out carefully by Wahl and others, and shown to occur actually in the skull when it is compressed between two fixed points, as in a vise. I have presumed to take issue with the practical application of the latter theory.

Experimentally this bursting occurs, but clinically the injury is rarely such as to give us a force applied at two given points, as obtains in the vise. If the skull were a perfect hollow sphere, with walls of equal thick-

ness, and we regarded the articulation with the condyles as one of the fixed points, then the bursting theory might be more acceptable. The skull is not a perfect sphere, and its walls vary in thickness, the thinnest part corresponding in general to the middle fossae, which are the most common sites of fracture. In seventy-four cases that I observed at necropsy the middle fossa was involved fifty-four times. In all the experimental work that has been done, the investigators have not given sufficient weight to the fact that the base of the skull has a fixed point at its articulation with the atlas. Manifestly when a blow is received at any point on the vault there is a counter inbending force at the articulation of the condyles with the atlas.

A careful study of seventy-four cases of fracture of the skull at necropsy has convinced me that the fractures of the base are not produced by a bursting force, but are due to a direct inbending force applied through the articulation of the condyles and atlas. I have observed repeatedly that the fractures occupy the same position and are of about the same extent, regardless of location of the injury on the vault. The thinness of the skull through the middle fossa accounts for the frequent fracture at these sites.

In all the examinations I have not observed a fracture of the posterior or occipital fossa that was not a direct continuation of a fracture of the vault. There were twenty-seven such cases observed in this series of seventy-four.

In a few rare injuries, in which the skull is caught between two fixed points, such as the bumpers of cars or between a moving car and a platform, the bursting force is a factor. I believe, however, that my observations and deductions justify me in the assumption that in the large majority of fractures at the base the bursting force is not a factor, and that the true mechanism is the counter force at the condyles producing a fracture by inbending, or that the basal fracture is a direct extension of the fracture from the vault. In these seventy-four cases, there was an association of fractures in the vault and base in fifty-four cases. This is a higher percentage than is usually given, but is made from necropsy examinations. The analysis of the 1,000 clinical cases shows an observed association in a much smaller percentage, the proportion being 33 per cent. vault, 34 per cent. basal and 33 per cent. associated. The extent of the fracture is directly dependent on the amount of force applied.

A fracture of the inbending type produces more extensive separation of the inner table, which fact can be illustrated by the break on the convex surface of a green stick. When the cranial fracture is produced by a high powered bullet at a close range, a hydrodynamic force enters in, resulting in a sudden expansion of the brain tissue. When a modern jacketed bullet is fired at close range, a complete shattering of the cranial structures may occur. If a skull be fractured by a bullet, it is possible to distinguish between the wound of entrance and the wound of exit. The table which is last penetrated by the missile shows the greater amount of radiating fracture. This is sometimes important in medicolegal cases. The latter condition was noted in the two cases of bullet wounds in the seventy-four cases observed at necropsy.

The classification of cranial fractures into simple and compound fractures has a direct bearing on the diagnosis, prognosis and treatment.

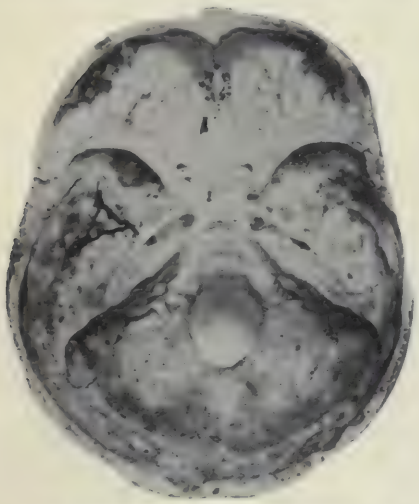


Fig. 4.—Fracture in Case 4. Signed out as fracture of femur and delirium tremens. An ecchymosis beneath right eye led to the opening of skull. On opening the skull a rather firm dark clot was found over motor area, extradural. The dura was injured in opening the skull in such a way that an injury to the middle meningeal could not be positively identified, although that was the probable lesion. Brain substance did not show injury at any point.

No fracture of inner plate or external could be found on right side. On removing dura from left petrous portion a small clot was revealed, occupying anterior surface. Removing this a small nondepressed fracture was discovered at this point, anterior surface of petrous portion at junction of inner and middle third. The fracture was in the shape of a triangle, each side being about one-half inch.

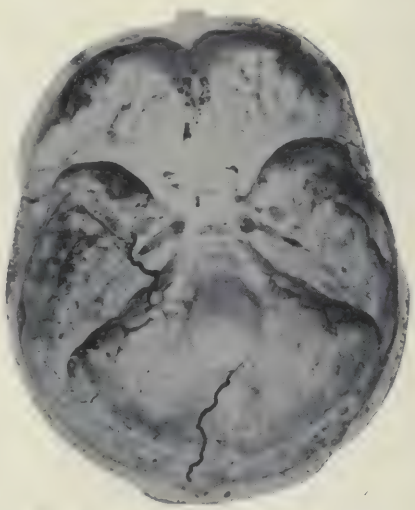


Fig. 5. — Fracture in Case 5. Patient had had a distinct free interval of several hours. Two small trephine openings were found over right motor area. No clot or injury to brain at this point. No fracture of vault revealed. On removing cap a large firm subdural clot, containing 10 ounces, was found covering and compressing the left (anterior) frontal lobe and extending back over motor area. No macroscopic change in brain at this point, except evidence of compression. Both ventricles were distended with several ounces of bloody fluid. The medulla showed a small hemorrhage.

The base was fractured. In posterior fossa a fracture extended from a point to left of occipital protuberance downward and to the right to foramen magnum. The left middle fossa showed a short fracture involving the inner portion of petrous.

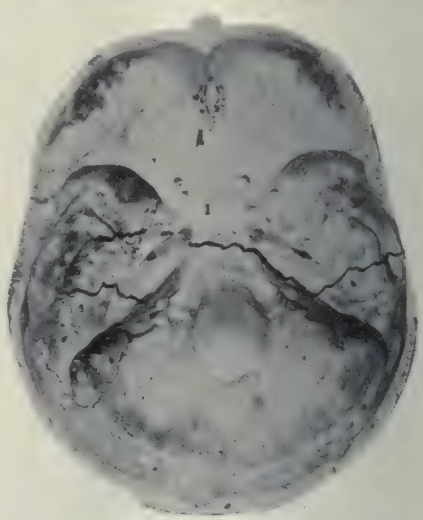


Fig. 6. — Fracture in Case 6. The scalp showed no break in its continuity. Over right parietal region there was a contusion. The scalp was raised from skull by a large effusion of blood. Left ear was filled with blood. No subconjunctival hemorrhage. On removing scalp an extensive fracture of vault was found extending from mastoid to mastoid. A separation of 1 cm. existed with tearing of pericranium. On removing skull cap a thin clot was found covering (anterior) frontal and motor area of right hemisphere. The left middle fossa contained a clot, and the brain was slightly lacerated at this point. Removing brain a fracture was revealed extending from line of fracture of vault on right side across petrous portion and into left middle fossa. Another short fracture crossed the petrous portion on left side.

In compound fractures of the base, we are able to accomplish little in the way of prevention of infection. In compound fractures of the vault, we are in a position to combat infection to a material extent, and of this I shall speak later.

A diagnosis is of course much more easily made in fractures of the vault if the continuity of the soft tissues is destroyed than if the scalp is intact.

In the 1,000 clinical cases here analyzed from the records of Cook County Hospital, those of the vault were compounded in about 35 per cent.

From a clinical point of view there is some logic in the classification of skull fractures according to their situation at the base or on the vault, although investigation convinces me that fracture of the base is much more frequently associated with fracture of the vault than is commonly supposed. Brün, in an analysis of 470 cases, states that they are associated in from 70 to 75 per cent. of injuries. In my analysis of seventy-four cases at necropsy there were sixty-five of the base, sixty-three of the vault, and an association of both types of fifty-four cases, or 72.9 per cent. In the 1,000 clinical cases an association was recognized in only 33 per cent., showing the difficulties of diagnosis of the exact location of line of fracture.

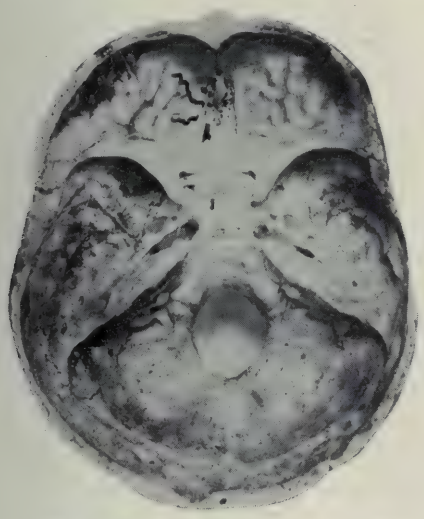


Fig. 7.—Fracture in Case 7.—No external sign of injury. On opening the skull there was an escape of several ounces of seropurulent fluid, extradural. The dura covering the whole left hemisphere was covered with a purulofibrinous exudate. As the brain was lifted from the cranium, a seropurulent fluid welled up through the foramen magnum from around the cord. Over the anterior frontal lobe the dura was thickened and covered with a necrotic exudate. On the frontal bone corresponding to this area the inner plate was slightly necrosed. This represented the position of a localized collection of pus. The brain at the upper end of the central sulcus showed some softening over an area of about 3 inches, one-half inch in depth. There was no pus in either middle ear or corresponding mastoid cells. The cribriform plate of the ethmoid and the orbital plate left of the frontal showed small linear fracture. The left orbit was full of pus, as were the left frontal sinus and left ethmoidal cells.

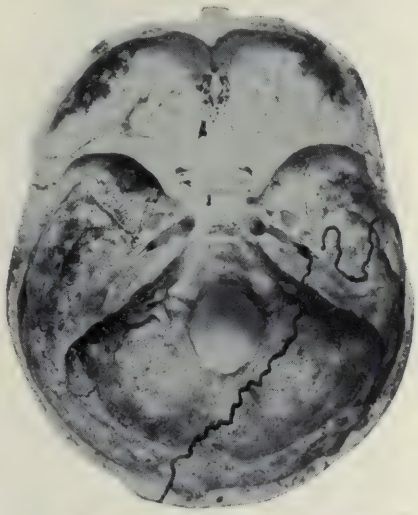


Fig. 8.—Fracture in Case 8. Said to have been struck by street car. Postmortem, right eye showed a subconjunctival hemorrhage. Right external ear filled with dried blood. Over left occipital bone there was a lacerated wound 2 inches long which had not been dressed. No fracture of vault. On removing skull cap a large amount of bloody fluid escaped.

There were hemorrhages over nearly the entire surface of left brain beneath pia, giving the appearance of a hemorrhagic pachymeningitis. There was a laceration of right lobe of cerebellum and of both anterior frontal lobes on inferior aspect. Brain preserved at college.

The base was fractured, the line of fracture beginning at point of scalp wound just to the left of the occiput and extending downward and forward across the posterior fossae to right middle fossa, crossing petrous and ending near foramen rotundum; another irregular fracture existed in right middle fossa.

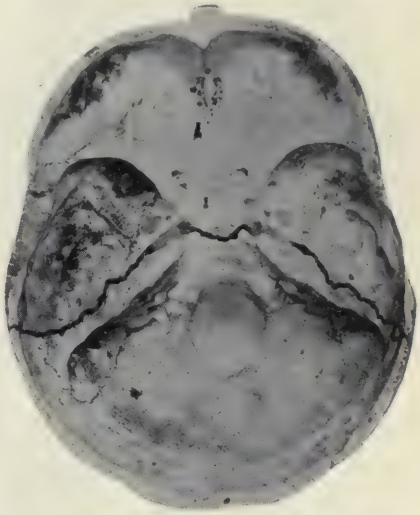


Fig. 9.—Fracture in Case 9. Man, apparently about 30, injured in railroad wreck in which a number were killed. Compound fracture at right wrist and numerous contusions on body.

No evidence of injury to head, except dried blood in right ear; none in left ear. No hematoma beneath scalp. No evidence of fracture of vault. On removal of skull cap, there was no escape of bloody fluid and no sign of hemorrhage within skull.

Careful examination of brain failed to show a lesion.

On removing dura from base a fracture was found beginning at base of mastoid on one side and extending in nearly a straight line to base of mastoid on opposite side. The line of fracture followed the anterior surface of each petrous, splitting the hypophysial fossa. The sections of skull were freely movable at line of fracture. The mastoids were completely divided from base to tip. There had been no hemorrhage.

DIAGNOSIS

In the diagnosis of skull fractures, as in the diagnosis of any pathologic condition, importance must be attached to the history. This usually tells us the kind of an injury that the patient has received, whether it be a blow on the head or a fall from a height, and obviously the surest aid in recognizing a fracture. This is especially true of the stereoscopic plates, which frequently show a fracture that a single plate fails to reveal.

The signs of general intracranial pressure produced by bleeding or edema are usually present, as manifested by unconsciousness, slow pulse, embarrassed respiration, high blood pressure, choked disk and vomiting. These signs are more or less apparent and marked, depending on the amount of hemorrhage and edema.

The age of the patients varies within wide limits, the youngest being 3 hours old, and the oldest 81 years. A large majority (68.7 per cent.) of them were between the ages of 30 and 55.

If there be extensive lacerations of the soft parts with an exposed bone showing lines of separation, with displacement of the fragments, then the diagnosis may be made at a glance. When, however, the soft tissues are intact, the proposition becomes a more difficult one. It is almost impossible to palpate a depression in the skull through an intact scalp with any degree of certainty. An exudate beneath the fascia simulates the edge of the bone so closely that even the experienced clinician may be deceived.

The cracked pot sound elicited on percussion has not proved of great value to us. The roentgenogram is

The focal signs are entirely dependent on the area of brain that may be involved from laceration or pressure from blood clot. Signs of compression or focal signs of cortical injury are strongly indicative of skull fracture, but may occur independent of bone injury, being caused by hemorrhage or laceration of brain tissue.

The free interval of consciousness subsequent to the primary period of unconsciousness and followed by deep unconsciousness indicates a progressive active hemorrhage and pressure. This results most frequently from injury to the middle meningeal artery, and this artery is rarely involved without an associated fracture.

In fractures of the base, additional evidence is had through free hemorrhage from ears, nose, mouth or into the orbital cavity. Continuous bleeding from the ear following an injury to the head is almost pathognomonic of a fracture of the base. The escape of serospinal fluid or brain tissue is pathognomonic of fracture. In this series of 1,000 cases, blood and spinal fluid from the ears occurred in 316, or 31.5 per cent. of the cases, bleeding from the right ear 131, from the left ear 146, and not stated eighteen. Free bleeding from the orbital cavity occurred in ten cases. Unmixed cerebrospinal fluid from the ears occurred in 2 per cent., or twenty-one cases. It came from both ears in three cases, from the left in thirteen cases, and from the right in five cases.

Free bleeding occurred from the mouth and nose in 172 cases, from the nose in 118 cases, and from the mouth alone fifty-three cases, or a total of 343.

The blood from a broken bone at the base may become diffused through the soft tissues and appear later as an ecchymosis at various sites, depending on the location of the fracture. These later appearing ecchymoses near the seat of fracture are observed at the external angular process or over the mastoids or about the occiput, and it is my conviction that they are very strong presumptive evidence of the existence of a basal fracture, even if they are unassociated with coma or definite focal signs.

Occasionally an involvement of one of the cranial nerves is the only sign that is present indicating fracture. The nerve most commonly involved is the sixth. A paralysis of one facial nerve is recorded in thirteen cases in this series.

The advisability of making a spinal puncture in all cases of suspected skull fracture comes into question. When blood is found in the spinal fluid, it is highly presumptive evidence of the existence of a fracture. The procedure, however, is by no means free from

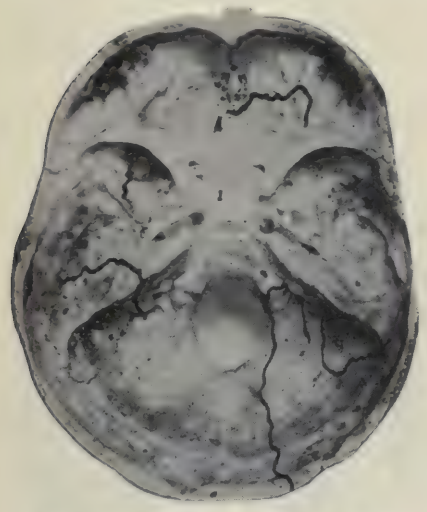


Fig. 10.—Fracture in Case 10. Signed out as skull fracture. No evidence of an external blow; no contusion. On opening the skull about 8 ounces of dark fluid blood escaped. A number of small clots beneath the dura and over the cortex of both hemispheres.

On removal of brain, several ounces of clotted blood were found in right posterior fossa and in left anterior fossa. In the right lobe of cerebellum was a laceration 2½ inches long by three-quarters inch deep on the inferior surface. A lacerated wound of about the same extent existed on the inferior surface of the left frontal lobe. Brain substance otherwise intact.

An extensive fracture of base existed involving all these fossae. Fracture of posterior fossae ran into foramen magnum. Fracture crossed left petrous portion. No ear bleeding recorded. Drum appeared intact. Both frontal orbital plates and lamina cribrosa involved. The right orbital plate had caught a portion of dura in the fracture to the extent of about 1 inch.

Occipital fragment moved on movement of head and might have been immobilized, by fixing neck.

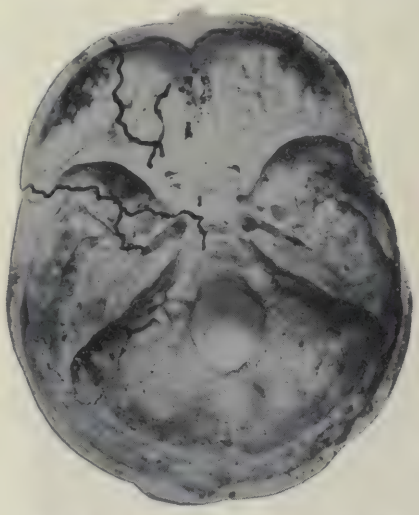


Fig. 11.—Fracture in Case 11. On cutting through the scalp a good-sized hematoma was found in soft tissues of scalp and beneath the pericranium. Externally a linear fracture appeared, extending from the superior temporal ridge on the right across the frontal, parallel to and just anterior to coronal suture, reaching the temporal and extending to the base. A fracture at right angle extended anterior through left frontal to orbit. On removing the cap a large dark firm clot—extradural—was found occupying a position over and compressing the right (anterior) frontal lobe. This clot weighed about 10 ounces (of blood) and extended to the motor area on right side and over the right frontal (anterior) convolutions. On removing the brain it was found intact, except for compression from clot. There were no lacerations and no hemorrhages in substance. The base showed several lines of fracture. The left orbital plate of frontal was comminuted and the orbit filled with clots. A fracture continuous with the one on vault extended across the left middle fossae, involving petrous portion, and passed backward to foramen magnum.

Hemorrhage came from tear in right anterior branch of middle meningeal.

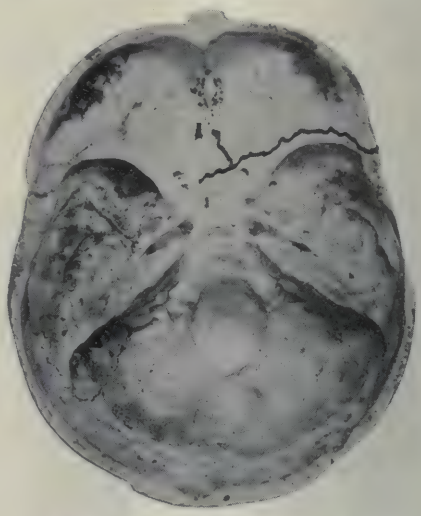


Fig 12.—Fracture in Case 12.—Over right occipital region there was an incised wound of scalp about 4 inches long closed with silkworm-gut sutures. The scalp tissues in this region showed a suffusion of blood. As the scalp was removed, a linear fracture of vault was revealed, extending from right parietal eminence downward and forward across temporal bone outer canthus of right eye, involving frontal bone. Just above the external auditory meatus there was a fragment of bone 2 cm. long and 1 cm. wide completely loosened. As the cap was removed a firm, dark clot containing about 6 ounces of blood was found compressing the motor area and anterior frontal convolutions. The posterior branch of the middle meningeal was found lacerated just above the division of main artery. Clot was mostly extradural, although a few scattered clots were found beneath dura. The brain substance was somewhat lacerated at a point opposite the small loose fragment. On removing the brain the middle fossa on left side was found filled with blood clot and the left temporal lobe was completely softened and disintegrated. There was no fracture of base at this point. The orbital plate of frontal on the right side was fractured, and orbit contained a clot behind eye. Sectioning of brain failed to show any change except as mentioned; ventricles contained only normal amount of clear fluid; cerebellum and medulla showed no change.

danger, especially in those cases in which there is a marked increased intracranial pressure. The danger is that with the relief of pressure within the spinal canal, the medulla and pons may be forced into the foramen magnum and constricted sufficiently to cause immediate death. Therefore, it is not our routine practice to do a spinal puncture in all cases. It is not done if the diagnosis can be made certain from other signs and symptoms. This procedure is reserved for that class of cases in which a patient is picked up on the street in coma and remains unconscious with no obtainable history of injury. If a positive diagnosis is not arrived at from other evidence, a spinal puncture is done.

The spinal fluid may show blood from lacerated brain tissue which exists without fracture. Escape of cerebrospin l fluid is pathognomonic of a fracture. It is found in a small percentage of cases, having been observed in 2 per cent. of this series of 1,000 cases.

Vault fractures with recovery, average respiration 22.

Vault fractures terminating fatally, average respiration 32.

Vault fractures with depression terminating in recovery, average respiration 24.

Vault fractures with depression terminating fatally, average respiration 32.

Basal vault fractures associated with recovery, average respiration 24.

Basal vault fractures terminating fatally, average respiration 40.

This shows that in the fatal cases of all types the respiration average was consistently higher.

The temperature curves in the thousand cases do now show any positive diagnostic evidence. In the patients who recovered the average temperature was below 100 F. The average temperature in the fatal cases was 102. In seven cases, however, the temperature was above 105, reaching 107 in two cases.

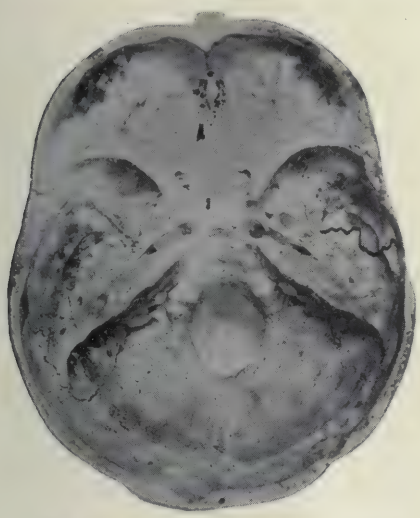


Fig. 13.—Fracture in Case 13. Patient had been operated on. There was a horseshoe flap over right temporal region, corresponding to attachment of temporal muscle.

Beneath flap, skull had been cut away, leaving an opening about 8 cm. in diameter, with a trephine opening posterior to it. The bone had been replaced. On removing brain a fracture from opening extended through middle fossa to within 2 cm. of foramen rotundum. The brain showed signs of compression from clot, which had evidently been removed. The brain tissue showed extensive laceration at point opposite removed bone, the laceration extending toward inferior aspect.

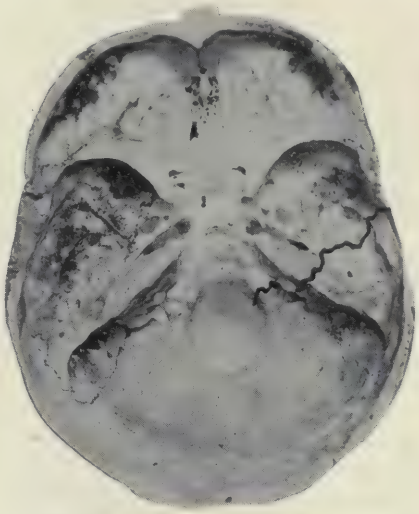


Fig. 14.—Fracture in Case 14. Patient had been operated on. Horseshoe flap over right temporal region almost identical with that in Case 11.

On laying back the flap, temporal muscle was found sutured with catgut over an oval-shaped opening in skull about 6 cm. in diameter. Fracture extended forward from this opening to outer canthus and downward across middle fossa, crossing petrous portion and terminating in foramen magnum. The brain tissue was severely lacerated in both lobes occupying middle fossae. Hemorrhage beneath pia had taken place over entire right hemisphere. No gauze packing in skull opening.

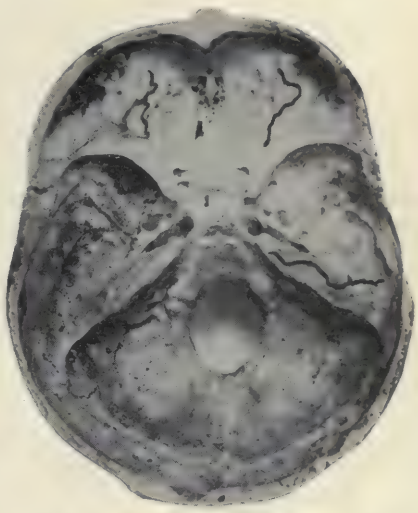


Fig. 15.—Fracture in Case 15. The scalp was intact, but showed a hematoma over right parietal region. On removing the scalp an irregular triangle shaped depressed fracture was found in right parietal region. On removing skull a diffuse clot was found covering brain beneath site of depression; the posterior branch of middle meningeal did not seem to be involved, the hemorrhage apparently coming from the smaller vessels of the pia. On removing brain a fracture was found in the base on superior surface of petrous portion of right temporal. A small linear fracture was found on both orbital plates of the frontal. The left middle fossa showed no fracture, but contained a good-sized blood clot, and the brain was lacerated at this point. The man also suffered from a fracture of sternum with hemorrhage into chest.

Emphysema into the soft tissues may occur about the frontal sinuses or over the mastoids if the air cells are widely opened. No case of emphysema was noted in this series.

An analysis of the pulse rate in this thousand cases is given in Table 1, and is most interesting and instructive. It is surprising to note how infrequently it remains slow. I believe that these records are reliable in this particular, for the nurses at Cook County Hospital are unusually well trained, accurate and efficient.

The pulse rate in cases of combined vault and basal fractures recognized as such clinically were consistent with these records, showing that the average pulse rate was higher in the fatal cases and that the number of cases with a slow pulse was relatively small.

The records of the respirations in this thousand cases fail to show a striking characteristic change. A summary of the records shows the following:

The pupillary changes occurring in 1,000 cases are given in Table 2.

The eye protruded in nine cases. There is no note made of a single case of pulsating exophthalmos.

The patellar reflexes were increased in sixty-seven cases, and absent in fifty cases, with no change recorded in the others.

A Babinski reflex was observed in fifty-five cases, and a Kernig sign in eight cases. General convulsions were noted in thirty-two cases. Clonic convulsions of the arm occurred in six cases, of the leg in two cases, and of the face in seven cases.

Rigidity of the legs was observed in twenty-nine cases and of the neck in twenty-nine cases. Complete muscular paralysis was observed in the muscles of the

face in forty-seven cases, in the muscles of the legs in fifty-five cases, and in the muscles of the arms in fifty-eight cases.

TABLE 1.—ANALYSIS OF PULSE RATE IN ONE THOUSAND CASES

Nature of Fracture	Number of Cases	Average Pulse Rate
1. Fractures of the vault without depression, with recovery (average pulse rate 71)	6	50
	8	60
	14	70
	23	80
	18	90
	14	100 plus
2. Fractures of vault without depression resulting fatally (average pulse rate 113)	1	50
	1	60
	1	80
	1	90
	12	100 plus
3. Fractures of vault with depression with recovery (average pulse rate 92)	1	50
	8	60
	24	70
	39	80
	26	90
	51	100 plus
4. Fractures of vault with depression terminating fatally (average pulse rate 116)	2	40
	3	80
	1	90
	25	100 plus
5. Fractures of base with recovery (average pulse rate 81)	4	50
	16	60
	15	70
	21	80
	13	90
	10	100 plus
6. Fractures of base with death (average pulse rate 105)	1	14
	6	40
	2	50
	9	60
	17	70
	25	80
	22	90
	119	100 plus
	1	200

TABLE 2.—PUPILLARY CHANGES IN ONE THOUSAND CASES

Pupillary Changes	Side	Number	Average Per Cent.
Dilatation of the pupil.....	Left.....	35	19.5
	Right.....	37	
	Unequal pupils..	123	
Loss of light reaction.....	Both.....	72	8.5
	Right.....	8	
	Left.....	5	

In this series of 1,000 cases, vomiting was a common symptom, and occurred in 361, or 36 per cent. of all cases. In eleven cases the vomitus was almost wholly blood.

104 South Michigan Avenue.

Baby Week Campaign.—The Children's Bureau of the United States Department of Labor has issued a bulletin presenting in detail practical methods of organizing and carrying on a baby week in cities, towns and rural communities. A campaign of publicity through newspapers and meetings, celebrations in schools, the collection of public welfare information, and follow-up work after the baby week is over, are some of the features suggested. An infant welfare exhibit might also be made. During the week thorough physical examination of babies should be made according to some definitely outlined plan. The physician should hold interviews with the parents, in which the needs of the baby would be pointed out and the general hygiene best suited to the baby under consideration, discussed. All this work has one common aim, to focus attention on the individual baby. Copies of the bulletin may be obtained free of charge on application to the Children's Bureau, Washington, D. C.

A CASE OF FATAL DIABETIC COMA WITHOUT DIACETIC OR BETA-OXYBUTYRIC ACID

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FORT WAYNE, IND.

This case of fatal diabetic coma without either diacetic or beta-oxybutyric acid in the urine seems of sufficient interest to be placed on record, because of the general tendency to trust to the Gerhardt reaction as a sign of impending coma in cases of diabetes.[1]

History.—Mrs. H., aged 53, hairdresser, referred by Dr. Jackson of Hicksville, Ohio, entered St. Joseph Hospital Nov. 5, 1913. The family history was entirely negative. The patient's health had always been good. She had typhoid fever at 16 and again (?) at 43, and pneumonia at 45. There had been no other severe illnesses. Menstruation began at 16; there had been two pregnancies; one resulted in a miscarriage at three months, and there is a son living at 33. The menopause occurred at 49. The patient's health has been good during and since, until the beginning of the present illness. Two months ago the patient began losing strength and weight, and was quite thirsty—"could not get enough." Nocturia occurred five or six times. There was no polyphagia, but, on the contrary, complete anorexia. The patient had lost 30 pounds in weight since the beginning of her illness, and had considerable dyspnea, and *constant* nausea, sometimes extreme, but without vomiting at any time.

The symptoms and the general condition had grown progressively worse from the onset of the disease. At the time of my examination the patient was quite weak, but her general appearance was not bad. She had complete anorexia, and ate practically nothing.

Physical Examination.—The heart was moderately dilated (2 cm. to left of the midclavicular line); there was some tenderness corresponding very closely to the area of the pancreas. The pulse was 110, and the temperature of normal range throughout. The blood pressure (systolic, sitting) was 120.

The blood examination revealed the hemoglobin as being 80 per cent., leukocytes 7,000, polymorphonuclears 76, small lymphocytes 18, large lymphocytes 4, transitional 1, and eosinophil 1.

The urine was acid, with a specific gravity of 1.025. Both albumin and sugar were present. Urea, 0.5 per cent., was equal to 5.4 gm. in twenty-four hours. Both indican and *acetone* were absent.

Microscopically, there were many hyaline and granular casts, leukocytes and epithelial cells.

At this point the relative importance of the diabetes and Bright's disease, aside from the light shed by the history, was very problematic.

The phenolsulphonephthalein test showed, first hour, 31 per cent.; second hour, 12 per cent.; total, 43 per cent.

During the first twenty-four hours in the hospital the output of urine was 3,100 c.c., and varied thereafter from about this figure up to 4,000. November 12, the seventh day, for example, the quantity was 4,120, with 3⅓ per cent. of sugar, a total of 137 gm. On this day a careful analysis of the blood was made, and it was found to contain 0.66 per cent. of sugar and 0.02 per cent. of urea. Acetone was constantly present after the first examination, but neither diacetic nor beta-oxybutyric acid could be detected at any time. A final careful qualitative test was made for both in the urine withdrawn by catheter when the patient was moribund.

On account of the anorexia, the dietetic treatment was, of course, without significance. Sodium bicarbonate was given in as large doses as could be tolerated, which was about

1. J. Rosenbloom (New York Med. Jour., Aug. 7, 1915) reports three fatal cases of diabetic coma without beta-oxybutric or diacetic acid or even acetone in the urine differing in this last point from the case here reported.

8 gm. daily. After three or four days the patient became at times distinctly somnolent.

On the morning of the eighth day the nurse reported that the patient was apparently all right at 5:30, but two hours later was found in deep coma.

As soon as arrangements could be made, about 9 a. m., she was given an intravenous injection of 1,300 c.c. of 2.5 per cent. solution of sodium bicarbonate. At the beginning of this injection the systolic blood pressure was 75 and remained practically uninfluenced by this injection, or anything else done up to a short time before death. It was impossible to rouse the patient at all before the injection, but when nearly completed she opened her eyes and asked what we were doing. She was less comatose for a few hours, but soon relapsed into her former condition. At 5:30 we gave her 900 c.c., containing 1 ounce of sodium bicarbonate. Slight improvement again followed for a brief time, but coma soon deepened, and she died about 11 p. m.

No necropsy could be obtained.

For some unaccountable reason the ammonia excretion was not estimated, and thus was missed the most reliable criterion of an acidosis. The clinical picture, however, was unmistakably that of the "alcoholic type" of diabetic coma. It was not Kussmaul's air hunger, nor was it the circulatory failure of "diabetic collapse." That it was really a coma from some type of acidosis is indicated by the transient improvement following the intravenous injection of large quantities of sodium bicarbonate. But to what was the acidosis due?

Futcher[2] says: "Without qualification we can at present say that the acid intoxication of diabetic coma, or 'acidosis,' as Naunyn calls it, is due to the action of beta-oxybutyric acid," thus indorsing Stadelmann's[3] dictum that "diabetic coma occurs only when the urine contains beta-oxybutyric acid." This case seems to prove that there are exceptions to this rule.

There would seem to be three hypotheses available for explanation of this case:

1. The coma was due to beta-oxybutyric acid which was so rapidly oxidized that only acetone remained in the urine.
2. The coma was due to acetone.
3. The coma was due to some unknown derivative of the acetone group.

The first hypothesis seems entirely untenable, inasmuch as beta-oxybutyric acid is readily excreted by the kidneys in considerable amounts long before a fatal coma develops. Even if it were conceivable that the beta-oxybutyric acid was all oxidized, the next oxidation product, diacetic acid, would certainly be present. The absence of both these acids appears to me to be conclusive proof that the coma was not due to beta-oxybutyric acid.

Was it due to acetone which was freely excreted and presumably contained in large quantities in the blood? The evidence on this point is somewhat conflicting. It is true that a number of observers have taken acetone in considerable doses without marked symptoms.

Sollmann[4] quotes Albertoni to the effect that it is faintly hypnotic, but causes so much dyspnea that it is not used internally. This would seem to indicate very decided toxicity. When taken by the mouth, it should be remembered that it has to run the gauntlet of the laboratory of the liver, whatever effect this may have. Rhamy[5] produced drowsiness or even stupor and other toxic phenomena and fatty changes in the liver and kidneys by hypodermic injections of acetone in guinea-pigs. Acetonemia is apparently entitled to very serious consideration in such a case.

The third hypothesis, although entitled to thoughtful consideration, is not supported by any available facts so far as I know.

The principal clinical interest attaches to the absence of Gerhardt's reaction, showing that this cannot be relied on to exclude impending coma. Neither can the low blood pressure which Ehrmann[6] says is a nearly constant feature of the precoma state. In this case the systolic pressure was 120, falling to 75 only when coma had actually supervened. Considerable scientific interest, however, attaches to the absence of beta-oxybutyric acid which was determined in my laboratory by the Black method,[7] as well as the absence of the intermediate body, diacetic acid and the presence of large quantities of acetone.

2. Futcher, in Osler's Modern Medicine, 1907, i, 786.
3. Stadelmann, in Williamson's Diabetes Mellitus and Its Treatment, p. 279.
4. Sollmann: Pharmacology, p. 443.

AN UNUSUAL CASE OF APPENDICITIS

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Every case of appendicitis is of some clinical interest to surgeon and physician alike; but some cases stand out on account either of the operative findings or of the complications which follow. It is to the latter class that the following case belongs; and I believe its report will be read with some interest, particularly since it terminated in a complete recovery.

History.—W. M., man, aged 21, walked into my office, March 15, 1915, leaning forward and very lame apparently in the right hip, saying he had appendicitis. He had been taken sick, March 10, with indigestion, pain in the stomach and vomiting; March 14, there had been severe pain in the lower right flank, but at present the pain was felt over the entire abdomen. The temperature was 99, pulse 140, abdomen rigid. Vomiting had ceased the day before. The bowels had acted in the morning from a dose of salts taken the night previous. On a diagnosis of gangrenous appendix, possible rupture and peritonitis, the patient was taken at once to the Mary Gates Hospital, and prepared for operation.

Primary Operation.—The abdomen was opened through the usual right rectus incision. When the peritoneum was opened, a mass of gangrenous omentum was encountered which was ligated and resected. The cecum was adherent laterally and anteriorly. I did not deem it safe to liberate the adhesions and bring the appendix into the wound for its removal. The appendix could be felt buried beneath a dense pericolic (Jackson's) membrane. This membrane had to be divided before the appendix could be exposed. It was situated posterior, its tip pointing north. Seeing that it would be unsafe to break up or sever the surrounding adhesions sufficiently to deliver the appendix into the wound for its removal, I enlarged the incision sufficiently to allow working room, retracted with deep retractors, and with much difficulty removed the appendix in situ. Its proximinal half was normal in appearance; the distal half was gangrenous,

5. Rhamy, B. W.: Acetonuria and the Relation of Acetone to "Acid Intoxication," THE JOURNAL A. M. A., March 2, 1912, p. 628.
6. Ehrmann: Berl. klin. Wchnschr., August, 1913.
7. Morris: Clinical Laboratory Methods, p. 67. Briefly, the test is as follows: Ten c.c. of urine are evaporated to one third of its volume. To the residue are added a few drops of hydrochloric acid. It is then made to a paste with plaster of Paris, allowed to stand until it begins to set and extracted twice with ether after breaking into fine fragments. The ethereal extract is evaporated, and the residue dissolved in water, and neutralized with barium carbonate. Two or three drops of hydrogen peroxid are then added, which converts the oxybutyric acid if present into diacetic acid, which is then determined by the ferric chlorid or Gerhardt test.

nigh onto rupture. At the point of juncture of the two portions the appendix was constricted as if by a tight ligature, which constriction was caused by the band of pericolic membrane which surrounded the cecum and buried the appendix beneath it.

The usual peritoneal toilet was carried out, a split rubber drainage tube inserted well down over the lower cecum, and the abdomen closed. The patient was put to bed in the Fowler position, and the Murphy drip ordered, together with morphin, one-fourth grain, and atropin, 1/150 grain by the needle.

The patient reacted well from the anesthetic and operation with apparently little shock, and had a good night. The next morning the pulse was 118, temperature 99, and conditions looked encouraging.

Peritonitis.—The next evening, thirty hours after the operation, the patient began to show signs of a rapidly spreading general peritonitis: chills, a temperature of 104.5, a pulse of 140, vomiting, the abdomen much distended and rigid, the countenance pinched. The clinical picture indicated that the inevitable would result unless we could do something more, and that very soon. The patient was accordingly returned to the operating room, and hypodermoclysis of 1 quart saline, began simultaneously with the anesthetic. His condition was desperate, and it seemed probable that he would die on the operating table unless we got him off soon. I reopened the abdomen through the original incision. The peritoneal cavity was filled with bloody pus. This fluid was hurriedly mopped out with dry sponges, and six split rubber drainage tubes inserted as follows: one down to the stump of the appendix; one below the cecum; one extending above along the ascending colon toward the liver, these three coming out through the original incision; another through a stab wound in the left flank extending downward toward the sigmoid and behind the bladder; another through a stab wound to the left and a little above the umbilicus, extending upward in the region of the stomach and spleen, and a sixth one through a stab wound in the right loin posteriorly, draining the region of the cecum and ascending colon from behind.

From this day on we had a stormy time; the temperature did not fall below 102 for eight days. Paralytic distention was met with pituitary extract, repeated at six-hour intervals, usually with relief. The bowels moved on the second day. During the subsequent four days the patient received by hypodermoclysis a total of 4 quarts of normal saline solution and 1 quart of glucose solution. On the fifth day he became profoundly jaundiced, the urine containing much bile, 5 per cent. albumin and many casts (a toxic nephritis).

Retrocecal Abscess.—March 25, the patient's condition again looked promising. The jaundice cleared up and the outlook seemed a little hopeful, when his temperature suddenly began to rise again and he was seized with severe pain in the lower right flank. I felt certain that we had an abscess below the cecum which was not within the range of our drainage. His condition did not permit of a general anesthetic. Under local anesthesia of quinin and urea hydrochlorid I cautiously dissected through a 1-inch incision in the extreme lower right abdominal quadrant, until the peritoneum was reached. This was opened and an abscess cavity found, which on digital exploration extended upward and posteriorly. A split rubber drain was inserted, this making the seventh drain into the peritoneal cavity. The patient's condition was critical for the next four days, when it began to clear up and we believed once more that we were about to enter on convalescence. At this juncture an acute gastric dilatation came very near closing the scene. This was met by the stomach tube, but recurred at intervals for the next three days.

Pleural Involvement.—March 29, he was seized with severe pain in the right chest; the temperature rose to 102.5. Examination revealed pleuritic friction sounds and a right sided pleurisy extending well down to the diaphragm. The liver was enlarged and very tender on percussion and palpation. The pleural cavity rapidly filled with fluid, which was aspirated, 24 ounces of bloody seropus being removed.

Liver Infection and Empyema.—Exploratory aspiration of the liver was done, the withdrawn fluid showing microscopically numerous pus cells. On the following day, April 2, the ninth rib was resected in the midaxillary line. This was done under local anesthesia, supplemented by a small amount of chloroform. The patient's condition was critical from sepsis and exhaustion, and at one time the head nurse thought he had died on the table. The chest was opened and several ounces of pus evacuated from the pleural cavity. The liver could be clearly seen covered by the pleura and diaphragm. On digital exploration, fluctuation was detected, and as the liver seemed to be adherent to the diaphragm, I did not hesitate to incise the abscess, and I introduced a wick of iodoform gauze which was brought out through the opening in the resected rib. Another gauze drain was inserted into the pleural cavity, extending upward, and also brought out through the resected rib opening.

The liver did not drain very much for the first few days; but subsequently free drainage was established, when the gauze drain was removed and not replaced. The drain in the pleura was renewed several times, and removed at the end of two weeks.

Outcome.—The patient suffered much from adhesions, causing distention and pain, for several weeks. His recovery was slow and tedious, but he was able to leave the hospital June 3, 1915, with a fecal fistula communicating with the cecum, and an empyema sinus still discharging. A letter from him dated Aug. 10, 1915, says that both have closed and that he is in good health and ready for work.

SUMMARY

The gangrenous appendix in this case was clearly due to constriction by a Jackson's membrane.

The technical difficulties encountered in its removal were due to its posterior situation and to its being buried beneath a pericolic membrane, plus an adherent cecum.

The early drainage of the peritoneal cavity, which was done thirty hours after the primary operation when the abdomen was reopened on the advent of the general peritonitis, was probably responsible for the favorable outcome.

There was retrocecal abscess which was located and evacuated under local anesthesia.

This was followed by pleural involvement, the infection of the liver, and the prompt and radical treatment of the empyema and drainage of the abscessed liver through the transpleural-thoracic route.

In discussing this method of attacking an abscessed liver in such cases, Deaver[1] says that this is the route of choice even in cases in which there is no empyema. He describes in detail the technic of drainage through the thorax transpleurally, and adds that only about 16 per cent. of liver abscesses can be successfully handled through a laparotomy.

This case shows what can be accomplished by persistent and well directed effort, even in the face of such desperate crises as were encountered, and also emphasizes the necessity for operation in all cases of appendicitis as soon as recognized.

1. Deaver, J. B.: Appendicitis, Ed. 3, Philadelphia, P. Blakiston Son & Co., 1905, p. 422.

Production of Sodium and Sodium Peroxid.—According to *Commerce Reports,* the production of sodium and sodium peroxid is being rapidly increased in the United States where there is an enormous demand for the peroxid and cyanid, the former being chiefly used in bleaching operations and the latter for metallurgy. They are made from metallic sodium which is obtained from caustic soda and from Chile saltpeter or sodium nitrate, the by-product in the latter process being nitric acid, by the electric process.

INTRASPINAL INJECTIONS OF MERCURIALIZED SERUM IN A CASE OF SPASTIC PARAPLEGIA

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Our knowledge as to the cause and treatment of many types of disease of the nervous system is very limited. Practically nothing definite about their etiology is known, and no successful method of treating them has been suggested or developed up to the present.

The treatment of syphilitic disease of the central nervous system by subdural injections of therapeutic material has been established on a rational and safe basis by the work of Swift and Ellis.[1] The introduction by Byrnes[2] of a nontoxic preparation of mercury in the form of mercurialized serum for intraspinal use has added another efficacious remedy for the treatment of cerebrospinal syphilis.

In view of the successful results following subdural therapy for neurosyphilis the possibility of intraspinal injections in some types of nonsyphilitic disease of the nervous system naturally suggested itself. In this connection the report of the following case may be of interest and perhaps of some value:

REPORT OF CASE

History.—Mr. W. T., farmer, aged 28, of the central part of the state, complained of trouble with his digestion, of soreness over his stomach, and that his walk was very bad. The family history was negative. About six years previous to the time he came under observation he had had typhoid fever, the course of which was not especially severe. He denied venereal infection. His habits were good.

The present illness began insidiously about four years previously. The first thing he noticed was that his body would get warm and that his legs would tend to get stiff. One day while at work he felt his whole body become "feverish," and after that both his legs seemed to become quite stiff. The stiffness promptly disappeared, but he found that he could not run as well as he usually could. From that time on his walk got slowly but steadily worse. Early in the course of the trouble he noticed a "numbness" in the right leg, and some time later numbness in the other leg. He got worse after exertion and seemed to feel better after rest. His general condition also had become steadily worse. Constipation began with the onset of his trouble. He had been unable to work for nearly three years and said he had lost about 25 pounds in weight in the previous year. He had spent much time in one of our leading sanatoriums. Later he was seen by a well-known neurologist who recognized the disease and emphasized its hopelessness.

Examination.—The patient walked with a typical spastic gait—not ataxic—using two canes. The superficial reflexes were increased, and the knee jerks were greatly exaggerated. Definite ankle clonus and dorsal flexion of the great toe were obtained easily on both sides. No real patellar clonus could be elicited. Physical examination otherwise was entirely negative. There were no sensory and no sphincter disturbances. There was no atrophy. The urine was normal. The blood was normal, the Wassermann test negative. Lumbar puncture yielded 10 c.c. of clear, colorless fluid under increased pressure. The fluid contained globulin +, cells thirty, and gave a negative Wassermann.

Diagnosis.—Spastic paraplegia (lateral sclerosis).

Treatment.—The patient was told in unmistakable language that there was no drug or treatment that was known to have a curative effect in this disease and that since there was nothing else to be done perhaps intraspinal treatment might be tried. This treatment was merely suggested, not urged. He was allowed to decide for himself. After a delay of a month he decided to take the chance. Within the next seven months (April 9 to November 13) he received one injection of neosalvarsanized serum and nine of mercurialized serum intradurally. The former was given for the purpose of noting his reaction to intraspinal injection, for I had not yet had any personal experience with the procedure in nonsyphilitic disease. The mercurialized serum was supplied through the courtesy of Dr. Charles M. Byrnes, the originator of this serum. It was administered by means of a syringe after the simplified method suggested by Warfield.[3] The reactions were all rather mild in this case and were more marked at the beginning than at the end of the course of treatment.

Clinical Result.—There was soon noticed a slow but steady improvement in the gait. It is still spastic, of course, and no doubt always will be, but the change in the character of the patient's walk has been quite striking indeed. All of his other symptoms have disappeared. The superficial reflexes, knee reflexes, ankle clonus and Babinski are all practically unchanged up to the present, and since they are dependent on irreparable degenerative changes that have already taken place, no change in them is to be expected. The spinal fluid which at first contained globulin + and thirty cells, and was under increased pressure, now comes out under normal pressure and shows no increase in its globulin content and only two cells. Definite symptomatic improvement coincident with a return of the spinal fluid to normal thus constitutes the extent of the clinical change up to the present.

REMARKS

In view of the recent studies on the cerebrospinal fluid, especially in its relation to neurosyphilis, intradural therapy in an obscure type of organic nervous disease would seem to be indicated. Possibly some of these obscure diseases may be manifestations of an infectious process of some sort, the nature of which is not known. No matter what the etiology may be, the most effective way to reach the seat of the pathologic process is by direct subdural injection of the therapeutic substance. In the absence of exact knowledge on the cause and nature of these diseases, no curative drugs are known at present. Under the circumstances Byrnes' mercurialized serum suggests itself as a drug that might be tried. The result apparently obtained in this case suggests the possible value of this serum. Such a result may have been merely a coincidence. Probably not every case will improve under this form of treatment. Neither does every case of cerebrospinal syphilis improve under intraspinal therapy. Each case may be judged on its own merits, and if in any case of chronic disease of this kind some real improvement can be brought about by intraspinal injections, this method of treatment seems to be justified.

1. Swift and Ellis: The Treatment of Syphilitic Affections of the Central Nervous System with Especial Reference to the Use of Intraspinous Injections, Arch. Int. Med., September, 1913, p. 331.

2. Byrnes, C. M.: The Intradural Administration of Mercurialized Serum in the Treatment of Cerebrospinal Syphilis, THE JOURNAL A. M. A., Dec. 19, 1914, p. 2182.

3. Warfield, L. M.: A Simplified Method for the Intrameningeal Injection of Neosalvarsan in Syphilis of the Nervous System, THE JOURNAL A. M. A., Dec. 26, 1914, p. 2287.

The Harrison Narcotic Law.—The United States District Court for the Western District of Washington has decided that Section 8 of the Harrison Narcotic Law, providing that the possession or control of the habit-forming drugs named in the act by a person who is not registered and who has not paid the special tax is unlawful, is constitutional and that such possession or control is made presumptive evidence of a violation of the act. Congress had the right to make it unlawful to have in his possession or control the unlawful article by any person who has not registered or paid the special tax.

Therapeutics

ACIDOSIS IN CHILDREN

The part which this condition plays in the terminal symptoms of acute and chronic disease is not sufficiently recognized. It has long been known that acidosis is a termination in diabetes mellitus, but that this serious condition may occur in any acute disease when there is prolonged vomiting, starvation, or even when the food is for a long time starch-free, is not always known or often guarded against. The vomiting after anesthesia, and the long continued administration of albumin water or other pure protein food after operation predisposes to acidosis, and collapse, shock and gastric disturbance are often due to this factor. To guard against the acidosis related to continued vomiting after a surgical operation, starch should be given in any pleasant assimilable form in large quantities, when possible, for two or three days before the operation. Also, there should not be a too long starvation period before an operation is done. Much prostration will be prevented by such care. Egg albumin water is not a good food, and as soon as possible some starch food should be given after the operation. In typhoid fever, in pneumonia, in septicemia and in all prolonged illnesses starch should constitute part of the food. A too long starch-free diet predisposes to this type of acidosis, and in serious illness the necessity for the feeding of some starch and some sugar is often forgotten. In the pernicious vomiting of pregnancy and in other forms of starvation it has been shown that acidosis will develop, and that the ammonia nitrogen increase in the body, which occurs in these conditions, is a source of danger.

The treatment of acidosis, or its prophylaxis is the administration of alkalies, principally sodium bicarbonate. Alcohol also aids in preventing acidosis.

While adults are not exempt from gastro-intestinal disturbances that may cause a condition of acidosis, children often suffer from the condition, and it may even occur in epidemic form among young children.

Metcalf[1] studied 100 cases of acidosis in young children that occurred as an epidemic in Concord, N. H. His description of this condition is so well presented that a review of it will aid in making the diagnosis and instituting the proper treatment. The age of the child attacked in this epidemic varied from 1 to 13 years, 80 per cent. of the cases occurring in children between 2 and 8 years of age. No single food or indiscretion in diet was the cause. If milk or water caused the disease, it was not proved. Neither starvation nor excessive fat intake were causes of any constancy. Seventy per cent. of the children had some nose, throat or lung infection either preceding or complicating the acidosis; eighty-four had never suffered from anything similar to this acidosis attack.

In eighty-six cases the onset was sudden, and generally the disease began with vomiting. The most prominent symptoms were coated tongue, drowsiness, thirst, flushed face, prostration, diarrhea (about one third of the cases) and cerebral symptoms. The fever varied from a little above normal to 104, while in some of the most serious cases there was a low temperature. The pulse was always rapid, and followed the temperature, the higher the temperature, the higher the pulse rate. With the prostration there was frequently a paleness about the mouth, quite noticeable. There is often dyspnea, and acidosis in any condition is a common cause of dyspnea. The urine was scanty in 50 per cent. of the cases and generally clear, though other observers have found it frequently cloudy. Acetone was present in every case, even within a few hours after the onset of the sickness, and always persisted until after the urine became alkaline under the treatment. Of forty-five cases examined, diacetic acid was present in fifteen. It is a danger signal, and if the patient recovered, it disappeared from the urine before the acetone disappeared.

Recovery under proper treatment may be rapid especially in mild cases. The average duration of fatal cases was thirty-two hours; nine patients died. No specific germ was found in any of the cases examined.

TREATMENT

The treatment, from start to finish, consists of the administration of alkalies, either sodium bicarbonate or potassium or sodium citrate. Most children can take and retain large doses of these drugs. A few did not retain the alkali when given by the mouth. In these cases the alkali was given by the rectum. The doses must be large to combat the acidosis quickly. The quicker the urine is rendered alkaline the better for the child. Four grams (60 grains) of sodium bicarbonate every two hours is about the amount desired, according to Metcalf. Smaller amounts act much more slowly. Full doses will alkalinize the urine in from twenty-four to thirty-six hours. The more serious the symptoms, the more necessary it is to push the alkali. Sodium bicarbonate may be given as follows:

	gm. or c.c.	
℞ Sodii bicarbonatis.....	20	ʒ ivss
Aquae	200	fl ʒ vi

M. Sig.: Two teaspoonfuls in an equal amount of water every thirty minutes.

This dose is for any age, and is to be continued until the urine is alkaline, or at least until eight doses have been taken. The frequency may then be reduced to once in two hours, and then the dose may be given more or less frequently, depending on whether or not the urine is alkaline. If the intoxication is serious, the dose should be given every fifteen or twenty minutes.

If the medicine is not retained, peppermint water or wintergreen water may aid in its retention; or it may be given by rectum, 2 grams (30 grains) in 2 ounces of water, every hour. Or potassium or sodium citrate may be substituted:

	gm. or c.c.	
℞ Potassii citratis.....	40	ʒ ix
Aquae gaultheriae.....	200	fl ʒ vi

M. Sig.: Two teaspoonfuls, in an equal amount of water, every thirty minutes.

This dose is for any age, and should be continued, increased or diminished in frequency as described for sodium bicarbonate, depending on the condition. Whatever the alkali used, it should be continued for several days in diminishing frequency of dosage even after the acute symptoms have subsided.

It may be noted that if the urine is made long alkaline, ammonium compounds may appear in the urine, and in infants who wear diapers this ammonia may combine with any alkali present in the diaper, such as "soap, lye, lime or stool,"[2] and cause severe irritation of the buttocks. Hence in these cases the diapers must be thoroughly cleansed of all soap.

1. Metcalf, C. R.: Acidosis with Autointoxication in Infants and Children, Am. Jour. Dis. Child., January, 1915, p. 28.

2. Zahorsky, John: The Ammoniacal Diaper in Infants and Young Children, Am. Jour. Dis. Child., December, 1915, p. 436.

The best diet as soon as vomiting has ceased is probably barley water, oatmeal water, rice water, and soon afterward cereal gruels.

Thirty-five of the hundred patients had diarrhea. Metcalf does not suggest a cathartic, either for the constipated cases or for those with diarrhea, but the large amount of alkali may cause catharsis. For some time the diet should probably be low on fats, although Metcalf did not find that excessive feeding of fat was a cause of the acidosis in his cases.

He occasionally used morphin when there was great "excitement." It would seem that small doses of chloral would be better, unless it were advisable to give the morphin hypodermically.

In very serious cases, not improving under the alkaline treatment pushed by the mouth or rectum, it would seem good treatment to give intravenously Ringer's solution, the amount depending on the age of the child. Ringer's solution is as follows:

	Gm. or c.c.	
℞ Sodii chloridi	9	gr. cxxxv
Calcii chloridi	24	gr. iv
Potassii chloridi	42	gr. viss
Sodii bicarbonatis	20	gr. iii

M. et fac chartulam 1.

Sig.: To be added to a quart (1,000 c.c.) of distilled, or at least boiled, water.

This may be made into sterilized tablets and kept ready for use.

SUMMARY

1. It seems unprofitable to discuss theories of the cause of this acute acidosis until more scientific data have been developed. Suffice it to say that an overworked or disturbed liver seems to be unable to care for the fat offered it, and acetone products and resulting acidosis are the consequence. Whether a toxin is formed in the intestine or is absorbed from some distant infection, or from an infection of the nose, throat or lungs (as apparently so prominent in Metcalf's cases) which interferes with the liver activity, is not known. Many conditions might furnish such a toxin. There is probably always severe liver disturbance in the acidosis of diabetes mellitus.

2. Acetone bodies are neutralized by the sodium, potassium or calcium of the blood and tissues. Hence the great loss of these alkaline elements if the acidosis persists, and the need for large amounts of alkaline salts to save the patient.

3. The fact that such epidemics of acidosis can occur presupposes that isolated cases may occur, as in any other condition.

4. If a child suddenly is taken seriously ill with symptoms similar to those described above acidosis should be considered, as well as a beginning meningitis; hence the urine must be obtained and examined for diacetic acid and acetone. A modified alkaline treatment can do no harm to any other condition, and should be started before ascertaining the presence or absence of acetone bodies. If acetone is absent and there are cerebral symptoms, spinal puncture for diagnosis is indicated. With acetone absent and with diarrhea, a careful examination of the feces for pathologic germs and to ascertain the character of the digestion should be made. Also, a blood count should be taken, and the Widal test made. Such immediate examinations will save many lives.

INFANTILE DIARRHEA

It should be noted that many of Metcalf's patients had diarrhea as a symptom, and in this connection the findings of Day and Gerstley[3] are of interest. They carefully studied twenty-two cases of diarrhea in infants, and found that eighteen of these were not due directly to maldigestion or to any pathologic intestinal germ, but were due to some infection of some other part of the body.

Only two of these cases were due to food disturbance, associated with increased temperature, greenish, watery stools, and with no abnormal germs in the feces, and no remote source of infection. These patients rapidly recovered with a diet of tea for the first twenty-four hours, and, later, breast milk.

Two patients showed the gas bacillus in the feces. In these cases withdrawal of food did not stop the fever or the symptoms, but the patients recovered under albumin milk. Buttermilk is also at times a cure for the gas bacillus diarrhea.

As just stated, the other eighteen patients of this series had some distant infection, with diarrhea as a secondary symptom.

These observers urge that if an infant with diarrhea does not rapidly improve after twenty-four hours of starvation, with a diet of water or tea, the feces should be examined for abnormal bacteria and the urine for acetone, and every possible source of infection in any other part of the body should be investigated. The treatment, if pathologic bacteria are found in the feces, depends on the germ present. If acetone is found in the urine, the treatment is as presented above, alkalies in large doses. Any localized infection should, of course, be properly treated.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

ERGOTININE CITRATE-ROCHE.—A non-proprietary brand complying with the standards for ergotinine citrate (see N. N. R., 1915, p. 115).

Manufactured by F. Hoffmann-LaRoche and Co., Basel, Switzerland (The Hoffmann-LaRoche Chemical Works, New York).

HOMATROPINE HYDROCHLORIDE-ROCHE.—A non-proprietary brand complying with the standards for homatropine hydrochloride (see N. N. R., 1915, p. 57).

Manufactured by F. Hoffmann-LaRoche and Co., Basel, Switzerland (The Hoffmann-LaRoche Chemical Works, New York).

SEIDEN PEPTONE-ROCHE (Silk Peptone).—A non-proprietary brand complying with the standards for silk peptone (see N. N. R., 1915, p. 335).

Manufactured by F. Hoffmann-LaRoche and Co., Basel, Switzerland (The Hoffmann-LaRoche Chemical Works, New York).

THEOBROMINE AND SODIUM ACETATE-ROCHE.—A non-proprietary brand complying with the standards for theobromine sodium acetate (see N. N. R., 1915, p. 371).

Manufactured by F. Hoffmann-LaRoche and Co., Basel, Switzerland (The Hoffmann-LaRoche Chemical Works, New York).

3. Day, A. A., and Gerstley, J. R.: A Study of Certain Cases of Infantile Diarrhea During the Summer of 1914, Am. Jour. Dis. Child., March, 1915, p. 233.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, JANUARY 29, 1916

A FALLACY REGARDING THE INTERRELATION OF THE SUPRARENALS AND THE PANCREAS

In a prefatory note to the new journal *Fermentforschung,* the editor, Professor Abderhalden of Halle, remarks that hypotheses will be welcomed in its columns because they are so often the inspiration to progress and the incentive for fruitful investigation. While this is doubtless true in no small measure, every critical student of scientific medicine realizes how much easier it is to get wrong views and mistaken conclusions into print than it is to eliminate them later. From decade to decade the uncritical makers of books hand down the follies of past assumptions, and a fabric of untenable conceptions becomes perpetuated until the impression finally prevails that these represent the truths rather than the fictions of science. Elliott justly warned against building on insecure foundations when he said, "Medicine owes no debt of gratitude to those who teach her theories without proof."[1]

Many statements have been made concerning mutual relations said to exist between the organs of internal secretion. Such statements are usually based on extremely slender evidence. It is doubtless true that certain common bonds exist between such glands as the suprarenals, thyroids, pituitary bodies, etc. Suppression of one often leads to enlargement of another; and the clinical indications of possible interdependence are manifold, though they are usually rather vague and complicated. If undue enthusiasm in the field of the physiology and pathology of internal secretions and the functions of the endocrine glands has led to extravagant statements or unfounded conclusions, it becomes a scientific duty to unravel the difficulties or disclose the errors that have been perpetuated.

A task of this sort has recently been undertaken at the Mayo clinic by Mann and Drips.[2] Numerous experiments have been reported, the results of which tend to suggest the existence of a specific functional relationship between the suprarenals and the pancreas. Thus the suprarenal secretion is believed to mobilize carbohydrates, whereas the pancreas facilitates their utilization. In a sense these two functions either antagonize or supplement each other. It has been maintained, on the one hand, that the injection of epinephrin decreases or inhibits the flow of pancreatic juice and that the removal of the suprarenals increases the pancreatic secretion. On the other hand, this inhibitory effect has been demonstrated to be due to the vasoconstriction produced by epinephrin rather than to any specific effect on the pancreatic gland. Mann and Drips have furnished an illustration of the ease with which mistaken conclusions may be drawn in these matters. They note that the pancreas develops a characteristic pink color and its blood vessels are injected to a maximum degree after double suprarenalectomy. This hyperemic condition of the pancreas does not take place, however, until there is evidence that arterial tone is decreasing in the other organs. The increased flow of pancreatic juice after removal of the suprarenals — a point which has been brought forward as evidence of the normal inhibitory influence of the suprarenals on the pancreatic function — is little greater than that which occurs in normal animals under the same conditions as regards blood pressure, etc., and it does not exceed the increase incident to the trauma from the removal of only a single suprarenal. The flow, furthermore, is insignificant in comparison with the actual secretion during the process of digestion. Again, there is a marked decrease in the zymogen content of the pancreas in suprarenalectomized animals, but this is merely proportionate to the time of low blood pressure.

All the changes emphasized are incident to the moribund condition of suprarenalectomized animals. They do not demonstrate any specific relationship whatever between the suprarenals and the pancreas; for, as Mann and Drips correctly conclude, all the changes found in the pancreas grossly, histologically and functionally, after removal of the suprarenals can be accounted for by the changes in general taking place in the organism as a whole, due to decreased blood pressure, decreased temperature, and the other changes incident to the exhibition of a moribund condition.

1. Elliott, T. R.: Ductless Glands and the Nervous System, Brain, 1913, xxxv, 320.
2. Mann, F. C., and Drips, Della: The Relation of the Adrenals to the Pancreas, Arch. Int. Med., 1915, xvi, 681.

THE DANGERS OF RUBBER MANUFACTURE

The rubber industry in the United States is important, employing tens of thousands of men and women, and increasing continually. Whether or not it is attended with risk to the health of those engaged in it, and is to be classed as a dangerous trade, most of us would be unable to say. In Germany and France it is considered a decidedly dangerous trade, and many cases of poisoning from carbon disulphid used in vulcanizing rubber are recorded in the literature of those countries. In one rubber manufacturing city, Leipzig, Lauden-

heimer[1] found fifty cases of carbon disulphid insanity in Flechsig's clinic, and this substance is still largely used in German rubber works. In a recent French publication[2] are described eight cases of mental breakdown among thirty men who were using carbon disulphid in pasting rubber strips on belting. In the British reports of earlier years, this poison and naphtha (used in making rubber cloth with a paste of rubber and naphtha) were said to be the cause of much ill health and serious nervous troubles among girls especially, and though the use of carbon disulphid has been largely given up now, the fumes of naphtha are still a troublesome feature in British rubber works. Another volatile poison frequently mentioned in continental reports is benzene (benzol, C_6H_6), more poisonous than benzin and naphtha, and cheaper than the latter over there.

A bulletin dealing with the use of poisonous substances in the rubber industry in this country has just been issued by the federal Bureau of Labor Statistics[3] as part of a series on industrial accidents and hygiene. The basis of this report is an investigation of rubber factories in different parts of the country manufacturing all varieties of goods. It is surprising to learn that so many poisonous substances are used in this industry. The list includes lead compounds, such as litharge, the basic sulphate of lead, the basic carbonate of lead, and red lead; anilin oil; sulphids of antimony; petroleum products; coal-tar benzene; carbon disulphid, and carbon tetrachlorid. In addition to these compounds, concerning which definite information could be obtained, Dr. Alice Hamilton, who prepared the report, learned of the use in reclaiming rubber, of various phenols of different degrees of crudity, and also of pine oil, turpentine, tar, and a product of the action of carbon disulphid on anilin known as thiocarbanilid. The rubber industry has many trade secrets, and information about all the compounds in use, especially in rubber reclaiming, was difficult to secure.

In spite of this array of poisons, the report does not characterize the rubber industry in this country as an inherently dangerous trade. What danger there is, and it is evident that most factories are far from safe in certain departments, comes from carelessness in the handling of poisons so that preventable dusts and fumes are allowed to escape. This was found to be true in almost all the factories inspected, even the best. That such accidents are not more generally known is explained by the fact that out of the whole force in a plant only a small proportion engage in work exposing them to poisoning, so that even if the sickness rate among them is high, it makes little impression.

In comparing American methods of manufacture with the European, the advantages are seen to be on the American side. We do not use carbon disulphid in vulcanizing to any great extent. Dr. Hamilton states that she found only 130 men using this substance in all the factories visited, and she contrasts this with a statement of the German factory inspectors' report for 1910 concerning a single factory in which the installation of a certain machine had replaced the work of 150 women vulcanizers. No women do this sort of work in America. Another reason for the comparative safety of rubber work in America is that most of our rubber cloth is made on calenders, by pressing thin sheets of rubber into the fabric, and then vulcanizing by heat. In England and on the continent the usual method is by "spreading," that is, pressing a paste of rubber and naphtha or benzene into the fabric and then letting the volatile part evaporate, and finally vulcanizing by means of carbon disulphid. This method is used also in America, but only exceptionally, as benzene is too expensive to be used in large quantities.

These advantages are great, yet according to the report they are not sufficient to make the industry altogether free from danger, in the absence of proper precautions. Consequently lead poisoning is not uncommon among the men employed in compounding rubber and mixing it on the mills. Acute, severe benzin or naphtha poisoning is said to be rare, but mild chronic poisoning is probably very common among the men and women who apply rubber cement. The toxicity of antimony pentasulphid was so much in doubt, being practically ignored by the toxicologists, that the bureau asked Prof. A. J. Carlson to determine whether or not there was any danger in the use of this compound. Carlson's report is found in the appendix to the bulletin. He tested the golden and the crimson sulphids with human gastric juice, and found that about 3 per cent. of the former and 8 per cent. of the latter passed into solution, showing that there is a possibility of poisoning in the case of workmen exposed to large quantities of the dust, as is true in rubber compounding.

Carbon disulphid is said to be unknown as an industrial poison to physicians in this country, even to those in rubber towns; yet the investigators were able to discover cases of carbon disulphid psychosis and paralysis among the vulcanizers of dipped goods and the splicers of inner tubes for tires. Dr. Hamilton suggests that other cases would perhaps come to light if the industrial history of the inmates of certain Ohio insane asylums were studied as Laudenheimer studied those in Leipzig.

Carbon tetrachlorid is a new substance in the rubber industry, introduced because of its noninflammable character to take the place of the highly inflammable carbon disulphid as a vehicle for sulphur monochlorid in vulcanizing thin or highly colored goods, or in splicing inner tubes. Waller[4] in England and Leh-

1. Laudenheimer: Die Schwefelkohlenstoffvergiftung in Gummiarbeiter, Leipzig, 1899.
2. Briau: Lyon méd., 1912, cxix, 897.
3. Hamilton, Alice: Bull. 179, U. S. Bureau of Labor Statistics.
4. Waller and Veley: Lancet, London, 1909, ii, 369, 1162, 1307.

mann[5] in Germany have shown that it is decidedly toxic; according to the former twice as toxic as chloroform, according to the latter rather less so than chloroform.[6] It is less dangerous, however, than the disulphid.

Anilin oil, also unfamiliar as an industrial poison in America, is shown to be fairly common, especially in tire works and in the reclaiming of rubber, and it is said that the exposure to anilin fumes is increasing since we have had to begin to manufacture our own anilin, the German supply having been cut off. This is an insidious poison, for the odor is pleasant and the fumes do not give warning of their harmfulness by irritating the eyes and throat, as do most volatile poisons. Cases of anilin poisoning are said to be well known in Akron, Ohio, and the victims are referred to as "blue boys," from the cyanosis which is the most striking symptom. The researches of Lehmann are quoted to show that very small quantities of anilin are needed to produce toxic symptoms, and a study of anilin poisoning in Akron plants by Rey V. Luce is appended to the bulletin.

The rubber industry is thus seen to be a fruitful field for the study of some of the rarer industrial poisons. Nor do the ones described here complete the list. New compounds are continually being introduced and experimented on, some of them substances about which very little is known. Medical research on the effects of these substances on the human organism should keep pace with the chemical research into their value as compounds or vulcanizers.

5. Lehmann, K. B.: Arch. f. Hyg., 1911, lxxiv, 1.

6. Dr. Hamilton suggests that possibly carbon tetrachlorid may be found to resemble chloroform in producing delayed symptoms of poisoning. A recent number of the Journal of Experimental Medicine contains an article by Evarts Graham on "Late Poisoning with Chloroform and Other Alkyl Halides," in which tetrachlormethane (carbon tetrachlorid) is shown to possess even more necrosis-producing power than chloroform. The most extensive necrosis was seen after about two days. The minimum fatal dose per kilogram rabbit is 0.085 gm. for chloroform and 0.053 gm. for tetrachlormethane.

LOSSES OF AVAILABLE ENERGY IN THE FERMENTATION INDUSTRIES

Millions of calories of nutrients in the form of useful, digestible and nutritious cereals are annually subjected to the action of yeast in the production of fermented malt beverages and distilled liquors for human consumption. This process inevitably means the loss of a certain amount of energy, the expenditure of most of which is chargeable to the living account of the micro-organisms concerned in fermentation. It properly becomes a question of economy in these days of conservation of natural resources to inquire into the cost of the conversion of natural foodstuffs into alcohol and other by-products. It is desirable to know the extent of the losses encountered in this biologic transformation, quite aside from any consideration of ethics, of the alleged food value of alcohol, or the social and economic questions indirectly involved in the liquor traffic. Even if the production of alcoholic beverages is to be looked on from the purely objective standpoint of the preparation of a desirable or even necessary accessory to the dietary equipment of mankind, every nation is entitled to "count the cost."

At the Institute for the Fermentation Industries in Berlin, Völtz[1] has undertaken an investigation by which a balance can be struck between the raw materials employed in the breweries and distilleries and the returns in the form of various commercial products. Nowhere can this comparison be conducted more favorably than in Germany, where every item of by-product, such as distillers' and brewers' grains, waste yeast, spent hops, etc., is conserved and reconverted as far as possible into edible tissue through the medium of animal husbandry and agriculture. It should be remembered, at the outset, that the comparison takes no account of labor charges. We are concerned here solely with the conservation of energy from the standpoint of the food values involved.

One hundred kilograms of barley, which forms the cereal basis of the brewing industry, are calculated to furnish 286,100 calories of available, metabolizable energy. About 5 per cent. of this organic substance is lost in malting the grain. One hundred kilograms of malt yield 33 kilograms of dry undissolved residue (brewers' grains) as a by-product in the production of 530 liters (140 gallons) of beer with an alcohol content of 3.5 per cent. and a residue of dissolved substances equivalent to 5 per cent. To this must be added the waste residues of spent hops and yeast acquired in the course of fermentation. These by-products cannot, of course, be utilized with any advantage excepting as food for animals. Allowing to the alcohol produced its full value of about 7 calories per gram, without debating the question of whether it may truly be classed as a human food, the sum total of recoverable products, in terms of available calories, averages 87 per cent. Approximately 60 per cent. is recovered in the form of beer, the remainder in the so-called by-products. From the standpoint of food energy, therefore, about 15 per cent. of useful nutrients is lost.[2]

A similar calculation in the distillery industries in which potatoes along with small additions of malt are used as the available source of carbohydrate for the production of alcohol indicates somewhat smaller losses of available energy, not exceeding 7 per cent. Here again it is assumed that the alcohol created to the extent of two thirds of the energy furnished in the plant products is available at its theoretical calorific value.

In this country the duty of conserving the waste in these enormous industries is being recognized in

1. Völtz, W.: Nährstoffbilanzen für Rohstoffe und ihre Erzeugnisse bei der alkoholischen Gärung, Biochem. Ztschr., 1915, lxix, 334.

2. Eltzbacher, P.: Die deutsche Volksernährung und der englische Aushungerungsplan. Braunschweig, 1914.

growing measure. Some of the by-products like yeast are still thrown aside as worthless refuse; but the modern efficiency movement will soon change this extravagant practice. After all, even though the mere energy losses directly involved in the fermentation process may not be enormous, the primary question of importance to mankind is not whether such losses of nutrient calories are great or small, but rather whether the alcoholic products produced represent a wholesome addition to our stock of food. The growing world-wide movement against alcohol is pointing to the answer. "The laboratory and the life insurance records simply give exact expression to what has long been a matter of common knowledge to the employer of labor and to leaders and commanders of men, to wit, that the influence of alcohol on any large group of men, whether they be artisans or soldiers, is harmful and lowers the efficiency of the group. Individual susceptibility varies, but the man who thinks he is an exception and can indulge with safety may find that he is mistaken only after serious damage to the body has been done and perhaps a definite loss sustained in happiness and achievement." [3]

THE PREVENTION OF CARDIAC DEFECTS

The importance of heart disease as a factor in economic waste is apparent to all those who think of the public health from the point of view of preventive medicine. Effective emphasis on this point has been made in two recent reports. Dublin[4] has pointed out, as a result of a study of the industrial population of Massachusetts, that the chief variation in mortality rates for 1914 between the industrial and general population is in pulmonary tuberculosis, which causes 13.4 per cent. of all deaths in the industrial group and only 9.6 per cent. of the deaths in the general population. He has shown, further, that organic diseases of the heart are the chief cause of death throughout Massachusetts, both in the industrial and in the general population. Approximately 15 per cent. of all deaths were from this cause, comparative figures being given for the four largest cities in the state. The rates of the different cities vary to a remarkable degree, the highest being in Worcester, where 21.5 per cent. of the total deaths among the industrial population and 15.2 per cent. of all deaths are caused by organic heart affections. The general death rate for Worcester was 13.1 per cent.

It is well known that similar conditions exist in practically all communities. In New York City, where the death rate from pulmonary tuberculosis has declined from 421 per hundred thousand in 1870 to 169 in 1914, the rate from heart disease has increased from 74 to 169 in the same period of time. If in New York at present the death rate from heart disease is the same as from tuberculosis, why is so much said and done about the prevention of the latter and so little about the former? The answer, no doubt, is partly to be found in the fact that heart disease is not ordinarily communicable or, in the same sense with tuberculosis, preventable. The economic waste from untreated cardiac patients, however, and those subjected to industrial maladjustment, is largely preventable.

An interesting experiment in work for patients with cardiac disease was initiated by Dr. H. W. Guile at Bellevue Hospital, New York, in 1911. It is essential, in work of this kind, to utilize to the utmost the mechanism for social and medical after-care of discharged cardiac patients. In addition, it is necessary to prevent their return to the hospital if possible, to prevent unnecessary suffering, and to restore the more hopeful ones to a measure of economic usefulness. Such was Dr. Guile's program in the Social Service Bureau of Bellevue and Allied Hospitals. An evening class for cardiac patients was opened, one of the social workers at Bellevue assisting and doing also part time follow-up work in the more urgent cases. A brief survey of this work has recently been published in the report of the Social Service Bureau for the year 1914. The idea and motive of the work are thus summarized in the report:

> The usual career of the cardiac is a downward one, through ignorance of necessary precautions and unsuitable occupation, to invalidism and dependency. *We pay* in hospital, charitable, institutional expense. *He pays* in suffering. Why should we pay for the support of misery when it would cost less to prevent it?

That it would "cost less to prevent it" is shown by various tables, one of which indicates that six patients, who had spent a total of 251 days in the hospital preceding the establishment of the class, did not spend a day in the hospital during the first year after the establishment of the cardiac class. This was a saving for these six cases of $439 spent in hospital care by the city. In the case of one person ("J. W.") there was a gain of over $600 in the three years of attendance at the class as compared with the three years previous. This gain was not due to increased wages, as his earning capacity remained the same, but to the prevention of wage losses resulting from periods of decompensation, prevented by medical supervision and a change to a suitable occupation. No doubt a similar gain could be made in the majority of cases, although medical supervision that ignores the requirements of industrial adjustment seems to be almost useless.

The Bellevue experiment has dealt only with comparatively advanced cardiac patients. More important is the recognition of all cases, even those with the slightest defect, at the earliest moment. It is therefore to be regretted that so little attention has been

3. Fisher, Irving, and Fisk, E. L.: How to Live, New York, 1915, p. 242.

4. Dublin, L. I.: Mortality of the Industrial Population in Massachusetts, Pub. Health Bull., Massachusetts State Department of Health, November, 1915.

given here and elsewhere in studying the etiologic factors in these cardiac cases, particularly with a view to ascertaining their preventability. Such a study must precede the most important work of education, and would probably result in more careful medical examinations for cardiac defects in schoolchildren, specialized schooling and vocational training for affected children, more emphasis on the control of infectious disease with serious cardiac sequelae, and widespread education regarding necessary precautions and suitable occupations for cardiac patients. The problem is really a twofold one: the prevention of economic loss as a result of cardiac defects, and the prevention of the cardiac defects. The work cited above is a valuable beginning on the former phase of the problem; it is to be hoped that the next few years will see included in our efforts for disease prevention a more conscious attempt to control through educational efforts the factors of infection and bad personal hygiene responsible for a large percentage of preventable cardiac defects, particularly among the school population.

THE PINEAL BODY

The current enthusiasm for the subject of the ductless glands, based on the highly interesting and valuable discoveries which have been related to them in the past two decades, has brought with it the necessity of careful critique. It is becoming evident that some of the hasty conclusions will need to be cast on the rubbish heap of unprofitable venture in physiologic fields. Any statement made today with respect to the better known ductless glands or the functions of their "internal secretions" is likely to be scrutinized with critical eyes and forced to meet the test of experimental or clinical demonstration as well as the logic of science. On the other hand, the striking facts that have already been brought to light in connection with a few anatomic structures, once either regarded as insignificant or neglected because of their inaccessibility for observation, have awakened new interest in other structures of this sort.

To this category belongs the pineal gland. It is interesting as a vestigial remnant of a primitive dorsal eye. In certain lizards this organ still presents traces of its original structure, and is found to conform to the invertebrate type of eye. It is doubtful whether at any time in the history of vertebrates the pineal eye has been functional. Cases have been recorded in which tumors of the pineal body have been associated with obesity, premature sexual development and early maturity. On this basis the assumption has been made, for example, that the pineal structure produces a secretion which inhibits the growth of the body and restrains mental and sexual development from exceeding the rate looked on as normal for the adolescent period. This view, based on the supposition that pineal lesions are destructive, is by no means compelling; for the retention of function in neoplasms in other glands is not infrequent. Tumors of the hypophysis may give rise to symptoms of hyperpituitarism (as seen in acromegaly) rather than to deficient function of the gland; and similarly it is conceivable that pineal tumors may lead, at some stage of their development, to an active stimulating influence rather than to a deficiency symptom. Most of the data on the relation of the pineal body to sexual, somatic or mental precocity have been based on clinical and pathologic reports. Better directive evidence is to be expected from experimental attempts to induce "hyperpinealism" by feeding pineal extract and to cause "apinealism" or "hypopinealism" by extirpation of the pineal.

The latest attempts to study the influence of pineal gland administration are those of McCord,[1] who has fed or injected small growing animals under a variety of conditions. His conclusions were that such administration of pineal substances led to a more rapid growth of body than normal, and determined an early sexual maturity. The excess in rate of growth was most pronounced (40.9 per cent. excess in eleven weeks) in young animals fed with pineal tissue obtained from young animals. No tendency to gigantism has followed pineal administration. After maximum size was attained, pineal administration appeared to be ineffective. Both males and females respond to the influence of pineal substances in rate of growth, but the response has been more definitely manifested in males.

The converse method of extirpation of the pineal body has been attempted by very few investigators, and has led to seemingly paradoxic results. Surgical interference with a structure so minute as is the pineal and situated almost exactly in the center of the brain between the anterior corpora quadrigemina offers extreme technical difficulties. The gland is not easy to recognize when it is exposed amid hemorrhage; it is thus likely to be imperfectly removed, or other portions of the central nervous system may be injured as an incident of the operation. At the department of surgery in the Johns Hopkins University, Dandy[2] has succeeded in perfecting a suitable method of pinealectomy which enabled him to study the various phenomena alleged to be associated with pineal function. It is unnecessary to review the numerous details of what was observed in the development of the puppies operated on and their subsequent history. The uniformly negative outcome of these very careful surgical studies may best be summarized in the investigator's

1. McCord, C. P.: The Pineal Gland in Relation to Somatic, Sexual and Mental Development, The Journal A. M. A., July 18, 1914, p. 232; Second Paper, Aug. 7, 1915, p. 517. Berkeley, W. N.; Dana, C. L.; Goddard, H. H., and Cornell, W. S.: The Functions of the Pineal Gland with Report of Feeding Experiments, Med. Rec., New York, 1913, lxxxiii, 835. Dana, C. L., and Berkeley, W. N.: The Functions of the Pineal Gland, Month. Cycl. Pract. Med., 1914, xxviii, 78.

2. Dandy, W. E.: Extirpation of the Pineal Body, Jour. Exper. Med., 1915, xxii, 237.

own words. Following the removal of the pineal body no sexual precocity or indolence, no adiposity or emaciation, no somatic or mental precocity or retardation has been observed. The extirpation experiments seemed to yield nothing to sustain the view that the pineal gland has an active endocrin function of importance either in very young or in adult dogs. It is apparently not essential to life and seems to have no influence on the animal's well being. The incongruity of these results with the reported somewhat conflicting feeding experiments remains to be cleared up. In any event, the pineal body is not indispensable, as is its neighbor, the pituitary gland.

Current Comment

THE POSSIBLE RÔLE OF CHOLIN IN THE ORGANISM

Cholin, an organic compound long familiar to students of physiologic chemistry as a product of the disintegration of lecithins, has lately attracted renewed attention because of its possible physiologic functions. It can easily be produced from a variety of tissues in the body, and is present in considerable amounts in some organs, such as the suprarenals. In addition to this actual widespread occurrence of the organic base, and the existence of large sources from which it could readily be derived in the organism, is the fact of a pronounced reactivity of cholin toward some of the physiologic processes. Even in small quantities it exerts a prompt effect on the blood pressure, and some of the comparatively simple compounds of cholin, such as might conceivably be formed easily in the body, are of even greater potency. Hunt and Taveau[1] have found, for example, that acetyl cholin in doses of less than 0.00000001 gram per kilogram of body weight may cause a distinct fall of blood pressure, thus placing this substance in the category of the most active pharmacologic agents at present accurately known. In view of these facts, it is not surprising that the always available cholin or its derivatives have been charged with participation in some of the physiologic functions, and that pathologic consequences have been attributed to the abnormal circulation of cholin. To some degree the effects produced by cholin are antagonistic to those exhibited by the familiar epinephrin. Accordingly, as Hunt[2] has recently expressed it, the suggestion has frequently been made of late that certain symptoms classed as "vagotonic" (miosis, salivation, bradycardia, pylorospasm, etc.) may be due to the presence of abnormal amounts of cholin. It has also been suggested that cholin or some derivative of it may be a factor in certain physiologic processes; that, for example, such compounds may function as hormones for the parasympathetic nervous system in the same way in which epinephrin is believed to function as a hormone for the sympathetic nervous system. The comparatively easy conversion of cholin into the acetyl derivative whereby its physiologic activity may be increased many thousand times has afforded a very delicate physiologic test for the substance. The effect of acetyl cholin on the heart or blood pressure is easily measured by the usual methods of the physiologic laboratory. By Hunt's method, 0.00001 mg. and probably less of cholin can be detected. Hunt[2] has made a "physiologic assay" of the distribution of cholin in the blood and other body fluids under a large variety of conditions in which the compound has been alleged or might be expected to be a pathogenic factor. Cases of dementia praecox, chronic meningitis, cerebellar tumor, syringomyelia, congenital hydrocephalus and thyroid disease were examined among others, and experimental nephrectomies and suprarenalectomies were also included. In none of these experimental or pathologic conditions was a marked increase in the amount of cholin in the blood serum or cerebrospinal fluid found. There was likewise no evidence of the pathologic occurrence of any of the very active compounds of cholin preformed in the blood. It is unnecessary to review here further details of Hunt's newest researches. Cholin introduced into the circulation disappears from the blood with great rapidity. In view of this fact, even with the extremely delicate test now in use, one cannot assert dogmatically that there cannot be some increased production of cholin under pathologic conditions and that cholin may not after all be a factor in the causation of certain symptoms. Hunt sums up his own view by saying that at present we have no grounds for believing that cholin does have any significance in physiologic or pathologic processes, however attractive such a hypothesis may be.

1. Hunt, R., and Taveau, R. de: Jour. Pharmacol. and Exper. Therap., 1909, i, 303; Hyg. Lab. Bull. 73, U. S. P. H. S., 1911.
2. Hunt, Reid: A Physiologic Test for Cholin and Some of Its Applications, Jour. Pharmacol. and Exper. Therap., 1915, vii, 301.

THE SENSIBILITY OF THE VISCERA

A clinical neurologist, asked to state his opinion of the value of psychology for medical students, replied that the patients and not the physicians should be the psychologists. In internal medicine much depends on the ability of the patient to describe and locate accurately his sensations; from the localized pain, the physician must infer the seat of the pathologic process. Until recent years, little was understood concerning sensations that were mediated by the abdominal and thoracic viscera, and the mechanism by which any impression is localized on the surface of the body. Indeed, it has been claimed[1] that the heart, lungs, arteries and the abdominal viscera were insensitive to stimuli of any sort. That perforating wounds of the thorax or abdomen, inflammations and tumors were painful was explained by the fact that the parietal peritoneum was involved. The parietal peritoneum was held, by these writers, to be sensitive. Lennander's view, which was based on surgical experiences, is curiously at variance with the anociassociation theory of Crile. The latter believes that all insults to tissues register their effects in the chromophil substances of the cells of the central nervous system

1. Lennander, K. G.: Ueber die Sensibilität der Bauchhöhle und über lokale and allgemeine Anästhesie bei Bruch- und Bauchoperationen, Centralbl. f. Chir., Feb. 23, 1901.

and the endocrine organs. These effects are always in the direction of depletion. An enterprising investigator[2] has recently attempted to settle conclusively the question of the sensibility of all parts of the alimentary tract which could be reached by exploratory instruments from either end. He desired to determine the various sensations which may be felt in different parts of the alimentary tract, and also to show the localization on the surface of the body of the sensations which were thus aroused. His results contribute materially to the symptomatology of internal medicine. By means of tubes specially constructed for his work, Boring[2] was able to apply to the wall of the esophagus, the colon and the rectum thermal, mechanical, electric and chemical stimuli. With his apparatus, it was possible to regulate the intensity of the stimulus and furthermore to localize exactly on the surface of the body the point to which the internal stimulus was referred. The esophagus is sensitive to warmth above 40 C. (104 F.) and to cold below 35 C. (95 F.). Temperatures above 60 C. (140 F.) were felt as heat. The sensations from the esophagus are referred either upward toward the throat or downard toward the epigastrium. Curiously enough, points between the clavicle and the nipples may be referred in both directions. Transverse reference is never more than 1 cm. from the midsternal line in either direction. Sensations in the stomach are localized much more accurately than in the esophagus. Stomach stimuli are always referred to the adjacent anterior body wall. Boring's results confirm in large measure the conclusions of Head with regard to the doctrine of referred pain. The question of the quality of the visceral sensations is not yet satisfactorily answered. Given a sufficiently strong stimulus, some sensation will be aroused. Whether the sensation was due to sense organs in the viscus itself or to a diffusion of the stimulus to the adjacent body wall has not been made clear. Boring found that hot and cold enemas failed to produce thermal sensations in the colon. Such stimuli are sensed as pain. It is a significant fact that both esophagus and rectum are much more sensitive to all sorts of stimuli in the region about the external opening. These facts indicate that the distinction between protopathic and epicritic sensations which was drawn by Head, Rivers and Sherren, as a result of their experiments on sensory nerves in man, is fundamentally sound.

STRONTIUM SALICYLATE NOT SUPERIOR TO SODIUM SALICYLATE

Sodium salicylate is a valuable drug. It is official and cheap; it is the compound generally relied on when salicylate effects are desired. And there is no mystery about it. With the other salicylates, mystery begins. For this reason, such studies as that of Blankenhorn on strontium salicylate[3] are of special value. Blankenhorn shows that strontium salicylate possesses no advantages over sodium salicylate, as regards either therapeutic efficacy or freedom from undesirable by-effects. He calls attention to the fact that "the salicyl content of strontium salicylate is about four-fifths that of sodium salicylate based on the amount of available anion." The question naturally arises whether this smaller salicylate content may not contribute to the notion that strontium salicylate is less likely to cause salicylism. The impression as to the greater freedom of this salt from undesirable by-effects may have arisen in part also from the fact that the more expensive preparations are more likely to be given in small doses than is the cheaper sodium salicylate. As Blankenhorn suggests, when once such a tradition gains currency, it will be "lugged along" from one textbook to another, with little or no attempt at critical examination.

HAZARDS IN HANDLING GASOLINE

During 1913 in the United States 1,040 persons were burned to death and 3,120 persons injured (a weekly average of twenty persons killed and sixty persons injured) on account of gasoline fires.[1] In harmony with experience respecting human ways and human indifference, the increasing use of gasoline and other liquid fuels which are dangerous because of their ready inflammability will probably increase the number of accidents which cause loss of life as well as great damage to property. Miscellaneous hazards in the use of the inflammable products exist which lead to leakage of these volatile substances and their ignition by spontaneous and unsuspected methods, as well as those due to obvious carelessness. A feature, however, which is not readily comprehended and which is a serious source of danger is the fact that gasoline or gasoline vapor burns, but a mixture of the vapor and air is highly explosive. The Bureau of Mines illustrates the situation in these words: If one takes the cover off a full pail of tightly enclosed gasoline and applies a match to the surface, the gasoline will flare up and burn as long as the gasoline lasts. On the other hand, if one puts a few drops of gasoline in a small tightly enclosed pail, waits a few minutes, and then introduces a flame or an electric spark, a violent explosion will most likely result. In the first case the vapor burns as fast as it comes from the gasoline, and mixes with the oxygen of the air; in the second, the oil vaporizes in the pail and mixes uniformly with the air in it to form an explosive mixture, and on ignition explodes. Consequently, when one hears of a disastrous gasoline explosion one may be sure that it resulted from the mixing of the vapor from the gasoline with air in the proportions necessary to form an explosive mixture. The behavior of illuminating gas, which burns quietly when liberated alone, but explodes when a mixture with air is heated, is quite analogous. The public has been slow to appreciate these distinctions, and hence they deserve emphasis. At ordinary temperatures, air will hold from 5 to 28 per cent. of gasoline vapor. As gasoline vapor is about three times

2. Boring, E. C.: The Sensations of the Alimentary Canal, Am. Jour. Psychol., 1915, xxvi, 1.

3. Blankenhorn, M. A.: Strontium Salicylate, THE JOURNAL A. M. A., this issue, p. 331.

1. This statement is based on the authority of G. A. Burrell (Hazards in Handling Gasoline, Technical Paper 127, Dept. of the Interior, Bureau of Mines, 1915).

as heavy as air, in a room containing a mixture of the vapor with air the vapor is found in largest proportion near the floor. According to the government experts there is needed only a small proportion of gasoline vapor to render air explosive — 1.4 cubic feet of the vapor to 97.5 cubic feet of air. One gallon of gasoline can under ideal conditions render 2,100 cubic feet of air explosive. A dangerous feature of gasoline vapor is that it may travel a considerable distance from the gasoline and there be ignited, the flash traveling back to the container of the liquid and causing a roaring fire in a few seconds.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Hospital Leased.—The trustees of the Michael Meagher Hospital, Texarkana, have leased the building to the Sisters of the Incarnate Word of Galveston, for five years. The hospital will be renovated at an expense of $15,000 and will be reopened in a short time.

Personal.—Dr. Claiborne J. March, Fordyce, fell at his home, January 14, fracturing his right leg.——Dr. Edwin P. Bledsoe has been appointed superintendent of the State Hospital for Nervous Diseases, Little Rock, succeeding Dr. Frank B. Young, resigned.——Drs. Patrick Murphy, Little Rock, and Robert E. Rowland, El Dorado, have been appointed to vacancies on the staff of the State Hospital for Nervous Diseases, Little Rock.——Dr. Samuel W. Colquitt, Cummins, has been appointed penitentiary physician, succeeding Dr. William W. Coulter, Cummins, retired.——Dr. Alfred G. Hearn, McGehee, has resigned as division surgeon of the Iron Mountain System, and has been succeeded by Dr. William H. DeClark, McGehee.——Dr. Morgan Smith, dean of the medical department of the University of Arkansas, Little Rock, who resigned, December 20, has been persuaded to withdraw his resignation.——The home of Dr. Reuben Y. Phillips, Malvern, was damaged by a recent fire to the extent of $1,500.——Dr. Harry H. Smiley, Texarkana, has been appointed chief surgeon of the Cotton Belt System, succeeding Dr. Charles A. Smith, deceased.

DISTRICT OF COLUMBIA

Sternberg Memorial.—The Medical Society of the District of Columbia and the Association for the Prevention of Tuberculosis of the District held a joint meeting, January 19, in memory of the late Surgeon-General George M. Sternberg, U. S. Army. Addresses were delivered by Drs. George M. Kober, William C. Gwynn and Harvey W. Wiley.

Georgetown Faculty Appointments.—Lieut.-Col. Edward Lyman Munson, M. C., U. S. Army, has been appointed professor of preventive medicine in the medical department of George Washington University, and Dr. William D. Tewskbury, clinical instructor in medicine. Drs. Louis B. Castell, James H. Collins, Everett M. Ellison and J. Ward Mankin have been appointed instructors in pharmacology.

Hospital to New Quarters.—Columbia Hospital for Women has moved into its new building, immediately to the east of the old structure, on the same site. The building was erected under the supervision of Mr. Elliott Woods, superintendent of the United States Capitol, at a cost of $300,000 for construction and $90,000 for maintenance. As the hospital is a quasigovernment establishment, the money was provided by Congress.

FLORIDA

Personal.—Dr. William A. Claxton, Jacksonville, started for Montreal, January 10, to join the Canadian Army Medical Corps. He has been assigned as bacteriologist to the Military Hospital in Cairo, Egypt.——Dr. James M. Jackson, Jr., has been reelected president of the Miami Board of Health.

Hospital News.—Citizens of Manatee are discussing the erection of a hospital in that city.——The Jacksonville Free Public Hospital Association is resuming active work and the association proposes to establish a hospital with accommodations for 200 patients. It is proposed to have a bond issue of $120,000 for this purpose.——Richard C. Lake, Tampa, has agreed to erect at his own expense, an annex to the Morton F. Plant Hospital for use as an operating department and in addition, completely to equip it. This will cost about $5,000.

Society Meetings.—At the meeting of the Dade County Medical Society held in Miami, December 2, Dr. C. Frederick Sayles was elected president; Dr. Henry C. Babcock, Miami, vice president, and Dr. George H. Benton, Miami, secretary-treasurer.——The Tri-County Medical Society of Lee, De Soto and Polk counties was organized at Bartow, January 3, with an initial membership of thirty. Dr. J. Ernest Brecht, Fort Myers, was elected president; Dr. Samuel F. Smith, Lakeland, vice president; and Dr. Heber P. Newman, Bartow, secretary-treasurer.

State Health Train.—The demonstration train of the State Board of Health started on its initial trip, January 10. The train consists of three Pullman cars, the first of which is used as an office with sleeping and dining accommodation for the demonstrators. The second contains the dynamo, sleeping quarters for the train crew, and various models such as the illustration of the Imhoff tank sewerage disposal system, contamination of water in driven or open wells from polluted or service water; a modern dairy, proper feeding and clothing of babies; open-air treatment of tuberculosis and other similar questions of public health. In the third car are displayed thirty-six panel posters giving warnings and advice on sanitary subjects and disease prevention and a large stereomotograph. On the initial trip the train was in charge of Dr. Joseph Y. Porter, state health commissioner, and Miss F. D. Herndone, his assistant. Surg. Carroll Fox, U. S. P. H. S., also accompanied the train to inspect health conditions in the state and to observe the workings of this plan of popular sanitary education.

GEORGIA

State Board Changes.—At a meeting of the State Board of Health, January 11, the resignation of Dr. Henry F. Harris, secretary, was received and laid on the table and a committee of three consisting of Drs. William H. Doughty, Augusta; James H. McDuffie, Columbus, and Thomas J. McArthur, Cordele, was appointed to canvass the field for a successor. Dr. Howard J. Williams, Macon, was elected president, and Dr. William H. Doughty, vice president of the board.

Personal.—Dr. Olin H. Weaver has been elected chairman of the medical staff of the Macon Hospital.——Dr. W. E. Quillian was reelected president of the board of health of Atlanta, January 14.——Dr. William S. Elkin, Atlanta, has been elected chief surgeon, and Dr. William S. Goldsmith, assistant chief surgeon of the Atlanta, Birmingham and Atlantic Railway Company.——Dr. William B. Orear, Savannah, has been appointed chief surgeon of the Midland Railway.——Dr. James McFadden Gaston, Atlanta, has returned after seven years' service as a medical missionary in China.——Dr. Thomas R. Wright, Augusta, has been appointed a trustee of the State Sanatorium, Milledgeville.

Public Health in Savannah.—According to the report of Dr. William F. Brunner, health officer of Savannah, the death rate for 1914 in that city was considerably lower than that of any other year since statistics have been kept. Of deaths from natural causes the rate per thousand for four years, 1911-1914, was as follows: 24, 21.48, 18.98, 18.49, respectively. The five chief causes of death were tuberculosis, nephritis, pneumonia, heart disease and pellagra. Tuberculosis in the white race shows a steady reduction each year, but the disease is on the increase among the colored race on account, it is said, of bad housing conditions. The deaths among children under 10 years of age for the four years, 1911-1914, were as follows: 518, 370, 379, 390, respectively. The population during this period increased from 75,000 in 1911 to 81,000 in 1914. There were 124 cases of typhoid fever in the city with sixteen deaths, eleven of which were among negroes. The health officer deplores the fact that less than 80 per cent. of the births were recorded and blames the defective figures on the medical profession. He somewhat drastically says that it is easier to trace the pedigree of a

fine horse, dog or hog in Georgia than of the average citizen. The state, during 1914, enacted a vital statistics law but failed to make an appropriation to carry it out. The pamphlet also contains the report of the city bacteriologist, Dr. Victor H. Bassett, which is in a creditable and up-to-date form, as is also the report of the chief food inspector, D. C. Gillis, D.V.M., who was appointed after a competitive examination in various cities of the United States.

ILLINOIS

Smallpox.—H. J. Fallon, a manual training instructor in the schools of Evanston, was taken to the isolation hospital, January 14, suffering with smallpox. Children in the schools have been ordered vaccinated, or they must remain out of school twenty days.

Personal.—Dr. James I. Hale, Anna, has recovered after an operation for strangulated hernia performed at St. Mary's Infirmary, Cairo, January 13.——Dr. Leander D. Keith, Anna, fell from a buggy, recently, sustaining a fracture of the left arm above the elbow. He is said to be making satisfactory progress toward recovery.——Dr. Charles E. Sisson, Elgin, has gone to California to become assistant superintendent and chief of the medical staff of a state hospital.——Dr. Edward H. Weld, Rockford, has been appointed a member of the staff of St. Mary's Hospital, Rochester, Minn.——Dr. Walter A. Hodges, Nokomis, is reported to have disposed of his property holdings and practice and will locate in Chicago. ——Dr. John H. Rice, Quincy, is reported to be seriously ill with disease of the gallbladder.——Dr. William E. Wiatt, East St. Louis, is said to be ill with diphtheria.

Chicago

Rabies.—At Englewood, January 17, five persons were bitten by a dog which was found at the city laboratories to be suffering from rabies. The victims were urged to take the Pasteur treatment at the Iroquois Hospital without delay.

New Hospital at South Chicago.—The finance committee of the board of commissioners of Cook County has promised that plans for building an emergency hospital for South Chicago to cost $100,000 will be considered by the board this year. Preliminary plans for the building will soon be submitted.

Ophthalmologists Meet.—At the annual meeting of the Chicago Ophthalmological Society, January 17, the following officers were elected: president, Dr. William E. Gamble; vice president, Dr. Francis Lane; secretary-treasurer, Dr. Paul Guilford (reelected), and councilor, Dr. J. Sheldon Clark, Freeport (reelected).

Chicagoans Far Afield.—Dr. H. Gideon Wells of the University of Chicago was the guest of honor at a banquet at the Fort Pitt Hotel, Pittsburgh, January 18, after which he delivered a lecture before the Allegheny County Medical Society in which he described his original research work on the subject of cancer illustrated by stereopticon pictures.—— Dr. Emil G. Beck spoke before the Iowa and Illinois Central District Medical Association meeting at Davenport, January 13, on "Technical Points on the Application of Bismuth Paste in the Treatment of Suppuration."

MARYLAND

Baltimore County Physicians Elect Officers.—The annual meeting of the Baltimore County Medical Association was held January 19, and officers were elected as follows: president, Dr. J. Carroll Monmonier, Jr., Catonsville; vice president, Dr. Frank C. Eldred, Sparrows Point, and secretary-treasurer, Dr. Martin F. Sloan, Towson.

Personal.—Two former members of the staff of Johns Hopkins Hospital have been decorated by Germany for their services in the medical corps of the German army. Dr. Karl H. Van Noorden, Jr., who was attached to the medical staff at the Hopkins was decorated with the iron cross of the second class after the battle of Lodz, in which he was shot through the hip. Dr. Felix Landois, who was also on the surgical staff, organized and is now surgeon-in-chief of a field hospital at Ledeghen, Belgium. He has been decorated with the iron cross of the second class and with the Order of Frederick, bestowed by the King of Wurttemberg.——Dr. Joseph Irwin France, Port Deposit and Baltimore, has announced his candidacy for the nomination for United States senator.——Dr. George Y. Everhart, Hillsdale, a prominent physician of Baltimore County, is reported to be critically ill.——Dr. William H. Bash, in charge of the accident ward of Mercy Hospital, Baltimore, has been reappointed.——Dr. Roy D. McClure of the resident staff of Johns Hopkins Hospital has accepted the position as surgeon-in-chief of the Henry Ford Hospital, Detroit.

Report of Tuberculosis Committee.—The state-wide tuberculosis committee appointed in May, 1915, to study the problem of consumption in Maryland and to make recommendations for a definite state policy in regard to its most important phases, held a meeting January 15, presided over by Dr. John S. Fulton. The report of the committee favors the establishment of county hospitals for negroes suffering from tuberculosis, such hospitals to be established in connection with the present county institutions and the equipment of wards for negro patients in the hospitals of Baltimore and the eight other cities of the state which receive government aid (Cumberland, Hagerstown, Frederick, Annapolis, Elkton, Easton, Cambridge and Salisbury). It suggests that the cheapest investment that the state can make in the prevention of the spread of the disease is the appropriation of $20,000 each to the hospitals in the eight cities reported and of $50,000 to the Baltimore hospitals for the construction of these tuberculosis wards and an allowance of one dollar a day for the maintenance of each patient. To provide for patients who could not be allowed without danger to themselves and others to return to their original vocations, the committee suggests tentatively the establishment of industrial colonies in connection with the county hospitals. The committee is strongly of the opinion that the most potent force against the spread of tuberculosis is the establishment of hospitals for advanced cases.

MICHIGAN

Election.—The Antrim, Charlevoix and Emmet Counties Medical Society at its meeting in Petoskey, January 14, elected Dr. John J. Reycraft, Petoskey, president; Dr. Allan M. Wilkinson, Charlevoix, vice president; and Dr. George W. Nihart, Petoskey, secretary-treasurer.

Committee of Arrangements for State Meeting.—Dr. Philip D. Bourland, Lake Linden, president of the Houghton County Medical Society, has appointed the following committee on arrangements for the meeting of the Michigan State Medical Society: Drs. Arthur F. Fischer, Hancock; William K. West, Painesdale; Peter D. MacNaughton, Calumet; James G. Turner, Houghton; Neil S. Mac Donald, Mohawk, Keweenaw County, and Simon Levin, Lake Linden.

Contagious Diseases.—At Jackson it was found from the records of the city health department that during the previous ten years $31,000 had been paid to fifty-six physicians for medical attendance on contagious diseases. Six of the fifty-six physicians, it is said, received $16,000 of the total amount. A new arrangement has been made by which the physician and nurse shall be regularly employed to take care of such cases. A change has been made in the quarantine methods in contagious diseases. The patient hereafter will be isolated in his home and the working and earning members of the family will be allowed to follow their usual occupations. The patient will be under the strict supervision of the contagious disease physician and nurse, and every precaution will be taken to prevent the spread of the disease from the patient.

MISSISSIPPI

Malaria.—Dr. Charles C. Bass of Tulane University, New Orleans, has been appointed head of a group of workers to study malaria in Mississippi under the direction of the international health commission. Dr. Bass will have, as one of his assistants, Dr. Foster M. Johns, also of Tulane, and will be associated in the work with Dr. Waller S. Leathers, University of Oxford, head of the health department of Mississippi.

Medical Society Meetings.—The Lamar-Marion-Pearl River Counties Medical Society met in Lumberton, December 25, and elected the following officers: president, Dr. Edwin W. Mackey, Purvis; vice presidents, Drs. Louis C. Rouse, Poplarville; Charles C. Thompson, Columbia, and Robert W. Thompson, Lumberton; and secretary-treasurer, Dr. Daniel B. Stevenson, Lumberton.——George-Perry-Greene Counties Medical Society met at Richton, December 14, and elected the following officers: president, Dr. Reuben M. Cochran, Richton; vice presidents, Drs. Joseph W. Copeland and Russell Graves, both of Richton; and secretary-treasurer, Dr. S. Lewis Knight, Merrill, reelected.——Newton-Winston-Neshoba Counties Medical Association at its annual meeting in Newton, December 18, elected the following officers: president, Dr. Thomas E. Jarvis, Neshoba; vice presidents, Drs. Thomas W. Reagan, Beechsprings, and John S. Laird, Union; and secretary-treasurer, Dr. Sidney A. Majure, Dixon.

MISSOURI

Drops Eclecticism.—A report states that the Eclectic Medical University of Kansas City, an institution reported not in good standing by the State Board of Health, has changed its name to the Kansas City College of Medicine and Surgery.

Society Gives Smoker.—The Kansas City Eye, Ear, Nose and Throat Society gave a smoker at the University Club, January 13, at which fifty physicians of Kansas City, Leavenworth, Atchison, Topeka and St. Joseph were present. Five papers were presented.

Personal.—Dr. William D. Fulkerson, Trenton, has been confined to his home with a severe attack of erysipelas.——Dr. Ralph E. Castelaw, Kansas City, has been appointed superintendent of the new Wesley Hospital, Kansas City.——The office of Dr. John R. Smith, Warsaw, was destroyed by fire, December 23.——Dr. Charles A. Lusk, Butler, suffered a loss of about $3,000 when his residence was destroyed by fire, December 2.——Dr. John P. Ralston, Springfield, is reported to be critically ill as the result of repeated cerebral hemorrhages.——Dr. Herbert C. Kimberlin, Clarksdale, has been appointed assistant physician of State Hospital No. 2, St. Joseph, succeeding Dr. Calvin L. Woolsey, Braymer.——Dr. Philbert R. Williams, Cape Girardeau, is reported to be seriously ill with septicemia due to an infection of the hand.——Dr. William L. Gist has been appointed assistant health commissioner of Kansas City, and assistant medical director of the new tuberculosis hospital.

St. Louis

Virginian in St. Louis.—Dr. John Shelton Horsley, Richmond, Va., was the guest of honor of the St. Louis Medical Society, January 22, and read a paper on "Blood Vessel Surgery."

Personal.—Dr. William W. Graves, while skating recently, fell and fractured his arm.——Dr. Fred T. Murphy has joined the American Ambulance at Neuilly, France, and will return to St. Louis May 1.

Not the Same Rotter.—Dr. Julius Rotter, formerly of Parsons, Kan., was recently convicted of wife abandonment in St. Louis and sentenced to six months in the workhouse. The publicity given this matter has caused Dr. Julius Charles Rotter considerable embarrassment on account of the similarity of the names. Dr. Rotter is not related in any way to the convicted man.

Suit Against Board of Education.—Suit has been filed in the circuit court by several citizens, including three physicians, against the board of education to restrain the board from using school funds to maintain the department of hygiene which conducts the medical examination of schoolchildren. The petition alleges that this use of the school fund is not sanctioned by law.

NEW YORK

The Disposal of Seized Drugs.—Assemblyman Moritz Bloch has introduced a bill providing that habit-forming drugs seized by the New York City authorities be turned over to the Department of Charities and Corrections to be used in the city hospitals, and that outside of New York City such drugs shall be turned over to hospital authorities in such county or municipality as the district attorney directs.

New York City

Personal.—Dr. Max Lubman has been appointed associate otologist to the Har Moriah Hospital, New York.——Drs. Cornelia C. Brant, Mary L. Hines and Mabel C. Sisson have been appointed members of the staff of the Cumberland Street Hospital, Brooklyn.

Bronx County Medical Society.—At the annual meeting of this organization held January 12, the following officers were elected: president, Dr. John E. Virden; vice presidents, Drs. J. Lewis Amster and Edward F. Hurd; secretary, Dr. Herman T. Radin, and treasurer, Dr. Philip Eichler. At the close of the executive session Dr. Charles H. Mayo, Rochester, Minn., read a paper on "Gallbladder Disease, Its Etiology, Symptoms and Treatment," with accompanying stereopticon views. After the scientific meeting a supper was held in honor of Dr. Mayo.

The Antispitting Campaign.—During the second week of January over 1,500 persons were brought into the magistrates' courts for violation of the ordinance forbidding spitting in public places. Practically all of these were fined, the fines ranging from $1 to $10. The department of health calls attention to the fact that the chief value of such a campaign lies in its educational effect, and this phase of the campaign is largely dependent on newspaper publicity. Hence it is essential that the campaign be so spectacular in character as to gain a high news value. This end is better attained by intensive sporadic efforts than by the same amount of effort spread over a period of months which would secure no newspaper attention.

NORTH CAROLINA

Chiropractor Guilty.—The North Carolina supreme court has recently reversed the decision of the superior court of Guilford County and found O. V. Siler, a chiropractor, guilty of practicing "for fee and reward, without license, as a non-drug giving physician." Siler had been found guilty by the municipal court of Greensboro, but had been declared not guilty by the superior court. Now the decision has again been reversed by the state supreme court.

Health Administration.—Beginning April 1, in Edgecombe County, there will be placed in charge of the public health interests a U. S. Public Health Service representative who will endeavor to work out a model county health administration. The study will embody the best features of the excellent work now being done in several counties in North Carolina, and as well combine other features believed to be essential to the fullest development of the best values in county health work. The progress of the work will be watched with interest by sanitarians within as well as without the state.

PENNSYLVANIA

To Rename Hospital.—As a result of William L. Elkins' latest gift of $250,000 to the endowment fund of the Abington Memorial Hospital, a movement has been started to have the name of the institution changed to the Elkins Memorial Hospital. Mr. Elkins founded the hospital as a memorial to his wife, Stella M. Elkins.

Public Service Bureau Appointed.—In order to obtain state-wide enforcement of the act requiring the semiannual inspection of all cooks, waiters, kitchen help or other servants employed in hotels, restaurants, dining cars or other public eating places, to exclude those suffering from certain communicable diseases from employment, a bureau of public service has been created by State Health Commissioner Dixon.

Disinfection.—A rule has been made by the board of health at Altoona that hereafter disinfection of rooms in which patients with contagious diseases have been confined will be done free in cases in which the occupants cannot pay. Previously a charge of 50 cents per room was made, but it is the opinion of Health Officer Myton that it is the business of the health department to prevent the spread of disease and not to collect fees.

Allegheny Physicians Elect.—At the annual meeting and banquet of the Allegheny County Medical Society at Pittsburgh, January 11, the following officers were elected: president, Dr. William W. Jones; vice president, Dr. Ellis S. Montgomery; secretary, Dr. Carey J. Vaux, and treasurer, Dr. William C. Bryant. Plans were discussed at this meeting for the building of a permanent home for the society to cost $75,000, and Dr. William H. Mercur, chairman of the permanent home committee, reported that he had already received promises of donations of $1,000 each from twenty-five members of the society.

Personal.—Dr. John A. Fritchey, Harrisburg, is under treatment in the Presbyterian Hospital, Philadelphia, debilitated from overwork and influenza.——Dr. Samuel G. Dixon, state health commissioner, Harrisburg, is reported to be ill with influenza.——Dr. Harry M. Keller, Hazelton, has been appointed by the governor a member of the board of trustees of the Hazleton State Hospital.——Dr. Walter Lathrop, superintendent of the Hazleton State Hospital, who underwent operation in New York City more than a year ago, is suffering from a recurrence of the trouble.——Dr. John F. Zychowitz, South Scranton, suffered severe burns of both forearms recently from an explosion of gasoline in his garage.——Dr. Leonard G. Reading, Dunmore, fractured his right wrist while cranking his automobile, December 31.——Dr. William G. Marsh, Watsontown, fell, January 1, fracturing his hip.——Dr. James M. Maurer, Shamokin, has been appointed chief surgeon of the Susquehanna Coal Company and has appointed the following assistants: Dr.

George M. Stites, to be in charge at Williamstown and Lykens; Dr. Jesse H. Hughes, Nanticoke, to be in charge of the Nanticoke district; Dr. Ralph W. Montelius, Mount Carmel, and Dr. Adna S. Jones, Shamokin.

Philadelphia

Cuban Eye Specialist Lectures. — Dr. Juan Santos Fernandos, an ophthalmologist of Havana, Cuba, and president of the Cuban Academy of Science, delivered an address in Spanish, January 4, before the Wills Eye Hospital Ophthalmic Society.

Pneumonia Commission Appointed. — Health Director Krusen has appointed a commission to make intensive study of the causes of grip and pneumonia. The members of the commission are Drs. David Riesman, Hobert A. Hare, Judson Daland, William Egbert Robertson, Randle C. Rosenberger, Paul A. Lewis and John A. Kolmer.

Packard Lecture.—The Fred A. Packard lecture of the Philadelphia Pediatric Society will be delivered at the College of Physicians, Twenty-Second and Chestnut Streets, February 8, at 8:15 p. m. by Prof. Charles M. Campbell of Johns Hopkins Medical School, Baltimore, on "The Neurotic Child, Some Familiar Symptoms and Their Problems."

Scarlet Fever at University.—Another outbreak of scarlet fever, from which two students died when the contagion first appeared, has occurred at the University Hospital and two nurses have been sent to the Philadelphia General Hospital for Contagious Diseases, a student has been quarantined at his home, and the students' ward in the hospital has been isolated.

City Nurses Teach the Little Mothers' Leagues.—Under the instruction of seventeen nurses from the Department of Public Health and Charities, "Little Mothers'" leagues were organized, January 11, in seventeen school buildings throughout the city. These leagues formed under the auspices of the division of hygiene of the child federation began the study of the essentials of making capable mothers of hundreds of little girls enrolled from among the pupils in elementary schools.

Fellowship in Obstetrics.—A fellowship amounting to $1,000 has been established at the Woman's Medical College of Pennsylvania, to be awarded by the faculty annually to any medical woman of special ability who, following the medical course, has completed at least one year of hospital service, including work in maternity wards, and one year of further practice. The amount is to cover twelve months of special work as fellow in obstetrics, with the condition that the holder of the fellowship shall thereafter continue in the practice of obstetrics.

Personal.—Dr. J. William White, who has been ill at the University Hospital for some time, has returned to his home much improved in health.——Dr. Charles Miller has been appointed chief of the division of vital statistics.——Dr. Ellwood R. Kirby has been appointed medical director of St. Mary's Hospital.——Dr. Daniel J. McCarthy, recently returned from the war, was the guest of honor at the annual banquet of the Medical Examiners' Association at the Hotel Walton, January 20.——Dr. Francis D. Patterson has been appointed chief of the division of industrial hygiene and engineering of the bureau of inspection in the state department of labor and industry, succeeding Dr. John C. Price, deceased.——Dr. Richard H. Harte sailed from New York, January 8, to serve as one of the chief surgeons of the American Ambulance, Paris.——Dr. Ross V. Patterson has been appointed visiting physician to the Philadelphia General Hospital.——Dr. Carlton N. Russell has returned after service with the American Ambulance in Paris.——Dr. Alexander C. Abbott has withdrawn his resignation as a member of the board of health.

VIRGINIA

New Hospital Opens.—The Newport News General Hospital was opened December 31. St. Francis' Hospital closed on the same day and the patients cared for there were removed to the new hospital.

New Officers.—Richmond Academy of Medicine and Surgery: president, Dr. William L. Peple; vice presidents, Drs. St. Julian Oppenhimer, Oliver F. Blankenship and Ramon D. Garcin; secretary, Dr. Mark W. Peyser (reelected), and treasurer, Dr. James H. Smith.

Personal.—Dr. Joseph A. Gale, Roanoke, who has been under treatment in the Johns Hopkins Hospital, Baltimore, is reported to be rapidly regaining his health.——Dr. Frederick M. Hodges, Richmond, has been appointed associate physician in the tuberculosis department of the Richmond City Home.——Dr. Estelle H. Henderson has succeeded Dr. John C. King, resigned, as superintendent of the Southwestern State Hospital, Marion.

WISCONSIN

New Officers.—The Milwaukee Medical Society: president, Dr. Frank C. Studley; vice presidents, Dr. Albert W. Myers and Emerson A. Fletcher; secretary, Dr. Oscar Lotz; treasurer, Dr. Joseph P. McMahon.——Ashland-Bayfield and Iron Counties Medical Society at Ashland, December 30: president, Dr. William T. O'Brien; vice president, Dr. John V. Wenzel; and secretary, Dr. Otto Braun.

Health Bulletin Boards.—Health Commissioner Ruhland has asked an appropriation of $3,000 from the board of estimates of Milwaukee as a publicity fund for health protection and disease prevention. He desires to widen the magazine publicity work and also to erect bulletin boards in different sections of the city.——The Milwaukee Electric Company has donated to the health department, one advertising space in each car for its daily health protection and disease prevention cards.

Personal.—Dr. Louis A. Fuerstenau has been elected president and Dr. Robert W. Blumenthal, secretary of the Emergency Hospital, Milwaukee.——Dr. John R. McDill, Milwaukee, was honored, January 10, when the senate and assembly of the Philippine Islands adopted resolutions setting forth the high degree of surgical and medical skill of Dr. McDill, his great devotion to his patients and his scrupulous observation of the principles of medical ethics.——Dr. George C. Ruhland, health commissioner of Milwaukee, has been ill with influenza.

Smallpox.—At Racine, January 6, by an order of the board of health, the Lincoln School, which had been closed, December 15, on account of smallpox, was allowed to reopen. The epidemic was said to be under control, and the twenty-five day period of exclusion of nonvaccinated children from the schools, as provided by the Wisconsin law, had expired. There were 123 children whose parents refused to permit them to be vaccinated. By the board's order they were to be allowed to go back to school. About 300 children were vaccinated during the epidemic.——The public school and parochial school in the town of Newton, south of Manitowoc, were ordered closed by the school board, December 21, on account of the discovery of six cases of smallpox in the district.

Sanatorium Notes.—Muirdale, the tuberculosis sanatorium for Milwaukee County, which was opened in November at Wauwatosa, lacks sufficient facilities for male patients and the superintendent has asked the county board to reopen Greenfield Sanatorium. Muirdale can accommodate about 275 patients and now has more than 160 and applications are coming in so rapidly that the capacity of the institution will very soon be taxed.——The question of a sanatorium for Waukesha County was discussed by the county board at its December meeting and a committee of three was appointed to procure data, plans for the building and select a site.——Fifty acres of land adjacent to the Winnebago County Tuberculosis Sanatorium, Neenah, have been purchased and the land will be used to raise farm products for the institution.

CANADA

Gorgas Visits Toronto.—Surg.-Gen. William Crawford Gorgas of the United States Army addressed the Canadian Club, Toronto, January 17, on "Sanitation in Panama."

Students Return.—About twenty-five senior students on duty with No. 3 Canadian General Hospital in France have returned to Canada to complete their medical studies with a view of returning as medical officers if necessary.

Western Universities Offer Battalion.—A conference was held of representatives of four western universities in Edmonton, Alberta, January 15. They unanimously decided to offer to the Canadian militia department a battalion to be raised from B. C. University, Alberta, Saskatchewan and Manitoba.

Hospital Staff Soon to Be Mobilized.—The immediate mobilization at Toronto of the medical officers and nurses for the staff of the Ontario Hospital at Orpington, Kent County, England, has been ordered from the militia department, Ottawa. Thirty-two doctors and eighty-one nurses from all parts of Ontario are to be selected. It is likely that the commanding officer will be selected from Canadian officers

now in England. The orders for mobilization have been received by Lieutenant-Colonel Marlow, A.D.M.S., Toronto.

Hospital News.—Sixteen members of No. 3 McGill Base Hospital, which has been located in France, have arrived in Montreal to complete their fifth year in medicine. Col. Herbert S. Birkett, in command of the hospital, accompanied them. This hospital dealt with over 3,000 cases between August 6 and November 15.——Dr. Zephyr Rhéaume, chief surgeon at the Hotel Dieu Hospital, Montreal, will accompany No. 6 General Hospital, Laval University, as chief surgeon with the rank of lieutenant-colonel. The hospital was organized by Lieutenant-Colonel Beauchamp. This hospital has been changed from a stationary to a general hospital.

Personal.—Dr. J. S. McCallum, Smith's Falls, Ont., has three sons somewhere in France. All are Canadian university graduates, one, Lieut. John S., being attached to the tenth Gloucester regiment as surgeon.——Dr. Harriet Cockburn, a Canadian physician, arrived in New York from Bordeaux, January 19.——Drs. Kennedy, Wilkes, Wilson, Baby and Neilson, formerly noncommissioned officers attached to No. 3 Canadian General Hospital, have been commissioned captains in the Canadian Army Medical Corps. ——Dr. Campbell P. Howard of the University of Iowa, who has been on active service for the McGill Hospital in France with rank of major, has returned home.——Dr. Scott Huntingdon, said to be a prominent physician of Havana, and an American citizen, has offered himself to Sir Sam Hughes, the Canadian minister of militia, for overseas service. Dr. Huntingdon was recently in Ottawa after giving up his practice in Havana. He will be given a commission in the Canadian Army Medical Corps.——Dr. Charles J. Copp, Toronto, honorary secretary-treasurer of the Ontario Council St. John Ambulance Association, has been created a Knight of Grace of the Order of the Hospital of St. John of Jerusalem in England.——Dr. Hubert Brown, Cooksville, Ont., has been recommended for medical officer of the One Hundred and Sixty-Ninth Battalion. Dr. Brown served in the South African War.——Lieut.-Col. Murray Maclaren, St. John, N. B., a past president of the Canadian Medical Association, and at present commanding officer of a Canadian general hospital in England, has been made a companion of the Order of St. Michael and St. George.——Lieut.-Col. Arthur Edward Ross, Kingston, Ont., a member of the Ontario legislature, and at present in command of the first field ambulance in France, has been made a commander of the Order of St. Michael and St. George.——Lieut.-Col. George Gallie Smith, of the Canadian Army Medical Corps, has been rewarded for service to the empire by being made a commander of the Order of St. Michael and St. George. ——Lieut.-Col. George G. Nasmith, Toronto, who is returning to France this month, has been rewarded for service to the empire by being made a commander of the Order of St. Michael and St. George.

GENERAL

Tuberculosis Standardization Committee Appointed.—The National Association for the Study and Prevention of Tuberculosis has appointed the following committee on standards for diagnosis of tuberculosis in children: chairman, Dr. James A. Miller, New York City; secretary, Bertram H. Walters, New York City; and Drs. Glenford L. Bellis, Wauwatosa; John Howland, Baltimore; Henry I. Bowditch, Boston; John H. Lowman, Cleveland; Isaac A. Abt, Chicago, and Orville W. McMichael, Chicago.

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Luke's Hospital, Orlando, Fla., a donation of $5,000, from "a friend in the north."

University of Oregon Medical College, a donation of $5,000, conditional on obtaining nine other gifts of the same amount; Presbyterian Hospital, New York City, $5,000, by the will of Archibald M. Stewart.

Chester County Hospital, Westchester, Pa., $6,000, for the endowment of a room in memory of the late Sarah Farley.

Philadelphia County Medical Society relief fund, the income of four fifths of the estate of Dr. William B. Banks, contingent on the death of his wife, his son, a friend of his mother's and his son, dying without issue.

Civic Federation Meeting.—The sixteenth annual meeting of the National Civic Federation was held at the New Willard Hotel, Washington, D. C., January 17 and 18, under the presidency of Mr. Seth Low, New York City. The chief topics of medical interest presented at the meeting were the reports of Augustus Belmont on "The Status of Workmen's Compensation Laws;" by Louis B. Schram on "The Causes of Industrial Accidents;" Dr. Woods Hutchinson on "Progress in Industrial Hygiene in Thirty Years," and Dr. E. E. Smith on "Changes in Food and Drug Supplies—Present Needs."

American Dye Stuffs.—According to *Commerce Reports*, American dye works are now turning out coal-tar colors at the rate of 15,000 tons annually. Before the war in Europe we manufactured only 3,300 tons, made mostly from imported intermediates. The total importation of colors before the war was 25,000 tons so that the amount manufactured at present in the United States is still short of the demand. The manufacture of what is called coal-tar crudes in this country has assumed large proportions, but at present most of them are absorbed in the manufacture of war munitions. There are, however, it is said, twelve firms engaged in turning out finished dyes.

Bill for the Care of the Tuberculous.—On January 8, Congressman Kent submitted to the House of Representatives a bill to standardize the treatment of tuberculosis in the United States, to provide federal aid in caring for indigent tuberculous persons, and for other purposes. The bill provided that the secretary of the treasury be authorized to aid state authorities in providing care and treatment for indigent tuberculous persons who are citizens of the United States, but not legal residents of the state in which they are temporarily located; that public or private hospitals and sanatoriums may be designated to receive such patients, and that from time to time such institutions be inspected by officers of the Public Health Service and their facilities for such treatment investigated. The subvention fixed annually by the secretary of the treasury, not exceeding 75 cents per day for each indigent patient, is to be paid toward such hospitals and sanatoriums by the secretary of the treasury, and a similar fee is to be paid by the state. Patients must submit satisfactory evidence that they did not leave their local residence in order to receive benefits under this act. The bill provides for the publication of information and descriptive matter relative to the institutions and working of the act, and for the publication of estimates as to the cost of carrying out the provisions of the bill.

FOREIGN

Prize Awarded to Kopke.—Prof. Ayres Kopke of Lisbon was recently awarded the prize offered by the Sociedade de geographia of Lisbon for the best work by a Portuguese writer on sleeping sickness.

Pure Milk in Guayaquil.—Efforts to secure pure milk for Guayaquil have been embodied in an ordinance which requires that permission must be obtained from the municipal authorities for the operation of a dairy, and only tuberculin tested cows may be kept.

Sanitary Stations in Colombia.—Under the law of the Colombian Congress of Nov. 8, 1915, the Junta Central de Hygiene (Bogota) has been authorized to begin the construction of a sanitary station at Buenaventura, and $20,000 has been appropriated for the purpose, with an additional $10,000 for the completion of the sanitary station, wards, bacteriologic laboratory and a pier at the Santa Marta sanitary station.

Personal.—Drs. Ricardo Sarminto-Laspiur and Fernandi Ham, Buenos Aires, who are visiting in the United States, inspected Johns Hopkins Hospital, January 3.——Dr. Carlos Husk, chief surgeon for the Guggenheim mine interest in Mexico, has been chosen to take charge of the typhus situation in Northern Mexico. The health expedition will start from Laredo as soon as permission is obtained from President Carranza.

Quacks' Signs Come Down in Berlin.—The measures enforced by the military authorities against quacks and secret medicines in the German border states have been supplemented by the order for removal of the advertising signs and advertisements of secret remedies from the public comfort stations and the fronts of houses. Berlin is in Brandenburg which is the principal of these marches or buffer states, and the above measure is said to have been instigated by the Brandenburg medical chamber as the logical corollary of the repressive measures against quackery decreed by the military commander of the marches.

Deaths in the Profession Abroad.—B. V. Wicherkiewicz, professor of ophthalmology at the University of Cracow since 1895, aged 68. He was a leader in local medical and civic matters, serving as member of the city council, as chief of the voluntary first-aid organization at Cracow and as president of the Polish Medical Association at Posen. He founded in 1898 the first Polish ophthalmologic journal, and published annual reports from his eye clinic at Cracow and was a

frequent contributor to specialist literature. His name is connected with a method for iridectomy, for treating immature cataracts by rinsing, an operation for trichiasis, etc.—— P. Heresco, professor of surgical diseases of the urinary apparatus at the University of Bucharest, Roumania, aged 47.

WAR NOTES

Kaiser's Palace to Be Hospital for Allies.—The British government has notified Greece that the summer residence of the emperor of Germany on the Island of Corfu has been taken by the allies for use as a hospital.

Facial Wounds.—Special hospitals and departments are being established for the treatment of facial wounds and recently $2,000 was appropriated by the American Red Cross for the establishment of a special hospital for this purpose in Paris, and a similar sum has been appropriated for a facial wounds department in the American Ambulance, Neuilly.

The Work in Turkey.—The American Red Cross has sent a contribution of $10,000 to the American ambassador in Constantinople for relief work in Turkey. The ambassador has arranged with the French and English governments to assume the responsibility of supplying the funds and maintenance of their respective hospitals under the direction of the American Red Cross.

To Help Those Blinded in Battle.—The American Red Cross Hospital, Munich, Bavaria, has concentrated its forces on the alleviation of suffering to those who have been blinded in battle, not only by treating the facial wounds, but also by the education of the blind in reading, writing and certain occupations. For this particular work the American Red Cross has appropriated $2,000.

Many Physicians Lost in War.—During a debate in the Hungarian Parliament, January 20, it was officially stated that from the beginning of the war until November 1 last, 373 German surgeons have been wounded, ninety-six have died on the battlefield, 707 have died from diseases and 215 have been taken prisoners.——The wounded Austrian medical officers numbered 315, and 971 have died from infectious diseases. 101 have been killed while rendering medical assistance on the firing line and 331 have been taken prisoners.

Red Cross Activities in Egypt.—The American Red Cross has authorized the formation of a committee of Americans in Cairo, Egypt, to handle European war relief work. The immediate activities are in behalf of more than 4,000 homeless Armenians who are being sheltered at Port Said. The Armenian Red Cross and Armenian Benevolent Society will aid in this work.——On the steamer *Lafayette* of the French line the American Red Cross has shipped 7,000 pounds of hospital supplies and clothing to the American Relief Clearing House in Paris for distribution.

Personal.—Drs. William E. Falconer, Walter J. Dodd and Varazstad H. Kazanjian, Boston, members of the Harvard unit, have been mentioned in despatches by Field Marshal Sir John French, commander of the British forces.——Dr. Allen Greenwood, Boston, a member of the Harvard unit, has returned from France.——Dr. Edward W. Ryan of the American Red Cross has arrived in Rome after a trip to Montenegro and Albania.——Drs. Edward Stewart, Boston, and G. F. Laughlin, Boise, Ida., and Dr. Bates, have arrived in Saloniki to take up the Serbian relief work.——Dr. E. Magoon, Dorchester, Mass., has been sent to investigate conditions among the Serbian refugees and Austrian prisoners in Durazzo and Elbassan, Albania.——Dr. Elliott Gage, Boston, has been sent to Scutari, Albania, and Dr. George W. Bateman, Massachusetts, to Montenegro to look into the needs of the people in behalf of the American Red Cross.

War Relief Supplies Shipped.—A number of heavy shipments of war relief supplies for France, Montenegro, and Belgium have been made by the American Red Cross in the last few days. The Transatlantique steamer *La Touraine* has carried 9,000 pounds of supplies and equipment to the American Relief Clearing House, Paris, and 680 pounds of convalescent garments, bandages and socks to the Belgian Red Cross at Calais. On the *Rochambeau* of the same line there have been shipped 21,722 pounds of hospital supplies and women's and children's clothing designated for use in France for distribution by the American Relief Clearing House. The same steamer carried 1,200 pounds of hospital supplies.——Hospital garments, anesthetics, bandages and other relief supplies amounting to 10,248 pounds are en route to Naples to be forwarded to the Montenegrin Red Cross at Cettinje.

LONDON LETTER

London, Jan. 6, 1916.

The War

THE BRITISH HOSPITAL UNITS IN SERBIA

In previous letters the good work done by the British and American hospital units in Serbia in the treatment of the sick and wounded, and above all in the extinguishing of the epidemic of typhus which ravaged the country, has been described. Now its heroic people have been overtaken by a catastrophe comparable to that of Belgium, and the British hospital units have with some of the survivors undergone the hardships of flight through the mountains of Albania and Montenegro, or been made prisoners by the invaders. The number of British physicians and nurses who have succumbed to disease in the country is not accurately known, but it seems to be between twenty-five and thirty. It was the intention of the Serbian government when the war was over to disinter each of them from their present place of burial, to collect them in one spot, and build over them a national monument on which Serbia's gratitude should be inscribed. This is a task which will probably be performed when the time comes. When Serbia succumbed to the last invasion, the hospitals fell back with the retreating army, but not until they had been under heavy fire. Some physicians, however, continued to tend the wounded until they fell into the enemy's hands. Among these is Mr. James Berry, the well-known London surgeon.

THE INCREASED COST OF DRUGS

Commodities in general have advanced in price as a result of the war. But drugs easily head the list in the magnitude of the advance, especially the synthetic products for which we are dependent on Germany. In most cases the advance during the first five months was much less than during the past year. The accompanying table shows the manner in which some of the principal drugs have been affected.

CHANGE IN PRICES OF DRUGS

Drugs	Prices Immediately Before the War Per Pound	Prices Jan. 1, 1915 Per Pound	Approximate Present Prices Per Pound
Acetanilid	$ 0.20	$ 0.50	$ 2.00
Acetylsalicylic acid	.50	1.50	12.00
Atropin	6.00*	20.00*	33.00*
Caffein	4.00	4.50	12.50
Calomel	.50	1.00	1.50
Phenol (carbolic acid)	.09	.30	.48
Cocain hydrochlorid	1.00*	2.00*	3.50*
Cod liver oil	18.00†	25.00†	87.00†
Mercuric chlorid	.50	1.50	2.00
Hexamethylenamin	.48	1.00	1.50
Hydroquinon	.50	2.00	9.00
Ipecacuanha	2.00	4.00	6.00
Morphin hydrochlorid	2.00*	3.00*	3.00*
Opium (Turkish)	4.50	7.00	9.50
Phenacetin	.50	1.50	15.00
Antipyrin	1.50	2.00	18.00
Potassium chlorate	.08	.24	.36
Potassium bromid	.37	.78	3.50
Quinin sulphate	.50	1.50	17.50
Santonin	30.00	55.00	40.00
Sodium salicylate	.30	1.00	5.50

* Per ounce.
† Per barrel.

THE ROYAL COLLEGE OF SURGEONS AND THE WAR

In a previous letter, the effect of the war on the Royal College of Surgeons was instanced as an example of the manner in which the war is permeating our national life. The following particulars, however, may be of interest: The president (Sir Watson Cheyne, Bt., C.B.), who holds the rank of surgeon-general in the Royal Navy, was away from the June meeting, and leave of absence was given to Sir George Makins, K.C.M.G., Sir Anthony Bowlby, Sir Berkeley Moynihan, and Mr. F. F. Burghard, in France and to Mr. C. J. Symonds. Mr. R. H. Burne, physiologic curator of the museum, is working at Dunkirk, under the French Red Cross, and a large proportion of the servants of the college have enlisted. The obituary of fellows includes thirty-three names, three of whom lost their lives in the war, and the obituary of members includes 385 names, thirty-three of whom died in the war, while of the twenty-one licentiates in dental surgery, one died at the war.

A Child Poisoned by Potassium Chlorate

Cases of poisoning by potassium chlorate are so rare that many physicians are not aware that the drug is a poison. A case has just occurred in which the infant son of a physician died as the result of administration of the drug in his food under the impression that it was lactose. Owing to some

mistake the druggist supplied the drug in response to the order for lactose. Of course the quantity which would be administered in place of the usual doses of lactose given as a food to infants would be high for that age. Potassium chlorate has been mistaken for Rochelle salt and other substances, but it does not appear to have previously been mistaken for lactose.

Dutch Honor to Sir David Bruce

The Dutch Academy has conferred on Sir David Bruce the Leeuwenhoek Medal in consideration of his research work into the causes of sleeping sickness and Malta fever. Writing to him on the subject, the president, Professor Lorenz, said:

"Allow me to congratulate you most heartily on the occasion of the Leeuwenhoek Medal having been awarded to you, or rather, allow me to say that I consider it a great privilege for our Academy of Sciences to have been able to recognize in this way the high importance of your researches, and the great value of the results you have achieved. I may add, perhaps, that Leeuwenhoek, the great investigator, whose memory we honor by this medal, had close relations with your country. He was a foreign member of the Royal Society, and the greater part of his discoveries have been first published in the *Philosophical Transactions*. It is peculiarly gratifying to me that the medal has now been awarded to a member of the great society in which Leeuwenhoek found a lively interest for his discoveries."

The award is made every ten years, and this is the first made to a British scientist, the previous laureates being Ehrenberg (1875), Ferdinand Cohn (1885), Louis Pasteur (1895) and Beyerinck (1905).

PARIS LETTER

PARIS, Jan. 6, 1916.

The War

HYGIENE IN THE TRENCHES

Recently the Académie de médecine appointed a committee on the hygiene of our soldiers in the field and in particular the prophylaxis of preventable diseases and the means of guarding the soldiers against the local effects of cold. The following is the text of a circular which the academy, on the recommendation of Professor Letulle, has approved and the circulation of which is recommended:

"Now that the winter is here the soldier should know how to protect himself against the local effects produced or favored by cold. The conditions called 'freezing' ordinarily affect the feet. They sometimes have serious consequences and even produce infirmities. They may often be avoided by care of the feet and shoes. Intense and prolonged cold is in itself sufficient to produce freezing. The conditions mentioned, however, frequently manifest themselves with a very moderately low temperature, sometimes not lower than 0 C. (32 F.). In the trenches various causes cooperate with cold. These causes are: remaining motionless in water, liquid mud or melting snow; continual dampness of the shoes; shrinking of the leather and consequent compression of the foot, and interference with circulation producing swelling of the foot and of the lower part of the leg. It is possible to protect oneself against these various conditions.

"1. In the Trenches.—Do your best to keep the bottom of the trench dry by means of drains, cesspools, or broken stone, timber or brush. Prolonged immobility, whether standing or sitting, invites circulatory troubles and renders freezing easy. Move as often as possible therefore. Carefully grease the foot and shoe. Tallow alone or mixed with neatsfoot oil is suitable for this purpose. The shoes should be large so that the foot may always be comfortable in them. It is well to wear two pairs of socks or to wrap the foot with paper bands over which the sock may be placed; but care should be taken that the foot is not compressed, for if the shoe presses on it or the foot begins to swell the resulting compression will be more dangerous than the cold. Garters and leggings ought not to be too tight. A dry pair of socks should always be kept for change. To prevent stagnation of the circulation which invites freezing, observe the following most important regulation: Take off your shoe for a time at least once a day. Rub the foot and the lower part of the leg for ten minutes. Alternately bend the toes and the foot forward and backward with repeated energetic movements. Then put on dry socks. Thus your chances of avoiding frozen feet will be greatly improved.

"2. In Cantonment.—Use your leisure to take care of feet and shoes. Keep the feet clean and comfortable. Rub them once a day. Clean your shoes of mud, dry them as well as you can without exposing them too much to the heat of the fire, which hardens them. Carefully grease the leather to render it pliable and less permeable to water. Wash your socks to have them clean and dry when they may be needed. If you are afraid that your feet have been frozen, do not bring them too near a fire suddenly. Serious results are sometimes due to this. Remove your shoes, rub your feet gently, put on sabots with straw in them and go to the doctor for treatment."

ABDOMINAL WOUNDS IN WAR SURGERY

Abdominal surgery continues to be a subject of discussion in our professional societies. At a recent session of the Société de chirurgie de Paris, Dr. Rochard, surgeon of the hospitals, in connection with statistics of eighty-four penetrating abdominal wounds reported to the society by Dr. Stern, reviewed all the cases of operative and nonoperative treatment of wounds of this class which have been reported to the society since the beginning of the war and drew the conclusion that laparotomy is the only treatment applicable either to wounds of war or to wounds of civilian life. It gives a mortality of 60 per cent. while nonoperative treatment gives 80 per cent.

The seriousness of the prognosis is in direct relation to the number of organs affected. The mortality is considerably higher in abdominal wounds which affect other regions than in exclusively abdominal wounds. Among exclusively abdominal wounds those affecting the viscera are more serious than simple penetrating wounds. Those which affect several viscera are more serious than those which affect only one organ. With regard to the organ which is injured the most serious wounds are those of the spleen; the most benign are those of the liver. Between the two are wounds of the intestine.

Generally speaking, the following conditions contribute toward an unfavorable prognosis: preoperative and postoperative agitation, nervousness, nonextraction of the projectile: Rupture of the intestine is more serious than section because of the copious outflow of intestinal liquid. Section is more serious than a laceration which, however, is more serious than a perforation. On the other hand, a favorable outcome may be hoped for when the patient is in a satisfactory condition on the fifth day: Observation shows that the greater number of deaths occur before this date. Death may occur later, on the tenth day, for instance, and therefore one should not regard patients as cured until their cases have been followed at least fifteen days and appear to be progressing favorably at that time.

THE PHYSICIAN'S DECISION WITH REGARD TO OPERATION

The secretary of war was asked if a soldier in active service who has contracted a hernia in the performance of his duty is entitled to demand operation in the interests of the service. He replied that the decision as to the propriety of operation rested entirely with the physician.

DEATH OF AN AMERICAN AMBULANCE ATTENDANT

The American ambulance committee has been informed that one of the volunteers, M. Richard Nelville Hall, attached to the section of the American ambulance attending the French army in Alsace, was killed in the performance of his duty. Mr. Hall was 21 years old and the son of Prof. H. G. Hall of the University of Michigan. He was struck by a German shell as he was standing beside his ambulance. Another member of the staff of the American ambulance, Mr. L. C. Doyle, was slightly wounded.

THE RETURN OF THE FRENCH MEDICAL MISSION FROM SERBIA

News was recently received at Tunis from the French medical mission in Serbia. After having struggled against a serious epidemic of typhus which caused great ravages, the mission shared the lot of our Serbian allies during their retreat. Since its work is now suspended its physician in chief, Colonel Jaubert, has been ordered to return with his staff. The mission was on Albanian territory at last accounts.

TREATMENT OF TETANUS

At the Réunion médico-chirurgicale de la VI-e armée, Dr. L. de Montille reported excellent results in tetanus, even very acute cases, from Baccelli's method as modified by himself. He employs the following formula:

Phenol ..... 1 gm.
Ether enough to dissolve it.
Sterilized olive oil 10 gm.

This mixture is safer than phenol but just as efficacious. The size of the dose may be diminished and no more than one or two injections need be given a day in the muscular masses. More than 1.5 gm. phenol may be safely given a

day by this method, but doses one-sixth that size are effective. The advantages of the method thus modified are: (1) the great rapidity with which the patient becomes quiet (detetanized); (2) the simplicity of the treatment (one or two injections a day); (3) the activity obtained from a very small dose (the recommended injection of 2 c.c. represents 0.2 gm. phenol in twenty-four hours, and at the end of a few days the injection may be reduced to 1.5 c.c. or 1.3 c.c.); (4) the real and permanent recovery which rapidly becomes manifest (not more than ten or twelve days after beginning the treatment in serious cases).

BERLIN LETTER

BERLIN, Dec. 7, 1915.

Personal

Professor Dohrn, for many years director of the gynecologic clinic of the Königsberg University, died in Dresden, December 5, aged 79 years. He had been a pupil of Professor Lietzmann of Kiel and Professor Credé of Leipzig. When he was only 27 years of age he was appointed ordinary professor in the gynecologic clinic at Marburg. Twenty years later, in 1883, he was called to Königsberg and remained there until 1897, when he resigned his position and went to Dresden. He was an ardent research worker and writer. Of special note are his contributions to operative gynecology and puerperal fever. His efforts did much to further antisepsis in obstetrics. He also did much to elevate the standing of the midwife. In 1892 the government persuaded him to assume the editorship of the new edition of the Prussian textbook for midwives. Although an exceedingly busy man in his professional work, he always found time to devote to medical societies. For many years he was chairman of the East Prussian medical society.

December 1, Professor Korach, the director of the division of internal medicine in the city hospital of Posen, died at the age of 62 years.

Professor Schittenhelm, director of the Königsberg University medical clinic, has accepted the call to take the place of the late Professor Lüthje of Kiel.

Prophylactic Vaccination Against Typhoid and Cholera

At a meeting held in the Kaiser Wilhelm Institute, November 16, Professor von Wassermann discussed this problem, basing his statements on his experimental research. He found that white mice were immune to typhoid infection by way of the bowel and that the blood of these mice killed the typhoid bacillus. He assumed, therefore, that there was some relationship between this immunity of the intestinal mucosa and bactericidal substances in the blood. This assumption was confirmed by experimental observation. By injecting an aqueous solution of chemical substances obtained from the body of the typhoid bacillus under the skin of a mouse, Wassermann succeeded in reducing the bactericidal protective substances or antibodies in the blood, at the same time removing the resistance to the passage of the bacillus through the intestinal epithelium. Therefore, if the reduction in the amount of antibodies in the blood produced such an effect on the intestinal epithelium, Wassermann concluded that by increasing the antibodies in the blood the intestinal epithelium would be less freely penetrated by the typhoid bacillus. If this could be done in the case of the mouse, the same thing was possible in man. The entrance of bacteria into the body always lowers the amount of antibodies in the blood and increases the possibility of producing that particular disease. Hence, in addition to protective or prophylactic vaccination, other hygienic measures must be instituted.

Inspection of Prison Camps

It is to be desired that the visitation of prison camps in Russia and Germany by the Red Cross sisters, and the discussions of the Red Cross conference in Stockholm will dispel the feeling heretofore existing as to the treatment accorded prisoners of war in these two countries. It has been stated officially that the Russian sisters and the three members of the Danish Red Cross, who have been active in Germany, have completed their work and gone on to Copenhagen. Every opportunity was given these visitors to inspect the prison camps and the methods of treatment of the prisoners. They have freely expressed satisfaction over the building of these camps, and the housing and care of the prisoners, and particularly have they commended the hygienic precautions taken. They complimented the hospitals in which prisoners of war received the same care and treatment as do German soldiers. The members of this commission petitioned the authorities to increase the bread ration and other foods, but, because of conditions existing throughout Germany necessitating the exercise of great care in the use of food products, the suggestions made in the petition could not be met. At the conference in Stockholm, various points were discussed as to the feeding and hygienic care of prisoners, and a definite plan of action was worked out which, it was hoped, would serve as a guide for the general treatment of prisoners of war everywhere. It is said that special committees are to be appointed in Siberia with headquarters in six of the principal cities, and that all of the prison camps are to be kept under continuous observation. Prince Karl of Sweden, who presided at the conference, suggested the appointment of a special commission, consisting of representatives of neutral countries as well as of the countries now at war, to visit the prison camps and report its findings.

Age Statistics of Prussia

Much has been written and many conclusions have been drawn as to the changes taking place in the average age of the population. This has been largely due to the confusion of average age and average duration of life, and the determination of the average age on the basis of the average duration of life. Statistics show definitely that this is wrong. The layman, however, has held to the belief that it suffices to determine the average age of the population for economic purposes. In order to arrive at a definite conclusion and settlement of this much disputed question, the government ordered an investigation based on the censuses of 1875, 1890, 1900 and 1910. The research was made along very definite lines so that the years of life of every age class were obtained, and by multiplying these by the population figures, fairly reliable statistics were obtained. The results for Prussia are given in the accompanying table.

AVERAGE AGES IN PRUSSIA

Year	Population	Total Years of Life	Average
MALES			
1875	12,686,212	332,179,900	26.18
1890	14,721,353	384,715,390	26.13
1900	16,990,231	443,683,564	26.11
1910	19,870,103	524,238,547	26.38
FEMALES			
1875	13,044,682	350,607,563	26.88
1890	15,270,470	415,373,950	27.20
1900	17,519,650	476,811,120	27.22
1910	20,337,721	559,756,370	27.52

These figures show that there are not only more females than males, but that the females also are older and have more rapidly been becoming so; that is, the increase in the average has been much more rapid for the woman than for the man. In 1875, the woman was 0.7 year older than the man; in 1890, these figures rose to 1.07; in 1900 to 1.11, and in 1910 to 1.14. On the whole, the total population has grown slightly older; that is, the average age has increased. In the case of men it has grown from 26.18 in 1875 to 26.38 in 1910, and in the case of women it has grown from 26.88 in 1875 to 27.52 in 1910.

Marriages

DONALD GARDNER RUSSELL, M.D., New Haven, Conn., to Miss Eugenia Lyons of San Diego, Calif., at Huntington, W. Va., January 1.

JOSEPH T. MURPHY, M.D., Tremont, Pa., to Miss Sara Morris of Wilkes-Barre, Pa., at Galveston, Tex., January 12.

HERMAN CAREY BUMPUS, JR., M.D., Rochester, Minn., to Miss Helen McBurnie of Winona, Minn., December 29.

HARRY LESTER BAUM, M.D., Denver, to Miss Martha Belle Shumate of Memphis, Tenn., at Denver, December 14.

BUSH LESLIE BURNS, M.D., Two Harbors, Minn., to Miss Ruth Garnich of Ashland, Wis., December 29.

HARRY P. BOWEN, M.D., Johnson Creek, Wis., to Miss Florence F. Imig, at Milwaukee, Januarv 4.

CHARLES F. MCNEVIN, M.D., to Mrs. Abbie Warner Jones, both of St. Paul, at Los Angeles, January 3.

JAMES FRANK JOLLEY, M.D., Mexico, Mo., to Miss Lola Yark of Mattoon, Ill., January 2.

JAMES RIDDLE GOFFE, M.D., to Miss Alice Lansing Atocha, both of New York City, recently.

Deaths

Edward Hutchins Webster, M.D. Northwestern University Medical School, Chicago, 1877; aged 64; a Fellow of the American Medical Association; for nearly thirty-five years a practitioner of Evanston, Ill.; division surgeon of the Chicago and Northwestern System and physician to the Evanston Emergency Hospital; died at the home of his daughter in Hubbard Woods, Ill., January 3, from acute gastritis. The name of Dr. Webster is inseparable from the history of Evanston where he practiced for so many years. On January 3, 1912, a medical science room in the Evanston Public Library was formally opened and presented to the library by the donor. This room was founded in honor of Dr. Edward H. Webster and the opening exercises were a unique tribute of affection and respect paid to a man still living. Dr. Webster's sterling worth and lovable eccentricities and characteristics combined to make him the best loved citizen of Evanston.

Henry Genet Taylor, M.D. University of Pennsylvania, Philadelphia, 1860; aged 78; a Fellow of the American Medical Association and president of the Medical Society of New Jersey in 1889; one of the most prominent practitioners of Camden, N. J.; assistant surgeon of the Eighth New Jersey Infantry, U. S. V., and surgeon of the Artillery Brigade, Third Corps, Army of the Potomac, during the Civil War; major surgeon of the Sixth Infantry, N. J. N. G., from 1869 to 1882, and brigade surgeon during the strike of 1887; medical director and secretary of the medical staff of the Cooper Hospital, Camden; member and secretary of the board of managers of the Camden City Dispensary, and physician-in-chief to the Camden Home for Friendless Children; died at his home in Camden, January 14, from influenza.

Henry Eastman, M.D. Jefferson Medical College, 1892; aged 45; a Fellow of the American Medical Association and a well known oculist of Pittsburgh; a member of the American Academy of Ophthalmology and Oto-Laryngology; surgeon to the P. V. and C. Railroad and oculist and aurist to the Wheeling and Lake Erie and Wabash Pittsburgh Terminal Systems; ophthalmologist to the Carnegie Steel Company and a member of the staff of the West Penn Hospital; formerly president of the South Brownsville Board of Health; died in the West Penn Hospital, Pittsburgh, January 7, from pneumonia.

Corwin Worth Cornell, M.D. Rush Medical College, 1871; aged 66; a Fellow of the American Medical Association; a charter member and for more than thirty years secretary-treasurer of the Marion County (Iowa) Medical Society; councilor for the seventh district; local surgeon at Knoxville for the Burlington System; died at his home in Knoxville, January 12, from angina pectoris. At a special meeting of the Marion County Medical Society, January 14, a committee was appointed to draft suitable resolutions regarding the death of this well-known and much loved member of the society.

Joseph Aloysius Mudd, M.D. University of Maryland, 1864; aged 73; a member of the Medical Society of the District of Columbia in 1865; about 1866 removed to St. Charles, Md., and later to Hyattsville, Md.; licensed in the District of Columbia, Dec. 30, 1896; assistant surgeon in the Confederate Army and author of a book recording his war observations and experiences with Porter in northern Missouri; died at his home in Hyattsville, January 21, from acute dilatation of the heart.

Enoch Pearce, M.D. Jefferson Medical College, Philadelphia, 1854; aged 83; a Fellow of the American Medical Association; surgeon of the Sixty-First Ohio Infantry, U. S. V., during the Civil War and given the brevet rank of lieutenant colonel for "gallant and meritorious service"; a practitioner of Steubenville, Ohio, for sixty-one years; president of the Soldiers' and Sailors' Association of Jefferson County, Ohio; died at his home in Steubenville, January 13, from pneumonia.

Richard Sechrist Gaugler, M.D. Jefferson Medical College, 1894; aged 47; a member of the Ohio State Medical Association; formerly first assistant surgeon of the National Military Home of Ohio, Dayton; while returning from a professional call in Dayton, January 8, was struck by an automobile and instantly killed. At the funeral of Dr. Gaugler the active pallbearers were fellow members of the Montgomery County Medical Society and the society in a body attended the funeral.

Michael Frampton Patterson, M.D. Western Reserve University, Cleveland, 1881; aged 58; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat; who practiced for several years in Des Moines where he was a member of the staff of Mercy Hospital and professor of diseases of the ear, nose and throat in the College of Physicians and Surgeons of Iowa; died at his home in Fonda, Iowa, January 13, from complications following influenza.

Charles Adna Smith, M.D. Rush Medical College, 1882; aged 59; a Fellow of the American Medical Association and American College of Surgeons; a specialist on surgery, of Texarkana, Texas; for twenty-eight years chief surgeon of the St. Louis Southwestern System and resident physician at Texarkana for the Missouri Pacific Railway; died at the St. Louis Southwestern Hospital, Texarkana, January 12, from nephritis.

Peter Hugo Ernst, M.D. New York University, New York City, 1886; aged 54; a Fellow of the American Medical Association; a well-known gynecologist of New York City; adjunct professor of gynecology in the New York Polyclinic Medical School; gynecologist to the De Witt Dispensary and assistant gynecologist to the New York Polyclinic Hospital; died at his home in New York City, January 9, from pneumonia.

Charles George Am Ende, M.D. Bellevue Hospital Medical College, 1890; aged 76; a Fellow of the American Medical Association and a member of the American Electrotherapeutic Association; for more than fifty years a practitioner of New York City; a member of the staff of the Policlinic, Bellevue and Post-Graduate hospitals and the West Side Dispensary; died at his home in New York City, January 14.

Meredith D. Jones, M.D. Jefferson Medical College, 1870; aged 67; a member of the Missouri State Medical Association; formerly a surgeon in the Navy; a resident of St. Louis since 1890; professor of otology and rhinology in Barnes Medical College, St. Louis, and emeritus professor of otology in the American Medical College; died in Chambersburg, Pa.; January 11, from heart disease.

Jesse Lee Morrill, M.D. College of Physicians and Surgeons in the City of New York, 1869; aged 67; a Fellow of the American Medical Association and the New York Academy of Medicine and a member of the New York Obstetrical Society; a specialist in obstetrics; died at his home in New York City, January 16, after a nervous breakdown.

James Matthew Kiernan, M.D. University and Bellevue Hospital Medical College, 1908; aged 36; a Fellow of the American Medical Association; one of the best known of the younger practitioners of Bridgeport, Conn., and a member of the staff of the Bridgeport Emergency Hospital; died in his office in that city, December 28, from pneumonia.

W. A. Shands, M.D. Charleston (S. C.) Medical College, 1860; aged 76; a Confederate veteran; for two terms a member of the South Carolina Legislature from Laurens County; for eighteen years mayor of Clinton, S. C.; a member of the board of trustees of the Thornwell Orphanage; died in the Lesh Infirmary, Clinton, S. C., January 1.

Charles C. Grizzell, M.D. Missouri Medical College, St. Louis, 1889; aged 56; formerly a member of the Illinois State Medical Society and first vice president of the Southern Illinois Medical Association; of Murphysboro, Ill.; a specialist on diseases of the eye, ear, nose and throat; died at his home near Murphysboro, January 17.

Edward J. Collins, M.D. George Washington University, Washington, D. C., 1892; aged 66; a member of the Board of Eclectic Medical Examiners of the District of Columbia since 1897, during this time serving as secretary and as president of the board; died at his home in Washington, January 16, from endocarditis.

Charles Impey, M.D. University of Louisville, Ky., 1874; aged 63; a Fellow of the American Medical Association and a veteran practitioner of Omaha; surgeon to the Wise Memorial Hospital, Omaha; was seized with a cerebral hemorrhage January 10, while entering the hospital and died a few minutes later.

James Joseph Bowen, M.D. New York University, New York City, 1895, aged 40; formerly a member of the Medical Society of the State of New York; assistant surgeon to the Charity Nose and Thoat Hospital, Buffalo, and surgeon to St. Joseph's Hospital, Gardenville, N. Y.; died in Saranac Lake, N. Y., January 12.

Wellington S. Hopkins, M.D. Missouri Medical College, St. Louis, 1886; aged 53; a member of the Missouri State

Medical Society and for two terms president of the Greene County, (Mo.) Medical Society; a well known practitioner of Springfield; died in the Springfield Hospital, January 12, from pneumonia.

John Ashley, M.D. University of London, England, 1874; aged 62; a member of the Missouri State Medical Association and formerly a member of the State Board of Health; from 1882 to 1902 a clergyman of the Methodist Episcopal Church; died at his home in Bloomfield, Mo., January 3, from malignant disease.

Josiah Swett, M.D. University of Vermont, Burlington, 1878; aged 59; a Fellow of the American Medical Association; for many years coroner's physician for New Hartford and Barkhamsted, Conn.; president of the New Hartford Electric Light Company; died at his home, January 13, from pneumonia.

Holland W. Richardson, M.D. Eclectic Medical Institute, Cincinnati, 1860; Rush Medical College, 1862; Bellevue Hospital Medical College, 1870; aged 85; formerly a member of the Illinois State Medical Society; died at his home in Marengo, Ill., January 15, from pneumonia following influenza.

Thomas L. Craig, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1880; aged 75; for many years in the United States Indian Service with the Osage Indians in Oklahoma and also with the Navajo Indians; died at his home in Soledad, Calif., December 23, from the infirmities of age.

Charles H. Steele, M.D. New York University, New York City, 1874; aged 64; formerly professor of materia medica and therapeutics in Cooper Medical College, San Francisco, but for the last fifteen years a resident of Detroit; died in Harper Hospital, Detroit, January 16, from cerebral hemorrhage.

Edward Hasson, M.D. Rush Medical College, 1899; aged 39; a Fellow of the American Medical Association; formerly president of the Peoria City Medical Society; a member of the Proctor Hospital staff, Peoria; health commissioner of Peoria, Ill.; died in a hospital in Peoria, January 16.

Herman Beyer, M.D. Bellevue Hospital Medical College, 1869; aged 79; a veteran of the Civil War in which he served as hospital steward at Baltimore; until 1904 a practitioner of Stapleton, N. Y., and thereafter a practitioner of Oceano, Calif.; died recently at his home from senile debility.

Henry Chapeze Houston, M.D. Cleveland Homeopathic Medical College, 1877; aged 68; consulting physician to the Ohio Soldiers' and Sailors' Orphans' Home, Xenia, O.; director of the Citizens' National Bank of Urbana; died at his office in Urbana, O., January 8, from heart disease.

William John Teahan, M.D. College of Physicians and Surgeons in the City of New York, 1901; aged 36; a Fellow of the American Medical Association; for four years medical examiner for Hampden County, Mass.; died at his home in Holyoke, Mass., January 11, from pneumonia.

William Kelly Fletcher, M.D. Harvard Medical School, 1862; aged 88; assistant surgeon of volunteers throughout the Civil War; for many years a practitioner of Somerville and Cambridge, Mass.; died at the Home for the Aged in Somerville, January 13, from cerebral hemorrhage.

Andrew B. Mitchell, M.D. University of Maryland, 1866; aged 75; after practicing in New Jersey and West Virginia, he settled in the District of Columbia where he was licensed Dec. 30, 1896; died at the Home for Incurables, Washington, D. C., January 20, from myocarditis.

Benjamin Franklin Gibbs, M.D. Hahnemann Medical College of Philadelphia, 1885; aged 57; one of the founders of the Northern Dispensary and Emergency Hospital, Washington; died at his home in Washington, January 15, from chronic parenchymatous nephritis.

William Barry Burnell, M.D. George Washington University, Washington D. C., 1906; aged 34; formerly a city official of Norwalk, Conn., and a member of the staff of the Norwalk Hospital; died in the Westport, Conn., Sanitarium, January 13, from heart disease.

David Walter Welch, M.D. Hospital Medical College of Evansville, Ind., 1886; aged 67; a member of the Indiana State Medical Association; an ardent good-roads advocate of Posey County, Ind.; died at his home in Mt. Vernon, Ind., January 11, from pneumonia.

Alvin Scott Storey, M.D. Western Reserve University, Cleveland, 1902; aged 38; a Fellow of the American Medical Association; roentgenologist to the City and Lutheran hospitals, Cleveland; died at his home in that city, January 11, from pneumonia.

Gordon Percival Spencer, M.D. Bellevue Hospital Medical College, 1887; aged 56; a member of the Medical Society of the State of New York; died in his room in the Y. M. C. A. Building, Watertown, N. Y., January 6, from heart disease.

Elliott Calvin Smith, M.D. University of Buffalo, 1882; aged 56; a member of the Medical Society of the State of New York; for thirty-four years a resident of Corfu, N. Y.; and health officer of that place; died at his home, January 8.

Walter Louis Woerner, M.D. Hahnemann Medical College, Philadelphia, 1912; aged 25; of Lititz, Pa.; a specialist on diseases of the eye, ear, nose and throat; died in St. Joseph's Hospital, Lancaster, Pa., January 7, from pneumonia.

John Marshall Barkley, M.D. Rush Medical College, 1873; aged 72; a member of the Ohio State Medical Association; a veteran of the Civil War; local surgeon for the Big Four System at Riverside, Cincinnati; died at his home, January 6.

Charles N. Crawford, M.D. University of Louisville, 1884; aged 57; a member of the Kentucky State Medical Association; superintendent of the Milling Company of Lynn Grove and Murray, Ky.; died at his home in Lynn Grove, January 3.

Edwin Briggs Wheeler, M.D. Bellevue Hospital Medical College, 1873; aged 64; a Fellow of the American Medical Association; for more than forty years a practitioner of Philadelphia; died at his home in that city, January 11.

James Bailey Doan, M.D. Memphis Hospital Medical College, 1901; aged 37; a member of the Medical Association of the State of Alabama; formerly of Leighton, Ala.; died at Altus, Okla., in December, from an overdose of a drug.

Hal Hall, M.D. Barnes Medical College, St. Louis, 1899; aged 42; assistant surgeon to the Cook Hospital, Fairmont, W. Va.; died at his home in Fairmont, W. Va., January 3, from septicemia, the result of a carbuncle of the neck.

John Evan Jenkins, M.D. University of Southern California, Los Angeles, 1903; aged 36; a Fellow of the American Medical Association and a specialist in surgery; died at his home in Los Angeles, January 8, from gastric ulcer.

Marvin Lawrence Garvin, M.D. Hospital College of Medicine, Louisville, 1900; aged 37; of Horse Cave, Ky.; a member of the Kentucky State Medical Association; died recently after an operation for abscess of the liver.

Robert T. Neffner, M.D. Medical College of Ohio, Cincinnati, 1902; aged 37; a member of the Indiana State Medical Association; of Wiseburg, Ind.; was drowned while attempting to ford East Tanners Creek, January 11.

James Tweddale, M.D. Rush Medical College, 1869; aged 83; a Fellow of the American Medical Association and a widely known and honored practitioner of Woodford County, Ill.; died at his home in Washburn, January 8.

Abner H. Andrus, M.D. Starling Medical College, Columbus, O., 1886; aged 53; formerly of Gary, Ind., but for the last year a practitioner of Markesan, Wis.; died at his home in Markesan, January 10, from acute gastritis.

Mayes Smith Davis, M.D. Rush Medical College, 1882; Bellevue Hospital Medical College, 1896; aged 55; a member of the Medical Society of the State of Pennsylvania; died at his home in Pittsburgh, recently.

Edward Albert Louis Francois, M.D. Harvard Medical School, 1866; a veteran of the Civil War and for forty-three years a practitioner of Saugus, Mass.; died in the Soldiers' Home, Chelsea, Mass., January 11.

Judson D. Burns, M.D. Eclectic Medical Institute, Cincinnati, 1870; aged 67; a member of the insane commission of Grundy County, Ia.; died at his home in Grundy Center, Ia., about January 7, from pneumonia.

John R. Munford, M.D. College of Physicians and Surgeons, Chicago, 1889; aged 56; a Fellow of the American Medical Association; died at his home in Pittsburgh, about January 18, from pneumonia.

Leo Reyfowitz Nathan, M.D. New York University, New York City, 1889; aged 61; also a graduate of the College of Pharmacy of the City of New York; died at his home in New York City, January 10.

William Herman Kluge, M.D. University of Breslau, Germany, 1893; aged 42; died at his home in Indianapolis, January 5.

W. J. Williams, M.D. Atlanta (Ga.) Medical College, 1887; died at his home in Ellabell, Ga., January 2.

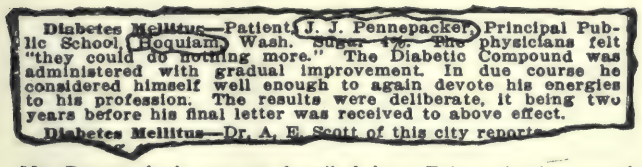
The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

FULTON'S COMPOUNDS

Nostrums for Bright's Disease and Diabetes

THE JOURNAL has just received a letter from Dr. J. B. Kinne of Aberdeen, Wash. With the letter was enclosed an advertising sheet ("Bulletin 31, November, 1915") sent out by the John J. Fulton Company of San Francisco which


Diabetes Mellitus—Patient, J. J. Pennepacker, Principal Public School, Hoquiam, Wash. Sugar 4%. The physicians felt "they could do nothing more." The Diabetic Compound was administered with gradual improvement. In due course he considered himself well enough to again devote his energies to his profession. The results were deliberate, it being two years before his final letter was received to above effect.

Diabetes Mellitus—Dr. A. E. Scott of this city reports—

Mr. Pennepacker's case as described in a Fulton circular recently received.

exploits two nostrums "Fulton's Renal Compound" and "Fulton's Diabetic Compound." Dr. Kinne's letter reads:

> *"To the Editor:*—In today's mail I received the enclosed 'Bulletin.' The first column of the last page begins with the account of the results of treatment of a patient in a nearby town. In the columns of one local paper today I cut the inclosed clipping telling about the amputation of this man's leg for diabetes.
>
> "About one year ago I attended a patient here who had spent a large amount of money with this concern who told me about the above 'cure,' but my patient died later. It seems a terrible thing that this kind of matter is permitted to go through the mails."

The case referred to by Dr. Kinne was that of a Mr. J. J. Pennepacker whose case was reported by the Fulton concern as an instance of "cure" due to the use of "Diabetic Compound." The clipping that the doctor enclosed together with the item from the Fulton advertising leaflet are reproduced on this page.

The Fulton nostrums have been briefly referred to before in these pages. On Jan. 18, 1913, THE JOURNAL said:

> "Fulton's Diabetic Compound has not been examined in the Association Laboratory, but the so-called Renal Compound, put out by the same concern, has been examined. The latter was found to consist of some herbs, which were not identified, alcohol 5 per cent. and water. No alkaloids were found and the presence of heavy metals, iodids, bromids or acids could not be demonstrated."

The concern itself makes a pretense of giving the formulas of its two preparations. The "Renal Compound" has been said to be:

> "A combination of the desirable principles of Triticum [Couch-grass or Quick-grass], Chimaphila ["Bitter wintergreen"], Spiræa [Meadow-sweet] and other herbal agents carrying small quantities of Sodii Boras [Borax] and Sodii Nitras [Chili saltpeter], both of the latter in less than half the physiological doses."

Elsewhere the formula has been given as:

> "A combination of Triticum, Pelosine and other similar herbal diuretics to which have been added a small quantity of Sodii Boras and Sodii Nitras, both of the latter in less than half the physiological doses."

The "Diabetic Compound" is alleged to be:

> "A combination of the desirable principles of Chimaphila ["Bitter wintergreen"], Eupatorium [Boneset] Taraxacum [Dandelion] and other herbal diuretics and correctives carrying small quantities of Sodii Boras [Borax] and Sodii Nitras [Chili saltpeter] both of the latter in less than half the physiological doses."

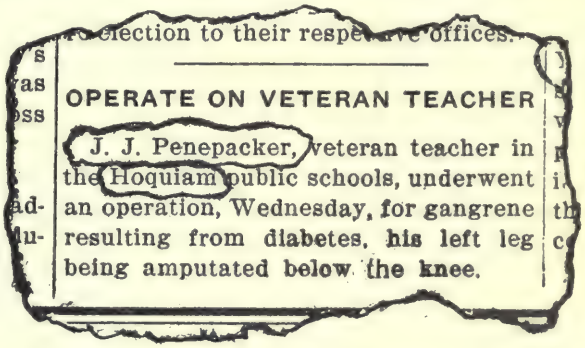
While this "information" fails to inform, it doubtless answers the purpose for which it is given. But whatever indefiniteness and ambiguousness characterize the statements regarding the composition of the nostrums is more than compensated for by the specific and positive claims made for their therapeutic action. To quote from the advertising:

> "Fulton's Renal Compound is the first progressive step in forty years in the treatment of kidney disease."
>
> "Call inflammation of the kidneys what you will, after it becomes chronic (which it commonly does in a few months) it is then incurable by anything known except Fulton's Renal Compound."
>
> "Bright's Disease and Diabetes are now positively curable in about 80 per cent. of all cases."
>
> "Fulton's Renal Compound is the only thing known that acts directly on the kidney tissues, reducing inflammation and thus reopening the tubules and kidney function."
>
> "Fulton's Renal Compound is the only specific in the known world for chronic Bright's Disease. . ."
>
> "John J. Fulton was the first man in the world to reach the kidneys with an emollient."
>
> "Diabetes is rated the world over as incurable but recoveries are being reported daily through Fulton's Diabetic Compound."

Some time after the short article appeared in THE JOURNAL on the Fulton Compounds, the Propaganda Department started to investigate some of the alleged cures. Experience has shown that it is useless to expect to get accurate information regarding individuals who have recently written testimonials for any "patent medicines." It becomes necessary, especially in such diseases as are not quickly fatal, to allow some time to elapse before investigating the cases. For this reason a few of the old testimonials in our files were resurrected and letters were written to get what facts were available. Press of other matter prevented this particular investigation being followed up, although some material was collected and this we now give so as to make it a matter of record.

It should be understood that the quotations that are about to be given from the Fulton "literature" appeared in circulars issued between 1907 and 1911. Our investigation was commenced in the latter part of 1913.

CASE 1.—According to a Fulton advertising leaflet issued in 1908, W. H. Bell, a druggist of Live Oak, Fla., wrote the company in 1907 that "last June I was surprised to find my feet and legs swollen." Mr. Bell claimed he went to a physician who "found 50 per cent. of albumen and pronounced it Bright's disease." According to the Fulton leaflet he "con-


election to their respective offices.

OPERATE ON VETERAN TEACHER

J. J. Penepacker, veteran teacher in the Hoquiam public schools, underwent an operation, Wednesday, for gangrene resulting from diabetes, his left leg being amputated below the knee.

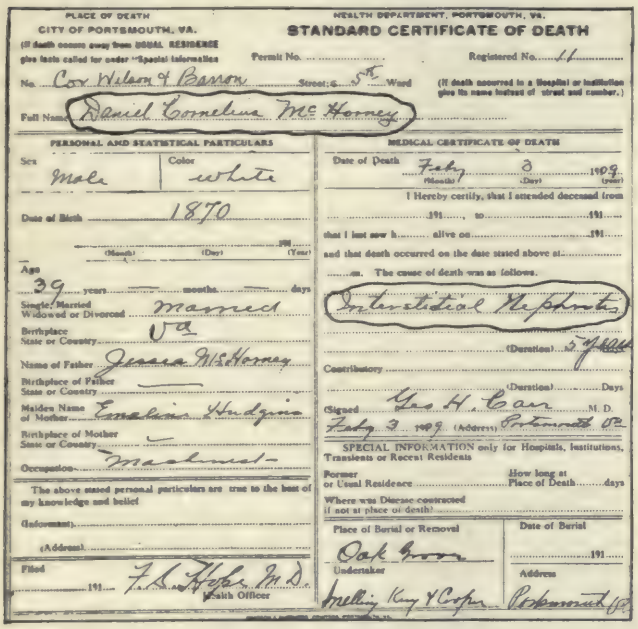
Mr. Pennepacker's case as described in the Aberdeen (Wash.) *Herald*, Jan. 14, 1916.

tinued to get worse" and "bloated" until he "could not lie down." About this time Mr. Bell "met a drummer by the name of Levi" who told him of Fulton's Compound. As a result Mr. Bell began to take the compound. In October, 1907, Mr. Bell again wrote the Fulton people: "I am 100 per cent. better than when I began. Am now on my 27th bottle." In commenting on this case the Fulton Company said: "How can people doubt the curability of chronic kidney disease in view of the constant stream of testimony we are presenting. Little wonder that Druggest Bell is now one of our valued and active agents."

Mr. Bell died of Bright's disease in June, 1908.

CASE 2.—Mr. D. C. McHorney of Portsmouth, Va., according to the Fulton advertising, "had been a sufferer for years with Bright's disease." Although he had been treated by physicians, one being "one of the most noted doctors in

Norfolk," he was not helped. In fact, "the last physician said that he could do nothing in my case, but said that I might linger a while longer." In April, 1907, Mr. McHorney began taking Fulton's Compound and in his letter written in September, 1907, and published by the Fulton Company he says that through the use of Fulton's Compound "and God's help"



PLACE OF DEATH
CITY OF PORTSMOUTH, VA.
(If death occurs away from USUAL RESIDENCE give facts called for under "Special Information")

HEALTH DEPARTMENT, PORTSMOUTH, VA.
STANDARD CERTIFICATE OF DEATH

Permit No. ... Registered No. 11

No. Cor Wilson & Barron Street: 5th Ward (If death occurred in a Hospital or Institution give its name instead of street and number.)

Full Name Daniel Cornelius McHorney

PERSONAL AND STATISTICAL PARTICULARS

Sex: Male | Color: White

Date of Birth: 1870 (Month) (Day) (Year)

Age: 39 years ... months ... days

Single, Married, Widowed or Divorced: Married

Birthplace (State or Country): Va

Name of Father: Jessie McHorney

Birthplace of Father (State or Country): —

Maiden Name of Mother: Emaline Hudgins

Birthplace of Mother (State or Country): —

Occupation: Machinist

The above stated personal particulars are true to the best of my knowledge and belief

(Informant) ...

(Address) ...

Filed ... 191... F. S. Hofer, M. D. Health Officer

MEDICAL CERTIFICATE OF DEATH

Date of Death: Feby 3 (Month) (Day) 1909 (Year)

I Hereby certify, that I attended deceased from ... 191... to ... 191...

that I last saw h... alive on ... 191...

and that death occurred on the date stated above at ... m. The cause of death was as follows.

Interstitial Nephritis (Duration) 5 years

Contributory ... (Duration) ... Days

Signed Geo H. Carr M. D.

Feby 3 1909 (Address) Portsmouth Va

SPECIAL INFORMATION only for Hospitals, Institutions, Transients or Recent Residents

Former or Usual Residence ... How long at Place of Death ... days

Where was Disease contracted (if not at place of death) ...

Place of Burial or Removal: Oak Grove

Date of Burial: ... 191...

Undertaker: Wellig Kay & Cooper

Address: Portsmouth Va

Miniature reproduction of the death certificate of D. C. McHorney. The Fulton Company referred to Mr. McHorney's case as a "nice recovery" from Bright's disease. (See Case 2 in the article.)

he is "a living man today." Continuing, he says: "I am like a new man. I am able to work every day, the pains have gone, my eyes are all right, I sleep soundly and have gone back to my natural size." The Fulton Company in publishing Mr. McHorney's testimonial commented: "Wonder if our esteemed Portsmouth agent, J. P. Carr, knows about this nice recovery to which he contributed."

The testimonial was circulated in 1908; Mr. McHorney's death certificate states that on Feb. 3, 1909, he died of "interstitial nephritis."

CASE 3.—In various Fulton publications the testimonial was given of W. R. Marquis of Bartow, Fla. According to these, Mr. Marquis had chronic Bright's disease and his case was "surely a hard one." Further, he had been given up by his physician and was in a deplorable condition, being unable to lie in bed, stand on his feet or walk. "This condition," according to the Fulton concern, "frequently develops in extreme cases of this disease and up to the discovery of this Compound it was absolutely hopeless." When Mr. Marquis' case "seemed most hopeless" he heard of Fulton's Compound and began taking it. After the fourth bottle "he began to get better." In June, 1907, he stated that he was "almost entirely well" and added: "I am candid in the belief that Fulton's Renal Compound is the only remedy in the world that could have saved me."

Mr. Marquis' testimonial was circulated in the Fulton "literature" during the period 1908-1912; Mr. Marquis died in July, 1912.

CASE 4.—Mort Gattrell of Ukiah, Calif., according to the Fulton concern, had diabetes. Fulton's Diabetic Compound was recommended and Mr. Gattrell took it. Later he is alleged to have written to the company saying he had taken "about 40 bottles" of the compound and: "I feel now that I am about well." Another Fulton circular reported: "Gattrell is well." The latest report on Mr. Gattrell apparently appeared in the Fulton "literature" in 1908 under the title: "A Pleasing Incident."

Mr. Gattrell died Nov. 12, 1909; his death certificate gives as the cause of death: "Uremic poisoning from chronic diabetes."

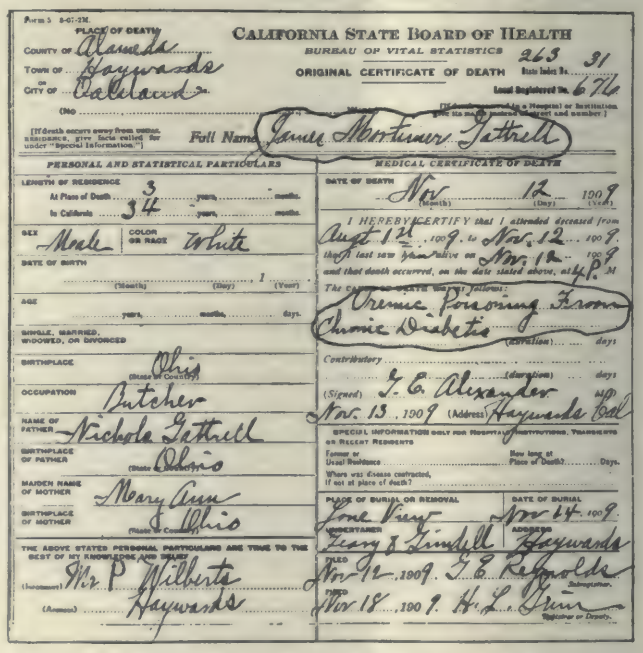
CASE 5.—If one is to believe the Fulton advertising—which is not to be advised—when Edward Zimmerman of Belle Plaine, Iowa, started on Fulton's Compound "he was in such a bad way that his physician said he would not live two weeks, and told his friends to watch him closely as he was liable to drop dead." After Zimmerman had taken thirty-one bottles of the compound he was, according to the letter published by the Fulton Company, so improved that he was "nearly ready to go to work" and was willing to have the company "refer any one to him."

Edward Zimmerman died Jan. 5, 1911; cause of death, according to the death certificate: "Diabetes Mellitus."

CASE 6.—Under the heading "This Work is Glorious" the Fulton Company describes the case of Arthur McIntyre of Flint, Mich. Mr. McIntyre, the public was advised, "was so bad with Bright's disease his friends gave up all hopes. He was put on the Renal Compound and is today well and in business." This statement appeared in a Fulton bulletin published about 1908.

A physician in Flint who knew of Mr. McIntyre's case, and wrote to us in January, 1914, said: "There was a Mr. McIntyre in Flint, Mich., who had Bright's disease and took many bottles of Fulton's Compound. Mr. McIntyre died three years ago."

In addition to the cases just described there were others the histories of which, while not so tragic, were equally damaging to the claims of the Fulton concern. For instance, there was the alleged case of Mr. S. of Iowa who despaired of ever getting well of Bright's disease but who after taking the "Renal Compound" is said to have "recovered completely." This was in 1908 or earlier. But investigation



Form 3 8-07-25M.

PLACE OF DEATH
COUNTY OF Alameda
TOWN OF Hayward
OR CITY OF Oakland
(No) ...
[If death occurs away from usual RESIDENCE, give facts called for under "Special Information."]

CALIFORNIA STATE BOARD OF HEALTH
BUREAU OF VITAL STATISTICS
ORIGINAL CERTIFICATE OF DEATH
263 31
Local Registered No. 676

Full Name James Mortimer Gattrell

PERSONAL AND STATISTICAL PARTICULARS

LENGTH OF RESIDENCE: At Place of Death 3 years ... months. In California 34 years ... months.

SEX: Male | COLOR OR RACE: White

DATE OF BIRTH: ... (Month) (Day) 1 (Year)

AGE: ... years ... months ... days.

SINGLE, MARRIED, WIDOWED, OR DIVORCED: ...

BIRTHPLACE: Ohio (State or Country)

OCCUPATION: Butcher

NAME OF FATHER: Nicholas Gattrell

BIRTHPLACE OF FATHER: Ohio (State or Country)

MAIDEN NAME OF MOTHER: Mary Ann ...

BIRTHPLACE OF MOTHER: Ohio (State or Country)

THE ABOVE STATED PERSONAL PARTICULARS ARE TRUE TO THE BEST OF MY KNOWLEDGE AND BELIEF

(Informant) Mr P Wilberts

(Address) Haywards

MEDICAL CERTIFICATE OF DEATH

DATE OF DEATH: Nov (Month) 12 (Day) 1909 (Year)

I HEREBY CERTIFY that I attended deceased from Aug 12 1909 to Nov 12 1909 that I last saw him alive on Nov 12 1909 and that death occurred, on the date stated above, at 4 P. M.

The CAUSE OF DEATH was as follows:

Uremic Poisoning From Chronic Diabetes (Duration) ... days

Contributory ... (Duration) ... days

(Signed) J. E. Alexander M.D.

Nov 13 1909 (Address) Haywards Cal

SPECIAL INFORMATION ONLY FOR HOSPITAL INSTITUTIONS, TRANSIENTS OR RECENT RESIDENTS

Former or Usual Residence ... How long at Place of Death? ... Days.

Where was disease contracted, if not at place of death? ...

PLACE OF BURIAL OR REMOVAL: Pine View

DATE OF BURIAL: Nov 14 1909

UNDERTAKER: Perry & Tindell

ADDRESS: Haywards

FILED Nov 12 1909 J. E. Reynolds Registrar

FILED Nov 18 1909 H. L. ... Registrar or Deputy

Miniature reproduction of the death certificate of "Mort" (James Mortimer) Gattrell. A Fulton circular reported that after taking Fulton's Diabetic Compound "Gattrell is well." (See Case 4 in the article.)

showed that during the year 1913 Mr. S. was under treatment for Bright's disease.

Then there was the case of Mrs. P. of Florida, who according to the Fulton circular, was so ill with Bright's disease that she "could not turn over in bed." Use of the "compound" is alleged to have enabled her to do her own work again and get out to church. Investigation elicited the state-

ment from Mrs. P.'s family physician that the lady never had Bright's disease.

The case of Mr. D. of Oregon was described in the 1908 Fulton leaflets. D. had diabetes and was "almost in" but took thirty bottles of Fulton's Compound with the result—alleged—that he was "feeling fine." A physician in the town in which Mr. D. lived informs us that he does not believe the man ever recovered from the disease. Certain it is he died in 1912 of pulmonary tuberculosis, a common sequel to diabetes.

Mr. W. of Illinois suffered, according to a 1908 Fulton bulletin, from what "specialists" had called Bright's disease. After taking one dozen bottles of the Compound he was reported as "almost cured." A physician who knew of W.'s case wrote in October, 1913, that Mr. W. never had Bright's disease, but that he had "been troubled at times with a backache" and was "still the same."

In 1908 Mr. C. wrote to the Fulton Company which promptly published the letter. He was taking the "Renal Compound" he wrote, and was convinced that it would "effect a cure." The facts are Mr. C., about this time, went to a physician who made a thorough examination of his case. The doctor wrote us that C. had no symptoms of Bright's disease and, when advised of that fact, "seemed really disappointed."

The case of Rev. B. of Ohio was brought to the attention of the public in the Fulton bulletin in 1907. A druggist wrote urging those who wished to hear from a person who had "received great benefit" to write to Rev. B. The physician to whom we wrote in 1913 replied that Rev. B. died suddenly of "heart disease" in 1912. The doctor added "he did not have Bright's disease."

Mr. W. of Texas, whose letter was published in 1907 by the Fulton Company, claimed the doctor had told him he had Bright's disease and he was in bed four months. Then he sent for a dozen bottles of "Fulton's Compound" and after taking these, and two dozen more, declared he was "pronounced sound" and "in fine health." The physician to whom we wrote in 1913 declared that Mr. W. had an acute nephritis from which he recovered *before* he began taking Fulton's Compound—about the time he became an agent for the preparation.

In short, the investigation, incomplete though it was, revealed just what might have been expected. The diabetic frequently drags along for years—especially if he is at all careful in his manner of living, and he is likely to be. The fluctuations of the disease make it a fertile field for the quack and the "patent medicine" maker. Chronic kidney disease offers similar attractions to those who prey on the sick. Nothing is much easier to get than testimonials in such cases—testimonials whose genuineness is as unimpeachable as their value is negligible.

On a foundation of misrepresentation, fraud and deceit is reared the stupendous superstructure of the "patent medicine" business—a trade whose millions corrupt legislatures, prostitute no small portion of the press and are a standing menace to the public health. Some day an enlightened public opinion will demand the destruction of this evil—and the dawn of that day is not far off.

STATE OF IOWA—Department of Vital Statistics

CERTIFICATE OF DEATH

1. County of Benton
2. Township
3. City or Town of Belle Plaine St.: Ward
4. FULL NAME Edward Zimmerman
5. SEX Male
6. COLOR White
7. DATE OF BIRTH Oct. (Month) 1 (Day) 1862 (Year)
8. Age 48 Years 3 Months 5 Days
9. SINGLE, MARRIED, WIDOWED OR DIVORCED Married
10. BIRTHPLACE (State or Country) Pa.
11. NAME OF FATHER Daniel Zimmerman
12. BIRTHPLACE OF FATHER (State or Country) Pa.
13. MAIDEN NAME OF MOTHER Mariann Bunts
14. BIRTHPLACE OF MOTHER (State or Country) Pa.
15. OCCUPATION R. R. Engineer

The above stated personal particulars are true to the best of my knowledge and belief.

16. Informant Mrs. E. Zimmerman
(Address) Belle Plaine, Ia.

17. DATE OF DEATH Jan. (Month) 5 (Day) 1911 (Year)

I HEREBY CERTIFY, That I attended deceased from July 1, 1910 to Jan.5,1911 that I last saw him alive on Jan.5,1911 and that death occurred, on the date stated above, at 9 o'clock P. M.

18. The CAUSE OF DEATH was as follows: Diabetes Mellitus. Disease extended over a period of about 5 years.

(Duration) Days
Contributory
(Duration) Days

19. (Signed) Jac. A. Williams M. D
Jan.10,1911 20. (Address) Belle Plaine, Ia.

21. SPECIAL INFORMATION only for Hospitals, Institutions, Transients or Recent Residents.
Former or Usual Residence How long at Place of Death Days
Where was disease contracted, if not at place of death?

22. PLACE of BURIAL or REMOVAL Oak Hill Cemetery
23. Date of Burial Jan.8,1911
24. UNDERTAKER Louis Grossman
25. ADDRESS Belle Plaine, Ia.

CERTIFIED COPY OF CERTIFICATE OF DEATH

I HEREBY CERTIFY that I am Secretary of the Iowa State Board of Health and as such Secretary an State Registrar of Vital Statistics. I further certify that as said Registrar I am the legal recipient of the original certificate of death returned under Chapter 100, Laws of the Thirty-first General Assembly.

I further certify that the foregoing certificate of death of Edward Zimmerman is a true and correct copy of the original on file in this office.

Witness my hand and seal hereunto attached this 24th day of April 1914.

Signed Clifford A. Sumner Registrar.

(SEAL) By Pauline Mueller Assistant State Registrar.

Miniature reproduction of the death certificate of Edward Zimmerman (Case 5 in the article). Mr. Zimmerman's case was advertised in the Fulton bulletin. We have been unable to find any reference in the Fulton advertising to the outcome of the Zimmerman case.

Correspondence

The "Autolysin" Advertising

To the Editor:—Enclosed is a little booklet I received today from the Goodhue Publishing Co., of New York, exploiting the Horowitz-Beebe cure-all for cancer, which, were it not for certain obvious serious features, would make humorous reading.

What psychologic explanation can be made of the fact that there are always sufficient numbers of suckers to make such pseudoscientific adventures profitable?

H. C. DODGE, M.D., Steamboat Springs, Colo.

To the Editor:—In my professional life I have been flooded with the usual number of insults to intelligence both by mail and by the softspoken detail man. As a result, I have no doubt, of the active propaganda for reform carried on by THE JOURNAL, these insults have lost a certain quality of "rawness" and become much more cleverly done.

One of these has just been perpetrated on the profession which will probably hold the championship pennant for 1916, although I admit that it is early in the year to begin prophecy. A very modestly bound, well printed volume comes to my desk with the compliments of the publishers. At the end of the volume is a group of highly ethical advertisements of other books of the author. So far so good. The last four pages, however, contain the advertisement of a forthcoming book on the "autolysin" treatof inoperable cancer. Perhaps we might forgive this were it not for the following paragraph: "This book tells how the general practitioner . . . may take an active hand in fighting the malady. The weapons he requires are an ordinary hypodermic syringe and some ampules of Autolysin. The syringe he already possesses. Autolysin he may secure, if he is a legally qualified practitioner, by writing," etc. Incidentally the book is advertised to the Intelligent Layman.

Isn't it beautiful? Too bad the lamented F. F. F. with his mock turtles or those prominent eugenists of scopolaminmorphin fame could not take a lesson in advertising. It was not very long ago that we were invited to come East and learn how to use "autolysin," or else pay the rather heavy fee for an imported tutor. Now all we need is a "gun" and some of the "dope." All this is interesting in view of the recent article on the failure of "autolysin" in mouse tumor. It is a foregone conclusion that a lot of "autolysin" will be used, so cancer patients, who have been told that they have cancer, will get better through suggestion, and a lot of enthusiastic reports will pour in from medical brethren who have never studied psychology. Then the thing will slump and we shall all be ready for the next fad.

Nevertheless, each one of these things furnishes us with a text for another sermon on ethics of medical advertising, so I suppose they do not live in vain.

J. W. FORCE, M.D., Berkeley, Calif.
Assistant Professor of Epidemiology, University of California.

[COMMENT.—With each of the foregoing communications is a circular letter from the Goodhue Company, advertising Dr. Henry Smith Williams' book on "The Autolysin Treatment of Cancer." With this circular is a booklet entitled "Notes on the Treatment of Inoperable Cancer with the New Remedy AUTOLYSIN (Horowitz-Beebe) Issued by the Autolysin Laboratory." Similar circular letters and pamphlets have been sent to THE JOURNAL from various parts of the country. The Goodhue Company, publishers, therefore are apparently killing two birds with one stone—advertising the book as well as "autolysin."

THE JOURNAL has been informed that Henry Smith Williams in some of his magazine articles uses the pen name "Stoddard Goodhue," and that Henry Smith Williams is a part owner of the Goodhue Publishing Company.

Articles on "autolysin" will be found in THE JOURNAL, Nov. 6, 1915, pp. 1641, 1647 and 1662. The article on "Action of 'Autolysin' on Mouse Tumors," by Dr. Francis Carter Wood, appeared in THE JOURNAL, Jan. 8, 1916.—ED.]

Nitrous Oxid Versus Ether

To the Editor:—It was with much interest that I read Dr. A. R. Warner's article (THE JOURNAL, Dec. 4, 1915, p. 1973) and the letter of Dr. A. S. McCormick (Jan. 1, 1916, p. 49) commenting on the same. Both writers seem to regard it of considerable importance that a patient should not vomit while in transit from the operating table to the bed. I fail to see why such vomiting is harmful or disgraceful or anything more than a mild nuisance, provided a reasonably intelligent attendant is at the patient's head, armed with an emesis basin and ready to render such services as may be necessary.

We cannot get away from the fact that, with ether patients, more or less vomiting is sure to take place in a large percentage of cases. In these cases I have always held that, other things being equal, the sooner the patient vomits after the operation is over, the better. For, if we add an extra quantity of ether in order to postpone the inevitable for five or ten minutes, we are deliberately prolonging the anesthesia merely for the sake of appearances and the comfort of those whose office it is to convey the patient to his bed.

As regards nitrous oxid-oxygen anesthesias, vomiting takes place, according to my experience, in a proportion of cases by no means insignificant, even when the anesthesia has been satisfactory and no ether has been required. These patients, however, do not vomit, as a rule, in the hallways or on the elevators. Instead, they vomit on the operating table immediately after the withdrawal of the anesthetic.

WILLIAM L. SOULE, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

URINARY TESTS—ACIDOSIS AND ITS TREATMENT

To the Editor:—1. What are the tests for diacetic acid, acetone and indican in the urine?

2. What is the difference between acidosis and acidemia?

3. What is the treatment for these conditions?

F. W. LINN, M.D., Cleveland.

ANSWER.—1. Tests for diacetic acid, acetone and indican in the urine appear in practically all textbooks on clinical diagnosis or laboratory methods. Any of the following books may be consulted:

Emerson: Clinical Diagnosis, Philadelphia, J. B. Lippincott Company, $5.
Webster: Diagnostic Methods, Philadelphia, P. Blakiston's Son & Co., $4.50.
Sahli: Diagnostic Methods, Philadelphia, W. B. Saunders Company, $6.50.
Simon: Clinical Diagnosis, Philadelphia, Lea & Febiger, $5.

2. The term "acidemia" occurs occasionally, but has no standing. Acidity of a fluid depends on the concentration of free hydrogen ions in it. Normal arterial blood contains about the same number of free H ions as distilled water. When an amount of acid, as carbonic or fatty acid, enters the blood, it does not increase the number of free H ions in the blood by the same number as it contains itself in isolated form, and hence does not give rise to a degree of acidity of the blood corresponding to its own acidity. The blood has the property of resisting influences that tend to change its reaction, but of course this resistance is limited, and its range is narrowed whenever acids enter the blood. When a small amount of acid enters the blood, there is only a very slight increase in the concentration of free H ions, but the amount of acid now required to produce a real acidity would be less than before. The removal of this condition depends on the activity of the excretory organs; but if the condition is not sufficiently countered and persists, it is known as acidosis. If the amount of acid added to the blood is so great that the limit of resistance to change to acidity is passed, the H ion concentration would be greatly raised, but the fluid would no longer be blood in a physiologic sense. The term "acidemia," therefore, should not be used, because it seems to imply an acidity of the blood such as cannot obtain in a living animal. Acidosis was the subject of a symposium before the New York Academy of Medicine, abstracted THE JOURNAL, Jan. 8, 1916, p. 143.

Tests of the acidity of the urine may be used to detect acidosis. Palmer and Hendersen (*Arch. Int. Med.*, August, 1913, p. 153) say that "a condition of acidosis may be assumed to exist when the administration of a quantity of alkali equivalent to 1 liter of tenth-normal alkali fails to produce a diminution in the acidity of the urine."

3. The treatment of acidosis has been previously considered under the heading of Therapeutics, THE JOURNAL, Oct. 10, 1914, p. 1296, and Queries and Minor Notes, March 25, 1911, p. 917. A more recent discussion appears in this issue of THE JOURNAL under the heading of Therapeutics. The treatment recommended for acidosis is naturally the administration of large doses of alkali, according to the reaction of the urine tested on a specimen taken from six to eight hours after administration of the alkali. The method of Fischer consists in giving a hypertonic solution (sodium chlorid, 14 gm., sodium carbonate, 10 gm., and water 1,000 c.c.) by rectum by the drop method in doses of 500 c.c. at a time, twice a day. If the patient shows symptoms of impending uremia, 1,000 c.c. may be given by rectum or even intravenously.

THE COMPARATIVE VALUE OF STRONTIUM BROMID AND OTHER BROMIDS

To the Editor:—Kindly ask the author of the article on "Epilepsy," THE JOURNAL, January 8, to explain lines 42 to 45, p. 116, second column. It seems to be a case of "concise writing" as mentioned on page 136.

J. L. TRACY, M.D., Toledo, Ohio.

ANSWER.—The lines to which our correspondent refers read:

However, dose for dose, less strontium bromid is active than sodium bromid or potassium bromid.

The lines should have read:

However, dose for dose, strontium bromid is less active than sodium bromid or potassium bromid.

The reason for this is readily seen by comparing the molecular weights of the official bromids of sodium, potassium and strontium ($NaBr = 102.92$; $KBr = 119.02$; $SrBr_2 + 6H_2O = 355.57$). Sodium bromid contains about 77 per cent. of bromin, and potassium bromid contains about 67 per cent.; since the official strontium bromid contains only about 45 per cent. of bromin—about two-thirds as much bromin as that contained in potassium bromid and about three-fifths as much as that contained in sodium bromid—it might be expected that the bromin action from the strontium bromid would be much less than that from either of the other two salts. That the strontium salt of salicylic acid has no advantages over the sodium salt was pointed out in the report of the Council on Pharmacy and Chemistry on Rheumalgine (THE JOURNAL, June 26, 1915, p. 2156). This is confirmed by an article by M. A. Blankenhorn on strontium salicylate which appears in THE JOURNAL, this issue, p. 331.

The Antivaccinationists.—Jenner lived ahead of his day, but we are rapidly returning to ante-Jenner days.—*Buffalo Sanitary Bulletin.*

Medical Education and State Boards of Registration

COMING EXAMINATIONS

FLORIDA: Homeopathic, Jacksonville, March 10. Sec., Dr. J. B. Griffin, St. Augustine.

IOWA: Des Moines, Feb. 8-10. Sec., Dr. G. H. Sumner, State House, Des Moines.

KANSAS: Topeka, Feb. 8. Sec., Dr. H. A. Dykes, Lebanon.

VERMONT: Montpelier, Feb. 8-11. Sec., Dr. W. Scott Nay, Underhill.

Georgia October Report

Dr. C. T. Nolan, secretary of the State Board of Medical Examiners of Georgia, reports the written examination held at Atlanta, Oct. 12, 1915. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 80. The total number of candidates examined was 27, of whom 14 passed and 13 failed. Eight candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Birmingham Medical College	(1914) 80, 80;	(1915)	81.1
Howard University		(1915)	82.3
Bennett Medical College	(1914) 86.6;	(1915)	86.9
University of Louisville		(1915)	83.6
Johns Hopkins University	(1914) 89.7;	(1915)	89.5
Jefferson Medical College		(1915)	90
University of Pennsylvania		(1915)	87.4
Meharry Medical College	(1914) 80, 83;	(1915)	80
FAILED			
Birmingham Medical College	(1915)	71, 73.1,	74.5
Atlanta Medical College	(1915)	78.2,	78.6
Atlanta School of Medicine	(1909)		72.7
Chicago College of Medicine and Surgery	(1915)		65.7
Meharry Medical College	(1908) 73; (1912) 75.2;	(1915)	76.9, 77.2
Knoxville Medical College	(1908)		71.8
Vanderbilt University	(1915)		78.5

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Howard University		(1909)	W. Virginia
American Medical Missionary College		(1899)	Tennessee
Hospital College of Medicine, Richmond		(1905)	Kentucky
University of Louisville		(1915)	Kentucky
Columbia University, College of Phys. and Surgs.		(1904)	New Jersey
Woman's Medical College of Pennsylvania		(1909)	Penna.
Meharry Medical College		(1909)	Tennessee
Vanderbilt University		(1915)	Arkansas

Iowa Reciprocity Report

Dr. Guilford H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports that 22 candidates were licensed through reciprocity, from January to October, 1915. The following colleges were represented:

College	Year Grad.	Reciprocity with
University of Colorado	(1911)	Colorado
University of Georgia	(1911)	Georgia
Chicago College of Medicine and Surgery	(1914)	Missouri
Northwestern University	(1908)	Michigan
Rush Medical College	(1876)	Missouri
Medical College of Indiana	(1881)	Nebraska
Detroit College of Medicine	(1911)	Michigan
University of Michigan, Medical School	(1914)	Michigan
Minneapolis College of Physicians and Surgeons	(1906)	Minnesota
Barnes Medical College	(1897)	Missouri
St. Louis University	(1905)	Missouri
Washington University	(1912)	Missouri
John A. Creighton Med. Coll. (1911, 2) (1912, 2)	(1913, 2)	Nebraska
University of Buffalo	(1899)	Penna.
Medico-Chirurgical College of Philadelphia	(1898)	Penna.
Marquette University	(1914, 2)	Wisconsin

Minnesota October Report

Dr. Thomas S. McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the oral, practical and written examination held at Minneapolis, October 5-8, 1915. The total number of subjects examined in was 16; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 11, of whom 9 passed and 2 failed. Twelve candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College	(1915)	86, 86	
Fort Wayne College of Medicine	(1898)		80
University of Louisville	(1909)		75
Harvard University	(1902) 84;	(1915)	86
University of Minnesota	(1916)	87,*	93*
Western University, London, Ont.	(1915)		77
FAILED			
Chicago College of Medicine and Surgery	(1915)		75†
Hamline University	(1904)		73

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago	(1903)		S. Dakota
Northwestern University	(1913)		Illinois
Rush Medical College	(1908)	(1913)	Illinois
University of Illinois	(1914)		Illinois
State University of Iowa, College of Medicine	(1915)		Iowa
Tulane University of Louisiana	(1906)		Louisiana
Johns Hopkins University	(1914)		Missouri
University of Maryland	(1911)		Maryland
Washington University	(1911)		Missouri
University of Nebraska	(1914)		Nebraska
University College of Medicine, Richmond	(1907)		N. Carolina

* These candidates did not complete their work with the class of 1915. They have now completed the work of the curriculum and will be recommended for their degrees at the next meeting of the administrative board.

† Fell below the required average in three subjects.

Oklahoma October Report

Dr. R. V. Smith, secretary of the Oklahoma State Board of Medical Examiners, reports the oral and written examination held at Oklahoma City, Oct. 12-13, 1915. The total number of subjects examined in was 11; total number of questions asked, 100; percentage required to pass, 70. The total number of candidates examined was 15, including 1 osteopath, all of whom passed. Eighteen candidates, including 2 osteopaths, were licensed through reciprocity. Four candidates, including 1 nongraduate, were granted reregistration licenses. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Arkansas	(1912) 73;	(1913)	78
University of Louisville		(1909)	85
Tulane University of Louisiana		(1907)	86
Baltimore Medical College		(1903)	85
Johns Hopkins University		(1912)	87
Detroit College of Medicine and Surgery		(1915)	86
University Medical College, Kansas City		(1912)	81
University of Oklahoma		(1915)	81, 87
Jefferson Medical College		(1909)	90
University of Tennessee	(1914) 75;	(1915)	82, 85

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Arkansas Industrial University		(1898)	Arkansas
University of Arkansas		(1911)	Arkansas
University of Kansas		(1913, 2)	Kansas
Kentucky School of Medicine		(1905)	Kentucky
Tulane University of Louisiana		(1908)	Texas
St. Louis College of Physicians and Surgeons		(1910)	New Mexico
St. Louis University		(1906)	Kansas
Omaha Medical College		(1901)	Nebraska
Eclectic Medical College, Cincinnati		(1894)	Kansas
Pulte Medical College		(1880)	Nebraska
University of Nashville		(1909)	Tennessee
University of Tennessee		(1909)	Tennessee
Vanderbilt University		(1914)	Tennessee
Fort Worth School of Medicine		(1909) (1912)	Texas

Rhode Island October Report

Dr. Gardner T. Swarts, secretary of the Rhode Island State Board of Health, reports the practical and written examination held at Providence, Oct. 7-8, 1915. The total number of subjects examined in was 7; total number of questions asked, 60; percentage required to pass 80. The total number of candidates examined was 18, of whom 15 passed and 3 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University	(1914) 93.5;	(1915)	87.5
College of Phys. and Surgs., Baltimore	(1914) 80.1;	(1915) 88.1,	88.7
Harvard Univ.	(1913) 82.2; (1914) 87.5, 90.2;	(1915) 84.9,	85, 91
Tufts Coll. Med. School	(1908) 81.8;	(1914) 89.2; (1915) 83.7,	84.4
FAILED			
Jefferson Medical College	(1912) 77.3;	(1914)	78.3
Medico-Chirurgical College of Philadelphia		(1915)	77.9

Book Notices

THE PHYSIOLOGY OF THE AMINO ACIDS. By Frank P. Underhill, Ph.D., Professor of Pathological Chemistry, Yale University. Cloth. Price, $1.35 net. Pp. 169, with illustrations. New Haven: Yale University Press, 1915.

In this handy little volume, Underhill reviews the great progress which has been made in our knowledge of biology, and especially in the physiology of nutrition, through the disclosure of the composition of the protein molecule as a complex of amino acids. As the knowledge thus gained is fundamental to any grasp of the problems of digestion and metabolism in health and disease, and as this information has been obtained so recently that it was not included in the education of most practicing physicians, the presentation of so compact and clear a summarization of the subject is a most commendable enterprise. The author has evidently written with the needs of the progressive practitioner and student foremost in his mind, and has provided a statement that should be readily understood by them.

After a brief description of the composition of the proteins and amino acids, there are discussions of their behavior in digestion, absorption and intermediary metabolism. A final chapter gives the essential facts of the rôle of the several amino acids in nutrition, especially as disclosed by the important investigations of Osborne and Mendel.

The work is exceptionally readable, and there is a noticeable simplicity and lucidity that add much to its value for the use of practitioners not specially trained in biologic chemistry. Only the most essential work is, of course, covered in so small a volume. We notice no important omissions. Criticism may be directed to the importance ascribed to Abderhalden's detection of free amino acids in drawn blood and the omission of reference to the previous and much more valuable demonstration of amino acids in circulating blood by Abel, but this is a minor matter. Every physician who wishes to keep abreast with this important development in physiology should take advantage of the opportunity offered by Underhill to obtain the necessary information in so concise, inexpensive and readable a treatise.

CONTRIBUTIONS TO PRACTICAL PHYSIOLOGY AND PHARMACOLOGY. By Charles Claude Guthrie, Professor of Physiology and Pharmacology, University of Pittsburgh Medical School. Paper. Gratis. Pp. 71, with 74 illustrations.

The author urges that students of physiology be provided with apparatus in order that their minds may not be distracted from the physiologic phenomena to be revealed by their experiments. He has devoted thought and ingenuity to improvements in apparatus, and in this brochure laudably offers the fruits of his efforts to others. There are diagrams, illustrations and descriptions of several devices that have stood the test of hard usage; they are clever and should furnish valuable hints to other laboratory teachers. In some cases, however, there is hardly enough detail given to enable one to reproduce the apparatus readily, and in any case an accurate mechanic and well appointed machine shop must be available.

QUANTITATIVE LAWS IN BIOLOGICAL CHEMISTRY. By Svante Arrhenius, Ph.D., M.D., LL.D., Director of the Nobel Institute of Physical Chemistry. Cloth. Price, 6 shillings net. Pp. 164. London: G. Bell & Sons, 1915.

In 1907, Arrhenius published his book on immunochemistry, which discussed the application of the laws of physical chemistry to the processes of immunity and enzyme activity and related phenomena. Coming from the great pioneer in physical chemistry, the work attracted much attention from those engaged in investigations in immunology and in physical chemistry; but, judged by the standard of its influence on the subsequent development of these sciences, it seems to have had little effect. For the most part, the immunologists seemed to feel that the methods available for quantitative measurements of immunity reactions are far too inexact to give results suitable for the deduction of physicochemical laws. Certain it is that the entrance of Arrhenius into this field has not resulted in the expected recruiting of many other workers along similar lines.

His latest book treats of much the same subjects as the immunochemistry, and is based on the Tyndall lectures given by him in 1914. He asserts the need for the development of this side of biologic chemistry, saying: "I am convinced that biologic chemistry cannot develop into a real science without the aid of the exact methods offered by physical chemistry. The aversion shown by biochemists, who have in most cases a medical education, to exact methods is very easily understood. They are not acquainted with such elementary notions as 'experimental errors,' 'probable errors,' and so forth, which are necessary for drawing valid conclusions from experiments. The physical chemists have found that the biochemical theories, which are still accepted in medical circles, are founded on an absolutely unreliable basis and must be replaced by other notions agreeing with the fundamental laws of general chemistry."

The book is of so technical a character that it will be read only by those well versed in physical chemistry, for whom, and the student of fundamental problems of immunology, it will have interest.

MEDICAL AND VETERINARY ENTOMOLOGY. A Textbook for Use in Schools and Colleges as Well as a Handbook for the Use of Physicians, Veterinarians and Public Health Officials. By William B. Herms, Associate Professor of Parasitology in the University of California. Cloth. Price, $4. Pp. 393, with 228 illustrations. New York: The Macmillan Company, 1915.

Medical entomology is a relatively new science of immense economic and sanitary importance, for example, the cost of screening, fly poisons, etc., has been estimated to exceed twelve million dollars annually. The author has prepared in systematic form a discussion of various insects and parasites, and of their relation to disease in man and in animals. The articles on the mosquito, the house-fly and the ticks are especially to be commended. There are numerous references to literature, but the author does not attempt to give a complete bibliography of any field. He has, however, followed closely recent literature on his subject, so that his book is thoroughly up to date. Further, it contains several original observations which have not yet appeared in any other publication. Sections are devoted to methods of prevention and control of insect pests, as well as to the treatment of bites and stings. The latter, of course, are rather trivial in character, in view of the greater importance of insects in the transmission of serious diseases. The book is excellently illustrated. It is to be especially recommended to American readers as the production of an American author who does not slight the important researches made in this country.

RULES FOR RECOVERY FROM PULMONARY TUBERCULOSIS. A Layman's Handbook on Treatment. By Lawrason Brown, M.D. Cloth. Price, $1. Pp. 173. Saranac Lake, N. Y.: The Author, 1915.

The author has no fads to advocate, nor pet theories to exploit. Having for a long time been associated with the lamented Trudeau in his tuberculosis work at Saranac Lake, Dr. Brown knows the problems that face the consumptive who attempts to live a life that shall make him an acceptable member of society, rather than a person to be shunned. He has presented his subject in simple language, so that the average layman may understand it. The afflicted is instructed how to live, so that he may not only prolong his own life as much as possible, but may also protect his relatives and friends who may be associated with him. The book is an ideal one to put into the hands of the consumptive, and of those who have consumptives to care for.

BANDAGING. By A. D. Whiting, M.D., Instructor in Surgery in the University of Pennsylvania. Cloth. Price, $1.25 net. Pp. 151, with 117 illustrations. Philadelphia: W. B. Saunders Company, 1915.

In this book the author has repeated the material given in his course on this subject at the University of Pennsylvania. The book is elementary in character and wholly practical. Illustrations occur on almost every page, detailing the various steps in applying dressings and bandages of every type.

Medicolegal

When Husband Not Liable for Medical Services or Attendance on Childbirth

(Johnson vs. Coleman (Ala.), 69 So. R. 318)

The Court of Appeals of Alabama reverses a judgment obtained by the plaintiff, a physician, who sued a husband for $10 as the reasonable value of professional services rendered to the latter's wife during childbirth while living apart from him. The court says that medical services are necessaries within the contemplation of the rule making the husband liable for necessaries furnished to the wife, and when such services are necessary the husband cannot escape liability therefor by showing that he did not call in the physician, or even that the physician was called in against his consent and over his objections. If, however, through no fault of the husband, the wife abandons his home and refuses to live or cohabit with him, he is not responsible for her necessaries, unless expressly requested by him; and persons furnishing her with the same under such circumstances cannot, on any theory of an implied request or of implied agency of the wife to bind the husband, collect from the husband. And the mere fact that the wife is living separate and apart from her husband is sufficient notice to the public, who may deal with her, to put them on inquiry and to advise them that, so far as the liability of the husband is concerned, they credit the wife at their peril, since the law is that in cases of separation the presumption is that the husband is not liable, placing the burden of proof on the party furnishing the necessaries to show that the separation took place under such circumstances as would render the husband liable; that is, took place as a result of his cruelty, violence, abandonment, or other misconduct or fault on his part. In this case it appeared without dispute in the evidence that three and a half months before the services were rendered the wife voluntarily abandoned the husband against his consent and without fault on his part, so far as appeared, and had ever since lived separate and apart from him at the home of her father, where she was at the time she gave birth to the child, and where at such time the plaintiff was called in over the telephone by some one at the house—not the husband—to minister to her needs. There was no dispute that the services were necessary, nor that $10, the amount recovered, was the reasonable value thereof, nor that the husband was the father of the child delivered, nor that the physician had not heard of the separation before the time he was called in. The sole insistence of the husband was that he was not liable for the physician's fee on account of the fact that the wife had, at that time, abandoned him and was then living apart from him, over his objection and through no fault of his own. And plaintiff's counsel admitted that if the services sued for had been such that it could be said that they were rendered exclusively for the wife's benefit, the nonliability of the defendant contended for would then hold good; but it was insisted that where the services were, as here, equally as necessary to the preservation of the life of the child, the defendant's own offspring, as of the wife, its mother, then the defendant was liable, not on any theory of liability for necessaries furnished his wife, who had abandoned him, but on the theory of his liability for necessaries furnished his child. The court answers that by quoting: "The husband remains liable for the support of his minor children where he and his wife voluntarily separate, or where he consents to the children living with the mother, or where the wife leaves him for good cause; but it is otherwise where the wife leaves without cause, taking the children with her." Wherefore the judgment for the plaintiff must be reversed.

Industrial Health Prerequisites.—A proper place to work, and safe methods of working, and some knowledge of the dangers to health and life are prerequisites to conducting any business, or to working, no matter whether one man or a thousand are concerned, and whether the individual is an employer or an employee.—*Ohio Public Health Journal.*

Society Proceedings

PHILADELPHIA COUNTY MEDICAL SOCIETY

Meeting held Wednesday, Jan. 12, 1916

The President, DR. E. E. MONTGOMERY, in the Chair

SYMPOSIUM ON IMPORTANT EVERY-DAY ECONOMIC AND ETHICAL PROBLEMS OF THE PRACTITIONER OF MEDICINE

The Problem of Increasing the Physician's Income: What Shall We Do to Be Saved?

DR. THOMAS F. REILLY, New York: The principal reason the profession has not solved this problem is an erroneous concept of altruism which has failed to acknowledge that money is desideratum to the doctor. The high cost of living, which makes the dollar of today have a smaller purchasing value than 50 cents had twenty years ago, renders the situation acute. Every one, except the doctor, has raised his charge for services. The doctor has improved his service to the community by his use of telephone and automobile, by more thorough examination, and in other ways; yet he has not capitalized any of these improvements in service. The fees for ordinary services can be raised only by (1) a concerted effort of the physicians of a community, or (2) by the independent raising of fees by the individual physician. In a small community, charges can best be raised by concerted effort on the part of more than half of the practitioners in the locality. In large cities the county society is the only medium through which just fees for professional service can be determined and announced. Other organizations are more or less of mushroom growth; when they are started, they look promising, but almost invariably they fade away after a year or two. In large cities, permanent medical organization is not an easy thing to bring about. Attempts to bring all of the members of the profession into one body, even though the aim be for the common good, are but empty dreams. Most of the profession would rather be sacrificed than find their names bracketed with crooked sticks and doubtful moralists. It should be feasible in a large city for the county society to insert paid advertisements and reading notices explaining to the public the high cost of medical life, and then follow this with a statement of approved charges for physician's services founded on a living wage. Iteration and reiteration of this matter will make practicable the collection of higher fees by the individual practitioner. When fees are to be raised by the individual physician, independent of the society, it may be advisable to make the change by first doubling the fee for the first examination; at a later period, all counsel can be charged for at the new fee. To do this the physician must give better service—a more thorough examination at the first visit and special treatments at each succeeding visit. It is sheer folly for general practitioners to criticize proper fees charged by specialists and surgeons, simply because these charges are larger than the amount collected by the general practitioners for routine service.

Ethics of Fees and Fee Splitting

DR. JOHN B. ROBERTS: Graduates in medicine at the present time may choose (1) a strictly scientific medical career, (2) a sociological one, (3) a pedagogic service or (4) the mere treating of disease. The last was the only vocation formerly adopted by physicians. In the three forms of professional life first mentioned there is no question arising as to fees. The laboratory man, the municipal officer and the college teacher receive a definite salary. The ethical point which presents itself to the therapeutic doctor is, How much value shall he place on his services rendered to a sick or injured patient? It must be determined by the quality and duration of attendance and the responsibility assumed by the doctor. The relation is not entirely a commercial one but has a professional nature like that of a lawyer or priest. The physician must, therefore, be willing to reduce his charge from what he would ask when the patient is known to be

unable to pay a just and proper fee. If the doctor is unwilling to do this he should not assume the relation of professional adviser to a man probably unable to pay his full fee. The term "fee splitting" has been used to describe the giving of a commission by a specialist when a case of disease or injury is referred by another physician. The term is a bad one because it does not include in the title the real point which makes the division of a fee reprehensible, namely, the secrecy of the cleavage. The patient's money may be divided among as many doctors as you please, provided the patient knows who gets his money—is fully informed as to the terms of the transaction.

Psychology of the Physician as a Wage Earner

Dr. Charles W. Burr: I was somewhat astonished the other day at being told that I am a wage earner. In the simplicity of my innocence I had believed, or subconsciously assumed, that physicians did not get wages, but deigned to accept fees. I thought we did things daily that are not paid for, that cannot be paid for, save in a coin that has a different ring than gold. How does the physician differ psychologically from other wage earners? What is the defect in his mentality compelling him to continue poor but honest, instead of as our advisers would like us to be, rich and wicked, according to the new morality. In any psychologic study the factors compelling and controlling conduct are of first importance. If, then, the influences which lead men to become physicians are of the kind which would not influence men in general, physicians have a peculiar psychologic makeup—are abnormal, or superior. Chance, choice and destiny make men physicians. Excluding the small percentage of men who go into medicine from purely altruistic motives, there are five classes of men who study medicine: (1) those who do not want to work with their hands, because they imagine it is easier to work with the mind and much more respectable; (2) those who think medicine is a gentlemanly occupation and sometimes enables one to marry a rich wife; (3) the men who believe they can make money by criminal practices without being caught; (4) those who think they can make money, notwithstanding the general opinion to the contrary, and (5) those who have a hunger for things intellectual, are drunk with scientific inquisitiveness and curious to learn the secrets of that strange machine, the living animal. When destiny agrees with choice we have the student who alone should be encouraged, and of this type there are enough to meet the need of the country for physicians. The time is coming when these physicians by choice and destiny alone will survive, and there will be no need of discussions on the salvation from being poor. I do not find anything in the physician as a wage earner differentiating him from the rest of the world. I think about as many physicians proportionately as business men are making an income of $10,000 a year, which amateur sociologists tell us means success. I do not find the physician more careless in business matters than other people. There is, however, a psychologic answer to the wage question among physicians, that of permitting to study medicine only those in whom choice and destiny combine. The few schools of the better class have already taken steps in this direction. When low class medical schools cease to exist, the wage question will take care of itself.

Safe and Sane Investments for Physicians

Mr. Thomas S. Gates, President of the Philadelphia Trust Company: There is a science of investments, just as there is a science of medicine. Your profession would view with contempt "patent medicine" advertisements, yet many of the alluring invitations to invest money are quite as remote from the proper fields of investment as the "patent medicine" bottle is from the intelligent doctor. Stocks and bonds which are fundamentally most desirable do not appeal for buyers through the paper at all. Those who are not actively engaged in the business of caring for money would do well to regard that function as a specialized one, and enter it on their own account with the same caution that a banker, for instance, would attempt to write a prescription. A few cardinal principles, positive and negative, govern the investment of money. Regarding the negative rules, let me say that the mere fact that one has money to invest is no argument for doing so at the moment; ruling prices should be considered. If the temptation is to buy a stock rather than a bond, remember that in buying stock you become a partner in the business and should know something of its management and of the industrial conditions surrounding it. If the temptation is to buy a mining investment, the important point to bear in mind is that a mine is ever consuming itself. Further, the salability of an investment must not be overlooked. If the first judgment in making the purchase was wrong, it is better to face a loss and start over again than to stick to a bad bargain. On the positive side, it may be stated that the busy professional man invests his accumulated earnings to better advantage if he assumes certain fixed charges whereby his savings month by month are placed in the hands of those qualified to make earnings pay. One of the best forms of such investments is that of life insurance, which, as operated today under state regulation, gives the protection of savings for after years with a larger payment in case of death. Then there is the building and loan association. This is also under state control, and when well managed yields the investor a very fair return and gives him an investment on real estate security, which in the last analysis is the highest form possible.

The world has regarded investment in anything other than land as legitimate for only a few generations. For many centuries the church proscribed the taking of interest as a moral offense, and the laws of nearly all civilized countries made it a crime, while the voice of publicists and ethical writers were raised against it. The origin of this prejudice is commonly attributed to a passage in Aristotle to the effect that as money does not produce money, nothing more than the principal sum loaned could be equitably claimed, and to John Calvin is attributed the high honor of having first detected the fallacy of this argument by observing that while money does not produce money, that which may be purchased with money does, and that herein is a perfect justification for the payment of interest.

A mortgage on real estate is not a particularly good investment for a doctor unless the mortgage is in the hands of some one who can attend to the details of the condition of the property. In the buying of a bond, which is the lending of money to a corporation, the purchaser should ascertain that the corporation occupies a satisfactory place in the industrial field in which it moves, that the bond is secured by a first mortgage protected by an adequate sinking fund, does not run for too long a time, and is salable. Business and professional men successful in making money give surprisingly little thought to its safe investment; they follow individual hobbies, and lose. The point to be always borne in mind is the difference between money invested or loaned at interest and money embarked in speculation. The rules which obtain in the making of an investment obtain also in its sale. A bond may have maintained a certain fixed price for a considerable period, yet if its sale is improperly handled the price may greatly fall. This may be observed in the offering of a few bonds to several brokers, who in turn may offer them to several banks resulting in an apparent avalanche of the particular bond. In conclusion I may say that to the average person the purchase of stocks offers no investment at all. He becomes only a small partner in an uncertain enterprise. There is needed the technic of the professional trader or the fatuous stroke of luck to spell success, and as to these, it is observed that the few who have the gift of winning tell us the least of how it is done.

The Duty of the County Society

Dr. John B. McAllister, Harrisburg, Pa.: When I read the program for tonight's meeting I thought the best investment I could make would be that of my time in coming here. It has been a good investment of time, and I regard it as unfortunate that such subjects are not more frequently discussed in our medical associations. There was a time when a physician prided himself on working hard and living and

dying in poverty. It is fortunate that the physician has awakened to the importance of looking after the business part of his life. I wish that the men who have read these papers tonight could visit all the sixty-three county societies in this state and give this symposium. It would help the profession and it would help our state society.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

January, LXXIII, No. 1, pp. 1-192

1 *High Degrees of Heat vs. Low Degrees of Heat as Palliative Treatment for Advanced Cases of Carcinoma of Uterus. H. J. Boldt, New York.
2 Contraction Ring Dystocia. P. T. Harper, Albany, N. Y.
3 *Treatment of Uterine Hemorrhage by Roentgen Ray. J. A. Corscaden, New York.
4 Toxemia of Pregnancy. R. Moulden, Friendship Heights, Md.
5 Case of Pelvic Cellulitis, or Phlegmon Ligneux of Pelvis. W. A. Jayne, Denver.
6 Marriage. G. E. Malsbary, Los Angeles.
7 *Teaching of Obstetrics. C. E. Ziegler, Pittsburgh.
8 *Surgical Operations During Pregnant State. F. Reder, St. Louis.
9 Value of Pituitary Extract in Obstetrics and Gynecology. S. W. Bandler, New York.
10 *Study of Forty-Five Hundred Menstrual Histories. K. I. Sanes, Pittsburgh.
11 Principles of Gynecology. H. S. Lott, Winston, N. C.
12 *Anesthesia in Gynecologic Operations. R. R. Huggins, Pittsburgh.
13 Colloidal Silver in Sepsis. G. Van Amber Brown, Detroit.
14 Transposition of Bladder and Uterus for Cure of Cystoceles and Descensus Uteri. L. F. Smead, Toledo.

1. Abstracted in THE JOURNAL, Jan. 8, p. 142.

3. **Roentgen Treatment of Uterine Hemorrhage.**—Corscaden's results have been as follows in twenty women 38 years of age and over whether possessing fibroids or not: Complete amenorrhea in 5 per cent. from the onset, in 5 per cent. after one period, in 5 per cent. after three periods and in 85 per cent. after two periods. The first period occasionally is profuse. All of the cases have been severe enough partially or completely to incapacitate the women. Activities were resumed usually about three weeks after the first exposure. Corscaden has attempted this treatment in younger women twice; these cases have been recent and have presented no difficulties. Amenorrhea for three months followed by scant flow for two periods in one case and an oligomenorrhea of six months followed by a profuse flow which responds to treatment in the second, have been the results obtained. Severe untoward effects have occurred in only two cases. One patient suffered from nausea and diarrhea, the other from diarrhea indistinguishable from mucous colitis. Many of the women felt fatigued for a day or two and a few suffered headaches; albumin and casts appeared in the urine of one woman. No late effects other than those accompanying the menopause have been noted save in one case in which there was an attack of uremia six months after the end of treatment in a woman suffering from large polycystic kidneys. No dermatitis has resulted from the dosage. A small linear burn occurred in the first case treated because of imperfect apposition of the lead protection. Slight vesication resulted but the skin became normal again in six weeks. This accident has not recurred.

Corscaden says that menstruation is dependent on the activities of the corpus luteum. The Roentgen rays destroy the follicle apparatus of the ovary and thereby automatically bring about a menopause. All patients with myomas which do not constitute an immediate or remote menace aside from that of hemorrhage are proper subjects for the production of the menopause, provided that ulcerative changes or pedunculated fibroids or polyps do not exist, and provided that the possessor be over 37 years of age. All myomas which constitute a menace in women under 38 should be excised rather than subjected to Roentgen rays unless operation is contraindicated. In hemorrhage from malignant disease Roentgen rays are contraindicated.

7, 8, 10 and 12. Abstracted in THE JOURNAL, Oct. 2, 1915, pp. 1213 and 1214.

American Journal of Orthopedic Surgery, Boston

January, XIV, No. 1, pp. 1-58

15 Treatment of Tuberculous Arthritis. J. J. Nutt, New York.
16 Tarsectomy for Relapsed Club-Foot. A. G. Cook, Hartford, Conn.
17 Tendon Fixation in Infantile Paralysis; Review of One Hundred and Fifty Operations. W. E. Gallie, Toronto, Canada.
18 Fate of Bone Grafts. G. W. Hawley, Bridgeport, Conn.
19 Congenital Deformities of Vertebrae and Ribs; Report of Four Cases. F. G. Hodgson, Atlanta, Ga.

American Journal of Physiology, Baltimore

January, XXXIX, No. 3, pp. 239-353

20 Initial Length—Initial Tension and Tone of Auricular Muscle in Relation to Myodynamics and Cardiodynamics. R. Gesell, St. Louis.
21 *Action of Various Pituitary Extracts on Isolated Intestinal Loop. V. N. Shamoff, Petrograd, Russia.
22 Secretory Discharge of Pituitary Body Produced by Stimulation of Superior Cervical Sympathetic Ganglion. V. N. Shamoff, Petrograd, Russia.
23 Origin of Cardiac Impulse in Turtle's Heart. W. J. Meek and J. A. E. Eyster, Madison, Wis.
24 Ionic Antagonism in Sensory Stimulation. W. J. Crozier, Cleveland.
25 *Physiology of Stomach. Effect of Experimental Partial Stenosis of Pylorus on Motility of Empty Stomach. O. J. Elsesser, Chicago.
26 *Id. Tonus and Contractions of Empty Stomach of Infants with Congenital Pyloric Stenosis, Pylorospasm and Chronic Vomiting (Merycism). A. J. Carlson and H. Ginsburg, Chicago.
27 Resistance of Fresh Water Fish to Changes of Osmotic and Chemical Conditions. W. E. Garrey, St. Louis.
28 *Physiology of Empty Stomach. Effect of Dreaming on Gastric Hunger Contractions. A. B. Luckhardt, Chicago.
29 *Mode of Action of Ultraviolet Radiation in Injuring Living Cells with Special Reference to Those Constituting Eye. W. E. Burge, Chicago.
30 *Effects on Gastric Secretion of Organ Extracts. J. Rogers, J. M. Rahe, G. G. Fawcett and G. S. Hackett, New York.

21. **Action of Pituitary Extracts on Isolated Intestine.**—It is stated by Shamoff that there exists in the posterior lobe of the pituitary body some substance which has an action on the isolated intestinal loop resembling the action of epinephrin, a substance, moreover, which may be other than that which raises blood pressure and causes diuresis. The substance is not constant in the extractives prepared in the usual ways and may be inconstant in the fresh glands from which these substances are prepared. Its presence or absence in the extracts may depend on the method of preparation. The conclusion drawn by Shamoff is that certain posterior lobe preparations are capable of producing relaxation of the isolated intestinal loop and of inhibiting its rhythmic contractions, resembling in this respect the extracts of the suprarenal medulla.

25. **Experimental Pyloric Stenosis on Gastric Motility.**—Elsesser found that partial pyloric stenosis in dogs produces hypertonicity, and hypermotility of the empty stomach, even if of but a few days' or weeks' duration. These motor phenomena closely simulate those seen in man (filled stomach) with pathologic lesions of the pylorus. The same conditions which lead to hypermotility, etc., during digestion, lead at the same time to increased motility of the empty stomach. In other words, partial pyloric stenosis appears to produce a neuromuscular hyperactivity, independent of the presence of food in the stomach.

26. **Tonus and Contractions of Empty Stomach of Infants.**—The motor conditions of the empty stomach were studied by Carlson and Ginsburg in two infants, one with congenital pyloric stenosis, and one with pylorus spasm, chronic vomiting and rumination. The results indicate that pylorus spasm and pyloric stenosis involve either primarily or secondarily a condition of hypertonus and hypermotility of the entire stomach. The authors suggest that the excessive contraction of the pylorus may be an expression of this general hypermotility.

28. **Effect of Dreaming on Contractions of Stomach.**—Although the contractions of the empty stomach (hunger contractions) become more vigorous with the onset of and during sleep because the inhibitory mechanism is no longer

influenced by the sensory impulses reaching it through the optic, olfactory, and acoustic nerves (the exteroceptive field of Sherrington), Luckhardt states that the hunger contractions may be greatly diminished even during sleep if the sleeping state is accompanied by pronounced cerebral activity (dreaming). The same cerebral state which effects movements of the limbs, tail and muscles of the face effects an inhibition of the contractions of the stomach. The inhibition is therefore purely central in origin, since it is not brought about by any impulse coming into the central nervous system by any known sensory nerve.

29. **Injurious Action of Ultraviolet Radiation.**—Burge claims that ultraviolet radiation kills living cells and tissues by changing the protoplasm of the cells in such a way that certain salts can combine with the protoplasm to form an insoluble compound or coagulum. The effective region of the spectrum in changing the living material of the cell or protoplasm lies between 254 microns and 302 microns. The most effective region is around 254 microns for the small quartz mercury burner used, and around 302 microns for the large quartz mercury burner used. An opacity of the lens or cataract can be produced in fish living in solutions of those salts found to be greatly increased in human cataractous lenses by exposing the eye of the fish to radiation from a quartz mercury-vapor burner. This cannot be done by exposing the eyes of fish living in tap water containing small quantities of these salts. Abnormal quantities of the salts of calcium and sodium silicate in the cells of the eyelids and of the cornea increase the effectiveness of ultraviolet radiation in producing anterior eye trouble. Abnormal quantities of calcium salts on the skin also increase the effectiveness of the short wave lengths in sunlight in producing sunburn.

30. **Effects of Organ Extracts on Gastric Secretion.**—The authors summarize their paper as follows: The thyroid, or only the noncoagulable portion of an aqueous extract of the thyroid, contains a substance which is an active stimulant of both the gastric secretion and the gastric motility. Only the residue portion of an aqueous extract of the parathyroid and thymus glands, and of the spleen and liver, have a similar effect. Both the coagulable and the noncoagulable portions of an aqueous extract of the pancreas are vigorous stimulants of gastric secretion. The pituitary and suprarenal residues inhibit the flow of gastric secretion. All the stimulant residues seem to act on some peripheral gastric mechanism in which the nervous system is an essential part. The residue, or noncoagulable portion of an aqueous extract of the pituitary, pineal, thyroid, parathyroid, thymus and suprarenal glands, and of the spleen and liver, contains all of the material which shows a demonstrable action on other organs.

Annals of Surgery, Philadelphia

January, LXII, No. 1, pp. 1-128

31 Gas Bacillus Infection. A. M. Fauntleroy, Washington, D. C.
32 Significance of Foreign Bodies in Tissues. W. Martin, New York.
33 *Primary Neoplasms of Lymph Nodes Including Hodgkin's Disease. W. B. Coley, New York.
34 Surgical Anatomy of Thyroid and Parathyroids. E. H. Pool and H. C. Falk, New York.
35 Nonstrangulated Diaphragmatic Hernia Due to Indirect Injury. D. C. Balfour, Rochester, Minn.
36 Use of Free Omental Grafts in Abdominal Surgery. L. Freeman, Denver.
37 *Ligation of Splenic Vessels as Substitute for Splenectomy in Blood Diseases. A. Troell, Stockholm, Sweden.
38 *Repair of Small Vesicovaginal Fistula. C. H. Mayo, Rochester, Minn.
39 Method for Obtaining Uncontaminated Blood from Dogs and Other Animals. C. Goodman, New York.

33. **Primary Neoplasms of Lymph Nodes.**—One hundred and sixty-seven cases of primary neoplasms of the lymph nodes, including Hodgkin's disease, have been personally observed by Coley within the last twenty years. Twenty-six of the patients have been treated successfully, that is, the tumors (inoperable) entirely disappeared with the mixed toxins of erysipelas and *Bacillus prodigiosus*, and have remained well from one to twenty-two years. Nineteen patients remained well from three to twenty-two years. Of 76 cases of sarcoma of the neck, 8 have remained well from two to fourteen years. Of 24 cases of sarcoma of tonsil and neck, 5 have remained well from one and one-half to nine and one-half years. Of 10 cases of sarcoma of the mesenteric and retroperitoneal glands, 4 have remained well from one to twelve years. Of 17 cases of sarcoma of inguinal glands, 3 have remained well from four to seven years. Of 18 cases of neoplasms primary in the axillary glands, 4 have remained well from three to nine years. One case of sarcoma of mediastinal glands has remained well six years. Of 21 cases of Hodgkin's disease 1 remained well for seven months after complete disappearance of the disease under five weeks' toxin treatment. The patient refused further treatment and died of a recurrence one year later.

In the list of cases of other men (treated under Coley's direction) one Hodgkin's case recovered, and remains well, at present, seven years later. In a certain number of cases in which the tumor or tumors had entirely disappeared under the toxin treatment and the patients were apparently cured, the disease recurred at varying intervals from six months to six years. The most important lesson to be learned from a study of these recurrent cases, Coley believes, is that in many of them the treatment was not kept up sufficiently long. He is convinced that it is better to continue the treatment longer than may be absolutely necessary in a certain number of cases, rather than run the risk of a recurrence by too short a course of treatment in certain other cases. In cases in which the toxins fail to control the disease, Coley says, it is advisable to use Roentgen rays or radium or both in conjunction with the toxins.

37. **Ligation of Splenic Vessels.**—Because of the danger of splenectomy Troell suggests ligation of a larger or smaller number of splenic vessels as a substitute. He reports on many animal experiments made by him. The operations were so far successful that peritonitis never occurred. Healing followed without any trouble, the animals recovered soon after the operation and, with some few exceptions, seemed to do well. However, the results of this series of operations in a way were not very encouraging because Troell had overlooked the fact that anastomosing branches which exist between the splenic and the gastro-epiploic vessels could be so extensive. By ascertaining the anatomic state of the vessels, he found it very desirable to undertake a new series of ligations. In this series care was taken, in order to cut off the blood supply to a certain part of the spleen, to place the ligature distal to the transverse branches extending between the individual arteries, or a supplementary ligation of the corresponding transverse anastomosing branches should be made. This second ligature should, therefore, be placed and tied in the direction of the ligamentum gastrosplenicum, at a right angle with the first ligature. Postoperative peritoneal infection did not occur. As for the changes produced in the spleen itself, they consisted of an infarction of a greater or less portion of the organ, or in a simple reduction of the volume of the spleen without demonstrable infarcts.

38. **Repair of Small Vesicovaginal Fistula.**—In cases in which the lumen does not exceed a quarter of an inch, the following procedure is recommended by Mayo: An incision is made through the vaginal mucosa extending completely around the fistulous opening about a quarter of an inch or less from its margins. The vaginal mucosa is dissected toward the opening, care being taken not to break through at the margin. This makes a little cup or funnel-shaped opening projecting into the vagina. The circular dissection is carried deeper around the fistula, not approaching nearer than one-eighth of an inch to the margin, its depth penetrating to the mucosa of the bladder but not through it. This leaves a little bell or funnel-shaped opening lined with mucous membrane which is connected with the mucosa of the bladder and projects into the vagina. A ligature carrier is passed through the urethra into the bladder and through the fistula into the vagina. A suture is passed through both walls of the funnelled mucosa on each side of the ligature carrier. The two ends of the silk suture are now threaded into the ligature carrier which is withdrawn from the bladder and urethra. The ends of the suture projecting from the urethra are drawn on, and with a little aid the fistulous tract

starts inverting. As soon as the mucosa disappears a circular suture of fine chromic catgut is applied, a little more traction is used on the ends of the long suture and a second purse-string suture of catgut is applied. The vaginal side is now closed either by a circular suture of the chromic catgut or by interrupted sutures as seems best. This inversion turns the mucous surface into the bladder and leaves a healing surface within the tube. One of the long ends of the suture projecting from the urethra is rethreaded and by a needle is sutured to the skin of the labia. The two ends are now tied at this point, making slight traction.

A self-retaining catheter (Pezzer type) is inserted into the bladder and the patient is instructed to rest on her side or even on her face. This keeps the fistulous area free from urinary pressure. After four days it is necessary carefully to watch the catheter that sediment or phosphatic deposit does not obstruct its lumen. In some cases irrigation is necessary. However, the long suture attached to the inner side of the surface of the fistula and passing through the urethra acts as a safety valve of leakage should the catheter become temporarily plugged. After a week the repair is usually solid, but it is better to keep the patient on her side or face for a few days longer that no undue strain may be placed on the fistulous area, and during this time it is best to keep a catheter in, or if it is removed to have regular periods for passing it. The suture from within the bladder either cuts itself out with the slight traction before it is time to remove the catheter, or it may be drawn out without difficulty by cutting one side where it is attached to the skin.

Boston Medical and Surgical Journal

January 13, CLXXIV, No. 2, pp. 37-72

40 Gunshot Fractures of Extremities. R. B. Greenough, R. B. Osgood and B. Vincent, Boston.
41 Simulation of Esophageal Stenosis by Extensive Carcinosis of Lesser Curvature of Stomach. A. E. Austin, Boston.
42 *Simulation of Diabetes Mellitus. G. Blumer, New Haven, Conn.
43 Development of Gold Sol Paretic Reaction as Compared with Cerebrospinal Syphilitic Type. H. C. Solomon and E. S. Welles, Boston.
44 Syphilis and Psychopathic Hospital. E. E. Southard, Boston.

42. **Simulation of Diabetes Mellitus.**—Blumer cites the case of a woman, 33 years of age, sent to him for a pruritus of the vulva. The patient's family history was entirely negative. Her parents and her brothers and sisters were all alive and well, and there was no history of nervous or mental disease in the family. As a child the patient had had measles, whooping cough, chickenpox, mumps, tonsillitis and scarlatina. There were no complications with any of these diseases. The menstrual history was normal. There was no venereal history. The patient had always been a good eater, fond of meat, sweets and candy. She was not on a special diet at the time she consulted Blumer. The patient dated the pruritus vulvae from a period twenty months before. It had appeared rather suddenly, and had been present since that time. It varied in intensity and tended to be worse at night. It was severe enough at times to interfere with sleep. Urination increased the pruritus. There was no increase in the output of urine. The patient stated that she felt weak, but thought this due to loss of sleep. She had lost 20 pounds in the preceding nine months. There was no general pruritus. The appetite was not abnormal. The patient was very thirsty at times; at other times she "despised" water. She stated that occasionally she had severe frontal headaches with anorexia and even slight nausea. With these her face was flushed. She was more nervous than usual and tended to be constipated. The physical examination was almost negative.

The urine was light amber in color, hazy, acid in reaction, had a specific gravity of 1.057, was free from albumin, and gave a slight reaction for sugar with Fehling's solution. With Benedict's solution the copper was reduced in an amount that was estimated as representing about 0.25 per cent. of sugar. The polariscope showed 8.5 per cent. of a dextrorotary substance. The patient was requested to send a twenty-four hour specimen of urine and was instructed how to collect it. On its arrival the amount was 650 c.c.; it was slightly cloudy, acid in reaction, and had a specific gravity of 1.060. The urine contained the faintest possible trace of albumin, no acetone, no diacetic acid and no indican. Tests for sugar showed a negative reaction with Benedict's solution and Nylander's solution. The polariscope showed 11.25 per cent. of a dextrorotary substance. After inversion by heat and acid, copper was reduced and the polariscope showed 3.9 per cent. of a levorotary substance. Rotating substances other than sugars having been excluded, it was clear that the substance originally present in the urine was sucrose, and that inversion had transformed it into dextrose and levulose, the latter preponderating and causing the levo rotation. A catheterized specimen of urine was obtained. This specimen was absolutely free from sugar of any kind, as were subsequent and specimens obtained by catheterization. It was evident then that the patient was not suffering from diabetes mellitus, but that she had purposely added sucrose to the urine in order to simulate this disease. The psychology underlying this deliberate deceit was not perfectly clear. The patient was not hysterical. She was distinctly neurotic, and had been known on one previous occasion to feign illness in order to compass certain aims in connection with her family life. This was probably the explanation of the simulated diabetes, though the family physician could not discover what particular object the patient had in view.

Canadian Medical Association Journal, Toronto

December, 1915, V, No. 12, pp. 1045-1128

45 Medical Profession and War — Cancer Problem. W. H. B. Aikins, Toronto.
46 Aids in Diagnosis of Surgical Conditions of Stomach. J. W. Dewis, Boston.
47 Antityphoid Inoculation. F. W. Schofield, Ontario.
48 Influenza Meningitis; Report of Two Cases. A. Brown, Toronto.
49 Case of Cholelithiasis and Chronic Valvular Disease. E. M. von Eberts, Montreal.

Florida Medical Association Journal, Jacksonville

December, 1915, II, No. 6, pp. 161-192

50 Supraclavicular Brachial Plexus Block. J. K. Simpson, Jacksonville.
51 Surgery of Hemorrhoids. R. Duffy, Tampa.
52 Surgical Treatment of Prolapse of Uterus. T. S. Field, Jacksonville.
53 Diagnosis of Insanity. H. Crenshaw, Atlanta, Ga.

Iowa State Medical Society Journal, Des Moines

December, 1915, V, No. 12, pp. 507-546

54 What Is the Matter with Us? J. E. Luckey, Vinton.
55 Pelvic Neoplasms in Pregnancy. L. H. Branson, Iowa City.
56 Surgical Complications of Typhoid. V. B. Knott, Sioux City.
57 Diseases of Eye and Ear as Influenced by General Conditions or Diseases of Other Organs. F. F. Agnew, Independence.
58 Degenerative Changes in Uterus. A. P. Donohoe, Davenport.

Journal of Abnormal Psychology, Boston

December-January, X, No. 5, pp. 297-368

59 Sex Worship and Symbolism of Primitive Races. (To be concluded.) S. Brown, Boston.
60 Psychanalytic Treatment of Hystero-Epilepsy. L. E. Emerson, Boston.
61 Genesis and Meaning of Tics. M. Solomon, Chicago.

Military Surgeon, Chicago

December, 1915, XXXVII, No. 6, pp. 523-653

62 Relation of Army Medical Corps and Medical Reserve Corps to Medical Corps of Organized Militia. W. O. Owen, U. S. Army.
63 Sanitary Troops — State and Federal. J. H. Ullrich, Md. N. G.
64 Medical and Sanitary Department of Japanese Army. H. L. Hawthorne, U. S. Army.
65 Syphilis as Cause of Mental Disease in Military Service. L. L. Smith, U. S. Army.
66 Military Delinquent. E. King, U. S. Army.
67 Case of Gunshot Wound of Abdomen with Immediate Operation. G. M. Van Poole, U. S. Army.
68 California Law Relating to Discharged Surgeons of Army. L. W. Lord, U. S. Army.
69 Hospital Treatment of Acute Gonorrhea. H. C. Maddux, U. S. Army.

Ophthalmic Record, Chicago

December, 1915, XXIV, No. 12, pp. 601-654

70 Focal Infections in Their Relation to Certain Disorders of Uveal Tract. G. E. de Schweinitz, Philadelphia.
71 Ocular Diseases Resulting from Dental Lesions. A. D. Black, Chicago.

72 Method of Study of General Diseases in Their Relation to Ocular Structures. M. M. Portis, Chicago.
73 Fundus Lesions in Various Forms of Nephritis. A. E. Bulson, Jr., Fort Wayne, Ind.
74 Trial-Case Accessory. J. W. Downey, Jr., Baltimore.
75 Dionin in Treatment of Vernal Catarrh. G. Swift, Seattle, Wash.
76 New Nasal Punch. A. E. Prince, Springfield.

Philippine Journal of Science, Manila

September, 1915, X, No. 5, pp. 309-356

77 *Rôle Played by Insects of Dipterous Family Phoridae in Spread of Bacterial Infections. D. N. Roberg, Manila.
78 Beriberi. R. R. Williams and J. A. Johnston, Manila.
79 Pseudotyphoid in Deli, Sumatra (Variety of Japanese Kedani Fever). W. Schüffner.

77. Rôle Played by Insects in Spread of Bacterial Infections.—*Aphiocheta ferruginea* is a species of fly which breeds in human feces, and is the commonest of the small flies which breed therein. Its period of development is from nine to ten days, and eggs are laid when the fly is 5 days old. Their minute size enables them to pass through the ordinary fly-proof screens used as prophylactic means against the invasion by the common house fly and other large species of Diptera. These flies, Roberg says, may serve as agents in the dissemination of Asiatic cholera and other alimentary infections. Fly-proof wire-screen bell jars employed in restaurants, kitchens and tiendas to protect food against the common house fly do not exclude the *Phoridae*. Fly-proof sanitary pails which are ordinarily used for the deposit of human excrement, although proof against the common house fly, may not be secure against invasion by the *Phoridae*.

Public Health Journal, Toronto

December, 1915, VI, No. 12, pp. 593-646

80 Health and Charity. S. M. Gunn.
81 Land Problem in Relation to Housing. P. H. Bryce, Ottawa.
82 Control of Venereal Diseases. W. A. Evans, Chicago.
83 Medical Profession of Ontario vs. Irregular Practitioners. J. W. S. McCullough, Toronto.
84 Defective Children. M. H. Kerr.
85 Auxiliary Classes in Public Schools. M. E. Blackwell.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

December, 1915, XXIII, No. 12, pp. 345-376

86 Psychic and Somatic Palsies Complicating Pregnancy. S. G. Burnett, Kansas City, Mo.
87 Moral Effect of Professional Instruction on Proper Sexual Union. C. S. Pettres, Little Rock.
88 Nitrous Oxid in Obstetrics. J. R. Worley, Dallas.
89 Case of Brain Surgery. C. L. Hall.
90 Can Mortality of Tonsillitis be Reduced? T. L. Higginbotham, Hutchinson, Kan.

Surgery, Gynecology and Obstetrics, Chicago

January, XXII, No. 1, pp. 1-126

91 Restoration of Bile Passage After Serious Injury to Common or Hepatic Ducts. W. J. Mayo, Rochester, Minn.
92 Errors in Anatomic Development; Their Cause and Surgical Significance. C. H. Mayo, Rochester, Minn.
93 Teeth: Importance as an Avenue to Infection. T. B. Hartzell and A. T. Henrici, Minneapolis.
94 *Relation of Amebiasis to Pyorrhea Alveolaris. A. H. Sanford and G. B. New, Rochester, Minn.
95 Deep-Seated Alveolar Infections. M. L. Rhein, New York.
96 Dental Aspect of Relation of Endameba to Pyorrhea Alveolaris. W. A. Price, Cleveland.
97 Intestinal Stasis. A. J. Ochsner, Chicago.
98 Chronic Intestinal Stasis and Its Associated So-Called Toxemia. F. W. Smithies, Chicago.
99 Sanitary Organizations and Surgery in France and Central Empires. K. Connell, New York.
100 Unit Plan of Organization of Medical Reserve Corps of U. S. Army for Service in Base Hospitals. G. W. Crile, Cleveland.
101 *Radical Operation for Carcinoma of Uterus. H. C. Taylor, New York.
102 *Relative Merits of Operations for Cancer of Uterus. D. C. Balfour, Rochester, Minn.
103 Heat in Treatment of Carcinoma of Uterus. J. F. Percy, Galesburg.
104 *Autotransplantation of Corpus Luteum. J. B. DeLee, Chicago.
105 Attempts to Produce Experimentally Conditions of Sympathicotonus, Vagotonus and Hyperthyroidism. A. Troell, Stockholm, Sweden.
106 *Tracheloplastic Methods and Results. A. Sturmdorf, New York.
107 Uterine Displacements. A. J. Nyulasy, Pert, Western Australia.
108 Abuse of Pituitary Extract. G. C. Mosher, Kansas City, Mo.
109 Double Nuchal Displacement of Arms in Footling Presentation, with Breech Anterior, Chin Caught Above Symphysis Pubis. G. G. Copeland, Toronto, Canada.
110 *Self-Retaining Drainage Tubes. A. M. Vance, Louisville, Ky.
111 Zigzag Purse-String Suture for Gallbladder Work. W. H. Williams, Lebanon, Ind.
112 *Improved Substitute for Iodized Catgut Sutures. C. H. Watson, Brooklyn.

94. Relation of Amebiasis to Pyorrhea Alveolaris.—Sanford and New found *Endameba buccalis* in at least 14 per cent. of mouths free from gingival irritation, and in relatively increasing numbers in accordance with the degree of pyorrhea. They claim that clinically there is no parallelism between the presence of *Endameba buccalis*, the parasite ameba of the mouth, and *Endameba histolytica*, the cause of amebic dysentery. The authors believe that before the alkaloids of ipecac can be accepted as the cure of pyorrhea alveolaris it must be established that they actually destroy the amebae in the mouth, thus removing the cause of the disease. Experiments convince them that *Endameba buccalis* and *Endameba histolytica* are not the same organism. They also hold that before *Endameba buccalis* is called the cause of pyorrhea alveolaris its pathogenicity must be demonstrated by animal experimentation.

101. Radical Operation for Carcinoma of Uterus.—Taylor's treatment of carcinoma of the cervix uteri is as follows: For the favorable case, that is, a patient in a good general condition, an abdominal wall without an excess of fat, and no associated pelvic lesion to increase the operative risk, and a limited growth, he advises the radical operation. For a limited growth in a patient who is a bad risk on account of general or local conditions he advises usually a simple abdominal hysterectomy, occasionally a vaginal hysterectomy. For the so-called inoperable case, he advises radium, Roentgen rays and the cautery.

102. Merits of Operations for Cancer of Uterus.—Summary of the present status of operative procedures for cancer of the uterus in the Mayo Clinic as given by Balfour: 1. Patients with cancer of the cervix not too far advanced and who are good surgical risks should be treated by thorough cautery sterilization of the local disease in the cervix, and total abdominal hysterectomy of the Wertheim type. 2. When cancer is confined to the cervix, the vaginal outlet fairly lax, and the patient is a poor surgical risk, namely, obese, with cardiorenal disease, etc., the preferred treatment is the clamp and cautery vaginal hysterectomy. 3. In the more advanced stages of the disease if the patient is a good surgical risk the two-stage operation should be done, namely, the Percy method of tissue coagulation by heat, followed after some weeks by total abdominal hysterectomy. If the patient is a poor surgical risk the Percy method should be applied, but the abdominal hysterectomy should be considered on its merits in the individual case. In most instances in cancer of the body of the uterus a total abdominal hysterectomy should be done. In the small minority of patients with cancer of the body of the uterus who are poor surgical risks, clamp and cautery vaginal hysterectomy may be indicated. These observations are based on a review of 634 cases of cancer of the uterus operated on during the past ten years.

104. Autotransplantation of Corpus Luteum.—DeLee reports two cases. Both women complained of nausea and vomiting for several days after operation. In neither case was the implanted body palpable in the broad ligament at a later operation. There was no mass at the site of implantation.

106. Tracheloplastic Methods and Results.—The steps of the procedure advocated by Sturmdorf are as follows: 1. Outlining and free mobilization of an ample circular flap from the vaginal coat of the cervix. 2. Complete excision of the entire cervical mucosa to the internal os, with preservation of its peripheral muscular layers. 3. Sutural coaptation of the vaginal cuff to the denuded cervical cavity. The main object in the first step is the formation of an ample mobile cuff of vaginal mucosa. The edge of vaginal covering thus outlined is freely mobilized by blunt dissection from its underlying tissues, completely around the entire cervix, up to the level of the internal os, exposing the circular arteries

as for high amputation. The pouting everted cervical mucosa is now circumcised and cored out of its muscular bed as a hollow cone, leaving a raw funnel-shaped cavity. Trimming the loose vaginal cuff to serve as an accurate lining to the interior of this muscular funnel, its retention in this position is secured by sutures. By tightening each individual set of suture ends, the flap segments are drawn into the cervix, line its whole cavity with vaginal mucosa, the edge of which is thus approximated to the circumference of the internal os, where it is retained in apposition as long as desired.

110. **Self-Retaining Drainage Tubes.**—Vance's preparation of these tubes is as follows: Select a pure rubber tube of the proper size, cut it 2 inches longer than required for the wound or cavity to be drained, and make as many fenestra in the distal portion as desired. About 2 inches from the proximal end make two horizontal openings, by snipping with scissors, sufficiently wide to accommodate the tongues next to be described. With scissors, split the proximal end of the tube to within half an inch of the horizontal openings already described, and make a tongue tapering slightly from tip to base, on each side. Insert small hemostatic forceps through the horizontal opening and grasp the tip of the tongue, pulling it downward into the tubal lumen and outward through the opening until the base or wider portion fits snugly into the aperture. When both tongues have been thus drawn through the horizontal openings, the result will be a tube the lumen of which has not been reduced in the slightest although the rubber is double for a quarter of an inch proximal to the tongues. When the tube is inserted into the wound or cavity to be drained, it is so placed that the two tongues forming the arms of the "T" are at right angles to the incision and flat on the external surface of the body. These arms are then held in position against the body surface by narrow strips of adhesive plaster, over which the outer dressings are applied.

112. **Substitute for Iodized Catgut Sutures.**—Watson claims that potassium mercuric iodid, in alcoholic solution in a dilution of one to one thousand, has more than ten times the germicidal efficiency of one to one hundred solution of iodin in alcohol. The impregnation of catgut sutures with potassium mercuric iodid, by increasing the tensile strength of the gut, offers a distinct advantage over the similar use of iodin. Catgut sutures impregnated with potassium mercuric iodid, when sealed in tubes with chloroform, show no deterioration when the tubes are subjected to boiling. Since iodized sutures are ruined by such treatment, the superiority of potassium mercuric iodid over iodin as a germicidal impregnating agent is obvious.

Tennessee State Medical Association Journal, Nashville

December, 1915, VIII, No. 8, pp. 339-382

113 Comparative Study of Diagnostic Tests for Syphilis. W. Krauss, Memphis.
114 Morphin-Hyoscin Analgesia in Labor; Report of Cases. J. W. Brandau, Clarksville.
115 Medical Organization — County Medical Society. J. G. Rawlins, Dancyville.
116 Medical Society and Its Officers. H. P. Larimore, Chattanooga.
117 Ectopic Pregnancy. T. G. Pollard, Nashville.
118 Dental Sepsis. J. Witherspoon, Nashville.
119 Psoriasis. G. R. Jones, Orlinda.
120 Duodenal Ulcer. J. S. B. Woolford, Chattanooga.

Texas State Journal of Medicine, Fort Worth

December, 1915, XI, No. 8, pp. 413-460

121 Neurologic Cases in Practice of Ophthalmology and Otology. J. C. Beck, Chicago.
122 Origin of Certain Neuroses. R. H. Gough, Fort Worth.
123 Recognition of Early Symptoms of Nervous Diseases in Life Insurance Work. J. S. Turner, Dallas.
124 Plea for More Thorough Examination of Patients Suffering from Symptoms of Early Pulmonary Tuberculosis. S. E. Thompson, Carlsbad.
125 Suspension Laryngoscope (Killian); Its Aid in Treatment of Tuberculous and Syphilitic Lesions of Larynx. S. Israel, Houston.
126 Case of Pneumonia Complicated by Meningitis. A. D. Patillo, Electra.
127 Ectopic Gestation; Report of Cases. J. E. Gilcreest, Gainesville.
128 Stricture of Rectum. C. S. Venable, San Antonio.
129 Injuries of Back from Medicolegal Standpoint. H. D. King, New Orleans.

United States Naval Medical Bulletin, Washington, D. C.

January, X, No. 1, pp. 1-189

130 *Technic for Absorption Test for Syphilis, Using Human Complement. C. S. Butler and W. F. Landon, U. S. Navy.
131 Early Diagnosis of Tuberculosis as it Relates to Service and to Naval Hospital at Las Animas, Colo. G. H. Barber, U. S. Navy.
132 Studies Pertaining to Light on Shipboard. T. W. Richards, U. S. Navy.
133 Military Organization and Equipment in Present War. A. M. Fauntleroy.
134 Classification of Mental Diseases. R. Sheehan, U. S. Navy.
135 Second Report on Schier Test for Mentality, with Special Reference to Point System. G. E. Thomas, U. S. Navy.
136 Treatment of Fractured Mandibles. F. L. Morey, U. S. Navy.
137 Diving Operations in Connection with Salvage of U. S. Ship "F-4." G. R. W. French, U. S. Navy.
138 Report on Recovery, Identification and Disposition of Remains of Crew on "F-4." W. Seaman, U. S. Navy.
139 Simple Test of Sterilizer Efficiency. E. Thompson, U. S. Navy.
140 Horizontal Fluoroscope and Illuminating Box Made in Naval Hospital. H. L. Gall, U. S. Navy.
141 Creeping Eruption; Report of Case. J. C. Parham, U. S. Navy.
142 Sporadic Case of Typhus. R. G. Davis, U. S. Navy.
143 Branchiogenic Cyst. L. W. Johnson, U. S. Navy.
144 Bilateral Thrombosis of Central Retinal Veins. S. Walker, Jr., U. S. Navy.
145 Internal Hernia; Report of Case. W. C. Espach, U. S. Navy.
146 Case of Psoriasis Limited Almost Exclusively to Scalp. J. H. Harris, U. S. Navy.
147 Handy Electrical Appliance for Sick Baby. A. Farenholt, U. S. Navy.

130. **Test for Syphilis.**—Butler and Landon describe a test which is in part like that of Noguchi and in part like that of Emery, and in which human complement instead of that of the guinea-pig is employed, quite as satisfactory as either the straight Wassermann or the Noguchi tests. As between the Noguchi and the present technic the results were in agreement in 292 cases out of 300. There were eight discrepancies, and of these, three were in the serums of men undergoing treatment, and in the fading reaction one or the other test would persist as positive longer than the alternate one. There is nothing new in this test. Emery used patient's serum for complement, but whereas he allowed each patient's serum to complement his (the patient's) own particular reaction, this test uses the serum of a known negative reacting human being for all the tests. Amboceptor paper (antihuman rabbit), antigen and other points of the test are as in Noguchi's technic, but with reduced amounts.

West Virginia Medical Journal, Wheeling

December, 1915, X, No. 6, pp. 181-216

148 Cancer Problem. A. Arkin, Morgantown.
149 Stone in Kidney and Ureter. S. S. Gale, Roanoke, Va.
150 Report on Sanitation. C. Wingerter, Wheeling.
151 New Public Health Law. W. W. Golden, Elkins.
152 Uterine Prolapse. I. Hardy, Morgantown.

Wisconsin Medical Journal, Milwaukee

December, 1915, XIV, No. 7, pp. 261-302

153 Workmen's Compensation Act of Wisconsin from Viewpoint of Insurance Companies. A. B. Rosenberry, Wausau.
154 Relation of Physician to Compensation. C. H. Crownhart, Madison.
155 Traumatic Hernia and Traumatic Orchitis in Relation to Workmen's Compensation. A. H. Levings, Milwaukee.
156 Borderline Cases Under Workman's Compensation Act. E. Quick, Milwaukee.
157 Unusual Case of Lateral Sinus Thrombosis. G. F. Zaun, Milwaukee.
158 Juvenile Hyperthyroidism. A. L. Kastner, Milwaukee.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Dec. 25, 1915, II, No. 2869, pp. 913-948

1 Wounds in War. A. Bowlby.
2 *Iodin and Sodium Hypochlorite as Wound Disinfectants. H. Schütze.
3 *Quinin Hydrochlorid Dressing for Infected Wounds. K. Taylor.
4 Cases of Traumatic and Arteriovenous Aneurysm. F. L. A. Greaves.
5 Arteriovenous Aneurysm; Anastomosis of Vein and Suture of Artery. H. J. Godwin.
6 Character and Treatment of Frost-Bite. H. E. Munroe.

2. **Iodin and Sodium Hypochlorite as Disinfectants.**—The organisms used by Schütze in his experiments were *Staphylococcus aureus* and *B. edematis maligni*, as examples of the

sporing and nonsporing groups; and, as a test of the efficiency of the disinfectant in the presence of organic matter, in one series disinfection was carried out on bacteria suspended in distilled water; in another series on bacteria suspended in sheep serum. The following tables show the results of this work:

Disinfectant	Environment	14.5 Million Staphylococci per c.c. at 22 C.	
		Are Not All Killed After	Are All Killed After
0.0015 per cent. iodin	Distilled water ...	.....	2 minutes
0.125 per cent. iodin	50 per cent. serum	16 minutes	32 minutes
1.0 per cent. phenol	Distilled water ...	16 minutes	33 minutes
1.0 per cent. phenol	50 per cent. serum	32 minutes	.....
1.5 per cent. phenol	50 per cent. serum	3 minutes	16 minutes
1.75 per cent. phenol	50 per cent. serum	4 minutes	8 minutes

Disinfectant	Environment	102 Million Malignant Edema Spores at 19 C.	
		Are Not All Killed After	Are All Killed After
Dakin's solution, diluted one-half, containing 0.1685 per cent. NaClO	Distilled water ...	.....	¼ hour
Id.	50 per cent. serum	5¼ hours	.....
5 per cent. iodin....	Distilled water ...	1½ hours	2 hours
5 per cent. iodin....	50 per cent. serum	2 hours	3¼ hours
10 per cent. iodin...	Distilled water ...	¾ hour	1 hour
5 per cent. phenol..	Distilled water ...	8 days	.....

3. **Quinin Hydrochlorid Solution as Dressing.**—The majority of the cases reported on by Taylor were subjected to wet dressings of a 1 per cent. solution of quinin hydrochlorid in cold boiled water. The same solution has been used for instillation. In about twelve cases a continuous drip of 1/10 per cent. solution of quinin hydrochlorid, with the addition of 1/10 per cent. of hydrochloric acid or of 1 per cent. of alcohol, has been used. In addition to these procedures, a few patients received hypodermic injections into the tissues about the wounds of the same solution as that used for wet dressings. About 125 cases of infection were treated with one of these solutions. These cases have been for the greater part fairly fresh wounds, having usually been received within forty-eight hours of injury. Most of them (70 per cent.) have been heavily infected with the gas bacillus, and all with staphylococci, streptococci, and the usual flora or putrefactive bacteria. About one half had open fractures of long bones of arm or leg. Most of the wounds treated with quinin solution have run a favorable course. There has been a rapid improvement in the appearance of the wound itself, manifested by the speedy disappearance of the sloughs, by the vanishing of the putrefaction odor (frequently within twenty-four or forty-eight hours), by a marked decrease in the discharge, and by the unusually rapid appearance of red vascular granulations. Nearly all of the most serious wounds show heavy mixed infections. Ten patients were treated with dressings other than quinin; the treatment was continued for a number of days and then changed to the quinin solution. All of them showed sudden improvement associated with the change. In three instances there was an almost immediate drop in temperature coincident with a marked improvement in the appearance of the wound.

Journal of Tropical Medicine and Hygiene, London

Dec. 15, 1915, XVIII, No. 24, pp. 277-288

7 Herpetomonads and Vertebrates. H. B. Fantham.
8 Fever Due to Bacterium Columbense (Castellani 1905). E. C. Spaar.

Lancet, London

Dec. 25, 1915, II, No. 4817, pp. 1385-1436

9 Wounds in War. A. Bowlby.
10 Functional Nerve Disease and Shock of Battle. D. Forsyth.
11 Another Human Coccidium from Mediterranean War Area. C. M. Wenyon.
12 Bactericidal Effect Exerted in Vitro by Ethylhydrocuprein (Optochin) Hydrochlorid on Fecal Streptococcus Obtained from Wounds. A. C. Inman.

Bulletin de l'Académie de Médecine, Paris

Dec. 14, 1915, LXXIV, No. 50, pp. 707-768

13 *Prizes Offered for 1916, 1917 and 1918. R. Blanchard, Secretary.

December 7, No. 49, pp. 663-706

14 *Tetanus Localized in Leg. E. Laval and Pozzi.
15 Circulars for Prevention of Avoidable Diseases. (Sur la distribution, dans l'armée, de notices relatives à la prophylaxie des maladies évitables.) Letulle and others.
16 Importance of Milne's Method of Prophylaxis of Scarlet Fever. (Sur la prophylaxie de la scarlatine.) Chantemesse.
17 Fiftieth Anniversary of Villemin's Announcement of the Specific and Contagious Virulence of Tuberculosis. (Le cinquantenaire, à l'Académie de Médecine, de la démonstration expérimentale de A. Villemin, sur la virulence spécifique et contagieuse de la tuberculose.) L. Landouzy.
18 Tardy Abscess of the Brain from Projectile; Recovery after Operation. M. Mendelsson.
19 Necropsy Shows Evidence of Regeneration of Spinal Nerve Fibers after Crushing of Spinal Cord. G. Roussy and J. Lhermitte.
20 *Mild and Unrecognized Forms of Malaria. (Les formes légères et méconnues du paludisme.) P. Sainton.
21 Iodized Vaccines against Typhoid and Paratyphoid. (L'immunité spécifique et l'immunité de groupe obtenue contre les bacilles typhiques et paratyphiques A et B par les vaccins iodés.) A. Ranque and C. Senez.

13. **Prizes Offered by the Académie de Médecine.**—The list of prizes offered during the next three years totals over 130, and all but seven are open to international competition. The competing articles for thirteen of the prizes must be sent in anonymously, the name in a sealed envelope. For five of the prizes only printed works can compete. Full details are given in the *Bulletin*. The prizes range from $60, $600, $1,060 and $2,100 up to the Audiffred prize representing an endowment yielding an income of $4,800 at 3 per cent., the whole endowment to be given for a sovereign cure for tuberculosis.

14. **Localized Tetanus.**—This subject was discussed in the Paris Letter, Jan. 15, 1916, p. 204.

20. **Malaria in Paris Troops.**—The five men were from the Paris district and had never been in the tropics, but for some months had been on active trench service in the marshes of Flanders. The discovery of the malaria plasmodium in the blood explained the puzzling syndrome in these and in a number of other cases at the front. (See also Paris Letter, p. 290.)

Paris Médical

Dec. 4, 1915, V, No. 30, pp. 525-540

22 Pensions for the Wounded and the Cripples Left by the War. (Les pensions aux blessés et aux invalides de la guerre.) Chavigny.
23 Goggles to Ward Off Minor Wounds of the Eyes. (Prophylaxie des blessures du globe oculaire.) F. Terrien and G. Cousin.
24 *The Bottle Spiroscope for Exercising the Respiratory Apparatus. (L'entrainement respiratoire par la méthode spiroscopique; ses applications aux malades et aux blessés.) J. Pescher.

24. **Spiroscope for Respiration Exercises.**—Pescher's spiroscope is based on the principle that a bottle of water turned upside down in a pail of water will not empty itself even if the cork is removed. He uses a graduated bottle and has the patient blow into it through a tube low down in the bottle. The patient can see the bubbles as his breath enters the bottle, and can gage his respiratory capacity by the amount of water he is able to displace in a given time. The patient gets interested in the task as he watches the bubbles of his breath, and surprising benefit is realized in old cases of emphysema, bronchitis, etc., after wounds of the chest, and in hastening recovery from acute affections of the air passages.

Presse Médicale, Paris

Dec. 13, 1915, XXIII, No. 61, pp. 497-504

25 Surgery in France during the Last Fifty Years. (La chirurgie française dans les cinquante dernières années.) J.-L. Faure.

December 16, No. 62, pp. 505-512

26 Clinical Diagnosis of Exaggeration and Perseveration of Functional Nervous Troubles. P. Sollier.
27 *Prophylaxis of Traumatic Talipes Equinus. (Pieds bots équins traumatiques précoces.) P. Hardouin.

December 23, No. 63, pp. 513-520

28 Progress of Obstetrics in France during the Last Fifty Years. (La médecine française en ces cinquante dernières années: VI. Obstétrique.) C. Jeannin.

27. **Prophylaxis of Traumatic Talipes Equinus.**—Hardouin has encountered a number of cases in which, after a bullet had passed through the calf, the disturbances were so slight that the men were soon on their feet. The traction on the wound, however, caused pain, and in order to prevent this the foot was held in an abnormal position—actual talipes equinus, and as these men were known to be mildly wounded they did not get the medical supervision of the other wounded. But the deformed attitude of the foot soon became permanent, and they were left cripples unless the deformity was noticed and corrected in time. If they were allowed to use crutches, permanent crippling was almost inevitable. Men with wounds in the legs should not be allowed to be on their feet until the wound is entirely healed. Disregard of this principle makes the healing drag for weeks longer than it should. When they are allowed to walk, the position of the foot should be kept normal, and it should be exercised only a very little at first. Massage is seldom useful, but a plaster cast may be needed in grave cases.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Nov. 20, 1915, XLV, No. 47, pp. 1473-1504

29 *Renal Hematuria from Overexertion. (Nierenbluting durch Ueberanstrengung.) L. Lifschitz.
30 Advantages of Outdoor Reclining in Mountain Climate. (Liegekuren im Hochgebirge.) O. Amrein.

November 27, No. 48, pp. 1505-1536

31 *Improved Outlook for Treatment of Hemophilia, Purpura, etc. (Ueber vergleichende Blutplättchenuntersuchungen.) A. Fonio.
32 Postoperative and Other Reflex Anurias. (Klinische Beiträge zur Kenntniss der Anurie.) M. Grechen.

December 4, No. 49, pp. 1537-1568

33 Modern Treatment of Fractures. A. Ziegler.
34 *Pulmonary Tuberculosis among the Jews. (Ueber das Verhalten der Lungentuberkulose bei den Juden.) S. Kreinermann.
35 *Comparative Study of the Blood Platelets. (Ueber vergleichende Blutplättchenuntersuchungen.) A. Fonio.

December 11, No. 50, pp. 1569-1600

36 *Rachitic Muscle Disease. (Myopathia rachitica.) E. Baumann.
37 *The Cycle of the Uterus Mucosa. (Le cycle de la muqueuse utérine.) D. Christides and P. Besse.
38 *Hematuria from Physical Overexertion. (Ueber Nierenblutungen durch Ueberanstrengung.) Wildbolz.

December 18, No. 51, pp. 1601-1632

39 Abdominal Pain in Soldiers as Manifestation of Irritation of the Dorsal and Lumbar Spinal Cord. (Ueber Abdominalschmerzen.) A. Jaquet.
40 *Study of the Coagulation of the Blood. (Zur Methodik gerinnungsphysiologischer Studien.) R. Klinger.

29. **Hematuria from Overexertion.**—Lifschitz has found only one case on record in which hematuria was brought on by long standing or walking, but he has encountered recently two such cases in his own experience. Hematuria following competitive athletics is more common. Von Leyden first reported a case of hemorrhage from the bladder with great malaise and dysuria in a young man after a hard ride on horseback. All symptoms had disappeared by the end of two weeks, and there has never been any further trouble from the kidneys. Lifschitz cites the details of ten other similar cases from the literature, the hemorrhage being more or less acute, but all terminating in complete recovery. His own two patients were a teacher of 40 and a medical student, and he himself presented a third case, the hematuria coming on each time after long walking or standing on military service. This makes a total of fourteen cases of hemorrhage after physical stress with apparently sound kidneys in healthy men. The hemorrhage occurs without any warning signs, and may be brief or it may keep up for several days. Recurrence is known in only two cases, but Fürbringer has reported a case in which the hematuria recurred after every long ride. The hemorrhage was never enough to induce anemia, and there was no pain or malaise as a rule. Lifschitz thinks that the products of metabolism accumulated during the physical exertion force their way through the kidneys and induce the hematuria, although the kidneys may be entirely sound. Renal hematuria may be induced by the toxic action of drugs, but he thinks that in his cases it was evidently from the toxic action of fatigue poisons.

31. **Individualizing and Effectual Treatment of Disease of the Blood.**—Fonio remarks that the prevailing methods of testing the coagulating property of the blood give no information as to the causes of the delay in coagulating. He describes a method which reveals the exact factors involved, and apparently opens up a wide field for future research on the blood. Although the technic is still imperfect, yet it already throws light on the nature of hemophilia, purpura, etc., and suggests effectual treatment. He calls it the *separierende Methode* as it aims to determine which of the elements of the blood is lacking in the individual case. It opens a brighter prospect for transfusion of blood in diseases of the blood, as it enables us to select and apply in transfusion the one or more elements needed, leaving out the other elements which are merely undesirable ballast.

We know that coagulation is the result of the release of thrombozym by the destruction of the blood platelets. It combines with the thrombogen to form thrombin, while the latter—in the presence of calcium salts—acts on the fibrinogen and from this action fibrin results. If any one of these four factors is lacking—either blood platelets (thrombozym) thrombogen, fibrinogen or lime—coagulation is retarded. Hence it is important to isolate and examine each of these elements separately. This he accomplishes approximately by the use of hemophilic or other similarly slowly coagulating blood as an index, applying the blood to be tested to this index blood, and noting the effect on it. He records the coagulation time in three phases, represented by a dotted line, a heavy black line and another dotted line. The first represents the time that elapses before there is a trace of coagulation, the heavy black line the period from the first traces to complete coagulation. The second dotted line represents the period of retraction of the clot. By this graphic method comparative study of each case is facilitated, as he shows by a number of examples, the relative lengths of the lines showing which of the four elements isolated is most at fault. He recalls that it is a simple matter to isolate the blood platelets. Two drops of a suspension of the platelets from patients with purpura or exophthalmic goiter or healthy controls were added to six drops of blood from a hemophiliac. The length of the various lines in each test shows at a glance that purpura platelets behaved like normal platelets. Equal amounts of each in separate tests compel the hemophilic blood to coagulate within normal range. His further tests apparently demonstrated that hemophilic blood contains normal proportions of platelets but that they are qualitatively insufficient. In purpura, on the other hand, the platelets are qualitatively normal but are present in insufficient numbers. Six tables and two heavy-line diagrams show the findings in his research. When the blood is deficient in thrombozym, it can be brought up to normal by injection of blood platelets (Fonio's "coagulen") without injecting unneeded elements along with them, as in transfusion of the whole blood. He can already report the cure in this way of two newborn with melena, the arrest of hemophilic hemorrhages, and a favorable influence on hemorrhagic diatheses. It has to be given on the same principles as organotherapy for permanent benefit. (A. Fonio is the physician-in-chief of the Langnau district hospital, and he is also connected with the university surgical clinic at Bern in charge of Prof. T. Kocher.)

34. **Pulmonary Tuberculosis Among Jews.**—Kreinermann cites data from various countries which demonstrate two facts that apparently contradict each other, namely, (1) that the Jews, more than other peoples, present a physical predisposition to pulmonary disease; their sedentary mode of life and overcrowded homes also invite it, but (2) they show everywhere a considerably lower morbidity and mortality from pulmonary tuberculosis than are found in the rest of the population. He cites series of convincing statistics in this line. A number of factors cooperate in this, among them, as he explains, the absence of abuse of alcohol. Many prominent clinicians say they have never encountered a case of

delirium tremens in a Jew. But the most influential factor is probably an acquired immunity. For sixty generations the Jews have lived in crowded quarters in cities and, he says, they paid the penalty of their urbanization centuries ago. Pulmonary tuberculosis raged rife among them then and swept off the frail, leaving the sturdy and resistant, and the immunity thus acquired is sustaining them in our generation. Another factor may be their ritual frequent washing of hands and cleaning up of the premises before the Sabbath. Last but not least, is the high estimation placed on the services of the physician. To visit the sick and seek to help each individual case in every way is part of their religion, and thanks to this the sick obtain medical attendance at an earlier stage than is common elsewhere. Consequently tuberculosis is recognized in its incipiency and gets a better chance to be stamped out.

35. **The Blood Platelets and Renal Hematuria After Overexertion.**—Fonio replies to the article by Lifschitz summarized in abstract 29 above. Fonio thinks that the cases of hematuria reported by the latter must be regarded as instances of latent purpura. The kidneys being normal, the source for the hemorrhage must be sought elsewhere, and most probably it was an insufficiency on the part of one of the four elements which participate in the coagulation process. This insufficiency remains latent until it is revealed during some period of extra physical exertion with its excessive production of waste and fatigue toxins, and the consequent overloading of the circulation with them. He urges examination of the blood and especially of the behavior of the blood platelets and coagulation time as a routine procedure in all cases of hematuria from sound kidneys. We know that intestinal hemorrhage is liable to occur in leukemic conditions and in the jaundice of the newly born, and that profuse, recurring uterine hemorrhage may also be due to certain constitutional affections—all of which might be elucidated and possibly successfully treated by detection and the remedying of the deficiency in some element of the coagulation process. Fonio's study of this subject is summarized in abstract 31 above. He cites here in conclusion a case of epidemic meningitis in which hematuria followed lumbar puncture each time during a certain stage of the disease.

36. **Rachitic Disease of the Muscles.**—Baumann reviews the recent literature on this subject and on the differential diagnosis, and reports in detail a case from his own practice in a 2 months' babe. The acute onset of the muscle trouble and the febrile course in the first few weeks suggested acute polymyositis at first. There was profuse sweating, particularly of the head, but appetite and stools were normal and there was no vomiting. The child's arms hung loose as if paralyzed, but it could move its fingers. The epiphysis in both forearms was unduly thick and a bunch was felt on the bone 3 cm. above the left elbow which roentgenoscopy showed to be a rachitic, lime-free osteoid bunch. The child screamed when the arms were grasped, but did not mind mere contact. The tendon reflexes were normal or exaggerated. The electric excitability of the muscles involved was considerably reduced, but there was always lightninglike twitching, and no reaction of degeneration.

Improvement was soon manifest under phosphorus (0.01 part phosphorus to 100 parts emulsion); one teaspoonful fractioned during the day. The feedings were restricted to milk with two parts thin rice gruel, to a total of 170 gm. a day. The child had been given flour gruel, but this was stopped. In less than a week the wrist could be moved and by another week one arm was functioning normally. By the end of the month the child had regained the use of its arms and the bunch in the arm had retrogressed. The phosphorus was kept up for a few weeks longer, half a teaspoonful of the emulsion, three times a day. Then for two weeks it was suspended, and the twelfth day thereafter the left arm hung loose again—evidently a tendency to relapse after the phosphorus had been eliminated. It was resumed again, and the benefit was apparent the sixth day. He adds that the emulsion of phosphorus is borne better by very young children than when combined with cod liver oil.

37. **The Uterine Cycle.**—Christides and Besse examined scraps taken from the uterus mucosa twice each week during four or five weeks, the scraps taken each time from a different place but all examined by the same staining and microscopic technic. He urges others to conduct research along similar lines for comparison, as one case is not conclusive.

38. **Renal Hematuria from Overexertion.**—See abstract 35 above. Wildbolz also takes exception to Lifschitz' statements in regard to "hematuria from sound kidneys," saying that not until the kidney has been examined in sections from end to end under the microscope is one justified in assuming that it is "sound" when it is the seat of hematuria. Closer investigation, or the course of the case perhaps years later, will reveal some focus responsible for the hemorrhage in nearly every instance, although there are five cases on record in which no focus could be found (Klemperer, Schede, Steinthal, Casper and Schüpbach's case from Wildbolz' service). As a rule, hematuria is the consequence of some serious organic trouble, the prognosis of which grows progressively graver the longer the organic trouble escapes detection. One should therefore never assume that the kidney is sound when confronted with hematuria until after absolute exclusion of organic disease.

40. **The Coagulation Process.**—Klinger writes from Zurich that the blood platelets are not always at fault in hemophilia and similar abnormal conditions of the blood. The trouble lies in the thrombogen. This acts only in the presence of lime salts, and thrombozym is also necessary, the three combining to form thrombin. This with fibrinogen produces the fibrin. Pure, stable solutions of fibrinogen are the best means to study the coagulation process.

Deutsche medizinische Wochenschrift, Berlin

Dec. 9, 1915, XLI, No. 50, pp. 1477-1504

41 Roentgen Localization of Metal Foreign Bodies in the Tissues. (Zur Projektildiagnose.) Albers-Schönberg.
42 *Present Status of Military Surgery. (Ergebnisse der bisherigen kriegschirurgischen Erfahrungen.) H. Matti (Bern). Commenced in No. 48.
43 *Typhoid and Circulatory Disturbances during Convalescence. (Typhus und Zirkulationsapparat.) F. M. Groedel.
44 Isolated Dislocation and Fracture of the Astragalus after Grenade Contusion. A. Harf.
45 *Treatment of Fracture in Young Infants. (Zur Behandlung der Säuglingsfrakturen.) E. Buchheim.
46 Intravenous Salicylic Medication. (Behandlung rheumatischer Erkrankungen mit intravenösen Salizyleinspritzungen.) Rubens.
47 Lime Salts to Hasten Recovery from Frost-Bite. (Kalksalze gegen Erfrierung.) J. Bamberger.
48 Enlightenment and Advice for Patient on Discharge from Sanatorium. (Welche Aufgaben ergeben sich für den Heilstättenarzt aus der Fürsorge für seine Patienten auch nach ihrer Entlassung aus der Anstalt?) Klare.

42. **War Surgery to Date.**—Matti concludes this long review of his impressions to date with the statements that physical or mechanical antisepsis is the main thing for wounds in war, but that chemical antisepsis, cautiously applied, is almost indispensable, at least at first. Exposure to the sun and air of profusely secreting wounds is being adopted more and more, and its superiority is now established beyond question. Phlegmonous conditions do excellently under compresses dipped in a warm 1 per thousand solution of salicylic acid, changed every half hour or hour. Large granulating surfaces do better when the method of treatment is changed often. The tissues become accustomed to a given treatment and it loses all stimulating power.

43. **The Cardiovascular Apparatus in Typhoid.**—Groedel remarks that during the febrile phase of typhoid the pulse seldom is as rapid as in other infectious diseases or as might be expected from the height of the fever. At the height of the disease there may be signs of weakness on the part of the heart, but as a rule they subside without leaving any functional or anatomic disturbance. At the same time, mild prophylactic doses of digitalis may be called for in some cases of typhoid. During the first two weeks after defervescence, bradycardia is frequent, as also thrombosis, but from the third week of convalescence onward the pulse and heart action frequently suggest actual myocarditis. The pulse

becomes soft and small and the beat varies. The blood pressure also fluctuates within a wide range and the auscultation findings are variable. He measured the outline of the heart with orthodiagraphy in several hundreds of cases but found the heart much enlarged in only one instance; there was slight enlargement in 2 or 3 per cent.; 10 per cent. were within the normal range. Nothing was found to indicate injury of the heart muscle, and yet a loud systolic murmur was common, usually accompanied by tachycardia and somewhat higher blood pressure. These were noted in nurses as well as in the soldiers, which excludes poisoning from tobacco or liquor as a probable cause. He noticed further that the men who showed bradycardia soon after defervescence were the ones who developed the tachycardia later.

All this evidence points to some disturbance in the internal secretions, especially in the pancreas, suprarenal and thyroid. At Curschmann's clinic, among seventy-three cases of acute thyroiditis, forty were consecutive to typhoid. Groedel has been treating, on this assumption, his patients with post-typhoid circulatory disturbances, and has been gratified with the results. He gives no details as to his technic.

45. **Treatment of Fractured Femur or Humerus in Infants.**—The difficulties in the way of immobilization and extension for fractures in young infants are obvious, especially the lack of any point of support in the soft little body. Buchheim has obviated these difficulties by fastening the child in a plaster bed and having a wire frame embedded in the plaster. The wire frame projects far enough to serve as a support for traction when extension is applied to the limb. He gives illustrations of two cases; in one the extension was applied to the upper arm for a birth fracture, and in the other for correction of a fracture of the femur that had healed leaving deformity that had required osteotomy. The child can be handled and carried around in its plaster bed.

Münchener medizinische Wochenschrift, Munich

Dec. 14, 1915, LXII, No. 50, pp. 1709-1744

49 Fitness for Service and Right to Pension of Soldiers with Nervous Affections. (Dienstfähigkeit und Rentenfrage bei nervenkranken Soldaten.) P. Jolly.
50 Roentgen Localization of Foreign Bodies in Eye and Orbit. (Zur Lokalisation von Fremdkörpern in Auge und Orbita.) Salzer.
51 *Cure of Syphilitic Polyneuritis under Neosalvarsan. (Beitrag zur Neosalvarsantherapie.) W. Powiton.
52 Circulars Distributed to the Subordinate Medical Officers in the Field. (Merkblätter für Feldunterärzte.) E. Rotter; (Moderne Wundbehandlung und chirurgische Assistenz.) Gebele; (Beginnende Behandlung psychischer Erkrankungen im Felde.) Gudden.
53 *Orthopedics and the Field Hospital. C. Deutschländer.
54 Experiences with After-Treatment of Wounded. (Erfahrung über die Nachbehandlung von Verwundeten und Unfallverletzten.) Rumpf.
55 The Diagnosis and Record of Wounds in War. (Diagnosenstellung bei Kriegsverletzungen.) Lörcher.
56 *Direct Intracardial Injection in Shock from Wounds; Three Cases. (Unmittelbare Einspritzung in das Herz bei hochgradiger Lebensgefahr.) Szubinski.
57 Care of the Stump. (Stumpfrettung unserer Amputierten.) H. Hans.
58 The First Dressing for Compound Fracture of Upper Arm or Thigh. (Der erste Verband bei hochsitzenden, offenen Oberarm- und Oberschenkelbrüchen.) Brix.
59 Apparatus for Loosening Up Stiff Fingers. (Bewegungsapparat für aktive und passive Spreizung und Annäherung der Finger.) Moser.
60 Night Blindness in the Troops Possibly Result of Deficiency in Vitamins. (Avitaminose als Ursache der Nachtblindheit im Felde.) Wietfeldt.

51. **Syphilitic Polyneuritis Subsides Under Neosalvarsan.**—The primary lesion of the syphilis healed under prompt mercurial inunctions but the syphilitic toxins evidently remained in the organism and induced a neuritis. It gradually developed into polyneuritis, and treatment with mercury succinimid only seemed to aggravate the neuritis. The young man noticed that he felt weaker after each injection. The known syphilis, the paralysis without sphincter disturbances, the prickling sensations at first, the atrophy and tenderness of the muscles, the abolished reflexes and the tendency to the reaction of degeneration—all suggested neuritis. The Wassermann reaction was negative, but treatment was begun with neosalvarsan. Three intravenous injections were given at eight-day intervals, 0.15, 0.3 and 0.5 gm.; the latter dose was repeated after an interval of fourteen days. He was thus given four injections, supplemented by mild electrotherapy and exercising the muscles. In eight weeks, from absolute helplessness, total paralysis of arms, hands and legs, the young man had regained complete control of his limbs and some of the reflexes had returned.

53. **Orthopedics and the Field Hospital.**—Deutschländer emphasizes that the orthopedic standpoint must be taken from the very first in management of wounds, that is, to aim to reduce the crippling to the minimum. The functioning of artificial limbs depends on the stump, and he gives directions for adapting this to the purpose. He also recapitulates the rules for applying plaster casts so as not to interfere with later functioning. He shows also methods for exercising joints, calling attention in particular to wagon wheels mounted on the walls at the proper height for the joint. They can be used for both active, passive and against resistance exercises, graduating the radius.

56. **Direct Intracardiac Injections.**—Szubinski was unable to save the patients in three cases reported but this experience and research on the cadaver have convinced him that it might prove useful in some cases. He refers to the condition of shock in which stimulants injected subcutaneously and intravenously show no action, although neither the severity of the wound nor the loss of blood is enough to explain the serious condition. He has had a number of men die under such conditions, and as a last resort he injected directly into the heart muscle 2 c.c. of a preparation of digitalis with ten drops of the usual epinephrin solution. There was marked improvement for a few minutes but this subsided. Necropsy revealed fat embolism in the lungs and extreme anemia of all the organs. A second patient in a hopeless condition from an extensive abdominal wound improved materially under three intracardiac injections of 10 c.c. of the digitalis preparation and epinephrin. The heart action kept comparatively good for ten hours before death finally ensued. The third patient had been wounded in the head and conditions were growing worse, respiration slower and slower. An intracardiac injection of 35 c.c. of a mixture of a preparation of strophanthus and epinephrin rendered the pulse at once strong and nearly normal. In none of the cases could the puncture hole in the heart be found at necropsy. In each instance the flagging heart was roused to vigorous work.

Wiener klinische Wochenschrift, Vienna

Dec. 2, 1915, XXVIII, No. 48, pp. 1309-1336

61 Bacteriology of Inflammation of the Gallbladder. (Zur Bakteriologie der Gallenblasenentzündungen.) I. Feldmann.
62 *Positive Typhoid Bacilli Cultures and Agglutination in a Case of Miliary Tuberculosis. M. Blassberg.
63 *Recovery in Apparently Hopeless Case of Epidemic Meningitis after Subcutaneous Injection of Patient's Own Spinal Fluid. (Zur Behandlung der Genickstarre.) L. Stefanowicz.
64 Fatal Gas Embolism with Gaseous Phlegmon. H. H. Schmid.
65 Meningococcus Sepsis. V. Svestka.
66 Traumatic Chylothorax. F. Derganz.
67 The Bacteriologic Laboratory Train. (Das bakteriologische Eisenbahnlaboratorium der osterreichischen Gesellschaft vom Roten Kreuz.) L. Arzt.

62. **Typhoid Bacilli Found in Miliary Tuberculosis.**—Blassberg has obtained positive bacteriologic findings typical of typhoid in so many cases of tuberculosis that he thinks the latter must modify the soil to render it more favorable for typhoid bacilli. He describes in detail a typical case with the necropsy findings. There was absolutely nothing to suggest typhoid otherwise. He draws the important practical conclusion that typhoid carriers should be examined for possible latent tuberculosis.

63. **Autoserotherapy of Epidemic Meningitis.**—The robust girl of 16 showed only transient benefit from antimeningococcus serum and the picture of inflammatory internal hydrocephalus developed with a constantly progressive course. As a last resort the fluid obtained by lumbar puncture was exposed in a thin layer to the sunlight for three hours. Two hours' exposure is known to kill the meningococcus. Ten c.c. of the fluid were then injected subcutaneously on each side of the spine along with an intraspinal injection of the antimeningococcus serum. Improvement was soon manifest and

recovery was complete by the third week. Stefanowicz does not know of any case on record in which this autoserotherapy has been applied in meningitis. He adds that it might be possible to inject the fluid without the exposure to kill the meningococci. They are liable to induce gonitis and endocarditis—cases of such are on record—but the autoserotherapy would tend to cure them.

Gazzetta degli Ospedali e delle Cliniche, Milan

Dec. 2, 1915, XXXVI, No. 85, pp. 1329-1344

68 Case of Inguinal Hernia and Femoral Hernia in Single Sac. G. Giusti.

December 5, No. 86, pp. 1345-1360

69 Submammary Incision in Purulent Mastitis. (Il taglio sottomammario nelle mastiti purulente.) N. Latronico.

December 10, No. 88, pp. 1377-1392

70 *Tendency to Hysteria in Older Children. (L'isterismo degli adolescenti.) P. Ercolani.

70. **Hysteria in Older Children.**—Ercolani bases the diagnosis on the heredity, the child's character, education and emotions, but mostly on the hemi-anesthesia, the hysterogenous zones and the effect of drugs or other agents. Epileptic seizures are favorably modified by bromids, while these have no effect on the hysteric. The prognosis is very favorable with the latter if it is treated promptly and properly with general hygiene, removal from a predisposing environment, country air and avoidance of excesses of all kinds and especially onanism. The convulsion may be treated by compression of the hysterogenous points, inhalation of anesthetics and chloral given internally, but the sovereign prophylactic measure is absolute isolation. He lists the hysterogenous zones in children as the bregma, the sternum, the intercostal spaces near the sternum, nearest the scapula or beneath the outer end of the clavicle in the vicinity of the breast, the spinous apophyses of the various sections of the spine, the central portion of the flanks, the inguinal region, the testicle, the prepuce and certain points in the joints. He relates that pressure at these points induces phenomena characteristic of hysteria, and may bring on a hysteric convulsion, while pressure on these hysterogenous points may also arrest the spasm.

Pediatria, Naples

November, 1915, XXIII, No. 11, pp. 753-816

71 *Meningococcus Meningitis in Infants, and Serotherapy. R. Jemma.
72 Transient Fever in the Newly Born. (La febbre transitoria dei neonati.) S. Lo Cicero.

71. **Meningitis in Infants.**—Jemma analyzes his experience with meningitis in six young infants, all recovering completely under intraspinal serotherapy, the dosage large and repeated. The outcome in one case is not known as the parents took the infant away before the disease had run its course. He declares that the serotherapy is effectual at whatever date it is instituted. One of the children did not get its first dose until the forty-seventh day of the meningitis, but it recovered as promptly then as the others. All came from different districts and no other cases of meningitis were known there. When serotherapy proves ineffectual in meningitis, it is either because the doses have been too small or the serum is old and has lost its antitoxic and bacteriotropic property, or because the meningitis is the work of a parameningococcus. In differential diagnosis he lays great stress on the tension in the anterior fontanel and the contracture of the muscles of the spine. Netter has described a paralytic form, the muscles of the back of the neck abnormally relaxed. Lumbar puncture is the only certain means of differentiation, and it is the more important as it is at the same time a therapeutic measure. Called in consultation in another case of apparent meningitis, the absence of the knee-jerks testified against meningitis. The family objected to lumbar puncture being done. Within a few days the meningitic symptoms had subsided, giving way to the classic picture of acute anterior poliomyelitis. The physician must bear in mind that with meningitis the spinal fluid may be found limpid and apparently normal if examined within forty-eight hours of the onset. In the cases reported, the ages of the children ranged from 6 months to 5 years. They were given four or five injections of 20 c.c. each, except that one child of 4 was given 30 c.c. at the fifth injection of the antimeningococcus serum.

Policlinico, Rome

Nov. 28, 1915, XXII, No. 48, pp. 1605-1636

73 Fat Necrosis of the Pancreas; Two Cases Secondary to Cancer of the Biliary Apparatus; Postoperative Necrosis in One. (Appunti casistici sulla patogenesi della steatonecrosi pancreatica.) P. Rusca.

December 5, No. 49, pp. 1637-1668

74 Diffusion of Smallpox Vaccine in the Organism. (Studio della diffusione del vaccino Jenneriano nell'organismo.) L. N. Spolverini.

December, Medical Section, No. 12, pp. 529-572

75 *The Wassermann Reaction Positive in Chronic Disease of the Liver. (Il valore clinico della reazione di Wassermann nelle malattie con lesioni croniche del fegato.) C. Verdozzi and L. Urbani.
76 *The Urochromogen Reaction in Children's Urine. (La reazione di Moritz-Weisz—reazione al permanganato—nelle urine dei bambini sani ed ammalati.) G. Genoese.

75. **The Wassermann Reaction with Disease of the Liver.**—In this second installment of their article Verdozzi and Urbani give the details of twenty-six cases of chronic liver disease in which there was nothing to suggest possible syphilis. In 9 cases of primary or secondary cancer of the liver, the Wassermann was positive in all but one. In the 17 other cases the disease was mostly cirrhosis of the liver and the Wassermann was positive in 9; in 3 the fixation of complement test was positive even without the antigen. In short, in all but 5 of the 26 cases of chronic liver disease the Wassermann test gave a positive reaction. In 27 control cases of acute liver disease or acute affections of other organs, the response was constantly negative.

76. **The Potassium Permanganate Test Applied to Children's Urine.**—During the last three years Genoese has applied Weiss' urochromogen test to the urine of 457 children. Three drops of a 1 per thousand solution of potassium permanganate were added to a test tube containing the urine diluted twice its volume with water. A control tube contains an equal amount of the diluted urine. A yellowish-gold tint is the positive reaction; otherwise the fluid does not change its color or merely turns brownish. The findings were positive in 14 of 30 healthy children; in 25 of 84 cases of pneumonia; in 6 of 26 typhoid cases; in 24 of 56 with enterocolitis; in 12 of 26 children with whooping cough, and in 3 of 6 with scarlet fever. The response was constantly negative only in 6 cases of nephritis and in 8 of chronic hydrocephalus. He compares these findings with similar experiences published by others—the Italians having done a good deal of work in this line. The contradictory and fluctuating findings with the test demonstrate that it has no clinical import but is merely a physical phenomenon, he declares in conclusion.

Riforma Medica, Naples

Nov. 27, 1915, XXXI, No. 48, pp. 1317-1344

77 *Treatment of Arrhythmia. (Sguardo sintetico sulla fisio-patologia e terapia delle aritmie.) G. Rummo.
78 *Products of Putrefaction in the Intestines as Factor in Blood Diseases. O. Cantelli. Commenced in No. 45.
79 *Case of Primary Intestinal Tuberculosis. M. Pennetta.

77. **Treatment of Arrhythmia.**—Rummo reiterates that useful information as to the cause of the arrhythmia can be obtained by studying the modification of the rhythm as the patient changes from a seated or reclining position to stand erect, or holds up a limb or does some other exercise that makes demands on the heart. The response to compression of the femoral arteries is also instructive. These procedures gage the potential energy of which the myocardium is capable, and induce characteristic variations in the rhythm. They are especially instructive when the changes which follow administration of digitalis or strophanthus are noted. This pharmacologic test can be supplemented by the response to pilocarpin (0.0075 to 0.01 gm.) given to stimulate the vagus; atropin (0.001 gm.) to paralyze it, or epinephrin in the same dose to stimulate the sympathetic. A day or so should be allowed to elapse between these tests. Rummo does not place so much confidence as some do on the conception of vagotony and the drug tests for it; he warns that

they must be applied cautiously and with a very critical mind. Tests with drugs which constrict and those which dilate the central or the peripheral portions of the circulation are also liable to afford insight into the causes of the arrhythmia, especially strychnin, epinephrin, the nitrites and amyl nitrite.

Rummo emphasizes that the new terms "heart block," etc., are merely names suggested by our better knowledge of the causes of the disturbance. The conditions themselves are old and familiar syndromes. The arrhythmia is very seldom simple; there is usually disturbance in both contraction and conduction and possibly in the localization of the starting point for the wave of contraction. It is important to recognize the various components of the clinical picture, and combat one or the other as indications demand. For instance, with bradycardia associated with disturbance in the myocardium functioning with failing compensation, we must give digitalis or strophanthus to reenforce the myocardium, although we know that this may aggravate the tendency to heart block.

78. **Causal Connection Between Putrefaction Products in the Intestines and Blood Diseases.**—Cantelli's experiments on rabbits confirmed the assumption that indol has a pronounced destructive action on the blood. The blood findings under its influence were similar to those in the blood with gastric cancer. Just as certain poisons, such as lead, are able to modify the blood until the blood picture suggests the type of pernicious anemia, the products of putrefaction in the intestines are liable to do the same in rabbits and probably also under certain conditions in man. They may also, he says, be responsible for certain forms of what he calls chloroanemia, but not for true chlorosis.

79. **Primary Intestinal Tuberculosis.**—In the case reported by Pennetta a previously healthy man of 21 developed mild intermittent evening fever, with abdominal pain and diarrhea. These symptoms appeared and disappeared again and again, growing progressively worse, and blood was noticed in the stools the second month. Serologic and other tests for tuberculosis, typhoid, paratyphoid and Malta fever were negative, as also the diazo. The temperature finally became subnormal and the abdomen extremely tender, with diffuse meteorism. Death ensued in three months and necropsy revealed tuberculous ulceration in the intestines over a stretch of 4½ feet; two of the ulcers had eaten their way through the bowel. Nothing abnormal was found elsewhere. The fever had been constantly of the hectic type, but very mild and never lasting for more than two weeks at a time so that the affection ran most of its course without fever. The physical depression was slowly progressive, like that with pulmonary tuberculosis, even during intermissions of the other symptoms. The absence of tubercle bacilli from the stools seems to be the rule with primary intestinal tuberculosis. The differential diagnosis therefore may be a difficult matter as the elements for the diagnosis are inconstant and not very characteristic. Prolonged study of the case is the only way to recognize it. Pässler has reported two cases in which it developed as sudden acute septicemia; Strümpell has reported symptomless cases, and Schützler one in which a woman was stabbed in the abdomen in the midst of apparent health, and the laparotomy revealed numerous tuberculous ulcers in the greater portion of the small intestine.

Semana Medica, Buenos Aires

Sept. 9, 1915, XXII, No. 36, pp. 299-328

80 *Cesarean Section for Prolapse of Umbilical Cord. (Tratamiento de la procidencia del cordon por la operacion cesarea.) E. A. Boero.
81 Swallowing of Air and Uncontrollable Vomiting Cured by Suggestion, Tonics and Diversion. (Aero-saliofagia y vomitos incoercibles.) R. G. Pizarro.
82 Toxicity for Protozoa of Certain Stains. (Accion de los colorantes imino y fenolicos nitrados sobre algunas especies de protozoarios.) L. Guglialmelli and J. J. Carbonell.

September 16, No. 37, pp. 329-356

83 *Changes in the Vascular System and Their Bearing on Treatment; especially with Aortic Insufficiency. (El Signo de Hill en la insuficiencia aortica.) R. A. Bullrich.
84 *Diagnosis of Incipient Pulmonary Tuberculosis. C. P. Mayer.
85 Medical Report on the Prisons of La Plata. (Movimiento habido en los servicios medicos de los establecimientos carcelarios de La Plata.) E. M. Catalan.

80. **Cesarean Section for Prolapse of Cord.**—The shallow contracted pelvis was regarded as the main factor in the irreducible prolapse of the cord, and the aseptic labor rendered cesarean section particularly promising in the case reported. Both mother and child left the maternity in good condition the third week.

83. **Diagnostic Differences of Pressure in the Vascular System.**—Bullrich relates that the difference between the maximal pressure in the forearm and at the ankle was from 4 to 7 cm., mercury, in healthy subjects tested, seated. Under the same conditions, the maximal pressure varied from 11 up to 15 cm. mercury in eight patients with aortic insufficiency. These findings confirmed in every respect Hill's statement in 1909 as to the differential value of such changes in the vascular system, confirmed by Hare in 1910.

84. **Diagnosis of Incipient Tuberculosis.**—Mayer gives the details of three cases to emphasize the necessity for suspecting incipient tuberculosis when a person begins to present symptoms of neurasthenia with slight anemia and tendency to unstable temperature. In each he finally discovered some beginning apical lesions on one or both sides.

Russkiy Vrach, Petrograd

Oct. 3, 1915, XIV, No. 40, pp. 937-960

86 *Prophylactic Treatment of Tetanus with Antitetanus Serum. (O predokhranitelnom liechenii protivostolbnyachnoi sivorotkoi stolbnyaka u ranenikh.) V. E. Proscurin.
87 *Fusiform Bacilli. (K voprosu o rasprostranenii veretenoobraznikh bakterii v prirodie.) L. R. Meyer.

October 10, No. 41, pp. 961-984

88 *Traumatic War Neuropsychoses. A. V. Gerver. Commenced in No. 40.
89 Chondrosarcoma of the Manubrium Sterni. L. G. Stukkey.
90 Intracellular Granules of Living Cells Studied with the Paraboloid Condenser. N. N. Anichkoff.

October 17, No. 42, pp. 985-1008

91 Neuropathology; Its Past, Present Status and Future Problems. M. P. Nikitin.
92 Thoracotomy for Removal of Bullets and Shell Fragments from the Diaphragm, Lungs or Pericardium. V. M. Mintz and A. V. Aizenstein.

No. 43, pp. 1009-1032

93 Superior Advantages of Martin's Pepton in Laboratory Work. S. V. Korshun.
94 *Effect of Air Concussion on the Central Nervous System. (Encephalomyelopathia aero-traumatica s. Neuropathia e contusione aeria.) S. A. Soukhanoff.
95 My Conception of Hysteria. L. O. Darkshevitch. Commenced in No. 41.
96 Ovum a Spermatozoid. (Yaitzo i zhivchik.) A. T. Brandt. Commenced in No. 40.

86. **Preventive Antitetanus Serum Before Operations.**—Proscurin warmly recommends prophylactic injection of antitetanus serum twenty-four hours before any operation on a wounded soldier for prolonged suppuration, and for removal of bullets or fragments of shells. In the majority of cases it is possible to get along without an operation, but when it is necessary to interfere surgically, a prophylactic injection of the antiserum gives good results. During eight months Proscurin had fifteen cases of tetanus and only two of these patients recovered. During the two following months, in which the prophylactic injections were made, tetanus developed but once, and in this single case the preventive injection had been neglected.

87. **Fusiform Bacilli.**—Meyer studied 489 animals, belonging to forty-two various species, for the presence of fusiform bacilli. He found them in every type. They were discovered in the buccal cavity, rectum, and even in the intestines of leeches. He did not find them in fish, spiders and some species of worms. Whether the fusiform bacilli of such widespread occurrence, represent a uniform type, or show variations, he does not pretend to say, as special studies would be necessary to determine this. Yet he points out that the bacteria found in various animals differ in certain morphologic respects, as he describes.

88. **Neuroses and Psychoneuroses in the Soldiers.**—Gerver divides the traumatic lesions of the nervous and psychic spheres (in soldiers) into the traumatic psychoneuroses and traumatic neuroses. Both may be traced to contusions, especially those caused by air concussion or by wounds. The clinical picture of the traumatic psychoneuroses resembles that of common traumatic neuroses, differing from the latter by peculiar hallucinations, illusions, obstinate focal symptoms and a peculiar condition of the upper lids, an inability to raise the upper lid after it has remained closed for a few seconds. The traumatic psychoneuroses from air contusion are especially severe, as they show signs of diffuse lesions of the central nervous system. In those caused by wounds, the local symptoms predominate and the course is milder. The air concussion causes probably diffuse pathologic anatomic changes in the central nervous system, such as molecular changes, miliary hemorrhages, thrombosis and necrosis. The treatment must be individualized, rest being the most important item.

94. **Air Concussion and the Central Nervous System.**—Nervous disorders arising in soldiers from violent shell explosions are, according to Soukhanoff, in the greatest majority of cases due to organic causes. Though no external signs of lesions can be found, no wounds of the skin or head and no fractures, etc., the resulting symptoms such as mental confusion, depression, amnesia, ear and eye disturbances, paralysis, etc., are due to real anatomic changes in the central nervous system. This assumption is sustained by the findings in the spinal fluid such as blood, abnormal albumin content and lymphocytosis, and the subsequent wasting of muscle. Psychogenous and hysteric symptoms may complicate the clinical picture, but they are of secondary nature. Therefore, Soukhanoff thinks that the disturbances should not be entitled "contusion psychoneurosis" but should be designated as air traumatism of the brain and spinal cord. The pathogenesis of these lesions may be explained partly by the action of the rarefied atmosphere from the passing shell and partly by the formation of emboli in the blood, as in caisson disease. The immediate action of the condensed air may hurl the man to the ground and cause a state resembling the so-called concussion of the brain. The poisonous gases resulting from the shell explosion, the emotional shock and, possibly, hemorrhages in the central nervous system from an involuntary violent muscular effort are among other factors liable in this morbid condition.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Nov. 27, 1915, II, No. 22, pp. 2367-2458

97 *Stomach Disturbances from Benign Enlargement of Glands near the Pylorus. (Over maagstoornissen, veroorzaakt door goedaardige vergrooting van klieren in het gebied van den pylorus.) R. de J. de Jong.

98 The Cholera Vibrios Found at the Quarantine Station at El Tor, Sinai. (Het El-Torvraagstuk in de bacteriologie.) J. J. van Loghem.

99 Two Cases of Persisting Hyaloid Artery with Peculiar Restriction of Visual Field. (Twee gevallen van arteria hyaloidea persistens met een eigenaardige gezichtsveldbeperking.) P. J. Waardenburg.

December 4, No. 23, pp. 2459-2550

100 Presenile Dementia of Alzheimer Type; Two Cases. (De ziekte van Alzheimer.) G. P. Frets.

101 Vaccination against Hay Fever. (Voorbehoedende vaccinatie tegen hooikoorts.) B. P. Sormani.

102 Luminal in Treatment of Epilepsy. A. Schoondermark.

103 Free Body Found in Woman's Abdomen. (Een corpus liberum uit de buikholte.) S. M. Kropveld.

97. **Benign Proliferation of Glands in the Stomach.**—De Jong describes in detail four cases in which there had been more or less serious disturbances on the part of the stomach. In three the normal glands near the pylorus had proliferated, narrowing the lumen. In the fourth case there was a lump of aberrant pancreas tissue obstructing the lumen. The assumption of malignant disease had been amply justified by the disturbances, and the discovery of the absolutely normal microscopic tissue in the tumors was a great relief. One patient was a woman of 38 and she had had stomach trouble for over two years, with much pain and emaciation. There was also a history of a period of similar trouble at 18. The stomach sagged and was much dilated. The lumen at the pylorus was obstructed by a ring of enlarged Brunner's glands and complete recovery followed resection of the pylorus and gastro-enterostomy. Nothing was found to suggest an inflammatory process. In a second case the enlarged glands formed a single tumor in the duodenum. The boy of 12 succumbed to sarcoma of the tibia but shortly before death complained of severe abdominal pain, explained by perforation of the ulcerated and enlarged glands. The third patient was a man of 28 who died from perforating ulcers, two in the stomach and two in the duodenum. One of the former had developed on an enlarged gland. In all three the proliferating gland tissue was apparently entirely normal. The condition is not like that of congenital hypertrophy of the pylorus, but its cause is fully as much of a mystery as the latter. Both are primary affections. He does not know of any similar cases on record in which the connection with gastric disturbances was ascertained during life although Alsleben has reported some similar findings in cadavers. De Jong recently discovered a small cyst at the pylorus in the cadaver of a man of 46, but there was no history of stomach trouble in this case. The smooth elastic cyst had evidently not interfered with the stomach functioning or emptying.

In De Jong's fourth case a man of 38 had suffered severely from stomach disturbances for eight years. No tumor could be palpated in the stomach and on the assumption of a duodenal ulcer the abdomen was opened. Nothing abnormal was found except a small bunch close to the pylorus, with a broad base in the mucosa. It was about the size of a pea but covered a space as large as a finger nail. It was easily resected and the patient was freed at one stroke from all his disturbances. The tumor proved to be aberrant but apparently normal pancreas tissue. Illustrations are given of sections of the tumors in the various cases.

Hospitalstidende, Copenhagen

Dec. 15, 1915, LVIII, No. 50, pp. 1275-1302

104 *Pathologic Findings in the Cerebrospinal Fluid in Syphilis. (Undersøgelse over Lymphocytose, Hyperalbuminose og Wassermann's Reaktion i Cerebrospinalvædsken ved Syphilis.) C. With. Commenced in No. 49.

104. **The Spinal Fluid in Syphilis.**—With found pathologic reactions in the spinal fluid in 16.5 per cent. of 212 syphilitics in the secondary stage. Including the doubtful reactions, the proportion was 26.4 per cent. The Wassermann reaction was positive with the spinal fluid in 3.3 per cent.; there was pathologic albumin content in 9 per cent. and, pleocytosis in 12.7 per cent. He classifies all this material, also 41 patients with latent and 17 with tertiary syphilis, 21 with congenital tardy untreated syphilis and 6 cases in which treatment had been applied. Of 27 congenital tardy cases, the spinal fluid was unmistakably pathologic in 8 and probably pathologic in 3 more—a proportion of 30 and 40 per cent. Of 15 patients with nervous syphilis, only 3 had a normal fluid, and only 3 of 23 with syphilitic disturbance of the central nervous system. In 20 in this group there was pathologic albumin, in 17 pleocytosis, and in 12 the Wassermann reaction was positive in the fluid. He gives further details of this extensive study of 700 specimens of fluid from 500 patients and controls.

Hygiea, Stockholm

1915, LXXVII, No. 21, pp. 1265-1328

105 *Blotting Paper Test for Acidity in the Stomach. (Studier over I. Holmgrens kapillaranalys.) S. Orell.

106 Present Status of Diathermia. (Om diatermi.) G. Heüman.

105. **Capillary Analysis of Gastric Acidity.**—Holmgren's blotting paper test for gastric acidity was described in The Journal, March 18, 1911, p. 857. Orell has been giving it a thorough trial anew with comparative tests. He found that there was quite a difference between the results he obtained and those recorded by Holmgren, and finally traced this error to the drying out of the blotting paper that had been used. It was so old that it had lost much of its adsorbing properties and the figures obtained were too high. The findings after five minutes are taken as the standard. When ten minutes have elapsed the probability of error is enhanced.

393.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 6 CHICAGO, ILLINOIS FEBRUARY 5, 1916

CONSERVATION OF VISION AND PREVENTION OF BLINDNESS*

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PHILADELPHIA

In a recent novel occur these words: "The light was going fast. . . . With the splendid [I would amend, the foolish] disregard of youth for its most precious gift, Elsa strained her eyes to thread her needle once more." A great schoolmaster, rich in the wisdom of ripe experience, has said "More eyes are harmed in the home than in the school." Three children sat on the sidelines of a playground, blinking pitifully and peering uncertainly at their comrades romping over the field. Asked why they did not join the merry throng, they replied, "We can't see well enough to play that game." A group of men and women from the better walks of life watched a company of children at play, inmates of a great institution, all blind, and one fourth of them the subjects of blindness from a cause by which they need not have been enslaved. Voicing a popular belief, one spoke thus: "Isn't it pathetic, and yet how cheerful they are; how sweet their dispositions." Shall such sweetness, such cheerfulness, I ask you, be purchased with the coin of blindness?

Two years ago Henry Copley Greene, writing concerning the subject which interests us, issued a "challenge to the professions"; today I would in like manner (I wish I were the master of Mr. Greene's incisive language) issue, not a challenge, but an appeal to society, and ask five questions: Shall Elsa be allowed to trifle with her most precious possession? Shall our homes be permitted to disregard the laws of visual hygiene? Shall children, and those children of the larger growth — men and women — remain on the sidelines because they can't see well enough to play that game, the great game of stirring life with its joy of untrammeled effort? Shall they not have a game which they *can* play? Shall we of these better walks of life pursue our ways in smug contentment, and permit the preventable causes of blindness to continue their black business and ever add to the roll of their victims?

Of the blind population of our country, in general terms these are the component parts: Those who are really blind, for whom the light has gone out; those who still perceive the light, an even more pathetic group; those who see something (with the better eye) as we paradoxically phrase it, the practically or partially blind. But the matter dose not end here. There remains the great group, excluded from the blind population by strict definition, but excluded, too, in large measure, from the ordinary avocations of life whereby bread is won, the "partly sighted." They are not at home in the world of those who have sight, or in that of those who are blind. They dwell in the borderland. They sit on the sidelines.

Let me turn for a moment to the blind. For our present purpose it is not necessary to argue about accuracy of statistical tables; it is safe to say that fully 100,000 men, women and children in this country are, within the strict definition, blind; one fourth of this number need not have lost their sight — the causes of their misfortune are in large measure preventable. These 25,000 persons, by their blindness, deprive the country yearly of about 8 millions of dollars' worth of productive labor. Now the financial stability of our country is not disturbed by this loss of income; we can afford it; we cannot afford the stigma which the loss entails. Because we want this blot erased, we are here to help in the work of health education and of eyesight protection; we are here to call on society for aid in devising measures and for means to carry them out in order that effective results shall merge into perfect victory. We are here, too, I take it, to cure those who are dullsighted in this regard, so that with vision cleared they shall join in the struggle for ocular conservation and make it possible to give sweetness of disposition and ever present cheerfulness, not to the blind (the good God attends to that) but to those who shall be saved from blindness.

The problems are manifold, and their solution of necessity varies in difficulty. Much result-begetting labor has been expended, and we are deeply in the debt of many physicians in their individual capacity and in their state and national organizations, and in the debt, too, of many lay men and women who also in individual capacity, organization and in special field work have given a fine example of generous activity and effective service, which it is a joy to remember and a privilege to record.

The efforts to prevent blindness have been directed through many channels — legal, professional, institutional, social and industrial. They have often been described, and with most of them all of us are familiar. Time does not permit me now to do more than touch on one or two points. Twenty-five per cent. of the inmates of schools and asylums for the blind have lost their sight from that ocular disease usually named ophthalmia neonatorum, which is a conspicuous cause of preventable blindness. About 65 per cent. of the cases of ophthalmia neonatorum are due to a microorganism of high pathogenicity, and this virulent type of the disease, it is estimated, is the cause of approxi-

* Delivered before the National Committee for the Prevention of Blindness, Nov. 4, 1915.

mately 8 per cent. of the blindness in most of the regions of our country. If suitable measures are brought into action to check its ravages, the ocular mortality can be greatly reduced.

In general terms, the measures devised and in operation for the elimination of this preventable cause of blindness are education, compulsory notification, the punishment by law of offenders against properly constructed legal regulations, and compulsory prophylaxis.

EDUCATION

In any program for the prevention of blindness, education and its collaborator "publicity" properly receive large attention. Education intimately concerns the midwife and other persons who have charge of a new-born child, and it should be a prerequisite for the registration of midwives that they should give satisfactory evidence of a proficiency in the knowledge of the dangers and prevention of ophthalmia neonatorum. It is directly related to the duties of teachers of ophthalmology, obstetrics, bacteriology, sanitary science and hygiene, who should so instruct their students in this important subject that they may acquire not only the necessary information, but also a decent respect for their future responsibilities in this regard. But even more important are the education which should be received by the mother who expects to bring a child into the world, by those who constitute her family, by her neightbors, and in short, by the society to which she belongs, and the methods by which this education shall be imparted. To one method I shall refer.

At stated intervals, in communities in which numerous foreigners and negroes of the poorer class are gathered together, from whom many of the most virulent types of this disease are recruited,[1] meetings are organized, and the dangers of the disease are detailed and the methods of overcoming them are described, not by a physician, a social worker, or a visiting nurse, whose advice even when tactfully offered is often resented or regarded with suspicion, but by one of their own number whose words receive respectful attention, and who has acquired influence in the community. His lecture or talk has been prepared for him in the simplest language, and is read or recited by him at the meeting described, always in the language spoken by the majority of his audience, and is illustrated with suitable lantern slides. In these circumstances mothers soon realize what they have a right to demand in the way of attention when their children are born, what they shall insist shall be done, and insistently done, if the eyes of the new-born baby show signs of inflammation, and what penalties may be imposed and must be paid if those in attendance disregard the danger with which the mother is now familiar.

I do not deprecate the excellent results which have followed campaigns of publicity, illustrated lectures, exhibits, newspaper articles, and the distribution of pamphlets of instruction, but I have potent reasons for believing that knowledge thus filtered into the homes of those who are likely to be affected receives an amount of attention far exceeding that which is given to the more usual courses of instruction to which I have referred, and many others who have followed this plan can give like testimony. Had I time I would read one of these lectures, prepared for just such meetings as I have described. For this method of conveying information, we are indebted to Miss Henrietta B. Ely.

COMPULSORY PROPHYLAXIS AND THE FREE DISTRIBUTION OF A PROPHYLACTIC

It is generally, and I think correctly, assumed that since the introduction more than thirty years ago of the Credé prophylactic method there has been a decrease in the number of cases of ophthalmia, at least in large institutions in which trained nurses and trained service are available. Most of us agree that in hospitals entirely devoted to obstetric service, or in hospitals in which large wards exist for this purpose, a modification of the original Credé method in the sense that the strength of the prophylactic is reduced from that originally recommended is of great value. While I do not doubt, as Mr. Van Cleve and others have pointed out, that the distribution of vials of a 1 per cent. solution of silver nitrate to registered physicians, nurses and midwives has proved to be an advertising device both effective and informing, I do doubt whether this is a remedy which it is safe to place in the hands of those who are improperly instructed, or who altogether lack instruction, but who none the less perform the duties of a midwife, and I further doubt whether a leaflet containing directions as to how these vials shall be used is of much service to any of these imperfectly educated persons, and I regret to say that imperfection in education in this respect is not alone a fault peculiar to midwives. I have seen so many severe silver catarrhs in my life, and have certainly seen at least half a dozen eyes badly injured by the reckless or improper use of silver nitrate, that I am inclined to agree with some of the contentions that are prevalent in England, particularly those of Mr. N. Bishop Harman, although I do not dispute the efficiency of the Credé method, and believe it to be essential in institution work and in the hands of those who are competent to use it.

Three years ago I endeavored to ascertain, with the aid of the secretary of the committee on the prevention of blindness of the New York association, whether any advantage or disadvantage had been derived from the compulsory distribution of a prophylactic agent against ophthalmia neonatorum. At that time the files of this office had no statistics to offer as to the advantage or disadvantage in these circumstances, and one was obliged to conclude, as the committee of the American Medical Association had pointed out, that the matter could be settled only by a consultation between committees of experienced physicians which exist in each state and the departments of state public health.

I am fully aware that the distribution of a prophylactic among trained midwives and used by skilful physicians is capable of reducing the percentage of ophthalmia neonatorum, and it may even be, as Wootten has stated, that where the rigid supervision of midwives is in force, and where the training of midwives by accomplished obstetricians takes place, a greater number of cases of ophthalmia occur in the practice of physicians than in the practice of midwives.

But this does not answer the objection which pertains to certain dangers which belong to the *unrestricted* distribution of the silver prophylactic, and if

1. Children of English-speaking parentage are by no means immune; for example, among 116 cases of ophthalmia neonatorum treated in the Gardner ward of the Massachusetts Charitable Eye and Ear Infirmary, according to some published statistics, it was found that seventy-three had come from English-speaking parentage and sixty-three from homes that were considered to be good. The scheme of instruction outlined above does not of course apply in circumstances like these.

it is true that we are yet without the necessary information which should be on file and which should decide whether the advantages derived from the compulsory distribution of a prophylactic agent against ophthalmia neonatorum outweigh certain disadvantages, we ought to have it as soon as possible. A consultation between committees of physicians and departments of health before referred to may be useful, but only too often represents a rather slow-working piece of machinery, and it would therefore seem to be imperative that one of the first duties of a national committee for the prevention of blindness should be to make, with the cooperation of the various state associations which are concerned in this vital business, an intensive study of this whole subject, a study which should be controlled from its central office and undertaken by field agents and others interested in this important matter. This becomes especially important because of the recent statement of one of the greatest of continental authorities that sophol should be used in place of "the formerly employed Credé silver prophylactic."

In the absence of satisfying knowledge on this subject, and so far as my present personal experience is concerned, I believe that compulsory notification represents the most effective method at our command, a notification which should go at once to a legally qualified practitioner, or to a responsible board whose officers can quickly command the services of some one skilled in the treatment or the management of ocular disease. This usually secures promptness in treatment, and evidently, as Lucien Howe has said, should there be neglect in reporting, and should the strong hand of the law reach out to a person, no matter who he or she may be, who trifles with the vision of an infant, the effect is extremely salutary.

As is frequently the case, a district physician or registered midwife, recognizing ophthalmia neonatorum in its earliest stages, sends the child to a competent eye dispensary, and the daily treatment is excellent, but it is not enough; it is the constant supervision of these eyes by trained persons which saves sight. Since all properly managed hospitals at the present time have as part of their equipment a social service, the difficulties of home treatment have been lessened, and the follow-up system has been productive of admirable results, as witness the value, for example, of this type of work in Boston and other cities.

And yet even the social worker and the follow-up system are not always able to control home treatment, or at least not able to make it as effective as the virulence of the inflammation of the baby's eyes may demand. In some cities there are hospitals with wards specially arranged, like the admirable Gardner ward of the Massachusetts General Hospital, for the treatment of these diseases, but many hospitals have no such wards. Not only have they no such wards, but many of them do not admit these cases.

In a collective investigation made by a member of my staff, Dr. T. B. Holloway, of forty-two hospitals in Pennsylvania, only two returned an unqualified statement that ophthalmia neonatorum patients would be accepted. Very properly, he concludes that hospitals receiving state aid should be compelled by law to provide suitable accommodations for the victims of ophthalmia neonatorum. Moreover, society, in the general sense of the term, which supports certain other hospitals not accepting state aid, should demand that they shall make similar provisions. The National Committee for the Prevention of Blindness should force this issue with all the influence it can command, not only because it represents a real work of humanity, but also, if you choose, from a commercial standpoint, because it would mean a reduction of the blind from this cause and therefore a lessening of the economic loss to the commonwealth in which these hospitals exist.

In one state of this Union it has been computed that 100 of the young blind have lost their sight from ophthalmia neonatorum, and that these 100 young persons will eventually cost the state $300,000 for education alone, while the economic loss to the commonwealth because of their lifelong dependence will be many times that sum. Three years ago in the state of Pennsylvania, $123,000 was appropriated by the commonwealth to four institutions or organizations for the blind, and approximately $32,000 of this money was devoted to the welfare of those who were blind from ophthalmia neonatorum. Moreover, as Dr. Holloway in his admirable report on the subject points out, it costs the state of Pennsylvania approximately ten times as much to educate one blind child as it does to educate one seeing child. Perhaps if these figures and similar estimates which could be readily gathered in the various states, were presented to the legislators, they would see fit to take into serious consideration such a law as I have ventured to suggest, especially if it were made plain that if a child with ophthalmia neonatorum in the earliest stages of its development can be transferred to a ward specially devoted to the treatment of this disease, except in rare circumstances, the inflammation can be brought into control and sight saved.

TRACHOMA AND GLAUCOMA

Ophthalmia neonatorum and its ravages are so conspicuous that they have received, I will not say undue attention, for too much attention cannot be paid to this subject, but an attention which has overshadowed the importance of many of the other preventable causes of blindness. There is some danger that people outside of the medical profession and of the organizations devoted to visual conservation shall come to regard the prevention of blindness and the prevention of ophthalmia neonatorum as synonymous terms, and unwittingly fail to realize the scope and possibilities of the national committee for the prevention of blindness. The same, in a certain sense, as Dr. Alger has pointed out, is true of trachoma, and important as the subject is from the standpoint of control of immigration, as well as from the standpoint of the elaboration of facilities for the management of this disease, now happily increasing on all sides, I shall not make further reference to it. Neither shall I attempt to discuss toxic blindness and its prevention, or the problems which surround certain infections, dyscrasias and constitutional diseases in their relation to the degradation of vision, or industrial blindness.

I wonder if it is generally realized how large a percentage of blind persons owe their loss of sight to the disease glaucoma. This disease shall serve as a sample of some of the work which it would seem to me pertains to such an association as this is and proposes to be. If a study is made of the cases of blindness in hospitals, it will be found that the percentage of blindness from glaucoma often exceeds that from any other cause; such an investigation was undertaken by the Massachusetts Commission for the Blind in 1910. To

prevent this disease, or rather, to check it after it has been discovered, Mr. Greene suggests eugenic education, inasmuch as it is sometimes hereditary, the wise distribution of public clinics, and the careful record of the social worker's desk of patients who have come for the relief of glaucoma, so that they shall come under the influence of the follow-up system. All these suggestions are good, but a great difficulty is that patients with the nonpainful, so-called chronic types of glaucoma often report too late. They do not realize what has been slowly taking place, and come only when vision is so far degraded that they are helpless. We educate, or try to educate, households in the dangers and symptoms of ophthalmias. Why not educate them in the early symptoms of glaucoma? I called to see a woman blind, or practically blind, from this disease not long ago, and while evolving the history, the long pathetic history, I was struck with an expression of one of the children in the family who remarked, "We used to wonder when mother took us to the movies why she always saw colored rings around the lights." If only "mother" had known what those colored rings meant there would be one less blind woman in the city from which I come.

Now the social worker who makes, to use Mr. Greene's expression, a calendar of glaucoma patients in any hospital, and properly follows them up, will do much, for it is through this channel that the education most readily passes to the races among which this disease is most prevalent, and who are the best customers of the eye clinics. Furthermore, an important function of social service is concerned with the recognition of symptoms in those who sadly need attention, but who have never presented themselves for examination, not only in the house which is visited, but also in the neighbor's house, and quickly the knowledge of the symptoms of any disease which demands prompt treatment filters through a crowded street. Such a disease is glaucoma, with its long prodromal period, just the period during which the disease can be stopped before it has produced changes which are practically irremediable. I take this affection as an example. To many other ocular conditions the same plan of prevention applies. Therefore it would seem that a national committee for the prevention of blindness should control a social service as part of its equipment, whose workers should specialize in ocular diseases, and who should in this regard assist in the extension of this work of the hospital physician into the life and home of the patient, and who would be attached to eye clinics and dispensaries which cannot afford the important help which comes from trained service of this character. The foundation of such a social service, controlled and supported by the National Committee for the Prevention of Blindness, would be welcomed by the social service organizations of this and other cities; it would possess both graduate and postgraduate possibilities, and would represent another arm of the great service which is dedicated to the work of saving sight. Time does not permit me to elaborate the plan and its effectiveness. I am sure society would realize the advantages which would spring from it, and I trust would support it.

WORK OF A NATIONAL COMMITTEE

The work of a national committee for the prevention of blindness should not be concerned alone with the prevention of blindness, in the strict sense of that term. It ought to be concerned with, and surely is much interested in, the elimination of the evils which spoil eye efficiency. I am thinking about Elsa and the fading light, and I am thinking, too, of the kind of light that ought to exist in homes, in schools, in factories and in stores. To be sure, a great deal has been done along these lines, and is part of the committee's work. Think how much has been accomplished since the almost universal examination of schoolchildren's eyes has been been made practically obligatory, and the problems of proper lighting have been carefully studied. Think how much good has been done by the Council on Health and Public Instruction of the American Medical Association in its publication of the Conservation of Vision series, under the stimulating influence of the capable chairman of the Committee on the Conservation of Vision, Dr. Allport. I venture to suggest that a national committee such as this is should have a subcommittee concerned entirely with the important question of illumination.

Doubtless every ophthalmologist can testify that scarcely a month goes by during which he is not consulted by some school or college or public institution as to the best type of illumination. Men in charge of these institutions want to know authoritatively about what Mr. Ferree calls the efficiency of the eye under different systems of illumination. We all are aware that the rays emitted by artificial lights, when studied with a spectrum, show a remarkable variety, and the potent remarks of Mr. Parsons on this subject may be emphasized, to wit, that too often the aim of inventors has been to attain a maximum efficiency, that is, a maximum illumination at a minimum cost, and comparatively scant attention has been paid to physiologic efficiency, and too little attention to the quality, that is, the wave lengths of the rays emitted by artificial sources of illumination. Would it not be a good thing if there was a department of the National Committee for the Prevention of Blindness to which application could be made for the latest information in regard to illumination? You may say that there are always illuminating engineers at the disposal of those who are interested in building operations, and of course such a department as I speak of would have to be in consultation with illuminating engineers and would need them on its staff. You know that doctors constantly appeal to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for information on any given topic, medical or surgical, and know how admirable the replies are. Would it not be perfectly possible to have an information department on illumination and its relation to visual efficiency and the conservation of the eye, a department to which the inquirer could turn for the latest practical scientific information on this subject? I do not question that it would be supported handsomely if it were known that it had been established, and you would not have far to go for the chairman of that information bureau. You have him right here heading the list of your board of directors. The work of such a bureau would be interesting and effective.

According to Mr. Van Cleve, the most important part of this national committee's work at the present time is carrying on educational propaganda, furnishing material for workers in the field and inspiring such workers to service, and he believes that in these particulars its obligations are being met. He is fully alive, however, to the importance of creating through this national committee an agency for devising means to protect, care for and conserve vision. Indeed, it would seem to me, and I have no doubt seems to all

of those who are concerned with the management of this organization, that conservation of vision in the widest acceptation of the term should be a function of paramount importance in the administration of its affairs. It is impossible in the time at my disposal to do more than make reference to the problem, for example, which surrounds the education of those who are highly myopic, the necessity of classifying them according to the degree of their visual defect, and of arranging their work accordingly. This has been the subject of much study, on the part, for example, of Mr. N. Bishop Harman in London, where, as you know, there are schools, or if not schools, departments in schools, where these high myopes, properly graded, are instructed with full consideration of their visual handicap. The same is true in the city of Berlin.

SCHOOLS FOR THE BLIND AND PARTLY SIGHTED

But it must be evident that there are many children who, in general terms, are classified as "partially blind" and "partially sighted," and they constitute an essentially different group from the myopes to whom I have made reference. As Mr. Burritt puts it, from the point of view of the educator of seeing children, they are "partially blind"; from that of the educator of blind children they are "partly sighted." They represent the class of which I spoke earlier in this paper, who, in general terms, are not blind enough to be in a school for the blind, but who are too blind to keep pace with those who are in schools for the sighted. They are visually handicapped; they sit on the sidelines and cannot play the game.

It is not my province, nor is the time an opportune one, to discuss the coeducation of blind and sighted pupils, or whether Mr. Harman's suggestion that all partially sighted children shall be excluded from schools for the blind shall be followed, or whether arrangements should be made in these schools for the blind to take care of those who have some sight. But it is interesting to know that there exist in some form in connection with the public schools of twelve states in the United States classes for the visually handicapped, and in most of these public schools there is a provision for the coeducation of the blind and sighted. But more important, it seems to me, are those classes which have been instituted in Boston, in Cleveland, in Toledo and in Cincinnati for the partly sighted children, even if the educator of seeing children looks on them as partially blind. Certainly provision should be made, as Mr. Burritt and Dr. Halloway point out, for the instruction of these children in connection with the schools of the children who have normal sight, because these visually handicapped persons must make their way through life, not as blind, but as sighted people, and their associations should, therefore, be with those who see, and not with those who are blind.

It is a matter of great satisfaction to read the report of Mr. Irwin, who has charge of the special classes in the Cleveland public schools, sent within the last few days to our institution at Overbrook, that there are now four centers in the Cleveland public schools for totally blind children, and four for those who are partially blind, that is, partly sighted. The importance of having a number of centers must be manifest to everybody, as it solves at once the difficulties of transportation. Much is being done for these borderland dwellers, but much more can be accomplished, and therefore a national committee for the prevention of blindness and the conservation of vision should do all in its power to improve facilities of education in this regard, and should concern itself not only with the conservation of vision, but also with the utilization of such vision as these handicaped children possess. In each community, through society, proper representations should be made to the various boards of education, so that they shall take up this matter, even as it has been most successfully taken up by some of the schools to which reference has been made.

It must be evident how great a work a committee such as this is and proposes to be can accomplish in this respect. As has often been pointed out, the principles underlying the management of partly sighted individuals depends in largest measure on a reasonably exact classification of the material which would come under the observation of a national committee which concerned itself with this problem. We know that children with full sight in elementary schools ought not to be lumped together in their courses of instruction, and it has been well said by Harman that "the teaching of all children should be a retail and individual proceeding, not the wholesale, stock-pattern sort of thing that takes place in our elementary schools," and yet it is difficult to get away from this faulty technic because of the large number of children who apply for education. With the partially sighted the problem is not so difficult, the material being less great, and the classification could be more readily accomplished. Just here I am tempted to exploit one of my pet theories, namely, that in schools for the blind and schools where the partially sighted are educated, much help could be gained by a sensible application of the principles of modern psychologic research. I am sure this is true in schools for the blind, and I know that Mr. Burritt of the Overbrook school agrees with me. I have not time to tell you how I think it would work out, but I cannot help expressing the hope, if not the belief, that an investigation of this character among the partially sighted would help in the classification in accordance with the need of the case of each child, and I would like to see a trained psychologist on the staff of the national committee.

THE ETIOLOGY OF SYPHILITIC AORTITIS *

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There is an inflammatory lesion of the aorta — the chronic productive mesaortitis of Heller,[1] Döhle[2] and the Kiel school of pathologists as a whole — in which the anatomic features are so frequently associated with syphilis as to indicate a specific origin. In certain quarters, however, there still is a tendency to question the syphilitic nature of the process. The lesion, which often is associated with a definite clinical history of syphilis, is practically always attended by anatomic indications of syphilis beyond the vascular system, such

* From the Pathological Laboratories of the New York Hospital and of Bellevue and Allied Hospitals.

1. Heller: Verhandl. d. deutsch. path. Gesellsch., 1899, ii, 346.
2. Döhle: Deutsch. Arch. f. klin. Med., 1895, lv, 190.

as atrophic pigmented cutaneous scars, indurative atrophy of the base of the tongue, syphilitic changes in the osseous system, gummas in various localities, and other signs of like significance. Inability to demonstrate these changes is to be ascribed, in the majority of instances, not to their absence, but to failure to find them or to interpret them properly — an opinion which we venture to assert on the basis of a somewhat extended postmortem investigation of the subject, and which is in accord with the experience of others who have sought persistently for anatomic confirmation of the syphilitic nature of mesaortitis.

Direct evidence bearing on the specific nature of the lesion in question is afforded by the fact that organisms morphologically indistinguishable from *Spirochaeta pallida* have been demonstrated in the aortic wall in Levaditi preparations (Benda,[3] Reuter,[4] Schmorl,[5] Wright and Richardson,[6] and Longcope and Cook[7]). Others, however, have been less successful. Thus, one of us (Symmers) in a prolonged search for spirochetes in the granulomatous and sclerotic lesions of syphilis in various viscera, was unable to convince himself of the presence of spiral organisms in a single one of thirty cases of syphilitic aortitis. Crowell,[8] working in the Philippine Islands, Aschoff,[9] in Germany, and Leslie Brown,[10] in the laboratories at Bellevue Hospital, have likewise failed. Nevertheless the subject is worthy of further pursuit, and it is this line of investigation which, we believe, will eventually lead to the dissipation of all doubt concerning the specific nature of the lesion.

Another and highly suggestive indication of the syphilitic nature of the process is afforded by the circumstance that, of seventy cases of mesaortitis, 78.5 per cent. yielded a positive Wassermann reaction.[11]

As far as the anatomic changes are concerned, they are most frequently observed in some portion of the arch of the aorta, and tend to disappear as the vessel descends in its course. Occasionally the thoracic or abdominal aorta is exclusively involved. The naked eye appearances are characteristic, and are marked by sharply defined, pale, hyaline elevations scattered over the inner surface of the vessel. These elevations, which seldom exceed a depth of a few millimeters, vary in diameter up to several centimeters, and are elastic in consistence, smooth to the touch and free from calcium. In some cases the hyaline plaques are so distributed as to produce stenosis of the coronary arteries or other of the smaller branches of the aorta; and partial or even complete occlusion of such enormous branches as the innominate and left carotid has been described.[12] Aneurysmal dilatation of the arch, true saccular aneurysm, dilatation of the aortic ring and thickening of the aortic valves, following downward extension of the inflammatory process, are not infrequently to be observed.

Histologically, the lesion is marked, among other changes, by sclerosis of the adventitia and round cell foci in it, the latter often arranged round newly formed, thin-walled vascular channels, the granulomatous tissue extending into the media and, sometimes, into the subintimal region. Scattered through the vessel wall are collections of lymphoid and plasma cells with a sprinkling of epithelioid cells. Occasionally the center of such a focus is necrotic, and giant cells are arranged peripherally. These cellular composites are best interpreted as miliary gummas. There are other cases, however, in which similar foci include giant cells formed round foreign bodies, such as cholesterin crystals, and the resemblance to gumma is striking. In addition to all this, the media exhibits areas of fibrosis or of necrosis, the subintimal connective tissue is thickened and thrown into heaps, and the inner surface of the vessel presents depressions corresponding to scars produced by retraction of the underlying connective tissue. Finally, special stains reveal numerous breaks in the elastic fibers, the intervening muscle cells showing signs of advanced granular degeneration or actual necrobiosis.

The fact that the naked eye changes in this variety of arterial disease are so frequently found in association with classical signs of syphilis in other parts, and that the histologic alterations sometimes include genuine gummas, the occasional detection of spiral organisms in the vessel wall, the clinical history of chancre, and the frequent occurrence of a positive Wassermann reaction, combine to show that the lesion is of syphilitic origin. In fact, to deny its specific nature at the present moment is apt to be regarded as a pose in the direction of singularity. There are, however, contributing factors which, as far as we have been able to learn, have not been adequately dwelt on, and it is for this reason that we venture to record the observations which follow.

Out of several hundred examples of syphilitic aortitis observed at necropsy at the New York, Hudson Street and Bellevue hospitals, we have selected, quite at random, seventy cases, and have correlated the anatomic findings with the clinical histories.

Of the seventy cases, fifty-six, or 80 per cent., occurred in males.

The ages, grouped in decades, are given in Table 1, from which it is apparent that syphilitic aortitis is encountered oftenest between the ages of 30 and 50 years (71.4 per cent.).

TABLE 1.—AGES OF SEVENTY PATIENTS WITH AORTITIS

Ages	Number of Cases	Per Cent.
From 20 to 30	1	0.1
From 31 to 40	16	22.8
From 41 to 50	34	48.5
From 51 to 60	12	17.0
From 61 to 70	7	1.0

TABLE 2.—TIME BETWEEN INFECTION AND DEATH

Number of Cases	Lapse of Years	Number of Cases	Lapse of Years
1	10	4	25
4	12	2	21
1	17	1	22
1	19	1	32
5	20	1	40

Grouped according to years, the difference in point of time between infection by syphilis and death with well marked signs of syphilitic aortitis is given in Table 2.

3. Benda: Berl. klin. Wchnschr., 1906, xliii, 989.
4. Reuter: München. med. Wchnschr., 1906, liii; Ztschr. f. Hyg. u. Infectionskr., 1906, iv, 49.
5. Schmorl: München. med. Wchnschr., 1907, liv, 188.
6. Wright and Richardson: Rep. Massachusetts Gen. Hosp., 1909.
7. Longcope, W. T.: Syphilitic Aortitis: Its Diagnosis and Treatment, Arch. Int. Med., January, 1913, p. 15.
8. Crowell: Personal communication.
9. Aschoff: Pathologische Anatomie, ii, 77.
10. Brown: Personal communication.
11. Pearce, R. M.: The Wassermann Reaction in the Pathology, Diagnosis and Treatment of Syphilis, Arch. Int. Med., November, 1910, p. 478.
12. Darling and Clark: Jour. Med. Research, March, 1915, p. 1.

In twenty-four of the seventy cases, a history of syphilis was elicited during life. Grouped in decades, infection occurred as shown in Table 3.

TABLE 3.—OCCURRENCE OF INFECTION

Age	Number of Cases	Per Cent.
From 10 to 20	3	12
From 21 to 30	16	66
From 31 to 40	4	16
Not given	1	..

It is a matter of common knowledge that the cardiovascular lesions of syphilis are essentially those of comparative youth, so it is not surprising to find that, in our series, syphilitic aortitis was most commonly observed between the ages of 30 and 50 years (71.4 per cent.). In Longcope's series of sixty-three cases, the majority of the subjects were young, 80.9 per cent. being between the ages of 20 and 50 years.

TREATMENT

Of the seventy cases in our series, the history relating to treatment was obtained in twenty-four instances. Of this number, six received no treatment, nine were treated for a few days or weeks, two were under treatment for three months, three for from six to twelve months, two for over a year, and in two instances, the length of treatment was not recorded.

In twenty-one of our subjects in whom it was possible to determine the date of infection and the length of treatment, it was found that an average period of 20.5 years had elapsed between infection and death. In all of these cases treatment had been neglected or abandoned. In Cummer and Dexter's[13] series of twenty-seven patients there was an interval of 17.2 years between infection and the appearance of *symptoms,* in Longcope's[7] series of twenty-three patients an interval of 16.4 years, and in Deneke's[14] series of 200 cases an interval of 20.25 years. The interval of 20.5 years between infection and death, as established by our series of postmortem examinations, and that of nearly eighteen years, as shown by the combined cases of Cummer and Dexter, Longcope and Deneke, are even more closely approximated when it is recalled that, with the development of symptoms in syphilitic aortitis, the disease, for some unknown reason, pursues a rapid course, and death ensues within two or three years. Thus it appears that, even in untreated or neglected syphilis, involvement of the aorta is a late event. It is to be presumed, of course, that treatment is a highly important factor in the prevention of syphilitic aortitis. However, in a case in which the necropsy was done by one of us (Symmers) the subject, who was a physician, had been under intelligent antisyphiltic treatment for three years and, at necropsy, the aorta presented numbers of sacculated aneurysms and was an exquisite example of syphilitic aortitis from commencement to bifurcation.

OCCUPATION

The great majority of the men concerned in our series were of the type whose hours are long and whose work is physically strenuous. The occupations were distributed thus: iron worker 1, painter 1, brakeman 1, engineer 2, laborer 6, cook 2, porter 2, bricklayer 3, waiter 4, longshoreman 2, janitor 3, salesman 3, watchman 1, sailor 2, blacksmith 1, elevator man 2, teamster 2, orderly 1, cabinet maker 1, bartender 1, cigar maker 1. Among the women were 5 housewives, 1 cook and 1 nurse.

Among occupations such as these it must be that there are frequent periods during which the blood pressure in the aorta is raised, often suddenly, as in heavy lifting, thus predisposing to stretching of the vessel wall, to rupture of the elastic fibers and to advancement of an inflammatory process which, in the most favorable circumstances, is never given the mechanical benefit of rest. It is significant that, in one of our cases, necropsy revealed numerous threadlike lacerations in the intima of the aorta due, apparently, to the fact that, in the agonal hours, the patient had vomited violently and without appreciable intermission.

HABITS AND INTERCURRENT DISEASES

Of the 70 patients, forty-six, or 65.7 per cent., admitted addiction to the immoderate use of alcohol. A few were confirmed coffee drinkers. The influence of tobacco could not be determined.

In seventeen cases (24.2 per cent.) there was a history of definite, often repeated attacks of acute rheumatic arthritis. This is significant when considered in connection with the fact that acute rheumatic arthritis of itself is known to cause inflammatory changes in the normal aorta. It is safe to assume that the same is true of other infections. For example, one of our subjects, a man, aged 60, had contracted syphilis at the age of 20, and discontinued treatment six months later. He had had one attack of acute rheumatic arthritis. At necropsy the arch of the aorta and the abdominal aorta showed extensive syphilitic changes, and the hyaline patches had undergone necrosis, producing areas of erosion. Friedländer's pneumobacillus was isolated in pure culture from the blood. Infections other than syphilis must, therefore, exert an inimical influence on an aorta already the seat of structural changes.

A history of malaria was elicited six times, smallpox twice, chronic bronchitis with winter cough once, and recurrent gout, typhoid fever, yellow fever and chronic dysentery once each.

ANEURYSM AND SCLEROTIC AORTIC VALVULITIS

In our seventy cases, aneurysm occurred twenty-one times, or in 30 per cent., a figure which is in close agreement with that of F. H. Welch[15] who, in fifty-six cases of fatal syphilis, found aortic disease in 60.7 per cent. and aneurysm in 32 per cent. While it is apparent from this that considerable numbers of all patients with syphilitic aortitis eventually develop aneurysm, the converse is equally striking, namely, that, in the aorta, from 75 to 90 per cent. of all aneurysms are directly traceable to syphilitic aortitis (Heller,[1] Puppe[16]).

In eleven of our seventy cases (15.7 per cent.), the first portion of the arch of the aorta was dilated without attendant evidence of thickening and retraction of the aortic cusps, and, of this number, five, or 45.4 per cent., presented clinical signs indicative of relative insufficiency at the aortic ring.

For many years clinicians have been aware that there is a relationship between a group of cases of aortic regurgitation and the so-called parasyphilitic

13. Cummer, C. L., and Dexter, Richard: The Relation of Aortitis to Syphilis, and the Importance of Its Recognition, THE JOURNAL A. M. A., Aug. 10, 1912, p. 419.
14. Deneke: Deutsch. med. Wchnschr., 1913, xxxix, 541.
15. Welch, F. H.: Lancet, London, 1875, ii, 769, 899; Med. Chir. Tr., 1876, lix, 59.
16. Puppe, quoted by Pearce (Footnote 11).

diseases, paresis and tabes dorsalis. While syphilis as the underlying cause of both paresis and tabes has long been recognized, it is only within comparatively recent years that the same factor has been invoked to explain these and certain other cases of aortic regurgitation. Thus, in 1902, Fabris[17] pointed out that syphilitic aortitis not uncommonly eventuates in simple dilatation of the aorta, or in actual thickening and retraction of the aortic cusps as a result of downward extension of the inflammatory process, producing, in either event, phenomena referable to insufficiency at the aortic orifice. This observation has since been confirmed by Saathoof,[18] Mönckeberg,[19] Longcope[20] and others. In Longcope's series of seventy-six uncomplicated cases of chronic aortic valvulitis, twenty-one, or 34 per cent., were associated with syphilitic aortitis. In our series, nineteen, or 27 per cent., were attended by sclerosis and retraction of the aortic valves.

SUMMARY

1. The mesaortitis of Heller and Döhle is essentially a syphilitic lesion, but its production is favored by certain other factors, among which age, sex, the length and character of antisyphilitic treatment, intercurrent disease, especially infections such as acute rheumatic arthritis, alcoholism, and occupations necessitating prolonged physical strain play a not unimportant rôle.

2. (*a*) Syphilitic aortitis occurs most often in males — in 80 per cent. of our series — a fact which assumes additional importance when taken in connection with occupational influences.

(*b*) Syphilitic aortitis is a lesion of comparative youth, occurring oftenest between the ages of 30 and 50 years — in 71.4 per cent. of our cases.

(*c*) In untreated or neglected syphilis, the average interval between infection and death with anatomic confirmation of the existense of syphilitic aortitis is 20.5 years, from which fact it is apparent that, even in the least favorable circumstances, the lesion arises late in the course of syphilis.

3. (*a*) About 30 per cent. of all patients with syphilitic aortitis develop aneurysm.

(*b*) At least 15 per cent. of all cases of syphilitic aortitis are attended by dilatation of the first portion of the aorta.

(*c*) About 30 per cent. of all cases of syphilitic aortitis eventuate in sclerosis and retraction of the aortic valves.

(*d*) Leaving out of consideration the occurrence of such clinical phenomena as angina pectoris and cerebral disturbances referable to occlusion of one of the larger branches of the aorta, such as the innominate or left carotid artery, it appears to be probable that few cases of syphilitic aortitis pursue a course free from subjectively appreciable or even detectable clinical manifestations.

17. Fabris: Gaz. méd. ital., 1902. Kaufmann, Spez. Path. Anat., Ed. 6, p. 78.
18. Saathoof: München. med. Wchnschr., 1906, liii, 2050.
19. Mönckeberg: Med. Klin., 1905, i, 1027.
20. Longcope, W. T.: The Association of Aortic Insufficiency with Syphilitic Aortitis, The Journal A. M. A., Jan. 8, 1910, p. 118.

The Barrel Chest.—Nothing is less like a barrel than the "barrel chest." Its most striking characteristic is its greatly increased anteroposterior diameter, so that it approaches the form of the infant's chest.—Richard C. Cabot.

THE REACTIONS AND RESULTS OF TREATMENT IN CEREBROSPINAL SYPHILIS

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The purpose of this paper is to present the relationship between the discomforts from intravenous-intraspinal treatment and the results in terms of the individual's increased or restored economic value to the community.

The material on which the following observations are made consists of thirty-eight cases, watched over periods varying from three months to three years. Fortunately the variety in clinical types has been especially great, so that in this small series almost all the classical forms as well as numerous unusual examples of cerebrospinal syphilis appear. To these thirty-eight patients were given 1,126 intravenous injections and 355 intraspinal injections of medicated serum.

The technic of administration was the usual one. The spacing of the doses was varied with the individual. On the basis that it was desirable to give every patient the maximum amount of the drug, each was started on a weekly injection, usually following a couple of weeks' mercury preparations, of 0.3 gm. of salvarsan, increasing from 0.4 in the early stages of the work to 0.6 gm.

DISTURBANCES

In considering the question of distress to the patient caused by the intravenous injections, every subjective and objective change from normal conditions, no matter how trivial, has been recorded. Table 1 shows the different kinds of reactions met and their relative frequency. Obviously the most frequent is the so-called anaphylactoid phenomenon appearing as slight flushing of the face, urticaria, or more severe shock. This is a remarkable occurrence and one which deserves special consideration. About 55 per cent. of all the cases show the condition at one time or another during the treatment, but in the total of 1,126 injections, its incidence is about seventy-three, or 6.5 per cent. It has occurred both in men and in women, and the age of the subject seems to have no bearing. In most cases the phenomenon occurs at or after the fourth injection, rarely at the second, never at the first.

TABLE 1.—DIFFERENT KINDS AND RELATIVE FREQUENCY OF REACTIONS

Reactions	Number	Per Cent.
Slight flushing	39	3.46
Acute shock	34	3.1
Urticaria	12	1.1
Nausea	13	1.2
Vomiting	30	2.7
Diarrhea	13	1.1
Chill	7	0.6
Malaise	14	1.3
Pain increase	4	0.3
Pain or swelling in veins	5	0.4
Thrombosis	3	0.2
Jaundice	2	0.1
Dermatitis (AS)	2	0.1
Herxheimer (rash or nodes)	10	0.9
Edema	1	0.09

Usually if the reaction has not appeared in a given individual by the fourth or fifth injection, it does not occur. In one exception it showed first at the tenth injection. When the patient has had one reaction — that is, has become hypersensitive to the drug — the chances are great that each subsequent treatment will be accompanied by the phenomenon in greater or less

severity. Many patients presenting this condition of hypersensibility report tasting or smelling the drug almost instantly after the inflow into the vein begins.

The symptoms of this curious phenomenon vary considerably in intensity but follow a very constant type. In the mildest cases there is simply a faint suffusion of the face, so slight that it passes unnoticed by the patient. More striking are the examples in which subjective sensations of an unaccustomed and often distressing nature cause the patient to move restlessly and cough once or twice, or draw a deep breath. Usually a suffusion of the conjunctival vessels precedes this restlessness and gives warning of an approaching reaction. The patient stops talking and begins to move his head a little from side to side, clears the throat frequently, and then often says with rather a suppressed voice, "I feel sort of queer." The suffusion deepens rapidly and the face swells, and the red color changes to cyanosis, and occasionally almost blue. A little later the blueness gives place to ashen gray, which may be of an extreme grade. While the color changes are passing over the face the respirations are short and rapid, and the patient is evidently working hard to get as much air as he wants. He complains of a sense of oppression beneath the sternum and occasionally of feeling his heart beat heavily. As a matter of fact, the cardiac action remains undisturbed in many cases throughout the reaction, though great pulse weakness is met occasionally. The whole disturbance lasts from three to five minutes and passes off gradually, leaving the patient rather limp and discouraged. Very frequently vomiting occurs during the succeeding hours. Blotchy, urticarialike spots have appeared in two or three cases almost immediately after the termination of the shock.

To a certain extent the disturbance may be prevented by very slow administration of the drug. Indeed, with some cases one may cause the shock to appear or disappear merely by starting and stopping the inflowing salvarsan. Other methods have been suggested for the control of this reaction, such as epinephrin given intramuscularly ten minutes before the treatment, and $\frac{1}{100}$ grain of atropin during the shock. While in some cases the remainder of the injection can be given, by pausing for five or ten minutes, it has been recently my habit to stop the injection the moment symptoms begin to appear. This reaction is undoubtedly the worst that patients have, and while it is usually of trivial significance, it may be of very serious nature. In one case not in this series, breathing stopped entirely and artificial respiration was effectively resorted to. Not infrequently urticarial eruptions appear within five to ten minutes. That the nature of this strange reaction is anaphylactic there seems to be little question. Many clinical observers have noted these symptoms, and Swift,[1] in a conclusive series of animal experiments, has demonstrated that the combination of guinea-pig serum and salvarsan produces a substance capable of sensitizing and then shocking the guinea-pig. By the addition of salvarsan, the homologous serum developed the characteristics of a foreign protein.

The other kinds of reactions finding place in Table 1 are very infrequent, gastro-intestinal upsets being the commonest. Vomiting occurred in 2.7 and diarrhea in 1.1 per cent. of the cases. The former usually occurs within five or six hours after the injection, and is associated with the latter. Because these gastro-intestinal upsets appear only in certain individuals, and following the administration of anything more than a small or limited dose, it has seemed to me that they were purely arsenical toxic effects.

The other undesirable effects are so slight and infrequent as to make discussion of them unnecessary.

DISCOMFORTS

Turning now to the discomforts incident to the intraspinal treatment with salvarsanized serum, we find a great array of reactions, as shown in Table 2. First of all, pain stands out definitely ahead of all others. This pain varies in intensity from slight twinges to severe wracking pain which can be controlled only by morphin. Fortunately this end of the scale numbers but few victims, but the middle degrees are felt by a great majority of the patients. In a total of 355 injections there were 104 reactions of all sorts (26.4 per cent.); of these, seventy-eight (19.1 per cent.) were painful. If the number of patients is considered rather than the number of injections, it is seen that 80 per cent. have pain, not at every injection necessarily, but at some time during their course of treatment.

TABLE 2.—DISCOMFORTS INCIDENT TO THE INTRASPINAL TREATMENT WITH SALVARSAN SERUM

	Number	Per Cent.
Total injections	355	....
Total reactions	104	26.4
Pain in the legs	59	13.8
Headache	19	5.3
Odd sensations in the legs	5	1.4
Numbness in legs and perineum	5	1.4
Nausea	3	.8
Vomiting	7	1.9
Coma	1	.3
Vesicle paresis	1	.3
Paraplegia	1	.3
Increased ataxia	2	.5
Sensations in head	1	.3
Weakness	1	.3
Psychic exaltation	1	.3

The pain may occur at various periods in the whole procedure and in various parts of the body. Occasionally a sharp lancinating pain is felt at the moment of puncture. This pain shoots down one or both legs and often to the testicles. It is momentary and is often spoken of by the patient as an electric shock. Whatever the cause — possibly piercing a nerve fiber — it is not very frequent.

The second type of painful reaction is that in which the pain begins during the time of inflow of serum. It is occasionally felt in the sciatic region, occasionally at the site of puncture. Rarely severe, it lasts only a minute or two, and passes off as insidiously as it began. It has never been severe enough to cause the patient to urge that the treatment be suspended.

The third type is perhaps as common as any, and consists of pain appearing within a few minutes after the serum has run in and the needle has been withdrawn. This pain often is fairly severe, usually felt in the thighs, sometimes in the calves and feet. If untreated it may last several minutes and disappear spontaneously, or it may linger for half an hour or longer. Sometimes it comes and goes with more or less severity during the night following treatment. The treatment of this type will be considered later.

The fourth type differs from the preceding in that it occurs only in cases of painful tabes and consists in an exacerbation of the particular individual's special pains. These stimulated pains may be very bothersome for several days after the treatment.

1. Swift, H. F.: Anaphylaxis to Salvarsan, THE JOURNAL A. M. A., Oct. 5, 1912, p. 1236; Intraspinal Therapy in Syphilis of the Central Nervous System, ibid., July 17, 1915, p. 209.

The fifth type is more serious, and a part of a general reaction of considerable severity. In this group there is usually no pain at the time of the injection or following it for several hours. Then the patient begins to feel chilly and uncomfortable, and there is general malaise and headache. Soon a moderate temperature rises. The headache is violent, and the pains in the back and legs often become intense. Objectively the patient presents the picture of meningism. The neck is stiff and Kernig's sign present in more or less completeness.

In one of the three cases coma supervened. The cerebrospinal fluid in this case and in one of the severe instances of Group 3 was examined within from six to eight hours after the serum injection. Both fluids showed a slight serum discoloration and a great increase of cells, over 2,000 in one case and as high as 30,000 per cubic millimeter in the other. These cells are not true polynuclears, but multilobed cells, probably of the class described by Pappenheim as the macrophagic clasmatocytes of Marchand, having their origin in the tissues and not from the blood.

The explanation of the cause of the pain in the different groups can be, of course, only hypnotic. Two suggest themselves:

1. Irritation, either chemical or physical, or both. It has been thought that pain was less frequent when serum diluted with saline was used — say, a 40 or 50 per cent. serum — than when pure 100 per cent. serum was injected. For the past two years only pure serum had been used in this series. Before that time 40 or 50 per cent. serum was given. It does not seem to me that pain is any more noticeable now than in the previous period.

Autosalvarsanized serum and serum prepared by Ogilvie's[2] method, provided not over 0.00025 gm. is added, are equally irritating or nonirritating as the case may be. Serum, however, to which mercury has been added by Byrne's[3] method, seems to have been more irritating than the salvarsanized preparation. This statement must be taken with reservation though, because the number of mercurialized injections in this series is small.

2. The other suggestion for explaining the very severe reactions is that they are anaphylactic in nature. If the demonstration be true that salvarsanized guinea-pig serum behaves as a foreign protein to that animal, it is quite possible that the same thing may be true of man. Furthermore, Gay,[4] Besredka[5] and others have demonstrated that animals may be both sensitized and shocked by the subdural route.

Recently the plan to provide a stock mercurialized horse serum has been brought forward, the idea being to give the physician a convenient serum preparation for intraspinal injection. The undesirability of such a serum is obvious. It has been shown that even a homologous serum can be rendered as dangerous as a foreign protein by the addition of salvarsan (Swift[1]), and on this basis some of the rare and severe reactions following intraspinal injection with salvarsanized human serum have been explained as anaphylactic in nature. Furthermore, there is another aspect of the problem which suggests itself. Longcope[6] showed that repeated injections of foreign protein, which produced successive sublethal anaphylactic shocks, caused definite tissue change in heart and kidneys. In view of these facts, the wisdom of repeated intraspinal injections of foreign serum should be gravely questioned.

That the cause of the pain and general reaction is a transient one, at least so far as visible lesions of the membrane and cord are concerned, is demonstrated by the one opportunity presented at necropsy to view the spinal canal. The patient had received forty-one intraspinal injections of 100 per cent. serum in twenty-six months. The outer surfaces of the cord and membranes were smooth, pale and glistening as normal throughout their entire length. The microscopic sections of the cord are not yet ready for inspection.

In most cases the pain is so-transient and light that no treatment is needed. When the pains following the injection immediately (Group 3) are severe, deep muscular massage of thighs and calves relieves it magically. The specialized pains (Group 4) in painful tabetics are best controlled by heat to the lumbar spine and along the course of pain, and by the administration of phenacetin, pyramidon, and caffein and codein. Very rarely morphin is needed.

In the extremely rare cases, puncture may be necessary to relieve the pain.

In Table 2, "odd sensations in the legs" refers to certain sensations described vaguely by a few patients. These sensations do not amount to pain, but are sufficiently uncomfortable to attract the subject's attention. The next group, "numbness in legs and perineum," is a perfectly definite sequel to introducing directly too much salvarsan or neosalvarsan. Several French observers reported that they had seen this curious numbness usually associated with retention of urine. The symptoms persist for a long period of time, and in two or three cases appear to be permanent.

It is obvious, therefore, that the intravenous-intraspinal method of treatment is not devoid of difficulties for the patient. But perhaps a fair criterion of the real importance of the distressing features of the method is the willingness of the patients to subject themselves repeatedly, over a long period of time, to the intraspinal injections. In only a few instances has it been evident that the patients dreaded the treatment. With very many cases there is practically no discomfort worth recording; but in a fair proportion the treatment is distinctly of a heroic nature.

BENEFITS FROM THE TREATMENT

When we come to consider how much good the patients derive from the intensive treatment under discussion, it is necessary to determine some state of being which can be looked on as a goal worth reaching. Working capacity, or the individual's economic value to the community, is undoubtedly the severest test to which human beings are put. By their response to this trial they succeed or fail in the struggle of life. The question arises, therefore, How well have these patients been helped to return part way or wholly to their level of usefulness?

At the outset, in the various forms of cerebrospinal syphilis, we are faced with two symptom-producing and incapacitating factors. In the first place, most of the cases have been of long standing so that some degree of destruction of nerve tissue may be assumed. Secondly,

2. Ogilvie, H. S.: The Intraspinal Treatment of Syphilis of the Central Nervous System with Salvarsanized Serum of Standard Strength, The Journal A. M. A., Nov. 28, 1914, p. 1936.
3. Byrne, C. M.: The Intradural Administration of Mercurialized Serum in the Treatment of Cerebrospinal Syphilis, The Journal A. M. A., Dec. 19, 1914, p. 2182.
4. Gay, Southard and Fitzgerald: Jour. Exper. Med., 1909, xxl, 21.
5. Besredka and Lissofsky: Compt. rend. Soc. de Biol., 1910, lxviii.
6. Longcope, W. T.: The Effect of Repeated Injections of Foreign Protein on the Heart Muscle, Arch. Int. Med., June, 1915, p. 1079.

there is a factor of the presence in the tissue of the active spirochete and its toxins. Obviously, symptoms due to the former cause are not remediable by chemoserotherapy, though exercise and reeducation of muscle groups may help considerably. But it appears that, even in cases of long standing, there is often a large factor of active syphilis. If this be removed by adequate treatment, there is frequently surprisingly little disability left which is dependent on chronic change. Perhaps the shortest and clearest way to demonstrate what has been done with these thirty-eight cases is to present the results in a small table, as Table 3.

The loss of working capacity depends in the different types on various factors. In those cases with cerebral involvement in which the symptoms are psychic disturbances, the individual may become useless in his work most insidiously. Several patients have told me of lack of concentration or especially of lack of power to make decisions. In the latter instance a man goes on from time to time putting aside decisions, often making elaborate explanations in his own mind why the point at issue had better be postponed temporarily. At first this procrastination of decisive mental effort passes unnoticed by the office force, but gradually becomes not merely apparent but also embarrassing to the patient's co-workers. So his usefulness is little by little undermined until one day he finds that he cannot even do the routine and becomes almost dazed. Such cases are frequent; there are three or four in this series.

TABLE 3.—RESULTS OF TREATMENT IN THIRTY-EIGHT CASES

Condition	Before Treatment	After Treatment*
Useless	26	6†
Working part time or suffering	11	8
Working full time	1	22

* Two died.
† Two, optic atrophy; two, paretics (hopeless); one, paraplegia (improving); one, cystic glioma (dead).

Usually associated with the increasing specific debility in work, as just described, there is a general nervous state, perhaps best called neurasthenia. The patients are anxious, apprehensive and often say "they are just nervous all the time." As they have become aware of their specific inability to work at a time when this general nervousness is at its height, it is extremely difficult to restore confidence in returning specialized powers. Their nervousness occupies their entire attention, so that they put off by every possible excuse the day of returning to their special occupations. Clearing up the syphilitic process brings back the lost powers of concentration and decision, but the neurasthenic habit of postponement of mental effort must be broken by other means. Encouragement, reeducation and mental and physical calisthenics are the main forces in the hands of the physician. But more important perhaps than all is to require the patient to do some work, no matter what, during the period of treatment. The intervals during the injections are long, and for the patient conducive of introspection. Many patients can go back to work on part time. Usually a word to the employer or to the office force makes this easy of accomplishment. Four such patients have been able to go back effectively to their work. One of these has since died of cerebral hemorrhage.

The true paretic, whatever that be, is apparently not helped by the treatment. Two of the four patients, however, when first seen were classical pictures of paresis. If this condition is not true paresis, the difference must be one of degree, and perhaps the only way to differentiate them is by their response to treatment. One case of this type tends to relapse when untreated for three or four months, as though it occupied a middle position between the cases which clear up rapidly and the unimproved hopeless cases.

The locomotor ataxia group become useless in their business, either through pain or inability to walk. Either of these is a much more definite and obvious cause than the others have described.

Degrees of pain which are incapacitating are different with each individual, so that some patients are able and willing to go back to work sooner than others. Ataxia patients in whom the ataxia is of long standing improve less than when the onset is sudden, as a rule. The skill and assiduity with which a patient practices his exercises is a distinct factor in determining how soon and to what extent he can return to his work. The self-consciousness and embarrassment of the tabetic also is often a very potent cause of his failure to return to his occupation.

TABLE 4.—DURATION AND AMOUNT OF TREATMENT

Case	Months	Intravenous	Intraspinal	Working Capacity		Biologic Tests	Shock, Intravenous	Pain, Intraspinal
				Before	After			
14	20	14	9	0	W	C—	0	+
49	4	10	0	W	W	C	+	0
211	2½	6	0	0	0	C—	+	0
126	16	9	9	P	W	C—	0	+
17	6	18	9	0	P	C—	0	+
103	9	29	2	0	W	C	+	+
128	5½	14	5	P	P*	C—	0	+
93	15	33	8	0	W	C—	+	+
94	13	22	4	0	W	C	+	+
89	9	21	11	0	P*	C—	+	+
21	2	5	2	0	0	+	+	+
165	9	24	0	0	W	C	+	0
151	7	28	13	P	W	C	0	+
76	17	44	8	0	W	C	0	+
95	18	41	7	0	W	C	+	+
96	9	19	7	0	0	C	0	0†
124	17	21	8	0	W	C	0	+
208	3	10	2	P	W	C—	+	+
140	4	17	8	0	W	C—	0	+
183	5	23	10	P	W	C—	0	+
91	13	19	3	P	W	C—	+	0
90	16	31	19	0	P	C—	+	+
26	19	34	10	0	0	C—	0	+
44	3	7	7	0	0	+	0	+
22	19	39	19	P	W	C	+	0
173	7	17	6	0	P	C—	+	+
168	6	20	8	P	W	C	+	+
16	19	33	0	P	W	C—	0	0
179	2	6	3	P	W	C—	0	+
153	6	25	13	0	P	C	+	+
18	12	16	14	0	W	C—	+	+
12	21	62	24	0	P	C	+	0
25	28	49	18	0	W	C	+	0
129	2½	7	7	0	0	C—	+	0
24	26	77	41	0	0 *	C	+	+
102	27	48	33	0	W	C—	0	+ ‡
66	10	22	11	0	P*	C	+	0
201	7	20	10	0	0	+	0	0

* Died.
† Severe spinal shock with coma; no pain at any other infection.
‡ Since going to press this patient suddenly became ineffective at his work and has rapidly deteriorated in the course of two or three weeks into a condition of advanced, bedridden general paresis.
W, full-time work; P, part-time work; C, all tests clear; C—, all tests almost clear.

In Table 4 is set forth a complete statement of the length of time and the amount of treatment these cases have received. In parallel columns are indicated the treatment distress and result. It is clear that improvement bears direct relation to the length and intensity of the treatment. When much treatment has been given without the usual improvement there is some other obstructive factor (as optic atrophy, morphinism, or glioma).

SUMMARY

The purpose of the paper has been to show the number and severity of undesirable reactions to treatment, on the one hand, and the results in terms of working capacity, on the other.

The severest reaction to intravenous injections is of the anaphylactic type. The most frequent reaction to the intraspinal injections is pain. The severest is an aseptic meningitis, which may be anaphylactic in origin.

Twenty-six patients out of a total of thirty-eight were economically useless before treatment. After treatment twenty-two were back on full-time work. Rapidity and degree of improvement depend directly on the intensity of treatment. It is important to keep patients at work during the months of treatment.

116 East Sixty-Third Street.

INTRASPINAL ADMINISTRATION OF MERCURIALIZED SERUM

IN THE TREATMENT OF SYPHILIS OF THE NERVOUS SYSTEM *

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The object of this paper is to call attention to some of the work which we are doing in neurology at the City Hospital; it is not an effort to introduce a new therapeutic measure or disparage an old one. Rather, it is a record of work done. The war has made salvarsan so difficult to obtain, and its price so prohibitive, that we have been obliged to seek other means in the treatment of syphilis of the nervous system. Accordingly, last summer we tried the intraspinal administration of mercury. This paper is a recital of the treatment, and a record of the results. Such a paper can be, to my way of thinking, only in the nature of a preliminary report, for several years must elapse, and hundreds of cases must be treated and observed, before conclusions can be reached that are definite and of value. A great deal of credit for this work is due Dr. Blake F. Donaldson, who at the time was my house physician at the City Hospital, and who carried out the details and the technic.

Irrigation of the spinal canal with 1:30,000 mercuric chlorid solution has already been practiced as a postoperative measure. Ravaut, in 1913, in one of the Paris journals, reported the injection of mercurial salts into the dural space for cerebrospinal syphilis, and only a year and a half ago, Byrnes of Johns Hopkins reported the results of thirty-two cases of cerebrospinal syphilis treated by the intradural administration of mercurialized serum.

The cases which I report are forty-five in number. The patients were all treated in my service in the wards of the City Hospital on Blackwell's Island. Forty were given intraspinal injections of mercuric chlorid, and five were given sublamin injections, so that in all there were given 100 injections of mercuric chlorid and thirty-three injections of sublamin (ethylendiamin-mercury sulphate). These patients at the same time were given every week intramuscular injections of mercuric salicylate, and in the very early ones intravenous injections of salvarsan.

The cases treated comprised cases of tabes, general paresis, cerebrospinal syphilis, taboparesis, clinical tabes (that is, tabes with a negative serology) and syphilitic hemiplegia.

The treatment was given in all except five cases as follows:

About 50 c.c. of blood were obtained readily from the patient's arm with a needle of large caliber, and collected in a sterile cylinder, *preferably*, four hours after an intravenous injection of salvarsan. The blood was slanted, the clot separated, and then left over night in the ice-box. The next morning a sterile centrifuge tube (containing about 13 c.c.) was readily filled with clear serum, and was then centrifuged for five minutes. A few red blood cells were collected at the bottom of the tube, and the supernatant fluid poured (sterilely) into a sterile, freshly washed cylinder. To this one-fiftieth grain of mercuric chlorid was added. It was prepared as follows:

One gm. of Merck's mercuric chlorid was weighed out carefully, and added to a liter of sterile distilled water, which was then brought to the boiling point (when the mercuric chlorid would completely dissolve). Of this solution, 1.3 c.c. contains approximately one-fiftieth grain of mercuric chlorid.

The mixture was then added up to 30 c.c. with sterile saline, and inactivated for half an hour at 58 C. It was then injected within an hour. The injection was given with the patient lying on his side. A 30-c.c. syringe was used, and the fluid run in practically by gravity alone. The foot of the bed was elevated for one hour after the injection, and phenacetin was used liberally for pain.

In the other five cases mentioned above, the mercuric chlorid solution was mixed directly with about 20 c.c. of spinal fluid, and the whole immediately injected. In three of these cases the reaction seemed more severe than usual; the cell count was in two cases increased markedly after two weeks. This technic, though much easier, does not seem in the exceedingly limited number of cases to be as good as the other.

The ten patients with general paresis treated showed less improvement than almost any of the others. One half of them, five, showed no change; two became worse. In only three cases was there any marked improvement. These three patients evinced increased strength and diminished tremor. In none were there any reflex changes, but in four of the ten both the cell count and the globulin were diminished.

Of the eighteen patients with typical tabes dorsalis, only four showed no improvement. The remaining fourteen in every instance were helped. One patient showed marked improvement in his general condition, but little change in his reflexes. Nine showed marked subjective improvement with complete freedom from pain. Two of these eighteen died, but as they were moribund when admitted and were treated really as a last resort, it is not fair to record them in the judgments of this form of treatment. So far as serology was concerned, in these eighteen cases, eight, that is, almost 50 per cent., showed a distinct reduction in both globulin and cell count. The improvement in these cases was one in which there was evidence of gain in weight and in strength, a cessation of pain, a regaining of bladder control, and an improvement in the spinal fluid content.

There were three cases of cerebrospinal syphilis. One patient showed no improvement whatever, the remaining two showed marked reduction in the cell count, and one, a Chinaman, gave very marked evidences of both objective and subjective improvement. At the beginning of the treatment, he was bedridden, greatly emaciated, incontinent, and apparently dying. His mental condition was one of confusion and dementia. From the very beginning he began to improve, holding his improvement, and steadily and persistently adding to it so that at the end of two months he was up and working in the ward.

* Read before the Section on Medicine, New York Academy of Medicine, Nov. 16, 1915.

Five patients with taboparesis were treated. Two of these showed no improvement and no change. Of the remaining three, two showed a marked change both objectively and subjectively. The reflexes, as in all of these cases, remained stationary. In two of the five there was a reduction in the cell count and in the globulin.

In the five cases of clinical tabes with negative serology, the cell count was low throughout, and therefore of course no change was manifest in the cell count and globulin. Of these five patients two showed slight subjective improvement, and two remained stationary. One improved a very great deal. She showed marked improvement, regaining the use of her legs and control of her bladder.

There were four cases of syphilitic hemiplegia. Improvement was evident in two. One case remained stationary, one patient died at the end of twelve days with exaggerated dementia, and an aortic leak which decompensated. In one case the cell count was reduced. The two patients who improved did so objectively, that is, the improvement which one would normally expect in a paralytic was hastened and possibly augmented.

A general summary, then, of the forty-five cases treated would give the following results: Six patients showed marked objective improvement as regards the general conditions; nine showed marked subjective improvement; twelve showed some improvement subjective, but it was slight; thirteen showed no improvement; two became worse; three died.

In seventeen of the cases there was a well marked reduction in the cell count and in the globulin, the Wassermann reaction not being readily changed.

The following cases, seven in all, I have been able to follow from the beginning to the present moment. I can, therefore, go into detail regarding them, and will give the accurate history of them, together with the physical and laboratory findings.

REPORT OF CASES

CASE 1.—M. G., an Irish housewife, aged 56, who entered the hospital March 10, 1915, and whose chief complaint was severe shooting pains in the legs, had a negative family history, so far as tuberculosis, cancer, syphilis and sanity were concerned. She gave a fairly straightforward personal history, never having been pregnant, using beer in moderation, and positively denying syphilis. Her present trouble began in September, 1913. She first noticed a weakness and incoordination of her extremities, together with shooting pains in the legs. She had a little trouble in starting the urine, and occasionally had been bothered with diplopia. At the time of admission, she had had no antisyphilitic treatment. The physical signs that this patient showed were equal, but Argyll Robertson pupils, marked ataxia of both upper and lower extremities, and absent knee jerks. She was very ataxic, that is, unable to stand without support. There was no mental impairment, there were no tremors, and there was no involvement of speech. The case was one of tabes.

A Wassermann test made on the blood, July 7, 1914, ten months before admission, was doubtful. Sept. 16, 1914, it was weakly positive. The laboratory reports made just before treatment was instituted were as follows:

The lumbar puncture was made March 11, 1915. The blood was doubtful, the spinal fluid was positive, and there were 24 cells to the cubic millimeter. On that day, the first intraspinal treatment of 0.0003 gm. of salvarsan was given. This was followed by a marked increase in the shooting pains, severe headache, and vomiting which lasted four days.

March 25, another lumbar puncture was made, which showed a positive spinal fluid, and a cell count of 36. This was, as you see, more than on the previous puncture, and was in accordance with the increase in the pains, the headache and the vomiting On this day, an intraspinal dose of sublamin was given; the amount was 0.0013 gm. Again a reaction followed, but not so severe as on the preceding dose.

May 25, another puncture was made. The spinal fluid was still positive, the globulin was plus, and the cell count had dropped to 4. On this day, a dose of mercuric chlorid was given intraspinally, the amount being 0.0013 gm., this being followed by marked increase of pains which, however, lasted only twenty-four hours.

October 25, another puncture was made. This time the spinal fluid proved negative, the globulin was negative, and the cell count dropped to 3. To summarize, then, the results of the treatment in the case of this patient, the first injection after a very severe reaction afforded marked relief. Each injection was followed by a reaction in which the pains were worse, but on each successive injection, the period of the reaction was shortened, and finally, at the end of it, the patient experienced considerable relief. The physical examination showed no change in its findings throughout the entire time. The cell count and the globulin became normal, and on October 25, the patient was fairly comfortable, in a weak general condition, and with occasionally a few pains in the legs, but not nearly so severe as before the treatment began. This patient, in other words, showed excellent subjective improvement.

CASE 2.—L. G., a German workman, aged 50, whose chief complaint was shooting pains in his legs, had a negative family history, and his personal history showed only malaria, and moderate beer drinking. He admitted a specific infection of twenty-five years ago. He had no remembrance of any secondary symptoms, and probably had no treatment other than local. His present trouble began eighteen months before admission, with a weakness in both legs. This was followed by slight ataxia, difficulty in starting the urine and severe shooting pains in the legs. The pains were intermittent, and became very violent. The patient lost 40 pounds in weight. On admission he showed irregular and equal pupils, the right Argyll Robertson. His hearing was impaired in both ears, his knee jerks were absent, his gait was ataxic, and he had a Romberg. The ataxia was quite marked in the legs, but there was very slight, if any, ataxia in the arms.

March 10, the spinal fluid was doubtful, the blood was doubtful, there were three cells, and the globulin was plus-minus. On that day the patient received an intraspinal injection of mercuric chlorid, 0.0013 gm. April 4, the spinal fluid was negative, the cell count 33, and the globulin was plus-minus. On that day the second injection of mercuric chlorid was given of the same strength as the first. Two weeks later, April 20, the spinal fluid was negative, the cell count 23, and the globulin plus-minus. On that day another intraspinal injection of mercuric chlorid of the same strength was given. This patient experienced marked relief from pain after the first treatment. He gained about 10 pounds in weight, and said that he felt much stronger. There was, however, no change in the physical signs, and no improvement in the hearing, vision, or in the starting of the urine.

September 28, the spinal fluid was negative, and the globulin was plus-minus, but the cell count had dropped to 6. The patient had only occasional slight pains in the legs. There was no progression of the other symptoms, but, on the other hand, there was no improvement. In other words, the treatment for some weeks increased the cell count, and then brought it back to where it was before. The first treatment diminished the intensity and duration of the pains in the legs, but gave no change in the reflexes, nor did it offer any objective improvement in the various symptoms of which the patient complained.

CASE 3.—E. W., an American actor, aged 48, whose chief complaint was shooting pains in the legs, and ataxia, with negative family history, admitted specific history in 1892, followed by secondary symptoms. He was treated for a short time by mouth. He had smoked opium constantly for fifteen years, but stopped in 1911 of his own accord. When the ataxia and shooting pains developed in 1912, he took three

injections of salvarsan immediately, and a more or less continuous course of intramuscular mercury. On admission he showed contracted but equal pupils, regular, with a loss of reaction to the light: in other words, Argyll Robertson pupils. There was no impairment of either memory or mind. The knee jerks were absent. There was slight ataxia of the upper extremities, a marked Romberg, and the patient had to depend on a cane for walking. In this patient, six examinations were made of his spinal fluid, and he was given four intraspinal injections.

March 13, the spinal fluid was positive, with 23 cells; the globulin was one-plus. On that day he received an intraspinal injection of sublamin 0.0013 gm. March 24, his spinal fluid was positive, the globulin one-plus, the cell count 19. On that day he was given a second injection of sublamin of the same strength. April 13, the spinal fluid was positive, the globulin plus-minus, the cell count 12. May 5, 1915, the spinal fluid was positive, the globulin two-plus, the cell count 13. On that day he was given an intraspinal injection of mercuric chlorid, 0.0013 gm. On the 25th the spinal fluid was positive, the globulin plus-minus, the cell count 13. On that day he was given another intraspinal injection of mercuric chlorid, 0.0013 gm. September 17 the spinal fluid was positive, globulin plus-minus, the cell count 17. One week after the first injection the shooting pains in the legs cleared up to a marked degree, and only a slight occasional twinge of pain remained. The patient gained in weight and strength, but there was no improvement in the gait. September 17, there was absolutely no objective change in the patient's physical condition. He had occasional slight shooting pains in the legs, and no improvement of gait, but showed only subjective improvement.

CASE 4.—W. M., an Irish laborer, aged 51, whose chief complaint was shooting pains in the legs, and ataxia, admitted to moderate use of alcohol, but did not remember any specific infection. His family history was negative. His present trouble began in 1905, when he developed shooting pains in the legs, and ataxia. He came to the City Hospital in 1908, where he had been constantly treated with mercury and potassium iodid. He also had one dose of salvarsan in 1913. Since his treatment his pains and his ataxia have grown progressively worse. He has slight diplopia; otherwise his vision has not been affected. March 13, he had equal but contracted pupils, Argyll Robertson in character. There was no tremor of the tongue, but there was a slight coarse tremor of the face. He showed marked ataxia of both upper and lower extremities, with diminished elbow jerks, and absent knee jerks. His mental state was excellent. In January, 1911, his blood Wassermann was negative. Nov. 22, 1911, his spinal fluid was doubtful. Nov. 22, 1912, his blood Wassermann was still negative. Sept. 23, 1913, his first lumbar puncture was made; the spinal fluid was positive, the globulin was one-plus. There is no record of the cell count this time. July 4, 1914, his blood Wassermann was negative. The intraspinal treatment was started with this treatment, March 13, 1915. That day his spinal fluid was plus, globulin two-plus, cell count 29. He was given the intraspinal injection of sublamin of the usual strength, 0.0013 gm. This was followed by a reaction of violent headache, and increasing pains in the legs, which lasted for thirty-six hours. Two weeks later, March 24, his spinal fluid was positive, the globulin two-plus, the cell count 40. That day a second intraspinal injection was given, which was followed by a moderate reaction. April 13, 1915, the spinal fluid was positive, the globulin one-plus, the cell count 23. On that day a third intraspinal injection of sublamin was given. This third treatment almost entirely checked the pains, but made no change in the ataxia, or physical findings. September 20, the spinal fluid was still positive, the globulin plus-minus, the cell count dropped to 13. The patient had occasional slight pains in his legs with absolutely no objective change in his condition, save that he had gained in both appetite and weight. This patient then showed occasional subjective improvement over his previous condition.

CASE 5.—R. B., an American housewife, aged 50, whose chief complaint was vomiting and rectal tenesmus, was not alcoholic, and denied any specific infection. She had been addicted to morphin for the past fifteen years. Her present trouble began in 1904. She developed shooting pains in the legs and abdomen together with a girdle pain. Seven years later, she began to experience a difficulty in walking, and was treated for neuritis. In 1907, she took a treatment for the morphin habit which, however, was a failure. This time she was so weak and unsteady that she could not walk. In 1912, she developed Charcot joint in the right knee. March 1, 1914, the patient was practically bedridden, and complained of rectal tenesmus, and shooting pains in the legs. The pupils were dilated and equal, and Argyll Robertson in character. Her hearing was affected. She had a slight ataxia of the upper extremities with absent knee jerks. She was very much emaciated. She had been treated with only small doses of potassium iodid. March 15, the intraspinal treatment with mercuric chlorid was instituted. Three intraspinal injections of $\frac{1}{150}$ grain of mercuric chlorid each, and six intramuscular injections of 1 grain of mercuric salicylate, were given. This treatment covered a period of a little over two months, from March 6 to May 25, and produced the following changes in the serology:

The spinal fluid, from being positive, with globulin of one-plus, and a cell count of 80 on March 6, 1914, changed to a negative spinal fluid, with a globulin of plus-minus, and a cell count of 7, Sept. 10, 1915. In this patient each intraspinal injection caused a severe reaction of forty-eight hours' duration, with a marked increase in both the rectal pain and the shooting pains in the legs. The first injection decreased the severity of the pains very much. The second stopped them absolutely, for a period of two months; the slight recurrences noted were checked by similar intraspinal treatment.

Oct. 6, 1915, the patient changed to the following conditions: She was sitting comfortably about the ward. She had, occasionally, a few slight pains in the legs, largely attributed to her Charcot joint; she had gained a little in weight, and felt improved by her treatment, particularly as regards the rectal crises. Apart from her general condition there is no objective improvement to be noted. Her pupils are still fixed, her hearing is still unchanged, her knee jerks entirely lost, her mentality is excellent, and she has now very slight rectal disturbances. She has very marked subjective, but no objective improvement.

CASE 6.—L. C., a Chinese laundryman, aged 49, whose complaints were weakness, incontinence, headache, and pains in the legs, had an unreliable history, as he spoke a limited amount of English. At the time of admission, he was lying in bed, very markedly emaciated, confused, and very stupid. The pupils exhibited the Argyll Robertson phenomenon. There was a slight tremor of the tongue, and over the sacrum there was a large bed sore. The knee and Achilles jerks were both absent. There was marked incoordination of the lower extremities.

March 13, the intraspinal treatment was begun. On that day the patient was given sublamin. On the 27th another intraspinal injection of sublamin was given. April 16, the third injection was given, which consisted this time of one-fiftieth grain of mercuric chlorid. May 5, the fourth intraspinal injection, consisting of one-fiftieth grain of mercuric chlorid, was given. This treatment, then, covered a period from March 13 to May 5, and consisted of four intraspinal injections, two of sublamin and two of mercuric chlorid. They produced the following changes in the serology and condition of the patient: The spinal fluid from being doubtful with a one-plus globulin, and a cell count of 14, March 13, changed first to a negative spinal fluid, with a cell count of 21, and a globulin one-plus, and finally, May 5, to a positive spinal fluid with a one-plus globulin, and 6 cells. The patient's improvement was very marked. He got up, walked around the ward, gained 20 pounds in weight, his weakness disappeared, he regained the control over his sphincters, and the shooting pains in his legs and the headaches disappeared. In short, at the end of this treatment, he once more seemed like a normal Chinaman, and insisted on going home. He did what we would expect a normal Chinaman to do: he disappeared in the region of Mott Street.

CASE 7.—M. V., an Austrian housewife, aged 32, whose chief complaint was great nervousness, ataxia, shooting pains in the legs, and great difficulty in walking, on admission was weak, responded slowly to questions in a monotonous tone, and was disoriented as to time and place, with an impaired memory for recent events. The knee and Achilles jerks were both absent and she had a Romberg, a gait which was markedly ataxic, and some impairment of speech. The provisional diagnosis of the case was one of taboparesis. Her treatment was begun March 13, 1915, on which day she was given an intraspinal injection of sublamin. This was followed by a marked increase of shooting pains in the legs for twelve hours, and then of considerable improvement. She began to answer questions more readily and walk unassisted.

On the 27th she was given an intravenous dose of salvarsan. Following this she was much worse, vomiting, and becoming very weak and completely disoriented. A week later she was given another intraspinal injection of sublamin. May 3, she was given one-fiftieth grain of mercuric chlorid intraspinally, and on the 19th another one-fiftieth grain, intraspinally. Following this her mental condition became brighter, she was able to walk better, and there was considerable improvement in her general strength. She gained 15 pounds, and became a willing and useful worker around the ward. Her memory became much better.

The spinal fluid remained positive throughout. The blood Wassermann remained positive throughout. The globulin changed from two-plus to one-plus, and the cell count was lowered from 36 to 4. There was no change in the reflexes. The only point to be brought out in this case is that the intravenous injections of salvarsan, given in the course of the treatment, seem to be very damaging.

I fully realize the shortcomings of this paper. Forty-five cases are not a large enough number, nor is six months a sufficient period of time to allow of drawing definite conclusions. It is difficult to hold on to patients; it is especially difficult to hold on to syphilitic patients.

CONCLUSIONS

1. The reaction from mercuric chlorid or sublamin in no way differed from the reaction which followed the administration of salvarsan.

2. The sublamin did not seem to give the same reduction in the cell count or clinical improvement as did the mercuric chlorid.

3. No ill results followed these injections. The three deaths could be easily accounted for, as the patients were practically moribund at the time of the treatment, and were given the injections as a last resort.

4. The patients with tabes and cerebrospinal syphilis were helped more than any others.

5. Such improvement as did occur was evident in the feelings of the patient, in the sphincter control, in the pains, in the gait, and in the serology. There was no improvement in the reflexes.

6. Such intraspinal treatment can be given only at intervals of two weeks, because a cell count does not fall sooner.

7. The reaction obtained was one in which the cell count was first greatly increased, and then diminished.

8. The cell count and the globulin yielded much sooner than did the Wassermann.

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Responsibility of the State.—The health of the individual is an affair of the state, since his dependency, wilful or otherwise, becomes a burden on the state, directly or indirectly.—*Ohio Public Health Journal.*

SELECTIVE SENSORY REGENERATION IN AN ULNAR NERVE LESION *

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From the standpoint of pure physiology, the painstaking observations of von Frey and Goldscheider have demonstrated the independence of the nerve supply of the skin for special sensations. More recently, the exact experimental work of Head and Sherren has amply confirmed this point of view with abundant clinical evidence in peripheral nerve lesions and in cases of nerve regeneration. They have shown that the afferent fibers in the peripheral nerve may be divided into three systems; that is, the specific receptors for protopathic and epicritic sensation, and those which subserve deep sensibility. The nerve fibers and end organs of these systems are independent units and endow the skin with specific receptors for touch, pain, temperature, localization and deep sensibility. These systems can be distinguished by the nervous impulses set free through stimulation of the end organs in the skin.

Thus it has been agreed by physiologists and through clinical analysis, that the sensory functions of the skin are based on certain fundamental and independent qualities, and that these act as somatic receptors for the various tracts of the afferent nervous system. The skin as a tissue offers an ideal medium for the testing of such independent sensory qualities, since in it the fibers representing the peripheral prolongations of the spinal ganglion cells lose their myelin sheaths before entering the epithelium. These independent sensory receptors can best be demonstrated during the process of nerve regeneration, but that they are present and may also be elicited in the normal skin, is shown by an observation of Barker.[1] Here in an area of disturbed sensation on his own arm, it was found that the sensations for cold, warmth, pressure and touch were absent, while the sensation for pain was intact although there could be demonstrated a slight diminution in the number of pain points. This condition, in which only certain of the functions of the peripheral sensory nerves were abolished, was termed elective sensory paralysis. Similar modifications in elective sensory change were later demonstrated by Henry Head[2] in his auto-observations on nerve division. As a result of these experiments it was concluded that the skin was supplied by two anatomically distinct peripheral systems, which regenerated at different periods.

A somewhat analogous condition of selective sensory change was found in a case of complete severance of the ulnar nerve with a secondary suture. The case is reported because it offers admirable evidence of the independence of the sensory nerve endings of the skin as demonstrated during regeneration of the ulnar nerve. The patient was accidentally cut with glass on the left wrist, completely severing the ulnar nerve. After about two months the nerve was sutured. An examination six months later disclosed the following conditions: The ulnar side of the left hand is the seat of severe tingling and at times of pain. It is

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1. Barker, L. F.: A Case of Circumscribed, Unilateral and Elective Sensory Paralysis, Jour. Exper. Med., 1896, i, 348.

2. Rivers, W. H. R., and Head, Henry: A Human Experiment in Nerve Division, Brain, 1908, xxxi, 323.

decidedly hyperalgesic to various stimuli, such as rubbing, touching, etc. The little and ring fingers are glossy and mottled, but without any affection of the nails. All the muscles innervated by the ulnar nerve are weak and atrophied. There is wasting of the interossei, the adductor pollicis, the hypothenar group, the lumbricales and of the flexor digitorum profundus. The atrophied muscles show no reaction to the faradic current. The reaction to the galvanic current is slow and with polar inversion (AnCC > CaCC). The area of ulnar distribution is the seat of marked sensory disturbance which on more detailed examination revealed the following condition:

Epicritic Sensibility.—There is complete anesthesia to cotton wool over the palmar surface of the ulnar distribution. Over the dorsal surface, cotton wool produces slight tingling and pain. In this same dorsal area, a camel's hair brush also produces slight tingling and pain, while the palmar surface is completely anesthetic to a camel's hair brush. In tests for cutaneous localization by means of compass discrimination in the area of pure epicritic disturbance, the dull compass points 2 cm. apart are felt as one stimulus, whereas in a similar area of the unaffected hand they are felt as two points. In the anesthetic area, the pulling of hairs to a slight degree is painful.

In this area of complete anesthesia, particularly in the intermediate zone which lies outside the painful area later described, these results were obtained with varying lengths of von Frey's hair esthesiometer:

10 mm. length—very painful "like a needle."
20 mm. length—very painful.
30 mm. length—tingling without pain.
40 mm. length—faint sense of pressure without pain.

With the needle esthesiometer, pain points on slight pressure could also be demonstrated in this area. In contradistinction to the results obtained in the area of disturbed protopathic sensation, the pain points which could be elicited in this anesthetic (epicritic) area, were isolated and grouped in the middle of the palm and at the base of the ring finger. In no other portion of the pure epicritic zone could pain points be demonstrated, thus showing an incomplete regeneration of an independent sensory system.

Protopathic Sensibility.—Within the area of complete anesthesia to cotton wool and camel's hair brush, there can be demonstrated on the palmar and dorsal surfaces of the ulnar region, an area which is very sensitive to pain. This area is about 1 cm. less in extent than the area of disturbed epicritic sensibility, and includes the entire little finger. In this 1 cm. area, there is a pure epicritic disturbance with the isolated pain points already described on the intermediate zone. The sharp point of the needle esthesiometer in the area of disturbed protopathic sensibility, produces intense pain and occasionally a "cold feeling." Stimulation of certain points causes the painful sensation to irradiate over the entire ulnar distribution of the hand.[3] The sensation to a warm tube is diminished, but a cool tube is described as very cold, "like a piece of ice." With von Frey's hair esthesiometer, stimulation with hair lengths of 10 mm. and 20 mm. is very painful; at 30 mm. there is produced a sense of tingling, but no pain; at 40 mm. length, there is a faint sensation of pressure without tingling or pain. The results with this instrument were exactly the same as in the completely anesthetic area, except that the pain points were crowded closely together and could be demonstrated over the entire region. Deep sensibility was intact on pressure with dull points and to the extreme length of the hair esthesiometer. Here again there was an analogous condition to the anesthetic zone. It seems, therefore, that the pain was produced by the stimulation of the pain points, while the deep sensibility was preserved by the intact muscle spindles. In this area also, the compass test 2 cm. apart is painful even on light touch, and invariably produces a sensation of one painful point, probably due to a fusion of the two sensations through physiologic irradiation.

3. Déjerine, questionably it would seem, is inclined to interpret the occurrence of irradiations and painful points during the process of nerve repair rather on the basis of neuroma formation in the peripheral stump, than as evidence of selective sensory regeneration.

SUMMARY

To summarize briefly, during the process of nerve regeneration, isolated pain points could be demonstrated in a completely anesthetic area, while inside this area the pain points were so closely crowded together that they formed a zone of extreme hyperalgesia. Deep sensibility was intact. This condition proves that the specific receptors for pain were not only independent, but also were more capable of rapid regeneration than the specific receptors for touch.

This case is interesting because it demonstrates the independence of the nerve supply of the skin from special sensations. The specific receptors for touch (epicritic fibers) had completely disappeared and had not regenerated to the slightest extent, thus explaining the area of complete anesthesia. On the contrary, the receptor organs for pain (protopathic system) were the seat of very active regeneration. These end organs of pain could be demonstrated in groups in the area of complete anesthesia (the pure epicritic zone), thus proving that there is not only a difference of time in regeneration of nerve fibers, but these fibers regenerated separately because they were derived from independent afferent and receptor systems. Each system had a different regenerative power and was undergoing a different regenerative process, as shown by the fact that the fibers for touch discrimination regenerated much more slowly than the fibers for pain.

According to Head's[4] tables of the time necessary for regeneration, the recovery of epicritic sensation consumes a much longer period than the recovery of protopathic sensation. This is due to the fact that the protopathic fibers are more primitive and are therefore the first to regenerate, and, as our case shows, they regenerate as an independent system, even in the midst of the area where the epicritic fibers have completely disappeared and have not begun to regenerate. On the contrary, the epicritic fibers subserve a more refined discrimination, of a later evolutionary type and are therefore the last to regenerate, although, as our observation shows, the earlier regenerating protopathic fibers may be demonstrated in a zone in which the epicritic fibers have not regenerated to the slightest extent. The epicritic receptors are the first to disappear in a complete severance of a nerve and the last to regenerate.

In another case of suture of the radial nerve after a stab wound, the area for disturbed touch remained unchanged for months, whereas the area for disturbed pain sensations grew less and less. Finally, this latter area became a mere point in the center of the unchanged zone of epicritic sensation, showing the

4. Head, Henry, and Sherren, James: The Consequences of Injury to the Peripheral Nerves of Man, Brain, 1905, xxviii, 116.

independence of the sensory systems in regeneration, and also the independence of the specific peripheral receptors for both touch and pain. In this case, too, the motility returned and the electrical reactions became normal, proving that the regeneration of the motor fibers and of the protopathic system proceeded more rapidly than the finer discrimination of the epicritic system.

The preservation of deep sensibility in both the protopathic and pure epicritic zones is interesting. It is demonstrated by the fact that dull points and the hair esthesiometer at 40 mm. are able to produce a sense of pressure but are ineffective in producing pain, even over points where it was possible to evoke a painful stimulus with a shorter hair length. It seems from this observation that the threshold value for deep sensibility is more delicate than for pain points. Both are present, while in an identical area there is complete anesthesia for cotton wool. Sherrington has shown that the deep sensibility is appreciated by the terminal receptors called muscle spindles. These bodies are preserved even in atrophied muscles. That they are independent sensory receptors is shown by two facts—first, that when the motor nerve fibers had undergone complete degeneration, as shown by the atrophy and the complete reaction of degeneration, these sensory structures remained unaffected; and second, this deep sensibility was preserved in an area of complete anesthesia. The pulling of hairs stimulated the pain points in the pure epicritic zone, since the hair roots are intimately associated with the tactile organs of pain.

The conclusion to be drawn from these observations is the independence of the nerve supply of the skin from specific afferent receptors. The nerve endings for touch have disappeared and have not begun to regenerate, while the specific receptors for pain are in very active regeneration.

The exact type of the organs involved in the various sensory qualities is uncertain. Von Frey has attempted to classify these end-organs according to the type of specific response, but no general agreement has been reached on his observations. Theoretically, such an adjustment of different sensations on the skin with their differences of regeneration speaks strongly for the doctrine of specific energies of the nervous system.

The condition is best termed a selective sensory regeneration. In most cases of nerve suture the evidence for this type of regeneration is less marked than in the case studied, yet it occurs in all of them to a limited extent. While examinations of this sort consume considerable time, yet they are of clinical value in that they furnish more absolute evidence of the actual process of nerve regeneration than the usual coarser methods of testing sensation.

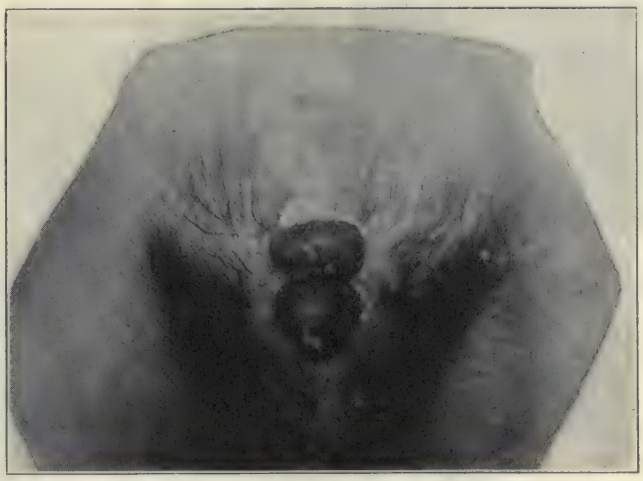


Fig. 1.—Exstrophy of bladder (Case 1). Below the umbilical scar the recti muscles are widely separated; a fibrous layer between them covers in the abdominal cavity. In the pubic region, separated from the normal skin by a white line, a rounded mass, 4.5 by 6 cm., is seen; its color varies from pale rose to dark red; the surface is irregular or wrinkled; granular in patches. The parts are covered with slime, and constantly wet with odorous urine. The ureters are seen opening on the surface of this mass between mucous folds. The orifices discharge jets of urine at intervals. Symphysis pubis is absent; a fibrous band, 1.25 by 6 cm., connects the pubic bones. There is complete epispadias; a shallow groove indicates the floor of the urethra; the roof is wanting. Testicles, scrotum and anus are normal. There is no hernia. The prostate gland is palpable.

EXSTROPHY OF BLADDER

REPORT OF TWO CASES

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Exstrophy of the bladder occurs once in about 29,000 births. Five males to one female are so afflicted. That the male generative organs are more complex, that deficiencies in the anterior median line occur most frequently in the male, and that deficiencies in the posterior median line occur with more frequency in the female sex probably account for this difference.

The mortality during infancy is 60 per cent.

An exstrophied bladder may become carcinomatous. A few cases have been reported.

CAUSE

This congenital defect is best explained on a mechanical basis—an intra-uterine rupture of a completely formed bladder. The first stage in the process is the closing up of the urethra, causing retention of urine. The pubic bones, at this time scarcely cartilaginous, and still ununited, are kept apart until they become hardened. At the same time the rectus muscles are kept apart, so that little by little, by the intravesical pressure of urine, the bladder presses against the abdominal wall and finally ruptures and forms adhesions to the borders of the split.

THE MAYDL OPERATION

Since Maydl (1892) first successfully transplanted the vesical trigon in the sigmoid colon in a case of exstrophy of the bladder, this method — in some instances modified— was followed in 152 cases collected from the literature and the two cases now reported. Of the total number, 129 were males (5 of adult age); 25 were females (7 of adult age). Forty-four died—a mortality of 28.5 per cent. Deaths were attributed to: pyelonephritis, 21; general peritonitis, 8; chloroform narcosis, 1; pneumonia, 3; hemorrhage, 1; pulmonary embolism, 2; other causes, 8.

The functional results were good.

The longest period of observation of patients was seven years.

The originator of the technic reported ten cases — an unusually large number. Twelve cases were contributed by seven American surgeons.

CASE REPORTS

CASE 1.—H. L., man, aged 20 years, whose family history was negative, had had no illness since childhood, and always

lived on a farm, doing the usual work. The disagreeable odor caused by decomposing urine prevented his attending school. He could neither read nor write. The extreme sensitiveness of the exposed bladder mucosa did not tolerate the wearing of trousers, and a dark colored loose fitting skirt reaching to just above the ankles was worn instead. His gait was waddling. A catheterized specimen of urine contained nothing pathologic.

Surgical treatment of this patient during his earlier years, several times proposed to the parents, was rejected for various reasons. A suicidal tendency of late prompted the desire to seek relief now.



Fig. 2.—Exstrophy of bladder (Case 2). Diastasis of rectus muscles. Above the vagina is seen the exstrophied bladder, 4 by 6 cm., with ureteral openings, discharging urine intermittently; this trickles in sufficient quantity to keep the parts below always wet; no symphisis pubis; the pubic bones are joined by a fibrous band; cleavage of clitoris and labia minora; hypertrophy of the latter. The labia majora are sparsely covered with hair. The cervix (eroded, enlarged and lacerated) protrudes beyond vulvar edge. The result of injury to pelvic floor is apparent. No palpable disease of adnexa.

A modified Maydl operation was performed in two stages. The abdomen was opened through the left rectus muscle; the sigmoid was delivered; the bowel was divided; both ends were closed, and a lateral anastomosis was made with needle and thread between the proximal and distal segments at the lowest point possible. The plan was to use the pouch above the anastomotic opening—in the distal segment placed mediad—as a receptacle for urine. Recovery was uneventful.

Ten days later, catheters were placed in the ureters. An incision was made following the line between the skin and bladder mucosa; a catgut ligature was applied 2 cm. distal to the interureteric line; the mucosa and muscularis proximal to this was divided, and the tissue grasped with forceps; the bladder flap was dissected sufficiently loose to transplant without tension; there was considerable venous bleeding, which was controlled by hot sponges and a few ligatures; the vesical flap containing the trigon was trimmed to the proper size and wrapped in gauze. The peritoneal cavity was opened in the midline; the sigmoid colon was brought up; a curved intestinal clamp was applied to the pouch; the trigonal flap (requiring a quarter turn) was apposed to the bowel; the intestine was opened longitudinally 3.5 cm.; transplantation was made with a loop-on-mucosa suture, followed by Lembert stitches. The cavity resulting from the dissection of the bladder flap was packed loosely with plain gauze. The laparotomy wound—endeavoring to correct diastasis of muscles—was closed.

The patient returned to bed in fair condition; on the second day he was much better. He voided urine by rectum every four hours. He did not vomit or complain of renal tenderness. In short, the postoperative course was satisfactory until the seventh day, when a sudden change was noticed.

He complained of precordial pain, his facial expression was anxious, breathing difficult, pulse rapid and weak, temperature elevated. His condition became steadily worse, and he died within a few hours.

A limited postmortem revealed a circumscribed peritonitis in the region of transplantation; there was no leak; the trigonal flap and the bowel wall were of good color; the ureters were normal; the kidneys were somewhat congested; there was no pus. Venous thrombosis was apparent in the region examined.

Considering the trauma to the large veins encountered in the dissection of the exstrophied bladder, and the clinical course, pulmonary embolism was probably the immediate cause of death.

Case 2 is unique — the first instance, according to the literature, in which the patient was a mother.

CASE 2.—Mrs. R., aged 26 years, was the only member of her family to have a congenital deformity. The greater part of her life was spent in rural districts. She never attended school, and was unable to read or write. Prior to her marriage she worked as a domestic. To obtain employment was difficult, and her stay in one place was usually brief. She had borne two children; one was living, aged 4 years; the other died when 4 months old. While her condition was pitiable before she became a mother, childbearing, followed by prolapse of uterus and vagina, added much to her woe.



Fig. 3.—Ascending infection in a dog, terminating fatally in ten days. The left ureter is dilated, and the left kidney contains pus. No apparent change on the right side.

At the first operation the cervix was amputated and the pelvic floor repaired. Recovery was satisfactory.

At the second operation (three weeks later) catheters were inserted in the ureters. The exstrophied bladder was dissected subperitoneally to the requisite extent, and wrapped in gauze. The peritoneal cavity was opened. The uterus was amputated at the corporocervical junction. The ovaries and tubes were preserved. The ligaments were used in the best possible manner to anchor the stump. The sigmoid colon was delivered and an intestinal clamp applied. The bowel was incised in the long axis 3.5 cm. The bladder was brought in apposition with the colon; no tension. Anastomosis and closure of wound were similar to that previously described. The anal sphincter was dilated and a rectal tube inserted.

Following this operation there was a moderate degree of shock, from which the patient soon recovered. She voided urine by rectum every three or four hours. On the eighth

day she vomited several times. Gastric lavage was performed. The patient left the hospital in five weeks, pleased with her condition. Urine was now retained four hours during the day, and caused little discomfort at night.

Subsequent observation, during the past ten months, indicates a good functional result.

ANIMAL EXPERIMENTATION

During the past three years, in a number of dogs, after removing the major portion of the urinary bladder, we have transplanted the vesical trigon in the colon. Our early attempts were occasionally followed by fatal peritonitis or pyelonephritis. Latterly, the results have been quite satisfactory. An animal operated on twenty-six months previously manifested no sign of illness until the onset of a purulent infection of the right conjunctiva, extending to the meninges, resulted in death eight days later. Postmortem revealed practically no change in kidneys or ureters.

CONCLUSION

The result desired in the surgical treatment of exstrophy of the bladder — a reservoir for urine under control — is best attained by the method of Maydl or a modification of this procedure.

Development of the technic on the lower animals is essential to success.

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PLASTIC OPERATIONS FOR ACQUIRED DEFORMITIES OF THE FACE*

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Plastic operations on the face are usually not life-saving procedures; but the curing of a facial deformity not only relieves the physical discomfort of the patient and assuages his mental anguish, but gives relief to the inhabitants of the community in which the patient lives. The necessity for seeing daily some one with a hole in the frontal sinus, a retracted lip, or a deformed nose, is by no means an agreeable prospect. So if a philanthropist be one who makes two blades of grass grow where one formerly grew, plastic surgery of the face may be considered a philanthropic field. Surely it is of more importance to the community than the placing of monuments or the beautifying of streets.



Fig. 3.—Closure of left eye due partly to displacement of fractured bone to which inner canthus of the left eye is attached, and partly to injury to the levator palpebrae.

Surgery of the neck and plastic surgery of the face probably demand more skill than any other kind of surgery. It is essential for one who operates on the neck to be a good operator and to know anatomy well. Plastic work on the face demands some knowledge of anatomy and physiology, but particularly requires a kind of ingenuity to meet unusual conditions and to make things fit, which is not essential in most major surgical operations.

General considerations, such as the age and health of the patient, must be given due weight. The age of the patient is of great importance, as flaps can be successfully transplanted with a smaller amount of nourishment in the young than in the old. In the matter of dressing, dusting the wound with boric acid powder and leaving it open is all that is necessary. If there is much oozing, a compress of dry gauze may be kept on for a few hours. When any of the cavities of the face are involved in the wound, hexamethylenamin is administered before and after operation, as it tends to sterilize the secretions of the mouth and nose.

While general principles can guide in plastic work on the face, each case is truly a law unto itself. Though the same principles may be followed in a certain group of cases, no two of them will be done exactly alike. For this reason a report on plastic surgery of the face, and particularly for acquired deformities, should deal largely with reports and illustrations of individual cases.

Dividing the face into regions and taking them from above downward, we first have the deformities of the forehead. I have had three cases which illustrate a very striking deformity following the loss of a portion of the anterior bony wall of the frontal sinus, all of them resulting from trauma. In such instances it is necessary to find if the infundibulum, or communication between the frontal sinus and nose, is well open. If so, the skin can be readily turned in with the epithelial side down, and the small amount of discharge together with the exfoliated epithelium can go through this communication to the nose. If it is not sufficiently large, a curved probe is passed through the frontal sinus, the infundibulum, and out of the nose and by means of a string tied on the end of the probe a gauze strip is drawn through the infundibulum. The gauze, when sawed back and forth, will increase the size of the opening to the desired caliber. As the bone in this region is quite fragile, this procedure is better than any attempt to use metal instruments. If the defect in the wall of the frontal sinus is large, two small skin flaps are outlined around the depressed margin with the base of the flaps at the margin of the opening. Each external to the incision is undermined and the pericranium cut down to the bone at some distance from the incision into the skin. The flaps are then elevated and turned into the opening with the epithelial surface inside, the pericranium being overlapped like a double-breasted coat. This will fill even a large defect. The skin to cover the raw surface is brought from the adjacent portions of the forehead, depending on the manner in which the scar tissue runs and on the tension (Figs. 1 and 2). A vertical flap with the base over one eyebrow may be used, making the lines of incision when the flap is in position about parallel with the normal creases in the forehead. In one instance in which the defect was not very large, I made a long transverse incision, mobilizing the skin

* Read before the Southern Surgical and Gynecological Association, Cincinnati, Dec. 13, 1915.

* On account of lack of space, this article is abbreviated in THE JOURNAL by omission of some of the illustrations. The complete article appears in the author's reprints. A copy of the latter will be sent by the author on request.

of the forehead, and covered the flaps that had been inverted by sliding the whole forehead down. If the defect is large, however, or particularly if it extends more vertically than transversely, this cannot be done.

Deformities about the eyelid often fall into the hands of the eye specialist. A rather interesting case,

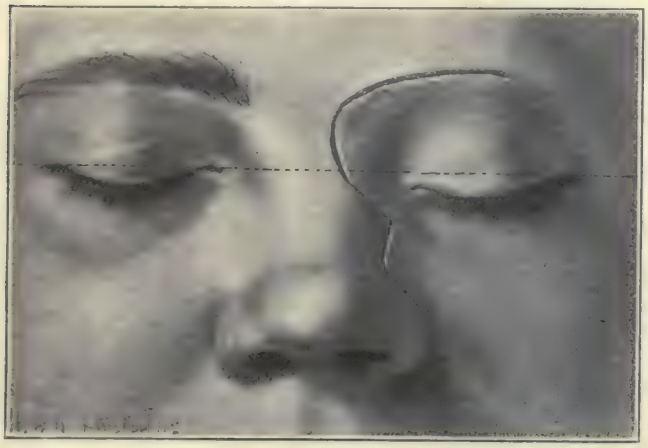


Fig. 4.—Drawing of patient shown in Figure 3. Note that the left inner canthus is lower than the right. The skin incision is shown.

however, came under my care in which the patient was severely injured by an explosion in a mine. The bones of the nose and upper part of the face were comminuted, and after healing had taken place it was found that there was a sagging down of the left eyelid, so that it was impossible for the patient to see with the left eye. An examination showed that the muscles of the eyeball were normal, but the inner canthus was considerably lower than the corresponding inner canthus of the right eye. The problem, then, was to raise the inner canthus of the left eye, and if this did not relieve entirely to shorten the upper lid. An incision was made along the bridge of the nose and through the left eyebrow. A piece of bone including the ascending portion of the superior maxilla, to

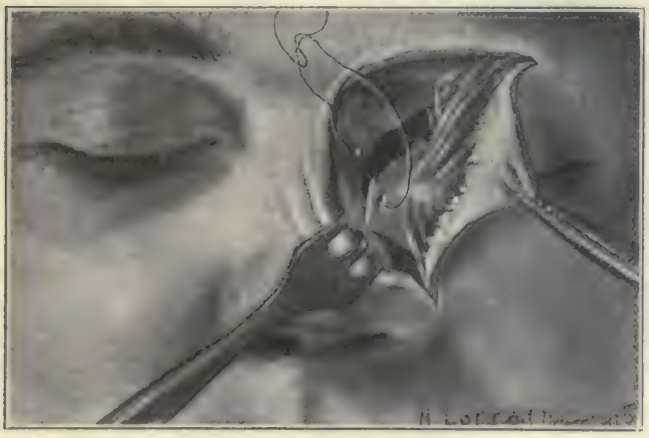


Fig. 5.—The misplaced bone has been loosened, holes have been drilled, and kangaroo tendon to hold fragment in position is about to be tied.

which the inner canthus is attached, and a small portion of the lacrimal bone was found separated and displaced downward. It was loosened from its new position and replaced at its normal level. A hole was drilled in the nasal bone and in the fragment, and the fractured bone was fastened in position with kangaroo tendon. Healing was good, except that there was some discharge of pus opposite the kangaroo tendon. The scar was very satisfactory. This improved the condition, but still the lid could not be elevated enough; so under novocain, a transverse section of the upper lid, including skin and tarsal cartilage, was removed. The wound healed nicely and the patient now has use of the eye (Figs. 3, 4, 5 and 6).

There are occasional instances in which injury is so extensive and so many portions of the face are involved that the case cannot be classified regionally. In one such case the skin for the eyelids was made by freeing the tarsal cartilage, suturing the lids together, and then transplanting a flap from the forearm, leaving it with a pedicle attached for about ten days. After this time, the pedicle was severed and in a few days the flap was split, making both an upper and a lower lid. If necessary, the method of transplanting a flap from the abdomen to the hand and then from the hand to the face can be used. In this case a number of operations were performed, the lips being made by a large flap from the upper arm which was split so as to form part of the upper lip as well as all of the external portion of the lower lip.



Fig. 6.—Result after both operations. Note the scar in the lid, where part of the lid was resected to take up the slack in the attachment of the levator palpebrae.

Defects of the cheek are sometimes difficult to close. When it is impossible to slide flaps from the margins of the opening without too much tension, a flap can be taken from the forehead by dissecting the attached anterior temporal artery and transplanting it beneath the skin. A lower eyelid was made by Monks[1] of Boston by undermining the skin between the region of the eyelid and the origin of the anterior temporal artery, dissecting a flap from the forehead with the anterior temporal artery attached, and carrying the flap and its artery under the undermined skin to its new position. For large defects, the method of transplanting the anterior temporal artery with a frontal flap seems peculiarly desirable. The artery should be dissected with considerable tissue around it and transplanted to its new bed by means of an incision that merely goes through the skin and not deep enough to sever the branches of the facial nerve. The skin, of course, should be undermined on each side so as to cover the artery without tension. The flap should be stabbed in several places to facilitate the oozing of

1. Monks: Boston Med. and Surg. Jour., Oct. 20, 1898.

blood. The chief objection to this operation is that there is too much nutrition, and until a venous supply forms which will carry off the excess of arterial blood, there is danger of the artery pumping the flap so tight that thrombosis and gangrene will occur (Figs. 7 and 8). If the defect involves the mucous membrane of the mouth, the inner raw surface can be lined with mucous membrane from the tongue, as suggested by Willard Bartlett, or a flap may be turned up from the neck with the epithelial surface inside.



Fig. 7.—Defect in cheek resulting from wound with shotgun. The opening is into the nasal cavity.



Fig. 8.—Appearance of patient shown in Figure 7 about two weeks after operation in which a frontal flap was transplanted with anterior temporal artery. Note the scars where the anterior temporal was dissected and transplanted.



Fig. 10.—Young girl with deformity of lower lip from burn. Note the eversion of mucous membrane. Photograph was taken just before operation while the patient was under ether with rubber cap on her hair.

Deformities of the nose are conspicuous and sometimes difficult to deal with on account of the inability to give the shape that cartilage would. In one instance in which the nose completely collapsed because of traumatic destruction of the septum, I transplanted a piece of rib. The rib was split and the half covered with periosteum was molded and inserted between the mucous membrane and the skin of the nose like a rafter, each end of which rested on a superior maxillary bone. In a patient with a defect of the nose following a paste applied by some advertising cancer doctor, the ala was thoroughly freed and a flap was taken from the septum including mucous membrane and some cartilage.

In order to lower the point of the nose, a section of cartilage was removed from the septum. The flap was left attached to the septum near the tip of the nose, and was then brought up into the defect. Thiersch skin grafts were applied to the raw surface. They did not take except in one small place, but the healing was satisfactory. After about two weeks the base of the flap was cut and pushed up on a level with the rest of the nose. The nutrition of the flap was poor at its base (after being cut) and there was probably too much pressure from the gauze which was inserted within the nose to hold up the base of the flap.

There is still a small opening at this point, which I think can be closed. The septum is necessarily crooked, but the general appearance of the nose when viewed either from the full face or from the side is fairly satisfactory.



Fig. 11.—Same patient as shown in Figure 10 just before cutting the pedicle of the flap used to reconstruct the lower lip.

I have had one patient, a Greek, with a very peculiar deformity of the lower jaw. It was probably congenital in origin, though it increased greatly with his growth. It was remedied by removal of the redundant bone down to the inferior dental canal, through an incision about an inch below the jaw.

Deformities of the lip resulting from operations for cancer may be corrected in a number of ways, following the rules laid down in the textbooks. I have found, however, that a long V-shaped excision with the apex rather narrow, and loosening of the tissue on each side, is a simple and effective measure. If too much constriction occurs, the corners of the mouth can be split and the mucous membrane sutured to the skin. Fortunately, cancer of the lip occurs in middle-aged or elderly persons, in whom the skin is greatly relaxed and the lower lip usually sags down; consequently, the appearance of the lip is often improved by such an operation. In younger persons, in whom burns often produce deformity, the skin can be slid up from the neck, if the burn is not too extensive, or can be transplanted from the arm, leaving a pedicle for about two weeks. All of these cases will require slight operations later on to smooth down the region where the pedicle was cut. Thiersch grafts will promote healing but do not prevent the contraction following burns; therefore the whole skin should be used.



Fig. 12.—Ultimate result after smoothing out the flap.

Owing to the relaxed condition of the tissues in the old, a burn will often produce a different type of deformity here from that which is found in the young, in whom the tissues are firmer and more closely connected and tend to move as a whole (Fig. 9).

In the case of a young girl in which it was necessary to make practically the whole lip except the mucosa, a very satisfactory result was obtained by reconstructing the lip from a flap transferred from the arm (Figs. 10, 11 and 12). If only the lower part of the lip is involved, flaps can be slid up from the chest, or from the neck, sometimes cutting them twice in order to get them into position, "waltzing" them, as it is termed by Halstead (Figs. 13 and 14).

A complete defect such as is left by noma, involving skin, muscle and mucous membrane, can usually be corrected by a quadrangular flap which is turned down from the cheek, the mucous membrane being included.

In a case in which there was a defect of this kind the base of the flap was external to the outer angle of the mouth and the lateral incisions ran parallel to the nasolabial fold. The flap was turned into the defect, which consisted of complete destruction of almost half of the lower lip and part of the cheek, and the vermilion border of the lip was constructed at subsequent operations.



Fig. 13.—Boy with deformity resulting from burn on the lower lip, neck and chest.



Fig. 14.—Boy shown in Figure 13 after operations in which flaps were brought from the neck and shoulder on both sides. Note that the patient can now close his lips firmly without any undue tension on the tissues of the neck.

CLINICAL DETERMINATION OF RENAL FUNCTION BY AN INDEX OF UREA EXCRETION*

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During the past few years, qualitative and quantitative studies of renal excretory activity, or so-called kidney function, have been carried out in a number of ways. These studies have been directed, on the one hand, either toward an estimation of elimination in the urine by the kidney of substances which it excretes normally, or toward the study of the ability of the kidney to excrete foreign substances artificially introduced into the body. On the other hand, there have been numerous studies of the blood in the various forms of disturbed renal function.

For the study of excretion of foreign substances, various dyes have been used. Most important of these is phenolsulphonephthalein, introduced into clinical use by Rowntree and Geraghty.[1] The method consists in the intravenous or intramuscular administration of the dye, and the colorimetric determination of the amount recovered in the urine in a standard length of time. Its value depends on the fact that normally a fairly constant percentage of the dye injected is excreted in the urine within the first two hours, and that in certain types of disturbed renal function the excretion is delayed, so that a smaller percentage appears in the urine during the period of observation. The method has proved to be of great service in the study of renal activity.

Schlayer and Takayasu[2] have used lactose and potassium iodid in a large number of cases, the lactose to test the ability of the kidney to excrete substances in the same general class with urea, and the iodid to test salt function. In general, these tests have not been found so easy of application or of interpretation as to make them of great value.

Study of the elimination of substances normally excreted by the kidney has mainly included determinations of the nitrogen and salt in the urine following the ingestion of an analyzed diet. Applications of this method have been advised by Hedinger and Schlayer,[3] and more recently, in this country, by Mosenthal.[4]

In all these tests it has been the urine alone which has been examined, the assumption being made that alterations in the manner or time of elimination are due to kidney factors alone. But this assumption is open to serious objection. The time required for the excretion of considerable amounts of nitrogen or salt, suddenly added to the diet, may, indeed, give some indication of the degree of kidney insufficiency; but the failure to excrete these substances within a specified time is often due to other factors than the ability of the kidneys to carry on their excretory functions. Thus a patient with fever may retain enormous quantities of salt in the body, even though the kidneys are perfectly capable of excreting it, and retention is due to the fact that the excess salt is removed from the blood by the tissues. That, under certain other conditions, a similar retention of nitrogen in the tissues occurs, independently of the ability of the kidneys to excrete nitrogenous substances, is indicated by the recent studies of Foster and Davis.[5]

Study of the daily nitrogen or salt balance between intake and output is of even less value than study of suddenly added nitrogen or salt. It has, indeed, long been recognized that determination of the total nitrogen or urea output gives no indication as to the state of the function which provides for the excretion of nitrogen. An individual may excrete normal amounts of urea in the twenty-four hours, and remain in perfect nitrogen equilibrium for weeks or months, and yet be suffering from severe nephritis, with advanced functional changes. Except in the case of those patients with chronic parenchymatous nephritis, who are scarcely able to excrete any salt at all, comparison of the salt output with the intake gives little information. In fact, the salt balance is so easily disturbed by extrarenal factors that the findings are more apt to be misleading than of direct value, as far as the chlorid function of the kidney itself is concerned. The same objection seems to hold with regard to the use of potassium iodid as a test of the ability of the kidney to excrete salts, since potassium iodid is influenced by the same extrarenal factors which influence sodium chlorid.

Studies such as these, of urine alone, can at best give only a general idea of the true renal condition, and can be in no sense a quantitative measurement of the renal activity.

In addition to the urine, the blood has also been studied in these conditions, especially as to its urea and total nonprotein nitrogen content. The results of these estimations have been more encouraging. Studies of the nonprotein nitrogen of the blood have been stimulated by the recent improvements in methods for blood analysis introduced by Folin, Marshall, Van Slyke and Cullen, Benedict and others. Attention has been directed not only toward the urea and total nonprotein nitrogen, but also to the study of uric acid, creatin and creatinin, and amino-acids, as they exist in the blood. It has been found that the various forms of nonprotein nitrogen, but more especially urea nitrogen, are increased in the blood in certain forms of nephritis, and one may often recognize impairment of function by examination of the blood alone, the amount of increase in urea or total nonprotein nitrogen affording some clue as to the severity of the condition.

Determination of the amount of urea nitrogen, or of total nonprotein nitrogen in the blood, however, is not entirely dependable as a measure of excretory activity. The normal concentration of urea in the blood is not fixed, but varies within wide limits in response to variations in nitrogen and fluid intake. As a matter of fact, the larger proportion of individuals with disturbed urea function have concentrations of urea in their blood which are below the upper limits in normal individuals, so that the line of demarcation between normal and abnormal subjects is not sharp. Blood urea figures alone, therefore, may call attention only to the more serious instances of disturbed function. Furthermore, the concentration of urea in the blood even of nephritic individuals is not constant or fixed.

* From the Hospital of the Rockefeller Institute for Medical Research.

1. Rowntree, L. G., and Geraghty, J. T.: The Phthalein Test, Arch. Int. Med., March, 1912, p. 284.
2. Schlayer and Takayasu: Untersuchungen über die Funktion kranker Nieren beim Menschen, Deutsch. Arch. f. klin. Med., 1910-1911, ci, 333.
3. Hedinger and Schlayer: Ueber die Prüfung der Nierentätigkeit durch Probemahlzeit, Deutsch. Arch. f. klin. Med., 1914, cxiv, 120.
4. Mosenthal, H. O.: Renal Function as Measured by the Elimination of Fluids, Salt and Nitrogen, and the Specific Gravity of the Urine, Arch. Int. Med., November, 1915, p. 733.
5. Foster and Davis: Proc. Soc. Exper. Biol. and Med., November, 1915, xiii, 33.

On the contrary, Widal and Javal,[6] in 1904, showed that the concentration of urea in the blood can be made to fluctuate at will in cases of nephritis, by varying the protein intake. They formulated standards for judging the degree of variation from normal in the concentration of urea in the blood, according to the nitrogen intake of the individual. The demonstration of variations in the concentration of urea and total nonprotein nitrogen in the blood of nephritics, under various conditions of nitrogen intake, has been more recently considered by Folin and his collaborators,[7] and by Frothingham and Smillie.[8]

The limits of variation of the concentration of urea in the blood, and the circumstances which govern these variations were therefore known when Ambard,[9] another French observer, following Widal and Javal, carried investigations in this field a step further. His method includes a knowledge not only of urea concentration in the blood, but in the urine as well. To this he added determinations of the rapidity with which urea elimination occurs. All of these factors, which are interdependent, are included in his estimations. He demonstrated that normally a constant relationship exists between the concentration of urea in the blood and the amount excreted per unit of time (that is to say, the rate of its excretion). He formulated the laws governing this relationship, and expressed them in a form known as Ambard's coefficient.[10] This coefficient gives the *ratio between the concentration in the blood and the rate of excretion.* Applied to normal individuals, remarkably constant values are obtained for the coefficient. But in cases with impaired function, Ambard showed that the coefficient obtained is often very greatly changed, because there is a relative increase in the concentration of urea in the blood and a relative decrease in the rate of excretion. Ambard's findings in normal and pathologic individuals have been repeatedly confirmed, and need no further support. The principles underlying the laws are discussed briefly here.[11]

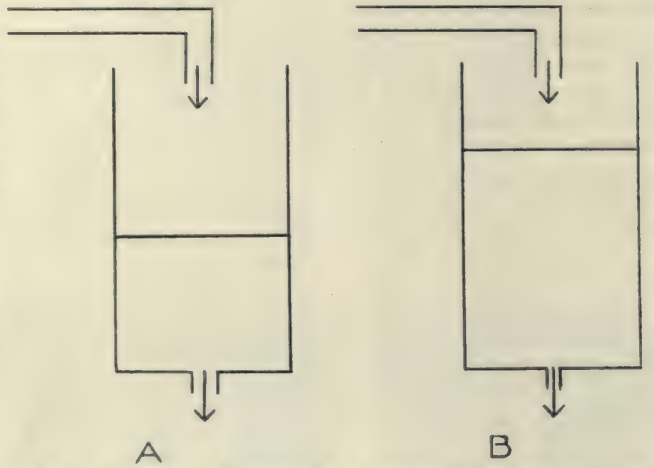


Fig. 1.—Diagram to illustrate the principles of the laws governing the rate of urea excretion. The rate of outflow of fluid from *A* and *B* is governed by the level of fluid in the vessel and the size of the outlet. The rate of excretion of urea is similarly governed by the concentration of urea in the blood and the functional capacity of the kidneys.

AMBARD'S LAWS

The principles underlying the laws of urea excretion may be illustrated in a very simple way. If we imagine a vessel (*A,* Fig. 1) into which water flows at a constant rate, escaping through an outlet at the bottom, the water will seek that level in the vessel at which the pressure is such that the rate of outflow is exactly equal to the intake. If we then decrease the size of the outlet, the rate of inflow remaining as before, the water in the vessel will rise to a new level, at which the rate of outflow is again exactly equal to the intake (*B,* Fig. 1). A change in the rate of inflow will of course cause a change in the level. In other words, fluctuations in the level of the water in the vessel may occur to compensate for changes in the rate of inflow or in the size of the outlet. As is well known, these changes are not haphazard, but take place according to definite laws of hydrostatics, and may be expressed numerically. Similarly, fluctuations in the concentration of urea in the blood occur in health to compensate for changes in the nitrogen intake, and in pathologic conditions to compensate either for changes in the nitrogen intake or in the rapidity with which body proteins are broken down, or in the size of the outlet, represented by the relative functional efficiency of the kidney. Either increased urea formation in the body, or disturbance of urea elimination through the kidney, requires a higher level of urea in the blood to provide for a sufficiently rapid rate of excretion to keep the organism in nitrogen equilibrium. That this is the mechanism of fluctuations in concentration of urea in the blood in health and disease was known from the work of Widal and Javal.[6] That these changes take place in response to definite laws, capable of numerical expression, was shown by Ambard.

So far we have spoken only of the concentration of urea in the blood, but it is obvious that other factors play a part in determining the rate of excretion. Changes in the rate of water excretion alter the rate of output of urea, which changes as the concentration of urea in the urine changes, though not directly in proportion to these changes. The rate of elimination also varies according to the weight of the individual, and is constant per kilogram of body weight, when the other conditions remain constant. All of these factors have been considered by Ambard in formulating the laws published by him.

Certain variations in these factors occur among normal individuals, and in the same individual. We have previously[12] called attention to this fact, and have suggested that these variations are due in part to changes in blood flow through the kidneys, and to variability in

6. Widal and Javal: Le mécanisme régulateur de la rétention de l'urée dans le mal de Bright; l'indice de la rétention uréique chez les brightiques, Compt. rend. Soc. de biol., Oct. 22, 1904, 301, 304; Semaine méd., 1904, xxiv, 347; La rétention de l'urée dans le mal de Bright, comparée à la rétention des chlorures, Semaine méd., 1905, xxv, 313.

7. Folin, Otto; Denis, W., and Seymour, Malcolm: The Non-Protein Nitrogenous Constituents of the Blood in Chronic Vascular Nephritis (Arteriosclerosis) as Influenced by the Level of Protein Metabolism, Arch. Int. Med., February, 1914, p. 224.

8. Frothingham, Channing, Jr., and Smillie, W. G.: A Study of Different Nitrogenous Diets in Chronic Nephritis, Arch. Int. Med., February, 1915, p. 204.

9. Ambard, L.: Rapports entre le taux de l'urée dans le sang et l'élimination de l'urée dans l'urine, Compt. rend. Soc. de Biol., Nov. 19, 1910, p. 411; Rapports de la quantité et du taux de l'urée dans l'urine, la concentration de l'urée du sang étant constant, ibid., Dec. 3, 1910, p. 506; Physiologie normale et pathologique des reins, Paris, 1914 (for bibliography and review of French work on subject).

10. See also, Ambard's Formula, Queries and Minor Notes, THE JOURNAL A. M. A., Sept. 7, 1912, p. 818.

11. Ambard's laws, and the derivation of the index of urea excretion, have been fully discussed in our previous papers, to which the reader is referred for more complete information. It has been possible here to give only the formula as used at present, with a brief statement of its significance, and the methods for observation and for calculation.

12. McLean and Selling: Urea and Total Non-Protein Nitrogen in Normal Human Blood; Relation of Their Concentration to Rate of Elimination, Jour. Biol. Chem., 1914, xix, 31. McLean, F. C.: The Numerical Laws Governing the Rate of Excretion of Urea and Chlorides in Man, Jour. Exper. Med., 1915, xxii, 212, 366.

the amount of functionating kidney tissue in relation to body weight in different individuals. Up to the present time it has not been possible to estimate these variables. In comparison with the changes found in abnormal individuals, this variability is, relatively speaking, slight. It is of physiologic interest, but does not affect the applicability of the laws as at present used.

We take up the subject where Ambard left it. It is the purpose of this paper to present a relatively simple method, based on the laws of Ambard, for making clinical estimations of the state of the function which has to do with excretion of urea. It is important to state that investigations concerning urea excretion are especially valuable in the study of renal disease. For although the various functions of excretion by the kidney appear to be quite specific, so that no one test can be regarded as a measure of total renal function, nevertheless the information obtained from a study of the urea function appears to be more general than from that of any other. In consequence it may, in a measure, be regarded as throwing light on the renal capacity or activity as a whole.

Data obtained by this method are direct quantitative measurements of one of the most important functions of the kidney, that is, the elimination of nitrogen in the form of urea. Interpretation of the results, therefore, depends not on general impressions, but on definite facts, as far as this function is concerned. Performance of the test requires a shorter time than the use of any test diet, requires fewer analyses, is much more broadly applicable, and may be repeated indefinitely without harm or inconvenience to the patient. It requires no knowledge of the nitrogen or fluid intake, and is not interfered with by vomiting, refusal of food, diarrhea, delirium or coma. The blood and urine required for the necessary analyses may be secured within the time of an ordinary consultation, and the analyses can be carried out in any well equipped clinical laboratory. From the standpoint, therefore, not only of ease and convenience of performance, but also of the value of the results obtained, the method is to be preferred to the various modifications of the test diet.

THE INDEX OF UREA EXCRETION

The index of urea excretion is based on an ideal normal Ambard's coefficient of 0.080. The extremes of variation of Ambard's coefficient in the normal are from about 0.050 to 0.085 or 0.090. Deficiency in urea function results in higher values. These higher values are due to a change in the ratio which exists between the concentration of urea in the blood and the rate of its excretion. Such findings indicate deviation from the normal, but do not measure the extent of the functional change which is responsible for such deviation. The significance of the abnormal ratio found in any pathologic case, therefore, can be understood only by reference to an arbitrary scale, determined by experience.

Since it is possible to utilize the laws of Ambard in another form to measure functional changes directly, we have thought it desirable to use a new formula. In the case of the formula as at present used, the ideal normal is determined arbitrarily, by experience, and deviations from the normal in the rate of urea excretion are measured directly in terms of the ideal normal. Ambard has shown experimentally that the rate of excretion of urea under otherwise constant conditions varies directly with the amount of functionating kidney tissue. In observations in human subjects it is not possible to keep conditions constant, but it is possible, by an application of Ambard's laws, to measure the influence of their variations on the rate of excretion of urea. The ideal normal rate of excretion, under the conditions found, at any time, is given a value of 100. The index then expresses, in direct percentage, the rate of excretion found, in terms of the rate of excretion that a normal individual would develop under the same conditions as to concentration in the blood, concentration in the urine, and body weight.

The index is therefore not a substitution of a new formula, with a new scale of arbitrary values, in place of the Ambard formula, but is a direct measure of an important excretory function. Since, as we have shown, Ambard's coefficient is not in itself a direct indication of the state of the function which has to do with the excretion of urea, but is merely the ratio between the concentration of urea in the blood and the rate of its excretion, the index expresses facts which can be obtained from Ambard's coefficient only by further calculation.

Ambard's laws depend on the constant relationship of four variables: (1) the concentration of urea in the blood; (2) the concentration of urea in the urine; (3) the rate of urinary excretion, which together with (2) gives us the rate of urea excretion, and (4) the weight of the individual. We have indicated this constant relationship in our present formula as follows:

$$\text{Index of excretion} = \frac{\text{Rate of urea excretion } \sqrt{\text{Concentration in urine}} \times \text{Constant}}{\text{Weight of individual} \times (\text{Blood urea})^2}$$

In order to give the index a constant value of 100 for the ideal normal, and in order to determine the numerical value for the constant, certain arbitrary methods of expression of the various factors must be adopted. We have adopted the same methods as those used by Ambard, that is, the expression of rate of urea excretion as grams per twenty-four hours, the concentration in the blood and urine as grams per liter, and the weight of the individual in kilograms. Urea, and not urea nitrogen, is used throughout. It should be distinctly understood that other methods of expression of the various factors would not change their constant relationship, or the index, but would change merely the numerical value of the constant of the formula. When variables which give an Ambard's coefficient of 0.080, the figure chosen as the ideal normal, are substituted in the formula, the constant must have a value of 8.96 to give an index of 100. The mathematical derivation of the new formula is discussed in detail in our previous papers.[12] It reads:

$$\text{Index of Urea Excretion (I)} = \frac{D\sqrt{C} \times 8.96}{Wt \times Ur^2}$$

D = Grams urea excreted per 24 hours.
C = Grams urea per liter urine.
Ur = Grams urea per liter blood.
Wt = Body weight of individual, in kilograms.

The rate of excretion is not actually determined for twenty-four hours, but for a shorter period, usually seventy-two minutes (one-twentieth of twenty-four hours), the calculation being made on a basis of grams per twenty-four hours. It is important to remember that it is not the actual twenty-four hour excretion of urea that is essential, but the rate of excretion at the time of observation.

Substitution in the foregoing formula of values obtained by observation in normal individuals should give values for the index approximating 100. The actual variations in Ambard's laws in normal individuals are magnified by this formula, the variability appearing to be much greater than when the same results are expressed in the form of Ambard's coefficient. When observations are made under the proper conditions, values for the index of less than 80, corresponding to an Ambard's coefficient of 0.090, should never be obtained in normal individuals, and no normal subject should be repeatedly below 100. Values above 100 are the rule, and values up to 180 and 200 may occur. Much higher values may be obtained under certain pathologic conditions, associated with an increase in the rate of urea excretion. It is perhaps unfortunate that such apparently wide divergence occurs among normal persons, and in the same normal individual. This is a result of expressing the laws in this form, and it does not affect the value of the index as a measure of abnormal variations.

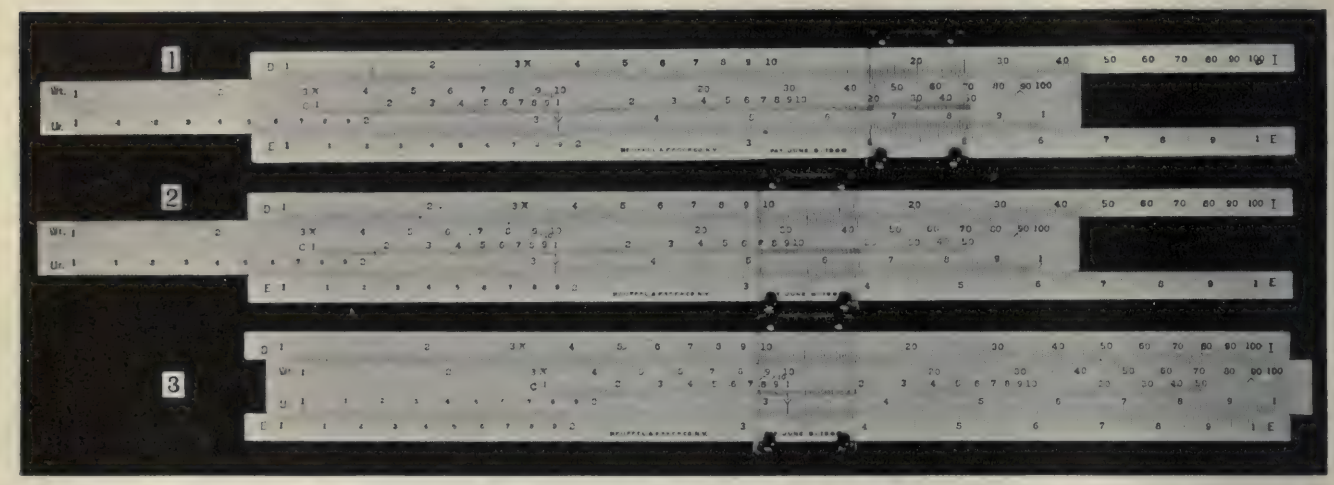


Fig. 2.—Ten-inch slide rule adapted to the calculation of the Index of Urea Excretion.

Example

Grams urea excreted per 24 hours, D = 20.0
Grams urea per liter of urine, C = 11.0
Grams urea per liter of blood, Ur = 0.330
Body weight, in kilos, Wt = 55.0

$$\text{Index} = \frac{D\sqrt{C} \times 8.96}{Wt. \times Ur^2} = \frac{20.0\sqrt{11.0} \times 8.96}{55.0 \times (.330)^2}$$

1. 55.0 on Wt scale is set opposite 20.0 on D scale, first position.
2. Hair line on runner is moved to 11.0 on C scale, second position.
3. Slide is moved so that 3.30 on Ur scale is at hair line on runner, third position.

Reading is now made at the arrow which points to scale I and is at 100. Therefore Index, I = 100.

METHODS FOR OBSERVATION

Observations can be made at any time, without regard to diet, since application of the laws is independent of the nitrogen intake. It is preferable, though not essential, that the observation should not be made too close to the taking of food, since the most rapid changes in the various factors occur during the height of digestion and absorption. Since observations require neither the introduction of a foreign substance, nor the ingestion of weighed amounts of food, they may be made without regard to vomiting, coma or delirium, and interfere in no way with any plan of treatment that is being carried out. Frequent observations may thus be made without the necessity of interrupting a dietetic treatment with test meals.

The essential points in an observation are (1) the collection of urine over a carefully timed period, (2) the collection of blood near the middle of that period, and (3) accurate determination of the urea content of the samples of blood and urine.

Our usual routine is as follows: The patient is given from 150 to 200 c.c. of water, in order to insure a free flow of urine. One-half hour later, in order to start with the bladder empty, he voids. The patient is catheterized if necessary, as in urine retention or in the case of coma. The time of voiding is recorded to within one minute. About thirty-six minutes later, from 7 to 10 c.c. of blood are withdrawn from an arm vein into a dry tube containing a few milligrams of potassium oxalate or citrate to prevent clotting. At the end of seventy-two minutes from the first voiding the bladder is again emptied, and the urine carefully measured to within 1 c.c. and used for analysis. The patient takes no food or water during this period. Otherwise no restrictions are placed on him.

The seventy-two minute period is merely for convenience, as being one twentieth of twenty-four hours. Any other period, preferably not too long, will serve. Ambard preferred a period of thirty-six minutes, but the possibility of error in the collection of the specimen is doubled when the time is halved. If it is desired to carry out a simultaneous phenolsulphonephthalein test, the sixty minute or two hour phthalein period may be used, half of the urine being used for the phenolsulphonephthalein reading, and the other half for the analyses.

Analyses should be made by the most accurate, convenient and rapid method available for determination of urea in the blood and urine. The method requires more than the usual degree of accuracy in clinical laboratories, as a relatively slight error in analysis may introduce a considerable error into the formula. The urease method, introduced by Marshall,[13] fulfils all of the requirements. This method depends on the breaking down of urea into ammonia and carbon dioxid by the specific enzyme found in the soy bean, and the subsequent determination of the ammonia. We have used the permanent preparation

13. Marshall, E. K., Jr.: A Rapid Clinical Method for the Estimation of Urea in Urine, Jour. Biol. Chem., 1913, xiv, 283; A New Method for the Determination of Urea in Blood, ibid., 1913, xv, 487; The Determination of Urea in Urine, ibid., 1913, xv, 495.

of urease described by Van Slyke and Cullen,[14] and carry out the determinations in the manner which they prescribe. With careful technic and control of the reagents, this method gives consistently accurate results. It is very simple, very rapid, and requires the minimum of manipulation. Three analyses are necessary; blood urea, urine urea and urine ammonia. Urine ammonia is determined in order to correct the urea figure for preformed ammonia, which is also determined in the urea method. Duplicate determinations

TABLE 1.—ILLUSTRATION OF INDEPENDENCE OF INDEX AND NITROGEN INTAKE*

Date, 1915	Weight, Kg.	Grams Nitrogen in 24 Hours					Urea Excretion, 72 Minute Period			
		Intake	Output			Difference	Gm. per liter blood, Ur.	Gm. per liter urine, C.	Gm. per 24 hours, D.	Index of Urea Excretion, I.
			Urine	Stools	Total					
Nov. 5...	65.0	19.2	16.1	3.15	19.25	—.05	0.858	9.87	37.5	22.0
Nov. 12...	64.8	9.6	7.92	1.61	9.53	+.07	0.499	10.68	12.8	23.2
Nov. 16...	64.8	9.6	6.6	2.92	9.52	+.08	0.411	7.06	11.0	24.0
Nov. 30...	65.4	4.8	3.48	1.37	4.85	—.05	0.211	4.37	3.32	21.4

*Case 1.—C. A. P., man, aged 45. Diagnosis: general arteriosclerosis, chronic interstitial nephritis.

on blood are advisable, as a higher degree of accuracy is thus obtained. The determinations are run simultaneously in the same apparatus, and require little attention.

CALCULATION OF THE INDEX

The results from the determinations are calculated to the form in which they are to be expressed in the formula. The weight of the individual, without clothing, should be known to within one kilogram. The four variables are substituted in the formula, and the index calculated. Calculation has been rendered simple by the use of a special calculating device, illustrated in Figure 2. With this device, which is a modified 10-inch slide-rule, one needs to remember neither the formula nor the mathematical principles involved. With a little practice in reading the scales, calculation becomes purely mechanical, and requires only a few seconds.[15] Without this slide-rule, calculation is most easily performed with an ordinary slide-rule, or by the aid of logarithms.

APPLICATION OF THE INDEX

Numerous studies have been made, or are in progress, using the index as a measure of urea function. It is not the purpose of this paper to present cases or conclusions, but certain points regarding the applicability and value of the index are illustrated.

Table 1 illustrates the fact that the index is independent of nitrogen intake. It also shows clearly that the actual blood urea figure may be very misleading, if taken by itself, as an indication of the ability of the kidneys to excrete nitrogen. In the case illustrated, reduction of nitrogen intake was followed by a corresponding decrease in nitrogen elimination, the patient coming rapidly to equilibrium. The balance between intake and output was maintained at a lower level of urea in the blood, the index remaining constant. Had the blood urea alone been determined at the lowest level, which is lower than the usual normal, one could not have said that there was evidence of impaired renal function. By application of the index, the actual ability of the kidney to excrete urea is seen to be the same at the lowest level in the blood as at the highest.

This case also throws light on the mechanism of so-called nitrogen retention. One can easily see that the increased level of urea in the blood on the higher nitrogen intake is purely compensatory, and is not due to a lack of ability on the part of the kidney to excrete the larger amounts of urea being formed in the body. The kidney actually does excrete the larger amounts of urea just as well as the smaller amounts, but it requires a higher concentration of urea in the blood to bring this about. To speak of nitrogen retention on the basis of increased concentration of nonprotein nitrogen in the blood is therefore apt to be misleading.

RELATION TO PHENOLSULPHONEPHTHALEIN OUTPUT

Numerous simultaneous observations on urea and phenolsulphonephthalein elimination make it appear that the mechanism is the same in the two instances. The curves of the percentage of phenolsulphonephthalein excreted in two hours, and of the urea index are parallel and are quite striking. No considerable divergence has been found in any case, with the exception of some patients suffering from heart failure. These subjects were not excreting enough water to carry off the urea formed in the body, but were able to eliminate phenolsulphonephthalein fairly well. In Table 2 are

TABLE 2.—ILLUSTRATION OF THE COMPARISON BETWEEN THE UREA INDEX AND PERCENTAGE OF PHENOLSULPHONEPHTHALEIN EXCRETED IN TWO HOURS

Subject	Diagnosis	Blood Urea, Grams per Liter	Urea Index	Phenolsulphonephthalein, Per Cent. in Two Hours
1	Mitral stenosis	.132	250	83
2	Parenchymatous nephritis	.216	139	66
3	Mitral stenosis	.196	105	65
4	Acute nephritis (convalescent)	.383	92	46
5	Heart block	.480	91	58
4	Acute nephritis (convalescent)	.395	89	51
4	Acute nephritis (convalescent)	.317	68	41
6	Chronic nephritis	.388	60	45
4	Acute nephritis (convalescent)	.406	56	34
7	Chronic nephritis	.446	52	41
8	Chronic nephritis	.437	47	38.5
7	Chronic nephritis	.454	44	33
7	Chronic nephritis	.546	39	42
8	Chronic nephritis	.400	37	27
4	Acute nephritis (convalescent)	.634	33	25.5
9	Mercuric chlorid poisoning	.610	19	15
10	Chronic nephritis	.488	18	25
11	Chronic nephritis	.977	8.1	8
11	Chronic nephritis	1.016	7.9	8.5
12	Chronic nephritis	1.350	7.4	7
4	Acute nephritis	1.320	7	6.5
4	Acute nephritis	.966	6.1	13.2
13	Chronic nephritis	1.110	4.2	2.5
14	Chronic nephritis	2.147	1	Trace
11	Uremia	3.430	0.27	0

given figures comparing the results by the two methods. These observations were all in individuals who were excreting water at a rate sufficient to eliminate all the urea being formed in the body. They were either simultaneous observations on phenolsulphonephthalein and urea elimination, or the two observations were made within a short time of each other.

These figures are in close agreement with those of a similar study published by Widal, Weill and Vallery-

14. Van Slyke, D. D., and Cullen, G. E.: A Permanent Preparation of Urease and Its Use in the Determination of Urea, Jour. Biol. Chem., 1914, xix, 211; id., THE JOURNAL A. M. A., May 16, 1914, p. 1558. Urease is prepared according to the method of Van Slyke and Cullen by the Arlington Chemical Company of Yonkers, N. Y., and furnished with directions for use.

15. The rule, with directions for use, may be obtained from Keuffel and Esser Co., 127 Fulton Street, New York. The same rule is used for calculation of the chlorid formula described in previous papers (Footnote 12).

Radot.[16] Their results are reproduced in graphic form in Figure 3, their figures for urea excretion being recalculated in the form of the index of urea excretion. Both studies show a remarkably close parallelism between the index and the percentage of phenolsulphonephthalein excreted in two hours. In the cases with normal or increased excretion of both urea and phenolsulphonephthalein the figures for the index are naturally higher, since the ideal normal index is 100, and higher figures are attained in persons with increased excretion, while the normal phenolsulphonephthalein excretion is about 60 per cent. in two hours, and 100 per cent. can be approached by individuals with increased excretion, but not exceeded. In the lower figures the two tests show in practically every instance the same diminution in rate of excretion of urea and of phenolsulphonephthalein. Both the table and the graphic chart show the failure of the blood urea figure alone to indicate the degree of disturbance in urea elimination, since many cases show blood urea figures below the upper limits in normals, though both the index and phenolsulphonephthalein figures are low.

These findings confirm the value of the use of phenolsulphonephthalein as a clinical test of the ability of the kidneys to excrete substances belonging in the same class with urea. While a rational basis for the use of phenolsulphonephthalein is thus given, certain factors make the direct determination of urea function of still more value than the phenolsulphonephthalein. In the first place, it is a direct determination of a normal function, of which the phenolsulphonephthalein test is an indirect determination. Interpretation of possible discrepancies between the two methods must recognize this fact. For study of the effects of treatment in a given case, the index is certainly the more delicate indicator, and the line of demarcation between normal and abnormal cases is sharper than in the case of phenolsulphonephthalein. The index has an added advantage in that, as it tends to approach zero, smaller differences are of greater import, and are more easily determined than in the case of phenolsulphonephthalein. Thus the difference between 3 and 6 per cent. phenolsulphonephthalein excreted in two hours is difficult to determine colorimetrically, while it is a very considerable difference in the case of the index. From the standpoint of determining whether the condition is stationary or progressive, the index is therefore much more delicate than determination of the small amounts of phenolsulphonephthalein excreted in cases with advanced impairment of function.

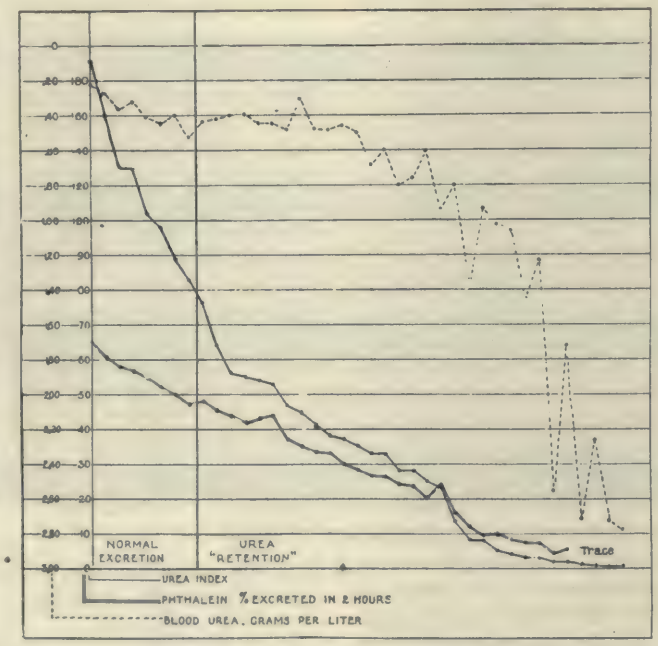


Fig. 3.—Graphic illustration of close agreement of findings regarding urea and phenolsulphonephthalein excretion. (From figures published by Widal, Weill and Vallery-Radot.)

In addition to the index itself, the analyses necessary in determining it are of direct value. We have learned to attach a certain amount of import to the blood urea figure alone. The index, therefore, adds enormously to the value of an already recognized method, with the addition of practically no technical details. The determination of urea in the urine, the only laboratory work required in addition to the blood urea, demands only a moment's extra time.

Neither the phenolsulphonephthalein nor the index, in itself, furnishes positive information as to the cause of the impairment of function. Indirect information is, however, furnished by the determinations made in arriving at the index. A low index, associated with a diminished excretion of urine, with a high urea content, suggests passive congestion of the kidneys. The same index, occurring with the excretion of normal or increased amounts of urine, with a low urea content, may be characteristic of certain forms of nephritis. Thus additional information is obtained in the determination of the index.

For the present we prefer to study cases of nephritis with both the index and the phenolsulphonephthalein test. Each serves as a check on the other, and the maximum of information is obtained in the simplest way possible.

PRACTICAL VALUE OF THE METHOD

Applicability of the method as a guide to diagnosis, prognosis and treatment will depend on further clinical reports, but certain facts have become evident:

An index below 80 is to be considered as abnormal, though not necessarily seriously so. In renal disease an index below 50 is indicative of a considerable degree of impairment of functional ability. The amount of damage to the kidneys, it is believed, is increasingly greater as the index is lower, and tends to approach zero. But a low index may be only temporary, as in the passive congestion of heart failure or in acute nephritis, and may return to normal on improvement of the condition which is responsible for impaired function. The actual figure obtained for the index should be of value in prognosis in renal disease, though renal function alone is often not the determining factor in prognosis. In our experience a low index has at times been the first indication of a serious kidney involvement. When the condition is stationary, life may be maintained for some time with a low index. For example, we have seen patients with chronic nephritis survive for several months with an index of from 5 to 8, and we have seen recovery from acute nephritis after a number of weeks, during which time we have obtained the same figures. In another instance, the patient survived for

16. Widal, Weill and Vallery-Radot: L'Epreuve de la Phénolsulfonephthaléine: Parallelisme avec l'étude de l'excretion de l'urée chez les brightiques, Presse méd., July 22, 1914, p. 565.

about a month after the index was as low as 1.2. Such figures, in chronic disease, certainly determine a grave prognosis. But, unless the condition is known to be progressive, it is difficult to give a prognosis with regard to the duration of life. Other aspects of the disease must, of course, be considered in attempting a prognosis.

Progressive decrease in the index, usually associated with a corresponding increase in the concentration of urea in the blood, is of serious import. Two cases have recently been under observation in which such a fall in the index was followed by death within a short time. In one case the fall in the index was the first indication of impending uremia, although the first symptoms did not occur until ten days after the discovery of a change in the index.

Use of the index as a guide to dietetic or other treatment of nephritis must depend on further studies. It is doubtful whether the diminished urea content of the blood which follows a diminished nitrogen intake has any direct beneficial effect. Whether a long continued rest of the urea function will improve that function remains to be demonstrated. On general principles, an impaired function should not be overtaxed, and a restricted protein intake should be advised in cases with a markedly lowered index of excretion. But brutal restriction of nitrogen intake to below the nitrogen requirement of the body does not seem to be indicated in cases capable of excreting normal amounts of urea, though the blood nitrogen may be high and the index low.

The influence of diuretic drugs also requires further study. Here the findings will depend on the type of case studied, and it is necessary to have a satisfactory method for grouping them. Study of diuretic drugs, involving also their effect on chlorid function, is in progress.

Application of the index is seriously interfered with when water excretion is greatly diminished, as in passive congestion or in some forms of nephritis. The laws of urea excretion depend on a sufficiently rapid rate of urine excretion, and they fail to apply when the water output is greatly diminished. We make it a general rule not to attempt to apply the index when a rate of urinary outflow equal to at least 500 c.c. in twenty-four hours cannot be attained. Otherwise there are practically no limitations as to its applicability.

SUMMARY

We present a relatively simple method, based on the laws of Ambard, for the direct quantitative determination of the state of the function which has to do with the elimination of urea. The method is applicable in a wide range of cases, easy of performance, and gives results which should prove of great value in the recognition, prognosis and treatment of certain conditions associated with impairment of renal function.

FOREIGN BODIES SWALLOWED BY AN INSANE WOMAN

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ROCHESTER, MINN.

The practice by professionals of swallowing foreign bodies, and the mania for doing so by the insane, has contributed to medical literature reports of instances of the most grotesque assortment of articles having been retained in the stomach for long periods, without injury to the mucous membrane and without producing symptoms. The case I report is somewhat novel in that the patient exhibited a preference for one article, namely, teaspoons. The limit of this woman's capacity, had her habit not been discovered and interrupted, can only be conjectured. The nurse in charge of a ward at the Rochester State Hospital by chance saw a teaspoon disappear into the woman's mouth. A roentgenogram was immediately made which showed apparently three or possibly four spoons in the stomach. The woman was 29 years of age, was evidently in perfect physical health, and, as far as could be determined, had suffered no distress or inconvenience from the presence of the spoons.



Roentgenogram showing teaspoons and a hairpin in the stomach.

Sept 1, 1915, a gastrotomy was done, and seven teaspoons, instead of the supposed three or four, were found. They were lying together "spoon fashion" (which explains the roentgenogram), and a hairpin, some straw and small pieces of twigs lay around them. After removal of the spoons and débris, the stomach was carefully examined for possible injury. Other than a rather large ptotic organ and a hypertrophied and congested mucous membrane, however, no evidence of injury was found. The spoons, which were of plated Utah metal, were not bent and showed no erosion. They were a little larger than a standard teaspoon, being 6 inches in length and 1½ inches across the bowl. The patient made an uneventful recovery.

A Medicolegal Judgment.—In Ontario recently a woman, on each of whose breasts an operation had been performed, brought action for damages against the surgeon who performed the operation. The patient consulted her physician about a lump in one of her breasts. He found another lump in the other breast and secured her consent to the removal of both lumps. Some time after the operation, trouble arose in the arm of the second side operated on. The surgeon was accused of doing an operation in which consent had not been given. The presiding judge, after hearing a considerable amount of evidence, held that a surgeon is justified in performing a second operation under circumstances in which the case demands more be done than first detected or revealed; in fact he might be open to blame if he did not perform such operation, if it could be shown that such operation was necessary for the cure of the patient.

CAULIFLOWER EAR

DON H. PALMER, M.D.
SEATTLE

I first became interested in "cauliflower ear" ten years ago, because of the interest I have always taken in athletes and athletic sports. At that time I encountered all the difficulties which those who have undertaken the treatment of such cases have experienced.



Fig. 1.—Ready for operation, with points of injection for anesthesia and proposed incision indicated.

I tried the various published methods of treatment, such as pressure applied to the ear in every conceivable manner, both before and after aspiration, in hot, cold, wet and dry compresses with tight bandages, collodion, sodium silicate, starch and paraffin dressings.



Fig. 2.—Approximating the skin and perichondrium to the cartilage by negative pressure.

I used drains of catgut, silkworm gut, rubber tissue and gauze, with the same unfortunate results, until about five years ago I began the use of my present method.

ETIOLOGY AND PATHOLOGY

From a careful history and the physical findings, I consider every case of traumatic origin. The degree of trauma required is extremely variable, just as in the case of bone fracture. I believe the commonest cause of the injury is a glancing blow which folds the ear on itself and rolls it against the skull. A careful examination will always reveal a fracture of the cartilage at the site of one or more of the heavier eminences, commonly the antihelix.

The perichondrium which is more fibrous and elastic is not broken, but is stripped from the cartilage, always on the anterior surface where it is more loosely adherent.



Fig. 3.—Plaster cast being applied, showing mold behind the ear. Catheter still in position and negative pressure continuous.

The hemorrhage accompanying the injury continues, raising the perichondrium and skin, thus producing the various degrees of deformity.

As time goes on the blood becomes mixed with a clear, viscid, mucoid substance, in the midst of which may be found free clots of blood. In from one to four weeks organization takes place, and a sharp chisel or curet is necessary to remove the débris.

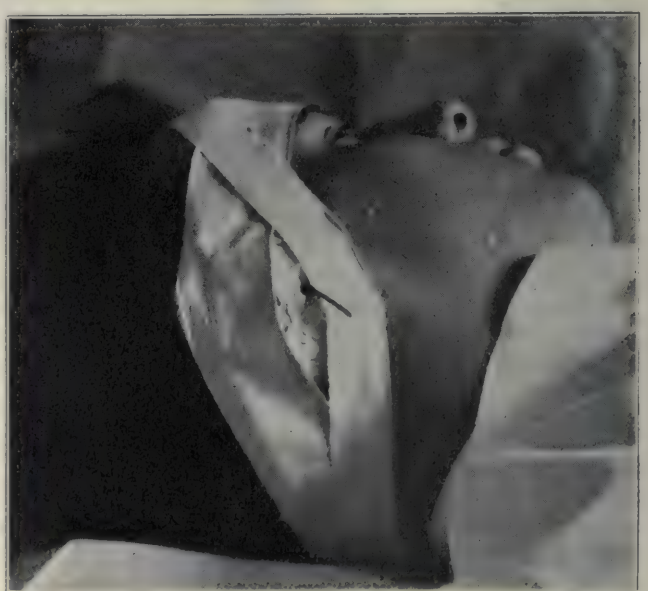


Fig. 4.—Plaster cast held firmly against the head with adhesive plaster. Probe in the drainage hole left by withdrawing the catheter.

After a few months the organization is complete, and there may be a condition varying from fibrocartilage to solid bone with contractions, which produces the various types of deformity.

SYMPTOMS

The subjective symptoms as a rule are not severe, simply pain and tenderness, most marked over the site of fracture, with at times loss of hearing, due to occlusion of the external auditory meatus from swelling. After organization, the resultant contracture and deformity produce a type of neurasthenia comparable to that of saddle nose.

The subjective symptoms of an early case are swelling, discoloration and often crepitus at the site of fracture; in an old case, deformity, thickness and rigidity.



Fig. 5.—Removal of the cast by fragmentation, dental forceps making a very satisfactory tool.



Fig. 6.—Result ten days following the operation when cast is removed.

TREATMENT

After preparing the skin surfaces of the ear, the meatus and immediate vicinity of the face and scalp after any of the approved surgical methods except iodin, which causes intense itching, and plugging the external meatus with cotton, I make an incision under local anesthesia (Fig. 1) slightly below the prominent part of the swelling through the skin and perichondrium into the hemorrhagic cavity. All clots, newly formed cartilage or bone should be removed with a small gouge or curet, the surface of both cartilage and perichondrium being scraped until smooth.



Fig. 7.—Appearance of ear three weeks after injury, and result following operation.

The incision is now closed, except for a small opening which will just admit the end of a eustachian catheter, connected through a waste bottle with a small Pynchon pump (Fig. 2).

This rapidly removes the accumulated blood, and the suction approximates the loose layer of skin and perichondrium to the cartilage.

The skin surface is now thoroughly dried and a fresh plug of cotton is placed in the external auditory canal. A generous coating of sterile petrolatum is now applied over both surfaces of the ear and the adjacent skin of the face and scalp.



Fig. 8.—Appearance of ear three months after injury, external auditory meatus completely closed, tissues organized, and result ten days after operation.

Should there be any area in which the skin and perichondrium are not perfectly approximated, I make a small mold of dentist's modeling wax or sheet lead and apply pressure at that point.

The mold, coated with petrolatum, is now placed about the ear and half a tumblerful of plaster of Paris cream, prepared by an assistant, is poured into the mold, completely surrounding the ear (Fig. 3).

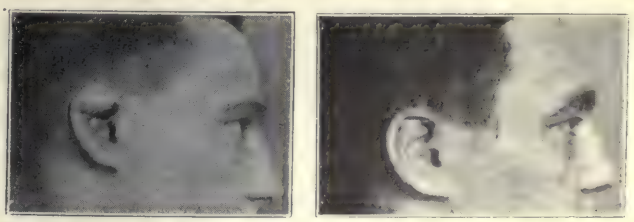


Fig. 9.—Appearance of ear ten days after injury, and result following operation; note slight imperfection at the anterior angle of the helix, due to defect in cast.

We now have the ear completely encased in the plaster, with the eustachian catheter still inside the wound, and the pump working continuously. As the plaster hardens, a slight rotary motion of the catheter permits of its easy withdrawal through the cast, and

establishes a permanent drain to the wound for the escape of any newly formed fluid.

A small piece of gauze over the cast, and an adhesive dressing to prevent all motion, complete the operation (Fig. 4).



Fig. 10.—Complete occlusion of external meatus four weeks after injury, and result ten days after operation.

The cast is removed by fragmentation ten days following the operation, when the ear will be found in exactly the shape you placed it at the time of the operation, and will require no further attention (Figs. 5 and 6).

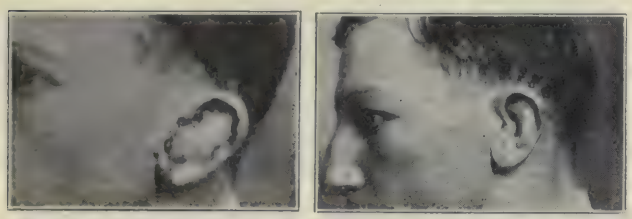


Fig. 11.—Appearance of ear two weeks after injury; ear badly traumatized in boxing contest on day before operation.

In the real old organized cases I make a mold carved from plaster of Paris to represent the normal ear, and with dentist's modeling wax make a die. After removal of the foreign substance, and the ear is perfectly soft and pliable, I force the die down on the



Fig. 12.—Commonest type of early cauliflower ear two days after injury, and result ten days after operation.

anterior surface of the ear, and then encase the whole in plaster of Paris.

617 Lumber Exchange.

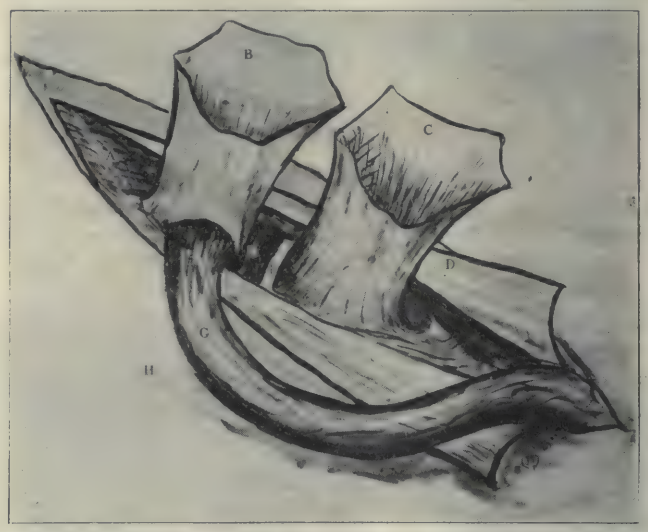
Legal and Social Uses of Birth Registration.—The registration of a child's birth forms a legal record that is frequently useful and may be of the greatest importance. It establishes the date of birth and the child's parentage. It may be required to establish the child's age for attendance at public schools, or for permission to work in states where restrictions are placed on child labor; to show in courts of law whether a girl has reached the age of consent, or whether individuals have attained the age when they may marry without the parent's permission; to establish age in connection with the granting of pensions, military and jury duty, and voting. It may be important in connection with the bequeathing and inheritance of property or to furnish acceptable evidence of genealogy, and, in fact may be important and useful in possible events too numerous to mention.—J. W. Trask, *Public Health Reports*, Jan. 14, 1916.

CASE OF DIRECT AND INDIRECT UNILATERAL HERNIA *

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This case is reported to call attention to a condition which sometimes confronts the surgeon at the time of operation. Inguinal hernia is spoken of as either single or double, the latter term meaning bilateral. I think the term "bilateral" is preferable to "double" because in this case the hernia was unilateral, being on the right side, but at the same time it was both direct and indirect, and hence, in one sense, it was double.

The patient was a man about 48, and was first seen May 24, 1915. His occupation was engineering, principally drafting. He was thin, and had a very nervous disposition; otherwise he had been fairly well. About six weeks prior he had noticed a bulging in the right inguinal region. This bulging had increased in size following an afternoon of unusual effort in lifting. No general symptoms followed



Representation of unilateral direct and indirect hernia just prior to transfixing and tying off both sacs: *A*, internal oblique muscle; *B*, indirect sac; *C*, direct sac; *D*, external oblique aponeurosis; *E*, deep epigastric artery; *F*, vein; G, spermatic cord; *H*, skin.

the occurrence of the bulging except that the patient's nervousness was somewhat augmented. The increase in size of the bulging was associated with some pain, though not severe. The mass was spontaneously reducible whenever the patient would lie down. He had not worn a truss.

Examination revealed a swelling in the right inguinal region, apparently lying in the general path of the inguinal canal. The mass was about 2½ inches long and 1 inch wide. The lower third was slightly larger than the upper two thirds. There was an expansile impulse on coughing. The mass was easily reducible. Other anatomic structures were normal except that the abdominal muscles on both sides were weak, and also the left inguinal region was slightly weak, though there was no evidence of the presence of a hernial sac on the left side.

At operation the incision was made about half an inch above and parallel to Poupart's ligament. The external oblique aponeurosis was laid open. In freeing the cord from its surroundings in the canal a peritoneal bulging

* Read before the Los Angeles County Medical Association, Nov. 18, 1915.

was encountered at a position internal or mesial to the deep epigastric blood vessels.

Before this sac was isolated and opened, search was made for an indirect sac. This was easily found in the usual manner by separating the fibers of the cremasteric fascia from the cord. This indirect sac was isolated and opened. Through the opening in this sac the inner aspect of the inguinal region was explored. This exploration revealed the fact that the first sac seen, which was a direct one, was much larger than had been originally suspected. The two sacs were approximately equal in size, being about 1½ inches long and 1¼ inches wide.

Each sac was transfixed with plain catgut and tied. From that point on the operation was after the method of Bassini with the modification, as recommended by Coley in suitable cases, of a stitch above the cord.

The illustration is a representation of how the two sacs appeared at the time of operation. There was one sac on each side of the deep epigastric vessels. These two sacs were entirely independent of each other.

This case illustrates well the desirability, in cases in which there is an apparent general weakness in the region of the inguinal canal, of making a search for both a direct and an indirect sac on the same side.

It has been remarked that when recurrences follow a Bassini operation, they are generally direct hernias. It is my belief that if the operator had made a search for two sacs at the time of operation in a certain number of those cases, the present large percentage of cures would be increased.

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Special Article

WHAT THE CIVILIAN DOCTOR CALLED TO ACTIVE SERVICE WITH THE ARMY SHOULD KNOW

I. DUTIES IN THE ZONE OF THE INTERIOR

Should the government require troops above the strength of the regular army and the available militia, it would also require personnel for the medical department to serve with them. This would mean that a call would be made on the services of civilian physicians and surgeons to enter the volunteer or other forces raised. They would be wanted in the same proportion as medical officers of the regular army.

To every regiment of infantry or cavalry four surgeons are assigned by present regulations: for a division, about 23,000 troops, ninety-nine medical officers and 889 hospital corps men. This includes the personnel of the sanitary train which accompanies each division in the field, and is composed of the field hospital and ambulance companies. In addition, personnel will be necessary for the line of communication, and the base and general hospitals, in the service of the rear. This totals a large number of medical officers when we deal with from 200,000 to 500,000 men. It is important to remember that the personnel allowed an army on a peace basis is always inadequate for the same army in time of war. This is better understood when it is comprehended that the sanitary troops, composed of medical officers and hospital corps soldiers, with a regiment or division, are for duty only with such organizations. All the wounded and sick who are separated from the organization must be cared for when evacuated to the rear. Retained at the front they immobilize the army to a greater or less extent. Consequently, we have to start with an army with its allotted personnel of medical officers: soon after taking the field the wounded and sick leaving the army require medical attention away from the field of military operations.

A regular supply service is also necessary to feed and transport them and care for them.

Thus, at present in Europe a division which is once in contact with the enemy and has two or three general engagements in a month will lose from 20 to 60 per cent. of its original strength. All the wounded must be eventually cared for, not by the personnel at the front but by a new personnel called into existence by the war for this purpose. In military operations the field is divided, like all Gaul, into three distinct areas or districts in which the troops serve different functions. In the home territory is the service of the interior: here briefly are the mobilization camps where soldiers are recruited, equipped and trained — today in England this can be observed in the so-called Kitchener's armies. Next we have the line of communications, based on home territory with the head near the troops in contact with the enemy, and finally the zone of advance, which is occupied by the actively engaged forces: these are represented today, for example, by the British armies in France: the line of communications, of course, being represented by the sea and rail connections between England and her forces in France. It is to this personnel serving in the rear, the zone of the interior, that most untrained and partially trained medical officers would be assigned. With experience they would expect to be sent to fill vacancies occurring at the front, and on the line of communications.

What are the principal duties of the medical officers in the zone of the interior, where they would find their first detail? This is the question which is of much interest to many patriotic physicians and surgeons who would be liable to service in war. In a general way it is the adjustment of the practice of their profession to military conditions: the study of the soldier and the professional care of him when sick or wounded, and last, but most important, the prevention of disease. There is also through all these duties wherever performed the division into administrative work and medical work proper. As service in the line of communications and the zone of the interior will be the lot of most civilian physicians, at least at first, the duties there will be considered first. We must assume, of course, that a doctor on becoming a medical officer is properly prepared to do general practice: if he has a specialty, so much the better; it will be useful; even pediatrics and gynecology are called on in army posts, and when troops are occupying hostile territory. If any are more important than another, those expert in sanitation and surgery would be of most value.

Among the first duties required of the medical officer after his joining during mobilization is to make the physical examinations of recruits and later of disabled soldiers. The physical examination of the recruit is of the utmost importance: on his physical condition depends the mobility of the army. To insure this, certain standards are set by the War Department as the result of its experience in recruiting and in the field. An honest adherence to these standards is absolutely necessary. They are to be found in the "Instruc-

tions for the General Recruiting Service, U. S. Army," and in general orders and circulars issued from time to time by the adjutant general's office, which should be on hand at the places of examination. It must be remembered in making these physical examinations, and many of them have to be made in our country in emergency, as there is no reserve, that not only is the government to be protected against unjust pension claims by excluding the physically deficient at these examinations, but also the exclusion of the recruits suffering from infectious diseases is of the greatest importance. It was our experience at the beginning of the Spanish-American War, and in fact during every war, that the recruit brings to the mobilization camp the infection of many diseases, and this is only a natural circumstance, as the young recruit represents the susceptible material in a community. He is protected neither by former attacks of disease nor by mature judgment and caution. We should be on the lookout, then, for symptoms indicating the presence of the exanthems, tuberculosis, and in the southern communities especially, dysentery and hookworm disease. Of course the venereal diseases are omnipresent, and if not always incapacitating or showing open lesions, should be noted, if suspected, for proper treatment.

The recruit meeting the physical requirements, when accepted and sworn in, should be immediately vaccinated against both smallpox and typhoid fever. When he has been accepted as a soldier, it becomes the business of certain medical officers, in conjunction with the line officers, to look after the health and sanitary conditions surrounding the recruit. He must be given sufficient exercise, and, at the same time, immature recruits must be protected against excessive work of a character that might produce heart strain if indulged in without sufficient preliminary training. He must keep himself personally clean and also his surroundings, his barracks or tent, his bed clothing. That all this is done and done properly and intelligently devolves on the line officer, and a certain amount of it must be supervised and inspected by the medical officer.

The soldier is given an opportunity daily at an appointed hour and place to see and consult a medical officer, if necessity requires it. Of course emergencies demand medical assistance at any hour, day or night; but for the recruit who is suffering from minor ills or experiencing prodromal symptoms of acute diseases, an opportunity is given to see the doctor at "sick call." As the hour and place are published in orders, and as the location of the hospital or infirmary is a matter of common knowledge in the camp, men ailing may readily find their way.

The surgeon misses a great opportunity if he does not realize that this informal consultation, known as sick call, should be taken most seriously. It is almost the first point of contact between the medical department and the soldier, and it should be an occasion to obtain his confidence and to learn something of the individuality of the man. It is at this point that preventive medicine can be most advantageously practiced. It is here that sharp lookout should be kept for the sporadic cases that usher in an epidemic, and it is by the isolation and early treatment of these cases that we prevent disease from spreading in camps or barracks. Opportunity is also given for ascertaining the physical condition of the man: whether he is in need of special corrective exercises, or whether he is getting too much exercise; whether his teeth are in good condition to masticate the field ration; whether he is suffering from vermin; whether he is bathing and washing his clothes sufficiently, and one of the most important things, whether he is assimilating the food that is furnished him; if he is not, something is wrong — either the food or the digestive system. The malingerer and the hypochondriac are discovered at sick call, the young soldier suffering from nostalgia: all can be improved by sympathetic and intelligent handling. Much of the inner life of the company organization to which the soldier belongs comes out at sick call: the relations of the men, the treatment they receive from officers and noncommissioned officers, the quality and quantity of food, the cleanliness of their barracks and persons, whether or not they have been vaccinated against smallpox and typhoid fever, can be ascertained here, and also the presence of venereal disease among the civilians in the nearby communities frequented by the soldier; in brief, sick call is one of the most intimate points of contact between the medical officer and the soldier of the line, and one of the most illuminating to the earnest medical officer.

Inasmuch as the barracks at present provided for troops in the United States are barely sufficient to accommodate them, recruiting of new troops will require new shelter for them. This is usually provided by tents, the new troops being gathered into mobilization camps where they are given physical examinations, clothed and equipped, vaccinated, and given the instruction which is to turn them into soldiers. These camps are places of instruction not only for soldiers but for officers as well, and it is usually here that the civilian physician begins to acquire his first experience in military life. He must learn the lessons of obedience and discipline even more quickly and definitely than the soldier, because in his hands reposes more power. It is here that the medical officer begins his acquaintance with the supply departments of the army, learns how to obtain equipment and food for himself and the men in his charge, and learns methods of accountability for government property and to unwind the much despised red tape. The longer experience and the responsibility of having in his possession considerable amounts of government property will end by convincing him of at least some of the necessity of tying it up in red tape. There are times, it is true, when this must be cut through, and the occasion does not permit the untying; experience and good judgment will tell him when.

In a general way, the professional duties at a camp of mobilization are not onerous, except for the first set of physical examinations. Nevertheless, it is the place to learn how preventive medicine is practiced among troops; to learn the methods of handling the hospital corps soldiers over whom he has control; to learn the methods devised by army officers for handling sick and wounded in the field, and the place to acquire that state of discipline and mental alertness that goes to make up the character of the soldier as distinguished from the recruit.[1]

(To be continued)

1. Books for the perusal of the medical officer: Army Regulations, 1913, par. 1386, pp. 269 et seq. Manual for the Medical Department (new edition now in print). Straub: Medical Service in Campaign, Ed. 2, United States Field Service Regulations, 1914.

Aim of the Health Movement.—Our health ideals should rise from the mere wish to keep out of a sick bed to an eagerness to become a well-spring of energy.—Fisher and Fisk, "How to Live."

Therapeutics

CARDIAC DILATATION

Degeneration and disturbances of the heart muscle and cardiac dilatation are found more and more frequently at an earlier age than was the case formerly. Several factors seem to be at work. In the first place, infants and children are now being saved, though they may have inherited, or acquired, a diminished power of resistance against disease and against the strain and vicissitudes of adult life. Another important factor is the strenuosity of business life, the rapidity of social life, the tension and speed of the industrial life of both sexes, and competitive athletics in school and college life, to say nothing of the various other excesses of many persons.

Acute cardiac dilatation from sudden, severe overexertion is not frequent, but is occasionally seen. Hard lifting, running with loads (as two suit cases, to catch a train), persistently attempting to crank a cranky engine, or some severe exertion, as seen in competitive athletics, may cause acute dilatation.

Chronic dilatation of the heart, however, perhaps not sufficient to cause edema, slowly and insidiously develops from chronic and persistent strenuosity or from the insidious irritations caused by absorbed toxins due to persistent intestinal indigestion. A fibrosis of the heart muscle and of the arterioles gradually develops, and the heart muscle sooner or later feels the strain.

It is now not unusual for a physician, in his office, to hear his patient say "Doctor, I am not sick, but just tired," or, "I get tired on the least exertion." Physicians do not note carefully enough the condition of the heart in patients who are just "weary," or even when they show beginning cardiovascular-renal trouble.

The primary symptoms of myocardial weakening are slight dyspnea on least exertion; slight heart pain; slight edema above the ankles; often some increased heart rapidity, sometimes without exertion; inability of the heart after exertion to return immediately to its normal frequency; slight dyspnea on least exertion after eating; flushing of the face or paleness around the mouth, and more or less dilatation of the veins of the hands. All of these are danger signals that may not be especially noticed at first by the person; but if he reports such symptoms to his physician, the latter should not only make a thorough physical examination, but particularly note the size of the heart.

If a roentgenographic and fluoroscopic examination cannot be made, careful percussion, with attention to the region of the apex beat, the rapidity and action of the heart on sitting, standing and lying, and the length of time it takes while resting after exertion for the speed of the heart to slacken, will show the heart strength.

Slight dilatation being diagnosed, the treatment is as follows:

1. Rest, absolute if needed, should be prescribed, and all physical exercise and business cares prohibited.

2. The amount of food should be reduced, and the food should be of the simplest. Alcohol should be stopped, and the amount of tea, coffee and tobacco reduced.

3. If medication is needed, strychnin sulphate $\frac{1}{40}$ or $\frac{1}{30}$ grain three times a day, and tincture of digitalis in 5 to 10 drop doses twice a day, will aid the heart to recover its tone.

Such treatment, when soon applied to a slowly dilating and weakening heart, will establish at least a temporary cure and will greatly prolong life.

If these heart conditions are not diagnosed and properly treated such patients are liable to die suddenly of "heart failure," of acute dilatation of the stomach, or of angina pectoris. Unsuspected dilated hearts are often the cause of sudden deaths during the first forty-eight hours of pneumonia.

The purpose of this article is not to discuss the treatment of high blood pressure, albuminuria or other similar conditions that may be associated with cardiac dilatation. This particularly dangerous condition should be more frequently noted and treated. Digitalis in such cases rarely raises the blood pressure, and small doses are sufficient. If more heart pain is caused, the dose of digitalis is too large, or it is contraindicated. Also, digitalis need not be long given especially as Cohn, Fraser and Jamieson[1] have shown by the electrocardiograph that its effect on the heart may last twenty-two days, and never lasts a shorter time than five days. They also found that, when digitalis is given by the mouth, the electrocardiograph showed that its full activity was not reached until from thirty-six to forty-eight hours after it had been taken. From these findings it will be seen that if it is necessary to give a second course of treatment with digitalis, within two weeks at least from the time the last dose was given, the dose should be much smaller than at first.

If individuals of our strenuous life who are over 40 would, once or twice a year, present themselves for a heart and other physical examination, there would not be so many sudden deaths of those thought to be in good health. It may be a fact, as asserted by many clinicians, that chronic myocarditis and fatty degeneration of the heart cannot be diagnosed by any special set of symptoms or signs. It is a fact, however, that a pretty accurate estimate of the heart strength can be made by a careful physician, and if danger signals are noted and signs of probable heart weakness are present, life may be long saved by good treatment rigorously applied. The patient must cooperate, and be harshly warned of his condition. Many such patients, noting their impaired ability, do not seek medical advice, but, thinking all they need is more exercise, they walk, golf and dance to excess and to their cardiac undoing.

1. Cohn, A. E.; Fraser, F. R., and Jamieson, R. A.: The Influence of Digitalis on the T Wave of the Human Electrocardiogram, Jour. Exper. Med., 1915, xxi, 593.

A Wreath for Trudeau

"Trudeau is dead." The broken words
Whispered along the thread of wire
Fell on my ears. A smile, wraithlike,
Slunk away. The lilt of a song
Ceased. The sun struck across my desk,
Unseen, for "Trudeau is dead."

A comrade, whistling merrily,
Flung into my room; then, seeing
My bowed head and sorrow, withdrew.
A car buzzed shrill in the alley;
A newsboy caroled in the street;
But "Trudeau is dead."

The east wind tapped at my casement;
Footsteps rang down the corridor;
Familiar sounds of the city
Went to and fro; but I, I sat,
Sphinxlike, companioned by my grief,
For "Trudeau is dead."

—Paul Lyman Benjamin.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, FEBRUARY 5, 1916

FASHIONS IN SUICIDE

The use of poison has always been a prominent method employed by those who voluntarily destroy their own lives. According to the Bureau of the Census, the number of suicides reported in 1914 was 10,933, or 16.6 per hundred thousand population. Of this number 3,286 accomplished self-destruction by the use of firearms, 3,000 by poison, 1,552 by hanging or strangulation, 1,419 by asphyxia, 658 by the use of knives or other cutting or piercing instruments, 619 by drowning, 225 by jumping from high places, 89 by crushing, and 85 by other methods.

Writing a generation ago, the English analyst Blyth[1] said, "The higher the mental development of a nation, the more likely are its homicides to be caused by subtle poison — its suicides by the euthanasia of chloral, morphin or hemlock." In accord with this, among the substances employed by 1,000 male and female suicides by poison in England during the ten years 1871-1880, the opiates take first place, with a total of 423 victims, cyanids following in the second place. Phenol and strychnin also stand high in the list. Arsenic no longer appeared to be the favored medium of suicide that it was in the earlier years, and phenol (carbolic acid) was beginning to come into vogue.

According to statistics of the cases of suicide in New York City by poisoning due to the principal drugs for the past twenty-five years,[2] we must assume either that the expected higher mental development of the inhabitants of the great metropolis has not been realized or that there is an independent fashion in the methods of suicides. The data compiled by Lambert and Patterson[2] show that poisoning by arsenic and Paris green, once favorites in this country, and by phenol, which was the most prominent suicidal poison in New York during the decade 1895-1905, are on the decrease. The use of opium for the same end has never been really extensive during this period, and remains stationary. Poisoning, with intent, by illuminating gas is becoming more prominent year by year; and of late the use of mercuric chlorid is on the increase. Of the 155 cases of suicide by mercuric chlorid recorded in New York City in the past twenty-five years, 73, or nearly half of them, have occurred in the past two years. The figures for the last five years in a total of 2,126 are as follows: Paris green and arsenic, 48; phenol, 154; opium and morphin, 29; mercuric chlorid, 104; illuminating gas 1,554; other poisons, 237. The recent increase in the use of mercuric chlorid for purposes of suicide is attributed by Lambert and Patterson largely to the newspaper notoriety which was given to a case of accidental poisoning occurring a few years ago. They remind us that the public was instructed in all the details of the symptoms, and that great stress was laid, not only on the certainty of the fatal outcome, but also on the painlessness and lack of suffering which accompanied the week-long illness of the victim. This appears to have appealed to would-be suicides. Evidently there are other factors than toxicologically intelligent selection which dictate the choice of poisons by modern suicides, even in a great metropolitan district.

1. Blyth, A. W.: Poisons, Their Effects and Detection, New York, 1885, i, 28.
2. Lambert, S. W., and Patterson, H. S.: Poisoning by Mercuric Chlorid and Its Treatment, Arch. Int. Med., November, 1915, p. 865.

THE ACTIVITIES OF MUNICIPAL HEALTH DEPARTMENTS

An investigation of health departments in 219 cities of the United States has recently been completed by the Department of Surveys and Exhibits of the Russell Sage Foundation.[1] The investigation, which was carried on entirely by mail, was limited to cities having a population of 25,000 and over, according to the census of 1910. There are 227 such cities, and reports were received from all but eight of those addressed. The questions asked concerned appropriations, infant hygiene work, laboratory service, health, education and publicity, control of venereal diseases, housing regulations, dispensary service, tuberculosis work, industrial hygiene, and the number of privies.

The figures with regard to appropriations excluded all funds applied to hospitals, sanatoriums, plumbing inspection, street cleaning, removal or disposal of dead animals, refuse, garbage or night soil, and any other unusual expenditures of indirect hygienic value. The average per capita expenditure was 32.7 cents. Excluding New York, this figure drops to 27.3 cents per capita. The largest figure was that of Seattle, 98 cents, the smallest that of Clinton, Iowa, 0.75 cent. Memphis spent 93 cents, Augusta, Ga., and Pittsburgh 61 cents, and New York 58 cents. Among other small expenditures were Easton, Pa., 2 cents; Aurora, Ill., and South Bend, Ind., 3 cents; Woonsocket, R. I., 4 cents, and Lewiston, Me., 6 cents. Relatively the

1. Schneider, Franz, Jr.: A Survey of the Activities of Municipal Health Departments in the United States, Am. Jour. Pub. Health, 1916, vi, 1.

larger appropriations are in the Southeastern states, and the smaller in the North Central states.

Summarizing the results of the questionnaire, it is found that one fifth of the cities made no inspection of schoolchildren, over a third did not offer the ordinary laboratory diagnosis for common communicable diseases, over a fourth made no effort to educate in health matters, nearly three fourths had no housing law, nineteen twentieths did not consider the hygiene of industry, over six sevenths had no program against venereal diseases, and one half had no proper organization to combat infant mortality.

The report is notable for its surprises. One would surely have expected tuberculosis to occupy a foremost place in most health work, and yet only 33.9 per cent. of the cities report the comprehensive control of this disease. The best work appears in Eastern cities, and probably reflects the antituberculosis campaigns of private organizations. It is an excellent example of the important part that private effort may take for defining the way of municipal activities.

Still more surprising is the rank of the cities geographically, the Southern and Pacific cities far outranking all others. The cities with poor health programs are invariably the cities with scanty appropriation — and few of the cities with low appropriations are situated west of Illinois or south of Indiana.

But there is one great shocking fact which probably is not generally realized. In 219 cities with a population of 29,488,321, there was spent during one entire year, for actual constructive and preventive health measures, only $9,650,515, or a sum rather less than the mere cost of one battleship.

No attempt was made to determine the efficiency of the work of the various health departments, but merely to find out whether or not certain lines of study were being followed. Certainly the results show that public health work in this country is still in its infancy, and that the appropriations granted to most health departments are grossly inadequate for the functions which they are expected to perform, in view of modern scientific knowledge with reference to health.

PROGRESS IN THE MILK INDUSTRY

More than half a century has elapsed since the passage of the first more general regulations for the protection of the milk supply in this country. Probably the first dairy laws were those enacted in Massachusetts in 1856 against the adulteration of milk by adding water, and in 1859 prohibiting the feeding of brewery waste to cattle. During the latter year the appointment of dairy inspectors was authorized, and in 1880 a minimum standard was fixed for total solids in milk.[1] In the earlier days much of the official activity in relation to milk was of the nature of inspection which assumed the character of routine police work. Gradually milk inspection duties have assumed a constructive and educational character, quite as much as a mere regulatory function. They are being based on a foundation of scientific research in which such branches as physiologic chemistry, bacteriology, human and veterinary medicine, sanitary science, rural hygiene, economics and practical dairying are involved. It has been said that the response of dairying to the progress of investigation has perhaps been more rapid than that in almost any other branch of agriculture. Here, to a very notable extent, the rule of thumb has given way to the rule of reason, and the industry has progressed as a result of a clearer understanding. As it has become a more intelligent industry, so it has likewise become a more technical and complicated one, success requiring higher skill and superior judgment, and more attention to the ultimate use of the product.

Milk is not merely a perishable food, used extensively in the feeding of invalids and infants in which it is almost indispensable; it is also a product singularly susceptible to contamination and liable to play a part in the transmission of disease. The importance of the efforts to safeguard the milk supply against adulteration and unhygienic dangers is further emphasized by the facts in regard to the volume of the industry involved. In 1909, 4,260,324,206 gallons of milk were consumed as such in this country. This represented an estimated value to the producer of $647,569,279, and to the consumer of $1,463,847,397.

Regulations involving the sanitary conditions under which cattle producing milk are kept, as well as the condition of the premises on which milk is produced and handled, began to be enacted as early as 1895. Contemporaneous with the development of this inspection movement was the growing interest in the subject on the part of the medical profession, as exemplified in medical milk commissions. These numbered about seventy-five in 1914. They have been instrumental not only in the production of what is now familiarly known as "certified milk," but also in educational propaganda which has been very effective in improving and appreciating the quality standards of the milk sold in many cities. The subject of pasteurization has been broadly ventilated, and the entire practice put on a rational basis. The question of bovine tuberculosis has been faced in a scientific way. Popular prejudices like those against milk from silage-fed cattle have been modified to fall in line with the best suggestions of animal nutrition, dairy bacteriology, economics and sanitary science. Some of the changes initiated have resulted only after considerable friction between the financial and the hygienic interests concerned. This, however, is not a new experience in the attempts of scientific knowledge to modify current procedures. Inertia is found in all walks of life. The gratifying feature of the modern

1. These and other statistical facts in this editorial are taken from a report of the Fourth Convention of the International Association of Dairy and Milk Inspectors, Experiment Station Record, 1915, xxxiii, 701.

milk industry is that it truly represents the application of scientific investigation. Progress has been based for the most part on study rather than mere empiricism, and the possibilities of popular education in scientific matters have been exemplified in a degree that is both significant and encouraging. To quote a recent writer, success does not flourish under an attitude of antagonism growing out of compulsion, but under one of cooperation. The inspection agencies have thus been a medium of instruction, and the experiment stations in their investigations have had the producer in mind quite as much as the consumer, in order that he might improve his business in producing a better quality of product.

DAKIN'S DISCLAIMER OF NOVELTY IN THE "NEW ANTISEPTIC"

Some time ago The Journal commented[1] on the alleged discovery of a "new antiseptic," credited to Drs. Carrel and Dakin, which was at that time receiving attention in the medical as well as the lay press. This preparation is produced by the action of sodium carbonate on a solution of chlorinated lime; the resulting fluid, after being siphoned off from the precipitate of calcium carbonate and filtered, is neutralized with boric acid. It was stated that the solution thus produced is essentially the familiar solution of chlorinated soda (Labarraque's solution), the only novelty being the use of boric acid for neutralization. Chlorinated lime and Labarraque's solution are well-known disinfectants, and their use in surgery is not unknown, although both are alkaline and thus destructive of tissues except when applied in highly dilute solutions.

In a recent article,[2] Dr. Dakin notes that the so-called "new antiseptic" was discovered by Berthollet in 1788. Dakin shows by quotations from his original communication to the Académie des sciences that no claim of originality in the method was put forward at the time it was announced by him; the alleged discovery was a newspaper-manufactured sensation. The various counterclaims to priority in the use of this disinfectant are all a waste of ink and paper. "It would seem," says Dakin, "as if the time was fitting for a statement that what we have all been striving for is to find the best means of preparing, preserving and applying the powerful antiseptics, hypochlorites and hypochlorous acid, the main properties of which substances were discovered by distinguished French chemists many generations ago." In this connection Dakin refers to the methods of Lorrain Smith, who aims at a liberation of free hypochlorous acid by the addition to chlorinated lime of an equal weight of boric acid; to that of Lumière, who uses three parts of boric acid to one of chlorinated lime, and to that of Hertz-Boyer and the staff of the French hospital ship *Charles Roux*. The latter have used for surgical dressings a hypochlorite solution prepared by the electrolysis of sea water. Dakin says that, as compared with Lorrain Smith's and Lumière's preparations, his own mixture contains less free hypochlorous acid and a smaller concentration of available chlorin, and that it can therefore be more freely and continuously applied. Delbet and Quénu[3] believe, by the way, that the virtue of sodium hypochlorite solutions as surgical dressings resides largely in the irritant actions on the tissues, and that consequently Dakin's solution is the less effective because of the absence of alkalinity which is its special characteristic.

Dakin points out that the antiseptic action of hypochlorous acid is generally attributed (by others) to its decomposition in the presence of organic matter with the attendant liberation of oxygen. He believes, however, that the antiseptic action is due, not to the liberation of oxygen, but to the formation of chloroimido (> NCl) groups in the protein, and that these in turn may cause the antiseptic action. In either case, however, according to the modern electron conceptions, the reaction would be interpreted as one of oxidation.

Dakin quotes from the *Lancet*[4] the statement that recent results "confirm the conclusions of various investigators that hypochlorous acid is the most powerful antiseptic known." Such a statement, he remarks, unless qualified as to the conditions under which the antiseptic acts, is meaningless. It should be remembered that disinfection is a chemical reaction, and the reagent acts, not only on the bacteria, but also on the medium in which they are found. An antiseptic which shows high relative activity under one set of conditions may show a low one under other conditions. Hence, no just comparison of the relative power of antiseptics can be made except under comparable conditions. The one conclusion which all results appear to justify here is that hypochlorites, whether applied in an acid solution, as by Lorrain Smith and Lumière, in an alkaline solution, as advocated by Delbet and Quénu, or in a neutral solution, as used by Carrel and Dakin, are of genuine value in the treatment of infected wounds.

FEATURES OF PITUITARY FUNCTION

Out of the bewildering mass of data derived in recent years from a diversity of sources in regard to the so-called ductless glands, some order is beginning to assert itself. One by one the functions of the "internal secretions" of what have lately been designated as the endocrine glands — the thyroids, parathyroids, suprarenals, pituitary, etc. — are being unraveled by experimental investigations or clinical observations, or, in favorable instances, by a happy combination of the two methods. Part of the work of progress has

1. The So-Called New Antiseptic, editorial, The Journal A. M. A., Sept. 4, 1915, p. 880.
2. Dakin, H. D.: The Antiseptic Action of Hypochlorite, Brit. Med. Jour., Dec. 4, 1915, p. 809; abstr., The Journal A. M. A., Jan. 8, 1916, p. 150.
3. Paris Letter, The Journal A. M. A., Dec. 11, 1915, p. 2101.
4. Lancet, London, Aug. 14, 1915, p. 347.

consisted in casting aside untenable theories and unreliable statistics as well as subjecting the more promising suggestions to rigid scientific tests.

In connection with their extensive experimental studies on the rôle of the pituitary, Cushing and his collaborators have noticed a marked tendency of animals to pass into a profoundly lethargic state after a total or nearly total surgical removal of the glands.[1] When the extirpation is not quite so complete, the symptoms are not quite so severe; and it has been observed that a pronounced lethargy with coincident fall in body temperature is more apt to supervene in the winter months than after similar operations in the warmer seasons. It was ascertained, however, that the fall of temperature is characteristic of the condition, regardless of the temperature of the environment.

The associated symptoms of the experimental states of hypophysial insufficiency were the lethargy, the subnormal temperature, slow pulse and respiration, lowered blood pressure and insensitivity; furthermore, there was a tendency in individuals surviving a considerable though incomplete deprivation of the pituitary gland to become adipose and lose their sexual activity. The latter symptoms have furnished an explanation of the clinical syndrome known as dystrophia adiposogenitalis by coordinating it with hypophysial insufficiency.[2]

The phenomena described bear a striking resemblance to those instances of pronounced natural somnolence which are familiar to us in the case of hibernating animals. The capacity for seasonal lethargy such as is exhibited by the woodchuck, or North American marmot, is evidently acquired in order to adapt the individual to periodic conditions, such as a seasonal diminution of food supply unfavorable to life. Hibernation is apparently not merely the result of exposure to cold. The "winter sleep" is often begun before the rigors of climate set in; it cannot be induced by low temperature alone, and, furthermore, there are species which seem to have a period of summer sleep. The food element is much more likely to be a determining one. Cushing and Goetsch[3] have pointed out that such attempts as have been made to relate these two extracorporeal factors — low external temperature and diminished food supply — to the problem of hibernation under experimental conditions have given results that are not entirely convincing. These investigators at the Peter Bent Brigham Hospital, accordingly, have turned their attention to the ductless glands of hibernating animals and discovered that, during the dormant period, histologic changes are apparent in many of them. In accord with earlier observations by Gemelli,[4] they have observed that the pituitary not only diminishes in size, but the cells of the pars anterior in some animals at least completely lose their characteristic staining reactions to the usual histologic dyes. At the end of the dormant period the gland swells, and as the cells enlarge they again acquire their differential affinity for acid, basic and neutral stains. At the same time, evidences of renewed development may appear in the form of karyokinetic figures. On the basis of such tissue changes, one may readily postulate, during their continuance, a condition of diminished hypophysial activity which could become responsible for the typical sequence of symptoms, including retardation of metabolism, inactivity of the reproductive glands, and somnolence, precisely as they are seen in induced hypopituitarism.

We are reminded by Cushing and Goetsch that the occurrence of such seasonal waves of inactivity on the part of certain members of the ductless gland series is no more remarkable than the periodic waves of inactivity or activity in the case of other glands, such as those concerned with reproduction. Hibernation, according to the Boston investigators, may thus be ascribed to a seasonal physiologic wave of "pluriglandular activity." The essential rôle is perhaps to be ascribed to the pituitary, they suggest, not only for the reason that the most striking histologic changes appear in this structure, but also because deprivation of the secretion of this gland alone of the entire series of ductless glands produces a group of symptoms comparable to those of hibernation. The subject is not without direct human interest, for it is stated that even man appears to have a certain capacity for what may be called winter sleep. This is shown by the experiences of those in the arctic regions, and also among peasants in certain parts of Russia who, during the winter months when there is a scarcity of food, are said to pass weeks at a time in a somnolent state, arousing once a day for a scanty meal.[3] With the tardy performance of the pituitary and the effects of invasion by the hookworm already disclosed, we shall soon be in a position to excuse the lethargy of a variety of human individuals on physiologic rather than temperamental grounds.

1. Crowe, S. J.; Cushing, H., and Homans, J.: Experimental Hypophysectomy, Bull. Johns Hopkins Hosp., 1910, xxi, 127; abstr., THE JOURNAL A. M. A., June 4, 1910, p. 1905.
2. Cushing, H.: The Hypophysis Cerebri: Clinical Aspects of Hyperpituitarism and of Hypopituitarism, THE JOURNAL A. M. A., July 24, 1909, p. 249.
3. Cushing, H., and Goetsch, E.: Jour. Exper. Med., 1915, xxii, 25.
4. Gemelli, A.: Arch. p. le sc. med., 1906, xxx, 341.

CAFFEIN AND ASTHMA

In its general behavior as a nerve stimulant, caffein acts on the medullary centers. As a result, respiratory activity may be markedly accelerated, in part owing to an increased sensitiveness of the respiratory center, and in part, perhaps, because of an increase in the irritablity of the respiratory muscles. "The Pharmacology of Useful Drugs," reprinted from THE JOURNAL,[1] states that "caffein is one of the best respiratory stimulants because the stimulation has little tendency

1. Hatcher, R. A., and Wilbert, M. I.: The Pharmacology of Useful Drugs, Chicago, 1915, p. 49.

to pass into depression even with large doses." In marked cases of depression of the respiratory mechanism, as from alcohol or in morphin narcosis, caffein accordingly forms a splendid antagonistic drug.

Some time ago Pal[2] attempted to establish the truth of the assertion that caffein will overcome artificially induced bronchospasm, which is the counterpart of the familiar condition known as asthma. He explains the alleged effect by the supposition that the drug stimulates certain branches of the sympathetic system peripherally and in this way effects a dilation of the bronchioles and overcomes the bronchospasm. At best the methods of treating asthma are far from satisfactory, so that every new suggestion based on what seems to be rational pharmacology deserves careful investigation.

The most commonly accepted explanation of the contractions of the bronchial musculature seen in asthma nervosum attributes them to an exaggerated reflex excitability of the vagus center for the bronchioles.[3] Atropin and lobelin at present find use in the treatment of asthma when it is sought to paralyze the vagus in the bronchi by the drugs.

Shall caffein be added to the list? Newer experiments in the physiologic institute of the University of Berlin[4] speak clearly against the probability of advantage from this substance. It is true that when an experimental condition of bronchospasm is artificially instituted by the use of suitable drugs like muscarin, a slight transitory remedial or antagonistic effect is obtained from large doses of caffein. This is in no way comparable to the antiasthmatic manifestations of atropin. Moreover, the seat of action of caffein is central, not peripheral, where the objectionable contractile phenomena are actually involved. The caffein, in other words, merely stimulates the respiratory center to increased effort; it does not relieve the bronchospasm directly. At all events, its anticonstrictor effects are too feeble to put caffein into the class of drugs along with the more familiar products adapted to the relief of typical asthmatic symptoms.

2. Pal, J.: Ueber die Wirkung des Kaffeins auf die Bronchien und auf die Atmung: Ein weiterer Beitrag zur Kenntnis des experimentellen Bronchospasmus, Deutsch. med. Wchnschr., 1912, No. 38.

3. Einthoven, W.: Arch. f. d. ges. Physiol., 1892, li, 367. Brodie, T. G., and Dixon, W. E.: Tr. Path. Soc., London, 1903, liv.

4. Weber, E.: Neue Untersuchungen über experimentelle Asthma und die Innervation der Bronchialmuskeln, Arch. f. Physiol., 1914. Meyer, F.: Physiologische Untersuchungen über Kaffein als Asthmamittel, ibid., 1915, p. 1.

Paratyphoid Fever.—L. Giroux reports that during the last few months he had two cases of typhoid in his service; these men had not been vaccinated against typhoid. During this period he also had fifty-seven cases of paratyphoid fever, all in men vaccinated against typhoid, and two in this group developed orchitis and epididymitis at the same time. The genital affection persisted for several weeks, entailing suppuration in one case. The genital complications in one developed at the height of the fever, in the other not until two or three days after defervescence. His report is published in the *Bulletins de la Société médicale des hôpitaux de Paris*, 1915, xxxix, 760.

Current Comment

CLINICAL CLERKS AND SUPERVISION

Much has been written of late in regard to the clinical clerk system in England, and a similar arrangement is being quite generally established in the teaching hospitals in the United States. A careful supervision of such work, however, is highly essential. While in the senior year valuable clinical training can be furnished through a properly conducted clinical clerk system, without adequate supervision such courses may be worse than useless. It is no less important that the work of medical students throughout the four-year course should be carefully supervised than it is that it be carefully graded. It is of particular importance that no student, even in his senior year, should be permitted to visit, examine or prescribe for hospital patients unless that work is supervised by a member of the attending staff, preferably one who is a member of the active teaching faculty of the medical school. Without such careful oversight, experience shows that the clinical clerk system leads to a confusion and irresponsibility which is demoralizing to the student and dangerous to the patient. Not until the student has graduated and entered the hospital as an intern should supervision of his work be relaxed, and even then only partially. The intern year should be the final step in the student's graded and supervised clinical work, after which he may be permitted to assume full responsibility for the care of the sick. If the student's work in clinical diagnosis, in dispensary clinics, in section clinics at the bedside, in his service as a clinical clerk, and in his intern year is so graded as to give the student a gradually increasing knowledge and technic, he could likewise be permitted to assume a gradually increased responsibility for the examination and care of patients. If this is done under the supervision of skilled teachers, the future graduates in medicine in this country will be far better qualified to assume the responsibility of treating the sick than has heretofore been true.

THE TOXICOLOGY OF BENZENE

The best way to dispel any uncertainty regarding the cause of death by foreign substances is to discover the offending invader in the body itself. When a metallic poison like arsenic or a toxic alkaloid like strychnin can actually be isolated from a dead body in quantities sufficient to constitute a fatal dose, no further evidence of the source of harm is ordinarily required. There are poisons, however, which evade detection because they are susceptible to rapid change in the organism, while still other harmful substances may elude identification because of the inadequacy of some of the technical methods at present employed in toxicologic analysis. This appears until lately to have been the case with benzene (benzol) which, though not as yet an important source of danger in this country, is now becoming more conspicuous as a cause of poisoning in man. Benzene, which is a definite chemical compound (C_6H_6) derived from coal tar, must not be

confused with benzin, a mixture of volatile hydrocarbons derived from petroleum. The older textbooks on toxicology have little to say about benzene or the hydrocarbons that commonly accompany it in the industries. A growing source of danger lies in the inhalation of benzene vapors. When benzene is taken by the mouth it appears to be poorly absorbed. A part is said to be excreted by the lungs, and a small fraction may even be oxidized slowly in the body.[1] At the pharmacologic institute of the University of Berlin, Joachimoglu[2] has succeeded in perfecting a method for detecting benzene and measuring the quantity present in animal tissues. By this means, interesting facts regarding the distribution of the poison in the body have now become available. It has been demonstrated that in benzene intoxication the brain and spinal cord contain relatively more of the organic poison than do any other organs. This is without doubt related to the fact that, owing to its solubility in fats and fatlike compounds, benzene has a natural "affinity" for the lipoid of the nervous tissues. The same distribution, for comparable reasons, has been made for chloroform[3] and acetone.[4] Similar findings are also to be expected in the case of toluene (toluol, methyl benzene) which, though chemically closely related to benzene, has less practical importance with respect to the possibilities of industrial poisoning.

THE DETROIT SESSION

While it is probably not necessary to remind the Fellows of the Association that the next annual session will be held in Detroit, June 12-16, attention should be called to the present indications that the attendance at the Scientific Assembly this year will be very large. A big meeting has been prophesied ever since Detroit was named as the place of meeting, and as arrangements have progressed, assurances have multiplied to substantiate this expectation. A year ago, the Scientific Assembly was held on the Pacific Coast; the year before, on the Atlantic Coast at Atlantic City, at which point the Association has held its annual convention six times since it last met in Detroit twenty-four years ago. The place of meeting this year is near to the center of the medical population of the country. It is in a city, seventh in population of the cities of the United States, conveniently located for a visit by rail, boat or automobile. Detroit, claiming as it does, to be the first city in automobile production, naturally has provided good roads. In a word, Detroit itself will attract physicians. Consequently, while the Committee on Arrangements is confident that the hotel accommodations will be ample, it is advisable that those who are planning to attend the annual session this year should follow the suggestion of the Committee on Arrangements[5] and make hotel reservations early, especially if they desire a "room with bath."

1. Nencki, M., and Giacosa, P.: Ueber die Oxydation der aromatischen Kohlenwasserstoffe im Thierkörper, Ztschr. f. physiol. Chem., 1880, iv, 325.
2. Joachimoglu, G.: Ueber den Nachweis des Benzols in Organen und seine Verteilung im Organismus, Biochem. Ztschr., 1915, lxx, 93.
3. Nicloux, M.: Les anesthésiques généraux, Paris, 1908.
4. Archangelsky, C.: Ueber die Verteilung des Chloralhydrats und Acetons im Organismus, Arch. f. exper. Path. u. Pharmakol., 1901, xlvi, 347.
5. Association News, THE JOURNAL A. M. A., this issue, p. 445.

INDUSTRIAL INSURANCE

Bills for compulsory health insurance for workers were introduced into the Massachusetts legislature, January 14, and the New York legislature, January 24. These bills, which have been drafted by the American Association for Labor Legislation in cooperation with the special committee appointed by the American Medical Association, will cover any case of sickness or accident not within the scope of the Workmen's Compensation Act, and will apply to manual laborers and to all others earning less than $100 per month. Benefits to insured workers will include medical, surgical and nursing attendance, medicine and surgical supplies, cash benefit for a maximum of twenty-six weeks of the year, and a limited funeral benefit. Local health associations created under the proposed act for the administration of those benefits would be under the joint control of employers and insured employees. The bills as drafted represent the results of a three years' exhaustive study of health insurance by the special committee of the American Association for Labor Legislation. Much of the best informed opinion of the country is in favor of these proposals. The United States Public Health Service, various state departments of health, labor leaders and others strongly advocate health insurance. The introduction of these bills marks the inauguration of a great movement which ought to result in an improvement in the health of the industrial population and improve the conditions for medical service among the wage earners. It is the duty and the privilege of every physician to study this important question and to express his opinions either to the committee appointed by this Association or to the American Association for Labor Legislation.

THE VALUE OF ESTIMATIONS OF CREATININ IN THE BLOOD

The recent development of methods for the determination of renal functioning has been so extensive that clinicians may almost be said to face embarrassment in preferring one procedure to another. The earliest plan for ascertaining the degree of kidney efficiency consisted in determining in the urine the extent of excretion of various substances such as lactose, iodids, creatinin and phenolsulphonephthalein. Lately the complementary method of searching in the blood for the possible retention of waste products which should normally be eliminated promptly has become popular, owing to the perfection of simple and relatively accurate micro methods for the estimation of urea, uric acid and other forms of nonprotein nitrogenous blood constituents. Obviously it would be inadvisable to direct attention to substances, like sugar, which may undergo an augmentation in the blood as the result of endogenous contributions rather than because of altered renal efficiency. The more any of the excreted substances or blood components are likely to be subject to the influence of the varying food factor or tissue disturbances the less are they specifically adapted to serve as indexes of renal function alone. Nephritis with retention is accompanied not only by an accumulation of urea in the body, but also by other

waste products, notably urates and creatinin. Myers and Lough[1] of the New York Post-Graduate Medical School have lately directed attention to the special value of the estimation of creatinin in the blood as a diagnostic aid in the study of nephritis. They intimate that practically in this disease alone are high values for creatinin encountered. Thus in gout with its retention of uric acid in the blood there appears to be no appreciable retention of creatinin. In view of these facts and the relatively easy method for estimating the compound colorimetrically in a small volume of blood, the subject deserves prominent notice. The marked retention of creatinin in the blood in uremia has been noted independently by several groups of investigators, so that there is little doubt that the permeability of the kidney to this compound may be decidedly decreased in nephritis. According to Myers and Lough, the creatinin rises above 2.5 mg. per hundred c.c. of blood almost without exception only in cases of renal involvement. Creatinin values from 2.5 to 3 mg. may be viewed with suspicion; figures from 3 to 5 mg. are to be regarded as unfavorable, while more than 5 mg. probably indicates an early fatal termination.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

Personal.—Dr. and Mrs. David Troy Cheairs, Tillar, will remain until March 6 in New Orleans where Dr. Cheairs is doing postgraduate work.——Drs. Robert E. Rowland, Eldorado, and Patrick Murphy, Little Rock, have been appointed assistant physicians at the State Hospital, succeeding Drs. Delparde W. Roberts and Charles R. Doyne, resigned.——In a fire which destroyed the S. P. Thompson Block, Marked Tree, the office of Dr. George E. Paullus was destroyed with a loss of $1,500, partially covered by insurance.

CALIFORNIA

State Board Election.—At the annual meeting of the State Board of Medical Examiners in Sacramento, January 11, Dr. William R. Molony, Los Angeles, was elected president; Dr. Arthur M. Smith, Oakland, vice president; and Dr. Charles B. Pinkham, Sacramento and San Francisco, secretary-treasurer.

Lane Lecture.—The thirty-fourth course of medical lectures under the direction of Leland Stanford Junior Medical School, at Lane Hall, San Francisco, was opened January 14 by Dr. George H. Whipple, San Francisco, a director of the Hooper Foundation for Medical Research, who spoke on "Medical Research and Its Relation to General Medicine."

Personal.—Drs. Cornelius Van Zwaluwenburg and William W. Roblee, both of Riverside, have taken new and larger quarters in the Glenwood Block and they will have associated with them a pathologist and laboratory man.——Dr. William S. Porter, Oakland, returned from Australia, January 18. He had been detained in that country for several weeks until he could establish his American citizenship.

Doctor Graham Not Dead.—In the issue of The Journal of October 2, among the obituary notices appeared that of Dr. Lorne Benjamin Graham of Pacific Grove, who it was reported had been killed in the Aegean Sea, August 17, when a transport on which he was going to the Dardanelles was sunk by a German submarine. Further inquiry has elicited the information from the chief surgeon of the expeditionary forces in the Dardanelles that Dr. Graham is in good health, and is now serving as temporary lieutenant in the Royal Army Medical Corps and is attached to the Thirty-Third Field Ambulance, M. E. F., at present stationed at Mudros.

Contemplated Improvements at the University of California Medical School.—The University of California Medical School is said to be receiving rapid development at the hands of the university. The expenditure of the university for medical instruction last year is reported at $87,345, and $74,876 was spent for the maintenance of the teaching hospital, making a total spent by the university for medical work of $162,221. It is expected that a new 216-bed teaching hospital will be completed by next summer, at a cost, met by private gift, of $615,000. The regents of the University of California have announced a program of expansion in the immediate future. This plan calls for a new building to house the departments of anatomy and pathology, to cost $150,000; an out-patient building, to cost $100,000; a nurses' home with accommodations for 100 nurses, to cost $100,000; alterations for the present hospital building, soon to be vacated, to fit it for use for physiology and physiologic chemistry, at a cost of $30,000; alterations of the western building to provide for administrative offices, medical library, etc., and the erection of a central heating and power plant.

Public Lectures.—The University of California has announced a series of Saturday morning lectures, open to the general public, on the problems of tropical medicine, a field of work to which particular attention is being paid by members of the staff of the Hooper Foundation for Medical Research of the University of California. The coming lectures at the University of California Hospital in San Francisco will be as follows:

February 5—Dr. K. F. Meyer, Associate Professor of Tropical Medicine, of the Hooper Foundation for Medical Research, "Trypanosomiases," with demonstration of living organisms.
February 12—Professor Walker, "Malaria in California," with a demonstration of material.
February 19—Dr. H. C. Moffit, Professor of Medicine and Dean of the University of California Medical School, "Clinical Aspects of Malaria in California."
February 26—Dr. K. F. Meyer, "Piroplasmiases," with demonstrations.
March 4—Dr. H. F. Nichols, "Spirochaetiases."
March 11—Dr. Frank Billings, "The More Important Helminthiases."
March 18—Dr. K. F. Meyer, "Yellow Fever, Dengue, and Pappataci."
March 25—Dr. K. F. Meyer, "Typhus, Spotted Fever and Verruga Peruviana."
April 1—Dr. Howard Morrow, Clinical Professor of Dermatology, "Leprosy and Tropical Skin Diseases."
April 8—Dr. Frank Billings, "Beriberi and Pellagra," with demonstrations.
April 15—Dr. E. L. Walker, "Parasitic Insects and the Rôle of Insects in the Transmission of Tropical Diseases."
April 22—Dr. K. F. Meyer, "Tropical Hygiene and Sanitation—Summary of the Present-Day Achievements."

COLORADO

Clinical Society Organized.—The Pueblo County Clinical and Pathological Society was organized recently in Pueblo, and the following officers were elected: president, Dr. Crum Epler; vice president, Dr. Elmer A. Elder; and secretary-treasurer, Dr. David E. Hoag.

Medical Reserve Corps Division Organized.—The Association of the Medical Reserve Corps, U. S. Army, Colorado State Division, was recently organized in Denver, and the following officers were elected: president, Lieut. Charles A. Powers; vice president, Lieut. Thomas E. Carmody; secretary, Lieut. William C. K. Berlin; and treasurer, Lieut. Cuthbert Powell, all of Denver.

Personal.—Dr. William H. Bergtold has been elected president; Dr. Charles B. Lyman, vice president; and Dr. Robert L. Charles, secretary, of the staff of St. Joseph's Hospital, Denver.——Dr. William A. Jolley, Boulder, has returned after war service in Serbia.——Dr. Walter S. Merritt, superintendent of the Beth-El Hospital, Colorado Springs, has declined the invitation of the Iowa Methodist Hospital, Des Moines, to become its head.

New Quarters for Medical Society.—Arrangements have been made by which the medical society will soon have new and commodious quarters for its meeting hall and library. A new building is to be erected adjoining the Metropolitan Building, which is now used exclusively by doctors and dentists, and connected with it by an archway. The whole of the ground floor of the new building will be occupied by the

1. Myers, V. C., and Lough, W. G.: The Creatinin of the Blood in Nephritis: Its Diagnostic Value, Arch. Int. Med., October, 1915, p. 536.

society for its library, office and meeting hall with a seating capacity of 250. The space devoted to the library will be ample not only for all present needs, but for the natural expansion of the future.

CONNECTICUT

Personal.—Dr. Joseph E. Harris, New Haven, has been appointed assistant physician of the Ohio State Sanatorium, Mount Vernon.——Dr. John T. Black, health officer of New London, has been elected secretary of the State Board of Health to succeed Dr. Joseph H. Townsend, New Haven, deceased.

New Officers for New Haven Society.—At the annual meeting of the New Haven Medical Association, January 19, the following officers were elected: president, Dr. Frederick Bellosa; vice presidents, Drs. John F. Luby and Eugene M. Blake; secretary, Dr. Charles E. Sanford, and treasurer, Dr. Thomas V. Hynes.

ILLINOIS

Protest Against Removal of Water Commissioner.—Physicians of Rock Island at a called meeting appointed a committee to draft resolutions protesting against the proposed removal of R. W. Sharp as superintendent of the city water works, and commending the efficient management of the water department.

County Society Entertained at Army Post.—The regular monthly meeting of the Lake County Medical Society was held at Fort Sheridan January 13. The guests were shown through the post, including the post hospital, and dinner was served, after which there were clinical demonstrations and case reports by medical officers of the post; a talk on preparedness by the commanding officer and one by Major Tompkins on "Life Among the Indians."

Personal.—Dr. Gilbert Langdon Bailey, Oak Park, has purchased the estate known as the Higgenbotham farm about two miles from Lexington, Ky., on the Newtown pike. Dr. Bailey expects to take possession of his farm March 1.——It is stated that Dr. Emmett A. Garrett will be appointed commissioner of public health of the city of Peoria to succeed the late Dr. Edward Hasson.——Dr. William Jayne, Springfield, fell on a slippery sidewalk, January 19, injuring his left hip.——Dr. George L. Apfelbach, director of the Occupational Disease Clinic of the Illinois Department of Factory Inspection, delivered an illustrated lecture on "Occupational Hygiene," in the auditorium of the Chicago Turngemeinde, January 19.——Dr. George P. Gill, Rockford, who served for six months with the Chicago unit in British war hospitals, expects to return in February after making a tour of Switzerland and Italy.——Dr. Beattrice C. Opre, Victoria, while visiting patients January 8 was seriously injured by her horse slipping and falling on her.

Chicago

Local Nurses Sail for War Service.—Thirty-five more nurses from the Mercy Hospital sailed from New York February 2 for England to minister to the wounded soldiers of the Allies. Miss Mabel Adamson is in charge of the party.

Personal.—Dr. Henrietta M. Farquharson was knocked down by a wagon January 26 and sustained serious contusions and lacerations.——Dr. Charles F. Yerger, attending physician at the Juvenile Detention Home, suffered concussion of the brain from an accidental blow on the head January 25.

Freudenthal to Speak in Chicago.—Dr. Wolff Freudenthal, president of the German Medical Society, New York City, will address the German Medical Society, Chicago, by invitation on February 17 on "The Direct Galvanization and Faradization of the Bronchi and Their Topical Medicinal Treatment in Bronchial Asthma."

Institute of Medicine Meeting.—At the meeting of the Institute of Medicine of Chicago January 28, "The Glands of Internal Secretions" was the subject for discussion. The speakers were Prof. Robert R. Bensley of the University of Chicago; Prof. R. G. Hoskins of the Northwestern University Medical School, and Dr. Joseph L. Miller. Dr. Dean D. Lewis led the discussion.

Cosmetic Surgery.—A Chicago branch of the American National Committee for the foundation of special American hospitals in Paris for wounds of the face and jaw has been appointed. About $100,000 will be required for this purpose, of which $30,000 has so far been secured and the American Red Cross agrees to donate $2,000 for every $18,000 raised by subscription. The committee consists of Drs. Truman W. Brophy, chairman, and L. L. Davis and George West.

Girl Falls Two Hundred Feet and Lives.—A young woman fell last week from the sixteenth floor of the Transportation Building, more than 200 feet, head first, alighting, fortunately for her, in an automobile truck filled with paper boxes. She sustained a compound comminuted fracture of the right humerus near the surgical neck and a deep scalp wound of the forehead. At present she is a patient in St. Luke's Hospital, and is practically out of danger from a surgical standpoint.

Tuberculosis Institute Meeting.—The tenth annual meeting of the Chicago Tuberculosis Institute was held at the City Club January 28. The three vacancies on the board were filled by Mrs. C. B. Moore, Mrs. Arthur Aldis and Rev. Francis Kelley. Dr. Theodore B. Sachs, the president, reported that while in 1906 there were only 300 tuberculosis beds in the city and county and only 180 tuberculosis institutes in the United States, today there are 1,980 beds for tuberculosis patients in Chicago and 600 sanatoriums and hospitals in the United States with a total capacity of about 35,000 beds.

Scarlet Fever.—The sum of $7,500 was set apart by the city council finance committee January 21 to provide hospital accommodations for patients suffering from scarlet fever and unable to pay for treatment. Owing to the crowded condition of the county hospital, the patients cannot be received. The city's contagious disease hospital is not yet completed and the grant of funds was an emergency measure. According to the figures of the health department the number of scarlet fever cases in the last five months were as follows: December, 579; November, 589; October, 209; September, 98, and August, 90.

The Educational Propaganda.—At the annual meeting of the clinic for infant feeding held January 29 in Grace Parish Church, Dr. Frank S. Churchill, who is at the head of infant welfare work in Chicago, delivered an address.——At the annual meeting of the Women's City Club Dr. A. L. Lindsay Wynekoop of the Child Welfare Committee, and Dr. Rachelle S. Yarros of the Social Hygiene Committee, made reports and discussed the city budget.——Secretary E. R. Pritchard of the Chicago Board of Health spoke at a meeting of the John Fiske Parents'-Teachers' Association January 21 on "Community Work for Community Good."

INDIANA

Approves Sanatorium.—The Marion County Council agreed to allow $80,000 for a county tuberculosis sanatorium. This is $20,000 less than was requested.

New Officers of State Board.—The State Board of Medical Registration and Examination at its meeting, January 11, elected the following officers: president, Dr. James M. Dinnen, Fort Wayne; vice presidents, Drs. William A. Spurgeon, Muncie, and William T. Gott, Crawfordsville; secretary-treasurer, Dr. Moses S. Canfield, Frankfort.

Dinner to Physicians.—Physicians of Lafayette and some of the members of the faculty of Purdue University, Lafayette, were the guests of the Sisters of St. Francis, January 13, at the twenty-fifth annual banquet given at St. Elizabeth's Hospital. Dr. George F. Beasley officiated as toastmaster and at the conclusion of the dinner short talks were made by several of the guests.

The Recent Intestinal Epidemic.—An investigation of the recent illness in Indianapolis in which gastro-intestinal symptoms were the most prominent, has shown that gas-forming bacteria were discovered in forty-one out of sixty-two samples of city water. The water company has now put in check valves so that an epidemic of this kind may not be possible again.

Personal.—Dr. Carleton B. McCulloch, Indianapolis, has been appointed a delegate from Indianapolis to the National Security League.———Dr. Percy E. McCown, Indianapolis, is spending several months in the East in postgraduate work.——Dr. Earle S. Green, Muncie, has been commissioned Major, Medical Corps, Ind. N. G.——Dr. James H. Moroney, Winchester, has returned after several months in Louisiana.——Dr. Milton A. Tremain, Adams, fractured his right arm by the backfiring of his automobile, January 24.——Dr. Henry B. Shacklett, New Albany, has been appointed president of the Floyd County Antituberculosis League.——Dr. Frederick M. Aitken, Bristol, is ill with influenza in the General Hospital, Elkhart.——Dr. Jesse L. McElroy has been appointed physician to the Indianapolis City Dispensary, succeeding Dr. Frederick E. Jackson, Indianapolis, resigned.

Judgment in Favor of Physician Affirmed.—The supreme court has affirmed the Marion Superior Court in giving Dr. John R. Newcomb, Indianapolis, a judgment for $371 against the Indiana Die Casting Development Company for services rendered one of its injured workmen. The company defended the action on the ground that Dr. Newcomb was employed by the superintendent of the company who had not been empowered to employ a physician for the care of injured workmen. The supreme court quotes with approval the following: "The rule that the board of directors must act as a body or a unit is not ironclad. It has already been seen that a by-law may be created by custom or usage. For the simple reason the board of directors may, by acting separately in an individual capacity, establish a custom or usage that will be binding on them and on the corporation. . . . So the separate assent of a majority of the directors to the employment of a physician to attend an injured employe of the corporation, where a majority of them, including the officers, actively participate in the employment and counseled with him concerning the care and treatment of the patient, was held sufficient to make such employment binding on the corporation." The court says that the actions of the superintendent and directors were such that Dr. Newcomb is entitled to recover for his services.

MICHIGAN

Convictions.—It is reported that Dr. S. Clay Todd, Grand Rapids, was convicted in the Superior Court, January 12, of illegal advertising of his medical business.——It is reported that J. Alton Watson, a neuropath of Grand Rapids, was convicted recently of practicing medicine without a license.

Army Surgeon at Ann Arbor.—Col. Louis A. LaGarde, M.C., U. S. Army, will deliver the annual Founders' Day address of the Medical School of the University of Michigan, Ann Arbor, February 22. The topic will be "The Dum Dum Myth." Colonel LaGarde will reach Ann Arbor February 18 and will deliver two lectures a day on military surgery to the medical students, closing the series on Founders' Day.

Personal.—Dr. Frederick C. Warnshuis, Grand Rapids, on January 15 was appointed chief surgeon of the Pere Marquette Railroad Company with office at Grand Rapids. ——Dr. Julius H. Eddy, Wakefield, has retired after twenty-eight years' practice in that place. He has disposed of his property including his hospital to Drs. Henry A. Tressel and Robert J. C. Prout and will leave in February for California.——Dr. Alvin H. Rockwell, for seven years health officer of Kalamazoo, has resigned.

MISSISSIPPI

State Health Officers Meet.—The third annual meeting of the Mississippi Public Health Association was held in Jackson, January 25 and 26, under the presidency of Dr. Waller S. Leathers, University and Oxford, state health officer.

Tuberculosis Sanatorium Legislation.—A bill has been introduced in the state legislature which provides for the establishment of a tuberculosis sanatorium. The bill also provides that sanatoriums may be established by counties in various parts of the state.

Endorse Health Measures.—The Hinds-Rankin Medical Society at a meeting at Jackson, January 12, endorsed a number of measures to be passed on by the legislature. Among these were bills for the establishment of an institution for the feebleminded, to require midwives and physicians to employ measures prophylactic of blindness, to appropriate $30,000 for the campaign against pellagra. The society also instructed its secretary to inform Secretary of the Treasury McAdoo of the society's approval of the proposal to spend $100,000 to carry on the fight against pellagra in the South.

State Board of Health Appointments.—The governor on January 21 announced the appointment of the following members of the State Board of Health: first district, Dr. Luther L. McDougal, Booneville; second district, Dr. J. Harvey McNeill, Olive Branch; third district, Dr. W. W. Hall, Jr., Ruleville; fourth district, Dr. Charles D. Mitchell, Pontotoc; sixth district, Dr. Harvey F. Garrison, Seminary; seventh district, Dr. B. Lampton Crawford, Tylertown; eighth district, Dr. Jacob D. Gilleylen, Jackson. These appointees, together with the five appointees of the Mississippi State Medical Association named at the annual meeting last May, Drs. John H. Johnson, Brookhaven; Thomas H. Seay, Laurel; S. Wade Glass, Lyon; Samuel E. Eason, New Albany; and Thomas F. Elkin, Tupelo, met at the state capitol, Jackson, January 25, for organization and to elect officers.

MISSOURI

Higher Entrance Standard.—An official communication received from the St. Louis University School of Medicine, states that two years of college work will be required for admission to that institution on and after Nov. 1, 1917.

Personal.—Dr. Albert L. Gray, staff obstetrician for the Social Welfare Board of St. Joseph for two years, has resigned.——Dr. William T. Fitzsimons, Kansas City, has returned after war service in Europe.——Dr. Clarence J. Laws has leased the Princeton Sanatorium from Dr. B. S. Powell.——Dr. John A. Malley, Monroe City, has been appointed surgeon of the Wabash System with territory extending from Moberly to Hannibal.——Dr. Murray C. Stone has been appointed pathologist and bacteriologist of the Springfield Hospital.

Prevention of Malaria.—The Department of Preventive Medicine of the University of Missouri has prepared for distribution *Medical Bulletin 28* on the "Prevention of Malaria." The pamphlet gives the history of malaria, theories concerning its causation, and a record of the discovery of the parasite and the relation of the mosquito to the spread of the disease, with a description of the disease-carrying insect and an outline of methods of prevention and treatment. It is said that 1,500,000 people in the United States suffer from malaria every year, and that it causes annually 12,000 deaths. If each life were valued at $5,000 the loss from this cause would be $60,000,000, to say nothing of the enormous value of time lost by and money expended for the treatment of those who do not die. As it is a preventable disease, its continued prevalence is a reproach to the people, and its eradication would be a good money investment. In this connection the university announces that a bureau of information has been established in connection with the Department of Preventive Medicine, with a laboratory, to make free the necessary examinations in the prevention of malaria and other diseases.

St. Louis

Department of Hygiene.—At the last meeting of the St. Louis Medical Society a resolution was adopted commending the action of the board of education in maintaining a department of hygiene, and expressing its disapproval of any action that would deprive the public schools of the city of the valuable services of this department.

Licenses Revoked.—The *Weekly Bulletin* of the St. Louis Medical Society for January 27 announces that the State Board of Health has revoked the license of Dr. Harry L. Fichtenkam on the charge of having agreed to perform an abortion, and the licenses of Drs. William C. (Baldy) Pierce and Gustav Wieland, for using the mails in a scheme to defraud, and that of Dr. Paul N. Fain, who had been convicted in the federal court of using the mails in a scheme to defraud and fined $200.

NEBRASKA

Scarlet Fever in Omaha.—At the meeting of the Douglas County Medical Society in Omaha, January 25, full publicity regarding the present epidemic of scarlet fever in the city and wide circulation of information were urged by the members.

Personal.—Dr. Robert H. Foster, assistant physician at the State Hospital, Norfolk, desires physicians of the state who have knowledge of cases of epilepsy in Nebraska to write to him.——Dr. William S. Fast, superintendent of the Beatrice Institute for the Feebleminded, has been appointed superintendent of the Hastings State Hospital, succeeding Dr. Mark W. Baxter, Ingleside, resigned.——Dr. George J. VanVechten, superintendent of health of Hastings, has recovered from an attack of influenza and resumed practice.

NEW YORK

Lives Saved in the State.—The figures made public by the State Department of Health show that outside of New York City there were 4,500 fewer deaths than in the same area in 1913. The total number of deaths in the state for the year was 145,552, and the proportionate rates for 1915, 1914 and 1913 were 14.9, 15.2 and 15.8 per thousand.

Personal.—To settle the question of the legality of the appointment of Dr. Alva G. Dunbar, Richland, as superintendent of the Oswego County Tuberculosis Hospital, a bill

has been introduced in both houses of the legislature legalizing his appointment by the board of managers. Under this bill Dr. Dunbar's appointment is to have the same force and effect as though he had had three years of actual practice in his profession.——Dr. Cornelius F. McCarthy, Batavia, who has been ill in Buffalo for four months, has recovered and will practice in Auburn.——Heads of the various bureaus of the Buffalo Department of Health sent Health Commissioner Francis E. Fronczak a letter of congratulation on his reappointment as health commissioner.

New York Association for Improving the Condition of the Poor.—The seventy-second annual report of the above association which covers the year ending Sept. 30, 1915, shows that the total sum expended in its activities was $789,830, an increase of $200,000 over the expenditures of any previous year. The relief department alone cared for 12,000 families, 3,000 more than the figures for any other year. These families comprised 54,000 persons; 33,170 days of country care were given to 1,990 convalescent persons; 42,228 days of fresh air outings at the beach were given to 17,860 mothers and children; 71,462 days of care and treatment were given to 330 persons, of whom 248 were tuberculous, at the association's Home Hospital; 426 widows were given pensions by which they were enabled to care for their 1,363 children, and 413 deserted wives with 1,474 little children were given assistance. The Home Hospital experiment went through its third year. During the course of the experiment 89 families have been admitted to the hospital, comprising a total of 448 persons, of whom 196 were positive tuberculous cases, 121 were suspects and 131 nonpatients; 16 were dismissed for various causes; 19 wage-earner patients were discharged as needing no further treatment; the average residence of the discharged families was 383 days. Isolation of the infected members of the families has been so well carried out in the experiment that during the three years no well member of a family has shown any evidence of having become infected. No new methods of treatment were employed, the routine being the general hygienic-dietetic treatment employed in the leading sanatoriums and hospitals.

New York City

Harvey Society Lecture.—The sixth lecture of the Harvey Society series delivered at the New York Academy of Medicine, February 5, was by Dr. Hideyo Noguchi of the Rockefeller Institute for Medical Research on "Spirochetes."

Epidemic of Influenza on the Wane.—For the week ended January 22, 501 deaths were reported as caused by influenza, bronchitis and pneumonia, 209 more than were reported for the corresponding week of last year, but 58 less than for the preceding week of this year. This seems to indicate that the epidemic of grip and pneumonia are definitely on the wane.

Fire Prevention.—At the request of the fire commissioner, the board of aldermen have enacted a city ordinance providing that no person shall throw away any lighted match, cigar or cigarette within any building or structure or in any boat, car or other vehicle for the common carriage of passengers unless it be to deposit the same in suitable container of metal or other noncombustible material provided for the reception thereof. It is stated that aside from the large financial loss due to fire during the past year, 85 persons have lost their lives as the result of conflagrations in this city.

Antivaccination Law.—The Kings County Medical Society in adopting the yearly reports of its committees for the year 1915 recently put itself on record as characterizing the antivaccination law enacted by the last legislature as "one of the most ignorantly mistaken acts ever legalized, a lamentable satire on preventive medicine." It is said an epidemic of smallpox at New Rochelle proved this to be the case. This law was approved by the state health commissioner as a compromise measure, and provides that communities may determine vaccination in cities of certain classes only in the presence of an epidemic. The law previously provided for compulsory vaccination throughout the state.

Personal.—Dr. Phoebus A. Levene, director of the chemical laboratory of the Rockefeller Institute for Medical Research, has been elected an ordinary member of the Royal Upsala Scientific Society in recognition of his scientific activities. ——Dr. Otto Schoebl has tendered his resignation as assistant director of the quarantine laboratory, port of New York, health officers' department, to accept a position in the Bureau of Science, Manila, P. I.——Dr. Albert C. Perveil, Brooklyn, is reported to be critically ill with sleeping sickness contracted in Central Africa.——Dr. John A. Ferguson, Brooklyn, is said to be seriously ill with pneumonia.——Dr. Allen G. Terrell, Riverhead, has succeeded Dr. Foster Thayer as medical director of the Mutual Benefit Association.

Activities of Public Health Committee.—The Public Health Committee of the New York Academy of Medicine has recently presented a report of its various activities during the year 1915. A summary of this report shows that they have interested themselves in investigating many matters relating to public health and better living conditions and that their influence is felt in practically every matter which has a bearing on public health. Among the subjects which they have considered on which they have expressed an opinion are the following: Teacher mothers in public schools; children's pavilion at the Metropolitan Hospital; eye defects in public schoolchildren; vaccination; certified milk; necropsies; convalescent care of children suffering from heart disease; the problem of drug addiction; homes for the aged; control of quarantine station; health legislation; street cleaning; American Museum of Safety; municipal civil service; sewage disposal into Lake Mohansic; state policy for dealing with mental deficiency; the city budget, and health insurance.

Free Lectures.—The Public Health Education Committee of the Medical Society of the County of New York, in cooperation with the New York Academy of Medicine, will give a course of free public lectures on the prevention of disease, on alternate Tuesday evenings and Thursday afternoons, February 1 to March 23. The program is as follows:

Nerves in Order Versus Nerves in Disorder, Tuesday, February 1, 8:15 p. m.: Nerves Out of Tune, Thaddeus Hoyt Ames, M.D. Self Control, Mary Sutton Macy, M.D. Nerves of the Surgeon, Family, Nurse and Doctor, William S. Bainbridge, M.D.

Childhood Conditions, Thursday, February 10, 3:30 p. m.: Constipation, Abraham Jacobi, M.D. Milk for the Baby at Home, Godfrey R. Pisek, M.D.

Exposé of the Patent Medicine Game, Tuesday, February 15, 8:15 p. m.: Humbuggery of Patent Medicines, Oscar M. Leiser, M.D. The Quack and His Methods, John Van Doren Young, M.D.

Rapid Advancement of Health Measures in the Industries, Thursday, February 24, 3:30 p. m.: Medical Supervision of the Dangerous Trades, Louis I. Harris, M.D. Industrial Hygiene and Occupational Diseases, Lillian Erskine. Industrial Diseases in New York — Their Study and Prevention, W. Gilman Thompson, M.D.

The Most Important Inherited and Acquired Evil, Tuesday, February 29, 8:15 p. m.: Inherited, Daisy M. O. Robinson, M.D. Acquired, John A. Fordyce, M.D. Insanity as a Result, Pearce Bailey, M.D.

What the Medical Laboratory Work Does for the People, Thursday, March 9, 3:30 p. m.: In Investigation, Louise Pearce, M.D. In Diagnosis, Matthias Nicoll, Jr., M.D. In Treatment, William H. Park, M.D.

Better Eyes and the Prevention of Blindness, Tuesday, March 14, 8:15 p. m.: Prevention of Eye Diseases in the New-Born Baby, Henry P. De Forest, M.D. Care of the Eyes in Everyday Life, Walter B. Weidler, M.D. Protection of the Public by U. S. Quarantine, Mary Wakefield, M.D.

Woman's Health in Relation to Her Own Field, Thursday, March 23, 3:30 p. m.: Prenatal Care of Mother, Mary Lee Edward, M.D. Constipation, Rosalie S. Morton, M.D. Cancer in Some of Its Aspects, Howard Canning Taylor, M.D.

OHIO

Dean Means Resigns.—Dr. William J. Means, one of the organizers of the Ohio State University and dean of the Starling-Ohio Medical University ever since the merger in 1907, has resigned to take effect June 30, on account of impaired health and age.

Civil Service Examiners.—The State Civil Service Commission announced on January 15 the appointment of Drs. William J. Means, Herbert M. Platter and Edward C. Buck, all of Columbus, to prepare the questions and have charge of the examinations of candidates for the position of chief medical examiner with the State Industrial Commission.

Personal.—Dr. Walter H. Rieger, Cleveland, has spent six months at Harvard University in graduate work.——Dr. Arthur Pancake, Springfield, was thrown from his automobile in a collision with freight cars at a grade crossing. ——Dr. Harry H. Snively, Columbus, has returned after a year in the Red Cross service in Russia and Persia.——Dr. Sylvester R. Best, Centerburg, vital statistician in the State Bureau of Vital Statistics, was operated on at Grant Hospital, Columbus, January 9, for the removal of gallstones.—— Dr. George Stockton, Columbus, who fractured his leg several weeks ago, is convalescent and has resumed practice.

Harrison Law Constitutional.—In upholding the constitutionality of the Harrison Narcotic Law in the United States District Court for the Northern District of Ohio, Judge Killits said: "The indiscriminate and unrestrained use of opium, coca and their derivatives, is well known to be a great evil, gravely affecting the general welfare of the country. These

are exclusively foreign products, and it is entirely within the power of Congress, in the interest of the general welfare, to exclude their importation entirely, or so to regulate the traffic in them in this country that their importation may be traced."

Medical Societies Merge.—The differences which have existed among physicians of Muskingum County for some time and which resulted in the forming of two societies, the Muskingum County Medical Society and the Academy of Medicine, were finally ended at a meeting in Zanesville, January 26, by the members of the county society accepting the invitation of the Academy of Medicine to affiliate with that body. The transfer was sanctioned by the council of the Ohio State Medical Association, the names of the members were certified to the Academy for membership and the funds were turned over to the Academy treasury. The officers of the merged societies are as follows: president, Dr. Edgar M. Brown; vice president, Dr. Leroy F. Long, and secretary, Dr. Edmund R. Brush.

Cincinnati

Chair of Medicine Inaugurated.—The exercises attending the inauguration of the Frederick Forchheimer chair of medicine and the installation of Dr. Roger Sylvester Morris into that chair were held at McMicken Hall, University of Cincinnati, January 28.

Public Health Officials Speak.—P. A. Surg. W. H. Frost, U. S. P. H. S., gave an illustrated lecture, January 12, at the University of Cincinnati before the Cincinnati section of the American Chemical Society, on "Pollution of the Ohio River."——Surg. Dana Elihu Robinson, U. S. P. H. S., as the result of investigations occupying more than eighteen months, discussed "Economic and Racial Factors Affecting the Health of Cincinnati," before the City Club, January 8.

Personal.—Dr. Albert H. Freiberg has been delegated to represent the Cincinnati Academy of Medicine at the medical defense committee of the Ohio State Medical Association. ——Drs. John W. Murphy and Martin H. Urner have leased the entire twenty-seventh floor of the Union Central Building and will occupy this space as offices and as a hospital for eye, ear, nose and throat patients.——Dr. Arthur C. Bachmeyer, superintendent of the Cincinnati General Hospital, has been elected chairman of the Association of Hospital Chiefs of Cincinnati.——Dr. Christian R. Holmes is said to be slated for the position of supervising director of the Cincinnati General Hospital.

OKLAHOMA

District Association Meeting.—The Central Oklahoma Medical Association met in Enid, January 11, and elected the following officers: president, Dr. Lee W. Cotton, Enid; vice presidents, Drs. Lauren H. Buxton, Oklahoma City, and Harry F. Vandiver, Lahoma; secretary-treasurer, Dr. Leigh F. Watson, Oklahoma City. The next meeting will be held in Oklahoma City, April 11.

PENNSYLVANIA

Abington Plans Elkins Memorial.—The residents of Abington Township have been asked to contribute a dollar each to purchase a memorial to George W. Elkins to be placed in the corridor of the Abington Memorial Hospital which was constructed and endowed by Mr. Elkins.

Personal.—Dr. George H. Widder has been reelected president of the Harrisburg Board of Health, and Dr. George F. Moffit, city bacteriologist of Harrisburg.——Dr. Edward S. Dickey, Pittsburgh, intends going to Russia to do Red Cross work.——Dr. Mary A. Naylor, Pittsburgh, has been appointed by the board of public education of that city as medical examiner of teachers applying for retirement.

To Enforce College Quarantine.—State Health Commissioner Dixon has notified the local health authorities in the homes of students who hurried away when scarlet fever broke out in Washington and Jefferson College, to keep such students under observation for ten days before allowing them to leave their homes. Some of them lived in other states. This plan will be followed for those residing in Pennsylvania. Deputies have been detailed to go to Washington to help enforce the quarantine. All classes were abandoned on January 20, and none will be held until February 7.

Industrial Hygiene Conferences.—The Division of Industrial Hygiene and Engineering of the Pennsylvania Department of Labor and Industry is contemplating a series of conferences for the promotion of industrial hygiene in the industries of Pennsylvania. The first conference, at which the subject of lead poisoning will be discussed, will be held at the state capitol, Harrisburg, February 17. Any physicians desiring more detailed information as to the scope of these conferences can obtain the same by addressing Dr. Francis D. Patterson, Department of Labor and Industry, Harrisburg.

Philadelphia

Personal.—Dr. Leon F. Luburg, district surgeon of a police station, was on January 15 placed in command of all his district surgeons at fires where two or more box alarms are sent out and in case of the absence of Dr. Hubley R. Owen, chief of the bureau.——Following a protest made by the Civil Service Reform Association, Drs. William K. Muller, medical examiner of the Civil Service Commission, and Dr. J. Clinton Foltz, assistant medical examiner, are still retained in the service of the city.——Dr. J. William White, who has been ill at the University Hospital, has returned to his home much improved.——Dr. Ross V. Patterson has been appointed visiting physician at the Philadelphia General Hospital, succeeding the late Dr. Robert N. Willson.——Dr. Carleton N. Russell has returned after service with the American Hospital Corps in France.

Baby Week.—"Baby Week" will be held from March 4 to 11, and it is planned to designate March 5 as Baby Sunday, and pastors of all churches will be asked to make the baby the subject of all sermons. Dr. William Krusen, director of public health and charities, states that the purpose of Baby Week is to bring before all the citizens of the city the importance of the baby in the community life; by educational means to emphasize the necessity for continued care of the city's babies and to impress on the citizens of the community that a large proportion of the deaths of babies is preventable. The following executives were appointed: Dr. Joseph S. Neff, director of the Department of Public Health and Charities; A. Cross, managing director of the Department of Public Health and Charities; Dr. John D. McLean, president of the County Medical Society; Dr. C. Lincoln Furbush; Dr. Howard C. Carpenter, chairman of the executive committee of the Baby Saving Society; Dr. John F. St. Clair; Dr. Henry H. Doan, chief of the Division of Child Hygiene, and John A. Vogelson, chief of the Bureau of Health.

UTAH

Personal.—Dr. Ezekiel R. Dumke, Ogden, has returned after several months' postgraduate study in the East.—— Dr. George E. Hyde has been appointed assistant county physician of Salt Lake County, succeeding Dr. Charles N. Ray, promoted to be county physician, vice Dr. Crayton C. Snyder, resigned.

Rabies.—A systematic effort to eradicate rabies from the state was begun January 16 when S. E. Piper, assistant biologist of the United States Biological Survey, met Dr. Theodore B. Beatty, state health commissioner, to devise a plan of procedure. One of the chief features of the plan will be the extermination of predatory animals such as the coyote, and already the survey has fifteen hunters in the state, with headquarters at Provo. It is proposed to add to this force twenty-five hunters from the deputies of the state fish and game department. Authorization of special funds for this purpose will be asked.

VIRGINIA

Leper Isolated.—George Hodges, the leper from Hopewell, discovered in Richmond, where he had gone for treatment, was reported January 7 to have been isolated on the city farm, where he may become a permanent charge of the city. It is said that Hodges, who is a Greek, cannot be deported because he has been in this country seven years.

Increased Appropriation Asked for Health Department.— Dr. Ernest C. Levy, chief health officer of Richmond, asks an appropriation of $75,050 for the ensuing year. The increase in appropriation is necessitated by the increase in the area and population of Richmond, and the special needs are the establishment of a system of medical inspection of schools and for preventive measures.

Sanatorium Given to Richmond.—Pine Camp, the open-air sanatorium for the treatment of tuberculosis, has been transferred to the municipality of Richmond by the Pine Camp Association which has operated it since its establishment. The annual cost of maintenance of the institution has been $13,000, of which the city council contributed $10,000. Therefore, the additional cost to the city will be only $3,000 a year.

CANADA

Medical Commission Sittings.—The Hon. Mr. Justice Hodgins will resume sittings of the Ontario Medical Com-

mission in Toronto on January 31, to hear the views of those interested in the proposed changes of the Ontario Medical Act relating to the disciplinary powers of the Ontario Medical Council. On Tuesday the Christian Scientists will be heard, and also graduate and other practicing nurses respecting requirements for registration.

Medical Students Recalled.—The pressing need for doctors in the British forces is seen in the action of the British War Office in weeding out from the ranks, from ambulances and in other capacities at the front, twenty to thirty fourth-year medical students of the University of Toronto. These are being sent back to Toronto to complete their course in medicine. They will be given a summer term during the next summer so that they may qualify for their degrees about Christmas, 1916.

Ontario War Hospital Staff Appointed.—Announcement has been made by the Ontario Government of the medical and nursing staff of the Ontario Hospital, about to be opened at Orpington, Kent, England. The director of the hospital has not yet been appointed but it is understand he will be chosen from among Canadian military men already in England and who have been on active service. Dr. Edward Ryan, Kingston, Ont., superintendent of the Rockwood Hospital for the Insane in that city, has been selected as chief of the psychopathic wards which will handle cases of shock and nervous effects of shock. The nurses have all been selected from the Ontario hospitals for the insane. Twenty-eight physicians from Ontario have been appointed on the staff.

Personal.—Dr. J. Standish, a retired physician, 75 years of age, of Palmerston, Ont., has offered his services to attend soldiers mobilizing in that section of Ontario.——Major Ethelbert B. Hardy, M.B., Toronto, now on active service in France, has been raised to the rank of lieutenant-colonel and has command of No. 2 Field Ambulance. He succeeds Lieut.-Col. David W. McPherson, now in command of the convalescent hospital in Surry, England.——Lieut-Col. Henry R. Casgrain, M.D., Windsor, Ont., who was invalided to England from the Mediterranean, has been placed in command of the King's Canadian Canvalescent Hospital at Bushey Park, England.——Dr. G. F. Dewar, Charlottetown, P. E. I., is acting medical superintendent of Falconwood Hospital for the Insane, during the absence of Dr. Goodwill, on active service.——Dr. Charles J. Edgar, North Hatley, Que., arrived in New York, January 22, from England after service for several months on British hospital ships in the Mediterranean.

GENERAL

Missouri Valley Meeting.—The twenty-eighth semiannual meeting of the Medical Society of the Missouri Valley will be held in St. Joseph March 23 and 24 with headquarters at the Robidoux Hotel.

General Blue's Reappointment Confirmed.—On January 10 President Wilson sent to the Senate the name of Dr. Rupert Blue as a renomination for a second term as Surgeon General, United States Public Health Service, and three days later the appointment was confirmed by the Senate.

Medical Jurists to Meet.—The American Association of Medical Jurisprudence will meet in Washington, D. C., May 6 at the New Willard Hotel, under the presidency of Dr. D. Percy Hickling, Washington, D. C. Dr. William A. Woodward has been appointed chairman of the committee of arrangements.

American Life Convention Meeting.—The American section of the American Life Convention will hold its annual meeting at the Hotel Tutewiler, Birmingham, Ala., March 1-3, with Dr. Whitfield Harral, Dallas, Texas, chairman; Dr. Frank W. Foxworthy, Indianapolis, chairman of the program committee, and Dr. Frank L. B. Jenney, Chicago, secretary.

Bequests and Donations.—The following bequests and donations have recently been announced:

Cambridge (Mass.) Hospital, the residue of the estate of Everett W. Raddin, Danvers, provided the institution will hang a portrait of his late wife in some public part of the building.

St. Rose's Cancer House, New York, N. Y.; Home for Aged Cripples, Boston; and St. Luke's Hospital, New Bedford, Mass., each $5,000, by the will of Mrs. Clara E. Seabury.

Hahnemann Medical College, Philadelphia, $35,000; Home for Incurables, $15,000; Protestant Episcopal Hospital, $10,000, by the will of Jacob E. Neaife. These bequests became operative January 15, by the death of a daughter of Mr. Neaife.

Endowment fund of Protestant Episcopal Hospital, Philadelphia, $25,000; Philadelphia Home for Incurables, $5,000, by the will of James Hay.

Medico-Chirurgical College of Philadelphia for the endowment of a Dr. Isaac Ott chair in physiology by the will of the mother of Dr. Ott. An appraisement of the estate in 1905 gave this a value of $73,717.

The University of Pennsylvania, the estate of Dr. Isaac Ott, Easton, on the death of his widow. The chair is for original research work and the occupant is not to teach while holding it. He may study here or abroad, and if he fails to discover anything new on the subject in any one year, the trustees may elect a successor if they deem it advisable.

St. Luke's Hospital, New York City, $566,621, as a remaining interest after the death of the testator's mother; and the Oswego (N. Y.) City Hospital, $10,000, by the will of George B. Sloan.

Vermont Medicine, A New Journal.—The first issue of *Vermont Medicine*, the official organ of the Vermont State Medical Society, has made its appearance. It consists of twenty-eight pages of reading matter, eight pages of advertising, with additional advertising space on its neat cover. Its salutatory editorial declares: "The advertising pages of *Vermont Medicine* will be kept free from the taint of commercialism and rigidly free from the custom which we regret to see is still followed by a few of our contemporaries of advancing the sale of those perilous nostrums which are not properly even commercialism, but robbery. . . . The single purpose of this journal is to promote the cause of scientific medicine in the state of Vermont through influence on the practitioners of medicine." The secretary's page further announces: "No advertisements will be accepted for pharmaceuticals that are not U. S. P. or N. F. preparations, unless they have been approved by the Council on Pharmacy and Chemistry of the American Medical Association." This new state journal is conducted by the publication committee of the Vermont State Medical Association, which committee consists of Drs. James M. Hamilton, Rutland, and Charles F. Dalton, Burlington, respectively secretary and treasurer of the state organization, together with A. Stuart M. Chisholm, Bennington, editor.

FOREIGN

Deaths from Methyl Alcohol Poisoning.—The *Medizinische Klinik* republishes a news item to the effect that in twelve places in a certain province in Hungary there have been sixty-three fatalities and twelve severe but not fatal cases of poisoning from drinking methyl alcohol.

British Medical Directory.—The British Medical Directory for 1916, according to the *Lancet*, shows in some degree the effects of the war on the profession. The number of practitioners eligible for registration is said to be two less than for the previous year, the total registration being given as 42,570. To 1915 the average yearly rate of increase for twenty-five years was said to be 526, and for the five years preceding 1915 it was 420. The figures therefore show a potential deficit of more than 400. The directory gives 3,274 as the number connected with the services, but according to later figures there are 9,626 in the Royal Army Medical Corps alone.

Research in Anthropology.—The Academy of Sciences at Vienna has granted a further subsidy of $960 to Prof. R. Pöch to continue his anthropologic measurements and photographing of the various ethnologic types among the prisoners of war. The *Klin-therap. Wochenschrift* relates that he already has the measurements or pictures or moving-picture films, or all combined of 3,700 of the war captives, embracing all types of Russians and other Slavs. As elsewhere there do not seem to be any pure types; they are all mixtures. Language and fate blend the mixtures together into a group, a people. There are five such groups in Poland and four main groups in the true Russians.

WAR NOTES

Personal.—Dr. Willard T. Grenfell of Labrador, who is serving with the Twenty-Second British Expeditionary Hospital in France, has been commissioned major.——Dr. Charles S. Pancoast, Philadelphia, who went to Vienna in December, 1914, has been promoted and is now in charge of a 4,000-bed hospital at Munkacz in the Carpathians. He has also been decorated with a gold medal by Emperor Francis Joseph.

War Losses in the Profession in Germany.—The *Medizinische Klinik* of December 26 quotes figures showing that the names of 1,084 physicians have appeared on the 400 casualty lists that had been published by that date in Germany. The list includes 37 civilian physician, 377 active medical officers, 373 of the reserve force and 287 assistant medical officers. Of this total, 361 have been killed, 142 severely and 388 less severely wounded, 102 have been taken prisoners, and 90 are missing.

Esperanto and the War.—An Austrian exchange relates that Esperanto has been found quite useful during the war.

A number of German soldiers taken prisoners by the Russian found that their knowledge of Esperanto was of the greatest help to them both in having their wounds cared for and in intercourse otherwise. A green star is worn by those who know Esperanto, and this brought them comrades in many places. In Siberia the Esperantists were able to secure many concessions for themselves and their fellow prisoners by their command of this universal language.

Release of Bárány.—The *Berliner klinische Wochenschrift* relates that Prince Karl of Sweden, who is the president of the committee appointed by the Red Cross to inspect the camps of prisoners of war, has informed the authorities at Vienna that Prof. R. Bárány has been released from captivity in Russia. It will be remembered that when the Nobel prize in medicine was bestowed on him in December, he had been taken prisoner by the Russians at the fall of Przemysl and was at that time in a prison camp at Merv, just east of the Caspian Sea. He is expected to arrive soon in Vienna.

Condition of Serbian Refugees Improved.—Dr. Edward W. Ryan, who was in charge of the American Red Cross Hospital at Belgrade during the three bombardments of that city and who was recently authorized to cooperate with the American ambassador in Rome and the American Relief Clearing House in Paris in the relief of Serbian refugees in Albania, after a tour of Albania, has cabled the American Red Cross headquarters that the condition of refugees is improved, that one boat has already been chartered and that another will be chartered in a few days to carry refugees to Corsica.

The Austrian University During the War.—Professor Menzel of the law department is now rector of the University of Vienna. It is stated that no less than 200 members of the medical faculty are in active service in the field and several have fallen. The total registration is 400 less than the year before, but the women students number 300 more than ever before. The classes are kept up as usual, but popular courses on domestic science and the care of the health have been organized, mainly for the benefit of teachers from other points. Special courses on treatment of the wounded and other war subjects have been well attended. The university has equipped and maintains a large hospital for the wounded, and its athletic grounds were loaned to the city for the raising of vegetables.

Work of the Austrian Red Cross.—A full report of the manifold activity of the Austrian Red Cross was published in the *Klin-therap. Wochenschrift,* Nov. 8, 1915, just received. Two field hospitals, equipped for 300 wounded each, have been enlarged, one to a capacity of 2,000. The Red Cross has also three field stations for medical supplies and other articles, such as slippers, matches, pipes and paper. There are still quite large supplies of drugs, etc., on hand, articles the supply of which has long since given out in civilian drug stores. The Red Cross has further 890 hospitals, convalescent homes, etc., scattered over the country, representing a total of 95,000 beds. The local transportation of the wounded to these various institutions has been systematically aided by the firemen's companies and athletic associations. Medical supplies of value of over 6,000,000 crowns ($1,200,000) have been sent to the front, and nearly twice this has been spent in all. Refreshments are served to passing troops and prisoners at all the railroad stations in Austria, and millions have thus enjoyed the hospitality of the Red Cross. For the last few months the Red Cross has been using up the reserve funds accumulated in previous decades. The Red Cross expedition recently sent to Bulgaria consisted of twenty-five hospital cars, and a two-car laboratory, with accommodations for 500 or 700 sick or wounded. Major Potonkay is in charge of the train and Dr. E. Suchanek is the medical chief. The personnel comprises six physicians and seventy-five nurses and orderlies.

Protest Against Restriction of Exportation of German Medical Publications.—THE JOURNAL mentioned recently (November 20, p. 1830) that the military authorities in the marches or border states of Germany had issued orders that medical books and periodicals which might in any way help the enemy in conducting the war should not be sent out of the country. An Austrian exchange, dated Dec. 6, relates that the officers of the organization of German publishers and of the organized medical publishers have petitioned the authorities to countermand this order. The petition emphasized the neutrality of medical science and expatiated on the fact that German medical literature at present stands at the head of medical literature the world around and that there is danger that it might lose this preeminent position if exportation is forbidden, especially to neutral lands. Another argument advanced is that if the fruits of German medical science are to be cut off from the enemies' countries, then the sick and wounded German soldiers in captivity in these countries would suffer therefrom. Besides all this, the financial existence would be threatened of a number of German publishers who depend exclusively on foreign customers. The petition further asks for the definition and restriction of the prohibition to the exact special fields in which exportation of medical publications might actually wreak hardship on the Germans. As the same mail brought us a three weeks' accumulation of the five leading weeklies in German, it is evident that the petition produced some effect. There is, however, a gap of four or five numbers of each, preceding these issues. The German custom of issuing certain periodicals irregularly, as material accumulates, has made it possible for journals of this "zwanglos" type to wait quietly until more favorable conditions are restored. These are the ones usually to which we append the "Last indexed, June 5, 1915, p. 1948." It has been one of the marvels of this war that the weekly mail from these distant countries has reached THE JOURNAL through all the disturbance as unfailingly as before the war. Although often not in chronologic sequence, sooner or later the missing numbers have arrived until this stoppage by the censor of our German exchanges in November. In 1912 one issue of a large number of our foreign exchanges was found missing from the files, the same date for all, and this was the week the *Titanic* was lost. There has been no loss of mail comparable to this since the war began so far as our exchanges are concerned.

BERLIN LETTER

BERLIN, Dec. 14, 1915.

Personal

Prof. William Stern, director of the psychologic seminar in Breslau, has received a call from Hamburg.

Professor Gross, publisher of the *Archiv für Kriminal-Anthropologie und Kriminalistik,* died in Graz at the age of 67.

The Prussian ministry of public instruction has ordered the erection of a bust of von Behring in the Marburg Institute for Hygiene in memory of the twenty-fifth anniversary of Behring's publication of his work on serum therapy.

Hypnotism in War Hysteria

Professor Nonne recently delivered an interesting lecture before the Hamburg Medical Society on the value of hypnotism in the treatment of so-called war hysteria, a condition which, in his experience, is extremely common among the participants as well as among the injured. Under this head Nonne places the motor and sensory nerve disturbances that are so frequently combined with vasomotor symptoms, with or without mental disturbance. Cases of tic, stubborn tremor and severe and stubborn vasomotor disturbances Nonne regards as being functional and not organic or suborganic. The truth of this belief is confirmed by the good results obtained from hypnotic suggestion in the treatment of these conditions. The causation of this hysteria may therefore be mechanical or pathologic or idiopathic, although the etiologic factors are frequently combined. Nonne does not believe it justifiable to place in a separate classification cases of cramp neuroses, akinesia, dyskinesia amnestica, vasomotor syndrome, and fear and fright neuroses, and he warns against the use of a terminology which apparently indicates an unfavorable prognosis (traumatic neuroses). The war has shown that the conception that hysteria is merely a form of degeneration, as well as the freudian theory, are based on wrong premises. Nonne has based his statements on experiences gained in his capacity of consultant in the reserve hospitals of Schleswig-Holstein and various hospitals of Hamburg. Among 1,800 cases of war injuries there were twenty-six cases of pure neuroses agreeing with the statistics of Biss, Horn and others as to the frequency of traumatic neuroses. Nonne cites cases of hysterical paralyses which were diagnosed as (1) plexus paralysis; (2) cerebral paralysis; (3) spinal paralysis; (4) organic cerebral lesions; (5) ischemic paralysis; (6) arthritis deformans, and (7) inflammation of serous membranes. These wrong diagnoses were in many cases accepted in the various hospitals of which the patients were inmates. It is said that the reason for these wrong diagnoses was the fact that the classical Charcot hysteria is not sufficiently well known, and because these cases are not common in the general practice of a physician during times of peace. The diagnosis of classical cases is easily made because of the characteristic symptomatology.

The experiences gained in the war have confirmed this statement. Restriction of the field of vision is frequently, although not always, present; sensory disturbances occur less often, and anomalies of mucous membrane reflexes occur very irregularly. The hysterical character is usually not present, but vasomotor disturbances occur with astonishing frequency; likewise isolated muscle contractions. Nonne demonstrated cases of isolated contractures of muscles in the peroneal group, and isolated contractures of the elbow joint, the flexor muscles of the thumb and the interossei. In more than half of the cases the neuropathic tendency is missed even when the most careful anamnesis is made. It is impossible to differentiate on the basis of complete absence, or preceding loss, of consciousness. Experience has shown that a somatic trauma alone, aside from a psychogenic cause, may produce the hysterical syndrome. By far the most frequent traumas concerned in the etiology of this condition are, in the order named, shell contusions, wounds, fatigue and fear; finally, there are cases, by no means infrequent, in which a particular exciting cause cannot be demonstrated. We have learned that the hysterical syndrome may, under unusual conditions, occur much more easily in a so-called normal nervous system than has heretofore been believed to be the case, and it is in these cases that Nonne has found the prognosis to be very much better under hypnotic treatment. From the middle of October, 1914, to the middle of September, 1915, Nonne treated sixty-three cases of "grand hysteria." Fifty-one of these patients were cured, including twenty-eight "rapid cures" and twenty-three cases in which the cure was effected more gradually. By means of waking suggestions, Nonne succeeded in curing five patients after previous attempts had failed. In three cases a cure was effected on the day following the hypnotic suggestion *(suggestion à échéance)*. In one case dyskinesia amnestica remained unaffected even under deep hypnosis. Twelve patients could not be cured; ten of these were refractory against hypnosis. Only two became fully hypnotic. A cure was effected in those cases only in which the hysterical syndrome was acute. In those cases in which the development of the condition extended over days or weeks, a cure was effected correspondingly slowly. The duration of the hysterical syndrome and a neuropathic tendency on the part of the patient did not alter the prognosis. A cure was effected, even "rapid cures," in cases of from two to thirteen months' duration. Some of these patients were refractory to the treatment because of a desire not to return to active duty. Nonne cited five cases of stubborn generalized muscle tremor that yielded promptly to hypnotic suggestion. He shows that hypnosis is entirely independent of neuropathic tendencies, general exhaustion and the consequent reduction of resistance, nor did he find any difference in producing hypnosis among people coming from different parts of Germany, from the city or country, or in various walks of life. He frequently saw cases in which the subject yielded easily to hypnotic suggestion. Nonne says that in such cases it is advisable to give the suggestion to the patient that others do not possess the same hypnotic influence over him. Nonne cited four cases of this kind. As to recurrence, Nonne admits that many of these cured patients will have a recurrence if they are subjected to the influence which produced the original attack. That the ordinary garrison duty or field service does not play any part in the production of recurrence was shown by six cases cited. Nonne calls attention to the advantages of hypnotic suggestion: 1. Cures are frequent and rapid. Nonne's patients had all been treated ineffectively for many months in various hospitals. 2. Hypnosis may be regarded as a means of differentiation between "organic" and "functional" cases. Nonne cites the case of an officer who received a grazing bullet wound of the left parietal region and developed a right-sided superior monoparesis with glovelike areas of disturbance of sensation of all kinds of the hands and fingers, but normal tendon and periosteum reflexes and absence of hemiparalysis. In the hypnotic state sensation was normal, and after several treatments the patient was cured. 3. Cases of stubborn tremors and tics of long duration as well as severe vasomotor disturbances were promptly healed by suggestion, showing that these symptoms must have been purely functional. 4. Hypnosis would be of great value in determining the disability of the individual, the degree as well as the duration, so that he can be returned to duty if he is fit for duty. Nonne recognizes that difficulties lie in the way of the adoption of this procedure, particularly as time and patience are required, and the hypnotizer becomes fatigued rapidly and much more severely than does the hydrotherapist or the electrotherapist; nor can he rely on assistants.

LONDON LETTER

LONDON, Jan. 13, 1916.

The War

PREVENTION OF TYPHOID FEVER

If additional proof were required of the value of inoculation against typhoid fever, it is amply furnished by the latest figures given by the government. From the beginning of hostilities only 1,365 cases of typhoid occurred among the British troops in France and Belgium. These figures should be compared with the terrible record of the much smaller South African War in which over 20,000 cases occurred, or with the Spanish-American War. The case mortality is about three times as great in patients who have not been inoculated as in those who have. The methods of preventing typhoid fever are very thorough. In addition to inoculation, a careful search is made for carriers, and no man is employed in the commissariat department who gives a positive Widal reaction. Public health work is carried out on a large scale by means of water analysis and water purification.

THE RECRUITING OF PHYSICIANS FOR THE ARMY

The Central Medical War Committee (an organization initiated by the British Medical Association and recognized by the government) is completing a list of physicians of military age (that is to say, all under the age of 45) who have not yet joined the army. Local and individual difficulties in abandoning civil practice are being fully recognized. Lists of physicians in each area are being prepared to be forwarded to the War Office as soon as the committee is satisfied that the time has come for the physician in question to offer his services. At least a month's notice is given. Before sending in a man's name, the committee will take into account his responsibilities with regard to persons dependent on him and to partners, institutions or public authorities, while in the general interests of the country the medical needs of each area will be thought of and precautions taken so that the proportion to population of physicians remaining in civil practice may be equalized throughout the country. There are residential areas in which the proportion of physicians in civil practice is much higher than in industrial districts, and further calls must be made on men practicing in such areas. The war committee is aware that the conditions under which the public have been accustomed in time of peace to obtain the attendance of physicians cannot continue without modification. The number of physicians who will be required by the army must depend partly on the development of military operations and partly on the amount of wastage among physicians already serving in the army. The understanding is that when the army medical department needs more medical officers, it will state the number required to the Central Medical War Committee; that committee will then inspect the whole list of enrolled men and will select those who, from the information in the possession of the local medical war committees and the general information as to the whole country in the possession of the central committee, can be withdrawn from civil practice with least disadvantage to the public and to themselves. The scheme under which physicians are now invited to enroll insures that they will engage under the conditions which have prevailed since the beginning of the war. That is to say, the commission they promise to accept will be for a year, at the end of which time they will be able to review the position. If the opportunity is lost and compulsion has to be faced, it is possible that the whole medical profession will be converted into a state service when compulsion on the individual will not be limited in time, but he will be required to serve at least for the duration of the war.

The Insurance Act and the Pharmacists

Considerable dissatisfaction exists among pharmacists as to the working of the insurance act. It may be remembered that a capitation fee of half a dollar per annum was allowed by the act for the cost of medicines. The pharmacists claim that this amount is quite sufficient if the act is worked properly and physicians exercise due economy. Unfortunately some do not, and if the amount of money allotted in a particular district on this basis is not sufficient to pay for the medicines, the pharmacists have to submit to a reduction of their bills. These bills are calculated according to a prescribed system—so much for the cost of the drugs according to the market prices, so much for establishment charges (something under 2 cents per prescription) and a dispensing fee (4 cents per prescription). Naturally the pharmacists object to having to pay the penalty of extravagance com-

mitted by physicians. There is the remedy that a physician who has been shown to be guilty of extravagance can be surcharged. In one case as much as $1,500 was deducted from the amount payable to a physician. It was shown that while the average cost of prescriptions in the whole of the county was 18 cents, the average cost of his prescriptions was 80 cents. There was a deficiency in the drug fund of about $35,000 for the year. But while it is easy to bring home such cases of gross extravagance, it is obvious that a good deal of extravagance may be practiced without the possibility of a proof. Another form of extravagance more difficult to detect is due to complaisance in ordering medicine for patients over long periods, after it has become unnecessary, or ordering it for patients who never required it at all. In the perfunctory work which all forms of contract practice encourage, there is a strong tendency simply to write prescriptions after the most hasty examination, or, indeed, simply on the basis of the patients' complaints. As has been pointed out in previous letters, the insurance act in many ways provides an object lesson in the evils of socialism.

PARIS LETTER

PARIS, Jan. 8, 1916.

The War

TREATMENT OF WOUNDS OF WAR

Prof. Pierre Delbet's remarks, before the Société de chirurgie de Paris, on Labarraque's solution and Dakin's solution (THE JOURNAL, Sept. 4, 1915, p. 880; Dec. 11, 1915, p. 2101) aroused an interesting discussion on the treatment of wounds in general. Dr. A. Broca, agrégé at the Faculté de médecine de Paris and surgeon of the hospitals, remarked that since the war, as before, his practice has been (1) to apply simply a compress of dry gauze to uninfected orifices and (2) to touch the flesh with an antiseptic after operation when a phlegmon rendered it necessary to open the tissues up. He employs for this purpose either a 5 per cent. phenol solution or immersion in ether, and the results appeared to him to be good. In any case, he does not believe that the applications are harmful. For later dressings, Broca believes in a dry light dressing in order to permit the wound to get the air as much as possible and to avoid interference with exudations. He seldom uses lavage except for its mechanical effects and, although his assistants have tried various solutions, he himself has found ordinary boiled water quite as useful. There are indications for moist dressings, but they are rare. Broca uses them only when there is a lymphangitic redness around the wound. In cases of diffuse phlegmon he has had good results from a dressing of ether applied during the first three or four days. As for the value of Dakin's solution, Broca is undecided since Tissot reported to the Académie des sciences that this famous solution was inferior to that of Labarraque.

Dr. Quénu, professor of the surgical clinic at the Faculté de médecine de Paris, remarked that he had always been surprised at a recommendation of any one method of dressing for wounds, since wounds are of so many kinds. For recent wounds he uses lavage and especially lavage with hydrogen peroxid which mechanically removes pieces of dead tissue, foreign bodies, etc., and which, moreover, stimulates the wounded tissues, as is shown by the reddening and bleeding of the wound. But once this lavage is done, he believes that it is by all means best to refrain from irrigating the wound, either directly or through drains, except in the case of certain putrid gangrenous wounds, and then only until the gangrenous parts have been eliminated. The important thing appears to him to be above all good drainage and the use of liberal incision at the lowest points to ensure the free flow of pus. There are wounds of some weeks' standing—wounds of amputation in particular—which present a grayish tint, sometimes with false membranes on their surfaces or with abundant suppurating grayish granulating tissue, bleeding at each dressing. For such wounds two methods of simultaneous treatment have given Quénu good results. He uses applications of hot air at 60 C (140 F) every day or every other day and also dressings with powdered cinchona. After some dressings with cinchona the tissues become red, vascular and do not bleed when the dressing of dry gauze is removed. The cinchona gives excellent results also in gangrenous wounds. With this dressing pus, which perhaps has been quite liquid and abundant, becomes scanty and thick, an excellent sign. The applications of hot air act, not only on the wound itself, but also on the borders of the wound. Quénu uses them also for cicatrized wounds which remain a little red and edematous.

Dr. Chaput, surgeon of the hospitals of Paris, seldom employs lavage or wet dressings. He is convinced that the best treatment of infected wounds consists of aseptic dry dressings, liberal drainage and applications of zinc peroxid or irradiation by electric lamps with reflectors placed as near the wound as the patient can endure. There is no antiseptic so powerful as electric light; with treatments of an hour a day, the most infected wounds rapidly become clean when the drainage is sufficient, and the fever falls in forty-eight hours. Chaput uses wet dressings only when there is no skin wound. However, he has recently used, with good results, magnesium chlorid in 1.2 per cent. solution, as recommended by Pierre Delbet for diffuse phlegmon and erysipelas. He believes that all solutions except magnesium chlorid are harmful rather than helpful. Lavage of wounds is a deplorable practice, especially injection into drains by means of a syringe. It should be recalled that Marion, injecting air into the bladder, produced a fatal gaseous embolism. Liquids injected into wounds under pressure also pass into the vessels and carry pus with them. Moreover, they distend and lacerate the wounds and prevent them from healing. When there is a stagnant condition in a cavity, liberal drainage is necessary. In such a case lavage may be employed but under special precautions. Chaput merely pours into the cavity or into the drain from a test tube some such fluid as boiled water, artificial serum, magnesium chlorid solution, picric acid solution or solution of methylene blue. Under such conditions lavage is useful and not subject to the dangers of injection under pressure.

Dr. Toussaint confirmed Chaput's opinion with regard to the service given by electric heat in cleansing infected wounds, the results of wounds of war. Dr. Toussaint has used this method with success in large profoundly infected osseous wounds. After being heated, they are covered with dry sterile compresses impregnated with benzoin melted in a water bath. This is deodorizing, analgesic and an antiseptic of the highest class.

SERIOUS FRACTURES OF THE SKULL BY SMALL FRAGMENTS OF SHELL

The late Professor Oui of Lille called the attention of the Académie de médecine to this subject (THE JOURNAL, Aug. 7, 1915, p. 546). Drs. Lefort and Joltrain recently insisted at a meeting of the Société de chirurgie de Paris on the necessity of exploring as a routine measure the surface of the skull in cases of scalp wounds. The apparent insignificance of the cutaneous wound, especially when made by small fragments of shell, is often deceptive. A more or less bulging wound of a few millimeters in diameter, such as made by projectiles which strike the head perpendicularly, should be suspected more than a furroughed wound of some cubic centimeters in length produced by a projectile striking the scalp tangentially. The first has more chance of having touched or passed through the bone surface than the second. The two cases reported by Lefort and Joltrain confirmed these conclusions. The first patient received so small a wound on the top of the head that it was overlooked for a long time. He was sent, a month later, into a medical service with the diagnosis of cerebrospinal meningitis. He died there of an unrecognized fracture of the skull. The projectile was scarcely bigger than a piece of shot. More insignificant still was the appearance of the wound in the second case. The patient reported no lesion of the head; he complained only of a wounded arm, and it was on observation of the Babinski sign that the cerebral organic lesion was diagnosed. A small wound was found and explored. Trephining saved the patient's life.

Dr. H. Roulland, at the Réunion médico-chirurgicale de la X-e armée, also spoke on skull wounds by small projectiles. Such projectiles may either strike the skull, remaining embedded under the skin and merely scratching the bone, or they may embed themselves in the external surface of the bone producing a bulge of the internal surface much wider than the diameter of the projectile (which calls for trephining) or they may traverse the bony wall completely and penetrate either into the dura mater or into the nervous substance. In this case also it is necessary to operate as soon as possible and to extract the projectile. Roulland reported the case of a very small projectile which traversed the temporal region and remained unsuspected for twenty-seven days in spite of the phenomena of aphasia, headache and vomiting. Trephining evacuated a shirt-stud abscess of the dura mater, and the patient recovered completely.

THE FAILURE OF CATGUT IN CONTINUOUS SUTURES

Dr. Chaput, surgeon of the hospitals of Paris, reported to the Société de chirurgie de Paris two cases which show the

unsatisfactory character of catgut in ligatures in continuity. These were two cases of ligature of the femoral artery. Very soon after ligature the pulse became perceptible and the artery became permeable below the ligature. In the other case a catgut ligature *en masse* was twice followed by hemorrhage and hemostasis was secured only by a silk ligature. What is the explanation of these phenomena? Is it the greater absorbability of catgut? Were the ligatures not drawn tightly enough? Was septicemia present? Chaput does not think that any of these furnish the explanation. He believes that there was an alteration of the arterial walls which permitted the tunica media to support the ligature without breaking, and that there was an insufficient coagulation of the blood. The silk ligature did not break the tunica media but its irritating action on the tissues and its prolonged presence inflamed the arterial walls, including the tunica interna, and thus produced a resistant clot. Why is catgut ligature always sufficient in the case of severed arteries? Because in such cases the arterial stump beyond the ligature is invaded by proliferating tissue, which involves the whole wound, so that, after the catgut is absorbed, if the ligature itself has not produced obliteration of the caliber of the artery, the circulation is arrested by the obliteration produced in the arterial stump beyond the ligature.

The conclusion to be drawn from these cases is that silk gives a more reliable hemostasis than catgut for ligatures in continuity, and that in case of repeated hemorrhages silk should be used in preference to catgut.

KEEPING SERIOUSLY WOUNDED PATIENTS WARM AT THE FIRST AID POSTS

At the Réunion médico-chirurgicale de la V-armée, Dr. Collin called attention to the necessity of systematically warming the seriously wounded patients who are always chilled by hemorrhages and by being undressed. The staff should always have boiling water to fill the hot-water bottles used during transportation on the litter. The first-aid post should be well warmed. The litter bearer should be especially charged with the duty of replacing hot-water bottles under the coverings near the patient and of giving the patients hot coffee with alcohol. The first-aid post should furnish hot water bottles to be placed in the ambulance for the transportation of patients to the rear.

A PRACTICAL METHOD FOR THE DESTRUCTION OF THE EGGS OF LICE

Dr. de Clérambault sent to the same meeting a note calling attention to the difficulty of destroying the eggs of lice in clothing since they adhere closely to the fabric and their envelope is resistant to antiseptics. It is easy, however, to destroy them by means of a hot iron, either a tailor's or laundress' iron, which should be passed carefully over the seams so as to penetrate into the folds. The seams of the sleeves, the collar, the belt and the flap of the trousers should be especially ironed with the point of the iron. The operation is rapidly done and is efficacious. It is well to give the work to men who were formerly regimental tailors. It may be done quickly while the men are going through the douche and changing body linen.

Marriages

ELMER ROY GRIGG, M.D., Anaconda, Mont., to Miss Lavina V. Bartzen of Butte, Mont., in Helena, Mont., January 10.

CLAUDE L. SELLERS, M.D., St. Louis, to Mrs. Mildred J. McCasland of East St. Louis, Ill., in St. Louis, January 20.

WILLIAM THOMAS COLLINS, M.D., Freeport, Ill., to Miss Gertrude Hollister of Lake Linden, Mich., December 25.

JOSEPH CYRUS STEADMAN, M.D., Jamaica Plains, Boston, to Mrs. Mabel Taft Carver of Springfield, Mass., recently.

RAYMOND JOHN NEFF, M.D., Oak Park, Ill., to Miss Nina Beggs of Chicago, in Crown Point, Ind., January 18.

WILLIAM THOMAS FRAWLEY, M.D., to Miss Eleanor Gertrude Doyle, both of Pittsfield, Mass., January 10.

ROBERT EMMETT MCCARTEN, M.D., Great Falls, Mont., to Miss Ann Shannon of Helena, Mont., January 14.

ELMER HOWARD HANKEY, M.D., Pittsburgh, to Miss Mary Elizabeth Walker of Ford City, Pa., January 19.

DAVID TROY CHEAIRS, M.D., Tillar, Ark., to Miss Minnie Maye Taylor of Little Rock, Ark., January 20.

RALPH HANSON, M.D., Spokane, Wash., to Miss Kathryn Burris of Butte, Mont., January 12.

Deaths

Wesley W. Townsend, M.D. Michigan College of Medicine and Surgery, Detroit, 1896; aged 42; a Fellow of the American Medical Association; surgeon to the Minneapolis, St. Paul and Sault Ste. Marie Railway; advisory surgeon to the steamship lines of Sault Ste. Marie, Mich.; formerly a member of the Association of Military Surgeons of the United States; a member of the visiting staff of the Sault Ste. Marie General Hospital; while curling at the Soo rink, Sault Ste. Marie, January 17, fell, striking his head, and died a short time later from cerebral hemorrhage.

Patrick V. Carlin, M.D. Denver College of Medicine, 1882; aged 61; a Fellow of the American Medical Association; formerly demonstrator of anatomy, adjunct lecturer on anatomy and clinical lecturer on obstetrics in his alma mater; physician to St. Joseph's Hospital, Denver; consulting physician to Mercy Hospital, Denver, and consulting surgeon to the Colorado and Southern, Union Pacific, and other railroads; a member of the school board of Denver since 1903; died at his home in that city, January 16, from cerebral hemorrhage.

Alfred Ira Noble, M.D. Medical School of Maine, Brunswick, 1886; aged 55; a Fellow of the American Medical Association and a member of the American Medico-Psychological Association; for ten years superintendent of the Michigan Asylum for the Insane, Kalamazoo, and one of the best-known authorities on the insane and psychiatry in the United States; while en route at a meeting of officials of state insane hospitals at Pontiac, Mich., died suddenly, January 20, in the Hotel Tuller, Detroit, from acute gastritis.

William Henry Maynard, M.D. Syracuse (N. Y.) College of Medicine, 1883; aged 56; for more than thirty years a practitioner of Syracuse; prior to that time for two years physician to the Onondaga County Indian Reservation; died in the Women's and Children's Hospital, Syracuse, January 15, after a second operation for gastric ulcer. The members of the Syracuse Academy of Medicine, of which Dr. Maynard was a member and past president, attended the funeral in a body.

William Irving Thornton, M.D. University of Buffalo, 1899; aged 37; a Fellow of the American Medical Association and a well-known practitioner of Buffalo; a member of the board of directors of the Lafayette General Hospital, Buffalo; physician to the Good Samaritan Dispensary and attending physician to the Buffalo Orphan Asylum; died at his home in Buffalo, January 16, from pleuropneumonia.

James J. Durrett, M.D. University of Maryland, Baltimore, 1897; aged 43; a member of the West Virginia State Medical Association; who had been ill as the result of a nervous breakdown; died at his home in Fairmont, W. Va., January 19, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent.

Leonard Waterman, M.D. University of Michigan, Ann Arbor, 1913; aged 27; a Fellow of the American Medical Association; for a year after his graduation an intern in the Copper Range Hospital, Trimountain, Mich., and later of Norman, Neb.; died in a hospital in Omaha, January 20, after an operation for appendicitis.

Carl E. Walbrach, M.D. University of Munich, Bavaria, 1898; aged 41; a Fellow of the American Medical Association; instructor in histology in the Denver and Gross Medical College, Denver, and visiting physician to the Denver County Hospital; died at the home of his father in Denver, January 16.

Z. Swift Webb, M.D. College of Physicians and Surgeons in the City of New York, 1848; aged 91; formerly a Fellow of the American Medical Association and of the New York Academy of Medicine; for fifty-five years a practitioner of New York City; died at his home in Woodbury, Conn., about January 20.

Charles McCreight, M.D. University of Pennsylvania, Philadelphia, 1900; aged 42; a member of the Medical Society of the State of Pennsylvania; and a graduate of the Philadelphia College of Pharmacy in 1894; died at his home in Philadelphia, January 22, from cirrhosis of the liver.

John Gilbert Spangler, M.D. College of Physicians and Surgeons, Baltimore, 1887; aged 55; a member of the Medical Society of the State of Pennsylvania; of Mapleton Depot, Pa.; while going over the Pennsylvania System at Mapleton, January 7, was struck by a train and instantly killed.

Franklin Edward Wolfe, M.D. Long Island College Hospital, Brooklyn, 1890; aged 48; for several years attending physician to the State Feeble-Minded School, Medical Lake, Wash.; died in St. Luke's Hospital, Spokane, Wash., January 7, after an operation for the removal of gallstones.

Winfield S. Shafer, M.D. Eclectic Medical Institute, Cincinnati, 1886; aged 63; a Fellow of the American Medical Association; proprietor and superintendent of Woodlawn Hospital, Rochester, Ind.; died at the home of his son in Chicago, January 22, from carcinoma of the liver.

Henry M. Jewett, M.D. College of Physicians and Surgeons, Baltimore, 1888; aged 56; formerly attending surgeon to the Roger Williams' Eye, Ear and Throat Infirmary, Providence, R. I., and a practitioner of Providence; died at his home in Edgewood, Providence, January 19.

Melvin Edmond DeGroat, M.D. Michigan College of Medicine and Surgery, Detroit, 1897; aged 51; a member of the Oklahoma State Medical Association; a specialist on diseases of the eye, ear, nose and throat; died at his home in Alva, Okla., January 11, from heart disease.

Leo Achille Gauvreau, M.D. Laval University, Quebec, 1878; aged 60; supreme medical examiner and treasurer of the United Societies of Canadian French; for twenty-nine years a practitioner of Alpena, Mich.; died at his home in that city, January 20, from heart disease.

Henry Blank, M.D. Rush Medical College, 1885; aged 54; a Fellow of the American Medical Association; for twenty years professor of surgery in the Wisconsin College of Physicians and Surgeons, Milwaukee; died at his home in Milwaukee, January 12, from nephritis.

Harold Walker Banks, M.D. Rush Medical College, 1897; aged 59; formerly of Escanaba, Mich.; district surgeon to the Chicago and Northwestern Railway; local surgeon to other railways; died at his home in Brookfield (R. F. D. Charlotte), Mich., about January 12.

Benjamin Lundy Fussell, M.D. Jefferson Medical College, 1859; aged 75; for five years superintendent of a sanatorium in Spiceland, Ind., but prior to and after that time a practitioner of Markleville, Ind.; died at his home in that place, January 16, from pneumonia.

James Irving Tibbetts, M.D. Central College of Physicians and Surgeons, Indianapolis, 1883; aged 67; a Fellow of the American Medical Association and a well-known practitioner of Hennepin County, Minn.; died at his home in Wayzata, Minn., January 5.

Ephraim S. Evans, M.D. Chicago Homeopathic Medical College, 1889; aged 76; a quarter of a century ago prominent in Columbus, Ohio, as a specialist on diseases of the eye and ear; died in the Franklin County (Ohio) Infirmary, January 17, from arteriosclerosis.

Eugene Mark Worthen, M.D. Dartmouth Medical School, Hanover, N. H., 1901; aged 43; a Fellow of the American Medical Association; died at his home in Ashland, N. H., Dec. 31, 1915, from pulmonary tuberculosis, after an illness of four years.

Christopher Columbus Howell, M.D. University of Nashville, Tenn., 1872; aged 67; a member of the Tennessee State Medical Association and a practitioner of McNairy County, Tenn., for thirty years; died at his home, Dec. 28, 1915, from pneumonia.

Ernest Frank Nelson, M.D. Medico-Chirurgical College of Philadelphia, 1899; aged 46; a Fellow of the American Medical Association and a well-known practitioner of Grove City, Pa.; died at his home in that place, January 18, from pneumonia.

Edward Wright Groll, M.D. Harvard Medical School, Boston, 1893; aged 45; a member of the staff of the Binghamton (N. Y.) State Hospital for about four years; died at his home in Germantown, Philadelphia, January 5, from erysipelas.

Daniel M. Camerer, M.D. Rush Medical College, 1849; at the time of his death the oldest living graduate of that institution; aged 91; said to have been the oldest practitioner of Illinois; died at his home in Chrisman, Ill., January 29.

David Joseph Hamburg, M.D. College of Physicians and Surgeons in the City of New York, 1894; a Fellow of the American Medical Association; died at his home in New York City, January 21, from pneumonia.

John Pitts Colegrove, M.D. University of Buffalo, N. Y., 1875; aged 83; who gave up practice in 1890 to develop and become an operator in the Chipmunk Oil Field; died at his home in Salamanca, N. Y., January 15.

Elisha Belcher Hyde, M.D. New York University, New York City, 1883; aged 67; who gave up the practice of medicine twenty years ago to take up the work of map making; died at his home in Brooklyn, January 14, from bronchitis.

Frank H. Pugh, M.D. Miami Medical College, Cincinnati, 1890; aged 53; a member of the Ohio State Medical Association; died at his home in Bryan, Ohio, Oct. 28, 1915, from Stokes-Adams' disease.

Thomas F. Spillane, M.D. Detroit College of Medicine and Surgery, 1899; aged 42; a member of the Michigan State Medical Society; was found dead from heart disease in his office in Detroit, January 18.

Luther Jackson Harvey, M.D. Washington University, St. Louis, 1875; aged 64; a Fellow of the American Medical Association; died at his home in Griggsville, Ill., January 17, from cerebral hemorrhage.

George Vander Berg Rockwell, M.D. Bellevue Hospital Medical College, 1882; aged 57; a retired practitioner of the Bedford section of Brooklyn; died at his home, January 10, from cirrhosis of the liver.

Edmund Joseph Ball, M.D. College of Physicians and Surgeons, Chicago, 1900, aged 42; a member of the Board of Health of Mishawaka, Ind.; died in West Baden, Ind., January 10, from pneumonia.

John M. McDuff, M.D. Memphis Hospital Medical College, 1888; aged 50; of Jourdanton, Texas; physician of Atascosa County; was found dead in a thicket near Pleasanton, Texas, January 10.

James M. Wood, M.D. University of Tennessee, Nashville, 1888; aged 55; a Fellow of the American Medical Association; died at his home in Greensburg, Ind., January 14, from gallstone disease.

Absalom Jackson Flowers, M.D. Western Pennsylvania Medical College, Pittsburgh, 1891; aged 59; formerly a clergyman; died at his home in Fairmont, W. Va., January 5, from arteriosclerosis.

Arathena Bianca Drake, M.D. College of Physicians and Surgeons, Boston, 1894; aged 87; for more than forty years a practitioner of South Boston, Mass.; died at her home in that city, January 21.

John Alfred Collins, M.D. Bellevue Hospital Medical College, 1869; formerly a member of the Medical Society of the State of North Carolina; died at his home in Enfield, N. C., Dec. 23, 1915.

Samuel Dings, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1889; aged 57; a member of the Iowa State Medical Society; died at his home in Keota, Iowa, January 14, from pneumonia.

Guy Holbrook, M.D. Albany (N. Y.) Medical College, 1866; aged 70; formerly a member of the Massachusetts and New Hampshire medical societies; died at his home in Boston, January 1.

Robert Frederick Nitzsche, M.D. Rush Medical College, 1877; aged 86; a pioneer practitioner of Dubuque, Iowa; died at the home of his daughter in Dubuque, January 9, from bronchopneumonia.

Joseph Watson, M.D. Medical College of Ohio, Cincinnati, 1876; aged 62; a Fellow of the American Medical Association; died at his home in Cincinnati, January 16, from cerebral hemorrhage.

Richard L. Stevenson (license, Morgan County, Ala., 1878), for forty years a practitioner of New Decatur, Ala.; a Confederate veteran; died on his farm near New Decatur, January 13.

Llewellyn D. Chandler, M.D. Baltimore (Md.) College, 1903; aged 32; formerly of Central Falls, R. I.; died at his home in Hammond, W. Va.; about January 10, from pneumonia.

James Douglas Bryant, M.D. Long Island College Hospital, Brooklyn, 1892; aged 45; a Fellow of the American Medical Association; died at his home in Kingston, N. Y., January 13.

Harry F. Boatman, M.D. Rush Medical College, 1902; for two years a member of the staff of the Independence (Iowa) State Hospital; died at his home in Los Angeles, January 10.

Alonzo P. Charlton, M.D. Jefferson Medical College, 1880; aged 56; also a druggist; died at his home in Philadelphia, January 12, from heart disease.

Albert T. Koch, M.D. Bennett Medical College, Chicago, 1874; aged 76; for nearly half a century a practitioner of Wausau, Wis.; died at his home in that place, recently, from influenza.

John Fletcher Neal (license, Nebraska, 1891) aged 80; a practitioner since 1859; for more than fifty years a resident of Peru, Neb.; died at his home in that place, January 10.

William Hill, M.D. Eclectic Medical College of Pennsylvania, Philadelphia, 1865; aged 83; died at his home in Rochester, Ind., January 21, from ptomain poisoning.

Charles F. Kennedy, M.D. Northwestern University Medical School, Chicago, 1887; aged 54; died at his home in Beatrice, Neb., January 8, from cerebral hemorrhage.

David W. Scott, M.D. Eclectic Medical Institute, Cincinnati, 1871; aged 83; for many years a practitioner of Freeport, Ill.; died in Zion City, Ill., January 16.

Wilson Brown, M.D. Missouri Medical College, St. Louis, 1878; aged 71; of Alto Pass, Ill.; died January 16, at the Hale Sanatorium, Anna, Ill., from diabetes.

Edward Thomson (license, Missouri, 1902), aged 67; an educator, author and lecturer of St. Louis; died at the home of his son in San Antonio, Texas, January 15.

H. J. Freeman (license, Missouri, 1883); aged 85; a practitioner for nearly sixty years; died in his apartment in Joplin, Mo., January 5, from senile debility.

Eugene D. Martineaut, M.D. University of California, San Francisco, 1873; aged 70; a veteran of the Civil War; died at his home in San Francisco, January 10.

Norvel H. Baker, M.D. Baltimore Medical College, 1882; aged 59; formerly a practitioner and druggist of Gillette, Wyo., died in Sheridan, Wyo., January 10.

E. Parke Edwards, M.D. Grand Rapids (Mich.) Medical College, 1900; aged 43; died at his home in Highland Park, Detroit, January 10, from heart disease.

Nicholas M. Corbin, M.D. Medical College of Virginia, Richmond, 1864; aged 73; formerly of Point Eastern, Va.; died in Ashland, Va., Oct. 4, 1915.

William W. Bower, M.D. Detroit College of Medicine and Surgery, 1895; aged 50; died at his home in Camden, Mich., January 15, from influenza.

Wyman Alexander Cameron, M.D. University of Toronto, Ont., 1915; aged 27; died at his home in Advocate, N. S., October 1, from typhoid fever.

William M. Johnson, M.D. Physio-Medical Institute, Cincinnati, 1885; formerly of Chillicothe, Ohio; died at his home in Redlands, Calif., recently.

Samuel S. Canby, M.D. Missouri Medical College, St. Louis, 1878; aged 67; died at his home in Calhoun, Ill., January 17, from pneumonia.

J. B. Wilson (license, Kentucky, thirty-three years' practice, 1893), aged 78; died at his home in Hardin, Ky., January 12, from pneumonia.

William John McCauley, M.D. University of Michigan, Ann Arbor, 1912; aged 28; died at his home in Ellensburg, Wash., January 3.

Mary A. Nueneman, M.D. Penn Medical University, Philadelphia, 1881; aged 58; died at her home in Philadelphia, January 17.

Jacob E. Ensminger (license, West Virginia, 1881), aged 73; died at his home in Farmington, W. Va., January 14, from pneumonia.

Lewis M. Leaming, M.D. Rush Medical College, 1895; aged 42; died at his home in Otterbein, Ind., January 12, from nephritis.

John M. Tucker, M.D. Medical College of Georgia, Augusta, 1886; of Louvale, Ga.; died in Columbus, Ga., November 10.

Benjamin F. Wayman (license, Illinois, 1878), aged 63; died at his home in Walnut Hill, Ill., January 5, from organic heart disease.

John W. Strickland, M.D. Medical College of Georgia, Augusta, 1899; aged 50; died at his home in Macclenny, Fla., January 15.

Julius C. Petit, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1875; aged 73; died at his home in St. Louis, January 12.

Robert M. Brown, M.D. Louisville (Ky.) Medical College 1889; aged 60; died at his home in Bible Hill, Tenn., January 12.

Association News

THE DETROIT SESSION

The Local Committee on Arrangements, and Suggestions for Making Hotel Reservations, with a Preliminary List of Hotels

The officers of the local Committee on Arrangements for the Detroit Session are: chairman, Louis J. Hirschman; treasurer, Thaddeus Walker; secretary, Ernest K. Cullen. The chairmen of subcommittees are: Finance, Ernest W. Haass; Entertainment, Arthur D. Holmes; Registration, Frank B. Walker; Printing and Publication, James H. Dempster; Halls and Meeting Places, Frank B. Tibbals; Scientific Exhibits, J. Walter Vaughan; Commercial Exhibits, John N. Bell; Hotels, Rolland Parmeter, and Automobiles, Angus McLean. This committee has established an office at 33 High Street, East, Detroit. All communications from Fellows to any members of the committee should be mailed to this address.

It is the desire of the Committee on Arrangements to assist the Fellows in making hotel reservations, and Fellows are urged to make applications for reservations through the committee rather than by addressing the hotels directly. On receipt of a request for a reservation, the committee will take up the matter and have the management of one of the hotels advise the Fellow of the reservation which has been made. In making applications, Fellows should indicate the hotel at which they desire to be located, naming a second choice; they should indicate the number of rooms, whether with or without bath, they desire for the accommodation of their party, and state the rate which they are willing to pay. When these reservations are made and confirmed, should anything occur which will prevent the Fellow occupying these quarters, he should at once ask the Committee on Arrangements for a release in order that the rooms may be available for others who may desire accommodations.

A partial list of the available hotels, giving the number of rooms in each and the rates per day, follows. A more detailed list is being compiled, and the local committee gives assurance that all who attend the annual session will be provided with comfortable accommodations. The prices mentioned, except when otherwise indicated, are on the European plan.

RATES AT DETROIT HOTELS

Hotel	No. of Rooms	Rate per Day—Single	Rate per Day—Double
Addison	50	$2.00	$2.50
Berghoff	72	1.50	2.00
Brunswick	75	1.50	2.75
Burns	100	1.50	3.50
Cadillac	250	2.50	4.00
Carlsbad	82	1.50	2.50
Charles	85	1.50	2.50
Charlevoix	200	1.50	3.00
Clayton	70	1.50	3.00
Eldorado	100	2.00	3.00
Grand Union	48	1.50	2.50
Griswold	175	2.00-$2.50	3.00-$4.00
Henry Clay	240	1.50	2.00
Hoffman	200	1.25	2.50
Imperial	80	1.50	2.00
Lenox	210	2.00	3.00
Library Park	75	2.00	3.00
Madison	200	2.00	2.50
Marietta	25	1.50	2.00
Metropole (Stag)	70	1.50- 2.50	2.50- 3.00
Morgan	100	1.50	2.50
Normandie	105	1.50	3.00
Northern	20	1.00	....
Norton (Stag)	68	1.50	3.00
Oriental (Stag)	80	1.25	2.50
Oxford	72	2.50	3.00
Ponchartrain	425	2.50	4.00
Pinehurst	20	1.50	2.00
Rexmere	37	2.00	3.00
Statler	1,000	1.50- 5.00	3.00- 7.00
Ste. Claire*	100	3.50	7.00
Stevenson	150	1.25	3.00
Tuller	600	1.50	2.50
Wayne	175	2.00	3.00

* American plan.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

BROMID NOSTRUMS IN EPILEPSY

A few days ago THE JOURNAL received the following letter:

To the Editor:—A great many people have asked me concerning the remedy of a Dr. F. C. Grant, of Kansas City, known as an epileptic cure. Have you any record of this remedy? I suppose it is one of the usual fakes, but I would like to be armed with a proper knowledge in the matter. T. C. WITHERSPOON, M.D., Butte, Mont.

The same mail that brought this letter from Butte, Mont., curiously enough brought the following from Welaka, Fla., which answers Dr. Witherspoon.

To the Editor: — The issue of THE JOURNAL of Sept. 4, 1915, page 894, contains reference to Grant's Epilepsy Cure, a proprietary nostrum made and sold by Dr. F. E. Grant of Kansas City, Mo. The laboratory examination by the Association's chemist shows this alleged cure to contain the following ingredients:

"Alcohol (by volume)..... 1.50 per cent.
"Potassium (K^+) (by weight)... 4.57 per cent.
"Sodium (Na^+) (by weight)... 0.19 per cent.
"Bromid (Br^-) (by weight)... 9.76 per cent.
"Chlorid (Cl^-) (by weight)... 0.04 per cent.

"The directions on the bottle call for Grant's cure to be given: 'Two Teaspoonfuls after Breakfast and the Noon Meal. Three Teaspoonfuls On Retiring.' This means that the victim is unknowingly taking the equivalent of seventy grains of potassium bromid daily and yet Grant has the impudent effrontery to say: 'There is nothing injurious to the system in this medicine.'"

I desire to call attention to two important facts in connection with the use of this nostrum in the treatment of epilepsy. The first is the presence of alcohol to the extent of 1.50% by volume. It is difficult to conceive of anything more unscientific in the prolonged treatment of the Essential Epilepsies than the use of alcohol in *any* form and in *any* amount.

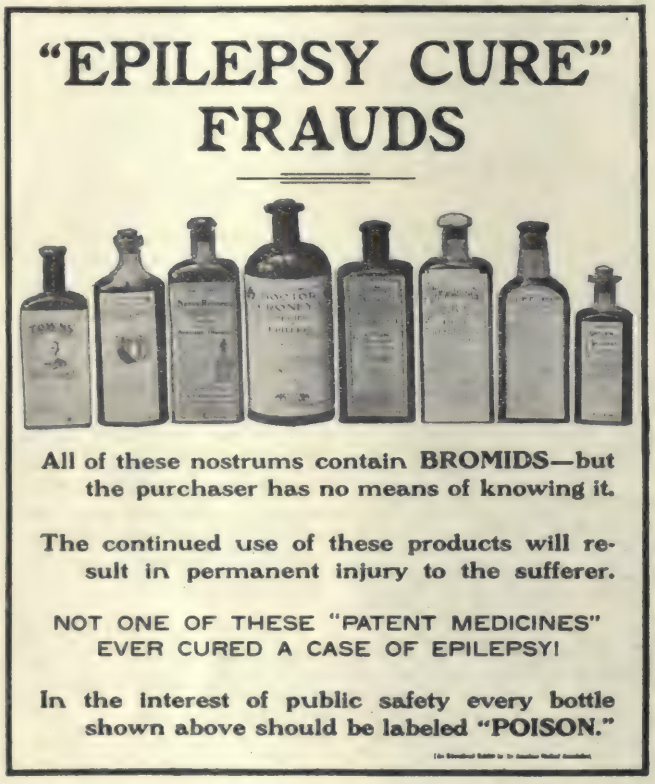
With a brain whose cortical motor cells are perhaps congenitally deficient, undersized, or poorly insulated, and therefore more susceptible to irritation from the slightest chemical poison of any kind, it clearly stands to reason that all irritating substances should be rigidly excluded from the epileptic's diet and from any treatment that may be given him. "Having a great affinity for water and being a coagulant of protein, alcohol tends to irritate and destroy cells. It is therefore a general protoplasmic poison." (Bastedo.)

I have never known of a single case of epilepsy cured by the bromids alone, although they possess a limited value in suppressing cortical irritability and in holding convulsions in check (if such action ever be beneficial), while other remedial agents that act through more vitalizing and reconstructive processes have time for action. The administration of the bromids in epilepsy should be along systematic lines and under a definite rule of procedure, as the dose is of the greatest importance, and no one can determine the correct amount to be given without first making a personal study of the patient.

Nothing less scientific could be imagined than prescribing the same dose for all patients alike, and at long range, without any examination of the patient whatever, or without knowledge as to the particular type of epilepsy from which the patient is suffering. The personal equation, the individual susceptibility, must always be taken into account in the prescribing of any drug. Some epileptics of the grand mal type, who possess good stamina and an unimpaired digestive apparatus, can take with impunity from twenty to twenty-five grains of bromid three times a day for months. Others, apparently of the same type and degree of stamina, are unable to take more than ten or fifteen grains three times a day under the same conditions without suffering from bromism, gastro-intestinal disturbance, muscular enfeeblement, somnolence, loss of memory, etc. Experience has taught those who see many cases of epilepsy that it is best in all cases in which it seems advisable to administer the bromids to begin with from five to seven grains three times a day, gradually increasing it to the point of physiologic toleration without inducing manifestations of bromism, and the average maximum dose that meets these requirements rarely exceeds from fifteen to seventeen grains three times a day.

There is a point of toleration in each individual case beyond which it is not wise to go, and the epileptic in whom this exact point of toleration is found will be the one most benefited by the bromids. In view of the foregoing it is my opinion that any remedy, or alleged remedy, for the cure of epilepsy that contains alcohol in any form or in any amount, or in which the bromid dose exceeds forty or fifty grains daily, even for the most violent and intractable cases, is wholly unscientific and will always do more harm than good. In view of the extent to which "epilepsy cures" whose chief ingredient is bromid, are advertised, and the wholesale and irreparable harm they do to epileptics who are prescribed for at long range, the Federal Government should require the fixing of a maximum dose of bromid in all proprietary preparations put on the market, and the amount of all the bromids combined should not exceed in dose from forty to fifty grains in twenty-four hours.

D. C. MAIN, M.D., Welaka, Fla.



Miniature reproduction of one of thirty-one educational posters prepared by the Propaganda Department and illustrating the nostrum evil and quackery. The originals measure 22 inches by 28 inches. Send for the complete catalogue of "Lantern Slides and Exhibit Cards."

Some of our readers will remember that during 1915 the Propaganda Department, with the aid of the Association's Chemical Laboratory, investigated a number of so-called epilepsy cures. This material has been collected and published in pamphlet form.[1] In addition the Propaganda Department has added to its list of Educational Posters dealing with the "patent medicine" evil a card on "Epilepsy Cure Frauds." This card we are reproducing in miniature on this page.

Organizations and institutions that are concerned in the care or treatment of epileptics may find this material of

1. "Epilepsy Cure Frauds," price 10 cents, postpaid.

educational value. The Craig Colony for Epileptics of New York State, prepared an interesting and instructive exhibit on the subject of epilepsy at the meeting of the Conference of Charities and Corrections in Albany last November. The Association's educational poster and a hundred copies of the "Epilepsy Cure Frauds" pamphlet for free distribution were part of the Colony's exhibit. Dr. William T. Shanahan, superintendent of the Colony, wrote the Association after the meeting that the educational poster awakened interest and "the hundred copies of the pamphlet were in demand and we could have used more to advantage."

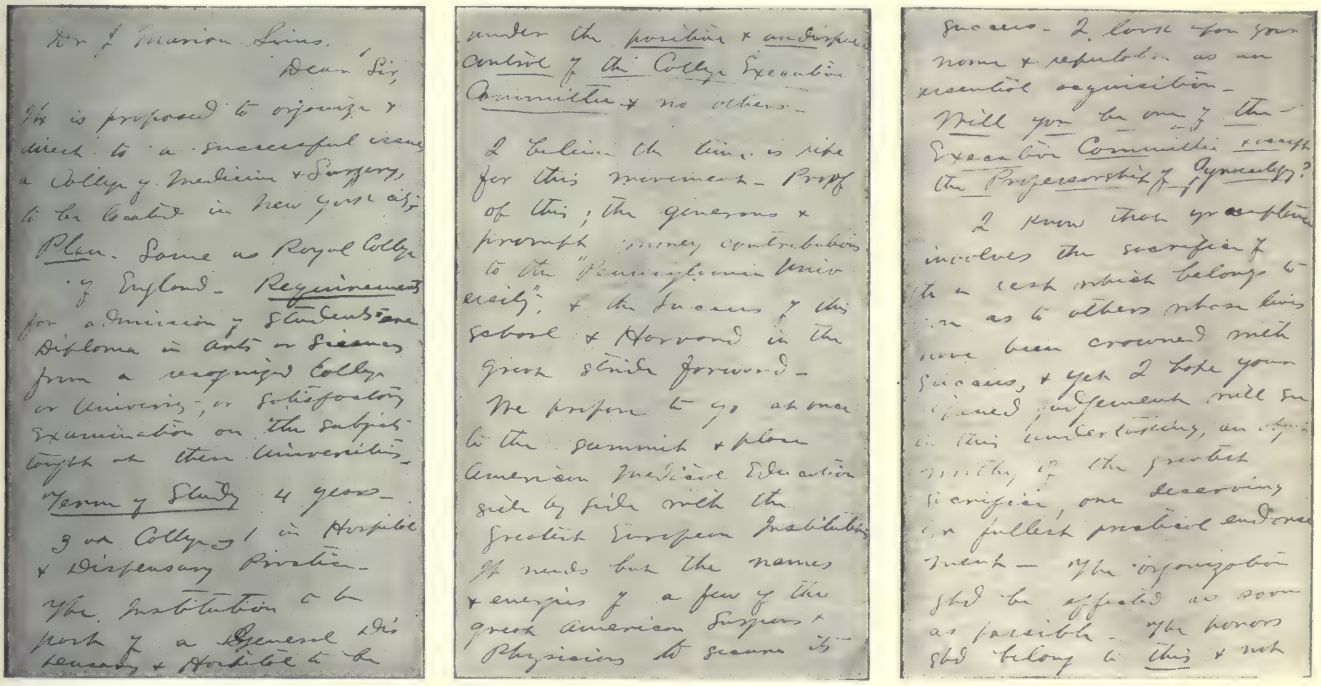
Correspondence

A Contribution to the History of Medical Education in the United States

To the Editor:—In 1877 and 1878, I undertook the organization and establishment in New York City of a medical college, as set forth in the letter here reproduced. The plan outlined had been submitted to several of the leading members of the profession, among whom were Profs. Willard Parker, Frank H. Hamilton, Lewis A. Sayre, A. Jacobi and others, and, without exception, they expressed an encouraging approval.

In view of the very great probability that a school with such an advanced standard of requirements for admission and graduation could not compete financially with the short term colleges, many of which were matriculating and graduating practically all who could pay the fee, it was decided that unless a sum of money sufficient to pay for suitable buildings and equipment could be secured, it would be unwise to launch the enterprise. For two years, I tried to enlist the aid of the few rich persons I could approach, but failed, and in 1881, my colleagues and I organized the Polyclinic, which represented the "fourth year course" of the proposed school.

It will be recalled that a four years' course was first offered in the Harvard Medical School in 1880, but was not made compulsory until the fall of 1892.



Letter written in 1878 by Dr. Wyeth to Dr. Sims.

This same course was instituted in the medical department of the University of Pennsylvania, with the class that began in the session of 1893-1894, and graduated in the spring of 1897.

The four years' course at Johns Hopkins opened Oct. 1, 1893.

The immediate and widespread interest which the medical profession in the United States took, and still holds, in organized postgraduate medical education, and the influence this movement has exercised, is expressed in a review copied from the Boston *Transcript* of Nov. 17, 1914:

> Nor can there be any question that the establishment of the Polyclinic was the chief stimulus to the advance of medical thought and science in the United States: a stimulus that was felt not only throughout this country, in all of whose important cities one or more postgraduate medical schools have been founded, but across the sea, as well, where this system has been adopted in London and other cities.

JOHN A. WYETH, M.D., New York.

Formula of the Dakin-Carrel "New Antiseptic"

To the Editor:—This letter is written with the twofold purpose of securing information myself and of sparing others possible annoyance and trouble which I have myself experienced.

The so-called Dakin-Carrel antiseptic solution has been the subject of reference in THE JOURNAL several times. In two places only, directions are given for its preparation, namely, in Queries and Minor Notes, Sept. 25, 1915, p. 1130, and Current Medical Literature, Oct. 2, 1915, p. 1221. In both these places the quantity of the ingredients is given in grams.

In a recently published report on the medicomilitary aspects of the European war, by Fauntleroy, issued by the Navy Department at Washington, there is found, on page 52, some discussion of this antiseptic solution. Here again the quantities are given in grams. But reference is made to an appendix to the report which contains Dakin's original paper in English. Fauntleroy does not give the source of this paper. But in this paper the quantities of the ingredients

are given in *grains* with no change in the figures. I quote a paragraph from Dakin's paper, as given in the report, as follows:

Two hundred grains of bleaching powder are added to 10 liters of water, in which 140 grains of dry carbonate of sodium have been dissolved. The mixture is well shaken, and after half an hour the clear liquid is siphoned off from the precipitate of calcium carbonate and filtered through cotton. To the clear filtrate enough solid boric acid is added to render the liquid *acid* with an aqueous suspension of phenolphthalein, but *alkaline* to tournesol. About 25 to 30 grains may be required. The exact amount of boric acid to be added may be conveniently determined by the titration of 10 c.c. of the alkaline hypochlorite solution with a solution of boric acid of known strength (31 grains per liter). In preparing a dilute solution of the hypochlorite as the above, which will contain about 0.5 per cent. NaClO [sodium hypochlorite], an excess of boric acid is unobjectionable, but in the case of stronger solutions an excess must be avoided.

My attention was directed to the discrepancies in the quantities of the ingredients used (difference between grams and grains) by Assistant Surgeon J. G. Wilson of the staff of this institution. A little experimentation showed that if the solution is made up in grams it is highly alkaline both to litmus and to phenolphthalein. Made up in grains the reaction is still more alkaline than is stated, and required about 0.8 gm. of boric acid per liter to neutralize as directed. The boric acid used, however, was from a shelf bottle in the pharmacy and its origin is unknown. This may account for the difference. Further, if made up in grains, will the result be a 0.5 per cent. solution of sodium hypochlorite?

To have published a formula of this character with such wide discrepancies in the directions for its preparation seems to me mischievous. I cannot forbear criticizing Dr. Dakin for his very unscientific jumbling of two systems of weights and measures. He has the right of choice in using one or the other, but hardly both in this way. His use of the two systems in this manner is, I believe, the cause of all the confusion. C. H. LAVINDER, M.D., Ellis Island, N. Y.
Surgeon, U. S. Public Health Service.

[COMMENT.—H. D. Dakin's original article, published in the *British Medical Journal*, Aug. 28, 1915, p. 318, was quoted verbatim in the abstract given of it on page 1221 of THE JOURNAL, Oct. 2, 1915. The only difference is that the word "gram" was written out in full while it was abbreviated to "gm." in the abstract given. Dakin also presented a communication on the subject at the meeting of the Académie des sciences at Paris, Aug. 2, 1915, which was published in full in the Society Reports of the *Presse médicale*, Aug. 5, 1915, p. 295.

This seems to be a free translation of the article in the *British Medical Journal*, and the figures are the same in each; but instead of writing out "grams," the amounts are given as "200 gr."; "140 gr.," and "25 à 40 gr. d'acide borique." This is the usual abbreviation in French for "gram." On a preceding page an article by another writer says of Javel's water that it is made by diluting with water the Javel extract which contains "96 gr. de chlore par kilogr." Another article refers to a solution of picric acid as "1:20,000 (0 gr. 05 pour 1,000").

Another translation of Dakin's original article was published in the *Presse médicale*, Sept. 30, 1915, p. 377, with a few added items. The figures are the same: "200 gr., 140 gr., and 40 gr." The exact method for using the hypochlorite solution was described by Carrel in the *Bulletin de l'Académie de médecine*, Paris, Oct. 5, 1915, p. 361, certain mechanical preliminaries having been found useful in the field. We have been unable to find the article by Dakin quoted by Dr. Lavinder. None of the foregoing communications from him specify the "tournesol test," and Dakin's recent historical sketch of the subject, summarized in THE JOURNAL, Jan. 8, 1916, p. 150, does not refer to any other articles by him. (See Editorial, THE JOURNAL, this issue, p. 430.)—ED.]

The Digestive Properties of Blood.—The blood is a highly active digestive fluid with a finely adjusted balance between ferment and antiferment, which will soon be better understood, and the solution of this problem will add another triumph to scientific medicine. When the ferment in the blood is suddenly activated immediate death results as is seen in anaphylactic shock. When properly regulated, this delicate mechanism protects against harmful bodies, both those introduced from without and those generated within.—Victor C. Vaughan, *New York State Jour. Med.*, May, 1915.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INSEMINATION AND CONCEPTION

To the Editor:—Please supply me with the accepted opinion concerning the physiology of the menses and their relation to ovulation. Some authors say that conception is least likely to take place ten days or two weeks just prior to the menstrual period. If this is true, how is it explained? H. W. LONG, M.D., Elmwood, Ill.

ANSWER.—A distinction must be made between conception and insemination. Embryologists believe that the discharge of ova occurs at menstruation; hence conception, the coalescence of an ovum and a spermatozoon, is most likely to occur within the week after menstruation. It is supposed, however, that some graafian follicles may cast out ova at any time. For this reason the rule that conception occurs just after the menses does not always hold good.

Supposing that insemination, the deposition of seminal fluid in the genital tract, takes place before menstruation; as it is possible for spermatozoa to retain vitality in the vagina for at least seventeen days, even through a menstrual period, it is obvious that spermatozoa derived from an insemination preceding the menses may be the agents of a conception, which itself can occur only when an ovum is available; as stated, this is usually just after a menstruation.

CIMEX LECTULARIUS, I. E., BEDBUGS

To the Editor:—Please give me a formula for an insecticide, chiefly for *Cimex lectularius*. R. L. H., M.D., Woodville, Pa.

ANSWER.—Fumigation and liquid applications are the most effective measures against these pests. Hot water, liberally used, will destroy both eggs and bugs. This is one of the best applications for use on objects that will not be harmed by it. The petroleum oils (benzin, kerosene, etc.) are effective if brushed or sprayed thoroughly into all crevices. Benzin or any similar inflammable substance of course must not be used in a room containing a fire or open flame, and the fumes must be thoroughly dispelled before any light is brought into a room in which benzin has been used. Carbon tetrachlorid has an advantage over benzin in being noninflammable, but its fumes are dangerous to inhale. Rooms in which carbon tetrachlorid has been used should be ventilated thoroughly before being used. Coconut oil also has been recommended as destructive of both the bugs and their eggs; it has the advantage of being noninflammable and nonpoisonous. Mercuric chlorid solution is effective, but should not be used on metal surfaces. The addition of glycerin to the solution has been suggested to prevent the mercuric chlorid from flaking off from the surfaces to which it has been applied, as the solution dries, and sifting about as poisonous dust. Various more or less complex formulas have been published for mixtures of two or more substances already mentioned with alcohol, camphor or nitrobenzene ("oil of mirbane"). The camphor and nitrobenzene serve to disguise the odor of the other constituents. Otherwise these complex mixtures probably possess no advantages over the simpler applications.

Any of these liquids may be applied to crevices with a feather, a fine brush, or an atomizer spray. A convenient device is a wash-bottle with pointed tip and an atomizer bulb attached to the mouth-tube, by which a steady stream may be directed into crevices.

A good way of ridding brass or iron beds of bugs is to place them outdoors or on a concrete floor, pour alcohol into all the crevices, and set fire to the alcohol; a burning newspaper may be passed under the springs. Infested rubbish should, of course, be burned.

Infestation of a room or a building may be so complete that liquid applications are not practicable as a means of destroying the bugs behind wall paper, in cracks in floors, behind wainscoting, etc. In such cases fumigation must be employed. Fumigation by gaseous hydrogen cyanid is effective, but extremely dangerous. It should never be employed except by an expert. Even then it probably should not be used in any part of an occupied building, as cases are

reported of serious or fatal poisoning of persons who occupied one portion of a building while another portion was being fumigated with hydrogen cyanid gas, supposedly under all proper precautions. Sulphur is both cheaper and less dangerous. Two pounds of sulphur are used to each thousand cubic feet of space. Metal objects, or objects with metallic surfaces, such as picture frames, should be removed from the room about to be fumigated. Lest the burning mass should overflow and set fire to the room, the container in which the sulphur is to be burned (a coal-hod is good) should be placed in a wider pan with water in it. All apertures, keyholes, etc., should be closed. The room should be left closed for twenty-four hours, and should be thoroughly aired before being used again.

The bedbug is said to have at least two insect enemies, the cockroach and the small red ant *(Monomorium pharaonis)*. An instance is related in which infested barracks were entirely cleared of bedbugs through the incursion of enormous numbers of red ants.

LITERATURE ON HYPERTHYROIDISM

To the Editor:—Will you kindly refer me to those numbers of your publication which contain articles on hyperthyroidism?

WILLIAM J. MATHEWS, M.D., Hoboken, N. J.

ANSWER.—A reference to the semiannual "Guide to Current Medical Literature" of THE JOURNAL will reveal numerous references on this subject. The following are a few:

Porter, M. F.: Injection of Boiling Water in the Treatment of Hyperthyroidism, THE JOURNAL, July 12, 1913, p. 88.

Plummer, H. S.: The Clinical and Pathologic Relationships of Hyperplastic and Non-Hyperplastic Goiter, THE JOURNAL, Aug. 30, 1913, p. 650.

Hemmeter, J. C.: Hyperthyroidosis of Intestinal Origin, THE JOURNAL, Dec. 13, 1913, p. 2145.

Wilson, L. B.: Relation of the Pathology and the Clinical Symptoms of Simple and Exophthalmic Goiter, THE JOURNAL, Jan. 10, 1914, p. 111.

Sanford, A. H., and Blackford, J. M.: A Comparative Study of the Effects on Blood-Pressure of the Extracts and Serums of Exophthalmic Goiter and of Other Substances, THE JOURNAL, Jan. 10, 1914, p. 117.

Watson, L. F.: Injection of Quinin and Urea Hydrochlorid and Hyperthyroidism, THE JOURNAL, Jan. 10, 1914, p. 126.

Clark, O.: Exophthalmic Goiter as a Clinical Manifestation of Hereditary Syphilis, THE JOURNAL, April 11, 1914, p. 1167.

Portis, M. M., and Bach, I. W.: The Non-Specific Action of a Serum Prepared According to the Method of Beebe, THE JOURNAL, June 13, 1914, p. 1884.

Beebe, S. P.: The Relation of Pathologic Conditions in the Nose and Throat to the Origin and Treatment of Hyperthyroidism, THE JOURNAL, Aug. 29, 1914, p. 769.

Mayo, C. H.: Hyperthyroidism, abstr., THE JOURNAL, Aug. 29, 1914, p. 793.

Billings, F.: Focal Infection, Its Broader Application in the Etiology of General Disease, THE JOURNAL, Sept. 12, 1914, p. 899.

Swasey, E.: A Severe Case of Exophthalmic Goiter, with Complete Recovery without Operation, Rest or Medication, THE JOURNAL, Nov. 28, 1914, p. 1950.

Clark, O.: Exophthalmic Goiter as a Clinical Manifestation of Hereditary Syphilis, THE JOURNAL, Nov. 28, 1914, p. 1951.

Waters, C. A.: Roentgenization of the Thymus Gland in Graves' Disease, THE JOURNAL, April 24, 1915, p. 1392.

Mental Changes in Exophthalmic Goiter, editorial, THE JOURNAL, May 29, 1915, p. 1850.

Blair, V. P.: Indications for Operative Interference in Goiter, THE JOURNAL, June 5, 1915, p. 1896.

"GRIP DON'TS"

We are indebted to Dr. Ravenel, of the Department of Medicine of the University of Missouri, for the following "Grip Don'ts." They are taken from the *University Missourian*, and, according to Dr. Ravenel, were written by Miss Margaret Murphy, a student in the University of Missouri:

Don't laugh at the grip. It is a deadly and a dangerous thing.

Don't forget that the body has its own defensive agents, and therefore,

Don't take a mess of quinin because it is good for malaria.

Don't buy a bottle of "Knockgrip" or "Gripout Pills" because your druggist assures you they cured him.

Don't forget that, if you have a weak spot, such as a "murmuring" heart, a weak kidney or a pet lung, grip will discover it and make abundant use of it.

Don't forget that grip is preventable. Therefore, don't take it; don't let down your physical resistance; don't seek crowded places, and don't forget to flee from sneezing, wheezing persons.

Don't forget that grip is contagious — so don't spread it.

Don't forget to rest long and ardently in bed if it does get you, and don't make light of the extreme prostration that always results after grip has annexed your outlying provinces.

Don't forget that, in the phraseology of Ireland, it is "that spawn of the devil as killed ye off six weeks after ye was complately well of it."

Medical Education and State Boards of Registration

COMING EXAMINATIONS

CONNECTICUT: Regular, New Haven, March 14-15. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven; Homeopathic, New Haven, March 14. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven; Eclectic, New Haven, March 14. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

FLORIDA: Homeopathic, Jacksonville, March 10. Sec., Dr. J. B. Griffin, St. Augustine.

IOWA: Des Moines, Feb. 8-10. Sec., Dr. G. H. Sumner, State House, Des Moines.

KANSAS: Topeka, Feb. 8. Sec., Dr. H. A. Dykes, Lebanon.

MAINE: Portland, March 14-15. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MASSACHUSETTS: Boston, March 14-16. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

VERMONT: Montpelier, Feb. 8-11. Sec., Dr. W. Scott Nay, Underhill.

WYOMING: Laramie, March 14-16. Sec., Dr. H. E. McCollum, Laramie.

Mississippi October Report

Dr. E. H. Galloway, secretary of the Mississippi State Board of Health, reports the written examination held at Jackson, Oct. 26-27, 1915. The total number of subjects examined in was 8; total number of questions asked, 64; percentage required to pass, 75. The total number of candidates examined was 44, of whom 38 passed and 6 failed. Two candidates were licensed through reciprocity. The following colleges were represented.

College	PASSED	Year Grad.	Per Cent.
Birmingham Med. Coll.	(1914) 77; (1915) 76, 77, 78, 80, 81,	81,	84
Atlanta Medical College	(1915)	79,	80
Chicago College of Medicine and Surgery	(1915)		77
University of Illinois	(1913)		84
Tulane Univ. of Louisiana	(1892) 91; (1912) 84, 85;	(1914)	81
Jefferson Medical College	(1914)		89
Meharry Medical College	(1915)	75,	81
Memphis Hosp. Med. Coll.	(1911) 81; (1912) 80;	(1913)	76
University of the South	(1900)		88
Univ. of Tennessee	(1914) 80, 81; (1915) 77, 80, 81, 86,	88,	88
Vanderbilt University	(1912) 80; (1915) 75, 80, 81,	83,	84
Baylor University	(1915)		93
	FAILED		
Birmingham Medical College	(1914)		73
Meharry Medical College	(1912);* (1913) 68;	(1915)	66, 71
University of Tennessee	(1915)		65

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Atlanta School of Medicine	(1912)	(1913)	Georgia

* Did not complete the examination.

Florida Homeopathic November Report

Dr. J. B. Griffin, secretary of the Board of Homeopathic Medical Examiners of Florida, reports the written examination held at Jacksonville, Nov. 12, 1915. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 4, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Hahnemann Med. Coll. and Hosp., Chicago	(1893) 75;	(1909)	76
Hering Medical College, Chicago	(1913)		91
Hahnemann Medical College, Philadelphia	(1878)		80

Arizona October Report

Dr. John Wix Thomas, secretary of the Arizona State Board of Medical Examiners, reports the written examination held at Phoenix, Oct. 5-6, 1915. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 10, of whom 4 passed, including 2 osteopaths, and 6 failed, including 1 osteopath and 2 drugless practitioners. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Los Angeles	(1914)		86.7
University of Illinois	(1914)		77.5
	FAILED		
College of Physicians and Surgeons, San Francisco	(1913)		71.8
Tulane University of Louisiana	(1905)		61.9
University of Oklahoma	(1912)		66.2

Arkansas November Report

Dr. T. J. Stout, secretary of the State Medical Board of the Arkansas Medical Society, reports the written examination held at Little Rock, Nov. 9-10, 1915. The total number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 14, of whom 10 passed and 4 failed. Thirteen candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1915)	83.9
Keokuk Medical College, College of Phys. and Surgs.	(1908)	76.2
University of Louisville	(1891)	66.4*
Missouri Medical College	(1899)	63.6*
Meharry Medical College	(1915)	75.2
University of Tennessee	(1915)	76.2, 79.1, 82
Vanderbilt University	(1915)	88
University of Virginia	(1915)	87.1

FAILED

College of Physicians and Surgeons, Little Rock	(1910)	50.8
University of Arkansas	(1912)	67.8
Meharry Medical College	(1912)	64.6
Vanderbilt University	(1913)	71.8

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Birmingham Medical College	(1911)	Mississippi
George Washington University	(1913)	Virginia
Chicago College of Medicine and Surgery	(1914)	Illinois
Illinois Medical College	(1900)	Kentucky
University of Louisville	(1915)	Kentucky
Tulane University of Louisiana	(1898) Oklahoma; (1903) (1913) (1914)	Louisiana
St. Louis College of Physicians and Surgeons	(1898)	Oklahoma
University of Nashville	(1900)	Oklahoma
University of Tennessee	(1900) Kentucky; (1914)	Mississippi

* Credit allowed for years of practice.

The following questions were asked:

PRACTICE

1. Name four types of malarial infection, and give treatment of remittent fever. 2. Give the etiology and treatment of acute tonsillitis. 3. Give the treatment for habitual constipation. 4. Differentiate between pleurisy with effusion and acute lobar pneumonia, giving treatment of the latter. 5. Give the treatment of facial erysipelas. 6. How would you make an early diagnosis of tuberculosis? 7. Give the treatment of ophthalmia neonatorum. 8. Give the treatment of convulsions caused by nephritis. 9. Give the medical treatment of ulcer of the stomach. 10. Give the symptoms and treatment of pellagra.

THERAPEUTICS

1. How do the following drugs act in intermittent malarial fever: quinin, methylene blue and eucalyptus? 2. What remedies should be used for hemorrhage from mucous surfaces? 3. What are the conditions in cystitis that contraindicate the use of alkaline diuretics? 4. What drugs would you use hypodermically to stimulate the heart; to produce emesis; to control hemorrhage? 5. Give the therapeutic application of drugs in the different stages of pneumonia. 6. Mention the remedy which will arrest the secretion of milk, and state how it should be employed. 7. What are the therapeutic uses of glycerin? 8. Describe the therapeutic uses and dangers of chloral hydrate. 9. Differentiate the physiologic effects of the gastric juice and on the urine of the administration of potassium bicarbonate before and after meals. 10. What are the therapeutic uses of tartar emetic?

MATERIA MEDICA

1. (*a*) What are antiseptics? (*b*) Disinfectants? (*c*) Give an example of each. 2. Define a laxative and tell how it acts. 3. Name the alkaloids of nux vomica. 4. (*a*) Give the properties of chloroform. (*b*) Name several preparations of chloroform. 5. What evils may result from chemical incompatibility in prescriptions? 6. (*a*) What is the source of digitalis? (*b*) Give symptoms of digitalis poisoning. 7. (*a*) What is the source of ergot? (*b*) Give physiologic action of ergot. 8. (*a*) Name six official preparations of mercury. (*b*) Give briefly the properties, uses and dose of each. 9. Name the principal alkaloids of Papaver somniferum. 10. Classify the following drugs according to their physiologic action: sodium chlorid, sodium hydroxid, potassium citrate, adeps lanae hydrosus, epinephrin, fel bovis (ox gall), and ferri carbonas.

PATHOLOGY

1. Give analysis of the urine of patients affected with autointoxication. 2. A persistent low blood pressure is pathognomonic of what class of diseases? 3. In what diseases do we find arteriosclerosis, and to what conditions does it predispose? 4. What is the significance of an absence of chlorids in the urine? 5. Explain cause and describe minutely the formation of an epithelioma. 6. Explain the formation of pus. 7. Define leukemia, and discuss briefly the clinical phases in its progress. 8. What pathologic condition is induced by chronic infections of: the nose, throat, teeth or their accessory sinuses? 9. What is the pathologic significance of vertigo? 10. (*a*) When do secondary and tertiary symptoms of syphilis appear? (*b*) What is the significance of nocturnal headaches in syphilis?

BACTERIOLOGY

1. (*a*) Give method of blood staining. (*b*) What is the normal blood count, and how is it affected by disease? 2. (*a*) What is the value of Widal's test for typhoid fever? (*b*) At what stage of the fever is it most reliable? 3. What general conditions predispose to bacterial infections? 4. (*a*) Give general method of procedure for staining bacteria. (*b*) What are counterstains? 5. (*a*) What is the most effective method of sterilization? (*b*) How are culture mediums sterilized? 6. (*a*) Describe in detail the process of finding tubercle bacilli in the urine. (*b*) Give method of determining the location of the infection. (*c*) From what other bacilli would you have to differentiate them? 7. Name some of the diseases of which the pneumococci may be the chief etiologic factor. 8. What culture-medium is essential in the growth of the organisms producing the following diseases: cerebrospinal meningitis, gonorrhea and diphtheria? 9. Mention five general or systemic diseases produced by micro-organisms, and in connection with each give name and chief morphologic characteristic of organisms concerned. 10. What is the cause of difference in the virulence of diphtheria?

OBSTETRICS

1. Into what stages is labor divided, and where do these stages begin and end? 2. Give diagnosis and management of a breech presentation. What are the dangers? 3. Give indications for the use of forceps, internal podalic version and cesarean section. 4. What are the causes of hyperemesis gravidarum, and the clinical features and the treatment of the condition? 5. What is placenta praevia? Name its causes, varieties, symptoms, dangers and treatment. 6. Eclampsia: etiology, premonitory symptoms and treatment? 7. Describe the delivery of the placenta after the method of Credé. 8. Give two indications for the induction of premature labor, and describe one method of performing it. 9. What are the symptoms of inevitable abortion, and how should a case be managed? 10. How would you manage a case of primary postpartum hemorrhage?

ANATOMY

1. Name the articulations of the frontal and occipital bones. What bones articulate with the radius? 2. Name divisions of the vertebral column, giving number of bones in each division. What are distinguishing characteristics of cervical vertebrae? 3. What are the relations of the brachial artery? Name its branches. 4. What spinal nerves enter into the formation of the anterior crural nerve, and what muscles does it supply? 5. Describe the origin, course and distribution of the renal arteries. 6. Name the cavities, openings and valves of the heart. 7. Name the coverings of a femoral hernia. 8. Give origin and insertion of the following muscles: biceps, pectoralis minor and popliteus. Give blood and nerve supply of each. 9. Name the arteries and nerves which supply the duodenum. What veins drain this region? 10. What structures are severed in an amputation about the middle third of the thigh?

SURGERY

1. Define inflammation, septicemia and pyemia. What organs are most prone to pyemia? 2. What general term denotes control of hemorrhage? State all the methods which may be used to stop the flow of blood from a wound. 3. What would be the proper treatment for backward dislocations of the femur at knee, with rupture of the popliteal artery? 4. Give causes, symptoms, diagnosis and treatment for acute suppurative osteomyelitis. 5. Define shock, and state how you would treat same. 6. If called to a patient with a compound fracture of leg in lower third which had been produced by kick of horse in a barnyard, state in detail how you would treat such case. 7. Define ankylosis; give varieties; also describe a surgical method for restoration of joint function in case of bony ankylosis of the knee joint. 8. Give points of differential diagnosis between pyloric (or duodenal ulcer) and cholecystitis. 9. Give varieties of ileus, and state some of the causes of each. 10. Give symptoms, diagnosis and treatment of stone in ureter.

HYGIENE

1. Name four points in personal hygiene to prevent acquiring or imparting tuberculosis. 2. Name some special precautions a child should observe at school in order to avoid contracting disease. 3. What is the hygiene of pregnancy, and what advice would you give a pregnant woman from a hygienic standpoint? 4. Give prophylaxis of filth diseases. 5. What are the dangers from (*a*) the house fly? (*b*) The mosquito? (*c*) How would you exterminate them from a community? 6. (*a*) Name the chief sources of contamination of drinking water. (*b*) Give several methods of purifying drinking water. 7. Name some diseases that are communicated to man through cow's milk. 8. Name all diseases due to micro-organisms. (*b*) Methods of transmission. 9. What hygienic precautions should be employed around a patient with scarlet fever and diphtheria? 10. What necessary precautions should be taken to insure healthy sleep?

PHYSIOLOGY

1. (*a*) Give composition of blood; (*b*) function of blood as a whole; (*c*) red cells; (*d*) leukocytes. 2. Trace the course of the blood, (*a*) complete cycle, (*b*) in adult, (*c*) in fetus. 3. Give the causations and describe the occurrence of dyspnea. 4. Where and how are bread and butter digested? 5. Compare the work done by the liver on a protein diet with that done on a carbohydrate diet. 6. What are the most prominent differences between the composition of the blood plasma, and that of the urine? 7. Why is the lymphatic system so essential to the human body? 8. Name parts of (*a*) the small intestines, (*b*) large intestines. Give name and location of the glands found in the small intestines. 9. How is the temperature of the body regulated and sustained? 10. What is the function of the medulla oblongata?

CHEMISTRY

1. (*a*) What is an element. (*b*) Name five with symbols. 2. (*a*) Give two methods of preparing oxygen. (*b*) Give equation of one method. 3. What is an acid, a salt, a base? Give example of each. 4. Name the elements in the halogen group. 5. Describe Marsh's test for arsenic. 6. What do you understand by specific gravity? 7. Complete the following: $NaCl + H_2SO_4 = ?$ $2n + HCl = ?$ $AgNO_3 + HCl = ?$ 8. Describe Fehling's test for glucose, and explain chemical reaction. 9. What is the reaction between granulated sugar and Fehling's solution? 10. Give the various steps in making a urinalysis.

GYNECOLOGY

1. (*a*) Name two causes of sterility in the male. (*b*) Name three of sterility in the female. 2. Name the objective signs of extra-uterine pregnancy. 3. Name two most common causes of dysmenorrhea. 4. What symptoms of cystitis are first noted? 5. Name the indications for the use of uterine tampons following abortion. 6. Name three varieties of fibroids of the uterus. 7. Name three etiologic factors in acute endometritis. 8. Give treatment for inoperable carcinoma of cervix. 9. Would you remove in toto an ovary with a small cyst? 10. What are the objections to ventral fixation of uterus?

Book Notices

TEXT-BOOK OF SURGICAL OPERATIONS, ILLUSTRATED BY CLINICAL OBSERVATIONS, FOR PHYSICIANS AND STUDENTS. By Prof. Fedor Krause, Directing Physician, Augusta Hospital, Berlin, and Emil Heymann, M.D., Chief Physician, Augusta Hospital. Translated and Edited by Albert Ehrenfried, A.B., M.D., F.A.C.S., Assistant Visiting Surgeon, Boston City Hospital. In six volumes. Volume I. Cloth. Price, $6. Pp. 267, with 294 illustrations. New York: Rebman Company, 1915.

The principal feature of this work, which the authors believe should distinguish it from other operative surgeries, is that the various operations as described are from actual cases, the clinical histories of which are detailed. As the end-results of the operations are frequently shown by illustration as well as noted in the history, an additional clinical value is given to the work over the usual textbook on operative surgery which deals exclusively with the mechanical part. The opening chapters, as usual in works of this kind, are on general subjects, such as the preparation of the patient, anesthesia and after-treatment. There is nothing specially new or unusual to note in these chapters, except that there is almost as much space devoted to the subject of local anesthesia as to all other methods, which is an indication of the increased popularity of this method of inducing anesthesia for surgical purposes. In the chapter on local anesthesia, we find: "As the result of reduced or practically suspended circulation in the injected limb, an early absorption of the drug takes place, etc." This is evidently an error, as the suspended circulation would greatly delay the absorption of the drug, as is correctly stated further on. Concerning the operations, the present volume deals only with operations on the face and its accessory cavities, including the orbit and the ear, and on the trifacial nerve and gasserian ganglion. The description of the operation is good, as are also the illustrations, many of which are partly colored.

DISEASES OF THE ARTERIES, INCLUDING ANGINA PECTORIS. By Sir Clifford Allbut, K.C.B., M.A., M.D., Regius Professor of Physic in the University of Cambridge. Two volumes. Cloth. Price, $9 per set. New York: The Macmillan Company, 1915.

These volumes are made up of articles and addresses which have been published before. There has been revision and rearrangement, however, so that the chapters follow in not unnatural sequence and the subjects are treated in a fairly complete manner. Yet, as the author himself recognizes in his preface, "there is something of the discursive about the work, which has rather the form of a string of dissertations than of an orderly monograph." If we try to read the book connectedly and as a whole we become conscious of a good deal of repetition. In a single lecture, address or essay this is not noticed. So one may, perhaps, better enjoy the books by reading them as one would a series of essays, a chapter at a time with a rest of days or weeks before reading another.

The author's unusual command of English and his charm of style are noteworthy. We feel at times that his ease of expression, his full vocabulary and his wealth of rhetorical resources lead him to pen sentences for the mere pleasure of writing them rather than because they add to the real scientific content of the book. He is particularly happy and forceful in argumentation, and has the schoolman's delight in showing the weakness of a rival's logic or the dilemma into which his antagonist has fallen. While the reading of these pages is enjoyable, we must admit that when controversy dominates one chapter after another it becomes a little wearisome. We may illustrate what we mean by referring to his constant allusions to "coronarians," and to the absurdity of using the term "false angina" or "pseudo-angina," though we read later, with surprise, his own description of "mock angina." But with such brilliant writing we may forgive repetition, the riding of hobbies, and some inconsistencies in argument, even though at times we might wish for more of cold facts—such, for example, as those of post-mortem evidence—rather than logic or opinion.

The volumes are in three parts, on arteriosclerosis, aortitis and angina pectoris. We need not repeat here the author's views on these conditions, for they are well known. He makes a strong case for the aortic rather than the coronary origin of the pain of angina pectoris, though he admits that the underlying pathology is not yet fully known (ii, 219) and that anginal pain is not alone aortic in origin (ii, 462).

For delightful reading full of suggestive facts and theories we may recommend these essays. The author expresses the hope that while this book, the fruitage of many years of honest labor, may have the mellowness of age, it will not be found unsound. Assuredly the fruitage is sound, and it has, moreover, the aroma and texture that mark its quality as of the finest.

MARIE TARNOWSKA. By A. Vivanti Chartres. With an Introduction by Prof. L. M. Bossi of the University of Genoa. Cloth. Price, $1.50 net. Pp. 303. New York: The Century Company, 1915.

This biography was written by Mrs. Anna Vivanti Chartres at the suggestion of Professor Bossi of Genoa. Daughter of an epileptic mother, and herself a pronounced neurotic from the time of puberty, Marie Nicolaievna early began having hystero-epileptic attacks whenever she desired to win her point with her stern, high-tempered, autocratic father. She admits feigning epileptiform seizures in order to secure the cooperation of her mother for her elopement and marriage to the young roué of Kief, Vasili Tarnowsky. Given her hereditary taint, given the maelstrom of debauch into which her husband was willing to drag her, what wonder is there that the frail moral fiber in her should have snapped? As long as her socio-economic position remained secure, Marie's vagaries were largely confined to risqué flirtations. Only when privation knocked at her door did she begin to use her fatal gifts of fascination in order to benefit herself financially and socially. Once entangled in the cleverly laid meshes of the arch fiend Prilukoff, Marie Tarnowska, true to Slavic fatalism, ceased to resist, and descended rapidly from one moral abyss to another. One cannot help feeling that Professor Bossi came under the spell of this fascinating, utterly irresponsible seductress of men; he would have us believe that simple medical or surgical treatment could restore his patient to "complete sanity or moral well-being." A close perusal of the book forces one to the conclusion that heredity and environment have conspired to make of its unfortunate heroine (if such a term be permissible), a chronic psychopath. The statement of Mme. Vivanti Chartres to the effect that Marie Tarnowska "is and has been for some years past suffering from slow blood poisoning . . . which . . . causes periodic cataleptic seizures that imperil her life" is a fanciful one. She has undoubtedly misquoted the medical authorities to whom she refers in her preface. The book is fascinating and well worth reading. It portrays a society—small but existent—familiar to one who has sojourned in any of the fashionable watering places or winter resorts of old Europe.

CHARACTER AND TEMPERAMENT. By Joseph Jastrow, Professor of Psychology, University of Wisconsin. Cloth. Price, $2.50 net. Pp. 596. New York: D. Appleton & Co., 1915.

This is the first of a series of books to provide readily intelligible surveys of selected aspects of the study of mind and of its applications. The book before us is a study of character and temperament from the point of view of a psychologist occupying a professorial chair. It is by no means easy reading; indeed, to read the author's stately sentences and to grasp his inexorable logic is splendid psychologic discipline, and makes for both character and temperament. The volume contains much that needs rereading and profound study. As our book market is flooded with literature of the light kind, it is refreshing to peruse a work requiring close attention. The author is a master not only of psychology, but also of the art of presenting it to nonpsychologists. While the ordinary reader accustomed to the candy style of magazines and newspapers may find the book somewhat of a hard nut to crack, the medical man will have little trouble in following the author through the ma e of psychologic rhetoric necessarily a part of any work on psychology.

Medicolegal

State Not Liable for Death of Insane Person Committed to State Hospital

(Smith vs. State (N. Y.), 154 N. Y. Supp. 1003)

The Supreme Court of New York, Appellate Division, Third Department, affirms a determination of the board of claims, dismissing the claim filed in this case for the death of a man who, after having been adjudged insane and committed to the Manhattan State Hospital, escaped from the hospital, his body being found in the East River about two weeks later. The court says that the claimant contended that there was presented in this case for the first time to any court the question whether the same rule of exemption of charitable and state institutions from liability for the neglect of their attendants applies to a person of unsound mind, who has been made an involuntary beneficiary of such an institution by the order of the court, as applies to a person of sound mind who has voluntarily accepted the benefits of the institution. This man was committed as an indigent insane person to a charitable institution maintained by the state in its governmental capacity, at its expense, for the purpose of caring for and treating unfortunate persons of unsound mind. His commitment to the state hospital was a right conferred by statute, and was indispensable both for his welfare and for the welfare of the community, and the court thinks that an implied waiver of liability of the hospital for the negligence of its physicians and attendants may be assumed in such a case, as well as in the case of an indigent sane patient voluntarily committed to a charitable institution. Moreover, the claimant introduced no evidence whatever showing the absence of proper care on the part of the hospital attendants to prevent the man's escape, but relied on the assumption that the escape was itself prima facie evidence of negligence on the part of the hospital authorities, and that it threw on the state the burden of showing the manner of such escape, and that the escape did not occur through any negligence on the part of the hospital authorities or attendants. But there was not in the record such legal evidence as would establish liability against an individual or a corporation in a court of law or equity, assuming that such individual or corporation could be held liable for the negligence of its servant. The mere fact that the legislature allowed the claimant to submit the claim to the board of claims for determination was not a concession of the validity of the claim. There was nothing whatever in the record indicating that the hospital authorities had notice of a suicidal tendency, or in fact that it existed. The court thinks that the mere fact of the escape did not raise a presumption of negligence on the part of the hospital authorities in selecting competent attendants, or of negligence on the part of the attendants resulting in the man's escape.

Not Liable for Alleged Loss of Sponge

(Ruble et al. vs. Busby (Idaho), 149 Pac. R. 722)

The Supreme Court of Idaho affirms a judgment in favor of the defendant, who, in performing an operation on a woman to remove the ovaries, fallopian tubes and vermiform appendix, it was alleged negligently permitted a gauze or cheesecloth sponge to remain in the abdomen of the patient, which directly resulted in her death. The court says that the defendant offered evidence showing the exercise of the care and skill which ought to be exercised by an operating physician in a case like this. He testified that he found the intestines and organs in that part of the abdomen all bound together by adhesions; that, when he was about to close the incision, on his attention being called to the nurse having reported a sponge missing, he stopped and went carefully over every part of the abdomen and satisfied himself positively that there was no sponge there. The operation was performed on the morning of the fifteenth of the month, and the evidence showed that the patient continued to do fairly well up to the twenty-fourth, when the defendant was unceremoniously dismissed from the case and three other physicians took charge of it. These three physicians, having learned about a missing sponge, on the morning of the twenty-fifth performed a second operation, and two of them made five distinct searches for the sponge, before one of them claimed that he found it. But it was sufficient to say that the defendant testified that after the nurse reported the sponge missing he made a most careful examination, and satisfied himself positively that there was no sponge there, while it further appeared that no sponge was used in the abdomen unless it had forceps, about 15 inches in length, attached to it. The jury was called on to determine from the evidence whether the proximate cause of the death of the patient was the negligence of the defendant in the performance of the operation, and it devolved on the plaintiffs to prove the material allegations of the complaint by a preponderance of the evidence, and the court correctly instructed the jury that in order for the plaintiffs to recover they must satisfy the jury by a preponderance of the evidence as to the justice of their claim; that they must produce evidence in support of the material allegations of the complaint, which, in the judgment of the jury outweighed the evidence of the defendant. In other words, if the testimony was evenly balanced, they must find for the defendant, and the plaintiffs could recover only in case their testimony outweighed that of the defendant. One of the allegations of the complaint was that the defendant negligently and carelessly left in the abdomen of the patient a certain sponge which caused her death, and it was necessary for them to prove that the result of the alleged negligence was the cause of the death of the patient in order to recover in this case. On a careful review of the instructions given, the court is satisfied that they fairly covered the case made by the pleadings and the evidence. It was apparent from the evidence in the case that the patient, after having been operated on, and her intestines found to be one adhesive mass, and the adhesions separated, and ten days after another operation was performed, when five careful searches were made through her intestines for a sponge that was supposed to be lost, and her intestines were found at that time to be again an adhesive mass, the adhesions being again broken up, the jury were fully justified in finding under such evidence in favor of the defendant.

Undertaking of Physician and Duty of Patient

(Merrill vs. Odiorne (Me.) 94 Atl. R. 753)

The Supreme Judicial Court of Maine grants the defendant's motion for a new trial in this case where a verdict was rendered against him for damages resulting from alleged negligence on his part in the reduction and treatment of a fractured limb. The court holds that a physician contracts with his patient that he has the ordinary skill of members of his profession in like situation, that he will exercise ordinary or reasonable care and diligence in his treatment of the case, and that he will use his best judgment in the application of his skill to the case. The physician is not an insurer. He does not warrant favorable results. If he possesses ordinary skill, uses ordinary care, and applies his best judgment, he is not liable even for mistakes in judgment. But in cases of this nature a duty devolves on the patient. In an extensive note to be found in the case of Gillette vs. Tucker, 93 Am. St. Rep. at page 662, on the authority of cases there cited it is held that it is the duty of a patient to follow the reasonable instructions and submit to the reasonable treatment prescribed by his physician or surgeon. If he fails in his duty, and his negligence directly contributes to the injury, he cannot maintain an action for malpractice against his physician or surgeon, who is also negligent in treating the case. In the absence of any exceptions to the instructions of the presiding justice, this court must assume that these principles of law were correctly stated to the jury. It is the opinion of the court, however, on a careful examination of the evidence, that the jury did not give due consideration to that part of the testimony which related to the conduct of the plaintiff and its effect in producing the unfortunate results from which he now suffers. Hence the verdict was so erroneous as to demand an affirmative finding on the motion of the defendant for setting aside the verdict and granting a new trial.

Miscellany

Report of Committee Appointed to Study the Dangers of Repeated Serotherapy

The committee included Achard, Chantemesse, Marfan, Netter, Siredey and three others. It was appointed by the Société médicale des hôpitaux de Paris to study whether the danger of anaphylactic phenomena is sufficiently imminent to render it inadvisable to apply serotherapy oftener than a single time. The report is published in the *Bulletins* of the society, 1915, xxxix, 1076, and fills nearly twenty pages, discussing in turn experimental research on the subject of reinjections, clinical experience and the immediate and remote accidents that have been observed in man. The report also discusses reinjections made by the subcutaneous, intravenous and intraspinal routes, summarizing all the known mishaps and discussing the treatment. Two cases are on record of sudden death after reinjection of antiplague serum or diphtheria antitoxin (Richet and Dreyfus), and the first is not conclusive. The five conclusions of the report are that the accidents which have been signaled after subcutaneous reinjection are extremely rare and occur only under very exceptional circumstances. The danger of anaphylactic accidents is so remote that it should not be regarded parallel with the risks to which the patient is exposed by abstention from the needed subcutaneous serotherapy. Intravenous reinjections are not needed in ordinary practice; they should be reserved for special cases, such as bubonic plague and severe tetanus. The indications for intraspinal reinjections will become more and more exceptional if meningitis is treated properly from the first with massive and repeated doses. One should not hesitate to reinject the serum in case of relapse with meningococci in the lumbar puncture fluid. In any event, a physician can never be reproached for reinjecting the therapeutic serum in prophylaxis or treatment.

Local or general anaphylactic phenomena occur regularly in animals, but in man such accidents are very rare, they occur without any regularity, they are not so severe as in animals, and they seem to depend on an individual hypersusceptibility. Subcutaneous reinjections are generally harmless. General accidents after intravenous or intraspinal reinjections are very rare and inconstant, but still, as they are liable to occur, it is well to be prudent. When a possible predisposition is afforded by severe intoxication or infection, convalescence from a microbian disease, tuberculosis, a predisposition to urticaria, asthma, hay fever, and those incommoded by odors, it is wise to inject the first few cubic centimeters of the serum very slowly and gradually—whether it is a primary injection or a reinjection—and stop at the slightest incident, waiting for an hour before continuing the injection. By this means the susceptibility is tested and all serious accidents are avoided. Injecting the serum very slowly is also always advisable in intravenous or intraspinal injections or reinjections. This precaution is generally sufficient in all injection technic. If the intravenous or intraspinal injection is not urgent, it might be preceded by an intravenous or subcutaneous injection of a small amount of the serum (Besredka's method), injecting the rest of the serum an hour later, but always very slowly.

Whooping Cough

The whooping cough clinic established in New York by the municipal health department in August, 1914, has made a report of its first year of work, which is summarized in the November *Monthly Bulletin* of the department of health. The total number of patients treated was 1,397, and over 12,000 treatments were given. The plan of treatment has finally resolved itself into a treatment by a vaccine, supplemented by an antipyretic mixture and cod liver oil emulsion, the latter to be used in cases in which there is considerable bronchitis. The vaccines have been prepared in the laboratory of the board of health, and under the use of this agent the paroxysmal stage of the disease has been limited on an average to a duration of about three weeks. Prophylactic immunization has been practiced in forty-five cases with no disease among these children. Four out of eleven exposed patients treated with the antipyretic alone as controls contracted the whoop, and eight out of thirty-six persons not treated became infected. The method of treatment consists in giving three or four subcutaneous injections, one every other day, and following this by the antipyretic mixture for a period of three or four days. The whoop usually disappears between the third and fourth injections; if it does not, another course may be given. The initial dose for children less than 1 year of age is 250 million organisms, doubled every second day. Children over 1 year old receive an initial dose of 500 million and adults 1 billion. The prophylactic dose consists of three injections of 500, 1,000 and 2,000 millions at three-day intervals. It is said that the establishment of the whooping cough clinic is warranted, no matter what method of treatment is employed, and several other clinics will probably be established. Many private physicians have asked consultation with the physician in charge of the whooping cough clinic.

Society Proceedings

NEW YORK ACADEMY OF MEDICINE

Regular Meeting, held Jan. 6, 1916

The President, DR. WALTER B. JAMES, in the Chair

Importance of Syphilis Often Unsuspected, in the Production of a Number of Apparently Unrelated Disorders

DR. LEWELLYS F. BARKER, Baltimore: In seven cases of syphilis, the existence of the disease was denied and the patients presented symptoms respectively of bronchiectasis following pneumonia; sacculated aneurysm; general arteriosclerosis; indolent swelling of the tonsil; epilepsy; sudden loss of vision in one eye; diabetes mellitus with aphasia, and general atherosclerosis. The Wassermann test was positive in every one of these cases, and every one of the patients improved under antisyphilitic therapy. There are eighteen conditions in which it is especially important not to overlook the possibility of an existing syphilis. There are: long continued fever otherwise unexplained; obscure nervous cases, both functional and organic; chronic laryngitis; tracheal and bronchial stenosis; bronchiectasis and unexplained infiltrations of or masses in the lungs and pleura; aneurysms; aortic insufficiency, especially when unaccompanied by other valvular lesions; heart block and other cardiac arrhythmias; arterial and venous thrombosis; certain grave anemias; paroxysmal hemoglobinurias; indolent nodules in the tongue and tonsils; enlargements of the liver and spleen; strictures of the rectum; atypical joint diseases, and especially obscure diseases of the spine; thickening of, or nodules in the bones, especially when accompanied by nocturnal pain; unusual forms of renal disease; chronic orchitis, or nodules in the testes; repeated miscarriages without apparent cause; stillborn children, and disorders of metabolism and of internal secretion, especially in bizarre cases. Among the many conditions often believed to be syphilitic in origin, and in which sometimes it has to be admitted that a syphilitic factor is present, but which often occur in the entire absence of syphilis, are cerebral apoplexy; high blood pressure cases; contracted kidneys; multiple sclerosis; certain suspicious lesions, especially those due to sporotrichosis, or blastomycosis of the bones, lungs or subcutaneous tissue; psychoneurotic states accompanied by syphiliphobia, and exophthalmic goiter. The more my experience grows, the more am I inclined to take as a diagnostic aphorism, "When in doubt have a Wassermann test made; when not in doubt, still have a Wassermann test made."

Syphilis in General Surgery

DR. EDWARD MARTIN, Philadelphia: The lesions of syphilis, unlike all other infections, are so consistently, effectually and promptly bettered or cured by medication, that with

some exceptions, operative measures constitute a species of malpractice. Hence to the surgeon, the questions of the incidence and diagnosis of syphilis are major ones. A clinical examination of the West Point cadet corps failed to show a single case of syphilis, but a Wassermann test indicated a 5 per cent. incidence, from which it seems clear that from 2 to 5 per cent. of the commissioned personnel of the army are syphilitic at the time they enter the service. Since applicants to West Point are practically picked men, the prevalence of syphilis among college men in general is probably slightly greater than it is among West Pointers. From a Wassermann survey of the candidates for enlistment, Vedder concludes that about 20 per cent. of the young adult male population from which the army is recruited is affected with syphilis. Out of 100 cases taken at random from the medical wards of the University of Pennsylvania Hospital, there was a positive Wassermann reaction in nineteen, and of these only two gave clinical evidence of syphilis. These patients entered the hospital for the cure of diseases ranging from cholecystitis, renal sclerosis, gastric ulcer and tuberculous pyelonephritis to goiter, and most of them exhibited neither characteristic history nor clinical signs of specific disease.

With reference to diagnosis, the surgeon asks two questions: 1. Is the lesion under consideration syphilitic? 2. If not, has an underlying syphilis a distinct influence on its progression or on the outcome of surgical intervention undertaken for its cure? If these two questions can be answered in the negative, the query as to whether the patient has or has not syphilis is of minor immediate moment, though it is true that the spirochete, exhibiting a special predilection for the perivascular tissues and the heart muscle, by the devitalizing effect consequent on impaired nutrition, predisposes to all other infections, to neoplasms and to slow ulcerative processes. Not infrequently chancre, occupying other than its usual habitat, is regarded as epitheliomatous, and excision is ordered. This is particularly true of digital chancre as it affects medical men; it is painful, persistent and atypical in appearance, and not until it has been cut, curetted, cauterized and otherwise stimulated to wider growth, and usually not until the axillary nodes have been excised by a sympathetic colleague, does the patient come to "the man higher up," by which time a positive Wassermann and a secondary eruption establish the diagnosis, which should have been made by microscope weeks before. The major difficulty experienced by the surgeon is in the distinction between gumma and malignant tumor, a difficulty greater than ever before, since the profession is waking up to the need of early intervention, and differential diagnosis of tumor cases in the early stage of development is impossible.

Concerning bone swellings, the Roentgen ray, even at the early stage, enables the determination with a fair degree of certainty of the syphilitic, the tuberculous or the neoplastic nature of the enlargement. But no such help is afforded in tumor of the soft parts. Here the method of choice is microscopic examination, wide excision when it involves neither crippling nor gross deformity, or laboratory tests and the effect of vigorous antisyphilitic treatment. When the lesion is surely nonsyphilitic, though the Wassermann test is positive, the question arises as to supplementing the surgical procedure by specific treatment; or, if it be accepted that a positive Wassermann is proof of active spirochetes and that a harmless course of treatment will either quiet or kill them, would any but an affirmative answer seem logical? A reason for not so answering and acting is based on the absence of gross functional or structural changes.

Syphilis in Neurology

DR. JOSEPH COLLINS: It is generally believed that certain diseases of the nervous system with definite unvarying lesions have their sole origin in syphilis; these are tabes, general paresis and most instances of cerebral and spinal endarteritis. With all the diagnostic means at our disposal, these offer little or no difficulty of early recognition, and their successful treatment rests on their early detection. There are, however, many other diseases of the nervous system whose origin is in syphilis which are not attended with pathognomonic subjective or objective symptoms. These are far more numerous than the rank and file of the profession suspect. They parallel in their clinical display nearly every organic disease of the central nervous system and many of the functional ones. I have tabulated 245 cases that have been diagnosticated syphilis of the nervous system, and distributed them under the various diseases to which they conformed clinically. This list justifies the statement that syphilis is of great importance in the production of a number of apparently unrelated disorders, and that syphilis of the nervous system may display itself in the guise of nearly every functional and organic disease of the nervous system that pursues a subacute or chronic course. When such conditions are due to syphilis, they are more amenable to cure than when due to other causes. This fact is the chief incentive to the detection of their origin. One should suspect syphilis as the cause of disease of the nervous system in every instance in which the cause is not obvious. One must make the diagnosis conclusively of syphilis of the nervous system in every instance in which a positive reaction is found on more than one occasion and by different observers in the blood serum and spinal fluid. In the case of a negative laboratory report, the diagnosis of syphilis is not made unless at least one of the pathognomonic symptoms exists. Of these the most important is the pupil of irregular outline which does not respond to light. In a general way it may be said that the occurrence of headache, fugitive or persistent pains in the neck, the extremities, the trunk, stiffness, paresthesia, disorder of urination, transient ocular palsy or mental depression without obvious attribution should suggest syphilis. Yet it would be absurd to say that any or all of these symptoms were so suggestive of syphilis of the nervous system that the diagnosis should be made. In 465 cases of suspected syphilis, the Wassermann reaction was positive in 150. Serologic studies are of enormous importance in all cases in which there is any suspicion of involvement of the meninges. There are frequently many difficulties in determining the diagnosis in pseudoparesis and general paresis, disseminated cerebrospinal syphilis and insular sclerosis, syphilitic myelitis, syphilitic muscular atrophy, cerebrospinal meningitis in the guise of syringomyelia, syphilitic root neuritis and acroparesthesia, neurasthenia, *redivivus,* insomnia, epilepsy, neuritis and polyneuritis, shivering attacks, and choreic movements and rheumatism dependent on syphilis of the nervous system which are best brought out by citing individual cases. Multiplicity of symptoms has been regarded as a striking feature of syphilitic disorders, but this allegation is not founded on fact. Many patients who furnish the foundation for this contribution had only one or two symptoms, or at least that was all they related. When the symptoms indicate that the entire cerebrospinal axis is involved, the best designation that can be given these cases is cerebrospinal meningitis, predominantly vascular, or parenchymatous. In the treatment of syphilis of the nervous system one must take cognizance of both the disease and the individual; for the former, salvarsan and mercury; for the latter, consideration and encouragement.

DISCUSSION

DR. BERNHARD SACHS: The point of view regarding syphilis as an etiologic factor in nervous diseases is of tremendous importance. I have been impressed with the large number of cases of grave syphilis that exist. There are cases of cortical encephalitis which yield promptly to treatment, but, perhaps, the gravest of all forms of syphilis are the cases of basilar syphilis, in which symptoms begin with the involvement of the cranial nerves. These cases begin, as a rule, with general malaise, followed by rigidity, headache, intracranial pressure and marked respiratory and bulbar symptoms. The next gravest group of cases are those of cortical encephalitis, but many of these yield to treatment. The number of cases of idiopathic epilepsies is growing smaller and smaller; some of the cases that appear in adult life without renal or cardiac disease are unquestionably of syphilitic origin. I would take issue with what has been said with regard to the diseases supposedly due to syphilis; syphilis can be associated with every form of central ner-

vous disease. Regarding the inclusion of typhoid spine, that gives me the opportunity of speaking of a group of cases of syphilitic spondylitis. I have encountered many of these cases, in which the tuberculous and traumatic elements could be excluded, and in which the examination of the blood and spinal fluid led to the diagnosis. The greatest of all surprises in regard to the syphilitic origin of the disease has, in my experience, occurred in trigeminal neuralgias. There were many cases that would not yield to any form of treatment, but after the administration of salvarsan and mercury the neuralgia disappeared promptly. I would paraphrase Dr. Barker's remarks: "If in slight doubt make a Wassermann; if in grave doubt, have it done by two or three observers."

DR. HUGH B. BLACKWELL: Attention has not been called to syphilis as it affects the auditory nerve. In the advanced cases of deafness it is almost impossible to help these patients, but if the cause of the condition is recognized early and active treatment is instituted, this grave condition may be prevented. The general practitioner should be more on the lookout for these cases.

DR. LEON T. LEWALD: Out of a series of 2,000 cases referred to us for examination, syphilis of the stomach was demonstrated in eleven instances. Some of these cases had been submitted to operation. In these cases no microscopic examination was made, and what was removed was considered to be either an ulceration or a new growth.

DR. MAX EINHORN: Syphilis of the liver may simulate cancer. Under antisyphilitic treatment these patients do well.

DR. JEROME M. LYNCH: It is important that the surgeon should be on his guard and eliminate syphilis, since without taking due precaution, he may aggravate the condition by his activity. As an illustration, a man was referred to me who had been suffering from hemorrhoids and had been treated at various clinics for a number of years. Operation had been suggested, but had been deferred. On examination a relaxed condition of the sphincter muscle was found. It is characteristic of syphilis of the spinal cord to find this muscle absolutely contracted and on examination of such a patient to find it flabby and relaxed. This patient gave a four plus Wassermann; he was referred to Dr. Fordyce, and improved under antisyphilitic treatment. If there had been an operation, the condition would have been aggravated. In another case it was found that the gallbladder had been drained and the appendix removed; on examination it was found that the subject had tabes, and under antisyphilitic treatment his condition improved.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

January, XIX, No. 1, pp. 1-148

1 Occurrence and Physiologic Significance of Fat in Muscle Fibers of Normal Myocardium and Atrioventricular System; Interstitial Granules (Mitochondria) and Phospholipines in Heart Muscle. H. H. Bullard, Pittsburgh.
2 *Normal Mode of Secretion in Thyroid. R. R. Bensley, Chicago.
3 *Influence of Diet and Iodids on Hyperplasia of Thyroid of Opossums in Captivity. R. R. Bensley, Chicago.
4 Vascular Drainage of Endolymphatic Sac and Its Topographical Relation to Transverse Sinus in Human Embryo. G. L. Streeter, Washington, D. C.
5 Problems of Human Dentition. L. Bolk, Amsterdam.

2. **Normal Mode of Secretion in Thyroid.**—Examination of sections of an experimental series and of a number of normal thyroid glands from animals killed as soon as obtained, Bensley says, reveals the presence in all, although in highly variable amounts in the individual members of the series, of a new secretion antecedent. This substance is in the form of vacuoles, occurring exclusively in the outer pole of the cell, which contain a dilute solution similar in its properties to the colloid of the follicular lumen, differing from the latter only in density. There are even in this substance clear vacuoles due to shrinkage in fixation, like those seen in the colloid of the lumen. In two members of the experimental series, this substance was present in such amount that it filled quite half the cell. In these cases the cell presents an appearance comparable to that of the secreting cells of an exocrine gland like the pancreas, with the exception that the hylogens are in dilute solution in fairly large vacuoles instead of in the form of granules, and they are in the basal end of the cell instead of the free end. In other words these cells exhibit the ordinary picture of a secreting cell with stored secretion antecedents, but with reversed polarity. Three possible interpretations of the presence of this material suggest themselves to Bensley: first, that it is a pathologic product representing cytoplasmic degeneration, or imbibed serous fluid, or simple edema; second, that it is colloid in process of resorption by a transcellular route; third, that it is a true secretion antecedent representing material formed in the base of the cell for the purpose of direct transport into the vascular channels. This last theory is favored by Bensley.

3. **Influence of Diet and Iodids on Hyperplasia of Thyroid.**—These experiments show that the spontaneous hyperplasia observed in the thyroid of the opossum under laboratory conditions can be produced and controlled by diet alone, and that given the conditions, dietary and otherwise, which produce an active hyperplasia iodin will not inhibit the reaction. At all periods of the hyperplasia and to an extent which is proportional inversely to the rate of hyperplasia iodids will cause the storage of intrafollicular colloid. The experiments also emphasize the necessity in studies on the reactions of the thyroid, of controlling closely the conditions under which the animals are kept, and of reducing the gland so far as possible by diet and iodids to a normal base before the experiments are begun.

American Journal of Roentgenology, Detroit

December, 1915, II, Nos. 11 and 12, pp. 869-932

6 Progress of Roentgenology in Past Decade. A. L. Gray, Richmond, Va.
7 Physical Investigation Work in Progress on Tubes and Accessories. W. D. Coolidge.
8 Roentgen Ray Spectra. A. W. Hull.
9 Factors Governing Photographic Action of Roentgen Rays. J. S. Shearer, New York.
10 Biologic Explanation of Roentgen Ray Effects. A Richards, Austin, Texas.
11 Device for Use in Connection with Hydrogen Tubes. J. T. Case, Battle Creek.

Archives of Internal Medicine, Chicago

January XVII, No. 1, pp. 1-180

12 *Origin and Status of So-Called "Transitional" White Blood Cell. F. A. Evans, Baltimore.
13 *Adams-Stokes Syndrome—Persistent Bradycardia Involving Both Auricles and Ventricles. Remarkable Prolongation of As-Vs Interval. W. S. Thayer, Baltimore.
14 *Typhoidin Quotient. Quantitative Studies of Cutaneous Test of Typhoid Immunity. E. S. Kilgore, San Francisco.
15 Splenic Pathology of Pernicious Anemia and Allied Conditions. J. P. Schneider, Minneapolis.
16 *Blood Urea Determinations in Two Hundred and Eleven Cases. H. Schwartz and C. McGill, Butte, Mont.
17 *Effect of Continuous Electric Light in Experimental Arthritis. W. E. Simmonds and J. J. Moore, Chicago.
18 *Intraspinal Treatment of Syphilis of Central Nervous System, According to Method of Swift and Ellis. R. Dexter and C. L. Cummer, Cleveland.
19 Prothrombin and Antithrombin Factors in Coagulation of Blood. G. R. Minot, G. P. Denny, Boston, and D. Davis, Baltimore.
20 *Some Clinical, Physiologic and Chemical Observations on Ptomain Poisoning from "Creamed" Codfish. M. A. Blankenhorn, G. E. Harmon and P. J. Hanzlik, Cleveland.
21 *Observations on Sino-Auricular Heart Block. S. A. Levine, Boston.
22 Serum Sickness in Series of Five Hundred Patients Treated with Diphtheria Antitoxin. M. Sturtevant, New York.

12. **Origin of So-Called Transitional Cell.**—Evans' research suggested to him that the so-called transitional cell is not an immature or degenerated form of any other cell type, but is an independent cell type in itself; that the productive center of the transitional cell is closely related to that of the polymorphonuclear system, but is independent of it; that the transitional is not an endothelial cell, bears no relation to the lymphocytes large or small, and is probably of myeloid origin; that the one distinct type of large mononuclear closely

resembling the transitional should probably be included with it to form an independent cell type; but that if there is any difference in the age of the cells of oval or indented nuclei, as seems likely, the cell with the indented nucleus—the typical transitional—should be considered the younger.

13. **Persistent Bradycardia Involving Both Auricles and Ventricles.**—Thayer presents the history of a woman who for two years and a half has had occasional syncopal and eclamptic attacks with extreme bradycardia. Between these periods the pulse is regular, averaging (in rate) but little over 30 to the minute. Polygraphic and electrocardiographic study reveals a synchronous slowing of both auricles and ventricles with prolongation of the As-Vs interval to a period longer than has hitherto been reported. In polygraphic tracings the *a-c* interval amounts to from 0.7 to 1.0 second; in electrocardiograms the P-R time is often over 0.7 second. The history of syncopal and eclamptic attacks with great slowing and irregularity of the pulse, as well as the prolonged As-Vs interval observed Thayer believes justifies a diagnosis of disease of the auriculoventricular bundle. The cause of the auricular bradycardia which would appear to depend on an essential anomaly of impulse formation, is not clear. A second case of apparently essential sinus bradycardia is reported. This subject is a seemingly healthy man now 35 years of age. The heart rate for at least five years, has been between 30 and 40 when the patient is at rest. There is no prolongation of the As-Vs interval. Exercise, deep breathing, atropin have their usual effects on the heart's rhythm and rate, but proportionately to the initial heart rate. Attacks of vertigo and nausea occurred five years ago but there is no evidence that these were associated with auriculoventricular dissociation. The patient remains in apparently good health despite his persistent bradycardia.

14. **Typhoidin Quotient.**—The use of typhoidin, tuberculin and other "quotients" in interpreting cutaneous diagnostic reactions is urged by Kilgore, for the reason that objectiveness is thus increased and quantitative analyses made possible. In individual cases the test as here used has a high probable error and is therefore not conclusive. It has a neutral significance when after twenty-four hours the typhoidin quotient is in the region of 1.40 to 1.50, that is, when the typhoidin spot is about one and one-half times the diameter of the control. When the quotient is considerably above 1.50, immunity to typhoid is suggested. When it is considerably below this value nonimmunity is suggested. When applied by statistical methods to groups of cases, Kilgore says, it may, however, be capable of much more definite interpretation as a qualitative index of typhoid immunity; since the general averages in this series of cases as well as those previously reported by Gay and Force show well-marked average differences in reaction between the immune and nonimmune. It is suggested, furthermore, that when applied in this way to sufficiently large groups of cases, the typhoidin quotient may prove useful as a quantitative index of typhoid immunity.

16. **Determinations of Blood Urea.**—In studying various pathologic conditions Schwartz and McGill have considered a blood urea above 0.250 gm. per liter as abnormal. Twenty-five cases of acute nephritis were observed. Of these eighteen were toxic nephritis accompanying lobar pneumonia. The urea averaged 0.578 gm. per liter, thus showing a definite increase. Only three cases showed a normal amount of urea. All showed albumin and casts in the urine. Twenty-two phthalein tests were made; sixteen showed decreased elimination. Twelve cases which were clinically suspected of being nephritis, showed an average urea of 0.248 gm. per liter, which is a normal value. The phthalein excretion was normal on all the cases which were examined. Of nineteen cases of mild chronic nephritis, five were parenchymatous and fourteen were interstitial nephritis. The average blood urea was 0.288 gm. per liter. Five of the cases showed normal blood urea. The phthalein excretion in this group was, with one exception, normal. In sixteen cases of advanced chronic nephritis, the average blood urea was 0.444 gm. per liter. Three cases showed normal values. Two cases of albuminurie retinitis showed a normal area. In one case of uremia the maximum area at the time the patient had uremic symptoms was 1.008 gm. per liter, with but a trace of phthalein excreted. The average blood urea in these cases of advanced chronic nephritis with cardiac decompensation was 0.523 gm. per liter, which is higher than the same group of cases without cardiac decompensation, and also distinctly increased above normal value. The blood pressure of all these patients was distinctly elevated. The phthalein was just a trace in two cases, 15 per cent. in another case.

The authors found increased urea in cases of nephrolithiasis, pyelonephritis and pyonephrosis, cystitis and pyelitis. The majority of cases of lobar pneumonia have a raised value. Approximately one-half of the cases of syphilis show a distinct elevation. In exophthalmic goiter there is an increase, and in myxedema, a decrease in blood urea. In primary anemia, nephrolithiasis, pyelonephritis, pyonephrosis, septicemia, streptococcic meningitis, Rocky Mountain spotted fever, pulmonary tuberculosis, diabetic coma, intestinal obstruction, malignancy, and common duct obstruction, there is a definite increase in most of the cases. A slight elevation occurs in valvular heart lesions, myocarditis, secondary anemia, urticaria, fractured skull, cerebral hemorrhage, concussion, bone cyst, traumatic pleurisy, arteriosclerosis and chronic arthritis. No changes were found in psoriasis, pityriasis rosea, epilepsy, meningococcic meningitis, diabetes and functional neurosis. The urea content of body fluids in the majority of cases, agrees with the blood urea. The blood pressure was taken in 178 cases. There is no relation between blood pressure and the amount of blood urea. The results of phthalein excretion in ninety-six cases agree with the observation of others, who find in most cases the percentage of phthalein excreted is diminished along with increase in blood urea.

17. **Effect of Electric Light in Experimental Arthritis.**—The production of experimental arthritis in rabbits was either prevented by Simmonds and Moore, or was much milder in degree, in animals treated with the continuous incandescent electric light than in the controls not treated. Rabbits treated with the incandescent electric light after developing acute experimental arthritis recovered more rapidly than the control animals.

18. **Intraspinal Treatment of Syphilis of Central Nervous System.**—Dexter and Cummer report on fifty-nine intraspinal injections of autosalvarsanized serum given in ten cases. Following these injections they have seen no symptoms, temporary or permanent, which could in any way be attributed to injury to the central nervous system. They have seen no deaths, paralysis or bladder disturbances. Patients who have had reactions of pain following the treatment have shown greater and more rapid improvement than those who had no discomfort from the procedure. The results in six of these ten cases has been a symptomatic improvement so emphatic that the patient's economic efficiency has been restored.

20. **Ptomain Poisoning from "Creamed" Codfish.**—The clinical symptoms observed in a large number of patients attacked with ptomain poisoning from "creamed" salted codfish were epigastric distress, nausea, vomiting, intestinal colic and diarrhea. Complete recovery occurred in from twelve to twenty-four hours, in a part of the individuals spontaneously, and in another part following gastric lavage. Bacteriologic examination of the "creamed" fish showed the presence of the *Bacillus coli communior,* and other saprophytes and some staphylococci. The gastro-intestinal disturbances are not attributed to infection by the organisms in the fish material. Extracts of the "creamed" fish gave practically the same physiologic reactions as the same brand of salted codfish which was previously allowed to putrefy and then was prepared in the same manner as the food served to the patients. The physiologic effects consisted of a marked stimulation of intestinal and uterine peristalsis with surviving organs, and a fall of blood pressure with gradual recovery. The purified active extract of the "creamed" putrefied salted codfish contained some physiologically active base, whose chemical reactions resemble

those of the group of diamins to which putrescin, cadaverin and histamin belong.

21. **Sino-Auricular Heart Block.**—Four cases are described by Levine showing pauses of the heart's action which were equal in length to multiples of the normal heart cycle of the respective individual. There was no evidence of auricular activity during the pauses, which points to a blocking of the impulses above the auricles, that is, at the S-A node. The first case exhibited bradycardia on exertion. The ventricular rate fell to 43 as a result of acceleration of the sinus rate. Tracings taken over a period of five months showed that block depended on a slight sinus arrhythmia. Whenever the sinus rate increased beyond a certain point, the node failed to conduct the impulse to the auricles. The three other cases showed S-A block only after digitalis had been taken; after it was withdrawn, the block was no longer observed. The second case described showed frequent pauses in which one, two, three or four heart beats were blocked. At one time there was observed in the electrocardiogram a condition of total sino-auricular block for many seconds while the ventricles were beating at their slow idioventricular rhythm.

Boston Medical and Surgical Journal

January 20, CLXXIV, No. 3, pp. 73-108

23 *Treatment of Nephritis. C. Phipps, Boston.
24 Injured Employee and Workmen's Compensation Law. Results of Impartial Examinations. F. D. Donoghue, Boston.
25 Outline for Management of Heart Cases from Outpatient Department Standpoint. M. H. Wentworth, Concord.
26 Development of Gold Sol "Paretic" Reaction as Compared with "Cerebrospinal Syphilitic" Type. H. C. Solomon and E. S. Welles, Boston.
27 Nonfatal Fracture of Axis. F. W. O'Brien, Boston.
28 Vacuum Flushing Leech. H. S. White, Orwell, Ontario.

23. **Treatment of Nephritis.**—Because the kidney is one of the excretory organs of the body, Phipps says, our first thought in disease is usually to relieve it by transferring as much of its work as possible to other organs of elimination, such as the bowels, skin, etc. In acute infectious cases one may employ such drugs as hexamethylenamin and salol for the purpose of disinfecting the urinary tract, and in the so-called idiopathic cases (usually due to the *Bacillus coli communis*) some benefit may be derived thereby. Surgical measures such as capsule-splitting and decapsulation are of demonstrated value in selected cases. Bleeding and lumbar puncture are methods of symptomatic treatment, particularly in uremia but they are of use only in the sthenic form in which the systolic blood pressure is as high as 200 mm. In the asthenic type of uremia hot packs, hot enemas and pituitary extract are of chief value. Increased elimination through the bowels is of the greatest value. The second method of affording relief to the diseased kidney is to make elimination as easy as possible largely by regulating the diet. However, Phipps says, any rigorous system of diet may (but should not be) so strict or continued so long that it may be distinctly harmful to the patient; hence more freedom in the allowance of protein than is recommended in the "textbook" nephritic diet may be of apparently great advantage in the individual case. Thyroid extract has, perhaps, a great value in the treatment of nephritis. If given carefully, it is safe.

Bulletin of Johns Hopkins Hospital, Baltimore

January, XXVII, No. 299, pp. 1-28

29 *Gaucher's Disease; Report of Two Cases in Infants. J. H. M. Knox, Jr., H. R. Wahl and H. C. Schmeisser, Baltimore.
30 *Pleural Eosinophilia; Report of Case. S. Bayne-Jones, Baltimore.
31 Colorimetric Method for Determination of Hydrogen Ion Concentration of Biologic Fluids. S. H. Hurwitz, K. F. Meyer and Z. Ostenberg, San Francisco.
32 *Hodgkin's Disease of Intestines; Report of Case. L. M. Warfield and H. T. Kristjanson, Milwaukee, Wis.

29. **Gaucher's Disease.**—The authors present the cases of two infants, sisters, who did not thrive from birth and died, one at 11 months, the other at 15 months of age, from gradually increasing weakness. The most striking clinical feature was the great enlargement of the spleen and liver. The blood picture was that of a moderate anemia. The leukocytes were rarely increased, and for the most part were markedly reduced in number. The skin in both cases had a peculiar yellowish-brown hue, more marked on the face and exposed surfaces. In one case the diagnosis was confirmed during life by the examination of an excised lymph gland. Microscopically, in both cases nearly all the organs were found to contain large, pale, granular or finely vacuolated cells, in which there was a peculiar refractive substance having the chemical and staining properties of lipoid material. These cells are apparently identical with those described by Gaucher, and later by a number of observers, in the condition called "Gaucher's disease." These two cases and that of Niemann are the only ones in which the disease has been reported in infancy. The observation of cherry-red spots in the maculae of one of the patients in view of the presence of similar cells in the nervous tissues of cases of amaurotic family idiocy, lends additional interest and suggests the possibility that the essential degeneration in the latter condition may be of a similar character.

30. **Pleural Eosinophilia.**—Bayne-Jones presents the account of a case of postpneumonic pleural effusion which contained 45 per cent. of eosinophils. The report of eight similar cases gathered from the literature are summarized. Many of the eosinophil cells of this exudate were of the mononuclear type. The patient's blood exhibited a slight eosinophilia, but did not contain any mononuclear eosinophils. The morphology of these pleural eosinophils suggests strongly that they have a local origin outside of the bone-marrow. A review of the possible etiologic factors in pleural eosinophilia, the author says, seems favorable to the hypothesis of Schwarz, that protein split products in an exudate undergoing absorption may constitute the eosinotactic substance that produces both the general eosinophilia and the local eosinophilia.

32. **Hodgkin's Disease of Intestines.**—A Bulgarian, aged 27, common laborer by occupation, complained that he was "sick in his stomach." He had never been ill, smoked moderately, and denied venereal disease. For about eight months he had had intermittent pain in the stomach after eating, which was not severe enough, at first, to force him to stop work. The pain, however, had gradually increased, he had vomited occasionally after meals, had become weak, and lost strength and weight so that he had been obliged to stop work in January. Since the onset of this trouble, he had had almost constant diarrhea. There had also been an intermittent cough. He was only fairly well nourished. There were a few mucous râles at the lung apices, and slight impairment of the percussion note at both bases. The abdomen showed a "curious distention below the umbilicus, as with gas, with apparent constriction just below the costal margin." There was no increase in liver dulness. There were no masses palpable. The most probable diagnosis seemed to be pulmonary tuberculosis, with a dry peritoneal tuberculosis. Some fluid was removed from the right pleural cavity. The leukocytes were 7,000. Differential count (Hastings' stain) showed polymorphonuclears, 60 per cent.; mat. and immat. lymp., 34 per cent.; trans. (end.) 6 per cent.; bas. 1 per cent. There was no occult blood in the stools. Several examinations for tubercle bacilli in the sputum were negative. The urine was normal. The patient gradually grew weaker, and died rather suddenly, with obscure abdominal symptoms, subnormal temperature and only slightly increased pulse rate, about six weeks later. Anatomic diagnosis, acute general peritonitis, with perforation of jejunum; diffuse and nodular thickening of intestines, enlargement of mesenteric glands, acute splenic tumor; slight pleural effusion (right side); edema of lungs. The microscopic picture of the intestines was that of Hodgkin's disease. The authors suggest that the portal of entry of the infection probably was the intestine.

Bulletin of Medical and Chirurgical Faculty of Maryland, Baltimore

January, VIII, No. 7, pp. 101-128

33 Management of Patients with Chronic Renal Disease. T. C. Janeway, Baltimore.

Colorado Medicine, Denver

January, XIII, No. 1, pp. 1-34

34 *Heart Disease and Pulmonary Tuberculosis as Contraindications to Surgery. H. G. Wetherill, Denver.
35 Use of Wire Tourniquet in Partial Thyroidectomy. L. Freeman, Denver.
36 Pneumococcus Sore Throat in Children. F. P. Gengenbach, Denver.
37 Etiology and Diagnosis of Endometritis. C. B. Ingraham, Denver.
38 Treatment of Endometritis. C. Powell, Denver.
39 Ethical Medicine. M. R. Fox, Sterling.

34. **Heart Disease and Tuberculosis.**—Wetherill's experience with pulmonary and heart substandard risks has been uniformly favorable when operations have been necessary, but he advises that extraordinary precautions must be employed to safeguard such patients from danger, and that the time of the operation should be as brief as possible. Wetherill never refused such an invalid a necessary surgical operation because he happened to have a heart lesion or even advanced pulmonary tuberculosis. He believes that such operations on such patients may be done with greater safety in a high and dry climate than in the humid and torrid regions. Certainly their recovery is more prompt and complete under Colorado atmospheric conditions than at sea level. He has observed many times the most astonishing improvement in the lung and heart lesions of such patients, and in their general well being, when, for example, the operation may have been done for the elimination of a local focus of infection from which the pulmonary or heart complications may have been maintained and perpetuated or may have had their origin. He urges that the surgeon should have in such an emergency the advice and counsel of a capable and expert internist to advise such preparatory régime and medicinal treatment as the patient requires. If time permits, absolute rest in bed previous to operation, with such treatment as may bring about the highest attainable measure of cardiac compensation and pulmonary rest, is indispensable. At this stage, as well as during the period of convalescence, the patient should be under the closest scrutiny of the internist, who should have a free hand and the largest liberty in directing any treatment that he may regard as essential to the welfare of the patient.

Georgia Medical Association Journal, Augusta

January, V, No. 9, pp. 193-225

40 Physician, Yesterday, Today and Tomorrow. W. B. Hardman, Commerce.
41 Chronic Tonsillitis. Adenoids. S. R. Roberts, Atlanta.
42 Treatment of Chronic Interstitial Nephritis. T. D. Coleman, Augusta.
43 Some Phases of Nephroptosis in Women. W. F. Shallenberger, Atlanta.
44 Pellagra and Acidosis. H. F. Harris, Atlanta.

Illinois Medical Journal, Chicago

January, XXIX, No. 1, pp. 1-80

45 Clinical Symptoms and Physical Signs in Early Diagnosis of Pulmonary Tuberculosis. F. M. Pottenger, Monrovia, Calif.
46 Intravenous Use of Typhoid Vaccine and Foreign Protein in Treatment of Typhoid. J. L. Miller, Chicago.
47 Dementia Praecox Studies. B. Holmes and J. Retinger, Chicago.
48 Cooperative Method of Diagnosis. C. Beck, Chicago.
49 Some New and Nonofficial Remedies. B. Fantus, Chicago.
50 Tonsil Technic. R. H. Woods, La Salle.
51 Value of Roentgen Ray Examination in Pulmonary Disease. E. Blaine, Chicago.
52 Focal Infections of Accessory Nasal Sinuses. G. H. Mundt, Chicago.
53 Treatment of Tetanus. L. J. Quillin, Streator.
54 Mouth Hygiene and Its Relation to Systematic Diseases. J. W. Fulenwider, Collinsville.
55 Intestinal Autointoxication. L. C. Diddy, Piper City.
56 Newer Methods of Cesarean Section. J. B. DeLee, Chicago.
57 Longevity in Its Relation to Sex or Why Fewer Men Than Women Attain Old Age. A. H. Burr, Chicago.
58 Postgraduate Work at Home. A. J. Roberts, Ottawa.

Journal-Lancet, Minneapolis

January 15, XXXVI, No. 2, pp. 31-60

59 Volvulus. R. E. Weible, Fargo, N. D.
60 Relaxed Pelvic Outlet. R. L. Murdy, Aberdeen, S. D.
61 Value of Vital Statistics. A. D. Hard, Marshall.
62 Streptococcal Pharyngitis. J. D. Lewis, Minneapolis.
63 Convergence Insufficiency and Divergence Excess. L. J. Coria, Minneapolis.
64 Some Points Regarding Astigmatism. S. E. Kerrick, Minneapolis.
65 Interpretation of Wassermann Reaction. G. M. Olson, Minneapolis.
66 *Snuff Poisoning; Report of Cases. E. L. Crispin, Rochester.

66. **Snuff Poisoning.**—Twenty-five cases of snuff poisoning have been indexed in the Mayo Clinic; none prior to 1914. The duration of the habit in some of these extends over a number of years. Crispin says that the use of "Copenhagen" snuff produces most deleterious results. The users of excessive amounts suffer from chronic headaches, indigestion, irritable heart action, increased respiration on exertion, and impaired mentality to the point of degeneracy. Delusions and hallucinations are not uncommon in the worst cases. A number of cases of marked psychosis have been observed in the State Hospital at Rochester, believed to be due to the excessive use of this form of snuff. The chronic snuff habitué does not consult the physician to be cured of the habit, but because of impaired organic function. The scarring and ulceration of the gingival and buccal mucous membranes with the long standing chronic irritation, make these ulcerations in the snuff chewers probable sources of future trouble in which malignancy may be considered. Crispin expresses the hope that more general recognition and publicity of the serious effects of the use of snuff will result in antilegislation to drive it from all states in which it has a foothold; and also that publicity will serve as a warning to other states not yet similarly affected.

Journal of Laboratory and Clinical Medicine, St. Louis

December, 1915, I, No. 3, pp. 155-210

67 *Gumma of Pituitary Associated with Lesions in Spinal Cord which May Represent Early Lesions of Syringomyelia. P. G. Wooley, Cincinnati.
68 *Some Features of Purin Metabolism. H. G. Wells, Chicago.
69 Ferment-Antiferment Balance of Serums. J. W. Jobling, W. Petersen and A. A. Eggstein, Nashville, Tenn.
70 *Experimental and Clinical Studies on Mental Defectives. A. W. Peters and C. D. Blackburn, Philadelphia.
71 *Method of Sterilizing Sputum Before Examination. D. M. Griswold, Detroit.
72 Slide Holder and Protector for G. S. and E. Warming Stage. C. R. Eckler, Indianapolis.
73 Hydrogen-Ion Acidity. T. H. Kelly, Cincinnati.

January, No. 4, pp. 211-282

74 Growth. L. B. Mendel and T. B. Osborne, New Haven, Conn.
75 *General Pathology of Pellagra with Special Reference to Findings in Thyroid and Suprarenals. P. F. Morse, Detroit.
76 Antagonistic Action of Vagus and Sympathetic Divisions of Autonomic Nervous System in Pulmonary Tuberculosis. F. M. Pottenger, Monrovia, Calif.
77 Etiology and Laboratory Diagnosis of Smallpox and Chickenpox. J. N. Force, Berkeley, Calif.
78 Methods for Determination of Glucose in Blood. R. S. Morris, Cincinnati.
79 Coagulation of Blood. E. Stoldt, Detroit, and V. C. Vaughan, Ann Arbor.

67. **Gumma of Pituitary.**—A case is reported by Woolley in which there are certain lesions in the pituitary and in the spinal cord, which, it is suggested, have a common etiology. The lesion in the pituitary is definitely syphilitic. Those in the cord are possibly syphilitic. The cord lesions seem to suggest that they represent an early stage of syringomyelia.

68. **Some Features of Purin Metabolism.**—The case of uric acid in human metabolism according to Wells stands at present as follows: (1) There is conclusive evidence that the human organism does not oxidize uric acid formed in metabolism into allantoin, as all other mammals except the anthropoids seem to do. (2) There is no conclusive evidence that man destroys uric acid by any other method, although it has not yet been positively established that he may not do so: (3) There is perhaps more reason to suspect that part of the purins of nucleic acid may be destroyed without passing through the stage of uric acid, but there is no direct evidence whatever that such a method of purin katabolism does exist. (4) It is highly probable, in consideration of what seems to be the best available evidence, that most of the purin of human food and practically all the purin from cell metabolism is converted into uric acid and excreted as such. Some of the food purins may be destroyed by bacteria in the intestines.

70. **Studies on Mental Defectives.**—The pathology of mental defectives including especially the feebleminded is based by Peters on the principle that their condition, both physiopathologic and psychopathologic, is due to physical abnormalities of growth and development which affect not only the neural, but also other systems of organs by reason of intimate hormonal or neural correlation or both. In the majority of cases these begin with the parentage, are continued and magnified during the period of gestation, and are deeply impressed in the physical constitution of the individual, so that abnormal growth and development characterizes such individual not only during gestation but continuously after birth. In acquired defect the incidence of the deviation from the normal occurs at a later period in the cycle of development. An outline of a plan, based on the principle of growth-development, for the examination, diagnosis and further study of mental defectives, is presented. This outline places emphasis on the physiopathologic factors as well as on the psychopathologic and the facts thus ascertained constitute the logical basis for further intensive study of the defective individual by physiologic and biochemic methods.

71. **Method of Sterilizing Sputum Before Examination.**—It has been the practice of the laboratory of the Detroit Board of Health to autoclave all sputum bottles after the contents have been examined, then send them to the dump. It was desired to study the effect of this treatment on the sputum. In a series of 200 sputums examined first in the usual way, and then after autoclaving, the following results were obtained: (1) All sputums found positive in the usual way were found positive after autoclaving. (2) Among the sputums found negative (150) in the usual way, three showed tubercle bacilli after autoclaving. The staining characteristic of the tubercle bacillus is not altered.

75. **Pathology of Pellagra.**—Morse reports in detail the postmortem findings in a case of pellagra. Summary: Simple or brown atrophy of the heart, liver, spleen, lungs, intestinal muscles (?) and kidneys. Degenerations and brownish pigmentation of the posterior root ganglia (and other groups of nerve cells). Active ulcerative proctitis and chronic glossitis of marked degree. Hyperkeratosis and sclerosis of the skin with areas of round-celled infiltration. Chronic productive interstitial thyroiditis with compensatory reaction on the part of the thyroid follicles. Small areas of round-celled infiltration in the thyroid, suprarenal, liver, lung, bladder, tongue, rectum and skin. The changes found in the thyroid and suprarenal are unusual ones, thus lending support to the tendency to consider them of importance in the production of the clinical state presented by the patient. Morse believes that the nervous lesions hitherto described and partially confirmed by his findings are wholly of toxic or nutritional origin. Many of the lesions are postmortem changes and other artefacts, along with secondary changes which are common in many other conditions. He believes that reports of degenerations based on the appearance of granules and other slight changes in nerve-cells have to be interpreted with extreme caution, inasmuch as so much depends on the functional state of the cells at the time of death, postmortem change, fixative, method of preparation, etc. One of the safest criteria for the establishment of the fact of nerve cell degeneration is fat, none of which was demonstrable in Morse's case.

Kansas Medical Society Journal, Topeka

January, XVI, No. 1, pp. 1-32

80 Methods and Value of Blood Transfusion. W. M. Mills, Topeka.
81 Pyloric Obstruction in Infancy. G. L. McGonigal, Kansas City.
82 Home Treatment of Tuberculosis. W. R. Pennington, Ottawa.
83 Typhoid. N. C. Speer, Osawatomie.

Medical Record, New York

January 15, LXXXIX, No. 3, pp. 89-134

84 Removal of Diseased Tonsils by Method Minimizing Hemorrhage. A. P. Voislawsky, New York. History of Tonsillotomy. D. B. Delavan, New York.
85 *Fractures of Elbow. J. Grossman, New York.
86 Case of Trichiniasis. M. G. Wohl, Omaha.
87 Flat Foot; Its Relation to Neuritis and Its Treatment. W. Martin, Atlantic City, N. J.
88 Cirsoid Aneurysm Treated by Direct Application of Boiling Water. J. A. Wyeth, New York.
89 Treatment of Dementia Praecox with Sodium Nucleinate; Report of Cases. C. F. Read, Peoria, Ill.
90 Syphilis Inexplicable. W. S. Reynolds, New York.
91 Diagnostic Value of Russo Reaction. M. Kahn, New York, and L. Wechsler, Pittsburgh.

85. **Fractures of Elbow.**—Grossman's paper is based on the study of fifty cases of fracture of the elbow, which were treated by the acute flexion position and in which he succeded in obtaining good functionating limbs in some and a cure, with normal functionating limbs, in the majority. The cases were divided as follows: twenty-four of internal condyle; fourteen of external condyle; eight of supracondyloid and four of olecranon.

Missouri State Medical Association Journal, St. Louis

January, XIII, No. 1, pp. 1-50

92 Symptomatology and Treatment of Alopecia Areata. R. L. Sutton, Kansas City.
93 Multiple Brain Abscesses of Otitic Origin. E. L. Myers, St. Louis.
94 Early Management of Anterior Poliomyelitis. C. B. Francisco, Kansas City.
95 Deformities of Foot. E. L. Cooley, St. Louis.
96 Spastic Constipation. T. S. Fleming, Moberly.
97 Operative Treatment of Squint. R. J. Curdy, Kansas City.
98 Why Remove Tonsil? I. D. Kelley, Jr., St. Louis.
99 Ametropia in Schoolchildren. E. L. Russell, Kansas City.
100 Penetrating Wounds of Abdomen. W. Smith, Springfield.
101 Etiologic Factors in Vomiting of Pregnancy and Measures to Relieve It. J. D. Seba, Bland.
102 Injury with Extravasation of Blood in Pericardium. W. N. Yates, Fayetteville, Ark.

New Jersey Medical Society Journal, Orange

January, XIII, No. 1, pp. 1-52

103 Institutional Care of Insane. B. D. Evans, Morris Plains.
104 Borderland of Psychoses. C. C. Beling, Newark.
105 Diagnosis of Neurasthenia. T. P. Prout, Summit.
106 Effects of Syphilis on Central Nervous System. H. A. Cotton, Trenton.
107 Conservation of Infant Life. E. A. Ayres, Branchville.

New York Medical Journal

January 15, CIII, No. 3, pp. 97-144

108 Increasing Mortality in United States, from Diseases of Heart, Blood Vessels and Kidneys. E. L. Fisk, New York.
109 Remote Effects of Synchronous Palsy of Peripheral Branches of Facial and Trifacial Nerves. S. H. Brown, Philadelphia.
110 Diet in Chronic Heart Disease. R. Abrahams, New York.
111 Diagnostic Value of Records of Breathing and of Speech. O. Glogau, New York.
112 Percussion Technic and Theory. B. A. Fedde, New York.
113 Spinal Anesthesia with Stovain in Genito-Urinary Surgery. J. S. Read, New York.
114 Urinary Disturbances in Male. C. Martin, St. Louis.
115 Mother's Milk for Mother's Baby. W. W. Riha, Bayonne, N. J.
116 Discharging Mastoid Sinuses. A. N. Schiller, New York.

January 22, No. 4, pp. 145-192

117 Common Affections of Eye. S. D. Risley, Philadelphia.
118 Chronic Tonsillitis. L. Fischer, New York.
119 Dermatitis Factitia. H. K. Gaskill, Philadelphia.
120 Problems of Syphilitic Reinfection; Report of Case. M. B. Parounagian, New York.
121 Grippe and Overheating. W. Brady, Elmira.
122 Congenital Unusually Large Scrotal Hernia. W. B. Jennings, Scarsdale.
123 Allen Treatment in Diabetes Mellitus; Report of Five Cases. S. H. Paley, New York.
124 Treatment of Obesity. J. Gutman, New York.
125 Metabolism of Tissue Autolysis. B. Oettinger, Long Beach, Calif.

Northwest Medicine, Seattle, Wash.

January XV, No. 1, pp. 1-36

126 Rocky Mountain Spotted Fever. L. Paine, Washington, D. C.
127 Hypothyroidism. J. R. Brown, Tacoma.
128 Hyperthyroidism. H. P. Marshall, Spokane.
129 Use of Electricity in Various Forms of Goiter. E. Myers, Portland, Ore.
130 Prevalent Types of Goiter in Western Washington. E. O. Jones, Seattle.
131 Organotherapy in Relation to Practice of Medicine. F. R. Starkey, Philadelphia.
132 Plastic Operation on Ovary; Report of Case of Pregnancy Following Such Operation. H. J. Whitacre, Tacoma.

Oklahoma State Medical Association Journal, Muskogee

January, IX, No. 1, pp. 1-26

133 Hypertonia Vasorum Cerebri. W. F. Dutton, Tulsa.
134 Sphygmomanometer. V. W. Hudson, Salisaw.
135 Salvarsan and Cerebrospinal Syphilis. A. D. Young, Oklahoma City.
136 Arteriosclerosis — Early Retinal Symptoms. W. T. Salmon, Oklahoma City.
137 Federal Antinarcotic Law — Substitute for Opium. J. Culbertson, Maud.
138 Case of Actinomycosis of Tongue. A. W. Roth, Tulsa.

Ophthalmic Record, Chicago

January, XXV, No. 1, pp. 1-54

139 Intraocular Tuberculosis. E. Jackson, Denver.
140 Ocular Tuberculosis and Its Treatment. J. L. McCool, Portland, Ore.
141 Some Ocular Conditions Dependent on Tuberculosis and Systemic Gonorrhea. W. C. Posey, Philadelphia.

Providence Medical Journal

January, XVII, No. 1, pp. 1-60

142 Effective Lines of Health Work. C. V. Chapin, Providence.
143 Hydatid Cyst. C. E. Hawkes, Providence.
144 Addison's Disease; Report of Two Cases. R. A. Goodwin, Providence.
145 Renal Calculus; Report of Seven Cases. R. E. Taylor, Providence.

Public Health Journal, Toronto

January, VII, No. 1, pp. 1-56

146 Relation of Medical Practitioner and Public to Cancer Problem. C. R. Dickson, Toronto.
147 Public Health Aspects of Alcoholism. C. Miller, Stellarton, N. S.
148 Preventive Philanthropy Improving Condition of Poor at Long Range. C. E. A. Winslow, New York.
149 Place of Laboratory in Public Health Work. A. G. Nichols, Halifax.
150 Attitude of Federal Government Toward Tuberculosis. G. D. Porter, Toronto.
151 Tropical Sanitation in Its Relation to General Sanitation. W. C. Gorgas, U. S. Army.

West Virginia Medical Journal, Huntington

January, X, No. 7, pp. 217-254

152 Pain in the Head. C. T. St. Clair, Bluefield.
153 Effects of Harrison Antinarcotic Law. H. W. Keatley, Huntington.
154 An Appeal for Justice. J. C. Irons, Elkins.
155 Remarks on Fracture. I. Hardy, Morgantown.
156 Syringomyelia; Report of Case. E. S. Dupuy, Beckley.
157 Indications for Splenectomy or Surgical Spleen. O. O. Cooper, Hinton.
158 First Aid in E. E. White Coal Company. G. C. Merriam, Stotesbury.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

January 1, I, No. 2870, pp. 1-36

1 *General Treatment of Infected Gunshot Wounds. H. M. W. Gray.
2 Sensitized Shiga and Flexner Vaccines in Treatment of Chronic Bacillary Dysentery. L. Rogers.
3 Case of Cholohemothorax Due to Bullet. T. R. Elliott and H. G. M. Henry.
4 Improved Method of Lifting Patients on to Hospital Ships from Barges and Boats. A. W. Mayo-Robson.
5 Use of Solutions of Quinin as Dressing for Infected Wounds. J. Tweedy.
6 Traumatic Implantation of Epidermis in Track of Gunshot Wound. G. H. Edington.
7 Gunshot Wound of Superior Longitudinal Sinus; Report of Three Cases. A. W. Nuthall.
8 Wick Drains. G. H. Colt.
9 Local Treatment of Suppurating Skin Lesions and Infections. G. Home.

1. Treatment of Infected Gunshot Wounds.—Army surgeons, according to Gray, have been compelled, since this war began to acknowledge the inefficiency of antiseptics when used as a preventive or for disinfecting agents in badly infected, lacerated wounds. Until applications were employed which stimulated a concentration of the general defensive forces of the body in and around the wound, no real advance in treatment was made. It mattered not what kind or what strength of antiseptic, pure and simple, was used, the infection ran a fairly definite course of fairly definite duration, which varied merely according to the patient's power of resistance. While the importance of free drainage was speedily acknowledged, quite a long time passed before there was any satisfactory recognition of the fact that the resisting agencies of the patient's own body are far more effective in dealing with a local infection than any purely antiseptic solution, powder, or paste introduced into it from without. It has been proved that the use of salt solutions applied in various ways, fulfils all the striking claims made for it by Wright. Hypertonic saline dressing, especially in the form now known as the "tablet and gauze pack," fulfils all desiderata better than any other yet applied.

After the wound has been cleaned by operation, all the recesses of the wound, these recesses should be sought out by the finger, are filled, fairly firmly, with gauze wrung out of 5 to 10 per cent. salt solution, in the folds of which are placed numerous tablets of salt. Blood clot which may form during the packing should be wiped away. The gauze should be packed in concertina-wise, a tablet being placed between every third or fourth fold. A fairly large, fenestrated rubber tube is placed so as to reach to the deepest part of the main cavity, which is then filled with gauze and tablets. The dressing is made flush with the skin and the tube projects slightly from its midst. The surrounding skin is painted with solution of iodin or other antiseptic application. Two or three layers of gauze are then used to cover the wound and surrounding skin. A suitable amount of absorbent cottonwool is applied and a bandage wound on smoothly and firmly.

Lancet, London

January 1, I, No. 1, pp. 1-58

10 *Treatment of Dysentery. R. Ross.
11 *Penetrative Wounds of Abdomen. W. C. B. Meyer and D. C. Taylor.
12 Treatment of Concussion Blindness. A. F. Hertz and A. W. Ormond.
13 Widal's Reaction with Standardized Agglutinable Cultures. E. W. A. Walker.
14 Outbreak of Anthrax Conveyed by Infected Shaving Brushes. R. R. Elworthy.
15 *Diagnosis of So-Called Primary Tuberculous Meningitis. D. W. K. Moody.
16 *Fatal Case of "Dope Poisoning." W. E. Lee.
17 An Interrupted Hammock-Bed in Treatment of Compound Fractures of Hip and Thigh. C. W. G. Bryan.
18 Sanitation in Billets and Camps. A. White.

10. Treatment of Dysentery.—The use of emetin among the troops, Ross says, has convinced every one of its great and indeed remarkable, efficacy. As a general rule, doses of 1 grain of the hydrochlorid a day were prescribed, either given in one subcutaneous injection or given in two doses morning and evening. Practice differed considerably as to the number of doses administered. In one hospital the rule was that of three days on and three days off, and in another hospital the rule was five days on and five days off; while many practitioners preferred to give it daily, even for some weeks, without intermission. The practice in India has frequently been to administer it not only for weeks, but for many months; and Ross has heard of patients who have altogether had a hundred doses or more. But opinion began soon to be divided on this point in rather an abrupt manner. In one hospital three patients died without any obvious cause of death, and some suspicion was aroused that the death may have been due to heart failure owing to cumulative action of the emetin.

Two of the patients died, indeed, about a week after the last dose of emetin, and both these patients had mysterious rises of temperature for some days before death, these suggesting that death was really caused by some secondary infection which could not be traced clearly at the necropsy. The third patient died four days after the last dose of emetin, though he was convalescent and had been allowed out of bed. The total amount of emetin which the patient had received from the beginning scarcely amounted to a single lethal dose, namely, about 15 grains for a man. There was fatty degeneration of the heart in all these cases, but no more than is frequently found after any grave illness. On the other hand, numerous patients had received emetin for more than thirty days without exhibiting any bad effects which could at all be traced to the drug. Nevertheless, prac-

tice gradually crystallized into the formula that, unless there was strong reason for continuing emetin, it should be remitted, at least for a time after about ten days, especially if it had ceased to do good.

11. **Penetrative Wounds of Abdomen.**—A list of the first fifty consecutive cases operated on at one casualty clearing station in the field, Flanders, is given by Meyer and Taylor. Out of this series seventeen deaths have occurred and thirty-three cases have been evacuated to the base. From the sections the authors have been able to make certain that the cause of death in most cases of perforative abdominal lesions is primary hemorrhage, combined with an element of shock always present in these cases. Next in importance appears to be general peritonitis, which, however, takes from about forty-eight hours onward to bring about a fatal issue. A few patients seem to die from pure shock due to tissue damage inflicted by irregular shaped missiles without any degree of hemorrhage (namely, kidney and liver in one case); a few others from secondary hemorrhage into the bowel. Forty-one cases were not operated on during this period, because patients were moribund, because no perforation was suspected, or because conservative treatment was considered advisable; seventeen died, twenty-four evacuated to the base. Of the cases deliberately treated conservatively not a single patient died, though the bullet had traversed the peritoneal cavity quite obviously in a number of these. The indications for conservative treatment were always the general appearance of the patient, absence of shock, the condition of the pulse, the state of the abdomen, and the course of the bullet.

15. **Diagnosis of So-Called Tuberculous Meningitis.**—Retention of urine, without any apparent cause, Moody says, is a pathognomonic sign of so-called primary tuberculous meningitis in the adult male. He has seen this sign in four cases.

16. **Fatal Case of "Dope Poisoning."**—Lee's patient was employed in an aeroplane factory as a "tapist." Taping is putting on strips of fabric 2 inches wide over the fabric seams after dipping them in "dope." The "dope" consists of acetate of cellulose or celluloid dissolved in tetrachlorethane, with amyl alcohol and benzene. This is the fifth fatal case reported.

Practitioner, London

January, XCVI, No. 1, pp. 1-130

19 *Treatment of Cerebrospinal Meningitis. W. Osler and Others.
20 Causes and Prevention of Epidemic Cerebrospinal Meningitis. H. Sutherland.
21 Cerebrospinal Fever. S. Neave.
22 Influence of War on Disease. H. D. Rolleston.
23 Trench-Foot or So-Called Frost-Bite. R. H. J. Swan.
24 Electrical Treatment of Trench-Foot and Frost-Bite. W. J. Turrell.
25 War Injuries of Peripheral Nerves. H. Campbell.
26 Treatment of Jaw Injuries. S. P. Mummery.
27 Typhoid Inoculation in Forces. A. Fleming.
28 Clinical Observations on Ninety-Eight Cases of Paratyphoid. H. Wiltshire.
29 *Treatment of Septic Wounds with Equal Parts of Ichthyol and Glycerin. C. W. Duggan.
30 Medically Unfit. H. Waite

19. **Treatment of Cerebrospinal Meningitis.**—Osler says there were in the home army 462 deaths from cerebrospinal meningitis, which places the disease second on the list of causes of death from acute infections. Speaking of vaccine treatment, Osler says there is this extraordinary discrepancy between the results obtained in many quarters in England and the results obtained by Flexner and others, in recent epidemics in the United States and elsewhere. He suggests that it may be a question of inert serum, an opinion which is shared by his co-authors.

29. **Septic Wounds Treated with Ichthyol and Glycerin.**—The advantages Duggan claims for ichthyol are: There is practically no irritation of the wound; the dressing does not adhere to the surface of the wound, it need only be changed once in twenty-four hours, in extensive septic wounds, not more than twice in twenty-four hours; there is a great saving in cottonwool, lint, and bandages; the strain in nursing is lessened; the patient is no longer disturbed by frequent dressing, and the time in the hospital is considerably curtailed, as compared with other methods. The method of application to the wound is by means of a camel-hair brush. Paint the surrounding skin, as well as the whole surface of the wound, or apply it on lint or gauze. On changing the dressing, avoid washing the surface of the wound with lotion; dry the surface with a small swab of cottonwool, and occasionally dab the surface with pure spiritus vini rectificati, for the drier the wound is kept the quicker the healing process. The dressing may adhere to the edges of the wound; to detach it, use freshly boiled water instead of any of the ordinary antiseptics.

Sei-I-Kwai Medical Journal, Tokyo

December, 1915, XXIV, No. 12, pp. 59-64

31 Operative Treatment of Acute Gonorrheal Epididymitis. Tsutsui and Yamashita.
32 Facial Furuncle or Carbuncle. K. Kuwabara.

Bulletin de l'Académie de Médecine, Paris

Dec. 21, 1915, LXXIV, No. 51, pp. 769-794

33 Supernumerary Ribs. (Signification ontogénique et phylogénique des côtes cervicales supplémentaires.) Capitan; (Deux cas de côtes surnuméraires de la région cervicale.) J. Privat and P. Colombier.
34 The Prognosis of Deafness from War Injuries. (Le pronostic des surdités de guerre — d'après 1,000 cas.) Lannois and F. Chavanne.
35 *Amputations in the War; the Indications and the Functional Outcome. (De la valeur fonctionelle des moignons après les amputations 1914-1915.) T. Tuffier.
36 *Pyoculture in Diagnosis and Prognosis. H. Barnsby and Truffier.

35. **Technic for Amputations to Ensure Best Functional Outcome.**—Tuffier's study of this subject is based on examination of 3,314 stumps after amputation, including forty-five multiple cases. Much more than half of the amputations were of the leg or thigh, as men wounded in the legs do not reach the hospital as early as those wounded elsewhere, while the wound is usually more soiled. He discusses the preferable technic for each type of amputation as the experiences in this war have modified many of the views that used to prevail.

36. **Pyoculture.**—This term was coined by Delbet to express comparative bacteriologic tests of the pus from a suppurating lesion. A more abundant growth of microbes in the pus than in bouillon is an unfavorable sign and thus throws light on the prognosis. In a case reported here by Barnsby and Truffier the wounded knee was red and swollen after it had been opened and cleared out, and the temperature kept high. They were on the point of opening up the knee again when tentative pyoculture showed that the pus had a destructive action on the microbian flora in the lesion. Under expectant treatment the temperature dropped and healing proceeded rapidly. In another case the wounded knee seemed to be healing perfectly but the temperature ran up and pyoculture revealed numerous and virulent germs; prompt amputation probably was all that saved the patient. Pyoculture characterized by absence of growth in the pus while the microbes proliferate in bouillon culture mediums, indicates a struggle between the organism and the invading microbes which needs therapeutic aid from without. On the other hand, negative pyoculture, that is, bacteriolysis of the microbes in the pus indicates that the organism is conquering, and that no help from without is required. The principles and practice of pyoculture were described in detail in THE JOURNAL July 10, 1915, p. 183.

Lyon Chirurgical, Lyons

November, 1915, XII, No. 5, pp. 565-700

37 Surgery in the Field Hospitals. (La chirurgie de guerre de première ligne au XIVe Corps d'armée.) Ferraton.
38 Study of Certain Infectious Complications of Gunshot and Shell Wounds. L. Lévy and L. Plisson.
39 Operative Treatment of Skull Wounds in the Field Hospitals. (La chirurgie des plaies pénétrantes du crane par projectiles de guerre dans les ambulances immobilisées de l'avant.) G. Gayet.
40 Wounds of the Long Bones. (Les lésions des grandes diaphyses des membres par coups de feu.) L. Plisson.
41 Treatment of Wounds of the Joints in Field Hospital. (Plaies des articulations par projectiles de guerre dans une ambulance immobilisée de l'avant.) F. Varay.
42 Ophthalmology in the Field Hospital. (L'ophthalmologie sur le front.) L. Genet.

Paris Médical

Dec. 25, 1915, V, No. 32, pp. 557-572

43 *Direct Sunlight as Aid in Treatment of Wounds in War. (Héliothérapie des blessures de guerre.) Grangée.
44 Small Epidemic of Paratyphoid B Fevers Simulating Epidemic Meningitis. G. Laroche and Lecaplain.

43. **Heliotherapy for the Wounded.**—Grangée gives illustrations of his improvised service for heliotherapy of the wounded, and relates that he has been much impressed with the more rapid healing of the wounds exposed to the direct sunlight. The scars are less adherent, more supple, and are never painful, while callus develops normally and does not become exuberant. Repair and elimination of sequesters proceeded more regularly and spontaneously. He found that severe wounds responded with fever and inflammation when exposed to the sunlight early, and he was forced to allow the organism a certain interval for recuperation before commencing the heliotherapy. After two or three weeks or a month even the most destructive wounds showed benefit from the exposures; if there was still fever at the time, the temperature dropped to normal. By protecting the wound against the air, the heliotherapy can be applied to advantage even from the first. The deodorizing effect of exposure to the sunlight is direct and immediate. Suppuration is augmented at first as a rule and then grows less. He has never had but one refractory ulceration of the stump of the foot; this was after amputation for dry gangrene consecutive to freezing. An umbrella is sufficient protection for the head at need. He exposes the whole of the wounded area and gradually increases from half an hour to three or four hours a day.

Presse Médicale, Paris

Dec. 30, 1915, XXIII, No. 64, pp. 521-528

45 *Isolation and Psychotherapy in Treatment of Functional Disturbances of the Nervous System among the Troops. J. Dejerine and E. Gauckler.
46 *Bridge Plaster Casts for Compound Fractures in War. (Iconographie des appareils plâtrés pour fractures compliquées par projectiles de guerre.) M. Sénéchal.

45. **Functional Nervous and Mental Disturbances.**—Dejerine and Gauckler warn of the necessity for guarding against the development of functional disturbances in the wounded either from inertia, over-long immobilization or simulation. Those with functional disturbances should not be sent back to the home zone. They emphasize the importance of recognizing the functional nature from the start and giving proper treatment by psychotherapy, and graduated motor reeducation, under strict discipline.

46. **Bridge Casts.**—The illustrations show that the cast is applied to leave the lesion amply exposed, with one, two or three plaster or metal bridges arching over it like the handle of a market basket. Sénéchal has treated fifteen severely wounded men by applying these casts to immobilize the region before he attempted even to examine it. This gave the men time to recuperate from shock and allow the necessary operations to be done at leisure. Of course he refers to not badly infected wounds, the rectal temperature not over 39 C. (102.2 F.). His service is at Duvauchel-Amiens and the men reach there very soon after they are wounded. When given an anesthetic during the excitement still left from the battle, the period of agitation under the chloroform or ether was always extremely violent, and he imagined that this helped to spread infection. By immobilizing first and then giving the anesthetic all this is avoided, and he thinks it realizes great progress.

Revue de Gynécologie et de Chir. Abd., Paris

June, 1914, XXII, No. 6, pp. 465-576. Last indexed January 15, p. 227

47 *Wedge Excision of Fundus of Uterus. (L'excision transversale cunéiforme du fond de l'utérus d'après O. Beuttner.) L. Aubert.
48 Hydrosalpinx and Hydrorrhea. J. Mouchotte.
49 *Vulvar Pruritus. Eyraud-Dechaux.

47. **Wedge Excision of Fundus of Uterus.**—Aubert remarks that diseased ovaries and tubes are encountered mostly in young women; very few of his patients in this category were over 30. The gonococcus generally invades both sides, but when some portion of the ovary is still sound he tries to retain this and avoid unnecessarily radical measures, thus preserving the correlation between the uterus and the ovary, the internal secretion of the ovary and menstruation. He accomplishes this by a technic which he has applied with great success in thirty cases. Through a laparotomy incision he resects a broad transverse wedge in the fundus of the uterus, and sutures the wound in the uterus. Then he resects the ovaries, saving as much sound tissue as possible. The peritoneum is drawn down to roof over the site of the operation, which is concluded with parietal sero-serosa hysteropexy. The broad wedge cut out aims to get rid of and cure the metritis which almost invariably accompanies disease in the adnexa. By this excision of the cornua no chance is left for painful exudation in this region or suppuration in the intra-uterine end of the fallopian tube. Menstruation continued regular in all the patients, and the uterus is held in movable anteflexion. The various steps of the operation are shown in illustrations, as also some of the specimens removed.

49. **Vulvar Pruritus.**—Dechaux devotes over fifty pages to this study of vulvar pruritus. When severe and persisting, it is liable to breed recluses, and suicides from this cause are known. Neurasthenia may develop and the entire organism suffer. The first step in treatment is to exclude all possible causes. An inherited predisposition to nervous affections may be evident. There may be an accumulation of causes, and the memory of the cells facilitates return of the pruritus. She calls this the "prurigenous mnemodermia." An attack of vulvar pruritus accompanying some genital affection is liable to return later, even without any local factor to invite it. With a constitutional predisposition to pruritus it generally locates at points of lessened resistance. Among the causes that must be sought are vermin — they are liable to get into the cleanest families — medication, local or general, that may have started or is maintaining the pruritus. In one distressing case of vulvar pruritus it was traced to vaginal douches with boiled water containing merely a very little tincture of eucalyptus and menthol. Other drugs known to have brought on vulvar pruritus in local applications are salol, phenol, mercuric chlorid, and merely too hot and too often repeated water douches, perfumed soaps, toilet waters, etc. Still another and quite frequent cause is the oxyuris. With this there is usually associated anal pruritus. In one of Dechaud's cases in this category the attacks of pruritus occurred mornings; in six others of which she knows only two occurred at evening or night. The eggs of the oxyuris may be deposited on the mucosa or skin and cause pruritus; five instances of this are cited. The lesions resembled those of a secondarily infected eczema, and only a casual microscopic examination revealed the helminths' ova. Thrush has also been observed as a cause of pruritus in young infants and debilitated elderly women, and in a few pregnant women. A polyp in the urethra, urethritis, calculi in the bladder, herpes, zona, inflammatory processes in the vulva, vagina or uterus or fibromas are also liable to induce pruritus, as likewise syphilis, diabetes and other constitutional diseases. She noted pruritus in about 5 per cent. of her cases of gonorrhea in women; it always subsided as the gonorrhea healed. In four such cases the secretions caused local pruritus also in the husband.

The vulvar pruritus in pregnancy usually disappears after delivery. The women subject to vulvar pruritus at the menopause may be of the gouty temperament or there may be local changes in the vagina setting up the pruritus or nervous disturbances. After exclusion of all other causes, there is left a group of cases with essential pruritus. It is distinguished by its intensity and tenacity. Tentative organotherapy is justified here, trying ovarian, thyroid and pituitary treatment. Vulvar pruritus thus requires general treatment to relieve constitutional disease, to reduce toxemia and reenforce the resisting powers in all ways, studying the inherited predisposition, the environment, the food, the general hygiene, and traumatism. Among the measures that may be required are change of scene, and abstention from coffee, tea, chocolate, alcohol, beer, sausages, veal, fish and shellfish, cheese, tomatoes, spices, strawberries and gooseberries, cabbage and cauliflower. Hygiene of the digestive tract ranks first in all

treatment of pruritus. The teeth should be put in order; a decayed tooth may keep up a pruritus started by some other cause. An instructive case of this kind is related. The excitability of the nervous system should be reduced, and outdoor life enforced. Valerian, arsenic and calcium may aid, but hydrotherapy is usually more effectual. For local relief of the pruritus, Dechaux has found most effectual a pad of absorbent cotton dipped in boiling water containing, or not, three or four tablespoonfuls of good vinegar to the liter. It is applied to the vulva as hot as the hand can bear it, dipping it anew in the water several times in the course of three or four minutes. The idea is to sop the vulva, not to rub it. Then the vulva is dusted with talcum powder. The relief is immediate but only transient as a rule. In only one instance the hot applications failed to relieve, and cold water proved to act better. The hot air jet, electricity, radiotherapy and hydrotherapy aid in some cases, and Dechaux reports relief in others from a fine jet of hot water played on the vulva from a height of 20 or 25 cm. She gives a long list of lotions that have proved useful in different cases, including camphorated brandy; chloroform water; potassium bromid (25 gm. to the liter); morphin; ichthyol (20 gm. to the liter of water), and naphthol (15 or 20 gm. to the liter of water). Besides these, a trial might be made with lotions made from a decoction of coca leaves; tobacco (five or six large leaves per 1,000 gm. water); belladonna; a 2:1,000 solution of potassium cyanid; or 5:1,000 copper sulphate. Mercuric chlorid, phenol and chloral have been recommended but have been known to irritate and induce eruptions. Psychic treatment is generally an important adjuvant, and in absolutely rebellious cases linear scarifications or superficial cauterization aim to destroy the nerve terminations keeping up the pruritus. She tried autoserotherapy in one case but it failed. Excision of vulvar leukoplasia not only wards off cancerous degeneration but cures the pruritus accompanying it. The defect heals readily and rapidly but recurrence of the pruritus has been known after resection of the mucosa. Resection of the nerves in the region might be considered when the pruritus seems to be a kind of neuralgia. In conclusion she cites Walthard's two cases in which psychotherapy alone cured the patients after failure of everything else. The pruritus was evidently purely functional in these cases.

Policlinico, Rome

Dec. 12, 1915, XXII, No. 50, pp. 1669-1700

50 Technic for Administration of Quinin in Malaria. (La chinina e la cura della infezione malarica.) Ciuffini.
51 *Phenol in Treatment of Tetanus. (La cura del tetano con le iniezioni di acido fenico. Metodo del Prof. Baccelli.) S. Niero.
52 *Cure of Tuberculous Lesion in Knee under Iodin. (Di un grave caso di artrosinovite tubercolare, trattato con le iniezioni iodo-iodurate alla Durante.) G. C. Rovatti.

December 19, No. 51, pp. 1701-1732

53 Bier's Technic for Osteoplastic Amputation of the Leg. G. Serafini.
54 Steam Bath in Treatment of Frozen Foot. (La cura dei congelamenti mediante il bagno a vapore.) A. D'Elia.
55 Potassium Bitartrate plus Boric Acid for Disinfection of Wounds. (I vecchi antisettici nella odierna chirurgia di guerra.) A. Cossu.
56 Medical Maladies. (Le malattie mediche.) L. Verney.

51. **Phenol in Treatment of Tetanus.**—The incubation in three cases was from ten to nineteen days and these patients all recovered under the injections of 2 per cent. phenol by Baccelli's technic. The fourth was a small child who developed tetanus two days after an accident and died within forty hours.

52. **Tuberculous Knee Lesion Heals under Iodin.**—Rovatti applied Durante's iodo-iodid technic in the knee case described, as he had been so gratified by the success of this treatment in tuberculous glands and tuberculous peritonitis. The patient was a youth of 17, of a tuberculous family, both parents and two brothers having succumbed to tuberculosis of the lungs or meninges. The lad was a hunchback and the knee trouble was of two years' standing. After evacuating the focus, Rovatti injected a mixture of 1 gm. metallic iodin, 3 gm. potassium iodid, 2.5 gm. guaiacol, and 50 gm. neutral glycerin. This was the formula for the injections. They were given daily and by the end of the fourth month the cure was complete and permanent.

Riforma Medica, Naples

Dec. 4, 1915, XXXI, No. 49, pp. 1345-1372

57 Tartar Emetic in Leishmaniosis in Children. (La cura specifica della leishmaniosi nei bambini.) R. Jemma.
58 Electrotherapy for the Wounded in War. (I contributi della elettricita medica nella traumatologia di guerra.) M. Bertolotti.
59 *Occult Bleeding in Differential Diagnosis. (Sulla ricerca chimica delle piccole traccie di sangue in semejologia.) C. Salvini.

December 11, No. 50, pp. 1373-1400

60 *Treatment of Acute Meningitis by Arresting Reflex Action. (Nuovo contributo clinico alla teoria del l'inibizione infiammatoria nella meningite acuta.) T. Silvestri.
61 The Wassermann and the Landau Reactions in Syphilis. (Reazione di Wassermann e reazione dei sieri sifilitici col reattivo iodato di W. Landau.) C. Piazza.

December 18, No. 51, pp. 1401-1428

62 Pharmacologic Study of Iodo-Albumin. (Ricerche farmacologiche sulla protijodina.) V. Susanna.
63 Vaccination against Paratyphoid. (Sulla opportunita di estendere la vaccinazione delle nostre truppe anche contro i paratifi A e B.) U. Gasperini.

59. **Occult Bleeding.**—Salvini has been investigating simultaneously the various technics for detection of invisible blood in the stomach content or stools. The benzidin technic and Ganassini's eosin reaction gave the clearest responses, and this promptly, while they are sufficiently sensitive (in proportions down to 1 per 15,000) for all practical purposes. He warns that only the findings in the first thirty minutes are reliable. In Ganassini's method, 0.5 c.c. of crystallized eosin are dissolved in 100 c.c. absolute alcohol. In another vessel are dissolved 2.5 c.c. potassium hydrate dissolved in alcohol with 2 c.c. distilled water. Then in a third vessel all the potash solution is mixed with 10 c.c. of the eosin solution and the whole kept in boiling water for eight or ten minutes. It is then cooled and a drop or two of alcohol are added to replace what has been lost by evaporation. When ready to use, 1 c.c. of 10 per cent. hydrogen dioxid is added to 5 c.c. of the reagent, and the fluid to be examined is dropped slowly into the mixture. With a positive reaction, the blue tint veers to yellow or orange, with a greenish or yellowish fluorescence. The reagent must be kept in a cool place and sheltered from the light. The hematin acts as a catalase, fixing the oxygen to the eosin and thus enabling it to regain more or less its former tint which the potassa has changed to blue.

60. **Systematic Inhibition of the Inflammation in Treatment of Acute Meningitis.**—Silvestri uses the term "inibizione inflammatoria" to express the idea advanced by Spiess that inflammation cannot keep up when the reflexes emanating from the inflammatory focus are arrested or abolished. Spiess gave an anesthetic for the purpose, and Silvestri has been applying the idea in treatment of acute meningitis and with most gratifying results. Stroganoff's prophylactic method of treating eclampsia, warding off the convulsions by keeping the woman under the influence of chloral and morphin, has afforded further bases for Silvestri's treatment. He was especially impressed with its efficacy in a case of acute delirium with positive Widal; all his other cases of this kind terminated fatally. It also saved a woman with acute puerperal mania, and two children with repeated convulsions for thirty-six hours. (He gave no morphin to the children.) After much tentative research he selected the calcium salts as the main feature of his method, taking advantage of their sedative action on the nervous system, controlling the vegetative phenomena, as well as their sedative and reconstructing action on the central nervous system, their harmlessness, however long continued, as he has established by personal research, and, finally, the marked curative and prophylactic influence in respect to the toxins which are particularly liable to induce convulsions.

He gives the details of a few additional cases since his first communications on the subject in 1912 and 1914, and declares that the results speak for themselves and testify to the efficacy of this method of treating diffuse serous meningitis. He uses equal parts of calcium bromid and calcium lactate, for adults up to 10 or 12 gm. in the first two days, along with 2 or 3 gm. of chloral, and, possibly, one or two injections of morphin. The dosage is reduced after the first two days, and ice is kept on the head and the bowel functioning supervised. He declares that lumbar puncture is

rendered unnecessary by this treatment which is especially adapted for private patients in the home where lumbar puncture is not always practicable. He discusses the mechanism of this method of treatment, citing in conclusion Calcaterra's statement that diphtheria toxin obtained from cultures on a medium containing calcium chlorid was much attenuated, and the pyocyaneus lost part of its staining properties. Also that H. H. Meyer has reported that dogs previously treated with calcium salts did not develop pleural effusion, as was inevitable otherwise when diphtheria toxin was injected. Fischer and Moore have also reported that calcium salts prevented the serous effusions induced in animals by sodium iodid. He cites also Müller and Saxl's experience that in old cases of tuberculous effusion the return of the effusion was materially delayed by administration of calcium salts. Hamburger and De Heau have called attention to the power of small doses of calcium salts to enhance the phagocytic properties of the leukocytes, and Silvestri has often been impressed with the remarkable efficacy of prolonged generous doses of calcium salts in treatment of the exudative diathesis; in this diathesis the inflammatory reaction is entirely out of proportion to the cause.

Semana Medica, Buenos Aires

Sept. 23, 1915, XXII, No. 38, pp. 357-384

64 Two Gallstone Operations. (Dos casos de cirugia de las vias biliares.) J. Salvador.
65 Diagnosis of Tuberculous Cavities in Lower Part of Lung. (Tuberculosis pulmonar cavitaria de la base del pulmon.) C. P. Mayer.
66 *Latent Filariosis in Brazil. (Filariosis latente de Tucuman.) T. Padilla.

September 30, No. 39, pp. 385-416

67 Present Status of Treatment of Pulmonary Tuberculosis. C. P. Mayer.
68 Experiences of an Obstetrician in Remote Rural District. (La obstetricia en el campo.) A. A. Sonnenberg.

October 7, No. 40, pp. 417-446

69 *Aneurysm of Aorta in Boy. (Dilatacion sacciforme de la aorta en un niño de 12 años.) M. Acuña.
70 Sarcomatous Degeneration of Fibroma of Nasopharynx in Young Man. R. Becco.
71 Folding Shelf and Leg Rests that Screw to Any Table or Bed Transforming it into Gynecologic and Obstetric Table. (Nuevo modelo de mesa desarmable para partos y curaciones adaptable a cualquier cama o mesa comun.) N. L. Cuneo.
72 Chronic Simple Anemia in Girl of Six Apparently Cured by Horse Serum Tablets. A. Buzzo.

October 14, No. 41, pp. 447-474

73 Sarcomatous Degeneration in Woman of 64 of a Vaginal Fibroma of Ten Years' Standing. A. Chueco.
74 Present Status of Filterable Viruses. C. Malbran.

October 21, No. 42, pp. 475-502

75 Electricity in Medicine. C. M. Perez.
76 *Serotherapy of Bubonic Plague. J. Moreno. Commenced in No. 30.

66. **Latent Filariosis.**—Padilla has found a microfilaria in the blood of 25.21 per cent. of the persons examined in the Calera district and in 16.04 per cent. in Arcadia, all in the Tucuman province. He regards it as a new species, and states that those harboring it do not seem to suffer from it in any way. There is some evidence that the mosquito is the transmitting agent. A photograph is given of a group of seven adults and five children from among those with positive findings. He has never encountered the adult form, only the embryos, not having had opportunity for postmortem examination in any case to date. They are smaller than other filarias known, and are most numerous in the peripheral blood drawn at night, although they could also be detected in the daytime. In one case he found from 33 to 34 specimens in each field, in others from 4 to 6; 12 to 18, and in one case from 60 to 75 at midnight and only from 30 to 45 at noon.

69. **Aneurysm of the Aorta in Boy of Twelve.**—Acuña remarks that the rare cases of aneurysm in children that have been reported have generally been credited to rheumatism or chorea, but the Wassermann test has revealed that inherited syphilis is the main factor in the majority of cases. The dilatation of the aorta develops slowly and causes no symptoms for many years as a rule. Children seem to tolerate the aneurysm better than adults. In the case he reports, the thrill, the visible pulsation and roentgenoscopy all confirmed the dilatation of the aorta to form an actual sac. There were no signs or symptoms of inherited syphilis, the Wassermann was negative, but the child's mother responded promptly to the Wassermann test, and had a history of four abortions in eleven pregnancies. The syphilitic toxins had probably weakened the walls of the aorta during the intrauterine stage.

76. **Serotherapy of the Plague.**—In this sixth and final instalment of Moreno's article he gives the details of eight cases from the epidemic at Oporto and of thirteen that were in his personal charge. The list includes the case of Dr. C. Pestana, who succumbed to infection from a scratch in dissecting a plague cadaver. The first symptom of trouble was itching in the axilla on that side, the third day, followed in a few hours by chills, fever and swelling of a gland in the axilla with death the seventh day after the infection. There were only two other deaths in the twenty-one cases here reported. Study of all these cases shows that in certain cases bubonic plague develops for a time as a localized infection. Although the bubo or buboes are accompanied by high fever, etc., yet there does not seem to be general intoxication. Subcutaneous injection of 20 or 40 c.c. of antiplague serum at this stage helps the organism to throw off the disease. It is naturally more effectual the earlier it is applied. But the frequency of severe general intoxication and the difficulty in recognizing it early, make it much safer to push the serotherapy with large doses and give it both by the subcutaneous and intravenous routes. The cases related emphasize the prompt benefit from the intravenous serotherapy, comparable only to that from diphtheria antitoxin. Within twenty-four hours the temperature drops and the general health improves. As it is impossible to foretell the course of the cases from the early symptoms, he regards it as demonstrated that intensive treatment should be instituted at once, and at least 80 c.c. of the serum should be injected intravenously. This wards off general intoxication and tends to abort the disease and save the internal organs from the destructive action of its toxins. He advocates 100 c.c. for the initial dose, repeating it within twenty-four hours, taking the temperature as the criterion. It should be reduced to normal. The clinical charts he gives demonstrate the wisdom of this dosage and its harmlessness. The persisting buboes are of no more clinical importance than any ordinary local inflammatory process. In conclusion he reports five cases of pneumonic plague with three deaths. The two patients who recovered had been given each three intravenous injections of antiplague serum on successive days.

Russkiy Vrach, Petrograd

Oct. 30, 1915, XIV, No. 44, pp. 1033-1056

77 General Anesthesia in War Hospitals. V. A. Oppel.
78 Treatment of Tetanus (Stolbnyak.) V. N. Novikoff.
79 The Technic for Preparing and Administration of Antityphoid and Anticholera Vaccines. V. I. Nedrigailoff.
80 Traumatic Laceration of the Mucosa of the Bladder. (Travmaticheskii razriv odnoe slizistoi obolochki mochevogo puzirya.) G. I. Baradulin.
81 *Blumberg's Sign of Appendicitis. (K voprosu o t. naz. priznakie Blumberg'a.) P. N. Nikolaieff.
82 Operative Treatment of Perforating Wounds of the Cornea and Cataracts Caused by Explosions. M. P. Eliasberg.
83 Positive Wassermann Reaction Before Syphilitic Infection. S. A. Voliansky.

81. **Pressure Sign of Peritoneal Irritation.**—The so-called Blumberg's sign is the pain in the region of the appendix following rapid removal of the hand after it has been applied to the spot to induce pressure. Nikolaieff denies that it is specific for appendicitis. He has been using this sign long before Blumberg, and found it not only in appendicitis, but in every case of peritoneal irritation, whatever its cause. Thus he found it in perforative peritonitis, gastric or duodenal ulcer, in cholecystitis, typhoid ulcers, etc. He usually examines each of the four quadrants of the abdomen. He gives the history of five out of 340 cases in which he studied this sign. It is especially pronounced during the first twenty-four or forty-eight hours, being thus one of the earliest and therefore most valuable signs of acute involvement of the peritoneum by any of the above mentioned diseases. In chronic peritonitis, for instance tuberculous peritonitis, it is absent.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Dec. 11, 1915, II, No. 24, pp. 2551-2634

84 The Red Cross Dogs. (Roode-Kruishonden.) E. Bemelmans.
85 Electrograms of the Frog Heart under the Influence of Extra Electric Irritation. (De gevolgen van extraprikkeling voor het electrogram van het kikkerhart.) S. de Boer.
86 Experimental Research on Hemolytic Amboceptors. (Dierproeven over de werking van haemolytische amboceptoren.) L. P. Daniels and L. S. Hannema.

December 18, No. 25, pp. 2635-2714

87 *Quadriceps Paralysis. (Quadricepsverlamming.) H. A. Laan.
88 Some New Chemical Tests for Alkaptonuria. (Eenige nieuwe reacties op alkapton.) M. W. Scheltema.
89 Unsuspected Scrap of Bone Impacted in the Pharynx; Two Cases. (Twee gevallen van een beentje in het strottenhoofd.) C. E. Benjamins.

87. **Quadriceps Paralysis.**—Laan comments on the conflicting views recorded in the literature as to the value of transplantation operations in treatment of quadriceps paralysis. Mayer has reported the case of a girl of 15 with bilateral quadriceps paralysis who had learned to manage her legs so well that no operation could have hoped to improve their functioning. She had learned to utilize the auxiliary forces, strengthening the sound muscles. Laan has had forty-six patients with quadriceps paralysis in his charge; it was bilateral in twenty of the cases. This experience has convinced him that treatment should never start with transplantation or arthrodesis but should aim to prevent contracture and atrophy of muscles, and this should be the task of the family physician long before the case reaches the orthopedist. Laan relates the details of twenty-five of the more instructive cases to illustrate the efficacy of simple measures perseveringly applied. All thus reported were cases of flaccid infantile paralysis. In none was the quadriceps alone paralyzed; other muscles were always involved. The main thing is to determine the exact factors which are involved in the inability to stand or walk. This very often proves to be an insecurity in the set of the foot on the ground. When the position of the foot can be rendered stable, the sound muscles learn to compensate the paralyzed ones and good functional use of the limb is regained. One striking benefit from this is that the limb grows in length. Correction of contracture of the knee generally improves conditions so that nothing further is required except ensuring that the foot stands firm. There was genu recurvatum only in one of the forty-six cases. A transplantation operation was done in eleven cases; one in this group was an adult, and the disappointing outcome discouraged him from any further attempts at transplantation in grown people. Even in children, he thinks equally good results can usually be obtained by simple means. He aims to get the child on his feet and let him use his legs, without operative measures, although occasionally tendon transplantation may be necessary for stabilization of the foot. Anatomic improvement can almost always be counted on in young children, and functional improvement in all. Older children and adults usually have adapted themselves to conditions so that tendon transplantation is superfluous at this stage. Arthrodesis of the hip or ankle is always bad, and arthrodesis of the knee for children is nearly as bad. It should be considered for adults only when they definitely prefer the arthrodesis of the knee to the annoyance of a supporting device. He had no case of the kind. The aim is to hold the parts in a good position and exercise them.

Finska Läkaresällskapets Handlingar, Helsingfors

1915, LVII, No. 1, pp. 1-144

90 *Twenty Years of Scarlet Fever in Town of Twenty Thousand Inhabitants. (Om scharlakansfeber och dess upptradande i Vasa under de senaste 20 åren.) K. Ekholm.
91 *Tuberculous Abscess in the Liver. F. Saltzman.
92 The Suture with Laparotomy. (Till frågan om det klassiska laparotomisårets suturering.) O. Engström.

No. 2, pp. 145-254

93 Drop-Like Bodies in the Epithelial Cells of Postgonorrheal Urethral Secretion. (Om hittils föga beaktade bildningar i det postgonorrhoiska uretralsekretets skifepitelceller.) A. Cedercreutz. Illustrated.
94 *Tetany after Thyroid Operations. (Om tetani i anslutning till strumaoperationer.) E. Sandelin.
95 Severe Injury of Vesicovaginal Wall during Criminal Abortion; Fatal Septicemia. T. Länsimäki.
96 Postglenoid Process on Skull not a Constant Sign of Degeneracy. H. Grönroos.

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97 Cicatricial Stenosis of the Pylorus. H. v. Bonsdorff.
98 *Severe Hemophilic Intestinal Hemorrhage Treated with Transfusion of Blood. R. Forsius.
99 *Atresia with Retention of Menstrual Blood without other Deformities. (Nya iakttagelser af atresi med retention af menstrualblod ved enkel utero-vaginalkanal.) A. Weckman.

90. **Scarlet Fever.**—Ekholm relates that during the last twenty years, in the town of Vasa, no cases of scarlet fever occurred in about 60 per cent. of the buildings of the town. In other buildings the disease occurred again and again. In one building, with eighteen flats, cases were reported in 1899, 1900, 1901, 1903, 1906, 1907, 1910 and 1913. He cites facts which show that the susceptibility varies at different times and some families seem to be less resistant. There were 23 return cases among 724 patients dismissed from the hospital as cured and presumably no longer contagious. Walking cases, without eruption, are probably responsible in many instances for the spread of the disease. Only twenty-two of all the patients treated were adults.

91. **Tuberculous Abscess in the Liver.**—The man of 50 whose case history is related had for ten years presented symptoms of mild pulmonary tuberculosis, during the last three years accompanied by symptoms on the part of the kidneys and chronic diarrhea. No tubercle bacilli could be found in the sputum. Necropsy disclosed a large abscess in the liver, surrounded by cirrhotic liver tissue. The course of a tuberculous abscess in the liver is insidious and chronic. Except for vague gastro-intestinal disturbance, there is nothing to call attention to the liver as a rule. The hectic fever is usually ascribed to the primary process until the liver lesion spreads to involve the peritoneum.

94. **Tetany after Thyroid Operations.**—In one of the three cases of tetany developing consecutive to operations on the goiter, the tetany proved so severe that death ensued during the convulsions. The patients were women of 23, 28 and middle age, and one had had part of the thyroid removed fourteen years before. Sandelin ascribes the tetany to interference with the circulation in the parathyroids, as the inferior thyroid artery had been ligated in the course of the operation. He warns that this had better be avoided in future.

98. **Transfusion of Blood in Hemophilia.**—A boy of 6 was in such a threatening condition of anemia from repeated intestinal hemorrhages that direct transfusion of blood seemed the last resource. As no other donor was available at the time, Forsius gave his own blood and a marked turn for the better was soon apparent. Gelatin was given at the same time. After four months of freedom from hemorrhage, subcutaneous hemorrhages brought the hemoglobin down to 20 per cent. Then 20 c.c. fresh blood from a young man were injected and gelatin given. A year followed without further mishaps, but then fatal intestinal hemorrhage occurred. Forsius points out that the substances which have any influence on hemophilic hemorrhage are those which induce leukocytosis. He does not think the blood platelets are directly involved. As a means to estimate the amount of blood transfused, he weighs both the donor and the recipient immediately before and after the transfusion. The difference in the weight of each indicates the amount of blood that has changed hands.

99. **Dysmenorrhea from Atresia.**—Weckman adds seventeen new cases to the nine previously published from Engström's clinic. On the basis of these twenty-six cases he discusses the pathogenesis, consequences and treatment. The blood regurgitated into the fallopian tubes may make its escape safely afterward when the natural outlet is made permeable. The latter procedure is not always simple and easy. In one case of low atresia of the vagina, Engström was compelled to work through a laparotomy incision, introducing the forceps to stretch the gynatresia from above. With atresia of the cervix it may be necessary to resect the constricted portion. The twenty-six cases are related in detail with the special technic applied in each and the outcome.

Hygiea, Stockholm

1915, LXXVII, No. 22, pp. 1329-1407

100 Case of Pneumococcus Sepsis. E. Saul.
101 Solid Teratoma in Right Chest. (Fall av teratom i högra thorax.) H. Bendz.
102 *Protecting Mechanisms of the Body by Chemical Means against Action of Poisons. (Om några väsentligen kemiska skyddsmekanismer mot förgiftningar.) C. G. Santesson.

102. **Chemical Autoprotection Against Action of Poisons.**—Santesson's article is the lecture opening his course of pharmacology. He describes in particular the chemical means with which the organism seeks to overcome the action of poisons by stimulating the functioning of certain organs, by generating antibodies, etc.

Ugeskrift for Læger, Copenhagen

Dec. 9, 1915, LXXVII, No. 49, pp. 1915-1962

103 *Contraindications against Subcutaneous Injections of Epinephrin. (Om Kontraindikationer mod den medicinske Anvendelse af subkutane Adrenalininjektioner.) L. S. Fridericia.
104 *Necessity for Breaking up the Vicious Circle with Chronic Disease. (Circulus vitiosus i kroniske Lidelser.) P. Lorenzen.
105 *Mumps Appears for First Time in Greenland. (Erfaringer fra en Parotitisepidemi i Grønland.) A. Bertelsen.
106 Chicken Fleas as Parasites on Man. (Hønselopper som Parasit hos Mennesker.) Strodtmann.

December 16, No. 50, pp. 1963-1994

107 Two Cases of Congenital Malformation of the Heart. (I. Truncus arteriosus persistens totalis. II. Atresia ost. venos. dext.) G. Jørgensen.
108 Relapsing Fever Cured by Neosalvarsan. (Et Tilfælde af Fb. recurrens behandlet med Neosalvarsan.) C. H. Würtzen.
109 Relapse after Lorthioir's Operation for Inguinal Hernia in Three Months' Infant. Bjerrum.
110 Spontaneous Partial Strangulation by Hair of Excessively Developed Labia Minora; Two Cases. O. Haslund.

103. **Contraindications Against Subcutaneous Injections of Epinephrin.**—Fridericia refers to the medical use of epinephrin. He says that it is used in Denmark quite extensively in treatment of asthma. The asthma patients admitted to the Rigshospital in recent years had all been given subcutaneous injections of epinephrin at some time or other. The transient pallor, chilliness and palpitations sometimes observed after the injection have always been regarded as negligible by-effects in comparison to the relief obtained from the epinephrin. M. Donaldson seems to be the only one who regards these by-effects as so serious that he has given up the use of epinephrin. Fridericia has compiled from the literature five deaths following injection of epinephrin. In one of these a large dose (0.6 gm.) had been injected into a vein in a much debilitated patient with infarction of the lungs, granular nephritis and arteriosclerosis. In all the others the epinephrin had been injected into the muscle of the uterine cervix while the patients were under the influence of chloroform. He has also found two deaths on record after subcutaneous injection of epinephrin, but these were in infants, only 3½ months old. Kauert has reported a case of briefly transient pulmonary edema in a patient with pneumonia given an intravenous injection of epinephrin, and arrhythmia with dyspnea in a patient with an aortic valvular defect with failing compensation. Experimental animals can stand from ten to fifty times relatively larger doses by subcutaneous injection. A number of clinicians have reported unfavorable experiences with subcutaneous injection of epinephrin in cases of heart or valvular defects. Some warn expressly against it with heart disease or nephritis with high blood pressure. On the other hand, testimony is constantly accumulating as to the value of epinephrin in sudden heart weakness in the course of acute infectious diseases.

These and other data cited confirm the danger of administering epinephrin in case of organic heart or valvular disease, and this conclusion is reenforced by two cases from Fridericia's own experience. The epinephrin had been given to relieve asthma in both, but the asthma was not, as supposed, ordinary bronchial asthma, but was of cardiac origin. The subcutaneous injection of 0.4 c.c. of 1:1,000 epinephrin in the first case was followed by collapse and angina pectoris and the man of 62 died the second day, after a period of Cheyne-Stokes respiration. The second patient was a woman of 49 with hypertrophy and dilatation of the left ventricle. She had suffered from dyspnea at times during the last eighteen months and in one severe attack she was given a subcutaneous injection of 0.4 c.c. of epinephrin. Dyspnea became much aggravated at once and the woman vomited and felt much depressed. Under morphin and camphor she felt better, but died three months later having presented angina pectoris and Cheyne-Stokes breathing during the interim. In both these cases the intern summoned in haste to the patients failed to distinguish that the asthma was of the cardiac rather than the ordinary bronchial type. In fact, the diagnosis that had accompanied the patient to the hospital was "bronchial asthma."

Signs of a valvular defect or hypertrophy of the left heart generally exclude bronchial asthma. With cardiac asthma there is no expectoration or merely reddish foamy masses. Fine moist râles may be heard with cardiac asthma while with asthma of the bronchial type there are rhonchi. Bronchial asthma usually occurs only at certain seasons of the year. The sputum also shows the characteristic spirals, etc., and the blood eosinophilia. Opinions are conflicting as to whether epinephrin should be given when true bronchial asthma is accompanied with a weak heart. Fridericia regards any cardiovascular insufficiency as contraindicating it.

104. **The Vicious Circle in Chronic Affections.**—Lorenzen expatiates on the importance of the secondary symptoms which develop in the course of digestive disturbances, traumatic lesions or other chronic trouble. The secondary symptoms, general nervousness, etc., may overshadow the primal trouble and the whole form a vicious circle. It is like a circular chain, and the physician by attacking a weak link may break up the chain completely. If he does not succeed with one of the links he should attack another. In some cases systematic massage of the abdominal wall cures a tendency to fibrositis and ptosis, and this in turn restores better conditions in the functioning of the viscera, thus relieving the physical discomfort and the dread of organic abdominal disease. Relief from this worry brings peace and sleep, and a long step has been taken toward a complete cure. In other cases drugs to relieve insomnia may break up the vicious circle. In still others some local rheumatic affection is accompanied by general nervousness and chronic dyspepsia. Although the latter is probably the primary, yet he directs treatment to the rheumatic trouble alone until he gets the patient's confidence and has enough control over him to get the measures enforced which the dyspepsia requires. Then gradually all the disturbances disappear. Chronic digestive disturbances sometimes yield surprisingly to belladonna which he explains by assuming that the secondary nervous symptoms had gradually taken the upper hand. Correction of the latter breaks up the vicious circle.

105. **Introduction of Mumps into Greenland.**—Bertelsen writes from Umanak in Greenland that primary epidemic parotitis was never encountered in Greenland to his knowledge until the infection was brought in 1913 by a ship from Denmark, and of the 2,425 individuals in the district, about 1,500 contracted the disease. In his special district, 191 of the 285 individuals were affected, that is, 66 per cent. of the men and 68 per cent. of the women. No infant under 2 was affected; 18 per cent. of the male patients developed orchitis and 5.3 per cent. of the women had mastitis; that is, about half of the women who were nursing infants at the time. In 3 of the 8 cases of mastitis this was evidently the primary localization of the disease, the parotitis following later. There was suppuration of the parotid gland in one case and of the breast in one. Oophoritis could not be determined with certainty in any case. There were no fatalities and no chronic trouble seemed to be left in any instance.

Correction.—Benzin, not Ether, for Bacteriologic Examination of Stools.—The term "petroleumsæteren" was incorrectly translated "ether" instead of "petroleum ether" as it should be, in Abstract 124 in The Journal, Jan. 22, 1916, page 317. The word occurs five times in the abstract and once in the title, and in each instance petroleum ether should be specified. This has a boiling point below 50 C., while the boiling point of the closely allied benzin is stated to be 80 C. The lower the boiling point, the greater the destructive action on the colon bacillus.

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 7 CHICAGO, ILLINOIS FEBRUARY 12, 1916

THE PURIFICATION OF WATER SUPPLIES *

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Discussion of water purification in this paper is limited to the hygienic aspects of the subject. Clarification of a muddy water, removal of an excess of iron, softening of a hard water are all ends desirable in themselves, but they are not purification in the sense in which that term is here considered. Removal of turbidity may be economically and esthetically important; installation of a municipal water-softening plant may be demanded by considerations of convenience and economy, but softening and clarification of water are never matters primarily concerning public health. If a community desires and can afford to pay for a clear or a soft water, it can get it. The degree of expense in this direction that is justified in comparison with other needs is a question to be determined by each community, bearing in mind that the demands of the modern city are many and urgent, and remembering that in but few instances are funds available to carry out all the measures of improvement that appeal to different groups.

Most citizens would agree in principle if not in practice that the sanitary purity or direct relation of a water supply to health is by far its most important feature. Consideration of purification of water is therefore here restricted to the methods of rendering a contaminated or potentially dangerous supply safe for use.

WHY PURIFICATION IS NECESSARY

The present necessity for water purification in civilized countries is a consequence of two factors: first, the greatly increased demand for water under modern conditions of life; second, the increasing density of population on most parts of the earth's surface. It is becoming more and more difficult to draw for a water supply of any size on a body of surface water that is uncontaminated or at all events not liable to occasional or accidental pollution; as is well known, infectious material discharged by a single human being is sufficient to poison many gallons of water and to cause hundreds of cases of disease. It is difficult also to obtain the volume of water sufficient for a large and rapidly growing community. Many of the smaller towns and villages in the United States rely on deep wells as a source of supply, and from a sanitary point of view such waters are usually excellent. In many regions, however, the amount of available underground water is limited, and if a large amount of water is required by a municipality, surface waters more or less exposed to pollution must be taken. Where surface waters are resorted to, the need for purifying them is so plain in some cases that there can be no question of its imperativeness, as with the Merrimac River, used by the city of Lawrence, Mass., the Hudson River, used by the city of Albany, and the Schuylkill River, drawn on by Philadelphia. In these cities, simple inspection of the water sources is sufficient to show that the river water used as the source of supply is contaminated with fresh sewage, and in an untreated condition is grossly unfit for drinking purposes. Water purification in these cities has been followed by a marked diminution in the amount of certain diseases.

On the other hand, the need for purification of a surface water supply is not always so obviously urgent to the untrained judgment, and detailed observation of disease prevalence and of the bacterial character of a water is necessary before general agreement on the desirability of purification is reached. This has been the water supply history of some cities on the Great Lakes. The city of Cleveland hesitated for several years before undertaking the construction of a filter. Detroit and Buffalo have been rather recently convinced of the desirability of protecting their water supplies by chlorination.

Still other large cities are so fortunately situated in respect to surface water supplies that artificial purification for the time being is not considered necessary. These are practically all in localities where the watershed levied on is owned or controlled by the municipality, and where long storage of impounded waters in natural or artificial reservoirs can be trusted to effect a natural purification. New York and Boston are well-known examples of cities depending on protected and stored surface water.

THE DEVELOPMENT OF WATER PURIFICATION

Public water supplies, although not uncommon in the early history of southern Europe, were practically unknown in Northern Europe in the middle ages, and the large modern water supply systems have been developed for the most part in the last seventy years. Storage of water was undoubtedly practiced in antiquity, but was not consciously resorted to as a means of purification, and the first deliberate attempt at purification of water on a large scale seems to have been less than 100 years ago, when, in 1829, a slow sand filter was built by one of the London water companies. Even in this instance the immediate end in view was clarification of a muddy water

* Read before the Pan-American Scientific Congress, Washington, D. C., Jan. 4, 1916.

and it was not until the connection between drinking water and disease became manifest about twenty years later that the filtration of the whole London water supply was more definitely undertaken as a hygienic measure. Purification of public water supplies became general in England and on the continent of Europe two or three decades earlier than in this country, owing perhaps to the greater density of population in many regions and to the glaring evidences of pollution in many streams serving as water sources. European cities that delayed or boggled water purification often suffered severely from water-borne diseases, as did the wealthy German city of Hamburg in the cholera epidemic of 1892-1893.

In the United States as in Europe, development of public water works has taken place almost wholly since 1850, and the introduction of methods of purification is yet more recent. A beginning in water purification had been made at Poughkeepsie, N. Y., and elsewhere before 1890, but progress has been much more rapid since that date, owing in large part to the impetus given to the study of water purification by the investigations of the state board of health of Massachusetts. These investigations, begun in 1887, were soon followed by the construction of a modern sand filter plant at Lawrence, Mass. (1893), and the striking success of this filter in reducing typhoid fever served as an object lesson to the whole country.

It was calculated by Hazen that in 1900, 6.3 per cent. of the urban population of the country (towns of over 2,500 population) were supplied with filtered water, while in 1911, according to G. A. Johnson, this proportion had arisen to over 20 per cent. Table 1, which I have compiled from the information given in the McGraw Waterworks Directory and from other sources of information, shows the present condition in the larger cities of the United States.

TABLE 1.—CHARACTER OF WATER SUPPLIES IN CITIES OF THE UNITED STATES WITH OVER 10,000 POPULATION IN 1915

Water Supplies	Treated		Untreated		Unknown	
	No. of Cities	Population	No. of Cities	Population	No. of Cities	Population
Wells and springs	28	2,491,810	76	2,215,163	63	1,765,559
Rivers and streams	141	10,769,547	22	1,053,418	25	603,423
Impounding reservoirs	30	1,992,035	19	5,269,524	19	842,526
Lakes	38	5,498,206	25	1,886,312	16	464,690
Wells and rivers	15	571,566	5	92,301	7	452,812
Source not known					32	516,273
Totals	252	21,318,164	147	10,516,718	162	4,645,283

It will be noted that while over 60 per cent. of the total city population of the United States is at present supplied with water treated by some method of purification, the actual proportion of the population supplied with hygienically safe water is far greater. The water from deep wells and from storage reservoirs is unquestionably in large part of excellent quality even if not subjected to artificial purification. It is fair to assume that 30,000,000 out of the 36,500,000 people living in cities with over 10,000 population are now provided with water initially pure or more or less effectively purified. Taking into consideration smaller towns and villages, it seems likely that at least 50 per cent. of the total population of the United States is today supplied with water of a high degree of purity.

Hazen estimated that in 1904 water of a more or less unsatisfactory quality was supplied to approximately 52 per cent. of the urban population of the United States in cities of more than 25,000 inhabitants; at present, 1915, this statement, as far as sanitary quality is concerned, would hardly hold true for more than 20 per cent.

MODERN METHODS OF PURIFICATION

(*a*) *Storage.*—A high degree of natural purification of water can be effected by storage. When the water of small streams is impounded in a reservoir instead of being pumped directly into water mains, important changes occur. Suspended matter in part sinks to the bottom and the water becomes clearer, the color of the water is usually lessened owing to bleaching by the sunlight, and the total number of bacteria in the water is materially diminished. Most important of all, any disease-producing bacteria that may have found their way into the tributary streams tend to perish during the sojourn of the water in the reservoir. A cardinal factor in bringing about the death of pathogenic bacteria in water is time. So far as is known, disease germs introduced into water never multiply under natural conditions, but progressively and rather rapidly die off. The longer a water can be stored, therefore, either in an artificial reservoir or in a natural lake or pond with protected shores, the less liable it is to harbor disease germs. This principle of storage, based on the high mortality of typhoid bacilli and allied bacteria suspended in water, is being utilized in the treatment of many large surface water supplies apparently with high success. New York and Boston, as already mentioned, are relying mainly on this method to insure the purity of their supplies. The safety of the London supply is thought to depend very largely on storage. Adequate storage is often all that is needed. In cities where other methods of purification are employed, preliminary storage is highly advantageous since it reduces the burden on filters, and in other ways facilitates the application of special purifying treatment.

(*b*) *Slow Sand Filters.*—The use of beds of sand carefully superimposed on gravel in water-tight basins was probably the first method employed for water purification (London, 1829) on a large scale. The water is passed continuously on the sand, and flows through by gravity. The earlier European filtration plants were all of this type. In this country slow sand filters have been installed at Albany, N. Y., Pittsburgh, Washington, D. C., Philadelphia and other cities. Through such filters water may be commonly passed at a rate of 3,000,000 gallons daily per acre of filtering surface, and if the water treated is not very turbid or badly polluted, a rate of 6,000,000 gallons or more daily may be permissible. It is important that the speed at which the water passes through the sand shall not vary suddenly or in different parts of the filter, and ingenious devices for regulating the flow are in use in order to maintain a uniform rate of filtration. Disturbance of the filtering surface by ice also impairs the efficiency of the operation, and in some instances has been followed by outbreaks of disease.

One of the principal elements of expense in the operation of slow sand filters is the necessity for removing and eventually cleaning and replacing the thin upper layer of sand which becomes clogged in operation. The frequency with which the sand surface must be scraped and renewed depends largely on the amount of suspended matter in the water treated and on the rate of

operation. The use of ample preliminary settling basins or storage reservoirs will lessen the operating cost, as well as introduce an element of safety. Taking into consideration the interest on the capital invested in construction and other proper capital charges, together with the cost of maintenance, the average cost of purifying water by slow sand filters is about $8 per million gallons under present conditions in this country. On the basis of a daily per capita water consumption of 125 gallons, this involves an annual cost of about 36 cents per capita.

(*c*) *Rapid Sand Filtration.*—Slow sand filters are not adapted for use in many parts of the United States because the amount and fineness of the suspended matter in many American rivers leads to premature clogging of the sand and a total obstruction of operation. A somewhat different type of filter known as the mechanical or rapid filter has proved to have marked advantages in dealing with very muddy water, such as is found in the Ohio and Mississippi rivers. If a turbid water is first treated with some coagulating chemical, such as aluminum sulphate or iron sulphate, it can be passed through sand at a much higher rate than is possible with the untreated water. The development of rapid filtration with the use of a coagulant has been largely a matter of American invention, and in its beginning depended to a great extent on the use of patented processes and mechanical devices protected by patent. The expiration of some of these patents has opened the road for a wider application of this method, and has been followed by important developments. Experiments at Louisville and Cincinnati have established the applicability of the coagulating process to large volumes of water, and at present rapid sand filters are in operation at Cincinnati, Minneapolis, St. Louis and many smaller cities. Suitable automatic devices for controlling the application of the coagulating chemical are indispensable, since any material excess or deficiency of the coagulant is fatal to successful or economical operation. Many of the earlier installations of rapid filters by private firms were not properly supervised, and in some cases the original plant was improperly constructed or allowed to deteriorate so that the whole process for a time fell into a measure of disrepute.

The cost of construction of rapid sand filters is much less than that of slow sand filters, but the cost of operation is greater. Reckoning all charges, the total cost per million gallons of water purified averages distinctly less (about $6 per million gallons) by the rapid than by the slow process.

(*d*) *Germicidal Treatment.*—Although in the course of years a great variety of chemical substances have been proposed for the disinfection or partial sterilization of water supplies, only a few of these have won any extended practical application. The use of *ozone* for water sterilization possesses certain theoretical advantages. Several small plants using ozone have been operated in European countries, but in practice the relatively high expense of generating the ozone and bringing it into intimate contact with the water to be treated has so far proved an obstacle to the utilization of this mode of treatment for large supplies. It is possible that the availability of cheap electric power for generating ozone, combined with other favorable factors, may under some conditions render ozonization desirable. The development of cheaper germicidal processes, however, has checked, perhaps permanently, the general introduction of ozonization.

The objection of high cost obtains also with respect to the use of *ultraviolet rays.* These rays, which are conveniently generated by specially constructed lamps, have a high germicidal power, and quickly destroy bacteria in clear water. Experimentally ultraviolet sterilization has very desirable qualities, but thus far, owing to the expense of operation and to the necessity for a preliminary clarification of very turbid waters, it has not been used in this country for large scale installations.

The use of *calcium hypochlorite* ("chloride of lime," or "bleaching powder") has for some years past quite overshadowed other methods of germicidal treatment. Variations in the character of the water and in the composition of the commercial bleaching powder affect the amount that it is necessary to add to secure germicidal efficiency, but in general the quantity of the powder used ranges from about 5 to 15 pounds for each million gallons of water treated. The cost of bleaching powder under normal conditions has been less than 2 cents a pound. Since the opening of the war, the cost has been greatly increased. Including the expense of application, hypochlorite treatment costs not more than one tenth as much as filtration. The action of the hypochlorite is similar to that of ozone, and depends on the strongly oxidizing powers of the hypochlorous acid that is formed when the bleaching powder is added to water. The advantages of the hypochlorite treatment are the cheapness, harmlessness, ease and speed with which it may be employed. The chief objection is the liability to the production of disagreeable tastes or odors which its use entails. Chlorin gas itself has a distinctly unpleasant odor even in small quantities, and the action of the hypochlorite on certain organic matters present in water also generates disagreeable tastes and smells. Complaints on this score in communities in which hypochlorite treatment of the water is practiced are especially common in cold weather. Waters differ in respect to their tendency to develop objectionable odors, and in practical operation some waters are very troublesome. An important improvement in the field of water disinfection has been the substitution of liquefied chlorin gas ("liquid chlorin") for calcium hypochlorite. The gas, which is generated by the electrolysis of brine, is dried, cooled and compressed, and is then marketed in liquid form in portable cylinders under pressure. The advantages claimed for the use of the gas include superior economy and simplicity in regulation. Liability to cause unpleasant odors is said to be much less by this mode of treatment. Overdosing, however, may occur both with liquid chlorin and bleaching powder.

RESULTS OF WATER PURIFICATION

When a polluted water that serves as a source of municipal supply is treated by slow sand filtration, the most conspicuous immediate change in the health of the community is a drop in the typhoid death rate. This has been demonstrated repeatedly in European cities, as in Hamburg, for example, and in many American cities. In Lawrence, Albany, Pittsburgh and Philadelphia, slow sand filtration of a highly polluted river water has been followed by a reduction in the reported typhoid mortality to one third or even one fourth of that formerly prevailing. A decrease in water-caused infant mortality has also been noted;[1] it is yet unknown to what extent the connection

1. McLaughlin: Pub. Health Rep., 1912, No. 77.

between infant mortality and sewage-polluted water supplies is due to infection with the typhoid bacillus. In some instances, though not in all, the so-called Mills-Reincke phenomenon has been observed, namely, a decline in the general death rate minus the typhoid component, and in the reported deaths from certain other diseases, such as tuberculosis and pneumonia, not commonly regarded as water-borne.[2]

There is no doubt that some deaths from typhoid infection both in infants and adults have been and still are reported under some other designation. I have elsewhere[3] called attention to the decrease in reported deaths from "malaria" in Albany, N. Y., following the installation of a sand filter. It is unquestionably true that in other cities some of the deaths in the past reported as due to "malaria" or "typhomalaria" should have been properly classed with those from typhoid fever. Mistaken diagnosis may explain to some degree such decline in general death rates as cannot be referred directly to the diminution in deaths specifically attributed to typhoid fever. Thus, in St. Louis (Table 2) a correspondence can be noted in some years between the number of reported deaths from typhoid fever and the reported deaths from "malarial fever." In more northern cities, in which, for various reasons, the diagnosis of death from "malaria" is less likely to be made, the same correspondence can yet be noticed under certain conditions (Table 3). There seems no escape from the conclusion that at least some—probably a large proportion—of the deaths recorded as due to "malarial fever" in these cities were in reality caused by typhoid infection.

It has further been shown by Dublin,[4] from a study of insurance records, that the normal expected mortality is doubled among typhoid convalescents during the first two years after their recovery from the disease. In his statistics, tuberculosis, diseases of the heart and kidneys, and pneumonia were prominent among the causes of death in a limited number of typhoid patients subsequent to recovery. If this conclusion proves generally valid, there must always be expected some lessening of the general mortality in addition to that due to the typhoid component, and perhaps in some cases a measurable diminution in the death rate from tuberculosis and other diseases accompanying a decrease in typhoid fever due to water purification. In a word, certain individuals appear to be so affected by the typhoid infection that although surviving for a time, they die within two years from tuberculosis or cardiac lesions. To what extent the Mills-Reincke phenomenon and Hazen's theorem are explicable on this basis is matter for further investigation to determine.

TABLE 2.—DEATHS REPORTED IN ST. LOUIS

Year	Typhoid Fever	Malarial Fever
1890	140	226
1891	165	216
1892	441	326
1893	215	284
1894	171	179

Granting that many deaths from typhoid fever and its sequelae are prevented by slow sand filtration, the question may be raised as to what degree of safety is attained by this method, whether absolute or limited. The necessity of care in operation is well known. Bacterial and other observations clearly show that dangerous bacteria may pass through the sand, if there is any "accident" to the filter or any "disturbance" of its normal action. The epidemics of cholera at Altona, Germany, and typhoid fever at Lawrence, Mass., illustrate the way in which the formation of ice can interfere with the safe operation of a filter.

While the harm from such unusual interruption of normal filter action is sufficiently demonstrated, it is not so easy to measure the degree of danger existing under more ordinary conditions. Reliance on bacterial averages of effluents may be misplaced, since a low average may be reached even if occasional breaks occur in a long series of low numbers. Should typhoid bacilli pass through a filter during one hour in twenty-four or for one day in the year, absolute protection is plainly not afforded. While the data for a final judgment on this point do not exist, it must be admitted that there is some evidence that the attempts to treat a highly polluted raw water place at times too great a burden on the filter. Intestinal bacteria of the *Bacillus coli* type may appear in the effluent in such cases in numbers thought by some observers to indicate danger.[5]

TABLE 3.—DEATHS REPORTED IN CHICAGO, 1891

Month	Typhoid Fever	Malaria
January	67	7
February	61	9
March	71	16
April	136	18
May	408	22
June	167	7

Among the recent attempts to establish standards for safe drinking water may be noted the report of the commission appointed by the U. S. Treasury Department to consider standards for water supplied to the public by common carriers engaged in interstate commerce.[6] The commission reported as follows: "1. The total number of bacteria developing on standard agar plates incubated twenty-four hours at 37 C. shall not exceed 100 per cubic centimeter. . . . 2. Not more than one out of five 10 cubic centimeter portions of any sample examined shall show the presence of organisms of the *B. coli* group. . . ." A study of the records of filtration plants shows that in some instances the application of such a standard would lead at times to the condemnation of filter effluents. It has been suggested that the standard proposed is too severe for general municipal water supplies,[7] and perhaps this is a just criticism; but in any case it is clear that the margin of safety in some filtration plants is not very great.

The results of rapid or mechanical filtration are essentially similar to those of slow sand filtration. The percentage of bacterial removal reaches practically the same height as in the slow sand filter, and a marked decline in typhoid fever has been observed in many cities following the introduction of rapid filters. In Cincinnati, Columbus, Ohio, Paterson, N. J., and other cities, the typhoid death rate has sunk to low figures after rapid filters were installed. The necessity for careful and unremitting supervision of operation is

2. Sedgwick and MacNutt: Jour. Infect. Dis., 1910, vii, 489.
3. Jordan, E. O.: Tr. Am. Soc. Civil Engineers, Inter. Eng. Congress, 1905, liv, D, p. 206.
4. Dublin: Am. Jour. Pub. Health, 1915, N. S., v, 20.
5. McLaughlin: Pub. Health Rep., Jan. 26, 1914.
6. Bacteriological Standard for Drinking Water, Reprint 232, U. S. Pub. Health Rep., 1914.
7. Fuller: Jour. Franklin Institute, July, 1915, p. 42.

quite as great in the case of rapid filters as with those of the slow sand type. The safety of the mechanical filter effluent is no more certain or absolute than that of slow sand filters.

Excellent results as regards bacterial efficiency and security from typhoid infection are achieved by bleaching powder and by liquid chlorin treatment. The chief difficulty experienced in this mode of water purification lies in the close approximation for many waters

TABLE 4.—DEATHS FROM TYPHOID PER HUNDRED THOUSAND POPULATION, MILWAUKEE, WIS.*

Year	Death Rate	Remarks
1906-1910 (average)	27	
1911	19	Hypochlorite used intermittently
1912	25	Hypochlorite used continuously after September, 1912
1913	11	Hypochlorite used continuously after September, 1912
1914	8	Hypochlorite used continuously after September, 1912
1915	5†	Liquid chlorin treatment begun March 31, 1915

*From information kindly furnished me by Dr. G. C. Ruhland, health commissioner, Milwaukee.
† Estimated.

of the limit of germicidal efficiency and the limit of inoffensiveness. If unpleasant odors are produced by the chemical, the maintenance of an adequate bactericidal strength often proves difficult in the face of complaints from hundreds of water consumers. The city of Cleveland is thought to have suffered excessively from typhoid in 1913 in consequence of a decrease in the dosage of hypochlorite.[8] Temporary cessation of the hypochlorite, or reduction to an amount inadequately germicidal, may sometimes be followed by a definite typhoid epidemic, as in the outbreak which I investigated at Quincy, Ill., in 1913.[9]

A remarkable reduction of typhoid has been observed in some cases to accompany the hypochlorite treatment. The experience of Milwaukee is in point.

Other similar instances are on record in which a marked typhoid decrease has been chiefly attributable to chlorin treatment of the public water supply. In such cases it is interesting to note that although clarification is not effected by the chlorin treatment, the

TABLE 5.—METHODS OF WATER PURIFICATION IN CITIES OF THE UNITED STATES WITH OVER 10,000 POPULATION

	Number of Cities	Population
Slow sand filtration:		
With chlorin	13	2,886,233
Without chlorin	19	1,073,290
Rapid sand filtration:		
With chlorin	105	7,343,987
Without chlorin	46	3,835,980
Chlorin treatment alone	57	5,793,419

sanitary success seems at least as great as when filtration is practiced.

One noteworthy development of the chlorin treatment (hypochlorite or liquid chlorin) has been its application either to the raw water or to the effluents of slow sand and rapid filters. Hypochlorite dosage of the water applied to filters or of the filter effluents has, in fact, become an almost universal procedure (Table 5). It does not yet appear that this practice is accompanied by any measurable decline in typhoid fever in cities previously served by a modern well-operated filter.

THE OUTLOOK

A few probable developments in water purification in the United States can be forecast. It seems likely that the public demand for a clear, as well as a purified water will increase, and that sand filtration of the mechanical type will become more general. It is also probable that the increase in pollution of surface waters consequent on growing density of population will tend to overburden filter plants, and that if the raw water cannot be protected, chlorination will be generally resorted to as an adjunct to filtration. In the near future practically all surface waters not adequately purified by protected storage will be treated by some purifying process. Already approximately 80 per cent. of the population of cities of over 10,000 inhabitants and over 50 per cent. of the total population of the country are supplied with purified surface water, or from ground water sources of excellent sanitary quality. At the present rate of progress, water-borne disease in the cities and larger towns of this country will be relatively rare within ten years.[10]

8. Collins and Perkins: Cleveland Med. Jour., 1914, xiii, 786.
9. Jordan, E. O.: Jour. Infect. Dis., 1913, xiii, 16.

10. Typhoid in the Large Cities of the United States in 1914, special article, THE JOURNAL A. M. A., April 17, 1915, p. 1322.

PELLAGRA: CAUSATION AND A METHOD OF PREVENTION

A SUMMARY OF SOME OF THE RECENT STUDIES OF THE UNITED STATES PUBLIC HEALTH SERVICE

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One of the outstanding features of the epidemiology of pellagra is the striking relation of the disease to poverty. In reflecting on this and in considering the elements that differentiate poverty from affluence, diet, in view of the conspicuous place it has always had in discussions of the disease, naturally arrested attention. Approaching the problem of the possible relation of diet to pellagra in this way, it seemed permissible to assume, on the one hand, that the diet of the poor, that is, of those who as a class are the principal sufferers from the disease, is, for some reason, pellagra-producing, and, on the other, that the diet of the well-to-do, who, as a class, are practically exempt, is, for some reason, pellagra-preventing. The thought was near, therefore, that it might be possible to prevent the disease by providing those subject to pellagra with a diet such as that enjoyed by well-to-do people. Early in 1914, it was proposed to put this idea to a practical test.

Before the test was actually begun, studies of the prevalence of pellagra at institutions, such as prisons, asylums and orphanages, were made, the results of which, in the light of the recent advances in our knowledge of beriberi, very strongly suggested the idea that the disease was dependent on a diet that was, for some reason, faulty, and that this fault was in some way either prevented or corrected by including in the diet suitable proportions of the fresh animal protein foods

and legumes.[1] These findings not only confirmed the original conception, but also helped in defining this more clearly, and, moreover, made it possible to formulate more definite plans, which were temporarily broadened to include a test of diet in the treatment as well as in the prevention of the disease.

TREATMENT

At my suggestion, Dr. W. F. Lorenz,[2] who was at that time studying the psychiatric manifestations of pellagra at the Georgia State Sanitarium, treated a series of twenty-seven cases in the insane at that asylum exclusively by diet. Considering the character of the cases with which he was dealing, his results, as well as those of Dr. D. G. Willets,[3] who for a time continued the work begun by Lorenz, were notably favorable.

When the various recent methods of treatment, each warmly advocated by its author, are critically reviewed in the light of the test made by Lorenz and by Willets, one can hardly fail to be impressed by the fact that the one thing they all appear to have in common is the so-called "nutritious" diet, and it is difficult to escape the conclusion that it is to this single common factor that the marked success that is usually claimed for the "treatment" should properly be assigned.

It is of much interest to note that fully fifty years ago Roussel,[4] on the basis of long experience and from a critical review of the literature of his day, came to precisely the same conclusion. This is so much to the point that it is quoted herewith:

> Without dietetic measures *all remedies* fail. . . . When drugs and good food are simultaneously employed it is to the latter that the curative action belongs; the former exercises simply an adjuvant action and is without proved efficacy except against secondary changes or accidental complications.[5]

Hereafter the clinician who would attribute therapeutic value to any drug or other remedy in the treatment of pellagra should be prepared to show, what has not heretofore been done, that the curative effect claimed cannot be attributed to the diet. It is true that the claim is not infrequently made that the beneficial effects of the remedy advocated were obtained without any change in diet. When this claim is critically considered, however, it amounts usually simply to this, that the observer gave no instructions as to a change in the patient's diet, or assumes that such change as was made was too slight to merit consideration. It should not be overlooked that the symptoms of the disease (sore mouth, diarrhea) are very frequently such that the patient, entirely on his own initiative, may or does add or increase the proportion of the liquids (milk, eggs, broth) in his diet. And this may be done even before the physician is consulted.

Again, in order to substantiate the claims made for some particular remedy, it is sometimes asserted that the patient's diet had all along included an abundance of the animal proteins and legumes. Careful inquiry in a number of such instances has almost invariably shown that what is meant in such cases is that either the family table was known, or was assumed to be well supplied with these foods of which the patient was, perhaps quite naturally, assumed to have partaken abundantly. The important possibility that the patient, by reason of a personal idiosyncrasy or otherwise did not actually eat these foods is almost invariably overlooked. That these foods may, in some degree, enter into the pellagrogenous dietary calls, however, for no denial. The question always to be borne in mind is: Was it enough? The possibility, if not the probability, of a "twilight" zone within which a very slight change in any of the dietary components may cause an important shift of balance is not to be overlooked. In the present state of our knowledge, therefore, the question of a sufficient proportion cannot in all instances be answered on the simple statement of the case. That as a matter of fact the proportion of the foods in question in these, which may be called borderland cases, was not enough is very strongly suggested by the favorable result of the simple expedient of having the patient continue the diet on which he is supposed to have subsisted, seeing to it, however, that there is actually consumed an abundance of the animal foods and legumes. This and the unsatisfactory progress of those patients who for one reason or another fail or refuse to cooperate in taking the diet is decidedly illuminating.

Such observations as I have been able to make strongly suggest that real recovery from an uncomplicated attack may not take place until after a minimum of about three or four months of full feeding of fresh animal proteins and legumes. But this should not be taken to mean that thereafter recurrences are impossible. A "recurrence," so-called, may conceivably take place after the lapse of any interval if there is a return for a sufficiently long period to a pellagrogenous, that is, "faulty" diet. In pellagra, as in other conditions, the renewed operation of the essential causative factor may be expected to bring about a renewed manifestation of its effects.

1. Prof. Carl Voegtlin tells me that at about the same time, or even previous to this time, he had independently formed somewhat similar views, which he presented at the 1914 session of the American Medical Association (THE JOURNAL A. M. A., Sept. 26, 1914, p. 1094). The following quotations from this paper will give the student of the subject the essentials of Voegtlin's conception:

> "From a survey of the clinical and pathologic aspects of pellagra, I have arrived at the conclusion that we are dealing with a chronic intoxication. While the agents at work in this intoxication are as yet unknown, I am inclined to believe that toxic substances exist in certain vegetable foods, not necessarily spoiled, which, if consumed by man over a long period of time, may produce an injurious effect on certain organs of the body. This hypothesis does not rule out the possibility that a dietary deficiency . . . [vitamin] . . . may play a rôle in the production and treatment of pellagra. Extensive feeding experiments which I have carried on during the last year with animals, such as mice, rats and a few monkeys, on an exclusive vegetable diet, have shown that these lower animals develop certain gastro-intestinal symptoms, and sometimes die if put on an exclusive diet of corn, carrots, sweet potatoes, oats, etc. Symptoms arise, often within three or four days, which point to the presence of an intoxication in these animals. Death resulted in some cases in a remarkably short time (three or four days). At necropsy constant lesions were found, such as hyperemia and hemorrhage in the gastro-intestinal canal. Sometimes the kidneys, lungs and other organs show a congestion and slightly hemorrhagic condition. . . ."
>
> "It is probably more than a mere coincidence that the population of that part of the world in which pellagra is endemic lives on a mainly vegetable diet."
>
> "The recent advances in the field of nutrition suggest new avenues of approach to the solution of this difficult problem. One will have to consider very seriously:
>
> "1. A deficiency or absence of certain vitamins in the diet.
>
> "2. The toxic effect of some substances, as aluminum, which occur in certain vegetable food."
>
> "[The possible relation between aluminum and pellagra was also discussed in a recent monograph by Alessandrini and Scala (Contributo nuovo alla etiologia e pathogenesi della Pellagra, Roma, 1914) which I received at the time of proofreading. These investigators claim that colloidal silica contained in drinking water is one of the most important etiologic factors, inasmuch as they succeeded in producing lesions resembling pellagra in animals fed on water containing colloidal silica. Colloidal aluminum hydroxid or a mixture of colloidal silica and alumina produced the same results. In view of the fact, first discovered by us, that aluminum occurs in certain vegetable food in relatively large amounts, the work of the Italian authors furnishes additional evidence that aluminum occupies a prominent position in the etiology of pellagra.]"
>
> "3. A deficiency of the diet in certain amino-acids."

2. Lorenz, W. F.: The Treatment of Pellagra, Pub. Health Rep., Sept. 11, 1914.

3. Willets, D. G.: The Treatment of Pellagra by Diet, South. Med. Jour., 1915, viii, 1044.

4. Roussel, Théophile: Traité de la pellagra et des pseudo-pellagres, Paris, 1866, p. 529.

5. The italics are Roussel's.

PREVENTION

In planning the test of the preventive value of diet, it was decided to take advantage of the universally recognized fact that "normally" pellagra tends to recur in the individual from year to year.

In order to obtain as significant and decisive results as possible, it was necessary to submit a large number of pellagrins to the test under known conditions. Fortunately, two orphanages were found in May, 1914, each having a high incidence of pellagra among its inmates. Later this preventive test was extended to include two groups of insane at the Georgia State Sanitarium.

In the study at the orphanages, Assistant Surgeon C. H. Waring was associated with me, and in that at the Georgia State Sanitarium, Assistant Epidemiologist D. G. Willets.

Orphanage Study.—The two orphanages at which the value of diet in the prevention of pellagra has been tested are located in Jackson, Miss. At both, cases of pellagra have been recognized for several years. During the spring and summer of 1914, up to September 15, a total of 209 cases of pellagra were observed in the children of these orphanages. Although a number of these at both institutions were known to be admission cases, others appeared to have developed first after considerable periods of residence, while a large proportion were in long time residents. The factor or factors causing pellagra and favoring its recurrence seemed, therefore, to be operative at both institutions.

At both places hygienic and sanitary conditions left much to be desired. Both were overcrowded. Each drew and has continued to draw its drinking water from the public supply. One has a water carriage sewerage system connected with that of the city; the other is provided only with unscreened privies. At the latter a great deal of soil pollution was noted.

Before beginning the test it was requested that no change be made in hygienic and sanitary conditions; this request, it is believed, has been fully complied with.

Since about the middle of September, 1914, the diet at both orphanages has in certain respects been supplemented by the Public Health Service. At both institutions a very decided increase was made in the proportion of the fresh animal and of the leguminous protein foods. The milk supply was greatly increased. The children between 6 and 12 years of age were provided with a cup of about 7 ounces of milk at least twice a day. Those under 6 had it three times a day. Until the spring of 1915, the milk used was all fresh sweet milk. In April of that year, buttermilk was added to the diet; this was served at first only on alternate days to those over 12 years of age; later it was served to all at the midday meal. Eggs, which had not previously entered into the regular diet of these children, were served those under 12 years of age at the morning meal. It had been the custom to serve fresh meat but once a week; this was increased to three or four times a week.

Beans and peas, which had been conspicuous in the diet only during the summer and fall, were made an important part of nearly every midday meal at all seasons. No canned foods other than tomatoes were allowed, in order to eliminate the possibly injurious action on the foods of the high temperatures to which they are necessarily subjected in the process.

The carbohydrate component of the institution diets was modified with the object of reducing the proportion of this element. In this connection it may be noted that though the corn component was much reduced, it was not wholly excluded. Corn bread was allowed all children once a week, and grits once or twice a week in addition to those over 12 years of age.

Of the 209 cases of pellagra observed at the two orphanages during the spring and summer of 1914, up to September 15, not less than 172 completed at least the anniversary date of their attack under observation. In only one of these 172 pellagrins, following the change of diet, was there recognized, during the year 1915, evidence justifying a diagnosis of a recurrence, although on the basis of Rice's[6] experience at an orphanage in Columbia, S. C., there might reasonably have been expected from 58 to 76 per cent., or from ninety-nine to 130 of them to recur. Furthermore, there was observed no new case in any of the nonpellagrin residents, 168 of whom were continuously under observation for at least one year. Recent admissions aside, during 1915 there has been no pellagra at one, and but a single case at the other of these institutions.

Asylum Study.—Through the courtesy and with the very helpful cooperation of the officers and staff of the Georgia State Sanitarium, two wards of pellagrins, one in the colored and the other in the white female service, were made available for the test.

Large numbers of cases of pellagra are observed annually at this institution, the largest in the South. A large proportion of these are admission cases, but cases of intramural origin are of frequent occurrence. This asylum must, therefore, be regarded as an endemic focus of the disease.

The wards were organized for this test late in the fall of 1914. In selecting the patients only one condition was observed, namely, that the patient should be of such type as would give reasonable degree of probability of remaining under observation for at least a year. In consequence, a considerable proportion were of a much deteriorated, untidy class.

The diet furnished the inmates of these two wards was, as at the orphanages, supplemented by the Public Health Service, and modified so as to increase decidedly the proportion of the animal and leguminous protein elements. A cup of about 7 ounces of sweet milk is furnished each patient for breakfast and one of buttermilk at both dinner and supper. Fully half a pound of fresh beef and 2 to 2½ ounces of dried field peas or dried beans enter the daily ration. In order to favor the consumption of milk, oatmeal has almost entirely replaced grits as the breakfast cereal. With a view of reducing the carbohydrate component, syrup has been entirely excluded. Corn products, although greatly reduced, have not been entirely eliminated. The menu that follows will serve to give a more detailed idea of the character of the diet furnished.

WEEKLY MENU

MONDAY

Breakfast.—Grits, sweet milk, sugar, broiled steak, hot rolls, biscuits, coffee.

Dinner.—Roast beef, gravy, peas, potatoes, rice, biscuits, buttermilk.

Supper.—Stewed apples, light bread, coffee, buttermilk, sugar.

6. Rice, quoted by Goldberger, Joseph; Waring, C. H., and Willets, D. C.: The Prevention of Pellagra, Pub. Health Rep., Oct. 22, 1915, p. 3117.

TUESDAY

Breakfast.—Oatmeal, sweet milk, sugar, Hamburger steak, biscuits, hot rolls, coffee.
Dinner.—Beef stew, potatoes, rice, bread, buttermilk.
Supper.—Baked beans, light bread, coffee, sugar, buttermilk.

WEDNESDAY

Breakfast.—Oatmeal, sweet milk, sugar, beef hash, hot rolls, biscuits, coffee.
Dinner.—Pea soup, corn bread, gravy, potatoes, rice, bread, buttermilk.
Supper.—Stewed prunes, light bread, coffee, sugar, buttermilk.

THURSDAY

Breakfast.—Oatmeal, sweet milk, sugar, fried steak, hot rolls, biscuits, coffee.
Dinner.—Beef stew, peas, potatoes, rice, bread, buttermilk.
Supper.—Baked beans, bread, coffee, sugar, buttermilk.

FRIDAY

Breakfast.—Oatmeal, sweet milk, sugar, broiled beef steak, hot rolls, biscuits, coffee.
Dinner.—Pea soup (purée), roast beef, potatoes, rice, bread, buttermilk.
Supper.—Light bread, coffee, sugar, buttermilk, apples, baked beans.

SATURDAY

Breakfast.—Oatmeal, sweet milk, sugar, Hamburger steak, hot rolls, biscuits, coffee.
Dinner.—Beef stew, potatoes, rice, bread, buttermilk.
Supper.—Bread, baked beans, buttermilk, coffee, sugar.

SUNDAY

Breakfast.—Oatmeal, sweet milk, sugar, mackerel, bread, coffee.
Dinner.—Loaf beef and gravy, peas, potatoes, rice, bread, buttermilk, pudding.
Supper.—Beef hash, bread, sugar, coffee, buttermilk.

NOTE.—Green vegetables in season at irregular intervals. Milk and eggs, as a special diet, are furnished those patients who may require them.

Aside from the modification in the diet and the increased watchfulness over the individual feeding, enjoined on the nurses and attendants, no change in the habitual routine of the corresponding services was made.

Of the pellagrins admitted to these wards at the time of their organization, or shortly thereafter—that is, up to Dec. 31, 1914—seventy-two (thirty-six colored and thirty-six white) remained continuously under observation up to Oct. 1, 1915, or, at least, until after the anniversary date of their attack of 1914. Of the colored patients, eight have histories of at least two annual attacks; of the white patients, ten have histories of at least two attacks. Nevertheless not a single one of this group of seventy-two patients has presented recognizable evidence of a recurrence of pellagra, although of a group of thirty-two control pellagrins (seventeen colored and fifteen white) not receiving the modified diet, fifteen (nine colored, six white), or 47 per cent., have had recurrences during the corresponding period.

Significance.—Considering the foregoing results as a whole, bearing in mind that three different institutions are involved, each institution an endemic focus of the disease, and bearing in mind also that the number of individuals is fairly large, it would seem that the conclusion is justified that the pellagra recurrence may be prevented and, in view of the conditions of the experiment, that it may be prevented without the intervention of any other factor than diet. In this connection the question arises whether it is permissible to extend this conclusion to the primary attack, apart from its recurrence. The character of the answer to this question will depend on the view held as to the nature of the pellagra recurrence.

Among the epidemiologic features of pellagra, none is more striking than the tendency for the disease not only to develop in spring or early summer, but also to recur year after year at about the same season. Various explanations of this singular phenomenon have been advanced. According to Sambon,[7] "this peculiar periodicity of symptoms can be explained only by the agency of a parasitic organism presenting definite alternating periods of latency and activity." A somewhat similar conception appears to be held by the Thompson-McFadden Commission,[8] which distinguishes between conditions favorable for the development of the disease, in the first place, and those that permit its subsequent recurrence. Why these and many other observers should consider this periodicity of symptoms as explicable only by the agency of a parasitic organism or of a virus or a toxin presenting definite alternating periods of latency and activity is rather hard to understand when it is recalled that in endemic scurvy,[9] and particularly in endemic beriberi,[10] diseases of well known dietary origin, a strikingly similar periodicity is present. It would seem, therefore, entirely permissible to invoke as an explanation of the periodic recurrence in pellagra what undoubtedly is the explanation of the same phenomenon in these other diseases, namely, a modification or change in diet brought about by or incidental to the recurring seasons. Viewed in this light, the recurrence in pellagra may be considered as in beriberi, etiologically at least, as essentially identical with the initial attack; and therefore it would seem permissible to conclude that the means found effective in the prevention of recurrences will be found effective in the prevention of the initial attack.

NATURE OF THE DISEASE

In the course of the preliminary studies relating to the prevalence of pellagra at such institutions as prisons, asylums and orphanages, to which reference was made early in this paper, the association was found of a very high incidence of pellagra, restricted to certain groups, with a diet which differed from the diet of the exempt groups, so far as could be determined, only in that it included minimal quantities of the animal foods. It was inferred at that time that this association had etiologic significance. Advantage has been taken of an opportunity to put this inference to the test of experiment. The experiment was carried out in association with Assistant Surgeon G. A. Wheeler at the farm of the Mississippi State Penitentiary, about 8 miles east of Jackson, Miss.

At about the center of this farm of 3,200 acres, well isolated from the surrounding community, is the convict "camp." There is no history of the previous occurrence or presence of pellagra on this farm. During the period of the experiment there were quartered at the "camp" an average of between seventy and

7. Sambon, L. W.: Progress Report on the Investigation of Pellagra, Jour. Trop. Med. and Hyg., 1910.
8. Siler, J. F.; Garrison, P. E., and MacNeal, W. J.: The Relation of Methods of Disposal of Sewage to the Spread of Pellagra, Arch. Int. Med., October, 1914, p. 453; Further Studies of the Thompson-McFadden Pellagra Commission, THE JOURNAL A. M. A., Sept. 26, 1914, p. 1090; A Statistical Study of the Relation of Pellagra to Use of Certain Foods and to Location of Domicile in Six Selected Industrial Communities, Arch. Int. Med., September, 1914, p. 293.
9. Lind, James: A Treatise on the Scurvy, Ed. 3, London, 1772, pp. 33, 84, 130, 306.
10. Scheube, B.: The Diseases of Warm Countries, London, 1903.

eighty white male convicts, of whom about thirty were present throughout this time. Through the kind offices of Dr. E. H. Galloway, secretary of the Mississippi State Board of Health, the interest of Governor Earl Brewer was enlisted, who, on the offer of a pardon, obtained twelve volunteers for the test.

Experiment.—White adult males were selected because, judged by the incidence of the disease in the population at large, this age, sex and race group would seem to be the least susceptible to the disease.

The "pellagra squad," as it came to be called, was organized between Feb. 1 and Feb. 4, 1915, with twelve volunteers. July 1, 1915, one of the squad was released because of the development of a physical infirmity. This left eleven men in the squad, from 24 to 50 years of age, who remained in the test to its termination, Oct. 31, 1915. These men were quartered in a small, practically new, screened cottage, about 500 feet from the "cage" in which the other convicts were domiciled. Part of this cottage had previously been used, and continued to be used, throughout the period of the experiment as quarters for one of the officers of the "camp." From the time of its organization, the squad was segregated and under special guard.

From Feb. 4 to April 19, 1915, a period of two and one half months, these men were kept under observation without any change in the regular prison fare. As no evidence of pellagra during this preliminary observation period was detected, the diet of the squad was changed at noon, April 19, 1915. The ingredients of this diet were wheat flour (patent), corn meal, (corn) grits, corn starch, white polished rice, standard granulated sugar, cane syrup, sweet potatoes, pork fat (fried out of salt pork), cabbage, collards, turnip-greens and coffee. In the preparation of the biscuits and of the corn bread "Royal" baking powder was used.

The quantities of the different articles of cooked food actually consumed are illustrated by the following for the week ended Aug. 8, 1915: biscuits, 41.81 pounds; rice, 24.25 pounds; corn bread, 24.56 pounds; grits, 27.06 pounds; fried mush, 33.87 pounds; brown gravy, 37.81 pounds; sweet potatoes, 23.62 pounds; cabbage, 4.25 pounds; collards, 23.75 pounds; cane syrup, 5.94 pounds; sugar, 8.75 pounds, making a total of 255.67 pounds of food consumed during the week, or 3.32 pounds per man per day, having a value of 2,952 calories.

In this connection it may be pertinent to note that the corn meal and grits were of the best quality obtainable at the local market, and the same as that used at one of the orphanages at which the test, already discussed, of the value of diet in prevention, was made, and at which no pellagra occurred this year. Except for one meal in which 4 ounces of meat were included, the animal proteins and legumes were almost entirely excluded.

The character of the labor performed by these men during the week for which the statement of the quantity of food consumed has been given was as follows: whitewashing fences and buildings, two and one half days; sawing lumber (ram saw mill) two days; rest, two and one half days.

The volunteers kept about the same hours and did about the same kind of work as the other convicts. The amount of labor performed by the volunteers, however, was distinctly less than that by the other convicts.

The general sanitary environment was the same for volunteers and controls. With respect to personal cleanliness, cleanliness of quarters, and freedom from insects, particularly bedbugs, flies and mosquitoes, the volunteers were decidedly better off.

Results.—Of the eleven volunteers, not less than six developed symptoms, including a "typical" dermatitis, justifying a diagnosis of pellagra. Loss of weight and strength and mild nervous symptoms appeared early. The gastro-intestinal symptoms were slight. Definite cutaneous manifestations were not noted until September 12, or about five months after the beginning of the restricted diet. In all six cases the skin lesions were first noted on the scrotum. Later the eruption also appeared on the hands in two of the cases, and on the back of the neck in one. The scrotal lesion conformed to the type described and figured by Merk[11] and also by Stannus.[12]

Although the entire population of the "camp" was kept under observation, no one, not of the volunteer squad, presented evidence justifying even a suspicion of pellagra.

The diagnosis of pellagra was concurred in by Dr. E. H. Galloway, secretary of the Mississippi State Board of Health, and Dr. Nolan Stewart, formerly superintendent of the Mississippi Asylum for the Insane, at Jackson. In excluding the other known dermatoses, the expert knowledge and skill of Prof. Marcus Haase of the Medical College of the University of Tennessee, Memphis, Tenn., and of Prof. Martin F. Engman of the Washington University Medical School, St. Louis, were utilized in consultation.

Conclusions. — The conclusion drawn from this experiment is that pellagra has been brought about in at least six of the eleven volunteers as the result of the one-sided diet on which they subsisted. Taken in conjunction with the striking results of the test of the preventive value of diet, the further conclusion seems justified that pellagra is essentially of dietary origin.

In order to avoid misunderstanding, it may be well to point out that it does not necessarily follow that all one-sided, "unbalanced" or, as I prefer for the present to speak of them, "faulty" diets are capable of bringing about pellagra any more than they are of bringing about scurvy or beriberi.

A definite conclusion as to the intimate mechanism involved in bringing about or in preventing the disease by diet cannot, of course, be drawn from the available data. It would be premature to conclude that pellagra is necessarily due to a lack or deficiency of fresh animal or leguminous protein foods. Clearly, however, the dietary "fault" on which the production of pellagra essentially depends is capable of being corrected or prevented by including in the diet a suitable proportion of these foods. It would be equally premature, moreover, to assume that the pellagra-causing dietary "fault" is capable of correction in this way only. The possibility that there may be other foods capable of serving the same purpose is by no means to be overlooked. If Funk's[13] suggestion that pellagra is a vitamin deficiency, brought about by the consumption of overmilled corn, is proved to be correct, it may be, too, that the use of undermilled corn will of itself

11. Merk, Ludwig: Die Hauterscheinungen der Pellagra, Innsbruck, 1909, p. 24, Fig. 6.
12. Stannus, Hugh S.: Pellagra in Nyasaland, Tr. Soc. Trop. Med. and Hyg., 1913, vii, 32.
13. Funk, Casimir: Die Vitamine, Wiesbaden, 1914. Prophylaxie und Therapie der Pellagra ins Lichte der Vitaminlehre, München. med. Wchnschr., 1914, p. 698.

correct the "fault" in a diet in which this cereal is the staple. There is to be considered also Voegtlin's explanation of the beneficial effect of a liberal diet on the course of the disease. Voegtlin suggests that by substituting animal foodstuffs for part of the vegetable food the absolute amount of vegetable products consumed will be reduced considerably, and thus probably also reduce the possibility of an injurious action of the vegetable food on the body, particularly the irritant action on the gastro-intestinal canal. On the whole, however, the trend of available evidence strongly suggests that pellagra will prove to be a "deficiency" disease very closely related to beriberi.

For the practical purposes of preventive medicine, the point of chief, of fundamental, importance would seem to be the recognition of the fact that the pellagra-producing dietary "fault," whatever its intimate nature or however brought about, is capable of correction or prevention, as the results of the studies summarized above clearly indicate, by including in the diet suitable proportions of the fresh animal and leguminous protein foods.[14]

SUMMARY

1. Diet is the common factor in the various methods of treatment recently advocated. The marked success claimed for each of these methods must logically be attributed to the factor (diet) which they have in common.

2. The value of diet in the prevention of pellagra has been tested at two orphanages and at an asylum for the insane, endemic foci of the disease. Marked increases in the fresh animal and leguminous protein elements of the institution diets were made.

Of 209 cases of pellagra observed at the two orphanages during the spring and summer of 1914, not less than 172 completed at least the anniversary date of their attack under observation. In only one of these 172 pellagrins, following the change in diet, was there recognized evidence of a recurrence, although on the basis of experience elsewhere, from ninety-nine to 130 might reasonably have been expected. Nor was any new case observed among the nonpellagrin residents, 168 of whom completed not less than one year under observation.

Of the group of pellagrins on the modified diet at the insane asylum, seventy-two remained continuously under observation up to Oct. 1, 1915, or at least until after the anniversary date of their attack of 1914. Not one of this group has presented recognizable evidence of a recurrence, although, of a group of thirty-two controls, fifteen have had recurrences. Pellagra may, therefore, be prevented by an appropriate diet without any alteration in the environment, hygienic or sanitary, including the water supply.

3. At an isolated convict camp, previously free from pellagra, with an average population of from seventy to eighty white males, eleven volunteers were segregated and, after a preliminary observation period of two and one half months, placed on an abundant but one-sided, chiefly carbohydrate (wheat, corn, rice) diet, from which fresh animal proteins and legumes were excluded. At least six of these volunteers developed pellagra. This result would appear to have been brought about by the diet on which they subsisted.

4. A definite conclusion as to the intimate mechanism involved in bringing about or in preventing the disease by diet cannot be drawn from the available data.

5. For the practical purposes of preventive medicine, it would seem to be of fundamental importance to recognize that the pellagra-producing dietary "fault," whatever its intimate nature or however brought about, is capable of correction or prevention by including in the diet suitable proportions of the fresh animal and leguminous protein foods.

14. In addition to the references already given, the following will be found of interest:

Goldberger, Joseph: The Etiology of Pellagra: the Significance of Certain Epidemiological Observations with Respect Thereto, Pub. Health Rep., Washington, June 26, 1914, p. 1683; The Cause and Prevention of Pellagra, ibid., Sept. 11, 1914; Beans for Prevention of Pellagra, THE JOURNAL A. M. A., Oct. 10, 1914, p. 1314.

Goldberger, Joseph; Waring, C. H., and Willets, D. G.: The Treatment and Prevention of Pellagra, Pub. Health Rep., Oct. 23, 1914, p. 126; Reprint 228 from Pub. Health Rep.; id. revised Jan. 15, 1915.

Goldberger, Joseph, and Wheeler, G. A.: Experimental Pellagra in the Human Subject Brought About by a Restricted Diet, Pub. Health Rep., Nov. 12, 1915, p. 3336.

Meyers, C. N., and Voegtlin, Carl: Soluble Aluminum Compounds: Their Occurrence in Certain Vegetable Products, Pub. Health Rep., June 19, 1914, p. 1625.

DRUG ADDICTION

ANALYSIS OF ONE HUNDRED AND FORTY-SEVEN CASES AT THE PHILADELPHIA GENERAL HOSPITAL *

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Our studies were commenced with the idea of determining the merits of the Lambert treatment as compared with other methods of treating drug addictions, and to ascertain the relative value of the various units of this method. In the course of our study many other points of interest developed, some of which we have included in our paper. All of these patients were discharged several months ago and the records are now on file at the hospital. Each patient, however, was thoroughly examined and carefully observed by one of us (Dr. McIver) during his sojourn in the institution.

The large number of patients coming to the hospital as the direct result of the Harrison Narcotic Law, and the fact of their being under restraint and control, offered unusual facilities for purposes of observation. The number studied, 147, while not representing all the material at our disposal, we believed ample for our purpose, and we further felt that a careful analysis of this number was preferable to a more superficial study, or mere reference to the histories, of a larger number of cases.

In our series we found that many of the patients used only one drug, thirty-eight taking morphin exclusively, and twenty-seven using only heroin. The majority of the patients used the drugs in various combinations, twenty-one indulging in heroin and cocain, while three of the number used cocain, heroin, morphin and hop (opium smoking).

Duration of the Addiction.—In a study of the average duration of the various addictions, we find that of morphin the longest, next opium smoking, then cocain and last heroin. Eighty-one had taken morphin for an average of 9.1 years; two had been using the drug for thirty-one years; one for thirty-five years, and one for thirty-nine years. The average duration of the opium-smoking in forty-three cases was 5.4 years.

*Read before the Section on General Medicine of the College of Physicians of Philadelphia, Dec. 13, 1915.

One man "hit the pipe" for twenty, and one for thirty, years. Forty-six cocain "sniffers" had an average duration of 2.5 years, while in eighty-two heroin cases the average duration of the habit was approximately two years.

Amount of Drugs Taken Daily.—The average daily dose of morphin taken by our patients was 15.3 grains, the largest amount taken by any patient being 90 grains. In comparison with these figures it is interesting to note that L. P. Brown[1] estimated the average daily dose of morphin addicts of Tennessee to be 8½ grains. Our heroin patients averaged 9½ grains daily, 30 grains being the largest amount taken in twenty-four hours by any one of the patients. We were unable to form any estimate of the amount of opium smoked or of cocain used; the difficulty in the case of the latter being due to the habit of "sniffing" the drug in unmeasured bulk, and the irregularity with which the patients indulged in its use.

Etiology.—The age at which the habit was formed was of interest chiefly in showing the youth of many of the patients when they first indulged in this form of social dissipation. Two commenced at 16, and two at 17 years. One first used morphin at 15 and one at 17 years. Five began to use heroin when 17 years old and one when 16. By a curious coincidence five patients also commenced to sniff cocain at the age of 17 and one at 16 years.

One hundred and three were males and forty-four were females; ninety-eight were white, two were Mongolians and three were negroes. In view of the fact that so many of the Southern negroes are addicted to the use of drugs, we were surprised that the colored race should furnish so small a proportion of the total number. The majority of women were prostitutes, and some few of the men were or had been cadets. A number were notorious crooks and thieves. In all, over fifty occupations were represented, among the number being one physician, two nurses and three druggists. The majority were dwellers in, or frequenters of, the "tenderloin."

In considering the question of degeneracy, signs of arrested development, such as abnormalities in the shape and size of the ears and palate, irregularities in the arrangement of the teeth, abnormally shaped heads and marked facial asymmetry, were carefully studied. Of the 147 patients, fifty-nine, or 40 per cent., presented one or more of these stigmata to a well-marked degree.

Some writers have emphasized the fact that "neurotics" tend to acquire the cocain habit rapidly and Block[2] says that "Normal persons never become drug habitués." While we believe that Block's contention is true as regards the majority of drug addicts, our observation is that normal persons may and do become habituated to the use of morphin through taking it over a considerable period of time for the relief of pain or insomnia; however, these patients, should the cause be removed, offer the best prognosis.

When questioned as to why the habit of opium-smoking had been formed, all who so used the drug stated that it was first indulged in for pleasure and acquired through association in the "tenderloin." Of the morphin users, the largest number, twenty-eight, learned of the effects of the drug through its hypodermic administration by a physician or through a physician's prescription. The next largest number, twenty, first used morphin as an alternate or substitute for opium smoking. Eighteen acquired the habit through association as a social diversion; ten took morphin for the first time on their own initiative for the relief of pain or insomnia; six used it as a substitute for heroin and five were made victims of the drug while patients in various hospitals in our own city. Of those who used the alkaloid heroin, the largest number, fifty-six, acquired the habit through association. Twenty took heroin instead of smoking opium, or as a substitute for morphin, when these drugs became difficult to obtain. The remaining seven resorted to the drug to relieve the effect of alcoholic excesses, insomnia, headache, etc.

On analyzing the origin of the cocain habit, we found that of forty-three cases, thirty-two patients first learned to sniff the drug purely for pleasure and ten to overcome the depressing after-effects of morphin indulgence. One young man first used cocain on the advice of an instructor in college, as a cerebral stimulant.

While these figures prove conclusively that a vast majority of cases of opium smoking, heroin and cocain sniffing are acquired through association, we would emphasize the fact that the largest single factor in the production of morphinism has been professional medication.

Association of Alcohol with the Drug Addiction.—One hundred and eight patients in our series said they had never used alcohol at all, giving a very high percentage even after making considerable allowance for possible misstatements. None were confirmed alcoholics, although a number used alcohol to excess prior to the formation of the drug habit. De Quincey, in his Confessions of an English Opium Eater, made an interesting contribution to this phase of the problem as follows: "I do not readily believe that any man having once tasted the divine luxuries of opium, will afterwards descend to the gross and mortal enjoyment of alcohol."

The only patient who had used alcohol freely in association with morphin lacked the usual surface pallor and dry skin of the opium habitué, despite the fact that he had taken large amounts of morphin over a period of many years. In his case we believe the vasodilator effect of the alcohol had counteracted the usual cutaneous effect of the morphin.

Opium Smoking and Morphinism.—These habits are so old and so much has been written about them, that a separate discussion would be mere repetition. A few words about the habits of more recent origin, cocainism and heroinism, may not be inappropriate at this place.

Cocain Addictions.—While the habit of using cocain antedates by some years that of heroin sniffing, our statistics show that the development and spread of these habits in the Philadelphia "tenderloin" districts were practically parallel. The manner in which these "tenderloin" habitués formed the habit (chiefly through association) is in marked contrast to that of the earlier patients, most of whom became addicted through the use of "patent medicines" containing the drug, or through local use and abuse of cocain in the treatment of pathologic conditions of the nose and throat. Fortunately the Food and Drug Law has practically abolished the sale of "patent medicines" containing cocain, and nose and throat specialists are now more conservative in their use of the drug. Refer-

1. Brown, L. P.: The Drug Habit in Tennessee, abstr., THE JOURNAL A. M. A., May 2, 1914, p. 1427.
2. Block: New York Med. Jour., Feb. 27, 1915, p. 405.

ring to this earlier period, C. E. de M. Sajous and L. T. de M. Sajous[3] say: "Occupation is a predominant factor, most of the victims having been medical men, members of the legal profession, literary men and women and the cultured generally."

We believe at present this type represents only what we may term the sporadic cases, the condition, however, being epidemic in the "tenderloin." Where the indulgence was formerly chiefly solitary, it has now become chiefly social.

None of the cases presented the classical sign of cocainomania, the sensation as of something crawling on the skin, the hallucination of the "cocain-bug"; and we believe that this symptom has received an exaggerated importance. In this connection it will be noted that W. D. Owens[4] found the symptom only once in twenty-three cases of cocain addiction.

In no instance did we find vasomotor dilatation.

All of the patients sniffed the drug in the manner described later under heroin habit. In no instance was there any difficulty in withdrawing the cocain; in all but one case it was stopped immediately, and in this exception only one dose was given.

Heroin Habit.—About 1898 the medical profession began using heroin, then thought to be a safe and efficient drug. Some time later it was noticed that patients had become addicted to the use of this drug, but not to the same extent as was the case with morphin.

About 1912 the dissipated and vicious began the use of heroin. With this class the use of this drug is distinctly a social diversion. There are quite a few, however, who began the use of heroin as a substitute for the habit of opium smoking. These were perhaps the pioneers.

About 1910-1911 there was a restriction placed on the importation and sale of crude opium; it naturally became very expensive and could only be obtained in small quantities by those who could afford it at all. Prior to this time the opium pipe was the great source of pleasure to the denizens of the "tenderloin." This perhaps will help to explain why those who had habits already formed began using heroin. They had to resort to something less expensive. For the past three years the heroin habit has been spreading among the habitués of the "tenderloin" at a terrific rate. No other drug has ever claimed half so many victims in such a short time. Why the spread has been so rapid is rather difficult to explain, other than that it is indulged in as a luxury and to relieve their excesses. Many stated that while heroin did not stimulate their sexual desire, they would take it because it enabled them to prolong the sexual act.

Prior to the time when the antinarcotic law was enacted, heroin tablets could be obtained at a reasonable price from various drug stores, "dope" pedlers on the street and from unscrupulous, unlicensed dealers. These people bought the drug in large quantities and perhaps at wholesale prices, stored it away to be sold and distributed by their agents at an enormous profit. They were known in the "tenderloin" as "dope kings."

The pills were crushed, preferably in a small box or paper, and for this the piston from an ordinary hypodermic syringe answered the purpose admirably. The fine powder was then taken up into a glass tube of small bore to the end of which was attached a piece of rubber tubing. The glass was inserted into the nostrils, the rubber in the mouth and the drug blown up into the nose. When the tube was not accessible the powder was placed on the dorsum of the hand, held semiprone and sniffed up the nostrils. Why this method is so universally adopted by the social users of both heroin and cocain is evidently due to the fact that these drugs are absorbed so readily from the nasal mucous membrane.

In contrasting the deleterious effects of heroin with those of morphin, we find that the former is far less harmful. Our morphin patients usually gave the history of having one or two bowel movements a week, while the heroin addicts seldom went longer than two or three days and often experienced but little or no trouble.

In heroinism the pallor was not so marked, the emaciation not so pronounced, nor the symptoms of drug starvation as severe as in morphinism. Heroin could be withdrawn in a far shorter time and with a great deal less discomfort or suffering than could morphin. The former drug does not check the secretions of the lungs and alimentary canal to the same extent as the latter. A bibliography of the most important articles on heroin addiction will be found in Farr's[5] admirable paper.

Pathology and Symptomatology.—No pathologic studies were made by us, and most of our observations of symptoms were confined to those following withdrawal of the drugs, as treatment was instituted promptly on admission of the patients.

Symptoms of Withdrawal or Abstinence Phenomena.—These were observed to some extent in every case and we will here merely enumerate the various symptoms presented: yawning, sneezing, and lacrimation, early, and later insomnia, nervousness, restlessness, anorexia, nausea, vomiting, pain in the abdomen and lower extremities, diarrhea, profuse perspiration, tachycardia, nocturnal emissions, marked asthenia, weak pulse and collapse. There was no rise of temperature exept with complications. In a few cases the temperature was subnormal.

That the withdrawal symptoms in chronic morphinism are due to the formation and the presence in the blood serum of an antidotal toxic substance has been proved by the experiments of Adriano Valenti[6] at the University of Pavia. Dogs were habituated to large doses of morphin and the drug then abruptly discontinued. Not only would these dogs then manifest the usual circulatory withdrawal symptoms seen in human beings addicted to morphin, but the same phenomena were obtained by injecting their serum in normal dogs. This reaction was not obtained when the serum of unmorphinized dogs was used.

Bishop[7] claims to have been the originator of the theory of the manufacturing of an antidotal toxic substance by the body and refers to his publication in THE JOURNAL,[8] evidently having overlooked the articles of Hirschloff,[9] in 1904.

3. Sajous and Sajous: Analytic Cyclopedia of Practical Medicine, iii, 506.

4. Owens, W. D.: Signs and Symptoms Presented by Those Addicted to Cocain: Observations in a Series of Twenty-Three Cases, THE JOURNAL A. M. A., Feb. 3, 1912, p. 329.

5. Farr: The Relative Frequency of the Morphin and Heroin Habits, New York Med. Jour., May 1, 1915.

6. Symptoms in Chronic Morphinism Induced by Withdrawal of the Drug, editorial, THE JOURNAL A. M. A., May 23, 1914, p. 1662.

7. Bishop, E. S.: New York Med. Jour., Feb. 27, 1915.

8. Bishop, E. S.: Narcotic Addiction — A Systemic Disease Condition, THE JOURNAL A. M. A., Feb. 8, 1913, p. 431.

9. Hirschloff: Riedel's Berichte, 1904, p. 27; also abstr., Jahresb. f. Neurol. u. Psychiat., 1904, p. 1228, quoted by Dercum: The Tools of Our Trade, THE JOURNAL A. M. A., March 13, 1915, p. 882.

Prognosis.—In considering the prognosis of drug addiction two distinct questions are presented: first, the withdrawal of the drug, and second, the permanency of the results.

With the morphin cases we found that with the exception of a few long-standing cases, patients who were taking exceptionally large doses, the drug could be withdrawn in from ten days to two weeks without causing any special discomfort. As regards the permanency of the results, a large percentage of our patients have returned for a second treatment, some for a third and a few for a fourth. A few perhaps remained free from the drug, but only a few. Some were free for a week, two weeks or a month, but many stated that they resumed the use of the drug the same day they were discharged. It has also been the experience of one of us in private practice that the majority of patients even after they have been off the drug for months, and have been brought to the best possible physical condition, soon relapse and without adequate cause. It is a question if the majority of morphin addicts really want to stop using the drug. There is, however, a certain percentage who do want to free themselves from the habit and who sincerely aid in the attempt, and they should not suffer because of the insincerity of the larger number.

While we do not, therefore, indorse the statement of one writer that the morphin habit "Is as incurable as inoperable cancer," our experience would cause us to be somewhat skeptical regarding the very high percentage of permanent cures reported by proprietors of certain institutions devoted to the treatment of alcohol and drug habits.

As already stated, we found heroin not only less severe in its systemic effects than morphin, but also easier to withdraw.

In regard to the prognosis of cocainism, we find that it is better than in the case of opium alkaloids; the drug is readily withdrawn and abstinence phenomena are not severe, as in the case of alcohol and morphin. Our experience with the cocain habitué is therefore in accord with that of Higier.[10]

TREATMENT OF DRUG ADDICTIONS

All drug addicts should be placed where they can be detained until it is considered safe by the physician in charge for them to leave. An institution for the treatment of these cases should preferably be located in the country or suburbs and surrounded by ample grounds.

The building should be of modern construction, with plenty of light and ventilation, and preferably each patient should have a separate room. A hydrotherapy room is desirable; electric batteries for massage will prove of great value; closets for the drugs to be used must be kept locked and concealed from view.

On admission to the institution all patients should have a complete change of clothing and a most careful search made by a responsible party to see that they enter their rooms without any of the drugs. From the time these patients enter the hospital until they are discharged they must be kept under continuous and close observation.

Nurses or attendants should be on duty all the time, and they must be absolutely honest and trustworthy. In the treatment of no other trouble does so much depend on the strict reliability of nurses or attendants. They must be ever on the alert, for drug habitués are invariably well versed in the arts of deception.

The first thing to be accomplished in the treatment is the withdrawal of the drug. For the first twenty-four hours the patient should be given enough drug to keep him comfortable; by this method, one acquaints himself with just how much drug the patient really needs. No reliable information can be gained from the patient's statement as to how much he has been using, for even though he be telling the truth he invariably uses more than is necessary.

Patients should be given the same drug they have been accustomed to, and by their usual methods. Free purgation should be accomplished; the methods of catharsis as advised by Lambert is a very good one. Strychnin, so strongly advocated by Pettey, was not found necessary.

The drug must be withdrawn gradually, and especially is this true with the aged and the debilitated. As the drug is being withdrawn, the patients often suffer from nervousness and insomnia; these symptoms can be alleviated to a large degree with very hot baths. The bromids, trional, and scopolamin in ordinary dosage are also of great value here. For the nausea and vomiting, which are often so persistent, gastric lavage and restriction of diet are perhaps the best remedies. For the pains in the limbs, the so-called withdrawal pains, which are usually very annoying, electric massage will prove beneficial. Some of the coal tar derivatives, acetyl-salicylic acid (aspirin) and salicylates, may be used to advantage.

The diet should be nutritious and easily assimilated, consisting principally of milk and eggs. During this period the patient should be confined to bed. When the patient is well free of the drug and all the symptoms that follow its withdrawal, he may be given a more liberal diet, but this increase should be made gradually; at this time tonics are efficacious; when able to be up and about a systematic régime of exercise should be instituted, and patients must be taught to lead a quiet and well regulated life.

As to how long these patients should be detained, a great deal will depend on the individual case, but certainly not less than three months for the mildest type; some perhaps should be kept a year or more.

When a habitué leaves the sanatorium he should seek new environment and engage in some active work, fitted to his ability. He should live a God-fearing life, keeping ever in his mind the precious price he has paid for his future welfare and existence.

To care for these people only until they are relieved of the withdrawal symptoms is worse than useless.

METHODS OF TREATMENT COMPARED

In studying the comparative value of treatments, patients were treated as follows:

1. The original Lambert method.
2. Lambert's method without the Belladonna R.
3. Lambert's method without free purgation.
4. Gradual withdrawal.
5. Gradual withdrawal with free purgation.

The method employed was to select several patients for comparison, of approximately the same age, the same daily dose of the drug or drugs in combination and of the same duration. Our conclusions were as follows:

1. The original Lambert treatment was more satisfactory than the ordinary, gradual withdrawal.

10. Higier: München. med. Wchnschr., March 7, 1911.

2. The Lambert method without the free purgation (using ordinary purgation) was very unsatisfactory, patients suffering intensely and showing a marked tendency to delirium.

3. The Belladonna R. was the least important element in the Lambert treatment, having little or no greater value than other sedatives, besides having a tendency in certain cases to produce delirium.

4. Having a fixed dosage for each patient, as in Lambert's treatment, is an undesirable feature, which does not allow for individual differences; to disturb a patient every hour of the day and night is folly; and to try to blend him to a machine treatment is a very unwise procedure.

5. The best method proved to be gradual withdrawal with free purgation as in the Lambert treatment, and sedatives or stimulants as required in the individual case.

Patients using daily very large doses of drugs and over long periods of time can only have the drug withdrawn very gradually, without intense suffering or danger of collapse.

CONCLUSION

While the medical profession has had much to do with the formation of the morphin habit, and in former years with the development of the cocain habit, it has had little or nothing to do with the remarkable development and spread of the cocain, and especially the heroin, habit of the last few years. Farr has drawn a similar conclusion.

Degeneracy, as shown by actual signs of developmental arrest, is present in a large proportion of cases of drug addiction. The majority of narcotic drug habitués are not also addicted to the excessive use of alcohol.

Heroin is not as deleterious in its effects as morphin, and can be much more readily withdrawn.

The most valuable unit in the Lambert treatment is the method of free purgation. The Lambert treatment, while better than the old method of very slowly withdrawing the drug, is not as satisfactory as gradual withdrawal combined with free purgation and medication to meet the individual requirements.

Any treatment which does not take into consideration the presence of the antitoxic substance in the body long after the drug has been withdrawn, and provides for the observation and care of the patient during this time, is almost certain to be void of permanent results.

This is the era of preventative medicine and the old axiom that "An ounce of prevention is worth a pound of cure" is certainly true in drug addictions. It is the duty of every physician heartily to cooperate with the federal authorities to restrict the use of opium derivatives and cocain to their proper medical functions.

Inconsistency of English Antivivisection Law.—In England for years it has been necessary, if one wishes to perform a single vivisection experiment, to procure a license. It is much easier to get a license to run a low grogshop. Any man may without a license and with practically no regard for the sensations of the animals rip out the testes from a boar or a dog, merely because it suits his convenience or his whim or his purse to have his animals gelded; but if a physiologist wishes to make the same operation for the purpose of scientific observation on the effects of castration, he must secure a license stating with precision the building where this is to be done, and the purpose of the experiment, and he *must*, he has no option, perform the operation under complete anesthesia.—Samuel S. Maxwell, *Science*.

GOITER

AN ANALYSIS OF ONE HUNDRED AND THIRTY-SEVEN CASES *

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In assisting in the preparation of the recent medical and surgical report of the Roosevelt Hospital, I reviewed the results of the work which the surgical staff of that institution has done on goiters for the five years ending Jan. 1, 1915. Work which I myself had done in other institutions was included in this report. Since January 1, operation has been performed in seventeen additional cases in the Roosevelt Hospital by the members of the surgical staff. This makes a group of 137 cases for our study. The hospital report was largely statistical, and this study is made to call attention to certain elements not included in it, and to add the results of this year's observations.

Before attempting to make deductions from these cases, it is necessary to indicate the different types of goiter for which operation has been done:

1. Goiters which annoy simply by their mechanical presence, causing pressure symptoms or deformity or both but not giving toxic symptoms.
2. Goiters which give toxic symptoms.
3. Goiters which show malignant disease.

NONTOXIC GOITERS

Sixty-three patients are included in this group. If the histories of these patients were to be taken in the light of our present knowledge, I believe the group would be smaller; among the more recent patients we frequently find that those who at first complain only of uncomfortable lumps in their necks really also have "nervousness," irritability, increased heart action and undue fatigue, and that these symptoms disappear after operation. Such cases would now be classified as mildly toxic. Since these early histories cannot be rewritten, we must adhere to the classification already given and consider the type of operation and the results. These seem to be about the same whether we consider the cases nontoxic or mildly toxic.

The operative procedure for these patients is given in Table 1.

Enucleation of cystic or colloid nodules is the operation of choice for these patients. This is practicable only when globular masses exist which can be shelled out of their beds without undue hemorrhage. The other operations are slightly more difficult, but give similar results. There was no operative mortality in the entire group, and there were no serious complications. The average detention in the hospital after operation was eleven days. This period could have been shortened, but the value of rest as a part of the after-treatment has been appreciated.

TABLE 1.—OPERATIVE PROCEDURES ON PATIENTS WITH NONTOXIC GOITERS.

Operations	Number
Enucleation of cystic or colloid nodules.	28
Hemithyroidectomy	25
Hemithyroidectomy and partial excision of remaining lobe	10

The later histories of these patients were extremely satisfactory; we were able to trace fifty-five of them for periods varying from nine years to six months. Four others made good operative recoveries, but have not yet been out of the hospital six months. All but

* Read before The Bridgeport Medical Society, Oct. 5, 1915.

one have remained well so far as the local condition is concerned, none have developed toxic symptoms, and there has been no recurrence of cysts. One patient had a part of the remaining lobe removed eight years after a hemithyroidectomy; it had slightly increased in size. In this group there were several women who for years had endured the deformity and discomfort of large goiters under the belief that they could not be removed. When they left the hospital ten or eleven days after their operations, freed of deformity and discomfort, their delight can well be understood.

TOXIC CASES

Sixty-eight patients are included in this group. These patients showed symptoms believed to be largely due to overacting thyroid glands. Loss of strength is probably the most constant of these symptoms. Increased heart action, restlessness, lack of mental "poise," tremor, digestive disturbances, insomnia, loss of weight, diaphoresis and exophthalmos are other symptoms.

Thirty-six patients showed some of the symptoms in moderate degree.

Thirty-two patients showed some or all of them in extreme degree.

The immediate results of operation on the patients in the first division of this group, those who showed the symptoms in moderate degree, were almost as good as those in the nontoxic group. The operations for these thirty-six mildly toxic patients are given in Table 2.

There was no mortality from operation, and there were no serious complications. Recuperation, however, was not quite so prompt, nor could it be expected with the same confidence as in the nontoxic cases. Those who had long-standing goiters showed quicker and better recovery than those whose toxic symptoms came early in their thyroid enlargement. Thirty-one of these thirty-six mildly toxic patients have been followed for periods varying from four months to twelve years. Twenty-six of them were reported in excellent condition and attending to their ordinary duties. Four had shown improvement but became easily tired and had to proceed with care. One had shown much improvement of goiter symptoms, but suffered from associated pituitary disease. The five who were not traced were in excellent condition on leaving the hospital.

In studying the results of operation in the nontoxic and mildly toxic cases, one must be impressed with their value. It would be difficult to find a group of

TABLE 2.—OPERATIVE PROCEDURES ON PATIENTS WITH MILDLY TOXIC GOITERS.

Operations	Number
Hemithyroidectomy	26
Ligation of superior thyroid arteries	4
Artery ligation and subsequent hemithyroidectomy	2
Excision of parts of both lobes	2
Nodule enucleation	1
Boiling water injection	1

patients who show more satisfactory results from any form of operative procedure.

The thirty-one patients who showed symptoms of exophthalmic goiter in extreme degree presented the most difficult problems. These extreme cases are seen each year in smaller proportion; improved diagnosis and early treatment usually lead to their relief before the extreme stages of the disease are reached. But during the period which this study covers, some very desperate cases were treated. Patients are often sent into the general service of large metropolitan hospitals after long periods of neglect or after various forms of treatment have proved futile, and in trying to help these forlorn persons, surgeons are apt to accept some very undesirable surgical tasks.

The operations done in this group are given in Table 3.

There were six deaths among these patients. As noted earlier, there was no death rate in the previous

TABLE 3.—OPERATIVE PROCEDURES ON PATIENTS IN ADVANCED STAGES OF EXOPHTHALMIC GOITER

Operations	Number
Hemithyroidectomy	22
Ligation of one or more thyroid arteries	7
Artery ligation and subsequent hemithyroidectomy	3

groups, and in this group this rate could have been reduced almost or quite to zero by refusal to accept the extremely toxic cases. Had this been done, however, some very gratifying good results would have been missed. Three of the fatalities resulted from attempts to ligate the superior thyroid arteries. The patients were too ill to attempt more, yet one of them died on the operating table, and the others two days after operation. It is probable that enlargement of the thymus was a factor in these deaths. Garré estimates that 95 per cent. of the operative fatalities in exophthalmic goiter are due to this cause, and Kocher has seen five patients die suddenly the first few days after operation from persistent thymus.

Of the three deaths which followed hemithyroidectomy, one came from edema of the lungs and one from pneumonia, each two days after operation; the third came eighteen days after operation with symptoms of profound psychic disturbance. It is believed that these patients had progressed to the stage of degeneration of the internal organs.

The results in the remaining patients of this group were very encouraging. Twenty-three have been traced for periods varying from six months to eight years. Thirteen have showed very great improvement, and ten moderate improvement.

Two others were followed two months, one with marked improvement and the other with very slight improvement.

One who was discharged from the hospital "improved" could not be traced afterward.

Many details concerning this group of patients are given in the hospital report previously referred to.

If we study the entire toxic group, including both severe and mild cases, we find that fifty-four patients have been traced long enough to be of value in estimating late results. Thirty-eight, or 70.4 per cent., have shown great improvement; fifteen, or 27.7 per cent., have shown moderate improvement, and one, or 1.8 per cent., has shown no noteworthy improvement.

In comparison, these results are apparently about the same as those reported by other observers. It is difficult for surgeons to learn the real postoperative results in large groups of patients, and the published reports cannot always be definite.

Küttner[1] examined the end-results in eighty-five cases of exophthalmic goiter, some treated medically, the rest surgically. Of twenty-one treated medically, five patients are dead, nine cases are notably aggravated, six are stationary, and only one patient is capable of working.

1. Küttner: Verhandl. d. deutsch. Gesellsch. f. Chir., 1911; Murphy's Year Book, 1912.

Of the patients treated by successful operation, 69.6 per cent., after periods up to eighteen years, are capable of earning their living; 33.6 per cent. are completely cured; 36 per cent. are much improved; 16.6 per cent. are improved; 13.8 per cent., including two insufficient operations, are not cured.

Garré[2] has been able to trace most of the patients on whom he operated. In 20 per cent. the exophthalmos had not disappeared. In 10 per cent. the tachycardia persists. The rest have been completely cured.

Berry,[3] in reporting on 346 cases of various forms of goiter says, "The vast majority of the patients made excellent and rapid recoveries and were completely freed from their symptoms."

Mayo,[4] in reporting on the results of operations in over 1,100 cases of hyperthyroidism, says, "About 70 per cent. of the patients consider themselves cured and apparently they are well." The others are improved but not well.

Rogers,[5] speaking of exophthalmic goiter, says that 40 per cent. are cured by ligation of three arteries, 60 per cent. by hemithyroidectomy, and 75 per cent. by ligation of four arteries.

GOITERS WHICH SHOWED EVIDENCE OF MALIGNANT DISEASE

There were six patients in this group, four with carcinoma, one with papillary cyst adenoma and marked induration of the surrounding tissues, and one with endothelioma. Three of the carcinoma patients died after various periods, and the postoperative history of the fourth could not be obtained. The patient with papillary cyst adenoma made a slow recovery from an incomplete operation, but was well two years later. The patient with endothelioma seemed well four years after operation.

CONCLUSIONS

This study has been carried on in a search for the best method of dealing with goiters. The following deductions seem to be fair:

1. For nontoxic patients who suffer from pressure symptoms or from neck deformity, cyst enucleation or partial thyroidectomy are extremely satisfactory procedures. The symptoms are relieved, and the likelihood of later toxicity is almost abolished.

2. For mildly toxic patients, operation is also very satisfactory. When the toxic symptoms develop in connection with preexisting goiter, cure is almost certain. When they develop in the early stages of thyroid hyperplasia cure is usually obtained, but cannot be expected with the same confidence. The operation may be by partial thyroidectomy, cyst enucleation, artery ligation or boiling water injection, according to the peculiarities of the case.

3. The patients with advanced exophthalmic goiter present the most difficult problems. For their successful treatment many elements must be considered, including the complex nature of the ductless glands, their interdependence on each other and on nervous and chemical influences from other parts of the body, and the various therapeutic measures which interrupt this vicious chain of disturbance.

The hyperplastic thyroid gland seems to be the cause of many of the symptoms, and it is the organ most easily attacked in our effort to control these symptoms. The treatment consists largely in endeavor to control its overactivity.

Rest is an important element in this treatment.

The injection of boiling water (Porter) has an undoubted influence, and can be used for patients too ill for more radical measures.

The ligation of the thyroid arteries is often very beneficial, and can be used in preparing patients for hemithyroidectomy or as a substitute for that procedure.

The excision of a part of the thyroid gland has been followed by so many satisfactory results that it must be considered our most reliable therapeutic measure.

The administration of drugs and animal extracts, and the use of the Roentgen ray may be beneficial.

The choice of these procedures should depend on the condition of the patient. If that choice is judicious, nearly all of these patients can be brought to a condition of marked improvement.

2. Garré: Verhandl. d. deutsch. Gesellsch. f. Chir., 1911; Murphy's Year Book, 1912.
3. Berry, J. H.: Lancet, London, March 15, 1913.
4. Mayo, C. H.: Med. Rec., New York, Dec. 31, 1910.
5. Rogers, John: Paper read before New York Surg. Soc, Jan. 15, 1915, and personal communication to the author.

NEEDLESS SURGICAL OPERATIONS FROM FAILURE TO RECOGNIZE TABES DORSALIS

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Within the past few years several writers, among them Cabot,[1] Hall[2] and Cheney[3] in this country, and König,[4] Lomnitz[5] and others in Europe, have directed attention to operations for supposedly local disease of the abdomen in patients with tabes in whom no disease was found at the laparotomy. Careful search through the literature fails to reveal more than casual reference to the frequency of such blunders. Surgeons performing laparotomies frequently are fully acquainted with this danger, but it is believed that the following study may stimulate still greater caution.

In the past five years (1910-1915) over 1,000 cases of tabes dorsalis have been carefully studied in the Cook County Hospital on the neurologic services of Drs. Hall, Grinker, Hassin, Hamill and Kuh. These records have been examined to determine the relative frequency of the cardinal symptoms, the number of patients operated on, the frequency of gastric crises, etc. In estimating the number of operations, only those have been included in which the patient was told by the surgeon that nothing wrong was found, and in which the old symptoms returned following the operation. Cases have been excluded when scars of previous operations were found in the epigastrium, kidney or appendix regions with no record of what was found or done at the operation recorded on the history sheets, or when this could not be learned from the surgeon. Obviously some of the latter deserve recognition, as all these patients at the time of admission to the hospital exhibited several or many of the important symptoms of tabes. It is believed, however, that this error is not a great one.

1. Cabot, R. C.: Differential Diagnosis, Philadelphia, 1914, ii, 229, 230.
2. Hall, G. W.: Tabes and the Surgeon, Ill. Med. Jour., 1910, xviii, 527.
3. Cheney, W. F.: Gastric Disturbances in Tabes Dorsalis, Am. Jour. Med. Sc., 1913, cxlv, 328.
4. König: Tabische Krisen, Deutsch. med. Wchnschr., 1911, xxxvii, 2357.
5. Lomnitz, quoted by K. Singer: Die Krisen der Tabiker, Berl. klin. Wchnschr., 1911, xlviii, 2168.

Of 1,000 patients with tabes, only five had operations in the Cook County Hospital during the past five years (1910-1915). About 200 tabetics are admitted to this institution annually, and there are approximately 2,400 major surgical operations performed here each year. Regarding the remainder of those operated on, it was learned that in ten different hospitals, widely separated from each other and naturally with great variations in size and experience of the surgeons, there were twenty operations on tabetics under mistaken diagnoses in approximately the past four years.

It is clear that the mistake is not confined to any special locality. Furthermore, it was learned that such operations are fewer in the larger hospitals, such as the Cook County Hospital, than in the smaller hospitals throughout the United States.

The following are what have been apparently surgical errors: Ninety-seven operations have been performed on 87 patients. Of the total number, there were 19 operations on 18 patients for gastric ulcer; 19 operations on 16 patients for gallstones or cholecystitis; 18 operations on 17 patients for appendicitis; 11 patients were operated on 13 times for salpingitis; on 9 patients an exploratory laparotomy was made; 7 operations were performed on 6 patients for renal calculi; 7 operations on 5 patients for postoperative adhesions, and 1 operation for each of the following: tumor of the cauda equina, sciatica (nerve stretching), meningocele, ectopic gestation and peritonitis. (See the accompanying tabulation.)

Of 1,000 tabetics, 8.7 per cent. have been subjected to laparotomy under mistaken diagnoses one or more times. Furthermore, gastric ulcer was the diagnosis most frequently made, and next gallbladder disease, with appendicitis a close third. As regards operations for postoperative adhesions, there were seven on five patients. One patient had five laparotomies, the last three for postoperative adhesions, and following each operation the old symptoms of epigastric pain with severe vomiting returned, that is, the gastric crises of tabes.

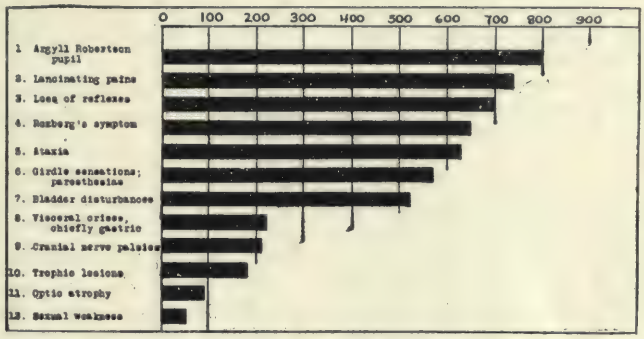


Chart 1.—Relative frequency of the cardinal symptoms in 1,000 cases of tabes dorsalis; thus, 800 patients presented Argyll Robertson pupils, 740 lightning pains, etc. Note that the visceral crises were present in 22 per cent.

USELESS SURGICAL OPERATIONS IN ONE THOUSAND CASES OF TABES DORSALIS

Surgeon's Diagnosis	No. of Operations
Gastric ulcer	19
Gallstones or cholecystitis	19
Appendicitis	18
Salpingitis	13
Exploratory laparotomy	9
Renal calculi	7
Postoperative adhesions	7
Tumor of cauda equina	1
Sciatica (nerve stretching)	1
Meningocele	1
Ectopic gestation	1
Peritonitis	1
Total number of operations	97 (9.7%)

In Chart 1 is shown the relative frequency of the important symptoms; altered pupillary reactions in 800 patients; lancinating pains, usually early in the disease, in 740; loss of the patellar reflexes or of the Achilles jerks or both in 700, etc. It is of interest that visceral crises were observed in 22 per cent. of all the patients, that is, 19 per cent. of the gastric type, 2 renal, and 1 per cent. intestinal crises.

In the report by Schaffer[6] regarding the symptoms in tabetics, the following are given in order of frequency: pupillary symptoms; lancinating pains; Westphal's sign (loss of patellar reflexes); Romberg's symptom, and urinary disturbances.

In Chart 2 the relative frequency of the symptoms included in the previous chart are contrasted with those in the eighty-seven patients operated on, the light line representing the eighty-seven patients operated on, the dark line the incidence indicated in Chart 2, here reduced to a curve.

From consideration of this chart it is evident that in 65 per cent. of the 87 patients operated on, the "crises" must have largely influenced the decision to operate, for in the entire series, visceral crises were observed only in 220 patients, or 22 per cent. This supposition is also supported by statements that the *initial* symptoms leading to the ninety-seven operations were gastric crises in 17 per cent. Friedenwald[7] found the gastric crises occurring as the initial symptom of tabes but five times in forty-two cases, and, according to this writer, Erb found them ten times in 400 cases, and Fournier fifteen times in 211 cases.

The following brief summaries of case histories are introduced to illustrate how the data used in the charts have been arrived at and also how great the importance attached to early symptoms of "crises" has been in determining operation.

CASE 1.—L. K., woman, aged 46, housewife, when admitted complained of paroxysmal attacks of intense abdominal pain, vomiting and diarrhea for twenty years. Twenty years ago she had a right cystic ovary removed. No relief followed the operation. One year later her appendix was taken out. Following this all of her former symptoms returned. During the next ten years she had three operations for postoperative adhesions. She entered the hospital with her original complaint.

Physical examination revealed a poorly nourished individual who appeared acutely ill, sclerae icteric, lips cyanotic, bilateral ptosis, both pupils slightly irregular and not reacting to light. There was a generalized abdominal tenderness but no definite rigidity. There were multiple abdominal scars of previous laparotomies. All the normal reflexes were active and readily elicited, except the Achilles jerks, which were sluggish. There was a transverse band hypalgesia about the chest. No Romberg's symptom and no ataxia were present. Lumbar puncture revealed a clear fluid under normal pressure. Nonne negative. Cell count showed 15 small mononuclear lymphocytes per cubic millimeter.

Here the initial symptoms were a combination of gastric and intestinal crises. The first operation, said to have been for a cystic ovary, may possibly have revealed gonorrheal salpingitis, and has not been enumerated in the charts or other statistics. That the

6. Schaffer, Karl: Tabes Dorsalis, Handbuch der Neurologie von Lewandowsky, Berlin, 1911, ii, 1037-1038.
7. Friedenwald, J., and Leitz: The Gastric Crises of Tabes, New York Med. Jour., 1912, xcvi, 13.

appendectomy was truly indicated cannot be determined. Whether the three successive laparotomies were made for troubles which the surgeon, previous to operation, believed due to postoperative adhesions, or whether the conclusions were arrived at subsequent to the operations cannot be determined from the records.

CASE 2.—M. C., aged 49, married, a traveling man, entered the Cook County Hospital, May 8, 1915, complaining of paroxysmal attacks of nausea and vomiting, epigastric pain and weakness. The vomiting bore no relation to food taking, and often appeared suddenly in the middle of the night. Attacks lasted from two to three days, and disappeared suddenly. In 1908 the patient was operated on for gastric ulcer, but nothing abnormal was found. In 1912 he was operated on for gallbladder trouble, and a cholecystotomy was done. This gave him no relief, and with the return of his old symptoms the patient submitted to a second operation on his stomach for postoperative adhesions. He has since developed a postoperative hernia the size of a hen's egg at the site of the last operative scar. He is now a morphin habitué.

Physical examination revealed ptosis of the right upper eyelid. The right eyebrow arched upward more than the left. The wrinkles on the right side of the forehead were deeper than on the left, that is, there was compensatory overaction of the right occipitofrontalis muscle. The pupils were oval, irregular in outline, and unequal in size. Reaction was very sluggish to light. There was marked ulnar analgesia. Hyperalgesia was present over the thighs anteriorly. There was a slight degree of ataxia. Romberg's symptom was suggestive. There was paroxysmal incontinence of urine. The plantar, Achilles, triceps and other reflexes were all readily elicited. The patient left the hospital before an analysis of the spinal fluid could be made.

This also serves to illustrate the onset of tabes with typical gastric crises. After fifteen years of the disease, the plantar and Achilles reflexes are still active.

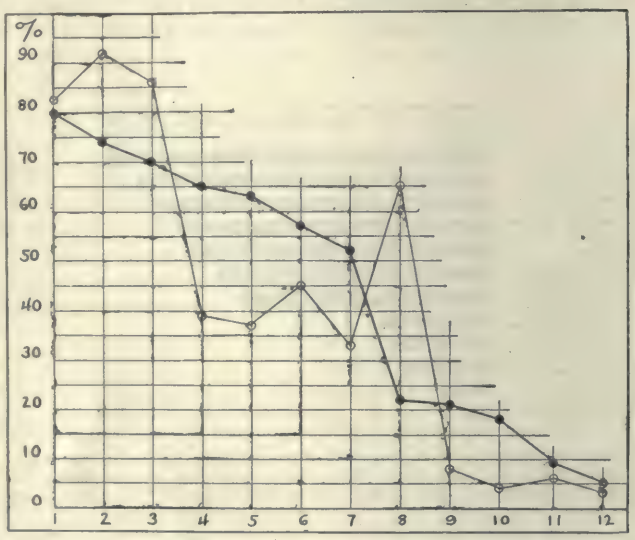


Chart 2.—Frequency of cardinal symptoms; the ordinates represent the cardinal symptoms in the following order: 1, Argyll Robertson pupil; 2, lightning pains; 3, loss of reflexes; 4, Romberg's symptom; 5, ataxia; 6, paresthesia; 7, bladder disturbances; 8, visceral crises; 9, cranial nerve palsies, diplopia, strabismus, etc.; 10, trophic lesions; 11, optic atrophy, and 12, sexual weakness. The light line represents the eighty-seven tabetics operated on, the heavy dark line the incidence indicated in Chart 1, but here reduced to a curve. Note that the crises (Ordinate 8) were present in 65 per cent. of the patients operated on as contrasted with but 22 per cent. in the series of 1,000 cases.

CASE 3.—J. H., man, aged 50, druggist, entered the hospital complaining of pain in the left leg present for the past fifteen years. Beginning in the left hip, these pains radiated down the leg into the foot, and at times were constant, severe and sharp. There was impaired sensation over the outer surface of the left lower extremity. The patient stated that one year before he lost the sensations of pain and touch in this limb; he could stick needles into the leg without feeling it. He has been taking morphin sulphate, 1 grain per dose, to relieve these pains.

Physical examination revealed an emaciated, elderly man of medium stature. The pupils reacted to light and accommodation. The heart, abdomen and genitalia were negative. There was a trophic ulcer present at the base of the left great toe. The patellar and Achilles reflexes were absent. Pain sensation was greatly diminished over the lower left leg laterally. No pain was elicited on pressure over the sciatic nerve.

The patient was transferred from the neurologic service with the diagnosis of tumor of the cauda equina, for surgical treatment. The operation as recorded on the history sheet follows:

"Longitudinal incision over spinous processes in lumbar region, down to vertebrae.

"*Pathology.*—Chronic pachymeningitis, with areas of hemorrhagic character, and adhesions between cord and meninges posteriorly. Cord has dark spotted appearance, like old hemorrhages.

"*Technic.*—Opening and closing spinal canal by laminectomy. Opening dura and closure with catgut. Clearing adhesions with probe."

During the operation the condition was recognized as tabes. Death occurred three weeks later. No postmortem examination was made.

Over forty-seven years have passed since Charcot[8] described the gastric crises in tabes. His work forms the basis of all our knowledge regarding them, and relatively little additional information concerning them has been learned; his account is worthy of repetition:

But of all the visceral symptoms which may display themselves from the period of lightning pains, one which is at once the most remarkable and the least known, if I mistake not, is that which I have proposed to designate by the name of gastric crises. . . . Very often, their real signification remaining misunderstood, they are the occasion of grave errors of diagnosis.

But it is time to tell you in what these gastric crises consist. Suddenly and generally at a period when a paroxysm of shooting pains has seized upon the extremities, the patient complains of pains which, starting from the groins, seem to ascend both sides of the abdomen and to fix themselves in the epigastric region. At the same time they complain of pains situated between the shoulders which radiate around the base of the trunk in a lightning-like manner. Then the pulsation of the heart commonly becomes violent and precipitated. . . . Frequency of the pulse without fever is in truth a very common incident. . . . Almost incessant and extremely distressing vomiting is often associated with gastric crises. Food is first ejected and then a mucous colorless liquid sometimes mixed with bile or tinged with blood. An intense feeling of sickness and vertigoes are superadded to the vomiting and cardialgic pains. . . . Many a time I have seen this symptom diverting the attention of the physician and causing him to misapprehend the real nature of the disorder. I also have several times fallen into the snare in other days.

A number of writers have adopted the classification of the gastric crises attributed to Fournier. He divided them into the following types:

1. The *grand crise gastrique,* in which there is extreme epigastric pain, retching and vomiting, followed often by general prostration. This is the most common form.

8. Charcot: Lectures on Diseases of the Nervous System, New Sydenham Soc. Pub., 1881, xc, 29.

2. Crises with vomiting alone.
3. Crises with pain alone.
4. Crises in which there may be only loss of the appetite.

That they may and do occur as the initial symptoms of tabes must be remembered. Their average duration varies from one to three days; they may drag on for several weeks with the ultimate exhaustion of the patient. The sudden onset and abrupt termination is quite typical of them. During the intervals between the attacks, the stomach functions in a normal way. During the attacks the pulse rate is accelerated (from 90 to 100) while the temperature usually remains normal.

Stomach analysis of the vomitus and of the gastric secretions during the crises fails to reveal anything characteristic. Bile-stained mucus with hyperacidity, hypacidity, and even achylia have been found.

The blood pressure is raised during the crises. Thus Barker[9] reports a blood pressure ranging between 180 and 220 mm. Hg during a seven-day attack. He noted that with the fall of the blood pressure to normal, the attack promptly subsided. Accordingly nitrite medication as well as epinephrin chlorid during the crises gives relief.

From a study of the information presented in these charts, it is apparent that the mistaken diagnoses and resulting operations were chiefly in two main groups of patients.

1. Tabetics in whom the initial symptoms were the visceral crises and less frequently those with renal or intestinal crises.

2. Tabetics in the class designated by Erb as "tabes incompleta" or "formes frustes" by the French. These patients presented fewer of the characteristic symptoms of tabes, and the mistakes leading to operations are less surprising.

From studying these records it has seemed that the mistakes made have been not so much the result of clinical ignorance as of superficial examination and the failure to consider tabes: furthermore, there would seem to be little excuse for such failures when patients present themselves for examination with a history of pain in the stomach, vomiting, rheumatism, paresthesias, arthropathies, bladder disturbances, or fractures without physical violence.

In studying these records the possibility of bona fide abdominal disease developing in tabetics has been constantly in mind. An example of this follows:

CASE 4.—J. G., man, aged 53 (?), a laborer, was admitted to the hospital complaining of general weakness, failing vision, anorexia and ataxia.

Physical examination revealed a feeble old man, poorly nourished, and taking but little interest in his surroundings. The right eye was missing. The left pupil did not react to light, and only sluggishly to accommodation. There was no abdominal tenderness or rigidity. The patellar reflexes and Achilles jerks were absent. Paresthesias were present.

The patient was admitted to the neurologic service with the diagnosis of tabes. There was sudden onset of intense epigastric pain. The pulse became rapid and thready, the face cyanotic, respirations shallow and labored, temperature subnormal, and death occurred five hours after admission.

Dr. LeCount made the following anatomic diagnosis:

"Perforating peptic ulcer of the duodenum; fibrinopurulent peritonitis; edema of the mediastinal tissues and of both lungs; subcapsular petechial hemorrhages of the liver; healed encapsulated caseous tuberculosis of the left lung; tuberculous osteomyelitis of the ribs; moderate kyphosis; moderate hyperplasia of the biliary, mesenteric and tracheobronchial lymphgland; adventitious fibrous adhesions between the lungs and chest wall; syphilitic nodular sclerosis of the aorta; gummatous scars in the leptomeninges; copper-colored scars over the left tibia; marked chronic diffuse nephritis—secondarily contracted kidneys; marked hypertrophy of the left ventricle of the heart; numerous absent teeth—caries; old healed scars of the left temple; infantile cecum; persistent membranous eustachian valve; postmortem digestion of the lining of the esophagus." The spinal cord was not examined.

Other patients with tabes were operated on for hernia, many were treated for fractures; some patients with tabes had gallstones removed according to the records, others stones from the kidney. None of these, as previously stated, have been included in the unnecessary operations.

Recently, we have received a very promising aid to the early diagnosis of tabes in the so-called cytodiagnosis of the spinal fluid. "Marked lymphocytosis appears to occur even in the earliest stages of tabes."[10] A positive Wassermann reaction with the spinal fluid is of great value in doubtful cases.

As Cabot[11] has stated:

> What we are learning in the last few years, since lumbar puncture and Wassermann reactions in the blood and spinal fluid have become matters of routine in doubtful gastric cases, is that any type of stomach trouble, acute or chronic, mild or severe, sharply painful or merely distressing, may be due to cerebrospinal syphilis. Until within the past few years, one was on the lookout, if he were conscientious, for so-called gastric crises in tabes. What we have learned lately is:
>
> (*a*) That we must suspect the possibility of tabes even when the pupils are normal, and must investigate this possibility by means of spinal puncture.
>
> (*b*) That any sort of gastric abdominal pain or distress may be due to tabes.

It is believed that with a careful examination to exclude tabes, in the future more tabetics will be spared useless surgical operations, and more acute abdominal symptoms will be proved of spinal origin.

CONCLUSIONS

1. Of 1,000 tabetics, 8.7 per cent. have been subjected to laparotomy under mistaken diagnosis one or more times.

2. The "crises" of tabes have largely influenced the surgeon in his decision to operate. This statement is supported by the fact that 65 per cent. of the eighty-seven patients operated on presented visceral crises. In 17 per cent of these, the "crises" were the *initial symptoms* of their disease.

3. Mistaken diagnoses and resulting operations occur chiefly through failure to examine the nervous system.

4. Gastric ulcer, gallbladder disease and appendicitis are the diagnoses most frequently made.

5. Tabetics subjected to several successive laparotomies have, as a rule, been operated on by as many different surgeons.

6. A history of paroxysmal attacks of vomiting, rheumatism, paresthesias, bladder disturbances or fractures without physical violence should excite interest to exclude tabes dorsalis.

7. The cytodiagnosis of the cerebrospinal fluid, together with the Wassermann reaction with the spinal fluid, are of intestimable value in doubtful cases.

9. Barker, L. F.: Paroxysmal Arteriospasm with Hypertension in the Gastric Crises of Tabes, Am. Jour. Med. Sc., 1910, cxxxix, 631.

10. Erb, Wilhelm: Tabes Dorsalis, Modern Clinical Medicine (Church's Translation), 1911, p. 528.

11. Cabot, R. C.: Differential Diagnosis, p. 256.

THE THERAPEUTIC VALUE OF THE HYPOPHOSPHITES *

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It may be stated, almost as an axiom, that a drug, in order to be useful, must, in general, do one of three things: It must produce either a local or general physiologic effect, it must exert a specific demonstrable influence on pathologic processes, or it must have a "food" value.

Hypophosphites, used for years in medicine, were first introduced as a cure for pulmonary tuberculosis. They have since been recommended as exerting varied physiologic actions, and their use at present is based mostly on the assumption that the hypophosphites are "foods."

At the request of the Council on Pharmacy and Chemistry of the American Medical Association, the evidence for and against the value of hypophosphites in each of these directions has been critically examined, and experiments have been carried out, the latter being especially designed to determine the "food" value. The investigation reveals that the evidence against the usefulness of hypophosphites is overwhelming.

The hypophosphites were introduced into medicine in 1858 by J. F. Churchill[1] as the result of a physiologic misconception. In that year he published his book on the treatment of pulmonary tuberculosis, in which he assumed that the "tuberculous diathesis" depended on a disturbance in the balance of various substances in the organism, and that the disturbance must be in the inorganic elements of the blood. He argued that, as iron, chlorids, sulphur and the alkalies had all been used without success in the treatment of tuberculosis, they were not the essential substances involved. Taking his cue from the discovery that had been recently announced of phosphorus in the blood, he assumed that phosphorus was the lacking element. He concluded that the element phosphorus was not well suited for administration on account of its toxicity and rapid deterioration, and that phosphorus in the fully oxidized form of phosphates was also unsuited as it was not "combustible." Hence, he selected the hypophosphites as being a form of phosphorus nontoxic and yet capable of further oxidation in the organism. He stated categorically that *"the tuberculous diathesis depends on a diminution in the element phosphorus and that this element, having to play the rôle of a combustible body, must be administered in a less completely oxidized form than that of phosphoric acid."* [2]

Churchill administered hypophosphites to about thirty patients whom he had diagnosed as tuberculous. Nine of these patients he claimed to have completely cured, ten showed clinical improvement, the remainder died. A critical examination of the histories of the "cured" patients would lead one to suspect that some cases were pneumonia in which the "cure" occurred at crisis, others malaria and others perhaps tuberculosis in which improvement had occurred, due to the general hygienic measures that were instituted. The author mentions that he lost sight of many of the cases, so that we are left quite in the dark as to the ultimate developments. It is not remarkable that many of the patients treated should have felt better for a time. The hopefulness of consumptives is well known. Churchill claimed that hypophosphites did more than merely cure tuberculosis. To his mind they acted as hematinics. He even claimed that in some of his patients the production of new blood was so great that they suffered from hemorrhages from the nose and from hemorrhoids. He went further: He claimed a general tonic effect. Some of his patients grew heavy beards in an incredibly short time; others cut wisdom teeth with astonishing rapidity, following the administrations of the drug. The bedridden rose and walked.

From all accounts, the medical men of Churchill's day received his reports with much incredulity, and even derision. A number of investigators, evidently taking the matter more seriously, administered hypophosphites to tuberculous patients with the result that many unfavorable reports quickly made their appearance.

Dechambre[3] concluded that the hypophosphites were not to be considered at all as specifics in the treatment of phthisis.

Trousseau and Vigla[4] emphasized the insignificance of the results obtained by hypophosphite medication.

Quain,[5] reporting cases from his clinic at the Brompton Hospital, stated that he was unable to obtain any of the physiologic effects claimed by Churchill, and, further, that the hypophosphites had no favorable action on the course of pulmonary tuberculosis.

Pidoux[6] denied the efficacy of hypophosphites as far as the tuberculous process was concerned, but suggested that they might be useful in supplying necessary elements for the repair of tissues.

Madden[7] recommended the syrup of hypophosphites of iron, soda, potash and lime, combined with other drugs, as useful in the wasting occurring in tuberculous infections in young subjects, but mentioned the fact that hypophosphites were not as generally beneficial as Irish moss! He submitted no definite evidence in support of his views.

Rabuteau[8] administered 3 grains of sodium hypophosphite daily to a healthy woman and observed an acceleration of the pulse, an elevation of the temperature and a beginning plethora, as indicated by an increased color in the face and lips. There was also an increase in the quantity of urine. With no more evidence than this the author concluded that part of the ingested phosphorus was eliminated, another part was oxidized to supply the phosphorus-containing elements in the organism, and a third part stimulated the formation of red blood cells. The work of this author is quoted as an example of the insufficient evidence on which the whole hypophosphite theory rests.

Paquelin and Joly,[9] endeavoring to test out the theory that hypophosphites were utilized in the organism, collected the urine from patients after the administration of hypophosphites, and claimed to have recovered the entire amount ingested. The only effect that they

* From the Harriet Lane Home and Department of Pediatrics, Johns Hopkins University. Work undertaken at the request of the Council on Pharmacy and Chemistry, and aided by a grant from the American Medical Association.

1. Churchill, J. Francis: De la cause immédiate et du traitement spécifique de la phthisie pulmonaire et des maladies tuberculeuses, Paris, 1858.
2. ". . . que la diathèse tuberculeuse dépendait d'une diminution dans l'économie de l'élément phosphoré, et que cet élément, ayant à jouer le rôle d'un corps combustible, devait s'y trouver à un degré d'oxydation inférieur à celui de l'acide phosphorique."
3. Dechambre: Gaz. hebd. de méd., 1858.
4. Trousseau and Vigla: Jour. de chem. et de Pharm., Paris, 1858.
5. Quain: Bull. gén. de thérap. méd. et chir., 1860, lviii.
6. Pidoux: Union méd., Paris, 1869, vii.
7. Madden, in Keating's Cyclopaedia of Diseases of Children, 1890, i, 405.
8. Rabuteau: Elements de therapeutique et de pharmacie, Paris, 1872.
9. Paquelin and Joly: Compt. rend. Acad. d. sc., 1878, lxxxvi.

noted following the administration of the hypophosphites was a diuresis.

Vermeulen[10] administered sodium hypophosphite to normal individuals, to tuberculous subjects, to dogs and to rabbits, and concluded that hypophosphites were rapidly eliminated totally and without alteration in the urine. He could not see in any of the subjects any change due to the administration of the drug, with the exception that in some instances large doses of hypophosphites seemed to change the respirations in the direction of shortening inspiration and prolonging expiration. No figures or tracings are given by the author in support of this view.

Boddaert[11] administered hypophosphites to man, to dogs and to rabbits, and recovered 95 per cent. in the urine within twenty-four hours. He noted a diuretic effect. The work of Massol and Gamel,[12] of Panzer[13] and of Delaini[14] confirmed that of Boddaert.

Berg[15] found that in man, ingested hypophosphites were excreted largely unchanged, and at the same time the elimination of phosphates was slightly increased. He concluded that the hypophosphites were in small part oxidized to phosphates, but that none of the phosphorus was retained, and that, as a means of administration of phosphorus, the hypophosphites were entirely useless.

Patta[16] alone found that any considerable amount of ingested sodium hypophosphite was retained in the body. This author injected sodium hypophosphite into dogs and rabbits, and recovered only about 50 per cent. in the urine in twenty-four hours, and concluded that the remainder was utilized. The results obtained by this author are not to be considered in any way trustworthy, as he used a method which is now known to give inaccurate results, and in addition obviously made a mistake in his calculations of results that would lead to a final error of 100 per cent., for he gives an incorrect chemical formula for the reactions involved.

Since the evidence as to the utilization of the hypophosphite has been to some extent contradictory, a series of experiments has been carried out by us in the endeavor to determine, by means of methods known to be correct, whether hypophosphites are or are not utilized in the body. Sodium hypophosphite (Hoffman-LaRoche Chemical Company) was used. This material was found, on analysis, to contain practically the theoretical amounts of hypophosphorous acid. Carefully measured portions of a 10 per cent. aqueous solution of this salt were taken by four normal men over a period of three days each. The solution was taken after the morning and noon meals and before the evening meal. Ten c.c., equivalent to 1 gm. of sodium hypophosphite, was taken at each dose. Twenty-four hour specimens of urine for periods beginning and ending at 7 a. m. were collected for the three days of the experiment and one day succeeding. The urine bottles were kept in an ice-box. No preservative was added.

This method of analysis depended on the oxidation of the hypophosphites to phosphates by means of potassium chlorate, nitric and hydrochloric acids, and the determination of the resulting phosphates by titration with uranium acetate solution. Before beginning the experiment, it was determined that normal urines, when treated according to the method adopted, showed the presence of no hypophosphite, and that on adding known amounts of hypophosphite to such urines the entire amount added was recovered. It was further determined that no error was introduced by allowing a urine containing hypophosphite to stand in the ice-box for forty-eight hours without added preservative.

None of the subjects of the experiment experienced any effect whatsoever from the administration of the drug. The results are summarized in the accompanying table, from which it is evident that almost all of the ingested hypophosphite is promptly eliminated unchanged. A small amount, however, is unaccounted for in the urine. This may have escaped absorption from the intestinal tract or else have been oxidized to phosphoric acid in the body. Considering the fact that hypophosphorous acid is readily oxidized even by such weak agents as mercuric chlorid at ordinary temperatures, it is not unlikely that a part was oxidized either in the intestinal tract or parenterally. If it was oxidized, the resulting phosphate could benefit the organism only to the same extent as ordinary phosphates, and the calories produced by the oxidation of such a small amount of material could be of no appreciable value to the body. Since hypophosphites do not occur in any organ of the body, so far as has ever been determined, there is no reason to suppose that ingested hypophosphites are stored as such or, if they are stored, that the organism would be at all benefited by the presence of such foreign substances.

It has been urged that the hypophosphites may be of benefit even if the hypophosphorous acid radical is not utilized. It is claimed that the administration of hypophosphites facilitates the absorption of calcium, since calcium hypophosphite is water-soluble, whereas cal-

SUMMARY OF RESULTS

SUBJECT H.

Day	Sodium Hypophosphite—Intake	Output	Balance	
	gm.	gm.	gm.	
1	3.0	2.11	0.89	
2	3.0	2.56	0.44	
3	2.0	1.51	.49	
4	0.0	0.20	.20	
Total	8.0	6.38		80% eliminated

SUBJECT M.

Day	Sodium Hypophosphite—Intake	Output	Balance	
	gm.	gm.	gm.	
1	3.0	2.18	0.82	
2	3.0	2.43	0.57	
3	3.0	2.48	0.60	
4	0.0	0.02	.02	
Total	9.0	7.11		79% eliminated

SUBJECT S.

Day	Sodium Hypophosphite—Intake	Output	Balance	
	gm.	gm.	gm.	
1	3.0	2.68	.32	
2	3.0	2.66	.34	
3	3.0	2.52	.48	
4	0.0	0.00	.00	
Total	9.0	7.86		87.5% eliminated

SUBJECT G.

Day	Sodium Hypophosphite—Intake	Output	Balance	
	gm.	gm.	gm.	
1	2.0	2.00	0	
2	3.0	2.46	.54	
3	3.0	2.85	.15	
4	0.0	0.00		
Total	8.0	7.31		91.5% eliminated

Total average eliminated, 86%

10. Vermeulen: Onderzoekingen omtrent de physiologische werken van het Natrium hypophosphiet, Amsterdam, L. Kervel, 1884.
11. Boddaert, A.: Contribution à l'étude de l'action des hypophosphites sur la nutrition, Arch. de pharmacodynam., 1895-1896, i, ii, 195.
12. Massol and Gamel: Bull. Acad. de méd. de Paris, Oct. 8, 1901; abstr., THE JOURNAL A. M. A., Nov. 16, 1901, p. 1353.
13. Panzer: Zeitschrift für Untersuchung der Nahrungs- und Genussmittel, 1902, v, 11.
14. Delaini: Arch. d. fisiol., 1911, ix, 329.
15. Berg: Biochem. Ztschr., 1910, xxx, 107.
16. Patta, Aldo: Osservazioni intorno al comportamento degli ipofosfiti nell 'organismo, Arch. di farmacol. sper. e Sc., affini, 1910, ix, 1.

cium phosphate is practically insoluble. One could with equally good logic argue that, since calcium chlorid is soluble, the administration of sodium chlorid would increase calcium absorption; the fallacy is that, in the presence of phosphates or of other acid radicals capable of forming a nonsoluble compound with calcium, the nonsoluble compound would be formed, whether or not the calcium were originally in a soluble form.

It may still be claimed that hypophosphites influence nutrition in some occult way that cannot be definitely determined. Such claims may be made for any substance whatsoever and of course cannot be denied, but, in the absence of proof as to the value of the drug, we are not justified in using it merely because it "may do good." If such an attitude were generally taken, the complement of useless drugs in the pharmacopeia would be increased manyfold.

The investigations previously referred to in this paper have been carried out chiefly on man. In the instances in which experiments on animals were also performed, it was demonstrated that the lower animals react to hypophosphites in no way differently from man. We are, then, apparently justified in assuming that conclusions drawn from animal experimentation, so far as hypophosphites are concerned, are valid for men. Such being the case, the experiments of Forbes[17] and his associates at the Ohio Agricultural Experiment Station give most valuable information as to the real nutritive value of the hypophosphites. These experiments were performed on growing pigs, given diets containing an insufficient amount of phosphorus-containing compounds, the deficit being made up by the addition of phosphorus in the form of phosphates—glycerophosphates, hypophosphites, and nucleic acid—each lot of pigs receiving the phosphorus in one of the various forms mentioned. The authors concluded from the results of these experiments that, of the compounds of phosphorus tested, the hypophosphites possessed the lowest nutritive value.

The pigs receiving hypophosphites, either alone or with nucleic acid, "suffered from great weakness and lameness. They were more or less subject to indigestion. The legs were weak, especially the hind ones, which trembled and bowed out, and the feet were set far under the body. The fore feet were also sore. The muscular control was poor. The pigs lay down most of the time, and if disturbed would at once lie down again."

These pigs behaved very much as the pigs receiving no phosphorus supplement at all—in fact, the abnormal tendencies were less pronounced in the latter case. In contradistinction to these, the pigs receiving extra phosphorus in the form of phosphates or glycerophosphates were entirely normal.

At the conclusion of the experiments all of the animals were examined at necropsy. One very noticeable finding was that the breaking strength of the bones, accurately determined, was found to be very much less in the pigs fed on hypophosphites than in any other group. Further, chemical analysis of the bones of these animals demonstrated a diminished calcium and phosphate content; the total ash was also less.

These experiments demonstrate conclusively that the hypophosphites possess no specific value as a source of phosphorus for the body. This is not to be wondered at in view of the fact that 85 per cent. of the phosphorus ingested in the form of hypophosphite is excreted unchanged, and there is no proof that even the remaining 15 per cent. is available to the organism. It is doubtful if there are any conditions in which the body suffers from lack of phosphorus. Even should such conditions exist, phosphorus, in the form that it occurs in the ordinary foods or as phosphates, is more efficient in supplying the deficit than hypophosphites that must be oxidized before utilization and which are only about 15 per cent. oxidized if at all. For example, half a glass of milk contains more available phosphorus than three large doses of hypophosphites of 15 grains each, as great a dosage as is usually given.

What, then, is the therapeutic value of hypophosphites? There is no reliable evidence that they exert a physiologic effect; it has not been demonstrated that they influence any pathologic process; they are not "foods." If they are of any use, that use has never been discovered.

17. Forbes and Associates: Research Bull. 6, Ohio Agric. Expt. Sta., 1914.

ROUTINE WASSERMANN EXAMINATIONS OF FOUR THOUSAND HOSPITAL PATIENTS *

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Our object is to present the incidence of a positive Wassermann reaction among patients in a general hospital and to show the prevalence of unsuspected syphilis which can be demonstrated only by a routine test. This paper is therefore a statistical summary showing the prevalence of the various types or stages of syphilis in this class of patients, with a discussion of the frequency of a positive reaction in various diseases.

Four thousand individual cases have been tested. Of this number, 1,800 were in the medical wards and 350 in the neurologic division of the surgical service, in which, in each instance, a routine Wassermann test is done in every case. The remaining 1,850 were in the outdoor department or in the general surgical service, in which tests are made only in selected cases.

The technic used in carrying out the Wassermann reactions has been described in detail in a previous paper.[1] Suffice it to mention here that the original Wassermann technic, with the substitution of a 0.4 per cent. cholesterinized alcoholic human heart extract for antigen, was used.

Among the 4,000 cases there were 600 giving complete fixation, and these were distributed as follows: Forty-eight patients were in the very early stage of the disease; of these, thirteen had a chancre and thirty-five had a generalized rash; 306 were in a later stage of syphilis and showed various manifestations such as periostitis, gumma, endarteritis, ulcers, late rashes, etc.; thirteen cases were congenital; 120 cases had central nervous system involvement (these cases are discussed later on in this paper; they do not include those cases which, with negative findings in the spinal fluid, were diagnosed as cerebral syphilis; the latter are included in the 306 classified above as cases in a later stage). There were fifty-four positive cases with aortic disease, ten with epilepsy, ten with disease of the

* From the medical clinic of the Peter Bent Brigham Hospital.

1. Walker, I. C.: The Specificity of Cholesterin with Syphilitic Serums and of Cholesterin-Reinforced Heart Antigen in the Wassermann Reaction, Arch. Int. Med., October, 1914, p. 563.

liver, ten with disease of the kidney, nine with pneumonia, seven with diabetes, and the remaining thirteen positive cases were distributed among miscellaneous diseases.

It is of interest, first, to compare the frequency of the various stages of syphilis encountered. While 4,000 persons, of whom 600 had syphilis, were examined, only forty-eight were in the early stage, that is, thirteen had a chancre and thirty-five an early rash. Two of the chancre cases gave negative reactions on the first test, but subsequently they became positive. Although at this hospital there is no genito-urinary clinic, and consequently no special inducement is offered for such early cases to come, nevertheless thirteen chancres among so many cases examined during a period of two years seems rather small. This small percentage, however, is to a certain extent in keeping with the small percentage of cases in the late stages in which the patients deny an initial lesion but admit gonorrheal infection. This suggests the possibility of intra-urethral chancres which may be obscured by the pain and discharge of an acute urethritis, and also the possibility of the *Spirochaeta pallida* entering the tissues without producing any noticeable lesion and discomfort. Again the lack of a special clinic for this type of infection may explain the small number of early rashes. Still, among our patients with syphilis of the central nervous system, 75 per cent. deny any secondary manifestations at all, and 42 per cent. deny even an initial lesion. These are strong facts in favor of a routine Wassermann test, and against placing much reliance on a history of absence of infection as an aid in ruling out late syphilis.

There were 120 cases of syphilis of the central nervous system classified as follows: seventy-six cases of tabes dorsalis, fifteen of general paresis of the insane and twenty-nine of cerebrospinal syphilis. Of the latter, six were probably true syphilitic meningitis, in three of which there were over 500 cells per cubic centimeter in the spinal fluid. These 120 cases among 600 syphilitics, that is, 20 per cent., show the frequency of and tendency to involvement of the central nervous system, and would emphasize the importance of a Wassermann reaction in all neurologic cases. It is only fair to assume that a general hospital of this kind would share equally well with other hospitals in this type of syphilis, and the foregoing percentage would appear to be a fair estimate of the relative frequency of occurrence of syphilis of the central nervous system. Of the seventy-six cases of tabes, four gave a positive reaction only in the blood, fourteen gave a positive test in the spinal fluid alone, and forty gave positive reactions in both blood and spinal fluid. Fourteen patients seen in the outdoor department gave a positive blood test, but they did not enter the hospital for a lumbar puncture so that the spinal fluid was not examined. Since fourteen cases of tabes, or 18 per cent., gave a negative Wassermann reaction in the blood but a positive test in the spinal fluid, it seems quite necessary to have the latter tested. Four cases of typical tabes had negative reactions in the blood and in the spinal fluid in 1 c.c. amounts, although there was an increased cell count in the latter. Thus it would seem that a negative reaction in both blood and spinal fluid is uncommon though it occurs in tabes.

The diagnosis of congenital syphilis was made in only thirteen cases, in all of which there were some of its well recognized characteristics and a positive Wassermann reaction. Although the fact that very few children and no infants are seen at this hospital would go a long way toward explaining such a small number of congenital cases, still it might be conjectured either that some of the positive cases among adults without congenital stigmata are hereditary, or that such patients do not reach adult life or that syphilitic parents may beget healthy children. These possible explanations are based on some cases treated here. In two cases of epilepsy in young males whose epileptic attacks began at an early age, too early for a venereal source to be considered, and in a case of syphilitic meningitis in a child aged 3½ years, the patients were all relieved of their symptoms and signs by antisyphilitic treatment. These were probably congenital in origin. Furthermore, we have had several opportunities of testing the blood of infants and children who were born at the time their parents showed active lesions; but these offspring gave negative reactions and showed no congenital stigmata.

The susceptibility of the vascular system to syphilitic involvement was quite evident. Among the 600 positive cases there were fifty-six cases with vascular involvement, a percentage of 9.3. Aortitis, accompanied usually by an aortic insufficiency, was the most common condition; there were twenty-three of these. Aneurysm was next most frequent, with eighteen cases. Dilatation of the arch of the aorta with aortic insufficiency was next in frequency, with thirteen cases. Of uncomplicated arteriosclerosis there were only two cases with positive Wassermann reactions. The cases of nephritis with hypertension will be discussed later on; but it may be noted here that their number would raise the percentage of vascular involvement to 10 per cent.

The eighteen cases diagnosed aneurysm were verified by the Roentgen ray, and in all there were positive reactions in the blood. Two other cases with negative reactions were diagnosed clinically as aneurysm. One of these, however, was subsequently shown to be cancer of the esophagus. The other case may likewise turn out to be other than aneurysm, as the chances are 18 to 1 that it is not aneurysm. On the other hand, there were twelve cases of dilated aortic arch with a negative Wassermann reaction, against thirteen such cases with a positive reaction. From the foregoing statement one might conclude that it was unusual for nonsyphilitic dilatation of the aorta barring traumatism to progress to aneurysm formation, whereas dilatation of the aorta caused by syphilis very likely does progress to aneurysm, and antisyphilitic treatment is indicated to prevent further progress. In this series there was only one case of aneurysm of the abdominal aorta, and the blood gave a positive reaction; this aneurysm ruptured, and the diagnosis was confirmed at necropsy. One case showed an aneurysm of the popliteal artery, and the blood gave a positive reaction; there was no history of injury.

Including the cases of aortic insufficiency associated with an aortitis and with a dilated aorta, there were twice as many cases of aortic insufficiency with a positive as with a negative Wassermann reaction; but in all the other valvular lesions together, the Wassermann reaction was negative with two exceptions. The heart itself in this series of cases escaped without syphilitic involvement, with the exception of one case of paroxysmal tachycardia. This disturbance was probably due to syphilitic disease in the heart muscle,

since the attacks were inhibited by salvarsan. No cases of uncomplicated chronic myocarditis gave a positive Wassermann reaction.

Several observers have asserted that pulmonary tuberculosis often gives a positive Wassermann reaction. In this series there were ninety cases of outspoken pulmonary tuberculosis, and only three of these had positive Wassermann reactions. All the cases of tuberculous meningitis gave a negative test in both blood and spinal fluid. It would seem from this series, therefore, that there is little evidence for the conclusion that tuberculosis may cause a positive Wassermann reaction. There was one case in our series of probable lung syphilis, since the pulmonary signs and symptoms rapidly cleared up under salvarsan, mercury and potassium iodid.

In thirty-two cases of cirrhosis of the liver, there were six with a positive Wassermann reaction, and in fifteen cases of acute catarrhal jaundice there were no cases giving complete fixation, although one case gave 75 per cent. fixation at the height of the disease; but this fixation gradually diminished in strength as the jaundice diminished in intensity. A week after the first test there was 50 per cent. fixation; a week later still there was 25 per cent. fixation, and when the skin and mucous membrane had become clear, there was no fixation at all. Since bile is known to vary in its cholesterin content, it is possible in this case showing partial fixation that there was a large cholesterin content in the bile, sufficient to give this partial fixation. We do not feel, however, that bile complicates the interpretation of the Wassermann reaction to any great extent. In this series we encountered gummas of the liver in only four cases, and all yielded readily to antisyphilitic treatment.

Among the cases of syphilis showing involvement of the alimentary tract, omitting from consideration those with gumma of the tongue, of which there were four, and cases of stricture of the rectum, of which, strangely enough, only one was encountered in this series, three cases were seen which showed unusual clinical pictures. Two of these closely resembled gastric ulcer; one patient, in fact, was operated on for this condition without any definite findings at operation; the other case cleared up quickly with antisyphilitic treatment. The third patient showed definite ulcerations of the lower colon and upper rectum by proctoscope, with typical symptoms and stool findings of an extreme colitis, and was so greatly benefited by antisyphilitic treatment that he has continued practically free from symptoms for more than a year without further treatment. This case is to be reported in detail in a subsequent paper.

Several observers have asserted that syphilis plays an important part in the etiology of chronic nephritis with hypertension.[2] These adherents, however, base the greater part of their proof on the luetin reaction. It has been claimed recently that the administration of potassium iodid provokes a positive luetin[3] reaction, and probably the number of patients with hypertension not having been given potassium iodid is very small. In this series there were 120 cases of chronic nephritis with hypertension, and only seven of these gave positive Wassermann reactions. Among ninety-three cases of chronic nephritis without high blood pressure, there were three having positive Wassermann reactions. These statistics do not support to any great extent the theory that hypertensive nephritis can be attributed to syphilis. In this series there were no cases of syphilis of the kidney.

The incidence of a positive Wassermann reaction in cases of diabetes mellitus is interesting. Among eighty-nine cases of diabetes there were seven with positive Wassermann reactions. The majority of these seven cases gave a history of syphilitic infection. One case in particular is of sufficient interest to mention. Six months after a chancre and a secondary rash, this patient developed diabetes. He was treated with mercury and potassium iodid for one year, and then for six months with salvarsan and mercury without any influence on the diabetes. The blood Wassermann, however, became much weaker but never negative. The patient finally died in coma. Other parallel cases have been observed. Many observers have noted the frequency of a positive Wassermann reaction in this disease, and some have considered it due to the presence of acidosis in the serum. On repeated tests under various conditions, the Wassermann reaction was noted by us to be uninfluenced whether there was much or little sugar in the blood and urine, and whether or not the patient was in coma.

Of special interest in regard to treatment and relief of symptoms was the frequency of a positive Wassermann reaction among patients with epilepsy. In the eighty-eight cases of epilepsy there were ten cases with a positive Wassermann reaction, and of the seventy-eight with a negative reaction, seventeen had an old depressed fracture of the skull which accounted for the disease in these cases. Subtracting the seventeen fracture cases from the total of eighty-eight would leave 14 per cent. having positive Wassermann reactions and without other known etiology for the epileptic seizures. Three of the patients with positive reactions were treated with salvarsan, and have had no attacks for over a year since discontinuing the treatments. The other patients were treated with mercury intramuscularly, and the attacks were relieved while under observation. Therefore it seems that syphilis is a frequent cause of epilepsy. This statement is further substantiated by the fact that in three of the thirteen cases of congenital syphilis observed in children there were epileptiform seizures; these three cases are not included in the list of epilepsy, but are grouped under the heading of congenital syphilis. In thirty-five of the cases of epilepsy, including those with a positive Wassermann in the blood, lumbar punctures were done; the spinal fluid in every case gave a negative Wassermann reaction and a normal cell count; the colloidal gold reaction was slightly positive in Tubes 2, 3 or 4, but no tubes were more than three plus. It might be stated that although 0.1 c.c. of blood serum gave a positive fixation in these cases, less than 0.1 c.c. frequently gave no fixation, and furthermore, some of these positive reactions were changed to negative by a few mercury injections or three or four salvarsan treatments; but this negative reaction was not permanent after so little treatment. For these reasons we believe that most of these cases of syphilitic epilepsy would be entirely missed in doing reactions with any of the less sensitive antigens.

Thinking of the possibility of pneumonia at the height of the febrile period giving a false positive reac-

2. Stoll, H. F.: The Syphilis We See But Do Not Recognize, and the Importance of Familial Studies, Boston Med. and Surg. Jour., 1915, clxxiii, 608.

3. Sherrick, J. W.: The Effect of Potassium Iodid on the Luetin Reaction, THE JOURNAL A. M. A., July 31, 1915, p. 404.

tion, we judged it worth while to consider in detail this group of cases. Weekly positive reactions we considered a possible complication because of the microorganisms present not only in the lungs but also in the blood stream. In addition, it seemed that serum infected with the pneumococcus of varying type might be altered biologically even after removal from the body, if allowed to stand for a few days. Eighty cases in this series were diagnosed pneumonia; of these, nine gave positive reactions. Three patients admitted syphilitic infection; another case was one of congenital syphilis showing very definite stigmata. One gave a positive reaction on repeated examination three weeks after becoming fever free. Two cases gave ++++ reactions, only 0.003 c.c. of serum being used. One patient admitted exposure only. He was markedly alcoholic and died two days after admission, so that repetition was not possible. The only female in the series had had two premature births at seven months, with death in both instances. The last two cases are the only ones in a total of eighty in which there is the least doubt about the correctness of the reaction, and these we consider more than probably syphilitic.

In this series there were forty-five cases of typhoid fever with only one positive reaction, which was found in a child having typical hutchinsonian teeth. Sixteen cases of scarlet fever were tested while at the height of the rash and the febrile period. In none of these was the slightest fixation noted, which is strikingly at variance with a rather widespread belief that this disease often causes a positive Wassermann reaction.

Occasionally the statement is made that syphilis of the bones does not give a positive Wassermann reaction. The blood in fifty-seven cases of disease of the bones was tested; twenty-nine gave a positive reaction, and twenty-seven gave a negative reaction. Of the twenty-nine positive cases, twenty-six were diagnosed periostitis and three gumma, and all of these twenty-nine cases readily cleared up under antisyphilitic treatment. Of the twenty-seven negative cases, operation was performed in twenty, and no evidence of syphilis was found; the usual diagnosis at operation was osteomyelitis, with a few instances of tuberculosis, and two instances of neoplasm. In the remaining seven negative cases a diagnosis of traumatic periostitis was made in four and chronic osteomyelitis in three; nevertheless all of these seven patients were given antisyphilitic treatment without any benefit. Therefore it would appear that syphilis of bone is not an exception to the rule but that it, like syphilis of other tissues, gives a positive Wassermann reaction.

It seems of interest to determine the percentages of positive cases in these patients in whom syphilis was not diagnosed without the aid of the Wassermann reaction. In order to do this it was necessary to take into consideration only those patients on the medical and the neurologic services on whom routine tests were made, and to exclude all of those patients in whom a diagnosis of syphilis had been made previous to admission to the wards. Among 1,700 medical cases, there were 203, or 12 per cent., having a positive Wassermann reaction. The present illness in all of these cases was not due to syphilis. However, it is surprising how frequently the positive Wassermann reaction did clear up the diagnosis and show the way to proper therapy. On the neurologic service among 350 consecutive cases, 8 per cent. had a positive Wassermann; and in all of these twenty-seven positive cases, the lesion was due to syphilis, although none were so diagnosed before entrance to the hospital. In these positive cases the following diagnoses were made in the wards: three epilepsy, two general paresis, two periostitis of skull, seven cerebrospinal syphilis, one pituitary disease, four trigeminal neuralgia, five cerebral syphilis, two tabes dorsalis and one internal hydrocephalus.

CONCLUSIONS

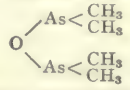
1. Syphilis is even more prevalent than ordinarily supposed.
2. A routine Wassermann test is of the greatest value in a general hospital.
3. Neurologic cases should always be tested, and particularly all cases of epilepsy.
4. Cases of unsuspected syphilis greatly outnumber those frankly syphilitic among patients applying for treatment in a general hospital.
5. The common infectious diseases — typhoid fever, pneumonia, tuberculosis and scarlet fever — have no influence toward causing falsely positive reactions.
6. We find no argument in favor of a belief that chronic nephritis with or without hypertension is due to syphilis.
7. Diabetics in our series showed a fairly high percentage of positive reactions, and in one or two cases the coincidence of this disease and the onset of diabetic symptoms was suggestive but in no way conclusive.
8. The well-known affinity of the *Spirochaeta pallida* for vascular and nervous tissues is most marked, and it is unfortunate that the early lesions in the disease are so slight as to be so often unnoticed and consequently untreated at this time, when later and more serious lesions could be prevented.
9. Syphilis of the liver presents a most difficult problem in differential diagnosis. The presence of icterus should make one wary of the interpretation of any but strongly positive tests.

ALLIACEOUS ODOR PRODUCED BY IRON CACODYLATE

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When given by the mouth, the cacodylates may taint the breath, skin and urine with a strong garlicky odor. To avoid this disagreeable contingency, it is advised to administer them hypodermically. Nevertheless, even when given in this manner, they may, although infrequently, occasion the same disagreeable smell. A girl, aged 20, under treatment for an eczema on an ichthyotic base for a marked anemia, was given in all five doses of 1 grain each of iron cacodylate. A few minutes after each dose the taint was noticeable to such an extent as to interfere with her work as assistant to a dentist. The administration of the drug had to be deferred till the late afternoon, so that the effect might wear off by morning.

The strong, disagreeable odor is due to the formation of cacodyl oxid, a substance composed of two cacodyl groups bound by one oxygen atom:



This substance is also formed with the emission of nauseating fumes, when cacodyl is exposed to the air.

CACODYL

Cadet de Gassicourt (1731-1799) was the first, in 1760, to make what is now known as cacodyl, and which for long was called the fuming liquid of Cadet (liqueur fumante de Cadet), a colorless liquid, of most disgusting odor, which gives off a highly poisonous vapor which readily catches fire in the air at ordinary temperature, and forms the above-mentioned oxid. Cadet was the contemporary and friend of Lavoisier (1743-1794), the genius who, with Priestly (1733-1804), shares the glory of founding modern physiology. Bunsen (1811-1899) originated the present name, cacodyl, and by it one may get some inkling of the odor of this substance. The word has three roots: cac-od-yl. Cac- signifies vile, -od, emitting odor, and -yl, substance; the substance emitting a vile odor.

Our forefathers imagined sulphur compounds to be the worst smelling things, and so, in creating a hell, plentifully supplied it with them. In comparison, however, with the productions of the modern chemists, the sulphur compounds of our forefathers are as attar of roses, and from this one may imagine what a substance must smell like, when a chemist such as Bunsen would feel impelled to baptize it with the name cacodyl.

Each arsenic atom in cacodyl is in very firm combination with two methyls, $-As<\frac{CH_3}{CH_3}$, so that they act in chemical reactions like a single element, stepping in and out of combinations as an independent group, so that chemists formerly gave to this group a symbol, Kd. It is this firm binding of the arsenic that makes the cacodylates so much less poisonous than arsenous acid, As_2O_3, and potassium arsenite, K_3AsO_3. In cacodyl the arsenic is trivalent, and it is the free valency shown in the formula given above that reaches out so avariciously for oxygen as to cause it to spring into flame when exposed in the open air.

Just what happens when sodium cacodylate is taken by the mouth or what happened in the instance referred to above when iron cacodylate was administered hypodermically is not known, but it may be surmised that by the chemistry of the body the sodium in the one case and the iron in the other is split off, and that by further action the two oxygens are also separated from the tightly joined cacodyl group, $-As<\frac{CH_3}{CH_3}$. This cacodyl, on coming in contact with the oxygen of the inspired air, or that on the skin, or that in the urine, in voidance, gives rise to the malodorous fumes that suggested its first name, the fuming liquor of Cadet. As these fumes are very poisonous, the quantity is very small, although its presence is very obtrusive. Why this should occur only occasionally, and why it is more frequent, as Martinet says, when given by the digestive tract and in children rather than in those who are older, is not known.[1] It may be reasonably surmised that the opportunities for oxidation are increased in the slower absorption and intricate chemistry of the alimentary tube, and it may further be conjectured that in youth the opportunities for swift oxidation in the body itself are greater than in mature years. It may, however, also occur in elderly persons, as shown in the case of a man, aged over 70, whom I once treated with salvarsan and mercury for an old syphilis. For a profound anemia he was given iron cacodylate, which caused an arsenical cutaneous pigmentation. Later he was given a still more vigorous course, which occasioned a reappearance of the pigmentation and the occurrence of an alliaceous odor of the breath.

In both these instances and in another occurring in the practice of a friend, iron cacodylate, not sodium cacodylate, was employed. Theoretically there is more cacodyl in iron cacodylate than in sodium cacodylate. Cacodylic acid radical is univalent and so is sodium, and the formula would run: $(CH_3)_2AsO_2Na$. In iron cacodylate, however, the iron is trivalent, so that three of the cacodylate group are contained in one molecule of iron cacodylate as against one of the cacodylate group in sodium cacodylate $[(CH_3)_2AsO_2]_3Fe$. Probably, however, the determining factor in the foregoing reaction is the great friendliness or affinity between iron and oxygen, enabling the oxygen of the body readily to split off the iron, and so initiate the breakdown in the molecule that eventuates in the formation of enough cacodyl to be appreciated on the breath.

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1. Martinet, Alfred: Les medicaments usuels, Paris, 1909, p. 61.

DERMATITIS HERPETIFORMIS

REPORT OF SOME CASES TREATED WITH EMETIN *

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That dermatitis herpetiformis is the indication in certain skins of a general toxemia is generally conceded. Some years ago, one of us (Engman) reported a series of cases in relation to indicanuria, and stated that in certain instances intestinal putrefaction undoubtedly was an etiologic factor. This has been demonstrated to our satisfaction therapeutically by the control of certain cases of the disease under a careful nonprotein diet. Tobacco and its excessive use have proved to be the source of toxemia in other cases, either through the direct effect of nicotin or through its influence on metabolism.

Each case of dermatitis herpetiformis is, therefore, a study in itself in the search for the source of the toxemia. Realizing this fact, we have been paying special attention to the mouth in this disease. Since the etiologic importance of infections emanating from this source has been so prominently brought before the profession by various writers, we have tried to exclude mouth conditions in the study of the disease. In cases in which pyorrhea alveolaris, ulcerated gums or pus cavities about the gums were present, they were treated by dental surgery. Where the endameba was found, emetin (alkaloid) was used hypodermically, according to the usual procedure. We believe, therefore, that the study of the following cases is interesting and important in that they undoubtedly show that suppurative conditions about the teeth and gums may be of marked etiologic importance in dermatitis herpetiformis.

We do not wish to convey the impression that emetin is a specific for dermatitis herpetiformis. It will probably improve only those cases in which it is indicated, namely, in the specific inflammation about the gums and teeth, due to the endameba, which is probably an etiologic factor in a certain percentage of cases of dermatitis herpetiformis. Besides the injec-

* From the Barnard Free Skin and Cancer Hospital.

tion of emetin, the condition of the mouth should be locally treated by an accomplished dentist.

CASE REPORTS

CASE 1.—A farmer, aged 50, admitted Jan. 4, 1915, had had chill and nausea, five weeks before, but no fever. Then a papulovesicular eruption developed on the arms, legs, body and nape. Later the eruption became papulopustular and very itchy. It showed a grouping tendency. Dermatitis herpetiformis was diagnosed. The patient was constipated, nervous, and there was nocturnal urination. There was pyorrhea of both upper and lower teeth. The gums were soft and swollen, and bled easily. The endameba was found. There was slight emphysema of the lungs. The heart was negative. The spleen and kidneys were not palpable; a mass was felt in the region of the gallbladder. The stomach was not dilated. Large varicosities extended upward from the external saphenous of both sides over and above the symphisis to meet in the midline. There were numerous telangiectases over the lower abdomen. The stool was negative as to parasites. The blood and urine were normal, the indican not increased.

The patient was put on a vegetable diet and laxatives. A local antipruritic lotion was employed. Veronal, 5 grains, was given at bedtime. No relief was obtained in one week. Antipruritic salve was used, and desiccated thyroid gland, 1½ grains, three times a day. There was slightly less itching, and there were no new lesions, after the second week. The itching was as severe as ever after the third week. The lotion and the salve were stopped, and cornstarch used. A colloid bath was given every second day. There was no improvement after five days.

A preparation of the thyroid gland was given for three weeks. There was no cutaneous improvement, except less itching at night, and the patient slept better. An intercurrent attack of boils was cured by staphylococcus vaccine, which had no effect, however, on the dermatitis herpetiformis. Emetin hydrochlorid, one-half grain, was begun on the patient's forty-ninth day in the hospital. Immediate and rapid improvement of the skin and the pyorrhea followed. The itching ceased after the first dose. The skin was clear. There was no itching. The patient was discharged cured after one week.

CASE 2.—A shoe worker, aged 34, has had slight pyorrhea five years, and dermatitis herpetiformis two years. There was a fine papular eruption on the body, arms and legs, very itchy. Physical examination was negative. One year previously the patient had been given treatment by vegetable diet and arsenic internally; no improvement.

Emetin hydrochlorid, one-half grain daily for six doses, was given. The skin and teeth were practically well after six injections. The patient was discharged cured after twelve days. There was slight recurrence after three weeks. The patient disappeared.

CASE 3.—The patient, aged 60, with no occupation, had had dermatitis herpetiformis and pyorrhea alveolaris for ten years. The eruption was generalized, grouped, itchy and intermittent, and papular vesicles were always present somewhere. Physical examination revealed the patient as normal except that the liver was slightly enlarged. The urine showed a trace of albumin, and also pus. The blood was normal. Emetin hydrochlorid, one-half grain, was given for six doses. The itching was much improved and all lesions involuted after four doses. All lesions were gone after six doses. The patient was discharged after three weeks, cured. There was no pyorrhea.

CASE 4.—Man, aged 52, with no occupation, entered the hospital July 1, 1913. Dermatitis herpetiformis was diagnosed. There was a general vesicopustular, very itchy, grouped eruption. The patient had had it for two years. He was put on a vegetable diet and given hypodermic injections of sodium cacodylate, three-fourths grain, daily. The patient was discharged cured in two weeks.

He entered the hospital a second time, Oct. 10, 1914. There had been a severe recurrence for eight or nine months, and he had been treated with staphylococcic vaccines during part of this time at another hospital with no results. He showed on entrance the same eruption as in July, 1913. It was very extensive and itchy, and the pustular aspect was especially marked. The patient was also suffering from pyorrhea alveolaris. The endameba was found. He was put immediately on sodium cacodylate injections, with little or no result. He developed acute nephritis with severe albuminuria and plentiful granular casts; sodium cacodylate, therefore, had to be given cautiously, but on milk diet, a tolerance to the drug in three-fourths grain doses was established. No effect, however, on the dermatitis herpetiformis was noted. Vegetable diet, a preparation of the thyroid gland and various local applications were used over long periods without avail. The albumin after three months was reduced to a trace, and casts disappeared from the urine. Emetin hydrochlorid, one-half grain, was given daily from March 5 to March 10, 1915. Marked improvement in the pyorrhea and the eruption began at once. After two weeks only a few lesions were left on the body, but quite a number persisted in the beard, where the eruption was wholly pustular. April 3, there was a general recurrence over the body and legs, and a second course of emetin injections was given. Steady but slower improvement resulted, the lesions on body and limbs disappearing in six weeks, leaving only the eruption in the beard, which gradually grew less, but there were still a few lesions there when the patient left the hospital three months after the last course of emetin. There were no casts and only a trace of albumin in the urine when the patient was discharged. No amebas were present. He was practically well.

THE SIGNIFICANCE OF CERTAIN ROENTGENOGRAPHIC FINDINGS IN THE GASTRO-INTESTINAL TRACT*

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The observations recorded in this paper were made on a series of fifty gastro-intestinal cases studied by all the usual clinical methods, including roentgenograms following a bismuth meal. The results throw some new light on the significance of certain roentgenographic findings.

The clinical examination and the roentgenographic plates were made; notes were recorded both on these findings and the operative or necropsy reports at separate times. Diagnoses as complete as possible were made previous to operation or necropsy. Afterward twenty-four of the patients were operated on, thus providing a certain check on the accuracy of the ray diagnosis. Although the other twenty-six patients were not operated on, their subsequent histories, response to treatment or necropsy reports give a partial check on the accuracy of the diagnosis. The study of the plates was completed and the diagnosis made before operation, treatment, subsequent history, or necropsy reports had been made. So these had no influence on the diagnosis.

The results are especially instructive when arranged according to certain findings, instead of according to cases. That is, for example, when all cases showing what might well be called persistently infraposed stomach are arranged together, it indicates the significance of that finding; or when all cases showing supraposed stomach are studied together, it reveals the significance of that finding. The main results of such a study are presented below.

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* Read before the Allegheny County Medical Society, October, 1915, Meeting.

* From the Department of Internal Medicine, Laboratory of Roentgenology of the South Side Hospital.

The roentgenograms were taken with the patient in the standing position. Normally the position of the stomach seems to vary a good deal. Fluoroscopic examination of the stomach has confirmed this view. The stomach has been directly observed to move up and down. It also is seen to move synchronously with the movements of the diaphragm in respiration, especially in children.

In thirty-six of the cases in this series the stomach had the ability to change its position without the aid of a change of posture of the patient. The first plate was taken immediately after the bismuth meal, and it normally showed the lesser curvature at or slightly below the umbilicus. The second plate was taken thirty minutes after the taking of the bismuth meal. The plate normally shows the entire stomach above the umbilicus.

Nine of the remaining fourteen cases showed the entire stomach to be persistently above the umbilicus. Of these nine cases three patients were operated on, one showing cholecystitis with adhesions and chronic appendicitis; another showed carcinoma of the lesser curvature; the third showed a vicious circle following a previous gastro-enterostomy. The remaining six cases were diagnosed with probable accuracy by clinical and laboratory reports, subsequent history, and results of treatment as follows: three cases, syphilis of the stomach; one, chronic appendicitis; one, chronic cholecystitis; and one showed a well-marked loop in the descending colon.

The other five remaining of the fourteen cases showed the stomach persistently below the umbilicus. Four of these cases at operation showed as follows: one case of carcinoma; three cases of simple ptosis. The other remaining patient was not operated on, but the condition was diagnosed with probable accuracy as vertical stomach with chronic appendicitis. In this case the pylorus was persistently below the umbilicus, while the fundus was high in the epigastric region.

Normally the stomach varies in size and form even more than it does in position. In this short note no attempt will be made to discuss these normal variations extensively, except to point out that there are great alterations according to the length of the mesentery of the stomach and intestines, which depends on the extent of extragastric adhesions, the muscular tonus of the stomach and esophagus, the character of the nerve supply to these structures, which depends largely on the mental state of the individual, and finally, intra-abdominal pressure changes due to muscular contraction of the diaphragm and abdominal muscles. Any disease such as syphilitic or gummatous myositis of the muscular coat of the stomach, syphilitic alterations of the nervous system, various infections of extragastric organs, and secondary changes in the general constitution of the individual such as anemia, inanition, etc., due to any chronic infection or toxemia, can interfere with this normal variation in size, shape, and position of the stomach by their effect on one or all of the factors concerned. Numerous abnormal forms have been described such as fish-hook, water-trap, hourglass, etc. These various forms are thought to be significant. For example, spasmodic hourglass stomach indicates slight or acute ulcer, or else it means abnormally marked peristaltic action, while persistent hourglass stomach indicates chronic ulcer with cicatricial contraction.

As mentioned above, normally the stomach varies greatly in size. When empty it has been seen by direct inspection to contract down to the size of a rope. The antrum is especially liable to contract in this way during operation. Therefore, unless the stomach is persistently enlarged one is not justified in making a diagnosis of chronic dilatation. Likewise, one is not justified in making a diagnosis of infraposed or supraposed stomach unless the entire stomach is persistently below or above the umbilicus.

Persistent incisures are most frequently due to local cicatricial contraction following chronic ulcers. Continued spasmodic contractions are most frequently due to acute ulcers or gastric adhesions.

Temporary incisures or diverticuli are most frequently due to normal peristaltic waves. They are best seen by fluoroscopic examinations or by rapidly succeeding plates, by means of which their significance as regards duodenal or gastric ulcer can be determined. Persistent diverticuli are most frequently due to deep ulcers.

Normally the stomach should be empty in less than six hours. The cecum should be filled by eight or ten hours, and empty by twelve. The whole bismuth meal should be passed in thirty-six or forty-eight hours.

In this series of fifty cases twenty-eight showed six hour retention, which varied from a small amount to nearly the whole bismuth meal. The retention persisted in two cases till seventy-two hours.

Of these twenty-eight cases showing gastric retention, twenty presented a slight retention after six hours, one showed eight-hour retention; two cases had forty-eight-hour retention; two showed seventy-two-hour retention, and three cases twenty-four-hour retention.

Of the twenty cases showing slight retention, ten patients were operated on. All of these save three showed chronic appendicitis. These three showed as follows: two cases of pyloric stenosis due to intragastric cicatricial contraction; one case presented ptosis of the colon and gallstones. The remaining seven cases presented, together with chronic appendicitis, the following: three cases, unmixed chronic appendicitis; one case, chronic appendicitis, pyloric stenosis, movable kidney, and rectocystocele; one patient had chronic appendicitis and adhesion of the omentum to the cecum and the ascending colon; one presented chronic appendicitis and pyloric stenosis, and one had persistent hourglass stomach and chronic appendicitis.

The remaining ten cases which showed slight retention but in which there was no operation were diagnosed by clinical examination, subsequent history and results of treatment as follows: syphilis, thyroidism, rheumatism with focal infection in the appendix; two cases of chronic appendicitis with ptosis of the stomach and intestines; one case of chronic appendicitis; and one case of typhlitis and megacecum. One case each of syphilis, thyroidism, rheumatism, typhlitis and megacecum, and chronic cholecystitis, five cases of chronic appendicitis of which two showed also ptosis of the stomach and intestines, two others of which showed also chronic constipation.

The single case which showed eight-hour retention at operation presented results of a previous gastro-enterostomy and appendectomy. Of the three cases showing twenty-four-hour retention; one patient showed at operation a carcinoma of the lesser curvature of the stomach and esophagus. The other two patients were not operated on but the cases were diagnosed as carcinoma of the stomach. Of the two cases showing forty-eight-hour retention, both patients were operated on, one showing chronic appendicitis, chronic

cholecystitis with gallstones; the other carcinoma of the stomach.

In the two cases showing seventy-two-hour retention, one patient when operated on presented carcinoma of the stomach, and the other was diagnosed clinically and confirmed at necropsy as carcinoma of the stomach.

In the remaining twenty-two cases in which the stomach was empty in less than six hours, nine patients were operated on and diagnosed as follows: one case, duodenal ulcer and chronic appendicitis; one case, salpingitis; two cases, chronic cholecystitis with chronic appendicitis; one presented an adhesion between the stomach and an old abdominal scar; one, Lane kink of the ileum; one, simple acute duodenal ulcer in which the stomach was empty in two hours; one, enteroptosis and perineal tear; one, cancer of the liver.

The remaining thirteen patients in whom the stomach emptied in less than six hours were not operated on, but their cases were diagnosed clinically as follows: two cases, syphilis; one case, slight chronic appendicitis; one case, secondary anemia with red blood cell count of 1,000,000; three cases, slight chronic appendicitis; the remaining six presented practically normal roentgenograms.

The duodenum has become a very interesting part of the gastro-intestinal tract, because of the frequency of ulcer in various stages beyond the pyloric sphincter. Recently, the duodenal cap or bulb has received much attention because of the characteristic outline it shows in roentgenograms. Any distortion of this outline is considered significant of a lesion in the walls of the duodenum, even within the duodenum, such as ulcer, or without the duodenum, such as adhesions.

It is possible that in this portion of the duodenum ulcers may exist which are of such a slight extent that they cannot influence the outline of the duodenal cap. For this reason one negative roentgenogram is not sufficient to prove the absence of a lesion in the duodenum. If a deformity of this cap does not appear, it is not conclusive evidence that a very slight ulcer, or multiple slight ulcers, may not exist. Other clinical signs have to be taken into consideration in making a diagnosis.

The remainder of the duodenum is not very satisfactorily shown in roentgenograms. So it is hard to arrive at a conclusion in roentgenologic study of this part of the duodenum. Therefore, it is possible to have ulcers existing in the duodenum which cannot be demonstrated by the ray.

Hyperperistalsis is also considered evidence of an irritating lesion in the duodenum.

The position of the jejunum, ileum and large intestine varies much the same as does the stomach, and depends on the factors mentioned before, which govern the position of the stomach.

Lesions of the jejunum must be rare, inasmuch as very few cases have been observed in which chronic local pathology existed in the jejunum, and roentgenologic study of this portion of the intestinal tract has not thrown any more light on it up to the present.

Lane's kink of the ileum has recently received much attention. In two cases in this series it was demonstrated by ray. One of these patients was operated on, and operation confirmed the roentgenologic diagnosis.

Incompetency of the ileocecal valve, which has been noticed by a number of observers, can be demonstrated by ray; but its clinical importance has not as yet been ascertained.

The cecum has been observed in various positions, depending on the same influences which alter the position of other abdominal structures.

Normally it lies in the right iliac fossa, but has been observed as low down as in the pelvis or as high as the umbilicus. Its altered position has various diagnostic possibilities, but as a rule it indicates adhesions to pelvic organs or other abdominal structures.

Bismuth retention in the cecum for more than eighteen hours is evidence of atony of the muscular walls, chronic inflammatory conditions of the peritoneal covering, chronic appendicitis, or extracecal adhesions. Atony can be determined by general observation of the rate of movement of the bismuth throughout the gastro-intestinal tract.

Nine patients in this series operated on proved to have chronic appendicitis either alone or in combination with some other lesion. All of these patients showed retention in the cecum varying from twenty-four to seventy-two hours.

The position of the colon also varied, depending on the factors mentioned before. This has various diagnostic possibilities which can be readily seen from a general study of the gastro-intestinal tract.

Alterations in the position of the hepatic and splenic flexures are usually due to peritoneal adhesions, and signify inflammatory conditions in these regions.

Angulations also occurred, and were usually due to relaxed or elongated mesentery or scar tissue within the large intestine at the point of angulation.

SUMMARY

Normally the stomach can change its position without the help of alteration in body posture. When this mobility of the stomach is lacking it is either due to restraining forces which prevent the movement, or else to lack of power to move. The former is the most frequent cause for lack of change of position of the stomach.

Persistent supraposed stomach is due to a restraint and not to lack of power. This restraint is most frequently exercised by adhesions due chiefly to cholecystitis, chronic appendicitis, traumatism (previous operation), or gastritis due to syphilis, cancer or ulcer.

Persistent infraposed stomach is not as frequent as supraposed stomach. It is caused by restraint or lack of power to move, most frequently lack of power, which is the case in chronic gastro-enteroptosis with relaxation of the abdominal walls.

Long retention of the gastric contents (twenty-four hours or longer) is chiefly due to one cause, namely, cancer of the stomach. The other chief cause is long standing chronic cholecystitis. Retention for shorter time (six to twenty-four hours) has for its most frequent causes cicatricial contraction of pylorus due to healed ulcers, chronic appendicitis, chronic cholecystitis, typhlitis and syphilis.

Pylorospasm does exist, but it is not always present when extragastric lesions are prevalent. It probably depends on the reflex excitability of the individual's nervous system.

Diagnosis made by judging from the roentgenograms, together with the history of the case and other clinical evidence obtainable, were correct in nearly every case. This was demonstrated in the majority of the cases by subsequent operation or necropsy. In most of the others it was shown with a satisfying

degree of probability by the subsequent course of the case.

Roentgenograms have revealed certain facts which can be demonstrated by other means. The most prominent of these are the obstructive lesions which are as a rule located either in the pylorus of the stomach or in the region of the cecum and are usually due to definite conditions.

By the use of the stomach tube in gastric analysis, fecal examinations, the charcoal test, Bastedo's test and careful analysis of clinical symptoms and physical signs, it is possible in a certain number of cases to make a very accurate diagnosis without the use of the ray. In all cases which are readily diagnosed without the ray, however, roentgenograms should be taken and carefully interpreted along with laboratory tests, clinical history and physical findings, in order to obtain a clear diagnosis.

GENITO-URINARY SYMPTOMS ARISING FROM ANAL, RECTAL AND COLONIC DISEASES, AND VICE VERSA

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It is just ten years ago since a separate department devoted exclusively to the treatment of anal, rectal and colonic diseases was instituted in the San Francisco Polyclinic. As this was the first clinic of its kind established west of the Mississippi River, its growth was at the beginning quite slow, since it took some time before the internists, surgeons and allied specialists recognized its value as an aid in diagnosis and treatment. In recent years, however, through the cooperation of my colleagues in the different clinics, the rectal department has gradually grown until now, in point of attendance, at least, it compares most favorably with like clinics in older established institutions in Eastern cities.

To the genito-urinary surgeons in particular does it seem to have been satisfactorily demonstrated that the proctoscope may be at times of valuable assistance in diagnosing some of their more puzzling cases. Through their courtesy I have been enabled to observe many interesting cases in which anal, rectal and colonic symptoms have arisen from lesions in the genito-urinary tract, and, vice versa, in which symptoms apparently due to genito-urinary disease in reality were caused, either reflexly or mechanically, by pathologic conditions in the lower end of the alimentary canal.

This can be readily accounted for by remembering that the origin in the spinal cord of the nerve supply to the anorectal region and to the genito-urinary tract is practically the same, and therefore any irritation of the nerve endings in the one is very likely to be reflected in the other; secondly, there is a close anatomic relationship between the two which not only makes easy any extension of inflammation or of neoplastic growth, but also allows of mechanical pressure and its consequences; and third, the venous circulation of the bladder, prostate and urethra is in very close association with the rectal plexus of veins, so that passive congestion in either set of organs may be communicated to the other.

Disturbances in the act of micturition are symptoms most commonly met with by the urologist. As lesions in the urinary tract which give rise to frequent, painful or difficult urination lie strictly within his domain, they will not be touched on in this paper. Only those conditions in the colon, rectum or anus which, reflexly, or by direct pressure, cause these annoying symptoms will be mentioned, as they are not often considered by the general practitioner, and are not infrequently overlooked by the specialist.

A quite common cause of frequent and painful urination in male adults is the pressure on the bladder and prostatic urethra by a mass of feces in a distended rectum. This occurs especially when there happens to be added a severe proctitis due to the dyschesia. Like symptoms are caused by pressure on the bladder by the sigmoid when it is atonic, dilated and loaded, or when it is displaced, inflamed and filled with stagnating feces. This condition occurs much more frequently than is generally recognized, more especially so in women in whom a loop of the sigmoid may be held down by adhesions from a former pelvic inflammation. Quite a number of these cases have come under our observation. Thoroughly evacuating the colon by irrigation as a general rule brings about rapid amelioration of the vesical symptoms.

Vesical irritability not uncommonly accompanies neoplasms of the rectum and sigmoid, hemorrhoids and chronic mucous colitis. In the latter it may so predominate over all the other symptoms, even that of the periodic attacks of diarrhea, and there may be also such severe tenesmus, pain in the posterior urethra, and tenderness over the bladder that patients not infrequently seek the advice of the urologist under the impression that their trouble is caused by disease of the prostate or bladder. Treatment of the genito-urinary symptoms of course will be of no avail. All therapy must be directed towards the colon before the urinary symptoms will be relieved.

Ulcerative conditions in and about the anal region, such as fissures, chancres, chancroids and perianal eczemas are reflexly the cause of frequent and painful urination. With fissure, in particular, the symptoms may so closely simulate those of urethral stricture that treatment has already been instituted for the latter condition before the real cause was recognized.

Inability to pass urine, accompanied by frequent desire to do so, is a not infrequent complication of the presence of a hard foreign body in the anal canal. Attempts to urinate are accompanied by sharp pain in the anus, but the predominating symptoms are genito-urinary; and when these organs are searched in vain for what might account for the suffering, the case becomes a puzzling one if a rectal examination be omitted.

In acute proctitis, in acute dysentery and in the presence of inflamed and ulcerated hemorrhoids, there is sometimes reflex dysuria and vesical tenesmus due solely to the irritable rectal condition. After operations on the rectum, and especially after a hemorrhoidectomy, inability voluntarily to void urine, and even strangury, are quite commonly met with.

When there is an abscess formation about the anorectal region, the patient may have difficulty in urinating, and sometimes cannot void at all. This is particularly so when the abscess is of the intermural type in which the accompanying edema probably presses on the urethra. As no swelling is usually to be

detected on the outside, and as there may be hardly any pain whatever in the rectal region, inability to pass urine is the main cause of complaint on the part of the sufferer.

Long retention of feces in atonic rectums of old men who also have enlarged prostates sometimes causes difficulty in micturition by adding more congestion to the already swollen gland. It is just this little added enlargement from the irritation which is caused by the fecal stasis that suffices to let the already greatly overstrained expulsive powers of the bladder fail to overcome the obstruction to the passage of the urine.

Pinworms in the rectums of children often give rise to irritability of the bladder. Nocturnal urinary incontinence frequently results from large fecal accumulations in the rectum mechanically irritating the neck of the bladder, and, in some instances perhaps, pressing on the fourth sacral nerve. Prof. Freiderich Muller of Munich has shown that, not so rarely as has been thought, a pyelitis has resulted from chronic fecal stasis and that this was in some children the cause of the nocturnal enuresis.

Cancer of the rectum is usually so insidious in its growth that an anuria may be one of the first symptoms of the disease. The anuria is caused either by mechanical pressure on the ureters or by their involvement in the cancerous growth. Constant or periodical anuria frequently complicates rectal cancer in its degenerative stage.

A syphilitic stricture of the rectum is also apt to be quite insidious in its formation, and may give rise to hardly any rectal symptoms, even though it has developed a considerable degree of constriction of the bowel. Individuals so afflicted often complain only of a slight dysuria, or of frequent urination, and on this account have been treated for a cystitis, urethritis, or urethral stricture before a rectal examination disclosed the real trouble.

Abnormalities in the urine, resulting from colonic conditions solely, are occasionally met with. That hematuria may be due to an intestinal toxemia accompanying a torpid condition of the large bowel is perhaps rarely thought of by the urologist. The renal hemorrhage may follow a hematogenous bacterial infection in the kidney, generally from a bacillus coli activity. A mercurial laxative, together with thorough colonic irrigations and a nonprotein diet, usually controls the symptoms by lessening the toxemia.

Albumin and even casts have been occasionally seen in the urine of persons with acute and chronic intestinal stasis or enteritis. These abnormalities in the urine may be evidence of simple renal irritation due to the excessive elimination of indican. These cases so resemble nephritis that they have been so diagnosed in some instances. Individuals having this condition usually claim they are not constipated and say that they have a daily bowel movement, yet a proctoscopic examination often shows the upper rectum and sigmoid filled with balls of feces. By a routine examination for indican it will be found many times when not expected.

Transparietal infection through the lymphatics from the intestine may be the cause of a cystitis. This has been observed to follow appendicitis, dysentery and internal hemorrhoids. The bladder may also be infected by the colon bacillus from a rectum or sigmoid chronically distended by feces.

Pyelitis is not at all a rare complication of fecal stasis, in elderly women and in children especially, as the kidneys, particularly the right, which is most often affected, are in intimate contact with the flexures of the colon. The renal pelves become infected by the *Bacillus coli communis* which passes from the intestines at those points where there is a coprostasis. All the symptoms from the pyelitis are greatly relieved when the source of infection in the bowel is removed by high colonic irrigations. Granville MacGowan has reported cases in which he observed "the tide of colon bacilli rise and fall in the urine according to the neglect or care that was bestowed on the bowels."

At this point I would digress for a moment to say that I think the so-called high colonic irrigation, as given in our hospitals, is of very little value. It is usually administered by the nurse through a soft colonic tube which, no matter how far it appears to be introduced up the bowel, simply coils on itself and very rarely passes by the rectosigmoidal valve. As a consequence the irrigating fluid rapidly dilates the rectum, and while a part flows onward into the upper colon the remainder causes such a painful and urgent desire immediately to evacuate the rectum that the purpose of the irrigation is defeated. The proper way is to put the fluid directly into the sigmoid. This can be done by introducing a Wales bougie through a proctoscope which has been passed by sight over the valve of O'Bierne into the pelvic colon. It is then remarkable how much fluid can be retained by the patient without experiencing any discomfort whatever.

Spermatorrhea, with prolonged and annoying erections, and accompanied by frequency of urination, coming on especially after the sufferer is warm in bed, may be the result of the presence of a large fecal accumulation in the rectum and sigmoid. These symptoms occur usually in individuals of a highly nervous temperament, and are partly reflex in nature and partly due to direct pressure of the fecal mass on the third and fourth sacral nerves. A young man suffering from these symptoms in a most aggravated form was referred to me recently by a genito-urinary surgeon who had made a thorough examination of the genito-urinary organs without being able to find anything to account for the condition. As the patient gave a history of some rectal trouble a few years previously, an examination of the anorectal region was requested. There was found a pronounced spasmodic condition of the sphincters ani, a well-marked intestinal stasis, and the presence of scar tissue from a former operation in the anal canal. Gradual and regular dilatation of the sphincters, together with high colonic irrigation, restored the patient to good health.

In the female, masturbation is often caused by a pruritus or other abnormal sensitiveness arising from prolonged retention of a fecal mass in the rectum and sigmoid, which presses on the nerves and veins, and so produces congestion in the genital parts. Pain after coitus may be due to the presence of hemorrhoids, especially when they are inflamed and ulcerated. Impotence following on their removal has been observed by me in a man in whom it was probably brought about by the pain in the anus, from sphincteric contraction on the scars, which he felt at the time of intercourse. The fear of pain brought on a psychic impotence.

Varicocele may be caused sometimes by large fecal accumulations in the rectum obstructing the venous circulation.

An enlargement of the inguinal glands occurs with chancre of the anus. When these glands are infiltrated without apparent cause the anal region should always be examined. Chancre of the anus occurs more frequently than is generally supposed, and individuals so afflicted go to make up a large part of those patients who, having secondary or tertiary syphilis, strenuously, yet honestly, deny any knowledge of ever having contracted the disease.

The inguinal glands also become infiltrated during the progress of cancer of the rectum which is encroaching on the anus.

Those anal, rectal and colonic symptoms and conditions which arise from affections of the genito-urinary tract will now be considered.

A not uncommon condition encountered is constipation in old men, resulting from an enlarged prostate which impedes the expulsion of feces from the rectum. To the mechanical obstruction there is added the inflammatory action on the rectal mucosa from the irritating presence of the enlarged gland, so that as a consequence the feces become dry, hard and perhaps scybalous.

Pain from disease of the bladder, prostate and seminal vesicles, from colic caused by passage of a renal calculus, or from contusion, inflammation or torsion of the testicles, may, by reflexly inhibiting peristalsis, be a cause of intestinal stasis.

Stricture and other urethral lesions, and stone in the bladder, may, by giving rise to reflex spasms of the sphincter ani muscles, cause hypertrophy of these muscles, and this results in constipation.

I have observed several cases of enlargement of the prostate, in which there was some slight incontinence of feces, particularly noticeable immediately after a digital examination. It seemed to me that when the gland enlarged it encroached on the anal canal and made it slightly patulous.

Through mechanical action an enlarged prostate may cause swelling of the hemorrhoidal veins. These varicosities in themselves have a tendency to cause constipation by obstructing the free passage of feces.

Where there is stricture of the urethra, severe urethritis, phimosis, cystitis, vesical calculus, or prostatitis, the straining necessary to perform the act of micturition may bring on hemorrhoids, or even prolapse of the rectum. The latter occurs most often in young children.

In pruritus ani it is often such a difficult problem to find the cause that every possible diagnostic means should be employed to discover the etiologic factor. That itching may come reflexly from a lesion in the genito-urinary tract is generally overlooked. Yet pruritus ani may be closely associated with urethral pruritus, and be due to the very same causes as the latter. Urethral stricture, polypi in the urethra, inflammation of the urethra, especially of the deep urethra or its adnexa, phimosis, stone in the bladder, gonorrhea in women, and enlargement of the prostate gland, are some of the more common reflex causes of anal itching. On the other hand, I have seen a very severe scrotal and perineal pruritus caused by lesions entirely within the anal canal.

A number of cases have come under my observation in which, as a result of too frequent or too energetic massage of the prostate, an anal fissure, ulceration of the rectal mucosa, or a proctitis has resulted. Prolonged irrigation with hot water in the treatment of inflammatory conditions of the prostate and seminal vesicles were also causes at times of quite a severe proctitis.

One case of colitis and proctitis was seen which I am certain was due to the prolonged ingestion of mercury given in treatment of syphilis.

These cases were referred on account of anorectal symptoms such as pain on defecation, a feeling of uneasiness or fulness in the rectum, or rectal tenesmus. Occasionally instead of a fissure, which one would expect to find from the history and symptomatology, a chancre of the anus, or chancroids, have been discovered.

Consequent on secondary inoculation from a vaginal discharge, burning and pain in the anorectal region, with difficulty in defecation, may be symptomatic of a gonorrheal proctitis in women. All the cases of gonorrhea of the rectum in the male which I have seen were generally of the primary type, due to pederastic practices.

From acute and chronic posterior urethritis, prostatitis, and vesiculitis, burning or shooting pains may be referred to the rectum and anus. Sometimes there may be only a vague sensation of fulness which comes on even though the rectum is entirely empty of feces.

Neuralgia and bearing down pains in the rectum may be the most prominent symptoms caused by a stricture in the deep urethra. These are the cases which, if attention be not paid to the urethra, give the rectal surgeon much trouble in effecting a cure.

Stone in the bladder may also be a cause of a variety of rectal symptoms when there is no lesion at all in the anus or rectum.

A feeling of considerable uneasiness about the anorectal region, together with pain at time of bowel movement, may be the only symptom caused by a urethral abscess, which, having penetrated behind the triangular ligament, instead of becoming a perineal abscess as is usual, is about to present at the anterior wall of the rectum. In such an event, especially when there is a seeming absence of urethral pathology and no urinary symptoms to amount to anything, the diagnosis is often for a time quite a riddle.

Neoplastic growths of the bladder, prostate and seminal vesicles may give rise to rectal symptoms such as are common in the early stages of rectal cancer. There may be at first no urinary symptoms whatever. The trouble is then likely to be mistaken for a rectal cancer until later on when the marked urinary symptoms point to the real cause. In cancer of the prostate there is often severe rectal tenesmus.

Untreated gummas of the rectum are quite prone to ulcerate and break down. From the surface and borders of the resulting ulcers there may spring up an exuberance of granulations which appear like the fungous masses seen in malignant neoplasms. For this reason I have always deemed it safest and wisest to have a Wassermann test made in every suspicious growth of the rectum, before arriving at a final diagnosis.

A deep-seated abscess of the prostate gland, with an immense brawny infiltration of the glandular and periglandular tissues, may so greatly resemble a malignant growth of the rectum as to be mistaken for the latter. Two cases of this kind have come under my observation. It may perhaps in passing be of interest to note that in both there was a history of a recent general furunculosis. One was seen in consultation recently at the San Francisco Hospital. A provisional

diagnosis of cancer involving the rectum and prostate had been made, and a proctoscopic examination requested. The instrument was passed up above the growth to about the rectosigmoidal junction and then gradually withdrawn. As it passed over the swelling the mucosa was noted to be granular and inflamed. When the edge of the proctoscope was pressed against this reddened area a little spurt of blood was observed, and when more pressure was made over this point quite a free flow of pus took place, establishing a diagnosis of abscess of the prostate.

In consequence of abscess formation from disease of or injury to the genito-urinary tract, a fistulous tract opening into the rectum is very liable to result. The possibility of a fistula-in-ano arising from these organs should be borne in mind.

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CARCINOMAS OF THE NASOPHARYNX*

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In 1904, Laval[1] was able to collect only twenty-seven instances of primary carcinoma of the nasopharynx. Since that time there have appeared under the title of carcinoma of the nasopharynx, or included with reports of other tumors of this region, fairly complete reports of twenty-six additional carcinomas. As Kelsey and Brown[2] have remarked, there is unusual difficulty in summarizing the literature of this subject. Tumors are not always classified alike by surgeons and pathologists, and carcinoma of this region has at times probably been confounded with sarcoma and endothelioma. Many carcinomas reported as having their origin elsewhere may have been primary in the nasopharynx. From all available reports, these authors estimate the relative frequency of tumors of the nasopharynx as: carcinoma, 30 per cent.; sarcoma, 60, and endothelioma, 10 per cent. Some are of the opinion that endotheliomas are more frequent.[3]

Most carcinomas of the nasopharynx originate in the vault or on the posterior wall, though of the five reported by Citelli,[4] all but one, he states, began on the lateral wall. He gives the most accurate and complete histologic descriptions, and states that three of the five carcinomas originated from the covering epithelium of the mucosa (one papillary and two cylindric), the other two from carcinomatous degeneration of the epithelium of the mucous glands. It is stated that carcinoma of the nasopharynx may originate, rarely, from the elements which make up the pharynx-hypophysis or from other residual epithelium in the formation of the infundibular stalk, the so-called craniopharyngeal canal. No instance is reported.

Carcinoma of the nasopharynx is characterized by a rather long latent period, and hence it is difficult to estimate the duration of any particular tumor. One patient, aged 40 years, with a carcinoma of the nasopharynx,[5] lived four years and eleven months after the tumor was recognized. The malignant tumors of this region give rise to almost identical symptoms, and have a similar course. Carcinomas are more prone to ulcerate and lead to epistaxis. For a fairly complete discussion of the course, complications and differential diagnosis, one should see the general discussion in the thesis of Laval[1] and the more recent report by Oppikofer.[6]

The tumor mass in the later stages, after the ulceration has begun, always appears irregular, fungus-like, gray, multilobulated, covered by a bloody purulent exudate, and may be very hard or soft, depending on the histologic variety. Here as elsewhere the younger the individual the more rapidly fatal is the carcinoma as a general rule.

Extension may take place in four directions:

1. The inferior or pharyngeal route. The soft palate is rapidly invaded. Difficulty in alimentation is then a chief cause of the cachexia.

2. Lateral prolongation. This route is not very frequent. The tumor may invade the eustachian tube early. When this occurs there is sooner or later a middle ear disorder on that side which in several instances has been the initial symptom.

3. The anterior or nasal route. There is readily growth forward with invasion of the sphenoidal, frontal and ethmoidal sinuses. By this route the tumor may involve the brain, penetrating into the anterior cerebral fossae with termination in an enormous intracranial tumor.[7] The maxillary sinus and orbit may be invaded. In the event of such extensive anterior growth there is intense pain referred to the terminals of the upper divisions of the trigeminal nerve, due to pressure by the tumor on these nerve trunks.

4. The posterior or cranial route. This is not common. The tumor may invade the brain secondarily. There is erosion of the bone (Lotzbeck), compression of the brain, extreme persistent headache, ocular disturbances, exophthalmos, stasis in the ophthalmic veins and other symptoms of tumor of the base of the brain.

Carcinoma of the nasopharynx very rarely produces visceral metastases. There is only one instance recorded. The statement then made was that there was a small metastatic growth in one kidney and nowhere else. At the two postmortem examinations, reports of which follow, no tumors were found anywhere in the viscera, and all organs were carefully examined both grossly and histologically. As a rule carcinomas of the nasopharynx give earlier adenopathy than other tumors of this region, and several patients consulted the physician on account of the enlarged cervical lymph glands. In other patients glandular enlargements did not appear, though this is rare. Molinie[8] wishes to impress that the cervical adenopathy is a fairly con-

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* From the Pathological Laboratory of Rush Medical College.

1. Laval, Frederic: Des tumeurs malignes du naso-pharynx (étude clinique) Toulouse, 1904; Des tumeurs malignes du naso-pharynx, Arch. internat. de Laryng., 1905. Two of these tumors referred to by Laval, "Observationes VII and XIX," are not certainly carcinomas because of lack of proper histologic and postmortem evidence. Some of the early tumors tabulated by this author were not definitely either carcinoma or sarcoma, but were merely malignant tumors, and may have been primary elsewhere, as "Observatio III" of Verneuil and Flour, in which the tumor may have been primary in the thyroid gland. For further details, see the thesis of Laval.

2. Kelsey, A. L., and Brown, J. M.: Malignant Tumors of the Nasopharynx, Ann. Otol., Rhinol. and Laryngol., 1913, xxii, 1147.

3. Trotter, W.: Brit. Med. Jour., 1911, ii, 1057.

4. Citelli: Ten Cases of Primary Tumor of the Nasopharynx, Ztschr. f. Laryngol., 1911, vi, 331.

5. Brown, E. J.: Epithelioma of the Nasopharynx, Laryngoscope, 1898, v, 219.

6. Oppikofer, E.: Ueber die primäre maligne Geschwülste des Nasenrachenraumes, Arch. f. Laryngol. u. Rhinol., 1913. The list of the references cited at the end of this report is very extensive and concerns all of the tumors of the nasopharynx.

7. See the descriptions of the tumors reported by H. Schmidt and Lotzbeck in the treatise by Martin Mulfarth: Ueber maligne Geschwülste des Nasenrachenraumes, Aus der Chirurgie Klinik zum Bomm, January, 1893.

8. Molinie: Cancer du Naso-pharynx, Larynx, Marseilles and Paris, 1913, vi, 75. The tumor reported by Molinie, though probably a carcinoma, is not included with the twenty-six instances collected since the Laval summary because of insufficient histologic proof.

stant early sign of malignant tumor of the nasopharynx, and urges a very careful examination of the nose, pharynx and nasopharynx whenever a cause for cervical adenopathy is not found elsewhere. Carcinoma of the nasopharynx is particularly characterized by infiltration, disintegration and early destruction of the neighboring tissues.

About 60 per cent. of the carcinomas of the nasopharynx occur in individuals between 40 and 60 years old. The average of those collected since the report of Laval is 40 years, and these are nearly equally divided as to sex. The youngest patients were a girl,[6] aged 13 years, a boy,[9] aged 16 years, and a girl,[10] aged 17 years. Included in the summary of Chevalier Jackson[11] there is one reported by Jackson in a woman, aged 23, and another in a boy[12] aged 14 years. There are several between 20 and 30 years old.

Judging from the number of these tumors which have been reported, it would seem to be a very rare disease. Moritz Schmidt, in over 30,000 patients with disease of the nose and throat, found none of carcinoma of the nasopharynx. Many others, who have had a very wide experience, have not recognized this tumor in any of their patients. It seems significant, however, that nearly half of the carcinomas, reports of which have been collected since the summary of Laval, have been diagnosed by two men, Compaired and Oppikofer, who like others had difficulty in recognizing the disease at first. It seems reasonable to think that perhaps these tumors are not so uncommon after all, and that if they were more often suspected they might be more frequently detected. Most of these tumors have naturally been reported by rhinologists rather than by general surgeons. The symptoms are based on respiratory disturbances, auditory disturbances and glandular enlargement. Many of the glandular enlargements encountered were at first considered as due to tuberculosis, and only subsequently developments cleared the diagnosis. In both of the reports which follow, the first diagnosis was tuberculous cervical lymphadenitis. In some instances the diagnosis was syphilitic lymphadenitis, due to an extragenital chancre in one, in others as a part of a general lymphadenopathy of syphilis. Antisyphilitic treatment was employed for nearly a year in one instance before the mistake was discovered. In 1908 there appeared a report of what G. Parlevecchio[13] designated "a case of aleukaemie lymphadeni of endotheliomatous nature." This was most certainly an example of carcinoma of the nasopharynx. There was no postmortem examination. The rhinologists have mistaken the disease for simple fibromas, hypertrophy of Luschka's tonsil, especially where there was infiltration and enlargement of the faucial tonsils, and deviations and hypertrophies of the inferior turbinated body. In most of these mistakes the fault was due to the failure to examine the patient properly, using palpation and posterior rhinoscopy.

By most authors it is conceded that radical surgical treatment is never indicated, but rather are repeated palliative procedures advised. No certain cure is recorded.

The following clinical histories and brief descriptions of the changes found on postmortem examinations have to do with carcinomas of the nasopharynx in two young patients.

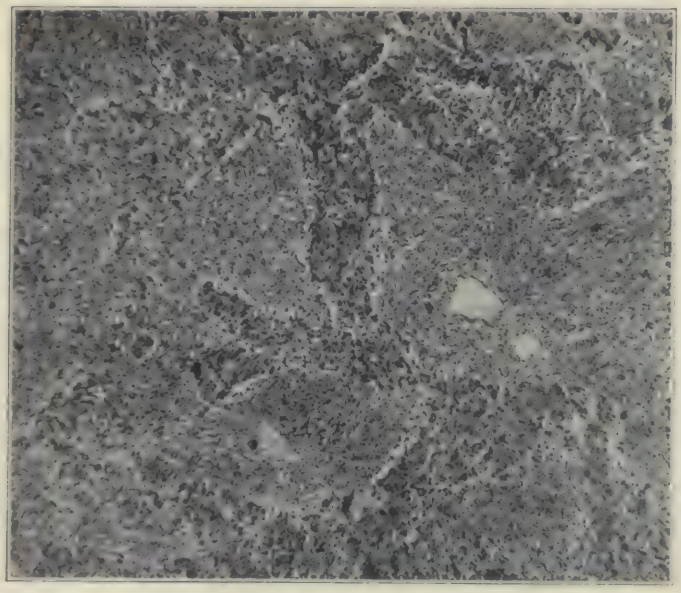


Fig. 1.—Photomicrograph (× 80) of a section from the vault of the nasopharynx (Case 1), illustrating the general arrangement of the rapidly growing carcinomatous cells, in many places closely set, with a tendency to form ductlike structures with open spaces for their lumina.

CASE 1.—*History.*—H. M. G., a physician and intern in the Cook County Hospital, aged 26, entered the Presbyterian Hospital of Chicago, March 17, 1909, with the following history: About fifteen months before he had noted that the cervical lymph glands were enlarged. Those first enlarged were at the angle of the jaw. These were always the largest, but the patient thought that they had decreased somewhat in size during the past six months.

The glands located lower down had gradually become palpable, particularly on the left side, where one was very prominent. The glands were never tender, and were always freely movable. The general health had been fairly good. The patient stated that he had had a subnormal temperature (from 97.2 to 97.8 F.) for about a year.

The past history otherwise was negative except for a severe attack of furunculosis over the back of the neck about four months before. At that time many glands which before were not palpable became enlarged, and many persisted. The immediate relatives were living and well, and there was no history of tuberculosis in the family.

On examination, the tonsils and thyroid gland were not enlarged. There was no exophthalmos. The glands along each sternocleidomastoid muscle were enlarged, but not adherent to the skin or to surrounding structures, and were not fluctuant. The glands were superficial and pea to hazelnut in size, those on the left the larger. The physical examination was otherwise practically negative. The leukocyte count of the blood was 8,250 per cubic millimeter, and the hemoglobin was 90 per cent. March 22, a differential blood count was made, which revealed: small mononuclears, 33 per cent.; large mononuclears, 11 per cent.; polymorphonuclear neutrophils, 49 per cent., and eosinophils, 7 per cent. A diagnosis of cervical lymphadenitis and periadenitis was made.

9. Baldwin, Kate: Malignant Growths of the Nasopharynx, Jour. Ophth. and Oto-Laryngol., 1908, ii, 12.

10. Guthrie, Thomas: Carcinoma of the Nasopharynx in a Girl, Aged 17 Years, Jour. Laryngol., 1911, xxvi, 449.

11. Jackson, Chevalier: Primary Carcinoma of the Nasopharynx, a Table of Cases, THE JOURNAL A. M. A., Aug. 10, 1901, p. 371. It is to be noted in reviewing the table of Laval that a number of the patients in whom these tumors occurred are not identical with those found in the table of Jackson.

12. Elder, J. M.: Report of a Case of Nasopharyngeal Carcinoma, Montreal Med. Jour., 1900, p. 900.

13. Parlevecchio, G.: Ein Fall aleukämischer Lymphadenie von endotheliomatöser Natur, Arch. f. klin. Chir., 1908, lxviii, 46.

March 18, Dr. Dean Lewis operated, removing the superficial chain of lymph glands on the left side and a few deep glands in the mastoid region and along the jugular vein.

The pathologic report made at that time was "hyperplastic tuberculosis (?)," though no giant cells were found.

The patient was discharged March 23, and returned again, Nov. 17, 1909. Operation was performed again, on both sides this time. Considerable periadenitis and scar tissue were found. Enlarged glands were enucleated from both sides, and part of the left sternocleidomastoid muscle was cut away.

A diagnosis of endothelioma of the cervical lymph glands was made from the histologic sections. At this time considerable bacteriologic work was done by Dr. E. C. Rosenow with material taken from the enlarged glands, with negative results.

The patient returned to the hospital from June 8 to June 12, 1910, to have some of the axillary glands removed, intending to have autogenous vaccines made. The blood examination at this time showed that there were 12,400 leukocytes per cubic millimeter, and 4,112,000 erythrocytes, with hemoglobin 70 per cent. (Dare). At the time of the writing of this history the clinical diagnosis recorded was "epithelioma of the glands of the neck."

Necropsy Report.—The patient died at his home, Aug. 19, 1910, and a postmortem examination was made about two hours after death by Dr. E. R. LeCount. The following description of the tumor and its extension was made:

"At the summit of a swelling opposite the angle of the left lower jaw there is a small surgical dressing covering a sinus surrounded by an elevated mass of yellow tissue almost spherical and from 3 to 3.5 cm. in diameter. The elevation is 1 cm. This growth is at the upper end of a scar which extends along the sternomastoid muscle a distance of 7 cm. The left eye is edematous and the left pupil is larger than the right.

"On dissecting the skin and muscles laterally from in front of the left clavicle, a lymph gland-like mass is found in front of the left clavicle, 2 cm. long and yellowish, firm and with a structure similar to that of other glands or tumor masses described in the following. A milky fluid escapes from the growth on the left side of the neck in dissecting the skin away from it.

"As the skull is opened, large amounts of clear colorless cerebrospinal fluid escape. After the brain is removed there is noticeable a swollen hypophysis cerebri, and a widening of the sella turcica. Also it is evident that the apices of the orbital cavities are filled not only with the vessels and nerves which normally pass through this region, but also by tumor tissue similar to that encountered in the neck. From either side of the sella turcica soft tissue projects so that from margin to margin transversely measured the distance is 3 cm. In the roof of the pharynx is a mass of soft tissue the color of yellow wax and quite uniform in appearance. The tissue is continuous with the mass that lies in front of it and the sphenoid bone. This tissue has apparently filled up the foramina at the apices of the orbital cavities, as stated.

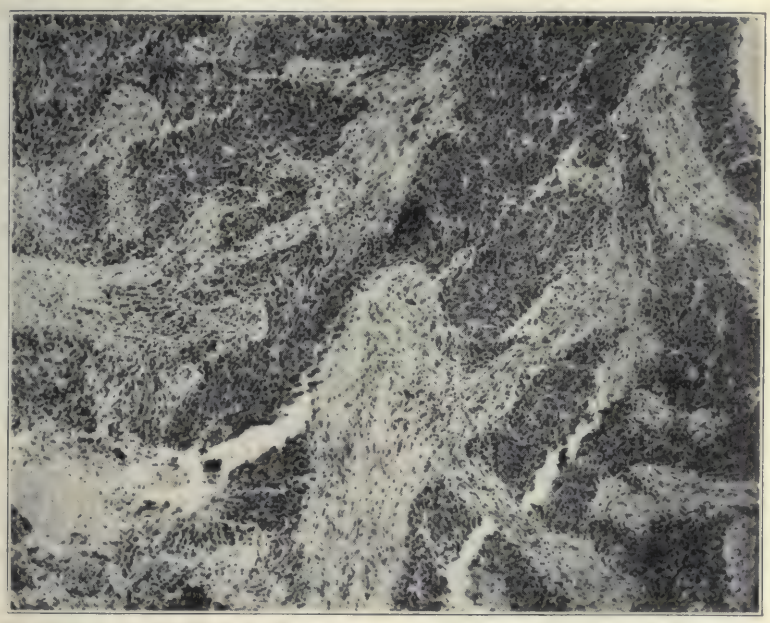


Fig. 2.—Photomicrograph (× 80) of a section from the posterior wall of the nasopharynx (Case 2). The arrangement of the cells, forming open spaces surrounded by closely placed epithelial cells, acinar and tubular structures, is better illustrated than in Figure 1. There is relatively much more of the tumor tissue.

"The epiglottis is edematous and thick. The left side of the glottis in the aryteno-epiglottidean fold is 1 cm. thick and soft and jellylike. Edema is less marked on the right side. On the left side the posterior and lateral wall behind the tonsil is also thickened and jellylike. There is no erosion of the mucosa in this region. The tonsil on the left side is enlarged and rounded, and projects a centimeter. It is 2.5 cm. long. This also has no erosion of the mucosa. The opposite tonsil is somewhat enlarged. There is an edema of the right side of the pharynx behind the tonsil, but less than on the left side. The tongue and submaxillary glands on both sides are unchanged.

"The glands in the left axilla form a mass approximately as large as a hen's egg. Some are adherent. The largest mass of them is 5 cm. long. On section the tissue is yellowish-gray and mottled with yellowish minute regions 3 to 5 mm. in diameter. Most of the glands are 2 to 3 cm. in their longest diameters.

"In the site of the operation there is a hard thick mass just to the left of the thyroid gland, which also is the size of a hen's egg and very firm. On the right side along the carotid artery there are a few enlarged lymph glands, none of them over 2 cm. long. On section one of these is considerably softened. There is no change in the larynx or upper portion of the trachea except for edema. The left vocal cord is twice as large as the right.

"In pieces removed from the very roof of the pharynx, the mucosa is swollen, edematous and the seat of an ulcer twice the size of the thumb nail, and the margins of the ulcer are markedly elevated."

Anatomic Diagnosis.—The other changes are indicated in the anatomic diagnosis which follows:

"Primary ulcerating carcinoma of the roof of the nasopharynx; metastatic growths in the lymph glands and tissues on the left side of the neck, lymph glands in front of the left clavicle, axillary and right carotid lymph glands; extension of the nasopharyngeal tumor into the sella turcica, about the hypophysis cerebri and into the orbits; marked edema of the brain and leptomeninges, left side of the face and neck, left eyelids, epiglottis, tonsils, pharynx, larynx, upper portion of the trachea, nasopharynx and mediastinal tissues; dilated left pupil; scar from a surgeon's incision on the left side of the neck with a sinus at its upper end; moderate emaciation; slight hypostatic bronchopneumonia; hypostatic hyperemia and edema of the lungs; slight hyperplasia of the tracheobronchial lymph glands; small tuberculous ulcer of the ileum; moderate hyperplasia of the mesenteric lymph glands, slight of those about the pancreas; hyperplasia of the spleen with passive hyperemia and hypostasis; passive hyperemia of the liver and kidneys; retention cyst of the left kidney; slight fatty changes in the lining of the aorta; moderate coal-dust pigmentation of the tracheobronchial lymph glands; flat chest.

"The histologic examination of tissues taken from all of the viscera and various parts of the tumor confirmed the gross diagnoses. In sections from various portions of the roof of the pharynx, the larger part of the sections consists of white

fibrous and lymphoid tissue. Small islands and strands of cells fill the lymph sinuses. These cells are from 15 to 20 microns in diameter, have a very small amount of cytoplasm, do not produce fibrils or other intercelluar substance, have vesicular moderately basophilic, granular and nearly spherical nuclei, and in some fields several contain mitotic figures, as many as four to eight to one field (objective 7, and ocular 1 inch). An occasional atypical mitosis or multipolar cell (from two to three mitoses) is found. In portions of the pharyngeal roof where the lymphoid tissue is most abundant, tumor cells are so arranged in islands and cords (Fig. 1) that they resemble glands and ducts. Where the groups of such cells are large, necrotic and poorly staining cells form the central mass. Very little stroma is present among the tumor cells. Similar conditions are present in pieces of tissue removed from the upper part of the sternomastoid muscle, from the lymph glands adjacent, and from those lymph glands above the thyroid isthmus, those at the right side of the thyroid cartilage, in the left axilla and in front of the left clavicle. No tumor metastases are found in any of the viscera.

Case 2.—*History.*—S. S., an Italian schoolboy, aged 9 years, was admitted to the Presbyterian Hospital, April 15, 1910, with a history of bilateral enlargement of the glands of the neck, present for the past two months at least and with an insidious onset. The previous history was otherwise negative. On examination the conditions recorded were poor body nourishment and ill development, and anemic appearance, marked enlargement of the cervical lymph glands, more marked on the left side where some fluctuation was present, palpable axillary nodules and barely palpable inguinal lymph glands. The eyes were rather prominent, the pupils normal, the ears negative, but there was marked obstruction of the nose, and the breathing was entirely oral. The tonsils were considerably enlarged, protruding and full of crypts containing cheesy pus. The pharynx was injected. The physical examination beyond this was negative. The leukocyte count was 20,000 per cubic millimeter, and the hemoglobin was 80 per cent. (Dare).

Tonsillectomy and adenectomy were performed. After that an incision was made along the left sternomastoid, the enlarged glands dissected out, and the wound closed without drainage. Great care was necessary, as the glands surrounded the internal jugular vein in places.

A diagnosis was made of "malignant adenitis (cervical), bilateral." The pathologic report on the pieces removed was "carcinoma (?). Sections were very suspicious of malignancy."

The patient was discharged, May 19, and returned, July 18, with still more marked enlargement of the cervical glands, which were at times painful. Again the diagnosis of epithelioma of the glands of the neck was made, and Roentgen-ray treatment was advised. The temperature was practically normal. The blood contained 5,232,000 erythrocytes and 18,050 leukocytes per cubic millimeter. The hemoglobin was 98 per cent. (Dare), and the differential leukocyte count gave small mononuclears 14 per cent., large mononuclears 7 per cent., polymorphonuclear neutrophils 76 per cent., and eosinophils 3 per cent. The first time the patient was under the care of Dr. A. D. Bevan, the last time under that of Dr. Dean Lewis.

Necropsy Report.—April 3, 1911, the boy died, and a postmortem examination was made on the same day by Dr. E. R. LeCount. The following are the essential changes found: The body was poorly nourished and greatly emaciated, the skin very pale, the eyes slightly protruding, the pupils equally dilated, the face swollen and hard, and the neck greatly thickened, especially on the left side where the circumference was nearly as great as that of the head. The thickening extended down uniformly to the axillary line. The thickened part was hard and firm. "On the left side of the neck the skin is dark gray, and about 3 cm. below the left ear there is an irregular hemispherical white protruding tumorlike mass, about the size of an English walnut. This mass is hard and has a rough surface. Around it and separated from it by what appear to be surgical scars are several smaller nodules, from 1 to 3 cm. in diameter, but in all other respects similar to the larger mass. Hard tumorlike nodules, about the size of hazelnuts, are palpable in both axillary cavities. . . . The tongue, the tonsils and the uvula are pale but normal; the entire nasal cavities are irregularly thickened by a white firm tumorlike mass. The soft palate is also included in this thickening. The pharynx and esophagus are free from pathologic changes, but with the other organs of the neck are embedded and covered by a white firm tumorlike mass. No traces of muscles can be found. After removing a large part of these masses the thymus and thyroid are exposed. The thymus is a small flat body, 3 cm. long and 2 cm. wide. It appears to be full of the tumor invasions, and near its margin are several small distinct round nodules. The isthmus of the thyroid shows a hard white tumorlike mass; the left lobe is irregular, flat, with an indistinct margin and containing a few nodules of the white firm tissue. The vessels of the neck on the right side are embedded in a solid tumor mass, the size of a medium large apple. On removing the organs of the neck on this side the skin can be easily separated from the rest of the tissue, but on the left side it is hardly possible. The mass surrounding the vessels on the left side is the size of a man's fist, is firmly connected with the skin and has several tumorlike nodules, as above described, below the ear. After removal of the tongue and organs of the neck, a large portion of the inner nasal cavities was removed and found to consist of very irregular thickened and solid tumor masses."

Anatomic Diagnosis.—This is as follows: carcinoma of the nasopharynx; metastatic growths in the thyroid gland, thymus, cervical and axillary lymph glands; marked infiltration of the muscles and fascia of the neck by the tumor growth extension; dilated pupils; slight exophthalmos; marked emaciation; general anemia; scars on the neck from a surgeon's incisions; hydropericardium; left hydrothorax; slight hydroperitoneum; slight hyperplasia of the tracheobronchial lymph glands; slight nodular encapsulated caseous tuberculosis of the left lung; healed and calcified caseous tuberculosis of the mesenteric lymph glands; hyperplasia of the mesenteric lymph glands; slight submucous hemorrhage in the ascending colon; slight fatty changes in the lining of the aorta; coal-dust pigmentation of the tracheobronchial lymph glands; small accessory spleen; small accessory left suprarenal gland.

The histologic examination confirmed the gross diagnoses, and the general descriptions of the sections are very similar to those of the sections from the first tumor described. This was a more rapidly growing tumor than the first. There is less fibrous connective tissue through the glands and less necrosis of cells centrally located in large masses. The cells are grouped like those in the other tumor (Fig. 2) and are of the same kind.

Synthetic Ability and Lip Reading.—This "synthetic" ability seems to consist in a grouping activity of the mind, necessitated by the fact that the lip reader, though ever so expert, cannot clearly distinguish every word. One reason for this is that many words and syllables look alike—for example, *may, pay, bay.* Furthermore, the movements involved in making many letters cannot be seen at all—for example, *c, k, h, ng.* Another difficulty lies in the fact that many people speak rapidly and carelessly, thus obscuring many movements. A combination of these factors results in rendering it impossible for lip readers to see all that is being said. They see only isolated words and fragments of words. With these as a framework, they must construct a meaning. The ability to construct meaning by combining isolated fragments into a meaningful whole is what is designated "synthetic" ability. The opposite type of mental constitution is called "analytic." An "analytic" or literal-minded person is very accurate and insists on perfect apprehension before attaching meaning to an impression. It is generally agreed that this is an impeding factor in lip reading, and that those persons succeed better whose "synthetic" powers are most used.—H. D. Kitson, *Volta Review.*

TONSILLECTOMY *

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ROCHESTER, MINN.

Complete removal of the tonsil in its capsule with the least possible danger and discomfort to the patient is the cardinal requirement of any operation on the tonsils. The instruments used in our clinic are a syringe with extension barrel and curved needle, the Robertson knife, Richards forceps and Tydings snare. The tonsils and the mucous membrane immediately surrounding them are brushed with cocain (10 per cent.), and this is repeated in five minutes. After a like interval a solution of novocain (0.25 per cent.) with 1 minim of epinephrin per dram is injected into the connective tissue about the capsules. When the patient pales from the effect of the epinephrin, the operation is commenced. The tongue is depressed until the edge of the palatoglossus is prominent in the anterior pillar. Immediately behind the pillar appears a triangular depression, whose other side is the tonsillar portion of the plica triangularis, and whose base is the root of the tongue. The point of the knife is placed in this depression and swept upward in such a manner as to cut the mucous membrane and enter the deeper tissues between the capsule and the anterior pillar. The incision is continued upward until the superior pole of the tonsil is reached, when the knife is turned slightly and brought down between the capsule and the posterior pillar. While this incision is being made, the tissues are not fixed by the forceps and, as the knife follows accurately the line of least resistance, there is little or no danger of wounding the muscles surrounding the tonsil. This single incision is usually sufficient to free the superior pole so that it may be grasped by the forceps and drawn inward and downward. While the capsule is thus put under considerable tension, the fascia and muscle are pushed away from it with the flat surface of the knife. The process is continued until the entire surface of the capsule, including the insertion of the superior constrictor muscle, has been freed so that the tonsil is attached only at the lower aspect of the inferior pole. Then the snare is passed over the forceps and tonsil in such a manner that the free end of the loop engages the remaining attachment and the lymphoid tissue which appears on the folds of the mucous membrane below it.

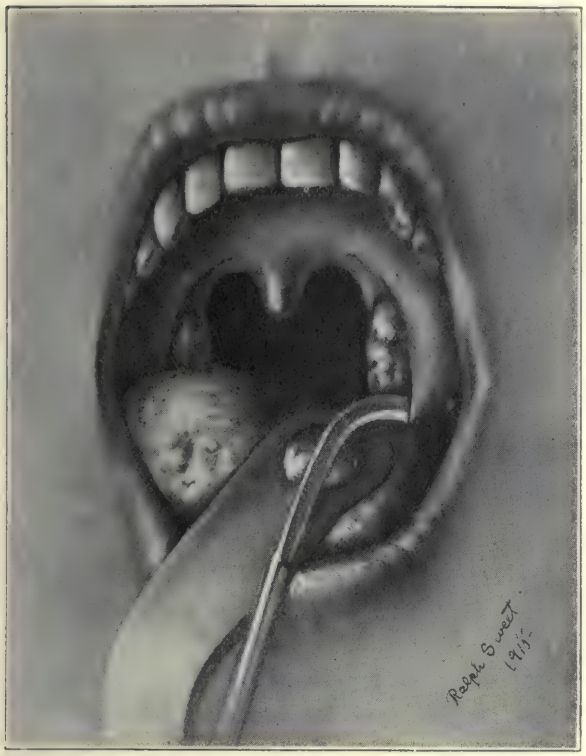


Fig. 1.—Point at which incision is made.

The lymphoid tissue should be carefully removed as it frequently contains crypts which are capable of furnishing the source of local and general infections. This point has been mentioned by Thayer and others, but does not receive the attention it deserves. Within the past year I have seen several patients who suffered from recurring sore throat from this source, and at least three patients in whom symptoms of rheumatoid arthritis persisted after tonsillectomy, but disappeared promptly after the excision of subtonsillar lymphoid follicles containing suppurating crypts.

The blood vessels entering the tonsil that are necessarily severed by tonsillectomy are much smaller than those in the fascia in contact with the capsule. The latter are liable to injury by the use of a sharp instrument when separating the tonsil from the peritonsillar tissues, but by the method described the fascia is pushed away with the flat surface of the knife and unnecessary hemorrhage usually avoided.



Fig. 2.—Condition of tonsil after incision has been carried up along anterior pillar over upper pole and down along posterior pillar.

During the operation, the tonsillar branches of the glossopharyngeal nerve are frequently seen as small filaments which emerge from the fascia and enter the capsule at one or more points while the main branches

* From the Mayo Clinic.

remain hidden by the superior constrictor muscle. This is the normal condition, but occasionally other filaments proceeding to the lower pharynx and the larynx of the base of the tongue may be seen. In rare instances, the entire terminal portion of the glossopharyngeal nerve pierces the superior constrictor muscle at the insertion of the stylopharyngeus, and thence to the base of the tongue lies in direct contact with the capsule of the tonsil. In this situation these nerves are liable to be cut during operations for complete removal of the tonsils, but are not within the field usually exposed by tonsillotomy. Here we find the explanation of the fact that vocal disability following operations on the tonsils has usually been associated with complete removal of the tonsils with little deformity, while shocking mutilations may be seen with no functional impairment.

I have recently seen a woman, operated on elsewhere one and one-half years ago, who came complaining of discomfort and dryness in one side of the pharynx, and difficulty and rapid fatigue in speaking or singing. Several laryngologists had reported the operative results perfect and, as on first observation the tonsillar fossae were clean, my opinion agreed with theirs. The muscles of the palate, pillars and tongue were uninjured, and there was a minimum of scarring. On subsequent observation, however, I found on one side the root of the tongue depressed, the muscular action impaired and the papillae and mucous membrane noticeably atrophied. As only loss of innervation could cause such changes, and as the symptoms followed were the results of tonsillectomy, there is little doubt that the terminal branches of the ninth nerve were severed. This patient's complaint was typical, and it seems reasonable to assume that others have suffered from the same cause.



Fig. 3.—Forceps grasping over superior pole and drawing tonsil into pharynx. Knife pushing deeper fascia away from capsule.

One tonsillectomy patient of my own, and one who had been operated on elsewhere and came under my observation, had clean tonsillar fossae and no visible cause for pain; but they suffered with severe neuralgia in the nerves at the juncture of the palatoglossus muscle with the tongue. In a large percentage of cases a short section of the terminal portion of the glossopharyngeal nerve is exposed at this point and liable to injury on removal of the tonsil. Since no other lesions can explain the severe pain, I have concluded that such an accident is the probable cause and have recommended, though without opportunity of trying it, injection of alcohol into the trunk of the nerve.

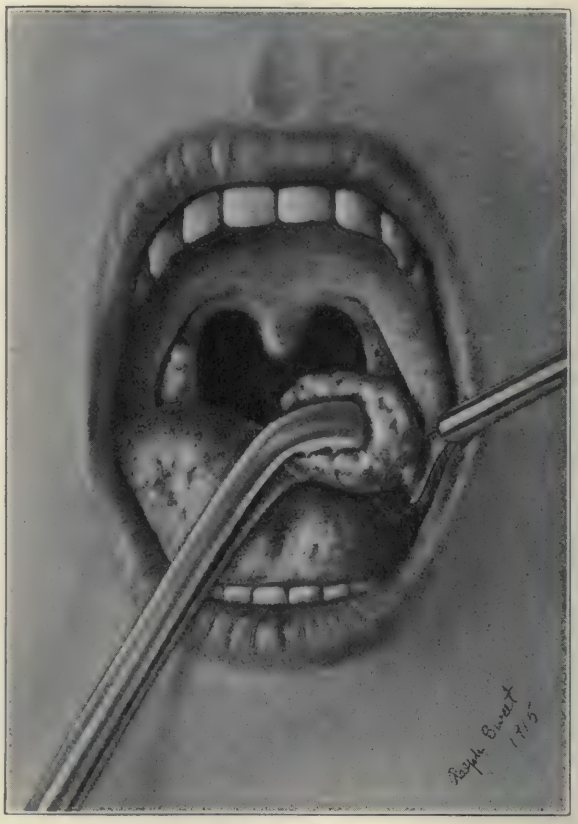


Fig. 4.—Snare passed over tonsil and forceps to separate mucous membrane and lymphoid tissues below inferior pole.

TRICHINOSIS

REPORT OF A CASE WITH TRICHINA LARVAE IN THE SPINAL FLUID *

ARTHUR R. ELLIOTT, M.D., CHICAGO

The case here reported furnishes a timely confirmation of a similar observation by Leon Bloch (THE JOURNAL, Dec. 18, 1915, p. 2140), and adds one more to the few recorded instances of the identification of trichina larvae in the spinal fluid.

History.—M. B., a schoolgirl, aged 14, was admitted to the medical service of St. Luke's Hospital, Nov. 23, 1915, complaining of sharp pains in the abdomen, of headache, alternate diarrhea and constipation, fever and marked muscular soreness.

November 12, the child first complained of malaise, and her mother observed a distinct puffiness about the eyes which became worse, lasting altogether for about one week. November 14, there developed general soreness of the muscles with a temperature of 102 and diarrhea lasting several days. An early symptom was cough with a good deal of pain and soreness in the costal region. November 21, she awoke from

* From the medical service of St. Luke's Hospital.

sleep with severe pain in the abdomen and vomiting. More or less vomiting, diarrhea alternating with constipation, persistent muscle soreness on movement and pressure, and continuous fever characterized her condition until admission to the hospital.

The patient states that she ate some roast pork at home, October 31, and that other members of the family also ate it, but that none of them have since been sick. She went to school all of the following week but did not feel well. She cannot remember whether or not she had any pain or diarrhea. The following Sunday, November 7, she was nauseated and vomited, and on Monday had some diarrhea. The patient's mother states that during the week following October 31 her daughter ate a pork chop, and remarked while eating it that it was not well done. Investigation of the condition of other members of the family during the period of the patient's stay in the hospital failed to reveal any other case of illness.

Examination.—The patient was well nourished and normally developed. Apparently the degree of illness was moderate. The skin was hot to the touch, and there was no edema, cyanosis or jaundice. From fifteen to twenty rose spots were present on the abdomen. The muscles were well developed and strong. There was a general tenderness of the muscles. The joints showed some restriction of movement, especially at the hips. There was no evidence of joint inflammation. The Kernig sign was present, probably because of pain in the hips. The organic condition of lungs and heart appeared normal on examination. Blood pressure was: systolic, 120; diastolic, 72. The tongue was moist and coated. There was no herpes or mucous lesions. The abdomen was somewhat painful to palpation, but without rigidity. The thyroid was slightly enlarged, and epitrochlear axillary, cervical and inguinal glands were palpable but not enlarged. Mouth temperature on entrance was 101 F.

A blood examination at this time revealed: erythrocytes, 3,520,000; hemoglobin, 58 per cent.; leukocytes, 21,000. The differential count was: neutrophils, 69; lympocytes, large and small, 9; eosinophils, 22. The Widal test was negative.

Subsequent cell counts, December 20 and 27, showed 26 and 14 per cent. eosinophils, respectively. The urine analysis was normal and remained so throughout.

December 3, 10 c.c. of clear, normal looking spinal fluid was withdrawn under moderate pressure. Three actively motile trichina larvae were found in the specimen. The cell count was 3 per cubic millimeter.

A section of muscle fibers was removed and examined for trichinae, but none were found.

The patient was discharged from the hospital in a satisfactory state of convalescence, December 29.

30 North Michigan Avenue.

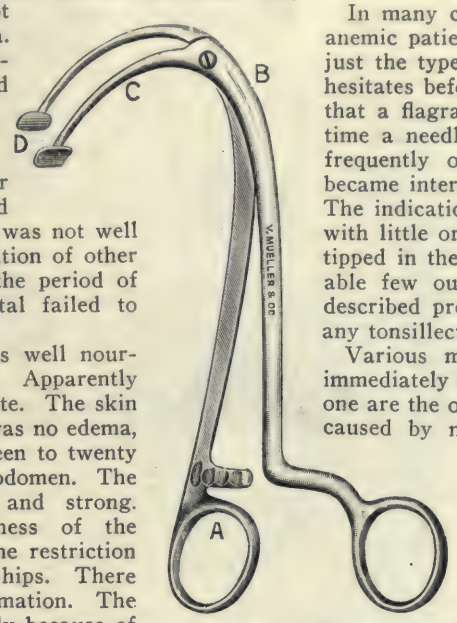


Fig. 1. — Pillar-compression forceps: *A*, handle; *B*, lock, *C*, goose-neck shank; *D*, compression tips.

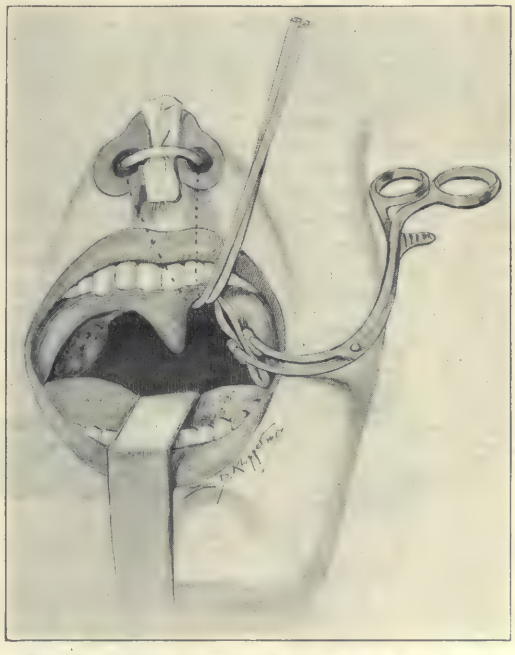


Fig. 2. — Pillar-compression forceps in situ on left side; no obstruction to removal of right tonsil.

Mars and Hygeia.—Mars and Hygeia have been sworn enemies since the world began. Pestilence and famine are the twin children of war.—J. H. Landis.

New Instruments and Suggestions

PILLAR-COMPRESSION FORCEPS

FOR CONTROLLING HEMORRHAGE FOLLOWING TONSILLECTOMY

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In many cases of tonsillar disease, especially in the frail anemic patients with cardiac and rheumatic complications—just the types that most urgently require tonsillectomy—one hesitates before causing any further loss of blood. Believing that a flagrant violation of a vital principle occurred every time a needless amount of blood was lost, especially as so frequently occurs following the tonsil operation, I early became interested in the principle of bloodless tonsillectomy. The indications being marked, the tonsils are to be removed with little or no loss of blood; frequently the scales may be tipped in the wrong direction by the loss of an extra avoidable few ounces of blood: avoidable, because the technic described proves that loss of blood is *not* necessary during any tonsillectomy.

Various methods have been employed to stop bleeding immediately following tonsillectomy. The objections against one are the objections against all, namely, the severe reaction caused by manipulation within the tonsillar fossae. The application of hemostatic substances, such as Monsel's solution, epinephrin, hydrogen peroxid and alcohol, produce more or less sloughing, fibrinous exudation or marked infiltration. No better results are achieved by the hemostatic clamp, which produces pressure in the fossa by means of a gauze plug. Likewise the suturing of the pillars over a gauze plug, while it avoids the firm pressure of the clamp, produces marked reaction of the tissues. Ligation of the bleeding point, after it has been seized by artery forceps, results in trauma to the part and necrosis of the tissues if too much has been included in the original bite of the forceps, to say nothing of the trauma done to the area by frequent bites of the forceps before the bleeding point is seized, and the great difficulty of performing ligation in this site. As for suturing the pillars without the insertion of a gauze plug into the cavity, while this is nearer the ideal than any of the other methods, it produces trauma to the part with subsequent reaction, both at the time of insertion and at the time of withdrawal of the sutures.

To overcome these objections, and to control effectually the primary bleeding, pillar-compression forceps (Fig. 1) have been devised to squeeze the pillars together over the tonsillar fossa (Fig. 2). At the same time, this procedure protects the fossa from manipulation and the introduction of foreign substances. A surgically clean cavity is left unhandled, as a result of which there is no trauma to the parts and relatively little reaction; at least, less than occurs following manipulation in the fossae.

The instrument herewith illustrated (Fig. 1) which is used to squeeze the pillars together over the tonsillar fossa (Fig. 2) after the tonsil has been enucleated, consists of *(A)* a handle; *(B)* lock; *(C)* goose-neck shank, and *(D)* compression tips. The lock is so constructed that the compression can be regulated to suit the needs of the case; for

instance, only slight compression can be made and the bite held firmly, or, if this does not suffice to control the bleeding, the forceps can be closed more tightly. The goose-neck shank is so constructed as to keep the handles outside of the cheek while the forceps are in place. The compression is made by two corrugated tips, flanging slightly at the end, thus better regulating the degree of pressure exerted over the pillars. The area covered by the compression is one-eighth by three-eighths inch.

After removal of the tonsil, the curved compression forceps are applied high up, so as to compress the vessels in that area of the tonsillar fossa, the posterior blade being against the posterior surface of the posterior pillar, while the anterior blade fits against the anterior surface of the anterior pillar. The point of most importance is to pass the compression tips to a sufficient distance toward the lateral wall of the throat, so as to include in the bite (*a*) that portion of the posterior pillar next to the constrictor of the pharynx, (*b*) the floor of the tonsillar fossa and (*c*) that portion of the anterior pillar next to the mucosa of the cheek. While not absolutely necessary, the application can be facilitated by pulling forward the soft palate by means of the soft catheter previously passed through the nostrils and out of the mouth (Fig. 3).

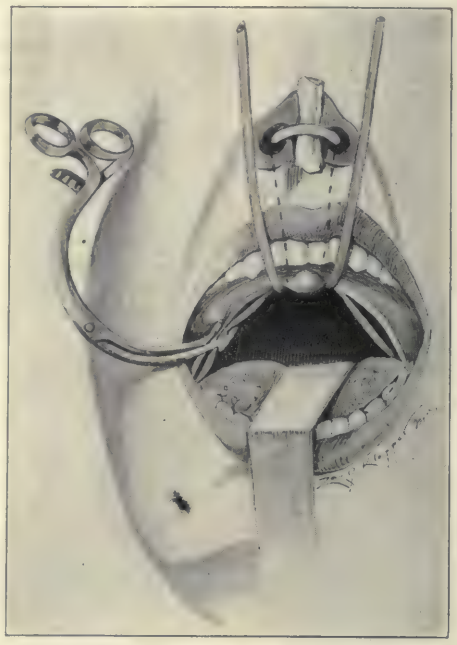


Fig. 3. — Pillar-compression forceps applied to right side; no hindrance to removal of adenoids.

Unless care is exercised in adhering to the foregoing technic, there will be included in the bite only the internal borders of the pillars without any of the floor of the tonsillar fossa (Fig. 3). Of course the superficial bite will not stop bleeding from the depth, as there will be no pressure exerted on the vessels in the fossa. As a result there will be a ballooning out of the pillars under which oozing will continue. If bleeding occurs from the bottom of the fossa, the straight forceps (Fig. 4, made on the same principle except that the shank is straight), are thus applied over the lower portion of the fossa. After a few moments the forceps can be removed or left on until the opposite tonsil or adenoid tissue is removed. If the bleeding recurs, it is a very easy matter to readjust the forceps and leave them in place a few moments longer.

The same results can be obtained in controlling a secondary hemorrhage, and a factor of great importance is that the pillars are in no way injured by the force of the compression, so that should it be necessary to introduce a suture or two for the purpose of obtaining a more prolonged compression of the fossa, this can be done without the fear of their tearing out because of previous interference with the vitality of the tissue.

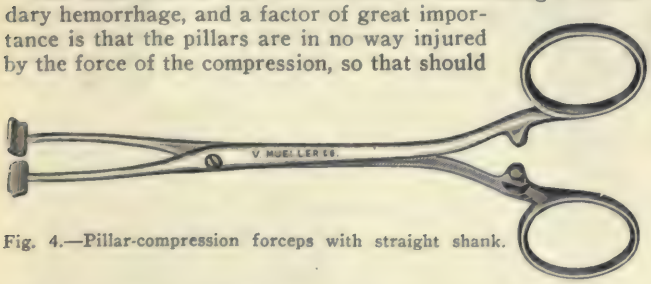


Fig. 4.—Pillar-compression forceps with straight shank.

104 South Michigan Avenue.

Selection Necessary for Race Betterment.—Abundant well balanced nourishment and thorough culture of plants or animals will always produce good results in holding any species or variety up to its best hereditary possibilities, beyond which it cannot carry them, and lacking which, maximum development can never be realized.

APPARATUS FOR USE IN BLOOD TRANSFUSIONS, SALVARSAN ADMINISTRATION, ASPIRATION, ETC.

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Professor of Bacteriology, Long Island College Hospital; Associate Visiting Physician, Brooklyn Jewish Hospital

There are numerous apparatus devised for blood transfusion, aspiration of fluids, salvarsan administration, etc. A single apparatus, however, which may be used for all these purposes with a marked degree of efficiency is certainly very desirable. I feel, therefore, that no excuse is necessary for bringing forward this new apparatus.

DESCRIPTION OF APPARATUS

It is composed of a large record syringe, from 30 to 50 c.c. in capacity, capable of producing a vacuum in both chambers (1) and (2), depending on whether the plunger (3) is respectively pulled or pushed. This is made possible by the metallic cap (24) fitting air-tight around the piston of the plunger at 11 and containing the additional nozzle (13). The syringe, therefore, has two nozzles, one at each extremity, nozzle 12 communicating with chamber 1 and nozzle 13 with chamber 2. The four flow stopcock (8) having four openings (16, 17, 18 and 19) allows the two-way flow to go on at the same time. A piece of rubber tubing (14) connects opening 16 with nozzle 12, tubing 15 connects opening 19 to nozzle 13, tubing 20 connects opening 18 to the vein of the recipient by means of a cannula, and tubing 21 connects opening 17 with the vein of the donor by means of a cannula. By means of elevation 6 in the rod (5) which is attached to the handle of the plunger (7), the four flow stopcock is made to rotate automatically so that fluid entering the opening (17) will leave through opening 16 into tubing 14, and fill chamber 1 of the barrel through nozzle 12. At the same time fluid in chamber 2 will be pushed out through nozzle 13 and enter opening 18 into the recipient, provided the plunger (3) is pulled and a vacuum is created in chamber 1. If the plunger is pushed and a vacuum is created in chamber 2, fluid will enter opening 17, and the four flow stopcock working automatically by means of an elevation at the distal end of the rod (5) will turn the four flow stopcock so that fluids will enter opening 17 and leave by means of opening 19 through tube 15 into nozzle 13 and fill up chamber 2. At the same time fluid in chamber 1 will be expressed through nozzle 12, through tube 14, enter opening 16 of stopcock, and leave through opening 18, into tube 20, into the vein of the recipient; 22 acts merely as a guide for rod 5.



Fig. 1.—Side view of apparatus, unconnected by rubber tubing; it can be readily taken apart for cleaning purposes.

HOW TO WORK APPARATUS

For Blood Transfusion—Indirect Method.—Remove all air from apparatus and fill it with normal saline. This can be readily accomplished by allowing saline to enter through tubing 21 and aspirating the saline into chamber 1 by pulling on handle 7. This will bring plunger 3 in opposition to the

cap (24). Pushing on handle 7 will now turn the stopcock, and saline will fill up chamber 2, and at the same time will expel the saline from chamber 1, emptying through tube 20. When chamber 2 and all the tubings and openings are filled with saline, the cannulas are placed into the veins of the recipient and the donor in the usual manner. The apparatus is now operated as an ordinary syringe, pulled and pushed respectively by handle 7. The blood will flow into chamber 1, at the same time expelling the saline in chamber 2 into the vein of the recipient, when the handle (7) is pulled and a vacuum is created in chamber 1. When the handle (7)

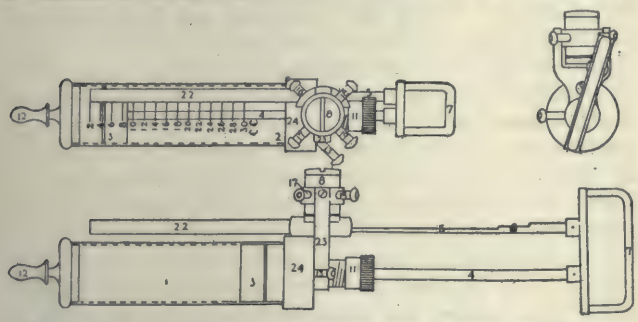


Fig. 2.—Working drawing of apparatus with plunger in (left upper figure); plunger out (lower figure); plunger in, and viewed from handle in front (right upper figure).

is pushed and a vacuum created in chamber 2, the blood of the donor will flow into chamber 2, at the same time expelling the blood of chamber 1 into the vein of the recipient. It will thus be seen that the flow is continuous, entering either chamber 1 or 2 through the donor, and is simultaneously discharged from the opposite chamber into the vein of the recipient.

Thus there is a continuous flow, uninterrupted from the donor to the recipient, which materially inhibits clotting. The barrel of the syringe being graduated, the quantity of blood transfused can at once be estimated. Further to inhibit clotting of the blood, it is advisable to subject the entire apparatus to ether spray during the transfusion, as first pointed out by Dr. Elsberg of Mount Sinai Hospital. The entire apparatus can be readily sterilized by boiling water, steam sterilizer, or autoclaving, and can be very readily taken apart and thoroughly cleaned. If the citrated method is used, the receptacle containing the blood becomes the donor. Otherwise the method is the same.

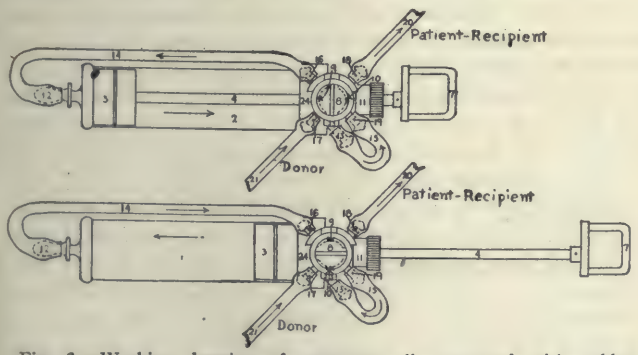


Fig. 3.—Working drawing of apparatus all connected with rubber tubing with plunger in (upper figure), and the handle (7) pulled on; the arrows indicate the flow of the fluid; with plunger out (lower figure), and the handle (7) pushed on; the arrows indicate flow of fluids. The four flow stopcock works automatically.

For Aspiration Purposes.—Irrespective of the quantity or the location of the fluid, the needle connecting with tubing 21 is plunged into, say, the pleural cavity, which becomes the donor, and the fluid is emptied out into a receptacle, leaving the apparatus through tubing 20. No previous filling of apparatus with saline or emptying of air is of course necessary. Since no air can possibly enter the cavity, all chances of infection are avoided.

For Salvarsan Administration.—The same precaution of filling with saline and emptying of air should be taken as for blood transfusion. Tubing 21 is placed into a prepared solution of salvarsan which is emptied into the vein of the recipient, the saline leaving the apparatus through tubing 20.

For loading accurately measured amounts of fluids such as antitoxins, vaccines, etc., into containers, this instrument can be used to good advantage. The principle is the same for whatever purpose it is applied.

Dr. William F. McKenna has suggested using two syringes, the handles of pistons connected with a walking beam. The nozzles of syringes are connected with a four flow stopcock, thus allowing the simultaneous aspirations of blood into one syringe and the expulsion of blood from the other, in other words, having two separate barrels of two syringes, instead of the barrel of one syringe for both chambers.

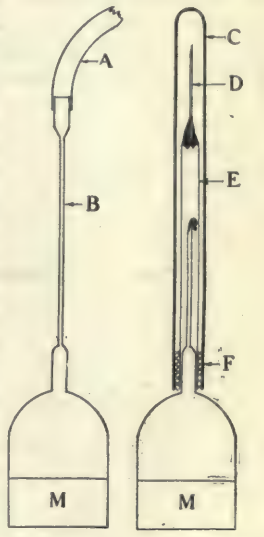
1352 Carroll Street.

A SIMPLE METHOD FOR BLOOD CULTURES

PAUL G. WESTON, M.D., WARREN, PA.

The simple device here illustrated has been used by me for some time. The tubes are easily prepared, can be shipped through the mails and the medium lasts indefinitely.

An ordinary 10 or 25 c.c. vaccine ampule is half filled with the culture medium—bile, bouillon, etc. The neck is then drawn to a capillary tube, and by means of an air pump connected to the water line, a vacuum of 15 or 20 inches is obtained. The capillary tube is then sealed in the flame. A rubber tube with needle is attached, and this is covered with an outer glass protecting tube as in the Keidel blood collecting tube. The whole is then sterilized intermittently or in the autoclave. The moisture in the outer, protecting tube rapidly evaporates if the tube is inverted in a rack and placed in the incubator.



By L.R.Sanborn

Tube for blood cultures: *A*, connection to air pump; *B*, capillary tube to be sealed in flame; *C*, outer protecting tube; *D*, needle; *E*, rubber tube; *F*, cotton; *M*, *M*, medium.

For use the needle is inserted into a vein and the capillary glass tube is broken. After the blood has been collected and the needle removed from the vein, the outer protecting tube is replaced and the tube is ready for shipment. No sealing is necessary, as a firm clot plugs the needle. I have sent one of these tubes containing normal blood in bouillon to San Francisco and another to Galveston, Texas. Both were returned to me, and both had remained sterile.

THIONIN AS A DIAGNOSTIC STAIN IN PYORRHEA ALVEOLARIS

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Instructor in Bacteriology and Preventive Medicine, University of Missouri, School of Medicine

I have seen no mention in the literature on endamebas in pyorrhea alveolaris of the use of thionin as a diagnostic stain for the endameba. In the past fifteen months while doing microscopic work for several dentists in this city, it has been my privilege to examine a large number of slides of alveolar exudate for endamebas and other organisms. Most of the preparations were stained before being examined, and the stain used in the majority of cases was thionin. The stain was prepared according to the following formula:

Thionin	0.5 gm.
Distilled water	100.0 c.c.
Phenol (carbolic acid) crystals	2.0 gm.

This solution must be prepared fresh every three or four months.

To prepare the slide, a smear is made of the exudate as with other pus and dried in the air. The smear is then fixed in the flame and stained a few seconds while still warm with the thionin solution. The stain is washed off with water and the slide dried. It may be mounted in balsam with a cover glass, or examined direct in immersion oil as desired. The endamebas are stained quite distinctly by this method. The cytoplasm is stained a light purplish violet and the nuclei a deeper reddish violet. Ingested blood corpuscles and other material undergoing digestion in the body of the organism are stained nearly black. The pus cells in the smear are stained a light blue, with their nuclei a deeper blue. Bacteria are also well stained, the fusiform bacilli and spirillas being especially plain. The endamebas stand out quite distinctly in the smear, and are easily recognized. A person accustomed to the use of the microscope can usually see them easily with the low power (two-thirds or 16 mm.) objective, using the high power only for verification; hence a considerable area of the smear can be covered in a short time.

I have found the stained preparations much more reliable than unstained preparations, and much quicker, on account of the time consumed in examining an unstained slide. Thionin has also given more uniform results than the double staining method with fuchsin and methylene blue, and the stain is made more quickly and easily.

This stain does not give good histologic pictures of the endamebas, and is recommended only as a diagnostic stain, for which purpose it gives very plain pictures of both the endamebas and the bacteria.

Special Article

WHAT THE CIVILIAN DOCTOR CALLED TO ACTIVE SERVICE WITH THE ARMY SHOULD KNOW

(Continued from p. 426)

II. DUTIES ON THE LINE OF COMMUNICATIONS; SANITARY MEASURES IN CAMPS

In comparatively recent times, as the result of progress in medicine itself, the scope of the duties of an army surgeon have been greatly extended. These are in the direction principally of sanitation and administrative lines. Both in mobilization camps and in the camps made by an army in the field, the same general principles relative to sanitation prevail. There is, nevertheless, considerable difference between stationary and permanent camps, such as the place where recruits are mobilized, and the camps that troops moving in the field make themselves. In the mobilization camp, if permanent in character, we may have, for instance, large storehouses or depots where supplies of food and clothing and fuel are readily obtained for issue; we may have a water supply distributed by a system of pipes throughout the camp, carrying water of known potability; we may even have a water-carriage sewage system, and certainly the surroundings of such a camp should give rise to no disease borne either by impure water or milk, or conveyed by insects such as mosquitoes and flies: in short, the only marked difference from a well conducted civilian community would be that the inhabitants of such a camp are living under canvas rather than in well constructed houses. On the other hand, during the Spanish war, permanent camps, such as have been described above, were far from being such healthy places. Mobilization camps may be unprovided with satisfactory water supply or systems of conservancy, and it then becomes the duties of the medical officers to recommend suitable systems and to inspect the working of them in order that the health of the troops may be maintained. What applies to a mobilization camp under such circumstances applies equally to a camp of troops living in the field whether in their own or the enemy's country.

Of great importance is the selection of a proper site for a camp. There are a number of factors instrumental in affecting the salubrity of a camp site. In the field this matter is determined by military exigencies. In mobilization and concentration camps the matter is within control of the authorities, and properly informed persons should be the ones entrusted with the selection of such sites. As these matters are determined by others than the newly commissioned officers, they will not be taken up here, important as they are.

All information must be gathered about the water which is to be used for drinking purposes. Indeed, when practicable, this information should be obtained prior to the time that troops will require to use a certain supply of water. If the water is potable, the source of the supply must be protected from pollution; if it is questionable in quality, proper measures must early be taken to render it safe for drinking purposes. Briefly, these are the guarding of the source from further pollution: treating of the water by boiling, filtering, or sterilizing with special field appliances, as conditions indicate.

The next important measure is the prompt installation of a method of disposal of camp wastes. Wastes from the kitchens may either be burned or removed. Most important and most difficult is the method of disposing of human excreta. Measures to accomplish this have been very thoroughly and satisfactorily worked out since the Spanish war. Where there is no danger to water supplies, and the probable life of the camp is limited to a year or less, a trench system can be used which supplies a pit for each company or organization with a fly-tight box cover. The pit is burned out each day with crude petroleum and straw or some inflammable material. One should not labor under the false impression that the contents of such a pit are sterilized. Incineration of the sides of the pit and the bare surface of the contents lying on the bottom are the only effects this produces. The only results are the destruction of fly larvae and the deodorization to a certain extent of the pit and its contents. Furthermore, it darkens the surfaces with soot and thus makes it less likely to attract flies. The latrines of a modern camp, when exigencies of war permit it, are kept most scrupulously clean in order to prevent the spread through contact of typhoid and dysentery, and to give the fly no opportunity to carry the organisms of these diseases to the food. In permanent camps, incinerators have been used with complete satisfaction, though at some considerable cost for fuel in the disposing of human excreta. There are several types of these, and one of them is capable of destroying at the same time the garbage from the company kitchen. The details of the management of these appliances, as well as of the trench system of latrines, should be studied. Information on these subjects will be found in the military hygienes which are authorized for issue to medical officers of the National Guard, and in papers written by sanitary inspectors of the

large camps that the army has had in Texas for the past few years.[1]

Proper arrangements must be effected for maintaining the personal cleanliness of the men; in the field, time and occasion are mode for this purpose though even in the presence of the enemy. In France the troops are relieved at given periods in the trenches for the purpose of enabling them to bathe and change their clothing, as well as to obtain rest. These measures are especially important among recruits, and every mobilization camp should have a system of shower baths and a place where the men can wash their clothes themselves, even though some facilities for having them laundered may exist. Given a reasonably salubrious camp site, potable water, sufficient tents or other form of shelter, a system of conservancy by which the camp is kept unpolluted, effective measures for disposing of the manure from animals in and around the camp and thus preventing the development of flies, and opportunity for the men to bathe and wash their clothes, the health of a command should be maintained under these conditions almost indefinitely. The prevention of fly breeding in the collections of manure in every camp is a matter of great concern, and a satisfactory solution is described by some of the authors mentioned.

The foregoing measures in connection with the vaccination against typhoid fever and smallpox will confine the disabilities in a camp of mobilization largely to the injuries following accidents, venereal diseases, and to the inevitable measles and mumps. Diphtheria, tonsillitis and cerebrospinal meningitis may make their appearance, but in the absence of overcrowding are not a cause of serious concern.

So far we have dealt almost entirely with the duties of the recruiting officer and the sanitarian. We must consider briefly other duties of the medical officer in this zone or service of the rear. These are duties not with the soldier who is waiting to proceed to the front, but with the soldier who, having been at the front, has now returned, completing the circle, as it were. While in the home territory we have the camps of mobilization and concentration, recruiting, training and equipping new men who are to go to the front, we have in the same territory hospitals and convalescent camps occupied by men who have been at the front and who have been disabled by either wounds or disease. With them the duties of the medical officer are almost entirely of a professional character, and those who may have read that most interesting address of the late Dr. S. Weir Mitchell[2] have already grasped the character of the service. Briefly, we are dealing with two classes of soldiers: The first, and most important, are those men temporarily disabled who may through intelligent treatment be restored to health and returned to the colors for further service. It is in this field that, as far as we know to date, most marked advances have been made by the medical profession of the armies in conflict in Europe today; but to these hospitals in the rear come only the second class, the soldiers who have either been seriously incapacitated or whose disabilities are of such a nature that considerable time is required for them to be restored to health, and those who will probably remain permanent cripples. From the convalescent camps we expect practically all of the men to be able to return to the colors, because only patients who give such promise are usually sent to these camps. Besides the large general hospitals, there will be more numerous base hospitals accommodating about 500 patients each, and here are weeded out patients described above who are forwarded on to general hospitals, and those patients who give promise of early restoration to health, and in consequence of which will be promptly sent back to their regiments. These hospitals have a staff of about twenty medical officers. Besides being able to give skilful professional care, they must also have the experience to weed out the hypochondriacs and malingerers, who always appear in the wake of a large army. These hospitals are usually in buildings, public or private, suitable for the purpose, and in every way resemble civilian general hospitals of similar size. The organization of a suitable administrative force for such hospitals is no easy task, and cannot be improvised over night.

As the general sanitary measures necessary for the maintenance of the health of troops are much the same, whether in the zone of the interior or in the line of communications, or even in the zone of the advance, they have been dealt with as if the camps and hospitals mentioned above were all in the same zone. Let it be clearly understood that the medical officers of the concentration camps are almost invariably in the zone of the interior. In this zone are also found the general hospitals and some of the convalescent camps. In the territory covered by the line of communications are found the base hospitals at the base of this line, and the evacuation hospitals along the line and at its head; also rest stations and the camps of troops guarding the line and engaged in forwarding supplies and reserves.

Besides the sanitary duties which the medical officer must exercise in these camps will be the care of the sick and wounded passing along this line to the rear, or the zone of the interior. He will also be charged with the transportation of the wounded. Therefore, officers of administration capacity and experience in such work must be chosen to superintend the movement of the sick and wounded along this line. It will be readily appreciated that unless they are kept moving toward the rear, the hospital accommodations at the front and in the zone of advance will rapidly become clogged, resulting in a partial immobility of the field hospitals, and to a greater or lesser extent of the mobile army itself. It is along this line that much suffering and waste of life can be prevented by experienced and trained men. It is here, as well as in the zone of advance, that men trained in the administration of ambulance companies, hospital trains and rest stations will be indispensable. Assisting them must be many medical officers whose principal duties will be the care of the sick and wounded. In fact, where the evacuation of the wounded is ably managed, it has been found, in many instances in the present European war, that the first treatment, other than the emergency or first-aid, is given by the medical unit on this line, so rapidly are the wounded brought back when circumstances permit.

(*To be continued*)

1. Havard: Military Hygiene. Keefer: Military Hygiene. Mason: Handbook for the Hospital Corps. Ashburn: Elements of Military Hygiene. Woodhull: Military Hygiene for Officers of the Line. Straub: Sanitation of the Maneuver Camp at San Antonio, Texas, 1911. Miller: Sanitation of the Second Division, U. S. Army, at Texas City and Galveston, 1913.

2. Mitchell, S. Weir: The Medical Department in the Civil War, THE JOURNAL A. M. A., May 9, 1914, p. 1445.

Hygiene of Life.—To teach the people how to live is a problem of increasing importance to those who are working for the public health.—E. L. Fisk, *Am. Jour. Pub. Health.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, FEBRUARY 12, 1916

THE EFFECTS OF RADIUM RAYS ON PROTOPLASM

All of the claims which have been made with respect to the physiologic or pathologic effects of radioactive substances must ultimately be carried back to the effects of their radiations on protoplasm. Whether it be the growth of plants in the soil or the destruction of a neoplasm in the body that is involved, the primary reactive substance and responsive mechanism must be associated with living cells. It is reasonable, therefore, to turn to the unit of structure, the cell, in any fundamental inquiry as to the effects of a potent agency on the plant or animal body.

Of course, the other factor, the radiation itself, also deserves consideration. Of the three types of radiations given off by radium, the alpha rays, which are chemically the most active, are of secondary interest here because, owing to their slight power of penetration, they are absorbed by the containers in which the radium salts are ordinarily held, and accordingly do not reach the external object. The beta rays are not so readily absorbed, and are chemically much less active. The gamma rays are similar to the hard Roentgen rays in many respects. Rutherford, in fact, states that they are the more penetrating Roentgen rays. Since they are not absorbed to any extent, their effects may be of a different order from those of the beta rays. Richards,[1] however, believes that they differ in degree rather than in the kind of their action. The beta rays can be separated from the gamma rays in a magnetic field, inasmuch as the beta rays alone are deflected thereby.

Broadly speaking, slight exposure to radium in most cases accelerates the vital processes, while a more intense treatment retards or inhibits them. Also the effect of the retardation may be cumulative and persistent through many cell generations. Gager[2] believed that radium rays stimulate metabolism. "If this stimulus ranges between minimum and optimum points, all metabolic activities, whether constructive or destructive, are accelerated, but if the stimulus increases from the optimum toward the maximum point, it becomes an overstimulus, and all metabolic activities are depressed and finally completely inhibited."

While in this country the medical side of the problem has attracted more investigators than the biologic side, much work has been done abroad to establish the mechanism by which radium rays affect living matter. The hypothesis of Schwarz was that radium decomposes the lecithin in the cell. Oskar Hertwig, his son, his daughter and his pupils have performed many extensive series of experiments over a wide range of forms, the most significant conclusion which they draw being that radium affects, directly and chiefly, the chromatin of the radiated cells. Packard, basing his theory on the observation of numerous investigators that radium rays affect enzymes, suggests that "the lytic enzymes in the cell are more stimulated than those which play a synthesizing rôle." By activating autolytic enzymes which bring about a degeneration of the complex proteins, he believes, the radium radiations act indirectly on the chromatin and protoplasm. Richardson regards the lecithin hypothesis of Schwarz as "completely overthrown" by a number of arguments which were unknown at the time it was propounded. He also finds the chromatin theory of Hertwig unsatisfactory in that it fails to account for the fact that substances and structures other than nuclear are affected by Roentgen rays and radium. Against Packard's enzyme theory Richardson sees little objection to be urged except that it rests on insecure evidence, few actual observations or experiments having contributed to it.

In a recent paper, Packard[3] describes the results of study of the effects of beta and gamma rays on protozoa and on the egg cells of sea urchins and other low forms of life. He finds that cells differ from each other in susceptibility, apart from the fact that each cell seems to vary in susceptibility during different phases of its own activity. Some protozoa, like some bacteria, are entirely unaffected by long exposure to vigorous radiation, while others are killed by shorter exposure. In some the chromatin, in others the protoplasm, is chiefly affected. It is known that inorganic substances undergo ionization from radiation, but whether or not the cell changes are due to ionization of the constituents of the protoplasm remains to be decided. Packard believes that those cells which are injured contain substances which absorb the rays, while those which are unharmed allow the rays to pass through unchanged. The unknown factor is the material which determines the power of absorption. From a medical point of view the deduction is important that, until more is known about what causes the absorption as well as the penetration of the various

1. Richards, A.: Recent Studies on the Biological Effects of Radioactivity, Science, 1915, xlii, 287.
2. Gager, C. S.: Effects of the Rays of Radium on Plants, Mem. New York Bot. Garden, 1908, iv.
3. Packard, C.: The Effects of the Beta and Gamma Rays of Radium on Protoplasm, Jour. Exper. Zool., 1915, xix, 323.

radiations, it will be impossible to predict precisely what effect a given exposure to any type of radiation will produce.

It is to be hoped that before long the effects of radium from the biologic point of view may be better understood. This will pave the way for a more rational application of radium in therapeutics.

SPRUE

Sprue is a tropical disease of growing importance to American physicians. It has already been reported in our Southern states,[1] and imported cases seem to be becoming more frequent. Sprue in its clinical manifestations is similar to pellagra; some authors have even asserted that the two diseases are identical.[2] The cardinal symptoms of "typical" or "complete" sprue are usually given as stomatitis, a peculiar diarrhea, diminution in the size of the liver and secondary anemia with wasting. There are neither skin nor nervous manifestations. In pellagra, however, skin symptoms are often in abeyance, and nervous symptoms may be so slight as to be negligible. Reduction in the size of the liver, anemia and wasting are common to the two affections. Both diseases have been denied classification as morbid entities, being regarded rather as syndromes which may appear secondarily in many wasting affections.

One important difference between them is to be found in the character of the diarrhea, and more especially in the stool itself. In sprue the diarrhea occurs usually in the early hours of the day, the stool is voluminous, light in color, acid in reaction and of a foamy, gaseous character. In pellagra these characteristics are not observed. The chemical study of the stool, in the light of later studies, seems to be highly important in differentiation between the two diseases. The large size of the sprue stool is due to the lack of digestion and absorption of certain bodies, notably the fats. Wood[1] thinks that the only certain means of differentiating sprue from pellagra is the chemical study of the feces. Fatty stools with great fat and nitrogen loss, in his opinion, are characteristic of sprue, while in pellagra the fat and nitrogen absorption are about normal. This character of stool, it is to be noted, is also characteristic of pancreatic disease, and actual disease of this organ has been reported in some cases of sprue. The sprue stool is often lacking in pancreatic ferments, but this need not necessarily be due to organic changes in the pancreas, and may be caused simply by disturbed intestinal function. Further studies are needed to determine just what part lesions of the pancreas play in the diarrhea of sprue.

Sprue does not always appear in its "typical" or "complete" form. Bahr[3] speaks also of "incomplete" sprue characterized by the diarrhea alone, and of "tongue" sprue when only the mouth signs occur. These varying degrees of intensity are not so peculiar as they are confusing in diagnosis. The same difficulties are encountered in pellagra without erythema—pellagra sine pellagra.

The question of the etiology of sprue is in a most unsatisfactory state. The idea advanced some years ago that sprue is an infectious disease due to some variety of yeast has received new impetus from the studies of various authors, notably Bahr[3] in Ceylon and Ashford[4] in Porto Rico. Bahr's researches led him to express conservatively the opinion that the *Monilia albicans* is the cause of the disease. Many of his colleagues expressed their inability to accept as the causal agent a fungus common in England, where sprue does not occur. It is interesting to note that the *Monilia albicans* is the organism most usually found in the mouths of children suffering from thrush.

Ashford's studies seem to corroborate Bahr's evidence in all points save in the species of fungus involved. He regards the disease as a moniliasis due to an undetermined species, not heretofore described. Further, he believes that the infection is probably derived from bread. He has cultivated the organism from a loaf of bread baked in a zone where the disease was endemic. He has found it constantly present in the mouth lesions and feces of patients with sprue and in only 3 per cent. of healthy persons. Complement fixation tests, in which his monilia was used as antigen, have proved negative in healthy persons and encouragingly positive in those suffering from sprue. The monilia is pathogenic for small laboratory animals, producing a mycotic septicemia, and, in partially immunized animals intractable mycotic ulcers. These results, while highly interesting, are likely to be received with considerable skepticism. Much additional work and more definite evidence will be required to establish such a thesis.

In this connection it is perhaps somewhat discouraging to recall that the etiology of pellagra has also passed through a "mycotic" stage. Many have sought some etiologic connection between fungi and pellagra, both with and without relation to "spoiled" maize. Students of pellagra will recall the series of papers by Ceni, who contended that this disease was an aspergillosis—an opinion which, though supported by apparently excellent evidence, has remained unconfirmed.

Sprue, while rare in the United States, is a formidable disease in some places. Ashford reports that in Porto Rico during the last decade it has made startling advances, and "has now come to occupy a position in

1. Wood, E. J.: The Occurrence of Sprue in the United States, Am. Jour. Med. Sc., 1915, cl, 692.
2. Burnet, J.: Are Pellagra and Sprue One and the Same Disease? Med. Press and Circular, Aug. 16, 1911; abstr., THE JOURNAL A. M. A., Sept. 16, 1911, p. 1014. Stewart, C. E.: Tr. XVII Internat. Med. Cong., 1913, Section XXI, Tropical Medicine. Editorial, Jour. Trop. Med., Sept. 15, 1913.
3. Bahr, P. H.: Researches on Sprue, Tr. Soc. Trop. Med. and Hyg., 1914, vii, No. 5.
4. Ashford, B. K.: Studies in Moniliasis of the Digestive Tract in Porto Rico, Am. Jour. Med. Sc., 1915, cl, 680.

the very front rank of the serious and fatal affections of our island, especially dreaded by American residents, among whom it seems to be far more common and fatal than tuberculosis."

TRENCH FROSTBITE

Amid the numerous problems of medical and surgical interest raised by the experiences of the present European conflict, the cold season calls attention to "frostbite," especially of the feet, a condition which has had considerable prevalence during the peculiar trench warfare. In the classical picture of frostbite as it occurs after exposure to severe cold, any part of the body subject to the low temperature may respond with a condition which often results in severe destruction and disintegration. In a number of military campaigns a variety of gangrene, affecting especially the lower extremities, has been observed. Its occurrence has generally been attributed to cold, and for this reason the condition has been denominated frostbite. It is noteworthy, however, that in many of these outbreaks the disease manifestations have arisen when the external temperature, while many degrees below that of the human body, was still usually above the freezing point. Usually there has been a prolonged exposure to cold associated with immersion of the lower extremities in mud or water. The fact of the selective susceptibility of the lower extremities, in the case of trench fighting, has raised the question as to whether the external cold, as such, or the prolonged exposure to a moderate degree of wet cold, and the fact that the feet, more than any other part of the body, are apt to be compressed by their protective coverings, constitute the dominant etiologic factor.

In general, the extent of the lesions observed under the modern conditions has varied. There might be a simple erythema or blistering and excoriation of the cuticle, or superficial death of the skin, or gangrene of a greater or lesser portion of the limb. The effect of cold alone as exhibited in ordinary freezing of the tissues is fairly well known. Rischpler[1] has demonstrated that all of the phenomena under such conditions are due to inflammation caused by the cold. There is early edema; the cells in the walls of the vessels become swollen and degenerated; the bundles of connective tissue swell; the muscular fibers in the media of the arteries show vacuolization. There is little, if any, evidence that the effects can be attributed to thrombosis, except occasionally as secondary to the inflammation itself. Changes in the nerve fibers are neither marked nor constant.

In order to elucidate the etiology of the special type of disease known as trench frostbite and ascertain in what respect the possible factors aside from cold itself may influence the manifestations, an experimental inquiry has been instituted at the University of Edinburgh under the auspices of the National Insurance Medical Research Committee of Great Britain.[2] The effect of both cold and wet on the feet of animals was investigated under controlled conditions which permitted an appreciation of the appearance of swelling and of any histologic changes in the structures of the exposed limbs. It is clear from the results that the essential change in frostbite of the feet, when exposed to cold mud, consists in the damage to the blood vessels. There is probably an initial constriction of the vessels; but when this passes off it is because of their damaged condition that the swelling occurs while the circulation is being restored to the normal. The damage is evidenced by the swelling of the endothelial cells in vessels of all kinds, and by the vacuolization of the muscle fibers of the arterial walls, already noted as a characteristic effect of cold alone. An excessive amount of fluid consequently finds its way into the tissues, and in some cases the vessels rupture, and hemorrhage follows. There is, further, evident interference with the vitality of the cells of the surrounding connective tissues. Further indication of injury is seen in the infiltration of the parts with leukocytes and other phagocytic cells which have the function of removing products of tissue destruction.

The British investigators point out that the etiologic factors concerned in the damaging of the vessels and tissues are probably complex. The condition may be due, according to them, to the direct effects of cold on the one hand, and on the other to the starvation of the parts resulting from vascular constriction and the sluggishness of the circulation. There are no marked differences except in degree between the results of prolonged application of moderate wet cold and those of very low temperatures acting for a short time. To explain the predominance of damage in the feet, it is suggested that the relatively greater effect of wet cold (to which these parts are particularly exposed) as compared with dry cold is no doubt due to the fact that water is a much better conductor of heat than air; if a limb is surrounded by air, especially if the air be still, heat is only slowly lost.

It seems likely that the clinical observations of trench frostbite can now be rationally interpreted in the light of all the available experimental evidence. The swelling and redness are essentially the effects of an injury to the vessel walls which originates, when the circulation is restored, what is in essence an inflammatory reaction. The unusual resistance of the edema to pressure — a condition imitated in the experiments on animals — is evidence of the demonstrated presence of a semisolid fibrinous deposit. The varied degrees

1. Rischpler: Beitr. z. path. Anat. u. z. allg. Path., 1900, xxviii, 541.

2. Smith, J. L.; Ritchie, J., and Dawson, J.: Clinical and Experimental Observations on the Pathology of Trench Frostbite, Jour. Path. and Bacteriol., 1915, xx, 159.

of discoloration of the skin arise from the diffuse interstitial hemorrhages, and are no evidence of a true gangrene. The latter condition was, in fact, obtained in very few of the many soldiers treated by the British commission. The nature of the changes produced explains the slowness of the recovery in man; for extensive restoration of the vessel walls must occur before they can bear the strain of vasomotor changes which take place in ordinary forms of activity.

There is considerable likelihood that the pressure and constriction contributed by soldiers' boots and other footgear contribute in predisposing a part to the effects of cold. They promote the obstruction of the circulation, and when wet may cause a continuous loss of heat from a limb. The probable importance of facility for movement in preventing frostbite is illustrated by the fact that few artillerymen are reported as suffering from this condition. In the trenches it has often been practically impossible to promote the circulation in the lower limbs by voluntary movements. The individuals have been obliged at times to remain for many hours in one position with the feet immersed in mud or water.

The British commission, in considering the management of the cases when, immediately after the exposure to cold, the circulation of the limb is returning to normal, points out the need of extreme care. Application of heat in these circumstances is believed to favor the production of necrosis. Heat reacts to cause congestion in the damaged foot. The blood vessels are unable to stand the strain; the edematous swelling and hemorrhagic infiltration may be augmented. These facts will be of value even in countries in which there are no military operations; for the effects of cold in causing lesions of the extremities are not unknown in civil life, although they command less attention.

THE EARLIEST CHAPTERS IN THE HISTORY OF SURGERY AND MEDICINE

Material for the first chapters in the history of medicine is to be found in the rapidly accumulating information regarding paleolithic man. It was a startling surprise for archeologists when it was discovered that the first chapters of the history of human art were to be found among the cave dwellers, who are the earliest ancestors of European man of whom we have any record. Data which are suggestive as to the early beginnings of surgery and medicine have recently been described by Osborn,[1] who has provided illustrations as an aid to clearness. He frankly acknowledges his obligations to the men of the old stone age by setting forth on his title page "illustrations by upper paleolithic artists."

The earliest attempts at painting so far found consist of simple contours of the hand, pressed against a wall surface and outlined with color. Examples of these which have been found are also contributions to the history of surgery, for a number of these hands are partly mutilated. In some the fingers are defective, in a few all of the fingers have been amputated, though in none are any joints missing from the thumb. In nearly all the cases the fingers lack the two farther phalanges, and the stumps were evidently formed at the end of the proximal phalanx. The fact that the thumb is never mutilated has seemed to many archeologists to indicate that the mutilation must have been voluntarily performed for social or perhaps religious reasons, and the mutilation has been compared with similar practices prevailing among Australian tribes.

As most of the weapons and implements used by the cave man seem to have been held directly in the hand without the intermediary of a handle, it is easy to understand that crushing and severe injury of the fingers must have occurred during work and hunting expeditions. As a rule the thumb would be much more rarely crushed when flints or other implements were held in the hand, than would the fingers. Whether or not the cave man had learned by experience that the most useful stump could be made at the end of the proximal phalanx must be a question. Whether or not, in addition, the amputation was performed after injury or practiced as a sacrificial or religious rite, this earliest European ancestor of man must have known how to secure union of the skin surfaces above the end of the phalangeal bone. Here, then, is the illustrated record of the first surgery. The date, according to the conservative estimates of authoritative archeologists, is not later than 25,000 years before our era. It occurs in the midst of an immense amount of archeologic material, the place of which in human history has now been rather definitely traced.

The medical records of this time are much less direct. They consist mainly of figures and engravings of the cave woman. She is always represented either as pregnant, by far the most frequent mode of representation, or in association with children. Curiously enough, the distinctively female parts are always represented with considerable exaggeration. The buttocks particularly are pictured as projecting in some cases to such an extent as to be comparable with the steatopyga (fatty buttocks) of certain African tribes. The extreme of this which would represent true steatopyga occurs only once, however, and the other figures are simply corpulent. This is the most striking characteristic of all the female figures. It is all the more remarkable because none of the male figures which occur in drawing or sculpture are pictured as corpulent. On the contrary, the men's figures are lithe, muscular and athletic. Manifestly the severe exercise and continuous exertion demanded by hunting kept the man in excellent condition. His wife evidently did not do much hard work, but sat

1. Osborn, H. F.: Men of The Old Stone Age: Their Environment and Art, New York, Charles Scribner's Sons, 1915.

around the cave caring for the children and eating large quantities of fat, particularly that great delicacy of the time, the fatty marrow of the bones. Many of these bones have been found among the remains in the caves split in such a way as to facilitate the extraction of the marrow.

From these suggestions may be deduced testimony concerning the relations of husband and wife. While the father struggled to get a living, "mother," as one archeologist has suggested, "lived on the fat of the land." This is as surprising as the original discovery that the cave man was an artist. Instead of the savage we have theorized him to have been, he was eminently human and humane. The fact that what is practically obesity became a common characteristic of the women of the time shows that the tendency to put on a superabundance of flesh is not a pathologic quality which has been acquired by the race after many successive generations of overindulgence in fat-producing food, but that it existed from the very beginning whenever there was an oversupply of nutritional materials and at the same time no necessity for hard work. The tendency to a corpulent habit of body is a racial quality which manifests itself at any time when conditions favor its development.

There is a curious contribution to the psychology of the race contained in the obvious similarity between the art objects of this earliest European ancestor of man and some recent much-talked-of developments in art. Osborn calls attention to the fact that certain of the female figurines made in soapstone have all the appearances of prototypes of modern cubist art. The engravings made on bones and reindeer horn as well as on ivory are distinctly impressionistic in character. With a few lines the cave man artist suggested the appearance of a whole herd of animals, or of some huge animal like the mammoth or the bull bison in an expressive attitude. Whether the cave man is to be considered as having anticipated what is ultimate in art progress, or the cubists shall be thought to have reverted to the first art that man ever attempted, must be decided by art critics, who will doubtless line up on the two sides of these questions according to their attitude toward what is most modern in art.

It would appear impossible that a human being should develop such devotion to art without paying attention also to the arts of surgery and medicine. As yet, however, we have only the hints that have been suggested. There seems no doubt that as opportunity is provided for further investigation, an extremely interesting chapter of man's care for himself and his fellows in the midst of accident and disease may be unearthed. Some of the bones and skulls which have been discovered show signs of having undergone repair after accidents, and there seems no doubt that a fruitful vein of knowledge may here be opened.

THE OPIUM ALKALOIDS AND RESPIRATION

Few symptoms more frequently call for the intervention of the physician by the use of drugs than those involving the functions of respiration. Dyspnea and other forms of distress in breathing, as well as painful and annoying coughs, demand relief which is usually afforded in the severer cases by moderating the action of those portions of the central nervous system that regulate the respiratory processes. It is far more common in practice to be called upon to depress the activity of the respiratory center than to excite it; and the drugs par excellence which act as respiratory sedatives belong for the most part to the group of narcotics like morphin. Anesthetic or soporific substances of other types may also quiet the respiratory mechanism. They are effective in so far as they depress the entire central nervous system. The doses required are therefore relatively very large in comparison with those of the opium derivatives which seem to act more specifically on the respiratory center itself. Morphin, for example, may exhibit an unmistakable effect on breathing after the administration of doses far too small to produce the more characteristic profound general narcosis.

It is in relation to this action on the nervous system associated with respiration that part of the controversy respecting the comparative chemical value of morphin and opium has arisen. The statement is frequently made that the galenical preparations of opium are less depressant to the respiration than corresponding quantities of the isolated alkaloid morphin given alone. The dried juice of the poppy, which constitutes commercial opium, contains a series of some twenty alkaloids of which morphin is present in greatest amount. It is therefore natural to ask in what way the companions of morphin may modify its pharmacologic behavior in respect to each of the important effects which that alkaloid is known to manifest in the body. Macht[1] of the Johns Hopkins Medical School has accordingly reinvestigated the effect of opium and its derivatives on the respiration; for, as he remarks, this feature is next to its narcotic and pain-relieving action therapeutically perhaps the most important and toxicologically certainly the most striking. The subject is by no means new, nor is the mode in which a drug like the opium alkaloids may affect the respiration necessarily a simple one. It may stimulate or depress the medullary respiration center directly; it may indirectly affect respiration by modifying the metabolism and thus altering the need of receiving or discharging the respiratory gases; it may act indirectly through the circulatory changes produced in the nervous tissues; and the action may be altered by mechanical conditions which necessitate a modification of the mode of respiration so that it becomes rapid or shallow, slow or deep, or otherwise.

1. Macht, D. I.: Action of the Opium Alkaloids, Individually and in Combination with Each Other on the Respiration, Jour. Pharmacol. and Exper. Therap., 1915, vii, 339.

Hitherto most of the researches on the influence of drugs upon respiration have been complicated by the necessity of using such accessory experimental devices as anesthesia or tracheotomy or other helps to permit the essential phenomena to be properly recorded. Macht has improved the technic of his predecessors in this field by eliminating as far as possible the disturbing factors other than the drugs used. Mere inspection is, of course, not sufficient for the purpose of studying respiration; for aside from the rate of breathing it often becomes desirable to ascertain the volume of the respired air, its content of carbon dioxid and the alveolar carbon dioxid tension.

Macht has confined his attention thus far to seven opium alkaloids: morphin, codein, narcotin, papaverin, narcein, thebain and cryptopin, of which the first six are the principal constituents of opium in point of quantity. The rate of respiration is markedly slowed by morphin, an effect imitated by codein, but to a much lesser degree. Narcotin and papaverin decrease the rate only slightly; the other alkaloids do not decrease it at all, and may even increase it. These drugs may accordingly be divided into two classes. On the one hand is morphin, the prominent sedative alkaloid, which may not interfere with efficient respiration when the dose of the drug is small. In contrast with this are narcotin, papaverin, narcein, thebain and cryptopin, all of which are distinct stimulants and in large doses are excitants of the respiratory center. Codein belongs to the morphin class, though in large doses it may also excite the respiratory center.

What might be anticipated in respect to the effect of mixtures of opium alkaloids has been demonstrated experimentally by Macht. The action of combinations of them on respiration is a summation of their individual effect. While mixtures of morphin and narcotin, of morphin, narcotin, codein, papaverin, thebain and narcein (Faust's mixture), and of all the opium alkaloids (Sahli's mixture), like morphin alone, usually diminish the rate of respiration, they do not diminish the respiration volume, nor do they diminish the ventilating efficiency of respiratory movements to the same extent that morphin does. Besides they seem, in moderate doses, to leave the excitability of the respiration center almost unaffected.

It may be recalled that varied claims have been made in recent years for commercially exploited combinations of some of these opium alkaloids, particularly that they exhibit fewer objectionable effects than does morphin alone. It is therefore helpful to have careful studies like these of Macht, which were supported by a grant from the American Medical Association's Council on Pharmacy and Chemistry; for they furnish the basis alike for rational therapeutic procedure and critique of current claims.

So if the question were considered as to what results up to the present show with respect to the relative merits of these mixtures and simple alkaloids, the answer depends on what it is desired to accomplish. If the object sought is a diminution of labored activity of the respiratory muscles in a given case, it would seem that some of these mixtures, or opium itself, are to be preferred to morphin alone. If, on the other hand, it is desired to diminish the excitability of the cough reflex mechanism, it seems that the use of such mixtures would be of less advantage than the use of a simple substance like morphin or codein. For if in moderate doses the mixtures cause little or no depression of the respiration center, it may be inferred that the excitability of the cough reflex mechanism will not be reduced by them either. The suppression of the cough reflex can be effected, if at all, only by large doses containing so much morphin that the harmful cerebral depression effect would outweigh the desired effect.

Current Comment

FASHIONS IN SUICIDE

Last week THE JOURNAL noted what may be regarded as a medical curiosity — the fact that a girl had fallen from a height of over 200 feet and, alighting in a passing wagon loaded with paper boxes, sustained only slight injuries. From these she has recovered. In the same issue of THE JOURNAL, editorial attention was called to the fact that there seemed to be a fashion in methods of suicide. When any method of suicide is adopted and is noted in the newspapers, other suicides are likely to follow in which the same method is adopted. As illustrative of this fact, during the next three or four days following the occurrence of the incident reported above, the newspapers announced the deaths of two other persons who also apparently attempted suicide by leaping from tall buildings. In their cases, however, fortune did not intervene.

DIURESIS AND MILK FLOW

There are observations on record which indicate that the secretion of milk may be influenced by a contemporaneous diuresis. Precisely what changes in the composition of the milk may be initiated in this way had not been determined until recently, when the question of the influence of specific diuretics on milk flow was investigated by Steenbock[1] at the University of Wisconsin. He remarks that in view of the importance which heretofore unknown constituents of diets and rations have lately assumed, it is of the greatest interest to dissect the various factors normally operative in the body under ordinary conditions of diet. Steenbock found that urea, for example, administered in a diuretic dose, is able to decrease temporarily the flow of milk. On repeated administration, however, the increased intake of water which follows the impoverishment of the tissues with respect to water

1. Steenbock, H.: Diuresis and Milk Flow, Jour. Agric. Research, 1915, v, 561.

content balances the draft for water imposed by the diuretic, and the milk secretion comes back to normal. Other diuretic salts, like sodium chlorid, may be entirely unable to depress the milk secretion under normal circumstances, because they call forth a compensating thirst which simultaneously increases the water intake. In cases in which diuresis does lead to temporarily decreased flow of milk, the percentage of solids in the secretion is ordinarily increased, the fat being the principal variable. In ordinary experience, however, the composition of the milk may be regarded as essentially unaltered by slight variations in renal activity.

JOURNAL OF CANCER RESEARCH

Number 1 of Volume I of the *Journal of Cancer Research* has just appeared. It is edited by Dr. Richard Weil of New York, with the assistance of the Editorial Committee of the American Association for Cancer Research, Drs. Joseph C. Bloodgood, Leo Loeb, Ernest E. Tyzzer, H. Gideon Wells and William H. Woglom. In addition to six excellent articles by leaders in research, the first issue contains an abstract of the proceedings of the American Association for Cancer Research. The subject of cancer is occupying the time and labor of laboratory workers perhaps more than any other subject. The field is a large one, and certainly there is room in this country for a quarterly journal devoted to cancer.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

GEORGIA

Fraudulent Canvassers and Collectors.—See item in General News of this issue of THE JOURNAL, page 521.

Personal.—Dr. Melville C. Martin has been elected prison physician of Atlanta.——Dr. W. S. Elkin, Jr., has been elected secretary of the board of trustees of Grady Hospital, Atlanta. ——Dr. Howard J. Williams, Macon, has been reelected president, and Dr. William H. Doughty, Jr., Augusta, vice president of the state board of health.

Sanatorium News.—The annual report of the State Sanatorium, Milledgeville, shows that there has been a gain of 286 patients during the last year, bringing the total up to 4,000. More than 700 patients were admitted during the year. The building for colored patients is especially crowded. The per capita cost of feeding and clothing the inmates of the sanatorium has been reduced to 41 cents a day.——The Fulton County Public Works Committee met in Atlanta, January 13, and took up the matter of an appropriation for the extension and improvement of the Battle Hill Sanatorium for Tuberculosis, and recommended that an appropriation of $10,000 be made for this purpose.——The commissioners of Clarke County are formulating a plan to establish a tuberculosis camp for the care of worthy and needy patients, some of whom cannot be kept in sanatoriums.

IDAHO

New Officers of Medical Societies.—At the recent meeting of the Pocatello Medical Society Dr. Joseph V. Clothier was elected president; Dr. Edward N. Roberts, vice president, and Dr. F. Mertin Ray, secretary-treasurer, all of Pocatello. ——The Boise Physicians and Surgeons Club, at its annual meeting, elected Dr. James L. Stewart president; Dr. John S. Springer, vice president, and Dr. Edward E. Maxey, secretary.——At the meeting of the Southern Idaho Medical Association held in Twin Falls, January 20, the following officers were reelected: president, Dr. Joseph N. Davis, Kimberly; vice president, Dr. Corwin P. Groom, Rupert, and secretary, Dr. A. Henry Dunn, Twin Falls.

ILLINOIS

Lee County Physicians Meet.—At the annual meeting of the Lee County Medical Society held in Dixon, February 3, Dr. Nelson M. Percy, Chicago, delivered an address on "The Surgical Treatment of Pernicious Anemia," illustrated by the stereopticon. The annual election of officers resulted as follows: president, Dr. Charles C. Kost; vice president, Dr. William R. Parker, and secretary, Dr. Edmund B. Owens, all of Dixon.

Scarlet Fever.—On February 2, it was reported that the entire complement of the Great Lakes Training Station, with the exception of the hospital staff, had been removed east to avoid their exposure to scarlet fever, which broke out on the reservation, that the public had been barred from the station and that the post would not be occupied again until the release from quarantine of all the cases in the hospital. Captain Moffett states that there is no epidemic of scarlet fever at the training station and that there are only seven cases at present, with two more under observation. All the patients are isolated, and there is no danger.

Chicago

Well Known Sister Dies.—Sister Mary Dolores, for fifteen years private secretary to Dr. John B. Murphy and for many years a teacher, died suddenly, January 27, in Mercy Hospital, from heart disease, aged 57.

Third Expedition to Germany.—The American Surgeons' Expedition Committee, Inc., announces that it will send a third expedition of surgeons and nurses to Germany within a few weeks. Dr. Harry M. Richter, who is to be leader of the party, started for Germany, February 2.

Robert Koch Society.—The Robert Koch Society will hold a meeting, February 17, at the Morrison Hotel at noon. The subject for discussion will be "Tuberculosis of the Kidney." The pathology of the subject will be taken up by Dr. Dallas B. Phemister; the symptomatology by Dr. Daniel N. Eisendrath, and the diagnosis and treatment by Dr. Herman L. Kretschmer.

Municipal Health Magazine.—Health Commissioner Robertson has found a philanthropist to finance his project of a municipal health magazine for a year, at a cost of $1,000 a month. The aim of Dr. Robertson is educational and the magazine is to be given free distribution, with an issue of about 100,000 copies a month. The first issue will make its appearance in March and fourteen physicians and surgeons will be appointed as an editorial staff and advisory health board.

Personal.—Lieut.-Col. Jacob Frank, surgeon-general of Illinois, was elected president of the Army and Navy Club of Chicago at its annual meeting, February 7.——Dr. Frank S. Churchill has been elected vice president of the Infant Welfare Society and Drs. W. A. Evans, Caroline Hedger and Clifford G. Grulee were elected members of the board. ——Drs. Anna Dwyer and Effa B. Davis have been made members of a committee to draft a constitution and by-laws for a commission recently formed to study the wayward girl problem.

Historical Society Meeting.—The Society of Medical History of Chicago will meet in the walnut room of the Hotel Sherman, February 15, at 6:30, when papers will be read by Dr. Horace Manchester Brown, Milwaukee, on "Must the History of Syphilis be Rewritten? Ancient Facts and Modern Knowledge"; by Dr. A. Levinson on "A Medical Cyclopedist of the Seventeenth Century," and by Dr. Mortimer Frank, Chicago, on "The Origin of Syphilis," a paper which was read at the 1913 Congress of Medicine in London by Dr. Karl Sudhoff of Leipzig, and translated by Dr. A. Alleman, assistant librarian of the surgeon-general's office, Washington, D. C.

KENTUCKY

Prevention of Blindness.—A bill is to be introduced before the coming general assembly calling for an appropriation of about $8,000 to be used for the prevention of blindness and for the employment of a state oculist to serve jointly with the United States Public Health Service and the State Board of Health.

Interns Resign.—Nine of the twelve interns at the Louisville City Hospital tendered their resignations to the board of safety, January 27, because they objected to catheterizing male patients, a duty which has heretofore been performed by orderlies. The board of safety upheld the hospital committee in its contention and the places of the mutineers have been filled.

Personal.—Dr. Arad A. Simons, Cloverport, is ill in St. Joseph's Infirmary.——Dr. Henry P. Sights, superintendent of the Western State Hospital, Hopkinsville, for the last six years has, it is said, announced that he will not be a candidate for reappointment.——Drs. George T. Fuller, Mayfield, and Charles Z. Aud, Cecilia, have been reappointed members of the State Board of Health to succeed themselves.——Dr. Henry Enos Tuley has succeeded Sam P. Jones as president of the Iroquois Life Insurance Company. ——Dr. John F. Jessee, Waddy, was seriously injured when his automobile skidded at the foot of a long hill and crashed into an iron bridge.——The office of Dr. James B. Smith, McKinney, was burned, January 5.——Dr. Joseph F. Dusch, Louisville, was seriously injured, January 1, when he drove his automobile against a telegraph pole to avoid a collision.

MARYLAND

Fraudulent Canvassers and Collectors.—See item in General News of this issue of THE JOURNAL, page 521.

Personal.—Dr. George Y. Everhart, Hillsdale, is reported to be critically ill at his home.——Dr. J. Oliver Purvis has been elected secretary of the Anne Arundel Branch of the Maryland Society for the Prevention and Relief of Tuberculosis.

Mild Outbreak of Smallpox.—Smallpox has again broken out in Hagerstown, six cases having been reported, of which four patients are practically recovered. Dr. Caleb W. G. Rohrer, Baltimore, assistant chief of the Bureau of Communicable Diseases of the State Board of Health, has been to Hagerstown and investigated every reported case. The disease was brought to the town from Roanoke, Va.

Suit Over "Autolysin."—It is stated in New York newspapers that a suit has been entered in the Supreme Court of New York by Dr. Silas P. Beebe and Dr. A. Judson Quimby against Dr. J. Wallace Beveridge, asking that the partnership which they had formed with Dr. Beveridge for the manufacture and sale of "autolysin" be dissolved and that a receiver be appointed to take charge of the concern.

Merger Ratified.—The articles of merger between the College of Physicians and Surgeons and the University of Maryland were ratified by the regents of the university, January 5, and by this act the combination between these schools becomes a legal fact. The following members of the faculty of the College of Physicians and Surgeons were taken into the board of regents of the university: Drs. John W. Chambers, Harry Friedenwald, Archibald C. Harrison, Standish McCleary, William F. Lockwood, William S. Gardner, Cary B. Gamble, Jr., and George W. Dobbin.

Proposed Hospital for Southern Maryland.—A bill has been introduced in the General Assembly for an appropriation of $10,000 for the erection of a hospital in Charles County, to be known as the Southern Maryland Emergency Hospital. The measure calls for an additional appropriation of $3,000 a year for maintenance and provides also that the $10,000 appropriation is not to become available until the directors of the institution certify that an additional $5,000 has become available, either through private donation or by levy made by the county commissioners, or both.

MASSACHUSETTS

State Health Officers Meet.—At the annual meeting of the Massachusetts Association of Boards of Health held in Boston, January 27, the following officers were elected: president, Dr. Frank A. Woods, Holyoke; vice presidents, Drs. Francis X. Mahoney, Boston, and William W. Walcott, Natick; secretary, Dr. Francis H. Slack, Boston; and treasurer, Dr. Francis G. Curtis, Newton.

Hospital News.—Harvard University Medical School is to build a maternity hospital in the center of the present medical school group. The building will cost about $300,000.——The Infants' Hospital on VanDyke Street in the center of the Harvard medical buildings was formally opened with exercises and a reception. The speakers were Dr. Charles W. Eliot, president emeritus of Harvard University; Drs. J. Collins Warren, John Lovett Morse and Clarence J. Blake.

Medico-Military Course at Harvard.—The president and fellows of Harvard University have voted to institute a course in military medicine at Harvard Medical School. This course is to be given a trial, beginning with the second half of the academic year. Major Weston P. Chamberlain, M. C., U. S. Army, an alumnus of Harvard Medical School, has been appointed lecturer on military medicine.

Personal.—Dr. William A. Hinton has been appointed pathologist to the Boston Dispensary and placed in charge of all its laboratory work, succeeding Dr. Sarah E. Coppinger. ——Dr. James Lloyd Wellington, Swansea, the oldest alumnus of Harvard University, has celebrated his ninety-eighth birthday anniversary.——Dr. Richard C. Cabot, Boston, has been elected head of the advisory board for Massachusetts of the New England section of the National Civic Federation.—— Dr. Frank A. Woods, Holyoke, has been appointed medical examiner for the Third Hampden District, succeeding Dr. William J. Teahan, Holyoke, deceased.——Dr. George W. Dow, Lawrence, has been reappointed medical examiner and Dr. Victor A. Reed, Lawrence, associate medical examiner of Essex County.——Dr. George P. Norton, Fitchburg, has been appointed medical examiner succeeding Dr. Frederick H. Thompson.——Dr. Morton Prince, Boston, has returned after war service abroad.

MINNESOTA

Fire at Mayo Clinic.—Fire at the Mayo Clinic Building, Rochester, January 20, caused damage estimated at $25,000, fully covered by insurance, and the Mayo Library Building suffered minor damage by smoke.

Society Reorganized.—The Carlton County Medical Society reorganized Dec. 29, 1915, with the following officers: president, Dr. James Fleming, Cloquet; vice president, Dr. Sylvester S. Shannon, Barnum, and secretary-treasurer, Dr. Franklin W. Raiter, Cloquet.

Minnesota High in Public Health Efficiency.—Minnesota ranks fourth in the list of states in efficiency in public health work. On a basis of 1,000 points, Minnesota stood fourth with 754 points. The recommendations of the survey were that the Minnesota Health Board should retain its independence; that it should be allowed more money for extension work; that suitable laws should be passed covering water supplies and sewage disposal, and that there should be better sanitary administration in the small towns and rural districts of the state with especial reference to the spread of contagious diseases, infant mortality, poor water and unclean milk.

Reportable Diseases.—Tetanus, septic sore throat and favus have been added to the list of communicable diseases required to be reported to the State Board of Health. More strict regulations have been adopted by the State Board of Health in regard to quarantine. Milkmen are now forbidden to take anything away from a house under quarantine and must deliver milk in packages which can be destroyed as soon as used. Laundrymen must not take away bundles of laundry. In towns where there is no laboratory service, the quarantine period for diphtheria is fixed at six weeks. Proprietors of dairy farms, creameries and milk stations are required to report to local health authorities cases of communicable diseases among employees and their families.

MISSOURI

Loving Cup Given.—Dr. Charles R. Woodson, St. Joseph, president of the Missouri State Medical Association, was presented with a loving cup by members of Buchanan County Medical Society at the annual banquet held at St. Joseph, January 26.

Personal.—Dr. Owen A. Smith, Farmington, has been appointed Councilor for the Twenty-Fifth District to fill the vacancy caused by the removal from the district of Dr. Timothy T. O'Dell, Ellington.——Dr. John B. Fleet, New Franklin, is suffering from a dislocated shoulder and several fractured ribs.——Dr. Charles H. Temple, Glasgow, is in a hospital at Kansas City, suffering from an attack of paralysis.——Dr. Zebulin M. Hampton, Centralia, has been ill for some time with paralysis agitans.

St. Louis

Personal.—Dr. Franklin H. Albrecht has been appointed orthopedist at the Deaconess Hospital.——A life-size bronze tablet of Dr. Frank J. Lutz was presented to the St. Louis Medical Society by members of the society, January 29, in recognition of Dr. Lutz' services as librarian for the past

seventeen years.——Dr. Malvern B. Clopton has returned from the zone of war.——Dr. William H. Engelbach delivered an address before the Fort Madison, Iowa, Medical Society, January 20, on "Internal Secretions."

NEW MEXICO

Support for the State Board of Health.—The *New Mexico Medical Journal,* in the January number, comments on the prevalence of infectious diseases throughout the state, and on the statement of Dr. Lucien G. Rice, Albuquerque, president of the state board of health, that 500 deaths from diphtheria alone have occurred in the upper Rio Grande valley in the past three years. It is said that no doubt twice that number have occurred in the whole state, besides many deaths from scarlet fever and the other infections. That a better showing has not been made in the death rate from these diseases is said by the president of the board to be because "The law confers no jurisdiction and legislature has made no appropriations." The journal corroborates this statement, and while praising the personnel of the present board, says that the physicians of the state should get busy and see that the legislature provides a board of health in fact as well as in name, with ample funds to carry out its proper functions. It is said that the state has a sanitary board which carries out stringent regulations in regard to sheep and cattle, but that the human part of the population is not given proper consideration.

NEW YORK

New Sanatorium.—The chairman of the Chemung County Board of Supervisors has appointed a committee to take charge of the arrangements for the construction of a new tuberculosis hospital at Elmira. More than $30,000 is in hand for this purpose.

Tribute Paid to O'Connell.—At the session of the senate, January 17, an eloquent tribute to the memory of Dr. Joseph J. O'Connell, health officer of the port of New York, was paid by Senator Cullen, and at the close of his address the senate adjourned as a mark of respect.

Antityphoid Vaccination.—At Rochester it is said the health officer, Dr. George W. Goler, has issued an order that all persons connected with the dairies supplying milk to Rochester must be vaccinated against typhoid fever before the dairy licenses will be renewed. Opposition to the measures will not be regarded, as it is said by the health officer that it not only protects the persons themselves, but also protects the public.

Personal.—Dr. Louis J. Beyer has been elected president; Dr. Harold W. Cowper, vice president, and Dr. Lesser Kauffman, secretary of the staff of the Buffalo Emergency Hospital.——Dr. Magda Telkes, New York City, has been engaged to supervise the medical inspection work among women applicants at the Schenectady plant of the General Electric Company.——Dr. Henry C. Wilber, for more than thirty years health officer of Pine Plains, has retired and has been succeeded by Dr. John C. Merchant.

New York City

Pathologists Elect.—At the anniversary meeting of the New York Pathological Society, January 12, Dr. Francis C. Wood was elected president, and Dr. J. Gardner Hopkins, Brooklyn, secretary and editor of the *Proceedings.*

Clinical Meeting.—A clinical meeting of the Hospital for Deformities and Joint Diseases was held, February 8, at which papers were read on "Differential Diagnosis of Knee Joint Conditions, Description of Sayre, Frauenthal and Other Knee Splints," by Dr. Samuel A. Jahss and another on "Painful Feet, Skin Lesions, Nail Lesions, Disease of the Veins and Arteries, Disease of the Nerves, Infection of the Foot," by Dr. Harry C. Stein.

Personal.—Dr. Lysander P. Holmes has been appointed third assistant superintendent of Johns Hopkins Hospital, Baltimore.——Dr. E. Warren Presley, Greatkills, has been appointed adjunct visiting physician to the Seaside Hospital, New Dorp, Staten Island.——Dr. Mathias Figueria, consulting physician to St. Catherine's Hospital, Brooklyn, for thirty-five years, was the guest of honor at a testimonial dinner given by the staff of that institution, January 25. Dr. James C. Kennedy, Brooklyn, officiated as toastmaster.

Another Newspaper Will Decline Quack Advertisements.—A recent *Bulletin of the Department of Health* calls attention to the fact that the *Evening Telegram* has announced its intention to decline to publish advertisements of medical specialists, extends its congratulations to the *Evening Telegram* and commends its action to other newspaper proprietors. The opinion is expressed that the closure of the columns of this prominent daily will tend in a great measure to eradicate the evil of quack advertising in New York newspapers.

New Orthopedic Hospital Opened.—The new home of the New York Orthopedic Dispensary and Hospital, on East Fifty-Ninth Street, which has cost nearly one million dollars, was formally opened on January 31 with an address by Col. Theodore Roosevelt, whose father was one of the founders of the hospital fifty years ago. Dr. Russell A. Hibbs, in his address, stated that during 1915 the dispensary had treated 10,313 persons and that 630 had been treated in the hospital, and that although $1,000,000 of the $1,500,000 needed had been raised, until the remaining $500,000 was forthcoming, three of their wards must remain vacant with 150 patients waiting for beds.

Illness Census.—As a part of the intensive work being conducted in Health District No. 1, an illness census will be taken on February 19. On this day a corps of health department nurses will be detailed to call on every family living in the district and secure accurate information concerning the number, age, sex, and occupation of every member of the household, together with information concerning those who are ill, the nature of the illness and other facts pertinent to an inquiry of this kind. The information thus obtained will be tabulated and studied by the Division of Statistical Research of the Bureau of Records and will subsequently be published in the form of a bulletin.

Bacteriologic Examination of Toy Whistles.—The department of health having had its attention directed to the practice of peddlers of putting toy whistles to the mouth for purposes of demonstration, made an examination of twelve whistles purchased from push carts. Five of the whistles had metal and seven wooden mouthpieces. The average number of bacterial colonies developing from the wooden whistles was ninety-nine and from the metal whistles forty-five. A large variety of micro-organisms was found. In nine instances streptococci were isolated, two of them of the hemolyzing variety. These streptococci were tested on mice to determine their virulence. Eight of the nine mice died, five within twenty-four hours, two within the next twenty-four hours, and one four days after inoculation.

Medical Students Low in Scholarship at New York University.—With the opening of the new term at New York University, it was announced that eighty men had been dropped; of these, twenty-four were medical students. That the proportion of medical students dropped is higher than that in other departments of the university is explained by the fact that medical men in the past have been allowed to select their own subjects for entrance examinations within certain limits. It is hinted that this occurrence will result in a stiffening of the entrance requirements for the medical school. The medical department of the university is overcrowded. There are at present accommodations for only 135 new students each year, and yet 200 registered for the preparatory course last fall and 176 successfully passed their midyear examinations. Should all pass their final examinations the medical school will be unable to care for them. As a safeguard against such a contingency, a rule has been passed that hereafter no man may enter the medical school with a condition in any subject.

NORTH CAROLINA

Sanatorium Opened.—Dr. Addison G. Brenizer, Jr., opened the Brenizer Sanatorium, Charlotte, January 12.

Fraudulent Canvassers and Collectors.—See item in General News of this issue of The Journal, page 521.

Vaccine for General Distribution.—The state board of health through its laboratory of hygiene, Raleigh, announced that it now has in stock, for general distribution to the profession, smallpox vaccine made by the Noguchi method in the state laboratory, Raleigh.

Precedent in County Sanitation.—New Hanover County has established what means to be altogether an innovation in county sanitation. Arrangements have been made to lend rural residents funds for the installation of water and sanitary convenience in their homes. The money is to be repaid the county on long time with 6 per cent. interest.

Children's Bureau to be Established.—Dr. J. W. McNeill, health officer of Cumberland County and Fayetteville,

announces that at the beginning of April the authorities of the United States Public Health Service will establish in that city and county a children's bureau for the study of diseases and other conditions pertaining to child life. The work will be in charge of Dr. Frances Sage Bradley, Washington, D. C., of the Children's Bureau.

Smallpox Regulations.—The commissioners of Catawba County are reported in the daily press to have passed rules "forbidding all persons who have had smallpox or who have been in contact with a case of the disease, from appearing on public highways within six weeks after such disease or contact." This, it is stated, is in order "to protect the schools of the county and prevent the further spread of the dread disorder which has been so prevalent in the county." A fine of $50 with imprisonment for thirty days is the penalty of violation of these regulations.

Personal.—Dr. James M. Northington, Boardman, was given a complimentary banquet by his associates, January 23, preparatory to his departure for Minneapolis, where he has accepted a position as teaching fellow under the Mayo Foundation in the University of Minnesota.——Dr. Robert R. Sellers, Rutherfordton, has removed to Hariman, where he will be in the medical service of the C. C. and O. Railway. ——Dr. and Mrs. Culbert N. Roberts, Lenoir, have returned from a trip to Florida and Cuba.——Dr. S. Westray Battle, Asheville, chairman of the North Carolina Belgian Relief Commission, recently returned from European battlefields and asks that contributions for this charity be sent to him at Asheville.—Dr. Ransom L. Carr, Rosehill, was operated on for appendicitis in St. Luke's Hospital, Richmond, Va., January 12, and is reported to be convalescent.——Drs. John E. Ray, Jr., Raleigh; Houston B. Hiatt, High Point, and John W. MacConnel, Davidson, have been commissioned as first lieutenants, N. C. N. G.——Dr. Cyrus Thompson, Jacksonville, has been nominated for governor by the Republican party.——Dr. Charles P. Bolles, Jr., for three years a member of the Wilmington Board of Health, has resigned.

PENNSYLVANIA

Personal.—Dr. John S. VanVoorhis is reported to be seriously ill at his home in Bellevernon.——Dr. Charles E. Heller, Williamsport, is reported to be seriously ill at his home.——Drs. John Farrell, West Chester, and Edward Kerr, East Downingtown, retiring members of the staff of the Chester County Hospital, gave a dinner at the West Chester Golf and Country Club to their associates, January 19.—— Dr. Henry Eastman, Pittsburgh, is reported to be seriously ill with pneumonia in the West Penn Hospital.

Scarlet Fever.—January 22 it was reported that scarlet fever had appeared for a second time in the University of Pennsylvania. Earlier in the month two students died from the disease. At present one student, sent home convalescent from the university hospital on account of an injury in the "Bowl" fight, became ill with scarlet fever, said by his physicians to have been contracted, probably, in the hospital. A nurse in the same ward is now confined in the Municipal Hospital on account of the disease and two other nurses who attended the student in the wards are isolated and under observation.

Philadelphia

Dr. Baker in Philadelphia.—A dinner was given by the alumni of the Women's Medical College of Pennsylvania, January 26, in honor of Dr. S. Josephine Baker, chief of the Department of Child Hygiene of New York.

Personal.—Dr. Frank C. Abbott, of the attending staff of Jefferson Hospital, has been commended by the Duchess of Bisaccia for his services in the war zone.——Drs. Seymour D. W. Ludlum, Samuel D. Ingham, Sherman F. Gilpin and Albert C. Buckley have been appointed visiting physicians to the psychopathic division of the neurologic department of the Philadelphia General Hospital.

Woman's Medical College Fellowship.—The Woman's Medical College has established a fellowship amounting to $1,000, to be awarded annually to any medical woman of special ability who, following the undergraduate course, has completed at least one year of hospital service, including work in maternity wards, and one year of further practice. The amount is to cover twelve months of special work as Fellow in Obstetrics, with the condition that the holder of the fellowship shall thereafter continue the practice of obstetrics.

A Century and a Half.—The one hundred and fiftieth anniversary of the founding of the Medical School by John Morgan at the University of Pennsylvania was celebrated by a dinner given by the Society of the Alumni of the Medical School at the Bellevue-Stratford, February 4. More than 250 physicians were present. Harvard University Medical School sent its Dean, Dr. Edward H. Bradford. Dr. John K. Mitchell was toastmaster, and speeches were made by Dr. Harry Lane, United States Senator from Oregon, Dr. Alonzo E. Taylor, provost, Edgar Fahs Smith, and Dr. Charles K. Mills.

SOUTH CAROLINA

Fraudulent Canvassers and Collectors.—See item in General News of this issue of THE JOURNAL, page 521.

Large Appropriation Recommended.—Governor Manning delivered an address before the General Assembly, January 14, in behalf of the State Hospital for the Insane and recommended that the appropriation of $320,000, asked for by the Board of Regents, be made.

Personal.—Dr. Robert Lewis, assistant biochemist at the United States Pellagra Hospital, Spartanburg, has been elected professor of physiology in the University of Colorado, Boulder.——Dr. Benjamin O. Whitten, Seneca, has been appointed a member of the house staff of the State Hospital for the Insane, Columbia.

New Hospitals.—The Steedley Hospital Company has been incorporated at Spartanburg with a capital stock of $50,000, and received its charter January 22.——Physicians and business men of Lancaster met, January 15, to discuss the need and practicability of a hospital in Lancaster. The work of formulating plans for the hospital has already been commenced.

New District Society Officers.—The twelfth semiannual meeting of the Second District Medical Association was held in St. Matthews, January 25, and Dr. Linnaeus C. Shecut, Orangeburg, was introduced into office.——The First District Medical Association held its semiannual meeting at Waterloo, January 19, and elected Dr. Lionel M. Stokes, Waterloo, president, and Dr. John B. Johnson, St. George, vice president, and reelected Dr. Joseph S. Rhame, Jr., Charleston, secretary-treasurer.

Pellagra.—On January 30, on the occasion of a visit of Dr. Joseph Goldberger and Dr. J. W. Babcock to the Epworth Orphanage at Columbia, it was found that all of the hundred children who had pellagra in September, 1915, were well. The children who had had the worst cases were found to be healthy, and all evidence of the disease had disappeared. The improvement followed the adoption in the orphanage of a better balanced ration, according to the theory of pellagra held by the officers of the Public Health Service.

TEXAS

State Society Arrangements.—Elaborate arrangements are being made by the Galveston Medical Society for the annual convention of the State Medical Society of Texas, which will be held in Galveston, May 9 to 11. Dr. Marvin L. Graves is chairman of the local committee of arrangements.

Clinical Day for County Society.—The Dallas County Medical Society held its first clinical day at Dallas, January 20. Clinics were held between 9 a. m. and 4 p. m. at the Parkland Hospital, Baptist Sanitarium, Polyclinic School and St. Paul's Sanatorium. Hereafter these clinics will be held on the third Thursday of each month.

Hospital News.—The government has made arrangements to erect a surgical pavilion at Fort Sam Houston, San Antonio.—Ground has been broken for the new Ralston Sanatorium at El Paso. The building will be four stories and basement in height and will cost about $50,000.——A free city dispensary was opened at Dallas, January 14, by the city health department in connection with the Emergency Hospital.——A movement has been started, endorsed by every physician in the city, to establish a hospital for Oak Cliff, Dallas, and a special committee of the Oak Cliff Medical and Hospital Association will present an outline of plans to the Dallas County Medical Society and later to the Chamber of Commerce and Manufacturers Association for ratification. ——Tyler and Smith counties have jointly agreed to build a small hospital in Tyler and contracts have already been let and building will begin at an early date.

Typhus.—The death of a Mexican recently from Piedras Negras of typhus in the county hospital, January 16, prompted the United States immigration officials to take stringent measures to prevent the spread of the disease. A. A. Surg. John W. Tappan, U. S. P. H. S., El Paso, the immigration medical officer, received instructions from Dr. Claude C. Pierce, senior

surgeon, to begin disinfection by gasoline and the baking of clothes of all suspects or contacts. A house-to-house canvass showed that there was no typhus in Juarez, just across the river from El Paso.——According to the *San Antonio Express,* Dr. Pierce, after an investigation of the typhus situation along the Mexican border, found only three cases at Laredo. One of these patients had died. At Brownsville and other points and in Southern Texas no cases were found, although there had been a rumor of many cases. At Monterey Dr. Pierce found only a few cases, contrary to the reports made.

VIRGINIA

Fraudulent Canvassers and Collectors.—See item in General News of this issue of THE JOURNAL, page 521.

Improvements for Epileptic Colony.—The new Halsey-Jennings Building at the State Epileptic Colony, Madison Heights, which was designed for a combined infirmary and boys' dormitory, has just been put into use and the additional accommodation relieves the congestion previously felt. There are now 340 residents in the colony.

WISCONSIN

Rhinelander Gets Laboratory.—The state board of health has decided to establish a branch hygienic laboratory at Rhinelander, for which $5,000 was appropriated by the last legislature.

Pediatrists in Milwaukee Organize.—The Milwaukee Pediatric Society was organized at a meeting held January 17, and the following officers were elected: president, Dr. Lorenzo Boorse; vice president, Dr. J. Gurney Taylor; secretary, Dr. G. J. Kaumheimer, and treasurer, Dr. Robert C. Brown.

New Hospital Dedicated.—The formal dedicatory ceremonies of the new hospital erected by the Wisconsin Deaconess Association in Green Bay were held January 18 and 19, and were participated in by officers of the Deaconess' Association, members of the Methodist clergy of the state, and others.

Cost of Smallpox.—At Manitowoc it is said bills for $3,000 have been presented to the city for caring for smallpox patients during the recent epidemic. This is in addition to the cost of supplies for quarantined families, and is in contrast with the $800 which it cost the city for free vaccination after the epidemic started.

Sanatorium News.—The Marathon County Board of Supervisors has decided to locate the county antituberculosis sanatorium on the eastern part of the county asylum farm in the town of Settin.——Willow Brook, the Kenosha Sanatorium for Tuberculosis, was opened February 1. Miss Alice Gonzenbach, formerly superintendent of the Greenfield Sanatorium, has been appointed superintendent.——The State Tuberculosis Sanatorium at Wales now has an official postoffice known as "Statesan."

New Board Officers.—At the annual meeting of the state board of health Dr. William F. Whyte, Madison, was reelected president, and Dr. Edward S. Hayes, Eau Claire, was reelected vice president. The rules governing measles, meningitis and diphtheria were amended. For measles it was proposed that in addition to placarding the house, the patient must be isolated fourteen days; children in the household who have not had measles should be secluded from school; children in the family who have not had measles can return to school fourteen days from the last exposure providing they take up their residence in other homes. The rules for meningitis and diphtheria were so changed as to arrange for the liberation of adults after thorough disinfection of persons and clothing.

Personal.—Dr. Wallace P. Smith, prison physician at Waupun, was attacked with a bottle by a convict, January 28, and sustained severe cuts and bruises of the face.——Dr. Emil S. Christensen, Two Rivers, who has been seriously ill with septicemia, is reported to be convalescent.——Drs. John Diamond, Crandon, and Raymond G. Arveson, Frederick, have formed a partnership at Frederick and will erect a hospital in the spring.——Dr. Ira F. Thompson, Rhinelander, has been made deputy state health officer in charge of District 4, with headquarters at Eau Claire.——Dr. Louis Dorpat, Oakwood, has been appointed deputy state health officer for the Rhinelander District with headquarters in that city.——Dr. Emil T. Lobedan, Milwaukee, has been elected president and Dr. Gustavus I. Hogue, Milwaukee, second vice president of the Wisconsin Association for the Blind.——Dr. Gustave C. Hoyer, Milwaukee, has been reelected medical director of the Aid Association for Lutherans.——Dr. George N. Hidershide, Arcadia, is reported to be critically ill in the Winona, Minn., General Hospital after an operation for acute appendicitis.——Dr. Glenford L. Bellis, superintendent of the Muirdale Sanatorium, Wauwatosa, has been made a member of the Committee on Standards of Diagnosis of Tuberculosis in Children.

GENERAL

American Chemist Wins Perkins Medal.—The Perkins medal for distinction in industrial chemical research has been presented by the Society of Chemical Industry to Dr. Leo H. Baekeland, a member of the Naval Consulting Board.

Photographs of Physicians.—Several letters to THE JOURNAL report that a prominent New York "picture service" corporation is asking physicians to sit for photographs to be used in THE JOURNAL. THE JOURNAL has not authorized such requests.

Federation Elects.—The following were elected officers of the Federation of State Medical Boards at its annual meeting, February 7: president, Dr. David A. Strickler, Denver; vice president, Dr. Walter P. Bowers, Boston, and secretary-treasurer, Dr. Walter L. Bierring, Des Moines (reelected).

Medical Education Meeting.—A joint conference of the Council on Medical Education, Council on Health and Public Instruction, Federation of State Medical Boards, and Association of American Medical Colleges was held in Chicago, February 7 and 8. Proceedings will be reported in a later issue.

New Quarantine Director.—A. Surg.-Gen. Leland E. Cofer, U. S. P. H. S., has been designated by Surgeon-General Blue to take over the Quarantine Station of the Port of New York. The quarantine offices are to pass temporarily from state control to the United States Public Health Service, until the New York legislature can enact legislation designed to transfer the station absolutely to federal control.

Conservation of Rural Health.—The secretary of the treasury has applied for a special appropriation of $100,000 for the field work of the United States Public Health Service. This service has for its object the wide application of methods of conserving the health of the people. These field investigations are not confined to any one section, are directed along many lines and have to do with malaria, typhoid fever, tuberculosis, trachoma and many other diseases.

Monument to Leader of Campaign Against Malaria.—Dr. William S. Thayer, Baltimore, requests contributions for the erection of a monument to Prof. Angelo Celli, Rome, the founder and the animated and guiding spirit of the foundation of the Society for the Study of Malaria, which instituted the great Italian campaign against this disease. It is contemplated that this monument will stand on the Roman Campagna, the field of the studies and the object of the most loving care of Professor Celli on the spot where he redeemed man and earth from the scourge of malaria.

Strong Joins International Corporation.—Dr. Richard P. Strong has accepted the position of vice president to the American International Corporation. This corporation recently formed with a capital of fifty million dollars is designed to procure, explore, purchase or lease, develop and operate lands and mercantile business in any part of the world. Dr. Strong will attend to the sanitation districts in which the companies development work is situated involving the construction of new sewerage and water supply systems. A number of young men will be employed to work under Dr. Strong's direction in this way.

New Officers for Medical College Association.—At the annual meeting of the Association of American Medical Colleges in Chicago, February 8, the following officers were elected: president, Dr. John L. Heffron, Syracuse, N. Y.; vice president, Dr. William S. Carter, Galveston, Texas; secretary-treasurer, Dr. Fred C. Zapffe, Chicago (reelected); and executive council, Drs. William J. Means, Columbus, Ohio; Isadore Dyer, New Orleans; Samuel W. Lambert, New York City; Charles R. Bardeen, Madison, Wis., and F. C. Waite. The association passed a resolution that, beginning with January, 1918, two years' college work will be required as an entrance qualification for the colleges of the association.

Bequests and Donations.—The following bequests and donations have recently been announced:

Episcopal Hospital and German Hospital, Philadelphia, each $1,000, by the will of the late Daniel W. Grafley.

Hahnemann Hospital, Philadelphia, $10,000, by the will of Mary L. Cooper, Narberth, Pa.

Grand View Hospital, Allentown, Pa., a donation of $12,000, by Cressman Brothers.

St. Anthony's Hospital, Oklahoma City, for the enlargement of the institution, and the installation of a medical and research laboratory, $12,000 in the first day of the campaign.

Presbyterian Hospital, Chicago, $50,000; Chicago Foundlings Home, Home for Destitute Crippled Children, Chicago Orphan Asylum and United Charities, Chicago, each $10,000, by the will of Thomas Templeton.

The Servants for the Relief of Incurable Cancer, New York City, $2,000, by the will of Kate Gilligan.

St. John's Guild, New York City, $2,000, by the will of George W. Mabie.

Fraudulent Canvassers and Collectors.—We have repeatedly published warnings against fraudulent canvassers and collectors—sometimes in the Editorial department, sometimes in Queries and Minor Notes, and sometimes in News. In spite of these repeated warnings, some of our readers are still allowing themselves to be swindled. The scheme frequently followed is one that appeals to those who are ever ready to help a fellow mortal. A young man shows a printed blank indicating that he is a "contestant" for a prize in the form of a scholarship in an educational institution, to be awarded to the one who sends in the most business in a certain time. Again we suggest that those who would avoid being swindled should not pay money to traveling men whom they do not personally know. Checks should not be made payable to any person, but to the concern the person claims to represent; and even then one should be very sure that there actually is such a concern. Money should not be paid to any one claiming to represent the American Medical Association unless he carries credentials bearing the signature of the Editor and General Manager and the seal of the Association.

Malaria.—The surgeons of the U. S. Public Health Service, in their study of malaria in the South, have found that in certain sections 4 per cent. of the inhabitants have the disease. This estimate is based on 204,881 cases reported during 1914. According to the report of the surgeon-general of this service, 13,526 blood specimens were examined during the year, of which 1,797 were positive for malaria. The infection rate among the white persons was found to be more than 8 per cent., and among the colored, 20 per cent. In the Yazoo Valley, in two counties, 40 out of 100 persons presented evidence of malaria. The surveys conducted by the service have resulted in gratifying reductions of the disease through the efforts stimulated by the survey, in thirty-four places in nearly every southern state. In some places the reduction was from 15 per cent. in 1914 to 4 or 5 per cent. in 1915. An important feature of this study of malaria was the discovery that malaria is probably not carried through the winter in the bodies of the malarial mosquito, so far as that section is concerned. Mosquitoes dissected and examined during the early spring months in 2,000 instances showed no infection, and none was discovered until May 15. The conclusion is that malaria carriers should be treated during the winter and spring with quinin so that chronic sufferers may not renew the infection in mosquitoes. Quinin is still the best means of curing the disease and preventing infection, but destruction of the breeding places of the malaria mosquito is necessary for eradicating the disease. This should be done by draining, filling, regrading of streams, oiling of breeding places, the stocking of streams with top minnows, etc.

FOREIGN

Arce Elected Fellow of London Sanitary Institute.—The *Cronica Medica* of Lima, Peru, reports that Dr. Julian Arce is the first South American to be elected fellow of the Royal Sanitary Institute of London, as recently occurred.

High Fee for German Surgeon.—It is reported from Berlin via London that an aide-de-camp of the sultan arrived in Berlin, January 30, bearing a fee of about $30,000 for Dr. Israel, who recently operated on the Turkish sovereign.

New Medical School.—According to *Commerce Reports*, the president of Venezuela has issued a decree for the establishment of a school of medicine in Caracas. A decree of the governor of the federal district provides for a free dispensary in Caracas, to be established and maintained by public funds, and to operate under the supervision of the general inspector of the civil hospitals of the district.

Vienna Institute for Study of Food Problems.—A Vienna manufacturer has given $100,000 to found an institution to study the technical side of nutrition for the people, by correlating the findings of organic chemistry, biology, physiology, etc. It is to be called the Institut für Volksernährung, and preliminary negotiations are already under way with specialists in these lines in Austria, Hungary and Germany.

Study of Criminology in Chile.—The minister of justice has appointed a commissioner to study crime in Chile and to report to the government his recommendations for measures to prevent crime, reform delinquents, and for the classification and separation of prisoners. A laboratory of experimental psychology is to be established in the penitentiary at Santiago, and physicians in penal institutions will be required to furnish information or data in connection with the work.

Professional Secrecy Need Not Extend Beyond Death.—According to a German exchange, a Berlin court recently decreed that a physician should give his testimony as to the mental soundness of a patient whose will was being contested on the grounds that the man had been mentally incapable. The physician declined to testify, but the court enjoined him to speak freely, saying that the death of his patient had released him from the obligation for professional secrecy as long as the matter was not one that concerned his former patient's good name or reputation.

Sanitation in Haiti.—Officers of the Medical Corps of the Navy attached to the Marine Brigade now on duty in Haiti are making a careful sanitary survey of Port au Prince, and have made certain specific recommendations as a result of which the water supply is more effectively guarded; the markets and sources of food supply are more rigorously inspected and controlled and the removal of refuse in the city streets, cleaning, grading and guttering, is actively being carried on. The island of Santo Domingo has been notably unhealthy during its entire history, but owing to the rigid sanitary methods imposed under the direction of the naval medical officers, the reports from the marines' camps from the north and south coasts of the island and the interior indicate a low sick rate.

Deaths in the Profession Abroad.—Tiburcio Padilla, one of the leaders of the profession in Argentina, ex-governor of his province, Tucuman, aged 80.——P. Beyers of Breda, a member of the Netherlands ambulance sent to Serbia, cooperating with the Austrian ambulance.——R. Heigl, chief of the public hospital at Coblenz, succumbed to infection acquired at an operation, aged 54.——F. L. von Neugebauer of Warsaw, noted for his numerous articles on gynecologic subjects but especially for his study and publications on hermaphroditism and allied conditions.——L. R. Lorentzen of Copenhagen, president for a number of terms of the Danish Medical Association, aged 63. He took up surgery at first but a bile-duct trouble soon after 40, causing the expulsion of the gallbladder, compelled him to give up surgical work. ——M. De Cristoforis, to whose efforts is due in large part the leading place taken by Milan in public hygiene, in prophylaxis of industrial affections and other reforms, aged 80. As a senator it was said of him that he had many opponents but not a single enemy. He introduced the treatment of aneurysm by electropuncture, although gynecology and obstetrics were his chosen field.——T. Langhans, until recently professor of pathologic anatomy at the University of Bern, aged 76. He was a pioneer in the discovery of the giant cell, in the histology of the placenta and of nephritis, and also in the study of endemic goiter.——A. Mendonça, chief of the bacteriologic institute connected with the medical school at S. Paulo, Brazil, of the leprosarium and men's clinic, and founder of the *Revista Medica de S. Paulo*. ——Sir Francis Henry Lovell, dean of the London School of Tropical Medicine, died in London, January 28. Sir Francis became M.R.C.S., England in 1865, and two years later L.S.A. He entered the colonial service as surgeon in Sierra Leone, West Africa, in 1873; in 1878 he was made chief medical officer and president of the General Board of Health and a member of the legislative council of Mauritius. After fifteen years in this service he was transferred as surgeon-general, medical officer of health and member of the executive and legislative councils of Trinidad and Tobago, and served in these capacities until 1901, when

he retired from the colonial service. A year prior to his retirement he was made a baronet, and in 1893 was created C.M.G. After his retirement he was connected with the London School of Tropical Medicine, Royal Albert Docks, and was dean of that institution until his death.

WAR NOTES

Typhus in Poland.—It is reported from Berlin via London, under date of February 3, that typhus fever has broken out in Poland and that there are now thirty cases daily in Warsaw. The death rate has risen from nineteen to thirty per 1,000.

Change of Post for Pancoast.—Dr. Charles S. Pancoast, Camden, N. J., who has been in charge of a 4,000-bed hospital at Munkacs, Hungary, has been accepted by the Bulgarian war department and placed in charge of the surgical department of a large war hospital in Sofia.

The Quirinal a Red Cross Hospital.—The Quirinal Palace in Rome has been transformed into a Red Cross hospital under the personal supervision of Queen Elena, who takes active charge of the institution. The gun room of the late King Humbert is now a dispensary, and the conservatory an operating room.

Lack of Physicians Raises Mortality.—A complaint is being made that a large district in France is entirely without physicians due to the exigencies of war. In the neighborhood of Lyons the sick of fourteen towns and villages are under the care of one old practitioner who retired fifteen years ago. Formerly this district had five physicians, but all of them are now in the field. In other districts the same condition obtains, and the result is said to be an alarming increase in mortality, especially among children.

PARIS LETTER

Paris, Jan. 13, 1916.

The War

SPECIAL ADVANCEMENT OF QUALIFIED PHYSICIANS AND PHARMACISTS

The new minister of war, General Galliéni, believes that under present conditions it is indispensable to utilize especially well qualified physicians and pharmacists in the army as efficaciously as possible. He has therefore decided to give a military grade corresponding to their scientific rank for the duration of the war, to pharmacists and physicians possessed of certain university or hospital positions. Accordingly, a decree has just been signed by the president of the republic for the immediate promotion from the grade of *aide major de 2-e classe* (second lieutenant) to the grade of *major de 1-ere classe* (commandant) or *major de 2-e classe* (captain), according to the length of their experience, of physicians and pharmacists possessed of the following qualifications: professorship or agrégé professorship in the medical or pharmaceutical schools or membership in a hospital staff in cities where medical schools are situated.

The *Journal des Débats* remarks that this decree meets perfectly the needs of the situation; it is a conspicuous and deplorable anomaly which puts scientific men of high reputation under the orders of less qualified practitioners who, because they possess a higher military rank, wield responsibilities sometimes in excess of their abilities.

PLACING OF SICK PRISONERS OF WAR IN SWISS HOSPITALS

According to Swiss journals, the negotiations for placing sick prisoners of war in Swiss hospitals (The Journal, Oct. 2, 1915, p. 1199) are making progress. The problem was recently discussed at a meeting of heads of sanatoriums and pensions. It is probable that the first trial will be made with about one thousand French prisoners and about as many German prisoners. The former will be placed in hospitals at Leysin and the latter at Davos. Of course, this measure will be applied only in cases of patients whose condition is not serious since, as I mentioned in previous letters, prisoners who are seriously affected will be exchanged by the respective belligerent countries.

THE VALUE OF ANTISEPTICS IN THE TREATMENT OF WOUNDS

At a recent session of the Académie des sciences, Dr. Pierre Delbet reported a new series of experiments on the action of antiseptics on pus. Pus immersed in twice its volume of antiseptic solution for seven hours is seldom sterilized. In 2 per cent. phenol solution the pus was sterilized in six cases out of fifteen; in ether, in two cases out of eight; in corrosive sublimate, in two cases out of nine; in hydrogen peroxid, in one case out of six; in Dakin's solution, in two cases out of twelve; in Labarraque's solution sterilization was not obtained once in thirteen trials. A hematic pus diluted with twice its volume of Dakin's solution gave cultures of staphylococci and streptococci after thirteen days. Examinations of the preparations made with the pus employed in these experiments showed that while some of the microbes had been destroyed others had multiplied extraordinarily. Delbet believes that this is due to the chemical transformations of the pus and the formation, under the influence of hypochlorites, of intermediary substances favorable to the germs. He illustrates this by the fact that, while eggs furnish a mediocre culture medium for the staphylococcus and a poor one for the streptococcus, on the addition of Dakin's solution, one third, one half or two thirds volume, the egg becomes a good culture medium for the staphylococcus and an excellent one for the streptococcus. In attempting to kill germs with hypochlorites one runs the risk of preparing a culture medium for them. The production of such intermediary substances (culture mediums), together with the suppression of phagocytosis by the destruction of cells, accounts for the fact that in certain cases antiseptic dressings interfere with the healing of wounds, increase the number of germs and are altogether more harmful than useful.

HOME MECHANICAL TREATMENT FOR ARTICULAR STIFFNESS

The frequency of articular stiffness after wounds of war is well known. The treatment is not always easy, for institutions where mechanical treatment can be applied are not numerous and cannot be multiplied rapidly. The following very simple device invented by Dr. Privat, which gives excellent results, is therefore worthy of mention: Continuous traction is exerted on the limb to be mobilized perpendicularly to its axis by means of a weight hung from a cord passing over a pulley which is not fixed but hung by a cord from the ceiling. When the weight swings it produces gentle and rhythmic traction passing from maximum to minimum and vice versa. By pulling a cord attached to the weight and letting it slip again, the patient controls the oscillations. The operations of the device may be graduated by employing pulleys of various diameters for the same motor weight (5 kilograms, for instance).

THE FRENCH MEDICAL MISSION IN SERBIA

The *Journal Officiel* publishes the award of the epidemic gold medal to Dr. Jaubert, head of the French medical mission in Serbia. Dr. Jaubert also has been mentioned for conspicuous gallantry in the following terms: "Head of the French medical mission sent into Serbia, he displayed the finest abnegation and the greatest courage, giving to all the example of devotion to duty and, by the conscientiousness with which he performed his task, reflecting the greatest honor on France."

A Pharmaceutical Fraud

Aspirin, which ordinarily is supplied to France from abroad by way of Marseilles, is at present worth 200 francs a kilo (nearly $16 a pound). Some pharmacists and druggists of Paris have been supplied recently with a worthless substitute powder containing no acetylsalicylic acid. The service for the repression of frauds in the police department is now endeavoring to ascertain if the fraud was committed abroad or if the substitution was made in Marseilles. Meanwhile a circular is being sent to all French pharmacists and druggists warning against the fraud.

Digestive Power of Oysters

M. Henri Coupin has presented before the Académie des sciences a notation showing that the digestive power attributed to oysters belongs, not to the oysters themselves, but to the bacteria ingested with the water that bathes them. Coupin found great chemical activity on the part of most marine bacteria. Out of forty-three species only four were inert. Twenty-eight produced fermentation in glucose, twenty-one in maltose, eleven in starch and ten in glycogen.

Death of Prof. Rodolphe Engel

Dr. Rodolphe Engel, former professor of chemistry at the Faculté de médecine de Montpellier, has just died at the age of 66. He was the author of many scientific works and of a manual, "New Elements of Medical and Biologic Chemistry with Applications to Hygiene, Legal Medicine and Pharmacy."

BERLIN LETTER

BERLIN, Dec. 27, 1915.

The War

MORTALITY OF THE WOUNDED

The number of wounded who have been returned to duty has increased steadily from month to month, and the mortality among them has been correspondingly diminished. In August, 1914, of 100 wounded, 84.8 per cent. returned to duty, 3.0 died, and 12.2 were permanently invalided. In September, 1914, 88.1 per cent. were returned to duty, and only 2.7 per cent. died. In October, 1914, 88.9 per cent. were returned to duty, and the mortality was 2.4 per cent. From November to March the percentages of those returned to duty varied between 87.3 and 88.9. The death rate in November was 2.1. In December, 1914, the death rate was only 1.7 per cent. In January, 1915, it was 1.4 per cent., and in February, 1.3 per cent. During April and May the mortality rate rose to 1.4 per cent., but gradually fell to 1.2 per cent. during June and July. In April, 91.2 per cent. were returned to duty; in June, 91.7 per cent.; in May and July, 91.8 per cent. Only 7 per cent. were permanently invalided or given furloughs. Of the latter, a considerable number subsequently returned to duty, thus increasing the percentage of that class. The total averages show that per hundred men, 98.8 per cent. were returned to duty or were only partially unfit, whereas only 1.2 per cent. died. The averages for the entire year were 89.5 returned to duty, 8.8 unfit or on furlough, mortality, 1.7 per cent.

CARE OF WOUNDED

The Swiss government has proposed that 1,000 sick German and French prisoners of war be sent to Switzerland, January 15, for medical care. The German government has accepted the proposal, with the proviso that the French government will cooperate in delivering an equal number of prisoners at the same time.

According to the *Sydsvenska Dagbladet,* the large transports of Russo-German war invalids have been discontinued for the year. Up to the present, 4,603 German and Austrian and 7,730 Russian invalids have been convoyed.

At the request of the Berlin Aerztekammer-Komission (medical commission), the head of the police department has ordered the removal from public comfort stations of all advertising matter relating to the treatment of venereal diseases. This is one step in the fight against quackery that is being made by the Berlin Medical Society.

THE GERMAN STUDENTS DURING THE WAR

During the semester preceding the opening of the war, 79,077 students (of whom 4,500 were women and about 9,000 foreigners) attended the fifty-two universities and other higher institutions of the German Empire. Of this number 60,943 (4,117 women, 4,100 foreigners) were enrolled in the twenty-one universities; 12,232 (82 women, 2,500 foreigners) were enrolled in the eleven technical schools. The six schools of commerce (Berlin, Cologne, Frankfort, Leipzig, Mannheim and Munich) had 2,625 students, and the four veterinary colleges (Berlin, Dresden, Hanover and Munich) had 1,404 students. The three agricultural colleges had 938 students. Three schools of mining had 668 students, and 267 students were registered in the four schools of forestry. During the first semester following the beginning of the war, the total number of matriculants fell to 64,700 in forty-seven of these institutions. The four schools of forestry were closed, and the veterinary school in Munich became a part of the university. Of this number 52,400 were registered in the universities, 9,900 in the technical schools, 350 in the veterinary and agricultural schools, 400 in the mining schools and 1,200 in the schools of commerce. The number of foreign students fell to 4,000, and only 4,500 women students were in attendance. These figures may not be correct, inasmuch as reliable data are available only from the universities and technical schools. During the winter of 1914-15, about 50,000 of these students were in the field or available for service; that is, 75.75 per cent. of the 66,000 German male students registered at the beginning of the war. It can be assumed that the remaining 25 per cent. of students stood in some relationship to the military system, excluding probably only the agriculturists and the commerce students, of whom a very small number are now engaged in practical work. Of the 66,000 German male students who were registered at the end of the summer of 1915, only 12,000 are still in attendance at the schools, so that about 54,000, or 81.81 per cent., of German higher students are now enrolled in the army. It is interesting, by way of contrast, that of the 13,785 university students registered during the summer semester of 1870. only 4,400 (32 per cent.) were at the front, and 3,200 of this number fell in the field.

Personal

Dr. Alzheimer, professor of psychiatry in the Breslau university, died, December 19, aged 52 years. In 1888 he was appointed assistant at the Frankfort psychopathic institute, and became chief in 1895. In 1902 he became assistant to Kräpelin in Heidelberg, and when the latter was called to Munich to take the directorship of the anatomic research department of the new clinic, Alzheimer went with him. In 1913 he was called to Breslau, but soon after arriving there he became seriously ill, never recovering completely, and finally succumbing to the illness. He was an indefatigable worker in psychiatric research. He made many original observations and studies of the pathologic lesions of psychiatric diseases. His differentiations were so accurate, especially in paralyses of various kinds, that the pathology of these conditions is now well known and easily distinguished from other similar disease processes. He collaborated extensively with Professor Nissl of Heidelberg in histologic research, laying bare the finest anatomic variations in structure of paralysis, epilepsy, idiocy, arteriosclerosis, senescence and cerebral syphilis. This research led him to announce that it was the function of the glia tissue to dispose of the tissue waste. He also studied extensively and gave a most thorough and exhaustive description of a hitherto unknown mental disease of occasional occurrence in old age, since known as Alzheimer's disease. In 1910, Alzheimer and Lewandowsky established the *Zeitschrift für die gesamte Neurologie und Psychiatrie,* contributing the initial article on the diagnostic difficulties in psychiatry, in which he also detailed his clinical experiences.

Decrease in Mortality in Berlin, and Diminishing Birth Rate in the German Empire During the War

Although the war has exerted a tremendous influence on population statistics because of the fewer marriages and births, Berlin reports show a considerable lowering of the death rate in general and of children in particular. These data are set forth in detail in the monthly report of the statistics division of Berlin for September 1915. The general death rate during September, 1915, was 12.84, as against 14.36 for the same month in 1914. These figures must be a source of congratulation when one bears in mind that the stronger and healthier portion of the male population is at the front, leaving the weaker members at home. Children's mortality has been diminished one half. In September, 1915, 262 children under 1 year of age died in Berlin, as against 644 in September, 1914, that is, 13.48 per cent. as against 27.51 per cent. of the total death rate of the city for that month. The principal causes of death among these children (exclusive of general weakness) were intestinal catarrh and diarrhea. Only fifty-three children under 1 year of age died from intestinal catarrh during September, 1915, as against 217 in September, 1914; the proportion for diarrhea was 17 : 112. These figures are an indication of the effective campaign against children's mortality which has not diminished during the war; on the contrary, it has been conducted more effectively. The birth rate has not diminished so very much; in September, 1915, 2,303 living children were born in Berlin, as against 2,996 in September, 1914. For the year the birth rate per thousand was 15.21 per cent., as against 18.37 per cent. The birth rate has not fallen off so much during the war as is generally believed to be the case. On the basis of 100 born during the months of April, May, June and July, 1914, the birth rate for the same period of 1915 was as follows: Cologne, 94.2; Kiel, 87.9; Schöneberg, 85.5; Leipzig, 84.1; Dortmund, 83.8; Munich, 81.2; Berlin, 80.2; Hamburg, 76.2; Frankfort-on-the-Main, 73.5; New Cologne, 72.2; Nuremberg, 68.8; Essen, 120.2. As stated previously, the figures for Essen are deceptive because of the increase in population. The falling off of the birth rate as a whole, then, is not over 20 per cent.

Care of the War Cripples

What might be called a lost limb bureau *(Gliederersatzprüfstelle)* has been established in Charlottenburg for the purpose of supplying lost body members and determining the line of work for which the individual may be fitted when artificial arms and legs have been supplied him. Soldiers coming from the various hospitals will be sent to this bureau, and it is expected that in the course of time a school will be established or founded or developed in which these individuals will be taught how to carry on different lines of work. This bureau will publish reports showing the progress that has been made in the development of these men, and how

artificial limbs may be improved in manufacture to permit of greater use. The various manufacturing industries throughout Germany will receive these publications. These men will be trained as metal workers, wood workers, transport laborers, to work with the hoe, the broom, the cart, textile workers and agriculturists.

Insurance Companies War on Venereal Diseases

The presidents of the various German insurance companies met, January 14, in the imperial insurance bureau with representatives of the health department and the Prussian army medical corps, for the purpose of considering further measures in the fight against venereal diseases. The military authorities commended the measures proposed by the insurance companies by which the patient receives thorough treatment without any publicity, and urged that when such patients are dismissed from the military service they be given this treatment. This action also received the approval of the army and navy authorities, the German medical profession, and the sick benefit and workmen's associations. Insurance companies intend to establish consultation and treatment bureaus at which all discharged soldiers may apply, and these measures will later be extended and made available to all workmen who are members of the workmen's insurance societies. It was the sense of this meeting that these measures should receive hearty support. As a result of all this activity, a motion was passed forbidding the increase in quackery during the war.

LONDON LETTER

LONDON, Jan. 20, 1916.

The War

THE MEDICAL EXAMINATION OF RECRUITS

The examination of the large numbers of recruits which have flocked to join the new armies has presented considerable difficulty. Many physicians have had to abandon temporarily their private work and examine men from morning till late at night. In numerous cases the work was necessarily done perfunctorily, men being examined at the rate of one every two minutes. Like everything else in connection with our new military organization, improved methods are gradually being introduced. Sir Alfred Keogh, director general of the Army Medical Service Corps, has now arranged that special stations for the examination of recruits are to be set up, each of which shall be under the control of a body of men specially chosen and approved. This council will select the examining physicians and will be guided in its work by special considerations. Physicians will be chosen because they have special qualifications for examining men for the army. An officer of the Royal Army Medical Corps will be attached to each station. The question of the number of recruits to be examined at each station per day has been seriously considered, and it has been laid down that not more than 200 men shall be examined at any one station in any one day. This, with the staff of physicians at hand, will make it absolutely certain that each recruit will have full justice done to him. Each recruit will be carefully examined in a quiet room and under the most favorable conditions, and each man will be summed up by the physician examining him and classified according to his capacity. Thus one man will be certified fit for general service, another as fit for less active work, and so on. These classifications will be handed on to the military authorities, and dealt with by them according to military requirements. No man will be sent to work for which he is unfit, nor will any man be put to drilling which his constitution or present state of strength does not sanction. "Doubtfuls," that is, men whose state of health may be such as to call for an expert opinion, will be sent to specialists.

TRAINING BELGIAN PHARMACISTS IN ENGLISH METHODS

The Pharmaceutical Society of Great Britain arranged a class for training the Belgian pharmacists in this country in English methods of dispensing, and in the reading and translation of English prescriptions. The class, which was entirely gratuitous, was held during the Christmas holidays. Prof. H. J. Greenish taught practical dispensing, and Mr. H. S. Phillips the reading of prescriptions.

Sir William Osler on the Education of Boys Intended for the Medical Profession

A conference of educational associations has been held at the University of London at which Sir William Osler pleaded that boys intended for the medical profession should leave the hands of the schoolmaster fit to begin their special studies. He urged that earlier and more extensive work in science would save time at the universities. He thought that by the time a boy was 16 he had in most cases selected his career, and that when he intended to enter the medical profession, the sixteenth and seventeenth years should be devoted to the preliminary sciences—physics, chemistry and biology. At 18 the boy would be fit to go to the university and to proceed at once with physiologic chemistry, physiology and anatomy. He contended, therefore, that a continuous science course should be organized for two years. The teaching of chemistry at the schools was not yet good enough. If it were improved and the other preliminary sciences well taught, he believed that by shortening the vacation and rearranging the methods of instruction it would be possible to return to a four year curriculum for medical students. The average man would then qualify at 22, spend a year in hospital or in graduate study and start life at 23. Sir William considered that under our present system, valuable time was being lost because science was a Cinderella in the kitchen instead of a dominant partner in the educational family. His views as to the shortening of the curriculum are not in agreement with the report made by the Education Committee of the General Medical Council made nine years ago. An investigation showed that the mean length of the curriculum was about seven years—in England seven and one-half, and in Scotland and Ireland a little over six and one-half years. The possible minimum time is five years, and teachers complain that this is not sufficient for all the subjects which a student ought to learn.

Government Medical Work in India

The extent of the government medical work in India is shown by the recently issued report of the surgeon-general. At the regular dispensaries of Bengal (which is only one of three provinces of India) 5,571,000 patients were treated—an increase of 380,000 over the previous year. In addition, 130,000 were treated at certain mission and temporary epidemic dispensaries, and at fairs visited by medical officers. It is evident that the people appreciate more and more the benefits to be derived from these institutions. In the hospitals there are great difficulties as to nursing, but the training of Indian women as nurses has been started at some centers of Bengal.

New Medical College at Bombay

Owing to the munificent donation of Mr. Gordhandass Sunderdass, a want long felt in Bombay—a second medical college—will be established in connection with the King Edward Hospital and affiliated to the Bombay University. A condition of the donation is that the professors and teachers shall all be qualified Indian gentlemen not in government employ.

Deaths from Wild Animals in India

The government report shows that during the past year, 1,745 persons were killed by wild animals, an increase of about 9 per cent. over the previous year. Tigers were responsible for 646. In one district a man-eater killed 289 persons. The number of lives lost by snake-bite amounted to 22,894, an increase of 1,124 over the previous year's figures. The number of cattle killed by wild animals was 94,746. The number of snakes destroyed was 118,816.

Marriages

MARINDA E. BLACKBURN, M.D., Columbus, Ohio, to Mr. P. M. Weddell of San Jose, Calif., at Los Angeles, December 27.

EDWARD AUGUST HOEFER, M.D., Grafton, Iowa, to Miss Goldie Cleveland White of Greenville, Miss., January 16.

EVARTS AMBROSE GRAHAM, M.D., Mason City, Iowa, to Miss Helen Tredway of Dubuque, Iowa, January 29.

EARL FULLER SHAW, M.D., Williamston, Mich., to Mrs. Lyda E. Grant of Lansing, Mich., January 27.

JOSEPH A. S. REGLI, M.D., San Jose, Calif., to Miss Anna Rebecca Kelly of Oakland, Calif., January 19.

MARION HELENA OBER, M.D., Eugene, Ore., to Mr. George M. Locke of Portland, Ore., January 22.

JAMES BROOKS VAUGHAN, M.D., to Miss Eula Belle Simpson of Williamsburg, Mo., January 27.

THOMAS BENTON SELLERS, M.D., to Miss Kate Terry, both of New Orleans, December 23.

Deaths

Richard Channing Moore, M.D. Northwestern University Medical School, Chicago, 1865; aged 74; a Fellow of the American Medical Association, and second vice president in 1890-91; president of the Nebraska State Medical Society in 1887; of the Omaha Medical Society in 1898, and of the Medical Society of the Missouri Valley in 1901; acting assistant surgeon, U. S. Army, in 1864 with Civil War service; city physician of Omaha in 1876; one of the founders of the first medical college in the city which developed into the University of Nebraska College of Medicine and professor of diseases of the mind in that institution; was given a loving cup in January, 1910, by the Omaha-Douglas County Medical Society, of which he was a charter member; died at his home in Omaha, January 27.

James Burgess Book, M.D. Jefferson Medical College, 1865; aged 72; a Fellow of the American Medical Association; for many years professor of surgery in the Detroit College of Medicine and Surgery; prominent as a surgeon and business man of Detroit; formerly a member of the staff of St. Luke's and Harper hospitals; surgeon of the Independent Military Battalion, Detroit, in 1881 and later a member of the medical staff of the Fourth Infantry, Mich. N. G.; for one term a member of the city council and for the last twenty-five years a director in prominent financial institutions of the city; died at his home in Detroit, January 31, from septic pneumonia.

John M. Kitchen, M.D. New York University, New York City, 1846; aged 89; an honorary member of the Indiana State Medical Association; surgeon in charge of the U. S. Army Hospital, Indianapolis, from 1861 to 1865; consulting physician to the State Institution for the Deaf from 1872 to 1877; physician to the State Institution for the Blind; consulting physician to the Indianapolis City Hospital; one of the founders of the Indianapolis Medical Society and formerly president of the Marion County Medical Society and president of the board of trustees of the Medical College of Indiana; one of the oldest practitioners of Indianapolis and for many years prominently identified with medical activities in that city; died in his apartment in Indianapolis, February 5.

Jesse B. Burditt, M.D. Tulane University, New Orleans, 1894; aged 44; a member of the State Medical Association of Texas and a specialist on diseases of the eye, ear, nose and throat; a member of the medical staff of the Baptist Sanitarium and of the Southern Pacific Hospital, Houston, Texas; for the last six years a practitioner of Houston; was found dead in the bathroom in his apartment in that city, January 24, from heart disease.

Roscoe G. Dixon, M.D. Memphis Hospital Medical College, Memphis, Tenn., 1910; aged 31; formerly a Fellow of the American Medical Association; a member of the Oklahoma State Medical Association; of Sugden, Okla.; while crossing the Rock Island tracks in his automobile, January 23, was struck by a train and sustained injuries from which he died a few hours later. Mrs. Dixon, who was with him, was killed instantly.

Eugene Miller Smyser, M.D. University of Pennsylvania, Philadelphia, 1864; aged 73; a practitioner and druggist of Kings Park, N. Y.; assistant surgeon of the Thirty-Fourth Pennsylvania Militia during an existing emergency from June 3 to Aug. 24, 1863, and assistant surgeon of the Forty-Eighth Pennsylvania Volunteer Infantry from April, 1864, until the close of the Civil War; died at his home in Brooklyn, January 27.

Samuel M. Miller, M.D. Kentucky School of Medicine, Louisville, 1876; aged 64; a Fellow of the American Medical Association; professor of gynecology in the Medical Department of Lincoln Memorial University, Knoxville, Tenn.; formerly president of the East Tennessee and Knox County medical societies and a member of the Southern Association of Railway Surgeons; died at his home in Knoxville, January 28.

Edward McCord Scott, M.D. Vanderbilt University, Nashville, Tenn., 1900; aged 39; a Fellow of the American Medical Association and formerly secretary of the Ashley County (Ark.) Medical Society; a prominent practitioner of Hamburg, Ark.; who was operated on at St. Luke's Hospital, Little Rock, Ark., a week before for appendicitis, died in that institution, January 21, from embolism.

George Howard Malcolm Rowe, M.D. Harvard Medical School, 1868; aged 74; a Fellow of the American Medical Association; a member of the American Public Health Association and president of the American Association of Hospital Superintendents; who resigned as superintendent of the Boston City Hospital in 1908 after thirty years' service; died at his home in Boston, January 30.

Edward Smith Eveleth, M.D. College of Physicians and Surgeons in the City of New York, 1866; aged 74; a member of the Massachusetts Medical Society and a member of the staff of the Addison Gilbert Hospital, Gloucester, Mass.; one of the oldest practitioners of Gloucester; for many years a member of the local school board; died at his home in East Gloucester, January 25.

Conrad S. Reynolds, M.D. University of Pennsylvania, Philadelphia, 1883; aged 57; a Fellow of the American Medical Association and for thirty years a practitioner of Kennett Square; for many years a member of the Borough Board of Health and Borough Hospital; died in the German Hospital, Philadelphia, January 21, a day after an operation for appendicitis.

Thomas P. Singletary, M.D. Louisville (Ky.) Medical College, 1887; aged 55; a member of the Louisiana State Medical Association; coroner of East Baton Rouge County for four terms; local surgeon at Baton Rouge for the railways centering in that city and founder of the Baton Rouge Sanitarium; died at his home in Baton Rouge, January 23.

Robert Manton Wilson, M.D. Missouri Medical College, St. Louis, 1879; Jefferson School of Medicine, Louisville, 1882; aged 59; local surgeon at Hope, Ark., for the St. Louis, Iron Mountain and Southern, and Arkansas and Louisiana railways; a member of the International Association of Railway Surgeons; died at his home in Hope, January 26.

Asa Jacob Weaver, M.D. Northwestern Medical College, St. Joseph, Mo., 1893; aged 47; a Fellow of the American Medical Association; coroner of Cloud County, Kan.; a well-known surgeon of Concordia and proprietor of the Weaver Hospital in that city; died at his home in Concordia, January 27, from cerebral hemorrhage.

Frederick Lawford, M.D. University of Maryland, Baltimore, 1900; aged 40; a member of the Medical Society of Virginia; surgeon to the Norfolk and Southern Railway and Berkley Street Railway; proprietor of the Lawford Hotel and Hospital, Berkley, Norfolk, Va.; died at his home in Norfolk, January 24, from pneumonia.

John Mullin Batten, M.D. University of Pennsylvania, Philadelphia, 1864; aged 78; a Fellow of the American Medical Association; surgeon in the United States Navy from 1864 to 1866 with Civil War service; for many years a practitioner of Pittsburgh; died at his home in Downington, Pa., January 23.

Joseph Levan Van Bender, M.D. Eclectic Medical College of the City of New York, 1882; aged 75; formerly a member of the Medical Society of the State of New York; a veteran of the Civil War; for more than forty years a practitioner of Penn Yan, N. Y.; died at his home in that city, January 21.

William Francis Jones, M.D. University of Pennsylvania, Philadelphia, 1874; aged 71; a member of the Medical Society of Virginia; a Confederate veteran; for more than a quarter of a century a practitioner of Gloucester County, Va.; died at his home in Gloucester, Va., January 24.

Lois Fitch Mansfield, M.D. Northwestern University Women's Medical School, Chicago, 1876; aged 86; for thirty years a practitioner of Santa Barbara, Calif.; who is said to have conducted the first open-air school in America; died at her home in Santa Barbara, about January 29.

Robert H. McKee, M.D. Medical College of Ohio, Cincinnati, 1870; aged 71; formerly a member of the Ohio State Medical Association; health officer of Bainbridge, Ohio; a veteran of the Civil War; died at his home in Bainbridge, January 24, from cerebral hemorrhage.

Henry J. Sharp, M.D. Starling Medical College, Columbus, Ohio, 1871; aged 69; formerly a member of the Ohio State Medical Association; a veteran of the Civil War; for forty-five years a resident of London, Ohio; died at his home in that place, January 19.

Daniel A. Bissell, M.D. Hahnemann Medical College, Chicago, 1883; aged 62; health officer of Afton, N. Y., from 1886 to 1889 and for many years a practitioner of Gloversville; died at the home of his daughter in Yonkers, N. Y., January 29, from heart disease.

Thomas Benton Swartz, M.D. Northwestern University Medical School, 1888; aged 60; a Fellow of the American Medical Association; was stricken with cerebral hemorrhage, January 28, while making a professional call, and died at his home in Chicago, February 1.

James S. Edwards, M.D. McGill University, Montreal, 1880; aged 59; a Fellow of the American Medical Association, and one of the most esteemed general practitioners of Grand Rapids, Mich.; died at his home in that city, January 23, from pneumonia.

Carl Ultes, M.D. University of Michigan, Ann Arbor, 1875; Bellevue Hospital Medical College, 1878; aged 67; a member of the Ohio State Medical Association and for many years a practitioner of Springfield, Ohio; died in Eustis, Fla., January 28.

James B. Duncan, M.D. Kentucky School of Medicine, Louisville, 1879; aged 59; a Fellow of the American Medical Association and a well-known practitioner of Southern Indiana; died at his home in Bedford, Ind., January 31, from pneumonia.

John W. Cates, M.D. University of Nashville, Tenn., 1856; aged 84; a surgeon in the Confederate service throughout the Civil War and since its close a practitioner of Maryville, Tenn.; died at his home in that place, January 21, from heart disease.

Peter Jerome Curren, M.D. Long Island College Hospital, Brooklyn, 1882; aged 62; for several years in charge of the Antirabic Clinic of the Brooklyn Department of Health; died at his home in Brooklyn, January 29, from heart disease.

William G. Bradshaw, M.D. College of Physicians and Surgeons, Baltimore, 1881; aged 60; postmaster of High Point, N. C.; a druggist, banker and furniture manufacturer; died at his home, January 19, from cerebral hemorrhage.

Morris Kitay, M.D. University and Bellevue Hospital Medical College, New York City, 1915; aged 27; house physician in the North Hudson Hospital, Weehawken, N. J.; died in that institution, January 25, from pneumonia.

Edward A. Mayberry, M.D. University Medical College, Kansas City, Mo., 1897; aged 47; a Fellow of the American Medical Association; of Enid, Okla.; died recently in Hot Springs, Ark., from disease of the stomach.

William Raiford Eve, M.D. Medical College of Georgia, Augusta, 1867; aged 69; a Fellow of the American Medical Association; of Beech Island, S. C.; died in a hospital in Savannah, Ga., January 21, from heart disease.

Franklin Harvey Haney, M.D. Chicago College of Medicine and Surgery, 1909; aged 38; for thirteen years a pharmacist and practitioner of Illinois; died at his home in Walnut, Ill., January 11, from endocarditis.

George William Coit, M.D. Bellevue Hospital Medical College, 1866; aged 78; of Missouri Valley, Iowa; formerly president of the Iowa Railway Surgeons Association; died in La Jolla, Calif., January 31.

Balthazar Johannes deVogel, M.D. University of Amsterdam, Holland, 1868; aged 69; for more than forty years a practitioner of Hospers, Iowa; died at his home in that place, January 27, from pneumonia.

James C. Chaney, M.D. Memphis Hospital Medical College, Memphis, Tenn., 1895; aged 64; formerly president of the Owasso (Okla.) Board of Health; died at his home in Milo, Okla., January 20.

William J. Williams, M.D. Missouri Medical College, St. Louis, 1878; aged 66; for nearly twenty years a practitioner of Springfield, Mo.; died at his home near that city, January 24, from heart disease.

Major S. Langs, M.D. University of Toronto, Ont., 1865; aged 81; for forty-seven years a practitioner of Suspension Bridge, Niagara Falls, N. Y., and village trustee; died at his home, January 20.

George Isaac Cason, M.D. University of Missouri, Columbia, 1877; aged 62; for several years physician of Colusa County, Calif.; died at his home in Colusa, January 18, from cerebral hemorrhage.

Reuben Waddell Graham, M.D. College of Physicians and Surgeons, Chicago, 1915; aged 23; an intern in the Illinois Steel Company's Hospital, South Chicago, Ill.; died January 31, from diphtheria.

William Alonzo Ellis, M.D. College of Physicians and Surgeons, Boston, 1907; aged 30; died at his home in Essex, Mass., January 25, from pneumonia.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

OXYBON DECLARED FRAUDULENT

The United States Denies the Use of the Mail to the Exploiters of the Oxybon

Another, although probably not the last of the gas-pipe frauds has met its Waterloo. On Jan. 15, 1916, a fraud order was issued by the postmaster-general against the Oxybon Company and Ben A. Hallgren of Chicago, because it is alleged they had been engaged in conducting a scheme for obtaining money through the mails "by means of false and fraudulent pretenses, representations and promises."

The Oxybon has been referred to in THE JOURNAL'S articles on the gas-pipe frauds, which include such well-known humbugs as the Oxydonor, the Oxypathor and the Oxygenor.[1] The Oxybon Company, according to the complete set of advertising matter in THE JOURNAL'S files, had for its "president and general manager" one Dr. G. W. Filloon and for its "secretary and sales manager," Ben A. Hallgren.

The Oxybon, which as a fake did not even have the saving grace of originality, being merely a copy of other devices of the same type, was alleged to be the invention of Dr. Filloon. So far as our records show, Filloon is not a physician. In the medical directories issued during the past thirty years the name of Filloon does not appear except that the issues of 1902 and 1904 contain the name of George W. Filloon, 546 Good Block, Des Moines, Iowa. According to the same directories, the school of graduation of George W. Filloon was the "Metropolitan Medical College" for the year 1899. The Metropolitan Medical College, it will be remembered, was a fraudulent Chicago concern that sold diplomas to anybody that would pay the price. The "Metropolitan" was the successor to the even more notorious "Independent Medical College" of Chicago whose charter was revoked by the Supreme Court of Illinois in 1899. The moving spirit of both the Metropolitan and the Independent Diploma Mills was one J. Armstrong. The federal authorities issued a fraud-order against the Metropolitan Medical College in 1900. Armstrong, according to our records, was fined $500 and sent to jail for eighteen months.

According to the memorandum prepared by the solicitor for the Postoffice Department for the postmaster-general recommending the issuance of a fraud order, the Oxybon Company and Ben A. Hallgren were called on to show cause, on or before Nov. 16, 1915, why a fraud order should not be issued against them. At that time the Chicago postmaster reported that the average amount of mail received by the Oxybon Company was 140 pieces daily. On Nov. 17, 1915, the concern appeared before the solicitor's office, through John F. Voigt, a Chicago attorney, at which time the government's case was presented. At the close of the hearing the Oxybon people were allowed three weeks in which to file the brief and certain evidence in their defense, the mail addressed to the company being impounded in the meantime, pending the conclusion of the case. The evidence submitted by the government and the defense filed by the Oxybon concern were carefully considered and the solicitor in his memorandum to the postmaster-general reported, in part, that he found the facts to be essentially as follows:

"Ben A. Hallgren, under the name The Oxybon Company, at 208 North Fifth Avenue, Chicago, Ill., is engaged in the business of selling a certain device known as an 'Oxybon,' which consists of a metal cylinder filled with a certain compound, to each end of which is attached an insulated wire which terminates in garterlike attachments. The device is to be attached to a person suffering from disease, the cylinder at the same time being immersed in cold water or ice, and

1. A description of these various gas-pipe frauds is published in the Association's pamphlet "Medical Mail Order Frauds," price 10 cents.

the respondents are selling the instrument as a panacea for the cure of practically all human ailments.

"As a preliminary step to secure patients, the respondents insert in magazines and periodicals an advertisement which reads in part as follows:

"BORROW AN OXYBON

"You may now test this wonderful curative invention in your own home.

"Great thirty-day offer.

"Have you failed to find relief? Then all we ask is that you give us an opportunity to demonstrate the worth of our treatment by trying it for 30 days.

"Oxybon is a scientific instrument that floods the body with vital, life-giving oxygen. It relieves in an astonishingly short time all manner of acute and chronic troubles.

"It may be the turning point in your life from sickness to health.

"Send for our two valuable free booklets and particulars of our great offer to-day."

"When a reader answers the advertisement he is sent certain circular matter by the respondents which contains representations to the effect that the Oxybon, when attached to the diseased human body in accordance with certain directions to be furnished by the respondents, will cause the body to absorb increased amounts of oxygen through the skin and pores; that the said device is a scientific instrument which floods the body with oxygen; that the said device raises the resisting power of the human body against disease; that the said device makes everyone supreme master of his own health; that the operation of the said device is in accordance with the law of diamagnetism; that the curative powers of the said device far exceed those of any known method or appliance available to the medical profession; and that through the means indicated the said device will cure practically every human ailment."



A reduced reproduction of one of the Oxybon advertising circulars.

The memorandum then quoted some of the preposterous claims made in the Oxybon "literature." They may be summed up by saying that the Oxybon was claimed to be a cure for practically every known disease—and some that are unknown to medical science. The memorandum continues:

"ABSOLUTELY INERT"

"Government experts, who appeared before this office at the hearing and were subjected to cross-examination by the attorney for the respondents, agreed that the device is absolutely inert and has no power whatsoever either to cause the body to absorb increased amounts of oxygen, to generate any force or influence whatsoever when applied to the body, or to cure disease in any form.

"The contents of the cylinder, which was given a quantitative chemical analysis by the Department of Agriculture, is as follows:

"Moisture, that is volatile material at 100 C... 6.63 per cent.
"Sulphur, as free sulphur..... 47.92 per cent.
"Carbon and other material volatile at red heat 12.00 per cent.
"Ash material, non-volatile at red heat..... 32.65 per cent.

"The contents of the ash consists of iron, aluminum and copper calcium, magnesium, potassium and sodium oxides, phosphates and sulphates.

"Electrical and magnetic tests made at the Bureau of Standards, Department of Commerce, under conditions prescribed in the direction book which accompanies each instrument, disclosed that although the most delicate galvanometers and other instruments were used, the instrument is both electrically and magnetically inert, and, furthermore, that even if any electrical or magnetic force were generated within the instrument, it is effectively short-circuited, so that it would be impossible for the force, if any were produced, to be transmitted to any other object. Identical results were obtained irrespective as to whether or not the cylinder itself was immersed in cold or hot water.

"PROOF" THAT FAILED TO PROVE

"Among the representations in the respondents' literature contained in a booklet entitled 'Oxgen is Life Power' is the following:

"PROOF

"Prove it on a plant. Place the treating plate in the soil of a flower pot containing a plant, and the instrument in cold water, and you will soon see the plant thrive in a surprising way, in a few days. Reverse it by putting the instrument in hot water, and the plant will wither and die. Plants have no 'imagination and no faith.' The Oxybon can no more fail to do good to the human system when rightly applied than sunshine and moisture can fail to grow vegetation, if applied at any reasonable stage.

"Dr. W. W. Stockberger, physiologist in charge of Drug Plants and Poisonous Plant Investigations, in the Bureau of Plant Industry, Department of Agriculture, who appeared at the hearing as a witness for the government, testified that the tests suggested above had been made under his direction and personal observation in one of the greenhouses at the Department of Agriculture."

Dr. Stockberger described the test that had been made under his direction and observation on plants. The Oxybon was used on a number of them according to the directions, immersing the instrument in cold water. No increase in growth was shown in these experiments. The experiment was also made by immersing the Oxybon in hot water but the plants did not "wither and die" as the exploiters of the Oxybon said they would. The expert said that so far as he "could determine by careful inspection and observation the instrument had absolutely no effect whatsoever." The memorandum continues:

"Dr. Lyman F. Kebler, Chief of the Drug Division, Bureau of Chemistry, Department of Agriculture, also appeared at the hearing as a witness for the government, and described certain tests made of the instrument in question on a person suffering from tuberculosis. Although the instrument was applied in accordance with directions for a period of more than a month, no improvement in the patient's condition was noted, and the patient subsequently died."

"CURING" SPINAL CURVATURE, MENORRHAGIA AND HEART DISEASE!

A prominent practicing physician of Washington, D. C., who appeared at the hearing as a witness on behalf of the government stated that, in his opinion, the Oxybon had no curative value whatever. The memorandum further detailed the result of the investigation by Inspector Honvery, a post-office inspector who, by the way, has done excellent work in investigating various medical frauds on the public. To quote:

"Inspector Honvery, in the course of his investigation, wrote certain test letters to the respondents describing certain ailments from which the writer was alleged to be suffering. One letter described the case of curvature of the spine in a girl 13 years of age, and in replies thereto attempts were made by the respondents to sell or rent an Oxybon for the cure of this deformity. . . ."

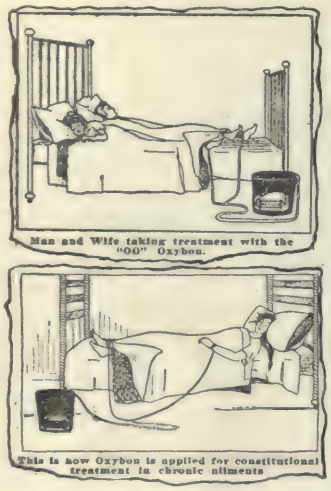
"Another test letter written by Inspector Honvery, under an assumed name, described a case of profuse and steadily

protracted menstruation in a young girl 17 years of age. The respondent's reply thereto, which was not a form letter, stated that Dr. Filloon (the inventor of the Oxybon) had been personally consulted and 'believes that from the way you describe your daughter's case she should get very encouraging results from the use of an Oxybon, as he thinks that the trouble is principally one of weakness of the organ affected, and as soon as Nature can sufficiently strengthen the body through the use of an Oxybon she should again be restored to health,' and also that the Doctor thinks that it would be to your best interest to try an Oxybon on our very liberal trial offer! . . .'"

"Another test letter was addressed by Inspector Honvery to the respondents asking for information whether the Oxybon would be of benefit in treating valvular disease of the heart. In the respondents' reply, dated Feb. 2, 1915, it was stated:

> "I have referred your case to the Doctor and he informs me to write to you that we cannot tell you anything as to the results on account of the seriousness of your trouble. The only thing you can do is to try an Oxybon. Your case has been of so long standing and its progress so far gone that it may be beyond the aid of nature, and if this is the case no treatment can be of any help to you.
>
> "However, you can never tell what this wonderful instrument is going to do until it is applied. . . ."

The government's medical expert testified that the Oxybon could have no effect in these various cases and further that the conditions described by Inspector Honvery were none of them caused by lack of oxygen, although the Oxybon literature declared that: "disease is largely if not wholly due to a deficiency of oxygen in the blood and body." Quoting further from the memorandum:





Reproductions of some of the illustrations (reduced) from an advertising booklet sent out by the Oxybon concern.

"The respondents in defense have made no genuine attempt to meet the case made out by the evidence presented on behalf of the government, and have relied upon certain documentary evidence including affidavits from the respondent Hallgren, and from physicians and others. Hallgren affirms his own faith in the instrument as the result of alleged cures effected upon himself by its use and from statements made to him by Dr. Filloon, the inventor of the instrument.

"Other affidavits relate to tests of the Oxybon on plants and guinea pigs in Chicago. Those who made the tests did not appear at the hearing and were not interrogated by counsel for the government, and whatever inference as to any power in the Oxybon to cure disease might be drawn from these tests standing alone, which appears to be doubtful to say the least, it is clearly refuted by the testimony in behalf of the government already referred to above.

TESTIMONIALS—OF COURSE

"Copies of many alleged testimonials from those who claim to have used the Oxybon with beneficial effects are also submitted by the respondents, who say in their brief:

> ". . . It would seem just to at least attach as much importance to the opinion of a man who claimed to have been sick and to be cured of his sickness and of his opinion of the value of the appliance which affected the cure as to the opinion of medical or other experts of the value of the appliance inasmuch as their opinion [the opinion of experts] is based upon an hypothesis. A man usually knows when he is sick and likewise he knows when he feels well. These letters have more weight than the guesses of experts."

"Assuming that the originals of these testimonial letters were actually received by the respondents, and assuming further that the statements contained therein are frank and sincere, the beneficial results described are doubtless due in large measure to the mental effect caused by the use of a somewhat elaborate and mysterious-looking apparatus. These testimonials may be easily described as falling into one of three classes, viz., they were written either by persons who imagined that they were suffering from disease, when in fact they were not, by persons whose recovery was due to nature, or by persons whose recovery was due to nature and local or hygienic treatment prescribed in connection with the alleged curative agent.

THE WORTHLESSNESS OF TESTIMONIALS

"In this connection, it may be stated that testimonials in general are of small evidentary value in cases of this kind, and are often furnished in good faith by sufferers from chronic ailments who are prone to consider slight temporary or even permanent improvement, due to natural causes, as an evidence of curative value in the device or treatment for which they furnish testimonials. At the hearing it was shown that a patient's diagnosis of his own disease is of very little value.

"The defense in this case fails entirely to meet the government's charges, and is one that might be urged with equal force in defense of any fraudulent mail-order medical concern. If, in fact, this device possessed any of the power claimed for it, the respondents would not have been driven for their defense to testimonials, but would have been able to produce some affirmative proof to meet the burden placed on them by the evidence of the government.

THE DANGER OF SUCH FRAUDS

"When it is remembered that the respondents are selling the Oxybon for the cure of practically all diseases, many of which if allowed to continue without immediate medical or surgical treatment may prove fatal to the patient, and that those who buy the device are lulled into a sense of false security from all disease, necessarily resulting in many cases in a serious or even fatal outcome, which might have been prevented had medical treatment been resorted to, the absolute necessity of prohibiting any further use of the mails wha ever in the sale of this device is apparent.

THE RENTAL TRICK

"Respondents place considerable reliance upon the fact that the Oxybon is sold on trial and call attention to the fact that under a certain 'lease form' entered into with patients, the latter are entitled to a refund less the sum of $5, which is retained by the respondents as rental, in case the purchaser returns the instrument after thirty or before thirty-six days. The names of 340 persons to whom such refunds have been made are also submitted by the respondents. This arrangement in no way alters the fraudulent nature of the business of the company.

"It is well known that many who find themselves defrauded neglect to make complaint, and in any event the fact that a part of the money secured by the false and fraudulent representations above is returned upon demand is a question of degree only. In all cases the patient is at least defrauded of the $5 which he pays as 'rental.'

"In this connection, attention is invited to the following language of the United States Circuit Court of Appeals for the Eighth Circuit in Harris v. Rosenberger, reported in 145 Federal 449, in which counsel for a concern against which a fraud order had been issued, among other grounds in support of a bill to enjoin the execution of the order, urged that a promise to refund the purchase price if the goods in question were not satisfactory and were returned and the fulfilment of that promise in the instances where it was requested showed that there was no intention to defraud:

"'The falsity of the representations and the appellee's knowledge of their falsity being established, as they were, it was not an inadmissible view that the promise to refund the purchase price, if the goods were not satisfactory and were returned, was cleverly devised to give apparent color and support to the representations. True, it appeared that, in a few exceptional instances where customers discovered and resented the deceit which was practiced upon them, the

appellee refunded the purchase price in fulfilment of his promise, but it cannot be said that this necessarily or conclusively disproved any intent to defraud, particularly when it was not questioned that in all other instances he retained the money obtained by means of the deceit which he was practicing.'"

As previously stated, the postmaster-general issued a fraud order against Ben A. Hallgren and the Oxybon Company on Jan. 15, 1916.

Correspondence

The Kinetic Drive

To the Editor:—It has occurred to me that since Professors Carlson and Woelfel have made themselves the sponsors of those who see reasons for questioning the validity of the kinetic theory (THE JOURNAL, Jan. 22, 1916, p. 295), it might be well to pursue with them an open debate in the pages of THE JOURNAL. Certainly if the kinetic theory is false it should be proved so, and that proof should be presented as openly as arguments in favor of that theory have been presented. My proposal would be that this debate be purely on the merits of the case; that it be free from personalities; that each present fully the data on which he founds his opinion regarding any contended point in the discussion; and that the discussion of each point be subject to the generally accepted rules of debate, i. e., that the affirmative have the privilege of final rejoinder.

Will you not let me know whether or not the pages of THE JOURNAL would be open to such a discussion, and if so will you find out whether or not Professors Carlson and Woelfel are ready thus to enter the forum?

G. W. CRILE, M.D., Cleveland.

[The above correspondence was referred to Drs. Carlson and Woelfel, who reply:]

To the Editor:—Our reply to such a proposal might well have been anticipated by Dr. Crile. It seems to us that Dr. Crile before making such a proposal should publish the laboratory and clinical data purporting to substantiate the theory. What sort of a "debate" would that be in which most of the evidence is accessible to one side only? Let Dr. Crile publish his "clinical cases"—especially since he is of the opinion that the validity of the theory must be proved or disproved in the clinics—and all his laboratory data relating to the theory, in such form that one can judge their cogency as evidence and let the essential and new facts be confirmed by others. Such a discussion might be useful.

A. J. CARLSON, PH.D.,
ALBERT WOELFEL, M.D.,
Chicago.

The Signs and Symptoms of Impending Death

To the Editor:—In Dr. Reilly's article on this subject (THE JOURNAL, Jan. 15, 1916, p. 160) there are a number of statements at variance with established beliefs. Dr. Reilly states that the death rattle is associated with pulmonary edema. The death rattle is caused by the air passing through the mucus which collects at the opening of the larynx through inability to remove it by swallowing.

The statement is made that edema of the glottis is invariably fatal. The glottis is the aperture of the larynx. What is probably meant is edema of the larynx. This winter I have seen a number of such cases. All the patients recovered.

ALBERT BARDES, M.D., New York.

[A proof of the preceding was sent to Dr. Reilly, who replies:]

To the Editor:—After reading the criticism of Dr. Bardes, I may say that I am quite well aware of the mechanism of the death rattle as understood by the laity; but, in my experience, when the death rattle is present there is also present an accompanying pulmonary edema. Doubtless the ultimate cause is the same in the two instances for both symptoms. I did not state that edema of the glottis is invariably fatal. This is the case only in elderly patients—those over 45 years of age, in whom a fatal issue may be predicted when this symptom is present. As to the term "edema of the glottis," there may be an honest difference of opinion. Osler regards the term "edematous laryngitis" as synonymous with edema of the glottis, or, more correctly, of the tissues from which the glottis is formed. He prefers the term "edema of the glottis." It is a well established term for describing that terrifying condition which begins with a marked edema of the arytenoepiglottidian folds and false cords and sometimes below the true cords, thus practically closing the air passages. In the aged it is practically always secondary to some other disease, and happy is he who can cure all such cases.

THOMAS F. REILLY, M.D., New York.

Treatment of Diphtheria Carriers

To the Editor:—Your answer to the query of Dr. C. J. March (THE JOURNAL, Jan. 1, 1916, p. 51) is of value, and if the method of treating diphtheria carriers is thoroughly carried out, the mortality from diphtheria will be reduced. It has been proved that patients discharged, after as many as three negative cultures have been obtained from the nose, mouth and throat, were still diphtheria carriers, the diphtheria bacilli being found in abundance in the deep crypts of the tonsil and folds of the adenoids. The customary swabbing of the nose, mouth and throat is not sufficiently thorough to secure a culture from the supratonsillar crypts or the folds of the adenoids, and, therefore, carriers are being discharged to continue in the spread of the disease. Not one carrier of diphtheria has been discovered who has had a complete removal of the adenoids and tonsils.

Your answer would have been simplified had you instructed Dr. March to have the child's tonsils and adenoids completely removed. This would have instantly cured the child of the disease and prevented the patient from becoming a carrier, as well as the incurable complications that this treatment prevents.

T. L. HIGGINBOTHAM, M.D., Hutchinson, Kan.

[COMMENT.—The point to which attention is called by Dr. Higginbotham is a good one. That the removal of the tonsils and adenoids aids in the treatment of diphtheria carriers should have been mentioned.—ED.]

Training of Medical Missionaries

To the Editor:—Apropos the Current Comment on the "Training of Medical Missionaries" (THE JOURNAL, Aug. 21, 1915, p. 723), I am moved to give a bit of personal testimony in the hope that it may, by virtue of its coming as a voice from the other side of the world, have the added effect that Dives hoped for, in his conversation with Abraham, as recorded in the sixteenth chapter of St. Luke. I am not dead, rather very much alive to some things, even more so than when living in America. Here in southern Asia, a doctor must be alive, if he would even attempt to diagnose properly and treat the many diseases that occur in his practice. In America I conceived the idea that a medical missionary should be an "all around doctor." Here I have realized that he must be more than that. If he would be of much service medically to those to whom he is sent, he must not only be a good general practitioner, but also, to be of distinct service, he should have specialized in certain branches. Tell every prospective medical missionary that if the need of the civilized country is not "more doctors, but more doctor," doubly, trebly true is it out here.

Will you bear with me one more word: Let there be places where this additional training can be had by those who have offered themselves for foreign fields *for life*. I have found no place where my appointment to a foreign country gave me any advantage when seeking postgraduate training: not even in the hospitals which call themselves by the name of my church was there a single opening.

PAUL W. VAN METRE, M.D., Nakawn Sritamarat,
Malay Peninsula.
Superintendent, Sritamarat Memorial Hospital.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

STROGANOFF'S PROPHYLACTIC TREATMENT OF ECLAMPSIA—CALOMEL IN PREGNANCY

To the Editor:—1. What is Stroganoff's method of treating eclampsia? 2. I should like some information regarding the use of calomel during pregnancy, and dangers of producing abortions and miscarriages. Please omit my name. E. A. L.

ANSWER.—1. Stroganoff's technic was described in THE JOURNAL, July 3, 1909, p. 86. A list of references to articles on his method appear in THE JOURNAL, Nov. 30, 1912, p. 1992. His most recent article on this subject was published in *Archiv für Gynäkologie*, 1913, xcix, No. 2. Stroganoff's technic aims to prevent the convulsions by reducing the irritability of the nervous system, obtaining sleep by means of narcotics, removing everything liable to produce irritation, terminating the pregnancy, if necessary, and watching over the regular action of heart, lungs and kidneys. Morphin and chloral are employed, with chloroform at first until the patient feels the effect of the chloral. In moderately severe cases, 0.015 gm. morphin is given first; in one hour or sooner, 2 gm. chloral; morphin again the third hour; chloral the seventh, and 1.5 gm. chloral again the thirteenth and twenty-first hours. If the convulsions continue, delivery is hastened, but surgical measures are seldom necessary.

2. Concerning the relation of calomel to pregnancy, "The Pharmacology of Useful Drugs," p. 289, says, "Calomel has little action on the uterus, and moderate doses are therefore not contraindicated in pregnancy."

GONOCOCCI IN THE CEREBROSPINAL FLUID

To the Editor:—On page 616, Volume I, No. 4, of "The Medical Clinics of Chicago," Dr. Tice makes the statement that the gonococcus is occasionally found (in cerebrospinal fluid). Are there any characteristics, morphologic, staining or cultural, by which the gonococcus could be differentiated from the meningococcus in the cerebrospinal fluid? If so, will you describe them?

H. H. COLEMAN, M.D., New Philadelphia, Ohio.

ANSWER.—Although the gonococcus has occasionally been reported in cerebrospinal fluid, these cases are so rare as to be among the curiosities of bacterial localization. They give little practical difficulty.

In general it may be said that the meningococcus grows on mediums more readily than the gonococcus, but as every bacteriologist knows, strains of both organisms are encountered which are cultivated with greater ease or with greater difficulty than the average of their kind, so that absolute dependence could not be placed on this quality. In fact, no method of staining and no morphologic or cultural difference could be relied on without fail for differential diagnosis. Serologic tests would give the best basis for distinction. A summary of all the characteristics is not likely to leave one in doubt about identification.

CLEANING TEST TUBES

To the Editor:—In washing glassware, especially test tubes, I have been troubled with a hazy white discoloration in the tubes that is practically impossible to remove by ordinary means. Will you kindly give me some method by which they can be cleaned quickly and neatly and have a clear luster? W. E. K.

ANSWER.—The possibility of removing the discoloration depends on what it is due to. If the glass has been etched by alkali, or by the cultivation of bacteria in the tubes, there is no practicable way of restoring it to its original transparency. If the stain is caused by some substance adhering to the glass, special solvents may be required to remove it, but usually the cleaning can be done by treating the glass with a sulphuric acid-potassium bichromate cleaning mixture.

Apportioning the Cost of Health Conservation.—If it is hazardous to human lives to produce an article of human usefulness, then the cost of production should include the cost of the conservation of health.—*Ohio Public Health Jour.*

Medical Education and State Boards of Registration

COMING EXAMINATIONS

CONNECTICUT: Regular, New Haven, March 14-15. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven; Homeopathic, New Haven, March 14. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven; Eclectic, New Haven, March 14. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

FLORIDA: Homeopathic, Jacksonville, March 10. Sec., Dr. J. B. Griffin, St. Augustine.

MAINE: Portland, March 14-15. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MASSACHUSETTS: Boston, March 14-16. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

MISSOURI: St. Louis, March 20-22. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

WYOMING: Laramie, March 14-16. Sec., Dr. H. E. McCollum, Laramie.

Iowa October Report

Dr. G. H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Des Moines, Oct. 19-21, 1915. The total number of subjects examined in was 8; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 17, of whom 16 passed and 1 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Bennett College of Eclectic Medicine and Surgery	(1908)	84
Bennett Medical College	(1914)	88
Chicago Coll. of Med. and Surg.	(1913) 86; (1914) 87; (1915)	86
Chicago Homeopathic Medical College	(1898)	88
Hahnemann Medical College and Hospital, Chicago	(1915)	90
Northwestern University	(1908)	83
Rush Medical College	(1915)	88
University of Illinois	(1913) 92; (1915)	87
Kentucky School of Medicine	(1903)	92
Harvard University	(1901)	90
National University of Arts and Sciences	(1914)	76
Meharry Medical College	(1909)	77
University of Toronto	(1911)	89
FAILED		
Barnes Medical College	(1904)	75.5*

* Fell below the required average in one subject.

Arkansas Eclectic November Report

Dr. C. E. Laws, secretary of the Arkansas Eclectic Medical Board, reports the oral and written examination held at Little Rock, Nov. 9-10, 1915. The total number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 5, of whom 4 passed and 1 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Kentucky School of Medicine	(1896)	82.9
Eclectic Medical University	(1906) 81.1,	82.2
University Medical College, Kansas City	(1891)	83.2
FAILED		
Western Eclectic College of Medicine and Surgery	(1908)	51

Delaware December Report

Dr. H. W. Briggs, secretary of the Medical Council of Delaware, reports the written examination held at Dover and Wilmington, Dec. 14-16, 1915. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 6, all of whom passed. Three candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
New York Homeo. Med. Coll. and Flower Hosp.	(1914) 89.9; (1915)	89.2
Hahnemann Med. Coll. and Hosp., Philadelphia	(1915) 85.8,	88.8
Jefferson Medical College	(1914)	81.6
Medico-Chirurgical College of Philadelphia	(1915)	75.1

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
University of Maryland	(1914)	Maryland
University of the City of New York	(1890)	New York
Hahnemann Med. Coll. and Hosp., Philadelphia	(1912)	Penna.

Book Notices

A HANDBOOK OF COLLOID-CHEMISTRY. The Recognition of Colloids, the Theory of Colloids and Their General Physico-Chemical Properties. By Dr. Wolfgang Ostwald, Privatdozent in the University of Leipzig. First English Edition, Translated from the Third German Edition by Dr. Martin H. Fischer, Professor of Physiology in the University of Cincinnati, with the Assistance of Ralph E. Oesper, Ph.D., Instructor in Chemistry, New York University, and Louis Berman, M.D., Staff Physician, Mount Sinai Hospital, New York. Cloth. Price, $3 net. Pp. 278, with 60 illustrations. Philadelphia: P. Blakiston's Son & Co., 1915.

For several years Wolfgang Ostwald has been one of the leading advocates of the importance of the study of the properties of colloids as a special division of chemical and physical science. His book, the third edition of which has now received its first and long overdue translation into English, has been an important agent in the great increase of interest and investigation in this field. Through his energy, a special journal on colloid chemistry, generally known as the *Kolloid Zeitschrift*, has been established. Many Americans will also recall with pleasure the brilliant series of lectures on the fundamentals of colloid chemistry with which, in a tour among our universities a few years ago, he stimulated interest.

From the standpoint of the medical and the biologic sciences, too much stress cannot be laid on the importance of colloidal properties. As Dr. Fischer says in the preface to his translation: "It happens that nature has chosen the colloid form in which to show her face. Crystalloid behavior is the exception, colloid behavior the rule, in the cosmos." The living organism is a mass of colloids, and therefore the more we learn about colloidal properties the more we shall learn of the properties of the living matter.

Anything that is done to further active investigation in this field is to be commended and supported, and hence making Ostwald's standard work accessible to a wider circle is an enterprise that should be cordially endorsed. To all progressive chemists and biologists, the original German editions have been familiar and invaluable. The scope of the book includes consideration of the distinctive features of colloid substances and their characteristic properties. Their particular relation to biologic and industrial chemistry is not discussed, the object of the author being to set forth the fundamental principles of colloid chemistry rather than its application. Hence the book is invaluable to chemists and biologists, but is scarcely available for the medical man who has not specialized in chemistry. He will find more of immediate value in Bechhold's work on "Colloid Chemistry in Biology and Medicine," a stimulating work which still awaits translation.

HOW TO LIVE. Rules for Healthful Living Based on Modern Science. Authorized by and Prepared in Collaboration with the Hygiene Reference Board of the Life Extension Institute, Inc. By Irving Fisher, Chairman, Professor of Political Economy, Yale University, and Eugene Lyman Fisk, M.D., Director of Hygiene of the Institute. Second Edition. Cloth. Price, $1 net. Pp. 345, with illustrations. New York: Funk and Wagnalls Company, 1915.

This book may be regarded as a conservative statement of the principles by which the individual may attain and keep good health, become a better and more efficient citizen, and round out a full, vigorous life. The authors and sponsors of the book—leading hygienists, physicians, publicists and professional men—are surety for the accuracy of the facts, figures and the advice. It must not be assumed that it is a lugubrious compilation of killjoy regulations that the average person would feel inclined to dodge. On the contrary, while endeavoring seriously to impress the reader with his responsibility as a member of society, and with the importance of proper personal hygiene to health and efficiency, and therefore to the "enduring satisfactions of life," it has clothed the assumed dry-as-dust facts regarding health in interesting habiliments, so that the book is reluctantly laid down. One is at once interested, informed and benefited. This book should be a nonfiction "best seller," and physicians should be propagandists in its behalf.

Medicolegal

Municipalities Not Liable for Infection from Negligent Vaccination

(*Howard vs. City of Philadelphia* (*Pa.*), *95 Atl. R. 388*)

The Supreme Court of Pennsylvania affirms a judgment entered for the defendant notwithstanding that a verdict was rendered in favor of the plaintiff for $5,000 damages for a negligently performed vaccination. The court says that the health authorities of the city of Philadelphia established a quarantine in a certain district within the city limits in which the plaintiff resided, because it was infected with smallpox. The authorities proposed to relieve from the restrictions of the quarantine such of the inhabitants as submitted to vaccination. The plaintiff submitted, and was vaccinated by a physician employed by the board of health, without expense to himself. His vaccination was negligently performed, and as a result another and different infection was introduced into his system, which after some months became so localized and virulent that amputation of one of his limbs became necessary. Suit was brought against the city for the recovery of damages, and the facts above stated were established to the satisfaction of the jury. The one distinctive ground on which the court below rested its conclusions, when it entered judgment for the defendant, notwithstanding the jury found for the plaintiff, was that by general rule municipalities are exempt from liability for the negligent acts of their officers and agents, except in case where the negligence occurs in the performance of some duty which has been imposed by law on the municipality. The rule as thus stated by the court, while correct as far as it goes, leaves something to be supplied because of its conciseness. If it be added to it that, in order to constitute an exception to the rule, the duties so imposed must be imperative, and not discretionary, so as to make clear the distinction between duty and authority or power, and, further, that the duty must relate to the municipality's public or governmental functions, as distinguished from its private or corporate functions and duties, the rule as stated is one which has always been recognized in Pennsylvania, and obtains in most, if not in all, the other states. The law sometimes imposes duties on municipalities which are legislative or judicial in their character, and therefore discretionary. It is only with respect to the performance of these that no liability attaches. With respect to those duties which are absolute and perfect, no exemption can be claimed in their performance. It was not pretended that in this case what the city did was in discharge of a positive and imperative duty imposed on it by law. As little could it be contended that in doing what it did it was exercising a corporate function, for the private advantage and benefit of its inhabitants. It is clear beyond question that the negligence here complained of did not fall within the exception to the general rule in regard to municipal exemption, and that the general rule as above stated here governed.

Incompetent Testimony of Physician in Inquisition of Lunacy

(*In re Gates* (*N. Y.*), *154 N. Y. Supp. 782*)

The Supreme Court of New York, Appellate Division, Third Department, in reversing an order affirming the findings of an inquisition of lunacy and granting a new hearing, says that it was error to permit the defendant's personal physician to testify as to the competency of his patient. Clearly it was indelicate for a physician in attendance on a patient to permit himself to be hired by another and go and make an examination of the patient for the purpose of testifying against him. In the judgment of the court it was not only indelicate, but in violation of the privilege given to the patient under Section 834 of the New York Code of Civil Procedure. It was also error to permit a physician, in forming his opinion as to the competency of the alleged incompetent, to base it in part on his understanding and recollection of the evidence given by the petitioner's witnesses in court. If the petitioner wished to avail himself of anything brought out by the examination,

the alleged fact should have been incorporated in a hypothetical question. The physician, by the question put to him, was called on to form a conclusion as to what the evidence had established.

State Board of Health Not Authorized to Employ an Attorney

(Fergus et al. vs. Russell, State Treasurer, et al. (Ill.), 110 N. E. R. 130)

The Supreme Court of Illinois says, in this suit to restrain the payment out of the state treasury of certain appropriations made by the general assembly, that the statute gives the State Board of Health no power or authority to employ an attorney, but, on the contrary, by Section 7 of Chapter 126a (Hurd's Statutes of 1913, page 2288), it is provided that in all prosecutions and proceedings instituted by the State Board of Health it shall be the duty of the state's attorney in each county to prosecute.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

January, III, No. 7, pp. 367-422

1 Study of Endameba Buccalis in Alveolodental Pyorrhea. F. M. Johns, New Orleans.
2 Dietetic Treatment of Sprue. B. K. Ashford, Porto Rico.
3 Complement Deviation Reaction Applied to Diagnosis of Moniliasis of Digestive Tract. I. G. Martinez, San Juan, Porto Rico.
4 Control of Asiatic Cholera on International Trade Routes. A. J. McLaughlin, Washington.
5 Case of Sprue with Necropsy. E. H. Falconer, San Francisco, and A. H. Rowe, Boston.
6 Breeding Places of Anopheles. H. P. Barret, Charlotte, N. C.
7 Intestinal Parasites of Isthmus of Tehuantepec. A. K. Moillet and F. Carreno.

Annals of Otology, Rhinology and Laryngology, St. Louis

September, 1915, XXIV, No. 3, pp. 429-746

8 Suspension Laryngoscopy and Its Accomplishments. R. C. Lynch, New Orleans.
9 Focal Infection in Etiology of Labyrinth Disease. G. E. Shambaugh, Chicago.
10 Infection of Ear with Vincent's Micro-Organisms; Report of Sixteen Cases. J. A. Mulholland, New York.
11 Transplantation of Cartilage in Correction of Septal Deformities. F. O. Lewis, Philadelphia.
12 Report of Some Unusual Cases of Disease of Nasal Accessory Sinuses. J. R. Winslow, Baltimore.
13 Surgical Diseases of Superior Maxilla. W. P. Barndollar, Pittsburgh.
14 True Myxoma of Rhinopharynx; Report of Two Cases. V. Dabney, Washington.
15 Report of Two Cases of Mastoid Abscess, Infective Thrombosis of Lateral Sinus and Jugular Vein; Resection of Jugular; Recovery. J. H. Bryan, Washington.
16 Cases of Lateral Sinus Thrombosis. G. W. Boot, Chicago.
17 Case of Brain Abscess with Unusual Findings. G. L. Richards, Fall River, Mass.
18 Case of Otitis Media and Mastoiditis Followed by Meningitis, Operation, Recovery. After Eight Years, Development of Cerebral Abscess Operation, Death. S. J. Kopetzky, New York.
19 Roentgenographs of Mastoid in Certain Atypical Cases. H. Hays, New York.
20 Standard Tonsillectomy. J. R. Fletcher, Chicago.
21 Local vs. General Anesthesia in Nose and Throat Operations. J. C. Beck, Chicago.
22 Decompression for Relief of Choked Disk Following Thrombosis of Lateral Sinus. H. Friedenwald and J. W. Downey, Jr., Baltimore.
23 Inferior Turbinate. J. A. Cavanaugh, Chicago.
24 Some Statistic Observations on Otolaryngologic Diseases Among Negroes, Based on Fifteen Hundred Cases. D. Roy, Atlanta.
25 Acute Hemorrhagic Mastoiditis. H. W. Loeb, St. Louis.
26 Tonsil Operation; Inquiry into Actual Results Obtained in Series of Cases. D. J. G. Wishart, Toronto.
27 Case of Traumatic Mastoiditis. C. J. Imperatori, New York.
28 Facial Contractions During Radical Mastoid Operation. C. E. Perkins, New York.
29 Differential Diagnosis of Laryngeal Motor Paralysis. O. J. Stein, Chicago.
30 Case of Acute Meningitis Associated with Acute Suppurative Otitis Media, Both Produced by Streptococcus Mucosus Capsulatus. R. L. Loughran, New York.
31 Case of Acute Exacerbation of Chronic Mastoiditis with Cholesteatoma, Extensive Epidural Abscess, Purulent Pachymeningitis, with Exploratory Incision of Dura and Lateral Sinus; Recovery. R. L. Loughran, New York.
32 Labyrinth Probe. F. R. Spencer, Boulder, Colo.

Archives of Pediatrics, New York

December, 1915, XXXII, No. 12, pp. 881-950

33 *Foreign Body Pneumonias. A. Caillé, New York.
34 Disseminated Miliary Tuberculosis. W. F. Northrup, New York.
35 Value of Roentgen Ray in Intrathoracic Lesions in Children. R. G. Freeman, New York.
36 Case of Amaurotic Family Idiocy in One of Twins. C. Herrman, New York.
37 *Macewen's Sign. H. B. Wilcox, New York.

33. **Foreign Body Pneumonias.**—In one of the cases cited by Caillé the spasmodic character of the cough, the expectoration of pus in an acute lesion, in the absence of amphoric breathing such as we find in cavity formation, gave rise to the suspicion of a foreign body irritation. The roentgenogram revealed a large tack, with a large round head, in the right lung. Rapid improvement followed the removal of the tack with the aid of the bronchoscope guided by the fluoroscope. The physical signs cleared up, and the child was discharged cured. The tack had been lodged in the lung about five weeks. In the second case the roentgenogram showed a large nail in the left bronchus and partly in the trachea. A lower tracheotomy was performed and the nail removed with the aid of the bronchoscope. In the third case a shawl pin was found in the left bronchus and lung, the point projecting at the bifurcation in the trachea. During a severe spasmodic coughing spell the patient coughed up the 2½ inch long brass shawl pin. The pin had been in the child's lung forty-three days without inducing local inflammation.

37. Abstracted in The Journal, June 26, 1915, p. 2167.

Arkansas Medical Society Journal, Little Rock

January, XII, No. 8, pp. 189-212

38 Obstetric Technic. E. C. Meyers, Fort Smith.
39 Anent General Practician. D. Smith, Hope.
40 *Heart Inhibition During Vomiting. D. Gann, Jr., Little Rock.
41 Practical Laboratory Diagnosis. J. C. Simpson, Hamburg.

40. **Heart Inhibition During Vomiting.**—Gann says that while experimenting on intrathoracic and intra-abdominal pressures, the blood pressure was observed to fall during vomiting. A series of experiments were performed to determine the cause of this fall. In all experiments the blood pressure, the intrathoracic pressure and the movements of the abdominal wall were recorded. Vomiting was induced in some cases by means of apomorphin; in others by filling the stomach with hot salt solution, hot soap suds, copper sulphate solution, etc. In every case a high negative pressure was observed in the thorax during the act. The pressure would fluctuate rapidly from zero to twenty-five or thirty centimeters (water) of negative pressure. The blood pressure, however, always fell, sometimes to less than half its former level. The fall in blood pressure was found to be due to a vagus inhibition of the heart, for on cutting the vagi while the vomiting was taking place, and while the blood pressure was at its lowest, there was an immediate increase in heart rate and rise to above the normal in blood pressure. Furthermore, when the vomiting was induced after the vagi had been cut, there was a rise instead of a fall in blood pressure.

Boston Medical and Surgical Journal

January 27, CLXXIV, No. 4, pp. 109-150

42 Orthopedic Work in War Hospital. R. B. Osgood, Boston.
43 Anthropologic Comments on So-Called "Herbivorous" and "Carnivorous" Types of Man. E. A. Hooton, Cambridge.
44 Mutism and Deafness Due to Emotional Shock Cured by Etherization. D. P. Penhallow, Boston.

Indiana State Medical Association Journal, Fort Wayne

January, IX, No. 1, pp. 1-44

45 Case of Hysteria from Viewpoint of Freudian Psychology. M. A. Bahr, Indianapolis.
46 Position of Otolaryngology Among Specialties. J. F. Barnhill, Indianapolis.

Iowa State Medical Society Journal, Des Moines

January, VI, No. 1, pp. 1-40

47 Classification and Treatment of Chronic Cryptogenetic Splenic Tumor; Splenectomy. W. E. Sanders, Des Moines.
48 Diagnosis of Osteomyelitis. M. J. Kenefick, Algona.
49 Cooperation; What Does It Mean? C. E. Harris, Grinnell.
50 Detail of Worth's Muscle Exercises and Other Treatment for Strabismus (Concomitant). C. C. Walker, Des Moines.
51 Use of Duodenal Tube. J. F. Churchill, Chicago.
52 Slight Injuries in Syphilitic Patients. T. H. Glenn and W. R. Bates, Fort Dodge.
53 *Hay-Fever Producing Weeds in United States. W. Scheppegrell, New Orleans.

53. **Hay-Fever Weeds in United States.**—The object of the American Hay-Fever Prevention Association of which Scheppegrell is president, is defined by him as follows: The dissemination of general knowledge of benefit to sufferers from hay-fever, the education of the public regarding the weeds that are known to produce this disease, and the use of its influence and cooperation toward the eradication of such weeds. By means of lectures and articles in the scientific and public press, it is endeavoring to educate the public in the relation of certain weeds to hay-fever, and the best methods for their avoidance and eradication.

Journal of Biological Chemistry, Baltimore

January, XXIV, No. 1, pp. 1-89

54 *Experimental Diabetes after Pancreatectomy. A. A. Epstein and G. Baehr, New York.
55 *Effect of Phlorhizin on Formation of Glycogen in Liver. A. A. Epstein and G. Baehr, New York.
56 Use of Phlorhizinized Dogs to Determine Utilizable Carbohydrate in Foods. W. D. Sansum and R. T. Woodyatt, Chicago.
57 Can Carbon Dioxid in Sea Water Be Directly Determined by Titration? S. Morgulis and E. W. Fuller, Woods Hole, Mass.
58 Stability of Growth-Promoting Substance in Butter Fat. T. B. Osborne and L. B. Mendel, New Haven, Conn.
59 Cephalin. Brain Cephalin. P. A. Levene and C. J. West, New York.
60 Glucosaminoheptonic Acid. P. A. Levene, New York.
61 Ammonia Derivatives of Sugars. P. A. Levene, New York.
62 Sphingosin. Some Derivatives of Sphingosin and Dihydrosphingosin. P. A. Levene and C. J. West, New York.
63 Sphingomyelin. P. A. Levene, New York.

54. **Diabetes after Pancreatectomy.**—Epstein and Baehr found that the hyperglycemia in experimental diabetes after pancreatectomy in the cat mounts progressively in the terminal stages of the condition because of diminution in the permeability of the kidneys. This they believe furnishes an explanation of the excessive rise in the blood sugar of diabetics prior to the development of coma. Experimental interference (by double nephrectomy) with the glucosuria of depancreatized animals also causes a rapidly progressing hyperglycemia. This accumulation of sugar in the blood is said to be largely due to the gradual mobilization of carbohydrate from the liver and muscles.

55. **Phlorhizin and Formation of Glycogen.**—Phlorhizin, Epstein and Baehr say exerts a specific effect on the liver which does not become evident unless the kidneys are removed. In other words, phlorhizin in some way stimulates the liver to build up glycogen. With the kidneys intact, the glucosuric action of phlorhizin is so much more powerful than this liver action that the glycogen accumulations in the liver are rapidly diminished. On removal of the kidneys, however, the glucosuric action is eliminated and the effect on the liver becomes manifest in a rapid building up of glycogen, even in a state of extreme starvation.

Journal of Experimental Medicine, Baltimore

February, XXIII, No. 2, pp. 149-264

64 *Pathologic Effects of Atmospheres Rich in Oxygen. H. T. Karsner, Cleveland.
65 Inhibition of Toxicity of Uranium Nitrate by Sodium Carbonate. W. deB. MacNider, Chapel Hill, N. C.
66 *Intratesticular Implantation of Flexner-Jobling Rat Carcinoma. W. H. Woglom, New York.
67 *Experimental Syphilis in Rabbit Produced by Brain Substance of Living Paretic. U. J. Wile, Ann Arbor, Mich.
68 *Study of Gastric Ulcers Following Removal of Suprarenals. F. C. Mann, Rochester, Minn.
69 *Transplantable Carcinoma of Guinea-Pig. F. S. Jones, New York.
70 Preservation of Living Red Blood Cells in Vitro. Methods of Preservation. P. Rous and J. R. Turner, New York.
71 Id. Transfusion of Kept Cells. P. Rous and J. R. Turner, New York.
72 Cause of Rat-Bite Fever. K. Futaki, F. Takaki, T. Taniguchi, and S. Osumi, Tokyo.
73 Biology of Peripheral Nerves in Transplantation. R. Ingebrigtsen, Christiania, Sweden.

64. **Atmospheres Rich in Oxygen.**—The studies reported by Karsner show that atmospheres containing 80 to 96 per cent. oxygen under normal barometric pressure produce in twenty-four hours, or more commonly forty-eight hours, congestion, edema, epithelial degeneration and desquamation, fibrin formation, and finally a pneumonia, probably of irritative origin and to be described as a fibrinous bronchopneumonia. The important new points are the time relations of these changes and definition of the type of the pneumonia. Other studies have noted slight passive congestion, but it is now established by Karsner that this is to be accounted for in most cases by dilatation of the right side or of both sides of the heart. This congestion affects all the abdominal viscera and is accompanied by certain secondary changes such as cloudy swelling of the parenchymatous organs and phagocytosis of erythrocytes by endothelial cells of the mesenteric lymph nodes. Although deficiency of oxygen may affect the hematopoietic system, the animals subjected to high oxygen percentages failed to show any demonstrable pathologic changes in blood, spleen, lymph nodes, or bone marrow, except for the presence of congestion.

66. **Flexner-Jobling Rat Carcinoma.**—Rats were inoculated by Woglom in both testes and in the right axilla, each series at the same sitting and with an equal dose of the same tumor. From three to seven days afterward, the tension in the left testis was lowered by incising the tunic through an abdominal incision under ether anesthesia, while the right testis was left undisturbed as a control. The tumors in the opened (left) gland were not invariably larger than those in the unopened, as they would be were tension alone responsible for the smaller size of intratesticular growths. That the release of pressure may occasionally exert some slight favorable influence, however, is suggested by the fact that neoplasms in the opened testis had in several cases grown through the incision in the tunic; furthermore, these growths were sometimes larger than those in the opposite testis. That is to say, in thirty-nine rats, in which grafts succeeded in both testes, a distinctly larger tumor was found in the opened gland in twelve, while in only six was the nodule on this side smaller than that in the intact organ; in twenty-one rats, the intratesticular growths were of uniform size. The absence of metastases in the abdominal cavity, supports the observation of Jones and Rous, that the peritoneum, in animals at least, is not susceptible to metastatic attack unless the subendothelial connective tissues have been injured.

67. **Experimental Syphilis in Rabbit.**—Wile repeated the inoculation experiments of Forster and Tomasczewski. Six cases were chosen from a large number of paretics. The diagnosis from the clinical findings and from the spinal fluid was frank general paralysis. The material was obtained from the brain. In five of the six cases spirochetes were demonstrable. The major portion of the material thus obtained was at once injected into the testes of a large rabbit. The material from five patients was injected into the left organ and that from one patient into the right. About two weeks after the inoculation, small hard nodules could be felt in both organs. Aspiration of the nodules after four weeks showed large numbers of active, motile spirochetes. These continued to be demonstrable up to the eleventh week after inoculation, when the animal died from an accidental trypanosome infection, the nature of which was not determined. When the organisms were first demonstrable a second rabbit was inoculated from the aspirated testicular juice of the first animal. Twenty-one days later, both testes were found to be the sites of hard nodules, from which again on aspiration, large numbers of spirochetes were demonstrable. These continued to be demonstrable in the second rabbit for five weeks, up to the time of the death of this animal from the same accidental infection. A third rabbit was inoculated with the aspirated testicular juice of the second, and fifteen days after inoculation small nodules appeared in both testes, in which again large numbers of organisms could be found on repeated examinations.

68. **Gastric Ulcers Following Removal of Suprarenals.**—In over 100 experiments made by Mann lesions of the gastric and duodenal mucosa did not occur in suprarenalectomized animals subject to continuous etherization and were infrequent in animals subjected to the removal of only one suprarenal; but lesions in the stomach and duodenum occurred in about 90 per cent. of the animals dying with the characteristic symptoms of suprarenal insufficiency after removal of both glands. The lesions found in the gastric mucosa after death from suprarenal insufficiency consist of two main types; one is a widespread, superficial erosion; the other is a true, punched-out ulcer formation. The gastric erosions practically always occurred in the fundic division, and in most cases the pyloric mucosa appeared normal. The gastric ulcers were usually multiple, but a few stomachs contained only one ulcer. Their position varied; they were found in the fundic and pyloric regions on both the greater and lesser curvatures. Usually they occurred in the prepyloric division. The duodenal mucosa was usually congested in the suprarenalectomized animals. In five experiments there were definite ulcers. These duodenal ulcers occurred just distal to the pyloric ring and appeared like cauterized areas about 1.5 cm. in diameter. The gastric content was always acid in the suprarenalectomized animals. In a series of ten experiments in which sodium bicarbonate was administered after the removal of the last suprarenal, ulcers were found in one animal only. This result would tend to show, as has been demonstrated in regard to the formation of other acute ulcers, that acid is a factor in their production. In a series of ten experiments a gastro-enterostomy was performed during the interval between the removal of the suprarenals. In only four of these animals were ulcers found. It is possible to explain this result as due to a reflux of the alkaline intestinal secretion and the bile.

69. **Transplantable Carcinoma of Guinea-Pig.**—An adenocarcinoma of the mammary gland of an old guinea-pig has been successfully transplanted by Jones through eight successive series of animals. It now appears much earlier and grows more rapidly. The number of takes also has increased. In two instances metastasis to the regional lymph glands (inguinal) has been observed. Once microscopic metastases were found in the kidney. The so-called precancerous changes observed in the breasts of women and mice suffering from mammary carcinoma were found in the mammary gland of the spontaneous tumor animal.

Journal of Infectious Diseases, Chicago

February, XVIII, No. 2, pp. 131-238

74 *Mode of Infection in Pulmonary Distomiasis. Certain Fresh-Water Crabs as Intermediate Hosts of Paragonimus Westermanii. K. Nakagawa, Formosa, Japan.
75 Milk Borne Paratyphoid Outbreak in Ames, Iowa. M. Levine and F. Eberson, Ames, Iowa.
76 Variations in Reaction of Blood of Different Species as Indicated by Hemolysis of Red Blood Cells when Treated with Acids or Alkalies. J. G. Cumming, Boston.
77 *Physical Chemistry of Disinfection. J. F. Norton and P. H. Hsu, Boston.
78 *Diphtheroid Bacillus of Freisz-Nocard from Equine, Bovine and Ovine Abscesses. I. C. Hall and R. V. Stone, Berkeley, Calif.
79 Precipitation of Typhoid Bacillus by Means of Definite Hydrogen Ion Concentration. C. F. Kemper, Boulder, Colo.
80 *Leptothrix Associated with Chronic Hemorrhagic Nephritis. G. R. Dick, G. F. Dick and B. Rappaport, Chicago.
81 Endamebae of Mouth. Endameba Gingivalis (Buccalis). C. F. Craig, Fort Leavenworth, Kan.

74. **Infection in Pulmonary Distomiasis.**—Of three species of fresh-water crabs examined by Nakagawa the encysted larvae of the human lung distomes were found in two, the occurrence in the third being problematical. The liver, the gills, and other organs of the crab that harbored a large number of encysted larvae were given to two puppies. One of the dogs died sixty days after feeding. Postmortem examination showed the lungs to have a number of cysts. Within each cyst two or three distomes were present. They had no eggs in the uterus at this time. The other puppy died after a lapse of ninety days from feeding. His lungs contained numerous cysts, in which adult distomes with eggs ready to be discharged were found. Further observation showed that the encysted larvae that have been taken into the alimentary canal of the host, creep out of the cysts and making their way through the intestinal wall near the jejunum, reach the abdominal cavity. They then penetrate the diaphragm and reaching the thoracic cavity, scatter all over the space under the pleura, whence they can easily find their way to the lung. They pierce the lung parenchyma, and there the cysts are formed until they become fully grown. These parasites can bore through various tissues and may reach other organs than the lung, where they form their regular cysts; but the lung seems to be the most favorable place for their development and the laying of their eggs; in other organs they can never reach the perfect growth.

77. **Physical Chemistry of Disinfection.**—Norton and Hsu summarize their work as follows: Acids act as disinfectants through the agency of the hydrogen ions produced by electrolytic dissociation. The disinfecting power of an acid is approximately proportional to the hydrogen ion concentration. The addition to an acid of a salt containing an anion common to this acid, diminishes its disinfecting power, as the result of a decrease in the hydrogen ion concentration and an increase in the concentration of the undissociated acid molecules. Salts which do not appreciably affect the dissociation of an acid, greatly increase the disinfecting properties of the acid. Acid anions are positive catalyzers and undissociated acid molecules are negative catalyzers in acid disinfection.

78. **B. Preisz-Nocard in Animal Infections.**—Hall and Stone isolated *B. Preisz-Nocard* from characteristic abscesses in eleven horses and one calf. *B. Preisz-Nocard* is a diphtheroid bacillus, presenting characteristics as follows: (1) the production of orchitis in guinea-pigs, as well as suppurative processes generally throughout the lymphatics; (2) the hemolysis of blood agar plates not containing an excess of fermentable carbohydrate; (3) the elaboration of a soluble toxin, resembling but not identical with that of diphtheria, yet being neutralized partly by diphtheria antitoxin. This apparent partial neutralization suggests the existence of group reactions among soluble bacterial toxins analogous to the group reaction of precipitins and agglutinins. The authors also draw attention to the uncertainty of experimental orchitis in guinea-pigs as a certain test for glanders, and emphasize the necessity of microscopic and cultural examination of pus from such lesions for diagnostic purposes.

80. **Leptothrix in Chronic Nephritis.**—The authors report a case of chronic nephritis, characterized by frequently recurring attacks of hematuria extending over a period of three years, and by leptothrix in large numbers in the urine. The presence of the leptothrix in the urine is not accepted as proof that it caused the nephritis and hematuria with which it was associated, but the large numbers in which it was found, its toxicity for animals, and the marked improvement of the patient during vaccine treatment suggests a causal relation. The patient received 3 doses of a vaccine from the leptothrix. After the third dose, the urine, which had been macroscopically free from blood, became very bloody for three days. Though she had previously had attacks characterized by general malaise and large amounts of blood in the urine at intervals of three to thirty days, another one did not occur during the next sixteen weeks. Red cells were still found in the urine after the fourth and fifth injections. After the ninth injection no erythrocytes were found in the urine; it still showed an occasional hyalin or granular cast. The patient meanwhile had gone back to work and had resumed active outdoor exercise. The urine remained free from red cells the following nine weeks that she was under observation. Injections of one-half-million doses at intervals of one to two weeks were continued.

Journal of Nervous and Mental Disease, Lancaster, Pa.

January, XLIII, No. 1, pp. 1-104

82 Critical Historical Review of Reil's Rhapsodieen. W. A. White.
83 Family Form of Pseudosclerosis and Other Conditions Attributed to Lenticular Nucleus. W. G. Spiller, Philadelphia.
84 *Speech Conflict — Natural Consequence in Cosmopolitan Cities — As Etiologic Factor in Stuttering. M. K. Scripture and O. Glogau, New York.

84. **Speech Conflict.**—In order to throw some light on the etiology of stuttering as met with in the cosmopolitan city of New York Scripture and Glogau went over the histories of 200 cases of stuttering. The analysis of their statistics makes them conclude that speech conflict is an etiologic factor in stuttering. Among 171 male patients there were 33 whose stuttering was apparently brought about by speech conflict exclusively, while in 4 cases negligent lisping in their own language had previously existed. Among the 29 female patients there was only one to whom this cause could be attributed. The most striking feature concerning these stutterers from speech conflict is the fact that their stuttering was acquired at the ages of 5 to 7 years. Only in one instance was this later; the age was 9 years and this was explained by the fact that the patient came from Russia at the age of 7 and was therefore only confronted with the problem of speech conflict at a later age than other children. Sixteen children started stuttering at the age of 6; seventeen at the age of 5 and four at the age of 7. It is interesting to see that the onset of stuttering, either psychic or organic, may be from the ages of 1 to 15, while the stuttering from speech conflict occurs only at the ages of 5 to 7. In thirty-eight cases the etiologic factor proved to be a conflict between the mother tongue at home and English to be learned in school. This speech conflict as an etiologic factor in stuttering is almost exclusively met with in the Jewish child, and particularly in the male sex.

Journal of Parasitology, Urbana, Ill.

December, 1915, II, No. 2, pp. 51-98

85 Comparison of Endameba Gingivalis (Gros) and Endameba Histolytica Schaudinn. A. J. Smith and M. T. Barrett, Philadelphia.
86 Trematode Genus Telorchis with Descriptions of New Species. H. W. Stunkard, Urbana.
87 *Insect Vector of Uta (Lupus Vulgaris), Peruvian Disease. C. H. T. Townsend, Washington, D.C.
88 Filaria Cingula Parasitic in Skin of Cryptobranchus Allegheniensis. F. H. Krecker, Cincinnati.
89 Life History of Gongylonema Scutatum. B. H. Ransom and M. C. Hall.
90 Stage of Piroplasma Bigeminum which Occurs in Cattle Tick, Margaropus Annulatus. H. Crawley, Washington, D. C.

87. **Insect Vector of Uta, Peruvian Disease.**—The disease known as uta, occurring on the west face of the Andes in Peru, has been proved to be due to a leishmania. Townsend suggests that it is highly probable that the various forms of leishmaniasis thus far known are due to as many species of herpetomonads originally parasitic in the intestine of the insect carriers concerned, and that, with regard to the occurrence in man, these herpetomonads are as yet in the stages of parasitism ranging from habitually abnormal or frequent to merely accidental or infrequent.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

December, 1915, VII, No. 5, pp. 557-617

91 *Absorption of Potassium Iodid by Perfused Thyroid Glands and Some of Factors Modifying It. D. Marine and H. O. Feiss, Cleveland.
92 *Physiology of Stomach Action of Bitter Tonics on Secretion of Gastric Juice. L. D. Moorhead, Chicago.
93 *Central Action of Digitalis as Tested by Cardio-Inhibitory Center. C. W. Greene and J. O. Peeler, St. Louis.
94 *Influence of Some Drugs Used in Treatment of Gout (and Arthritis) on Elimination of Uric Acid and Other Waste Products from Blood. W. Denis, Boston.

91. **Absorption of Potassium Iodid.**—According to Marine and Feiss artificially perfused thyroids take up and retain potassium iodid to the same extent that in vivo perfused thyroids do. This characteristic is not shared by the liver, kidney, spleen or muscle. The amount of potassium iodid retained is independent of its concentration in the perfusion fluid. Only surviving glands exhibit the ability of taking up potassium iodid. Potassium cyanid inhibits this activity of the thyroid. It is possible to wash out with defibrinated blood a small amount of the iodothyreoglobulin in an hour's perfusion even in intact glands rich in iodothyreoglobulin. Autolyzing glands do not take up potassium iodid, and rapidly give up their stored iodin in the perfusate. The potassium iodid stored in a thyroid gland from one hour's perfusion, whether in vivo or in vitro, is pharmacologically inactive.

92. **Action of Bitter Tonics on Secretion of Gastric Juice.**—The results on normal dogs with respect to appetite and the quantity and quality of the gastric secretion, Moorhead says, indicate the following conclusions: 1. These bitters, acting either in the mouth or in the stomach, have no appreciable influence on the appetite. 2. These bitters, acting either in the mouth or in the stomach, have no consequential influence on the quantity of the gastric secretion, although a slight uniform depression is noted from their action in the stomach. 3. These bitters, acting either in the mouth or in the stomach, have no significant influence on the quality of the gastric secretion, although a slight rather uniform depression is observed in the free as well as in the total acidity from the action of the drugs in the mouth. Moorhead's results with respect to appetite and the quantity and quality of the gastric secretion of cachectic dogs indicate the following conclusions: 1. These bitters, acting both in the mouth and in the stomach, exert a favorable influence on the appetite. The increase produced is not sufficient to bring the amount of food consumed up to normal, but the influence is definite and significant. 2. These bitters acting in the mouth cause an increase both in the quantity and quality of the gastric juice secreted during the hour following the meal. The qualitative increase is observed in both the free and total acidity, while the pepsin concentration remains fairly constant. The increase, it is true, is not great enough to bring either the quantity or the quality of the juice up to that secreted by the normal dog, but this increase is marked enough to be worthy of note. These bitters, acting in the stomach, have no appreciable influence on the quantity or the quality of the gastric secretion.

93. **Action of Digitalis as Tested by Cardio-Inhibitory Center.**—Greene and Peeler found that digitalis strongly and directly stimulates the cardio-inhibitory center of the medulla. Paralysis of the center by excessive action is shown by the escape of the heart during perfusion and by the failure of subsequent perfusions to produce inhibition. Cumulative and persistent action on the inhibitory nerve center is indicated by the recurrence of various degrees of inhibition during subsequent perfusion with Ringer's solution. Not only is the rhythm inhibited, but there is a blocking of the passage of the contraction wave from the veins and sinus to the ventricle by a decrease in conductivity.

94. **Influence of Drugs in Treatment of Gout.**—Benzoic acid when administered to men in large doses (8 gm. per day) increases the uric acid excretion in the urine and decreases the uric acid content of the blood. Cinnamic acid in the comparatively small doses used (4 to 6 gm. per day) had little if any effect. Quinic acid and colchicum have also no effect on the uric acid elimination. The same is true of para-oxybenzoic acid which shows none of the power possessed by its homologue, salicylic acid, of producing a lowered kidney threshold for uric acid. None of these drugs produce any change in the nonprotein nitrogen content of the blood. Benzoic acid, aspirin and atophan were found to have no effect on the creatin content of the blood.

Maine Medical Association Journal, Portland

January, VI, No. 6, pp. 221-252

95 Study of Heart Beat with Especial Reference to Its Rate. P. D. White, Boston.
96 Chronic Gastric and Duodenal Ulcer. W. H. Bradford, Portland.
97 Acidosis. C. M. Robinson, Portland.

Medical Record, New York

January 22, LXXXIX, No. 4, pp. 135-176

98 Radium. C. E. Field, New York.
99 Health Insurance. E. H. Lewinski-Corwin, New York.
100 Reduction of Obesity. A. W. Ferris, Saratoga Springs.
101 Dangers of Hasty Diagnosis of Pulmonary Tuberculosis. M. Fishberg, New York.
102 Peptic Ulcer from Point of View of Medical Selection. H. W. Cook, Minneapolis.
103 Changing Falsetto Voice to Baritone. F. M. Hallock, New York.

January 29, No. 5, pp. 177-222

104 Tobacco Habit. R. Abbe, New York.
105 Enzyme Theory of Cancer Etiology. L. D. Bristol, University, N. D.
106 Trigger Finger. A. B. Judson, New York.
107 Syphilitic Roseola Limited to Soles. D. W. Montgomery, San Francisco.
108 Mystery of Anteflexed Uterus. G. K. Dickinson, Jersey City, N. J.
109 Case of Herpes Zoster Presenting Multiple Symptoms and at One Stage Simulating Mastoiditis. J. Weinstein, New York.
110 Pericystitis Complicating Acute Appendicitis. E. H. Eising, New York.

New Mexico Medical Journal, Las Cruces

January, XV, No. 4, pp. 133-165

111 Use of Free Omental Grafts in Abdominal Surgery. L. Freeman, Denver.
112 Use of Bone Transplant in Fractures. A. W. Morton, San Francisco.
113 Impotence. F. F. Fadely, Albuquerque.
114 Pellagra. W. G. Hope, Albuquerque.
115 Case of Periprostatic Abscess of Tuberculous Origin. F. H. McKeon, Fort Stanton.

New York Medical Journal

January 29, CIII, No. 5, pp. 193-240

116 Infantile Paralysis. R. T. Taylor, Baltimore.
117 Irritation as Factor in Malignant Tumor Development. G. L. Rohdenburg, New York.
118 Postoperative Complications of Appendicitis. J. Wiener, New York.
119 Ductless Glands and Atypical Growth. S. W. Little, Rochester.
120 Treatment of Infections of Accessory Sinus. A. M. MacWhinnie, Seattle, Wash.
121 Gastro-Intestinal Symptoms and Eye Strain. A. Brav, Philadelphia.
122 *A Violet and Brown Stain for Tubercle Bacilli. E. Klein, Bayonne, N. J.

122. **Violet and Brown Stain for Tubercle Bacilli.**—The solutions used by Klein are the following: 1. Three per cent. alcoholic solution of crystal violet. 2. One per cent. aqueous solution of ammonium carbonate. 3. Ten per cent. solution of nitric acid (C. P.) 4. Ninety-five per cent. alcohol. 5. Saturated alcoholic solution of Bismarck brown of which enough is added to water to make a tincture of iodin color. The tubercle bacilli stain a very pretty violet with a light brown, almost yellow, background.

New York State Journal of Medicine

January, XVI, No. 1, pp. 1-50

123 Cure of Syphilis. M. A. Reasoner, Washington, D. C.
124 Syphilitic Disease of Arteries. A. McPhedran, Toronto, Canada.
125 Gastro-Intestinal Manifestations in Syphilis. H. C. Buswell, Buffalo.
126 Nasopharyngeal Fibroma. W. S. Daly, Ogdensburg.
127 Some Methods Useful in Direct Laryngoscopy. C. J. Imperatori, New York.
128 Deaf Child from Standpoint of Educator. J. D. Wright, New York.
129 Blind Child. F. P. Lewis, Buffalo.
130 Implantation of Plates of Vulcanite and Cartilage in Nasal Septum. A. C. Howe, Brooklyn.
131 Mechanical Respiration Prior and Subsequent to July, 1887, Supplementary to Operation of Twenty-Eight Years Ago. G. E. Fell, Buffalo.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

January, XXII, No. 1, pp. 1-43

132 Chronic Intestinal Obstruction vs. Intestinal Stasis. F. W. Farham, New Orleans.
133 Experimental Study of Intraspinous Method of Therapy in Syphilis of Nervous System. F. M. Hanes, Richmond.
134 Improving Cancer Statistics in United States. C. E. Lakeman, New York.

Ophthalmology, Seattle

January, XII, No. 2, pp. 213-436

135 Relative Importance of Fitting of Glasses in Ophthalmic Practice. L. Emerson, New York.
136 Treatment of Asthenopia Dependent on Esophoria Relative to Near Work. E. H. Rowe, Baltimore.
137 Adaptation of Test Card to Its Double Function. E. Jackson, Denver.
138 Color and Moral Sense. G. H. Taylor, New South Wales.
139 Palpebral Syphilis; Report of Case. F. W. Alter, Toledo.
140 State Legislation Concerning Ophthalmia Neonatorum. F. Allport, Chicago.
141 Use of Iodin in Diseases of Eye. R. Kerry, Montreal, Canada.
142 Present Status of Tuberculin Therapy in Ocular Tuberculosis. W. B. Weidler, New York.

Pennsylvania Medical Journal, Athens

January, XIX, No. 4, pp. 231-314

143 *Management of Toxic Goiter. C. H. Frazier, Philadelphia.
144 Value of Heat in Treatment of Massive and Utterly Inoperable Uterine Carcinoma. J. F. Percy, Galesburg, Ill.
145 *Unappreciated Form of Pneumothorax. C. Rea, York.
146 *Therapeutic Pneumothorax. A. Armstrong, White Haven.
147 Electrocardiogram; Its Value as Aid in Diagnosis. J. D. Heard and A. P. D'Zmura, Pittsburgh.
148 *Treatment of Myocarditis. J. M. Anders, Philadelphia.
149 Diagnosis of Tubal Pregnancy: Study of Seventy-Five Consecutive Cases. A. Heineberg, Philadelphia.
150 *Treatment of Cancer by Use of Radium in Conjunction with Surgery. G. C. Boughton, Erie.
151 Classification of Diabetes Mellitus. A. I. Ringer, New York.
152 Treatment of Diabetes Mellitus with Special Reference to Allen's Method. A. Stengel, L. Jonas and J. H. Austin, Philadelphia.

143. Abstracted in The Journal, Oct. 16, 1915, p. 1399.

145, 146 and 150. Abstracted in The Journal, Oct. 23, 1915, pp. 1483 and 1484.

148. Abstracted in The Journal, Oct. 30, 1915, p. 1579.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

January 8, I, No. 2871, pp. 37-76

1 *Researches on Phagocytosis. H. J. Hamburger.
2 Absence of Proper Facilities for Treatment of Mental Disorders in Their Early Stages. B. Pierce.
3 Peripheral Shock and Its Central Effects. J. L. Thomas.
4 Castellani's "Tetravaccine" and "Pentavaccine." G. A. Lurie.
5 *Case of Severe Tetanus Successfully Treated by Antitoxin. T. P. Kilner.
6 Serologic Tests in Dysentery Convalescents. J. C. G. Ledingham and W. J. Penfold.
7 Metastatic Endophthalmitis in Case of Cerebrospinal Meningitis. A. L. Weakley.
8 Domiciliary Treatment of Pulmonary Tuberculosis. G. H. Dart.

1. **Researches on Phagocytosis.**—In examining systematically the influence of the addition of small amounts of various salts (ions) to the blood serum, Hamburger found that small quantities of calcium increased the phagocytosis to a considerable extent. An addition, for instance, of 0.005 per cent. of calcium chlorid ($CaCl_2$) to the natural medium (serum) caused an increase of about 22 per cent. in the phagocytic power. This favorable effect becomes even more strongly manifest when, instead of being added to the suspension of phagocytes in serum, the calcium is added to a suspension of phagocytes in a solution of sodium chlorid (common salt) in which phagocytosis occurs almost to the same extent as in serum. Iodoform solutions of different concentrations in a common salt solution of 0.9 per cent. were prepared and mixed with a thick suspension of white blood corpuscles. After having added carbon particles, the mixtures were left to themselves for half an hour in an incubator at 37 C., and then cooled down. Finally, microscopic preparations were made and examined to determine what percentage of the total numbers of white blood corpuscles had taken up carbon particles. In the pure salt solution, of the 388 examined leukocytes, 171 had taken up carbon, that is, 44 per cent. In the salt solution containing iodoform in a proportion 1 grain to 100,000 grains NaCl solution, the percentage was 59.2 per cent. Evidently the iodoform promoted phagocytosis.

Other substances soluble in fat, such as chloroform, chloral, alcohol, benzene, camphor, fatty acids (propionic and butyric), affect phagocytosis in a similar way. Chloroform 1 in 20,000 raises the phagocytosis power from 40.9 per cent. to 50.3 per cent.; further, phagocytosis is considerably increased by chloroform 1 in 100,000, in which case it rises to 60.5 per cent. Similar results were obtained with benzene, camphor, turpentine, alcohol, choral, fatty acids (propionic and butyric), and also Peruvian balsam. These all, without exception, promoted phagocytosis. Treatment with nitrogen causes an

increase of phagocytosis, In weak concentrations (for instance, 3½ volumes per cent. of CO_2 and less) phenol increases the phagocytosis, and in higher concentrations (for instance, 10 per cent.) it has a paralyzing effect. Potassium cyanid has the same effect on phagocytes, stimulating in slight doses, paralyzing in somewhat greater quantities.

5. **Tetanus Successfully Treated by Antitoxin.**—The points to which Kilner draws particular attention in this case are: (1) the recovery in spite of well-marked symptoms and a short incubation period (nine days); (2) the large doses of serum administered, 46,500 units in all; (3) the very slow and gradual relaxation of spasm.

Edinburgh Medical Journal

January, XVI, No. 1, pp. 1-88

9 Inversion of Ilium and Sacrum and Ischium and Pubes (Iliosacral and Ischiopubic Bony Segments) as Causes of Deformities of Female Pelvis. D. B. Hart.
10 Incidence of Tuberculosis. T. Shennan.
11 Hysterical Mastoiditis. J. S. Fraser.
12 Neuritis of Cochlear Division of Eighth Nerve Following Exposure to Cold. J. S. Fraser.
13 Fatty Tumor of Hypopharynx Obstructing Larynx. J. S. Fraser.
14 Case of Cleidocranial Dysostosis. D. M. Greig.
15 Case of So-Called Tetanism. J. S. Fowler.

Indian Medical Gazetta, Calcutta

December, 1915, L, No. 12, pp. 441-480

16 Analysis of Snake-Bite Cases Reported in Central Provinces. G. W. P. Dennys.
17 Injuries to Eye Resulting from Accidents at Polo. A. E. J. Lister.
18 Coolie Anemia. C. E. P. Forsyth.
19 *Treatment of Kala-Azar with Intravenous Injection of Metallic Antimony. R. U. N. B. Bahadur.
20 Clinical Observations on Kala-Azar. P. Murugesan.
21 Case of Primary Atheroma of Pulmonary Artery and Its Branches Contributing to Valvular Insufficiency of Heart. T. S. Tirumurti.
22 New Cataract Operation. M. Corry.

19. **Kala-Azar Treated with Injection of Metallic Antimony.**—Bahadur claims originality for the use of antimony in kala-azar. One grain of metallic antimony is made into a thoroughly homogeneous paste with sufficient liquid glucose in a glass mortar and then mixed with 20 c.c. normal saline. This is injected into the vein. Any sediment of antimony left inside the syringe is subsequently mixed with normal saline containing 5 per cent. glucose, and then injected into the vein. This process is repeated several times till no antimony is left inside the syringe. About 40 to 45 c.c. of normal saline is required to inject 1 to 1½ grains of metallic antimony. So far the results are encouraging. No untoward results, such as plugging of the capillaries, have followed the intravenous injection of metallic antimony. Sometimes the patient suffered from rather severe diarrhea, which, however, stopped in twenty-four to forty-eight hours.

Journal of Tropical Medicine and Hygiene, London

January 1, XIX, No. 1, pp. 1-16

23 Streptococcal Puerperal Fever in Anglo-Egyptian Sudan. A. J. Chalmers and S. Atiyah.

Lancet, London

January 8, I, No. 4819, pp. 61-116

24 Medicine, Magic and Religion. W. H. R. Rivers.
25 *Study of Shell Rock. C. S. Myers.
26 Advantages of Warm Anesthetic Vapors and an Apparatus for Their Administration. F. E. Shipway.
27 Flora of Wounds and Flora of Putrefaction. A. Distaso.
28 *Simpson Light. W. D. Harmer and E. P. Cumberbatch.
29 Hyperthyroidism as Cause of Irritable Heart of Soldiers. C. P. White and F. Hernaman-Johnson.
30 Case of Shrapnel Injury to Right Parietal Cortex. H. M. Anderson and H. L. C. Noel.
31 Traumatic Dislocation of Hip-Joint in Child. H. Platt and H. M. von Mengershausen.
32 Sanitation in Billets and Camps. A. White.

25. **Study of Shell Shock.**—A selected few of various cases of "shell shock" which he has had the opportunity of treating in the field by means of hypnosis are cited by Myers. The cases are: total amnesia; rhythmic spasmodic movements; mutism and stupor. Myers has hypnotized, or attempted to hypnotize, twenty-three men with shell shock. The conditions under which he worked were such that no patient was subjected to further hypnotic treatment unless he proved readily hypnotizable on the first trial. The immediate results may be summarized as follows: 1. Apparently complete cures, 26 per cent. 2. Distinct improvement, 26 per cent. 3. Failure to hypnotize, 35 per cent. 4. No improvement after hypnosis, 13 per cent.

28. **Simpson Light.**—The Simpson light is emitted from an electric arc formed between electrodes made by a special process from a mixture of the ores of certain metals, the chief one being a tungstate of iron and manganese, known as wolfram. The Simpson light is made up of rays of two kinds: 1. Visible rays: These are the visible rays of the luminous spectrum, violet, blue, green, etc., down to red; these rays together produce white light. 2. Invisible rays: These are heat rays and ultraviolet rays. It is to the latter that the therapeutic properties of the light are said to be due. At St. Bartholomew's Hospital a number of cases with various types of disease have been treated: rodent ulcer; lupus; syphilis; asthma; vasomotor rhinitis; nasal catarrh and sinusitis; otosclerosis and eczema. The Simpson light seems to stimulate the healing of wounds. Cases of shrapnel wound have been benefited. When disease affects the deep parts or subcutaneous parts there is usually no benefit.

Bulletin de l'Académie de Médecine, Paris

Dec. 28, 1915, LXXIV, No. 52, pp. 795-822

33 *The Absolutely Aseptic Operating Room. (La salle aseptique pour opérations est-elle réalisable? Etude technique.) H. G. Richter and R. Blanchard.
34 *Motor Localizations in Peripheral Nerves. P. Marie, H. Meige and A. Gosset.
35 *The Bradycardia of Fatigue. A. Gouget.
36 Retraction of Paralyzed Muscles after Wounds of Nerves. L. Lortat-Jacob and A. Sézary.
37 Geometrical Formula to Locate Metal Foreign Bodies with the Roentgen Rays. (Nouveau procédé de repérage radioscopique des projectiles.) A. Charlier.
38 *Direct Oxygen Treatment of Tuberculous Fistulas and Abscesses. (De l'action des injections d'oxygène dans le traitement des tuberculoses chirurgicales en hyperhémie.) Gendron and Bouchet.

33. **The Aseptic Operating Room.**—Richter is an architect who has designed an operating room which can be kept aseptic. It is to be ventilated exclusively with sterilized air. The spectators stay in an adjoining room with glass front which is only 2.5 meters from the operating table. The surgeon's words are transmitted by a telephone and megaphone to the spectators. There is a protecting zone around the operating room; in this the sterilizing service is installed. This in turn is protected by an outer zone which contains the anesthetic room and the surgeons' and nurses' toilets. The doors when closed present an absolutely smooth surface continuous with the inner wall.

34. **Localization of Motor Functioning in Peripheral Nerves.**—Marie and his co-workers have been continuing their research with direct electric stimuli applied to a wounded trunk nerve exposed at an operation. By this means they have studied the distribution of the fibers destined for the different muscles tributary to this nerve. In 21 of the 64 cases the electricity failed to elicit any response in the connected muscles, the severe wound having interrupted all conducting power in the nerve. In the 43 other cases, all the groups of muscles responded in turn as the trunk fibers were stimulated, or only certain muscles, according to the extent of the injury. The fibers were tested with a needle electrode and no apparent harm resulted in any way. The trunk nerve twists naturally more or less in its course, and the gunshot or shell wound may further alter its position, as also the efforts to expose it. The nerve should be exposed for 6 or 8 cm. and two glass rods should be worked beneath it. The electrodes are then applied to the portion of the nerve between the glass rods. One assistant should control the motor reactions and another should have charge of the regulation of the electric—faradic—current, commencing with a very weak current or interposing a rheostat. Stimulation of the antero-external fibers in the median nerve in the forearm,

for example, causes contraction in the muscles of pronation of the arm. The findings in each of the principal trunk nerves are described in detail, and the necessity for exact coaptation of the fibers in operating is emphasized.

35. **Fatigue Bradycardia.**—After excluding all other possible causes for the pulse between 40 and 60 noted in 44 out of 133 apyretic men in the hospital, Gouget explains it by extreme fatigue, loss of sleep and emotional stress. Its transient nature and the prompt influence of change of position or of amyl nitrite confirm its nervous origin. The blood pressure was usually normal or a little below.

38. **Oxygen in Treatment of Tuberculous Processes.**—Gendron and Bouchet refer only to tuberculous fistulas and abscesses and state that these show no benefit from the oxygen unless the tuberculous process has an active circulation of blood through it. The first step therefore is to insure this active local circulation of blood, either by superheated air, revulsion from cold water, rubbing or other means. The abscess is then cleaned out and oxygen is introduced directly into the abscess, through a two-way tube, under very slight pressure, and with constant manometer control. In thirty-seven abscesses and nineteen fistulas thus treated, no surgical measures were required. No abscess thus treated entailed a fistula. There are no drugs to be absorbed, while the healing proceeded exceptionally fast, they report, under the hyperemia and the oxygen.

Paris Médical

January 1, VI, No. 1, pp. 1-40

39 Psychoses from Emotional Shock or Shaking up of the Nervous System. (Les psychoses commotionnelles.) G. Ballet and J. R. de Fursac.
40 *Psychiatry in the Active Army. P. Chavigny.
41 *A Service for Treatment of Nervous and Mental Disease among the Troops. (Un centre de neurologie et de psychiatrie d'armée.) G. Roussy and J. Boisseau.
42 *Hemianopsia from Wounds of Occipital Lobe. (L'hémianopsie bilatérale homonyme en quadrant seul reliquat de blessures graves du lobe occipital.) M. Villaret and A. Rives.
43 Posttraumatic Contractures and Their Treatment. A. Léri and E. Roger.
44 *Radiotherapy in Spastic Affections of the Spinal Cord from Wounds in War. G. Bonnus.

40. **Psychiatry at the Front.**—Chavigny emphasizes that the earlier the nervous and psychic disturbances get proper treatment the better the result. He also insists on the importance of treating the psychic and nervous disturbances at the same time as any physical lesion which may need treatment. For instance, digestive derangement should be treated at the same time as hysteric paralysis, when both are noted in a patient. Progressive reeducation is the key to effectual treatment of paralysis and motor and hysteriform sensory disturbances, but such patients generally expect and do better when given some medicine to take, such as a potion containing eucalyptol. The faradic current is always an effectual means to reeducate the sensibility when applied properly, as he describes. With the cure of the anesthesia the paralysis and hyperesthesia in the limb subside too. The mental disturbance after explosions proved rapidly curable in 95 per cent. of the cases. The cure occurred sooner and was more complete when the men were kept in the general hospital, without attempt at isolation, but kept quietly in bed, with a purge if there was constipation or diarrhea, and tepid or cold douches. The cure seemed to be hastened by a mild emotional shock, such as asking the man to write or dictate a letter to his family.

41. **Neurology Near the Firing Line.**—An illustrated description is given of a hospital for nervous and mental affections which has been at work now for five months near the clearing station. Fully 34 per cent. of the men were back in the trenches in two or three weeks. Those with merely functional disturbance were thus saved from getting into ruts. This central service for neurology and psychiatry also permitted the detection at once of organic troubles requiring specialist measures.

42. **Hemianopsia from Wound of the Occipital Lobe.**—Villaret and Rives have recently encountered six cases in which a wound in the occipital lobe had entailed as the only disturbance in vision a homonymous bilateral hemianopsia. Systematic examination for hemianopsia will certainly modify the estimation of the outcome and of future earning capacity, in cases of injury of the skull when possibly nothing else would suggest that the nervous centers had been irreparably injured.

44. **Radiotherapy of Spastic Affections of the Spinal Cord After Gunshot or Shell Wound.**—Bonnus reports here eleven cases. The best results were realized in spastic hemiplegia from injury of the cord in the neck, but some benefit was realized in nearly every case. The interval since the injury ranged from two to ten or eleven months, and the spastic phenomena had shown no signs of retrogression for many weeks. The benefit was apparent even after the first sitting. As the spastic phenomena subsided, the pain from the inflammation of the roots also became less or ceased entirely. The exposures were usually made once a week, to a total of six to nine. The dose was 1 or 1.5 H at the point of the lesion.

Revue de Chirurgie, Paris

August, 1914—November, 1915, XXXIV, Nos. 8-9, pp. 137-432. Last indexed Aug. 22, 1914, p. 711

45 *Circumscribed Nutritional Disturbance in Long Bones Simulating a Tumor. (Les dystrophies osseuses — kystes simples, cals soufflés, ostéite fibro-kystique — simulant les tumeurs des os.) L. Bérard and H. Alamartine.
46 Coxa Valga. G. Worms and A. Hamant. To be continued.
47 Treatment of Abdominal Wounds in War. (Du traitement des plaies de l'abdomen par projectiles de guerre.) E. Quénu.
48 The Principles for Treatment of Fractures. P. Delbet.
49 Treatment of Septic Wounds. (Essai de réhabilitation des antiseptiques.) L. Bérard and A. Lumière.
50 The Varying Shape of the Stomach According to the Site of Lesions in it. (Les caractères morphologiques de l'estomac d'après le siège des lésions.) X. Delore and H. Fayol.
51 Fractures of the Astragalus. (Etude des fractures de l'astragale: les fractures vertico-transversales du col et du corps.) R. Baudet.
52 Diagnostic Importance of Emphysema of the Scrotum. (L'emphysème scrotal signe de plaie colique rétro-péritonéale.) A. Chalier.

45. **Pseudotumors in Long Bones.**—Bérard and Alamartine devote fifty pages, with illustrations, to the study of localized dystrophy of the long bones. The resulting simple cyst or fibrocystic osteitis or puffed up callus simulates most deceptively a true tumor of the bone. Differentiation is extremely important, as these lesions are not at all malignant and never recur when the cyst has been emptied or other conservative operation has been done. The whole trouble is merely some interference with the nourishment of the bone at that point. Insufficiency of the ductless glands which regulate the nutrition of bone tissue—the thyroid, in particular—seems to be a factor in some instances. The trouble generally dates from childhood, and in 80 per cent. there was a history of traumatism, but Bérard and Alamartine think that the bone was already affected at the time of the traumatism, in a certain proportion of the cases at least. The regular location of the dystrophy close to the epiphysis and the integrity of the latter are special features of the fibrocystic type of osteodystrophy. When the trouble is in the shaft of the bone there is generally a solitary cyst. When the epiphysis is invaded the lesion is of the type known as exuberant callus, *cal soufflé*. This latter type occurs only in adults, the protecting epiphyseal cartilage having disappeared. The dystrophy is always a solitary lesion. When first seen by the physician there may be what seems to be a malignant tumor, or spontaneous fracture, or vicious consolidation of a fracture with exuberant callus. The pseudotumor is generally found in order of frequency at the upper end of the humerus or femur or at either end of the tibia. When in the shaft itself, the tibia is usually the bone involved. There is no reaction in the soft parts, and the joint is almost invariably intact. The lesion remains stationary a long time, not giving trouble until it is injured in some contusion. Then it begins to enlarge and the bone shell may fracture, with resulting inability to use the limb. Blundering assumption of a tumor may lead to entirely unnecessary mutilating operations. Tumors in the long bones, particularly in the young, run a much more rapid course, but roentgenoscopy is the main reliance in differentiation, as the shadow of the cystic lesion of the bone is unmistakable, the round or fusiform light

space with the linear shadow outlining it and the periosteum not thickened anywhere. The only other bone affection that might be confused with it is echinococcus disease, but with this there are multiple light spots and the joint is usually involved.

Berliner klinische Wochenschrift

Dec. 27, 1915, No. 52, pp. 1321-1336

53 *Diagnosis of Perforation with Abdominal Wounds. (Ueber Bauchschüsse im Felde.) Kausch.
54 *Cancer of the Orbit. (Mit Erhaltung des Augapfels operiertes aprikosengrosses Fibrosarkom der Augenhöhle.) Halben.
55 *Petroleum Ether in Bacteriologic Examination of Stools. (Untersuchungen über die Bedeutung des Petroläthers für den Nachweis von Typhus- und Paratyphusbakterien im Stuhl.) H. C. Hall.
56 Foreign Pharmaceuticals. (Wie sollen wir uns in Zukunft zur pharmazeutischen Produktion des feindlichen Auslandes stellen?) A. Lewy.

53. **Diagnosis of Extent of Injury in Cases of Abdominal Wounds.**—Kausch has found that it is possible to determine whether or not the intestines or other viscera have been injured, by the discovery of free air in the abdominal cavity. This is an almost certain sign of perforation, according to his experience, which has been wide and varied. The army corps to which he is consulting surgeon has served in turn in Belgium and France, Alsace, Galicia, Russian Poland and Serbia. A very small incision will reveal whether there is free air in the abdominal cavity. He makes the exploratory buttonhole for the purpose in the epigastrium under local or general anesthesia. The thicker the abdominal wall, the longer the incision, from 1 to 3 cm. The peritoneum need be only punctured; a pinhead hole is enough. If air streams out, he proceeds at once to a regular laparotomy. If not, the patient is spared a major operation for the time being at least. He has had cases in which a bullet passed through the abdomen, front and rear, without perforating the gastro-intestinal tract. When there was perforation, death was inevitable without operative relief, and he is convinced that his prompt operating saved a certain proportion of such cases. No one was ever harmed by the operation after an abdominal wound. Kausch was kept informed by telephone where fighting was under way, so that he was on the spot, ready to operate, before the wounded began to come in.

54. **Cancer Removed from Orbit without Destruction of Eyeball.**—Halben gives an illustrated description of a case in which he removed a fibrosarcoma, 3.5 by 4 cm. in size, from the orbit. The growth was easily shelled out and the eyeball replaced. Vision has improved since until the man can count fingers at 25 cm. This is the second case in which Halben has operated in this way, but in the other case vision had long been lost in the eye involved.

55. **Benzin in Bacteriologic Examination of Stools.**—This is practically the same article as the one summarized in THE JOURNAL, Jan. 22, 1916, p. 317. The abstract contains an error corrected later, page 466, as petroleum ether (not ordinary ether, as stated in the abstract), is meant. Tables are given which show the remarkable way in which the hydrocarbons of the paraffin series inhibit the growth of the colon bacillus while permitting typhoid bacilli to proliferate unchecked. As already stated, this effect is the more pronounced the lower the boiling point of the petroleum distillates in question. With benzin (boiling point, 80 or 90 C.), there is still some growth of colon bacilli, but with petroleum ether with a boiling point below 50 C. there is scarcely a trace of growth, and with the distillate known as pentan (boiling point 38 C.), the colon bacilli show no traces of growth while typhoid bacilli proliferate luxuriantly.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Dec. 25, 1915, XLV, No. 52, pp. 1633-1664

57 Professor Theodor Langhans. C. Wegelin.
58 Roentgen Treatment of Uterine Cancer. (Zur Behandlung des Uteruskarzinoms durch Röngenstrahlen.) H. Guggisberg and M. Steiger.
59 *Pellagra in Switzerland. (Ueber den pellagrösen Symptomenkomplex bei Alkoholikern in der Schweiz.) J. Jadassohn.

59. **Pellagra in Switzerland.**—It has been generally accepted that pellagra is unknown in Switzerland and Germany, but Jadassohn has encountered four cases at Bern in which three women and one man presented it, and Bloch has reported a case of pellagra at Basel in a strict vegetarian. The first symptoms in Jadassohn's cases had been the changes in the skin; diarrhea and stomatitis followed, and later the nervous and mental disturbances. He does not attempt to decide how much of the psychosis was due to the pellagra and how much to alcoholism; all four were addicted to liquor. One patient was the wife of a teacher and necropsy disclosed heart disease as the direct cause of death. The other patients recovered under dieting, astringents and opium for the diarrhea and salves for the hands. The follicular hyperkeratosis in the face subsided spontaneously. The article is to be continued.

Deutsche medizinische Wochenschrift, Berlin

Dec. 16, 1915, XLI, No. 51, pp. 1505-1536

60 Advantages of Early Operative Treatment of Wounds. (Ueber Wundbehandlung im Kriege.) O. Zuckerkandl.
61 Functional Nervous Disturbances in the Wounded. (Funktionelle Nervenstörungen bei Kriegsteilnehmern, nebst Bemerkungen zur traumatischen Neurose.) E. Meyer.
62 Functional Systolic Heart Murmurs. (Ueber systolische funktionelle Herzgeräusche.) G. Treupel.
63 *Experiences with Malignant Phlegmons. v. Tappeiner.
64 Plaster Cast for Fracture of Upper Arm. (Der Gipsverband bei Oberarmfrakturen.) M. Anker and E. Mosse.
65 *Pylorospasm Yields to Large Doses of Atropin. (Atropin bei Pylorospasmus.) K. Ochsenius.
66 Radiotherapy of Gonorrheal Epididymitis. (Behandlung der Epididymitis gonorrhoica mit der Nitra-Therapielampe.) H. L. Heusner.

December 23, No. 52, pp. 1537-1564

67 *Pituitary Treatment of Exophthalmic Goiter and Hyperthyroidism. (Ueber die Wirkung des Hypophysenextrakts bei Thyreosen.) J. Pal.
68 *Mechanical Cause of Sciatica and Flatiron Treatment. (Zur Aetiologie und Therapie der Ischias.) J. Csiky (Budapest).
69 The Physiologic Bases for Coagulation of Blood and Means to Arrest Hemorrhage. (Ueber die physiologischen Grundlagen der Blutstillung und über ein neues Blutstillungsmittel: Thrombosin). L. Hirschfeld and R. Klinger (Zurich).
70 Economical Technic for Bacteriologic Research. (Wiederholte Benutzung von Bakteriennährböden und Ersatz von Fleischextrakt durch Pflanzenextrakte. Die Verwertbarkeit der konservierten Nährböden für den Feldgebrauch — nach Uhlenhuth und Messerschmidt.) F. Guth.
71 Present Status of War Surgery. (Ergebnisse der bisherigen kriegschirurgischen Erfahrungen.) H. Matti. Commenced in No. 49.
72 Present Status of War Internal Medicine. (Ergebnisse der bisherigen Kriegserfahrungen auf dem Gebiete der inneren Medizin.) Reckzeh. Commenced in No. 49 and continued.
73 Field Treatment of Suppurative Processes on the Legs. (Zur Behandlung der Pyodermatosen der unteren Extremitäten im Felde.) M. Strauss.
74 Treatment of Wounds with Warm Baths and Ultraviolet Rays. V. Hufnagel, Jr.

63. **Malignant Phlegmons.**—Tappeiner relates that the phlegmon with early livid discoloration of the skin is even more malignant than the gas phlegmon. Both are the work of anaerobic germs and hence prophylaxis requires ample opening up of wounds and "open" treatment. He has seen both forms develop when the man was wounded at several points.

65. **Atropin for Pylorospasm.**—Ochsenius remarks that the experiences in Czerny's pediatric clinic have demonstrated that children can bear much larger doses of atropin than was formerly supposed possible. This heralds a new era in treatment of pylorospasm, for doses of from one to three drops of a 0.01 : 10.0 solution of atropin three or four times a day are proving effectual in curing pylorospasm. If it does not relieve, we can confidently assume that there is congenital stenosis of the pylorus. Two cases are described in detail showing the prompt curative action of the atropin. He repeated the three-drop dose five or six times during the day, thus giving a total of 0.75 or 0.9 mg. of atropin. To avoid dilatation of the vessels in the skin by the atropin, he gave one-drop doses, before feeding, increasing to three drops, and keeping this up for two or three weeks and then reducing it. The first child was a month old and was in collapse when the large doses of atropin were started, after failure of other measures during three weeks of treatment. The vomiting stopped at once and the weight increased by an average of 21 gm. a day for five weeks. The atropin was

kept up intermittently for nearly ten weeks, and the child came out finally well and strong although gastritis had also to be contended with. The other child developed the pylorospasm when three weeks old and by a mistake it was given eight feedings in the twenty-four hours with atropin each time. This brought the daily dose of atropin to eight times 0.15 mg., a total of 1.2 mg., which it bore for a week without the slightest harm. The maximal daily dose for an adult is said to be 3 mg. Both infants were breast-fed.

68. **Pituitary Treatment of Excessive Functioning of the Thyroid.**—Pal's attention was called to this line of research by the antagonistic action on the arteries of pituitary extract and thyroid extract. He found that subcutaneous injection of an extract of the infundibulum part of the hypophysis cerebri had apparently no influence on the normal thyroid and on ordinary goiter. But it displayed a pronounced action on the thyroid when functioning to excess, as in exophthalmic goiter. The symptoms subside although the thyroid may increase in size under its influence. This increase was always in the vesicles alone, suggesting that the secretion in the vesicles and the production of thyrotoxin are separate processes. The article is based on sixteen cases of exophthalmic goiter and hyperthyroidism. In three cases the debility was so extreme that operative measures could not be considered, but the patients improved so much under the pituitary treatment that they were then successfully operated on. Another case demonstrates, he states, that pituitary treatment is able to arrest destructive retrogression in the excessively secreting thyroid. In this and another case related the thyroid trouble was evidently brought on by the therapeutic use of iodin. It had been given in the last mentioned case for arteriosclerosis in a man of 44, and had entailed symptoms of exophthalmic goiter. They improved under pituitary treatment, but vascular spasms developed. The treatment was stopped, but local gangrene and death from myocarditis soon followed. This case warns for special care in pituitary treatment of weak heart with arteriosclerosis. In fact, great caution must be constantly observed with pituitary treatment as the individual response to the dosage varies within extremely wide limits.

68. **Nature and Treatment of Sciatica.**—Csiky shows by the anatomic relations of the parts that a very important factor in development of sciatica is the compression of the nerve against the tuberosity of the ischium by asymmetrical sitting on a hard seat. Few persons sit squarely and symmetrically, but this is the only way to avoid squeezing the nerve against the bone. The constant irritation from this may set up finally a neuritis in the sciatic nerve. Prevention and treatment call for a symmetrical position and a cushioned seat. After failure of other measures, he has often succeeded in curing sciatica by applying heat with a flatiron, holding it against the nerve as the patient lies on his sound side, the knee drawn up. Warm covers are kept on the leg above and below and the flatiron is held against the nerve for half a minute to a minute at each point and then moved along, the aim being to heat the tissues thoroughly and deep and keep the heat in. The affected portion of the nerve is near the buttocks region, and it is not necessary to apply the heat much lower down. A ten minute sitting once a day is enough, and better results are obtained by commencing with mild heat.

Medizinische Klinik, Berlin

Nov. 28, 1915, XI, No. 48, pp. 1307-1336

75 *Experimental Demonstration of Efficacy of Vaccination against Typhoid and Cholera. (Experimentelle Untersuchungen über die Wirksamkeit der Typhus- und Choleraschutzimpfung.) A. v. Wassermann and P. Sommerfeld.

76 Serologic Tests for Typhus. (Ueber Serumreaktionen bei Fleckfieber.) E. Gotschlich, W. Schürmann and Bloch.

77 War Epidemics in 1913 Balkan Campaign. (Einige Beobachtungen über Kriegsseuchen im Balkankriege 1913.) A. Böhme.

78 *Surgical Experiences with Jacketed Bullets. (Kriegschirurgische Erfahrungen mit den Mantelgeschossen.) J. Bogdanik.

79 *Bacteriologic Experiences with War Diseases. (Bakteriologische Erfahrungen über Kriegsseuchen.) H. Aronson. Concluded.

80 Petrolatum Treatment of Large Wound Cavities. (Zur Behandlung grosser Wundhöhlen.) H. Martin.

81 Charcoal as Aid in Cultivation of Typhoid Bacilli. (Die Verwendung der Tierkohle zum Nachweis von Typhusbacillen.) P. Kuhn.

82 *Familial Nature of Jaundice in the Newly Born. (Zur Klinik des Ikterus neonatorum.) H. Abels.

December 19, No. 51, pp. 1391-1416

83 Hypnosis in Treatment of War Hysteria. (Zur therapeutischen Verwendung der Hypnose bei Fällen von Kriegshysterie.) M. Nonne. Concluded in No. 52.

84 *War Maladies in the Civilian Population. (Ueber Kriegskrankheiten der Zivilbevölkerung.) I. Boas.

85 Paratyphoid B in Six Months' Infant. E. Mayerhofer.

86 Rubber Bulb for Pipetting in Laboratory Work. (Zur Verhütung von Laboratoriumsinfektionen.) L. Paneth.

87 *Vertebral Affections in Convalescence from Typhoid. (Wirbelerkrankungen in der Typhusrekonvaleszenz.) E. Lyon.

88 Possible Danger of Photodynamic Disturbances from Eosin Staining of Fodder. (Zur Eosinfärbung der Futtergerste.) F. Schanz and E. Rost.

75. **Experimental Testimony to the Efficacy of Vaccination Against Typhoid and Cholera.**—Wassermann and Sommerfeld recall that injection of killed typhoid or cholera germs causes an accumulation of specific immune substances in the blood which are able to kill the corresponding typhoid or cholera germs. Healthy blood already possesses bactericidal properties, and the vaccination merely enhances this normal property. Living typhoid or cholera germs can be injected under the skin and even into the blood, but infection does not result unless the germs reach and pass through the epithelium of the intestines. The question of the efficacy of vaccination depends on whether the lining of the intestines is rendered thereby less permeable for the germs. To decide this by animal experimentation is difficult, as monkeys alone are susceptible to typhoid and cholera germs by the mouth. Laboratory animals are absolutely refractory as a rule, especially mice. Even when three loops of a highly virulent culture of typhoid bacilli are introduced directly into the stomach of a mouse, none of the hundreds of millions of the germs seem able to get a foothold in the abdominal wall, although virulent bacilli can be recovered from the intestines up to twenty-four hours later. These facts are the more remarkable because paratyphoid bacilli pass readily through the bowel wall and set up a fatal disease. Mouse blood is strongly bactericidal for typhoid and cholera bacilli, as is shown by the rapid disappearance of these germs when large amounts are injected subcutaneously.

It seems plausible to assume that there is a direct connection between the powerful bactericidal property of the blood and the lack of permeability on the part of the bowel lining. This assumption is sustained by the fact that when the bactericidal property of the mouse blood is reduced by various means, the typhoid and cholera bacilli are able to get a foothold in the intestinal epithelium and soon pass through it and induce fatal typhoid or cholera, as the case may be. There are various ways of reducing the bactericidal property of the blood. One means is by a second infection. Wassermann reported years ago that a simultaneous second infection was almost certain to reduce the resisting power so low that the animal yielded to the first infection to which, under natural conditions, it was immune. Likewise, a sterile extract of killed typhoid or paratyphoid bacilli injected subcutaneously binds and uses up the natural protecting substances in the blood. This leaves the blood defenseless, and the animal is thus susceptible to infection to which it naturally is immune. This defenseless condition, however, is only a transient phase, the healthy organism promptly replenishing its store of immune substances unless depressed by being underfed.

In the experimental research related the mice were kept without food for a day or two. Then they were given a subcutaneous injection of 0.5 c.c. of a sterile aqueous extract of typhoid bacilli (artificial aggressins). By this means the bactericidal power of the blood was sensibly reduced. Then a loop of living typhoid bacilli in a bouillon suspension was introduced directly into the stomach, and no food given thereafter. The mice were killed in from twenty to forty-eight hours, and the bacilli were refound in the heart, spleen and liver in six of the thirteen animals and in none of the controls. Similar experiments with cholera germs gave analogous results. All testify that the bactericidal power of the blood is directly connected with the susceptibility of the

bowel tissue to invasion by typhoid and cholera bacilli. As prophylactic vaccination of man against these diseases materially enhances the bactericidal power of the blood against the causal germs, we hence have reason to assume that the prophylactic vaccination also reduces the susceptibility to these germs. This reduced susceptibility, however, is liable to fluctuate under the influence of undernourishment, secondary infections, etc. It is not a stable protection like that afforded by vaccination against smallpox. These facts emphasize that proper nourishment, avoidance of secondary infections and general hygiene are factors of the utmost importance in warding off typhoid and cholera, after vaccination as well as under other conditions. Any increase in the prevalence of other infections must bring with it an increase in the incidence of typhoid, in spite of the antityphoid vaccinations. But the experimental research reported confirms anew the great value of the protection afforded by antityphoid and anticholera vaccination.

78-79.—These two articles are listed in the table of contents of our exchange and the first is said to be accompanied by twenty-four illustrations. The seven pages containing these articles had been cut out.

82. **Familial Character of Jaundice in the Newly Born.**—Abels calls attention to two laws which he has discovered in icterus neonatorum; firstly, that it occurs in all the children of a family if it develops at all, and, secondarily, that its intensity decreases regularly from the first child downward. This suggests that both maternal and fetal factors cooperate in it.

84. **The War and the Health of the Civilian Population.**—Another article by Boas on this subject is reviewed below, abstract 105. He says that gastro-intestinal disturbance seems to be no more prevalent during the war than at other times, which demonstrates that the "war bread" has not done harm. On the whole, he declares. the simpler and thriftier mode of life consequent on the war seems to have raised the level of the general health, and he thinks the populace will profit by this lesson after the war is over. He has not found nervous dyspepsia or diabetes more frequent than in ordinary times. Gallstone trouble is encountered with special frequency in the wives of soldiers, and it is more prevalent in men than usual. He recently had a gallstone case in a youth of 16. Cancer of the digestive organs is becoming surprisingly frequent in his practice. Scarcely a week passes without his encountering two or three new cases, and he has been impressed with the youth of the patients; in some recent cases the cancer was in the rectum, liver or stomach in young women of 21, 24 and 27 years, respectively. Whether this is an actual increase in cancer can be determined only when the general mortality statistics for the period are known.

87. **Typhoid Vertebral Trouble.**—Lyon writes from the military convalescent home at Spa, Belgium, to describe seven cases of an inflammatory process in vertebrae during convalescence from typhoid. In only two cases was it severe, with intense pains and swelling of the soft parts and fever. The vertebral affection persisted for two, three, or four months in all, long latent phases alternating with exacerbations. There was very little tendency to suppuration, and the prognosis was favorable, with final complete recovery. He warns that pains in the back during convalescence call for careful examination of the vertebrae. Even mild posttyphoid vertebral affections may be accompanied with great pain, but permanent recovery is the rule.

Münchener medizinische Wochenschrift, Munich

Dec. 21, 1915, LXII, No. 51, pp. 1745-1780

89 Impairment of Earning Capacity from Nervous Consequences of Accidents. (Zur Begutachtung nervöser Unfallfolgen.) P. Horn.
90 Asthma Need Not Materially Impair Fitness for Military Service. (Asthma und Felddienstfähigkeit.) M. Saenger.
91 Agglutination of Gärtner's Bacilli along with Typhoid Bacilli an Aid in Diagnosis of Typhoid. (Die Mitagglutination der Gärtnerbazillen, ein Hilfsmittel zur Typhusdiagnose.) G. Seiffert.
92 *Peritonitis with Gas Production in Free Abdominal Cavity. (Zur Symptomatologie und Therapie der Pneumoperitonitis.) H. Doerfler.
93 *Vaccination against Typhoid Rouses Old Latent Disease. (Fall von tertiärer Lues nach Typhusschutzimpfung.) K. Bardach.
94 *Technic for Healing by Primary Intention after High Amputation of the Rectum. A. Schäfer.
95 Treatment of Beginning Intestinal Disease. (Behandlung beginnender Darmkrankheiten im Felde.) Neubauer.
96 Mild Cases and Bacteriology of Dysentery. (Erfahrungen über leichte Ruhrfälle.) C. Kittsteiner; (Zur Bakteriologie der Ruhr im Kriege.) E. Seligmann and L. Cossmann.
97 Paratyphoid A among the Troops; Forty-Eight Cases. (Paratyphus-A Erkrankungen im Felde.) Klinger.
98 Plastic Tendon Operations and other Measures for After-Treatment of Wounds in War. (Nachbehandlung von Kriegsverletzungen.) G. Fischer.
99 Notes of an Ophthalmologist at the Front. (Augenärztliche Beobachtungen aus einem Notreservespital der südwestlichen Front.) A. Löwenstein.
100 Bridge Plaster Casts. (Zur Technik der Gipsbrückenverbände.) H. F. O. Haberland.
101 Plaster Casts for Fractured Upper Arm. (Neue einfache Gipsverbandtechnik bei Behandlung der Oberarmschaftbrüche in Semiflexionsstellung.) L. Oelsner.
102 Clamp for Small Vessels. (Der Angiokompressor — Gefässquetscher.) O. v. Herff.
103 Tendon Transplantation Corrects Paralysis from Wound in Lumbar Plexus. O. Orth.

92. **Pneumoperitonitis.**—Doerfler reports a case of subacute peritonitis in which the bowels moved but the distension of the abdomen was not reduced by the passage of flatus. The distension was so extreme that it impeded the movements of the diaphragm, but the general condition and the pulse kept good for three weeks and there was no vomiting. The gas was released by repeated punctures but this did not remove the cause, and finally the patient succumbed with the ordinary symptoms of septic peritonitis. Necropsy revealed an encapsulated focus of peritonitis in the upper abdomen which might easily have been cleared out if it had been discovered in time. The peritonitis was traced to the stump of the mesentery which had been resected in the course of an operation for scrotal hernia. The catgut may have been contaminated.

93. **Tertiary Syphilis after Antityphoid Vaccination.**—In Bardach's case a supposedly entirely healthy man of 40 with healthy children noticed swelling and redness in the left chest soon after vaccination against typhoid. The trouble proved refractory to salves and similar measures but yielded at once to treatment for syphilis. The man had never suspected that he had syphilis, but the vaccination had evidently roused an old, always latent syphilis to tertiary manifestations. The Wassermann proved positive also, and a minute scar was found on the penis which had been there for twenty years but had been ascribed to a saddle bruise at the time.

94. **High Amputation of the Rectum.**—Schäfer draws the proximal stump out through the wound, letting it hang down for 8 or 10 cm. below the wound which, with the whole buttocks, are carefully protected by a cover of adhesive plaster, etc. The patient lies on his side and the stump hangs in a suspended urinal. In four of the five cases thus treated the wound healed by primary intention. The projecting stump shrivels and conditions for a good sacral anus are thus provided.

Therapie der Gegenwart, Berlin

December, 1915, LVI, No. 12, pp. 441-480

104 *Serotherapy and Anaphylaxis from Standpoint of General Practitioner. (Bedeutung der Anaphylaxie für den praktischen Arzt.) U. Friedemann.
105 *Management of Gallstone Cases. (Meine Erfahrungen über die Behandlung der Cholelithiasis.) I. Boas.
106 Recent Experiences with Cholera at Budapest; Eighty-Nine Cases. (Erfahrungen über die Cholera asiatica.) A. Galambos.
107 Ulceration in the Colon and Rectum. (Ueber Colitis suppurativa und Ulcus chronicum recti.) G. Klemperer and L. Dünner. Commenced in No. 11.
108 *Overstretching and Weakening of the Ligaments and Muscles of the Foot Causing Arch to Fall and Foot to Twist Sideways. (Ueber Heilung des Plattknickfusses.) M. Katzenstein.
109 *Camphor-Phenol in Treatment of Long, Infected Bullet Holes. (Behandlung langer, infizierter Schusskanäle.) E. Mosse.

104. **The Importance of Anaphylaxis for the General Practitioner.**—Friedemann protests against the term "anaphylaxis," saying that Behring's term *Ueberempfindlichkeit,* which may be translated "hypersusceptibility or "oversensitiveness," much better describes the condition. The complete picture of serum sickness includes fever, vomiting, swelling of glands and joints, edema and an exanthem, but it is rare for more than one or two of the symptoms to appear. The usual incubation period is eight to thirteen days unless the individual

has been injected before with the serum, in which case the symptoms may come on almost immediately very severe, amounting to actual collapse in some cases. Only recently a physician was brought to a base hospital in severe serum sickness, as he had given himself prophylactic injections of antitetanus serum, antidysentery serum and diphtheria antitoxin, one after the other.

Man and dogs display far less tendency to anaphylaxis than guinea-pigs. Serotherapy has been applied in thousands of cases in the contagious wards of the great public hospital at Berlin during the last ten years, but only three cases of severe anaphylactic phenomena developed and none of these three patients died. Gaffky was able to find only two authentic cases of fatal serum sickness in Germany during the entire period since serotherapy was introduced, and in one of these two fatal cases the injection was the first the child had received. Statistics are less favorable in America, Friedemann adds, quoting Rosenau and Anderson's (1906) nineteen fatal cases, but they were mostly in those given the serum for the first time. The phenomena of anaphylaxis in guinea-pigs seem also to be severer in America; he quotes that Rosenau and Anderson lost 100 per cent. of their guinea-pigs with induced anaphylaxis while 50 per cent. survived in Otto's experiments in Germany, and only 25 per cent. of the guinea-pigs died in Besredka's experiments in France.

Notwithstanding the mildness, the rarity and the slight danger from serum sickness in man, it is annoying for the patient and worries the physician when it occurs, but all the evidence shows that the tendency to anaphylaxis does not develop before the sixth day. He reiterates that the therapeutic serum can be injected confidently within this interval, and each injection seems to postpone the anaphylactic reaction, so that a patient with epidemic meningitis can be safely given the antiserum through weeks at a time, not letting the intervals extend to six days. Diphtheria antitoxin can be safely administered in the same way. The tendency to anaphylaxis usually dies out more or less completely in six months, but instances are known in which it was still pronounced after five years. The intravenous route is much more liable to induce the phenomena of anaphylaxis than by subcutaneous or intramuscular injection.

The phenomena of antianaphylaxis can also be counted on to ward off serum sickness. Injection of a small amount of the serum induces an antagonistic condition to anaphylaxis, so that a following large injection causes no disturbance. Otto recommends on the basis of his experimental research and clinical experience a preliminary injection of 1 c.c. of the serum four hours before the main injection. This simple procedure is advisable when the patient has asthma or there is other reason to fear an idiosyncrasy even to a first injection. Ascoli's suggestion to use cattle or sheep serum to vary the nature of the serum is not practicable yet. Horse serum is less toxic. During 1913 there were from 5,000 to 6,000 cases of diphtheria in Berlin and the mortality in the hospitals averaged 15 per cent. Braun reported that only 1.62 per cent. contracted diphtheria among the other members of the family given prophylactic injections, while from 30 to 35 per cent. developed it in those not given the prophylactic injections.

105. **Treatment of Cholelithiasis.**—Boas relates that the war with its nervous strain, the changes it has brought about in the financial status, the food and other conditions of living has entailed many ailments not only among the troops but in the civilian population, such as never were encountered on the same extensive scale in times of peace. Chief among them, according to his experience is gallstone trouble. Cholelithiasis affects mostly women, and especially married women, and these are the ones who are hardest hit by the war, worrying for husband and sons, the breaking up of the home, and, connected with this, the neglect of their own health, the high prices of provisions—these and other circumstances combine to prepare the soil for the development of gallstones or fan a latent tendency into a flame. Cholelithiasis, he remarks, may thus be regarded as a war malady. Internal medicine has only a limited field in management of cholelithiasis. To claim otherwise, he continues, is to reveal a childish misconception of the mechanism of gallstone production.

The custom of giving morphin to arrest the attack goes directly counter to Nature's efforts to expel the foreign body. The pain can be relieved in other ways, by hot compresses, hot tea, etc., which reenforce Nature instead of neutralizing her efforts. If a sedative is absolutely necessary, use the smallest doses, and select chloroform, papaverin or codein, explaining to the patient that by abstaining from morphin there is much better chance that the concrement may be expelled and not give cause for future attacks. Perhaps the reason why there are so few "successful attacks" nowadays is because morphin is given so freely.

He has for years derived great benefit from local bloodletting, scarifying the skin in the gallbladder region and keeping up the bleeding with a suction bell. It is easy to draw considerable blood in this way. This is especially useful with acute gallbladder trouble or acute enlargement of the liver. It is astonishing to see the complete subsidence of all disturbances, the day after this bloodletting the patients able to go about their work as usual. He adds that when we consider the mechanical conditions, the assumption that measures to promote the flow of bile will wash away the stones or prevent the formation of new concrements, is as fantastic as the naïve idea that gallstones in the body can be dissolved by chemical agents.

A number of factors are known to help in eliciting gallstone attacks, and avoidance of these factors tends to ward them off. Persons with gallstone trouble almost invariably have a history of habitual constipation and functional disturbance in the stomach, usually achylia gastrica, or there may be hyperchlorhydria or sagging of the stomach and bowels. Undigested or half digested food in the duodenum presses on and obstructs the common bile duct, or offers opportunity for migration of microbes into the bile passages. The fact that the gallstone attack occurs when the digestive tract is overloaded, confirms this assumption. Gallstone attacks never seem to occur with stenosis of the pylorus. The behavior of the stomach must receive more attention than hitherto in management of cholelithiasis. Large meals, especially at night, should be strictly avoided. In short, he regards dietetic measures as the main element in treatment of cholelithiasis, small light meals at intervals of two or three hours, avoiding raw fruit, salads, black bread and pickles. As cholelithiasis is such an essentially chronic affection, treatment must be continued to correspond. Of great value are the various elements of spa treatment, rest, dieting, regular meals, baths and outdoor exercise, besides drinking the mineral waters, but he orders a six or twelve months' stay. This offers the most favorable chances for keeping the gallstone trouble latent.

A stone impacted in the common bile duct is dangerous mainly on account of the cholemia with its depressing influence on the general health and the uncontrollable pruritus. He has never known of an instance of a gallstone being forced out of its nook by medical measures alone. Hence he advocates operative measures here, without wasting time on others. But medical measures are generally effectual in simple catarrhal or purulent gallbladder disease; all that is required is cautious dieting, ice to the liver and small doses of narcotics. When the inflammation in the bile passages or gallbladder is very severe, with fever and chills, the systematic administration of calomel, 0.1 gm. three times a day, kept up at least four weeks, may save the patient an operation. The Russians, who introduced this calomel treatment, give larger doses, up to 0.5 gm. several times a day. Boas has had this treatment fail in a few cases, but as a rule it is effectual. After the chills and fever are arrested by it, he resumes the calomel again if the trouble flares up again. Conditions are more favorable for retrogression when the disease process is in the gallbladder alone. He has never been successful with medical measures in chronic cholecystitis or in the disturbances from adhesion to other organs. Palliative treatment does little good and operative relief is called for, especially when the patient has not the time or means for rest cures, etc. As regards the rare recurrence of

gallstone trouble after an operation, Boas remarks that it is never comparable to the primary trouble, and usually yields to a course of spa treatment. The disturbance may be due to recurrence of stones or to postoperative adhesions.

108. **Treatment of Flatfoot that Bends Over.**—Katzenstein relates that the trouble is primarily in the weak and stretched tibionavicular ligament. The foot bends over and the arch falls in consequence. Treatment should aim to shorten and strengthen the ligament involved, and this is readily accomplished by injection of 0.5 c.c. of a 4 per cent. solution of formaldehyd into each side of the ligament, distributed at several points. This hardens and actually tans the ligament, causing it to shrivel. He has a plaster cast worn for a month and by the end of another month not a trace is left of the flatfoot and knock-ankle disturbances. His only failures have been in cases in which other ligaments were involved. He has never attempted the injection into other ligaments. Local anesthesia is necessary and he gives a little morphin besides.

109. **Camphor-Phenol for Seton Wounds.**—The general rule is to slit the tissues and expose the floor of the seton wound throughout, but Mosse has found that it is possible to avoid these mutilating operations. He draws a strip of gauze through the seton, keeping the gauze wet with a mixture of 100 parts phenol to 200 parts triturated camphor.

Wiener klinische Wochenschrift, Vienna

Dec. 16, 1915, XXVIII, No. 50, pp. 1373-1404

110 Gastro-Intestinal Affections in Army Medical Practice. (Die militärärztliche Konstatierung von Magen- und Darmkrankheiten.) W. Zweig.
111 Pyramidon in Treatment of Erysipelas. (Pyramidon als entzündungsbeschränkendes Mittel bei Erysipel.) H. Januschke.
112 Peritonitis from Rupture of Bile Passages; Two Cases. (Zur Kenntnis der durch Gallengangrupturen bedingten Peritonitis.) F. Ermer.
113 Antibody Production after Vaccination with Various Antityphoid Vaccines. (Immunkörperbildung bei Impfungen mit verschiedenen Typhusimpfstoffen.) M. Gröbl and K. Hever.
114 Improved Technic for Bacteriologic Study of Cholera. (Vergleichende Untersuchungen mit festen Cholera-Elektivnährböden. Ergänzung zur Aronsonschen Methode.) W. Stern.
115 Treatment of Frostbite. (Behandlung der Erfrierungen.) K. Wagner.
116 Living Lice Known to be at least Seven Months Old. (Zur Frage der Lebensdauer der Kleiderlaus.) Wiener.
117 Splint for Fractured Thigh. (Neue Schiene zur volkommenen Fixation von Oberschenkelbrüchen.) E. v. Gergö.

Policlinico, Rome

December, 1915, Surgical Section No. 12, pp. 557-604

118 Fifth Successful Operation on Record for Removal of Primary Tumor in Body of Pancreas. (Contributo alla chirurgia del pancreas.) G. Serafini.
119 Experimental Research on Plastic Repair of Defect in Gallbladder. (Ricerche sperimentali sulla riparazione delle perdite di sostanza della cistifellea mediante innesti liberi di vena, auto- ed omo plastici.) G. Aperlo and C. L. Rusca.
120 Tumors of the Palate. (Sui cosidetti tumori misti del palato.) G. Morone. Commenced in No. 9.
121 Abdominal Wounds in War. (Considerazione sulle ferite d'arma da fuoco dell'abdome.) O. Cignozzi.

Mitteilungen a. d. med. Fakultät der k. Univ. Tokyo

1915, XIV, No. 2, pp. 217-416. Last indexed Oct. 30, 1915, p. 1593

122 *Septic Jaundice. (Ueber die Pathogenese des septischen Ikterus.) T. Ogata and T. Mitamura.
123 *Catarrhal Jaundice. (Zur Pathogenese des Icterus catarrhalis.) T. Mitamura.
124 *Thymus Transplantation. (Recherches expérimentales sur la transplantation du thymus. I.) Y. Tongu.
125 *Bone Marrow Transplantation. (Ueber Transplantation von Knochenmark.) Y. Tongu.
126 Phenomena Suggesting Secretion in the Epidermic Cells of Amphibia Larvae. (Ueber Sekretionserscheinungen an den Epidermiszellen von Amphibienlarven.) S. Saguchi. Colored Plates.
127 Physiologic Degeneration of Cells. S. Saguchi. Colored Plates.

122. **Pathogenesis of Septic Jaundice.**—The necropsy findings in four typical cases of septic jaundice all showed degenerative changes in the parenchyma of the liver and deficiency of bile. Hence stagnation of bile could not be incriminated. The bile capillaries were not distended. Oligocholia and oligochromia were pronounced in each case; this important element in the picture of septic icterus seems to have escaped attention hitherto. They are signs that the liver cells are not working properly. This was evidenced further by the albumin found in the scanty bile present. The germs cultivated from the four cases were the *Streptococcus longus*, the *Staphylococcus albus* and the *Diplococcus lanceolatus*. The patients were three women of 21, 26, and 34, with the clinical diagnosis of puerperal fever, and one man of 34 who had succumbed to meningitis of otitic origin.

123. **Catarrhal Jaundice.**—Mitamura reports the case of a previously healthy man of 24 who died nine days after the stormy onset of catarrhal jaundice with high fever, pronounced icterus and delirium. Necropsy confirmed the assumed gastro-intestinal catarrhal condition with mechanical obstruction to the outflow of bile at the mouth of the common bile duct. The spleen was not enlarged, and he knows of no case of Weil's disease in which a mechanical hindrance to the outflow of bile, from catarrhal conditions in the duodenum, was discovered at necropsy. The microscopic findings in the liver are reproduced.

124. **Transplantation of the Thymus.**—Tongu describes the work in this line done by Scalon (1900), Basch, Bircher (1912) and others on rabbits and dogs, and then reports the details and results of his own experiments. He used about twenty dogs and fifty rabbits, but many of the animals died at once or soon after the operation, either from infection or weakness. The transplanted thymus in these animals had either been absorbed or had decayed, especially in the center. In only three dogs and eight rabbits were the results conclusive. They demonstrated apparently that the most favorable location for autoplastic transplantation of thymus tissue is the peritoneal cavity. Implants in the spleen, under the skin or peritoneum, and between the abdominal muscles were resorbed more rapidly. The thymus tissue never showed signs of regeneration but displayed a tendency to atrophy. In some of the animals it persisted as long as two months, in the mesentery region, showing merely slight atrophy, as is evident from the view given of the microscopic findings in one such case.

125. **Transplantation of Bone Marrow.**—The same writer reports similar research on seven dogs and ten rabbits with autoplastic transplantation of bone marrow. The osteoblasts proved most active when an emulsion of periosteum had been injected or transplanted. They were less active when a segment of bone marrow was transplanted, and least active after injection or transplantation of an emulsion of bone marrow. The newly formed bone tissue resulting from the transplantation of periosteum and bone marrow was gradually destroyed by the osteoclasts, disappearing completely in time. Tongu describes the research of others with transplantation of bone marrow and discusses the various questions raised by his experience.

Russkiy Vrach, Petrograd

1915, XIV, No. 45, pp. 1057-1080

128 *The Various Stages of the Action of Poisons on Tissues. (O dieistvii yadov v razlichnie periodi prebivaniya ikh v tkanyakh.) N. P. Kravkoff.
129 Symptomatology and Treatment of Asphyxiation with Poisonous Gases. G. A. Kolossoff.
130 *Bacteriology of Gangrene. (Izsliedovanie po bakteriologie gangrenoznikh protzessov.) I. I. Shukevich.

No. 46, pp. 1081-1104

131 The Purposes of Russian Sanatoria Society. V. N. Sirotinin.
132 *The Cause of Favorable Action of Cod Liver Oil in Spasmophilia. (Otchego zavisit blagopriyatnoe diestvie ribyago zhira pri spasmophilii?) I. A. Shabad.
133 Colostomy in Gunshot Wounds of the Rectum. A. G. Machavariani.
134 *Poisoning with Denatured and Wood Alcohol in Kazan Hospitals. (Otravlenie drevesnim i denaturirovannim spirtom . . . v Kazani za 1914 g.) I. S. Krivonossoff.
135 Mental Derangement from Mushroom Poisoning: Agaricus Muscarius. T. H. Bielugin.
136 A Case of Diaphragmatic Hernia. G. A. Sokoloff.

128. **Stages of Action of Poisons on the Tissues.**—Kravkoff distinguishes the stage of invasion, the stage of saturation of the tissues with any given poison, and the stage of elimination. These three stages he studied on the isolated heart

and ear vessels of rabbits, by means of Ringer's or Locke's fluid. First he determined the action on these organs of a normal fluid, after which the latter was passed with various poisons dissolved in it, paying especial attention to the stage of saturation, when the tissues retain the poison for a certain period. He also determined the simultaneous action of poisons such as morphin combined with nicotin, hedonal and nicotin, etc. The results obtained demonstrate that when the tissues are saturated with a poison of a certain concentration they become less sensitive to the same poison, even in a stronger concentration. Especially is this true of nicotin. The tissues saturated with a poison become less sensitive not only to the same poison, but also to other poisons of the same or other pharmacologic groups. Thus, when saturated with hedonal, they react less to chloroform; in the case of nicotin, they are less sensitive to pilocarpin; in the presence of morphin they become less sensitive to nicotin, etc. Simultaneous combination of two poisons—outside of the stage of saturation with one of them—causes phenomena of combined action, the clinical picture of one of them predominating. Thus, the simultaneous action of chloroform and nicotin gives the typical action of nicotin. The simultaneous presence of one poison in the tissues and their saturation with it modifies essentially the physiologic action of another poison, giving results different from those obtained by the simultaneous action of the two poisons.

130. **Bacteriology of Gangrene.** — Shukevich examined eighteen cases of various gangrenous processes and found polymicrobic infection in all, though Welch's bacillus was apparently the most frequent cause of gaseous gangrene. In putrid wounds, not complicated with gaseous gangrene, Welch's bacillus also occurred very frequently, hence the latter does not always lead to formation of gaseous gangrene. The putrid character of the wounds may be due to infection with *Bacillus sporogenes A* and *Bacillus proteus vulgaris.*

132. **Limitations of Efficacy of Cod Liver Oil in Spasmophilia.**—Shabad found from his clinical observations that the favorable action on spasmophilia of cod liver oil or of the phosphorus contained in it is by no means specific, because it is inconstant. It is apparent only when there is a combination of spasmophilia with florid rickets, and is of no value in other cases. The action of cod liver oil on spasmophilia is most probably due to the better assimilation of lime salts. In rickets, therefore, where assimilation of lime is below normal, cod liver oil or phosphorus is of value. However, in cases in which the assimilation of lime is above normal, as during recovery from rickets, or in spasmophilia unaccompanied by rickets, cod liver oil cannot have any favorable effect on the symptoms of spasmophilia.

134. **Intoxication from Substitutes for Alcohol.**—During 1914, in two of the large hospitals of Kazan, 1,052 cases of alcoholism were registered. In 23 per cent., that is, 240 cases, the poisoning was due to denatured alcohol, varnish or Cologne water. All kinds of trades and ages (below 10 and up to 70) were represented and are listed in the tables given. About 50 per cent. of these patients were between 20 and 30. Laboring men and artisans were the usual victims. Of 45 ward patients, 30 died, of whom 19 succumbed during the first twelve days; 8 died on the second day and 3 on the third. Of 10 patients treated in another hospital, 8 died, 5 of whom died during the first twenty-four hours following the poisoning. The majority of the patients were brought to the hospital in a comatose state. The amounts ranged from one-fourth glassful of denatured alcohol to three bottles of Cologne water. Though cases of chronic alcoholism from liquor are now rare, yet poisoning with other kinds of alcohol, such as wood alcohol, etc., are becoming quite frequent. Hence Krivonossoff pleads to have the retail uncontrolled sale of substitutes for liquor forbidden by law.

Finska Läkaresällskapets Handlingar, Helsingfors

1915, LVII, No. 4, pp. 373-502

137 *Syphilis Affecting the Central Nervous System. J. Hagelstam.
138 Menstruation in Finland. E. Waren.
139 *Pylorospasm in Young Infants. (Behandlingen of pylorospasm hos spädbarn.) E. Lövegren; (Om pylorospasmus hos dibarn.) W. Pipping.

No. 5, pp. 503-662

140 The Blood Picture in Children with Bothriocephalus. (Om blodbilden hos botriocefalusbärare.) G. Becker.
141 Extension Treatment of Gunshot or Shell Wound of Lower Jaw. (Til behandlingen af skottfrakturer i nedre käken med extensionsförband.) R. Faltin.
142 Infection of the Eye from Vaccination Pustule. (Om Vaccineruptioner i ögat.) E. Kuhlefelt.

No. 6, pp. 663-792

143 Treatment of Spontaneous Pneumothorax without Complications. T. W. Tallqvist.
144 Anatomy of Spondylolisthetic Pelvis. (Spondylolistetiskt bäcken, beskrifvet anatomiskt.) O. Engström.
145 Study of Tuberculosis in Island District. (Tuberkulös infektion och tuberkulös sjukdom bland befolkningen i en österbottnisk kustsocken.) K. v. Kraemer.
146 Myomas Preventing Delivery; Two Cases. (Till förlossningsterapien vid uterusmyom.) T. Länsimäki.

137. **Syphilis Affecting the Nervous System.**—Hagelstam reviews his experiences with 50 cases of tabes, 7 of syphilitic myelomeningitis, 93 of cerebrospinal syphilis and 13 of paralytic dementia. He made a special study of the reactions of the cerebrospinal fluid and tabulates the findings in a later series of 34 cases. Treatment was with mercurial inunctions and potassium iodid. Only within the last few years was salvarsan added. One fatality under salvarsan was observed, an undiagnosed tumor (gumma?) in the frontal lobe having undergone rapid hemorrhagic degeneration under the influence of the salvarsan with fatal results. The symptoms in this man of 30 had suggested beginning tabes with some intercurrent febrile infection, possibly influenza. As a supplement to the usual mercurial treatment he was given an infusion of 0.45 gm. neosalvarsan and six days later another. He seemed to be entirely restored but two days later died in a sudden convulsion, explained by the blood found in the frontal lobe in the débris of a tumor as large as a hen's egg.

139. **Pylorospasm in Infants.**—Lövegren reports two cases and Pipping six. Lövegren's two cases were in boys and the spasm developed during the fifth week. One child was kept at the breast, watching to see that no more milk was taken at a time than the stomach could bear. The other child was fed with breast milk drawn artificially and given both by the mouth and rectum. The advantages of the 25 or 30 c.c. of breast milk instilled into the rectum six times a day were plainly obvious. The child was also given 5 gm. of veal bouillon before each meal. Under these conservative measures alone the children did not lose much in weight and by the third month were thriving normally. The fatal one in Pipping's six cases was the only girl. The spasm came on either immediately after birth, the third or fourth day, or the second, third or fourth week. In one case the spasm began with melena and in two cases there was bile in the vomit. One of the children lost 35 per cent. of his weight. Only one of the children was given breast milk alone. The aim was to give the food in small amounts and with as little fluid as possible. On the whole his experience speaks in favor of internal treatment alone.

Hospitalstidende, Copenhagen

Dec. 22, 1915, LVIII, No. 51, pp. 1303-1326

147 Basophil Stippling of Red Blood Corpuscles in Various Forms of Anemia. (Basofil Punktering af de røde Blodlegemer ved forskellige Former af Anæmi.) V. F. Møller. Commenced in No. 50.
148 *Tests of the Cerebrospinal Fluid in Syphilis. (Undersøgelse over Lymphocytose, Hyperalbuminose og Wassermann's Reaktion i Cerebrospinalvædsken ved Syphilis.) C. With. Commenced in No. 49.

148. **Tests of the Cerebrospinal Fluid in Syphilis.**—The details are tabulated here from 144 cases of syphilis in its various phases, progressive paralysis and "nerve syphilis." They show that the cerebrospinal fluid may present the Wassermann reaction, increased albumin content or lymphocytosis at any stage of syphilis. These abnormal findings in the cerebrospinal fluid are particularly frequent and pronounced with untreated leukoderma. With never found the cell content increased in cases of simple tumors in the central nervous system, but the albumin content was often high. The preceding instalments were summarized in these columns January 29, p. 392.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 8 CHICAGO, ILLINOIS FEBRUARY 19, 1916

DEVELOPMENT OF A FIFTH YEAR IN MEDICAL EDUCATION IN THE UNITED STATES *

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NEW YORK

The old proprietary medical school in this country taught medicine very badly as viewed by modern standards. There was no attempt even to demonstrate the foundation sciences in laboratories, which, except for the dissecting room and the study of necropsy material, scarcely existed. Chemistry and physiology were taught only in lecture rooms, while bacteriology and pharmacology had not even been discovered. That physicians and surgeons of any ability were trained at all was due entirely to the presence on the teaching faculties of great personalities who, by their precept and their example, dominated the fields of clinical medicine and clinical surgery. Those early schools taught the theory and the practice of medical and surgical art well, so far as they could be taught in the lecture room and at the bedside in hospital wards. A fixed and graded course of instruction of three years' duration was generally adopted about 1886, coincident with the development and addition of laboratories of instruction in the basal sciences of physiology, bacteriology, histology, physiologic chemistry and pharmacology. The course was increased to four years in most schools in the early nineties, at which time the great modern development in the specialties of medicine was added to the curriculum. Strange as it may seem, the chief objectives of a medical education, general medicine and general surgery, remained nearly stationary, so far as methods and time allotted to them are concerned, until they came to represent a minor portion of the curriculum in most medical schools.

About five years ago many schools began to realize this abnormal condition, and in order to return to the more normal conditions existing before the invention of surgical specialties, these fundamental clinical subjects were placed again in a proper relation to the rest of the work of medical education. In conjunction with this reform a more intimate relationship with the general wards of the hospitals has been added to the medical curriculum, and the system of clinical clerkships based on the English plan has been developed in many schools. It is not fair to criticize the amount of time devoted in the present four year course to either the basal laboratory sciences or to the various specialties of medicine or to the fundamental clinical branches, while the total time needed to fulfil the requirements established by the universities and in some states by the medical practice acts demands of medical students a greater amount of time than it is possible for them to devote to their education without incurring a really measurable menace to their health. The requirement of 4,000 hours of classroom work, divided into four annual courses of thirty weeks each, amounts to more than six hours a day. In some universities the requirement exceeds this minimum, which has been fixed by the laws of several states. If the content of the science of medicine requires such a devoted apprenticeship from its followers, it is fair to conclude, therefore, that the four year course has become inadequate to meet the demands for a curriculum which shall teach medicine adequately on modern lines.

Medical education has reached this stage of its development under the influence of several governing agencies. The medical schools themselves have come largely under university control, and these schools of high grade have been the most potent factor in improving medical education, both by raising the preliminary standards and by improving the methods of instruction and the facilities for education within the schools themselves. A second factor of equal importance and of the greatest possible importance in reducing the number of the low-grade schools which have existed in the United States has been the Council on Medical Education of the American Medical Association, under the leadership of its chairman, Dr. Arthur Dean Bevan. This body has held annual conventions during the past eleven years, and has been the most active agent in the elimination of low-grade schools, and in the struggle for higher standards in medical education. The work of this council was ably seconded by the report of the Carnegie Foundation for the Improvement of Teaching, issued in 1911. The third factor for the improvement of medical education has been found in the state boards of licensure.

The work of these three bodies has usually been in harmony, but the most recent development would seem to indicate that the state boards were pulling somewhat apart from the schools, and from the general profession as represented by the Council on Medical Education. There seems to have arisen a sort of rivalry between various state examining boards to place their particular states on a somewhat higher plane of education and requirement for licensure than is the practice in other states. As long as the state legislatures followed the lead of the Council on Medical Education and prescribed the methods of examination and qualifications of preliminary education, no special harm was done; but when various states began to prescribe the curriculum that should be taught in the uni-

* Read before the Pan-American Scientific Congress, Washington, D. C., Jan. 4, 1916.

versities, their action gave rise to endless difficulty, and they were usurping functions which might more properly have been left to the universities. The recognition of the inadequacy of the present four year curriculum to give a competent medical education without detriment to the health of the medical student is primarily a university and not a state matter. Nevertheless, various state legislatures have empowered their boards of medical examiners to correct this error in modern medical education by prescribing a year's hospital practice on the house staff of some approved hospital as a prerequisite for admission to licensure examinations. By this action these states have removed a year of necessary training from the control of the schools of medicine and placed it in the hands of the hospital boards, which, in the past, have been more concerned with the care of their patients than with developing the educational opportunities that are inherent in every hospital service. It would seem to be an amusing paradox, if it were not really a serious matter, that any state should require a year's practice of a prospective physician before admitting that physician to an examination to test his fitness to perform the work of administering to patients in medicine and surgery. Several universities have followed blindly the state examining boards in requiring a year's practice in some recognized hospital as a prerequisite to receiving their degree of M.D. It would seem that this action in acccepting a year's work without university control other than a more or less thorough examination of the hospitals involved is a bad educational procedure.

The necessity for adding a fifth year to the present four year medical course is undoubtedly granted by all students of medical education; but such a year when added should remain under university control and should result in a relief to the crowding of the present curriculum. The student in his added fifth year should receive under the supervision of university officials the equivalent of the last of the two years of a hospital internship as at present administered, and not merely the ordinary first year as now made up, in most hospitals, entirely of laboratory and subordinate work without responsibility. This fifth year should give the student of medicine, in addition to a year of clinical work and training in hospital practice, an extension of his opportunity for training both in the laboratory subjects in the first years of his course and also in the specialties of medicine during the second two years. Finally, and of great importance, this proposed extension of time in the curriculum should secure to the student a certain amount of leisure during his whole course in medical education to be devoted to reading outside of the regular curriculum. The recent graduate in medicine should receive in a properly organized five year course of study an opportunity to assimilate a broad view of the whole field of the practice of medicine.

The organization of a proper fifth year should not be left to the control of state boards and hospital authorities. Under such a system the hospital intern never has received and will not receive an experience proportionate to the amount of time expended in a year's service. It is not possible at present for a state board to have any but a perfunctory control over the managers of privately endowed hospitals, and there do not exist at the present time a sufficient number of state and municipal hospitals to care for the annual additions to the number of medical graduates. The present system of graded intern service controlled by a rotating visiting service has resulted in a tradition that the intern house officer is the head of his wards and has prevented the development of a system of continuous influence because controlled by the rotating visiting physicians and surgeons. The limit in time of service both for the intern and for the attending staffs has failed to build up any permanent organization. It is a notorious fact that during the first of the usual two year service as a hospital intern the recent graduate gives to the institution much more than he receives except in the very best organized hospitals. During this year, under the present arrangement, the intern does a maximum amount of drudgery in the laboratory in return for a minimum amount of instruction and experience. He accomplishes really no advanced work in the diagnostic and therapeutic study of disease. This part of his hospital course is secured by him as an intern only during the last half of an eighteen or twenty-four months' service. The exceptional hospitals to which this criticism does not apply are those institutions which are connected either directly or indirectly with medical colleges, and in whose wards active clinical teaching is carried on.

It is not possible that any state classification of hospitals based on the number of beds, laboratory facilities, library plant and similar criteria will ever be able to hold the management of an institution in the first rank of educational progress unless there is instilled through the whole institution that spirit of scientific thought and study which can come only from a daily accountability to a group of eager students. It follows, therefore, that the hospitals which are most completely under university control will offer the best service for medical and surgical interns, and it is an equally logical conclusion that if the training and work of the hospital intern himself is to be used as a means of education, that work from beginning to end must be also under university control.

The educational advantages which will follow from the addition of a properly organized fifth year will consist of an opportunity to remove from the first two years of the medical course all clinical work and to permit the student during those two years to devote himself to a laboratory training and theoretical study of the fundamental sciences which underly medicine. Only in this way can the student secure a sufficient time to learn the necessary parts of those fundamental sciences which have so enormously increased during the past ten years.

A second advantage to be secured is the opportunity for extending the time to be devoted to training in medical specialties. Even in a five year course, however, no attempt should be made to do more than give the graduate in medicine a knowledge of the principal pathologic conditions which occur in the organs of special sense and in the special functions which are grouped under the heading of medical specialties. He should be trained to recognize the normal condition of those special organs and systems and to recognize variations from the condition of health. In no sense should the attempt be made to make the recent graduate of medicine a thoroughly trained man in any single one of the specialties of medicine. The time to be devoted to the student's training in special clinical subjects should be limited to a necessary proportion of the third and fourth years of the curriculum.

The third advantage to be secured will be the devotion of parts of his second and third year to mastering all the methods of diagnosis which are applicable to the study of the problems of surgery and internal medicine in order that finally in his fifth year, under proper instruction and oversight, he may devote his whole time to clinical work in the hospital wards devoted to these two great branches of medicine, which must in the last analysis prove the lifework of the vast majority of medical men.

In developing this fifth year it is important that time should be saved the student throughout the whole course for leisure in which to devote himself to collateral reading on the special clinical cases and the scientific facts which come within his daily observation. In order to carry out such an organization, it is necessary to reorganize the great majority of American hospitals. The old time rotating service for the attending staff, which has begun to disappear, must be abolished entirely. If the hospital is large enough it is better to place two men in continuous charge of half as many beds than to allow these two men to alternate on twice the number for periods of service of six months each. The single-headed continuous service is absolutely essential in any hospital in which a consistent system of education is to be developed. The second change consists in abolishing the old American ideal of a rotating house staff service in either three or four grades each of four to six months' duration during a period of from sixteen to twenty-four months. In place of this there must be established a resident intern staff who shall hold their positions at the pleasure of their superior medical officers for indeterminate periods. Between the head of such a service and his resident staff officers there should be appointed a sufficient number of associates and assistants, who should also be on continuous service except for absences due to necessary vacations.

Finally, there should be added to the resident staff a number of fifth year medical students as clinical clerks. The work of these clinical clerks should be carefully supervised by the resident staff and assistant attending physicians, and should form an integral part of the hospital routine. The clinical clerks should not be an extra burden to the service, but their work should count as a necessary part of the routine work. If possible, these student clerks should reside in the hospital, and should be subject, of course, to all the rules of hospital discipline. The term of service for such student interns cannot be organized on the usual college year of eight months' duration and four months' vacation. On the contrary, the term must be a full year of twelve months without vacation. During such a fifth year the individual student should have his service so divided that he would spend one third of it on internal medicine, one third of it on general surgery and one third which might be divided in similar ward work on such medical specialties as diseases of children and neurology, and on the surgical specialties of gynecology and urology.

The organization of hospitals which might be utilized for this sort of educational work is of two kinds. Either they are directly owned and controlled by the universities themselves, which at the present time is unusual, or, if they are classified as extramural hospitals, the control of the personnel of the attending and resident staff and control of the wards for teaching purposes should lie absolutely within the power of the university. One of the great problems which is being solved in several ways by the universities of the United States is the bringing of the many well-organized and well-endowed private hospitals of the country under the control of these educational bodies. A beginning has been made in many places, but the relation of some of the best medical schools of the country to the hospitals in which they now enjoy their teaching facilities in clinical branches still leaves something to be desired so far as permanency and completeness of organization are concerned.

Probably in no such case has the perfect plan been formulated as yet. The ideal arrangement that the university shall own and operate its own hospitals demands too great an endowment to warrant any attempt for a general adoption. New funds are needed by every university today to improve both the educational and the research features of the scientific as well as the clinical departments of its school of medicine. And it would seem too great a task to add to the search for these funds at the same time an endeavor to secure a plant and sufficient endowment to provide hospital facilities while in every university town there already exists one or more hospitals which are well supported and in which medical education has been neglected by precept and tradition for many years. That the universities need these unused educational opportunities belonging to their neighbor, the hospitals, is perhaps self-evident. It ought to be equally appreciated that the hospitals need in their services the scientifically trained teachers of the university to serve them as physicians and surgeons. This fact is evident to all concerned in the management of those hospitals which have made proper alliances with university schools of medicine, to the trustees, to the lay officials and the trained nurses, to the general public, and last and really the most enthusiastic of all, to the patients in the wards. The question to be decided in each locality is, Can the local hospitals, which are already in existence, be utilized in medical education to the same advantage as would result from the building and ownership of a hospital by the university? The answer is, Yes, provided the control of the medical appointments and the organization of medical education in the hospital rest absolutely in the universities.

Two problems are presented to any university which wishes to form an alliance with an existing hospital: first to educate the hospital trustees that medical education will benefit the hospital and that the patients will be better cared for by university control of the wards than by any other system; that the hospital, in other words, needs for its development the service of university professors, of the many assistant teachers, of the medical students, and also needs for its patients the access to the college laboratories. When this has been accomplished the second problem will be met in the need for formulating a contract of alliance between the two corporations, university and hospital. This has never been done twice in exactly the same way, and in this paper an attempt has been made to indicate the objectives for which both institutions should work. It is fully believed that there exists no antagonism in the aims of both, but that the real interests of the two are identical. When such an organization as is here outlined has been accomplished, the course in medicine given in American universities will be second to none in point of completeness and thoroughness of execution as compared with that of any other country. The

excellent work in the teaching of the laboratory branches which has already been developed to so high a plane will then be equaled by the clinical teaching in the practical hospital branches, and American medicine shall have been placed on a higher plane than ever before.

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MEDICAL EDUCATION IN THE UNITED STATES*

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With the publication of annual reports on medical education, commenced in THE JOURNAL in 1901 by the American Medical Association, began the history of real medical education in the United States. The following year the work was taken up formally and continued by a committee on medical education of the Association, which committee was later merged into the present Council on Medical Education. The continuing and progressive work of this council, supplemented in 1910 by the publication of the Carnegie Foundation, gave an enormous impetus to the movement. Like publicity in all other matters, these publications, which exposed to the public and to the medical profession alike the miserable pretenses which existed, caused the beginning of what might be called modern medical education in this country. Five years prior to this time the Council on Medical Education of the American Medical Association had taken up the subject of existing low standards, and had been making a valiant fight for improvement. The Carnegie Foundation publication came very opportunely to the rescue of the Council's efforts, and gave such an impetus by its pitiless exposure that in the intervening period such a change had taken place as is almost marvelous; which, had it been predicted, would have been considered the fancies of a madman.

The final standards in the United States are hardly yet established; the future is being trusted to for much. In this country of state's rights, things do not progress evenly and the progress of medical education is no exception. But this may be said, that the revolution has progressed so far as to assure the future absolutely and that within a comparatively short period.

Behind the movement stands first and foremost the Council on Medical Education of the American Medical Association. But even this body has not been able to live up to its announced standards on account of the inequality already referred to. Certain sections of the country constantly are found unable to travel the pace, and have lagged behind until finally the Council has adopted as its standard policy to go only just so fast as the slowest might be able to follow. Of course this does not mean that the sluggard is allowed to dictate how fast its pace shall be, but practically its sluggish movements have had a measurably potent influence on the pace. In the main the Council's work has been so well done that it would seem to be hypercritical to question its wisdom in modifying its decisions. Possibly also in the long run those who have been and are dissatisfied with some of its actions will admit in their final judgment that it has acted wisely. And yet it would seem in some essential instances that it might have "stuck more closely to its guns." Nothing is ever builded for permanency without a sure and solid foundation, and nothing in the way of technical education can be builded soundly without the foundation of preliminary requirements. A weakness at this point is a weakness along the whole line, and where advance could be made rapidly at various points, a weakness in this element impairs the finishing of the whole superstructure.

On paper the medical standards of education in the United States at the present day are a preliminary education of a satisfactorily completed four years' high school course plus a year of college work in chemistry, physics, biology and a modern language, to be followed by a four year graded medical course, the first two years of which are devoted to the laboratory subjects and the second two years to the clinical features, and then a year's practical training as an intern in a hospital. This standard, which is the "ideal standard" of the Council, is in process of attainment, and the signs of the times indicate that it surely will be reached. When once attained, this standard will be the equivalent of and equal to that of any country on the face of the earth. One cannot make a systematized comparison between the medical standards of the various countries because of the fact that they differ in essentials in many respects. For instance, the German standard is founded largely on the laboratory, the English standard is founded largely on the hospital, and it will be seen that the standard of the United States is one which attempts to select the good from both of these standards — that is, the laboratory and the hospital are duly and equally emphasized.

How far, then, has this country been able to attain that which is its ideal? It is hardly just to judge the standard of a country by the standards attained in certain sections. But, on the other hand, it is unfair not to bring in sharp relief the fact that certain sections have measurably approached the more nearly ideal than has the country at large. This is more true of this country than of any other, as has already been pointed out, because of our multiple standards of control, due to state rights. The fact that certain sections of the country have approached more closely to the ideal and are well on the way to the completion of that approach is sufficient evidence that in time all the country will be on the same footing. In studying the situation as it exists today, it is just, therefore, that that portion of the country which is most advanced in these matters be taken as the basis of discussion; consequently I will use the state of Pennsylvania as a peg on which to hang my comments.

As has been stated, the real foundation, without which no superstructure can stand, is the preliminary requirement. Under the yielding and leadership of the Council on Medical Education of the American Medical Association, this foundation has been and is weakened. Whatever may be the excuse, the facts remain the same, and until the day comes that this Association insists that all subterfuges and all evasions be done away with, the superstructure cannot be finished. The reasons given for allowing the student to enter the medical school with conditions in his preliminary work may be basically sound, but the fact remains that it has so weakened the superstructure that it has made it exceedingly difficult for those states wishing and endeavoring to live up strictly to

* Read before the Section on Education of the Second Pan-American Scientific Congress, Washington, D. C., Dec. 29, 1915.

the announced preliminary to hold their course. I myself am strongly of the opinion that the allowance of conditions at the present stage of development is entirely unnecessary and uncalled for and is holding back the desired end; not only the length of time that these conditions are being allowed but many years in addition. The Pennsylvania medical schools have been in no better condition to enforce preliminary requirements, if one is to accept as true the report of the Carnegie Foundation, than are those in many other sections of the country. And yet Pennsylvania has been able for the past two years to enforce strictly the fulfilling of the preliminary requirement. No school in that state allows of conditions to the applicant entering the medical school, and this in spite of the allowance made by the Council of the American Medical Association, which conditions are so widely taken advantage of by many schools.

The constant result of the inequality as established by this Council is that applicants are rejected on account of deficiency by Pennsylvania schools and immediately cross the border into a neighboring state and are admitted to schools which are just as well and better able to stand the financial loss. It has been contended and it is true, as has been demonstrated by the Pennsylvania schools, that a strict enforcement of the preliminary requirements has caused a loss to the class of two thirds or more of its personnel. But, on the other hand, it has been equally demonstrated that this loss is a mere temporary one and that the reaction begins immediately. The second class following the strict enforcement of the preliminary shows not only a marked increase but an increase fully equivalent to one half or more of the previous loss, and thereafter there is a steady and healthy increase, as far as numbers are concerned. I am not pretending that Pennsylvania is the only state having schools enforcing the proper standard. I am merely using it as illustrative of what is true of all of the better colleges in the country which are enforcing their requirements strictly, irrespective of irregular standards encouraged and allowed by the Council of the American Medical Association. However, the Council has promised that in 1917 these allowances shall cease. Therefore it is in sight that as far as preliminary requirements are concerned, this country will be fully up to its ideal standard. Of course this will mean the elimination of a few more of the medical schools already in the field. The actual shrinkage in the number of schools began in 1907, following the presentation of the first classification of medical colleges by the Council on Medical Education of the American Medical Association, and the movement for betterment since then has been continuous. This shrinkage has been going on more or less rapidly — certainly steadily — ever since, and there are possibly fifteen or twenty schools today in existence which will not be in existence at the end of the next five years. Whether it is possible or not that the leniency displayed by the Council on Medical Education has saved thus far some of the existing schools, the more important question involved by its action is, whether these schools were worth saving and whether they will not finally succumb.

Presumably a knowledge of the branches removed from the medical curriculum and injected into the preliminary course are basically necessary to a full appreciation of the branches retained in the medical curriculum itself. This is one view of the desirability and necessity of an advanced preliminary education in medical matters. The other view on this matter is well maintained by President Lowell of Harvard University in a paper read before the Tenth Annual Conference of the Council on Medical Education. This view embraces the cultural idea of the college work rather than the utilitarian. These two views diametrically opposed to each other have largely been straddled by the Council in its efforts to satisfy everybody. Certainly one in administering these affairs cannot act in a dual capacity: administration must be based on either one view or the other if it is to be successful. "Culture" in education is like a great many other words — widely used but with no common basic understanding as to what it means. Certain it is that culture can be derived from college studies of a scientific character just as well as it can from general college topics, and the man who cannot acquire culture in his scientific work will be unable to acquire culture in his classical work. To draw such a line of distinction is absurd. The practical point involved is, Is a man who is looking forward to devoting his coming studies to a technical subject to give an undue amount of time to purely so-called culture and to neglect deliberately in the acquiring of that culture those branches which are basically necessary to his understanding of his future technical work?

Pennsylvania has decided in the negative in this matter. The state law requires a year of college work, specifying the minimum amount: not only the minimum amount of work but also the minimum number of subjects which may be included, namely, physics, chemistry and biology. The schools of Pennsylvania, advancing one step further than the state, require in addition a modern language. A number of Pennsylvania schools have themselves increased these requirements to two years of college work, but these two years must include the amount of science specified in the state law. It may be that a man is unable to acquire the amount of culture in college work of this type that would be acquired by him were he to omit this amount of science and substitute for it the ordinary college branches as laid down in the curriculum of the literary colleges. I myself not only doubt this but also do not believe it. In any event, if he does lose a bit of culture, he has attained so much more basic knowledge of that which is necessary for his understanding of his future studies that he will run away with the college man not having had the opportunity to take this science work. Pennsylvania, therefore, administers on the supposition of the science work as essential and that culture will follow as a matter of course, with an equivalent length of time. I am well aware of the fact that this is flying in the face of the opinion of many of the educators of the country, but nevertheless I am perfectly confident that time will prove the correctness of this decision.

The medical curriculum, being freed from the basic sciences, has been able to adjust itself to a definite standard. This standard has been evolved by the adaptation of parts of both the German and the English systems. It has been believed by medical educators in the United States that neither of these systems is adapted to our native soil, however much they may be so to the soil of the parent country. The first two years of the curriculum have been devoted to that portion on which the German school is based, namely, the laboratories. The final two years

of the medical course have been given over to that portion which is especially emphasized by the English system—bedside instruction. The curriculum throughout the whole country is largely standardized today and there is very little difference in the work done in the different schools of better class: those schools which are likely to live. It has been fully recognized, however, that four years is all too short a time for any candidate to learn much more than the facts of modern medicine, and that in the final two years it is impossible to give a sufficiency of practical application of the facts of medicine to round out the candidate's knowledge. Consequently the Council on Medical Education in its ideal standard advised a year's practical training as intern in a hospital.

The hospital year is intended to be a year in which the student begins independently, or rather with competent aid, to apply the facts of medicine which he has learned in the schools during his four years of medical study. A division of opinion exists as to whether this year should be obtained prior to issuing the medical degree or after the medical degree has been issued by the college and prior to the student entering the state examination. An effort has been made to develop the work of this year from both points of view, but it is almost inevitable that failure will attend that effort which goes in the direction of the intern year prior to graduation. Again state rights very materially enter into this subject. In a country like Germany where paternalism obtains and hospitals are largely if not entirely under government control, such a system is possible. In the United States where few hospitals are owned by the state and few medical schools are state institutions, it would seem to be an almost impossible task. The University of Minnesota is making an effort to solve the problem in this way, but is having very considerable difficulty, and there is a prospect that they may fail, although the university is the only medical school in the state of Minnesota. Pennsylvania has adopted the policy of providing an internship after graduation but prior to the entrance to the state examination. The act of assembly amending the medical act of 1913 requires that:

> Every candidate for admission to the Pennsylvania state medical examination shall have completed a year as intern in a hospital which shall have at least twenty-five beds to each intern, devoted to the treatment of medical, surgical, gynecological and special diseases; shall maintain or establish cooperation with a maternity department or hospital in which each intern shall have not less than six weeks' service or the equivalent thereof, during which time he shall have attended or participated in the attendance upon not less than six confinements; shall maintain a thoroughly equipped modern pathological and clinical laboratory proportionate to the necessities of the hospital; the records on file of the cases treated in said hospitals shall give evidence of the laboratory work so done by the intern; shall maintain a department of anesthesia consisting of one or more anesthetists who shall have supervision over all the anesthesia given in the institution and whose duty it will be to instruct the intern in the administration of anesthetics.

Many difficulties have arisen in the enforcement of this provision of the medical act, and although the requirements went into effect the first day of January, 1914, the work is as yet uncompleted. On investigation of the hospitals of the state, both those owned by the state and those owned by private corporations, many were found not to measure up to the standard written into the law. Laboratories, anesthetic departments and maternity departments were found wanting in a surprisingly large portion of the hospitals. On first investigation the Bureau of Medical Education and Licensure, which was made responsible for the administration of the act, was unable tentatively to approve more than a hundred out of about 200 institutions in the state. A year's trial of these institutions has developed many points of interest as well as of difficulty. It was found that there was a considerable reluctance by hospitals to raise and expend funds for the establishment of the laboratories and other required departments, in consequence of which a rider was attached to each hospital appropriation by the legislature of 1915 to the effect that laboratories and anesthetic departments must be established in the institution to which the appropriation was made, and the approval of these departments was placed in the hands of the Bureau of Medical Education and Licensure. With the original requirements in the amendment of 1913 and the requirements of the recent appropriation acts, the Bureau of Medical Education and Licensure has found the solution of the difficulties which presented themselves. It is now in process of inspecting all the hospitals, carefully going over with them the facilities they possess and indicating to them the necessary improvements and additions. The readjustment to the new order of things is being rapidly made, and it may confidently be predicted that within the next year every hospital in Pennsylvania which shall stand approved by the medical authorities for internship will possess a proper and sufficient equipment and personnel with which to give the intern a proper fifth year of medical study.

With the completion of this movement there will be established in that state finally and definitely the ideal standard set in 1914 as the essential standard by the Council on Medical Education, namely, a satisfactorily completed four years' high school course plus a year of college work of college grade in physics, chemistry and biology and a modern language to be obtained prior to entrance on medical study; to be followed by the satisfactory completion of a graded four years' medical course in an approved medical school; this to be followed by a year's service as intern in an approved hospital. In addition to this, attention may be directed to the fact that already three of the seven schools of the state, following the example of other first-class schools of the country, are requiring a preliminary two years of college work instead of one such year.

As the preliminaries are the necessary basis of the medical curriculum, just so is the internship the basis of future practice. The graduated student passing from the medical school into the wards of the hospital begins in a measure for the first time to apply on his own responsibility the facts of medicine which he has previously gathered. These facts he now begins to learn to correlate, and without competent systematic correlation his facts will be of little use to him in the future. This year is or should be an actual year of instruction. It is not sufficient that the intern be allowed to practice on the patients in the wards, but all his methods and actions should be carefully overlooked and carefully guided and his mistakes pointed out to him and corrected. Without this, half or more of the value of the internship would be lost. Consequently the hospital which the intern enters should be an approved one. This inevitably leads to the necessity that medical authorities inspect and carry out

supervision of hospitals. The necessity for this is unquestioned. The method of obtaining the power to accomplish the result is open to administrators to find. In Pennsylvania this has been accomplished, and the work of approving the hospitals for internship is well under way. The medical act specifically requires an internship, stating that it shall be in an approved hospital, and at the same time specifically stating certain departments which must exist. During the 1915 session of the legislature, the appropriation bills to hospitals required that several of these departments, including the pathologic departments, which in many institutions were wofully deficient and in some altogether absent, be established, and the funds were provided therefor. A tentative list of hospitals in the state has been established and approved for internship, largely on the reports from the hospitals themselves as to what advantages they offer. In the meantime the Bureau of Medical Education and Licensure has undertaken a thorough investigation of each individual hospital in order that it might satisfy itself as to the true situation as to the competency of the institution for the purposes proposed. All institutions found deficient are notified as to their deficiencies and advised as to how to go about rectifying them. As soon as the work of the bureau is completed, a new list of approved hospitals in Pennsylvania will be published, and thereafter no internship will be accepted excepting from these approved institutions. It will be seen, therefore, that Pennsylvania is a pioneer in the requirement of the internship and also is showing the way to bring effectively the hospitals into line for the purpose intended, namely, a competent course of a year of practical instruction for the medical student prior to allowing him to enter on the practice of medicine.

Hospitals vary as to the length of their internship, some having twelve months, some eighteen months and a few two years. The interns have their choice of any hospital on the approved list, but having once entered on the service of that institution, are held to the full term of internship, be it twelve months or be it twenty-four months, before he is admitted to the state examinations.

To assume that this internship simply means a year of education for the intern himself would show an exceedingly narrow view of the importance of the whole movement. The Bureau of Medical Education and Licensure, during the process of its inspections, has found to be a fact that which it had long since suspected, namely, that many men of the medical and surgical staffs of the institutions are incompetent to fill their positions, using the hospitals largely for their own private purposes and in no way attempting to give a competent return to the institution, to its patients or to the public for the opportunities they themselves are receiving. The bureau has found laboratories existing in institutions of from seventy-five to a hundred beds, which laboratory had existed for some years. On investigation it was found that there had been during the past year several hundred examinations, largely of urine and blood, made in these departments. The year following the agitation started by the state medical authorities demanding that the pathologic departments be properly equipped and properly run, the examinations in these departments were found to have increased to several thousands. The conclusions are inevitable that the men on the staff of these particular institutions had never, before being faced with the necessity to do so, made even a respectable effort toward fulfilling their duties to the hospital and its patients.

It is easy to foresee with our experience in Pennsylvania at this time that the sum total of the efforts of the state in this respect will be not only the education of the intern, but also a most potent factor in the education of the staff members themselves. These men, who were either too lazy or indifferent or ignorant in the past, will be, by publicity, spurred to the necessity of the use of the laboratories. The men with a desire and ability to use the laboratory will be given wider opportunities on account of the increased facilities and the competency of the laboratory work; one of the main features being demanded is a competent laboratory personnel. The sum total is bound to be the elevation of the whole tone of the service of the hospital and of every man connected with the service. It will also tend by comparison to improve the unfit, and will give boards of managers in the future opportunities to know who are unfit by observing the use they make of the laboratory.

Nor will the movement end at this point. As the men of the hospital staff use more and more freely the opportunities placed at their command, they will realize more and more the advantages modern medicine can offer from the diagnostic and prognostic standpoints. Through properly equipped and properly manned laboratories their patients will soon acquire a knowledge of the efficiency of such service and will demand it of other physicians practicing in the community. The practitioners in the community, having their patients going to the institution and seeing the exact methods the technician applies and realizing their value, will demand their use more and more thereafter. Those on the outside who are too slothful or too ignorant will be shortly marked as unfit by the community itself.

It will be seen, therefore, that through a properly organized system of control of hospital facilities, not only is the intern educated to such a point that there will be a minimum of unfit practitioners in the state in future, but the hospital staff is equally benefited, and the intelligence of the community itself will be educated to such a point that it will be able to distinguish the fit from the unfit. The benefits of the internship are limitless, and it is our belief in Pennsylvania that it is equally potent with the establishment of proper preliminaries in the bringing of the medical profession of this country out of the low state into which it had fallen.

If all this be true, then it would seem that it would take a powerful hand not only to get control of the reform but also to carry it out. Is it conceivable that any individual agency, such, for instance, as a medical school, can accomplish this as quickly and as effectively as can the state itself? We are strongly of the opinion from our experience that the state and not the college is the proper authority to take in hand the question of internship. The authority of the college is limited and cannot spread equally wide and with equal potency as can that of the state.

It may be said, then, with truth, that the ideal standard as proposed by the Council on Medical Education of the American Medical Association has been reached in this country, and it is only a question of time until the whole country will have landed on the same platform. With a standard of preliminary edu-

cation requiring four years' high school work and one year of college work, including the necessary basic sciences, a graded four year medical course and a period of internship, can it longer be said that there is any other country which exceeds the United States in its efficiency in medical teaching?

2219 De Lancey Street.

CANCER OF THE BREAST

FIGURES WHICH SHOW THAT EDUCATION CAN INCREASE THE NUMBER OF CURES *

JOSEPH C. BLOODGOOD, M.D.
BALTIMORE

I have had the impression, especially during the past five years, that the relative proportion of benign lesions of the breast is steadily changing, and that the percentage of benign lesions is on the increase. This change was associated with a shorter duration of the disease, that is, women were seeking advice earlier. I did not realize, however, or even dare hope that this fortunate change would be as great as it proved to be.

December 12, the figures were completed in a study of 1,577 cases recorded in the Surgical Pathological Laboratory of the Johns Hopkins Hospital. Further investigation may change these figures slightly, but the evidence is sufficient to justify a preliminary report now, because, it seems to me, it is the most favorable and encouraging evidence that we have up to date—so favorable, that it seems almost just to state that education of women and of the profession can cure cancer of the breast.

From 1889 to 1900, the percentage of benign lesions was 32; from 1900 to 1910, 41; from 1910 to 1913 it was 47, and from 1913 to 1915, 59, or from 1910 to 1915, 54. Therefore, in about six years as compared with the previous ten, the percentage has increased from 41 to 54 (13 per cent.). But in the past three years it has increased 12 per cent. over the previous three years.

In this group of benign lesions only definite, undoubted cases are placed. There is no question as to the diagnosis. Further investigation will probably add to the number of benign lesions not subjected to operation. It is difficult to obtain the records of these cases into the Surgical Pathological Laboratory. In my own practice I have found, since these figures were completed, almost a dozen cases of the different types of benign lesions in which operation has not been performed, the records of which did not reach the laboratory. It is also quite possible that in some cases of inoperable cancer the records have not reached the laboratory. But I am quite certain that these additional cases will not affect the results as given, except to show more improvement. Inoperable cases are distinctly on the decrease, in spite of the fact that radium has brought to Baltimore a number of inoperable cases of cancer of the breast the records of which have probably not reached the laboratory. These patients would probably have died at home.

Another impression has been confirmed by this recent compilation. Adenocarcinoma and cancer with areas of adenocarcinoma are distinctly on the increase, but only certain types—those which develop with a short duration of the disease. Adenocarcinoma which develops in preexisting tumors of one or more years' duration have distinctly decreased since 1910, and especially since 1913, while the benign tumors in which they may develop have increased.

The percentage of adenocarcinomas from 1889 to 1900 was 10, while since 1913 it has increased to 22 per cent. Fully developed cancer of the breast has decreased from 90 per cent. during the years 1889 to 1900, to 78 per cent. since 1913.

Up to 1910 we had recorded eleven cases of *benign cystic adenoma,* and nine cases of *cancer in cystic adenoma.* Since 1910 we had thirteen examples of the benign adenoma, and only one of the malignant. There is apparently only one reason for this remarkable change—if women with cystic adenoma seek advice early after the appearance of the tumor, the surgeon will find an encapsulated benign adenoma, and the patient will be protected from cancer by the removal of only the tumor. If they delay, cancer may develop.

Cancer cyst—relatively rare malignant lesion of the breast—is apparently disappearing. We have recorded sixteen cases up to 1910, and only two cases since then.

Why is it that galactoceles, which up to 1910 were a very rare observation—two cases—have become quite frequent since 1910—eleven cases, seven of which have been observed since 1913? Is galactocele a lesion which has a tendency for spontaneous disappearance, or does it develop later into cancer, and when it has developed into cancer, are we unable to recognize the preexisting lesion? There seems no question that galactoceles are on the increase.

I have just called attention to the fact that benign cystic adenomas are on the increase and malignant cystic adenomas on the decrease. This is also true of the papillomatous cysts—tumors in which apparently cancer develops late. Up to 1910 there were twenty-one benign papillomatous cysts; since 1910, twenty-three. Of the malignant papillomatous cysts there is a distinct decrease: previous to 1910, eighteen cases; since 1910, only six cases.

Colloid cancer is also apparently on the decrease: previous to 1910 we had fourteen cases, since 1910 only five cases. The decrease here, however, is so slight that it may have no significance, and as yet we do not know the benign prototype of this malignant adenoma.

Adenocarcinoma of the duct-cancer type is on the increase: previous to 1910 we had sixteen cases, since 1910, seven cases. I am inclined to the opinion that this duct cancer, when it has been present some time, changes to a medullary carcinoma.

The type of adenocarcinoma in which there is the greatest increase is that which may develop in the so-called chronic cystic mastitis of the adenocystic type: previous to 1910, eleven cases; since 1910, fifteen cases.

Adenocarcinoma with areas of fully developed cancer is distinctly on the increase, especially since 1913. I am inclined to feel that this also is an indication of an early cancerous tumor. There seems no doubt that adenocarcinoma of certain types is increasing, and mixed adenocarcinoma and cancer, while the fully developed cancers of the scirrhous, medullary and cancer-cyst type are on the decrease.

Chronic mastitis not associated with lactation appearing as a somewhat circumscribed tumor shows a marked increase: in the first twenty years there were only eleven cases, while during the last six years we had fourteen cases, twelve of which have been observed since 1913.

* Preliminary report, from address delivered before the Western Surgical Association, Des Moines, Iowa, Dec. 18, 1915.

The only way I can explain this remarkable development is that a certain type of scirrhous tumor characterized by being circumscribed shows a greater decrease than any other form of malignant tumor.

Chronic cystic mastitis with the development of large simple cysts shows a great increase: in the first twenty years, ninety-five cases; in the past six years, eighty-five cases, of which forty-nine have been observed since 1913.

My evidence seems to show that chronic cystic mastitis with large cysts has a tendency to disappear spontaneously, so that if women delay, we will see this cyst less frequently. If they seek advice at once after the appearance of the tumor, the number of cases will increase, as shown by our figures. Previous to 1910 we have records of five disappearing tumors, since 1910, of none, that is, as we have explored such tumors, none were given an opportunity to disappear. Among 178 cases of chronic cystic mastitis with large cysts, we have records of sixteen disappearing tumors, most of these in the remaining breast from which we had removed a cyst.

The benign form of chronic cystic mastitis without large cysts, the adenocystic type, is distinctly on the increase: twenty cases in the first twenty years, and thirty-three cases in the past six years, of which twenty-four have been observed since 1913. This adenocystic type of chronic cystic mastitis has been described by Schimmelbusch, Réclus and others, and all the observers state that in about 50 per cent. of the cases the lesion is malignant. Up to the present time we have had fifty-three examples of the benign type and twenty-six cases of the malignant, that is, the malignant are a little less than 50 per cent. Since 1913 the percentage of the malignant has decreased from 50 to about 30. We have here evidence, therefore, that cancer in the adenocystic type of chronic cystic mastitis is an early form of cancer. But if these patients submit to operation at an earlier period, the probabilities are that we shall not find cancer, and the percentage of cures will increase from 90 to 100.

These 1,577 cases are now being tabulated according to the duration of the disease, and the evidence so far shows that patients since 1910, and especially since 1913, are seeking advice much earlier. In each case we are trying to investigate the educational factor.

We have this evidence, which clearly shows that women are understanding the information and that the educational propaganda is so far a success.

However, when women come at this earlier period, in which a clinical diagnosis can rarely be made, the surgeon's difficulties increase. In the first place, in a smaller group, operation is not indicated, and we must learn not to remove breasts unnecessarily. In the second place, when operation is indicated, the diagnosis must be made at the exploratory incision from the gross appearance of the local area, or from the frozen section, and in many cases this is by no means a simple procedure. The probabilities are that no well-trained surgeon will ever fail to recognize the fully developed cancer, or the distinctly benign, encapsulated tumor. But if women come early, we shall find that the borderline group is large, and the difficulties of the surgeon will increase. On the one hand, he will wish to avoid the complete operation for cancer when the lesion is benign, and the almost fatal mistake of the incomplete operation when the lesion is malignant. It seems to be agreed that if there is any doubt, the complete operation for cancer should be done.

I have submitted over sixty borderline cases to a number of pathologists, and have found that in not a single one has there been a uniform agreement as to whether the lesion was benign or malignant. I have selected these lesions from among my cases which I have called benign fibro-adenoma, cystic adenoma, and benign papillomatous cysts, chronic cystic mastitis with and without large cysts, and the types of early adenocarcinoma in chronic cystic mastitis, in cystic adenoma and in papillomatous cysts. If I took one group of pathologists I could report them all as malignant, and another group would allow me to report them as benign. This is no reflection on the diagnostic abilities of the pathologists: it is simply evidence that at the present time there are certain lesions of the breast about which we apparently do not agree from the microscopic appearance only. I shall consider this phase of the subject in a second paper.

Women will be warned that there is some trouble in the breast by pain, lump, discharge from the nipple, retraction of the nipple, eczema and ulcer about the nipple, dimpling of the skin, and the presence of lumps in the axilla. If they come under the observation of a surgeon within a few days, the differential diagnosis, clinically, at the exploratory incision and from the frozen section offers difficulties which at present we do not seem to be able to overcome in the sense of exact diagnosis. It is my opinion, however, that when every case is carefully investigated, the mistake of an incomplete operation for cancer should never be committed, but the mistake of performing the radical operation for a benign lesion will occur in from 10 to 20 per cent. of the cases. This is a mistake that must be made until we have developed a method of more exact diagnosis.

I am quite certain that when women understand the situation, they will prefer the slightly mutilating operation to the danger of an incomplete removal of a malignant tumor.

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A STUDY OF THE BACTERIOLOGY OF CHRONIC PROSTATITIS AND SPERMATOCYSTITIS

WITH SPECIAL REFERENCE TO THEIR RELATIONSHIP TO ARTHRITIS *

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It is now widely believed that chronic foci of infection may cause metastases, with resulting disease, in various organs of the body. There is considerable experimental and clinical evidence on which to base this belief. The work of Billings[1] and Rosenow especially has demonstrated the relationship between chronic focal infections and chronic arthritis and nephritis, and suggests that cardiovascular changes, myositis and neuritis may also be caused by similar foci, which have usually been located in the head.

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* Because of lack of space, this article is abbreviated in THE JOURNAL by omission of Table 1. The complete article appears in the author's reprints, a copy of which will be sent by the author on request, accompanied by stamped self-addressed envelope.

1. Billings, Frank: Chronic Focal Infection as a Causative Factor in Chronic Arthritis, THE JOURNAL A. M. A., Sept. 13, 1913, p. 819; Chronic Focal Infections and Their Etiologic Relations to Arthritis and Nephritis, Arch. Int. Med., April, 1912, p. 484.

That the prostate and seminal vesicles may be the seat of such foci is presumptive, but other foci (the head especially) must be carefully eliminated or considered before such a diagnosis can be made. However, since many arthritides have been cured or improved, or the process stopped by draining a focus in one or both seminal vesicles, as demonstrated by Fuller,[2] Squier,[3] Young[4] and Barney,[5] it seems reasonable to believe that the seminal vesicles in many instances contain the foci of infection which are wholly or partially instrumental in the production of arthritis.

In this study of the bacteriology of chronic prostatitis and spermatocystitis, material was examined from patients suffering from one or both of these conditions together with subacute or chronic arthritis. The anaerobic flora and a study of the specificity of the isolated organisms are of special interest in this work.

In a study of the bacteriology of the prostatic and seminal vesicle contents, the technic employed in securing the material must be carefully considered before the value of the work can be estimated. It has long been believed that the anterior urethra normally contains many micro-organisms, and that the posterior urethra is sterile. Pfeiffer[6] considers these organisms saprophytes under normal conditions, as they have failed to give immunity reactions with the patient's serum. Stanziale,[7] with a specially constructed instrument, found that the anterior third of the anterior urethra (especially the fossa navicularis) always contained some micro-organisms, and that the middle third often contained similar organisms, while the posterior third rarely contained any. Jungano,[8] in a study of the bacteriology of the normal anterior urethra, found two anaerobic cocci and four different anaerobic bacilli, as well as all the commonly described aerobic organisms.

A carefully controlled technic was used by Young, Geraghty and Stevens[9] in the bacteriologic examination of nineteen instances of chronic prostatitis, but aerobic blood agar plates were used exclusively. Of the nineteen patients examined, from only eight were micro-organisms grown: *Staphylococcus albus* three times; streptococcus twice; slender unidentified bacillus twice, and two other unidentified organisms. Young, Geraghty and Stevens concluded that bacteria are less frequently present in chronic prostatitis at the time the patients appear for treatment than is generally believed. None of their patients had had a urethral discharge within three months. In every instance there was clinical evidence of chronic prostatitis, and pus was present in the secretion at the time of examination. However, the failure to isolate micro-organisms in a single examination of seminal and prostatic fluid is no proof of the absence of infection, as noted by Young, Geraghty and Stevens and several others, notably Notthaft,[10] who found that as many as fifteen massage treatments on definitely pathologic prostates might be necessary before the infectious nature of the disease could be demonstrated.

Cohn,[11] in 1898, did the first work on the bacteriology of chronic prostatitis, using a technic very similar to that used by Young, Geraghty and Stevens; however, he did not reirrigate after the endoscope was passed. He studied twelve patients with chronic prostatitis, all of whom had had gonorrheal urethritis. He isolated micro-organisms from each, using aerobic ascitic agar plates, obtaining *Staphylococcus albus* eleven times, streptococcus three times, *Bacillus coli* once, an unidentified colon-like bacillus once, and a gram-positive diplococcus twice. Three healthy prostates yielded sterile plates.

With a similar technic, Hitchins and Brown,[12] using ascitic agar plates and ascitic bouillon, studied forty-six examples of definite prostatitis and obtained somewhat different results, namely, *Staphylococcus aureus* eleven times, *Staphylococcus albus* twenty-four times, a nonliquefying coccus thirty times, streptococcus twenty-seven times, diphtheroid bacillus thirty-one times, *Bacillus coli* twice, and the gonococcus five times. They do not state from how many patients they failed to grow organisms, or how many times each patient was examined, other than to state that some of the examinations were repeated.

Evidence of a different sort, contradictory to the notion that the gonococcus is the exciting organism in most instances of prostatitis and seminal vesiculitis, is furnished by the statistics of Young, Geraghty and Stevens, who classified 358 examples of chronic prostatitis, finding only 73 per cent. with a history of gonorrhea; of those examined bacteriologically, no gonococci were found. Squier,[13] in his work on seminal vesiculitis, suggests that the diversity of results from bacteriologic examinations will allow of but two conclusions: (*a*) "With the exception of acute suppurative conditions, the gonococcus is regularly absent." (*b*) "There is an almost constant growth of pyogenic organisms." He also suggests that in some instances the gonococcus within the vesicles may undergo a mutation due to change in environment. Using the material secured by his operation of seminal vesiculotomy, he found staphylococcus five times, streptococcus once and an unidentified gram-positive coccus twice. Other organisms were seen in some of the smears, but were not found on culture. How the cultures were made is not stated.

The work of Notthaft[10] is interesting in this connection, but the results are not conclusive, as he used a noncontrolled technic, and made his diagnosis of gonococci by smear and not by culture. He studied 120 cases of chronic prostatitis, all with gonorrhea from six months to thirty years before, with the following results: Those in the second half year following gonorrhea showed gonococci in 73 per cent.; those in the third half year, 50 per cent.; those in the fourth half year, 15 per cent.; while in those in the third year, no gonococci were found; as early as the second half year other organisms were found, and in the fourth half year none gave gonococci alone.

There are many scattered references in the literature of bacteriologic work done, as well as vaccine therapy applied in the treatment of chronic prostatitis and spermatocystitis, but the technic is either not given or not controlled. In general the organisms isolated are the same as those already mentioned.

2. Fuller: Medical Rec., New York, October, 1909, p. 717; ibid, 1912, lxxxi, 1125; ibid., 1904, lvi, 807; Ann. Surg., 1905, xli, 903.
3. Squier: Cleveland Med. Jour., 1913, xii, 801; New York Med. Jour., 1915, ci, 333.
4. Young, H. H.: The Rôle of the Prostate and Seminal Vesicles in General Toxemias, THE JOURNAL A. M. A., Sept. 13, 1913, p. 822.
5. Barney: Boston Med. and Surg. Jour., 1914, clxxi, 59.
6. Pfeiffer: Wien. klin. Wchnschr., 1903, xvi, 762.
7. Stanziale: Centralbl. f. Bakteriol., 1906, xlii, 19, 108, 209, 309.
8. Jungano: La flore de l'appareil urinaire, Paris, 1908.
9. Young, Geraghty and Stevens: Johns Hopkins Hosp. Rep., 1906, xiii, 271.
10. Notthaft: Arch. f. Dermat. u. Syph., 1904, lxx, 277.
11. Cohn: Centralbl. f. d. Krankh. d. Harn- u. Sex.-Org., 1898, p. 229.
12. Hitchins and Brown: Am. Jour. Pub. Health, 1913, iii, 889.
13. Squier: New York Med. Jour., 1915, ci, 333.

The only reference I have found to anaerobic organisms isolated from a prostate or seminal vesicles is in the work of Albarran and Cottet,[14] who isolated a very virulent anaerobic bacillus, the *Bacillus perfringens,* from a prostatic abscess; in a patient with prostatic stone with infection the presence of an unidentified anaerobic bacillus was constantly demonstrated. That anaerobes as well as aerobes may be present in diseased conditions of the prostate and seminal vesicles is to be expected, because of the anatomic structure of these parts and the constant presence of such organisms in the anterior urethra, as well as the possibility of invasion by contiguity and through the blood stream.

In my series of thirty-four patients, the examinations did not include those with a urethral discharge within six weeks; most of them had had none for several months or years, or none at all. In each patient there was clinical evidence of prostatitis or seminal vesiculitis, as manifested by a change in size, or an irregularity in contour and consistence of the prostate or vesicles, and their contents contained pus at the time of the examination. No attempt was made to secure the contents of the prostate or vesicles separately.

Several methods of obtaining the material from the patient were tried, healthy prostates and vesicles being used as controls. Sterile fluids were obtained from these patients most constantly when no irrigation from the outside was employed, and the following technic was finally adopted:

Each patient is given hexamethylenamin and acid sodium phosphate, 15 grains each, three times daily for two or three days before collecting the material. At this time the penis, especially the glans and meatus, is thoroughly washed with soap and water and allowed to dry, after which the glans is painted with half strength tincture of iodin, and with a small applicator the fossa navicularis is swabbed out thoroughly with the same solution. This rarely causes more than a slight smarting sensation, either at the time of the application or when urine is first passed; nothing more permanent has been noticed after its use in a large number of patients. Most of the patients mention no discomfort whatsoever. The patient then passes his urine, having been previously instructed to have a partially filled bladder at this time.

When the anterior urethra has been flushed and treated in this manner, the most infectious part (fossa navicularis) has yielded sterile plates on several examinations, as demonstrated by carefully inserting a platinum loop to the bottom of the fossa and applying it directly to the culture medium.

The prostate and seminal vesicles are then stripped, the patient being in a standing bent over position. A sterile wide mouth bottle catches the fluid as it drops from the meatus. Sufficient vesicular fluid can be obtained for culture even when the urinary bladder is empty, but, of course, the vesicles can be more thoroughly emptied when the bladder is distended.

As soon as possible a drop of the fluid thus obtained was placed on the following mediums: aerobic and anaerobic blood agar slants, ascites glucose agar shake cultures, and ascitic bouillon and blood agar plates. These were incubated at 37 C. and examined at the end of each twenty-four hours until twelve days had elapsed.

Twelve patients with no history of genito-urinary infection or symptoms pertaining to the genito-urinary tract, and clinically having normal prostates and seminal vesicles, were used as controls, and yielded no growth on any of the mediums, some of them repeatedly.

Material was examined from thirty-four patients, twenty-six with associated subacute or chronic arthritis. Care was taken not to examine patients with other definite foci of infection, but in a general charity hospital it is often impossible to rule out the teeth as a possible source, so in many instances doubtful cases had to be used, as noted in Table 1.

Eighty-five per cent. of these patients gave histories of one or more specific urethral infections. Eighteen, or 52 per cent., had no symptoms referable to the genito-urinary tract, while some of the others dated their present troubles back months or years to the time of an acute specific urethritis, and at the time of the examination had symptoms pertaining to the genito-urinary apparatus.

Of the thirty-four patients studied, organisms were recovered from only twenty-four (70 per cent.). However, none of the remaining ten (30 per cent.) were examined more than three times. As mentioned elsewhere, Notthaft considers repeated massage and culture necessary before the infectious nature of some of these processes can be proved. Should these apparently noninfectious conditions be repeatedly examined, some may present their infectious nature eventually. Several in this series that yielded organisms at first gave sterile fluids, at least on one examination. This is explained on the grounds of deep glandular infection, which appears in the secretion only after repeated massage. Table 1 shows that twelve different organisms were isolated from twenty-four patients, as summarized in Table 2.

TABLE 2.—ORGANISMS ISOLATED FROM TWENTY-FOUR PATIENTS IN TABLE 1

Organisms	Alone	With Other Organisms
Staphylococcus albus	4	5
Anaerobic staphylococcus	1	..
Streptococcus haemolyticus	3	1
Anaerobic streptococcus	1	1
Gonococcus	3	1
Diphtheroid bacillus	3	..
Micrococcus tetragenus	0	1
Colonlike bacillus	0	1
Bacillus proteus	0	2
Micrococcus catarrhalis	0	1
Unidentified gram-negative anaerobic coccus	1	0
Unidentified gram-negative diplococcus	0	1

As noted in Table 1, the examinations were repeated in many patients, and the organisms isolated were the same in each instance, with the exception of Patients 4 and 22. These patients on their third examination gave only one of the two organisms appearing in the first two examinations.

Anaerobic organisms were isolated from four different patients. These were all cocci, and from three of the four patients they were repeatedly isolated, three grew alone and one with another organism. They all grow slowly, rarely appearing before three or four days; although each one gives an aerobic growth, it is very scant, and appears only after many days' incubation (from six to seven). As these organisms were transplanted they became more and more aerobic, growing at first only in the lower inch of an ascitic agar shake; but when continually transplanted, their growth came up to within one-half inch of the top, never, however, reaching the surface.

14. Albarran and Cottet: Presse méd., 1903, xi, 85.

No relationship was noted between any one organism and any particular group of symptoms. The local symptoms were mostly those due to bladder irritability, such as frequent and imperative urination, and less commonly perineal pain, painful ejaculation and intermittent urethral discharge.

An attempt was made to ascertain by different immunologic reactions whether or not the patients reacted in any measure to the infections they bore, and this was carried out with twelve of the twenty-four patients in whom such infections were demonstrated. These tests, like other phases of the investigation, were controlled. Table 3 explains the results of the reactions tried.

The skin tests were all made with a heavy suspension (500 million to 1 c.c.) of killed organisms, controlled with salt solution and a suspension of other organisms. The organism being tested was also tried on a normal individual. Should there be hyperemia and swelling about the test marks, and no very noticeable change about either control, the reaction was called positive, provided the organism did not cause a similar reaction in a normal individual. These tests as well as the agglutination tests were all made before any injections of killed organisms had taken place.

The agglutination tests were macroscopic. No test was considered negative until the mixture was incubated at 37 C. for two hours and then on ice for twenty-four hours. Controls were run with normal serum.

The opsonic determinations were made in the usual way with washed leukocytes, patient's and control inactivated serums, and a suspension of the organisms. Determinations were made at the beginning and after the patient had received three or four injections of killed organisms.

When injections were given subcutaneously to the patient, a similar injection was given some other patient of the series. A local reaction was called positive only when the patient showed more hyperemia, swelling and tenderness than the control, who showed no reaction whatsoever in many instances. For instance, Patient 17, when injected with his own organisms, had a severe local reaction characterized by a wide zone of hyperemia, swelling and tenderness, which came on in ten hours after the injection, and lasted thirty-six hours. At about the same time he had a distinct chill, followed by a fever of 100.2 F., headache and general malaise. Associated with these he experienced very severe pains in all joints that had been involved in the process. He also developed a temporary urethral discharge, something that he had not had for months. Patient 9, when injected with his own organisms, gave a similar picture; but when Patient 17 received organisms from Patient 9, and vice versa, there was no reaction whatsoever, excepting some hyperemia about the point of injection in Patient 9.

In a similar way focal reactions are recorded positive and are manifested by pain usually, and swelling sometimes, about the affected joints; associated with this there may be a lighting up of a urethral discharge, or some noticeable change in urination, such as frequency, urgency, pain and strangury.

The painful sensations of these joints are more marked in subacute than in chronic conditions in which marked bone changes have already taken place. They are constant and throbbing, usually lasting about twenty-four hours, but may be very mild; for example, one patient, No. 24, remarked that following each injection he had a peculiar feeling of formication within his knee joint, which constantly reminded him of his affected part. Associated with this peculiar sensation within his knee, an effusion invariably occurred within the bursa of the popliteus muscle, and remained for about twenty-four hours. Injections of other organisms did not cause the sensation or the effusion.

The general reactions were very variable, but usually consisted of a slight chilly sensation followed by fever around 100 F., together with headache, malaise and loss of appetite.

After the size of the dose had been regulated, the greatest reactions came with the first dose, especially so with focal reactions. An increase in the dose, however, would keep the reactions constant. The rule seems to be in these few patients, that the earlier a reaction appears the more severe it is apt to be. For instance, a number of patients (Nos. 17, 9, 12, 13 and 15) gave marked reactions, and in each instance these appeared within twelve hours following injection. Late reactions may appear after twenty-four hours, but they are mild and not specific.

The skin and agglutination reactions are difficult to interpret with the organisms used here, but in a few instances, as noted in Table 3, definite reactions were obtained, which can be accounted for only by the presence of antibodies for the infecting organism. The fact that the opsonic index was raised from normal or below in many instances is only incidental in the course of inoculations, and has no bearing on the specificity of the organisms, as it is well known that the opsonic content of a serum for any given organism can be raised by the injection of the killed homologous organisms, whether or not the individual has been infected with them.

The reactions following the inoculations of killed organisms, however, seem to be very noticeably specific. In no instance was a focal reaction caused by an injection of any but the killed infecting organism, while in eight of the twelve tried, when their own organisms were used, there were very noticeable focal reactions, two gave doubtful reactions, while two gave no noticeable reactions on repeated injections. With but three exceptions (Patients 8, 22 and 6), all the organisms are relatively avirulent for laboratory animals. Very large doses were given intravenously to rabbits and intraperitoneally to guinea-pigs; with the exceptions noted, none of the organisms caused more than a temporary effect.[15]

The original purpose of the injections was to study the reactions if any resulted, but since some of the patients showed such improvement in symptoms after injection, an attempt was made to follow systematically through the cultures with the treatment. No control patients were used. The difference in chronicity and response to treatment of any two patients is so variable that the efficacy of control patients would be slight. The treatment was irregular in some instances, but an aim was made to give one vesicular and prostatic massage weekly, together with an injection of killed organisms and tonics, etc., as indicated. The reacting dose varies somewhat, but is usually large. Five hundred million was usually the lowest reacting dose, and this dose was the one usually used, although a billion has often been given to secure the proper

15. This work is to be carried out more fully with varying and repeated doses to ascertain the possibility of any elective tissue affinity for these organisms.

reaction. Six injections were given as a rule, but some patients received only four.

Five of the twelve cases studied gave negative cultures and a great improvement or complete disappearance of all symptoms in from six weeks to three months (average, ten weeks). Six of the seven others still have positive cultures after from one to five months' observation, but five of them have marked improvement in their joints and general condition. The feeling of relief that these patients experience about their affected joints after a good focal reaction is often marked, although it is usually more or less temporary in nature. However, once a good focal reaction is obtained, the severity of the joint symptoms seems to be permanently decreased to quite a noticeable, but variable, degree.

SUMMARY

Anaerobic as well as aerobic organisms may be the exciting cause of chronic prostatitis and spermatocystitis. One sixth of this series yielded anaerobic organisms. This may help explain some of the many sterile cultures obtained when only aerobic mediums are used, as well as the inability to grow organisms seen on a smear.

The organisms isolated, in 66 per cent. of the patients tested, seem to be specific for the infected individual. This is shown by the positive reactions following the injection of the autogenous organisms, as compared with the negative reactions obtained with similar injections of other organisms of the same or different groups.

Many instances of prostatitis and seminal vesiculitis are apparently noninfectious on a single examination, but repeated examinations often reveal the infecting organism.

Chronic infections of the prostate and seminal vesicles seem to be partially or wholly responsible for many instances of subacute and chronic arthritis. The specific focal reactions obtained speak strongly in this direction.

Drainage of the focus of infection in the prostate or vesicles, by expression or otherwise, together with the raising of the antibody content of the patient's blood by inoculations of killed organisms, is apparently advantageous in the treatment of these conditions.

508 Honore Street.

Infant Mortality.—The last issue for 1915 of the *Bulletin of the Chicago School of Sanitary Instruction* gives tabulated figures of the mortality of infants under 2 years of age, according to causes, for the year 1914. Under 1 year the chief causes of deaths in the order of their importance as shown by these figures were diarrheal diseases, congenital defects and accidents, impure air diseases, acute contagious diseases, venereal diseases, tuberculosis, diseases of the nervous system, rickets, erysipelas, violence, diseases of the urinary system and diseases of the heart and blood vessels. In the second year impure air was found to assume first place as a cause of death, with diarrheal diseases second, followed by acute contagious diseases. Congenital defects dropped from second place to ninth place in the second year. There were 6,888 deaths in the first year of life, which constitute 20.2 per cent. of the deaths at all ages. The second year deaths were 1,432, or 4.2 per cent. of the deaths at all ages. The causes of deaths from diarrheal diseases in the first and second years of life occurred in the closely crowded wards, where people live under insanitary conditions, and the figures seem to bear out the estimate that 70 per cent. of infantile deaths during the first two years of life are preventable.

THROMBOPLASTIN (TISSUE EXTRACT) AS A HEMOSTATIC

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NEW YORK

One of the divisions of the Bureau of Child Hygiene is the Division of Children's Clinics. The clinics have an eye, nose and throat and dental service, and in five of the clinics, hospital facilities are offered for operations on children with abnormal growth of lymphoid tissue in the tonsils and nasopharynx. The clinics have been operated since March, 1912. The total capacity of tuberculosis clinics for operative cases is forty-two cases a day.

Operations were performed three times a week in each clinic at first, and for the past year they have been carried out daily. Under the earlier plan the children were received in the early afternoon of the day preceding operation, and received general and gastrointestinal care during the afternoon and evening. Temperatures, physical examinations and urine analyses were made before operation. The operations were performed between 9 and 10 a. m. The children, if well, are discharged on the morning of the third day.

Under the daily plan, the children are received on the day of the operation at 7 a. m., and the usual preoperative care is given. Children are not operated on until three hours after their arrival at the clinic.

The operations are performed with the Mackenzie tonsillotome and Frothingham adenoid curet. The operators are selected from the ranks of medical inspectors, and only those who have had sufficient nose and throat training are assigned to the position of nose and throat surgeon. Operations are performed while the patient is under full but not profound anesthesia.

The operations have been standardized in each clinic, and only the accepted method is allowed to be used.

Normal horse serum treatment was used both in prophylactic and in a curative way for about six months to prevent hemorrhage. Children over 12 years of age, with the type of tonsil which we found by experience to be followed by excessive bleeding, received 10 c.c. of normal horse serum subcutaneously about one hour previous to the operation. When bleeding continued unduly, that is, about fifteen minutes subsequent to the operation, repeated injections of 10 c.c. of normal horse serum were given hourly. In some cases as much as 40 c.c. of this serum was injected before bleeding ceased, and in others even this amount failed to control the hemorrhage. While no bad symptoms occurred as a result of anaphylaxis, yet there were a number of patients who complained of bone pains, fever and skin eruptions. Emetin hydrochlorid was used, but no good effects were observed as a result of this treatment.

In October, 1914, Dr. T. Joseph Barry and I devised a combination operation. It consisted of the use of the tonsillotome and cold wire snare. The snare (Hooper's) is prepared in the usual way; the tonsillotome is slipped through the loop. The tonsillotome is made very dull. The tonsil is separated by pressure with the tonsillotome and engaged in the eye of the tonsillotome secundum artem. The snare wire is slipped over the tonsillotome blade and engaged on the tonsil by about three or four half twists of the ratchet. This snare is left in place in the mouth while another snare is similarly placed over the other tonsil. After

the second tonsil is engaged, the first tonsil is caught by forceps and the snare wire drawn home and tonsil removed. The second tonsil is similarly removed. This tourniquet operation greatly reduced the amount of tonsillar hemorrhage. The capillary oozing from the nasopharynx, however, continued to be a serious matter. The snare operation plus the calcium and the serum treatment made a picture entirely different from that under the previous method of operating. There was too great loss of blood, however, and oozing continued too long in many cases.

It was at this period that an article by Dr. Alfred F. Hess came to my notice.[1] It seemed that it would be ideal if after the removal of the tonsil, the denuded area could be pressed with a mop soaked in a hemostatic solution and the bleeding controlled at once. A few days later thromboplastin[2] provided by the Research Laboratory of the Department of Health was used at the Throop Avenue Clinic. The tonsils were thoroughly removed and a pledget of gauze saturated with this preparation was immediately applied to the cut surface; it was likewise applied in the nasopharynx immediately following the removal of the adenoids. The results were striking. The patients showed only a little bloody saliva after being put to bed. Healing was expedited, and many patients were entirely well at the end of four days.

As a result of this initial favorable experience, the routine use of thromboplastin was extended to all the department of health nose and throat clinics. Recently, in order to obtain an opinion as to the results obtained, a questionnaire was circulated to the registrars of these clinics. A summary of their reports is given in the accompanying table. A review of this table, which comprises a summary of 2,036 adenoid and tonsil operations and embraces the reports of various observers, seems convincing as to the value of thromboplastin in this connection.

SUMMARY OF 2,036 THROAT OPERATIONS IN WHICH THROMBOPLASTIN WAS USED

Questions	Results at Clinics				
	Pleasant Avenue	East 169th Street	Throop Avenue	Lawrence Street	Herkimer Street
When did you begin its use?	June 22, 1915	June 7, 1915	June, 1915	June 1, 1915	1st week of July, 1915
No. of cases in which thromboplastin was employed?	507	395	389	404	341
Results as regards postoperative hemorrhage?	No bleeding	No bleeding	Very little bleeding	Very slight bleeding	No bleeding
Do the children vomit blood as frequently?	No	No	No	No	No
Do they have bloody stools as frequently?	No	No	No	No	No
What is the general condition of the child?	Very good	Good	Good	Good	Nearly normal

1. Hess, A. F.: Tissue Extract as a Hemostatic, THE JOURNAL A. M. A., April 24, 1915, p. 1395.

2. The preparation of thromboplastin is simple and inexpensive. Dr. Hess describes its preparation as follows: Ox brains are obtained fresh from the slaughter-house, stripped of their membranes, washed in running water, and weighed. They are then passed through a meat chopping machine three times, and an equal amount of normal salt solution is added. This suspension is allowed to remain in the refrigerator for forty-eight hours, and it is then twice pressed through cheesecloth. This extract, which contains fine suspension of tissue in addition to tissue-juice, is diluted with one-half its quantity of salt solution. Tricresol is then added in proper proportion so that the finished preparation contains 0.3 per cent. Aerobic and anaerobic cultures of this fluid have repeatedly been found sterile. It maintains its hemostatic potency for many months.

I may add, in conclusion, that not in a single instance has the operator or nurse been compelled to return to the clinic to care for a bleeder after operation since the use of thromboplastin was made a routine procedure. We now feel that in case a hemorrhage did occur, any trained nurse could apply the hemostatic while awaiting the arrival of the medical inspector. Although thromboplastin solution is used liberally in the throat, and no doubt some of it is swallowed, there has not been any case of illness resulting. Thromboplastin is safe, effective and easily applied.

317 West Fifty-Fifth Street.

EPIDEMIC CEREBROSPINAL MENINGITIS DEVELOPING TWENTY-TWO HOURS AFTER ABDOMINAL OPERATION

REPORT OF A CASE

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Associate Professor of Medicine (Mental Diseases and Clinical Neurology), Emory University (Atlanta Medical College)

ATLANTA, GA.

History.—Oct. 5, 1915, I was requested by Dr. Charles M. Remsen of Atlanta to see with him a patient, a married woman of 30, on whom, the previous day, he had performed an abdominal operation. The reason for the consultation was that the patient had suddenly had a general convulsion twenty-two hours after the operation, and was in a state of profound unconsciousness.

The patient had been under Dr. Remsen's observation for a year prior to operation, and had been put into good condition to undergo the procedure. Furthermore, she was in the hospital for eight days before the operation was performed. During this period her pulse and temperature were constantly normal, she was not exposed to any known infection, she occupied a private room, and spent a good deal of time on the roof in the open air. In short, everything possible was done to forestall complications, and to promote the best possible conditions.

At 6 o'clock on the morning of operation, the temperature was 97.4, the pulse 78, and the respirations 20. The patient had slept well, and appeared to Dr. Remsen to be in excellent condition for undergoing her ordeal. The operation was done at 11:30 a. m., the work consuming a little over an hour. When the patient was returned to bed the pulse was 132, but she slowly reacted, and by 6 o'clock in the evening the pulse was 112. At 9 p. m., the pulse was 110, the temperature 98.3. The patient vomited a number of times, but her general condition appeared entirely satisfactory. She passed an uncomfortable night, though she slept at intervals. At 9:30 a. m., October 5, the temperature was 98.2, pulse 88, respirations 22. At 11:45 a. m., she had a general epileptiform convulsion lasting ten minutes. There were no prodromes. The seizure appeared out of an almost cloudless sky. She did not regain consciousness after the convulsion, but remained profoundly comatose. At 12:40 p. m., a second convulsion appeared, similar to the first, but not lasting so long. At this time, when I first saw her, physical examination revealed nothing save that the patient lay in coma, and that there was frequent muscular twitching in various parts of the body, especially in the hands. Heart, lungs and abdomen showed nothing unusual. At this time there were no Kernig's sign, no abnormal ocular manifestations, and no evidences of renal disturbance.

There was no stiffness or retraction of the neck. At 3 p. m. the temperature was 98.3, pulse 98, respirations 24. Chloral and bromids controlled the convulsions, which did not again recur. During the ensuing night, a number of times death seemed imminent. The pulse began to show the most start-

ling changes, varying in a few moments from 84 to 140. The respirations, likewise, became very irregular, varying from 28 to 10 per minute, and for several hours became extremely shallow, and sighing in character. Apparently, the patient was kept alive only by the administration frequently of the most rapidly diffusible stimulants.

At 9:30 a. m., October 6, lumbar puncture was done, and 10 c.c. of slightly turbid spinal fluid withdrawn. Immediate microscopic examination revealed a small number of extracellular meningococci. Thirty c.c. antimeningococcic serum (Flexner) were at once administered, intradurally. In an hour the pulse fell from 140 to 114, and during the subsequent illness never again went higher than 120. The patient's general condition began to improve at once. At 8 p. m., the same day, a second dose of 25 c.c. of serum was given. October 7, at 10 a. m., 25 more c.c. of serum were administered. The spinal fluid was now more turbid, but showed fewer organisms. The patient's pulse now ranged from 102 to 110, and temperature from 99 to 102 in an irregular fashion.

Kernig's sign was now present, as well as transient external strabismus. The patient was still in profound coma. At 7 p. m., October 7, a fourth dose of 30 c.c. of serum was given. The fifth dose of serum, 30 c.c., was given at 10 a. m., October 8. Following this dose the patient roused from coma sufficiently to swallow a few drams of water, but was speechless and oblivious to her surroundings. At 9 p. m., October 8, the sixth dose of 30 c.c. of serum was given, and at 6 p. m., October 9, the seventh and final dose of 25 c.c., making a total of 125 c.c. of serum administered during four days. After the last dose of serum, the improvement was marked. The patient was able to swallow an ounce of milk every hour, and gave other evidences of slowly returning consciousness. Improvement gradually continued. By October 13 the patient could speak an occasional word, and the restlessness of the few preceding days following the deep coma began to abate. At this time the temperature ranged from 99.4 to 100.1, and the pulse from 86 to 104.

It is perhaps pertinent to mention that, October 6, the second day of the meningitis, when the patient was turned on her side, there was a discharge of 3 or 4 drams of purulent material from one nostril. It is possible that this represented the source of infection, and that following the inhalation of the anesthetic, the organisms found their way through the cribriform plate.

The temperature touched normal first on the fifteenth day of the disease. The patient at this time was occasionally quite restless, still mentally dazed, and able to articulate very slowly a few words. By the nineteenth day all symptoms of the disease had disappeared except the mental dulness, moderate frontal headache and great deliberateness in speech — a veritable groping for words. It might be noted here that the abdominal wound showed no intention of healing until the complete subsidence of the meningitis.

By November 10 the patient was able to take a few steps with assistance. At this time the speech was normal, the memory regained, and except for transient emotional disturbances and general weakness, there were no symptoms. November 14 the patient was discharged from the hospital in excellent condition, though rather weak. At present she is restored to her usual health, entirely free from complications or sequelae of meningitis.

COMMENT

The interesting features of this case are:

1. The occurrence of cerebrospinal meningitis as an operative complication, appearing suddenly, without the slightest warning.

2. The entire absence of the physical signs of meningitis for twenty-four hours after the initial convulsion. There were no Kernig's sign, no ocular manifestations, no retraction of the head or stiffness of the neck, no prodromal headache, no disturbances of temperature until eight hours after the initial convulsion, and none of pulse or respiration until twelve hours after the initial convulsion. In short, the only symptoms for a number of hours were convulsions, muscular twitching and coma—symptoms common to not a few pathologic processes. Diagnosis was made as the result of lumbar puncture.

3. The probability that meningococci were present in the purulent material in the nasal passages, and the interesting and insoluble problem as to whether or not the anesthetic had anything to do with the passage of organisms into the meninges (mechanical factors, lowered resistance).

4. The nonunion of the operative wound until after the complete subsidence of the meningitis.

5. The remarkable curative effect of the Flexner serum given persistently, in a case in which, for a number of hours prior to the first dose, the patient appeared moribund.

1023 Empire Building.

EXPERIENCES WITH THE KIUTSI-MALONE URINARY TEST FOR PREGNANCY*

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AND
MAX MORSE, PH.D.
OMAHA

This paper concerns an empiric study of the method for the determination of pregnancy by utilizing the urinary enzyme called forth by the development of the placenta as outlined by Malone.[1]

In the first place, it is possible to urge the following general criticisms against the method:

1. It has been quite conclusively shown by qualitative methods in the hands of Peiper,[2] Plaut,[3] Jobling and Petersen,[4] and others, that the enzyme occurring in the blood, which Abderhalden utilized as a test for pregnancy by the color reaction with ninhydrin, when applied to the dialysate from a digest of blood containing this enzyme and the specific substrate placenta, is not a specific one, and quantitative methods by Van Slyke[5] have demonstrated this to be true to a degree beyond question.

2. Two sources exist for the appearance of proteolytic enzymes in normal urine, namely, excreted enzymes from the subject, and, secondly, those due to the presence of certain bacteria. Since the earlier work of Matthes,[6] several investigators[7] have estimated the efficiency of the pepsinlike enzyme occurring in urine. Being pepsinlike in nature, it gives, as end-products, biuret positive compounds of the character of peptones. Under certain conditions, such as after a meal high in proteins, and especially where there is tendency to excretion of large volume, the enzyme appears in a quantity well able to account for the anomalous results which we have experienced and which will be given in detail later. With regard to the matter of bacteria, our own results show conclusively the danger from this source.

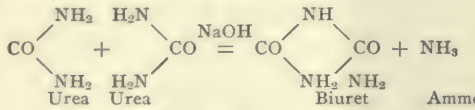
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* From the Department of Biochemistry, University of Nebraska, College of Medicine.

1. Malone, R. H.: The Diagnosis of Pregnancy: A Simple Method Based on the Presence of Specific Enzymes in the Urine, THE JOURNAL A. M. A., May 15, 1915, p. 1651.
2. Peiper, A.: Deutsch. med. Wchnschr., 1914, xl, 1467.
3. Plaut, F.: München. med. Wchnschr., 1914, lxi, 238.
4. Jobling and Petersen (for literature) see: Bull. Johns Hopkins Hosp., 1915, xxvi, 356.
5. Van Slyke, D. D.: Jour. Biol. Chem., 1915, xxiii, 377.
6. Matthes, M.: Arch. f. exper. Path. u. Pharmakol., 1903, xlix, 107.
7. Wilenko, G.: Berl. klin. Wchnschr., 1908, xlv, 1060. Ellinger and Scholz: Deutsch. Arch. f. klin. Med., 1910, xcix, 221. Benfey, A.: Biochem. Ztschr., 1908, x, 458.

3. Malone's method is based on the biuret reaction, and it must be obvious to one familiar with clinical diagnosis that the typical color reaction called for by the method in question, that is, the peptone color, would be identified only with difficulty in the highly colored medium of the urine, even if some of the urinary pigments be removed by adsorption with animal charcoal, colloidal iron, etc., as we have been able to do, or with kaolin, as Malone suggests. We have encountered faint positives which, unless one were constantly working with the test, one would undoubtedly fail to discover as positive.

In the second place, the use of the alkaline ingredient of the biuret reaction is conducive to the conversion of some of the urea into the substance biuret by the elimination of a molecule of ammonia:



In an alkaline urine this may be demonstrated in vitro without introduced reagent.

4. The method of removing biuret positive compounds by adsorption on a mechanical shaker may prejudice the results in that it is our experience that the shaking with kaolin for five minutes of a biuret positive urine will so affect the color reaction after digestion and filtration that it is materially weakened, and in the case of a weak, positive reaction, such as one encounters at times, it is conceivable that the diagnosis would be rendered negative.

Aside, now, from these general considerations, we may say that we have obtained negative results when pregnancy has been present; that we have obtained one positive result in male urine and one in what unquestionably is a nonpregnant urine.[8] The same substrate was used throughout, being prepared according to the method given below. The ingredients used in the color reactions have been the same throughout, being withdrawn from the same stock bottles. All digestions were made in an electrically controlled and heated incubator at 37.5 C. with a fluctuation of 0.5 degree.[9] New carbon dioxid flasks were used in the digestions, and in questionable cases, Jena glass test tubes which had never been unwrapped were used for the color reactions. The same brand of filter paper (S. and S. 589) was used throughout. The only common factor were the funnels used in the filtrations, but these were washed thoroughly in hot water and dried with tissue towels before use.

The substrate was prepared as follows:

The placenta, which had been obtained within a few hours after delivery, was carried to the laboratory and placed directly on ice. It was removed in small sections, washed in lukewarm tap-water and squeezed, so that all excess of blood was removed. Then the portions recommended by Abderhalden were removed by dissection and dropped as small pieces into physiologic normal saline (0.9 per cent.) in a beaker which rested under a mechanical stirrer. The stirring was continued for periods of fifteen minutes and then the saline was changed. This continued throughout the day. At evening, the mass was transferred to a large glass container and placed under the tap with cheese-cloth covering to keep the pieces of substance from washing away. The washing was continued through the night. In the morning, the substrate, now quite white, was placed on filter paper to remove the excess water and then transferred to a porcelain plate which rested on an electric hot-plate. A current of air was blown across the mass by means of a slowly moving electric fan, and the temperature regulated so that it registered under 50 C. Drying was completed within one and one-half hours, when the mass was ground to a powder in a mortar and transferred to a weighing bottle in a desiccator over sulphuric acid. Ninhydrin tests on the dialysate from an aqueous suspension were negative. Biuret tests applied to the filtrates from suspensions were also negative. There is no evidence that any appreciable amount of autolysis occurred.

Regarding the rôle of bacteria, the following may be said: Through the kindness of our Professor Schultz, of the Department of Pathology, we autoclaved urines and, after cooling, inoculated them with cultures of *B. coli communis* and *B. proteus,* which are to be found in practically every urine. When these urines were left in contact with the substrate, placenta, a strong biuret reaction was obtained according to the method of Malone. It is obvious that we have here a serious factor and one which cannot be controlled in the ordinary clinical method. It is possible that the positive controls which we found are explicable on this ground. The objection that we have introduced a virile strain of bacteria which never occur in such a degree of virulence cannot be well maintained, for toluol affects the growth of these bacteria but slightly, and consequently there is nothing to inhibit the growth of these species, with ultimate effect on the reaction.

Malone's method was followed throughout. Our results are given in the accompanying tabulation.

RESULTS OF EXPERIMENTS

Total urines of females known to be pregnant	24
Of these, those giving definitely positive reaction	17
Of the total number, those giving weak, or indefinite reaction	2
Of the total number, those giving negative reaction	5
Of the total number, those giving initially, positive reaction	2
Total number of controls, female	5*
Of these, those giving negative reaction	4
Of the total number, those giving positive reaction	1
Total number of controls, male	11*
Of these, those giving negative results	10
Of the total number, those giving positive reaction	1
Urines autoclaved at 15 pounds, cooled and inoculated with B. coli communis	2
Reaction of these urines, positive	2
Urines autoclaved as before and inoculated with B. proteus	2
Reaction of these urines positive	2
Urines checked as to preservative (thymol in $CHCl_3$), with thymol.	2
Reactions positive	2
Urines without thymol, not iced and standing at room temperature twenty-four hours	2
Reactions positive	2

* All gave negative reaction, initially.

CONCLUSIONS

1. There are many objections to the method from the theoretical aspect.

2. Our experiments, while showing acceptable results in 66 per cent. of the cases examined, yet leave a high degree of uncertainty in the remaining third.

3. The appearance of positive reactions in certain cases known to be negative are inexplicable, except as involving an ever-present error, such as the factors bacteria, excreted pepsinlike enzymes, etc.

4. The test, as at present conducted, cannot safely be depended on as a diagnosis of pregnancy, owing to:

(*a*) The nonspecificity of the reaction.

(*b*) The frequency of errors.

8. The subject is unmarried, with history not admitting the possibility of a positive reaction.

9. Hearson thermostat.

Vivisection and Brutality.—Not only is it not true that vivisection experiments tend to make the experimenter callous; the reverse is actually the case. I can testify from my own experience that it is harder to make the fiftieth experiment than the first; that one's sympathies are more awakened rather than destroyed. There is no doubt that abuses are possible—are even probable. Yet most of the stories told to illustrate the brutality of vivisectors in things aside from the experiments themselves are highly improbable.—Maxwell.

RÔLE OF THE LYMPHATICS IN ASCENDING RENAL INFECTION

PRELIMINARY REPORT *

DANIEL N. EISENDRATH, M.D.
AND
JACOB V. KAHN, M.D.
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We have just completed a series of twenty-seven experiments on dogs and rabbits which show that infection travels from the bladder to the kidneys and

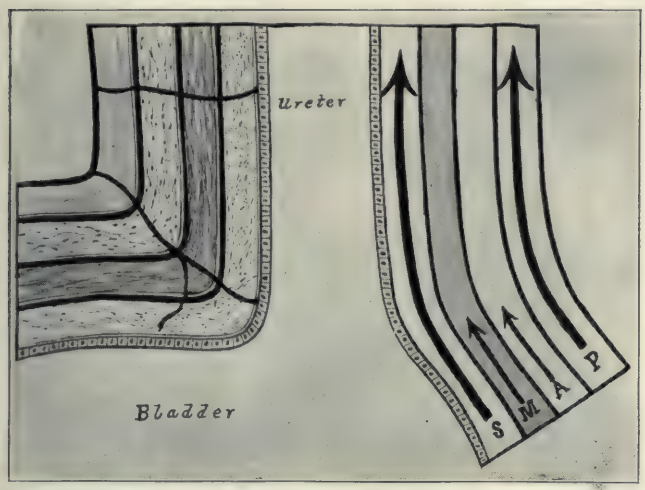


Fig. 1. — Diagrammatic view showing how the lymphatics of the bladder communicate with those of the ureter. On the left side are shown in heavy lines the various lymph vessels and how they communicate. On the right side, *S* and *P* represent the chief routes of ascending infection in the submucous and periureteral coats, while *M* and *A* show the less important routes in the muscular and fibrous coats.

perinephritic tissue by way of the lymphatics in the wall of the ureter and not along its mucous membrane. Our observations, so far as we can ascertain, are the first to show that the lymphatic capillaries of the periureteral sheath (in laboratory animals as well as in the human being) play a most important part in ascending infection. Going a step farther, the constant finding of evidences of infection in the immediate vicinity of the rich network of periureteral blood vessels makes it seem plausible that infection can travel, as Sampson and Bauereisen assert, to the kidneys from the female genitalia and other abdominal viscera which lie in close relation to the ureter.

Franke has shown how the lymphatics of the ascending colon communicate with those of the right kidney, and thus explains some, at least, of the renal infections in children. The assertion of Bauereisen, that cystitis and renal infection following gynecologic operations take place via the lymphatics, seems quite plausible in view of our results. The older view, that infection from the lower to the upper urinary tract travels within the lumen of the ureter, that is, against the secretory current, must, we feel, be abandoned except when the ureter is completely obstructed by a calculus, stricture or external pressure.

In nearly all previous animal experiments, conditions were established, such as ligation of the ureter, injection into the renal pelvis, or implantation into the bladder, which seldom exist clinically. Under these conditions it is not surprising that evidences of infection are found (Aschoff[1]) within the tubules of the kidney seven hours after injection into the ligated ureter. The changes, both in the ureter and in the kidney itself, are usually so advanced under these circumstances that, as Mueller has recently shown, one cannot trace in a satisfactory manner the route along which the infection first traveled.

We have attempted to imitate the conditions as found in the human being by injecting an emulsion made by mixing the scrapings of agar slant cultures of the organisms commonly found in urinary infections with sterile salt solution, and then injecting it into the bladder of animals. After thorough cleansing of the genitalia, preferably female animals, a No. 4 or 5 (French size) ureteral catheter, such as is employed for roentgenoscopic work, and which can be boiled, was inserted into the bladder, some of the urine taken for cultures, and then an emulsion of bacteria injected into the bladder. All injury to the bladder and ureters was thus avoided, and the conditions under which the organisms migrated upward resembled those found clinically as closely as it was possible to do in the animal experiments. Paraffin sections were taken from a number of places in the bladder and kidney, and

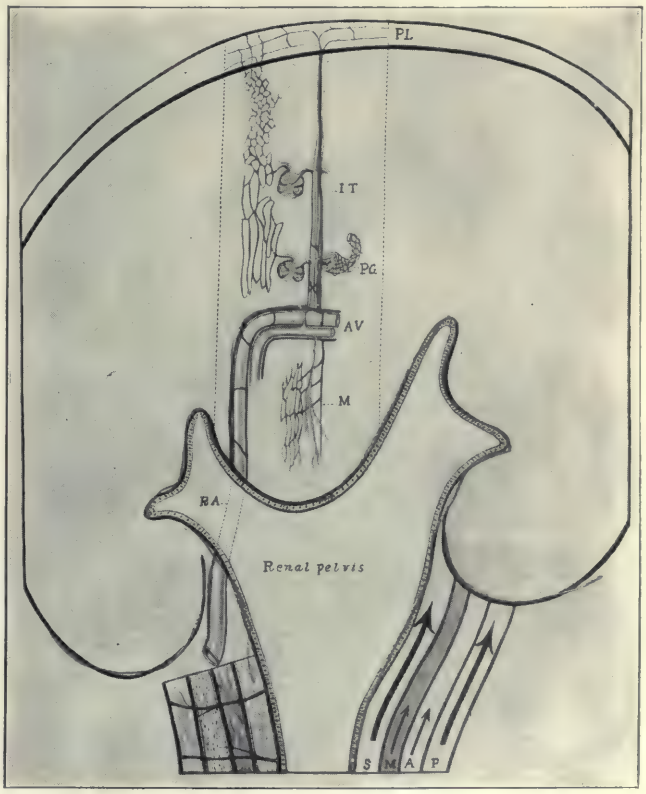


Fig. 2.—Routes of infection from the ureter to the renal pelvis and into the kidney. *S, M, A, P,* same as in Figure 1. *RA,* renal vessel lying in subpelvic tissue. *AV,* intrarenal vessels (Kumita) surrounded by lymphatics. The latter communicate with the network between the tubules of the cortex (*IT*) and those of the medulla (*M*). *PG,* periglomerular lymphatic network. *PL,* communication between the intrarenal lymphatics and those of the capsule.

were studied serially. In order to trace the infection upward along the ureter, every portion of the latter was cut longtitudinally as well as serially, so that no areas would be omitted. In five rabbits and eight

* Read at the meeting of the Western Surgical Association, Dec. 17, 1915.

* From the Morris Institute of the Michael Reese Hospital and the Department of Surgery of the College of Medicine of the University of Illinois. Experiments will be published in full later.

1. Aschoff: Pyelonephritis, Jena, 1893.

dogs the *Bacillus coli* was injected into the bladder. In three rabbits and four dogs the *Staphylococcus aureus* and in three rabbits and three dogs the *Proteus vulgaris* was used. In one rabbit an emulsion made by

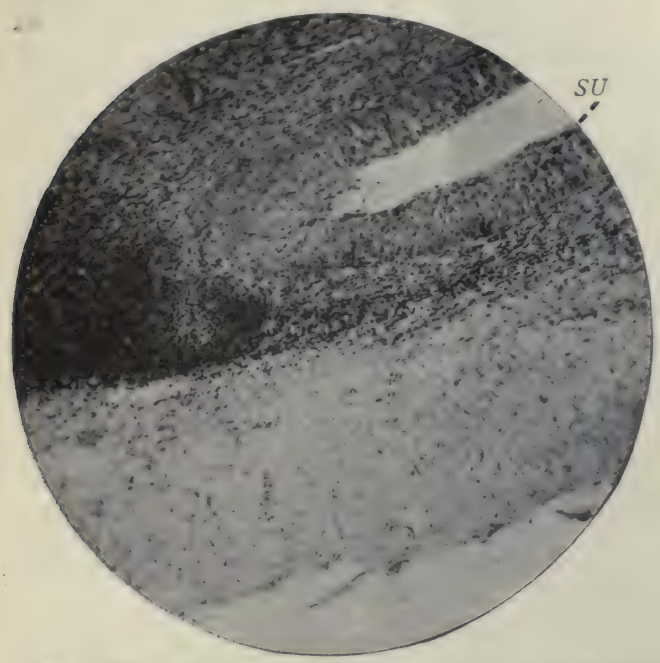


Fig. 3.—Section of dog's ureter from Experiment 411, showing marked infiltration in the submucous layer (*SU*) with other coats intact.

mixing acute gonorrheal pus with salt solution was injected.

Summarizing our results, we find that the inflammatory infiltrations follow in a most accurate manner the course of the lymphatics, as determined by the work of Kumita[2] and Bauereisen[3] (Figs. 1 and 2).



Fig. 4.—Section of dog's renal pelvis from Experiment 411, showing an area of submucous infiltration (*SMI*) with normal mucosa over it.

In the early stages of infection, the infiltration is found in the submucous layer of the bladder, and is especially dense around the smaller vessels in this layer. One can then follow the infiltration up into the ureter where, as in the bladder, it is most marked in the submucous coat in the lowermost portion of the ureter. A little farther up, however, in addition to the submucous infiltration, a new factor is introduced. We now see that the periureteral sheath, composed of loose areolar tissue in which many blood vessels lie, plays an important, if not chief, part in transmitting the infection upward. Examination of serial sections longitudinally of the entire ureter show plainly how in the early stages the infiltration around and in the walls of the blood vessels of the periureteral sheath is the earliest and most constant finding. As the infection progresses, the other coats become invaded from without inward, the mucosa remaining intact, until the infection is well advanced. We find the same sequence of changes in the human ureter, on which we shall report in a later paper.

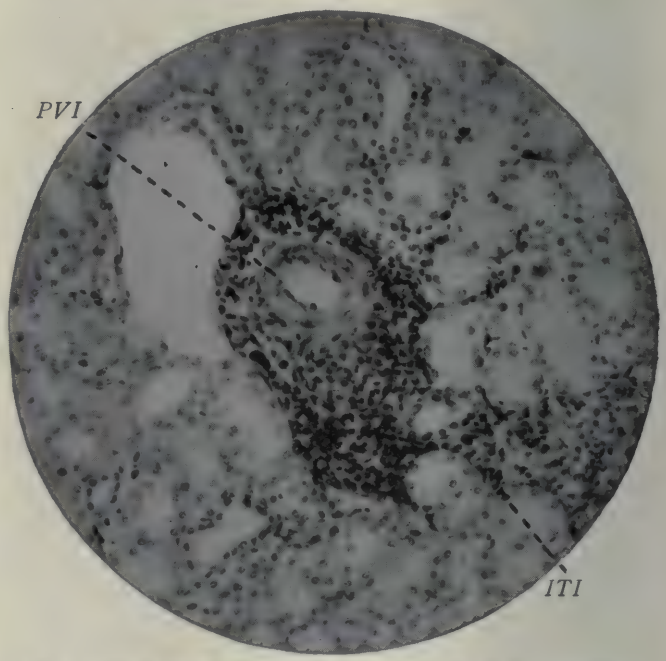


Fig. 5.—Section of dog's kidney, showing area of dense perivascular round cell infiltration (*PVI*), and also slight intertubular infiltration (*ITI*).

In the kidney pelvis the infiltration is first seen in the subpelvic areolar tissue, and again around the blood vessels, the overlying mucosa remaining intact (Fig. 3). Within the kidney our experimental work confirms the observation of Mueller[4] in the human being. The infiltration is seen at first around the renal vessels which pass into the parenchyma to form the arcual vessels, as in Figure 4; then in the cortex the infiltration is seen between the tubules and around the glomeruli, and as the infection advances, the medulla is invaded in the same intertubular manner, and finally the infiltration breaks into the lumen of the tubule in the more advanced stages. In one experiment, the infiltration followed very closely the lymphatics which allow of communication between the cortex and the lymphatics, penetrating the true capsule, which in turn communicate with this perinephritic tissue. We are convinced, as Bauereisen and others have asserted, that there is a free communication between the lymphatics

2. Kumita: Arch. f. Anat., 1909.
3. Bauereisen: Ztschr. f. gynäk. Urol., ii.
4. Mueller: Arch. f. klin. Chir., xcvii.

of the bladder and those of the ureter, and that the lymph current is in an upward direction.

Our work shows that the connecting link between the lymphatics of the ureter and those within the kidney is along the lymphatics of the subpelvic areolar tissue which surrounds the blood vessels as they enter the kidney tissue. They follow within the organ itself the course of the intertubular, periglomerular and perivascular lymphatics. In six out of twenty-seven experiments, we obtained pure cultures of the same organism from the renal pelvis which we had injected into the bladder. In none of the animals was a positive culture obtained from the heart's blood, so that hematogenous infection can be excluded.

At the suggestion of Drs. D. J. Davis and E. G. Kirk, to whom we are indebted for many courtesies, we studied the urinary organs in a number of normal laboratory animals as controls. In six dogs, as carefully sectioned and studied as our injection experiments, we

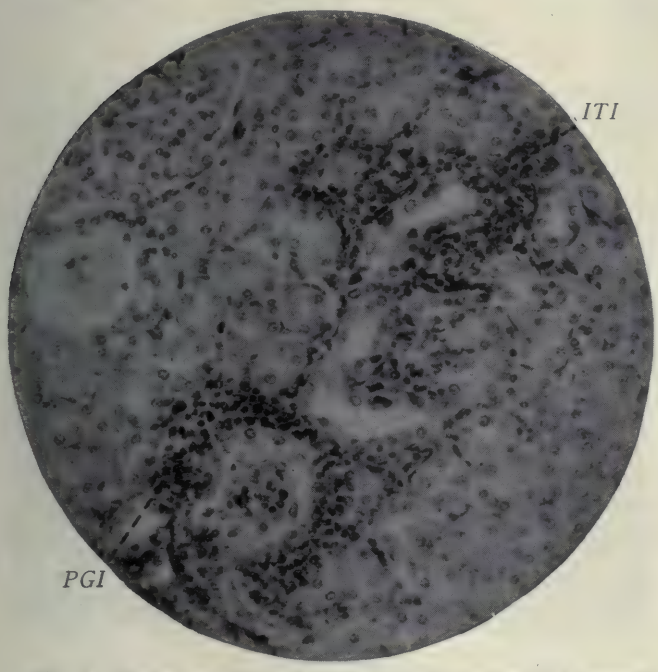


Fig. 6.—Section of rabbit's kidney from Experiment 310, showing typical infiltration around a glomerulus (*PGI*), and also between the tubules (*ITI*).

found no evidence of infiltration. If one adds to this number five completely negative dog experiments, we have eleven dogs with absolutely no pathologic changes. In our rabbit controls we have thus far, out of twelve normal animals, found in five of them very slight evidences of infiltration as follows: In one there was a trace of perivascular infiltration around one of the smaller vessels of one kidney of a large number of sections examined. In a second rabbit there was a very slight, small, round cell infiltration in the subpelvic and intertubular tissue of one kidney. This was present only in one out of the large number of sections examined. In the other three rabbits there was a very slight degree of infiltration around one of the blood vessels in the kidney. We have never been able to find any changes in the bladder or ureters of any of the six control dogs or in the twelve control rabbits. In three guinea-pigs, used as a control, we also found no changes in any of the urinary organs. The known susceptibility of rabbits to all kinds of infection, and the fact that the infiltration was present in only a few places in the kidney, and here only where the lymphatics are found, rather confirms our experimental work than otherwise. The existence of a slight degree of ascending urinary infection in these control rabbits

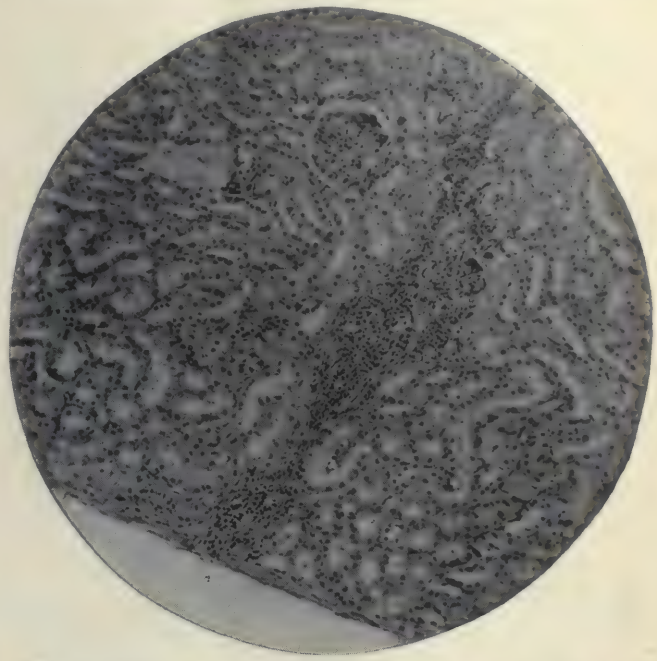


Fig. 7.—Section of dog's kidney from Experiment 418, showing an intertubular infiltration extending directly to the capsule of the kidney, showing how infection is carried from intrarenal lymphatics to those of the capsule and the perinephritic tissue.

is not at all improbable. The relatively large number of normal control dogs (eleven) leaves, at least, experiments in these animals beyond every shadow of doubt, and some of our most positive results were obtained in dogs.

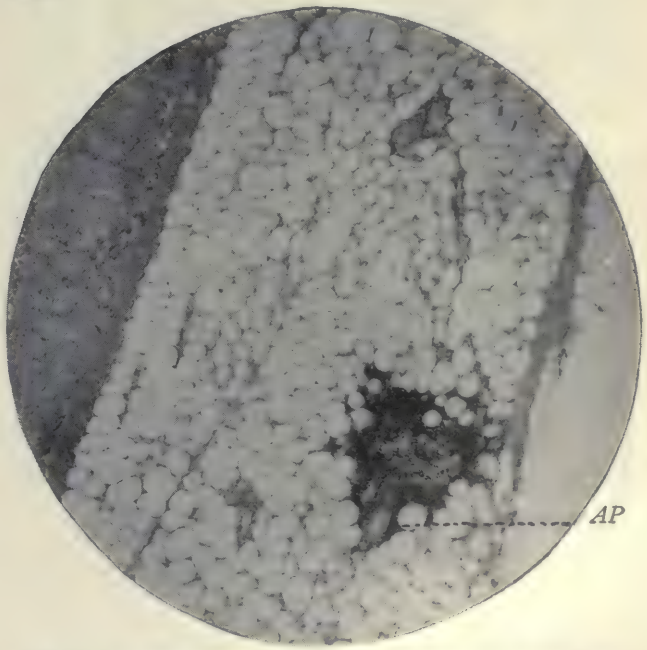


Fig. 8.—Longitudinal section of periureteral sheath of dog (Experiment 410), showing an area of dense inflammatory celled infiltration around a periureteral vessel (*AP*).

The only other experiments of a similar nature to our own were those of Hess[5] and Bauereisen. Hess

5. Hess: Mitt. a. d. Grenzgeb. d. Med. u. Chir., xxvi.

used *Bacillus coli,* and found perivascular infiltrations in the ureter in two dogs. Bauereisen found that in animals whose bladders were injected with an emulsion of tubercle bacilli, the infiltrations followed the

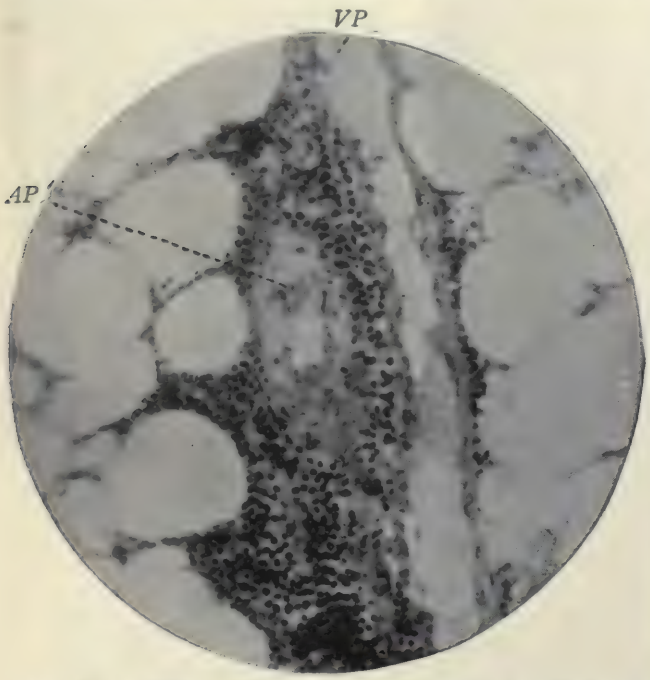


Fig. 9.—Longitudinal section of dog's ureter from Experiment 410, showing a vein longitudinally (*VP*) and an artery (*AP*) transversely with the infiltration in the wall and immediately adjacent to them in the periureteral sheath.

course of the lymphatics from the bladder to the ureter and then invaded the coats of the ureter from without inward.

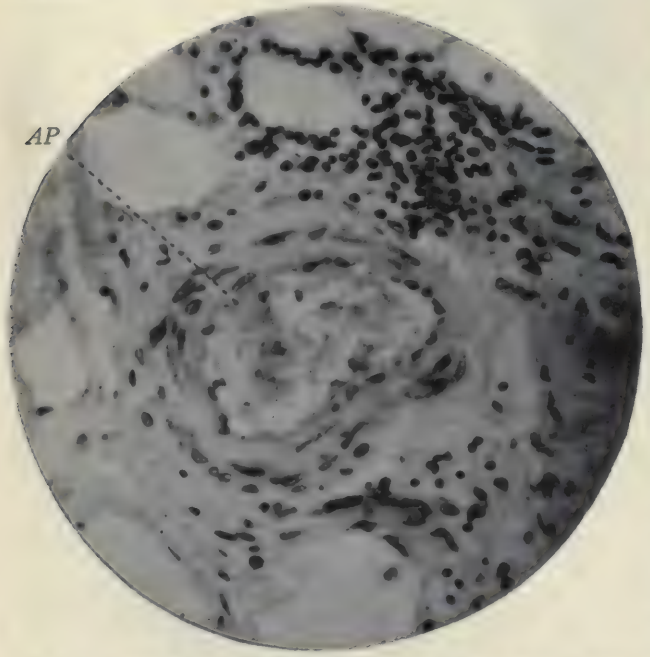


Fig. 10.—Longitudinal section of human ureter from case of ascending infection, showing marked infiltration around an artery (*AP*) in the periureteral sheath.

The many clinical applications of our experimental work along this line will form the subject of a future paper.

30 North Michigan Avenue.

SYPHILIS OF THE STOMACH

GEORGE M. NILES, M.D.
Gastro-Enterologist to the Georgia Baptist Hospital and the Atlanta Clinic

ATLANTA, GA.

E. W., man, aged 28, was referred to me, June 1, 1915, for regurgitation of gas, nausea, frequent vomiting, distress after eating, a continuous sensation of weight in the epigastrium and an excruciating gastralgia.

Up to the onset of digestive distress, which occurred six months previously, his past history was uneventful with one exception, a small sore on the penis when 20 years of age. This sore, having readily healed under local application, was almost forgotten.

The patient was somewhat cachectic in appearance, was losing weight, and his physician was fearful of gastric cancer.

Physical examination was negative. Gastric analysis showed absence of both free and combined hydrochloric acid, while a trace of lactic acid was present. A roentgenogram disclosed a distorted stomach evidently due to intragastric new growth. A Wassermann test was 4+.



Roentgenogram showing gummatous involvement of stomach. This roentgenogram, had it been interpreted apart from other findings, might have led to the erroneous diagnosis of gastric cancer.

The patient was at once put on antisyphilitic treatment appropriate for tertiary lesions, while for his dyspeptic symptoms, he received a simple carminative.

He was allowed a liberal soft diet at first, a light diet after ten days, and after a month a general diet.

His improvement, perceptibly noted three days after the first injection of salvarsan, has persisted, and at present he reports a practically comfortable and normal digestion.

The feature of interest in this particular patient was the difficulty in differentiating between syphilis of the stomach and cancer of the stomach. He was rather young for the latter, but age alone gives no positive evidence. Even the roentgenogram, unless interpreted in conjunction with the results of other investigations, would have been misleading in this individual.

Syphilis of the stomach, though rare, is now being diagnosed more frequently than in the past. Chiara found the specific lesions present in the stomach in but three out of 242 necropsies performed on syphilitic subjects. Lockwood, in 1913, estimated that there were on record only about fifty cases of gastric syphilis. It must be remembered, however, that ordinary ulcera-

tion of the stomach may occur in syphilitic persons with the same frequency as in those without the constitutional taint.

It is said that the late Hunter McGuire stated on one occasion that much of his success was due to the fact that in obscure manifestations of disease, he treated the patient for syphilis. This might apply with satisfaction to some of our long-suffering dyspeptics, who have run the therapeutic gamut without relief, who have become pessimistic invalids, burdensome to both themselves, their physicians, and the community at large.

922 Candler Building.

RADIUM IN THE TREATMENT OF SYNOVIAL LESIONS OF THE SKIN

RICHARD L. SUTTON, M.D.
KANSAS CITY, MO.

It is probable that the true nature of synovial lesions of the skin was first discovered by Sidney Jones and G. H. Makins[1] of London, but it is to the late James Nevins Hyde[2] that the general profession is indebted



Fig. 1 (Case 1).—Synovial lesion of the skin of eighteen months' duration.

for a classical description of the disorder. In the first edition of his treatise on diseases of the skin, he states that lesions of this type

> Occur in the form of wart-like projections from the skin, pseudovesicles, and bullae, always over the sites of bursae connected with tendons, traversing the small articulations of the hand and foot. They are seen over the metatarsophalangeal articulations; and in the hand most frequently over the dorsal face of the articulation between the distal and adjacent phalanges of the index finger and thumb. The first form is that of a roundish, corneous, pea-sized wart with a yellowish center, of long duration, usually insensitive unless roughly handled. When punctured there exudes a syrupy, yellowish, or grumous fluid, which continues to form after repeated puncture. Split-pea-sized vesicles, and bullae as large as a 50-cent piece, often exceedingly painful, are also seen, especially on the feet, with simply an epidermic roof wall. Each lesion contains the same yellowish or whitish fluid, occasionally mingled with masses like sago grains. In every case the contents of the lesions are supplied by a synovial bursa beneath the skin, with which the lesion is either directly connected, or in communication by a short sinus.

More recently Lingenfelter[3] has described a typical example of the affection occurring on the dorsal aspect of the third phalangeal articulation of the second digit of the right hand, in a woman aged 51. The lesion had



Fig. 2 (Case 2).—Synovial lesion of the skin of five months' duration. The inflammatory areola is due to the use of caustics.

been present for fourteen months. Pain of a sharp, stabbing character, radiating in all directions, was present at rather frequent intervals, and was usually succeeded by a throbbing ache. In a discussion of Lingenfelter's communication, Ormsby[4] called attention to Hyde's earlier investigations and report, and, in addition, described four cases which had come under his observation during the past eight years. Three of his patients were women, between the ages of 46 and 50, the other being a man, aged 66. The cause of the disorder is unknown. The microscopic and cultural findings were negative in Ormsby's cases. He says that an arthritic diathesis is strongly suggested.



Fig. 3 (Case 1).—Showing the condition of the hand four months after treatment with radium was discontinued.

The lesions are extremely resistant to treatment. Hyde recommended complete excision or destruction of the secreting cyst wall. Lingenfelter employed the Roentgen ray with success. Ormsby also found the use of this agent curative in two instances, although

1. Jones, Sidney, and Makins, G. H.: Cited by Hyde, Diseases of the Skin (Footnote 2).
2. Hyde: A Practical Treatise on Diseases of the Skin, Philadelphia, 1883, p. 444.
3. Lingenfelter: Jour. Cutan. Dis., 1913, p. 647.
4. Ormsby: Jour. Cutan. Dis., 1913, p. 943; Diseases of the Skin, Philadelphia, 1915, p. 515.

he was compelled to resort to supplemental electrolysis in a third instance. On account of the patient's inability to remain in the city, energetic treatment was given with electrolysis, with apparent success, in his fourth case.

REPORT OF CASES

During the past year I have encountered two examples of the disorder.

CASE 1.—The first was in a married woman, aged 58, referred to me by Dr. C. F. Menninger of Topeka, Kan. The lesion, a smooth, rounded, pea-sized, fluctuant tumor, was located over the distal phalanx of the right index finger, and had been present eighteen months. It had been incised and drained on two different occasions, but each time the cyst had refilled, with syrupy, straw-colored fluid, as soon as the wound healed. There was intermittent pain, of a sharp, lancinating character. Treatment by electrolysis was refused because of the attendant discomfort, and as the patient could remain in the city for only a few hours, frequent applications of tincture of iodin, with compression by means of a small pad and bandage, were advised.

In a recent letter, the patient says that the lesion is much reduced in size, and that the pain has disappeared. It is probable, however, that permanent relief will be secured only by the adoption of more radical remedial measures.



Fig. 1.—Tumor, left side of larynx, above true cord, apparently distending the aryteno-epiglottidean fold.

CASE 2.—The second case occurred in a graduate nurse, aged 26, referred to me by Dr. J. Park Neal of this city. The lesion was located over the metacarpophalangeal joint of the index finger, and had been present five months. Clinically, it corresponded to the first form described by Hyde—a roundish, pea-sized, fluctuant nodule, having a depressed, yellowish center. Owing to frequent and repeated cauterization, and the use of picric acid and similar agents, the surrounding skin was inflamed and eczematous. Following puncture, considerable amounts of gelatinous, grumous fluid could be expressed through the opening. The patient said that the lesion varied in size at different times. When greatly distended, it gave rise to much pain and discomfort.

Because of the encouraging reports of Lingenfelter and Ormsby following Roentgen-ray therapy, it was decided to try only radium in this case. The fractional dose method was used, a one-fourth strength applicator, unscreened, being applied for one-half hour on eight successive days. Following the subsidence of the reaction, it was found that the lesion, with the exception of a small central cicatrix, had entirely disappeared. At this time, five months having elapsed, there is no sign of recurrence. The surrounding area of dermatitis responded readily to frequent applications of calamine lotion and zinc oil.

Lathrop Building.

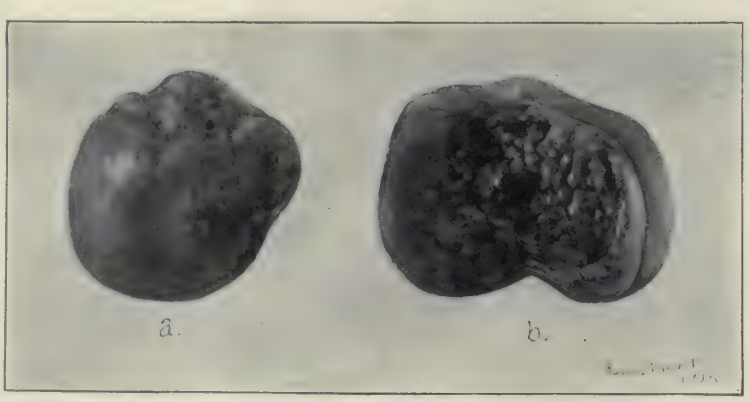


Fig. 2.—Gross specimen, actual size: (*a*) intact; (*b*) on section.

Requisites of Conversation.—The first ingredient in conversation is truth, the next, good sense, the third, good humor, and the fourth, wit.—Sir William Temple.

FIBROLIPOMA OF THE LARYNX*

GORDON B. NEW, M.D. (TOR.)
ROCHESTER, MINN.

After a careful review of literature I have been able to collect reports of only twenty-three cases of lipoma or fibrolipoma of the larynx. In 1899, Garel[1] presented a case before the Société française de laryngologie, and he had at that time collected reports of thirteen other cases from literature. In 1901 Garel presented "un cas d'aversion ventriculaire" before the same society. His patient died of pernicious anemia, and at necropsy the fibrolipoma was found. In 1908 the same author reported another case of a large lipoma of the larynx. He had collected reports of six additional cases of Calamida, De Santi, Goebel, Ingals, Meyjes and Laurens. In 1909, Goldstein,[2] presented a case of his own with a detailed summary of eleven other cases and a thorough discussion of the etiology and pathology of the condition. As far as I know, these, including the one presented in this paper, make twenty-four reported cases of lipoma of the larynx.

REPORT OF CASE

History.—Mrs. W. C. (Case 133172), aged 29, examined June 15, 1915, with unimportant previous history, complained chiefly of hoarseness which had lasted for eight years. She took cold eight years ago, lost her voice entirely for one week, and never fully recovered. A physician had been consulted at the time and had prescribed throat sprays and gargles, but did not make a definite diagnosis. Five years ago a physician was again consulted because of the hoarseness, and she was treated for bronchial trouble. One year ago her larynx was examined and she was told she had enlarged glands of the neck and catarrh of the head which was the cause of the hoarseness, and electric massage of the back of the neck was given. Seventeen months ago the patient noted a thickening of the left side of the neck, but it had not increased. While ill with measles three months ago she had spasms of the throat and great difficulty in breathing. When examined she had slight dyspnea on exertion, but felt perfectly well; there was no cough, no expectoration, no loss of weight. Blood pressure was 120 and 180. The urine and the Wassermann test were negative.

The nose and throat were negative, except for the laryngeal findings; there was a tumor in the left side of the larynx covered with normal-looking mucous membrane, apparently bulging the aryteno-epiglottidean fold. The left cord was not visible, and only the posterior third of the right cord could be seen. The tumor did not change its position during

* From the Mayo Clinic.

1. Garel, J.: Enorme lipome du larynx d'origine ventriculaire, Bull. de laryngol., otol. et rhinol., 1908, xi, 1. Calamida, De Santi, Goebel, Ingals, Meyjes, Laurens and Hunt are quoted by Garel.
2. Goldstein, M. A.: Lipoma of the Larynx, Laryngoscope, 1909, xix, 641.

respiration. It was quite elastic and easily indented with a probe. Its apparent size was 1 inch in diameter (Fig. 1).

Because of the unusual appearance of the tumor, it was thought best to remove it by thyrotomy. The possibility of the condition being an internal diverticulum of the larynx was considered before operating. July 24, 1915, under ether anesthesia, a thyrotomy was done by Dr. Judd. A midline incision was made, and the hyoid bone divided to give better exposure of the larynx. On the larynx being opened, a tumor was seen above the left true cord, dilating the aryteno-epiglottidean fold. This was incised, and the tumor, which apparently had no definite pedicle, was readily shelled out. The patient's voice gradually improved after the operation. She was discharged, Aug. 17, 1915, and advised to return in three months for another examination. The excess of tissue on the left side of the larynx following the removal of the tumor prevented full return of the voice, and it seemed possible that the redundant tissue might have to be removed later by the intralaryngeal route. When the patient returned, Dec. 2, 1915, her voice was about normal, although a trifle lower in pitch than before the onset of the hoarseness. Examination showed the larynx normal save for a slight interference in the motion of the left cord and some slight scarring of the left side of the larynx. She stated that her general health had improved markedly since the operation.

Pathology.—The gross specimen was a round tumor 2.5 by 2.5 cm. in size with a complete capsule but no demonstrable pedicle. On section the periphery of the tumor was firm while the central portion was broken down and degenerated. Microscopic sections showed mostly fibrous tissue with some fat cells, while toward the central portion of the tumor the lipomatous tissues increased in amount. There were areas of degeneration in the section. The diagnosis was: degenerating fibrolipoma (Figs. 2 and 3).

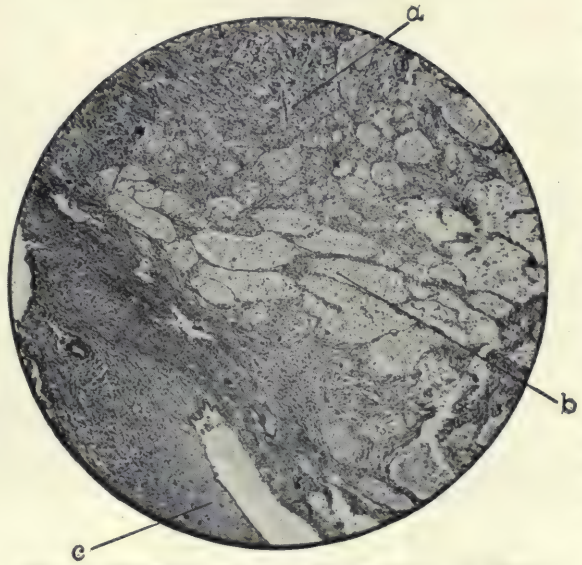


Fig. 3.—Photomicrograph: (*a*) fibrous tissue; (*b*) lipomatous tissue; (*c*) area of degeneration.

Etiology.—Goldstein states that the etiology of lipoma is questionable, and that it may be due to one of three causes: (1) a simple hyperplasia of encapsulated fat-cells which Chiari has observed microscopically about the plane of the ventricle; (2) an invagination of mesodermic tissue which develops into lipoma, and (3) a disturbance in the chemistry of cells in which fat is deposited. It would seem that the pathology of these tumors does not differ markedly from the pathology of lipoma or fibrolipoma elsewhere in the body, but their presence in the larynx is unusual. In the case herein reported, the fact that the tumor did not have a pedicle and consequently a poor blood supply probably accounts for the central degeneration.

COMMENT

There is no age incidence in lipoma. The youngest patient reported in the literature was a boy 8 years of age (Ingals, 1905). Holt[3] in 1854 reported one in a man of 80 years, as does De Santi, in 1903. The point of origin of lipomas is usually the epiglottis, the aryteno-epiglottidean fold, or the ventricle, and they are usually attached by pedicles which are either quite thin or have thick, heavy bases. On account of its rarity, I mention here a case reported by Hunt (1907) of a lipoma attached to the first three rings of the trachea. The tumor was removed by external operation.

3. Holt: Fatty Pendulous Tumor of the Pharynx and Larynx, Tr. Path. Soc. London, 1854, v. 123.

In the case I have reported, the lipoma was situated within and distending the aryteno-epiglottidean fold. It seems to be the only one reported in this position. There was no demonstrable pedicle. The possibility that the tumor originated in the ventricle must be thought of.

Lipomas may be multiple, as in the case reported by Goebel. In this case the tumor was attached to the left aryteno-epiglottidean fold, and to the posterior wall of the larynx; one prolongation of the tumor protruded into the mouth like a second tongue, while another portion extended into the esophagus. Golbek[4] and von Schroetter[5] have reported multiple lipoma.

Lipomas may also appear as small pedunculated polypoid tumors. They may be situated so as to fill the entire upper part of the larynx and give rise to marked dyspnea. In some persons dying of suffocation, lipoma obstructing the larynx has been found at necropsy.

DIAGNOSIS AND TREATMENT

In Garel's case a diagnosis of eversion of the ventricle of the larynx was made, and at necropsy the tumor was found to be a fibrolipoma of the ventricle. The picture presented in my patient brought up the possibility of an internal diverticulum of the larynx, the location and elasticity of the tumor indicating similar characteristics to such a condition. It is impossible, however, to make a definite diagnosis of this rare condition until the tumor has been removed and a microscopic examination made.

The small pedunculated lipoma, which can be definitely diagnosed by endoscopic methods, may best be cared for by endoscopic operation. In the large tumors in which it is impossible to make a definite diagnosis before operation, it is best to explore by a thyrotomy, so that whatever is necessary may be done with less likelihood of danger to the patient. I have seen so few cases of this kind, however, that it is difficult to draw definite conclusions regarding the methods of treatment.

4. Golbek (or Holbek), M. K.: Lipoma multiplex arborescens aditus ad Laryngem, Protik. Zasiedamia. Imp. Kavkazsk. med. Obshtsh, Tiflis, 1891-1892, xxviii, 422, quoted by Goldstein.

5. Von Schroetter, L.: Lipoma des Kehlkopfes: Vorlesungen über die Krankheiten des Kehlkopfes, 1893, 271, quoted by Goldstein.

Nipa-Palm Alcohol.—The manufacture of nipa-palm sugar and alcohol in the Philippine Islands has already been referred to in THE JOURNAL. In British North Borneo, according to *Commerce Reports,* the total area of nipa swamp is greater than that of the Philippines, probably exceeding 50,000 acres which are easily available. The possibilities of alcohol manufacture from this source have been reported on by the American, D. M. Matthews, chief forestry officer of the island. It is said that 200 acres of nipa under proper management will yield 500 gallons of alcohol a day during six or seven months of the year when the sap flows. The probably extended use of alcohol as a motor fuel will no doubt encourage the exploitation of this source for alcohol.

HEMOTHORAX DUE TO RUPTURE OF ANEURYSM OF AORTA

REPORT OF CASE WITH RECOVERY, SECOND RUPTURE CAUSING DEATH

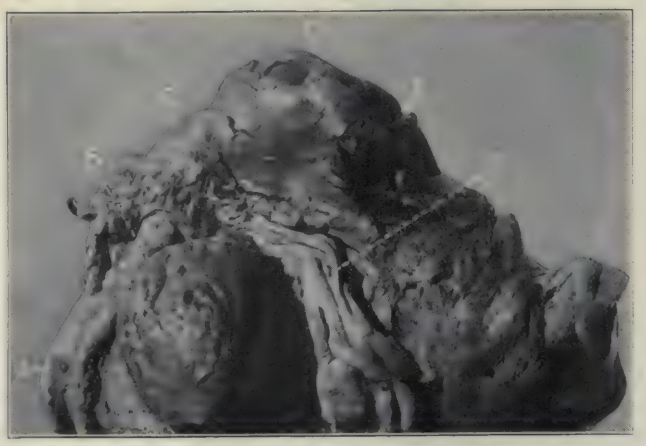
EDWARD H. GOODMAN, M.D.
AND
RICHARD J. MILLER, M.D.
PHILADELPHIA

In 1914, one of us[1] reported a case of hemothorax caused by a rupture of an aneurysm which presented an unusual feature, namely, recovery. The fact that aneurysms rupture infrequently (0.69 per cent. of all aneurysms), coupled with the fact that a search of the literature failed to reveal a similar instance, provided the reasons for reporting this case. We have seen recently a somewhat similar patient, one who had recovered from a rupture of an aneurysm into the left pleural cavity, but who eventually died following a massive rupture some time later.

REPORT OF CASE

History.—A. P., aged 59, married, locomotive engineer for the past thirty-five years, was admitted to the service of Dr. James E. Talley, Presbyterian Hospital, Oct. 20, 1915, complaining of pain in the abdomen, particularly in the left side; of pain in the back and about the heart, and of dyspnea.

The patient stated that he had had none of the usual children's dieases except scarlet fever. For the past fifteen years he had suffered with "rheumatism" in back which at one time confined him to his bed for four months. His joints have never been swollen or tender. In 1887 he had a sunstroke which incapacitated him for a year, and in 1879 he had gonorrhea. Syphilis was denied. He used to drink immoderately, but had not touched alcohol for some time. He drank tea and coffee moderately.



Aorta and adjacent parts: *A*, border of right lung; *B*, heart; *C*, aorta; *D*, dilated aortic arch; *E*, area of rupture; *F*, pericardium; *G*, atelectatic left lung.

The present illness dated from 1913, in which year he was admitted to the hospital, June 16. He was suffering at this time with pain in the epigastrium, in the left abdominal region, over the heart, and in the left lumbar region, and complained a great deal of dyspnea. He stated that six weeks before admission he had begun to be short of breath, which had increased until the date of admission. The pain began about a week before admission and was so severe that he was doubled up with it.

The main points in the examination at this time were the negativeness of the physical signs. The heart sounds were weak but regular, the pupils were equal, the pulses were equal and there was no impairment of resonance over the left chest.

The laboratory findings were a negative urine, secondary anemia, and a positive Wassermann reaction.

Patient was discharged improved, July 15, 1913.

On readmission to the ward in October, 1915, the patient stated that he had been unable to work since December, 1913, on account of pain in the chest, abdomen and about the heart, and because of shortness of breath. For the past ten days he had been confined to bed on account of anginal pains and dyspnea. The dyspnea was increased by exertion, but the anginal pains occurred even when he was lying quietly in bed. The patient complained of much weakness and loss of appetite.

About six weeks before admission he had an attack of pain so severe that he lost consciousness and fell fainting to the ground.

Examination.—The patient was a well developed plethoric looking man, past middle life. The eyes reacted sluggishly to light and to accommodation; the left pupil was larger than the right. During the examination, the patient was very restless and irritable, and seemed to be suffering with a great deal of pain in the left side of the thorax anteriorly and posteriorly and in the left abdomen just below the ribs.

The cardiac impulse was faintly seen and faintly palpable in the fifth and sixth interspaces, slighly outside the left midclavicular line. The right border of the heart was 4 cm. from the midsternal line and the left border 12.5 cm. There seemed to be a widening of the normal dulness over the aorta, particularly to the right. On auscultation the heart sounds were rapid and weak, with occasionally a premature beat, but no murmurs were heard.

The anteroposterior diameter of the chest was increased and the expansion was limited on the left side. Anteriorly the tactile fremitus was equal on the two sides. The percussion note was normal on both sides.

Posteriorly, the right revealed normal findings, but on the left side there was flatness from the spine of the scapula to the base of the lung, and over this area there was diminished tactile fremitus as far as the ninth rib, and below this no fremitus was felt. Breath sounds were absent over the base of the lung, but were faintly heard toward the upper level of the flat area. Egophony was heard in the posterior axillary line about the fourth and fifth interspaces. There was marked tenderness over the lower left chest and in the left abdominal region.

Patellar reflexes were normal, blood pressure 132 and 101, the pulses unequal, and the arteries were slightly sclerotic.

A sphygmographic tracing revealed extrasystoles.

An electrocardiographic examination was attempted, but on account of the patient's restlessness could not be made.

The urine was 1.020, and contained a faint trace of albumin and a few hyaline and granular casts. The phenolsulphonephthalein test revealed an output of 55 per cent. in two hours.

A blood examination revealed: hemoglobin, 78 per cent.; erythrocytes, 4,680,000; leukocytes, 6,350.

The Wassermann reaction was very strongly positive.

Examination by the ophthalmologist revealed a small hemorrhage in the macular region of the left eye.

Roentgenoscopy revealed a dense shadow in the left side, the heart seemed pushed to the right, and there was an indefinite shadow in the aortic regions, corresponding to the area of dulness found over the upper part of the chest at the region of the second and third ribs.

Treatment and Course.—A diagnosis of aneurysm of the arch of the aorta and of pleural effusion was made, and owing to the patient's dyspnea and pain thoracentesis was recommended. Aspiration was performed Oct. 23, 1915, in the eighth interspace posteriorly, and about 750 c.c. were withdrawn. At this time the patient suddenly collapsed, became almost pulseless and had the appearance of one deeply shocked. The fluid removed was pure blood. After the patient had recovered sufficiently to permit of an examination, the same physical signs were found as on previous examination.

1. Goodman, E. H.: Hemothorax Caused by Rupture of a Dissecting Aneurysm; Recovery, THE JOURNAL A. M. A., April 18, 1914, p. 1242.

Oct. 26, 1915, the patient died suddenly. A necropsy was made the same day by Dr. C. B. Farr, whose report, as it bears on the aneurysm, follows:

The left pleural cavity contained 1,900 c.c. bloody fluid. The left lung was almost completely atelectatic. The heart was apparently negative.

The whole aorta, thoracic and abdominal, was irregularly dilated. In the first and second parts of the arch the dilatation was cylindric; on the under surface of the third part of the arch was a rounded sac, the diameter of a dollar, filled with formed fibrous clots. Below in the lower thoracic portion was a huge hour glass sac with walls of laminated clots fully an inch in thickness. There was an extensive tear opening into the pleural cavity on the postero-external aspect. A large fairly firm clot found adjacent to the opening suggested that there had been an attempt at repair before the final and fatal rupture. Just below the diaphragm was a small saccular aneurysm on the posterior surface of the aorta. This had eroded a shallow rounded cavity in the interval between the first and second lumbar vertebrae at the expense of the bodies, and intervertebral. This cavity was sufficiently large to admit the tip of the thumb. The internal surface of the aorta exhibited the usual atheromatous plaques, etc. Sections taken from the wall of the aneurysm were examined for the *Spirochaeta pallida* by Dr. Pfeiffer with negative results.

Clinical diagnosis: ruptured aneurysm of the thoracic aorta with hemothorax.

Anatomic diagnosis: dilatation of the arch of the aorta, saccular aneurysms of the descending arch, thoracic aorta and abdominal aorta, rupture of the thoracic aorta with hemothorax, erosion of the lumbar vertebrae, atelectasis of the left lung.

Through the kindness of Dr. C. E. Filkins, of the resident staff at the hospital, the accompanying picture of the aorta was made.

COMMENT

It is our belief that at some time prior to admission to the hospital, Oct. 20, 1915, and at some time subsequent to his discharge from the hospital, July 15, 1915, rupture of the aneurysm had taken place. From his history we gather only one significant lead, and that is, that about six weeks before admission he fainted owing to an unusually severe attack of pain. Whether or not the aneurysm ruptured at that time it is impossible to state, but we do know that it must have ruptured at least six days before death, as on admission the physical examination revealed all the signs of fluid, which a subsequent thoracentesis proved to be bloody in nature.

We believe we have in this man an instance of two ruptures of an aneurysm, from the first of which the patient recovered, and from the second of which death immediately followed. The ordinary course of events in cases of ruptured aneurysm is for death to ensue in a few hours if it is not instantaneous. Just how long this patient lived after his first rupture we can only conjecture; but we are certain that at least six days must have elapsed, this being the number of days between the time we first saw him and his death. (See pathologic report describing attempt at healing.)

248 South Twenty-First Street.

Paranoia.—Tanzi says, "Paranoia is a rare form of constitutional anomaly which remains latent for years and manifests itself in mature age in a partial but most persistent delusion which is only the slow and permanent triumph of a perception. This perception gradually conquers all evidence to the contrary—and becomes organized into a coordinate system of errors which become the tyrants of the intellectual personality. On the other hand, the presence of a circumscribed delusion does not disturb the individual's judgment on other subjects."

PERITONITIS FOLLOWING ACUTE OVARITIS OF ANGINAL ORIGIN

RUSSELL M. WILDER, M.D.
CHICAGO

Hemogenic disease of the ovaries, arising by metastasis from disease of the tonsils or other distant foci of infection, is a condition which is probably far more common than is usually supposed, and may account for some of those cases of peritonitis which, because of their obscure origin, are referred to as idiopathic or primary peritonitis. Slavjanski,[1] Pfannenstiel[2] and others recognize the occurrence of ovaritis as a sequel of general sepsis, measles, typhoid, cholera and other infections, but the instances recorded are few and the general tendency of gynecologists is to consider ovarian disease as gonorrheal infection ascending from the lower genital tract.

The following considerations suggest that a considerable proportion of diseased ovaries are infected with streptococci rather than with gonococci, that these streptococcus infections are commonly blood-borne from some distant focus, and that certain cases of idiopathic peritonitis are in reality the result of such ovarian infections.

Rosenow,[3] by the use of special methods, isolated streptococci in fourteen out of twenty-five ovaries showing chronic and cystic degeneration. Riedel[4] has reported nine cases of purulent salpingitis in young girls who were operated on for suspected appendicitis. Fructus[5] and others have had a similar experience.

It is significant, furthermore, that of all the reported cases of so-called primary peritonitis, a strikingly large proportion have occurred in female patients. This is true of primary pneumococcus peritonitis (Dieulafoy,[6] Lenormant and Licene,[7] Michaut[8] and Ehringer[9]), but to a greater extent of primary streptococcus peritonitis. Ehringer has collected ten instances, of which eight were in females. De la Chappelle[10] found twenty-one cases in the literature, and of these, sixteen were in females; De la Chappelle has reported in addition a series of twenty-three cases of peritonitis occurring during the course of an epidemic of acute sore throat at Helsingfors, and of these twenty-three cases, fourteen, or 61 per cent., were in females. A predilection for females so striking as this surely suggests that the sex organs play a significant rôle in these cases of primary peritonitis, and one wonders on reading over the recorded necropsies that more detailed attention has not been paid to the tubes and ovaries. Microscopic examinations are not mentioned, and the absence of gross changes is accepted as sufficient evidence of the normality of the ovaries. It is quite possible, therefore, that many such cases were primarily instances of ovaritis or salpingitis, and if this is true it is more than probable that they were metastatic infections from the

1. Slavjanski: Bull. Soc. anat., 1886.
2. Pfannenstiel, in Veit's Handbuch der Gynäkologie, iv, 63.
3. Rosenow, E. C.: The Newer Bacteriology of Various Infections as Determined by Special Methods, THE JOURNAL A. M. A., Sept. 12, 1914, p. 903.
4. Riedel, quoted by Fructus (Footnote 5).
5. Fructus: Arch. gén. de chir., 1913, ix, 944.
6. Dieulafoy: Manuel de pathologoie interne, 1911, ii, 667.
7. Lenormant and Licene: Rev. de gynéc. et de chir. abd., 1905, lx, 225.
8. Michaut: Thèse, Paris, 1901.
9. Ehringer: Thèse, Paris, 1906.
10. De la Chappelle: Arb. a. d. Path. Inst. d. Univ. Helsingfors. 1907, ii, 583.

throat, because in nearly every instance they occurred during the course of a tonsillitis.

In a very few of these cases the ovaries were carefully examined and the definite pathologic condition discovered. This is true of the reports by Leyden,[11] Kunzel[12] and Schwers.[13]

REPORTS OF CASES

Leyden's patient was a girl, aged 20, of previous good health, who fell ill, June 17, with vertigo, sore throat and fever. June 22, the general symptoms became markedly worse, and abdominal pains began. The patient died, June 28, with all the signs of acute peritonitis. Necropsy revealed a liter of purulent exudate in the abdomen, *edema of the ovaries, and reddening and swelling of the abdominal ends of the tubes.* The sexual organs were virginal. The uterine mucosa showed a gray, pseudomembranous tumefaction; stomach, intestines and appendix were of normal appearance. *The tonsils were greatly swollen and congested.* No microscopic examination of the tissues was made, and the bacteriology of the infection was not studied, but the edema of the ovaries and swelling of the abdominal ends of the tubes suggests that they were the cause of the peritonitis.

Kunzel's patient, Maria B., was brought to the hospital in a state of unconsciousness. Subsequently a history was obtained to the effect that she had complained of a sore throat a few days before the beginning of her illness. Death occurred on the night of her admission to the hospital, and a necropsy was made. The bowel was hyperemic and especially congested in the pelvis. In the pelvis were 500 c.c. of a dark brown fluid mixed with flakes of pus. The appendix was only moderately hyperemic. The mucosa of the stomach, both large and small bowels and appendix was pale, and showed only slight enlargement of the follicles. Remains of menstrual changes were visible in the uterus. *The tubes were bright red, especially at their abdominal ends,* where they were distended with mucus and pus. On the contrary, their uterine ends were smaller and with small lumens. *The ovaries were deeply injected, and covered with a firm membrane. Both tonsils were enlarged to the size of walnuts.* Cultures from the peritoneal fluid yielded the *Streptococcus pyogenes* "var. long.," and from the tonsils the same organism. From the uterus a *Bacterium coli* and *Micrococcus pyogenes citreus* were obtained.

Schwer's patient, a child aged 2, with a grave peritonitis, when first seen had been ill for two days, constipated for twenty-four hours and vomiting for twelve hours. The temperature was 40.9 C. (105.6 F.), the pulse 168. The abdomen was tender and slightly resistant, both on the right and the left sides. An appendicular perforation was suspected, and the child was operated on at once. A thin nonodorous serous secretion was found in the abdomen. There were no adhesions, but some recent fibrinous exudate covered certain parts of the intestines. The intestines were everywhere hyperemic, the congestion increasing toward the pelvis, where it attained its maximum at the right tube. The appendix and other abdominal organs were intact. Death occurred four hours after the operation, and at the necropsy the following pathologic condition was observed: an *acute purulent infection of the entire genital tract, vulvovaginitis, endometritis and bilateral salpingitis. In addition, small purulent follicles were seen in the tonsils.* Bacteriologic examination of the pus removed at the operation gave a pure streptococcus. The pus from the vagina contained only streptococci; there were no gonococci. The pus from the tonsils was not examined.

To these three cases I add a fourth, a personal observation.

Ruth B., aged 6 years, was seen, August 19, on account of a sore throat. For two days she had felt feverish. The bowels were constipated and the appetite was poor, but there was no abdominal pain. Examination revealed a temperature of 103 F., a flushed dry skin, dry lips, and a heavily coated tongue. The pharynx was hyperemic and the tonsils were large, edematous, hyperemic, and studded with discrete millimeter white patches. The lymph glands of the submaxillary region and those of the upper part of the posterior cervical triangles were enlarged and tender. In all other respects the examination was negative. August 20, the patient showed marked improvement, the soreness of the throat was gone, and the temperature was reduced to 99 F. She was not seen on the 21st, but from the mother's report felt perfectly well on this day until evening, when she had two loose bowel movements and complained slightly of pain in the lower part of the abdomen. August 22, she was found in a serious condition, with a temperature of 102 F., a rapid pulse, and rapid respiration. The abdomen was greatly distended, tympanitic and tender. This tenderness was greatest in the lower quadrants, but was *equal on the two sides.* There was no vaginal discharge. The right shoulder joint was tender but not swollen. The condition of the throat had improved. The urine contained no albumin or pus. A leukocyte count was 28,000, with polymorphonuclears comprising 90 per cent. A diagnosis of peritonitis was made, and although the prospects were unfavorable, the patient was operated on by Dr. Dwight Clark. At the operation the peritoneum was found hyperemic and lusterless, and in the pelvis was a small amount of thin pus. The appendix seemed normal. A drain was inserted, but the child died forty-eight hours later.

At the necropsy the following conditions were observed: The abdomen was distended and tympanitic, the intestines being ballooned with gas. A thin, serous, nonodorous exudate occurred in small amount in the pelvis. Both the parietal and the visceral layers of the peritoneum were very slightly hyperemic over the upper half of the abdomen, but were more intensely injected over the lower half and an angry red in the pelvis. A membranous gelatinous exudate 1 to 2 mm. thick occurred in the folds of the mesentery and covered part of the floor and walls of the pelvis. The intestines showed no perforation, no volvulus and no diverticula. The cecum and appendix were slightly hyperemic, but with this exception appeared normal. The mucosa of the stomach and bowel appeared normal. The mesenteric lymph glands were uniformly enlarged and hyperemic. Liver, spleen and kidneys showed extreme cloudy swelling, but were otherwise normal. The gallbladder appeared normal. Microscopic examination of the ovary, tubes and uterus revealed in the tubes and uterus an extreme degree of hyperemia but no hemorrhages. In the lumen of the tubes there was no exudate. In that of the uterus was a small collection of leukocytes, half of which were mononuclears. *The ovaries showed, in addition to passive congestion, small hemorrhages, and in the ovarian tissues a few diplococci with short chain streptococci were found.* Cultures of the abdominal fluid obtained at operation resulted in the pure growth of gram-positive noncapsulated diplococci and short chain cocci belonging to the streptococcus group. The organism appeared on blood agar as a small, circular, moist colony, gray, and producing marked hemolysis. Its growth was best under anaerobic conditions. Inoculation into rabbits gave negative results.[14]

This case bears a striking resemblance to those of Leyden, Kunzel and Schwers. In all an ovaritis is suggested by the pathologic reports, and in my patient the anatomic diagnosis of ovaritis is certainly justified by the minute hemorrhages and the presence of diplococci in the ovarian tissues. In all four cases an associated angina suggests that the throat was the portal of entry of the infection. In all four cases a peritonitis developed. In all, the sequence of events seem to have been acute sore throat, later ovaritis and then peritonitis.

11. Leyden: Deutsch. med. Wchnschr., 1884, x, 258.
12. Kunzel: München. med. Wchnschr., 1904, li, 1920.
13. Schwers: Arch. de méd. d. enfants, 1914, xvii, 441.

14. For this description of the organism and for the report of the animal inoculations I am indebted to Dr. F. W. Gaarde, and for the microscopic sections to Dr. B. O. Raulston.

It is to be regretted that the other reported cases of so-called primary peritonitis did not have more attention directed to the state of the ovaries, as it would seem probable that acute hemogenic infection of the ovaries was the explanation of the peritonitis in many of them, and it is to be hoped that in all future cases of supposed idiopathic peritonitis the possibility of a hemogenic ovarian infection will receive consideration.

Presbyterian Hospital.

Special Article

WHAT THE CIVILIAN DOCTOR CALLED TO ACTIVE SERVICE WITH THE ARMY SHOULD KNOW

(Concluded from page 509)

III. DUTIES IN THE ZONE OF THE ADVANCE

In this zone can be expected to occur most of the casualties due to contact with the enemy. While still concerned with sanitary measures, the medical officer is here more occupied in rendering first aid and in the evacuation to the line of communication of the wounded. In a brief summary of these subjects in such an article as this it is impossible to do more than outline the duties of the medical officers in this zone and to refer to the authorities who instruct in the details.

There will be considerable difference in the sanitary service performed with troops fighting a war of position, as on the western border of France today, or with troops fighting field engagements and moving a number of miles from day to day either in advance or retreat; however, the units with which these duties must be performed are the same in either case.

First aid to the wounded and the collection of them begins with the regimental service; in other words, the sanitary troops assigned to duty with a regiment are here employed. As circumstances permit, the wounded are given first aid, collected by litter bearers and moved back, when practicable, to the aid stations of their own organizations. The position of these depends on many factors, and a discussion of them would demand a short article in itself. From here they are sent on to dressing stations, established under the order of the division surgeon or the director of the ambulance companies. These stations are part of the ambulance companies and, consequently, are supplied with wheeled transportation which is used to transport to the rear those requiring it, after the wounded have been examined and sorted over.

Ordinarily these ambulances carry their patients to field hospitals, which are hospitals only in name, and are really collecting stations at which further examination and care may be given to the wounded. How thorough this may be depends on military exigency and the number of wounded passing through them. They are not supplied with beds, and it is not expected that their patients will remain in them for more than a very short period of time.

The war of position in France has developed a new unit—in reality a flying surgical hospital of a capacity of 100 patients, manned by a staff of expert operating surgeons, the equipment carried on four motor trucks. It is planned that on two hours' notice this unit can travel 20 miles and have its operating room and ward set up ready for work. It is proposed to treat here only those wounded who are too severely injured to endure transportation, and those for whom immediate surgical interference is necessary in order to save life. From the field hospital, which is a divisional organization and which is highly mobile, and is expected constantly to accompany the division to which four of them are assigned, a patient, as promptly as possible, is sent to the evacuation hospital.

With the greater numbers involved in the present European war, even these evacuation hospitals are hospitals only in name: indeed, the English have recently changed the name from "evacuation hospital" to "casualty clearing stations," as, when possible, the patients were sent on to more permanent hospitals, and finally to the general hospitals previously referred to, where patients are cared for who cannot expect to return to the colors within a considerable period of time, if at all. The evacuation hospitals, as previously stated, are, strictly speaking, in the line of communications; in conjunction with the field hospital it is the station for the final treatment of only the slightly wounded.

In this organization of the medical force a plan has been attempted to provide highly mobile units, such as the ambulance companies of the field hospital companies, which keep up in the field with the division to which they are assigned. In a way these units with the station for the slightly wounded act as sieves which sift out the disabled who may be expected to return at once or within a few hours to the fighting line; to determine those who within a day or two, provided the troops are not moving forward, may be expected to rejoin, and finally to let through to the line of communications for further care and examination those for whom the division cannot hope for speedy return.

For those medical officers on duty with hospitals or stations for the slightly wounded, whether the former are in the zone of the advance or on the line of communications, are added the responsibilities of providing food for the patients whom they may have in their charge. While this is supplied through the quartermaster's department, and partly by the medical department, responsibility, nevertheless, rests on the medical officer to see that it is done. Indeed, some of the worst trials borne by disabled soldiers have been not so much the wounds suffered as hardships because of lack of food and shelter.

The point should be urged that the duties of medical officers on the line of communications and in the zone of advance cannot be performed satisfactorily in time of war without special training. It is not sufficient that a medical officer be professionally competent, or indeed a skilled specialist, to meet successfully the demands on him in the field. A line officer might individually be an excellent marksman but fail wofully in the administration of a line unit through lack of experience.

The conditions of no war have been met without avoidable suffering to the wounded. Even in the highly organized armies of western Europe, where it would seem that all possible forethought had been exercised and all preparation made, the wounded have often died because of the inadequacy of an organization to care for them.

To the skeptical who do not agree with the necessity of preparedness in this particular field, we would invite their perusal of the following official document, and in doing so remind them that it is dated more than one year after the beginning of the Civil War. The letter

is written with reference to the battlefield of Second Bull Run and *ten days* after it opened; sorrowful to relate, it effected nothing in the way of the organization asked for:

Surgeon General's Office,
Sept. 7, 1862.

Honorable Edwin M. Stanton,
Secretary of War.

Sir:—I have the honor to ask your attention to the frightful state of disorder existing in the arrangement for removing the wounded from the field of battle. The scarcity of ambulances, the want of organization, the drunkenness and incompetency of the drivers, the total absence of ambulance attendants are now working their legitimate results, results which I feel I have no right to keep from the knowledge of the department. The whole system should be under the charge of the Medical Department. An ambulance corps should be organized and set in instant operation. I have already laid before you a plan for such an organization, which I think covers the whole ground, but which I am sorry to find does not meet with the approval of the general-in-chief. I am not wedded to it. I only ask that some system may be adopted by which the removal of the sick from the field of battle may be speedily accomplished and the suffering to which they are now subjected be in future as far as possible avoided.

Up to this date six hundred wounded still remain on the battlefield in consequence of an insufficiency of ambulances and the want of a proper system for regulating their removal in the Army of Virginia. Many have died of starvation, many more will die in consequence of exhaustion, and all have endured torments which might have been avoided.

I ask, sir, that you will give me your aid in this matter; that you will interpose to prevent a recurrence of such consequences as have followed the recent battle, consequences which will inevitably ensue on the next important engagement if nothing is done to obviate them. I am, sir, very respectfully,

Your obedient servant,
William A. Hammond,
Surgeon General.

If this was true after more than a year's fighting, it undoubtedly would be true, as has been demonstrated recently in Europe, of the first months of any war that involved several hundred thousand troops, unless we forestall such emergencies by adequate medical arrangements.

The interest, then, being shown today by the medical profession of the United States in adequate training and numbers of medical officers is warranted by our past history and by present history in Europe. Such civilian members of the profession as are devoting time to this subject are performing not only a patriotic duty but also a duty to humanity.[1]

Certain physical and mental qualifications are at present demanded of physicians entering the Medical Corps of the regular army, and even in time of war it is probably best that they remain as fixed at present. They are to be found in Circular of Information, Form 132, War Department, Surgeon General's Office, April 26, 1912.

The physical requirements are about those demanded of recruits, except that the standards of vision are not so exacting. Local boards for conducting these examinations are convened from time to time, as required, at the larger military posts, usually during the months of January and July.

The examination consists of two parts — the preliminary examination and the final, or qualifying, examination, with a course of instruction at the Army Medical School intervening. The mental examination is written and embraces the following subjects:

Anatomy, physiology and histology, chemistry and physics, materia medica and therapeutics, surgery, practice of medicine, obstetrics and gynecology. It takes nearly a week to conduct.

Successful applicants are usually then placed on temporary duty as active members of the Medical Reserve Corps, and at the proper time brought to the Army Medical School at Washington, D. C., for special instruction lasting eight weeks, at the end of which time the qualifying examination is held. This examination covers the instruction given and is practical as well as written. If successfully passed the officer is commissioned in the Medical Corps of the regular army.

However, in times of national emergency, when large numbers of troops must be used, the services of many physicians will be needed in the zone of the interior, and here those who are at an age at which field service would be too exacting, and others who are incapacitated physically for severe and prolonged effort, may be employed with advantage. Indeed, any competent medical men who are able to carry on active practice in civil life could meet the demands of duty at base and general hospitals which the government will have to establish in numbers. There is also a demand for all specialties in the hospitals of the zone of the interior, and for many general surgeons with special surgical units. Under these circumstances, the examination for medical officers to obtain commissions would be such as may be prescribed by the Secretary of War, and probably would be physical and oral. In fact it can safely be stated that under these conditions great weight will be given to the reputation and standing of the doctor in his community. Credible reports indicate that the Austrians have provided hospital accommodations on the basis of 40 per cent. of the number of troops employed. This means that the service of every Austrian physician must be utilized to a greater or less extent by the military authorities. Indeed, it has been reported that in some places it has been difficult for civilians to secure medical attention, so general was the demand by the military authorities for medical service.

The number of medical officers of the regular army authorized by law is 444. This number was fixed by Congress on the reorganization of the Medical Department in 1909, and was the allowance for an army of 65,000, which was the size of the United States Army at that time. It is necessary to employ now about 100 civilian physicians either as contract surgeons or as Medical Reserve surgeons to assist in performing the required duties in the army, which now numbers about 100,000.

Authorities consider that in time of war medical officers should be in the proportion of 1 per cent., that is, a thousand medical officers for every 100,000 troops. About half of these would be with the troops in the field, and the other half would be necessary to care for the sick and wounded on the line of communications and for duty in the hospitals and mobilization camps in the zone of the interior.

Plans are under way for holding, during the coming summer, camps of instruction for medical officers of the National Guard and of the Medical Reserve Corps at Anniston, Ala.; Tomyhanna, Pa.; Sparta, Wis.; Fort Riley, Kan., and Monterey, Calif.

1. Books to be consulted: Straub: Medical Service in Campaign, Ed. 2, United States Field Service Regulations, 1914. Morrison and Munson: Study of Troop Leading and Management of the Sanitary Service in War.

Therapeutics

AURICULAR FIBRILLATION

That this condition should receive immediate attention, and that digitalis in large doses is of marked benefit in most cases, at least for a time, are generally recognized.

The prognosis depends on the condition of the heart muscle. If the myocardium is intact, this peculiar nervous upset, the heart having lost its governor, so to speak, will be rapidly and more or less permanently cured by digitalis through the stimulation by this drug of the vagus nerves, thus causing normal inhibition and a consequent slowing of the heart.

Although such a patient may have been incapacitated, he may not yet have acquired a dilated heart; consequently, he will not need the digitalis long continued. If, through some kind of heart strain, he has a recurrent attack of fibrillation, he must again receive digitalis. On the other hand, if a patient who has auricular fibrillation also has dilatation, caused either by prolonged heart tire or from the fibrillation, or if the fibrillation is superimposed on an already dilated heart, while the digitalis (if not already given in large doses) will stop, or at least greatly improve the fibrillation, still the dilated heart must be treated as such, namely, by rest, digitalis and other careful regimen, that is, careful diet, gentle catharsis, and other general measures. If the fibrillation is caused by the dilatation, the prognosis, with digitalis and rest, is good. If the fibrillation is superimposed on the dilatation with a chronic myocarditis, the prognosis is bad under any treatment.

White[1], after studying 200 heart cases, finds that auricular fibrillation and alternating pulse, as well as heart block, are more frequent in men than in women; and both auricular fibrillation and alternating pulse are more likely to occur after 50 years of age than before. Auricular fibrillation may be a symptom developing in hyperthyroidism, in cardiac sclerosis, in syphilitic hearts, and rarely in rheumatic hearts. Excessive use of tea and coffee can cause the condition, and occasionally the cause may be tobacco.

Hering[2] finds that ventricular fibrillation may be the main factor in sudden death from angina pectoris.

TREATMENT

The treatment of auricular fibrillation is rest, digitalis, and a diet of nonstimulating food, in small bulk, given three or four times in twenty-four hours. The stomach should not be distended to press on or irritate the heart. Tea, coffee, alcohol, strychnin and any other nervous stimulant should be prohibited.

The dose of digitalis (the preparation must be a good one to be of value) should be large to act properly and positively on the vagus nerves. In the case of auricular fibrillation the heart should be slowed, but it is not especially advisable (unless the heart is dilated) to increase its muscular power, although of course the ventricles will unavoidably be stimulated. As in turning on the power of any engine or machine, the full dose of digitalis should not be given at first; the heart should not be shocked. Tincture of digitalis should be given in ascending doses, on the first day, 5 drops after breakfast, 10 drops after luncheon, and 15 drops after the evening meal. On the second day the dose should be 20 drops after breakfast. If the heart is not markedly slowed, 25 drops should be given at noon, but none at night on this day. If the heart is still not slowed to at least 90 beats per minute, 30 drops should be given on the morning of the third day.

In from thirty-six to forty-eight hours from the beginning of the treatment, the heart should be beating at the rate of from 80 to 90 times a minute, and all cardiac distress should have disappeared. The digitalis should then be given twice a day, in more or less rapidly diminishing doses, depending on the symptoms, and it should thus be continued for one or two weeks.

It should be emphasized that the proper dose of digitalis is "enough" to do the work. With a strong preparation the beginning dose should be small; with a weaker preparation larger doses should be given from the start. The limit of dosage is the result obtained. It should be remembered, however, that digitalis is very slow to act, and that it is very slowly eliminated, so that large doses must not be long continued, lest a bad effect, that is, a cumulative effect, be produced on the kidneys.

If there is kidney insufficiency, or if the output of urine becomes much lessened in amount, digitalis should be immediately stopped, and should not be again given for several days. If, after there is improvement in the fibrillation and the pulse has become markedly diminished, infrequent cardiac pains occur, too much digitalis is being given.

1. White: Boston Med. and Surg. Jour., Dec. 2, 1915.
2. Hering: München. med. Wchnschr., Nov. 2, 1915.

PULSUS ALTERNANS

Instead of this being an unusual condition, White[1] shows that it is not infrequent, as demonstrated by graphic pulse tracings. He found it present in seventy-one patients of 300 examined.

Pulsus alternans is "that condition of the pulse in which strong and weak beats alternate, but in which the cardiac rhythm is normal." The alteration may be constant, or it may occur in phases.

He finds this character of the pulse to occur in about one third of all cases of decompensation. About half of the cases show increased blood pressure, 160 mm. or more, and 62 per cent. of the cases were in patients over 50 years of age, and 69 per cent. were in men. Arteriosclerosis is a strong factor, and necropsies on patients who had had this symptom in life showed coronary sclerosis and arteriosclerotic kidneys.

The prognosis as to length of life in patients who have this condition is not good. Digitalis and rest in bed improve the general condition of the majority of patients, but White found that in only four patients out of fifty-three so treated was the pulsus alternans either "diminished or banished." The administration of digitalis in cardiac deficiencies does not cause the condition of pulsus alternans.

This interesting symptom in heart cases, as White has shown, is of considerable prognostic value, but it can be positively determined only by some graphic means of registering the pulse.

1. White: Am. Jour. Med. Sc., July, 1915, p. 82.

Low Grade Infection and Hygiene.—To guide individuals so that they may be not only protected from the incidence of insidious, low grade infection, but also rendered resistant to micro-organisms which, in nature of things, must inevitably gain entrance to their bodies, requires a close study of the new science of personal hygiene and a painstaking effort to apply its principles.—Eugene Lyman Fisk, M.D.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, FEBRUARY 19, 1916

THE SIGNIFICANCE OF FERMENTED MILKS

As fermented milks of diverse sorts have come into use not merely as foods but also as products of reputed therapeutic and prophylactic value, physicians should have a clear understanding of their manufacture and chemical nature. In many of the larger cities, special fermented milk preparations can be obtained under various trade names which supplant the more familiar terms buttermilk, kefir, koumiss and yoghurt. The latter types, however, include the most important varieties that are well known, so that an understanding of their origin ought to give a fairly clear appreciation of the possibilities in this field.[1]

Almost every one who has had any acquaintance with farm life or dairy products knows the process leading to the production of buttermilk as a by-product in butter making. It is not so generally appreciated, however, that in recent years much of the so-called buttermilk sold for human use in this country is prepared by fermenting skimmed milk, which remains as a by-product of the cream trade. It is simply soured skimmed milk which has been churned or stirred in order to break up the curd. The same product is sold also under the name of "ripened milk." The souring of milk or cream is brought about by the activity of certain bacteria which form lactic acid by decomposing the milk sugar (lactose). The ability to form acid from lactose and other sugars is possessed by many kinds of bacteria, but is so characteristic of a certain group that they are commonly spoken of as the lactic acid bacteria. Such fermented milk, though not literally buttermilk, is scarcely distinguishable from the latter, and may be even richer in actual nutrients. This beverage can now be made in the home if good buttermilk is not a readily purchasable commodity in the community.

The conspicuous fermentation product in buttermilk, as in the other varieties of fermented milks, is lactic acid. In some types alcoholic fermentation may also be prominent, so that alcohol and carbon dioxid are added to the milk mixture. The reaction whereby an alcoholic is added to the ordinary acid fermentation is due to yeasts.

One of the first of the fermented milks known to Europeans was the kefir, made from the milk of sheep, goats or cows in the Caucasus Mountains and neighboring regions. Kefir differs from most of the fermented milks of the Mediterranean countries in that it is made from a dried preparation and contains considerable quantities of alcohol and gas. According to an expert of the Bureau of Animal Industry, it is probable that kefir is produced under different circumstances by different organisms. Any combination of bacteria or of bacteria and yeasts that will produce a lactic acid and a mild alcoholic fermentation in milk will make kefir, although to secure the most desirable flavor certain organisms may be essential. Kefir grains, which start the proper fermentation, cannot ordinarily be obtained in this country, but a good imitation of kefir can be made by carrying on simultaneously in sealed bottles an alcoholic and a lactic fermentation. Better results can be obtained by inducing the alcoholic fermentation in buttermilk. Ordinary bread yeast may be used for alcoholic fermentation; but as this yeast does not ferment lactose, it is necessary to add cane sugar to the milk.

Koumiss, in its original sense, was a fermented beverage prepared from mare's milk. Unlike kefir, there is no dried "ferment," "seeds" or "grains" with which the fermentation of the mare's milk is started. Native koumiss makers lay great stress on the quality of the milk, the breed of the mares, and the condition of the pastures; but it is probable that their troubles ascribed to variations in these conditions are more likely attributable to imperfectly controlled bacteriologic factors. According to Rogers,[1] the koumiss which is often made and offered for sale in this country is usually made from cow's milk, and therefore, more correctly, is kefir.

Kefir and koumiss are limpid, mildly acid, and distinctly alcoholic; yoghurt, leben and matzoon are thick-curdled milks, decidedly acid, with very little or no alcohol. Different organisms are involved in the fermentation. In some of the "yoghurt buttermilk" now sold in this country, the results are obtained with a combination of the essential *Bacterium caucasicum* and an ordinary lactic acid organism such as is used in making buttermilk. Yeast is a contamination, not a desired component, if present in this case.

These fermented milks have attracted attention in recent years, not primarily because of their food value, but because of inherent specific peculiarities of composition and texture. For example, it is believed by many that the finely divided casein as it occurs precipitated in these preparations is more easily digested than the curds formed in the stomach after drinking ordinary

1. The subject is reviewed by L. A. Rogers (Fermented Milks, Bull. 319, U. S. Dept. Agric., Jan. 18, 1916), on which some of the statements here made are based. Copies of the publication may be procured from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 5 cents a copy.

milk. The proteins and fats of these beverages are not materially changed by the micro-organisms; but the lactic acid has been credited with favorable influences in the alimentary tract. The most prominent claim of the fermented-milk therapy widely heralded in popular magazines directs emphasis on the possibility of establishing the acid-producing bacteria in the intestinal canal to suppress the putrefactive type. To what extent there is a probability of establishing conditions there under which they will multiply and persist, while the objectionable types are driven out, has been previously discussed in THE JOURNAL.[2] The situation is summed up by Rogers[1] by saying that while there is no conclusive evidence that *Bacillus bulgaricus* is able to establish itself in the intestines in such a way that other bacteria are driven out, it is undoubtedly true that in many cases marked improvement has resulted from the ingestion of milk cultures made from it. It is by no means certain, however, that the results which have been obtained by the use of milk cultures have been attributable to any peculiar virtue in the organism itself. It has been held by some investigators that the intestinal flora may be radically changed by a fundamental change in the diet. The beneficial effect of a sour-milk diet is attributable, perhaps, not so much to the bacteria contained in the milk as to the milk itself, which provides material for an acid fermentation in the intestines.

After all, the fermenting of milk is a means of preserving it without undesirable types of decomposition, and in a form wholesome and agreeable for human consumption. There are without doubt patients for whom the presence of soured milks in contact with the alimentary mucosa would not be acceptable; yet fermented milks are so well tolerated in many cases that their use should in general be encouraged from the standpoint of nutrient values, and welcomed quite apart from the "autointoxication" therapy program.

MEDICAL PREPAREDNESS AND THE ARMY

Republics are proverbially forgetful; in them lessons learned by bitter experience have only a transient influence. The Spanish-American War occurred less than twenty years ago. In this war, the most dangerous enemy which our soldiers had to meet was not the Spaniards but disease in our own camps. The records of the War Department show that in 1898, out of an army of 200,000 men, there were 21,000 cases of typhoid fever with 2,192 deaths, and that the Second Division of the Seventh Army Corps, encamped at Jacksonville, Florida, in 1898, had 2,693 cases of typhoid with 248 deaths out of only 10,759 men. Nor were such results surprising when one recalls the conditions existing at the beginning of the war. The machinery of the small regular army in existence at that time had suddenly to be expanded to fit a large army of volunteers. The size of the staff proved entirely inadequate to the task. There were not enough trained military surgeons in the country to care properly for the soldiers. Lack of medical supplies, inability to deliver supplies at needed points, lack of familiarity on the part of civilian surgeons with military methods, hospitals without proper equipment, surgeons with little or nothing with which to work, sick men without proper care or suitable nourishment — these were some of the occurrences which should have taught, for all time, the necessity of a trained force of men, skilled in surgery and familiar with army routine, to care for the sick and wounded in future wars. Yet what are the facts?

In less than ten years after the Spanish war the President in a special message to Congress stated that the medical corps was not only much smaller than was needed for the regular army in times of war, but was too small even to perform the duties demanded of it in peace. The long fight from 1904 to 1908 for the reorganization of the Army Medical Corps must surely be fresh in the minds of most of our readers, if not of the public. In the spring of 1908, Congress finally passed the army medical reorganization bill, providing 443 medical officers for an army of about 65,000 men, a ratio of seven medical officers for each thousand men, the proportion which had been recommended by the surgeon-general's office and which is accepted by military and sanitary experts generally as the minimum ratio. This law is still in force. In the meantime, the army has been increased by congressional enactment to over 90,000 men, an increase of nearly 50 per cent. For this increased army not a single additional medical officer has been provided. As stated by Surgeon-General Gorgas before the House Committee on Military Affairs, "Our relative number of trained medical officers is not as great now as it was at the beginning of the Spanish war. We then had seven per thousand, now we have about five per thousand."

In the face of these facts and with the memory of our inexcusable loss of life from disease in the Spanish war, it is difficult to understand why, in the numerous bills now before Congress for preparedness and national defense, not one of them provides for increasing the Medical Corps of the army, even beyond its present inadequate condition, to say nothing of providing for a medical staff in any way commensurate with an army of sufficient size to be effective for national defense. One bill increases the army to 140,000 men; another provides for an increase of 75,000 men; one bill in the Senate, it is true, provides for an army of 210,000 men with a medical service of 898 officers; but this is an actual reduction in the proportion of medical officers to 4.28 per thousand. In

2. The Survival of the Bacillus Bulgaricus in the Alimentary Tract, Current Comment, THE JOURNAL A. M. A., Oct. 2, 1915, p. 1191.

none of the bills now pending is there any evidence that the medical and sanitary needs of the army have been given adequate consideration. Yet the military experiences of the entire world during the last twenty-five years demonstrate clearly that an adequate, well-equipped, well-trained medical service is of the most vital importance to the effectiveness of any military plans. While this has long been recognized as true, it is today, with our vastly increased knowledge of disease prevention and modern sanitation, of far greater importance than ever before. No matter how capable a surgeon may be in civil life, he cannot be converted into a competent and effective army surgeon over night.

The army medical officer must have scientific training and experience, plus training in military methods, camp sanitation and the proper care of large bodies of men in the field. He must be prepared to solve the various problems peculiar to military life. As stated above, the minimum should be seven medical officers for each thousand men, and this ratio should be maintained no matter to what size the army may be increased. The present medical corps, carefully selected and highly trained as its individual members are, is too small even to do the necessary work in times of peace. General Gorgas states that there are, in readiness, hospital and medical supplies for an army of 300,000 men, but that it would take time to train a sufficient number of medical officers for such an army. If the harrowing and disgraceful occurrences of the Spanish-American War are not to be repeated, and if we are to profit by the bitter experience of the past, then any plan for enlarging the army, whether by regular enlistment, volunteers, compulsory service or what not, must provide for a corps of trained medical men capable of safeguarding the health of the army.

RECENT EXPERIMENTS RELATING TO THE ENDOCRINE GLANDS AND DEVELOPMENT

Among all the recent observations destined to direct attention to the possible relations of some of the ductless glands or organs with endocrine functions to the growth and development of individuals, few have presented more striking phenomena than those reported by Gudernatsch.[1] His exceptional experiments indicated, briefly, that if thyroid is fed to young tadpoles, development in the sense of a rapid differentiation of the parts proceeds with extreme rapidity, so that apparently perfect frogs of minute size speedily result. This differentiation in a developing vertebrate organism may be so rapid that within eighteen days after hatching, a stage is reached which would ordinarily require many weeks for its attainment. Thymus, on the other hand, had the power to stimulate growth, while lacking that of exciting differentiation; so that thymus-fed tadpoles experience a rapid growth but fail to be brought to metamorphosis within the usual period.

Abderhalden[2] of Halle has extended the use of this method of investigation for the purpose of ascertaining the nature of the active substances present in physiologically potent glands and tissues. He has confirmed the contentions of Gudernatsch[1] and of Romeis[3] respecting the potency of animal tissue extracts on the development of certain species. Abderhalden's experiments bring the added evidence that the substances responsible for these unique and almost startling effects are not to be identified with the proteins or their more complex derivatives; for even after prolonged digestion of thyroid and thymus tissue to the stage at which the usual protein test fails, the products are still potent when tested on tadpoles. From a quantitative standpoint very small amounts of substance suffice to bring results. To the physiologic chemist there is some significance in the fact that the active "principles" are readily diffusible after the digestions.

Other organs have been drawn into the field of study; and by the use of combinations of the digestion products of thymus, thyroid, pituitary and ovarial substance, bizarre results have been noted. To quote these in detail, to recite the varied distortions of form and manifestations of disproportionate growth or development might merely lead to inadvisable or untenable analogies. Speculation should not be stimulated to the point at which therapeutic possibilities are suggested with unjustified readiness. The fact that complete digestion with gastric, pancreatic and intestinal ferments does not destroy the particular potency of the gland substances under discussion may, however, have a bearing on the use of organic extracts in human therapy. It helps to furnish a probable explanation of the fact that many gland preparations, such as the unaltered dry substance of the thyroid, is confidently believed to exhibit pharmacologic responses even when administered by mouth. Evidently some of the "active principles" are not destroyed in the course of alimentary digestion. Up to the present time the attempts with salts of various inorganic elements to reproduce the characteristic effects brought about by thymus and thyroid substance have failed.

1. The Thyroid and Thymus in Relation to Development, editorial, THE JOURNAL A. M. A., July 4, 1914, p. 34.

2. Abderhalden, E.: Studien über die von einzelnen Organen hervorgebrachten Substanzen mit spezifischer Wirkung, I, Verbindungen, die einen Einfluss auf die Entwicklung und den Zustand bestimmter Gewebe ausüben, Arch. f. d. ges. Physiol., 1915, clxii, 99.

3. Romeis, B.: Experimentelle Untersuchungen über die Wirkung innersekretorischer Organe, II, Einfluss von Thyroidea- und Thymusfütterung auf das Wachstum, die Entwicklung und die Regeneration von Anurenlarven, Arch. f. Entwcklngsmechn. d. Organ., 1914, xl, 571; Der Einfluss verschiedenartiger Ernährung auf die Regeneration bei Kaulquappen (Rana Esculenta), I, ibid., 1913, xxxviii, 183. Cotronei, O: Prémière contribution expérimentale à l'étude des rapports des organes dans la croissance et dans la métamorphose des amphibies anoures: L'influence de la nutrition avec la thyréoide des mammifères, Arch. ital. de biol., 1915, lxi, 305.

A REPORT ON TOMATO KETCHUPS

The Department of Agriculture of Pennsylvania has recently issued an interesting bulletin[1] on "Tomato Ketchups." The report is made by Prof. Charles H. LaWall, chemist to the Dairy and Food Bureau, based on analyses which he and Leroy Forman have made. In April and May, 1915, on an order from Food Commissioner Foust of Pennsylvania, 142 samples of tomato ketchup were collected in the state of Pennsylvania. These represented 135 different brands. The samples were examined to determine the total solids so as to give a basis for comparison from the standpoint of actual values expressed in the form of dry material. The total soluble-solids also were determined, these giving an idea as to the cellular tissue contributed by the pulp, spices, etc. The volatile acids, expressed as acetic acid, were found for the purpose of studying this point as a factor in connection with the question of the presence or absence of preservatives. The character of the color of the various products, whether natural or artificial, a search for saccharin and preservatives, with an estimation of each and a tabulation of the results of a microscopic examination, completed the details of the investigation.

The bulletin gives a list of the brands examined, together with the statements of essential facts that appeared on the labels. The data obtained in the investigation are analyzed, and furnish much interesting and valuable information. It is shown that the price of ketchup is almost as variable as the names of the various brands, varying from 4 ounces for ten cents to 7½ ounces for five cents. The average price of each ounce of ketchup examined was one cent. The amount of solid matter in the ketchup shows even greater variation than the price.

One fact to which the bulletin calls particular attention is that not one of the 142 samples contained any artificial color. This is a marked improvement over the results reported by the Connecticut investigation made five years ago, when 12 per cent. of the samples were found to be artificially colored.

Even more remarkable is the fact that while the investigation of 1910 showed that ninety out of every hundred preparations contained chemical preservatives, the Pennsylvania report shows that today 76 per cent. contained no chemical preservatives. The 24 per cent. that contained preservatives had, in every instance, benzoic acid (added in the form of sodium benzoate). In no case was any preservative found in products claimed to be free from it. In discussing the chemical preservative question, the bulletin states that it is probable that the underlying cause of the marked improvement with respect to preservatives is "the fact that manufacturers have found it cheaper in the end to maintain sanitary conditions and effect, through sterilization of the product, the desired end, than to depend on the uncertain and questionable efficacy of a preservative."

The report further declares that the number of manufacturers who use preservatives is likely to be still further decreased if the European war continues. Sodium benzoate, which before the war sold for less than fifty cents a pound, now sells for more than five dollars a pound; in fact, at the present time "the cost of the sodium benzoate in a pint bottle of ketchup . . . is nearly as great as the cost of the tomatoes present." It may be agreed that "the sodium benzoate controversy bids fair to be settled in a most interesting and unexpected manner."

The ketchup manufacturers who in the past have defended the use of sodium benzoate have advanced as one of their stock arguments the claim that where sodium benzoate is not used it is necessary to use large and even injurious amounts of vinegar or acetic acid and spices in order to preserve the ketchup. The Pennsylvania report shows that "so far as the spices are concerned there appears to be no essential difference between the samples containing preservatives and those without." In the matter of acidity the report discloses an interesting state of affairs. The average acidity of all samples containing sodium benzoate was 1.19 per cent. calculated as acetic acid. The average acidity of those that contained no sodium benzoate was 1.43 per cent. In other words, there is less than one-fourth of one per cent. difference in the acidity of the two classes of ketchup. As the Pennsylvania chemists point out, this effectually disposes of the contention that a high acidity is necessary in ketchups that are not chemically preserved.

Not one of the specimens of ketchup examined by the Pennsylvania authorities was found to contain saccharin. The report will do much to strengthen the confidence of the public in a food product whose use is well nigh universal.

1. Tomato Ketchups, Bull. 272, Department of Agriculture, Dairy and Food Bureau, Harrisburg, Pa.

THE BEHAVIOR OF THE UTERUS AND OTHER ORGANS TOWARD MORPHIN AND SCOPOLAMIN

In "The Pharmacology of Useful Drugs," by Hatcher and Wilbert, recently reprinted from the columns of THE JOURNAL,[1] occurs the following in reference to the morphin-scopolamin narcosis, abandoned by the majority of operating surgeons because of numerous attendant fatalities, but recently exploited in a sensational manner as a preliminary to childbirth:

> Effective doses are not very dangerous to the mother, in the hands of those who have mastered the difficult technic of its use, but labor is frequently prolonged by its use, and the death rate among the new-born from asphyxia is certainly higher than with other methods in the hands of the general practitioner.

1. Hatcher, R. A., and Wilbert, M. I.: Pharmacology of Useful Drugs, Chicago, 1915, p. 71.

In this case, as has often happened in the history of medicine, the empiric use of drugs has preceded their more exact investigation.

One might naturally expect that in these days of scientific research, the systematic clinical use of a potent if not actually dangerous drug would be based on or at least fortified by some definite and adequate knowledge of the pharmacologic behavior. This cannot be said to have occurred in the exploitation of "twilight sleep." The staunchest supporters of this method of anesthesia admit that morphin and scopolamin, even in small doses, may prolong labor. Thanks to researches in the pharmacologic department of the Yale University School of Medicine, encouraged by the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association, and to other recent studies, more accurate information of the action of morphin and scopolamin on the uterus is now available.[2] Studies of the combined action of these drugs on the central nervous system indicate that this mixture exhibits a true synergism; that is, the narcotic effect of the combination has appeared more profound than the algebraic sum of the effects of the same doses given separately. Smith,[3] working in the pharmacologic laboratory of the University of Michigan, has attempted to determine whether the synergism of morphin and scopolamin is limited only to their narcotic effects, or whether it is more general in scope. For this purpose, experiments were made on intact frogs, and then the effect of the combined drugs on the cardiac functions was studied by perfusion of the isolated frog's heart as well as on warm blooded animals. It appears, according to Smith, that the scopolamins are synergistic with morphin in the frog, and likewise in the mouse, in the latter case probably through their combined action on the respiratory center. A synergistic action is also shown in the case of the frog's heart. The toxicity of the scopolamin-morphin combination in the mouse is increased with the relative increase of the scopolamin content of the combined dose. In such cases the levorotatory scopolamin is more toxic than is the inactive scopolamin or atroscin.

In the case of the direct action of these drugs on the isolated uterus, no synergism or antagonism has been discovered by Barbour.[2] In experiments on animals decerebrated so as to exclude the participation of the central nervous system in the responses to the drugs, Barbour found that neither morphin nor scopolamin causes profound changes in the activity of either the pregnant or nonpregnant uterus. A temporary increase in tone is often seen after the use of both drugs. If the drugs produce a marked depression of the circulation, a relaxation of the uterus may result indirectly. Barbour therefore concludes that the statement that large doses of these narcotics inhibit the activity of the uterus is not applicable to any direct action of morphin or scopolamin on this organ. The delay in labor produced by either or both of these drugs is probably due entirely to their cerebral action. This valuable information points the way to combat in a rational manner some of the difficulties that are liable to arise when the morphin-scopolamin anesthesia is employed in practice.

2. Barbour, H. G., and Copenhaver, N. H.: The Response of the Surviving Uterus to Morphin and Scopolamin, Jour. Pharmacol. and Exper. Therap., 1915, vii, 529. Barbour, H. G.: Morphin and Scopolamin Action upon the Intact Uterus, ibid., p. 547.

3. Smith, M. I.: The Synergism of Morphin and the Scopolamins, Jour. Pharmacol. and Exper. Therap., 1915, vii, 407.

PAWLOW

When it was announced about eleven years ago that the Nobel prize had been awarded to Ivan Petrovitch Pawlow, professor of physiology in the Military Academy of Medicine at Petrograd, in recognition of his work on the physiology of digestion, few knew of his work or why the prize was awarded to him. At that time Pawlow had over twenty-five years of his prolific career in biology behind him, but his "Work of the Digestive Glands" in a summarized form, available for those not versed in Russian, had only just been published. On another page[1] appears an announcement of his death and a short biographic notice.

When Pawlow was called, in 1890, to take charge of the physiologic division of the new institute for experimental medicine in Petrograd, he was afforded an opportunity to fit up a laboratory for investigations in digestion. He had long recognized the great objections to "acute" experiments as a means of studying the digestion processes. His studies had already given him an appreciation of the influence of traumatic and psychic factors in the activities of the digestive organs. He had learned that to approximate the truth about the physiologic activities of the digestive glands by experimentation, the normal relations of the blood and nerve supply to the organs must be left practically undisturbed; the animals used must be operated on and then cared for with all the procedures obtaining in the best surgical clinics, so that observations on them could be made after complete recovery from operations and the removal of all pain and distress. It required a carefully planned institute to meet all these desiderata. The success of Pawlow in setting up such a model institute, and in demonstrating to experimenters in physiology the necessity of fulfilling these requirements, are not the least of his achievements that have benefited science.

He had previously made important contributions to the physiology of the digestive system, having already published his experiments on sham feeding, which showed the importance of stimuli in the buccal cavities and of the vagus nerve for the activation of the gastric

1. General News, THE JOURNAL A. M. A., this issue, p. 585.

glands. But once being provided with his elaborate and well-manned institute and liberal means, he proceeded systematically to execute his brilliantly conceived plans. The results of activities in this laboratory have furnished information not only about the function of each of the parts of the digestive system, but also of their cooperative actions under normal conditions. Apart from the clear comprehension of the digestion processes as such that have been gained, and their immense value to medicine, is the far-reaching importance of his demonstration of the influence of psychic effects on body processes. Of course, this must have been vaguely recognized ever since man was capable of introspection, and experimental demonstrations of it were not wanting before Pawlow's time. He first furnished such demonstrations in pure form, with the greatest possible elimination of factors other than psychic.

His studies were guided by the thought that the adaptation faculty of the organism furnishes the key. It must be said, however, that later investigations have not wholly confirmed the reality of some of these adaptations, especially those of more acute or temporary nature, such as the quality of the saliva depending on the nature of the stimulus, the power of the gastric juice on the kind of food ingested, or the quality of the pancreatic juice being affected by dietary constituents. His ideas about the nervous activation of the pancreas and about the predominating importance of the psychic factor in activating the stomach gland have also suffered some modification. The great service which he has rendered physiology, however, is as much recognized as ever, not alone on account of the facts he has furnished, but also for the initiation of improved methods for gaining knowledge.

Though he himself opened up many questions in the mechanics and chemism of the alimentary tract, his predilections seemed to be for a study of the relations of reflex and psychic processes to body functions. Recently, therefore, his attention and that of his co-workers had been devoted to the phenomena which he named condition reflexes. In a word, this is the associated effect of some stimulus through the organs of special sense, or of some psychic process, on reflexes. As the results of this work have not been drawn up and given to the world in systematized form, they have not yet attracted deserved attention.

The Gospel of Systematic Living.—Our public health departments, medical schools, laboratories of research, our scrutiny of industry, safeguarding of schools, are contributing each in its field to the vast array of fact, on which will ultimately be founded an intelligent structure of systematic living. Beyond any question, however, interpretation of this gospel must finally rest in the medical profession. Interpretation, however, is but the first word in progress. The last word is cooperation of the public, induced by every available activity in education.—Henry B. Favill, *Pennsylvania Med. Jour.*, November, 1915.

Current Comment

ANOTHER INSTANCE OF MILK-BORNE TYPHOID

Attention has frequently been called in THE JOURNAL to the increasing number of reports of milk-borne outbreaks of typhoid fever. This is doubtless due in part to the improvement which has taken place in the character of public water supplies, so that epidemics due to milk infection are brought more clearly to notice now than when they were inconspicuous ripples on the large typhoid wave. Some of these reports carry a significant lesson. One of the most recently reported typhoid outbreaks due to milk is that occurring a few months ago in the town of Gallup, New Mexico.[1] Although the town is not a large one (population, 1910, 2,204), there were eighty-seven cases in the epidemic described. Definite sources of infection were found in the neighborhood of the incriminated dairy. The point we wish to comment on especially is the total lack of any supervision which might have prevented this outbreak. The county health officer is paid only $300 per annum, and this sum seems to be intended for the care of patients at the county hospital. It appears that no one is directly charged with the protection of the water and milk supplies or with any other sanitary duty. In a word, a small sum was appropriated for care of the sick, but not one cent for preventive measures. In this respect Gallup differs no whit from thousands of communities all over the United States. The most elementary facts of hygiene are ignored in the conduct of community affairs, and an appalling amount of preventable disease is not prevented. It is evident that much is still to be accomplished in educating the average citizen to understand and support the demands of preventive medicine.

THE TOXICITY OF ARSENOUS AND ARSENIC ACIDS

Compounds of arsenic are becoming so prominent in therapy, and the types of arsenic products for use in medicine have become so diverse, that any information bearing on their possible mode of action should be welcome. The familiar derivative of arsenic which early found its way into use both as a drug and as a poison is the white arsenous oxid, often itself spoken of simply as arsenic. The salts of arsenous acid are also employed, as in Fowler's solution. Arsenic action is not due to the element, but to the ion of arsenous acid, H_3AsO_3. Organic arsenic compounds in which the metallic atom is attached directly to carbon are only feebly toxic. In the course of time, within the body they seem to yield more or less arsenous acid, a reaction which may suffice to explain any pharmacologic potency possessed by the organic derivatives. It is a somewhat unexpected fact that the closely related arsenic acid H_3AsO_4, its anhydrid and its salts are far less poisonous than is arsenous acid. This statement has now and then been disputed, but only recently

1. Smith, F. C.: Milk-Borne Typhoid Fever: Report of an Outbreak at Gallup, N. M., Pub. Health Rep., Jan. 14, 1916, p. 59.

again substantiated at the pharmacologic institute of the University of Berlin by Joachimoglu.[1] The relatively greater toxicity of arsenous in comparison with arsenic acid could be demonstrated by the proportion of 10:6 in the case of the lethal dose required for intravenous injection in animals. Perfusion experiments with isolated frogs' hearts indicated the arsenous compounds to be 300 times as harmful as those of arsenic acid. In the case of the isolated intestine the contrast, though plain, was not equally striking. This has raised the question why there should be a marked disproportion in the relative toxicity of comparable quantities of arsenic and arsenous acids, depending on the mode in which the test is made. The explanation proposed is as follows: The toxicity of the arsenic acid depends on the reducing power of the tissues with which it comes into contact. By this means it is converted into the very poisonous arsenous compound. Some individual organs or tissues have comparatively slight reducing potency. In the isolated heart, for example, arsenic acid exhibits little toxicity. Throughout the living organism as a whole the reduction of arsenic acid appears to be far more readily accomplished; hence, after intravenous administration of the ordinarily less nocuous derivative, it may become more toxic so promptly by conversion to arsenous acid that the real difference between these related arsenic derivatives is no longer conspicuous. This may also explain some of the uncertainty or confusion which has existed in the past in respect to the comparative action of the two substances.

REPORTED DANGERS FROM ENAMEL WARE

Among the thousand and one causes given for appendicitis, enamel chips from cooking utensils have been included. We are informed[2] that the Superior Council of Hygiene for France recently recommended that legislation be enacted forbidding the use of enamel ware meat choppers in the production of Hamburger steak. It was observed that the enamel on such machines was in many instances almost entirely worn off, and the assumption was made that the small particles of enamel which had become broken off were quite likely to be mixed with the meat. To avoid all possible danger from the consumption of such particles, this action was taken. Langworthy and Lang,[2] of the Office of Home Economics in the U. S. Department of Agriculture, state that there appears to be no case on record in which it is known that any serious injury has been done to the intestinal wall by enamel particles. They call attention, however, to another feature of the now widely used enamel ware articles which is somewhat more likely to be a source of hygienic danger. In coloring the enamels, pigments are sometimes added in the form of one of the metallic oxids. Insoluble materials are also incorporated into the "glass" of which the enamel is essentially composed, in order to render it opaque instead of transparent. For this lead oxid has been used to some extent, particularly because it helps to produce an easily fusible product. Lead enamels, like lead glasses in general, offer a poor resistance to chemicals, and are quite readily attacked even by substances which have no action whatever on ordinary glasses which contain no lead. The government experts now venture the statement that the use of lead compounds for these purposes, and of lead oxid for producing an opaque appearance, fortunately is fast being discontinued in the manufacture of enamel ware and cooking utensils on account of the possible danger of lead poisoning, since the lead in this form is easily dissolved by dilute acids, like vinegar and the acids of fruit juices. With regard to possible dangers from the use of antimony salts to impart desired tints to some kinds of enamel, it is said that preliminary experiments, made in the Department of Home Economics of the University of Illinois, apparently showed that small amounts of antimony compounds were extracted when dilute solutions of organic acids were cooked in some of the cheaper grades of enamel ware. It is now possible, however, to secure enamel ware utensils which, according to the manufacturers' labels, are free from antimony compounds.

1. Joachimoglu, G.: Vergleichende Untersuchungen über die Giftigkeit der Arsenigen Säure und Arsensäure, Biochem. Ztschr., 1915, lxx, 144.

2. Langworthy, C. F., and Lang, H. L.: Enamels of Cooking Utensils, Jour. Home Economics, 1915, vii, 556.

DID YOU BITE?

Do you want five dollars? If so and if you are sufficiently prominent, the "patent medicine" interests will gladly send it to you. Possibly it will be for a mail-order diagnosis and treatment. For example: You may receive a letter from a lady in some outlying country town who says that she has heard of your skill in treating diseases peculiar to women. She has a daughter who is suffering from dysmenorrhea, menorrhagia or what not, and she is afraid that the girl will "go into consumption." Enclosed please find a money order for five dollars. Will you not kindly send her a prescription (preferably in liquid form) for the purpose of helping her daughter's condition? Of course, diagnosing disease in and prescribing for patients one has never seen will hardly qualify as the scientific practice of medicine. But the "patent medicine" interests are apparently willing to part with all the five-dollar bills that are necessary in order to obtain these long-distance prescriptions and diagnoses. Possibly, however, a variant is tried. You may be called up by 'phone and a man will tell you that his wife is suffering from some ailment peculiar to her sex and desires to be operated on. What will you charge for the operation? You may mildly suggest that this question cannot intelligently be answered until you have seen the lady and gone into the case thoroughly. Then the gentleman at the other end of the wire will ask you whether it is not a fact that you charge according to the ability of the patient to pay rather than according to the seriousness of the operation. Or possibly the scheme may have yet another angle. If you are a rather well-known internist or a gynecologist of note an attempt may be made to get you to write a prescription containing, as at least one of the ingredients, viburnum prunifolium — a preparation not unknown to the

"patent medicine" world. Many other changes are being rung, for this is a time of stress with "patent medicine" fakers, and in order to defend their nefarious trade they are seeking to manufacture evidence of *argumentum ad hominem* type. Such evidence may be considered valuable in prosecuting libel suits against the medical profession.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Periodicals for Library.—The library committee of the Jefferson County Medical Association, Birmingham, has subscribed for thirty-one medical periodicals published in the United States and abroad.

Colored Physicians Organize.—Colored physicians of Birmingham have organized a medical union for race uplift and have elected the following officers: president, Dr. Ulysses G. Mason; vice president, Dr. Pierce S. Moten; secretary, Dr. M. H. Freeman, Jr., and treasurer, Dr. C. O. Booth.

Personal.—Dr. Cecil D. Gaston has been appointed city physician of Birmingham, succeeding Dr. Charles Whelan, resigned after seventeen years' service. Dr. Gaston has also been appointed a member of the staff of the Hillman Hospital.——Dr. Benjamin L. Wyman, Birmingham, has been appointed a member of the state board of health to succeed Dr. Russell M. Cunningham, Birmingham, resigned.——Dr. W. Earle Drennen, Birmingham, has resumed practice after two terms of service in war hospitals in France.——Dr. Edwin P. Solomon has been appointed chief surgeon of the Alabama Great Southern Railroad at Birmingham, succeeding Dr. W. Earle Drennen, resigned.

DISTRICT OF COLUMBIA

Admissions from District to Government Hospital for the Insane.—Voluntary admissions of residents of the District of Columbia into the Government Hospital for the Insane are proposed in a bill recently introduced into Congress for that purpose. Application for admission must be in writing, and the mental condition of the applicant must, in the opinion of the superintendent of the hospital, be such as to render him competent to make such an application. No person after having been admitted shall be detained in the hospital for more than three days after having given notice in writing to the superintendent of his desire to leave the institution.

Common Use of Drinking Cups Regulated.—Regulations governing the common use of drinking cups, towels and similar articles went into effect on February 1. The use by the public generally of any unwashed cup, mug, glass or similar article, or of any towel, is forbidden. Cups, mugs, glasses, forks, spoons, towels and similar articles used in hotels, restaurants, lunch rooms, stores, shops, schools, office buildings and places of amusement must be thoroughly cleaned after each use, whether for use by the public or only by patrons and employees. Hotels, restaurants, lunch rooms, bar rooms, soda water fountains, hospitals and other similar places must be provided with facilities not only for cleansing but also for sterilizing cups, mugs, drinking glasses, forks, spoons, finger bowls and all bottles, jars, cans and other receptacles to be refilled for sale; and after July 1, 1916, such articles must be not only cleansed but also sterilized after each use.

ILLINOIS

Immunization Against Diphtheria.—Beginning February 20, the state board of health announces that it will furnish free to all physicians outfits for making the Schick tests for ascertaining persons who are immune and those who are susceptible to diphtheria.

Chicago

The University Club Poisoning.—At the banquet given to Archbishop Mundelein at the University Club, February 10, a number of guests were taken suddenly ill after the soup course had been served. It was at first announced that the illness was due to ptomain poisoning, but chemical analysis of the soup disclosed the presence of arsenic. Recent developments indicate that an assistant chef, evidently of anarchistic tendency, was responsible. Happily no serious consequences followed.

Chicago Physicians Leave for War Service.—Dr. and Mrs. Harry M. Richter, Dr. Jacob R. Buchbinder, Dr. Joseph Loewe and two nurses making up the first hospital unit to go from Chicago to Germany left for the war front, February 14. Dr. Richter will relieve Dr. John Fischer of the German Hospital, New York, who has been in charge of a 500 bed hospital at Oppeln, near the Russian frontier.

INDIANA

Health Survey.—A health survey of Indianapolis schools will be started under the direction of the board of health, March 1. Already there have been over 300 anemic children referred to the board of health.

Doctors Win Damage Suit.—The appellate court, Indianapolis, decided in favor of Dr. John Kolmer and Dr. Albert W. Miller in the case of suit for damages brought by Fred W. Adloy on account of an alleged failure properly to set a fracture of the arm.

Baby Conferences.—Health conferences for infants have been held during the past two weeks at Butler, where over 200 infants were examined, and also at Auburn, where also a careful examination was made of all infants submitted. The health conference is run by Dr. Florence Brown Sherbon, Colfax, Iowa, of the federal children's bureau.

State Sanitary and Water Supply Association Meets.—The Indiana Sanitary and State Water Supply Association held a joint meeting with the Iowa Engineering Society in Indianapolis, February 3, at which the keynote of the addresses was "A Century of Progress in Sanitary Engineering." In the absence of Surgeon-General Gorgas, U. S. Army, Dr. Frank B. Wynn, Indianapolis, of the Indiana Centennial Commission, spoke commending the association for the introduction of the centennial idea into their meeting; Prof. Charles W. Stiles, U. S. P. H. S., spoke at the afternoon session on the health of the southern states, and in the evening Dr. Cressy L. Wilbur, chief of the Division of Vital Statistics of the New York State Health Department, made a strong plea for more complete and more rigidly enforced vital statistics laws in the United States.

IOWA

Laboratory Opened.—The clinical laboratory of the Waterloo Medical Society was formally opened with a reception, January 21; Dr. Guthrie McConnell is in charge of the laboratory.

Honor Medical Pioneers.—In honor of Drs. Joseph C. Krejci, Grant J. Ross, John M. Knott and John N. Warren, who have been in active practice for forty-five years or more, physicians of Sioux City who are affiliated with the Woodbury County Medical Society gave a banquet, February 3, at which Dr. William Jepson acted as toastmaster. A silver vase suitably inscribed was presented to each of the guests of honor, who responded by giving brief reminiscences of their experiences in Iowa in the early days.

Personal.—Mr. Walter F. Clowes, New York, has been elected secretary of the Iowa Association for the Prevention of Tuberculosis.——Dr. Campbell P. Howard, Iowa City, has returned after service of a year with the expeditionary forces in France. Dr. Howard was second in command of a hospital at Boulogne which accommodated 6,700 patients.——Dr. Will D. Runyon, assistant superintendent of the State Sanatorium for Tuberculosis, Oakdale, has been appointed resident physician in the National Printers' Home, Colorado Springs, Colo.——Dr. James W. Beck, Conrad, fell on a slippery pavement, January 31, fracturing his right humerus near the shoulder.——Dr. Ralph W. Mendelson, Des Moines, has returned after nine months in Serbia as a member of the American Red Cross Sanitary Commission.——Dr. Adelbert B. Maxwell has been elected secretary of the board of managers of the new Mary Greely Memorial Hospital, Ames.——Dr. George E. Decker, Davenport, has been elected a member of the board of directors of the Iowa National Bank.——Dr. Henry Matthey, Davenport, who has been serving abroad with the German Red Cross, will return home this month.——Dr. William A. Guild, Des Moines, has returned after nine months' service in the war zone.——Dr. Maurice C.

Hennessy has been elected president; Dr. John A. Sanders, vice president, and Dr. James M. Barstow, secretary of the surgical staff of Mercy Hospital, Council Bluffs.

LOUISIANA

Serum Fund Set Aside.—For the purpose of supplying serums of different kinds to the people of the state, the state board of health, at its December meeting, added $50,000 to the budget with which to establish a biologic laboratory.

Dowling Asks Enforcement of Laws.—Dr. Oscar Dowling, president of the state board of health, has addressed a letter to all the district judges in the state, asking them to charge their grand juries on sanitary matters and urge stricter enforcement of sanitary laws.

The Lake Charles Typhoid Condition.—The typhoid condition at Lake Charles, Calcasieu Parish, is greatly improved. From January 15 to 25, no new cases were reported, but in the following week there were six new cases. More than 2,000 houses are reported to have been visited by inspectors, who have mailed clean-up orders to numbers of business men and property owners.

Hay Fever Activities.—Late in December, the Louisiana State Hay Fever Prevention Association was organized in affiliation with the national association. Illustrated lectures on the subject of hay fever are being given before the New Orleans Academy of Science, Tulane University, Round Table Club, Loyola University, etc. Pamphlets containing illustrations and descriptions of the more common hay fever weeds are being prepared, and will be distributed free to the public schools of the city and state. On the recommendation of the association, the commission council of New Orleans has passed an antiweed ordinance, which imposes a penalty, without further notice, for having grass or weeds 2 feet high in private lots and 1 foot high on sidewalks and roads controlled by a franchise. It is hoped that the enforcement of this law will eventually eliminate hay fever from New Orleans.

MARYLAND

Would End Curb Market.—At the request of the city comptroller, Dr. John D. Blake, health commissioner of Baltimore, inspected the "curb market" on Lombard Street, and in his report to the comptroller states that in his opinion the curb market is a nuisance, as well as a menace and should not be tolerated.

Meetings.—The Physicians' Civic Club of Baltimore at its last meeting, February 11, was addressed by Dr. F. Park Lewis, Buffalo, who gave a history of the revolution in Buffalo which took that city out of the column of boss-controlled communities. As president of the Commission Government Association he speaks with knowledge and authority.——On invitation of the Sisters of Mercy and the medical and surgical staffs, the February meeting of the Baltimore County Medical Association was held at Mercy Hospital on February 16. A program arranged by the medical and surgical staffs of the hospital followed a luncheon at the hospital.

Consolidation of Schools.—The consolidation of the Maryland Industrial School for Girls with the Maryland State Training School for Girls, under the name of the Maryland Industrial Training School for Girls, is suggested in the report of the Maryland State Training School to the governor. The charter of the school was granted by the legislature of 1914 and $1,000 was appropriated for carrying on the work and investigation preliminary to the establishment of the institution. An expert investigator employed by the directors has shown the dire needs of an industrial training school in Maryland. The facilities in the Maryland Industrial School for Girls are said to be meager, its buildings are old, and its system of administration is out of date because its funds are entirely inadequate. To meet the problem it is suggested that the two schools be merged and a modern and adequate plant be erected and operated as a state institution.

MISSOURI

Bulletin on Malaria.—In The Journal for February 5, p. 436, is mentioned the issuing of a bulletin on the "Prevention of Malaria," by the University of Missouri, Department of Preventive Medicine. The number of this bulletin is incorrectly stated as No. 28; this should be No. 10.

NEBRASKA

State Officials Transferred.—Dr. Daniel G. Griffiths, pathologist to the Lincoln Hospital for the Insane, has been appointed superintendent of the State Institute for Feebleminded Youths, Beatrice, succeeding Dr. William S. Fast, who has been transferred as superintendent to the Ingleside State Hospital for the Insane, Hastings.

Scarlet Fever.—On account of the considerable epidemic of scarlet fever in Omaha, all social center meetings or other meetings in the public schools outside of regular school sessions were prohibited for a period of two weeks from February 2. Children were forbidden to attend the moving picture theaters. Some criticism has been made of the health department, which has discontinued giving out the number of cases reported.

NEW JERSEY

Personal.—Dr. Daniel L. McCormick has been reappointed chairman of the sanitation committee; Dr. C. Fred Webner, chairman of the hospital and training school committee; Dr. Theodor Teimer of the tuberculosis committee; and Dr. Elmer Wherry, chairman of the child hygiene committee of Newark.——Dr. Robert E. Sievers, Bordentown, has been appointed local surgeon for the Pennsylvania System.

New Buildings for Rockefeller Institute.—The Rockefeller Institute for Medical Research for New York and New Jersey has planned to erect buildings on newly acquired property in South Brunswick township, near Plainsboro. The following buildings have been contracted for: laboratories at a cost of $90,615; power house and tunnels, $102,556; operating building, $27,838. The work is to be finished by September 1.

NEW YORK

Bill for Abolition of Health Officer of the Port.—A bill has been introduced into the legislature providing for the transfer and for the abolition of the position of health officer of the Port of New York, and Governor Whitman has sent a special message advocating its passage.

Progress in Cold Storage Inspection.—Among the activities of the state department of health is that of issuing licenses to cold storage and refrigerating warehouses and of making regular inspection of the various warehouses. The number of warehouses inspected during the fiscal year ending Sept. 30, 1914, was 6,196, and during the last fiscal year, 9,174. During 1914, ninety-five actions were instituted and $2,025 in fines imposed; during the past fiscal year 256 actions were instituted and $4,460 in fines imposed.

Personal.—Prof. C. E. A. Winslow has resigned his position as director of public health education and editor of the *Health News,* in the state department of health, to accept the Anna M. R. Lauder professorship in public health at Yale University.——Dr. Matthias Nicoll, Jr., has been appointed director of the division of public health education in the state department of health, and in addition will have supervision of epidemiologic investigations in the southern and eastern parts of the state.——Dr. Edmund C. Body, Rochester, who has been in Serbia since August last, is now head of the military hospital in Nish.

Health Insurance.—A bill has been introduced into the state legislature providing for compulsory health insurance for workers of the state, which aims to supplement the present Workingmen's Compensation Law by giving medical attention and cash benefit to workers disabled by sickness as well as accident. The plan provides that 40 per cent. of the cost of health insurance is to be borne by the workmen themselves, 20 per cent. by the state, and 40 per cent. by the employers. The bill has been drafted by the American Association for Labor Legislation and will cover any case of sickness or accident not within the scope of present legislation. It applies to manual laborers and all others earning less than $100 per month.

New York City

Personal.—Dr. Parker Syms has been appointed visiting surgeon to the City Hospital of New York.——Dr. J. Ramsey Hunt has been appointed a manager of the Craig Colony for Epileptics for a term to expire the first Tuesday in February, 1923.——Dr. John A. Ferguson, Brooklyn, is reported to be seriously ill with pleuropneumonia.——Dr. H. Holbrook Curtis was presented with a silver loving cup by the National Institute of Social Sciences, of which he was one of the founders, at the annual dinner, January 14.

Semicentennial of Health Department.—The New York Health Department proposes to celebrate the semicentennial of its organization by a commemoration dinner on March 8, 1916. The guests will include the mayor, state health com-

missioner, Dr. Hermann M. Biggs, Surg.-Gen. William C. Gorgas, Surg.-Gen. Rupert Blue, Prof. William H. Welch, Dr. Peter Bryce, Dr. Stephen Smith and Prof. Charles F. Chandler. All those engaged either directly or indirectly in promoting public health, physicians, nurses and social service workers are invited. Those intending to participate are requested to notify Mr. George Roberts, 139 Centre Street, New York.

Physicians' Suit to Dissolve Partnership.—Dr. Silas P. Beebe writes that the news item last week, which by mistake appeared under Maryland News, regarding a suit by Dr. Beebe and Dr. Quimby against Dr. Beveridge, "asking that the partnership which they had formed with Dr. Beveridge for the manufacture and sale of 'autolysin' be dissolved and that a receiver be appointed to take charge of the concern" is incorrect. Dr. Beebe writes: "The New York newspapers did not contain such statements as are here quoted. Dr. Quimby and I have never formed a partnership with Dr. Beveridge 'for the manufacture and sale of Autolysin' and the New York newspapers did not make any such statement." Relating to the same subject the New York *Herald* of January 28, states: "The complaint asserts that May 6, 1915, the three physicians entered into an agreement as co-partners for the practice of medicine, particularly in the treatment of malignant growths."

New York City Leads in Birth Registration.—In a recent number of the *Public Health Reports* attention is called to the importance of completeness in birth registration and it is shown that in New York City the average registration is 98 per cent. It is interesting in this connection to note the methods by which this approximate completeness has been secured. The department of health has frequently called the attention of physicians to the importance of birth registration and has instituted several hundred prosecutions where violations of the registration requirements were found, but in addition it is the custom in the registrar's office to check all registered deaths of infants under one year with the birth records to ascertain whether the children's births have been previously recorded. During the year 1915, there were less than twenty instances in which the births of such infants had not been previously reported and these were mostly children who had lived for but a few minutes, hours, or days. Another method of ascertaining the completeness of the birth registrations is the practice of the health department nurses of taking a census of all the babies in the houses visited by them in their regular work and also of all babies coming to the milk stations and of checking these records against the birth registration records.

OHIO

Councilman in Cleveland.—Prof. William T. Councilman of Harvard University lectured before the Experimental Medicine Section of the Cleveland Academy of Medicine on February 11 on the subject of glioma, illustrated with lantern slides.

Personal.—Dr. Gaius E. Harmon has been appointed assistant registrar of the Bureau of Vital Statistics of the Cleveland City Division of Health.——Dr. Eugene F. McCampbell, executive secretary of the state board of health, Columbus, was elected dean of the College of Medicine of the Ohio State University, February 8, succeeding Dr. William J. Means, resigned.——Dr. Estell H. Rorick, Fayette, has been appointed a member of the state board of administration, succeeding Dr. Arthur F. Shepherd, Columbus, term expired.——Dr. Jonathan B. Vail, Lima, with his wife and daughter, left on February 2 to spend the remainder of the winter in Honolulu.——Dr. Samuel A. Zwick of the staff of the Massillon State Hospital has resigned and will practice in Akron.

Changes in Health Staff.—A change in the political administration of Cleveland has resulted in the following changes in the City Hospital and Division of Public Health: Mr. Howell Wright, superintendent, and Dr. Thomas R. K. Gruber, assistant superintendent, of the City Hospital, have resigned and in their places have been appointed Dr. Charles H. MacFarland, Jr., as superintendent, and Dr. L. R. Brigman, former resident physician, as assistant superintendent. Dr. Gruber has accepted the post of assistant superintendent of Harper Hospital, Detroit.——Dr. Clyde E. Ford, for six years commissioner of health, has resigned, and Dr. Robert H. Bishop, Jr., former chief of the bureau of tuberculosis, has been appointed commissioner of health.——Dr. Moses J. Miller, diagnostician to the bureau of laboratories, health department, has been granted leave of absence because of illness.

PENNSYLVANIA

Personal.—Dr. Charles Roland has been been appointed health officer at Reading, succeeding Dr. Charles P. Henry, resigned.——Dr. Bert W. Caldwell has returned after seven months' field hospital work in Serbia, and has accepted the superintendency of the Allegheny Hospital.——Dr. Alfred W. Grover, Kingston, suffered severe cuts, January 30, when he drove his motor car through the cross gates of the Lackawanna at a grade crossing at Edwardsville to save himself from being run down by a locomotive.——Dr. William L. MacDougall, Scranton, who has been ill ever since last summer, is reported to be convalescent and ready to resume practice.

Philadelphia

Personal.—Dr. Henry H. Doan, as the result of a civil service examination, has been appointed chief of the division of child hygiene, bureau of health of Philadelphia.——Dr. George M. Coates has been appointed assistant editor in charge of the department of diseases of the nose and throat in *Progressive Medicine*.——Dr. Charles F. Mitchell has sailed for Paris to take part in the work of the University of Pennsylvania surgical unit in the American Ambulance.——Dr. Alvin Strouse left for Vancouver, February 7, whence he will sail to the Orient to make a general survey and study of tropical diseases, snake bites and poisons in India for the Rockefeller Institute in New York. His associate in the work will be Dr. Victor C. Heiser.——Dr. Francis T. Stewart was recently appointed house surgeon to the Pennsylvania Hospital.——Dr. S. W. Newmayer has been named assistant supervisor of medical inspection in schools, of which Dr. Walter S. Cornell is the chief. Dr. Newmayer succeeds Dr. Walter W. Roach, who will be medical inspector in the bureau of health.

RHODE ISLAND

Intern Year Required.—A report from the state board of health states that after Jan. 1, 1917, no physician will be allowed to register in that state unless he has served one year in a hospital having at least fifty beds, and has attended at least ten maternity cases.

Bottled Spring Water.—The January *Bulletin of the State Board of Health* contains the report of the Division of Chemistry and Sanitary Engineering. Concerning the use of bottled spring waters in place of public or private water supplies, a custom which is growing, particularly in the larger cities, the chemists say that these water supplies, unlike public water supplies, which are protected from contamination after the water enters the pipes, are not only subject to any pollution which may exist at the source, but are also subject to many chances for dangerous contamination through uncleanly handling in bottling and delivery. For the protection of the public, therefore, it is said that the spring water business should be under the supervision of the state sanitary authorities. In Rhode Island it has been policy of the board to make inspections of the sources of such water supplies, to examine with care the methods of bottling and distribution, and to advise owners, bottlers and distributors with regard to the precautions necessary to secure the safety of such waters.

TENNESSEE

Hospital News.—The Memorial Hospital, Johnson City, now occupies the home of Colonel Lyle.——A meeting of the Business Men's Club of Covington was held, January 6, to discuss the ways and means of securing a hospital for Covington. It is estimated that the capital stock of the corporation would need to be about $15,000.

Baby Clinic in Chattanooga.—The first free baby clinic in Chattanooga, established as the result of the interest manifested by the public in the Better Babies Department of the Chattanooga District Fair, was opened, January 15, at the home of Drs. James H. Atlee and James A. Smith under the patronage of the Cosmos and other women's clubs. The clinic is open from 1 to 2 p. m. daily.

State Tuberculosis Commission.—A meeting of the state commission to locate and build a state tuberculosis hospital was called by Governor Rye at Nashville, February 1. The commission, which has been authorized to spend $50,000 for a state sanatorium for tuberculosis, consists of Drs. Jere L. Crook, Jackson, and Olin West, Nashville; W. P. Shipp, Clarksville, and J. R. Richardson, Murfreesboro.

Personal.—Dr. John A. Witherspoon has been elected president, and Dr. Charles W. Brown, vice president of the Central

Health Committee of Nashville.——Dr. Horace K. Alexander has been appointed quarantine officer and medical inspector of Nashville.——Dr. Blackburn G. Tucker, Nashville, has been elected health officer of Davidson County.——Dr. Rudolph B. Watson, formerly of the medical staff of the Panama Canal Zone, has been elected chief health officer for the town of North Chattanooga.

WISCONSIN

Eye and Ear Men Elect.—At the annual meeting of the Milwaukee Oto-Ophthalmic Society, January 19, the following officers were elected: president, Dr. Gustavus I. Hogue; vice president, Dr. John S. Barnes, and secretary-treasurer, Dr. Claude S. Beebe.

Epidemic Intestinal Trouble.—On January 29, it was reported that there had been more than 1,000 cases of intestinal trouble in Milwaukee, which some physicians thought was a sequel of grip, while others were inclined to attribute it to the water supply. Its cause was undetermined.

Sanatorium News.—Willow Brook, the new tuberculosis sanatorium for Kenosha, erected at a cost of $50,000, is completed and will be opened to receive patients this month.—— The Marathon County Board has decided to locate the antituberculosis sanatorium on the eastern part of the county farm in the town of Stettin.

Personal.—Dr. Wallace P. Smith, physician to the State Prison, Waupun, who recently was attacked by a convict with a bottle, sustaining severe lacerations, is a patient in St. Agnes' Hospital, Milwaukee, suffering from septicemia. ——Dr. Bartholomew Bantley, Milwaukee, has been appointed first assistant surgeon in the Battle Mountain Sanatorium, Hot Springs, S. D.

CANADA

New Sanatorium.—A private sanatorium for the treatment of tuberculosis cases has been established in Gravenhurst, Ont., by Dr. Charles D. Parfitt. It is to be known as The Calydor Sanatorium.

University News.—Dr. Joseph Guerard, professor of pathology, Laval University, Quebec, has been appointed professor of general therapeutics. Dr. Odilon Leclerc, Quebec, has been appointed professor of physiotherapy and physiology, and also joint professor in the medical clinic of the Hotel Dieu Hospital.

Christian Science Death.—A coroner's jury in British Columbia, empaneled to inquire into the cause of the death of a woman in Vancouver, recommends that the attention of the government of the province be called to the charge that there are certain persons in Vancouver practicing Christian Science for gain.

Montreal Doctors for Overseas Service.—Drs. Emerson C. Smith, Donald E. Cleveland of the Royal Victoria Hospital, Montreal, and Dr. Gerald T. Griffith of the Western Hospital have been granted temporary commissions in the Royal Army Medical Corps and will shortly go overseas to join one of the British hospital units in France.

Instruction for Medical Officers.—A school of instruction for medical officers was commenced in Toronto, February 14. Hart Hall at the University of Toronto is used for drill purposes, and rooms in the medical building are used for lectures. The course is so arranged that physicians in practice will be able to attend. Eighty fifth-year medical students are taking the course.

Object to Discipline.—On behalf of two or three medical practitioners who had been before the courts and who had been subsequently disciplined by the Ontario Medical Council, objection was taken before the Ontario Medical Commission last week to the disciplinary powers exercised by the council. As a result of the evidence taken there may be some amendment to the present act in the direction indicated.

Personal.—Lieut.-Col. Graham Chambers, who has been with the University of Toronto Base Hospital at Saloniki, has been transferred to the Ontario Government Hospital, Orpington, England.——Sir George M. Foster, Vancouver, B. C., Minister of Trade and Commerce for Canada, was the guest of honor at the thirty-fourth annual banquet of the Undergraduate Society of Medicine of McGill University, held the evening of February 5. He stated that the entire medical service of the Allies was on a high plane. The hospital and medical fraternity were doing splendid work, and the organization and resources were excellent. Dr. Frederick A. L. Lockhart, Montreal, in proposing "The Men on Active Service," said that Queen's had sent to the front 558 men; McGill, 1,213, and Toronto University, 1,847.——Major Perry G. Goldsmith, Toronto, who was with the first Canadian Overseas Contingent, is on his way home for a short furlough.——Maj. Charles A. Young, Ottawa, Ont., has been appointed assistant director of medical services, under Col. John W. Shillington, at Bramshott, England.——Maj. Samuel H. McCoy, Toronto, has been appointed medical registrar at the Record Office, London, England.——Col. George S. Rennie, Hamilton, Ont., has been appointed assistant director of medical services and officer commanding R. A. M. C., at Dover, England.——Dr. Ronald H. MacDonald, Saskatoon, Sask., has been invalided home after an attack of typhoid fever.——Capt. Oscar A. Cannon, Stratford, Ont., home on three months' leave of absence, has been transferred to London, Ont., as deputy assistant director medical services, No. 1 Division.——Dr. Dugald Stewart, M.P., Bridgewater, N. S., has been gazetted major the C. A. M. C. He will conduct examinations of recruits at various places in the Sixth Division.——Capt. William Hale, Jr., Utica, N. Y., has joined the C. A. M. C. Captain Hale graduated from Queen's University in 1910.——The Cross of the Legion of Honor has been awarded to Lieut. C. G. Wright, Toronto, who was medical officer to Scott's Antarctic Expedition.——Dr. Armand J. M. Arthur Rousseau, Quebec, has been appointed medical superintendent of the new tuberculosis hospital temporarily established there.—— Dr. Michael Clark, member of Parliament for Red Deer, sustained severe burns of the hands at the burning of the Parliament Building at Ottawa, February 3.——Dr. J. L. Gibson, Calgary, Alta., has been made captain of a company raised in Calgary, and which expects to leave for overseas duty on April 1. Dr. Gibson formerly practiced in Houghton and Republic, Mich.

GENERAL

National Safety Council.—Under the auspices of twenty-eight bureaus of the federal government, an exhibit dealing with safety and other matters will be held in Washington, D. C., from February 1 to 26.——The fifth annual Safety Congress will be held at Detroit, October 16 to 21.

Preparations for Baby Week.—A bulletin of the children's bureau announces that 1,727 communities are considering preparations for baby week. Much interest is manifested throughout the country and in a number of the larger cities definite plans are already under way. The bureau emphasizes the opportunity the interest aroused in baby week affords for extending permanent infant welfare work.

Relief of Mississippi Flood Sufferers.—Tents, provisions and supplies pertaining to the medical and quartermaster's departments of the Army may be lent, issued or used for the temporary relief of destitute persons in the districts overflowed by the recent floods in the Mississippi River and its tributaries if congress enacts a joint resolution recently introduced in the house of representatives and favorably reported by the committee on military affairs.

New Officers for Canal Zone Society.—At the annual meeting of the Medical Association of the Isthmian Canal Zone held in Ancon, January 22, the following officers were elected: president, Dr. Lewis B. Bates; vice president, Dr. Herbert C. Clark; secretary-treasurer, Dr. Frazer F. Monroe, and executive committee, Dr. Roland C. Connor, Lt.-Col. Henry D. Snyder, M. C., U. S. Army, and Dr. Walter B. Pierce, all of Ancon.

A National Department of Health; the Owen Bill Again.—A bill to establish a department of health, and for other purposes, has been introduced into the United States senate by Senator Owen, similar in its terms to other bills introduced in recent years. It has been referred to the Committee on Public Health and National Quarantine. The introduction of this bill has, it is said, given the National League for Medical Freedom a pretext on which to found an appeal for funds.

Deaths Abroad.—Herbert Williams, M.D., London University, 1890; aged 53; for twenty-three years assistant medical officer of health and medical officer of health for the Board of London; died in London, January 16, from complications which supervened after an operation for appendicitis.—— H. Klaatsch, professor of anthropology at the University of Breslau, aged 53, and author of important works on prehistoric man and on anatomy.——J. P. W. Wallichs of Altona, long editor of the *Aerztliche Vereinsblatt*, aged 86.——P. L. Friedrich, professor of surgery at the University of Königsberg, aged 51.

Jacobi Fellowship.—The Women's Medical Association of New York City announces the Mary Putnam Jacobi fellow-

ship of $800, available for postgraduate study and open to any woman physician for work in any of the medical sciences. The fellowship will be awarded not by competitive examination, but on proof of success in the chosen line of work. Applications for the year 1916-1917 must be in the hands of the committee of awards, whose chairman is Dr. Annie S. Daniel, 20 Gramercy Park, New York, by April 1; must be accompanied by testimonials as to health, letters as to ability, a detailed account of qualifications, a statement of the work proposed to be done while holding the fellowship and examples of the work of any of the applicants. Two reports will be expected from the holder of the fellowship, one to be presented about the middle of the work and a detailed report for publication on its completion.

Wine of Cardui Suits.—As most of our readers know, the Chattanooga Medicine Company, manufacturers of "Wine of Cardui," brought four suits for libel—two against the American Medical Association and the editor of THE JOURNAL; one against Dr. Oscar Dowling, president of the Louisiana State Board of Health; and one against *Harper's Weekly*. The suit against Dr. Dowling was called at Chattanooga, where the preparation is made, on February 3, and on February 14 illness of two of the jurors caused an indefinite postponement, which means a new trial. The suits against the American Medical Association and the editor are now scheduled for March 21 in Chicago.

Bequests and Donations.—The following bequests and donations have recently been announced:

Presbyterian Hospital, New York City, $5,000, by the will of Archibald M. Stewart

Northern Dispensary, New York City, $5,000, by the will of Lambert Suydam.

Methodist Episcopal Hospital and Norwegian Deaconess' Home and Hospital, Brooklyn, each $5,000, by the will of William Todd.

Biltmore, N. C., Hospital, $5,000 for the maternity ward; Mission Hospital, Asheville, N. C., $2,500 for the colored ward, by the will of Mrs. F. M. Wright.

Hospital for Negroes, Huntsville, Ala., $5,000 donation by Miss Mary Virginia McCormick.

Anna Jaques Hospital, Newburyport, Mass., $5,000, the income to be used to maintain a free bed for Amesbury patients by the will of Dr. John A. Douglass, Amesbury.

Stony Wold Sanatorium, Lake Kushaqua, N. Y., one fifth interest in the residuary estate of Anna R. Morrison, amounting to about $150,000.

Animal Experimentation Bill Introduced in the House.—Investigation by the secretary of agriculture into experimentation on living animals is proposed in a bill introduced into congress, Feb. 8, 1916, by Representative Kahn of California. The bill was referred to the committee on agriculture. The bill provides for an investigation to cover the extent and conditions of experimentation on living animals in laboratories for research and in hospitals and other establishments, and in the commercial production of serums and vaccines for sale, for the purpose of ascertaining whether such experiments and practices are attended with unnecessary and preventable suffering arising from useless repetitions of experiments, or of proper skill in the experimenters, nonuse of anesthetics and the absence of proper care of the animals on which such experiments or operations are conducted. It is proposed to appropriate $20,000 to cover the expenses of the investigation, and the results are to be reported to congress.

Child Labor Conference.—The twelfth annual conference of the National Child Labor Committee, held at Asheville, N. C., was an important and enthusiastic meeting. According to reports of the meeting, the South, contrary to the impression that is said to be abroad, is not in favor of the employment of small children in the industries, which in that section means chiefly the cotton mill industry. Attention is called to the fact that the vote in the House of Representatives of the United States Congress showed that eight Southern states were solidly for the Keating-Owen child labor bill, four had a majority for the bill, and only two, the Carolinas, were solidly against it. Speakers from the South at the conference repeatedly showed that they did not believe in the employment of child labor, and that opposition to child labor legislation came from special interests. The National Child Labor Committee, after the conference, gives it as the opinion of the committee that sentiment in the South is strong for progressive legislation of this character, and that the employment of small children is unnecessary for the success of Southern industries. Delegates were present from twenty states, and 1,500 people attended the meetings.

Rural Sanitation and the United States Public Health Service.—For investigating and encouraging the adoption of approved methods of rural sanitation, and especially for devising and demonstrating effective measures against pellagra and typhoid fever, instructing farmers and others in the prevention and suppression of these diseases, conducting the necessary investigations and surveys and otherwise taking steps in cooperation with state and local authorities to prevent and eradicate these diseases in rural districts in the United States, for use by the United States Public Health Service, it is proposed to appropriate the sum of $100,000, according to a bill introduced into the house of representatives, February 5. An appropriation of $75,000 for special studies of, and demonstration work in, rural sanitation was requested by the secretary of the treasury in a letter addressed to the speaker of the house of representatives, February 8, for the use of the United States Public Health Service during the fiscal year ending June 30, 1917. An item of $50,000 for the same purpose, for use during the present fiscal year, is included in the urgent efficiency bill now being considered in conference. The present request is based on a report of the surgeon-general of the Public Health Service that the results of field investigations conducted by the Public Health Service since July 1, 1914, indicate the urgent need of the extension of these activities in country districts in order that sickness may be prevented, lives saved and local health organization advanced. More than 52 per cent. of the total population of the country is rural and the advancement of sanitation among this class has not kept pace with the advance in urban communities.

Death of Pawlow.—Prof. Ivan P. Pawlow was born Sept. 14, 1849, and was graduated in 1879 from the Military-Medical Academy at Petrograd. After a few years in Botkin's service and laboratory for internal medicine, he was appointed privat-docent for physiology at the Military-Medical Academy in 1884. The authorities then sent him abroad for two years of study in experimental medicine. In Germany he worked under Heidenhain and Ludwig. In 1890 he was called to Tomsk as professor of pharmacology, but the same post was given him at the Military-Medical Academy, and the next year the newly completed Institute for Experimental Medicine was placed in his charge. In 1895 he was transferred to the chair of physiology, and in 1897 became regular professor, keeping throughout his charge of the Institute for Experimental Medicine, the scene of his pioneer work. His first research was devoted to the physiology of the circulation, but his work with "sham feeding" dates from before 1890. His principal work on the physiology of the digestion was published in 1897. The occasion of the twenty-fifth anniversary of his entering on his teaching career was celebrated in 1904 by the collection of an endowment fund for awarding a prize for research on physiology. He was awarded the Nobel prize in medicine in 1904, and his recapitulatory address on receiving the prize was published in full in the *Nordisches medizinisches Archiv*, 1905, xxxvii. His name is written variously as Pavlov, Pavloff and Pawlow, the Russian letter *B*, of which there are two in his name, being pronounced like "v" or "ff."

Public Health Conference Held in Salt Lake City.—Representatives of the United States Public Health Service and of the health authorities of certain western states met in Salt Lake City, February 2, to consider problems of health administration arising out of the unusual prevalence of rabies in parts of the West, and problems incident to Rocky Mountain spotted fever, tuberculosis and railroad sanitation.

Dr. J. W. Kerr, assistant surgeon-general, United States Public Health Service, presided. Official delegates were present from California, Idaho, Kansas, Montana, Nevada, Utah, Washington, Wyoming and the District of Columbia. Representatives were in attendance from the Bureau of Animal Industry, the Biologic Survey and the Forest Service of the United States Department of Agriculture, and from organizations of wool growers, sheep and cattle raisers and various railroad companies.

The unusual prevalence of rabies in California, Idaho, Kansas and Nevada, with its possible presence in other parts of the West, was the chief cause for calling the conference. Rabies among coyotes was so prevalent, it was stated, in some localities, that it was regarded as unsafe to allow children to go to and from school unless guarded against attacks by such animals, and the danger to sheep and cattle was greatly augmented by reason of the presence of the disease. There was an apparent difference of opinion between the representatives of the wool growers and the representatives of the United States Biologic Survey as to the best method of effecting the destruction of coyotes, the wool growers contending for the bounty system and the Biologic Survey favoring the employment of salaried hunters and trappers for such work. Dr. W. J. Butler, the state veter-

inarian of Montana, claimed that good results had been obtained in Montana by inoculating coyotes with ordinary dog mange and then turning them loose to spread the disease among their fellows. The conference adopted resolutions strongly urging the adoption by the various states of legislation to provide state boards of health and other state agencies with authority to establish quarantine areas against rabies and with adequate funds for a campaign against the disease. The authorities of the several states were advised to request cooperation from the appropriate federal departments in the establishment of a systematic plan for the eradication of rabies, including the calling of conferences from time to time to promote the efficiency of the work. The following provisional plan was recommended:

1. That the destruction of wild animals devolves on the proper state authorities and commercial interests within the states, acting in cooperation with the United States Department of Agriculture.

2. That the prevention of rabies among humans, including the control of the disease among domestic animals and measures for prophylactic treatment, devolve on the state health agencies, cooperating with the United States Public Health Service.

3. That the United States Public Health Service be requested to detail an officer or officers to cooperate with the state health agencies in stimulating and coordinating local activities with respect to the limitation and suppression of rabies.

A resolution was adopted recommending that the proper federal and state agencies determine by experimentation the value of infection of coyotes by dog mange as a means for their destruction.

ROCKY MOUNTAIN SPOTTED FEVER

The finding in the blood of human beings, guinea-pigs and white rats, suffering from Rocky Mountain spotted fever, of certain bodies which he believes have a causative relation to the disease, was announced by Dr. L. D. Fricks, surgeon, United States Public Health Service. In spotted fever blood stained by Giemsa's method these appear as small extracorpuscular granules, staining bright red and highly refractile; also as similarly sized bodies, surrounded by a pale halo, within or in close proximity to the erythrocytes. These granules were most numerous in and around the endothelial cells from the smaller blood vessels.

Dr. Fricks reported that the ticks that convey Rocky Mountain spotted fever pass the earlier cycles of their lives on chipmunks, ground squirrels and other small animals, migrating later to horses and cows. The fact that such rodents may serve as hosts for these ticks interferes with the efficiency of dipping of horses and cows as a means for the eradication of the ticks. The availability of dipping is further limited by the relatively small area that any one dipping tank can serve, and the cost of constructing and operating large numbers of such tanks. The use of sheep as an agency for the freeing of tick-infested areas from such infestation was pointed out by Dr. Fricks. Ticks find their way readily into the wool of the sheep as they graze, and in the wool the ticks die or are at least carried forward as the sheep move. The grazing of the sheep from inhabited areas onward to uninhabited mountainous regions would tend toward the destruction of the ticks or the carrying of them to places where they could do a minimum of harm to human beings.

Dr. Kerr announced that the United States Public Health Service would soon issue a leaflet giving in a succinct way a description of Rocky Mountain spotted fever, the leaflet being intended for the widest possible distribution among physicians and others interested in the disease.

Resolutions were adopted expressing appreciation of the work done by Dr. Fricks and recommending that the state health officers take such steps as might be possible within their respective jurisdictions for the collection of complete morbidity reports with respect to Rocky Mountain spotted fever, and that such health officers conduct, in cooperation with the United States Public Health Service, a campaign of instruction by circular and otherwise within the infected areas, and obtain the cooperation of the United States Department of Agriculture in an effort to reduce tick infestation, through the destruction of small animals by which ticks are carried.

TUBERCULOSIS

The conference adopted a resolution recommending the devising and use of better methods than now exist for the care of indigent consumptives who have migrated from one state to another, with provision for the equitable distribution of the cost of maintenance and treatment of such patients.

RAILROAD SANITATION

A resolution was adopted asking the surgeon-general of the United States Public Health Service to appoint a committee to formulate a model sanitary code, so as to bring about uniformity in the sanitary regulation of both interstate and intrastate transportation throughout the United States, the committee to submit a report at the annual meeting of the conference in May next.

"ALKALI DISEASE"

The occurrence in certain parts of Utah of a disease that seems to be specific in its character but which so far as he knew had not previously been described, was reported by Dr. T. B. Beatty, secretary Utah State Board of Health. The disease appears to have occurred for some time past in Box Elder and Millard counties, from seventy-five to 100 cases occurring each year, and has been known among the inhabitants of those localities as the "alkali disease." It occurs only from the middle of June to the latter part of July, and is always preceded by the bite of a fly, probably the deer fly. Many such bites, however, are not followed by infection. Those familiar with the disease report a coincident high mortality among rabbits, and conceive some possible relationship between such mortality and the occurrence of the disease in man.

The "alkali disease" occurs most commonly in men who have been working in the fields. Bites are usually on the exposed surfaces of the body, most frequently in the vicinity of the ear and about the neck. Within twenty-four hours after having been bitten, the patient's temperature rises, possibly reaching 104. Swelling and marked induration of the skin occur about the bite and in the neighboring lymphatic glands. The skin breaks down in about three days, leaving an ulcer, cleanly punched out, involving the skin and subcutaneous tissue. Full convalescence requires from five to seven weeks. An extensive scar always remains. Deaths are rare. No immunity follows the disease.

Dr. Beatty urged that the United States Public Health Service investigate this disease and suggested that the health officers of the other states represented might possibly find it within their jurisdictions.

FOREIGN

Gasoline Rebate.—In order not to inflict too heavy an outlay on physicians using motor cars in their professional work, the British government is now granting a rebate of 6 cents per gallon to all doctors making application for it before their local collector of taxes.

Famine and Pestilence in Mexico.—Recently it has been reported from El Paso that starvation and disease are prevalent in Chihuahua, Coahuila and Durango; that there are no crops and the supply of corn is rapidly diminishing. Furthermore, pneumonia and typhoid fever are exceedingly prevalent and the death rate from tuberculosis is rapidly increasing. He does not report typhus fever as prevalent in these provinces.

WAR NOTES

American Hospital Unit for Germany Arrives.—The first hospital unit sent out by the American Physicians' Expedition Committee has arrived in Berlin. The unit was headed by Dr. Fred Kammerer of New York and included Drs. Frank D. Gorham, St. Louis; Paul K. Sauer, New York, and Frank L. Paschal, New York, with six nurses. This unit will take charge of the military reserve lazaret at Deutsch Eylau, East Prussia.

French Military Hospitals.—Reports from Paris state that up to Dec. 30, 1915, the military and auxiliary hospitals in France contained a total of 500,000 beds, the majority of which are occupied by wounded soldiers. The cost of maintenance is a quarter of a million dollars daily. The three Red Cross societies operating in France have spent $16,000,000 for the 115,000 beds which they maintain in 1,200 hospitals, and of this amount $1,250,000 has been contributed from American sources.

Moxon Medal Awarded to Dejerine.—The Royal College of Physicians at London has conferred the Moxon gold medal on Professor Dejerine of Paris for his works on the diseases of the nervous system. This medal is awarded every three years, and it is the first time it has been given to a foreigner. Dejerine is physician in chief of the Salpêtrière and director of the clinic for nervous diseases, worthily sustaining the traditions of Charcot's famous clinic. Madame Dejerine, a member of the Klumpke family of scientists, is also a specialist in nervous disorders. The Salpêtrière, the scene of their labors, is a hospital and asylum for aged, infirm and indigent women for whom it has 3,701 beds, with an additional department with 776 beds for insane women.

BERLIN LETTER

BERLIN, Jan. 18, 1916.

Personal

Death is reaping a rich harvest not only in the field but at home nowadays. To the list of prominent scientists who have died since the onset of the war must be added another whose works are known to American physicians. December 29, at Hamburg, the former professor of hygiene at Halle, Professor Karl Fraenken (formerly Fraenkel) succumbed to a chronic malady, aged 54. I referred to him a few months ago in my Berlin Letter, mentioning then the change in his name and the illness which ten years ago began to interfere with his active duties. The malady which compelled him to retire was an extensive arteriosclerosis. He became assistant to Robert Koch in 1885 and under Koch's direction the next year published a manual on methods of bacteriologic examination. This was the first comprehensive presentation of Koch's theories, and as the manual possessed the advantages of Fraenken's clarity of style and skill in presenting facts, it soon was widely accepted and was translated into several foreign languages. Of Fraenken's own contributions to science may be mentioned his research on the micro-organisms in the different strata of soil, on the germ-content of ice, on the action of carbon dioxid on the vitality of bacteria, cultivation of anaerobic bacteria, disinfection of wells and the germ content of ground water. He also demonstrated that the filtration of potable waters is not the protection formerly assumed to be the case, and that spring water should be given the preference.

In collaboration with Brieger, Fraenken investigated the field of bacterial toxins, and he succeeded in discovering a new method of immunizing against diphtheria. He was a pioneer also in certain fields of experimental research, but among his most important contributions to science is his and R. Pfeiffer's "Microphotographic Atlas of Bacteriology." In 1890 he was made professor at Königsberg; the next year he became Rubner's successor at Marburg and in 1895 was called to succeed Renk at Halle where he remained until his retirement last spring. He was eminent as a teacher and writer, and popular as a banquet speaker, and was certainly one of the most eminent of Koch's pupils.

Professor von Noorden and Professor Quincke have been living in Frankfort on the Main since their retirement from their University chairs. The University of Frankfort has recently appointed each to a fee professorship (ordentliche Honorarprofessur).

Cancer Mortality

In the year 1913 there were recorded in Prussia 30,882 deaths from cancer. In 1912 there were 30,045 deaths from this cause reported; in 1911, 29,473; in 1910, 28,093, and in 1903, 21,258. The increase over the cancer mortality of the preceding year was thus 2.8 per cent. In ten years the number of persons dying from cancer has thus increased by 9,624, or 45.2 per cent. In 1913 there were 13,835 men (13,587 in 1912) and 17,047 women (16,458 in 1912). The increase is thus greater among women than in men. In the ten years in question the cancer mortality among women increased by 47 per cent. and in men by 43 per cent. Calculated by 10,000 living, there were 7.41 deaths from cancer in 1913 to 7.32 in 1912; 7.24 in 1911, and 5.98 in 1903. The figures respectively for men and for women were: men, 6.72 (in 1903, 5.52); women, 8.10 (in 1903, 6.42).

The Army Sanitary Service

Among the data recently presented at a representative meeting of military medical men at Berlin, under the auspices of the war department, it was announced that the military medical service now has at its disposal 1,460 automobiles with 700 trailers, 425 heatable cars for transporting the sick and wounded, 137 ambulance trains, 87 hospital trains, and 17 boat trains for transportation by water. When burial of the dead is not possible, as often occurs with present modes of warfare, the corpses have cresol poured over them to render them harmless. In recent reexaminations of the wounded who had been counted out as permanently unfit for service, 25 per cent. were found fit for service without the requirements having been lowered.

In the sanitation stations on the east front, 600,000 men had been put through the disinfecting process by November. In the prisoners' camps there have been only six cases of smallpox, but there have been over 41,000 cases of typhus, as this pestilential disease is being constantly imported anew with new Russian prisoners. The mortality was only 8 per cent., and by November there were no further cases.

LONDON LETTER

LONDON, Jan. 29, 1916.

The War

THE TOTAL BRITISH CASUALTIES

In response to a question in parliament, the prime minister has stated that the total British casualties up to January 9 are 549,467, which are made up of: killed, 128,138; wounded, 353,283, and missing, 68,046. In the various fields of operations the casualties are distributed thus: France, 400,510; Dardanelles, 117,549, and other theaters, 31,408.

ECONOMY OF INFANT LIFE

At the annual meeting of the York Infant Welfare Association, Sir James Crichton-Browne said that one of the most urgent of our war economies was an economy of babies. It was essential to our national efficiency that our supply of them should be kept up, and that the extravagant waste of them should be stopped. The war had made us realize that it is the mass of people that tells. It was the rapid growth of her population—which had increased during ten years by 8½ against our 3½ millions—that had given Germany her aggressive power, and if we would hold our own when the war was over and compensate for the war wastage we must take means to multiply our people. We must arrest the decline in the birth rate and grapple with infant mortality. Grants were needed for special research work, and expectant mothers should be guarded against ignorance and carelessness by sensible education. The excess of females over males in this country, estimated at 1,205,311 in 1913, must be now very much more. We could not contemplate with equanimity the fact that in Great Britain, France and Belgium masculinity had shown a tendency to decline during the last half of the last century. There had been an increase in English masculinity during the last year, it is alleged; but temporary fluctuations in the rate were common, and no safe conclusions could be founded on the figures so far quoted. Soldiers returning from the war married in large numbers, so some rally in the birth rate might be anticipated; but such evidence as we possessed suggested a probable further decline in masculinity.

BRITISH HOSPITALS FOR THE FRENCH WOUNDED

In its earlier stages, the war imposed a much greater strain on France than on England, who supplied only a small part of the allied forces. Moreover, a large part of France was overrun by the enemy, and a considerable portion still remains in its possession. The opportunity and the need for helping in the care of the French wounded were therefore great, and the response was worthy of the occasion. There are now no fewer than twenty-seven hospitals in France established, administered and supported by British voluntary effort and staffed by British physicians and nurses. The following remarkable list has recently been given by the *Gaulois:* the Urgency Cases hospital at Bar-le-Duc and the Arc-en-Barrois Hospitals; the Hôpital Herbert Ward at Rolleboise; the Hôpital Lady Wemyss at Canly; the British Ambulance Committee at Gérardmer; the Hôpital Franco-Anglais (Lady Murray) at Tréport; the Hôpital FitzGerald at Passy; the Trianon Hospital at Versailles; the Hôpital de l'Alliance at Yvetot; the Hôpital Anglo-Ethiopien at Frévent; the Hôpital du Chateau de Bearn established at St. Cloud by Lady Hartwell; the Allhusen Hospital at Céret; the Hôpital du Chateau d'Anuel near Compiègne; the Joint Anglo-French Hospital and Hôpital Civil de la Clayette; the Florence Fiennes Hospital at Malo-les-Bains; the Scottish Women's Hospital at Chanteloup; the Johnstone-Reckitt Hospital at Ris-Orangis; the Hôpital du Chateau de Rozières near Nanteuil-le Haudouin; the Hôpital du Chateau de Blancat at Pau; the First Aid Nursing Yeomanry Hospital at Calais; the Lady Sykes Hospital at Canly; the Hôpital d'Hardelot near Boulogne, founded by the Duchess of Rutland; the Surgical Ambulance at Rosebruge (Mrs. Borden-Turner); the Hôpital Canadien No. 4 at St. Cloud; the Hôpital Anglais No. 307 at Neuilly-sur-Seine; the Hôpital Irlandais at Cezaincourt, and the Hôpital Anglais No. 6 at Nevers.

THE HEALTH OF WORKERS IN EXPLOSIVES

In reply to a question as to the health of the workmen employed in the use of picric and nitric acids, Mr. Lloyd George stated in parliament that as regards picric acid no ill effects are caused except a discoloration of the skin; but that workmen engaged on trinitrotoluene are sometimes injuriously affected, the degree of susceptibility varying

greatly, many workers being immune. Various expedients of a sanitary and medical character are in operation to counteract the difficulty, and a weekly medical examination of all workers is carried out with a view to the transfer to other work of persons especially susceptible.

PARIS LETTER

Paris, Jan. 20, 1916.

The War

DECREASE IN THE MORTALITY RATE IN MILITARY HOSPITALS

Dr. Jacques Bertillon, who was at the head of the municipal statistics of Paris and who is now in charge of the medico-surgical statistics of the army, reports that the mortality in our military hospitals was 4.5 per cent. in 1914 and the beginning of 1915. This is much lower than that of previous wars, which was about 30 per cent. At present, thanks to improvements introduced into our medical service, the mortality has been greatly diminished; it is not over 2 per cent. Out of one hundred patients treated in our military hospitals ninety-eight, on the average, are discharged recovered.

SCARLET FEVER IN THE ARMY

This subject has just been under discussion at the Réunion médicale de la IV-e armée. Drs. Félix Ramond and Gustave Chambas, during nine months, have cared for 131 cases of scarlet fever, with complete recovery. They observed two frequent complications. One, which is familiar, is rheumatism; the other, almost unknown, is scarlatinal jaundice. Rheumatism was observed in 29 per cent. of the cases and was always very light. It ordinarily occurs early and is localized in one or two joints, especially in the knee or shoulder. It is a pseudo-rheumatism, as is shown by its clinical features and the almost constant subarticular adenopathy. It is interesting to observe the very favorable action of sodium salicylate. Scarlatinal jaundice is more rare (8 per cent. of the cases), but in half of these cases it coexists with rheumatism. It likewise begins early with a rise in temperature. The coloration of the skin is not deep, being often a light sulphur color. The urine ordinarily has traces of pigment. The feces are not always discolored. The spleen is very slightly hypertrophied, but the liver is normal in size. There is no itching, no bradycardia and no asthenia. The condition ordinarily does not last longer than ten or twelve days. The jaundice is benign and does not affect the prognosis.

The favorable action of sodium salicylate on scarlatinal rheumatism, and certain analogies between scarlet fever and acute articular rheumatism, led Dr. Ramond to treat scarlet fever by sodium salicylate. All cases appeared to him suitable for this treatment, and there are no contraindications even when serious renal or nervous conditions are present. The doses employed were the same as those used in articular rheumatism; that is, from 3 gm. to 6 gm. a day. The patient generally feels much better, the temperature and pulse fall rapidly and diuresis occurs at the end of two or three days. The effect on complications is just as evident. The scarlatinal rheumatism disappears in a few days. Endocarditis and pericarditis are much improved. In one case the massive albuminuria present at the outset ceased after four days of treatment. In the other case, an acute convulsive delirium was overcome in forty-eight hours by strong doses of salicylate. It seems that salicylate is well tolerated by scarlet fever patients, and that it has a manifest action on the infection. Further observations are necessary, however, for scarlet fever is a very capricious disease in its epidemic course.

Dr. Merklen confirmed the frequency of the form of rheumatism described by Ramond as occurring in scarlet fever. In many cases of scarlet fever that Merklen has seen this summer, this rheumatism has been observed frequently even associated with disturbances of cardiac rhythm or muffling of the sounds of the heart. Recovery always occurred without difficulty. Whether or not albuminuria contraindicates the use of sodium salicylate depends on the nature of the albuminuria. Albuminuria from renal sclerosis is not suitable for salicylate treatment, but this does not apply to albuminuria due to a slight acute nephritis.

Death of Professor Hamelin

Dr. Elphége Hamelin, formerly professor of therapeutics at the Faculté de médecine de Montpellier, has just died, aged 75.

Association News

THE DETROIT SESSION

Announcement of Hotel Headquarters

In announcing the hotels selected as headquarters for the annual Scientific Assembly to be held in Detroit, June 12-16, the Committee on Arrangements again requests that hotel reservations be made through the Committee on Arrangements, rather than with the hotels directly. When the subcommittee on hotels receives a request for a reservation, it will take up the matter with the management of one of the hotels and see to it that the hotel advises the applicant of the reservation made. In writing to the committee, please name a first and second choice of hotels and state the number of rooms desired for the accommodation of your party; also, name the rate you are willing to pay. Those who desire rooms with bath should state whether a tub or a shower is preferred. The local Committee on Arrangements should be notified promptly in case the reservation is not to be used; this notice will permit the space to be assigned to others.

A preliminary list of hotels appeared in The Journal, Feb. 5, 1916, page 445. The list of hotel headquarters follows:

HOTEL HEADQUARTERS

General Headquarters — Statler

Section	Hotel
1. Practice of Medicine	Ponchartrain, Cadillac Sq. and Woodward
2. Surgery, General and Abdominal	Tuller, Grand Circus Pk., Park and Adams
3. Obstetrics, Gynecology and Abdominal Surgery	Statler, Grand Circus Pk., Washington and Bagley
4. Ophthalmology	Statler, Grand Circus Pk., Washington and Bagley
5. Laryngology, Otology and Rhinology	Statler, Grand Circus Pk., Washington and Bagley
6. Diseases of Children	Addison, N. W. Woodward and Charlevoix
7. Pharmacology and Therapeutics	Tuller, Grand Circus Pk., Park and Adams
8. Pathology and Physiology	Tuller, Grand Circus Pk., Park and Adams
9. Stomatology	Ste. Claire, N. E. Monroe and Randolph
10. Nervous and Mental Diseases	Plaza, S. W. Madison and John R.
11. Dermatology	Ponchartrain, Cadillac Sq. and Woodward
12. Preventive Medicine and Public Health	Cadillac, S. E. Michigan and Washington
13. Genito-Urinary Diseases	Ponchartrain, Cadillac Sq. and Woodward
14. Hospitals	Charlevoix, S. W. Park and Elizabeth
15. Orthopedic Surgery	Eldorado, Winder, near Woodward

Marriages

Harry P. Bowen, M.D., Johnson Creek, Mich., to Miss Florence F. Imig of Waukesha, Wis., at Milwaukee, January 4.

Henry Gurdon Fish, M.D., Fargo, N. D., to Miss Gladys Mercedes Zirkle of Carrington, N. D., at Fargo, January 26.

James Tickell Downs, Jr., M.D., Dallas, Texas, to Miss Elizabeth Florence Erich, at Allentown, Pa., December 14.

Otto Carl Pickhardt, M.D., New York City, to Miss Helen Kahle of Bridgehampton, L. I., N. Y., February 6.

Eugene Radford Boyer, M.D., Hersey, Wis., to Miss Florence Marie Carlson of Woodville, Wis., recently.

Erwin Paul Zeisler, M.D., Chicago, to Miss Ruth Spiro of South Bend, Ind., at Chicago, February 14.

William Culbert Lyon, M.D., U. S. Navy, to Miss Battie Moody, both of Houston, Texas, January 23.

James Roy St. Clair, M.D., Alexandria, Pa., to Miss Besse Grogg of East Berlin, Pa., December 25.

David Lazarus, M.D., to Miss Harriette Gross, both of New York City, February 1.

Eugene Lee Myers, M.D., to Miss Faletia Ray, both of St. Louis, February 2.

Deaths

Richard Henry Whitehead, M.D. University of Virginia, Charlottesville, 1887; aged 50; a Fellow of the American Medical Association; and a member of the Association of American Anatomists; demonstrator of anatomy in his alma mater from 1887 to 1889; professor of anatomy and dean of the medical department of the University of North Carolina from 1891 to 1905 and thereafter professor of anatomy and dean of the Medical Department of the University of Virginia, Charlottesville; one of the best known anatomists and teachers of anatomy of the United States; author of a work on "Anatomy of the Brain," and a frequent contributor to the literature on anatomy and pathology; an enthusiastic advocate of the higher medical education and a regular and interested attendant at the conference on medical education; died at his home in University, Va., February 6, from pneumonia.

Thomas Hubbard Russell, M.D. Yale University, New Haven, Conn., 1875; aged 63; a member of the Connecticut State Medical Society; professor of materia medica and therapeutics in his alma mater from 1883 to 1891, and of clinical surgery from 1891 until the time of his death; for thirty years attending surgeon to the New Haven Hospital and thereafter consulting surgeon to the institution; one of the most prominent surgeons of New England; died at his home in New Haven, February 4, from pneumonia following an attack of influenza.

James Witherspoon, M.D. Western Pennsylvania Medical College, Pittsburgh, 1895; aged 45; a Fellow of the American Medical Association and American College of Surgeons; professor of descriptive anatomy in his alma mater; chief surgeon of St. John's General Hospital, North Side, Pittsburgh, and a member of the staff of the Allegheny General Hospital; one of the leading surgeons of Pittsburgh; died at the home of his father, North Side, Pittsburgh, February 1.

Ogilvie DeVilla Ball, M.D. College of Physicians and Surgeons in the City of New York, 1867; aged 75; a Fellow of the American Medical Association; treasurer of the Medical Society of the State of New York for several years and president of the Albany County Medical Society in 1894; a veteran of the Civil War; coroner of Albany County, N. Y., in 1874; for four years demonstrator of anatomy in Albany Medical College; died at his home in Albany, December 15.

Carroll Rollin Bancroft, M.D. College of Physicians and Surgeons, Baltimore, 1908; aged 36; a Fellow of the American Medical Association; for two years city physician and health officer of Anaconda, Mont.; for four years a teacher in the Philippine Islands and after his graduation for two years assistant superintendent of the Montana State Hospital, Warm Springs; died in the Good Samaritan Hospital, Los Angeles, February 3.

Henry Parrish, M.D. Medico-Chirurgical College of Philadelphia, 1897; aged 67; a Fellow of the American Medical Association; and a member of the Philadelphia Laryngological Society; also a clergyman and Doctor of Divinity; laryngologist to the Pennsylvania State Dispensary for Tuberculosis; died at the home of his son in Philadelphia, February 2, from heart disease.

Clarence E. James, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1880; aged 64; a Fellow of the American Medical Association and a charter member of the Marion County (Iowa) Medical Society; while making a professional call near his home in Durham, Iowa, January 30, fell on the ice, striking his head, and died a few days later from cerebral hemorrhage.

James LaRue Wadsworth, M.D. Northwestern University Medical School, Chicago, 1863; aged 77; a Fellow of the American Medical Association; formerly a member of the Illinois State Board of Charities; surgeon to the Vandalia Consolidated Coal Company, Collinsville, and formerly mayor of that city; died in his office in Collinsville, January 26.

John P. Ralston, M.D. American Medical College, St. Louis, 1880; aged 64; a member of the Missouri State Medical Association; physician to the Children's Home and a member of the staff of the Burge Deaconess and St. Johns' hospitals, Springfield, Mo.; died at his home in that city, January 30, from cerebral hemorrhage.

John Abbott Douglass, M.D. Medical School of Maine, Brunswick, 1854; College of Physicians and Surgeons in the City of New York, 1861; aged 86; a member of the Massachusetts Medical Society; surgeon of the Eleventh Massachusetts Volunteer Infantry during the Civil War; died at his home in Amesbury, Mass., February 4.

Rufus Elmer Darrah, M.D. Harvard Medical School, Boston, 1890; aged 54; a Fellow of the American Medical Association; a member of the Rhode Island State Board of Health and president of the Newport (R. I.) Board of Health and School Committee; died at his home in Newport, February 8, from pneumonia.

Joseph Ross Wilson, M.D. Northwestern University Medical School, Chicago, 1892; aged 48; a member of the Indiana State Medical Association, and a well-known practitioner of Hebron, Ind.; while driving over a grade crossing at Henderson, Ind., February 12, was struck by a train and instantly killed.

Henry Arthur Albers, M.D. Rush Medical College, 1881; aged 59; one of the founders of the Wisconsin College of Physicians and Surgeons, and professor of medicine and clinical medicine therein; for thirty-three years health officer of Thiensville, Wis.; died at his home in Milwaukee, January 31.

Charles L. Wachter, M.D. College of Physicians and Surgeons, Baltimore, 1884; aged 60; a member of the medical and chirurgical faculty of Maryland; a member of the Frederick County School Board and director of the Thurmont Bank; died at his home in Sabillasville, Md., February 3.

Joseph Brooks Follmer, M.D. College of Physicians and Surgeons, Baltimore, 1884; aged 56; a member of the Medical Society of the State of Pennsylvania; school director and member of the Board of Education of Berwick, Pa., for many years; died at his home in Berwick, January 31.

Evan Gabriel Williams, M.D. University of Buffalo, 1864; aged 75; a practitioner, druggist and clergyman of Remsen, N. Y.; coroner of Oneida County for six years and four years a member of the board of supervisors; died at his home in Remsen, February 1, from asthma.

Ira Harris, M.D. Albany (N. Y.) Medical College, 1881; aged 63; for thirty-two years a missionary of the Presbyterian Board of Foreign Missions in Tripoli, Syria, and United States consul at Tripoli for twenty years; died in that city, November 25, from typhus fever.

Silas Arnold Houghton, M.D. Harvard Medical School, 1891; aged 51; a Fellow of the American Medical Association and a member of the New England Pediatric Society and the Boston Obstetrical Society; died at his home in Brookline, Mass., February 6, from pneumonia.

James Henry Snodgrass, M.D. University of Tennessee, Nashville, 1888; aged 79; surgeon in the Confederate service during the Civil War; for nearly forty years a practitioner of Sparta, Tenn., but since 1905 a resident of Nashville; died at his home in that city, January 30.

James Wallace Gregg, M.D. Dartmouth Medical School, Hanover, N. H., 1867; aged 72; a member of the Vermont State Medical Society; for forty years a practitioner and druggist of Brattleboro, Vt.; died at his home in Brattleboro, February 2, from heart disease.

Paul Rider, M.D. College of Physicians and Surgeons, Baltimore, 1911; aged 31; a Fellow of the American Medical Association and a practitioner of Wardensville, W. Va.; died at the home of his wife's parents in Morgantown, W. Va., February 1, from myocarditis.

William B. Campbell, M.D. University of Michigan, Ann Arbor, 1881; a Fellow of the American Medical Association and president of the Doniphan County (Kan.) Medical Association; died suddenly in his office in Troy, Kan., from heart disease, February 4.

James McHenry Howard, M.D. University of Maryland, Baltimore, 1869; aged 76; of Baltimore; a Confederate veteran; quarantine officer of Baltimore in 1881 and 1882; died in Johns Hopkins Hospital, Baltimore, January 31, from heart disease.

James Fife Hughes, M.D. University of Maryland, Baltimore, 1860; aged 81; surgeon in the Confederate service during the Civil War and thereafter a practitioner of Alleghany County, Va.; died at his home in Clifton Forge, Va., January 31.

Eric E. Wisehart, M.D. Jefferson Medical College, 1911; aged 28; a Fellow of the American Medical Association, and a specialist on diseases of the eye, ear, nose and throat; died at his home in Snow Hill, Md., January 29, from acute nephritis.

Victor Borne Chrane, M.D. St. Louis University, 1909; aged 35; a member of the Kansas Medical Society; of Logan, Kan.; died December 19, at a hospital in Concordia, Kan., from septicemia, due to an operation wound.

Royal Langdon (license, New Jersey, 1902), aged 49; a practitioner since 1896; president of the Nutley (N. J.) Board of Health; died at his home in Nutley, January 22, from heart disease.

Henry Stults Sheffield, M.D. University of Michigan, Ann Arbor, 1892; aged 50; for twenty-three years a practitioner of Elyria, Ohio; died at his office in that city, January 25, from tuberculosis.

Addrian L. Moody, M.D. Northwestern University Medical School, Chicago, 1882; aged 61; died at his home in Chicago, February 3, after an invalidism of twenty-five years from paraplegia.

Orlando B. Williams (license, Indiana, 1892), aged 67; a veteran of the Civil War, and for twenty-seven years a practitioner of Andrews, Ind.; died at his home in Andrews, January 25.

Thomas Franklin Stockdale, M.D. Jefferson Medical College, 1878; aged 63; a Fellow of the American Medical Association; died at his home in Rural Valley, Pa., January 23.

Jacob B. Ray, M.D. Starling Medical College, Columbus, Ohio, 1850; aged 89; a member of the Ohio State Medical Association; died at his home near Omega, Ohio, January 25.

John Harvey Shaw, M.D. Jefferson Medical College, 1909; aged 31; who retired from practice after two years on account of ill health; died at his home in Lancaster, Pa., January 21.

Julius Alexander Faison, M.D. Jefferson Medical College, 1886; aged 65; a Fellow of the American Medical Association; died at his home in Bennettsville, S. C., December 21.

H. W. Brashear (license, Washington County, Pa., 1884), aged 71; for nearly fifty years a practitioner of Washington County; died at his home near Beallsville, January 23.

Edward H. Goyer, M.D. California Medical College, San Francisco, 1893; aged 77; of Eureka, Calif.; died in Soldiers' Home, Calif., November 15, from pneumonia.

Raymond Watkins, M.D. Eclectic Medical Institute, Cincinnati, 1911; aged 29; of Blanchester, Ohio; died in Santa Rosa, N. M., January 18, from tuberculosis.

Franklin H. Sanborn, M.D. University of California, San Francisco, 1892; aged 46; died at his home in Fort Bragg, Calif., January 20, from pneumonia.

A. D. Wren (license, Arkansas, 1903), aged 73; one of the oldest residents of Nevada County, Ark,; died at his home in Harmony, Ark., about January 19.

Weldon W. Lea (license, Arkansas, 1903), aged 65; for many years a practitioner of Princeton, Ark.; died at his home in that place, January 22.

Leslie Tuttle, M.D. Queen's University, Kingston, Ont., 1875; aged 67; died at his home in Tweed, Ont., from fibrosis of the pancreas, November 11.

Robert Charles Grove, M.D. Columbian University, Washington, D. C., 1873; aged 65; died at his home in Shepherdstown, W. Va., January 13.

Robert L. Ray, M.D. Medical College of Georgia, Augusta, 1886; aged 50; died at his home in Devereux, Ga., January 26, from heart disease.

Tirzah Eveline Goodwin, M.D. Boston University School of Medicine, 1875; aged 64; died at her home in Whitman, Mass., January 24.

W. P. Tinsley, M.D. Kentucky School of Medicine, Louisville, 1866; formerly of Owenton, Ky.; died in November last in West Virginia.

A. I. Haines (license, Georgia, 1873) of Wrightsville, Ga.; aged 66; died in the Davis Hygienic Institute, Macon, Ga., January 19.

John H. Mock, M.D. University of the South, Sewanee, Tenn., 1898; aged 41; died at his home in Thomasville, N. C., January 26.

James J. Piper, M.D. Missouri Medical College, St. Louis, 1877; aged 80; died at his home in Chicago, January 25, from pneumonia.

James A. Peeples, M.D. Jefferson Medical College, 1868; aged 74; died at his home in Wrightsdale, Pa., January 24.

H. J. Lile (license, Arkansas, 1903), aged 47; died at his home in Cash, Ark., January 18, from pneumonia.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

AS VIEWED BY THE DRUGGISTS

The Druggists Circular Discusses the Supreme Court's Decision on the Constitutionality of the Sherley Amendment

A week or two ago THE JOURNAL published some newspaper comments on the Supreme Court's action in declaring the Sherley Amendment to the Food and Drugs Act constitutional. Our readers may be interested in the attitude taken by the better class of druggists on the same question. No publication issued in the interest of pharmacy better represents all that is good in that profession than the *Druggists Circular* of New York. This publication has consistently fought for high ideals in the practice of pharmacy and is as outspoken against medical frauds as THE JOURNAL itself. The leading editorial in the first issue of the *Druggists Circular* following the Supreme Court's decision discusses that decision. The whole editorial is worth reprinting but we have room only for the closing paragraph. This reads:

"Nostrum fakery dies hard. For a long time accustomed to getting what they wanted from legislative bodies through their 'red-clause' influence over the press, the nostrum men seem unable to realize that a day of enlightenment is dawning, that the public is coming into its own with respect to decent and honest treatment at the hands of its legislative and executive servants as well as at the hands of those who depend for existence upon the public's patronage. It may be as true now as it ever was that 'a sucker is born every minute,' but the present-day 'sucker' is being weaned from some of his old beliefs about the ability of nostrums to cure by the wholesale diseases which, treated separately and each according to its individual requirements, often baffle the most skillful practitioners of medicine. The time seems to be about ripe for those who have been growing wealthy from the sale of consumption 'cures', cancer 'cures' and various other kinds of 'cures' to change their base—to follow some honest business if they can, and if not that, then to cease attempting to apply in medicine those deceptive methods of which they are past masters."

DIARSENOL

A correspondent in Birmingham, Ala., writes:

"Can you inform me of the facts with regard to Diarsenol, advertised by A. C. Smith of Windsor, Ontario? I have heard various statements made as to the product but have not seen anything to be considered authentic or definite."

An item appeared under Canada news in THE JOURNAL, Aug. 28, 1915, page 810, reading:

Salvarsan Substitute. — Under the patronage of the University of Toronto, "diarsenol" is now being manufactured in Toronto, as a substitute for salvarsan.

Beyond this we have no knowledge of the product. The Association's chemical laboratory has not examined it nor are we familiar with clinical trials which would demonstrate its value or safety. In the advertising matter it is claimed to be chemically identical with salvarsan. It is said to be manufactured by the Synthetic Drug Company, Toronto, Canada. In a recent circular the Mills Chemical Company, Ltd., Toronto, Canada, acting as distributor, offers to supply it to American physicians, duty paid, on receipt of postoffice money order. As salvarsan is covered by United States patent, the American agents for salvarsan would probably object to the sale of a substitute.

A. C. Smith appears to be a jobber in drugs. THE JOURNAL (Nov. 2, 1912, page 1642) said in connection with the sale of contrabrand acetylsalicylic acid (aspirin):

". . . the advertisement of A. C. Smith is not calculated to inspire confidence since he appears to reside in Canada although he does business and claims to keep his supply in the United States."

Correspondence

The Kinetic Drive

To the Editor:—The recent discussion of the kinetic drive by Drs. Carlson, Woelfel and Crile must of necessity be of interest to laboratory worker and clinician alike, since it is a continuation of a discussion, in which at times I have participated, which has ranged through the clinical and scientific societies for some years past. And since, on the record of past performances, I do not think that I may fairly be classed as an exponent of the kinetic drive as Dr. Crile has formulated it, I may the more readily be pardoned for pointing out what seem to me certain errors in the argument against Dr. Crile's position. It behooves the laboratory man to be circumspect in his criticism of clinical theories, since going beyond the bounds of well established things weakens his position, not merely with reference to the particular subject under discussion, but with reference to clinical phenomena in general. In justice to Dr. Crile, therefore, I should like to call attention to a few points in the objections urged against his theory.

1. The nature of the nerve impulse. I am not aware that this question has been definitely settled, nor does a search of the literature show that a recent attempt to explain the nerve impulse on an electrical basis is a wholly isolated one. Hermann, Bernstein, Goethlin and others have held similar ideas. While it seems to me probable that there is a chemical phase as well as a purely physical phase involved in nerve conduction, there are certain serious objections to the view that a chemical phase is present. These have been summed up in a most excellent recent work on physiology written by a critical and experienced investigator (W. M. Bayliss: "Principles of General Physiology," London and New York, 1915, pp. 378 et seq.). All purely nervous processes (intellectual included) give rise to such an extremely small amount of heat that any chemical change which occurs must either be extremely slight or be of such a nature as to be accompanied by a minimal heat production.

2. While the first objection is perhaps nothing more than a matter of opinion, the second which I shall consider may be a misstatement of fact. It is boldly and forcibly stated that organic compounds of iodin, such as that found in the thyroid, do not dissociate. Several considerations enter into the account in arriving at an estimate of the validity of such a statement. We do not yet know in just what form the iodin in the thyroid is combined with the protein. Possibly it is joined to an indol group, as suggested by Kendall's recent work. And it is well known also that somewhat similar organic compounds of iodin do dissociate. In a recent work on conductivity and ionization constants of organic compounds (Scudder, Heyward: "The Electrical Conductivity and Ionization Constants of Organic Compounds," New York, 1914, o-iodobenzoic acid, m-iodobenzoic acid, p. 190), I find the ionization and conductivity constants for two iodin compounds with benzoic acid. This is the nearest approach to the compound isolated by Kendall which I have seen in the literature, but a further search might reveal one even more closely related. Few chemists of my acquaintance will venture on a prediction of the properties of an unknown compound, and until we have actually investigated the properties of the iodin compound in the thyroid, we cannot say either that it does not dissociate, or that it does. But there are certain other considerations which make it appear permissible to cling a little longer to the belief in the dissociation of the iodin compound in the thyroid: *(a)* Indol, or indeed any form of protein not containing iodin, when given as food or medicine, fails to bring about the specific results observed after administration of the iodin compound. The iodin seems to be the important thing. *(b)* The studies within the last few years by L. J. Henderson ("The Fitness of the Environment," New York, 1913, Chapter IV) and others of chemical regulation in the animal organism have impressed on the minds of many laboratory workers the great importance of small variations in the concentration of certain ions in the body fluids. These variations continually occur. This has been admirably summed up by J. S. Haldane ("Mechanism, Life and Personality," New York, 1914, pp. 49-51). Lack of space constrains me to omit the quotation. An extremely slight degree of dissociation of the iodin-bearing compound would be all that one would expect if any analogy holds between it and other organic and some inorganic compounds within the body. The action of salvarsan, an organic compound of arsenic which probably acts by slow dissociation of the arsenic within the body, is suggestive in this connection.

3. I have elsewhere called attention to a peculiar deportment of the respiratory nervous mechanism as compared with the cortical nerve cells (Pike, F. H., and Scott, E. L.: *American Naturalist,* 1915, xlix, 354). Briefly, the respiratory cells are excited by an increase in the concentration of the hydrogen ions in the blood which is too slight to affect the cortical cells. But the respiratory cells continue to act more vigorously than usual when the concentration of carbon dioxid, and presumably also of hydrogen ions, if Haldane's view of the normal stimulus of the respiratory cells is correct, in the blood has risen so high that the activity of the cortical cells has ceased and the animal is deeply unconscious. Why this is so I do not know. But such are the facts, as I have many times observed, and as I will gladly demonstrate in our laboratory to any physician or physiologist who has not observed them for himself. The phenomena have been familiar to all students of the nervous mechanism of the respiration since the appearance of Sigmund Mayer's classical description of the respiratory movements in asphyxia.

4. The question of whether Dr. Crile is justified in ascribing to paralysis or abolition of function certain phenomena that might be ascribed to inhibition is again a matter of opinion. In the realm of the nervous system, inhibition has been a much used word, often, I fear, without due consideration, on the part of the user, as to just what is involved. I have heard, in the same room at the same meeting, two different speakers attribute two different and even antagonistic phenomena to inhibition. For instance, one speaker has ascribed the condition of shock which he obtained after transection of the spinal cord to inhibition; and the second speaker, not to be outdone, attributed the earlier onset of convulsions due to drugs in an animal immediately after transection of the spinal cord to the failure of inhibition normally coming down from the cerebrum. I must confess that I was puzzled at the time, and I do not yet see how both explanations—the effect of inhibition in the one case and its absence under other like conditions—can be correct. Indeed, I have sometimes suspected that neither one is correct, and I have studied the question laboriously.

Certain very well known but not sufficiently pondered properties or peculiarities of inhibition may be cited: *(a)* The classical demonstration of inhibition, and the point from which exponents of the omnipotence of inhibition usually start, is the inhibition of the heart on stimulation of the vagus nerve. But such an inhibition, if it arises in response to electrical stimulation of the nerve, is a transient thing, and the heart does not remain motionless for more than a minute or two at a time, after which beats are resumed. It is only when some chemical stimulant, such as muscarin, is applied that the heart stops for long periods. Here, in the earliest, most clear cut and most carefully studied case of all, inhibition is a transient thing. *(b)* The heart, possibly the stomach and intestines, and other structures containing smooth muscle, and innervated, either wholly or in part by the autonomic nervous system (using the term in Langley's sense), are the only structures or organs in the body which exhibit pure inhibition, that is, a cessation of activity without an accompanying active motor response of another related structure. It is well known that electrical stimulation of the cerebral motor cortex elicits a response from a *group* of muscles, and in this response there is a contraction of one muscle, or more, and a relaxation (or inhibition) of the antagonistic muscle or muscles (Beevor, C. E.: "The Coordination of Single Muscular Movements in the Central Nervous System," THE JOURNAL, July 11, 1908, p. 89). Neither contraction nor

inhibition outlasts the stimulus by more than a very brief interval. It is difficult, or impossible, to get inhibition of any skeletal muscle or group of muscles, without contraction of the antagonists, by any stimulation applied within the central nervous system. Enough has been said to indicate my own irreverent attitude toward what Prof. W. T. Porter has called the fetish of inhibition. I would not deny to Dr. Crile the right to assume a similar irreverence if he chooses.

I may recapitulate by saying: 1. In the opinion of some laboratory investigators, the electrical hypothesis of nerve conduction is neither matter for pure ridicule, nor is the chemical hypothesis, however much we may lean toward it, to be regarded as proved. 2. Some organic compounds of iodin dissociate, as is shown by a measurement of their ionization and conductivity constants; we cannot, therefore, categorically deny that the particular unknown organic iodin compound in the thyroid dissociates until it has been isolated and its ionization and conductivity constants measured. 3. The well known phenomena of asphyxiation afford an admirable example of an agent—increase in the concentration of hydrogen ions—which will at once violently stimulate the respiratory nervous cells in the medulla and paralyze, not merely inhibit, the cortical motor cells. 4. It is neither lese-majesty nor sacrilege to refuse to recognize the omnipotence of the fetish of inhibition.

It must not be inferred that I am adducing any of these considerations as evidence in favor of Dr. Crile's hypothesis. I wish simply to show that, although some of Dr. Crile's views appear to me to be erroneous, Professor Carlson's objections are not altogether well founded. My own objections to Dr. Crile's theory are based on neurologic considerations. I have presented them, somewhat crudely, it is true, in another place *(American Journal of Surgery,* October, 1914, Supplement of Anesthesia, p. 7). In my opinion, it would not detract in any way from his theory, if he would modify some portions of it which relate to the cerebrum and cerebellum and look more closely into the possibilities for surgical evil residing in the medulla oblongata.

Although it may not be usual in correspondence, I have given references to certain sources on which I have drawn in writing this letter. Annotations would be better than references, but I have already made heavy demands on space. Therefore, I must depend on the diligence of my readers to verify what I have said.

F. H. Pike, Ph.D., New York.
Assistant Professor of Physiology, Columbia University, College of Physicians and Surgeons.

So-Called "Incipient" Tuberculosis

To the Editor:—Is it correct to use the expression "incipient pulmonary tuberculosis" when we wish to describe a pulmonary condition which has existed unchanged for months and possibly years?

The National Association for the Study and Prevention of Tuberculosis gives the following definition of incipient or beginning tuberculosis:

Slight or no constitutional symptoms (including particularly gastro-intestinal disturbances, or rapid loss of weight).

Slight or no elevation of temperature or acceleration of the pulse at any time during the twenty-four hours.

Expectoration is usually small in amount or is absent. Tubercle bacilli may or may not be present.

Slight infiltration limited to the apex of one or both lungs or a small part of one lobe.

No tuberculous complications.

This definition indicates the farthest extent of lesion or disease possible to be classified as incipient tuberculosis. This corresponds closely with the Turban-Gerhardt scale, or Turban 1, defined as a slight lesion extending at most to the volume of one lobe or two half lobes. If both lobes are involved, the involvement must not extend lower than the spine of the scapula posterior, nor lower than the clavicle anterior; in one sided involvement the extent must not be lower than the second rib.

Is it not evident after scanning the foregoing classification that so-called incipient pulmonary tuberculosis is now no longer a beginning disease, that with such findings the stage of incipiency has long since passed and the disorder is now fully established, particularly when we see it plainly stated that bacilli may or may not be present? The word "incipient" denotes the beginning of something; something that is not yet fully established, has just passed the borderline from a negative to a beginning positive state. Accepting this definition, then the term "incipient tuberculosis" as applied above should be either eliminated or used in a more restricted sense, because the disease is now no longer in the beginning stage. If the conditions of incipiency as outlined above have existed for months or perhaps years, all depending on the extent of involvement and the rapidity of the pathologic process, is it then logical or reasonable to call the stage incipient, when on repeated examinations we find the same physical signs? In the history of no other disease do we continually speak of a beginning disorder when we have before us all the evidence of a long exciting malady.

Most European writers on medical topics, when they refer to primary or established pulmonary disease, usually designate it by such descriptive terms as "early tuberculosis," as "manifest tuberculosis" or as "first stage disorder." The expression "incipient tuberculosis" to denote a definite beginning involvement is never used. In speaking of early established pulmonary disease, no matter how long the disease has existed or how much primary involvement may be present, are not such descriptive terms more correct, appropriate and less misleading than the term "incipient" now in use?

John Ritter, M.D., Chicago.

Removal of Silver Stains

To the Editor:—Doubtless many of your readers have been annoyed by the stains of argyrol on their hands or clothing. It may be of interest to know that in either case a thorough rubbing with a salt grease, such as bacon grease, followed by soap and water will completely remove all traces of discoloration due to the solution mentioned.

E. Gard Edwards, M.D., La Junta, Colo.

[Comment.—The procedure for the removal of silver stains which our correspondent reports is interesting. Silver stains on towels, etc., can readily be removed by the application of dilute solutions of mercuric chlorid.—Ed.]

Oertel System of Graduated Exercises at Hot Springs

To the Editor:—With the realization of our local resources of climate, topography and government ownership of the reservation, a committee of the Hot Springs-Garland County Medical Society during the past year took up with the local representative of the Department of the Interior the question of laying out a course for the Oertel system of graduated exercise.

Having, in the past few years, spent thousands of dollars on its system of roads and foot-paths through the scenic reservation, the government readily consented to add the finishing touches to complete the system. These consisted of:

1. A careful survey to determine the degree of slant and altitude.

2. Placing at short intervals of stone markers properly numbered and colored.

3. The preparation of a small map with routes colored to correspond to the stone markers. From the back of the map may be determined at any numbered and colored stone marker the distance, degree of slant and the altitude.

The course was prepared with the view of giving 4 degrees of slant, from almost level to very steep. Along the roads are placed benches at brief intervals, and a plentiful supply of pure spring water is pumped to the top of the mountain.

It will be possible to prescribe the amount and degree of walking and hill-climbing to the minutest detail.

Our course was patterned after that established by Oertel at Reichenhall, where the paths are marked with stations, benches are supplied for resting, and the trees along the road

are marked with colored bands to represent the degree of slant.

It is believed that the Hot Springs of Arkansas will prove an ideal location for such a system. Nature has done much for the place, and through the action of the hot radioactive waters, free skin and kidney elimination are easily induced.

Much credit for establishing the system here is due Dr. W. P. Parks, superintendent of the reservation.

WILLIAM H. DEADERICK, M.D., Hot Springs, Ark.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

LITERATURE ON PREVENTION OF POSTOPERATIVE ADHESIONS

To the Editor:—Please give references to literature on how to prevent postoperative adhesions.

ARTHUR NEWITT, Detroit.

ANSWER.—The following is a partial list of recent articles on this subject:

Payr, E.: Iron and Magnet in Prophylaxis and Treatment of Peritoneal Adhesions, *München. med. Wchnschr.*, Nov. 25, 1913; abstr., THE JOURNAL, Jan. 10, 1914, p. 171.

Reichelderfer, L. H.: Postural Treatment of Postoperative Abdominal Adhesions, *Surg., Gynec. and Obst.*, December, 1913; abstr., THE JOURNAL, Jan. 17, 1914, p. 239.

Pope, S.: Use of Citrate Solutions in Prevention of Peritoneal Adhesions, *Ann. Surg.*, January, 1914; abstr., THE JOURNAL, Feb. 14, 1914, p. 570.

Kirchberg, F.: Treatment of Peritoneal Adhesions, *Med. Klin.*, March 29, 1914; abstr., THE JOURNAL, May 2, 1914, p. 1442.

Plotkin, G.: Application of Large Magnet in Gastro-Intestinal Derangement, *St. Petersb. med. Ztschr.*, April 14, 1914; abstr., THE JOURNAL, May 30, 1914, p. 1766.

Lyman, C. B., and Bergtold, W. H.: Amniotic Membrane for Prevention of Postoperative Peritoneal Adhesions, *Surg., Gynec. and Obst.*, June, 1914.

Henze, C. W.: Experimental Study of Silk-Tendon Plastics with Particular Reference to Prevention of Postoperative Adhesions, *Surg., Gynec. and Obst.*, July, 1914; abstr., THE JOURNAL, Aug. 8, 1914, p. 511.

Lyman, C. B.: Use of Amniotic Membrane in the Prevention of Peritoneal Adhesions, abstr., THE JOURNAL, Oct. 3, 1914, p. 1229.

Pribram, E. E.: Prophylaxis of Peritoneal Adhesions, *Arch. f. klin. Chir.*, August, 1914; abstr., THE JOURNAL, Oct. 3, 1914, p. 1238.

Wathen, J. R.: Abdominal Adhesions Prevented with Sodium Citrate in Hypertonic Salt Solution, *Kentucky Med. Jour.*, Dec. 15, 1914.

Lissovskaia, S. N., and Djanelidze, I. I.: Injection of Liquid Petrolatum Into the Abdominal Cavity to Prevent Adhesions, *Russk. Vrach.*, xiii, No. 29; abstr., THE JOURNAL, Feb. 20, 1915, p. 705.

Sweet, J. E.: Chaney, R. H., and Willson, H. L.: Prevention of Postoperative Adhesions in Peritoneal Cavity, *Ann. Surg.*, March, 1915; abstr., THE JOURNAL, March 27, 1915, p. 1107.

Lyman, C. B.: Use of Amniotic Membrane in Prevention of Peritoneal Adhesions, *Colorado Med.*, August, 1915; abstr., THE JOURNAL, Sept. 4, 1915, p. 904.

Brinsmade, W. B.: Intestinal Adhesions: Bowel Protection, THE JOURNAL, Sept. 11, 1915, p. 920.

REQUEST FOR INFORMATION AS TO SUITABLE HOME FOR SEMI-INVALID

To the Editor:—Can you give me the address of some institution where I could place a maiden lady of about 45 years of age permanently, or at least for a number of years? This is not a mental case, nor a case of tuberculosis. On account of the usual prohibitive rates, the family is not in a position to place her in a sanatorium. They could probably pay $30.00 per month, or at least $25.00, or a lump sum for her care for a number of years, or permanently. The lady is a semi-invalid and suffers from nervousness, which is greatly exaggerated by her being constantly humored by home surroundings. In other words, she is better away from home than at home. Any place where she could have a fairly quiet home and where she could be persuaded to take an interest in things would be suitable. A little directing and supervision would be essential.

A. W. C., M.D.

ANSWER.—THE JOURNAL will appreciate information on the foregoing, which will be forwarded to the inquirer.

CIMEX LECTULARIUS, I. E., BEDBUGS

To the Editor:—Referring to the inquiry (THE JOURNAL, Feb. 5, 1916, p. 448) regarding *Cimex lectularius*, I would recommend the following: Procure an ounce of bromin, close the windows tightly, then remove the cork, close the door tightly, and after twenty-four hours, open and air the room. The fumes do not seem to affect anything but the bugs and their eggs; these are all put out of commission.

GEORGE F. BEASLEY, M.D., Lafayette, Ind.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

CONNECTICUT: Regular, New Haven, March 14-15. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven; Homeopathic, New Haven, March 14. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven; Eclectic, New Haven, March 14. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

FLORIDA: Homeopathic, Jacksonville, March 10. Sec., Dr. J. B. Griffin, St. Augustine.

MAINE: Portland, March 14-15. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MASSACHUSETTS: Boston, March 14-16. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

MISSOURI: St. Louis, March 20-22. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

WYOMING: Laramie, March 14-16. Sec., Dr. H. E. McCollum, Laramie.

California Reciprocity Report

Dr. Charles B. Pinkham, secretary of the Board of Medical Examiners of the State of California, reports that 46 candidates were licensed from June 22 to Sept. 17, 1915. The following colleges were represented:

College	Year Grad.	Reciprocity with
California Eclectic Medical College	(1911)	Arkansas
Cooper Medical College	(1904)	Washington
University of Southern California	(1904)	Arizona
University of Colorado	(1913)- Colorado;	(1914) Arkansas
George Washington University	(1912) Iowa;	(1912) Dist. Colum.
Bennett College of Eclectic Medicine and Surgery	(1905)	Illinois
Chicago College of Medicine and Surgery	(1910)	(1914) Illinois
College of Physicians and Surgeons, Chicago	(1903)	Illinois
National Medical University, Chicago	(1901)	Michigan
Northwestern University	(1904) Iowa;	(1907) Illinois
Rush Med. Coll.	(1899) Arizona; (1901) W. Va.; (1903) (1907 Illinois; (1912) Minnesota;	(1914) Washington Illinois
Sioux City College of Medicine	(1904)	Iowa
State University of Iowa, College of Homeo. Med.	(1907)	Iowa
Hospital College of Medicine, Louisville	(1898)	Indiana
Medical School of Maine	(1897)	Florida
Baltimore Medical College	(1913)	Dist. Colum.
Johns Hopkins University	(1906)	Mass.
Harvard University	(1913)	Mass.
Detroit College of Medicine	(1902)	Michigan
University of Michigan, Medical School	(1904)	Arizona
University of Minnesota	(1909)	Minnesota
John A. Creighton Med. Coll.	(1903) Iowa; (1902)	(1906) Nebraska
Columbia University, College of Phys. and Surgs.	(1904)	New Jersey
Cornell University	(1900)	Illinois
Medical College of Ohio	(1906)	(1907) Ohio
Miami Medical College	(1904)	Ohio
Pulte Medical College	(1891)	Arizona
Jefferson Medical College	(1897)	Kansas
University of Pennsylvania	(1895)	(1913) Washington
University of Pittsburgh	(1910)	Penna.
Meharry Medical College	(1911)	Virginia
Vanderbilt University	(1909)	Missouri
University of Vermont	(1914)	Vermont

Connecticut Eclectic November Report

Dr. E. C. M. Hall, secretary of the Connecticut Homeopathic Medical Examining Board, reports that two candidates were licensed through reciprocity, Nov. 9, 1915. The following colleges were represented:

College	Year Grad.	Reciprocity with
Kansas Homeopathic Medical College	(1896)	Missouri
New York Homeo. Med. Coll. and Flower Hosp.	(1912)	New York

Kentucky December Report

Dr. A. T. McCormack, secretary of the Kentucky Board of Health, reports the written examination held at Louisville, Dec. 7-9, 1915. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 70. The total number of candidates examined was 13, of whom 9 passed and 4 failed, including 1 osteopath. Two candidates were granted reregistration licenses by examination. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Louisville National Medical College	(1912)	72
University of Louisville	(1911) 80; (1914) 79;	(1915) 86
University of Oregon	(1914)	89
Jefferson Medical College	(1913)	81
University of Tennessee	(1909)	81
Vanderbilt University	(1914) 77;	(1915) 84
FAILED		
Louisville National Medical College	(1912)	56
St. Louis College of Physicians and Surgeons	(1915)	66
University of Nashville	(1908)	64*

* Official reports do not give this candidate as a graduate.

Book Notices

SURGERY OF THE BLOOD VESSELS. By J. Shelton Horsley, M.D., F.A.C.S., Surgeon-in-Charge of St. Elizabeth's Hospital, Richmond. Cloth. Price, $4. Pp. 304, with 89 illustrations. St. Louis: C. V. Mosby Company, 1915.

The chief value of this work lies in what the author has to say on the technic and results in surgery as applied to the large blood vessels themselves, a field in which he has had considerable experience. His experimental work has contributed much to our knowledge of the subject, and he has helped to simplify the technic. As a result of his experiments and experience he is very careful to refute the extravagant statements which have been made regarding surgery of the blood vessels. He says: "The sensational articles that have appeared in the public press have been to a large extent unwarranted. . . . The idea that a new limb can be transplanted and will remain useful or that a kidney or goiter can be grafted from one individual to another is erroneous. These experiments, even in animals, have not been permanently successful." He then quotes Guthrie on the same subject, who said, "This is the disappointing but unanimous conclusion of experimenters." However, while this undoubtedly is the condition today, it does not mean that some way may not be discovered in the future which will make these things possible. The author finds that reversal of the blood current in the lower extremity by division of the vessels and end to end union between artery and vein has proved of little value, as the arterial blood finds its return through nearby anastomosing veins and probably does not reach the periphery. He thinks that if reversal is to be tried it should be done by lateral anastomosis rather than by end to end suture. Concerning transfusion, the author thinks it is unnecessary to make hemolytic tests of the donor's and recipient's blood before doing transfusion, as the cases in which hemolysis takes place to any serious extent are rare. In addition to the usual discussion of the surgery of aneurysms and of thrombosis and embolism, the author takes up varicocele, varicose veins, hemorrhoids, and transplantation of the anterior temporal artery in order to make the work complete. There is nothing specially new in these chapters, but the subjects have been presented in a brief and concise way so far as operative measures are concerned.

THEORY AND PRACTICE OF BLOODLETTING. By Heinrich Stern, M.D., LL.D., Visiting Physician, St. Mark's Hospital, New York. Cloth. Price, $2.50. Pp. 264, with illustrations. New York: Rebman Company, 1915.

The author aims to set forth in a systematic manner the important progress of bloodletting, especially in its more recent experimental and clinical investigations. After a historical review of the procedure, he describes the functional changes which follow bloodletting. Changes in the amount and distribution of blood effected by bloodletting, cupping and phlebostasis are readily understood. According to the author, venesection reduces blood pressure better and more lastingly than any other treatment. He discusses changes in the composition of the blood caused by its withdrawal from the blood vessels. Abnormal and deleterious substances are removed with it, but the effect of bloodletting on osmotic tension, the author thinks, is the most important. He concludes that it is the reestablishment of osmotic equilibrium or the "osmotherapeutic properties of bloodletting, heretofore unrecognized as such, that render it of such great value in quasimoribund cases." Venesection, moreover, stimulates the hemopoietic organs so that more erythrocytes are produced after blood is withdrawn than existed before, and they become more resistant as well as more numerous. The effect of bloodletting on the movement of lymph is referred to, and a section is devoted to the technic of bloodletting, cupping and phlebostasis.

It is unfortunate that a book on so important and interesting a subject is not written in more idiomatic English. Moreover, numerous grammatical errors can be found in the text, and sentences are often so involved as to make reading wearisome. Nor can we fully agree with the author's views as to the mode of action of venesection in uremia or in some other diseases.

Medicolegal

Admissibility of Testimony of Physician Making Physical Examination

(McGuire vs. Chicago & Alton Ry. Co. (Mo.), 178 S. W. R. 79)

The Supreme Court of Missouri, Division No. 1, in affirming a judgment in favor of the defendant in this personal injury case, holds that there was no error in admitting in evidence the testimony of a physician relating to statements made to him by the plaintiff, who was required by an order of the trial court to submit to a physical examination by the physician. That such communications are not within the privilege secured to the patient by Section 6362 of the Revised Statutes of Missouri, the court says is evident, for they do not come within either its letter or reason. The information was not acquired from one who stood in the relation of patient to the witness, nor was it acquired, actually or ostensibly, for the purpose of enabling the witness to perform any professional service either of diagnosis or treatment for the plaintiff, but only for the purpose of qualifying him to inform the court as a witness with respect to those facts properly included in the purposes of the examination. It was contended with much force and reason that the only justification for the rule by which a court may compel a litigant to exhibit his body to the scrutiny of a potential witness outside the limits over which its immediate supervision and protection extends is to prevent the concealment of the physical facts on which the right to recover depends, and which can be discovered only by inspection. The plaintiff insisted that it is an abuse of this power to use it to force statements from the party, which may be filtered as admissions through an irresponsible witness, instead of using the ample legal process available to secure the testimony in open court. In this case the testimony tended to show that certain physical conditions superinduced by gonorrhea sometimes cause hernia of the kind found present in the case of the plaintiff, and that these same conditions were also present, and were recognized in the examination. That it was a part of the duty of the physician to ascertain these facts, so far as they might appear from inspection, that they were relevant to the inquiry, and that he was competent to testify to them, the court has no doubt. The plaintiff testified, however, that the stricture or deposit of scar tissue which was said to be a cause of rupture had been present only two years, while the physician said that the plaintiff had informed him that this feature had existed during a period which covered the entire time since the accident in which he claimed he sustained a rupture. Thus the question was presented whether, under the circumstances in evidence, the defendant could impeach the plaintiff by the evidence of the physician as to statements not connected with his present condition elicited from him during the examination. The examination was an act of the court, whose instrument the physician was, and the plaintiff's counsel had the right to be present, as at any other proceeding in the cause, for the protection of the interests of his client. The physician did not say in his testimony that the statement of the plaintiff in regard to the time the stricture had existed had been called out by any question or suggestion of his, or that it was not, as it appeared on its face to have been, perfectly voluntary. Under these circumstances, there was no error in admitting the testimony.

Not Required to Guarantee Results—Consent to Operation Necessary—Evidence

(Zoterell vs. Repp. (Mich.), 153 N. W. R. 692)

The Supreme Court of Michigan affirms a judgment in favor of the defendant, who was alleged to have performed on the plaintiff, without her consent, two surgical operations which deprived her of the ability to bear children and resulted in an abdominal postoperative hernia. The defendant was the attending physician and surgeon for diseases of women at a hospital in which the patient, who had worked as a scrubwoman, was received. The jury found that the operations were not against her consent. That the nature of

her trouble and the probable necessity of removing her ovaries was explained to and discussed with her, the court says it thinks was shown by her own testimony, for she stated she told the defendant she did not want them taken out. The difficulties and uncertainties in the practice of medicine and surgery are such that no practitioner can be required to guarantee results, and all the law demands is that he bring and apply to the case in hand that degree of skill, care, knowledge, and attention ordinarily possessed and exercised by practitioners of the medical profession under like circumstances; and the bare fact that full recovery does not result, or that a surgical operation is not entirely successful, is not in itself evidence of negligence. As to those matters of special knowledge strictly involving professional skill and attention, unskilfulness, negligence, or failure to do that which ought to be done must be shown by the testimony of those learned in such matters. The trial judge, in a full and careful charge, positively instructed the jury that if the plaintiff did not understand and consent to the operations as performed, she was entitled to recover damages. He said, in part: In this case, and in any case of an operation, the consent of the person operated on is essential to justify the party operating in the performance of such operation, and regardless of how successful the operation may have been, how successfully performed, or how much such operation may have been needed, unless consent was given it is an unlawful operation, and the party operating is liable for whatever damages may have resulted therefrom, according to the testimony in the case. And this consent must be with knowledge and understanding of the operation itself. If you find that the consent of the plaintiff at the first operation was given for the treatment of the uterus only, and at the second operation for the repair of the hernia only, and that she did not consent to the operation for the removal of one of the ovaries at the first, and the other at the second, operation, and that the defendant did remove the ovaries at the time stated, then the consent to the operation for the cleaning of the uterus the first time and the consent to the operation to repair the hernia at the second time, could not excuse the defendant for performing an operation for the removal of the ovaries. In other words, consent must be given to the operation performed. Experts were permitted to testify as to the probability and need of an operation of the character that was admittedly performed. The jury should take this into consideration as bearing on the probability or non-probability of the plaintiff having consented to the operation in question. There was no error committed in instructing the jury that if the plaintiff understandingly consented to the operations in question, and they were performed under and according to such consent, there was no evidence in the case to sustain a recovery of damages. The testimony introduced at the trial was chiefly directed to the issue of consent, and the necessity and propriety of the operations.

Not Required to Puncture Eardrum

(*McGray vs. Cobb et al.* (*Minn.*), *153 N. W. R. 736*)

The Supreme Court of Minnesota awarded a new trial in this case, which was reported in the Medicolegal Department of THE JOURNAL, Sept. 25, 1915, p. 1134. The court says that on a rehearing granted in this case the majority of the members of the court have reached the conclusion that a new trial should be had, because the evidence was insufficient to warrant the submission of this claim of improper or negligent treatment to the jury: "Was Dr. Beals justified in the exercise of the skill, learning, and diligence usual among physicians in good standing in his profession in not puncturing the eardrum before, or in not increasing the drainage through the eardrum after its rupture?" The quotation is from the charge to the jury. It is considered that the opinions of the experts furnished no basis for a finding that good practice required the eardrum to be punctured after the physician was called and before the pressure of the accumulated pus ruptured it, or that, by proper treatment, any other or better drainage could have been provided than was provided by means of the rupture thus made by Nature's force. In other respects the original opinion is deemed correct.

Society Proceedings

ANNUAL CONGRESS OF MEDICAL EDUCATION, PUBLIC HEALTH AND MEDICAL LICENSURE

TWELFTH ANNUAL CONFERENCE OF THE COUNCIL ON MEDICAL EDUCATION OF THE AMERICAN MEDICAL ASSOCIATION

Held in Chicago, Feb. 7, 1916

DR. ARTHUR DEAN BEVAN, Chicago, in the Chair

Medical Education in America

DR. ARTHUR DEAN BEVAN, Chicago: The points which I wish to emphasize are: 1. We now have as a standard of medical education a seven year course of study, as high a standard as adopted by any country in the world. 2. Today an undergraduate can obtain a better undergraduate training in medicine in the United States than in England, Germany, France or Austria. 3. Steps are being taken to make the hospital intern year a legal requirement to practice medicine. 4. In each medical center, with two or more medical schools, these should be brought together in a single cooperative scheme of medical education. 5. In the evolution of medical education in this country, the medical profession has done more to place itself on an efficient basis than any other profession or field of effort. 6. We are now confronted with the problem of placing the profession on a basis of efficiency and preparedness not only for peace but also for war. Steps are being initiated at this meeting to accomplish this.

Progress in Medical Education

DR. N. P. COLWELL, Chicago: From 1865, just following the Civil War, the number of medical colleges in the United States was rapidly increased until in 1904, 166 separate institutions were reported. The rest of the world then had 154. During this time, however, forces were being developed which would eventually demand an entirely different type of medical teaching institution. It was during the same period that Pasteur, Koch, Klebs, Löffler, Pfeiffer, Kitasato, Frankel, Obermeir and others made their remarkable discoveries in the field of bacteriology, which were destined to revolutionize the practice and teaching of medicine. During this time antiseptic surgery had its beginning, and the foundation was laid for the prevention of epidemics and for the saving of untold thousands of lives through the use of antitoxins and serums. During this time medicine was placed on a more sound, scientific basis than it had ever previously held. Epoch-making discoveries, however, have continued since that time and are still placing at the disposal of the medical profession definite and verified knowledge in regard to the etiology, treatment and prevention of disease.

Conditions in 1900, therefore, were ripe for the beginning of the campaign which the American Medical Association inaugurated through its Council on Medical Education. As a result, the number of colleges has been reduced by 43 per cent., the total number of medical students has been reduced by nearly 50 per cent., and the annual number of graduates has dropped nearly 40 per cent. The totals last session were ninety-five medical colleges, 14,891 medical students and 3,536 graduates.

While statistics show that the total enrollment of students has about reached its lowest ebb, the number of colleges will doubtless continue to show a decrease, owing to the general adoption of higher entrance standards. There is no danger of a dearth of medical colleges, however, since it can be seen that fifty or sixty medical colleges could easily care for all the students enrolled during the session of 1914-1915 in the 102 medical teaching institutions.

COLLEGE FINANCES

Of the ninety-five medical colleges now existing, eighty reported total incomes for the session of 1914-1915 ranging from $411,570, the highest, to $4,529, the lowest. The average for each college was $65,137, and the grand total was $5,211,002.

In students' fees the income for each college ranged from $113,523, the highest, to $500, the lowest. The average income from this source was $22,388, and the grand total was $1,791,013. It will be noted, therefore, that the fees paid by medical students cover a little more than one third of the total income of the medical schools.

Included in the income obtained, aside from students' fees, thirty-four colleges reported the receipt of a total income from endowments of $1,164,602, or an average of $34,253 for each of the thirty-four institutions which reported income from this source; twenty-eight colleges reported an income from states or municipalities amounting to $864,285, or an average of $30,868 for each institution.

The total enrollment in these eighty medical colleges during the session of 1914-1915 was 12,103. The average income received from each student in tuition fees was $148, whereas the average expenditure for each student was $417. On the average, therefore, the cost of teaching each student last year was nearly three times greater than the amount he paid in fees in that year.

CHARTERING OF COLLEGES

Through the lack of an adequate check on the chartering or conduct of such institutions, a new and popular form of quackery has been established. This lack provides the easiest present day method of evading the educational requirements of the medical practice laws. Colleges and schools professing to turn out in a few brief weeks or months, by correspondence methods or otherwise, specialists in some branch related to medicine have been springing up in various states.

The literature which they send out leads students to believe they will be prepared to treat human ailments skilfully. The students enter in good faith, pay fees usually larger than those demanded by the best medical schools, waste months or years of valuable time, and may go on for years before they learn how totally inadequate was the training furnished.

The largest number of these institutions at present is found in Illinois, where conditions are especially favorable. Besides the two Class C schools which continue to exist, there are in Illinois colleges of osteopathy, chiropractic, chiropody, naprapathy, somopathy, physcultopathy, refraction, optics and a legion of others, most of which have for their chief inducement elegantly printed diplomas conferring the degree of doctor of this, that or the other.

In Iowa a ridiculous situation exists, where several so-called chiropractic institutions have been chartered which, without adequate equipment, and with scarcely any entrance requirements, are turning out, by correspondence courses or other loose methods, many of those who profess to cure all kinds of diseases by manipulation of the spinal column. These graduates, although "made in Iowa," are not permitted to graze on Iowa soil, but go to states not having adequate legal barriers.

The greatest problem which state licensing boards are now being called on to solve is in connection with the "graduates" of the drugless healing colleges.

In Ohio, a year ago, the chiropractors and several medical sects were clamoring for separate boards and the provision for lower educational standards than were required of physicians. To prevent the confusion which would result from the multiplicity of boards, an amendment to the medical practice act was obtained, placing the control of all medical cults under the state medical board.

A new medical practice act has been secured in Wisconsin which provides the same educational standards for osteopaths as are required of physicians.

SYMPOSIUM ON THE RELATION OF THE LABORATORY COURSES TO THE WORK OF THE CLINICAL YEARS

DR. ELIAS B. LYON, dean of the University of Minnesota Medical School, Minneapolis, read the first paper on this subject.

DR. LEWELLYS F. BARKER, professor of clinical medicine, Johns Hopkins University, Medical Department, Baltimore, followed with a paper entitled "Relation of the Preclinical Laboratory Courses to the Work of the Clinical Years."

DR. JAMES EWING, professor of pathology, Cornell University Medical College, New York, read a paper entitled "Principles and Experiments in Medical Education."

DR. FREDERIC S. LEE, professor of physiology, Columbia University College of Physicians and Surgeons, New York, read a paper entitled "A Proposed Undergraduate Course in Clinical Pathology."

These four papers will be published in full next week.

Discussion on the Relation of the Laboratory Courses to the Work of the Clinical Years

DR. WILLIAM T. COUNCILMAN, Boston: For a great many years I have endeavored to make a close analysis of students. The number we have to teach has increased so enormously that we are constantly attempting to teach too much, and sometimes we lose sight of the fact that in these preclinical courses the men should be trained in scientific methods. Students should come into the medical school with a scientific method of study inculcated in them, but they do not. They come from colleges to us knowing nothing thoroughly, so that the teaching of the class of men we have in the first two years is very unsatisfactory. We are not going to make it very much more satisfactory by increasing the demands. It is not the amount but the training which they should have before they come to us. This thoroughly inefficient method of education goes down to the bottom of the primary and secondary schools and colleges.

Formerly, there was a strong line of demarcation between the preclinical studies and the clinical studies. That line no longer exists. The men who have a scientific ideal can attain the fulfilment of it just as much in medicine or surgery as in physiology and pathology, so that for certain men the time in the preclinical years could be shortened.

As to the admirable course mentioned by Professor Lee, such instruction can be had now in the best hospitals. That course is one which should be given not in the laboratory but in the hospital, bringing together physiology and clinical medicine. Formerly, we had only one scientific discipline—anatomy—and then added physiology and pathology, and later all of the others. We are constantly striving to teach men too much, and in so doing lose sight of what is really our great function—that of imparting method and scientific discipline.

DR. FRANK BILLINGS, Chicago: I wonder how many of us can go back and take the point of view of the student. What Dr. Councilman has said is true, that our curriculum is a stuffing process, and I am afraid, as Dr. Barker has pointed out, we do not think of the student as a human being. We lay out an amount of work without respect of the individual, his caliber, and what his environment may be in his private life, and we force him to take so much of the pabulum. Medical education has improved enormously, especially in the last ten years. There is hardly a school that can exist now in this country that has not full-time teachers in the so-called fundamental branches. It is necessary that the student be grounded in these fundamentals. We know that the fundamental teaching is rational in many of the schools of the country. Many teachers have learned that in their studies they need to study men as well as animals in making their tests.

I was glad to hear what Dr. Lee said about teaching physiology. It has always seemed to me that physiology should be taught on the human being as well as on the animal.

In relation to the laboratory courses and clinical medicine, no one has discussed the relation of the teachers in the

different departments. There is a feeling of hostility that is rather general in most medical schools of the country between the laboratory man and the clinical man. Part of it is justified; a great deal of it is not justified, and much of it would disappear if we could have closer relation between teachers of the so-called laboratory branches and clinical teachers. The motives of the clinical teacher would not be impugned so much as they have been in the past. The clinical man can help the laboratory man very materially and make his work much more interesting to him, and the laboratory man can be of the greatest use to the clinician. While I believe in the organization of departments, so that one may apply the fundamentals to clinical medicine, as Dr. Barker has said, still we should have a closer relationship between the laboratory men and the clinical men. There would not be any disputing, or much if any suggestion about the incompetency of the ileocecal valve, if the physiologist would come into the clinic and help to study the cases. If there was a closer relationship between the different departments we would not have a clinician saying that laboratory tests for secretions of the digestive tract, especially the stomach, are of no use; he would have different knowledge if he kept in touch with the laboratory man. So we need to apply all that to the student. We need to think of those who are going out to make practitioners because mighty few will become research workers, and not all of them can get training in research in a medical school.

Osler handled a body of students as though they were human beings. He did not try to teach them so many facts, but he taught them how to study disease as an unnatural phenomenon. He made them read literature because it was a part of their work in reference to the study of disease. He taught them principles.

DR. ROBERT C. COFFEY, Portland, Ore.: If I understood Dr. Ewing, he belittled the intern year. With experience as a state medical examiner, the most pitiful thing I have ever seen is the man who is not only a college graduate, but also a graduate of one of our great universities, withering and dying in his community with all of his knowledge because he has not been taught how to handle patients. The country is full of such practitioners. We have in our community a large number of men who have been educated in the very best universities of the country, yet who are becoming discouraged and probably going into the orchard business or some other commercial enterprise because they have never been able to deal with people. On the other hand, in our community the leading practitioners are the men who have had from one to five years' experience as interns. What I have said actually occurs in practice. The man who has been educated, but has not had an internship, is unfitted to meet and to make his way with the men who are the graduates of perhaps some inferior school, but who have had training as interns.

JOINT SESSION OF THE COUNCIL ON MEDICAL EDUCATION AND THE FEDERATION OF STATE MEDICAL BOARDS

SYMPOSIUM ON THE NATIONAL BOARD OF MEDICAL EXAMINERS

Reasons for a National Board

DR. WILLIAM L. RODMAN, Philadelphia: What are the reasons for a national board? Every one will admit the impossibility of having a uniform standard where there are fifty states, some of these states having multiple boards. It is to protect men who, on account of ill health or sickness in their family, or for some other reason, wish to change their location that the national board provides them with a certificate which they can file away, and we hope in time will be accepted in many or all of the states of the Union. We cannot have a compulsory national board since the police powers are with the state, but a voluntary board is certainly feasible and can have general acceptance. It only requires reasonable concessions from the existing agencies. A national board, to deserve and secure general acceptance, must maintain a higher standard than a board whose examinations can legally be made compulsory. The law contemplates and enforces only ordinary or average standards, so that this voluntary board should be placed on a much higher standard. A man does not have to take the examination of this board if he does not want to, and therefore the standard can be and should be made higher than if it were a compulsory board.

Should such a board be controlled by the government or be a federal body? The answer is that it is neither possible in fact nor desirable in theory. As a central board cannot have the official endorsement of the government, it should be allied with a teaching foundation of high standard and of national scope. This board is allied with the Carnegie Foundation, one of the widest scope, one which has done excellent work in elevating the standards of general and preliminary education. The Carnegie Foundation has given the board $15,000 a year. The Army Medical Museum has provided spacious rooms for conducting the examinations in a building which contains the largest medical library and one of the best collections of pathologic specimens in America. These are available to the applicants while in Washington preparing for the examination. The army and navy medical schools and the laboratory of the Public Health Service offer more than ample facilities for conducting a thorough oral, written and laboratory examination in all of the branches, including specialties. The laboratory for operative surgery in the naval school is easily the best we have seen. The chemical laboratories in each of the three government services are both commodious and complete. The Roentgen departments are well appointed, and there are abundant microscopes, dark room for the use of ophthalmoscopes, etc.

The clinical advantages offered by the government hospitals could not be better or more varied. The full capacity of the several government hospitals is about 5,000 patients, certainly sufficient to offer every facility for clinical examination.

The greatest advantage which Washington offers over other places is that an assistant or substitute for any one of the regular examiners, in case of illness or other unavoidable absence, could be furnished on short notice, as there are specialists in all departments, members of the respective corps, detailed in the schools and laboratories and free from the demands of private practice. The board consists of fifteen members. The constitution has been amended to provide for two additional representatives from the Federation of State Medical Boards as soon as vacancies occur in 1918. Then six members will represent the government services, and three will represent the Federation of the State Medical Boards. The remaining six members will be chosen at large, with due reference to geographic distribution, but not necessarily representing any association.

Relationship with the Government Medical Services

THE ARMY

DR. W. C. GORGAS, Surgeon-General, United States Army: The formation of this national board has been of great interest to the medical department of the army as a possible medium of increasing our reserve corps. Heretofore the function of the medical corps of the army has been to take care of the regular army in time of peace, but during most of its existence the regular army has been at war. When the nation was not at war we had the Indian wars on our hands.

Before the Civil War, the regular army comprised 25,000 men, and it did not take a large corps of medical officers to look after the sick. When the Civil War broke out there were seven regular medical officers to each thousand men, and they were greatly handicapped and played very little part. After the Civil War the regular army returned to its previous proportions, and was about the same when the Spanish-American War broke out. The lack of adequate care of the sick during that war was so striking that a board was officially called to look into the subject, and this board made several recommendations which the government adopted. The recommendations of the Dodge Commission

were briefly that there should be seven regular medical officers per thousand men and that provision should be made for hospitals with necessary delicacies. Then came the question of improvement in transportation, whereby the medical supplies could be sent to the front.

In 1898 the Medical Corps was increased to the ratio suggested by the Dodge Commission, seven per thousand men, but the army has also been increased to about 106,000 or 107,000, so that we now have only five medical men to each thousand. To meet expansion in cases of war, a law was enacted authorizing the organization of the Medical Reserve Corps. This has been brought up to about 1,500 men, and steps have been taken, more or less, to prepare the men for actual war service. The Dodge Commission had in view a smaller army and less preparation than we now have in view. They recommended stores for four times the regular army in time of peace, and the personnel and organization of our present reserve corps is to be established on the same basis. Much depends on the appropriations that have been made. We have medical supplies of a permanent character stored for 250,000 men. We have a reserve corps to man that number of men, but the training of the reserve corps has to be restricted on account of appropriations. We cannot order men to the various camps or put men in the field or pay them for the time they put in with the troops. We are on the eve of an expansion, and some method of expanding the reserve corps is also very essential.

A bill at present before Congress contemplates bringing the regular army up to 140,000 men and increasing the regular medical corps in the ratio of five per thousand men. The enlisted personnel of the medical corps can be increased under the present law as the authorities see fit. The bill contemplates in three years a total army of 400,000 men, one third to be enlisted each year. The bill contemplates a second increment of 400,000 men, so that ultimately we would have an army of nearly a million men. The proper manning of this number of men on a war footing would require about 10,000 medical men.

I have taken the ground that the medical care of 140,000 men would require at least seven medical officers per thousand, and an enlisted force of fifty per thousand. But that contemplates merely the executive care and care of the regular army. Our great function is the training of these 10,000 men that we hope to get into the Medical Reserve Corps. To accomplish this we should have as large a number of regular officers commissioned in the army and noncommissioned officers as Congress can afford. That will give ten per thousand men to whom we can give a certain amount of training, but if they give us 20,000 we could scatter 10,000 regular officers to serve with the troops and accomplish much more. I think the National Board of Medical Examiners will be a great measure for recruiting our reserve corps. This board has many other advantages, but I simply advocate it from the army point of view. So far as the army is concerned, it will certainly be supported.

THE NAVY

DR. W. C. BRAISTED, Surgeon-General, United States Navy: The idea of a central examining board whose certificate should be of such high character that its acceptance by every state, territory and possession of the United States would be assured has been in the minds of many of the profession for the past twenty years. We medical officers of the navy feel that physicians should be entitled to practice within our own country at any time or place. As medical officers of the navy, our duties are constantly shifting us from place to place, bringing us under ever-changing conditions at the most unexpected times. In times of emergency, in war or disaster, in situations in which no other professional help is available, we feel that we should be protected by some provision of this kind to make our services of full value to the nation. The possession of a certificate of the national medical examining board by an applicant for the Naval Medical Service would undoubtedly be of great value in showing his fitness for the medical corps of the navy, in either the active or the reserve corps.

What has been outlined describes in the main the relationship of the navy to the national medical examining board. The navy has no special relationship with the contemplated board. In national movements the services are frequently, almost daily, called on to assist and help to establish and organize measures for the nation's welfare and advancement. This movement to establish a national medical examining board is one of these great endeavors for the country's welfare, and it thus becomes our duty, as servants of the people, to attempt to aid by every means in our power your efforts in this direction.

THE PUBLIC HEALTH SERVICE

DR. JOHN W. KERR, Assistant Surgeon-General, United States Public Health Service (representing Surgeon-General RUPERT BLUE): Surgeon-General Blue desires to do whatever he may to elevate the requirements and the standing of those engaged in the practice of medicine. He feels that by reason of a movement of this character it would be possible for our diplomas and requirements in this country to be accepted in greater degree by other countries. It is the desire of Surgeon-General Blue by every means possible to stimulate interest in the advancement of the public health and encourage and stimulate the medical profession to engage in this work to a greater degree.

The surgeon-general's connection with the board must of necessity be of an unofficial character. He believes that eventually it will be practicable by this means for the government to recruit for the services to which I belong and to provide for greater interest in public health work and to favor appointments in time of epidemics without additional examination.

Relationship with State Medical Licensing Boards

DR. HERBERT HARLAN, President of the State Medical Examining Board of Maryland, Baltimore: Protection of the people is a state police function, and without an amendment to the constitution of the United States cannot be taken over by the national government. Such an amendment is not to be hoped for. State medical examining boards must continue, but as a large number of state boards (forty-one) have the legal authority to recognize, as sufficient guarantee of fitness, examinations conducted by boards of other states—examinations in regard to the conduct of which, in many instances, little is known and nothing inquired into—there is no legal objection to a change of statute granting a state board the authority to recognize the certificate or diploma of a national board as sufficient evidence of medical qualification; but only if, in the good judgment of the state board, the examinations, written, oral and practical, conducted by the national board are of such a character as to justify its acceptance.

Early in December I wrote to the secretaries of sixty-three boards of fifty-three states and territories, asking whether each board had the power to accept the examination of a national board in lieu of their own examination. Forty boards (in thirty-eight states) answered "No," and four "Yes"; two were doubtful and two noncommittal.

In reply to the question whether the board would be willing to license physicians who had passed the national board's examination without requiring them to take their own, seventeen replies were received, eight negative and nine affirmative. Twenty-three states would be willing to ask their legislatures to amend the laws so as to give them power to do so.

The answers to another question show that the present organization of the board and its plan of continuance is satisfactory to twenty-three and unsatisfactory to six, while thirteen would like some modifications.

To summarize, only a few boards have legal authority at this time to accept the national board, probably eight. Of those having no authority, however, 71 per cent. expressed themselves as willing to ask for legislation enabling them to do so.

It is expected that each state board will exact the same fee for recognition of the examination of the national board that they do now for the recognition of the license by another state.

The success of this movement to establish a national board of medical examiners depends on the acceptance of its certificate of proficiency by all, or nearly all, of the various state boards.

Educational Standards

DR. VICTOR C. VAUGHAN, Ann Arbor, Mich.: It is a matter of great importance what standards are adopted by this examining board after it goes into existence and begins its work. In the first place, we will expect that those who come before the board shall have had a fundamentally broad education; that each applicant shall at least know how to use his own language or the English language correctly. In the second place, it will be expected that for scientific and medical purposes, at least, each applicant shall know either German or French, or both. So far as the physical sciences are concerned, there can be no question that medicine is nothing more nor less than the application of the facts of biology, physics and chemistry to the prevention and cure of disease.

In recent years I have failed to see any distinction between the laboratory man and the clinician. Within the last twelve months it has been my good fortune to visit every important medical school in the United States. I found last week a distinguished professor of clinical medicine in one of the great schools in New York trying to separate a special globulin from the blood. Of course, I was quite at home in physiologic chemistry. I found another man in one of the large schools trying to crystallize a poisonous substance from the blood of a uremic patient.

It is the unanimous opinion of the members of this prospective board that at least two years of college work, in addition to the high school course, should be demanded for admission to an examination before this board. To demand less would be to go back. As we have been told, nine states already demand and three states more have notified that they will demand it, and there is scarcely any doubt that within a few years the majority of the states will be demanding it.

You have heard the surgeon-general of the army telling us that passing this examination would admit to the reserve medical corps of the army. With this understanding it would be absolutely necessary that the men who pass this board shall have not only a general but also a somewhat specific knowledge of camp sanitation and of the wounds of war. I cannot see any way of getting around this. I am sure the medical profession would not have it otherwise. It was my good fortune to spend a short time in the army in 1898, and I recall today very vividly the fact that 20,000 of the 100,000 young men who enlisted in the service of this country were either flat on their backs sick, dead or dying of typhoid within six weeks. I recognize what unpreparedness is responsible for, and I am sure the medical profession was not to blame for that in 1890, and does not want to be blamed for anything similar to it that may arise in the future.

Details of Operation and Examination

DR. ISADORE DYER, New Orleans, discussed the constitution and by-laws for a national board of medical examiners, and presented specimen blanks to be used in connection with the examinations.

Discussion on The National Board of Medical Examiners

DR. C. ST. CLAIR DRAKE, Springfield, Ill.: There can be no controversy as to the advantages which would accrue to the members of the medical profession if there could be devised some plan whereby one medical licensure would permit practice in any and all parts of the United States. The continued efforts to establish and extend interstate reciprocity in medical licensure bears evidence of a firm and growing acceptance of the value and justice of such an arrangement.

Legal obstacles, however, such as have always stood in the way of nationwide licensure by the federal government, remain in Illinois, as well as in other states as barriers to participation in the plan of the national board.

Under the Illinois law, the state board of health is charged with certain specific duties relative to the examination and licensure of physicians, and it has been repeatedly held that a duty and authority so imposed cannot be delegated to extragovernmental organizations. Certainly under the existing Illinois law, the state board of health could not turn over its examining and licensing function to the National Board of Medical Examiners, nor could the state board of health accept the certificate of the national board in lieu of examination as subscribed by law.

In an opinion recently rendered by the attorney-general of Illinois, it is definitely stated that any law enacted by the general assembly providing for the delegation of the examining and licensing power to an extragovernmental organization of any kind would be construed as class legislation and would consequently be declared void.

It would be entirely consistent with the medical practice acts now in force in many of the states to create a general commission of medical examiners, to be made up preferably of the various state examining and licensing boards. This conference or commission could formulate the rules by which each board could have equal voice with any other in control of the organization. These rules would also specify the manner in which medical examinations would be conducted in the several states, the subjects to be covered and the relative weight and importance to be given to each subject included in the examination. The rules would be such as to guarantee, so far as practicable, absolute uniformity in character of questions, arrangement of subjects, and detailed methods of examination to be employed by all boards party to the conference or commission.

The rules thus formulated would be presented and adopted as the rules of the individual states, so that in each state they would become the legal and official rules.

One of the important functions of the commission would be the preparation of examination questions for use by the component boards. A sufficient number of physicians, members of the different boards, could be assigned to the preparation of the questions. The questions so prepared would be transmitted in sealed packages to the various states in which examinations were to be held, and could be formally adopted by the individual boards, the seals not to be broken, however, except in the presence of the assembled candidates for licensure.

As I see it, practically the same results can be obtained by the commission outlined, as by the National Board of Medical Examiners, with the essential difference that the former could operate in harmony with the laws now existing in Illinois, while the latter, being purely an extragovernmental and voluntary agency, cannot in the opinion of the attorney-general of Illinois be utilized lawfully by Illinois and certain other states.

(*To be continued*)

NEW YORK ACADEMY OF MEDICINE

Regular Meeting, held Jan. 6, 1916

METHODS OF PRECISION IN DIAGNOSIS OF SYPHILIS

Serum Diagnosis of Syphilis

DR. HOMER F. SWIFT: The value of the Wassermann reaction as a diagnostic procedure has been called into question. This is because it presents a mechanism in immunity hitherto unrecognized. In performing the test, five different biologic substances are employed, four of which may be considered as reagents which have not the fixed value of chemical bodies, but which vary in their properties according to the method of preparation, age, manner of preserving and other factors which are not understood. Because of the lack of uniformity in performing the test, the results should be judged from the clinical point of view. If the reports from a laboratory vary to any marked degree when the serums from a group of patients are submitted from time to time, it is safe to conclude that the methods employed in that laboratory are not well standardized. Whatever level is chosen can be fairly closely maintained by paying attention to the following

points: 1. One should have a certain standard for the various components of the hemolytic system which must be tested each day. 2. One should use several antigens and compare a new one with old ones of known value before accepting it. 3. One should insert as controls not only serums which on the previous day gave strong positive and completely negative reactions, but also a serum which has given partial fixation. This is the most important control, for by means of it one is always able to determine whether his reactions are of approximately the same intensity from day to day. This uniform level of reactions is especially required when the serum of a patient is to be tested after a provocative injection of salvarsan. The antigen with the most constant value is the cholesterin reinforced alcoholic extract of human or guinea-pig hearts, which also gives the highest percentage of positive reactions in all stages of syphilis, but especially in the late forms; it also persists longer in a patient under treatment. The chief criticism brought against it is that it gives too high a percentage of reactions in nonsyphilitic patients; but with proper precautions the occurrence of nonspecific reactions is rare. In the Wassermann there are group reactions as well as in other diseases caused by the spirochete, namely, yaws and relapsing fever. Trypanosomiasis and malaria also react positively and are amenable to salvarsan treatment. In tuberculosis, malignant disease and diabetes the reaction has been reported positive, but this often may be explained by the presence of a concomitant syphilis. In certain of the acute infections, as scarlet fever, pneumonia and poliomyelitis, a transient positive reaction is occasionally encountered, but it disappears with or shortly after the crisis and is never encountered in the cerebrospinal fluid of these patients. The demonstration of the *Spirochaeta pallida* in a suspicious ulcer proves the lesion to be syphilitic; the demonstration of a positive Wassermann reaction proves that generalized distribution of the virus has taken place, and the earlier diagnosis is made and treatment instituted, the better is the chance of complete eradication of the disease. It is very important to recognize the comparative value of the Wassermann reaction and spirochete search. Disappearing reactions are better indicators of sufficiency of treatment in late syphilis than in the early stage of the disease. A persistent positive reaction indicates the presence of syphilis somewhere in the body, and the first three or four years of treatment should be continued until the reactions remain negative. With reactions that cannot be influenced, a course of treatment should be given annually. In aortitis, persistent reactions while the patient is under mercury and salvarsan disappeared on continued administration of iodids. Because of the variability in the various reagents and lack of uniformity in performing the test in various laboratories, it is essential that there should be close cooperation between the laboratory and the clinician, for the clinician should be the interpreter of the reaction.

Study of the Cerebrospinal Fluid, and Its Value to the Practitioner

DR. GEORGE DRAPER: The four examinations to which the spinal fluid is subjected are the cell count, globulin determination, Wassermann reaction and the Lange gold test: changes in the cerebrospinal fluid, such as definite increase of pressure, multiplication of cells, positive globulin, no matter how faint, and positive Wassermann reactions in amounts of 1 c.c. or less. The cerebrospinal fluid shows changes in 100 per cent. of the early cases. The globulin test is the first to appear positive and the last to go. There may be marked pathologic changes in the fluid in cases of late syphilis for long periods of time before any signs or symptoms develop. All cases of frank tabes, paresis and cerebrospinal syphilis have pathologic fluids. In a certain group of syphilitics with vagus nerve disturbances, the spinal fluid may be normal in all points except the globulin. In such instances the isolated globulin finding becomes highly suggestive of a meningeal involvement of syphilitic nature. A provocative treatment should be instituted in such cases.

Value of the Colloidal Gold Test in the Diagnosis and Prognosis of Syphilis of the Central Nervous System

DR. JOHN A. FORDYCE: It cannot be emphasized too frequently or too emphatically that the fate of the syphilitic individual depends largely on the early diagnosis of his infection and the intensity with which the treatment is carried out in the first six months. It is in the accomplishment of this purpose that the modern aids to diagnosis have rendered the practitioner invaluable service. It is impossible for even a trained observer to recognize by his sense of sight and touch alone all that can be revealed by the laboratory. Chancroids frequently harbor the organism of syphilis, and owing to the longer incubation period of the latter, do not develop their characteristic features until after the expiration of two or three weeks, or they may entirely fail to develop any induration. The secretion of all these lesions should be searched for the *Spirochaeta pallida,* and with failure to find it, a favorable prognosis should be withheld until repeated examinations, including the Wassermann test, have been made. The dark field is especially valuable in developing chancres before they acquire their clinical characteristics. The tabetic syndrome may be simulated by the multiple neuritis of diabetes or alcoholism, and the real nature of the trouble revealed only by the spinal fluid analysis and the blood test. On the other hand, patients with syphilitic involvement of the central nervous system and suffering from obscure pains, febrile attacks, irritability, gastric and rectal crises, memory failure, etc., are often treated for years for neurasthenia, rheumatism, neuritis, surgical affections and various other conditions. In the light of recent investigations, an analysis of the spinal fluid is not complete unless the colloidal gold test is performed in addition to the Wassermann reaction and the cytologic and chemical examination. There is, as a rule, a parallelism between it and the other positive findings in the fluid. The typical paretic curve has been encountered in every case of paresis examined, and in three cases has been reversed to the syphilitic curve. This improvement did not, however, run parallel with the abatement of clinical symptoms, as one patient who, in addition, was negative in all the other laboratory findings, was slowly deteriorating in spite of treatment pushed to the point of tolerance. Definitely syphilitic processes, as cerebral endarteritis, abortive or stationary forms of tabes and some types of cerebrospinal syphilis may give a completely negative Wassermann. It is in these cases that the gold test is of value in demonstrating the syphilitic nature of the conditions. Its greatest value, however, is in distinguishing between paresis and the conditions which simulate it, as well as its prognostic significance in tabetics who show no mental impairment but give a paretic curve. Postmortem findings have shown that the anatomic changes in paresis may long antedate clinical manifestations. In patients who are under continuous observation, and especially those who are receiving intraspinal treatment in whom the fluid can be examined at regular intervals, the presence or development of the paretic curve should excite a strong suspicion that later these patients may develop the clinical syndrome of paresis, and I am advising the family or business associates of such patients of the possibilities in the case. Active treatment in these cases may anticipate, delay, or arrest the degenerative cerebral changes.

DISCUSSION

DR. SIDNEY R. MILLER, Baltimore: There can be no argument concerning the nonspecificity of the Wassermann reaction in the Ehrlich sense of the term. There is little danger of our seeing cases of yaws, recurrent fever and frambesia in this part of the world, and practically the only other disease which has ever given us questionable results has been malaria; but this condition is always easily ruled out by finding the malarial parasites, and in a failure to do this, a course of quinin, followed by a second Wassermann, will usually decide a doubtful case. As a result of the experience of five different laboratories, we have come to feel that an unequivocal positive Wassermann reaction, preferably with

three, but not less than with two, in a technic suitably controlled in which accuracy of result has not been sacrificed to delicacy of method, is clinically a specific evidence of existing syphilis. Our experience has been by no means unique, in that the Wassermann reaction has cleared up most difficult cases, and in a number of instances has clearly shown the casual or constant etiologic relationship of syphilis to the diseases under consideration. The point which needs the greatest emphasis, however, is that the closest cooperation must exist between the laboratory worker and the clinicians in the ward. The attempt to divorce one from the other is bound to lead to dangerous misinterpretations. The fallacy of the statement that our treatment of syphilis has not been advanced since the introduction of the Wassermann reaction will become apparent to any one who calmly analyzes the statement. No doubt patients have been treated who were not suffering from syphilis, but rather from a faulty application of the Wassermann test. The harm done by such misplaced therapy is nothing as compared with the good that has been achieved on the great mass of unfortunate sufferers. Out of a series of approximately 1,500 Wassermann reaction tests in which the serum or spinal fluid was tested against three different antigens, the results were absolutely parallel in over 97 per cent. of the cases. In seven cases fixation was given alone by the cholesterinized antigen. In all of these a subsequent lumbar puncture revealed the fact that the individual was suffering from some type of syphilis of the central nervous system. This brings up two points which need particular emphasis: 1. A suspected spinal fluid should not be regarded as negative unless it is so when ten times the original volume suggested by Wassermann is used in the reaction. 2. Physicians should demand a report which clearly states against how many antigens and in what amounts a spinal fluid or serum has been tested.

DR. EDWARD D. FISHER: I would place the diagnosis of syphilis much more surely on clinical observations than on the laboratory findings. The clinical side has been studied for so many years that a pretty exact knowledge of the manifestations of syphilis of the nervous system has been established. In this connection it might be mentioned that we have syphilis of the heart, of the lungs, of the liver, of any organ; that syphilis, in other words, has a selective choice as to situation. Probably more than 10 per cent. of the patients affected with syphilis have disease of the central nervous system. Again there is a selective choice of certain parts of the nervous system; in some cases there might be involvement of the meninges and blood vessels, and in others the cell structure. That has been observed clinically by Mott of London when he divides cases into the meningovascular, and cellular or parenchymatous, as tabes and general paresis. In my early experience with the early symptoms of syphilis I found that one sometimes got a basilar meningitis and ocular paralysis, and that under proper treatment these conditions almost invariably clear up. There are some clinical conditions in respect to which we seem to agree, and one of these is that paresis is rarely preceded by tabes if the latter is typical in character.

DR. SIGMUND POLITZER: It is the duty of the practitioner when he sees a case of primary syphilis to make an examination for spirochetes in the initial lesion, because syphilis during the first few weeks or months is curable. The diagnosis may be made by the dark field illumination, but this is not the only way. The India ink method is absolutely reliable. The majority of syphilitics show during the first weeks some irritation of the central nervous system, but only a small proportion develop cerebrospinal syphilis, and to treat these early cases for cerebrospinal syphilis by intraspinal injection is an unjustifiable procedure. There is no single test that has the value of the Wassermann, but it must be interpreted with intelligence. So far as the diagnosis of syphilis goes, I feel that we should be lost without the Wassermann test. In doubtful cases this test gives definite information, and subsequent treatment has demonstrated its correctness.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

February, XI, No. 2, pp. 85-176

1 *Tuberculosis in Infancy. C. H. Dunn, Boston.
2 Types of Hydrocephalus; Their Differentiation and Treatment. C. H. Frazier, Philadelphia.
3 Metabolism Studies in Hemophilia. M. Kahn, Pittsburgh.
4 Carmin Test for Duration of Complete Food Passage in Infants and Children. A. Hymanson, New York.

1. **Tuberculosis in Infancy.**—In a series of sixty-two successive necropsies, Dunn says, tuberculosis was found in twenty-five, and was considered the direct cause of death in twenty-three cases, and as the contributing cause in the other two. A primary lesion was found at the portal of entry in twenty-two of the twenty-five postmortems. The three cases in which a primary lesion was not found at the portal of entry all showed chronic tuberculosis of the bronchial lymph nodes, but none of the mesenteric lymph nodes. The primary lesion was found in the lung in twenty cases, and in the intestine in two cases. If we add to the twenty cases the three in which the only chronic lesions were found in the bronchial lymph nodes we have a ratio of twenty-three cases of infection through the lung to two cases of infection through the intestine. The favorite situations were at the apex and near the hilus. The bronchial lymph nodes were found tuberculous in the twenty cases having a primary lesion in the lung, and in three cases in which no primary lesion was found. They were involved alone in sixteen cases, including the three without evident pulmonary lesion. The mesenteric lymph nodes were tuberculous in addition to the bronchial lymph nodes in seven cases having a primary lesion in the lung, and were involved alone in the two cases having a primary lesion in the intestine. Tuberculous ulceration of the intestinal mucous membrane was found in seven cases beside the two in which this lesion was considered primary. In all cases the ulcers were multiple.

Chronic tuberculosis of the lymph nodes was found in every case. The brain was not examined in three cases, and no lesion of the meninges was found in two cases. In nineteen cases a tuberculous meningitis was found, which was the immediate cause of death. In only five cases were animal inoculations made to determine whether the infection was with a human or with a bovine type of bacillus. The bovine type was found in one case, and the human type in four cases. The case in which the bovine type of bacillus was found was one of those having a primary lesion in the intestine and the one known to have been fed with contaminated milk. The four cases in which a human type of bacillus was found included one of the cases in which there was no apparent primary lesion. In four cases only was there a definite history of exposure to tuberculosis obtained.

American Journal of Insanity, Baltimore

January, LXXII, No. 3, pp. 427-589

5 Survey of Defective Delinquents Under Care of Massachusetts State Board of Insanity. A. W. Stearns, Boston.
6 *Sensory Phenomena in Epilepsy. E. M. Auer, Skillman, N. J.
7 *Correlation of Clinical and Serologic Findings in Paresis and Cerebrospinal Syphilis. I. A. Darling, Warren, Pa., and P. B. Newcomb, Osawatomie, Kan.
8 Functions of Psychologist in Hospital for Insane. S. I. Franz, Washington, D.C.
9 Recollections of Psychiatrist. J. M. Keniston.
10 Dangers of Continuous Bath. W. A. White, Washington, D. C.
11 *Treatment of Paresis and Tabes Dorsalis by Salvarsanized Serum, H. A. Cotton, Trenton, N. J.
12 *Focal Lesions of Cortex of Left Angular Gyrus in Two Cases of Late Catatonia. E. E. Southard and M. M. Canavan, Boston.

6. **Sensory Phenomena in Epilepsy.**—Concerning the association of migraine to epilepsy, Auer says, one must in considering the influence of heredity, the onset during early life, the periodicity of attacks, the occurrence of prodromes, the unilaterality, exhaustion, chilliness and the occurrence

of unilateral paresthesias and transitory aphasia, observed in both conditions, admit a justifiable ground for relationship.

7. **Paresis and Cerebrospinal Syphilis.**—While examining the opinions given at staff meetings at the Warren State Hospital on 697 routine admissions, it was found by Darling and Newcomb that eighty-seven (12.5 per cent.) were considered to be syphilitic diseases. Of these sixty-nine (9.9 per cent.) were, in the opinion of the majority, unquestionable cases of general paralysis and five (0.7 per cent.) were cerebrospinal syphilis. Concerning the remaining thirteen cases (1.8 per cent.) there was a diversity of opinion. By a more careful analysis of these cases it was determined that eight of the sixty-nine paretics had had negative Wassermann reactions on the blood, this being 11.6 per cent. of all those suffering from the disease. Three, or 60 per cent. of the cerebrospinal syphilitics also failed to show a positive reaction on the blood. In all these cases the Wassermann reaction on the spinal fluid was positive.

11. **Treatment of Paresis and Tabes Dorsalis.**—Cotton emphasizes the fact that in the use of salvarsanized serum we have an agent which does cause definite arrest in paresis, which arrest includes improvement in the clinical symptoms, physical signs and a corresponding change in the biologic reactions from positive to negative. To be effective the case must be treated in the early stages, as advanced stages show no favorable reaction to the treatment. The length of time is not always an indication of the severity of the symptoms, but the majority of cases cannot be helped after two or three years have elapsed. Treatment must be persistent and uninterrupted, grading the amount of dose and frequency of treatment to the condition of the patient. Taboparesis should be cautiously treated, usually with small doses and not oftener than every three weeks. The remission caused by the treatment cannot be compared to spontaneous treatment, for the percentage in the former is 35.5 per cent. and in the latter case only 4 per cent. The change in the cell count, globulin content, blood and spinal fluid Wassermann reactions are the direct result of the treatment and not to be compared with the variation found in untreated cases of paresis. The efficacy of the treatment depends not on the method used but on the stage of the disease; hence the necessity for early diagnosis in paresis and prompt treatment as soon as possible.

12. **Focal Lesions of Cortex of Angular Gyrus.**—Southard and Canavan present two cases of chronic lesion of the left angular gyrus which received the clinical diagnosis of dementia praecox. One case showed a cyst of softening and the other a solitary tubercle. Decidedly atypical is the age of onset of the first case, at 41; the second case had its onset at 36. The authors are especially interested in the fact that the isolated lesions in these cases are in the parietal region.

American Journal of Medical Sciences, Philadelphia

February, CLI, No. 2, pp. 157-312

13 *Management of Patients with Chronic Renal Disease. T. C. Janeway, Baltimore.
14 Relation of Prognostic Factors to Treatment in Diabetes Mellitus. N. B. Foster, New York.
15 *Effect of Exercise on Carbohydrate Tolerance in Diabetes. T. B. Barringer, Jr., New York.
16 Some Aspects of Clinical Study of Respiration; Significance of Alveolar Air Analyses. F. W. Peabody, Boston.
17 Historical Sketch of Development of Duodenal Tube. M. Einhorn, New York.
18 *Tonsillar Endamebiasis and Thyroid Disturbances. J. S. Evans, W. S. Middleton, Madison, Wis., and A. J. Smith, Philadelphia.
19 Pathognomonic Alterations of Cerebrospinal Fluid in Syphilis of Nervous System. J. Collins, New York.
20 *Spontaneous Pneumothorax. L. Hamman, Baltimore.
21 Occurrence of Arteritis in Meningitis. J. W. McMeans, Pittsburgh.
22 Roentgen Expert Witness. E. H. Skinner, Kansas City, Mo.
23 Clinical Study of Chronic Diarrhea. D. Roberts, New York.
24 *Metabolism in Case of Myasthenia Gravis. A. Bookman and A. A. Epstein, New York.

13. Also published in *Bulletin of Medical and Chirurgical Faculty of Maryland,* Baltimore, January, viii, No. 7.

15. **Exercise and Carbohydrates in Diabetes.**—The apparatus used by Barringer in the three cases cited consisted of dumb-bells weighing from 10 to 40 pounds each, and steel bars varying between 25 and 80 pounds in weight, with which different series of movements were carried out. The exercises were of a concentrated form, and were given an hour daily, three days in the week, generally in the late afternoon. Each series of movements lasted from thirty to 120 seconds, and six to eight were given at each exercise period, so that the actual working time varied between four and sixteen minutes for the hour. The results were very satisfactory.

18. **Tonsillar Endamebiasis and Thyroid Disturbances.**—Tonsillar lesions of an infective cryptic character were found by the authors in 22.8 per cent.; and nasal together with tonsillar lesions existed in 90 per cent. of 362 goitrous individuals examined from this standpoint. In typically diseased tonsils, out of thirty-four cases examined microscopically, 97 per cent. were found to harbor *Endamoeba gingivalis* (gros) in the tonsillar crypts. Of sixteen individuals of this group who after treatment by means of emetin hydrochlorid were reexamined, thirteen, or 81 per cent., were shown no longer to have endamebas in the cryptal contents. In twenty-three persons to whom emetin was administered a reduction in the bulk of the goiter was appreciable in eighteen; and of seven dysthyroid cases included in this group of those treated, six were benefited in degrees varying from slight amelioration to apparent cure.

20. **Spontaneous Pneumothorax.**—Several interesting cases are cited by Hamman. Case 1.—A young man during a cold has sudden pain in the right side. A few days later, Dec. 2, 1909, examination reveals a complete right pneumothorax. Uneventful recovery in six weeks. Nov. 4, 1910, after lifting a weight, pain in the left side. Examination reveals complete left pneumothorax. Uneventful recovery in four weeks. Recurrence of left pneumothorax on Dec. 24, 1910. In October, 1913, cough, sputum, signs of tuberculous infiltration in both upper lobes; tubercle bacilli in sputum. Case 2.—Healthy young man has sudden pain in left side of chest followed by dyspnea on exertion; examination the following morning, Nov. 30, 1910, reveals complete left pneumothorax; uneventful recovery in four weeks; has remained well since. Case 3.—Healthy man, aged 38 years, has sudden pain on left side, followed by dyspnea on exertion; examination reveals left pneumothorax; uneventful recovery in four weeks; has remained well. Case 4.—Young man, aged 35 years, with relatively inactive chronic pulmonary tuberculosis, suddenly has severe pain in the left side. Examination reveals left pneumothorax. No constitutional symptoms develop and the pneumothorax heals uneventfully in five weeks. Case 5.—A healthy man, aged 29 years, suddenly has severe pain in the right side on the morning of July 29, 1914, followed by a little dyspnea on exertion. Examination Aug. 17, 1914, reveals a right-sided pneumothorax which has almost completely cleared up. Patient has remained well since. These five cases illustrate (1) how insidious may be the onset of pneumothorax; (2) what few symptoms it may occasion; (3) how easily on a casual examination the condition may be overlooked; (4) the perfectly benign course of the affection; (5) the occurrence of an insidious benign type of pneumothorax in perfectly healthy individuals as well as in those with manifest pulmonary disease.

24. **Myasthenia Gravis.**—This case of myasthenia gravis presented as unusual symptoms, bronzing of the skin, pigmentation of the buccal mucous membrane and high blood pressure. The metabolism of calcium, magnesium, phosphorus, sulphur, and nitrogen and the ammonia excretion were studied by Bookman and Epstein with the patient at rest, while taking exercise, during the administration of epinephrin, of thymus gland, and of calcium, and presented no abnormal features. The excretion of creatinin was below normal. There was at times a considerable excretion of creatin. Ovarian and testicular substance were also administered. Neither the glandular preparations nor the calcium appeared to have any influence on the clinical course.

Arizona Medical Journal, Phoenix

January, IV, No. 1, pp. 1-10

25 Physician's Relation to His Patients. W. W. Wilkinson, Phoenix.
26 Some Newer Ideas on Vaccines. W. W. Watkins, Phoenix.

Boston Medical and Surgical Journal

February 3, CLXXIV, No. 5, pp. 151-186

27 Gunshot Wounds of Soft Parts. B. Vincent and R. B. Greenough, Boston.
28 Observations on Six Hundred Heart Cases. M. H. Wentworth, Concord.
29 Are There Different Anatomic Types? J. E. Goldthwait, Boston.
30 Abscess of Tongue; Report of Case. J. Prenn, Boston.
31 Operation for Correction of Deformity Due to Obstetric Paralysis. M. H. Rogers, Boston.
32 Lobar Pneumonia in Infancy and Childhood. J. L. Morse, Boston.

Cleveland Medical Journal

December, 1915, XIV, No. 12, pp. 793-874

33 *Diagnosis of Cerebrospinal Syphilis by Laboratory Means. C. L. Cummer, Cleveland.
34 *Diagnosis of Intracranial Bleeding in New-Born. H. G. Sloan, Cleveland.
35 Typhoid in Cleveland in 1914. T. E. Cox and R. G. Perkins, Cleveland.
36 *Case of Urinary Retention without Other Symptoms Due to Syphilis. T. S. Keyser, Cleveland.
37 City Hospital Care of Contagious Syphilis; Some Social Aspects. W. C. Gill, Cleveland.
38 Value of Diastolic Blood Measurement in Diagnosis of Circulatory Disturbances. D. O. Bowman, Cleveland.
39 Neurologic Reviews; Case Reported. T. S. Keyser, Cleveland.

33. **Diagnosis of Cerebrospinal Syphilis.**—Syphilis, Cummer shows, may produce marked involvement of the central nervous system without any striking clinical signs for a long period of time. The all-important early diagnosis cannot be made without examination of the spinal fluid. Even when manifest clinical signs are present, it is only the examination of the spinal fluid which can show the exact nature of the morbid process. With patients who are under treatment, the repeated examination of the spinal fluid serves as a guide in treatment and in prognosis.

34. **Intracranial Bleeding in New-Born.**—In case of difficult or prolonged birth, in cases in which there has been a difficult instrumental delivery, or where there is tardy starting of spontaneous respiration, Sloan urges that the babe ought to be carefully watched for the next few days to see if there is any evidence of cerebral bleeding. Early symptoms of cortical irritation are most valuable in localization of the bleeding. Bleeding above the tentorium can be differentiated from that occurring below it. When symptoms of general increase in intracranial pressure become marked a decompression operation ought to be done. The best results are seen when decompression is done while the pulse rate is still slow and before respiration becomes irregular.

36. **Urinary Retention Due to Syphilis.**—Keyser reports the case of a patient, aged 57, complaining of difficulty in urination but showing no clinical signs which would warrant the diagnosis of syphilis. The evident neurologic basis of the retention, the definite history of infection, and the serologic findings in the spinal fluid determined the condition to be one of tabes dorsalis.

Florida Medical Association Journal, Jacksonville

January, II, No. 7, pp. 193-224

40 Pyelitis, Its Symptomatology, Diagnosis and Treatment. H. A. Peyton, Jacksonville.
41 Cooperation of Medical Profession and Press. R. H. McGinnis, Jacksonville.
42 Relation of Physician to Pharmacist from Standpoint of Physician. E. W. Warren, Palatka.
43 Assisting Nature. M. Freeman, Perrine.
44 Malarial Hematuria. J. D. Bennett, Clearwater.
45 Weaning from Morphin. H. M. Smith, Chattahoochee.

Journal-Lancet, Minneapolis

February 1, XXXVI, No. 3, pp. 61-92

46 Value of Lithotrite and Remarks on Removal of Foreign Bodies from Urinary Bladder. O. Owre, Minneapolis.

Journal of Cutaneous Diseases, New York

January, XXXIV, No. 1, pp. 1-54

47 Relation of Internal Secretions to Cutaneous Diseases. O. H. Foerster, Milwaukee.
48 Id. E. L. McEwen, Chicago.
49 Present Status of Dermatology in South America. W. T. Corlett, Cleveland.
50 Should All Precancerous or Cancerous Lesions of Skin be Excised? M. B. Hutchins, Atlanta.
51 Histopathology. W. J. Heimann, New York.

Journal of Medical Research, Boston

January, XXXIII, No. 3, pp. 323-506

52 Effect of Antiplatelet Serum on Blood Platelets and Experimental Production of Purpura Hemorrhagica. R. I. Lee and O. H. Robertson, Boston.
53 *Morphologic Changes in Tissues with Changes in Environment. Gastric Mucous Membrane Implanted into Intestine. G. M. Smith, St. Louis.
54 Lipase Studies; Acid Production in Tissues with Especial Reference to Uranium Nephritis. C. Quinan.
55 *Complement Fixation Reactions of Bordet-Gengou Bacillus. M. P. Olmstead and O. R. Povitzky, New York.
56 Inheritance of Susceptibility to Transplantable Tumor, Carcinoma (J. W. A.) of Japanese Waltzing Mouse. C. C. Little and E. E. Tyzzer, Boston.
57 Old Age in Relation to Cell Overgrowth and Cancer. E. W. Goodpasture and G. B. Wislocki, Baltimore.
58 Accumulation of Anisotropic Fats in Interstitial Cells of Kidney. J. W. McMeans, Pittsburgh.
59 Tissue Reactions in Experimental Hypercholesterinemia. J. W. McMeans, Pittsburgh.
60 Maintenance of Virulence of Bacillus Abortivus Equinus. E. S. Good and W. V. Smith, Lexington, Ky.
61 *Unique Lesion of Heart in Systemic Blastomycosis. T. D. Hurley, New Orleans.
62 Effect of Temperature on Clotting Time (Prothrombin Time) of Oxalated Plasma with Calcium. G. R. Minot, Boston.

53. **Morphologic Changes in Tissues.**—Smith found that gastric mucous membrane removed from the fundus of the stomach and implanted into the small or the large intestine may undergo changes in structure characterized by a disappearance of chief and parietal cells normally found in the fundus. In place of chief and parietal cells a type of cell develops which resembles that normally found in the pyloric region of the stomach. These newly formed cells are of an indifferent character. They do not contain secretory granules but their distal end reacts strongly to stains for mucus. In addition to the changes in the character of epithelium, the glands frequently show a greater irregularity in shape than normal.

55. **Reactions of Bordet-Gengou Bacillus.**—The separation by morphologic and cultural characteristics of the typical Bordet-Gengou bacillus from atypical strains of the Bordet-Gengou bacillus and from the influenza bacillus has been confirmed by Olmstead and Povitzky complement fixation tests. Twelve strains of *B. pertussis* isolated by them from patients with pertussis have given complement fixation reactions similar to each other and similar to the two strains obtained from other laboratories.

61. **Lesion of Heart in Systemic Blastomycosis.**—A laborer, aged 61 years, was troubled by cough which had persisted for three months. A diagnosis of pulmonary tuberculosis was made, though sputum examinations were negative. There was evidence of heart disturbance, but this was a minor feature. The most distressing symptoms were cough and dyspnea, thought to be due to bronchial asthma. Death, which occurred eight months later, was apparently due to the pulmonary condition with a terminal septicemia. The necropsy was performed on Jan. 18, 1915, forty hours postmortem. Blastomycotic lesions were found in the skin of the face, scalp, chest and arm; in the bones of the skull, chest wall, and elbow and wrist joints on the right arm, as well as in both lungs, the spleen and the cerebrum and its meninges. The subcutaneous abscesses of the chest wall seemed to arise from the underlying necrotic ribs. From the lower abscess a sinus continued inward through the fifth intercostal space and was found to communicate directly with the pericardial cavity. The pericardial cavity contained numerous dense fibrous adhesions between the thickened pericardium and the heart, among which was much fibrin and many collections of purulent material. The largest of these was in communication externally with a subcutaneous abscess and internally with a necrotic area in the anterior wall of the left ventricle of the heart.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

January, VIII, No. 1, pp. 1-88

63 *Quantitative Study of Analgesia Produced by Opium Alkaloids, Individually and in Combination with Each Other, in Normal Man. D. I. Macht, N. B. Herman and C. S. Levy, Baltimore.

64 *Elimination of Hexamethylenetetramin. K. G. Falk and K. Sugiura, New York.
65 Comparative Pharmacologic Action of Ethylhydrocuprein (Optochin) and Quinin. M. I. Smith and B. Fantus, Ann Arbor, Mich.
66 *Does Pituitary Gland Contain Epinephrin or Compound Similar To It? W. K. Watanabe and A. C. Crawford, San Francisco.

63. **Analgesia Produced by Opium.**—The principal opium alkaloids in respect to their analgesic power are arranged by the authors in the following order: morphin, papaverin, codein, narcotin, narcein and thebain. It was found that a combination of morphin and narcotin, and also a combination of the total opium alkaloids is much more effective than the quantity of morphin they contain would be if given alone. It was further found that in the case of one of the authors showing an idiosyncrasy for morphin, that alkaloid produced a heightening instead of a lowering of the threshold of pain, which phenomenon, however, disappeared on administering morphin in conjunction with narcotin.

64. **Elimination of Hexamethylenetetramin.**—Although only a limited number of results were obtained by Falk and Sugiura (forty in all), certain consistent relationships appear. The lower the specific gravity of the urine, the larger was the amount of hexamethylenetetramin excreted. The amount of formaldehyd found had no apparent relation to the amounts of hexamethylenetetramin taken or excreted. The hexamethylenetetramin always appeared in the first hour's urine, but in most of the cases which were studied in this way the amount increased and reached a maximum during the second and third hours. It still continued to appear for sometime after this, but practically no more was excreted after twelve to fourteen hours. Taking 1 gm. under described conditions, for normal urines with specific gravities ranging from 1.015 to 1.025, the percentage excreted may be taken to lie between 80 and 40 per cent. With higher specific gravities less would be excreted; with lower, more might be excreted. In a number of pathologic cases involving impairment of kidney function, abnormally small amounts of hexamethylenetetramin were excreted.

66. **Does Pituitary Gland Contain Epinephrin?**—Pituitary extracts, when prepared by certain methods, Watanabe and Crawford state, yield color reactions which would suggest the presence of epinephrin or an epinephrin-like compound, and the physiologic actions of such solutions can be explained by the presence of such a compound, but modified by admixed substances. Epinephrin has not yet been isolated from these glands, and this may be due to the small amounts present, which would not be precipitated by the method now used for obtaining epinephrin.

Military Surgeon, Washington, D. C.

January, XXXVIII, No. 1, pp. 1-122

67 Bacterial Flora of Infected Gunshot Wounds. L. A. LaGarde, U. S. Army.
68 Medicomilitary Notes from Belgian War Zone. J. D. Spelman, Ohio N. G.
69 Practical Points in Prevention of Asiatic Cholera. A. J. McLaughlin, Washington, D. C.
70 Has Our Propaganda for Venereal Prophylaxis Failed? R. C. Holcombe, U. S. Navy.
71 Objects of First Aid Conference. J. C. Bloodgood, Baltimore.
72 Submarine; Its Casualties in Peace and War. W. H. Halsey, San Francisco.
73 Statistical Report of Five Hundred and Seventy Cases Treated in American Red Cross Hospital at Kiev, Russia. D. F. Winn, Kiev, Russia.
74 Correspondence Course for Officers of Medical Reserve Corps. M. A. W. Shockley, Fort Leavenworth, Kan.

Modern Hospital, St. Louis

January, VI, No. 1, pp. 1-76

75 Educational Function of Hospital. W. Smith, Baltimore.
76 Treatment of Hospital Sewage in Individual Plant. P. E. Mebus, Philadelphia.
77 Motor Bus Transportation of Sick to Country. F. Brush, New York.
78 Dangers of Continuous Bath. W. A. White, Washington, D. C.
79 Hospital Owned and Controlled by Medical Staff. E. Walker, Evansville, Ind.
80 Hospital of High-Grade Construction Built at Low Cost. C. H. McKenna and V. A. Matteson, Chicago.
81 Comparative Service in Community Hospital. N. B. Jordan, Aurora, Ill.
82 Liability Insurance for Protection of Hospitals. H. T. Weston, Hartford, Conn.
83 An Early Greek Sanatorium and Dispensary. J. M. Ball, St. Louis.
84 Technic of Practical Routine Fire Drill in Hospitals. B. Hollings, Boston.
85 Nitrous Oxid Analgesia in Obstetrics. E. I. McKesson, Toledo.
86 Possibilities of Future Development in Service Rendered by Hospital to Community. A. R. Warner, Cleveland.
87 Illumination of Modern Hospital. D. Crownfield, Boston.
88 Heating and Ventilating British Hospitals. S. F. Walker, Bath, England.

South Carolina Medical Association Journal, Greenville

January, XII, No. 1, pp. 1-29

89 Internal Medicine as Specialty. J. H. Gibbes, Columbia.
90 Gunshot Wounds of Abdomen; Report of Six Cases. S. R. Harmon, Columbia.
91 Report of Forty-Six Cases of Intubation. E. W. Carpenter, Greenville.
92 Importance of Differential Diagnosis of Abdominal and Lumbar Pains in Women. C. W. Barron, Columbia.
93 County Hospital for Marlboro. C. R. May, Bennettsville.

Southern Medical Journal, Birmingham, Ala.

January, IX, No. 1, pp. 1-92

94 Physician of Today—His Obligation. O. Dowling, Shreveport, La.
95 *Sanitary Preparedness. R. Blue, Washington, D. C.
96 National Health Program. A. T. McCormack, Bowling Green, Ky.
97 *Pellagra Commission of Dallas Medical and Surgical Society. Report of Committee on Prevention and Treatment. H. L. Moore, Dallas, Tex.
98 *Pellagra Commission of Dallas Medical and Surgical Society. Report of Committee State-at-Large. W. L. Allison, Fort Worth, Tex.
99 *Pellagra in Texas. K. H. Beall, Fort Worth, Tex.
100 *Drugs in Pellagra. W. T. Wilson, Navasota, Tex.
101 *Etiology of Pellagra with Reference to Amebic Invasion. W. A. Dearman, Long Beach, Miss.
102 *Blood in Pellagra. B. Young, San Antonio, Tex.
103 Report of Pellagra Clinic Held in Dallas, Texas. J. R. Lehmann, Dallas, Tex.
104 Railway Surgeons. T. H. Hancock, Atlanta, Ga.
105 Opportunities and Responsibilities as Specialists. J. B. Greene, Asheville, N. C.

95. Abstracted in The Journal, Dec. 11, 1915, p. 2118.

97, 98, 99, 100 and 102.—Abstracted in The Journal, Dec. 4, 1915, p. 2029.

101. Abstracted in The Journal, Dec. 4, 1915, p. 2030.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

January, XXIV, No. 1, pp. 1-32

106 Treatment of Gonorrheal Ophthalmia. H. Gifford, Omaha.
107 Pain: Its Surgical Significance. W. D. McVicker, Wichita, Kan.
108 Splenic Anemia; Course and Diagnosis. W. H. Deaderick, Hot Springs.

Surgery, Gynecology and Obstetrics, Chicago

February, XXII, No. 2, pp. 127-250

109 *Physiologic Treatment of Bullet and Shell Wounds of Peripheral Nerve-Trunks. H. H. M. Lyle, New York.
110 Operative Treatment of Gunshot Injuries to Peripheral Nerves. H. E. Schiffbauer, Königsberg, Germany.
111 Medical Aspects of War. R. I. Lee, Boston.
112 Peculiar Inflammations of Iliac Fossa, Following Simple Epididymitis. P. S. Campiche, San Francisco.
113 *Operative Treatment of Varicose Veins and Ulcers, Based on Classification of These Lesions. J. Homans, Boston.
114 Quiet Hip Disease (Perthes' Disease). H. L. Taylor and W. Frieder, New York.
115 Primary Benign Growths of Stomach; Report of Cases. S. Basch, New York.
116 Cause of Carcinoma. A. E. Rockey, Portland, Ore.
117 Origin of Retroperitoneal Cystic Tumors. M. N. Hadley, Indianapolis.
118 *Gunshot Wounds of Abdominal Cavity; Report of Cases. G. L. Hays, Pittsburgh.
119 Physiologic Method of Tendon Transplantation. L. Mayer, New York.
120 Fracture of Vertebrae without Cord Symptoms; Report of Cases. P. W. Roberts, New York.
121 Renal Dystopia; Report of Two Cases. T. N. Hepburn, Hartford, Conn.
122 Enormous Abdominal Cyst, Probably Due to Retained Testis. J. H. Outland and L. Clendening, Kansas City, Mo.
123 Carbohydrate Tolerance in Hyperthyroidism. J. C. O'Day, Portland, Ore.
124 Multiple Benign and Malignant Adenoma Limited to Sigmoid Flexure of Colon; Report of Cases. H. W. Soper, St. Louis, Mo.
125 Correction of Nasal Deformities by Mechanical Replacement and by Transplantation of Bone. W. W. Carter, New York.
126 *Blood Pressure in Fibromyomata Uteri. H. C. Taylor and W. C. White, New York.

127 Three Hundred and Twenty-Four Consecutive Cases of Appendicitis, Operated on without a Death. R. B. Williams, Norfolk, Va.
128 Method of Demonstrating Bacteria in Urine by Means of Centrifuge. E. G. Crabtree, Boston.
129 Artificial Leverage in Reduction of Fracture. H. Gifford, Syracuse, N. Y.
130 *Surgical Treatment of Acute Gonorrheal Tube Infections with Quarantine Pack. R. C. Coffey, Portland, Ore.
131 Immediate Perineorrhaphy. A. B. Spalding, San Francisco.
132 Retrodisplacements of Uterus. J. C. Neel, San Francisco.
133 Duodenal Feeding. C. R. Jones, Pittsburgh.
134 Technic of Pyelography. S. R. Woodruff, Bayonne, N. J.
135 Technic of Nitrous Oxid Administration in Obstetrics. A. K. Paine, Boston.
136 Improvement in Screw-Holding Forceps for Bone Work. J. H. Shephard, Cœur d'Alene, Ida.
137 Case of Radical Amputation of Breast Under Local Anesthesia. H. P. Cole, Mobile, Ala.

109. **Bullet Wounds of Peripheral Nerve-Trunks.**—Lyle says that primary nerve suture is rarely indicated in war time, but it is imperative whether the nerve is divided or not, that the paralyzed muscles be relaxed and protected from strain by a suitable apparatus. Under no circumstances must this be deferred to the so-called after-treatment. The postural prophylaxis begins with the reception of the wound and continues after the operation until voluntary motion is restored. A strict adherence to this vital orthopedic principle aids in the diagnosis, hastens recovery, prevents many distressing deformities, and will materially diminish the number of useless limbs.

113. **Surgery of Varicose Veins and Ulcers.**—Homans summarizes his paper as follows: Varicosity of the veins of the legs is confined for anatomic and physiologic reasons to the superficial and perforating vessels. Trendelenburg's tests distinguish between pure surface varix and surface varix complicated by varicosity of the perforating veins, a distinction important for purposes of treatment. Surface varix is curable by relatively simple surgical procedures, preferably excision of the great saphenous vein from groin to mid-calf. Surface varix complicated by varicosity of the perforating veins requires for its cure not only eradication of the great saphenous vein, but a thorough exploration of the lower leg in order to ligate varicose perforating veins. Varix following phlebitis is not uncommon, presents a characteristic appearance, is prone to be complicated by varicosity of the perforating veins, and is usually accompanied by obstinate ulceration soon after its establishment. It is a general rule, if not a law, that the more prominent and tortuous the surface veins, the simpler the cure; the less noticeable the surface veins the more malignant and resistant their attendant ulcers and the more radical the operative procedure required for cure. Varicose ulcers, if of long standing, and especially if they are surrounded by an area of thick scar tissue, are best treated by free excision and immediate skin graft in connection with the radical removal of the veins to which they are tributary.

118. **Gunshot Wounds of Abdominal Cavity.**—The general recovery percentage for the eighteen cases reported by Hays is 61.11. In these eighteen cases only thirteen had perforations of the hollow viscera with seven recoveries, giving a recovery percentage of 53.84. Five patients did not have any injury to any part of the intestines. Of this number four recovered. The perforations occurred in all parts of the intestinal tract, from the stomach to the sigmoid inclusive, except the duodenum. The greater number of perforations in any one case was sixteen. The time of operation after injury in those patients who recovered was from two to twelve hours. In those cases in which death occurred, the time of operation after injury was from seven to fifty-seven hours. The average time of operating after injury in those who recovered was about five or six hours; for those who died the average time was about seventeen hours. In these cases of gunshot wounds of the abdomen Hays has always noted that the concavity existing normally at the intercostal angle has disappeared and is replaced by a fulness or convexity when acute dilatation of the stomach develops. Two or three washings of the stomach may entirely relieve the complication, but treatment must be instituted early to get this result.

126. **Blood Pressure in Fibromyomata Uteri.**—Of 148 cases of fibromyomas of the uterus in which blood pressures had been taken, fifty-five (37 per cent.) had a brachial blood pressure of 120 mm. of mercury or under, with an average age of 34.9 years, and sixty-two (41.8 per cent.) had pressures from 121 to 140 inclusive, with an average age of 35.8 years. This made a total of 117 cases (78.8 per cent.) with a blood pressure of 140 or under, and an average age of 35.9 years. The thirty-one over 140 mm. blood pressure had an average age of 43 years. Twenty-two patients were reexamined later. Most of the twenty-two had large fibroids, and at operation these tumors were removed, while in most cases either a supravaginal or a complete hysterectomy was performed. On return, the patients had general physical and pelvic examinations, urine analyses, and brachial blood pressures. Three patients had unchanged blood pressure; eleven had an increase from 5 to 65 mm., and eight had a decrease from 5 to 40 mm. of mercury.

130. **Quarantine Pack in Gonorrheal Tube Infections.**—The quarantine pack is placed by Coffey as follows: On opening the abdomen the fluid and spilled pus is sponged out with dry gauze. The intestines are packed entirely out of the pelvis. If the tubes are firmly sealed they are removed by excision down to the uterine mucosa, with any infected portion of the ovary, leaving the healthy portion to be healed as a result of the drainage. Gauze wicks the size of a finger (not folded like the folds of a fan) are laid straight side by side entirely across the abdomen, putting sometimes twenty or thirty of these wicks, reaching to the bottom of the pelvis and gradually extending up the side of the pelvis, making a solid wall of gauze. After these wicks have been placed carefully a sheet of guttapercha tissue of four or six layers is placed above the gauze, care being taken that the tissue goes entirely across the lower part of the cavity, absolutely shutting off all possibility of contact of the intestines with the gauze drainage. If the tubes are not sealed, the quarantine is placed without removing them. The open ends of the tubes are left in contact with the gauze. The wicks and the rubber tissue in certain cases are then turned toward the patient's face, exposing the uterus and bladder, and another folded sheet of six or eight layers of guttapercha tissue is carefully inserted between the gauze and the fundus of the uterus, this practically surrounding the gauze and making a completely protected pad. This second guttapercha sheet should not prevent the open tubes from coming in contact with the gauze. In six days after the pack is placed, the wicks are withdrawn, leaving the rubber tissue. On the fourteenth day the rubber tissue is removed, and according to the case Coffey either inserts a small rubber tube which is tapered at the point, or leaves drainage out entirely. It usually takes such wounds about five weeks to heal. For four weeks he keeps the patient in bed, preferably on the back most of the time. During the past three years he has had practically no hernia following such operations.

Tennessee State Medical Association Journal, Nashville

January, VIII, No. 9, pp. 383-424

138 Comparative Study of Diagnostic Tests for Syphilis. W. Krauss, Memphis.
139 *Indications for Operative Treatment of Fractures. B. Malone, Memphis.
140 *Bad Results of Colles' and Pott's Fractures. D. Eve, Jr., Nashville.
141 *Technic and Results in Eight Gasserian Ganglion Operations. E. J. Johnson, Memphis.
142 Malignancy-Cancer. J. A. Graham, Chicago.
143 Early Diagnosis of Surgical Diseases. C. P. Fox, Greeneville.
144 Removal of Superficial and Penetrating Bodies from Eyeball and Treatment. J. T. Herron, Jackson.

139, 140 and 141. Abstracted in THE JOURNAL, May 1, 1915, p. 1523.

Washington Medical Annals

January, XV, No. 1, pp. 1-80

145 Scarlet Fever. F. Leech, Washington, D. C.
146 Army Medical Museum. D. S. Lamb, Washington, D. C.
147 Foreign Bodies in Rectum. L. Eliot, Washington, D. C.
148 Roentgenologist as Consultant; His Rights, Privileges and His Responsibilities. C. A. Pfender, Washington, D. C.

West Virginia Medical Journal, Huntington

February, X, No. 8, pp. 255-290

149 Use of Tuberculin in Diagnosis of Pulmonary Tuberculosis. E. E. Clovis, Alta.
150 Treatment of Nocturnal Enuresis. M. Mendeloff, Charleston.
151 Great Variety of Symptoms and Frequent Occurence of Syphilis of Central Nervous System. C. C. Wholey, Pittsburgh.
152 Physician in Court. E. M. Showalter, Fairmont.
153 Ureteral Kinks. T. E. Vass, Bluefield.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

December, 1915, IX, No. 4, pp. 435-568

1 *Nuclear Variations of Neutrophil Leukocytes (Arneth Counts) in Malaria and Yellow Fever. J. W. S. Macfie.
2 Babesiasis and Trypanosomiasis at Accra, Gold Coast, West Africa. J. W. S. Macfie.
3 Differential Counts and Neutrophil Blood Picture of Natives—Adults and Children of New Guinea. A. Breinl and H. Priestley.
4 Case of Dysentery in Monkey, in which Amebae and Spirochetes were Found. J. W. S. Macfie.
5 General Distribution of Glossina Palpalis, Rob-Desv., in District of Lomami, Belgian Congo. J. Schwetz.
6 Trypanosome of Black Rat (Epimys Rattus). J. W. S. Macfie.
7 Artificial Cultivation of Hansen's Bacillus. H. Bayon.
8 Studies in Blackwater Fever. Duration of Hemoglobinuria. J. W. W. Stephens.
9 Experimental Researches on Induced Herpetomoniasis in Birds. H. B. Fantham and A. Porter.
10 Association of Warthog and Nkufu Tick (Ornithodorus Moubata). L. Lloyd.
11 Anaplasma-Like Bodies in Blood of Vertebrates. A. Porter.

1. **Variations of Neutrophil Leukocytes in Malaria and Yellow Fever.**—Macfie states that a slight shift to the left of the Arneth count is found in the blood of healthy Europeans in West Africa. There is a marked shift to the left in malarial fever which is evident not only during the attack, but also before its onset, and for a considerable time after convalescence is established. Macfie thinks that it is probable that the abortive inoculations with malaria parasites by infected mosquitoes, which are a part of the daily life in many parts of West Africa, are sufficient to account for this shift in apparently healthy Europeans, without postulating a specific action of the climate on the white races living in the tropics. In yellow fever there is a great shift to the left of the Arneth count. It is suggested that the changes observed in the Arneth counts are due to toxemia causing a destruction of the circulating polymorphonuclear leukocytes, and a flooding of the blood with young cells liberated by the activity of the leukopoietic system.

British Journal of Tuberculosis, London

January, X, No. 1, pp. 1-50

12 Crippled Tuberculous Children. H. J. Gauvain.
13 Successful Destruction of Tubercle Bacilli in Milk by Electricity. J. M. Beattie and F. C. Lewis.
14 Control of Secondary Infections in Tuberculosis. R. P. White.
15 Relative Immunity in Tuberculosis and Use of Tuberculin. E. L. Trudeau.

British Medical Journal, London

January 15, I, No. 2872, pp. 77-116

16 *Bacteria of Gangrenous Wounds. H. R. Dean and T. B. Mouat.
17 Treatment of Acute Toxemia Secondary to Gas Gangrene by Intravenous Injection of Solution of Hypochlorous Acid. J. Fraser and H. J. Bates.
18 Clothing Against Cold. W. T. Grenfell.
19 Chloramin in Treatment of Wounds of Mouth and Jaws. A. R. Fisher.
20 Combined Preventive Inoculation Against Typhoid and Paratyphoid and Bacillary Dysentary. J. P. Johnson and A. J. Milne.

16. **Bacteria of Gangrenous Wounds.**—The eighteen cases investigated by Dean and Mouat were those in which there had been gross destruction of tissue, with subsequent necrosis and gangrene. The discharge from the wound was, in the majority of cases, excessively offensive. Streptococci were isolated from nearly every case. No attempt was made to define accurately the variety of streptococcus, but nearly all those isolated appeared to belong to one type, which in films appeared as a small diplococcus, or more rarely as a chain of four or six members. Staphylococci were isolated less frequently than might have been anticipated. When present, they were not as a rule numerous. *B. coli* was only isolated from four cases. The only other aerobic organism of any interest was a proteus bacillus from Case 5. Only three varieties of anaerobic bacteria were isolated, the *B. aerogenes capsulatus, B. edematis maligni* and the *B. tetani.* Bacillus of malignant edema was isolated in fifteen of the eighteen cases. All were cases in which considerable laceration and necrosis of tissue had occurred, and all were characterized by an offensive discharge. *B. aerogenes capsulatus* was isolated from thirteen of the eighteen cases. In all but one the bacillus of malignant edema was also found. It was present in three of the four cases, in which the presence of tetanus bacilli was demonstrated. It was present in three of the four cases in which signs of tetanus developed in the patient. It was present in three of the four cases in which the gas was present in the tissues. Of the thirteen cases only two were fatal, and in one of these death was due to tetanus.

Glasgow Medical Journal

January, LXXXV, No. 1, pp. 1-80

21 Insects in Relation to Disease. R. M. Buchanan.
22 Cases of Hysterical Stomachs. A. E. Maylard.
23 Urine Testing with Esbach's Albuminometer. H. E. Jones.

Journal of Laryngology, Rhinology and Otology, London

October, 1915, XXX, No. 10, pp. 385-424

24 Simple Apparatus for Applying Ionic Medication to Nasal Cavities. A. J. Hutchison.
25 Etiology of Otosclerosis. W. S. Bryant.

November, No. 11, pp. 425-456

26 Granuloma of Vocal Card. S. Thomson.
27 Operative Treatment of Nasopharyngeal Fibroma. T. Guthrie.

December, No. 12, pp. 457-528

28 Reconstruction Model of Right Middle and Inner Ear. J. S. Fraser and J. K. M. Dickie.
29 Vincent's Angina. W. Wingrave.
30 Tonsillectomy by Blunt Dissection Under Local Anesthesia. J. B. Horgan.

Lancet, London

January 15, I, No. 4820, pp. 117-172

31 Medicine, Magic and Religion. W. H. R. Rivers.
32 *Factors Responsible for Gaseous Gangrene. K. Taylor.
33 *Two Cases of Heart Block. C. Lundsgaard.
34 *Bactericidal Action of Normal and Infected Serum on Different Microbes. K. Sakagami.
35 Case of Acute Rheumatism Occurring in Tropics. G. W. Scott.
36 *Radical Treatment of Rheumatoid Arthritis. M. J. Rowlands.
37 Hagedorn's Operation for Double Hare-Lip. T. Bates.
38 Respiratory Form of Paratyphoid. E. Stolkind.

32. **Factors Responsible for Gaseous Gangrene.**—Some experimental work with the *B. aerogenes capsulatus* of Welch is published by Taylor in the hope that it may be of value in the treatment of gaseous gangrene as it occurs among the wounded. The factors whose importance is discussed by Taylor are: (1) the endotoxin contained in the bacillus; (2) the exotoxin elaborated by the bacillus; (3) the toxin elaborated from the tissue undergoing, or which has undergone, degenerative changes due to the action of the bacillus, which substance, for lack of a better term, has been designated "tissue toxin"; and (4) the gas produced by the growing bacilli. Taylor concludes from these experiments and from the study of the pathology of the clinical cases that the following facts may be stated: 1. The gas produced by *B. aerogenes capsulatus* is of little or no importance as a toxic factor. 2. The mechanical action of the pressure produced is usually, if not always, the most important part of the infection. To it may be charged the development of highly pathogenic possibilities in a usually rather innocent infection. It brings about (*a*) the death of the tissues from the resulting anemia produced by a pressure much higher than that of the circulating blood; (*b*) the actual mechanical fragmentation of the tissues, especially muscle; and (*c*) the mechanical scattering of the infection. 3. One of the chief problems in the treatment of the infection is that of establishing drainage for the escape of the gas before the pressure has resulted in the death of the tissue.

33. **Cases of Heart Block.**—In one patient, a man, 59 years of age, suffering from aneurysm of the aorta, a transitory

attack of irregular pulse was observed, appearing at one time to be an intermittent heart block, at another time an arrhythmia perpetua. In a second patient, a man, 33 years of age, suffering from rheumatic fever, an intermittent heart block was observed, which disappeared the same day as the joint symptoms ceased, and the temperature fell to normal.

34. **Bactericidal Action of Serum on Microbes.**—Sakagami states that the following microbes grow in normal serum: *Staphylococcus pyogenes, Pneumococcus, Pseudotuberculosis, Streptococcus pyogenes* and *M. catarrhalis.* Normal serum has a small bactericidal action on the staphylococcus during the first hour of exposure, but after many hours its power decreases. Serum heated to 60 C. has no power. Normal serum has no bactericidal power on the streptococcus. Serum of tuberculous patients has smaller bactericidal power than normal serum on the staphylococcus and streptococcus. Serum of those suffering from staphylococcal infections has a little stronger power than that of tuberculous patients. The serum of those suffering from tuberculosis and staphylococcal infections at the same time has more power than the serum of those suffering from tuberculosis only. The bactericidal action of Sakagami's own serum after he had been inoculated with cholera and typhoid mixed vaccine was noticeable on both these bacteria, but otherwise was unchanged.

36. **Radical Treatment of Rheumatoid Arthritis.**—The cardinal point of the treatment, Rowlands says, is disinfection of the original focus, but it is only in the early cases that removal of the source of infection will at once cure the condition. In the cases of longer standing the toxemia itself has also to be treated and for this purpose vaccine therapy has proved of great assistance. Ontogenic vaccines should always be prepared, the use of stock cultures being of little avail. The pathogenic organism can sometimes be isolated only with considerable difficulty; in such cases it is often possible to discover it in the urine, and this should always be examined if the organisms are not readily obtained elsewhere. The dosage is a matter that greatly depends on the type of case as well as on individual features in the patient, such as age; in old people one has to be more careful to avoid unpleasant reactions. In fairly acute cases Rowlands begins with a dose of five millions if the organism is a streptococcus, pneumococcus, or a diphtheroid bacillus, the dose being increased according to the reaction. With the bacillus coli he begins with ten millions in acute cases, and in the chronic cases, on the other hand, he begins with five times these doses.

He always aims at bringing about a slight exacerbation of the joint symptoms, such as swelling, heat, and pain. If the patient is kept at rest this soon subsides, as a rule within a few days, but should there be much pain a local application of ice gives relief; when this subsidence has occurred the patient usually reports marked improvement. The next dose following a rather acute reaction should not be increased and there should be no great reaction. Following this the dose may now be increased until one has reached the following numbers; bacillus coli, and paratyphoid, two hundred millions; pneumococcus, streptococcus, pyocyaneus and diphtheroid bacilli, fifty millions. There should be an interval of from seven to ten days between the injections and when there is marked improvement this may be increased to fourteen or twenty-one days; the treatment should be continued for at least a year, and if possible the injection should be given in the evenings. The usual forms of treatment should be administered simultaneously with the vaccine therapy, including attention to the general condition, removal to a bracing climate if possible, massage, baths, tonics and removal of sources of worry.

Paris Médical

January 8, VI, No. 2, pp. 41-56

39 Inability to Put Out the Tongue in Typhus. (Le "signe de la langue" dans le typhus exanthématique.) P. Remlinger.
40 Bridge and Reenforced Plaster Casts for the Wounded. (Les appareils en plâtre armé dans la chirurgie de guerre.) M. Deguy.
41 Treatment of Trismus by Continuous Traction on Lower Jaw. (Traitement du trismus par la traction continue du maxillaire inférieur.) H. Somen.

Presse Médicale, Paris

January 6, XXIV, No. 1, pp. 1-8

42 Nervous Affections Entailed by Wounds in War and the Question of Pensions. (Les maladies de guerre du système nerveux et les conseils de réforme.) Grasset.
43 Gas Gangrene and Gangrenous Infections in the Wounded. (Gangrènes gazeuses et infections gangreneuses.) J. Gatellier.
44 Primary and Secondary Amputations for the Wounded. (Les moignons des amputations faites à l'avant.) L. Desgouttes and E. Perrin.
45 Decapitation of the Astragalus to Correct Talipes Equinus Consecutive to War Wounds. (Traitement de l'équinisme.) D. de Fortunet.

Revue Médicale de la Suisse Romande, Geneva

December, 1915, XXXV, No. 12, pp. 913-1032

46 *Lessons from Observation of Belligerents' Military Medical Service. (Exposé des enseignements tirés de la guerre mondiale et appliqués au service de santé de notre armée.) Hauser.
47 Otogenous Septicemia; Five Cases. (A propos de quelques cas de septico-pyémie otogène.) G. Frey.
48 *Retrogression of Goiter under Influence of Continuous Disinfection of the Intestines; Twelve New Cases. Messerli.
49 Angiokeratoma and Frostbite. (Angiokératôme et engelures.) C. Du Bois.
50 Technic and Advantages of Gwathmey's Method for General Anesthesia by Way of the Rectum. (L'anesthésie générale par le rectum, par la méthode huile-éther-paraldéhyde.) C. G. Cumston.

46. **Lessons from the War.**—Practically this same article was reviewed in these columns recently, p. 153.

48. **Retrogression of Goiter under Continuous Mild Purging and Disinfection of the Intestines.**—This is Messerli's fourth publication on this subject. The results of the treatment specified seem to be as striking as in his three previous series. (Mentioned in THE JOURNAL, May 8, 1915, p. 1618.) The men were all recruits and several of the cases are illustrated "before and after." In the first case the circumference of the neck was reduced from 45.5 to 38.5 cm. under twenty-nine days of treatment. Parenchymatous goiter is extremely common at Basel where these measurements were made, and Messerli noticed that his own thyroid increased in size during his stay there, but it subsided to its normal outlines after he had taken 2 gm. of salol a day for two weeks. He never ventured to apply this treatment to much degenerated goiters, but with simple follicular enlargement and parenchymatous goiter some benefit was apparent in every instance. He thinks that benefit from mild continuous purgation and disinfection sustains the theory of parasites in the drinking water as the cause of goiter.

Archiv für Kinderheilkunde, Stuttgart

Nov. 2, 1915, LXV, Nos. 1-2, pp. 1-160. Last indexed Nov. 13, p. 1762

51 Twenty-Fifth Anniversary of Berlin Children's Hospital. (Zum 25. Jahrestage des Bestandes des Kaiser- und Kaiserin-Friedrich-Kinderkrankenhauses in Berlin.) A. Baginsky.
52 *Potassium Iodid in Acute Disease of the Respiratory and Cardiovascular Apparatus. (Jodkalium in der Behandlung der acuten entzündlichen Krankheitsformen des Respirations- und Circulationsapparates.) A. Baginsky.
53 Strophanthin for Failing Compensation. (Strophanthin bei Compensationsstörungen des Herzens.) A. Baginsky.
54 Poisoning from Canned Vegetable. (Vergiftung mit Bacillus enteridis bei 3 Kindern.) A. Baginsky.
55 Blistering and Peeling of the Skin—Bullous Keratolysis; Five Cases. (Zer Kenntnis der Epidermolysis bullosa.) A. Baginsky.
56 *Inherited Syphilis and the Wassermann Reaction. (Hereditäre Lues und Wassermannsche Reaction. Untersuchungen an Müttern und Kindern.) E. Steinert and E. Flusser.
57 *The Injurious Influence of High Arched Palate in Children and Means to Remedy It. (Der hohe Gaumen.) R. Landsberger.

52. **Potassium Iodid in Pneumonia, Endocarditis, etc.**—Baginsky deplores that so little attention has been paid to his statements in regard to the therapeutic action of potassium iodid in treatment of acute inflammatory processes in the organs of respiration and circulation in children. His statements are based on both theoretical premises and wide practical experience. It is not a specific, but it proves a powerful aid for the child's organism, contending with severe toxic influences. The symptoms calling for it are those from insufficiency of the respiratory and cardiovascular apparatus, whether the one or the other or both are involved in the disease process. The iodid seems to act directly on the vessels and tissues of the pleura, pericardium and other serous membranes, facilitating the processes of diffusion and hence the secreting functions. Six typical cases are related in detail. One girl of 12 had acute pleurisy with effusion and

the improvement under the potassium iodid was marked, the dyspnea subsided, diuresis was promoted, the effusion was mostly absorbed and the heart relieved. It was kept up for a week. In some of the other cases the force of acute pericarditis was manifestly broken up by the iodid given every three hours in a 2 or 4 per cent. solution. The dosage ranges from 1 to 3 gm. a day. It is especially effectual in endocarditis, pericarditis and polyserositis consecutive to acute articular rheumatism.

56. **Inherited Syphilis and Wassermann Reaction.**—This communication from the clinic for children's diseases at Prague fills sixty-seven pages, tabulating the responses to the Wassermann test applied to 2,268 mothers and 2,533 of their children since May, 1912. Additional observations from the three preceding years are also compared with this material. Among all the children, 5.7 per cent. showed signs of syphilis either clinically or with a positive Wassermann reaction, and the syphilitic children invariably had syphilitic mothers. No evidence was found to sustain Rabinowitsch's statement that all the children of a syphilitic mother are infected with syphilis. At any stage of syphilis women are liable to bear children healthy both clinically and serologically. The experiences related demonstrate that mothers with inherited syphilis can bear syphilitic children. In children with inherited syphilis the Wassermann reaction may precede the appearance of symptoms. The Wassermann reaction is also liable to long resist specific treatment, but the latter must not be regarded as successful until the response to the Wassermann test veers to negative. Infants may present a positive Wassermann with no other signs of syphilis and this may occur when the syphilitic mother exhibits a negative Wassermann. The Wassermann may be negative in infants with signs of syphilis; 80 per cent. of the infants in this group have mothers with negative Wassermann notwithstanding certain syphilis. Some women free from any history of syphilis presented a positive Wassermann reaction during the puerperium as also certain infants in the course of acute infections, but the reaction soon disappeared in these cases.

57. **High Arching Palate.**—Landsberger comments on the disturbances almost inevitable when the palate runs up abnormally high. The nasal passages are interfered with by it and mouth breathing is inevitable. It also entails a tendency to a vacuum in the nasopharynx which acts injuriously on the ear and on the local circulation. The space inside this part of the skull is also encroached on by the high palate. The disturbances from the latter are often ascribed to the adenoids frequently found with it. Another serious trouble from it is the resulting abnormal development of the teeth. The germinal buds do not develop centrifugally, as in normal conditions, but straight downward. The condition can be remedied by straightening the roof of the mouth, forcing its sides apart and thus bringing the concave palate down to be more nearly flat. He gives illustrations of a spring and screw apparatus for the purpose. It is worn between the teeth, forcing the rows apart. It does not interfere with speaking or eating, and an actor wore it without interfering with his professional work. The benefit in children was almost miraculous in some cases. Deafness subsided, as also asthma and the headaches which had tormented the children for years. Abnormal salivation was also arrested, and a tendency to coryza, tonsillitis and bronchitis, while the general growth was promoted. All these changes are readily explained by the differences seen in the roentgenograms taken before and after wearing the brace.

Archiv für klinische Chirurgie, Berlin

CVII, 1915, No. 2, pp. 195-378. Last indexed Oct. 2, p. 1221

58 *Surgery of the Large Intestine. (Kasuistisches und Technisches aus der Dickdarmchirurgie.) J. Schoemaker (The Hague).

59 *Ultimate Outcome of Fifty-Four Operative Cases of Hypernephroma. (Das Schicksal der wegen Grawitz-Tumor Operierten, nebst kasuistischen Beiträgen aus den Hamburger Krankenhäusern.) R. Paschen.

60 *Gastroptosis. (Zur Gastroptosefrage, speziell unter radiologischem Gesichtspunkt.) A. Troell (Stockholm).

61 Blue Sclerotics plus Brittle Bones; Three Cases. (Ueber Blaufärbung der Sklera und abnorme Knochenbrüchigkeit.) W. Hofmann.

62 *Objective Symptoms of Static Insufficiency of Vertebrae. A. Schanz.

63 *The Dangers of Lumbar Puncture. (Die Gefahren der Lumbalpunktion.) O. Schönbeck.

64 Pectineal Crural Hernia. (Zur Frage der Hernia pectinea.) F. Kempf; (id.). O. Harzbecker.

58. **Surgery of the Large Intestine.**—This issue of Langenbeck's *Archiv* is notable in that it contains no reference to war surgery. Schoemaker describes three cases of ileus in patients over 75, but no obstruction was discovered at the laparotomy to explain it. Part of the colon was found extremely distended by gas and fluid feces. The ileus was evidently of dynamic nature, not of mechanical origin, and he compares these cases with analogous experiences that have been published by others. He also reports two cases in which an appendix epiploica had developed a cavity in the center, lined with a continuation of the intestinal mucosa, thus forming a diverticulum. The symptoms were those of appendicitis, only they were on the left side. The operation revealed perforation of this diverticulum and consecutive peritonitis.

59. **Fate of Hypernephroma Patients.**—Paschen tabulates the details of 268 operative cases of tumors developing from aberrant suprarenal tissue, which he has found on record. A permanent cure for more than three years is known in only 17.71 per cent.; 28.73 per cent. succumbed to recurrence or metastases, and an additional 8.58 per cent. to intercurrent disease. The fate is not known of 8.21 per cent. In 54 operative cases in Paschen's service, 35.19 per cent. are free from recurrence after an interval of over three years. Every decade of life from 15 to over 70 is represented in his lists, but the largest number of the patients (81) were between 50 and 60; 74 between 40 and 50, and 3 between 70 and 80. One case was in a child. There were 83 women to 186 men in the 269 case reports in which the sex was mentioned.

60. **Gastroptosis.**—Troell's article is profusely illustrated. His study of the subject failed to show that any change in the position and movability of the stomach entails in itself alone any symptoms or that a certain degree of such changes indicates pathologic conditions. Hence he decries gastropexy for simple gastroptosis, and is strengthened in this view by the bad conditions he has encountered in some cases after supposedly successful gastropexy. Treatment of gastroptosis disturbances should be based on all the diagnostic measures at our command, roentgenoscopy in particular. Progress will be best promoted by surveillance of the individual case, recording the effect of the various measures applied. In this borderland between medicine and surgery there is danger that the disturbances may be erroneously ascribed to a neurosis. On the other hand, if an operation is done in a case of actual neurosis, the patient is liable to merely localize the evil at some other point.

62. **Defective Weight Bearing by the Vertebrae.**—Numerous illustrations accompany this article, all demonstrating certain objective features which reveal that something is wrong in the static balance of the vertebrae. There may be contracture of the long muscles of the spine or inability to move the spine freely. In certain cases the need for some support is evident, or there may be actual deformity. Schanz has found no mention in the literature of contracture of the long muscles of the back as a symptom of vertebral insufficiency, but the photographs in the textbooks showing traumatic spondylitis and similar vertebral trouble show the contracture plainly. But, as Schanz points out, it may occur with merely static insufficiency of the vertebrae, and it disappears as this is remedied. The subsidence of these objective signs of vertebral insufficiency demonstrates that our measures are proving successful.

63. **Dangers of Lumbar Puncture.**—Schönbeck reviews the literature on this subject from Quincke's first report on lumbar puncture in 1891 to recent articles, listing 137. He gives summaries from the records of 71 deaths following lumbar puncture. In 37 cases there were intracranial tumors; cysticercus in 2; echinococcus disease in 1. In these 40 cases there was thus some process encroaching on the space inside the skull. The cause of the mishap in other cases was hemorrhage in 13; uremia in 4; meningitis in 7, and in 2 cases an elongation of the cerebellum squeezing into the

foramen magnum. In the remaining 5 cases there was acute myelitis, a cerebellar abscess, compression by a tumor of the spinal cord in the neck, or anemia of the brain and pulmonary edema. The fifth case was in a rachitic child with pneumonia. In 15 of the total 71 cases less than 5 c.c. of fluid had been evacuated. The pressure was not abnormally high in most cases, but a remarkable drop in the pressure was evident in a number, even when small amounts of fluid had been withdrawn. In one case the drop was 60 mm. mercury although only 30 c.c. fluid had been withdrawn. In one case the first drops were aspirated. In 3 cases the patient was seated for the lumbar puncture, and in one case he was raised to the sitting position during the procedure. Some of the mishaps occurred with cautious and apparently reliable technic. The disturbances came on at once or after an interval of several hours. In 25 cases the respiration ceased although the pulse kept up good; in one case artificial respiration was kept up for seventeen hours, but the patient could not be revived.

Lumbar puncture seems to have only a briefly transient if any injurious action on the healthy, but the consequences may be disastrous in pathologic conditions. There do not seem to be any absolute contraindications, but it is safer not to apply lumbar puncture in case of hemorrhage in the skull or vertebral canal or intracranial tumors, especially those in the posterior cranial fossa. Extreme caution is necessary when lumbar puncture is attempted with tumors in the vertebral canal, in uremia, with inflammatory disease of the central nervous system, cerebral abscess, arteriosclerosis and also with purulent meningitis. Aspiration and ambulant lumbar puncture are vigorously denounced. The main dangers are hemorrhage from vacuum action, and obstruction to communication between the various cavities. The precautionary measures that should be enforced in case of intracranial tumors or similar processes are twenty-four hours' preliminary bed-rest; puncture with the patient lying on his side, the head low; close watch over the pressure in the fluid and its fluctuations; one or two days' bed-rest afterward, with the head lower for the first twelve or twenty-four hours; avoidance of alcohol and any excitement after the puncture, and, finally, allowing only gradual transition from the reclining to other positions.

Berliner klinische Wochenschrift

Dec. 6, 1915, LII, No. 49, pp. 1249-1272

65 *Itching from Chilling. (Stauungshyperämie durch Kälte.) P. G. Unna.
66 *The Food Problem for the Sick During the War. (Das Ernährungsproblem für Kranke während der Kriegszeit.) I. Boas.
67 *The Prognosis of Ovarian Tumors. T. Landau.
68 War Epidemics and Importance of Contact Infection. (Ueber die Kriegsseuchen und die Bedeutung der Kontaktinfektion.) Menzer. Concluded in No. 51.
69 *Irritation of the Pudic Nerve Simulating Catarrh of the Bladder. (Reizung des Nervus pudendus—Neuralgie.) G. Zuelzer.

December 20, No. 51, pp. 1297-1320

70 *Winter Pruritus. (Pruritus hiemalis.) P. G. Unna.
71 Study of Phthisical Thorax. (Ein phthisischer Thorax nach Form.) H. Virchow.
72 Abdominal Wounds. (Zur Chirurgie der Bauchschüsse.) Posner.

65. **Treatment of Itching from Frostbite.**—Unna explains the mechanism of itching from frostbite as a tendency to sanguinolent edema with secondary paralysis of the arteries. The resulting hyperemia from the stasis is what entails the itching in chilblains, etc. The stasis hyperemia must be corrected by inducing vigorous circulation through the parts, transforming, he says, *"Stauungs- in eine Wallungshyperämie,"* correcting the tendency to stasis edema by pressure or toughening measures, such as painting the feet and hands with pure ichthyol and applying adhesive plaster when it is dry.

66. **The Nutrition Question.**—Boas comments on the prevailing scarcity of animal food in Germany, saying that persons who used to have to take spa treatment regularly, now keep themselves in good condition without it. The war is thus proving an actual benefit for those inclined to overeat, and for the complications of obesity and gout. The diet of the masses is becoming a strictly vegetarian diet. The endurance of vegetarians on long marches and in other tests of the physical strength has been so conclusively demonstrated during this war that physicians can no longer ignore such facts. At the same time, he adds, in order to manage with a vegetarian diet, providing the adequate amounts of nourishment required, severe physical exercise is indispensable. He agrees with Zuntz' dictum: "The less the amount of physical work and the greater the amount of intellectual work, the more necessary is it for the food to be of kinds easily digested and not taking up much space." It is important to recognize further, Boas continues, that meat stimulates the appetite besides supplying valuable nourishment, and this question of relish is by no means negligible. He mentions that he has long found very useful in forced feeding a chocolate, served hot or cold, made with 30.2 per cent. cocoa butter and 45 per cent. sugar (15.3 per cent. cane sugar and 29.8 per cent. milk sugar). In conclusion he urges compulsory courses in cooking in the public schools.

67. **Prognosis of Ovarian Tumors.**—Landau refers only to simple papilliferous serous cystadenoma, commenting on their tendency to invade both ovaries and produce calcium concrements, and their liability to work into the ligaments and to secrete a serous fluid which accumulates in the abdominal cavity along with effusion of peritonitic origin. The tolerance for this ascites is shown by cases on record in which the patients were tapped 299 and 600 times. One of his patients had these bilateral papilliferous tumors on both sides with dissemination on the peritoneum, but has been free from recurrence during the ten years to date since their removal, although adhesions prevented complete excision. The papillary cystoma masses left behind must have shriveled without further tendency to ascites. In his experiences with 57 cases, a permanent operative cure was realized in 23 cases, the interval since over nine years in 10. In 7 cases the rupture of the cysts during the operation entailed implantation metastasis, which in some cases displayed a malignant tendency, as in a case described in detail with the histologic findings. There was an interval of ten years before the recurrence, and laparoscopy revealed inoperable malignant degeneration. In a second case the recurrence eight years after the primary operation was of the same benign type as the first growth, and the health has been good during the few months since the resection of the large cystoma in the mesentery, although the viscera were scattered with cysts of all sizes from that of half a fist downward.

69. **Neuritis of the Pudic Nerve.**—Zuelzer relates that he had encountered before the war two cases in which irritation of the pudic nerve induced symptoms deceptively simulating those of a catarrhal affection of the bladder. He has since encountered it in ten or twelve soldiers on trench duty. The region innervated by the nerve is abnormally sensitive. The trouble subsided under treatment as for neuralgia.

70. **Winter Pruritus.**—In this continuation of his study of itching, Unna discusses the itching which is liable to occur in the legs after retiring in cold weather. (Previous instalments were summarized in these columns Jan. 15, 1916, p. 227). The relief from pressure of the clothing and the warmth induce conditions which entail the itching. Causal treatment is the wearing of a high elastic stocking or strips of adhesive plaster to prevent the sinking of the blood into the more or less enlarged veins, and means to soften the horny layer compressing the capillaries thus distended under the influence of gravity. For local application to improve the circulation, arrest the itching, soften the horny layer, and cure any tendency to eczema, he recommends a mixture of 24 parts each of diachylon ointment and camphor ointment (Ung. Hebrae and ung. camphorati) and 1 part each of phenol and chlorbenzol. (The latter is better known in this country as chlorbenzene.)

Deutsche medizinische Wochenschrift, Berlin

Nov. 25, 1915, XLI, No. 48, pp. 1417-1444

73 Advantages of and Technic for Early Operations on Nerves Wounded in War. (Zur Frühoperation, Mechanik der Nervenverletzung und Technik der Naht.) M. Wilms.
74 *Improved Technic for Localization of Projectiles During Their Removal. (Stellsonde-Verfahren. Eine Methode der Operation von Projektilen.) G. Schwarz.

75 Epidemic Superficial Mycosis. (Eine in Krankenhäusern epidemisch auftretende Fadenpilzerkrankung der Haut—Ekzema marginatum Hebrae.) W. Fischer.
76 Ameba Dysentery. (Zur Aetiologie der Amoebenruhr.) M. Hartmann; (Ueber Ruhramoeben.) W. Kruse.
77 *Findings Before and After Test March. (Aerztliche Beobachtungen an Teilnehmern eines Armee-Gepackmarsches.) Thiele.
78 The First Year of the War and the Physical Development of the Public School Children. (Das erste Kriegsjahr und die grossstädtischen Volksschulkinder.) A. H. Kettner.
79 Simplified Technic for Microscopic Examination of Cerebrospinal Fluid. (Zur mikroskopischen Untersuchung der Rückenmarksflüssigkeit.) Alter.

December 30, No. 53, pp. 1565-1588

80 Experiences with Treatment of Wounded Nerves and Nervous Affections in Soldiers. (Erfahrungen über die Behandlung nervenverletzter und nervenkranker Soldaten.) M. Lewandowky.
81 Successful Removal of Tumor Evidently Rooted in the Side Ventricle. (Zwei Fälle von operativer Beseitigung von Gehirngeschwülsten.) A. Westphal.
82 War and Internal Medicine. (Ergebnisse der bisherigen Kriegserfahrungen auf dem Gebiete der inneren Medizin.) Reckzeh. (To be continued.)
83 Stained Beer-Agar Culture Mediums. (Praktische Nährböden zur Diagnose von Cholera, Typhus und Dysenterie.) L. L. Sobel.
84 Simple Apparatus for After-Treatment of the Wounded. (Einfache Apparate zur Behandlung Kriegsbeschädigter.) A. Alsberg.
85 The Field Hospital in Antiquity. (Verbandplätze und Kriegslazarette im Altertum.) W. Haberling.
86 Social Service in the Hospitals. (Soziale Krankenhausfürsorge.) J. Schwalbe.

74. **Localization of Foreign Bodies.**—Schwarz gives an illustrated description of an improvised arrangement for roentgenoscopy with the tube under the table and one or two probes automatically adjusted on a standard above.

77. **Capacity for Endurance in Men on Long March.**—Thiele recorded for comparison the height and the weight, temperature, pulse and blood pressure before and after a long march, the men carrying the regular army equipment. This outing march was organized by a turner society at Berlin, to train in exercises which form part of the regular work of troops on active service. The greatest endurance was shown by men from 18 to 25; the drop in blood pressure averaged only 12 mm. mercury. Under 18, the drop averaged 19 mm.; in the older men it was 38 mm. These figures show the necessity for medical oversight of such exercises. They emphasize further the importance of the medical officer with a troop guarding the older men against extreme exertion so far as possible.

Medizinische Klinik, Berlin

Nov. 14, 1915, XI, No. 46, pp. 1253-1278

87 *Fractures. (Ueber Knochenbruchbehandlung.) E. Braatz.
88 Chemical Sterilization of Small Amounts of Water. (Die Desinfektion kleinerer Trinkwassermengen durch chemische Mittel.) O. Spitta.
89 *Causal Germ and Serotherapy of Infectious Jaundice. II. (Weitere experimentelle Untersuchungen über die sogenannte Weilsche Krankheit.) P. Uhlenhuth and W. Fromme.
90 Familial Acromegaly. J. Leva.
91 Advantages of One per Thousand Silver Nitrate Solution in Treatment of Suppurating Wounds. (Behandlung eitriger und jauchender Wunden mit schwachen Silbernitratlösungen.) J. Löblowitz.

November 21, No. 47, pp. 1279-1306

92 Pseudospastic Paresis with Tremor in Soldiers on Active Service. (Ueber Myotonoclonia trepidans.) H. Oppenheim.
93 Bacteriologic Experiences in War Epidemics. (Bakteriologische Erfahrungen über Kriegsseuchen.) H. Aronson. Concluded in No. 51.
94 Fracture of the Heel Bone as Typical Injury on Man of War. (Die Kompressionsfraktur des Calcaneus als typische Seekriegsverletzung.) G. Magnus.
95 *Difference in Temperature in the Right and Left Axillae. (Einseitige Steigerung der Körpertemperatur.) R. Wilzel.
96 Pedunculated Skin Flap for Secondary Plastic Operation after Amputation. (Zur Technik der sekundären Hautlappenplastik bei Kriegsamputierten.) H. Hans.
97 The Diazo and Urobilinogen Reactions in the Urine in Typhoid. (Ueber den Nachweis, das Vorkommen und die klinische Wertung von Urobilinogen und Diazo im Harne Typhuskranker.) K. Pick.
98 Typhus in Prisoners' Camp. (Ueber Fleckfieber.) O. Müller. (Commenced in No. 45.)

87. **Fractures.**—Braatz describes a number of devices that have proved very useful in his experience with fractures. As bedsteads are usually too short to apply extension properly for a man, in his private clinic he has the sides of the bed made unusually long, so that the bed measures 8⅓ feet at least (2.5 m.). A dislocation accompanying a fracture should be reduced at the same time the fracture is treated. Traction toward the side may accomplish this, as in a case cited. A sliding carriage for the leg to rest on runs on two long rollers extending from side to side, instead of wheels. He says of nail extension that there are a number of cases in which this is the only practicable measure, and it answers its purpose well. The muscles as well as the bones are involved in the pathologic unit of a fracture, and the laws of physics and the biologic behavior of the muscles confirm that muscles can be stretched with the application of the least force when they are in semiflexion.

89. **Spirochete and Serotherapy of Infectious Jaundice.**—Uhlenhuth and Fromme remark that conditions are peculiarly favorable for research on infectious jaundice with guinea-pigs. They do not develop the disease spontaneously nor contract it from infected guinea-pigs, but four days after intracardiac injection of 1 or 2 c.c. of defibrinated blood from an infected animal they begin to present the typical picture of Weil's disease, and the necropsy findings are likewise typical. A spirochete was found in every instance in the liver and bile, more rarely in the blood and kidneys. The spirochetes can be filtered out but no chemicals that were tried seemed to have a destructive action on them, not even a 1:1,000 solution of mercuric chlorid nor salvarsan. On the other hand, 2 or 3 c.c. of serum from a convalescent, mixed with 1 c.c. of the virus blood and left in contact for thirty minutes, neutralized the virus so that the mixture was absolutely innocuous, the animals inoculated with the mixture showing no signs of the disease while the controls all sickened and died. The convalescent serum was effectual even in the proportion of 0.01 c.c. to 1 c.c. of the virus blood. It also displayed a pronounced curative action when injected into animals with infection already installed. They call attention in particular to this latter fact, saying that it justifies the use of convalescents' serum in the clinic. The serum of convalescent rabbits also displayed prophylactic and curative action. They confidently assume that horses, sheep and asses can be utilized for the purpose, and that serotherapy of Weil's disease is thereby placed on a stable basis. The spirochete is very delicate and does not coil in regular spirals. In the succeeding number, Uhlenhuth and Fromme report the discovery of the spirochete in question with the Levaditi staining technic in the liver of a patient with Weil's disease.

95. **Unilateral Fever.**—A man of 44 was squeezed against a wall by a passing wagon. He fell unconscious but no apparent serious injury resulted, beyond bruises. One hour afterward the temperature in the right axilla was 39.5 C. (103 F.) and in the left axilla, 36.8 C. (98 F.). Various thermometers were used and changed about. They all recorded the same, and the next morning again, 39.2 in the right axilla and 36.8 in the left. By noon the latter temperature prevailed on both sides. The accident was followed by mutism and the pulse kept about at 66 for several days. Welzel emphasizes that this case can be regarded as an absolutely authentic instance of unilateral rise in temperature in a patient with other symptoms of hysteria.

Münchener medizinische Wochenschrift, Munich

Dec. 28, 1915, LXII, No. 52, pp. 1781-1796

99 Roentgen Examination of the Heart to Determine Fitness for Military Service. (Zur Röntgenuntersuchung des Herzens bei fraglicher Militärtauglichkeit.) F. Groedel.
100 *Atrophy of the Liver Following Trauma. (Akute gelbe Leberatrophie—nach Unfall?) H. Curschmann.
101 Red Vision from Solanin Poisoning. (Fall von Rotsehen nach Genuss der Samen von Solanum dulcamara L.) R. Hilbert.
102 *Ninhydrin Reaction in the Cerebrospinal Fluid in Tuberculous Meningitis. (Untersuchung tuberkulös meningitischer Punktionsflüssigkeiten mit Hilfe der Ninhydrinreaktion.) E. Nobel.
103 *Sciatica and War. (Ischias und Krieg.) E. Blind.
104 Treatment of Stump after Amputation. (Zur Behandlung der kegelförmigen ungedeckten Amputationsstümpfe, namentlich des Oberschenkels.) F. Franke.
105 Usable Prothesis for Thumb and for Entire Arm. (Ein brauchbarer Ersatz für den Daumen und ein künstlicher Arbeitsarm bei Exartikulation der Schulter.) B. Lange.
106 Roentgen Localization of Foreign Bodies. (Erfahrung mit dem Fürstenauzirkel.) R. Seubert.

107 Treatment of Incipient Ear Disease in the Field. (Merkblätter für Feldunterärzte. IV.) B. Heine.
108 Treatment of Fracture of Upper Arm and Shoulder. (Behandlung der Schussfrakturen des Oberarms und des Schultergelenks.) A. Schlesinger.

100. **Acute Yellow Atrophy of the Liver from Trauma.**—Curschmann remarks that the case reported is the third one of which he has knowledge in which the syndrome of acute yellow atrophy of the liver followed close on traumatic injury of the organ. His little patient was a strong healthy boy of 2 who had quite outgrown a tendency to moderate rachitis. He fell twice in one day on the back of a chair, striking the abdomen each time, and three days later signs of acute yellow atrophy of the liver developed, rapidly fatal.

102. **The Ninhydrin Reaction in the Spinal Fluid in Tuberculous Meningitis.**—This is Nobel's second article in our exchange during the year bearing on the response of the cerebrospinal fluid to Abderhalden's ninhydrin test. He applied it to a large number of spinal fluids, comparing the albumin content, ferments content, microscopic, bacteriologic and other findings with the response to the ninhydrin test. The response to the latter was exceptionally pronounced in tuberculous meningitis, as he shows by the tabulated details in eleven cases. The reaction was pronounced even after the albumin had been removed from the fluid. In two instructive cases—one of pulmonary tuberculosis with cavities and one of miliary tuberculosis—the ninhydrin reaction was constantly negative and necropsy confirmed the integrity of the meninges. Kafka's research has confirmed these findings. Both Nobel and Kafka expatiate on the extreme sensitiveness of the test, positive findings not being conclusive. Nobel regards as the criterion a decided blue tint half a minute after the conclusion of the boiling. A positive reaction is important in differentiating tuberculous meningitis from typhoid, pneumonia, septic infections and, in children, digestive disturbances, or gastro-intestinal catarrh. In excluding these it has only the significance of any other single clinical phenomenon, like the leukopeny of measles, the enlarged spleen in typhoid and other phenomena which are not absolutely specific but taken in connection with other clinical phenomenon are highly suggestive. (Compare with editorial in THE JOURNAL, April 17, 1915, p. 1332. Kafka's report of his findings was listed in these columns Nov. 20, 1915, p. 1859.)

103. **Sciatica.**—Blind has been very successful in treating recent sciatica in soldiers by bloodless stretching of the nerve under local anesthesia or the first whiffs of ether, overstretching the nerve with the knee in extension, followed the same day with gymnastic exercises, including bending far forward with straightened knees. Many of the patients extolled the benefit from the one effectual sitting after months of futile sweat baths, rubbing, etc. Treatment is reenforced with superheated air, mud baths, electricity, massage, or vibration gymnastics as the case may be. Perseverance and determination on the part of the patient and encouragement by the physician may be necessary to ward off superposed hysteria. Blind warns also that the supposed sciatica may be a symptom of unsuspected constitutional disease.

Wiener klinische Wochenschrift, Vienna

Dec. 9, 1915, XXVIII, No. 49, pp. 1337-1372

109 Gunshot and Shell Wounds of Larynx and Trachea; Seventeen Cases. K. Kofler and V. Frühwald.
110 *Tuberculin Treatment of Early Syphilis. (Die Tuberkulinbehandlung der Frühlues.) M. Biach.
111 Diarrhea from Presence of Anguillula. (Ueber Anguillula-Erkrankung.) A. Arnstein.
112 Experience in a Cholera Epidemic. (Ueber die Choleraepidemie in Brcka Juni bis Juli, 1915.) S. Frankl and F. Wengraf.
113 Typhoid Simulating Typhus. (Zur Frage des Flecktyphus auf dem galizischen Kriegsschauplatze.) W. Spät.
114 Rapid Restoration of Function after Operation on a Nerve. (Ueberraschend schneller Erfolg einer Nervenoperation.) R. Beck and E. Reither.
115 Halting Stations for the Wounded. (Ueber Krankenhaltstationen, ihre Aufgaben und zweckentsprechenden Einrichtungen.) Pilzer.

December 23, No. 51, pp. 1405-1432

116 Treatment of Whooping-Cough with Disease Products (Sputum) of Patients with Pertussis. (Ueber eine neue Behandlungsmethode des Keuchhustens.) R. Kraus (Buenos Aires).
117 Pathogenesis of Quincke's Edema. P. Neuda.
118 Return of Kneejerk in Tabes under Tuberculin Treatment; Four Cases. (Ueber das Wiederauftreten des Patellarreflexes bei Tabikern durch Tuberkulinbehandlung.) E. Wodak.
119 Relapsing Fever. (Ueber das Rückfallfieber.) Tobeitz.
120 Typhus. (Bemerkungen über Flecktyphus.) Marcovich.
121 Posttyphoid Tremor Resembling Paralysis Agitans. (Zur Kasuistik post-typhöser Systemaffektionen.) O. Gross.
122 Necessity for Operating Room on Hospital Train. (Notwendigkeit von Operationswagen für Spitalszüge.) A. Bielka von Karltreu.

110. **Induced Fever in Treatment of Early Syphilis.**—Biach recalls Wagner's statistics which apparently show that any intercurrent febrile affection soon after contracting syphilis seems to modify the infection favorably, so that tabes and progressive paralysis do not follow later. To induce artificially a febrile affection seems thus a justifiable procedure, and tuberculin is the simplest means for the purpose. Biach applied this method of treatment to patients with positive Wassermann, with or without secondary manifestations. The visible manifestations of the syphilis were at once influenced by the tuberculin or the febrile reaction to it, rapid retrogression being the rule. The tuberculin was given in addition to the usual mercury or salvarsan treatment, but Biach gives no details as to the dosage. He adds that the influence of the tuberculin on the Wassermann reaction was extremely interesting but does not enter into particulars.

Zeitschrift für Tuberkulose, Leipzig

December, 1915, XXV, No. 1, pp. 1-80. Last indexed October 9, p. 1315

123 *Natural and Artificial Heliotherapy of Lupus. A. Jesionek.
124 *Reclining as a Factor in Hemoptysis. (Zur Behandlung der Hämoptoe.) W. Neumann.
125 Trauma as a Factor in Pulmonary Tuberculosis. (Trauma und Lungentuberkulose. Vier Obergutachten.) J. Orth.

123. **Heliotherapy in Lupus.**—Jesionek is chief of the lupus sanatorium at Giessen and of the university clinic for skin diseases. He applies the direct sunlight in treatment or the mercury quartz lamp rays without any artificial devices to enhance their potency or expel the blood. The entire body is exposed, as he is convinced that the pigment generated in the epidermis by the rays is absorbed into the circulation to a certain extent and carried to the tuberculous foci where it exerts a therapeutic influence. (A previous communication from him on this subject was summarized in THE JOURNAL, Jan. 1, 1916, p. 69.) Lupus foci shielded against the light healed under the general heliotherapy, which can be explained only by the above assumption. He gives an illustration of fifteen lupus patients some of whom have been taking this treatment for several months and their skin shows as dark as a negro's in the photograph. The sunbath room has glass walls and the patients in bathing trunks are gradually accustomed to the light, only fifteen or thirty minutes at first. The exposures are carefully regulated to avoid sunburn. The pigmentation realized with the mercury quartz lamp ranks with that from direct sunlight. With several of these lamps the room is transformed into an artificial sunbath hall. He gives no casuistic details.

124. **Hemoptysis.**—Neumann noticed that the reclining position seemed to facilitate hemoptysis in some patients. The tendency to bleeding stopped at once when these patients were got up out of bed. Morphin given to combat hemoptysis is often directly responsible for aspiration pneumonia to which he attributes the outcome in the majority of fatal parenchymatous hemoptysis cases. A typical example is related; the young woman was kept under morphin and made to lie still in bed. After a few days of this, fatal pneumonia developed, evidently the result of aspiration. He places great reliance on intravenous injections of 10 per cent. saline and on the calcium salts. The latter are given preferably in the form of purified calcium chlorid, siccum or fusum, in a daily dosage of 2 or 3 gm. (0.04 or 0.05 gm. per kilogram of weight), in capsules or in a 10 or 20 per cent. solution. A teaspoonful of the 20 per cent. solution can be taken three times a day in water or in a cup of (cooled) cocoa. This calcium medication is kept up for several weeks or months unless there are gastro-intestinal disturbances.

The action of the ciliated epithelium is explained to the patient so that he is content to merely hawk and clear his

throat when he feels a tickling there, and does not attempt to cough up prematurely sputum from the depths each time. The desire to cough can often be suppressed by a sip of milk at room temperature taken through a tube. If a narcotic is necessary he gives codein and avoids morphin. If the heart action is bad, digitalis may be useful. This also promotes coagulation. If any signs warn of retention or aspiration pneumonia he gives emetics in heroic doses, for vital danger impends. He never witnessed any harm result from vomiting after a hemoptysis.

Gazzetta degli Ospedali e delle Cliniche, Milan

Dec. 23, 1915, XXXVI, No. 92, pp. 1441-1456

126 Case of Hard Edema Simulating Elephantiasis. (Contributo allo studio dell'edema duro.) E. Serra.

December 20, No. 93, pp. 1457-1472

127 Gauze Dipped in Petrolatum Liquefied by Heat for Dressing and Draining Wounds. (La medicatura e il drenaggio alla paraffina.) A. L. Soresi (New York).

December 30, No. 94, pp. 1473-1488

128 *Connection between Polymorphous Erythema and Tuberculosis. (Contributo clinico sulla natura e significato dell'eritema polimorfo.) B. Nicola.

128. **Polymorphous Erythema May Be a Sign of Latent Tuberculosis.**—Nicola describes seven cases in six of which an idiopathic polymorphous erythema was soon followed by symptoms of incipient tuberculosis or else tuberculous lesions were already installed. De Blasi has also published some cases in which persons who had presented polymorphous erythema at some time developed pulmonary tuberculosis a few years later. This is not at all common, however; Nicola found no history of anything of the kind in 500 tuberculous patients whose antecedents were investigated. At the same time, the experiences related testify that incipient or established tuberculosis is the cause of a certain proportion of cases of polymorphous erythema.

Semana Medica, Buenos Aires

Oct. 28, 1915, XXII, No. 43, pp. 503-546

129 *Epithelioma of the Tongue. (Electroignicion y epitelioma de lengua.) E. Cisneros.

130 *Prevalence of Grippal Pneumonia at Buenos Aires. (Sintomatologia rara en el curso de una neumonia.) R. Cabrera.

November 4, No. 44, pp. 547-574

131 The "Melting Pot" in Argentina and the Argentinian Race. (La formacion de una raza argentina.) J. Ingenieros.

129. **Epitheliomas of the Tongue.**—Cisneros has made a special study of these growths and he found that always the growth extended down into or started in the floor of the mouth. When the neoplasm was destroyed by electrocauterization, following it down into the floor of the mouth, a permanent cure was realized. Consequently he declares that epithelioma of the tongue is as readily curable as superficial growths. The lingual artery is the connecting link between the epithelioma of the tongue and the floor of the mouth. When there is a history of syphilis he gives the epithelioma the local treatment first and then treats the syphilis.

130. **Grippal Pneumonia.**—Cabrera comments on the prevalence of pneumonia in children at Buenos Aires and the frequency of cerebral symptoms, delirium and paresis. In one case a child of 3 had twelve days of fever, diarrhea, cough and great prostration with signs of pneumonia and in the throat the "grippal arch and papules, Ortiz' sign." Brought to the hospital in this stage the child was somnolent, and both arms and legs were as if paralyzed. The head sagged on the thorax when the child was raised to a sitting position. The tendon reflexes were attenuated but there was no paralysis of the respiratory muscles nor of the velum. The twenty-first day after the first symptoms the fever dropped and improvement progressed to complete recovery.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Dec. 25, 1915, II, No. 26, pp. 2715-2778

132 *The Behavior and Functioning of the Spleen in Acute Infectious Diseases. (Bijdrage tot de kennis van de rol der milt bij acute infecties.) A. E. Sitsen.

132. **The Spleen in Acute Affections.**—Sitsen is director of the medical school at Soerabaja, in the Dutch East Indies, and hence his study of the spleen in acute infections refers to tropical conditions. In 1914 there were ninety-two cases of croupous pneumonia in the prison and the same number in the public hospital. The mortality was the same, 43 per cent. in each group. He relates that the clinical picture of this disease in the East Indies differs widely from the disease as encountered in Europe. A close connection was evident between the clinical course and the anatomic findings, and between both these and the reaction on the part of the spleen. He discusses further the behavior of the spleen in a few cases of typhoid and of infectious colitis, suppurative processes and pleurisy. The data apparently indicate that in the tropics the spleen may be regarded as constantly more or less pathologic to start with.

Hospitalstidende, Copenhagen

Dec. 29, 1915, LVIII, No. 52, pp. 1327-1346

133 Acute Appendicitis; 178 Operative Cases. (Statistiske Meddelelser om akut Appendicit.) P. Bull (Christiania).

Hygiea, Stockholm

1915, LXXVII, No. 23, pp. 1401-1488

134 Information for Civilian Physicians in Regard to the Military Medical Service. (Några detaljer rörande sakkunskap och militär sjukvård.) F. Klefberg.

135 *Abuse of Wood Alcohol and Other Substitutes for Liquor. (Något om bruket av denaturerad sprit och andra surrogat för spritdrycker.) J. Billström.

135. **Substitutes for Liquor.**—This communication from an institution for treating inebriates states that, in the last seventeen years, of the 386 inmates, seventeen were in the habit of using denatured alcohol; eight perfume, and others various substitutes for alcohol, bringing the total to sixty-one in this category. The denatured alcohol was taken mixed with Pilsener beer and this mixture seems to be growing in favor as a beverage. Billström remarks that it would be better to denature with an emetic rather than with the substances now used. In the lower classes these substitutes for liquor are taken usually only after drinking more or less liquor. The addicts of a higher social grade resort to them as a rule only during periods of abstention from liquor.

Ugeskrift for Læger, Copenhagen

Dec. 23, 1915, LXXVII, No. 51, pp. 1995-2020

136 *Foreign Bodies in the Bronchi; Sixteen Cases. (Om Fremmedlegemer i de dybere Luftveje.) A. Thornval.

Dec. 30, No. 52, pp. 2021-2032

137 Suppuration in Mesenteric Glands; Two Operative Cases; Recovery in One. (Om Adenitis glandularum mesenterii.) A. Piers.

136. **Foreign Bodies in the Bronchi.**—Some of the sixteen cases reported confirm anew that a foreign body can be drawn into the lower air passages and cause so little disturbance that its presence is not suspected. One small child had a sudden attack of suffocation, suggesting that it had "swallowed something the wrong way," but then there was no further trouble of the kind and the suspicion was dropped. Two months later the child was brought to the hospital for prolonged "pneumonia," but with final apparent recovery. The child seemed to be healthy and active; only very rarely there was an attack of coughing, without expectoration. After eighteen months the attacks of coughing became more frequent and fever developed. Roentgenoscopy then revealed a foreign body in the left bronchus and it was successfully removed by tracheotomy. The brass pencil tip had evidently been in the lower air passages for nearly two years. The fact that the attacks of coughing were brought on by exercise or abrupt change of position should have suggested the proper diagnosis long before; rhonchi and weaker respiration over part of the lung would have confirmed it. In such cases dangerous complications are liable to develop at any moment, especially atelectasis simulating pleurisy with effusion or pneumonia. In one of the cases related and in one published by Schiödte the patients were long treated for supposed pulmonary tuberculosis. Only two of the sixteen patients were adults. Two of the total sixteen succumbed, one to bronchopneumonia and one to a gangrenous process.

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 9 CHICAGO, ILLINOIS FEBRUARY 26, 1916

PRESENT VIEWS IN RESPECT TO MODES AND PERIODS OF INFECTION IN TUBERCULOSIS *

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In considering the various modes in which infection with the tubercle bacillus can occur, we may, for the purposes of this paper, leave out of discussion all except inhalation and ingestion. There is practically no difference of opinion concerning their relative importance. They play small part in the epidemiology of the disease, and the total number of cases due to them is insignificant compared to those in which infection takes place through the respiratory and the digestive tracts. Both routes of infection are universally recognized, and there remains to be determined now only their relative importance as portals of entry.

Tuberculosis is a disease, the lesions of which are found so preeminently in the lung that it is easy to understand how the older physicians considered the respiratory tract the route of invasion. The classic work of Arnold gave scientific standing to this idea, since it proved that the lung could be invaded even by particles of inert matter, such as lampblack, introduced by the respiratory tract, and the experiment of Cornet, who exposed guinea-pigs to the dust produced by breaking up dried tuberculous sputum with a broom, resulting in the infection of most of the animals, seemed to settle the question in favor of this method from a practical point of view.

The older observations were apparently lost sight of, and did not receive due consideration until after the memorable British Congress on Tuberculosis in 1901, when the attitude of Koch in regard to the danger of bovine tuberculosis and the alleged rarity of primary intestinal tuberculosis brought them to the front once more.

RESPIRATORY INFECTION

The work of Arnold and the experiments of Cornet have been mentioned as furnishing the basis for the belief that tuberculous infection took place mainly through the respiratory tract. Further evidence seemed to be at hand in the greater number of cases in which the supposedly primary lesion was found in the lung and bronchial lymph nodes as compared with the intestine and mesenteric glands. The value of this evidence has been weakened during recent years by the discovery of the fact that, in children particularly, the bronchial lymph nodes are often tuberculous when no change can be found in the lung; and the belief is growing that the bronchial glands and small lymph nodes are first infected, and the lung tissue becomes involved later. Schroeder and Cotton have demonstrated that infection of the lung and bronchial glands can result from inoculation into the most distant parts of the body. A calf inoculated under the skin at the end of the tail died affected with tuberculosis of the lungs. The bronchial mediastinal and mesenteric glands were edematous and contained tubercle bacilli, though not having the histologic changes of tuberculosis.

Three hogs inoculated in the same way developed progressive tuberculosis of the lungs, liver and inguinal glands, and in one the gastrohepatic and bronchial glands were involved.

It is evident that infection of the lung is not the simple process of inhaling bacilli directly into the alveoli, as was formerly believed, but involves a more complicated mechanism.

The fixing of the portal of entry by the so-called oldest lesion is also open to serious question. I have produced fatal pulmonary tuberculosis in monkeys by feeding, with very insignificant intestinal lesions. All the oldest lesions were located in the lungs and bronchial glands, yet the method of feeding largely precluded the possibility of the tubercle bacilli reaching the lung except through the digestive tract. Practically all observers agree that in children there is a marked tendency to rapid and general dissemination of the disease, and many note that it is frequently impossible to determine the oldest lesion. As our conclusions have been drawn largely from postmortem observations on children, these facts are significant.

Dust and Spray.—In regard to the form in which tubercle bacilli are inhaled, all are agreed that dust from dried and pulverized sputum, and mouth spray produced in coughing, talking, sneezing, etc., both play their part. The relative danger of the two methods has not been determined, some believing that dust is the chief menace, while others follow Flügge in holding that the mouth spray produces infection more readily. The bacilli in the spray are certainly more apt to be alive and virulent. Both must be recognized as capable of producing infection, and droplet infection is probably the more dangerous.

INFECTION THROUGH THE DIGESTIVE TRACT

The first recorded cases of infection through the digestive tract are those of Klenke, who in 1846 gave the histories of sixteen children who had been fed on cow's milk, and all of whom showed tuberculosis of the intestines, glands, skin or bones.

* Read before the Section on Public Health and Medical Science, Second Pan-American Scientific Congress, Washington, D. C., Dec. 28, 1915.

Previous to this, however, Carmichael, in 1810, recorded as his observation that he had frequently seen the mesenteric glands strumous without involvement of the external glands, and this led him to believe that in scrofula the mesenteric glands were first involved. He referred to the frequency of a disease similar to scrofula seen in pigs fed on sour milk, and called attention to the common occurrence of bowel trouble in children at the time of weaning "too often followed by disease of mesenteric and lymphatic glands."

Casper, in 1882, referred to the extent of tuberculosis ("nodular consumption") among the milch cows of Paris, and said, "It is possible that there is a connection between this phenomenon and the many tuberculous diseases among the children of Paris."

Experimental evidence of tuberculous infection in cattle by feeding was given as early as 1868, by Chauveau, who extended his work with corroborative results in 1872 and 1873; and Villemin in 1869 obtained positive results by feeding in rabbits and guinea-pigs. He was the first to employ a tube for the introduction of tuberculous material into the stomach. Experiments by scientists of every nation have given positive support to the work of these early observers. It is also a well-known and widely observed fact that in the spread of tuberculosis of cattle and swine the digestive tract plays a most important rôle. Swine particularly are infected through the digestive tract in the great majority of cases, and the ingestion of milk from tuberculous cattle is universally recognized as one of the chief factors in the spread of the disease among these animals. The first examination made by the officers of the federal Meat Inspection Service is based on this fact. In 93.3 per cent. of cases, tuberculous hogs show infection of the cervical glands.

"As the disease is essentially produced by ingestion, the glands and tissues associated with the digestive tract are the most frequent seats of infection. Indeed, the superior cervical glands (in almost all cases the submaxillary gland) are nearly always affected, as at the postmortem examination held by bureau inspectors over a consecutive period on 120,000 tuberculous hog carcasses, 93.3 per cent. were found to contain lesions in these glands. The large tonsils and the large number of lymph sinuses in the lymph glands probably account for this great frequency."

"From some records relative to the locations of tuberculous lesions in cattle that were made at the same time that the figures pertaining to hogs were collected, it appears that in tuberculous cattle the lesions of tuberculosis were located in the cervical glands in 66⅔ per cent. of the animals, in the bronchial glands in 54.5 per cent., and in the mediastinal glands in 63.6 per cent."

In 1901, in his London address, while discussing the relation of bovine tuberculosis to human health, Koch took the ground that infection through food could be assumed to have taken place with certainty only when the primary tuberculous lesion was located in the intestines. He asserted that this was rarely found to be the case, and argued that the danger of infection through food was slight. The stand taken by Koch assumed that the tubercle bacillus was unable to gain entrance to the system through the intestinal wall without the production of a lesion at the point of entrance.

The question raised by Koch has been thoroughly investigated, and it can be said with certainty that the tubercle bacillus can penetrate the mucous membrane of the upper digestive tract as well as that of the intestine readily and quickly, without producing a tuberculous lesion at the point of entry. By Baumgarten, however, it is held that there is always a focus of infection at the point of entrance sooner or later, even though it may be microscopic. Against this is the demonstration by von Behring and Roemer of the ready permeability of the intestinal mucosa of young animals by various bacteria — even the large anthrax bacillus. In 1,000 swine, infected through food, Ostertag found the glands of the throat, neck and mesentery tuberculous, while the mucous membrane of the intestine was always free from disease. Orth, in 1879, and Cornet, in 1880, observed bacilli pass step by step through the fully developed mucous membrane of the uninjured intestine and reach the lymph channels and mesenteric glands, leaving no recognizable trace behind (Furst). Dobroklonski, in 1890, working under Cornil, showed that the tubercle bacillus would quickly penetrate the healthy wall of the intestine in guinea-pigs. Desoubry and Porcher, students of Nocard, showed in dogs that during the digestion of fats large numbers of bacteria were carried through the intestinal wall and could be detected in the chyle within a few hours after the meal was given. If food free from fat was given, few or even no bacteria could be found. Nicolas and Descos, in 1902, found that tubercle bacilli given to dogs in fatty food reached the chyle within three hours. During feeding experiments conducted at the laboratory of the State Live Stock Sanitary Board of Pennsylvania, we frequently observed extensive tuberculosis of the lungs and thoracic glands in animals which showed slight or even no involvement of the intestine. In 1902-1903, I introduced into the stomachs of a number of dogs tubercle bacilli suspended in an emulsion of melted butter and warm water, using a tube in order to prevent possible infection through the trachea. The dogs were killed after three and one-half to four hours, during active digestion, as much chyle as possible was collected, and the mesenteric glands were removed. Guinea-pigs were inoculated with this material. Tubercle bacilli were demonstrated in abundance in eight of ten experiments. The dogs were kept on soft food for some days before the experiments, and were purged with castor oil, in order to rid the intestine of all foreign matter which might injure the mucous membrane. Numerous sections of the intestine were examined also, but no injury could be detected.

It is possible here only to mention the work of Calmette and his students, as a result of which he concluded that pulmonary tuberculosis acquired at any age may be due to recent intestinal infection.

The rapidity with which tubercle bacilli penetrate the intestine and reach the lung through the thoracic duct is remarkable. Besanti and Panisset found that when fed to dogs in soup they reached the heart blood within from four to five hours. Bartel found that after a single dose they penetrated the uninjured intestine and reached the mesenteric glands during the following digestive period. Schlossmann and Engel, by inoculating tubercle bacilli suspended in cream into the stomachs of young guinea-pigs through an incision in the abdominal wall, demonstrated that they reached the lung within six hours. Their work has been confirmed by Ravenel and Reichel. Rabinowitsch and Oberwarth established nutrition through a gastric fistula in swine, and then resected the esophagus, after which tubercle bacilli were introduced into the stomach. Within twenty-four hours they were shown to have penetrated to many organs of the body.

INFECTION BY THE BOVINE TUBERCLE BACILLUS

The statement of Koch in 1901 that bovine tuberculosis was not a menace to public health has also led to a vast amount of study which throws light on the portal of entry of the tubercle bacillus. It is conceded by every one that bovine tuberculosis is found almost exclusively in children under the age of 16 years, and that the susceptibility to this type of infection is greater during the first five years of life than it is afterward. It is perfectly evident that the only exposure that children of this age can have to the bovine germ is through the food which they eat, and infection is, therefore, invariably through the digestive tract.

The results of the English royal commission, the German imperial commission, and numerous private workers have been frequently quoted, and I give in Table 1 a summary of instances collected by Dr. Park which indicates fairly the amount of infection due to the bovine tubercle bacillus, especially in fatal cases.

Many nonfatal cases of tuberculosis are also caused by the bovine germ. These are found almost exclusively in children, and the infection is through the digestive tract.

Fraser, in sixty-seven cases of bone and joint tuberculosis in children under 12 years of age, found the bovine germ forty-one times, the human twenty-six times, and both three times.

TABLE 1.—INFECTION DUE TO THE BOVINE TUBERCLE BACILLUS IN INSTANCES COLLECTED BY PARK

Persons Age	Cases		
	Total Number	Human	Bovine
Adults, 16 years and over	955	940	15
Children, from 5 to 16 years	177	131	46
Children, from 0 to 5 years	368	292	76

Mitchell examined seventy-two children under 12 years of age with cervical adenitis, and found the bovine germ in sixty-five, the human in only seven.

It should be remembered that the human tubercle bacillus is capable also of producing infection through the digestive tract, and the mistake must not be made of considering only those cases in which the bovine germ is found as due to ingestion.

INFECTION THROUGH THE TONSILS

The frequency of infection through the tonsils has been recently called in question by von Pirquet, who quotes Albrechts and Ghon to support his view. The former in 1,060 cases found only three instances of primary tonsillar infection, and the latter in 189 cases found only one. It is hard to reconcile these findings with those of others, or with experimental work.

Wood has collected from the literature 1,671 instances, eighty-eight (5.2 per cent.) of which showed primary tuberculosis. These examinations were made by various methods, and probably fall short of the truth. Lartigau and Goodale have shown that systematic inoculation of animals gives a higher percentage of tuberculosis. In seventy-five cases, Lartigau found twelve (or 16 per cent.) tuberculous. Dieulafoy, by the inoculation of guinea-pigs, found tuberculosis of the tonsils in fifteen of ninety-six cases. This work has been criticized on the ground that no histologic examinations were made, as Dieulafoy was not careful to exclude the crypts, which may lodge tubercle bacilli. Latham, however, who avoided these sources of error, in twenty-five consecutive necropsies on children from 3 months to 13 years of age, found seven which were tuberculous—results practically identical with those of Dieulafoy. Confirmatory reports have been made by a large number of observers, many of which are included in the figures quoted from Wood. The susceptibility of the tonsils to tuberculous infection is shown by the examination of persons dead of phthisis.

Experimentally, the tonsils are readily infected, by direct application, as well as by feeding tuberculous material. In a series of experiments which I carried out at the laboratory of the State Live Stock Sanitary Board of Pennsylvania, swine fed with tubercle bacilli from man and from cattle developed generalized tuberculosis, with marked involvement of the tonsils, apparently primary, with necrosis and ulceration.

The experiments on these lines are too numerous to review here. Practically all experimental observers have noted the susceptibility of the tonsils to tuberculous infection. Wood of Philadelphia has carried out a most instructive series of experiments on swine. He found that the application of tubercle bacilli to the back of the mouth rapidly produced primary tuberculosis of the tonsils, soon followed by involvement of the submaxillary and cervical glands and extensive disease of the lungs. The mesenteric and bronchial glands were always diseased in about an equal degree.

I have referred above to experiments carried out on monkeys by feeding, in which the lungs showed extensive and destructive tuberculosis. In these animals, while no lesion of the tonsil could be found, caseous lymphatic glands were found in the neck in the region draining from the throat, and there could be no doubt that a part of the infection at least occurred by penetration of the mucous membrane in this region.

Grober believes that infection through the tonsil is the most frequent origin of apical tuberculosis. His experiments have demonstrated that from the cervical glands there is a direct route to the pleurae and lungs, and that this leads especially to that portion of the lung most frequently the primary seat of tuberculosis—the apex.

The evidence that the tonsils are frequently the portal of entry for the tubercle bacillus appears to me very conclusive, and it seems equally certain that food is the bearer of the infection in a large proportion of cases.

PERIOD OF INFECTION IN TUBERCULOSIS

Few problems offer more inherent difficulties in their solution than the determination of the age at which tuberculous infection occurs. It is easy to construct tables showing the age at which the disease becomes manifest clinically, but, except in the early years of life, these give little clue to the exact time of infection.

There is no doubt of the existence of a widespread opinion that infection takes place chiefly in infancy and childhood, and this opinion appears to be growing. It seems to have a legitimate basis, even if not wholly true. In 1900, Naegeli showed by necropsies in Zurich that by the age of 30, 99 per cent. of persons showed tuberculous lesions or scars, results which have been in a measure confirmed in other cities, but which cannot be accepted as correct for the general population.

The use of tuberculin by the method of von Pirquet, or some of its modifications, is even more directly responsible for the belief in early infection. Von Pirquet himself obtained positive reactions among

children of the poorer class in Vienna in a surprising number of cases—70 per cent., if clinical cases of tuberculosis are excluded, and 80 per cent. if included, as shown by Table 2.

More surprising even are the results of Hamburger and Monti, also on children of the poorer class in Vienna (Table 3).

Based on such findings, the belief is widely held that over 90 per cent. of children are infected with tuberculosis by the 14th year, and statements have been made that tuberculosis in adult life is only the recrudescence of infection acquired in early life.

A further study of reports from different parts of the world reveals marked variations in the percentage of positive reactions, but all show that tuberculous infection in childhood is extremely common, as seen by Table 4.

Postmortem reports by von Pirquet, Müller and others show that the positive reactions fall short of showing the full number of those infected.

Turning to recent work in the United States, we find a somewhat different picture. Veeder and Johnston tested 1,321 hospital children in St. Louis, and obtained a maximum of 48 per cent. positive reactions at the age period from 10 to 14, including cases of clinical tuberculosis, and 38 per cent. exclusive of these.

Cattermole of Colorado, in a series of sixty-six cases from 1 to 14 years of age, found twenty-five, or

TABLE 2.—POSITIVE REACTIONS IN CHILDREN OBTAINED BY VON PIRQUET

	Including Cases of Tuberculosis			Excluding Cases of Tuberculosis		
		Positive Reactions			Positive Reactions	
Age (Yrs.)	Total No.	Number	Per Cent.	Total No.	Number	Per Cent.
Under 1	410	21	5	388	0	0
From 1 to 2	116	24	20	89	0	0
From 2 to 4	208	74	35	162	22	13
From 4 to 7	264	127	48	189	53	30
From 7 to 10	216	138	64	154	74	48
From 10 to 14	193	155	80	147	105	70

TABLE 3.—POSITIVE REACTIONS IN CHILDREN OBTAINED BY HAMBURGER AND MONTI

		Positive Reactions	
Age (Years)	No. Children	Number	Per Cent.
Under 1	23	0	0
From 1 to 2	46	4	9
From 2 to 3	56	11	20
From 3 to 4	75	24	32
From 4 to 5	50	26	52
From 5 to 6	63	32	51
From 6 to 7	46	28	61
From 7 to 8	30	22	73
From 8 to 9	35	25	71
From 9 to 10	26	22	85
From 10 to 11	29	27	93
From 11 to 12	19	18	95
From 12 to 13	17	16	94
From 13 to 14	17	16	94

TABLE 4.—PERCENTAGE OF POSITIVE REACTIONS IN CHILDHOOD OBTAINED BY VARIOUS OBSERVERS

Name Place	Number Tested	Age	Positive Per Cent.
Øverland, Bergen	843	From 12 to 14	50
Amenta, Palermo	800	From 8 to 12	83
Müller, Vienna	949	From 10 to 14	54
Calmette, Grysez	1,226	From 5 to 15	81.4
Letulle, Lille	...	From 12 to 16	60

38 per cent., of positive reactions. Taking the age period from 10 to 14, his positive reactions reached 63 per cent.

Cattermole quotes Manning of Seattle as having obtained 58.1 per cent. of positive reactions at the age period from 10 to 15, in a series of 228 children.

He also quotes Fishberg of New York, who, among 692 children living with tuberculous parents in the tenements, obtained 67.25 of positive reactions, while among 588 of the same class, but living with nontuberculous parents, 52.72 per cent. gave positive reactions.

Smith subjected 1,225 Indian children in New Mexico of school age to the test, and obtained 760 positive reactions, a percentage of 64.40.

TABLE 5.—TOTAL REACTIONS, INCLUDING CASES OF CLINICAL TUBERCULOSIS

Age (Years)	No. Children Tested	Positive Reactions Number	Positive Reactions Per Cent.
Under 1	224	25	11
From 1 to 2	137	34	24
From 2 to 4	188	57	30
From 4 to 6	206	68	33
From 6 to 8	182	74	40
From 8 to 10	157	69	44
From 10 to 12	115	45	40
From 12 to 14	112	54	48
	1,321	426	

TABLE 6.—REACTIONS IN CHILDREN WITHOUT CLINICAL MANIFESTATIONS OF TUBERCULOSIS

Age (Years)	No. Children Tested	Positive Reactions Number	Positive Reactions Per Cent.
Under 1	202	3	1.5
From 1 to 2	109	6	5.5
From 2 to 4	163	32	19
From 4 to 6	172	40	23
From 6 to 8	152	44	29
From 8 to 10	126	38	30
From 10 to 12	107	37	34
From 12 to 14	94	36	38
	1,125	236	

These findings are corroborated by postmortem examinations done on children who have died from various diseases.

The studies of Harbitz throw much light on this question. I give his results, as well as those of others, most of which are quoted from his monograph:

Harbitz, in 275 necropsies on children under 15 years of age, found 117 (42.5 per cent.) of tuberculosis.

Babes, in 902 necropsies on children under 15, found tuberculosis in 288 (31.9 per cent.).

In 1887, in ninety-three necropsies, tuberculosis of the bronchial and mesenteric glands was found sixty-five times. In only thirteen was death caused by tuberculosis.

Geill, in 902 necropsies on children under 15, found tuberculosis in 288 (31.9 per cent.). The maximum was reached at the period from 6 to 9, 46.9 per cent.

Müller, in 500 necropsies on children, found 150 (30 per cent.) cases in which death was due to tuberculosis, and fifty-nine (11.8 per cent.) of latent tuberculosis.

Hecker, in 700 necropsies on children, found active or latent tuberculosis in 147 (21 per cent.).

Monrad, in 654 necropsies on children, found tuberculosis in 157 (24 per cent.).

At the pathologic institute of Kiel, in 2,572 necropsies on children under 15, tuberculosis was found in 16.7 per cent.

Boltz, in 2,601 necropsies on children under 15, found tuberculosis in 428 (16.1 per cent.). Exclusive of those under 1 year of age, we have 1,171 necropsies with tuberculosis in 364 (31 per cent.).

Heller found latent tuberculosis in 140 (19.6 per cent.) among 714 children dead of diphtheria.

Councilman, Mallory and Pearce, in 220 necropsies on children dead of diphtheria, found latent tuberculosis in thirty-five (16 per cent.).

Hand, in 332 necropsies on children, found tuberculosis in 115 (34.6 per cent.).

Still, in 769 necropsies on children under 12, found tuberculosis in 269 (35 per cent.). In forty-three it was latent, and in 117 (43.4 per cent.) before the second year.

Many other similar reports could be given, but these have been selected as covering a large part of the world, and representing fairly the occurrence of tuberculosis as found postmortem in children.

Wallgren of Upsala has made some valuable clinical observations bearing on this subject. He compared the histories of 100 consumptives and 100 healthy persons as to their exposure during childhood. He took only those cases in which intimate contact during childhood with coughing consumptives could be affirmed with reasonable certainty. "Of the 100 tuberculous patients, fifty-one gave evidence of childhood contact with tuberculous associates, whereas of the 100 normal individuals, such contact was found in but thirteen."

It is impossible to escape the conviction that childhood is preeminently the time of life when the tubercle bacillus gains a foothold in the body.

ADULT INFECTION

The difficulty, especially marked in adult life, of connecting the clinical manifestations of tuberculosis with the date of infection, has already been mentioned, but fairly accurate information on adult infection can be obtained by the careful study of groups of individuals of good family history especially exposed to infection for considerable periods, such as physicians and attendants at hospitals and sanatoriums for tuberculosis, and those who marry consumptives. A number of collective investigations are quoted by Cornet and other writers. Many of these, owing to incomplete data and other defects, are of little or no value. From the material at hand I have tried to select those which seem to throw some light on the question.

Saugman states that of 174 sanatorium physicians, whose average term of service was three years, and whose subsequent history was followed for three and one-half years, only two became tuberculous. Among sixty-four laryngologists from eight different clinics, none contracted tuberculosis.

Williams has, in two papers, given most interesting facts concerning infection of physicians and attendants at Brompton Hospital, founded before the discovery of the tubercle bacillus, and before the contagiousness of tuberculosis was recognized. His first paper gave the statistics of the hospital staff from its foundation in 1846 to 1882, thirty-six years. Among four resident medical officers, one of whom held office twenty-five years, no case of consumption has developed. Among 150 house physicians, none of whom held office for less than six months, and many much longer, only eight cases of consumption occurred.

The second paper gives the results from 1882 to 1909. It includes resident and assistant resident medical officers, house physicians, resident and nonresident porters, pathologic assistants and dispensers, in all 369 persons, of whom twelve, or 3.2 per cent., developed phthisis later, two of them through inoculation wounds.

The comments of Goring on this report are most interesting. He compares these results with those obtained by himself in a study of 3,090 individuals of nontuberculous parentage, assuming that a person coming of tainted stock would not be likely to take service in a consumptive hospital. Among his 3,090 persons, seventy-nine, or 2.6 per cent. developed tuberculosis. Thus two groups, one exposed to special risks and one not, showed an amount of infection varying only 0.6 per cent. If the two hospital cases, associated with inoculation wounds, are left out of consideration, we have practically the same percentage of infection, 2.6 and 2.7 per cent.

Since the foundation of the Adirondack Cottage Sanitarium, more than twenty-eight years ago, there has been no case of infection among the employees, including waitresses, chambermaids and laundresses.

Infection through marriage may give some clue to the susceptibility of adults. Cornet says, "The number of cases of marriage infection, often of classical simplicity, runs up into the hundreds." His own study of 594 couples showed that in 23 per cent. both partners were tuberculous. He admits that the findings do not necessarily imply an etiologic relation between the cases. Cornet believes the actual cases run higher than the figures given indicate. Other observers place marital infection at from 3 to 12 per cent. Recent studies made according to modern statistical methods tend to throw doubt on the earlier work.[1]

The late E. G. Pope's study of this question failed to show definite proof of infection between married persons. His work has been reviewed by Karl Pearson, who says:

I may conclude in the slightly modified words of Mr. Pope: It would seem probable then (1) that there is some sensible but slight infection between married couples, (2) that this is largely obscured or forestalled by the fact of infection from outside sources, (3) that the liability to the infection depends on the presence of the necessary diathesis, (4) that assortative mating probably accounts for at least two thirds and infective action for not more than one third of the whole correlation observed in these cases. But the demonstration of this result depends on the acceptance of the inherited diathesis to be effective, and the existence of assortative mating of equal intensity in the case of want of mental balance must prevent dogmatism. In all future collection of statistics with regard both to marital infection and parental infection, it is most important that the age of husband and wife at marriage and the age at onset and death in both should be recorded. Age at onset and death of the parent, age of parent at birth of child and age at onset and death of child should also be recorded. It is only by such complete records that we shall ultimately be able to accurately apportion the action of infection, assortative mating and inheritance.

For real light on the problem of assortative mating of the tuberculous, we must wait till we have definite knowledge in each case of the family history of both husband and wife. If we find (1) that the marriage of two ultimately tuberculous persons took place before either were suspected of the disease, and (2) that there is in such cases a larger percentage of family histories of tuberculosis than in the case of nonmarried tuberculous individuals, we should have definite evidence of the assortative mating which seems probable. If, on the other hand, the percentage were smaller, we should have definite evidence for the infection theory.

The difficulty of determining the date of infection by the appearance of clinical symptoms has already been mentioned. As our ideas have been in the past largely drawn from clinical data, it is evident that there is need of some revision. How such data may mislead is evidenced by the statement of Goring[2]:

The mean age of onset for both sexes taken together is about 27—the standard deviation is about nine years. It follows from this that the ages between 14 and 45 may be looked on roughly as a danger zone for tuberculous infection. The modal value of age of onset is about 23, and this is the age when danger of infection is most intense, the danger diminishing fairly rapidly to the age of 14, and more gradually to the age of 45.

1. Prisons have been notorious for the many cases of consumption which developed among prisoners, and these figures have been used as demonstrating infection. I have purposely left these out of consideration in this paper because of the class of people affected. It is almost certain that the majority of these cases are simply instances of recrudescence of an infection which took place in early life. There is, at least, so much doubt concerning them that I have not considered the figures justifiable for use in this discussion.

2. Goring: Studies in National Detorioration, V.

It seems certain that the early years of life are those in which tuberculous infection takes place in the great majority of cases, and primary infection of adults is much less frequent than formerly believed. Clinical histories cannot be relied on to determine the period of infection. It seems equally certain that infection of adults does occur, and that no age is exempt.

CONCLUSIONS

1. The evidence at hand indicates that in the majority of cases the respiratory tract is the route of infection in tuberculosis.
2. The alimentary tract is a frequent portal of entry for the tubercle bacillus.
3. The tubercle bacillus is able to pass through the intact mucous membrane of the alimentary tract without producing a lesion at the point of entrance. This takes place most readily during the digestion of fats.
4. The bacilli pass with the chyle through the lacteals and thoracic duct into the blood, which conveys them to the lungs, where they are retained largely by the filtering action of the tissues.
5. Infection through the alimentary tract is especially frequent in children.
6. Infancy and childhood are preeminently the periods of life when the individual is susceptible to tuberculous infection, and the majority of cases of infection occur during these early years.
7. Any campaign against tuberculosis which leaves out of consideration the protection of children against infection will fail of success.
8. Tuberculous infection in adult life occurs, but not so frequently or readily as generally believed.
9. Tuberculous infection may occur at any age.

TRANSFUSION OF BLOOD WITH SPECIAL REFERENCE TO THE USE OF ANTICOAGULANTS*

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We previously reported[1] a method of transfusing blood by means of specially constructed pipets and cannulas designed for use with either a lining of hardened paraffin or a preliminary internal coating of an anticoagulant solution such as leech extract or herudin[2]. During the past eighteen months we have experimented with various anticoagulants other than paraffin and herudin, with a view to determining the best anticoagulative agents for purposes of transfusion. We desire here to report the results of these experimental transfusions and to summarize the theoretical and practical advantages of the anticoagulants which we have studied; and in order to make more evident at the outset the practical bearing of this study, we propose, first, to discuss briefly the present status of blood transfusion as a rational therapeutic procedure, and to call attention to certain aspects of this problem which are not usually taken into consideration. It is not our intention by this discussion to disparage the valuable and often brilliant results which have been and are being constantly achieved by blood transfusion, nor to argue for any special restriction of its field of usefulness, but we do wish to point out the need for a more exact knowledge of the biologic processes which are involved in transfusion of blood (or which may be involved under special conditions) in order that the certainty of its usefulness may be increased and that the liability to any untoward results may be minimized beyond what is realized at the present time.

In the constantly enlarging field in which transfusion of the blood is being employed, the questions which arise concerning the indications and contra-indications for this operation, the amount of new blood to be supplied, and the advisability of removing some of the patient's own blood at the time of transfusion, are all matters closely concerned with the probable benefit or futility of the operation. For instance, in the emergency of acute hemorrhage occurring in an otherwise healthy subject, or following the artificial removal of acutely poisoned blood, as in the treatment of gas poisoning, we believe that the problem is a comparatively simple one and that the established tests for hemolysis and agglutination between prospective donor and recipient are probably adequate, if indeed the urgency of the conditions may not make it imperative to proceed without taking time for even these tests. But the problem is far more complex when it is a question of the benefit to be derived from the transfusion of a so-called "normal" blood into the circulation of a patient suffering from one or more of the various pathologic conditions for which transfusion has been recommended, and we believe that this question could be more satisfactorily answered if laboratory methods were available for the detection of other possible grounds of incompatibility than those which are covered by the tests which are now in use.

Among the recent contributions to the literature of transfusion we can find only one reference[3] to accidents which appear definitely to suggest inadequacy of the present tests for blood compatibility, although there are numerous citations of unexplained chills and febrile reactions.

Percy[3], in a series of fifty-four transfusions, met with toxic reactions in three cases in which the hemolysis and agglutination tests were perfectly negative, and two of these cases resulted fatally.

Ottenberg and Kaliski[4] estimated that there are toxic reactions not referable to hemolysis or agglutination, in 10 per cent. of all cases of transfusion, which estimate appears to be based on their own series of 128 cases.

Ottenberg and Libman,[5] in their series of 212 transfusions on 189 cases collected from hospital and private sources and performed by a number of different surgeons, have contributed a valuable classified report. These authors, in summarizing the untoward results due to transfusion, assign the most unfavorable reactions of their series, including five fatalities, to "incompatible blood" (meaning, apparently, hemolysis or agglutination only) or to hypertransfusion. But they also state that a "more or less febrile reaction" occurred in about 10 per cent. of all cases and that skin eruptions, usually urticarial, occasionally petechial, appeared in another 10 per cent. In referring to the hemolytic and agglutinative reactions as being an insufficient guide to the value of a given donor's blood for the purpose of stimulating a remission of the disease in pernicious anemia, Ottenberg and Libman

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1. Satterlee and Hooker: Surg., Gynec. and Obst., 1914, xix, 235.
2. Satterlee, H. S., and Hooker, R. S.: The Use of Herudin in the Transfusion of Blood, THE JOURNAL A. M. A., June 6, 1914, p. 1781.
3. Percy: Surg., Gynec. and Obst., 1915, xxi, 360.
4. Ottenberg, Reuben, and Kaliski, David J.: Accidents in Transfusion, THE JOURNAL A. M. A., Dec. 13, 1913, p. 2138.
5. Ottenberg and Libman: Am. Jour. Med. Sc., 1915, xl, 36.

make the interesting observation that "there are probably other not yet recognized differences between the bloods of donors."

Lindeman[6] reports 4 chills and 14 febrile reactions in 46 transfusions with related donors, and 22 chills and 32 febrile reactions in 62 transfusions with unrelated donors.

Lewisohn[7] reports 5 febrile reactions and 3 chills in 22 transfusions.

Two cases of toxic reactions in which the hemolysis and agglutination tests were favorable have been reported to us by Dr. Robert A. Cooke of New York in a series of twelve transfusions.

Without going further into statistics it will be enough to say that those who have had experience with the transfusion of blood in varying pathologic conditions and by various methods have observed that certain toxic symptoms varying all the way from a slight chill and rise of temperature to marked anaphylactoid phenomena and even death have occasionally resulted as an immediate sequel to transfusion and where the usual serologic tests for hemolysis and agglutination have been entirely favorable.

An extended discussion of the available hypotheses by which to explain such phenomena would occupy too much space here, but we believe that certain grounds of explanation are more strongly suggestive than others and are therefore worthy of special attention. Recent researches on the blood, and especially on the action of serum ferments, have assumed a general significance as affecting many questions of immunity, and are most particularly pertinent to the problem which here concerns us. We will therefore consider three hypotheses, any or all of which may be applicable.

1. *It is possible that the trypsin-antitrypsin balance in the circulating blood of the recipient may be so disturbed by the commingling with the donor's blood as to result in the immediate formation of serotoxin from cleavage of serum protein.*

For instance, Jobling and Petersen have shown[8] that homologous serum may be toxic for animals under conditions which remove the antiferment and permit the serum protease to act, that[9] serotoxin (anaphylotoxin) formation is coincident with the adsorption of the serum antiferment and[10] that an increase of antiferment diminishes susceptibility to trypsin shock. These investigators have further demonstrated[11] that acute anaphylactic shock is accompanied by the intravenous mobilization of a large amount of nonspecific protease, a decrease in antiferment, an increase in noncoagulable nitrogen of the serum and an increase in amino-acids, which they attribute to the cleavage of serum proteins through the peptone (toxic) stage by a nonspecific protease. They conclude that the specific elements of this reaction consist in the rapid mobilization of the protease and in colloidal serum changes which bring about a change in antiferment titer, and that these changes are probably due mainly to an adsorption or lessening of the dispersion of the unsaturated lipoids on which the antiferment property depends.

2. *It is possible that the action of protective colloids in the body cells of the recipient may be so disturbed that these cells are thereby exposed to a reaction of antigen and antibody present in the circulation of the recipient but harmless to the protected cell.*

In support of such an explanation, the work of Zinsser and Young[12] on the possible importance of colloidal protection in certain phases of the precipitin reaction, has a distinct bearing.

If further investigation and better knowledge should prove the validity of these assumptions, it is most probable that laboratory tests can be evolved which will show in advance the liability to harmful results from such causes. Meanwhile it would be well to recognize that delicate physicochemical balances may be disturbed and toxic biologic reactions may take place as a result of transfusing blood under certain conditions, and that the usual tests for hemolysis and agglutination, although of primary importance, do not afford the complete assurance of freedom from unfavorable reaction which is commonly believed.

The increasing attention which is being given in the current medical literature to simplified methods of transfusion has tended to popularize the idea that almost any technic of operations may be employed which will serve to transfer blood under aseptic precautions and in a fluid state from the circulation of a donor to that of the recipient. As opposed to this trend of opinion, we believe that the removal of so complex a tissue as the circulating blood and its exposure to foreign physical influences during transfer to another human system should be regarded as at least as delicate an operation as the transplantation of any other living tissue, and should be given the same degree of consideration for favorable biologic conditions as any other surgical transplant. These conditions are not satisfied by providing only for the transfer of the blood in a germ-free and fluid state; they should also preclude the possibility of other changes tending to lessen its functional value as a transplant, and most particularly should the conditions preclude the possibility of harmful disturbances in the recipient's circulation induced by such changes. This brings us to another possible causation of toxic reaction which is not concerned with incompatibility between two bloods and which therefore is not to be anticipated by preliminary tests. This is:

3. *The possibility of a toxic disturbance in the circulation of the recipient by the introduction of blood which, though perfectly fluid, may nevertheless be undergoing incipient coagulative changes due to the physical influences to which it is subjected in process of transfer.*

Doerr[13] observes that substances which influence coagulation also induce anaphylactic manifestations, and he states that coagulative changes may produce such toxic reactions as evidenced by work carried out in his laboratory by Moldovan. Although Doerr specifically states that these effects may result from the injection of undefibrinated homologous blood, the only protocols which we can find of such experiments are those reported by Moldovan[14] demonstrating the fatal effects of the intravenous injection of recently defibrinated homologous blood. In explaining the anaphylactoid phenomena so produced, Doerr says that there is a reaction between an antigen and antibody, this being his conception of the incipient changes of coagulation according to the theory of Nolf, which results in an adsorptive action on the colloids of the blood, and that this latter disturbance —an essentially physical process—is responsible for the anaphylactic symptoms.

The mechanism of toxic action as suggested by this theory is similar to the two preceding hypotheses which we have introduced, in that all are concerned with adsorptive phenomena affecting the colloidal substances

6. Lindeman, Edward: Blood Transfusion, THE JOURNAL A. M. A., March 28, 1914, p. 993.
7. Lewisohn: Surg., Gynec. and Obst., 1915, xxi, 37.
8. Jobling and Petersen: Jour. Exper. Med., 1914, xix, 480.
9. Jobling and Petersen: Jour. Exper. Med., 1914, xx, 38.
10. Jobling and Petersen: Jour. Exper. Med., 1914, xx, 468.
11. Jobling and Petersen: Jour. Exper. Med., 1915, xxii, 401.
12. Zinsser and Young: Jour. Exper. Med., 1913, xvii, 396.
13. Doerr: Wien. klin. Wchnschr., 1912, xxv, 339.
14. Moldovan: Deutsch. med. Wchnschr., 1910, xxxvi, 2422.

of the blood or of the endothelial cells, and resulting in exposure to chemical change or physical shock. But the special significance of this explanation of toxic action is in connection with the physical influences to which the blood is exposed by the method of transfusion. Defibrination, either by agitation with glass beads or by "whipping," is, of course, an extreme degree of physical violence, but the argument of toxic effect from incipient coagulative factors applies, *pari passu,* with the lesser forms of physical violence which are incident in varying degree to any method of transfusion which is not a direct anastomosis. For instance, Minot[15] has conducted some experiments which demonstrate that blood allowed to remain in brief contact with the glass barrel of a syringe before being mixed with oxalate solution almost always clots when chloroform is added, whereas blood allowed to run from an artery through a paraffined cannula directly into oxalate solution does not clot on the addition of chloroform. Minot's explanation of this is that chloroform renders inactive the antithrombin, thus allowing any free thrombin present to clot the fibrinogen; so that in an oxalated blood the presence of free thrombin indicates that this thrombin was formed in the blood before the blood met with the oxalate influence. The effect of the glass syringe as causing this incipient thrombin formation is, of course, evidenced by his experiments.

The adhesive forces of capillary action, so-called, or, more definitely, the effect of surface tension forces, which act in and about any zone of contact with moistenable foreign surfaces, must be to set free thromboplastic substances in the blood by abrasion and disintegration of platelets. Other more obvious physical violence, such as forcing through small artificial channels, pressure from piston syringes, etc., would naturally increase this effect.

Anticoagulants.—The rational and most desirable function of an anticoagulant is therefore, in our conception of the premises, to restrain *incipient* coagulative changes at the zones of foreign contact, where such changes are most liable to occur. The use of an anticoagulant to render the blood incoagulable in mass, as with the calcium-converting agents, merely as an expedient for handling the blood in a fluid state, does not seem to us justifiable, not only because this involves mixing with the injected blood a much larger quantity of the anticoagulant than is necessary, but also because, by calcium inactivation, only the end-result of the clotting process is prevented. What assurance is there, for instance, that blood rendered incoagulable by citrate, but which has been subjected to physical contact with glass and metal surfaces, does not contain free thrombin, as evidenced by Minot's investigation, or a considerable amount of thromboplastin derived from contact with tissue juices and from the disintegration of platelets? In this connection it should be said that the preserving influence on the platelet cell membrane which is ascribed to sodium citrate can have no effect on the platelets which have already been disintegrated by passage through foreign channels before meeting the citrate influence.

Paraffin.—The natural advantage of the paraffin method for the transfusion of blood is the effectiveness of hardened paraffin as an anticoagulant without admixture of any foreign substance to the transfused blood. Objection to paraffin has nevertheless been made on the ground that special care is necessary to insure a perfect coating of the transfusion pipets or cylinders. It cannot be denied that special care in the matter of coating is essential to success, but the process is not a difficult one, and the mere trouble of coating in advance is offset by the convenience of having the pipets always ready for immediate use without further preparation.

Herudin.—The advantages of leech extract as an anticoagulant for purposes of transfusion may be briefly summarized: The derivation of herudin, the product of specialized glandular activity of the leech, indicates its biologic adaptation to the single purpose which it is known to serve in nature, namely, to prevent coagulation and thereby to facilitate digestion of blood in the stomach of the leech. From a physiologic standpoint it should be, and until recently has been regarded as, the ideal anticoagulant for animal experimentation. It acts not only as a preventive of platelet disintegration,[16] but it appears also to exert a neutralizing or binding action on the positive factors of coagulation (thromboplastin, prothrombin)[17] when these have been rendered active as a result of platelet disintegration.[18] Furthermore, it does not, as far as we know, disturb the protective lipoids of the tissue cells, as has lately been suggested[19] to be the action of the calcium precipitants and other calcium-converting agents.

As against the advantages which have just been enumerated, a very serious practical objection to leech extract has arisen in the uncertainty of procuring a reliable preparation of this substance. Quite recently Turner, Marshall and Lamson[20] discovered that a certain lot of the commercial preparation of "Hirudin" manufactured by Sachse & Co. of Leipzig, purchased by them in the early part of 1915 for use in their experiments with plasmaphaeresis, contained some very poisonous substance. Marshall,[21] in a special investigation of this subject, reviews the findings of other workers with herudin and reports experiments showing the action of aqueous extract of leech heads, as prepared by Abel, Rowntree and Turner[22] in comparison with similar experiments showing the action of the commercial preparation which contained the toxic principle previously mentioned. Marshall found that 20 to 25 mg. of this toxic preparation per kilo of body weight proved fatal for dogs, and ascribes its toxicity not to anything obtained from leech heads, but to some accidental product of putrefaction resembling sepsin. He confirms the findings of Abel, Rowntree and Turner,[22] that the aqueous leech extract, as obtained by their method, is nontoxic in quantities which render the circulating blood incoagulable. While referring to toxic reactions from the use of herudin it is important to call attention to the reactions noted by some observers who have employed much larger quantities of this substance for transfusion than we have advised. Lewisohn,[7] in attempting to employ herudin for his method of transfusion, experimented with the

15. Minot: Am. Jour. Physiol., 1915, xxxix, 137.

16. Bürker: Arch. f. d. ges. Physiol., 1904, cii, 92; Zentralbl. f. Physiol., 1907, xxi, 653. Deetjen: Ztschr. f. physiol. Chem. (Hoppe-Seyler's), 1909, lxiii, 1.

17. Mellanby: Jour. Physiol., 1909, xxxviii, 491.

18. Morawitz: Deutsch. Arch. f. klin. Med., 1904, lxxix, 215. Bayne-Jones: Am. Jour. Physiol., 1912, xxx, 74.

19. Overton: Arch. f. d. ges. Physiol., 1904, cv, 176. Boehm: Arch. f. exper. Path. u. Pharmakol., 1914, lxxv, 230. Clark: Jour. Physiol., 1913, xlvii, 66. Clowes: Proc. Soc. Exper. Biol. and Med., 1913, xi, 1. Clowes: Ibid., p. 4. Clowes and West: Ibid., p. 6. Salant and Hecht: Am. Jour. Physiol., 1915, xxxvi, 126.

20. Turner, Marshall and Lamson: Jour. Pharm. and Exper. Therap., 1915, vii, 145.

21. Marshall: Jour. Pharm. and Exper. Therap., 1915, vii, 157.

22. Abel, Rowntree and Turner: Jour. Pharm. and Exper. Therap., 1914, v, 257.

intravenous injection of large quantities of this drug and reported that the dose of 100 mg. of herudin caused death in one dog, no ill effect in a second dog, and most alarming symptoms in a postoperative patient, so that she was in a precarious condition for over thirty-six hours. Another physician has informed us that he employed this same dose (0.1 gm.) in transfusing two patients by means of Kimpton's cylinders. In one case there was no reaction whatever, and in the other case a very severe one. Whether or not any of these reactions were due to the use of a toxic preparation of herudin cannot be ascertained, but the dosage noted above is far in excess of what we have recommended or deemed advisable. Our observations with herudin have been confined to the commercial preparation manufactured by Sachse & Co., comprising five lots of 10 mg. tubes of this substance purchased prior to Jan. 1, 1915, and one lot purchased subsequently. We have never used, whether experimentally or in clinical practice, more than 7 mg. of herudin for transfusing 500 c.c. of blood, and in no one of numerous experimental transfusions on dogs have we had any ill effects from herudin in this proportion of admixture, although in some such cases we have removed and reinjected considerably more than the estimated total volume of the dog's blood. We wish, however, to record here the following interesting facts in this connection, which are derived from our series of clinical transfusions. We have made 14 clinical transfusions with herudin and 13 with paraffin. Among the 13 paraffin cases there were no chills or febrile reactions, nor have we had any such manifestations following our citrate transfusions. On the other hand, 6 of our 14 herudin transfusions were followed by chills and febrile reactions; and as these symptoms were associated only with the latter half of our herudin series, we are inclined to believe that they indicated some fault in the herudin which was used. Although we have never had any such reactions in our experimental transfusions with herudin while following precisely similar technic, this may be explained by the fact that we were working in the laboratory with a different lot of herudin; or it may be that dogs are less susceptible than human beings to the contaminating toxic substance which was discovered in the commercial "Hirudin" by Marshall, just as this author found that rabbits were much less susceptible to its effects than dogs. Other disadvantages of leech extract are that its activity is destroyed by heat sterilization, that it must therefore be produced under rigidly asep-

TABLE 1.—PRECIPITATION REACTIONS WITH CALCIUM CHLORID

Substances in Aqueous Sol.	Reaction to Litmus (L) and Phenolphth. (P)	Addition of 1% $CaCl_2$ Sol. in Small Amt.	Addition of 1% $CaCl_2$ Sol. in Excess	$CaCl_2$ Excess + Dil. HCl to Acid Reaction	Excess of Aq. Sol. of Substance to Already Formed Ppt.
Sodium citrate	Faintly alk. L.; Neg. P.	No ppt.	No ppt.	No ppt.	
Magnesium sulphate	Neg. L.; Neg. P.	No ppt.	No ppt.	No ppt.	
Sodium tartrate	Faintly acid L.; Neg. P.	No ppt.	Ppt. forms slowly on standing	Ppt. remains	Ppt. remains
Sodium metaphosphate	Faintly acid L.; Neg. P.	No ppt.	Ppt.	Ppt. remains	Ppt. dissolves
Dipotassium phosphate	Neg. L.; Neg. P.	Ppt.	Ppt.	Ppt. remains	Ppt. remains
Sodium fluorid	Alk. L.; Alk. P.	Ppt.	Ppt.	Ppt. remains	Ppt. remains
Sodium oxalate	Alk. L.; Alk. P.	Ppt.	Ppt.	Ppt. remains	Ppt. remains

TABLE 2.—EXPERIMENTAL TRANSFUSIONS WITH SODIUM CITRATE

	Amount of Solution Used, c.c.	Amount of Blood, c.c.	Amount of Anticoag. to 100 c.c. Blood, mg.	Clotting Time in First Tube, Min.	Clotting Time in Second Tube, Min.	Clotting Time of Residual Blood in Pipet, Min.
Sodium citrate: 10% sol. (1.40 m.). (Transfusion 1, Dog 1)	3	215	140	38	45	No sign of coagulation at 67½
Sodium citrate 10%, NaCl 0.8%, equal parts. (Transfusion 2, Dog 1)	1.8	215	42	10½	11⅓	No sign of coagulation at 50½
Sodium citrate 10%, NaCl 0.8%, equal parts. (Transfusion 7, Dog 2)	1	215	23	15⅚ 36½	10⅙ 27½	9⅝ 16½
Sodium citrate: 6.46% sol. (0.9 m.). (Transfusion 9, Dog 3)	1	215	30	11½ 11⅔	16⅓ 19	16½ 32⅔
Herudin 10 mg. in NaCl 0.9% sol. (4.5 c.c.). (Transfusion 10,* Dog 3)	1.5	215	1.5	16⅝ 23⅙	17⅔ 23½	31⅔ † 90
Sodium citrate 10% sol. (1.40 m.). (Transfusion 11, Dog 3)	1	215	46	12⅔ 18½	12⅔ 18½	Trace of fibrin at 39, still fluid at 24 hours ‡
Sodium citrate 10% sol. (1.40 m.). (Transfusion 15, Dog 4)	1	215	46	12 17	17⅔ 23⅔	No sign of coagulation at 24 hours
Sodium citrate 10% sol. (1.40 m.). (Transfusion 16, Dog 4)	1	215	46	21 27½	21⅙ 25⅙	No sign of coagulation at 90
Paraffin only, full coating. (Transfusion 17,* Dog 4)	0	215	0	15½ 17⅝	15½ 17⅝	15½ 18
Sodium citrate 10% sol. (1.40 m.). (Transfusion 27, Dog 6)	1	265	38	7⅝ 11⅝	no clot at 60	No clot at 60
Sodium citrate 10% sol. (1.40 m.). (Transfusion 28, Dog 6)	1	265	38	9⅙ 12⅓	no clot at 54	45⅔; 52 (incomplete)

* Transfusion 10 and transfusion 17 with herudin and paraffin, respectively, are included in the table for purposes of comparison. Where two sets of figures are given in columns five, six and seven, the first refers to first appearance of fibrin, the second to time of complete coagulation; where but one figure is given, the time of complete coagulation is indicated unless otherwise stated.
† Stained smear of this blood made at forty-three minutes showed normal staining and morphology.
‡ Stained smear of this blood made at forty-two minutes showed normal staining and morphology.

tic conditions, that it does not keep well in solution, and if so kept, should be preserved with the addition of some antiseptic such as thymol.

Inorganic Salts.—Many investigators have reported the effects on blood from a purely physiologic standpoint of various anticoagulant substances of inorganic origin. The work of Bürker and Deetjen,[16] Gessard,[23] Zucker[24] and Clowes,[25] is especially worthy of note in this respect. The observations here reported were made in the course of an experimental study of the anticoagulative effects of certain calcium-converting agents, to determine the minimal proportions of admixture with blood which would be needed for transfusion

23. Gessard: Compt. rend. Acad. d. sc., 1911, cliii, 1241; 1913, clxvii, 799.
24. Zucker: Proc. Soc. Exper. Biol. and Med., 1914, xi, 60.
25. Clowes: Proc. Soc. Exper. Biol. and Med., 1913, xi, 1; ibid., p. 4. Clowes and West: Ibid, p. 6.

with our apparatus and the relative safety and utility of these agents for this purpose. The following substances were selected for examination: sodium citrate, magnesium sulphate, sodium tartrate, sodium metaphosphate, dipotassium phosphate, sodium fluorid and sodium oxalate.

By reference to Table 1 it will be seen that, with aqueous solutions of sodium citrate and magnesium sulphate, no precipitate is formed on the addition of calcium chlorid, whether in acid or alkaline solution or in any proportion of admixture. With sodium tartrate and sodium metaphosphate a permanent precipitate is formed only when there is a considerable excess of calcium chlorid. In the case of sodium metaphosphate the precipitate caused by excess of calcium chlorid disappears with the further addition of sodium metaphosphate solution.

In determining the anticoagulative effect of these substances the plan of study was as follows:

A dog was anesthetized with ether and the jugular and femoral veins were exposed and served as donating and recipient vessels for autotransfusion. The transfusions were in all cases carried out by means of our special pipets and cannulas. During process of transfer, the pressure exerted on the blood averaged 40 mm. of mercury, and was controlled by a simple automatic contrivance so as never to exceed 80 mm. of mercury. The pipets were calibrated, of 300 c.c. capacity, and, just previous to use, were coated internally with an aqueous solution of the salt under examination. In each instance from 215 to 265 c.c. of blood were withdrawn from the jugular vein, which required about two minutes. As soon as the pipet was withdrawn from the cannula in the donating vein, about 5 c.c. of blood were immediately expelled from the pipet into a paraffin-lined test tube of 2 cm. diameter. The bulk of the blood in the pipet (from 190 to 240 c.c.) was then returned to the animal's circulation through a recipient cannula in the femoral vein, which required another two minutes, and, when this had been accomplished, another 5 c.c. portion of blood from the pipet was expelled into a second paraffin-lined test tube immediately on withdrawal of the tip of the pipet from the recipient cannula. The blood finally retained in the pipet, amounting to from 15 to 20 c.c., was laid aside and this portion as well as the two portions in the paraffin-lined tubes were inspected at short intervals for evidence of coagulation, and the elapsed time from the entry of the tip of the pipet in the donating vein to the first appearance of fibrin formation was noted, as well as the time when firm clotting occurred.

Inasmuch as dipotassium phosphate, sodium fluorid and sodium oxalate form precipitates with calcium chlorid (Table 1) they were left out of practical consideration at the outset and very little was done to determine their relative anticoagulative effects. Preliminary trials indicated that a solution of sodium tartrate equimolecular with 0.9 per cent. sodium chlorid (m 1.54) had only a feeble anticoagulative influence. A hypertonic solution (m 4.35) was therefore employed, but even with this concentration it was necessary to use from twice to ten times the amount necessary to coat the pipet in order to produce any appreciable anticoagulative effect. Magnesium sulphate in m 1.54 solution showed a greater anticoagulative action than sodium tartrate, but neither showed sufficient effect to warrant further investigation, inasmuch as both of these substances have been shown to have a toxic action when injected intravenously[26] which would render them undesirable for use in any quantity. It may be said, however, that in the amounts employed by us, neither of these agents appeared to exert any immediate effect on the experimental animal. The tabulated results of experimental transfusions with sodium tartrate and magnesium sulphate are omitted for the sake of brevity.

TABLE 3.—EXPERIMENTAL TRANSFUSIONS WITH SODIUM METAPHOSPHATE

	Amount of Solution Used, c.c.	Amount of Blood, c.c.	Amount of Anticoag. in 100 c.c. Blood, mg.	Clotting Time in First Tube, Min.	Clotting Time in Second Tube, Min.	Clotting Time of Residual Blood in Pipet, Min.
Sodium metaphosphate 1.57% (Transfusion 18, Dog 4)	1	215	7.3	11⅓; incomplete at 24 hours	No sign of coag. at 24 hours	No sign of coagulation at 24 hours
Sodium metaphosphate 0.8% (Transfusion 21, Dog 5)	1	215	3.7	9⅓ 10½	10½ 15	5⅔ 9⅔
Sodium metaphosphate 1.2% (Transfusion 25, Dog 6)	1	265	4.5	8¼ 12⅔	22½ 24⅔	No sign of coagulation at 70
Sodium metaphosphate 1.2% (Transfusion 26, Dog 6)	1	265	4.5	12 16¼	19⅙ 28½	No sign of coagulation at 64½
Sodium metaphosphate 1.46% (Transfusion 30, Dog 6, nine days after last transfusion	1	265	5.5	13 17⅓	No sign of coag. at 2 hours	No sign of coagulation at 2 hours
Paraffin only. (Transfusion 31, Dog 7)*.....	0	265	0	17 19	16½ 18½	16½ 18
Sodium metaphosphate 1.46% (Transfusion 32, Dog 7)	1	265	5.5	13½ 16½	18½ 24½	13½
Sodium metaphosphate 1.5% (Transfusion 33, Dog 7)†	1	265	4.0	12¾ 13½	8½ 9½	9 11
Sodium metaphosphate 1.46% (Transfusion 34, Dog 7)	1	265	5.5	8⅓ 12⅔	8⅓ 11⅓	‡ Faint trace of fibrin at 11. No further sign of coag. at 24 hr.
Sodium metaphosphate 1.46% (Transfusion 35, Dog 7)	1	265	5.5	7⅚ 11⅓	18⅓ 19⅚	13⅚ 15⅓
Paraffin only. (Transfusion 36,§ Dog 7)¶....	0	265	0	18 22	16½ 17⅔	14½ 18

* Coagulation time of Dog 7, at commencement of operation (4:10 p. m.) was 6 min. 15 sec. The coagulation times here noted were determined by allowing blood from the jugular vein to flow through a gold cannula (15 mm. long and 2.3 mm. diam.) directly into a clean glass test tube 15 mm. in diameter. Ten c.c. of blood was collected for each determination. The fluidity of this blood was examined every ten or fifteen seconds, and the time noted when the blood was sufficiently coagulated to permit inversion of the tube.

† Coagulation time of Dog 7, (4:42 p. m.) was 9 min. and 30 sec.

‡ Stained smear of this blood made at forty-five minutes showed normal staining and morphology.

§ Transfusions 31 and 36 with paraffin only were interpolated for purposes of comparison.

¶ Coagulation time of Dog 7 at end of operation (5:12 p. m.) was 7 min. 10 sec.

Having eliminated as undesirable five of the seven substances selected for study, there remains for consideration the action of sodium metaphosphate and sodium citrate. A synopsis of experimental transfusions with these agents is given in Tables 2 and 3.

Sodium Citrate.—The intravenous use of sodium citrate, in any quantity, as a therapeutic procedure, is open to ques-

26. Meltzer and Auer: Am. Jour. Physiol., 1905-1906, xv, 387. Joseph and Meltzer: Jour. Pharm. and Exper. Therap., 1909-1910, i, 24. Salant and Smith: Am. Jour. Physiol., 1914, xxv, 239.

tion on theoretic grounds from the experimental findings of several investigators, notably Gros,[27] Clark,[28] Sakai,[29] Salant and Hecht.[30] There is, however, the recent assurance of those who advocate sodium citrate as an anticoagulant for transfusion that this substance can be injected with transfused blood in considerable quantity. The amounts used by them in clinical practice range from 1.0 gm. (Weil) to 0.2 gm. (Lewisohn) per 100 c.c. of transfused blood. These authors say that they have seen no undesirable effect of such dosage, although Weil has noted a change in the coagulation of the blood. In commenting on the change in coagulation time, which is induced by citrate transfusion, Lewisohn[7] says that 300 c.c. of a dog's blood removed by his method of transfusion mixed with citrate (0.2 per cent.) and reinjected changed the coagulation time of the dog's blood from five minutes before operation to ten seconds when tested three minutes and again six minutes after operation.

Rous and Turner,[31] in reporting their findings with respect to preservative fluids for red blood cells, refer to the transfusion of exsanguinated guinea-pigs and dogs with citrated blood by Weil,[32] and state that, according to their observations, human cells and sheep cells rapidly disintegrate in citrated plasma, whereas in the preservative solutions which they have devised these cells survive for considerable periods.

Perfusion experiments indicate that sodium citrate has a potential toxic effect on the tissues of the circulatory apparatus which may be offset by the presence of available calcium, and that this toxic effect probably is prevented to some extent by the protective action of calcium ions in the tissues of the recipient. The mechanism of this protective action of the tissue calcium against the citrate ion is still a matter of speculation, but a most interesting and plausible theory of action has lately been formulated by Clowes[25] in a series of papers previously referred to. The extent to which this calcium-ion conversion occurs in the circulating blood and in other tissues would seem to depend on the amount of citrate which is introduced. Gros[27] and Salant and Hecht[30] found that sodium citrate has a toxic action on the isolated perfused frog heart, the latter authors demonstrating a well-marked effect in a concentration of thousandth-normal in Ringer's solution, and that it exceeded oxalate and tartrate in toxicity. Some as yet unpublished experiments in Professor Salant's laboratory in Washington[33] have shown that the intravenous injection of 100 mg. of sodium citrate per kilo in rabbits has caused serious symptoms and death.

Whatever the mode of action of citrated blood in transfusion, it is evident that when the citrate-ion concentration is sufficient to induce permanent incoagulability in vitro, the physicochemical effect in the circulation of the recipient must be considerable, and that this effect probably varies in direct ratio with the amount of citrated blood which is introduced. For purposes of transfusion, minimum amounts of this agent would therefore seem advantageous, and this point we believe worthy of special emphasis. We have previously found that the pipet-cannula method affords a technic which permits approximately one-eighth of the quantity of herudin which is necessary to produce an equal anticoagulative effect when using the simple syringe method; and a similar advantage is shown, by the present experiments, to hold true with sodium citrate. In coating the pipets with this anticoagulant, 20 to 30 c.c. of a 10 per cent. solution of sodium citrate is poured into the pipet just previous to use. This fluid is thoroughly flowed over the interior of the pipet by rotating it in the horizontal position and all excess is then allowed to drain out through the tip, leaving approximately 1 c.c. of the solution which adheres as a thin film to the glass wall of the cylinder. We have found (Table 2) that 100 mg. of sodium citrate (1 c.c. of solution), when so used as a liquid coating in one of our pipets, is amply sufficient for the purpose of transfusing 250 c.c. of blood when used with our cannulas, and that the only fully citrated blood so treated is that small residual portion (about 12 c.c.) which is retained in the pipets. That this residual portion of blood is usually subjected to a greater anticoagulant influence than the blood which is discharged from the pipet, may be seen by referring to the tables, and appears to be due to contact with a relatively larger proportion of the anticoagulant solution, which tends to remain adherent to the walls of the cylinder. Without making any deduction on account of this greater proportion of citrate solution, which presumably adheres to the pipet and is not transfused, but remains in the residual portion of blood, it is evident that not more than 38 mg. of sodium citrate per 100 c.c. of blood is necessary for transfusion by this method. This proportion of citrate is from one twenty-fifth to one fifth of the amounts which are recommended by those who have used citrate as an anticoagulant with other methods of transfusion, and we believe that this proportion can produce very little disturbance of the circulating blood of the recipient, inasmuch as there was no noticeable effect on the coagulation time of the blood of the animals used in our experiments.

During the past six months we have adopted this use of sodium citrate as an anticoagulant with our pipet-cannula apparatus in clinical practice and are well satisfied with its practical operation.

Sodium Metaphosphate: $(NaPO_3)_x$. The sodium metaphosphate used in these experiments was of C. Kahlbaum's manufacture, and consisted of broken bits of vitreous fused plates, having a conchoidal fracture and a solubility of 5.5 parts in 100 parts of distilled water at 15 C. A phosphorus determination, made for us in the laboratory of Messrs. Eimer and Amend, indicated that it contained two atoms of phosphorus in its molecule, corresponding to the formula $(NaPO_3)_2$ or $Na_2P_2O_6$.

As to the toxic effect on animals of this salt, our preliminary experiments by intravenous injection of 1.6 per cent. solution in rabbits show that the minimum lethal dose for rabbits is between 80 and 100 mg. per kilogram of body weight.

The results obtained in experimental transfusions with this agent are shown in Table 3 and indicate, by comparison with Table 2, that it has a more powerful anticoagulative effect than sodium citrate in proportion to its weight. The susceptibility to recalcification of blood treated with sodium metaphosphate as compared with blood treated with sodium citrate is a matter which we have, as yet, only touched on in our experimental work. We cannot therefore make any statement on the subject, as we have insufficient data for definite conclusions. It would appear, however, to be worthy of further investigation as tending to show what, if any, derangement of the coagulative mechanism is produced by these agents as regards subsequent reactivation by ionized calcium.

SUMMARY

1. A better knowledge of the physicochemical changes which may occur in the blood of the recipient as a result of transfusion in varying pathologic conditions is needed in order to define more clearly the rational indications for this operation as a therapeutic measure.

2. Certain hypotheses are suggested to explain the occurrence of febrile and toxic reactions following

27. Gros: Arch. f. Exper. Path. u. Pharmakol., 1913, lxxi, 395.
28. Clark: Jour. Physiol., 1913, xlii, 66.
29. Sakai: Ztschr. f. Biol., 1914, lxiv, 1.
30. Salant and Hecht: Am. Jour. Physiol., 1915, xxxvi, 126.
31. Rous and Turner: Proc. Soc. Exper. Biol. and Med., 1915, xii, 124.
32. Weil, Richard: Sodium Citrate in the Transfusion of Blood, THE JOURNAL A. M. A., Jan. 30, 1915, p. 425.
33. Personal communication.

transfusion which cannot be prognosticated by the existing laboratory tests for blood compatibility.

3. Importance is attached to the belief that many of the febrile and toxic reactions, not to be explained by hemolysis or agglutination, are due to the transfusion of blood which is undergoing incipient coagulative changes, or which contains potential coagulative factors such as thromboplastin and thrombin.

4. In judging of the safety of any method of transfusion, the extent and mode of action of the anticoagulant which is used, the toxicity of the substance, the amount of it which is necessary, and the mechanical technic in transferring the blood are the most important factors to be considered.

5. The employment of an antithrombin such as leech extract or the commercial "Hirudin," while appearing to be ideal as an anticoagulant from the physiologic standpoint, is subject to uncertainty of action and possible danger from contamination with toxic substances. Minimum doses of tested and standardized preparations and optimum anticoagulative technic should be used if such agents are employed.

6. The use of paraffin is theoretically the method of choice in providing an anticoagulant agent for purposes of transfusion and has been found practicable, but not without certain precautions and proper apparatus.

7. Of the inorganic calcium-converting agents which we have investigated experimentally, the citrate of sodium and the metaphosphate of sodium are the only substances which exhibit desirable characteristics. Both of these salts, however, have toxic effects which demand consideration of the amounts which can be safely employed for purposes of transfusion. Our experience with sodium metaphosphate is limited to experimental transfusion on animals.

8. Sodium citrate in the proportion of 120 mg. to 300 c.c. of blood, when used with the pipet-cannula apparatus and in the manner described, serves as an effective anticoagulant for transfusion. This proportion (0.04 per cent.) is from one fifth to one twenty-fifth of the amount of citrate necessarily employed with other methods. Because of the considerations which have been discussed, we believe it to be the best method of transfusion for general use.

Street Dust and Disease.—Following the announcement by the public health committee of the New York Academy of Medicine that a system of street cleaning which does not eliminate gross street dust and which employed dry sweeping methods cannot be satisfactory, a study was made by Prof. Thomas W. Hastings of Cornell University Medical School concerning the relation of street dust to disease. On examination of the available data he summarized his findings about as follows: Numerous bacteriologic examinations made in New York as well as elsewhere show that street dust contains a variety of living pathogenic organisms such as tubercle bacilli and various types of streptococci which are recognized as causative agents of many respiratory and other diseases. Although few authentic cases of disease can be traced to bacteria in street dust, yet the fact that appreciable numbers are found in street dust and inhaled or ingested, establishes a presumption that street dust may be the cause of disease. Studies of the incidence of respiratory diseases shows that persons free from exposure to city dust are less liable to suffer from such diseases. Dust has long been recognized as an injurious mechanical irritant and as a cause of lowered bodily resistance. Dry sweeping should be entirely abandoned, and street flushing should be introduced in street cleaning processes. All efforts should be made to render streets as free from dust as possible.

REACTIONS FOLLOWING BLOOD TRANSFUSION BY THE SYRINGE CANNULA SYSTEM *

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Since the simplification of technic,[1] blood transfusion has acquired considerable popularity. The syringe cannula system has greatly simplified the procedure over the old arteriovenous method. It now occupies a prominent and permanent place in the field of therapeutics. Today a hundred transfusions are performed where one was done but a few years ago. Though the technic has been thus simplified, there is a tendency on the part of some to slide over details of the work and, unequal to the task of even simple technic, they may resort to anticoagulants or inferior methods by which it may be possible to put blood into the patient even subcutaneously. The attempt to simplify the method further has not been attended without the sacrifice of important points of merit. The pitfalls and errors in the further simplification are the very things I have purposely avoided by the method originally outlined. The operative procedure is a life saving measure and should be regarded as something more than an injection of saline fluid or salvarsan administration, and any tendency to curtail detail of execution to meet the convenience or inexperience of the operator at the expense of the patient should be discouraged.

The reactions following transfusion will deter some from employing the measure with a patient in a critical state, in the fear of doing harm by the procedure itself, and the possible benefits to be derived may be overbalanced by the harm done. In order for any therapeutic measure to gain wide favor, it must be free of any danger incident to the procedure itself, or at least a very high percental relationship must obtain between risk and gain. It is my object in this communication to take up the problem of reactions to transfusion, to analyze their cause and to show the way to prevention.

In the first eighteen transfusions which I performed by the syringe cannula system, preliminary blood tests were made in only two instances. In this group of eighteen cases there were no chills and no fever reaction above 2 degrees. The quantity transfused was small — never more than 700 c.c. The donors used were immediate relatives of the patients, and the diseases treated were not primary blood diseases. (Primary blood diseases and infection offer most difficulty in finding compatible donors.) The conspicuous absence of hemolysis in the absence of blood tests in sixteen of these cases must be attributed to good fortune. Later in the course of the work, though blood tests were made in nearly all the cases, chills and fever were encountered more frequently.

In the first 150 transfusions which were performed by the syringe cannula system,[2] the incidents of chill followed by fever were approximately 33 per cent. The quantities transfused were usually 1,000 c.c. or more in adults. The work was done in many different

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* Because of lack of space, this article is abbreviated in THE JOURNAL by omission of Table 1. The complete article appears in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

1. Lindeman, Edward: Simple Syringe Transfusion with Special Cannulas, Am. Jour. Dis. Child., July, 1913, p. 28.

2. Lindeman, Edward: Blood Transfusion, THE JOURNAL A. M. A., March 28, 1914, p. 993.

hospitals and in many different parts of the country; hence the preliminary blood tests of hemolysis and agglutination were necessarily done by many different serologists. In the report of this group, mention was also made of three cases of hemolysis which occurred. In these cases of hemolysis, the symptoms were carefully noted, and it was found that hemolysis is always accompanied by chills followed by fever. Hemolysis never occurs without chills and fever unless the patient dies during or shortly after the transfusion. The inference is therefore palpable that chills and fever reactions in transfusions are due to hemoglobin set free in the circulating blood. The reactions are clinically similar to the chills and fever occurring in malarial fever, and are undoubtedly due to the same factor, namely, hemoglobin set free in the circulating blood. When the hemoglobin set free is abundant, hemoglobin appears in the urine. When the hemoglobin set free is moderate, only hematoporphyrin appears in the urine. When the hemolysis is slight, the body is capable of utilizing and converting the slight amount of hemoglobin liberated, and no blood pigment appears in the urine. When no blood pigment appears in the urine, the danger incident to transfusion is practically nil. When blood pigment appears in the urine, the danger is very great and death may follow, especially when the patient is in an already precarious condition. The procedure when hemolysis occurs, even when death does not occur, is robbed of its therapeutic value.

In every case of hemolysis which was encountered clinically and in which the preliminary serologic tests were done, the hemolytic and agglutinin tests were repeated; and in each instance the incompatibility was detected in the second tests. The second tests were invariably performed by a different serologist from the first, who knew nothing of the circumstances. In one case opportunity was not offered to check up the accuracy of the laboratory work. Since the laboratory failed me in several instances, it became apparent that some laboratory workers have their limitations, and that this possible error must be eliminated. To do this, I set myself to the task of personally supervising the laboratory work in order to correlate the post-transfusion reactions with the tests. It was further apparent that if hemolysis, when hemoglobinuria occurred, was due to faulty laboratory work, it might be possible by careful and refined methods of selection to prevent even a slight degree of hemolysis when no hemoglobin appears in the urine, and the reactions following blood transfusion in terms of chills and fever might thus be eliminated. The results were gratifying, as is evident in Table 1. The tests were all made with very great care, and in some instances as many as twenty to thirty donors were examined from whom only one would prove satisfactory according to standard.

TECHNIC OF HEMOLYSIS AND AGGLUTININ TESTS

The red blood cells of patient and donor are washed three times with normal saline; variable quantities of patient's serum are placed in three separate small test tubes. To each of these are added 0.25 c.c. of a 2 per cent. suspension of washed blood cells of the donor. The same is done with the donor's serum and the patient's cells. Controls are made of donor's serum and donor's cells—patient's serum and patient's cells. Controls are also made with donor's cells in normal salt solution and patient's cells in normal salt solution. The total volume in each tube is raised with normal saline to 0.5 c.c. of volume. The test tubes are incubated in a water bath for a period of two hours, and readings are made. They are then set in the ice-box over night and readings are again made the following morning. When a case is urgent, the ice-box test is eliminated. The ice-box test should be eliminated only when absolutely necessary by the extreme condition of the patient where time is the important factor. When the amount of blood taken from the patient for tests is small, only 0.25 c.c. of serum is used, and controls of patient's serum are eliminated.

RESULTS

In the last 155 transfusions performed by the syringe cannula system, the preliminary blood tests have been personally supervised in all but nine instances. The reactions following transfusion appear in Table 1. Since the chills and fever reactions are due to hemoglobin set free in the circulating blood, it is necessarily a mass action and the degrees of reaction will depend on the amount transfused as well as the degree of hemolysis. Hence, if any hemolysis occurred, the reaction should be greater when a larger amount is transfused than when a smaller amount is given. Table 1 is intended to show quantities transfused, the disease treated, whether alien or family blood is employed and the degree of reaction following each transfusion.

In this table of 155 transfusions, not a single case of hemolysis and not a single death referable to the transfusion occurred. The tests were personally supervised in 146 transfusions, and they were not personally supervised in nine. There were in all sixteen instances of chills followed by a rise of temperature. There was a rise of temperature above 2 degrees without chills in twelve instances.

TABLE 2.—TEMPERATURE REACTIONS

Rise in Temperature		Fall in Temperature		
Rise, Degrees	Number of Instances	Number	Diseases	Fall, Degrees
From 2 to 3.....	18	1	Scarlet fever.....	2
From 3 to 4.....	2	1	Sepsis.....	1
From 4 to 5.....	5	2	Acute lymphatic leukemia.....	2, 1
From 5 to 6.....	3			
From 6 to 7.....	2	2	Typhoid.....	2, 3
		1	Sepsis and anemia....	4
		2	Aleukemic leukemia...	2, 1
		1	Septicemia.....	2
		1	Pernicious anemia.....	1

Of the nine cases in which the tests were not personally supervised, chills occurred in five instances, or 55 per cent. In 146 cases in which the tests were personally supervised, chills occurred in thirteen instances, or 9 per cent. Of nine cases in which the tests were not supervised, there was a rise in temperature in five cases, four of which varied from 2 to 3 degrees, and one from 5 to 6 degrees. When family blood was used, 4 per cent. had chills and 4 per cent. fever; when alien blood was used, 6 per cent. had chills and 16 per cent. fever.

In the 155 transfusions recorded in Table 1, there were 136,800 c.c. of human blood transfused with not a death referable to the transfusion. Adults received from 1,000 to 1,800 c.c. in each transfusion. Two donors were never used for one transfusion. The quantity enumerated was always taken from one donor. No foreign substance or anticoagulants were employed in any case.

CONCLUSIONS

1. The preliminary hemolytic and agglutinin tests when properly performed are reliable.

2. Incidents of hemolysis in transfusion can be eliminated entirely.

3. The reactions which follow transfusion when accurate tests are made are eliminated in all except 9 per cent. of the cases. In this 9 per cent. of the cases, chills and fever alone occur. When the quantity is 800 c.c. or less, chills and fever do not occur.

4. By careful, accurate and complete hemolysis and agglutinin tests, when the work is done skilfully, blood transfusion is robbed of all danger attending its use. This marks a step in advance because of the comparative simplicity of application.

COMMENT

In the technic of blood transfusion by the syringe cannula system, the entire mass of blood is outside the body for a period of between six and ten seconds regardless of the amount transfused. It passes through a minimum amount of foreign material. Embolism or clotting never occurs in transit. Syringes are never used for a second filling until thoroughly cleaned in sterile saline solution, because in evacuating contents of a syringeful of blood, a coating of blood remains on the inner surface of the syringe. When a syringe is refilled without cleaning, the plunger naturally rides over the blood cells adhering to the wall, crushing and injuring them mechanically. As the syringe is refilled, the injured cells are mixed in the blood stream and introduced into the patient. To prevent this, no syringe is used for a second filling until thoroughly cleansed with sterile saline solution. Syringes are cleaned as fast as they are used. Clotting in the syringe cannot occur, and the blood is transferred uninjured, exactly as it exists in nature. Anticoagulants or foreign substances are never employed. There is no blind system into which air may leak. There are no stopcocks, valves or rubber tubings about which blood may clot.

40 East Forty-First Street.

THE RELATION OF HEMOLYSIS IN THE TRANSFUSION OF BABIES WITH THE MOTHERS AS DONORS

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The new-born infant is subject occasionally to various pathologic conditions which to combat successfully requires the transfusion of blood. Among these ailments the most frequent and alarming, and perhaps most fatal, is the hemorrhagic disease of the new-born. The occurrence of this disease seems to vary in different institutions and localities. Townsend, collecting his reports from the Boston Lying-In Hospital, found that it occurred in thirty-two infants out of 5,000 births. Ritter found its occurrence in 190 cases out of 13,000 births at the lying-in hospital at Prague. Epstein, at the New York Foundling Hospital, found it in 8 per cent. of infants, while the average treatise of children's diseases gives the proportion of 1 in every 1,000 births.

Clinically this disease can be divided into two classes:

1. Those cases in which hemorrhage may occur from the mucosa of the gastro-intestinal tract, the stump of the cord, and subcutaneously, in all of which the diagnosis is easily made by the sight of a frank appearance of blood.

2. Those cases in which the hemorrhage may occur in some internal organ, such as the suprarenals, peritoneal cavity, brain, lungs, etc. It is in the latter cases, in which there is no apparent sign of bleeding, that the proper diagnosis may not be made at an early date; and when finally made, if the bleeding continues, the patient is almost exsanguinated, and the condition becomes a very grave and critical one.

In the treatment of this condition, the use of animal's or human blood serum injected subcutaneously seems to supply the necessary elements to the blood to cause clotting (Welch[1]).

Whole blood has also been injected subcutaneously for this ailment (Schloss[2]).

With the institution of these methods of treatment, the mortality has been lessened to a considerable degree as compared with the older manner of treatment. There are a great many failures, however, with a continuation of the bleeding process.

Other investigators, endeavoring to improve on the serum treatment, attempted the transfusion of blood with very striking results. The new blood supply adds those elements to that of the infant, which not only promote clotting, thereby causing the hemorrhage to cease, but at the same time increase its cellular elements and volume, thereby enabling it to carry on its functions in a proper manner. Among those advocating the immediate transfusion of blood for this condition, and whose results have been highly gratifying, are Green[3] of Boston and Lespinasse[4] of Chicago.

In the treatment of these bleeding babies by transfusion, we thought that the mothers might act as suitable donors for the transfusing of their own infants. As the maternal and fetal bloods in utero are so closely related, the cellular elements being separated by a thin membrane, but allowing for diffusion of chemical elements, it is the natural supposition that complete compatibility of infant's and mother's blood should exist. On consulting several well known serologists it was ascertained that all agreed on their probable compatibility, but they deemed it advisable to perform a preliminary hemolytic and agglutination reaction before using the mother as a donor for her infant. In view of this fact it was our idea to establish the complete compatibility of mother's and infant's blood by performing a series of hemolytic tests on newborn babies and their own mothers. There are several reasons why the mothers could be used as donors:

In the first place, when an infant has had a severe initial hemorrhage leaving it in an exsanguinated state, the delay in such a case in procuring a compatible donor on whom the preliminary tests should be made may be fatal to the infant. If it is known beforehand that the mother's blood is compatible, she can be used as the donor without the delay of making these tests, and perhaps the infant's life will be saved by supplying it in time with sufficient blood.

In the second place, when the bleeding is discovered during the night, the procuring of a proper donor would entail considerable delay; such an emergency

1. Welch, J. E.: Am. Jour. Med. Sc., 1910, cxxxix, 800.
2. Schloss, O. M., and Commiskey, J. J.: Spontaneous Hemorrhage in the New-Born, Am. Jour. Dis. Child., April, 1911, p. 276.
3. Green, C. M.: Boston Med. and Surg. Jour., 1914, clxxi.
4. Lespinasse, V. D.: The Treatment of Hemorrhagic Disease of the New-Born by Direct Transfusion of Blood, THE JOURNAL A. M. A., June 13, 1914, p. 1866.

can well be overcome by using the mother to supply the necessary blood.

In the third place, in certain localities where no laboratory is at hand and such a condition should arise, it is advantageous to know that a compatible donor is nearby.

Again, the element of expense enters into the transaction in a certain number of cases. By using the mother to supply the necessary 60 or 70 c.c. of blood there would be the saving of a laboratory fee and the payment of an outside donor, if no member of the immediate family were available.

It is well known that under certain circumstances emergency transfusions have been done without the preliminary hemolytic tests being performed, the operator trusting to good fortune as to the compatibility of the recipient's and donor's blood. Under these circumstances in the case of a bleeding baby it would be a safe thing to use the mother as donor. With this object in view, it was our intention to perform a sufficient number of tests on mother's and infant's blood to establish the fact of their complete compatibility, so that the mothers could be used in cases of emergency without fear of any injurious effect on their infants. It was first decided to perform 100 tests, but as the results were so uniform, thirty-four tests were finally deemed sufficient.

The following is the description of the tests carried out on patients in the obstetric ward of the Harlem Hospital:

All syringes, glassware and other materials used in the tests were dry sterilized. The mothers were bled by drawing from a vein at the bend of the elbow about 20 c.c. of blood. Five c.c. of this were placed in a test tube containing glass beads, and the tube was shaken for five minutes. This defibrinated the blood with resultant mother's corpuscles. The remaining 15 c.c. of blood were placed in a test tube on the slant and kept at room temperature until clotting had taken place. It was then placed in the incubator at 37 C. to facilitate separation of the serum.

Twenty-three babies were bled by making a deep incision in the heel, and the blood made to flow by making compression on the lower part of the leg. Blood from nine babies was obtained at the infantile end of the cord before ligation, and from three babies at the maternal end. This blood was treated in a like manner to the mother's. The defibrinated blood was washed and centrifuged three times in physiologic salt solution. Of the washed corpuscles a 5 per cent. suspension was made by taking 0.5 c.c. of corpuscles and 9.5 c.c. of saline. Of this 5 per cent. emulsion of red corpuscles, 0.5 c.c. was used, to which was added 0.5 c.c. of serum, so that mother's cells were treated with baby serum, and baby's cells were treated with mother's serum. Controls of saline and corpuscles, both mother's and baby's, were made in each case. The agglutination test was made grossly by the ocular method.

In the thirty-four tests that were carried out on the mothers and babies, no hemolysis or agglutination occurred. From these experiments we have concluded that all mothers can be used as donors for their infants in the transfusion of blood, provided no contraindications exist on the part of the mothers.

Since these conclusions have been drawn as the result of these hemolytic reactions, one bleeding baby has been transfused at the Harlem Hospital in the service of Dr. G. L. Brodhead. This infant began to bleed on its second day of life from the nasal mucosa, from the bowels, from the cord and from the kidneys. Without any preliminary blood tests the mother was used as a donor, and the infant was transfused with 60 c.c. of blood through its external jugular vein. The method of introducing this blood was by the indirect syringe procedure, and the apparatus devised by Dr. Lester Unger was used. One hour after the transfusion no bleeding occurred from the wound made over the jugular vein, and six hours later the stools were free from macroscopic blood and there was no further bleeding from any portion of its body.

It has been estimated that the volume of blood possessed by an infant is one twentieth of its body weight. In an infant weighing 7 pounds the amount of its blood supply would approximate 5⅗ ounces. A well known clinical observation is that if one third of the entire blood supply is lost by hemorrhage, there is grave danger of death taking place. Therefore, to transfuse a baby who has lost sufficient blood for symptoms of exsanguination to be present, it is important that a known quantity of blood be thrown into its circulation. If a too large amount enters the circulation, the heart muscle, already weakened by hemorrhage, may become acutely dilated, and death occur from a measure that is meant to be therapeutic. We have estimated that from 60 to 75 c.c. of blood are approximately sufficient to supply the infant with the necessary elements to promote clotting and enough cellular elements to replace those lost by hemorrhage. This is an important reason why the indirect method of transfusion should be practiced on these bleeding infants, as well as the argument for its simplicity of technic.

COMPLICATED NERVE TISSUE INVOLVEMENT ARISING FROM SYPHILIS OF THE VERTEBRAE

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Syphilis of the vertebrae has been infrequently reported. There were but 100 cases available for analysis[1] in 1912. Neural complications generally accompany this disease; they are often obscure, and many times are extremely grave. Frequently it is through some manifestation in the widely varying symptomatology arising from the nerve involvement that the existence of the osseous disease is suggested, rather than through any symptom arising directly from the spondylitis. It is with the neural features in syphilitic spondylitis that this paper deals.

A striking combination of such neural complications as may be found in this disease was presented in one of my recent cases, which well illustrates the diversity of clinical manifestations which may spring from such spinal axis involvement:

On admission to the hospital, the patient showed alarming symptoms arising from loss of sensation about the larynx, pharynx and esophagus. This impaired sensory condition pointed to disturbance in the cervical and medullary regions of the cord. There was at the same time loss of sensation in

1. Hunt, J. R.: Am. Jour. Med. Sc., August, 1914.

the bladder, rectum and lower extremities. The latter sensory condition pointed to disturbance in the lumbosacral region of the cord.

There was some ulceration of the pharynx, and an obstinate cough occurring frequently in paroxysms, attended by the expectoration of thick whitish sputum in great quantities and by the regurgitation of food. The patient soon became unable to swallow at all, being given all nourishment through the stomach tube, and rapid emaciation took place. The history elicited some significant facts: There had been attacks of sore throat and "rheumatism" for the past seventeen years. (The patient was a man aged 52.) There had been an attack of gonorrhea at 21. For a year and a half "things hadn't tasted right"; there had been anorexia, flatus and obstinate constipation. The use of alcohol, excessive for a number of years, had been discontinued for a year and a half.

The urgent throat and respiratory symptoms demanded immediate attention. Laryngologic examination made by Dr. Chevalier Jackson demonstrated the following:[2]

"Laryngeal motility was found to be perfect. The pyriform sinuses were full of secretions. A bronchoscope was passed to the bifurcation of the trachea without anesthesia, general or local, and there was not the slightest sign of a cough reflex. Esophagoscopy showed presence of cricopharyngeal and hiatal contractions, though very weak and unlike normal spasmodic resistance to the advance of the esophagoscope. A 10 mm. by 53 cm. esophagoscope passed readily into the stomach. There was no gagging, retching or attempt at vomiting. The author made a diagnosis of sensory paralysis, with consequent absence of the normal serial deglutatory reflex."

The neurologic examination (case referred to me by Dr. E. B. Haworth) revealed not only subjective symptoms confirmatory of the foregoing cervical involvement, but also subjective symptoms pointing to lumbosacral involvement. Indicative of the lumbosacral disturbance were: a feeling of numbness and weakness in the legs, having covered a period of two years, and often being accompanied by a sensation of pin-pricking in the thighs; latterly there had been obstinate constipation; the patient had been entirely unaware of any desire to urinate or defecate for the past month, merely going mechanically at stated times for the performance of these functions; the urinary stream was started by the patient placing his hand in cold water, or by the sound of running water (psychic stimulus); the patient had been impotent during the past two years, though normal sexual desire had been present. The mental condition was normal except for considerable anxiety regarding himself.

My report on the reflexes was as follows: pupils irregular and unequal (right, 4 by 4, wider below; left, 3½ by 3½, wider above); reactions to light and accommodation about normal; arcus well marked. Reflexes in upper extremities equal on the two sides but somewhat exaggerated. The knee jerks were entirely absent; plantars lively and no Babinski; abdominal skin reflex absent and cremasteric very sluggish. There was some rombergism. The spine below the lower dorsal region was held rigid during attempts to bend the trunk forward, and the knees had to be flexed if this angle exceeded 40 degrees. Sensation for pain was diminished from the crests of the ilia to the soles of the feet, increasing from above downward, with the analgesia very marked about the soles. The patient could pucker the lips, but the tongue protruded slightly to the left.

The laboratory reported that the sputum was negative for tuberculosis; the urine exhibited a slight glucose reaction; there was moderate blood leukocytosis and the Wassermann was negative. The spinal fluid showed 5½ lymphocytes to the cubic millimeter with heavy globulin precipitate.

The roentgenographer reported an osteo-arthritis of the lumbar and cervical vertebrae; numerous small osseous spicules could be seen projecting especially from the lips of the vertebral bodies.

The roentgenographic report was of the greatest assistance in affording an explanation for the neural complications. It was probable that the symptoms were, in large measure, a result of compression of the spinal cord and nerve roots by the exudative processes incident to the spondylitis. The striking characteristic of this case was that the symptoms were almost entirely sensory in character. There was a remarkable parallelism between the symptoms affecting the centers in the medulla (those controlling deglutition, coughing, respiration, etc.), and those in the lumbar region (sacral segments—those controlling micturition, defecation, erection, etc.). Above, sensation was lost in pharynx, larynx and esophagus; below, sensation was lost in the bladder, rectum and genitalia. In other words, the upper reflex arcs, on whose integrity the acts of swallowing, normal respiration and coughing depended, were paralyzed on their sensory sides, while the lower reflex arcs for micturition, defecation, erection, etc., were paralyzed on their sensory sides, also. All of these reflexes were either abolished or greatly crippled.

Such a similarity in lesion indicated a common causative agent. The course and duration of the symptoms, their unusual and symmetric distribution, not corresponding with those of any of the systemic nervous diseases, together with laboratory reports, pretty definitely eliminated tuberculosis and carcinoma, the two diseases most likely to come into question in view of such symptomatology. Alcohol, even as an active contributing factor, could be excluded on the ground of its having been discontinued for the previous year and a half. Rheumatoid arthritis does not exhibit such sporadic spinal distribution. Therefore, though history of syphilis had been denied (Neisser admitted), and in spite of a negative Wassermann,[3] a diagnosis of syphilis of the vertebrae, manifesting itself through its effects on the medulla and cord, was made. The heavy globulin reaction in the spinal fluid indicated an active inflammatory process. The sensory symptoms were indicative of pressure rather than of meningeal irritation alone.

A consideration of the course of the spinal segments through the intervertebral foramina, and of the cranial nerves (ninth, tenth and eleventh) along the base of the skull and through the jugular foramen, makes plain the pressure possibilities to which these nerves might be subjected by the acute inflammatory exudative processes incident to the osteitis which was revealed by the Roentgen ray. It should be noted in this connection that bone syphilis affects the base of the skull and the cervical vertebrae more frequently than other parts of the vertebral axis.

The unlimited variety of symptoms, arising from the manifold neural lesions occurring in syphilis affecting the central nervous system, is exemplified in this case by still further ramifications of the disease process. The anesthesia of the lower extremities indicated that the pathologic condition extended beyond the sacral segments into the lumbar segments of the cord which supply the skin area, in great measure, of these extremities. There was also some extension of the pathologic condition in the cervical region beyond the cranial nerves mentioned, as evidenced by a "girdle sensation" in the arms, pupillary, tongue and taste deviations, and transient diaphragm palsy. There was further evidence of motor involvement in the fact that there was a left shoulder-arm paresis, this pointing to brachial plexus implication.

Immediately on the institution of antisyphilitic treatment (mercury and potassium iodid), symptoms began to show improvement. Just before the treatment was begun there was an alarming crisis characterized by extreme dyspnea, the respiration becoming of the Cheynes-Stokes type, nausea, with paroxysms of abdominal coughing in attempts to expel the tenacious mucus, the pulse was weak, and the face was cyanotic. Oxygen and other stimulants were used. Within

2. Jackson, Chevalier: Peroral Endoscopy and Laryngeal Surgery, St. Louis, the Laryngoscope Company, p. 557.

3. Whitney, J. L., and Baldwin, W. I.: Syphilis of the Spine, THE JOURNAL A. M. A., Dec. 4, 1915, p. 1993.

a week after treatment had been begun, coughing and sputum were much less and respiration was easier. By this time sensation was beginning to return over the thighs and legs; but there was no sensation until later for pain or pressure over the buttocks, scrotum or the soles of the feet. Persistence of anesthesia in these localities may be accounted for by the fact that the osseous process impinged most markedly on the sacral segments of the cord. At the end of two months the patient was able to swallow solid food, and fairly normal sensation for urination and defecation began to be experienced. In a short time the patient returned to his regular occupation of salesman, at which, a year and a half later, he is still engaged. At present the patient complains of weakness in the left arm and some numbness in the soles of the feet.

The extent of the symptomatology here again drives home the fact that the importance cannot be overestimated of eliminating cerebrospinal syphilis as etiologic in every obscure or indefinite clinical picture. The foregoing is but one of numerous instances, coming under observation, in which final decision as to diagnosis has rested on clinical findings in the face of negative laboratory reports.

THE RELATION OF THE LABORATORY COURSES TO THE WORK OF THE CLINICAL YEARS*

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First, I tried to work out this relation on the family basis. I said, "Medicine is the mother of physiology," and I prepared to come here and paint a pretty picture of physiology taking care of mother in her old age. But when I looked around for father, my trouble began. I found that medicine had a promiscuous lot of children—quite a heterogeneous household ranging all the way from substantial oldest son, anatomy, to sapheaded chiropractic. I became fearful of discovering a scandal and gave up the idea of family relationship.

Then I thought it might work out better on a basis of phylogeny. "I will construct," I said, "a scheme of relationship by descent. I will study the evolution of the medical sciences—develop the tree of race relationship."

The plan looked hopeful. There was the gnarled but sturdy old trunk of medicine extending down into the subsoil of unrecorded history. Even as deep as one could trace the roots there were nodules of anatomic fact apparently flourishing and metabolizing nitrogen in a moldy sap-wood of religious superstition. But after I had thus got anatomy nicely placed among the roots, I wanted to use it later as a branch, and encountered botanic difficulties. The only thing I could think of was a banyan tree.

Moreover, considering the religious affiliations of medicine in history, I was afraid if I established evolutionary relationships I should find Christian Science as a large, green and flourishing branch of the medical tree. Then, too, I found that medicine interbred with every science and every form of speculation. I observed that ophthalmology was medicine crossbred with physics. I considered that bacteriology evolved from the false philosophy of spontaneous generation and got itself grafted into medicine secondarily. My tree would not grow according to good botanic principles. I foresaw such a storm about acquired characters and sports and cross-fertilization and mendelianism that I gave up the theory of evolutionary relationship.

Next I tried the analogy of master and workman. I recalled a word frequently heard at these meetings, a fine sounding, resonant word: "ancillary." The ancillary sciences working for the master science of medicine. It sounded pretty good and seemed capable of development as the text for this occasion. But I looked up "ancillary" in the dictionary and found it was derived from a word meaning female slave. I began to imagine medicine not exactly as a science but rather as a gatherer of science's harvest—medicine as the slave owner living in the big white house. That was familiar. But I saw also poor physiology, the female slave, scourged to her quarters. Serene in the manifest superiority of the spirit, she nevertheless appeared the helpless victim of an hereditary ruling class. I could not stand such a picture, and gave up the relation of master and servant as the analogy for this symposium.

By this time the hour of this meeting was drawing near. I saw that if I were intelligently to discuss the relation between the laboratory sciences and the work of the clinical years, I needed to know something about the clinical years. So I followed a master of diagnosis in his day's work. I saw him percuss and auscultate; I saw him count corpuscles and analyze excreta; I saw him elicit reflexes and measure temperature; I heard him speak of valves and pressure and enzymes and neurons and calories. I said: "That man is not practicing medicine. He is practicing physiology." I watched a therapeutist at the bedside and found that he was not practicing medicine but pharmacology. I saw a surgeon earning a thousand dollars. I discovered that he was not practicing surgery but anatomy, pathology, physiology and—high finance! Finally, the relation I was seeking came suddenly into mental view. Anatomy and physiology and pharmacology and bacteriology and chemistry and the rest are not the children of medicine; they are not the branches of an evolutionary tree; they are not handmaids; they are not stepping stones or preparatory stages. They are IT. They are medicine itself.

Every correct observation of function or disorder, every established fact of structure, every corroborated discovery in the field of causation or in the domain of restitution, every correctly interpreted experiment in test tube, animal or man, whether made by layman or practitioner or professional scientist, is describable in the terminology of the fundamental sciences, and is really a constituent part of those sciences. These make up medicine as a real living body. For clothing there is folk psychology, a modicum of ritual, that indefinite confidence-producing mantle called personality, a veil of magic, and a vanishing hat, labeled "empiricism," with a hole in it through which talking may be done. But all these are outward habiliments. The warm, breathing, vital entity is science—the medical sciences or the science of medicine.

To this fertile thought I invite your attention. I acknowledge that it is perhaps only a half truth. But

* Read in a symposium on the "Relation of the Laboratory Courses to the Work of the Clinical Years," at the Twelfth Annual Conference of the Council on Medical Education of the American Medical Association, Chicago, Feb. 7, 1916; abstract of discussion, Society Proceedings, THE JOURNAL A. M. A., Feb. 19, 1916, p. 596.

who wants to hear the whole truth? The whole truth is too static, embalmed, petrified. I acknowledge, too, that our thesis is not wholly consistent; but consistency, you remember, is a jewel, and as such reserved for the ladies—and special occasions.

Anatomy, chemistry and the rest are not preparatory to medicine, they are medicine itself. They are provinces, not independent kingdoms. The doctrine of sovereignty does not hold among the sciences nor in medical teaching. Boundaries are set, but they are imaginary lines, not Chinese walls. They do not impede the exchange of ideas nor hamper the free movement of the products of research.

"But surely," some physicians will say, "Surely such extravagant statements should not be permitted to go unchallenged. We admit that some anatomy is medicine; that some physiology is medicine. But a good deal of anatomy is just anatomy; a good deal of physiology is just physiology. And surely medicine is more than these sciences." I am prepared to defend my trenches against such bombardment.

If some physiology is medicine and some is not, it is implied that some one should select what is and what is not. It is further implied that what is medicine should be taught to medical students, and what is not medicine should either be omitted from the curriculum or gingerly and to a limited extent admitted to keep the physiologist good-natured. Something like this reasoning influences the clinical teacher when he approves of our teaching the number of corpuscles and the character of the heart sounds and the percentage of hydrochloric acid, but decries the work on muscle and nerve or the teaching of physicochemical theory. But surely if the medical practitioner is to be more than a pill-roller, if the surgeon is to be more than what one well-known surgeon calls himself, a plumber, it must be because there is in him that lively appreciation of fundamental biologic facts which makes him picture the marvelous mechanism of the body responding to the multitudinous and varying stimuli of the environment. There is no class of experiments so well adapted to give such a concept as those on muscle and nerve. There is no single experiment so useful for teaching the essentials of deductive logic as the curare experiment. There is nothing so essential for medical progress as the intelligent use of hypothesis. The physiologic theories of the nature of stimulation, conduction, secretion and contractility are inspiring examples of the hypothesis as an effective weapon in the boundary warfare between ignorance and knowledge—a warfare in which every progressive medical man should be enlisted for lifelong service.

Indeed, if I analyze the working of the clinical mind correctly, it makes use unconsciously of the concepts and theories derived from the fundamental sciences, which on the surface of consciousness it denunciates as unpractical. They are unpractical perhaps in that they do not make for a defter hand or a sharper eye. But they are intensely practical as the invisible warp into which is woven the thought stuff for "practical" conclusions.

There is another side to this proposition. If we acknowledge that a given fact or theory is devoid of practical value today, who shall decide as to the future? In my teaching experience I have seen the taking of blood pressure transformed from a laboratory fad to a clinical routine; I have noted embryology influencing surgical procedure; I have seen the action current become the basis of electrocardiography; I have seen the theoretical chemistry of the proteins become the cornerstone of dietetics; I have seen men who, as students, complained of the introduction of physical chemistry into physiology, later as clinicians attempting to measure and understand hydrogen ion concentration.

Let us not, then, be too narrowly restrictive with the fundamental departments. Whatever is good anatomy is good medicine. Whatever is good physiology is good medicine. In giving the well-rounded training which will make his science a living entity, the anatomist or the physiologist or the pathologist or the chemist may be trusted to include the so-called practical matters which are the outward manifestation of medical practice, just as he may be trusted to do his best to instill the methods and powers of observation, experimentation and orderly reasoning which should be the inward essence of medicine itself. He may be trusted, I add, so to steer the ship of research that, though it skirt uninhabitable shores and though it penetrate many an unpromising inlet, in the end it will discover safe anchorage and will chart out passages by which the commerce of applied science may pass into now unknown seas.

I regard our combined courses and the arrangements by which the science departments belong alike in the college and in the professional school as an admirable device for avoiding, on the one hand, too remote and general development, and, on the other, a narrow utilitarianism. The latter, to my mind, is the popular error. We worship Edison instead of Faraday, Lister instead of Pasteur. Of the commoner sin we should be most on guard.

Again, if my thesis as to the nature of medicine is correct, and if the student in his first two years is as truly learning medicine as in his last two years, we should all unite to disabuse his mind of its familiar error as to the nature of the laboratory courses, and get him to see the steps of his education in a truer light. In this the clinical teachers can be of great assistance. In this, too, if anywhere, lies the justification for clinics and lectures by clinical men to make clear to freshmen and sophomores the application of the facts and theories which they are learning in the fundamental departments. That clinicians in order to do such work satisfactorily should be thoroughly trained in and sympathetic with the sciences goes without saying.

The obverse is equally true. As clinical teaching becomes more scientific, the student is likely to see in his later years the necessity for further laboratory training. And we have the argument for such an arrangement of curriculum, such a recognition of the elective principle and elastic program that he can get this training easily and systematically.

Moreover, if my thesis is even approximately correct, the professors of surgery and medicine should expect to teach anatomy, physiology, pathology, etc., as part of their regular work. Instead of complaining because the students who come to you do not know it all, you should look on yourselves as duly appointed to teach these sciences and to continue the training of the juniors and seniors along the very lines laid down in the first two years. Thereby the marked break at present existing between the first two years and the last two years would in large measure be avoided.

In the text of this homily lies, furthermore, the best argument for the unity of medicine. Did anyone ever

hear of chiropractic chemistry or osteopathic physiology or even homeopathic pharmacology? There are no sects in science. There will be none in medicine when medical men and their patients appreciate what medicine is and what it can do and cannot do. That joyful but distant millenium awaits the universal development of the scientific mind. It may come. Who knows? Think of the progress of the last four hundred years. Let us begin by making the doctors more scientific.

Finally, if my thesis and what I have founded on it are correct or only half correct, there can be no doubt that clinical teachers should be better trained in the sciences than has been common in the past. The ideal clinical teacher is one who has founded an adequate training at the bedside on from three to five years of graduate study in a productive teaching laboratory, or who has served as assistant for a long time in a clinic which has as adjuncts such laboratories with trained scientific leadership. This is the reform for which Graham Lusk has worked in New York, and which many medical educators have recognized of late as the greatest need in our schools as a whole. Unfortunately, conservatism and vested right and, worst of all, a dearth of teachers of this type, have made progress slow. But I believe we have passed the critical point and that development in the clinical branches is about to parallel that which took place a few years ago in the scientific departments. Men are beginning to prepare themselves for clinical positions as definitely and from the same professional standpoint as for positions in the laboratories of anatomy, physiology and pathology. We in administrative authority in universities are beginning to look for a clinical teacher in just the same way that we look for a chemist or a historian. I am persuaded that in our clinical departments in the next generation we shall have leadership and a nucleus of organization in practically full-time teachers who have had intensive laboratory training and are primarily medical scientists. Around this nucleus will be part-time men who practice medicine as well as teach, and who carry into both the ideals and the habits of thought of the scientific leaders. Beyond these I see a great profession increasingly benefited and ennobled by the same ideals, habits and methods reflexly acquired while in school and enforced in after life.

This is my thesis, my creed, my optimistic hope. It is in the failure of us science teachers to realize our part of it that I find my moments of discouragement. In how many of our students do we fail to establish logical habits of thought, fail to create a critical attitude toward authority, fail to found a confident reliance on observation accompanied by an appreciation of the limitations and pitfalls of the senses, fail to awaken the imagination and to kindle such a fervor for science that the constant cry shall be "What, How and Why," fail to establish sleepless guard against that insidious enemy of the understanding, *post hoc ergo propter hoc* —in how many of our students, I say, do we science men fail to do these necessary things? The number is large, I am sure.

I try to believe that our poor results are due to poor training in the premedical years, or in high school or earlier still. I try to convince myself of the inherited inability of many to observe correctly or think logically. I try to persuade myself that we turn over to the clinical teachers a pretty good product, and that the latter destroy our good work by methods of didacticism, empiricism and worship of authority. Nevertheless, with all due allowances I come back to the physiologic laboratory in fear and humility, for I feel that better pedagogic leadership would give better results. I wonder whether we shall some day have medical normal schools and teachers who shall teach us how to teach.

RELATION OF THE PRECLINICAL LABORATORY COURSES TO THE WORK OF THE CLINICAL YEARS*

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The problem of the relation of the preclinical laboratory courses to the work of the clinical years is one that must interest every teacher and every student in a medical school. It is a problem that will often occur, for the aspects of medicine as a whole and of its constituent and underlying sciences are ever undergoing changes that require, at comparatively brief intervals, corresponding readjustments of the medical curriculum. The most that we can do at any one period, after formulating sound general principles regarding the relationships that should exist, is to make the adjustments desirable for the period, understanding that these adjustments are but temporary and must, of necessity, give way, later on, to others.

That I have been invited to participate in this discussion is, I take it, partly because of the schools in which I have had opportunity to teach, but more because of the fact that for twelve years I was a teacher of two of the preclinical laboratory sciences (anatomy and pathology), and that for the ten years which followed I have been almost wholly engaged in the teaching and practice of clinical medicine. This experience has given me sympathy with, and at least a certain understanding of, the aims and needs of both the preclinical and the clinical sciences. Several ideas regarding the principles that should be followed in planning the medical curriculum and regarding the readjustments of the present methods of teaching seem to me valid, and I shall be glad to know whether or not you, also, approve of them.

The reinstatement of the medical faculties of our universities in the respect of the world of scholars has undoubtedly been due to the astonishing growth of the scientific spirit among medical men and to the remarkable expansion of our knowledge of man and of the diseases that endanger his life and his health through the rise of the methods of research in the natural sciences. These methods have been and are now being applied with great zeal to the study of the structure and function of living organisms. No small part of the progress has been due to the devising of new methods of investigation that have been perfected in laboratories. Intensive work has required an ever-increasing division of labor in research, with specialization of the fields of investigation and constant additions of departments and professorships in our universities and medical schools. The new knowledge that has been acquired, and the new forms of technical procedure that

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have been elaborated, have revolutionized our ideas of the nature and causes of disease, have enormously extended our methods and conceptions of diagnosis, and have led to a truly astonishing advance in rational therapeutics. It is no wonder that the medical course has been lengthened, for the amount of clinical as well as of preclinical training that is considered desirable before graduation has steadily grown.

Now, obviously, the total length of time required for the medical student's training preliminary to graduation dare not be too greatly prolonged; moreover, during this limited time the student's brain has only a certain capacity for the acquisition of knowledge, for the understanding of principles, and for the learning of practical-technical methods of investigation. The questions that we, as medical educators, must ask ourselves, are: 1. What principles shall guide us in the construction of the preclinical and clinical curriculums? 2. What readjustments ought we now to make to bring our curriculums into accord with these principles?

A wise decision in the second matter will depend on finding a correct answer to the first question. That medical educators have given a vast deal of thought to these topics, every one knows. That, in general, sound principles have already been laid down, and the curriculums more or less adjusted to them, we may feel tolerably sure. But that considerable dissatisfaction both in the preclinical and the clinical branches still exists must also be freely admitted. And I believe that a thorough discussion of the subject such as we have entered on today is exceedingly timely. It will show us, I believe, that the discontent is due partly to disagreement regarding the principles that should guide us, and partly to failure to provide the conditions that conform to certain principles that all now accept.

We rejoice in the fact that there is no longer dissent from the view that, precedent to undertaking the more complex medical sciences of diagnosis and therapy, a considerable training in the preliminary natural sciences (physics, chemistry and biology), and education in the simpler medical sciences (anatomy, physiology, pharmacology and general pathology), are imperative. I speak of the "more complex medical sciences of diagnosis and therapy," for the time has passed when the work of the clinics could be regarded as something that is not scientific—as something merely practical or technical to be sharply distinguished from the "theoretical" or "scientific" work of the preclinical sciences. Workers in a modern medical or surgical clinic, or in the active clinic of a specialty, smile today when they read the addresses of well-meaning educators of a few years ago in which "medical science" was contrasted with "clinical medicine," or in which it was asserted that "the problems of clinical medicine differ from the problems of the laboratory," or that "a sharp break occurs at the middle of the four years' course when the student drops his science (sic) and turns eagerly to the clinic." A brief sojourn in one of our better clinics today should quickly disabuse the mind of any educator who harbors the illusion that such comments could still be justified. It is matter for congratulation that diagnosis and therapy now have connotations other than those implied even a decade ago. The clinical subjects, at least in our better medical schools, are now recognized as sciences differing from the simpler medical sciences chiefly in their complexity rather than in loftiness of ideals or in the methods by which they are cultivated. They, like the preclinical medical sciences, are now laboratory subjects also, only rather more so, since adequately to study a clinical problem there may be needed not only (1) a considerable knowledge of the preliminary natural sciences and of all the simpler intermediate (preclinical) medical sciences, but, in addition, (2) a knowledge of the clinical subject itself and (3) an ability to use in the inquiry any of the principles and technical methods of any one of the ancillary simpler sciences. Obviously, the requirements of the clinical problems tend to transcend the power of the single investigator, and there is an ever-increasing tendency to subdivision of the problems on the one hand, and, on the other, to group-cooperation in the larger investigations. Indeed, the expansion of the laboratories of the clinics is going on so rapidly, the opportunities for fruitful work in these laboratories are being so rapidly multiplied, and the problems themselves are being found so interesting and attractive, that even the more idealistic of our younger investigators are aggregating in the clinics, and there is real danger that, temporarily at least, the supply of investigators and teachers for the simpler preclinical sciences may be too much curtailed.

On turning over in my mind the differences of opinion that exist regarding the principles that should govern the arrangement of the preclinical curriculum, it seems to me that those that are outstanding are included in the following list:

1. Differences in opinion regarding the functions of the medical schools:

(*a*) Whether they shall be simply schools for imparting knowledge already acquired, or shall also be institutes for extending knowledge by original investigations.

(*b*) Whether their functions shall consist wholly in the training of future practitioners of medicine, or shall include also the training of men for other purposes.

2. Differences in opinion regarding the mode of teaching to be employed:

(*a*) Whether the teaching shall be conducted so that each science is taught for its own sake irrespective of its immediate bearing on the work of the clinical years, or so that the teaching of each science shall from the very beginning be strictly controlled and directed with exclusion of matter not of immediate utilitarian value for the clinics.

(*b*) Whether the teaching shall attempt chiefly the imparting of the facts of each preclinical science, and if so in how great detail; or chiefly the general principles of the science, illustrated by experiment, and combined with practical exercises by the student—exercises that will acquaint him, at first hand, with the methods of original inquiry and scientific experiment, in the hope of arousing and cultivating in him the scientific habit of mind.

Even a concise discussion of these several opinions would require an essay of considerable length. I shall give briefly my own impressions regarding some of these debatable questions, and I shall mention a few of the arguments in their favor that seem to me cogent. If I do not bring forward a larger mass of evidence now, it is partly because the time limit forbids, and partly in the hope that the very incompleteness of my treatment of the subjects may be an incitement to a lively general discussion.

Taking up the first point, I am still convinced that the medical schools should, as integral parts of universities, be scientific institutions in which teaching and original research shall both have a place. The advantages of this combination are so generally recognized that I need not labor the point. But the union of scientific productiveness with the teaching function has also its difficulties and its dangers, especially in the medical school. The professor, according to his special interest or ability, is apt to find one or other of the functions the more important and dignified; or, even with the best will in the world he may succeed in one and fail in the other function. Faculties should see to it that, in each department, the staff shall include both productive investigators and inspiring, well-balanced, well-trained teachers, even though to provide them may make necessary a multiplication of professors and assistants. The student, also, in such a combined department runs, it is true, some risk. Observing the prestige of research, and hearing an eminent teacher discuss enthusiastically some problem that he himself is attempting to solve, an ambitious student may attempt to undertake an extensive original investigation at the expense of his general education. But these dangers to both staff and students can, if they are known, be easily avoided, and in any case, they are in my opinion far outweighed by the benefits of the system.

It is a common saying, even of some of our most distinguished medical educators, that "the object of medical education is to make good doctors," and that "unless you can define a given course as bearing on that training, it has no place in the medical curriculum." Now every one will probably admit that the principal function of a medical school is to train good practicing physicians and surgeons. But I suspect that the overstatements which have been made on this point have been unconsciously defense-reactions against criticisms that the medical schools with higher standards are educating "professors" rather than "practitioners." Now, as a matter of fact, it is the duty of the medical school to make provision not only for the education of good doctors but also for the training of a certain number of men who shall not necessarily engage in practice but instead become occupied in teaching or investigating or both, either in the universities or in special institutes of research; for the teaching and investigating positions have to be ever refilled as they become vacant, and, besides, their total number is rapidly increasing. Since a younger generation must be trained to succeed the older in the preclinical as well as in the clinical sciences, it is the duty of the medical faculty to make its teaching of young men such that at least some of them shall be attracted to careers other than that of medical practice. Unless this is done, the medical sciences will languish, the students of the future will lack good teachers, and ultimately the doctors will be less good than they should be.

Perhaps the most actively disputed point on the list I have mentioned is that of the immediate utilitarian value for the clinics of the preclinical teaching. It has been matter of surprise to me to find that those who advocate teaching only the aspects of science that have a direct "bearing upon the future work of the medical man" are often professors of the preclinical medical sciences, and that opponents of this view are not uncommon in the clinics. Thus in the well-known discussion in England, in 1908, in which a chemist (Armstrong), a physicist (Dawson Turner), two physiologists (Starling and Sherrington), and several clinicians (Osler, Semon, Buist and Wells) participated, opinion among the preclinical scientists favored the teaching of the preclinical branches with the student's clinical curriculum ever in view, whereas the plea for the broad treatment of the preclinical subjects without too much regard to their immediate applicability in the clinics was voiced mainly by the clinicians.

In America, with the exception of some of the Canadian schools, the medical schools have insisted, and I believe with right, that the preliminary sciences of physics, chemistry and biology shall be taught in the departments of the general science faculty—not in the medical school. Now, just as it is better for anatomy, physiology and pathology to receive students whose training has been of a general character in physics, chemistry and biology, rather than of the special character denoted by "medical physics," "medical chemistry" and "medical biology," so in my opinion it is far better for the clinics to receive students who, in the first two years of the medical school, have been given a general training in the simpler (preclinical) medical sciences rather than a special training in a strictly "clinical anatomy," a "clinical physiology" and a "clinical pathology." My reasons for this conviction may be summarized as follows:

1. It is ultimately best for the student's clinical work if he come to the clinic with a good general grasp of each of the sciences ancillary to the sciences of diagnosis and therapy, and if he come familiar with the principles of each science as a whole and with the more typical of the technical methods of each science, irrespective of the immediate applicability of these principles and methods to diagnostic and therapeutic procedures. The body of facts that he brings with him, while not to be despised or ignored, is far less important than the true understanding of the science, the grasp of principles, the training in technic, the scientific habit of mind as applied in each science, and the capacity to make applications of any part of the science to new problems.

2. The problems of the preclinical medical sciences, while closely related to the problems of the clinical sciences, are by no means identical with them. The professor in the preclinical subject may be expected to know how to investigate the problems and teach the subject-matter and methods of his own branch; he cannot be expected to turn aside from these activities to engage in the problems of the clinics, nor is it probable that he will know the applications of his science now being made, or those likely to be made, in the clinics.

3. It is the business of the clinical sciences themselves to make the applications of the facts and methods of the sciences ancillary to them in the solution of their own problems. What would we think of a professor of physiology who expected that the professors of physics and chemistry should send the students to the physiologic courses already instructed in the applications of physics and chemistry to physiologic problems? It is just as absurd for a professor of medicine or surgery to expect that students entering the clinics shall bring with them a knowledge of the applications of physiology, anatomy, physiologic chemistry, pharmacology, general pathology and bacteriology to the sciences of diagnosis and therapy. It would be a great misfortune for the clinics and for the future of our doctors if the students spent

their time in the preclinical years in trying to acquire such knowledge. For they would then miss what is most important for them to acquire and what is essential for the advance of the clinical sciences, namely, the general training in the principles and methods of each preclinical science and the comprehensive grasp that will permit of application in any direction, in other words, of unlimited orderly growth.

4. The concern of the preclinical scientists regarding the applications in the clinic of the sciences they represent has, hitherto, been to a certain extent justified. For the clinics have failed to make adequate provision for the application of the principles and methods of the preclinical sciences in the clinical work. As a result, the preclinical scientists have felt that perhaps they should attempt themselves to teach the applications to medical students, or at any rate to teach only the facts of their sciences that they believe should be immediately applied. This course, if followed, would, in my opinion, be disastrous for both the preclinical sciences and the clinics. The remedy lies, I believe, rather in the radical reforms that have already been begun in the organization of the clinics and of the clinical teaching. The wasted opportunities for the teaching and the advance of the clinical sciences at hospitals have hitherto been deplorable. It is no longer sufficient to have merely wards and dispensaries with many patients for the teaching of diagnosis and therapy. It has become essential that, attached thereto, there shall be a group of clinical institutes provided with laboratories, with libraries, with suitable equipment, and with a large group of not overburdened teachers, that in these institutes the clinical sciences of diagnosis and therapy may be cultivated in the same intensive way as the other natural sciences. The main difference between one of the clinical institutes and one of the preclinical institutes will consist in the enormous extent of the field and the complexity of the problems of the clinic, the greater necessity for the division of labor and the multiplication of workers, and the necessity of providing in the clinical institute the men and the equipment necessary to insure that patients will be studied through application of the principles and methods of the whole series of preclinical sciences. In these clinical institutes the students should be drilled in the methods of physical diagnosis, chemical diagnosis, biologic diagnosis, applied anatomy, applied physiology, applied pharmacology, applied physiologic chemistry, applied pathologic histology and applied experimental pathology and applied bacteriology. This systematic training in the methods of the clinical sciences, though it should be conducted by the clinical teachers in the clinical institutes, should precede the clinical clerkships in the wards. It is desirable that the clinical clerks shall be an integral part of the working staff of the university hospitals, and that their training in methods shall have been sufficient to permit them to be used as reliable instruments of investigation of the patients in the clinic. The results of the examinations made by them may then, under adequate control, be incorporated in the regular clinical records of the hospital. Students who have received a good training of a general character in the preclinical sciences may, in the clinical institutes, be speedily trained to accuracy in the methods now useful in the clinical sciences. Students whose training in the ancillary sciences has from the beginning been special and with strictly utilitarian motives will be less likely to participate in making the new applications of science now constantly going on in the clinics, than students who have been bred in an atmosphere in which truth is sought for its own sake and irrespective of what the ultimate effect of its discovery may be.

From what I have said, you will have already surmised the opinion that I hold regarding the last on the list of mooted questions, namely, whether the learning of a body of facts in each preclinical science, or a general education in its principles together with acquisition of some of the typical technical methods of the science, is the more important for the student as far as his clinical studies are concerned. I have no hesitation whatever in saying that I regard both as important, though if I had to sacrifice one or the other, I should be more willing to give up the former than the latter. Billroth, who had very sound ideas on medical education, once said that "the sum of the contents of memory at any given moment is no measure of the capacity of a man; we forget much, but if we have had practice in a certain kind of thinking, it, like the ability to swim, will never be lost as long as we retain the full use of our mental powers." From physics, chemistry and biology on, through anatomy, physiology and pathology, all the way to the clinical sciences of diagnosis and therapy, the transition, both as regards content on the one hand and principles and methods on the other, is so smooth and gradual that the student has not only gained a thorough training in observation but has really secured the best possible foundation for the science and art of medicine. His growth is like that of a tree, and the tree is so well rooted that continuous growth may be expected for a long period. Our best textbooks quickly grow old, but the man whose education in the preliminary and intermediate sciences has been sufficiently general and not too special will be able to follow every scientific advance during his lifetime; he will educationally have done his best to protect himself from a premature senility.

After this discussion of principles, I may make a comment or two concerning readjustments of the curriculum that may now be needed. Here there seem to be two principal divergences of opinion:

1. Is the time now given to preparation in the preliminary natural sciences and to the simpler (preclinical) medical sciences in contrast with that given to the clinical sciences relatively too long or too short; and are the amounts of time assigned to any of the single preclinical sciences in contrast with that assigned to other sciences of this group disproportionately long or short?

2. Shall all the courses offered in the preclinical sciences be obligatory on every student, and shall they fill up his whole time; or shall the obligatory part of the curriculum be reduced to a minimum that will leave much (really) free time that may, at desire, be devoted either (*a*) to additional optional work in any or all of the subjects, or (*b*) to reading, reflection or recreation.

I myself do not see how we may safely assign less than one premedical year to the three preliminary natural sciences; indeed, while one year is perhaps satisfactory for physics and biology, it is not enough for chemistry, which in my opinion needs at least two years in addition to the work in physiologic and pathologic chemistry given later in the medical school.

As to the precise amounts of time to be devoted to the single preclinical medical sciences, I think they should vary somewhat with the degree of expansion that each science is manifesting at a given time. When

the emphasis of a period is on morphologic studies, the corresponding subjects may well receive more attention; when, on the other hand, activity is more manifest in studies of function, there may be a modification of the curriculum to some extent in favor of the subjects that deal with function. A notable example of a wise dislocation in the curriculum is the lessened amount of time now given to materia medica since the necessity for a training in pharmacology has arisen.

I am inclined to believe that we could make a real advance in medical education if we reduced to a large extent the amount of time given to obligatory courses in all the preclinical and clinical subjects, and largely increased the amount of time that can be given to optional courses, to reading in libraries, to conversation, to reflection and to recreation. With good will on the part of the professors, with a better selection and organization of the general courses than is now prevalent, it would be possible, I believe, (1) to give an excellent general training in all the preclinical sciences, (2) to give opportunity for participation by each student in several optional courses on topics that particularly appeal to his interest, or that are especially suited to develop his talent, and (3) to leave some time, so sadly lacking now, for independent reading, for meditation, and for exercise in the open air—and this without extending the time now given to the preclinical work. I am sure there must be something wrong, however, with a disposition of the time and activities of medical students that sometimes results in a morbidity of 10 per cent. of a class from tuberculosis, even when on admission to the medical school, the members of the class have seemed, on physical examination, to be in good health.

In a few words, then, when considering the relation of the preclinical laboratory courses to the work of the clinical years, we should in my opinion assent to the following principles:

1. In each department, both teaching and original investigation should be represented.

2. It is the duty of the teachers of each subject to arrange the courses so as to give the most desirable training to men who are later to be medical practitioners, while at the same time providing for the education of some men that will not go into practice.

3. In developing the courses in the single preclinical sciences, regard for the direct utilitarian bearing of the subject on clinical work does not justify the teacher in neglecting the inculcation of the general principles of his science so that it may be understood as a harmonious whole, or the training in such technical methods as are necessary for the investigative work of the science for its own sake.

4. Whereas it is desirable that the student shall, on entering the work of the clinical years, bring with him a certain store of facts accumulated during his preclinical studies, it is even more important that he shall enter the clinic with his mind educated to observe accurately, to experiment in order to increase the accuracy of its observations, to sift critically, to think independently, to arrange facts in logical sequence, and to desire to act rationally—in other words, with a mind habituated to the methods of science. Finally, in making periodical readjustments of our curriculums, we shall need to vary the amount and kind of instruction in each clinical science in some degree according to the trend of the productiveness of the period, and we shall be wise, I believe, if we reduce the obligatory work in all subjects to the minimum consistent with an adequate general presentation of principles and technic, providing optional courses that may be taken by those that desire them, and leaving some time free for reading, for reflection and for open-air pleasures.

PRINCIPLES AND EXPERIMENTS IN MEDICAL EDUCATION *

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James Russell Wallace once said in substance that the twentieth century added to human knowledge more than all its predecessors, but had done less than any other to make its knowledge available for human needs.

As the mother of the sciences and the chief instrument for the subordination of physical evil, this charge was laid chiefly at the door of medicine. It cannot be doubted that the charge was valid when Wallace made it, and probably today it remains virtually unanswered. There is, however, an obvious reason for this situation. The nineteenth century witnessed the gathering of practically all of the intimate and effective knowledge of physics and biology. During the period of the accumulation of this vast knowledge, it could hardly be expected that its practical application could keep pace with the rapid growth in so many directions. The great dilemma in medical activities today is the difficulty of maintaining a proper balance between the interests of pure science and research and the practical applications of medical knowledge.

A hasty retrospect will reveal how rapid the progress and how broad the expansion of medicine has been. Anatomy, the oldest of the medical sciences, entered the nineteenth century with considerable familiarity with the gross structure and even of the development of the human body, but histology and embryology experienced their modern growth in the latter half of this period. Huxley conceived the germ layer theory in 1860, Killiger systematized histology in 1870, and nuclear fusion in fertilization was not discovered by the Hertwigs until 1880. Apparently the most accessible and clearly definable domain in medical research anatomy in the last few decades has enjoyed an extensive and most significant transformation in becoming comparative and experimental. It has thus changed from a descriptive to an analytic science. Today in the several departments of gross human and comparative anatomy, histology, embryology and experimental morphology it easily maintains its place as the backbone of medical science.

Modern medicine is just about sixty-five years old. It began in 1853 when Virchow formulated the doctrine of cellular pathology. As late as 1833, Lobstein recast the ancient theory of the origin of cells from plastic lymph. In 1831, Schleiden discovered the vegetable cell; in 1833, Robert Brown described the cell nucleus; in 1838, Schwann identified the structure of plant and animal tissues; but not until 1849 did

* Read in a symposium on the "Relation of the Laboratory Courses to the Work of the Clinical Years," at the Twelfth Annual Conference of the Council on Medical Education of the American Medical Association, Chicago, Feb. 7, 1916; abstract of discussion, Society Proceedings, THE JOURNAL A. M. A., Feb. 19, 1916, p. 596.

Cruveilhier venture finally to deny all validity to the blastema theory of tissue origin.

On the basis of cellular pathology, it became possible to formulate reasonably correct conceptions of what disease does in the body; and the vast additions to the knowledge of pathologic anatomy, and histology accumulated during the last sixty years, have gained for this subject universal recognition as the foundation stone of internal medicine. More than any other of the medical sciences, it separates medicine from the medical cults.

Guided by sound morphologic conceptions, physiology made rapid progress, beginning about the same period. In 1856, Claude Bernard's memoirs on the functions of the pancreas marked the beginning of experimental physiology. From a long line of famous contributors covering an ever widening field, we have today fairly accurate knowledge of the normal and disturbed functions of the body.

Chemistry long applied in a crude way to the problems of medicine became direct in its objects and fruitful in its results when its tasks were clearly set by pathology and physiology. Woehler connected the inorganic with the organic world by making urea synthetically in 1828. Liebig recognized the three classes of foodstuffs in 1846. Today the methods of organic and inorganic chemistry throw light on the intimate nature of physiologic processes, and this exact science has been of indispensable help in the development of pharmacology, bacteriology and general biology. In fact, the conceptions of vital processes tend more and more to be formulated in terms of chemistry, inorganic, organic, physical and physiologic.

Pasteur demolished the doctrine of spontaneous generation in 1861, and from his work dates the commencement of bacteriology and the germ theory of disease. Modern surgery is also its direct descendent. Through the methods of Robert Koch, we now know rather intimately the identity, life characters and mode of action of most of the bacterial causes of disease. As a direct outgrowth of bacteriology, there came into existence the science of immunology, in which the therapeutic triumphs of Behring and Roux in diphtheria were the first fruits. More recently, out of the study of immunity mechanisms has arisen the vigorous science of serology, which employs the methods of chemistry and physical chemistry over a wide range of problems, and has carried the elucidation of many phenomena of disease far more deeply than was possible or conceivable before its advent.

The first pharmacologic laboratory was established by Buchheim in 1856. Pharmacology may be said to have inherited the most difficult of all the labors of modern science. To cleanse the Augean stables of the accumulations of ancient medicines, to stem the ever increasing tide of empiric remedies, to wait on clinical medicine for its problems and on physiology and chemistry for its methods, have been some of the handicaps of this science, in spite of which its contributions form a sheet anchor for intelligent therapeutics.

Internal medicine has always had its own problems, and many of them antedate the cellular pathology; but few of its products of earlier date have escaped transformation at the hands of the modern sciences.

Clinical medicine has catalogued and superficially described the concrete problems of disease and turned them over for solution to the appropriate sciences. It receives in return the burden of applying the new knowledge as it is gained, and it has been overwhelmed by the task. It has had to resort to an elaborate subdivision of the field, and is now comprised of very numerous medical specialties covering different systems and organs, or even single diseases.

Legal medicine it has definitely set apart; but legal medicine thus orphaned has taken good care of itself, and through Taylor, Tidy, Maschka, Hoffman and a long line of notable students it has come to form one of the most effective, as also the most exact, of the applied branches of medicine. It is true that many American communities get along without any competent aid from modern forensic medicine, but only at the expense of public morality and safety.

Preventive medicine may be said almost to have outgrown its parent and certainly to have oustripped it in significant accomplishments. In effective form it is certainly a modern branch of applied medicine. In infectious diseases it was made possible by bacteriology, and in other fields it grew out of physiology and chemistry, and it employs all these sciences and engineering and other departments of physical science as well. It presents by far the broadest front of medicine, coming in contact with nearly all human interests and activities, and merging through the various departments of hygiene with criminology, sociology, political economy and the science of government. Its relation to military science and the general problem of national preparedness deserves especial mention at this time.

I am not attempting to sketch the history of medicine. I am merely calling the roll of the present existing departments of medical knowledge with a hasty glance at each for identification, and I am doing it for the purpose of expressing a point of view which would seem to be the logical one for the recognition of the principles of medical education. You may call it the laboratory point of view because it emphasizes certain subjects that are pursued chiefly in laboratories, but I prefer to call it the historical point of view.

It puts the care of the sick in a prominent position, but yet in a just relation to those other branches of knowledge which have made it possible to care for them at all and which offer a hope that we may sometime care for them better.

What has been the attitude of conservative medical educators during this period of sixty-five years? There is only one answer to this question. They have considered paramount the interests of medical progress. They have placed the highest value on all those influences which tend to support and develop the medical sciences. This position also has been maintained unassailed up to very recent years. During the period when the course of medical study occupied two or three years, 70 or 80 per cent. of the time was devoted to the fundamentals of medicine. Anatomy was by far the most prominent subject in the curriculum. The student saw little or nothing of practical medicine. In the last decade, with the addition of the fourth year, a systematic and comparatively successful effort has been made to enlarge the scope and improve the quality of clinical training, and some of the second, a large part of the third and nearly all of the fourth years are devoted to applied medicine and the actual practice of the medical calling. The result has been most beneficial. The student acquires as much or more theoretical knowledge than he had before, and he is able to apply that knowledge at the right time and in the right way at the bedside. I judge that the present medical

graduate is not open to the charge of Wallace that his particular knowledge is not available for practical needs. On the contrary, the clever student is so well equipped for practice that his services are usually in demand from the moment of graduation. He is by no means an experienced physician, he is not a competent surgeon; but he has delivered his half dozen obstetric cases, and in his hospital training he has watched the course, assisted in the diagnosis, applied the treatment, attended the necropsy, and listened to authoritative interpretations and discussions, in most of the common and many of the rare diseases that the general practitioner meets. Of the 4,000 hours of his medical course, he has devoted on a calculated average over 2,000 to these attainments.

This is genuine and effective clinical training, and its accomplishment has been the most conspicuous recent advance in medical education, at least in America. I think that laboratory men everywhere have witnessed this change with satisfaction and offered their hearty congratulations to their clinical colleagues.

Encouraged by the success of the new plan and impressed by the undoubted advantage of further extending the practical clinical training of medical students, it has been proposed to add to the required curriculum a fifth clinical year to be spent by the student as a junior intern in the service of an approved hospital.

I have elsewhere pointed out some objections to this plan. These objections seem to me serious and fundamental. They are briefly as follows:

1. It is a tactical mistake for university trustees to relinquish control of any essential part of medical education. It is an illogical step and a dangerous precedent to encourage state legislatures to dictate to university faculties how they shall conduct medical education, and it is unfortunate that any political influence should have been introduced into this matter.

2. It is an unsound educational principle to replace systematic instruction by members of a university faculty for training by hospital attending physicians with the routine material occurring in hospitals.

3. The average hospital is quite unsuited for medical education. Hospitals should first be standardized before students are by law forced into them.

4. The introduction of a fifth purely clinical year raises an additional bar against the choice of a career in scientific medicine.

5. The clinical year unbalances the curriculum by placing excessive emphasis on clinical training while subordinating the fundamental sciences and general medical knowledge. It turns out practitioners instead of educated physicians.

The aspect which the fifth year is beginning to take in some institutions of the highest grade meets some of these objections to its original form. It seems to be generally agreed that the year may safely be spent only in a hospital controlled by a medical school. In some notable cases the work of the year is systematically outlined and placed at least nominally under university officers. This plan is quite different from that of turning the student over to the hospital as a junior intern.

There are still further alterations in the plan of clinical training which virtually emasculate the scheme of pure clinical training. Thus Leland Stanford University requires a year in a hospital or in some other work. The qualifications of the hospital are specified, but the "other work" is not described, except that the student must write a thesis. The University of Chicago prescribes the conditions of the clinical work, and offers an option of research in any department of the medical school. Both of these plans relieve the harshness of the order that the student must enter a hospital if he wants to practice medicine.

On the other hand, the law of Pennsylvania, and that recently passed in New Jersey, flatly state that a year of service in a general hospital is required for the licensure to practice medicine.

Thus in regard to the very important matter of clinical training and the licensure to practice, there are at least three different conditions existing in prominent medical centers in this country. In the majority of eastern states the licensure to practice is granted on the recommendation of the medical school after four years of systematic training prescribed by the school. In some states the schools prescribe a fifth year either in a hospital under university auspices or in any approved advanced study. In a few states the student is required to enter a general hospital and serve as a junior intern.

The last scheme I can only regard as an injudicious experiment in medical education. For the sake of raising the average dexterity of the lowest grade of student, it ignores the claims of broad general education as a whole. It commits the state to the training of practitioners instead of the education of physicians. I am well aware of the gross incompetency of a large body of medical students in many sections of the country to practice medicine. For these the hospital year will be an advantage. It will not be wasted on any student, but it is a measure designed to deal with the lower strata of student society, and it is not the best available method of securing the desired results. It is open to all the objections which have been enumerated above. It will turn out smart young doctors well acquainted with the present vogue of endless clinical tests and methods they imperfectly understand, rather successful in practice, but, if possessed of intellectual honesty and personal ambition, ready to return to their alma mater after four or five years and beg the privilege of "brushing up." They are doing it now by hundreds, until the postgraduate instructors often outnumber the undergraduate students.

Fortunately there are indications that this scheme will not be adopted by many other states in which a reasonable circumspection precedes action in matters of such great importance.

The second plan of introducing a fifth year of advanced study in clinical or other fields is quite a different matter, and contains the elements of progress in the right direction. It may be assumed that five years of medical study are needed today for the education of physicians. This period has long been required in Europe, and its need has long been recognized in America. But when the fifth year is adopted, great care should be used in its disposal. From the historical point of view of the larger interests of medicine, I would venture to suggest certain considerations which may safely govern the disposition of this valuable time.

In the first place, it may well be asked if the fifth year may not permit the readjustment of the crowded curriculum of the first two years. Into this brief

period has been forced nearly all the theoretical training in the underlying medical sciences, as well as preliminary clinical work, so that few instructors feel satisfied that students now secure a real knowledge of these subjects. Speaking for pathology, I can say that the best present courses in this subject are on the whole elementary and abbreviated. Medical students do not adequately learn what disease does in the body. In most courses in pathology some important diseases are not even mentioned.

I am one of those who believe that a surgeon should know the natural history of the different forms of epidermoid cancer before he learns how to cut the cancers out, and that the physician should know the theories of the pathogenesis of rickets before he treats and advises such patients. The same standards of value apply to the instruction in other basic branches of pure and applied medical science. They need more time.

There are also several branches of science which are of great importance in modern practical medicine, are now presented imperfectly or not at all, and which may well receive due attention in a remodeled curriculum. Of these may be mentioned physical chemistry, medical physics, immunology, serology and chemical pathology. Such changes would meet some of the demands of the newer branches of knowledge on which the progress of medicine chiefly depends and with which the educated physician should be reasonably familiar.

In the latter half of the curriculum some specialization may be permitted toward the career the student may choose, but a broad education requires a thorough grounding in the principles of the theory and practice of medicine and surgery. Laboratory men are too often unfamiliar with the interests and problems of medicine, and their usefulness in medical faculties and in research is thereby curtailed. On the other hand, practitioners are hurried into practical exercises with a smattering of theoretical knowledge which they imperfectly apply ever afterward. The only comment I venture to make regarding present methods of undergraduate clinical training is to suggest that clinical clerkships are difficult to manage in a systematic course of instruction, and that there is danger of anticipating the work a hospital intern does under more favorable conditions. The main problem is the disposition of the fifth year, especially for that great majority which elects to practice medicine. In conversation with many colleagues I find a widespread feeling that this year should be made a year of university instruction and not a year of service in a hospital. Unless agreement on this principle can be reached, the fifth year becomes a matter of quite secondary interest to the medical educator. To follow a hospital attending physician about the wards and see what he does in his daily routine may enable the student to pick up many practical points, but it is not medical education. Nor will it suffice to exact a promise that the attending physicians will undertake the duty of giving adequate instruction to the interns. The attending physician is a busy man, and the best of his disquisitions on rounds are inferior to a systematic discussion prepared for the particular purpose of instructing advanced students.

The student can do much better by spending a year with carefully prepared clinical courses given by expert teachers in European hospitals, as many of our students have done. We must do at least as well as they if we are to hold our students and develop effective advanced clinical instruction. A corps of competent university instructors of the type of privat docents is needed to conduct this work. It should be one of their chief occupations, and an essential preliminary to their advancement to more prominent positions in the medical faculty. It has often been said that the training of students is much easier than the development of a faculty.

Should the work of the fifth year be conducted in a hospital? Certainly access to patients is necessary, and the observation of all the phenomena of disease that can be obtained will be of great value. Yet I believe the time thus spent should be limited and not devoted to routine history taking, colored photography, blood and urine examinations, and the keeping of records. The student should not be made a hospital servant, but should spend his time in the hospital in the presence of clinical material, in seminars on specific topics, prepared for him by his instructors. The hospital laboratory may develop his technical competency to a certain extent, and acquaint him with the principles, sources of error, and necessary limitations of laboratory diagnostic tests. He will then escape that implicit confidence which the average practitioner places in these mechanical methods of diagnosis.

The hospital morgue can offer him brief and significant insight into the effects of disease and the pathogenesis of symptoms. At the necropsy table he will learn some of the deficiencies of medical diagnosis and surgical procedure, and he will not grow up with personal conceit or a fancy for hero worship.

Rather than remain in a single hospital, the student should enjoy brief terms of instruction in several institutions, where he may obtain first hand knowledge of special fields, as pediatrics, contagious diseases, tuberculosis, cancer and insanity. Periods of three or four weeks spent in five or six such hospitals would give the general practitioner some real knowledge of the diseases which are chiefly to occupy him in practice, and which he cannot get by continuous residence in a single general hospital. The prospective surgeon might well replace the present initiation on the human patient by learning surgical technic on lower animals. His particular needs could be met by devoting special attention to the various subdepartments of surgery. To what extent specialization should be permitted in the fifth year I am not prepared to say, but think that in general we are inclined to exercise too minute supervision over the natural tendencies of well trained students.

So much opportunity for effective clinical training lies in these directions that it is difficult to find any defense of the scheme of turning the student over to the service of a hospital as junior intern.

I am a firm believer in the value of a comprehensive knowledge of disease, descriptive and theoretical, as obtained from medical literature, and I think the advanced student should spend all his evenings in the library. He should be required to search the literature for observations and interpretations of what he sees in the wards, and should report his results in good English. American medical literature is rapidly improving in quality and scope, but it will not reach its proper development until the better class of students are trained to activity in this field, and to develop a critical knowledge of good literature. It is said that

by far the largest circulation among medical periodicals in this country with one exception is enjoyed by certain semimedical journals whose standards of accuracy and possibly of ethics are questionable. Yet it is a principle of journalism not to create but to cater to the current tastes. Who is responsible for the taste for such literature. It is certainly the medical schools and possibly not always those of the lower class.

The production of an original thesis is included in all schemes of advanced clinical instruction. It should be made a genuine test of the student's ability in clinical observation and laboratory procedure, of his knowledge of literature, and of his ability to solve a problem, and should occupy quite as much of his time as his attendance in the hospital. It is hardly necessary to expand the point that unless the student has had some experience in solving a problem he will stand resourceless before the numerous clinical problems that confront him in practice. The young practitioner may be so fortunate as to have seen as a student just the same peculiar condition that confronts him in his first patient. Far more often he will have to depend on his general knowledge of disease, of medical sciences and how to apply them, and on his previous training in the solution of problems.

Finally, the fifth year may well give opportunity for the introduction of substantial courses in preventive medicine, hygiene, history of medicine, forensic medicine, and other fields in which medical knowledge comes into touch with the needs of modern society.

There is nothing new in the plan thus roughly outlined. It embodies the suggestions that have long been discussed and approved in many circles and have taken form as the needs in particular fields have become more concrete. It is based on the principle of the comprehensive education of physicians. It aims to provide the student with an effective body of practical information, with a genuine knowledge of the central medical sciences and with some competence in and sympathy for all branches of medical activity. It is not an intensely practical scheme. On the contrary, it frankly emphasizes theoretical scholarship. A natural deficiency of common sense it will not make good, and the mature judgment of the old practitioner will still be the reward of experience. Yet very few men will pass through five such years unfit to practice medicine.

I very much doubt if any body of practitioners with such theoretical training would fall into the blunder recently witnessed in one of our states of requiring by law a negative Wassermann test as a condition of marriage. Here is an excellent example of the difference between an educated physician and the practically overtrained man who falls a ready victim to medical absurdities.

An ideal surgeon was Frank Hartley, who could tell every pathologic condition occurring from the skin to the bone marrow in any part of the body. He knew these conditions in the literature and he knew them in the flesh. He was a scholarly surgical pathologist, like Billroth, and at the same time a master of surgical technic, while directing his operative ambitions chiefly to the mucous membranes.

An ideal physician was Francis Delafield, who first learned pathologic anatomy and learned it thoroughly by years of observation at the necropsy table, who interpreted his findings by a superb histologic technic, read clinical symptoms in terms of structural lesions, left his mark on the principles of general and the applications of special pathology, and then went out into practice and developed a systematized encyclopedic knowledge of the natural history of disease.

These men were exponents of a broadly conceived and faithfully executed educational plan, and they were some of its products.

We cannot do more and must not do less than bend our students in these directions, which are in accord with the best tendencies of the profession.

The historical development of medicine emphasizes the responsibility of medical education of today for the medical progress of tomorrow. On the roll-call of the present existing departments of medical knowledge, all must find a place.

A PROPOSED UNDERGRADUATE COURSE IN CLINICAL PHYSIOLOGY*

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It must, I think, be conceded that the average general practitioner of medicine knows far too little of the science of physiology, and has not the habit of looking at his patients from the physiologic point of view. He sees the normal man or woman hardly more than does the layman. The bodily condition that is before him in his professional life is a derangement, and it is the derangement that he has been taught to focus his interest on. When, too, he thinks of a deranged organ, it is the anatomic picture of it that is foremost in his mind, and not the deranged function. But his problem is really one of dynamics, not of statics, and the thought that should always be paramount, I contend, is that he is dealing with a derangement of a physiologic mechanism—a machine of inconceivable complexity has got out of order and it is his business to locate and determine the nature of the trouble and set the machine right. His problem all through is one that, when properly attacked, requires a keen knowledge of what the machine is capable of doing when in good order. Yet it is surprising to realize how little in detail the average general practitioner knows of this, and how little he analyzes his pathologic problems from the physiologic standpoint.

If this be conceded, how can it be remedied? Not, I think, by a change in existing courses in physiology. One of the obvious prominent features of the improvement that has taken place in medical education in the last quarter of a century is the reform in the teaching of physiology, and yet with all the professional physiologists, the physiologic laboratories and the required courses of practical work therein, the physiologic millennium, to which some of the most sanguine of us looked forward a quarter of a century ago, that state when the physiologic point of view will be paramount among clinicians has not yet come. Undoubtedly existing courses in physiology are capable of improvement. From the large mass of material constituting the science, a better selection of topics to be considered by the instructor and of experiments to be performed by the students may often be made. While maintain-

* Read in a symposium on the "Relation of the Laboratory Courses to the Work of the Clinical Years," at the Twelfth Annual Conference of the Council on Medical Education of the American Medical Association, Chicago, Feb. 7, 1916; abstract of discussion, Society Proceedings, THE JOURNAL A. M. A., Feb. 19, 1916, p. 596.

ing its firm and necessary basis on the principles of physics and chemistry, the subject-matter can often be made less esoteric, the bearings of a knowledge of the normal on an understanding of perturbed bodily processes can be emphasized, without the instructor's running the lamentable risk of giving a course in a narrow "medical" physiology. Yet improvement in existing courses cannot, I think, fundamentally improve the present situation, which is this: During either their first or their second year, or partly in one and partly in the other, the students receive their instruction in physiology. Most of them follow the course willingly because they have faith—faith in the wisdom of the men who have planned the course, and faith that in some way not now clearly comprehended, their training in it will be useful to them later. Nevertheless, too many students question the good judgment that imposes on them a difficult topic, the relation of which to the treatment of sick persons they do not understand. By the end of their second year they have completed their work in physiology, and lay the subject aside with a feeling of relief as they turn to the more congenial occupations of their two clinical years. Now they acquire a new vocabulary for which they have all the time been longing. Such terms as "sino-auricular node," "synapse," "refractory period," "amino-acid," "hormone," "action current," "vasomotor control" do not sound to them half so professional or thrilling as "arteriosclerosis," "pleural effusion," "uremic convulsions," "mitral stenosis," "syndrome," "cholecystitis" and "gastro-enterostomy." With the passing of the physiologic words go also their meanings, and throughout the rest of the school career, and too often the rest of professional life, physiology is merely a scientific curiosity. Many practitioners, on the other hand, come later to realize and to lament their lack of physiologic knowledge and to appreciate its illuminating point of view. This fact is indicated to me, not only by much professional testimony, but also by the success of such lecture courses as that of the Harvey Society of New York.

The abrupt termination of the prospective doctor's physiologic career at the end of his second year of study might be avoided if the clinical instructors of the two subsequent years were to see clearly the value of the physiologic point of view and keep it ever before their pupils. Here, too, there has been improvement in recent years, but progress is slow. I have, therefore, come gradually to the conclusion that for the present at least it is by the improvement neither of existing courses in physiology nor of existing courses in clinical medicine that the desired change in the attitude of practitioners can be brought about.

With the object of giving practitioners some opportunity to supplement their lack of school training, we established five years ago at the Columbia school of medicine a postgraduate course which we called "clinical physiology," and which consisted of informal lectures and demonstrations on the application of physiologic facts and principles and methods to problems in clinical medicine. Some of the topics considered in this course are as follows: the respiratory organs in normal and pathologic activity; the factors regulating blood pressure; blood pressure in man in its normal and pathologic relations; the physical features of the capillary blood flow and the early stages of hyperemia and inflammation; various cardiac lesions, their production and physical effects; the consideration of volumetric changes in the output of the heart as affected by various factors, together with an oncometer study of the kidney during these changes; renal secretion as affected by circulatory changes and the chemical conditions of the blood; the respiratory and vasomotor effects of abnormal intracranial pressure; the viscosity of the blood and its clinical relations; lymph, its normal flow and its relation to edema; the blood supply of the abdominal organs and their vasomotor reactions; the vasomotor reactions in their relation to shock; the general phenomena of spinal shock; the sounds of the heart and methods of recording them, and the action of the heart as studied by the electrocardiographic method.

We had hoped to attract to this course young medical graduates just out of their hospitals who, having had some clinical experience, might be glad, while waiting for patients, to return to the laboratory and broaden their knowledge of the physiologic relations of their clinical problems. Such young men, however, were conspicuous by their absence, and those who came to us were practitioners of ten, fifteen and twenty years' experience, men whose familiarity with clinical conditions had made them realize keenly how much an understanding of physiology would help them in their daily work. Each year since its establishment, from twelve to twenty such men have attended our course.

We believe, however, that a clinical experience of ten, fifteen or twenty years is not necessary to enforce this realization. We still believe that we can make an impression on the younger men. We recognize that it will be idle to attempt this during the first two years of medical study—some knowledge of clinical medicine is necessary. We are, therefore, now proposing that a course similar to our existing postgraduate course in clinical physiology be established for undergraduates. This should be given as late in the undergraduate period as is possible—either during the second half of the fourth year, or in the fifth year, if as now seems probable in Columbia, such a year shall be added to the curriculum. The chief instructor should be a professional physiologist who has had adequate clinical experience, and it is hoped that he would be a member of the regular staff of the university hospital, coequal with its chief physician, its chief surgeon and its chief pathologist. The various topics should be presented by means of informal lectures with demonstrations or, still better, by means of laboratory work by the students themselves. So far as it is possible, the subjects should be illustrated by experiments on animals, in which the various necessary lesions are produced, and also by the exhibition of human patients representing identical or allied conditions. The clear picture of the normal functional condition should always be kept before the student; the deviation from the normal should be depicted, and the methods should be shown that may be used in bringing about either a return to the normal or, if the lesion be incurable, a continuing tolerance toward it.

With such a program it is easy to jump to the conclusion that we are offering simply a course in experimental pathology, but this is not so. The pathologist is interested in a perturbation of function *per se*—to him the perturbation is the important phenomenon. To the physiologist it is only an incident in the patient's life, a change in a still more important phenomenon, which is the physiologic condition. The latter is the thing to keep always in mind. It is what the patient

has possessed before the perturbation began, and it is what he must regain. Our proposed undergraduate course aims to raise to its proper plane the conception of the normal, and to train the young doctor to look on it as the end for which he must strive.

In planning the course we at first thought that the men who would be most benefited by it are those who follow internal medicine, who are constantly brought face to face with functional problems. But in discussing our program with practitioners we have been impressed by the attitude toward it of the surgeons, especially the younger surgeons, who realize clearly that the modern surgeon, quite as much as the physician, needs the physiologic point of view, and who welcome any aid that will induce the prospective surgeon to see this more vividly. Moreover, if, as seems to be occurring, the field of preventive medicine is to be extended to include other than infectious diseases, and the medical practitioner of the future is to become more and more a hygienist, still more than at present must he possess an adequate knowledge of the physiologic state and ways to maintain it. Such a course as we propose not only would help thus to make better practitioners, but also would react, we think, on clinical teaching and assist in placing this more firmly on a physiologic basis.

We who have already come to realize the benefits that have been derived by practitioners from our existing course in clinical physiology thus believe firmly that in the present state of medical education it is only through some such medium that proper recognition will be given to the fact, which is emphasized not only by the physiologists but also by some of the keenest of clinicians, that an intimate acquaintance with physiology offers one of the most efficient preparations for successful medical practice.

OVERACTIVITY AS A POTENT FACTOR IN THE ETIOLOGY OF SOME NERVOUS DISEASES

INQUIRY OF 187 CASES

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Several years ago, having had an opportunity to observe a large series of individuals working in lead, a problem presented itself for solution. Some workers showed left handed wrist-drop, others right handed; another had a paretic condition of the long flexor of the right thumb; another had a double wrist drop; another had paresis of the right leg. In all these cases there was an absolutely identical etiologic factor, and still the functional disability did not manifest itself in the same portions of the body. In several professional pianists I have observed attacks of cramp-like sensations in the wrist, and in others in some of the fingers. The occupation and the continuous efforts being the same, the seats of the disorder are not identical.

In a large group of tabetic patients I had three cases of the cervical type in which ataxia began in the upper extremities. Why, therefore, is the functional disorder more marked in the arms than in the lower extremities when the specific infection is of a general character? In some of my tabetic patients the eye symptoms were conspicuous from the beginning. In others the leg symptoms were the first to appear and the eye disturbances appeared quite late in the course of the tabes. In some of my cases the involvement of the sphincters was a late manifestation, in others a very early one. These differences in the onset and localization of functional disability in various persons suffering from tabes dorsalis are striking and require an etiologic explanation, especially in view of the same syphilitic toxic agent in all cases of tabes.

Why is it that paresis is most frequent in persons who exercise their intellectual more than their physical functions? I had four patients with juvenile paresis in whom the symptoms made their appearance with their entrance into college, otherwise speaking, at the time of greater demands on intellectual efforts. What explanation can one find with regard to such an onset?

In a group of cases of progressive muscular atrophy of spinal origin, the affection began in the upper extremities in some patients, in the lower in others; in one limb in some cases and simultaneously in two symmetrical limbs in others.

The largest majority of my poliomyelitic cases were in children, in whom the affection was confined to the lower part of the body. In five adults the functional disability was observed in the one or both upper extremities. Three of these individuals were tailors and two were bricklayers. What is the reason of the difference in the localization of the pathologic process in the children and adults?

In three cases of pernicious anemia in men there were evidences of a degenerative state of the spinal cord. In one case of the same affection in a middle-aged woman the central nervous system was not in the least involved. If a toxin is supposed to be the cause of the pathologic process of the cord wherein lies the difference in the cases of the men and of the woman?

These few examples of my entire series, the details of which will be given later, are sufficient to demonstrate the *raison d'être* of my inquiry. Weigert and Roux long ago expressed the view "that normally there is a state of equilibrium among all cells of the body, and their interrelation is such that when one cell becomes diseased or otherwise disturbed, the energy of the cells which lie close to it develop an increased energy, namely proliferation and, per se, repress the affected cell still further. Weigert also calls attention to the fact that the process of functioning of a tissue is accomplished by its destruction, which in normal conditions is rapidly compensated by a proper supply of nutrition. But if the latter is not forthcoming the above mentioned equilibrium is disturbed and degeneration takes place. Edinger[1] went further and said that if, instead of, or with, a defective nutritive supply there is an excessive funtionating of a cell, the increased growth of the neighboring cells will lead to a degeneration of that overactive cell, which naturally is then less resistant. This is particularly seen when both elements are at work, namely, overactivity and nutritional deficiency.

Edinger succeeded in demonstrating by some experiments the rationality of his contention. By administering pyrodin to rats he produced in them a marked anemic condition resembling pernicious anemia of human beings. When this was accomplished, by certain contrivances, he made them perform a considerable muscular activity. The result was that all anemic rats showed at necropsy a degenerative state of the spinal cord. The control animals which after the injections

1. Edinger: Samml. klin. Vortr., 1894, No. 106.

of pyrodin remained at rest presented a total integrity of their spinal cords. It is therefore evident that overactivity or superfunction is a powerful predisposing factor in producing disease conditions in an individual whose organism is potentially under the influence of some toxic or otherwise abnormal element. Since function is apparently a potent agent in creating a syndrome of abnormal phenomena, it will be of interest to analyze closely a few of the disease processes of the nervous system from that particular standpoint.

In tabes, which is a syphilitic disease of the spinal cord, we have the organism of the individual possessing syphilitic toxins and consequently a disturbed metabolism. The great multiplicity of our sensory nerves which are peripherally situated and thus receive incessantly impressions and transmit stimuli, are constantly at work. They play a very important rôle in muscular contractions and in the awareness of position of muscles, of articulations and limbs. The overactivity of these peripheral sensory fibers and of their prolongations, namely, posterior roots and posterior columns in a subject whose nutrition is deficient because of a metabolism which is disturbed through the presence of a syphilitic poison, is bound to result in degeneration of the overfunctionating sensory tracts. Hence the very frequent if not constant presence of symptoms depending on the function of the sensory tracts, namely, loss of regulating power of muscular contractions and of display of joints, loss of reflexes, and anesthesias.

The constant involvement of the posterior roots and columns (sensory) finds its explanation in the functional overactivity of those neurons. Moreover, the loss of coordination in the legs is observed in individuals who use and overuse the legs; loss of coordination in the arms is met with precisely in cases of arm — or cervical — type of tabes. It is also commonly known that in individuals who lead a sedentary life and overuse their eyes, the leg symptoms are not pronounced, but the eye symptoms are conspicuous. On the other hand, when a tabetic becomes blind, he commences to lead a sedentary life, uses his legs very little and then we observe an improvement in the condition of the legs. When we turn our attention to the great frequency with which Argyll Robertson pupil is met with in tabes, and take into consideration the great and constant activity of the light reflex in all human beings, it is easy to conceive its exhaustion and its disappearance when the organism is under the influence of toxins such as syphilitic in tabes. The same remarks may be made with regard to the muscles supplied by the third cranial nerve. Ptosis, for example, is one of the most frequent symptoms of tabes. It is due to a paralysis of the levator palpebrae superioris, which is supplied by the oculomotor nerve. Its function is to keep the eye open and it is, therefore, a very active muscle.

The various manifestations of tabes have been presented here for a discussion as to their mode of development. It appears that the conception of "overactivity" or "exhaustion" gives an adequate explanation for their occurrence. But it must always be borne in mind that the "exhaustion" can be considered here only as a localizer, so to speak, of the morbid effect provoked by the presence in the organism of a toxin, syphilitic in the case of tabes, or else by the presence of other elements which are able to place the tissues of the body in a pathologic state. Let us now take up in detail the various affections of my series considered from the standpoint of exhaustion.

Occupation Neuroses.—There were 37 patients distributed as follows: 12 stenographers, 5 newspaper reporters, 3 violinists, 6 pianists and 11 shoemakers. All presented the characteristic neurasthenic manifestations. For many months without interruption they strenuously carried on their work. Moreover, they all appeared to be underfed. In the stenographers and reporters the localization and character of the disorder were not identical. Some of them had the paralytic form, namely, a sudden sensation of fatigue and numbness in the hand while writing. In others there was an actual cramp, namely, a sudden extension of the index finger and flexion of the thumb. In others a cramp appeared in the wrist, but not in the fingers. One of the three violinists developed a cramp in the right hand and the other 2 in the left hand. Of the 6 pianists, in 2 a sudden paretic condition would set in in the left wrist, the other 4 had a similar condition in the fingers of the right hand. Of the 11 shoemakers, 6 presented attacks of cramps in the biceps muscles of one or the other arm; the remaining 5 individuals had attacks of numbness in the thenar muscles of one or the other hand.

A close analysis of these thirty-seven cases convinced me that the occurrence of the neurosis in one particular segment or portion of a limb was due to a predominance of effort practiced by the affected region. Thus, the violinists who had attacks of cramps in the left hand happened to be left handed. The two pianists with the paretic attacks in the wrists were trained by teachers whose method consisted of holding the wrist stiff during the exercises.

Chronic Lead Intoxication.—The next group of cases in my series comprises 16 cases. Five of them had double wrist-drop. Two men had wrist-drop only on the right side, three men had wrist-drop on the left side. Two men, typesetters in a printing house, presented a paretic condition of the three first fingers on the right side. Three men were house painters who used a small size brush for their work. They presented wrist-drop on the right side. One individual was a supervisor in a white lead factory for ten years. He had to spend the entire day in the lead atmosphere. He developed a paresis of the right leg with a markedly diminished knee jerk and Achilles tendon reflex. All the patients of this group had general evidences of plumbism, namely, blue line, obstinate constipation, albuminuria, headache. An inquiry into the character of the work of the sixteen patients revealed the following: The individuals with double wrist-drop worked for a number of years in white lead factories where both arms were used with equal effort. The men with unilateral wrist-drop worked in lead colors and their work consisted of mixing the dyes, which they did with one or the other arm. Unilateral extensor palsies in plumbism are not a frequent occurrence. Nevertheless in the few cases which I studied from the standpoint of exhaustion, I found that the nature of employment coincided with the unilaterality of paralysis. The two typesetters, all right handed men, used in their work chiefly the thumb and the first two fingers continuously. Although the general symptoms of saturnism were present, nevertheless the local symptoms were conspicuous in those fingers which are most persistenly in use and therefore most readily fatigued. The three house painters being compelled to extend

their wrist thousands of times in succession, naturally developed a paralysis of the extensor muscles of the wrist. All being right handed, they presented a right sided wrist-drop. The supervisor of the lead factory who developed a paresis of the right leg had to watch

TABLE OF OCCUPATION NEUROSES

Number	Occupation	Form of Disorder	No. of Cases	Localization
12	Stenographers....	Paralytic.....	5	R. hand, 3; L. hand, 2
		Cramp.....	7	R. hand
5	Reporters.....	Cramp.....	3	R. wrist
		Cramp.....	2	R. thumb and index finger
3	Violinists.....	Cramp.....	1	R. hand
		Cramp.....	2	L. hand
6	Pianists.....	Paretic condition	2	L. wrist
		Paretic condition	4	R. hand
11	Shoemakers.....	Cramps.....	6	R. biceps, 4; L. biceps, 2
		Numbness.....	5	R. thenar, 3; L. thenar, 2
	CHRONIC PLUMBISM			
2	Typesetters.....	Paretic condition	2	R. three first fingers
3	Housepainters....	Wrist-drop.....	3	Right
1	Supervisor for 10 years in white lead factory	Paretic condition	1	R. leg (see text)
5	Laborers in white lead factory	Wrist-drop.....	5	Double
2	Mixers of lead colors	Wrist-drop.....	2	Right
3	Mixers of lead colors	Wrist-drop.....	3	Left
	PERNICIOUS ANEMIA			
2	Laborers.....	Ataxic paraplegia	2	Lower extremities
1	Collector.....	Ataxic paraplegia	1	Lower extremities
1	Housewife.....	No disturbance	1	
	POLIOMYELITIS			
5 adults	Tailors (3).....	Paralysis.....	3	R. upper and lower extremities, 1; both upper extremities, 1; R. arm and R. face, 1
	Bricklayers (2)....	Paralysis.....	2	R. arm and both lower extremities
10 child. (age 8-12)	.....	Paralysis.....	.....	R. arm and R. leg, 3; R. arm and both legs, 2; R. arm, 3; R. arm and L. leg, 2
15 child. (age 3-5)	.....	Paralysis.....	.....	Both lower limbs
	PROGRESSIVE MUSCULAR ATROPHY			
1	Policeman.....	Atrophy.....	1	Onset in lower extremities
1	Watchman.....	Atrophy.....	1	Onset in lower extremities
2	Streetcleaners.....	Atrophy.....	2	R. upper limb
8	Laborers.....	Atrophy.....	8	Both hands
3	Tradesmen.....	Atrophy.....	3	Both hands
	PARESIS			
12	Teachers.....	Paresis.....	12	Mental sympt., Argyll Robertson pupil, 3d nerve palsy, 7
5	Cashier in bank...	Paresis.....	5	Mental sympt., Argyll Robertson pupil, 3d nerve palsy, optic neuritis
1	Politician.....	Paresis.....	1	Mental sympt., Argyll Robertson pupil, 3d nerve palsy
4	College boys.....	Paresis.....	4	Mental sympt., Argyll Robertson pupil, 3d nerve palsy
2	Jewelers.....	Taboparesis...	2	Mental sympt., Argyll Robertson pupil, optic atrophy
8	Bookkeepers.....	Taboparesis...	8	Mental sympt., Argyll Robertson pupil, optic atrophy
11	Clothing merchants	Taboparesis...	11	Mental sympt., Argyll Robertson pupil, 3d nerve palsy, optic neuritis
	TABES DORSALIS			
6	Letter carriers....	Locomotor ataxia	6	Lower extremities. Argyll Robertson pupil
8	Policemen.....	Locomotor ataxia	8	Lower extremities. Argyll Robertson pupil
3	Messengers.....	Locomotor ataxia	3	Lower extremities. Argyll Robertson pupil
7	Icemen.....	Locomotor ataxia	7	Lower extremities. Argyll Robertson pupil
10	Laborers.....	Locomotor ataxia	10	Lower extremities. Argyll Robertson pupil
5	Motormen.....	Locomotor ataxia	5	Lower extremities. Argyll Robertson pupil
2	Stenographers....	Locomotor ataxia	2	Ataxia of upper extremities; loss of knee jerk; Argyll Robertson pupils
1	Laundress.....	Locomotor ataxia	1	Ataxia of upper extremities; loss of knee jerk; Argyll Robertson pupils
2	Electricians.....	Locomotor ataxia	2	Optic atrophy; loss of one knee jerk
2	Clerks.....	Locomotor ataxia	2	Optic atrophy; loss of both knee jerks
1	Cashier.....	Locomotor ataxia	1	Optic atrophy; loss of both knee jerks

over groups of men. In making his rounds he would stop at a certain group and remain in one sitting position for an hour at a time. While sitting he would place the right ankle on the left thigh and keep up that position during the entire hour. He repeated this position at each group of men whom he was obliged to inspect. This attitude was considered his habit, and he was never seen at the factory in another position. His wife corroborated this statement and said that that was also his sitting position in his home.

Poliomyelitis.—The poliomyelitic cases comprise a group of thirty, among whom there were five adults and the others were children. Of the former three were tailors and two bricklayers. One of the tailors had the right upper and lower limbs involved. Another tailor had both upper extremities at first stricken, but later the left arm recovered. The third had the right arm and right side of the face paralyzed. Evidently here the cervical cord as well as the medulla was affected. The two bricklayers had both their right arm and both lower extremities involved. The identity of the condition in both patients was striking. It is evident that the five adults whose chief exertion was manifest in the upper limbs had the cervical portion of the cord involved, as the ganglionic cells of this part of the central nervous system supplied nerve fibers to the brachial plexus, hence to the upper extremities. Of the twenty-five children, ten had, in addition to one or both lower limbs, also one or both arms involved. Inquiry revealed that they belonged to very poor families, and being from 8 to 12 years of age, they had to do considerable amount of manual work at home, such as scrubbing, cleaning, etc. Thus the involvement of the upper limbs can be readily conceived. On another page the usual occurrence of the poliomyelitic process in the lower extremities in children was mentioned. The reason of it lies in the great activity of the limbs, which are in a state of development in young children.

Progressive Muscular Atrophy.—In a group of fifteen cases of progressive muscular atrophy of spinal origin, the affection began in the lower extremities in

one policeman and in one watchman; in two Italian street cleaners in one upper limb. The remaining eleven cases showed an onset in both hands. The latter patients were all either laborers or tradesmen. The occurrence of the disorder in the lower limbs of the policeman and watchman speaks strongly in favor of the view in my thesis.

Pernicious Anemia.—There were four cases of pernicious anemia in my series. In the men, three in number, evidences of degeneration of the spinal cord were present. They presented symptoms of ataxic paraplegia, with diminished or absent knee jerks. Two of them were laborers and one a collector for an installment house. The fourth patient, a woman, housewife, presented no disturbances of locomotion and the knee jerks were normal. Here again we have a corresponding link between the degree of overactivity of certain portions of the body and an organic lesion of that part of the nervous system which controls the affected portions.

Paresis. — Out of thirty-nine paretics twenty belonged to the class of individuals who lead a purely intellectual life. Teachers presented the majority. In them the mental symptoms were the most conspicuous. With the exception of the eyes, other physical symptoms were very slight, namely, tremor of hands, slightly increased knee jerks and no toe phenomenon. Nineteen patients were tradesmen in whom the physical as well as mental symptoms were equally developed. They presented a condition called "tabo-paresis," namely, symptoms of tabes, together with mental disturbances found in general paralysis of the insane. If we consider the combination of physical and mental efforts displayed in the occupation of tradesmen, we must admit that the above observation as to the morbid manifestations in these individuals is of no little interest and is more than a mere coincidence. Four patients of the entire group had juvenile paresis. Their ages ranged from 16 to 20. The mental manifestations made their appearance at the time of their entrance into college. It is a period of intellectual life when application and mental efforts are tested at their utmost. It is also highly interesting to notice the variability of the eye condition in the paretics. Among the tradesmen there were two jewelers and three bookkeepers. It is remarkable that in every one of these men optic atrophy and Argyll Robertson pupils were very striking and developed early in the disease. In the persons who led a purely intellectual life there were twelve teachers. All presented pupillary symptoms and some also palsies of the third nerve. Five cashiers of banks showed besides third nerve palsies also evidences of eye-ground changes. The inference is consequently the same as in the cases of tradesmen from the standpoint of the principle of "exhaustion."

Tabes.—In considering the group of cases of tabes, 47 in number, the inquiry was made as to the character of occupation and the degree of exertion of the tabetics. The largest majority (thirty-nine) were individuals who did a great deal of standing or walking and carrying heavy weights. In this group there were letter carriers, policemen, messengers, icemen, laborers and motormen of street cars. The lower extremities alone were at first involved and the tabetic process began with disturbances of locomotion. Out of the remaining eight patients, three presented at first ataxia of the upper extremities and diminution of knee jerks, so that the diagnosis of cerebellar disease was originally entertained. Two of these patients were stenographers and the third, a woman, worked at a laundry. The stenographers' duties were particularly laborious and their hours were very long. They eventually developed leg symptoms.

In connection with the subject of tabetic ataxia in the extremities, it is well to recall what was said on the introductory pages with regard to the sensory neurons. The continuous and uninterrupted flow of impressions received by our peripheral sensory apparatus is the most important factor in all muscular contractions and in the display of our joints. Should the organism be invaded by a poison, such as syphilitic in tabes, the overfunctioning tissues or organs naturally will suffer first. Hence the disorder of locomotion and coordination, which so much depend on the function of the sensory neurons.

Proceeding further with the analysis of tabetic manifestations with reference to the principle of "exhaustion," the following is observed: Three patients who led a sedentary life worked in poorly lighted rooms; two of them, clerks in the same establishment, were assigned offices with windows opening in a very narrow and small yard, so that often they had to use gas light. The third had to use gas light all day. He was cashier in a small store and his desk was in the back part of the store. All three when first seen presented optic atrophy without ataxia, but with much diminished knee jerks. Two patients were electricians working in very brightly illuminated rooms and glaring light for ten hours daily. They also presented optic atrophy as an early tabetic manifestation. At the International Congress of Medicine held in 1913 the effect of very bright light was considered as injurious to the eye, owing probably to the presence of ultraviolet rays. The early occurrence of optic atrophy in the two electricians is undoubtedly due to this latter circumstance.

Thirty-two patients of my entire tabetic series presented ptosis in one or in both eyes and Argyll Robertson pupil in one or both eyes. If we consider the extraordinary activity and the incessant display of the light reflex from the moment we awake in the morning until we close our eyes for sleep — if, moreover, we consider the activity of the levator palpebrae which keeps the eye open — we cannot be surprised at the fatigue of these overactive functions in a body which is under the chronic influence of syphilitic toxemia, and the early and frequent occurrence of Argyll Robertson pupil and ptosis in cases of tabes is to be expected.

CONCLUSIONS

The present study, while it does not explain every morbid manifestation, nevertheless is sufficiently suggestive as to the effect of overfunction of organs on their early morbidity. It teaches that a body which is potentially diseased, or which is under the influence of a disordered metabolism through the presence of a toxic material, will develop morbid phenomena primarily in parts functionally exhausted. The "exhaustion view," as we have seen, is demonstrated quite satisfactorily in syphilitic affections of the nervous system, in alcoholism, in plumbism, in acute infectious diseases such as anterior poliomyelitis, in profound anemias and in other conditions accompanied by profound metabolic disturbances of any nature. It explains the constant and almost uniform and earliest involvement of those portions of the body that are kept in a state of fatigue.

This observation points to a very important feature in the domain of prophylaxy. Bearing in mind the pathologic potentiality in cases of chronic toxemias, early treatment of the latter, combined with removal from the usual occupation at the earliest possible moment, is apt to prevent localized morbid manifestations such as we have seen above with regard to locomotion and eye manifestations in tabes, or localized palsies in intoxications, for example. A potential syphilitic individual will thus be able to avert for a long period of time the early oncoming of morbid manifestations of syphilitic or parasyphilitic character in the domain of the nervous system. The principle of prevention is here strikingly evident. The recognition and adoption of the view of "exhaustion" in affections of functional and organic nervous diseases appears to be far reaching.

1812 Spruce Street.

CORPUS LUTEUM EXTRACT IN THE NAUSEA OF PREGNANCY

PRELIMINARY REPORT

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My use of corpus luteum extract in the nausea of pregnancy is based on the presumption that there is more than a coincidence between the formation and disappearance of the corpus luteum of pregnancy and the cessation of the nausea. None of the theories based on the causative factor of fetal or syncytial toxins have worked well enough to encourage the hope that in them lies the solution of the problem. It is not unreasonable to suppose that there is sufficient absorption from the corpus luteum of pregnancy to account for the disappearance of the nausea, especially when one realizes that the nausea begins to diminish at the time the corpus luteum has reached its acme of development.

Acting on this idea, I have been administering, hypodermically, corpus luteum extract in doses of 1 c.c. (20 mg.) daily. This dose is in all probability too small, and will have to be increased materially, but this is a matter for investigation and will be fully dealt with in a subsequent and fuller report. The object of the present report is to call attention to the possibilities of the theory, in the hope that sufficient practical work will be done to determine whether or not it is of value.

So far, my experience with it has been encouraging. Five patients have been given the extract hypodermically and always intramuscularly, with the following results:

CASE 1.—Mrs. L., aged 27, in her third pregnancy, had severe nausea in this as in previous pregnancies. She was eight and one-half weeks pregnant, and was given four doses in all. She reported great relief after the first dose, and no nausea at all after the fourth. This in all probability was a neurotic vomiting, and as such is not a fair test. It should be discounted accordingly. I cannot believe that such rapid effect could result in the ordinary nausea of pregnancy.

CASE 2.—Mrs. R., aged 38, in the seventh week of her fourth pregnancy, had excessive nausea. In her three previous pregnancies, the nausea did not cease till after the fifth month. She had now had nausea for ten days. After nine doses the nausea was so relieved, though not entirely gone, that the patient described it as negligible and the treatment was stopped that further effects might be watched. The last dose was given two weeks ago, and there has not been any severe increase, though the patient is still slightly nauseated, but comfortable.

CASE 3.—Mrs. H., aged 24, had three pregnancies, all within three and one-half years. The patient was now twelve weeks pregnant, and the nausea was diminishing but still marked. She received eight doses in all and described herself as comfortable, with only occasional twinges of nausea. The last dose was given three weeks ago (the patient being now fifteen weeks pregnant), and there has been no return.

CASE 4.—Mrs. S., aged 24, nine weeks pregnant, in her first pregnancy, had nausea for one week severe enough to confine her to bed. She received four doses and was worse than ever. This case was a total failure. The patient has a large goiter, and possibly this is a factor in her case. Her nausea was controlled by lavage and large doses of bromid, but the corpus luteum showed absolutely no effect.

CASE 5.—Mrs. D., aged 30, now in her third pregnancy, had a hydatid mole removed in her first pregnancy at what would have been full term. In her second pregnancy, eighteen months later, another hydatid mole was removed at ten weeks. There was severe bleeding. In both these pregnancies the patient was excessively nauseated throughout, except for the last two months of the first one. She was now nine weeks pregnant, and had nausea severe enough to confine her to bed. She has so far received eighteen doses hypodermically. For ten doses she alternated between comfort and discomfort. Since the tenth dose she has had no nausea at all, and as yet no signs of degeneration of the ovum. Treatment is being continued on account of the possibility that it may have some effect in preventing a third hydatid mole. For more than a week it has been unnecessary, as far as the nausea is concerned.

These results (80 per cent. successful), in a very small number of cases, encourage me to persist until I can report a larger series. The one failure shows that it cannot always be depended on, but so far the results have been better than any other routine form of treatment, and in all probability, with increased doses, the method can be shown to have decided value.

1823 Pine Street.

DIPHTHERIA CARRIERS

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THE NECESSITY OF TAKING NOSE CULTURES IN THE DETECTION OF DIPHTHERIA CARRIERS

During the month of October, 1915, cases of diphtheria occurred in six different schools in widely separated communities of California. Among the measures used to control the disease was the taking of cultures from all contacts and the subsequent isolation of all carriers. The proportion of infected to the non-infected contacts in such outbreaks of diphtheria has been subject to great variation, and while the uniform taking of nose cultures with those from the throat will not appreciably reduce this variation, it will reduce to a minimum the missing of carriers. A study of the comparative statistics in this article, in which the personal equation has been eliminated by three persons making the examinations with checking of results, and

only typical granular type of diphtheria bacilli being considered positive, proves absolutely that if we are to control epidemics of diphtheria by the isolation of carriers, nose cultures must always be taken with those from the throat.

The tables indicate the importance of taking cultures from both nose and throat in such investigations. It will be noticed that Investigations E and F, in which cultures were taken only from the throat, the percentages of positives are markedly lower than those of the investigations in which cultures were obtained from both nose and throat. The importance of nose cultures is conclusively demonstrated in the percentage average of positives, as nose cultures gave 42.2, compared with the percentage average of throat cultures, 7.9.

Inasmuch as only 28 per cent. of all positive cultures in these investigations were from the throat, one can readily see how many positives, 72 per cent., would not have been detected if nose cultures were not taken.

TABLE 1.—RESULTS OF CULTURES IN SCHOOL INVESTIGATIONS FOR DIPHTHERIA

Investigation	Total	Total Positive	Positive Nose	Positive Throat	Positive Nose and Negative Throat	Negative Nose and Positive Throat	Positive Nose and Positive Throat
A	132	28	25	10	18	3	7
B	65	24	21	8	16	3	5
C	17	15	14	1	14	1	0
D	55	22	18	6	16	4	2
E	101	6	..	6	..	..	..
F	99	5	..	5	..	..	..

TABLE 2.—TABLE OF PERCENTAGES OF INVESTIGATIONS IN TABLE 1*

Investigation	Percentage of Positives	Percentage of Positive Throat	Percentage of Positive Nose
A	21.2	7.6	18.9
B	36.9	12.3	32.3
C	88.2	5.8	82.3
D	40.0	10.9	34.6
E	5.9	5.9	....
F	5.0	5.0	....
Average total percentages..	32.8	7.9	42.2

* Of all positives, 87.6 per cent. were found in cultures from nose; 28 per cent. of all positives were found in cultures from throat.

Another interesting observation is the total percentage average of positives, 32.8, the majority of which can be classed as diphtheria carriers. This large percentage is undoubtedly due to the fact that probably all the persons examined were recent contacts with diphtheria cases, as cases were present in the school examined.

THE USE OF THE SCHICK TEST IN DISTINGUISHING CONTACTS FROM CARRIERS

A point of great interest, in view of the rules of the California State Board of Health relative to contacts and carriers, was brought out in Group C of the preceding investigation. This group was composed of young adult students in a large university. In order to distinguish between the contacts and carriers, without waiting for the elapsing of the incubation period, it was decided to make use of the Schick test. With this test it was proved in forty-eight hours that the whole group was immune. The members of the group were accordingly classed as carriers, and so relieved of some of the inconveniences attending the quarantine of contacts. The results of the test were borne out by the fact that none of the carriers developed the disease. Another example of the value of the Schick test was shown in another investigation in which several carriers developed diphtheria, and in which the test was not used. Had the carriers in this group been given the Schick test as those in Group C, the nonimmunes would have been detected and could have been immunized before the development of the disease.

CULTURAL EXPERIMENTS WITH THE SPIROCHAETA PALLIDA DERIVED FROM THE PARETIC BRAIN

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AND
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Recently,[1] one of us described the successful implantation of spirochetes and the transmission of experimental syphilis to rabbits from the living paretic brain.

At present this experimental syphilis has been transmitted to five generations of rabbits.

The initial inoculation of brain was made into the testis of a large rabbit, June 11, 1915, and thirty-two days later, July 11, large numbers of spirochetes were demonstrable in both testes by aspiration. August 12, about two months after the initial inoculation, the right testis was castrated under aseptic precautions, one portion being used for implantation into other animals, and the remaining portion for cultural experiments.

After thorough maceration with normal saline, the material was planted deep into tubes of rabbit kidney ascitic agar mediums. The cultures were covered with paraffin oil and cultivated under anaerobic conditions. Six tubes were inoculated from this material. Examination of the tubes about four weeks later showed no visible growth, but spirochetes in moderate numbers were found in the depth of the medium in two tubes. This series was allowed to incubate further, and November 6 the two positive tubes were found to have visible growth in which a pure culture was found. Secondary cultures were made from these two tubes. Three weeks later, Nov. 27, 1915, a fine growth was seen in the second subcultures, which microscopically proved to be a pure culture in each case. Third subcultures were made from the richest of these two tubes. Jan. 3, 1916, subculture 3 showed a pure culture of actively motile organisms.

At present, over four months have elapsed from the time of the initial inoculation, and the organism has been carried through three successful subcultures, at the end of which time these are as actively motile and as rich as at first.

The question of a neurotropic strain with certain morphologic characteristics, different from other spirochete strains, has been suggested by the work of Noguchi,[2] Nichols and Hough,[3] and others. Clinical evidence points suggestively to the existence of such a strain. In the organisms which we have isolated from

1. Wile, U. J.: Experimental Syphilis in the Rabbit Produced by the Brain Substance of the Living Paretic, Jour. Exper. Med., 1916, xxiii, 199.
2. Noguchi, H.: München. med. Wchnschr., 1913, lx, 2484.
3. Nichols, H. J., and Hough, W. H.: Positive Results Following the Inoculation of the Rabbit with Paretic Brain Substance, THE JOURNAL A. M. A., July 12, 1913, p. 120.

general paresis, there is no morphologic difference demonstrable. In the rabbit testis, numerous short thick forms with few spirals were found. In the cultures from this material, however, the predominating form was the typical fine spirochete with many convolutions, identical, in fact, with those seen in early cutaneous syphilids.

It is worthy of note, however, that although we had rich material to begin with, the cultures grew much more slowly and much less luxuriantly than do those cultivated from the early cutaneous or mucous membrane syphilids. On the other hand, it is to be noted that they are extremely viable. Examination at present of the original cultures, which have been disturbed by frequent examination and transplantation, still shows moderate numbers of organisms, actively motile and apparently as viable as when first seen.

SANITATION AND THE CONTROL OF PELLAGRA

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That the incidence of pellagra is not decreased by improved sanitation and general disease prevention methods, and that it is materially increased by business depression and increased prices of food, is the conclusion that must be drawn from the experience obtained in this city during the past five years.

The following tables show the improvement in health conditions which have been secured since 1911 through improved water supply, excreta disposal by means of sanitary sewers, the general sanitation of the city, incineration of all waste and refuse, strict laboratory control of milk and water supply and the infections that are subject to laboratory control, market and food inspection, improved drainage, medical school inspection, and the various other methods used for human conservation in modern public health work.

TABLE 1.—COMPARISON OF GENERAL DEATH RATES PER THOUSAND

Year	White	Black	Total
1911	19.94	34.78	29.43
1912	14.99	28.55	21.46
1913	13.30	24.94	19
1914	12.27	25.80	18.62
1915	11.1	22.8	16.4

TABLE 2.—COMPARISON OF DEATH RATES UNDER FIVE YEARS PER HUNDRED THOUSAND; COMPUTED ON ENTIRE POPULATION

Year	Rate
1911	1,123.03
1912	655.94
1913	651.24
1914	644.11
1915	474.2

TABLE 3.—COMPARISON OF DEATH RATES FROM ENTEROCOLITIS PER HUNDRED THOUSAND

Year	Rate
1911	411.64
1912	320.84
1913	206.72
1914	220.02
1915	80

TABLE 4.—COMPARISON OF DEATH RATES FROM TYPHOID PER HUNDRED THOUSAND

Year	Rate
1911	100.98
1912	35.64
1913	50.09
1914	25.5
1915	9.2

TABLE 5.—COMPARISON OF PERCENTAGE OF DEATHS FROM COMMUNICABLE DISEASES

Year	White Per Cent.	Black Per Cent.	Total Per Cent.
1911	50.34	54.42	54.16
1912	40.27	61.05	53.57
1913	34.76	45.40	41.47
1914	31.86	44.21	39.74
1915	22.39	32.59	30.20

The percentages in Table 5 are computed to show the relation between the total number of deaths and the number of deaths from all known communicable diseases, including pellagra.

While this improvement was continuous, as shown in these tables, the death rate from pellagra shows a marked increase in 1915 over 1912, 1913 and 1914. In Table 6 is given a comparison of the death rates from this disease for the past five years.

TABLE 6.—COMPARISON OF DEATH RATES FROM PELLAGRA PER HUNDRED THOUSAND

Year	Rate
1911	38.83
1912	21.38
1913	16.69
1914	38.26
1915	64.6

The years 1912 and 1913 were marked in this section by exceptional prosperity. The trucking industry and other industries of the county were very prosperous. The cotton market was active, and there was a marked increase in manufacturing and building activities. There was plenty of work for all, wages were good, and the prices of food were from 15 to 20 per cent. lower than they are now. With the outbreak of the war in the middle of 1914, there was an immediate depression, which has been more or less continuous though less marked at this time than up to June, 1915. The increase in the incidence of pellagra and the increase in the death rate of this disease follow this business depression very closely.

In the rural sections of New Hanover County a special intensive effort at sanitation began in July, 1914. The effort was concentrated on excreta disposal and water supply in order to control intestinal infections, which were especially prevalent. By the beginning of 1915 every rural home, black and white, in the county had been supplied with a privy at the owner's expense. At that time there were but twelve privies in the rural district which were not provided with receptacles and in which there was not a more or less successful effort at fly proofing. These conditions were maintained throughout 1915. Indeed, there was a marked improvement in this respect during 1915. In December, 1914, Prof. C. W. Stiles and Dr. L. L. Lumsden of the United States Public Health Service made a survey of the rural sections of this county with special reference to the methods of excreta disposal in use. A second survey was made in December, 1915, by Prof. C. W. Stiles of the United States Public Health Service and Dr. George M. Cooper, director of the Bureau of Rural Sanitation of the North Carolina State Board of Health. The last survey disclosed the fact that on the system of scoring used by the United States Public Health Service, the rural sanitary index in New Hanover County has been increased in a single year by 45 per cent. The rural population has been instructed in all disease prevention methods with the exception of pellagra, the means of preventing pellagra being only recently established. The incidence of this disease in the rural section as in the city has increased

during the past year. This incidence among the rural population from the cases reported shows three cases per thousand inhabitants, while in the city the incidence is a little more than one case per thousand. Our experience here teaches us that there are a great number of mild cases of this disease which are not reported and of which we have no knowledge, only those being reported in which the patients present themselves to physicians and hospitals for treatment. The numerical relation existing between the rural and city cases is, we believe, about that stated above.

In our local experience these conclusions seem to be justified:

1. There is no existing relation between soil pollution and the incidence of pellagra.

2. Close supervision of all cases, disinfection, fumigation, isolation and the other usual means of controlling infection have no influence on pellagra incidence.

3. Business depression, lack of employment, a limited market for products, and increased price of food, with consequent increase of indigence, increase the incidence of pellagra very definitely.

SYSTEMIC POISONING WITH BISMUTH*

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Bismuth salts have been used for many years for diagnostic and therapeutic purposes, but their effects after absorption on the human system have received only scant attention. This is all the more remarkable in view of the fact that the other heavy metals have been the object of careful study in systemic poisoning, and are known to produce well recognized symptoms. Edsall has a very exhaustive article on metallic poisonings in Osler's "System of Medicine," but makes no reference to the toxicity of bismuth. The subject, however, has not been neglected so far as experimental work is concerned, as shown by the literature. As long ago as 1786, there were reports of vomiting, twitchings, dizziness and somnolence due to the ingestion of these salts. It was thought that these symptoms were due to impurities, particularly arsenic and lead, and it is possible that such was the case at that time.

In 1882 Kocher used bismuth subnitrate as a dusting powder on granulating surfaces. Although these wounds healed, rather severe constitutional symptoms followed the continued application in several cases. He observed a stomatitis progressing in some instances to ulcerations, diphtheritic gingivitis, dysphagia, nephritis, nausea and diarrhea. One of his patients died, and at necropsy large purplish spots were found scattered over the lining of the colon. Following his observations, others reported cases of similar type in which bismuth had been used for one cause or another.

Impressed by these reports, Steinfeld and Meyer, in 1884, undertook certain experiments in order to determine the toxicity of bismuth in animals. Their results showed that two forms of intoxication could be produced. The manifestations in the first or acute class were convulsions, dyspnea and bradycardia, with a fatal termination. In the second or chronic type, the animals showed marked lassitude, ulcerative stomatitis, anorexia, diarrhea, loss of weight and body heat, albuminuria, and sometimes tetanic contractions. The postmortem examinations in the latter class revealed ulceration and necrosis of the mucous membrane of the colon. Their explanation of this condition was that the bismuth circulating in the blood in a soluble form was precipitated by the hydrogen sulphid in the colon, and that the newly formed bismuth sulphid produced a necrosis by blocking the capillaries and lymph channels.

Other observers confirmed these experiments and showed that while bismuth subnitrate could be administered by mouth to dogs without untoward effects, very definite evidences of poisoning appeared after subcutaneous injections, producing the symptoms described by Steinfeld and Meyer. For example, one of Dalché's dogs received subcutaneous injections for twelve successive days. It died on the thirteenth day. Five days before death a brownish glistening line appeared on the gums of the anterior molars and on the mucous membrane of the inferior maxilla, and dark violet spots were seen on the mucosa of the left cheek. During the remaining days, similar lesions developed throughout the mouth, and at necropsy necrotic plaques were found on the lining membrane of the cheek.

Dalché's conclusions[1] were that the most striking feature of bismuth poisoning is the stomatitis. It is characterized by lesions of a brownish purplish color appearing on the tongue, buccal membrane and throat. It may remain stationary, but in the advanced cases the teeth are loosened, the gums become spongy, and there is a mild salivation. The breath has a fetid odor, and there is difficulty in swallowing. The lesion usually begins at the level of the molars and is most severe where the teeth come in contact with the mucous membrane. Generally these spots are covered by a whitish diphtheritic membrane surrounded by a blackish areola. Dalché believes that the stomatitis results from the elimination of the salt through the salivary glands, and may follow within a few days after the bismuth injection. Attention is called to the similarity of the stomatitis caused by lead, mercury and bismuth, lead being the least severe because it is not easily absorbed, except under certain conditions of peculiar susceptibility. Mercury stands midway between lead and bismuth. In view of the high atomic weights of these metals, Dalché suggested the possibility of all heavy metals producing similar lesions provided they are absorbed in sufficient quantity. Normally bismuth subnitrate is insoluble, but when it comes in contact with juices rich in albumin, changes occur, converting it into a soluble salt.

Dalché's experiments were repeated by other observers with *other* salts of bismuth, and similar results were obtained. Thus it was shown by the constancy of symptoms and lesions experimentally produced, despite the *variations* in salts, that the toxic effects are due to *metallic* bismuth. Up to the present year there have been forty-three reported cases of intoxication, thirteen of these fatal, following the local application of bismuth to granulating surfaces.

Quite distinct in symptomatology as well as in cause are those types of so-called acute intoxication follow-

* Read before Richmond Academy of Medicine and Surgery, Dec. 1, 1915.

1. Dalché, quoted by Mayer and Baehr: Surg., Gynec. and Obst., 1912, xv.

ing the *internal* administration of bismuth subnitrate. The great majority of these cases occur in children, and likewise in adults who have a definite inflammatory condition somewhere in the gastro-intestinal canal. Stimulated by the reports of several fatalities following the use of the subnitrate salt in the intestinal tract for diagnostic purposes, Boehme[2] threw considerable light on the subject by a series of experiments. He showed that bismuth subnitrate liberated nitrites whenever it was mixed with human stools, particularly those of children. By injection of this mixture into rabbit's intestine, nitrites could be demonstrated in the urine.

These animals presented a very definite clinical picture. There was noted in every instance an acute onset, dyspnea, and methemoglobinemia. As this syndrome closely resembled the condition following sodium nitrite poisoning, and was very dissimilar to the manifestation produced by bismuth applied locally, Boehme clearly established the relationship between the newly formed nitrites and the clinical results. Additional weight was given by a fatal case of bismuth subnitrate poisoning reported by Erich Meyer, who demonstrated nitrites in the urine, blood and pericardial fluid. Beck[3] believes that the intoxication occurs only when the production of the nitrites is greater than their elimination, which is chiefly by way of the kidneys. This conclusion, however, does not satisfy certain instances in which poisoning of the metallic type has followed the use of bismuth by mouth. In 1896 Kohn reported a case in which the administration of bismuth subnitrate in 5 grain doses, four times daily, produced the stomatitis and other lesions of pure bismuth absorption. Therefore, from these facts we are justified in assuming that while bismuth intoxication may occasionally arise following the use of the subnitrate salt internally, the great majority of such instances are due to the formation and subsequent absorption of nitrites from the large intestine. The records up to this year show that there have been twenty-one cases of poisoning with eleven fatalities from the employment of bismuth internally. Fortunately the subnitrate salt is very rarely used now by roentgenographers, and poisoning in this line of diagnosis is relatively infrequent.

My interest in this subject was aroused by a patient who presented himself for treatment in the medical department of the Medical College of Virginia Dispensary:

History.—Man, colored, aged 23, whose chief complaint was sore mouth, and whose family history was unimportant, had a negative previous history with the exception of a stab wound in his left lower chest, which was followed by pneumonia two months prior to his present illness. The hospital records show that at the expiration of the acute infection, his left pleural cavity was tapped and a large quantity of pus was evacuated. At this time 500 c.c. of bismuth subnitrate paste (33⅓ per cent. bismuth subnitrate and 66⅔ per cent. petrolatum) were introduced. Ten days later 750 c.c. of the paste were given. He had not been exposed to lead, nor had he been taking mercury in any form.

The patient stated that two weeks before, which was the date of the second injection of bismuth, he began to complain of sore places in his mouth. Starting on the tongue, three spots extended to the gums, cheeks and throat. He had had increasing difficulty in swallowing, and for several days he had been able to take only liquids in small amounts. He had persistent headache, dizziness on arising and marked weakness. His appetite had been very poor, with no nausea but extreme constipation. There had been no disturbance of vision or hearing.

Physical Examination.—The patient was poorly nourished, and flabby muscles showed loss of subcutaneous fat. The skin had a pasty sallow color. Eyes: The sclerae were pearly. The mucous membranes were rather pale. The pupils were equal and reacted normally. The ears and nose were negative. Mouth: The gums were somewhat cyanotic and definitely swollen. The jaws could be separated with difficulty, and as the tongue was protruded there was seen extending along each side a violet colored sloughing area covered by a sticky whitish diphtheritic membrane. This lesion measured 2 cm. in width at the base of the tongue and approximately 5 mm. at the tip. Its borders were well defined and practically continuous. Scattered over the buccal mucosa, there were a number of discrete as well as confluent spots of a similar character varying in size from a pea to the largest one, which occupied the entire portion of the right cheek from the first molar to the anterior pillar of the tonsil. On this side, the parotid gland was swollen and tender to pressure. Similar lesions were present under the tongue. In an unbroken line along the border of the gum adjacent to the teeth of both upper and lower maxillae, there was a heavy purplish blue deposit about 2 to 3 mm. in width. An identical picture was present along the inner borders of the teeth, though not to such an extreme degree. The gums were soft; the teeth were loose, and the salivation was so pronounced that the patient lay with his mouth over a basin to catch the continuous flow of saliva. His throat could not be examined. The glandular system was negative. The heart and lungs were clear with the exception of evidences of fluid in the left pleural cavity. The abdomen and extremities were negative. Hemoglobin was 80 per cent., leukocytes 14,000. The differential count was normal. Urinalysis revealed: specific gravity 1.020, a heavy cloud of albumin, a faint trace of sugar, many granular and hyaline casts, and a great excess of epithelial cells. After the patient's admission to the hospital, his urine became dark brown, and on standing showed a heavy black sediment. The total amount in twenty-four hours was 500 c.c. The patient's temperature varied from 90 to 110.

The Roentgen examination of the chest revealed a dense circumscribed shadow in the left pleural cavity. After the evacuation of the encapsulated bismuth by Dr. W. T. Graham, the distressing symptoms gradually subsided. Subsequent urinalyses indicated a rapid restoration of the kidneys, as shown by the disappearance of the albumin, sugar and casts.

When the patient was seen two months later, the ulcers in his mouth had entirely healed, but the steel blue lines along the borders of his teeth were still present. In order to exclude the possibility of systemic poisoning through contamination with one of the heavy metals occasionally found in the commercial bismuth, 5 liters of urine were evaporated to dryness, and the residue was tested for antimony, arsenic, lead and mercury. None was found, but bismuth was present in large quantities. I am indebted to Dr. Jacob Rosenbloom of Pittsburgh for these tedious analyses.

The profound influence of bismuth on the organs is well shown by a postmortem report of Mayer and Baehr,[4] who had the opportunity to study the condition of a patient dying six weeks after the injection of 3 ounces of Beck's paste. They found the kidneys showing the most intense parenchymatous change. The glomeruli were practically normal, but the epithelium in all the tubules was in an advanced stage of degeneration. Most of the tubules presented widely dilated lumina, filled with cellular débris and hyaline material. Throughout the organ the capillaries were intensely congested. The liver showed a mild cloudy swelling and some cellular disintegration. The small intestine was deeply injected, and contained areas of necrosis increasing in intensity as the ileocecal valve was approached. The mucosa from the pyloric ring to a

2. Boehme: München. med. Wchnschr., 1908, lv, 89.
3. Beck, Emil G.: Ann. Surg., February, 1914; Toxic Effects from Bismuth Subnitrate, THE JOURNAL A. M. A., Jan. 2, 1909, p. 14; Tr. Sixth Internat. Cong. Tuberc., 1908.
4. Mayer and Baehr: Surg., Gynec. and Obst., 1912, xv, 309.

point 15 cm. from the valve was stippled with a fine black pigmentation. The individual particles were visible only on close inspection, and at a distance gave the membrane a steel gray color. In the lower ileum the crypts over Peyer's patches were marked by coarser black granules. In the large intestine, they found the entire mucosa undergoing necrosis and covered by a greenish black diphtheritic membrane. The deeper portion was infiltrated with polymorphonuclear leukocytes. The rest of the submucosa was thickened and edematous. Microchemical tests showed the presence of bismuth in the liver, kidneys, spleen and intestine. The absence of methemoglobinemia and cyanosis and the gradual course of the disease eliminated the element of nitrite poisoning.

Although most observers state that bismuth is absorbed from granulating surface only after it has been converted into an albuminate, Mayer and Baehr, after demonstrating the metallic granules within the leukocytes, are disposed to believe that absorption is largely carried on by phagocytosis. These heavily laden cells were found in the muscular tissue at a considerable distance from the portal of entry. According to these writers, the excretion of bismuth is mainly through the kidneys and the gastro-intestinal tract, although others have demonstrated it in the bile, milk and saliva. The weight of evidence indicates that metallic bismuth poisoning results generally from the *local* application, whereas the toxic effects following the internal administration of the subnitrate salt result as a rule from the formation and absorption of nitrites.

Bismuth, therefore, is not the innocuous drug once described, but to some individuals may prove to be most dangerous. Sixty-five cases of poisoning with twenty-four fatalities should serve as a warning against its indiscriminate use. Even Beck admits that of the 1,100 cases treated by him, 30 per cent. showed pigmentation of the gums, thus indicating the absorption of the bismuth and its potentially toxic effects. We as medical men cannot refrain from noting with apprehension the unmistakable action of this agent on the kidneys and other organs in susceptible individuals. While we recognize the value of bismuth in diagnosis, we should not lose sight of its fate in the body after absorption. Although the actual number of cases of poisoning is not relatively large, yet there must be many instances of mild intoxication which have not been recognized. Realizing this selective action of the drug on the kidneys, it would seem that we are subjecting our nephritic patients to considerable hazard when any salt of bismuth is administered in large quantities internally or locally.[5]

8 West Franklin Street.

5. In addition to the references already given, the following will be found of interest:—
Camerer: U. S. Naval Med. Bull., January, 1911.
Ely: Med. Rec., New York, January, 1912.
David, V. C., and Kauffman, J. R.: Bismuth Poisoning, THE JOURNAL A. M. A., March 27, 1909, p. 1035.
Pancoast: Univ. Pennsylvania Med. Bull., Aug. 12, 1906.
Warfield, Louis: Am. Jour. Med. Sc., November, 1913.

Chronic Organic Disease.—Public fear and public activity are easily excited by the mental picture (more or less accurate) of the horrific micro-organisms of epidemic disease, while the continuous ravage of chronic cardiovascular and renal diseases passes unnoticed. It is true that we now recognize micro-organisms as the principal and immediate cause of chronic organic disease, but this is not now known to the public and it is ignored if it is actually known by many physicians.—Eugene Lyman Fisk, M.D.

REPORT OF TWO CASES OF CARDIOVASCULAR DISEASE CAUSED BY STRICTURE OF THE URETHRA

N. P. YEARDLEY, M.D., PARKERSBURG, W. VA.

CASE 1.—*History.*—Man, aged 37, white, merchant, height 5 feet 11 inches, weight 150 pounds, with unimportant family history, has had the ordinary diseases of childhood. He contracted gonorrhea eighteen years ago, which ran a protracted course. He had a crop of venereal warts which were cut off. Twelve years ago, his legs swelled, and his arms and legs were cold all the time. He had great trouble keeping warm. Accompanying these symptoms, a white urethral discharge, tenderness in the right hypochondrium, and pains in the lower abdomen developed. He was disturbed at night by painful and tingling sensations in the right arm. While at work he suffered from paroxysms of pain of a dull boring character, located in the epigastrium. These continued at semimonthly and monthly intervals over a period of two years, when deep jaundice developed. Following one of these attacks, in 1911, he was taken to the hospital, and the gallbladder was opened and drained. The jaundice disappeared. Eight months after operation, he developed a constant, aggravating pain in the back in the lumbar region, which has remained since. Later sugar was found twice in the urine. He received two injections of salvarsan without benefit to the symptoms.

Symptoms.—Subjective: The patient complains of a constant dull pain in the right hypochondriac area. He is dizzy on exertion; when lying in bed or in the barber's chair he becomes dizzy when he turns on the right side; the arms and legs are always cold; he has constant pain in the back; he gets up at night three or four times to urinate; he has gas on the stomach and bowels, and is able to do but little work.

Objective: The patient is well developed and fairly well nourished. The temperature is normal; pulse 85, large, irregular, tension weak; respiration 18. The skin is very pale, the teeth decayed. The oral and nasal cavities and the lungs are normal. The heart is enlarged and the tones weak, and irregular on exertion. There is a scar over the gallbladder. There is tenderness over the right hypochondrium and epigastrium. The liver is impalpable. The intestines are distended with gas. The extremities are cold and moist, the nervous system normal. Examination of rectum reveals the prostate enlarged and nodular. In the urethra is found an extensive, soft, irritable stricture, with two points of stenosis involving the bulb and penile urethra. It admits a No. 16 French sound. When the stricture has been sufficiently dilated, the urethroscope shows the prostatic urethra and verumontanum intensely congested. In the urine are a few pus cells, but no sugar or albumin.

Treatment and Course.—The stricture disappeared gradually after the use of sounds for a period of six months. In the meantime the patient's digestion has become normal with a resultant gain in weight of 30 pounds; the complexion has become pink; the patient's strength has returned and the symptoms have disappeared, with the exception of the pain in the back and the nocturnal urination. These improve gradually under topical applications to the prostatic urethra and massage, and have now nearly disappeared.

CASE 2.—*History.*—Man, aged 29, white, porcelain worker, weight 145 pounds, height 5 feet 11½ inches, with unimportant family history, has had the ordinary diseases of childhood, was sick seven weeks with lead poisoning at the age of 21, and had gonorrhea three years ago. The present trouble started nineteen months ago with a marked case of icterus; in the morning he felt tired and worn out until he got "warmed up" by exercise; he had weak spells frequently; he slept poorly, and would waken from sleep with a start, "almost jump out of bed and be all a tremble." Ten months ago, he felt tingling and painful sensations in the legs and left arm, accompanied by a smothery sensation. He went to bed; he felt shaky all over; the attending physician found the liver and spleen enlarged. The patient was confined to bed four months and to the house six weeks.

Symptoms.—Subjective: At the present time the patient complains of dizziness, palpitation of the heart, of feeling very weak and of having a constant breathlessness. After resting for some time he feels an inability to use the extremities. He experiences tingling sensations and cramps in the muscles of the leg on walking. He suffers also from cold hands and feet, constipation and gas.

Objective: The temperature is normal; pulse 80, large, low tension, regular; artery thickened; respiration 15, audible. The skin is jaundiced, but otherwise negative. There is dilatation of the right temporal and superficial cervical veins. The mucous membranes are slightly pale, the conjunctivae jaundiced. The throat and nasal passages are negative. The supraclavicular and postcervical lymphatic glands are palpable; pulsation is seen at the jugulum. The thorax is long and flat, and is hyperresonant on percussion. The lung borders are at the seventh rib in front and at the eleventh articulation behind; vesicular breathing is diminished in intensity and roughened; expiration is prolonged. The apex beat of the heart is absent; the pulsation of the right ventricle is seen in the sixth and seventh interspaces near the left sternal line. The superficial cardiac dulness is increased downward and to the left. The heart is irregular at times, the pulse remaining constant; the tones are weak, and are heard best at the lower end of the sternum. Examination of the abdomen reveals epigastric pulsation; the liver is impalpable; the splenic boundaries are normal; there is tenderness on pressure over the epigastrium. The extremities are cold and clammy; the palpable blood vessel walls are thickened; the muscular tone is good.

The pupils react normally to light, accommodation and convergence. The deep reflexes are normal with the exception of the patellar, which is diminished. The peripheral nerves are normal. The prostate is enlarged, the right lobe hard. Examination of the urethra reveals extensive stricture, soft in consistency, occupying the bulb, scrotal and penile sections, extending to within 1 inch of the meatus, having three points of constriction. The caliber is No. 18 French. Albumin and sugar are absent from the urine; pus cells are present; there are no casts. The Wassermann test is negative.

Treatment and Course.—The stricture resolved readily under treatment with sounds. The patient has now been under treatment for two months; he has gained in strength and 10 pounds in weight; the jaundice has nearly disappeared; the pulse tension has improved; the pulsation of the right ventricle is no longer seen. In brief, the different manifestations have improved *pari passu* with the resolution of the morbid urethral process.

A CASE OF SYMMETRICAL GANGRENE OR RAYNAUD'S DISEASE ASSOCIATED WITH EPILEPSY

DAVID F. WEEKS, M.D., AND DAN S. RENNER, M.D.,
SKILLMAN, N. J.

J. T., aged 23, Italian, a well-nourished man, was admitted to the New Jersey State Village for Epileptics in October, 1912, suffering from epilepsy of the grand mal type, with seizures occurring both nocturnally and diurnally.

From his admission to the village to his admission to our hospital, Nov. 1, 1915, he had required no special medical or surgical attention except that in June, 1913, he was treated for a lime burn of his feet, and in July of the same year for ivy poisoning. From both of these conditions he made good recoveries.

Oct. 25, 1915, following a series of convulsions, he complained of pain in his left foot and ankle. Examination showed the temperature normal and the pulse slightly accelerated, but failed to reveal any reason for the pain. The patient was put to bed, and the ankle was painted with tincture of iodin.

Four days later considerable swelling of the ankle was noticed; there was no pitting on pressure; the pain still continued. Compresses of magnesium sulphate in saturated solution were applied without beneficial results.

October 30, the rectal temperature was 104 F. The foot was very painful to touch and manipulation. Magnesium sulphate compresses were continued, and 5 grains of sodium salicylate administered every four hours.

November 2, the patient was transferred to the hospital. Unguentum ichthyol, 25 per cent., dressings were applied, without benefit. The rectal temperature at this time was 103.8 F.

November 3, there was some bluish discoloration of the toes and dorsum of the foot, which continued until the 8th, when several punctures were made in the toes, following which they became pink, the swelling was somewhat reduced, and the foot became less painful.

November 10, the right foot and ankle showed some bluish discoloration. The skin of the dorsum of the left foot showed a tendency to slough. The left leg showed marked discoloration, extending to the junction of the lower and middle thirds. Three days later, while this foot was being dressed, the skin broke on the plantar surface and was removed. The skin slough continued until the central portion of the plantar surface was removed, with a portion of the skin covering the instep.

The discoloration progressed up both legs, covering equal and corresponding areas on each leg. The color was most pronounced on the left leg. There was at this time some maceration between the toes of the left foot. The toes of the right foot were beginning to atrophy; they showed the characteristic waxy appearance. About this time a few blebs filled with serum appeared on the inside of the right instep.

November 16, the patient showed marked toxic symptoms, and failed steadily throughout the day and night. The discoloration progressed up both legs.

On the morning of November 17, the course of the internal saphenous vein was distinctly outlined as a bluish green line over the lower third of the left leg. This discoloration had progressed to the middle third of the leg at the time of death, which occurred at 5 p. m.

The bluish discoloration had steadily progressed up both legs to the junction of the middle and upper thirds, covering corresponding areas on both legs a little higher on the inner than on the external surfaces, and somewhat darker on the left than on the right.

SUMMARY

The duration of the disease was twenty-three days when it terminated in death.

It was associated with epilepsy in a foreigner (Italian), among whom the disease is said to be most frequent and severe.

As far as we are able to learn, it is the first attack our patient ever had.

A blood examination made on the eighth day of the disease showed a leukocytosis of 10,000, and hemoglobin, 65 per cent.; the blood cells not counted.

From the available history, it was not the result of hereditary transmission.

Hyperesthesia to touch was a prominent symptom. Pitting on pressure was absent during the entire course of the disease.

The patient had five grand mal convulsions during this illness.

Mental Manifestations of Pellagra.—W. F. Lorenz in *Public Health Reports* thus sums up his conclusions after a study of the mental manifestations of pellagra: The psychosis that accompanies pellagra has the characteristics of the toxic psychoses in 90 per cent. of the uncomplicated cases admitted to an institution for the insane. It has great resemblance to the acute alcoholic psychoses. When pellagra develops in an individual already insane synchronously with the physical manifestation, a mental confusion or delirium may be added to the existing psychosis. Were an etiology to be suggested from the mental disturbances alone, the causes would fall among a group of agents similar to alcohol, in that they are not products of bacterial or parasitic invasion of the body, but chemical intoxicants in the narrower sense.

New Instruments and Suggestions

THE PREPARATION AND PRESERVATION OF COMPLEMENT

LOYD THOMPSON, PH.B., M.D., HOT SPRINGS, ARK.

Nearly all small serologic laboratories are confronted by the problem of securing guinea-pig serum for the Wassermann and other complement fixation tests. Where only a few tests are made at a time, and a pig is sacrificed each time for his blood, the expense often becomes greater than is justifiable. This may of course be partially overcome by bleeding the pig from the heart. Even so, considerable complement may be wasted, and another pig must be bled the next time tests are to be made.

Complement may be frozen and preserved at a low temperature (—15 C.) for several months, but most small laboratories are not equipped for such procedures.

Austin (THE JOURNAL, March 14, 1914, p. 868) advocated making a 40 per cent. dilution of the guinea-pig serum with 25 per cent. sodium chlorid solution. Then in his tests he used 0.6 per cent. salt solution instead of the usual 0.9 per cent., and states that by so doing he gets approximately 0.9 per cent. in his tubes.

In order to secure accuracy of dilution as well as to secure a suitable dilution for titration, the following technic has been devised by me and is now used in my laboratory:

An 8.1 per cent. sodium chlorid solution is prepared and autoclaved. Fresh guinea-pig serum is diluted with this solution 1:1, and sealed in small tubes, 2 c.c. to the tube. It will be seen that each tube contains 1 c.c. of pure guinea-pig serum containing (supposedly) 0.9 per cent. of sodium chlorid, or 0.081 gm. The entire sodium chlorid content of each tube is 0.09 gm., corresponding to the quantity each 10 c.c. of normal salt solution should contain.

Therefore, in order to make a solution containing 0.9 per cent. sodium chlorid, it is necessary only to add 8 c.c. of distilled water to the contents of each tube, and we have a 1:10 dilution of guinea-pig serum.

This is titrated before each test, and the unit usually used in my laboratory is 0.5 c.c. Allowing 3 c.c. for titration, it will be seen that each tube of "salted" serum will make enough of the diluted complement for the titration and for fourteen tubes, that is, enough for five tests and positive and negative controls.

It is the custom in my laboratory to bleed from the heart three good sized guinea-pigs at one time, securing from 20 to 30 c.c. of blood, which yields from 10 to 15 c.c. of pure serum, and lasts from ten days to two weeks, depending on the number of tests being made. While the complement is usually not kept longer than two weeks, some six weeks old has been used, and was apparently as active as ever.

A NEW CAVITY SIGN IN PULMONARY TUBERCULOSIS

F. W. WITTICH, A.M., M.D., POKEGAMA, MINN.
Superintendent, Pokegama Sanatorium

Last September, while I was examining a patient with chronic advanced pulmonary tuberculosis with a fair-sized cavity, the stethoscope was placed over the cavity when the patient swallowed. I was startled at the loudness as well as the character of the sounds elicited. A series of coarse crackles was heard that seemed directly beneath the bell of the stethoscope.

It frequently happens that in the course of routine examinations of the phthisical chest when the patient is instructed to breathe out, cough and breathe in, he will at the end of inspiration unconsciously and involuntarily swallow, so that the normal reflex of deglutition is heard and familiarized. It sometimes happens that the normal sounds produced in the chest by swallowing follow so closely the fine posttussic crepitations characteristic of tuberculous involvement that the two seem blended, misleading an inexperienced auscultator unless he has noticed the patient's swallowing.

After the abnormal sounds were heard in the case mentioned above, the stethoscope was transferred to a portion of the lung supposed to be fairly unaffected, and the ordinary swallowing sound seemed distant and muffled in comparison. When the stethoscope was returned to the cavity area, the former sounds were again produced. The area of abnormal sounds corresponded fairly accurately to that of increased vocal resonance, bronchial breathing, and whispering breath sounds.

In the belief that the sign might be of some value in confirming one's diagnosis in doubtful cases of excavation, it was used whenever possible as a routine measure in chest examinations. Very seldom did the sign fail to be obtained in greater or less degree where the other physical signs of cavity were present. Except as a confirmatory sign, it did not seem to be of special value until a case came up in which the signs of slight excavation were doubtful. The swallow sound was strikingly present only over the area questioned, and a diagnosis of cavity was made which was later confirmed when the excavation became more extensive and there was no doubt as to its existence.

The normal act of swallowing produces a uniform sound in most persons. It is caused by the tongue, the contraction of the muscles of the pillars of the fauces, and the elevation of the larynx, particularly the contraction of the mylohyoid muscle in the floor of the mouth, which was shown by Kronecker and Meltzer (*Arch. f. Physiol.*, 1883, suppl. vol., p. 328; *Jour. Exper. Med.*, 1897, ii, 453) to be the most important factor in shooting food suddenly through the pharynx into the esophagus. A second or minor sound is apparently caused by the peristaltic movement of the musculature of the esophagus. The sound is of most value when water is not swallowed, as there is usually a dry squeak produced when nothing is swallowed that is of sufficient intensity to be auscultated.

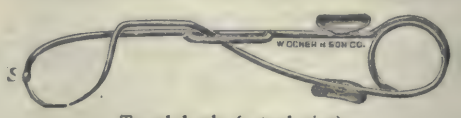
There is no claim of originality in the observance of the sign. It is merely suggested because I have not seen any statement of its having been used before. If found by other observers to be of any diagnostic value it merits further trial.

TOWEL HOOK

R. M. HARBIN, A.B., M.D., ROME, GA.
Fellow of the American College of Surgeons

Advantages of these towel hooks are:

1. They furnish a ready means for constructing a coffer dam that will prevent skin contact of viscera. If the edges of the incised skin are transfixed through the middle section



Towel hook (actual size).

of a towel, folding the towel back will conceal the hooks throughout the operation.

2. Having short handles, these hooks do not require to be removed when the whole hand is introduced into the incision, and they will not interfere with the use of the retractors, or traumatize the skin.

3. They are inexpensive. Eight or ten would be required for an ordinary incision, and they may be strung on a long piece of tape.

4. The shoulder *S* prevents the towel from receding from the edge of the skin, and the size of these hooks may be increased somewhat for a long incision.

Scope of Physician's Activities.—Every physician should act in the capacity of a teacher, preacher and health superintendent.—John W. Drake, *Jour. Oklahoma State Med. Assn.*, February, 1916.

Therapeutics

AMEBIC DYSENTERY

The value of ipecac in the treatment of bowel infections with the endameba has long been known, as has also the disagreeableness of the treatment. A. Rogers' assertion,[1] in 1912, that the soluble salt of emetin, the active principle of ipecac, could be given hypodermically to cure amebic dysentery, was welcome. The truth of this assertion has now become generally established, and the points for discussion are the best method and the best dose, and the prevention of recurrences of the disease.

Vedder[2] recently discussed the present status of the treatment of this disease, and Lyons[3] answers some of the suggested questions. Lyons finds that emetin will probably not act locally in the intestines, but must be absorbed to act, and hence kills endamebas only in the tissue. When they are killed, the lesions heal. Emetin is irritant to the stomach and intestines, and causes vomiting and diarrhea when given by the mouth, unless in small doses. It will cause diarrhea if given too long by the mouth or subcutaneously, and the best method to give it is subcutaneously. Intramuscularly it is too irritant, and intravenously too dangerous. In the colon it is more irritant and no more efficient as a bactericide than some other antiseptic, a silver salt, for instance. The soluble hydrochlorid is slightly acid, and even in small doses subcutaneously will cause pain and some considerable local irritation; but if the dose is small, this inflammation is not serious, and the induration is not great.

Lyons finds that the best dose in an average case of endamebic dysentery is for an adult one-third grain of emetin hydrochlorid three times a day, given hypodermically, and this dose should be continued from one to two weeks, or at least four days after the stools became formed. When it is given for longer than two weeks, a diarrhea is liable to be caused by the emetin.

Previous to the emetin treatment, Lyons gives a saline cathartic, and castor oil or a saline occasionally throughout the treatment. This not only washes out the dead endamebas, but may also cause the encapsulated germs to change their form into one that the emetin can attack. It is these encapsulated endamebas which cannot be killed by the emetin that often cause recurrences.

Permanently to eradicate the disease he advises giving a second series of emetin injections two weeks after the first, and a third short series after three weeks more, and, if there has been a recurrence, even a fourth series later.

The only undesired effects of emetin injections in the dose recommended, besides the local irritation, are vomiting and diarrhea. Large doses have caused peripheral neuritis, purpuric eruptions and edema. Emetin may, of course, be given by the mouth if there is a serious objection to hypodermic administration, but it is ordinarily inadvisable.

Twenty-five per cent. of Lyons' cases were recurrences; hence the necessity for repeated bacteriologic examination of the feces, and the wisdom of the intermittent treatment advised.

Not every patient who shows endamebas in the stools is ill. Some become tolerant, and are then carriers. Emetin is not very successful in these cases. Vedder suggests colon washing with quinin or silver solutions.

Barlow[4] reports a study of endameba dysentery in Honduras. He examined forty cases from eight to fourteen months after cessation of treatment, and found that 80 per cent. of the patients did not have a relapse for seven or more months, if they were treated for ten days continuously by not less than 1 grain of emetin per day. A shorter number of days of treatment allowed relapses, and a combination of the emetin treatment with ipecac by the mouth did not prevent such relapses. He found it preferable to give the emetin once a day in 1 grain doses.

Ravaut and Krolunitski[5] found the endamebas in the dysenteric stools of some French soldiers in northern France. In these cases they did not find emetin injections very satisfactory. They did, however, have success with the administration of salvarsan intravenously.

1. Rogers, A.: Brit. Med. Jour., June 22, 1912, p. 1424.
2. Vedder, E. B.: Origin and Present Status of the Emetin Treatment of Amebic Dysentery, THE JOURNAL A. M. A., Feb. 14, 1914, p. 501.
3. Lyons: Am. Jour. Med. Sc., July, 1915, p. 97.
4. Barlow: New York Med. Jour., Oct. 23, 1915.
5. Ravaut and Krolunitski: Bull. et mém. Soc. méd. d. hôp. de Paris, Oct. 21, 1915.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

LYSTERS PREPARED CASEIN DIABETIC FLOUR.—Milk casein to which has been added a leavening mixture consisting of sodium bicarbonate and potassium bitartrate and also some sodium chloride, and saccharine 0.057 Gm. per 100 Gm.

Actions and Uses.—This flour is employed in cases in which carbohydrates are contraindicated, such as diabetes, etc.

The nutritive value of 500 Gm. of Lysters prepared casein diabetic flour corresponds to approximately 2,195 calories, of which 2,030 calories are due to protein and 165 calories are due to fat.

The same quantity of milk represents 360 calories, of which 84 are due to protein and 177.6 to fat.

Dosage.—Lysters prepared casein diabetic flour is said to be adapted for the preparation of muffins. Of these three to six may be consumed daily.

Manufactured by Lyster Brothers, Andover, Mass. No U. S. patent or trademark.

ANTISTREPTOCOCCUS SERUM (See N. N. R., 1916, p. 302).

E. R. Squibb & Sons, New York.

Antistreptococcus Serum Rheumaticus.—Produced from strains of streptococcus from the joints and blood of cases of rheumatism. Intended for use in acute articular rheumatism. Dosage, from 20 to 50 Cc., repeated in twenty-four hours, and again if necessary; administered intravenously, or subcutaneously if intravenous administration is impracticable.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET . . . CHICAGO, ILL.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, FEBRUARY 26, 1916

THE EXERCISE OF WALKING AND RUNNING

A familiar furniture advertisement reminds us that, inasmuch as one third of our life is spent in bed, we can well afford to give some consideration to the attainment of comfort during that period. It is equally true that another large fraction of our daily experience consists in walking. Even a seemingly sedentary person indulges in the movement of forward progression to an extent which he may scarcely realize. According to F. G. Benedict, very few persons close a day of ordinary life without having walked a distance of not less than two or three kilometers (between one and two miles), and the actually studied movements of a person who might be classed as an ordinary "office worker" showed that the average distance walked per day amounted to seven miles.[1] If we add to such facts the consideration that walking is a part of the necessary business routine of large groups of persons, it is surely commendable to make inquiries into the physiologic aspects of this form of exercise or bodily movement. An elaborate study of the subject has lately been completed in the Boston Nutrition Laboratory of the Carnegie Institution of Washington.[2]

Theoretically, in moving the mass of the individual in a horizontal direction, no special work should be required of the human body as a machine beyond that for overcoming the resistance of the air. As a matter of fact, however, it is pointed out that when a person is walking, not only is energy required for the external muscular exercise, but also a heat production is necessary for the entire maintenance of the body activities, including muscular tonus, the work of circulation, respiratory muscles, and the external work of balancing the body in an upright position, none of these activities contributing directly to the work required to move the body in a horizontal direction. The energy expenditure of the body in walking thus becomes a complex made up of numerous contributions for special incidental purposes. The mechanical processes incidental to walking, even at a moderate pace, usually involve some extraneous muscular movements apparently not directly connected with the motion of forward progression, such as the more or less vigorous swinging of the arms and a not inconsiderable raising of the body weight with each step. Since these extraneous muscular movements do not necessarily have an effective value in transporting the body weight or the superimposed load in a horizontal direction, the problem of finding the calorie requirement for such transportation of weight becomes an exceedingly complicated one.

Some of these items which have been ascertained experimentally in the Boston laboratory are little short of surprising. Thus it was found that when the arms are swung vigorously, as so commonly happens in walking and particularly in brisk forms of this exercise, the metabolism may be increased more than 125 per cent. Furthermore, in some of the experiments it was ascertained that as much as one fifth of the energy expended by an average sized man in walking is required merely to raise the body at each step. If to this is added a certain amount of energy necessarily required in turn to lower the body each time after it has been raised, it will become apparent that a very important factor in the energy consumption in walking in a horizontal direction may be the type of step employed.

When the speed of progression is increased, as happens in rapid walking and still further in running, there is not only a considerably greater total expenditure of energy, but also a larger output per unit of progress accomplished. From the standpoint of the energy involved, therefore, appropriate walking is an exercise physiologically more economical than is running over the same distance. The apparent disadvantage may be accounted for in a variety of ways. In rapid walking there is commonly a very considerable extraneous muscular movement, the arms being swung back and forth vigorously with each step. Aside from this is the added fact that there is a change in the mode of locomotion. In running, the steps are taken much more rapidly and considerably shortened, and the body is raised to a much higher point at each step. The body is actually lifted to nearly twice the height that it is raised during walking. These facts alone serve to explain why, in walking, work can be done more economically than in running. Benedict and Murschhauser[2] suggest that any type of locomotion, therefore, which minimizes the raising of the body is the most economical. As a natural outcome of the study it will be seen that it would be desirable for athletes and others interested in the work of forward progression to develop a gait which will eliminate these two apparently unnecessary and extraneous factors, each of which requires the expenditure of a considerable amount of energy which is not directly contributory to the motion of forward progression.

1. Benedict, F. G.: Proc. Am. Phil. Soc., 1910, xlix, 162.
2. Benedict, F. G., and Murschhauser, H.: Energy Transformations During Horizontal Walking, Carnegie Institution of Washington, Publication 231, 1915, pp. 100.

On the other hand, when a wholesome energy-converting effect from exercise is desired for the purposes of physical therapy, the possible value of the more extravagant performances in rapid walking and running are equally apparent. One of the advantages of accumulating dependable information regarding the behavior of the body as a machine is that it helps to place the physiology of exercise on a rational scientific basis.[3] The muscular performance of the workman and the soldier often needs to be considered from an angle different from that of the athlete and health seeker. In all cases, however, it should be envisaged with such intelligence as modern physiology can offer.

CONDENSED MILKS FROM THE STANDPOINT OF FOOD HYGIENE

The condensed milk industry in the United States began in 1856 with the granting of a patent, for "concentrating sweet milk by evaporation in vacuo." Today there are in this country more than 300 establishments, having a capacity of 15,000,000 pounds daily. The statistics for 1909, the latest at hand at this moment, show an annual production of about 500,000,000 pounds, valued at more than $33,000,000. These data are sufficiently impressive to make it worth while to inquire now and then about the status of condensed milk from the hygienic as well as from the economic standpoint.

It may be asked, first of all, what is supposed to be accomplished by converting fresh milk into the conserved product. It is very doubtful whether the use of condensed milk can be defended primarily on economic principles. Obviously it cannot be cheaper than ordinary fresh milk having the same food value, otherwise the cost of manufacture would be gratuitous. By removing part of the valuable butter fat or cream from milk, however, it is possible to reduce both the price and the food value of the condensed product. Bengston[4] has pointed out that the price of condensed milk has decreased with improved and cheaper methods of manufacture. In 1880 the average value per pound in the United States was 12 cents, and in 1890 it was 9 cents. At present it is slightly more than 9 cents, because of the fact that standards have been more definitely set. A price as high as 30 cents was reported in Massachusetts in 1890. Theoretically the differences in price should, to a certain extent, furnish a criterion of the quality of the product. This was probably true to a greater extent formerly than at present, when there is greater uniformity in the quality of the different brands manufactured.

A prominent argument in relation to the use of condensed milk is found in the fact that the removal of a large proportion of water from milk by evaporation improves the keeping qualities, and reduces the labor and expense of subsequent handling and transportation of the product, through the saving in bulk and weight.

Much as we may prefer a supply of fresh milk under ordinary circumstances, and particularly in connection with infant nutrition, in which canned milks have been charged repeatedly with the initiation of malnutrition, it must be recalled that there are circumstances in which the fresh supply may temporarily fail. Condensed milks, evaporated milks and desiccated milks are called on at times to solve the difficulties of a local deficit, particularly in places like the Philippines, where cow's milk in some form or other is a real desideratum. In those cases in which it is necessary to use condensed milk in infant feeding, it should not be forgotten that certain brands have been heavily sweetened with added sugar (sucrose).

In the condensing of milks the raw milk should first be subjected to pasteurization, because the evaporation in vacuo may be carried out at a temperature considerably below 100 C. (212 F.), and some bacteria may thus survive. It should be appreciated that condensed milks, particularly of the sweetened variety, are not always sterile, though they are commonly believed to be so. Miss Bengston, of the Department of Bacteriology at the University of Chicago, has furnished some significant statements on this subject. She reports that as far as investigated, the bacterial content of condensed milk appears to be limited, although counts as high as 1,000,000 per cubic centimeter have been found in a few cases. It is doubtless true that the viscosity of the medium, and, in the case of the sweetened milks, the high sugar content, tend to inhibit the growth or multiplication of certain of the organisms present. Andrewes in England, however, has proved experimentally that the organism *Staphylococcus aureus* could multiply enormously in condensed milk, under both aerobic and anaerobic conditions. The kinds of bacteria which have been found in condensed milk bear a close relationship to those found in ordinary fresh milk, or, more properly speaking, to those found in pasteurized milk. The organisms present are those which survive the pasteurizing process and also those which may enter from the air and from other sources in the processes of condensing and canning. The following varieties of bacteria have been isolated by different workers: streptococcus, staphylococcus, *B. enteritiditis sporogenes*, lactic acid producing bacilli, *B. subtilis*, *B. mesentericus*, and yeast cells. *B. coli* has been reported in one or two investigations.[4]

The widely growing use of condensed milks suggests the desirability of greater information, not only with reference to the nutritive make-up of each brand or type, but particularly with respect to its bacterial condition. So long as these milks are used as infant foods, they must be made available in absolutely safe form.

3. The Efficiency of the Body as a Machine, editorial, THE JOURNAL A. M. A., Oct. 9, 1915, p. 1283.
4. Bengston, Ida A.: A Study of Condensed and Evaporated Milks, Jour. Home Economics, 1916, viii, 29.

TEMPERATURE VARIATIONS AND HEALTH

It has become clear recently that variations in temperature represent one of the best tonics provided by Nature. Lauder Brunton believes that tuberculous patients will not get better in a climate that does not vary from 20 to 30 degrees every day. Indeed, more than one observer has hinted that the principal element of therapeutic value in the altitude treatment of tuberculosis consists in the variations of temperature obtaining to a greater degree at altitudes than in low lying districts. Too large variations of daily temperature may be overtrying for delicate persons, but, as a rule, a definite drop in temperature during the night, so that the morning air is distinctly bracing by contrast with the midday temperature, is a source of stimulation. To remain in a room of definite unmodified temperature for three or four hours produces a jaded feeling and a loss of appetite. Even a brief walk or a ride in the open air of a winter's day will restore good feeling, arouse appetite and stimulate digestion better, perhaps, than any other measure.

Recent investigations on ventilation indicate that the problem of heat diffusion is more important for comfort and general good feeling than the question of perfect chemical purity of the air. Even though the air in a room is free from chemical and biologic impurities, and yet is quite still, one becomes uncomfortable if the temperature remains equable. Movement of the air by a fan, without change in the temperature, lessens the discomfort, stimulates a person to mental activity, and produces a better feeling. The introduction of cool fresh air from without is stimulating not so much because of its purity as because it leads to the dissipation of heat which has been accumulating in the body, gradually producing an unbearable sense of discomfort. Human nature has in recent years endeavored by every possible means to make the temperature in the immediate neighborhood as invariable as possible and to keep it constant; but the effect of such a state of affairs is to lessen initiative, dampen energy and hamper the power of accomplishment. Cooler air is uncomfortable for the moment, but the reaction that ensues brings with it a distinct sense of well being.

The broader discussion of this subject concerns the effect of a changeable climate on human progress and power of achievement. Ellsworth Huntington,[1] after a careful study of meteorology in reference to man, concludes that civilization in the broader sense of the term is largely dependent on man's being subjected to considerable variations of temperature in his environment. Whenever white men in spite of their natural initiative and tendency to efficiency have to live and work in a tropical climate, they degenerate physically, mentally and morally. This, Huntington insists, is due not so much to the high temperature as to the monotony of an unvarying climate and the consequent lack of Nature's most effective stimulation. By observation of the amount of work done throughout the year by negroes and white men laboring under similar conditions in warm and temperate climates, he deduces that "it seems to be a law of organic life that variable temperature is better than uniformity" for human achievement.

It has long been recognized that man's highest achievements have been made in the variable climate of the north temperate zone. Indeed, if the fortieth parallel of north latitude be traced around the globe, it will be found that practically all the great centers of human achievement were situated not far away from it. Athens, Constantinople, Naples, Rome, Florence, Paris, Vienna, Berlin, London, New York, Chicago, St. Louis, San Francisco, Tokyo and Peking, as well as Jerusalem, Carthage, Sidon, Tyre, Memphis and Babylon were all situated within about 10 degrees of this magic line. Almost needless to say, this is the line of greatest variation in temperature. It would seem, then, as though the conclusion as to man's efficiency under circumstances in which he is subjected to considerable daily, monthly and yearly variations of temperature must be accepted.

This represents an almost absolute contradiction of some of the ideas, often accepted even by physicians, with regard to the relation of comfort in nonvariable temperatures to efficiency and helpfulness. It also suggests a pause in the medical practice of sending invalids to a mild climate during the winter unless they are of such delicate constitution, or so run down in health, that they cannot stand the cold because they have not the vitality to furnish a good reaction to bracing cold air. Consumptives are often comfortable in a mild unvarying temperature, as in our own South or on the Riviera or the North African Coast, but the general agreement is that they do not make satisfactory progress against their disease. The same thing would seem to be true as regards neurasthenics and semi-invalids. The bracing tonic qualities of a northern winter in a dry climate under proper safeguards will probably do them more good, though at times they will be less comfortable than they would be in a warm southern atmosphere.

While northern winters in their extreme variableness are often exasperating and would seem to make for disturbance and reduction of vitality, it is likely that they are rather prone to produce the opposite effect and have a favorable reaction on vitality and resistance to disease. Certainly many a man who has had to go South with an invalid relative during a winter has found during the following summer that he actually missed the winter and its stimulating effect, and that the summer weather, as a consequence, was doubly prostrating. Something of this at least is more

1. Huntington, Ellsworth: Civilization and Climate, New Haven, Conn., Yale University Press.

than probably true for many persons of subnormal health. Provided their vitality is sufficient to enable them to stand successfully the vicissitudes of a northern climate, such persons emerge from a winter in it in better condition than if they passed it more comfortably in a milder, less changeable environment.

ACQUIRED TOLERANCE OF MORPHIN

The marked tendency toward habit formation which is so conspicuous and deplorable in connection with the use of morphin is associated with an enormously increased tolerance for the drug. How this is acquired and what is signified by the ability to take doses of a substance which ordinarily would prove highly toxic or even fatal to the nonhabituated individual have been the subject of much discussion. To say that the tissues become adapted to the presence of morphin merely clothes in words our ignorance of the real nature of the tolerance which develops.

In extreme tolerance, the daily quantity used may reach ten times the ordinary toxic dose. A favorite explanation holds that the oxidative powers of the organism are increased with the prolonged use of the drug. The evidence for this view is sought in Faust's well known experiments showing that dogs which have become accustomed to morphin reach a stage at which they no longer excrete it in the feces.[1] From this it has naturally been assumed that more of the poison is destroyed in the tolerant organism than is usually the case. That this increased destruction cannot be the sole factor in enhanced tolerance to the drug was shown by Rübsamen,[2] who found that after large injections of morphin, immune rats may still contain a quantity of undestroyed poison larger than the lethal dose for the normal individual of this species. Cloetta[3] accordingly assumed that there must be a tissue immunity factor.

Ordinarily, in these studies on the nature of increased tolerance, the behavior of the organism as a whole to the drug has been the subject of observation. The specific physiologic functions involved in the action of morphin are, however, quite manifold. It has seemed desirable, therefore, to investigate the problem of enhanced tolerance in relation to several of these functions separately in the hope of throwing new light on the problem. The respiration is one of the bodily activities peculiarly responsive to morphin.[4] This drug may, for example, exhibit an unmistakable effect on breathing after the administration of doses far too small to produce the more characteristic profound narcosis. In the pharmacologic institute at the University of Utrecht, van Dongen[5] has found that it is actually possible to accustom the respiratory center to morphin. The tolerance developed was complete, even to a dose 1,800 times as large as that to which the breathing function was initially responsive. The nervous centers concerned in the characteristic dilatation of the pupils under the influence of morphin are also shown to be entirely immunized to the action of the drug in tolerant dogs. Other centers are not so easily affected; thus the gastric manifestations are not so readily dispelled by the development of a general tolerance. The vagus center, in fact, seems to be unaltered in responsiveness, despite the exhibition of pronounced immunity in other functions. Even in dogs with marked tolerance for morphin, a slowing of the pulse is manifested with every dose of the drug.

It thus becomes evident that different functions or different centers of nervous response exhibit increasing immunity to morphin with unlike readiness. Even such structures as the vomiting center, the respiratory center and the vagus center, all of which lie near to each other anatomically in the spinal bulb, show a different behavior in the course of the development of tolerance. The relative readiness with which they become unresponsive by no means corresponds with their comparative sensitiveness to the drug in the unhabituated organism. In the judgment of van Egmond[6] and van Dongen,[5] all of the facts cited confirm their conclusion that the older theory of augmented oxidative capacity in the body will no longer suffice to explain the phenomena of tolerance to morphin. We must further postulate a specific tissue immunity that is acquired in unequal degree and with unlike readiness by different organs and centers of the body.[7]

THE RIPENING OF APPLES

Fruits are entering into the dietary of man in this country more largely today than ever before. It therefore becomes important to learn the details of their composition and to ascertain the best conditions under which they can be marketed for use as food. That fruits, like many other plant products, are not suitable for human consumption until they have reached a certain stage in growth, termed ripeness, is known to all. In some cases this corresponds with the period at which the fruit is harvested. It is less well realized, however, that there are many fruits which reach the proper edible stage only after a longer or shorter period of storage following removal from the parent plant.

1. Faust, E. S.: Ueber die Ursachen der Gewöhnung an Morphin, Arch. f. exper. Path. u. Pharmakol., 1900, xliv, 217.
2. Rübsamen, W.: Experimentelle Untersuchungen über die Gewöhnung an Morphin, Arch. f. exper. Path. u. Pharmakol., 1908, lix, 227.
3. Cloetta, M.: Ueber das Verhalten des Morphins im Organismus und die Ursachen der Gewöhnung an dasselbe, Arch. f. exper. Path. u. Pharmakol., 1903, L, 453.
4. The Opium Alkaloids and Respiration, editorial, THE JOURNAL A. M. A., Feb. 12, 1916, p. 514.
5. Van Dongen, K.: Beiträge zur Frage der Morphingewöhnung, Arch. f. d. ges. Physiol., 1915, clxii, 54.
6. Van Egmond, A. A. J.: Ueber die Wirkung des Morphins auf das Herz, Arch. exper. Path. u. Pharmakol., 1911, lxv, 197.
7. In translating these facts and views into a general theory applicable in all cases, it must be borne in mind that not all animal species exhibit the phenomenon of acquired tolerance to morphin. Among laboratory animals the rabbit forms a notable exception, according to van Dongen.

As a rule this later ripening involves a decrease in acid and starch along with an increase in sugar content. Oxidation processes also go on in the fruit, with the development of those special substances, possibly esters in some cases, which furnish the peculiar aroma or flavor of the individual species. The banana, picked green, exhibits a conversion of starch into sugar as the fruit subsequently ripens. This change is attended by a sort of respiration process, for it does not go on normally in the absence of oxygen. The peach, on the other hand, contains no appreciable amount of starch at any time, but shows a steady increase in sugar content as it approaches maturity.[1]

Although the apple is easily the most important of the fruits of its class, there is little widespread information in regard to the chemical changes which attend its ripening. The starch content reaches a maximum in midsummer while the fruit is still on the trees, and then begins to decrease. Some varieties of apples are ready to eat when they are removed from the trees. The larger number, however, are expected to ripen to a considerable extent after that period. For this reason, the varieties which mature more slowly exhibit a superior keeping quality. When once the ripening process has been completed, the fruit tends to become soft, mushy or overripe, and usually at this or some preceding stage, organisms of decay gain entrance to the tissues, and the fruit rots. In the absence of infection with any germs of disease or decay, the fruit loses water and shrivels up into a withered dry mass. Changes of this character go on, no matter whether the fruit remains on the tree or is picked off. Growth ceases, and chemical changes ensue which result in the development of characteristic odor and flavor and later in the disintegration of the flesh of the fruit.

The object of the storage or preservation of fresh fruit so that it will be available beyond its natural "season" is really to slow up the ripening process and so to prolong its period as much as possible. That temperature has an important influence on the rate of ripening is a familiar experience. Beyond this little has been appreciated in regard to the changes actually involved. It has even been believed that micro-organisms are in part responsible, though in the light of our modern knowledge of biochemical changes in plants it is more reasonable to ascribe an influence to the presence of "ripening enzymes."

With respect to the actual changes in the chemical composition of ripening apples, Bigelow, Gore and Howard[2] have found: a slight but continuous decrease in total acidity; a gradual decrease in sucrose; a gradual increase at first, followed by a later slight decrease, in invert sugar and total carbohydrates, and the disappearance of starch early in the ripening process. At the University of Minnesota, Thatcher[3] has concluded that the only enzymes which participate in the changes in the carbohydrates of apples during the ripening process are oxidases. None of the common types of carbohydrate-splitting enzymes could be found. The fact that the changes which take place during ripening are inhibited by surrounding the fruit with an atmosphere of carbon dioxid is easily explained on the basis of their being oxidase changes, since it is a well-known fact that the presence of a large excess of the end-products of a reaction generally inhibits the action of the accelerating enzyme in increasing degree as the proportion of the end-product increases. Carbon dioxid is undoubtedly an end-product of oxidase activity, and should therefore accomplish just the result which was found to occur. With such facts regarding the "respiration" of ripening available, it is not unlikely that they may later be applied in addition to current methods of cold storage to the problem of conserving one of the most valued foods that enters into the human dietary both in health and in disease.

1. Sherman, H. C.: Food Products, New York, the Macmillan Company, 1914, p. 343.
2. Bigelow, W. G.; Gore, H. C., and Howard, B. J.: Studies on Apples, U. S. Dept. Agr., Bur. Chem., Bull. 94, 1905, pp. 100.
3. Thatcher, R. W.: Enzymes of Apples and Their Relation to the Ripening Process, Jour. Agric. Research, 1915, v, 103.

A MECHANISM OF PROTECTION AGAINST BACTERIAL INVASION

"The mere fact that both animals and man are in constant contact with infectious micro-organisms, many of them in a high state of virulence, indicates in itself that the individual disposes normally over a defensive mechanism of considerable efficiency." These words, from a recent volume,[4] express a situation which has long been the subject of speculation and experiment. Of course, the sound, healthy skin and the mucous membranes ordinarily offer an effective resistance to the entrance of micro-organisms into the interior of the organism. But even when organisms have succeeded in invading the tissues themselves, a second line of defense is ordinarily encountered which tends to inhibit the further progress of the germs more or less perfectly. Here the active forces reside in the phagocytic power of leukocytes and other cells and further in the bactericidal or antibacterial action of the body fluids. The latter process is commonly conceived to be disintegrative in nature, so that some form of bacteriolysis ensues.

The study of the antibacterial powers of the blood leaves no doubt that certain micro-organisms can be dissolved by lysis in the presence of appropriate serum. The question of the relative importance of the phagocytes and the "humoral" factors present in the blood in the phenomena of protection against bacterial infection has been warmly debated. Zinsser has remarked that in the prolonged controversies between the adherents of the two schools, waged with great astute-

4. Zinsser, Hans: Infection and Resistance, New York, the Macmillan Company, 1914.

ness and experimental skill, most of the facts which we possess regarding immunity were discovered. It has long been known that when bacteria are introduced into the blood and later disappear from it they are not eliminated by the organs of excretion but are destroyed in the tissues themselves. In considering the problem of the manner of the destruction, Bull[5] remarks that the dissolution of bacteria by lysis has been observed, but not in the living body. Only a part of the pathogenic bacteria, of which *Bacillus typhosus* may be taken as an example, experience solution in shed blood or its serum constituents, whereas such bacteria as pneumococcus and streptococcus are not subject to this form of dissolution.

Protection from certain forms of bacteria can be secured by the employment of immune serums. An active pneumococcus serum, for example, protects against a certain maximum quantity of pneumococcus culture. The immediate effect of the serum injection is to cause the disappearance of the pneumococci from the circulating blood, this result being produced in the incredibly short period of a few minutes. The experimental investigations of Bull at the Rockefeller Institute of Medical Research are believed to throw some light on the mechanism of the removal. He maintains that an almost immediate agglutination of the bacteria takes place. The larger the doses of the serum, within limits, the larger the size of the bacterial clumps that are found. The clumps are removed from the blood almost immediately by the organs — the spleen, liver and bone marrow. What happens next is determined by the size of the clumps. If they are large, they cannot be ingested by phagocytes; hence they soon begin to multiply, and the bacteria reinvade the blood; if small, they are taken up by phagocytes and are digested. The animal succumbs in the first case and survives in the second. Hence small doses of the serum causing smaller clumps may be more effective than large doses giving larger ones. No extraphagocytic dissolution of the pneumococci seems to occur. A similar mechanism is reported to operate in animals inoculated with cultures of the typhoid bacillus, although this organism is subject to serum lysis.

In cases of certain cultures of disease-producing bacteria like two distinct varieties of the influenza organism which may or may not be pathogenic, Bull asserts that the pathogenic effect may depend on the agglutinability of the bacteria by the blood whether of normal or immunized individuals. Thus when cultures of the nonpathogenic variety are injected into the circulation of rabbits, they are clumped and removed by the organs at once; when cultures of the pathogenic variety are inoculated, they are neither clumped nor removed.

According to this view of Bull, agglutination, the property of immune serums discovered soon after the finding of specific bacteriolysins, is a most important feature in the mechanism of protection. As he expresses it, bacteria circulating in the blood are quickly removed when they are agglutinated or clumped, and the clumps deposited within the organs are taken up by phagocytes and digested. They appear not to be destroyed by solution or lysis through the operation of serum constituents of the blood. In other words, in some cases of protection from bacterial invasion, no extraphagocytic dissolution or bacteriolysis of the micro-organisms seems to occur.

5. Bull, C. G.: A Mechanism of Protection against Bacterial Infection, Proc. Nat. Acad. Sc., 1915, i, 545.

Current Comment

THE FUNCTION OF THE PERICARDIUM

The structure of the pericardium as a tough, fibrous membrane, within the cavity of which the heart and roots of the great vessels lie almost free, suggests that its function may be to assist in checking an excessive dilatation of the heart during conditions attended by a great rise of venous pressure. The overfilling of the heart is of course prevented in part by the resistance of its own walls. Barnard[1] has shown that the pericardium not only is inextensible but also can bear an internal pressure of more than one atmosphere, a force by which the heart invariably is ruptured. That the pericardium may even ordinarily exercise some restraint on the organ within it is suggested by the easily made observation that the heart during diastole tends to protrude through a slit made in the encasing membrane. In fact, the right auriculoventricular valve may cease to be entirely efficient when the pericardium has been freely opened, the closure of this valve seeming to be somewhat dependent on the support afforded to the heart by the pericardium. By the aid of ingeniously devised experiments at the Institute of Physiology, University College, London, Kuno[2] has observed that in the absence of the pericardium it is difficult to increase the work of the heart above its usual performance without danger to the organ. When the pericardium is intact the heart may be exposed to too large a venous inflow for a considerable time without undergoing serious damage, the only effect being to weaken its action somewhat. When, on the other hand, the heart has been overdistended by too large a venous inflow in the absence of the usual pericardial restraint, not only does insufficiency rapidly manifest itself, but also signs of permanent damage ensue, so that the maximal cardiac performance can never again be brought to the same level. In a variety of ways the existence of the pericardium has been shown by Kuno to be necessary for the unimpaired working of the heart in normal life. The disturbance of the heart in the absence of the protective membrane does not end with the usually manifested functional irregularity of the heart beat which may occur in a variety of forms. Such mechanical or physiologic consequences are followed by patho-

1. Barnard: Proc. Physiol. Soc., Jour. Physiol., 1898, xxii, p. xliii.
2. Kuno, Y.: The Significance of the Pericardium, Jour. Physiol., 1915, p. 1.

logic changes wrought by the overdistention. Valvular insufficiency, especially of the auriculoventricular valves, is a common occurrence when there is extreme distention. Additional injury is evidenced by the consequent ruptures of the heart muscle and the hemorrhages which may be found in the outer and inner layers of the heart wall. As a rule they make their appearance when the strain of the heart is approaching its maximal working capacity, and are especially frequent in the inner wall of the left ventricle, over the whole surface of the heart and in the septum. Such a story of valvular inefficiency, hemorrhage and irregular action is thus sufficient to indicate the beneficent advantage of an intact pericardium as a factor of safety when the work of the heart is increased, as it often must be, above its normal level.

HENRY BAIRD FAVILL

Dr. Henry B. Favill, whose obituary appears elsewhere in this issue, was an unusual man. As a physician he represented modern scientific medicine, and his practice was large. He took active part in the work of local, state and national societies, and when he discussed scientific medical questions he was listened to as one speaking with authority. However, while his interest in medicine was great and his practice large, his interest in social questions and in public welfare was so extensive as to make his medical work seem almost incidental. As a citizen of Chicago he was intimately identified with those forces which are seeking to bring about purity and efficiency in public works and service. He was one of the moving spirits in the organization of the City Club — an institution which has done much to bring about better conditions in Chicago. He did effective work as chairman, and executive officer, of the Municipal Voters' League of Chicago, which position he occupied for three years. During that time he naturally made many enemies, but in spite of the attacks made on him by ward politicians and others, he emerged from this work with reputation unspotted. He was a man of altruistic ideals, but at the same time was practical: he attacked all problems with a broad conception of humanity and its weaknesses. With absolute unselfishness, he accepted leadership in many movements which he knew would bring on him attacks by those injured. As chairman of the Council on Health and Public Instruction, his advice was regarded as that of a man who looked at the problems not alone from the viewpoint of the physician, but also from that of the publicist. As the Chicago *Herald* said, "No class was big enough for him. His interest and his service belonged to all groups. The mere recital of the agencies and organizations which he touched indicates something of the generosity of his outlook. He was a pioneer in public health betterment, in civic reform and in social readjustment. He was a forerunner in the creation of the new conscience." We need more of the spirit that controlled Dr. Favill in his activities; he stood for the ideal that the responsibilities of citizenship rest more on the medical profession than on any other class.

THE STIMULATION OF MAMMARY DEVELOPMENT

The scientific evidence regarding the possible factors responsible for the development of the mammary glands to a condition in which they are competent to function as milk-secreting organs was discussed in THE JOURNAL[1] some time ago. The phenomenon of the genesis of lactation is of such fundamental importance for human welfare as well as animal existence that it inevitably provokes interest and speculation. What subtle influence prepares the rudimentary tissue so ideally for its evolution into an active gland at the proper time and only under the circumstances connected with an expected parturition? The development of experimental technic, particularly in the field of transplantation of tissues, has greatly facilitated investigation of this subject. It will be recalled that the physiologist Steinach transplanted ovarian tissue into young male rats and guinea-pigs which had previously been castrated. The mammary glands and the nipples always present in rudimentary form in every male thereupon began to develop and presently exhibited feminine characteristics. In some cases the hypertrophied glands actually appeared capable of functioning in the usual manner. These surprising and significant observations have lately been repeated in the physiologic laboratory of the medical faculty at Lisbon by Athias.[2] They show anew that the development of the mammary gland is influenced by a "hormone" elaborated from ovarian tissue. A comparable influence emanating from other tissues that might be expected to participate in this cycle, namely, the placenta and uterus, has not been thus clearly demonstrated. The presence of these organs along with the fetus, therefore, by no means appears indispensable for the genesis of mammary functions, if they can be so readily provoked in the castrated male. The facts cited do not imply that other agencies are without any significance in modifying the activity of the gland; it is rather the capacity for performance — the development of an efficient mammary organ — which can be brought about through indirect ovarian influences. Athias suggests that perhaps a residue of maternal ovarian products in the circulation of the new-born may account for the well-known secretion of "witches' milk" in the infant.

DISCOVERY OF THE CAUSE OF WEIL'S DISEASE

Acute epidemic or infectious jaundice, commonly designated as Weil's disease, is so infrequently observed that it has not previously been the object of extensive study. Although bacteria of the proteus group have been found so frequently in association with this disease that they were at one time thought to be the cause, subsequent investigation eliminated them as the specific cause, although the possibility of an associated rôle remained. Recently independent investigations have shown that improved methods

1. The Physiology of Lactation, editorial, THE JOURNAL A. M. A., March 2, 1912, p. 638; Virgin Lactation, March 23, 1912, p. 860.

2. Athias: L'activité sécrétoire de la glande mammaire hyperplasiée, chez le cobaye male chatré, consécutivement à la greffe de l'ovaire, Compt. rend. Soc. de biol., 1915, lxxviii, 413.

were adequate to elucidate the problem. Results reported by Hübener and Reiter[1] and Uhlenhuth and Fromme,[2] who have been working simultaneously and independently on this disease, establish the ready transmissibility of this disease to laboratory animals, the guinea-pig being especially susceptible. Mice and rats are not susceptible, and this fact has an important bearing on the epidemiology of the disease. It is not spread from infected to normal animals living with them. Immune animals are refractory, and their blood contains antibodies. The virus is filterable through Berkefeld filters. In the tissues and blood of infected animals, Hübener and Reiter have found constantly spirochetal organisms, which are especially abundant in the liver in accordance with the predominance of the changes in that organ during the disease in man. These spirochetes seem to show unusual variability in form, there being no constancy in their morphology. Hence they are quite distinct from the *Spirochaeta pallida*. Often they show swellings and nodules, and the name *Spirochaeta nodosa* is proposed for them. At the Christmas meetings of the Society of Experimental Pathology, Noguchi reported his study of infectious jaundice in Japan, where the disease seems to have the usual characteristics of Weil's disease. Other Japanese observers had demonstrated the transmissibility to laboratory animals, filterability of the virus, and the presence of spirochetes in the tissues, which observations were confirmed by Dr. Noguchi. Hence it would seem that the causative agent of this disease has been discovered independently in Japan and Germany. This should afford much assurance as to the certainty of the fact, although perhaps it opens the way to controversies concerning priority.

1. Hübener and Reiter: Deutsch. med. Wchnschr., Oct. 21, 1915; ibid., Jan. 6, 1916.
2. Uhlenhuth and Fromme: Med. Klin., Oct. 31, 1915.

Safety Congress

The National Safety Council has just issued a report of its fourth annual safety congress, held at Philadelphia, Oct. 21, 1915. C. W. Price, assistant to the Industrial Commission of Wisconsin, was chairman. Representatives from many of the large industrial concerns of the United States were present, and an outline of the safety methods and organization of safety work in each of the industries represented was given, followed by discussion. There does not seem to be any general standard or uniformity of organization, each plant having worked out its own plan. In most of them, however, workmen's committees assisted in the propaganda of individual safety and greater care as well as care for the safety of fellow workmen. The discussion has been printed in a pamphlet which may be had from the chairman. It contains many valuable suggestions in regard to the factory safety movement.

In this connection, the Department of Labor and Industry of Pennsylvania, John Price Jackson, commissioner, issues a series of four- or eight-page pamphlets in regard to accidents and disease in the factory, bearing such titles as "Timely Hints to Employer and Employee"; "Timely Hints to Elevator Operators"; "Timely Hints for Steam Boiler Firemen and Attendants"; "Timely Hints for Employees in Mercantile Establishments"; "Timely Hints for Painters," for printers, etc. They warn against the dangers of each occupation and give suggestions for the prevention of accidents and the avoidance of the diseases of the particular occupation. They will help in the safety movement.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

State Association Names Counsel.—To complete the plans of the Arizona State Medical Association for medical defense in the state, Leroy Anderson, an attorney of Prescott, has been appointed official counsel for the organization.

Work of State Laboratory.—In 1914-1915, the state laboratory examined 386 out of 461 collected samples of foods, drinks, flavoring extracts, condiments, water, etc. Of these, 268 were commercial samples of foods, etc., of which seventy-six, or 28.4 per cent., were found to be adulterated or misbranded, or both. Many of these goods were manufactured or prepared outside the state and dealers had legal guaranties on them, so that under the Arizona food laws prosecutions could not be instituted. Outside dealers were in all cases informed and warned concerning the violations. Considerable improvement has been made in the importation of illegal goods.

CALIFORNIA

Lepers Escape from Hospital.—Two lepers escaped, February 3, from the Los Angeles County Hospital after severely beating two trusties, also lepers, who were on guard duty.

Lane Lecture.—The second of the series of popular medical lectures to be given under the auspices of the medical faculty of Leland Stanford Junior University took place at Lane Hall, San Francisco, January 29. Prof. M. S. Wildman of Stanford University spoke on "The Economic Aspect of Disease."

Charts Illustrating Death Rates.—Mr. John H. Mellon, secretary of the Health Department of Oakland, has recently prepared a series of charts illustrative of the death rate in that community. The charts are devoted to tuberculosis, annual birth and death rates, deaths from various diseases, and a special chart on typhoid cases reported by months.

Personal.—Dr. Herbert S. Anderton, San Francisco, was slightly injured, January 23, when his automobile skidded and crashed into a telephone pole.——Dr. Wilbur A. Sawyer, Berkeley, secretary of the state board of health, attended a conference of physicians and social workers at San Antonio, Texas, February 5, at which he was the guest of honor at a luncheon given by the executive committee of the Southwestern Conference on Tuberculosis.——Dr. Frank B. Cohn, resident physician at the Emergency Hospital, Oakland, has resigned, and Dr. H. E. Franck has been appointed his successor.——Dr. Shadworth O. Beasley, San Francisco, has returned after war service in Serbia.—Dr. Louis D. Green, San Francisco, returned from a trip to Amritsan, India, January 25.

DISTRICT OF COLUMBIA

Speak and Testify in Washington.—Dr. John R. Williams, Rochester, N. Y., delivered an illustrated address before the George Washington University Medical Society, February 19, on "Recent Developments in the Study and Treatment of Diabetes Mellitus."——Prof. Charles Wardell Stiles, U. S. P. H. S., talked to the Cosmos Club, on February 14, on "Some Medical Aspects of the Race Question in the South, with Special Reference to the Hookworm."——Drs. Isadore Dyer, New Orleans, La.; Henry M. Bracken, St. Paul; Howard Fox, New York, and Frank H. Parker, superintendent of the Massachusetts Leper Colony, at Penikese Island, Mass., were in Washington, February 14, to testify before the Senate Committee on Public Health and National Quarantine concerning the proposed national leprosarium.

ILLINOIS

Scarlet Fever.—The state board of health is making strenuous efforts to prevent a widespread epidemic of scarlet fever following an outbreak of 100 cases in the Military Academy at Alton. The school authorities sent the 200 students to their homes after many of them had been exposed to infection.

State Hospitals Association Meet.—The Illinois State Hospitals Medical Association met at the Jacksonville State

Hospital, February 24 and 25, and discussed institutional diversions; reeducation of the demented; the Wassermann reaction in the feebleminded; the treatment of general paralysis of the insane; arteriosclerosis of the brain and cord; diphtheria carriers; alcoholic psychoses, and anociassociation.

Personal.—Dr. William L. Kreider, Prairie City, one of the oldest practitioners of McDonough County, is critically ill as the result of a cerebral hemorrhage, February 11.——Dr. George P. Gill, Rockford, who has been serving with the British Expeditionary forces in France, arrived in Boston, February 11.——Dr. Clarence M. Cheadle, Rockford, reached New York, February 11, after several months' service in Serbia.

Baby Week.—Baby Week is to be observed throughout Illinois, March 4 to 11, and Baby Health Conference Week, May 8 to 12. The outline of work for the week, as suggested by the state board of health, is as follows:

Saturday, March 4: Inauguration Day. Opening of headquarters of Baby Week Organization. Mass meeting; addresses by Mayor or health officer and representative of Baby Week Organization. Distribution of helpful literature, etc.

Sunday, March 5: Baby Sunday. Appropriate sermons in all churches in morning; address by competent medical men from pulpits in evening. Carefully prepared articles in Sunday newspapers, suitably illustrated.

Monday, March 6: Little Mothers' Day. Talks and demonstrations on care of baby and its surroundings to school, to school girls of above sixth grade, by competent nurses or physicians. Inspection of schools and surroundings.

Tuesday, March 7: Fathers' and Sons' Day. Suitable talks to men and boys by physicians fully competent to handle the subject.

Wednesday, March 8: Mothers' Day. Suitable talks to women, ranging from parental care to adolescence. As a special mark of respect to mothers, all men and boys might be asked to wear some white flower throughout the day.

Thursday, March 9: Demonstration day. Special demonstrations of baby bathing, dressing, sleeping and feeding, including home pasteurization, home care of milk, and modified cow's milk; sample meals for older children; suitable exercises for children; out-door sleeping; home and community sanitation; exhibits, motion pictures, etc.

Friday, March 10: Community Day. Get-together meeting of officials and citizens; plain talks on duties of citizens and officials; presentation of petitions for civic improvements and hearing of thereon. Conference with milk dealers and food handlers. Special plea for birth and death registration and for enforcement of rules governing contagious diseases.

Saturday, March 11: Permanent Organization Day. Joint meeting of executive committee and active workers for Baby Week. Plans for future, including Baby Health Conference Week, May 8-12. Permanent organization of Child Welfare Society with appointment of committees about as follows: Executive Committee; Committee on Baby Health Conference Week, including in membership physicians appointed by county medical society; Committee on Clean-Up Campaign, with subcommittees on Fly and Mosquito Extermination; Committee on Inspection of Dairies and Food Handling Establishments; Committee on Law Enforcement.

Sunday, March 11: Review Day. Summary of work accomplished during Baby Week and plans for future activities to be subject of talks from pulpit. Review to be published in Sunday newspapers.

The organizations engaged in preparing programs for Baby Week have been asked to incorporate in their programs the subject of the Conference Week. The baby health conferences are more scientific in character than the more familiar better baby contest. They are calculated to serve as practical demonstrations of the service of infant welfare stations or clinics and to impress on visitors the importance of establishing such stations. For these conferences the standard score card for babies and the anthropometric table issued by the American Medical Association will be employed in determining the mental and physical status of each child submitted for examination. The Illinois State Board of Health will supply for these conferences, on request, pamphlets on "How to Organize a Baby Health Conference"; "How to Score Children by Scientific Methods," standard score cards for babies, anthropometric table for male and female children, and a booklet on "Our Babies—How to Keep Them Well and Happy."

Chicago

Smallpox at County Hospital.—Eight cases of smallpox have recently occurred at the Cook County Hospital. Five wards have been put under quarantine and wholesale vaccination has been practiced.

Lepers in Chicago.—Physicians, nurses and others who testified before the Senate Health Committee, February 15, in support of a bill to establish a national leprosarium, stated that there were about eighty lepers free in Chicago.

Personal.—Dr. William M. Thompson was slightly injured and his automobile was demolished in a collision with an automobile truck, February 14.——Dr. Fred W. Moeller reached Boston, February 11, after service in the war zone.

Typhoid Due to January Flood.—The department of health has traced thirty-six cases of typhoid fever to the water supplied by the Sixty-Eighth Street pumping station and all living south of Twenty-Second Street have been warned to boil the drinking water. The infection is believed to have been due to the overflowing of the sewers during the January floods.

KENTUCKY

Vaccination.—Dr. Jesse I. Whittenberg, Louisville, health officer of Jefferson County, has been informed by the attorney for the school board of Highland Park that the board will no longer resist the order requiring vaccination of the pupils in the schools of Highland Park, a suburb of Louisville.

Quarantine Against Illinois.—The Kentucky Live Stock Sanitary Board, on January 31, established a quarantine against all cattle, sheep and other ruminant animals and swine originating in Illinois, north of the south boundary of Jersey, Macoupin, Montgomery, Shelby, Cumberland and Clark counties.

Henderson County Sanatorium.—Henderson County has almost completed the first sanatorium to be established in the state under the new law. It has cost about $20,000, and consists of a central or administration building of brick, and two frame wards for the housing of patients. Advanced cases of tuberculosis will be quartered on the second floor of the administration building.

MAINE

Personal.—Dr. Stanwood E. Fisher, Portland, has been elected a member of the city government.——Dr. William C. Whitmore has been elected city physician of Portland.——Dr. Charles M. Sleeper, South Berwick, has been appointed collector of customs for the district of Maine.

State Antituberculosis Association Meeting.—Dr. William C. Peters, Bangor, has been elected president and Dr. John E. Wadsworth, Skowhegan, a vice president of the Maine Antituberculosis Association. The association has voted to ask the legislature for an appropriation of $4,000 for the 1917-1918 biennium.

MARYLAND

Personal.—Dr. John C. Hemmeter has been elected a Fellow of the Royal Society of Arts of England, in recognition of his work on diseases of the stomach.——Dr. Harry F. Shipley, Granite, is a patient in Mercy Hospital, suffering from a general breakdown, and is reported to be progressing favorably.

Infant Mortality Probe.—The federal Children's Bureau has started an investigation to ascertain the cause of the death rate among infants in Baltimore. The mortality every year reaches about 2,000. Twelve agents who have had special training will undertake the investigation, and have obtained from the health department statistics concerning every baby born in Baltimore during 1915, each one of whom will be visited. Miss Emma Lundberg, child welfare expert of the federal bureau, is directing the investigation.

Doctors Protest.—At the meeting of the Baltimore County Medical Association, held at the Mercy Hospital, Baltimore, a resolution attacking a bill which will be introduced into the legislature was unanimously adopted. This bill prohibits any physician, except those duly qualified by law, from compounding medicines. An exception is made in the bill for cases of emergency. The association also went on record as approving the bill appropriating for two years the sum of $25,000 a year to the University of Maryland School of Medicine (and College of Physicians and Surgeons).

Appropriation for Public Athletic League Requested.—An appeal for an appropriation of $15,000 for each fiscal year was made to the General Assembly of Maryland on behalf of the Public Athletic League, by Dr. William Burdick, director of the league. The work of the league among the boys and girls of the state has so increased that the $4,000 annually which the last legislature gave is not sufficient to meet requirements. It is generally recognized that the bill is a worthy one and that the league is doing a splendid work for young people, in developing their characters as well as their bodies. It has gradually extended its work until most of the public schools in the city and the more thickly populated sections of the counties have been reached. In the last fiscal year of the league, its revenues amounted to about $30,000. Of that sum, the state gave $4,000; Baltimore, $6,000; private institutions benefiting by its work, $5,000, and individuals interested in the league, $15,000.

MASSACHUSETTS

Contributions for Surgical Dressings.—The total contributions to the Boston Surgical Dressings Committee up to February 2 was $18,722.

New Tuberculosis Hospital.—The new hospital for tuberculosis on Newton Street, Brookline, has been completed at a cost of $38,000, and is open to receive patients. The main building is two stories in height, with a one-story wing on either side, and will accommodate about twenty-five patients.

Health Service Merger.—Surg. Allan J. McLaughlin, U. S. P. H. S., state health commissioner, has recommended to the special committee on commission consolidation that the medical inspection service of the State Board of Labor and Industries be transferred to the control of the health department.

Personal.—Dr. Stanley C. Cox, Holyoke, has been appointed associate medical examiner for the Holyoke district.——Dr. John F. Fennessey has been appointed a trustee of the Boston State Hospital, and Dr. William L. Richardson a trustee of the Perkins Institution and Massachusetts School for the Blind.——Dr. Henry S. Forbes, Boston, who has been engaged in Red Cross work in Serbia for several months, has been released after three months' detention at Monastir, and is en route to Sofia.——Dr. Bernard W. Carey has been appointed a member of the Fitchburg Board of Health.

MICHIGAN

Personal.—Dr. Herman Ostrander, for twenty-seven years a member of the medical staff of the Kalamazoo State Hospital, has been appointed medical superintendent of the institution, succeeding Dr. Alfred I. Noble, deceased, and Dr. George F. Inch, who has been connected with the institution for seventeen years, has been made assistant medical superintendent.——Dr. Alvin H. Rockwell has retired as city health officer of Kalamazoo, after seven years' service.——Dr. J. Howard Van Ness has been appointed local surgeon of the Michigan Railway Company at Allegan.

Public Health.—The January bulletin of the Michigan State Board of Health, *Public Health*, is of formidable size for a state board bulletin, containing fifty-nine pages. There are eight original papers on public health topics, three of them on syphilis. Governor W. N. Ferris discusses "The Black Plague"; Dr. Arthur F. Fischer, Hancock, has a paper on "What Venereal Disease Means," and Dr. Andrew P. Biddle, Detroit, one on "Syphilis as a Social Factor." Other papers are on "Home Ventilation," "Physical Training for Busy People," "Who Goes Footloose," "How Results are Obtained in Michigan's Antituberculosis Campaign," and one by Dr. Hugh H. Young, Baltimore, on "Cancer of the Genito-Urinary Organs." Financial, laboratory and communicable-disease reports, editorials and abstracts make up the remainder of a very interesting number.

MISSISSIPPI

Fraudulent Canvassers and Collectors.—See item under "General News" of this issue, page 666.

Health Survey Planned.—The matter of a health survey for Columbus has received favorable consideration from the United States Public Health Service, which will make a health survey of Columbus and vicinity during the present year.

Pellagra in Mississippi.—The State Board of Health of Mississippi has had prepared for presentation to the state legislature a statistical report of pellagra in Mississippi and suggestions to the legislature relative to its prevention and cure. The statement has been prepared by Dr. Frank L. Watkins, Jackson, deputy registrar of vital statistics. It is shown that during 1914, the death rate from pellagra was 47 per cent. greater than for 1913, and the number of cases for the first eight months of 1915 was 46 per cent. greater than for the year 1914. In 1914, the cost of the disease to the state was $2,880,111. In 1914, there were reported to the state board of health 10,954 cases of pellagra, 7,897 cases of tuberculosis and 6,159 cases of typhoid fever. The unbalanced diet theory of the causation of pellagra is accepted in the report, and it is believed to be the duty of the legislature to make provision for the alleviation of the condition. It is the opinion of the state board of health that the state should assume the responsibility of educating the people, and that counties should make provision for the treatment of those suffering with pellagra. The creation of a central institution by the state for the care of pellagrins is believed to be impracticable. The following suggestions are made: The legislature should make an appropriation of $30,000 per annum for the next biennial period, exclusively for pellagra work; provision for a sufficient number of field men to carry on an educational campaign; the education of the pupils in the public schools as to the cause and cure of pellagra; the agricultural department should encourage the keeping of milch cows and poultry and the growing of beans and peas, and also advise with regard to improving economic conditions; the state board should supply literature on pellagra; counties should be granted power to establish camps for the treatment of pellagra; all work should be under the direct supervision of the state board of health and the U. S. Public Health Service should be asked to supervise the educational campaign, to demonstrate preventive methods in one or more communities, etc.

MONTANA

Deaconess Hospital Assured.—A committee of the Methodist Church which is in charge of the Deaconess Hospital project, Miles City, announces that the plans for the new institution are making satisfactory progress and that the construction will become a reality in the near future.

Personal.—Dr. George H. Putney, Ronan, has located at Great Falls.——Dr. Clarke S. Smith has returned to Bozeman after six months' service in war hospitals in northern France.——Dr. Richard B. Durnin has been elected representative of the Cascade County Medical Society in the Great Falls Commercial Club.——Dr. James F. S. Marshall, Stevensville, has left for Calgary, Alta., where he will take up his work as a member of the Canadian Army Medical Corps.

NEW JERSEY

Personal.—Health Officer Edwin H. Coward and Dr. Edward J. Porteous, Atlantic City, and Dr. Myrtile G. Frank, Egg Harbor City, have been appointed directors of the new Atlantic County Tuberculosis Hospital.——Dr. Robert M. Curts, Paterson, is reported to be critically ill at his home.

Tuberculosis.—The *Weekly Bulletin* of the Newark Department of Health gives some interesting figures concerning tuberculosis in the city during 1915. It is said there were 834 deaths from all forms of tuberculosis. They were classified as follows: pulmonary tuberculosis, 723; miliary, 20; tuberculous meningitis, 63; tuberculous peritonitis, 11; tuberculous disease of the hip, 2; of other parts of the body, 3; general tuberculosis, 3. This shows that about seven eighths of the deaths were due to pulmonary tuberculosis. Of the total deaths from this cause, 482 were males, 241 females; fourteen deaths occurred at ages under 15; forty-seven at ages 15 to 19; sixty-eight at ages 20 to 24; 102 at ages 25 to 29; seventy-four at ages 30 to 34; 108 at ages 35 to 39; ninety-four at ages 40 to 44; seventy-five at ages 45 to 49; fifty-five at ages 50 to 55; thirty-two at ages 55 to 59; forty-two at ages 60 to 84; in twelve the age was not stated.

NEW YORK

Rosenau at Buffalo.—Prof. Milton J. Rosenau of Harvard University will deliver the Harrington lectures at the University of Buffalo Medical School during the Alumni Reunion, May 30, 31 and June 1. The subjects will be as follows: two lectures on "Anaphylaxis" and one on "Education for Public Health Service as a Career."

Buffalo Alumni Catalog.—The alumni association of the Medical Department of the University of Buffalo has issued a catalog of the medical alumni which gives a list of the names of graduates since the foundation of the university in 1846, together with the graduates of Niagara University from its foundation in 1886 until its amalgamation with the University of Buffalo.

For New Insane Asylum.—A bill is before the legislature authorizing the sale of the Mohansic State Hospital site and urging that the proceeds be used for the purchase of another site and the erection of a hospital for the insane near New York. The state hospital commission for the insane states that this step is imperative because of the present overcrowded condition of the state hospitals. The capacity of the fourteen state hospitals at the present time is 27,840 and there are 6,484 more patients housed than can be properly accommodated.

Four Doctors to do the Work of Ten.—The City Council of Buffalo, on February 4, decided to report in favor of the appointment of four city physicians at a salary of $1,800 a year in place of ten physicians who have been looking after

the indigent sick of the city, at a nominal salary. It is proposed to have four health stations where the physicians are to have their headquarters from 8:30 in the morning until 2 o'clock in the afternoon, while from 2 to 4 o'clock they will be at dispensaries. Their duties will be not only to answer sick calls, but to examine persons suspected of having tuberculosis, look after sick schoolchildren and inspect milk stations.

Vaccination.—John C. Claus was convicted in Rochester of noncompliance with the vaccination law of the state and city ordinances, and fined $25 and costs in the police court. Claus was tried once before on a similar charge. The decision arising from the first trial of this case resulted in the formation of an antivaccination society in Rochester, of which Claus was made chairman. Claus proposed to the health authorities that he would have his child vaccinated if they would agree to be responsible for any serious consequences that might arise. He sent his child, aged 7, to school every day, but on account of his refusal to have her vaccinated, she was sent home each time.

Health Messenger.—This is the name of a new publication prepared and printed within the schools of Albany under the supervision of Dr. Clinton P. McCord, health director of schools. The first number is a neatly printed twelve-page pamphlet which contains the announcement of the purpose of the *Health Messenger*, which is, of course, the improvement of health conditions among the pupils of the city schools. This is to be done each month by taking up in a practical way some subject of educational hygiene, a list of which is suggested in the *Messenger*. This number starts with contagious diseases, giving school and health board regulations regarding such diseases, with suggestions to parents, school superintendents and teachers as to precautions to be taken and manner of handling children suspected of having the initial symtoms of the exanthemata, etc. Other health suggestions and comment, together with messages from the commissioner of education, the state health commissioner, the president of the board of education and the superintendent of schools, and a cartoon help to make up the first issue of a promising experiment which is said to be new to the public schools of the country.

New York City

Personal.—Dr. Parker Syms has been appointed visiting surgeon of the City Hospital, New York, and not of the City Hospital of New York, as announced in last week's Journal. ——Dr. Charles F. Sanborn has severed his connection with the Greenpoint Hospital, Brooklyn.

Semicentennial of Health Department.—The Metropolitan Board of Health will celebrate the semicentennial of its sanitary control of New York City and adjacent counties by a commemoration dinner to be given March 9. Among the speakers expected will be the mayor of New York; the State Commissioner of Health; Surg.-Gen. William C. Gorgas, U. S. Army; Dr. Walter B. James; Mr. Henry Bruere, and Dr. Stephen Smith.

No Danger in Cheap Furs.—The sensational newspaper reports regarding the possible spread of anthrax by means of cheap furs has been the subject of an investigation by the health department. According to *The Bulletin*, the cheaper furs in particular are submitted to a dressing and dyeing process which goes far to cleanse and disinfect them. The health department finds that the alarming reports as to the infectiousness of cat fur have not as yet been confirmed by bacteriologic examinations. The newspapers have reported that there were fourteen deaths from anthrax during the past year, whereas the records in the registrar's office reveal but nine cases, and in none of these was the victim a worker in fur.

NORTH CAROLINA

Contract for New Buildings Awarded.—The directors of the North Carolina State Hospital for the Insane, Raleigh, have awarded contracts for a new receiving building and nurses' home to cost about $60,000.

Study of Children's Diseases.—A bureau for the investigation of children's diseases and infant mortality will be established in Fayetteville by the Children's Bureau of the federal government, in March or April of this year. The bureau will be under the charge of Dr. Frances Sage Bradley.

Personal.—Dr. Cyrus Thompson, Jacksonville, has not been nominated for governor by the Republican party, as erroneously announced in The Journal, but has been spoken of prominently for this distinction.——Dr. David A. Stanton, High Point, has just announced his association with Drs. John T. Burrus and Hugh W. McCain, in the High Point Hospital, for the care of surgical, gynecologic and chronic cases.

NORTH DAKOTA

Board Can Enforce Vaccination.—According to a written opinion by the attorney-general, a board of health has absolute power to enforce vaccination and to compel schoolchildren to remain home until they are vaccinated. This opinion was written at the request of Dr. Charles J. McGurren, Devils Lake, secretary of the state board of health.

OHIO

Home for Medical Society.—Plans are being prepared for the construction of a building on Sixteenth Street, between Madison and Jefferson avenues, Toledo, to house the Toledo Academy of Medicine.

District Association Meeting.—The one hundred and sixty-eighth session of the Union Medical Association of the Sixth Councilor District was held in Akron, February 8 and 9. Lake Brady, Portage County, was selected as the next place of meeting, August 8. Dr. William G. Smith, Ravena, was elected president, and Dr. John H. Seiler, Akron, was reelected secretary-treasurer for the nineteenth term.

Personal.—Dr. Charles E. Sawyer, Marion, has been appointed a member of the state medical board to succeed Dr. T. Addison McCann, Dayton.——Dr. Robert C. Longfellow, Toledo, has been elected an active member of the Society of American Bacteriologists.——Dr. Raymond E. Whelan has been elected president, and Dr. Nathan N. Meyer, secretary of the medical staff of St. Elizabeth's Hospital, Youngstown.——Dr. Richard S. Moynan, Columbus, sailed for Europe, February 7.

Cincinnati

Personal.—Dr. Albert H. Freiberg has been appointed a delegate to the twelfth annual conference of the National Child Labor Committee at Ashville, also as a representative of the Cincinnati Academy of Medicine on the Medical Defense Committee of the Ohio State Medical Association. ——Dr. Karl L. Stoll is said to be held as a prisoner of war by the British in Edinburgh Castle. Dr. Stoll started for Germany, January 1, with the intention of joining the medical service of the German army.

OREGON

Personal.—Dr. Archie K. Higgs, Portland, has been appointed chairman of the committee of military, fraternal and industrial participation in Portland's annual rose festival.

Gift to Medical College.—A gift of $5,000 has been offered to the Medical College of the University of Oregon toward the construction of the first building, provided nine other similar subscriptions are secured.

PENNSYLVANIA

Tuberculosis Cottage for State Hospital.—Plans are being prepared for a one-story cottage building for tuberculosis patients in connection with the Norristown State Hospital. The building is estimated to cost $42,000.

Home Rule.—West Sunbury is the one hundred and fortieth muncipality in Pennsylvania which has come to the state department of health petitioning that it take charge of the borough, look after its sanitation, report, placard, quarantine and disinfect for contagious diseases. The town council pledges itself to make prompt payment for these services.

Personal.—Dr. Richard R. Spahr, Mechanicsburgh, sails this month for Bordeaux as a member of the Pennsylvania unit.——Dr. W. Frank Gemmill, Fawn Grove, is reported to be seriously ill with heart disease.——Dr. John A. Fritchey, Harrisburg, is reported to be critically ill in a hospital in Philadelphia.——Dr. Elmer S. Stambaugh, Thomasville, secretary of the York County Medical Society, is reported to be ill with inflammatory rheumatism.——Dr. Katrina Freudenberger, Tamaqua, was operated on for disease of the nose at the German Hospital, Philadelphia, January 13.——Dr. Alfred E. Fretz, Sellersville, has been appointed surgeon of the Philadelphia and Reading Railroad in charge of the company's interests from Perkasie to Souderton.——Dr. Levi F. Wagner has been elected prison physician of Reading.

Philadelphia

Rush Society Lecture.—The fourteenth annual Rush Society lecture and also the annual address before the Alpha Omega

Alpha Honorary Medical Society will be delivered at the College of Physicians, Twenty-Second and Chestnut streets, by Dr. Richard P. Strong of Harvard Medical School, on "An Investigation of Typhus Fever in Serbia."

John Morgan's Grave.—The alumni of the Medical Department of the University of Pennsylvania have arranged to open the crypt of old St. Peter's Church, Third and Pine streets, where Dr. John Morgan, founder of the medical school and known as the father of medicine in America, is supposed to have been interred. Drs. Swithin Chandler, Clarence P. Franklin, William Pepper and Albert D. Ferguson, Provost J. Fahs Smith, Philadelphia, and Sir William Osler have been appointed a committee to find the grave and to prepare a marker to be placed thereon.

TENNESSEE

Medical Clinic.—Contracts have been awarded for the construction of three rooms in the basement of the Municipal Building to be used for a free clinic. The clinic, which will be under the charge of Dr. Edward B. Wise, Chattanooga, as chief of staff, will, it is expected, be ready to receive patients March 1.

Tobacco Chewers Not Protected.—The Supreme Court of Tennessee, according to *Commerce Reports,* has decided that tobacco is not a food, and therefore does not come within the scope of the decisions that manufacturers of drugs and foodstuffs are liable to consumers who purchase such articles from dealers for injury resulting from negligence in allowing foreign substances to be introduced into them during the manufacturing or packing processes.

WASHINGTON

Washingtonians on War Service.—Dr. Eugene Hurd, Seattle, is now chief surgeon of the Twenty-Ninth Flying Column in the Russian service, and holds the rank of colonel, medical corps.——Dr. Spiro F. Sargentich, Seattle, after several months' service in Serbia, has reached New York on his way home.——Dr. Walter Gellhorn, Seattle, who was on his way to join the German Red Cross, is reported to be detained in Edinburgh Castle.

State Board Officers.—At the annual meeting of the Washington State Board of Medical Examiners, Dr. Royal A. Gove, Tacoma, was elected president; Dr. Daniel M. Stone, Seattle, vice president; Dr. Conrad N. B. Suttner, Walla Walla, secretary, and Dr. Roy A. Morse, Wenatchee, treasurer.——At the annual meeting of the state board of health held in Olympia, January 20, Dr. Elmer E. Heg, Chimacum, was elected president, succeeding Dr. Fred R. Hedges, Everett.

WISCONSIN

Personal.—Dr. William H. Bartran has been elected president of the Green Bay branch of the Fox River Valley Efficiency League.——Drs. Otto H. Foerster, James A. Bach, Henry B. Hitz, Franz Pfister, Alfred H. Levings, William F. C. Witte, Dennis J. Hayes, Henry V. Ogden, Louis F. Jermain, Joseph S. Cutler, William T. Lochemes and Daniel Hopkinson have been appointed members of the consulting staff to the Milwaukee Hospital for the Insane.

Hospital Notes.—A hospital is being fitted up in Colfax by Dr. Lauritz A. Larsen.——The annual report of the Luther Hospital corporation, Eau Claire, shows that during the year 1,176 patients were admitted to the hospital. The financial report shows a profit of nearly $8,000, most of which was expended for improvements. There is at present $5,000 in the building fund and work on an addition to the hospital, to cost $20,000, will be commenced in the spring.

CANADA

To Curb Typhoid.—Lieut.-Col. Frederick W. Marlow, Toronto, has called a meeting of all the medical officers in the Toronto district to confer on the question of dealing with the outbreak of typhoid fever in the various surrounding districts.

Ontario Medical Meeting.—For the annual meeting of the Ontario Medical Association to be held in Toronto, May 30 to June 2, the program is well in hand. The address in medicine is to be delivered by Dr. Elliott P. Joslin, Boston, on the treatment of diabetes. There is to be a symposium on the rôle of the mouth, throat, nose and accessory sinuses in disease, and a meeting of military medical officers will also be held.

Returned Varsity Medical Students Dined.—After a year on active service, thirteen university medical students arrived in Toronto, January 18. They were members of the class of '17 and were dined by other members of the class and faculty that evening. They are home with the permission of the War Office to complete their course. They will return to the front as soon as they finish and receive lieutenantcies in the R. A. M. C. Prof. Archibald B. Macallum, Dean Charles K. Clarke and Prof. Alexander McPhedran were among the speakers.

Dr. Primrose at Saloniki.—Lieut.-Col. Alexander Primrose, chief surgeon to the University of Toronto Base Hospital at Saloniki, writing to Toronto, tells of surgery under peculiar difficulties. The operating tent is a large marquee floored and laid down with linoleum, and heated by oil stoves. It is 30 feet long. While often a driving sleet storm would be raging outside, they were able to operate as comfortably as in a modern hospital. The laboratory is well equipped and under direction of Dr. John J. Mackenzie, and associated with him are Drs. Duncan A. L. Graham and Cyril G. Imrie.

Summer Session at Toronto University.—From May 1 to November 30, fourth-year medical students at Toronto will be given a summer course to qualify for their degree, and there will be no fifth-year course next year at the university. This has been approved by the senate on the recommendation of the Faculty of Medicine. The summer session will last twenty-six weeks. There will be sixty men who will attend the summer session, and when they graduate they will be in a position to accept responsible positions with the various hospital units. It is understood that Queen's University, Kingston, will take a similar step.

Ontario Military Hospital, England.—Fuller particulars of the personnel of the medical staff of the Ontario Government Military Hospital, opened at Orpington, Kent, England, on January 19, are at hand. Lieut.-Col. Arthur E. Ross, Toronto, is to be the officer commanding. He has been on active service and was recently honored with C. M. G. Lieut.-Col. Irving H. Cameron, Toronto, professor of surgery in the University of Toronto, and who has been doing hospital work at Cliveden, is to be the surgeon-in-chief. Lieut.-Col. Graham Chambers, Toronto, who was recalled from Saloniki, is to be head of the medical service. Sir William Osler is to be consulting physician, Dr. Donald Armour, consulting surgeon, and Dr. George W. Badgerow, London, England, a former practitioner of Toronto, consulting specialist.

GENERAL

Sanitarians Meet.—The fourth annual meeting of the Southeastern Sanitary Association will be held in Brunswick, Ga., March 23 and 24, under the presidency of C. W. Oker, Hartsville, S. C. The vice presidents of the association are Drs. Ennion G. Williams, Richmond, Va.; James A. Hayne, Columbia, S. C., and Henry Hanson, Jacksonville, Fla. Dr. C. E. Smith, Greenville, S. C., is secretary of the association.

Impostor Captured.—Dr. Burnett W. Wright, Bowling Green, Ky., writes that C. L. or M. L. Mason, has, since October, been impersonating him in different parts of the country, that he has been securing money by false representations, and that in some instances he forged Dr. Wright's name to worthless papers. Mason is now under arrest and confined in the Warren County jail. A notice concerning his activities was published in THE JOURNAL, Dec. 4, 1915, p. 2018, under the title, "Impostor Swindling Physicians." Dr. Wright is anxious that victims, wherever located, assist in the prosecution by swearing out warrants and mailing them to the police authorities in Bowling Green, Ky.

Containers for Poisons to be Regulated.—Representative H. A. Barnhart of Indiana proposes, in a bill which he has introduced into congress "by request," that the manufacturer or packer of poisonous drugs be required to place on each bottle, can, tube, or the like, containing such drugs, a stopper or cap which in shape and inscription shall indicate the nature of the contents. The style and composition of the stopper or cap are to be prescribed by the Secretary of Agriculture. As the proposed legislation is in the nature of an amendment to the Federal Food and Drugs Act of June 30, 1906, it is applicable only to interstate commerce and to commerce in the District of Columbia and places under exclusively federal jurisdiction.

Organization of Clinical Laboratories.—A meeting will be held in Chicago, February 26, to form an organization of the leading clinical laboratories of the United States. The

objects stated are the adoption of standards of efficiency for clinical laboratories, the promotion and encouragement of the development of more exact methods of laboratory diagnosis, and the adoption of standards to which the work of such laboratories should conform. The question of standardization of commercial clinical laboratories is of decided importance to physicians, and of vital interest to the public. It is hoped that this organization may result in eliminating any unreliable laboratories which may exist, as well as in increasing the general efficiency of all laboratories.

Bequests and Donations.—The following bequests and donations have recently been announced:

The University of Maryland Hospital, $2,500, by the will of Dr. St. Clair Spruill, Baltimore.

An American Red Cross motor ambulance for European War service, donated by Mrs. W. L. Velie, Moline, Ill.

Pennsylvania Hospital, $5,000, for the maintenance of a free bed; Orthopedic Hospital, Philadelphia, $5,000, for a surgical ward, by the will of Louisa W. Anschutz.

For the establishment of the Henrietta Egleston Hospital, Atlanta, Ga., as a memorial to the mother of the testator, $100,000, for the purchase of a lot and the erection of a hospital building and an annuity of about $12,000 for maintenance, by the will of Thomas Egleston.

Cleveland Medical Library Association, $25,000, by the will of Dr. Benjamin L. Millikin, Cleveland.

Clarence Barker Memorial Hospital, Biltmore, N. C., $5,000, by the will of Mrs. Frances N. Wright.

National Standards for Milk and Cream.—Representative David J. Lewis of Maryland has introduced into congress a bill for securing and establishing uniform standards of testing the quality and condition of milk and cream moving in interstate shipments and intended for human food. The intimate relation of milk to human health has not seemed to Mr. Lewis sufficient to justify medical representation on the commission that is to fix the proposed standards, nor is he willing to take any chances on a woman having a voice in the matter. So the commission is to consist of three men, each of whom shall have had at least two years' practical dairy experience, one of whom is to be a bacteriologist, one a chemist, and one a practical dairyman. The proposed standards are to govern the quality and condition of all milk and cream moving in interstate commerce, the method of production and handling, the manner of inspection and the taking of tests, and the responsibility of shipper and consignee.

Medical Licensure: A New Method.—If you desire to practice medicine in any territory, district, dependency, or possession of the United States under the constitutional jurisdiction of congress, you may do so without any such trifling annoyance as an examination if you can comply with certain conditions prescribed by a bill recently introduced into congress—that is, if the bill passes. The privileges granted by the bill are available to:

Any physician or surgeon who assisted, without compensation, in caring for the sick and wounded soldiers of the Army of the United States at the siege of Santiago, Cuba, in 1898, in the War with Spain, and who, after the surrender of Santiago, was in charge of a yellow-fever hospital, and while so in charge of said hospital in 1898 had an attack of yellow fever, and who was afterwards commissioned major and brigade surgeon, and in 1899 commanded a yellow-fever hospital at another station in Cuba, and who, while on military duty in Cuba, had a second attack of yellow fever, and who, by reason of said attack or attacks of yellow fever, or while in line of duty, was physically disabled, and who was honorably discharged from the service of the United States.

None others need apply.

Safety First Exposition.—From February 21 to 26, in the New National Museum at Washington was held a Safety First Exposition to demonstrate to the public what the government is doing to promote saving of life and property. Twenty-six bureaus of the government participated, the apparatus and methods used by each being exhibited and demonstrated by experts. The exposition was open from 9 to 4:30 daily. From the Department of Commerce five bureaus participated—standards, lighthouses, navigation, steamboat inspection service, and coast and geodetic survey. The Bureau of Medicine and Surgery of the Navy Department illustrated first aid in war and life-saving at sea. The Bureau of Mines demonstrated its mine rescue apparatus. The Bureau of Education, the Bureau of Labor Statistics, the Forest Service and the Children's Bureau were among the other exhibitors.

Fraudulent Canvassers and Collectors.—A notice which appeared in THE JOURNAL, Dec. 12, 1915, page 521, is reprinted below:

Fraudulent Canvassers and Collectors.—We have repeatedly published warnings against fraudulent canvassers and collectors—sometimes in the Editorial department, sometimes in Queries and Minor Notes, and sometimes in News. In spite of these repeated warnings, some of our readers are still allowing themselves to be swindled. The scheme frequently followed is one that appeals to those who are ever ready to help a fellow mortal. A young man shows a printed blank indicating that he is a "contestant" for a prize in the form of a scholarship in an educational institution, to be awarded to the one who sends in the most business in a certain time. Again we suggest that those who would avoid being swindled should not pay money to traveling men whom they do not personally know. Checks should not be made payable to any person, but to the concern the person claims to represent; and even then one should be very sure that there actually is such a concern. Money should not be paid to any one claiming to represent the American Medical Association unless he carries credentials bearing the signature of the Editor and General Manager and the seal of the Association.

Under date of February 16, Dr. William Schulze, Monroe, La., wrote advising that THE JOURNAL'S warning had put him on his guard. As he had been approached in a manner similar to that described in the foregoing warning, he wished to advise the Association that under the name of R. E. Douglass, "a man about 23 years old, well dressed" and with "quite a flow of good language" solicited subscriptions to THE JOURNAL of the American Medical Association and other medical journals, and that Douglass stated that he was "trying to earn a scholarship in the Georgetown University, Washington, D. C.; that every dollar would get him one vote." Dr. Schulze asked for credentials from the American Medical Association. The solicitor did not have them but did have a letter from the Publishers Association in the City of New York authorizing him to take subscriptions for any publication listed in a catalog he had with him, and that THE JOURNAL was listed in this catalog. Dr. Schulze did not fall a prey to the scheme and warned the physicians of Monroe to be on the lookout.

National Committee for Mental Hygiene Holds Annual Meeting.—The eighth annual meeting of the National Committee for Mental Hygiene, held February 2 in New York, was attended by a large group of distinguished alienists, social workers and philanthropists. Mr. Otto T. Bannard, the treasurer, announced that the Rockefeller Foundation had donated to the National Committee $22,800 for carrying on surveys of the care of the insane in sixteen states during the present year, supplementing gifts of Mrs. William K. Vanderbilt, Mrs. A. A. Anderson and Mr. Henry Phipps, which makes it possible for the committee to greatly extend its work.

The report of Mr. Clifford W. Beers, the secretary, showed the remarkable growth of the movement for conserving mental health and for improving the care of the insane and feebleminded. Societies for mental hygiene are now at work in eleven states. During the present year societies are to be organized in seven additional states. About twenty-five times as much is being expended on this sort of mental hygiene work as was spent in 1908 when the first society was founded.

Dr. Walter E. Fernald, superintendent of the State School for the Feebleminded of Waverly, Mass., presented a plan which had been adopted by the subcommittee on mental deficiency, of which he is chairman, for popular education, extensive surveys and researches in this subject. Dr. William L. Russell, White Plains, N. Y., medical superintendent of Bloomingdale Hospital, described how the work of the National Committee is conducted under the supervision of an executive committee, all experts in different fields of mental hygiene.

Dr. Thomas W. Salmon, New York, the medical director of the committee, gave an account of the surveys of the care of the insane which had been carried on during the year in South Carolina and in Texas and announced that similar studies, each conducted by expert alienists, are under way or about to be undertaken in California, Tennessee, Missouri, Illinois, North Dakota, Indiana and in the District of Columbia.

The following officers for the ensuing year were elected: Dr. Lewellys F. Barker, Baltimore, president; vice presidents, Dr. Charles W. Eliot and Dr. William H. Welch, Baltimore; treasurer, Otto T. Bannard; medical director, Dr. Thomas W. Salmon, New York; secretary, Clifford W. Beers; executive committee, Drs. August Hoch, chairman, New York, George Blumer, New Haven, Conn., Prof. Stephen P. Duggan, Drs. William Mabon, New York, William L. Russell, White Plains, N. Y., and Lewellys F. Barker, Baltimore; finance committee, Prof. Russell H. Chittenden, chairman, Otto T. Bannard, Dr. Henry B. Favill, Chicago, and William J. Hoggson; committee on mental deficiency, Dr. Walter B. Fernald, chairman, Waverly, Mass.; Dr. L. Pierce Clark, New York, Prof. E. R. Johnstone, Dr. Charles S. Little, Thiells, N. Y., and Dr. Albert C. Rogers, Los Angeles.

FOREIGN

New German Medical Journal at Prague.—As successor to the *Prager med. Wochenschrift,* which suspended publication at the onset of the war, the *Aerztliche Nachrichten* has been founded as the organ of the German-Bohemian physicians. Dr. G. Pick of Aussig is the editor.

U. S. Collier Takes Medicine to Palestine.—Announcement was made, February 2, by the Central Jewish Relief Committee, New York, that arrangements had been made for the shipment of a cargo of medicine to Palestine by a United States collier, which was to sail February 15.

Convalescent Home for Physicians at Berka.—A villa with extensive grounds near a watering place has been purchased by the Leipzig League for this purpose. This association was organized years ago, it will be remembered, to promote the economic welfare of the medical men of Germany, and it has aided materially in improving conditions in contract practice, etc.

League for Sexual Ethics.—A German association has been founded among medical men and medical students for propaganda of the principle that sexual abstinence until marriage is the only true means for combating venereal disease. The members pay a semiannual fee of about 36 cents. Further details in regard to this new "Medizinerbund für Sexualethik" may be obtained from Dr. Röthig, Südstra. 9, Leipzig, Germany.

Issues of Obstetrical Journal Delayed.—The publishers of the *Journal of Obstetrics,* London, announce that there has been no issue of the journal since May on account of the scarcity of contributors, due to the great number of men who have placed their services at the disposal of the army. The publishers expect, however, to have four issues ready about the end of this month and after the 1915 issues are published the journal will appear quarterly during the continuance of the war.

Improvement in Sanitation.—Increased attention is being given to the improvement of sanitary conditions, the opening up of congested areas and better town planning, in Madras Presidency, South India, according to *Commerce Reports.* At an industrial exhibition in Madras during the holidays one of the interesting features was a model Indian village with houses open to the inspection of the large number of people who visited the fair. Clay models of towns built on good and bad plans and lectures on health topics served also to educate the people along town planning and sanitary lines.

Deaths in the Profession Abroad.—Santa Cruz, chief of the Ophthalmologic Institute at Madrid, the first public infirmary in Spain for treatment of affections of the eyes.——K. Rauchfuss of Petrograd, the leading Russian pediatrist, at an advanced age. He was director of two of the principal hospitals for children and was an international authority on hospital hygiene, children's surgery and orthopedics, and internal medicine. He was one of the first to get up circulars to distribute to mothers to aid them in raising their children. A compilation of a number of his circulars was published as long ago as in 1882 (in Russian).——A. Ibarguren, director of a large public hospital at Buenos Aires, contributor to medical periodicals and popular postgraduate lecturer, aged 43.

Workmen's Compensation Law.—The Colombian Congress has recently enacted a law, which has been published in the *Diario Oficial,* making obligatory compensation to workmen for accidental injuries incurred in the course of their work. The beneficiaries of the law comprise workmen engaged in public lighting plants, waterworks, railways and street cars, breweries and distilleries, match factories, building and masonry work where more than fifteen men are employed, mines and quarries, large boats, government works and manufacturing plants using mechanical power. Employers may have their employees insured to provide against accident obligations. The government has appropriated $500 for insuring employees during the first year of the operation of the law. Further details are given in *Commerce Reports.*

Yellow Fever.—The Report of the Department of Health of the Panama Canal for December, 1915, says that with the advent of the rainy season, yellow fever was again reported at Guayaquil, though the number of cases up to the time of the report had been small. In Buenaventura, Colombia, it was said that yellow fever conditions continued unsatisfactory, and that no apparent effort had been made to eradicate the disease. Travelers, it is said, reported that the infection extended throughout the country in the vicinity of Buenaventura. Reports in Buenaventura that the infection came from Panama are denied by the health authorities of the Canal Zone. Two patients with yellow fever arrived at Balboa quarantine from Buenaventura, December 10. They were immediately isolated and the vessel on which they came was disinfected and held, with the personnel, in quarantine for six days. One patient died in the Ancon Hospital, December 14, and the other was discharged well.

One Hundred and Twenty-Fifth Anniversary of Netherlands Medical Society.—There are not many associations for the advancement of science that can look back on 125 years of continuous activity. The Amsterdam Genootschap ter Bevordering van Natuur-, Genees- en Heelkunde was founded in 1790, and at its recent one hundred and twenty-fifth annual meeting Dr. C. C. Delprat reviewed its history and achievements. As its name implies, Association for Nature Study, Medical Art and Medical Science, medicine always took the leading place in its transactions, and it has a noteworthy history in this line. Delprat's address is published in the opening number of the *Nederlandsch Tijdschrift voor Geneeskunde* for 1916, which begins the sixtieth year of our exchange. It is accompanied by a dozen engravings showing the amphitheater for teaching of anatomy, 1690; lecture room, 1760; hospital, 1763, and a number of early officers of the society. The gala meeting was presided over by Prof. G. van Rijnberk, who is also editor of the *Tijdschrift.* The society awards the Swammerdam medal every tenth year. The four recipients to date have been the Germans, Siebold, Haeckel and Gegenbaur, and the Netherlands scientist, Hugo de Vries. The Tilanus medal has been awarded every five years since the death of this eminent surgeon. It is given for the best work on some surgical or medical subject, and has been awarded to Zwaardemaker, C. de Mooy, L. Bolk and J. Boeke, all of the Netherlands. The society also distributes some stipends to medical students for study abroad, and has officially contributed to a number of endowment funds in honor of various foreign scientists. On the occasion of the International Medical Congress, meeting at Amsterdam in 1879, seventeen of the foreign scientists attending the congress were elected honorary members of the association. When first organized, the Genootschap was exclusively medical, and a photograph of the first formal certificate of membership is reproduced. It is dated 1790.

WAR NOTES

Drug Store Supplies in Germany.—A Berlin exchange states that pill and powder boxes and glass containers have had the price raised by 5 pfennige each. The last official price list of pharmacists' supplies includes, for the first time, antimeningitis serum, but no price is specified for benzin, English chloroform, English oil of peppermint, English atrop. sulf., hydrochloric. solut., petroleum, and hen's eggs. These have been dropped from the official *Arzneitaxe.*

Polish and Flemish Universities Planned.—The German authorities have transformed the Russian university at Warsaw into a Polish institution, with Poles as incumbents of the various chairs. It is now planned to transform the University at Ghent, in the same way, into a Flemish institution, instead of the French language being used. This university dates from 1816, and in 1913 had 1,253 matriculants, including 272 foreigners. Among the better known professors then were von Ermengem, J. F. Heymans and C. Verstraeten.

Welfare Work for Maimed Soldiers.—All the belligerents are organizing on an extensive scale and coordinating the efforts to "uncripple the cripples," supply artificial limbs and train in the use of them, and combat in every way the tendency to deformity and disability. Foreign journals teem with illustrated articles showing constantly improving protheses and functional adaptation of the wounded. The German Orthopedic Society called a special meeting at Berlin early in February, the main subjects discussed, outside of protheses, being treatment and after-management of wounds of nerves and after-treatment of deformed healing of fractures, contractures and ankylosis and of the secondary functional disturbances after injury of peripheral nerves. An exhibition of artificial limbs, from those with merely historic interest to the latest improved devices, supplemented the gathering, and it was preceded by a special meeting of the association formed for surveillance and coordination of all institutions and efforts to aid the war cripples. Biesalski reviewed what it has accomplished in the year of its existence, and the share of medical men in the work. Others

discussed the subject from the standpoint of agriculture, clerking, teaching, etc. The French military authorities provided from the first orthopedic central stations at numerous points to which the wounded were referred. The necessity for combining neurology and physiotherapy with orthopedic surgery was recognized early, so that these central stations were usually blended together. Reports of the year's work done in such institutions in 1915 are now being published in France and Germany—wonderful records of human ingenuity and perseverance.

LONDON LETTER

LONDON, Feb. 1, 1916.

The War

THE ENROLMENT OF PHYSICIANS FOR THE ARMY

The enrolment of physicians in civil practice for the army continues *pari passu* with that of the civil population. It is being organized by the Central Medical War Committee. This body was originated by the British Medical Association, but includes members who do not belong to the association, and is working with the consent and authority of the director general of the Army Medical Service. The committee is recognized by him as the medium for providing physicians needed by the War Office for the army, and at the same time protecting the needs of the civil population. The committee has sent a letter to every physician of military age, confidently appealing to him to enroll for service. It hopes to obtain every one of that age (that is, up to 45), so that further calls by the director general of the Army Medical Service may be promptly met, with due regard to the necessity of the services to the needs of the civilian population, and to the circumstances of individual medical practitioners. It is pointed out that unless all are enrolled, it will be very difficult for the Central Medical War Committee to make its calls throughout England and Wales in a manner which will minimize the inconvenience suffered both by the community and by individual physicians. The enrolment of all physicians of military age does not mean that all enrolled will be called on to take a commission. The number called on will depend entirely on the demands of the services. The calls will be made in consultation with local committees, which will insure due regard for local needs. The committee trusts also that those who are not able, or are not required, to undertake military service will, so far as opportunity offers and their ability permits, contribute to the military strength of the country by placing their services at the disposal of the local medical war committees for the purpose of arrangements that may be necessary for the conservation of the practices of men of military age to enable them more easily to enroll.

THE SUPPLY OF PHYSICIANS

While the shortage of physicians must continue as long as men are drawn in large numbers from civil practice by the army, the threatened shortage of the future, due to the recruiting of medical students (previously described in THE JOURNAL) does not appear to be such a danger as was anticipated. Some figures recently issued by the General Medical Council are a surprise. The number of physicians registered in 1915 is greatly in excess of the average of the previous five years. The numbers are: England, 863; Scotland, 412, and Ireland 251. The averages for the previous five years are, respectively, 591, 384 and 197. The total for 1915 is 1,526, against an average of 1,172 for the previous five years. The number of medical students registered in 1915 also shows a great increase. The figures are: England, 754; Scotland, 694, and Ireland, 470. The averages for the previous five years were, respectively, 620, 517 and 304. Thus the total number of registered medical students in 1915 was 1,918, against an average of 1,441 in the previous five years. The increased number of physicians registered in England in 1915 is mainly due to the registration of physicians with colonial and foreign qualifications, which has been permitted since the war. These amount to 269. In Ireland and Scotland the excess seems to be due to the earlier qualification of fifth year students anxious to join the army. This is borne out by the fact that last year there was a shortage in the schools of from 200 to 300 fifth year students. Again, the policy adopted by the War Office, on the advice of the medical authorities, of requiring medical students who had enlisted in various capacities to return to their schools in order to qualify seems to be the chief cause why the expected shortage has been replaced by an actual increase. It is thought that the return of the fourth year students from the ranks will tell in the present year in a similar way. The rise in the number of medical students is probably largely due to the increased incomes obtainable by the rank and file of the profession from practice among the working classes since the passing of the insurance act—an increase which has reacted on the salaries offered to young physicians by hospitals, public bodies and shipping companies. This condition has been described in previous letters. Another cause of the increase is the greater number of women students who have entered the profession.

BERLIN LETTER

BERLIN, Jan. 19, 1916.

Personal

DEATH OF KÜLPE

Oswald Külpe, professor of philosophy and psychology, died in Munich, Dec. 31, 1915, at the age of 53. Although not a member of the medical faculty, much of Külpe's research work was done in medical subjects, and his results were of value not only for psychology but also for psychiatry. He was one of the most thorough investigators in experimental psychology and psychophysics. He was a master of technic; at the same time he was a keen thinker and well versed in theoretic and metaphysical problems. In 1887 he graduated in Leipzig as a pupil of Wundt's. His thesis was entitled "The Theory of Psychic Sensations," and in the following year he won for himself a place in the philosophical faculty by writing on "The Study of the Will in Newer Psychology." In 1894 he was made extraordinary professor, and in the fall of the same year he was called to Würzburg as ordinary professor. During the summer of 1909 he went to Bonn, and in October, 1913, he was called to Munich. Here he assisted in the direction of the philosophical seminary and the newly-erected institute for psychology. In 1907, the medical faculty of Giessen conferred on him the honorary doctor's degree in recognition of his researches in experimental psychology. It will be remembered that Sommer was then a member of the Giessen faculty, and, like Külpe, he was very much interested in experimental psychology. In his original researches Külpe was influenced very much by Wundt, but later on came out more strongly all the time for the dual theory. He regarded the problem of reality as the essential one in philosophy. He wrote much. Among his better-known writings may be mentioned his "Essentials of Psychology from the Experimental Standpoint," and his "Introductions to Philosophy" as well as his more popular writing "The Philosophy of the Present" and his monograph on "Immanuel Kant."

DEATH OF KLAATSCH

January 7, Prof. H. Klaatsch, one of the younger anthropologists, died in Breslau, at the age of 52. During his last semester as a student, he was made assistant to Waldeyer, and in 1888 he was appointed assistant at the Heidelberg anatomical institute. In 1895 he was appointed extraordinary professor. Since 1907 he has occupied a similar position in Breslau. Prior to that time he had made a very extended study of the aborigines of Australia. He learned that these people were closely related to the Asiatic-European races. Of his researches in anatomy may be mentioned those on the morphology of the tactile bodies in the feet of the marsupials which led him to a further study of the phylogenetic significance of the lines in the hand of the human. He was also interested in the study of fish anatomy, the morphology of the fish scales, as well as the anatomy and embryology of the spinal column. Prominent among his anthropologic researches are those made in collaboration with Dr. Hauser, who published the finding of the *Homo auvignaciensis* in the Dordogne. Klaatsch made the anthropologic study of the skeleton, and definitely established the direct descent of man of the present day from man of the stone age. Klaatsch advanced Darwin's theory of the descent of man by his paleontologic findings. He also studied the Neanderthal skull, and on the basis of his findings concluded that it resembled in construction the gorilla, and therefore was probably descended from anthropoid ancestors who came from Europe to the East, whereas the Auvignac race, which resemble the orang, probably are descended from a further east stem. The man apes of today bear a very strong resemblance in development to the original human stem.

DEATH OF FRIEDRICH

Professor Friedrich, the well-known surgeon, died from sepsis, January 16, after many weeks of illness. He was

only 51 years of age, but had attained considerable prominence. He passed his examinations in 1888, and immediately was appointed assistant in the bacteriologic division of the imperial health department. In 1891 he removed to the surgical clinic in Leipzig, and in 1896 he was appointed extraordinary professor and director of the surgical policlinic institute. From there he went to Greifswald, and in 1907 he went to Marburg. In 1911 he was called to Königsberg. Some of his valuable contributions to science were his study of the cholera and tubercle bacillus, the surgical treatment of the epileptic and of pulmonary tuberculosis and emphysema. His work on the digestive tract is also well known.

The War

SANITATION IN EAST PRUSSIA DURING THE WAR

The report made by the chief of the division of medicine of the Prussian ministry to the director of the interior, Kirchner, several weeks ago, dealing with the sanitary development of East Prussia, contains points of interest to American physicians. Kirchner visited those parts of East Prussia in which war had been waged, and where the occupation by the Russians played havoc with the usual sanitary regulations in order to determine just how much damage had been done and how much could be repaired. He traveled through the country of the Masurian lakes because of the reports that many thousands of Russians and their horses had been driven into these seas during the battle of Tannenberg and died either as a result of drowning or of shooting. Naturally, if this were true, the health of the people living in the surrounding country would be endangered because of the dead bodies of men and animals which would come to the surface and undergo putrefaction, although such reports could well have been regarded as untrue because these Masurian lakes are many miles east of the Tannenberg battlefield. The official investigations made by the authorities within the sphere of the Tannenberg battlefield show that neither men nor horses were driven into these waters and surely not thousands of them. This is another illustration of the fantastic statements that have been made and which cast discredit on all concerned.

Another subject to be mentioned in this connection is the reported mistreatment of women in the war zone. Official investigation has shown that in East Prussia there were only thirty-eight cases of pregnancy for which Russians could be held responsible. No definite proof of so-called assault could be obtained.

THE MEDICAL TREATMENT OF THE FAMILIES OF THOSE PARTICIPATING IN THE WAR

The city of Berlin has published the following resolutions:

1. The city of Berlin has appropriated 500,000 marks ($125,000) for the medical treatment of the families of those participating in the war for the year beginning Jan. 15, 1916. The council of the *Aerztekammer* (chamber of physicians) receives a monthly remittance and distributes the money to those physicians who have been active in the treatment of such persons named.

2. The city of Berlin has been divided into twenty-three medical districts, and will take care of the families of those in the war who are receiving support from the government, but are not members of any sickness insurance. The physicians and specialists living in these districts will be assigned to the work, provided that they will subscribe to certain regulations. If they are assigned to visit a family which is already receiving medical attention, then the government physician may allow the family physician to continue his ministrations. These physicians must agree to see these patients during their usual office hours, or in the home of the patient whenever necessary. Special treatment will be given only on recommendation of the general practitioner. The *Aerztekammer* will ask all physicians practicing in Berlin to take part in this work, and will furnish the magistrate with a list of those who agree to do so. These regulations will be in force only from Jan. 15, 1916, to April 15, 1916, and any desire on the part of the physicians to discontinue such service must be made known at least four weeks before the expiration of this three months' period. If this is not done, then the contract will continue for another period of three months until such time as the public authorities withdraw their support from the whole scheme. It is stated specifically that the appropriation of 500,000 marks need not necessarily be expended, but only such portion of it as is needed for the continuance of this work. The physicians' bills are sent to the *Aerztekammer*, whose officials will audit and approve, if correct, then remitting directly to the practitioner.

PARIS LETTER

PARIS, Jan. 27, 1916.

Personal

January 11, the Académie de médecine elected as foreign correspondents in the section of medicine Professor Ladame of Geneva and Sir Dyce Duckworth of London.

Death of Prof. Edmond Heckel

Edmond Heckel, professor in the Faculté des sciences de Marseille and professor of materia medica in the Ecole de médecine de Marseille, has just died at Marseilles, aged 73. Professor Heckel had published, in particular an "Histoire médicale et pharmaceutique" of the principal medicinal substances introduced into therapeutics in recent years, as well as numerous memoirs on caffeine, kola, etc. He had been a national correspondent of the Académie de médecine for the section on medical physics and chemistry since 1880.

An Offense Against Public Health Committed by a Mayor

M. Mirman, the prefect of the department of Meurthe-et-Moselle, has just suspended the mayor of Rosières-aux-Salines from his functions for fifteen days. The mayor posted a notice informing the populace that the person responsible for the removal of the troops from the commune was the cantonal physician. The prefect of Meurthe-et-Moselle believes that the mayor committed a grave offense when, instead of explaining to the inhabitants of the commune the necessity of a measure for the protection of the public health, he endeavored to excite their resentment against a physician who had simply performed his duty, and who would have been subject to penalties if he had sought to evade it.

The War

TREATMENT OF SETON WOUNDS

Dr. Tuffier, at a recent meeting of the Société de chirurgie de Paris, advised the systematic introduction into seton wounds of a drain for irrigation and disinfection by Dakin's fluid. Dr. Broca showed, by personal statistics, that more than three fourths of these seton wounds healed without other treatment than applications of aseptic dressings at the orifices of entry. Continual irrigation of Dakin's fluid therefore has no advantage in such cases; on the contrary, it has disadvantages, for in seton wounds which contain débris of clothing, with or without bone fragments, Tuffier himself admits that irrigation with Dakin's fluid is inefficacious. In these cases the only course to pursue is to open up freely on the appearance of the first signs of inflammation.

CRANIAL PROTHESIS WITH PERFORATED IVORY PLAQUES

To supply the loss of skull substance due to trephining, plaques of gold are often used. At a recent session of the Société de chirurgie de Paris, Dr. Mauclaire presented two patients on whom, for the same purpose, he had used plaques of perforated ivory which, at the end of six or eight weeks respectively, are still well tolerated. The advantage of these ivory plaques is that they may be made in advance. The edges being very thin, the plaques can be cut down a little if they are too large. It is unnecessary to fasten them with pegs, or to insert the anterior or posterior edges under the skull, for cellular tissue rapidly penetrates the perforations. These plaques are very cheap.

CERVICAL RHEUMATISM AND SCIATIC NEURALGIA ASSOCIATED IN SOLDIERS

Dr. P. Nobécourt has observed some soldiers affected with cervical rheumatism who, in most cases, also suffer from sciatic neuralgia. In these latter cases the association of the pains in the nape of the neck with those of the limbs forms a well-defined syndrome. The onset of the attack, which may be preceded by prodromal symptoms, is, in general, sudden and rapid and in most cases appears to be produced by a march, by severe labor, by exposure to rain or by a night passed in damp quarters. Of all the symptoms observed (elevation of temperature and acceleration of pulse, slight hypertrophy of the spleen, habitual constipation, headache, especially frontal, pain in the nape of the neck, etc.), pain in the nape of the neck is the most characteristic. It is not very intense except when it is produced by movements of the neck, which thus becomes almost completely immobilized. The head may still be bent forward on the chest, however, without pain. Palpation of the neck localizes the painful points, which are situated in general in the posterolateral

regions of the neck near the transverse vertebral processes. In the legs, examination shows, in general at least, light signs of sciatica. Pressure on the eyeball is sometimes painful. Lumbar puncture withdraws under more or less pressure a clear cerebrospinal fluid in which albumin is ordinarily increased, nearly always to a marked degree. In these cases the vertebral rheumatism and sciatic neuralgia yield rapidly under treatment with aspirin or sodium salicylate, and the patient recovers in a few days unless cardiac complications occur. The meningeal reaction indicated by the changes in the cerebrospinal fluid sometimes leads to a suspicion of cerebrospinal meningitis. Methodical examination of the patients, however, brings out the true diagnosis. In these cases the symptoms of cervical arthropathy and neuralgia dominate, while those which characterize meningitis (stiffness of the nape of the neck, Kernig's sign) are missing or are diminished. Lumbar puncture removes all doubts. It should be performed without hesitation, especially since it frequently makes the patient more comfortable.

MEASURES AGAINST FRAUDS IN FOOD ON THE ARMY FRONT

M. Justin Godart, the assistant secretary for the military medical service has recently decided, in order to prevent frauds on the part of dealers, to authorize the military pharmacists to exercise careful control over all the foodstuffs for the use of the soldiers and to make any examination or analysis which may appear worth while.

HOSPITAL ACCOMMODATIONS IN SWITZERLAND FOR PRISONERS OF WAR

I recently mentioned (The Journal, Feb. 12, 1916, p. 522) that the negotiations with regard to the placing of the sick prisoners of war in the hospitals of Switzerland were about completed. Preparations are already being made at Leysin to receive the first French prisoners from Germany. These are patients affected with pulmonary tuberculosis and tuberculosis of the bones (Pott's disease, coxalgia, etc.). The pulmonary patients will be cared for in the higher part of the resort, which is reserved for such patients. The others will be cared for in Leysin village, in special clinics for heliotherapy, under the direction of Dr. Rollier. The private soldiers will be lodged in groups, each under the command of an officer or noncommissioned officer. The pay given by the French government (5 francs [$1] for a private soldier, and 8 francs [$1.60] for an officer) permit the hotel keepers to give their guests healthful and abundant food.

ADVICE FOR THE PRESERVATION OF THE SOLDIER'S HEALTH

The war department, through the assistant secretary for the military medical service, has been distributing to our soldiers at the front a little brochure entitled "Conseils au soldat pour sa santé" which contains useful hints as to personal cleanliness, measures for protection against insects, cold, frost bite and complications as well as against asphyxiating gas.

AID FOR DISCHARGED TUBERCULOUS SOLDIERS

The municipal council of Paris has just requested the prefect of the department of the Seine to prepare, as soon as possible, a plan for building barracks for the isolation and treatment of tuberculous patients on the available land of the hospitals of Paris. The barracks are to accommodate 2,500 beds.

SLEDGES FOR THE TRANSPORTATION OF THE WOUNDED

A subscription from the members of the Swiss colony in Paris has resulted in the gift to the medical service of the French army of 100 sledges for the transportation of our wounded soldiers in the Vosges. Each one bears a copper plaque ornamented with the symbolic figure of Helvetia, surrounded with edelweiss.

MALINGERING

I mentioned in a previous letter cases of phlegmons artificially produced by injection of coal oil (The Journal, Dec. 4, 1915, p. 2021). Dr. Laval has just made an interesting report on this subject to the Société de chirurgie de Paris. These abscesses are usually seen in a special class of soldiers, especially those who have undergone punishment or have come in contact with such men. These malingerers take care to devise a plausible explanation for the lesion. Some make an injection on the site of an old lesion or wound; others offer blows, falls, stumbles or wounds by barbed wire as the cause of the inflammation. Still others, afraid of being entrapped, say nothing until pressed for an explanation, when they break down and confess. According to the confessions, the instrument used is the ordinary morphin syringe which may be obtained at any drug store. The contents are injected into the subcutaneous cellular tissue at one injection or in several places in the same vicinity. Laval has seen coal oil abscesses on the legs, on the forearm, on the hand (never on the upper arm), and most frequently on the inner side of the knee joint. The exterior appearance of the abscess is typical. It is that of a tumefied phlegmon, often extending over a surface the size of the palm of the hand with here and there phlyctenae with purulent contents. The tumefaction is often sharply circumscribed like the swelling of erysipelas. Sometimes one may observe little grayish points, which are the traces of the puncture where the injection was made. The fluctuation appears on the fourth or fifth day. It is very easily observed and is characteristic of the infection. Incision lets out more or less abundant pus mixed with clots and with black fluid blood. Trabeculae divide the interior of the abscess. The odor of coal oil is noticeable when an abscess is opened but the liquid itself exposed to the air rapidly loses the odor. Sometimes the pus has no odor, but a compress introduced into the lesion and rubbed against the sphacelated walls absorbs the odor to a marked degree. There are special peculiarities in the course of these cases. The abscesses are very slowly cleansed, the process lasting for several weeks, and new cutaneous and conjunctival necroses often occur if the injection was deep. Fragments of muscle and tendon are eliminated. Secondary local infections and sometimes septicemia are produced by these eliminating suppurations. Laval had to amputate in one case. The appearance of the lesions, the mingling of phlegmonous and gangrenous processes and the odor of the pus are the characteristic features of abscesses caused by injections of coal oil. Laval mentions a special chemical reaction devised by Theuvenot, pharmacist of the hospital of Neufchâteau. Three test tubes are half filled with a very weak bromin solution of a strength showing a yellow like that of a yellow chartreuse wine. In the first is placed 1 c.c. of suspected pus. If it contains coal oil, decoloration takes place almost immediately, the fluid assuming a clear gray color and the pus accumulating at the bottom of the tube in gray flakes. The second tube is a blank and the third receives 1 c.c. of pus from an ordinary abscess. In this there is no discoloration.

Dr. Savariaud emphasizes the fact that in phlegmons caused by injection of coal oil the multiplicity of foci is not due to the number of punctures, and that diffusion may be due to the injection of a very heavy dose. This feature is characteristic of this kind of phlegmon, for there is no other way in which many phlegmonous and gangrenous lesions can be produced without any visible point of introduction of the injurious substance.

I also mentioned in a previous letter the simulation of albuminuria (The Journal, Nov. 27, 1915, p. 1930). Dr. Minet has also called the attention of the Société médicale des hôpitaux de Paris to this subject. Fraud (that is, injection of albumin into the bladder by way of the urethra) may be suspected when, if the subject urinates twice with a certain interval between the two micturitions, there is a considerable lowering of the albumin percentage or albumin is entirely absent in the second glass. This procedure, however, is not absolute proof. To avoid all chance of error Minet advises that the second glass of urine be obtained by a catheter left in place for some time under surveillance.

Marriages

Hiram Leonard Johnson, M.D., Franconia, N. H., to Sarah Elizabeth Coppinger, M.D., Needham Heights, Mass., in Boston, February 8.

Laurance Phillips Runyon, M.D., to Miss Katherine McClelland Neilson, both of New Brunswick, N. J., February 9.

Henry Rihl Alburger, M.D., to Miss May M. Littlefield, both of Indianapolis, February 3.

James A. Campbell, M.D., Elgin, Ill., to Miss Ruby Dale, at Los Angeles, February 3.

Leo Matthew Czaja, M.D., to Miss Julie Belohavek, both of Chicago, February 15.

Deaths

Henry Baird Favill, M.D. Chicago; Rush Medical College, 1883; aged 55; one of the best known physicians of Chicago; died in Springfield, Mass., February 20, from pneumonia.

Dr. Favill was born in Madison, Wis., Aug. 14, 1860. He graduated at the University of Wisconsin in 1880, and then entered Rush Medical College, from which he graduated three years later. He practiced in Madison until 1893, when he was induced to come to Chicago.

Soon after his arrival in Chicago he was made professor of medicine in the Chicago Polyclinic; in 1898, professor of therapeutics, and later professor of clinical medicine in Rush Medical College.

In 1910 at the St. Louis meeting of the American Medical Association he became a member and chairman of the Council on Health and Public Instruction and filled that position to the time of his death. He was president of the Chicago Medical Society in 1907-1908. Besides his affiliation with the American Medical Association he was a member of the Chicago Pathological Society, Chicago Institute of Medicine, Physicians' Club of Chicago and many other scientific and social bodies. Until 1913 he was president of the Chicago Tuberculosis Institute. He had also been an officer of the National Society for Mental Hygiene, Chicago Association of Commerce, United Charities of Chicago, National Dairy Council and Holstein-Friesian Association. He was president of the latter association at the time of his death. He was attending physician to St. Luke's, Passavant Memorial and Augustana hospitals. For three years he was president of the Municipal Voters' League of Chicago.

Dr. Favill did not limit his interests to medicine, but early took up the consideration of civic problems. He was an able champion of good government, clean politics, municipal improvement and sanitary progress. He was made a director of the City Club of Chicago the year after its organization and became its president in 1911, and at the time of his death he was a trustee of the Chicago Bureau of Public Efficiency.

Dr. Favill was proud of his Indian blood, which he traced back to Kewinoquot, a chief of the Ottawa tribe. He was a man of superb physique and exuberant vitality and an unlimited capacity for work. Three weeks before his death Dr. Favill presided at a meeting of the Physicians' Club of Chicago at which the topic of discussion was "Longevity." Pneumonia was there said to be one of the principal opponents of the efforts of the medical profession to prolong life. Soon after Dr. Favill was called to attend Mr. John J. Herrick, a prominent lawyer of Chicago and son of Dr. William B. Herrick, one of the pioneer practitioners of the city. Mr. Herrick was ill with pneumonia and died. Dr. Favill attended his funeral. The law partner of Mr. Herrick, Mr. Charles L. Allen, son of Dr. James Adams Allen, formerly president of Rush Medical College, attended the funeral of Mr. Herrick, caught cold, pneumonia supervened and in spite of all efforts made by Dr. Favill, succumbed to the disease. Dr. Favill attended Mr. Allen's funeral.

Dr. Favill went to Springfield, Mass., early last week to deliver an address before the New England Dairymen's Convention on behalf of the National Dairy Council of which he was president, but was prevented by illness.



HENRY BAIRD FAVILL, M.D., 1860-1916

Dr. Favill was a man of strong personality, a friend of sterling quality, a modern St. Michael in fighting the dragons of inefficiency, corruption and wrong. The tribute of one friend expresses well the characteristics of Dr. Favill: "He was interested efficiently in more activities outside of his profession than any other physician in the country."

Henry Leopold Elsner, M.D., Syracuse, N. Y.; College of Physicians and Surgeons in the City of New York, 1877; aged 60. He was a Fellow of the American Medical Association, and of the New York Academy of Medicine; a member of the American Gastroenterological Association and American Climatological Association and formerly president of the Medical Society of the State of New York; Onondaga Medical Society, Central New York Medical Association and Syracuse Academy of Medicine. He was a member of the faculty of the Department of Medicine of Syracuse University since 1881 and later, to the time of his death, professor of medicine of that institution; he served also as consulting physician to St. Joseph's Hospital, the State Hospital for Crippled and Deformed Children and the Women's and Children's Hospital, Syracuse. Dr. Leopold Elsner, father of Dr. Henry L. Elsner, and Dr. Simon Elsner of Rochester, N. Y., a brother, died suddenly a few years ago. Just previous to Dr. Elsner's death he had completed a book on prognosis which had occupied his time largely during the last few years. He was noted as a teacher and was frequently called in consultation throughout the country. At the time of his death Dr. Elsner was in Washington, D. C., where he had taken up temporary residence in order to obtain rest from his numerous duties. He contracted a severe cold, from which he was unable to rally, and died suddenly, February 17.

George Dwight Kahlo, M.D., White Sulphur Springs, W. Va.; Bellevue Hospital Medical College, 1891; aged 51; a Fellow of the American Medical Association; president of the Indiana State Medical Association in 1909; secretary to the United States consul at Sydney, Australia, in 1881; once police surgeon of Indianapolis; for several years professor of the practice of medicine and dean of the Central College of Physicians and Surgeons, Indianapolis; and later professor of clinical medicine in the Indiana University School of Medicine; from 1908 to 1912 medical director of the French Lick Springs Sanatorium, and since that time medical director of White Sulphur Springs, W. Va.; died suddenly at Old Point Comfort, Va., February 12, from cerebral hemorrhage.

William Edward Moseley, M.D., Baltimore; Harvard Medical School, 1874; aged 67; a Fellow of the American Medical Association, American Gynecological Society and American College of Surgeons; president of the Gynecological and Obstetrical Society of Baltimore and of the Alumni Association of the Women's Hospital in the State of New York; professor of diseases of women and children in the Baltimore Medical College from 1897 to 1910, and gynecologist to the Union Protestant Infirmary, Baltimore; died at his home, February 10, from carcinoma.

Edgar David Coonley, M.D., Port Richmond, Staten Island, N. Y.; College of Physicians and Surgeons in the City of New York, 1877; aged 71; a member of the Medical Society of the State of New York; formerly president of the Richmond County (N. Y.) Medical Society; a veteran of the Civil War; consulting surgeon to the S. R. Smith Infirmary,

Port Richmond, and at one time a member of the board of education; died at his home, February 8, from heart disease.

James Lloyd Wellington, M.D., Swansea, Mass.; Harvard Medical School, 1842; aged 98; a member of the Massachusetts Medical Society; believed to have been the oldest alumnus of Harvard Medical School and the oldest male resident of Massachusetts; for sixty-two years a practitioner of Swansea; assistant surgeon of the Seventh Massachusetts Infantry from 1840 to 1842; for one term a member of the Swansea school board; died at his home, February 11.

Ralph Clark Apted, M.D., Grand Rapids, Mich.; University of Michigan, Ann Arbor, 1902; aged 39; a Fellow of the American Medical Association and a member of the Association of Military Surgeons of the United States; ranking major-surgeon in the Medical Corps of the Michigan National Guard; city physician of Grand Rapids for eleven years; a veteran of the Spanish-American War; died at his home, February 13, from carcinoma of the pancreas.

Albert W. Fisher, M.D., Toledo, Ohio; Jefferson Medical College, 1860; aged 80; a member of the Ohio State Medical Association; surgeon of the Fifty-Seventh Pennsylvania Volunteer Infantry during the Civil War; for several years health officer of Toledo; formerly physician to the United States Marine Hospital, Toledo, and surgeon of the port of Toledo; died at his home, February 4, from bronchopneumonia.

Emanuel Oscar Stuckey, M.D., Albuquerque, N. M.; University of Nashville, Tenn., 1903; aged 47; formerly of Atlanta, Ga., and later assistant physician at the Valmora Sanatorium, Watrous, N. M.; while suffering from despondency on account of tuberculosis, died February 3, in his apartment, from the effects of poison, believed to have been self-administered with suicidal intent.

Edward Everett French, M.D., Bentleyville, Pa.; Jefferson Medical College, 1887; aged 50; a member of the Medical Society of the State of Pennsylvania; secretary of the Ellsworth Board of Health; president of the First National Bank of Bentleyville; a practitioner and pharmacist; died in the Suburban General Hospital, Belleview, Pa., February 10.

George Henry Schwinn, M.D., Washington, D. C.; Columbian University, Washington, D. C., 1898; aged 42; a member of the Washington Society of Nervous and Mental Diseases; first assistant physician at the Government Hospital for the Insane, Washington, D. C., and a member of the staff of the institution since 1898; died in his apartments at the hospital, February 6.

Arthur Eugene Evans, M.D., Columbus, Ohio; Miami Medical College, Cincinnati, 1882; aged 59; a Fellow of the American Medical Association; for ten years a member and once president of the city council of Columbus; once a member of the board of health and city physician; died at his home, February 7, from carcinoma of the throat.

Arthur R. Russell, M.D., Hamler, Ohio; Eclectic Medical Institute, Cincinnati, 1898; aged 42; local surgeon of the D. T. and I. Railway; for eight years mayor of Hamler; died at his home, December 12, from the effects of a gunshot wound, self-inflicted, it is believed, with suicidal intent while mentally unbalanced on account of overwork.

Leonard L. Bennett, M.D., Owatonna, Minn.; Rush Medical College, 1862; aged 76; a practitioner and president of the National Farmers' Bank of Owatonna, for four years coroner of Steele County and for many years a member of the board of county commissioners and school board; died at his home, February 3, from pneumonia.

Henry Clay Bostwick, M.D., Vancouver, Wash.; Rush Medical College, 1874; aged 84; a pioneer practitioner and druggist of Chehalis and Tacoma, Wash.; major-surgeon of the Ninth Kansas Volunteer Cavalry during the Civil War; for nearly twenty years a resident of Vancouver; died at his home, February 1.

Henry Ward Gregory, M.D., West Philadelphia; Medico-Chirurgical College of Philadelphia, 1899; aged 43; a Fellow of the American Medical Association; formerly a member of the staff of the Hazleton (Pa.) State Hospital; for fifteen years a practitioner of West Philadelphia; died at his home, February 11.

Jacob Stewart Martin (license, Indiana, years of practice, 1897), aged 82; for fifty-one years a practitioner of Rolling Prairie, Ind.; died at the home of his son in South Bend, Ind., January 30, from pneumonia.

Obadiah Hendricks, M.D., Macon, Miss.; Tulane University, New Orleans, 1853; aged 94; said to have been the oldest alumnus of Tulane; an honorary member of the Lauderdale County (Miss.) Medical Society; died at the home of his daughter in Meridian, Miss., about February 7.

Lewis A. Davis, M.D., Berea, Ky.; St. Louis College of Physicians and Surgeons, 1899; aged 41; a member of the Kentucky State Medical Association; local surgeon at Berea for the Louisville and Nashville Railroad, and city health officer; died at his home, February 4, from pneumonia.

Elisha C. Etchison, M.D., Gaithersburg, Md.; University of Maryland, Baltimore, 1874; aged 68; a member of the Medical and Chirurgical Faculty of Maryland; once representative in the legislature from Montgomery County; died in a hospital in Washington, February 5.

James E. Bumstead, M.D., Dundee, Ill.; Northwestern University Medical School, Chicago, 1880; aged 67; a practitioner of Dundee since his graduation and one of the most beloved practitioners of Kane County; died at his home, February 15, from pneumonia.

Phares James Dukeshire, M.D., Brooklyn; Long Island College Hospital, Brooklyn, 1909; aged 29; an official of the Brooklyn Board of Health and adjunct physician to the Polhemus Clinic; died at his home, February 8, from pneumonia.

Charles William Watt, M.D. Long Island College Hospital, Brooklyn, 1883; aged 56; for a long time surgeon for the A. S. and R. Railroad at Chihuahua, Mexico; died in Providence Hospital, El Paso, Texas, January 1, from pneumonia.

Thomas J. Wells, M.D., Davis, Okla.; Eclectic Medical Institute, Cincinnati, 1890; aged 49; a member of the Oklahoma State Medical Association; until 1913 a practitioner of Erick; died at his home, January 20, from cerebral hemorrhage.

George S. Wheeler, M.D., Waukegan, Ill.; Rush Medical College, 1850; aged 87; who practiced for a few years in Chicago and then moved to Waukegan where he kept a book shop for half a century; died at his home, February 20.

Oliver Hazard Jones, M.D. Miami Medical College, Cincinnati, 1875; aged 72; a member of the Indiana State Medical Association and a pioneer practitioner of Montgomery County, Ind.; died at his home in Crawfordsville, January 30.

William A. Bell, M.D. University of Pennsylvania, Philadelphia, 1873; aged 65; a member of the Medical Society of Virginia and a widely known practitioner of the Shenandoah Valley; died at his home in Winchester, Va., January 29.

Jabez Dean Hammond, M.D., Chicago; Rush Medical College, 1885; aged 55; a Fellow of the American Medical Association, since 1893 house physician at the Congress Hotel, Chicago; died at his home, February 15, from uremia.

George W. H. Williams, M.D. Philadelphia University of Medicine and Surgery, 1869; aged 79; an eclectic practitioner of North Grosvenordale, Conn.; died at his home, January 29, from injuries received in a fall four weeks before.

Calvin Emerick, M.D. Albany (N. Y.) Medical College, 1897; aged 45, formerly health officer of Ulster, N. Y.; state fish and game warden for Ulster County, N. Y.; died at his home in Glasco, N. Y., January 26, from pneumonia.

Thomas Wilkinson Burke, M.D. Georgetown University, Washington, D. C., 1884; aged 67; died in the United States Pension Bureau, Washington, November 15, from chronic nephritis and acute cardiac dilatation.

Charles S. Brown, M.D. Medical College of Georgia, Augusta, 1890; aged 54; a member of the Florida State Medical Association; died at his home in Live Oak, Fla., January 27, from cirrhosis of the liver.

Jocelyn William Blackmer, M.D. University of Maryland, Baltimore, 1915, aged 28, intern at the Springfield State Hospital, Sykesville, Md.; died at the home of his mother in Salisbury, N. C., February 1.

Patrick D. Connolly, M.D. Missouri Medical College, St. Louis, 1885; aged 53; formerly a member of the Missouri State Medical Association; died at his home in St. Louis, January 30, from pneumonia.

William Alexander Marbury, M.D. University of Maryland, Baltimore, 1867; aged 74; formerly of Woodville and Aquasco, Md.; died at the home of his sister in Laurel, Md., February 3.

George P. Rider, M.D., Wilmette, Ill.; Albany (N. Y.) Medical College, 1888; aged 51; who abandoned practice after a short time for mining interests; was shot in Denver, February 9, and died two days later from pneumonia.

Walter H. Mayhew, M.D., Sabillasville, Md.; University of Maryland, Baltimore, 1901; aged 37; formerly demonstrator of histology and embryology in his alma mater; died in Baltimore, December 13, from pulmonary tuberculosis.

Mary Lucinda Dunlap, M.D., Des Moines, Iowa; Iowa Eclectic Medical College, Des Moines, 1888; aged 59; professor of physiology in her alma mater; died in the Iowa Lutheran Hospital, Des Moines, February 5.

James Brown, M.D., Ashton, Ill.; Rush Medical College, 1862; aged 84; surgeon of the Sixty-Sixth Illinois Volunteer Infantry throughout the Civil War; a practitioner of Ashton since 1868; died at his home, January 23.

John G. Ryerson, M.D., Boonton, N. J.; College of Physicians and Surgeons in the City of New York, 1860; aged 82; a member of the Medical Society of New Jersey; formerly a druggist; died at his home, February 10.

Cornelius Baldwin, M.D. University of Pennsylvania, Philadelphia, 1861; aged 78; surgeon in the Confederate service during the Civil War; died at his home in Winchester, Va., January 29.

John H. Johnson, M.D. Georgia College of Eclectic Medicine and Surgery, Atlanta, 1906; aged 39; of Falco, Ala.; was shot and killed about 18 miles south of Andalusia, Ala., January 8.

John A. Masterson, M.D. Rush Medical College, 1871; aged 72; a member of the State Medical Society of Wisconsin; died at his home in Watertown, Wis., February 8.

Thomas Hayes Derrick, M.D. Meharry Medical College, Nashville, Tenn., 1913; aged 39; a practitioner and druggist of Nashville, Tenn.; died in Phoenix, Ariz., January 30.

Charles E. Scholes, M.D. University of Tennessee, Nashville, 1892; a member of the Kentucky State Medical Association; died at his home in Lowes, Ky., February 5.

John Mills Minter, M.D. Northwestern University Medical School, Chicago, 1909; aged 33; died at his home in Burley, Idaho, December 31, from lobar pneumonia.

Augustus Charles Post, M.D. Albany (N. Y.) Medical College, 1911; aged 27; of Catskill, N. Y.; was run over by a train at Catskill, January 2, and instantly killed.

E. Willard Wells (license, California Homeopathic Board, 1876), aged 82; also a pharmacist; died at his home in Eureka, Calif., January 29, from senile debility.

W. L. Evans (license, Indiana, 1878), aged 86; for many years a practitioner of Washington and Noogootee, Ind.; died at his home near Noogootee, February 1.

William W. Bell, M.D. Jefferson Medical College, 1858; aged 77; a veteran of the Civil War; died at his home in Chicago, November 27, from arteriosclerosis.

Robert F. Adams, M.D. University of Louisville, Ky., 1875; aged 78; of Sharpsville, Ky.; died in Johnsonville, Ky., January 19, from lobar pneumonia.

Edwin Behymer, M.D. Eclectic Medical Institute, Cincinnati, 1875; aged 68; died at his home in Cincinnati, January 31, from heart disease.

Thaddeus Lewis (license, Michigan, 1901), aged 66; an eclectic practitioner of Central Lake, Mich.; died at his home, February 3, from pneumonia.

Martin Kennedy, M.D. University of Pennsylvania, Philadelphia, 1868; aged 79; of Bartow, Fla.; died in Jacksonville, Fla., January 28.

George W. Huey, M.D. University of Alabama, Mobile, 1891; aged 53; died at his home in Hartford, Ala., January 14, from nephritis.

Robert Carey Buck, M.D. University of Maryland, Baltimore, 1874; aged 64; died suddenly at his home in Manassas, Va., February 1.

Augustus Ralston, M.D. Ohio Medical College, Cincinnati, 1881; aged 70; died at his home in New Corydon, Ind., February 6.

Alfred L. Laliberte, M.D. Laval University, Quebec, 1904; aged 39; died at his home in Minneapolis, February 5, from pneumonia.

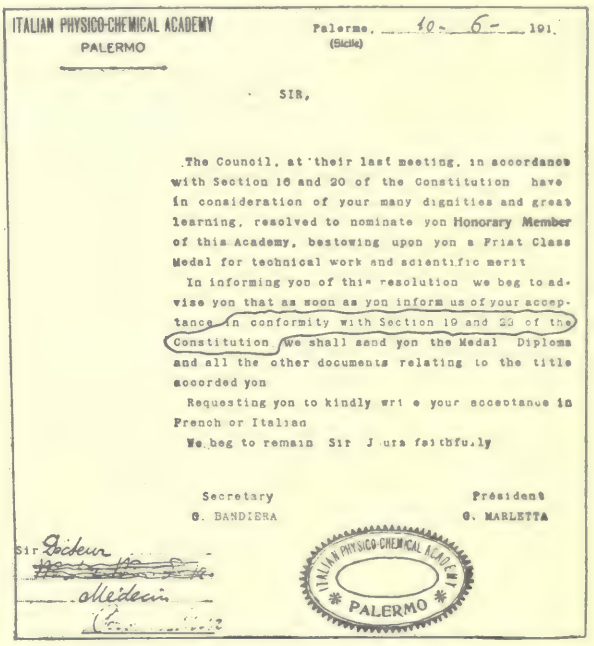
Dirk Van Kolken, M.D. Netherlands, about 1866; aged 79; died at his home in Grand Rapids, Mich., January 7, from gastritis.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE ITALIAN PHYSICO-CHEMICAL ACADEMY

Many and various are the letters received by THE JOURNAL asking for information about an alleged scientific organization in Italy styled *l'Académie Physico-Chimique Italienne.* This Italian Physico-Chemical Academy is operated from Palermo, Italy. Here is the scheme: Dr. John Doe, an American physician receives an imposing-looking letter bearing the Palermo, Sicily, postmark and addressed to *"Monsieur le Docteur John Doe, Médecin."* On opening the letter *"Monsieur le Docteur"* finds that the "Council" of *l'Académie Physico-Chimique Italienne* has nominated him "Honorary Member of this Academy" and furthermore has bestowed on him "a First Class Medal for technical work and scientific merit." All this, "in consideration of your many dignities and great learning." Dr. Doe is told that as soon as he will write an acceptance of this honor "in conformity with Section 19 and 22 of the Constitution" he will be sent "the Medal, Diploma and all the other documents relating to the title accorded." The joker in the scheme lies in the necessity for Dr. John Doe "conforming" with "Section 19 and 22 of the Constitution." Here are the sections:



ITALIAN PHYSICO-CHEMICAL ACADEMY
PALERMO

Palermo, 10-6- 191.
(Sicile)

SIR,

The Council, at their last meeting, in accordance with Section 16 and 20 of the Constitution have in consideration of your many dignities and great learning, resolved to nominate you Honorary Member of this Academy, bestowing upon you a First Class Medal for technical work and scientific merit

In informing you of this resolution we beg to advise you that as soon as you inform us of your acceptance in conformity with Section 19 and 22 of the Constitution we shall send you the Medal Diploma and all the other documents relating to the title accorded you

Requesting you to kindly write your acceptance in French or Italian

We beg to remain Sir Yours faithfully

Secretary
G. BANDIERA

President
G. MARLETTA

Sir Docteur
Médecin

ITALIAN PHYSICO-CHEMICAL ACADEMY
PALERMO

Reduced photographic reproduction of the stock letter sent to American physicians by the Italian Physico-Chemical Academy. The "joker" lies in the requirement around which we have drawn a line.

"Sec. 19.—The entrance fee to cover office and postal expenses, including postage of diploma is 5 Dollars, and is payable once at the admission to the Academy by special bulletin filled up, stamped and signed."

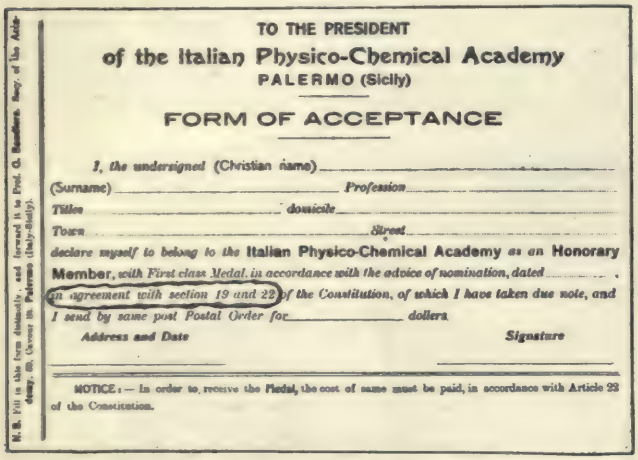
"Sec. 22.—Those to whom medals are awarded and who wish to possess them must pay for their coinage 10 Dollars as the Academy does not, at present, possess the necessary funds for this purpose. . . ."

In short the whole thing means that if Dr. Doe is willing to send $15 in good American money he will receive in due time from the academy a "diploma" and a gilt (not gold) medal.

About four years ago when the "Academy" seemed to be making a particularly heavy bid for American dollars the member of THE JOURNAL staff in charge of the Propaganda

Department wrote to the "Academy," on his personal stationery, asking about the cost of membership in the "Academy" and asking also for a copy of the "prospectus." And that was all! In reply he received a letter stating that "in consideration of" his "many dignities and great learning" he had been nominated "an officer of this academy" and had been awarded *"la médaille de première classe"* for humanitarian work and scientific merit. In order to obtain these tokens of the "Academy's" regard it would be necessary to inform the "Academy" of acceptance "in conformity with Section 19 and 22. . . ." As the Propaganda Department did not consider the diploma and gilt medal worth $15 even as an exhibit for its museum of fakes, the "Form of Acceptance" was not filled in and returned "in accordance with Section 19 and 22."

The leading spirits in the operation of this diploma and medal mill are D. and G. Bandiera who, so far as we can



TO THE PRESIDENT

of the Italian Physico-Chemical Academy

PALERMO (Sicily)

FORM OF ACCEPTANCE

I, the undersigned (Christian name) .....

(Surname) ..... *Profession* .....

Titles ..... *domicile* .....

Town ..... *Street* .....

declare myself to belong to the **Italian Physico-Chemical Academy** *as an* **Honorary Member**, *with First class Medal, in accordance with the advice of nomination, dated* ..... ,

in agreement with section 19 and 22 of the Constitution, of which I have taken due note, and I send by same post Postal Order for ..... *dollars*

Address and Date *Signature*

NOTICE: — In order to receive the Medal, the cost of same must be paid, in accordance with Article 22 of the Constitution.

N. B. Fill in this form distinctly, and forward it to Prof. G. Bandiera, Segr. of the Academy, 69, Corso di Palermo (Italy-Sicily).

Photographic reproduction (reduced) of the "Form of Acceptance" to "membership" in the "Italian Physico-Chemical Academy." Filling out this blank and sending it *with $15.00* to the "Academy" will bring the gilt medal and "diploma."

learn, are neither physicians nor pharmacists nor have any scientific standing. The "Academy" has been referred to at various times[1] by The Journal.

TANLAC

"Tanlac" is a sky-rocket in the pyrotechnics of fakery. It is at present making a brave display with much noise and many sparks; the stick will come down in due time. Tanlac is another of the increasingly popular alcoholic nostrums that presumably fill a much felt want—want, not *need*—in those parts of the country where Demon Rum has been driven into the tall timbers. It was first exploited in the South—naturally. This department paid its respects to Tanlac in the issue of June 5, 1915.[2] The advertising campaign of this product has, apparently, reached Michigan and the Dairy and Food Department of that state in Special Bulletin No. 50, published Feb. 12, 1916, has something to say about Tanlac under the title "The Latest Cure-All." As we still have a good many inquiries regarding Tanlac it seems worth while to reprint the report of Food Commissioner Helme of Michigan on the product. The findings of the Michigan chemists agree essentially with those of the Association's chemical laboratory. Here, in part, is the Michigan report:

"A new panacea for the cure of 'all ailments of the stomach, kidneys and liver, catarrhal affections of the mucous membranes, rheumatism, nervous disorders and the like' is offered to the public under the name of Tanlac. The label on the bottle neatly avoids the pure drugs act by claiming to be only a 'tonic and system purifier.' An analysis of Tanlac in the laboratory of this Department shows the following:

"Alcohol	16.4 per cent.
"Glycerin	2.0 per cent.
"Licorice	Present.
"Aloes or Cascara	Present.
"Gentian	Present.
"Alkaloids (Berberin)	Trace.

"The presence of a trace of tartaric acid shows that wine is the base of this medicine. The 16 per cent. alcohol gives it the 'kick' that makes a fellow feel good and ought to fill a long felt want in 'Dry Counties.' Aloes is a laxative. Gentian is a bitter drug, a so-called tonic. If the reader wants to be cured by the Tanlac route at one-fourth the expense, let him get a quart bottle of good sherry wine. Then go to the local druggist and get 1¼ drams of glycerin and 2 drams each of aloes, gentian, licorice and cascara. Mix (if you wish) and you will have Tanlac so near that neither you nor the manufacturer can tell the difference. This formula will give four times the quantity found in an ordinary $1 bottle of Tanlac."

1. The Journal A. M. A., June 29, 1907, p. 2196; Oct. 21, 1911 (Berlin letter and editorial); May 11, 1912, p. 1455; March 8, 1913, p. 770; May 10, 1913, p. 1480; Nov. 8, 1913, p. 1737.

2. The Journal's article on Tanlac has been reprinted in the pamphlet, "Miscellaneous Nostrums," price 10 cents.

Correspondence

The Value of Contesting a Hopelessly Fatal Issue

To the Editor:—The recent appearance of a valuable article by Reilly, on "The Signs and Symptoms of Impending Death" (The Journal, Jan. 15, 1916, p. 160), suggests forcibly those questions which center around the familiar conservative principle that governs the physician, in theory at least, in the face of such an issue. The "Cui bono?" cannot be escaped, whether we ask it of ourselves, or meet it in the person of our patients' relatives, in our friends, or in our own flesh and blood.

Setting aside for the moment the ethical and social aspects of euthanasia, which after all we answer so easily in generalities and with such difficulty when we confront the specific case, it is worth while for the moment to weigh a less familiar aspect of the value of a physician's futile struggle against what was, from the start, an inevitably fatal issue.

Issues in medicine whose hopeless outcome can be immediately foreseen are few. But by indefinite gradations, impending death seems to pass from an ultimate to an immediate certainty in all of the diseases which profoundly change the parenchymatous structure of important organs. It is this indefinite gradation from ultimate to immediate which, in a final analysis, deprives us of the right to draw the line at which our efforts to conserve shall stop. The lapse into a fatalistic, calm acceptance of the fact of impending death is none the less only too easy for us in these last stages—made easier for us by the friends, and perhaps easiest of all by the patient himself. It seems a ruthless thing even where there is no pain, not even consciousness, to harry the body back to life. It demands, too, a vigilance, an energy, a determination, a resource, which exhausts the one who brings it to bear. It burns time and consumes nerve. Not without reason do we rate the bringing in of life and the fighting of imminent death as the hardships of the career. There comes to every man the temptation to let go. The ethic of the work slips from him; it seems a needless thing to drag this body back once more for a precarious minute or hour, to be the agony of friends and to sap the living in the process of dying. He lets the hopeless battle be lost by his own unconscious choice, and the spirit returns unto God who gave it.

But somewhere in this gentle sophistry to which we yield ourselves, we have missed contact with a vital thing. The fight against impossible odds is a maker of character. The man in whom it is not bred, bone of bone, is unseasoned. The man who declines to make it is unsafe or overripe. We can appeal to ourselves for death. To every one of us there may come a time when we appeal to the physician for life.

The struggle against certain death is a form of preparation for the service of the living. Into whose hands do we commend the critical case, the issue of a life precious to us? We yield it into the hands of the man of whom battle is a

part, to whom surrender is unknown, for whom artificial respiration, oxygen, intravenous stimulation and all the paraphernalia of desperation are old friends, rather than untried servants in the house of his resources. To the man who never left a man to die, we commend ourselves *in extremis* if life still seems good. To the training of such men the hopeless death-bed can contribute the unique, seasoning touch that perfects their skill. The hopeless conveys to such seasoned men no impulse to surrender. As in chess, so in the fight for life, the lost game makes the player.

To every physician there come many such critical moments, in which he recognizes and confronts the inevitable. If, especially in his earlier experience, he gives ground before it, he has lost a priceless heritage. The going down to death only seldom must mean pain to the dying in these days. To oppose it when the struggle means unrelievable agony is perhaps too much to ask. But in those cases in which this need not be, to summon every resource of skill and personality, and in his shirt-sleeves, with the sweat running into his eyes, to fight to stave off another's dissolution, makes a man. Here often for the first time one attains to the true appreciation of the capacity of the body to rally to its own defence, and to the first understanding of the possibilities of digitalis and atropin. He who has not brought back the seemingly dead to life, only to lose hardly in the end, fighting to the last ditch, has not won his spurs.

It is in the air of some wards and of some hospitals to watch an impending death almost with resignation. The young physician who breathes such contagion weakens in the knees. The dying turn black before him, and go down to the River Styx, crying out for help, and he stands by, lacking both the impulse and the knowledge for effective response. Many a worth-while life will slip through that man's hands before his course is run. Another, trained to a more far-sighted ideal, springs into sudden, well-directed action, and drags back the limp figure from the World of Shades, if only for an hour. The last man has, by the fight, added a cubit to his stature.

It is the service of inevitable death to school us for the defense of life, and only to those who have met and striven against it, even though to their own ultimate defeat, comes the power to give life where there is still hope. Let us rid ourselves of sophistry, at least on those occasions when, as physicians, we must measure up to the words of the Apocrypha, spoken of each one of us: "Yea, there is a time when in his hands is the issue of life. . . ."

JOHN H. STOKES, M.D., Chicago.

The Kinetic Drive

To the Editor:—In response to the statement of Dr. Pike (Correspondence, THE JOURNAL, Feb. 19, 1916, p. 591) I beg leave to confine myself to the two points that have been more objectively discussed.

With reference to the action of the iodin compound of the thyroid in the animal organism, the belief is expressed that "a misstatement of fact" was made in our commentary. In effect we expressed the opinion that it is superficial reasoning to pass so readily from observed facts about the influence exerted on electrical permeability of cells by sodium iodid, which by dissociation yields iodin ions, to the conclusion that an organic iodin compound, which contains "masked" or undissociable iodin, has the same influence. If there is "a misstatement of fact" in this, it must be about the undissociable iodin. To be brief: *There is nothing* in Scudder's tables which indicates that the dissociation involves the ionization of iodin in those and organic compounds which Dr. Pike mentions. It is permissible to deduce from the principles of physical chemistry accepted at present that the dissociation in these acid compounds which he mentions occurs in the carboxyl group; it is customary for writers on physical chemistry to refer to an element, bound as iodin is in these compounds, and most likely in the thyroid compounds also, as undissociable; Dr. Pike adduces nothing to show that it is not permissible to continue to refer to elements so bound in "masked" form as undissociable. But even though it ever should develop that we are in error about this, is not our comment justified by its evident object, namely: to urge the desirability of applying experiment to the settlement of this question about the thyroid substance?

It was not necessary to point out the stimulating effect of free hydrogen ions on the respiratory center and their contrast effect on the cortical cells. It serves the intent of our comment on this matter to have these points reinforced. It is this contrast of effects in different parts of the nervous system which shows the unreasonableness of ascribing the rise of nerve impulses to difference of electric potential between different points on the neuromuscular apparatus. If the nerve impulses from the cerebral cortex owe their origin to a different potential between the cortex and the nerve end-organ, the impulses from the respiratory center must also depend on a difference of potential between the center and respiratory muscles—unless the nerve impulses in these two mechanisms are fundamentally dissimilar. For the present we adhere to the old-time notion that all nerve impulses are fundamentally similar. If increased hydrogen-ion concentration abolishes the difference of potential between the cortex and muscles, it must do the same thing between the respiratory center and muscles. But in the cortex greater concentration of hydrogen ions causes paralysis of the cells, while in the respiratory center it causes greater excitation; how does the latter phenomenon comport with the view that the rise of nerve impulses is due to difference of electric potential? Or how again are we to account for afferent nerve impulses—unless again they are fundamentally dissimilar to motor nerve impulses?

ALBERT WOELFEL, M.D., Chicago.

Esperanto and the War

To the Editor:—In connection with the item on this subject (THE JOURNAL, Feb. 5, 1916, p. 439), allow me to invite attention to the further activities of Esperantists, and to the value and use of Esperanto in the present war: Esperantists have sent several fully equipped Red Cross Esperanto ambulances into the field, with personnel. Esperanto is being taught in the prison and internment camps, so that there may be a "common" language. There is an Esperanto "repatriation" bureau maintained in Geneva, Switzerland, through which disrupted families are brought together, correspondence forwarded, and much other good of a like nature accomplished. Statements relating to "justification" for the war were issued in Esperanto by governments, notably the German, which also issued official war bulletins in Esperanto, for international distribution. Keys, weighing but 5 grams, though containing the elements of the language and a vocabulary of more than 2,000 words, are published in practically all languages, for international conversational and correspondence purposes. A similar series of Esperanto Red Cross booklets is published, and much other work is being accomplished along these lines.

In short, Esperanto is proving its great value for its intended purposes, and it is the best passport in the warring countries that one may possess.

Mil faktoj atestas la meriton praktikan de la nomita lingvo.

H. W. YEMANS, M.D., Fort Warren, Boston.
First Lieutenant, M. R. C., U. S. Army.

Constipation in Causation of Epilepsy and Migraine

To the Editor:—I have read with a great deal of interest Dr. Reed's articles on epilepsy. His theory of an edema of the subcortical nerve tracts, accompanying or following a condition of general acidosis, which in turn results in some way from stasis of the bowel contents, seems to be a real step in the right direction.

But it has occurred to me, as it doubtless has to others, that this fails to account for the symmetrical manifestations of the typical attack of epilepsy. A symmetrical edema of both internal capsules is of course possible, but shall we say it is probable?

This theory would more nearly account for a typical attack of migraine, with its unilateral headache, hemianopsia, diplopia, paresis of the opposite extremities, and occasional motor aphasia in left hemicrania. Practically all migrainous patients are constipated, and practically all are relieved by large doses of sodium bicarbonate.

This is written, not in the spirit of criticism, but as a query, that more light may be thrown on these remarkable diseases.

L. K. STRATE, M.D., Sutton, Neb.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

GENOFORM

To the Editor:—Kindly inform me as to the composition of genoform, manufactured by C. Bischoff & Co., New York. It is not mentioned in New and Nonofficial Remedies. Please do not mention my name in THE JOURNAL.

E. A. C.

ANSWER.—Genoform, advertised as a remedy for gout, rheumatism, neuralgia, etc., is said to be "O- oxybenzoic acid methylene acetate, $C_{10}H_{10}O_5$," "a glycolester resulting from the interaction of acetyl-salicylic acid and formaldehyde." The manufacturers claim that it is split up in the intestines into salicylic acid, acetic acid and formaldehyd. The statement of composition is too indefinite to permit any real insight into its possible reactions. Even if formaldehyd were liberated in the intestines, however, it could not form combinations with the excess uric acid found in the system of gouty patients, and could not therefore exert the "antiarthritic properties" as claimed.

LITERATURE ON PEPYS' DIARY

To the Editor:—Can you give me any information concerning medical articles, historical or otherwise, dealing with Mr. Samuel Pepys of diary fame? The diary is of extreme interest to physicians, as it contains a complete description of the London plague and many references to experiments performed before the Royal Society.

J. W. D., M.D., Baltimore.

ANSWER.—The following is a list of references to articles on this subject:

Geikie, A.: Samuel Pepys and the Royal Society, *Nature*, London, 1904-1905, lxxi, 415.

Power, D. A.: An Address on the Medical History of Mr. and Mrs. Samuel Pepys, *Lancet*, London, 1895, i, 1357; Who Performed Lithotomy on Samuel Pepys? ibid., 1904, i, 1011; An Address on Why Samuel Pepys Discontinued His Diary, ibid., 1911, i, 1687; Samuel Pepys and the Royal Society, *Brit. Med. Jour.*, 1912, ii, 184.

Carmichael, A. R.: The Eyesight of Samuel Pepys, *Lancet*, London, 1911, ii, 124.

Some Sidelights on Medicine in the Seventeenth Century (from the Diary of Samuel Pepys) *Univ. Med. Rec.*, London, 1914, v, 406.

Rogers, J. F.: Science from the Pages of Samuel Pepys, *Med. Times*, 1914, xlii, 340.

PYRAMIDON

To the Editor:—Kindly advise me as to the chemical composition and physiologic action of pyramidon.

R. LLOYD SMITH, M.D., Portland, Ore.

ANSWER.—Pyramidon is fully described in New and Nonofficial Remedies, 1916, p. 225. Pyramidon is known chemically as phenyl-dimethyl-dimethylamino-pyrazolon. It differs from antipyrin in that a dimethylamino group has replaced a hydrogen atom of the pyrazolon nucleus. Pyramidon acts as an antipyretic and anodyne, like antipyrin, but is effective in small doses. Like other antipyretics, it should be cautiously employed in the treatment of infectious fevers.

EXCHANGE OF MEDICAL BOOKS

To the Editor:—In my struggle to keep up with the progress of medicine, I have often wondered why the progressive publishers of medical books do not offer some exchange plan which would enable a physician to keep an up-to-date library without prohibitive cost.

It seems to me that the prices now charged for medical works are sufficiently large to enable the publishers to give us some credit for the old book in exchange for a later edition or revision.

Perhaps some suggestion along this line from THE JOURNAL would be followed by the publishers to our mutual advantage.

J. F. MIXON, M.D., Valdosta, Ga.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, April 4-5. Sec., Dr. John Wix Thomas, 200 National Bank of Arizona Bldg., Phoenix.

CALIFORNIA: Los Angeles, April 4. Sec., Dr. Charles B. Pinkham, Room 527 Forum Bldg., Sacramento.

COLORADO: Denver, April 4. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: Regular, New Haven, March 14-15. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven; Homeopathic, New Haven, March 14. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven; Eclectic, New Haven, March 14. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

FLORIDA: Homeopathic, Jacksonville, March 10. Sec., Dr. J. B. Griffin, St. Augustine.

IDAHO: Boise, April 4. Sec., Dr. Charles A. Dettman, Burke.

MAINE: Portland, March 14-15. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MASSACHUSETTS: Boston, March 14-16. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

MINNESOTA: Minneapolis, April 4-7. Sec., Dr. Thomas S. McDavitt, 814 Lowry Bldg., St. Paul.

MISSOURI: St. Louis, March 20-22. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

MONTANA: Helena, April 4. Sec., Dr. William C. Riddell, Helena.

PORTO RICO: San Juan, April 4. Sec., Dr. Quevedo Baez, 66 Allen St., San Juan.

RHODE ISLAND: Providence, April 6. Sec., Dr. Gardner T. Swarts, 315 State House, Providence.

UTAH: Salt Lake City, April 3-4. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

WYOMING: Laramie, March 14-16. Sec., Dr. H. E. McCollum, Laramie.

New York May-June Report

Mr. H. H. Horner, chief of the Examinations Division of the New York State Board of Medical Examiners, reports the written examinations held at Albany, Buffalo, New York and Syracuse, May 28-29 and June 29-July 2, 1915. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 474, of whom 387 passed, including 3 osteopaths, and 87 failed, including 3 osteopaths. Fifteen candidates were licensed on the indorsements of credentials. The following colleges were represented:

PASSED		
College	Year Grad.	Total No. Licensed
Denver and Gross College of Medicine	(1910)	1
Georgetown University	(1913)	1
George Washington University	(1910)	1
Howard University	(1911)	1
Northwestern University	(1911)	1
University of Illinois	(1914)	1
University of Louisville	(1911)	1
Tulane University of Louisiana	(1908)	1
College of Physicians and Surgeons, Baltimore	(1914)	1
Johns Hopkins University	(1912, 2) (1913) (1914) (1915, 9)	13
University of Maryland	(1911)	1
Boston University	(1912)	1
Harvard University	(1913) (1915)	2
Tufts College Medical School	(1913, 2) (1915)	3
University of Michigan Medical School	(1915)	1
Albany Medical College	(1913, 3) (1914, 6) (1915, 24)	33
Columbia University, College of Physicians and Surgeons	(1911, 2) (1912, 2) (1913, 3) (1914, 7) (1915, 31)	45
Cornell University	(1912) (1913, 2) (1914, 2) (1915, 8)	13
Fordham University	(1912, 2) (1913) (1914) (1915, 11)	15
Long Island College Hospital	(1912, 3) (1913, 2) (1914, 5) (1915, 59)	69
New York Homeo. Medical College and Flower Hospital	(1913, 3) (1914, 3) (1915, 13)	19
New York Medical College and Hospital for Women	(1915)	3
Syracuse University	(1912) (1914, 2) (1915, 8)	11
University and Bellevue Hospital Medical College	(1913, 4) (1914, 2) (1915, 50)	56
University of Buffalo	(1914, 4) (1915, 50)	54
Hahnemann Medical Coll. and Hosp., Philadelphia	(1912)	1
Jefferson Medical College	(1913, 3) (1914) (1915)	5
Medico-Chirurgical College of Philadelphia	(1914)	1
University of Pennsylvania	(1913) (1914) (1915)	3
Woman's Medical College of Pennsylvania	(1915)	3
University of Nashville	(1909)	1
Vanderbilt University	(1909) (1912)	2
University of Vermont	(1912)	1
University of Virginia	(1911) (1913)	2
Queens University	(1909) (1911, 2) (1915)	4
University of Toronto	(1913) (1915)	2
Laval University, Quebec	(1900)	1
McGill University	(1906) (1913) (1915, 2)	4
University of Prague	(1906)	1

University of Jena	(1909)	1
University of Tübingen	(1911)	1
University of Naples	(1912) (1913)	2
University of Geneva	(1913)	1

FAILED

Georgetown University	(1913)	1
Howard University	(1911)	1
Illinois Medical College	(1898)	1
University of Louisville	(1912)	1
Baltimore Medical College	(1913)	1
College of Physicians and Surgeons, Baltimore	(1912)	1
Johns Hopkins University	(1910) (1914)	2
Tufts College Medical School	(1905)	1
Detroit College of Medicine and Surgery	(1911) (1913)	2
University of Michigan Homeo. Med. School	(1914) (1915)	2
Albany Medical College	(1913) (1914, 6) (1915, 2)	9
Columbia Univ. Coll. of Phys. and Surgs.	(1914) (1915, 5)	6
Eclectic Med. Coll. of the City of New York	(1910)	1
Fordham University	(1913) (1914, 3) (1915, 6)	10
Long Island College Hospital	(1913) (1914) (1915, 3)	5
New York Homeo. Medical College and Flower Hospital	(1912) (1913) (1914, 5) (1915, 6)	13
New York Medical College and Hospital for Women	(1915)	1
Niagara University	(1898)	1
Syracuse University	(1913, 2) (1915)	3
University and Bellevue Hosp. Med. Coll.	(1914) (1915, 2)	3
University of Buffalo	(1911) (1914, 2) (1915, 2)	5
Jefferson Medical College	(1909) (1912, 2)	3
Medico-Chirurgical College of Philadelphia	(1902)	1
University of Pennsylvania	(1890)	1
Woman's Medical College of Pennsylvania	(1915)	2
University of Vermont	(1914)	1
McGill University	(1902)	1
University of Berlin	(1914)	1
University of Catania	(1912)	1
University of Naples	(1905) (1909)	2
Syrian Protestant College	(1912)	1

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Hahnemann Medical College and Hospital, Chicago	(1905)	Wisconsin
College of Physicians and Surgeons, Baltimore	(1908)	New Jersey
University of Maryland	(1911)	Delaware
Columbia University, College of Phys. and Surgs.	(1901)	New Jersey
N. Y. Homeo. Med. Coll. and Flower Hosp.	(1912) (1913)	New Jersey
Medico-Chirurgical College of Philadelphia	(1914, 2)	Delaware
University of Pennsylvania	(1901)	New Jersey
Woman's Medical College of Pennsylvania	(1902)	Indiana
Medical College of Virginia	(1901) (1913)	Virginia
University of Berlin	(1899)	Utah
University of Pisa	(1910)	Ohio

Connecticut November Report

Dr. Charles A. Tuttle, secretary of the Connecticut Medical Examining Board, reports the oral, practical and written examination held at New Haven, Nov. 9-10, 1915. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 29, of whom 21 passed and 8 failed. Five candidates were licensed under an exemption clause. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Yale University	(1913) 79; (1915)	76.9
College of Physicians and Surgeons, Baltimore	(1913)	77.1
Johns Hopkins University	(1906) 76.9; (1912) 87.4; (1914)	84.8
University of Maryland	(1912)	79.4
Harvard Univ.	(1912) 80.5; (1913) 75.6; (1914) 82.3; (1915)	78.2
Tufts College Medical School	(1913)	82.8
Albany Medical College	(1912)	83.2
Columbia University, College of Phys. and Surgs.	(1915)	87.9
University and Bellevue Hosp. Med. Coll.	(1903) 77.4; (1914)	79
Jefferson Medical College	(1913)	79.1
Medico-Chirurgical College of Philadelphia	(1914)	76.1
Woman's Medical College of Pennsylvania	(1899)	80.1
University of Vermont	(1914)	80.2, 82.2

FAILED

College of Physicians and Surgeons, Baltimore	(1910)	69.1
Eastern University*	(1913)	53.8
Maryland Medical College	(1913)	58.5
University of Maryland	(1913)	63.2
College of Phys. and Surgs, Boston	(1908) 56; (1910)	46.6
Meharry Medical College	(1913)	66.7
University of Budapest	(1898)	67.5

LICENSED UNDER AN EXEMPTION CLAUSE

College	Year Grad.	Total No. Licensed
Johns Hopkins University	(1901)	1
Coll. of Phys. and Surgs., in the City of New York	(1889)	1
Syracuse University	(1896)	1
University of Buffalo	(1893)	1
McGill University	(1881)	1

* This college was officially reported as not recognized by the Maryland State Board of Medical Examiners.

Book Notices

DISPOSAL OF SEWAGE. By Leonard Metcalf and Harrison P. Eddy. Volume 3 of American Sewerage Practice. Cloth. Price, $6 net. Pp. 851, with 230 illustrations. New York: McGraw-Hill Book Company, 1915.

This volume is the third in a series by the same authors on American sewerage practice, the first being the design of sewers, and the second on the construction of sewers. There are already two excellent books by American writers on sewage disposal—one by Kinnicut, Winslow and Pratt, the other by George W. Fuller—and the question might be raised whether a third treatise on the same subject is needed within so brief a period after publication of the others. New light, however, is being thrown almost daily on the subject of sewage treatment, and opinions and methods are changing so rapidly that any new and authoritative book in this field must prove valuable to practical workers. This is especially the case with such a masterly summary as this one, enriched as it is with the authors' well-matured opinions. Modern developments are described with a wealth of detail and a balanced judgment that can hardly be praised too highly. There is little to criticize adversely. We notice that certain aspects of the relation of bacteria to sewage disposal are handled somewhat gingerly, as might perhaps be expected from the fact that the authors' experience has been largely on the engineering side. To judge from the discussion of the production of hydrogen sulphid by bacteria (p. 100), the authors do not seem to be familiar with the important work of Redfield and of Lederer. The lactose bile test for *Bacillus coli* (p. 108) is apparently considered by the authors in a more favorable light than is warranted by the recent trend of opinion among water bacteriologists. Considering the book in the most critical way, however, it must be regarded as a very valuable addition to the list of excellent American books on sewage treatment. The typography and illustrations are excellent. A thin but good quality of paper is used, so that the volume of 850 pages is easy to handle and consult.

AN AUTOBIOGRAPHY. By Edward Livingston Trudeau, M.D. Cloth. Price, $2. Pp. 322, with illustrations. Philadelphia: Lea & Febiger, 1916.

One of the best known institutions devoted to the treatment of pulmonary tuberculosis is that at Saranac Lake, New York. It is the result of the working out of an idea—the development of the best method of treating consumption, based on scientific observation, on practical clinical experience, and on laboratory research, especially with due regard to the needs of those of limited means. But while the reputation of the institution is world-wide, few realize how extensive the Adirondack Cottage Sanitarium has become. Most remarkable is the fact that, to all intents and purposes, the institution is the result of the indomitable energy, perseverance and altruistic labors of one man, and he suffering to such an extent that he was bedridden half the time, and daily fighting for his very life.

Trudeau's autobiography is more than a story of his life; it is a history of the development and growth of the institution he created, as well as the newer, the modern methods of treating consumption. The book, therefore, is of practical value to every physician interested in this disease. But it is what Trudeau did for humanity, unselfishly and in spite of physical disability and other obstacles which few individuals would have overcome, that makes the book interesting and worth while. And it is all told simply, and with a perfect effacement of the ego. Those who knew Trudeau would expect this: large hearted, unselfish to the extreme, giving credit to others when he, himself, deserved it.

Trudeau was a pioneer, literally. He went to the Adirondacks with a forlorn hope, and remained through that first winter almost alone, when all his friends told him it was suicidal to do so. But he did not know what tremendous consequences would follow; he did not dream what was to result, what benefits to the consumptive would follow this experience at Paul Smith's.

The great asset, the important factor, in the personality of Dr. Trudeau, was a remarkable faculty of making and keeping friends. This spelled success; this built the cottages, laboratories, the administration building, the three churches for which he was responsible. Luck, fortune, his family connections, what you will, may have had something to do with it; but, after all, it was the personal equation, the man himself, that counted. He had ideas which he wanted to carry out for humanity, which required money. He was optimistic not only as to the possibility of carrying out these ideas, but also as to what good would result to humanity if they were carried out. Luck may be credited with the fact that many of his friends were well-to-do, if not wealthy. Harriman was a life-long and very close friend. "I was always keenly interested in everything I undertook, and was by temperament an optimist." This tells the story. He was intensely interested; his whole soul was in his work, and he was hopeful to the *n*th degree. His earnestness and hopefulness were an inspiration to his friends to give. "The generosity and readiness," he says, "with which people have given me money has ever been, and is even now, a matter of wonderment to me." It need not have been; in fact, a few pages farther on he says, "The personal element must enter to some extent into such work [that of securing funds] for all appeals to the public, no matter when or how well presented, which have been made at different times in print by friends of the institution have never met with the least response." It was the personal element, the plain yet beautiful character in that frail body which made possible the remarkable success of Edward Livingston Trudeau's life work.

Even though one did not know the man, as one reads these happenings of the years as they pass in the life of Trudeau and his little family, the explanation of how he accomplished what he did is revealed.

Modern Aspects of the Circulation in Health and Disease. By Carl J. Wiggers, M.D., Assistant Professor of Physiology in Cornell University Medical College. Cloth. Price, $3.75 net. Pp. 378, with 104 illustrations. Philadelphia: Lea & Febiger, 1915.

This book is divided into three sections. The first discusses the physiology of the circulation in a comprehensive manner, bringing the subject up to date. The second section discusses the graphic and instrumental methods used in the study of the phenomena of the circulation, describing in detail the string galvanometer and other modern and approved methods. The third section discusses the pathologic conditions of the circulation, and tries whenever possible to correlate them with similar conditions produced experimentally. The author consistently explains these diseased conditions by the existing pathologic physiology. Although the work is somewhat technical and presupposes a good general knowledge of physiology, it should prove of value to the physiologist and the clinician desirous of being conversant with modern ideas of the circulatory disorders. The value of the work is enhanced by the illustrations, and the bibliography at the end of each chapter.

Pulmonary Acoustic Phenomena. By C. M. Montgomery, M.D., of the Henry Phipps Institute, and E. A. Eckhardt, Ph.D., Department of Physics, University of Pennsylvania. Tenth Report of the Henry Phipps Institute. Paper. Pp. 117. Philadelphia: Henry Phipps Institute, 1915.

This is the report of "an investigation of some of the factors concerned in the origin and transmission of some of the sounds heard over the lungs in health and disease." The investigation has been carefully conducted by means of experiments, clinical observation with necropsy control, and a consideration of the laws and theories of physics. The sounds discussed are the voice sounds and the breath sounds as heard in the normal and the consolidated lung, over excavations, pleural effusion and pneumothorax. The book is not intended as a textbook on physical diagnosis. It will interest those who desire to understand more fully the mechanism of the phenomena heard on listening to the normal or diseased lung. It is a pleasure to see the high regard in which the pioneer work of Austin Flint is held, work not always accorded the great credit that it deserves.

Miscellany

Industrial Medical Supervision

Large industrial concerns are beginning to adopt medical supervision, both as an economic measure as it affects the employers, and in the interest of the employees. A pamphlet issued by the Eastman Kodak Company contains the address of its medical officer, Dr. Guy L. Howe, to the Rochester Chamber of Commerce. He describes the plan of organization of the medical work and some of the results. The work is divided into physical examination, care of accidents, care of sickness, sanitary inspection and health publicity. Every applicant for work who qualifies, by his own consent, undergoes a physical examination to determine his fitness for the work he expects to do. This examination includes a study of the heart and lungs, a test of the eyes for astigmatism, colorblindness and near and far vision, and a test of the hearing. Teeth, throat and neck are examined and a urinalysis is made. Rupture, flatfoot, varicose veins, hemorrhoids and evidence of communicable diseases are looked for. Vaccination is required in all who have not been successfully vaccinated within fifteen years. Anemia is looked for and blood pressures taken when deemed necessary. As instances of the findings among the 6,000 employees, it is said that moderate elevated blood pressure was found in 28, and serious in 42, or 1.1 per cent.; moderate heart disease in 38 and serious in 18, or 0.77 per cent.; ruptures (moderate) in 116 and severe in 39, or 2.57 per cent. Eight patients with tuberculosis are under treatment in sanatoriums or by open air methods at the expense of the company. Poor teeth which should have the attention of the dentist were found in 90 per cent., and in 1,557, or 25 per cent. of all employees, the dental defects were such that failure of treatment amounted to serious neglect. By these methods of examinations carried out periodically, incipient defects are discovered, and they also afford a basis of comparison of the physical status of employees from year to year. Instances are given in which the discovery of serious defects permitted the shifting of men to other work which they could do without injury. Specially defective employees to the number of 281 are examined every six or twelve months, and all dining room employees every three months. In accident cases the services of the company physician are available throughout until recovery, and hospital and consultation fees and the cost of roentgenograms are provided at company expense. This procedure was effective before the enactment of the workmen's compensation law. This law does not require the treatment of sickness among employees, but this constitutes a large part of the work of the medical department. From fifty to a hundred cases of minor illness are said to be taken care of every day. The department acts as a medical clearing house, determining when an employee is fit to remain at work and when he should be in bed. Employees are recommended to employ their family physicians, as determined by two questions: Would the man go to his physician if the department did not treat him, and could he afford to pay the necessary fee? A negative answer to either would determine treatment by the medical department. It is said, however, that ten patients are placed in the hands of the local medical profession to one who is taken away. Sanitary inspection each month has been arranged for in all factories, in dining rooms, workshops, washrooms, lockers, and of drinking water. A monthly health bulletin is distributed to employees, and a health manual has been prepared.

Laryngeal Ictus in Adults

E. Jeanselme and C. Lian discuss what they call the "ictus laryngé des bronchitiques" in the *Bulletins de la Société des hôpitaux* of Paris, 1915, xxxi, 571, relating two typical examples. After a brief tickling in the throat and spasm of coughing, the face becomes congested, and the man falls unconscious for a few seconds, but then recovers promptly and goes on with what he had been doing before the seizure, apparently unharmed. There was not the slightest sign of syphilis in one of the men; in the other

there was probable syphilis but nothing to indicate tabes. Both were inclined to congestion of the face, stout, with short necks, and were hard drinkers. In Bedos' compilation of forty-three cases of nontabetic laryngeal ictus, only one patient was between 10 and 20, one between 20 and 30, nine between 30 and 40, fourteen between 40 and 50, and ten between 50 and 60. There was a history of gout in seven, obesity and diabetes once each. The period of unconsciousness never lasts more than a minute or two, and there is no known fatality from this cause. The spasm as described occurs in the course of bronchitis, and it seems to be a sudden inhibition of the action of the brain, a reflex consequence from peripheral irritation of the superior laryngeal nerve. The disturbance in the circulation in the brain, to which some attribute the ictus, is only an accessory factor, Jeanselme believes. In treatment and prevention, the main point is to reduce the excitability of the pneumogastric system, and for this atropin is required. He gave small daily doses of atropin to his two patients, and there was no further ictus and the spasms of coughing were much attenuated. Persons subject to these seizures should take atropin during periods when they are inclined to cough violently. They should also lie down at once, to avoid a fall, whenever they feel the tickling in the throat, severe coughing spasm and mist before the eyes, warning of the impending ictus. Siredey has reported the case of a healthy robust physician of 54 who had a slight cold, and in drinking a cup of tea "swallowed a drop or so the wrong way." This induced a violent coughing spasm, and he rolled from his chair to the floor, entirely unconscious for a minute or two. There was slight malaise afterward and he vomited, but then resumed his daily work as usual. There has been no repetition of the attack during the five years to date.

Drug Medication

"The average physician's slavery to drug medication is difficult for intelligent minds to understand. It is too closely associated with the methods of dishonest quackery to be comfortable under scrutiny. The majority of medical prescriptions call for compounds absolutely lacking in specific or even general influence upon disease processes, and yet how rare is the physician who after examining the patient, and realizing that drugs can be but a false help, frankly gives his patient truly helpful advice, advice properly influencing his personal habits, which will, if followed, produce real cure. Many physicians satisfy their patients' almost superstitious desire for medicine and their own knowledge that there is no drug to cure, by administering what is technically termed a placebo, a harmless inert substance which contents the sufferer until nature accomplishes that which the physician is unable to helpfully modify by pill or potion. How seldom the physician takes his patient into his confidence and explains the modus operandi of such treatment. So the fetish of drug dependence, strong in the physician, lays an even heavier hold on the laity. This would prove but comparative damage if all medicine were innocent placebos, but in his armamentarium, the physician has medicaments of a potency irresistible for good, but likewise fatal for damage, drugs which for the time will stay the trembling hand and whip the faltering nerves into activity, which will still the small voice of discomfort, rob weariness of its weakness and lull pain and anguish into drowse and dreams. Weak and ignorant human nature clutches at these artificial comforts, little realizing or caring that too often the fire of disorder has but temporarily been checked with new fuel, to soon break out the fiercer. How few physicians frankly and firmly show their patients the common relation between drug taking and character weakness? How often do they make clear to impatient sufferers that the help given by drugs is but fleeting and that too often dodging the corners of discomfort is the first step toward the death of will? How rarely is the physician's influence strong and wholesome in inspiring the patient with his superiority to circumstances. How seldom does he quietly and hopefully explain the nature of the disorder and its rational, logical handling without habit-producing or will-wilting poison, and show him how he may by passing through a few hours of temporary discomfort learn that profound lesson of will and health which will be his future protection. The contributions of medical weaklings to the great aggregate of damage caused by unwise drugging are mentioned with shame. As a profession, doctors, in addition to harmful drug use, fail in their higher usefulness through a willingness to nurse and coddle unnecessary suffering, and through many popular, though questionable arts of superficial sympathy, not only maintain but produce invalidism. So much of the waste of sickness of today grows out of self-indulgence that it is humiliating to see our men of medicine pampering the weaknesses underlying these human derelicts.

"It is truly a serious charge to make against one's own profession, that in the practice of its art, it is aiding and abetting the very invalidism which looks to it alone for cure. Could every doctor fill his patients with some measure of manly contempt for comfort, safety and ease, and inspire each of his ill ones with a larger and nobler conception of the blessing of transient suffering manfully faced, as compared with the misery of self-pity which comes when a human being surrenders all that stands for personal victory and self-mastery to a craven hour of ease, then would the days of much useless invalidism be numbered. Meanwhile, the stronger, wiser and truer of the medical profession will be found working shoulder to shoulder with all teachers of wisdom in that noble and stimulating task of supplying wills for the will-less."—Robert S. Carroll, M.D., the *Scientific Monthly*, January, 1916, p. 79.

The Public and Mental Fads

In a public address given recently in Philadelphia (*Old Penn* Weekly Review, Dec. 18, 1915) Dr. William Pepper, dean of the University of Pennsylvania, School of Medicine, thus calls attention to the manner in which the public are attracted by the various fads of drugless healing parading under high-sounding titles:

"From the existing medical schools we may expect a constant improvement. The only menace to medical education in this country lies in the fact that the American public seem to fairly welcome each and every new brand of drugless healing. No matter how illiterate, how untrained in every branch of knowledge tending to enable them to diagnose disease, if these quacks but claim to be the exponents of a new cure our gullible public flock to their offices and often pay high for the folly. If uneducated individuals are to be allowed to spend but a few weeks or months, or to take correspondence courses to acquire a sufficient knowledge of the latest variety of drugless healing to enable them to go forth and treat their fellowmen, while regular practitioners of medicine must have graduated from a four-year high school and then have spent one or two years in college and four years in a medical school, then danger is near, and medical education will still need reform."

Cancer Statistics in the United States

According to a recent bulletin issued by the United States Census Bureau, a special report on deaths from cancer in the United States during 1914 is in preparation. It will be prepared under a new plan of using the figures gathered by the census bureau. The bureau has not undertaken special research work that will duplicate the work of any other institution or laboratories investigating cancer, but this report should result in a marked improvement in the mortality statistics in the way of greater accuracy and more detail. On the suggestion of the American Society for the Control of Cancer, the figures in possession of the bureau will be more thoroughly analyzed and listed under more titles than those previously employed. The report will consist of tables showing deaths from cancer according to the site of the disease, age, sex, color, nativity and marital condition, covering the registration area, the several registration states and the usual subdivisions. The publication of this report, it is believed, should bring out new and useful information as to the prevalence of the disease in the United States, and thereby contribute to a better understanding of its controllable features.

Medicolegal

Jurisdiction and Review Where License Revoked

(Thompson vs. State Board of Medical Examiners et al. (Colo.), 151 Pac. R. 436)

The Supreme Court of Colorado affirms a judgment dismissing a writ of certiorari bringing up the proceedings of the board revoking the petitioner's license to practice medicine because of the alleged procurement by him of a criminal abortion, according to findings of the board. The court says that counsel for the petitioner asked the court to examine the evidence to determine whether the board had jurisdiction, contending that the only ground on which his license could have been revoked was that he had procured a criminal abortion, and that there being insufficient testimony to prove that fact, there was a lack of power to hear and determine. But the board is by statute invested with power to revoke a physician's license for the act of which the petitioner was found guilty, and where a sworn complaint is filed with it charging such offense, that gives the board jurisdiction of the subject matter, and when the person against whom the charge is made appears in person and by attorney and contests the proceeding on its merits, that gives the board jurisdiction of the person. Under the statute the duty rested on the board, after it had received the evidence as to the guilt or innocence of the petitioner in respect to the offense charged, to decide whether or not it was sufficient to convict. It might be that the board erred in its decision on that question, but that was a matter which went exclusively to the merits of the case and did not bear in the slightest degree on the question of jurisdiction. Where, therefore, as in this case, the record proper shows jurisdiction in the inferior tribunal, the authorities are practically unanimous that on certiorari the inquiry cannot be extended to a review on the merits, but that on every question except the one of power or jurisdiction the action of the inferior tribunal is final and conclusive. Where the law does not require the inferior tribunal to preserve the evidence taken before it, on which it bases its action, such evidence does not become a part of the record to be certified up to the reviewing court on certiorari, and the findings of the tribunal based on such evidence cannot be reviewed. Contention was made and argument indulged in to the effect that the board greatly abused its discretion in revoking the license. Assuming for the purposes of this opinion, but not deciding, that this question was one which in a proper case might rightfully be urged, in the absence of the evidence which the board had before it the court was unable to see how that matter could be considered or intelligently discussed, much less determined. There was no legal duty on the board to preserve the evidence offered at the hearing, and there was nothing in the record to indicate that the petitioner asked to have it preserved, or requested an opportunity to preserve it himself. Under such circumstances he plainly was in no position to urge a reversal of the judgment of the court on the ground of abuse of discretion, as there was absolutely nothing here on which the court could predicate such action.

Liability for Death of Hospital Patient Claiming to Have Drunk Mercuric Chlorid Solution

(Wilbur vs. Emergency Hospital Association et al. (Cal.) 151 Pac. R. 155)

The District Court of Appeal of California, Second District, reverses a judgment obtained by the plaintiff, a widow, for the death of her son 18 years old, alleged to have occurred as a result of negligence on the part of the defendants while he was in the Emergency Hospital Association's hospital, to which he had been taken while suffering from an attack of pneumonia. The court says that for about a week he had a special nurse. When she took charge of him, she prepared a solution of mercuric chlorid, which was kept in a small glass on a chiffonier in the room, to be used for disinfecting the thermometer. When the condition of the patient apparently justified dispensing with the special nurse, she left the glass containing the solution on the chiffonier. That night the patient was restless, and about 2 a. m. was discovered getting back into bed, when he said that he had drunk "that green stuff." The chiffonier was so located as to require him to walk about seven feet from his bed to reach it. The contention of the plaintiff was that her son's death was due to poisoning from drinking the mercuric chlorid solution, rather than to a recurrence of acute pneumonia due to a relapse. It may be conceded that, considered as an abstract question of law, it was negligence to have the mercuric chlorid solution in the room where it could be reached by the patient. The question, however, was: Did such negligence contribute to or cause his death? Clearly, if he did not drink the solution, his death could not be attributed to such negligence, however gross it may have been. The condition of the patient after the alleged taking of the solution was not accompanied by symptoms shown, without contradiction, by reputable physicians and nurses to manifest themselves in cases of such poisoning. None of these, except the vomiting, manifested itself in this case, and that, as it clearly appeared, was due to the administering of whites of eggs as an antidote. Other symptoms exhibited, such as a high degree of temperature and greatly accelerated heart action, were conclusively shown to be inconsistent with the theory that the patient died as a result of taking a poisonous solution of mercuric chlorid. The disappearance of the solution, assuming that it was of poisonous strength and quantity, was just as consistent with the theory that it was thrown out of the window as it was with a theory that the patient drank it; indeed, more so, since had he drunk it the effect of so doing would have manifested itself in certain symptoms, none of which was exhibited.

Marriage Not Annullable for Concealment of Belief of Taint of Hereditary Insanity

(Allen vs. Allen (N. J.), 95 Atl. R. 363)

The Court of Chancery of New Jersey dismisses a bill filed by the complainant, who sought a decree annulling her marriage to the defendant on the ground that at the time of her marriage the defendant knew that he was afflicted with a taint of hereditary insanity, and with that knowledge stealthfully concealed the fact from the complainant. The court says that at the time of the marriage the defendant was a graduate physician 31 years of age. About two years thereafter he performed an abortion on his wife, without her knowledge. This occasioned a confession by him that his determined avoidance of offspring was made necessary by reason of his having inherited insanity, and that he had concealed his affliction at the time of his marriage, knowing that his disclosure would have prevented the marriage. About six years after his marriage he became violently insane and had thereafter remained in that condition. The only evidence that the defendant's insanity was hereditary, aside from his own belief, was to be found in the opinion of a physician to that effect, which appeared to be based chiefly on the present symptoms of the defendant and the circumstance of insane collateral relatives. The court holds that the relief here sought must be denied in any event for want of adequate proof of the fact that the defendant was at the time of his marriage afflicted with a taint of insanity which would have been inherited by his offspring. The defendant's confession of his belief to that effect could not be properly accepted as sufficient to establish the fact, and the basis of the other physician's opinion in the matter was too uncertain. The fact must be determined with reasonable certainty to justify a decree of that nature. Moreover, the court thinks that it will be found that, in the absence of statutes specifically authorizing a decree of annulment, or declaring the marriage unlawful at the time it was contracted, no satisfactory authority exists to support the view that a marriage contract, voidable only, can be annulled by a court of equity for fraudulent concealment by a party touching his or her physical condition, except in the extreme instances of disease of either party of a nature to render contact seriously dangerous to the other, or pregnancy of the wife. The importance of healthful offspring cannot be overestimated, but that consideration appropriately belongs to the legislature.

Society Proceedings

COMING MEETINGS

American Medico-Psychological Association, New Orleans, April 4-7.
American Urological Association, St. Louis, April 17-19.
California State Medical Society, Fresno, April 18-20.
Georgia Medical Association, Columbus, April 19-21.
Louisiana State Medical Society, New Orleans, April 18-20.
Missouri Valley Medical Society, St. Joseph, Mo., March 23-24.
North Carolina State Medical Society, Durham, April 18.
South Carolina Medical Association, Charleston, April 18-20.
Tennessee State Medical Association, Knoxville, April 4-6.

ANNUAL CONGRESS OF MEDICAL EDUCATION, PUBLIC HEALTH AND MEDICAL LICENSURE

(*Concluded from page 599*)

FEDERATION OF STATE MEDICAL BOARDS OF THE UNITED STATES

A Plan for the Regulation of the Practice of Medicine: What the Federation of State Medical Boards of the United States Could Accomplish

DR. O. V. HUFFMAN, Brooklyn: The federation could help to bring about uniformity in the methods, standards and requirements of all state medical boards. The much desired reciprocity between the various states in endorsing each other's medical licenses would naturally follow such uniformity.

Each state board is urged to accept and bring about the necessary changes so as to permit them to grant licenses to graduates of acceptable medical colleges without examination. The federation could prescribe the requirements which would have to be met by a medical college to be acceptable, two years of study in a college of liberal arts for admission, and a satisfactory four year medical course. It was suggested that the federation ask the United States Bureau of Education to provide the experts and inspectors necessary for publishing a list of acceptable medical colleges.

It is suggested also that state boards provide examinations for all applicants who have not been educated in the prescribed way. Other suggestions are that state boards revoke a license whenever the holder has been proved morally or professionally unfit to practice—such revocation to be accepted by all state boards, and that the boards put a stop to all incentive to quackery by getting the medical profession remunerated on such a basis that it would be to its direct interest to keep its clientele in sound health. To do this a scheme for a compulsory sickness insurance was suggested. It was stated that the public could not be safeguarded against incompetent practitioners until the practice of medicine was put on a sounder economic basis. Any scheme for compulsory insurance which provides adequate compensation to the medical profession and at the same time relieves wage earners of the great burden of doctors' bills ought to be welcomed by all concerned. If each of the 30,000,000 wage earners paid $2.11 a year, we should have a sum equal to the present aggregate income of the whole medical profession; and in addition the profession could still have the fees collected from patients with incomes of $1,200 or over. In general, the public does not realize how miserably underpaid the medical profession is. It does not seem to be known that doctors generally are not paid for their services given in dispensaries or in hospital wards.

Heretofore, whenever the economic situation of the medical profession has been discussed, it has usually been stated that there are too many doctors. Investigation shows that in general the medical profession is not overcrowded, and that a physician cannot properly care for more than an average of sixteen patients in eight work hours. Statistics compiled by the Industrial Relations Committee show that 2.5 per cent. of the population is constantly sick or disabled, which makes an average of nineteen patients per day for each doctor.

Regulation of Drugless Practitioners

DR. GEORGE H. MATSON, Secretary of the Ohio State Medical Board, Columbus, Ohio: Laws to regulate the practice of medicine are largely matters of education. Advancement in existing medical practice laws should be anticipated the same as we anticipate progress in other educational laws. There should be no place for special privileges. The right to treat human ailments should be given only to those who by an educational test have been proved to be properly qualified. The best method of meeting present conditions is to provide for the regulation of all who in any way practice the healing art. Having begun with the restrictive plan which has led to multiple standards, we should now provide not only for present but also for future practices. The Ohio State Medical Board obtained advance information last year that two or more bills were in preparation for introduction which would, if enacted, establish other standards for medical practice in Ohio. To preserve the integrity of our own medical practice act, further legislation was obtained authorizing the state medical board also to examine and register all persons desiring to practice a limited branch or branches of medicine or surgery, and to establish rules and regulations governing such limited practice. Holders of limited practitioners' certificates are prohibited from treating infectious, contagious and venereal diseases, from subscribing or administering drugs or performing major surgery. Certificates must be recorded with the probate court the same as those of physicians and surgeons, and may be revoked for the same reasons, and also for violations of the rules and regulations established by the board governing the practice. The definition of the practice of medicine is unchanged, and the penalty for violation remains the same and the fee for examination the same. Reciprocity is provided for. We are not prepared in Ohio to state definitely whether our recent enactment will prove a success or failure. Since the limited practitioners have agreed to the educational program adopted, we cannot believe that we shall suffer as much during the next ten years as we have during the past ten. The public will not reap any benefits until all these applicants for license are required to demonstrate their ability to diagnose diseases, which is now essential.

Standardization of Hospitals

DR. JOHN M. BALDY, President of the Pennsylvania Bureau of Medical Education and Licensure, Philadelphia: The necessity for the standardization of hospitals has arisen from the demand of the profession for the intern year. If the medical student should have an intern year, it follows, as a matter of course, that hospitals must be taken in hand as well as medical schools so that the time of the intern will not be wasted. This year of time should be of value to him and of ultimate value to the community. There are certain hospitals that have anticipated the needs of the time and are perfecting their plants, but they are few and far between. The hospitals are governed by boards of managers; they have superintendents in charge, many of them trained nurses; we have not pointed out to the boards of managers wherein these institutions are deficient. We have not pointed out to them that certain things are absolutely essential for the successful management and running of these institutions. Boards of managers are business men and have not received very kindly the suggestions from doctors, the progressive men on hospital staffs, on account perhaps of lack of funds. The advice and suggestions of such men would enable them to bring up the efficiency of the various departments in these hospitals and see that they are manned by competent men. If the intern year is to be one worth while, then hospitals should be standardized with reference to equipment and facilities for making the intern year worth while.

Discussion on the National Board of Medical Examiners

DR. C. E. CANTRELL, Greenville, Texas: The protection of the people of a state is laid at the door of the governor. This is true of most, if not all, states. The governor appoints the board. His office is a political one. It is the duty of the board to prevent men from entering on the practice of medicine who have not been properly educated and who are not

qualified. Where is the difference between the examination that will be given by this national board of examiners and its staff and an examination of any first class university medical college? Why give them a better certificate than the Johns Hopkins? It seems to me that great danger lies in multiplicity of standards.

Dr. Arthur M. Hume, Owosso, Mich.: Every member of a state board should think as to what he considers his duty. As a representative of the Michigan state board, my primary duty to the people of the state of Michigan is so to aid in administering medical affairs in the state that all of the people will receive the most effective service from the medical profession in that state. According to the opinion of the attorney-general of Michigan, we cannot as members of the state board recognize the certificates of a national board.

Dr. T. J. Crowe, Dallas, Texas: On such a national board, let us have three federal men, and twelve representatives from the Federation of State Medical Examining Boards of the United States. Let us call it a federal board, so that we know what we are getting. It seems to me, starting with six men picked from the federal service, and only three men from the state boards is a mistake. There should be a larger representation from the Federation of State Medical Examining Boards of the United States.

Dr. E. J. McKnight, Hartford, Conn.: It is a good thing to have a national medical examining board. I have no criticism to make of its personnel. If the Council on Medical Education should report favorably on this national board at the next session of the American Medical Association, I shall vote for it.

Dr. S. L. Jepson, Wheeling, W. Va.: The national board has placed the standard too high. The examinations held by the different public services are much more rigid than those held by state boards. When this high standard is announced through the medical journals it will lead to the failure of this national board.

Dr. H. W. Abraham, Appleton, Wis.: The state board of Wisconsin has the greatest confidence in this movement for a national board. When the matter was published in The Journal of the American Medical Association, and the board was named and a résumé of the standards exacted, our board as a unit voted to accept the licentiates of this board if in every way they came up to the standard required in Wisconsin.

Dr. James W. Holland, Philadelphia: The argument in favor of a national board from the standpoint of the army and navy and Public Health Service was not simply to make it an adjuvant to the recruiting departments of the army and navy. It is very likely we are about to enter on a system of preparation for war which will necessarily include a large body of trained medical men who, by the most varied and searching tests, are known to be qualified to take care of our young men before and after they have been on the firing line. They are to be in the reserve corps, and it is not simply those in the standing army, which is relatively small, but in that army which we may be called on to summon at any time and which may require thousands of men.

Dr. W. T. Gott, Crawfordsville, Ind.: The weakest spot in our system of legislative enactments is the lack of uniformity, but this is the first time to my knowledge that a proposition has been made to give legislative functions to a voluntary board. If that doctrine were applied to other matters in which there is a lack of uniformity in state legislative matters, we would have voluntary boards instead of legislatures and congresses. While such a body composed of distinguished educators would perhaps be better than anything we now have, it is contrary to the spirit of our government.

Charles William Dabney, President of the University of Cincinnati: I am glad that this national board is voluntary since it is not legal. Even though a single state may not accept its certificates, I hope this board will go ahead and give us a standard of medical education such as is established by the Johns Hopkins. The people of this country need it.

Dr. H. H. Grant, Louisville, Ky.: The object of this national board is to give every ambitious young man the advantage and opportunity to get the approval of the highest tribunal that can be established. It gives those who hold certificates from this board prestige everywhere in the United States.

Dr. Walter L. Bierring, Des Moines, Iowa: There has been criticism with reference to the manner in which this board is constituted; nevertheless its purpose is in keeping with what the Federation of State Medical Boards has been discussing and working for since it was organized. I presume that the real purpose of this board will be to standardize examinations. These standards may be a little too high, but they will, at least, establish a standard for examining licentiates to which all states can approximate. It would appear that this is a pioneer movement to which we should all subscribe.

Dr. Alexander Marcy, Jr., Riverton, N. J.: New Jersey is heartily in sympathy with this movement for a national board. We believe it is a step in the right direction. I am glad indeed to give my unqualified approval to this movement, to the personnel of the board, and to what it hopes to do.

Dr. J. M. Howell, Dayton, Ohio: I will use what influence I can in favor of this national board.

Dr. Isadore Dyer, New Orleans: The board has submitted its case to representatives of all sections of the United States and to men who stand for all phases of medical education and state medicine. The members of the board in coming before this aggregation of intelligent men do not wish them to misunderstand their motives in presenting this case. The board has been organized for the specific purpose of submitting and putting through a standard of medical education. The plan which they have submitted has been devised by a comparatively small group of men who have acted with their best intelligence.

The discussion tonight has been of the sort which was to be expected. No movement which stands for progress can succeed without reasonable objection. If this body tonight had had no discussion and had unanimously endorsed the board, I believe some of us would have felt the board was not nearly so strong either in its motives or methods as we had hoped it might be. The opposition to it speaks for its strength. There is no member of the board who does not welcome honest criticism and honest suggestions with a view to improving its motives and its methods. If it is possible to put the board on a legal basis, it will be done. It is the intention of the board to solicit the best advice it can get to that end. If it is not possible to place it on a legal status, I believe I speak for the board when I say that it is the intention to go ahead on the standard which it proposes until it wins its way by the right and justice of its function.

JOINT SESSION OF THE COUNCIL ON HEALTH AND PUBLIC INSTRUCTION AND THE FEDERATION OF STATE MEDICAL BOARDS

Medical Practice Acts

Dr. Henry B. Favill, Chicago: We come today to the discussion of the practical decision on two very important topics, one the formulation of medical practice acts, a subject hitherto characterized by disharmony, lack of symmetry and lack of consistency. Today we are reasonably free from the reservations which we might have had with reference to our previous utterances, and we are more nearly at the point of being able to give definite advice and guidance with regard to medical practice acts than ever before.

The Council on Health and Public Instruction has been conducting for a year a very careful scrutiny, study and survey of boards of health of the various states, with the results that we are able to produce today not a perfect, but a very comprehensive survey of the whole status of health board subjects of this country.

It is uphill work for the medical profession to project its view on the general public. The reasons for this are many; but the fact remains that the heaviest load we have to carry, sooner or later, is in enlisting interest of the public in its own business and for its own welfare. It is rather an unusual experience for this Association to find a strong cooperation on part of the public or representatives of the public (non-medical public) in the effort which it is attempting to put forth strictly and solely for the benefit of the public.

When Ex-Governor Hodges was governor of Kansas, I think I am not exaggerating when I say he was the first governor who ever distinctly saw the point and assumed responsibility for the medical legislation of his state. He was the first governor that I know who ever attached sufficient importance to the subject to appoint a commission to study carefully the question of medical practice acts and report to the administration. His commission reported a bill which they endeavored to have enacted. The bill in the form in which it was drawn did not pass the Kansas legislature, but this in no sense detracts from the efforts of Governor Hodges. While that legislation in Kansas was pending, Tennessee came to the front with an effort to pass a medical practice act, applied to this Council for advice on the subject, was given the information as coming from Kansas, and while Kansas was considering and finally rejecting their model bill, as the result of a very remarkable campaign Tennessee went ahead and passed practically the same bill.

The Provisions of a Model Medical Practice Act

EX-GOVERNOR HODGES, Olathe, Kansas: My experience as a member of the legislature and as governor has demonstrated to me that the laws on the practice of medicine are a jumble of contradictions and confusions and are the products of minds scantily conversant with the fundamentals of a recognized science that differentiates between scientific investigation and primitive belief in witchcraft. Believing that there should be but one educational standard for all who may treat the sick, a commission of three physicians and two laymen was appointed in Kansas to investigate this subject and draft a bill providing for a single educational standard for all persons desiring to treat the sick for compensation. The fact that certain cults and sects do not use drugs does not change the fact that they are practicing medicine, so long as they undertake to diagnose and treat human diseases and injuries. The man who assumes to have knowledge fitting him to treat human diseases should be required by the state to comply with definite educational conditions for the protection of the public. The state in appointing a board of examiners assumes an obligation for the protection of the health of its citizens and should see to it that the licenses which it issues to all men have a uniform value. There is no justice or consistency in the state requiring a physician to prepare himself by years of study and to prove his worth by passing a rigid examination and then admitting others to the same privilege after only a few weeks of preparation. The commonwealth should not allow doctors of one school to practice on any easier acquirements than those of another school. The patient has a right to be attended by a physician of his own selection and the state should not be a party to any differences of opinion between opposing schools nor impose any unjust regulations on any school, but it should require the same degree of educational preparation of all applicants. The people should safeguard these conditions for their own protection. The easiest way to do this is to require of all persons who desire to treat the sick for compensation, a preliminary education including a high school course at least, and such medical training as will give each practitioner a knowledge of the structure of the body and its afflictions. Regulatory laws should not be designed to protect any particular group or school.

One Year's Experience with the New Tennessee Law for a Board of Preliminary Examination

MR. IRBY R. HUDSON, Nashville, Tenn.: At the last meeting of the legislature, a law was enacted creating a board of preliminary examination. The medical practice acts of Tennessee permitted practically any one to appear before the examining boards and take the examinations. So far as I can learn, no one was excluded from the examinations because of a lack of education and equipment. Many students of our medical colleges during their sophomore and junior years have appeared before these boards and have satisfactorily passed the examinations.

The bill provides for a more or less new phase of medical legislation. The real purpose of the bill is for the protection of the state against untrained men. The members of the board of preliminary examination are not trained experts in the medical field, none of them have even so much as attended any medical school, but they are school men of academic training who are employed in daily considering school problems. We do not pass on the exact medical knowledge of the student. We are to investigate whether the candidate has had sufficient training in reputable schools to warrant us in allowing him to practice.

Many of the states have laws already which require higher educational standards, but in Tennessee we cannot raise our standards higher for the reason that our best medical schools until two years ago did not require for entrance more than the four years of the high school work. But now that our colleges have raised their standards, our law can raise its standards. The leading schools now require one year of premedical work for admission, and our law makes the same requirement after 1919.

Our law can easily be amended for higher educational requirements as our local institutions set higher standards for the state. We are taking the medical department of the state university, as it is now organized, for our 1919 standard. This institution is ranked as an A college by the Council on Medical Education.

Our law provides no definite compensation except a fee of $5 an applicant, and this in many cases was to be refunded. As it worked out this first year, we have had about 100 men apply to us. At $5 an applicant, we should have only $500 to pay all of our expenses. With this amount you can readily see how much investigating could be done, which virtually meant none outside of our state.

SYMPOSIUM ON WHAT SHOULD BE THE PROVISIONS OF A MODEL MEDICAL PRACTICE ACT?

Important Features of a Model Medical Practice Act

DR. HORACE D. ARNOLD, Boston: A great deal depends on our interpretation of the word "model" in this connection. It should not, I believe, be interpreted to mean "ideal," but rather to indicate a "pattern" which is practicable for general application at the present time. Such an act, which is capable of general adoption, would be a longer step toward uniformity than would a more ideal measure which few states could adopt. We should aim to put this act on as high a plane as is practicable at the present time, but not to get too far in advance of a standard which may be adopted by a majority of the states. Some states are already in advance of such a model practice act as I advocate. We should not ask them to go backward, but rather encourage them to maintain their high standards, so as to encourage other states to come up to their level.

One of the most important features of a model practice act should be a definition of the practice of medicine, broad enough to include all forms of treatment of the human body, in health as well as in sickness or injury, by any method whatever. In this respect the model act, submitted for discussion a year ago, is deficient. All who wish to act under this definition should be licensed by some proper state authority, and all others should be prohibited from acting in such capacity, with penalties for the violation of this law.

We must somehow divide these various practitioners into classes according to the education and training that may properly be expected from them, for any regulation must have an educational basis. The first broad subdivision should come between those who may be expected to make a diagnosis, and those who ordinarily would not do so. Among the latter are midwives, nurses, masseurs, chiropodists,

optometrists and those employed in hydrotherapeutic establishments.

The central board of registration might well consist of seven members, as suggested last year, but I think they should all come from the class of licensed practitioners who are recognized as qualified to diagnose disease.

For all forms of practice which require a diagnosis there should be a uniform minimum educational requirement, whatever form of practice the licensee is to follow. Owing to the fact that all forms of so-called drugless therapy should be included, I do not think it desirable to have the requirements and examinations uniform throughout, with the exception of therapeutics, as is sometimes advocated.

What should be the minimum uniform requirements? They should include first a standard four year high school course, or its equivalent. The minimum professional education should be at least three years spent in a school approved by the central medical board, with evidence of satisfactory work in human anatomy, physiology, chemistry, pathology, bacteriology, symptomatology, diagnosis of disease (medical and surgical), hygiene, sanitation and preventive medicine, including the recognition of contagious diseases. A fourth year should be required, devoted to therapeutics and clinical experience in the special form of treatment for which the license is to be granted, under such instruction or supervision as is acceptable to the central medical board.

The premedical requirements should include, in addition to the four year high school, one, or preferably two, years of college work including courses in physics, chemistry, biology and a modern language. The act should specifically state the amount of time to be spent in each of these subjects, as in the requirements of the Council on Medical Education.

A Model Practice Act

DR. WALTER L. BIERRING, Des Moines, Iowa: A national medical registration act is not possible in this country without an amendment of the federal constitution, and in seeking another solution it is found in the adoption by the various states of a uniform practice act, based on an equalization of standards, which will make reciprocal endorsement between each of the several states a reality.

In Canada this matter has culminated in the creation of the Medical Council of the Dominion of Canada, which constitutes a central examining board, and thus tends to more uniform medical requirements in the several provinces of the Dominion. Similar good results in standardization are to be expected from the proposed national board of examiners. During the past twenty-five years the Conference of Commissioners of Uniform State Laws has been engaged in preparing uniform laws on the more pressing subjects to present them to the legislatures of the various states for enactment, which illustrates that in other matters besides medical practice acts there is still a lack of uniformity in state regulation.

While recognizing the lack of uniformity in standards that prevail, when statistical data are collected and compared with conditions a decade ago, a very marked improvement is everywhere noticeable. At that time a preliminary education of four years high school or higher was required in only ten states, while now provision exists in thirty-seven states, and similar changes have come in other directions. For these better conditions the Federation of State Medical Boards of the United States is deserving of some of the credit.

A model practice act should define clearly the preliminary education, the fundamental medical training, the character of the licensure examination, and besides should contain a clear and definite statement of the method of procedure for the revocation of the license issued. A license to practice should be held by the recipient only during good behavior.

Basic Provisions of Model Medical Practice Acts

DR. W. J. MEANS, Columbus, Ohio: The first fundamental provision that should be written into every medical law should be based on educational accomplishments, both cultural and professional, and the standard should be uniform for all persons who desire to practice medicine. There is no place in a true educational standard for special privileges. A standardized educational test for practitioners does not interfere in any way with the right of the individual to choose his own medical adviser, but does guarantee, so far as the matter can be determined, that he will not be imposed on. It is certainly the prerogative and the duty of the state to prescribe educational requirements for those who are asking the privilege to practice medicine on its citizens. I believe that, fundamentally, this is the most important provision which should go into every medical practice act.

Speaking of special privileges, there is no good reason why an individual who wishes to practice osteopathy, homeopathy, eclecticism, chiropractic or any other practice should object to being educated to the same degree as the one who wishes to practice regular medicine. Unfortunately, legislators are impressed with the argument that drugless healers, the osteopaths, and all others who lay claim to some peculiar way of curing disease, have a perfect right to do so as long as the people want them. This has led to the exemptions and special privileges in our medical laws.

The next important step is uniformity in the medical laws in all the states of the Union. This perhaps cannot be reached until the national government enacts a medical practice act. In the absence, however, of a national law standardizing the practice of medicine, we must continue to deal with state regulations and through education of the public bring about the desired reforms. An effective law is one that expresses the sentiment and conscience of the people.

An educational test is one of the basic provisions that should be written into every medical practice act, and it should apply to all applicants, regardless of sect, cult or creed. There should be only one administrative board, the members of which should be selected from representatives of higher education. Applicants should be required to take an examination in all the fundamental subjects of medicine, and to pass each with a creditable grade; failing to do so, they should not be permitted to be reexamined until they have pursued and completed a course in an acceptable medical college. There should not be incorporated exemptions or privileges that may tend in any way to lower the minimum educational standard enacted in the law or fixed by the medical board.

Discussion of Symposium on What Should Be the Provision of a Model Medical Practice Act?

DR. JOHN K. SCUDDER, Cincinnati: I cannot see the necessity or philosophy of having the board made up of four nonmedical men, ex officio. I fail to see why the president of the state agricultural college should have anything to do with the licensure of physicians. I feel the same way in regard to the president of the state normal school, and medical boards do not recognize attendance in normal schools as being related to academic subjects.

As to the standard of entrance qualifications, it should be specifically stated in the law, and not be in the power of the board to make it either too low or too high, but it should be put in the law specifically as the present average standard, and then as necessity calls for it, it should be raised.

MR. THOMAS S. HOGAN, Attorney for Illinois State Board of Health, Chicago: I believe there should be a uniform practice act. It should be clear and without equivocation, and it should be thoroughly understood by courts and by juries, and the same law should exist in all of the states of the United States. No matter how good the law may be that you have devised, unless all its provisions are strictly enforced, it is of no avail. In Illinois there are many violations of the law. For the entire state of Illinois the sum of $1,500 a year is allowed for the prosecution of all violations under the present medical practice act. It is up to the members of the medical profession and the associations connected with the medical profession to impress on the legislators that this law is an outrage on the statute books; that it is against the interest of the profession and the people, and no matter how good your model medical practice act may be, unless you can enforce it properly in the courts and make it as clear as it can be made, it will be of no avail.

DR. C. E. CANTRELL, Greenville, Texas: It must be perfectly apparent to all present that we cannot enforce these laws unless we have the constabulary behind us. Notwithstanding the fact that the law may lie for months and years on the statute books, unless the district attorney and other proper authorities of the state take it up and enforce it, there will be gross violations, and finally there will be objection made to this or that section, and the matter will have to be submitted to district attorneys to consider and to enforce the law. We find it so in Texas, and we were among the first to have a law that was made to include all of the schools of medicine on our board. We ought to recognize in the eclectics, in the homeopaths, and in all of the so-called sects important factors in educating the people. I am a defender of the state boards because they gave us our first relief from quackery.

DR. JOHN A. WITHERSPOON, Nashville, Tenn.: We should try to educate the people that medical practice acts are not to protect the medical profession because they spring from the medical profession, but to protect the people. That is the object primarily of all medical legislation.

DR. S. L. JEPSON, Wheeling, W. Va.: In West Virginia we are fortunate in having a physician for governor. In the last legislature we had ten physicians, and we had as chairmen of committees on sanitation and medicine two very high-minded, well educated doctors who were intensely interested in the passage of a bill which we considered greatly in advance of any other that had ever been on our statute books. The bill was prepared by officers of the United States Public Health Service, which created a new department of health, with a state health commissioner as its executive official, and which gives to us a council on health composed of seven men, the commissioner being ex officio a member, the right to pass regulations, and the right to legislate for the betterment of the people.

As to the enforcement of the statutes against irregular practitioners or unlicensed practitioners, the greatest difficulty we have found is in having grand juries indict these men.

DR. B. D. HARISON, Detroit: In our state, practicing medicine without a license is a criminal offense, and the prosecuting attorneys of the several counties are charged with the duty of enforcing the act. In Michigan we are very fortunate in having a governor who, in his message before the legislature, stated without equivocation that he would enforce the medical practice act; that he was entirely opposed to quackery, and he would use all the influence of his office, and that of the legislature against everybody who pretended to be able to cure or treat disease without being properly qualified to do so. He has carried that to the extreme. In the case of a prosecuting attorney who refuses to take notice of a complaint, the governor writes him for an explanation, and if he does not give a proper reason he is dismissed from office. This has had a tremendous influence for good in our state.

DR. D. C. BUDGE, Logan, Utah: It is absolutely essential that the public be educated. We have a single board in Utah made up of regulars, homeopaths, eclectics and osteopaths. We are working in harmony. I have not heard anything in this conference that would induce me to change my mind in that regard. We are working for a certain standard of education and not for sects.

DR. T. J. CROWE, Dallas, Texas: We have a mixed board in Texas, and have been harmonious in our work. Doctors themselves are to blame for not getting more out of their medical examining boards than they do get at present. Doctors organize individually themselves, but are only indifferently supporting the work of the board. Our board has worked together as a unit for the advancement of medical education and the uplift of the medical profession generally.

DR. L. E. SIEMON, Cleveland: Any model medical practice act to meet the approval of the general medical profession, on whom the practical enforcement of that act depends, must provide for protecting the individual medical public as well as the general public. In my judgment a mixed board has solved the problem as far as Ohio is concerned. No one can say that at any time have the so-called irregular elements of that board failed to measure up to the demands of the situation and to march forward in the van of progress, and any model medical practice act to receive general approval throughout the country must provide for some form of recognition of the various elements in medicine that they are supposed to license.

TWELFTH ANNUAL CONFERENCE OF THE COUNCIL ON HEALTH AND PUBLIC INSTRUCTION OF THE AMERICAN MEDICAL ASSOCIATION

Held in Chicago, Feb. 8, 1916

DR. HENRY B. FAVILL, Chicago, in the Chair

DR. CHARLES V. CHAPIN, Providence, R. I., read a paper entitled "State Public Health Organization," which will be published in THE JOURNAL.

DR. JOHN W. KERR, Assistant Surgeon-General, United States Public Health Service, followed with a paper entitled "Some Essentials of Public Health Organization," which will be published in THE JOURNAL.

Discussion on Public Health Organization

DR. HENRY M. BRACKEN, St. Paul: The question of appointment of the executive officer was discussed and the point was made that such appointments are not desirable; that one of the important functions of a council or board of health should be the appointment of an administrative officer, and this, I think, is true if we are to secure tenure of office referred to by Dr. Kerr. I think it is generally conceded that we cannot carry on efficient health work without the authority of the board or council to make regulations, and it is recognized that these regulations come under police control, and it is possible for legislatures really to transfer the power of legislating to such a body as this. One can readily understand that unless this is possible, progress in public health work is to be greatly interfered with because no legislature will formulate laws that will make it possible to administer health work as councils or boards that are more or less familiar with this kind of work.

It is hard to make the average layman and the legislator understand that vital statistics are anything more than collecting the returns of births and deaths and possibly of marriages and filing them away. They do not seem to appreciate that these things are necessarily the basis of our work. Even doctors themselves do not appreciate the importance of accurate vital statistics. The division of public health work sometimes is simply alarming. Why tuberculosis should be set off by itself as a health problem is more than any health official can understand.

The point was made whether there should be the appointment of local health officers. That is a dangerous proposition creating a political machine. Let the local people appoint their officers, but if you can arrange that the state can discharge them for cause, then the locality will have to put up other men. If they know you are going to discharge a man who is not efficient, they will be more careful in their appointments.

DR. JOHN N. HURTY, Indianapolis: There is such a thing as Nature, and then there is another such thing as human nature. It is with human nature that we have principally to deal in this work. Human nature is moved principally by self-interest, which is decidedly different from selfishness. If you wish to convince a man you must appeal to his self-interest. Only about 10 per cent. of people can think; 20 per cent. are able to think what others think, and 70 per cent. cannot think at all. Education is a great force in uplifting mankind, but you cannot educate brains that are not educable—brains that have nothing in them to educate, and that fact must be considered. The great mass of people must be forced and compelled to do that which is necessary for their own salvation.

A great deal is to be said for a commissioner of health at the head of a department of health. A commissioner of health of the state is certainly good.

In regard to the medical inspection of schoolchildren, I would rather have that term changed and say "health supervision." I am not convinced yet that the health supervision of schoolchildren should be under the public health department. It is a matter of education.

I believe in the county unit for the all time health officer, especially for our state. This is because the county is already the organized legal constitutional unit. It has certain powers given it by the constitution, powers of taxation, but if they select an all time officer they should be given that power, with the power residing in the central authority to discharge for certain well defined reasons or causes. If they do that they should be compelled to select from an eligible list furnished by the central authority. We have that draft in the law and expect the legislature to pass it.

There is a great deal of argument made for health officers who are not medical men. They do not have to make diagnoses; they take the word of the practicing physician for that. Our health officers never go behind the returns of the physician except in the most dire conditions; otherwise it would not do.

DR. WICKLIFFE ROSE, Director of the Rockefeller International Health Commission, New York: The public health business of a commonwealth is one business, and not many, and if it is one business, in the interest of economy and efficiency that business should be brought under one administration and not many. If I am not very much mistaken, we are facing what promises to be a public calamity, in that there is now a tendency in many, if not all our states, to parcel out the business of public health to a multiplicity of state agencies, and in addition to that to permit a great multiplicity of voluntary agencies to come into the state, and without supervision by the state department of health, undertake to run some portion of the state health business. We are beginning to see an influence in public health, and for that reason there is no more important thing than that this body should proceed to action and continue to act until this business, than which there is no more important for the commonwealth, shall be conceived by the people as one business and brought under one administration. Whatever belongs to health should come under the administration of the commonwealth for the public health.

In the second place, if this is a business, it is very essential that that business be properly financed. If you are going to enter on any great business undertaking that should extend not through one year, but many years and further into the future than you and I can see, I do not think you would engage in that enterprise by undertaking to supply funds for it in a haphazard way. You would not undertake to finance it. Financing is a business of itself. There is such a thing as financing the public health in a scientific way, and, it seems to me, you should appoint a committee to take up the business of financing public health, and let that committee, after mature thought and deliberation, bring back a report to this organization for consideration and, if necessary, devote a whole afternoon to a discussion of the proper financing of public health organization. Your funds must be adequate and derived from the proper sources.

One of the functions a state board has to perform is that of making rules. The rule making power by the state board is a function that is extremely important, and if the board should have no other function it should be organized for that purpose. It is a function which cannot be adequately performed by the health officer unsupported by the board. The second function is the appointment of a state health officer. So long as that man is appointed by the governor or elected by the people, you will not have efficient service. When the board comes to appoint an executive officer, it needs to have the power to select that officer from the country at large. It needs to have the power to fix his compensation and to modify it from time to time in accordance with efficiency of service. It needs to have power to keep him at his post as long as he is effective. You would not undertake to administer a big business on any other basis than that. Having selected that man, then the board wants to clothe him with authority and hold him responsible for results.

From experience I am convinced that our public health work is going to become really effective only so far as we can enlist a sympathetic and active cooperation of the masses of the people. Public health work is essentially an educational proposition, and its efficiency is going to be measured largely by the efficiency of the machine as an educational machine.

DR. CRESSY L. WILBUR, Special Agent, United States Bureau of the Census, New York: In the paper of Dr. Chapin, considerable stress was laid on the fundamental importance of the registration of births and deaths as a basis of public health work. We have been urging the point that vital statistics is absolutely the necessary basis of public health work for years and years, and this Council has devised a model law in connection with the American Public Health Association and the Bureau of the Census, which is designed to secure such results under the law as will compel the registration of births and deaths. If the model law is enforced with the penalty attached in every case of violation, I believe we will soon have complete registration of births and deaths.

DR. HENRY B. HEMENWAY, Evanston, Ill.: I can see no possible advantage in appointing a board as compared with one man at the head of the department who will be absolutely responsible to the state for the health of the state, or responsible to the community for the health of that community. He may have and should have under him, if the department is large enough, a council, but in that council he may have the advantage of experts who are devoting their whole time to the work, not men who are devoting a few days in the year to it, without paying perhaps much attention between times, but men who are devoting their whole time to the one thing—men who are best qualified, each man to speak for his own particular branch of the work; in that way the different ideas may be harmonized. In public health experience in all executive work, if you have a board for any purpose, there is some one man who is better qualified than all the rest of the members of the board in that particular line of work. If that is so, then every man who is not thus qualified is so much of a hindrance; he has got to be persuaded and shown that things are thus and so. I am emphatically opposed to the board idea.

With reference to education, attention has been given to the education of officers of health, of commissioners of health in the line of doctors of public health; but I know of no provision in any educational institution in the United States for the education of dairy inspectors or other local inspectors, and it is just as necessary to provide for the special education of these lower employees as it is for the chief officers.

DR. ALBERT W. HINMAN, Dundee, Ill.: There is not a food on the face of the earth as a food product today that contains as much filth as milk when you take it as a whole, and considering that it is produced promiscuously all over the country. We find a man here and there who is scrupulously and religiously neat enough and clean enough about his business to feel that he must furnish a clean product, but the most of them are careless, and hence the milk is more liable to become contaminated with disease-producing germs. As I view the matter, we will never get that food product produced and handled as it should be until there is a law which compels these men to furnish milk under more cleanly and hygienic conditions.

DR. CHARLES V. CHAPIN, Providence, R. I.: I was particularly pleased with one thing that Dr. Rose said about the desirability of having all public health work under one government department. That has not been so in the past. It has been scattered among different departments, and outside agencies have come in. It is our own fault. State health officers and municipal health officers, of which I am one, have been negligent. We have not done our duty, and others have been obliged to come in and stir us up. Let us take warning from the past and do everything that devolves on us to promote public health so that it will not be necessary for outside agencies to come in.

DR. JOHN W. KERR, Washington, D. C.: I wish to urge on the conference that rather than attempt at this time a com-

prehensive model law, we attempt the adoption of as many principles as we can. Let us in this matter take two bites of the cherry, and above all, I would emphasize again the providing of money and of men. Those are the sinews of war, and without them any legislation you get would be sure to fail.

PHILADELPHIA COUNTY MEDICAL SOCIETY

Meeting held Jan. 26, 1916

The President, DR. JOHN D. MCLEAN, in the Chair

SYMPOSIUM ON PNEUMONIA DURING 1915 AND 1916

Diagnosis, Complications and Treatment of Pneumonia in Children

DR. H. BROOKER MILLS: In diagnosing bronchopneumonia, three important points for consideration are the age of the patient, history of previous illness and the existing bronchitis. Three other symptoms nearly always present are increased pulse and respiration rate, and fever. Dilatation of the alae nasi and the presence of definitely localized mucous râles also facilitate diagnosis. The physical signs, which are many and varied, develop early. The most common complication of bronchopneumonia is otitis media. The prognosis is always grave, and the mortality is estimated by some at 50 per cent. The treatment is largely symptomatic, with special attention to preservation of strength and upbuilding of vitality. A room temperature of 65 F., with plenty of fresh and frequently changed air in the room, a maximum amount of nourishing liquid diet, daily colonic irrigation, daily bath and plenty of water to drink are indispensable in treatment. Counterirritation is valuable, and frequent and thorough cleansing of the nose and throat is absolutely necessary. For the cough, inhalations are preferable to expectorant mixtures. For the high temperature, I use hydrotherapy exclusively. In addition to the usual hydrotherapeutic measures, I have found of advantage the wrapping of the hands and arms to the elbows, and the feet and legs to the knees in wet cloths covered with a dry cloth, for twenty minutes, three or four times a day. My patients are never disturbed after 7 p. m., but in the event of their waking, advantage is taken to meet the indications. The natural stimulation from nourishing, well digested food, is far superior to the artificial stimulation frequently employed too early in the disease. When, however, the heart needs assistance, this should be given. I have been fortunate in having my hospital patients on a well lighted, protected porch adjoining the ward. I have made little use of the bacterin treatment. Lobar pneumonia in children is ushered in by high temperature oftener than any other disease of childhood, except scarlet fever. The onset is sudden, with high temperature, rapid respiration, vomiting, prostration and abdominal pain. For the first twenty-four hours, pulmonary symptoms and physical signs in the chest are absent; the chill, usually present in the adult, is rare in children, rigor seeming to take its place. There is practically no cough or expectoration during the first few days. Empyema is a frequent complication, and there is no relation between the amount of fluid present and lung involved. In the present epidemic of pneumonia in Philadelphia, many cases of lobar pneumonia have been observed in children below the age when expected, and these have occurred in debilitated children rather than in the robust child, as is usual. There has also been an increased tendency in bronchopneumonia toward coalescence of diseased areas, and the fever has been sustained rather than of the usual irregular and moderate type. In several cases an unusual fact has been the enormous excursions of temperature between the hours of 7 p. m. and 7 a. m. I cannot offer any satisfactory explanation of these various peculiarities of the present epidemic; possibly the virulence of the epidemic itself may be a factor in their production.

Diagnosis and Treatment of Pneumonia

DR. HOBART AMORY HARE: Consolidation of any part of the lung, whether it be due to the pneumococcus, the tubercle bacillus, or other cause, is in one sense pneumonia. Although from the etiologic standpoint all cases of pneumonia is identical, from the clinical aspect one case is as often different from another as smallpox is from chickenpox. In all cases of true lobar pneumonia, the patient is suffering from an acute, infectious disease quite as specific as scarlet or typhoid fever. In the absence of a specific antitoxin we must not treat the disease or the patient with drugs, except when definite assistance is demanded. In both bronchial and lobar pneumonia, absence of positive physical signs as a group often misleads in diagnosis. Fine râles or bronchial breathing are often apparently absent, because of the great amount of exudate present. In such cases percussion will often reveal dulness over a silent area; but even percussion may be misleading because a deep-seated consolidation may give hyperresonance on light percussion over the area affected. The differentiation of effusion and pneumonia is easy in typical cases and still easier in the textbooks, but is often one of the most difficult problems in practice. Croupous pneumonia may assault a man frankly, or as insidiously as does a sapper his enemy in warfare. The sputum may vary greatly. It is well to recall the words of Sir William Jenner, "the brighter the blood, the less the weight of the patient, the better the prognosis." To this may be added, "the higher the fever, the slower the pulse, the better the prognosis." In the treatment of croupous pneumonia, let Nature's laboratory make the needed drugs. Do not try to treat the pneumonia.

Cotton jackets and poultices are remnants of barbarism. Coal tar antipyretics are contraindicated in all instances. There is a large amount of evidence that fever is a protective process or is indissolubly connected with the protective processes. Except in cases of distinct hyperpyrexia, with the temperature above 105 F. for a long period, even cold sponging is, as a rule, to be avoided, for the patient will not react. On the other hand, an agent which tends to lower the temperature and permit oxidation, and which is as nearly a specific remedy as any we have, is cold, fresh air. I would rather employ this method in croupous pneumonia than any drug with which I am familiar. It is hard on the nurse but it is life to the patient. A frequent mistake is that of treating symptoms simply because they are not in accord with the normal state. Any attempt to force the pulse, the respiration or the temperature to the normal line is futile and dangerous. When, however, any symptom or series of symptoms becomes so widely separated from the normal as to be dangerous or to indicate the approach of danger, it should be curbed. The administration of 10 drops of tincture of belladonna, three or four times in twenty-four hours throughout the greater part of the attack of croupous pneumonia, tends to prevent complications in the vascular apparatus. Atropin and strychnin are to be kept in reserve to be used in full dose to meet threatening collapse. In cases in which there is great cyanosis, in plethoric individuals, free venesection is sometimes of advantage. Estimation of the difference between the diastolic and systolic pressures is important. A diastolic pressure of 60 with a systolic pressure of 150 shows relaxed vascular tone but a powerful heart stroke, and that cardiac stimulants are not needed; whereas, a diastolic pressure of 70 and a systolic pressure of 110 may indicate that both vascular and cardiac stimulation is essential. With the possible exception of belladonna, which is used to prevent the sudden arising of complications, I have never seen any case of pneumonia which needed the same remedy in the same dose day after day. The skilled physician will fit the drug and the dose to the need of the patient at each visit. Expectorants in either type of pneumonia are never useful until the stage of resolution is developed.

Discussion on Symposium on Pneumonia During 1915 and 1916

DR. JUDSON DALAND: One should be on the alert to diagnose bronchopneumonia in the absence of the ordinary physical signs. The Roentgen ray has shown that the disease is frequently overlooked, particularly in very young children. I have often wondered whether, in cases of bronchopneumonia with associated nasal obstructions, exposure of the patients to the outer air, thus allowing direct entrance of

the air through the mouth, is beneficial. I believe that the fatal result in many infectious diseases is often due to the lack of resistance rather than to the infection. With close study the probable degree of resistance under certain circumstances may be estimated.

Dr. William N. Bradley: In my experience with bronchopneumonia in children, the larger number have been of the primary type. I agree with Dr. Mills regarding treatment, except possibly in his hydrotherapeutic measures. In quite young children I find that cold water is not well borne. The initial chill of pneumonia is of more frequent occurrence in children than is generally thought to be the case. I believe that serum therapy offers the ultimate solution of the problem of pneumonia.

Dr. William Egbert Robertson: The large number of deaths from pneumonia is due to our own ignorance of the disease and of the proper method of handling it. Pneumonia usually develops in individuals with a disease focus; if not tuberculous, probably intranasal, or an old sinus disease. In some cases, beginning apparently as pneumonia, treatment of the nose will abort the disease, supporting the view that the nose may be a factor in the development of toxic forms of the organism. Whatever be the character of the pneumonia, the important element is recognition of the type, that we may some day evolve a successful treatment.

Dr. H. Brooker Mills: I agree with Dr. Daland that there are probably many more cases of pneumonia than are diagnosed as such, and I know from experience that the Roentgen ray is a very valuable aid in diagnosis in cases in which the clinical signs are either absent or atypical. Abdominal pain has often led to the mistaken diagnosis of appendicitis. It is fair to suppose that while tuberculous areas may not have predisposed to pneumonia, these areas provide a favorable culture medium for the pneumococcus and other germs. I fail to see how it would be possible to abort a frank pneumonia by any form of nasal treatment.

Dr. H. A. Hare: While recognizing the possibility of the ultimate value of serum therapy in pneumonia, I feel that that there are reasons in opposition to this solution of the problem. For example, in a large number of cases, when we are called there is already blood tinged sputum, or exudate in the alveoli. The process is in one sense complete. Furthermore, we do not know in pneumonia when the primary infection has occurred. We do know in typhoid that before a man comes to us he has been inoculated from twelve to fourteen days. The presence of renal disease in a patient with pneumonia is of grave importance in prognosis. Failure of treatment in such complication should not cast doubt on remedies useful in the ordinary case. The same is true in heart conditions. Alcohol is of value in that it dilates the peripheral capillaries, giving energy to the body and equalizing the circulation.

Report of the Pneumonia Commission

Dr. David Riesman: The Pneumonia Commission is the outgrowth of a desire to find ways and means of lessening the incidence and death rate of pneumonia, and, to study the cause, mode of spread, prevention and treatment of the acute catarrhal affections that have prevailed in Philadelphia during the present winter. A similar work was undertaken in New York in 1904, but was not carried far enough to be of material value in lessening the death rate of pneumonia. Pneumonia, of all acute diseases prevailing in this climate, is the most serious and most fatal, and the one responsible for the largest number of deaths. While the death rate from typhoid in Philadelphia has steadily fallen from 1,063 in 1906 to 111 in 1915, the death rate from pneumonia has been practically unchanged, and in some years, indeed, materially increased. In 1914 there were reported in Philadelphia 1,436 cases of pneumonia; in 1915 there were 2,744. In December, 1915, 881 cases were reported, the largest number in any one month. The number of cases of pneumonia reported does not indicate the total number of cases as, apart from the fact that many physicians do not report their cases, some of the complications of pneumonia are reported as the principal disease, the pneumonia, which is in reality responsible, being ignored. This is true of some cases of meningitis and empyema and middle ear disease. The present outbreak has shown that as an epidemic disease, pneumonia is as yet uncontrollable. It has been held for years that the germ of pneumonia is present in the mouth of many healthy persons. It seems, however, that this is not the case—that the germ actually found is quite harmless, while that causing pneumonia is virulent. This discovery leads to the conclusion that pneumonia does not develop from within, but is conveyed to the patient in some way from a previous case. The commission is also undertaking an investigation of the recent grip epidemic, and is preparing to send out circulars to industrial establishments, schools, police and fire departments, reformatories, etc., for the purpose of determining the frequency of the disease and, perhaps, its mode of spread. It also wants to obtain further light on the question whether grip predisposes to pneumonia. The commission has divided itself into a committee on laboratory work and a committee on clinical investigation. The plans of these committees are now ready. What is needed to proceed with them is an adequate appropriation by the city to carry on the work, which is not only of great importance to the city, but which may, in the opinion of Director of Health Krusen, assume a national importance.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

February, LXXIII, No. 2, pp. 193-384

1 Chronic Intestinal Stasis: Report of Cases. W. S. Bainbridge, New York.
2 *Liver Function in Normal Pregnancy. J. C. Litzenberg, Minneapolis.
3 Compensatory (Vicarious, Ectopic) Menstruation; Xenomenia; Memmes Devii. W. H. Condit, Minneapolis.
4 Eclampsia and Its Treatment. W. M. Brown, Rochester, N. Y.
5 Minor Surgical Gynecology. C. E. Ruth, Des Moines, Ia.
6 *Splenic Anemia with Splenectomy. E. D. Clark, Indianapolis.
7 Rovsing's Operation for Gastrocoloptosis; Report of Seventeen Cases Successfully Operated on. G. Torrance, Birmingham, Ala.
8 Wound Dressings. D. H. Stewart, New York.
9 Quantitative Test of Abderhalden Reaction. D. D. Van Slyke, J. R. Losee and M. Vinograd-Villchur, New York.
10 Neuritis in Pregnancy. F. B. McCarty, Chicago.
11 Diaphragmatic Hernia. G. B. Miller, Washington, D. C.
12 Pituitary Extract in Labor. J. J. Mundell, Washington, D. C.
13 Respiratory Diseases as Factor in Causation of Infant Mortality. W. C. Woodward, Washington, D. C.
14 Case of Partial Atelectasis with Capillary Bronchitis and Temperature of 110 F. A. Hymanson, New York.

2. **Liver Function in Normal Pregnancy.**—In 200 cases of so-called normal pregnancy examined by Litzenberg sixty-two gave the reaction for urobilinogen or urobilin. In none of the cases was there evidence of blood dyscrasia, although some of the patients were quite anemic. There were no complications which are known to be accompanied by reduced liver function except, possibly, eleven cases of valvular heart lesions and one of infection of the urinary tract with high fever. In heart disease urobilinuria is not present unless there be decompensation. In none of these cases was there marked clinical evidence of decompensation. There were two cases with slight dilatation as well as hypertrophy in which there would be even more likelihood of heart weakness. There were fifty cases in which the interference with the functions of the liver could be accounted for only by the pregnancy itself. This still leaves 25 per cent. of disturbed liver function during pregnancy attributable to no other cause than the pregnant condition.

6. **Splenic Anemia with Splenectomy.**—The histopathologic picture presented in the case cited by Clark is that of primary diffuse hyperplasia of the spleen (chronic splenitis). While Clark only claims great improvement after splenectomy, the patient in a recent letter considers herself cured.

American Journal of Orthopedic Surgery, Boston

February, XIV, No. 2, pp. 59-118

15 Deformities Due to Infantile Paralysis; Operative Treatment. E. W. Ryerson, Chicago.
16 *Bone Grafting for Spinal Conditions: Report of Forty Cases. J. T. Rugh, Philadelphia.
17 *Fractures of Spine without Paraplegia: Study of Eleven Cases. J. B. Hartwell, Boston.
18 Overlapping Joint as Substitute for Cuneiform Osteotomy. P. Hoffmann, St. Louis.
19 Case of Deposit in Supraspinatus Muscle Simulating Subacromial Bursitis. J. Dunlop, Washington, D. C.

16. **Bone Grafting for Spinal Conditions.**—Since June, 1912, Rugh has placed forty grafts in the spine for spondylitis, and in this series the mortality has been nil, and he has lost but one graft. The patients ranged in age from 3 to 54 years. The disease had existed from six months to twenty-seven years prior to operation. The kyphos was in varying stages of prominence, from very slight to very severe. The average length of time the cases remained supine was six weeks, and the average time of wearing a support was six months. The average length of the graft was 6 inches, and there was no suppuration in any graft, though there were four or five cases of stitch infection. The results are as follows: excellent, twenty-six cases; improved, five cases; not relieved, two cases; died, five patients (1 in twenty-seven months and 1 in fifteen months of pulmonary tuberculosis; 1 in eight months from heart disease; 1 in four weeks from pyocyaneus infection from mastoid disease, and 1 in two years from an unknown cause); not heard from, 1 case; and too recent for results, 4 cases.

17. **Fractures of Spine without Paraplegia.**—Hartwell says that fractures of the vertebral bodies and lumbar transverse processes are not infrequent injuries but are generally overlooked. These fractures cause steady pain in the back but need not be accompanied by any neurologic symptoms. Localized tenderness over the spinous processes should always suggest the possibility of fracture of the spine, and if in addition to localized tenderness there is a disalinement of the spinous processes, the diagnosis is almost certain. The kyphos caused by compression fractures may readily be mistaken for the deformity of a bad posture. Treatment should consist in prolonged fixation of the spine in extension by plaster jackets or permanent splinting of the spine by a bone grafting operation.

American Journal of Public Health, Boston

January, VI, No. 1, pp. 1-96

20 Survey of Activities of Municipal Health Departments in United States. F. Schneider, Jr., New York.
21 Wasters of World. W. C. Redfield.
22 Rôle of Newspaper in Dissemination of Public Health News. W. A. Evans, Chicago.
23 Sixteen Hundred Cases of Sickness and What is to Be Done About Them. E. A. Moree, New York.
24 Comparison of Acid Production of Bacillus Coli Group Isolated from Various Sources. W. W. Browne, New York.
25 Report of Committee on Occupational Mortality. W. F. Snow and others, Sacramento, Calif.
26 New Sampling Apparatus for Determination of Aerial Dust. G. T. Palmer, New York.

American Journal of Roentgenology, New York

January, III, No. 1, pp. 1-62

27 Teaching of Roentgenology in Undergraduate Medical Schools. F. C. Zapffe, Chicago.
28 Scope and Method of Teaching Roentgenology. L. G. Cole, New York.
29 Experiences in Roentgenologic Teaching. H. K. Pancoast, Philadelphia.
30 Simple Method for Marking Roentgen Ray Plates. I. H. Levy, Syracuse.
31 Report on Three Interesting Head Lesions. A. W. George, Boston.
32 Gastro-Intestinal Lesions Based on One Hundred Cases in which Roentgenologist was Present at Operation. L. T. Le Wald, New York.

Annals of Surgery, Philadelphia

February, LXIII, No. 2, pp. 129-256

33 *Localization of Cerebellar Tumors. E. G. Grey, Boston.
34 Cases of Calculi in Submaxillary Gland and Wharton's Duct. F. S. Mathews, New York.
35 Tuberculosis of Tongue: Report of Cases. L. Durante, Rochester, Minn.
36 *Tanners' Ulcer. J. C. DaCosta, J. F. X. Jones and R. C. Rosenberger, Philadelphia.
37 Multiple Cartilaginous Exostoses (Hereditary Deforming Chondrodysplasia): Report of Cases. A. P. C. Ashhurst, Philadelphia.
38 *Treatment of Varicose Leg Ulcers. P. G. Skillern, Jr., Philadelphia.
39 Artificial Periosteum for Fixation of Shaft Fractures. J. B. Roberts, Philadelphia.
40 Homoplastic Transplantation of Boiled Segment of Radius. C. A. McWilliams, New York.
41 Symmetrical Congenital Malformation of Extremities. Report of Two Cases. S. W. Boorstein, New York.
42 *Peritoneal Adhesions; Their Prevention with Citrate Solutions. M. H. Walker, Jr., Pittsfield, Mass., and L. M. Ferguson, Boston.
43 *Id. S. Pope, San Francisco.
44 Surgery of European War. E. B. Piper, Philadelphia.
45 Fractures of Neck of Scapula. J. M. Hitzrot and R. W. Bolling, New York.

33. **Localization of Cerebellar Tumors.**—Of fifty-eight certified cases of cerebellar and extracerebellar tumor examined by Grey, an unusual attitude of the head—tilted so that the ear approximated one shoulder—was found in twenty-three. In the majority of these the change in position was slight. Of forty-three certified cases of tumor lying anterior to the cerebellum only three showed any tilt of rotation of the head. The unusual attitude in these three cases was scarcely noticeable. These findings indicate that a tilt or rotation of the head in a patient with symptoms pointing toward an intracranial tumor is suggestive of a subtentorial new growth. Backward retraction of the head was a feature in eight of the sixty cases of cerebellar and extracerebellar tumor. Typical opisthotonos attacks appeared in two of these. A similar position was noted in none of the cases with tumors lying anterior to the cerebellum. Some form of suboccipital discomfort was present in forty-four, about 75 per cent. of the cases. Tenderness in the subocciput was found in twenty-one, 36 per cent. Suboccipital headache or pain was complained of in thirty-three, 56 per cent. There was more or less soreness or stiffness of the neck muscles in eighteen, nearly 31 per cent. Of forty-three certified cases with tumors lying anterior to the cerebellum some degree of suboccipital discomfort was found in fourteen, approximately 33 per cent. Suboccipital tenderness was present in eight, nearly 19 per cent. Suboccipital headache or pain appeared in ten, about 23 per cent., soreness or stiffness of the neck muscles in six, 14 per cent. As a rule, occipital discomforts were much less intense in the cases with tumors situated anterior to the cerebellum than in those with subtentorial new growths.

36. **Tanners' Ulcer.**—The authors describe an ointment which Dr. Louis Levi, of Milwaukee, has been using successfully to prevent this disease. He orders that the ointment be applied twice daily. Three parts of petrolatum are mixed with one part of lanolin. This mixture is melted on a water bath or stove and when melted and thoroughly mixed, 10 to 15 drops of 90 per cent. phenol are added to every 400 gm. of the mixture. This represents 5 drops of phenol to 4 gm. of ointment. The material is placed into a glass or earthenware jar and allowed to solidify until ready for use. The workman cleanses his hands and arms thoroughly with soap and water, rinses with warm water and, while the parts are still moist, applies the ointment. He rubs it over the whole exposed area for about two or three minutes. He then takes a clean cloth and wipes the skin entirely dry. The lanolin is absorbed by the skin and the petrolatum forms a light coating on the surface. The petrolatum will keep most of the chrome which causes the trouble away, but, should this outer coating of petrolatum wear off, the lanolin in the skin will still prevent the action of the chrome.

38. **Treatment of Varicose Leg Ulcers.**—For the routine treatment of the average varicose leg ulcer Skillern uses Unna's zinc oxid and gelatin paste enmeshed in a gauze bandage so as to form a stocking with the consistency of rubber. On the patient's return the Unna stocking is fenestrated at the site of the ulcer, as indicated by the area of staining from the discharge. In addition to fenestrating the stocking, Skillern cuts the edge of the fenestration in a spoke like manner, to prevent congestion of the ulcer from the edge of the fenestration pressing into the edge of the ulcer. After

the ulcer has been uncovered by fenestration of the stocking in this manner, it is treated by the rubber tissue, dry gauze, muslin bandage method. After varicose leg ulcers have been cured, it is important immediately to institute prophylactic methods against recurrence; and for this purpose a well fitting silk elastic stocking or a Randolph bandage should be used. Patients should be reminded that in the course of time a silk elastic stocking wears out and loses its power of supporting the tissues, and that for this reason a new stocking must be purchased at intervals.

42. **Prevention of Peritoneal Adhesions.**—This report gives the results of experiments made by Walker and Ferguson with hypertonic solutions of sodium citrate and sodium chlorid, used in the hope of preventing postoperative adhesions in the abdomen. The authors state that hypertonic citrate solutions do, under certain conditions, prevent peritoneal adhesions after laparotomy. The best solution is sodium citrate 3 per cent. and sodium chlorid 1 per cent. In human surgery, the citrate solution should, theoretically, be used as it has been experimentally; namely, after clean laparotomies, a sufficient amount of solution should be introduced into the abdomen to bathe the whole peritoneum (500 to 600 c.c.). Smaller amounts would be of little value, for any fluid introduced into the abdomen soon becomes distributed over the whole cavity. Practically, the question of whether or not the citrate solution will cause surgical shock in man must be determined by actual tests in the operating room. If, as the authors anticipate, no shock is caused, the solution should be used as advised above. When it is necessary to pack off intestines with gauze, if the pack is wet with citrate solution, much fewer adhesions should result. Absolute asepsis is essential. Adhesions cannot be prevented in the presence of infection. Gentleness in handling peritoneum is important, for the more injured peritoneum left after operation, the greater is the likelihood of adhesion formation. Large areas denuded of peritoneum should be covered by plastic operations or omental grafts, for the larger the denuded areas left, the more difficult is the prevention of adhesions. Iodin should be used in abdominal surgery with great care, or better, not used at all, for a very little of it allowed to touch the bowel causes masses of adhesions. Dry gauze should not be allowed inside the abdomen.

43. **Prevention of Peritoneal Adhesions.**—Pope reports on the use of a solution of citrate of soda 2 per cent. with sodium chlorid 2 per cent. in some 400 abdominal sections. All sponges and gauze pads were moistened with this solution. In about twenty cases, a considerable quantity of the solution was left in the abdominal cavity. This amount ranged from 4 ounces to a pint. Since this procedure causes pain and partially rouses the patient it has been found expedient to have the incision almost closed before introducing the liquid. The abdominal wounds do show more oozing during closure, but in no case has it seemed to lead to failure of union or to postoperative bleeding. There is no evidence to show that the liability to infection is increased, but, on the contrary, where peritonitis was present, a marked improvement seems to have occurred. The character of cases in which a quantity of solution was left in the abdominal cavity included general postoperative adhesions, acute obstructions, pus tubes, colectomies, resections and tuberculous peritonitis.

Archives of Ophthalmology, New Rochelle, N. Y.

January, XLV, No. 1, pp. 1-108

46 Acidosis and Edema in Its Relation to Glaucoma. H. Smith, Amritsar, India.
47 Histologic Findings After Iridotasis. F. H. Verhoeff, Boston.
48 Lumbar Puncture and Examination of Spinal Fluid in Affections of Eye. J. B. Ayer, Boston.
49 Massive Granuloma of Sclera (Brawny Scleritis); Report of Unusual Case. G. S. Derby, Boston.
50 Torticollis Relieved by Tenotomy of Inferior Oblique. A. Duane, New York.
51 Local Anesthesia in Exenteration and Enucleation of Eyeball with Novocain Solution. H. Illig, Munich.
52 Examination of Visual Field in Glaucoma and Its Value for Differential Diagnosis. W. Löhlein, Greifswald.

Boston Medical and Surgical Journal

February 10, CLXXIV, No. 6, pp. 187-222

53 Sir James Paget and Paget's Disease. E. C. Cutler, Boston.
54 Organization for Care and Transportation of Sick and Wounded in British Expeditionary Forces in France. R. I. Lee, Boston.
55 Occurrence of Wassermann Reaction Among Hospital Patients. A. A. Hornor, Boston.
56 Treatment of Central Nervous System Syphilis. I. C. Walker, Boston.
57 Treatment of Syphilis. C. M. Smith, Boston.

Bulletin of Johns Hopkins Hospital, Baltimore

February, XXVII, No. 300, pp. 29-62

58 *Influence of Pituitary Feeding on Growth and Sexual Development. E. Goetsch, Baltimore.
59 Case of Pseudohermaphrodism; Abnormal Function of Endocrine Glands. W. C. Quinby, Baltimore.

58. **Influence of Pituitary Feeding on Growth and Sexual Development.**—A very intensive study was made by Goetsch. He found that the dried powdered pituitary extract derived from both the anterior and posterior lobes of the gland, when fed to young rats in excessive doses (0.1 gm. daily), causes failure to gain in weight, loss of appetite, increased peristalsis, a mild enteritis, and certain nervous manifestations, such as muscular tremors and weakness of the hind limbs. The latter symptoms are undoubtedly due to the posterior lobe element in the whole gland extract, for they are similarly produced by using posterior lobe, but not by using anterior lobe extract. Even when whole gland is fed over a short period of time, from twenty-five to forty days, it causes a more rapid growth and development and gain in weight, larger nipples in the female, and a coarser, drier, harsher growth of hair than are seen in either control animals or after similar administration of ovarian (corpus luteum) extract in equivalent dosage. In comparison with the development in control animals, the ovaries, tubes and cornua of the uterus of animals fed with whole gland extract are larger, more vascular and edematous in appearance, indicating increased development and activity. The testes show a considerably earlier growth and development. The feeding of pituitary anterior lobe extract causes increased weight and greater and more vigorous body growth and development over the control. There is similarly an earlier and more active genital development. The fur is harsher and thicker. Loss of weight, enteritis, and nervous manifestations are not observed as in the beginning of whole gland feeding. After prolonged feeding of anterior lobe extract, over a period of eight or nine months, the sexual instincts are early awakened, along with the early maturity of the sex glands.

The feeding of pituitary anterior lobe to parent rats exerts its stimulating influence on the offspring in intra-uterine life and during lactation, and, when the experiment is carried further, and the feeding to the young is continued after weaning, it has an even greater stimulating effect on growth, weight and development, and causes earlier and more frequent breeding, and an increased number of offspring in the litters. The stimulating effect on the sex glands is greater, the longer the influence of anterior lobe administration is exerted. The extract of pituitary posterior lobe, even after prolonged administration, does not stimulate growth in general, nor the development of the sex glands, as does anterior lobe even after a very short period. The posterior lobe element in the whole gland extract has an undoubted retarding influence on the development of the sex glands, an effect very similar to that of ovarian extract on the testes. Ovarian extract (corpus luteum), when fed to the male, especially, causes a tendency toward the deposition of fat, not only in the body generally, but in the testes and other glands as well, with a resultant marked increase in weight. The fur is heavier and coarser than in the animal fed with the posterior lobe extract. It does not cause an early descent of the testes. The latter are slightly heavier than those of the posterior lobe fed animal. Following ovarian feeding there is, as compared with conditions in the control, increased development and activity of the female sex glands.

Bulletin of Medical and Chirurgical Faculty of Maryland, Baltimore

February, VIII, No. 8, pp. 129-152

60 Diagnosis of Malignancy in Mammary Gland. **A. C. Harrison**, Baltimore.

Canadian Medical Association Journal, Toronto

January, VI, No. 1, pp. 1-96

61 Origin of Naso-Antral Polyp. D. J. G. Wishart, Toronto.
62 Dermatology and General Practitioner. W. S. Walsh, Providence, R. I.
63 Treatment of Squint. J. A. MacMillan.
64 Static Joint Disease. J. A. Nutter, Montreal.
65 Cortical Localization. G. Jefferson, Victoria, B. C.
66 Stab Wound of Liver. F. J. Tees, Montreal.

Delaware State Medical Journal, Wilmington

November, 1915, VI, No. 12, pp. 1-22

67 Difficult Diagnosis in Typhoid. B. A. Jenkin, Wilmington.

Journal of Cancer Research, Baltimore

January, I, No. 1, pp. 1-123

68 *Origin of Tumors in Mice. Part Played by Internal Secretion in Spontaneous Development of Tumors. A. E. C. Lathrop and L. Loeb, St. Louis.
69 Mortality from Cancer in Western Hemisphere. F. L. Hoffman, Newark, N. J.
70 *Effect of Phloridzin on Tumors in Animals. F. C. Wood and E. H. McLean, New York.
71 *Pathologic Aspects of Some Problems of Experimental Cancer Research. J. Ewing, New York.
72 Transplantable Sarcomas of Rat Liver Arising in Walls of Parasitic Cysts. G. L. Rohdenburg and F. D. Bullock, New York.
73 Chemotherapeutic Experiments on Rat Tumors. R. Weil, New York.

68. **Origin of Tumors in Mice.**—Lathrop and Loeb have found that castration of female mice below the age of 6 months leads to a very marked decrease in the cancer incidence of these animals, although they have not so far succeeded in preventing cancer altogether under these conditions. The cancer age is increased in castrated female mice. Castration in mice above the age of 6 months has so far been without effect. The prevention of breeding in female mice decreases the cancer incidence and increases the cancer age, though to a much smaller degree than does castration. Nonbreeding female mice reach a higher age than breeders. These results are interpreted by the authors as due to the influence of the corpus luteum on the growth of the mammary gland, and as the first experimental demonstration of internal secretion as an etiologic factor in the spontaneous development of cancer. The chemical action is superimposed on a hereditary factor distinct from the former.

70. **Effect of Phloridzin on Tumors.**—In the experiments cited by Wood and McLean the animals were injected with phloridzin in suspension in olive oil. Treatment was begun, as a rule, seventeen days after inoculation. All treated animals were kept rigidly on a diet of meat and lard, while the control animals were given the regular laboratory diet of dry bread and vegetables. From time to time, at the end of the second or third day period following injections of the phloridzin, the collected urines were examined for sugar with Fehling's solution and were found to give a positive reaction in the case of the treated animals on the carbohydrate-free diet, while the urine of the untreated animals as well as a phloridzin solution gave a negative reaction. The animals under treatment rapidly became emaciated, the fur roughened, and they appeared to be very ill; a great many died soon after the beginning of the treatment. For the experiments with the Buffalo rat sarcoma, 324 animals were inoculated, with 90.4 per cent. of "takes." For the experiments with mouse sarcoma No. 180, 396 mice were inoculated, with 97.7 per cent. positive. Among the mice bearing spontaneous tumors and Crocker Fund mouse sarcoma No. 180, there were no cases of absorption of the tumors under treatment. The Buffalo rat sarcoma showed a much smaller percentage of absorption among the treated animals than among the controls, 37 per cent. as compared with 58.4 per cent. In the majority of the experiments the growth among the treated animals was much more vigorous than that among the controls. Considering the very great variability of growth of the Buffalo rat sarcoma, as well as the high percentage of cases of spontaneous absorption occurring constantly, but with a great irregularity in different series of animals, the futility of using this tumor for therapeutic experiments or of basing conclusions on such investigations, is at once evident. Any "cures" obtained in work with the Buffalo rat sarcoma must be ascribed to spontaneous absorption rather than to the effect of the therapeutic agent.

71. **Problems of Experimental Cancer Research.**—Ewing is of the opinion that we must regard all forms of neoplasms as being specific diseases, connected only by the fact that they are neoplastic in greater or less degree, but differing in their etiology, clinical course, and therapeutic possibilities. In the same way, tuberculosis and bubonic plague are infectious diseases of inflammatory nature, but they are quite as closely related as Fibiger's gastric carcinoma of rats and pipe smokers' cancer of the lip. The habit of regarding cancer as a protean disease of uniform significance may well be abandoned in the interests of progress.

Kentucky Medical Journal, Bowling Green

February, XIV; No. 2, pp. 57-104

74 *Digitalis; Its Indications and Use. W. W. Anderson, Newport.
75 Intensive Treatment of Syphilis. I. N. Bloom, Louisville.
76 Heart Complications in Acute Infectious Diseases. A. L. Thompson, Madisonville.
77 Conditions Resulting from Cardiovascular Disturbances with or without Organic Changes of Heart and Vessels. W. F. Boggess, Louisville.
78 Syphilis of Heart. J. R. Morrison, Louisville.
79 Puerperal Eclampsia. H. T. Crouch, Bardwell.
80 Pneumonia. J. Glahn, Owensboro.
81 Usefulness of Roentgen Ray and High Frequency in Treatment of Skin Lesions. V. Blythe, Paducah.
82 Colles' Fracture. L. L. Robertson, Middlesboro.

74. Abstracted in THE JOURNAL, Oct. 23, 1915, p. 1484.

Laryngoscope, St. Louis

January, XXVI, No. 1, pp. 1-80

83 Recent Progress in Otology. G. L. Richards, Fall River, Mass.
84 Roentgen Ray Diagnosis of Mastoiditis. E. Amberg, Detroit.
85 Larynx in One Hundred Fatal Cases of Pulmonary Tuberculosis. G. Fetterolf, Philadelphia.
86 Lupus of Larynx. G. W. Stimson, Pittsburgh.
87 Upper Respiratory Passages in Habitual Users of Cocain and Heroin. R. F. Ridpath, Philadelphia.
88 Evolution of Specialist in Otolaryngology. D. J. G. Wishart, Toronto, Canada.

Medical Record, New York

February 5, LXXXIX, No. 6, pp. 223-264

89 Value of Transfusion in Atrophic and Devitalized Infants and Children. L. Fischer, New York.
90 Influenza and Grippe in Infants and Children. C. G. Leo-Wolf, Buffalo.
91 Enteroptosis. F. Robbins, New York.
92 Therapeutic Action of Carbonic Acid Brine Baths (Nauheim Baths) in Cardiovascular Diseases. J. H. Honan, Augusta, Ga.
93 Vitality of Cholera Vibrio in Water of New York Bay. A. J. Gelarie, Rosebank.
94 Treatment of Gonorrheal Ophthalmia. C. Barnert, New York.
95 Two Unusual Strains of Diphtheroid Bacilli. R. R. Mellon, Ann Arbor, Mich.

Military Surgeon, Washington, D. C.

February, XXXVIII, No. 2, pp. 123-243

96 Preparedness of Medical Department for War. H. C. Fisher, U. S. Army.
97 Secondary Hemorrhage in Military Surgery. W. H. Morriss.
98 Greater Field of Activity for Fleet Surgeon. D. N. Carpenter, U. S. Navy.
99 Postgraduate Instruction at Army Medical School. W. H. Arthur, Washington, D. C.
100 Army Motor Ambulance. K. Nelson, U. S. Army.
101 Leprosy as Major Pestilence. G. W. McCoy, Hawaii.
102 Wheel Litter Travois. W. W. Reno, U. S. Army.
103 Management of Trench Latrines in Semipermanent Camps. W. C. Montgomery, New York.

New York Medical Journal

February 5, CIII, No. 6, pp. 241-288

104 Acute Appendicitis. J. B. Deaver, Philadelphia.
105 Prompt Cure of Gonorrhea. G. A. Wyeth, New York.
106 Criminology from Standpoint of Psychiatrist. M. J. Karpas, New York.

107 Pollutions in Male. M. Hühner, New York.
108 Bronchiectasis from Standpoint of Bronchoscopist. S. Yankauer, New York.
109 Case of Eclampsia. A. Comstock, New York.
110 Meningeal Hemorrhage in New-Born: Report of Case. M. J. Lippman, New York.

New Orleans Medical and Surgical Journal

February, LXVIII, No. 8, pp. 501-566

111 Allen Treatment of Diabetes. J. T. Halsey, New Orleans.
112 Little Points of Importance in Abdominal Work. E. L. King, New Orleans.
113 Evidence to Account for Increase of Appendicitis. P. B. Salatich, New Orleans.
114 Problems in Psychiatry. M. J. De Mahy, New Orleans.
115 Case of Hematuria Relieved by Intravenous Injections of Emetin Hydrochlorid. J. F. Points, New Orleans.
116 Case of Retroperitoneal Appendix. Case of Volkmann's Ischemia. I. Cohn, New Orleans.

Oklahoma State Medical Association Journal, Muskogee

February, IX, No. 2, pp. 27-52

117 Splanchnoptosia. T. J. Martin, Oklahoma City.
118 Conservation of Health. J. W. Duke, Guthrie.
119 Preventive Medicine as Relates to Child. W. G. Little, Okmulgee.
120 Common Natural Therapy Applied in Conservation and Improvement of Infancy and Childhood. N. E. Lawson, Oklahoma City.

Ophthalmic Record, Chicago

February, XXV, No. 2, pp. 55-108

121 Tuberculosis of Eye; Treatment. W. E. Gamble, Chicago.
122 Case of Unilateral Optic Atrophy, Sole Symptom of Pituitary Growth. F. Krauss, Philadelphia.
123 Detachment of Retina Improved if Not Cured. C. Loeb, St. Louis.
124 Simple Tonometer for Clinical Use. W. N. Souter, Boston.
125 Corneoscleral Subconjunctival Seton in Glaucoma Simplex. K. K. Wheelock, Fort Wayne, Ind.
126 Subconjunctival Rupture of Eyeball. E. Blake, New Haven, Conn.
127 Cilia in Anterior Chamber. C. P. Small, Chicago.

Southern Medical Journal, Birmingham, Ala.

February, IX, No. 2, pp. 99-192

128 Glucosurias. J. S. McLester, Birmingham.
129 Clinical Diagnosis of Acute Leukemic States. L. F. Barker, W. A. Baetjer and S. R. Miller, Baltimore.
130 Physics of Bronchopneumonia. P. F. Barbour, Louisville, Ky.
131 Differential Diagnosis of Skin Manifestations in Pellagra from Other Dermatoses. C. Swanson, Atlanta, Ga.
132 Pellagra; Etiology and Treatment. W. E. Deeks, New York.
133 *Forty-six Consecutive Cases of Pellagra Treated with Cacodylate of Sodium. B. H. Booth, Drew, Miss.
134 *Small Town; Neglected Unit in Sanitary Administration. A. W. Freeman, Washington, D. C.
135 Effect that Sanitary Work Accomplished in Cuba and in Panama Has Had and Will Have on Sanitation of Tropics. W. C. Gorgas, Washington, D. C.
136 *Sex Question in Public Health. I. Dyer, New Orleans.
137 *Concentration Method for Diagnosis of Malaria. W. Krauss and J. S. Fleming, Memphis, Tenn.
138 Renaissance of Urology. H. H. Young, Baltimore.
139 Sterile Woman. F. W. Griffith, Asheville, N. C.
140 Intracranial Hemorrhage Due to Traumatic Rupture of Arteria Meningea Media: Report of Six Cases. L. H. Landry, New Orleans.
141 Skin Grafting. J. L. Crook, Jackson, Tenn.
142 Ocular Manifestation of Fifth Nerve Irritations. E. H. Cary, Dallas, Tex.
143 Method and Value of Blood Clot in Mastoid Operation. F. D. Boyd, Fort Worth, Tex.

133. **Pellagra Treated with Cacodylate of Sodium.**—Booth treated sixteen patients in 1914 and thirty in 1915, with cacodylate of sodium, with only one death. He gave adults an injection deep into the muscular tissues, about 7 grains once a week, children in proportion. He thinks that if diet alone is the cause of the disease these patients would not have recovered so easily and, further, that the disease is caused by a mildly infectious organism.

134 and 136. Abstracted in The Journal, Dec. 11, 1915, pp. 2117 and 2118.

137. **Concentration Method for Diagnosis of Malaria.**—Krauss and Fleming divide the technic into two steps: 1, that of obtaining the blood; 2, that of making the smear. For obtaining the blood, sterile cork stoppered bottles are provided, containing 10 to 20 c.c. of a solution made by dissolving 2 gm. chemically pure sodium citrate and 0.85 gm. chemically pure sodium chlorid in 100 c.c. freshly distilled water. The bottles should be sterilized once with their contents. To remove blood for diagnosis, a sterile 2 c.c. all glass syringe is first charged with 0.5 c.c. solution, filled from a vein, and the contents immediately injected into the bottle. The mixture should not contain more than 20 per cent. of blood. It is then lightly shaken and replaced in the bag. Technic for making smears: Add the amount of formaldehyd solution indicated in the chart. Usually about 0.5 c.c. of a 1:10 dilution of official 37 per cent. formaldehyd to the smaller bottles will give good hemolysis and good fixation. Small rings are well fixed in one hour. Large tertians and gametes stain best after four hours of contact with formaldehyd. They can be recognized, however, after fixation for one hour. Quicker fixation may prevent hemolysis, and can not be recommended. After fixation, using the system suitable to the time available, the contents of the bottle are put into a centrifuge tube and spun fifteen minutes at 2,500, or ten minutes at 3,000 revolutions per minute. Most of the leukocytes form a cream on the surface of the deposited blood, and can be pipetted off with the supernatant fluid, preferably with a vacuum pump. The tube is then filled with distilled water, shaken until hemolysis is complete, centrifuged again, the fluid poured off and slightly drained, and the remainder drained on a slide, dried, fixed and stained in the usual way. Beautiful pictures are obtained in fifteen minutes.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

January 22, I, No. 2873, pp. 117-152

1 *Soldier's Heart. J. Mackenzie.
2 Irritable Heart of Soldiers. R. McN. Wilson.
3 *Certain of Vascular Phenomena of Heart Disease. B. Parsons-Smith.
4 *Heart's Action in Jaundice. J. D. Windle.
5 From Visible to Gamma Ray Spectrum. S. Russ.
6 *Sodium Hypochlorite in Treatment of Septic Wounds. F. J. A. Dalton.

1. **Soldier's Heart.**—At least 90 per cent. of the cases that have been certified and treated as heart affections, Mackenzie says, are not primarily heart cases, and the principles of treatment applicable to the patients are widely different from those who suffer from heart failure. The chief complaint is an absence of the feeling of being well; they often feel out of sorts. A sense of fatigue or exhaustion easily induced is common to all. Breathlessness on moderate exertion is frequent, and more infrequent is pain over the region of the heart. The physical signs are variable. The heart's rate is often not increased; in some it is persistently increased, as frequent as 120 per minute. More frequently, at rest the rate may be quite moderate, but exertion, sometimes slight, may produce an undue rapidity, and it is in consequence of this excitability that the term "irritable heart" has been used. Murmurs, systolic in time and heard in different regions, are frequent, while an increase in size, usually slight, is not uncommon. In a few cases there is a slight edema of the legs. The mental condition is somewhat varied. Periods of depression are not infrequent, and the patients are often very irritable. They accept the view that they have something wrong with their hearts and readily yield to all restrictions, and are often content to lie in bed and brood over their woes. The principles of treatment should be devoted to increasing the health of the body as a whole in such a way as to increase the natural resistance to infection, to eliminate toxic influences, and brace up the whole man bodily and mentally. The best way to achieve this is by fresh air and judicious exercise in the fresh air.

3. **Vascular Phenomena of Heart Disease.**—Parsons-Smith urges that every heart case must undergo a minute examination of the heart itself, its size, rhythm, sounds, etc.: we must undertake a rather more generalized study of each particular patient; inquire into the condition of the kidneys and

their excretive powers; form some opinion as to the condition of the arterial walls, estimate the blood pressure and pulse tension; glean additional information from graphic tracings taken from the large superficial vessels, from electrocardiographic records, and by the method of direct vessel auscultation, particularly of the great venous and arterial channels at the root of the neck; and must detail a selection of the causes which warrant their very careful study.

4. **Heart's Action in Jaundice.**—Windle investigated the heart's action in a number of jaundiced patients; in some he found the pulse infrequent, in some irregular, in others both infrequent and irregular, but he has not been satisfied in any case that the jaundice was responsible for the infrequency or the irregularity. Slowing of the ventricle to 40 or below, whether occasioned by disease or poison, is, with rare exception, due to partial or complete heart block. A pulse rate about 50 to 55 a minute is not uncommon in patients with jaundice when free from fever and the patient is kept in bed, but this is not proof that the jaundice is the cause of the slow pulse; the patient's normal pulse rate must be known, and how it behaves in other conditions, because the pulse has a tendency to become infrequent in many nonfebrile illnesses when patients are confined to bed. The slowest pulse rate Windle met with due to total bradycardia, in an adult with jaundice, was 50 a minute. In a number of cases he has found a pulse rate of 40 and below; but the heart rate has been double the pulse rate, the infrequent pulse being due to an alternate premature beat of the ventricle too feeble to send a wave to the wrist.

6. **Sodium Hypochlorite in Treatment of Septic Wounds.**—The advantages observed in the employment of the sodium hypochlorite solution in the treatment of septic wounds are briefly stated by Dalton as follows: (1) the simplicity and cheapness of preparation of the antiseptic; (2) being nontoxic and nonirritating to the tissues when properly prepared according to Dakin's formula, the hypochlorite solution may be safely used in large quantities over long periods of time without ill effects; (3) the deodorant action of the solution is remarkable. The fetor from gangrenous tissues usually disappears in twenty-four hours; (4) the rapidity with which sloughs separate and clean granulation tissue is formed in a wound under its influence; (5) the infrequency of redressing required for wounds treated as described with hypochlorite, compared with the constant change of dressings required in large wounds with other forms of antiseptic; (6) the fact that the injections of the hypochlorite solution into the rubber tubes used in the dressings may with safety be entrusted to imperfectly trained orderlies without fear of ill results, once the case has been adequately dealt with by the surgeon.

Dublin Journal of Medical Science

January, III, No. 529, pp. 1-70

7 Meningitis Serosa. T. G. Moorhead.
8 Infantile Tetany. S. Sheill.

Journal of Laryngology, Rhinology and Otology, London

January, XXXI, No. 1, pp. 1-32

9 Throat, Nose and Ear Diseases and Their Treatment in John Hunter's Time. W. H. Kelson.
10 When Shall We Operate in Chronic Maxillary Sinusitis and What Form of Operation Shall We Choose? R. H. Skillern.
11 Primary Tuberculosis of Pharynx and Larynx in Male Sixty-Nine Years of Age. J. B. Horgan.
12 Columnar Carcinoma of Ethmoid; Operation and Cure. J. B. Horgan.
13 Bullet Wound on Nose. W. F. Wilson.

Journal of Tropical Medicine and Hygiene, London

January 15, XIX, No. 2, pp. 17-28

14 *Pellagra. W. M. McDonald.
15 Occurrence of Bodies Resembling "Seidelin Bodies" (Paraplasma Flavigenum?) in Anemic and Fetal Blood. J. W. Cropper and A. H. Drew.

14. **Pellagra.**—McDonald is of the opinion that no investigation into the etiology of pellagra can be complete which does not include within its scope the determination of the absent element in the dietary of pellagrins. On the assumption that all fatty articles of diet, such as butter, cream, etc., are more or less expensive and therefore not obtainable by the poorer classes, he suggests that it is possible that a deficiency of fat in the diet may prove to be a factor in its causation. The fact of the great prevalence of pellagra in state institutions in all parts of the world as compared with its total absence among attendants and employees in such institutions, is rather in favor of this theory, for the inmates are entirely restricted to institution dietaries, which dietaries are, as a rule, very deficient in fatty elements, whereas the attendants, even in cases in which rations are provided, are at liberty to supplement their diet at will. But whether the deficiency be of fat or of some other element of diet, McDonald believes that pellagra only occurs among those persons who by reason of poverty or confinement in an institution, or eccentricity of taste, or constitution, such as dyspepsia, are debarred from exercising a natural selection in regard to articles of diet. The author has not found any treatment which could be considered successful. Arsenic does not seem to have much effect on the course of the disease. Diarrhea is treated with usual remedies. In mild cases rest and increased dietary appears to benefit the patient.

Lancet, London

January 22, I, No. 4821, pp. 173-226

16 Clinical Thermometry; Continuous and Quasi-Continuous Temperature Records in Man and Animals in Health and Disease. (To be continued.) G. S. Woodhead and P. C. Varrier-Jones.
17 *Bactericidal Power Acquired by Serum After Administration of Salvarsan or Neosalvarsan. S. R. Douglas and L. Colebrook.
18 Biology of Vermiform Appendix. W. C. MacKenzie.
19 *Friedländer's Pneumobacterium. A. R. Friel.
20 Case of General Tetanus Following Local Tetanic Spasms of Injured Limb. T. B. Mouat.
21 Gastrotomy in Baby Aged Six Months. C. P. G. Wakeley.
22 Stretchers for Wounded in Trenches. G. H. Colt.

17. **Bactericidal Power of Serum.**—Neosalvarsan and salvarsan in watery solutions possess, according to Douglas and Colebrook, a very distinct bactericidal power against staphylococcus when the strength of the solution is 1 in 6,000. When the solvent largely consists of blood or serum this power is slightly diminished. The bactericidal power of solutions of both these preparations appears to be practically the same. The administration of neosalvarsan in ordinary doses renders the blood fluids markedly bactericidal. This power lasts but a short time, and seems to reach its maximum about one hour after the administration of the drug, diminishing rapidly in the third and fourth hours. Heating the serum to 60 C. for from ten to twenty minutes has no deleterious effect on this bactericidal power, showing that it is not in any way due to the development of immune bodies in the serum; and this fact, together with the short period in which the serum is found to be bactericidal, strongly suggests that the bactericidal power is due to some arsenic compound in solution in the blood serum. Salvarsan which, as mentioned above, has almost identically the same bactericidal power as neosalvarsan in in vitro experiments, gave practically no demonstrable bactericidal power to the patient's serum when ordinary therapeutic doses were administered, but it was constantly noticed that organisms which had been treated with serum obtained within three hours of the administration of the drug grew very much more slowly than normally and were agglutinated into masses. In view of the distinct bactericidal power which the serum acquires after the administration of neosalvarsan, the authors believe it is reasonable to hope that the administration of this drug, or some similar preparation, would have a beneficial effect on wound or other similar septicemias, and might even strikingly assist in the sterilization of deep and irregular suppurating wounds.

19. **Friedländer's Pneumobacterium.**—In treating patients suffering from ozena Friel finds that to get rid of the Friedländer infection it is advantageous to give the vaccine intravenously. He uses as a dose two millions of a sensitized nonsterilized emulsion in salt or distilled water, which is injected into a vein at the bend of the elbow or in the forearm.

Bulletin de l'Académie de Médecine, Paris

January 4, LXXV, No. 1, pp. 1-20

23 *Spiroscopy Training to Increase the Breathing Capacity. (Entrainement respiratoire par la méthode spiroscopique.) A. Robin.
24 *Intensification of Natural Decomposition after Death. (Désintégration par protéolyse microbienne.) F. Bordas and S. Bruère.

23. **Training the Respiratory Apparatus.**—Robin expatiates on the advantages of Pescher's spiroscopy, described in these columns January 29, p. 386. He styles it "an innovation in medicine most fertile in results in practical application. The lungs are exercised by their own efforts and in the simplest and most physiologic way, while the play of the bubbles in the water keeps up the interest and stimulates to renewed efforts." The method is in constant use now in a number of French hospitals, and is proving most valuable in overcoming the effects of wounds of the chest and of disease. It is especially valuable for prophylaxis in children. The little ones enjoy it as a game, and the narrow-chested may double their breathing capacity with it in a few weeks. Robin saw a demonstrative case recently. The auscultation findings had become suspicious in a 10 year old girl, both of whose parents had died young of tuberculosis. Under spiroscope exercises the condition became completely transformed in a few months.

24. **Means to Hasten Decomposition After Burial.**—Bordas and Bruère have been experimenting on an extensive scale and here announce that it is possible to hasten materially the disintegration of corpses by supplementing the action of the ferments of putrefaction within the cadaver by the action of similar ferments applied from without. The ferments of urea were found most efficient for the purpose, especially with moisture and warmth. The practical method proposed is to line the grave or ditch with straw to keep in the heat from the microbian fermentation processes; the straw to be well watered with cultures of the ferments of urea. A horse was buried in new moist wheat straw watered every second day for six days with 30 liters of a bouillon culture of urea ferments. (They give no details as to the preparation of this putrefaction-promoting fluid.) By the end of three weeks the skeleton was bare; all the flesh was gone except a few scraps of fascia tissue, the joints had come apart and even the skin had disappeared, nothing but the tail being left intact, separate from the skeleton. Admission of a little air promotes the disintegration. Not only during the war but in cemeteries everywhere great hygienic progress would be realized, they reiterate, by thus intensifying the normal work of Nature.

Journal de Chirurgie, Paris

September, 1915, XIII, No. 4, pp. 329-440

25 Resection of Elbow for Ankylosis Consecutive to Gunshot or Shell Wound. (De la résection du coude dans les ankyloses par blessures de guerre.) A. Mouchet and R. Gouverneur.
26 Primary Resection of Wounded Elbow: Indications, Technic and After-Treatment. (De la résection dans les plaies articulaires du coude par projectiles de guerre.) R. Leriche.

Paris Médical

January 15, VI, No. 3, pp. 57-96

27 The War and Tuberculosis. (La guerre et la tuberculose 1914-1915.) L. Landouzy.
28 Prophylaxis of Tuberculosis during the War. (La défense sociale contre la tuberculose pendant la guerre.) L. Rénon.
29 Typhoid in the Tuberculous and Tuberculosis Following Typhoid. (Fièvre typhoide et tuberculose.) L. Bernard.
30 Sanatoriums for Tuberculous Soldiers. (De l'hospitalisation temporaire et économique des tuberculeux de guerre.) F. Dumarest and A. Vigne; (L'assistance et l'éducation des tuberculeux de la guerre dans les stations sanitaires du ministère de l'intérieur.) H. Labbé.
31 Roentgen Diagnosis of Tuberculosis. (Utilité de la radioscopie pour la sélection rapide des tuberculeux aux armées.) H. Grenet.
32 Tracheobronchial Glandular Lesions Mistaken for Projectiles and vice versa. (Adénopathies trachéo-bronchiques et projectiles de guerre.) A. Weil.

Presse Médicale, Paris

January 13, XXIV, No. 2, pp. 9-16

33 Dorsal Friction Sounds in Nephritic Pericarditis with Much Effusion. (Le frottement péricardique dorsal dans les péricardites brightiques à grand épanchement.) Chauffard.
34 Measures to Arrest the Spread of Venereal Disease. (La prophylaxie antivénérienne paf les administrations civiles et militaires.) F. Balzer.

Berliner klinische Wochenschrift

January 3, LIII, No. 1, pp. 1-28

35 Importance of Immobilizing Dressings in Treatment of Wounds of Bones and Joints. (Wichtigkeit feststellender Verbände bei der Behandlung von Knochen- und Gelenkschusswunden.) W. Körte.
36 Experiences of an Ophthalmologist with the Troops on Active Service. (Kriegs-ophthalmologische Erfahrungen und Betrachtungen.) W. Uhthoff.
37 *Spirochaeta Pallida in the Cerebrospinal Fluid. (Ueber die Infektiosität des Liquor cerebrospinalis bei Syphilis.) R. Frühwald and A. Zaloziecki.
38 Wounds of Neck and Urethra. (Kasuistische Mitteilungen zur Kriegschirurgie.) M. Litthauer.

37. **Demonstration of Spirochaeta Pallida in the Cerebrospinal Fluid.**—Frühwald and Zaloziecki review what has been written on this subject and report the results of their own research. They tested the cerebrospinal fluid by injecting it into the testicles of rabbits. The results they obtained added to those previously on record show positive findings in primary and secondary syphilis, without nervous manifestations, in a total of 2 cases (none before the eighth week); in secondary syphilis, from the third to the twelfth month, in 7 cases; never in tertiary syphilis. In the cases with objective nervous symptoms: in early syphilitic meningitis, once; neurorecurrence (eight months), once; apoplexy and hemiplegia (seven months), once; (one year), once; syphilitic meningitis, once; spinal syphilis (ten years), once; tabes, 2 cases, and progressive paralysis, 5 cases. In inherited syphilis, soon after birth, 2 cases; syphilitic leptomeningitis later in life, once, and juvenile paralysis, once. This compilation includes Frühwald and Zaloziecki's 23 syphilitic patients tested in this way. Spirochetes were found in only 4 of the total 23; once in recent secondary syphilis, once in older secondary syphilis (without nervous symptoms), once in early meningitis, and once in progressive paralysis. They add that large numbers of others with tabes, paralysis and brain syphilis were also tested, with constantly negative results. The inoculation lesion in the rabbit testicle was so slight that only the microscope disclosed its positive nature. The data presented show that the cerebrospinal fluid is only rarely infectious. The fluid otherwise may or may not be normal, and there may or may not be a positive seroreaction and symptoms on the part of the nervous system. There is thus no regularity in the findings.

Correspondenz-Blatt für Schweizer Aerzte, Basel

January 1, XLVI, No. 1, pp. 1-32

39 The Progress of Surgery. (Fortschritte der Chirurgie.) H. Iselin.
40 *Pellagra in Switzerland. (Ueber den pellagrösen Symptomenkomplex bei Alkoholikern in der Schweiz.) J. Jadassohn. Commenced in No. 52.

40. **Pellagra in Switzerland.**—The main points in this article were reviewed in these columns February 12, p. 539.

Deutsche medizinische Wochenschrift, Berlin

January 6, XLII, No. 1, pp. 1-32

41 *The Spirochete Nodosa as Cause of Infectious Jaundice. (Zur Aetiologie der Weilschen Krankheit. II.) E. Hübener and M. Reiter.
42 Agonal Thrombosis. H. Ribbert.
43 Work in Treatment of Nervous Affections in Soldiers. (Weitere Erfahrungen mit der Heilbeschäftigung nervenkranker Soldaten.) R. Wollenberg.
44 *Mixed Infection with Epidemic Meningitis. H. Silbergleit and K. v. Angerer.
45 Canned Culture Mediums. (Erfahrungen mit dem Büchsenagar von Uhlenhuth und Messerschmidt in China.) H. Dold.
46 Simplified Technic for Bacteriologic Research. (Anstellung der Agglutinations-Reaktion nach Widal und Gruber-Durham.) K. Brauer; (Färbung von Tuberkelbazillenpräparaten.) K. Brauer.
47 Burns from "Light Balls"; Four Cases. (Verbrennung durch Leuchtkugel.) Goebel.
48 Preparation for the Prothesis after Amputation. (Vorbereitende Behandlung der Beinamputierten.) J. Lewy.
49 *The Urochromogen and Diazo Reactions. (Permanganreaktion und Diazoreaktion.) S. E. C. Bosch.
50 Compulsory Hospital Treatment as Penalty for Exposing Others to Venereal Disease. (Wie soll der Geschlechtsverkehr Venerischer bestraft werden?) A. Blaschko; (Die Bestrafung des Geschlechtsverkehrs Venerischer.) F. Ebermayer.
51 Old Women's Psychology. (Altweiber-Psychologie.) v. Luschan.

41. **Etiology of Infectious Jaundice.**—Hübener and Reiter say that Uhlenhuth's report of the results of his research has confirmed their previous statements in regard to the causal importance of the spirochete which they isolated from patients with Weil's disease. (Mentioned in THE JOURNAL February 19, p. 610.)

44. **Mixed Infection in Meningitis.**—Silbergleit and von Angerer report six cases connected by time and locality, and one with no such connection, in all of which the symptoms indicated epidemic meningitis with sepsis and an extensive petechial exanthem. All cases terminated fatally notwithstanding serotherapy was applied at once. In the four cases examined for the purpose, mixed infection was apparent.

49. **Comparison of Urochromogen and Diazo Findings.**—Bosch relates that in examining about 1,000 specimens of urine the diazo reaction never occurred without the urochromogen reaction, and the latter was encountered twice as often as the former in advanced cases of tuberculosis. About 96 per cent. of the patients with the urochromogen reaction and 100 per cent. of those with the diazo died in less than eight months thereafter. She gives the precision technic for both.

Medizinische Klinik, Berlin

Dec. 26, 1915, XI, No. 52, pp. 1417-1432

52 Gunshot and Shell Wounds of the Fingers. (Zur Behandlung der Fingerschüsse.) H. Schloffer.
53 *Hypnosis in Treatment of War Hysteria. (Zur therapeutischen Verwendung der Hypnose bei Fällen von Kriegshysterie.) M. Nonne. Commenced in No. 48.
54 Technic of and Experiences with Vaccination against Cholera and Typhoid. (Die Erzeugung der Impfstoffe und Massenimpfungen in Krakau gegen Cholera und Typhus in der Zeit des Krieges 1914-15.) O. Bujwid.
55 Aphonia and Mutism from Fright Neurosis. (Funktionelle Sprachlähmung im Felde.) W. Scholz.
56 *Fulminating Meningitis with Atypical Symptoms. (Ein unter eigentümlichen Symptomen auftretender Fall von Meningitis cerebrospinalis epidemica fulminans.) N. Rosenbaum.
57 Simplified Technic for Counting Bacilli in Sputum. C. Martin.

January 2, XII, No. 1, pp. 1-30

58 Tardy Disturbances after Injury of the Skull. (Ueber Späterkrankungen nach Schädelverletzungen.) A. Passow.
59 *Experiences with Tests of Kidney Functioning. (Funktionelle Nierendiagnostik.) C. von Noorden.
60 Affections of the Urinary Organs from Chilling. (Kriegserfahrungen über Erkältungskrankheiten der Harnorgane.) V. Blum.
61 Operative Treatment of Traumatic Rupture of Right Rectus Muscle. O. Orth.
62 *Vaccine Therapy of Typhoid after Prophylactic Inoculation. (Zur Vaccinetherapie des Typhus abdominalis bei den prophylaktisch Geimpften.) K. Mayer.
63 Technic for Amputation of Leg. (Zur Methode der Unterschenkelamputation.) Neuschäfer.

53. **Hypnosis in Treatment of War Hysteria.**—This article was summarized in the Berlin Letter in THE JOURNAL, February 5, p. 440.

56. **Meningitis Simulating Diabetic Coma.**—Rosenbaum reports the case of a woman factory worker of 32 who complained one day of headache and became unconscious, with great motor restlessness, tossing her arms around and even tumbling out of bed, the eyeballs constantly turning to and fro, and with incontinence of urine but no fever, edema or eruption. The urine findings were approximately normal except for a positive response to Trommer's test and the ferric chlorid test. This led to the assumption of diabetic coma until the next day showed the responses much fainter, and at 7 p. m. symptoms of acute epidemic meningitis developed, but without fever. The pulse jumped from 88 to 120 and lumbar puncture showed a pressure of 280 mm. water, with meningococci. The third hour there was slight fever and it ran up high the next morning, when the woman died, scarcely three days after the premonitory symptoms. It was learned later that she had suffered from headaches for some time and had taken medicines for them, which explained the urine reactions. Necropsy disclosed extensive purulent leptomeningitis.

59. **Estimation of Functional Capacity of the Kidneys.**—Von Noorden reviews his extensive experiences with the various technics that have been introduced for this purpose. Five have stood the test of time, he says, and the findings with these are about all we can count on for insight into the condition at the moment, the indications for treatment, and estimation of the outlook. These five are the tests with an excess of salt, of urea, of water, the potassium iodid test, and the determination of the residual nitrogen in the blood. He gives 0.2 gm. potassium iodid in a delicate gelatin capsule on an empty stomach, swallowed with 50 c.c. water. The urine is then drawn with a catheter every five minutes and the saliva is examined every three or five minutes, the latter merely to ascertain when the capsule has been dissolved. In normal conditions the iodin reaction occurs in the saliva after an interval of from eight to twelve minutes, in the urine from three to five minutes later. With gastric dyspepsia the reaction in both may be delayed for five or ten minutes. When the reaction is much slower in appearing in the urine than in the saliva, the kidneys are at fault. A delay of from twenty to thirty-five minutes is moderate; from this to sixty minutes or above is extreme. All the iodin should be eliminated in from twenty-four to thirty hours. He has encountered extreme cases in which iodin was still to be found in the urine after five days. The salt and urea tests are made with 10 gm. salt or 15 gm. urea given with a test diet of milk, rice and dried fruit with 3 gm. salt. His experience has confirmed that the kidneys vary in eliminating salt and urea; sometimes one and sometimes the other is retained, in the mixed forms of kidney disease. But in the majority of cases it is exclusively one or the other. He warns in conclusion that a single determination of the residual nitrogen in the blood is not conclusive, but a progressive rise in the residual nitrogen is a grave sign. Venesection gives no permanent relief. All these tests require scrupulous care and a standard diet; otherwise the findings may be misleading. The aim with all is to ascertain the limits of tolerance, as in diabetes and gout.

62. **Vaccine Therapy of Typhoid.**—Mayer departed from the usual routine treatment of typhoid and applied active immunization in treatment when he had a group of sixteen cases all in men who had been vaccinated against typhoid from one to four months before. His impression is that the disease was rendered milder thereby. The excreta were found free from typhoid bacilli two weeks afterward.

Münchener medizinische Wochenschrift, Munich

January 4, LXIII, No. 1, pp. 1-36

64 *Cesarean Section. (Zur Kaiserschnittfrage.) M. Hofmeier.
65 Clinical Study and Bacteriology of Paratyphoid A Bacillus. A. Schmitz and L. Kirschner.
66 Experiences with and Present Status of the Ninhydrin Reaction. (Zur Technik und klinischen Verwertbarkeit der Abderhaldenschen Reaktion.) E. Bunzel and F. Bloch.
67 *Atropin for Convulsions in Children. (Atropin bei Eklampsia infantum.) F. Rascher.
68 Color Sense of Bees. (Zum Farbensinn der Bienen.) F. Schauz.
69 Transfusion of Blood for the Wounded. (Ueber die Anwendung der Blutübertragung in der Kriegschirurgie.) L. Eloesser.
70 Treatment of Prolapse of Brain Substance. (Behandlung von Gehirnprolapsen im Felde.) E. K. Frey.
71 Combination of Kocher and Bassini Technics for Herniotomy. (Kombinierte Methode der Radikaloperation der Leistenhernie.) E. Grunert.
72 To Close Fistulas after Wounds of the Intestines. (Der Verschluss von Eingeweidefisteln nach Schussverletzungen.) R. Dobbertin.
73 Iodoform or Petroleum Protects Dressing Material against Lice. (Zur Verhütung der Verlausung von Verbänden.) v. Stubenrauch and Zucker.
74 Surgical After-Treatment of the Wounded. (Die chirurgische Nachbehandlung der Kriegsverletzten.) M. Strauss.
75 Emergency Artificial Legs. (Schwierige Immediatprothesen.) F. Seidler.

64. **Cesarean Section.**—Hofmeier has compiled 194 cases of transperitoneal cesarean section with 3 deaths. The list includes 45 from his own service, with one fatality, 19 from Baisch's with no mortality. The other 2 deaths were in Franz's 130 cases. Adding to these Küstner's 110 extraperitoneal cesarean sections with no mortality, we have a total of 304 cases of cesarean sections by other than the classic

technic with only 3 deaths—a record which speaks for itself, especially when it is realized that fully 50 per cent. were not what is called clean cases. Hofmeier now confidently advocates cesarean section by this technic at term when conditions call for inducing premature delivery.

67. **Atropin for Convulsions in Children.**—Rascher relates that a child of 3 had been taken suddenly with severe convulsions and laryngospasm. The pulse was 140, temperature 40 C., with pronounced cyanosis. He had no methylatropinum bromatum, which he would have preferred as less toxic, and had to use atropin sulphate, which he injected, dissolved in boiled water. The dose was 0.0001 gm. of the atropin. The laryngospasm subsided in half a minute and the clonic spasms a few minutes later. There were still a few slight spasms in the arms up to the end of the half hour but then the child was sleeping quietly and had no further convulsions, while the temperature was permanently normal. No cause for the convulsions could be discovered unless possibly the too monotonous diet of boiled milk.

Wiener klinische Wochenschrift, Vienna

Dec. 30, 1915, XXVIII, No. 52, pp. 1433-1460

76 *No Immunizing or Curative Power Found in Cancer Juice. (Kritische Studien zur experimentellen Therapie maligner Neoplasmen. I.) S. Fränkel and E. Fürer.
77 Influence of Febrile Temperature on Course of Syphilis. (Zur Kenntnis der Einwirkung fieberhafter Temperaturen auf den Verlauf der Syphilis.) F. Luithlen.
78 Pseudarthrosis of Metacarpal Bones after Fracture in War. A. Saxl.
79 Bubonic Plague at Shanghai. (Zur Epidemiologie der Pest.) F. Vecsei.
80 Plans for Hospital in Barracks. (Anlage von stabilen Barackenspitälern.) K. Feistmantel.

January 6, XXIX, No. 1, pp. 1-32

81 The War and the Medical Profession. (Der Krieg und die Aerzte.) A. Fraenkel.
82 Treatment of Frostbite. (Zur Behandlung der Erfrierungen im Felde.) O. Zuckerkandl.
83 Tendency of Wounded Limbs to Freeze. (Neigung verletzter Gliedmassen zu Erfrierungen.) S. Plaschkes.
84 Gas Gangrene. (Der Gasbrand.) F. Derganz.
85 *Salvarsan Treatment. (Ueber Salvarsannatrium nebst einigen allgemeinen Bemerkungen zur Salvarsantherapie.) A. Brandweiner.
86 Prothesis for Stump unable to Bear Weight. (Verstellbarer Sitzring für Beinprothesen.) A. Saxl.
87 Duplicate Coupon Tag System to Facilitate Hospital Records. (Neue Methode zur Vereinheitlichung und Beschleunigung des militärärztlichen Dienstes in den Sanitätsanstalten.) S. Jellinek.

76. **Therapeutic Inefficiency of Cancer Juice.**—This communication from the chemical laboratory of the Austrian Cancer Research Society reports absolutely negative results in extensive experimental research with the juice expressed from various types of cancers. The positive statements in this line of various scientists are discussed in turn and answered by the results of personal research. The only positive findings were that tumor cells subjected to a pressure of 450 atmospheres proved to be no longer transplantable.

85. **Salvarsan Preparations.**—Brandweiner's experience indicates that salvarsannatrium is somewhat more toxic than neosalvarsan. In his 14,000 injections of salvarsan or its preparations since the war began he is guided by the reaction to the first injection, regarding the slightest trace of headache as a reaction worthy of attention to individualize treatment. He never discharges a patient with "neurorecurrence" until the cerebrospinal fluid gives normal findings. A tendency to sleeplessness and extreme sensitiveness to noises are among the by-effects of salvarsan which he regards as significant. These two symptoms often appear after the first injection and may persist for several days. He knows of a case of very severe intoxication from salvarsan which was accompanied by persisting sleeplessness. Headache, sleeplessness and sensitiveness to noises are the mildest degree of the changes which in severe cases are manifested by hemorrhagic encephalitis. Other symptoms, such as fever, palpitations, etc., he regards as of far less moment, but a toxic eruption after salvarsan calls for great caution. If any of the solution gets outside of the vein, the resulting pain can be relieved by a tourniquet, applying it for ten or twenty minutes at intervals of one or several hours as may be indicated.

Policlinico, Rome

January 2, XXIII, No. 1, pp. 1-36

88 Enrichment Technic for Detection of Scanty Cholera Germs. (Rilievi di tecnica sulla diagnosi batteriologica del colera nell'attuale profilassi.) A. Baldoni.
89 *Prophylaxis of Frostbite. (Intorno al trattamento delle perfrigerazioni di natura circolatoria.) G. Galli.

January 9, No. 2, pp. 37-68

90 Roentgen Localization of Projectiles in the Tissues. (Sopra alcune modalita tecniche per rendere piu agevole, rapida ed esatta la ricerca dei proiettili nei tessuti per mezzo della radioscopia.) F. Ghilarducci.
91 Prophylaxis and Treatment of Frostbite. (Sui congelamenti degli arti.) L. Cherubini; (Sulla profilassi delle congelazioni.) T. Pontano.

January, Medical Section, No. 1, pp. 1-32

92 Tests for Occult Gastro-Intestinal Hemorrhage. (Sulle emorragie occulte del canale digerente.) B. Maiolo.
93 *Hemolytic Jaundice; Recovery under Roentgen Exposures of Spleen. (Ittero emolitico splenomegalico primitivo guarito coi raggi. X.) G. Jona.

January, Surgical Section, No. 1, pp. 1-32

94 *Sporotrichosis of the Bones. (Sporotricosi ossea.) G. D'Agata.
95 Fascia Flap in Treatment of Hernia; Two Cases. (I trapianti liberi di aponevrosi nella cura dell'ernia.) A. Amatore.
96 Gunshot and Shell Wounds of the Abdomen. (Considerazioni sulle ferite d'arma da fuoco dell'addome.) O. Cignozzi. To be continued.

89. **Prophylaxis of Frostbite.**—Galli expatiates on the importance of keeping the circulation active in the feet to ward off frostbite, and emphasizes the importance of predisposing factors such as a sluggish circulation in general. He warns that men of this type should not be sent to the especially exposed posts. The right man in the right place is one of the great secrets of military success. Fatigue also is an important factor in rendering the circulation sluggish, and he urges frequent changing about and relieving of the men. Those particularly exposed to frostbite should be given amply large boots with nothing to lace. The walls of the vessels in the legs may be toned up by daily rubbing with snow; the vasomotor nerves thus learn to function better. Hot coffee is a powerful tonic for the circulation, and is extremely useful for the men at particularly exposed points. Where this is not available, some drug might be taken for a heart tonic, such as a pill of caffein with extract of strophanthus.

93. **Hemolytic Jaundice with Recovery under Roentgenotherapy.**—Jona's patient was a young man of 18, previously healthy, although living in a malarial region. In 1911 he began to feel weak and languid, with jaundice and with dyspnea on the slightest exertion and the spleen became enormously enlarged. The diagnosis of acquired primary hemolytic jaundice was beyond question, and while splenectomy was being considered, roentgenotherapy was tentatively applied to the spleen. Improvement was soon apparent both in the general condition and the blood picture. After twenty-one exposures in forty-three days the young man considered himself cured, and there has been no sign of recurrence during the three years since to date. In two months the reds had increased from 2,496,000 to 3,650,000, the hemoglobin from 54 to 70 per cent. The spleen measured at first 34x19 cm.; at the close of the course, 27x15 and on recent reexamination 15x9. Jona exposed the spleen from the front one day, from the left side the next day, and from the rear the third day, recommencing the series after a five days' rest. The exposures were each for ten minutes, with a current of 110 volts and 20 amperes. The tube was placed at a distance of 40 cm. and a 1 mm. aluminum filter was used, with a medium hard tube. Jona cites the two cases of congenital hemolytic jaundice reported by Parisot in 1913 in which marked improvement followed exposure of the spleen to the Roentgen rays. He knows of no previous instance of benefit from roentgenotherapy in the acquired form, but insists that roentgenotherapy should be given a thorough trial, before splenectomy, in all such cases.

94. **Sporotrichosis of Long Bones.**—D'Agata remarks that when a subacute or chronic osteomyelitis or osteoperiostitis develops from sporotrichosis, the differential diagnosis is often difficult if there are no skin lesions to suggest the clue. With laboratory methods differentiation is a simple and easy

matter. In his case the lesion in question was in the upper jaw, and deceptively simulated a tuberculous or syphilitic process.

Brazil-Medico, Rio de Janeiro

Dec. 18, 1915, XXIX, No. 48, pp. 377-384

97 Brazilian Worm-Like Internal Parasites: Entozoa. (Revisão dos Acantocephalos brazileiros. II. Familia echinorhynchidae Hamann, 1892.) L. Travassos.

Dec. 25, No. 49, pp. 385-392

98 Brazilian Endoparasitic Nematoid Worms. (Trichostrongylideos brazileiras. IV.) L. Travassos; (Acheilostoma paranecator, n. sp. Novo nematoide parasito do equus asinus.) L. Travassos and F. P. Horta.

January 1, XXX, No. 1, pp. 1-8

99 Helminths of Lower Rio de Janeiro District. (Informações sobre a fauna helminthologica sul-fluminense.) L. Travassos.

100 Banti's Disease Simulated by Syphilis. (Syndroma syphilitica de Banti.) O. Clark. To be continued.

Semana Medica, Buenos Aires

Sept. 2, 1915, XXII, No. 35, pp. 267-298

101 *Treatment of Eclampsia. N. P. Costa.

102 Julio Mendez' Biological Theory of Immunity, and Vaccine Therapy Based thereon. P. Ivanissevich.

Nov. 11, 1915, No. 45, pp. 575-602

103 Present Status of Exophthalmic Goiter. (Enfermedad de Basedow.) C. P. Mayer.

104 *Serotherapy of Bubonic Plague. J. Moreno. Commenced in No. 30.

Nov. 18, No. 46, pp. 603-630

105 Serotherapy of Pneumonia. (La bronco-pneumonia y el suero del Dr. Julio Lemos.) D. Paternoster.

106 *Importance of Gynecologic Examination in Acute Mania, Hysteria, etc. (Del psiquiatra al ginecoiatra.) A. D'Alessandro. Commenced in No. 43.

Nov. 25, No. 47, pp. 631-658

107 Experiences with Induced Pneumothorax in Treatment of Pulmonary Tuberculosis. D. Paternoster.

101. Reviewed recently in these columns, p. 156.

104. **Serotherapy of Bubonic Plague.**—Some of the seven previous instalments of Moreno's long review of his clinical experience with bubonic plague have already been reviewed in these columns. He is physician in chief of the isolation hospital at Buenos Aires, and his conclusions are drawn from extensive experience. He asserts that a dose of 20 c.c. of antiplague vaccine for adults and 10 c.c. for children over 5 confers immunity, but only for about ten days. In treatment antiplague serum must be given in doses of 100 c.c. and the intravenous is the only reliable route; the injections should be repeated as indicated. Later reinjection of serum may induce general symptoms, but they are not as severe as those observed in laboratory animals under the same conditions, and they are never serious enough to justify withholding serotherapy in a case of bubonic plague. The disease is liable to be grave in any form in which it may appear, and consequently it always calls for serotherapy. Symptomatic measures should be applied as indicated to supplement the serotherapy. In conclusion he reiterates that injection of antiplague serum is the best treatment of plague, and that the numerous case reports published apparently demonstrate the superiority of the Argentine intensive intravenous method, as applied by Penna and himself. The peculiar gravity of pneumonic plague is due to the rapidity with which degenerative changes become installed, before serotherapy is applied. Local necrotic patches seem to be benefited by local application of the antiplague serum.

106. **Gynecology and Psychiatry.**—D'Alessandro relates a number of instances in which disease of the genital organs entailed nervous, hysteric and psychic symptoms which led to the internment of the woman before the genital cause was suspected. After removal of the cause, normal conditions were soon restored. The predominance of the psychic symptoms causes the attending physician to overlook the dysmenorrhea or abrupt amenorrhea, loss of appetite, etc. After excluding pregnancy, he sends the woman to the detention hospital without a minute gynecologic examination. Depression and psychic symptoms in one girl of 18, D'Alessandro ascribed to the dysmenorrhea from congenital stenosis. On this assumption he applied symptomatic treatment, without direct examination, ordering hot foot baths and sitz baths, with senna and sodium sulphate by the mouth and in enemas, with sedatives as needed. The complete restoration of normal physical and mental conditions confirmed the correctness of his diagnosis. In another case, a girl of 14 menstruated once, with considerable pain, and then fell into a somnolent state for four months. When she roused from this her mind seemed affected. Symptomatic treatment to bring the menstruation into a normal course soon cured her completely. Another girl of 19 showed signs of insanity after two months of marriage. As the condition grew worse she was on the point of being sent to the asylum when, as a last resort, the long and narrow cervix was dilated with an instrument and hot intra-uterine douches given. The amenorrhea and dysmenorrhea were thus combated and normal conditions were soon restored. In all these cases the women bore healthy children later and have had no further known psychic disturbances.

Six other cases similar to these are reported and five others in which there was an inflammatory process in the uterus or cervix, genital prolapse or a rectovaginal fistula. The recovery from the mania was particularly prompt in this last group. An intra-uterine polyp in another case was evidently the cause of repeated abortions. Each was accompanied by acute mania. After removal of the polyp normal pregnancies followed, with no return of the mania. Another of his patients was the mother of three healthy children when she became apparently insane and, on the advice of three alienists, was placed in an asylum for a month and improved somewhat. A tendency to hemorrhagic endometritis was then casually discovered. It was evidently of long standing, and as it healed under appropriate measures she regained her mental poise. In three other cases there was erotic mania. The women were 28, 31 and 35, and one had an inflamed Bartholin's gland, as large as a hen's egg, one a polyp in the uterus, and one disease of the clitoris. All recovered under local measures and had no remembrance of what had occurred during their insane periods. These twenty cases are only a few out of D'Alessandro's wide experience, he states. He cites in conclusion the case of a wealthy man of high character who is now a widower for the third time. During his phases of married life he became insane, but normal mental conditions were restored each time after the loss of his wife.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

January 1, LX, I, No. 1, pp. 1-116

108 *Results of Salvarsan Treatment of Tabes and Progressive Paralysis. (Eenige uitkomsten der salvarsanbehandeling bij tabes en dementia-paralytica.) F. S. Meijers.

109 Influence of the Position of the Head on the Tonus of the Muscles in the Limbs. (Over den invloed van den stand van het hoofd op den tonus van de spieren der ledematen.) W. S. van Leeuwen.

110 Osgood-Schlatter Fracture of the Tibia. (Een geval van beenbreuk van Osgood-Schlatter.) S. Diamant.

January 8, No. 2, pp. 117-192

111 Death as a Physiologic Phenomenon. (De dood als physiologisch verschijnsel.) E. Verschaffelt.

112 *Life Insurance in the Tropics. (Levensverzekering en Indisch risico.) R. Römer.

113 *Whooping-Cough. (Waarnemingen bij kinkhoest.) N. Benstz.

108. **Salvarsan in Tabes and General Paresis.**—Meijers reports his experience in this line with ten patients with paretic dementia, beginning with 0.15 gm. neosalvarsan and increasing to 0.45 or 0.6 gm. to a total of from 4 to 4.2 gm. This was supplemented by mercurial treatment and potassium iodid, the course extending over two months. A slight increase in weight was apparent in a few, but aside from this there was no improvement in any way, and the course of the cases later did not differ in any respect from that of the patients not given this treatment. He reports further another case in a man of 38 in which the general paresis was suspected in its very incipiency by positive serologic findings in the cerebrospinal fluid when the man was being treated for an industrial accident and the fluid happened to be casually examined. He was given thorough treatment as above, but the paresis proceeded in its inexorable development later, unmodified in any way by the vigorous measures that had been applied, hoping to abort it. This disappointing outcome in progressive paralysis would put an end to attempts at

specific treatment if it were not for the fact that direct syphilitic involvement of the nervous system may manifest itself by symptoms and serologic findings resembling those of progressive paralysis while—unlike the latter—they may prove amenable to specific treatment. It is justified therefore in every case of this kind.

His results in eight cases of tabes were far more encouraging. All but one displayed marked benefit from the treatment. It seemed to be as effectual when the neosalvarsan was injected intravenously as by the more complicated Swift and Ellis technic, which he applied in five of the eight cases. No untoward by-effects were observed in any of the total eighteen cases, and no change occurred in the cell content of the fluid nor in the Nonne albumin reaction. In the tabes cases, the pupil and Achilles tendon reflexes did not seem to be modified, but the distressing headaches and visceral crises were much benefited, as also the annoying incontinence of urine. The ataxia persisted unmodified, except in one case in which there was improvement such that the patient could get around the house.

112. **Life Insurance in the Tropics.**—Römer comments on the way in which life insurance in the tropics is profiting by the progress of recent years in tropical medicine. He refers particularly to the Dutch East Indies where hygiene is reducing the policy rates for candidates. He cites a life expectancy table compiled by Ulpianus for the Roman army in the second century after Christ, and compares it with a table compiled for the Netherlands by van Pesch for the years 1890-1899. The life expectancy for the age 20 to 25 in the Roman table was 30 years; in the Netherlands table, 41.2. From 40 to 50, in the Roman, from 19 to 10 years, and in the Netherlands 25.9 years. Römer has found that the life expectancy for officials in the Dutch East Indies is 5 years less, up to 35; 4 years less at 40; 2 years less at 50, while at 70 it averages the same as in the Netherlands. No statistics are available for non-officials, he says, there being nothing comparable to the mortality records published by the Mutual Company of New York. Römer reiterates that the direct influence of the tropical climate has been much exaggerated. Eykman's researches have established that the metabolic processes show no appreciable difference in the healthy in the tropics from those of cooler climes. The intestine may be in a condition of lessened resistance, but this is the result of errors in diet, especially overloading with rice. The mortality among Europeans seems to be highest the third year of their residence in the tropics, then the fourth and fifth. On return to a temperate climate they are liable to pneumonia, and amebic dysentery may be responsible years later for an abscess in the brain or liver. Chronic malaria, sprue, heart disease and, especially, gout may reduce the life expectancy after return to Europe. An assumed simple cardialgia or gastritis may be the first manifestation of an ulcer or cancer. He urges that careful records be kept of persons who have returned from a residence in the tropics.

Abuse of alcohol or tobacco is an important factor in the life expectancy in the tropics, and if the candidate is a total abstainer, the cause for this should be investigated. The danger of syphilis is greater in the tropics, and tuberculosis runs a particularly malignant course there. To this contributes the fact that the heart beat is accelerated on an average ten beats a minute and the respiration often by 4.5. Especially in the tropics, married men are better risks than the unmarried, as there is greater care for hygiene. Lands newly opened to colonization reduce the life expectancy somewhat. A tendency to corpulence is particularly risky in the tropics on account of the disinclination to exercise and the tendency to overeat.

113. **The Blood in Whooping Cough.**—Benstz tabulates the findings in sixty-three cases of whooping cough, classifying them in infants under 1 year and children up to 6 years of age. There was always leukocytosis, most pronounced when there were bronchitic complications. The number of eosinophils was below normal in every case, while the mononuclears and transitional forms were much increased, reaching 18 per cent. at the height of the disease. A detailed report is also given of systematic treatment with various drugs. No effect was evident with most of them, but some favorable action was manifested by extract of belladonna, from 1 to 6 mg. three times a day.

Hospitalstidende, Copenhagen

January 12, LIX, No. 2, pp. 25-44

114 Amyotonia Congenita. (Myatonia congenita—Oppenheims Sygdom —og congenit familiær progressiv Muskelatrofi.) K. H. Krabbe. Commenced in No. 1.

115 Modified Technic for Recording the Pulse. (Et praktisk Vink ved Registrering av Pulsen.) C. Lundsgaard.

Hygiea, Stockholm

LXXVII, No. 24, pp. 1489-1558

116 Induced Pneumothorax in Treatment of Pulmonary Tuberculosis; Sixty Cases. (Behandlingen av lungsot med konstgjord pneumothorax.) H. Wetterdal.

117 Centric Photographing of the Fundus of the Eye. (Om centrisk fotografering av ögonbottnen.) J. W. Nordenson.

Norsk Magazin for Lægevidenskaben, Christiania

January, LXXVII, No. 1, pp. 1-180

118 Simultaneous Occurrence of Several Independent Tumors. (Om samtidig forekomst av flere selvstændig voksende—multiple—svulster.) F. Harbitz. To be continued.

119 *Management of the Prematurely Born. (Om behandlingen av for tidlig fødte barn.) T. Frølich.

120 *Examination of Air and Dust for Tubercle Bacilli in Sanatorium. (Undersøkelser angaaende tilstedeværelse av virulente tuberkelbaciller i luft og støv paa Reknes sanatoriums værelser.) E. Kaurin.

121 *Dietetic Treatment of Beriberi in Dutch East Indies. (Indberetning om forsøk paa beri-beripatienter med tørrede erter og havregryn.) D. J. H. Pol.

119. **The Prematurely Born.**—Frølich tabulates the temperature, weight and other details of three prematurely born infants in his private practice. Notwithstanding all the efforts to warm up the children their temperatures kept abnormally low, going sometimes below 36 C. (96.8 F.). He emphasizes the necessity for guarding against overfeeding, especially with milk containing much fat. From 110 to 120 calories per kilogram is his rule, giving them in the form of skimmed milk with addition of flour and sugar, as Birk recommends, if breast milk is not available. The generally accepted opinion that 140 calories per kg. are needed he thinks is a mistake. The prematurely born are peculiarly predisposed to infections and especially to complications on the part of the respiratory tract, and hence absolute isolation from other children is indispensable in the home.

120. **Tubercle Bacilli in Air and Dust.**—Kaurin inoculated animals with culture mediums long left exposed to the air in rooms occupied by the tuberculous. Also with dust from the toilet rooms, hall and other parts of the sanatorium where the inmates congregated. No acid-fast bacilli could be detected in any of the seven groups of tests, and none of the fourteen animals showed any sign of infection. These findings harmonize with the experiences of the seventeen years during which none of the attendants or other persons connected with the sanatorium has contracted tuberculosis.

121. **Dietetic Treatment of Beriberi.**—Pol found that large amounts of a purée of peas had an unmistakably curative action on beriberi. As much as 150 gm. of the purée three times a day was required for this, smaller amounts showing no benefit. Oatmeal had a similar influence, but 125 gm. three times a day were necessary. Europeans did not require quite so much. The minute details of eighty-six cases are tabulated, filling thirty-three pages. A native bean seems to have also an effectual action. These three vegetables evidently contain the substance or substances the lack of which induces beriberi. Attention is called to the fact that these vegetables lose their efficiency in this line with age. Three-year old beans seemed to be quite inert.

Ugeskrift for Læger, Copenhagen

January 6, LXXVIII, No. 1, pp. 1-32

122 *Epidemic of Scarlet Fever. (Scarlatina-Epidemien i Lyngby og Omegn 1912-1913.) J. Lemche.

122. **Scarlet Fever Epidemic.**—This is an epidemiologic study of 473 cases of scarlet fever in four months in 1913 in a Danish town. The mortality was 4.86 per cent.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXVI, No. 10 Chicago, Illinois March 4, 1916

STATE HEALTH ORGANIZATION*

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The purpose of this paper is to discuss the general principles which are likely to be most useful in planning legislation, or mapping the sphere of the state's share in the preservation of the public health.

The first essential for efficient state health organization is a strong executive. A board, or committee, is almost never successful in executive work. What is needed is one person clothed with full executive power. It makes no difference whether he is called commissioner, health officer or director. He alone should appoint subordinates, control the finances and define policies. His term of service should be at the pleasure of the appointing power. His salary should be adequate. He should devote his entire time to the service. He should be trained in public health work.

The difficulty is to get such a man. The greatest hindrance is politics. How to eliminate politics is the great problem. In some states at present it seems to be hopeless. The citizens seem to be perfectly willing that their executives should work for the party instead of the state. Most persons agree, however, that the degree of political prostitution depends, to some extent, on the form of organization.

One plan to avoid political entanglements, which has been tried in several states, is to give the medical societies a share in the management of the health department. It is dangerous and unwise to give to nonrepresentative bodies a share in the government. Moreover, medical men as a body are not skilled in preventive medicine. Only great benefits, not to be otherwise secured, would warrant such a delegation of authority. It must be remembered that medical politics and medical log rolling are at times as pernicious as any other form of partisanship. There are four states in which the state medical society, or societies, control the department, or a majority of the board, and one in which the society elects a minority of the board. Most excellent work has been done in some of these states, but equally good work has been done under other forms of organization in states in which other conditions are no more favorable.

Most reformers think that much can be accomplished by fixing responsibility. One man, they say, should make appointments. Hence the tendency is to provide that the governor shall appoint the heads of all departments. At present the governor appoints the executive of the state health department in less than a third of the states. In a number of these the department is overturned every time there is a new governor, and the public funds are wasted by an inefficient department. On the other hand, in many states which have attained the highest rank in sanitary affairs, and in many in which the executive has to his credit long years of efficient service, he obtains his position in another way.

In every state in the Union it has, for one reason or another, been thought desirable to have a board of health, and in all but one it is prescribed by law. The older plan for the selection of a state health officer is by election by this board. This prevails, practically, in thirty states. This seems to me to be at present by far the best way to secure and keep an efficient executive, provided the board is constituted in such a way that its membership is likely to change slowly, and provided it has no other executive power. It will probably be objected that it is illogical to give the board of health this one executive duty of such very great importance and to grant it no other. So it is; but some of the most useful governmental institutions are illogical and the result of compromise. A continuous board seems, in the light of experience, to be less likely to inject politics into its selection than is the governor, and it is still less likely to do so if it has no other direct executive authority. Moreover, if the board has no direct authority in the selection of employees and in the expenditure of funds, the governor is less likely to use appointments on the board to reward political workers who are looking for a place with something in it. Of course the selection of the state health officer by the board will not certainly save the office from politics, but it will render it far less likely to become a part of the spoils system. Another safeguard is to provide that the board shall not elect one of its own members as executive officer. This not only tends to eliminate politics, but it also prevents the development of jealousies and friction within the board.

The executive officer should be skilled in sanitary science and have had administrative experience, and it is perhaps well enough so to provide by statute; but this of itself will not secure a good choice. It is important that the selection should not be confined to residents of the state as it is now in some states by statute and, in one at least, by the constitution. Generally it is unwise to prescribe qualifications, because these, if specific, are rarely helpful, and conditions may arise under which they hamper.

After the selection of the executive comes the important matter of rule making. Here the question of constitutionality arises, and lawyers and courts are not in entire agreement. Decisions vary in different states, and local conditions must be considered before framing

* Read at the Joint Session of the Council on Health and Public Instruction of the American Medical Association, and the Federation of State Medical Boards, Chicago, Feb. 8, 1916; abstract of discussion, Society Proceedings, The Journal A. M. A., Feb. 26, 1916, p. 685.

any legislation. While in some states the courts have sustained a very broad grant of legislative power to the state department of health, in others the authority to do this has been denied. It is generally admitted that it is unwise, if not unconstitutional, to confer on a single commissioner legislative authority, or even much rule making power. This, then is an important reason for the establishment of a board of health, or, as it is called in its newer form, a public health council. Many of our leading health officials believe that rule making and advising should be its sole functions. I think that no harm and much good will come from having it choose the health commissioner. That such a board may be of great value in advising the commissioner and by supporting him throughout the state is shown by experience, but this will depend on the character of the board and can scarcely be provided for by statute.

Such a board may well consist of seven, or six if the commissioner is to be a member, one to be appointed each year. The exact number is not important, but the complexion of the board should not be easily changed. It does not seem to be important whether the commissioner is, or is not, a member. Ex officio members are not usually of much value. It does not seem wise to prescribe qualifications of members. They should be men of character, interested in public health, but not experts. If they are experts they are likely to interfere with the real executive. To appoint an engineer, or an attorney, for the purpose of getting advice free, for which the state ought to pay, is reprehensible. It is unusual for the members to receive compensation, and this seems the wiser plan.

While there is some doubt about the wisdom, and in some states about the constitutionality, of granting to the state board of health practically unlimited power in sanitary legislation, practically all health officials are agreed that there is a large body of administrative rules relating to notification, isolation, disinfection, milk, food, water, sewerage and the like, which it is absurd to expect that the legislature is competent to enact properly as law. The legislature has neither the time nor the knowledge, and unless it accepts, without amendment, a code drawn up by experts, the results are likely to be crude and unsatisfactory. The best way is to give to some small body, like the state board of health, this rule-making power, and this board will, in its deliberations, be guided by the expert advice of its executive officer. It is only by means of rules that sufficient flexibility of legislation can be obtained. Delays in the proceedings of the legislature are often numerous and extended, and statute law cannot be relied on to keep legislation abreast of scientific progress.

Whether the board is to be given full legislative authority by some such phrase as "said board is authorized to adopt a code for the preservation of health," or whether certain subjects, such as those previously mentioned, are to be specified, concerning which it may make rules, depends on the constitutional provisions and the court decisions of the state in which the matter is under consideration. This rule-making power is regarded as one of the most important functions of the department of health.

If the decision is that broad legislative power cannot be granted to the department, the greatest care should be taken in drawing up the statute which is to specify the subjects on which the board may make administrative rules. As many subjects as possible should be included, and the act should be so worded as to give to the board the greatest possible latitude under the constitution as interpreted by the courts.

The principal functions of the department of health are indicated by the divisions, or bureaus, which are found in the department in the larger states. Sometimes these divisions are provided for in the organic law, especially in the newer enactments. More often they have developed naturally with the gradual growth of the department. It is perhaps well enough to provide for them in the organic law, but if this is done, provision should also be made that the executive of the department may modify, rearrange, add to or subtract from them. It is most unwise to provide rigidly for such matters, for, within a very brief time, functions which now receive little attention may become of the greatest importance. Who knows how soon a special bureau will be needed for cancer, for the venereal diseases, or for circulatory and renal diseases? Who knows how soon local laboratories will be so generally established that the diagnostic work of the state laboratory may safely be neglected?

FUNCTIONS OF THE HEALTH DEPARTMENT

1. The first duty of the department is to secure the complete registration of vital statistics. It is no mere academic expression to say that this is the foundation of all public health work. Vital statistics are of the utmost practical importance. How is it possible to know how much attention to give to tuberculosis, how much to typhoid fever, how much to the distribution of antitoxin for diphtheria, unless it is known how prevalent these diseases are? How can we be certain what towns have a safe water supply unless we know how many people die of typhoid fever? Statistics alone can show whether the most attention should be devoted to the city water supply, or the country privy. What is the infant death rate? Is the case fatality of diphtheria too high? Is tuberculosis decreasing as fast as it should? These vital questions, vital in every sense of the word, can be answered only by an accurate registration of births and deaths. Only twenty-five states are in the registration area for deaths, and ten in the provisional area for births — a poor showing, but indicating great recent progress.

2. The control of communicable diseases is still the chief function of the health department. Under present conditions little will be done except in the largest cities unless the state department takes the initiative. All but three, or four, of the smallest states need an epidemiologist, a real epidemiologist. The large majority of the states need more than this. They need a well organized, well financed division of communicable diseases. Few states are thus provided. Most of them are content to rush out their executive officer to hurry calls for smallpox outbreaks. Little systematic routine work is done. Perhaps a dozen states are trying properly to keep the run of communicable diseases, and most of them are not too successful. The first requisite for control is notification. Notification is much better in the cities. It is the duty of the state officials to make it equally good all over the state.

The Public Health Service in 1914 attempted to utilize reports of communicable diseases from only thirty states. An examination of the case fatality shows that in less than a dozen is it likely that diphtheria is reported with sufficient accuracy to make

returns of any use for either statistical or administrative purposes. The reports of typhoid fever and tuberculosis are far less satisfactory than for diphtheria. The number of communicable diseases is so large and the amount of work to be done is so great that some have thought it best to have separate and coordinate divisions in the health department for certain diseases, as tuberculosis or hookworm infection. The trouble with this arrangement is that the disease thus honored receives more than its due attention. The communicable disease work ought to be well balanced, and at first thought it would seem best to have one man in charge of all communicable diseases. If this makes the bureau too unwieldy, and separate divisions seem to be necessary, the executive should see that they are properly balanced. This is no easy task, as the legislature is quite likely to decide matters under pressure from enthusiasts who can see nothing but tuberculosis, or trachoma, or hookworm or venereal disease.

The diagnostic laboratory is at present an important part of the state health department. It, too, may well be a subordinate portion of the epidemiologic division. If coordinate with the latter, the executive has another task in seeing that the two really are coordinate and work together effectively. The time ought to come when the state laboratory will be able to abandon its diagnostic work to local laboratories scattered over the state, and will be free to devote itself to the administrative and research problems of the central department.

It is only by the proper development of epidemiologic work that the enormous value of antitoxins and vaccines can be secured to the people of the state. These must be distributed free and freely, and must at times be administered. Whether it would be better for the free distribution to be by the state or by the local governments is perhaps a local question. In some instances the state appears to do it with advantage. In others, the towns or counties seem to do their share well. If it is left to the local government, the state department should see that there is a good law and that the local governments do their duty.

3. Child hygiene is a subject which has been much neglected. In most of the larger Northern cities it has been shown that infant mortality can be markedly reduced by proper efforts. Infant mortality has been excessive, not only in the large cities, but fully as much so in the smaller urban communities, and conditions in villages are often equally as bad. Over large sections of the country, in the absence of statistics, it is not even known what the infant mortality is. That there is scarcely a place where it is not possible to reduce it greatly is improbable. The saving of babies' lives is one of the most effective and certain lines of public health work. It gives quick returns. The death rate is reduced the first year. While the actual work of baby saving is essentially local, the state can set the wheels in motion, as has recently been well illustrated in New York. No state can longer afford to neglect this field.

The medical inspection of schools does not yield such brilliant results. Not many lives are directly and immediately saved. The improvement of countless minor evils, even if they were such as to cause further trouble, is not spectacular. Both city and the state health departments have allowed school officials to take the initiative in school inspection. This is unfortunate, as school inspection is essentially a health function of the state. It is very desirable that all the health work of a city, or state, be centered in one department. School inspection is medical work, and the medical work of the state and its municipalities is certain to increase. It will be unfortunate to have it scattered among different departments. The health department should be the controlling factor in all state medical work.

4. The supervision of water and sewerage is a most important function of the state. This requires the services of one or more engineers, chemists and bacteriologists. Other matters, such as schoolhouse and institution construction, offensive trades and other nuisances, and land drainage often require the services of this division, though the promotion of the purity of water supplies is its most important duty. Some of the smaller states find an engineer with chemical and bacteriologic training sufficient to do most of the needed work, but all the larger states require a well organized division, sometimes with many employees. At present about half of the state health departments have no engineer in their employ.

5. Public health education is rightly considered of very great importance. It should occupy a good part of the attention of every department. Almost all health officials imagine that they are particularly qualified for carrying on educational work. While a great many health officials have the knack of writing catchy paragraphs and of interesting hearers at a lecture, few are really well fitted to have charge of the educational division. Such a person should first of all have sound judgment. It is necessary to select the wheat from the chaff. It is impossible to teach everybody everything. Attention should be focused on what is most important. Essentials should be adhered to rather than every new slogan repeated that is sounded by some enthusiast. The choice of method, too, is as important as the choice of subject. Novelty is not always to be sought. What is necessary is to make knowledge sink in. To catch the ear or the eye of the populace for a moment does not always do this. What the department needs is a teacher, not an advertiser.

6. In sixteen states the health department is charged with the administration of the pure food laws, though in some of these practically nothing is done by the department. The prevention of adulteration is the chief purpose of most of these laws, and this phase of the subject embraces most of the food work. The prevention of adulteration, except in a few instances, is an economic, not a health problem. It is true that the sanitary handling of food does, in some directions, and to some extent, affect the public health; and practically all of the state departments of health engaged in the prevention of adulteration do attempt to secure greater cleanliness in the handling of foods, though how effective this is, at times, is open to question. There is a difference of opinion as to whether or not there should be a food division in the health department. As this is a matter which no more affects health than a thousand and one other things, and as it diverts energy and money from purely health work, and as it is likely to arouse opposition to the health department on the part of powerful interests, it would seem better on the whole not to undertake this line of effort. Still, as some departments have long and successfully carried on food work without detriment, it is perhaps safe to allow the decision to depend on local

conditions. The sanitary control of milk is of much more importance, but here again there is difference of opinion as to what should be done, or how much should be done. The attempt of the state really to control the entire milk supply has never been very successful. Perhaps the best work for the state is to educate, to secure legislation to permit of efficient local control, and to assist local officials, especially those in the smaller communities.

7. In the last analysis, the success of most public health measures depends on the man on the spot. In other words, there must be local health officials to carry out the details of many of the most important measures of disease prevention. This is by far the weakest point in the whole public health system. The larger cities are doing fairly well. Most of the small towns are not. Most of the rural portion of the country is doing nothing. Health administration cannot be left to work out its own salvation. Some outside agency must at least point out the way. This is properly the business of the state. It is the duty of the state health department to strive to make health work efficient all over the state.

All sorts of schemes have been suggested, and some of them have been put in effect. None have been in successful operation long enough to show that an ideal has been found. A number of states last winter had carefully prepared bills to improve local health administration, but they did not receive favor at the hands of the legislators. Conditions vary a good deal, as to prevailing diseases, wealth, density of population, political customs and ideals. What may prove to be the best plan in Massachusetts probably would not be the best in California or Mississippi. As regards methods of local health work we are still in the experimental stage.

Where the township form of government is well developed, township health officers have very generally been provided for by law. In many states it would be difficult to get away from the township idea. The attempt to do so has been unsuccessful in some states. Is it not the wisest course, in such states, to accept frankly the township health officer? Of course in most townships there is not enough work for a full time officer. The part time health officer cannot be left to himself. He must be under continuous supervision by the state, thus becoming practically a deputy under a district supervisor. This is the Massachusetts plan, and seems to me to be the best solution of the problem for the present in a number of states. The combination of townships, or of towns, with a full time health officer, which has been successfully accomplished in a few instances, ought to be brought about in many more.

In some parts of the country, as in the South and some parts of the middle West, the county is thought to be the proper unit for efficient health work. In most instances a full time health officer is necessary for successful county work, and many who are most conversant with the conditions believe that they warrant the employment of a full time man. In some counties, even with a full time health officer, deputies also might be needed.

In other parts of the country, where the population is not so dense and where for other reasons not so much work per square mile needs to be done, artificial districts, consisting of combinations of counties, are suggested. In these districts, and indeed in some of the large counties found in the Mountain and Coast states, deputies are necessary, though on account of the great area rather than because of the number of people to be cared for.

The local health officers and deputy health officers who do the bulk of the routine work must be good men. The manner of selecting them is of great importance. Most state officials believe that they ought to be appointed by the state. This is the practice in only a very few states. There are decided objections to the plan, the most important of which is the danger, almost a certainty under present condition of morals, of building up a political machine. Whatever our theories may be about this, there is great popular as well as political objection. Popular regard for home rule makes it an impossible measure, probably, in most states. The bills presented last year in Indiana, Kansas, Michigan and Ohio, I believe, all provided for local election. All of these bills did, however, provide for some sort of control of qualifications. This would seem to be a legitimate, useful and acceptable means of state control.

It is also recognized that even good men will not work and should not be asked to work without adequate compensation. In Florida and in a good part of Pennsylvania the state pays, as well as appoints, the local health officer. It seems to be impracticable, and I believe it to be unwise, to do this in most states. Instead of this the compensation which is to be paid by the local governments may be fixed by the state. This attempt, too, has not been very successful; but it gives better promise than the plan of having the state carry on all local administrative work at its own cost.

Whether there are county health officers, township health officers, or district and deputy health officers, in order to have an efficient local administration there must be an effective supervision by the state department of health. All health officers need, and most desire, help from without. The state department of health should be prepared to give this help. It should also have authority to compel action. Even with a full time health officer in every county, supervision by the state would be necessary. Even without authority, and without any reorganization of local health institutions, in probably nearly every state, great improvement could be brought about by the continued efforts of even one skilled administrator who should devote his time to the stimulation of local health officers and of the communities in which they work. To do this requires no novel legislation and no radical change in policy. One such unofficial advisor may be appointed this year and another next year, or the year after. It is a promising field open now to every state department of health.

Most health officers believe it is a great help if the state has some means of coercion. Many communities can be persuaded to do right; others cannot. Some people will listen to reason only when they know that they must. It is wise to give executive power to the state department of health. If it is known that the state can step in and abate nuisances and control communicable diseases, it may compel local officials to act. Often local officials are glad of this pressure, which to them is a help. The pressure is greater, if, when the state acts, the cost becomes a charge on the local government. If this authority is exercised with discretion, it will be wholly for good. Believing that it will be so exercised, legislators have not been markedly

adverse to conferring such power on the state department of health, and it has been done in almost half of the states.

There is one other point which ought to be emphasized, and that is the desirability of having as much as possible of the health work of the state centered in the health department. To have a number of commissions and boards, as well as the state university, working independently in the field of preventive medicine is bad. It does not make for economy or efficiency, and it prevents solidarity in education and administration. The public is annoyed and rendered skeptical by a multiplicity of inspections, rules and precepts. It is highly desirable to utilize the scientific knowledge of the university and infuse its scientific spirit into public health work; but I am old fashioned enough to believe that it is not desirable for the university to take on administrative functions, and it is not desirable for it to engage in any kind of public health work except under the direction of the health department.

SOME ESSENTIALS TO THE DEVELOPMENT OF EFFICIENT HEALTH ORGANIZATION *

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With the beginning of the present public health movement several years ago, comparative analyses were made by me of the state and territorial laws relating to health organization. More recently, on request of their respective authorities, investigations of the health organizations of ten states and certain cities have been made by officers of the Public Health Service. In consequence of these studies, and the relations with state and local authorities in health work, a clearer idea has been gained, not only of the immediate needs of these agencies, but also of certain principles that should be utilized in their further development.

Certain of these needs are fundamental, and are like some of those with which the federal health agency has to contend. Among the needs referred to, in the order of their importance, may be mentioned: (1) awakened interest and support on the part of the public; (2) adequate personnel and appropriations; (3) cooperation of health agencies with each other.

These fundamentals are emphasized here because, regardless of character of organization, no health agency can be efficient without one or more of them, and because their absence has undoubtedly been largely responsible for the lack of growth of health organization and health work heretofore.

ACTIVE INTEREST OF THE PUBLIC IN ITS HEALTH AGENCIES

Lack of public interest in health matters in the past may be attributed to numerous causes. In an early day the need of common defense against other dangers took precedence over the defense against sickness. The country was sparsely settled, and there was no rapid means of communication. In consequence, such health agencies as existed were local, and established primarily to meet emergencies.

In a later day, economic advantage was evaluated above health possession. As a result, growth of health organization was stimulated for the most part only by the danger of epidemics. Following the epidemics of the thirties, fifties, seventies and nineties, many new laws were placed on our statute books; but between epidemics, by reason of our political system, little or no interest was taken by the public in health matters. The enforcement of sanitary laws was accordingly left largely to political appointees. As a result, with few exceptions, health boards did not have the full confidence or support of the public generally.

When in recent years interest in health matters did begin to manifest itself (and this was only one manifestation of a general desire on the part of the public to insure to individuals their social rights in greater degree), it was oftentimes through private agencies newly organized for specific purposes that the work was carried on, and not through already organized health agencies. One of the striking signs of the times is the increasingly large number of these associations and societies aiming at a common object, few of them properly correlated with each other or with official organizations. In consequence, there has undoubtedly been duplication of effort as well as lack of uniformity, and existing health authorities have not been supported or relied on as they should have been in furthering public health organization and public health work. In part at least this had had a deterrent effect on growth of these health agencies.

In those countries in which local health work is well advanced, as in England and Germany, dependence has been placed largely on duly constituted agencies, and respect for the enforcement of law encouraged. If these agencies in our country had been given equal public support to enable them to discharge their full duty, many of the additional functions and facilities would have been provided long ago. Too often with us reorganization of a health department has simply meant some unessential revision in the laws in order that a change of personnel might follow a change of political parties in such manner as not to offend the sensibilities of the public.

ADEQUATE APPROPRIATIONS AND PERSONNEL

The absolute essential for the conduct of public health work, however, is adequate appropriations. An examination of the laws will show in many instances that ample authority has already been provided; in fact, one is led to suspect sometimes that it is ample simply because at the time the law was enacted it was known that funds for its enforcement would not also be provided. Some very good state health laws might be cited as impossible of enforcement purely by reason of lack of adequate appropriations.

Fox states that not less than 2 per cent. of the total revenues of a state should be set aside for health work, and has made the same estimate in the case of counties. Only one state in the Union approximates this arbitrary standard. Had they all done so, the most powerful factor in the solution of the problem of public health organization would have been provided. This amount of appropriation should be attained, however, by gradual annual increases, as assurance is had that the funds are being well spent and that adequate results in disease prevention are being secured.

The percentage estimated above for states would not apply in the case of cities, as their expenditures are based on somewhat different requirements; but

* Read at the joint session of the Council on Health and Public Instruction of the American Medical Association and the Federation of State Medical Boards, Chicago, Feb. 8, 1916; abstract of discussion, Society Proceedings, THE JOURNAL A. M. A., Feb. 26, 1916, p. 685.

whatever the requirements, funds should be provided to meet them.

In determining these requirements and the amount to be used for each object, it is necessary to have in mind the amount of disease to be overcome, the economic loss occasioned thereby, and the practicability of prevention. Since in health work, increases of appropriations will depend largely on recognition of the value of these results, an exact system of accounting should be adopted, by means of which, so far as possible, tangible results may be expressed mathematically.

In order that appropriations may be wisely used, an adequate personnel is also essential. In my judgment, properly trained, full time health officers are the sine qua non of present day health development. This applies especially to political units in rural communities. As said elsewhere, in this respect our progress is unsatisfactory as compared with that of England, for instance, where the majority of towns or counties have medical officers of health, who hold diplomas of public health and possess a knowledge of sanitary matters not required of the practicing physician.

ENCOURAGEMENT OF LOCAL AUTONOMY

By reason of priority of establishment of local health boards in the United States and the large measure of independence which they enjoy, these should be the best developed agencies we have for the prevention of disease. As previously stated, the policy of both the federal and state governments has been to encourage local autonomy in public health matters. The first federal sanitary law, enacted May 27, 1796, provided for cooperation of revenue officers with states and municipalities in their measures of prevention. Likewise, in Massachusetts, for instance, in 1797, the first state law was enacted for the establishment of local boards of health, empowering them to "make regulations . . . for the public health and safety respecting nuisances, sources of filth, and causes of sickness." This phraseology was later copied by many states before acts were adopted by them providing for centralized state health agencies.

This policy of local autonomy in public health matters continues, and should continue so far as consistent with public safety, having in mind, however, the fact that there are situations affecting more than one community that each community alone cannot handle. Such situations should be met by laws having statewide application in conformity with the principle upheld by judicial decisions that "it is primarily necessary that there should be one central authority (within a state) clothed with the power of affording equal protection to all." [1]

NECESSITY OF COOPERATION OF HEALTH AGENCIES

These local units should be correlated, however, and brought into cooperation with the state and national agencies; for under our form of government, health administration must of necessity be of a threefold character — federal, state and local — and the responsibilities and duties of each must be well defined and respected.

As is well known, the jurisdiction of the federal government in public health matters extends only over foreign intercourse, interstate intercourse, federal territory and federal administrative affairs. Under the constitution, it cannot usurp the functions of the states. In fact, in accordance with its long established policy of cooperating with state and municipal authorities, the federal government has relied largely on these authorities for the prevention of the spread of disease from one state or territory to another.

Under the act of Feb. 15, 1893, the secretary of the treasury is authorized to cooperate with state and local authorities. He may also issue regulations for the prevention of the spread of contagious and infectious diseases from one state to another when the regulations of the states are inadequate. These federal regulations, however, may be enforced by state and local authorities, but should they fail or refuse to do so, the president may adopt such measures as in his judgment shall be necessary.

Having reserved to themselves the police powers in respect to sanitation within their borders, the states have likewise the right, if they choose to exercise it, to take cognizance of matters affecting more than one community. Many of these powers in local affairs have been delegated, however, to local communities, and in consequence, the states affected have not that supervision over local health administration which is desirable and necessary to bring about uniformity and efficiency in the interest of the state as a whole.

In order to insure the greatest good to the greatest number and to meet changed conditions, I believe it will be necessary for all states to exercise the right of central supervision in greater degree over local health matters, notwithstanding some of their powers in this respect have apparently been previously relinquished to local authorities, for the principle has been definitely established by interpretation of law that "the state is still the sovereign, and may extend, limit, or revoke these powers (delegated) at will." [1] In other words, as in the case of the federal government, state governments should be in position when necessary not only to prescribe measures in the interest of more than one community, but to enforce them if the local authorities fail or refuse to do so. This principle is now embodied in the laws of at least twenty states, although the means to its enforcement may not likewise have been provided.

In addition to the regulatory powers referred to above, there should of course be no question as to the right of both federal and state governments to engage in public health investigations and dissemination of information thus acquired on the principle that the protection of health is, after all, largely a question of education.

DEFINITENESS OF THE POWERS AND DUTIES OF HEALTH ORGANIZATIONS

In all jurisdictions, the powers and duties of health organizations should be clearly defined and relate strictly to the protection of the public health. Furthermore, they should be distinct organizations and not combined with those having to do with charities and corrections and other welfare functions which are just as definite as health functions, but sometimes confused with them. The business of health organizations is primarily the reduction of morbidity and mortality. They should accordingly be looked to to carry out measures devised for this purpose, but should not have imposed on them all sorts of functions having only a most indirect health bearing.

The regulation of the practice of medicine and other vocations, for instance, should not ordinarily devolve

1. State Board of Health v. City of Greenville, Ohio, Sup. Ct., April, 1912.

on state health organizations. In some states this has undoubtedly interfered with the proper development of health work. In Illinois, Grubbs has estimated that in the past 75 per cent. of the time of the secretary of the state board of health, and 80 per cent. of the time of the board, has been occupied in enforcing the medical practice act.[2] In West Virginia, also, in the past, this work has largely concerned the state board of health almost to the exclusion of other duties.[3]

Purely public health activities, such as the control of tuberculosis, school hygiene, industrial hygiene and sanitation of milk supplies, on the other hand, should devolve on the duly constituted health authorities and not be scattered promiscuously through various departments of government. In the recent past, the tendency has been to impose these duties on other than health agencies. In the state of Washington, for instance, hotel inspection for sanitary purposes is carried on independently of the state health organization. In Minnesota, this applies to the control of the sanitation of places of employment. In West Virginia, in 1914 this applied also to inspections of factories, hotels and schools, investigations of water supplies, and even to the enforcement of compulsory vaccination. Not much could be expected of the commissioner of health in the control of smallpox when the enforcement of this last most important function devolved under law on the county courts.

Not only should powers and duties be fixed by law, but it would be well if there were an interdepartmental or interdivisional committee with absolute authority to prevent assumption of the functions of one department, bureau or division by another and to prevent duplication. Theoretically, this power may be exercised by the official family of the chief executive in most governments, but practically it is often not done; and a mere segregation of functions by legal enactment will not accomplish the purpose, for they will not stay segregated by reason of the general character of organic statutes and the well meaning if misdirected ambitions of executive officials.

A SINGLE EXECUTIVE

It will be seen from the foregoing that if men and money are provided for health work as a result of an awakened public opinion, abundant opportunity will be presented to obtain results, and the development of a suitable public health organization will be stimulated. This evolution should begin with whatever is good of the organization already established. If it is incomplete, functions and funds should be provided to remedy the defect.

Public health organization in the United States being as yet in a developmental stage, it is possibly too soon to prescribe model laws for all states and towns. There is perhaps advantage in having different forms of organizations working side by side, the one being a control over the other as to efficiency.

Whenever reorganization is contemplated, however, I believe it would be well to vest in a single executive sole responsibility for all administrative matters, and hold him liable for inefficiency. This principle is followed in selecting the president of the republic, the governor of a state or the general of an army, and is a recognition of the fact that what is everybody's business is nobody's business.

2. Grubbs, S. B.: Public Health Administration in Illinois, Pub. Health Rep., May 21, 1915, p. 1479.
3. Clark, Taliaferro: Public Health Administration in West Virginia, Pub. Health Rep., Jan. 22, 1915, p. 207.

While some state and local boards of health have undoubtedly demonstrated their efficiency, it must be admitted that they are more or less unwieldy, and there is a division of responsibility in executive matters particularly which should not exist. The improvement of sanitation and the prevention of disease require prompt action, and the authority to enforce necessary measures should be lodged with a competent official who can alone be held responsible.

Whether the title of the executive be "commissioner," "state health officer," "secretary," "superintendent of health," or "director general" is a secondary consideration; the essential is to lodge in him authority to take the initiative necessary to carry on preventive work at all times.

Boards of health with from ten to fifteen members are examples of undesirable diffusion of executive authority. By reason of their methods of work, they are on duty only at stated intervals. In all recent public health legislation, such as that enacted in Maryland, Massachusetts, New York and West Virginia, a state commissioner or health officer has been provided for, and in the majority of cases he is required to give his undivided time to his duties.

I would not discourage the providing of boards or commissions, but would confine their functions to the handling of quasilegislative and quasijudicial matters, and to acting as advisers to their respective health executives. In France, Germany and the United States such councils are available to the national health executives. In Massachusetts, New York, Pennsylvania and West Virginia, like councils are specifically provided for by law, and in some other states, the duties of boards of health are in fact restricted to these lines.

It goes without saying that membership of such boards should be selected wholly with reference to public spirit, knowledge of health matters, and willingness to serve at nominal compensation while in the actual discharge of duties. With such qualifications, they may be relied on for the performance of quasilegislative and judicial and advisory duties of a high order.

CONDUCTING OF DUTIES OF HEALTH ORGANIZATIONS THROUGH APPROPRIATE DIVISIONS

Executive health matters may be best conducted through a central office having appropriate divisions. The number of these divisions will necessarily depend on the size of organization and functions as fixed by law.

While there may be a difference of opinion as to whether a particular line of work, for instance, the inspection of plumbing, should be committed to health departments, there can be no doubt that all direct functions for the protection of health should be so committed, and grouped in such manner as will insure their receiving full attention.

As examples of the embodiment of this principle in recent legislation, the laws of Maryland, Massachusetts, New York and West Virginia may be cited. In Maryland, there is authority for five bureaus, namely, those of communicable diseases, bacteriology, chemistry, sanitary engineering and vital statistics. In the Massachusetts law the creation of divisions is left to the department of health, and in accordance with this authority seven divisions have been instituted, namely, those of administration, communicable diseases, hygiene, foods and drugs, sanitary engineering, water

and sewage laboratory, antitoxin and Wassermann laboratories. In New York, nine divisions are specifically mentioned in the law, namely, those of administration, sanitary engineering, laboratories and research, communicable diseases, vital statistics, publicity and education, child hygiene, public health nursing and tuberculosis. In all these states the classifications of functions, so far as made, are practically the same.

Such uniformity in the classification of work shows the importance and definiteness of this work, and emphasizes the necessity for the employment of full time division officers competent to develop it and to be responsible to their superior for results.

NECESSITY OF AN ADEQUATE FIELD FORCE

In order to carry on field work, a regularly organized personnel is also necessary. For the most part, this force, whether federal, state or local, should be mobile in character. Such mobility has been one of the largest factors contributing to the efficiency of the federal Public Health Service. In my judgment, it is a principle adaptable also for state and to a lesser degree local health agencies. It increases the efficiency of individual officers, renders them available to meet emergencies in different localities, and indirectly makes for true promotion.

In order to stimulate development of health agencies and facilitate cooperation, I have felt that it would be desirable for local health officers in specified field positions to act also in the capacity of federal and state officers and be clothed with both federal and state authority. Since full time local health officers are the most important need of the present, it might be well for the time being for the state and federal governments to join with local authorities in providing these officers in local jurisdictions, provided a due proportion of the expense was borne by those jurisdictions; and there is precedent for this apparently new idea, since it has been recently embodied in law to stimulate agriculture. In other words, authority has been granted for the appointment by the federal government of full time farm demonstrators, the county to pay one half. A like provision in respect to full time health officers would have far-reaching effects. Substantially it is now in operation in England, since under certain conditions a portion of the compensation of local health officers is paid by the crown. Largely by reason of this provision, local health administration in that country is regarded as far advanced.

In order that the several states may provide adequate field forces, a number of plans, some of them already in operation, suggest themselves: 1. Depend on county and municipal health officers. 2. Divide the state into districts and appoint health officers to have charge of them under the state health agency, and to cooperate with local health authorities. 3. Provide for districts of a single county or by two or more counties joining together, each district to be in charge of a full time health officer, clothed with full authority of the state and county, be appointed by the county on recommendation of the state health agency as to qualifications, and be amenable to this agency for efficiency.

The first plan is now in operation in many states, the county or township being the unit. As if the county were not a small enough unit, some laws specifically provide that its health provisions shall not supersede or in any way interfere with those municipal health boards within its borders. It would seem that the county and the municipalities within its jurisdiction should pool their interests, and be obliged to do so where this will enable them to join in securing the services of a full time health officer.

The second plan referred to above is now in operation in Maryland, Massachusetts, New York and Pennsylvania. Under its provisions the state is divided into sanitary districts, and a representative of the state board of health has immediate charge of each district, the expense being borne by the state. His duties are to devote all his time to his work, study disease prevalence, make reports to the state board, cooperate with local health authorities, and endeavor to bring about uniformity among them.

The third plan is a modification of the second. Under its provisions the state would be divided into an appropriate number of sanitary districts, consisting of one or more counties. A district board of health would be formed and composed of one representative each from the county or counties and municipalities within their borders. Each board thus constituted would appoint a full time health officer, whose qualifications would be determined by an examining board designated by the state and independent of the appointing board.

The last mentioned plan has been suggested for Kansas by a commission on public health appointed by the governor, and under the conditions prevailing in that state it would have some decided advantages. In West Virginia authority now exists for two or more counties to join in the employment of trained health officers and other agents and in the installation of a common laboratory; and the state is obligated to appropriate a sum equal to two fifths of the total amount contributed by the counties joining together in support of health work provided the qualifications of persons so appointed are approved by the public health council.

Theoretically, the appointment of full time health officers by local authority on qualifications determined by the state health agency, and their removal by this agency only for cause, would appear logical. Practically, however, the assumption of this power, in many states at least, would be contrary to public opinion and actual practice. The plan of districting the states is, on the whole, therefore, found to be the most practical one, and consequently coming more and more into favor. In the event that the federal and state governments should join in providing full time local health officers, it is probable the duties of these district officers might be merged and become those of the local officers so appointed.

DEPENDENCE OF TENURE OF OFFICE OF HEALTH OFFICERS ON EFFICIENCY

Regardless of the source of authority, whether federal, state or local, appointments of health officers must depend wholly on professional qualifications and tenure of office be based on efficiency if the best results are to be expected. Purely political considerations should have no part in the making of appointments of public servants of this character. Furthermore, such servants should be prohibited by law from engaging in other than their regular official duties. If these duties and the funds available in a particular political unit are not sufficient to justify the services of a full time officer, two or more units should be authorized, and in fact compelled by state law, to unite in the employment of such an officer. His services are surely as important as are those of county sheriff or attorney.

By such provisions, public health organization will grow and become more attractive as a field for physicians, who will be justified and encouraged in taking special courses in preventive medicine to fit them to enter this field. Moreover, universities will be compelled to perfect such courses, and public health will become more and more a paying investment on the part of the public and those engaged in it.

OPPORTUNITY OF THE MEDICAL PROFESSION IN THE DEVELOPMENT OF PUBLIC HEALTH ORGANIZATION

Finally, it cannot be too often emphasized that men and money are the first essentials for the reduction of sickness and death rates. As a result of supplying these essentials, better health organization will naturally follow.

In any event, the great body of physicians owes a duty to society in public health matters. They have it within their power to compel wise legislation, to standardize efficiency, and to keep health administration out of politics. They must enter the field of public health work in greater degree, and cooperate with and support health officers more fully, if the medical profession is to keep pace with changing conditions and to do its part toward advancement of health work and health organization.

HAY-FEVER: ITS CAUSE AND PREVENTION

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NEW ORLEANS

From the standpoint of the number of patients affected, hay-fever ranks among the first of the non-fatal diseases. While accurate statistics regarding the number of patients are not available, a conservative estimate has placed the number of persons in New Orleans affected with hay-fever at not less than 3,500, or 1 per cent. of the total population. Hay-fever is prevalent in the greater portion of the United States, and the proportion in New Orleans is a fair average of its prevalence in other sections. The total number of those suffering from this disease is, therefore, so large that the subject demands the most careful consideration.

Hay-fever is far more prevalent in the United States than in Europe. In the former, the autumnal hay-fever is much more common, while in Europe the spring form is the prevailing type.

SYMPTOMS

The symptoms of hay-fever in the early stage resemble those of an incipient coryza, for which it is frequently mistaken. It is attended with sneezing, blocking of the nostrils due to the swollen mucous membrane, serous discharge and, in the early stage, slight elevation of temperature, with a tendency to subnormal temperature later. There is itching of the inner canthi of the eyes and of the roof of the mouth in the region of the soft palate. The difficulty of nasal breathing, which is usually present, is worse when the patient is in the horizontal position, and less when exercising. Unlike an ordinary coryza, however, the discharge remains thin and serous and becomes mucopurulent only toward the termination of the attack.

There is usually considerable general depression, which is associated with the subnormal temperature and the discomfort of breathing. The mouth and pharnyx become dry from the impeded nasal breathing, and add to the discomfort. Many of these cases are complicated with asthma, which increases the suffering of the patient.

Relief is experienced when the supply of pollen from any cause is diminished or disappears, as on a sea voyage. A continued rain gives relief, and an absence of wind, or one blowing the pollen away from the patient, gives temporary relief. In the vicinity of New Orleans, there is a large area of ragweed (*Ambrosia trifida*) located north of a certain residential section. A wind from this direction in September causes a marked aggravation of hay-fever in this section, which, until recently, was attributed to the north wind. The causative relation of the ragweed was conclusively demonstrated, however, by exposing a number of these patients to the opposite side of the ragweed area during the prevalence of a south wind, when they promptly reacted to the pollen.

DIAGNOSIS

In spite of the greater increase in medical knowledge, many cases of hay-fever are still mistaken for ordinary colds. The symptoms described above and their recurrence at certain periods of the year should simplify the diagnosis. In doubtful cases, this may be confirmed by testing the patient with a small amount of pollen.

Some of the staminate flowers of the suspected plants are placed in a small sterile gauze bag, and this gently sniffed by the patient. In susceptible subjects, this is quickly followed by a slight reaction. The patient may also be tested by approaching the suspected weeds so that some of the pollen is inhaled in this way.

In the majority of cases, however, these tests are unnecessary and should ordinarily be avoided on account of the danger of developing a latent pollinosis. The beginning and end of the attacks are usually found to be coincident with the pollinating period of certain plants with wind borne pollen, which, with the symptoms described above, is sufficient to confirm the diagnosis.

Some physicians still believe that hay-fever is a local manifestation of some constitutional condition, in spite of the fact that the majority of patients, with similar conditions, have no such manifestations, and that when the pollen is not present, as on a sea trip, they do not occur. Improved education in the etiology of this disease, and more careful observation, will gradually correct this error.

ETIOLOGY

The development of hay-fever about the time that hay was harvested led to the belief that this was the cause of this disease, but it was not until about 1870 that the relationship of pollen was established.

The particular pollens causing this disease were for a long time unidentified. As an illustration of this, when patients developed an attack in the neighborhoods of weeds, the conspicuous goldenrod was at once suspected, and the ragweed with its insignificant green flowers unobserved. While many plants have wind-borne pollen, this also varies to a marked degree. In the case of the goldenrod, for instance, the pollen is not abundant and is dislodged with difficulty. While the pollen is toxic to susceptible patients, and will develop a reaction if applied to the nostrils, it is car-

ried by the wind to a very slight degree. P. L. Ricker, of our Research Department, and assistant botanist of the United States Department of Agriculture, in reporting to our association, states his observations that bees are abundant on the goldenrod, and that it should be classified among the entomophilous (insect fertilized plants and not the anemophilous (wind fertilized) like the ragweed, on which these insects are never found. In spite of the fact, therefore, that the goldenrod is considered an important factor in hay-fever in most reports and textbooks, it is responsible in only a small percentage of cases.

The plants which form the type of hay-fever-producing weeds are the common ragweed (*Ambrosia artemisiaefolia*) and the giant ragweed (*Ambrosia trifida*). In the former, the pollen is not only wind-borne, but is produced in such abundance that a slight blow will dislodge it in clouds, and is so light that the wind will easily carry it to a considerable distance. Under favorable climatic and soil conditions, this weed is found in every neglected field, on roadsides and even in vacant lots in the cities. In more moist lands, however, the giant ragweed (*Ambrosia trifida*) takes the place of the artemisiaefolia and is found in similar profusion. These two varieties of ragweed have been found to be responsible by our research department for about 85 per cent. of all cases of autumnal hay-fever in the sections in which these weeds are prevalent (see the Ambrosias). As the autumnal hay-fever forms the large majority of hay-fever cases in the United States, the importance of a careful study of the Ambrosias is clearly indicated.



Fig. 1.—Wormwood ragweed.

THE AMBROSIAS

The common variety (Fig. 1) is called "artemisiaefolia" on account of its leaves resembling those of the wormwood (Artemisia). It is an annual with leaves much cut and thin, opposite and alternate, as shown in the illustration. It has spikes of green flowers (staminate) at the end of the branches. The pistillate or fertile flowers are at the intersection of the branches with the stalks. It is especially found in fields where a crop of wheat, rye or oats has been harvested in early summer and afterward neglected. It grows from 1 to 5 feet in height.

It is a native of America and is found in dry soil from Nova Scotia to Florida and west to British Columbia and Mexico. It is comparatively rare and local west of Kansas, and is then replaced by *Ambrosia psilostachya, Gaertneria acanthocarpa* and *Iva axillaris,* all of which are anemophilous.

The great ragweed (Fig. 2) is called "trifida" on account of its large three-lobed leaves. It is the tallest member of the composite group, and frequently grows to a height of 12 feet. It has a stout stem with a frostlike pith. The insignificant greenish flowers form a terminal pointed cluster, which are staminate (male). The pistillate flowers, like the common variety, are located near the stalk. It is common in moist soil from Quebec to Florida, and west to Nebraska, Colorado and New Mexico. In the moist land near the Gulf Coast, it forms about 90 per cent. of all the ragweeds, while in the drier interior section of the country, the reverse is the case.

The irritating principle of both ragweeds is the pollen, which is formed in the staminate flowers, being yellowish, and almost as light as smoke. It is so abundant that during the stage of pollination it will stain one's clothes yellow while one is passing through such a field, and is so light that it is almost impossible to collect any amount of it without its being blown away.

Instead of the pollen of the ragweed being used directly for fertilization through the agency of insects, as is the case with entomophilous plants, nature has created an immense amount of pollen so that it can be carried by the wind to the distant pistillate flowers for fertilization and cross-fertilization. The pollen is so abundant that when dislodged it is called "smoking" by many farmers. The seeds are about $\frac{1}{20}$ inch in diameter and are formed in the pistillate flowers. They are solid and are not easily carried with the wind. Were the seed wind-blown like those of the thistles, eradication would be much more difficult.

POLLINOSIS

In cases of autumn hay-fever, if the patient is brought near these weeds while pollinating, so that the wind-borne pollen may reach his nostrils, he will react, the length of time depending on the amount of pollen inhaled and his resistance to pollinosis. This reaction has been demonstrated in numerous cases in New Orleans during the month of September by the research department of the American Hay-Fever-Prevention Association.

For the past seven years I have kept on hand the pollen-containing staminate flowers of the ragweeds for testing patients in the diagnosis of fall hay-fever. In susceptible patients, typical reactions can be induced by inhaling the pollen *at any season of the year.* The positive relationship of pollen to hay-fever is in this way absolutely confirmed.

The relationship of the ragweeds to fall hay-fever, in which the development of the disease, its duration and conclusions are synchronous with the pollinating period of these weeds, has been clearly established. A more difficult proposition, however, is the identification of other plants which are responsible for the remaining forms of hay-fever. These, while less frequent than the autumn form, are important, not only because they represent in the aggregate a considerable number, but also because they are frequently of longer duration. While the majority of patients have a pollinosis for the ragweeds only, many react to a number of plants, each of which prolongs the attacks.

In Table 1 is a list of the ten most common hay-fever weeds in the Southern states. As in other hay-fever weeds, their chief characteristics are as follows: They are wind-pollinated; very numerous; the flowers are inconspicuous, with no bright color or scent (these being intended to attract insects in entomophilous plants), and the pollen is formed in great quantities. The time of pollinating is given and, as will be noted,

this list is sufficient to explain cases of pollinosis for every month of the year.

TABLE 1.—HAY-FEVER WEEDS, ARRANGED ACCORDING TO TIME OF BLOOMING

1. Parthenium hysterophorus (bastard feverfew)	January to January
2. Rumex obtusifolius (dock)	March to July
3. Plantago lanceolata (plantain)	April to May
4. Phalaris intermedia (canary grass)	April to October
5. Amaranthus spinosus (careless weed)	April to December
6. Sorghum halepense (Johnson grass)	May to December
7. Xanthium strumarium (cocklebur)	June to December
8. Ambrosia trifida (giant ragweed)	August to November
9. Ambrosia artemisiaefolia (common ragweed)	August to November
10. Iva ciliata (marsh elder)	August to November

Laboratory investigations have shown that a large variety of pollens may develop the reaction of hay-fever when applied to the nostrils. While this is interesting from an experimental standpoint, it bears no great importance on the real etiology of pollinosis. This is dependent on the existence and proximity of plants whose pollen are not only *toxic* when inhaled but which are *wind-borne* so that the pollen may be carried for some distance and be inhaled by the patient under natural conditions, and only such will be classified in our list of hay-fever-producing plants.

INFLUENCE OF ALTITUDE

In spite of the popular belief that altitude has considerable influence in hay-fever, this is not in accordance with the facts except to the extent that at altitudes over 6,000 feet hay-fever-producing weeds are uncommon. At an elevation of from 2,000 to 4,000 feet, for instance, along the Allegheny Range in North Carolina, Tennessee and Virginia, the common ragweed (*Ambrosia artemisiaefolia*) is very common, and hay-fever correspondingly frequent.

PREDISPOSITION

With the development of bacteriology, hay-fever was also supposed to be of microbic origin and infectious. The more recent and accurate investigations on this subject have entirely disproved this belief.

The majority of textbooks state that there is present in hay-fever patients some neuropathic condition which makes them susceptible to pollinosis. While patients during an attack of hay-fever are usually nervous, partly owing to the constitutional effect of the disease and partly to the prolonged annoyance and irritation, an impartial study of all available cases fails to corroborate this.

The statement that persons of superior education and with the higher nervous temperament incident to modern life are more liable to hay-fever is also a subject for further investigation. The fact that persons living in the country are not so frequently subject to hay-fever is undoubtedly true, but the probable explanation is that the continued exposure, perhaps for generations, has eventually developed a higher resistance which reduces this susceptibility to pollinosis. A statistical report of hay-fever cases with regard to occupation, and also its relative frequency in the sexes, is under preparation by our research department.

The popular doctrine of a special predisposition for hay-fever which produces susceptibility in some persons needs revising. In the first place, this predisposition varies with different individuals. In the tests made by our research department, it was found that some patients reacted to exposure in two minutes, while in others the reaction did not develop for from five to thirty minutes, and even as late as two or three hours. In some cases there was only a transient irritation of the eyes and of the mucous membrane, and in others this was severe and lasted from one to forty-eight hours. Not only were these tests made in the laboratory, but also the exposures were made under natural conditions in localities infested with the hay-fever-producing weeds.

It would appear, therefore, that there is a wide difference in the degree of susceptibility of different individuals to the pollen. The question is, What are the limits of this susceptibility?



Fig. 2.—Great ragweed.

A logical explanation is that the pollen of certain plants contains a toxin to which all are susceptible, but that its effects are more or less inhibited by the individual resistance. An attack would, therefore, develop only when the exposure overcomes the resistance of the subject and only to this extent.

As an illustration that even great normal resistance may be overcome by a still greater exposure, the following cases which occurred last September at Hendersonville, in the mountain region of Western North Carolina (elevation 2,350 feet) are instructive. The natives of this section are rarely subject to hay-fever; in fact, the general opinion is that they are immune. Two farm laborers, aged 43 and 35, respectively, were stripping corn for fodder. Adjoining the field and to windward was a large quantity of ragweed (*Ambrosia artemisiaefolia*), the pollen of which blew like dust over the field so that the corn was stained yellow. The same evening both men developed typical attacks of hay-fever with marked symptoms lasting forty-eight hours.

Here were two persons with so high a resistance that, until the age of 43 and 35, respectively, they were considered immune, but developed typical attacks of hay-fever after extraordinary exposure.

When the attack has once been developed, clinical experience shows that the susceptibility of the patient is increased, indicating that the resistance has been lowered. The apparent resemblance of this to anaphylaxis is apparent and will be investigated further.

CAUSE OF REACTION

The manner in which pollen excites reaction forms an interesting subject of investigation. That this effect is mechanical is untenable, as a large percentage of hay-fever patients, except when under the influence of pollinosis, will inhale dust without greater discomfort than other persons, and others with extremely sensitive nostrils have not developed pollinosis. Many pol-

lens with prickly coatings fail to produce irritation, while the pollen of the ragweed is without spikes but develops marked reaction.

It has also been asserted that the pollen, under the influence of nasal secretion, germinates and sends out its pollen germ tubes, thus producing the irritation. This germination takes place, however, only in the presence of sugar, which is absent in the nasal secretion, and is inhibited by sodium chlorid, which is present. The analysis of this secretion is given in Table 2.

TABLE 2.—COMPOSITION OF THE NASAL SECRETION[1]

Water	993.00
Mucosin	53.30
Sodium lactate	1.01
Organic crystalline principles	2.00
Sodium and potassium chlorid	5.60
Phosphates	3.50
Sodium phosphate and carbonate	0.90

It has been found, moreover, that the process of germination usually requires about two hours, while the local reaction of hay-fever may take place in a few minutes.

In a solution containing the salts found in the nasal secretion, many pollens quickly burst and distribute their contents. Other pollens can resist the action of this solution, which explains their failure to produce reactions. This subject is still under investigation by our research department.

In considering the cause of hay-fever, therefore, we can first limit our attention to the pollens which are wind-borne. Of these, only such are toxic which fail to resist the action of the nasal secretion. The degree of resistance will influence the length of the interval between the exposure and the resulting reaction. The absorbed toxin will produce a reaction and constitutional disturbances in the inverse ratio of the patient's resistance.

REACTIONS FROM THE PRESENCE OF ANIMALS

The susceptibility of persons to the presence of cats, horses and other animals should be distinguished from true pollinosis. Many of these cases are psychic in character; but when actual reaction takes place, it is probably due to the skin emanations of such animals. As the prophylaxis in such cases is self-evident, and the cases do not come under the classification of hay-fever, they will not be further considered in this connection.

FAILURE OF TREATMENT

A careful study of medical literature indicates very clearly that the treatment of hay-fever, except as far as temporary alleviation of the symptoms is concerned, has not been a credit to the medical profession. Pollantin, which was heralded as a cure some years ago, has been successful in my hands in so few cases that I have long since discontinued to recommend it, and this has appeared to be the general opinion of the medical profession.

The treatment by gradual immunization with the specific pollen inhalation before the season of the usual attack, which I introduced in 1908, proved successful in a considerable number of cases, but the effects were not prolonged over a single season, and, as the majority of patients feared to prolong their hay-fever attack without the assurance of permanent relief, and promises to the contrary could not be conscientiously given, it was gradually discontinued.

1. Robin: Leçons sur les humeurs, Paris.

Serum and vaccine therapy have been advocated in hay-fever as in the majority of other diseases, but the general results have been unsatisfactory, and the majority of patients decline this severe treatment without a reasonable guarantee of permanent benefit.

The removal of the patient from the irritating pollens by sea voyages, altitudes and climates where the offending weeds are not found gives temporary relief, but is available to only a few.

The majority of hay-fever patients present no unusual abnormal intranasal condition except during the attack, and operations for nasal obstruction, unless indicated for other reasons, have been successful in comparatively few cases and are, therefore, rarely advisable.

PREVENTION

Even had therapeutic measures been more successful, prophylaxis, based on the removal of the exciting cause, should have been advocated as in malarial and typhoid fevers, tuberculosis and other diseases of known cause. Hay-fever, however, has been the stepchild of preventive medicine, and until recently no organized efforts in this direction have been undertaken.

In view of the great and increasing number of hay-fever patients, their prolonged distress, the unsuccessful results of all curative measures and the distinctive preventable character of the disease, the American Hay-Fever-Prevention Association has undertaken a campaign of education, to be followed in due time by suitable legislation, for the prevention of hay-fever.

In the educational part of this work, the first consideration is the correct diagnosis of hay-fever and the acceptance of the fact that all cases of true hay-fever are the results of pollen inhalation.

The identification of the various weeds and plants that may develop hay-fever is of the utmost importance, but will gradually follow the establishing of the etiology of pollinosis. As these principles become better understood, the physician, when consulted by a patient with hay-fever, instead of limiting his attention to writing a prescription or injecting a vaccine, will investigate the presence of hay-fever-producing weeds in the neighborhood of the patient's residence or vocation. In many cases, the eradication or even the cutting of such weeds produces immediate results.

In one of my patients, the offending weed (*Ambrosia artemisiaefolia*) was growing in his garden. In another, a schoolteacher, affected with hay-fever for many years, on being questioned stated that there was an abundance of flowering weeds in the vacant lots adjoining her house. When specimens of these weeds were produced, they were found to be the *Parthenium hysterophorus,* one of the causes of hay-fever in South Louisiana. In both of these cases, marked relief soon followed the cutting of these weeds. In order to obtain complete relief in such cases, however, the cutting of the weeds should be over a considerable adjoining area, as the pollen is wind-borne to a distance depending on the velocity of the wind.

While the removal of the offending weed is the correct measure, relief may also be obtained, when this is impracticable, by avoiding the proximity of weeds known to be toxic to the patients. In many cases this is entirely practicable, as shown in the following case in which the attack was postponed for thirty-three days:

E. G., manager of a sugar plantation near New Orleans, has been a sufferer from hay-fever for the past ten years,

the attacks always commencing about August 25. After the influence of the ragweed to this form of hay-fever had been explained to him, he concluded that his attacks were due to the pollen of the trifida ragweed which grows on a road some distance from his residence. He therefore avoided the road, and until September 28, for the first time in ten years, he had had no attack. On this date, he found it necessary to pass this road. In twenty minutes he commenced to sneeze, that night he had a violent attack, and the following day he had his usual annual hay-fever.

The treatment of cases by the eradication of the hay-fever-producing weeds will not only produce direct results, but will also prove a powerful impetus in educating the public in the relationship of such weeds to hay-fever. It will result, moreover, in having these weeds considered from a new point of view. Instead of simply indicating neglect or careless cultivation, they will be looked on as a source of disease and discomfort to a large class of sufferers. This will not only bring the leverage of public opinion to the eradication of these weeds, but will eventually simplify the question of legislation.

In connection with the question of public education, the American Hay-Fever-Prevention Association has received a communication from Dr. Rupert Blue, surgeon-general of the United States Public Health Service, and one of the honorary vice-presidents of our association, in which he summarizes this in a very concise manner:

> It appears that the most practical method of securing the cooperation of the public would be by education as to the effect of the presence of these weeds in communities from both health and economic standpoints. This seems to be the primary object of your association, which is to be commended for its efforts.

SPRING HAY-FEVER

Some of the early forms of hay-fever are due to the pollen of the Graminaceae or grasses, which include the cultivated varieties, such as rye, wheat, corn, etc. These form a common cause of hay-fever in England and the continent, where the autumnal form due to the ragweed is not found, owing to the absence of the weed.

While this is of much less frequency than the fall hay-fever in the United States, it represents in the aggregate a considerable number. When these cases are due to the cultivated varieties, the knowledge of this fact should induce the patient, whenever possible, to live away from such cultivated fields or at least to avoid them during the active season of pollination. Only in those cases in which the removal of the offending plant is impossible will the question of treatment be given preference over prevention.

ERADICATION OF HAY-FEVER-PRODUCING WEEDS

As the autumnal hay-fever is the most prevalent form in the United States, and, in the majority of cases, is due to ragweed, the American Hay-Fever-Prevention Association has given its first attention to the eradication of this weed. The description and illustration of both varieties (*Ambrosia artemisiaefolia* and *trifida*) have been sent to the state boards of health of each state and of the District of Columbia. Many of these have published the cuts and descriptions, and a number have sent them to the newspapers of their state for publication.

The United States Department of Agriculture has assisted and is furnishing valuable information for this work. Arrangements have been made with the Hygienic Laboratory of the Public Health Service at Washington to make investigations on the hay-fever pollens submitted by our research department. Encouragement or promise of active cooperation has been offered by the majority of the state boards of health, these being as follows: Arkansas, Alabama, Arizona, California, Colorado, Delaware, Florida, Idaho, Indiana, Iowa, Kansas, Kentucky, Louisiana, Massachusetts, Michigan, Minnesota, Nevada, New Hampshire, New Jersey, New York, North Carolina, Oregon, Tennessee, Utah, Virginia, Washington, West Virginia, Wisconsin and Wyoming.

The common ragweed (*Ambrosia artemisiaefolia*), while found in great abundance, presents no special difficulty in eradication, as it is an annual and reproduced only by seed. In carefully cultivated lands it is not found in appreciable quantities. Where the land is not cultivated, this weed may be entirely kept down by grazing cattle. When, however, it has been neglected, the weed should be mowed before the latter part of August, in order to prevent pollination.

The giant ragweed (*Ambrosia trifida*), which grows in similar abundance in the moist lands of the coast, presents a more difficult problem, as the roots are perennial. Until this weed is 2 feet in height, cattle will feed on it with avidity, which will probably prove useful in destroying it. In carefully cultivated lands, it is rarely found. The question of the best scientific method of eradication of both the ragweeds has been referred to the United States Department of Agriculture, and the results of this investigation will be reported later.

ORGANIZED CAMPAIGN AGAINST HAY-FEVER-PRODUCING WEEDS

With a view of showing what can be accomplished by organized efforts in the prevention of hay-fever, the American Hay-Fever-Prevention Association has concentrated its first efforts in New Orleans in the following manner:

The public was first educated regarding the ragweeds, so that they could be easily recognized. Illustrations of the weeds were published in the *Bulletin* of the State Medical Board of Health and the public press, and the live weeds, in full development, were exhibited in a show-window of the principal street.

The city of New Orleans, through the commissioner of public works, placed at the disposal of the association twenty convicts, who cleared the streets and sidewalks of the outer sections of the city of the weeds, in accordance with a map prepared by the topographic committee of the association showing the areas infected with ragweed. The city board of health assisted by enforcing the cutting of weeds in vacant lots and the commissioners of the various parks had the ragweed destroyed in the public parks under the direction of the association.

Valuable assistance was given by the Women's Civic League, which appointed a special committee on vacant lots. This committee made arrangements with labor bureaus so that it not only reported lots infected with weeds but offered to send workmen to cut them at low rates.

The storm of September 29 destroyed practically all the leaves and flowers of the remaining giant ragweed in exposed places. As a result of this, and the efforts of the American Hay-Fever-Prevention Association, fall hay-fever practically disappeared in New Orleans several weeks earlier than the usual time. This cam-

paign will be resumed next spring, when its management will be placed in the hands of the state hay-fever-prevention associations.

The American Hay-Fever-Prevention Association believes that what has been effected in New Orleans can be done in all towns and cities. In some of the smaller towns, especially those catering to summer visitors, this could be accomplished before next summer. The statement that a town is free of hay-fever will prove an advertisement that will easily repay the cost of destroying the hay-fever-producing weeds.

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POLLEN EXTRACTS AND VACCINES IN HAY-FEVER*

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Therapeutic experiment presupposes a more skeptical point of view, more conservative judgment, and less enthusiasm for results than any other form of experiment in medicine. To obtain results of value, one must not attempt to prove anything, especially when the proof will depend to a great extent on statistics. In collecting statistics, some cases are thrown out from one series while similar cases are left in the control, and other errors creep in despite the most honest efforts of the investigator.

The history of the treatment of hay-fever contains many variations. Nose operations, thyroid extract, calcium, pollantin and bacterial vaccines have been lauded from time to time as sure cures. The disease from its very nature lends itself to just such occurrences; perhaps in no disease are the sufferings so intense and prolonged and the final results so slight. Patients are anxious to be cured, and are willing to try almost anything. As a result of this feeling, sincere efforts of scientific investigators are prematurely pushed on the profession by commercial houses, and today Koessler's[1] prophecy of a year ago is already filled. The results of scientific investigations and the promises of the commercial literature on specific therapy of hay-fever can hardly be said to correspond; scientifically speaking, the whole subject must still be considered in an experimental stage. Therefore we have deemed it wise to present our studies at the present time, hoping that they will throw some light on the problem.

Blackley[2] first established the etiologic rôle of pollen in hay-fever, and Dunbar[3] was the first to employ modern methods to the study of specific treatment. It can be stated now without fear of contradiction that the pollen of various grasses and plants produces hay-fever. It has not as yet been definitely proved that pollen is the sole etiologic agent. The early rose-fever of this country, which is the common hay-fever of England, is caused in the main by the grasses, especially red top, timothy and blue grass. The autumnal catarrh — by far the most common form in the United States — is caused by members of the *Compositae* family, mainly ragweed. No better proof of the etiologic rôle of pollen in hay-fever need be asked for than the production of a typical attack in midwinter by injection of a dose of pollen extract in a susceptible person, or by the fact that a specific skin or eye reaction can be obtained at any time with such a person. In normal persons this reaction is never obtained.

Dunbar's conception of the pollen as a true toxin, and his attempts at passive immunization of the disease by a serum obtained from horses injected with increasingly large doses of pollen, are too well known to require further mention. Following the work of Dunbar, the next most important development in the treatment of hay-fever was active immunization of the patient with extracts of pollen, the pioneers in this work being Noon,[4] Koessler and Clowes.[5] Noon's work, as well as that of his successor, Freeman,[6] was along the regular line of therapeutic inoculations of Wright's laboratory. Koessler's was supported by many laboratory experiments demonstrating that hay-fever is a pollen protein sensitization. The similarity of the symptoms of hay-fever to the usual symptoms of anaphylaxis is now generally understood.

The therapeutic effect of increasingly large injections of pollen extract has now been tested and reported by several workers, as seen in Table 1. We do not wish to draw conclusions from this table, but merely to show that as far as we have been able to gather there are 332 cases reported in the literature, of which 241 are available for the study of clinical results.

TABLE 1.—REPORTS IN THE LITERATURE

Author	Reference	Number of Cases	Cured	Greatly Relieved	Relieved	No Effect	Worse
Freeman.....	Lancet, London, 1911, ii, 814; 1914, i, 1178.....	84	24	30	22	8	..
Lovell.....	Practitioner, London, 1914, xcii, 266.....	10	..	3	2	5	..
Lowdermilk..	THE JOURNAL, July 11, 1914, p. 141.....	19	16	..	..	3	..
Manning.....	THE JOURNAL, Feb. 20, 1915, p. 655.....	21	..	14	4	2	1
Goodale.....	Boston Med. and Surg. Jour., 1915, clxxiii, 42	[79*] 34	.. ..	.. 26	.. ..	.. 8	.. ..
Oppenheimer and Gottlieb	New York Med. Jour., 1915, ci, 229.....	11	1	8	..	2	..
Ulrich.....	THE JOURNAL, Apr. 18, 1914, p. 1220.....	[12†]	..	..	..	..	..
Ellern.....	Deutsch. med. Wchnschr., 1912, xxxviii, 1590.....	13	..	6	5	2	..
Koessler.....	Illinois Med. Jour., 1914, xxvi, 120.....	41	4	29	..	8	..
Clowes.....	Proc. Soc. Exper. Biol. and Med., 1913, x, 69, 70.....	8	..	8	..	..	..
Available.....	.....	241	45	124	33	38	1
Total.....	.....	332	..	..	..	..	..

* Tested by eye test.
† Majority relieved.

If they are classified merely as cured, relieved and negative, we find forty-five cured, 157 relieved and thirty-eight uninfluenced. Most of Freeman's and Koessler's cured patients received injections for more than one year. Lowdermilk's[7] results require special interpretation because he says bacterial vaccines were used in cases complicated with infection. This will

* Read before the Chicago Society of Internal Medicine, Nov. 22, 1915.

* All the laboratory work done in connection with this study is from the Nelson Morris Institute for Medical Research of the Michael Reese Hospital.

1. Koessler: Illinois Med. Jour., 1914, xxvi, 120.
2. Blackley: Experimental Researches on The Cause and Nature of Hay Fever, London, 1873.
3. Dunbar: Deutsch. med. Wchnschr., Nov. 13, 1911.
4. Noon: Lancet, London, 1911, ii, 1572.
5. Clowes: Proc. Soc. Exper. Biol. and Med., 1913, x, 69, 70.
6. Freeman: Lancet, London, 1911, ii, 814; ibid., 1914, i, 1178.
7. Lowdermilk, R. C.: Hay Fever, THE JOURNAL A. M. A., July 11, 1914, p. 141.

be discussed subsequently. There has been no standard technic either in method of preparation of the extract or method of injection, so obviously no comparisons can be made between the results obtained by different workers.

As far as these statistics prove anything, they show that, as used up to now, pollen extracts have the possibility of cure and have apparently relieved a majority of patients.

From the time of Blackley and Dunbar, many so-called specific micro-organisms for hay-fever were discovered. Today no one believes that bacteria cause hay-fever, but there is a certain amount of evidence that bacteria play a rôle in the disease. Bacterial vaccines have been used in the therapy of the disease. Morrey,[8] for instance, on the theory of "strengthening the nasal mucosa so that irritants, whatever they are, would be without effect," injected eight patients with autogenous nose vaccines and reported relief in all. Freeman, although using pollen extract, stated that "it seems probable that an attack of hay fever may be the starting point of a bacterial infection, or a catarrh of the air passages may predispose to hay fever." As mentioned above, Lowdermilk, using bacterial vaccines "where infection existed," along with active immunization with pollen extract, reports the highest percentage of cures from pollen therapy. The importance of his results cannot be determined because he does not mention what he considers infection, nor does he specify the cases in which vaccines were used. Our own interest in this question was stimulated by the remarkable results obtained from autogenous nasal vaccines in a man for years a sufferer from rose-fever who, following a few intensive injections, was so completely free from symptoms as to be able to go to New York by rail.

It is difficult to reconcile good results from bacterial vaccines in a disease the symptoms of which are so essentially the symptoms of a pollen protein sensitization. On the other hand, if the disease is purely a pollen protein sensitization, one might expect better therapeutic results with active immunization against the pollen protein. But there can be no logical objection to the assumption that even if pollen produces the disease, bacteria may play a secondary but important rôle in its unfolding.

As Adami[9] and others have contended for some time, absence of suppuration or actual inflammation does not prove absence of infection, or, to use his term, "subinfection." In this state "bacteria . . . do not multiply and set up foci of suppuration; they are destroyed; but with their destruction the liberation of their toxins causes a poisoning of the cells immediately around them, and the accumulative action of these toxins . . . brings about the death of certain cells." In hay-fever may there not be a condition of subinfection in the nose, produced, perhaps, by the inhalation of pollen and prolonged by the pathologic stasis of an attack? This conception of dual etiologic factors is not without analogy in pathology. As Adami has pointed out, Opie's[10] experiments on cirrhosis of the liver are illuminating. Chloroform will destroy liver cells but will not produce cirrhosis; likewise sublethal doses of *Bacillus coli* will not produce cirrhosis, but the combination of the two together produces cirrhosis. An example of protein sensitization associated with bacterial infection may be seen in a patient of ours who developed urticaria following the ingestion of any protein, which was definitely proved to be due to an intestinal infection, and which was cured permanently only when the intestinal infection was cured.

The conception of hay-fever as a pollenosis associated with a bacterial subinfection can be expanded to explain the partial relief obtained by bacterial vaccines and by pollen extracts. If the inhalation of pollen in a susceptible individual sets up a condition of nasal subinfection, then this infection of the nasal mucous membrane will allow the absorption of even more pollen. Thus a vicious circle is established, the influence of specific therapy on which seems apparent. Bacterial vaccines alone will relieve symptoms because less pollen enters the system, but will not cure because they cannot influence the condition of pollen protein sensitization. On the other hand, the immunity produced by active immunization is not sufficient because the rate of its production cannot keep pace with the rate of absorption of pollen from the irritated mucous membranes. Combined treatment with bacterial vaccines and pollen extract should be able to control both factors. Possibly Lowdermilk's very high percentage of cures can be explained on this basis.

Proof of such a conception practically is limited to therapeutic experiments. We therefore planned a series of inoculations which were to be carried on for three years. In the first year bacterial vaccines were to be tested, in the second pollen extracts, and in the third combined treatment. Our patients were peculiarly adapted for such a procedure as most of them have been under observation for a number of years; and their behavior under varied conditions was fairly well known. For reasons which will appear later, this course was interrupted this year. Our results are reported now merely because they seem to support the theory expounded and seem to offer therapeutic promise.

TREATMENT WITH BACTERIAL VACCINES

The results of bacterial vaccines will first be discussed. All the autogenous vaccines were made from cultures on blood agar taken from within the nose. In most instances a pure culture of *Staphylococcus albus* was obtained, and more rarely the pneumococcus and *Micrococcus catarrhalis* were found. Thirteen patients were treated during the attack, five for early June fever, eight for autumnal fever. Of the five treated for June fever, two received some relief, one was greatly relieved and two were for all practical purposes cured for the season. One of these, however, whose symptoms pointed to both spring and autumnal pollenosis, had a complete relapse, August 17, and this was entirely uninfluenced by the bacterial injections.

Of the eight patients with autumnal hay-fever, one was able to stay in the country and even ride in automobiles without disturbance, and although she had been a sufferer for years volunteered the information that "she had never had such a good summer." This patient is of particular interest in that she was continually comparing her "case" with that of friends receiving pollen extract; and she was of the opinion that she was better off than her friends. Five had undoubtedly lighter attacks of shorter duration, and two had no relief. Some of these patients have been subsequently treated and will be discussed in a short

8. Morrey, Charles B.: Vaccination with Mixed Cultures from the Nose in Hay Fever, THE JOURNAL A. M. A., Nov. 15, 1913, p. 1806.
9. Adami: Brit. Med. Jour., 1914, i, 177.
10. Opie: Tr. Assn. Am. Phys., 1910, xxv, 140.

time. It is only fair to say that before injections were started the patients were told that they would probably receive no benefit from them, but that the treatment would be harmless. In fact, throughout this work we have adopted an attitude of extreme skepticism when discussing probable results with patients. This attitude has been purposely adhered to in order to eliminate the psychic influence as far as possible.

The results can be seen summarized in Table 2. "Cured" indicates that there was complete relief of all symptoms; "greatly relieved" means that some symptoms still remain; "relieved" means that some were relieved (either attacks were less frequent, less severe, or that the more severe symptoms, asthma, for instance, were absent); "no effect" signifies that there was no relief at all. Broadly speaking, 64 per cent. of the patients injected showed some signs of improvement, while 36 per cent. were absolutely uninfluenced by treatment.

TABLE 2.—RESULTS OF TREATMENT WITH BACTERIAL VACCINE

Type	No. of Cases*	Cured	Greatly Relieved	Relieved	No Effect
Spring	5	2	1	0	2
Autumnal	9	0	4	2	3
Percentages of total		14	36	14	36

* One case of combined spring and autumnal pollenosis is recorded twice.

TREATMENT WITH POLLEN EXTRACT

Probably the best attempt to standardize pollen therapy has been made by Koessler, and in our work we followed his technic. We were not in a position to use extracts of pollen of grasses, so no cases of the early fever were treated. Quantitative eye tests for susceptibility were done in every case except five, in which treatment was started during the attack; but no attempt was made to control dosage by the results of the test during treatment. This was decided on because most workers (Freeman, Koessler, Lowdermilk, Goodale,[11] and Ellern[12]) have found that the results of the quantitative eye or skin tests do not correspond with the actual immunity, any more than the measurement of agglutinins in typhoid serum is an index of actual resistance to the typhoid bacillus. Furthermore, in order to obtain statistics comparable with our vaccine cases, it was necessary to rely on clinical results. Since these are mainly subjective, they are necessarily open to wide interpretation. We therefore marked the patients on the basis of their attacks in previous years, just as the results with bacterial vaccine treatment had been estimated, and no other possible factor was allowed to influence the mark. This method, while necessarily not accurate, seemed to us the most logical for our purpose.

TABLE 3.—RESULTS OF POLLEN THERAPY*

	No. of Cases	Cured	Greatly Relieved	Relieved	No Effect
Prophylactic	16	0	4	6	6
Phylactic	5	0	3	2	0

* In addition to this series treated with pollen extract of our own were two treated with Lederle's extract without results. Through the courtesy of Dr. Morgenthau, we are also allowed to report six cases treated by him with our extract, of which four showed no results, one patient was somewhat relieved, and one very markedly benefited.

In our series were sixteen patients, treated prophylactically beginning in May, and five treated during the attack. In seven a decided improvement over last year, and in eight a noticeable improvement is seen. Five of these patients had been under treatment with bacterial vaccines previously, and a comparison of results is seen in Table 4.

TABLE 4.—COMPARATIVE RESULTS IN FIVE CASES

Case Number	Bacterial Vaccines	Pollen
6	Greatly relieved	Relieved
7	Relieved	Relieved
9	Greatly relieved	Relieved
10	No effect	Relieved
12	Greatly relieved	Greatly relieved

In the early part of this summer hay-fever was very light, and for that reason we felt unable to estimate just what were our results. The general impression of most of the patients was that, compared to patients not receiving pollen, they were having comparatively milder symptoms.

During a hot spell in September, three of the patients, who up to then had been free from symptoms, had most severe attacks of hay-fever. Autogenous vaccines were immediately made and intensively injected. In these three patients, and a fourth in whom vaccine therapy in a previous year had been beneficial, most surprising results were obtained. The three patients who had been having most intense attacks of hay-fever showed after the first injection an almost complete disappearance of symptoms. The fourth patient, who was having only mild attacks at the time, also reacted with a disappearance of symptoms. In all four the vaccines were continued until the end of the season, and in all the results were almost unbelievable and can hardly be called other than seasonal cures, as the patients had no subsequent attacks. While these results might have been due to the previous inoculations of pollen extract, comparison with the other patients renders this interpretation improbable. Three of these patients had received autogenous vaccines in previous years with some amelioration of symptoms.

DISCUSSION OF RESULTS

As stated in the beginning, interpretation of therapeutic experiments is extremely difficult. In our tables not a case was thrown out for any reason. Perhaps the most conservative way of comparing results is in figures: 64 per cent. of the patients receiving vaccines and 70 per cent. of those receiving pollen extract apparently had a milder season than previously. Vaccine therapy seemed to give equal or better results than pollen extract in the individual cases. The past year was an unusually favorable one for hay-fever subjects, but in no case was there a cure from the pollen extract. Whether the amelioration of symptoms either year was due to the therapy cannot be determined. The four patients receiving combined treatment were cured for the season, but the number treated is entirely too few to permit of any definite conclusions. The theory on which combined specific therapy is based seems tenable, and the results so far obtained seem to support the theory; although it is of course possible that, in the light of newer interpretations of certain so-called specific reactions, some other explanation of our results

11. Goodale: Boston Med. and Surg. Jour., 1915, clxxiii, 42.
12. Ellern: Deutsch. med. Wchnschr., 1912, xxxviii, 1590.

may subsequently be offered. Whether the method of prophylactic pollen therapy combined with phylactic vaccines is the proper one cannot be judged as yet. The question is open and can be decided only by a larger experience than that reported here.

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THE TREATMENT OF HAY-FEVER WITH CALCIUM SALT

WITH A REPORT OF TWENTY-SIX CASES

HAROLD WILSON, M.D.
DETROIT

The reports of Emmerich and Loew[1] on the very favorable results secured by them from the prolonged administration of calcium chlorid in the treatment of hay-fever induced me to make some trial of this drug during the season of 1915. A brief report of the results will be given in this communication.

Whether the ingestion of calcium salts has a direct inhibitory action on the proteolytic reactions which appear to be a necessary part of the hay-fever complex, or so modify this reaction as to render the split proteins less toxic, or whether they act by lessening the patient's nerve irritability, seems at this time to be quite undetermined. The employment of calcium salts in hay-fever would be on a much better basis if we were able to rationalize it. At present, it seems to me that this method of treatment can hardly claim to be more than "reasonable empiricism." In view of the fact, however, that much other useful therapy rests on a no more secure foundation than this, there is no reason why we should not make a sufficient trial of this method, which has, certainly, many practical advantages.

Twenty-six patients were treated by me during the past season. Of these, twenty-two were treated exclusively with calcium chlorid, and four patients, who had been under treatment by means of injections of pollen solution, were given the drug when their hay-fever symptoms began to develop more or less severely.

One patient had hay-fever of the vernal type only; three patients had both vernal and autumnal attacks, and twenty-two patients had only autumnal attacks. Twenty-two patients gave a positive ophthalmic or cutaneous reaction to ragweed pollen; four gave a negative reaction to ragweed. Many cutaneous tests were made with substances other than pollens, the result of which will be made the subject of another report.

Treatment was begun in June, with seven patients; in July with four; in August with fifteen, and in September with two. In no case did any patient take the drug for more than eight or ten weeks before the time of the expected attack, and in most cases the period was much more brief. Emmerich and Loew advise the use of the drug over a very long period, as much as a year, if possible. Although it has been shown that the maximum calcium retention in the system occurs only after its prolonged ingestion, it remains to be proved that its optimum therapeutic effect in hay-fever requires its daily use for a year before the expected attack. In some of the most favorable cases here reported, the relief secured came almost at once, or after taking, at most, only a few doses.

For most patients the calcium chlorid was prescribed thus:

> Calcium chlorid, crystals..... 100 gm.
> Distilled water to make..... 500 c.c.
> M. Sig.: Take one teaspoonful in sufficient water during or after each meal.

This gives the patient about 3 gm. of calcium chlorid daily. The crystalline salt is used in preference to the anhydrous, as making a cleaner and clearer solution. When the anhydrous salt is prescribed, allowance should be made for the water of crystallization, of which in the crystalline salt there are six molecules ($CaCl_2+6H_2O$):

> Calcium chlorid, anhydrous..... 50 gm.
> Distilled water to make..... 500 c.c.
> M. Sig.: Take one teaspoonful in sufficient water with or after each meal.

There was no serious difficulty in taking the drug as thus prescribed. One patient experienced gastric distress until the dose was reduced; another complained of weakness and loss of appetite, and had to use it intermittently in a lessened dose; another thought it caused a diminution in the urinary output, while another thought the flow of urine was increased. It has not been observed that the daily ingestion of 3 gm. of calcium chlorid has been followed by any marked bodily disturbance. In fact, much larger doses than

RESULTS OF TREATMENT WITH CALCIUM CHLORID IN TWENTY-SIX CASES *

Case No.	Type of Hay-Fever	Reaction to Ragweed	Duration of Treatment	Result	Remarks
12	A	+	2-3 weeks	+	Under treatment with injections of pollen solutions for ten weeks previously
13	A	+	2-3 weeks	+	Previous treatment as in Case 12
14	A	+	2-3 weeks	+	Previous treatment as in Case 12
19	A	+	2-3 weeks	+	Previous treatment with injections of pollen solutions seven weeks
22	A	+	10 weeks	0	
23	A-V	—	13 weeks	+++	Immediate improvement and absolute freedom from all symptoms after July 28
24	A	+	11 weeks	+++	Multiple sensitization
25	A	+	13 weeks	+	No symptoms until September 1
26	A	+	16 weeks	+++	No symptoms until September 25. Then only trifling itching in throat and slight sneezing. No other symptoms
27	A	+	12 weeks	—	September 25, patient writes, "I was worse than usual"
29	A	+	8 weeks	+++	Only slight symptoms
30	A	+	3 weeks	+	
31	A	+	9 weeks	+	Multiple sensitization (faint)
32	A	+	4 weeks	+	Multiple sensitization
33	V	—	9 weeks	++	Immediate relief and practical freedom from all symptoms about half the time
34	A-V	+	5 weeks	+	Reports moderate relief from symptoms during season
35	A	+	4 weeks	+	Multiple sensitization
36	A	+	.....	.....	No report
37	A	+	5 weeks	++	Very little hay-fever, even in country
38	A	+	4 weeks	+	Multiple sensitization
39	A	+	4 weeks	+	
40	A	+	4 weeks	++	Multiple sensitization
41	A	+	4 weeks	++	Did not take drug regularly
42	A	—	5 weeks	+++	Peach reaction positive; stopped eating peaches
43	A	+	2 weeks	+	Left city early in September
44	A-V	—	13 weeks	+++	Relief immediate and complete; slight recurrences; took drug very irregularly

* Explanation of signs: A indicates autumnal; V, vernal; —, symptoms worse than usual; 0, symptoms about the same as usual; +, symptoms less marked than usual; ++, symptoms much less marked than usual; very definite improvement; +++, absolute freedom from symptoms, or only trifling and insignificant ones during season.

1. Emmerich and Loew: Erfolgreiche Behandlung des Heufiebers durch lange Zeit fortgesetzte Chlorkalziumzuführ, München. med. Wchnschr., 1913, lx, 2676; Weitere Mitteilungen über Erfolgreiche Behandlung des Heufiebers, ibid., 1914, lxii, 41.

this can apparently be taken with entire safety. Cow's milk contains 0.198 per cent. calcium monoxid. A pint of milk contains about 0.71 gm. calcium. Three gm. of calcium chlorid crystals contain about 0.55 gm. calcium, so that more lime is taken by the daily use of a pint of milk than in the dosage prescribed above.

The accompanying table gives the results of the treatment with calcium chlorid in the twenty-six cases under observation.

REPORT OF CASES

A few of the most favorable reports are given in greater detail:

CASE 23.—Miss M. T., aged 21, had had hay-fever since childhood, beginning in May and lasting until frost. She was sensitive to flowers of all kinds, to dust and to wind. She could not sweep floors without marked discomfort. She had no asthma. Eye and nasal symptoms were most marked. She had been using epinephrin solutions until they now aggravated the trouble. July 2, there were lacrimation, coryza and sneezing of moderate severity more or less continuously. Ophthalmic and cutaneous reactions to ragweed were negative. Calcium chlorid, 1 gm., three times a day, was prescribed. July 9, eyes were "wonderfully better"; there were somewhat less sneezing and coryza; the patient was less sensitive to dust and wind. July 20, she was much less uncomfortable than usual. On the whole, there was a marked amelioration of symptoms. July 28, there was very great relief. The patient was practically free from all symptoms. "I never was so helped by anything before." August 13, the patient reported that she had had no hay-fever symptoms whatever since last visit. Relief was absolute. September 6, absolute freedom from symptoms continued. This relief continued throughout the season.

CASE 26.—Miss M. R., aged 25, had had autumnal hay-fever seven or eight years; no asthma. Maternal aunt had had hay-fever since childhood. Ophthalmic and cutaneous reactions to ragweed were positive. June 11, calcium chlorid was prescribed, 1 gm. three times a day, but owing to some gastric distress which it seemed to cause, the dose was much reduced for several weeks. The full dose, however, was taken later and continued. No hay-fever symptoms were experienced until September 5, when there was slight sneezing, and itching in the throat. During the rest of the season symptoms were practically absent.

CASE 29.—Dr. W. A. K., aged 40, had had autumnal hay-fever for fifteen years, and slight asthma recently. July 7, calcium chlorid was prescribed, 1 gm. three times a day. Patient reported in October that he had experienced only trifling symptoms at any time during the season.

CASE 33.—Miss F. P., aged 43, had had vernal hay-fever, usually beginning about June 1 and lasting until the end of July. June 12, she was having about the usual amount of trouble. The ophthalmic reaction to ragweed was negative. Calcium chlorid, 1 gm., three times a day, was prescribed, with much relief, almost at once. She reported, August 25, "I have been practically free from symptoms about half the time. The rest of the time, partly free, and partly in trouble. About July 28 took a long railway journey, weather dry and dusty, with no hay-fever symptoms at all."

CASE 42.—F. W., aged 28, had had hay-fever beginning in August for several years. Father had hay-fever; no asthma. Ophthalmic and cutaneous reactions to ragweed were negative. Cutaneous and nasal reaction to peaches was positive. Calcium chlorid, 2 gm., three times a day, was prescribed. August 25, the patient was very comfortable, with scarcely any symptoms. Cutaneous reaction to peaches was negative. The patient had stopped eating peaches. During the rest of the season there were very few hay-fever symptoms.

CASE 44.—Miss C. S., aged 25, had had hay-fever for nine years, beginning in early spring and lasting until the second week in October. She had asthma. Symptoms were marked. June 30, the hay-fever symptoms were distressing. Ophthalmic and cutaneous reaction to ragweed was negative. Calcium chlorid, 1 gm., three times a day, was prescribed. Patient reported September 25. The hay-fever symptoms, which were severe, disappeared after the second dose of the medicine, whereupon she promptly stopped taking it regularly. Afterward she took a long auto journey without symptoms. During the summer she had occasional slight symptoms, which disappeared immediately when she took the medicine. She has been practically free from all hay-fever symptoms ever since beginning to take the drug. She thinks the results are "wonderful." She would probably have taken the drug more regularly if it had not seemed to increase the secretion of urine.

CONCLUSIONS

1. Some hay-fever patients taking not less than 3 gm. of calcium chlorid daily, even for a short time, are practically relieved from all hay-fever symptoms.
2. Calcium chlorid may be taken in doses of 3 gm. daily for an indefinite time without any apparent injury.
3. It is not indispensable in all cases for a hay-fever patient to take calcium chlorid over a long period of time in order to secure relief.
4. Calcium salts may be given, even when the nature of the patient's sensitization is not known.
5. The clinical results from the administration of calcium chlorid in cases of hay-fever are such as to warrant its further trial.

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THE SPLEEN

ITS ASSOCIATION WITH THE LIVER AND ITS RELATION TO CERTAIN CONDITIONS OF THE BLOOD *

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For many years when doing abdominal operations, if it could be done without risk to the patient, it has been my practice to make a careful manual examination of the contents of the abdomen. Thus I have been impressed with the fact that the spleen shows enlargements and other physical changes rather regularly in connection with diseases of the liver and of the blood. In papers on this subject written at various times, attention has been called to the fallacy of the physical examination of the spleen, and it may be said that unless the spleen is sufficiently enlarged to be felt beyond the free border of the costal margin, the enlargement would probably not be recognized. At times careful physical examination by percussion, for instance, has apparently revealed the area of splenic dulness, but on the opening of the abdomen the fact showed how fallacious percussion had been. Faith in these methods has been due to the fact that in certain diseases, like typhoid, which often end in death, the spleen is generally enlarged, and with this knowledge at hand a diagnosis by percussion has been made and proved correct at necropsy. By means of the Roentgen ray, the possibilities of accurately examining the spleen for such enlargements are developing. The roentgenologist has been able to outline the kidneys, the liver, etc., as well as the digestive and thoracic organs, with a marvelous degree of accuracy, and we may expect that he will accomplish the same for the spleen in the near future. The humiliating mistakes made by surgeons, of which we have made our share, of diagnos-

* Read before the Northern Tri-State Medical Association, Toledo, Ohio, Jan. 11, 1916.

ing as splenic enlargement a cancer of the stomach or colon or tumor of the kidney, are now avoidable by careful roentgenographic exclusion of these organs.

SPLEEN AND LIVER

The spleen is closely associated with the liver in function, deriving its blood supply from the celiac axis, the same source as those derivatives of the foregut, the stomach, liver and pancreas, and, like these organs, its vein becomes part of the portal circulation. It is evident that, whatever the function of the spleen, it must send such material as may be culled from the blood to the liver for further elaboration. And, taking experimental and clinical knowledge into consideration, it may be surmised that many of the cirrhoses of the liver may be due to the fact that the liver, the great organ of defense against parasitic and chemical toxic agents, has become unable to care for these products by absorption and elimination, and attempts connective tissue encapsulation in order to render them harmless. In the case of diffuse poisons like alcohol, the liver may become cirrhotic in the attempt to render innocuous deleterious material. We see the close association between the spleen and liver well illustrated in hypertrophies of the spleen attendant on cirrhotic processes of the liver and in secondary cirrhosis of the liver in the Banti stage of the enlarged spleen of splenic anemia.

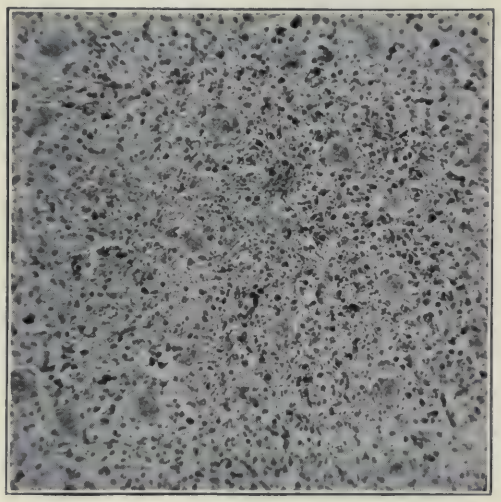


Fig. 1 (Case A 119102). — Microscopic section of syphilitic spleen, showing edge of atypical gumma with giant cells.

Investigation leads to the conclusion that the function of the spleen is not only to remove from the blood bacteria and other toxic agents, but also to conserve the food values of broken-down blood corpuscles, especially red cells, sending their remnants to the liver for elaboration into energy-producing substances. This is shown by the fact that there is increased hematin, and a relative increase of leukocytes, in the splenic vein. These facts bear out the old theory that the spleen is a sieve selecting certain substances — parasitic, toxic and products of degeneration — and being unable to deal with them, passes them on to the liver for conservation. That the liver may adequately maintain this important function, it has been given the power of regeneration. If a large part of the liver of a dog be removed, it will be replaced by new hepatic tissue, while in the kidney and other organs of the body regeneration does not take place to so great an extent, but function is maintained by a hypertrophy of existing tissues.

The function of defense of the liver is shown by Adami,[1] who points out that the leukocytes of the living body pass out on the free mucous surface of the duodenum and upper jejunum, and pick up bacteria which they usually destroy, but should they fail to destroy them, the liver becomes the agent of destruction, and the pigmented areas in the liver are derived from such slaughtered bacteria. Research has shown that the phagocytes of the body are developed in direct response to bacterial invasion. As Vaughan[2] has pointed out, the period of incubation of a disease is the time which is necessary to develop or train leukocytes to bodily defense. He shows that the reaction we call typhoid fever is a defense manifestation, and that preventive serums, such as vaccination for smallpox, typhoid, etc., act to educate the cells of the body to resistance against certain organisms and to change the proteins of the body so that they no longer act as food for these bacteria. Vaughan advances the theory that bacteria are not vegetable organisms but parasitic growths in a distinct class by themselves. Eccles[3] suggests that the phagocytes of the body live on bacteria, and that the food values of the bacteria are thus conserved. He looks on the tonsils and other lymphoid structures, such as the appendix, as what may be called chronic vaccinators, since through the tonsils are constantly permitted to pass a certain number of bacteria which stimulate the development of phagocytes. This shows that a moderate reaction in the tonsil may not always be the cause of an impending generalized infection, but rather an early defense manifestation.

Rosenow[4] has shown that streptococci can be trained to attack special organs. By injecting into the circulation strains of streptococci derived from phlegmonous cholecystitis, he has been able to cause phlegmonous cholecystitis to appear in animals; if they are cultivated on artificial mediums for a time they are prone to produce ulcer of the stomach and appendicitis, whereas if they are passed through animals pancreatitis is usually produced, all of which is evidence of the selective affinity of bacteria and probably other substances for certain tissues or organs.

The spleen is the organ of the body in which the blood stream comes in contact with the pulp, that the process of sifting may be more readily carried out. Must it be understood that all the blood in the body passes through the spleen in a haphazard way to have this function properly performed? Is it not more probable that the spleen has the power of attracting to it certain substances circulating in the blood, as shown by splenic enlargements of typhoid, malaria, etc.?

It is interesting to note how the spleen is controlled in its function. Stimulation and control is exerted over the voluntary parts of the body by the cerebrospinal nervous system, over the involuntary or vegetative part of the body by the sympathetic ganglion acted on the internal secretions. In addition, there is the essential rhythm of nonstriated muscle. The vegetative part of the body was well developed before the organism had reached the stage of a cerebrospinal nervous system, a comparatively late development. The sympathetic nervous system, probably

1. Adami, J. G.: On Latent Infection and Subinfection and on the Etiology of Hemachromatosis and Pernicious Anemia, THE JOURNAL A. M. A., Dec. 16, 1899, p. 1509; Dec. 23, 1899, p. 1572.

2. Vaughan, V. C.: Infection and Immunity, Commemoration Volume, Chicago, American Medical Association, 1915, p. 1.

3. Eccles, R. G.: The Tonsils and the Struggle for Existence, Med. Rec., New York, 1915, lxxxviii, 47.

4. Rosenow, E. C.: Elective Localization of Streptococci, THE JOURNAL A. M. A., Nov. 13, 1915, p. 1687.

mesoblastic in origin and now closely associated with the cerebrospinal nervous system, acts in association with the internal secretions, and all organs of important internal secretion, such as the suprarenals and the hypophysis, in which gland and sympathetic ganglia are present, are so closely associated as to form a single organ.

That the spleen does not have an important internal secretion is shown by the fact that its removal does not deprive the body of any important constituent; and that it is not under the complete control of the nervous system is shown by its extremely scanty supply from Auerbach's plexus. But the spleen does have a considerable amount of nonstriated muscle fiber, and it is altogether probable that this muscle has an important function and possibly is responsible for the digestive rhythmic change in the size of the spleen.

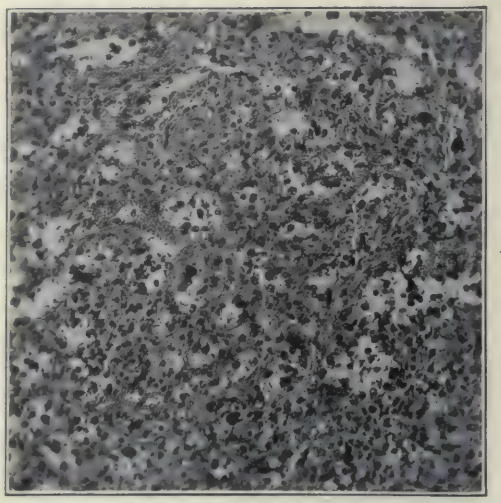


Fig. 2 (Case A 131884). — Microscopic section of spleen in a case of so-called Hanot's jaundice. Section shows marked fibrosis with increase of pulp and lymphoid cells.

All the nonstriated muscle of the body, for example, the musculature of the alimentary tract, of the bladder, ureter, uterus, etc., has the power of rhythmic contraction the same as the heart. A small bit of intestine put in Locke's solution will beat for hours. The sino-auricular node of the heart gathers the impulses from the primary contractions of the muscle fibers of the auricle and is the pacemaker of the heart; the impulse passes from the sino-auricular node to the ventricle through the bundle of His, timing the ventricular beat, and this curious association of the many branched nodal cell of Keith[5] with the nonstriated muscle occurs in different areas over the entire digestive and genito-urinary tracts (Keith,[5] Cannon[6] and Alvarez[7]).

According to Keith, nodal tissue occurs in definite amounts in at least seven gastro-intestinal situations. First, about the cardia, controlling the rhythmic contractions of the stomach and the emptying of the esophagus: it is entirely probable that the so-called idiopathic dilatation of the esophagus, or cardiospasm, is the result of failure of nodal control. The same tissue found about the pylorus in disease causes pylorospasm. A sphincter exists just below the common duct in certain of the lower animals, and Ochsner[8] has shown that remnants of this muscle are to be found in man. Along this portion of the duodenum nodal tissue is to be found, which may explain the occasional case of acute dilatation of the stomach and upper duodenum which has masqueraded as true mechanical gastro-mesenteric ileus.

Nodal tissue is found about the ileocecal orifice. Keith believes that this has to do with ileal stasis and lies behind those important phenomena which Lane[9] has described. Nodal tissue is found in the ascending colon, a situation in which, in many of the lower animals, there exists a true colic sphincter, and this may have some relation to cecal stasis and the gastrocolic reflexes described by Hertz.[10] Again, this tissue is found about the rectosigmoid, and a failure of control may be the cause of giant colon or Hirschsprung's disease.

According to Starling and Bayliss[11] the intestinal tract has two rhythms, the first acting from ten to twenty times to the minute, which Mall[12] suggests may be the heart of the portal circulation forcing the blood in the radicles of the portal veins to the liver, and the second, acting once or twice to the minute and which we recognize as the peristaltic wave.

To go further into the interesting phase of a subject to which Keith has called attention would lead us far afield. Suffice to say that the rhythmic waves are automatically checked by sphincters, and in failure of rhythmic intestinal movement and sphincter control may lie the secret of so-called intestinal intoxication and neurasthenias of intestinal origin. The presence of nonstriated muscle in the spleen gives important evidence of the primary relationship of the spleen to the digestive system.

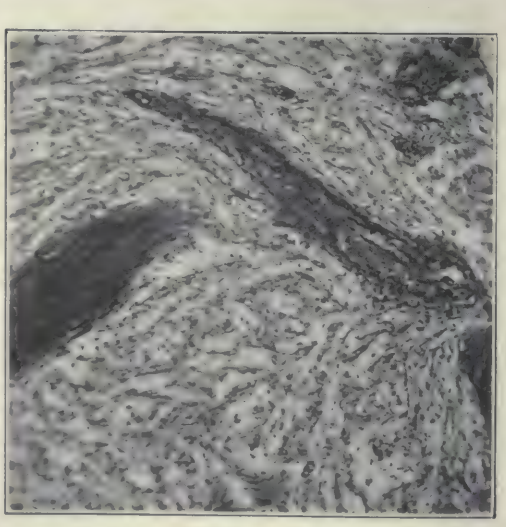


Fig. 3 (Case A 20818). — Microscopic section of spleen in a case of advanced splenic anemia with Banti's syndrome. Section shows connective tissue greatly increased with endothelium of venous sinuses swollen.

RELATION TO THE BLOOD

The relation of the spleen to the blood has long been known. The spleen, the liver, and the adenoid and lymphoid structures of the body in the fetus are blood-producing organs. All red-blooded animals possess a spleen. The earliest blood cell is white, a lymphatic descendant of the mesenchyma cell. Leukemia is a reversion of all these structures to the primitive condition of the production of embryonic

5. Keith, A.: A New Theory of the Causation of Enterostasis, Cavendish Lecture, Lancet, London, 1915, ii, 371.
6. Cannon, W. B.: The Importance of Tonus for the Movements of the Alimentary Canal, Arch. Int. Med., October, 1911, p. 417.
7. Alvarez, W. C.: Functional Variations in Contractions of Different Parts of the Small Intestine, Am. Jour. Physiol., 1914, xxxv, 177; Further Studies on Intestinal Rhythm, Am. Jour. Physiol., 1915, xxxvii, 266.
8. Ochsner, A. J.: Constriction of the Duodenum below the Entrance of the Common Duct, and Its Relation to Disease, Tr. Am. Surg. Assn., 1905, xxiii, 314.
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11. Bayliss, W. M., and Starling, E. H.: The Movements and Innervation of the Small Intestine, Jour. Physiol., 1900-1901, xxvi, 127.
12. Mall, F.: A Study of the Intestinal Contraction, Johns Hopkins Hosp. Rep., 1896, i, 37.

white cells, and bears the same relation that the uncalled-for production of embryonic epithelial and connective tissue cells bear to carcinoma and sarcoma. At birth the spleen loses its power to produce red cells, except on extraordinary occasions following hemorrhage (Osler[13]), but continues to produce a certain number of white cells.

The blood pictures of the various anemias are often reproductions of the normal blood of lower animals in which a shorter heredity has given less fixed characteristics than in man. The spleen seems to become the graveyard of wornout corpuscles, especially of red cells. However, it probably does not act on its own initiative, but as though the red cells were sensitized some other place in the body and destroyed in the spleen. This is shown by the increased fragility of the red cells of Chauffard[14] and Widal,[15] which occurs in hemolytic jaundice. The enlarged spleen of splenic anemia, hemolytic jaundice, and possibly the primary anemias may be a work hypertrophy. In all but one patient with pernicious anemia operated on in our clinic, the spleen on removal has been found to be definitely enlarged. Taking the average weight of the spleen to be 195 gm. (Sappey[16]), the spleens removed by us for pernicious anemia have weighed from 360 to 910 gm., except the one mentioned, which was underweight. It would appear that the excess of splenic tissue produces a hypersplenism, as suggested by Eppinger,[17] and unnecessary destruction of red cells.

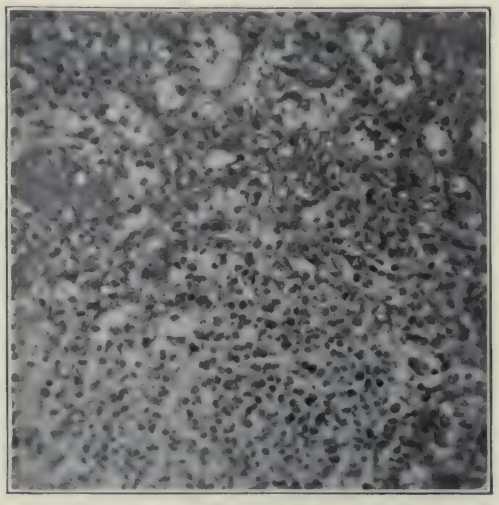


Fig. 4 (Case A 137566). — Microscopic section of spleen in a case of early splenic anemia in a child. Section shows lymphoid hypertrophy with moderate diffuse fibrosis.

Just as there may be many exciting causes for exophthalmic goiter, so there may be many exciting causes of enlarged spleen. The splenomegaly sometimes found in patients with syphilis and usually associated with syphilis of the liver apparently has a definite causal relationship to the chronic anemia of the secondary type which is present. This anemia has promptly been relieved by removal of the spleen in a few cases on record and in three patients of our own. The spirochetal action on splenic tissue in these instances results almost always in a chronic fibrosis and only rarely in gummas. On the other hand, gummas of the liver are quite common (Fig. 1).

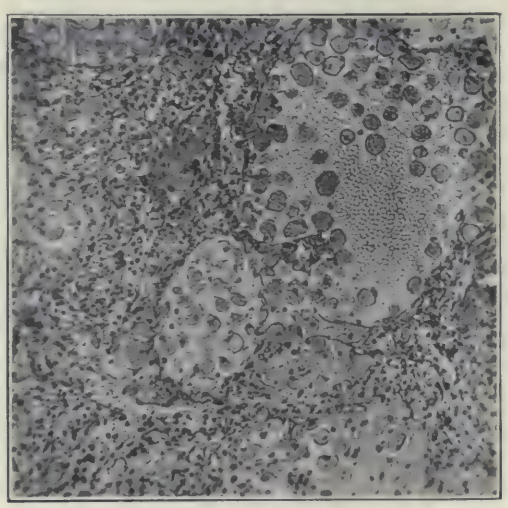


Fig. 5 (Case A 8869). — Microscopic section of spleen in a case of Gaucher's disease. Section shows venous sinuses more or less filled with desquamated hydropic reticulo-endothelium.

Wilson[18] is now at work on our pathologic material, and is able to show that there are microscopic differences (Figs. 1 to 7) which it is hoped may prove of differential value in the various splenic enlargements, and which may give us a clue to the reason why the removal of the spleen cures or is of the greatest possible benefit in a number of different conditions of the liver and blood heretofore fatal. This suggests that the spleen, an organ not necessary to life, and not causing disease on its own initiative, is the one link in an otherwise fatal chain which can be easily and safely broken. With this assumption the idea that the spleen is an obsolete organ falls, just as has been the case with the tonsil and possibly with the appendix. The enormous blood supply shows the opposite of the vascular conditions of obsolete organs, in which there is always a reduced blood supply. As the removal of the tonsil may prevent generalized infections responsible for all sorts of acute and chronic conditions, the tonsil itself not being essential to life, so splenectomy may cure certain disease conditions of the nutritive system, especially those of the liver and of the blood.

I should apologize for this lengthy preamble which, however, all too briefly outlines certain facts and near facts in splenic physiology and pathology; yet there is a value in getting far enough back to secure a good perspective, to see the whole picture, rather than be lost in some particular detail.

ENLARGEMENTS OF THE SPLEEN

These may be divided into four groups: (1) new growths, (2) infections, (3) enlargements associated with hepatic disease, and (4) those associated with the blood.

1. *New Growths.*—The first will not be considered at this time. I shall very briefly take up the results of splenectomy in some of the diseases in the latter three groups.

2. *Infections.* — In so-called primary tuberculosis of the spleen the removal of the organ has cured a few patients. It is quite likely, however, that tuberculosis is practically never, in reality, primary in the spleen, and that this diagnosis is the result of insufficient clinical study. Our one patient of this type died from general miliary tuberculosis after a temporary improvement of several months. In three instances we

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14. Chauffard, A.: Pathogénie de l'ictère congénital de l'adulte, Sem. méd., 1907, No. 3, p. 25; Les ictères hémolytiques, ibid., January, 1908; Cholélithiase pigmentaire dans un cas d'ictère congénital hémolytique; analyse chemique des calculs, Bull. et mém. Soc. mé. d. hôp. de Paris, 1912, xxxiv, 80, cited by Elliott and Kanavel: Surg., Gynec. and Obst., 1915, xxi, 21.

15. Widal, A., and Brulé: Differenciation de plusieurs types d'ictères hémolytiques, Presse méd., 1907, p. 641, cited by Elliott and Kanavel (Footnote 14).

16. Sappey, cited by Piersol, G. A.: Human Anatomy, Philadelphia, J. B. Lippincott Company, 1913, p. 1781.

17. Eppinger, H.: Zur Pathologie der Milzfunktion, Berl. klin. Wchnschr., 1913, L, 1509, 1572, 2409.

18. Wilson, L. B.: The Pathology of Splenomegaly, Surg., Gynec. and Obst., 1913, xvi, 240; Pathology of Spleens Removed for Certain Abnormal Conditions of the Blood, Ann. Surg., 1915, lxii, 158.

have removed greatly hypertrophied spleens from patients suffering with chronic syphilis and marked anemia. In one of these, specific treatment had been carried out for two years, in another for six months, without satisfactory improvement in the general condition or the anemia. Following splenectomy, there was marvelous improvement of the anemia in all of them.

Marked enlargement of the spleen is quite frequently present in patients with a history of chronic recurring septic conditions. These spleens are usually smaller than those of splenic anemia, although occasionally we have seen a very large spleen filled with infarcts. We have removed the spleen from seven patients with histories of chronic recurring sepsis. Patients of this type usually have a lowered resistance, and cardiorenal insufficiency is most likely to influence the ultimate prognosis unfavorably.

3. *Splenic Enlargements Associated with Hepatic Disease.*—Primary cirrhosis of the liver accompanied by enlargement of the spleen is remarkably similar to primary enlargement of the spleen with secondary cirrhosis of the liver, and in the late stages of either disease it is very difficult to determine in a given case whether the process was primary in the liver or in the spleen. In the same way it is difficult to differentiate between hypertrophic biliary cirrhosis of the liver of the Hanot type in which there is jaundice, and hematogenous jaundice, which has its origin in the spleen. Primary biliary cirrhosis of the Hanot type is doubtless a rare disease. It may last for from six to ten years, and the spleen as well as the liver is always enlarged. It is a disease of young adult life. As in hemolytic jaundice, there are crises marked by tenderness in the region of the liver and spleen with a temporary increase of jaundice. In a small number of instances in which Hanot's cirrhosis has been diagnosed, the spleen has been removed with undoubted benefit, and possible cure. We have seen one such case. Hemolytic jaundice can usually be differentiated by the fact that the fragility of the red cells in the peripheral circulation is decreased, whereas in cirrhosis of the liver the resistance of the red cells is usually increased. In hemolytic jaundice urobilin, but not bile, is present in the urine, and the jaundice is not associated with itching. Yet to what extent these cases of biliary cirrhosis have been confused with those of hematogenous jaundice of splenic origin, and to what extent the syndrome which has been called Hanot's cirrhosis of the liver actually exists, further investigation must decide.

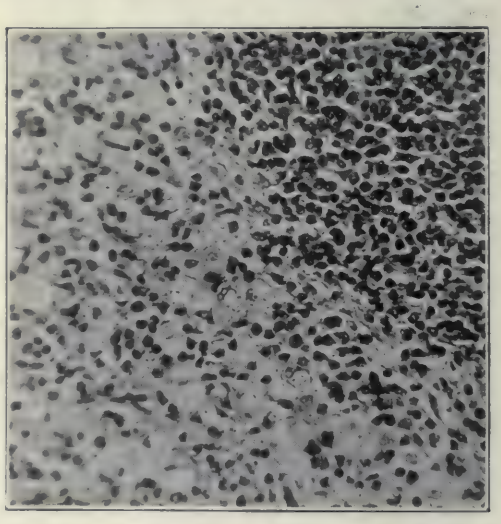


Fig. 6 (Case A 86218). — Microscopic section of spleen in a case of hemolytic jaundice. Section shows sharp demarcation of increased lymphoid tissue by overgrowth of reticulum.

In four instances we have removed a greatly enlarged spleen in patients suffering from portal cirrhosis of the liver. It is too early to know whether or not the end-results will justify the operation. Three of our patients, however, have markedly improved, and the ascites and anemia have disappeared.

It must be evident to all that the spleen is only one avenue by which noxious agents may reach the liver and cause a cirrhosis. It is probable that a large number of cirrhoses have their origin in the gastro-intestinal tract, but, no matter what the portal of entry may be, there is usually a concomitant enlargement of the spleen.

In general, the common forms of cirrhosis of the liver may be divided into three classes: first, portal cirrhosis, in which the toxic material obtains entrance through the portal system and the connective tissue proliferation advances from the portal spaces and in which the symptoms are those of portal obstruction; second, biliary cirrhosis, in which the infectious agent may be either ascending from the biliary tract or hematogenous, and in which the most pronounced clinical sign is chronic jaundice, while portal obstruction comes on late; third, mixed types, which are undoubtedly not rare and in which a preoperative diagnosis is often impossible[19] (Fig. 2).

4. *The Blood.*—Splenic Anemia: Patients with anemias associated with enlargements of the spleen are cured or greatly benefited by splenectomy. The syndrome called splenic anemia, the terminal stage of which is known as Banti's disease, may be cured by removal of the spleen in a high percentage of cases (Fig. 3).

Clinically, splenic anemia is an entity. The spleen is large; there is a definite anemia showing a reduction of reds and a low hemoglobin, and the disease is progressive, ending in death. The process may be exceedingly slow and at times completely interrupted in its clinical symptoms for several years; but all enlargements of the spleen that cannot be shown to have some other definite cause must be looked on as incipient splenic anemia. The future history of such cases will finally prove the large majority of them to be of this character. Hemorrhage from the stomach at times is one of the early symptoms, even before the spleen is much enlarged. These cases of gastric hemorrhage in which no other origin can be found should be carefully examined for evidence of splenic anemia. In the later stages, after ascites has developed, and the liver has become cirrhosed, but little may be expected from the removal of the spleen, and yet several of our patients in this terminal condition have been cured by splenectomy (Fig. 4).

Splenic anemia with adult characteristics is not infrequently seen in childhood, and is promptly relieved by splenectomy. It is quite probable that the pseudoleukemic anemia of von Jaksch is merely the infantile type of splenic anemia, the increased leukocytes (30,000 or more) being merely a difference in the reaction of the blood due to infancy (Giffin). It may be said in this connection that while leukopenia is usually present in splenic anemia, there are a number of instances in which patients having a moderate leuko-

19. Giffin has been very much interested in hepatic cirrhosis in connection with splenic enlargement. I am indebted to him for the clear statement of the present view of these conditions. (Giffin, H. Z.: Splenectomy for Splenic Anemia in Childhood and the Splenic Anemia of Infancy, Ann. Surg., 1915, lxii, 679; Splenectomy in the Treatment of Splenomegalia, Associated with Syphilis, Am. Jour. Med. Sc., to be published.)

cytosis (20,000 or more) have been operated on at various ages and remained well afterward. Several such patients operated on by us were previously diagnosed as having true leukemia, and were treated for it.

With the splenic anemias may be classified Gaucher's disease, which is shown by Brill and Mandelbaum[20] to appear before the thirteenth year and average twenty-five years of duration, and the patient usually dies from some complication. The spleen may become of enormous size. In the terminal stages of Gaucher's disease or large cell splenomegalia, endothelial growths of the same character are found in the liver, lymphatics, etc. Our experience in the removal of the spleen in three cases of this kind has shown that in the earlier stages the condition is cured by splenectomy (Fig. 5).

One of the most interesting anemias of splenic origin is the so-called hemolytic jaundice, a disease of the young, accompanied by acholuric jaundice, that is, there is no evidence of biliary obstruction, bile is present in the stools and there is no itching. There are two types of this disease, one the familial type of Minkowski,[21] which often affects several members of the same family and is less severe in its manifestations, many patients living out a life expectancy. The other is the acquired type of Hayem[22] and Widal,[15] which comes on during puberty or adolescence and usually ends in death. In hemolytic jaundice the patient suffers from crises accompanied by tenderness over the liver and spleen, an increase of temperature and quickness of pulse. We have done nine splenectomies for hemolytic jaundice. No other operation I know of gives more brilliant and striking results. Within twenty-four hours the jaundice begins to disappear, and in a few days the patients perhaps for the first time have clear complexions; the anemia is rapidly overcome and they remain well (Fig. 6).

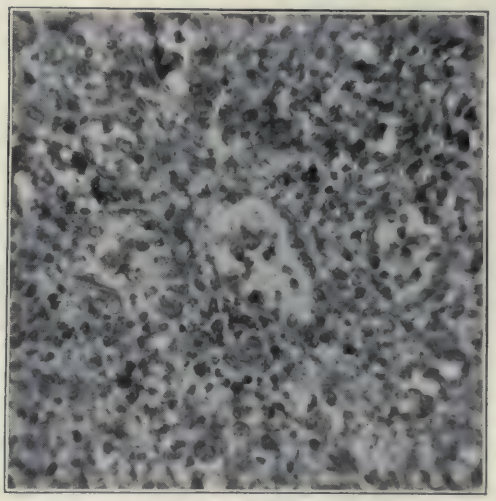


Fig. 7 (Case A 128367). — Microscopic section of spleen in a case of early pernicious anemia. Specimen shows a marked lymphocytosis and some hypertrophy of the endothelium of the sinuses.

Pernicious Anemia: Eppinger first called attention to the remarkable improvement of the patient after removal of the spleen in pernicious anemia. Although sufficient time has not elapsed to say that these patients are permanently cured, as Cabot[23] has said, no other means of therapy has so promptly brought about an improvement in the condition of the patient and so definitely relieved the anemia. It is true that in the late stages when there are spinal cord changes these changes do not disappear, although the condition is marvelously improved, nor do all the characteristic cells of pernicious anemia disappear from the blood. But from our experience with nineteen patients, I feel justified in performing splenectomy in selected cases of pernicious anemia, and have at least the hope that if it is done sufficiently early in the course of the disease, it will permanently check if not cure the condition (Fig. 7).

Preliminary to splenectomy and, in some cases, following it, transfusion of blood may be necessary. The blood of the donor should always be tested in connection with the recipient for agglutination and hemolysis.

20. Brill, N. E., and Mandelbaum, F. S.: Large-Cell Splenomegaly (Gaucher's Disease): A Clinical and Pathological Study, Am. Jour. Med. Sc., 1913, cxlvi, 863.

21. Minkowski, O.: Ueber eine Hereditäre, unter dem Bilde eines chronischen Icterus mit Urobilinurie, Splenomegalie und Nierensiderosis verlaufenden Affection, Verhandl. d. Kong. f. inn. Med., 1900, xviii, 316.

22. Hayem, G.: Sur un variété particulière d'ictère chronique, ictère infectieux chronique spléno-mégalique, Presse méd., 1898, i, 121; Nouvelle contribution à l'étude de l'ictère infectieux chronique spléno-mégalique, Bull. et mém. Soc. méd. d. hôp. de Paris, 1908, Series 3, xxv, 122.

23. Cabot, R. C.: Discussion on Blood and Blood Diseases, abstr., THE JOURNAL A. M. A., June 26, 1915, p. 2164.

CAUTERIZATION AND FULGURATION OF BLADDER TUMORS

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AND
WILLIAM NEILL, M.D.
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The past ten years have witnessed a remarkable and beneficent change in the treatment of benign neoplasms of the bladder. Fulguration has become by common consent the method of choice for all cases in which it can be applied. The credit for this remarkable advance in vesical surgery lies at the door of Dr. Edwin Beer,[1] who has made this new field peculiarly his own, both by discovery and by development.

Beer's pioneer work has thus wrought a most welcome transformation in what was previously often a perplexing situation. He has reduced the complex to the category of the simple, always a notable surgical achievement, so that now instead of putting these patients to bed and exposing them to the risks and discomforts of an operation, we treat them as ambulatory office patients and destroy the growth often in from one to several sittings.

In cases of recurrence the greatest benefits of the new plan are realized, for here the patient continues the treatment at intervals and without discomfort, until the entire trouble is finally eradicated to return no more. Under former conditions a recurrence simply meant an outlook for another operation and a siege in the hospital.

Here are two illustrative cases from personal experiences:

CASE 1 (Hosp. No. 5480).—Miss M. G., aged 41, had been operated on twice before for papilloma of the bladder, the first time by Dr. Harris of Battle Creek, Sept. 26, 1911, and again for a recurrence by another operator, Aug. 28, 1912, the suprapubic route being taken both times. Six months later she was examined by two surgeons in Brooklyn, and a return of the trouble was found. Both surgeons advised the use of the high frequency current. Treatment by Roentgen

1. Beer, Edwin: Removal of Neoplasms of the Urinary Bladder, THE JOURNAL A. M. A., May 28, 1910, p. 1768; The Treatment of Papillary Tumors of the Urinary Bladder with the High Frequency Current (Oudin), ibid., Nov. 16, 1912, p. 1785; Ann. Surg., August, 1911; Treatment of Benign Papillomata of the Urinary Bladder with High Frequency Current, Ann. Surg., June, 1915, lxi, 109; ibid., lxii, 496; Treatment of Benign Papillomata of the Urinary Bladder with the Oudin High Frequency Current Introduced through a Catheterizing Cystoscope, Med. Rec., New York, Feb. 8, 1913.

ray had also been used. When first seen by Dr. Kelly she was examined through the open cystoscope, May 29, 1914, and the following condition noted:

Along the posterior wall half way from the vertex to the base of the bladder was a transverse area of ulceration, 26 mm. broad. A similar area was seen in the vertex, 18 mm. in diameter; directly opposite the internal ureteral orifice on the posterior wall was a papillomatous growth, 1 cm. in diameter. A similar one grew just to the left of this, from 6 to 8 mm. in diameter. These growths were fulgurated through the open cystoscope. Since that date the patient has returned to the hospital at intervals of from one to two months, and numerous small tumors have been detected sprouting in various locations and treated by fulguration. The treatments were given May 29, June 29, Aug. 17, Sept. 28 and Dec. 24, 1914, and Jan. 7, Jan. 28, Feb. 18, April 2, June 4, June 18, Aug. 5, Sept. 3 and Dec. 17, 1915.



Fig. 1.—Bladder in Case 2: *A*, conglomerate mass of large growths; *B*, injected bismuth in suspension; *C*, zone of urine, water and air with the bladder wall in the periphery.

When last treated, Dec. 17, 1915, the bladder was found to be entirely normal except for two small superficial spots about 4 and 2 mm. in diameter above the right ureteral orifice. These were fulgurated for a few seconds, and the patient was told to return in several months for another examination.

This patient is a monument to fulguration, for she never could have survived the numerous operations she would have needed to remove all these recurring growths.

Let us here note an exception to this desideratum of treating all cases by fulguration. When the tumors are massive and there are numerous implantations, it is often preferable to make a suprapubic section and extirpate all visible disease, and then to follow up the case by fulguration if there is any recurrence. Here is a case in point:

CASE 2 (Hosp. No. 4079).—Miss B., aged 38, first seen May 8, 1912, complained of passing blood in the urine for eight years. An aeroscopic examination through a Kelly cystoscope showed a large papillomatous tumor attached to the anterior wall of the bladder and seemingly filling it. An examination by Roentgen ray with a moderate bismuth injection of the bladder was made (Fig. 1). Here we have an astonishing picture: the area *A* represents a conglomerate mass of large growths and shows beautifully their papillomatous nature. About the tumor lies the dark zone *B*, which represents the injected bismuth in suspension. Around this the gray area *C* is the zone of the urine, water and air with the bladder wall in the periphery.

Dr. Kelly operated in May, 1912, through a suprapubic incision. A small growth, 1.5 cm. in diameter, was found attached to the posterior wall; three large cauliflower growths the size of hen's eggs lay on the anterior wall of the bladder; one of them grew from the trigonum beneath the urethra and between it and the left ureteral orifice, and then encircled and extended down the urethra a short distance; another lay on the anterior wall above the ureteral orifice. These were removed; in all, nine tumors being taken out. The patient made an uneventful recovery and was discharged June 15, 1912, and remained well and free from all her old symptoms until March 6, 1914, when she had vesical pain, and bleeding on one occasion. An aeroscopic examination, April 6, 1914, showed a recurrence the size of a cherry near the left ureteral orifice; this was fulgurated, and there has been no return of symptoms to date.

There is a borderline between cases which are manifestly best for fulguration, and this small group which we are still inclined to reserve for surgery, where surgeons will discuss their choice of method, one operating, while another prefers the high frequency current; but there is, we believe, a group of massive tumors at present beyond the border where operation is best in competent surgical hands.

We believe that the open aerocystoscope (Kelly's), presents incontestible advantages for seeing these growths, and determining their number and relations, and above all in most cases in enabling the surgeon to see and to handle the pedicle.

A growth which appears sessile and malignant by the water cystoscope may thus be found by the air cystoscope to be pedunculate. We believe that the facility of exposure and treatment through the open cystoscope (Nos. 10 to 12) enables one also greatly to shorten the period of treatment in attacking the pedicle, rather than the peripheral parts which are more accessible. The difference in methods is sometimes comparable to the difference, on the one hand, in taking down a tree by lopping off its branches one by one in the effort to reach the trunk, and on the other of cutting off the

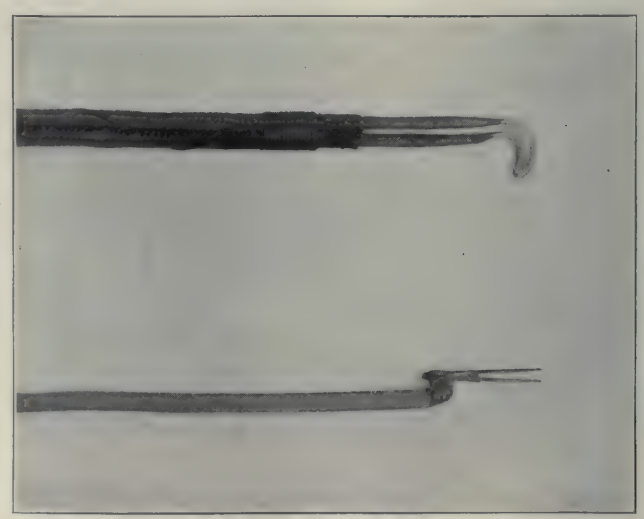


Fig. 2.—Cautery knife and two point fulgurator, natural size.

trunk at once near the roots. *We therefore in all cases proceed at once to attack the pedicle and to fulgurate as deeply as possible into its substance.* Even large tumors can be handled by fulguration if the pedicle can be reached, and in this way the many sittings are cut down to only a few.

We have found that two slightly diverging needles (Fig. 2) are valuable for fulguration. They are plunged into the substance of the pedicle and the current turned on as strong as the patient can stand it. The pedicle becomes blanched and a large area of necrosis is established, with a correspondingly wide area of consecutive destruction in the periphery. Slender pedicles wither at once, and small sessile growths are eradicated in a few seconds.

By the open cystoscope we are also able to use in an admirable manner and with great effect platinum cautery knives, formerly so much used in throat work to burn and destroy new growths. We figure one here devised to take the place of the plain cautery knife (Fig. 2). This knife, which is sickle-shaped, is hooked around the pedicle, when the cautery current is turned on, heating the blade to a cherry red. By drawing the blade toward the cystoscope the pedicle is cooked or burned through and cut off gradually in part or in whole, as seems best.

1418 Eutaw Place.

PRECORDIAL PAINS OF CARDIOVASCULAR AND EXTRACARDIAC ORIGIN

CLINICAL VARIETIES, ETIOLOGY AND THERAPY *

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As early as 1772, Heberden described angina pectoris. Nothnagel[1] ascribed it to spasm of the coronaries, with consequent local ischemic and nutritive changes in the musculature, a theory which has profoundly affected the literature of the subject. Huchard[2] divided angina pectoris into true and false: that produced by effort he called true, that without effort, false angina. Mackenzie[3] ascribed the fundamental cause of cardiac pains, a term which he prefers to angina, to exhaustion of the cardiac musculature. Osler[4] described four types of angina pectoris: the reflex, neurasthenic, hysterical and the Nothnagel.

The frequent indiscriminate use of such terms as "false angina pectoris," "angina sine dolore," "angina vasomotoria," "angina vera," etc., with no clear sense of their etiology or pathology, has added to the difficulty of comprehending the fundamental causes of precordial pains. This symptomatic and pathologic confusion, and the fact that precordial pains of similar distribution and character may be caused both by intracardiac and extracardiac disease, have stimulated me to make a careful study of those patients in whom these pains, from whatever cause, were the only or the most prominent symptoms. In every case a very careful history, the importance of which is often overlooked, was obtained. Besides the routine, the clinical examination often included phenolsulphonephthalein and sodium chlorid excretion tests, and electrocardiographic and orthodiascopic tracings. The type, character, intensity and distribution of the pain, the time of its appearance, its correlation with exercise, with digestive or other disturbances, and the presence or absence of Head's zones were noted. After study of all data, an attempt was made to discover the probable fundamental etiologic lesion in the cardiovascular system (the myocardium, endocardium, kidneys or arteries), or in a distant organ (usually the gastrointestinal canal), and to gage the extent and severity of the pathologic damage to be therapeutically attacked. In this manner, besides obtaining a rational view of the entire subject, one could fairly definitely pick out and group patients in whom therapy would be of no avail, as well as those in whom it perhaps offered good chances for relief and even symptomatic cure.

Studies of the cardiovascular nerve supply have shown that there are rich ganglionic and nerve plexuses which surround the heart and the root of the aorta[5] and are formed by branches of the vagus and sympathetic. There are also ganglionic cells and nerve fibrils in the sino-auricular node,[6] the auriculoventricular bundle[7] and throughout the cardiac musculature.[8] So far as known, nerves of sensation are absent. Through the fundamental work of Sherrington,[9] Head[10] and later of Mackenzie,[11] it is known that a viscus, though not possessed of nerves of sensibility, may, when irritated, excite the corresponding visceral segment of the spinal cord; the latter then sends abnormal centrifugal impulses to the muscles, glands, etc., which in the skin give rise to morbid sensations usually felt and denoted as pains. In cardiac disease, the area ordinarily affected is the precordium; depending on the nerves involved, the intensity of the irritation, or possibly on the irradiation of the centripetal impulse to other spinal segments, the pain may spread to the entire chest, to both arms (especially the left), the fingers, neck, head, the interscapular region, the epigastrium, the abdomen and even the thighs. Besides the precordium and left shoulder, the epigastrium is the favorite site for referred pains, a fact which often causes erroneous diagnoses, and mistakenly directs the therapy to the stomach. In severe cases, the pain is usually sharp, lancinating and agonizing in character, and is combined with the oft described feeling of impending death. In milder cases, it may be dull or aching or there may be a feeling of oppression on the chest. Head's zones are sometimes present, usually over the precordium, more rarely in the epigastrium. Occasionally the pressure even of wearing apparel produces severe pain. The sensitiveness may be confined to the underlying intercostal muscles; deep pressure alone then elicits pain. It is sometimes possible in a general way to judge of the effect of therapy and the progress of the disease by the amount of pain produced on superficial or deep pressure.

In this connection it is important to discuss the frequency of epigastric pains and occasional epigastric Head's zones found in heart disease. These are usually ascribed to an enlarged liver or to congested gastric mucous membrane. However, the pains are

* Read before the Bronx County Medical Society, Feb. 16, 1916, and in part before the New York County Medical Society, Nov. 22, 1915.

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3. Mackenzie: Diseases of the Heart, 1913, p. 72.
4. Osler and McCrae: System of Medicine, iv, 449.
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10. Head: Sensebilitaetsstoerungen der Haut, etc., 1898.
11. Mackenzie: Symptoms and Their Interpretations.

present when the liver is not enlarged, and necropsy reports show that such patients often had no congestion or disease of the gastric mucosa. Besides, we possess no data which definitely correlate such presumed congestion with pain. From clinical manifestations, from disappearance of epigastric tenderness *pari passu* with decompensation, and from the intimate correlation of the nerve supply of stomach and heart, it seems probable that this type of pain is chiefly, if not entirely, the result of referred nerve excitation from cardiac disease.

Clinically and etiologically, precordial pain is divided into that due to *intracardiac* and *extracardiac* disease. This distinction is at times difficult or even impossible, but the attempt at differentiation is of fundamental importance. For the purpose of clinical classification, the term "myocardial insufficiency" is here used as equivalent to cardiac failure or incompetency.

COMMONER CAUSES OF PRECORDIAL PAIN

The subject will be discussed according to this outline:

A. Organic cardiovascular disease:
1. (*a*) Hypertensive cardiovascular disease with myocardial insufficiency. (*b*) Hypertension and myocardial insufficiency with labile vasomotor mechanism. (*c*) Uremic group.
2. Myocardial insufficiency without hypertension.
3. Acute rheumatic endocarditis and rheumatic endocarditic exacerbations.
4. Endomyocardial disease with general circulatory failure.
5. Embolic infarcts in the main coronaries and their branches.
6. Cardiac syphilis.
7. Premature arteriosclerosis and cardiosclerosis.
8. Senile arteriosclerosis and cardiosclerosis.
9. Sacculated aneurysm.
10. Tabagism (?)

B. Extracardiac disease:
1. Gastro-intestinal disease (organic and functional).
2. Esophageal disease (organic and functional).
3. Crises of catarrhal pulmonary affections.
4. Vasomotor disturbances at the menopause.
5. Neuralgias (?) of unknown origin.
6. New growths and disease of the mediastinum, spinal cord and bony structures of the chest; intercostal myalgia and neuralgia; pericarditis.

A. PRECORDIAL PAINS DUE TO ORGANIC CARDIOVASCULAR DISEASE

1. (*a*) *Hypertensive Cardiovascular Disease with Myocardial Insufficiency.*—The patients of this group are probably the most frequent sufferers from precordial pains. The cause of hypertension has been ascribed by some to an increase of epinephrin in the blood, though careful experiments by Janeway and Park[12] have not justified this assumption. Recent studies of blood metabolism have shown that chronic nephritis with hypertension[13] is often accompanied by an abnormal amount of nonprotein nitrogen in the blood, and by a diminution of blood alkalinity, and hence comparative acidosis,[14] facts which may in the future offer promising fields for therapeutic attack. The chief cardiac changes are ventricular hypertrophy, usually left but sometimes right, patchy, fibrous myocarditis, thickened aortal and mitral cusps, lime deposits on the first portion of the aorta, and atheroma and thickening of both coronaries. It must be remembered, however, that patients with similarly diseased hearts may have little or no precordial distress.

A brief case description will serve to fix the type: a systolic blood pressure of about 190 mm.; a rough systolic first and a sharply accentuated and bell-like second sound at the right base; evidence of marked left ventricular hypertrophy with a heaving apical impulse; urine with or without albumin or casts; very slight pretibial edema; dyspnea on exertion or coming suddenly at night; nycturia. The pains are usually dull, most marked in the precordium and radiate to the neck and arms. Almost frantic therapeutic efforts are made as a rule to reduce the high blood pressure, while the fact that the latter is often a *conservative, compensatory process* seems to be entirely ignored.

A mere enumeration of the long list of remedies is sufficient proof of their inadequacy. Vasodilators (nitroglycerin, amyl nitrite, sodium nitrite, erythrol tetranitrate), hot Nauheim and oxygen baths, violet ray, diathermy and electric light are the most popular. There are conflicting and contradictory reports regarding all. In some cases, I studied the effects of hypodermic injections of 1 per cent. solutions of nitroglycerin in doses of one-tenth grain, three times a day, with no effect on the symptoms and only occasional temporary reduction of the blood pressure.

The physical changes of the coronaries—their stiffness, narrowed lumen and occasional complete occlusion—probably account for the futility of the vasodilators to regulate the impoverished cardiac circulation and to relieve the resultant precordial symptoms. While theories such as cardiac spasm and anemia have had vogue as the causes of the pain, it seems more probable that the underlying factor is nutritional cardiac disturbance[15] either from inadequate coronary circulation or possibly from toxic products flowing in the general circulation. Acute overbearing pains call for morphin. With milder symptoms, nitroglycerin occasionally gives some relief, especially if combined with atropin sulphate. I have placed main reliance on digitalis, either digipuratum or the tincture given in 15-drop doses, three times a day. The drug should be given whether the auricles fibrillate or the pulse is rhythmic, and should *not* be stopped when pains and other symptoms improve, but should be continued in smaller doses for a long period. A curb should be put on the patient's physical activity. Mental excitement and stress should be avoided. The claim that digitalis in therapeutic doses raises blood pressure has been disproved by recent reports. I myself have never noticed such connection in numerous observations of this phase of digitalis therapy. The further theoretical objection that digitalis may perhaps cause or increase coronary spasm has not been verified by clinical evidence in cases in which the drug had been given for months. In only one case were precordial pains increased by digitalis, though even here there was improvement for several months.

For elimination of edema, most benefit is derived from theobromin sodium salicylate in 1 gm. doses given in water or in wafers three times daily on alternate days. An excellent aid is the Karrell diet—1,000 c.c. of milk daily—given in cupfuls and sipped slowly in three hour intervals. If the patient feels very hungry, apples, oranges and an occasional piece of toast may be added. The duration of the Karrell

12. Janeway and O'Connor: Jour. Exper. Med., 1912, xvi, 541.
13. Foster, N. B.: Uremia, Arch. Int. Med., March, 1915, p. 356.
14. Lewis and Barcroft: Quart. Jour. Med., 1914-1915, viii, 97.
15. Stein: Med. Rec., New York, 1915, lxxxviii, 131.

diet and theobromin therapy depend on the severity of the precordial and other symptoms. If edema be marked, stringent Karrell diet should be carried out for one week. In less severe cases, two or three milk days with theobromin, followed by similar periods of digitalis medication, are indicated. To continue the improvement, it is advisable to have an occasional Karrell day with theobromin for months afterward. The iodids have always been popular in the treatment of arteriosclerotic conditions. The secret of their efficacy may be the fact, now so well known through studies of the Wassermann reaction, that arterial disease is frequently of syphilitic origin. Where this origin is proved or suspected, the iodids are useful; otherwise I have found them of no benefit.

The following case illustrates the effect of therapy:

CASE 1.—Mrs. E., a buxom looking woman of 43, with no children, has complained for three years of dyspnea on walking, and of stabbing precordial pains radiating to the left shoulder. The Wassermann blood reaction is negative. The urine contains a trace of albumin and occasionally hyaline casts. There is slight pretibial edema. Physical examination reveals typical signs of aortitis. The orthodiascopic tracing shows an enlarged left ventricle and a dilated aortal arch. The precordial area is tender on deep pressure. The lowest systolic blood pressure has been 175 mm., the highest, 220 mm. There has never been any correlation between the symptoms and blood pressure. For the first few months she was put on digitalis, theobromin sodium salicylate and occasional Karrell milk days. Within two months the cardiac pains and pretibial edema disappeared. Later, when she became remiss in taking medication and diet, dyspnea and pain recurred. Under stricter surveillance, and the same medication combined with absolute rest at home on the Karrell days, twice weekly, she again slowly improved. This plan of treatment has been followed for three years. The blood pressure is still high, data revealed by physical and Roentgen examination are the same, but there is very marked clinical improvement: precordial pains and edema have entirely, and the dyspnea has almost entirely disappeared.

(*b*) *Hypertension and Myocardial Insufficiency with Labile Vasomotor Mechanism.*—In a smaller group of cases in which the highest systolic blood pressure was around 180 mm., with marked diurnal variations of as much as 30 mm., precordial pains following exercise were the main symptoms. Nephritis was apparently not the main or only cause of hypertension; emphysema and myocarditis were the chief pathologic entities. Experimental subcutaneous injections of nitroglycerin in doses of one-fiftieth grain three times a day had a marked temporary effect on the blood pressure and usually on the symptoms; in one instance, the injections were regularly accompanied by sudden relief of precordial pains and by attacks of giddiness. Such cases apparently represent examples of disturbed labile vasomotor mechanism, rather than the hypertension due to marked vascular disease. Nitroglycerin or other vasodilators given at the onset of pain is apt to be followed by great relief. Digitalis, though useful, is not as beneficial as in Group 1.

(*c*) *Uremic Group.*—Headache, nausea, vomiting, varying grades of anemia, attacks of paroxysmal dyspnea and of precordial distress, high systolic and diastolic pressure, nocturnal polyuria and changes in the retina are the cardinal symptoms. Kidney test meals as advocated by Schlayer and others usually show decreased salt, nitrogen and water elimination, and the blood, retained nonprotein nitrogen. The facies in typical instances is characteristically pallid or ashy gray.

The precordial pains are not relieved by nitroglycerin, digitalis or theobromin sodium salicylate. The pains are apparently caused by retained excremental products flowing in the general circulation; their precise nature is not known. Dietetic measures, especially a diet low in protein and rich in carbohydrate, are of most value. When the renal test shows no water retention, ingestion of large quantities of fluids is sometimes beneficial. For the relief of pain, occasional doses of morphin are necessary. On the theory of a tissue acidosis, I have tried the intravenous injection of 500 c.c. of a 5 per cent. bicarbonate solution in two cases. In one, there was marked relief of the precordial pains and other symptoms; in the other, the pain was relieved only for some hours. Glucose solutions given by the Murphy drip or even intravenously may be of value.

2. *Myocardial Insufficiency Without Hypertension.*—The main complaint of these patients, usually men of sedentary habits between the ages of 50 and 60, is slight precordial pain following exertion. The patients look very well preserved. The urine is normal or may contain a slight trace of albumin with a few casts. Physical examination reveals a slight impurity of the first sound at the apex and a soft systolic murmur at the base; there is no evidence of severe cardiovascular disease. The systolic blood pressure is around 160 mm., rarely much higher; there is no edema. The orthodiascopic tracing usually shows a slightly dilated aortal arch with the left ventricle lying broad and sessile on the diaphragm; whether this ventricular contour is due to flabbiness or to hypertrophy, it is impossible to state. It is interesting to note that these patients commonly give a history of having had painful gastric attacks in previous years, with symptoms pointing to gastric or duodenal ulcer. Excellent results have followed the use of digitalis, given at first in large and then in moderate doses and continued intermittently for weeks or months. Small doses of atropin were sometimes added. At the beginning, the patient's activity was somewhat restricted; later, moderate exercise—golf or walking—was advised. Acidulous food and drink were interdicted, and some light form of nourishment between meals was advised. The following is an illustrative case:

CASE 2.—J. C., man, aged 60, has for years been careful about his diet, particularly in the avoidance of acids, any indiscretion being followed by epigastric pains. For several months he has complained of precordial knifelike, paroxysmal pains on walking. Examination shows a well nourished man; there is no edema, the urine is normal, the average systolic blood pressure is 160 mm. The orthodiascopic examination reveals a somewhat enlarged left ventricle, the aortal outline somewhat broader than normal. There is an impure first sound at the apex and base. There is no dyspnea or decompensation. One digipuratum tablet was given at first three times daily and then continued in smaller doses for several months. Atropin sulphate, $\frac{1}{150}$ grain three times a day, was also prescribed. The patient is now doing his regular work, has taken ocean baths during the summer, and has had no recurrence of precordial pains.

3. *Acute Rheumatic Endocarditis and Rheumatic Endocarditic Exacerbations.*—These cases usually occur in young persons with definite rheumatic histories, with mild tachycardia, with no dyspnea, and with marked auscultatory evidence of valvular disease (usually mitral stenosis). Slight and irregular rise of temperature is the rule. The patients complain not only of the subjective feeling of palpitation but also of "sticking" pains which they localize in the heart

itself. There are usually no Head's zones. The cause of the rapid heart action and of the precordial pains, even in the absence of abnormal temperature and other rheumatic manifestations, seems due to the irritative effect of fresh exacerbations of endocarditis. The best medication is sodium salicylate given in full physiologic doses. My routine has been 1 gm. hourly until six doses have been given or tinnitus occurs; the dose is then decreased. Bromids in moderate amounts and ice bags to the precordium are also helpful. Comparative or absolute rest in bed may be necessary for some time.

4. *Endomyocardial Disease with General Circulatory Failure.*—The fundamental cause of the pains is apparently nutritional disturbance consequent on local circulatory failure in the heart itself. Precordial Head's zones or muscle tenderness are often present. The therapy for the relief of pain is the same as for the relief of the decompensation. This ordinarily means vigorous and long continued digitalis medication, and, for the relief of edema, theobromin and the dietetic regimen already outlined. If compensation is restored, cardiac pains and Head's zones disappear.

5. *Embolic Infarcts of the Main Coronaries and Their Branches.*—It is known that patients who have recovered from cardiac pains have occasionally shown myocardial scars and other changes resulting from old infarcts. Huchard,[16] in a summary of 145 necropsies of coronary disease with cardiac pains, found five due to embolism of the artery. Recently several cases with necropsy reports of embolic infarcts of the main coronaries have been described; the patients died within a few days or hours with symptoms of intense precordial distress. I have observed several cases with intermittent pains lasting days or weeks, in which the symptoms were possibly caused by infarcts or emboli of the smaller coronary branches. Curschman[17] in 1891 first described this condition; he reported three cases with necropsies. Two patients died some years after the onset of symptoms. Both showed localized myocarditis. In one there was aneurysmal dilatation confined to one sclerosed arteriole; in the other there was an obliterated coronary branch of the third order. The third patient died suddenly and was properly diagnosed *intra vitam;* an embolus was found in a coronary branch of the second order.

The history of the three cases that I have observed follows:

Case 3.—S. S. (Lebanon Hospital, Dr. R. Stein's service), woman, unmarried, aged 18, under observation three years, gave a typical rheumatic history. She has a marked double aortal lesion and a tremendously hypertrophied heart. The Wassermann reaction and frequent blood cultures were negative. The systolic blood pressure was 180 mm., the diastolic, 20 mm. For months she has had many attacks of moderate irregular fever. On several occasions, the attacks were initiated by sharp precordial pains followed by tachycardia or auricular fibrillation, by convulsive twitchings and tremors and by loss of consciousness lasting several days. Latterly these attacks have become more severe and were followed by well localized Head's zones.

Case 4.—X. M. (Lebanon Hospital, Dr. R. Stein's service), woman, unmarried, aged 20, gave a history of continued attacks of rheumatism and "heart trouble." During the last few months she had two attacks similar to but not quite so severe as that with which she entered the hospital. There were continued agonizing pain and exquisite tenderness even to the slightest touch over the precordium, and radiating pains to the left shoulder and forearm. The temperature was 104. A mitral regurgitant lesion was present. There was no edema. The breathing was frequent and shallow, apparently owing to the attempt to keep the chest at rest. After one week, the high temperature, sharp pain and rapid breathing disappeared; the patient felt comfortable, but precordial pain on firm pressure was still present when she left the hospital.

Case 5.—A. B., man, aged 40, with a double mitral lesion, gave a history of having felt well until three months prior to hospital admission. He then had an attack of mania (?) lasting three days. Subsequently he developed pneumonia and pleurisy, accompanied by chills and high fever and by attacks of paroxysmal auricular fibrillation. After several cultures, a nonhemolytic streptococcus was isolated from the blood. During several months of hospital observation, there was a constant sensitive area near the cardiac apex.

The characteristic of these three cases was not only the rise of temperature and evidences of active endocarditis, but also the progressive tendency of the disease and the presence of local tender precordial areas. Though such characteristics might have been due to the endocarditis alone, the distinct localized sensitized areas and the clinical course make it probable that in addition, acute focal myocarditis was also present. From clinical and physical signs and from the progressive and probably bacterial nature of the endocarditis, it seems fair to assume that such focal myocardial changes originated in embolic infarcts of the smaller coronary branches, accidents not necessarily incompatible with life. Necropsy findings will of course be necessary to clinch the diagnosis.

6. *Cardiac Syphilis.*—Cardiac syphilis is an extremely frequent cause of precordial pain. The latter is usually substernal, dull, boring and aching. It may, however, have the distribution and characteristics of the types already described. One may probably ascribe the frequency of these substernal pains to the almost invariable presence of syphilitic aortitis and periaortitis, to the fact that the root of the aorta is surrounded by rich ganglionic and nerve plexuses, and to the varying degrees of aortic dilatability and pressure. Head's zones are rare. Therapy consists in the treatment of the underlying disease. Though salvarsan was originally considered contraindicated in cardiac syphilis, abundant experience has since shown that given first in smaller, later in larger doses, salvarsan combined with the usual mixed treatment is of great and definite value. The best routine method of its administration is 0.2 gm. injected intravenously every week until 0.6 gm. is given; later, full doses may be given, the frequency depending on the cardiac condition. Salvarsan sometimes benefits and controls the pains immediately, apparently because it controls the syphilitic inflammatory exacerbations. Where the pathologic process in the aorta, the coronaries, or myocardium has reached an extreme degree of permanent destruction, salvarsan or any other treatment can be of little or no avail. However, since our present methods of examination are not sufficiently exact to diagnose such conditions, I believe the treatment outlined is indicated in every case of cardiac syphilis except when the patient is moribund. Cardiac failure, if present, should receive its appropriate treatment, that is, digitalis; and if necessary, theobromin sodium salicylate.

7. *Premature Arteriosclerosis.*—This comprises a rare group found in young adults. Persistent precordial distress is often present for months. Gastric symptoms similar to those of hyperacidity occasionally predominate the clinical picture. Physical examination may give no hint of the severity of the pathologic

16. Huchard, Quoted by Osler: Angina Pectoris and Allied States, p. 112.
17. Curschman: Kong. f. Inn. Med., 1891, x, 275.

process which is attacking the entire cardiovascular sytem, and which finally results in extreme degrees of intimal thickening and of lime deposits throughout the aorta, coronaries, arterioles and endocardium. Indeed, such hearts may be pathologically identical with those of persons dying of senility. For months there may be no decompensation in the ordinary sense. Urine may be normal, the blood pressure not high, the heart sounds may be somewhat distant, and the only indication of severe cardiac disease, besides the precordial pains, may be the presence of an arrhythmia, usually sinus arrhythmia or extrasystole. Other occasional symptoms are dyspnea and nocturnal attacks of precordial distress.

An illustrative case with necropsy report follows:

CASE 6.—C. F., man, aged 42, of athletic build, had been a heavy smoker. For four years he had suffered from gastric symptoms resembling hyperacidity; belching was particularly prominent. The gastric contents showed high values for free hydrochloric acid. He had frequent attacks of vasomotor disturbances: numbness, coldness and pallor of the hands. It was only late in the disease, when an attack of hemiplegia occurred, that attention was focused on the possibility of a generalized arteriosclerosis as the underlying disease. Though several Wassermann tests were negative, salvarsan and mixed treatment were given; these had no effect on the disease. At necropsy, marked thickening and calcareous deposits were found on all the cardiac valves; the coronaries and their branches showed extreme thickening; the myocardium presented many fibrous patches; the entire heart was somewhat enlarged. Spirochetes were not found in the aortal tissue.[18] The heart accurately resembled that of a very old person suffering for many years from severe generalized arteriosclerosis and cardiosclerosis.

The cause for such presenile sclerosis is still undetermined. It is possible that unknown infections and toxemias are etiologic factors. In one instance the disease originated within two years of an obscure pulmonary infection which had lasted several months. For the present, one may only state that from some unknown cause, the elastic tubing comprising the vascular system becomes prematurely defective and diseased. Except digitalis for temporary relief of dyspnea, treatment is of no avail.

8. *Senile Arteriosclerosis and Cardiosclerosis.*—The clinical picture is usually clear. All the palpable arteries are tortuous and thickened; the blood pressure usually high, and the heart somewhat enlarged; the systolic sounds at the apex and right base are impure; the second sound at the right base is sometimes accentuated. The precordial pains usually occur with exertion; though sometimes intense, they are more often of mild character. They seemingly depend on coronary sclerosis. Because of the advanced pathologic changes, the patients are rarely relieved by medication. Digitalis and theobromin sodium salicylate sometimes help, the amount of relief apparently depends on the degree of healthy tissue still remaining which may react to medication. The patients usually require prolonged periods of comparative rest.

9. *Sacculated Aneurysms.*—In a general way, the precordial pains depend on the size and position of the aneurysm. If large, the pains are those due to pressure on the surrounding structures, as the intercostal nerves, and the ribs. If small, and involving the first portion or arch of the aorta, the symptoms are similar in character and eitology to those described under cardiac syphillis (Group 6). The therapy is also the same as that there indicated. My experience with wiring and the electric current treatment according to the method of Lusk is limited to two cases. In one, after some weeks small, frequent external hemorrhages occurred, due to the perforation of the sac by the end of the wire; the patient finally died of anemia. In the other, the patient did not improve during his stay in the hospital; he died suddenly some weeks later; a necropsy was not permitted.

10. *Precordial Pains Due to Tabagism.*—It is questionable whether the "tobacco heart" should be classified under organic cardiovascular disease. Since it has been shown experimentally[19] that intravenous injections of nicotin into rabbits are occasionally followed by aortal atheroma, it has sometimes been assumed that smoking in man may produce similar changes in the vascular system and possibly in the myocardium. Direct proof, however, of such damage is still lacking. Besides, it has been shown that the rabbit's aorta fairly frequently presents spontaneous atheroma.[20] In a number of experiments by Gy in which rabbits were made to inhale smoke for a definite period of time, only a very few were found to have aortal changes; indeed, the proportion was not more than that usually found in the normal rabbit. In a study of a large series of hearts of smokers who died from other causes, Brooks[20] found no changes except slight degeneration of the papillary muscle, which he ascribed to the rapid heart action usual in smokers. Physiologic experiments have shown that nicotin, the main tobacco alkaloid, is a powerful neurotropic poison which affects particularly the sympathetic ganglia and the peripheral vasodilators. In view of these teachings and in the absence of proof of pathologic changes in the human heart due to tabagism, it is reasonable to assume that the frequent precordial pains and distress are caused by disturbance in the coronary circulation and by referred pains from irritation of the sympathetic ganglia.

The pains may be dull and aching or sharp and radiating; occasionally, the first premonition may be very sharp lancinating precordial pains radiating to the left shoulder and forearm, and accompanied by unconsciousness. For example, a healthy man of 40, a heavy smoker, while running for a train, was suddenly attacked by terrific precordial pains followed by unconsciousness lasting one hour. The cardiovascular examination revealed nothing abnormal. For weeks after the attack, any slight movement—even turning in bed—brought on pains. The patient was finally able to go about and resume his usual occupation. At present, six years after his first fainting spell, he feels quite well. He again smokes moderately.

The most frequent arrhythmia in smokers is extrasystole, usually auricular. Other arrhythmias, however, are occasionally encountered. Thus I have found two cases of sino-auricular block, a rare arrhythmia, one of auricular flutter, and one of auricular fibrillation due to smoking.

Most cases of tobacco pains and arrhythmias cease when smoking is stopped. Occasionally pains may occur intermittently for years. In such cases, nitroglycerin given regularly or at the time of the pain is of benefit. The bromids are of value in helping to control persisting arrhythmias.

18. I am indebted to Dr. M. Rothschild for the necropsy report.

19. Adler and Hensel: Jour. Med. Research, xv, N. S., x, 229. Gy: Paris theses, 1908, 1909.

20. Brooks: Med. Rec., New York, 1915, ci, 830. Lucien and Parisot, quoted by Vaquez: Arch. d. mal. du cœur, 1915, viii, 678.

B. PRECORDIAL PAIN OF EXTRACARDIAC ORIGIN

1. *Gastric Disturbances.*—Patients with gastric disturbances, particularly those in whom epigastric distress is marked, are apt to suffer from referred precordial pains. The clinical picture is that of hyperacidity, or of gastric or duodenal ulcer. Belching, loud and explosive in character, is usually a prominent symptom. The precordial pains are commonly sharp, neuralgic, fleeting and inconstant in character; their distribution is usually along the fourth and fifth intercostal spaces. Pain referred to the left shoulder is rare. Corresponding to the anterior distribution, there may be a similar area posteriorly. A precordial Head's zone is unusual, its presence and area of distribution inconstant. There may be correlation between the gastric symptoms and precordial pains, particularly when "hunger pains" and belching are marked. There is no decompensation or dyspnea. When the gastric symptoms are stormy, extrasystoles may be present. Treatment is naturally directed to the underlying disease. I have found most benefit from atropin given in full physiologic doses three times a day before meals, and from an antacid powder containing equal parts of sodium bicarbonate, magnesium oxid and oleosaccharated peppermint given in half teaspoonful doses after meals; appropriate diet given frequently and in small quantities is important. As already noted, gastric symptoms may accompany cardiac disease, so that correlation and study of all clinical data are necessary for a correct diagnosis. Unless the extrasystoles are subjectively annoying, they require no medication; otherwise they may be partly controlled by bromids.

2. *Precordial Pains from Esophageal Disease.*—Carcinoma, syphilis and diverticula are the usual organic causes of referred intercostal and precordial pains. In some cases, organic disease is absent; the symptoms are due to esophageal spasm, especially of the lower end of the esophagus, or to ulcerations affecting the surrounding structures. The usual symptoms are an uncomfortable, conscious gulping effort on swallowing solids or fluid, often accompanied by sharp pains referred to the lower sternum, and radiating to the precordium or even to the upper and lower extremities. Such symptoms are occasionally mistaken for those due to aortic aneurysm, and the difficulty in swallowing, to aneurysmal pressure on the esophagus.

An illustrative case with therapy follows:

CASE 7.—H. G. (Har Moriah Hospital), man, aged 48, tailor, stated that for seven years he had choking sensations in the larynx and severe substernal pains on attempting to swallow solid food. These pains occasionally radiated to the head, arms and legs. The symptoms became progressively worse. The neurologic and physical examination revealed nothing abnormal; the fluoroscope showed a normal aorta. Wassermann reactions of the blood and spinal fluid were negative; the stools, urine and gastric contents were normal. Roentgenograms showed a pouchlike dilatation of the middle part of the esophagus. An esophageal bougie was arrested opposite the middle of the sternum. For purposes of dilatation, bougies of increasing caliber were passed. At first semisolid, later solid food was given. Atropin sulphate, 1/100 grain three times a day, was administered. The pains gradually subsided and finally disappeared. The patient was taught to pass a stomach tube on himself; this he did for some weeks after he left the hospital. An examination months later showed that esophageal symptoms and pains had disappeared, and that the patient had increased considerably in weight.

3. *Precordial Pains Accompanying Crises of Acute Catarrhal Pulmonary Affections.*—Such attacks of precordial pain are common with the crises of influenzal bronchitis, especially when sharp critical sweats are present. Head's zones in the left nipple region, and arrhythmias (especially sinus arrhythmia and extrasystoles) are frequent, a combination superficially suggestive of toxic myocarditis. The symptoms, however, last only a few days; except for pain and arrhythmia, the heart is normal; there is no decompensation or edema. Examinations made months or years later have shown that the cardiovascular system had not been damaged.

The following is an example:

CASE 8.—I. F., physician, aged 43, never had any cardiac complaint. Two weeks ago he contracted pharyngeal and bronchial grip. There were critical defervescence, sharp sweats, an irregular pulse, and sharp stinging pains in the left breast. The patient feared that he had an infectious myocarditis and carefully avoided every unnecessary motion. Examination revealed a small Head's zone confined to the left nipple region, and an arrhythmia which polygraphic and electrocardiographic tracings showed to be due to auricular extrasystoles. Otherwise the cardiovascular symptom was normal. The patient was reassured, told to get out of bed, and given atropin sulphate, 1/150 grain three times a day before meals, and a dose of bromids at night. He was sent to the country and advised to exercise as much as he chose. He was soon able to walk several miles daily. Within one week the extrasystoles and pain disappeared, and have not since returned.

4. *Precordial Pains Accompanying Vasomotor Disturbances at the Menopause.*—Women at the climacteric with marked vasomotor disturbances (flushes, heat flashes, cold extremities, etc.) frequently have persistent precordial pains without evidence of organic disease of the heart or neighboring organs. Such pains are possibly evidence of vasomotor circulatory disturbances in the heart itself. The patients rarely react well to medication. Bromids and small doses of atropin and nitroglycerin are of most value. Ovarian tablets are occasionally helpful. Hurry and excitement should be avoided.

5. *Precordial "Neuralgias" of Unknown Origin.*—Under this heading is grouped a small number of persons, usually young and apparently healthy and vigorous, without vicious habits, with no rheumatic manifestations, in whom continued and frequent examinations of the heart and other organs reveal nothing abnormal. Occasionally, sudden explosive belching or singultus is present. In one instance, smoking some years previously might have been an etiologic factor. The pains are apparently quite haphazard in their onset and duration, and defy medication and therapy.

In this group may also be placed those female patients who complain of indefinite chest pains and distress, and who, from other manifestations, apparently suffer from a functional disorder of the internal secretory organ or organs. They are occasionally relieved by medication aimed at substituting the presumed secretory deficiency.

6. *Pott's Disease, Mediastinal and Spinal Tumors, Tabes, Intercostal Neuralgia and Myalgia, Pleurisy and Pericarditis.*—These are among other extracardial conditions and diseases which may produce precordial pain. Their discussion is not within the scope of this paper.

The etiology and types of precordial pains here described are admittedly incomplete. Only those most frequent and clinically important have been discussed,

and their correlation with intracardiac or extracardiac disease described. It is recognized, also, that the various groups sometimes overlap. In organic cardiovascular disease, I have endeavored to estimate roughly the extent and nature of the pathologic damage, and to gage, if possible, the amount of remaining healthy tissue which may be favorably influenced by therapy. Thus studied, one may obtain a basis for rational therapy, with its prospects and limitations. The postmortem specimens of advanced coronary, endocardial and myocardial disease, with the history of precordial distress during life, should not blind us to the fact that some of these patients have lived many years despite their diseased organs, and that other patients with equally damaged hearts have not suffered from precordial distress during life.

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CERTAIN ASPECTS OF INFANTILE PARALYSIS

WITH A DESCRIPTION OF A METHOD OF MUSCLE TESTING *

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BOSTON

This paper contains the account of a combined physiologic and orthopedic study of certain phenomena of infantile paralysis. The whole matter owes its inception and present status to the State Board of Health of Vermont, which by the generosity of an anonymous donor was enabled to finance a scheme for the study and treatment of the disease quite unprecedented in its scope and thoroughness. The entire work has been conducted under the direction of the board, which has borne the whole expense of the studies in Boston and Vermont.

The inquiry was started in the late autumn of 1914, the Rockefeller Institute through Dr. Simon Flexner taking charge of the epidemiologic end of the inquiry and opening a laboratory in Burlington, while to one of us (R. W. L.) was assigned the therapeutic side of the problem. Later, for reasons to be stated, the physiologic department of Harvard University was asked to assist in the study, and a system of muscle measurement was devised by one of us (E. G. M.).

This system of measurement was put in use in the early summer of 1915 in the orthopedic department of the Children's Hospital, and later used by us in a trip to Vermont made in July, 1915, for the purposes of treatment. So much new light was thrown by its use on certain phenomena of the disease that two subsequent trips to Vermont were made by one of us (E. G. M.) in August and September to make observations on patients under treatment.

The material available for study is as follows: At the first series of Vermont clinics in January and February, 1915, 235 patients applied for treatment, and at the second series in July, 145. From these figures should be deducted seventy-six seen at both clinics, making 304 patients seen and prescribed for in Vermont. One hundred and one patients from the orthopedic clinic of the Children's Hospital, Boston, and from the private practice of one of us have been added to the Vermont material for purposes of study. The results of the analysis of cases on the first trip have been published,[1] and a short preliminary report on the method of muscle testing has been made.[2]

In the present paper we first discuss the reasons for the use of a muscle test, second, describe the muscle test, and third, present conclusions obtained by the use of the muscle test in the cases mentioned.

The general thesis of this paper is as follows: The observations in about 300 cases in Vermont have shown that in all cases, old and recent, infantile paralysis has been found in most muscular groups not to be a paralysis in the sense of a complete loss of power, but a weakening of these muscles. Now weakened muscles can, as a rule, be made stronger by judicious exercise, just as can normal muscles. Our therapeutic problem, therefore, requires the closest possible study of such muscles and of the therapeutic means by which their individual power may be increased. It is a very important matter to the parents of a child with a gastrocnemius muscle reduced to only 20 per cent. of its normal power whether this muscle ultimately returns to 40 per cent. or 90 per cent. of its normal strength.

WHY A MUSCLE TEST WAS DESIRABLE

The original study of the Vermont cases, in which the hand was used to estimate voluntary contractile power in the individual muscles, showed in 150 cases of a few months' duration that partial paralysis was more common than total in the proportion of 2.5:1 (1,036 partial to 416 total paralyses). In the eighty-six cases of the 150 available in July for closer study by means of the muscle test, there were found by this method 111 totally paralyzed and 958 partially paralyzed muscle groups, a proportion of about 9:1. It is evident, therefore, that the bulk of any study will be in cases of "partial paralysis."

At the outset of the Vermont work, muscles were classed as normal, partly paralyzed or totally paralyzed. The first and the last class were clear enough, but in the "partly paralyzed" division we had to group muscles which were just short of normal and muscles which showed only a flicker of movement on attempted contraction. Between these two widely separated conditions existed every degree of disability, yet one must put them all in one class. Exact study of the phenomena under these conditions was impossible.

Again, in the matter of treatment some scale of measuring improvement or the reverse was urgently needed. "Impressions" that electricity of one kind or another, or rest or exercise were beneficial have filled literature; unsupported assertions, marvelous cures, fantastic treatments have too often been advanced on the slenderest of grounds. With the realization that partial paralysis was the usual form of affection, it became imperative to have some scale by which to work out what should be a precise and improved treatment. The muscle test offers a practical quantitative scale by which the effects of modifications of treatment may be studied week by week and month by month.

* A Report to the State Board of Health of Vermont.

1. Lovett, R. W.: The Treatment of Infantile Paralysis: Preliminary Report, Based on a Study of the Vermont Epidemic of 1914, THE JOURNAL A. M. A., June 26, 1915, p. 2118.
2. Martin, E. G., and Lovett, R. W.: A Method of Testing Muscular Strength in Infantile Paralysis, THE JOURNAL A. M. A., Oct. 30, 1915, p. 1512.

THE MUSCLE TEST

The muscle test devised consists of estimating the strength of the various muscular groups by means of spring balances. Standard positions for each group are chosen, so that the same position is assumed on consecutive observations. It is easier to induce children to pull against resistance, from a fixed position, than to get them to initiate a movement, so that the strength test is based on the patient's power to hold a position against the pull of a spring balance, and the resistance registered on the balance in the standard position represents the muscular strength. The pull is exerted from a sling attached to the member to be tested, and the line of pull is at right angles to the long axis of the limb. The balance is hooked into the sling, and the other end held by an assistant. Two tests are taken, and the larger reading recorded. The results have been surprisingly accurate, and consecutive readings on the same patients have been used to check up this accuracy.

From the unaffected limbs of patients, and from normal children and children from the scoliosis clinic, there has been constructed a table of normals for both arm and leg for children from 4 to 18, with an additional series for adults. This table has shown that the general relation of the strength of the various muscles in children is surprisingly constant, and that a marked deficiency of a muscular group in a child elsewhere paralyzed is very suggestive of paralysis.

The muscle groups tested are twenty-two in number for each side: in the leg, plantar and dorsal flexion and inversion and eversion of the foot, flexion and extension of the knee, adduction, abduction, flexion and extension of the hip (ten in the lower extremity); in the arm, the pectoral, latissimus dorsi, anterior and posterior deltoid, flexion and extension of the elbow,

TABLE 1.—DETAILED TECHNIC OF MUSCLE TESTS

Muscle Group	Subject	Sling	Assistant	Operator
1. Plantar Flexion..	Supine on table; legs straight; foot in plantar flexion; pl in padded board 6 by 2½ inches under sole	About ball of foot; upper edge at proximal margin of toes	At subject's head; reaches along body to balance, hooked to sling	Holds ankle lightly with finger tips; notes yielding of joint by touch; reads scale
2. Dorsal Flexion....	Supine; legs straight, foot in extreme dorsiflexion	About dorsum of foot; position as in 1	At subject's feet; reads scale	Holds ankle firmly; heel off table; notes and calls instant of yielding
3. Inversion	As in 2; legs well apart; foot in extreme inversion	About ball of great toe....	At subject's side; reads scale	As in 2
4. Eversion	As in 3; foot in extreme eversion	About outer margin; upper edge at middle of least toe	At opposite side from 3; reads scale	As in 2
5. Adduction	As in 2; both legs well over at side of table; toes kept vertical	In hollow above external malleolus†	At subject's side.....	At subject's feet; holds leg lightly; reads scale as leg comes in line with axis of body
6. Abduction	As in 2; legs apart.....	In hollow above internal malleolus	At opposite side from 5.....	As in 5
7. Hip Extension....	On side; axis of pelvis held vertical by brace or additional assistant; uppermost leg in extreme extension; knee straight	In hollow back of knee.....	In front of subject.....	As in 5
8. Hip Flexion.....	As in 7; leg in extreme flexion at hip; knee flexed to right angle	Over front of leg just above knee	At the subject's feet: Braces subject by holding lowermost leg firmly against table	Faces subject; supports leg; reads scale when leg is at right angle to axis of body
9. Knee Extension...	Prone; leg flexed at knee.....	In hollow above malleoli...	At subject's head.....	At subject's right side; right hand holds upper leg firmly on table; left hand holds sling in place and extends lower leg 12-15 degrees beyond right angle; reads scale as in 8
10. Knee Flexion.....	Prone;* leg flexed well beyond right angle	As in 9.....	At subject's feet.....	As in 9, except that leg is flexed beyond right angle
11. Pectoral	If legs normal, standing; if weak, sitting on rigid stool; arm across front of body, elbow straight; hand in normal pronation	Immediately above elbow joint	At subject's side; pulls horizontally outward and backward: Angle with sagittal plane, 45°	Behind subject; supports body with arms; reads scale as arm comes in line with axis of body
12. Latissimus Dorsi..	As in 11; arm across back.....	As in 11.....	As in 11; except that pull is outward and forward	In front of subject, otherwise as in 11
13. Anterior Deltoid..	As in 11; arm thrust outward and forward	As in 11.....	Behind subject; pull inward, backward and downward	As in 12
14. Posterior Deltoid.	As in 11; arm thrust outward and backward	As in 11.....	In front of subject; pull inward, forward and downward	As in 11
15. Forearm Extension	Supine on table; arm at side close to body; elbow flexed nearly to right angle	At wrist	At subject's head.....	At side; holds upper arm firmly on table with one hand; sling and forearm in position with other; reads scale when forearm is at right angle with upper arm
16. Forearm Flexion.	As in 15; elbow in extreme flexion	At wrist	At subject's feet.....	As in 15
17. Wrist Extension..	Sits on edge of table; elbow flexed at right angle; wrist in extreme extension	Gauze sling over knuckles, thumb not included	In front of subject; reads scale at call of operator	Holds subject's wrist firmly; notes yielding of joint
18. Wrist Flexion....	As in 17; wrist in extreme flexion	Gauze sling about palm close to base of fingers	As in 17.....	As in 17
19. Finger Extension.	As in 17; palm supported firmly by operator or by upright brace; fingers in extreme extension	Gauze sling about distal articulations of first phalanges	As in 17.....	As in 17
20. Finger Flexion....	As in 19; fingers flexed to right angle; forearm firmly supported	As in 19.....	As in 17.....	As in 17; notes yielding of joint by light pressure of fingers against back of hand
21. Thumb Adduction	As in 17; palm down; fingers extended; thumb in extreme adduction, slightly flexed	At distal articulation of first phalanx	As in 17.....	Holds subject's wrist with one hand, fingers with the other; calls when thumb appears from beneath hand
22. Thumb Abduction	As in 17; thumb in moderate extension	As in 21; passed beneath hand to balance	As in 17.....	As in 21; calls when thumb is drawn to side of hand

* Adults sometimes have a cramp in knee flexors. This can be avoided by taking Test 10 with subject lying on side.
† If other thigh muscles are severely affected, Tests 5 and 6 may be checked by tests with sling just above knee. Strength ratio should be 2:1.

flexion and extension of the wrist, flexion and extension of the fingers, and adduction and abduction of the thumb (twelve in the upper extremity). We have not been able to devise reliable methods for testing the shoulder rotators or back or abdominal muscles.

The technic is given in Table 1. At first, attempts were made to use clamps, etc., to hold the limbs, but with these it was possible to obtain leverage and thus to vitiate the observations. The flexibility afforded by holding the balance in the hand has been of great advantage.

In the presence of fixed contractions, pure muscular movements cannot be elicited reliably, and the readings in such regions must be accepted with care.

In case extremely weak muscles are to be tested, gauze loops about 3 feet long are used for suspending the limb. In all such cases the positions most favorable for the function of the individual muscles are taken, in many instances differing from the standard positions given in Table 1. Tests on extremely weak muscles are, however, not so reliable as those on stronger muscles.

CONCLUSIONS DRAWN FROM THE USE OF THE MUSCLE TEST

The following observations rest on studies on 177 patients, on whom 13,000 observations in 400 series were made, forty-four different muscular groups, twenty-two on each side of the body, being available for study.

Distribution of Paralysis.—The muscular affection is much more widespread than ordinarily supposed, thus corresponding closely to the pathology as observed of late years. It is rare to find one muscular group affected without manifestations elsewhere; for example, we often class a case as gastrocnemius paralysis, but rarely in our observations (two in 177) has this been found to exist alone, other muscles nearly always being weakened. When one leg is involved it is common to find some weakening of some of the muscles of the other leg. When both legs are affected, some arm muscles are often involved. This fact is well to bear in mind in formulating treatment.

In thirty-two cases of the series, taken consecutively from the files for this analysis, the following data were observed:

Ten cases by manual examination had been classed as having only one leg affected; by the muscle test nine of these showed weakness of muscular groups in the other leg. Of the other twenty-two cases, four had obvious paralysis of all four members. In the remaining eighteen cases of paralysis of more than one limb, no new paralysis was revealed by the muscle test in eight, while in ten, unsuspected involvement in another limb was found.

Distribution of Total and Partial Paralysis.—Table 2 shows that there is a predilection on the part of total paralysis for the lower leg. In the Boston series the cases were of longer duration, of a severer type, many requiring operation, but the ratio is not widely different in the two classes. This confirms the observations made in the 150 cases seen on the first trip, where the peroneal and anterior tibial muscles showed of all muscles the largest incidence of total paralysis.

Partial paralysis may be classed as severe (one third or less of normal power) or moderate (one third or more of normal power). Two classes of cases are available for this analysis, one the Vermont group, mostly affected in 1914, and the other the Boston group, mostly affected before 1912, being largely hospital cases awaiting operation.

The observations given in Table 3 extend the findings of the first study of the Vermont cases, that paralysis is severest in the foot and diminishes toward the hip, and is severest in the shoulder and diminishes toward the hand. In that paper, however, one dealt with the relation of total to partial; here another class is available, and the ratio of severe to moderate bears out the same fact in two widely different classes of cases.

Paralyzed Muscles Should not Lose Power.—In the period covered by our observations (two months in the Vermont cases and longer in some of the Boston cases), it has appeared that the strength of affected muscles tends on the whole to remain stationary or to improve, and that a loss of strength is not to be expected, and when it occurs should be investigated.

TABLE 2.—MUSCULAR GROUPS SHOWING TOTAL PARALYSIS

	Vermont	Boston
Below knee	74 (82 per cent.)	87 (82 per cent.)
Elsewhere	16	19
Total	90	106

This statement rests on the study of forty-six cases of from one to five years' duration (three from 1911, one from 1913, forty-two from 1914) tested at an interval of two months or more; 549 affected muscular groups were studied, 356 being under treatment by muscle training, and 193 not under treatment. Seven per cent. of the muscles under treatment showed a loss of power in this interval (twenty-five muscle groups in thirteen cases). In nearly all instances this loss was to be accounted for by conditions known at the time of observation, such as fatigue, ill health, overuse, etc. In the muscles not under treatment there was some loss of power in 24 per cent. (forty-seven muscle groups in twenty-one cases). In a large proportion of these, the conditions were such as to explain this observation.

TABLE 3.—DISTRIBUTION OF MUSCULAR GROUPS SHOWING PARTIAL PARALYSIS

	Vermont		Boston	
	Severe	Moderate	Severe	Moderate
Lower extremity:				
Leg	115	109	203	161
Thigh	89	61	101	76
Hip	108	177	117	168
Upper extremity:				
Shoulder and arm	91	87	58	80
Forearm and hand	58	89	18	66

Overfatigue and its Detrimental Effects.—The data as to the effect of muscular fatigue from overuse, overexercise therapeutically given and overmassage appeared to be important, and certain clinical observations were formulated after the first series of clinics.[1] A quotation follows:

> It has been repeatedly observed in my private practice that power might begin to return in a very faint degree to a muscle while under muscle training, and that with care this power would steadily increase, but if that muscle were exercised even very gently every day, that power would diminish or disappear, so that we exercise such muscles only once in three days at the outset, increasing the work most carefully. . . .
>
> Illustrative cases seem to me to show that much smaller degrees of overuse may be deleterious than is generally supposed. Probably any of us would agree that gross and persistent overuse of partly paralyzed muscles would be undesirable; but it seems to me reasonable that in the early stage of returning power, we should be exceedingly careful

in the use of muscles in walking and in the use of heavy and prolonged massage, much more careful than we are at present, if I may judge the practice of others by my own previous methods.

This matter was confirmed and made more definite by the muscle test. Illustrative cases follow:

Case 1.—A boy of 5, with the onset in 1914, was having at the time of the first test one and one-half hours of massage and one hour of muscle training daily. This was changed, and he was given one hour only of gentle muscular exercise, and the second observation showed a substantial gain of strength in all affected muscles, an illustration of the effect of too much treatment.

Case 2.—A boy with the onset in 1914, in July showed partial paralysis of the left arm. He then began to milk ten cows daily, and in a month had lost strength in all of his left arm muscles except the biceps and triceps, which had gained slightly. The loss was greatest in the muscles of the forearm, which were of course those most exercised in milking, an illustration of the effect of overuse of the muscles as a cause of loss of power in the overused muscles.

In this matter of the study of the detrimental effect of fatigue and the beneficial effect of proper muscular exercise lies apparently one of the most important uses of the method. We need to know the dose of the remedy which we are using.

Variations in General Muscular Strength.—Children are subject to variations in muscular strength at different times, the whole scale of readings for both normal and affected muscles being sometimes decidedly higher or lower than their usual values; but the raising or lowering of the whole scale while the relative strength of the muscles remains practically the same is apparently dependent on general conditions and does not affect the question of paralysis. During the great heat of September, 1915, a decided falling off in muscular strength was noted in several cases whose normal scale was known, and observations were abandoned until it became cooler.

Abortive Paralysis.—That cases of so-called abortive paralysis are often really cases in which paralysis exists, but is too slight to be detected by the ordinary examination, seems likely. Two observations bear on this point:

In one family in Burlington, three children were similarly affected at about the same time. One showed a frank paralysis, and the other two did not, and were classed as abortive cases and showed nothing abnormal on the regular examination. The muscle test revealed in one of these a decided weakness of the gluteal muscles of one leg, showing that the case was classed as abortive only because the regular examination which was made was not delicate enough. In the other case, no departure was shown from the normal scale for a child of that age. This must therefore pass as a purely abortive case.

The method has probably a diagnostic value in detecting in cases which have been regarded as possibly abortive a decided local muscular weakness too slight to be detected by the ordinary manual examination.

Effects of Treatment.—Muscle training as contrasted with simple massage showed that after a period of a few weeks, that is, when the treatments have been given for a sufficient time to demonstrate their effect, muscle training is superior to massage. This became evident after the third series of tests, and not after the second series, but a final conclusion cannot be presented on such short observation.

Muscle Training.—As to the effects of treatment, in the time available for observation the following facts appeared: The chance of improvement in affected but not totally paralyzed muscles under expert treatment by muscle training was about 6:1, under supervised home exercises 3.5:1, under home exercises without supervision 2.8:1, while untreated affected muscles in these patients showed an improvement ratio of 1.9:1. These patients were nearly all affected in 1914, and represent cases at the end of the first year. They are all from the Vermont Group and were treated there.

Spontaneous Improvement.—The ratio of 1.9:1 chance of improvement in untreated muscle groups is apparently partly spontaneous improvement, but this question is so very important in the matter of prognosis that it demands further analysis, because in most of these patients other muscles were being treated, and the figures to be quoted indicate that untreated muscles are favorably affected by the systematic exercise of other muscles. There were available in the Vermont series only seven patients on whom repeated muscle tests were made who were not receiving treatment because the prescription had not been followed by the parents.

In these patients, in thirty-seven affected muscle groups there was improvement in nineteen and none in eighteen, a ratio of 1:1 of purely spontaneous improvement. These were all from the 1914 epidemic. The conclusion from this small group is that the treatment of one set of muscles by muscle training has a stimulating effect on muscles not under treatment.

These facts may well give us courage to undertake a more vigorous treatment in late cases. Knowing that at the end of one year spontaneous improvement is by no means at an end, perhaps we may find that it extends much later than this when our observations have extended. These observations on the recuperative power in the affected structures and how long it lasts appear to be of much practical importance.

Recovery of Power in Total Paralysis.—The possibility of improvement in muscles totally paralyzed at the end of one year is also of much therapeutic importance. The following facts have been observed: Of forty-four totally paralyzed muscles at the end of one year, 48 per cent. (twenty-one) developed demonstrable power after two months of treatment. Of forty-four totally paralyzed muscles not receiving treatment, 27 per cent. (twelve) developed demonstrable power at the end of two months, which shows again that spontaneous improvement has by no means stopped at the end of a year.

An observation shows how great this improvement may be and how late it may be obtained. A patient affected in 1911 was under treatment for two months, beginning last July, by supervised home exercises. His unaffected muscles in this time gained 70 per cent., while his affected muscles gained this and 400 per cent. more (470 per cent.). These muscles were severely affected. This great gain at the end of four years by simple home exercises and the avoidance of fatigue is, it seems, most unexpected and encouraging.

TYPES OF THERAPEUTIC EXERCISE

The usefulness of the method in throwing light on the value of different treatments is illustrated by the following observation:

It was asserted by an English writer that the most helpful exercise in infantile paralysis was to pull

against the fully contracted muscle rather than to make resistance against the contracting muscle, technically that an eccentric exercise was physiologically more sound than a so-called concentric one. One observation showed that this advocated type of exercise was apparently harmful. A young girl with a moderately affected quadriceps muscle was given exercise of this newer type for two weeks, and lost 12.5 per cent. of power; the regular exercises were then given for four weeks with a development of 50 per cent. of power. It was not felt that it was proper to repeat this observation on other patients, so that it must remain only as an unproved suggestion.

OBSERVATIONS IN PRIVATE PRACTICE

The private patients under observation from the practice of one of us, some of whom have been under observation since June, 1914, offer good material for study, as being under the most continuous observation. Instances of the practical applicability of the method in these cases are as follows:

CASE 3.—A girl of 10 had been affected since 1906, and when she came for treatment in 1911 she showed a mild equinus deformity of the right foot. After various attempts to stretch this it was operated on in January, 1915, by tenotomy, but the child, although improved, still walked poorly. Eight months later, in October, 1915, a muscle test showed decided weakness of the thigh flexors and extensors and an increasing weakness in the dorsal flexors of the right foot, which were getting weaker as the plantar flexors increased in strength. In October, 1915, exercises addressed to these muscles were prescribed, although the child had previously been doing exercises. In six weeks the mother reported that the progress since October had been far greater than at any time in the affection, and that the child could now "skip" on one foot and used herself very differently than she had ever done before, and the lameness had become very much less. An arm weakness had also been identified by the muscle test, for which exercises had been given with much benefit, an instance in which greater precision of treatment had demonstrated its greater usefulness.

CASE 4.—A man of 22 was referred in the fourth week after his onset. He had involvement of the right leg and arm, walked with a limp and could not raise his right arm. The left arm appeared to be slightly weakened. Examination by the usual method showed extensive weakness in the left arm, very little power in the right deltoid, and a general involvement of the right leg. His right arm was put in a sling, he was cautioned against much walking and the use of the arm, and weekly muscle tests were made, showing a general slow gain, but no therapeutic exercises were allowed at first. At a test, October 4, an increase of 50 per cent. in the power of the right gastrocnemius muscle was observed, and on questioning it was found that he had been daily rising on his toes as a trial. This seemed to indicate that he was ready for therapeutic exercise, on which he then began with success. The test, October 26, showed a loss of 25 per cent. of power in the wrist and finger flexors of the right hand, and it was found on questioning that he had been writing too much. This was stopped, and on the following week a return of the former power was found in these muscles, an instance of the information afforded by the test in directing routine and defining treatment.

CASE 5.—A girl aged 8½, affected in 1913 with extensive paralysis of both legs, was walking with splints and crutches, and her muscle power was on the increase under daily muscle training. Nov. 18, 1915, there was a general loss of power in the legs. On questioning it was found that relatives had been visiting the family, and the child had been doing much more than usual, an instance of the deleterious effect of local and general fatigue.

These private patients are all tested at regular intervals, varying upward from one week, and it has been found that on the whole all are gaining in power and that the failure to gain in a special group or in general can be explained. Muscles gain and lose rapidly, a week often showing marked changes. As a rule, the muscles receiving the most attention gain fastest, and treatment is constantly to be modified in response to changes in the muscle readings. The more precise treatment is more satisfactory to those in charge of the case, and we believe of greater benefit to the patient.

CONCLUSION

No one realizes better than ourselves how very incomplete this report is, but we are not justified in making it otherwise. There has not been a sufficient interval since our first observations to warrant us in making sweeping assertions as to the value of different treatments. We have under way, however, a series of observations on the effect of the different therapeutic measures and on the effect of braces, and plaster of Paris in operative cases. These will in due time be presented, and meantime we only desire to call attention to a method of observation which we believe to be useful and to certain general conclusions which we believe to be sound.

ACTION OF PITUITARY EXTRACT

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In a recent article Shamoff[1] called attention to a generally unrecognized property of pituitary extracts. In various instances in which such extracts were applied to isolated segments of rabbit intestine, not the usual stimulation but a marked depression was noted. This was obtained from various preparations, but most constantly from a saline extract of gland substance desiccated in vacuo at room temperature. This result is in contradiction to the commonly held view that such extracts directly stimulate smooth muscle.

Recently as a class exercise in our laboratory, the effect of intravenous injections of extracts of pituitary gland on the intact small intestine was investigated. Dogs were anesthetized and the dorsal portion of the spinal cord destroyed. A segment of the intestine was immobilized (Trendelenburg technic), and a recording lever attached. In five cases out of six, a clean cut depression of tonus and peristalsis occurred. Commercial "pituitrin" was the extract used. In three instances saline extracts of old preparations of desiccated gland gave similar results.

In view of the frequent use of such extracts clinically as peristaltic stimulants, this depressant effect should be recognized. This inconstancy of behavior should be further investigated. The possibility is suggested that it may be correlated with some recent change in the process of preparing the extracts for market. In any case, each lot of the product should be tested by the manufacturer and its effect on peristalsis stated on the label of the container.

It is possible that the failure in some instances clinically to obtain the supposed diuretic effect from pituitary extract may have a similar explanation.

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1. Shamoff, V. N.: Concerning the Action of Various Pituitary Extracts on the Isolated Intestinal Loop, Am. Jour. Physiol., 1916, xxxix, 268.

AN UNUSUAL CASE OF MESENTERIC TRANSPLANTATION

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At operation a case will occasionally be encountered in which the ordinary methods of covering peritoneal defects prove unsuitable. Therefore a further practical experience should prove of interest to the profession. Even in the largest surgical clinic with which I am acquainted, the Eppendorfer Krankenhaus in Hamburg, Germany, during my three years' work there as assistant, no case presented itself in which the method to be described seemed indicated, nor have I seen one anywhere else.

In 1876 Tietze,[1] advised the use of omental grafts to reinforce end to end entero-anastomoses, to close small wounds on the stomach surface, and to cover necrotic patches which he had experimentally produced on the surface of the intestines.

Senn[2] in 1888 recorded his experiments showing that grafts of omentum applied to the bowel may retain their vitality, becoming adherent within eighteen hours, and are nourished with newly formed blood vessels within forty-eight hours.

Ammann,[3] I believe, also recommends the use of omental grafts for the same purpose. From experimental evidence he is convinced that almost any part of the peritoneum may be used in covering peritoneal defects. He advises the use of the sigmoid to close the open space between Douglas' sac and the bladder after hysterectomy whenever a simpler method of closure is not feasible.

A study of the literature shows that there are many suitable cases for the use of omental grafts and that although substantial differences of opinion prevail among authors concerning the danger of the formation of adhesions between the grafted organ and the adjacent peritoneal surface, the graft is generally considered a valuable means of protecting the abdominal cavity from intestinal leakage in cases in which an ideal Lembert suture cannot be made. Among the many articles on this general subject I have found no mention of the method to be described, and which seemed to me a valuable aid in an unusual and trying case.

REPORT OF CASE

History.—The patient was a single woman aged 35, whose chief complaint was a severe, chronic constipation. All symptoms seemed to be dependent on this trouble. She had had tenderness in the right iliac fossa for several years and several slight attacks of appendicitis. Through the very thick abdominal wall nothing definite could be palpated. The constipation was often accompanied by pain and tympanites. There was general lassitude with rapid and feeble heart action. Heart sounds were not clear, but there were no definite murmurs, though since childhood she had had severe attacks of rheumatic fever. There was a chronic bronchitis. Because of metrorrhagia she was operated on four years previously for a multiple uterine fibroid. Since then menstruation had been late and the flow scanty. The conditions to be described were probably overlooked at the former operation. Although the removal of the appendix had been advised, it was not removed because of the patient's bad condition during anesthesia.

Operation.—The abdomen was opened by a median hypogastric incision in the scar of the former operation. The cecum and proximal colon were not movable. The omentum was irregularly thickened and adherent to the abdominal wall and intestines. After prolonged search the appendix was found imbedded in a mass of omental and intestinal adhesions. It was excised with ligation and cauterization of the stump, an invagination not being feasible. On further search a very thick adhesion was encountered between the ileum and peritoneum over the right sacro-iliac synchondrosis and another one between two loops of small intestine. Finally, a Meckel's diverticulum was found attached to the free border of the ileum, with evident signs of chronic inflammation of its terminal portion yet floating free in the abdominal cavity.

The diverticulum was about three times as large as the normal appendix, with a very slight constriction at its intestinal attachment. It was determined to remove it as one would an appendix, so after clamping and ligating in the usual way, the stump was invaginated with a purse-string suture. When this was tied, it was found seriously to diminish the intestinal lumen so that an obstruction was to be feared. To avoid this complication, the purse-string suture was cut off and to cover the stump and the raw surface produced by the suture, I dissected a piece of the mesentery between two veins as large as a silver half dollar. This was sutured around its border with interrupted sutures covering the denuded area on the bowel, and so placed that the raw surface of the transplant was in contact with the defect on the intestine. A few sutures united the edges of the denuded area on the mesentery. The operation had then to be terminated because the patient's general condition had been bad throughout the anesthesia. The abdomen was closed without drainage. There was a slight rise of temperature following the operation, but nothing otherwise unusual throughout the following week. Bowels were moved on the third day with a saline cathartic. Recovery was uneventful and the patient was out of bed on the twelfth day.

I wish to emphasize that my method of covering the raw surface was quite different from the two usual methods, that is, suture of omentum to raw surface, and second, torsion of the gut on its long axis with suture to an attached flap of the mesentery. Both methods seemed to me liable to produce adhesions of this segment of gut in a patient in whom already the peritoneal surfaces were much altered and organs fixed. It seemed to me that a transplant rather than a flap of mesentery would offer the best method of surmounting the technical difficulties, and the postoperative course of the patient has confirmed this conclusion.

Let me add further that when I performed this operation I was not familiar with the work of the authors previously mentioned. I was, however, familiar with Tuffier's work on ovarian transplantation and Carrel's work on transplantation of the kidney in a dog.

The country in which I live is the smallest of American republics and is at the beginning both of its general and scientific development, and is distant from any medical center, so that medical and surgical progress must be rather slow for a time, at least. I hope that this case of successful transplantation of mesentery may be considered worthy of publication.

1. Tietze: Beitr. z. klin. Chir., 1876.
2. Senn, N.: Ann. Surg., 1888.
3. Ammann: Ztschr. f. Chir., 1906.

Sewage Disposal.—The Arkansas supreme court recently rendered a decision in a suit for damages for injury to property by the presence of a septic tank and drainage from it, which polluted a stream flowing through the plaintiff's land. The court held that the sewer district was liable for the amount by which the value of the plaintiff's land was depreciated by reason of the construction and operation of the septic tank, but that no damage could be recovered because of the acts of employees of the municipality in unnecessarily flushing the tank.—*Public Health Reports.*

DOUBLE INDUCED PNEUMOTHORAX

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Three forms of induced pneumothorax may be practiced:

1. Unilateral pneumothorax, the inflation of one pleura. This is the common form of the operation, and frequently establishes a cure even when both lungs are affected.

2. Alternate pneumothorax, the inflation of one pleura for a time, and then after the gas is absorbed, inflation of the opposite pleura. This method succeeds in some cases that are not cured by the first method.

3. Double pneumothorax, the inflation simultaneously of both pleurae. This, I think, is a new procedure. It is indicated only when threatening symptoms urge haste. Cases with active foci in both lungs, presenting long continued high fever with marked intoxication and the concomitant symptoms, when not responding soon to unilateral inflations, should be treated by double, or bilateral, inflations.

The rationale of double pneumothorax rests on the same data as does unilateral pneumothorax, and on the fact that animal experiments indicate that life is sustained by one sixth the normal lung area. Thus it appears that all of one lung and a part of the other may be obliterated without destroying life.

In doing double pneumothorax, hospital care is very desirable, but not indispensable, as illustrated by the cases reported below. Indeed, these cases show the practicability of doing double pneumothorax in ambulant cases.

REPORT OF CASES

CASE 1.—Miss M., aged 21, came to me after long sanatorium treatment with extensive bilateral involvement as determined by physical signs and by the roentgenograph. She was, however, quite stout, weighing 175 pounds, and had very little fever; but she was easily fatigued and was expectorating many tubercle bacilli. Two series of inflations were given.

During seventeen days, Oct. 4 to 21, 1913, eight inflations were given into the right pleural sac, varying in amount from 300 c.c. of nitrogen to 500 c.c. The resultant pressures were negative, touching neutral only once. During this period her weight dropped 6 pounds, and there was slight rise in the maximum daily temperature, from 98.8 to 99.5. There were many râles over both lungs, especially over the left. After a rest of fifteen days, inflations were begun on the other side, and inasmuch as four of the inflations on the first side were large (1,125 c.c., 1,500 c.c., 1,050 c.c. and the last one 1,050 c.c), I judge that there was still some gas in the right side when inflations were begun into the left side, although no roentgenograph was available.

The second series of inflations, given on the left side, covered eight months (Nov. 5, 1913, to July 2, 1915). Sixty-one inflations were given in amounts varying from 100 to 875 c.c, and complete compression was obtained with low positive intrapleural pressure. During the compression of this lung the right lung reexpanded fully. During this series, the weight dropped 20 pounds during the first six months, and then climbed back to 160. No treatments were given from June 6 to July 21, 1914, the patient resting at a mountain resort. While at the resort, the temperature remained normal. Repeated examinations of the sputum have failed to reveal tubercle bacilli at any time since Oct. 17, 1913, twenty-six months.

The inflations were stopped by the appearance of a left empyema with all the threatening accompaniments: high fever, chills, rapid pulse, anorexia, emaciation, vomiting and weakness. For a time the patient appeared moribund. Repeated aspirations of the pus, however, followed by air inflations and intrapleural injections of glycerin containing formaldehyd were followed by gradual recovery, so that now no fluid can be detected, the maximum daily temperature is below 100, the weight is rapidly increasing under an excellent appetite, and all symptoms have disappeared save a cough with a daily output of 3 ounces of clear, thin mucoid sputum, in which no tubercle bacilli can be found.

This case not only illustrates the practicability of bilateral pneumothorax treatment in ambulant cases, but incidentally indicates the value of the glycerin containing formaldehyd in treatment for empyema. While there was doubtless gas simultaneously in both pleurae for a short time, this case properly illustrates treatment by alternate induced pneumothorax.

CASE 2.—The following is a condensed account of the treatment of a tuberculous waitress, aged 22, by simultaneous inflation of both pleurae with nitrogen. Her family is clear of tuberculosis, but she had lived in an infected house. Her own history reveals an attack of "lung fever" at 7 years of age. Since then she has never felt well. Marriage at seventeen resulted in one living child and three voluntary abortions. Her present illness "began" two years ago with hemoptysis, cough, and tubercle bacilli in the sputum. During the last six months before she consulted me, she kept her bed with fever and weakness, but in November, 1912, she was able to come to the clinic, where the treatment was carried out. She appeared well nourished and intelligent. The physical examination, including roentgenograms, clearly showed advanced bilateral infection, and tubercle bacilli were abundant in the sputum. Two Wassermann examinations and the urine were negative. The blood pressure varied from 90 to 110. She presented a typical case of advanced pulmonary tuberculosis of both lungs.

For seven months she was given hygienic-dietetic and medicinal care with tuberculin. After twenty-five injections of the tuberculin, although the weight remained unchanged, pneumothorax was undertaken because of the extensive râles and continuous high temperature.

At first, thirty-six inflations of the left pleura were done, during a period of twenty-four weeks (May 28 to Nov. 22, 1913), varying in amount from 600 to 150 c.c. (In all inflations of this patient the resultant intrapleural pressures were either neutral or positive.) At the conclusion of this series of inflations, the patient felt stronger, and generally improved, but there was dyspnea on exertion. She had lost 4 pounds in the seven months, but fever had entirely disappeared. The left lung had been well compressed, as confirmed by roentgenoscopy.

One week later, with unabsorbed gas in the left pleura, inflations were begun into the right pleura and discontinued on the left side. Seven injections were given in nine weeks (from Nov. 29, 1913, to Jan. 17, 1914), in amounts varying from 850 to 300 c.c. During this series the temperature rose to a maximum daily ascent of 101. The weight dropped 3½ pounds more, the cough grew worse, and the amount of sputum was much increased. Toward the end of the nine weeks, it was noted that the first pneumothorax (left side) was being absorbed and the lung expanding. In the presence of the unfavorable course, it was decided to compress the left lung again. The apex beat was found in the fourth interspace just outside the nipple.

It is interesting to note that when the needle was thrust into the left pleural space the pressure was negative 8, and that after 100 c.c. had been introduced the pressure suddenly jumped to negative 16, and at the same time the patient complained of a sudden sharp pain in the chest. This I interpreted to mean the breaking away of new adhesions, allowing the lung to collapse. The reinflation of the left chest was begun after an interval of three weeks, when ten inflations were given in a period of nearly eleven weeks (Feb. 7 to April 27, 1914,) in amounts varying from 1,400 to 50 c.c. An unidentified acute infection occurred during this period with coryza, diarrhea and fever; but the general strength, appetite and sleep remained good, and there was a gain of 2 pounds. The left lung was fully compressed and the right partially.

After a week, the inflations of the right side were again resumed, and five inflations were given during the next seven and a half weeks (May 4 to June 29, 1914) in amounts varying from 250 to 100 c.c. Thus both lungs were simultaneously compressed, the left quite fully. During these weeks the patient gained 6 pounds.

After another week, inflations of the left side were resumed, twenty-two inflations being done during seventeen months (July 6, 1914 to Nov. 15, 1915) in amounts varying from 300 to 50 c.c. But during this series a momentous event occurred: the patient left town after the seventeenth inflation, and remained without treatment for seven months. On her return it was discovered that the lungs had both expanded fully, and that pleural adhesions, generally distributed, rendered the introduction of gas impossible in therapeutic amounts. She had lost 9½ pounds.

During the period between February, 1914, and January, 1915, while both lungs were simultaneously compressed, the patient resumed her best weight since under treatment, her temperature fell to normal, the amount of sputum dropped from 4 ounces to three-quarters ounce per twenty-four hours, tubercle bacilli were absent for many months, the blood pressure rose to 110, and her general health was distinctly improved.

This patient is still under observation, but penumothorax is, of course, impossible on account of general adhesions.

This case illustrates the advantage in some cases of bilateral treatment. It also illustrates the danger of inhibitory pleural adhesions forming when treatment is interrupted for too long a time.

CASE 3.—A, man, aged 22, presented complete bilateral involvement with adhesions. The case was seriously complicated by chronic alcoholism with acute alcoholic exacerbations. The patient was partially intoxicated at many treatments, and had alcoholic tremor for many days at a time.

From Oct. 24 to Dec. 15, 1915, about seven weeks, he received thirteen injections into the right side in amounts varying from 250 to 1,200 c.c., resulting in positive intrapleural pressures varying from positive 1 to positive 34 c.c. water, the high pressures being due to pockets in the pleural adhesions. His maximum daily temperature varied from 99 to 100.6. From Dec. 15, 1913, to Jan. 5, 1914, a period of about twenty-one days, he received six simultaneous bilateral inflations, the amounts varying from 100 to 300 c.c. of nitrogen. The resulting intrapleural pressures varied from negative 4 to positive 1 on the left side, and from positive 10 to positive 24 on the right side. The simultaneous inflations are indicated in the accompanying tabulation.

SIMULTANEOUS INFLATIONS IN CASE 3

	Right	Left
	c.c.	c.c.
Dec. 15, 1913	125	225
Dec. 17, 1913	100	100
Dec. 20, 1913	100	300
Dec. 24, 1913	175	300
Dec. 31, 1913	300	200
Jan. 5, 1914	125	250

In February, 1914, this man went to the mountains where he was controlled by an old woman who stopped his liquor, whereupon he gained greatly in every way and grew quite fat. After twenty-one months, he returned to town, resumed liquor, and died shortly after a surgeon removed an infected toenail.

CASE 4.—H. M., a schoolboy, aged 8, with total involvement of both lungs, expectorating a large quantity of necrotic-smelling pus (lung abscess ?) containing no tubercle bacilli or streptothrix on repeated examinations, received in all twenty-nine inflations, fifteen into the right pleura, nine into the left, and then five again into the right as follows:

During a period of fifty-eight days (from Nov. 29, 1913, to Jan. 21, 1914) fifteen inflations were given in the right side varying in amount from 100 to 700 c.c. of nitrogen, producing intrathoracic pressures varying from —2 to + 4 c.c. water. Complete compression of the right lung was accomplished. There was slight rise of temperature, but it finally returned to normal. The sputum was reduced, 4 ounces to 1 ounce per twenty-four hours. Marked general improvement, expressed especially in appetite, endurance, sleep, etc., was noted, but the weight fell 2½ pounds. The sputum, formerly necrotic pus, became much cleaner and nearly free from odor.

After ten days' interval, with gas still present in the right pleura, inflations were begun on the opposite side. During a period of forty-three days (from Jan. 21, 1914, to March 7, 1914) he received nine inflations on the left side, varying in amount from 150 to 500 c.c. nitrogen, resulting in pressures from — 4 to — 2. After some of the inflations there was much dyspnea. During this series, the sputum increased to 4 ounces in twenty-four hours, the temperature after a temporary rise returned to normal, the sputum lost much of its necrotic odor, and there was a loss of weight of 1 pound.

After an interval of twenty-four days, inflations were again given on the original side—the right. During a period of twenty-five days (from May 1, 1914, to May 25, 1914) five inflations were given, varying in amount from 50 to 400 c.c. nitrogen, producing intrathoracic pressures from + 14 to + 20. The sputum fell from 8 to 6 ounces per twenty-four hours, the temperature remained constantly normal, and 3 pounds increase in weight was recorded. The weight was then only 1 pound lower than the original weight, Nov. 29, 1913. June 5, 1914, adhesions negated an attempted inflation. The patient then failed to return.

At this writing, now two years since treatment, the boy is still alive and fairly well. The sputum is again profuse and has a strongly necrotic odor. Though the bacillus was not found in this case, the report is included in a group of tuberculous cases because the streptothrix was absent, and because the patient's sister yielded the bacilli, and because his father is a long sufferer from hard cough and free expectoration and appears clinically tuberculous (though his sputum has not yielded tubercle bacilli).

The case illustrates the practicability of double pneumothorax in an ambulant child.

CONGENITAL ANTERIOR CURVATURE OF THE SPINE

REPORT OF CASE *

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History.—J. L., girl, aged 4 months, was brought to the clinic at the age of 3 weeks for bowing of the left thigh. The patient is the first child. The delivery was very difficult, by breech presentation and accompanied by considerable injury of both thighs. The left femur was fractured and healed with moderate deformity. For ten days following birth, the child did not move either lower limb. A few days before the child's first visit to us, the mother noticed, in addition to the bowing of the left thigh, that the back was very hollow, the abdomen very prominent and usually tense. The child nursed regularly, its bowels moved several times daily, the stools being normal in color and consistency, and excepting for being unusually quiet, seemed quite well.

The family history was negative.

Examination.—The child was well nourished, rather fat, with an extremely prominent abdomen and marked lordosis. She appeared to be most comfortable lying on her side, and when placed on her back rolled over to one or the other side. The anteroposterior curve of the spine was normal in the cervical and dorsal regions, but markedly exaggerated in the lumbar region, being most marked at the lumbosacral junction. The lordosis was resistant, and allowed of only slight correction by manipulation; it was slightly diminished in the dorsal position, and was most noticeable when the child lay on her side. There was no sensitiveness of the back, and the motions of the spine were free in all directions excepting flexion, which was decidedly restricted. There

* From the clinic of Dr. Royal Whitman at the New York Hospital for Ruptured and Crippled.

were four deep transverse grooves or folds in the skin of the lumbar region. The roentgenogram, which was unusually clear, showed a normal conformation of the spine excepting in the lower lumbar section, where there was a sharp curve forward or extreme hyperextension. The lateral view showed definitely that the individual vertebrae were normal in outline and that there was no luxation of any vertebrae or spondylolisthesis. A roentgenogram of the gastro-intestinal tract showed that region to be entirely negative. There was no spina bifida or other congenital malformation. The other joints were normal, particularly the hips, which were carefully investigated for any possible contracture or dislocation. There was, however, limitation to hyperextension of the hips. There was moderate outward bowing due to the fracture at birth of the left thigh. The abdomen was large and tense. The liver was felt several fingers' breadths below the free costal border. There was no other mass to be felt. Very slight pressure on the abdomen produced discomfort. The abdomen had on a few occasions been observed to be quite flaccid and much smaller in size, but at no times did the anterior curvature of the spine seem reduced. In the belief that the apparent distention of the abdomen might have something to do with the curvature of the spine, rectal tubes were inserted. Each time the child was relieved of considerable flatus, but on no occasion was the size of the abdomen or the condition of the spine altered. The urine, examined on two occasions, showed no albumin. A neurologic examination made by Dr. William Sharpe was reported to be negative.

Anterior curvature of the lumbar spine, or lordosis, is either primary, that is, congenital, or secondary. There was no condition present in this child such as contracture at the hips, congenital dislocation of the hip, etc., to which the lordosis might be a sequel, and as the condition was observed in the first few weeks of life and was then very resistant, we are warranted in considering this a genuine congenital deformity.

A review of the English literature reveals only scant reference to it. There is no mention of this condition in the *Transactions of the American Orthopedic Association* from 1890 up to date. Dr. Royal Whitman[1] says of this lesion, "It is not a simple postural deformity but it is usually secondary to disease or deformity either of the spine or adjoining members." Bradford and Lovett, and other modern writers similarly refer to this condition only as secondary to other deformities or lesions.

A few of the older authors, however, do speak of anterior curvature of the spine as a primary congenital lesion. Adams, in his "Lectures on Curvature of the Spine," says, "In the lumbar region, it is found as a peculiarity in the natural conformation of the individual, often existing in several members of the same family and hereditary." Brodhurst, in his book on "Curvatures of the Spine," says that anterior curvature of the spine may be congenital, and as such an affection it is combined with monstrosity and with spina bifida.

In our case, it would appear that there can be no doubt that the lesion is not secondary to any other condition and that it was present at birth.

CONCLUSIONS

1. This is a genuine instance of congenital lordosis or anterior curvature of the spine.

2. Heredity plays no rôle in this patient, as no member of either branch of the family has a like condition.

3. Despite the marked lordosis, there is no albuminuria.

1 West Eighty-Fifth Street.

1. Whitman, Royal: Orthopedic Surgery, Ed. 4, Philadelphia, Lea & Febiger, 1910.

A CASE OF SPONTANEOUS RUPTURE OF THE MALARIAL SPLEEN

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History.—C. W. entered the Twenty-Third General Hospital, British Expeditionary Force, France, with the following history: He had had no special illness during childhood, and no history of any specific infections. He went to India the latter part of February, 1912. He was perfectly well until some time in August of the same year, when he was taken suddenly ill with cramps over the entire abdomen, followed a few hours later by an attack of dysentery. He had no nausea or vomiting. After forty-eight hours he was admitted to the hospital, where he remained for two weeks.

For the first twenty-four hours he was on the bed pan continuously. The stools were of a bloody mucous character. After treatment was instituted, the patient began gradually to improve, and at the end of two weeks he made an apparent recovery. During this time he lost considerably in weight. After being up for one week he was taken suddenly with chills, which gradually grew worse, and would last from five to fifteen minutes. The chills came on regularly, one slight chill during the day and a severe chill during the night. After two days of treatment the chills disappeared, and in three weeks the patient was discharged from the hospital. After his discharge he went back to his battery, and was perfectly well until October, 1914, when he returned to England. While on board the transport he was again taken sick with chills and fever. Treatment was immediately instituted and he made an apparent recovery in a few days. After landing he was taken with vomiting, which was very severe and lasted for two days. He had no pain, dysentery, or fever. After the vomiting ceased he felt well again, and began to gain in weight until May 8, 1915. While at the front in France, after a severe bombardment, he was taken sick with some nervous trouble, which lasted for a few days. He had several of these attacks, and was finally sent to the convalescent camp, where he remained for two weeks, making a complete recovery. After returning to his battery he was in the trenches until Aug. 13, 1915. There is no history of his having suffered any injury.

Aug. 13, 1915, he was taken sick with chills and fever, headache, malaise and pains in his abdomen and chest. This lasted for three days, when he was admitted to the casualty clearing station. After being put to bed and treated, he began to feel better. His temperature and pulse were normal. He remained here for six days, when he was removed to the Twenty-Third General Hospital. While on the train he was taken with severe pains in the epigastric region, which finally extended over the entire abdomen. On arrival at the hospital, his temperature was 97, pulse 70, respirations 18.

Physical Examination.—The patient was emaciated, the skin flabby, and he appeared anemic. His respirations were slow, but shallow. The excursions of his right chest were not so great as those of the left. On percussion a dull area was made out over the lower right side of the chest extending as high as a line drawn from half an inch above the nipple through to the back. The vocal fremitus was decreased over the area, and the breath sounds were diminished on auscultation, but not entirely absent. Breath sounds were normal above this dulness. The left side of the chest showed normal breath sounds, although it was hyperresonant on percussion. The heart's dulness was crowded to the left of the nipple line, and the apex beat was 1 inch to the left of the nipple line in the fourth interspace.

The abdomen was slightly distended but soft, and there was no muscular rigidity. The patient was very tender over the region of the gallbladder, especially toward the epigastric area. There was some tenderness over the appendix region.

While in the Twenty-Third General Hospital, the patient suffered from acute attacks of pain simulating gallstone colic.

The pain, however, extended to the left upper hypochondriac region. He suffered three or four attacks daily. The temperature ranged from 101 to 102. August 25 he had a slight chill, the pulse varying from 80 to 102, and the respirations from 18 to 22. He complained of no pain in the chest. During the night of August 25, he had a very severe attack of pain in the epigastrium, his temperature dropped to 97.4, and his pulse rose to 120, and respirations to 26. The patient was in collapse. An examination of the blood showed a leukocyte count of 10,500 with 55 per cent. of polymorphonuclears, 40 per cent. of small mononuclears and 5 per cent. of large mononuclears. No plasmodia were found.

Operation.—On the following morning an exploratory laparotomy was done. Under ether anesthesia, the abdomen was opened in the right upper quadrant through a rectus incision, and a large amount of old clotted blood appeared, and also a considerable amount of dark fluid blood. The liver was slightly enlarged and of normal consistency. There were adhesions between the parietal peritoneum and the liver, and also adhesions of the omentum to the liver. The gall-bladder was easily emptied, and no stones were felt.

The stomach was congested, but otherwise normal. The spleen was enlarged and quite soft. The omentum was firmly adherent to the convex surface of the spleen. The adhesions between the omentum and the spleen were not broken up.

The pancreas was normal; a few mesenteric glands were enlarged. The appendix was firmly wrapped with omentum and was club-shaped. The omentum was adherent to the intestine, and was infiltrated with dark blood forming hemorrhagic areas. The appendix was removed. No localized point of hemorrhage was found.

A drain was inserted through a punctured wound in the right iliac fossa, and another inserted through the upper wound. The patient was returned to the ward in a fair condition. He improved until August 31, when his temperature suddenly rose to 105, pulse 120, and respirations 40.

On examination, his abdomen was found to be soft, and the wounds in good condition; there was no tympanites. Examination of the chest showed a consolidation in the middle and lower lobe of the right side over which bronchial breathing and râles were heard. The vocal fremitus was increased.

Diagnosis of "lobar pneumonia" was made. The patient had his crisis on the seventh day, when his temperature remained normal for two days.

Then he began to have daily chills and elevations of temperature. An examination of the blood showed the malarial plasmodium. Quinin was given. From that time on he made an uneventful recovery—his wounds healed slowly, and he was discharged to England September 26, with a small sinus still persisting in both incisions.

Diagnosis.—A positive diagnosis of the origin of the hemorrhage was not made at the time of the operation, although the various causes of interabdominal hemorrhage were considered, as hemorrhagic pancreatitis, ruptured spleen, etc. Exploration failed to reveal any apparent cause for the hemorrhage, except from the enlarged soft spleen with the adhesions of the omentum to the convexity of the organ. These were not broken up, as they were already effectually checking any hemorrhage that might have come from this source. Malaria was considered at this time on account of the previous history, but an examination of the blood previous to operation did not reveal the malarial organism, nor did the smears taken from the free blood in the abdominal cavity reveal any organism.

But the chills and fever and the finding of the plasmodium during the convalescence of the patient make a diagnosis of malaria certain. This, when taken into consideration with the attack of severe epigastric pain while the patient was en route to the hospital, and the subnormal temperature on the day of admission, and again the *attack of pain* two days later with a drop in temperature and collapse, and the negative findings of the abdominal organs at the time of operation with the exception of the spleen, make it evident that we were dealing with a case of malaria complicated by a spontaneous rupture of the spleen.

REPORT OF TWO HAY-FEVER CASES TREATED WITH THE POLLEN EXTRACT

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Case 1.—Child, aged 11, came, Aug. 20, 1915, for treatment for relief from hay-fever symptoms. There was a history of one similar attack the previous season. Family history was negative. The child was not of strong physique, but physical examination showed no special defect except anemia. Nasal examination revealed the anterior ends of the inferior turbinates puffy and covered with a thin watery discharge, causing complete obstruction. The symptoms were sneezing, a constant watery secretion from nose and eyes, dark circles under the eyes, itching mucous membranes and insomnia. The mother was advised to send the child away, which was done, but no good resulted from it.

September 10, the ragweed and goldenrod pollen skin reaction was tried. There was a severe reaction to both. Two days later the ragweed pollen extract in a weak solution was given by hypodermic, according to the technic of J. L. Goodale (Pollen Therapy in Hay Fever, *Boston Med. and Surg. Jour.*, July 8, 1915). For two days there was a local swelling and a tenderness at the point of injection, as well as a swelling of the whole arm from elbow to shoulder. The hay-fever symptoms disappeared, and there was no return, so there was no necessity of repeating the treatment.

Case 2.—E. F., man, aged 21, referred for hay-fever treatment, July 27, 1915, had had hay-fever attacks of severe nature occurring each year beginning about the middle of August. A college roommate who also had hay-fever told him that he had been cured by vaccine treatment, and the patient wished to try it. The family history was negative. The present condition was excellent; the patient was well developed and athletic. Nasal examination made the last of July was negative except for a slight fulness and watery discharge which had been of a few days' duration. The throat and pharynx were in good condition.

A culture was taken from the nose and throat for autogenous vaccine. The growth contained staphylococci and a few pneumococci. During the first two weeks of August four vaccine treatments were given. The slight congestion and the watery discharge disappeared after the first treatment. At the time when hay-fever symptoms were expected, the patient, following his usual custom, left his home in Connecticut for New Brunswick where he had never been troubled, but because of business returned in two weeks. On reaching Boston, August 27, the symptoms began, sneezing, itching mucous membrane, watery discharge from nose, and insomnia, with increasing severity. Three vaccine treatments were given, one each on August 31, and September 3 and 9; on the latter date the ragweed and goldenrod pollen extract skin reactions were tested on the arm. Both reacted, but ragweed more, giving a good-sized white welt surrounded by an erythema about the size of a half-dollar.

September 14, the ragweed pollen extract in weak solution was injected by hypodermic. That night there was a severe reaction, asthmatic in nature. The local reaction was also severe, the arm swelling from elbow to shoulder. The asthma and local symptoms subsided in three days. Nasal examination revealed only one of the hay-fever symptoms remaining, a slight congestion of the inferior turbinates with lack of perfectly free breathing space through the nose. No further treatment was given and there was no return of the symptoms.

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A Governmental Function.—No one, in a free country, can force a diseased individual to seek effective treatment or prevent him from using an ineffective treatment, unless his disease imperils the health of others. At that point, and not before, the government can and should take personal measures. However, it is a well recognized function of the government to protect individuals against their own ignorance. It does this when it forces the child to go to school; it does this when it places the swindler in jail.—Editorial in *Cleveland Med. Jour.*

PAPER CLIP IN BRONCHUS SEVENTEEN YEARS REMOVED BY SUPERIOR BRONCHOSCOPY *

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During the past seventeen years numerous cases of foreign bodies removed from the bronchus by either the superior (laryngeal) or inferior (tracheal) route have been recorded. The following case is placed on record because of the long interval[1] between aspiration and removal, and to emphasize the fact that even after remaining so long in situ, its removal was not difficult.

History.—M. K., aged 26, was admitted July 1, 1915, and discharged July 19, 1915.

Present Illness.—Seventeen years ago the patient was playing with a paper clip which he had put into his mouth, when it suddenly became lodged far back in his mouth near the base of his tongue. His father, with the use of an ordinary teaspoon, made an attempt to remove the clip, but unfortunately pushed it still farther down the patient's throat. The patient felt much better and did not notice any particular distress, and his parents believed that he had swallowed the clip. He was given castor oil. The next day, while the patient was playing in the street, he was suddenly seized with a paroxysm of coughing and raised a large quantity of mucus mixed with blood; also he had great difficulty in breathing.

He was taken to a hopsital where he was placed under observation for a period of one week. After being put to bed his symptoms disappeared and he was finally discharged without any attempt being made to recover the paper clip.

After being home for a few days he was taken suddenly very ill and his physician said he had pneumonia. He was sick at this time for about six weeks, having had what the physician called a relapse from which he finally made an uneventful recovery. He then enjoyed fairly good health for about two years, when he noticed a dull aching pain in the right side of his chest and complained of a hacking cough, with the expectoration of large quantities of mucopurulent sputum, marked shortness of breath and a sense of oppression and suffocation. Thinking that he was beginning to have some lung disease he consulted his physician. He says he was first told he had tuberculosis, and that he must go back for a second examination after a certain period. This he did, and was told he had bronchial asthma. He states that he received treatment for this for about twelve years at several institutions and from various physicians. During this time he coughed more, the sputum became very offensive and foul smelling, his pain and sense of suffocation increased and he became exhausted on the slightest exertion, finally having to give up his work entirely. His weight, however, did not decrease with increase of his symptoms. His appetite was always good. Not being able to work, he gave up all hope and came to Bellevue Hospital believing that he had tuberculosis. On being questioned, he told of the paper clip he had had in his mouth seventeen years before and of the treatment he received since that time. He was admitted to the hospital for Roentgen-ray examination, July 1, 1915.

Examination.—Roentgen-ray examination[2] showed a distinct shadow of a flat-headed paper clip in the right main bronchus, with head down. It also showed marked thickening of the adjacent pulmonary tissue.

Operation.—July 15, 1915, superior bronchoscopy was performed and the clip removed under combined ether and cocain anesthesia. Cocain and epinephrin were applied in the right bronchus to control reflexes and ether insufflation (intratracheal) through a metal catheter in the bronchoscope kept the patient thoroughly anesthetized. The clip was embedded in the granulation tissue which almost filled the bronchial lumen, and there was copious discharge during the manipulations. As soon as one leg of the clip was seen it was firmly grasped with forceps and the clip withdrawn with the bronchoscopic tube (Jackson-Rochester). In withdrawing the clip the two legs became spread apart, one entering the tube and the other trailing after.

Subsequent Course.—July 17, 1915, there was very little febrile reaction. At first expectoration ceased almost entirely, then it became more copious, and then gradually diminished in amount.

July 19, 1915, the patient was discharged feeling well.

Nov. 10, 1915, the patient was shown before the New York Surgical Society in excellent condition. A recent roentgenogram showed marked improvement in the pulmonary condition, though considerable thickening was still present. The patient still had a moderate cough and some expectoration, undoubtedly due to the bronchiectasis that had developed from the paper clip remaining in situ for seventeen years.

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1. Jackson, C. (Ann. Otol., Rhinol. and Laryngol., June, 1913) reports a remarkable case in which he removed a collar button twenty-six years after aspiration. I believe this and the case here reported represent the longest periods between aspiration and extraction.

2. By Dr. Hirsh, Bellevue Roentgen-ray laboratory.

REPORT OF A CASE OF TETANUS, WITH COMPLICATIONS

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Nov. 23, 1915, H. H., man, aged 23 years, ran a splinter from a barnyard gate into the back of the second phalanx of the middle finger of the right hand. The splinter was deeply embedded alongside the bone and was removed five days later. November 30, one week after the initial injury, the patient felt a slight stiffness in his jaws and some pain in his back.

December 1, he consulted me and at once entered the Jefferson County Hospital. Within a few hours, he received 9,000 units of antitetanic serum, 6,000 units intravenously and the other 3,000 units subcutaneously. The wound in the finger was opened freely and cauterized thoroughly. His temperature on entrance to the hospital was 99.4.

On the following day, December 2, the patient received 15,000 units of antitetanic serum, December 3, 18,000 units, December 4, 9,000 units, and December 5, 3,000 units, all given subcutaneously. During this time his temperature had steadily increased to above 104, with the other symptoms of tetanus steadily increasing in severity, the jaws set, opisthotonos, jerking of the muscles of the back, and pain in the abdomen, with some delirium. He was able to take fluids freely through a drinking tube. During this time in addition to the antitetanic serum, he was given morphin sufficient to control the pain, with chloral in 40 grain doses by rectum, repeated when considered necessary. During the forenoon of December 6, he had a severe convulsion. Immediately following this, he was given morphin, one-half grain, with atropin, $\frac{1}{150}$ grain, hypodermically, and received 3,000 units of serum in the spinal canal.

As the wound in the finger continued to have pus in it in spite of repeated cauterization and wet dressings kept constantly hot, it was thought that there might still be an incubation of tetanus bacilli in the wound; therefore the finger was amputated, the head of the metacarpal bone being removed, the end of the wound being left open with hot moist dressings continued.

On the following day, December 8, the patient's temperature continued to increase, reaching 105.2, when he received 6,000 units of serum in the spinal canal. Early the following morning the temperature reached 105.8, and then subsided, December 9, to 102.2. The symptoms of tetanus began to show improvement; there was less stiffness and opisthotonos, and less sedatives were needed. December 10 and 11 the temperature increased again, and the patient was continually delirious. December 11, his temperature reached 105.4, and during the afternoon of this day the tympani of both ears ruptured and the ears began to discharge freely. His delirious condition had been such that he had not said anything to his attendants about having pain in the ears. It was

now hoped that his condition would improve; but about twenty-four hours later the wound in his hand began to show signs of inflammation, notwithstanding the fact that it had free drainage, and hot moist dressings had been kept up.

December 15, the temperature again reached 105.6, and then subsided, as the hand began to show improvement. The tetanus symptoms gradually improved, and, December 24, the temperature reached normal. The otitis media improved gradually, and the amputation wound healed so that the patient was able to leave the hospital, entirely recovered, Jan. 10, 1916.

The interesting features of this case are: the short period of incubation, which statistics show produces the most serious prognosis; the fact that the patient had only one convulsion, although all the other symptoms of the tetanus were severe; the extremely high temperature at the height of the tetanus, the otitis media, and the infection in the hand, and the unusual complications and recovery, notwithstanding the latter.

The patient received in all, 63,000 units of antitetanic serum, massive doses of morphin, chloral by rectum, which usually had a decided sedative effect producing the much needed sleep, and also bromids by mouth.

I believe that the most decided effect of the antitetanic serum followed the intraspinal administration, although the immediate reaction seemed to produce a hyperpyrexia.

Therapeutics

BACKACHE

The therapy of backache may belong to the domain of the neurologist, the surgeon, the gynecologist or the genito-urinologist. Backache is a common symptom of innumerable disorders. It can be treated rationally only after the correct diagnosis is made. Unless this is done, any improvement resulting from the treatment is similar to that following any hit-or-miss therapeusis.

By backache is usually meant lumbar pain beginning at the region of the first lumbar vertebra and extending downward, often to the sacral and coccygeal regions. The pain may be in the center of the back, along the spine, or on either one or both sides of the spine.

Often the clue to the real cause of the pain may be obtained by careful questioning. The duration and nature of the pain, its exact location, whether in the center or to one or both sides of the spine, are all of importance. It is essential to know whether or not the pain is associated with fever; has followed a convalescence from some infection; is associated with pain on urination or with changes in the appearance of the urine; has followed a sudden strain; is aggravated by bending the body in any direction, or has any relationship to menstrual or uterine disturbances.

After a careful history of the patient has been recorded, a thorough physical examination is essential in the search for the etiologic factor in the backache. On account of the large number of varied causes, treatment without examination is generally guesswork. The best way to examine the patient is to remove his clothing, and to observe him first in the standing position, noting whether or not the body is flexed to one side or the other, or more weight is placed on one leg than on the other. The presence of any abnormal curvatures or deformities of the spine, or any enteroptosis should be noted. In palpating, points of tenderness should be sought over the spinous processes of the vertebrae, and the presence of ptosed or enlarged abdominal organs should be noted. In women a vaginal examination is essential for the detection of any abnormal uterine conditions, such as marked retroversion or tumors of the uterus, or any pelvic exudates or abnormalities. The patient should flex the body in various directions while in a standing position and should be requested to flex and extend the thighs on the abdomen while lying on his back, that the freedom of these motions and the amount of pain they cause may be noted.

Roentgen ray examination of the spine will often be of service in revealing thickening or ankylosis of the vertebral joints or rarefaction of the bodies of the vertebrae. It will also aid in helping to exclude renal or ureteral calculi. Finally, the temperature and urinary findings may aid in deciding the cause of the trouble.

The causes of backache may be divided into groups:

BACKACHE DUE TO STRAIN OR LACK OF BALANCE

By far the greatest number of backaches belong to the fatigue and lack of balance group. This group has been described by Reynolds and Lovett[1] as due to loss of balance, when an unusual strain is placed on the lumbosacral tissues and the muscles of this region. The strain may be produced by posture, by poor muscular balance and by abnormal conditions within the abdomen, such as enlargement of the organs, enteroptosis and obesity. The fatigue may result from an attitude constantly assumed in some form of occupation, such as stooping, bending, or lifting heavy objects.

Those backaches resulting from changes in muscular balance due to uncorrected broken or fallen arches of the feet, or to the continuous use of poorly fitting shoes, are also placed in this group. The pain in these cases often extends up the lower extremities to the back. From a faulty tread, the muscles of the leg, thigh and lower part of the body may be strained and become painful, and even the knee joint or hip joint may be strained by the lack of balance. A careful examination of the shoes, feet, and posture on standing and walking, and an investigation of the kind of work or the kind of strain to which the patient is subjected, will generally disclose the physical cause and the consequent treatment of this kind of backache.

As a result of the constant backache or frequent attacks of backache, there may come a time when, in the highly neurotic individual, the mind is frequently concentrated on the back, and as a result pains will be present without any cause. Associated with this may be other symptoms, such as perverted heat and cold sensations, an abnormal state of the reflexes indicating a neurasthenic tendency. This condition has been termed "hysterical spine" or, after railway accidents, "railway spine."

The treatment of this form of backache will tax the energies of the therapeutist. No definite rules can be laid down, except that all other possible causes of the backache must be excluded before a diagnosis of hysterical or railway spine is made. In these cases, treatment should be mainly general, and should be based on efforts to relieve and cure the neurotic condition of the patient. Local treatment is generally only of psychic value, but for that reason alone is essential. In local treatment, use may be made of electricity,

1. Reynolds, Edward, and Lovett, R. W.: An Experimental Study of Certain Phases of Chronic Backache, The Journal A. M. A., March 26, 1910, p. 1033.

vibrations, electric light heat, spinal douches, or other hydrotherapeutic measures, and even at times the thermocautery will be found of value. Hypodermic injections of water into the painful regions may be efficient. The general treatment calls for increased feeding, general massage, and regulated exercise, with periods of rest. Occasionally, tonics may be indicated.

BACKACHE DUE TO INFLAMMATION OF NERVES

To this type of backache belong those due to affections of the nerves or to affections of the posterior nerve roots with their nerves. This includes neuritis, simple or part of a multiple neuritis, resulting from alcoholism, lead or diabetes. Removal and elimination from the system of the alcohol or lead is the first aim of treatment in the first two instances, and the pain will be ameliorated by proper diet in the case of diabetic neuritis.

The acute pain of the neuritis must be stopped, and if local sedatives, as heat, rest and support by straps or otherwise, do not give immediate relief, a drug sedative must be given, with the full recognition of the probable prolonged or recurrent backache being likely to cause repeated need for the narcotic, and hence the danger of the formation of a drug habit. Occasionally the pain is so severe that morphin with atropin must be given; the latter dulls the endings of the peripheral nerves. If the pain is not so severe, or if it is modified by one or two hypodermics, then large doses of sodium salicylate may be tried, as 1 gm. once in four hours for a few doses. In some instances large doses of quinin may be efficient, as 0.4 gm. three times a day for a few doses. If either a salicylic preparation or quinin is pushed to physiologic effect, a bromid should be given synchronously to prevent the uncomfortable salicylism or cinchonism, respectively. Five-tenths gm. of sodium bromid may be given for each gram of salicylic acid, and 1.2 gm. of sodium bromid for each 0.4 gm. of quinin. When there is insomnia without severe pain, chloral in doses of from 0.5 to 0.6 gm. may be given at bedtime. Sodium diethylbarbiturate (veronal-sodium) in doses of 0.3 gm. may be given for sleep, if there is no severe pain. Locally to the back, gentle high frequency electric currents may be tried, or the arc lamp treatment, with later dry cupping, and perhaps the thermocautery.

In posterior ganglionitis with herpes, if there is considerable pain, the treatment may be much the same as in simple neuritis. If the pain is not too severe, a narcotic is not needed. Generally rest and soothing powders and absorbent cotton placed over the eruption, with supporting adhesive straps to limit motion, markedly ease the pain.

BACKACHE DUE TO INFECTION

A large number of backaches are due to changes in the bodies of the vertebra or in the intervertebral joints. When the joints are involved, the pain may be due to an acute infectious arthritis or to chronic hypertrophic arthritis (ostearthritis). These are both associated with a primary focus elsewhere; the acute condition may be part of an acute infection, such as acute follicular tonsillitis, pneumonia, gonorrhea or influenza. When these causes are present there will also be symptoms of the primary infection, such as more or less increased temperature. The involved portion of the spine may be exceedingly tender. Generally this kind of backache disappears with the subsidence of the primary infection.

Hypertrophic arthritis (ostearthritis) is a slowly developing process, often lasting several years and resulting in a thickening, and sometimes in a union of the vertebrae and cartilages. It is caused by a constant source of infection, the commonest being repeated tonsillar infections, pyorrhea alveolaris and chronic gonorrhea. It may be associated with an arthritis deformans of the extremities. The diagnosis is assisted by Roentgen examinations of the spine.

The treatment consists in removal of the primary source of infection, if it can be located. Large hypertrophied tonsils should be removed, and alveolar pyorrhea should be treated. An abscess in or around the roots of the teeth should be sought by means of roentgenograms, and if an infected tooth is found it should be removed or properly treated.

If there is any history of a former venereal infection, in the male, a careful examination should be made of the deeper urethra, the prostate and the associated organs, and any part found infected should receive proper treatment.

Vaccines have sometimes been found of value, especially when they have been prepared from organisms isolated from a primary focus. Until the source of infection is eradicated, local treatment of the back is discouraging, although some relief from the pain may be given by applications of heat, counterirritation and strapping.

Two common causes of infection of the bodies of the vertebrae are tuberculosis and typhoid fever. In tuberculosis the backache first manifests itself when the destruction has progressed to such an extent that a gibbus, or bending, of the spine has resulted, and with it pressure on the nerves has occurred. In the treatment of this condition, spinal support and spinal rest, as furnished by a brace or a plaster cast, should be used. Later, after the disease has become quiescent, the destroyed bone tissue may be successfully repaired by plastic bone surgery.

The so-called typhoid spine occasionally develops after convalescence from typhoid fever. The pain is localized, and may become severe. It does not produce angulation and the deformities characteristic of tuberculous involvement of the spine. The spine is rigid and very tender, and there is always more or less fever. The condition is, as a rule, self-limited, and with proper rest and simple local and general measures, usually results in recovery.

(*To be continued*)

The Elimination of Quackery and Isms

This is a division of our work that must come to the front; not only the patent medicine faker but the many cults and isms that lead people astray, must be censored and combated. The entrusting of human lives and welfare, must *only be* to *such* men and methods who show that they have spent the adequate time and effort that will enable them to judge conditions in the light of modern science. No man with a correspondence school knowledge of the principles of medicine, with perhaps hardly a grammar school education, should be allowed to pronounce questions of diagnosis and treatment. Even a six or nine months' special study of some principle of medical science elaborated into a system or cult is not sufficient. We should endeavor to have anyone who interrogates the human system obtain as thorough a knowledge of that system as modern science can give and then with light of this, if he conscientiously sees fit to multiply the value of some single therapeutic measure, he can at least calculate its limitations.—From "Correlative Factors in the Tuberculosis Campaign," by Dr. Arthur F. Fisher, in *Journal of Outdoor Life,* January, 1916.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, MARCH 4, 1916

NEW EVIDENCE AGAINST ALCOHOL

If it could be shown, we read in a recent careful review of the alcohol question, that small doses of alcohol produce no ascertainable ill effects on the human organism, the higher mortality among the moderate drinkers as compared to total abstainers might have to be explained as due to some as yet unrecognized cause or causes other than alcohol. But if laboratory and clinical evidence shows that alcohol in so-called moderate quantities (social moderation) produces definite ill effects, such as lowering the resistance to disease, increasing the liability to accident and interfering with the efficiency of mind and body and thus lessening the chances for success in life, to say nothing of any toxic degenerative effect on liver, kidneys, brain and other organs, the excess mortality that unquestionably obtains among moderate drinkers as compared to total abstainers must be ascribed chiefly to alcohol.[1]

The data already collected on the effects of alcohol are extremely voluminous. Some of the work may be said to be tinged with almost inevitable traces of personal bias, for the subject is one on which many persons have firm convictions, often based on ethical, social or economic grounds rather than on physiologic evidence. Nothing is more convincing in this field, however, than clear-cut indications furnished by strictly objective scientific investigation of the possible effects of alcohol in moderate doses — for these alone are worthy of debate — on the functions of the human organism. Duplication of results and frequent repetition of the experiments by independent investigators in a matter of such fundamental importance will call forth no criticism of wasted scientific energy. Accordingly the Nutrition Laboratory of the Carnegie Institution of Washington, ideally equipped for a reinvestigation of the alcohol question under the best auspices, has taken up the subject anew with a thoroughness and on a scale which it is expected will satisfy the majority of scientists as to the dependability of the results. The program for this exhaustive experimental study of the physiologic consequences of the ingestion of small doses of ethyl alcohol in man has begun with the psychologic aspects of the subject. This feature, studied by Dodge and Benedict,[2] included the effects of alcohol on a selected group of interrelated processes covering the fundamental neural activities at various levels of the cerebrospinal system, from the simplest reflexes of the lumbar cord to the most complex cortical arcs that could be measured accurately by available laboratory technic.

Of the simple reflex arcs which are available for experimentation, the patellar reflex and the protective lid-reflex were chosen, chiefly because of their similar latency and the accuracy of their modern technics. As types of more complex cortical arcs, certain eye reactions to peripheral stimuli, speech reactions to visual word stimuli, and free associations were selected. Dodge and Benedict regard the last two mentioned as characteristic phases of the individual's adjustment to his social environment. The fundamental perseveration tendency was measured by the partial memorization of series of words. Sensory changes were ascertained by faradic threshold measurements. Motor coordination and the reciprocal innervation of muscles are further details that were studied.

The subjects were either college graduates who were very moderate users of alcohol or patients who had been under treatment for alcoholism. Two alcohol doses were used, one containing approximately 30 c.c. and the other 45 c.c. of absolute alcohol.

The greatest effect was found in the reflexes. In the patellar reflex, alcohol increased the latent time 10 per cent., while it decreased the amount of quadriceps thickening 46 per cent. In the protective lid-reflex it increased the latent time 7 per cent., while it decreased the extent of lid movement 19 per cent. It increased the latent time of the eye reactions 5 per cent., and that of the speech reactions 3 per cent. Memory and the free associations were only slightly affected. Sensitivity to faradic stimulation decreased 14 per cent. after alcohol. The number of finger movements decreased 9 per cent., and the velocity of the eye movements decreased 11 per cent. as a consequence of the ingestion of alcohol.

These observations bring further evidence of the general depression of the neuromuscular processes at all levels of the cerebrospinal system. There is depression of even the simplest forms of motor processes, such as are found in eye and finger movements. Certainly nothing in all of this suggests any true stimulation — any increase in psychologic or physiologic efficiency. Impairment seems to be the keynote expressed by the depression. Here is the statement of the Nutrition Laboratory investigators: "In conjunction with the pulse acceleration, the general neuromuscular depression may be regarded as presumptive

1. Fisher, Irving, and Fisk, E. L.: How to Live, New York, 1915, p. 236.

2. Dodge, R., and Benedict, F. G.: Neuromuscular Effects of Moderate Doses of Alcohol, Proc. Nat. Acad. Sc., 1915, i, 605.

evidence of the effect of alcohol on organic efficiency. In none of our data is there any indication of a pure facilitation effect of alcohol." These scientific findings leave the conclusion of Quensel[3] unimpeached. "Work and alcohol," he said, "do not belong together, especially when work demands wideawakedness, attention, exactness and endurance."

INSTRUMENTS OF PRECISION, AND PROGRESS IN SCIENCE

Professor Zeleny,[4] of the University of Minnesota, called attention recently to the indispensable service rendered to the progress of science by the development of instruments of precision. "Long experience," he said, "has taught that however much we may owe to the great minds that evolve basic generalizations and hypotheses, real progress in science ultimately rests on the establishment of facts. Our reasoning faculties by themselves are unable to cope with the complexity in the physical world, and are sure to stray from reality unless they are continually guided by observation and experiment." This is true not only for the physical sciences but also for the biologic sciences. As Professor Cope, one of the greatest of American zoologists, used to say, "Nature always proves to be less complex and ever so much more simple in her operations than would seem to be true to the theoretic considerations of the closet philosopher." Facts always prove simpler than theories, and observations than hypotheses, and both owe their accuracy to instrumental precision more than anything else.

What is true of science in general is particularly true of medicine. Instruments enable us not only to observe more accurately and more systematically all that our senses ordinarily perceive, but through them we actually become endowed with new senses that open up fields of knowledge of which otherwise we might not have dreamed. When Galileo devised the thermometer, he gave mankind a new and marvelous power of using the senses. This discovery made the sense of sight accurately serve the function of the heat sense. Nearly two centuries elapsed, after his discovery, before the thermometer came to be used in medicine. When the older medical practitioners saw thermometers used they asked rather superciliously whether physicians were expected to carry around such a toy to occupy the patient's attention and divert his mind. That has been the story of other instruments; the stethoscope, the blood counting apparatus and other diagnostic mechanical aids were each in turn considered with contempt. Galvani, revealing biologic electricity, was called "a dancing master for frogs." Even in our own time the blood pressure apparatus is going through something of the same experience, so far as the general practitioner is concerned.

Steps of real progress in medicine can be measured definitely by tracing the introduction of instruments particularly for diagnosis. Further, the progress of medical practice as an art depends largely on the generalization of the use of instruments of precision for diagnostic purposes. There is nearly always a distinct feeling of opposition to the introduction of new devices because of the inconvenience involved in having them at hand and the habits of accuracy demanded for their proper use. Once they are introduced we wonder how we ever managed to do without them, and realize how handicapped preceding generations of physicians were who knew nothing of them. While steps in the supposed progress that comes from hypothesis and theory often have to be retraced, with serious loss of time to the generation as well as disadvantage to the patient and discouragement for the physician, the advances which are registered with the use of instruments of precision remain with us as definite achievements for both the science and the art of medicine.

3. Quensel, U.: The Alcohol Question from a Medical Viewpoint—Studies in the Pathology of Alcoholism, Year Book, United States Brewers' Association, 1914, p. 168.
4. Zeleny: Science, Feb. 11, 1916.

CEREBRAL PSEUDOTUMOR AND TORULA INFECTION

Occasionally cases occur with symptoms and signs that appear to warrant the diagnosis of brain tumor, but in which after a time recovery takes place or no tumor is found at operation or after death. Such cases are referred to as pseudotumor cerebri. Cases with recovery have seemed quite mysterious; only the complete study of similar cases under favorable conditions will help to clear up the dark points.

Recently Stoddard and Cutler[1] have published some observations on two cases that are of much interest not only from the bearing the results have on cerebral pseudotumor but also because they serve to enlarge and clarify our understanding of human infections with yeastlike organisms. The first case occurred in a woman, aged 42, who died some days after a right subtemporal decompression on account of symptoms of brain tumor, extending over a period of three months or more, and definite signs of increased pressure. Chronic inflammatory lesions, found in various places, explained the more localizing symptoms; there was internal hydrocephalus from stoppage by inflammatory tissue of the aqueduct of Sylvius, and also chronic meningitis. The second case was in a man, aged 39, who died after an illness of several months; the tentative diagnosis considered unilateral hydrocephalus, rapidly growing glioma and abscess in the temporal lobe; the postmortem examination showed an internal hydrocephalus, due to blockage of the foramen of Magendie by inflammatory tissue, chronic meningitis, peculiar lesions of necrotic and inflamma-

1. Stoddard and Cutler: Torula Infection in Man, Monographs of the Rockefeller Institute for Medical Research, No. 6, 1916.

tory nature in the internal capsule and other parts of the brain, and fibrous processes in the lungs, bronchial lymph nodes, liver and spleen. In neither case were there any lesions of the surface of the body.

As to the nature of the lesions, it appears that in both cases there were present in the intracranial lesions in enormous numbers yeastlike organisms which the authors believe belong to the torula group. Unfortunately they could not make extensive cultural studies in their cases; the organisms were present in the cerebrospinal fluid in the second case — herein lies a hint of the possible value of cultural and microscopic study of the fluid for diagnostic purposes in similar cases — and injected in mice they produced quite typical lesions in the brain and meninges. Stoddard and Cutler also found that cultures of a torula, isolated from a pulmonary lesion in a horse (Frothingham), in mice and rats produced changes very much like those seen in their two human cases as well as in four more of like nature previously described by others, but regarded as cases of oidiomycosis or blastomycosis. The changes are of a chronic inflammatory nature, associated with more or less necrosis; the organism usually occurs within mononuclear and giant cells which suffer lysis and disintegration as it multiplies by budding. In the brain substance the lesions are peculiar in that the proliferative reaction is slight while the brain tissues melt away and a gelatinous material forms about the organisms. In other tissues the lesions resemble those of tuberculosis, and as healing takes place, fibrous masses may form. It is possible that intracranial lesions also may heal and hence that cases of pseudotumor cerebri with recovery may have been instances of this sort of infection.

As seen in the lesions, the organisms appear like nongranular, often hyaline, round masses with an easily stained wall, varying in size from 1 to 13 microns, often producing resting cells of larger size. It multiplies only by budding, does not produce mycelium, does not ferment sugars in the same way that yeasts do, and hence belongs in the torula group. It differs from typical yeasts, which, besides multiplying by budding, also form endospores and ferment sugars; from the organism of coccidioidal granuloma, which does not bud but sporulates and forms hyphae, and from the typical organisms of blastomycosis (preferably oidiomycosis), which bud, do not form spores, but produce mycelium. So far as observations now go, the morbid processes in the cases of torula infection in man differ in important characteristics from those of saccharomycosis, of which we as yet have only two instances (Busse, Buschke), of coccidioidal granuloma, and of systemic oidiomycosis, in none of which, to mention only one point, occur the solution of cells and tissues and the formation of gelatinous material described by Stoddard and Cutler in torula infection. On account of this histolytic action, which is especially striking in the early lesions, they propose that the organism be called *Torula histolytica*. They also recommend that the term "blastomycosis" be dropped, because of its indefinite biologic significance, and that the term "oidiomycosis" be applied to the diseases, caused by organisms that bud in the tissues and form mycelium in cultures, which appear to occur more frequently about Chicago than elsewhere. Much is yet to be learned about torula infection and the other diseases here discussed. The mode of infection is as yet obscure, and little or no help in diagnosis is available from immunologic methods. Almost every new case that is studied thoroughly adds something to our knowledge. Cases like those observed by Stoddard and Cutler, and others of related nature, probably occur more frequently than apparent. Progress depends on wider appreciation of this fact and of the need for special care that they do not escape recognition and study.

RESPIRATORY FEATURES OF CARDIAC AND CARDIORENAL DISEASE

The respiratory mechanism is singularly responsive to changes in the reaction of the blood. A very slight alteration in the direction of increased acidity, that is, hydrogen ion concentration, leads to a prompt stimulation of the respiratory center and corresponding effects on the respiratory movements. Ordinarily the reaction of the blood is regulated through the agencies of the kidneys, which excrete nonvolatile acids, and the lungs, which eliminate the volatile acid products of metabolism, notably carbon dioxid. Whenever the acid reaction of the blood increases, pulmonary ventilation is increased as a result, and an augmented output of carbon dioxid through the lungs follows. By reduction of the tension of the gas in the blood in this way the normal reaction of the circulating fluid usually is restored, and respiration resumes its usual pace. It has sometimes been believed that the carbon dioxid tension of the blood is the stimulatory factor in the chain of events just described; at present, however, it is agreed that carbon dioxid does not act specifically in this sense, but only so far as it exerts acid properties.[1] It is also the acid factor most readily eliminated.

Carbon dioxid introduced into the inspired air and thus returned to the blood readily leads to dyspnea. It acts to increase the stimulus to the respiratory center, and can be applied in a functional test of the respiration. Exercise, of course, acts in a comparable way. It increases the acid products in the blood, and promptly provokes increased pulmonary ventilation. Exercise cannot be measured easily, and it involves a variety of added factors, such as the heart and skeletal muscles, which cannot be kept constant or strictly comparable where comparisons are to be instituted. For this reason Peabody of the Peter Bent Brigham Hos-

1. Winterstein, H.: Neue Untersuchungen über die physikalisch-chemische Regulierung der Atmung, Biochem. Ztschr., 1915, lxx, 45.

pital, in his functional tests, has studied the effects of breathing increasing quantities of carbon dioxid in normal subjects and patients at rest.[2] It was found that normal individuals exhibit a fairly uniform and constant increase in ventilation to a given rise in carbon dioxid in the air breathed. Their total ventilation is doubled when the carbon dioxid is between 4.2 and 5.4 per cent. The experiments revealed no differences in response which bore any relation to age, size or weight. Cardiac and cardiorenal patients whose circulation is compensated, and who have no evidence of acidosis as shown by the carbon dioxid tension of the alveolar air, behave in an exactly similar manner. Patients, however, with decompensation and with a grade of acidosis sufficient to lower the alveolar carbon dioxid, may double their ventilation when the carbon dioxid is only 2 to 3 per cent. of the inspired air.

Dyspnea, therefore, is produced much more easily in the patients with acidosis than in those without this symptom. A smaller increment of acid is required in the system to raise the hydrogen ion concentration of the blood to the point of greater stimulation effect. The explanation of this is probably quite simple. The range of the resistance of normal blood to any influence that tends to make it acid is greater than that of blood in the condition of acidosis. As the limit of this resistance is approached in acidosis, the addition of acids to the blood results in a larger and larger increment in the number of free hydrogen ions. The presence of an acidosis in cardiac cases thus renders the organism more sensitive to carbon dioxid or other acids formed in muscular work; and the muscular work sufficient to cause dyspnea is less than under normal conditions. In the pure cardiac cases, the dyspnea seems to depend on a slow or insufficient circulation, which results in a poor oxygenation in the tissues, and may even cause a transient acidosis, owing to the incomplete combustion of metabolic products. In the cardiorenal cases this may be complicated by the presence of a considerable permanent acidosis resulting from imperfect renal excretion of nonvolatile acid products. The acidosis of chronic nephritis is due to a retention resulting from inefficient renal excretion.[3] When acidosis is associated with cardiac weakness, the question of acidosis becomes much more involved, as a new element is added. There is not only the acidosis of nephritis, due to the imperfect renal function, but there may also be an accumulation of acid products of metabolism which are the results of an inadequacy of the supply of oxygen reaching the tissues. Peabody concludes that while acidosis is probably not the sole factor causing the dyspnea in cardiac and cardiorenal disease, it may be an element of considerable importance in producing the clinical picture.

2. Peabody, F. W.: Clinical Studies on the Respiration, No. 1, The Effect of Carbon Dioxid in the Inspired Air on Patients with Cardiac Disease, Arch. Int. Med., November, 1915, p. 846.
3. Peabody, F. W.: Clinical Studies on the Respiration, II, The Acidosis of Chronic Nephritis, Arch. Int. Med., December, 1915, p. 955.

THE NATIONAL BOARD OF MEDICAL EXAMINERS

Until about forty-five years ago, only one or two states had any laws regulating the practice of medicine, and until 1882, no state required an examination. At that time in the majority of states a diploma from a medical college was all that was necessary to obtain for its holder the right to practice. The physician who desired to move to another state was put to no particular hardship, since all he had to do was to present his diploma. By 1902, however, the number of states in which the examination of all applicants was required had been increased to thirty-eight. The diploma then became a mere "scrap of paper" without value except to the extent of admitting its holder to the licensing examination — an ordeal which few men who had been in practice for several years could pass, at least without the sacrifice of much time and labor for a review of the fundamentals of medicine. Important as was such an examination for the recent graduate in order to prove his training in those fundamentals, it consisted largely of nonessentials for those who had long been in active practice.

In order to correct this apparent injustice to practitioners of medicine, a system of reciprocity was devised: the state board waived its right to test the qualifications of the applicant, and accepted the certificate of another board in lieu of its own examination. Even at present the provision made for reciprocity provides for only a small proportion of the instances in which physicians, for good reasons, desire to move from one state to another.

Fourteen years ago THE JOURNAL[1] called attention to these conditions, pointed out that only nine states remained in which a physician's diploma would entitle him to secure a license without an examination, and recommended a voluntary national board of medical examiners as the most practical solution of the problem. At that time the three government services in Washington were suggested as the basis for the creation of this national board. It was also shown that the educational standards should be sufficiently high and the character of the examination so practical and thorough that the qualification thus secured could be recognized by the licensing boards of the various states. As announced about three months ago,[2] a definite movement was under way, and, as shown on page 762 this week, the creation of such a board is now an accomplished fact.

No scheme could be adopted which would not be subject to criticism for some reason or other, but the plan on which this board is created appears to leave little ground for criticism. Since it is a voluntary board, its certificate need not be accepted by any state licensing board unless it sees fit to do so. On the

1. National Board of Medical Examiners, editorial, THE JOURNAL A. M. A., Jan. 11, 1902, p. 108.
2. A National Board of Medical Examiners, editorial, THE JOURNAL A. M. A., Dec. 11, 1915, p. 2091.

other hand, this board will be in position to conduct an examination more thorough and more practical than is possible by individual licensing boards. The recognition of this board's certificate, after its value has once been established, will be under the exercise of the same discretionary powers of the state board as is employed at the present time in the recognition of the certificate of another licensing board. In both instances the licensing board accepts a recognized certificate of qualification in lieu of its own examination.

Heretofore the great obstacle to the establishment of a national board has been the lack of sufficient money to meet expenses until the board could be placed on a self-supporting basis. This need has been met by the Carnegie Foundation for the Advancement of Teaching, which is providing the necessary funds.

The first examinations are to be held in the city of Washington, where adequate laboratories, equipment and clinical material have been placed at the disposal of the board. The ultimate success of this board, however, requires that the examinations be held in different sections of the country, since few medical graduates will go to the expense of a trip across the continent to take such examinations. Any high grade university medical school will doubtless be glad to place its laboratories and ample laboratory apparatus at the service of this board, and also to guarantee an adequate amount and variety of clinical cases to meet the needs of the examination.

There are other important problems to solve, and the possibilities for good that rest in this board, both as regards the public and the medical profession, are so great that careful deliberation should precede every step taken toward the solution of these problems. One mistake may put back for a decade this movement, which is now so promisingly started. By the success of this undertaking, not only will the standard of the medical profession be improved, but the public also will in large measure be benefited.

Current Comment

A NATIONAL LEPROSARIUM

A bill is at present pending before Congress providing for an appropriation of $250,000 for the erection of buildings, maintenance and salaries of a national leprosarium, and for the study of leprosy and its prevention. It has passed the lower house and is now before the Senate Committee on Public Health and National Quarantine. Physicians, sanitarians and public health workers especially interested in this subject have appeared before this committee and recommended the passage of the bill. The leper has always been a source of distress to his fellow man, and his care a vexatious problem. In the United States the question has been especially difficult, owing to the fact that only three states possess permanent leprosariums. In practically all new cases that have appeared in this country during the past few years, the patients contracted the disease outside of the United States. Although the manner of propagation of the disease is not fully understood, it is known to be contagious, and the prevention must be realized chiefly through isolation. While our laxness in regard to vital and morbidity statistics makes it impossible to say definitely how many cases there are, it has been estimated that there are between 800 and 1,000 cases at present in the United States, and that the number is increasing. When patients suffering from leprosy are discovered they are sensationally discussed by the newspapers, and treated rather as criminals than as unoffending unfortunates whose existence is thenceforth to be marked by hysterical fear on the part of the populace and an almost inhuman persecution by unsympathetic and uninformed public officials. The leper chooses rather to spend his time in continual flight than to remain long in any one place where he will be subject to unremitting indignities.

FACTS ABOUT THE BEHAVIOR OF THYMOL IN THE BODY

In connection with the treatment of hookworm disease and comparable forms of intestinal infection with parasitic invaders, considerable prominence has been given to the use of thymol (methylisopropylphenol), a phenol derivative obtained commercially from oil of ajowan and occurring in oil of horsemint, oil of thyme and some other volatile oils. Thymol is an antiseptic comparable in many ways to phenol and the cresols, but it is less soluble in water, and for this reason has been supposed to be absorbed with greater difficulty from the alimentary tract. The latter assumption has made it seem more valuable as an antiseptic for use in the gastro-intestinal tube because of the protection from direct intoxication by the drug thereby afforded to the organism as a whole while the parasite is being destroyed. Owing to the solubility of thymol in oils, it has repeatedly been urged that, when the drug is used, fatty substances should be avoided in the diet in order to avert undue absorption of the large doses required for anthelmintic effects. One might expect that a compound with these properties would reappear in considerable quantities in the feces after its administration by oral paths. Investigations in the Hygienic Laboratory of the U. S. Public Health Service have shown, however, that only insignificant amounts of ingested thymol are excreted in this way.[1] This would indicate that thymol is almost completely absorbed from the alimentary tract and must therefore be oxidized in the body or excreted in the urine. Seidell[2] has therefore directed attention to the behavior of the compound after absorption. It has long been known that absorbed thymol may reappear in the urine as a glycuronate, just as other alcoholic derivatives conjugate with glycuronic acid in the metabolism. A careful study of the fate of thymol gave promise of disclosing

1. Schultz, W. H., and Seidell, A.: Orig. Com. VIII Internat. Cong. Applied Chem., 1912, xix, 281.
2. Seidell, A.: The Excretion of Thymol in the Urine, Bull. 101, Hyg. Lab., U. S. P. H. S., 1915, p. 43.

the mechanism of its action on hookworms, and consequently of indicating the path to be followed in developing drugs of greater potency and safety than thymol. Even now it is being urged that the oil of chenopodium or oil of American wormseed be thus employed. The supply of thymol is said to be extremely limited at present, and the oil of chenopodium is regarded as generally safer.[3] Seidell has found that less than 50 per cent. of the thymol administered either to experimental animals or to human patients who received the thymol treatment for hookworms reappears in the urine. This result, in connection with the previously mentioned experiments on the determination of thymol in the feces, shows that of the thymol administered, from one half to two thirds is apparently destroyed or fixed in the body. A similar fate is suggested for compounds of related type, such as the simpler phenols. No satisfactory explanation has as yet been found for this apparent disappearance of administered phenols. With respect to the fraction that is not reexcreted as glycuronate, it has been surmised that it may be temporarily fixed by the tissues or eliminated by volatilization with the expired air. This is mere conjecture without any supporting evidence. From a practical standpoint there is significance in Seidell's finding that the simultaneous administration of olive oil with thymol apparently caused very slight if any effect on the percentage of excreted drug. In his opinion it is a question, therefore, whether oils really increase the amount of absorption or only the rate.

THE INTERRELATION BETWEEN SALIVARY AND GASTRIC DIGESTION

Physiologists have long known that the starch-digesting enzyme present in the saliva of man is destroyed as soon as it is exposed to even small concentrations of "free" hydrochloric acid, or, in terms of modern chemical interpretation, hydrogen ions present in the stomach. From the standpoint of a useful performance on the part of the starch-digesting saliva, the ready inhibition of its effectiveness as a digestive agent was somewhat mystifying when it was first discovered; for the duration of amylolytic activity appeared to be restricted essentially to the very brief period during which the foods are retained in the mouth, masticated and swallowed. Subsequently it was ascertained that the actual sequence of events within the stomach does not compel an immediate mixing of the entering contents with the gastric juice which is being secreted. The mass that is swallowed in successive portions accumulates at first in the fundus of the stomach; and since in the absence of vigorous muscular movements in that region the contents are penetrated with great difficulty by the gastric secretion which is continually being poured out by the walls of the stomach, salivary digestion can actually proceed for a considerable time without serious interruption. In view of the rapidity with which the salivary enzyme can convert starch into soluble sugar, the preliminary digestion of carbohydrates can therefore usually be completed before destruction of the effective agent in the saliva takes place. Dr. Maxwell,[1] of the physiologic laboratory at the University of Melbourne, has suggested a further function of the salivary enzyme which he believes to be of importance for the later digestive processes. It has long been known that many substances in suspension or in colloidal solution have the power of adsorbing enzymes, thereby inhibiting their activity. Maxwell has found experimentally that although unboiled starch administered in the form of intact grains does not hinder the action of pepsin, peptic digestion may be delayed in the presence of colloidal starch solutions through adsorption of the proteolytic enzyme. The time interval for the peptic digestion may, for example, be increased fourfold in the presence of a 2 per cent. starch solution. There is a stage in the progressive digestive disruption of the starch molecule at which the capacity of adsorption of pepsin is lost. This is coincident with the appearance of dextrins, even before sugars are formed. In accord with the foregoing it is actually found that cooked farinaceous foods — rice, potato, bread, porridge, etc. — all hinder peptic digestion if they are not first subjected to the salivary digestion. The inhibition of peptic activity by carbohydrates like gum acacia is not prevented by a previous contact with saliva for the reason that they are not digested by it. The positive feature to which Maxwell has drawn attention has been summarized by the statement that the saliva of man, by virtue of its enzyme ptyalin or amylase, plays a considerable part in aiding gastric digestion by hydrolyzing colloidal starch which would otherwise adsorb pepsin.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

DISTRICT OF COLUMBIA

Protest Against the Wrapping of Bread.—Washington bakers have appeared before a committee of the United States Senate to protest against the enactment of a pending bill to make the wrapping of bread by bakers compulsory in the District of Columbia. Its enactment has been recommended by the Commissioners of the District.

A New Refuse Disposal Project.—The Commissioners of the District have recommended to Congress that garbage, ashes, miscellaneous refuse and dead animals be collected by the District government directly, and not through the agency of contractors as at present. Garbage and dead animals are to be converted into grease and fertilizer in reduction works. Ashes are to be used for filling low land. Rubbish is to be sorted for the recovery of salable materials and the residue burned in an incinerator. The collection of night soil will be continued by contract, as is now done, but the contractor will be required to treat it so as to destroy bacteria before applying it to the soil. The total estimated capital cost of the undertaking is $885,900. Two years will be required for the construction of the proposed disposal plants.

Lengthening the Working Day for Government Employees.—An increase from seven hours to eight hours in the working

3. Hatcher, R. A., and Wilbert, M. I.: Pharmacology of Useful Drugs, Chicago, American Medical Association, 1915, p. 442.

1. Maxwell, L. A. I.: The Relation of Salivary to Gastric Secretion, Biochem. Jour., 1915, ix, 323.

day of government clerks and other employees in the executive departments in Washington is proposed in an amendment or "rider" to the legislative, executive and judicial appropriation bill offered by Representative Borland of Missouri. As the population of Washington and its suburbs is made up largely of government employees, official, commercial and social life have long been adjusted to the seven hour day. There is a general protest against the change on this account as well as because of the failure of the Borland amendment to provide additional compensation for the additional time demanded and because of the likelihood that increased hours will mean decreased efficiency. Although the clerks and other employees affected by the proposed change are not identified with the American Federation of Labor, the Federation, after action by its executive council, has filed a strong protest.

ILLINOIS

Personal.—Dr. Percy J. Carroll has resigned as surgeon of the Macon County Hospital, Decatur, and will practice in East St. Louis.——Dr. Edmond H. Ames, Antioch, a veteran physician of Lake County, has become totally blind.

Physicians Endorse Water Works Plan.—The Kewanee Physicians' Club, at a recent meeting, endorsed heartily the proposed issue of bonds to finance the new water works. The members pledged themselves to support the plan of the mayor and city commissioner in any other reasonable plan to safeguard the water supply of the city.

Chicago

Internists Meet.—The ninth regular meeting of the Chicago Society of Internal Medicine was held February 28. Dr. Charles Spencer Williamson reported "A Case of Generalized Tuberculous Adenitis Resembling Hodgkin's Disease, with Recovery," and Dr. Arthur R. Elliott spoke on "Syphilitic Aortitis—Clinical and Roentgen Considerations," and Drs. Robert L. I. Smith, Martin R. Chase and James F. Churchill detailed the results of "Studies of Blood Urea in Various Types of Nephritis."

Personal.—Dr. Raymond W. McNealy has been appointed a member of the surgical staff of Cook County Hospital to fill the vacancy resulting from the departure of Dr. Harry M. Richter for service with the German Hospital unit.——Dr. John A. McGill, for three years president of the Illinois St. Andrews Society, was tendered a complimentary dinner by the organization at the Hotel La Salle, March 1.——Dr. Franklin H. Martin has been visiting in Pensacola, Fla.——Dr. and Mrs. James Stuart Pritchard started for California, February 20.

Eulogize Dr. Favill.—At the memorial meeting for Dr. Henry Baird Favill held at the City Club, February 26, Mr. Allen B. Pond, president of the club, eulogized Dr. Favill as follows: "Henry Favill: erect, lithe, the head thrown back, the elastic tread, the swinging stride, joyous vigor incarnate! It seemed that he, of all men, should for years to come resist the attacks of disease, the ravages of time, and yet—last Sunday in the faint gray of the early dawn that splendid spirit slipped away into eternal silence." Drs. Frank Billings, Graham Taylor, Sherman C. Kingsley and Frank H. Scott also paid eloquent tribute to the memory of Dr. Favill.

Sanitary District Blamed for Typhoid.—In February, seventy-one cases of typhoid fever were reported to the department of health from the district receiving its water supply from the Sixty-Eighth Street pumping station while only eighteen cases were reported from all the rest of the city. The health commissioner considers that the sanitary district of Chicago is responsible for this condition, which he considers due to the improper use of the drainage canal whereby "engines which were installed to pump sewage are employed to make more electricity for sale." A warning was issued by the commissioner to the people living in the territory bounded by Forty-Fifth Street on the north, Eighty-Ninth Street on the south and from the lake to the city limits, to take preventive inoculation against typhoid fever.

IOWA

Still Quarantine Against Illinois.—The Iowa Animal Health Commission, at a session, February 8, refused to withdraw the order prohibiting the shipment of stock from Illinois to Iowa owing to the presence of foot and mouth disease in that state.

Larger Hospital Needed.—The Evangelical Deaconess Hospital, Marshalltown, has issued an appeal to business men to raise $120,000 to complete the buildings required for the institution. Of this amount, $30,000 is asked from Marshalltown and Marshall County.

Personal.—Dr. Henry Matthey, Davenport, surgeon in chief of the Military Hospital at Braunsberg, East Prussia, on account of efficient service has been decorated by the German Emperor.——Dr. Will D. Runyon, assistant superintendent of the Iowa Sanatorium, Oakdale, has resigned to become surgeon and superintendent of the sanatorium of the Union Pacific System at Colorado Springs.——Dr. John W. Cogswell, health officer of Iowa City, ruptured an ear drum while diving in the swmming pool of the university gymnasium, February 9.

Child Welfare Research Station.—Although a bill for the establishment of a child welfare research station in the University of Iowa failed in the last legislature, it is expected that such a measure will be adopted in the coming session. As a means of acquainting the people of the state with the objects and the great value and importance of such a research station, in *University Bulletin,* New Series 107, Carl E. Seashore, professor of psychology, has prepared a statement of the plans and possibilities of such a research station for the conservation and development of the normal child. The subject is discussed under the heads of heredity and prenatal care, nutrition of the child, preventive medicine, social surveys and social policy, education and morals and applied psychology. These apply to the research features of such a child welfare station. The practical features are provided for in a proposed extension division which would include a reference bureau, an examination bureau, a correspondence division, a loan library, a central permanent exhibit, publicity bulletins, etc.

KENTUCKY

Warning.—Dr. A. L. Thompson, Madisonville, writes to THE JOURNAL, asking that a warning be published against L. A. McCoy, who claims to represent the Ohio Service Company of Cincinnati, and who is selling automobile supply service at $10. He states that an investigation made in Cincinnati reveals the fact that there is no such concern as the Ohio Service Company known there.

MARYLAND

College Reopened.—St. John's College, Annapolis, which has been under quarantine restrictions for ten days because of the prevalence of scarlet fever, was given a clean bill of health by the health authorities, February 11, and the regular college work was resumed February 14.

Imported Typhoid.—The Danish steamer *Wladimer Savium,* which arrived at Baltimore, February 14, has seven cases of typhoid fever on board. The disease is believed to have been brought from Marseilles, France, and was at first thought to be typhus fever. The men are improving rapidly and will soon be able to return to duty.

Coroners for Baltimore City.—The following physicians were appointed during the past week by the governor as coroners to the various stations in the city: Drs. James K. Insley, F. Edward Smith, Otto M. Reinhardt, Walter L. Denny, William T. Riley, Albert D. Driscoll, James G. Wiltshire, John J. Morrissey, Jr., and Henry L. Sinskey.

New Home for Skin and Cancer Hospital.—The Skin and Cancer Hospital has recently moved into its new home on Greenmount Avenue, Baltimore. The buildings are large and the grounds ample for the accommodation of the patients. The work of the hospital is almost exclusively charitable, and a class of patients not usually received in other hospitals are treated. It is proposed at an early date to establish a free dispensary in connection with the hospital.

Personal.—Dr. Walter E. Dandy, for several years one of the assistant surgeons at Johns Hopkins Hospital, has been appointed resident surgeon of the hospital, to succeed Dr. Roy D. McClure, who recently became surgeon-in-chief at the new Henry Ford Hospital in Detroit. Dr. Dandy for nearly six years had made a special study of surgery at the Hopkins Hospital and has had considerable experience in research work.——Dr. Harry J. Moss, New York, who was recently appointed superintendent of the Hebrew Hospital, Baltimore, to succeed Dr. Mason R. Pratt, has taken up his new duties. Dr. Moss has been assistant superintendent of the Mount Sinai Hospital in New York.——Dr. Harry F.

Shipley, Granite, is under treatment for kidney trouble at the Mercy Hospital, Baltimore, and is said to be improving.

MICHIGAN

Communicable Diseases.—Dr. Allison H. Edwards has been elected city physician of Grand Rapids, to succeed Dr. Ralph C. Apted, deceased. His first duty is to investigate the reported cases of erysipelas in Butterworth Hospital.——Dr. Arthur B. Egan, city physician of Muskegon, has appointed a corps of inspectors whose duty it will be to visit the homes in Muskegon quarantined on account of scarlet fever, at least once in twenty-four hours.

Vital Statistics.—The Forty-Seventh Annual Registration Report of Michigan, covering the year 1913, has been printed and is ready for distribution. This is the sixteenth report of the new series containing accurate statistics of deaths as collected under the law of 1897, and accurate statistics of births as collected under the law of 1905. The report shows the following: total births in 1913, 73,058; births per 1,000 estimated population, 24.8; total deaths, 40,827; deaths per 1,000 estimated population, 13.8; total marriages, 33,529; persons married per 1,000 estimated population, 22.7; total number of divorces, 3,978; persons divorced per 1,000 estimated population, 2.7. The month of March shows the greatest number of births, November the least; March also shows the greatest daily mortality, while October shows the least. The maximum number of marriages per day was in June and the least in February. The report contains detailed analyses in tabular form and in the descriptive matter of the figures relating to vital statistics, the section relating to the causes of death is particularly interesting.

MINNESOTA

New State Board Members.—Drs. Samuel H. Boyer, Duluth, and Theodore Bratrud, Warren, have been appointed members of the State Board of Medical Examiners to succeed Drs. Charles Bolsta, Ortonville, and Frank B. Hicks, Grand Marais, terms expired.——Dr. Carl J. Holman, Mankato, has been reappointed a member of the board.

Leprosy.—According to figures given out by Dr. Henry M. Bracken, secretary of the state board of health, there are eight lepers in the state of Minnesota, all of whom are isolated so that the danger of spreading the disease is minimal. Dr. Bracken says the danger of contagion in leprosy is about one-hundredth as great as in tuberculosis. Sixty-three cases of the disease have been reported since 1890, and there were seventeen deaths from it prior to that time.

Personal.—Dr. and Mrs. Archa E. Wilcox narrowly escaped death in a fire which damaged their home in Minneapolis to the extent of $10,000, February 14.——Dr. Alfred M. Wang, Minneapolis, was overcome by smoke in a fire in the Hulet Block, February 4, and was rescued by firemen.——Dr. Adrien J. Kirghis, St. Cloud, sailed from New York for France on the steamer *La Touraine*, February 12.——Dr. Jacob. W. Magelssen, Rushford, celebrated the fiftieth anniversary of his graduation from Rush Medical College, January 24.

Dispensary Opened.—The Medical Dispensary of Duluth opened, February 14, and is to be open each day from 12 to 1:30 p. m., when members of the staff will be on duty. A trained nurse is in charge during the entire day. Dr. Asher C. Taylor is chief of the general medical staff; Dr. Arthur N. Collins, chief of the surgical staff; Dr. Albert G. Schulze, chief of the department of children's diseases; Dr. Archibald L. McDonald, chief of the department of gynecology and Dr. David L. Tilderquist, chief of the department of diseases of the eye, ear, nose and throat.

NEW JERSEY

Motor Club Organized.—Physicians of Camden have organized a motor club with an initial membership of eighty-one, and have elected the following officers: president, Dr. Ahab H. Lippincott; secretary, Dr. W. Kempton Browning, and treasurer, Dr. Thomas M. Kain.

Tuberculosis.—The board of health of Perth Amboy has started an agitation for an isolation hospital for Middlesex County for tuberculosis patients.——Two men of Passaic suffering from tuberculosis were charged with wilfully exposing their minor children to the disease. Both defendants had been inmates of the Isolation Hospital. Judge Costello at the hearing of the case, February 19, sentenced both men to a term of six months in the tuberculosis pavilion of the Isolation Hospital.

NEW YORK

Wife Also Dies.—Mrs. Pauline Rosenburg Elsner, widow of Dr. Henry Leopold Elsner, who died in Washington, February 17, died at her home in Syracuse, February 23, from grief and shock consequent to the death of Dr. Elsner.

To Do Honor to Elsner's Memory.—A joint meeting of the Syracuse Academy of Medicine and the Onondaga County Medical Society was held, February 18, to conduct memorial exercises in honor of the memory of Dr. Henry L. Elsner and to draft suitable resolutions and to contribute a floral offering. The committee selected to attend to these details consisted of Drs. I. Harris Levy, David M. Totman, Frank P. Knowlton, William A. Groat and Edwin H. Shepard.

Health Centers.—Buffalo has established three health centers, with regular hours for consultation and treatment of the residents of the territory adjacent to the center. The following supplies are distributed free from these centers to physicians and the public: diphtheria and tetanus antitoxins, vaccine virus, typhoid vaccine, meningitis serum, diphtheria culture tubes, Widal outfits, sputum cups, holders and fillers, pocket sputum cups, paper napkins and paraffined bags.

Endowment of Art and Science Department of University.—The University of Buffalo has received actual and provisional endowment for the new department of arts and sciences, amounting to $750,000. Of this amount, $100,000 has been given outright by Mrs. Seymour H. Knox, who with her children, expects eventually to increase this to a total of $500,000. Gen. Edmund Hayes has given $250,000 for the first building on the university site, providing $1,000,000 be raised for like purposes before June, 1919.

The Financial Budget and State Hospitals.—The first public discussion with reference to the budget for hospitals and charitable institutions of the state was held on February 23, at which time Dr. Charles G. Wagner, superintendent of the Binghampton State Hospital, said there were many reasons why the budget plan of appropriations could not work. He suggested that if the superintendents of state hospitals got together they could devise a plan by which many thousands of dollars could be saved to the state. As a result of this suggestion, a letter is being sent to each superintendent of a state hospital asking for his ideas on the preparation of a financial bill.

New York City

Personal.—Dr. and Mrs. Forbes Hawkes have sailed for Havana.——Dr. George O'Hanlon, general medical superintendent of the Bellevue Hospital, acted as city paymaster, February 16, and paid from his own pocket a payroll of $2,000, which he hopes to collect later from the city.

Instruction in Contagious Diseases.—In 1915, the health department conducted a series of lectures and a laboratory course in infectious diseases open free to the practicing physicians of the city. The course was so successful that the department, as announced in the *Weekly Bulletin*, will give another course this spring, the days, dates and hours to be announced.

Changes in Medical Faculty of Columbia University.—Prof. Raymond Dodge of Wesleyan University has been appointed nonresident lecturer in psychology for the academic year; Dr. Alexander T. Martin, lecturer in pharmacology; Dr. Archibald M. Strong, lecturer in clinical medicine, and Dr. Euen Van Kleeck, instructor in physiology. Dr. Gorham Bacon has tendered his resignation as professor of otology, to take effect at the close of the present academic year.

Leprosy.—A statement before the senate health committee, February 15, to the effect that there were 100 persons with leprosy at large in New York, has brought out the statement from the authorities that there are only twenty-four known lepers in the city. They are permitted to live in their homes and engage in their usual occupations, this arrangement being made during the administration of Dr. Sigismund S. Goldwater as health commissioner, after consultation with the leading dermatologists of the city.

New Medical Society Organized.—The first meeting of the Bay Ridge Medical Society was held on the evening of February 1. The district from which the membership is recruited embraces the territory from the Narrows to Thirty-Ninth Street and Gravesend Avenue. The following officers were elected: president, Dr. John P. McQuillin; vice president, Dr. Robert E. Coughlin; secretary, Dr. Frank E. A. Stoney; treasurer, Dr. Roderick Byington, all of Brooklyn. The society has forty-two charter members.

Memorial to Blackwell Sisters.—Friends and classmates of the late Drs. Emily and Elizabeth Blackwell, pioneers in medical education for women, gathered, February 18, at the New York Infirmary for Women and Children, which was founded by the Drs. Blackwell in 1853, formally to dedicate the Emily Blackwell ward and to present the Emily Blackwell tablet. Dr. Josephine Walter presented the tablet in behalf of the Emily Blackwell testimonial fund which was started by the alumnae association of the college in 1899, to raise $20,000 for a memorial ward and tablet.

To Promote Industrial Hygiene.—On February 18, a meeting was held in Cooper Union under the auspices of the People's Institute and the department of health to discuss the duties of the city government toward the working people of the community, with especial reference to improving the conditions under which they work. The speakers were Dr. Sigismund S. Goldwater, Hugh Frayne, Dr. Henry Moskowitz, Royal Meeker and Dr. Louis I. Harris. Letters and telegrams expressing sympathy with the purposes of the meeting were read from President Wilson, Governor Whitman, Congressman London and others.

Semicentennial of New York Health Department.—The New York City Department of Health is to celebrate its semicentennial by a banquet at the Hotel Plaza, March 9. It is said that as at present constituted, the department dates from 1866, when the jurisdiction covered not only New York City and Brooklyn, but the several surrounding counties, and the death rate was larger than that of any other large city in the world. In the last fifty years it has been reduced from 36 per thousand to less than 14. Among the speakers at the banquet will be Mayor Mitchell, Henry Bruers, Surgeon-General Gorgas, State Health Commissioner Briggs, Dr. William H. Welch, Dr. Peter Bryce, representing the Dominion of Canada, and Dr. Stephen Smith, the latter being a member of the original board of health.

OHIO

Hospital for Youngstown.—The chamber of commerce and board of health of Youngstown are working in conjunction for the establishment of an unpretentious but substantial isolation hospital, the cost not to exceed $25,000, to be erected on the site now owned by the city on Mahoning Avenue.

Personal.—Dr. Clyde E. Ford, Cleveland, has been appointed secretary of the state board of health, succeeding Dr. Eugene F. McCampbell, Columbus, resigned.——Dr. William H. White, Cleveland, has been elected chief medical examiner of the Workmen's Compensation Insurance Department of the State Industrial Commission.——Dr. Frank Warner, Columbus, read a paper before the B. Merrill Ricketts' Experimental Surgical Research Laboratory, Cincinnati, February 19, on "Endocarteritis and Connective Tissue Changes in Their Relation to Epithelial Malignancies, Based on the Study of Two Hundred and Six Cases," illustrated by lantern slides.

PENNSYLVANIA

Measles Close Schools.—On February 24, Dr. Samuel G. Dixon, State Health Commissioner, notified the Allentown health authorities that on account of the epidemic of measles they should at once close all schoolhouses, and forbid all children under 15 years of age to go to public places of amusement. There are at present 260 cases of measles under quarantine in Allentown, and thus far this month there have been 365 cases, with several deaths. Theaters and other places violating the regulations will be closed.

Industrial Plants Defy Law Compelling Medical Attendance.—It has been called to the attention of the Bureau of Medical Education and Licensure of the State of Pennsylvania that certain industrial and commercial plants have violated the Medical Practice Act of Jan. 1, 1912, by the employment of unlicensed persons to give medical and surgical attention to their injured employees, and to render services such as may be legally performed only by one licensed to practice medicine in this state. This bureau, therefore, desires to place emphasis on the following facts:

The head of the medical department of any industrial or commercial plant must be a licensed physician of this state.

It is not permissible for either an unlicensed assistant or a nurse to in any way alter the treatment until the order to do so has been given by the licensed head of the department.

It is legal in Pennsylvania for any one, licensed or unlicensed, to apply first aid to any injured person, but it follows as a prerequisite that the licensed head of the department must see this patient at his next visit and direct the future treatment.

It is not permissible for an unlicensed assistant or a nurse to perform any type of surgical operation.

"First aid" is to be construed as meaning the rendering of only such services as will contribute to the safety and comfort of the injured until he or she has the opportunity of consulting a licensed physician.

The attention of industrial and commercial plants is called to the fact that violation of this act is subject to severe penalties.

Philadelphia

New Head for Blockley.—William G. McAllister has been named superintendent of the Bureau of Charities, succeeding Danley W. Seltzer, resigned, and will have charge of the Philadelphia General Hospital, the Hospital for the Insane, and the Home for the Indigent at Byberry.

Feebleminded Exhibit.—Six states have contributed exhibits to the Feebleminded Exhibition, held in this city, February 23 to March 5, under the auspices of Public Charities Association of Pennsylvania with the cooperation of local organizations and a dozen state institutions. On February 24, an average of a thousand visitors an hour attended the exhibit. A new exhibit from the Seybert Institution arrived on that day, which explained by means of pictures and charts the unusually efficient methods taken to determine the mental state of a boy. Among the lecturers were Mrs. Martha P. Falconer, superintendent of Sleighton Farms, Dr. John K. Mitchell and Dr. Walter S. Cornell.

Personal.—Dr. Philip F. Williams has been elected a member of the obstetric staff of the Maternity Hospital, vice Dr. E. P. Bernard, resigned.——The staff of the proposed postgraduate tuberculosis school at Saranac, in the Adirondacks, will include Dr. Henry R. M. Landis, chief of the Henry Phipps Institute.——Dr. Charles F. Mitchell, former secretary of the Academy of Surgery, is now at Paris on duty with the American Ambulance.——Prof. Richard P. Strong of the Harvard Medical School will deliver the fourteenth Rush Society lecture of the College of Physicians, March 7. His subject will be "Investigation of Typhus Fever in Serbia."——Dr. A. C. Valentine has been named as physician at the Home for the Indigent by Dr. Wilmer Crusen, director of Public Health and Charities. The salary is $720 a year.

TEXAS

Revised Quarantine Code.—At a conference, February 9, between the United States customs collector at Galveston and Governor Ferguson, the controversy between the federal and state governments over the enforcement of quarantine regulations at the port of Galveston is stated to have been settled.

Personal.—Dr. Joseph S. Wooten has been elected chairman of the Red Cross chapter of Austin.——Drs. Beverly T. Young, San Antonio; William M. Brumby, Waco; Zachary T. Scott, Austin; and James M. Loving, Austin, were elected directors of the Texas Public Health Association at its meeting in Austin, January 26.

Health Survey.—A health survey is to be made of Paris County under the auspices of the Rockefeller International Health Commission. This survey will include inspection of homes and people and, in addition, a campaign of education. ——The health survey of Orange has been commenced under the charge of Assistant State Health Officer Addeson L. Lincecum, Austin.

Hospital Needed at Houston.—As the result of studies of sanitary conditions in Houston made by Miss Ella Phillips Crandall, the executive secretary of the National Organization of Public Health Nursing, New York, she considers a hospital for the care of communicable diseases and tuberculosis and the districting of the city for clinics and general nurse service the most imperative need of Houston at present.

Students Must be Vaccinated.—Under date of February 5, it was reported that the board of health had issued a mandate that students in all schools, public and private, in San Antonio, must be vaccinated in accordance with the state law. City Attorney Gillette had advised the board that it had full legal power to make the order and the mayor declared that the city would back the board to the full extent of its power. Teachers permitting students to attend school without having been vaccinated, it was said, would be arrested.

UTAH

New Officers.—At the annual meeting of the Utah County Medical Society, January 26, the following officers were

elected: president, Dr. Oscar E. Grua, Pleasant Grove; vice president, Dr. Asa L. Curtis, Payson, and secretary-treasurer, Dr. Walter T. Hasler, Provo (reelected).

Personal.—The president of the Salt Lake County Medical Society and eighty-two other practitioners of Salt Lake City have petitioned the city council asking that Dr. Samuel G. Paul be retained as city commissioner.——Dr. George E. Hyde, Salt Lake City, has been appointed assistant physician of the State Mental Hospital, Provo.

Advisory Medical Staff Planned.—The County Commissioners of Salt Lake City County suggest that an advisory staff of physicians and surgeons he selected to serve the County Hospital free of charge; that the county physician and his assistants devote their time to county health and sanitary affairs outside of the hospital, and that an intern be employed on a salary basis.

CANADA

Dissecting Laboratory for Sherbrooke, Quebec.—Drs. Joseph E. Noel, Jude O. Camirand, and Calixte Ethier, Sr., of Sherbrooke, Que., recently waited on Sir Lorimer Gouin, premier of Quebec, with the petition that the medical bureau in Sherbrooke be empowered to establish a dissecting laboratory. The matter will receive consideration at the hands of the Quebec government.

Manitoba Physicians Meet.—The annual meeting of the Manitoba Medical Association was held in Winnipeg, February 15, under the presidency of Dr. John S. Poole, Neepawa. It was decided that subject to war conditions, the next meeting should be held in the city of Brandon. A resolution was passed expressing the regret of the association on the death of Dr. James R. Jones. The following officers were elected: president, Dr. James McKenty, Winnipeg; vice presidents, Drs. Albert E. Walkey, Portage la Prairie, and Lewis J. Carter, Brandon; secretary, Dr. Alvin T. Mathers, Winnipeg, and treasurer, Dr. T. Glendenning Hamilton, Winnipeg.

Hospital News.—A base hospital is to be organized in Toronto for returned soldiers, and it is likely that the old Toronto General Hospital building will be utilized for the purpose.——The Medicine Hat, Sask., General Hospital treated 1,458 patients during the past hospital year.——The members of the Civil Service in Victoria, B. C., will furnish a ward in the Royal Jubilee Hospital of that city to be named after Sir Richard McBride, former premier, who has departed for England to represent the province abroad.——The Western Hospital, Montreal, treated 15,810 outpatients during 1915. The financial report shows a deficit for the year of over $8,000.

Personal.—Dr. Richard Howey, Owen Sount, Ont., has joined the Canadian Army Medical Corps, and has sailed for England.——Major Perry G. Goldsmith, Toronto, who has been in France with the first Canadian Overseas Force, is home in Toronto for a short furlough. He has recently been gazetted lieutenant colonel and on his return to England will take up his new duties in the Folkestone Eye and Ear Hospital.——Dr. Reginald W. Digby is to be placed in charge of the pathologic department of the Brantford, Ont., General Hospital.——Dr. Allan B. Rutherford has been appointed acting medical officer of health at Owen Sound, Ont., during the absence of Captain Herbert G. Murray on active service.——Major John L. Todd of McGill University, and who is now in France, has been elected a Fellow of the Royal Colonial Institute.——Dr. Henry R. T. Fort, Wallachin, B. C., has been appointed medical superintendent of the Mission Hospital at Lytton.——Dr. Jim B. Jupp, Woodstock, Ont., who went to England with Toronto batteries in January, is reported to be seriously ill with pneumonia in the hospital at Folkestone, England.——Major Ethelbert B. Hardy, a Toronto physician, has been promoted to the rank of lieutenant colonel, and is now in command of No. 2 Field Ambulance in France.——Lieut.-Col. Henry R. Casgrain, Windsor, Ont., who was returned sick to England from command of No. 3 Canadian Hospital at Lemnos, has been appointed in command of the King's Canadian Convalescent Hospital at Bushey Park, England.

GENERAL

New England Roentgenologists Meet.—A meeting of the Roentgen Society of New England was held in Boston, February 12, at which Dr. Willis F. Manges, Philadelphia, gave a talk with lantern slide demonstration on "Brain Tumors" and "Pyeloscopy."

Health Meet in Joplin.—About fifteen cities in Southwestern Missouri, Southeastern Kansas and Northeastern Oklahoma were represented at a meeting held in Joplin, February 17, at which the Interstate Health Officers' Association was organized. The officers elected were: president, Dr. Daniel R. Hill, Joplin, Mo.; vice presidents, Drs. Charles F. Montee, Pittsburg, Kan., and Charles S. Huffman, Columbus, Kan.; secretary, Dr. Guy P. McNaughton, Miami, Okla.

Hides Carry Anthrax.—C. T. G. Rogers of the New York State Labor Department has requested the Surgeon-General of the United States Public Health Service to issue an order for the redisinfection of all hides imported from anthrax-infected ports of China and South America.——Niles Reynolds of Gloversville, N. Y., is said to have died from anthrax, February 13, the disease having been contracted while working on sheep skins imported from South America.

Deficiencies of the Child Supply to be Investigated.—As a means of advancing the national defense, Senator Kenyon of Iowa has introduced a resolution providing for the creation of a committee to investigate the causes of child poverty and to propose remedies for it. The resolution is based on the frequency with which men presenting themselves for enlistment in the military services are rejected because of physical defects that have had their origin during childhood. The commission is to consist of seven members, of whom three are to be physicians.

Tri-State Physicians Meet.—The Tri-State Medical Society of the Carolinas and Virginia held its eighteenth annual meeting in Richmond, Va., February 16 and 17, under the presidency of Dr. James H. McIntosh, Columbia, S. C. Durham, N. C., was selected as the next place of meeting and the following officers were elected: president, Dr. J. Allison Hodges, Richmond; vice presidents, Drs. Charles O. Laughinghouse, Greenville, N. C.; Harvey E. McConnell, Chester, S. C., and William F. Drewry, Petersburg, Va.; secretary-treasurer, Dr. Rolfe E. Hughes, Laurens, S. C. (reelected). Drs. John N. Upshur, Richmond, Va.; J. Howell Way, Waynesville, N. C., and Julius H. Taylor, Columbus, S. C., were elected members of the executive committee and Dr. John R. Gildersleeve, Richmond, Va., was elected an honorary fellow of the society.

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Vincent's Hospital, New York City, $5,000; St. Rose's Free Home for Cancer, New York, $2,500; by the will of Thomas H. O'Connor.

St. John's Guild, New York, $3,000, by the will of Miss Lillian M. Payne.

New York Postgraduate Hospital and Montreal General Hospital, each $50,000, by the will of John Torrence Vanneck.

Tuberculosis Preventorium for Children, Farmingdale, N. J., a donation of $1,000 toward the erection of a pavilion for infants under 1 year of age, from Mrs. Henry Phipps.

St. Vincent's Home and St. Vincent's Maternity Hospital, Philadelphia, each $2,000; St. Mary's, St. Joseph's and St. Agnes' Hospitals, each $5,000 for the founding of free beds by the will of Mary E. Flaherty.

New York Hospital, $5,000, and St. Mark's Hospital, New York, a contingent bequest of $10,000, by the will of Mrs. Adelena M. Cramer.

Stoney Wold Society for the benefit of the sanatorium at Lake Kushaqua, N. Y., $5,000, by the will of Anna P. Morrison.

FOREIGN

For New Hospitals.—Consul Frank W. Mahin at Amsterdam, Netherlands, reports that a commission appointed to investigate and prepare estimates for increasing the public hospital accommodations in Amsterdam has made two propositions: the building of a new hospital and the making of important additions to the Wilhelmina Hospital. The proposed new hospital would be used for higher instruction in medicine and surgery, would contain at first 950 beds, the number to be later increased to 1,200, and would cost over $3,000,000. The addition to Wilhelmina Hospital, as proposed, would give 500 additional beds, and would also provide for medical instruction. The cost would be about $2,000,000. The present hospital accommodation of Amsterdam is about 4,000 beds.

WAR NOTES

Hospital Aid for Russia.—A group of Americans is furthering a movement to present Russia with a well-equipped hospital, the hospital to be under the patronage of the Grand Duchess Tatiana, the hospital to cost, including transportation and one year's maintenance, $225,000. The committee makes an appeal for subscriptions for this philanthropic work. Subscriptions may be sent to the Guarantee Trust Company, 140 Broadway, New York.

Plan Three Base Hospitals for New York.—At a meeting of the Red Cross on February 16, Mrs. E. H. Harriman gave $24,000 for the equipment of a base hospital in this city and the Red Cross of New York County will start a campaign immediately to raise $48,000 for the equipment of two others. Bellevue, the New York Hospital and the Presbyterian Hospital have agreede to cooperate with the Red Cross in this matter. It is announced that Dr. George E. Brewer of the Presbyterian Hospital, Dr. Charles L. Gibson of the New York, and Dr. George D. Stewart of Bellevue will hold themselves ready, each with nineteen physicians, forty-six nurses and 100 helpers as a medical unit in the Red Cross, to leave for any point in the world at the order of Col. Jefferson R. Kean, recently appointed director-general of military relief in the Red Cross organization.

Physicians', Surgeons' and Dentists' Fund.—A committee composed of Drs. George E. Brewer, New York; George W. Crile, Cleveland; Harvey Cushing, Boston; Joseph M. Flint, New Haven, Conn.; Walton Martin, New York, and William H. Potter, D.D.S., with Dr. Charles N. B. Camac, New York, as chairman, has sent out an appeal to physicians, surgeons and dentists of the United States asking each one to pledge himself to contribute to the fund for the relief of the physicians, surgeons and dentists of France, $2 per month for the year 1916, to be placed at the disposal of the American Relief Clearing House in Paris and to be expended as it may see fit under the advice of a representative of the French Academy of Medicine and a representative of the minister of war. The committee further solicits donations of instruments and hospital equipment of all kinds. Checks should be made payable to J. P. Morgan and Company, for P. S. D. Fund, and addressed to the fund at 16 East Forty-Seventh Street, New York, N. Y., and contributions and material should be sent prepaid to the P. S. D. Fund, War Relief Clearing House, 133 Charleton Street, New York, N. Y.

Red Cross Items.—Mr. Charles J. O'Connor, who recently handled with conspicuous success the relief work in Mexico City, has been appointed assistant director general of civilian relief.——There are said to be at present 66,449 women in the French Red Cross Volunteer Service in 1,500 hospitals with an aggregate of 118,000 beds. The Red Cross flag is said to fly over 288 buildings in Paris alone.——A dispatch to the Havas agency from Bucharest, Roumania, under date of February 17, states that "The German authorities are expelling the American Red Cross missions from Serbia."——During January the American Red Cross shipped 172,048 pounds of hospital supplies valued at $45,779 to the Red Cross societies and other reliable relief agencies in Austria, Belgium, Bulgaria, England, France, Germany, Montenegro and Russia.——Early in February the American Red Cross made two large shipments of hospital and noncombatant relief supplies to the American Relief Clearing House, Paris, for distribution in France and to the United States consul at Naples, Italy, for the Italian Red Cross. The shipment to France was made on the transatlantique steamer, *Chicago*, and that to Italy by the steamship *Caserta*.——Count Rudolf Traun, president of the Austrian Red Cross Society, under date of January 9, writes to the American Red Cross expressing his appreciation of the assurance of the desire of the Red Cross to continue to assist in relieving the distressed conditions in Europe although, owing to the shortage of funds, it has been necessary to withdraw most of the trained American Red Cross personnel.

PARIS LETTER

PARIS, Feb. 3, 1916.

The War

DYSENTERIFORM DIARRHEAS IN THE ARMY

At a recent session of the Réunion médicale de la IV-e armée, an interesting discussion was held on this subject. Dr. P. Emile Weil reported that he had treated numerous patients with dysentery of average intensity who were apyretic or febrile for several days. The patients had typical evacuations, from six to forty stools per day, with few general symptoms. The treatment consisted of a diet of vegetable soup and subcutaneous injections of emetin hydrochlorid, which gave better results than any of the other remedies tried (collargol, bismuth, sodium salicylate). After from two to five daily injections of 0.04 gm. the patients recovered. The stools diminished greatly from the first injection; sometimes the movements ceased completely. These dysenteric diarrheas were sometimes due to the dysentery bacillus, sometimes to nonspecific germs. The *Ameba dysenteriae* could not be held responsible. It is interesting to know that the emetin acts on ordinary dysentery conditions as well as on amebic dysentery.

Dr. Léon Giroux observed 172 patients affected with diarrhea. Two thirds of the cases were dysenteriform diarrhea and true dysentery; the other one third consisted of apparently ordinary diarrhea and some cases of choleriform diarrhea. The urinary crisis, which is very marked, is the surest indication of early improvement in the disease. The urine, which is scanty at the acute period, increases to 2 or 3 quarts and sometimes more. This crisis is accompanied by a heavy discharge of chlorids. Patients on a standard diet with plenty of salt eliminate 10, 15 and sometimes even 25 gm. of chlorin a day. The pulse becomes slow parallel with the urinary crisis falling to sixty, fifty and even forty pulsations a minute. There is a temporary total bradycardia, the pulse and the urine returning simultaneously to physiologic level.

As treatment Giroux uses chiefly antidysenteric serum and emetin. In all cases in which dysentery is suspected he uses serum and in all others, including those in which serum is ineffective, he uses emetin in a dosage of 0.04 gm. a day. This drug has given remarkably rapid results even in cases which clinically did not appear to be true dysentery. Apart from cardiovascular treatment, Giroux recommends morphin in choleriform diarrheas. The morphin readily reduces the muscular cramps and produces a refreshing sleep.

Dr. Félix Ramond has observed about ten diarrheas which were called dysentery. The patients had many glairy, bloody stools, with pain and tenesmus. The temperature did not exceed 38 C. (100.4 F.) The facies was griped, sometimes even earthy. The stools had a very strong, putrid odor and were often frothy. Bacteriologic examination showed the absence of dysentery bacilli and amebas. Infection was by the colon bacillus and anaerobic bacteria.

The treatment is based on the fact that anaerobic bacteria do not thrive in a carbohydrate and acid medium. The diet and the medication should be such as to realize these two conditions in the alimentary canal. The diet should be deprived as much as possible of albuminoid substances (milk, eggs, meat) but should consist of carbohydrates (vegetable soup, vegetables, breadstuffs without eggs, sugar and fat). Bactericidal substances should be administered by the mouth or injected directly into the colon. The former method is the least effective. Antiseptics, such as benzonaphthol, are only slightly active. The acids, like lactic acid and sulphuric or hydrochloric lemonade, are neutralized long before they reach the colon. Bile in large doses is somewhat effective. It is better to attack the infection directly by intestinal lavage. Antiseptics (Labarraque's solution, potassium permanganate, etc.) and diluted acids may be injected. This is an efficacious measure, but difficult to handle, for the action on the already injured mucous membrane is often severe and sometimes increases the irritation. Ramond cleanses the mucosa by washing out the colon with sterilized 0.7 per cent. saline solution, and then injects about a quart of 5 per cent. lactose solution, with or without laudanum, which the patient retains as long as possible. The lactose is in part decomposed by the ordinary bacteria of the large intestine with a slow continuous production of lactic acid, which hinders considerably the growth of all anaerobic flora. This treatment is always very well tolerated. It may be repeated several consecutive days until improvement sets in. There are cases, however, which do not respond to this treatment. In these cases Ramond uses lavage with hydrogen peroxid.

It should not be forgotten, however, that therapeutics is a question of opportunity. When the infection appears to be almost under control the diet should be modified, otherwise the diarrhea will persist and the patient's strength decline. It is well at this time to increase the food and in many cases to change the diet. Ramond does not hesitate, after two or three days of carbohydrate diet, to give the patient albuminoid food in the form of raw or rare meat, or even milk products. These various substances increase the normal intestinal secretion, which is perhaps one of the greatest factors in recovery. It is even probable that for a similar reason acids and bile have some efficacy in the treatment of enteritis. He therefore prefers to prescribe them during the course of the disease rather than at the beginning.

ACUTE NEPHRITIS AMONG THE TROOPS IN THE FIELD

At a recent session of the Réunion médico-chirurgicale de la X-e armée, Drs. J. Parisot and Ameuille called attention to the cases of acute nephritis which are becoming more and more frequent in the French army (THE JOURNAL, Dec. 18, 1915, p. 2181). There were few or no cases at the beginning of the campaign, but there are now a formidable number of them. As Dr. J. W. MacLeod has observed, they are

increasing in frequency in the British army similarly. Some of these cases are accompanied by edema and anasarca with heavy albuminuria, and the patients recover readily under a suitable salt-poor diet. A large number present no edema, but manifest a very severe headache similar to that of meningitis, respiratory troubles, etc., which incline the diagnosis in another direction. These latter forms, the very serious ones, are often unrecognized at the outset. It is therefore necessary for regimental physicians to investigate urinary albumin as methodically as they investigate increase in temperature. Finally, there are also a certain number of cases of temporary acute nephritis without edema or serious complications which are characterized by transitory albuminuria and brief malaise. They would be found more frequently if they were systematically sought for. The etiology of these cases is very obscure. There is only one striking factor which is that almost all the patients have been at the front a long time. Some have not been away for sixteen months, and it may be thought that the campaign is decreasing the resistance of the kidney to the point at which it is incapable of withstanding aggressions which are not usually considered as factors in nephritis. Dr. MacLeod says that it was during February, 1915, that the rather large number of soldiers affected with nephritis in the British army began to be noticed. The number increased up to July. This increase could not be explained by the arrival of reinforcements, since these cases of nephritis were observed particularly in soldiers who had already spent six months in France. A division which had been in France since the beginning of the war had forty times more cases of nephritis in May, June and July than another which had been there only three months. The cases observed were nephritis with edema, especially transitory edema. Cylindrical casts were observed in 60 per cent. of the cases, and blood in one half of them. The disease is benign. There is about one death in 300 cases. The causes are variously stated as: (1) mere chilling; (2) chilling plus chemical intoxication; (3) chilling plus microbic intoxication; (4) direct bacterial infection of the kidneys. Although these cases increase in number in summer, some still believe that mere chilling is an important cause, because in summer the difference between the day and night temperature is greater than in winter. It may be objected that in South Africa this difference is often greater and that, notwithstanding, there were few cases of nephritis in the Boer war. Chemical intoxication may also be largely dismissed as a cause. The food has been better supervised than in the Boer war. Chemical analysis has shown the presence of no metallic or organic poisons in the food or in the drink. Possibly, however, further researches may show something new. The use of water disinfected with sodium hypochlorite should be mentioned, but there are two arguments against this as a cause of nephritis: (1) Indian troops which drink chlorinated water have no nephritis; (2) during the Civil War, when chlorinated water was not employed, cases of nephritis were as frequent as in the British army today.

LONDON LETTER

London, Feb. 7, 1916.

The War

THE ZEPPELIN RAID

A fleet of six or seven Zeppelins flew over the eastern and midland counties of England, January 31, and dropped over 300 bombs, some on rural places, and others on towns. The latest returns show that 26 men, 28 women and 7 children were killed, and 48 men, 46 women and 7 children were injured. Serious damage was done to three breweries, three railway sheds, one engine shed, one tube factory, one lamp factory, and one blacksmith's shop. Minor damage, such as the shattering of glass and doors, occurred at a munition factory, at ironworks in two places, a crane factory, a harness factory, a railway grain shed, a colliery and a pumping station. No docks, granaries, munition factories or industrial establishments of any sort, other than those mentioned, were damaged. About fifteen houses of working class people were demolished, and a large number of small shops and dwelling houses were injured, some seriously and many slightly. It is not proposed in future to issue detailed statements of this character, as it is inadvisable to give information to the enemy as to the results of their air attacks. On the occasion of this raid, however, in which the largest number so far of airships have been employed, it is stated that this statement of the damage done is given in order to show how unfounded is the claim that the economic life of Great Britain or its military preparations can be appreciably affected by promiscuous bomb dropping from airships wandering over the country in the dark. In the twenty-nine raids, great and small, that have taken place over Great Britain since the war began, 133 men (of whom 17 were soldiers), 90 women and 43 children have been killed. In one house a man and his wife, with their daughter and son-in-law and their two children, were killed instantly. The bombs fell on the footpath of the narrow thoroughfare, smashing in the front of the house. The occupants, who were sitting round the fire, were mangled beneath the ruins, their bodies being recovered later by the police. A boy walking along the street received the full force of the explosion and was killed on the spot, while a man standing in front of his house some distance away also met with instant death. In another case a man was carrying on his business in a small shop, and the place collapsed and he was killed. One of the bombs, falling in a field made a hole 6 or 7 feet deep and 10 feet square. Another bomb fell in front of a public house and demolished it, but the landlord, his wife and their two sons had a wonderful escape. Every window in the house was blown out, the doors were torn from their hinges, the roof fell on the inmates in their beds, and the licensee and his wife were injured. For a time they were pinned in their room by the wreckage.

MOTOR ACCIDENTS IN THE DARKENED STREETS

In consequence of the lighting restrictions because of the Zeppelin raids, there has been a noticeable increase in the number of fatal street accidents in London. In the case of tramway cars, the increase is given as 135 per cent. In 1913, the fatal street accidents were 579; in 1914, 637, and in 1915, 867. During the first week of this year 22 people were killed in London streets; in the second week, when there was a succession of moonlight nights, there were 15, and in the third, there were only 13.

"TRENCH FEET"

The numerous cases of gangrene of the feet which occurred in the first winter of the war, in consequence of the men standing for many hours in cold water or mud, has given rise to a serious problem. At the Royal Institution Leonard Hill, the physiologist, delivered a lecture on the "Science of Clothing and Prevention of Trench Feet." He controverted the prevalent idea that cold is the cause of much illness, and said that our defensive measures against it had gone too far. Cold increased the metabolism of the body and therefore promoted the joy of life. The variations of temperature against which people were at pains to protect themselves were beneficent, and danger lay in windless or stagnant air and in the skin being the same temperature all over. Men in our army, who had been accustomed to sedentary lives in a confined atmosphere, gained in appetite, growth and color under exposure; but they were subject to the danger of trench foot, which was due not only to rapid cooling of the surface but of the whole limb, especially through water soaking into the tissues and damaging their vitality. Grease could be used to keep the water out, and the natural grease in the skin also helped; but when boots were full of water for prolonged periods the grease got used up, and the tissues, being penetrated by water, were attacked by bacteria. He commended the Italian method of covering the feet with a fabric soaked in grease to prevent the water from entering the tissues. If the soldier was standing in mud, the place in which he stood became to some extent warmed, and this gave a certain degree of protection; but in running water the conditions were much worse. The problem was how to keep out both wet and cold, and in regard to temperature there was not so much importance in the kind of fabric for clothing as in its capacity for retaining dry air. He described and illustrated the garments used in Labrador. The footgear consisted of elastic, watertight skins in two or three layers, which held dry air. In contrast with this excellent method was the army boot, which was hard and close fitting and had plenty of metal to increase its conductivity. Some form of wader on the Labrador principle, in combination with stockings soaked in oil, was to be recommended.

THE MAN WHO MADE QUININ CHEAP

Sir C. Markham has died at the age of 85, from burns due to a fire caused by reading in bed by candlelight. He entered the navy in 1844, and served in the Franklin search expedition in the arctic regions. He was a great traveler and writer on geographic subjects. In 1852 he made his first visit to Peru, mainly to inquire into the remains of the Incas. When the government of India perceived the value of quinin

in malaria, it determined to introduce the cinchona plant into that country from Peru. Sir Clement Markham was entrusted with the task, which he carried out most successfully, with the result that the price of quinin was reduced from many shillings to a few pence per ounce. The service thus rendered by him to humanity has been everywhere recognized.

BERLIN LETTER

BERLIN, Jan. 26, 1916.

The War

THE BLINDED SOLDIER

Among the badly injured and crippled soldiers those who have become blinded are receiving considerable attention. Measures have been adopted to make easier the lot of these unfortunates. The government has decreed that every blinded soldier will receive a yearly pension of 1,368 marks ($342); noncommissioned officers receive from 60 to 360 marks additional. The annual pension of a blinded officer is at least 4,000 marks ($1,000). Many of these unfortunates are also entitled to the invalids' pension provided for by the workmen's compensation laws. Every blinded soldier who, previous to his admission to the army, was engaged in an occupation coming under the compensation act may demand the legal pension, which is not less than 150 marks ($37.50) per year, and may be as high as 300 marks ($75). Private donations have helped to raise the funds necessary to meet these expenditures. The call issued in March, 1915, asking for donations, has been answered to the extent of 2,750,000 marks ($687,500). The fund for the blind, established by the German Society for National Education, which has amounted to about half a million marks ($125,000) purposes to assist the blind until such time as the state assumes the obligation by giving them suitable employment. They will be taught how to write so that they can qualify for telephone operators, typists and masseurs. Those who are musically inclined will be given instructions in music. The medical men have raised some objection to increasing the number of masseurs because there are already too many, and the blind masseurs might not be able to secure any employment, although in Japan they have as much work as they can do. It was pointed out, however, that conditions in Japan are entirely different from what they are in Germany.

Another organization interested in this work is the Society for the Blind, whose headquarters is in Hamburg. This society will interest itself particularly in taking care of the blind soldiers when they leave the hospitals but are still convalescing and unable to take any employment. It is planned to form small groups, each group being in charge of a blind person who is thoroughly trained in this work, and send them to some *Pension* for from four to six weeks with the object of restoring the lost mental equilibrium so that the soldier will be placed in position where he can return home and take up the work of learning such trade as he may wish with energy and a mind at rest. Prussia has sixteen institutions for the blind. In 1910 there were 4,000 inmates. In the same year there were 21,000 blind in Prussia.

NUTRITION OF CHILDREN

Dr. Hepner has published observations made in regard to the state of nutrition of the children of Mannheim who are just entering on school life. Comparing 500 children who entered school at Easter, 1914, with a similar number for 1915, he found that the average weight for 1915 was exactly the same as for 1914.

THE FOOD PROBLEM

The increased cost of provisions has raised the hospital rates at many points. At the Schöneberger hospital the price for the residents of the city has been raised 50 pfennige (about 12 cents), and for nonresidents 1 mark (25 cents) per day, so that hereafter the day rate will be 3½ marks (88 cents) and 4½ marks ($1.13), respectively. This increase is trifling.

There has to be some restriction in the use of fat and butter. It goes without saying that every one must practice economy and exercise good judgment and even suffer some restriction in the use of all kinds of provisions, and there naturally must be a slight increase in their price. That starvation is still a remote problem is shown, further, by the food given to prisoners of war. The daily rations provided for some time ago have remained unchanged. Every person receives daily 90 gm. of albumin (formerly 85), 30 gm. of fat (formerly 40), 500 gm. of carbohydrates (formerly 475), and 10 per cent. is added for persons who are working, or such as are poorly nourished. The government purchased the more essential food products and staples outright through the ministry of war, so that each prison camp is placed on the same basis, so far as food is concerned, and there is no misuse of anything sent to them. Germany is now taking care of about 1,500,000 prisoners of war, and to feed these there are required daily about 600 head of cattle, 900 hundredweights of bread and 30,000 hundredweights of potatoes. The letters sent home by prisoners of war show that very few of them have lost in weight since their capture. In many of the prison camps the meals are prepared and served from a central kitchen. In a few the cooking apparatus is of the most modern kind, such as steam cooking. Most of them use the "kettle over the fire" method, each kettle having a content of about 500 quarts. Some camps have their own bakeries, and often kill their own cattle. The principal meal is served at noon. It consists of potatoes, vegetables and meat. Twice each week fish is served instead of meat. For example, the meals for Sunday consist of: breakfast—300 gm. of bread; 5 gm. of coffee, 10 gm. of chickory, and 25 gm. of sugar; dinner—120 gm. of beef (with bones); 300 gm. of kohlrabi or carrots, and 750 gm. of potatoes; supper—200 gm. of bread and 100 gm. of cheese. Monday: breakfast—300 gm. of bread; soup with 50 gm. of corn flour; 35 gm. of sugar, and 100 gm. of skimmed milk; dinner—150 gm. of fish; 750 gm. of potatoes; 30 gm. of soja bean oil, and 50 gm. of horseradish; supper—soup with 30 gm. of barley; 30 gm. of soja bean flour; 100 gm. of margarin, and 400 gm. of potatoes. The cost per day is 66 pfennige (16 cents) for privates and 1 mark 40 pfennige (34 cents) for officers.

Association News

BY AUTOMOBILE TO DETROIT

Arrangements by Subcommittee on Automobiles

Detroit, first among the cities of America in the production of automobiles, estimates that 705,000 automobiles were manufactured within its limits in 1915. It is not surprising, therefore, that the city takes an interest in maintaining excellent roads, and offers country drives which extend in every direction beside lakes and rivers, and over the hills, to numbers of charming resorts, as well as to cities and villages.

The fine roads will tempt physicians to use their automobiles in going to Detroit from great distances, certainly from cities as far off as Buffalo, Chicago or Cincinnati. In order to assist these physicians to find the accommodations they need, the local Committee on Arrangements has appointed a subcommittee on automobiles, and suggests that physicians who desire to make reservations of garage space, or who need advice concerning other matters of interest in connection with going to Detroit by automobile, address the chairman of the subcommittee at 33 High Street, East, Detroit. It is desired to arrange for these reservations at as early a date as possible. The rates for service are stated to be:

Storage, 24 hours	$0.75 to $1.50
Washing and polishing cars	1.50 to 2.50
Labor on repairs, etc	.75 per hour

Marriages

FRANCIS HENRY BOUCHER, M.D., to Miss Marie Elizabeth McKeever, both of Marshalltown, Iowa, in Mason City, February 12.

ALBERT O. HOLMES, M.D., Long Beach, Calif., to Miss Sadie O. Worley of San Bernardino, Calif., February 19.

WILLIAM EDGAR HOLLAND, M.D., Fayetteville, Pa., to Miss Nettie Schaal of Waynesboro, Pa., February 7.

HATLEY NORTON MASON, M.D., to Miss Frances Lockert Bemiss, both of Richmond, Va., February 15.

EUGENE PHILLIPS NEITZ, M.D., to Miss Winifred Gladys Shurtleff, both of Cleveland, February 22.

EDWARD SCOTT O'KEEFE, M.D., Lynn, Mass., to Miss Ruth Evans of Boston, January 4.

Deaths

Robert Allen Blood, M.D., George's Mills, N. H.; Harvard Medical School, 1870; aged 77; a member of the Massachusetts Medical Society and president of the Association of Military Surgeons of the United States in 1902; a veteran of the Civil War; surgeon-general of Massachusetts from 1896 to 1904 when he was retired with the rank of major general; after his retirement, appointed surgeon in chief of the Massachusetts Soldiers' Home, Chelsea; died suddenly at his home, February 21.

Hugo Philler, M.D., Minneapolis; University of Greifswald, Germany, 1861; aged 78; formerly a member of the State Medical Society of Wisconsin; local surgeon of the Chicago, Milwaukee and St. Paul System at Waukesha, Wis., and health commissioner of the city; assistant surgeon of the Forty-Fifth New York Volunteer Infantry during the Civil War; for eight years a resident of Minneapolis; died in the Minnesota Soldiers' Home in that city, February 17.

Rufus H. Smith, M.D., Seattle, Wash.; College of Physicians and Surgeons, Baltimore, 1877; aged 64; a retired practitioner and capitalist; who had resided in Seattle since 1899; for six years chief surgeon of the Great Northern and Columbia and Puget Sound railroads; a member of the legislature from King County and president of the Senate in 1903; died in the Seattle General Hospital, February 12.

John R. Williams, M.D., White Pigeon, Mich.; College of Physicians and Surgeons, Chicago, 1886; aged 66; a member of the Michigan State Medical Society and formerly president of the St. Joseph County Medical Society, and vice president of the Tri-State Medical Society; local surgeon of the Lake Shore and Michigan Southern Railroad at White Pigeon; president of the St. Joseph County Board of Health; died at his home, February 16, from heart disease.

Charles Magill Schindel, M.D., Omaha; Bellevue Hospital Medical College, 1887; aged 52; a member of the Nebraska State Medical Association; president of the Live Stock National Bank from 1907 to 1909; and for several years president of the board of education; who went West on account of his health about six weeks before; died in Spokane, Wash., February 11, from cerebral hemorrhage.

William B. Church, M.D., Gary, Ind.; Eclectic Medical Institute, Cincinnati, 1866; aged 78; assistant surgeon of volunteers during the Civil War; formerly professor of physical diagnosis in the California Medical College, San Francisco, and professor of didactic surgery in his alma mater; for many years a practitioner of Michigan, but since 1911 a resident of Gary; died in Chicago, February 16.

William McKay, M.D., Reserve Mines, N. S.; Bellevue Hospital Medical College, 1873; aged 68; formerly president of the Cape Breton (N. S.) Medical Society and of the Nova Scotia Medical Association; for seven years a member of the legislature of Nova Scotia from Cape Breton and at the time of his death a member of the Canadian Senate; died at his home, November 8, from heart disease.

William L. Kneece, M.D., Baxter, S. C.; Medical College of Georgia, Augusta, 1883; aged 64; a Fellow of the American Medical Association and a charter member, and for several years president of the Lexington County (S. C.) Medical Society; for more than thirty years a practitioner and druggist of Baxter; died at his home, February 4, from cerebral hemorrhage.

John F. DeBra, M.D., Dayton, Ohio; Medical College of Ohio, Cincinnati, 1870; aged 78; for half a century a practitioner, the first part of his time having been spent as acting assistant surgeon, U. S. Army at Fort Reno, Okla.; for more than twenty years a practitioner of Dayton; died at his home in that city, February 14, from cerebral hemorrhage.

Stephen F. Carpenter, M.D., St. Joseph, Mo.; University of Louisville, Ky., 1871; aged 70; formerly a member of the Missouri State Medical Association and professor of theory and practice of medicine in the Ensworth-General Medical College, St. Joseph; from 1884 to 1886 a member of the city council; died at his home, February 15, from cerebral hemorrhage.

Anthony Freeland, M.D., Ottawa, Ont.; Queens University, Kingston, Ont., 1889; aged 59; who retired from practice in 1902 to become collector of customs for the port of Ottawa; a member of the Separate School Board; died at his home, November 3, from angina pectoris.

Perry Joshua Payne, M.D., Portland, Ore.; Rush Medical College, 1904; aged 44; a Fellow of the American Medical Association; for five years physician and physical director of the Portland Academy and for the last two years medical inspector of the Portland public schools; died in the Good Samaritan Hospital, Portland, February 12, from pneumonia.

C. Ash Levering, M.D., Ashland, Ohio; Starling Medical College, Columbus, Ohio, 1888; aged 49; county treasurer of Ashland County, Ohio, for two terms and thereafter cashier and vice president of the Ashland Bank and Savings Company; died in the Samaritan Hospital, Ashland, February 13, six days after an operation for appendicitis.

James Edwin Medden, M.D., Seneca Falls, N. Y.; Long Island College Hospital, Brooklyn, 1895; aged 56; a member of the Medical Society of the State of New York; formerly president of the Seneca County Medical Society; a member of the board of supervisors of Seneca Falls; died at his home, February 11, from septicemia.

William Ernest Morris, M.D., Lisbon, Ohio; Toledo (Ohio) Medical College, 1900; aged 56; a Fellow of the American Medical Association; a charter member and for many years secretary and treasurer of the Columbiana County Medical Society; died at his home, February 18, from acute suppurative otitis media and pneumonia.

David P. Miller, M.D., Huntingdon, Pa.; Jefferson Medical College, 1864; aged 79; a charter member of the Huntingdon County (Pa.) Medical Society; surgeon of volunteers during the Civil War; local surgeon of the Pennsylvania System, and Huntingdon and Broad Top Railroad; died at his home, February 16, from uremia.

Oscar G. Singleton, M.D., Fort Valley, Ga.; Vanderbilt University, Nashville, Tenn., 1891; aged 58; a Fellow of the American Medical Association; local surgeon at Fort Valley for the Central of Georgia Railroad; while returning from Macon, February 12, was instantly killed by the overturning of his automobile.

W. W. Anderson, M.D., Summerton, S. C.; Medical College of the State of South Carolina, Charleston, 1868; aged 71; for many years a practitioner of Statesburg, S. C.; but for the last quarter of a century a resident of Summerton; died at the home of his daughter in that place, February 9.

James Mecray, M.D., Cape May, N. J.; University of Pennsylvania, Philadelphia, 1865; aged 73; a member of the Medical Society of New Jersey; a veteran of the Civil War; formerly councilman and city treasurer of Cape May; died at his home, February 9, from cerebral hemorrhage.

Alanson George Aldrich, M.D., Anoka, Minn.; College of Physicians and Surgeons, Baltimore, 1879; aged 59; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat with offices in Minneapolis; died at his home, February 19.

Hiram A. Barber, M.D., Hastings, Mich.; Hahnemann Medical College, Chicago, 1881; aged 73; a veteran of the Civil War and once health officer of Hastings; died in a hospital in Grand Rapids, February 21, several weeks after a surgical operation.

Lewis W. Finch, M.D., Eupora, Miss.; Memphis Hospital Medical College, Memphis, Tenn., 1902; aged 36; formerly a Fellow of the American Medical Association; a member of the Mississippi State Medical Association; died at his home, February 15.

Thomas S. Dekle, M.D., Thomasville, Ga.; Medical College of Georgia, Augusta, 1868; aged 73; a Confederate veteran and one of the oldest residents of Thomasville; died at his home in that place, February 12, from pneumonia following influenza.

Alfred M. Young, M.D., Salem, N. Y.; Albany (N. Y.) Medical College, 1862; aged 79; a Fellow of the American Medical Association; for many years health officer of Salem; died at his home, February 16, from disease of the kidney.

D. H. Hall, Chattanooga, Tenn. (license, Tennessee, 1889); aged 85; for more than sixty years a practitioner of the Sequatchie Valley, Tenn.; died in the Woolford-Johnson Sanitarium, Chattanooga, February 17, from pneumonia.

William F. Bedell, M.D., Jacksonville, Fla.; New York University, New York City, 1867; aged 76; formerly of Brooklyn; died at the home of his son in Jacksonville, Fla., January 22, from rupture of an aneurysm of the aorta.

Joseph Q. Cooper, M.D., Centralia, Mo.; St. Louis University, 1905; aged 34; a member of the Missouri State Medical Association; was shot and killed in Centralia, February 14, in an altercation with the city marshal of Centralia.

Wesley Allen, M.D., West Newton, Ind.; Indiana Medical College, Indianapolis, 1873; aged 79; a Fellow of the American Medical Association and one of the oldest practitioners of Indiana; died at his home, February 22.

Richard S. Grimes, M.D., Lincoln, Neb.; Bennett Medical College, Chicago, 1873; aged 63; for thirty-eight years a practitioner of Lincoln, Neb.; for several terms physician of Lancaster County; died at his home, February 14.

Neil Baker Sewell, M.D., Buyk, near Wetumpka, Ala.; Vanderbilt University, Nashville, 1886; aged 64; a member of the Medical Association of the State of Alabama; died in an infirmary in Montgomery, Ala., February 13.

Sumner Edwards, M.D., MacMahan, Me.; Harvard Medical School, 1915; aged 26; medical house officer at the Peter Bent Brigham Hospital, Boston; died in that institution, January 6, from lobar pneumonia.

John Koplitz, M.D., Middletown, Conn.; Ludwig-Maximilians University, Munich, Bavaria, 1847; aged 93; believed to have been the oldest practitioner of Connecticut; died at his home, February 10.

George Robert Dunlap, Kendallville, Ind. (license, Indiana, 1897); aged 83; a practitioner of Kendallville for forty-four years; died in the Noble County Infirmary, January 24, from cerebral hemorrhage.

John C. Krieger, Jr., M.D., Cincinnati; Medical College of Ohio, Cincinnati, 1888; aged 65; a well known alienist; died in the German Deaconess Hospital, Cincinnati, February 10, from nephritis.

James W. Conger, Talmage, Neb.; formerly of Burr, Neb. (license, Nebraska, 1891); aged 85; for more than half a century a practitioner of Nebraska; died at his home, January 26.

Allen E. Baker, M.D., Auburn, N. Y.; New York Homeopathic Medical College, New York City, 1888; aged 53; died at his home, December 15, from chronic interstitial nephritis.

Wilbur A. Beard, M.D., Chicago; Hospital College of Medicine, Louisville, 1901; New York Homeopathic Medical College, New York City, 1904; aged 39; died about February 2.

Bartley B. Yost, M.D., Rowley, Iowa; St. Louis College of Physicians and Surgeons, 1898; aged 43; also a graduate in pharmacy; died at Glenville, Los Angeles, Calif., February 7.

Thomas C. Hightower, M.D., Campti, La.; Louisville Medical College, 1898; aged 41; a member of the school board and town council of Campti; died at his home, February 2.

William A. McCallister, M.D., Centralia, Mo.; Missouri Medical College, St. Louis, 1879; a Fellow of the American Medical Association; died at his home about February 16.

John William Dorough, M.D., Girard, Ala.; Atlanta (Ga.) Medical College, 1894; aged 48; formerly a practitioner and druggist of Tallassee, Ala.; died at his home, February 6.

Walter Morris Litchfield, M.D., Salamanca, N. Y.; University of Buffalo, N. Y., 1886; aged 53; well known as a physician and oil producer; died at his home, February 9.

W. D. Wright, M.D., Powder Springs, Ga.; Atlanta (Ga.) Medical College, 1884; aged 66; died at his home near Lost Mountain, Ga., February 4, from cerebral hemorrhage.

Ellis Augustus Squier, M.D., Frankfort, Ind.; Eclectic Medical Institute, Cincinnati, 1888; aged 67; died at his home, February 14, from pneumonia.

Lucius J. Landes, M.D., Grand River, Iowa; Marion-Sims College of Medicine, St. Louis, 1892; aged 48; died at his home, November 5, from embolism.

F. H. Morton, M.D., Okmulgee, Okla.; Memphis Hospital Medical College, 1901; aged 42; died at his home, February 8, from pulmonary tuberculosis.

August Hilary Meath, M.D., Chicago; Rush Medical College, 1888; aged 53; died at his home, February 16, from lobar pneumonia.

James E. Blaydes, M.D., Covington, Tenn.; Jefferson Medical College, 1862; aged 80; died suddenly in Covington, February 7.

Humphrey Fall Brackett, M.D., Brighton, Boston; Boston University School of Medicine, 1884; died at his home, January 31.

Francis O. Reddin, M.D., Hamler, Ohio; Louisville, (Ky.) Medical College, 1890; aged 53; died at his home, February 12.

W. H. Owen, Nashville, Tenn. (license, Tennessee, 1910); died at his home, February 1.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

"DRUG REFORM"

As it Appears to the Cleveland Medical Journal

The matter which follows appeared originally as an editorial in the *Cleveland Medical Journal.* It expresses, we believe, the attitude of the thinking physician toward the subject discussed:

Physicians have come to the realization that drugs are as a two-edged sword—under proper conditions, striking against the disease; otherwise, against the patient's health. The first condition for their proper use is adequate knowledge of their composition and purity; of their actions and malefactions; their field and limitations. Slowly and painstakingly—sometimes painfully—this scientific knowledge has been gathered, is still being gathered, by chemists and pharmacists, pharmacologists and clinicians, with increasing thoroughness, care and discrimination.

Where wisdom fears to venture, unwisdom and cupidity find ample room. The wise physician knows that there are ills that drugs cannot cure; that drugs generally only aid or relieve; and that to obtain even this aid efficiently and safely, the existing scientific knowledge is none too great. Not so the unwise. He who sees in disease only a name, to him a name is a sufficient cure. Let there be a mixture with a convenient and suggestive name and a pleasant taste, a compendious index of diseases and symptoms—and a lively imagination—and the cure is accomplished. Few things could be easier, and few more false. It is not surprising that the "man on the street" should fall into these errors; it is sad that any physician should be misled by the sophistry of interested drug vendors.

Physicians have the moral obligation to instruct the public in matters of health. Preaching before practice is of little avail. It behooves the medical profession to make at least a reasonable effort to clean its own house before it passes the broom to the public. Realizing this responsibility, the American Medical Association some years ago established its Council on Pharmacy and Chemistry. This Council is strictly an educational agency—it collects and disseminates knowledge about drugs, especially those drugs that are advertised to physicians and that are not described in the legal pharmacopeias. Physicians are thus put in a position to discriminate. Many have done so; others will; a few may never see the light on this earth.

Journals can no longer claim that they mislead their readers in good faith. Some—the *Cleveland Medical Journal* among the first—have frankly acknowledged their obligations, and sacrificed a lucrative income from advertisements; others are still occupied in compounding the matter with their conscience. Manufacturers are in a similar position. Those who are on the side of scientific progress—or to put it materially, those who realize that honesty is the best policy—are taking the opportunity to separate themselves from the dishonest and ignorant.

Altogether, the medical profession may safely advise the public on the subject of drugs without laying itself open to the charge that it preaches what it is unwilling to practice.

Meantime, the public itself has had a somewhat similar awakening. The progress of the profession has necessarily spread more or less to the laymen. All sorts of educational agencies have been working to convince the public that individual and national health is too precious an asset to be entrusted to any quack who may spell his praise in printer's ink. Legislators have passed food, drug, and anti-narcotic laws which have aroused interest and discussion. Even the

"drugless cults" have somewhat offset their harm by causing the public to reflect that drugging is not a panacea for all ills. All this has not been without effect. The public is in a receptive mood; it is not convinced, but wishes to learn. Legislators are prepared to follow public opinion. The purveyors of patent medicines are watching events.

What, under these conditions, should be the attitude of the medical profession? Plainly, it should continue to be what it always has been: to stand aggressively for the protection of the public health, without any compromise. In doing so, it is true, physicians will expose themselves to the imputation of selfish motives. Selfishly commercial minds cannot or will not understand the unselfish ideals of a profession—that is their loss. Physicians, however, must be careful not to give a semblance of reason to the charge; for that would diminish the effect of their attitude. They must confine themselves to informing the public of the facts; and to guarding the health of the public at large, and of their own patients in particular.

No one, in a free country, can force a diseased individual to seek effective treatment or prevent him from using an ineffective treatment, unless his disease imperils the health of others. At that point, and not before, the government can and should take personal measures. However, it is a well recognized function of the government to protect individuals against their own ignorance. It does this when it forces the child to go to school; it does this when it places the swindler in jail.

On exactly the same principal, the government has the right and the duty to protect the uninformed public against the flagrant evil of the patent medicine traffic—and the patent medicine traffic as now carried on is a flagrant evil and series of evils. The government should protect the public against advertisements that are framed to suggest or create imaginary ailments, with their attendant miseries; it should protect the public against being deluded by false promises of cure; against the specious relief that merely hides the disease and blinds the patient to its dangers; against drugs that may and do work positive harm; against the veil of mystery that makes these abuses possible.

The individual layman cannot protect himself against these dangers, and has a right to expect that the government will prohibit the indiscriminate sale of any medicine that may be harmful to him. He has a right to expect, when the government permits the sale of a patent medicine, that the medicine will do him no harm; just as he has a right to expect that any physician whom the government permits to practice, should be competent.

These are some of the reasons why physicians oppose patent medicines as they are now exploited; and for these reasons, physicians should take an absolutely uncompromising attitude, and use every opportunity to educate the public. The patent medicine interests naturally try to obscure the issue. By the art in which they are so skilful, they aim to suggest to the public that physicians are opposed to patent medicines, in order to drive patients to their offices. They "forget" to mention that physicians have never conducted a "campaign" against really efficient preventive public-health measures, no matter how many prospective patients were involved. No physician has ever refused to give diphtheria antitoxin because this would diminish the number of his visits. A short memory is a very convenient asset for self-interested persons. It is not so convenient for the public—but it is all too frequent. Physicians must, therefore, make it plain that their stand is not against patent medicines, but for the protection of the health of the public.—*Cleveland Med. Jour.*, November, 1915.

Conservation of Human Health.—Our government has conserved about everything in our country except human health. It conserves the streams, its lands, its forests, and its animals; but man, for whom all these things should be conserved, is neglected or left for the last consideration.—John W. Duke, *Jour. Oklahoma State Med. Assn.*, February, 1916.

Correspondence

Strontium Salicylate versus Sodium Salicylate

To the Editor:—My attention has been called to an article by Dr. M. A. Blankenhorn (THE JOURNAL, Jan. 29, 1916, p. 331) in which the author quotes the eleventh edition of Wood's "Therapeutics" and the eleventh edition of my book on therapeutics concerning strontium salicylate as being a satisfactory substitute for sodium salicylate, chiefly on the ground that it is less disagreeable to the taste and less irritant to the stomach than the latter drug. He attempts to controvert this view. He also says that the statements made have been "lugged along" from one edition to another from no well-established starting point, although, in the quotation from my book, it is distinctly stated what I, myself, have found to be facts.

As THE JOURNAL has called attention to this article in its editorial columns, and as the article in no way controverts the statements made by Dr. Wood and myself, it may not be unwise to point out certain fallacies in the author's experiments and conclusions. He gives a table of twenty-three cases treated with strontium salicylate in combination with equal amounts of sodium bicarbonate. These twenty-three cases, in the majority of instances, have nothing whatever to do with acute articular rheumatism or any of the conditions in which the salicylates are commonly employed. Out of the twenty-three there are only eight of acute articular rheumatism, and the others vary from cervical adenitis to lobar pneumonia and gonorrheal arthritis. Although the conclusion is reached that strontium salicylate is no better, so far as the stomach is concerned, than the sodium salt, no comparative experiments as to the sodium salt are recorded and nothing is said in regard to the condition of the liver, stomach and intestines in these patients. Some patients suffering from diseases in which these doses were given would vomit even if food was placed in the stomach. It is surprising to find that a woman of 48, suffering from lobar pneumonia, who received 20 grains of strontium salicylate every hour until she had taken 160 grains, had only slight antipyresis, slight relief of pain, and nausea, and also it is surprising that a girl of 16 suffering from acute endocarditis experienced only "slight nausea" after she had received 20 grains of strontium salicylate every hour until she had taken 500 grains. Is this not a tribute to the correctness of the statement that strontium salicylate is not irritating to the stomach, particularly when it is recalled that this child also got 500 grains, or more than an ounce, of sodium bicarbonate at the same time? If the author will take 20 grains of sodium salicylate and 20 grains of sodium bicarbonate, while in perfect health, every hour until he has taken 500 grains of each, I think he will find that such a dose will upset his stomach in health to a greater extent than the "slight nausea" which the 16-year-old girl experienced.

So far as I have been able to discover, the paper does not give any facts which justify the conclusion that the mean toxic dose of strontium salicylate is the same as that for sodium salicylate. On the contrary, it is stated by the author that it is one-fifth less in strength. Neither Wood nor myself claim that it is any more effectual in the relief of pain than the sodium salicylate as is intimated.

In Table 2 the author states that the mean toxic dose of synthetic sodium salicylate is 180 grains and of natural sodium salicylate 200 grains, but earlier investigations published in THE JOURNAL have indicated that there was no advantage in one over the other.

The way to determine whether a drug possesses advantages or disadvantages as compared to another drug is not to give it until symptoms of intoxication appear, nor will correct results be obtained by giving one drug in a series of cases without giving the other drug in a series of identical cases.

It would seem that the most important result obtained from this research is the discovery that a 16-year-old girl with acute endocarditis can take 500 grains of strontium salicylate in twenty-five hours with no bad symptoms except "slight

nausea" and some "tinnitus," and with the advantage of having marked relief of pain. And, furthermore, it would be interesting to discover why a girl of 16 years should receive a toxic dose of anything, and particularly of a drug for which there was no indication, as given in the report.

As my clinical experience still leads me to believe that strontium salicylate can be taken by patients who are unable to take sodium salicylate, and as Dr. Blankenhorn's experiments actually confirm this view, it is my intention, to use his phrase, to "lug along" this belief until more convincing evidence that it is erroneous is presented.

The question as to whether strontium salicylate is better tolerated by the stomach than sodium salicylate hardly justifies the length of this communication, which is intended as a protest against the reaching of dogmatic conclusions based on evidence which is largely fictitious, the result being that the casual reader is misinformed, and discards a drug which, possibly, may render him good service in time of need.

H. A. Hare, M.D., Philadelphia.

Strontium Salicylate versus Sodium Salicylate—A Reply

To the Editor:—Inasmuch as Dr. Hare criticizes mainly the methods employed by Dr. Blankenhorn, for which I was largely responsible, I may be pardoned for assuming the privilege of saying a few words in defense.

From Dr. Hare's concluding sentence there emerges at least one clear and direct statement. The "protest against the reaching of dogmatic conclusions based on evidence that is largely fictitious" is not easily misunderstood. It is to be regretted that Dr. Hare was not equally clear in giving the reasons for his sweeping conclusions.

So far as I am able to gather from his letter, he bases them on the following "fallacies" that he thinks Dr. Blankenhorn committed in his endeavor to compare the relative gastric effects of strontium and sodium salicylate.

First: That Dr. Blankenhorn employed the drug in cases which, "in the majority of instances, have nothing whatever to do with acute articular rheumatism or any of the conditions in which the salicylates are commonly employed." Any one who will glance at the table will be profoundly surprised at this statement, coming from Dr. Hare. However, even if it were true, it would have no bearing on Dr. Blankenhorn's conclusions; unless, indeed, Dr. Hare is prepared to demonstrate that the conditions in which he considers salicylates indicated have some peculiar quieting effect on the stomach.

Second: That no control experiments with sodium salicylate are recorded. I can only conclude that Dr. Hare must have read essential portions of the paper very superficially; or does he consider as nothing the 400 patients from the Lakeside service, as recorded by Hanzlik?

Third: He asserts that "some patients suffering from diseases in which these doses were given would vomit if food was placed in the stomach." This also has no bearing on the present investigation; for these patients did take their food without any disagreeable results until a certain dosage of strontium salicylate was taken.

Fourth: Dr. Hare is surprised that one woman took a total of 160 grains, another woman 500 grains, of strontium salicylate, with only slight nausea. He will probably be further surprised by the patient who took 1,300 grains of sodium salicylate before emesis appeared (as reported by Hanzlik). Such cases are exceptional, but not rare. Dr. Hare may be perfectly correct as to Dr. Blankenhorn's personal reaction to salicylates; but why introduce personalities into a scientific discussion?

Fifth: Dr. Hare states that "the way to determine whether a drug possesses advantages or disadvantages as compared to another drug is not to give it until symptoms of intoxication appear." The statement appears a little paradoxical. At all events, our problem was to determine the relative average dose of the two salicylates which would produce the gastric and other so-called "toxic" side effects of salicylates. That would seem to require the determination of the relative doses that do produce these side-effects.

Sixth: I almost suspect that the great importance which Dr. Hare attaches to the case of the young lady of 16 years is intended as a gentle irony. However, since he feigns such a lively interest in her, I may add that so far as known, she has recovered completely from the slight nausea and tinnitus, and the "marked relief of pain" which she experienced did not prove really deleterious to her. We even feel justified in regarding this marked relief as an indication for the use of the drug. If Dr. Hare feels offended by the words "toxic dose," he may substitute "physiologic dose," as in the present connection they are used synonymously.

In conclusion, I venture to plagiarize a part of Dr. Hare's own concluding sentence, which I fully endorse.

"The question as to whether strontium salicylate is better tolerated by the stomach than sodium salicylate hardly justifies the length of this communication, which is intended as a protest against the reaching of dogmatic conclusions based on evidence which is largely fictitious, the result being that the casual reader is misinformed."

Torald Sollmann, M.D., Cleveland.

First Aid in Accidental Wounds

To the Editor:—In industrial enterprises, scientific bookkeeping and good records may demonstrate the economic value of a uniform scheme of first aid and a standardized surgical method in the treatment of accidental wounds. It is quite possible that the saving may be sufficient to allow increase in wages and diminution in the price of commodities and rates, and even leave a good balance toward dividends and sinking fund.

I was recently informed that a great electric railroad company in the West retrenched at the onset of the present war. The company employed very few new motormen and conductors, and used every means to keep their old men on duty. They were surprised to find within one year a tremendous reduction in the number of accidents. This forced retrenchment brought forcibly to their notice the economic importance of trained and experienced motormen and conductors. They immediately increased the wages of these more experienced men, and spent more time and money on the preliminary training of new men. The saving in money, therefore, was partly used for increased wages and not for avoidable accidents.

A number of railroads in this country have for years given first aid instruction, and have developed a wonderfully organized and efficient surgical and medical department. Others have not. The development of the immediate and efficient care of accidents in mines has been greater than in railroads. This information I get from an authority in the Bureau of Mines. Many of the large industries which employ thousands of laborers are satisfied that the expenditure of much money on their first aid and medical departments has been an economical one.

The materials and methods employed on these different railroads, and in the mines and industries, differ to a considerable extent. Apparently more than one method will accomplish the same good results. There seems little question that if the materials could be standardized they could be manufactured at a smaller cost. When the methods of first aid and surgical treatment are made uniform, instruction of the layman and the surgeon will be a simpler process.

An infection of a simple wound of the finger may prevent an artisan from working for months. If efficient treatment will prevent the infections of the simplest wounds and thus shorten the disability, there is no question that in thousands of cases the actual saving will be thousands of dollars.

I am not in a position to prove the statements of those in railroads, mines and industries who are confident that their bookkeeping and records prove the economic value of first aid measures and a better organized medical and surgical department.

The object of the American First Aid Conference was chiefly to make a survey and ascertain, if possible, whether these opinions were correct. The conference authorized the

secretary by a resolution to make this survey. The Board of First Aid Standardization, recently appointed by the president of the United States, at its first meeting in Washington requested that the various first aid committees throughout the United States and Canada make their reports to the secretary of the conference. The secretary has no funds to help him in this survey and investigation. Personal correspondence must be restricted to the minimum on account of lack of time and money. As a matter of fact, in a large survey of this kind it is unnecessary. Means of communication can be established through circular letters and, much better, through medical journals. The secretary is sufficiently interested in the large problem to give to it the necessary time. All he asks is the immediate cooperation of those who have had large experience with accidental injuries, and especially surgeons who are connected with railroads, mines and industries. Answers to the five questions sent out in the beginning of the survey have been received from about 150 representative surgeons, chief surgeons of railroads and their associates, and surgeons connected with great mines and industries. In many of these answers we have information which demonstrates the efficient development of first aid methods and instruction.

Committees have been, or will be, appointed to represent the national and interstate surgical associations, and also to represent the various state medical societies in the United States and Canada. If possible, these committees should have the following representative members: a surgeon to a railroad or electric trolley company, a mining surgeon, a surgeon to some great industry, a civil surgeon interested in the treatment of accidental wounds, and, if possible, a surgeon who has had some experience with the treatment of wounds in the present war. There are now in this country a large number of such surgeons.

The committees of national and interstate surgical associations should confine their attention to getting the opinion and experience of their colleagues in their respective societies, on accidental wounds.

There are here two great questions for investigation:

In the first place, it is important to correlate the opinions of surgeons as to what the layman should be instructed to do in case of an accidental wound, what material should be furnished him for this treatment, and where this material should be distributed. It seems true that no surgeon would advise the layman to do anything that the surgeon would not do if he could see the wound immediately after the injury. It is also true that no one would dream of attempting to instruct the layman to do all the surgeon might. Our investigations so far. demonstrate that it is of the utmost importance that we come to a conclusion—and at once—as to what these purely first aid instructions to laymen should be, and what material should be furnished.

Then there is another question in relation to first aid instruction: When shall it begin? A colleague of mine is of the opinion that it should begin with schoolchildren. At present first aid lectures are popular. Boy scouts are listening to them, young girls and women who have never before thought of these matters are now attending first aid lectures. Unfortunately, when we go over first aid instruction on different railroads, mines or industries, and read or hear of the different lectures to Boy Scouts and lay women, we find differences which must necessarily be confusing to the lay mind, and many things are taught to the laymen which, the majority of surgeons feel, may be dangerous rather than helpful.

We cannot hope to standardize unless we get a survey of the experience and opinion up to date.

In the second place, it is important to ascertain and correlate what surgeons do themselves when they have an accidental wound to treat. Here also we find a diversity of methods, both as to material for dressings and drugs for antisepsis. Even if there are many methods which accomplish the same good results, it seems possible to pick out one and standardize it. This would not impede an experienced surgeon from any initiative toward further improvement, but it would inform the great majority of surgeons as to what was considered the best now.

Undoubtedly conditions are different in railroads, mines, manufactories, on the streets of large cities and in the homes, and in the different railroads, mines and industries, but there seems no doubt that these different conditions can be met with uniformity.

The committees of the various state medical societies and those of large cities can make not only the same investigation, but also an actual survey of the conditions within their states. We should know what railroads, mines and industries have employed first aid methods, and what their results are as compared with those employers of labor who have not. These committees should stimulate scientific bookkeeping and good records of the wounds which are being treated today. I am informed by more than one chief railroad surgeon that the introduction of first aid methods has reduced the disability of the wounded from 30 to 50 per cent.

As far as I know, an investigation of this extent on a single surgical problem has never been attempted before. However, it comes naturally in the progress of the propaganda of preventive medicine in its broadest sense. There never will be a better time than now because, on account of the appalling records of wounds in the war, the interest in wounds is especially keen and widespread. On account of the environment of the wounded in war, first aid in military surgery is a much more difficult problem than first aid in peace; but there seems no question that if we develop, standardize and make uniform first aid and the surgical treatment of accidental wounds in time of peace, we are accomplishing not only surgical preparedness for a great economic movement, but also a preparedness which will demonstrate its usefulness in the emergency of war.

Every surgeon can be helpful. Every official of a company employing labor should take an interest in this movement. It seems practical, economic and humane.

The following five questions have been submitted to a large number of surgeons. In answering them the surgeon must distinguish between what he would instruct a layman to do, and what he would do himself. In many of the answers these two points have been confused. It will make the secretary's work much less difficult if the answer to each question is typewritten and on a separate page.

The different committees should not only accumulate, but also correlate their own material, so that their reports may constitute independent investigations.

These completed reports should be sent to the secretary, who will forward them to the Board of Standardization in Washington.

The questions are as follows:

1. What has been your experience with the most available first aid package and dressing for small and large wounds?

2. What has been your experience with the immediate employment of antiseptics in accidental wounds; what antiseptic have you used, in what strength, and how applied? Have you employed tincture of iodin; if so, how and what have been the results?

3. What in your experience has been the most efficient and most readily applied method of fixation for injuries of (*a*) the upper and (*b*) the lower extremity?

4. Have you considered the construction of a stretcher, which, in addition to serving as a means of transportation of injured, will have appliances for the fixation of the upper and lower extremity, somewhat along the lines of a Bradford splint, or the Gihon naval splint?

5. Please state your views on some liquid ointment dressing which would be available for first aid in large wounds and burns with the object of preventing the usual dry gauze dressing adhering to the wound and rendering subsequent dressings painless.

JOSEPH COLT BLOODGOOD, M.D., Baltimore.
Secretary, American First Aid Conference, 904 North Charles Street.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

VALVULAR ENDOCARDITIS

To the Editor:—What is the most recent opinion with reference to the following question? When the auriculoventricular valves become infected and vegetations form on them, how is the infection carried to the valves? Is it by direct inoculation from the circulating blood as it flows over the valves, or is it through the nutrient blood vessels of the heart to the leaflets or valves and thence through the small capillaries which extend for a variable distance into the valves, and thence by tissue spaces, which tissue spaces are analogous to vessels from the standpoint of function? Which one of these roads do the microorganisms travel to produce inflammation of the heart valves, or valvular endocarditis?

WILLIAM A. JENKINS, M.D., Louisville, Ky.

ANSWER.—It has been the general belief that bacteria settle on the valves from the blood. By injecting a suspension of staphylococci containing particles of potato, Ribbert produced endocarditis of the auriculoventricular valves by injury, so he thought, at the lines of contact and implantation of the bacteria there. The fact that inflammation so commonly develops along the lines of contact on closure of the valves has been regarded as an indication of implantation of bacteria from the circulating blood. That endocarditis may be due to embolism, the bacteria lodging in the vessels and capillaries of the valves, has been suggested as especially likely to occur in the case of recurring inflammation in sclerotic valves in which the arrangement of the vessels might favor embolism. Köster *(Virchows Archiv für pathologische Anatomie,* 1878, lxxii, 257) was perhaps the earliest advocate of the view that endocarditis may begin as an embolic process, and experimental evidence in favor of this view has recently been produced by Rosenow (*Journal of Infectious Diseases,* 1912, xi, 210), who gives references to the most important original articles bearing on the question asked. He found that in rabbits, endocarditis after intravenous injection of certain strains of pneumococci developed on the basis of small hemorrhages into the valves, caused, he believes, by the lodgment of cocci in the capillaries of the valves, the avascular structure of which serves to protect the cocci until they grow into clumps, around which fibrin is precipitated. It is also suggested that chronic and sclerotic processes in the valves, leading to functional disturbances, may result from hemorrhages into the valves in young persons from the lodgment therein of bacterial emboli, as well as from actual endocarditis as ordinarily understood.

INSEMINATION AND CONCEPTION

To the Editor:—Under this title (Queries and Minor Notes, THE JOURNAL, Feb. 5, 1916, p. 448), you say that "it is possible for spermatozoa to retain vitality in the vagina for at least seventeen days, even through a menstrual period." Opposed to this statement is the fact that the secretion of the vagina is normally acid, and acid secretion is detrimental to spermatozoa. Even the fact that the spermatozoa are contained in an alkaline medium does not in any way help their longevity, for the amount of semen secreted is not sufficient to overcome the acidity of the vaginal secretions. Hühner has investigated the action of the vaginal secretion on the spermatozoa. According to his results live spermatozoa cannot be recovered from the vagina later than three hours after coitus. This should prove conclusively that spermatozoa cannot live in the vagina for seventeen days. Perhaps the body of the uterus was meant, but even that is doubtful. In this connection allow me to quote from Dr. Hühner: "In view of the fact that live spermatozoa are extruded from the uterus during menstruation, coitus just before menstruation is not a good time for impregnation. In fact, any spermatozoa that have not reached the fallopian tubes, or at least the ostium uteri when menstruation occurs, are lost."

CHARLES EDWARD PANOFF, M.D., Brooklyn.

To the Editor:—All of the recent studies of the corpus luteum and of the mucous membrane of the uterus at different stages of the menstrual cycle show that ovulation does not occur at menstruation, as stated in your answer to the query on "Insemination and Conception."

The beginning of the newer studies concerning the relation of menstruation to ovulation must date from the first presentation of the Born-Fraenkel corpus luteum theory (*Anatomischer Anzeiger,* 1901). The next step was the work of Hitschmann and Adler on the changes in the endometrium during the menstruation cycle (*Zeitschrift für Geburtshülfe und Gynäkologie*). Since this time a number of authors have shown that there exists such a relationship between the endometrium and the corpus luteum that it is possible to tell the condition of one from the histologic structure of the other. The functionating corpus luteum is found only in the premenstrual stage of the endometrium. Full agreement has not been reached as to just when in the menstrual cycle ovulation occurs, but as the development of corpus luteum must begin almost immediately after the rupture of the graafian follicle, it is generally agreed that ovulation is most likely to occur from seven to sixteen days after the beginning of menstruation. The following publications might be mentioned: Meyer and Ruge II (*Zentralblatt für Gynäkologie,* 1913); Carl Ruge II (*Archiv für Gynäkologie,* 1913, c, 20); J. Miller (*Berliner klinische Wochenschrift,* 1913; *Archiv für Gynäkologie,* ci), and Schroeder (*Archiv für Gynäkologie,* ci), Our authors have been slow in presenting this view of the relation of menstruation and ovulation, but in the recent work of Cragin ("The Practice of Obstetrics," 1916, p. 88), the view of Fraenkel is given and is the only one mentioned.

C. S. BACON, M.D., Chicago.

ANSWER.—While it has long been known that acidity of the lower part—not of the actual secretion—of the vagina is not favorable to the life of spermatozoa, it cannot be definitely stated that the tests cited prove that spermatozoa from the premenstrual insemination are all killed by the vaginal secretion. It is known that they have sufficient mobility to reach even the fallopian tubes quickly.

The most recent of the observations cited by Dr. Bacon seem to be in conflict with each other, namely, those of Meyer and Ruge II, and Schroeder, who assert that ovulation occurs in the time of and after menstruation, while Miller is positive that it occurs just ten days before. It appears, therefore, that an answer to the difficult question of the time of conception cannot be attempted on the basis of any of the experimental work cited. Statistical studies and clinical observations still seem to furnish the most likely answer. Though such studies are by no means in accord, the balance of all evidence seems to show that actual conception usually takes place within a short period after the menses.

ARTICLES ON MEDICINE AS A CAREER

To the Editor:—Where may I obtain data on the advantages of medicine and surgery as a profession?

C. P. BLAIR, M.D., Monmouth, Ill.

ANSWER.—The following is a list of articles on this subject:

The Practice of Medicine as a Career, The Army and Navy Medical Service, *Med. Rec.,* New York, April 24, 1909.

The Third Annual Report of the Carnegie Foundation, Washington, D. C., discusses medicine as a business, medicine as a profession, ideals of the profession, etc.

McWhorter: Relation of Medicine to Other Professions, Alabama Med. Jour., Birmingham, May, 1909.

The Choice of a Profession by High School Pupils, Medical Economics, THE JOURNAL, Jan. 27, 1912, p. 298.

Allison, W. R.: Commercial Aspect of Medical Profession, *Illinois Med. Jour.,* May, 1912.

Landrum, S. H.: Lights and Shadows in Practice, *Oklahoma State Med. Assn. Jour.,* July, 1913.

Vaughan, V. C.: Service of Medicine to Civilization, THE JOURNAL, June 27, 1914, p. 2003.

PAREGORIC COMES UNDER HARRISON LAW—PRESCRIPTIONS FOR NARCOTICS MAY NOT BE TELEPHONED

To the Editor:—Enclosed find prescription.

1. Please give an opinion as to whether or not it comes under the Harrison Narcotic Law.

2. Also inform me if I can take prescriptions for narcotics from my doctors over the local telephone.

R. G. T.

ANSWER.—1. The prescription enclosed contains camphorated tincture of opium as one of its ingredients, and therefore comes under the provisions of the Harrison Narcotic Law.

2. The law provides that prescriptions calling for narcotics shall be written and signed by the physician who issues them; therefore it would not be legal to fill such prescriptions given over the telephone.

Thoroughness and "Professional Service."—The most ridiculous being in the world is the doctor who, when he himself gets sick, hones and frets for a thorough examination and a well-founded diagnosis in his own case, and who, when he is well, feels his patient's pulse, looks at his tongue, measures out a supposed 5 grains of phenacetin and a guessed-at 3 grains of calomel on the point of the same knife blade that cleans his nails, picks his teeth and cuts his tobacco, and then takes his fee under the pretext that he has rendered "professional service."—Editorial, *Jour. Tennessee State Med. Assn.,* August, 1915.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, April 4-5. Sec., Dr. John Wix Thomas, 200 National Bank of Arizona Bldg., Phoenix.

CALIFORNIA: Los Angeles, April 4. Sec., Dr. Charles B. Pinkham, Room 527 Forum Bldg., Sacramento.

COLORADO: Denver, April 4. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: Regular, New Haven, March 14-15. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven; Homeopathic, New Haven, March 14. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven; Eclectic, New Haven, March 14. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

DISTRICT OF COLUMBIA: Washington, April 11. Sec., Dr. E. P. Copeland, The Rockingham.

FLORIDA: Homeopathic, Jacksonville, March 10. Sec., Dr. J. B. Griffin, St. Augustine.

IDAHO: Boise, April 4. Sec., Dr. Charles A. Dettman, Burke.

MAINE: Portland, March 14-15. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MASSACHUSETTS: Boston, March 14-16. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

MINNESOTA: Minneapolis, April 4-7. Sec., Dr. Thomas S. McDavitt, 814 Lowry Bldg., St. Paul.

MISSOURI: St. Louis, March 20-22. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

MONTANA: Helena, April 4. Sec., Dr. William C. Riddell, Helena.

NEW MEXICO: Sante Fe, April 10. Sec., Dr. W. E. Kaser, East Las Vegas.

OKLAHOMA: Oklahoma City, April 11-12. Sec., Dr. Ralph V. Smith, 502 Daniel Bldg., Tulsa.

PORTO RICO: San Juan, April 4. Sec., Dr. Quevedo Baez, 66 Allen St., San Juan.

RHODE ISLAND: Providence, April 6. Sec., Dr. Gardner T. Swarts, 315 State House, Providence.

UTAH: Salt Lake City, April 3-4. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

WYOMING: Laramie, March 14-16. Sec., Dr. H. E. McCollum, Laramie.

South Carolina June Report

Dr. A. Earle Boozer, secretary of the State Board of Medical Examiners of South Carolina, reports the written examination held at Columbia, June 8-10, 1915. The total number of subjects examined in was 16; total number of questions asked, 115; percentage required to pass, 75. The total number of candidates examined was 61, of whom 37 passed and 24 failed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Atlanta College of Physicians and Surgeons	(1912)	82.4
Atlanta Medical College	(1915) 77.2, 77.4, 77.6, 78.1,	81.2
University of Georgia	(1915)	75
University of Maryland	(1913) 78; (1915)	77.6
Columbia University, College of Phys. and Surgs.	(1901)	75
Jefferson Medical College	(1915) 85.2,	85.4
Woman's Medical College of Philadelphia	(1915)	93.6
Medical College of the State of S. C. (1911) 75; (1915) 77.2, 78.2, 78.4, 78.8, 79.6, 80.4, 80.6, 81, 81.1, 81.5, 81.5, 81.6, 83.1, 83.1, 83.4, 84, 84.2, 84.2, 87.1, 88		
Medical College of Virginia	(1915)	75
University of Virginia	(1914)	84.7

FAILED College	Year Grad.	Per Cent.
Atlanta College of Physicians and Surgeons	(1912)	69
Atlanta Medical College	(1914) 67.7; (1915) 61.1, 69.8, 67.8,	73.4
Georgia College of Eclectic Medicine and Surgery	(1912)	59.5
Southern College of Medicine and Surgery	(1913) 60.6; (1914)	64.6
Maryland Medical College	(1905)	71.5
University of the City of New York	(1882)	61.8
Medical College of the State of South Carolina (1900) 63.2; (1901);* (1911) 72.6; (1915) 71.2, 73*		
Meharry Medical College	(1914) 70.1; (1915)	*, *
Memphis Hospital Medical College	(1911)	*
University of Tennessee	(1905)	59.1
University of West Tennessee	(1914)	*
Gate City Medical College	(1909)	71.8†

* No grade.
† Graduation not verified.

Ohio October Reciprocity Report

Dr. George H. Matson, secretary of the Ohio State Medical Board, reports that on Oct. 12, 1915, 10 candidates were licensed through reciprocity and 2 candidates were granted reregistration licenses. The following colleges were represented:

College	Year Grad.	Reciprocity with
Jenner Medical College	(1912)	Illinois
Rush Medical College	(1913)	Illinois
University of Michigan Medical School	(1913) (1914)	Michigan
Baltimore Medical College	(1898)	Vermont
Kansas City Medical College	(1898)	Illinois
St. Louis University	(1913)	Missouri
Eclectic Med. Coll. of the City of New York	(1896)	New York
Medico-Chirurgical College of Philadelphia	(1913)	Maryland
University of Pennsylvania	(1914)	W. Virginia

Book Notices

FRACTURES AND DISLOCATIONS, DIAGNOSIS AND TREATMENT. By Miller E. Preston, A.B., M.D., First Lieutenant, M. R. C., U. S. Army. Chapter on Roentgenology by H. G. Stover, M.D., Professor of Roentgenology, School of Medicine, University of Colorado. Cloth. Price, $6.50. Pp. 813, with 860 illustrations. St. Louis, C. V. Mosby Company, 1915.

In this concise exposition of the subject, success has attended the author's endeavor to make the reader an eye witness to the various deformities as they appear immediately after the accident. He argues that there is much to be learned by inspection in the average case of fracture or dislocation, and that the information thus gained may be put to immediate use with a minimum amount of manipulation of the parts and without the necessity of awaiting the returns of a Roentgen examination. He maintains that the more one learns by inspection, in establishing a diagnosis in a given case, the less there remains to be determined by palpation, and that if the surgeon develops the faculty of recognizing what he sees, the patient will often be relieved of much unnecessary manipulation and suffering, to say nothing of the damage which may be inflicted on the already traumatized soft tissues. In conformity with this belief, the text is profusely illustrated with reproductions of photographs, diagrams and roentgenograms, which appear to have been selected with discrimination and which clarify and enlarge it to a marked extent.

The arrangement of the material attracts attention in that the usual custom of classifying fractures under one heading and dislocations under another has been abandoned. Instead, the reader finds all the injuries to which a given region is subject, including fractures, dislocations, joint fractures and fracture-dislocations, discussed in a single section, and he is not put to the necessity of looking up the different conditions in widely separated portions of the book, or even of consulting other volumes. This appears to be a distinct improvement on the older, conventional scheme.

In a book of this size it is, of course, impossible to discuss all the theories and arguments pertaining to the subject, or to go into detail concerning all the methods of handling the various lesions. This necessitates a somewhat dogmatic style which, harmless as a rule, occasionally leads to the omission of important matter, to detailed description of methods and theories against which serious adverse criticism has been leveled, to failure adequately to describe substitute measures, and to a few apparent inconsistencies. Surgeons are committing themselves more and more to the use of plaster in fracture work, and many would find it difficult to agree with the author when he advises anterior-posterior splints in preference to plaster in all fractures of the bones of the forearm. Similarly, while the Sayre dressing for fractured clavicle, warmly advocated by the author, is widely used, a number of surgeons of large experience condemn it, and its use has been discontinued in several large clinics. We are usually taught that in applying a Buck's extension for fracture of the neck of the femur the adhesive strips should be carried well up on the thigh the better to distribute the tension of the adhesive on the skin and to avoid undue strain on the ligaments and capsule of the knee joint. In the apparatus shown in this book, however, the entire weight of the apparatus falls on the leg below the knee. Discussing the subject of compound fractures, the author condemns unsparingly the indiscriminate use of antiseptics, and insists on free drainage. A few lines further on he advises the injection of liquor formaldehydi and glycerin into suppurating joints without drainage as the first therapeutic measure to be attempted. This hardly seems consistent, and certainly is not in agreement with the practice of many conservative surgeons of wide experience.

It must be admitted, however, that faults such as those mentioned are few, and hence of relatively little importance. There is one adverse criticism which should be strongly emphasized: there is no bibliography to direct the thoughtful student or physician, should he desire a more exhaustive discussion of the many phases of fracture work than is

offered in the text. This is an important omission in a book which deals with a special aspect of surgical practice and which should appeal to the man who happens to need special knowledge of any of the problems which this field offers.

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Appearing just at this time, the bulletin will be of interest to medical men generally and to surgeons in particular, especially those who are called on to treat gunshot wounds involving fractures. As the author remarks in the introduction, "The collection of these plates resulted from a systematic visiting of the hospitals of Constantinople in the winter of 1912-1913, during the course of the first Balkan War, and including all of the military hospitals of the military zone, with the incidental purpose of selecting from the roentgenographic plates, which had been prepared wherever apparatus was installed, such examples of the roentgenography of gunshot wounds as might show characteristic lesions without relation to detailed clinical record. More than 1,500 plates were examined, and from them more than 200 were selected as exhibiting some lesion that seemed to be characteristic of some form of gunshot wound, even though the case history could not be obtained. Some plates are included which are indistinct and generally so unsatisfactory from a technical viewpoint as to be of little interest, if all of them were not intended to show the general character of the diagnostic assistance that the roentgenologist rendered the military surgeon in the base hospitals of Constantinople during the Turko-Balkan War."

In view of the tremendous amount of clinical material now being studied by European surgeons, it is to be regretted that such publications as Major Ford's are not more frequent.

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In preparing the fifth edition of this manual, the authors have eliminated all descriptions of operative procedures, which are now included in the third volume. They have also omitted discussions of debatable points, and have included new material on recent advances in pathology and treatment. The Basle anatomic nomenclature has been adopted, but the old terms are given beside the new ones. The discussion of tetanus apparently takes little account of the results of recent studies of the numerous cases occurring in the present war. There is no discussion of blastomycosis, although a small amount of space is devoted to madura foot. In the diagnosis of syphilis no mention is made of the luetin test, but the discussion of treatment is complete. For burns the authors recommend the picric acid treatment as far superior to all others, and warn particularly against the use of moist or greasy applications like Carron oil. In practically all their discussions the authors show acquaintance with American and continental surgical advances and refer repeatedly to the work of well-known surgeons. The two books are excellently and profusely illustrated.

Miscellany

Constitution and By-Laws of the National Board of Medical Examiners for the United States

PREAMBLE

The need of a standard licensing body for the whole of the United States and territories tributary has occasioned the organization of a voluntary board of examiners, selected from the Medical Corps of the Army and Navy and the Public Health Service, with the other members selected from the Federation of State Examining Boards and the medical profession of the United States. That the creation of this board may be certain and its continuance assured, it is proposed that it shall be governed by the following constitution and by-laws as set forth:

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III. *Objects.*—The objects of this board are: A. The establishment of a standard of examination and certification of graduates in medicine, through which the recipient may be recognized for the licensure in the practice of medicine in the United States, territories, and extraterritorial possessions on presentation of the proper credentials of this board.

B. A cooperation with the board of medical examiners in individual states, territories and extraterritorial possessions of the United States by which licensure may be effected through registration of the credentials of this board.

C. A consistent high purpose of determining the qualifications of the candidate before this board so as to create his eligibility to the privileges above defined.

D. A democratic administration of the operation of this board in its own executive function as well as in its examinations, which are to be conducted by all modern means to accomplish practical, oral and written tests of the candidates' efficiency and qualification.

E. To hold examinations at the domicile of the board, and at such other locations as may be justified by the number of applicants, their residence, and the facilities for conducting examinations properly.

IV. *Personnel of the Board.*—This board shall initially consist of fifteen members as follows: Admiral William C. Braisted, General William C. Gorgas, General Rupert Blue, Commander Edward R. Stitt, Colonel Louis A. LaGarde, Assistant Surgeon-General William C. Rucker, Dr. Victor C. Vaughan, Dr. Horace W. Arnold, Dr. Austin Flint, Dr. William L. Rodman, Dr. Henry Sewall, Dr. E. Wyllys Andrews, Dr. Louis B. Wilson, Dr. Herbert Harlan and Dr. Isadore Dyer.

Hereafter the board shall comprise the surgeon general of the Medical Corps of the Army and one other representative of the same service to be appointed by the surgeon general, subject to the approval of the board.

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Three members appointed by the Federation of State Medical Examining Boards, subject to the approval of the board.

Six members at large elected by the existent National Board of Medical Examiners.

The terms of service of these members of the board shall be as follows: The surgeons general of the Medical Corps of the Army, the Navy and the Public Health Service shall continue as members of the board so long as they hold their offices as surgeons general. Nothing in this provision shall preclude their reappointment as members of the board.

The other twelve members of the board shall serve for six years each, with the provision that the first board shall be

so constituted that four members shall serve for six years, four members for four years, and four members for two years; these terms of office to be determined by the Executive Committee. The four new members appointed for a term of six years, as provided above, shall be one from the three federal services, one from the Federation of State Examining Boards, and two elected by the existent National Board of Medical Examiners.

There shall be nothing in this regulation which will prevent any one of the four retiring members of the board succeeding himself, if qualified by proper appointment, but no member of the board may serve more than two successive terms.

V. *Organization of the Board.*—(*a*) The officers of the board shall consist of a president, a secretary and a treasurer who, with two members at large, all annually elected by the board, shall constitute the Executive Committee of the board. The secretary need not be a member of the board. In such case he shall not vote.

(*b*) The Duties of the President: The president shall preside at all meetings of the board; he shall direct all business of the board ad interim; he shall be chairman of the Executive Committee; he shall decide all matters of rule and practice not provided for in these regulations and he shall represent, in person or by deputy, the board on all occasions when the board is officially engaged. With the secretary or treasurer he may issue and sign all fiscal documents for the disbursement of funds.

In the event of absence or death of the president, the board shall elect a chairman who shall in all particulars fill the office of president pro tempore.

(*c*) The Duties of the Secretary: The secretary shall have conduct of all of the public relations of the board in conjunction with the president and the Executive Committee. He shall supervise and direct all arrangements for meetings of the board, examinations of candidates for licensure, and he shall fulfil the office of recorder and keeper of records. With the treasurer or president he may issue and sign all fiscal documents for the disbursement of funds. He shall be also secretary of the Executive Committee.

(*d*) Duties of the Treasurer: The treasurer shall be custodian of all funds; he shall deposit all moneys in a national bank in the city of Washington, keeping proper accounts of all receipts and disbursements. With the secretary or president he may issue and sign all fiscal documents for the disbursement of funds. Before each annual meeting of the board, he shall have a proper audit of his accounts by a qualified accountant, who shall make report through the secretary. He shall furnish bond, if the board so order.

(*e*) Duties of the Executive Committee: The Executive Committee in the intervals between board meetings shall transact all business of the board, directing, through the president and secretary, the detail of public announcements and operations as these may relate to the board, its objects, purposes and business. The operation of the Executive Committee shall be made a matter of record for report to the board at its stated meetings with a view to ratification, but without necessity of referendum of such business as may be regular or routine and not affecting the policy of the board.

The Executive Committee shall hold meetings on the call of the chairman, and as often as may be necessary or advisable.

VI. *Meetings.*—The regular annual meeting of the board shall be held at the domicile of the board on ———— in each year. This annual meeting shall be held for the purpose of electing officers, of electing new members, of receiving reports of the several officers, of the Executive Committee, and for the transaction of any other business which may be on the table.

Other meetings may be called by the president on his own initiative, and other meetings shall be called on the demand of a majority of members of the board, provided such members give the president two weeks' notice of said meeting and provided the president thereafter give two weeks' notice before the date of the called meeting.

VII. *Amendments.*—Amendments to this constitution may be made at any regular annual meeting of the board on thirty days' notice in writing, and on a three-fourths vote of the members present.

BY-LAWS

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(*a*) Roll call.
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II. *Conduct of Meetings.*—(Parliamentary rules as set down in Robert's or Cushing's Manuals.)

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Narcotic Drugs

M. I. Wilbert, in *Public Health Reports,* says that heretofore the drug trade and the members of the medical profession generally have been indiscriminately accused of fostering and developing the use of habit-forming drugs. This accusation, he believes, has been wholly unwarranted, as is shown by the whole-hearted way in which all branches of the drug trade and all classes of medical practitioners have endeavored to live up to the Harrison Narcotic Law. The active enforcement of the law has already had a wholesome effect in reducing the sale of narcotic drugs. Some of the larger wholesale dealers have reported that their sales have been reduced from 70 to 80 per cent., and retail dealers say that the sales of narcotic drugs and preparations at retail have been materially reduced. A few report an increased volume of business. The report of the Department of Commerce on the quantity of drugs entered for consumption in the United States for the year ending June 30, 1915, indicates that the amount of such material imported has not varied materially. A compilation of the drugs entered from July 1, 1914, to June 30, 1915, shows this, and also shows that during the last quarter of the fiscal year when the Harrison Narcotic Law was in effect the proportion of the amount of these drugs imported was greater than the total amount for the year. This is accounted for on the supposition that a large amount of the drugs imported were intended for reexportation to countries supplied by Germany before the war. Wilbert says that legislatures are beginning to appreciate the fact that the treatment of drug addicts is psychologic and medical, and not a criminal or penologic problem. Laws recently enacted by New York, Pennsylvania, Colorado, Connecticut, Illinois, Hawaii and the Philippine Islands require the general practitioner to keep records covering the use of narcotic drugs. Wilbert says that these efforts of state governments to regulate the use of narcotics should aim to supplement the requirements of the federal law as to the number and kind of drugs proscribed in order to prevent the possible abuse of any drug. Unfortunately, he says, most of the state laws have included clauses similar in effect to Clause 6 of the federal law which permits the use and sale of preparations containing some of the proscribed drugs up to a certain amount. Wilbert says that the use and abuse of narcotic drugs should be made to rest squarely with the members of the medical profession, and that drug dealers should not be allowed any degree of discretion as to their disposition even in limited quantities. He then enumerates some of the additional requirements that might be well included in state antinarcotic legislation.

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M. I. Wilbert, in *Public Health Reports,* says that heretofore the drug trade and the members of the medical profession generally have been indiscriminately accused of fostering and developing the use of habit-forming drugs. This accusation, he believes, has been wholly unwarranted, as is shown by the whole-hearted way in which all branches of the drug trade and all classes of medical practitioners have endeavored to live up to the Harrison Narcotic Law. The active enforcement of the law has already had a wholesome effect in reducing the sale of narcotic drugs. Some of the larger wholesale dealers have reported that their sales have been reduced from 70 to 80 per cent., and retail dealers say that the sales of narcotic drugs and preparations at retail have been materially reduced. A few report an increased volume of business. The report of the Department of Commerce on the quantity of drugs entered for consumption in the United States for the year ending June 30, 1915, indicates that the amount of such material imported has not varied materially. A compilation of the drugs entered from July 1, 1914, to June 30, 1915, shows this, and also shows that during the last quarter of the fiscal year when the Harrison Narcotic Law was in effect the proportion of the amount of these drugs imported was greater than the total amount for the year. This is accounted for on the supposition that a large amount of the drugs imported were intended for reexportation to countries supplied by Germany before the war. Wilbert says that legislatures are beginning to appreciate the fact that the treatment of drug addicts is psychologic and medical, and not a criminal or penologic problem. Laws recently enacted by New York, Pennsylvania, Colorado, Connecticut, Illinois, Hawaii and the Philippine Islands require the general practitioner to keep records covering the use of narcotic drugs. Wilbert says that these efforts of state governments to regulate the use of narcotics should aim to supplement the requirements of the federal law as to the number and kind of drugs proscribed in order to prevent the possible abuse of any drug. Unfortunately, he says, most of the state laws have included clauses similar in effect to Clause 6 of the federal law which permits the use and sale of preparations containing some of the proscribed drugs up to a certain amount. Wilbert says that the use and abuse of narcotic drugs should be made to rest squarely with the members of the medical profession, and that drug dealers should not be allowed any degree of discretion as to their disposition even in limited quantities. He then enumerates some of the additional requirements that might be well included in state antinarcotic legislation.

the seed that will bring this country to physical, social and military fitness. Our own wars have been sanitary disasters. Although the medical corps of our regular army is highly efficient, yet it is scarcely half the strength required for our small army on a peace basis. Our future depends on the training by a small professional army of the larger army of citizen soldiery, men trained as in Europe, alike a national asset in peace and in war. Correlated with this they must become medically efficient by organizing their civilian surgeons. The professional military surgeons do not do the surgery of the war. They are primarily officers of sanitary administration. Their duty is to keep the health of the troops, get supplies and rid the fighting zone of the sick and wounded. The actual surgery of war must be done by the civilian surgeons working in the base hospitals. From the German West front, men with head wounds are gathered in Cologne under Professor Preysing. The mandible cases are concentrated at Düsseldorf under Professor Bruhn. In this clinic reconstructive surgery after the terrible face injuries reached its highest development under a surgeon already trained in the accident service of the Essen Iron Works. In retrospection of all the marvels of intricate organization, the most impressive feature is the economic result. The acute cases are less severe by virtue of prompt treatment. The chronic cases do not back up, like logs in a jam, to be cleared out after the war; each case moves smoothly to its final cure with the system and precision of peace. It is the economic, humanitarian, impersonal triumph of organization. The medical corps of our regular army is numerically entirely inadequate and should be strengthened. No efficient organization exists for the civilian surgeon. The reserve medical corps is loose, disjointed and uncontrolled.

DR. S. H. WADHAMS, Major, Medical Corps, United States Army: It is evident that the present medical organization of the army, which is scarcely adequate for times of peace, would impose a tremendous burden on the civil profession in the event of war. The result of medical unpreparedness has been amply demonstrated in the past, and unless we learn the lessons of former wars, the same inefficient provision for protecting the lives and health of the men from the onslaughts of disease would result in untold suffering, loss of life and increase in the pension roll in the future. The medical resources in case of war are about 444 medical officers in the United States Army, about 850 in the National Guard, and about 1,500 in the National Reserve Corps. To be thoroughly efficient, the medical man must have special training as a medical officer. This being true, it is evident that the act of April 23, 1908, which provided that members of the Medical Reserve Corps should give their services only in times of emergency war, is wofully inadequate. As to the number of medical officers that are required, if the army should number 2,000,000, it would have only 20,000 medical officers, or 1 per cent., which is not enough. It must be remembered that in time of war there must be medical officers at the front, in the lines of communication to the base hospitals, in the base hospitals and from the base hospital to the home territory. For duty at the front a man must be a trained organizer and a sanitarian; none of his duties there require a high order of medical or surgical skill, but do require administrative ability. The experience of the Spanish-American War should teach the necessity of medical preparedness, and that we cannot depend on a voluntary service that can be accepted or rejected at will. We must be prepared before the emergency arises.

DR. WILLIAM S. TERRIBERRY: There are three schemes of organization which are now prominently before the public: (1) the scheme proposed by the staff of the army; (2) the so-called continental army organization, and (3) the federalization of the organized militia. The general staff proposes a greatly increased regular army, a short time of enlistment, and a reserve. It provides for a continuation of the soldier's training in a reserve during a period of years and finally enrolment in a reserve without further training. This plan perpetuates a system of highly trained, mercenary professional armies, a military organization hopelessly out of date. Mobilization of the regular army for war would necessitate an infusion of 60 per cent. of green men and probably 40 per cent. of untrained officers, and this would mean that the present army could not take the field for at least three months after mobilization. The plan for a peace time volunteer army provides for the enrolment of a force of 400,000 men in annual quotas of 133,000. The force is to be raised by authority of Congress and is to be under the direct orders of the president both in peace and in war. It is to be trained, armed, equipped and paid by the federal government, and is not to be assembled except for short periods each year. The continental army plan leaves all important objects unattainable. The national guard system is worth perpetuating and developing on condition that it can be standardized to a common high level, and that it can be made available for use at any time, for any purpose and as long as needed. Of all plans for military preparedness, the regulation of the organized militia offers the best prospect of development into a national army of the twentieth century model. Whatever the form of organization, it is not too much to say that the success or failure of future war depends on the care that is given to the organization by the medical department. The smallest proportion of medical officers that would be needed for service with troops actually in the field is 1 per cent., and these men would have to be medical officers and not civilian doctors improvised into officers. To train these men takes years of instruction and practice. The best organization seems to be a civilian base hospital unit, complete with consultants, operating surgeons, assistant surgeons, specialists, laboratory men and a nursing force. This unit should be organized and its personnel kept up during peace to a full war strength. For the members of this unit, military instruction is necessary. No adequate method of national defense will arise from the present agitation. The nation has never been actually tested in war, and it will take a real war with an overwhelming defeat to convince us that a national army based on universal service in time of peace is our only safety.

DR. EDMUND P. FOWLER: The regimental officer is responsible for the sanitary condition of the regiment. A regular monthly examination is made of every soldier and the records kept. The sanitary detachment is responsible for the sanitary operation of the kitchen, the care of urinals, the collection and disposal of waste, and for the public washing and bathing places. The regimental sanitary detachment accompanies the troops to the front in time of battle and establishes first aid stations near the firing line. The medical officer must be not only a trained doctor but also a trained soldier, and the two ways to train men for this duty are either in the national guard with the troops or with the reserves. Conditions abroad have shown the results of medical unpreparedness, and if in the future we are to avoid such results, training in the medical service required to meet the demands of war must be universal.

DISCUSSION

DR. HENRY C. COE: In 1908, when Congress provided for a general medical reserve corps, such a corps was regarded as a joke and remained so for a long time. Recently there has been a changed condition of affairs in the corps. Five or six years ago I went to Gettysburg with the troops to learn what I could with reference to the possibilities for usefulness of the medical reserve corps. I then made up my mind to try to galvanize this dead body into life, and the effort has been attended with great success in this state. The medical reserve corps in New York state numbers 230 today. We want young active men, men who are patriotic and ready to serve their country. The medical man should be under the same necessity of giving his services to the state as of giving his services to humanity.

DR. S. J. MELTZER: Our hospitals and universities can be used; such units sent abroad give better service than the foreign countries have been able to provide. I cannot agree with the statement regarding the question of preparedness of the Army Medical Corps; it is astonishing what they have accomplished in the last sixteen or eighteen years. We learned the cost of not having an efficient medical service in the Spanish-American War and that very able Surgeon-General, Dr. George M. Sternberg, has laid the foundation

for an efficient army medical corps in the Philippines and in Cuba, which has accomplished a great deal in many trying circumstances. Dr. Sternberg has demonstrated that a medical man can be patriotic and will give his utmost service to his country, and this service is at the same time not in contradiction to his service to humanity.

DR. EMIL HUEL: When the state accepts the services of a soldier, it gives him a uniform and a certain financial compensation, while the man in the Medical Reserve Corps has to furnish his own equipment, and give a great deal of time to preparation for the service, for which he receives nothing, except at such a time as he might be in active service, and then he is allowed $5 a day. The federal government should recognize the burden that preparation for military service imposes on the civil practitioner and should give him fair treatment.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES

Twenty-Sixth Annual Meeting, held in Chicago, Feb. 8, 1916

The President, DR. CHARLES R. BARDEEN, in the Chair

Resolutions

The association approved of the purposes of the National Board of Medical Examiners, and recommended that its objects be encouraged.

The Executive Council recommended that after Jan. 1, 1918, the standard for admission to medical colleges be increased from thirty to sixty hours of college credit, with the present specific requirements as a basis. This recommendation will be acted on at the next annual meeting as an amendment to the constitution.

Function of the Dispensary

DR. GEORGE BLUMER, New Haven, Conn.: The dispensary should be a center for the dissemination among the public of the knowledge of preventive medicine. The presence of the medical student stimulates the attending physicians to a better type of work. Adequately equipped dispensaries should be a source of material for research. The dispensary offers greater opportunities for the study of minor ailments and incipient chronic disease than does the hospital. It is a mistaken assumption that medical fledglings are capable of adequately caring for this important work. Trained supervision of the dispensary work is important. An insufficient social service department or absence of one is frequently noted. The unit arrangement is the best. There should be a central waiting room, surrounded by suites of examining or dressing rooms. Each clinic should control a working unit, and each unit should consist of a central admitting room, which connects directly with the general waiting room, flanked on either side by a series of unit rooms, modified according to the need of the particular clinic. In the central admitting room of each unit the current records are kept, and the room is divided into a series of cubicles in which the histories of the patients are taken. A superintendent, not necessarily a physician, should be in charge of the dispensary, and he should have training in the social side of dispensary work. He should devote his entire time to the work. There should be a sufficient force of clerks and nurses. The dispensary staff may be divided into the teaching staff and the service staff, the latter taking care of the routine work of the dispensary. At Yale we find it necessary to have at least one paid man in each department. Records should be carefully and properly kept. The dispensary is a natural feeder of the hospital. The equipment should be such that thorough examination and treatment of all patients is possible, including apparatus and a clinical laboratory, Roentgen department, physical therapy department, cystoscopic rooms, etc. There should be at least one instructor to a group of five students. Where the clinical clerk system is in operation, third year students may devote their time in the dispensary to general clinics, and the fourth year students to the specialties. Specialization should be encouraged in the separate clinics. The third year students should be taught how to take histories and how to handle patients in a tactful and humane manner; how to make a thorough routine physical examination, and do the necessary clinical laboratory work, and should receive instruction in the use of diagnostic apparatus and instruments. The class method of instruction is a great advantage. A properly equipped and adequately manned dispensary is one of the most important factors in clinical instruction.

Aims, Methods and Results in Medical Education

DR. CHARLES R. BARDEEN, Madison, Wis.: The results of the joint product of educational plants, teachers and students are to be determined by the scientific output and by the ability of the graduates to perform the services for which they are trained. Methods should be designed to furnish the requisite training as directly, simply and inexpensively as possible compatible with adequate results. We need more organization and cooperation of men in different lines of work. Hospitals should be looked to more and more as natural centers, where the specialized activities of groups of physicians may be brought into harmonious cooperation. A greatly reduced number of physicians can serve the needs of the people effectively only through cooperation. There is also a need of a financial reorganization in medical economics. The public should pay for the public services which physicians perform, the same as lawyers are paid. The expense connected with the early years after graduation, as well as the cost in time and money of the long training now demanded of medical students, makes it imperative that we should seek to lessen the cost to the student in every way compatible with efficient training, because otherwise we shall encourage him subsequently to become commercialized. With the profession confined to a few high priced practitioners, there will be danger of increased quackery for the mass of the people. If we try to reduce expense by educating large numbers in relatively few medical centers, effective results will not be obtained, because intimate association between teacher and pupil is necessary.

Teaching of Applied Therapeutics

DR. FRANCIS H. MCCRUDDEN, Boston: The teaching of therapeutics is one of the weakest points in the training of the medical student. The weakness lies in the fact that no systematic instruction is usually given in the general principles of therapeutics. In the course in clinical medicine, the attention of the student is directed chiefly to symptomatology and diagnosis; treatment is relegated to a subordinate position. The treatment of sick patients can be learned only by the inductive experimental method of long continued bedside observation of many patients. We treat individuals rather than diseases. Pharmacology, though generally considered the science at the basis of treatment, is not, for it deals with only part of the fundamentals of therapeutics. It deals with the activities not only of useful drugs, but also of drugs which are not useful. A knowledge of pathology and clinical medicine is a necessary prerequisite to the study of therapeutics, but is not necessary for the pharmacologist. Drugs have a different effect in pathologic conditions from what they have in health. A knowledge of pharmacology alone is not a sufficient basis for the treatment of patients. Therapeutics should be taught as an applied science, and not as an empiric art. It should be the most important course in the curriculum. Improvement in functional efficiency is the ultimate purpose of all therapeutics. All methods of treatment may be grouped under three headings: (1) preventive treatment; (2) direct treatment of the disease or its causes; (3) indirect treatment directed at the functions of various organs. Therapeutics is really a branch of applied physiology, and should be taught as such. I teach therapeutics in a large, modern hospital, of about 150 beds, well equipped for study, diagnosis and treatment. A definite plan of teaching is outlined, considering in order the treatment of various diseases of each organ. We begin with diseases of the heart, and then in order consider the kidneys, vessels, lungs, blood, gastro-intestinal tract and diseases of metabolism. The functions of each organ are reviewed, and then the nature of the disturbance of function, to which pathologic changes may lead, methods of influencing these disturbances

of function, and, finally, the clinical forms of disease of the organ. Instruction is given to small sections of students during the fourth year at the bedside. Emphasis is laid throughout on the general principles of treatment.

Teaching of Clinical Medicine

DR. LEWELLYS F. BARKER, Baltimore: The goal of clinical medicine is to understand the abnormal conditions which may occur in the human organism, in order that physicians may act in a rational way to cure or prevent them. The science of clinical medicine may be divided into two parts: (1) that dealing with the understanding of exactly what is going on in the body and mind of the patient and how it has come to pass—the science of diagnosis, and (2) that dealing with the fitting action to be taken to prevent the origin or extension of abnormal processes, and, when possible, to restore bodies and minds deviating from normal function to a healthy state—the science of prophylaxis and therapy. Students must be instructed as well as educated. Students now enter on the study of clinical medicine knowing what the scientific method of inquiry is. They are acquainted with libraries, and know how to use them. They know that disease is a modification of structure and function beyond certain limits, known as health. The department of clinical medicine should control (1) a medical clinic; (2) a medical dispensary; (3) a large clinical institute containing (*a*) a clinical amphitheater; (*b*) a general clinical laboratory; (*c*) a series of smaller laboratories; (*d*) other laboratories for advanced investigative work; (*e*) a "heart station"; (*f*) a roentgenologic laboratory, and (*g*) many small rooms for special examinations with instruments of precision, for the staff, for advanced students, for an artist, and others.

The first year of clinical work should consist almost entirely of a systematic education in the methods of clinical examination of the normal and the diseased human being. This comprises instruction in history taking, physical diagnosis and clinical laboratory work. Every student should become acquainted with Roentgen apparatus and the technic of roentgenoscopy and roentgenography. He should learn the clinical application of bacteriologic methods, and of the doctrines and technic of immunology. All methods of diagnosis and aids in diagnosis should be taught by actual observation. Special methods of study in palpation, digital exploration and laboratory investigation should receive attention. All patients entering a general hospital, except those of surgical emergency, should first be sent to the medical clinic for thorough diagnostic study before they are sent to special clinics. The teaching of neurologic and psychologic methods of examination should occupy enough time to enable the students to acquire competence in at least the main procedures of clinical medical inquiry. Instruction should include finally the procedures used for the clinical study of metabolism, and especially the disturbances of function of the endocrine glands. The students may enter the wards for a period of three months of concentrated clinical study, spending practically the whole day in the hospital, laboratories and libraries. Three or four beds may be assigned to each student, and the patients assigned to these beds are his for study and investigation. The student accompanies the patient to the special examining room and assists with the technic of special methods of examination. This will train him in accurate observation. The student follows the case closely during the stay of the patient in the hospital. Should death occur, the student assists at the necropsy, and makes histologic and bacteriologic examinations. During the first year of clinical work the student should study carefully a textbook of clinical methods of investigation. During his second year he should study a good textbook of medical practice.

Teaching of Clinical Surgery

DR. A. C. STOKES, Omaha: The dispensary should be thoroughly organized and supervised by the heads of departments. Of thirty medical schools in Class A, only about four have a properly organized dispensary. In some schools, dispensary service does not seem to be compulsory. In all but two the instructors are of the lower grades. In only one college was there an equivalent evaluation of the dispensary service in terms of hours. Instruction given in dispensary clinics is without common purpose or classification as to scope and function. Good instruction is being given in many dispensaries, but it is accidental rather than the result of a properly directed system. In many colleges the dispensary does not seem to be connected with the hospital. The students do not see the end of the case. The importance of clinical clerkships cannot be emphasized sufficiently. The instructor should make each case an elementary problem in clinical research. Ward walks in sections of five or ten students comprise the single step which divides this work from the amphitheater clinic. A keen clinical teacher may do a great deal in ward walks in developing the observation of the student. The large operative amphitheater clinic is rapidly disappearing. The amphitheater diagnostic clinic conducted by a real teacher has much value. Didactic courses should be combined with laboratory and clinical courses.

Municipal Hospital as a Factor in Clinical Teaching

DR. HANAU W. LOEB, St. Louis: The St. Louis City Hospital is under the control of a hospital board, a hospital commissioner, a staff of physicians and a superintendent. The hospital is divided as equally as possible into three units, the appointments for each unit being made without reserve, in two instances by medical colleges of the city of St. Louis, and in the third instance by the hospital commissioner, no instructor in either university being eligible to this unit. In each of these units there is a complete organization in each department, but the organization is much more efficient in the university units than in the outside unit. The immediate policy of the staff is under the charge of an executive committee composed of two representatives from each unit. This whole plan is dependent on the will of the hospital commissioner and the director of public welfare. The same plan can be adopted anywhere, provided the medical colleges of the highest class work together to the end that public charges in municipal hospitals shall be under the direction of the staff that is appointed on the basis of a definite policy, which comprehends only the highest ideals of medicine. Speaking for my own school, I would say that three of our attending physicians and three of the attending surgeons are paid sufficient salary to justify them to give the time which the service and instruction require. In addition, there are two men in each department who are not paid. No provision has been made for compensation in the specialties. Thus our institution is provided with 350 beds in the municipal hospital entirely under our charge, with paid instructors, a definite assignment of wards under our own members of the resident staff, and with authority to train our students according to the opportunities present.

DISCUSSION ON PAPERS OF DRS. M'CRUDDEN, BARKER, STOKES AND LOEB

DR. FRANK BILLINGS, Chicago: Every teacher of medicine must agree with Dr. Barker's plan, although it carries with it an enormous expenditure for apparatus, rooms, etc. It also implies an enormous amount of time to the student, as compared with the remainder of the curriculum. In fact, Dr. Barker and Dr. Stokes would demand more time for the departments of medicine and surgery than is allotted to all departments in the model curriculum. We have for years separated the departments of teaching too much. We divide our curriculum into too many parts. We repeat a great deal in teaching clinical medicine. If I were going to build up a clinical department and could have a hospital of a certain number of beds suitable for the number of students to be taught, I would recognize four main departments: (1) pathology (2) general medicine with all its specialties; (3) surgery with all its specialties, and (4) obstetrics. Pathology would be the main department of the whole organization. This clinical school would have wards, one of these would be an obstetric ward. It would have emergency wards for medicine and surgery and for the specialties in these fields. The remainder of all patients would go into observation

wards. No patient would enter a special ward for treatment until his case was diagnosed. Then the patient would receive treatment. Surgical or medical diseases do not exist, nor does surgical diagnosis differ from medical diagnosis. A teaching institution must command its hospital absolutely. All hospitals should be utilized for teaching. We must educate the people to see it that way. I want to emphasize one point: We are cramming our students too much and doing it because we do not coordinate enough in the different departments. We ought to recognize disease as disease without an adjective.

DR. ARTHUR DEAN BEVAN, Chicago: In teaching medicine and surgery we must first decide on what we are going to accomplish. In undergraduate teaching we must be satisfied with a method to turn out general practitioners of medicine. To prepare a man to be a specialist means additional years of preparation after his course in undergraduate work. Our curriculum is overcrowded, and Dr. Billings' suggestions appeal to me. In teaching surgery I am very much in favor of carrying pathology in the surgical course. This precludes a previous training in pathology and bacteriology. Anatomy should not be dropped at the end of the sophomore year. It is essential to surgery in diagnosis as well as in treatment. The same applies to bacteriology, embryology and physiology. Certain relationships between these subjects should be recognized. The backbone of a clinical course should be the general clinic. I do not favor the elimination of the big teaching clinic from a clinical course. I mean a teaching clinic. The old fashioned operative clinic is a failure, but the teaching clinic is not. Certain laboratory courses should be carried on as a special part of the surgical course. A sharp dividing line must be made between preparing a man to go out and practice medicine and preparing a man to go out and be a surgical specialist.

DR. W. T. COUNCILMAN, Boston: It is of fundamental importance to teach pathology in connection with clinical work. Our students should come to us better prepared, and with a greater capacity of acquiring knowledge. We need men who have had training in the methods of acquiring knowledge, and when we get these we shall get better results from our teaching.

DR. FRANCIS S. MCCRUDDEN, Boston: The Robert Brigham Hospital of Boston is the first hospital in which the physiologic point of view regarding the purpose and principles of treating chronic disease has served to guide, direct, stimulate and illuminate all the activities and problems of the hospital. What I tried to bring out in my paper was that the treatment of patients was not alone one of applied physiology, but also one of applied sociology. It is not alone a question of pharmacology. The patient should be under the supervision of one individual, and not under the independent care of a number of specialists.

DR. LEWELLYS F. BARKER, Baltimore: Diagnosis, after all, is the important thing. Some one must be responsible. Whoever it is, he must be the broadest possible sort of a man, a man big enough to call to his aid everybody who could throw light on the case. Then the patient should be turned over to the proper department for treatment. The time element is an important one, but if we can teach a student how to investigate a case thoroughly, he can safely go out as a general practitioner. We cannot make him a surgeon or an ophthalmologist, but we can make him a good general practitioner.

DR. A. C. STOKES, Omaha: I agree with Dr. Barker that all patients coming to the hospital should go through the medical department. I cannot see any difference between pathology andd clinical pathology. My endeavor has been to correlate subjects in such a way as to reduce to a minimum the number of assigned hours.

DR. HANAU W. LOEB, St. Louis: My plea is entirely for a propaganda for the universities to have their share, as universities, in the municipal hospitals, and also that the outside physicians should have their share. Letting the people know the tremendous advantage which would accrue to the hospital by such a policy would lessen, if not remove, the difficulty of putting it into force.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Internal Medicine, Chicago

February, XVII, No. 2, pp. 181-342

1 *Nonparasitic Chyluria. K. I. Sanes and M. Kahn, Pittsburgh.
2 *Experimental Alcoholic Cirrhosis of Liver. A. L. Grover, Iowa City, Iowa.
3 *Blood and Blood Vessels in Hemophilia and Other Hemorrhagic Diseases. A. F. Hess, New York.
4 *Eventration of Diaphragm: Case of Right-Sided Eventration. S. Bayne-Jones, Baltimore.
5 *Study of Lipin Content of Case of Gaucher's Disease in an Infant. H. R. Wahl and M. L. Richardson, Cleveland.
6 Control of Experimental Cretinism. H. R. Basinger, Chicago.
7 *Agglutination in Pertussis, Its Characteristics and Its Comparative Value in Clinical Diagnosis and in Determination of Genus and Species. O. R. Povitzky and E. Worth, New York.
8 Permanganate Reduction Index of Cerebrospinal Fluid. W. O. Hoffman and A. B. Schwartz, Chicago.
9 *Treatment of Typhoid by Intravenous Injections of Polyvalent Sensitized Typhoid Vaccine Sediment. F. P. Gay, Berkeley, Calif., and H. T. Chickering, New York.
10 Interpretation of Positive Nitrogen Balance in Nephritis. H. O. Mosenthal, Baltimore, and A. E. Richards, Philadelphia.

1. **Nonparasitic Chyluria.**—It appears that the chyluria in the case examined by Sanes and Kahn was due to a passage of fat from the blood directly into the urine through the kidney epithelium, caused, probably, by a functional disturbance of the kidney cells.

2. **Alcoholic Cirrhosis of Liver.**—Grover claims that it has been pretty well proved that a cirrhosis can be obtained from alcohol in cases in which no other factor is apparent.

3. **Blood and Blood Vessels in Hemophilia.**—The main points in Hess' article may be summarized as follows: The coagulation time of the plasma in hemophilia at times may become normal without the occurrence of hemorrhage or other apparent change in the condition of the patient. The estimation of the number of blood platelets is of great value, as has been found by others, in differentiating between purpura and hemophilia. In some cases of purpura, the platelets are abnormal and may be differentiated, like other macrocytes and microcytes of the blood, into macroplatelets and microplatelets. The puncture test—the reaction following subcutaneous puncture of the skin—is an aid to diagnosis. In hemophilia a hemorrhagic area rarely results from this procedure; in purpura it is the rule. The capillary resistance test is also of value. By this is understood the reaction following the application for a definite period of a tourniquet to the upper arm. In purpura, this results in petechial hemorrhages on the forearm; in hemophilia the effect is negative. There is an hereditary purpura as well as hereditary hemophilia. This type of purpura should be more generally recognized, so that these cases will not, on account of their hereditary history, continue to be regarded as hemophilia. The male member of a family may be a bleeder of the hemophiliac type and the female of the purpuric type. Two families are described by Hess in which one member suffered from hemophilia and another from purpura.

Hemophilia may be atypical. A case is reported which showed a calcium deficiency, as borne out by various chemical and clinical tests (hemophilia calcipriva). In some cases manifesting hemorrhage, by vessels seem to be involved. This weakness is encountered in children and may be congenital; it may appear in the course of an infectious disease, or of a nutritional disorder, such as infantile scurvy. In the classical case the differentiation between hemophilia and purpura is simple. The picture of a typical hemophiliac is a male, with a hereditary history of bleeding, whose blood manifests a definite delay in coagulation time, whose platelets are normal in number, "bleeding-time" not increased, who shows no hemorrhagic reaction following subcutaneous puncture of the skin, and a negative capillary resistance test. A typical case of purpura is found to be quite different: the almost normal time and the number of blood platelets is decreased (frequently below 100,000 in number), there is

definite subcutaneous hemorrhage following puncture of the skin, an increase of the bleeding time, and the development of a large number of petechial hemorrhages following the application of a tourniquet.

4. **Eventration of Diaphragm.**—Bayne-Jones reports a case of eventration of the right side of the diaphragm. He claims that this diagnosis, made from physical examination, is the first of its kind determined during the life of the patient. The clinical impression was confirmed at an operation. Tabulation is made of forty-five cases of eventration of the diaphragm. Of these, three were right-sided, while forty-two were left-sided lesions. In the differential diagnosis between eventration and allied states, the difficulties are pointed out, particularly with regard to the differentiation from hernia of the diaphragm. No single method is capable of establishing this differentiation, but all together render the diagnosis reasonably certain. The various etiologic hypotheses are summarized, showing that the weight of evidence is in favor of the opinion that the disease has a congenital origin.

5. **Gaucher's Disease in an Infant.**—Wahl and Richardson state that in Gaucher's disease the liver and the spleen show not only a marked increase in the lipin content, but also a serious alteration in normal relations of the lipins to each other. The fixed fats are greatly reduced, while the lipoids, such as lecithin and cholesterol, are greatly increased. In the author's case a lecithin-like body predominated, but a cholesterin compound may prevail in other cases. In Gaucher's disease, lipoid substances accumulate in the form of small droplets within the cytoplasm of the tissue cells, resulting in the formation and accumulation of the distinctive large pale cells so characteristic, histologically, of this disease. Gaucher's disease is due to a disturbance of lipoid and fat metabolism, resulting in the accumulation of lipoid substances in the cytoplasm of the large pale cells that are mostly transformed reticulo-endothelial cells of the spleen, lymph nodes and bone marrow and the stellate cells of the liver. These cells have the physiologic property of disposing of the fats and lipoids, and comprise the "endothelial Stoffwechselapparate." It is thus a system disease, but involves the hematopoietic organs only secondarily in that they are very rich in the reticulo-endothelial cells. Those organs that contain the reticulo-endothelial cells in large abundance (spleen, lymph glands, bone marrow, liver, stellate cells of Kupfer, etc.) show the most changes; but specific parenchymal cells may absorb some of the lipoid in a very advanced case. Gaucher's disease belongs to the group of xanthelasmic conditions which are characterized by a more or less diffuse accumulation of lipoids in reticulo-endothelial or in fibroblastic cells in one or more organs. It represents a more diffuse and widespread involvement of the "endothelial Stoffwechselapparate" than those cases of "grosszellige Hyperplasie der Milz" in diabetic lipoidemia, with an underlying cause that is more deepseated and inherent in the body economy.

7. **Agglutination in Pertussis.**—A strongly agglutinating pertussis serum was best obtained by the authors in the rabbit by ten to twelve intraperitoneal inoculations of living cultures given at seven-day intervals. Over 95 per cent. of rabbits, inoculated in this manner, produced agglutinins, though not in equal abundance. Agglutinins are also produced by vaccines, but not as abundantly as by living cultures. Those rabbits which received eight to nine inoculations of vaccine and did not show agglutinins to any large extent, were, nevertheless, markedly immune. A high titer serum (from 1:4,000 to 1:10,000) always proved to be a quickly acting serum which reacted in from one to one and one-half hours in the incubator at 37 C., sometimes up to 1:8,000, with well agglutinable pertussis strains. A low titer serum was usually slow in reaction and did not show agglutination till after remaining in the ice-box over night. By agglutination tests, *B. pertussis* strains can be specifically identified from hemoglobinophilic bacilli, pertussis-like bacilli, and *B. bronchisepticus*. In no instance was there cross agglutination between these organisms—at least not higher than 1:40. For identification a strong serum of high titer should be used. Thirty-three per cent. of adult nonpertussis serums show agglutination in up to 1:40; 17 per cent. in up to 100; 40 per cent. of children's nonpertussis serums (scarlet fever cases) showed a reaction in up to 1:40. A dilution of not less than 1:200 is necessary for a practically positive diagnosis of pertussis by agglutination test.

9. **Typhoid Treated by Injections of Polyvalent Sensitized Typhoid Vaccine Sediment.**—This article deals with the study of 105 cases of suspected typhoid. In sixty-five of the 105 cases the diagnosis of typhoid was made from both clinical and laboratory data. In these sixty-five cases the Widal was positive in sixty (93.7 per cent.) and as early as the fifth day, the high percentage of results being due, in a large measure, to the method employed, namely, the use of the macroscopic method and a formaldehydized culture of the typhoid bacillus. Of the blood cultures taken in fifty-eight cases there were forty positive (70 per cent.), including a case first seen on the thirty-second day. In only one case of the sixty-five were both Widal and blood culture negative, which case was diagnosed by the presence of *B. typhosus* in the stools. The method of treatment employed by Gay and Chickering consisted in the intravenous injection of 1/50 to 1/25 milligram (150 to 300 million bacteria) of a sensitized, polyvalent, killed typhoid vaccine sediment prepared after the method of Gay and Claypole. In 66 per cent. of the cases a distinct benefit was obtained; in 41.5 per cent. of this 66 per cent. the recovery was of an abortive form with a critical fall of temperature and a permanent normal temperature established within a few days. This permanent normal temperature was reached on an average seven days after beginning treatment in these cases. A series of subcutaneous injections following the intravenous treatment apparently aids in preventing relapses.

Boston Medical and Surgical Journal

February 17, CLXXIV, No. 7, pp. 223-258

11 *Skin Reactions Excited by Various Bacterial Proteids in Certain Vasomotor Disturbances of Upper Air Passages. J. L. Goodale, Boston.
12 Gunshot Fracture of Long Bones. C. C. Simmons, Boston.
13 Abnormalities of Heart in Infectious Diseases. C. S. Chapin, Great Barrington.
14 Heart in Pregnancy. E. H. Taylor, Pittsfield.
15 Heart Disease in Pregnancy and Labor. J. L. Huntington, Boston.

11. **Vasomotor Disturbances of Upper Air Passages.**—During the past two years 340 cases exhibiting vasomotor disturbances of the upper air passages have been examined by Goodale with reference to the possibility of eliciting a skin reaction by the application of various proteins to an abrasion or scratch of the skin. The results of these studies have shown that from a clinical standpoint such conditions may be divided into two main groups, the seasonal and the perennial. The seasonal group includes hay-fever and hay asthma, in cases in which the exciting protein is represented by the pollen of different species of plants, the occurrence of the symptoms being synchronous with the flowering of the plant in question. The perennial forms of vasomotor disturbance occur at any time of the year. Goodale calls attention to the probable existence of a third group of vasomotor disturbances, which may be termed infectious, in that their appearance seems to stand in relation to bacterial invasion of the upper air passages. In certain anaphylactic individuals exhibiting symptoms of perennial vasomotor disturbances of the upper air passages, an immediate and characteristic reaction is elicited by the application to a scratch of the skin of soluble extracts of *Staphylococcus pyogenes albus, aureus, citreus* and *Micrococcus tetragenus;* also by an as yet unidentified bacillus having some of the characters of Friedländer's bacillus. Such individuals are not sensitized equally to these organisms, some patients reacting to one and some to another of the bacteria in question.

California State Journal of Medicine, San Francisco

January, XIV, No. 1, pp. 1-42

16 Laryngeal Diphtheria. W. W. Behlow, Boston.
17 Local Anesthetics. G. MacGowan, Los Angeles.
18 Clinical Records. E. S. Kilgore, San Francisco.
19 Perinephritic Abscesses. W. F. Braasch, Rochester, Minn.
20 Need of Psychopathic Hospitals in Large Cities. H. W. Wright, San Francisco.
21 Are We Making Progress in Early Recognition of Tuberculosis? G. H. Evans, San Francisco.

22 Review of Recent Progress in Roentgenology. W. W. Boardman, San Francisco.
23 Mastoid Operation Dependent on Pathology. C. F. Welty, San Francisco.
24 Origin and Ending of Dr. Jordan Museum of Anatomy, etc. J. F. Gibbon, San Francisco.

Colorado Medicine, Denver

February, XIII, No. 2, pp. 35-68

25 Etiology, Pathology and Therapy of Hodgkin's Disease and Allied Affections. J. L. Yates, Milwaukee, Wis.
26 Experiences in Serbia. W. A. Jolley, Boulder.
27 Case of Pelvic Cellulitis, or Phlegmon Ligneux of Pelvis. W. A. Jayne, Denver.
28 Interparoxysmal Vasomotor Crises of Migraine. E. W. Lazell, Denver.

Iowa State Medical Society Journal, Des Moines

February, VI, No. 2, pp. 41-98

29 Roentgen Observations Respecting Cause and Treatment of Constipation. J. T. Case, Battle Creek.
30 Report of Ruptured Uterus in Country Practice. A. J. Swezey, Decorah.
31 Diabetes Mellitus. S. K. Davis, Libertyville.
32 Extrinsic Muscles in Refraction. H. M. Ivins, Cedar Rapids.
33 Induced Abortion. C. E. Dakin, Mason City.
34 Gangrene of Appendix. M. Emmert, Des Moines.

Journal of Biological Chemistry, Baltimore

February, XXIV, No. 2, pp. 91-172

35 Mode of Action of Oxidases. H. H. Bunzell, Washington, D. C.
36 Relative Oxidase Activity of Different Organs of Same Plant. H. H. Bunzell, Washington, D. C.
37 Cephalin. Cephalin of Egg Yolk, Kidney and Liver. P. A. Levene and C. J. West, New York.
38 Determination of Urea by Urease Method. D. D. Van Slyke and G. E. Cullen, New York.
39 *Studies on Physiology of Reproduction in Domestic Fowl. Effect of Feeding Pituitary Substance and Corpus Luteum Substance on Egg Production and Growth. R. Pearl, Chicago.
40 Changes in Weight and Composition of Fasting Lobsters. S. Morgulis, New York.
41 Lewis and Benedict Method for Estimation of Blood Sugar; Obtained in Disease. V. C. Myers and C. V. Bailey, New York.
42 Is Autolysis an Autocatalytic Phenomenon? M. Morse, Omaha.
43 Occurrence of p-Hydroxyphenylethylamin in Various Mistletoes. A. C. Crawford and W. K. Watanabe, San Francisco.

39. **Physiology of Reproduction in Domestic Fowl.**—Pearl found that feeding the desiccated substance of the anterior lobe of the pituitary body of cattle to hens in laying condition but at a time of year when the rate of fecundity is declining, does not stimulate the ovary to an increased rate of production. Feeding the same substance (pituitary body, anterior lobe) to growing pullets does not bring about any earlier activation of the ovary than occurs in normal control pullets not fed this substance. The anterior lobe of the pituitary body from cattle when fed to growing chicks is accompanied by a distinct retardation in growth in body weight. This confirms for the chick the results which have been obtained with this substance by other investigators in mammals. The feeding of the desiccated substance of corpus luteum brings about a retardation of growth about twice as great in amount as that following pituitary feeding, as above noted. Neither pituitary substance (anterior lobe) nor corpus luteum substance when fed to laying pullets causes any retardation in the attainment of sexual maturity as indicated by the laying of eggs. The birds so fed begin to lay eggs at the same age, but at a smaller body weight than the normal controls. Some of the essential safeguards for the critical conduct of organ substance experiments with poultry are discussed.

Journal of Laboratory and Clinical Medicine, St. Louis

February, I, No. 5, pp. 283-370

44 *Condition of Vasoconstrictor Center During Development of Shock. G. Seelig and D. R. Joseph, St. Louis.
45 *Physiology of Parathyroid Glands. W. F. Koch, Detroit.
46 *Further Studies in Nicotin Tolerance. C. W. Edmunds and M. I. Smith, Ann Arbor, Mich.
47 *Hexamethylenamin as Urate Solvent and Diuretic, and Its Effect on Reaction of Urine. P. J. Hanzlik, Cleveland.
48 *Gonococcus Complement Fixation: New Lipoid Antigen. C. C. Warden, Ann Arbor, Mich., and L. E. Schmidt, Chicago.
49 Fetal Erythroblastosis: Fetal Erythroblastomatosis. P. G. Woolley, Cincinnati.
50 New Operating Table and Head Holder for Experimental Purposes. D. E. Jackson, St. Louis.

44. **Vasoconstrictor Center During Development of Shock.**—The problem which Seelig and Joseph worked on was essentially this: Can one obtain any conclusive evidence that, during the development of shock, the vasoconstrictor center at any time loses its activity? They attacked the problem on this basis: If the vasoconstrictor nerves to one ear are cut all influence of the vasoconstrictor center over the vessels of that ear is removed. The denervated vessels might then be expected to react more or less passively to changes of pressure within them. If the heart were maintaining a high blood pressure these vessels should become passively dilated. If, on the other hand, the blood pressure were low they should be correspondingly less dilated. In other words, the control vessels of the denervated ear should react passively no matter what the pressure within them. The vessels of one ear were denervated by resecting and severing under ether anesthesia, the auricularis magnus nerve at the base of the pinna and removing the superior cervical sympathetic ganglion on the same side. In no case was the animal reduced to a state of shock immediately following the denervation of the ear. Twenty-five experiments were performed. The interval between denervation of the blood vessels of one ear and the production of shock varied from twenty hours to twelve days.

The results of these experiments is summarized as follows: Denervated blood vessels usually show the best passive response to internal pressure changes when used within twenty-four hours after their denervation. Normally innervated ear vessels are strongly constricted while the animal is sinking into a condition of shock and after shock has developed. This strong vascular constriction persists even though the blood pressure be raised well toward the normal level (at a time when the animal shows distinct symptoms of shock). This vasoconstriction is due to the activity of the vasoconstrictor center because (*a*) the control denervated vessels become strongly dilated under the influence of the same pressure and (*b*) the constriction of the normal vessels themselves disappears at once if their connection with the vasoconstrictor center is destroyed by cutting the nerves, or by abolishing their conductivity with ether or by freezing. Since a fairly high degree of activity of the vasoconstrictor center can be demonstrated even after the blood pressure has fallen to a low level and reflexes are sluggish, the authors believe it is justifiable to conclude that a paralysis or failure of the vasomotor center is not the primary cause of the other symptoms of surgical shock.

45. **Physiology of Parathyroid Glands.**—The urines were collected separately from forty-seven parathyroidectomized dogs. Especially designed cages were used to avoid fecal contamination. The urines were filtered and evaporated to a syrup by an electric fan at a temperature not above 20 C. The residues were dissolved in alcohol, filtered and evaporated, and this process repeated until the last evaporate dissolved readily in alcohol. The lipoids present were extracted with ether and the residue taken up in water. This solution was cautiously precipitated with picrolonic acid. Several insoluble picrolonates were thus obtained, and by recrystallization from water and alcohol were purified. These substances Koch tested for physiologic activity. Two of them were found to modify the blood pressure when injected intravenously into anesthetized dogs. When injected intraperitoneally into nonanesthetized animals they exhibit very marked toxic effects. They were therefore selected for analysis. One substance was found to reduce gold chlorid quite rapidly, and picrolonic acid slowly. Koch therefore tested for an aldehyd group. With ammoniacal silver nitrate no mirror was obtained but instead a yellow gray precipitate whose solubility resembles that of silver cyanid. The substance itself freed from picrolonic acid is practically neutral in reaction, very soluble in water and alcohol, somewhat soluble in ether. It gives a picrolonate in the form of very fine microscopic needles which melt at 118 C., solidifying rapidly to an orange colored mass which melts with decomposition at about 230 C.; 0.249 gm. is soluble in 100 c.c. of hot water. The substance agrees in percentage composition with the picrolonate of methylcyanamid. The other substance

isolated from the urines and having a physiologic action is basic in reaction. It is less soluble in water than the first substance. Its picrolonate crystallizes from water forming small orange colored mounds. The picrolonate melts at 232 C. with decomposition. The substance agrees in composition with the picrolonate of trimethylmelamin which is the polymer of methylcyanamid. Because of the agreement in chemical and physiologic properties the substances may be considered identified as methylcyanamid and trimethylmelamin.

The methylcyanamid isolated from the urines and the synthetic methylcyanamid were injected intraperitoneally in nonanesthetized dogs and found to have similar effects. In small doses they produce extreme vasodilatation observed in the reddening of the sclera and swelling and reddening of the tongue. Larger doses cause paralysis and convulsions. Still larger doses cause an extremely rapid death. Intraperitoneal injection of 27 mg. of the synthetic substance into a rabbit of 1.5 kg. body weight produced after sixteen minutes very marked vasodilatation observable in the air vessels, and labored breathing accompanied by wheezing suggestive of bronchial stricture. In this condition the animal rapidly developed tremors and tetany with the head thrown back and hind limbs extended. After a few minutes the tetany gave way to coma resulting in death. An injection of 22 mg. of natural substance in a rabbit of 1.25 kg. produced death very similarly, although the tetany was not marked and the dyspnea and coma symptoms predominated. On the other hand, 4 mg. injected intraperitoneally into a white rat of about a 100 gm. weight caused death practically instantaneously with opisthotonos, developing no coma whatever. The similarity in the behavior of the parathyroidectomized dogs, to that of the nonanesthetized animals treated with the substance isolated from the urine, is further indication that this substance is responsible for the symptom complex of parathyroid insufficiency. The data therefore justifies the following conclusions: 1. Somewhere in the body methylcyanamid is generated. 2. This substance has a physiologic value in normal animals. 3. After parathyroid extirpation the substance accumulates in toxic quantities, and is responsible for the death of these animals.

46. **Studies in Nicotin Tolerance.**—The conclusions Edmunds and Smith draw from their work are that the livers of all dogs possess some power to destroy nicotin and that the destroying agent is probably a ferment. It is possible that this ferment may be increased in quantity by the constant use of the alkaloid, but their experiments do not furnish any support for this theory. The main difficulty appears to be that under normal conditions the destroying powers of different livers vary so much in strength that it is almost impossible to state that it has been increased by treatment.

47. **Hexamethylenamin as Urate Solvent and Diuretic.**—Hanzlik emphasizes the fact that hexamethylenamin per se in small quantities, or therapeutic doses, imparts to urine no demonstrable urate solvent qualities. Slight and practically negligible uric acid solvent effects are imparted to urine by excessive doses of hexamethylenamin, and in this the effects of the common alkaline diuretics are pharmacologically and economically superior. There is no evidence that hexamethylenamin can dissolve urate calculi. Regarding the efficiency of the class of drugs called "urate solvents," Hanzlik says that the statement of Fränkel (1906) is quite to the point and appropriate, namely, that no substance has yet been discovered which would form either soluble or easily oxidizable compounds with uric acid under conditions of the body.

48. **Gonococcus Complement Fixation.**—This article presents in detail the conclusions summarized in the preliminary report made before the Section on Genito-Urinary Diseases at the San Francisco meeting of the American Medical Association, detailing the work done with the fats of the gonococcus as antigen in gonococcus complement fixation tests, the superiority of an alcoholic solution of these fats over watery extracts being shown.

Journal-Lancet, Minneapolis

February 15, XXXVI, No. 4, pp. 93-126

51 Laminectomy Under Local, Not Spinal Anesthesia. A. C. Strachauer, Minneapolis.
52 Local Anesthesia. L. E. Daugherty, St. Paul.
53 Organization and Cooperation. J. Grassick, Grand Forks, N. D.
54 Infections of Mouth. G. B. New, Rochester, Minn.
55 Anaerobic Bacteria and Their Relation to Surgery. G. H. Twining, Mobridge, S. D.

Journal of Nervous and Mental Disease, Lancaster, Pa.

February, XLIII, No. 2, pp. 105-200

56 *Localization of Function in Canine Cerebellum. E. G. Grey, Boston.
57 *Value and Meaning of Adductor Responses of Leg. A. Myerson, Boston.
58 Speech Conflict; Natural Consequence in Cosmopolitan Cities as an Etiologic Factor in Stuttering; Report Based on Two Hundred Cases. M. K. Scripture and O. Glogau, New York.

56. **Localization of Function in Canine Cerebellum.**—The results of Grey's experiments tend to support the hypothesis that the question of a localization of function in the cerebellar cortex is still in dispute. Previous investigations have shown that the gradual amelioration of symptoms, which follows removal of the cerebellum, does not occur in animals in which the sensorimotor spheres of the cerebrum have also been destroyed. When the sensorimotor areas are destroyed some weeks subsequent to a primary ablation of the crus secundum (lobulus ansiformis) or the lobulus simplex of the cerebellum, the symptomatic evidences of the latter injury, which have subsided, reappear once more and persist over a long period. The results of Grey's experiments accordingly indicate the considerable value of this combination of lesions in the study of canine cerebellar localization.

57. **Value of Adductor Responses of Leg.**—The opinion is advanced tentatively by Myerson that the adductor responses belong to the tonic responses of muscles habitually maintained in tonus by some influence other than the cerebrum; that in health this tonus being less important for the preservation of attitude than the tonus of the extensor group of muscles, is not to any great extent demonstrable as the adductor response, but that in disease of various kinds, but having as their general feature either the functional or the organic injury to the cerebrum, these responses become manifest in the manner described. The adductor responses are present in health as mild and occasional homolateral and contralateral responses from sites described above. Fatigue does not increase them but diminishes them to the point of abolition. The appearance of contralateral adductor responses especially from the patellar tendon, the external condyle, the anterior superior spine, and to a lesser degree from the Achilles tendon, is a phenomenon of disease, not necessarily organic, but usually such.

Medical Record, New York

February 12, LXXXIX, No. 7, pp. 265-310

59 Rocky Mountain Spotted (Tick) Fever. H. C. Michie, Jr., and H. H. Parsons, Glendive, Mont.
60 Craving for Supernatural. T. A. Williams, Washington, D. C.
61 Sunlight Necessity for Maintenance of Health. J. W. Kime, Fort Dodge, Iowa.
62 Retroversion and Retroflexion. A. Jacoby, New York.
63 Improved Flexible Esophageal Bougie. R. C. Kemp, New York.
64 Experimental Study of Effect of Emetinized Blood on Typhoid Bacillus. M. Beekman, Natchez, Miss.

February 19, No. 8, pp. 311-352

65 Newer Practical Points in Treatment of Typhoid. B. Robinson, New York.
66 Constitutional Inferiority. H. M. Friedman, New York.
67 Physician, Know Thyself. A. MacFarlane, Albany.
68 Reminiscences of Chlorin. D. H. Stewart, New York.
69 Vaccine Therapy. G. A. Ehret, Cleveland.
70 Fatal Case of Cedar Oil Poisoning. W. D. McNally, Chicago.

Michigan State Medical Society Journal, Grand Rapids

February, XV, No. 2, pp. 57-104

71 Local Anesthesia in Abdominal Surgery. J. H. Jacobson, Toledo.
72 Cancer of Uterus. W. P. Manton, Detroit.
73 Conservative Surgery of Ovary. J. H. Carstens, Detroit.
74 *Report of Committee on Bacterin and Serum Therapy in Diseases of Eye, Ear, Nose and Throat. W. Haughey, Battle Creek.

75 *Heart Diseases in Children. W. J. Wilson, Jr., Detroit.
76 Dark Field Illumination Method in Diagnosis of Primary Syphilis. R. G. Owen, H. Snure and W. G. Pitts, Detroit.
77 Five Recent Cases of Primary Carcinoma of Vulva. F. M. Loomis, Ann Arbor.
78 Paralysis of Serratus Magnus Muscle Following Removal of Glands of Neck. C. D. Camp, Ann Arbor.
79 Multiple Syphilitic Ulcers of Lower Legs and Feet. F. E. Senear, Ann Arbor.

74. Abstracted in THE JOURNAL, Sept. 25, 1915, p. 1137.

75. Abstracted in THE JOURNAL, Sept. 18, 1915, p. 1055.

Modern Hospital, St. Louis

February, VI, No. 2, pp. 77-152

80 New Mount Sinai Hospital of Cleveland. W. S. Post, New York, and S. S. Goldwater, Cleveland.
81 Some of Hospital Standards of Tropical America. B. W. Caldwell, Santo Tomas, Panama.
82 Actual Values in Nauheim Bath System. C. G. Anthony, Saratoga Springs, N. Y.
83 Some Administrative Problems in Hospital Buying. C. S. Loder, New York.
84 New Isolation Unit, Hurley Hospital, Flint, Michigan. H. E. Davis, New York, and A. M. Schill, Flint, Mich.
85 Management of Food Supply of Hospital. E. P. Joslin, Boston.
86 Nuts and Nut Preparations in Dietary. J. P. Street, New Haven, Conn.
87 Admitting Department of Large Hospital. D. Poll, New York.
88 Unit Dressing Package. C. E. Black, Jacksonville, Ill.
89 Boiler Room Economics. T. Howell and P. Murray, New York.

New Jersey Medical Society Journal, Orange

February, XIII, No. 2, pp. 53-104

90 Prolapsus Uteri. A. A. Strasser, Arlington.
91 Significance of Urinary Findings. E. Klein, Bayonne.
92 The Specialist Problem. E. J. Marsh, Paterson.
93 Value of Hospitals to Cities. J. C. McCoy, Paterson.
94 Standardized Hospital and Its Obligations. G. K. Dickinson, Jersey City.
95 Diet in Hyperchlorhydria. E. E. Lupin, Bayonne.
96 Syphilitic Aortitis. J. Roemer, Paterson.

New York Medical Journal

February 12, CIII, No. 7, pp. 289-336

97 *Chaulmoogra Oil in Treatment of Leprosy. V. G. Heiser, New York.
98 *Treatment of Grippe. B. Robinson, New York.
99 So-Called Grippe. J. B. Rucker, Jr., Philadelphia.
100 Common Abdominal Crises. M. R. Bookman, New York.
101 With American Red Cross in Vienna. P. A. Smithe, Enid, Okla.
102 Diagnosis of Brain Tumor. H. Climenko, New York.
103 Tremor Tracings. H. Crenshaw, Atlanta, Ga.
104 Fracture of Skull. F. R. Barnes and M. A. Slocum, Philadelphia.

97. **Leprosy Treated with Chaulmoogra Oil.**—The mixture used by Heiser is prepared as follows: ℞ Chaulmoogra oil, 60 c.c.; camphorated oil, 60 c.c.; resorcin, 4 gm. Mix and dissolve with the aid of heat on a water bath and then filter. In one case cited Heiser began treatment by injecting into the buttocks 2 c.c. of the chaulmoogra oil mixture every eight days. The dose was gradually increased until on April 19, 1912, the patient was given 5 c.c. every three days. Feb. 21, 1913, the dose was gradually reduced to 2 c.c. October 13, the dose was gradually increased to 10 c.c., and since Feb. 14, 1914, he receives 5 c.c. and 10 c.c. on alternate weeks. A portion of the dose is frequently injected into the infiltrated lesions.

98. **Treatment of "Grippe."**—Robinson claims to have had excellent results from the following: ℞ Ammonii salicylatis, grs. iij; caffeinae, gr. ¼. M. Fiat capsula No. 1. M. Sig.: Two of these capsules should be taken by an adult, every two hours, for four or five doses, and then every three or four hours.

If the capsules cause slight nausea, which is rare, this may be neutralized by drinking a little vichy with each dose. Night and morning, a little carbolated petrolatum, 1.5 per cent., may be inserted into the nostrils. A mouth wash and gargle of liquor alkalinus antisepticus, well diluted with water, may be used with advantage, three or four times in twenty-four hours. If there are severe pains or fever, one half-grain of phenacetin should be added to each capsule and the effects watched by a physician. When the capsules are taken without phenacetin, the patient does not require careful watching.

Ohio State Medical Journal, Columbus

January, XII, No. 1, pp. 1-80

105 Care of New Born. H. J. Morgan, Toledo.
106 Recognition and Management of Threatening Diabetic Coma. L. A. Levison, Toledo.
107 Profession and Cancer Problem. J. S. Rardin, Portsmouth.
108 Relation of Industry to Medicine. E. R. Hayhurst, Columbus.
109 Physicians' Index. C. O. Beardsley, Ottawa.
110 Present Day Facts in Ophthalmology of Essential Importance to General Practitioner. R. Sattler, Cincinnati.
111 Progress in Therapeutics for 1915. J. W. Sheetz, Columbus.
112 Modification of Reeder-Dutrow Tonsil Knife. H. V. Dutrow, Dayton.

Public Health Journal, Toronto

February, VII, No. 2, pp. 59-114

113 Work of Bureaus of Child Hygiene and Medical Inspection in Schools. P. H. Bryce, Ottawa.
114 Few Hints to Medical Profession in Relation to Public Health Work. G. E. DeWitt, Wolfville, N. S.
115 Community Hygiene. J. K. Macleod, Sydney, N. S.
116 Menace of Inherited Defects. G. B. L. Arner.
117 Life of Young Nation. J. Grant, Ottawa.
118 Eradication of Tubercular Cattle from Milch Herds. A. W. Tracy, Sherbrooke, Que.
119 Antityphoid Inoculation. C. W. Bliss, Amherst, N. S.

Texas State Journal of Medicine, Fort Worth

January, XI, No. 9, pp. 461-514

120 Negro as Health Factor. O. Dowling, Shreveport, La.
121 United States Government Meat Inspection and How it Might be Supplemented by State and Municipal Inspection. A. O. Lundell, Fort Worth.
122 Preventive Medicine. A. C. DeLong, San Angelo.
123 Need of Conservation of Vital Assets. J. D. Covert, Fort Worth.
124 Vital Statistics. W. A. Davis, Austin.
125 Disinfection. A. L. Lincecum, Austin.
126 Health Conservation After Forty. J. L. Davis, Waco.
127 Facts Bearing on Cause of Pellagra. C. C. Parrish, Fort Worth.
128 Heisrath-Kuhnt Operations. W. R. Thompson, Fort Worth.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

November, 1915, XXXVIII, Part 3, pp. 191-389

1 Postural Activity of Muscle and Nerve. C. S. Sherrington.
2 Muscle Tonus. J. W. Langelaan.
3 Unmyelinated Nerve Fibers as Conductors of Protopathic Sensation. S. W. Ranson.

British Journal of Children's Diseases, London

January, XIII, No. 145, pp. 1-32

4 Cure of Squint. N. B. Harman.
5 Eleven Cases of Cerebrospinal Fever. E. C. Williams.
6 Cure of Suppurative Meningococcal Iridochoroiditis by Injections of Antimeningococcal Serum into Vitreous. A. Netter.

British Medical Journal, London

January 29, I, No. 2874, pp. 153-188

7 *Treatment of Gunshot Wounds of Knee Joint. A. L. Lockwood.
8 Epidemic Cerebrospinal Fever. E. C. Hort.
9 Studies in Antiseptics: Chloramine. H. D. Dakin, J. B. Cohen and J. Kenyon.
10 Gassing Accidents from Fumes of Explosives. L. G. Irvine.
11 Cases of Phlebotomus Fever at an Island in Eastern Mediterranean. J. T. D. S. Higgins.
12 Temperature Necessary for Destruction of Lice and Their Eggs. A. W. Bacot.

7. **Treatment of Gunshot Wounds of Knee Joint.**—The points on which Lockwood lays most stress are: That all foreign bodies, whether metal or loose bone, should be removed from the knee joint at the earliest possible moment. Perfect immobilization is absolutely necessary. Do not start passive movements too early; wait at least three weeks after the inflammation has subsided. Absolutely complete excision of all necrotic or even edematous tissue should be made. The capsule should be closed at the first operation if at all possible. Antiseptics, other than 1 per cent. saline or glycerin and formaldehyd mixture, should not be introduced into a joint. Tubes should never traverse the joint surface as in Barnard's method. Patients should not be moved till one is satisfied that infection has been successfully combated. Among sixty patients so treated there was one death. In this patient both the femur and tibia were badly comminuted and the joint was purulent on admission. The patient was a

cachectic, cadaverous looking man, with no resistance, and died in spite of early amputation. There were three amputations. In two patients there was bad comminution of both tibia and femur, with the joint full of pus, and the general condition of the patient was not good on admission. In one patient the amputation was done at once; in the other after five days in the hospital. In the third patient a hand grenade had absolutely shattered the joint and filled it with pieces of metal and dirt. Gas gangrene was present, and the leg was amputated at once. The results as to movement were as follows: ankylosis, 3; limited movement, 4; free movement, 49. Fracture of one or both bones existed in 53 per cent., bloody effusion in 96 per cent., and pus perceptible to the naked eye in 56 per cent. of cases. The bacteriologic reports on 42 cases showed that organisms were present in 76 per cent.

Lancet, London

January 29, I, No. 4822, pp. 227-280

13 *Gunshot Wounds of Chest. J. R. Bradford.
14 *Surgical Treatment of Gunshot Wounds of Chest. H. M. Davies.
15 Rationale of Chemotherapy in Syphilis. J. E. R. McDonagh.
16 *Simpson Light in Treatment of Venereal Lesions. E. G. Ffrench.
17 Influence of Febrile Conditions on Inoculation Agglutinins. H. L. Tidy.
18 *Fatal Case of Anthrax; Infection of Shaving Brush. E. H. Snell and E. W. G. Masterman.
19 Detachment of Retina. C. Higgens.
20 Thrombosis of Cerebral Arteries in Paratyphoid B. W. MacAdam.

13. **Gunshot Wounds of Chest.**—Approximately 25 per cent. of the cases of hemothorax referred to by Bradford were infected, and in 20 per cent. of the infected cases the infection was derived from the lung; that is, the fluid contained lung organisms; in the remaining 80 per cent. the infection was derived from the exterior—skin, soiled clothes, etc. In many of the infected cases, Bradford says, the clinical picture at first closely resembles that of a sterile hemothorax, and it is only by exploratory puncture, or even repeated exploratory puncture, that the diagnosis can be made. Usually the pyrexia, dyspnea, frequency of the pulse, and icterus are more marked, and the patient is obviously often very ill but it is extremely important to recognize the fact that not uncommonly at first he is not apparently very ill, and then suddenly most alarming symptoms develop, and unless promptly treated death ensues. Sometimes these urgent symptoms are suggestive of secondary hemorrhage, namely, a rapid pulse, cold clammy skin and urgent dyspnea. It was only as a result of some postmortem examinations made in such cases in the early months of the war that it was ascertained that these symptoms were due not to hemorrhage as was thought, but to infection with anaerobic gas producing organisms. Such cases may recover in an extraordinary way if they are recognized and the pleura promptly opened and drained, a local not a general anesthetic being used.

In another group of cases associated with anaerobic infection characteristic signs develop, suggesting the occurrence of pneumothorax. Thus the heart undergoes rapid outward displacement and a "cracked pot" percussion note is obtained which twenty-four hours previously was absent. The frequency of this "cracked pot" percussion note is remarkable, and Bradford thinks sometimes it might be regarded as almost pathognomonic of these cases. These cases are also liable to be erroneously diagnosed as merely cases of simple pneumothorax, as a bell sound is well marked. The patients in the cases associated with streptococci are usually very ill, with much fever, very rapid pulse, furred tongue, and diarrhea of the severe type is also often present. Contralateral pleurisy is much more common in these cases than in the simple sterile cases, and pericarditis and pneumonia also occur as complications. The mortality in the septic cases was much reduced by early recognition of the existence of the infection and prompt drainage by resection of a portion of a rib as soon as the bacteriologic evidence proved the presence of infection.

14. **Surgical Treatment of Gunshot Wounds of Chest.**—Davies emphasizes the necessity of having a manometer connected with the pleural cavity and of registering constantly the variations in intrapleural pressure, and of having means of controlling the same during operative interference on the closed chest. If such measures are adopted, and if the track of needles inserted into the chest is always anesthetized, there is a minimum of discomfort and a complete absence of danger to the patient. Davies has had, on the one hand, patients in bed with a localized positive pressure equal to 30 mm. of mercury, and up and about with a generalized unilateral pressure equal to 12 mm. of mercury. At the other end of the scale he has had patients tolerating without discomfort a negative pressure equal to 60 mm. of mercury during quiet respiration, and working with a negative pressure equal to 50 mm. of mercury.

16. **Simpson Light in Treatment of Venereal Lesions.**—From an extended experience of this treatment for venereal lesions Ffrench has come to the conclusion that the best results are obtained by giving a treatment three times a week (every other day) with an exposure of two minutes' duration and varying the treatment with the open and focal rays from time to time according to the condition of the lesion.

18. **Fatal Case of Anthrax.**—Smears of the blood from around the pustule showed many anthrax bacilli, some of which were abnormally swollen. Cultures from this blood on a sloped agar tube yielded colonies of *Staphylococcus albus* and *Bacillus anthracis*. From these latter subcultures have been made. After death the spleen was removed and smears of the spleen pulp showed abundant *Bacillus anthracis*. The shaving brush of the deceased was found to contain anthrax spores. Four of the other brushes were examined, with negative results. The source of infection was therefore not clear, as the shaving brush used conceivably might have been infected from the skin. Two of seven other brushes secured from the same stock as the patients contained virulent anthrax spores.

Practitioner, London

February, XCVI, No. 2, pp. 131-230

21 Treatment of Urgent Pleurisy. S. West.
22 *Citrated Whole Milk Method in Feeding of Infants. E. Pritchard.
23 *Use of Undiluted Citrated Milk in Feeding of Infants. R. Carter.
24 Recent Obstetric and Gynecologic Cases at London Hospital. R. D. Maxwell.
25 Skin Grafting in Mastoid Operations. H. J. Marriage.
26 Surgical Efficiency—Plea for Better Facilities and Training. J. H. Watson.
27 Recent Work in Radium Radiology and Electrotherapeutics. N. S. Finzi.
28 Recent Work on Diseases of Nervous System. H. C. Thomson.
29 Some Prescriptions and Their Use. A. Graham-Stewart.
30 Hysterical Anesthesia in Egyptians. A. E. A. Ismael.
31 Case of Dislocation of Spleen with Torsion of Its Pedicle. H. Angus.

22. **Citrated Whole Milk Method in Feeding Infants.**—Pritchard pronounces the citrated whole milk method as being physiologically unsound, because it allows no latitude for adaptation to the individual's digestive, assimilative, metabolic and secretory activities, and claims that its use imposes obligatory modification of the infant. It affords little scope for the study of the influence of variations in the diet. If the principles of percentage feeding are understood, a satisfactory food can be synthesized in a great variety of ways to satisfy the physiologic requirements of any particular child; and dried milk, if properly modified and of good quality, has all the advantages, and few of the disadvantages, of so-called dairy milk.

23. **Undiluted Citrated Milk in Feeding of Infants.**—Carter gives undiluted sterilized milk one tenth of the body weight, he insists on clock like regularity of feeding, and makes the intervals between the feeds as long as possible, so that the stomach is empty before the next meal. Contrary to the generally accepted method of giving 2 grains of citrate of soda to each ounce of milk, he gives only 1 grain. Receive the milk in a clean jug, and then place the jug in a saucepan of water, and allow the water to boil for five minutes. Each meal is prepared separately. Carter has always had good results with undiluted citrated milk using it as a routine method, but much better results are obtained by abandoning all routine methods and concentrating more on the individual requirements of each case.

Archives des Maladies du Cœur, etc., Paris

December, 1915, VIII, No. 12, pp. 437-527

32 Muscle Fibers in Heart Valves. (Note sur quelques points nouveaux de la structure des valvules du cœur.) A. F. S. Kent (Bristol).

33 *Blood Obtained by Puncture of Vein Best for Serodiagnosis. (Comment recueillir le sang pour éviter les erreurs dans le séro-diagnostic.) M. Parvu.

34 Intoxication from Asphyxiating Gases. (Sur les troubles cardio-vasculaires et l'état du sang dans les intoxications par les gaz asphyxiants des allemands.) J. Heitz.

33. Improved Technic for Preliminaries to Serodiagnosis.—Parvu presents arguments to show that it is far from being immaterial whether the blood for the Wassermann or similar tests is drawn from the finger or the ear, or by puncture of a vein, or whether the serous fluid in a blister is taken. His extensive research has shown that the antibody content is always highest in the blood obtained by puncture of a vein. Hence this should be used in testing for antibodies; positive results may be obtained here when the blood from the ear or finger is constantly negative. Error from this was noted in 40 per cent. of twenty cases examined for the purpose. There is also danger of contamination with the other technics, which is avoided with the vein puncture, while the serum obtained in this way contains the maximum of antibodies, alexins and hemolysins. He emphasizes further that the blood must be allowed to clot naturally; the ten or twelve hours which this requires allow time for the leukocytes to yield up to the serum all their lysins and antibodies. The blood should never be centrifugated or defibrinated for serodiagnosis; otherwise the leukocytes keep alive and retain the antibodies. This is easily demonstrated by testing the serum for antibodies, alexins and lysins at different stages of the coagulation process. He usually waits till next day before decanting the serum.

Archives Mens. d'Obstét. et de Gynécologie, Paris

November, 1915, IV, No. 11, pp. 401-432

35 The Rôle of Glycogen in the Normal Uterine Mucosa. L. F. Driessen (Amsterdam).

Bulletin de l'Académie de Médecine, Paris

January 11, LXXV, No. 2, pp. 21-48

36 Diagnosis of Pericarditis with Much Effusion in Chronic Nephritis. (Le frottement péricardique dorsal dans les péricardites brightiques à grand epanchement.) Chauffard.

37 *Measures to Transform Infected into Sterile Wounds and Close as Soon as This is Realized. (Fermeture secondaire des plaies de guerre.) A. Carrel, Dehelly and Dumas.

38 Reflex Paralysis and Relaxation with Mechanical and Electric Overexcitability of Muscles. (Paralysie et hypotonie réflexes avec surexcitabilité mécanique, voltaique et faradique des muscles.) Babinski and J. Froment.

January 18, No. 3, pp. 49-90

39 Pyoculture Not a Reliable Guide to the Prognosis. (De la pyoculture. Etude critique, d'après l'analyse de 29 cas.) S. Pozzi.

40 Excitability of and Conductibility in Wounded Nerves. G. Battez and R. Desplats.

41 Colon Bacilli Contamination of Beer in Flanders. (Recherches bactériologiques sur les bières des Flandres. II.) L. Roussel and others.

42 *Epileptic Seizures from Cicatricial Irritation of Peripheral Nerves. (Syndrome épileptique par irritation nerveuse périphérique ou épilepsie de Brown-Séquard.) A. Mairet and H. Piéron.

37. Sterilization of Wounds and Immediate Closing.—Carrel and his co-workers report experiences in which infected wounds, once thoroughly sterilized, healed by primary intention when closed at once. This prompt coaptating of the muscle fibers leads to healing with only a thin layer of cicatricial tissue, thus preventing the usual mass of cicatricial tissue which is such a hindrance to functioning. They sterilize the wound with their special 1:200 hypochlorite solution (See THE JOURNAL, February 5, p. 447), keeping the wound constantly irrigated with it, day and night. When the phenomena indicating infection have subsided and smears show reducing numbers of microbes in the secretions of the wound and finally their complete disappearance, the wound is closed. This is usually possible from the fourth to the tenth day. As the infection has been conquered, conditions are practically the same as in a fresh operative wound, and the tissues heal by primary intention when carefully coaptated. Strips of adhesive plaster, from 2.5 to 5 cm. wide, are applied perpendicularly to the wound to bring the tissues together, or clips can be used; no suturing is done unless circumstances compel it. This early closing of wounds gets the patients up much earlier, and this in turn aids in warding off stiff joints and atrophy.

42. Brown-Séquard's Epilepsy.—Mairet and Piéron state that they never encountered but one case of this kind in forty years of practice before the war, and have since seen but one case. In the latter, two nerves of the brachial plexus were irritated by cicatricial processes, and the irritation spread to the spinal cord and hence to the brain, bringing on convulsions and finally a typical and severe epileptic seizure. Both cases presented visual hallucinations; in the later case there was evidently a predisposition on the part of the nervous system. The tendency to convulsions was arrested early by measures to relieve the irritation of the peripheral nerves. One was by keeping the entire arm repeatedly in hot water for three hours at a time, after excision of the scar tissue. The tendency was thus broken up before the epilepsy had become chronic.

Journal de Médecine de Bordeaux

January, LXXXVII, No. 3, pp. 39-60

43 Protection Against Asphyxiating Gases. (La lutte prophylactique contre les gaz asphyxiants.) Richard.

44 *Internal Iodin Treatment in the Major Infections. (La thérapeutique iodée systématique dans les grandes infections.) L. Boudreau.

45 Ethyl Chlorid General Anesthesia and Military Surgery. (L'anesthésie générale au chlorure d'éthyle et la chirurgie de guerre.) J. Carles and A. Charrier.

46 Crutches and Artificial Legs. (Béquilles et appareils de prothèse.) Rouquette.

44. Iodin in Treatment of Major Infections.—Boudreau advocates systematic and intensive use of iodin as the most easily managed of internal disinfectants, the least harmful with the maximum of action, and the one to be preferred to all others unless there are formal contraindications. It seems to modify the "organic habits" while rousing and exalting the natural activities which have been slumbering or sluggish or perverted. Wherever there is infection he regards it as indicated—the fact that iodin is found naturally in the body gives confidence in the use of it. Iodin does not accumulate in the body but is rapidly eliminated, and hence the doses must be fractioned as much as possible and adequate amounts be given. Years of experience with it, he relates, have confirmed beyond question that it is microbicide and antitoxic, and has an intense stimulating action on production of leukocytes and on the functioning of the glands, especially of the ductless glands, besides a general tonic action on the vital functions. In septicemia of any kind it tends to break up "the bowel-blood vicious circle" and, given in time, especially in typhoid, seems to ward off the development of this vicious circle. He reiterates that iodin has no preference among bacilli; he gives it wherever fever develops, without waiting to differentiate its special cause. He discusses in particular typhoid, puerperal fever, epidemic meningitis, measles, scarlet fever, and whooping cough, saying that the intensive iodin treatment not only aids in throwing off the infection and reducing the contagiousness of the disease, but it seems to ward off complications. It does not conflict with but supplements vaccine and antitoxin treatment. He insists on the necessity for giving the iodin by the rapid-firing, small dose method, *doses mitraillées*, keeping them up day and night in acute infections, imitating thus Nature's methods. In whooping cough he gives 7 year old children an average of 60 drops of the official tincture of iodin of the French Codex, distributed throughout the twenty-four hours. [This tincture differs from the U. S. P. tincture; the French Pharmacopeia directs simply the solution of iodin in 90 per cent. alcohol: 1 part of iodin for every 12 parts of alcohol.—ED.] He states that children of 3 can take 40 or 50 drops without apparent harm. The results are excellent, shortening the course of the disease and warding off complications, especially when supplemented by local sterilization of the throat, rubbing the chest with balsam oil, and giving hot iodized baths.

His main contention, however, is that iodin should be given in tuberculosis and pushed to the extreme limits of tolerance. For some time he has been proclaiming that iodin must be regarded as the direct and heroic treatment for tuberculosis, and his continued experience has apparently confirmed this. He reiterates, however, again and again, that it is absolutely indispensable to begin with minute doses and work up very slowly and gradually to the large dosage. Boudreau's article was in press at the time the war broke out, and he adds to it that the war experiences of the last sixteen months with infectious diseases and infected wounds have merely reenforced all his statements.

Paris Médical

January 22, VI, No. 4, pp. 97-112

47 *Rats in the Trenches. (La destruction des rats dans les tranchées.) A. Loir and Legangneux.
48 Importance of Alcoholism as Factor in Typhoid Mortality. (L'alcoolisme et la mortalité dans la fièvre typhoide.) M. Labbé.
49 Protheses Restoring Function in Paralyzed Muscles. (Méthode de prothèse fonctionnelle.) Pierre-Robin.
50 Simulation in the Army. V. Audibert.
51 Management of Comminuted Fractures. (Esquillectomies larges et pseudarthroses.) E. Mériel.

47. **Squill as Rat Poison.**—Loir and Legangneux mention that one rat catcher in the trenches of the Aisne and the Marne killed 5,457 rats in 105 days. At Havre, squill has been found quite effectual as a rat poison. It is mixed with equal parts of chopped meat, to form balls of about 5 gm. each. It attracts the rats still better when one drop of anise is added to a paste made with 5 gm. squill, 20 gm flour, 20 gm. powdered fennel and grease enough to mix into a hard paste, cut up into tablets of about 10 gm. each. A few scraps of calcium carbid in the rat hole, the outlets closed with dirt, will generate acetylene gas enough to kill rats, if water is poured on it.

Presse Médicale, Paris

January 17, XXIV, No. 3, pp. 17-24

52 Critical Study of Artificial Legs. (Etude critique des appareils de prothèse français pour amputations de jambes.) Ducroquet.
53 Charts Showing Decline of Typhoid Fever Since Vaccination. (Vaccination et paratyphoïdes.) M. Labbé.

January 20, No. 4, pp. 25-32

54 *Complications of Paratyphoid. (Sur les complications des paratyphoïdes.) J. Minet.
55 *Determination of the Functional Capacity of the Heart. (Epreuve fonctionnelle circulatoire. Appréciation de la puissance de réserve du cœur.) A. Martinet.

54. **Complications of Paratyphoid.**—Minet relates that he had always supposed that paratyphoid fever was a mild affection, over in two weeks, but since he has been in charge of a typhoid hospital near the front he has learned that its localizations and complications are liable to be the same as with typhoid, although less frequent. In 60 paratyphoid cases there was intestinal hemorrhage in 3. The hemorrhages kept up for several days and in one case returned two weeks later, but the men recovered. Another paratyphoid B patient developed acute angiocholecystitis, with liver colic, in the course of which the pulse became thready and the heart beat 160. The man died suddenly when apparently on the road to recovery. In 2 cases there was paratyphoid phlebitis, with recovery; and physical signs of myocarditis were manifest in 19. Heart tonics were given regularly to all; epinephrin was a valuable aid in some cases; caffein gave no relief. Minet never fails to examine the heart regularly, every day, in every paratyphoid case. All his other patients recovered. In 7 of his 60 cases there were pleuropulmonary complications like those encountered in typhoid. In one case paratyphoid bacilli were found numerous in the sputum, some preexisting lesion having afforded a nest for the bacilli, entailing a chronic process. In time the preexisting infectious germs got the upper hand and crowded out the paratyphoid bacilli.

55. **To Determine the Reserve Force of the Heart.**—Martinet emphasizes that the heart and vessels form a single mechanical system so that any reaction at any point in the system is felt at various other points. By testing the changes induced passively by change of position and actively by exercises, we get a good insight into the functional capacity, the ability to maintain the normal balance between the parts. He gives here the charts from a few out of fifty persons tested by a standard technic. The pulse is counted until two successive minutes are the same beat, first as the patient lies flat, then as he stands erect. The minimum and maximum tension are taken at the same time. By waiting until the beat is regular through two periods, emotional fluctuation is excluded. This he calls the static test. Then the exercise or dynamic test is made by deep bending of the knees, done twenty times at the rate of sixty or seventy times a minute. The pulse and the tensions are then recorded each minute for from three to five minutes. The patient then reclines anew and the pulse and pressure are recorded again. A chart showing the records presents at a glance the conditions in the cardiovascular apparatus as the variations from the normal range are so striking. These tests reveal latent weakness of the heart by bringing on a transient phase of asystole. They will also aid in distinguishing between organic and purely functional weakness. The static test shows up particularly any tendency to vasomotor weakness: the tachycardia is exaggerated while the sphygmomanometer reaction is weak or negative. The exercise test reveals any tendency to weakness on the part of the heart, by the same exaggeration of the tachycardia with slight or no sphygmomanometer reaction and further by the delay before the previous balance in the circulation is restored. These reactions are in fact those of induced hyposystole.

Berliner klinische Wochenschrift

November 8, 1915, LII, No. 45, pp. 1153-1176

56 *Treatment of Simple Pruritus. (Entstehung und Beseitigung des Juckens. 4. Der einfache Pruritus.) P. G. Unna.
57 Neurology in War. (Ergebnisse der kriegsneurologischen Forschung.) H. Oppenheim.
58 Internal Medicine in War. (Aufgaben und Probleme der inneren Medizin im Kriege.) Goldscheider. Commenced in No. 44.
59 *Cancer of the Gallbladder Usually Symptomless or Masked. (Die Schwierigkeiten der Erkennung des Gallenblasenkrebses am Anfang und Ende dieser Krankheit.) H. Kehr.
60 *Vascular Disease and Syphilis. (Zur Kenntnis der Gefässerkrankungen infolge von Lues.) C. Friedländer.

November 15, No. 46, pp. 1177-1200

61 Simple Pruritus. P. G. Unna. See abstract 56.
62 *Albumin-Poor Diet in Nephritis. (Zur Behandlung der Nierenkranken.) F. Hirschfeld.
63 Constantly Negative Wassermann Reaction in Twelve Cases of Pemphigus. (Ueber das angebliche Vorkommen einer positiven Wassermann'schen Reaktion beim Pemphigus.) E. Nathan.
64 Agglutination in Dysentery. (Die Agglutination bei Ruhr und ruhrartigen Erkrankungen.) L. Dünner.
65 Later Course of Gunshot and Shell Wounds of the Skull. (Zur Klinik der Schädelschüsse nach den Erfahrungen im Heimatlazarett.) E. Hayward. Concluded in No. 47.

56. **Simple Pruritus.**—By this term Unna means itching not restricted to any one locality, but either universal or shifting about under the influence of chronic intoxication or senility. The intoxication may be from quinin or arsenic, tobacco or intestinal helminths, chronic jaundice, diabetes, albuminuria or senility. The factor common to all these, he explains, is toxic injury of the nerves of the vascular capillaries from some toxin with reducing properties. This injury fluctuates with the intensity of the toxic action, and hence the itching increases and subsides with it. All disappears without leaving a trace as the underlying constitutional affection or intoxication is cured. Copious drinking helps to wash out the toxins. Venesection followed by injection of Ringer's fluid would have to be repeated often to be effectual, and is thus not practicable. A course of mineral waters is useful and he recommends as the simplest form of this a mixture of 40 parts sodium chlorid; 1 part calcium chlorid; 8 parts potassium chlorid and 8 parts sodium percarbonate. Of this oxidizing mixture 4 or 5 gm. are dissolved in 2 liters of water and the whole sipped in the course of twenty-four hours. For local application he commends oxidizing baths or an oxidizing salve to rub into the skin. The rapid benefit from this oxidizing treatment of pruritus, with or without jaundice, confirms that the elements in the blood which are responsible for the itching are of reducing nature. For immediate relief he knows of nothing to compare in effectiveness with monochlorbenzol (chlorbenzene) which penetrates the skin at once without damaging it and relieves the itching

for several hours or the whole night. The surface can be washed off or sprayed with the solution of 1, 2 or 5 parts of chlorbenzene in alcohol to 100 parts. (See previous abstracts of Unna's study of pruritis, THE JOURNAL, January 15, p. 227, and February 19, p. 609.)

59. **Cancer of the Gallbladder.**—Kehr states that a permanent cure has been realized in only one of his forty-nine operative cases of primary cancer of the gallbladder. In this single case the gallbladder had been removed for chronic inflammation and the microscopic discovery of the cancer was a surprise. It had given no signs of its presence. In a total compilation of 350 operations for cancer of the gallbladder a permanent cure is known in only 2.3 per cent. This bad record is because it is impossible to diagnose cancer of the gallbladder in an early stage, and because chronic inflammation of the gallbladder is not given operative treatment early enough. The only prophylaxis available at present is to remove the gallbladder when chronic cholecystitis proves rebellious to a course of proper internal treatment. He warns that the combination of a hard, knobby tumor in the gallbladder with ascites, cachexia and jaundice, even without any history of colic, may be the manifestations merely of a simple gallstone trouble. If it is assumed to be cancer and operative treatment is advised against as hopeless, the patient may die from the entirely benign affection. Only when there are several knobby tumors, intense jaundice and extreme ascites, with enlargement and cirrhosis of the liver can we be practically certain of malignant disease. The pain is no criterion. In fact, he declares, no progress has been made in recent years in the positive diagnosis of malignant disease of the gallbladder, especially in its early or its latest stages.

60. **Connection of Syphilis with Vascular Disease.**—Friedländer reviews the literature on this subject, remarking that the tendency now is to exaggerate the share of syphilis in the production of aneurysm of the aorta and other vascular affections. He admits that the artificial production of aneurysm by injection of spirochetes, as reported by Vanzetti, is demonstrative evidence, but, on the other hand Friedländer and von Zeissl never found any special tendency to aneurysms among the thousands and thousands of syphilitics applying to the dermatologic clinic and the Jubilee Hospital at Vienna.

62. **Treatment of Kidney Disease.**—Hirschfeld relates a number of case histories to demonstrate the advantages in chronic kidney disease of restricting the intake of albumin. When the daily total is kept down to 40 gm. albumin, with only 30 gm. of absorbable albumin and about 5 gm. sodium chlorid, far-reaching improvement follows, especially with contracted kidney. The diet should consist of vegetables, potatoes, rice, green vegetables, cream, sugar and large amounts of fruit in every form. The output of urine becomes reduced to three quarters of a liter in the twenty-four hours, and it is generally alkaline or neutral or weakly acid; in the latter event it can be made alkaline by giving 1 or 2 gm. sodium bicarbonate or sodium citrate daily. When the urine becomes alkaline, the albumin disappears from it more or less completely. On this albumin-poor diet the urine contains about 5 gm. nitrogen, 5 or 6 gm. salt and a total of about 25 gm. solids, in contrast to the 60 or 70 gm. on an ordinary diet. The specific gravity ranges between 1.011 and 1.014. The blood pressure generally begins to go down in about two weeks. After several weeks of this diet, if a meal with much albumin is given there is usually considerable polyuria a few hours later. Muscular exercise retards this polyuria. It also retards elimination of nitrogen. For this reason it is better to permit food more liberal in nitrogen only when complete repose can follow.

Correspondenz-Blatt für Schweizer Aerzte, Basel

January 22, XLVI, No. 4, pp. 97-128

66 Criminal Responsibility and Hysterical Irresponsibility. (Verantwortlichkeit und hysterischer Dämmerzustand.) C. Strasser.

Deutsche medizinische Wochenschrift, Berlin

November 18, 1915, XLI, No. 47, pp. 1385-1416

67 *Is it Really Entirely Impossible to Make Prostitution Harmless from the Standpoint of Health? (Ist es wirklich ganz unmöglich, die Prostitution gesundheitlich unschädlich zu machen?) A. Neisser.

68 Prophylaxis of Camp Typhoid by Disinfection of the Hands. (Typhusbekämpfung im Felde durch ein einfaches Verfahren zur Händedesinfektion.) K. W. Joetten.

69 Bile-Agar for Cultivation of Typhoid Bacilli. (Die Typhusbazillenzüchtung mittels der Galleschrägagarröhrchen.) H. Koenigsfeld.

70 Gastro-Intestinal Affections in Soldiers. (Zur militärärztlichen Beurteilung und Behandlung der Magen-Darmkrankheiten im Krieg.) L. Roemheld.

71 Standard Tests for Estimation of Functional Capacity of the Heart. (Zur Funktionsprüfung des Kreislaufs, speziell bei Erschöpfungs- und Fieberzuständen.) J. Schütz.

72 Necrosis of the Gallbladder after Typhoid. (Nekrotisierende Cholecystitis typhosa.) O. Orth.

73 Explosive Action of Bullets in Organs Containing Fluids. (Hydrodynamische Wirkung der Infanteriegeschosse.) M. Reuter.

74 Transportable Bathing Establishment. (Badegelegenheit im Felde.) Buschan.

75 Sanatoriums for the Young. (Ueber Jugend- und Schulsanatorien.) Sexauer.

January 13, XLII, No. 2, pp. 33-60

76 Duodenal Ulcer. I. Boas. Concluded in No. 3.

77 *Action of Blood Charcoal on Digestion. (Ueber die Einwirkung von Blutkohle auf die Magenverdauung.) H. Strauss.

78 Wounds of the Chest and Lungs. (100 Brust- und Lungenschüsse.) Lonhard.

79 Injuries of the Hearing Apparatus in War and Their Treatment. (Gehörverletzungen im Stellungskriege und ihre Behandlung beim Truppenteil.) A. Peyser.

80 Gas Gangrene. (Ergebnisse der bisherigen kriegschirurgischen Erfahrungen. III.) H. Matti.

81 *Two Weeks' Quarantine for Cholera. (Unzulänglichkeit der Beobachtungsdauer bei Cholera.) J. von Daranyi.

82 *Psychoses Connected with Abnormal Internal Secretion. (Ueber dysglanduläre Psychosen.) A. Fauser.

83 "Christian Science." (Christliche Wissenschaft.) F. Köhler.

67. **Is Sanitation of Prostitution Impossible?**—Neisser says that sanitation of prostitution has never been really attempted. It is a medical, not a police question. Clandestine prostitution is particularly dangerous on numerous accounts. This, he thinks, should be combated by providing opportunities for free examination and treatment of venereal disease. There should be social service work, enlightening and educating the girls and women, striving to turn them aside from illicit intercourse and aiding them in self-support. He regards it as an essential feature of these dispensaries that they should not insist on a course of hospital treatment. The results would be better, of course, in the individual case, but the dread of being sent to the hospital would deter others from coming to the dispensary. More welfare work and social service, more preventive control with specialist medical treatment will certainly reduce the number of female sources of infection, and secondarily of the male sources.

The treatment of each venereal affection is discussed in detail. Soft ulcer he wipes off with pure phenol and then applies a cotton pad greased with petrolatum containing 10 per cent. of some silver salt. Iodoform is more effectual, but its odor precludes its use. The phenol application should be renewed daily as long as necessary, and the necessity for keeping the entrance to the vagina thoroughly coated with petrolatum should be impressed on the patient. This not only tends to protect the male but it protects the female against another crop of soft ulcers. Copious greasing of the entrance to the vagina and to the urethra also affords some protection against gonorrhea. In any event, a well greased cotton pad should be placed over the mouth of the uterus to protect it against gonorrhea and also to protect the male against gonorrheal uterine processes already installed. For local treatment he uses urethral bougies containing 10 or 20 per cent. of some silver salt, with 30 parts starch, 4 parts tragacanth and 20 parts acacia. One of these medicinal bougies is introduced every day, or two in a day, and a cotton pad applied to hold in the melting mass. This reduces the contagiousness materially, and in time will realize a cure, while a course of hospital treatment is thus avoided.

Prophylaxis of syphilis is still simpler, merely thorough greasing of the mouth of the vagina and the vicinity with petrolatum. Neisser regards the mechanical as the principal protecting factor, but it might be better to incorporate some disinfectant with the greasing material, such as calomel, as in Metchnikoff's 33 per cent. calomel salve. Prophylactic salvarsan treatment he urges not only for those with known syphilis but as a prophylactic for all prostitutes.

77. **Action of Animal Charcoal on Gastric Digestion.**—Strauss has become convinced of the advantages of kaolin and animal charcoal in treatment of infectious intestinal troubles, especially dysentery. He prefers the charcoal, pulverized as fine as soot, and has given it for weeks at a time to patients without impairing their appetite except in the rarest cases. Various writers have asserted that kaolin and charcoal interfere with digestion by adsorbing the digestive ferments, but Strauss presents evidence to prove that although this adsorption proceeds regularly in the test tube, the living digestive apparatus tends to keep the digestive ferments at a certain level. More is secreted to take the place approximately of what has been adsorbed. In gastric and duodenal ulcer it has the additional advantage of settling as a protecting coating over the ulceration. It proved useful also in dysentery given in enemas. He tabulates the findings in thirteen persons and calls attention to the way in which charcoal adsorbs all occult blood in the gastro-intestinal tract.

81. **Cholera Quarantine Requires Two Weeks.**—Daranyi tells of epidemics of cholera started by healthy carriers who had been quarantined for the regulation five days. There is no knowledge to date of any instance in which the vibriones were found in carriers for more than two weeks. Up to the end of two weeks they are dangerous.

82. **Serologic Diagnosis in Psychology.**—Fauser's article is the concluding portion of an address on the protective ferments from the standpoint of psychiatry, delivered in April, 1914. He emphasizes that the importance of serologic findings is not belittled by the fact that they conflict with many prevailing clinical conceptions. They may permit finer differentiation of psychoses, the exotoxic, the endotoxic —the dysglandular, from the gross type of dementia praecox to the finer curable types, "degeneracy psychoses," "hysteria," "epileptoid conditions," etc. He enumerates a number of questions pressing for solution, declaring that we have made a beginning in the pathologic serology of the psychoses. Certain facts are already established: We know that the functioning of the brain cortex can be affected by the functioning of a gland with an internal secretion; this is proved by the benefit on the nervous and psychic manifestations of exophthalmic goiter after operations on the thyroid. Also by the favorable influence of operations on other forms of psychoses of thyroid origin. Other proof is afforded by the instances of exophthalmic goiter developing after a fright or other psychic trauma. He cites as a beautiful example of still another possibility, namely, the influencing of the functioning of a gland with an internal secretion, the observation of an American physiologist that cats subjected to prolonged annoyance showed an increased epinephrin content in their blood.

Jahrbuch für Kinderheilkunde, Berlin

January, LXXXIII, No. 1, pp. 1-96

84 *Alimentary Increase in the Sugar Content of the Blood in Infants. (Die alimentäre Glykämie des Säuglings.) A. Niemann.
85 Congenital High Scapula. (Fall von angeborenem Hochstand des Schulterblattes.) W. Hoffmann.
86 Uretha Stone in Boy of 14. (Interessanter Fall von Harnröhrenstein bei einem 14 jährigen Knaben.) J. V. Bokay.
87 *Treatment of Rachitis. (Zur Therapie der Rachitis. VIII.) E. Schloss.

84. **Alimentary Glykemia in Infants.**—Niemann has been applying to large groups of infants Bang's micromethod for testing the sugar content of the blood. He first determined the average content before the first feeding of the day and tabulates the findings at various periods after intake of carbohydrates. A large proportion of the infants invariably responded with alimentary glykemia, but the intensity varied within a wide range. The highest sugar content was found always in infants thriving well on large amounts of carbohydrate. This is the same group of infants that have retention of urine after intake of even small amounts of sugar. The sugar in them passes rapidly into the circulation and modifies the intermediate metabolism. These children seem to thrive on carbohydrates and do not require fats. Another group of infants show very slight alimentary glykemia when fed carbohydrates, and these children do not thrive on carbohydrates. They require fats; human milk may be indispensable for some of those in this group. Which of the two groups represents the normal one, he does not pretend to say, but expatiates on the importance of distinguishing these groups for proper feeding. This is possible now by the degree of the alimentary glykemia and the response in the output of urine after ingestion of a given amount of sugar. But it is often possible to ascertain merely from the kind of food the child has been getting whether it does best on carbohydrates or on fats; pallor, soap stools, etc., indicate the response to fat. (Niemann's previous communication on this subject was reviewed in these columns Aug. 21, 1915, p. 747.)

87. **Treatment of Rachitis.**—This eighth instalment of Schloss' long study of this subject consists mostly of tables giving the detailed metabolic findings of eighty rachitic children taking cod liver oil, calcium, or phosphorus, alone or in various combinations, during periods of natural or artificial feeding. (His last instalment was summarized in THE JOURNAL, Feb. 20, 1915, p. 703.)

Medizinische Klinik, Berlin

January 9, XII, No. 2, pp. 31-58

88 *Chemical and Biologic Factors Liable to Induce Lead Poisoning from a Bullet in the Tissues. (Die Gefahr der Vergiftung durch ganze oder zersplitterte, im Körper lagernde Geschosse.) L. Lewin.
89 Paravertebral Nerve Blocking for Remote Localized Anesthesia. (Ergebnisse bei weiteren 600 paravertebralen Anästhesien.) P. W. Siegel.
90 Paratyphoid. (Paratyphöse Erkrankungen.) L. v. Korczynski.
91 Wounds of Joints. (Felderfahrungen bei 80 Gelenkschüssen.) Kaehler.
92 Improvised Arrangement of Dump Car for Carrying Wounded. (Improvisierter Verwundetentransport auf Feldbahnen.) A. Partos.

88. **Danger of Poisoning from a Bullet in the Tissues.**—Lewin has long preached that scraps of lead in the tissues are liable to prove a source of constant generation of poison. He here offers evidence that lead may become transformed into lead hydroxid under the influence of moisture and the oxygen in the tissues, while the salt content of the tissue juices may also attack the lead. A bullet encapsulated in the lung was found incrusted with lead chlorid and this, we know, is soluble in 105 parts water at a temperature of 16.5 C. (62 F.). Fats, lipoids and pus also act on lead. The oil in sardine cans may take up lead from the solder and prove toxic in time. On account of this dissolving action of fats on lead, he warns against milk for persons exposed to lead poisoning. All the above chemical and still other factors act on a bullet in the tissues in time. The mills of the human body grind slowly. The action is greater the more surface presented by the lead; a whole bullet is less dangerous than when broken up into fragments. When lead is found in the urine of a person known to be harboring a piece of lead, this is a sign that the lead is being disintegrated and that lead poisoning is imminent or installed. He regards this as so serious that he would impose special rates for life insurance when there is a projectile in the tissues, even when it is giving no signs of its presence, and above all when lead is found in the urine, saliva or stools. Those not familiar with the manifestations of lead poisoning are liable to overlook or misinterpret them, especially the "lead breath," gouty-rheumatic or asthmatic disturbances, or parotitis, herpes zoster, nephritis, chronic constipation, liver derangement, ulceration in the duodenum, or certain heart disturbances exactly such as are encountered in persons free from lead poisoning. The eye, ear and other senses may show the effects of the lead poisoning, or there may be a neurasthenic condition which it is certainly not easy to trace to a piece of lead long ensconced in the tissues. In short, the symptoms from lead poisoning masquerade and deceive the profession, and this is why the danger from a bullet left in the tissues is not realized by physicians. A case of severe lead poisoning was reported in France in 1911 from a birdshot wound of the chest, which had suppurated. Denig and Neu published a report in 1915 of ninety-six wounded who had had a projectile in the tissues for from two weeks to several months. In 11.5 per cent. lead was found in the urine and saliva.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

January, XLIII, No. 1, pp. 1-94

93 Lack of Uniformity in Textbook Obstetric Measurements and Planes. (Unstimmigkeiten in geburtshülflichen Becken-Massen und -Ebenen.) L. Fuhrmann.

94 *Large Nonmalignant Vesicular Mole. (Ueber destruierende Blasenmole). J. A. Amann.

95 *Cultivation of Anaerobes in Febrile Puerperal Cases. (Zur Technik und Bewertung der Anaerobenzüchtung.) W. Lindemann.

96 Disturbance in Reflex Control of Puerperal Bladder. (Aetiologie der puerperalen Ischurie.) P. Esch.

97 *Improved Technic for Forceps Extraction. (Ueber die Anlegung der Zange am nicht rotierten Kopf mit Beschreibung eines neuen Zangenmodelles und einer neuen Anlegungsmethode.) C. Kielland (Christiania).

94. **Cystic Mole.**—In the case related, the otherwise healthy woman of 49 had four children and had passed through an abortion five months before. For the last year she had complained of sacral pains and pain in the right side. There had been recent hemorrhage from the uterus for four days, followed by a watery discharge, and a tumor could be palpated suggesting a soft myoma or sarcoma in the right side of the cervix. It proved to be a vesicular mole; the cystic villi had grown into the connective tissue, in and around the uterine cervix, reaching to the wall of the pelvis, but not invading the actual wall of the uterus which, with the endometrium, was intact. The uterus was removed, but it was impossible to get out all the convolutions of the mole. Complete recovery followed, with no signs of recurrence during the ten or eleven months since.

95. **Bacteriemia in Puerperal Febrile States.**—Lindemann reports that he found bacteriemia in 72 per cent. of twenty-nine cases of febrile abortion and in 50 per cent. of twenty-three women with slight fever after delivery at term. This high percentage of positive findings was due to the use of bacteriologic methods to reveal both aerobic and anaerobic bacteria. Study of the latter has broadened materially our knowledge of the bacteria that may be present after induced abortions, miscarriages and after deliveries. Anaerobic bacteria in the uterus might induce a misleading positive response to the lung-floating test. Experiences with criminal abortion testify that extremely virulent anaerobic germs, introduced from without, may entail the severest infections.

97. **Forceps Extraction.**—Kielland gives an illustrated description of his method of introducing the forceps, saying that it ensures a symmetrical, firm grip whatever the position of the head. It requires an exact knowledge beforehand of the position of the head, the direction of the sagittal suture and the location of the anterior and posterior fontanels. Also a slight modification of the forceps pattern. These are the only drawbacks, as the mechanical part, he reiterates, is much simpler and easier than with the ordinary technic. Only two fingers are used in introducing the blade, and this only to the lip of the os uteri, which reduces the danger of infection. The grip of the forceps is firm and does not change, and traction is exerted on the axis of the handle, while the blades press evenly on the skull their entire length, and less force is required for extraction.

Münchener medizinische Wochenschrift, Munich

January 11, LXIII, No. 2, pp. 37-72

98 *Fate and Action of Hot and Cold Beverages in the Stomach. (Schicksal und Wirkung heisser und kalter Getränke im Magen.) E. Egan.

99 Roentgen Localization of Foreign Bodies in the Tissues. H. Schmerz.

100 Practical Means to Help Crippled Soldiers to Help Themselves. (Praktische Kriegsinvalidenfürsorge.) Scholl. Concluded in No. 3.

101 *Benefit from Diathermia in Whooping Cough. (Eine neuartige Behandlung des Keuchhustens.) E. Ebstein.

102 Transient Disturbances in Senses of Smell and Taste after Neosalvarsan. (Perverse Geruchs- und Geschmacksempfindungen nach Neosalvarsaninjektionen.) M. Kraupa-Runk.

103 *Connection Between the Pituitary Body and Diabetes Insipidus. (Ueber die Beziehung des Diabetes insipidus zur Hypophyse und seine Behandlung mit Hypophysenextrakt.) G. Hoppe-Seyler.

104 Antityphoid Vaccination and Enlargement of the Spleen Persisting Possibly to the Tenth Week. (Typhusschutzimpfung und Milzschwellung.) H. Kämmerer and R. W. Woltering.

105 *Ligation of Femoral Vein in Sepsis after Wound of the Leg. (Ueber Venenunterbindung wegen Pyämie nach Extremitätenverletzungen.) F. Rost.

106 Later Care of Infected Fractures of Upper Arm and Thigh. (Zur Versorgung schwer infizierter Schussfrakturen der Diaphysen des Oberarms und Oberschenkels im Heimatlazarett.) E. Menne.

107 Plastic Operations on the Skull. (Zur Technik der Schädelplastik.) A. Hofmann.

108 *Abortive Treatment of Syphilis. (Ueber Abortivkuren der Syphilis mit Salvarsan und Neosalvarsan.) E. Freund.

109 *Silver Nitrate Enemas for Diarrhea of all Kinds. (Ein wirksames Verfahren gegen Durchfälle aller Art: verdächtige und unverdächtige.) T. G. Rakus.

110 Kaolin Crowds Out the Pyocyaneus. (Bolus gegen Pyozyaneus.) Holzapfel.

111 Support for Peroneus Paralysis. (Einfache Stützen für Peroneuslähmung.) Nieny.

112 Bacteriology of Dysentery in the War. (Zur Bakteriologie der Ruhr im Kriege.) E. Seligmann.

113 Paper Finger Cots. (Ersatz für Gummifingerlinge.) H. Hecht.

114 Constricting Band Brings Out Eruption in Early Stage of Typhus. (Die künstliche Stauung als diagnostisches und differentialdiagnostisches Hilfsmittel beim Fleckfieber.) C. Dietsch.

115 Advantages of Sugar for Dressing Wounds. (Bemerkungen zur Wundbehandlung mit Zucker.) E. Meyer.

98. **Motor Response of Stomach to Cold and Warm Drinks.**—This communication from the official Roentgen laboratory at Vienna, in charge of Holzknecht, reports extensive research in this line. The findings in fifteen cases are tabulated, and demonstrate that the individual stomach may respond in the same way to intake of fluid, regardless of its temperature, passing it along at once or not, according to its usual behavior, whether the fluid is very hot or very cold or tepid. In one healthy person and in three with various gastro-intestinal disturbances, cold water set up very lively peristalsis while hot water did not. This response was constant in each case, but no reason for this different behavior of the stomach could be discovered.

101. **Physical Measures in Treatment of Whooping Cough.**—Ebstein remarks that too little attention has been paid to the simple maneuver for controlling the paroxysm in whooping cough to which O. Naegeli called attention twenty years ago. It relieves the disease of its most dreaded features, and the mother or nurse or the child himself can apply it. Unfortunately, however, it requires vigorous inhalation to open the vocal cords, and hence the measure cannot be applied to quite young children. In such cases Ebstein has found that diathermia of the larynx, applied from each side, has a remarkable attenuating effect on the whooping cough, transforming it into merely an ordinary cough. He says that the effect is amazing in whooping cough at any age. The night rest is no longer disturbed. Ordinary electricity is not enough; it must be the electric waves of the diathermia technic, applied for five or ten minutes, once or twice, to each side of the neck with a current of 0.25 to 0.6 ampere. The diathermia technic causes no sensation except that of warmth, so that children do not object to it. He has applied it successfully to two children of 4½ and 11, the latter not taking any medicine.

103. **Pituitary Treatment in Diabetes Insipidus.**—Hoppe-Seyler supplements his article, summarized in abstract 77 on page 314, January 22, and gives a review of some additional literature. It includes Kleeblatt's case in which diabetes insipidus developed after an accident injuring the skull. Under pituitary extract, the polyuria subsided, but the thirst and excessive sweating persisted. The hypophysis was found intact, the trouble being from chronic irritation of the floor of the fourth ventricle. This case corroborates that when hypophysis extract modifies the whole clinical picture, as in Hoppe-Seyler's case, this can be accepted in differential diagnosis of a pituitary affection.

105. **Ligation of Vein in Pyemia Consecutive to Wounds of the Extremities.**—Rost threw a ligature around the femoral vein in two cases of severe and menacing septic conditions with repeated chills or embolic processes. In both cases the effect was excellent, no further chills followed and the temperature gradually subsided. In both cases the sepsis had followed amputation, and both men evidently owed their lives to the ligation of the vein above.

108. **Abortive Treatment of Syphilis.**—Freund gives the details of forty-six cases of syphilis given salvarsan or neosalvarsan to abort it in its incipiency. Thirty of the men have been under observation for a year or more and eleven for from six months to a year. When the Wassermann was

negative at the beginning of treatment, complete success was constant, but with strongly positive Wassermann the outcome was less reliable, and three of the men had neurorecurrences and two others developed symptoms several months later.

109. **Treatment of Diarrhea.**—Rakus reports excellent results in treatment of diarrhea of all kinds from rectal injection of 25 gm. of 2 per cent. solution of silver nitrate in half a liter of tepid water, the patient in the knee-elbow position. The enema is retained as long as possible, squeezing the parts to hold it in. No water is permitted during the entire course—merely a swallow of hot Russian tea every half hour the first day. The second day a little thin soup is permitted, and the third day thin or thick soup. The fourth day a little zwieback is added, and by the fifth day the ordinary diet can be resumed. One or two enemas often answered the purpose; in others eight or more were required. One of his patients was a girl of 13 with typhoid. She received the same treatment as the others, and had no fever after the second week. He gives two of these enemas a day in the severer and febrile cases.

Therapeutische Monatshefte, Berlin

December, 1915, XXIX, No. 12, pp. 645-692

116 Present Status of Intraspinal Salvarsan Treatment of Syphilitic Disease of the Central Nervous System. (Die endolumbale Salvarsantherapie bei syphilitischen Erkrankungen des Zentralnervensystems.) O. Naegeli (Bern).

117 Combined Pyramidon and Baths in Treatment of Typhoid. (Kombinierte Pyramidon-Bädertherapie bei Unterleibstyphus.) C. Wortmann, A. Hackradt and M. Quirin.

118 Complete Cure in Two Cases of Gangrene of the Lung under Systematic Abstention from Fluids. (Zur Therapie des Lungenbrandes durch Trockendiät—Durstkur.) Halbey.

Gazzetta degli Ospedali e delle Cliniche, Milan

January 16, XXXVII, No. 5, pp. 65-80

119 *Aphonia with Mitral Stenosis. (L'afonia nei vizi mitralici.) L. R. Lanza.

120 Improved Technic for Determination of Cholera Germs in Stools. (Sopra un nuovo metodo di ricerca e di isolamento del vibrione colerigeno nelle feci.) A. Marassini.

January 20, No. 6, pp. 81-96

121 Bridge Plaster Casts. (Le indicazioni degli apparaecchi gessati discontinui, a ponte od anse.) F. Lastaria.

119. **Aphonia with Valvular Defect.**—Lanza reports three cases of aphonia with mitral stenosis. In one the heart was much enlarged and the left recurrent nerve was compressed, entailing almost complete paralysis of the muscles. Under treatment to restore compensation to the heart, the voice improved and kept good for six months. Then with failing compensation total aphonia returned. The man of 32 died suddenly not long after. In a second case there was paresis limited to abduction of the left vocal cord. As the heart action improved under treatment, the voice returned but was still hoarse. In a third case the aphonia was due to an edematous condition of the vocal cords in a case of mitral stenosis with partial adhesive pericarditis. The voice came and went at times, in this case, as the cords increased or diminished in size.

Pediatria, Naples

January, XXIV, No. 1, pp. 1-64

122 *Tartar Emetic in Treatment of Leishmaniosis in Children. (La cura specifica della leishmaniosi nei bambini.) R. Jemma.

123 Vaccine Therapy of Typhoid. (Osservazioni cliniche sull'influenza curativa di un nuovo vaccino antitifoso.) G. di Cristina.

122. **Leishmaniosis in Children.**—Jemma reiterates that we now have in tartar emetic a specific for leishmaniosis in children, so that the problem of treating this terrible disease is completely solved. The results in his thirty-one cases, he says, were marvelous. (A number of articles on tartar emetic in treatment of leishmaniosis are listed in the Index to the last two volumes of The Journal, nearly all summarized in the abstract department.)

Policlinico, Rome

January 16, XXIII, No. 3, pp. 69-100, Baccelli Memorial Number

124 Sodium Citrate in Treatment of Pellagra. (Risultati di alcune esperienze curative della pellagra col citrato trisodico.) G. Alessandrini and A. Scala.

125 Strained Heart. (Esistono lesioni di miocardite acuta nella stanchezza di cuore?) G. Galli.

Semana Medica, Buenos Aires

December 2, 1915, XXII, No. 48, pp. 659-686

126 Vaccine Therapy with Heterovaccines. (Bacterioterapia y Heterobacterioterapia.) S. Mazza.

127 *Viability of the Prematurely Born. (Viabilidad del debil congenito.) F. A. Deluca.

128 Some Argentine Mosquitoes. (Contribucion al estudio de los anofelinas argentinos.) A. Neiva.

December 16, No. 50, pp. 715-742

129 Diagnosis of Twin Pregnancy. (La intensidad de un unico foco de auscultacion fetal puede ser signo patognomonico de ciertos embarazos supuestos o no gemelares?) E. A. Boero.

December 23, No. 51, pp. 743-770

130 *Intravenous Injections of Sodium Salicylate in Acute Articular Rheumatism. (Las inyecciones endovenosas de salicilato de sodio en el reumatismo articular agudo.) P. V. Cernadas.

December 30, No. 52, pp. 771-800

131 Management of a Case of Diphtheria. (Tratamiento de la difteria.) R. Cabrera.

132 Tests of Kidney Functioning. (Examen funcional del riñon. Metodos principales y de aplicacion practica,) A. Viton. Commenced in No. 50.

133 *Statistical Study of Induced Pneumothorax in Treatment of Pulmonary Tuberculosis. C. Ferreira.

127. **Viability of the Prematurely Born.**—Deluca gives an illustration of a child born three months before term, weighing only 1,000 gm., while the placenta weighed 360 gm. The child was wrapped in cotton and placed in bed with its mother, and was thriving well at the fifth week, the date of writing. He tabulates the details of seventy-five other prematurely born infants from the hospital records. Only eleven survived, including some born at the sixth or seventh month. The smallest of the children that survived weighed 1,200 gm.

130. **Intravenous Salicylic Medication.**—Cernadas reports the case of a man of 25 with extremely severe febrile rheumatism involving all the joints, with myocarditis and dyspnea, the stomach absolutely intolerant, especially for the salicylates. He then made an intravenous injection of 6 c.c. of a mixture of 5 gm. sodium salicylate and 0.25 gm. caffein in 25 gm. distilled water. The injection was repeated daily for six days, increasing the amount from 1.2 to 2 gm. By the fourth day the man was able to sit up, with normal temperature, pulse 84, and no further precordial distress.

133. **Induced Pneumothorax.**—Ferreira is president of the Liga Paulista contra la Tuberculosis and chief of an antituberculosis dispensary. He reviews here the statistics in regard to therapeutic pneumothorax published by Saugman (113 cases followed to date of writing); Molon (45); Leysin clinic (23); Carpi (36); Pisani (104); Cionini (53), and a number of others. His conclusions from this review are to the effect that even perfected technic has not entirely suppressed all danger from the procedure. Gaseous embolism is the principal danger; this is caused by alveolar air being drawn into a vein in the lung which has been injured by the needle introduced or by the tuberculous process itself. Transient benefit is relatively common; the immediate benefit is frequently due to suggestion alone. The proportion of cases showing radical improvement is unquestionably limited, and a clinical cure should not be spoken of until an interval of one or two years has elapsed. He joins with Carpi, Moreli and Maragliano in protesting against the abuse of this therapeutic measure, urging that greater heed should be paid to the limitations set by Forlanini himself.

Hospitalstidende, Copenhagen

January 19, LIX, No. 3, pp. 45-68

134 Vaccine Therapy of Typhoid; Nineteen Cases. (Forsøg med Vaccinebehandling ved Tyfus.) C. N. Würtzen.

January 26, No. 4, pp. 69-92

135 Dentistry Methods Applied in Treatment of Fracture of the Jaw. (Tandlægebehandlingen ved Skudfrakturer af Kæberne.) O. Bjerrum.

136 Anemia with Chronic Polyarthritis. H. Jansen.

Ugeskrift for Læger, Copenhagen

January 13, LXXVIII, No. 2, pp. 33-64

137 Paratyphoid; Two Cases, Traced to Veal. (To Tilfælde af Paratyfus, formentlig Kalvekødforgiftning.) S. Hornemann.

138 Unusual Longevity of Inhabitants of Danish District. (De Gamles Land.) R. Oppermann.

139 Treatment of Chronic Tuberculous at Copenhagen. (Om Behandling af Patienter med kronisk Lungstuberkulose i København.) K. Lundh.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 11 CHICAGO, ILLINOIS MARCH 11, 1916

PRINCIPLES UNDERLYING THE CLASSIFICATION OF DISEASES OF THE NERVOUS SYSTEM

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Classifications have value as offering a sort of condensed résumé of existing attitudes of mind with reference to the nature and relations of the things classified, and also serve as a concrete setting forth of concepts, which, but for the effort, would tend to linger indefinitely in older settings. The nervous system was considered for a long time as a thing apart, a sort of consecrated territory, where only the initiated could be received; and as for its relations to the body, the latter largely existed to permit of those activities, while its mysteriousness was added to by being the repository for much that was not understood.

The mind was relegated to a place still further apart, and was dealt with metaphysically until its relations to the nervous system were much more vague than the relations of the nervous system to the rest of the body. This state of affairs has been crystallized by the titles of our textbooks, which set forth that they deal with nervous and mental diseases, inferring that these two groups have little relation, the one to the other, and, by the same token, fail to indicate that they either or both have any relation to the rest of the body.

All this is wrong. The human individual is a biologic unit, his several parts are parts of that unity, and he himself is still part of a greater whole, a particular instance of the manifestations of life. Any system of classification, no matter how far it attempts to go in formulating distinct disease trends, should not fail altogether to permit the broader view of the interrelations to show through.

From the point of view of the nervous system, how is this to be done? Recent developments in physiology and internal medicine point the way. Reference is made to the development in knowledge of the vegetative nervous system and the endocrine glands. These developments have served the twofold purpose of bringing the several functions of man into a closer knit harmony and at the same time correlating that harmony with the manifestations of the organic activities as found in lower animals. The last has been the result because the developments have had to do with what are called lower, simpler or, more properly, phylogenetically older forms of activity, or modes of reaction.

Right here, in the term "phylogenetically older," is the key to the principle of classification—a principle that has long governed in the biologic sciences, the simpler and older merging by insensible gradations into the more complex and more recent. It has taken long periods of time and the accumulation of great masses of detailed observations before these facts of wider bearing have emerged that have served to bring all this material together under wider generalizations. The older hypotheses have become more and more inadequate; in their prime they were useful, but like all hypotheses, their present aspect of tawdriness is only a sign of progress.

For a long time it has been asserted that the nervous system is the means by which all of the several parts of the human unit are integrated, by a species of complicated adjustments to given ends. It can be now perceived through the means of the vegetative nervous system and the chemical regulators of metabolism, at the physicochemical level, and the successive compounding of reflexes at the sensorimotor level, how this integration is actually brought to pass, and it is being understood how the human unit is integrated as a whole, and as a whole works consistently toward broadly defined goals, the integration manifesting itself at successively higher and higher levels in the history of the individual and of the species.

Viewed in this way, we see the individual struggling along the path of evolution in constant conflict between an inherent inertia that would keep it at a given level, but gradually advancing by a series of give and take compromises that finally bring it to better adjustment to its environment at a higher level of integration.

Sherrington has beautifully illustrated this integrative action of the nervous system in the simple reflex with its innervation of agonists on the one hand and antagonists on the other, and the channeling of final common pathways for nervous discharge. The conflicting tendencies, the ambivalency, the path of opposites — the final issue in high integrations made possible by tension of reciprocal innervations at sensorimotor levels — is found also to be the rule in the vegetative nervous system, that phylogenetically older division, with its double set of pharmacodynamically demonstrated opposed elements mediated, at least in part, by equally opposed, exciting and inhibiting chemical substances secreted by the endocrine glands, the hormones.

Finally an analogous ambivalent mechanism is seen working at the highest, the most complex levels, the psyche, which determines conduct with the assistance of the phenomena called consciousness, in which a psychologic symbolism is found replacing sensory and motor neurons, and exciting and inhibiting hormones.

For pragmatic purposes, then, the nervous system may be divided into these three levels of activity, the vegetative or physicochemical, the sensorimotor and the psychic or symbolic.

This threefold division of the reactions of the nervous system is the fundamental basis on which a classification may be founded. The biologic activities which maintain life at the lowest level are physical and chemical, and so that portion of the nervous system which has directly controlling influences over these activities is properly designated as the vegetative nervous system, and that part of neurology which has to do with a consideration of these physicochemical systems, because it deals with the nervous control of the viscera, is properly designated as visceral neurology.

In the region of visceral neurology a rich variety of disturbances is found, involving the glandular, gastro-intestinal, genito-urinary, vascular, respiratory, muscular, cutaneous and bony systems, and in addition certain complex clinical groups involving, for the most part, the glands of internal secretions, the endocrinopathies.

Here is a rich field which has been unequally cultivated since Brown-Séquard first tried to discover the fountain of youth in the testicular extracts.

While the symptomatology of the neurologic disturbances of the tear, mucous and salivary glands is a limited one, a very rich symptomatology has grown up about the vascular system in the group of vasomotor neuroses. There is also a rich field in various directions, for example, in the gastro-intestinal and in the cutaneous disorders, which, however, are for the most part taken over by the specialties dealing with these respective systems, but which nevertheless will receive an adequate explanation only through the teaching of visceral neurology. Some portions of the field are as yet too little known to offer much that is of value, as, for example, the neurology of the bony system and the nervous mechanisms underlying the regulation of the blood cells, while in other systems the disturbances are known only as contributing symptoms in fairly well-defined clinical groups, as, for example, myasthenia gravis as a disturbance of the muscle vegetative mechanisms. The endocrinopathies naturally form a considerable part of visceral neurology, and many of the disturbances of the several systems are still best included in the various clinical groups that are considered as due to disturbances in one or more of the endocrine glands. This field today occupies the main focus of attention of the medical practitioners, and much that is false is being taught; but out of the divergent trends sound harmonies will be evolved.

If the vegetative nervous system has for its function in the main the maintenance of the vegetative, that is, the metabolic processes of life, such as nutrition, growth, development and sexual maturation, the next higher level, the sensorimotor, has as its function, in the main, further integration by providing the means for the balanced interrelations of the various organs of the body. It has to provide that all the various parts of the machine work harmoniously together, that the functions of the various organs are not only properly timed in relation one to the others, but also adequately related on the basis of the functional demands made on them.

This field of sensorimotor neurology, including the disorders of the cranial and peripheral nerves, the spinal cord, pons, brain stem, midbrain, cerebellum and cerebrum, is that portion of neurology to which the term "neurology" is generally thought of as applying, to all intents and purposes, exclusively. Here the field is pretty well cultivated, and the classification based on the anatomic divisions as just outlined pretty well accepted.

The third, the highest, the psychic level is the most complex. Its function is no longer simply one of integration of the various parts of the individual but at its highest, conscious level it has to do with the relation of the individual as a whole to his environment and more especially to his social environment.

At this level it has been the prevalent custom to think only of consciousness, and of conduct consciously regulated by intelligence. Ideas are symbols; they are symbols of the contemplated action on things through which the individual comes to an efficient adjustment with his environment by controlling them. The symbol becomes, therefore, a carrier of energy which is translated into conduct.

The ways in which these psychic symbolizations work at the highest conscious levels is pretty well formulated in current psychology, and these ways work very well so long as there is nothing unusual the matter with the whole machine. The great error of the psychologist, however, has been to suppose that the matter stopped here. The lower animals exhibit most complex forms of behavior without its being thought necessary to ascribe conscious motives (intelligence) to them in explanation. Very complicated activities low down in the biologic scale are ascribed to tropisms, while for man it has been supposed that what he did he consciously intended. Recent studies in psychopathology have changed all this, and it is thoroughly well established that lying back of consciousness is a much larger, a much more important territory which furnishes psychic motivation of conduct, and, in fact, that conscious processes as they are known to the individual are largely, if not altogether, determined by what lies in this region — the unconscious.

Psychic symbols — ideas, feelings — must therefore be traced farther back than the conscious level at which the individual is acquainted with them in order to understand their real meanings. Psychanalysis is as important for the understanding of the construction of the psyche as dissection is for the understanding of the body, or chemical analysis for the understanding of the constitution of the molecule.

The greatest deficiency in the psychology of the nineteenth century relative to the understanding of human conduct has been the neglect of the importance of the unconscious.

For centuries man has marveled and speculated and gathered observations concerning the exquisite subtleties of adaptation of plant structures to their environment. The four-volume epitome of Körner von Marilaun sets before the eyes of the nature lover the merest indications of the manifold activities in this field. Students of nature — to mention only the list of names from Aristotle to Fabre, would fill a volume — have recorded in encyclopedic proportions the intricacies of nature's story of the conduct of the lower animals from protozoa to highest ape. These activities are relegated to tropisms and to instincts. Man alone supposes he can explain his own conduct by reference to that which appears in his consciousness, unmindful of the millions of years of evolution preceding that which he has designated as his conscious activities.

With the help of the hypothesis of the unconscious, however, it has come to be recognized that the psyche has its embryology and its comparative anatomy — in short, its history — just as the body has, and in precisely the same way as in the care of the body this history has to be utilized before we can understand it.

So long as the unconscious failed to be recognized, just so long was the gap between so-called body and so-called mind too wide to be bridged, and so there arose the two concepts, body and mind, which gave origin to the necessity of defining their relations. Consciousness covered over and obscured the inner organs of the psyche just as the skin hides the inner organs of the body from vision. But just as a knowledge of the body first became possible by the removal of the skin and the revealing of the structures that lay beneath, so a knowledge of the psyche first became possible when the outer covering of consciousness was penetrated and what lay at greater depth was revealed. As soon as this was done, the wonderful history of the psyche began to give up its secrets, and the distinction between body and mind began to dissolve, until now it has come to be considered that the psyche is the end-result in an orderly series of progressions in which the body has used successively more complex tools to deal with the problems of integration and adjustment. The hormone is the type of tool at the physicochemical level, the reflex at the sensorimotor level, and finally, the symbol at the psychic level.

In the phylogenetic history of that development which culminates in man, the symbol has been developed after trying and laying aside in the past all other tools, because it alone offers the means of unlimited development of man's control over nature. The hormone, the reflex, are confined in their capacities for reaction within relatively narrow limits of possibilities. The symbol is capable of infinite change and adjustment, and so has grown out of the necessity created by ever increasing demands. The growth from the lowest to the highest, from the youngest to the oldest, from the simplest to the most complex has been here, as everywhere in nature, without gaps.

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THE PHILOLOGY OF HYSTERIA

AN A PRIORI STUDY OF THE NEUROSES IN THE LIGHT OF FREUDIAN PSYCHOLOGY

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The most startling advance that has been made of late years in the domain of mental medicine is the discovery that psychic disorders—the more popularly designated "nervous" disorders—embody a concealed moral conflict due to the survival in an unconscious form of racial instincts and emotions which are no longer compatible with the ethical tendencies of the personality and which therefore have been repressed by the collective social consciousness. It is the reassertion of these long repudiated trends in the midst of our present day civilization, together with the attendant inner conflict, that is now regarded as the fundamental factor in these disturbed psychic states.

In his work "Adolescence," published in 1905, in which he announces to English readers the trend of the recent investigations of abnormal psychology in regard to hysteria and allied disorders, Dr. Stanley Hall says:

> Mental pain becomes local neuralgia, moral disgust becomes nausea, anxiety becomes contraction or cramp, if shunted downward, and so through a long list of psychophysic kinetic equivalents which with all their wealth of symbolism is yet to be fully worked out. Such metamorphoses constitute the mystery of the domestic demon of hysteria and account for many adolescent symptoms.

At the time that Dr. Hall wrote this sentence the meaning of the disorders to which he referred had not as yet, as he said, been fully worked out. Indeed, the conception which presupposed that a psychologic meaning lay back of these disorders had been only recently advanced. To apply to nervous disorders the concept of "meaning" in any psychologic sense is to interpret these manifestations in the light of a purpose, of an intention, of a process pursuant to an end. It is to recognize in these disorders an effort toward the fulfilment of design. It is to ascribe to these processes the operation of human personality. Thus with a deeper insight into the causation of neurotic states, science has been compelled to divest itself of its materialistic dogmatism and to reckon at last with the fundamental element of will.

This revolutionary trend owes its special impetus to the researches of the European neurologist, Sigmund Freud, ably furthered by the brilliant studies of the Swiss psychologist, C. G. Jung; and to those broad biologic interpretations introduced into the field of mental pathology through the teachings of Adolf Meyer. It may be said unhesitatingly that the entrance of this conception into the study of nervous disorders marks the beginning of the most important epoch in the history of modern medicine. It is called the dynamic conception.

Through this altered conception, medicine has taken on a very different aspect in regard to what is perhaps its widest and most significant field. Into this field there are now introduced measurements, valuations and criteria of a totally new and different order. From this new angle of observation, physicians are brought face to face with the vital problems of human character. They begin to see more clearly into the deeper springs of motive and of conduct and so are acquiring a more intelligent and sympathetic understanding of the forces which lie back of and determine human needs, human growth, human adaptation, human life. Medicine now includes among its data expressions indicative of the demands of the instinctive life. It takes cognizance at last of such very real factors as "the hunger of the human heart," not in any rhapsodic literary sense, but lifted out of its poetic context and transposed to its rightful setting amid the archives of science. The result is that today the consulting rooms of the psychopathologist have become special laboratories in which the physician is engaged in the analysis of those elements of the personality which constitute that totality of experience we know as life.

It will be readily understood that in the reconstruction of the shattered purposes, the frustrated hopes and the outraged instincts which are found to lie at the source of those human woes we call "nervous disorders," there takes place a gradual transposition of values, a total recasting of ideas, and that, through this process, education in the deepest meaning of the word enters at last into its full and sovereign rights.

In view of the vast importance for the communal weal of this complete change of front on the part of abnormal psychology, it is eminently worth while to

consider carefully the basic principle that underlies this dynamic conception of nervous disorders as exemplified in the sentence of our text. "Mental pain becomes local neuralgia, moral disgust becomes nausea, anxiety becomes contraction or cramp. . . ." Here we have the phenomenon of a psychic emotion being relayed into a physical equivalent. This process Freud calls the "mechanism of conversion." This principle of conversion is the crux of Freud's psychology of the neuroses.

When we come to study the philosophy of this principle it is after all quite simple. The wonder is that we could have closed our eyes these many years to anything so obvious. Indeed, the sluggishness of our perception in this connection is only explicable on the plea of our habitual bondage to traditional bias. So that when we consider it we cannot help wondering what still newer and clearer truths are even now perhaps at our very hand, when we shall have sufficiently overcome the prejudice of our customary thought habits to view them in their unconventional simplicity.

There is somewhere a passage in "The Mill on the Floss" in which George Eliot remarks that it is indeed a noteworthy fact that through some peculiar faculty of the human mind, whenever we wish to say what a thing is, instead of stating directly what it *is,* we keep forever saying what it is *like.* Nietzsche expresses the same thing when he says: "Every idea originates through equating the unequal." In such statements there is embodied the fundamental principle of human psychology.

The essence of language consists in the statement of resemblance. The expression of human thought is an expression of association. Every idea whether felt or conveyed entails such an association. Thought is the recognition of likeness, language is the expression of likeness. Human thought and human language represent thus the gradual building up of an increasingly complex system of associations. All that human thought ever attains to, as represented through the various mediums of human intercourse, whether in the earliest monosyllabic utterances of the young infant or in the condensed and intricate formulations of the man of science—all these manifestations, when reduced to their psychologic elements, are found to consist of *associations of similarity.*

If we will trace back to the earliest philologic sources, we find that the language of primitive man was mimetic. That is to say, man's earliest attempts toward communication or the establishment of associations consisted of movements of mimicry or imitation, whether vocal or gesticulatory. The vestiges of this pantomimic speech of prehistoric man are directly traceable in many of the linguistic forms of present day usage. The stage of vocal mimicry is preserved today in the use of onomatopoeic words, representing through imitation the original sound of the object described; for example, the "tick" of a clock, the "rustling" of leaves, the "bubbling" of a spring, the "click" of a latch, the "humming" of an insect.[1]

This primitive language of the race is equally preserved in the gesticulatory symbols with which we today express our thought—symbols in which we find the origin of the early drama. We give expression to a sense of disgust or of a bad taste through an instinctive turning away of the head, or a wry face, or through thrusting the hands outward, with palms everted—a gesture clearly suggestive of pushing something from us. What is so suggestive of unconcern as a shrug of the shoulders? And why? Because this dramatic movement is a mimetic symbol for throwing off the burden of responsibility. Primitive man carried his burden on his shoulders—his fuel, his food, his offspring.[2] His shoulders then were not light, not free. They were borne down by these man's elemental cares.[3] And so in this familiar shrug of the shoulders there are retained the philologic traces of the primitive language of our forebears. And man today expresses through this symbol his freedom from concern or his indifference,[4] as we say. If we turn to the study of the more obviously biologic mediums of language—to the expressions of the emotions in men and animals as pointed out by Darwin, the organic appropriateness of these reactions becomes more evident still.[5]

We see, then, that language is not haphazard or arbitrary. We see that a dynamic element underlies its manifestations, that it is actuated from the inner necessity of organic law, that it is prehistoric, inherent, unconscious, physiologic. Because of this organic inherence of our unconscious language, its testimony is indisputable. And so we are enabled to judge the characters of men through their use of such unconscious mimetic expressions. The honest man looks you calmly in the eye. He does so in response to a law of his very nature. Out of obedience to this same law, we in turn call such a man "upright," "straight." Conversely, from the same organic necessity, the deceitful man is, as we say, "shamefaced." He must perforce crouch and turn aside. He dares not confront you squarely, and for such a man the popular epithet is "crooked." Thus everything that a man is is proclaimed in everything that he does—his voice, his walk, his handwriting, his apparel, all are descriptive of himself because all *are* himself. "As a man thinketh, so is he." As Emerson says, "What you are speaks so loudly to me that I cannot hear what you say."

This connection between inner thought and outer action is so inherent and inseparable that any attempt to evade this inevitable law of self-expression causes a discrepancy in our organic reactions which straightway gives the lie to our conduct. If any one comes to you and tells you that he is honest and diligent, and at the same time lowers his eyes and holds his thumb close against the palm of his hand, do not believe him. There is a discrepancy between his words and the silent testimony of his unconscious utterances. Bulwer Lytton was psychologist enough to use to splendid

1. Language can produce no more powerful effect than through the conscious reversion to this elemental form. The reader will recall how Homer heightens the vividness of description in his classic line through the mimetic twang of the double gamma. One not only sees, but distinctly hears the arrow go singing through the air:

ἕζετ' ἔπειτ' ἀπάνευθε νεῶν, μετὰ δ' ἶον ἕηκεν·
δεινὴ δὲ κλαγγὴ γένετ' ἀργυρέοιο βιοῖο.

—Iliad, Book I, Lines 48, 49.

2. Anglo-Saxon bairn = burden, or child.

3. In this connection it seemed to the writer that between the words "care" and "carry" there must be a fundamental psychobiologic correlation, but on looking into the etymology of these words, no direct evidence was found to sustain this view. Holding, however, to what he conceives to be an organic principle of philology, the question was referred to expert opinion, and it was learned that the sources of philology do indeed sustain this psychobiologic inference, for, through the collateral word "charge," "care" and "carry" are as a matter of fact etymologically related.

4. The word "indifference" again brings us back to the same biologic origin. On analysis it contains the Latin words "to bear," "carry," "support," and the negative prefix "in." Hence it is "not..carrying," "not..burdened."

5. In attitudes of attack or defense we find that an organism stiffens, because the stiffened muscle is harder, more resistant, more powerful. Contrariwise, in defeat and in flight, as Darwin has shown, there is the precisely opposite reaction; the organism shows suppleness, relaxation, the characteristic unresisting posture of surrender.

dramatic purpose this unconscious evidence of an inner organic disharmony. You remember in his play "Richelieu," how he makes the old cardinal save himself from death at the hands of assassins by detecting at the critical moment just such a discrepancy on the part of his trusted servant-in-waiting. You remember, as the man makes his usual obeisance and retires for the night, Richelieu, with quick intuition, perceives some difference in his demeanor—there is something unfamiliar, and turning to his secretary he says, "Joseph, he bowed too low." This man was harboring in his bosom a treacherous design. In his effort to conceal it he overdid his deference, he "overcompensated," as the psychologist would say, and in this very act he was betrayed.

Language teems with usages bearing organic implications. Such phrases as "broken-hearted," "dumb with amazement," "burning with shame," "choked with rage," "breathless with suspense," or, conversely, "a sigh of relief," are familiar instances of these organic expressions.

We see, then, that language is not to be divorced from nature, that it is a thing inherent, not accidental, and that it has arisen from organic necessity, and is thus biologic. So much for this principle of organic fidelity which underlies man's natural mediums of expression.

I have said that thought consists essentially of an assertion of likeness, that it is built up of associations or resemblances, and we have further seen that the human mind communicates its thought through recourse to metonymies, that it calls one thing by the name of something else resembling it, that language is built on analogies, that it is metaphorical. If we will observe carefully we shall find that there is very great latitude in our choice of analogies. Observing more closely still, we shall see that the farthest stretches of metaphor, that is, the highest degrees of distortion, are found to exist where moral and social prohibition enters most forcibly into the thought content. That is to say, the more disagreeable an idea, the more we seek to render it imperceptible or unconscious; the stronger the moral proscription, the more remote is the resemblance indicated; the stronger there enters the element of social interdiction, the more far-fetched or concealed is the linguistic symbol we employ to designate the thought in question.

The element of moral weakness that lies back of this tendency is plainly enough felt. It takes courage to call things by their true name. The man who, scorning obliquities, calls a spade a spade, straightway compels our respect. The general popularity, on the other hand, of the more roundabout course, is shown in the softer tone of intimation so universally adopted by the social mind. In the political cartoons we see this mechanism well illustrated. Under the disguise of a quite absurd and exaggerated drawing it becomes possible to express with impunity a sentiment of such hostility as would be seriously offensive and render the newspapers subject to libel were it put forth in the form of language commonly current.

The instances which mythology affords of such symbolic representations of the covert aspirations of primitive man form a chapter to themselves.[6] Such, too, we know today, is the stuff that dreams are made of. In these representations of our unconscious mind we find a regression to a primitive, archaic form of ideation, of which the essence is symbolism.[7] For in dreams are expressed allegories under which we symbolize the secret, morally inadmissible desires of our natures. In these unconscious charades we pay respect to those yearnings which the hard adaptations of our waking consciousness deny us.

Finally, the study of the anatomy of language itself shows this principle of disguise to be its very backbone. In our customary verbal usage there are innumerable instances of this device. The more nearly we approach forbidden territory — the territory on which popular social sentiment has imposed its moral embargo — the stronger is the tendency to conceal our meaning through recourse to remotely associated symbols of expression. To take a quite familiar example: what, on a superficial view, could be more utterly dissimilar than a red light and the commerce of prostitution? The word "prostitution," though, is flagrant, bold, shocking. It blazons the unpleasant, ruthlessly dragging before us the existence of a condition in society on which a moral stigma has been placed. The moral repugnance here entailed is patent enough. We therefore use instead a symbol which in its remoteness is apparently quite harmless. What could offer less outrage to our sensibilities than the concept "red light"? What could be more free from any immoral connotation? And so when the church, society or the press wishes to speak of the resorts of the social evil, it has recourse to this disguised and innocuous metaphor of the "red light," and with due regard for the proprieties it henceforth refers with an unruffled calm to the "red light district."

But let us see. Is this symbol as innocent as it appears? Is it after all so remote, so arbitrary; or does it prove on analysis to be connected with the concept for which it stands by reason of that organic correlation of which we have spoken? If we will look into the history of the social consciousness as expressed in the different spheres of symbolism, in folk-lore, in religion, in literature and in mythology, we find that redness and warmth are the universal symbols of passion and of lust; for example, we speak of the "heat of passion," the "fire of love." You remember the symbol of the Scarlet Letter, or, more closely still, the "scarlet woman," and the devil himself, the mythological symbol under which the carnal appetites are personified, is invariably pictured as clothed in red and as enveloped in flame. The metaphorical red light was not chosen at random then, but because of its organic relation to the concept which it symbolizes, and the "red light district" is therefore quite an apt phrase after all.

We see, then, that our human forms of expression are full of such roundabout expedients — such symbolic substitutions and evasions with which we seek to mitigate the poignancy of actuality.

Having considered the organic dynamism which in general underlies our human forms of communication, and having considered the principle whereby a concept is rendered less perceptible to consciousness in proportion to the degree of the moral repugnance of such concept, let us turn to the consideration of the psychologic meaning of the disorder we call hysteria.

We know it to be characteristic of hysteria that it defies definition and systematization; that it flouts all attempts at classification and description. Its forms are protean, its manifestations infinite in their variety.

6. Frazier, James George: The Golden Bough.

7. Freud: Die Traumdeutung.

There is no such thing as an adequate textbook of hysteria. There never can be. This disorder is not to be compassed within the bounds of any text. One might as soon attempt to reduce to the limits of a text the manifestations of life itself.

What, then, is hysteria? What is its meaning? Basing my thesis on the principles derived from researches into the psychology of this disorder as introduced by Freud, I contend that the same dynamic factor which we find to obtain in the development of language — the tendency of the human mind to disguise whatever is unpleasant — is the identical principle which actuates the development of the conditions which we recognize as hysteria, and that the same unconscious overcompensation which we saw a moment ago to be the inevitable outcome of the attempt to conceal the underlying purpose of one's conscious desire is the inherent account of the exaggerated manifestations of conduct which constitute the so-called symptoms of this disorder.[8]

We have seen the tendency of human consciousness to disguise whatever is unpleasant, to mitigate whatever is painful, and as it were to turn away from it through the adoption of a usage such as serves to lead the mind aside of the immediate issue. We have seen that to this end the human mind has recourse to metaphor, to metonymy, to the substitution of analogies, and that the implied resemblance in such figures is less articulate, less conscious in proportion to the moral proscription attaching to the original idea. We observed that the effort of concealment is attested by the increasingly subtle nature of the metaphor employed, that it grows most elusive with the approach to concepts bearing the strongest moral incrimination, and we have seen that this principle is a universal principle of consciousness.

When we come to test this principle with respect to the more organic needs of expression — the needs pertaining to the instinctive life of the organism — we find that, through the ultimata of society, the expressions of the instinctive life, particularly those pertaining to the instinct of sex, have been despotically deprived of legitimate language. The strongest instinct of life is forbidden free speech. Those socially integrative forces which tend toward the perpetuation of the species are ruthlessly repudiated and repressed. But there are instincts within us which will not be silenced. Their utterance is eternal. Their voice cries from out the depths of the remotest age of man. Such vital, biologic demands as belong to the sex instinct are among those impulses which are too dynamic to be wholly silenced. What is the recourse of the organism under the pressure of such an artificial ukase?

I maintain that there is here repeated once more the mechanism with which we have grown familiar — the mechanism to which human consciousness ever has recourse when it must give utterance to sentiments which have been ignorantly penalized under the code of social proscription. Being socially anathema, these impulses of the primitive instinctive life seek the only vent permissible under the existing censorship, and issue forth in disguised equivalents. They resort to obscurities, concealments, innuendos; to hidden symbolisms, strained metaphors, remote analogies, far-fetched metonymies, exaggerated similes; and the symptoms of the neurotic patient, with his agonizing fears, tantalizing doubts, abysmal depressions, compelling ceremonials, relentless imperatives and torturing obsessions are a witness to the mental agony which the enforcement of such organic discrepancies entails. For language, being here organic, expresses itself in organic terms, and there result those organic substitutions and distortions, which, as elsewhere, are relative in intensity to the moral repugnance pertaining to the ideas they symbolize.

Accordingly the mimetic movements into which the most vital meanings of the organism become thus converted in the neurotic subject — the neuralgias, the nauseas, the contractions, as Dr. Hall says, not to mention the paralyses, anesthesias, stammerings, mutisms, spasms and all the rest of these protean appearances — are the concealed expressions of vital outlawed trends. Distorted out of their original meaning, they represent organic metaphors analogous to the figurative disguises which we have seen to be a universal principle of language.

Of course the average wayfarer — the so-called normal individual — falls a ready prey to the moral compromise of metaphor and indirection which language affords. He accepts without protest whatever disfigurements of nature's verities society demands. And so, adopting the course of convention, he moves on with the popular tide. The "normal" man is not one to "battle and perish for a dream of good." In his bosom there rages no life and death struggle of an inherent conviction of right against the cowardice and falsehood of convention. Being average, he pursues the average course. Possessing no overrefined perceptions, no exaggerated sensitiveness to innate, organic truth, he follows without demur the ordained routine of things. It is the easiest way, this program of subterfuge, of compromise, of capitulation. But if we will observe our fellow human beings carefully, we shall find that here and there among them there are personalities of a finer, more delicate weave; more "sensitive personalities," as we say; men and women endowed somehow with a clearer intuition of truth, with a deeper sense of values than normally exists among us. It is characteristic of such personalities that they cannot comfortably permit themselves any such sinister evasions. Imbued with some innate fidelity, they cannot accept the course of compromise. The part of hypocrisy is utterly intolerable to them. Resolutely refusing to resign his birthright, such a personality serves with a faith that is cosmic the inner voice of organic law. Under the circumstances he is driven to adopt what seems the only honorable course open to him — that of rigid repression. He resolves to stifle completely this cry of an inherent instinct.

In consequence of the moral conflict from which no escape is offered it, such a personality becomes more and more deeply withdrawn, introverted and repressed, until life has at last become so wracked and inhibited as to be scarcely longer endurable. Such is the typical state of mind of a person suffering from a neurosis.[9]

8. The popular ruse to which language has recourse is nowhere better exemplified than in our custom of resorting to a foreign tongue as we approach the precincts on which society has impaled its moral taboo. Greek and Latin appear to afford an especially soothing unction for our social sensibilities. Such a form of palliation is to be seen in the name of the very disorder we are here considering. Hysteria means uterus or womb. We put it into Greek and suspect nothing, but as a matter of fact, through this politely disguised designation it is shown that the disorders of hysteria have been unconsciously felt all along to be allied to the generative organs and to the sexual instinct. And so here again we are forced by the same organic law of language to return to philological sources for the rediscovery of its inherent meanings.

9. Comparable to this reaction of the individual is the state of the social mind when, long cheated and denied, it suddenly issues forth in those periodic moods of defiance against form and authority which mark the history of revolutions.

When the manifestations of such a disordered mental state — the so-called "symptoms," the memory lapses, the habit-reactions, and above all the dreams of the patient — are subjected to psychanalysis, it is found that these manifestations of the personality are a secret code affording a clue to the nature of these inadmissible trends. We find on analysis that these expressions contain a remote association with such unseemly tendencies; that by virtue of its remoteness such tendencies have been rendered invisible, unconscious; and finally that the degree of distortion of such an associative disguise varies in direct ratio to the intensity of the moral repugnance of the trend thus symbolized. When an individual is disturbed by a phobia of which the content is, to cite a typical example, that his tailor has inadvertently left germs beneath the stitching about the buttonholes of his coat, it is found on analysis that the danger of infection is by no means his real concern, but that this apparent apprehension is a mere metaphorical or symbolic substitution designed to mitigate the moral repugnance of a far more poignant prepossession.

Here, then, we see, underlying the mental pathology of the neuroses, a repetition of the same mechanism of unconscious association which we have already studied in the methaphorical substitutions of language. There, we studied this mechanism in respect to the social aggregate. Here, we study it in respect to the individual unit.

We see, then, that hysteria is in a sense not so much a disease as a dilemma; that it represents an inherent conflict within the personality; that this conflict is due to a repression which in its essence involves an intolerable contradiction; that the contending elements assembled within the personality of the neurotic patient are, under the conditions of repression, rendered utterly irreconcilable. We have further seen that the distressing symptoms of the neuroses are an *unconscious metaphor* representing an enforced disguise whereby through repression the organism struggles to attain the mitigation of trends which are too vital and inalienable to be wholly denied. An analysis reveals thus an essentially similar psychologic mechanism between the formation of these mimetic symbols expressive of the drama of hysteria and the metaphorical symbols of language through which the drama of human life finds its expression.

It is because of this inherently human, psychologic meaning which is embodied in the neuroses and its genetic correlation with the original mediums of human expression that I have ventured to interpret hysteria as an expression of organic philology. To many undoubtedly this interpretation will seem to entail unwelcome implications. They will complain that my thesis posits an inherent duplicity as the fundamental principle of consciousness, and will bitterly resent so sweeping an indictment of the human mind. But if they will examine the matter more closely, they need be by no means inconsolable. For even though my indictment be true, it is but a part of the truth and by far the lesser part. For nowhere does nature proclaim more stoutly the essential truth of the human spirit than in precisely this organic revolt which underlies the conflict of emotions presented in those distorted expressions we call hysteria.

In this recoil of the mind against the artificial inculcation of false methods of valuation, it is seen that far deeper than all the artifices of temporary expedience lies the unalterable aspiration of the soul toward permanence and truth. Let men in their mistakenness contend as they will against their inherent natures, yet the organic verities within them will ultimately prevail. So that by whatever device we may seek to repress the energy of our instinctive needs, it will but reappear in the altered and concealed guise of some inexpugnable equivalent. Such is, I think, the account of those "metamorphoses" which constitute, as Dr. Hall says, "the mystery of the domestic demon of hysteria."

Regarding hysteria, then, as an expression of organic philology, as a straining of metaphor in the organic sphere, analogous to the strained figurative usage obtaining in the social sphere, the rationale of a method of correction which seeks, through the gradual reeducation of the will, to reconvert those distorted expressions now existing under the symbols of diseased symptoms into their original elements becomes clear. If the symptoms of hysteria represent in reality the distorted expressions of the wracked human soul, whose features have been twisted out of their natural semblance through the pain of inherent discord and denial, clearly the logical course is to reconvert such disguised equivalents into their original terms, by reestablishing in consciousness the true meanings which these figurative compromises have replaced.

To understand the expressions of the human organism presented under the aspect of "nervous disorders," we need to review the rudiments of language, to return to the philology of nature and of life and reread their meanings in the light of their original text. In the daily hurry of events we have no time for early sources, and so we have come to blunder miserably in our interpretation of the most important chapters of human evolution. How widespread is our ignorance of the grammar of mental biology may be directly gaged by the prevalence of this organic social error which is known medically as hysteria.

I believe that the hope of successfully combating this anomalous product of our artificial civilization lies in the clearer realization, on the part of thoughtful parents and educators as well as physicians, of the dynamic causes underlying this disorder, of its essentially human, psychologic basis, and of the necessary recourse to analysis and education as the rational method of readjustment.

Charles Street and Mount Vernon Place.

Trachoma.—The establishment of small hospitals for the treatment of trachoma is recommended in the annual report of the surgeon-general, U. S. P. H. S., as being the best means of combating this disease. Five trachoma hospitals have been established by the service in Kentucky, Virginia and West Virginia, and in the past fiscal year 12,000 patients were treated, most of whom were cured and the remainder improved, so that they will not be sources of infection to others. The hospitals established have also served as centers of education for the people of the surrounding communities, and the physicians and nurses connected with them have visited the homes of hundreds of families, instructing them how to prevent the disease, with the result also that the general hygiene of these communities has been improved. Surveys among schoolchildren in sixteen counties in Kentucky have shown among 18,000 examined that there was an incidence of 7 per cent. of the disease, and similar inspections in Arizona, Alabama and Florida disclosed the disease in from three to six out of every hundred children examined. Lectures and clinics before medical societies in localities where hospitals could not be established have also been features of the campaign against trachoma.

THE LATENT RÂLE IN THE DIAGNOSIS OF INCIPIENT TUBERCULOSIS*

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The term "latent" as here employed designates the râle elicited only by the aid of cough. Any originality is disclaimed in the use of the word latent to designate this type of râle, since Willison[1] and others have previously referred to râles elicited by cough as latent signs. In the majority of patients in the early stage of the disease, and in some instances of advanced disease, it is, to the exclusion of all others, the only râle heard. In both the early and the advanced types of lesion, it seems probable that râles of very feeble intensity are produced during forced respiration, which remain inaudible, latent or concealed until cough is employed. This theory receives support in those instances in which indistinct sounds suggesting râles on deep breathing are replaced by demonstrable râles after cough. Special contributions devoted to the diagnosis of incipient pulmonary tuberculosis have specifically indicated the value to be attached to this procedure (Turban,[2] Hess,[3] Reineboth,[4] Cornet,[5] Brown,[6] Pryor,[7] Otis,[8] Whitney,[9] Bandelier-Roepke,[10] Ogden,[11] Bonney[12]). Garvin[13] in a recent communication explains the procedure in detail and notes its value. Of interest in this respect was the advice imparted by the elder

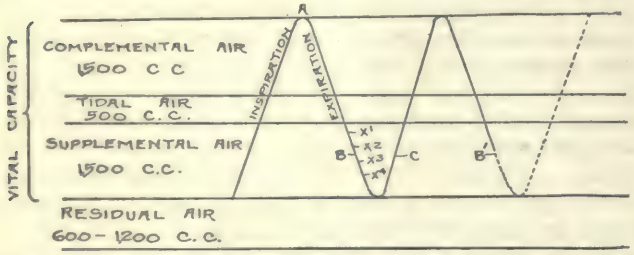


Fig. 1.—Diagram illustrative of the interpolation of the cough at different points in the respiratory cycle and the occurrence of râles following cough.

Janeway to his pupil, Trudeau,[14] about forty years ago, previous to the latter's memorable pilgrimage to the Adirondacks in search of health: "Invariably employ cough to elicit râles in tuberculosis."

The present study was undertaken to determine the incidence of râles before and after the act of coughing in incipient pulmonary disease, a study heretofore little considered, but which offers a means by which the diagnostic value of this procedure may be established. The statistics presented are based on a study of the physical examination of 226 patients at the New York State Hospital for Incipient Pulmonary Tuberculosis. The modification of Turban's classification adopted by the National Association for the Study

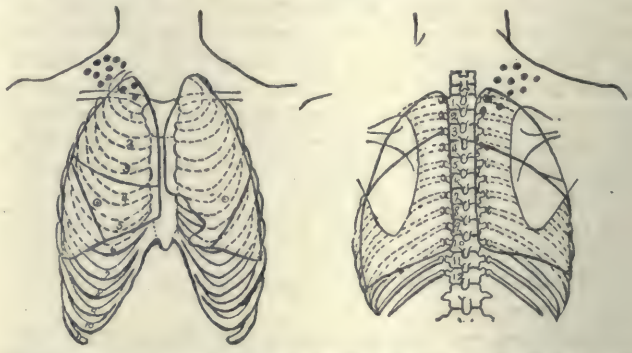


Fig. 2.—(Case 3449).—Tubercle bacilli present; illustrative of the latent râle area in incipient disease. In this group the latent râle alone is heard in 75 per cent. of the cases. Roentgenogram confirms the presence of a lesion at the right apex.

and Prevention of Tuberculosis recognizes three stages in the clinical course of the disease. According to this classification 139 cases of the present series were grouped as incipient, and eighty-seven as moderately advanced. Tubercle bacilli were demonstrated in 21.58 per cent. of the early cases and in 47.12 per cent. of the moderately advanced. The physical examination showed definite evidence of incipient disease in 131 instances, or 94.24 per cent., and negative findings in eight instances, or 5.76 per cent.

Table 1 indicates that the site of the initial lesion was in the upper half of the chest in over 80 per cent. of the cases, and in the lower half of the chest in 8 per cent.; in the remaining 12 per cent., both apex and base were involved.

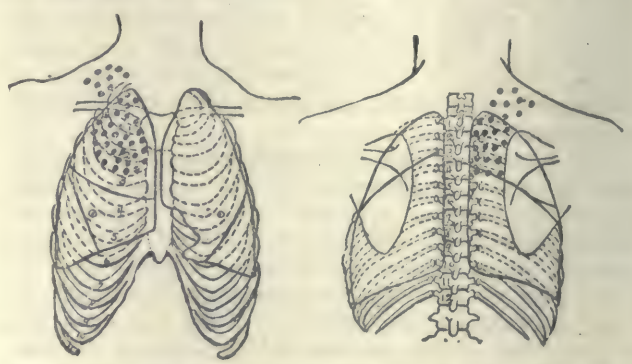


Fig. 3.—(Case 3231).—Tubercle bacilli present; indicates the latent râle zone in moderately advanced disease. In this group the latent râle alone is heard in approximately 30 per cent. of the cases. The roentgenogram presents a shadow more extensive than that of the râle zone.

Table 2 illustrates the occurrence of râles in 139 instances of incipient disease. Of this number, 131 showed demonstrable evidence of disease on physical examination. The râle incidence of the total number of cases was 82.73 per cent. If the eight sign-free cases be excluded from the table, the percentage of râle positive cases would be materially increased, that is, from approximately 82 to 88 per cent.

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* From the New York State Hospital for Incipient Pulmonary Tuberculosis.

* Read before the Ontario Medical Association, Peterborough, Ontario, Canada, May 27, 1915.

1. Willson, R. N.: The Diagnosis of Incipient Thoracic Tuberculosis, Internat. Clin., 1905, ii, Series 15, p. 50.
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3. Hess, Karl: Ueber die Diagnose, speciell die früh Diagnose, der Lungentuberkulose, Ztschr. f. Prakt. Aer., 1901, x, 697.
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6. Brown, L.: The Diagnosis of Early Pulmonary Tuberculosis, New York State Jour. Med., 1908, viii, 234.
7. Pryor, J. H.: Early Diagnosis and Treatment of Pulmonary Tuberculosis, Med. Rec., New York, 1908, lxxiii, 9; Examination of the Exposed as a Factor in the Prevention and Relief of Tuberculosis, New York State Jour. Med., January, 1914.
8. Otis, Edward O.: The Early Diagnosis of Pulmonary Tuberculosis for the General Practitioner, Boston Med. and Surg. Jour., 1907, clvii, 361.
9. Whitney, quoted by Otis (Footnote 8).
10. Bandelier-Roepke: Die Klinik der Tuberculose, Ed. 1, Wurzburg, Curt Kabitzsch, 1914, p. 70.
11. Ogden, W. E.: Factors Frequently Overlooked in the Early Diagnosis of Pulmonary Tuberculosis, Canadian Med. Assn. Jour., 1912, ii, 200.
12. Bonney, S. G.: Pulmonary Tuberculosis and Its Complications, Philadelphia, W. B. Saunders, 1908, Ed. 1, p. 220.
13. Garvin, A. H.: Auscultation of Cough, New York State Jour. Med., 1911, xi, 475.
14. Trudeau, E. L.: Personal communication.

Dry râles were noted in 101 instances, or 87.82 per cent.; in fourteen, or 12.18 per cent., the râles were moist.

TABLE 1.—SITE OF THE DISEASE IN 131 CASES OF INCIPIENT TUBURCULOSIS WITH POSITIVE SIGNS

Location of Lesion	Incidence	Per Cent.
Right apex	39	29.77
Left apex	27	20.64
Right and left apices	41	31.29
Right base	6	4.58
Left base	5	3.81
Right apex and right base	5	3.81
Right apex and left base	4	3.05
Left apex and left base	3	2.29
Left apex and right base	1	0.76
Totals	131	100.00

In the 115 râle-positive cases, the predominant type of râle was the fine dry râle; the coarse, sibilant and sonorous râles were the least frequently encountered.

If the cases are classified on the basis of the presence of râles before and after cough, in only twenty-

TABLE 2.—INCIDENCE OF RÂLES IN 139 CASES OF INCIPIENT TUBERCULOSIS

	Positive	Negative	Totals
Physical examination	131	8	139
Incidence of râles	115	24	139
Percentage incidence	82.73	17.27	100

seven instances, or 23.47 per cent., râles were demonstrated without the aid of cough, while in eighty-eight instances, or 76.53 per cent., the râles were latent, being demonstrable only by the aid of cough.

TABLE 3.—CHARACTER OF THE RÂLES IN 115 INCIPIENT CASES

Character of râle	Incidence	Per Cent.
Fine râles	78	67.84
Fine and medium	14	12.19
Medium	18	15.65
Medium and coarse	2	1.73
Fine and sibilant	2	1.73
Medium and sonorous	1	.86
Totals	115	100.00

In determining the incidence of râles before and after cough, great care was exercised to include in the class showing râles before cough all those in which there was the *faintest* suspicion of their presence. Attention was particularly directed during the exam-

TABLE 4.—INCIDENCE OF RÂLES BEFORE AND AFTER COUGH IN 115 CASES OF INCIPIENT TUBERCULOSIS EXHIBITING RÂLES

Râles	Incidence	Per Cent.
Without the aid of cough	27	23.47
Only after cough	88	76.53
	115	100.00

ination to the character of the breathing, and it was unconditionally demanded that the respiratory excursion in every instance should be deep and sharp before concluding that râles were absent, and that cough was necessary to establish their presence. Under these

TABLE 5.—INCIDENCE OF RÂLES BEFORE AND AFTER COUGH IN EIGHTY-SEVEN CASES OF MODERATELY ADVANCED TUBERCULOSIS EXHIBITING RÂLES

Râles	Number of Cases	Per Cent.
Without aid of cough	63	72.50
Only after cough	24	27.50
Totals	87	100.00

exacting conditions more than 75 per cent. of the cases studied showed the presence of râles only after cough.

The value of cough in demonstrating the latent râle is probably best illustrated in cases presenting a well defined lesion. This is strikingly exemplified in the series given in Table 5, comprising eighty-seven moderately advanced cases.

Notwithstanding the gross pulmonary infiltration, 27.5 per cent. of these cases showed no evidence of râles prior to the use of cough.

An increase in the number and distribution of râles was invariably noted after cough in the great majority of the patients exhibiting this sign on deep breathing. In several instances, showers of râles were elicited after cough, whereas previous to the employment of this procedure only a few indefinite clicks could be heard.

From the tables the following essential facts may be deduced:

1. In tuberculosis, the site of election is the apex.
2. Râles occur with great frequency.
3. The predominant râle of incipient disease is the fine dry râle, the sibilant, sonorous and coarse râle occurring relatively seldom.

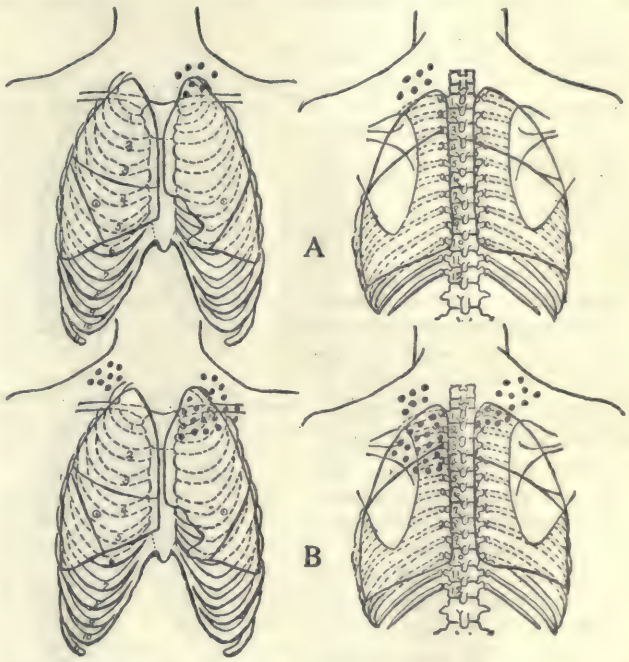


Fig. 4.—(Case 3516).—Tubercle bacilli present: *A*, before cough; *B*, after cough; illustrates the difference in the number and distribution of râles before and after cough in moderately advanced disease.

4. The latent râle is the initial râle of incipient tuberculosis in the great majority of cases.

The procedure to elicit the latent râle consequently is of great value in an examination to determine the existence of an early tuberculous implantation.

THE TECHNIC OF THE PROCEDURE

It will be unnecessary at this time to discuss the technic of auscultation, the differentiation of the sounds heard, etc., since they are treated of in the excellent textbooks on tuberculosis now available.

The patient can be directed to cough at any point in the respiratory cycle, and he can also materially modify at will the intensity, pitch, quality and duration of the cough. The interpolation of the cough at any given point in the respiratory cycle is illustrated in Figure 1, in which the upstrokes represent inspiration and the downstrokes expiration.

The zenith of the inspiratory phase is indicated at *A*, and represents the point at which the ordinary reflex

cough occurs. The cough at this point in the respiratory cycle is loud and explosive in character, tending to obscure the presence of adventitious signs, and should be avoided in diagnosis. Although latent râles may be elicited in certain cases irrespective of the position of the cough in the respiratory cycle, still in cases presenting only a few localized latent râles, these may be best elicited if the cough is inserted at a point in the expiratory phase corresponding to *B*. The supplemental air by this method is greatly depleted after coughing, and a physiologic reaction, that of inspiration, deep and full in character, is immediately initiated. This is a desirable feature since a delayed or shallow inspiration after cough may fail in some instances to elicit râles. Toward the end of expiration, the mechanism governing cough is also embarrassed, so that the resulting cough is reduced in intensity and hacking in character, excellent qualities for the successful demonstration of râles. The insertion of the cough at this point in the respiratory cycle, the point of increased intrathoracic pressure, favors the development of the latent râle, as will later be shown in explaining its origin.

The view expressed that the value of the diagnostic cough is decreased, if inserted at any point during the inspiratory phase, does not hold true under all circumstances. For instance, if the supplemental air be completely depleted by an expiratory effort, cough is no longer possible, since the act of coughing is in itself a phase of expiration. In order to cough, the patient must inspire, and if the inspiration corresponds approximately to a point in the respiratory cycle indicated on the chart at *C*, the cough is of equal value diagnostically, as if inserted at *B*, that is, toward the end of expiration. In the two instances the conditions under which the cough is produced are similar to one another in all essential respects. In certain patients who cannot be taught to deplete the supplemental air sufficiently, the succession cough may be used with advantage. It consists of a number of short hacking coughs without an intervening inspiration, indicated on the chart by *X 1, X 2, X 3, X 4*. This type of cough is the most satisfactory in depleting the supplemental air, and in some instances may be alone capable of eliciting the latent râle.

The prevailing opinion that râles are heard only during the forced inspiration following the cough is not entirely correct, since râles are also heard, in some instances, during the cough and the expiratory phase following it, as indicated by the dotted line on the chart. The general lack of recognition of this fact may be ascribed to the present practice of directing the patient to inspire immediately after coughing. The expiratory phase following the cough by this method becomes so shortened as not to be appreciable, and the râles produced during expiration are erroneously interpreted as originating during inspiration. The determination of this point can be readily established in some instances, if the period after cough and before the succeeding inspiration is prolonged and carefully auscultated for râles.

The mechanism involved in the production of the latent râle has not been satisfactorily explained in all details. The separation of the collapsed walls of the alveoli and smaller bronchioles of the atelectatic areas present in a tuberculous focus is generally conceded to be the source of the latent râle. If the foregoing explanation be accepted, the perplexing question arises as to the possibility of such a separation taking place during the expiratory phase, when, as has been shown, râles do occur. Without wishing to assert that the following explanation is the best, I conceive that the mechanism underlying the production of the latent râle is as follows: toward the end of expiration, the glottis is voluntarily closed, and the intrapulmonary pressure, by powerful contraction of the expiratory muscles, is increased. This sudden increase in the intrapulmonary pressure separates the collapsed walls of the bronchioles and alveoli in the atelectatic area. Once the patency of these structures is established, the râle is produced by means of the cough, which sets into vibration the pathologic secretions contained within the bronchioles and alveoli. The râles may be heard as previously mentioned, only during the inspiratory phase, or may be heard in some instances during the cough or the expiratory phase immediately following it.

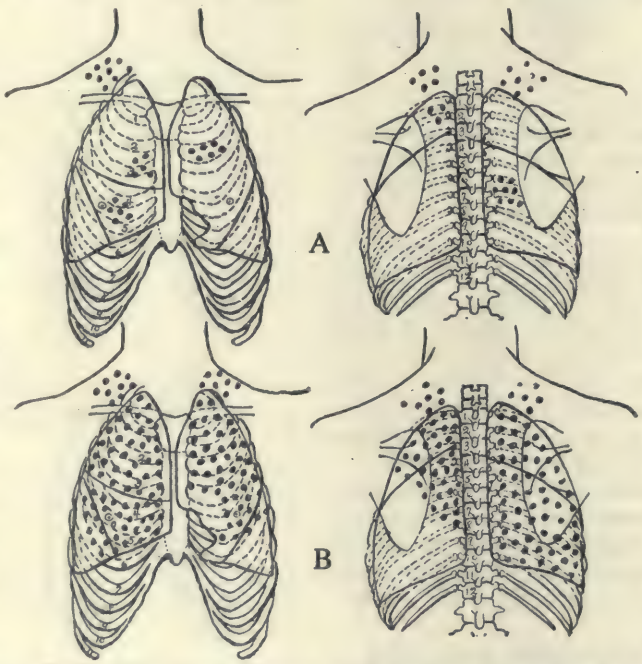


Fig. 5.—(Case 3114).—Tubercle bacilli present: *A*, before cough; *B*, after cough; illustrates the definite increase in the râle area that may occur after cough in advanced disease.

The procedure cannot be successfully employed in the presence of any condition that prevents an increase in the intrapulmonary pressure, since, as previously mentioned, this is an indispensable requisite in the production of the latent râle. Among such conditions are those affections of the larynx which interfere with the normal coaptation of the vocal cords, ulceration, tumor formation, muscle paresis, etc. In some instances in which the gap between the cords is marked, the result of ulcerative processes, no additional information is gained by practicing the procedure. Fortunately, in such cases the diagnosis is rarely in doubt. The procedure should be used with caution in recent hemoptysis. Thoracic or abdominal conditions in which pain is aggravated by cough interfere with the method (involvement of the bones or articulations of the thorax, acute pleurisy, intercostal neuralgia and acute inflammatory conditions of the abdomen). Tumors of the mediastinum which encroach on the lumen of the trachea or main bronchi, or marked dyspnea from any cause, are conditions fre-

quently not associated with pain but which may definitely interfere with the technic of the procedure.

The salient facts regarding the latent râle may be briefly stated as follows: The probable seat of the latent râle is in the atelectatic area of the tuberculous focus. A theory of the mechanism underlying its production has been offered, the essential part of which lies in an increase of intrapulmonic pressure, whereby the collapsed walls of the bronchioles and alveoli are separated. The optimal point of selection in the respiratory cycle for the diagnostic cough has been indicated, and reasons advanced in support of this selection. The statistics presented indicate that a knowledge of the procedure is of importance to the clinician in the diagnosis of incipient pulmonary tuberculosis.

CONCLUSIONS

1. The râle is a very constant sign in incipient pulmonary tuberculosis.

2. Among the early physical signs, the râle is the one definite sign. The others merely represent deviations from the normal, and at most are indefinite.

3. The râles are latent in approximately 75 per cent. of early cases, and 30 per cent. of the moderately advanced.

4. Localized apical râles are almost pathognomonic, other conditions that produce them being of rare occurrence.

5. The technic of the procedure necessary to elicit the latent râle is not difficult, and can be acquired after a few trials.

THE PROGNOSTIC VALUE OF THE UROCHROMOGEN REACTION IN PULMONARY TUBERCULOSIS

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Having had our interest thoroughly aroused by Dr. Schäffle's paper[1] on the comparison between the urochromogen and diazo tests in tuberculosis, and realizing our opportunity of doing some work along the same line, we made these two tests a part of the routine examination of every specimen of urine sent into the laboratory at Cresson State Sanatorium.

During the eight months ending Oct. 15, 1915, we examined 1,805 specimens from 832 different patients, and the following detailed report is offered in the hope that it may be of interest to others.

The simplicity of the urochromogen test and its evident superiority over the diazo should recommend it to all who have charge of tuberculous patients. We have followed closely the technic of Weiss as quoted in Dr. Schäffle's paper: A small amount of fresh, limpid urine, diluted with water to three times its volume is divided into equal portions in two test tubes, to one of which 3 drops of a 1:1,000 solution of potassium permanganate are added. The other tube is used as a control.

Turbidity and the color of the urine appeared to have no effect on the reaction. We have regarded as positive only those in which a distinct canary yellow was produced and was found to be fairly permanent, remaining for from twenty-four to forty-eight hours in specimens kept under ordinary conditions of light and temperature for that particular purpose. Occasionally there occurs a faint yellow tinge which soon disappears and may be disregarded.

Of the 832 cases in this series, 424 were male and 408 female. Classified according to physical condition, 326 were far advanced, 399 moderately advanced and 107 incipient. The results are best shown by the accompanying table.

RESULTS OF THE TESTS

Positive to both tests	2
Negative to both tests	741
Positive urochromogen with negative diazo	89
	832

Of the ninety-one patients with positive urochromogen reactions, forty-five were male and forty-six female; eighty-six were adults and five children, and seventy-eight far advanced and thirteen moderately advanced. For convenience I have grouped these cases according to different conditions as follows:

GROUP A

This consists of forty-five patients, forty far advanced and five moderately advanced, who had a positive reaction on their admission to the sanatorium. Of these, twenty far advanced, eight male and twelve female, died in from one week to three months. In one female patient, moderately advanced, the reaction became negative ten days after admission, but she died within a month from complicating heart disease and ascites.

Twelve patients, seven male and five female, all far advanced, declined steadily and returned home. The reaction was still positive on discharge; all were very toxic, having considerable fever and losing weight.

One female patient, moderately advanced, went home after four months, the condition being much improved. The reaction was negative. She gained 14 pounds, and the temperature was from 99 to 100 on discharge.

Seven female patients, four far advanced and three moderately advanced, are still in the sanatorium, all negative, all gaining weight, two having normal temperature, and the others not above 100. One of them lost 6½ pounds in less than a month, all the while having an evening temperature of from 101 to 103 with a new area of cavity formation, a point which I wish to emphasize. After two months the temperature was seldom above 99, the urochromogen reaction was negative, and the patient had regained 5 pounds of the lost weight.

Three patients, one male and two female, all far advanced, are still at the sanatorium, failing rapidly, losing weight, and having evening temperatures of from 100 to 103 and continued positive urochromogen reactions.

One male patient, far advanced, left the sanatorium within a month and failed to send in a specimen for examination on discharge.

GROUP B

This consists of fifteen patients, six male and nine female, who had negative reactions on admission but became positive within two months. Fourteen were far advanced and one moderately advanced.

Three of these, one male and two female, developed new cavity formation with rapid loss of weight and high fever, and died in less than two months after the first positive urochromogen reaction.

Nine patients, four male and five female, failed steadily and went home. They all showed loss of weight, beginning within a short period of time before the appearance of the positive reaction. In six of these there was a marked increase in the evening temperature even when it had been moderately high before, and in four cases there was a very marked increase in the number of tubercle bacilli in the sputum, the Gaffky scale being used for the purpose of comparison.

1. Schäffle, Karl: A Comparison Between the Urochromogen and Diazo Tests in the Prognosis of Tuberculosis, THE JOURNAL A. M. A., Oct. 10, 1914, p. 1294.

Two female patients, far advanced, gave evidence of new cavity formation shortly after the appearance of the positive reaction, with loss of weight and increased fever. Both are now negative, having gained weight and have only slight fever.

The moderately advanced patient also had a negative sputum on admission, but with the positive urochromogen reaction had a positive sputum and a loss of 1½ pounds in weight. Within a month he began to gain weight again, and sputum and urine have remained negative.

GROUP C

This consists of sixteen patients, thirteen male and three female, old residents of the sanatorium who had positive reactions the first time their specimens were sent to the laboratory after these tests were begun. The examinations are made once in two months unless positive for albumin, in which case the urine is examined every two weeks or oftener, according to the condition of the patient. Thirteen of these cases were far advanced, and three moderately advanced.

Six male patients, far advanced, died within from one week to three months. One moderately advanced male patient became despondent over his condition and committed suicide.

Two far advanced male patients and one moderately advanced female went home within two months after their first positive reaction. All had made slight gains in weight, and the general condition was somewhat improved. The reaction was negative on discharge.

One male and two female patients, all far advanced, went home, steadily declining and with reaction positive on discharge. The deaths of the two female patients have been reported.

Three male patients, two far advanced and one moderately advanced, are still in the sanatorium, failing rapidly, and have positive urochromogen reactions.

GROUP D

This consists of fifteen patients, nine male and six female, old residents of the sanatorium who were negative at the first time their specimens were examined but became positive at some time later. Eleven were far advanced, and four moderately advanced.

Six far advanced, three male and three female, died, one in six months and the others in less than three months after the first positive reaction.

One male patient, moderately advanced, developed tuberculous meningitis. The positive reaction appeared three days before his death.

Three male patients, two far advanced and one moderately advanced, are still in the sanatorium, all on the decline and having positive reactions.

One male and one female patient, both far advanced, went home failing, losing weight and having high irregular temperature. Both had positive reactions on discharge and both are reported dead.

One female patient, far advanced, is still in the sanatorium, negative, has gained several pounds in weight, and is having only moderate fever.

Two moderately advanced patients, one male and one female, went home. The male patient had a negative reaction, but a suspicious area of softening in the left upper lobe, and was losing weight steadily. His only positive reaction was eleven days previous to the negative discharge specimen. The female patient had been in the sanatorium six months and had gained 25 pounds. Ten days before her departure she began to have a higher temperature but did not lose weight. Her discharge specimen was positive.

Two of the cases in this group were especially interesting. The first, an adult female patient, far advanced, had a severe hemorrhage in February which was followed by the expectoration of small amounts of fresh blood every day for two weeks. The urine was examined repeatedly during the next month, but was always negative, and hence the examinations were discontinued. The patient lost weight steadily, and had a continued moderately high evening temperature. A strongly positive reaction was present at the middle of May, two months after the last negative reaction, and the patient died suddenly, one week later.

The second was a girl, aged 12, far advanced, with cavity formation in both upper lobes and a marked cervical adenitis. The temperature was normal, the sputum positive and the urochromogen reaction negative in February. The patient was able to be up and about with the other children until the middle of April, when she became acutely ill. The temperature was from 101 to 102; there was rapid loss of weight with extension of lung involvement, the sputum was negative, the urochromogen reaction positive, and the enlarged cervical glands rapidly diminished in size. It did not seem possible that she could live more than a few days. Two weeks later, however, she was considerably improved, but still unable to be weighed. The temperature was lower, the glands enlarging again, and the sputum and urochromogen reaction negative.

June 10, after the patient had gained several pounds, it was noticed that she was once more losing weight and having an evening temperature of from 101 to 103. Examination revealed extended cavity formation with sputum and the urochromogen reaction positive. From then on she failed steadily and died in September, five months after the first positive reaction.

OTHER CASES

During the eight months there were twenty-six other deaths than those previously mentioned, and I have looked over their charts in order to find in what respects they differed from those who had positive reactions. All were far advanced.

Two, who had been gaining slowly since their admission, and whose examinations had been negative, had sudden, large hemorrhages and died within a few minutes.

One developed a pneumothorax a month after admission and died two weeks later. There was a negative reaction one week before death.

Two, who had only slight activity, though far advanced, died of nephritis. Both were negative on several examinations, the last being within twenty-four hours of the deaths.

One patient died fifteen days after a severe hemorrhage. The urine was not examined.

One died eighteen days after admission. The reaction was negative when the patient was admitted, and the patient was not reexamined.

Two died from heart disease. These patients had repeated negative reactions till within three or four days before death.

One died four months after having a severe hemorrhage. This patient had two negative examinations, the last one five days before death.

Two were negative five weeks before death and were not reexamined.

Fourteen had not had these tests at all, owing to the fact that their specimens had not become due at the laboratory according to our schedule, and we were not then familiar with the conditions which we now consider as indicating a special examination, namely, loss of weight and increased activity. At present we examine all positive and even suspected cases at least once a week.

COMMENT

Our failure to find more positive diazo reactions was due, I think, to an error in our method of doing the test, an error which has been corrected in our later work but which unfortunately has rendered the present series of cases unavailable for accurate comparison. The method which we used at first was to add "a few drops" of the sodium nitrite solution to the mixed urine and sulphanilic hydrochloric solution, and that indefinite "few drops" was the cause of our downfall. On looking into the matter a little more closely I found in different books four different methods of perform-

ing the test, and the four varied in the amount of sodium nitrite solution used as well as the amount and manner of adding the ammonia. I give here the method which we found to give the best results and which we are now using in all cases:

Solution 1:

Sulphanic acid	1 gm.
Strong hydrochloric acid	50 c.c.
Water	1,000 c.c.

Solution 2:

Sodium nitrite	1 gm.
Water	200 c.c.

These solutions are kept separate in tightly stoppered, dark colored bottles. For use, 5 c.c. urine and 5 c.c. Solution 1 are mixed in a test tube, 2 drops of Solution 2 added, and the mixture shaken until frothy. Then with a pipet having a rubber bulb, 1 c.c. ammonia is quickly added. The result, if positive, is a cherry red color in the body of the tube, while the foam assumes a lighter shade but is still reddish.

We do not mix Solutions 1 and 2 in a stock bottle on account of its rapid deterioration. We have found that one drop of Solution 2 in a known positive urine occasionally does produce the characteristic color, that 2 drops never failed, but 3 drops sometimes and 4 drops always spoiled the reaction. Similarly we found that adding the ammonia drop by drop till the mixture was alkaline did not produce the desired result. The ammonia must be in excess and added quickly. According to Wood's "Chemical Diagnosis," the administration of opium derivatives will inhibit the diazo reaction, and this has to be taken into consideration, for many of our patients with positive urochromogen have required such medication.

The administration of such drugs, however, does not appear to have any effect on the urochromogen reaction. Neither does it seem to be influenced by the diet of the patient. Filtering the urine makes no difference, nor does boiling. The latter fact led us to try the biuret test for peptone, with negative results.

Specimens from the same patient at different times of the day showed no variation in the reaction. At one time some quite marked differences in the intensity of the reaction led to an investigation of our permanganate solution which was found to have deteriorated and become unfit for use. Since then we have kept it in a dark colored bottle, made new solution once a month, and have had no more doubtful reactions.

None of the positive specimens were alkaline when examined. When rendered so by the addition of normal sodium hydroxid solution there was no apparent difference until the sodium hydroxid had been added to excess. Then the characteristic yellow failed to develop on addition of the permanganate solution, but was replaced by a dark blue which quickly disappeared.

Along with the positive urochromogen we have found a very excessive indican reaction.

From the physical findings in these reported cases my conclusions are that the positive reaction in patients with pulmonary tuberculosis is present only when there is an actual destructive process going on. Occurring in an ambulant case we would regard it as a warning that the patient should be put at absolute rest in bed. In the moderately advanced case, we may expect soon to find evidence of cavity formation if the reaction remains positive. For the already far advanced case with cavity riddled lungs it is of grave significance. In 93 per cent. of our cases of this type the patients died within four months, and the majority of these within three months.

On the other hand, a continued negative reaction in a urine that previously has been positive appears to indicate at least a temporary cessation or retardation of activity.

A STUDY OF THE ETIOLOGY OF CHRONIC NEPHRITIS

AND OF THE EFFICIENCY OF THE PHENOLSULPHONEPHTHALEIN TEST *

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We have been much impressed with the frequency of chronic kidney conditions in patients admitted to the hospital for other ailments, and with the varying etiologic factors which their histories suggest as possible causes for the condition.

A systematic study of all such cases for two years past has thrown some light on the questions of etiology and classification, and has led us to some conclusions as regards tests of kidney efficiency and methods of treatment. We shall present the facts as we find them, and summarize our own conclusions. Further and different deductions may suggest themselves to others, but it must not be forgotten that medicine is not a mathematically accurate science, and a statistical study cannot always give full account of the reasons for classification in many cases. Doubtful cases have been thrown out, or accounted for in a separate group so as not to disturb our main point unnecessarily.

There were upward of 7,000 admissions to the hospital in the two years of our observation, practically all males between 20 and 60 years of age.

Among them the initial urine examinations showed that 594 patients had albumin and casts, although only thirty-eight of them were admitted as cases of nephritis —thirty-four with the diagnosis of chronic interstitial, and four with the diagnosis of acute nephritis.

It seemed wise to adopt at once certain arbitrary lines and to classify the cases accordingly. We therefore divided these 594 cases into two groups: those in whom the blood pressure, in absence of any other obvious cause, was above the maximum normal while at rest in bed on ordinary hospital diet, and those in whom it was normal or below.

Each group was studied in reference to entrance diagnosis, complications, age, occupation, use of alcohol, and previous infections, subdivided into: (1) venereal; (2) ordinary diseases of childhood, including mumps, measles, whooping cough and chickenpox; (3) scarlet fever, diphtheria, pneumonia, rheumatism and tonsillitis, which were grouped together as the more serious infections, and (4) a separate group comprising all others, typhoid, malaria, etc., which are referred to as other infections.

The cases with a blood pressure above 180 were separated out from the cases with high blood pressure. It was not possible to distinguish in all high blood pressure cases between chronic interstitial nephritis and arteriosclerotic kidney, but for the main purposes of this paper such a distinction is not necessary, and

* From the records of the Southern Pacific Hospital.

they will all be referred to as chronic interstitial nephritis.

Table 1 shows the cases according to this classification, the first group being those with blood pressure above normal, and the second those in which it was normal or below normal. It is obvious at once that the diagnosis of nephritis is practically always a laboratory diagnosis, that it exists as a complication undiscovered until some other condition brings the patient to the hospital. We are not arguing that it was not the primary condition or was not the cause of the respiratory or cardiovascular break that brought some of the patients to the hospital; but it certainly was not the appreciated condition that governed the patient's action in reporting to the company's physician, nor was it the tentative or admission diagnosis suspected in a large proportion of the cases in which it existed.

The second very important thing is that the etiologic significance of infections, hard work and alcohol bears a very similar relation both to the group in which albumin and casts were accompanied by low blood pressure, and to the group in which they were accompanied by high blood pressure. The chief difference in the two groups lies in the fact that in the high blood pressure cases three fourths were over 40 years of age, whereas in the normal or low blood pressure group less than one third were above the age of 40. In other words, the incidence of marked permanent structural change in the kidney bears a very distinct relation to age. This is further shown by the fact that in the control group the age on entrance was under 40 in 68 per cent. of the cases, in the group showing kidney disturbance with normal pressure 66 per cent. were under 40, while in the high pressure nephritics only 24 per cent. were under 40. Whether or not the normal pressure cases are on their way to early permanent change, we cannot say; but the fact that both groups show that venereal disease and infection from the scarlet fever group were nearly two times more frequent than in normal kidney cases makes the supposition reasonable that the signs of kidney irritation in the low pressure group portend a likelihood of future kidney insult and change not evidenced by the control group.

The significance of previous infections in relation to kidney disease and kidney susceptibility can be established only by an investigation into the frequency of such infections in a similar number of cases admitted to the hospital showing no signs of kidney disturbance. If the incidence of alcohol, venereal infections and other serious infections proves to be equally frequent and important in cases showing no signs of kidney disturbance on entrance, it is obvious that we must look further in the study of causes of kidney disease. A tabulation of 594 cases was made to show this point (Tables 2 and 3).

Table 2 shows the etiologic factors in 336 cases of high blood pressure, albumin and casts in the urine, and 336 cases with normal blood pressure, and no sign of kidney lesions. Table 3 shows the etiologic factors in 258 cases with normal blood pressure, albumin and casts in the urine, and 258 cases with normal blood pressure, and no sign of kidney lesions. The kidney disturbance and nephritic cases are arranged in parallel columns with the normal controls.

It will be seen at once that certain of the infectious diseases, notably the venereal and scarlet fever groups, were from 20 to 300 per cent. commoner in the early history of chronic nephritic cases than in the non-nephritic cases. The influence of alcohol is somewhat less than might be supposed; while it was commoner as a possible etiologic factor than any other condition among the nephritics, it was also the commonest factor in the control group. The fact is evident, however, that in the nephritic and non-nephritic kidney conditions, alcohol was used in from 16 to 25 per cent. more cases than in the control group. It is even important

TABLE 1.—CLASSIFICATION OF CASES

Cases	Blood Pressure Above Normal											Blood Pressure Normal or Below Normal	
			Age		Occupation					Blood Pressure			
	Nonnephritic Control Cases	Total Nephritic Cases	Under 40	Over 40	Enginemen	Trainmen	Laborers	Mechanics	Sedentary	140 to 179	180 plus	Nonnephritic Control Cases	Total Nephritic Cases
Surgical:													
Infected wounds	28	14	4	10	..	4	3	7	..	14	..	26	17
Noninfected wounds	37	23	6	17	1	1	9	7	4	19	4	33	8
Fractures	26	18	6	12	2	..	8	6	2	15	3	12	16
Appendix	19	12	6	6	..	1	7	2	2	10	2	17	12
Gastro-intestinal	16	22	3	19	1	6	5	4	5	19	3	14	6
Gallbladder	2	5	2	3	..	..	2	1	2	5	..	2	5
Alveolar abscess	0	4	3	1	..	1	2	..	1	4	..	..	10
Medical:													
Acute infections	61	28	12	16	3	2	8	8	7	24	4	45	71
Cardiovascular	9	45	5	40	7	2	10	6	18	26	19	4	12
Respiratory	41	26	3	23	1	5	8	4	8	19	7	33	33
Gastro-intestinal	16	21	6	15	..	3	13	2	3	15	6	9	14
Nervous and mental	13	21	4	17	1	3	10	5	1	14	7	8	10
Genito-urinary	32	17	2	15	3	1	7	5	1	16	1	27	10
Nephritis	0	34	9	25	3	4	7	8	12	15	18	...	4
Other conditions	36	46	11	35	7	2	29	9	7	36	8	28	30
Unrecorded	...	...	...	...	..	..	..	..	..	3*	..	...	...
Blood pressure above normal:													
Totals	...	336	82	254	29	35	128	74	73	254	82	...	...
Normal controls	336	...	226	110	23	41	128	65	79	...	..	...	...
Blood pressure below normal:													
Totals	...	...	173	82	13	34	95	68	54	...	..	...	258
Normal controls	...	...	179	79	20	29	95	49	65	...	..	258	...

* Below normal.

that of the cases giving no history whatever of any etiologic factor, there were twenty-nine from nephritics and sixty-eight from the controls; thirty-eight from the non-nephritic kidney condition in comparison with forty-five from the control group.

A previous history of some diseases other than the minor children's ailments was about twice as common in the nephritics. A comparison of the cases showing kidney signs without high blood pressure with an equal number of cases with no sign of kidney disturbance gave the results shown in Table 3.

We have presumed its relation to kidney disease manifesting itself late in life even where no history of its direct consequence to the scarlet fever was shown or known. From the results given in Table 3 it certainly seems reasonable to suppose that the kidney, once the seat of trouble manifested by the presence of albumin, casts, red blood cells, etc., in the urine, is likely to be the seat of trouble again under conditions to which the normal kidney is more resistant.

In following the urine sediments of cases in which streptococcus infection was known to exist, especially

TABLE 2.—ETIOLOGIC FACTORS IN 336 CASES OF HIGH BLOOD PRESSURE, ALBUMIN AND CASTS, AND 336 CASES WITH NORMAL PRESSURE AND NO KIDNEY LESIONS

Possible Etiologic factors	Venereal		Alcohol		Scarlet Fever Group		Usual Diseases of Childhood		Other Infections		No History of Any Disease	
	Nephritic	Normal	Nephritic	Normal	Nephritic	Normal	Nephritic	Normal	Nephritic	Normal	Nephritic	Normal
Alone	9	5	28	35	5	9	17	46	11	11	19	68
With usual diseases of childhood	7	4	25	28	4	13	..	..	..	..	..	..
With alcohol	4	6	..	..	4	..	..	..	..	..	..	..
With other infections	2	1	..	6	5	1	16	23	..	..	..	..
With scarlet fever group	2	2	..	2	..	..	..	..	..	..	..	..
With alcohol and usual diseases	22	13	..	..	11	..	..	..	..	..	..	..
With usual diseases and other infections	8	6	39	19	14	6	..	..	..	..	..	..
With usual diseases and scarlet fever group	2	2	15	9	..	..	..	..	..	..	..	..
With alcohol and other infections	10	6	..	..	..	..	..	..	..	..	..	..
With scarlet fever group and alcohol	25	8	..	1	..	..	..	..	..	..	..	..
With scarlet fever group and other infections	2	2	..	3	..	1	30	..	..	..	..	..
	93	55	107	103	43	30	63	69	11	11	19	68
Scarlet fever group and all other conditions	89	59	..	..	..	..	..	..	..	..	..	..
Alcohol and all other conditions	168	136	..	..	..	..	..	..	..	..	..	..

TABLE 3.—ETIOLOGIC FACTORS IN 258 CASES WITH NORMAL BLOOD PRESSURE, ALBUMIN AND CASTS, AND 258 CASES WITH NORMAL PRESSURE AND NO KIDNEY LESIONS

Possible Etiologic Factors	Venereal		Alcohol		Scarlet Fever Group		Usual Diseases of Childhood		Other Infections		No History of Any Disease	
	Nephritic	Normal	Nephritic	Normal	Nephritic	Normal	Nephritic	Normal	Nephritic	Normal	Nephritic	Normal
Alone	7	3	16	24	8	8	31	37	6	9	38	45
With usual diseases of childhood	14	3	19	22	4	12	..	..	..	..	..	..
With alcohol	6	4	..	..	..	..	..	..	..	..	..	..
With other infections	2	1	8	3	..	1	14	22	..	..	..	..
With scarlet fever group	2	1	2	..	..	..	..	..	..	..	..	..
With alcohol and usual diseases	24	9	..	..	..	..	..	..	..	..	..	..
With usual diseases and other infections	6	6	..	18	4	5	..	..	..	..	..	..
With usual diseases and scarlet fever group	4	1	..	5	..	..	..	..	..	..	..	..
With alcohol and other infections	8	6	..	..	..	..	..	..	..	..	..	..
With scarlet fever group and alcohol	12	9	..	..	..	..	..	..	..	..	..	..
With scarlet fever group and other infections	1	..	22	3	..	1	..	..	..	..	..	..
	86	43	67	75	16	27	45	59	6	9	38	45
Scarlet fever group and all other conditions	59	46	..	..	..	..	..	..	..	..	..	..
Alcohol and all other conditions	117	103	..	..	..	..	..	..	..	..	..	..

As indicated earlier, the frequency of venereal disease was eighty-six in the group of 258 with kidney disturbance, whereas only forty-five among the controls had had venereal disease. Venereal infections among the scarlet fever group were 20 per cent. larger than among the controls, and the alcoholics were 15 per cent. more numerous.

It seems fair to conclude that a case is made out for the definite bearing of venereal infections and the more serious infections (chiefly streptococcus and pneumococcus) as well as of alcohol on the occurrence of advanced kidney disease.

We have all understood the relation of scarlet fever to immediately consequent and uncured kidney disease. in the throat, we have been surprised to find streptococci in the urine with very little evidence of kidney disturbance often enough to warrant us in believing that the beginning of many serious kidney disturbances are insidious, and patients are discharged cured of their primary trouble and yet harboring conditions in the urine which must inevitably lead to permanent kidney diseases. One such case in a doctor following acute streptococcus tonsillitis was accompanied by changes so slight as to have been easily overlooked had we not had this very problem under investigation, and yet three months' careful treatment by rest, milk diet and hexamethylenamin intermittently was necessary before the organisms finally disappeared.

In considering the influence of occupation it was ascertained that the 40,000 employees of the company were grossly divided as indicated in Table 4.

Here one finds a remarkable evenness in the figures, and nothing is shown quite so conclusively as that the 16 per cent. of sedentary employees suffer more than all the others both in regard to kidney disease and to all the other conditions requiring medical attention. Engineers and firemen were admitted with nephritis in nearly 25 per cent. greater frequency than in proportion both to the number employed and their admissions for other causes. Whether or not the lack of exercise of the clerks and the same cause combined possibly with exposure is the cause of this condition with engineers can only be surmised.

Exhaustive work has been done to measure renal function in bilateral and unilateral disease by various urinary examinations. Cryoscopy and electric conductivity have been studied but are not practicable. Sodium chlorid and urea estimations have been carried out, especially in unilateral kidney disease. The hydrogen ion concentration of the urine has also offered a field for study, and has been studied, among others, by Palmer and Henderson. The diastase test has also been used, and has been favorably reported on by Wohlgemuth, von Beuzer, Heruta, Wynhausen, Marino, Rosenthal and Geyelin.

TABLE 4.—INFLUENCE OF OCCUPATION

Occupation	Employees in Various Departments, Per Cent.	336 Admissions with Nephritis, Per Cent.	336 Non-nephritic Controls, Per Cent.
Engineers and firemen	6.8	8.8	6.8
Conductors and brakemen	10.	10.6	12.2
Laborers	40.4	36.	38.1
Mechanics	26.4	22.3	19.4
Sedentary (office force)	16.4	22.3	23.5

Lactose and potassium iodid have also been employed to determine renal function, but they do not appear satisfactory, and the same may be said of phlorizin, which produces a glucosuria when injected subcutaneously, the degree of which is the essential end-result.

Various substances have been subcutaneously, intramuscularly or intravenously injected to test for the rapidity of excretion and the amount based on colorimetric urinary estimations. Among these are methylene blue, rosanilin, indigocarmin and phenolsulphonephthalein. Methylene blue has been found painful, and is slowly eliminated. Rosanilin has had only a limited use, and does not appear satisfactory. Indigocarmin, in the hands of a few, notably Voelker and Joseph, Baetzner, Ehrick, Roth, Tanaka and Thomas, has given the most satisfactory results of all the kidney functionation tests. Phenolsulphonephthalein has been most exhaustively studied clinically and experimentally, and the majority of the investigators have reported most favorably as to its value. Many have made comparative studies of two or more of the above-mentioned substances. Phenolsulphonephthalein was introduced for renal functionation determinations by Rowntree and Geraghty[1] in 1909. Among the more recent investigators of phenolsulphonephthalein are Rowntree, Marshall and Baetjer,[2] and Geraghty,[3] who emphasize its value in nephritis and other renal disorders. Thayer and Snowden[4] reported that the degree of its excretion coincided with necropsy findings. Hess[5] concluded that the phenolsulphonephthalein surpasses all other methods by its simplicity, and that it is of value prognostically as well as diagnostically. Pazzana,[6] who studied only a small number of cases, endorses this method. Fanz[7] has satisfactorily employed this test, and recommends that the standard color solution should be made up in part of the patient's urine obtained before inoculation of the phenolsulphonephthalein. Braasch and Thomas[8] consider that fundamental surgical principles and clinical data are most important, but that the excretion test aids in differential diagnosis. It has only a limited value prognostically. Smith[9] found the test to parallel with great constancy the pathologic condition of the kidneys. Intravenous administration was carried out in some cases. Siegel[10] has reported on its value diagnostically and prognostically in all types of nephritis and in surgical kidneys. Recently studies have been made, and their value emphasized, on the blood nitrogen retention in renal disorders. Frothingham[11] believes that the blood pressure estimation, repeated routine urinary examinations and the excretion of sodium chlorid are the most reliable diagnostic methods. For diagnosis, the most useful examinations are for nonprotein nitrogen in the blood, to determine the ability of the kidneys to excrete extra nitrogen in the urine and phenolsulphonephthalein.

Hohlweg[12] has favorably reported on the examination of blood for residual nitrogen. Quinby and Fitz[13] have employed Prussian blue intravenously as well as indigocarmin and phenolsulphonephthalein. Urines were examined for total chlorids, nitrogen, diastase and hydrogen ionization. They used dogs with experimentally produced unilateral nephritis. They conclude that phenolsulphonephthalein and nitrogen excretion are the most useful tests. Austin and Eisenbrey,[14] studying experimental nephritis in dogs, found that the anatomic appearance of the kidneys bore no definite relation to nitrogen, chlorid, or phenolsulphonephthalein eliminations. They concluded that phenolsulphonephthalein elimination seemed to be a better indicator of kidney excretion than either the anatomic changes or the elimination of total nitrogen or chlorids.

PERSONAL OBSERVATIONS

Following the technic as described by Rowntree and Geraghty, sixty-seven patients were studied with the phenolsulphonephthalein test, and seventy-five injections were made. It is unfortunate that many of the patients received only one injection. General medicine and surgical conditions were represented, and most of the cases showed albuminuria. Of the sixty-seven patients, thirty-six (50 per cent.) were nephritics, one with acute parenchymatous nephritis, thirteen with chronic parenchymatous and twenty-two with

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5. Hess: Bull. Johns Hopkins Hosp., 1915, xxvi, No. 288, p. 52.
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7. Fanz: New York Med. Jour., Dec. 19, 1914.
8. Braasch, W. F., and Thomas, G. J.: The Practical Value of Chemical Tests of Renal Function in Surgical Conditions of the Urinary Tract, THE JOURNAL A. M. A., Jan. 9, 1915, p. 104.
9. Smith, G. G.: Separate Renal Function, THE JOURNAL A. M. A., Jan. 16, 1915, p. 223.
10. Siegel: Publ. Jefferson Med. Coll. and Hosp., 1915, vi, 78.
11. Frothingham: Am. Jour. Med. Sc., 1915, cxlix, No. 6, p. 808.
12. Hohlweg: Med. Klin., 1915, xi, No. 12.
13. Quinby, W. C., and Fitz, R.: Observations on Renal Function in Acute Experimental Unilateral Nephritis, Arch. Int. Med., February, 1915, p. 303.
14. Austin and Eisenbrey: Jour. Exper. Med., 1911, xiv, 366.

chronic interstitial nephritis. Of the non-nephritic group, the average excretion for two hours was 51.4 per cent. The lowest was 35 per cent. in a case of lumbosacral myalgia and no demonstrable signs of nephritis. Two cases of neurasthenia showed 35 per cent. The highest percentage was seventy-seven in a case of cholelithiasis. The case of acute parenchymatous nephritis was a resolving one with a systolic blood pressure of 152 mm. and a phenolsulphonephthalein output of 56 per cent.

In one case of chronic parenchymatous nephritis the Edebohl's operation was performed. The phenolsulphonephthalein output of 10 per cent. before the operation rose afterward, with marked clinical improvement, to 32 per cent. within two weeks and to 52 per cent. three months afterward. Within six weeks therefrom, owing apparently to indiscretion in diet and undue physical exercise, uremia developed. The youngest patient in this group was 18 years old and gave the lowest output, 14 per cent. Her condition was that of impending uremia. She left the hospital, and was unfortunately lost sight of. Except one, all of the remaining patients with parenchymatous nephritis were in fair physical condition, showed an average systolic blood pressure of 150 mm., and gave an average output of phenolsulphonephthalein of from 35 to 40 per cent. One case only showed an excretion (65 per cent.) that did not parallel the severe cardiorenal condition (systolic blood pressure, 80 mm.).

Of the cases of chronic interstitial nephritis, all but one showed a parallelism of phenolsulphonephthalein output and clinical symptoms. This patient, who had hepatic cirrhosis, a few days after admission excreted only 12 per cent. After two months he had somewhat improved, and the excretion was 35 per cent. The lowest percentage obtained in any case was 7.5. The patient died the following day of uremia.

ANALGESIA AND ANESTHESIA IN OBSTETRIC PRACTICE

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CLEVELAND

For two or three years the attention of obstetricians in this country has been rather sharply called to methods of relieving the pain of labor. Various means to this end have been presented and in turn sharply criticized. Successive reports of work along this line have begun to clarify our ideas. Early enthusiasm has been modified by a longer experience. We are, however, far from adopting uniformly any one procedure as best. Here, as in every field of medical therapeutics, no fixed plan can govern every case; but the patient will continue to expect, and should be given, discriminating judgment as to the needs of her individual case. No rule of procedure should guide us, but rather judgment of our patient's condition and temperament, together with accurate knowledge of the drugs we are employing, their indications, contraindications and therapeutic effects should form the basis of our procedure.

In the summer of 1914 I began giving this matter special attention. In November, 1914, we used nitrous oxid and oxygen for the first time as a labor analgesic at St. Luke's. Since that time we have developed our plan of procedure, as experience or theoretical considerations pointed the way.

Previous to using gas as an analgesic in labor we had for some time been employing it as the anesthetic of choice, in operative work in all eclampsia and all other toxemia cases, and for various minor operative obstetric procedures in which unconsciousness rather than relaxation was to be desired.

Since that date we have employed gas to relieve the pain of labor in seventy-two cases. In some of these, only gas was used. In many of them morphin was employed, in quite a few ether, and in a few scopolamin. But in all of the seventy-two cases, gas was the mainstay, and the other drugs were used as adjuvants, or to meet special indications.

In most of our cases the gas has been administered by the same anesthetist, Dr. Cornelia Stoeltzing, and to the gradually increasing knowledge of its use, based on this experience, is to be ascribed much of the satisfaction which we have had with the method. Ability to get results with gas analgesia depends to a considerable degree on the knowledge gained by experience. Any one desiring to employ nitrous oxid and oxygen in labor should first master the method himself and should so far as possible give his anesthetizer time to acquire technical skill.

In this article I wish to present no detailed account of cases, but to describe our present practice, with a brief statement of the reasons therefor, and the results obtained. I shall consider three agents, morphin, gas and ether, as the various modifications of their use cover the entire field of our present technic. Our use of these drugs is based on our belief in the accuracy of propositions which may be outlined thus:

PRINCIPAL THEORETICAL CONSIDERATIONS

MORPHIN:

1. Relieves pain.
2. Relaxes a rigid cervix.
3. Interferes with labor pains frequently if given too early.
4. Delays labor if given in cases of true primary uterine inertia.
5. Hastens labor if given in cases in which a hypersensitive os is delaying the first stage.
6. Depresses the child's respiratory center, for a period varying from two to four hours after administering to the mother.
7. By its sedative effect on the nervous system, diminishes the maternal exhaustion due to long continued first stage pains.
8. Is eliminated slowly.

NITROUS OXID AND OXYGEN:

1. Probably retards first stage pains.
2. Does not retard second stage pains.
3. Hastens the second stage of labor, by removing the inhibition of voluntary effort caused by pain.
4. Causes no cyanosis of the mother when properly administered.
5. Has no deleterious effect on the baby's respiratory centers.
6. Is eliminated very rapidly.
7. Does not cause muscular relaxation.
8. Does not relax the perineum and pelvic floor, and hence does not aid in the prevention of laceration of a rigid perineum as well as ether.
9. Exerts no known deleterious effect on the liver or kidneys.
10. May be used over a long period of time that is, four, five or six hours, with safety.

ETHER:

1. Causes relaxation of both voluntary and involuntary musculature.
2. Occupies an intermediate position between morphin and gas on the baby's respiratory apparatus.
3. Is not desirable as an analgesic over so long a period as gas.
4. Is more slowly eliminated than gas.
5. If used in any quantity produces nausea and some vomiting.
6. Irritates the mother's respiratory apparatus as well as her kidneys.
7. Produces less prompt analgesia than gas.

NORMAL CASES

In labors not distinctly abnormal, morphin is used during the first stage, and only when the labor is expected to last at least four hours longer. Nature makes a determined effort to stimulate the infant's heretofore unused medullary respiratory centers to vigorous action at the moment of birth. The normal stimulus of this center is the increase of carbon dioxid in the blood. This has been secured by the interference with the oxygen supply through the placenta, by means of the vigorous and prolonged uterine contractions of the terminal moments of the perineal stage. Attempts at respiration are also stimulated by the reflex effect of cold air striking the baby's skin. Both phases of Nature's plan for securing vigorous respiration at birth are interfered with if the baby's nervous system is under the influence of morphin at this particular time. So long as the child is in the uterus the effect of reasonable amounts of morphin is negligible because its oxygen supply at this time is dependent on its placental-fetal circulation secured by its heart. Respiratory depressants in the fetal circulation at the moment of birth inevitably produce apnea.

Our indications for morphin during the first stage are:

(1) A rigid, hypersensitive os.

(2) Evidence of considerable pain with a probable first stage of several hours, as in most primiparas.

(3) The presence of nagging but ineffectual pains which irritate and exhaust the patient out of proportion to results.

Accordingly many of our patients, particularly if primiparas, get a single hypodermic of one-sixth grain of morphin. If it is desired to stop nagging pains and produce sleep, one-quarter grain is given. Patients in whom ineffective uterine action, that is, true primary uterine inertia, seems to be the cause of the delay are not given morphin.

At the beginning of the second stage, or if the patient suffers severely, shortly before dilatation is completed, the use of gas is begun. We begin with intermittent administration, that is, during the pain only, and with small amounts, as 30 gallons of nitrous oxid to 15 gallons of oxygen. As the head approaches the pelvic floor and finally strikes the perineum, the nitrous oxid is gradually increased in volume to 50 or 60 gallons, and the intervals between administrations are shortened. This gradual increase of the volume of the gas given is controlled by the patient's statement of pain or comfort during uterine contraction. As the perineum begins distending and the most painful stage of labor arrives, the gas is given still more continuously, until at the time of crowning, from 70 to 80 gallons of nitrous oxid are given practically continuously. When the head is born, the nitrous oxid is at once discontinued, and the patient sharply revived by a few inhalations of pure oxygen.

If the woman is a primipara with a rigid, inelastic perineum, and lacerations seem inevitable, we secure the utmost possible relaxation by switching to ether, and pushing to complete unconsciousness at the moment the head crowns the perineum.

All this requires perfect team work between the obstetrician and the anesthetist, who must be able to anticipate the operator's every move. Anything short of this fails to produce the perfect satisfaction of which this method is capable. The basic principle of its administration is to give sufficient nitrous oxid to secure relative freedom from pain, and add sufficient oxygen to prevent any cyanosis. Consciousness, freedom from pain, and good color may all be secured by proper technic.

Analgesia permits careful repair of all injuries except those of the cervix. If cervical repair must be undertaken, it is best to have the patient under anesthesia. The ease with which all these various demands of the operator may be met by the anesthetist constitutes one of the chief advantages of gas in labor.

ABNORMAL CASES

When merely making a test of labor preliminary to cesarean section, we administer no anesthetic. If satisfied that natural forces can engage the head and bring it into the pelvic cavity, we use gas freely from the beginning of the second stage, reinforcing the uterine contractions by hypodermic of pituitary extract, giving half an ampule and repeating as the effect wears away.

Under these circumstances we have had some brilliant results, the active cooperation of the patient over a considerable period, made possible by her relative freedom from pain in the presence of vigorous uterine contractions, being highly satisfactory.

Several babies have been secured in this way, in cases in which we desired to avoid abdominal section on account of the risk of previous contamination. Of course this requires that the obstetrician should be reasonably sure of his diagnosis, and be equipped for major work, if this becomes necessary. I do not mean to minimize the risk of careless or incompetent use of pituitary extract.

When forceps are to be used, gas analgesia is merely increased to complete anesthesia; at the perineal stage ether vapor is added to secure the utmost relaxation in order to avoid laceration.

Webster[1] mentions version as one of the conditions for which he employs gas. I disagree with him in regard to this, believing that the relaxation required for this procedure renders ether by far the better anesthetic for this purpose.

When doing abdominal section for the usual indication, disproportion, ether is our choice of anesthetic because of the greater ease of manipulation under it. When in addition these cases are severely toxic, we use gas with the addition of ether vapor for relaxation as required.

For all minor obstetric procedures, cervical dilatation preliminary to introducing bags, curetting for retained secundines in miscarriage, etc., gas is given the preference.

CONCLUSION

I wish to enter a vigorous protest against the advice at present being so freely given that any one may use gas in labor cases with perfect safety. Gas is a power-

1. Webster, J. C.: Nitrous Oxid Gas Analgesia in Obstetrics, The Journal A. M. A., March 6, 1915, p. 812.

ful therapeutic agent with infinite possibilities for harm at the hands of incompetent or careless users. The statement has been made and is, I believe accepted, that gas in the hands of an expert is a safe anesthetic, but *the most dangerous* anesthetic if given by a novice. Of course this is far too strong a statement to make concerning analgesia. Even here, however, some knowledge and experience are necessary to secure both safety and satisfaction from its use. Moreover, the temptation to follow a gas analgesia labor with a gas anesthesia for repair is so obvious that I would earnestly urge all those expecting to adopt this method to spend sufficient time in special study of the agents he is to use, so that he can direct its administration. This does not mean that a doctor must equip himself as a gas expert. The skill necessary for its use in labor can be acquired in a short time, but free use of gas by the absolutely inexperienced will surely lead to tragedies.

1834 East Sixty-Fifth Street.

NOTES ON NITROUS OXID ADMINISTRATION

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Even with the accumulated knowledge gained from several years' experience in the prolonged administration of nitrous oxid (and oxygen), there is still quite a tendency by some to disregard essential elements of safety, especially when nitrous oxid, administered with normal oxygenation, does not furnish a sufficient depth of anesthesia. Increasing the percentage, and therefore the amount, of nitrous oxid inhaled of course deepens the anesthesia, and this is often a great desideratum; but the increase in the depth of anesthesia thus gained simultaneously decreases the oxygenation, and herein lurks the danger. Most patients can tolerate a decreased oxygenation for a short time, and when one has had experience with this class of patients, the anesthetist thereby becomes emboldened to minimize the danger arising from subnormal oxygenation. Sooner or later, a patient who cannot tolerate even temporarily a decreased oxygenation reaches the service of such an anesthetist, and serious results sometimes follow very quickly. It cannot be stated too frequently or too emphatically that with an anesthetic, cyanosis is a danger signal that should not be disregarded.

If the prolonged administration of nitrous oxid is to be confined to the cases in which it may properly be used as the sole anesthetic, its use is quite limited, and in many clinics its field is thus restricted, straight ether being the usual anesthetic. As ether and nitrous oxid are synergistic in anesthetic action, it is not necessary thus to restrict the use of nitrous oxid. Aside from the use of alkaloidal adjuvants, the safe way to increase the depth of anesthesia under nitrous oxid is by the addition of ether, small amounts usually being sufficient. But even when a considerable amount of adjuvant ether is required to secure the desired depth of anesthesia, the amount of adjuvant ether is considerably less than would have been the amount of straight ether required. That is, when nitrous oxid is administered throughout, it reduces the amount of ether required, and in this way reduces the toxication of the anesthesia to a minimum.

The toxication of a substance is not in direct proportion to the amounts used. The system is able to tolerate certain amounts of toxic substances without deleterious effect; but after this limit is reached, the addition of only fractional amounts will produce effects much more pronounced than the proportion these amounts bear to each other. That is, one-half grain of morphin produces more than twice the toxic effect of one-quarter grain, if one-quarter grain is the limit that can be tolerated without deleterious effect. So it is with ether adjuvant to nitrous oxid; the resulting ether toxication is much less than the proportion the adjuvant ether bears to the amount of straight ether that would have been required.

The addition of a small amount of ether to nitrous oxid not only increases the depth of anesthesia but acts as a stimulant as well, and in this particular enhances the safety of nitrous oxid. To insist, as some do, that either straight nitrous oxid or straight ether shall be administered is to limit greatly the use of this most bland anesthetic, and at the same time create such a general atmosphere that when it is used, if with normal oxygenation it does not furnish sufficient depth of anesthesia, the nitrous oxid is increased by decreasing the oxygen, thus in a small or greater degree endangering the patient. The desired depth of anesthesia should, of course, be secured; but undue emphasis placed on securing it with nitrous oxid alone paves the way to danger. The emphasis should be placed, not so much on the anesthetic as on the technic, for most anesthetics are comparatively safe with good technic, and no anesthetic is safe with poor technic.

Proper nitrous oxid administration requires more attention to technic than the other general anesthetics, yet its administration has not been standardized, and often the most ordinary scientific principles are violated. For instance, in many of the most popular and widely used apparatus for its administration, the patient rebreathes through a tube from 3 to 5 feet in length, and through parts of the stand that are neither sterilized nor cleansed. Simply because the patient does not know that he is to rebreathe for an hour or two through parts of an apparatus which have been similarly used by others, without having been previously subjected to the requirements of even ordinary cleanliness, is no reason why this unscientific and dangerous practice should continue to flourish. And why should any patient when operated on be forced to rebreathe through a long tube? Rebreathing through a long tube unnecessarily consumes the patient's energy at a time when it should be conserved, and causes an unduly rapid accumulation of carbon dioxid, on account of the space in the mask and long tube preventing an immediate and thorough mixture of the expirations with the contents of the bag. Rebreathing certainly enhances the safety of nitrous oxid, but whenever rebreathing is used, the bag should be close to the patient's face.

The frequent use of a breathing tube to prevent respiratory restriction cannot be too strongly urged. Nitrous oxid causes more swelling of the soft tissues of the upper respiratory tract than the other anesthetics, and at the same time it increases the volume of respiration per unit of time; in its administration, therefore, it is very important to keep the respiratory passages open. Whenever respiratory restriction exists, the patient is directly devitalized by the

greatly increased burden thrown on respiration and circulation, more especially when the restriction is on the expiratory movement. Before a breathing tube is inserted, the patient must be sufficiently anesthetized so that the pharyngeal reflex is abolished, or else the patient will gag and cough, thereby retarding the induction or disturbing the anesthesia. In ether administration, also, the prevention of partial obstruction of the air passages is greatly neglected. Anesthesia is much easier and more smoothly maintained when the respiratory movement is free and unrestricted.

Preliminary medication in nitrous oxid administration is a very important matter. Morphin tends to allay preoperative fear, and renders the induction smoother. Gatch has shown that struggling during induction is very detrimental to the heart, and all observers agree that patients who have struggled do badly under anesthesia. Besides, morphin blocks both afferent and efferent impulses, thus preventing shock and rendering the anesthesia deeper and smoother. Nitrous oxid anesthesia is so evanescent that very often an opiate is required for the postoperative pain immediately after the anesthetic is withdrawn, if no opiate has been administered as a preliminary. It is advisable to have the opiate administered before the trauma is produced, for otherwise larger amounts will be required to relieve the pain. Most, if not all, of the trouble arising from the use of preliminary morphin has been caused from too large dosage. Larger amounts than one-sixth grain morphin, or its equivalent, should be used only in vigorous subjects, and the larger amounts should always be fortified with atropin.

The use of a local anesthetic to block off the traumatized areas is not nearly so general as its merit warrants. There is no question but that this procedure, when properly carried out, prevents shock and permits a lighter general anesthesia, and this is especially shown when nitrous oxid is administered. The removal of the gallbladder requires the deepest type of anesthesia, yet when the local anesthesia is perfect, I have not had to add any ether whatever to nitrous oxid, even in this class of work. The credit, moreover, for this achievement belongs entirely to the surgeon, for it is his technic that renders it possible to have such a light general anesthesia in procedures that ordinarily require the deepest type of general anesthesia.

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Results of a Psychologic Examination of Criminals in Massachusetts.—In Bulletin 17, issued by the Massachusetts State Board of Insanity, there is presented a tabulated report of the results obtained from the psychologic examination of 300 criminals who had been selected alphabetically from the prison records in the Massachusetts State Prison. They were examined by the "point scale" method, which has been worked out for norms to the age of 15 plus for English speaking subjects and to 14 plus for non-English speaking subjects. When persons grade up to these figures, they are considered to be outside the feebleminded class. From the results of the examination it was ascertained that of these 300 cases, 22 per cent. were feebleminded, 9.6 per cent. were borderline cases, and 3.3 per cent. were probably psychotic. It was shown that the highest percentage of feebleminded persons is found among prisoners who are guilty of sex offenses, and the lowest is found among prisoners who are guilty of crimes against property, while the percentage of probably psychotic subjects is highest among those prisoners who are guilty of crimes against life.

THE TREATMENT OF DIPHTHERIA CARRIERS WITH IODIZED PHENOL

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Diphtheria carriers have always been a serious problem, and many methods to rid the unfortunate individuals of diphtheria organisms have been tried. The multiplicity of the forms of treatment advocated is proof of the unsatisfactory results obtained with any one method. Spraying the throat with cultures of *Staphylococcus pyogenes aureus* was at one time much in vogue. This proved to be too dangerous a procedure,[1] and has been abandoned generally. Wood[2] suggested and used a spray of *Bacillus acidi lactici* in the throat with good results. C. Hampsen Jones[3] used Bolton's solution in the throat of carriers with some benefit. Hektoen and Rappaport[4] advocate the use of kaolin in the nose and throat, and assert that the mucous membrane of these passages is almost rendered sterile by the use of this substance. Good results have been reported with the use of autogenous vaccines by some,[5] but others have found them disappointing. The most common practice, and the one that has stood the test of time, has been the application of various chemicals, such as silver nitrate and hydrogen peroxid, to the throat and nose. But this often fails to rid the carriers of the diphtheria organisms, and the patient remains isolated for months.

The method of treatment described below has given good results in the relatively small number of cases in which we have had the opportunity of using it. It is suggested, therefore, with the hope that further experience with this method will prove it to be of real value in the treatment of diphtheria carriers.

The cases reported consist of carriers convalescent from clinical diphtheria in the infectious ward of the Charity Hospital, and some that did not have diphtheria but were persistent carriers. In some cases, other methods had been persistently tried with failure to obtain negative cultures.

In all cases reported here, iodized phenol (acidum carbolicum iodatum) of the National Formulary was used. It contains 60 per cent. phenol (carbolic acid), 20 per cent. iodin crystals and 20 per cent. glycerin. In pharyngeal cases, the tonsils, uvula and posterior wall of the pharynx were swabbed every forty-eight hours until negative cultures were obtained. In nasal cases, the entire anterior part of the nasal cavity was swabbed with iodized phenol every forty-eight hours. Care was taken not to allow the preparation to run over the face or drop into the larynx. Cultures were always made a few minutes before the local application. In this way, forty-eight hours elapsed after each application of iodized phenol before another culture was made.

Seventeen cases were treated. Negative cultures were obtained after one application of iodized phenol

1. Davis, Clara M.: Tonsillitis Following Use of Staphylococcus Spray, The Journal A. M. A., Aug. 9, 1913, p. 393. Rolleston, J. D.: Brit. Jour. Chil. Dis., 1913, x, 298.
2. Wood, H. B.: Lactic Acid Bacillus Spray for Diphtheria, The Journal A. M. A., Aug. 9, 1913, p. 392.
3. Jones, C. Hampsen, quoted by Rühran: Progr. Med., March, 1914, p. 165.
4. Hektoen, L., and Rappaport, B.: The Use of Kaolin to Remove Bacteria from the Throat and Nose, The Journal A. M. A., June 12, 1915, p. 1985.
5. Hewlett and Nankivell: Lancet, London, 1912, clxxxiii, 143. Weil: New Orleans Med. and Surg. Jour., November, 1914.

in six cases (35 per cent.); after the second application in five cases (29 per cent.); after the third application in two cases (12 per cent.); after the fifth application in one case (6 per cent.), and after the sixth application in two cases (12 per cent.). One case (nasal) was under treatment for twenty-one days and required nine applications before negative cultures were obtained. With the exception of this case, none of the other sixteen were under treatment longer than eleven days.

Fifteen of the cases were followed after leaving the hospital, and negative cultures obtained in all. No treatment had been used since the discharge of the patients from the hospital, and all of them had been out from one to three weeks when these cultures were made.

No bad results have been noticed from the use of this rather strong preparation in the nose and throat. The application is painful for half a minute or less until the anesthetic action of the phenol takes effect. There is a thin escharotic membrane formed at the site of application which remains for about twenty-four hours. This disappears entirely within forty-eight hours after swabbing, leaving the throat red for a few days. After the redness disappears, the throat returns to normal. This was true in the thirteen patients whose throats were examined from one to three weeks after leaving the hospital. The throat, in each case, was found to be as normal in appearance as before the treatment was begun.

The manner in which this preparation acts in ridding the throat of diphtheria organisms so promptly, we do not know. It has been proved by Albert[6] that the bacteria in carriers are harbored in the crypts of the tonsils and are not on the surface of the mucous membrane of the nasopharynx. Kretschmer[7] cured carriers by squeezing the crypts of the tonsils. The phenol in the preparation undoubtedly destroys the outer layers of the epithelium. It probably does not reach the organisms in the crypts, but it may permit the more thorough penetration of the iodin. In this way the iodin may reach and destroy the harbored organisms with more certainty than it does when applied alone.

In the cases reported below, the patients were admitted to the infectious service of Charity Hospital during the year 1915.

REPORT OF CASES

CASE 1.—R. W. (B 5960), colored girl, aged 14; admitted, November 18, with pharyngeal diphtheria; clear, November 22. Positive cultures, November 29 and December 1 and 3. Swabbed with iodized phenol, December 3. Negative cultures, December 5 and 7. Discharged, December 8. December 27, negative culture and throat normal.

CASE 2.—S. W. (B 5703), colored girl, aged 8; admitted, November 14, with pharyngeal diphtheria; clear, November 19. Positive cultures, November 29 and December 1 and 3. Swabbed with iodized phenol, December 3. Negative cultures, December 5 and 7. Discharged, December 8. December 27, negative culture and throat normal.

CASE 3.—H. S. (B 5983), white boy, aged 11; admitted, November 19, with pharyngeal diphtheria; clear, November 21. Positive cultures, November 29 and December 1, 3 and 5. Swabbed with iodized phenol, December 5. Negative cultures, December 7 and 9. Discharged, December 10. December 27, negative culture; tonsillitis.

CASE 4.—E. P. (B 7336), colored woman, aged 23; admitted, December 19, as carrier, gave repeated positive cultures for three weeks previous to admittance. Positive culture, December 21. Swabbed with iodized phenol, December 21 and 23. Negative cultures, December 23 and 25. Discharged, December 26. Wrong address and could not follow.

CASE 5.—N. H. (B 6924), white girl, aged 6, admitted, December 9, as carrier, gave positive nasal cultures, December 9 and 11. Anterior nares swabbed with iodized phenol, December 13 and 15. Negative cultures, December 15 and 17. Discharged, December 18. Not followed.

CASE 6.—M. W. (B 2535), white girl, aged 3, admitted, August 19, with nasal diphtheria, gave a positive nasal culture on day of admittance. Antitoxin, August 21. Negative cultures, August 29 and 31. Sent home. Readmitted, September 13, with a nasal discharge. Positive nasal and negative throat. Antitoxin (10,000 units), September 18. Nose swabbed with silver nitrate (25, 50 and 75 per cent.) until October 22. Autogenous vaccine in increasing doses from October 22 to December 12. Positive cultures obtained every second day from October 1 to December 1, in spite of the vaccine and local treatment of the nose. Nose swabbed with iodized phenol, December 1 and 3. Negative cultures, December 3 and 5. Nasal discharge greatly decreased in forty-eight hours after first application of iodized phenol; stopped altogether after three days. Discharged, December 13, with no discharge from nose but some erosion. Up to the time of iodized phenol applications, the discharge had been profuse and bloody. December 27, negative nasal culture and no nasal discharge.

CASE 7.—L. C. (B 5449), white boy, aged 4; admitted, November 9, with pharyngeal diphtheria; clear, November 13. Positive cultures, November 18, 23, 27 and 29 and December 1. Swabbed with iodized phenol, December 1 and 3. Positive culture, December 3. Negative cultures, December 5 and 7. Discharged, December 8. December 27, negative culture and throat normal.

CASE 8.—R. W. (B. 5947), colored man, aged 19; admitted November 11, with pharyngeal diphtheria; clear, November 21. Positive cultures, November 29 and December 1. Swabbed, December 1 and 3, with iodized phenol. Positive culture, December 3. Negative, December 5 and 7. Discharged, December 8. December 27, negative culture and throat normal.

CASE 9.—J. W. (B 5702), colored boy, aged 10; admitted, November 11, with pharyngeal diphtheria; clear, November 18. Negative culture, November 25. Positive, November 27 and 29. Negative, December 1. Swabbed, December 1 and 3, with iodized phenol. Positive, December 3. Negative cultures, December 5 and 7. Discharged, December 8. December 26, negative culture and throat normal.

CASE 10.—M. B., female nurse on duty in infectious ward. No clinical diphtheria but tonsillitis. Positive culture, December 6. Negative, December 12. Positive, December 15. Swabbed, December 15 and 17. Culture positive, December 17. Negative, December 19 and 21. Released, December 22. January 8, negative culture. Throat showed old adhesions and bad tonsils. These were present before application of iodized phenol.

CASE 11.—M. C. (B 6825), white girl, aged 12; admitted, December 7, with pharyngeal diphtheria; clear, December 10. Positive cultures, December 17 and 19. Swabbed with iodized phenol, December 19, 21 and 23. Positive, December 21. Negative, December 23 and 25. Discharged, December 26. January 4, negative culture, and tonsils somewhat congested from attack of tonsillitis.

CASE 12.—S. M. (B 5667), colored woman, aged 22; admitted, November 13, with pharyngeal diphtheria; clear, November 19. Positive culture, November 24 and 27 and December 1. Swabbed with silver nitrate every forty-eight hours until November 29. Swabbed with iodized phenol, December 1, 3, 7 and 9. Positive cultures, December 3, 5 and 7. Negative, December 9 and 11. Discharged, December 12. December 27, negative culture; tonsils enlarged and patient had follicular tonsillitis.

CASE 13.—M. M. (B 6932), white boy, aged 4, admitted, December 9, as carrier, gave previous positive cultures. Positive nose and throat, December 11. Throat swabbed,

6. Albert, Henry: The Treatment of Diphtheria Carriers, THE JOURNAL A. M. A., Sept. 27, 1913, p. 1027.
7. Kretschmer: Zur Bekämpfung der Bacillenpersistenz bei Diphtheriere-konvaleszenten, Med. Klin., 1911, vii, No. 3.

December 15, 19 and 21, and negative cultures, December 21 and 23. Nose swabbed, December 15, 19 and 23, and cultures negative, December 23 and 25. Discharged, December 26. January 9, throat and nasal cultures negative; nose and throat normal.

CASE 14.—A. D. (B 6209), white boy, aged 5, admitted, November 23, with laryngeal diphtheria; intubated; tracheotomized, November 27; wound closed, December 18. Positive throat cultures, December 11, 13, 15, 17 and 19. Swabbed, December 19, 21, 23, 25, 27, 29 and 31. Positive culture, December 21, 23, 25, 27 and 29. Negative, December 31 and January 2. Discharged, January 3. January 12, negative culture, and throat normal except somewhat congested.

CASE 15.—H. M. (B 5624), white boy, aged 14; admitted, November 12, with pharyngeal diphtheria; clear, November 14. Positive cultures, November 22, 24, 27 and 29 and December 1 and 3. Swabbed with iodized phenol, December 1, 3, 7, 9, 11 and 13. Positive, December 3, 5, 7, 9 and 11. Negative, December 13 and 15. Discharged, December 16. December 27, negative culture; throat clear and normal in appearance.

CASE 16.—M. G. (B 6849), white girl, aged 8; admitted, December 12, with pharyngeal diphtheria; clear, December 10. Positive cultures, December 17 and 19. Swabbed with iodized phenol, December 19, 21, 23, 25, 27, 29 and 31. Positive, December 21, 23, 25, 27 and 29. Negative, December 31 and January 2. Discharged, January 3. January 9, negative culture and throat normal.

CASE 17.—P. A. (B 5469), white girl, aged 2½ years; admitted, November 9, with nasal diphtheria; nasal cultures positive, November 27 and 29 and December 1. Swabbed with iodized phenol, December 1, 3, 5, 7, 11, 13, 15, 19, 21 and 23. Positive cultures, December 3, 5, 7, 9, 11, 13, 17, 19 and 21. Negative, December 23 and 25. Nasal discharge almost stopped, December 25. January 4, negative culture; discharge still present.

Charity Hospital.

THE FOLLOW UP SYSTEM OF THE PRESBYTERIAN HOSPITAL IN THE CITY OF NEW YORK

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In the spring of 1914 a committee was appointed by Professor Brewer to plan and establish a system for following the end-results for all cases treated by the surgical staff of the hospital. While, previously, individual surgeons had taken pains carefully to look up groups of cases in which they had a particular interest and therefore gave disproportionate attention during and after the hospital stay, nevertheless, the end-results in the great body of routine cases had been neglected.

With the advice and aid of Prof. Adrian V. S. Lambert, a system was devised and put in operation in August, 1914. It is my purpose to describe it and give a report of the first year's work. The system is the outgrowth of one used on a small scale in looking up special classes of cases, enlarged to fit the needs of the entire surgical service. It divides itself into three lines of endeavor:

1. To persuade the patient to return. On discharge from the hospital, he is given a card on which is written a definite date and hour for examination. If he does not appear, he is immediately sent a letter making a definite appointment, a week later. Should he again fail, he is taken up by a social service worker who persuades him to return, or, failing this, obtains as complete information about him as possible.

2. To gain and record the proper notes. In the record room of this hospital the case records are bound in volumes of fifty records each and numbered chronologically according to date of discharge. These volumes are too bulky to be handed about the hospital; therefore the following plan has been followed: When the house surgeon completes the case record, he makes an abstract of it which contains all its essential points. This is copied and sent with a scratch card to the examining surgeon, who thus has the main data of the case and a definite card on which to make his notes. These notes are typed on a sheet of paper which, when the case is closed, is pasted into the bound volume. With the advent of the unit history system, the patient's unit record will be sent complete to the examining room and the notes inscribed directly, with the consequent elimination of the foregoing steps.

3. To maintain the interest of the attending surgeons, they are notified by mail of the various appointments for the next examining day with patients whom they have treated in the wards.

The forms and letters used to carry out the system comprise:

A. The regular hospital bedside or name card.

B. A card given to the patient asking him to return. On one side is printed:

Name ——— No. ———

We are asking you to return to see us for a few minutes in order that we may carefully watch the result of your treatment in the hospital.

By so doing we may give you advice about yourself and learn something which will aid us in treating other patients.

If you will call at the hospital at the time written on the other side of this card you will be directed to the Doctor whom you are to see.

On the other side is printed:

Please come to the hospital and bring this card with you
[Date]

. . . . . .

If you change your address send your new address to
The Presbyterian Hospital
70th Street and Madison Avenue
New York City

C. A letter to be sent to the patient if he fails to return in response to the request on the card:

We asked you to come to the hospital on ——— and have not yet heard from you. As we explained in the last notice, we wish to find out your present condition.

The treatment in the hospital gives different results in different individuals. It is therefore extremely important that we should know your present condition in order that we may be able to give you correct advice and at the same time complete our record of your case.

If you will call at the hospital ——— you will be directed to the doctor with whom you are to consult.

Very truly yours,

———

D. An 8 by 15 sheet so folded as to make a 5 by 8 folder. On the 5 by 8 face is copied the house surgeon's abstract. On the reverse side of the 8 by 10 portion are typed the notes made by the examining surgeon. While the case is still being followed, the whole folder is filed numerically. When the case is finally closed, the 8 by 10 portion is torn off and pasted in the bound volume, while the 5 by 8 abstract retains its place in the file. On the 5 by 8 face is printed:

Name ———	History No. ———
Address ———	O. P. D. No. ———
Permanent Address of Friend ———	Admitted ———
Address of Family Physician ———	Discharged ———
Diagnosis ———	Operator ———
Treatment ———	Date of operation ———

IMPORTANT POINTS OF RECORD

History:
Operation { Procedure:
{ Pathology:
Course:
Condition on Discharge:

At the top of the 8 by 10 portion is printed:

Name ——— History No. ———

E. A carbon copy of the 5 by 8 abstract to be used to hand about the hospital to guard the master sheet from loss. On the reverse side is typed a copy of the current follow up notes.

F. A scratch card for the convenience of the examining surgeon. On one side of this card is printed:

SURGICAL CONDITION

Name ——— History No. ———
Date of Examination ——— Date to Return ———
Effect of treatment on chief complaints (pain, function, deformity, etc.):
Wound closed ——— after operation.
Symptoms developed since operation:

GENERAL CONDITION

Weight ——— Present weight ———
Strength ——— Present strength ——— % of normal
Work partially resumed ——— P. O.
Present earning capacity ——— % of normal
Appetite:
Bowels { Regular { With catharsis / Irregular { Without catharsis
General body systems:
Please remember to fill in the dates at the top of this sheet.

G. A calendar file of twelve monthly guide cards, and under each month five weekly subguide cards.

H. A letter form sent to each attending surgeon notifying him what patients of his are expected to report on the date mentioned:

Dear Doctor:
The following cases operated upon or treated by you are due to report between 9:00 and 11:00 a. m. on Sunday: ———
Name Diagnosis Treatment
. . . . . .

The following is the detailed working of the scheme:

1. During the convalescence the attempt is made by the visiting and resident surgeons and the nursing staff, in conversation, to impress the patient with the importance and desirability of returning to the hospital for subsequent examinations.

2. On the regular bedside or name card (*A*) the house surgeon indicates, under the heading of remarks, the Sunday on which the patient is to return for observation, thus, "second Sunday in January." This first visit is made about two months after discharge from the hospital.

3. The nurse in charge of the ward finds this "second Sunday in January" on the calendar and writes it on the card (*B*) thus "Sunday, January 10, at 9 o'clock in the morning." On the reverse side she writes his name and history number and gives the card to the patient.

4. When the house surgeon completes the record of the case he makes a short abstract following the same headings as indicated on the abstract sheet (*D*).

5. The bedside card and the case record reach the record room in the natural order of events. The record clerk takes the data from them to make out the abstract sheet (*D*). In a column "To Return" at the right of the sheet she types the date set by the house surgeon for the first follow up examination.

6. The carbon copy (*E*) and the scratch card (*F*) are clipped together and filed under this date in the file (*G*).

7. When the date set for examining the patient arrives, all the cards for this date are arranged according to sex and alphabetically and sent to the examining room. At the same time the record clerk makes out the notification sheet (*H*) to each visiting surgeon.

8. The examiner writes his notes on the scratch card (*F*), being very particular to write after the heading "To Return" the date on which the patient is to be next examined. If the case needs no further investigation he writes "Close record." This date starts the whole machinery afresh just as did that indicated by the house surgeon.

9. The cards *E* and *F* are returned to the record room. The record clerk copies the notes on the 8 by 10 section of *D* and on the reverse of *E*. *E* and a freshly prepared *F* are filed under the date last indicated, and *D* returned to the numerical file.

10. If the patient fails to appear, the record clerk knows it because of the blank sheet returned from the examining room. She immediately sends him the letter (*C*), dating it for the next Sunday, when the abstract and scratch card are again sent down.

11. Should he again fail to appear, his name is given to the social worker, who persuades him to return, or, failing this, gains what data she can. Two weeks are allowed for this search, so that by three weeks after the proper date for examination the patient is either reported on in some manner or marked "Lost." Two classes of reports are turned in by the social worker: (*a*) a medical report in which sufficient data are given for determining the present clinical result, and (*b*) an "incomplete" report which, although not containing complete medical information, nevertheless gives some knowledge of the patient's earning capacity, general health, etc.

Of irregular cases there are two important classes: those patients living out of town and those who straggle into the hospital at odd times. The former we have as yet made no systematic effort to follow, although many report by mail in response to the card given them in the ward. The stragglers are referred to the accident room, where on request by telephone the history abstract is sent. The further examination is conducted, as previously described, by the intern on duty.

The personnel required thus far has consisted of one full time assistant clerk in the record room, two assistant visiting surgeons working three hours a week each, and the full time of one social service worker. The latter, in addition to hunting up the cases outside the hospital, aids in the work of the Sunday morning clinic. By so doing she not only keeps more intimate track of the patients and gets to know them individually, but also learns the type of information desired in the follow up work.

One assistant surgeon is designated "the follow up committee," and has general oversight of the follow up work.

RESULTS

	Number		Per Cent.
Personally appeared for examination at the hospital:			
Response to card given in ward	1,018		44.7
Response to letter	526		23.1
Response to social service	213		9.4
Total		1,757	77.2
Medical information obtained directly:			
By letter from patient	44		1.9
Through social service	33		1.4
Total		77	3.3
Information about patient obtained by social service (earning capacity, general health, incomplete medical data, etc.)	252		11.1
Total		252	11.1
Grand total of patients about whom information has been obtained		2,086	91.6
Cases lost:			
Out of town cases not followed	155		6.8
Not found by any part of system	37		1.6
Total		192	8.4
Total patients asked to return		2,278	100

The 2,278 cases recorded in the accompanying table comprise all those followed, including patients asked to come back a number of times, as many as four. Of the cases lost, it should be noticed that there were only 1.6 per cent. which had been the object of the systematic search.

The table states clearly the results of the first year of operation of the system. We feel that the year's average will discount any initial overenthusiasm on the part of those working for the system, as will also a rather opposite attitude of a small number toward added work from another innovation, so that the results indicate what may be fairly expected in New York, whose immigrant population shifts about as frequently as in any city. Possibly the 6.8 per cent. of out of town cases should not be put down as failures; but inasmuch as we have heard from some of them, they have so been classified.

Concerning the clinical data obtained or the disposition of the cases, no tabulation has been made; they are available in each case for those looking up an individual case or classes of cases. Whether or not all types of cases should be followed has been much discussed. The present feeling is that any case serious enough for hospital treatment is worthy of being subsequently followed. Indeed, it has been in the so-called "minor" cases that the greatest surprises in end-results have occurred.

After careful watching of all parts of the system for a year, various improvements have suggested themselves. The adoption of a unit history system will do away with all abstracting and duplication. The notes will be written only once and on the record sheet proper. One of the most difficult steps in the work has been to convey to the patient the reason for asking him to return. The majority of them come back for the first visit merely because we ask them to. The social service worker finds that this lack of understanding is responsible for the failure of the majority of those able to return who fail to do so. In the belief that one used to handling patients from this standpoint, and especially one who will later see them can talk to them better than a changing surgical staff, it is now proposed to have the social worker doing this work attend to the making of all appointments.

Other causes of failure have been those usual in any social work: illiteracy, dissatisfaction with treatment, fear of being dunned for money, giving of false addresses, etc.

Factors working for success have been: the obtaining of accurate addresses, particularly that of a friend having a fixed place of business, the giving to the patients of a clear understanding of the purposes of follow up work, definiteness in appointments and directions, the demonstration of an interest in the patient as an individual rather than a "case," and a certain amount of dispatch in handling the case when the patient returns for examination.

One pleasing feature has been the recent referring of new patients by old ones "because they watch you so carefully afterward."

Disinfection.—Terminal disinfection no longer holds a prominent place in the control of infectious diseases, for the reason that by the time the infective agent has disappeared from the person of the patient, it has long since disappeared from the premises and surroundings.—John S. Billings, M.D., *American Journal of Public Health*, December, 1915.

THE CONTROL OF DIPHTHERIA EPIDEMICS

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For the control of diphtheria epidemics we now have a means which is practical, efficient, and available to any physician. Schick, working in von Pirquet's clinic in Vienna, discovered the value of this test, and therefore it is known as Schick's test. It requires no special technic that is not easily acquired by any physician.

The test depends on the reaction of nonimmunes to an injection of diphtheria toxin, the amount of which is a one-fiftieth minimum lethal dose for a 250 gm. guinea-pig. The necessary articles are a 1 c.c. hypodermic syringe graduated into tenths, a very fine needle, sterile normal salt solution, and the diphtheria toxin. The toxin is diluted in the salt solution according to the strength as determined by laboratory tests. The amount of the solution used will depend on the dilution. It will be found convenient to make the dilution so that approximately 0.2 c.c. will be the proper amount, as it makes a good sized bleb.

The injection should be made into the skin and not subcutaneously. This is easily accomplished if a small bit of the skin is held tightly between the thumb and forefinger of one hand, and the barrel of the syringe in the other is held lower than the needle point. The reaction if positive is shown by an area of inflammation varying in extent from 2 to 5 cm. It is more intense in the center, and endures for about ten days to two weeks, when it gradually disappears, leaving a brown desquamating surface. Those giving such a reaction are susceptible to diphtheria, while those who do not have a natural immunity which is adequate to protect them.

Diphtheria, especially in congested districts and where individuals are brought in close daily contact, spreads very rapidly until every susceptible individual has been attacked. Heroic means have been used to quell the infection and prevent the further spread with but partial success. The fight has been made with throat swabs, quarantine and isolation. These have served to check the progress, and to prevent the disease from visiting every person in the community; still it has not been altogether satisfactory.

The measures most commonly employed in the fight against diphtheria epidemics are throat swabs, quarantining or isolation, as the case may be, of those from whose throats cultures of diphtheria bacilli are obtained. The fault of such a method is that it is never possible, or seldom so, to separate every individual during the time that it is necessary to incubate the cultures and before which it cannot be known who is carrying the infection, and unless that can be done, it is very obvious that during the twelve to eighteen hours in which the cultures are being incubated, those who have infected throats are passing the infection to others, so that when it is known which cultures show the specific organism, quarantine of these persons can bring only partial success in the fight against the further spread of the disease, because of those who have been infected in the meantime. And it is by no means always possible to isolate every person who has been exposed, for even twelve to eighteen hours. Such was the case in the epidemic cited below.

The only other way to put an end promptly to the epidemic is to inoculate every person exposed with a prophylactic dose of antitoxin. This necessitates an expense, half of which may be saved by using Schick's test.

It is therefore plain that the present methods which are commonly employed against diphtheria epidemics are unsatisfactory. They do not at all meet the exigency of the occasion. Schick's test, however, answers all the requirements in that it points out all those individuals who are susceptible, who do not have sufficient natural immunity, and these may be then given a prophylactic dose of antitoxin. In this case it makes no difference if the individuals exposed cannot be isolated, and it saves the expense of injecting all, as a good number will have natural immunity enough to protect them.

The circumstances of an epidemic of diphtheria, which occurred in a school for the blind, is a striking example of the efficiency of the Schick test. The conditions in the school were unusual for the rapid spread of the disease. The organism had fallen on fertile ground both as to physical condition of the noses and throats of the pupils and as to means for its propagation. Every child in school had badly diseased tonsils, and a large majority had adenoids, some of which hung down into the pharynx. They groped their way from corridor to corridor by sliding their fingers along the walls, they felt their way up and down stairs by slipping along the banisters, and they recognized each other by the sense of touch. The library, the books of which were daily handled by nearly every child, became a depository for the germs. On the leaves of these books, as the lines were traced by the infected fingers of the carrier, were left the organisms to be picked up by the next reader. To stop the epidemic before it could get under good headway was imperative. It was thought that the swab method alone might accomplish the desired result, and accordingly all throats were swabbed, 150 in all, and the swabs sent to the State Laboratory of Hygiene, by Dr. Hoyt, the deputy state health officer.

At that time only four cases had occurred, and out of the 150 swabs only four positive cultures were secured. The disease abated for a short while, but in a little over a week two new patients came down, and it was at that time that it was decided to use Schick's test.

The pupils were taken first, having been placed in a line and marched first through the wash room where their sleeves were rolled up to above the insertion of the deltoid muscle, and an arm washed with green soap and water and cleaned with alcohol. They were then marched through the room, where they received their injection, and as each one received his injection a throat swab was taken. After the pupils the teachers and help were treated in the same manner.

Ninety-one pupils were tested, forty-four girls and forty-seven boys, and fifty-six others, which included the teachers in the institute and the help. The arms were inspected for inflammatory reactions at the end of thirty-six hours, and all showing a positive reaction were given 1,000 units of antitoxin. At that time out of the number tested, forty-four showed an undoubted positive reaction, and ten were doubtful. Only ten boys showed a positive reaction. They were all aged 12 years or older. Among the teachers and help, all of whom were past the age of maturity, thirteen gave a positive reaction, and twenty-one out of the forty-four of the girl pupils showed a positive reaction. The doubtful cases showed varying degrees of intensity in the reaction, and therefore only those showing the most pronounced effect of the injection were treated with a prophylactic dose of antitoxin. This was partly because I was a little short in my supply of antitoxin and partly because some of the reactions were judged to be pseudoreactions and therefore would not need any prevention, instead of an incomplete reaction due to the possession of a partial degree of immunity. There were five out of the ten doubtful ones to whom I thought it advisable to give a prophylactic dose of antitoxin. The other five were allowed to go without it. Just one week from that time one of the five who had not been given treatment but who had had a doubtful Schick reaction developed diphtheria. After that no more cases occurred.

In the meantime the swabs which had been taken when the tests were made disclosed six positive throat cultures. Of this number four showed by a positive reaction that they did not possess enough immunity, $\frac{1}{31}$ unit of antitoxin to the cubic centimeter of blood, to protect them, and therefore were given 1,000 units, while one gave no reaction. The pupil giving a negative reaction was undoubtedly a carrier. He was given 1,000 units of antitoxin, as it was thought that perhaps it might aid in securing a negative culture. This was of no avail, however, for he is still a carrier. Many agents have been employed in his treatment, among them being kaolin.

The true reaction is not always easy to differentiate from the pseudoreaction, particularly because there are some who possess just enough immunity to spoil the reaction and not yet enough to prevent them from developing the disease. I am inclined to believe, too, that it is just such persons as these who may show a belated reaction. Even after seventy-two hours there were six pupils and one other who developed marked inflammation, enough to make it necessary to give these an immunizing dose of antitoxin. The induration does not always seem to be a guide, as some of the inflammatory reactions which did not prove to be a result of the toxin injected showed less induration than those which were a result of the toxin. The extent and severity of the inflammation certainly can be no guide, for the variety in this particular is marked. The patient who had a doubtful Schick reaction and afterward developed diphtheria was an example in proof of this, for the reaction in this case was only a small fringe of red around the area into which the injection had been made. However, in every case which showed a susceptibility to the toxin, whether the reaction was extensive or small, tenderness was a marked sign, and complaint could be elicited on slight pressure. Those whose reaction was due to other causes than the cellular response to the toxin seemed to be less sensitive to slight pressure.

Those with extremely sensitive skin may show an inflammatory reaction somewhat similar to those who for one reason or another do not react characteristically. In one case which I observed, in a few minutes after the bleb had been made, the elevation disappeared and in its place was a dark spot. It looked very similar to the marks that are easily made on the skin by some slight bruises. When it was inspected at the end of thirty-six hours, there was a slight flush for considerable area around the dark center, which still remained, but pressure brought no pain. This indi-

vidual was not given any antitoxin, nor did she develop diphtheria.

The whole subject of the control of epidemics of diphtheria may be briefly summarized as follows: Methods commonly employed in the fight against diphtheria are not adequate; Schick's test requires no special technic that cannot be easily developed by any physician, and therefore is available to all; Schick's test is a prompt, economic and satisfactory method of quelling epidemics of diphtheria, when used together with swabs.

MALIGNANT DISEASE OF THE OVARIES

FURTHER STUDIES *

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Two years ago I read a paper before this association on the subject of sarcoma of the ovary. Since that time there have occurred in my practice three cases of malignant disease of the ovary. The occurrence of these cases prompted the further inquiry into the subject of malignant diseases of the ovary and prompted me to write this paper.

Case 1.—Mrs. G., aged 33, came to me complaining of enlargement of the abdomen. She had been married twice and had one child, aged 16. Her general health had been good. I had operated on her seven years ago for a large papillary cyst of the left ovary complicated with pus tubes. She made an uneventful recovery and enjoyed good health. She has not menstruated for two years. Three years ago she first noticed the enlargement of the abdomen. Two months prior to her last visit to me she had had some irritability of the bladder. One maternal uncle and one maternal aunt died of cancer. Examination revealed a large pelvic tumor about the size of a seven month's pregnancy. The scar of the previous operation was quite thin. There was a large lymphatic gland in the right inguinal region the size of a hazelnut. This was said to have appeared three weeks ago as the result of a fall. She was operated on, September 8, and a large multilocular cystic tumor of the right ovary removed. The adhesions were very extensive and close, necessitating the baring of the ileac vessels and the ureter during the operation, together with a removal of part of the uterine wall to which the tumor was attached. The recovery was uninterrupted and the patient remains entirely well up to date. It should be added that there was no ascites.

Unfortunately this tumor was mislaid and destroyed, so it was not subjected to microscopic examination. A particularly interesting feature in this case was that seven years prior to this operation the patient had the opposite ovary removed for a large cystic tumor which was pronounced by the pathologist, Dr. Rhamy, to be a benign papillary cyst. That the pathologic diagnosis of this first specimen was correct I think the history of the case proves. I myself do not think there was any connection between the first tumor and the last. The last tumor removed was as nearly as I can judge from the gross specimen a malignant tumor of the ovary. Unfortunately this question cannot be settled unless there should be a recurrence which would result in a microscopic examination of the growth. The bilateral tendency of ovarian growths is well recognized, and, indeed, has led some men to advise removal of both ovaries whenever the removal of one becomes necessary because of tumor formation.

Silhol[1] asserts that this bilateral tendency is quite as well marked in innocent as it is in malignant tumors. Clark in commenting on Silhol's paper thinks that Silhol's statement is unnecessarily radical; but further on in the course of his remarks says, "Of course, if the original unilateral lesion shows the least suspicion of malignancy, the question assumes a different aspect at once, this only emphasizing, however, the great importance, especially in ovarian surgery, of a thorough knowledge of living pathology on the part of the operator." My experience is quite large, covering hundreds of cases, and I cannot recall ever having been called on to remove a cyst of the remaining ovary after an ovariotomy had been done for like trouble save in the case reported above. I am, therefore, inclined to take an even more conservative stand on this subject than does Clark. I should not advise the removal of what appeared to be a healthy ovary even if its fellow was the subject of malignancy, provided the malignant disease seemed to be confined to the ovary removed. Certainly it seems to me that this should be the rule which should guide us in operating on young women. In women near the menopause there could perhaps be little objection to removing the remaining seemingly healthy ovary.

G. W. Perkins,[2] in a paper in which he analyzes the reports of the Massachusetts General Hospital between 1870 and 1910, reaches the conclusion that "fluid in the abdomen of a child without general anasarca, provided pericarditis and cirrhosis should be excluded, should always be investigated by exploratory laparotomy."

As a result of personal experience, illustrated by the following case, I should be inclined to amend his conclusion by substituting the word "woman" for "child."

Case 2.—Mrs. J. G. B. J. consulted me, Sept. 15, 1915, complaining that her abdomen had been filling up and that there was epigastric distress after meals which was somewhat relieved by food. She had had malaria frequently when a child. She had been married for seventeen years. One child was prematurely born at seven months. During this pregnancy she suffered severely from albuminuria and was quite dropsical. Menses were regular and normal at three to three and one-half weeks. She was subject to sick headaches. The family history was negative. The present trouble commenced with abdominal distress about two and one-half months ago; bloating was severe, and the bowels were kept open with medicine. There was some swelling of hips, thighs and ankles, but this had gone down. The patient gained in weight, but the extremities were thin. Examination revealed a very much enlarged abdomen with fluctuation, and dulness on percussion below and at the sides with the patient on her back, the line of dulness changing with a change in position of the patient. The examination of the urine, blood, heart and liver revealed no cause for the ascites. The Wassermann examination was negative.

An exploratory operation revealed the abdomen well filled with an amber colored fluid and containing a right ovarian cyst about the size of a coconut. The omentum was somewhat shortened and thickened. The opposite ovary was healthy. The cyst was torn during delivery, and a very small part of the contents escaped. Prior to the operation a bimanual examination failed to reveal any sign of this tumor, which proved on examination to be a carcinomatous cyst. It may be of interest to note that with a view to preventing the return of the ascites, I stitched the omentum into the abdominal incision throughout practically its whole length.

Up to the present writing the woman remains perfectly well. It is, of course, probable that she will

* Read before the Western Surgical Association at Des Moines, Iowa, Dec. 17, 1915.

1. Silhol: Progr. Med., 1914, ii, 247.
2. Perkins, G. W.: Internat. Abstr. Surg., July, 1914, p. 54.

have a return of her trouble. However, there was no evidence of involvement of any of the other abdominal organs. The only excuse I had for operating on this woman was that I found an ascites for which I could find no cause. The operative findings proved the wisdom of the course pursued, and strengthened me in the position that I have long held, namely, that fluid in the abdomen should lead to an exploratory operation when the presence of the fluid cannot otherwise be accounted for, and that in women this dictum should be well nigh imperative.

CASE 3.—Mrs. C. G., housewife, aged 48, came to me, July 29, 1915, complaining of a lump in the lower right abdomen. She had malarial fever three years ago. The tonsils had been removed and the nose operated on twenty-two years ago. The menses came at 13 and were regular until last August, at which time, following the removal of a small fatty tumor from the breast, the menses became irregular in that there was a decided tenderness to flow too frequently. Since Easter she had been flowing every day but never very profusely. She had been married eighteen years, and had had three children; the youngest was 15; she had had no miscarriages. The family history was negative. The patient said she did not feel sick but had lost some flesh. The bowels were constipated. The appetite was fair. Examination revealed an even, smooth, firm, movable growth apparently attached to the anterior right aspect of the uterus. I considered the case to be one of fibromyoma and advised its removal. The patient consented to have it done but wanted to go home and await a more convenient time for having the work done.

About three months later she was taken suddenly ill with pain in the lower right abdomen which required morphin to allay. There were some nausea, chilly sensations and hot flashes. I found on inquiry that she had two or three similar attacks but none of them so severe. On examination the uterine tumor seemed to be much larger than when I last saw her. The whole abdomen was tender, especially the lower two thirds. The pulse was somewhat quickened, the temperature 102. The patient was put to bed with an ice bag on the abdomen and allowed no food for three days, when the more acute symptoms subsided and the abdomen was opened, revealing a right ovarian tumor twisted clockwise three fourths of a turn on its pedicle. There was little fluid in the abdomen, slightly tinged with blood. The tumor itself was solid, seemed to be enclosed in quite a perfect capsule, and was dark colored in places owing to extravasated blood consequent on the twist. The tumor on section proved to be solid and mottled, the prevailing color being yellow with some dark red spots as a result of hemorrhage into the substance of the growth. The upper third of the tumor was darker, owing to the fact that in this area there was more extravasation of blood, because of the twist in the pedicle, than in any other parts of the tumor. The pathologist's report was adenocarcinoma with hemorrhagic infiltration.

The gross appearance of this tumor on section is so significant of malignancy that a laboratory report to the contrary would not be accepted unless it was based on a careful examination of the entire tumor; and then I should want to wait until time for further clinical manifestations had gone by, before concluding that it was benign.

Speaking of tumors generally, I should say that negative reports from the laboratory when based on a few sections should never be allowed to outweigh the evidence gained by the examination of the gross specimen plus that obtained from the clinical history. On the other hand, one frequently meets tumors which present little or no macroscopic evidence of malignancy, but which on microscopic examination show unmistakable evidence of malignancy. A case occurring in my own practice recently will serve to illustrate this point:

CASE 4.—An elderly woman presented herself with a tumor of the breast, the character of which I regarded as doubtful. The breast was removed, and on section the mass was found to be made up chiefly of two cysts the size of a chestnut, distinctly separate, movable and containing each a little slate colored grumous fluid. My doubt as to the malignancy of the tumor was so great that I felt warranted in closing the wound while waiting for the pathologist's report. About the time the wound was closed the pathologist reported that the tissue did not look good to him, whereupon the usual radical operation was done. Later on I received a further report from the pathologist in which he says, "A very interesting specimen, as the microscopic picture of malignancy is out of all proportion to the macroscopic."

It will be remembered that in this case and in Case 1 there was no fluid in the abdomen except what might be accounted for by the twist in the pedicle. These are not the only malignant tumors of the ovary that I have found without ascites. It should be remembered, therefore, that while ascites in connection with ovarian tumor is an indication of malignancy, the absence of ascites in ovarian tumors does not necessarily mean benignancy. It is well here to emphasize the point that ascites developing in connection with malignant tumor of the ovary does not mean necessarily an involvement of the peritoneum in the malignant process. Just why some of these tumors are accompanied by ascites while others of them are not remains unexplained. Not infrequently, indeed, as in Case 2, reported above, the ascites may be the only or the principal sign of trouble. My own belief, which is borne out by my experience, is that the rapidly growing tumors are the ones most likely to cause ascites.

G. Kline[3] found on microscopic examination of two malignant papillomas of the ovary immediately under the surface epithelium of the villi, and only there, that the connective tissue was saturated with serous fluid. "This was due to absorption on the part of the tumor epithelium which had taken up fluid from the lymph spaces of the abdominal cavity. This fluid may possibly have atoxic effect on tumors. If this is true, the appearance of ascites in malignant tumors is to be regarded as a protective procedure on the part of the body designed to destroy the tumor. Therefore, the subcutaneous injection of ascitic fluid may be regarded as a rational therapeutic procedure." Concerning the influence of malignant ovarian tumors on the menstrual function, cases are encountered wherein they seem to cause amenorrhea, and others wherein they seem to produce menorrhagia or metrorrhagia. These opposite effects on the menstrual function may be explained very logically, it seems to me, by the overgrowth of ovarian structure on the one hand, or its destruction on the other. However, it is found that some patients suffering from malignant ovarian tumors present a history of amenorrhea followed by menorrhagia or metrorrhagia or vice versa. The explanation for this condition is to me not apparent. In the case histories which I went over in my former paper, I found two patients who had a bloody vaginal discharge which came on years after the menopause. One of my own cases reported in that paper was that of a girl of 15 who had never menstruated though she apparently was quite mature for her age. In this patient both ovaries and uterus were involved in a large sarcomatous growth. (It is interesting to note in this connection that this patient, now more than two years and six months after the operation, is still in perfect health.)

3. Kline, G.: Internat. Abstr. Surg., July, 1914, p. 54.

In Case 1, reported above, the patient menstruated regularly for five years after the removal of the first tumor, but had no menstrual flow for two years prior to her last visit to me. In Case 2 the menses were normal. In Case 3 there was some menorrhagia. I am inclined to attribute this symptom in this case, however, to the twist in the pedicle. I think we are warranted in concluding that either amenorrhea or menorrhagia is much more common in malignant tumors of the ovary than in benign tumors of the ovary, and that both forms of irregularity are equally indicative of malignancy. In my former paper I quote Wermuth as saying that sarcoma in the young may cause premature signs of puberty, and added that I had not been able to find any other author who confirmed this statement, and that it seemed to me problematic. Since that time I have run across a report of the following case by Verebely[4]:

A girl, 6 years old, up to 5 years of age had developed normally. Since a year hemorrhages had recurred monthly and other signs of puberty had appeared. The child was about 4 inches taller than one of corresponding age, and the breasts, which were the size of lemons, contained glandular structure. In the axillae, as well as the pubic regions, there was an abundant growth of hair. The labia were thick and pigmented and the vagina of abnormal size. Examination of the abdomen revealed a nodular tumor of the size of a child's head connected with the left side of the uterus. At the operation a very vascular ovarian sarcoma was found. The uterus was of the size of that of an 18 or 19 year old girl, the right ovary being normal.

THE CITY'S NEED OF A PSYCHOPATHIC CLINIC*

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The first psychopathic clinic established in this country was the hospital at the University of Michigan. The best practical illustrations of this type of institution which we find in this country are the Henry Phipps Clinic in Baltimore and the psychopathic Clinic in Boston; the latter, although controlled by the state, is closely affiliated with the scientific activities of Harvard University. These clinics do not present any of the features of the old asylums, and are modern hospitals in every sense of the word. Not only are they well equipped for taking care of patients, but also they are supplied with many facilities essential for carrying on research in very important fields. Fully 90 per cent. of the patients at the Phipps clinic are classed as "voluntary." The old asylum no longer exists in the modern conception of psychiatry.

As to the reasons for the establishment of psychopathic clinics, those may be mentioned first which are in effect an *argumentum ad hominem*. According to the statistics collected by Dr. Thomas W. Salmon for the National Committee on Mental Hygiene, in 1910 there were 184,000 students in colleges and universities, and in the same year there were 187,000 patients in the hospitals for the insane. The financial cost of maintaining these patients in institutions from 1904 to 1915 would call for the expenditure of $150,000,000 more than the sum expended in the building of the Panama Canal. In the state of New York at present there are about 32,000 patients in the hospitals for the insane; of this number 15,000 are aliens and 9,000 are foreign born. I think we all agree that although immigrants who have sound minds and sound bodies are both required and desired, we should not be expected to take care of the large number of feebleminded persons and the insane shipped to this country from Europe. When we reflect on the significance of the statistics just quoted and remember the startling incidence of functional nervous diseases, we find signs both tragic and alarming which indicate the necessity for radically changing our present methods in attacking these great biologic problems.

To refer to the medicolegal aspect of the problem, enormous sums of money are squandered in prosecuting individuals who are of unsound mind, when, by the introduction of a different system of examining patients, justice would be done to the individual and large sums of money would be saved for the community; and society would be more effectively protected against the overt acts of irresponsible persons.

Unfortunately, through the lack of proper facilities, psychiatry has not received from the medical profession the attention it has deserved. This important branch of medicine is practically an unknown field to the majority of physicians. Patients afflicted with psychoses come under observation, through the failure to recognize the initial stages of the disease, only at periods when the pathologic process has reached an advanced stage of development. If these conditions are allowed to continue, the menace to our civilization will become far greater than that of war. We must attack the problem from a point at which there is some prospect of success. Greater facilities must be given to physicians for studying the initial stages of mental disorders; and the public, particularly parents and teachers, should be trained to recognize the danger signals in order that intelligent assistance may be summoned before disaster is imminent.

My experience at Princeton University has convinced me that teachers should be trained to attack the problems of education from the broad biologic and not the scholastic point of view. Through the courtesy of my colleague, Dr. Joseph C. Raycroft, head of the Department of Hygiene at Princeton University, I have had the privilege of talking to students who have had difficulties in adjusting their lives satisfactorily. In a relatively small university community the number of students who came voluntarily to seek advice was a large one. You will pardon me if I emphasize the importance of my experience, as I believe that it is a unique one, and it has brought home to me as nothing else could do the necessity for the practical realization of the fact that life is a process of adjustment, and education should be a process of assisting human beings to the successful adaptation of their activities.

Many of us are accustomed to use the phrase "life is a process of adjustment" without appreciating its applicability to the activities taking place in the higher levels, such as consciousness. We do not need to be reminded of the familiar phenomena of adjustments in the reflex and automatic levels, but many medical men fail to appreciate the fact that all our conscious activities represent mechanisms of adjustment. When I address an audience I make an effort to adjust my activities to the environment, by maintaining my bal-

4. Verebely: Sajous's Analytic Cyclopedia of Practical Medicine, 1915, vii, 256.

* Read before the Physician's Club, Chicago, Nov. 23, 1915.

ance, mental as well as physical, by modulating my voice and by trying to present the subject under discussion so as to stimulate and maintain interest without arousing animosity. All these responses represent biologic reactions, and the important thing for us to remember is that if we restrict our attention merely to the study of the conscious phenomena, we shall probably not succeed in gaining a comprehensive view of the various mechanisms concerned. The reactions must be studied as units expressed either in thought or behavior, in consciousness as well as in automatic or reflex movements. If we desire to know more about the machine we must also be familiar with the functions of different internal organs, analyze the relationships existing between the parts, and finally study the integration of the different functions as expressed in behavior.

In the study of the human machine it was quite natural that the attention of physicians should be first attracted to the relatively simple functions of the different internal organs, while less attention was paid to the complicated synthesized activities expressed in thought, word and speech. Unfortunately the psychologist embarrassed by his metaphysical traditions studied the conscious processes as if they were not related directly to the other reactions of the organisms. From the study of the abnormal much has been learned that is useful in interpreting normal functions. This principle is true for all the different levels of activity, whether they are reflex, automatic or conscious. Many of the interesting cases of "forgetting" which we observe illustrate the intimate dependence of the higher on the lower levels. A student recently complained to me that he was unable to remember certain important formulas, and this defect of memory had become so serious as to suggest to his mind the advisability of giving up his university work. In conversation it soon became apparent that this young man was trying hard to repress the memory of certain unpleasant incidents, and although he had been partially successful in accomplishing this object, he had also established a series of mechanisms which threatened to interfere seriously with his intellectual processes.

There are many other experiences gained in the study of abnormal phenomena which may be utilized in assisting us to solve some of the great problems presented by civilization. If physicians were able to gather more extensive information than that yet acquired in regard to the nature and genesis of the mechanisms concerned in the formation of prejudice, hatred and envy, the progress of civilization would be accelerated. From the study of the paranoiac as well as other unfortunate individuals who are subject to fixed ideas, it is obvious that the education of the emotions is of more fundamental importance than training the intellect. The absence of prejudice and the capacity of our minds to perceive and accept the truth depends more on the regulation of feeling than of thinking. The dangerous conflicts which are precipitated are those arising from the incoordination of feeling and thinking. We are all familiar with "the shut-in" type of individual who tries to conceal all evidences of the dissociation existing between his emotional and intellectual life. In cases of dementia praecox we have an excellent illustration of the accumulated power of impulses which often destroy all the defenses and drive the individual to the performance of insane acts. Patients of this type also illustrate in a striking manner a principle which should be recognized by all those who call themselves educators, namely, the necessity of teaching young people to face the world of realities and not adjusting their activities temporarily to an imaginary world until driven by fate to face the common facts of existence.

There should be better opportunities offered to physicians than exist at present for applying many of the facts discovered by experiment in regard to the nature of the mechanisms conditioning the emotional life to assist in the interpretation of the behavior of human beings. In this connection I have only to recall to your mind the important investigations carried on by Prof. W. B. Cannon of Harvard and his pupils in regard to the relation of the functions of the suprarenals and other organs to such conditions as hope and fear. In my own experiments made on the vertebrate embryo I have been impressed by the necessity of studying the nervous reactions in relation to the development of functions in such organs as the thyroid, thymus and suprarenals, as it is evident that when the organism first begins to respond to incident stimuli these organs have received a nerve supply and may be said to form an integral part of the nervous circuit.

The establishment of a psychiatric clinic not only is evidence of increasing interest in the study of psychiatry, but also marks an intelligent desire to study human beings. The present crisis in civilization should not make us pessimists, as it was not until Pinel in 1798 published his "Nosographie philosophie" that there was any sign given indicating man's interest in the study of his own activities.

Pinel, as you know, not only was responsible for the introduction of more humane methods in the care of the insane, but he also opened up a new field of investigation by showing that one of the chief avenues of approach to the study of normal human activities was by analyzing the mechanisms of the abnormal mind. He suggested many problems, the solution of which would have an intimate bearing, not only on the nature and causes of alienation, but also on questions of fundamental importance to the educator and the student of social phenomena.

I need not recall the importance of offering better facilities than those now existing for training physicians in psychiatry; but there is one phase of a great problem which has not received the attention it deserves, namely, the important duty the modern alienist has to perform in assisting in the reorganization of our entire educational system. We have seen how important it is for our civilization that the public should be made to appreciate the significance of the phrase, "Life is a process of adjustment," and that eduction is not a method for acquiring information but a means for securing the successful adaptation of an individual to a suitable environment. The old scholastic ideals of education are beginning to disappear, and in their place, thanks largely to the work of the modern alienist, a new system is developing which takes into account the biologic needs of human beings. If the government "of the people, by the people, for the people" is to be successful, it is essential that the activities of the individual citizens, and the laws controlling the relationship existing between these social units, should be recognized, and society assisted to develop along the lines which are in accordance with the principles governing human life.

It will be unfortunate if we do not take to heart one of the great lessons taught by the present European conflict. Is not civilization paying today for man's

failure to take an intelligent interest in the study of his own activities? We know that the most serious conflicts which arise in the life of any person are not directly due to disorders in the field of consciousness, and this is equally true for the individual and the nation. Whenever human beings or nations create an imaginary world in which they attempt to live until some disaster necessitates a sudden readjustment of the fictitious environment to meet the conditions of actual facts, a crisis of major importance is precipitated. From the dawn of history to the present time the thoughts, words and deeds of an imaginary human race have been written for us by philosophers, poets and historians. Conceptions of religion and patriotism, ideals of social justice, and aspirations for the future have been associated in our minds with the imaginary emotional reactions of an idealized race of beings, and now we have been rudely awakened to the necessity of studying men as they live, move and have their being.

REMOVAL OF TONSILS AND ADENOIDS IN DIPHTHERIA CARRIERS*

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The importance of promptly ridding the diphtheria carrier of diphtheria bacilli needs no emphasis. Not only may the carrier spread diphtheria, but in children the loss of school days and the difficulties of quarantine are serious matters. In hospitals for infectious diseases, the presence of otherwise healthy patients for a prolonged period, with occupation of beds needed for those actually sick, and with the constant liability to cross infection, is, to say the least, burdensome. In this hospital it has been found, as will be reported soon in detail, that dry and finely powdered kaolin properly applied materially shortens the necessary stay of patients in the hospital. In the course of observation, however, several instances have been met in which the local application of kaolin[1] seemed to be without any effect on the bacilli. In view of the prompt disappearance of the bacilli in these cases after tonsillectomy and removal of adenoids, it seemed advisable to make a brief report of the results.

CASE 1.—Boy, aged 13, onset June 4, admitted June 8; 20,000 units antitoxin, a case of moderately severe pharyngeal diphtheria. Kaolin was applied daily from June 14 to July 30 but without effect. July 31, the tonsils and a small amount of adenoid tissue were removed. The tonsils were large and irregular, with large crypts. The cultures became negative immediately following the operation, after having been positive for fifty-seven days before.

CASE 2.—Girl, aged 14, onset September 6, admitted September 9; 40,000 units antitoxin, a case of severe pharyngeal diphtheria. The bacilli persisted in spite of the use of kaolin until October 21, and then the tonsils, which were large and with deep crypts, were removed. The cultures became immediately negative.

CASE 3.—Girl, aged 8½ years, onset October 20, admitted October 26; 20,000 units antitoxin, a severe case of pharyngeal diphtheria. The bacilli persisted to November 27, and then the tonsils, which were large and ragged, and a moderate amount of adenoid tissue were removed. The cultures became promptly negative for diphtheria bacilli.

CASE 4.—Woman, aged 21, onset November 15, admitted November 17; 25,000 units antitoxin, a case of moderately severe pharyngeal diphtheria. The cultures from the throat and nose continuing positive, the tonsils were removed, December 8, the right being large, irregular, with many crypts; the left small and submerged. The cultures were positive for two days after the operation, and thereafter negative.

CASE 5.—Girl, aged 11 years, onset November 7, admitted November 9; 20,000 units antitoxin, a moderately severe case of pharyngeal diphtheria. The cultures from the nose being positive, the tonsils, which were moderately enlarged and irregular, with numerous crypts, were removed, December 8, whereupon the cultures became negative.

CASE 6.—Boy, aged 8½ years, admitted as a carrier without symptoms of intoxication and treated with kaolin from November 7 to December 13; then the moderately enlarged and irregular tonsils were removed (Dr. E. McGinnis), the cultures immediately becoming negative.

In none of these patients did the operation have any different general effects than it has ordinarily. In all of the patients the Schick test gave negative results just before the operation. Six successive negative cultures were required before the patients were discharged.

The results obtained in this series indicate clearly that in persistent carriers it may be necessary to remove the tonsils and adenoid tissue if it is desired to terminate promptly the carrier condition.

The bacteriologic examination should be made with care, as it is well known that applications of medicinal agents may destroy the bacilli on the surface while leaving unaffected those in the crypts of the tonsils and the folds of the adenoid tissue.

As to the time the operation should be performed, it is perhaps advisable to wait from two to three weeks after the clinical recovery of the patient. In the case of the chronic carrier, no time limit is of course necessary.

* From the Durand Hospital of the Memorial Institute for Infectious Diseases.

1. Hektoen, L., and Rappaport, B.: The Use of Kaolin to Remove Bacteria from the Throat and Nose, THE JOURNAL A. M. A., June 12, 1915, p. 1985.

CONGENITAL ATRESIA OF THE ESOPHAGUS

REPORT OF A CASE*

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Owing to the comparative infrequency of this condition, the following case is considered of sufficient interest to report:

History.—Soon after the birth of a full term girl, born in normal labor with a birth weight of 7 pounds, it was noticed that mucus ran from the baby's nose and mouth, and that apparently she could not swallow water given her and regurgitation through the month and nose occurred, associated with severe coughing and an extreme blueness of the skin. During these three days before the baby came under our care, there were apparently numerous meconium movements.

Physical Examination.—The baby was rather poorly norished but fairly well developed. The skin was dry from the loss of water but not yet tough. There was a slight general cyanosis, especially of the finger tips. There was a more or less constant discharge of mucus from the nose and mouth, both stringy and containing air. There was a unilateral harelip and a complete cleft palate of the same side.

* From the Children's Orthopedic Hospital.
* Read before the King County Medical Society, October, 1915.

The separation involved the alveolar process and the hard and soft palates.

The heart, lungs and abdomen were apparently normal. A small mouth feeding of water was immediately regurgitated, bringing about a severe attack of coughing with cyanosis.

On passing a No. 14 (F) Hess duodenal catheter, definite obstruction was encountered 11.5 cm. from the mouth. At this age the normal distance from the mouth to the cardiac end of the stomach is about 17 cm.

The diagnosis of congenital obstruction of the esophagus was now definitely established.

Operation.—A gastrostomy was performed on the fourth day of life in order to feed the baby artificially. A small sized rubber catheter was fastened into the stomach and brought out through the left rectus incision. Shortly after the operation it was noted that when more than a teaspoonful was run into the stomach, an attack of coughing and strangling would come on, as had previously been produced by attempts at feeding by mouth. After even larger stomach feedings, milk was seen to run out of the mouth.

The infant became progressively weaker and died on the seventh day.

Necropsy.—The upper end of the esophagus ended in a blind pouch 3.3 cm. below the epiglottis. With gentle traction this pouch could be elongated to 4 cm. The diameter was uniformly about 1 cm. The lower portion of the esophagus extended definitely from the bifurcation of the trachea to the cardiac end of the stomach. This portion was about 3.5 cm. long, and at the bifurcation communicated directly with the trachea. Between the upper and lower portions there was only a fibrous band.

There are several different types of congenital obstruction of the esophagus. This is the common or "inosculating" type, in which the upper portion ends blindly in a dilated pouch and the lower portion passes from the stomach into the trachea. The frequency of this type suggests a uniform embryonic origin. It is not uncommon, as in this case, to find associated defects in development, such as harelip and cleft palate. In view of the difficulty we encountered in feeding through the gastrostomy opening, as indicated by coughing up of the milk placed in the stomach, a jejunostomy would seem better suited for this condition.

The outlook at best is hopeless. Operative procedure only postpones the fatal termination, since there is little likelihood that a plastic operation on the middle of the esophagus would be possible on a baby of this age.

Milk of Immunized Cows in Tuberculosis.—A committee of New York physicians including Dr. Haven Emerson, the commissioner of health, in 1915 made an investigation of the suggestion of Rosenberg that cows might be immunized against tuberculosis and that their milk would benefit persons with tuberculosis. Rosenberg suggested that the milk of cows treated with tuberculin contained antibodies which would be absorbed from the intestines of persons taking such milk. The two questions, the absorption of antibodies from the intestine and the production of antibodies by the vaccination of cattle with tuberculin, were studied by the committee. They found that antibodies were readily absorbed from the intestine during the first few weeks after birth, but they did not consider it proved that they would be absorbed after the first two or three months of life. The production of antibodies was attempted by the use of typhoid bacilli in a cow. A cow was immunized with this organism and after a large amount of agglutinins was developed a calf several months old was fed on the milk of the cow. The blood of the calf showed a slight power to agglutinate typhoid bacilli. The committee concluded from their experiments that up to the present we have no evidence that the milk from cattle immunized against tuberculosis, as suggested by Rosenberg, is of any advantage to those having tuberculosis.

THE FUNCTION OF THE THYROID-PARATHYROID APPARATUS*

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During the past eight years Plummer has been making an extended clinical study of thyroid disturbances in several thousand cases of hyperplastic and colloid goiters, and has gradually formulated the following basic hypotheses:

1. In thyroid disturbances the effects are due to a change in the rate of a normal function.
2. The stimulating effect of increased thyroid activity is not felt in any particular set of organs or tissues alone, but the stimulus is active throughout the body.
3. The stimulating action is intracellular.

I wish at this time to draw attention to these fundamental aspects of thyroid disturbances, since they were formulated prior to the work reported herein, and any theory of the function of the thyroid should at least fulfil the conditions Plummer outlines.

Several months ago I reported the isolation from the thyroid of a crystalline substance containing 60 per cent. of iodin and possessing the physiologic activity attributed to the gland. My attempts to repeat the preparation of this substance were unsuccessful for fourteen months. A chance observation furnished the clue that carbon dioxid is a factor of great importance in the purification. This fact explained the failures of many months, led to the perfection of the method for the isolation of the substance, and threw much light on the structural formula of the compound.

The method of separation and final purification of the crystals strongly suggests that the bond linking the iodin compound to the protein constituents is through an amino group, and that the purification is effected by the entrance into the iodin compound of carbon dioxid in place of the amino group.

At the time of the first isolation of the crystals, the solubility of the substance in sodium hydroxid and its insolubility in sodium carbonate suggested that we were dealing with phenol groups and not carboxyl. I, therefore, suggested as the possible formula for the substance di-iodo-dihydroxy-indol. The more recent work on the structural formula makes it appear to be carbonic acid in which one of the hydrogens is replaced by di-iodo-indol.

The chemical behavior of the compound throughout the course of its purification corroborates this hypothetic structure, but sufficient work has not been done to make it certain. If further work confirms present indications that there is present a CO_3H structure, and that this may easily be replaced with the amino (NH_2) group, it will strengthen the following hypothesis for the physiologic activity of the substance.

Under proper conditions, the interaction of the amino group of an amino acid and the CO_3H group of the iodin compound results in a transfer of the carboxyl (CO_2H) group from the iodin compound to the amino acid, and of the amino group from the amino acid to the iodin compound. In the presence of carbon dioxid there is another exchange between the amino group now attached to the iodin compound and carbon dioxid, the result being the reformation of the iodin compound with the carboxyl structure and the

* From the Mayo Clinic.

removal of the amino group in combination with carbon dioxid. The iodin compound has entered into combination, allowed the reaction to take place, and has been regenerated in its original form without alteration or destruction.

The amino group removed from the iodin compound and joined to carbon dioxid is a by-product of the reaction, which in the presence of water, of course, exists as ammonium carbonate. Without entering into the details of this reaction, the net result is the deamination of the amino acid.

When protein is catabolized in the body, nitrogen is not excreted as ammonium carbonate, but appears chiefly in the form of urea. Some mechanism must exist for the conversion of the ammonium carbonate resulting from deamination into urea. It is known that after parathyroidectomy the ammonium content of the urine is increased, and it has been suggested that the tetany following parathyroidectomy is due to this increase in ammonia. The acid radical to which the ammonia is attached has not been determined, but it has been shown that soluble salts of barium, strontium, calcium and magnesium relieve the tetany following parathyroidectomy, and it has also been shown recently that the tetany is controlled by the injection of acids.[1] The only salt of ammonia which can react with all five of these reagents forming a nontoxic compound is ammonium carbonate. From the results of previous investigators, it seems probable that ammonium carbonate is responsible for the tetany following parathyroidectomy, and *it is here suggested that the function of the parathyroid is to convert ammonium carbonate into urea.* The production of urea has not been shown to be confined to any one special organ, and it has been pointed out that in all probability it is produced throughout the entire body.[2] If the thyroid secretion is the catalyzer controlling the rate of deamination of amino acids, and the parathyroid furnishes the mechanism for the conversion of the so formed ammonium carbonate into urea, then urea (and ammonia) output by the body is within certain limits a measure of thyroid-parathyroid activity. It is apparent that in a sphere of reaction wherein proper conditions exist for the deamination of amino acids, all other conditions being constant, the speed of the exchange of the amino group for carbon dioxid is directly controlled by the amount of the iodin compound present, and that in the entire absence of this substance, although amino acids are present, no action can take place.

The above suggested principles furnish a means for the study of the factors controlling the activity and the manifestations of animal life. No complete hypothesis can be formulated at this time, when many other factors remain so obscure, but the process occurring in the normal animal may be outlined as follows: The body proteins are decomposed to a slight extent into amino acids. These, under proper conditions and in the presence of the iodin compound, are deaminized, and the products of this reaction are then burned either directly into carbon dioxid and water, or are used for the formation of carbohydrates, fats, etc. If, for any cause, an increase in the amount of the iodin compound in the cell is brought about, the speed at which this reaction takes place is increased, the equilibrium between proteins and amino acids is disturbed, more amino acids pass into the reaction, and ultimately, the proteins unless replenished, are exhausted. At the same time, the products of the reaction, deaminized acids, are formed in increased amount. This results in an increased speed of the processes of oxidation and the formation of carbohydrates and fats. The delicately balanced relations between proteins, carbohydrates, fats and oxidation are, therefore, affected at a vital point since the equilibrium of the entire body is changed and the speed of reaction of all body functions is increased.

The presence of the deaminizing catalyzer does not affect the mechanism of the formation of body proteins from foreign proteins, or the decomposition of body proteins into amino acids. There is no direct change in the mechanism entering into the metabolism of carbohydrate and fat formation and oxidation. The only thing which is influenced is the rate at which deamination occurs. If this hypothesis be correct, *we may conclude that the function of the thyroid is to furnish a catalyzer which regulates the rate of deamination.*

Woodyatt, from a study of chemical dissociation and the equilibrium existing in the body, has already suggested that "the thyroid may be concerned with the dissociation of amino acids or polypeptids derived from the breakdown of protein." The function of the gland presented in this paper is in entire accord with this hypothesis, and furthermore shows at just what point this influence is exerted.

Having outlined the function of the thyroid-parathyroid apparatus under normal conditions, we may follow the effects of an excessive secretion. The presence in the cells of an increase of the iodin compound produces a condition precisely similar to that found during violent exercise. It is simply an increased rate of the normal functions of the body. An increase of from 200 to 300 per cent. in the rate of metabolism has been found in cases of exophthalmic goiter. This is going on at a temperature maintained but slightly above normal, and it is apparent that the usual controlling mechanism for temperature regulation is not broken down. However, at death from exophthalmic goiter, a crisis is frequently seen in which the controlling mechanism does break down, the temperature reaches 106 or more, and metabolism apparently runs wild. Stated another way, we are normally living at a rate of from one-third to one-half our possible capacity. Some of the factors other than the iodin compound controlling the rate of protein metabolism are probably the rates at which proteins are converted into amino acids and the rates of removal of the products of deamination.

The other extreme of cell activity is found in myxedema. Here metabolism is at a minimum. It is probable that the amino acids and proper conditions for their deamination are present, but the catalyzer or vehicle by which this process is brought about is present in too small an amount to supply the normal demands. There is no more striking result in therapeutics than the change produced in a patient suffering from myxedema by thyroid administration. The entire absence of the iodin compound from cells would mean a metabolism at zero rate, in other words — death.

The catalytic activity of the thyroid secretion is probably a function carried on within the cells of the body. The life and activity of every individual cell is depen-

1. Wilson, D. Wright; Stearns, Thornton, and Janney, Jr., J. H.: The Effect of Acid Administration on Parathyroid Tetany, Jour. Biol. Chem., 1915, xxi, 169.

2. Folin, Otto, and Denis, W.: Protein Metabolism from the Standpoint of Blood and Tissue Analysis, Jour. Biol. Chem., 1912, xii, 141.

dent on the amount of the iodin compound in it. It is obvious that during different periods of rest and activity the organs require varying amounts of the iodin compound. We can, therefore, assume that the function of the thyroid is not only to elaborate this substance, but also to supply the cells of the body with the amount necessary to meet the momentary demands of each cell. But after cell activity has been heightened by an increase of the amount of the iodin compound present, there must be some mechanism for the subsequent removal of some of the catalyzer from the cells and for carrying it back to the thyroid, there to be held until again demanded. The vehicle for carrying the iodin compound from the gland is probably the colloid found in the thyroid secretion. It is suggested that the balance between free amino acids and colloid may be the mechanism governing the supply and demand for the catalytic substance. Previous investigators have produced hyperplasia in lower animals and fish by feeding a protein diet.[3] The presence in the blood of abnormal amounts of amino acids may be a stimulus to the activity of the thyroid.

The clinical picture seen in the group of cases pointed out by Plummer as toxic nonexophthalmic resembles the condition which results from the overstimulation of the gland as produced by Cannon, and from thyroid feeding. This clinical group probably represents the maximum effect which it is possible to produce by direct stimulation of the glands through the nervous control. In these cases it is probable that the mechanism converting proteins into amino acids is not disturbed. There simply is an increased rate of deamination, resulting in what may be called a "pull" on the proteins to supply more amino acids. In contrast to this is the greater rate of metabolism seen in exophthalmic goiter. The stimulus in the first group of cases may have been direct on the thyroid; the stimulus in the exophthalmic group of cases may come from an increase of amino acids due to a disturbance in the mechanism converting proteins into amino acids. This would result in what may be called a "pull" on the thyroid for an increased activity, driving it, as Plummer has suggested, through the hypertrophic and colloid stages into the hyperplastic condition. The latter condition, once established, is a vicious circle.

If the foregoing hypothesis of the function of the thyroid-parathyroid apparatus proves tenable, its application to the explanation of biologic phenomenon is apparent, but further elaboration of the hypothesis will not be attempted until after a quantitative study of the factors involved.

3. Bensley, R. R.: The Influence of Diet and Iodides on the Hyperplasia of the Thyroid Gland of Opossums in Captivity, Am. Jour. Anat., 1916, xix, 57. Marine, David, and Lenhart, C. H.: Further Observations and Experiments on the So-Called Thyroid Carcinoma of the Brook Trout (Salvelinus Fontinalis) and its Relation to Endemic Goiter, Jour. Exper. Med., 1911, xiii, 455.

Professional Dishonesty.—Conventional dishonesty of professional dealing which more than anything else is consequent upon a disposition to follow the line of least resistance, is of far greater significance and gravity. This is the field in which the eminently respectable, highly successful, intensely popular physician can find his fullest scope without being personally challenged either by his neighbor or by himself. The results of his deviating are remote and indirect and largely detached from his personal relations. In the aggregate, however, they constitute the factor of instability in the structure of professional reliability and value.—Henry B. Favill, *Pennsylvania Med. Jour.*, November, 1915.

STRANGULATED FALLOPIAN TUBE, OVARY AND INTESTINE IN AN INFANT

GEORGE ABELIO, M.D.
CHICAGO

Inguinal hernias, the contents of which consist of the fallopian tube or ovary, or both, are not common. The association of the internal genitalia with intestine in a hernia in a strangulated condition, if not a surgical rarity, is an interesting condition. Hence, the report of this case.

An excellent summary of the entire English, French and German literature on the subject of ovarian, tubal and tubo-ovarian hernias, covering the period of 1890 to 1910, is given by Heineck.[1] I have attempted to collect instances reported since 1910, up to date. Simple inguinal hernias of the fallopian tube are recorded by Tourneux[2] and Giuliano,[3] while Cessare,[4] Humbert[5] and Rabinovitz[6] report inguinal hernias, the contents of which were the ovaries. The latter's case was of unusual interest, occurring in a woman of 35, being a double ovarian hernia associated with total absence of uterus and a rudimentary vagina. Petit de la Villéon[7] records ovarian hernias in two infants. A strangulated ovarian hernia,[8] torsion of an ovarian pedicle[9] in an inguinal hernia, strangulation of a fallopian tube[10] in a hernia, a suppurating inguinal ovarian hernia,[11] and an ovarian hernia associated with a strangulated transverse colon,[12] these hernias with involvement of the internal genitalia, are on record.

My own case, referred for operation by my father, occurred in a girl aged 11 months. Breast-fed, and with no febrile or diarrheal disturbances of any sort, she was perfectly healthy until three months ago when a mass in the right inguinal region made itself manifest, the appearance of which was associated with apparently severe abdominal pain and vomiting. Prior to this, no such mass had been noticed by the parents. A local doctor accomplished reduction readily, with complete subsidence of the symptoms. She had had four similar attacks since, all consisting of the rapid appearance of an inguinal mass associated with pain and vomiting. Taxis was as successful in three of these attacks as in the first instance. About four weeks ago the baby was brought to Dr. J. M. Abelio with this history:

A mass appeared in the right inguinal region forty hours previously; the baby began to cry as if in severe pain; vomiting set in, and had continued at times since. Unsuccessful attempts at reduction by another physician had already been made. She had had no bowel movement for about forty-eight hours. Examination revealed a somewhat distended abdomen, not by any means tense, and a right inguinal mass, about 5 cm. in diameter and elevated above the normal skin level to the extent of about 2 cm. This mass was exquisitely tender and very tense. Immediate operation was advised, and, after a delay of about six hours, because of indecision on the part of the parents, performed.

An oblique incision above the mass displayed a well-formed, spherical, tense dark-colored peritoneal sac bulging directly forward through the external ring. The sac was carefully

1. Heineck: Surg., Gynec. and Obst., August, 1912.
2. Tourneux: Rev. mens. de gynec., d'obstét. et de pédiat., viii, 484.
3. Giuliano, E.: Gazz. d. osp., 1912, xxxiii, 1475.
4. Cessare: Ressyna dispediat., Parma, 1911, ii.
5. Humbert: Union Med. du Nord-est. Rheims, 1914, xxxvii.
6. Rabinovitz: Med. Rec., New York, 1915, p. 586.
7. Petit de la Villéon, E.: Jour. de méd. de Bordeaux, 1913, xliii, 644.
8. Domenichini, G.: Bull. de Soc. med. de Parma, 1913, Series 2, vi, 60.
9. Veau: Arch. de med. d'Ing., 1911, p. 36.
10. Caneva: Osp. maggiore, 1913, Series 2, i, 31.
11. Waddelow, J. J.: Lancet, London, 1911, ii, 760.
12. Dervaux: Bull. et mém. Soc. de chir. de Paris, 1911, N. S., xxxvii, 108.

nicked and the opening enlarged with scissors blunted on the end. The contents then came into view. These consisted of a large almond-sized mass, readily recognized as the ovary, to the postero-external aspect of which was a tiny fallopian tube. Posterior to both was a knuckle of dark-colored small intestine. Very slight traction on the intestine was made, a Kocher director inserted between it and neck of the sac and the latter nicked enough to enable reduction of the herniated viscera. Several minutes after the release of the constricting neck, the ovary had reduced about 100 per cent. in size, and the intestine became a very deep red. Satisfied that there was a proper return of circulation to the involved viscera, I returned them very carefully to the abdominal cavity. The opening in the peritoneum was closed, muscle and fascia approximated to Poupart's ligament, and the lower leaf of the external oblique imbricated over this line of sutures. The skin was closed with silkworm-gut, and the whole covered with a gutta-percha collodion dressing (the gutta-percha edges being sealed to the skin with ether, a layer of gauze placed over this and held there by collodion generously applied), a very efficient protective dressing. Three hours after the operation, a copious, very foul smelling bowel movement resulted. The convalescence was uneventful.

25 East Washington Street.

Therapeutics

BACKACHE

(*Concluded from page 741*)

SACRO-ILIAC PAIN

Lumbago, lumbosacral nerve pains, uterine displacements, coccygodynia or coccyalgia, hemorrhoids and bone disease or bone tumors are not now a sufficient diagnosis to account for all the kinds of backache of the lower part of the spine. Orthopedists have long shown that backaches may come from weakness or broken arches of the feet, as suggested above, throwing the whole center of gravity so far off as to cause pain in the muscles of the back in the effort of these muscles to keep the body in proper equilibrium. They are now teaching the practicing physician, the gynecologist and the surgeon that many backaches are due to a relaxation of the sacro-iliac joints, to inflammation in these joints, and sometimes to degeneration of the bones of these joints. This kind of backache occurs most frequently in women.

It was long believed that the sacro-iliac joint was not intended to have much motion. It has been learned, however, that it has a very valuable and necessary function, and when disabled causes symptoms. These joints may suffer from arthritis due to an infection, rheumatic or otherwise. They may be disturbed by faulty posture or position, as suggested above. They often become more or less permanently injured, owing to a relaxation of the ligaments of the joint, even to long continued lying in bed, whether from a long illness, as typhoid fever, or after surgical operations, or from other illness which means much or continued lying on the back. Consequently, any patient who must be long recumbent must be frequently turned, if possible, and the bed must be flat and must not be allowed to become sunken in the center. Many an otherwise well person has iliosacral and lumbosacral backaches simply because his bed is too soft and the springs have relaxed, and he lies all night as one would in a hammock. Many an instance of this kind of backache will be entirely cured by a stiffening of the springs, or a change of bed.

These joints may be strained by a sudden twist or turn, or by direct injury in this region. Many a lumbosacral backache dates from an operation table, when the patient was long in an obstetric or lithotomy position. Great care should always be exercised during these prolonged operations that the legs are occasionally moved and not allowed to hang in a position that is of great disadvantage to the iliosacral joint. Some orthopedists believe that these joints may be injured by lifting a heavy object; others do not believe that they are thus injured. Lovett[1] does not believe that a strain of this joint is thus caused, but considers it always an attitudinal strain due to faulty positions and fatigue. Patients with this kind of backache often hold themselves more or less rigid while walking, thus tiring other muscles. They dislike to jar themselves, and the pain may radiate down the gluteal muscles into the thighs, or there often seems to be an associated sciatic nerve pain. In fact, many a case of sciatica is not benefited until a defective sacro-iliac joint is improved.

A lumbago or pain in the lumbar muscles, that is, a myalgia of the lumbar muscles, will respond readily, as a rule, to a diet without meat or a diet limited to milk and cereals, with plenty of water, and with the administration of alkalies, such as potassium citrate, 2 gm., in wintergreen water, administered three or four times in twenty-four hours, and to massage and local heat. But if the pain is due to a weakening of the sacro-iliac joint, none of these treatments will be curative.

The only treatment which is of any avail in sacro-iliac relaxations or weakened joints is afforded by more or less immobilization by strapping over the sacro-iliac region, unless the patient rests in bed on a stiff mattress. The straps of adhesive plaster may go all the way round the body at the level of the upper part of the ilium, and may cross each other over the sacrum; or they may be run diagonally from just below the brim of the pelvis around and across the back. Each strap should overlap the other from a third to half of its width to cause good firm support. When diagonal straps are used, a firm supporting strap of adhesive should be put all the way round the pelvis.

The straps being of benefit to a person, later a proper kind of corset may be made, in the case of a woman, or a proper kind of supporting belt in the case of a man, for permanent use.

LUMBAGO

While most of these backaches of the lower part of the spine were long attributed to lumbago or myalgia of the lumbar muscles, we are now learning that only a small proportion of backaches in this region are due to this cause, and Lovett, in a study of eighty-three cases of backache, found only one due to lumbago. As just suggested in discussing the diagnosis of lumbago from sacro-iliac joint pain, the treatment there outlined for lumbago is almost invariably successful. Hot water applications are also of value, and especially hot sitz baths followed by deep massage. If the patient is rheumatic and has had joint pains, the salicylates may be given. Sometimes faradic electricity is of value in lumbago. Temporary strapping of the back up and down the spine, or in such a way as to relieve the affected muscles, always causes comfort, hastens recov-

1. Lovett, R. W.: The Causes and Treatment of Chronic Backache, THE JOURNAL A. M. A., May 23, 1914, p. 1615.

ery, and allows the individual to get about sooner than when strapping is not done.

BACKACHE DUE TO PELVIC CONDITIONS

Women with disorders of the pelvic organs frequently complain of backache. It is often associated with painful menstruation, and is undoubtedly due to either the increased congestion in the pelvis or to an obstruction to the passage of the blood at the cervix uteri. Retrodisplacement may produce backache in the sacral region, but the amount of displacement is no index to the amount of pain they will suffer. Backache can be absent in marked retroversion, but is likely to be present if there are many adhesions. Cervical erosions and lacerations, inflammation of the uterus and ovaries, and tumors of the uterus and ovaries may all be causes of lumbosacral, but principally sacral backache.

It is hardly necessary to declare that no lumbosacral backache in a woman should be treated without a careful pelvic examination having been made and without the knowledge that a pelvic disturbance may be the cause of the backache. A correction of these conditions will be the only means of relieving such a backache. However, it should not be forgotten that a patient may have other causes of lumbosacral backache, even if a pelvic disturbance is present. Consequently, the same physical examination of the feet, legs and back should be made as though no pelvic disturbance were present.

BACKACHE DUE TO ABDOMINAL CONDITIONS

Pathologic conditions of the kidney may cause pain to be referred to the lumbar region. The most frequent kidney causes are calculi, pyonephrosis, perinephritic abscess, new growths and floating kidney. While many floating kidneys cause no symptoms, sometimes a kidney that is only slightly loose may cause distinct symptoms and pain referred to the back. Examinations of the urine, especially when obtained by catheterization of the ureters, will reveal the presence or absence of pus, and generally of a calculus, and roentgenoscopy will almost always clear up the calculus question. If a calculus is present in the pelvis of the kidney causing backache, pain will also be generally referred down in the direction of the ureter to the bladder, and in the male to the testicle, which immediately shows that the backache is purely secondary to the other condition. A constant study of all the urine passed for a few days, and observation of the temperature, will reveal the presence of pus in the kidney. The treatment of these conditions is, of course, surgical.

A floating kidney causing pain may be kept in position by a proper abdominal belt. If it still causes pain and symptoms, it should be fixed by operation.

A pendent or very obese abdomen may cause the patient so to change his normal posture as to produce backache. Abdominal supports will help in such a case. Ptosed abdominal organs may cause such dragging on ligaments as to give backache; again, abdominal bandages and proper supporting corsets will relieve the strain on the back muscles, allowing the patient to assume a more normal posture while walking and standing.

Impacted feces in the colon, abdominal and rectal growths, and syphilis of the spine are all occasionally causes of backache, and of course, except in syphilis, treatment of the back is futile.

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SATURDAY, MARCH 11, 1916

INFECTIOUS (?) CANCERS IN ANIMALS

New growths, to all intents and purposes the equivalent of malignant tumors in man, occur in many animals. There are points in connection with some growths of this kind in animals which suggest that they may be of infectious nature. By way of illustration may be mentioned the remarkable chicken sarcoma studied by Peyton Rous, apparently perfectly sterile and cell-free filtrates of the tissue of which, when injected into chickens, produce sarcomatous growths identical with the original growth. What could be more reasonable than to conclude that this growth is caused by a filterable virus, and that it is an infectious growth? The "virus" in question, however, does not correspond to other living viruses in all characteristics; it has not been possible to secure any evidence that it multiplies independently of the tumor cells, and there are no indications that the growths from which it is obtained ever spread by contact. The nature of the neoplastic agent in these filtrates is not understood.

Then there are tumors with which are associated closely certain large parasites. Thus Borrel demonstrated cestodes and nematodes in adenocarcinoma of mice, and in the adjoining tissues, while Fibiger observed the development of carcinoma in the stomach and intestines of rats which were fed with cockroaches containing the ova of a nematode obtained from a tumor in the stomach of a rat. In this class might well be placed also the papillomatous growths in the bladder and rectum of man that develop in association with the eggs of *Bilharzia haematobia*. These are highly interesting relations, but of course they do not justify the assertion that all the tumors in question are directly and truly of infectious origin, and far less that cancers in general are of parasitic nature.

Still another example of what look like malignant tumors in animals with infectious features is furnished by the remarkable nasal tumors in cattle and horses recently described by Stenström[1] as occurring in endemic form in certain parts of Sweden. The essential facts are these: In 1908 there developed on a farm near Stockholm what is best described as a malignant growth in the nasal passages of a cow. During the next six years nineteen additional cases of the same kind developed on the same farm, eight of them in 1911. These twenty cases occurred in a herd of 160 animals, that is, 12.5 per cent. developed the disease. During the four years ending with 1914, seven cases of the same sort appeared on the same farm among the stock of twenty-four horses, the stable adjoining that of the cows. Two cows were sold in 1908 and taken to another farm hitherto free from the disease. Later these animals developed the disease, and in the course of the next four years four other cases appeared on the second farm. In 1912 eight cases developed on a third farm without any evident relation to the disease elsewhere.

The disease caused obstruction of the nasal passages, atrophy of the bones of the skull, emaciation, and in some cases exophthalmos. In practically every case the growth developed in the region of the ethmoid bone and generally invaded the neighboring sinuses. The rate of growth was slow, but eventually considerable size was reached. The structure is described as definitely carcinomatous, but sarcomatous districts were also present. In 17 per cent. of the cows metastases formed, usually in the regional lymph nodes, occasionally also in the lungs. A variety of bacteria were present; a gram-positive bacillus, resembling *B. pyogenes bovis*, was present constantly and in predominating numbers, but injections of this bacillus gave negative results. The results of experimental transplantations are to be reported later. Stenström regards the disease as unquestionably infectious.

Other examples of the endemic occurrence of new growths in animals might be cited, notably of the thyroid in trout in hatcheries; but in this case diametrically opposed differences of opinion are held as to the nature of the growth.

What are we to conclude with respect to Stenström's observations? Does acceptance of the sarcocarcinomatous nature of the disease described by him necessarily commit us to the view that it concerns an undoubted instance of infectious cancer? Not necessarily, because it is possible that the cancerous process developed on the basis of the lesions of a transmissible infection, perhaps more widely spread than recognized, the infection in certain animals being succeeded by malignant proliferation for the same as yet unknown reason that ulcer of the stomach or conditions of continued irritation are followed by carcinoma. If it proves true that ulcers of the stomach and duodenum are caused primarily by streptococci, carcinoma springing from ulcer would not be regarded as of infectious nature. Even successful transplantation would not be proof that the sarcocarcinoma described by Stenström is infectious; the only acceptable proof

1. Stenström: Communications de l'Institut de l'état à Stockholm. 1914, v.

is production of tumor by inoculation with a transmissible agent. Who would venture to deny the possibility that some day this will be done in the case of some one of the forms of growth now classed as cancer?

THE EMETIC ACTION OF CERTAIN DRUGS

Nearly all substances which produce a marked irritation in the upper gastro-intestinal tract are likely to induce vomiting. Under these extreme conditions the emesis represents a useful protective device of the organism, evidently intended to expel the offending substance from the alimentary canal. Quite aside from such more exceptional cases of local attack on the mucosa of the stomach and intestine, a variety of drugs used even in comparatively small doses provoke the act of vomiting as well as the attending or premonitory symptom known as nausea. Some substances, like the familiar apomorphin, act as emetics after introduction subcutaneously into the body as well as by oral administration. To explain this on the assumption of a purely localized stimulation within the gastro-enteric canal it is necessary to assume that the injected drug is actually secreted into the lumen of this tract.

The hypothesis of an irritant action on the alimentary mucosa is not the only one which may be fashioned to explain the emetic action of drugs. It is also plausible to postulate a central action exerted by the drugs on what has been designated as the vomiting center. As prominent pharmacologists have recently pointed out,[1] whether or not there is an actual anatomic nerve center presiding solely over the act of vomiting is still a matter of dispute; but the evidence seems overwhelming for the belief that there is some more or less specialized central nervous mechanism, possibly merely of a coordinating nature, which does control the act of emesis. The determination of the precise mode of action of emetics, that is, whether they initiate the vomiting act through an effect on a center in the higher nervous structures, or reflexly through an ultimate irritation of the peripheral mucosa of the alimentary tract, is of considerable importance. Nausea and emesis are undesirable incidental symptoms obtained in the use of certain drugs, notably morphin. To combat them rationally it is essential to know the point of attack. Furthermore, inasmuch as nausea is attended with an accentuation of mucous secretions and possibly also with a relaxation of the tonus of the bronchial musculature, emetics employed in a dosage just sufficient to induce these preliminary effects without vomiting tend to facilitate expectoration from the respiratory passages. The pharmacology of the emetics is thus somewhat interrelated with that of the expectorants; and an intelligent use of the latter in a therapeutic way also demands a knowledge of their mode of action.

If a drug produces emesis by action on a vomiting center rather than through the intermediation of the alimentary mucosa, it may be expected to manifest this effect in a smaller dose by intravenous injection than by oral administration. Furthermore, the emetic may be expected to act more promptly when given by vein than by mouth, for the intravenous path through the circulation to the central nervous system is a direct one and does not call for preliminary absorption or any indirect procedure to the gastro-intestinal membranes. It has further been pointed out by Eggleston and Hatcher[1] that if the typical phenomena of nausea and vomiting are produced in experimental animals from which practically the entire alimentary canal has been removed surgically, the seat of action must be central in character. To such criteria these investigators in the Laboratory of Pharmacology of the Cornell University Medical School have subjected a number of more or less familiar emetics or drugs exhibiting an incidental emetic action. They find that practically all alkaloids and alkaloidal drugs in common use, including morphin and preparations containing it, emetin, cephaelin, quinin, nicotin and lobelin, pilocarpin, aconitin and veratrin, ergot and apomorphin, which produce nausea and vomiting either as their chief or their side actions, do so by direct effect on the vomiting center. The smallest emetic oral dose was always larger than that required by intravenous administration, except in the cases of the ipecac alkaloids, in which the doses for the two modes of administration were practically the same. All of the drugs requiring the larger oral dose also exhibited a longer interval for the production of emesis after their administration by mouth than when given intravenously. This was also true of the ipecac alkaloids. Sodium salicylate, picrotoxin and the digitalis derivatives likewise produce nausea and emesis through direct central action.

According to Eggleston and Hatcher there may be, in the case of certain drugs with irritant properties, synergistic reflex and central actions, whereby a smaller dose by mouth may be effective than would be required for either action alone. Emetin is cited as affording an illustration of this. The possibility that some other drugs given orally may also have an irritant action on the alimentary mucosa is not excluded by the evidence in favor of the central action exhibited by them. We are told that it is probable that the ipecac alkaloids, as well as veratrin and sodium salicylate, may have this reflex action in man, at least in susceptible individuals.

In these valuable pharmacologic studies, the investigators incidentally tested the effects of some of the newer proprietary preparations of opium. Pantopon (pantopium hydrochloricum), which consists of the total alkaloids of opium in the form of hydrochlorids, was found to be "probably actually slightly more actively emetic than is to be accounted for by the mor-

1. Eggleston, C., and Hatcher, R. A.: The Seat of the Emetic Action of Various Drugs, Jour. Pharmacol. and Exper. Therap., 1915, vii, 225.

phin alone which it contains." Narcophin, which consists of the meconates of morphin and narcotin, was found "much more actively emetic than is morphin in the form of sulphate, rather than less so as claimed."

There is an immediately practical aspect to the demonstration of the central action of the salicylates in producing nausea and vomiting, in harmony with earlier observations of Waddell[2] and Hanzlik.[3] It is sometimes attempted to combat these familiar annoying side actions of the salicylates by the use of an excess of sodium bicarbonate or the employment of preparations which pass the stomach unchanged. This has been done on the assumption of a local irritant action on the gastric mucosa giving rise to the nausea. It appears, however, that emesis occurs as promptly after intravenous as after oral doses of salicylates; and it may be observed even in eviscerated animals in which none of the drug can reach the alimentary mucosa by any path whatever. It is well to know the futility of a procedure based on a demonstrably wrong conception of the mode of action of such a drug.

THE ADAPTATION OF THE OXYGEN CAPACITY OF THE BLOOD

The current belief in regard to the effect of residence at altitudes on the composition of the blood postulates an interesting physiologic adaptation of the organism to the decreased oxygen tension of the atmosphere at the higher levels. In a general way it is most commonly explained that, as an immediate effect of change to a region of low atmospheric pressure, there is a relative increase in the red blood corpuscles due to a concentration of the blood and a diminution of its plasma. Simultaneously, however, the blood-forming organs enter into a condition of increased activity, so that, after a stay of some duration at a height, both red corpuscles and hemoglobin are considerably increased in total amount.

The physiologic significance of such an increase in the oxygen-carrying capacity of the blood, when an atmosphere of low oxygen tension is breathed, is obvious. The differences in views on the subject relate to the details of these changes and the mechanism by which they are brought about. If the adaptive response of the blood system is associated merely with a diminished tension of oxygen, it ought to be possible to imitate all of the essential features even at sea level, independent of any cosmic effects, by maintaining individuals in atmospheres of lowered oxygen content. Accordingly, recent years have witnessed the production of apparatus and devices in which both animals and man can be kept for some time in an atmospheric environment that can be regulated at will. In the latest of these respiratory chambers, constructed at the University of Wisconsin by Kolls and Loevenhart,[1] an ingenious apparatus has been developed in which it is possible to keep animals in a given atmosphere of oxygen and nitrogen continuously for a week or more. The outfit is automatic in regard to the oxygen supply and does not require constant watching. Under such conditions the accessory effects of altitude, such as excessive light, temperature changes, increased evaporation, reduced carbon dioxid tension and reduced barometric pressure can be eliminated, so as to leave only one factor in common with high altitude, namely, the reduced partial pressure of oxygen.

The elaborate investigations of Dallwig, Kolls and Loevenhart[2] with the respiration chamber described show that a decrease in the oxygen tension of the respired air obtained by decreasing the oxygen concentration at atmospheric pressure or by reducing the barometric pressure stimulates the bone marrow and increases the erythrocytes and hemoglobin in the circulating blood in animals. From five to seven days are required for the increase in the blood count to become marked, but the maximum increase requires a longer exposure.

Increased blood counts obtained under conditions of diminished atmospheric pressure have in the past sometimes been attributed to concentration of the blood. The Wisconsin experiments show, however, that the results observed by Dallwig, Kolls and Loevenhart cannot be due to increased evaporation of water from the subjects. The weight records of the animals showing a gain in some cases coincident with a marked increase in erythrocytes speak against such an influence. The results clearly indicate that the increase in erythrocytes as well as hemoglobin is absolute and not relative. Comparisons of the composition of blood in superficial vessels with that from the carotids or heart showed further that the differences were within the limits of error, so that an altered distribution of the erythrocytes in the large and small vessels could not account for the higher counts.

It has been possible in some cases to increase the total hemoglobin per kilogram of animal 43 per cent. In order to produce these effects, the oxygen pressure in the respired air must be reduced at least to approximately 14 per cent. of an atmosphere. The optimum oxygen pressure for increasing the oxygen capacity of the blood is apparently not far from 10 per cent. of an atmosphere. Examination of the bone marrow of the animals kept under conditions of decreased oxygen supply showed macroscopically a disappearance of the fat and an extension of the red marrow, and microscopically a marked hyperplasia of the erythrocyte-

2. Waddell, J. A.: A Comparative Investigation of the Effects and Toxicity of Sodium Salicylates of Natural and Synthetic Origin, Arch. Int. Med., December, 1911, p. 784.

3. Hanzlik, P. J.: A Study of the Toxicity of the Salicylates Based on Clinical Statistics, THE JOURNAL A. M. A., March 29, 1913, p. 957.

1. Kolls, A. C., and Loevenhart, A. S.: A Respiratory Chamber for Small Animals, Am. Jour. Physiol., 1915, xxxix, 67.

2. Dallwig, H. C.; Kolls, A. C., and Loevenhart, A. S.: The Mechanism Adapting the Oxygen Capacity of the Blood to the Requirements of the Tissues, Am. Jour. Physiol., 1915, xxxix, 77.

forming centers and an equally marked dilatation of the capillaries and small vessels of the marrow, which were engorged with blood. The picture is practically identical with that seen after hemorrhage, except for the engorgement of the vessels, which is not seen in the latter condition. It has not been possible to produce depression of the bone marrow by decreasing the oxygen supply. Stimulation results even when the oxygen pressure falls to 6 per cent. of an atmosphere. It is possible to stimulate the bone marrow to a certain extent by increasing the carbon dioxid tension of the respired air, but it is not an efficient stimulus. A comparison of the respiratory center and the bone marrow in their reaction to a decreased supply of oxygen and an excess of carbon dioxid shows that they are practically equally sensitive to oxygen want, but that the respiratory center is far more sensitive to carbon dioxid than is the bone marrow.

In discussing the mechanism of the stimulation of the bone marrow in atmospheres of low partial pressure of oxygen, whether at atmospheric pressure or at reduced barometric pressure, Loevenhart and his collaborators point out that the stimulation shown by the bone marrow in response to decreased oxygen supply is by no means unique. Similar reactions are to be seen in the respiratory, vasoconstrictor and cardioinhibitory centers, and the mechanism is in all cases probably identical. They point out that the external respiration, the circulation and the bone marrow are the three physiologic mechanisms which maintain the chemical environment essential for tissue respiration. The respiratory movements are controlled by the respiratory center; the oxygen capacity of the blood is controlled certainly in large part by the activity of the bone marrow.

NEPHRITIS IN THE BRITISH TROOPS IN FLANDERS

War affords opportunity for the medical observation of large numbers of selected persons under unusual, but fairly uniform, conditions of life. Much of the information gained during the present war has concerned the epidemiology of infectious disease, and the complications and treatment of wounds. Recently John Rose Bradford[1] has indicated that other departments of medicine may profit by the medical lessons of the war.

Beginning in March, 1915, and continuing thereafter, there were admitted to hospital a large number of soldiers suffering from nephritis characterized by moderate dropsy, frequent dyspnea and bronchitis, and sudden onset, often complicated by uremic manifestations and epileptiform seizures. The urine was scant, and contained large amounts of albumin and casts. The course was unusually short, and terminated in rapid recovery with prompt subsidence of the edema within a few days. In these patients there were no evidences of previous cardiovascular or renal disease, and the mortality was extremely low as compared with that of acute nephritis in civil practice. The waxy appearance of the face, and the pallor of the usual picture of acute nephritis were absent. Inflammatory complications were extremely rare.

The chief differences between these cases of acute nephritis and those seen in civil practice were the rapid subsidence of the dropsy, and the extremely low mortality. In casting about for the cause of the disease, Bradford adduces a number of facts of interest. Up to March, 1915, nephritis was rare among the troops, although there were many instances of frost bite and other exposure previous to this time. Possible infectious causes were carefully sought for, but in only 10.4 per cent. could a history of severe "cold," diarrhea or sore throat be obtained. About 30 per cent., however, gave a history of bronchitis, and had signs and symptoms of bronchitis, at the onset or during the course of the illness. Mild pulmonary infection might be regarded as an important etiologic factor, were it not for the fact that the Indian troops suffered extensively from bronchitis; but nephritis was extremely rare among them.

The extreme degree of exposure to cold and wet, to which many of these men were exposed, would offer a reasonable cause were it not for the fact that a number of hospital orderlies and others less exposed suffered from the same clinical form of renal disease. Age and length of service with the expeditionary force seemed to have no relation to the incidence of the illness. Bradford is inclined to the theory of a mild infection as the chief factor in the causation of the malady.

From the physiologic standpoint, the clinical picture described by Bradford suggests an acute edema, involving the kidney, giving rise to sudden and quickly subsiding dropsy, and the brain, causing apathy, drowsiness and epileptiform seizures. It is perhaps futile to speculate as to possible causes of such physiologic disturbances, other than those suggested by the facts submitted in the report. It would seem possible, however, that abnormalities in diet, under the stress of the campaign, might result in a loss of normal balance of the salts of the body, and, combined with the unusual exposure, give rise to temporary acidosis and edema of the kidney. The absence of renal disease of this type among the Indian troops may have some bearing from this angle. In favor of the infectious theory, it may be urged that in persons under such severe physical stress, resistance to infection is necessarily lowered, and bacteremia may possibly result without external clinical signs. Finally, in comparing the short course and low mortality of

1. Bradford, J. R.: Nephritis in the British Troops in Flanders, Quart. Jour. Med., 1916, ix, 125. Paris Letter, Acute Nephritis Among the Troops in the Field THE JOURNAL A. M. A., March 4, 1916, p. 752.

these cases of acute nephritis with the more serious cases in civil practice, we must bear in mind that we are here dealing with a selected group of previously healthy young adults who might be expected to return more quickly to normal, after the removal of unfavorable influences, than would a like number of unselected members of a civil population.

IMMATURE VEAL AS FOOD

Veal is the meat of calves which, under the United States meat inspection regulations, must be not less than three weeks old at the time of slaughter. Meat of calves less than three weeks old is popularly known as "bob veal." In Europe no objection is raised to the use of veal from younger calves; and it is stated that in Germany they are commonly slaughtered at from three days to three weeks of age.[1] The regulation which is in force in this country reflects a widespread belief that the meat from very young calves is, for some reason, unfit for human consumption. Veal is in general valued less highly as a dietary product than beef; and the younger the animal the less valuable its flesh is considered to be. Accordingly American textbooks on dietetics speak of veal as tough and indigestible, "especially when obtained from animals that are killed too young." Veal has been charged with a tendency to produce indigestion; and diarrhea has been described as a symptom of the unwholesomeness of "bob veal."

The attempt to marshal the evidence on which these serious charges are based and to follow the implications of harmfulness to their sources proves to be almost futile. The Bureau of Animal Industry, which has long been interested in the question of the digestibility and wholesomeness of different kinds of meat, has not been successful in tracing the basis for the currently expressed views. The biologic chemist of the pathologic Division, Dr. W. N. Berg,[2] states that the argument has been offered that the metabolism of the fetus and of the newly born is different from that of older animals, and that there is a possibility of toxic substances being present in embryonal or young tissues, which substances, though present in amounts too small to be detected by analytic methods, may be very powerful in their action on the consumer of very young meat; or, as is sometimes alleged, the newly born animal does not excrete its metabolic endproducts fast enough, with the result that its tissues are loaded with waste material. The polypeptid nitrogen which passes unused through the assimilatory system of the fetus or of the newly born, however, is not significant. If by any chance the tissues of a very young calf happened to retain some of its own metabolic products because of retarded excretion or from any other cause whatsoever, so long as the animal was normal otherwise there would be practically no danger to the consumer of such meat from poisonous endproducts of protein breakdown. But the tissues of very young calves are not loaded with unexcreted nitrogen. The data obtained on this point are direct and conclusive.

In an extensive investigation undertaken to ascertain whether the flesh of calves three weeks of age and under is or is not fit for human food, Berg compared the chemical composition of mature beef with that of immature veal. No differences between them that are dietetically significant were detected. The average water content in beef and veal was 74 and 77 per cent., respectively; but Berg points out that such differences are physiologically of no importance. As so much emphasis has been placed on the relative indigestibility of veal, it is interesting to note that in a large number of artificial digestion experiments conducted under rigorous scientific control, immature veal digested as fast as mature beef.

The foregoing facts are further substantiated by direct feeding experiments, not only under ordinary conditions of maintenance and growth, but also during periods of reproduction, which must be regarded as the severest test of dietary efficiency. Berg found that when animals were fed on a diet in which immature veal was the sole source of nitrogen, the young grew normally, and the older ones became fat. A pair of animals, after living two thirds of a year on the diet, produced a litter of healthy young which, after the nursing period, in turn continued on the immature veal diet with excellent growth.

Corroboratory experiments on human subjects are not wanting. Professor Fish[3] of Cornell University conducted dietetic experiments in which seven families of twenty persons of various ages received immature veal as part of their diet. All partook of the veal and appeared to relish it. None of the families reported any disturbance of any of the bodily functions; the health was apparently normal and each family was ready to receive a portion whenever another carcass was available. The claim that the flesh of very young animals has a laxative effect on human beings could not be verified.

In the light of all the negative findings and the indefinite and unverified character of the statements on record it is not easy to justify or understand the current embargo on very young veal. The work of the investigators who have given serious attention to the subject indicates, in the words of a government publication, that immature veal, when properly prepared, is fit for human food, especially when its deficiencies

1. Sherman, H. C.: Food Products, New York, 1914, p. 178.
2. Berg, W. N.: Biochemical Comparisons Between Mature Beef and Immature Veal, Jour. Agric. Research, 1916, v, 667.
3. Fish, P. A.: Preliminary Observations on Bob Veal, Rep. N. Y. State Vet. Coll., 1909-1910, p. 130; Further Observations on Bob Veal, ibid., 1910-1911, p. 138; Bob Veal and the Conservation of the Meat Supply, Proc. Am. Vet. Med. Assn. 49th Ann. Conv., 1912, p. 550; The Digestibility and Decomposability of Bob Veal, Rep. N. Y. State Vet. Coll., 1912-1913, p. 51.

in fat and possibly in small amounts of undetermined constituents are counterbalanced in the ordinary mixed diet. This declaration, based as it is not only on negative contradictory evidence, furnished by the comparative analyses and artificial digestion experiments, but also on positive evidence, furnished by nutrition and growth experiments, should also have the effect of removing the proscription under which all veal and perhaps pork, too, as food, especially for the young, have rested. Likewise, it relieves food chemists and physicians from the embarrassment of having to confess, in the practical world, that they do not know why veal is not so good a food as beef or mutton.

Current Comment

THE EFFECT OF ATMOSPHERES RICH IN OXYGEN

There is a seeming incongruity in speaking of oxygen as a poison; yet it has long been known that if a warm-blooded animal be submitted to pure oxygen at a pressure of several atmospheres it will die as promptly and surely as if it were in an atmosphere of pure nitrogen. Even exposures to lesser pressures of oxygen over a considerable time are attended with pathologic results, the most familiar of which are severe inflammation of the lungs, thus leading indirectly to death. Karsner[1] has attempted to define more accurately the possible pathologic effects of this gas, which is being used freely as a therapeutic agent, as a prophylactic against asphyxia in anesthesia, in the industries, and in the exigencies of submarine or aerial performances. His studies show that atmospheres containing from 80 to 96 per cent. of oxygen under normal barometric pressure usually produce, in animals, in the course of one or two days, congestion, edema, epithelial degeneration and desquamation, fibrin formation, and finally a pneumonia, probably of irritative origin and to be described as a fibrinous bronchopneumonia. Although deficiency of oxygen may affect the hemopoietic system, animals subjected to high oxygen percentages failed to reveal any demonstrable pathologic changes in the blood, spleen, lymph nodes or bone marrow, except for the presence of congestion which is accounted for in other ways.

SAMUELS LOSES—THE PUBLIC WINS

The Wichita *Eagle* for Feb. 29, 1916, chronicles the fact that the United States Court of Appeals has confirmed the conviction of "Prof." Henry Samuels of Wichita for using the mails to defraud. Readers of THE JOURNAL will remember the Samuels case. As long ago as 1910 we called attention to the outrageous swindle that this man was perpetrating on the sick in selling as a cure for practically every disease a mixture of sugar and salt in hydrant water. Later, THE JOURNAL[2] gave the public the facts regarding Samuels' attempt to reestablish his mail-order business at Detroit. The Michigan city made it so warm for this individual that he went back to Wichita. In 1914 the postoffice officials proceeded against Samuels for violating the postal laws in obtaining money through the mails by means of false and fraudulent pretenses, and on June 1, 1914, Samuels was denied the use of the mails. At the same time Samuels was indicted by the federal grand jury on criminal charges connected with this fraud, and later found guilty. On March 4, 1915, he was sentenced to serve one year and one day in the federal penitentiary and to pay a fine of $5,500. Samuels appealed, of course, but, according to the Wichita *Eagle*, the appellate court has confirmed the findings of the lower court.

"EASY MONEY" LIBERALITY

One of the favorite themes of the defenders of quacks and "patent medicine" venders is the liberality and public spiritedness that characterize this class of citizens. The Samuels case referred to in the preceding comment is in point. The Wichita paper that told of the appellate court's decision had its reporter call on Samuels and apprise him of the fact. In his "story" the reporter described the room in which he was received. It was "beautifully appointed"; it was "done in mahogany"; it bore, in short, evidences of the wealth of its owner. How that wealth was obtained the reporter does not describe. Nothing is said of the widow whose husband had used the Samuels nostrum, and who, left alone with two little ones, wrote asking Samuels to take back the medicine that was left and refund some of the money. Nothing was said of another widow whose husband "kept up with" Samuels' mixture "until the last day"; she, left with three children, implored Samuels to return at least some of the money that he had received from the man now dead. Nothing was said of the case of the poor man with a wife and four children who asked for a return of the $5 he had sent Samuels for his sugar and salt mixture with which to treat the eye of his little boy, obviously without results. Nothing was said of the hundreds, yes, thousands, of eternally hopeful sick who threw away on a worthless mixture money that in many cases represented real sacrifices. The reporter did not mention these facts, but Samuels being a "substantial citizen" of Wichita, the reporter did mention that when institutions or individuals sought charity Samuels "gave with open hands and a smile." Curiously enough, this open-handed generosity seems characteristic of the nostrum faker. To civic, commercial or, more often, to religious organizations, the "patent medicine" manufacturer is always liberal. Why shouldn't he be? His money comes "easy." For those engaged in a business that fails to command the respect of the public, there is nothing like indiscriminate charity to make the unthinking or shallow-thinking forget the deeper evils behind it. Should the Ladies' Aid Society desire a small donation, what is simpler than to give it the $5 just received from a hopeful and credulous consumptive? Should the Home for the Friendless need

1. Karsner, H. T.: The Pathological Effects of Atmospheres Rich in Oxygen, Jour. Exper. Med., 1916, xxiii, 149.
2. The Samuels case is reprinted in the pamphlet "Medical Mail-Order Frauds," price 10 cents, published by the American Medical Association.

help, what is easier than to turn over a money-order just received from some poor unfortunate who believes he is going to be cured of paralysis by a mixture of salt and water? Should a subscription be desired toward the erection of a new church, give liberally. What if the bricks thus furnished do represent the savings of a Bright's disease victim, a morphin habitué or a blind man, sent in the hope that cure is in reach? Generosity is an admirable trait — sometimes. The liberality of those who wring from the credulous sick a fortune through the sale of a worthless nostrum is not a form of charity that will appeal to decent men.

THE NATURE OF PEPSIN

The nature of the digestive ferments or enzymes is far from solved. A generation ago they were usually conceived to be protein in nature, and the procedures selected to isolate or purify enzyme preparations were borrowed from the then current methods of protein manipulation. So far as one can judge at present, the chemical nature of enzymes is probably of very different kinds. There is direct evidence that some are not proteins. A recent writer[1] ventures the opinion that it is doubtful if any enzymes are proteins. He adds that some appear to be complex systems of colloids with inorganic components, or other simple compounds. Pepsin, one of the most prominent if not the most important of the enzymes with which the medical sciences deal, is colloidal in nature, or if not colloidal itself, is attached to colloids. From such investigations as have been made, it appears probable that pepsin either is a protein or is united with a protein. Some students of the subject have conceived the enzyme to correspond with protein compounds of the proteose type; others have assigned to it either larger or smaller hypothetic molecular structure. It has occurred to Aldrich[2] to ascertain something of the nature of pepsin and of enzymes in general by determining what relation, if any, exists between the total nitrogen, the alpha-amino nitrogen, and the strength of different samples of pepsin. Of late the estimation of the alpha-amino nitrogen by the Van Slyke method in substances of protein origin has gained prominence as an analytic indication of the degree of disintegration of the protein molecule. Native proteins react with only a trace of their nitrogen to this method, nearly all of the amino nitrogen being bound in the peptid linkings of the protein molecule. In general, the smaller the molecule, the greater the proportion of free amino nitrogen. Aldrich's examination of the products shows that there is a progressive decrease in the percentage of the alpha-amino nitrogen in the samples in the order of their strength. According to this it would seem as though the method used in the purification of the pepsins gradually eliminates the simpler alpha-amino nitrogen compounds, and consequently causes an accumulation of more complex bodies in the stronger pepsins. Taking it for granted, Aldrich adds, that with the still more active pepsins the recognizable alpha-amino nitrogen content will be further decreased, we should finally by sufficient purification obtain a pepsin having very little detectable alpha-amino nitrogen or an amount approximating that in the native protein. The inference from this is that the more highly purified or more active pepsin products approach the native proteins in complexity.

1. Bayliss, W. M.: Principles of General Physiology, London, 1915, p. 331.
2. Aldrich, T. B.: Relative to the Total Nitrogen and Alpha-Amino Nitrogen Content of Pepsins of Different Strengths, Jour. Biol. Chem., 1915, xxiii, 339.

DEATH OF DR. RODMAN

Word has been received as we go to press that Dr. William L. Rodman, President of the American Medical Association, died in Philadelphia, of pneumonia, Wednesday, March 8, 1916, after an illness of two days.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

DISTRICT OF COLUMBIA

Baby Week Campaign Plans.—On the initiative of the Federation of Women's Clubs, arrangements are being made for the baby week campaign. Baby Week, however, is, in the District of Columbia, to be from May 6 to 13 and will not conform to the week generally adopted throughout the country.

Investigation of Milk and Milk Products Endorsed.—The board of directors of the Association for the Prevention of Tuberculosis has endorsed Representative Linthicum's resolution providing for the appointment of a committee from the House of Representatives to investigate the milk supply and the milk products of the country in their relation to public health.

FLORIDA

State Board News.—The annual meeting of the State Board of Health was held in the new State Laboratory Building, Pensacola, February 8. A sanitary engineer was appointed and six additional nurses were employed to aid in the tuberculosis work.——The health train of the board, which made its initial run to Key West and Miami early in the year, was brought to Pensacola for the meeting of the board.

Hospital Items.—The Hospital for Negroes at St. Petersburg was opened in the building formerly used for the Samaritan Hospital, the first week in February.——The West Coast Hospital Association announces that the formal opening of the Morton F. Plant Endowed Hospital, Clearwater, occurred February 1, followed by an informal reception to the general public.——The trustees of the Lakeland Hospital at their meeting, January 25, elected a medical and surgical staff for the institution. It is expected that the work will have been so far completed that the corner-stone may be laid this month.

GEORGIA

Grady Bond Issue Endorsed.—The Physicians' Club of Atlanta at its annual meeting, February 16, unanimously pledged its support to a campaign for a bond issue sufficient to meet the needs of Grady Hospital.

Personal.—Dr. P. H. Raines has been appointed assistant librarian of the Georgia Medical Society, Savannah, and took up his duties, March 1. Dr. Victor H. Bassett is librarian of the society.——Drs. Joseph H. Bradfield, Julius E. Sommerfield, William L. Gilbert, S. W. Foster, Joseph H. Hines, Carl C. Aven and Allen H. Bunce have been elected members of the board of directors of the Atlanta Antituberculosis Association.

Hospital News.—The Henrietta Egleston Memorial Hospital for Children is to be established in Atlanta with accommodation for seventy-eight patients—fifty-three free and twenty-five pay beds. Mr. Egleston made an initial bequest

of $100,000 for the institution, and if his estate totals $750,000, there will be an additional quarter of million available to the hospital and the final amount will be eventually about $600,000 by the reversion of annuities.——Members of the Savannah Hospital corporation elected a new board of managers at the annual meeting, February 7.——Drs. Alexander G. Little and Archie Griffin formally opened their new hospital at Valdosta, February 5.

ILLINOIS

Personal.—Dr. John A. Wheeler, Auburn, sheriff of Sangamon County, who has been enforcing the Sunday saloon closing law against great odds, is reported to have won a victory in the primaries last week.——Dr. Harry G. Wood, Galesburg, has started for Montreal, where he expects to be assigned to duty with the Royal Army Medical Corps in France.——Dr. George P. Gill, Rockford, returned February 25 after more than six months in overseas service in France.

Epidemic Diseases.—The health authorities of Elmhurst have ordered the churches, schools and moving picture houses closed on account of the presence of scarlet fever, of which there are now nine cases in the village.——Scarlet fever is still prevalent in Evanston.——Peoria reports eighty-three cases of scarlet fever and twenty-six cases of smallpox.—— The secretary of the state board of health, on March 1, issued a warning to health authorities throughout the state, in view of the spread of smallpox and scarlet fever. The communities most seriously infected by smallpox are Peoria and vicinity, Staunton, Decatur, Springfield, Woodford and Fayette counties.——Dr. Charles E. Crawford of the state health department located fifteen cases of smallpox in a mining settlement near Peoria on February 24. Rigid quarantine was established.

Chicago

Quarantine Lifted.—The smallpox quarantine of two and one-half weeks at Cook County Hospital was lifted March 5.

Hospital May Lose Bequest.—Alleged faulty designation of Mercy Hospital in the will of Charles H. Haines, St. Charles, may cost the institution a two-thirds interest in the estate which is appraised at one-half million dollars. Relatives not mentioned in the will have filed an answer to the partition suit instituted by the hospital and claim that "the Mercy Hospital of Chicago" named in the will does not exist.

Personal.—Dr. Thomas Lewis Gilmer has been selected by the trustees of Northwestern University to fill the vacancy in the deanship of the dental school caused by the death of Dr. Greene Vardiman Black.——Dr. Marie A. Motis has been appointed health commissioner of Cicero.——Dr. Howard O. Shafer has announced that he will give up his work in Chicago to manage the hospital established in Rochester, Ind., by his father, the late Dr. Winfield S. Shafer.

New Hospital Opened.—The new Central Hospital, recently built by the Illinois Central Railroad Company at Fifty-Ninth and Jackson Park Avenue, at a cost of $360,000, was opened with formal ceremonies, March 4. The guests of honor were Drs. Joseph C. Bloodgood, Baltimore, and William A. Evans, Chicago. The hospital is up to date in its equipment, and while primarily intended for the use of the railroad employees, other patients will be admitted when space permits. Dr. Guy G. Dowdall, chief surgeon of the railroad, is in charge of the institution. The hospital was opened to receive patients on March 5.

Typhoid Fever.—City water for drinking purposes was shut off at the public schools in the Sixty-Eighth Street pumping station district, March 6, and will remain shut off for two or three days. There have been 100 cases of typhoid fever on the south side as a result of the contamination of one of the wells connected with the Sixty-Eighth Street pumping station. The water pipes are to be flushed to remove impurities. The condition of the pumping station is to be corrected to prevent a recurence of the flooding of the wells.——During February, 156 cases of typhoid fever were listed and twenty-four new cases during the first two days of March, and the health department has repeated its warning to residents of the south side to boil all water.

Free Lectures on Tuberculosis.—A systematic course of lectures intended for those interested in the tuberculosis problem will be given under the auspices of the Chicago Tuberculosis Institute at the City Club of Chicago, throughout March and April, beginning March 6, at 6:30. Cards of admission to the lectures will be sent on application to the Chicago Tuberculosis Institute, 8 South Dearborn Street, or may be obtained at any of the lectures at the City Club. The following is the program:

Monday, March 6: "Bacteriology and Pathology of Tuberculosis." Dr. Harry J. Corper, Laboratory Director Municipal Tuberculosis Sanitarium.

Monday, March 13: "Sources and Channels of Tuberculous Infection." Dr. Walter A. Gekler, Associate Medical Director, Municipal Tuberculosis Sanitarium.

Thursday, March 16: "Prevalence and Distribution of Tuberculosis." Dr. Theodore B. Sachs, President, The Chicago Tuberculosis Institute and Municipal Tuberculosis Sanitarium.

Thursday, March 23: "Tuberculous Infection in Childhood." Dr. Orville W. McMichael, Head Physician, Municipal Tuberculosis Dispensary, Chicago Policlinic.

Monday, March 27: "Contributory Factors in the Development of Tuberculosis: Personal and Public Hygiene." Dr. John Ritter, Head Physician, Municipal Tuberculosis Dispensary, Rush Medical College.

Monday, April 3: "Contributory Factors in the Development of Tuberculosis: Industrial Hygiene." Dr. James A. Britton, Associate Medical Director, International Harvester Co.

Thursday, April 6: "Schools and Tuberculosis." Sherman C. Kingsley, Director, Elizabeth McCormick Memorial Fund.

Monday, April 10: "Present Status of Medical and Specific Treatment of Tuberculosis." Dr. Ethan A. Gray, Medical Director, Chicago Fresh Air Hospital.

Thursday, April 20: "Hospital, Sanatorium and Dispensary Control of Tuberculosis." Dr. John W. Coon, Superintendent, Municipal Tuberculosis Sanitarium.

Monday, April 24: "City Program for the Control of Tuberculosis." Mr. James Minnick, Superintendent, Chicago Tuberculosis Institute.

INDIANA

Medical Library for Gary.—Members of the Gary Medical Society are planning to establish a medical library. At a recent meeting it was decided that each member should donate $10 a year toward the library, an equal amount to be given by the library board. The public library will give a separate room for the use of the library of the medical society.

Contract Let this Month.—Work on the Marion County Tuberculosis Sanatorium to be built near Oaklandon will be started early in April, the contract being let this month. The building is expected to cost about $70,000. The first buildings to be erected will be an administration building with two wings, one for male and the other for female patients. The plans at present projected provide for the accommodation of eighty patients, but eventually the institution will be able to care for 300 patients.

Typhoid in Indianapolis.—Dr. Herman G. Morgan, city sanitarian of Indianapolis, reports an epidemic of typhoid fever on the South Side. The cause was attributed to a contaminated milk supply. Since February 1, thirty-five cases have been reported from the southern part of the city alone. Only twelve cases of typhoid were reported during the whole month of February last year. Dr. Morgan said that the cause of the epidemic was under control and a further spread of the disease is not expected, only one case having been reported during the last three days.

Fresh-Air Schools.—Three teachers from the open-air schools, Indianapolis, talked to the social workers on "The Fresh Air School in the Antituberculosis Fight," at a recent meeting held in the rooms of the Charity Organization Society. The purpose of this meeting was to explain the need of the open-air school and to keep the social workers informed as to the work accomplished by the school. According to the teachers' report, there have been surprising results in physical and mental strength of sick children and normal children in the schools. The technical school opened last year with an enrolment of twenty-two children. These children gained an average of 7.83 pounds each during the time they were in the school. This year the enrolment is fifty; the gain in pounds for each child has been 5.96, being decreased to some extent through the rapid gaining of normal size of those who were there last year and who returned this year. The Indianapolis school board employs the teachers and has built two sleeping porches. The Antituberculosis Society provided the water, gas and lunches for those who cannot afford to pay for their own. The society also pays car fare when the children are too poor to pay it. The children in the public schools are examined by physicians and when a child is found to be suffering with a mild case of tuberculosis it is placed on the waiting list. In accordance with a resolution of the city school board the parents of forty children in two consecutive grades in any school could have an open-air room if a teacher could be obtained to teach the children. The restriction on opening such schools is to keep the additional expense as low as possible.

LOUISIANA

Quarantine Station to be Established.—A quarantine station at or near New Orleans, at a cost not exceeding

$300,000, exclusive of the cost of real estate, is proposed in a bill introduced into congress by Representative Estopinal of Louisiana. The bill authorizes the secretary of the treasury to receive on behalf of the United States such real estate as may be donated for the purpose of enabling them to carry into effect the provisions of the act.

MARYLAND

Clinic for Carolina Surgical Club.—The hospital of the University of Maryland held a series of clinics on March 2, before the North Carolina Surgical Club, those participating being Drs. Randolph Winslow, John M. Hundley, Arthur M. Shipley, Robert P. Bay and Fred W. Rankin. The North Carolina Surgical Club is a traveling organization and the visit to the clinics in Baltimore is part of its present itinerary.

To Honor Winslow.—Arrangements are being completed for the commemoration of the twenty-fifth anniversary of Dr. Randolph Winslow as professor of surgery at the University of Maryland. The celebration will take the form of a dinner. The committee of arrangements includes Drs. Wilbur P. Stubbs, William Tarun, G. Milton Linthicum, Alexius McGlannan, Arthur M. Shipley, Elmer Newcomer and Fred W. Rankin.

Child Welfare Week in Baltimore.—Child Welfare Week, which is being conducted throughout the country, was officially opened in Baltimore, March 4. Pushed originally by the State Federation of Women's Clubs, the local observances represent nearly every educational, medical and social service organization in the city. The Medical and Chirurgical Faculty has cooperated by arranging its sixth annual health conference to be held the same week, so that speakers might include the baby welfare movement. A feature of the celebration is the exhibit of hundreds of posters that have been made for the Better Baby Poster Contest. Every visitor will be entitled to a vote in deciding the winners of the three prizes offered.

MASSACHUSETTS

Chiropodists' Bill Defeated.—At a session of the senate on February 3, a report of the Committee on Public Health against the registration of chiropodists was accepted without discussion.

Preparedness in Harvard.—More than 100 students of Harvard Medical School have been enrolled to work in cooperation with the Harvard regiment. The unit will pursue a regular course of instruction in sanitation, medical administration, first aid and discipline. It has also planned to form an ambulance corps.

Tech Man Appointed Chief Sanitary Engineer.—George W. Simons, Jr., assistant to the head of the Sanitary Engineering Department of Harvard Medical School and Massachusetts Institute of Technology, has been appointed chief sanitary engineer to the State Board of Health of Florida, and will take up his new work on July 1.

Plan to Send Milk to European Babies.—The Massachusetts Branch of the Citizens Committee for Food Shipments has scattered broadcast circulars stating that 5,000,000 babies in Germany and Austria-Hungary are suffering from want of milk; that $1 will supply a baby for a week and that $1,000 will establish, operate a good-sized milk depot and keep 100 babies alive and well for ten weeks, and asking contributions for this philanthropic work.

Personal.—Dr. Henry S. Forbes, Boston, who has been interned by Bulgarian authorities in Monastir, was released, March 6.——Dr. Frederick Herman Verhoeff has been made assistant professor of ophthalmic research; Dr. Elliott Gray Brackett, assistant professor of orthopedic surgery; Dr. Clifford Black Walter, assistant in ophthalmology; Dr. Robert Louis Levy, assistant in physiology, and Dr. George Richard Minot, assistant in chemistry at Harvard Medical School.

Milk Legislation.—On the petition of Dr. J. Allen McLaughlin, state health commissioner, a bill has been introduced before the Massachusetts General Court which aims to prevent the sale or delivery of milk in any city or town without a permit from the local board of health after inspection of the facilities for producing and handling this food. It provides that the permit may contain reasonable conditions for the protection of the public health and may be revoked for failure to comply therewith. The bill has been referred by the Senate to the committee on agriculture and public health.

NEW YORK

Revision of State Sanitary Code.—A recent revision of the state sanitary code provides that, in a case of infectious disease when no physician is in attendance, it shall be the duty of the head of the household and of the proprietor or keeper of any hotel, boarding house or lodging house to report immediately to the health department all facts relating to the illness of any one in the household who appears to be affected with any communicable disease.

New Avenue of Public Health Education.—State Commissioner of Health Biggs, on March 4, announced that five railroads have given the department of health permission to post health bulletins in their stations. These railroads are the following: New York Central, Delaware and Hudson, Lehigh Valley, Erie, and Pennsylvania. With the cooperation of these five railroads, the department of health will be able to post bulletins in more than 1,000 railway stations.

To Amend Boylan Law.—An effort will be made to have the state drug law amended so that a physician may not prescribe a habit-forming drug for a period of more than two weeks, and by which the physician will be required to make three copies of each prescription so that one may be filed with the board of health. These amendments were included in the original bill but were cut out at the time the bill was introduced because of the strong opposition to them which threatened the defeat of the entire bill.

"Patent Medicine" Bill.—A bill has been introduced in the legislature simultaneously by Assemblyman Fertig and Senator Hamilton which aims to compel "patent medicine" manufacturers to inform the public as to the exact contents of their nostrums. The proposed measure follows exactly the provisions of the ordinance of the health department of New York City. The latter earnestly requests every public spirited citizen to give effective support to this measure, so that the standard set by the municipality and state of New York will eventually lead to national legislation for the control and sale of "patent medicines."

Publicity and Education.—In order to inform the public of what has been done by the department, and how the appropriations were expended during the last fiscal year, Health Commissioner Biggs has mailed to members of the legislature, mayors of cities, village presidents, health officers and others interested, a pamphlet summarizing the work of the department from Oct. 1, 1914, to Sept. 30, 1915. Particular attention is called to the reduction in the death rate from 15.8 per 1,000 in 1913 to 15.1 in 1915, and also to the marked reduction in the infant death rate from 120 in 1913 to 101 in 1915.

New York City

Trichinosis in Far Rockaway.—Four deaths from trichinosis have occurred within two weeks in St. Joseph's Hospital at Far Rockaway. All the victims were members of one family who had eaten two young pigs bought from a peddler.

Lectures on Health Topics.—The Working Women's Protective Union is giving a course of seven lectures on health subjects. Among those who have agreed to speak are Drs. Henry Dwight Chapin, Walstein M. Tompkins, John B. Solley, Jr., Haven Emerson and William J. Robinson.

Death of Mrs. Jelliffe.—On March 3, Helena Leaming Jelliffe, wife of Dr. Smith Ely Jelliffe, died from cerebral hemorrhage, aged 48. Although not a physician, Mrs. Jelliffe was in close touch and sympathy with medical work, and her cooperation with her husband, chiefly through translation, has broadened the fields of nervous and mental medicine.

Free Course of Instruction in Contagious Diseases.—The department of health announces that, beginning March 7, at the Willard Parker Hospital, a free course of instruction in contagious diseases will be given. Each course consists of six clinical and two laboratory lessons given during two successive weeks on Tuesday, Wednesday, Thursday and Friday, at 2 o'clock. Classes are limited to ten members. Physicians desiring to participate are invited to register with the Bureau of Public Health Education, Department of Health, 139 Centre Street.

Health District No. 1.—The *East Side Chronicle*, which is the monthly periodical of Health District No. 1, has found it necessary to increase its issue from 5,000 to 15,000 copies. This is very gratifying to those conducting the work in this district, and bears witness to the interest taken in this work which was begun several years ago as an experiment to demonstrate the value of intensive health work. Health

District No. 1 is amply demonstrating the value of its methods. The health officer of the district has been elected a member of the executive board of the East Side Neighborhood Association, a director of the Parent's Association of Public School No. 62, and a member of the executive board of the Seward Park Community Center; thus all these associations operate in Health District No. 1, and an active participation of the health officer in all the affairs of the district is insured.

NORTH CAROLINA

Personal.—Dr. Hubert A. Royster, Raleigh, secretary of the state board of medical examiners, has accepted an invitation to deliver the address to the graduating class at the Naval Medical School, Washington, D. C., April 12.

North Carolina in Registration Area.—Two clerks from the U. S. Department of Vital Statistics at Washington, D. C., have spent several weeks in checking up the vital statistics of the state board of health at Raleigh, and it is expected that on their return and report the state will be admitted to the registration area.

Meeting of State Society.—The sixty-third regular annual session of the Medical Society of the State of North Carolina will be held in Durham, April 18-20, under the presidency of Dr. M. Hall Fletcher, Asheville. County secretaries are reminded of the change of date of holding the annual session, which was formerly held in June.

Antityphoid Unit.—The state board of health announces that Cabarrus and Mecklenburg counties are the first to make application and to be accepted by the state board for the unit of antityphoid work which the board proposes to undertake for a number of counties during the summer. These counties have already made the required appropriation and the board is preparing the schedule, which will be ready in April or May. As a result of the work done last year, more than 50,000 people were immunized against typhoid fever.

Tuberculous Clergymen.—The state board of health has offered space in the park of 1,400 acres surrounding the State Sanitarium for Tuberculosis, Montrose, to any church for the erection of one or more cottages for the housing of ministers and their families who may become tuberculous. The offer will also be extended to various secret societies and fraternal organizations in the state, or if preferred, churches or other organizations may have the privilege of endowing one or more beds in the attractive new building now being completed at the sanatorium.

PENNSYLVANIA

Must Take Additional Year.—A resolution was adopted recently by the Bureau of Medical Education and Licensure of Pennsylvania that graduates of all medical schools in the Dominion of Canada be required to take the final year in one of the Pennsylvania medical colleges and to qualify in the hospital intern year before being eligible to enter the Pennsylvania licensing examination. This action is similar to that taken in recent years by the licensing boards of certain Canadian provinces, affecting graduates of American medical schools.

Personal.—Dr. Jane Wells Craven, Pittsburgh, who is in charge of the Pittsburgh Field Hospital, sailed for Europe on the *Rochambeau,* March 4.——Dr. John C. Miller, Shenandoah, who has served for a year in Hungary and Russia with the American Red Cross unit, returned home, February 22. ——Dr. John A. Fritchey, Harrisburg, underwent a fifth surgical operation at the Presbyterian Hospital, Philadelphia, February 25.——Dr. Daniel W. Collins, for seventeen years a member of the staff of Mercy Hospital, Wilkes-Barre, has resigned.——Dr. John B. Armstrong, Beaver, was operated on at the West Penn Hospital, Pittsburgh, recently, and is reported to be doing well.——Dr. Elmer S. Stambaugh, Thomasville, who has been critically ill, is reported to be slowly improving.——Dr. Frank S. Simpson, Pittsburgh, has been visiting in Pensacola, Fla.

Philadelphia

Smallpox in City.—Four cases of smallpox have been discovered within a week in different sections of the city. Nearly 4,000 people have been vaccinated. All were colored people, and in fact all the smallpox here in the last five years has been among colored people.

Memorial to Dr. Musson.—A special operating room for ear, nose and throat cases has been equipped by the graduates and friends of the Women's Medical College of Pennsylvania in memory of Dr. Emma E. Musson, who was the first female professor of otology.

Ambulance Oil Given to French Hospital.—The oil men of this city have temporarily at least saved the situation for the American patrons in the work of caring for the sick and wounded of the French army at the American Ambulance Hospital. One hundred barrels of oil were given by the Oil Trade Association of Philadelphia. The French government has given the oil, but lately has found it impossible to get a supply. There are 160 patients in the hospital.

Personal.—Dr. Clarence Rugh delivered an address before the Lawrence County Medical Society, February 18, on "Tuberculosis of Bones."——Dr. William J. Ryan has been appointed assistant ophthalmologist at the Philadelphia General Hospital.——Dr. Charles S. McGiven has been appointed clinical assistant physician to succeed Dr. Roy Parker, promoted.——Dr. Edwin W. Rodenheiser has been named assistant resident physician of the Bureau of Charities, to succeed Dr. Joseph McIver, resigned.

Medical Reserve Corps of the United States Army About Philadelphia.—A meeting was held at the College of Physicians' Building, on February 16, to form a permanent organization of those members of the Medical Reserve Corps of the United States Army residing in Philadelphia and the adjacent territory, including Pennsylvania and New Jersey. The organization will be conducted along the same lines as those which have been proved successful at other centers, including New York, Chicago and St. Louis.

John Thomson, the Physicians' Helper.—The death of John Thomson, city librarian, has brought sorrow to many members of the medical profession of this center, and especially to those in the Philadelphia County Medical Society, who are more especially interested in the value to doctor and patient of the "branch" plan. It was through the personal influence of Mr. Thomson that the directorate of the Free Library system of the city so promptly enabled the Kensington Branch to meet at the Lehigh and Sixth street building, the first section of the County Society to meet in one of the Carnegie library structures. The North, the West, the Germantown, the Southwark and Frankford branches came later.

Board of Health Plans Improvements.—The board of health, under the directorship of Dr. Wilmer Krusen, is determined to improve the Byberry tract and will make of it one of the best municipal hospital and institutional places of the country. The first improvement to be made there will be the completion of a heat and power plant, which will make available the buildings already erected for feebleminded women of child-bearing age. This plant is expected to be ready for use by August.——A contract has just been awarded for a sewage disposal plant at the Byberry tract, which will be constructed at an approximate cost of $18,000. The tract, which comprises nearly 1,000 acres, has suffered previously from a faulty water supply.——A new institution for insane men and women will be erected on the tract under the new health administration. The crowded condition of the Philadelphia General Hospital for the Insane has made the erection of new buildings imperative.——In connection with the study of insane persons at the Philadelphia General Hospital, Dr. Krusen has appointed four additional physicians to the neurologic department.——A campaign for the elimination of spitting in public places is also about to be started, and the police will be instructed to approach any person observed to have violated the statute and hand the offender a card containing a copy of the act against spitting.

WISCONSIN

Optometrists Seek School.—The optometrists of the state are said to be demanding the establishment of a department of optometry in the state university, Madison.

Personal.—Dr. Walter S. Stevens, U. S. I. S., agency physician at Keshena, has been appointed school physician at Mount Pleasant, Mich.——Dr. Norman F. Hoffman, formerly superintendent of the State Tuberculosis Sanatorium, Wales, has reopened his office in Milwaukee.

Typhoid in Milwaukee.—One hundred and seventy-seven cases of typhoid fever have been reported to the health department of Milwaukee, with eight deaths, up to February 28, and Health Commissioner Ruhland announces his intention of asking for general antityphoid inoculation unless the epidemic is checked.

VIRGINIA

License Tax for Doctors Defeated.—In the house of delegates, February 17, the bill fixing a tax of $10 on physicians was defeated by a vote of fifty-seven to twenty-four. The vote was on the engrossment of the bill and by refusing engrossment, the house defeated the bill and struck it from the calendar. There was formerly a tax of $15 a year on physicians, but this was repealed by the legislature in 1914.

Communicable Diseases.—Health Officer Ernest C. Levy, Richmond, states that in the opinion of the health department, an epidemic of measles has made its appearance among schoolchildren and is spreading rapidly. He urges all physicians to comply with the city ordinance and report all cases as soon as possible.——Several cases of smallpox have been reported in the northern part of Frederick County, and all schoolchildren have been ordered vaccinated.

CANADA

Hospital News.—The Queen's Canadian Hospital Aids is a club of girls organized for the purpose of raising funds and making surgical supplies for the Queen's Canadian Military Hospital, Beachborough Park, Shorncliffe, England. It is located in Toronto, but the hospital was organized in Kingston, Ont.——The Mount Sinai Sanatorium at Ste. Agathe, Que., treated ninety-eight tuberculous patients in 1915. Of that number forty-five were discharged cured, thirty-nine are still inmates, seven left uncured, and only seven died, five of the latter being old cases of long standing. The institution shows a deficit for the year of over $8,000, the expenses amounting to $25,850.——Although the increased cost of living advanced considerably in Ontario in 1915, the Stratford (Ont.) General Hospital reduced the per diem expenses of their institution by 12 cents. The average cost per patient per day was $1.50. There were 671 patients treated, 102 being free patients.

Personal.—Dr. John A. Blezard, Warkworth, Ont., has enlisted with the Royal Army Medical Corps and expects to go overseas at an early date.——Surg.-Gen. George A. Sterling Ryerson, Toronto, delivered an address before the Canadian Club, New York, February 8. As a result the club has presented a motor ambulance to the Canadian Red Cross Society.——Capt. C. E. Cooper Cole, formerly a practitioner in Toronto, who has been in France with No. 1 Clearing Hospital, then with No. 2, and was then transferred to the Princess Patricia Regiment, was reported to have been wounded on February 24.——Dr. Harry J. Watson, Winnipeg, has been appointed medical officer of the 144th Battalion. ——Hon. Dr. Robert A. Pyne, minister of education in Ontario, who has been in England for nine months superintending the erection and equipment of the Ontario Military Hospital at Orpington, Kent, is expected home this week.—— Dr. Howard Black, a house surgeon of the Toronto General Hospital, has been appointed assistant superintendent of that institution, vice Dr. Charles K. Clarke, resigned, to pursue postgraduate studies.

A National Department of Health.—Dr. Steele, M.P., North Oxford, Ont., introduced a resolution in the Canadian House of Commons last week expressing the greater need at the present time for a national department of health than at any previous time in the history of the Dominion. He pointed out that while all the provincial governments maintained well-organized health boards, the Dominion had the control of many matters relating to the health of the people distributed over eight or ten departments of the government. Practically every European nation, with one or two small exceptions, has organized national health departments, but Canada lags behind. He spoke of the progress made in the United States toward a department of health; also in Japan. There was urgent need for such a department in Canada, as at the close of the war there would in all probability be a greater influx of immigrants than ever before in the history of the country. He believed that 40 per cent. of the babies dying in Canada every year could be saved. It was promised by the government that the matter should receive due consideration. The Canadian Medical Association first began to urge a federal department of health on the Canadian government in 1901.

GENERAL

Typhus Investigator Dies.—Morris Buttner, a United States immigration inspector at El Paso, who had been searching for evidence of the presence of typhus fever in Juarez, Mexico, for twenty-four days and reported that no traces of the disease could be found there, died in El Paso, February 27, it is said from nonepidemic typhus fever.

The Virus of Rocky Mountain Spotted Fever.—Surg. Lunsford D. Fricks, U. S. P. H. S., in the current issue of *Public Health Reports,* states that he has been able, by the use of anaerobic methods, to cultivate from the blood of guinea-pigs infected with Rocky Mountain spotted fever certain bodies, probably of a protozoan nature, which he believes may bear some definite relationship to the disease.

Change Camp Dates to Accommodate Association.—In order to permit the attendance at the annual meeting of the American Medical Association at Detroit, June 12 to 16, of those officers of the medical corps of the organized militia who desire to attend, the days previously set for camp of instruction of medical officers and noncommissioned officers of the organized militia have been changed from June 5 to 15 to June 19 to 29 by the Chief of the Division of Militia Affairs.

Life Insurance Directors Elect Officers.—At the sixth annual meeting of the medical section of the American Life Convention, held in Birmingham, Ala., March 1 to 3, the following officers were elected: Dr. Frank W. Foxworthy, Indianapolis, chairman; Dr. J. Pinkney Turner, Greensboro, N. C., vice chairman, and Dr. Frank L. B. Jenney, Chicago, secretary (reelected). Drs. Green V. Woollen, Indianapolis, and Charles N. McCloud, St. Paul, were elected members of the board of managers.

Missouri Valley Physicians Meet.—The twenty-eighth semiannual meeting of the Medical Society of the Missouri Valley will be held in St. Joseph, Mo., March 23 and 24, under the presidency of Dr. John P. Lord, Omaha. Dr. Floyd H. Spencer is chairman of the committee of arrangements. On the first day there will be a symposium on "Diseases of the Knee Joint" and on the second day one on "Syphilis." The banquet will be held on the evening of the first day, when the members will be guests of the Buchanan County Medical Society.

The Journal of Immunology.—The first issue of the *Journal of Immunology,* the official organ for serology and hematology, and the American Association of Immunologists, has just appeared. It contains articles by Drs. Richard Weil, J. A. Kolmer, Frederick P. Gay, Ruth L. Stone, T. Harris Boughton, F. Berry and C. O. Melick, as well as an abstract of the Proceedings of the Society for Serology and Hematology, New York. The journal is to be issued monthly. The editor is Dr. Arthur F. Coca, 8 West Sixteenth Street, New York City.

Army Medical School to Have Charge of Washington Asylum and Jail.—The transfer of the supervision and direction of the medical service of the Washington Asylum and Jail, in the District of Columbia, from the board of charities to the commandant of the Army Medical School is provided for in a bill recently introduced into Congress by Senator Hollis of New Hampshire. The Washington Asylum is substantially the city hospital for the District of Columbia and has approximately 250 beds. The apparent purpose of the bill is to enable the students in attendance at the Army Medical School to obtain clinical instruction.

Admission to Mails of Medicinal Preparations Containing Poisons.—The admission to the domestic mails of medicinal preparations which contain poisons in only sufficient quantity and form in combination with other ingredients to be used exclusively as curative or remedial substances, and which are not dangerous or injurious to life, safety, health or property, is proposed in a bill recently introduced into the house of representatives by Representative Griffin of New York. The article mailed is to bear the label or superscription of the manufacturer thereof or dealer therein, or of the licensed physician, pharmacist, dentist or veterinarian preparing or prescribing the same.

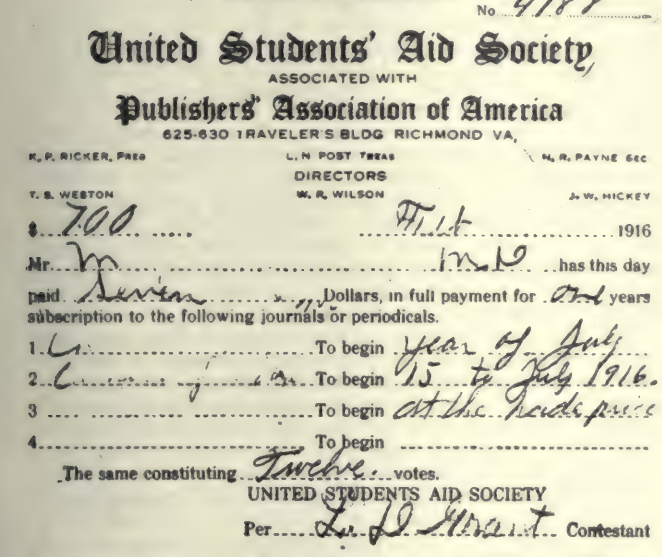
Army Medical School Lacks Adequate Facilities. — Impressed by the work of the Army Medical School and the inadequacy of the facilities provided for that work, Drs. John M. T. Finney and Joseph C. Bloodgood of Baltimore recently left with the president the following memorandum:

> We are so impressed by the character and importance of the scientific work which is being done there we feel the need of bringing to the attention of yourself and the country the utterly inadequate facilities provided not only for purposes of investigation, but for those of instruction as well. The quarters are unsuited for existing conditions and they will prove still more so in case of any expansion of the service.
>
> We furthermore, from our experience as teachers, believe that the Army Medical School should be in the vicinity of, and closely affiliated with, the newly established Walter Reed Hospital for the benefit of both institutions.

Investigation of the Dairy Industry.—Reciting that dairies and dairy products are not subject to federal inspection and that there is a growing sense of alarm among consumers,

a resolution introduced into Congress by Representative Linthicum of Maryland calls for the appointment by the speaker of the house of representatives of a committee of five members of the house to investigate and report as soon as practicable: (*a*) whether conditions prevailing in dairies and dairy products seriously menace the health and property of the people of the United States; (*b*) whether federal inspection and supervision, either alone or in cooperation with state and municipal inspection and supervision is necessary to the reasonable protection of the health and property of the citizens of the United States, and (*c*) if so, then the best and most economic methods of inaugurating and enforcing such inspection and supervision.

Once More a Warning.—THE JOURNAL reproduces here what is stated to be an official receipt issued by an agent who solicits subscriptions for various publications for which he is not an authorized agent. THE JOURNAL has been informed that an investigation made in Richmond, Va., revealed the fact that there is no United Students' Aid Society in that place. In fact, the room numbers printed on the receipt blank are higher than those actually existing in the building. This scheme resembles to some extent that described in THE



OFFICIAL RECEIPT No. 4188

United Students' Aid Society

ASSOCIATED WITH

Publishers' Association of America

625-630 TRAVELER'S BLDG RICHMOND VA,

E. P. RICKER, Pres. L. N. POST Treas. H. R. PAYNE Sec.

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Mr. M in 12 has this day

paid Levin Dollars, in full payment for One years subscription to the following journals or periodicals.

1. C To begin Year of July

2. C To begin 15 to July 1916.

3 To begin at the Independence

4 To begin

The same constituting Twelve votes.

UNITED STUDENTS AID SOCIETY

Per L. D. Grant Contestant

JOURNAL, Sept. 4, 1915, p. 888; Oct. 23, 1915, p. 1472, and Nov. 20, 1915, pp. 1825 and 1827. As the name of the so-called "Students' Aid Society" has been changed, though not the method of obtaining subscriptions, physicians are again warned concerning this scheme. Money should not be paid to any one claiming to represent the American Medical Association unless he carries credentials bearing the signature of the Editor and General Manager and the seal of the Association.

Camps of Instruction for Medical Officers.—Maj. Louis T. Hess, M. C., U. S. Army, assistant to the Chief of the Division of Militia Affairs, announces the plans of the division for instruction of medical officers and noncommissioned officers of the organized militia and officers of the Medical Reserve Corps, U. S. Army, inactive list, for the summer, providing Congress makes the necessary appropriations. The camps will be located at Tobyhanna, Pa., Anniston, Ala., Sparta, Wis., Fort Riley, Kan., and Monterey, Calif. The pay, transportation and subsistence of enlisted men will be defrayed by funds allotted to the states from the appropriations for the organized militia. Officers of the Medical Reserve Corps will attend the camp at their own charges, as no provision of law is made whereby they can receive pay or transportation from federal funds. Officers, noncommissioned officers, and sanitary units of the organized militia will be ordered to the schools on the recommendation of the adjutants general of the various states and of the District of Columbia. At the Tobyhanna, Pa., camp, the organized militia school will be in session from June 19 to 29; the joint camp from June 29 to August 20, and that for the Medical Reserve Corps from August 21 to 31. At this camp the fifth, sixth, seventh and eight militia divisions will assemble. At the Anniston, Ala., camp, the ninth and tenth militia divisions will receive instruction. The period from July 31 to August 10 will be devoted to the militia and Medical Reserve Corps and a joint camp from August 14 to September 14. At Sparta, Wis., the organized militia will assemble from June 19 to 29; there will be a joint camp from June 29 to August 10, and the Medical Reserve Corps will receive instruction from August 14 to 24. This camp will include the eleventh, twelfth and thirteenth militia divisions. The Fort Riley, Kan., camp, at which the fourteenth and fifteenth militia divisions will assemble, will be opened for the instruction of the organized militia and the Medical Reserve Corps from June 19 to 29, and there will be a joint camp from June 15 to July 16. The sixteenth militia division will receive its instruction at Monterey, Calif. The school for the organized militia and Medical Reserve Corps will be held from July 17 to 27, and the joint camp from August 1 to 11.

WAR NOTES

Medical Unit Sails for Germany.—The third medical relief unit for Germany sent out by the American Physicians' Expedition Committee, Arthur von Briesen, New York, chairman, sailed on the *Oscar II*, February 17. Three surgeons sailed with this unit; two more will leave in a few days.

Germany Prohibits Certain Imports.—According to *Commerce Reports*, an ordinance, published Feb. 26, 1916, in Berlin, prohibits, until further notice, the importation into Germany of certain articles of luxury. Among the large number of articles specified are certain fruits, champagne, certain clothing, furriers' goods, machinery and tools, including typewriters, adding machines and sewing machines.

LONDON LETTER

LONDON, Feb. 14, 1916.

The War

THE HEALTH OF WOMEN SHELL MAKERS

The wholesale withdrawal of men from industries to military service has resulted in the employment of women in industrial occupations on a huge scale. The government has made every provision to safeguard the health of the large number engaged in munition work. A health and munition workers' committee consisting of medical experts and philanthropic persons has just issued a report on the question of the health of the women engaged in shell making. It is pointed out that the increased output which leads to bad health, and so to much lower output, is no economy. The matter is dealt with under five headings. Of these the period of employment is fully considered and the effect of night work examined critically. Night work is perhaps a necessary evil at present. The committee calls for improved means of transit to and from work, and also urges that when possible the three shift system should be adopted. A portion of Saturday and the whole of Sunday should be reserved for rest, and the periodic factory holiday should not be omitted. Canteens should be opened at every change of shift, and seats with backs provided, the extra expense being fully compensated for by the extra comfort and so by the extra efficiency. Cloakrooms and drying rooms for wet weather, and working overalls also make for comfort. In all cases forewomen, nurses and welfare supervisors should if possible be appointed, and a trained nurse should always be available where there is liability to accident or a large number of workers. Overtime, it appears, must continue, but requires to be made subject to restrictions. These cannot well be formulated till a trial of restricted Sunday work has been made. The following recommendations are formulated as suitable to war conditions:

1. The average weekly hours (exclusive of meal times) should not exceed from sixty-five to sixty-seven, including overtime. Hours in excess of sixty-five should be worked for only short periods, and to meet sudden and unexpected circumstances. It may be desirable to differentiate to some extent between different kinds of work, and to fix a rather lower limit of hours for work requiring individual attention.
2. Where practicable the overtime should be concentrated within three or four days in the week, which should preferably not be consecutive.
3. When overtime is worked it is specially important that there should be no Sunday work.
4. The practice prevailing in certain districts of working from Friday morning, all through Friday night, and until noon on Saturday should be discontinued. Such hours may be permissible for short spells, but cannot be satisfactory from the point of view either of health or of output, if continued for indefinite periods.

Antiseptics from Sea Water

The electrolytic decomposition of sea water yields sodium hypochlorite, which is a powerful antiseptic, at a very small

cost. This fact has been turned to account in the disinfection of hospital ships, which are so largely used by us in the war, by means of an apparatus recently installed in the *Aquitania* under the supervision of Dr. Dakin, and at the instance of the medical research committee of the national insurance act. The apparatus consists of an electrolytic cell, a reversing switch capable of carrying 100 amperes, and some ordinary insulated electric cable. The cost is about $250. The cell stands on a rubber mat to insulate it, and is raised on a low table to enable its contents to be poured out easily. It is filled with cold sea water, and if a current of from 60 to 75 amperes at 110 volts is then turned on, a solution containing 2 parts of sodium hypochlorite or available chlorin to 1,000 parts will be obtained in five minutes. The cost of this solution works out at 6 cents per hundred gallons. The solution is also excellent as a sterilizer of drinking water (1 part chlorin to 1,000,000 parts), and as an antiseptic for wounds (used undiluted as produced by the electrolyzer, that is, 2 parts sodium hypochlorite to 1,000 parts). Further, in the butcher's department its value was soon evident, and also in the laundry for soaking undyed cotton and linen goods. It was added to the water in the swimming bath of the ship in the proportion of 1 : 2,000,000, with the result that bacteria present to the number of 2,000 per cubic centimeter were reduced to 200. The economy in replacing expensive coal-tar disinfectants, such as phenol (carbolic acid), by electrolytic hypochlorite will approximately pay for the cost of the cell ($250) in the course of a single trip of three weeks.

An Outbreak of Diarrhea Due to Pollution of Public Water Supply

An extensive outbreak of diarrhea affecting 1,700 persons in a rural district of Derbyshire has been traced to an unusual cause—sewage contamination of the public water supply. At first the outbreak was puzzling. It was thought that the symptoms might be due to the gastro-enteric form of influenza or to food poisoning. The large number of persons simultaneously attacked rendered the former hypothesis unlikely, while, were the latter to be entertained, it was obvious that some article of almost universal consumption would require to have been inculpated, and no food used locally was found to be so consumed. Careful inquiry excluded milk, shellfish and other articles of food as possible causes of the outbreak. Finally, suspicion fell on the water supply, as the vast majority of persons attacked by diarrhea resided in the two parishes, while the inhabitants of other parts of the district were practically exempt. The two parishes have a common water supply, distinct from that of the remainder of the district. It was found on bacteriologic examination that while the water in the reservoir was free from *Bacillus coli*, water drawn from household taps in the affected parishes contained that organism. It was therefore conjectured that sewage had gained entrance to the water main at a point between the reservoir and the boundary of the affected district. The epidemic commenced in the first week of March, and was at its height in the third week, after which it declined. March 19, a sewer which crosses over the main conveying water from the reservoir to the affected area was found to be broken for a distance of 16 feet, and had apparently been in this condition for a considerable period, as sewage was intimately mixed with the surrounding clay. The water supply throughout the whole of the two affected parishes was cut off for two days, and the repair of the sewer coupled with the cutting off of the water brought the epidemic practically to an end. No defect could be found in the water main, but in a by-pass connecting the inlet of the reservoir with the outlet main, a hole was discovered only 2 feet distant from one of the broken pipes of the sewer.

The onset of the attack was generally sudden and accompanied by headache, nausea, pains in the abdomen and back, cramps in the leg, and diarrhea. The patients often complained of "shivers" or rigors in the early stages. In mild cases the diarrhea lasted for one day, but in the severe cases it persisted for a longer period and was profuse and frequent, a condition amounting to collapse being produced. Sometimes these symptoms were succeeded by lassitude and headache accompanied by depression. As a rule, the symptoms persisted for a period ranging from ten days to a fortnight, during which the patient felt disinclined for work. The spleen and liver were not palpable. No spots were observed. In the chest the signs appeared normal. During the period of the outbreak six cases of typhoid fever were reported, but it is probable that only four of these patients had the disease. The results of bacteriologic examination were not very definite. Specimens of feces in twelve cases were examined. The typhoid bacillus was isolated in two, the typhoid bacillus and the dysentery bacillus Y in one, the dysentery bacillus Y alone in one, while the remaining eight were found negative for typhoid and dysentery. Specimens of urine from seven patients were examined and all found sterile. The blood in thirteen cases was investigated: twelve of these gave a typhoid Widal and a dysentery Widal, while one gave a typhoid Widal alone.

PARIS LETTER

Paris, Feb. 10, 1916.

The War

THE SANITATION OF BATTLEFIELDS

As I have mentioned in previous letters, the solution of this problem is occupying the attention of many men. Cremation, which has been suggested, is distasteful to many persons in France. Dr. F. Bordas advises instead accelerated decomposition of corpses, which will permit the ultimate removal of the bones without danger to the living. In the "Study of Putrefaction," which Dr. Bordas published in 1892, he noted the extreme variability of the time required for decomposition. Almost each cemetery has its own peculiarities due to its geologic characteristics. In some cemeteries, like the Campo Santo of Pisa, bodies decompose rapidly, a fact which is attributed to the alkalinity of the soil. In others, like that of Saint Nazaire, the soil of which is compact clay formed from disintegrated mica schists, which retains the water permanently, decomposition is so slow that bodies have been found intact five years after burial. In dry, sandy soils, on the other hand, the corpse mummifies as it does in the dry cold air of Saint Bernard. The endeavor, then, should be to realize the conditions which favor decomposition. Bordas describes some interesting experiments in the *Revue d'hygiène*. Using bodies of animals, he ascertained that the germs and ferments of manure act rapidly and powerfully to produce decomposition. Obviously, however, manure cannot be used to accelerate the decomposition of the human body. Bordas therefore made an analytic study of the principal species of bacteria found in manure, and found that one group of ferments of manure has particularly powerful action, that of the ferments of urea. Bordas placed the body of a horse in a trench on a bed of straw and covered it with straw sprinkled with a culture of urea ferments. In twenty-one days nothing remained of the body except the bones. This transformation would have required three or four years in earth under ordinary conditions. To apply these experimental data to human bodies, Bordas says it would be necessary to place in a trench a layer of straw or leaves, to lay the bodies on this bed of straw and to cover them with a layer of straw or leaves moistened with the appropriate bacterial culture. Earth should not be laid on top of the straw; it would disturb the processes of decomposition, and it is not necessary, for no malodorous gases are disengaged during decomposition under these conditions. In a few weeks or months, at the most, nothing but bones would remain and burial might be made without the least danger to the living.

SANITARY CONFERENCE AMONG THE ALLIES

The allies, after having shared their experiences in regard to the conduct of war, the manufacture of munitions, etc., have concluded that the same thing should be done with respect to matters of prophylaxis, either among the civilian population or among the armies in the field. A sanitary conference, to which the allied nations are to send delegates, has therefore been decided on. A preliminary meeting of the French delegates took place under the presidency of M. Santoliquido, the Italian hygienist, at the office international d'hygiène at Paris. At this meeting the principal points to be discussed at the conference were agreed on.

THE COORDINATION OF ASSISTANCE TO THE ARMIES OF THE ORIENT

Under the authorization of the military medical service, offices have been opened at 62 Rue de Richelieu, Paris, by an organization intended to coordinate the aid sent to the armies of the Orient, and to centralize the distribution of gifts. Under the auspices of the central administration of the war, these donations will be distributed where needs are most pressing. The work of this bureau will include not only the soldiers of our expedition to the Orient and the Serbian army at Corfu, but also the Serbian women, children and old men who have taken refuge in Albania and Greece.

THE SOCIETY FOR THE BENEFIT OF THE MILITARY HOSPITALS

A new association, called Pour les Hôpitaux militaires, has just been formed. The purpose is to gather and distribute gifts to the hospitals in which soldiers from our armies are being treated. The headquarters of the society are at 131 Avenue des Champs-Elysées, Hotel Astoria, Paris, and the president is Mme. la marquise de Noailles, who is assisted by M. Henry Soulié as a general delegate from the war department.

DELAYED TETANUS

At a recent session of the Académie des sciences, Dr. P. Bazy made an interesting report on this subject. Delayed tetanus may occur from thirty to fifty days after the wound which is regarded as the cause; the patient may or may not have received a preventive injection of serum. The tetanus may appear without any appreciable cause, but it manifests itself especially following operations, not necessarily on the site of the original wound or in any way affecting it, as well as when the wound displays inflammatory symptoms again. Delayed tetanus is very serious, for death has been observed in one third of one series of cases and in one half of another. The lesson to be drawn from these facts is that it is not sufficient to make a single injection of preventive serum immediately after the wound, but that in all cases of suppurating wounds the injection should be repeated every eight days for about a month and again before any serious operation.

CLINICAL IMPORTANCE OF SOME TROPHIC DISTURBANCES IN THE COURSE OF WOUNDS OF WAR AFFECTING THE NERVES OF THE LIMBS

Dr. Maurice Villaret read a paper on this subject before the Société de neurologie de Paris. From a study of 110 personal cases of posttraumatic paralyses of the limbs, he concludes that hypotrichosis and spontaneous hypohidrosis are, like the reaction of degeneration, signs of complete section of the nerve. Hypertrichosis and hyperhidrosis correspond to an incomplete lesion of the nerve susceptible of regression and accompanied by light disturbances of the electric reactions. The absence of any modification of the hair and spontaneous perspiration is a characteristic of functional impotence without nervous lesion and with negative electrical reactions. Villaret also emphasizes two trophic disturbances which are symptomatic of serious neuritis: these are bleeding from a prick and ulceration following prolonged galvanization.

OPENING OF THE FRENCH HOSPITAL AT MILAN

In previous letters (THE JOURNAL, Oct. 9, 1915, p. 1296, and Oct. 23, 1915, p. 1474), I mentioned that French cities had offered a hospital to the Italian Red Cross. This hospital has just been opened at Milan, in the buildings of the Ricordi factory, in the presence of Italian and French persons of distinction.

THE ACTIVITY OF THE SOCIETY FOR AID TO WOUNDED SOLDIERS

From Aug. 2, 1914, the first day of mobilization, to Jan. 1, 1916, the Société Française de secours aux blessés militaires, one of the three societies which make up the French Red Cross, has operated 796 hospitals containing 67,081 beds. It has fitted up a large transatlantic liner, the *Charles Roux*, as a surgical hospital and has sent it to the Orient. It is now organizing at Saloniki a large hospital of 500 beds. Besides its 796 hospitals, the society supports 930 first-aid posts, 70 railway station infirmaries, which feed the sick and wounded on trains passing through, and which have distributed more than 5,000,000 meals, and 45 railway station canteens, a single one of which has distributed 226,900 meals since the outbreak of the war. The graduate nurses of the society number 15,000, about 3,000 of which are serving in the military hospitals. The activities of the society have necessitated the large outlay of 32,114,000 francs ($6,422,800) which has been distributed as follows: (1) hospitals, medicines and dressings, 26,071,000 francs ($5,214,200); (2) railway station infirmaries, first-aid posts, canteens, 3,540,000 francs ($708,000); (3) contributions for various purposes, 264,000 francs ($52,800); (4) automobiles (construction and upkeep), 939,000 francs ($187,800); (5) sent to the hospitals at the front, 1,300,000 francs ($260,000).

PERSONAL

Among those recently mentioned for conspicuous gallantry is Dr. Albert Thevenot, agrégé professor at the Faculté de médecine de Lyon, in the following terms: "An experienced surgeon, charged with the treatment of the wounded who could not be removed from near the front, he was able, by his ingenuity and the most commendable utilization of local resources, to adapt to the exigencies of modern practice such quarters as happened to be available, and to accomplish with success the most daring and delicate surgical operations, obtaining for the seriously wounded the best chances of safety and preserving seriously endangered lives."

The *Journal Officiel* publishes also the following mention for gallant conduct in civil life: "The government brings to the attention of the country the fine conduct of M. Samsoen, physician at Hazebrouck (département du Nord), who was the only physician remaining after mobilization in a population of 12,000, and within a considerable radius. He rendered medical service day and night without neglect or ceasing. He added to the medical care given to the population the organization of a free dispensary for refugees. With unwearying devotion, beyond all praise, he cared for those members of the civilian population who were wounded by bombs and shells and for the aged and sick and for the obstetric cases brought from the arrondissement of Hazebrouck, from the canton of Armentiéres, and from the Belgian cities Poperinghe and Ypres."

SANATORIUMS FOR TUBERCULOUS SOLDIERS

The undersecretary for the military medical service has just announced that, by agreement between the war department and the interior department, the latter will receive in special establishments called *stations sanitaires,* for a period of not more than three months, noncommissioned officers and soldiers affected with open pulmonary tuberculosis. The head physicians of hospitals are to select patients who have not sufficient means to provide suitably for themselves at their own expense. They are never to include patients whose condition is so serious that improvement under favorable conditions cannot be expected. The *stations sanitaires* are not hospitals, properly speaking. They are unable to receive cases requiring special care, or those in which the lesions are already so extensive and so far advanced that a fatal issue is inevitable within a short time. Neither are the men who are recognized as tuberculous on their arrival in the corps to be sent to these resorts; the latter are to be discharged immediately.

The request for admission to a *station sanitaire* is to be addressed to the director of the medical service of the region, and transmitted by him to the interior department. The interior department will inform the director of the medical service of the region, by telegraph, of the resort to which the patient may be sent and the date when he may be admitted. The patient is to be discharged from the army when, in the head physician's judgment, his stay at the sanatorium has been sufficiently prolonged, and in any case not longer than three months after his arrival.

Soldiers affected with open pulmonary tuberculosis who have already been discharged from the service, but are still under treatment in a military hospital, may, if they consent, be suggested for transfer to a *station sanitaire,* but their admission there will not be at the expense of the war department.

Death of Dr. Thulié

Dr. H. Thulié, former president of the municipal council of Paris and vice president of the superior council of the Assistance Publique, has just died, aged 84.

Marriages

GEORGE WALWORTH MELLON, M.D., Philadelphia, on duty with American Red Cross in Serbia, to Miss Zagorka D. Sabo of Belgrade, Serbia, at Athens, Greece, January 23.

WALTER F. PAYNE, M.D., Prairie Creek, Ind., to Miss Panzy Lawson of Sullivan, Ind., at Terre Haute, Ind., February 20.

JACK W. BROWN, M.D., Las Animas, Colo., to Mrs. Mabel B. Hager of Eaton, Colo., at Pueblo, Colo., February 21.

JOSEPH P. KENNEDY, M.D., Columbia, Pa., to Miss Lillian F. Wardell of Toronto, Ont., at Columbia, February 22.

WILLIAM RUSSELL MACAUSLAND, M.D., Boston, to Miss Dorothy Brayton of Fall River, Mass., February 23.

FREDERICK KIRSCHENBAUM, M.D., Bensonhurst, N. Y., to Miss Lena B. Miller of Brooklyn, recently.

Deaths

George Lane Taneyhill, M.D., Baltimore; University of Maryland, Baltimore, 1865, aged 75; a Fellow of the American Medical Association; formerly president of the Baltimore City Medical Society; vice president of the Obstetrical and Gynecological Society of Baltimore; assistant surgeon of the Eleventh Maryland Volunteer Infantry during the Civil War; major, Medical Corps, Sixth Infantry, Maryland National Guard (retired); formerly president of the National Association of United States Pension Examining Surgeons; one of the most beloved practitioners of Baltimore; died at his home, March 2, from heart disease.

Angelo Maestri, M.D., New Orleans; Tulane University, New Orleans, 1895; aged 45; a Fellow of the American Medical Association and one of the best known practitioners and citizens of New Orleans, who was given a medal of honor by the king of Italy on account of his services to Italian subjects during an epidemic of yellow fever in New Orleans; organizer and head physician of the Citizens' Industrial Life and Sick Benefit Association; died at his home, February 18.

Thomas Boyd Morris, M.D., Atlantic, Iowa; Rush Medical College, 1900; aged 49; a Fellow of the American Medical Association and once president of the Cass County Medical Society; a well-known surgeon; secretary of the Atlantic Hospital Association; while crossing the tracks of the Chicago and Northwestern Railroad east of Atlantic, in his automobile, February 17, was struck by a train and died from his injuries in the Atlantic Hospital, February 19.

Henry Brydges Yates, M.D., Montreal, Que.; McGill University, Montreal, 1893; aged 50; for several years Norwegian consul-general at Montreal and president of the Quebec branch of the Canadian Red Cross Society; lieutenant-colonel, Canadian Army Medical Corps, and on duty at the Third Canadian General Hospital at the front; died in the Granville Special Canadian Hospital, Ramsgate, England, January 22, from pneumonia.

William C. Bouton, M.D., Waukegan, Ill.; Northwestern University Medical School, 1889; aged 50; formerly a Fellow of the American Medical Association; a Fellow of the American Academy of Medicine, a member of the Illinois State Medical Society and formerly president of the Lake County (Ill.) Medical Society; secretary of the Lake County Tuberculosis Institute; died at his home in Waukegan, March 1, from paralysis.

William John Browning, M.D., Indianapolis; Medical College of Indiana, Indianapolis, 1884; aged 62; formerly assistant superintendent of the Central Hospital for the Insane and formerly a member of the Indianapolis Board of Health; died at his home, February 23, from the effects of hydrocyanic acid, self-administered, it is believed, with suicidal intent, while despondent on account of ill health.

Charles Winthrop Williams, M.D., Minneapolis; Northwestern University Medical School, 1891; aged 52; formerly a Fellow of the American Medical Association; a member of the Minnesota State Medical Association; professor of materia medica and therapeutics in Hamline University, Minneapolis; died at his home, February 23.

J. McKendree Kemp, M.D., Welcome, Md.; University of Maryland, Baltimore, 1863; aged 79; surgeon in the Federal service during the Civil War and thereafter a practitioner of the Western Shore, Maryland; died in Johns Hopkins Hospital, February 18, from heart disease following the amputation of the right leg.

Edson B. Morrison, M.D., Athens, Ohio; Starling Medical College, Columbus, Ohio, 1881; aged 55; for the last two years a resident of San Pedro, Isle of Pines, W. I., and for many years prior to that time resident physician at the Ohio Hospital for Epileptics, Gallipolis; died at his home in Athens, February 23.

Allen Walker, M.D., Washington, D.C.; University of Maryland, 1886; aged 63; a member of the Medical Society of the District of Columbia and formerly one of the physicians to the poor of the District of Columbia; died at his home in Washington, February 21, from pernicious anemia.

Milton Edward Baxter, M.D., Jersey City, N. J.; Jefferson Medical College, 1909; aged 34; a Fellow of the American Medical Association; a member of the consulting staff of Christ's Hospital and of the Hudson Street Hospital, Jersey City; died at his home, February 22, from pneumonia.

Samuel H. Linn, M.D., Rochester, N. Y.; University of Pennsylvania, Philadelphia, 1877; aged 72; a veteran of the Civil War in which he served in the Navy; for eighteen years a practitioner of dentistry in St. Petersburg, Russia, and thereafter a resident of Rochester; died at his home, February 26.

George W. Smith, M.D., Fort Smith, Ark.; Tulane University, New Orleans, 1867; aged 74; surgeon in the Confederate service throughout the Civil War and later a practitioner and druggist of Alma, Ark.; died at his home, February 20, from cerebral hemorrhage.

Buckner Fairfax Scott, M.D., Terra Alta., W. Va.; Jefferson Medical College, 1906; aged 36; a member of the West Virginia State Medical Association; a veteran of the Spanish-American War; postmaster of Terra Alta; died suddenly at his home, February 21.

Thomas Shearer, M.D., Baltimore; Homeopathic Medical College of Pennsylvania, Philadelphia, 1858; aged 90; formerly a practitioner of Charleston, S. C., and surgeon in the Confederate service throughout the Civil War; died at his home, February 18.

Daniel Burr Stone, M.D., Kramer, Ind.; Chicago College of Medicine and Surgery, 1913; aged 33; pathologist of the Mudlavia Sanitarium; died in that institution, February 22, from burns received in an explosion of alcohol in his laboratory a week before.

Ralph William Hill, M.D., Garrisonville, Va.; Milwaukee Medical College, 1908; aged 32; formerly a member of the Medical Society of Virginia; died in the Mary Washington Hospital, Fredericksburg, Va., February 20, a week after a surgical operation.

Winfield Scott Madden, M.D., Altoona, Pa.; Jefferson Medical College, 1876; aged 65; who had been ill with nephritis for several years; died in the Blair County Home Hospital, Altoona, February 14, from erysipelas of the right leg and thigh.

Theodore Keune, M.D., New York City; College of Physicians and Surgeons in the City of New York, 1878; aged 63; a Fellow of the American Medical Association and for fifteen years visiting physician to Harlem Hospital; died at his home, February 26.

William Ludy Baird, M.D., Huntsville, Tex.; University of Louisville, 1885; aged 58; for several years cashier of the Rockdale State Bank and for the last year head bookkeeper of the Huntsville Penitentiary; died at his home, February 17.

Oliver P. Kernodle, M.D., Skiatook, Okla.; University Medical College, Kansas City, Mo., 1884; aged 57; who had taken a trip to Arizona for his health and was returning; died in a hospital in Oklahoma City, February 17, from tuberculosis.

Benjamin W. Phillips, M.D., Leeper, Pa.; Western Reserve University, Cleveland, 1876; aged 61; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; died at his home, February 8.

William Hammond Eaton, M.D., Adrian, Minn.; State University of Iowa, Iowa City, 1902; aged 37; a member of the Iowa State Medical Society; while cranking his automobile, February 25, was run over by the car and instantly killed.

Willis A. Mirick, M.D., Monticello, Iowa; Hahnemann Medical College, Chicago, 1878; aged 61; a member of the Iowa State Medical Society; died suddenly from heart disease while making a professional call in Monticello, March 1.

William Byron McCoy, M.D., Lincoln, Neb.; Chicago College of Medicine and Surgery, 1914; aged 37; died at his former home in College View, Neb., February 21, from pneumonia, following a tracheotomy performed four days before.

William R. Lavender, M.D., Omaha; University of Nebraska, Omaha, 1890; aged 60; a Fellow of the American Medical Association and a well known practitioner of Omaha for the last twenty-five years; died at his home, February 28.

John A. Dowell, M.D., Albany, Ind.; Eclectic Medical Institute, Cincinnati, 1881; aged 58; while walking across the tracks of the Lake Erie and Western road at Albany, February 19, was struck by a train and instantly killed.

John H. Shultz, M.D., Logansport, Ind.; Eclectic Medical Institute, Cincinnati, 1872; aged 73; a veteran of the Civil War and deputy treasurer of Cass County, Ind., from 1868 to 1872; died at his home in Logansport, February 24.

Eugene Harold Brice, Jr., M.D., Atlanta, Ga.; Atlanta Medical College, 1915; aged 25; surgeon on the steamer *Stephen* of the Booth Steamship Line in its South American service; died February 13, and was buried at sea.

Thomas Feemster, M.D., Santa Cruz, Calif.; American Medical College, St. Louis, 1882; St. Louis College of Physicians and Surgeons, 1895; aged 65; died at his home, Dec. 14, 1915, from carcinoma of the stomach and liver.

John J. Detwiller, M.D., Easton, Pa.; University of Pennsylvania, Philadelphia, 1854; aged 81; a pioneer in the development of the slate and cement industries of Pennsylvania; died at his home, February 29.

David Allyn Gorton, M.D., Brooklyn, N. Y.; Hygieo-Therapeutic College of New York, New York City, 1858; aged 83; founder of the Eugenic Society of America; died at his home, February 23, from senile debility.

William Harrison Lenox, Rogers, Ark. (license Arkansas, 1903); aged 78; a veteran of the Civil War and for half a century a practitioner of Arkansas; died at the home of his daughter in Little Rock, Ark., February 22.

Loomis C. Blanton, M.D., Louisville, Ky.; Hospital College of Medicine, Louisville, 1906; aged 32; deputy coroner of Jefferson County in 1908 and 1909; died at his home near Blanton's Station, Louisville, February 21.

Stephen Hadley Steele, M.D., Caruthersville, Mo.; University of Pennsylvania, Philadelphia, 1854; aged 85; surgeon in the Confederate service during the Civil War; died at his home, February 17, from influenza.

Mary Elizabeth Newcomb Law, M.D., Windsor, Colo.; University of Michigan, Ann Arbor, 1890; aged 61; for many years a practitioner of Blissfield, Mich.; died at her home, February 9, from cerebral hemorrhage.

Frank Wilmont Morse, M.D., Thorndike, Me.; University of the South, Sewanee, Tenn., 1903; aged 35; a Fellow of the American Medical Assosciation; died at his home, February 6, from pleurisy with effusion.

Elijah Davis Arnet, M.D., Robard, Ky.; University of Louisville, Ky., 1894; aged 68; formerly a member of the Kentucky State Medical Association; died at his home, February 15, from pneumonia.

M. W. Smith, M.D., Gaffney, S. C.; Medical College of the State of South Carolina, Charleston, 1861; aged 80; a surgeon in the Confederate service during the Civil War; died at his home, February 7.

John Christian Modrack, M.D., Hastings, Mich.; Starling Medical College, Columbus, Ohio, 1882; aged 68; died in the Marion County Infirmary, Marion, Ohio, February 13, from cerebral hemorrhage.

Benjamin Franklin Richardson, M.D., Lynn, Mass.; Harvard Medical School, 1886; aged 52; a Fellow of the American Medical Association; died at his home, February 16, from endocarditis.

Ambrose M. Keim, M.D., Bethlehem, Pa.; Jefferson Medical College, 1877; aged 61; coroner of Northampton County, Pa., for twelve years; died at his home, February 14, from heart disease.

Charles Wheeler Morse, M.D., Salem, Mass.; Boston University School of Medicine, 1889; aged 59; chief surgeon of the Essex County Homeopathic Hospital; died at his home, February 14.

George S. Engler, M.D., Allentown, Pa.; University of Pennsylvania, Philadelphia, 1863; aged 81; surgeon of the Rush Lancers during the Civil War; died at his home, February 12.

Henry Ford, Paducah, Ky. (license, Kentucky, thirty years' practice and examination, 1894); aged 80; died at the home of his granddaughter in Puducah, February 18, from senile debility.

John Phillip Miller, M.D., Enterprise, Kan.; State University of Iowa, College of Homeopathic Medicine, Iowa City, 1888; died at his home, January 6, from acute bronchitis.

Chesley R. Roadman, M.D., Rankin Depot, Tenn.; Lincoln Memorial University, Knoxville, Tenn., 1892; aged 56; died at his home, February 18, from cerebral hemorrhage.

Richard H. Hanchey, M.D., Sugartown, La.; Baylor University, Dallas, Texas, 1906; aged 40; was shot and killed at his home by his stepson, in a quarrel, February 15.

Edgar C. Davis, M.D., St. Joseph, Mo.; Ensworth Medical College, St. Joseph, 1904; aged 53; died at the home of his daughter in Chicago, February 14.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

COLLOIDINE

Report of the Council on Pharmacy and Chemistry

The following report on Colloidine has been adopted by the Council and its publication authorized.

W. A. PUCKNER, Secretary.

This preparation, manufactured by A. Dubois, Paris, France, and marketed in the United States by the Boracol Chemical Company, Passaic, N. J., is described as

"A Colloidal Vegetable Iodine Combination."

Colloidine is sold in the form of tablets said to contain each ⅓ grain of iodin combined with 1 grain of "Vegetable Albumen" obtained from gluten. The advertising says much of the colloidal state, which is "characteristic of living organisms," within which "the reactions are nearly always between colloids." It is asserted that:

"Colloidine possesses a considerable catalytic action. It undergoes partial peptonization in the stomach and this work is continued in the intestines where the ferment erepsine destroys the albuminous molecule gradually liberating the iodine. . ."

"Colloidine acts not only like iodine, iodides, and all the derivatives of iodine in general but by reason of its *Colloidal* or *'living state'* it possesses a specific action on a great number of diseases."

"3 tablets of COLLOIDINE are equivalent to 15 grains of iodide. . . ."

"The action of Colloidine is much gentler than that of all other products of Iodine. *Its elimination is slower, more regular and more prolonged.* . ."

"Never produces Iodism."

The Chemical Laboratory of the American Medical Association could not confirm these claims. It reports that:

1. Iodin is present in Colloidine in the form of an iodid or a form which so readily yields iodid that the therapeutic effects of Colloidine administration would appear to be that of iodid medication. This is demonstrated by the fact that when Colloidine is treated with water all of the contained iodin goes into solution and from this aqueous solution silver nitrate solution precipitates all of the iodin.

2. Instead of the claimed iodin content of ⅓ grain (21.6 mg.) per tablet, the tablets of Colloidine were found to contain only 15.46 mg. (about ¼ grain) or about 72 per cent. of the amount claimed.

3. Each tablet corresponds in iodin content to 3/10 grain potassium iodid or ¼ grain sodium iodid. The largest dose of Colloidine recommended—15 tablets per day in syphilis—corresponds to a dosage of 4½ grains potassium iodid, or 3¾ grain sodium iodid. The small dose of iodid administered evidently accounts for the reported absence of symptoms of iodism after the administration of Colloidine.

Colloidine is called a

"New Treatment of Rheumatism, Gout, Arteriosclerosis, Arthritis, Asthma, Emphysema, Scrofula and Syphilis."

Since the chemical examination shows that treatment with Colloidine must amount to the administration of iodid—nothing more—the following claims are unwarranted; they are even absurd.

"Colloidine is the most useful medicine for Arteriosclerosis. It is not only a marvellous curative for this affection, but also an efficacious preventative in functional troubles of presclerosis . . ."

"Colloidine facilitates and regulates the menstrual functions . . ."

"Colloidine constitutes an ideal alterative for purifying the blood."

Finally, the recommendation to depend on Colloidine for the treatment of syphilis is fraught with danger. (As remarked before, the maximum daily dose of Colloidine is equivalent to only 4½ grains potassium iodid or 3¾ grains sodium iodid.)

"SYPHILIS AND ITS MANIFESTATIONS (Secondary and tertiary stages) Cerebral Syphilis.

"Dose.—Commence with 3 tablets in the morning and 3 tablets in evening, increase the dose 2 tablets every 8 days up to 15 tablets a day,

continue this dose for a month according to the [*sic*] of the stages of the disease. Twice a year in Spring and Autumn undergo two months treatment.

"In this affection Colloidine can be substituted for Iodides in permitting the absorption of large doses of Iodine without any toxic symptoms or fatigue whatsoever."

It is recommended that Colloidine be held ineligible for N. N. R. for conflict with Rules 1, 4 and 6.

The foregoing report was sent to the American agent for Colloidine, who in the course of time submitted a reply by the manufacturer. The reply objected to the method of analysis used and submitted a method. It also requested a "test" of Colloidine by "American doctors" and offered to remove conflict with Rule 4. The method of analysis used by the Association's chemists is a standard one; the one proposed by the manufacturers of Colloidine was unsatisfactory and gave variable and lower results. The manufacturer was therefore advised that the evidence submitted did not warrant further consideration of the product so far as the therapeutic claims were concerned, but that if evidence showing removal of conflict with Rule 4 was submitted the report would be modified to bring this out. No reply having been received to this, the report is now published.

Correspondence

The American Red Cross in Turkey

To the Editor:—The American Red Cross had charge of the French hospital of 120 beds, the British hospital of forty beds, and a large section of one of the large military barracks in the city, consisting of nine wards of 556 beds. The whole American community in Constantinople showed their interest by cooperating heartily in the work. The wounded were brought to Constantinople by Red Cross or Red Crescent ships from the Gallipoli peninsula, and were distributed to the various hospitals, barracks, schools, etc., which, in all parts of the city had been taken over by the militia, and transformed into emergency hospitals. The organization of these hospitals, the care of the wounded, the comparative freedom of the Turkish troops from epidemic diseases, all testify to the ability of the Turk to use modern methods of prophylaxis and sanitation in case of necessity. That the initiative in this case was taken by the German ally of Turkey is none the less reason for giving Turkey credit for a remarkable piece of work, as for instance the following:

Prophylaxis Against Epidemic Diseases in the Turkish Army: With the exception of a typhus epidemic in eastern Turkey, there has been no epidemic of consequence among the Turkish troops. All soldiers were given prophylactic injections of vaccines for Asiatic cholera, typhoid and dysentery, and were vaccinated for smallpox. The smallpox vaccinations, if unsuccessful, were repeated at intervals of a week, for four or five times. Three typhoid injections were given at intervals of three or four days, alternating with injections for cholera. The dysentery vaccine was given in one injection. Two kinds were made, one containing only the Shiga bacillus, and the other being a polyvalent vaccine, consisting of four strains of dysentery bacilli. The four vaccinations were completed in the course of ten days. Soldiers enlisting from time to time were checked up to see if they had received the prescribed number of injections. As to the efficacy of these vaccines, it is hard to judge, except negatively. The data available do not give evidence of any persons contracting the diseases after having been treated in the prescribed manner, and it is only negatively possible to conjecture what the result would have been had not the preventive measures been carried out.

The Typhus Epidemic in Eastern Turkey: It is not generally known that the typhus epidemic in Turkey equaled in severity, if it did not surpass, the Servian epidemic of the same disease, the number of victims being not far from 150,000 from conservative estimates. The sacrifice of life was due to the lack of equipment and of men properly trained to fight typhus epidemics, and to the difficulty of transportation in Asia Minor, and added to these, the necessity of Turkey using every resource for her actual fighting forces, and to the fact that in those eastern provinces supplies of soap, fuel and even water were very difficult to obtain. Hundreds of physicians and helpers sacrificed their lives in vainly trying to stem the tide. Nine of our Americans have succumbed to the disease, among the latter three of our best American physicians in that country. It is a sacrifice which might have been averted had they been fully equipped to fight the epidemic. In the Erzerum region, the deaths were several hundred per day, the condition of the people as to filth being indescribable. Great trenches were dug, and into these trenches were thrown each evening the bodies of the victims of that day. When that trench was filled, earth was thrown over the top and another trench prepared. The epidemic died out during the summer months, to reappear in the autumn, and is now continuing its ravages.

Tetanus in the Turkish Army: The large proportion of shrapnel and hand grenade wounds in this war makes the prevention and treatment of tetanus correspondingly important. Among the Turkish wounded, the proportion of those who developed tetanus was from 1:150 to 1:200. Prophylactic injections were not generally used in the field hospitals, and in only a few of the hospitals of Constantinople. Antitetanus serum was used in all of our cases, although it did not seem to influence the disease particularly, after the muscle contractions were well inaugurated, as the tetanus poison had evidently so combined with the nerve elements that its neutralization by a serum seemed impossible. The Turkish medical men regard tetanus as highly contagious, and rigidly enforce isolation and quarantine of all cases. This idea has resulted from so-called epidemics of the disease in hospital wards, the simple explanation being that, in all probability, the instruments or dressings used without careful sterilization between cases is the cause of the "epidemic."

Gas Gangrene Among Turkish Wounded in Constantinople: Inquiries as to the frequency of gas gangrene among the wounded in the hospitals in Constantinople gives an estimate of a proportion from 1:200 to 1:250 of all cases. One of the Turkish surgeons was treating patients with the actual cautery, cauterizing very extensively and deeply proximal to the margin of the advancing gangrene. He claimed to have saved a number of patients. I saved two by high amputation; one was a shoulder disarticulation, the other an amputation at the upper third of the thigh. In the latter case, on amputating, one group of muscles on the inner aspect of the thigh was seen to be full of gas. This group was removed from its insertion, and the other groups of muscles dissected apart and, the stump being left entirely open, the whole wound was drenched in strong potassium permanganate solution. This treatment of the wound was repeated twice daily for several days, recovery being uneventful. This muscle infiltration with gas was noticed in other cases, in one of which no crepitation could be elicited above the gangrenous area, which extended half way to the knee. At operation, however, amputation at the upper third of the thigh revealed the thigh muscles everywhere infiltrated to such extent that the muscles cut like lung tissue, and the disease was entirely uninfluenced by the operation. As with tetanus, I found that tardy gas gangrene developed following operation long after the original gunshot injury. I had two such experiences. One of these was a case of ununited fracture of the humerus with the severing of the musculospiral nerve and consequent wrist drop. I operated about two months after the injury, suturing the nerve and boneplating the humerus. Nothing unusual as to the character of the tissues was noticed at the operation. There had been no infection in the wound for some weeks preceding operation. Infection introduced from without can be ruled out. Beginning gas gangrene was noticed the day following operation, and thirty-six hours later the patient succumbed. In the light of this unfortunate result, I know of nothing which could have been foreseen as a contraindication to operation, or anything to indicate that this particular

patient had lurking within the wound a latent infection of this nature.

Spontaneous Healing of Traumatic Aneurysms: In THE JOURNAL, June 12, 1915, p. 2026, an abstract of an article by C. Longard *(Deutsche medizinische Wochenschrift,* April 15, 1915), informs us that a large artery never recovers spontaneously after being grazed by a bullet, so that the wall gives way. I wish to report three cases which occurred in my service for the Turkish wounded in Constantinople, in which, clinically speaking at least, perfect recovery followed rest in bed and the application of a simple bandage. One of these was a pulsating aneurysm of the external carotid of the right side of the neck. It was caused by a bullet which passed through the neck, leaving clean entrance and exit wounds. There was some general swelling of the soft tissues of the neck, and a visible tumor the size of a small walnut, easily compressible, with pulsation and bruit plainly transmitted to the examining hand. The soldier was under my care for about five weeks, after which he was transferred to a convalescent ward. I saw him about two months later, ready to return to his regiment. His aneurysm had become a hard nonpulsating nodule the size of a small hazelnut, and had given him no trouble whatever. The other two cases are practically repetitions of this case except for location, one case being a gunshot aneurysm of the popliteal artery of the left leg, and the other a gunshot aneurysm of the right femoral artery in the right groin. In both these cases, as in the first case, the aneurysmal tumors were palpable, pulsating, compressible and with distinct bruit. There was no infection present in any of these three cases. The patients were up and about before all pulsation and bruit ceased, the patient involuntarily holding the injured limb more or less flexed while walking. I have no statistics to show the proportion of these three cases to those which have come to operation.

A. R. HOOVER, M.S., M.D., Auburndale, Mass.

So-Called "Incipient" Tuberculosis

To the Editor:—Dr. Ritter's criticism of the expression "incipient pulmonary tuberculosis" (THE JOURNAL, Feb. 19, 1916, p. 592) is timely. In a paper read before the San Francisco County Medical Society last October (*California State Journal of Medicine,* 1916, xiv, 20), I called attention to the fallacy of using this term in describing a condition, the pathology of which was sufficiently advanced to give rise to demonstrable physical signs. At this time I ventured the opinion that "when it is generally recognized that tuberculosis obtains foothold first in infancy or early childhood, and when its pathology and the manner in which it spreads are more thoroughly understood, the term 'incipient' will not have the prominent place in medical nomenclature it now possesses. There will then be a general recognition of the fact that true incipiency in lung tuberculosis is not clinically demonstrable." It is inconsistent to plead for exact methods in diagnosis, based on a more accurate knowledge of the underlying pathology, and retain a nomenclature as misleading as the term "incipiency" when applied to clinically demonstrable active tuberculosis.

GEORGE H. EVANS, M.D., San Francisco.

Multiple Metastatic Sarcomas of the Lungs

To the Editor:—In the article by Drs. Holt and Ratterman on this subject (THE JOURNAL, Jan. 15, 1916, p. 171), statement is made that "sarcoma of the lungs, whether primary or secondary, is very rarely found." These authors report a case of multiple metastatic sarcoma of the lungs very fully and carefully. I wish to take exception to the statement regarding the frequency of secondary sarcomas of the lung, and in reply assert that not only are they relatively common but also they are to be looked for in every case of primary sarcoma, especially of the bone. The lungs are a characteristic location for secondary metastases in sarcoma for the reason that this type of neoplasm early invades blood vessels and especially the thin walls of veins. The wall is invaded by the advancing malignant growth, and the round or spindle cells are caught in the blood stream and transported through the heart to the lungs, whose capillaries act as a filter and retain the embryonic cells. Here they proliferate and form secondary nodules. The lungs in sarcoma play an analogous rôle as a filter to the regional lymph glands in carcinoma, whose metastases travel by way of the lymphatics instead of the blood stream. A second pathway of conduction for metastases of sarcoma to reach the lung is through the thoracic duct, and in the case of lymphosarcomas of the mediastinum, the lymphatics may even act as conductors of metastases to the lungs. I have seen a number of cases of multiple metastases in the lungs, and we have had an example during the past month among our necropsies at the Cook County Hospital. We may explain the paucity of reported cases not so much because of their rarity as because of their frequency.

HARRY JACKSON, M.D., Chicago.

Crown Gall and Cancer

To the Editor:—Recently I have made discoveries which tie crown gall of plants closer to cancer of man and animals. I can now produce embryonic teratomas at will by bacterial inoculations. All that is necessary is to inoculate growing plants in areas containing dormant totipotent or pluripotent cells, using *Bacterium tumefaciens.* Moreover, as in man, daughter tumors are produced freely, and these also contain teratoid elements. These results have been obtained repeatedly during the last two months on pelargonium, tomato, tobacco and citrus. A full account will be published within a short time.

ERWIN F. SMITH,
Bureau of Plant Industry,
Laboratory of Plant Pathology,
Washington, D. C.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

FIRST ROENTGENOGRAMS OF BLADDER

To the Editor:—1. Who was the first to take a roentgenogram of the urinary bladder filled with an opaque mixture?

2. Who was the first to demonstrate a diverticulum of the urinary bladder in this manner? What was the date of this demonstration?

J. M. GARRATT, M.D., Buffalo.

ANSWER.—1. Teissl, in the *Wiener medizinische Blätter,* 1902, No. 10, published an article in which he described a method of filling the bladder with mercury and taking roentgenograms. His experiments were done on the cadaver.

2. Perthes in an article on "Congenital Diverticula of the Bladder" *(Deutsche Zeitschrift für Chirurgie,* 1909, c, 253), presented some good roentgenograms of the bladder made by filling the bladder with 5 per cent. collargol. The pictures show the outline of the bladder very nicely, and also the outline of the diverticulum. Perthes claimed in this article that these were the first roentgenograms taken in this way showing diverticula of the bladder, and they are the earliest that we have been able to find in the literature.

INJECTIONS OF HOT WATER IN GOITER

To the Editor:—Please tell me the status of operation for goiter by injection of hot water or other medium. The patient in whom I am interested refuses absolutely any cutting operation. The case is apparently a favorable one, being small, unilateral and to the touch cystic.

WILLIAM FAWCETT SMITH, M.D., Calexico, Calif.

ANSWER.—The treatment of goiter by the injection of hot water has been followed by very good results when a proper selection of cases has been made; not all cases are suitable for this kind of treatment. Hot water injections should not be used in the ordinary large nontoxic goiter; these cases are best treated by removal. The method is particularly applicable to toxic goiters—to the small toxic goiters with not very severe symptoms, and to the larger toxic goiters

with severe symptoms, so severe as to make the operative risk very great. These cases may often be improved by injections of boiling water, so that they become good operative risks. In some cases in which operation has been performed and a portion of the gland removed, but in which complete subsidence of symptoms has not taken place—evidence of hyperthyroidism still remaining after recovery from the operation and proper rest and treatment—if the remaining portion of the gland is injected with boiling water, its function may be still further reduced and complete recovery result. An excellent article on the subject by Dr. Miles F. Porter, giving technic and showing what can be accomplished with the method, may be found in *Surgery, Gynecology and Obstetrics,* January, 1915.

ARTICLES ON INTERNAL SECRETION

To the Editor:—Please refer me to reliable recent literature on the ductless glands and internal secretions.

Carl Stutsman, M.D., Burlington, Iowa.

Answer.—A list of articles on this subject was published in The Journal, July 26, 1913, p. 294. The following articles have appeared subsequent to that date:

McIlroy, A. L.: *Jour. Obst. and Gynec. of Brit. Emp.,* May, 1913; abstr., The Journal, July 26, 1913, p. 309.

Murray, G. R.: Some Aspects of Internal Secretion in Disease, *Brit. Med. Jour.,* July 26, 1913; abstr., The Journal, Aug. 23, 1913, p. 623.

Discussion on Internal Secretions, Seventeenth International Medical Congress, abstr., The Journal, Aug. 30, 1913, p. 698.

Schitz, C.: Cataract and the Internal Secretions, *Norsk. Mag. f. Lægevidensk.,* September, 1913; abstr., The Journal, Oct. 18, 1913, p. 1499.

Brickner, S. M.: Rôle of Glands of Internal Secretion in Genesis of Fibroma Molluscum Gravidarum, *Surg., Gynec. and Obst.,* October, 1913; abstr., The Journal, Nov. 15, 1913, p. 1846.

Human Pancreatic Secretion, editorial, The Journal, Dec. 13, 1913, p. 2161.

Lehmann, F.: Habitual Abortion in Connection with the Internal Secretions, *Arch. f. Gynäk.,* ci, No. 1, abstr., The Journal, Jan. 17, 1914, p. 244.

Guggisberg, H.: Action of Internal Secretions on the Activity of the Uterus, *Ztschr. f. Geburtsh. u. Gynäk.,* lxxv, No. 2; abstr., The Journal, Feb. 14, 1914, p. 581.

The Entrance of the Internal Secretion of the Pancreas into the Circulation, editorial, The Journal, April 25, 1914, p. 1334.

Auer, E. M.: Psychic Manifestations of Disease of Glands of Internal Secretion, *Am. Jour. Insan.,* October, 1914; abstr., The Journal, Nov. 21, 1914, p. 1879.

Pribram, H.: The Status Lymphaticus and Its Relation to Pluriglandular Disease, *Ztschr. f. klin. Med.,* 1915, lxxxi, No. 2; abstr., The Journal, Feb. 27, 1915, p. 783.

Peiser, H.: Disturbance in Internal Secretion in Dysentery, *Deutsch. med. Wchnschr.,* Jan. 14, 1915; abstr., The Journal, April 24, 1915, p. 1457.

Fry, H. J. B.: Pituitary Gland in Diabetes Mellitus and Disorders of Glands of Internal Secretion, *Quart. Jour. Med.,* July, 1915; abstr., The Journal, Aug. 7, 1915, p. 561.

Osokin, N. E.: The Thyroid Secretion in Normal and Pathologic Conditions, Russk. Vrach, March 28, 1915; abstr., The Journal, Aug. 28, 1915, p. 835.

Allen, C. L.: Delusions of Persecution as a Biologic Defense Reaction, The Journal, Sept. 4, 1915, p. 866.

BULGARIAN BACILLI IN MILK

To the Editor:—It has been suggested that unless sweet milk into which Bulgarian bacilli are to be placed is first brought to the boiling point and then cooled before the bacilli are put into the milk, the bacteria already in the milk will eventually destroy the Bulgarian bacilli, and instead of the milk being beneficial it will be harmful to those who drink it. It has also been suggested that the destruction of the Bulgarian bacilli will not be noticed as the other bacteria take their place. Can you advise me regarding both of these subjects

H. F. Thiel, M.D., Creston, Wash.

Answer.—There is no doubt that better results will be obtained in drinking milk containing Bulgarian bacilli if the milk is first boiled. The objections noted by our correspondent to the use of sweet milk for this purpose are quite justified, and the same objection applies in lesser degree to the use of pasteurized milk. It may be noted also that the Bulgarian bacillus is favored by a rather high temperature of incubation, from 110 to 115 F. being most satisfactory.

GROUND GLASS AS A REMEDY

To the Editor:—Some time ago a correspondent inquired as to the use of ground glass (The Journal, Nov. 15, 1915, p. 1837). I have had two such cases, both in foreigners, one a Slovak. An old lady prescribed it for her husband, who was suffering from a violent diarrhea. As accurately as I could ascertain, it is not an uncommon remedy among the peasants of eastern Europe.

J. H. Mackay, M.D., Houston, Texas.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arizona: Phoenix, April 4-5. Sec., Dr. John Wix Thomas, 200 National Bank of Arizona Bldg., Phoenix.

California: Los Angeles, April 4. Sec., Dr. Charles B. Pinkham, Room 527 Forum Bldg., Sacramento.

Colorado: Denver, April 4. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Connecticut: Regular, New Haven, March 14-15. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven; Homeopathic, New Haven, March 14. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven; Eclectic, New Haven, March 14. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

District of Columbia: Washington, April 11. Sec., Dr. E. P. Copeland, The Rockingham.

Idaho: Boise, April 4. Sec., Dr. Charles A. Dettman, Burke.

Maine: Portland, March 14-15. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Massachusetts: Boston, March 14-16. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Minnesota: Minneapolis, April 4-7. Sec., Dr. Thomas S. McDavitt, 814 Lowry Bldg., St. Paul.

Missouri: St. Louis, March 20-22. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

Montana: Helena, April 4. Sec., Dr. William C. Riddell, Helena.

New Mexico: Sante Fe, April 10. Sec., Dr. W. E. Kaser, East Las Vegas.

Oklahoma: Oklahoma City, April 11-12. Sec., Dr. Ralph V. Smith, 502 Daniel Bldg., Tulsa.

Porto Rico: San Juan, April 4. Sec., Dr. Quevedo Baez, 66 Allen St., San Juan.

Rhode Island: Providence, April 6. Sec., Dr. Gardner T. Swarts, 315 State House, Providence.

Utah: Salt Lake City, April 3-4. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

Wyoming: Laramie, March 14-16. Sec., Dr. H. E. McCollum, Laramie.

Missouri September Report

Dr. J. A. B. Adcock, secretary of the Missouri State Board of Health, reports the oral and written examination held at Kansas City, Sept. 28-30, 1915. The total number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 33, of whom 24 passed and 9 failed; for one candidate the name of the college was not obtained. One candidate was granted a reregistration license. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Bennett Medical College	(1910)	75, 84
Hahnemann Medical Coll. and Hosp., Chicago	(1888)	75
Illinois Medical College	(1909)	79*
Kansas City Hahnemann Medical College	(1914)	76
Missouri Medical College	(1877)	75
National University of Arts and Sciences	(1915)	82, 82, 83, 86
St. Louis College of Physicians and Surgeons	(1915)	80
St. Louis University	(1915)	82, 85
John A. Creighton Medical College	(1915)	77
Columbia University, College of Phys. and Surgs.	(1905)	85
Jefferson Medical College	(1915)	88
Temple University	(1915)	82
Meharry Medical College	(1915)	76, 78
University of West Tennessee	(1915)	76, 76, 79
Milwaukee Medical College	(1910)	79*; (1911) 79*
FAILED		
Tulane University of Louisiana	(1913)	†
Kansas City Hahnemann Medical College	(1915)	‡
St. Louis College of Physicians and Surgeons	(1915)	73, 74
Meharry Medical College	(1915)	70, 72
University of West Tennessee	(1914)	70; (1915) 73

* Official reports do not contain the names of these candidates as graduates.
† Did not complete examination on account of sickness.
‡ No grade given.

Maryland Homeopathic December Report

Dr. O. N. Duvall, secretary of the Maryland Homeopathic Board of Medical Examiners, reports the written examination held at Baltimore, Dec. 17-18, 1915. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 3, of whom 1 passed and 2 failed. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
New York Homeo. Med. Coll. and Flower Hosp.	(1915)	86.6
FAILED		
Atlanta Medical College, Baltimore	(1910)	65, 70.9

Book Notices

THE TREATMENT OF ACUTE INFECTIOUS DISEASES. By Frank Sherman Meara, M.D., Ph.D., Professor of Therapeutics in the Cornell University Medical College in New York. Cloth. Price, $3.50. Pp. 540. New York: The Macmillan Company, 1916.

In his preface, the author says that this book must be looked on as an expression of his individual opinion, and that it is didactic rather than critical. The book, for the most part, conveys this impression, and the reader feels that he is receiving the benefit of the advice of one who has been an acute and skilful observer of much clinical material. The author has evidently tried to make his treatment appeal to the intelligence of the reader, and he has made every effort to explain why certain things are done under certain conditions. Numerous errors, due to careless proofreading, are to be noted, as on page 499, "The duration averaged 14.44%"; page 274, "milk of magnesiae," etc. There are some errors in chemical formulas. These, of course, will be corrected in a new edition. The disinfection advised after the various contagious diseases is sometimes quite extreme as compared with that usually considered sufficient by sanitarians at the present time. For example, quarantine after measles is to be terminated after a bath of 1:5,000 mercuric chlorid, and fumigation is advocated after diphtheria and scarlet fever. The author insists that "full duty to the public who trust the physician is done only when he changes his clothes and better takes a full bath before seeing other children" after visiting a patient with scarlet fever. During the visit the physician has been properly protected by gown, cap and rubber gloves, and perhaps rubber shoes. It is difficult to imagine what advantage would be gained by a full bath under these circumstances. Perhaps it would not be so useless as the old measure of placing a board over the chimney of a house to protect passers-by from the contagion of scarlet fever from a case within the house. "Urotropin" and "diuretin" are used instead of the correct U. S. P. names, and proprietary names for therapeutic agents are often employed. Sometimes minor matters are given undue importance, as when in several instances a separate paragraph is devoted to the discussion of the proper night gown which heads the paragraph in boldface type. This book will appeal to general practitioners bacause of its reliable advice, which can be secured with little reading.

THE ADOLESCENT PERIOD. Its Features and Management. By Louis Starr, M.D., LL.D. Cloth. Price, $1 net. Pp. 211. Philadelphia: P. Blakiston's Son & Co., 1915.

Like Dr. Starr's earlier book, "The Hygiene of the Nursery," this book is written "for parents, nurses and all interested in the care and management of children" and youth. Social workers and teachers of adolescent pupils are included in the list of those interested. For parents, nurses, social workers and teachers, the counsel given by the author, especially in the chapters on growth, physical education, diseases of adolescence, faults of adolescents, menstruation and sexual enlightenment, make the book a valuable contribution. The author wisely urges the necessity of the instruction of every child and youth regarding the facts of reproduction, and through wise, sympathetic teaching by parents in the home to implant in the mind of the child that wholesome point of view which is the surest way to vouchsafe right thoughts and habits regarding sex. The critical professional reader cannot suppress a sincere regret that the author has failed to note that the formation of internal secretions by testes and ovaries has several years since been positively demonstrated to control the development of the distinctively masculine or feminine qualities, respectively, during adolescence and to insure the full maintenance of these qualities throughout adulthood to the onset of senility. The author refers, however, to phenomena of castration as "tending to uphold the theory" of an internal secretion. Certain other technical slips of minor import may easily be overlooked in view of the distinct value of the little volume as a physician's wise counsel regarding facts of fundamental importance in the leading of the child and youth through a critical period.

LEUKEMIA OF THE FOWL: SPONTANEOUS AND EXPERIMENTAL. By Harry C. Schmeisser, M.D. The Johns Hopkins Hospital Reports Monographs, New Series, No. 8. Paper. Price, $2.00. Pp. 34, with 6 illustrations. Baltimore: The Johns Hopkins Press, 1915.

This monograph consists of a review of the limited existing literature on the subject indicated by the title, the report of a single case of the disease occurring spontaneously, and the results of a series of inoculations into other fowls. Its chief importance lies in the fact that it corroborates the reported existence of a disease in fowls resembling closely human leukemia, and transmissible to other fowls by direct inoculation. The existence of such a transmissible disease is important for medical research, since it makes possible experimental work in leukemia. Whether or not fowl leukemia is the same as mammalian leukemia, and especially human leukemia, must still be considered as not entirely settled. There are certain important discrepancies which may or may not be explained as due to differences in the subject rather than the disease; for example, the duration of the disease varies from three to thirty-two days, usually from one to two weeks. Schmeisser does not record any study on the filterability of the virus, as reported by others, or special research into the etiology of the disease. The paper is more confirmatory than exploratory, but is a distinctly accurate and reliable contribution to a subject that may be as important in the future of leukemia as mouse tumors have been in the development of cancer research.

MANUAL OF EMBRYOLOGY. By A. Melville Paterson, M.D., F.R.C.S., Professor of Anatomy in the University of Liverpool. Cloth. Price, $2.75. Pp. 391, with 304 illustrations. New York: Oxford University Press, 1915.

This brief compendium is an anatomist's presentation of embryology to medical students. The facts are marshaled in an exceptionally clear and concise manner with particular reference always to the practical side of the subject, namely, the elucidation of otherwise meaningless anatomic detail and the explanation of many abnormalities. Every word is significant, for the condensation of a wealth of material into a few words has been done by a master in the art of teaching. The book is not intended for those who have the privilege of studying embryos or fetuses. The original illustrations are for the most part needlessly inaccurate diagrams; the majority of the good cuts were copied from Keibel and Mall's "Handbook of the Development of Man." There are some serious errors, due apparently to the author's meager first hand knowledge of his subject. The drawing of a three months' human fetus (Fig. 34), for example, is inexcusably wrong, as is the statement (p. 97) that the telencephalic vesicles "become extraordinarily convoluted during the first month." As one might expect from the author's point of view, there is no mention of embryologic or of pertinent biologic theory.

ORTHOPEDIC SURGERY. By Edward H. Bradford, M.D., Consulting Surgeon to the Children's Hospital, Boston, and Robert W. Lovett, M.D., Professor of Orthopedic Surgery in Harvard University. Fifth Edition. Cloth. Price, $3.75 net. Pp. 416, with 369 illustrations. New York: William Wood & Co., 1915.

The new edition of this work is abridged by the omission of many references and much of the discussion of the views of other writers. As a standard textbook for the use of students, it remains satisfactory. As a reference book for practitioners, it leaves much to be desired. Some of the descriptions of operations and methods of treatment are not sufficiently detailed to be of service. The chapter on congenital clubfoot is especially weak in this regard. The Hibbs operation for spinal tuberculosis is described as originally performed, no mention being made of the modifications introduced since 1911. The technic of plaster of Paris work and the details of mechanical apparatus are handled in too general a manner. The presswork is excellent, but the proofreading has been somewhat careless. For instance, on page 361, line 11, "tendon" should be "tenotome." The illustrations are many and well chosen. The vast experience of the distinguished authors makes it certain that their views on disputed subjects may be accepted as the standard.

Medicolegal

Breaking of Stitches and Opening of Wound Not Covered by Accident Insurance

(Stokely vs. Fidelity & Casualty Co. of New York (Ala.), 69 So. R. 64)

The Supreme Court of Alabama affirms a judgment in favor of the defendant, which was sued on a policy of insurance issued by it against "bodily injury sustained . . . through accidental means . . . and resulting directly, independently, and exclusively of all other causes . . . in death." The court says that the evidence showed that the insured had an operation performed for appendicitis and for four or five days went along without apparent complication and with every promise of a rapid recovery, but when the surgeon visited him on the morning of the fourth or fifth day the man vomited and coughed for a spell and then complained of some pain. On examination it was found that the wound had opened and the patient's intestines were protruding through it. Immediately he was again anesthetized and the wound closed, but he never recovered consciousness, and died in the course of a few hours. The surgeon testified that he saw no reason in the world why the patient should not have recovered, had the stitches in the wound not broken. There was nothing else wrong with the patient—by which, of course, the witness meant nothing wrong as operations for appendicitis go. To sum up, the witness was of the opinion (and this is clear even to the nonprofessional mind) that the patient's disease brought on the first operation, the coughing and vomiting burst the stitches, bringing on the second anesthetic and the second operation, and at the end of the sequence came death. There would have been no stitches, nor any rupture, but for the disease and the wound it made necessary. Nor would there have been any coughing or vomiting, though it is not supposed that these were accidents or the result of an accident, had not the disease made the administration of an anesthetic and the performance of the operation necessary. The rupture of the stitches, if an accident in any proper sense, was not an accident causing bodily injury and death; it was merely the failure of means taken to prevent a death threatened by other independent causes. The death which followed was undeniably and in a most material way contributed to, if not exclusively caused by, the disease with which the insured was afflicted and the means taken for his relief. The court is clear to the conclusion that, if there was any accident in this case, it was not an accident causing bodily injury and resulting directly, independently, and exclusively of all other causes, in death within the meaning of the policy.

Sufficient Evidence of Malpractice in Treatment of Fracture

(Wilk vs. Black (Mich.), 154 N. W. R. 561)

The Supreme Court of Michigan, in affirming a judgment for $2,250 in favor of the plaintiff, says that the important question was: Was there evidence of negligence sufficient to carry the case to the jury? The action was brought to recover damages for alleged malpractice in the treatment of a fracture of the ulna and radius of the left forearm, which the plaintiff, 22 years of age, sustained by being thrown from a horse at a farm 8 miles from the village where the defendant practiced his profession. Within two or three hours after the accident the defendant treated the fracture. The plaintiff returned the following Monday, when the defendant examined the arm without taking off the splints and told him that the arm seemed to be all right, to be careful with it, and to come again in about two weeks. The plaintiff made his next and last visit to the defendant November 2, at which time the splints were removed, the arm examined, and the defendant claimed he found it to be perfect, the bones straight and in normal condition. The defendant assured the plaintiff that the arm was coming on all right and directed him to come back again in two weeks and he would take off the splints. The plaintiff claimed that at that time there was a lump on the arm. He also asked if he could not take off the splints himself, and the defendant said that he told him he could if he wanted to and was satisfied that the arm was all right, but, if he wasn't, the defendant wanted him to come right back. The plaintiff did not return for several months, when he came to demand a settlement, being accompanied by his attorney, who exhibited a roentgenogram of the arm made May 13. The plaintiff claimed to have worn the splints continuously from the time of his last visit to the defendant until the morning of November 28, when he took them off and discovered a bunch on the inner side of the arm, and immediately went to consult another physician. The roentgenogram showed a complete fracture of the bones, and there was testimony that the arm would always be crooked. The defendant, however, described the fracture as a green stick fracture, claimed that he had properly treated the arm, and contended that its condition when suit was brought was caused by one of three things: (1) that the plaintiff injured his arm by working after the injury; (2) that the plaintiff injured his arm while it was in splints on the way home from a dance; (3) that the plaintiff removed the splints himself, and thus caused the injury. Without stopping to go into detail, the court thinks the trial judge very properly concluded that there was a cause for the injury. Nor does it agree with the contention that the skill of the defendant was not in issue. There was testimony that when he first set the arm he used splints that were too short. There was also testimony that he assured the plaintiff his arm was all right when a bunch of prominence had appeared on it showing that it needed further attention. Neither can the court say that the trial judge abused his discretion in refusing to grant a new trial on the ground that the verdict was excessive.

Death from Having Chloroform Administered by Person Neither Physician nor Trained Nurse

(Roughlin vs. State (Ga.), 86 S. E. R. 452)

The Court of Appeals of Georgia reverses a judgment of conviction of the defendant, Roughlin, who was charged with involuntary manslaughter in the commission of a lawful act, namely, the circumcising of a named person, administering chloroform and having it administered to him by one who was neither a physician nor a trained nurse. But the presentment, the court holds, did not constitute a good accusation, because the allegations were insufficient to inform the accused of the circumstances of the transaction in which he was alleged to have violated the law, so as to enable him to prepare his defense, and the defendant might have admitted the statements of fact contained therein without subjecting himself to any criminal liability. There is no law of the state of Georgia declaring the administration of chloroform by one who is neither a physician nor a trained nurse to be unlawful. Consequently, all that was stated on that subject in the presentment in the case was a mere conclusion of the pleader.

Furthermore, one charged with the offense of involuntary manslaughter in the commission of a lawful act, by negligently permitting the administration of chloroform by an assistant not qualified to administer it, is entitled to know the name of the person who is referred to as having actually administered the chloroform, so as to enable him properly to prepare for trial. To leave the defendant in the dark as to the identity of this undisclosed individual might be to face him with a witness whose testimony he was wholly unable to meet and whose credibility he was not prepared to impeach. Besides, presuming that the defendant did the acts alleged, it might be assumed that he already knew whom he had to administer the chloroform; but the defendant's plea of not guilty put in issue every material allegation in the accusation against him, and, since the innocence of one accused of crime must always be presumed, it could not be assumed that the defendant know who administered the chloroform or that any chloroform was, in fact, administered at all. One accused of crime has the right, if he demands it by timely demurrer, to have the accusation perfect in both form and substance.

Society Proceedings

COMING MEETINGS

American Medico-Psychological Association, New Orleans, April 4-7.
American Urological Association, St. Louis, April 17-19.
Arizona Medical Association, Phoenix, April 26-27.
Arkansas Medical Society, Texarkana, May 2-4.
California State Medical Society, Fresno, April 18-20.
Georgia Medical Association, Columbus, April 19-21.
Kansas Medical Society, Topeka, May 3-5.
Louisiana State Medical Society, New Orleans, April 18-20.
Missouri Valley Medical Society, St. Joseph, Mo., March 23-24.
North Carolina State Medical Society, Durham, April 18.
South Carolina Medical Association, Charleston, April 18-20.
Tennessee State Medical Association, Knoxville, April 4-6.

CHICAGO MEDICAL SOCIETY

Regular Meeting, held March 1, 1916

The President, DR. CHARLES F. WHALEN, in the Chair

Trichinosis, with Remarks on Diagnosis

DR. LEON BLOCH: My report includes a series of twenty-nine cases that have occurred in the last two and a half years at the Cook County Hospital. All but three patients were of foreign birth, three were children, and twenty-six were adults whose ages ranged from 18 to 51. The facts pointing toward trichinosis were the history of eating raw pork in thirteen cases; gastro-intestinal disturbances, such as nausea, vomiting, diarrhea, or constipation, or abdominal pain in thirteen; muscle pains, either subjective or objective, referable to the arms, legs, jaws, neck or chest, in twenty-six; edema, noticed by the patient or the examining physician, in seventeen cases; prostration from inability to use the muscles together with toxemia in three; high temperature and low pulse rate in thirteen; profuse sweats in seven; splenic enlargement in twelve; diazo test positive in all of five cases tested; eosinophilia in all; leukocytosis above 10,000 in twenty-three, and the demonstration of the trichina in the muscles in twenty-three, in the spinal fluid in two, in the stool in two, and in the blood in one. Differentiation of trichinosis from typhoid fever, pneumonia, nephritis, endocarditis and multiple neuritis can be readily made by careful attention to the symptoms and signs of these conditions, and by attention to the blood and muscle examination. In one case of trichinosis there were symptoms of cortical involvement, such as general and unilateral convulsions, hemiplegia and death. Postmortem examination showed marked hyperemia of the cerebral cortex, especially the right half.

DISCUSSION

DR. MAXIMILIAN HERZOG: Trichinosis is not so rare as it is supposed by most practitioners. The clinical history and the signs and symptoms of trichinosis are such that the diagnosis is very difficult. However, the diagnosis becomes easy if proper laboratory methods are used, particularly in examining the stools and the blood. The number of cases reported in the literature in the United States since the report of the first case was published in 1842 is 1,550, with 240 deaths. From these figures the impression is created, first, that the disease is comparatively rare, and second, that the mortality is high. Both impressions are erroneous. The disease is not so rare as one would imagine, and the mortality is not high save in exceptional cases.

Recognition and Treatment of Ectopic Gestation

DR. E. E. MONTGOMERY, Philadelphia: The termination of tubal pregnancy, either by rupture or tubal abortion, should be suspected when a woman has passed one or two periods; has suspected she was pregnant; has general digestive or nervous symptoms; has felt more or less discomfort in one or the other side of the pelvis; has been taken with sudden, severe, lancinating pain which has rendered her unconscious or caused her to drop in a faint; when her pulse becomes feeble, even absent at the wrist, her skin blanched and covered with perspiration, and when she is unable to raise her head without the sensation of fainting, possibly remaining unconscious. Such symptoms, even though the patient has not missed a period, should lead to the suspicion of internal hemorrhage, of which ectopic gestation is, with extremely rare exceptions, the cause.

My greatest solicitude during recent years has not been awakened by the patients on whom I have operated early, even though in shock, but by those seen late or when for some reason the surgical treatment has been deferred. The patient is too much depressed to be influenced by fear of the operation. The administration of ether in small quantity under such circumstances is a stimulant, while the vessels are being filled with saline solution. The prime consideration is expedition; no time is to be lost in the removal of the fluid blood; its presence will aid in the more rapid resuscitation when infection has been avoided. The abdomen may be filled with salt solution before the wound is closed, and its completion should be followed by the Murphy drip. The first consideration is the arrest of the hemorrhage and to place the patient in such a position that her powers can be strengthened. Stimulants should not be given. A sedative should be administered. A vessel is open, and the only hope for relief outside its direct control by clamp or ligature is through the formation of a clot whose further action increased blood pressure will imperil. As it cannot be assumed in any case that the clotting will be effective in the control of the hemorrhage, the greatest certainty is through efficient closure of the bleeding vessel through its ligation, and measures should be employed to secure this under the most favorable circumstances. When it is not practicable to secure immediate surgical relief, the patient should be placed under the influence of morphin and be kept free from annoyance until she can be placed in proper environment for surgical measures. Immediately preceding, or simultaneously with the incision of the abdomen, active stimulation, the most efficient of which is the intravenous transfusion of saline solution to which epinephrin has been added, should be begun and continued during the operative procedure, by which any additional shock through operation is more than counteracted. Even though it is apparent that operation is not needed to insure against further hemorrhage, to open the abdomen is advisable for the removal of large quantities of clotted blood as the forces of the patient are relieved from its care and disposal.

DISCUSSION

DR. CHANNING W. BARRETT: Oftentimes it is not one large rupture that takes place in extra-uterine pregnancy but a series of ruptures. About 75 per cent. of the cases have shown definite or strongly implied gonococcic infection. Just why the cases which furnish the 15 per cent. should be counted the atypical cases, and the class of cases that furnish 85 per cent. should be regarded as typical, I cannot understand. I should say that the first 15 per cent. are the typical severe cases, and the 85 per cent. in which the patients have one rupture and recover, and then another and recover, are the typical mild cases. If this thought is borne in mind, it will aid in making the diagnosis. As to treatment, I do not believe we should operate on a patient just because we are suspicious of the existence of a little pelvic trouble. If the diagnosis is clear, it is better to operate before rupture has taken place, or after the patient has recovered from the rupture. Nothing in the way of non-operative treatment takes the place of ligating vessels that are bleeding. Nothing short of putting clamps or ligatures on bleeding vessels is going to save a moribund patient.

DR. CAREY CULBERTSON: Gonorrhea is a suppurative infection, and only secondarily complicated by colon bacillus infection. The typical gonorrheal tube is a pus tube. Pyosalpingitis destroys the tube as an oviduct, and when it has been destroyed as an oviduct, pregnancy of any sort is impossible. There are various degrees of gonorrheal infection. In all cases the infection is not equally virulent or the same in the pathologic condition which it produces. I do not mean to imply that the gonococcus is not responsible in any degree for ectopic gestation, but a tube which makes tubal pregnancy possible must be patent, and at the same time diseased. In many cases a tube showing salpingitis, which is slightly adherent, kinked and markedly convoluted, is nevertheless patent. I believe there is a focal infection in the tube the same as has been demonstrated to exist in the appendix

and various other portions of the anatomy, and I see no reason why that type of tube should not be the one to make tubal pregnancy possible. As a rule, the opposite tube is more markedly diseased than the one in which the gestation has taken place, and in certain instances it may become necessary to sacrifice both tubes.

Dr. Henry F. Lewis: All women who have symptoms that point in any way toward ectopic gestation should be subjected to examination, and should be impressed with the importance of consulting an obstetrician very soon after they expect themselves to become pregnant. The diagnosis of ectopic pregnancy is made oftener at operation than before it. Usually, the symptoms are not typical of rupture or of marked abortion, and the symptoms of marked abortion and rupture are not such as to make it easy to tell before operation whether rupture or abortion has taken place. In many cases of abortion the symptoms are not severe. Likewise, the symptoms of rupture are not severe. There are cases in which the rupture is only slight, followed by a slight hemorrhage. The majority of ruptures take place in the isthmian portion of the tube, while other ruptures take place in the ampulla, which permits of greater distention.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

February, XXXIX, No. 4, pp. 355-502

1 *Influence of Heavy Metals on Isolated Intestine. W. Salant and C. W. Mitchell, Washington, D. C.
2 Nerve Conduction and Other Reactions in Cassiopea. A. G. Mayer, Washington, D. C.
3 *Effects of Testicular Transplants on Vasomotor Irritability. H. Wheelon and J. L. Shipley, St. Louis.
4 Studies in Blood Pressure Estimations by Indirect Methods. Mechanism of Oscillatory Criteria. J. Erlanger, St. Louis.
5 *Effect of Nicotin on Reflex Action of Cutaneous Sense Organs. I. Howat, Kansas City, Kan.
6 *Coagulation of Blood in Pleural Cavity. G. P. Denny and G. R. Minot, Boston.
7 *Direct Evidence of Duodenal Regurgitation and Its Influence on Chemistry and Function of Normal Human Stomach. W. H. Spencer, G. P. Meyer, M. E. Rehfuss and P. B. Hawk, St. Louis.
8 *Liver Circulation in Relation to Glycemia. H. McGuigan and E. L. Ross, Chicago.

1. **Influence of Heavy Metals on Isolated Intestine.**—Salant and Mitchell found that zinc is a powerful depressant, exposure to very dilute solutions for thirty to forty-five minutes causing decreased contractility of the intestine, from which it only partly recovers on changing to pure Locke's solution. Medium concentrations of zinc may completely and permanently abolish contractions. Dilute solutions of nickel acetate may stimulate intestinal contractility after causing primary depression. Only the more concentrated solutions inhibit muscular activity but considerable improvement was observed when changed to pure Locke's solution. That nickel is much less toxic than zinc was also shown by the reaction of the intestine to barium chlorid and pilocarpin, response to these agents being obtained after treatment with a much more concentrated solution of nickel acetate than of zinc malate. The reaction to barium persisted longer than the response to pilocarpin after the intestine was exposed to the influence of zinc and a concentrated solution of nickel acetate. The intestine of the cat is more resistant to the action of zinc than that of the rabbit. The difference is not so marked in experiments with nickel. The ileum and colon were more resistant both to the action of zinc and the depressing effect of higher concentrations of nickel.

3. **Effects of Testicular Transplants on Vasomotor Irritability.**—The findings of Wheelon and Shipley point to the conclusion that a direct relationship does exist between the internal secretions of the testis and the sympathetic nervous system. Castration results in a depressed activity of the nervous mechanism while subsequent establishment of the lost parts tends to lift the depression and at least partially to reinstate normal activity.

5. **Effect of Nicotin on Skin Reflexes in Frog.**—Howat found that small doses of nicotin cause a depression or loss of the reflexes, fibrillar contractions, forced respiration and a slight constriction of the pupils. One dose did not usually show an increased irritability as an after effect. These changes appear immediately after injection, and last from one half to three or four hours, depending on the dose. Doses of one-half minim of 0.05 per cent. per 10 gm. frog have a greater effect than larger doses of Ringer's solution. Large doses of nicotin cause an entire loss of the skin reflexes, and muscle tone, producing a flattened position; an inhibited, then irregular respiration; constriction of the pupils; loss of turnover, compensatory and equilibrium reflexes; a tetanus or stiffening of the front legs, followed by a relaxation and loss of muscle tonus. Continued gradually increasing doses of nicotin cause tolerance to the drug, such that it loses some of its effect. Continued use of nicotin causes increased irritability of the skin reflexes, making them respond abnormally. It also causes a loss of weight, and a discoloration of the skin. The effect on respiration and constriction of pupils is the same as in a normal frog, except that the effect does not last so long. The toxic dose obtained from the results of a large number of experiments, showed that it varied from 6 to 27 minims of 1 per cent. nicotin per 10 gm. frogs. Some frogs naturally proved more resistant than others. For those frogs which had been given continued gradually increasing doses, the toxic injection varied from 6 to 9 minims of 1 per cent. per 10 gm. frog. Nicotin acted as an accumulative drug, lessening the bodily resistance until the toxic dose is found to be less for the tolerant frog than for the normal one. Nicotin is much more powerful in its effects on cutaneous reflex reactions, ciliary muscles, respiratory activity and bulbar centers than is alcohol.

6. **Coagulation of Blood in Pleural Cavity.**—It is held by Denny and Minot that small amounts of blood introduced slowly into the pleural cavity when deep artificial respiration is maintained will remain in large part fluid. Small clots are always found in the pleural cavity, the size depending on the amount of blood injected and the rapidity of injection. The fluid portion of the blood can only be clotted by addition of fibrinogen. Thrombin, calcium and thromboplastin are incapable of causing coagulation. The blood shows absence of fibrinogen which perhaps may be removed in some way other than by coagulation. Pure fibrinogen solution which has been in the pleural cavity under the same conditions, is not only altered, but clots more readily than the control on adding suitable amounts of thrombin. Small amounts of thrombin and fibrinogen when mixed in suitable proportions and injected slowly into the pleural cavity remain fluid and show an absence of fibrinogen. Since it has been shown that fibrinogen alone loses none of its properties after remaining in the pleural cavity, and that the presence of thrombin under the same conditions causes a disappearance of fibrinogen, the authors can only conclude that coagulation has taken place. The experiments with artificial solutions exactly parallel those with whole blood, the conclusion being that blood which has been in the pleural cavity remains fluid, not because of any alteration of the elements, but because of previous coagulation and defibrination.

7. **Effect of Duodenal Regurgitation on Gastric Function.**—The following conclusions are drawn by the authors: A tryptic enzyme is almost constantly present in the fasting and digesting contents of the normal human stomach. The tryptic enzyme is deduced to be trypsin regurgitated from the duodenum. Trypsin in the gastric contents is highly resistant to the action of acid and pepsin. In general, the tryptic value is high in the presence of low acidity and in alkaline reaction, and of low value when the gastric contents are of high acid concentration. A fall in the acidity is usually accompanied by a rise in the tryptic values. The color of the gastric contents often changes during the period of experiment from that of the ingested material to a golden yellow or a dark olive or blue green. This color change is due to regurgitation of bile from the duodenum and is absent on a diet of substances which do not cause the outpouring of bile. The tryptic values in the gastric con-

tents usually rise concomitantly with the color change, although in a nonbile stimulating diet the tryptic value seems independent of the color. Sodium bicarbonate in 5 per cent. solution is held in the stomach until sufficient hydrochloric acid is secreted to bring the alkalinity to a point in which it is nonirritating to the duodenum. The retention is accompanied by a high trypsin value, suggesting antiperistalsis in the duodenum in response to an irritant. Sodium bicarbonate in 1 per cent. solution hastens the emptying of the stomach either by increasing the motility of the stomach or opening the pylorus. Sodium bicarbonate solutions do not inhibit human gastric secretion, but seem to have a direct stimulatory effect in some cases. Free hydrochloric acid seems unnecessary for the opening of the pylorus, for the stomach sometimes empties while its contents are still alkaline. Ingestion of 0.5 per cent. hydrochloric acid is followed by a rapid fall in acidity to about 0.2 per cent., due to a regurgitation of alkaline duodenal contents, as is indicated by the rise in tryptic values coincident with the fall of the acidity. The acid is then emptied from the stomach. Regurgitation of duodenal contents into the stomach is but another of the protective functions of which the body furnishes so many examples and has for its purpose the defense of the small intestines from irritants.

8. **Liver Circulation in Relation to Glycemia.**—The results of the experiments performed by McGuigan and Ross were as follows: Ligation of the portal vein caused a considerable hyperglycemia. Ligation of the hepatic artery causes no hyperglycemia. Simultaneous ligation of the portal vein and hepatic artery causes no hyperglycemia. Hypervenosity of the liver causes no hyperglycemia. Hyperarteriolization of the liver causes a significant hyperglycemia. The utmost conceivable uncomplicated change in the circulation of the liver can play but a minor rôle in the production of glucosuria or diabetes.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

February, III, No. 8, pp. 421-470

9 *Anopheles Punctipennis, Host of Tertian Malaria. W. V. King, Washington, D. C.
10 Pellagra in Jamaica. J. F. Siler, U. S. Army.
11 Case of Juxta-Articular Nodules. G. W. McCoy and H. T. Hollmann, Hawaii.

9. **Anopheles Punctipennis in Tertian Malaria.**—As a result of two comparative experiments, *Anopheles punctipennis* has proved itself to be an efficient host for the parasite of tertian malaria, *Plasmodium vivax*. In one experiment, of six specimens, mosquitoes fed on a human case of this form of malaria, five became definitely infected, the sixth remaining negative. In this one specimen the evidence pointed to the conclusion that only a very small amount of infective blood had been ingested. In one infected specimen, examined after an interval of twenty days, many ruptured oocysts were found on the stomach and an extremely heavy invasion of the salivary glands with sporozoites. Three specimens examined in a lot of six *A. quadrimaculatus* fed on the same patient showed infection of the stomach and in one an invasion of the salivary glands. In a second experiment, one *A. punctipennis*, fed on a patient infected with tertian gametes, and dissected after a lapse of twenty days, showed a light infection of the stomach and glands. Two control specimens of *A. quadrimaculatus* were found to be infected, one containing oocysts and one, after an interval of eighteen days, containing sporozoites.

Archives of Pediatrics, New York

January, XXXIII, No. 1, pp. 1-80

12 *Chemistry of Products Used in Infant Feeding. F. W. Howe, Boston.
13 Digestibility of Proteins of Milk and Their Rôle in Infant Nutrition. L. E. Holt, New York.
14 Rôle of Fat in Infant Feeding. J. L. Morse, Boston.
15 Rôle of Salts in Infant Feeding. F. H. Bartlett, New York.
16 Rôle of Carbohydrates in Infant Feeding. H. R. Mixsell, New York.
17 Malt Soup. A. G. Mitchell, Philadelphia.
18 Cases of Hereditary Spinal Ataxia. F. J. Farnell, Providence, R. I.

12. **Chemistry of Products Used in Infant Feeding.**—Speaking of proprietary foods, Howe says: In the nutrition of the infant, we cannot get away from the fundamental facts that fats, carbohydrates, proteins and salts are the essential constituents, and any proprietary food laying claim to being a complete food for an infant must contain all of these in forms which can be readily assimilated and in properly balanced proportions. We all know how difficult it is to keep fats in a sweet and wholesome condition for any length of time, and, while it is not so difficult to keep the proteins, still it is no easy matter. This narrows the field very considerably when it comes to making a proprietary food, and, as a natural result, we find most of them are made of blended carbohydrates in a large measure, milk sugar or maltose, dextrins, and the various starches, all of which can be used at less cost under their respective names and used as desired without the handicap of a blended product which is made to meet conditions in general and no one condition in particular.

Arkansas Medical Society Journal, Little Rock

February, XII, No. 9, pp. 213-240

19 Arteriosclerosis. O. M. Bourland, Van Buren.
20 Alcoholic Neurosis. S. W. Colquitt, McKamie.
21 Congenital Pyloric Obstruction. T. W. White, St. Louis.
22 Preventive Medicine. A. E. Turrentine, Blytheville.

Bulletin of Johns Hopkins Hospital, Baltimore

March, XXVII, No. 301, pp. 63-92

23 *Acidosis. J. Howland and W. M. Marriott, Baltimore.
24 Use of Suction in Postoperative Treatment of Bladder Cases. J. W. Churchman, New Haven, Conn.
25 *Relation of Angiogenesis to Ossification. E. Moschcowitz, New York.
26 Pressure of Bile Secretion During Chronic Obstruction of Common Bile Duct. W. T. Mitchell, Jr., and R. E. Stifel, Baltimore.

23. **Acidosis.**—Acidosis, Howland and Marriott say, is not an uncommon condition in infancy and childhood; while it is especially frequent in the severe diarrheas of infancy, it may appear with a variety of diseases, and sometimes, apparently, alone. To recognize it with older children is not very difficult. The character of the respiration is usually sufficient to arrest attention and one or two relatively simple laboratory tests will quickly determine the question one way or the other. With infants who are irritable, restless and crying, it is much more difficult to say whether hyperpnea is present; and yet with them it is most important to make the diagnosis early, for the reason that acidosis is such a fatal complication of diarrheal disease in infancy. Older children react promptly and often permanently to alkali therapy. It may be possible to stop the clinical and laboratory evidence of acidosis in infants, but the patients usually die. Why they do cannot be determined at the present time, the authors say. Many normal processes have undoubtedly been inhibited, perhaps permanently, and many abnormal ones stimulated. A restoration to normal conditions seems nearly impossible. For this reason, do not wait until acidosis can be demonstrated. From the beginning give bicarbonate of soda to infants with severe diarrhea in sufficient quantity to render the urine alkaline and keep it so.

Howland and Marriott would lay down a general maxim that as hyperpnea indicates acidosis, so hyperpnea indicates alkali therapy, and this for infants or older children. The alkalies may be given by mouth, by rectum, subcutaneously or intravenously. Vomiting and diarrhea frequently render their administration by mouth or by rectum out of the question. Then one of the other methods must be employed. Intravenous administration is the method of choice, especially when rapidity of action is desired; and with acidosis, rapidity of action is always desired. The superior longitudinal sinus is available with infants, or the external jugular or femoral veins. With older children, a vein in the arm can often be employed. If facilities for the intravenous injection of alkali are not at hand, the injection may be made subcutaneously, with care that the bicarbonate has not been transformed into the carbonate, else severe sloughing of the tissues may result. A 4 per cent. solution is usually employed for intravenous use and a 2 per cent. solution for subcuta-

neous use. The quantity to be injected depends on the size of the child, the severity of the symptoms and the effect produced, but the amount is always large. It must be given until the urine becomes alkaline; even in infants under 1 year, as much as 10 gm. in twenty-four hours may be required. With the cases of acetone body acidosis, with no sugar in the urine, and with a low sugar content of the blood, glucose by the rectum, subcutaneously or intravenously seems clearly indicated in addition to the alkali. With all forms water is urgently required, especially with infants who are desiccated as a result of the vomiting and diarrhea.

25. **Relation of Angiogenesis to Ossification.**—Three cases of calcification and two of ossification of the ovary are described by Moschcowitz. The process in each instance involved a corpus albicans. The specimens represented an apparently continuous series, in which four stages are recognizable: (1) an early discrete multiple deposit within a healed corpus luteum; (2) a definitely circumscribed deposit of amorphous lime within a corpus albicans; (3) the formation of primary haversian canals, which is accomplished by the genesis of an active mesoblastic tissue, both on the surface and within the interior of such a circumscribed lime deposit. This mesoblastic tissue is derived from the adjacent blood vessels of the ovary, and the predominant activity is the development of new blood vessels. Associated with this activity is the development of osteoblasts from the mesenchymal cells; (4) true bone formation with maturation of all the elements described above, together with eccentric deposition of bone plates around the primary haversian canals and the formation of marrow. Moschcowitz is of the opinion that the development of new blood vessels affords the keynote to the interpretation, in terms of cellular ontogeny, of the process of ossification. The histologic constituents which enter into the formation of new blood vessels are the progenitors of all the histologic components of osseous tissue. In other words, blood vessels, osteoblasts, bone cells and marrow (in large part at least) are merely differentiations of the mesenchymal cell unit. Moschcowitz' specimens furnish strong corroboration of the "adaptive" or "mesenchymal" theory of angiogenesis, and to the theory of the nonspecificity of endothelium. He says that ossification does not occur without preliminary calcification, and calcification occurs only in dead tissue; therefore, there is no valid reason for regarding bony structures within the ovary as blastomas.

California State Journal of Medicine, San Francisco

February, XIV, No. 2, pp. 43-84

27 Traumatism of Brain. A. Weeks, San Francisco.
28 Anoci-Association; Plea for Surgical Patient. A. B. Cooke, Los Angeles.
29 Leukopenia: Its Relation to Orchitis; Case Report. J. H. Catton, San Francisco.
30 Clinical Records. E. S. Kilgore, San Francisco.
31 Is Rabies Under Control in California? J. C. Geiger, Berkeley.
32 Prognosis of Prostatitis. M. Silverberg, San Francisco.
33 Criminal Abortions and Medical Profession. C. D. Ball, Santa Ana.
34 Results of Thirty-Five Transfusions. S. T. Pope, San Francisco.
35 Physician and Adaption Law in State of California. S. A. Queen, San Francisco.

Canadian Medical Association Journal, Toronto

February, VI, No. 2, pp. 97-192

36 Twilight Sleep. J. W. Duncan, C. Holbrooke and G. W. Phelan, Montreal.
37 *Eclampsia. D. J. Evans, Montreal.
38 Psychoneuroses. B. E. McKenzie, Toronto.
39 Cystic Hygroma in Infant. M. H. V. Cameron, Toronto.

37. **Eclampsia.**—In a series of thirty-eight cases of toxemia of pregnancy, in which Evans studied the blood pressure findings, he placed the danger limit of pressure at 160 mm. As his experience increases he says he is surprised at the number of cases in which the general symptom complex indicates a very considerable degree of toxemia, while the blood pressure readings are comparatively low. A serious grade of pregnancy toxemia may exist while the blood pressure remains approximately normal. As regards treatment, every individual case must be studied, and no single method of treatment is applicable to all. In the presence of evident symptoms of toxemia in the later months of pregnancy, associated with albuminuria and casts, and an increased blood pressure, eliminative and sedative treatment is indicated. One must rely on milk, diet, hot baths, the copious use of fluids and purgatives associated with rest in bed, to bring about improvement. If there be no improvement, indicated by the subsidence of the albuminuria, reduction of blood pressure and disappearance of the general symptoms of toxemia, then labor should be induced. Venesection, sweating, the employment of morphin and chloral in moderate doses, with purgation and the free use of fluids, constitute the treatment of a case of actual convulsions. In cases at or near term active surgical methods of delivery may be undertaken, but only to save the life of the child, as such operations unless attended with considerable hemorrhage seem to have but little influence in relieving the condition of the mother.

Cleveland Medical Journal

January, XV, No. 1, pp. 1-82

40 *Results Obtained with Salvarsan Intravenously and with Autosalvarsanized Serum Intraspinously in Treatment of Syphilis of Central Nervous System. R. Dexter, Cleveland.
41 Analysis of Death Certificates Which Were Returned to Physicians for Correction by Division of Health, City of Cleveland, January 1 to June 30, 1915. G. E. Harmon, Cleveland.
42 Conservatism and Radicalism in Surgery of Ear, Nose and Throat. S. H. Large, Cleveland.

40. **Treatment of Syphilis of Central Nervous System.**—Dexter is convinced that there are cases in which an arrest of the process may be accomplished by the use of mercury alone. On the other hand, he says, there are a very definite number of cases of syphilis of the central nervous system in which the action of mercury is positively detrimental. In these cases, salvarsan frequently acts extremely well and is an invaluable addition to the physician's armamentarium. There are many instances in which the process may be arrested by the intravenous injection of salvarsan alone. These are usually meningovascular involvements, and the best results are to be expected in the early cases, especially those which have begun to have symptoms, but in which the physical signs of the disease are either absent or slight. Whether the abolition of all the serologic signs of the disease can be expected under the intravenous administration of salvarsan is, so far as his experience goes, still open to doubt. When mercury given intramuscularly or the intravenous injections of salvarsan have failed to arrest the process satisfactorily, the intraspinal administration of autosalvarsanized serum will have a markedly beneficial effect in a large proportion of cases. The form of affection most amenable to treatment is that with meningovascular involvement. The greater the central degeneration the less can be expected. from treatment, for there is no drug which can reestablish nerve tissue once it has been destroyed. As it is often difficult to differentiate clinically between these types of the infection, active and intensive treatment should be tried in most cases. It is probable, however, that very little can be done in most cases of general paresis. Dexter regards the Swift-Ellis method for the intraspinal administration of autosalvarsanized serum, when carefully administered and rigidly adhered to, as a safe and eminently proper procedure for the combating of syphilis of the central nervous system.

Georgia Medical Association Journal, Augusta

February, V, No. 10, pp. 227-251

43 Autogenous Bone Grafts in Nonunion and Malposition of Fractures of Long Bones. W. S. Goldsmith, Atlanta.
44 Treatment of Choice in Fractures of Skull. C. E. Dowman, Atlanta.
45 Suggestions for Arousing and Maintaining Interest in County Medical Societies. W. C. Lyle, Augusta.
46 Necessity of State Prosecutor to Enforce State Medical Laws. J. W. Palmer, Ailey.
47 Injection of Alcohol into Superior Laryngeal Nerve Trunk in Painful Laryngeal Tuberculosis. E. C. Thrash, Atlanta.
48 Crusade for Health in Ware County. A. Flemming, Waycross.
49 Relation Local Society Should Bear to State Association. B. H. Minchew, Waycross.
50 Plea for All Time Health Officer in Every County. T. F. Abercrombie, Brunswick.

Illinois Medical Journal, Chicago

February, XXIX, No. 2, pp. 81-160

51 *Etiology and Prophylaxis of Cancer. H. T. Byford, Chicago.
52 Modern Diagnosis and Treatment of Cancer of Stomach. C. Beck, Chicago.
53 Important Elements in Leprosy Question in United States. E. L. McEwen, Chicago.
54 Chronic Running Ear. R. H. Brown, Chicago.
55 Some Advantages of Indian Intracapsular Cataract Operation. E. E. Edmondson, Mt. Vernon.
56 Swimming Pool Conjunctivitis. H. S. Gradle, Chicago.
57 Arthritis Deformans. G. F. Butler, Kramer, Ind.
58 Charcot's Joint. J. Y. Welborn, Evansville, Ind.
59 Roentgen Examination of Appendix. M. J. Hubeny, Chicago.
60 Tetanus: Report of Cases. J. Niess, Carmi.
61 Early Consideration of Paresis. G. W. Morrow, Anna.
62 Panama as Seen by Physician. I. L. Firebaugh, Robinson.
63 Laboratory Significance. J. R. Ledr, Chicago.
64 Practice Among Eskimo. B. H. Brown, Iroquois.
65 Symptoms. T. A. Jones, Eldorado.
66 Fracture of Elbow Joint. F. B. McCarty, Chicago.
67 Our Hospital. G. W. Ross, Watseka.
68 Pellagra: Report of Case. R. L. Kane, Raleigh.

51. Abstracted in THE JOURNAL, January 22, p. 303.

Indiana State Medical Association Journal, Fort Wayne

February, IX, No. 2, pp. 45-92

69 *Use and Misuse of Tinted Lens in Refraction. F. M. Ruby, Union City.
70 Vertigo. L. D. Brose, Evansville.
71 Diseases of Stomach and Duodenum. C. E. Caylor, Pennville.
72 Intraspinal Treatment of Neurosyphilis. B. M. Edlavitch, Fort Wayne.

69. Abstracted in THE JOURNAL, Oct. 16, 1915, p. 1396.

Kansas Medical Society Journal, Topeka

February, XVI, No. 2, pp. 33-64

73 Chronic Infection of Tonsils; Relation to Systemic Disease. W. R. Dillingham, Halstead.
74 Tonsillectomy in Acute Tonsillitis. T. L. Higginbotham, Hutchinson.
75 Theory of Function of Adenoids and Tonsils. T. A. Jones, Liberal.

Maine Medical Association Journal, Portland

February, VI, No. 7, pp. 253-292

76 Nervous Diseases and Their Relation to Eye. E. W. Taylor, Boston.

Missouri State Medical Association Journal, St. Louis

February, XIII, No. 2, pp. 51-100

77 Transplantation of Tibia in Spine for Kyphosis. B. Belove, Kansas City.
78 *Gastro-Enterostomy. H. E. Pearse, Kansas City.
79 Treatment of Irreducible Joint Fractures. E. F. Robinson, Kansas City.
80 Deviations of Septum. H. Bailey, Springfield.
81 Some Aspects of Relation of Medicine to Law. J. T. White, Springfield.
82 Preventive Medicine in Obstetrics. F. E. Wilhelm, Kansas City.
83 Vesalius and Practice of Medicine. F. J. Lutz, St. Louis.
84 Factors in Success or Failure of Small Hospital. R. E. Castelaw, Kansas City.
85 Indications for and Advantages of High Incision in Cesarean Section. F. H. Raab, Kansas City.
86 Industrial Training in Edinburgh for Crippled Boys and Girls. D. C. McMurtrie, New York.
87 Treatment of Gastro-Enteric Disease of Infants. H. A. Killion, Portageville.
88 Large Urethral Calculus; Rupture of Urethra; Extensive Extravasation of Urine. V. Berry, Okmulgee, Okla.

78. Abstracted in THE JOURNAL, June 26, 1915, p. 2161.

New York Medical Journal

February 19, CIII, No. 8, pp. 337-384

89 Shoes, Physiologic and Therapeutic. D. D. Ashley, New York.
90 Pedology and Its Possibilities. E. B. McCready, Pittsburgh.
91 Sir Kenelm Digby and His Powder of Sympathy. W. R. Riddell, Toronto, Canada.
92 Apparatus for Administration of Gas Oxygen. W. Walter, Chicago.
93 Diathermia; Physiologic Specific. A. C. Geyser, New York.
94 Clinical Significance of Gastric Analysis. L. W. Kohn, Philadelphia.
95 Autolysin. S. P. Beebe, New York.

February 26, No. 9, pp. 385-432

96 Syphilis and Internal Medicine. L. F. Barker, Baltimore.
97 Unsuspected Syphilis in Neurology. J. Collins, New York.
98 Medical Service in Organized Militia. W. S. Terriberry, New York.
99 Quinin and Urea Bichlorid in Toxemia of Pulmonary Tuberculosis. M. S. Cohen, Philadelphia.
100 Coroner and Physician. W. S. Wadsworth, Philadelphia.
101 Syphilis of Stomach. E. D. Holland, Hot Springs, Ark.
102 Gynecology. K. H. Goldstone, New York.
103 *Treatment of Typhoid with Bacterins. E. Waitzfelder, New York.

103. **Typhoid Treated with Bacterins.**—Fourteen patients were treated by Waitzfelder with bacterins and two ordinary, average cases with the average amount of toxemia and temperature were used as controls; that is, they received no bacterins and were treated symptomatically. All the patients were placed on high calory diet, the amount in children varying from 500 to 2,000 calories a day, and in adults from 700 to 3,000 calories a day. In every case the typhoid bacillus was recovered from the blood, feces, or urine. The injections were given intramuscularly. The doses varied from 66 to 800 millions, the larger dose apparently acting best. The period of convalescence was materially shortened; all the patients were in condition to resume their usual vocation within one month after leaving bed, the average invalidism therefore being less than nine weeks. From this limited experience Waitzfelder is inclined to think the administration of bacterins in typhoid is of service, in that it lessens the toxic symptoms.

New York State Journal of Medicine

February, XVI, No. 2, pp. 51-104

104 Sectionalism. F. M. Crandall, New York.
105 Treatment of Disturbances of Digestion in Infancy. J. L. Morse, Boston.
106 Spinal Manifestations of Syphilis. M. A. Starr, New York.
107 Radical Operation for Cervical Cancer: Report of Forty Cases. J. A. Sampson, Albany.
108 New Conception of Diabetes and Its Treatment. J. L. Heffron, Syracuse.
109 Pyorrhea Alveolaris and Some Modern Discoveries Regarding Its Causes and Treatment. F. E. Stewart, Philadelphia.
110 Repair of Complete Laceration of Female Perineum. C. G. Child, Jr., New York.
111 *Soy Bean in Infant Feeding. J. F. Sinclair, Philadelphia.

111. **Soy Bean in Infant Feeding.**—Sinclair's experience with soy bean leads him unhesitatingly to urge its usefulness in the treatment of summer diarrhea, in various intestinal disturbances and in marasmus. It is well borne, readily digested, and by reason of its fat and proteid content furnishes the necessary pabulum to nourish the sick infant. In a series of seventy-four cases, there were nineteen deaths, eleven cases were unimproved, while forty-four babies did well as evidenced by the improvement in their general condition, character of their stools or gain in weight. Some improved in all these particulars, others improved in their general condition and in the character of the stools, but did not gain in weight while they were in the hospital. All of these babies were under 3 years of age and were ill with summer diarrhea. Thirty-four were diagnosed gastro-enteritis; twenty-eight enteritis, and twelve ileocolitis. In thirty-eight cases, the condition of the patient on admission is noted in the records as varying from "bad" to "dying"; while in thirty-six cases it is recorded as from "fair" to "good."

Northwest Medicine, Seattle, Wash.

February, XV, No. 2, pp. 37-72

112 Cancer of Stomach. C. E. Sears, Portland, Ore.
113 Malignant Tumors of Gallbladder. J. E. Else, Portland, Ore.
114 Excision of Ulcer Bearing Area in Gastric Surgery. C. N. Suttner, Walla Walla.
115 Prevention and Cure of Cancer. K. A. J. Mackenzie, Portland, Ore.
116 Present Status of Treatment of Cancer. S. W. Mowers, Tacoma.
117 Clinical Study of Gastric and Duodenal Ulcer. G. F. Koehler and R. C. Walker, Portland, Ore.

Philippine Journal of Science, Manila

November, 1915, X, No. 6, pp. 357-394

118 Treatment of Retrogressive Skin Lesions of Leprosy with Basic Fuchsin. O. E. Denney, Culion, Philippine Islands.
119 Leprosy. J. A. Johnston, Manila.
120 Tropical Obstetric Problems. F. Calderon, Manila.
121 Study of Pathology of Gallbladder and Biliary Passages in Cholera. J. S. Coulter, U. S. Army.

South Carolina Medical Association Journal, Greenville

February, XII, No. 2, pp. 29-61

122 Therapeutic Value of Mineral Water. F. L. Parker, Charleston.
123 Interpretation of Certain Laboratory Findings. F. A. Coward, Columbia.
124 Experiences with Emetin in Dysenteric Conditions. H. L. Shaw, Fountain Inn.
125 Cardiospasm with Dilated Esophagus; Report of Case. J. W. Parker, Greenville.
126 Present Influenza Epidemic in New York. P. M. Allen and P. L. Hudson, New York.

Tennessee State Medical Association Journal, Nashville

February, VIII, No. 10, pp. 425-466

127 Some Pertinent Points in Vascular Surgery; Report of Cases. E. T. Newell, Chattanooga.
128 Skin Grafting. J. L. Crook, Jackson.
129 How Shall We Treat Appendicitis? M. C. McGannon, Nashville.
130 Normal Labor. J. Roberts, Kingston.
131 What Is the Matter with Hannah? W. K. Vance, Bristol.

Wisconsin Medical Journal, Milwaukee

February, XIV, No. 9, pp. 371-406

132 Advances in Otologic Diagnosis. S. J. Kopetzky, New York.
133 Influence of Manometric Pressure on Middle Ear. H. B. Hitz, Milwaukee.
134 Diagnosis of Incipient Mental Disease. F. M. Aplin, Waukesha.
135 Two Cases of Adenoma of Thyroid. J. J. Bellin, Green Bay.
136 Roentgen Ray Diagnosis in Diseases of Accessory Sinuses. E. A. Smith, Milwaukee.
137 Diagnostic Theses in Pulmonary Tuberculosis. L. Brown, Saranac Lake, N. Y.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

February 5, I, No. 2875, pp. 189-224

1 *Antenatal Clinics and Prematernity Practice at Edinburgh Royal Maternity Hospital, 1909 to 1915. J. W. Ballantyne.
2 *Immediate Treatment of Severe Postpartum Hemorrhage. R. K. Howat.
3 Cesarean Section in Pitman's Cottage. R. G. Bell.
4 Influence of Syphilis on Chances of Progeny. N. B. Harman.
5 Splint for Compound Fracture of Ankle. M. Sinclair.
6 Bronchopneumonia with Secondary Hemorrhagic Meningitis and Recovery. A. G. Shera.
7 Traumatic Rupture of Spleen, Splenectomy; Recovery. W. H. Cam.
8 Case of Traumatic Rupture of Spleen. E. H. Jones.
9 Case of Probable Spontaneous Rupture of Spleen. W. B. Ogilvie.

1. Prematernity Practice at Edinburgh.—The prematernity system of the hospital as it now exists is described by Ballantyne as follows: The prematernity ward is the center of the whole work, for without it all the rest would be ineffective. The other parts of the system are largely of the nature of sources of supply for the prematernity ward. They consist in the first place of the prematernity or prenatal nurses who come into touch with expectant mothers in the outdoor department of the hospital, and who, if necessary, recommend these "expectants" either to the antenatal clinic or to the prematernity ward. In the second place, there is the prematernity home for unmarried girls, in which such young pregnant women are kept under medical supervision, and can be sent either into the general wards when they pass into labor, or into the prematernity ward if they develop serious complications of gestation; in the third place, of the antenatal clinic, and, in the fourth place of the medical practitioners in the neighborhood, who, with steadily increasing frequency, are sending suitable patients of the working class into the hospital for prematernity treatment. The prematernity department of the hospital, naturally, is connected with the maternity portion, where the women are delivered of their infants and pass the days of the puerperium, and that again is reinforced by the baby clinics, to which the mothers are enjoined to bring their infants for supervision, weighing and advice, and by the postnatal home for the unmarried mother and her first child. At the same time these agencies are not necessarily all brought into action in any case. It is not essential, for instance, that a woman treated in the prematernity ward wait in the hospital for her confinement; she may be relieved of her trouble while in the pregnancy ward, and thereafter return to her own home for her confinement; and this is not an infrequent occurrence in the case of maladies early in pregnancy, such as threatened abortions and troublesome vomiting.

2. Treatment of Severe Postpartum Hemorrhage.—Howat emphasizes the great importance of high elevation of the pelvis as a primary measure in the treatment of this condition, because it promptly, simply and effectively deals with the immediate cause of great danger; and continues to act in the promotion of the patient's subsequent recovery. Elevation of the pelvis not only automatically lessens or arrests bleeding, it also by gravity drives the unshed venous blood back to the heart and facilitates the flow of blood to the brain, in both of these ways stimulating circulation and respiration at precisely the time when this is most urgently needed. The elevated position recommended greatly facilitates the rapid introduction and retention of hot saline solution. The degree of elevation advocated may suggest a risk of air embolism from "adspiration" into the uterus and thence to the uterine veins on withdrawal of the vaginal hand. Whatever this risk might be, it is counteracted by two precautions, namely, (1) uterine contraction; the hand is not to be withdrawn from the vagina until this natural preventive is in active operation; while it is so in operation air may enter the vagina, but cannot enter the uterus; (2) closing the vaginal orifice with a wet pad on the vulva as the hand is withdrawn.

Edinburgh Medical Journal

February, XVI, No. 2, pp. 89-168

10 Congenital Kyphosis. D. M. Greig.
11 Use of Hypochlorous Acid (Eusol) in Gunshot Wounds. A. Miles.
12 *Lung Lesions in Aortic Aneurysm. B. Bramwell.
13 Notification of Births (Extension) Act. W. Robertson.
14 Case of Lacerated Wound of Thigh Treated by Eusol. A. Miles.

12. Lung Lesions in Aortic Aneurysm.—The following cases are cited by Bramwell: (1) large aneurysm of the descending thoracic aorta, the cavity of which was almost completely filled with a very dense old clot; complete consolidation of the left lung due to the pressure of the aneurysm on the root of the left lung and left bronchus; physical signs suggestive of pleuritic effusion and malignant disease of the lung; the sac of the aneurysm aspirated on three separate occasions, 20, 20 and 10 ounces of pure blood being withdrawn; (2) chronic pneumonia due to the pressure of a small aneurysm on the root of the left lung and left bronchus; (3) large aneurysm of the descending thoracic aorta; pressure on the root of the left lung and left bronchus; consolidation of the left lung; (4) aneurysm of the thoracic aorta; pressure on the root of the right lung and obstruction of the right bronchus; retraction and consolidation of the right lung; retained secretion in the bronchi; no tubercle; (5) aortic aneurysm; pressure on the root of the left lung and left bronchus; consolidation of the left lung (chronic pneumonia); no phthisis; (6) aneurysm at the termination of the transverse portion of the aortic arch and descending thoracic aorta; consolidation of the left lung (chronic pneumonia and bronchiectasis); pressure on the root of the left lung; obstruction of the left bronchus; (7) aortic aneurysm; consolidation of the right lung (chronic pneumonia); pressure on the root of the right lung and right bronchus; (8) aortic aneurysm; pressure on the root of the right lung and right bronchus; consolidation of the right lung; (9) large aortic aneurysm pressing on the root of the left lung; (10) aortic aneurysm pressure on the right bronchus; consolidation of the lung; chronic pneumonia; (11) fusiform dilatation of the ascending thoracic aorta and transverse portion of the aortic arch; large sacculated aneurysm at the junction of the transverse with the descending thoracic aorta; compression of the root of the left lung and left bronchus; erosion of the ribs and vertebrae; acute phthisis, with numerous tubercle bacilli in the sputum and extensive cavities in the left lung; (12) aortic aneurysm; extreme collapse with slight interstitial overgrowth of the left lung; advanced chronic interstitial nephritis; (13) aortic aneurysm; phthisis; sputum contains tubercle bacilli.

Indian Medical Gazette, Calcutta

January, LI, No. 1, pp. 1-40

15 Two Madras Medical Lists. D. G. Crawford.
16 *Reduction of Mortality of Cholera to 11 Per Cent. by Addition of Atropin Hypodermically to Hypertonic and Permanganate Treatment. L. Rogers.
17 Conjunctival Flaps in Cataract Operations. H. Smith.
18 Typical Case of Hysteria; Its Treatment and Cure. A. W. Overbeck-Wright.
19 Hysteria (?) in Young African. A. B. DeCastro.
20 Treatment of Kala-Azar and Cases Treated with Metallic Antimony, Antimonyl Sodium Tartrate, Formaldehyd and Other Drugs. R. U. N. Brahmachari.
21 Case of Anthrax Treated Successfully by Phenol. C. B. McConaghy.
22 Case of Aneurysm of Descending Thoracic Aorta Extending into Right Pleural Cavity and Right Side of Abdomen. T. S. Tirumurti.

16. **Treatment of Cholera.**—Rogers summarizes his present treatment thus: On admission give 1/100 grain of atropin sulphate hypodermically and repeat it morning and evening. Take the specific gravity of the blood, the blood pressure and temperature in mouth and rectum. If the blood pressure is not over 70 mm., or the specific gravity is 1.063 or over, give an intravenous injection of sterile hypertonic saline of three, four, five, or even six pints, in accordance with whether the specific gravity is 1.063, 1.064, 1.065 or 1.066 and over in male adults, and correspondingly less in females and children in proportion to their approximate weights. Unless the rectal temperature is below 99 F. the saline should never be injected at above blood heat (98 F.) for fear of producing hyperpyrexia. If the rectal temperature is 100 F. or over, the fluid should be given at a temperature between 80 and 90 F. The hypertonic solution should contain 120 grains (8 gm.) of sodium chlorid and 4 grains (0.4 gm.) of calcium chlorid. Permanganate of potash is to be given in 2 grain pills, made up with kaolin and petrolatum and preferably, coated with salol or keratin, two pills every quarter of an hour for two to four hours, in accordance with the severity of the case, and then two every half-hour until the stools change to green or yellow and become comparatively small. Barley water and plain water by the mouth in small quantities at a time (3 or 4 ounces) should be given frequently, but no other food during the attack. Normal saline (sodium chlorid, 90 grains to a pint) half a pint every two hours by the rectum should be given until the collapse stage is passed and urine is being excreted regularly, and then reduced in frequency to every four hours and continued until two pints of urine are passed in twenty-four hours.

The fall of the blood pressure to 70 and under, or the rise of the specific gravity to 1.063 or above are indications for a repetition of the intravenous injection. At each repetition of the injection, and at the first injection in all patients admitted late with suppression of urine for twenty-four hours or more, give one pint of the following alkaline solution: sodium chlorid 60 grains, and sodium bicarbonate 160 grains (2 per cent.), and continue with the ordinary hypertonic solution up to the total amount indicated by the specific gravity of the blood. The alkaline solution counteracts the tendency to acidosis, which is the most essential cause of postcholeraic uremia. If the urinary excretion is deficient in the later stages with a blood pressure of 100 mm. or more and a specific gravity below 1.063 but not much below the normal point of from 1.056 (in Indians) to 1.058 (in Europeans), give one pint of the above alkaline solution either subcutaneously, or better intravenously, to increase the urinary flow. The alkaline solution in such cases should also be given by the rectum, instead of normal saline. If the blood pressure remains persistently much below 100 mm. and urine is deficient, give pituitary extract hypodermically and caffein sodium salicylate in 5 grain doses by the mouth every four hours, and dry cup and foment over the kidneys repeatedly. In very young children and feeble old patients glucose may be given in the rectal saline to support the strength.

Lancet, London

February 5, I, No. 4823, pp. 281-330

23 Clinical Thermometry. (To be continued.) G. S. Woodhead and P. C. Varrier-Jones.
24 Use of Gynocardates Orally and Subcutaneously in Leprosy. L. Rogers.
25 Two Cases of Fourth Disease with Relapses. O. J. W. Adamson.
26 Case of Abscess of Myocardium Resulting in Aortic Leakage into Right Heart. R. D. Rudolf and V. H. K. Moorhouse.
27 Examination of Soldier's Heart. O. Leyton.
28 New Combined Physical Treatment for Wounded and Disabled Soldiers. R. F. Fox and J. C. McClure.

Sei-I-Kwai Medical Journal, Tokyo

January, XXXV, No. 1, pp. 1-4

29 Two Cases of Rat Bite Treated by Salvarsan. K. Nakasone.

Bulletin de l'Académie de Médecine, Paris

January 25, LXXV, No. 4, pp. 91-106

30 Pyoculture. (Renseignements et indications fournis par la pyoculture.) P. Delbet.
31 Partial Tetanus, Restricted to Left Leg. (Tétanos partiel précoce, localisé au membre inférieur gauche.) Courtois-Suffit and R. Giroux.

Lyon Médical, Lyons

December, 1915, CXXIV, No. 12, pp. 377-408

32 Gunshot and Shell Wounds of the Chest; the Hemo-Pleuro-Pneumonic Syndrome; Fifty-Three Cases. M. Piéry. To be continued.

Paris Médical

January 29, VI, No. 5, pp. 113-128

33 *Hypertrichosis After Traumatism of Limbs With or Without Nervous Lesions; Forty-Four Cases. Lebar.
34 *Wounds from Small Flying Scraps of Shells. (Les plaies de guerre par petits projectiles.) H. Roulland.
35 Double Pulley Exerciser for Mechanotherapy After Wounds in War. (La mobilisation méthodique par les appareils de fortune.) P. Kouindjy.

33. **Hypertrichosis After Traumatism.**—Lebar relates that among the 281 wounded he has had in his charge at an improvised hospital for wounds of nerves, 44 of the men had an abnormal growth of hair on the limb affected. Several illustrations are given of this hypertrichosis, and the explanation is advanced that the prolonged immobilization had compromised the vital specific functioning of the muscle, whether this immobilization had been from the dressings applied, or the men had refrained from using the limb for fear of its hurting, or there was paralytic impotence. The absence of the normal play of the muscles involved upset the regulating balance and entailed the trophic disturbance. The hypertrichosis was on the wrist and back of the hand in 16 cases in which the radial nerve had been injured; in 5 cases the sciatic nerve had been injured, in 5 the ulnar nerve and once the brachial plexus. The hypertrichosis never seemed to correspond to the course of the nerve or its peripheral distribution nor to any root innervation. In 8 cases the wound had not apparently injured any nerve; in 2 cases the hypertrichosis developed early in neuropathic paralysis. These latter cases suggest that these and other trophic troubles are due to injury of the fibers of the sympathetic nerve which accompany the vessels, the injury being from lack of the normal trophic reflex impulses owing to the immobility of the muscles involved. Traumatic hypertrichosis is thus another phenomenon to call attention to the dangers of too absolute immobilization. (See editorial THE JOURNAL, Jan. 22, 1916, p. 281.)

34. **Wounds from Small Projectiles.**—Roulland refers to flying scraps of shells or of bullets, slivers of wood or pebbles driven by the force of an explosion. The wounds thus made are characterized by the apparent insignificance of the injury, the depth to which the projectile penetrates, and the rapidity and gravity of the inevitable infectious phenomena. Treatment requires removal of the foreign body and provision for ample draining. He has found hot water of great assistance in treatment of wounds in war, either as local baths or moist dressings or as a spray. It seems to have a wholesome trophic action on bruised and mortified tissues, especially when supplemented with hydrogen dioxid.

Presse Médicale, Paris

January 27, XXIV, No. 5, pp. 33-40

36 *Treatment of Malaria. (Le traitement du paludisme.) H. Vincent.
37 Pyoculture Not Reliable. S. Pozzi and Agasse-Lafont.
38 *Graphic Method for Recording Extent of Atony and Paralysis. L. Lortat-Jacob and A. Sézary.

January 31, No. 6, pp. 41-48

39 Indications for Operation Deduced from Histologic Examination of Wounded Nerves. P. Marie and C. Foix.
40 *Ethyl Chlorid Anesthesia in Treatment of the Wounded. (L'anesthésie prolongée au chlorure d'ethyle dans la pratique des grands pansements.) Savariaud.

February 3, No. 7, pp. 49-56

41 Principles for Construction of Artificial Limbs and Preparation of the Stump. (Les appuis des appareils prothétiques et les procédés d'amputation.) A. Broca.
42 Technic for Puncture of a Vein. (La ponction veineuse. Le moyen de ne pas faire de "ponction blanche.") H. Godlewski.

36. **Malaria.**—Vincent remarks that the present campaign in the Balkans, Greece and Turkey is exposing the soldiers to danger of malaria, and he reviews the present status of knowledge as to the exact technic for warding it off and treating it. In the Mediterranean countries, malaria is apt to assume a continuous type, and for this he advocates one or two subcutaneous injections of quinin daily until defervescence. A saline purgative is given also and, when the fever has subsided, quinin is continued by the mouth for several days, on the alert to detect any relapse, as this type is peculiarly rebellious. Vincent recalls that he has established the efficacy or 3 or 4 gm. a day of calcium chlorid in warding off and treating hemoglobinuric bilious fever.

38. **Graphic Record of Atonic and Paralytic Conditions.**—A long narrow strip of sheet lead is fitted over the ankylosed or paralyzed limb, molded to its contour. The strip is then laid on paper and its inner curving outline traced on the paper. By repeating this at intervals the improvement under treatment can be traced with precision. Three of these goniograms, as Jacob and Sézary call them, are reproduced.

40. **Ethyl Chlorid Anesthesia for Changing Dressings.**—Savariaud comments on the difference between the dressings of peace and those required for extensive, ragged shell wounds. When the dressings on these large shell wounds are changed, an anesthetic cannot be dispensed with, and he has found ethyl chlorid best adapted to the purpose for reasons which he enumerates. He protects the patient's eyes with a pad of four or five thicknesses of gauze, and then lays a square of oiled silk over the head, large enough to cover the face and tuck the four corners under the head. A small hole is made in it only large enough to admit the tip of the ethyl chlorid tube. By spraying it gently, progressive and continuous anesthesia is realized, and it can be kept up at the rate of 1 c.c. for each minute of the anesthesia.

Berliner klinische Wochenschrift

Nov. 22, 1915, LII, No. 47, pp. 1201-1224

43 Sarcomatosis of Lymphatic Gland System in Man of 58. (Primäres, generalisiertes Spindelzellsarkom der Lymphdrüsen.) P. v. Baumgarten.
44 Deforming Arthritis as an Affection of the Cartilage. (Die deformierende Gelenkentzündung im Lichte neuer Forschung.) G. Axhausen.
45 Bullet from the Rear Lodged in Heart Wall; No Appreciable Disturbance. R. Mühsam.
46 Action on Tissues of Intensive and Deep Radiotherapy. (Zur Strahlentiefenwirkung.) F. Heimann.
47 Later Course of Wounds of the Skull. (Zur Klinik der Schädelschüsse nach den Erfahrungen im Heimatlazarett.) E. Hayward. Commenced in No. 46.
48 Perforation in Extremely Mild Typhoid Without Agglutination. (Bemerkenswerter Fall von Unterleibstyphus.) L. Mahn.
49 Excision of Venereal Ulcer With Laryngologists' Flat Actual Cautery. F. Fuchs.

January 10, LIII, No. 2, pp. 29-52

50 *Itching With Inflammatory Exudation. (Entzündliche Exsudation und Jucken.) P. G. Unna.
51 Treatment of Infected Wounds of Bones and Joints. (Zur Behandlung der inficierten Knochen- und Gelenkschüsse.) W. Körte.
52 *Injections of Fibrin to Stimulate the Periosteum to Production of Callus. (Behandlung der verzögerten Callusbildung und der Pseudarthrosen mit Fibrininjektionen.) S. Bergel.
53 Ultrafiltration of Drugs. (Ultrafiltrate, eine neue Arzneiform.) F. Blumenthal.
54 *Intensive and Rapid Treatment of Syphilis. (Die Syphilisbehandlung zur Kriegszeit, und was soll nach Friedensschluss geschehen, die Zivilbevölkerung vor der Infektion durch venerisch krank Heimkehrende zu schützen.) M. von Zeissl.
55 Classic Cesarean Section on a Dwarf. (Klassischer Kaiserschnitt bei einer Zwergin.) W. Nagel.
56 *Indications for Venesection. (Einige Indikationen der Aderlassbehandlung.) A. Theilhaber.

50. **Itching with Inflammatory Exudation.**—Unna here discusses prurigenous skin affections of the type of prickly heat, prurigo and vesicular eczema. There are three factors involved, the solid horny layer, the exudation in the prickle cell layer and the hyperemia in the papillary body. (See summary of his previous communications January 15, p. 227). The hyperemia is best combated, he says, with dry cold; rubber bottles with cold water are better than moist cold. Cold from evaporation can also be utilized, first applying a paste as indicated for the eczema, and over this a dressing kept constantly wet with water or a solution of aluminum acetate. With this combination of a drying paste and evaporation, the eczema vesicles dry up while the coolness from the evaporation combats the hyperemia and the horny layer softens under the influence of the moisture. The dressings also protect the region against injury from scratching.

52. **Fibrin Injections to Promote Development of Callus.**—In cases of delayed healing of fractures and for pseudarthrosis Bergel makes local injections of fibrin obtained from blood drawn from horses. He gives a number of roentgenograms which apparently demonstrate that by this means the production of callus is stimulated and pseudarthrosis corrected.

54. **Abortive Treatment of Syphilis.**—Von Zeissl states that among his last series of 3,000 syphilitic patients he has 26 who were given treatment when only the primary sore was evident and there have been no further manifestations to date and the Wassermann has been persistently negative. He urges that when the army disbands, after the war, each soldier should be given the Wassermann test and have a culture made from the urethral secretions. Only when these are or become negative should he be discharged to return home. This is the only way to protect the wives against possible sterility from gonorrhea and the offspring against the taint of syphilis.

56. **Indications for Venesection.**—Theilhaber relates that he has applied venesection 450 times in the last eight years. He has found it extremely useful for the hot flashes of the menopause. It never did harm, but was not invariably effectual. It helped in some cases of dysmenorrhea, but others did better with resection of the sphincter of the internal os. Venesection relieved sometimes in cases of intermenstrual colic; in two women who had never borne children roentgenotherapy benefited more, and in two others resection of the sphincter of the internal os. The benefit from venesection generally persisted for from three to six months; then he sometimes had to repeat it. He drew usually from 300 to 500 c.c. of blood. The women were able to leave the office in half an hour afterward, without feeling weak. Venesection has also done him good service in treating neuralgia and neuroses, especially nervous headache in the plethoric. Another indication for venesection is as an adjuvant to diathermia in prophylaxis of recurrence after operations for cancer. He noticed once that recurrence was rare in patients who lost much blood during the removal of their cancer. Since then he gives periodical venesections for the purpose of stimulating the blood-producing organs, usually twice a year, withdrawing 400 or 500 c.c. of blood. Fichera's recent experiments on animals confirm that periodical venesections enhance the resisting power against inoculation of cancer. Theilhaber is convinced that cancer develops by preference in anemic tissues. The slight transient anemia from the venesection is soon followed by a wave of greater production of blood.

Correspondenz Blatt für Schweizer Aerzte, Basel

January 8, XLVI, No. 2, pp. 33-64

57 Indications and Technic for Radium and Mesothorium Exposures. E. Sommer.
58 Activation During Pregnancy of Tuberculosis Otherwise Latent E. Meyer.

January 15, No. 3, pp. 65-96

59 *Continuous Extension With Muscles Relaxed in Semiflexion as Aim in Treatment of Fractured Limbs. (Zur Behandlung der Knochenbrüche der Extremitäten.) A. Wettstein.

59. **Treatment of Fractures.**—Wettstein expatiates on the advantages of continuous extension with the muscles relaxed

in semiflexion, and urges that it is immaterial how this is realized. The general practitioner can improvise ways and means, as most convenient, to apply this principle.

Deutsche medizinische Wochenschrift, Berlin

January 20, XLII, No. 3, pp. 61-92

60 *The Vomiting of Pregnancy a Toxicosis Plus a Nervous Predisposition. (Behandlung des sog. unstillbaren Erbrechens in der Schwangerschaft.) P. Jung.
61 *Noninfectious Internal Diseases in War and Peace. (Nichtinfektiöse innere Krankheiten im Krieg und Frieden.) M. Mosse.
62 Internal Medicine and the War. (Ergebnisse der bisherigen Kriegserfahrungen auf dem Gebiete der inneren Medizin.) P. Reckzeh. Concluded in No. 4.
63 War Hysteria. (Kriegshysterie.) S. Meyer.
64 *Duodenal Ulcer. (Kritische Bemerkungen zur Diagnose und Therapie des Ulcus duodeni.) I. Boas. Commenced in No. 2.
65 Does Modern Bread-Making Conform to Biochemical Laws? (Entspricht die jetzige Broterzeugung den modernen biochemischen Forschungen der menschlichen Ernährung?) J. Stoklasa.
66 *Intradermal Tuberculin Reaction in Diagnosis of Tuberculosis in Guinea-Pigs. (Der Wert der Intrakutan-Tuberkulinreaktion bei Meerschweinchentuberkulose.) H. Selter.
67 Technical Suggestions for Injections and Infusions. W. Alter.
68 *Bulging of Supraclavicular Fossa With Plethora. (Die plethorische Vorwölbung der Supraklavikulargrube.) C. Trunecek (Prague).

60. **Uncontrollable Vomiting of Pregnancy.**—Jung emphasizes the importance of discriminating between the ordinary and harmless vomiting in pregnancy and the serious type. The loss in weight is the criterion, but this must be determined with precision, weighing the woman every third day under like conditions and on a good scale. The best time for this is following defecation after breakfast, the clothing always the same. The amounts eaten must be recorded in writing for each meal, and the vomit must be saved to show the physician. To prevent ordinary vomiting from developing into the severe type, he orders the breakfast to be taken in bed, with an hour's repose afterward. Food should be taken often and never much at a time, preferring fluid food at first but resuming the ordinary food as soon as possible, omitting all dishes which the woman does not like in health, impressing on the patient that if the directions are closely followed there will be no vomiting. The stomach is not responsible in any way for the vomiting, and hence does not require special treatment. In the severe type we must stop all intake of food and fluid. This is difficult and sometimes impossible in the home; if the woman is really losing weight, she should be placed where the starvation treatment can be given a thorough trial before resorting to the evacuation of the uterus. The transference to the hospital in itself has a pronounced effect on the nervous predisposition. In the hospital the woman is kept constantly in bed and fed at first with fluid, small amounts at a time, and very cold. Alcohol may be given but is by no means necessary. In the severer cases Jung allows only ice cold milk, by the teaspoonful, every half hour or hour, relieving the thirst with ice pills (made in a test tube with a refrigerating mixture). If the vomiting persists, nothing should be allowed by the mouth for a day, and four nutrient enemas should be given instead. These are disagreeable to the patient and sometimes the vomiting stops abruptly when she is told that mouth feeding will be resumed when she stops vomiting.

If the woman is restless and cannot sleep, small subcutaneous doses of morphin, 0.005 gm. three times a day, may render good service; opium by the mouth is seldom retained in these cases. He lays stress on the importance of suggestion, saying that all the measures should be applied impressively to influence the patient subjectively. Lavage of the stomach may prove useful on this account; also subcutaneous saline infusion. This has the further advantage of combating the water-starvation of the tissues. The signs of actual danger are the continual rapid decline in weight, declining blood pressure with increasing pulse rate, appearance of acetone in the urine and of febrile temperatures. If these signs persist, in spite of proper dietetic measures, abortion will have to be induced. He warns that this should not be postponed until the patient is unable to stand the necessary maneuvers. The written consent of the patient and family should be obtained, and it is safer to call in some experienced confrère. Jung prefers to empty the uterus at one sitting, under ether, using Hegar tents or slitting the anterior wall of the uterus, to clear it out, then suturing at once. In conclusion he reiterates that success depends mainly on the "professional imponderables," and that the stomach and uterus should be left alone as long as possible; also that it is necessary to exclude beforehand gastric ulcer, nephritis and disease of the central nervous system as the cause of the uncontrollable vomiting. He warns incidentally that the patient or the family often have a special interest in getting the pregnancy interrupted, and the physician must be on the alert to guard against this tendency.

61. **Noninfectious Internal Diseases in War and Peace.**—Mosse states that in the army hospital in his charge at Berlin during 1915, four men of the 1,427 between 18 and 30 had diabetes. In one man with a tuberculous process in the lung, the diabetes had developed abruptly. In a corresponding series of men between 18 and 30 during the two years before the war, only one had diabetes. Nephritis was encountered in 4.3 per cent. of 2,300 men sent to the hospital from the eastern seat of war, and it was of a hemorrhagic type in most. This same hemorrhagic type is predominant also at present in the Vienna hospitals, among both soldiers and civilians. Mosse found a cancer in the stomach in three men of 31, 33 and 34, and the growth proved inoperable in two at the biopsy. In a fourth case the man of 36 succumbed to metastasis from a hypernephroma. A number of the soldiers returning from the eastern front developed mild febrile temperatures at times for which no cause could be incriminated unless possibly the food after the deprivations of active service. Alimentary fever is known in children, and this may be of the same type. One of the cases reported warns that kaolin may inflict mechanical injury if there is unsuspected typhoid. Severe intestinal hemorrhage followed the third and fourth day after 200 gm. had been taken on two successive days to relieve diarrhea and abdominal pain. Typhoid bacilli were found then in the stools.

64. **Duodenal Ulcer.**—Boas insists that the outcome of gastro-enterostomy for duodenal ulcer is not always the success generally credited to it. Reexamination months later will often reveal the presence of occult blood. This is an objective sign that normal conditions have not been restored. Only when the gastro-enterostomy banishes the occult hemorrhages so that tests for it months and years later are persistently negative, can we speak of an actual permanent cure. It would strengthen the standpoint of those surgeons who regard gastro-enterostomy as a sure cure for duodenal ulcer if such testimony could be adduced, but Boas' experience is against it. His view is that the gastro-enterostomy merely provides conditions which facilitate the success of a course of treatment for the ulcer. Operative treatment for recurring or intractable duodenal ulcer may be necessary, but to advocate it for every case is going too far, he thinks, unless we can present evidence that occult hemorrhage is permanently arrested by it.

66. **The Intradermal Tuberculin Reaction in Guinea-Pigs.**—Selter has been conducting extensive research under a subsidy from the Koch fund and reports that a positive reaction at first may veer to negative in the course of a few months, indicating that the experimental tuberculosis has undergone a spontaneous cure. On the other hand, a positive reaction is a sign of the presence of tuberculosis but a negative reaction by no means excludes actual tuberculous infection.

68. **Bulging of Supraclavicular Fossa as Sign of Plethora.**—Trunecek emphasizes the importance of this sign of overfilling of the cardiovascular apparatus. It reveals the existing plethora when the person seems to be entirely normal. The plethora, however, is an element of danger, especially in case of intercurrent febrile disease, etc. The fossae may bulge with constitutional disease, nephritis, arteriosclerosis, etc., and it is always a sign that the vascular system is overfilled and hence that there is imminent danger of cerebral hemorrhage. This is exceptionally dangerous when it occurs with plethora, as more blood pours out of the ruptured vessel than under other conditions. With what he calls spastic hypertension, that is, a high blood pressure from contraction of small arteries with muscular walls, the fossae do not bulge,

even when the capillary pressure may be as high as 200. He describes a case of "serum plethora" in which the bulging of these fossae was the only symptom which gave the clue to the trouble. He gives an illustration of the bulging fossae, and reiterates the importance of this sign of plethora, particularly in pneumonia, as it shows that immediate venesection will release the excess of blood with which the heart is contending, and thus may tide the patient past the danger point.

Medizinische Klinik, Berlin

January 16, XII, No. 3, pp. 59-84

69 The Mechanical Overexcitability of the Striated Muscles as Symptom of Exhaustion in Soldiers. (Ueber das Muskelphänomen der Soldaten im Felde, das ist die mechanische Uebererregbarkeit der quergestreiften Muskulatur als Symptom der Erschöpfung.) E. Mayerhofer.

70 How Wounds Are Being Treated. (Ueber Wundbehandlung bei Kriegsverletzten.) Treiber.

71 *Paratyphoid Affections. (Paratyphöse Erkrankungen.) L. v. Korczynski. Commenced in No. 2.

72 Experimental Vaccination Against and Inoculation With Typhoid. (Typhus-Schutzimpfung und -Infektion im Tierversuch.) E. Emmerich and G. Wagner.

January 23, No. 4, pp. 85-112

73 Appendicitis and Pregnancy. (Appendicitis und Schwangerschaft.) J. Veit.

74 *The Different Causes of Falling Out of the Hair. (Die verschiedenen Ursachen der Alopecie.) R. O. Stein. Commenced in No. 3.

75 War Neuroses. (Grundsätzliches zur Kriegsneurosenfrage.) F. Mohr.

76 Comparison of Various Methods of Determining the Outline of the Heart. (Ueber die Methoden der Herzgrössenbestimmung.) A. Weber.

77 *Well Contaminated With Colon Bacilli as Cause of Pneumonia. (Durch Bacterium coli commune verseuchte Trinkwasserbrunnen als Ursache von Broncho-Pneumonien.) F. Windrath.

78 The Body Covering of the Penguin, Seal and Walrus. (Die Körperbedeckung der Pinguine, See-Elefanten und Walrosse.) A. Sokolowsky.

71. Paratyphoid.—Korczynski describes the clinical picture of paratyphoid gastro-enteritis as observed in a recent series of thirty-two cases and discusses treatment. It must be along the same lines as for typhoid and acute gastro-intestinal catarrh. The diarrhea usually responds to kaolin or charcoal. Prophylaxis requires sanitary supervision of provisions and notification of all cases, even single ones, tracing them to their source. The public should be shown at every opportunity the connection between food and paratyphoid infections. During the same period he encountered forty-one cases of paratyphoid pyelitis, with or without involvement of the bladder, all in women. The pyelitis develops with chills, high fever, and pain usually radiating forward and downward. Nausea and vomiting are characteristic features of the syndrome, and herpes is common. The spleen was never enlarged in these paratyphoid pyelitis cases, but a leukocytosis between 8,000 and 14,000 was constant. No local or internal measures seemed to display much efficacy. The rest and warmth of keeping constantly in bed, supplemented by copious drinking, gave most relief, and the fever never lasted for more than a week or two.

74. The Various Causes of Falling Out of the Hair.—Stein classifies these causes as they affect the hair itself or the hair-producing apparatus. The first group includes the infections, and the second the alopecia of neurogenous, toxic or cicatricial origin, and that from atrophy. There can be no doubt that purely nervous causes may induce the hair to drop out, or that reflex vasomotor disturbance from a fright may injure the papilla enough to kill the hair. Stein cites examples of each. Alopecia of toxic origin is general; the patches in syphilis are probably due to nests of spirochetes. Thallium given to arrest night sweats in tuberculosis is followed by a general dropping out of the hair for from one to three months. Then it grows in again. The fallen hairs are normal, showing that the alopecia is the result of toxic injury of the trophic center.

Baldness, he relates, is connected with the secretion of the sebaceous glands. The secretion of sebum is most profuse in the scalp, face and over the shoulder blades. Brow and nose are normally covered with a coating of oily sebum, possibly because these regions have no subcutaneous layer of fat and hence this extra secretion protects against excessive radiation of heat. The sebaceous glands may thus have an action antagonistic to that of the sweat glands. When the skin is chilled and "goose flesh" forms, this squeezes out the sebum and a protecting oily coat thus covers the region and prevents radiation of heat—"Muscular exertion produces sweat, mental exertion produces sebum." The development and functional activity of the sebaceous glands are intimately connected with those of the genital glands. Regular functioning of the latter causes increased secretion of sebum; this clears out the stagnating sebum and may thus cure a tendency to acne. A sudden profuse secretion of sebum may push out hairs only loosely held, and thus induce a transient falling of the hair. Stein explains further that the hair and the sebaceous gland form a unit like the leaf and flower on one stalk. If the leaf develops out of proportion, the flower suffers, and excessive functioning of the sebaceous gland is at the expense of the hair. The gland gets all the nourishment and the hair wastes away from lack of nourishment. The papilla produces weaker, poorer hairs and finally stops producing them altogether. This occurs at the points where the secretion of sebum is most pronounced and the blood supply most precarious. As the connection between the activity of the genital glands and the secretion of sebum seems to be an established fact, it suggests the explanation for the restriction of baldness to the male. There is a physiologic limit to the functioning of the genital glands in women but not in men. The assumed hormone from the genital glands which apparently stimulates the sebaceous glands to keep up their work, is continuously produced in men while in women there is no further opportunity after the menopause for this hormone to be produced, and hence the sebaceous glands in the scalp lack this constant stimulus to functioning. A woman's scalp is also shielded by the long hair, so there is less sebum needed to protect it against chilling. To sustain this theory of the mechanism of baldness, he cites among other data the observation that men of the eunuchoid type do not grow bald.

77. The Colon Bacillus in Pneumonia.—Windrath relates that within a period of ten to fourteen days eight of thirteen persons obtaining water from a certain well developed acute bronchopneumonia. Colon bacilli were found numerous in the drinking water. Extremely virulent colon bacilli and also scanty pneumococci were found in the sputum. There had been no rain for five weeks, and the region was much infested with rats. The pneumonia in each case had been preceded by a few days of gastro-intestinal trouble.

Mitteilungen a. d. Grenzgeb. der Med. und Chir., Jena

XXIX, No. 1, pp. 1-128. Last indexed Dec. 25, 1915, p. 2263

79 *Abnormally High or Abnormally Low Gastric Acidity Not Constant Enough for Exact Differentiation of Gastric Ulcer and Cancer. (Weitere Beiträge zur Magendiagnostik: Das Gluzinskische Verfahren, geprüft an 462 Fällen.) H. Zoeppritz.

80 *Local and General Leukocytosis Reliable Sign of Internal Hemorrhage. (Leukocytose nach inneren Blutungen.) H. Dold.

81 *The Symptoms Ascribed to Duodenal Ulcer May Occur With Locations Higher Up or Lower Down. (Diagnose von Ulcus duodeni.) O. Wulff; (Id.) P. J. B. P. Van Amstel.

79. Differentiation of Gastric Ulcer and Cancer.—Zoeppritz has been applying in 462 cases of stomach trouble Gluzinski's method for determining whether the stomach shows oversecretion of gastric juice—which, he assumes, is the rule with gastric ulcer—or abnormally low secretion—which is the result of the mucous catarrh that seems constantly to accompany and precede cancer. The findings were not encouraging. Relative secretory insufficiency occurs frequently with cancer, but may be encountered also with all other kinds of stomach affections and even with merely abdominal trouble, and in the healthy stomach. When it occurs with cancer it is not an early sign, and the cancer may be far advanced without this sign being present. It was found positive in 20.6 per cent. of the ninety-two cases of gastric ulcer or its consequences, and hence the discovery of relative secretory insufficiency by no means excludes simple ulcer. In applying such tests it would be better to give two meals that are alike rather than the test breakfast and the test meal as by the Gluzinski method.

80. **Leukocytosis with Internal Hemorrhage.**—Dold has continued his research on the leukocyte-attracting power of various biologic substances, and here relates that blood injected into the knee of a rabbit or guinea-pig has a powerful action in this respect. Sterile defibrinated blood from the animal or from another of the same species displays considerable leukotactic power when injected into the cavity in the knee. A general leukocytosis in the blood stream followed these injections made into a joint or into the peritoneum. The leukocytosis in the blood stream was even more pronounced when a sterile internal hemorrhage was induced in the animal. The discovery of leukocytosis may thus aid in the diagnosis of internal hemorrhage. In the animals it reached its highest point at about the twenty-fourth hour, and the blood count had become normal again by the fourth day thereafter. In eleven guinea-pigs the leukocyte count jumped from an average of about 4,700 to 8,312 the sixth hour and 11,250 the twenty-fourth, and then subsided to 8,843 the second day, 5,671 the third and 4,843 the fourth day. Dold calls attention to the fact that whole blood injected displayed no leukotactic power, but that this became marked when defibrinated blood was used for the injections. About 56,000 and 48,000 leukocytes were found in the knee joints of one rabbit, 38,000 and 40,000 in another. When 4 c.c. of the defibrinated blood were injected into the peritoneum of a rabbit, the blood stream showed 12,000 or 14,200 leukocytes the sixteenth hour, a guinea-pig 18,000.

81. **Differential Diagnosis of Duodenal Ulcer.**—Wulff's communication from the Copenhagen university clinic in charge of Rovsing is practically the same as the article summarized in these columns March 20, 1915, p. 1040. The clinical history is compared with the operative findings in eighteen cases of pyloric ulcer, thirty-nine of duodenal and sixty-one of gastric ulcer. A pyloric ulcer or one near the pylorus or above it was found in many cases presenting the typical Bucquoy-Moynihan set of symptoms. Neither is the Hartmann-Souppault pyloric syndrome restricted to cases with the ulcer at the pylorus; it may be lower down or higher up.

Van Amstel discusses recent literature on duodenal ulcer, and describes a case of gallstones with no tendency to gastro-intestinal ulceration in which the man suffered from distressing hunger pains at night, relieved at once by eating zwieback. When symptoms attract attention to the ulcer it is then usually in a comparatively advanced stage. The symptoms ascribed to a duodenal ulcer may be those merely of acid dyspepsia. He cites various data which emphasize that the anamnesis is rarely sufficient basis for a positive diagnosis of duodenal ulcer and normal Roentgen findings do not exclude the possibility. The ulcer is more liable to be in the duodenum than in the stomach with negative Roentgen findings. He agrees with Rovsing that the diagnosis of ulcer has been made erroneously in many cases and gastro-enterostomy made on a pure guess. Van Amstel lauds the method of introducing an electric light directly into the stomach through a minute incision when the abdomen has been opened. By this means the stomach can be inspected throughout and also the duodenum. In conclusion Van Amstel cites a number of cases of duodenal ulcer in young children. In a boy and girl of 15 and 14 the operation followed twenty-six and seventeen hours after perforation of the ulcer; both recovered. It is possible that in some cases in which stenosis of the pylorus was assumed, the trouble may really have been duodenal ulcer. In Collin's compilation of 270 cases of duodenal ulcer, 42 were in children under 10. Gastric ulcer is rare in children. One infant a month old succumbed to hemorrhage from a duodenal ulcer, but syphilis was incriminated in this case.

Münchener medizinische Wochenschrift, Munich

January 18, LXIII, No. 3, pp. 73-112

82 Provocative Gonococcus Vaccine Test. (Der diagnostische Wert der Gonokokkenvakzine.) P. Asch and Adler.
83 A Vibrio Found in Stool Suspicious of Dysentery. (Der Nachweis eines Vibrio in ruhrverdächtigem Stuhl.) F. Kutscher and Peters.
84 *Operative Treatment of Nephritis in Soldiers. (Chirurgische Behandlung der Nierenentzündung.) S. Wilk.
85 Official Directions for Prophylaxis of Diphtheria. (Die amtsärztliche Bekämpfung übertragbarer Krankheiten. I.) M. Henkel.
86 Comparative Research on the Cell Count in the Cerebrospinal Fluid. (Vergleichende Untersuchungen über die Thoma-Zeiss'sche und Fuchs-Rosenthal'sche Zählkammer bei Liquoruntersuchungen.) C. Stern.
87 *Determination of Interval Since Death by Response of Muscles to Percussion. (Die Bestimmung der Todeszeit durch die muskelmechanischen Erscheinungen.) S. Zsako.
88 Welfare Work for Maimed Soldiers. (Praktische Kriegsinvalidenfürsorge.) H. Scholl. Commenced in No. 2.
89 Paratyphoid A in the Field. E. Lehmann.
90 Malignant Measles. (Bösartigkeit der Masern bei Bosniaken.) K. Helly.
91 Characteristic Necropsy Findings in Tetanus. (Obduktionsbild bei Tetanus.) K. Helly.
92 *Acute Exophthalmic Goiter of Nervous Origin. (Einige Fälle von Hyperthyreoidismus, darunter drei von akutem Basedow bei Kriegsteilnehmern, zur Stütze der neurogenen Enstehung dieser Krankheit.) A. Rothacker.
93 Traumatic Circumscribed Ossifying Myositis. Hauber.
94 Hypnosis in Treatment of Enuresis in Soldiers on Active Service. W. Sauer.
95 Apparatus to Mobilize Stiff Joints and Exercise Muscles. (Fingerpendelapparat.) E. v. Karajan, R. B. Schwarz; (Zur medikomechanischen Behandlung der Fingerversteifungen.) G. Hohmann; (Universal-Hand- und -Finger-Mobilisierungsapparat.) E. Schepelmann; (Uebungsapparate mit abstufbarem Widerstand zur Kräftigung der Handschliessmuskeln.) K. Ramm.
96 Improved Technic for Localization of Foreign Bodies Deep in the Tissues. Kunz.

84. **Surgical Treatment of Nephritis.**—Four soldiers between 24 and 32 presented symptoms of extremely severe nephritis, which they attributed to getting chilled. No benefit was apparent from systematic internal treatment and the grave condition and dropsy kept up for months. The edema from head to foot was so extreme that the men's position in bed had to be frequently changed or the parts of the body spread out flat like a board. Decapsulation of one kidney caused a prompt change for the better. The edema subsided and in the course of a few weeks the men looked healthy and robust. In selecting the kidney for the operation, notice was taken of the side the men preferred to lie on. The kidney was found enlarged to two or three times its normal size. The cortex was blue from congestion, and it bled copiously when the capsule was separated. It was rinsed with boiled water until the bleeding stopped. The patients stood the operation well. The urine was blood stained for four days in three of the cases; in the fourth for two weeks. Under calcium chlorid then the urine became free of blood. The urine totaled six liters in the twenty-four hours by the fifth day in all but one case and by the fourteenth day in this, and there was not a trace of edema by the end of the sixth week. The man with 14:1,000 albumin lost 30 kg. in weight, about 66 pounds, and seems to be clinically cured. The nephritis in these cases seemed to be a functional disturbance, the kidney being strangled but its tissues not irreparably altered.

87. **Estimation of the Interval Since Death by Muscular Phenomena.**—Tapping with the hammer on certain muscles elicits a reflex contraction up to from ninety to 120 minutes after death. The contraction can be elicited in the same way on the living, but it is more pronounced in the cadaver as there is no antagonistic tonus. Some of the muscles may respond for four hours after death. Tapping along the radius from the elbow downward, a point is reached where this induces (1) extension of the hand; tapping along the radius above the wrist causes (2) the thumb to bend. Tapping on the spaces between the bones in the hand causes (3) the corresponding fingers to close up. Extension of the toes is induced by tapping on the back of the foot (4), and adduction of the foot follows tapping on the leg (5) while extension occurs on tapping along the tibia at the middle third (6). A movement of the muscles up to the inguinal region occurs when the lower third of the thigh is tapped across (7), and the scapulae move toward each other when the back is tapped between the scapula and the spine. Zsako called attention in 1912 to these muscle mechanical phenomena, and the experiences in the war have confirmed and amplified his previous statements. The lack of any response testifies that death must have occurred from two to four hours before. Some of the responses may be observed even through the clothing.

92. **Neurogenous Exophthalmic Goiter.**—Rothacker reports the case of a healthy girl of 21 who developed mild exoph-

thalmic goiter when her father refused his consent to her marriage. She was married later and all the symptoms disappeared, but returned a year later when her father died. Again they subsided but the whole syndrome returned recently at her husband's death. In two other cases nervous excitement or overwork brought on the syndrome in a young man and a physician. Under rest and quiet the disturbances subsided. In three other cases described in detail the syndrome was brought on by the nervous excitement of trench warfare and subsided when the men were transferred elsewhere. Rothacker has encountered a number of similar cases, and declares that the possibility of a nervous origin for exophthalmic goiter cannot be denied. He urges those who have opportunity, to apply the ninhydrin test in cases of exophthalmic goiter.

Therapie der Gegenwart, Berlin

January, LVII, No. 1, pp. 1-40

97 Glandular Affections in Children. (Zur Kenntnis der Lymphadenopathien des kindlichen Alters und ihre Behandlung.) A. Baginsky. To be concluded in No. 2.
98 When to Operate in Acute Gallstone Colic. (Wie erkennen und wann behandeln wir operativ den akuten Gallenkolikanfall?) H. Kehr. To be concluded in No. 2.
99 *Objective Determination and Treatment of Certain Kinds of Nervous Injury. (Ueber ein neues Verfahren zur objektiven Feststellung bestimmter nervöser Störungen und ihre Beseitigung.) E. Weber.
100 Eczema. (Ueber Ekzembehandlung.) C. Bruhns.

99. **Objective Sign of Nervous Injury.**—Weber's previous communication on this subject was summarized in THE JOURNAL, June 5, 1915, p. 1949. The extensive opportunities afforded by the war for further research on nervous upsets have sustained his theory and confirmed the benefit of treatment based thereon. He applies tests which induce dilatation of the blood vessels, and then registers the extent of the dilatation. He has established, he states, that the dilatation is of central origin and hence occurs over the whole body. Also that the response occurs always in the same manner in health, while certain nervous affections modify it in a characteristic manner. He records the findings with the plethysmograph, having adapted this to use for the face and abdominal organs as well as for the limbs. The respiration rate is recorded at the same time. With concussion of the brain there is constriction of the vessels, instead of the natural dilatation. His method enables the benefit from treatment to be followed step by step by objective findings—a rare privilege. Not drugs but physical measures are beneficial, and chief among these in its effect on the centers controlling the vessels is the alternating douche, switching abruptly from cold to hot and back again. The benefit is felt particularly in the vessels of the brain after concussion; headache and vertigo improve at once and the benefit persists for hours. When the headache returns, the objective findings veer to the pathologic at the same time. On repeating the douches the benefit lasts longer and longer until a week without treatment elapses without symptoms, when the cure may be regarded as complete. The alternating douches are given twice a day in treatment of concussion of the brain, each from five to eight minutes long, changing from hot to cold and back again every half minute. When these douches are impracticable, nearly as good effects can be realized by applying ice bags alternately to various sensitive areas on the body, changing about every two minutes. He found that after application of superheated air to the limb and also after general anesthesia, the vessel centers gave the pathologic response to the test over a surprisingly long period. This pathologic response was also the rule in toxic and infectious conditions, but was never found in nonorganic affections, traumatic neuroses, hysteria, epilepsy or psychoses.

Wiener klinische Wochenschrift, Vienna

January 13, XXIX, No. 2, pp. 33-60

101 *Serodiagnosis of Typhus. (Zur serologischen Diagnose des Fleckfiebers.) E. Weil and A. Felix.
102 Differential Diagnosis Between Typhus and Typhoid. (Zur Differential-diagnose zwischen Typhus exanthematicus und abdominalis.) P. Habetin.
103 *Theoretical Study of Action of Antitetanus Serum. F. Hamburger.
104 Removal of Projectiles in Face or Ear Region. (Die Klinik und operative Entfernung von Projektilen in Fällen von Steckschüssen der Ohrgegend und des Gesichtsschädels.) G. Alexander.
105 First Measures for Fractured Femur. (Versorgung der Oberschenkelfrakturen im Felde, zugleich eine Instruktion für den Feldarzt.) H. v. Haberer.

January 20, No. 3, pp. 61-88

106 Trauma as Cause of Glaucoma. (Trauma als Urheber eines primären Glaukoms.) W. Goldzieher.
107 Alien Serums Do Not Influence Cancers. (Kritische Studien zur experimentellen Therapie maligner Neoplasmen. II.) S. Fränkel and E. Fürer.
108 *Vaccine Therapy; Mouse-Typhoid Bacillus Vaccine in Treatment of Clinical Typhoid. (Erfahrungen über Praxis und Theorie der Vakzinetherapie.) L. Zupnik, A. v. Müller and K. Leiner.
109 War Wounds of the Urogenital Apparatus. E. Haim.
110 Leverage Splints. (Hebelschienen.) G. Engelmann.
111 War and Tuberculosis. (Krieg und Tuberkulosebekämpfung.) A. Götzl.

101. **Serodiagnosis of Typhus.**—Weil and Felix had thirty-three cases of typhus in Galicia in which the clinical picture and the fever curve were typical for typhus but the agglutination test and deviation of complement were typical for typhoid. Necropsy failed to reveal typhoid lesions, but as cases of true typhoid have been published in which no typical lesions could be detected, the negative findings do not absolutely exclude typhoid.

103. **Antitetanus Serum.**—Hamburger calls attention to the way in which tetanus treated early with large doses improves and then keeps about on the same plane for from five to seven days. Then comes an exacerbation and death soon follows unless large amounts of antitetanus serum are injected anew, which may save the patient. This stationary plane and sudden exacerbation from the fifth to the seventh day in tetanus, and often likewise in diphtheria, correspond to what we know of the mode of elimination of the alien albumin to which the antitoxin is bound. He refers to published research which demonstrated that the alien albumin persisted in the blood for four, five or six days and then disappeared suddenly from it, by a kind of crisis. The stationary phase demonstrates that the antitoxin is able to hold the disease in check for this long. It is important, therefore, to give more antitoxin and in sufficient amounts in time to forestall the exacerbation and ward it off. He suggests that if the antitoxin were given along with a large amount of plain serum, the antitoxin might be spared more to exert its specific action and be retained longer. His (theoretical) treatment of tetanus would therefore be 200 units brought up to 300 c.c. with normal horse serum. Five days later half of this amount should be injected anew and possibly repeated the sixth and seventh days. No opportunity for applying this method in practice has developed as yet.

108. **Treatment of Typhoid with Mouse Typhoid Vaccine.**—Zupnik and his co-workers gave vaccine therapy an extensive trial in 145 cases of various infectious diseases, including 112 typhoid cases. The curative results were meager by subcutaneous injection, but the results, they relate, were very encouraging when the vaccines were injected repeatedly in small amounts. It was found that a vaccine made from mouse typhoid bacilli seemed to influence clinical typhoid as effectually as the specific vaccine, while it did not cause such severe by-effects as seem to be inseparable from the latter in intravenous injection. The chill is brief and slight and the symptoms on the part of the heart, the dyspnea, cyanosis and acceleration of the pulse are materially milder, not causing grounds for alarm. This method of treatment was applied without discrimination to all cases, even the very severe, except those with bad hearts to begin with. The only death that occurred in connection with the vaccine therapy was that of a young man with typhoid in such a severe form that the vaccine was apparently the last resort, although the heart was known to be defective. In this case a chill lasting half an hour followed the intravenous injection of 0.5 c.c. of the mouse typhoid vaccine, representing twelve million germs. The pulse ran up and about three hours after the injection there was extremely intense delirium for an hour and a quarter and then five brief convulsions, with death the sixth hour after the injection, about the eighth day of typhoid. In three other cases delirium developed after the injection, mild

in two, but severe and persistent in the third. These delirious patients had to be held down in bed by force. The mouse typhoid vaccine induces production of antibodies; the therapeutic dose ranges from eight to twenty million germs. A tentative preliminary injection of four millions will reveal any special susceptibility. If this is borne well, forty-eight hours later the therapeutic dose of eight millions is given. The response of the fever to any vaccine is less pronounced in malaria and relapsing fever and in exceptionally severe typhoid. The vaccine seems to influence favorably the whole disease process, but the mechanism for this is still a mystery. The vaccines that may be used in typhoid can be classed as those of the typhoid, colon and dysentery bacilli type, and the mouse typhoid and meningococci type.

Gazzetta degli Ospedali e delle Cliniche, Milan

January 2, XXXVII, No. 1, pp. 1-16

112 Notes From a Field Hospital. (Note di Chirurgia di guerra.) G. Campora.

January 27, No. 8, pp. 113-128

113 *Frostbite. (Brevi considerazioni pratiche sulle congelazioni ai piedi con speciale riguardo alle lesioni di primo e secondo grado.) C. Longo.

114 Arguments For and Against Inclusion of Pharmaceuticals in the Pharmacopeia. (Le specialita nella Farmacopeia Ufficiale?) E. Villa.

113. **Frostbite.**—Longo emphasizes the value of a general tonic to improve the circulation as a whole after the feet have been frostbitten. He has had surprising results, he says, with iodin: 5 gm. of potassium iodid and 0.5 gm. metallic iodin with distilled water to make 20 c.c., gradually increasing the number of drops given. Epistaxis frequently accompanies frostbite, and it may be absolutely uncontrollable for a time. The best treatment he has found for this is a 10 per cent. solution of gelatin by the mouth.

Policlinico, Rome

January 23, XXIII, No. 4, pp. 101-132

115 Wounds of the Throat. (Alcune considerazioni sulle lesioni e sui traumi della laringe e della trachea in guerra.) G. Ferreri.

116 *The Functional Vasomotor Syndrome. D. Consorti.

January 30, No. 5, pp. 133-164

117 Orthopedic Treatment of Fractured Jaw in War. (Sulla cura ortopedica delle fratture della mandibola in guerra.) A. Beretta and C. Cavina.

118 Present Status of Antityphoid Vaccination. T. Silvestri.

116. **The Functional Vasomotor Syndrome.**—Consorti says that a constitutional predisposition, a vasomotor ataxia, is responsible for the fluctuations in the vasomotor system under the influence of toxins. Consorti emphasizes that this is not an actual malady in itself, but there is always some nervous predisposition if not actual vasomotor ataxia. It is traditional that the hysteric and neurasthenic are liable to severe upsets in the balance of the circulatory system. The chief causes liable to bring such upsets are tobacco, alcohol and other intoxications and digestive derangement. Nicotin acts on the blood vessels and is the principal if not the only cause of vasomotor angina pectoris as well as of the organic. Chronic intoxication from nicotin generally induces constriction of the vessels, but it may cause dilatation, either active or from paresis of the vessels. With this predisposition plus some chronic intoxication, any slight cause is liable to bring on hyperemia of the brain, with dizziness, oppression in the head and a dazed condition. An extra long walk or a too abundant meal may induce ischemia of the brain from abnormally low blood pressure, tachycardia and syncope. If the syndrome is acquired from some preventable cause, removal of the latter may restore conditions to normal, but if the cause continues to act, organic lesions may become installed in time. There is no doubt that arteriosclerosis is favored by active vasodilatation and hypertension. But at first, under repose and quiet, the syndrome subsides without leaving a trace. Many cases of noises in the ear, transient deafness, bronchial affections and asthma are maintained by active and paretic dilatation of the bronchial vessels. There may be a neurosis of the respiratory organs—actual asthma. It often happens that one region may show vasoconstriction and another vasodilation at the same time. Headache is frequent, as also insomnia; there may be dyspepsia and bowel spasms; pain in the liver, radiating to the shoulder, is not uncommon, or there may be pain suggesting gallstones. Other cases may present symptoms suggesting sclerosis of the kidney, but after removal of the toxic cause the urine returns to normal. This change may occur suddenly and no cause for the transformation can be detected. In short, there is not an organ that may not be the seat of congestion from vasomotor disturbance; differentiation is aided by the instability of the phenomena. In treatment the special organs involved should be left unmolested while everything should be done to tone up and strengthen the nervous system. Regular work, tranquil surroundings, nourishing, easily digested food are the main reliance, abstaining from tobacco, alcohol and strong coffee. Some persons cannot stand even small amounts of alcohol or tobacco without vascular erethism, either from an idiosyncrasy or a cumulative action. Consorti says in conclusion that when the symptoms indicate paretic dilatation of the vessels, small doses of strychnin may prove useful. When the symptoms indicate vasoconstriction, trinitrin may be required. Mild hydrotherapy is a good adjuvant to the general measures, using cold when paretic vasodilatation predominates.

Brazil-Medico, Rio de Janeiro

January 8, XXX, No. 2, pp. 9-16

119 *Beriberi. L. Freire.

119. **Beriberi.**—Freire relates that Brazil is not the hotbed of beriberi formerly assumed. What has gone by that name in the Amazon region and elsewhere has lately been proved by C. Chagas' official investigation to be a hitherto undescribed form of quartan malaria, characterized by a rapid and pernicious course and pretibial edema. In all his research he never encountered anything of the nature of malarial polyneuritis and nothing to suggest beriberi. When there is polyneuritis with malaria plasmodia found in the blood, the trouble is beriberi in a malaria subject. Nothing to suggest polyneuritis is ever seen in the hundreds of patients with hookworm at the Rio hospitals. Freire adds that no direct contagion of beriberi from man to man is known, although new foci can be started elsewhere from an endemic focus. Japan had no beriberi until it opened its gates to commerce with India and the islands. In turn, the Japanese carried beriberi to Australia. All other forms of polyneuritis are restricted to certain habits or trades, such as the abuse of alcohol, and lead poisoning.

A beriberi focus once established becomes fixed, in hot and moist climates at least. Freire is convinced that these facts can be explained only by an intermediate host for propagation of its germ. A closed institution, such as a hospital or asylum which once becomes a focus of beriberi, causes such devastation that some persons regard it as an actual crime to establish a general hospital in localities where beriberi is prevalent. In many instances the patients in such have had to be dispersed and the institution closed. A hospital for beriberi patients should be of the farm colony type. Another peculiar feature of beriberi is that it may attack only one section of a town. In the large Singapore epidemic only men had it; not one woman was affected. In one tenement building all those affected were on one story. Infants nursing women with beriberi acquired it but threw it off as soon as they were nursed by healthy women.

He regards the rice theory as having had its day; the people who live exclusively on rice generally are subject to privations of all kinds and lack of hygiene. [A study of beriberi in Cuba was presented by Lebredo at the recent Pan-American Scientific Congress. He said that the disease was prevalent in Cuba in the days of slavery, but the first careful study of it was made in 1911 when an epidemic of beriberi appeared in the prison in the Santa Clara province. Animals fed with the rice that had been used developed usually a syndrome resembling beriberi. The clinical and experimental data intimated that the rice contained some starch-attacking germ which generated a poison. This assumption has been sustained by further research, another epidemic occurring in the same prison in June, 1912, in April, 1913, and also in 1914 in the hospital of the United Fruit

Company, and in 1915 among the crew of an English ship from India. In each instance, when the epidemic was virulent, the beriberi assuming the fulminating form, the animals developed also virulent beriberi symptoms when fed with rice from the supply that had been used. The supposed starch-modifying germ isolated from the rice in the most virulent epidemics had spores that resisted boiling for twenty minutes. Lebredo is inclined to think that this germ is found naturally in rice and does no harm so long as the starch is protected by the hull. The pericarp alone is probably ample protection for the starch. Lebredo is chief of the laboratory of the Public Health Service in Cuba. His article opens the new year in the *Revista de Medicina de Habana.*]

Semana Medica, Buenos Aires

Dec. 9, 1915, XXII, No. 49, pp. 687-714

120 Midwives and Midwifery Training School at Buenos Aires. (La partera de Buenos Aires y la escuela de parteras.) A. Chueco.
121 The Trained Nurse. (Inauguracion de un curso sobre asistencia de enfermos y primeros auxilios.) E. Obejero.

Russkiy Vrach, Petrograd

1915, XIV, No. 30, pp. 697-720

122 Metal Netting Splints. G. I. Turner.
123 Shield-Like Syphilids. (Syphilide en corymbe.) V. I. Terebinsky.
124 Treatment of Clavicle Fractures. (Novii sposob lietcheniya perelomov klutchitzi.) M. A. Konosevitch.
125 *Action of Digitalis on Peripheral Blood Vessels. J. V. Golovinsky.
126 *Skin Tuberculin Test in Surgical Practice. A. Y. Zitronblatt.
127 *The Initial Stage of Leishmaniosis. V. L. Yakimoff.

No. 48, pp. 1129-1152

128 *Typhus Fever in the Russian Army. I. I. Shirokogoroff.

No. 49, pp. 1153-1176

129 The Iron Atoms in Animal Tissues, and Their Physiologic Value. A. I. Danileffsky. Commenced in No. 48.
130 *Cardiovascular Insufficiency in Soldiers. D. D. Pletneff.
131 *The Chemical Activity of the Stomach in Relation to the Symptoms of Duodenal Ulcer. S. G. Mintz. Commenced in No. 47.

125. **Action of Digitalis on Peripheral Blood Vessels.**—Golovinsky studied the action of digitalis on the peripheral vessels of dogs, rabbits and frogs. He used digipuratum in various concentrations (1:5,000 and 1:1,000) which he passed in Ringer's or Locke fluid through the isolated ears (Kravkoff's method) or through the splanchnic and the portal systems (Fröhlich's method). He found that solutions of digipuratum in doses that may have a therapeutic effect do not affect the lumen of the peripheral vessels of the regions examined, skin, splanchnic or portal systems, while toxic doses caused dilatation. The increased blood pressure from digitalis is thus due to the increased cardiac activity.

120. **Skin Tuberculin Test in Surgical Tuberculosis.**—Zitronblatt studied v. Pirquet's test on 256 patients; 92 had visible tuberculosis, mostly of surgical character, 27 were merely suspects, and 137 were clinically free from tuberculous symptoms. He used Koch's old tuberculin in 25, 10, 5 and 0.5 per cent. solutions. For control vaccination he sometimes used bouillon. He found that the weaker the solution of tuberculin, the weaker was the reaction, the more indefinite were the results. His conclusion therefore is that Pirquet's test has no practical value for the diagnosis of surgical tuberculosis.

127. **The Initial Period in Leishmaniosis.**—The initial stage of leishmaniosis in mice and dogs may be of but a few days' duration. Its length depends on the quantity of the injected parasites, on the age of the infected animal, and possibly on whether the virus was obtained from man or dogs.

128. **Typhus Fever in the Russian Army.**—Shirokogoroff found the following measures efficient in the campaign against typhus fever in the Russian army: (1) instruction of soldiers in regard to the rôle of insects (lice) in transmitting the infection; (2) every possible means to be used to keep the body clean, providing the soldiers with sufficient amounts of underwear, soap, etc.; (3) watching carefully for the presence of epidemic disease among the population where soldiers are stationed; suspicious lodgings should be condemned; (4) in case of an epidemic in the rear of the army, a twelve or fifteen day quarantine is established, the clothing, lodgings and the soldiers are made free of insects; the temperature is carefully watched, for the purpose of isolating the newly diseased persons; (5) in case the disease breaks out at the front, the infected men are immediately removed to the rear for the purpose of thorough unlousing and medical care.

130. **Cardiovascular Disturbances in Soldiers.**—Pletneff found among Russian and Austrian soldiers numerous cases of cardiovascular insufficiency in the form of old valvular heart lesions, myocarditis and arteriosclerosis. Arteriosclerosis and an insufficiently developed aorta and heart gave the largest percentage of cardiopaths. Next in frequency, the cause of the cardiovascular insufficiency was found to be a lack of proper physical harmony between single organs. In healthy persons the cardiovascular insufficiency easily arises from lack of sufficient muscular exercise, and proper physical training.

131. **The Chemism of the Stomach with Duodenal Ulcer.**—Mintz summarizes the conclusions from his clinical experiences and research as follows: 1. Hyperacidity, namely, disturbance in the "leveling" property of the stomach, is a constant phenomenon with a typical duodenal ulcer. By "leveling" property he means the remarkable faculty possessed by the normal stomach of keeping the absolute acidity at the same level. (See summary of his previous work, Abstract 135 in The Journal, Sept. 18, 1915, p. 1067.) 2. The tardy pain is explained by the facts that in beginning of digestion, the gastric chemical function is normal. Several hours after the intake of food, when the larger portion of the gastric contents has left the stomach, the leveling properties of the latter are disturbed and the gastric acidity begins to rise, causing spasm of the pylorus and attacks of pain. 3. The pain-soothing effect of intake of food with duodenal ulcer can be explained by the lessened acidity of the stomach, the hydrochloric acid becoming combined with the food. 4. The pain-soothing action of alkalies is due to the neutralization of the excess of hydrochloric acid. The similar action from hydrochloric acid depends on its stimulation of the leveling activity of the stomach, that is, of the mechanism for self-regulation of acid secretion. 5. The six hour bismuth residue, that is, the amount retained in the stomach for six hours, with duodenal ulcer, is due to the reflex pyloric spasm. 6. The excessive peristalsis of the stomach and its increased motor activity in cases of duodenal ulcer, can be explained by the fact that the duodenal mucosa is flushed at the end of the gastric digestion by the overacid stomach contents. With gastric ulcer, normal or subnormal acidity of the stomach contents has been the rule in his experience. Hypersecretion was most pronounced with ulcer near the pylorus. He gives the clinical details of twenty-four operative cases of duodenal ulcer.

Hygiea, Stockholm

LXXVIII, No. 1, pp. 1-96

132 Psychanalysis. (Kritiska reflexioner över de psykoanalytiska teorierna.) O. Kinberg.
133 Ulcerating Skin Disease of Gangrenous Type, Suggesting Gangrenous Ecthyma. (Ett fall av tumorbildande, ulcererande hudsjukdom av obekant art, i vissa avseenden liknande mycosis fungoides.) S. Ström.
134 Impressions of America. (Något om kirurgi, läkare och sjukhusväsende i Amerika.) A. Troell.

Ugeskrift for Læger, Copenhagen

January 27, LXXVIII, No. 4, pp. 83-122

135 *Case of Acute Heart Block in Young Clerk. L. Laursen.

135. **Acute Heart Block.**—The young man was healthy and had never had scarlet fever, diphtheria or acute articular rheumatism and was not guilty of excesses of any kind. He complained of headache for two weeks, then had a sore throat and pains in the feet but no fever. As he was about to mount his bicycle he grew suddenly dizzy and fell, and the dizziness returned the next day or so, with oppression in the heart region. Examination revealed total heart block. Laursen thinks that some otherwise latent rheumatism infection was responsible for this complete dissociation of conduction between auricle and ventricle. The subsidence of the heart block under treatment as for acute rheumatism confirmed this assumption of an indolent rheumatic infection localizing in the heart.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXVI, No. 12 Chicago, Illinois March 18, 1916

THE RECOGNITION OF GENERAL PARESIS WHILE IT IS STILL SUSCEPTIBLE TO TREATMENT

WITH REMARKS ON THE COURSE AND CLINICAL FEATURES OF THE DISEASE

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General paresis is a disease of the cerebrum and the central nervous system caused by the presence and growth of the *Spirochaeta pallida* in its lymph system. The destructive action of these organisms is expended largely on the parenchyma or ganglion cells of the cortex of the brain. Any part of the nervous system may, however, be subject to its ravages, but the symptoms of the disease are always finally and conspicuously cerebral.

It is a fatal disease. Once it is fully developed it is subject neither to amelioration nor to interruption. Early and vigorous treatment of syphilis before the organisms have made their onslaught on the parenchyma of the central nervous system has wrought a change in the clinical display of the disease. The hope is justifiable, with our enhanced capacity to deal with syphilis, based on a profounder knowledge of the principles or laws which govern the life history of the spirochetes and their susceptibility to destruction by arsenic, that finally we may be able, first, to prevent general paresis, and failing in this, to cure it. Its prevention is synonymous with the prevention and adequate treatment of syphilis; this phase of the subject I have already discussed.[1]

There is no encouragement from experience recent or remote to justify the hope that we shall be able to cure general paresis until such time when we shall recognize the disease much earlier than we do now. We must thwart the preparations that the spirochetes make in the nervous system soon after infection, and we must annihilate them in their early skirmishes.

I have studied the histories of 100 general paretics that have come under observation during the past six years, since the founding of the Neurological Institute, where the facilities for their proper observation and interpretation exist, to learn if there was anything in the clinical histories of these patients that would permit the physician who saw them early, either to suspect the disease or to diagnosticate it with sufficient positiveness to subject them to treatment, and to enable one to say how these early cases comport themselves.

That general paresis is a syphilitic disease of the brain is now universally admitted. The textbooks still mention important contributory causes and discuss other de facto causes than syphilis; but the textbook of the future must say that general paresis is always a syphilitic disease. Less than half the patients admit syphilis or give indications direct or collateral that it has occurred, but study of the cerebrospinal fluid and blood serum of these patients gives information that satisfies me that the disease has its origin in syphilis in every instance. (It should be said that the latest recorded expressions of some syphilographers is inimical to this statement.[2])

Some writers still teach that sexual and alcoholic excess are important contributory factors to the causation of general paresis. There is a widespread belief, especially among English psychiatrists and among the laity, that sexual aberrations and particularly fellatio may cause the disease. There is not the slightest support for this supposition in my experience, nor do my histories, now amounting to upward of 400, bear out the statement that excessive use of alcohol is even a contributory cause deserving of mention. Many patients in the early stages of general paresis give way to excessive indulgence in alcohol as an evidence of their mental disorder, but this has nothing to do with the causation of the disease. I am not contending that an exciting cause of the disease is not operative in many instances, or that in addition to the de facto cause there is no exciting cause. It has been convincingly shown that among the natives of Algeria, from 60 to 70 per cent. of whom are syphilitic, paresis is practically unknown,[3] and this despite the fact that there is ample proof that syphilis has existed in Algeria as long as it has existed at all, namely, since 1495. Writers on this subject, as a rule, content themselves with the statement that this elusive contributory or exciting cause is synonymous with the stress of higher civilization and advancing culture and efficiency. Others maintain that hereditary factors in the existence of paretics have not been given adequate weight in estimating the etiology of the disease. If those who contend for the first are willing to say that general paresis is contributed to by every infringement on the laws of nature, there can be no possible objection to subscribing to it. But to say that it is incidental to civilization and culture, even though civilization and culture entail divorce of the simple life, is absurd.

That the hereditary factors are very prominent in paretics, as contended lately by Julius and Arndt, is not corroborated by my own studies. The occurrence of the disease in more than one member of the family may be interpreted as an evidence of inadequate resis-

1. Collins, Joseph: Syphilis of the Brain: Its Occurrence, Symptoms and Prevention, The Journal A. M. A., July 10, 1915, p. 139.

2. Nonne, M.: Syphilis und Nervensystem, Berlin, 1912.
3. Rudin: Allg. Ztschr. f. Psychiat., 1910, No. 5.

tance, as lowered vital resistance; it may also be accidental, or dependent on a single source of infection: for instance, among my cases are two brothers who were in college simultaneously, and who developed the disease, one at 39 and the other at 43; although not susceptible of proof, it is probable that there was a common source of infection in the two cases. On the other hand, the father of these two patients committed suicide, and it was thought he was insane.

Unquestionably an unstable, nervous organization may be inherited, and an unstable, nervous organization is more easily put out of commission than a stable one; but there is nothing to show that hereditary influences make the brain more susceptible to the inroads of the *Spirochaeta pallida*.

In 100 consecutive cases, the most painstaking inquiry into the family history in cooperation with some intelligent member of the family failed to reveal the history of nervous and mental disorder in the patients' ancestors or collaterals, save in eight instances. Another interesting factor bearing on heredity is the incidence of general paresis in Jew and Gentile in this series. There are thirty-two of the former and sixty-eight of the latter. The attendance in the outpatient department of the Neurological Institute, where

TABLE 1.—STATISTICS

Number of patients		100
	Male	86
	Female	14
Age:		
	Youngest	25
	Oldest	58
Average age when disease began		42 years
Average duration of the disease when patient came under observation		15 months
Average time that intervened between the infection and the beginning of paresis		15 years
	Shortest	2 years
	Longest	30 years
Race:		
	Jew	32
	Gentile	68
Profession and occupation		Practically every one
History of syphilis		41
Indication that syphilis had existed		13
Syphilis denied		53
Positive Wassermann reaction of the blood serum		87
Positive Wassermann reaction of the cerebrospinal fluid		85
Positive Wassermann reaction in serum and cerebrospinal fluid of fifty-nine patients who denied syphilis		56
History of the contributing causes:		
	Alcohol	25
	Physical and mental hardship	4
	Trauma	15
History of sexual excess and debauchery		7
History of the psychopathic constitution		7

the majority of these 100 cases were first encountered, is about 60 per cent. Hebraic. Despite this, there were more than twice as many Christians as Jews afflicted with the disease. This may be interpreted in one or two ways. Either the Polish and Russian Jew has not yet encountered that element of "Kultur" which plus syphilis causes in some instances general paresis, or heredity and the psychopathic constitution has nothing to do with its origin. The latter is my conviction.

Some day it may be shown that general paresis is caused by a peculiar species or strain of *Spirochaeta pallida*.

The most astounding information came from a study of the cerebrospinal fluid of those who denied syphilis, of which there were fifty-nine (some of these were in a state of mental enfeeblement which, of course, made their statements wholly unreliable). Of these, there was found in the blood and cerebrospinal fluid convincing evidence of syphilis. The three patients of fifty-five who did not give such indications were a woman whose blood serum alone was tested, another whose husband had died of tabes, and a man who was interpreted when I first saw him as an example of manic-depressive insanity.

There are certain features of the facts set forth which call for comment. The proportion of women to men is somewhat larger than in most statistics. This is to be interpreted that women who live the life which men live have not only its enjoyments but also its penalties. It also shows that occupation or profession has no bearing on the etiology of the disease, and that it occurs with greatest frequency during the years of greatest mental and physical activity. The statistics regarding the admission of syphilis on the part of the patients are interesting when contrasted with information furnished by study of the blood serum and cerebrospinal fluid of these patients. Although only 40 per cent. admitted having had syphilis, the blood serum was found to be positive in eighty-seven, the cerebrospinal fluid positive in 85 per cent., and the colloidal gold test was positive in 97 per cent. of the cases. There were four women whose laboratory reactions were strongly positive, whose husbands admitted syphilis. The Wassermann reactions of the serum and the cerebrospinal fluid taken from the husbands were negative.

Twenty-five per cent. of the patients admitted that they used alcohol intemperately, or their relatives made such admission. That may or may not be an approximation of the percentage of individuals who use alcohol intemperately.

About 8 per cent. of the cases give a history of trauma, some injury to the head which may very well have an indirect determining relationship to the disease. Most writers on general paresis have been struck by the fact that history of injury to the head is not uncommon in patients with general paresis.

Case 1.—For instance, a young vigorous Norwegian, aged 35, by occupation a ferry tender, who was brought to us March 10, 1911, because he could not speak distinctly and there was some change in his general disposition, had the following history: About six weeks before the development of these symptoms, while running to drop the fender of the ferry or an incoming boat, he tripped over a rope and struck his nose, he was not incapacitated, and he did not seek medical advice, but within a fortnight it was noted that his speech was peculiar, and he himself said, "I do not know what is the matter, but sometimes I cannot say the words." The laboratory examination showed a positive Wassermann reaction of the blood serum and the cerebrospinal fluid, an excess of globulin, and 49 lymphocytes per cubic millimeter.

Case 2.—Another example is that of a fireman, aged 39, who lived a temperate, hard working life and denied syphilis. He was badly injured in the disastrous fire which destroyed the Equitable Building in January, 1912. He was carried out of the building, when the floors collapsed, in an unconscious state, and remained in the hospital a week. Whether he was more shocked than physically injured is difficult to determine. He was never well after that. In October of the same year, when I first saw him, his complaint was that he fatigued easily, especially the right arm and leg; he was very nervous, disturbed by noises at home, and very slow in all his movements and actions; he was subject to attacks of great difficulty in speaking, which lasted for half an hour or a day. In addition to the typical mental and physical features of general paresis, his serology was as follows: serum Wassermann +, cerebrospinal fluid +, globulin +, Fehling's +, cells 11. He deteriorated with profound rapidity, and died five weeks after coming to the hospital.

Table 2 aims to set forth the information that was furnished when the patient's family were asked: "What was first noticed to indicate that the patient was not well?" Very rarely was only one symptom or complaint stated. It is to be remarked that in thirty-five instances (upward of one third of all the cases) the early symptoms were those that are commonly spoken of as neurasthenia, namely, nervousness, pains in different parts of the body, especially in the arms and legs, and change of outlook toward the world. In a great number of instances there were in the same patients insomnia, fatigue without attribution, and mental irritability. In reality, therefore, it may truthfully be said that in half the cases of general paresis the patient's complaint at first is more or less indefinite, made up of symptoms considered subjective, and founded often in apprehension, which cause the family, and regrettably the physician, to treat the condition lightly.

It is astonishing how frequently loss of memory is mentioned as an initial symptom. When it is realized that such infirmity is rarely remarked by others until it has reached a considerable degree, it is apparent that it is a very constant and important symptom. Taken in conjunction with nervousness and alteration of personality or "change of disposition," it is the most important early feature of the disease.

TABLE 2.—INITIAL SYMPTOMS OF GENERAL PARESIS

Symptoms	Number
Insomnia	13
Fatigue	21
Irritability, alteration of disposition, querulousness	19
Loss of memory	40
Headache	14
Dysarthria	33
Eyes affected	10
Pain in arms and legs	13
Nervousness	22
Stupor, indifference, apathy	12
Garrulousness, expansiveness	5
Unsteadines of gait; inability to control hands	8
Gastric crisis	2
Attacks of unconsciousness (convulsion)	5
Loss of sense of taste; sour taste in mouth	2
Hypochondriacal complaints	11
Dementia ("loses his way," "forgot how to use tools," etc.)	7
Depression, crying spells, indifference	9
Loss of insight ("does not realize he is ill")	14
Maniacal excitement	1

Motor disorder is the next most constant early symptom. It displays itself usually in dysarthria, but not infrequently as ataxia of gait, and inability to use the hands dextrously. There were eight cases in which disorder of locomotion was the chief symptom when the patient was brought. We should include under motor disturbances those cases initiated with attacks of unconsciousness, which invariably mean convulsions. There were nine such.

In many instances, loss of insight, which is perhaps the most distinguishing feature of the disease, often exists from the very onset. "He does not realize or admit that he is sick" is a statement that we often hear. On the other hand, in the early course of the disease, a few realize keenly their predicament, and few situations are more painful to witness than that of the individual who appreciates the nature of his infirmity. I refer briefly to one such case:

CASE 3.—A young married man, aged 28, who had had syphilis when 18 and received no treatment at the time, came under observation Jan. 9, 1912. His history was as follows: In August, 1910, he had a series of small sores on the body and extremities, which continued off and on for three or four months. In the summer of 1911 he had headache and pain in the top of the nose, for which relief was sought in operation on the nose. In September, 1911, he was always tired, cross and irritable, complained of frequent headaches, depressions, pain in different parts of the body and insomnia, and would not go to business. In October his blood was found to show a positive Wassermann reaction; he was given mercury hypodermically, later large doses of potassium iodid, and later mercurial inunctions. Jan. 1, 1912, he became delirious, smashed furniture, turned on the gas, and tried to persuade his wife to commit suicide with him. He was given an opiate, and the next morning he seemed to have no recollection of what had transpired. He was very slow in all his actions; it took him two hours to dress; he talked interminably about trivial incidences; he was querulous and unreasonable, and gave way to extremes of temper and to violence. Although the loss of memory was very apparent, and he himself complained that he could not remember things, he knew, he said, that he was going crazy. He reiterated that he was doomed to become insane and die in a straightjacket as his father had done. He realized that he could not conduct his business, and that there was only one eventuation for the disease that had overtaken him. These periods of apprehensiveness would come on him in attacks.

After he had been in the hospital for two or three days, the detailed interviews showed an excellent memory, keen capacity for attention, normal effectivity, correct orientation, and indeed, save for a slight euphoria manifest in trifling overcommunicativeness, his condition was quite normal. The customary physical signs of general paresis were present, and the serologic examinations were quite characteristic. He died in February, 1914, the disease having run the typical course.

DIAGNOSIS AND COURSE OF THE DISEASE

General paresis is an easy disease to diagnosticate if the typical mental features are present, if the majority of the physical symptoms constituting the signature of the disease, as it were, exist, and if the examination of the blood serum and cerebrospinal fluid shows the condition which is pathognomonic of the disease. These conditions being present, there can be no doubt of the diagnosis.

Of this series, in only one instance was the diagnosis not made. The history of that case is of sufficient importance to be cited in brief:

CASE 4.—A bookkeeper aged 35, married, childless, was seen March 5, 1910. His wife related that ten days before, he began losing his appetite, and three days later when he awakened he did not seem to recognize things as he should, and answered only in monosyllables. The next day he got up, sat around for a while and did not eat his breakfast, but went to business. His employer, who accompanied him, said that he was very forgetful and uncommunicative, and when he was asked for information concerning the books would forget to give the answer. On an attempt to interview him, the only questions he would answer were one concerning his age, and the other if he had ever had syphilis, to which he replied very emphatically in the negative. He refused to remove his clothing or to allow it to be removed, or to cooperate in a physical examination. The only physical sign elicited was absence of the knee jerks. The pupils responded to light; there was no facial or manual tremor. The serologic examination was entirely negative. During the first week in the hospital he was silent, uncommunicative, answered only in monosyllables, and was apparently not interested in anything or in any one. He would eat when fed, but would never voluntarily take food or drink, and gave no heed to the functions of the bowels or bladder. At the end of a week he gradually came out of the apathetic state, and in two weeks was apparently quite himself again, desired to go home, expressed realization of his illness, was grateful for the care that had been taken of him, and thought that if he could get into the country and have a change, he would improve rapidly. He returned home, and the first evening spent there he seemed to be quite as usual. The next morning he lapsed into a stuporous condition again. Then began,

in alternation, days of stupor and days of mild excitement. About the middle of May this alternation disappeared and his speech became dysarthric. He displayed great forgetfulness, and childishness in neglect of his person. June 4, he was admitted to the Hudson River State Hospital, and his condition was then, Dr. Pilgrim stated, a typical one of the tabetic form of general paresis. He was later admitted to the Middletown State Homeopathic Hospital, where the same diagnosis was made. He died within four years from the beginning of the disease.

In five instances it was difficult to make the diagnosis until after prolonged observation and study, from that form of brain syphilis, parenchymatous or vascular, which is spoken of clinically as pseudoparesis. The study of these cases and conclusions constitute a sequence to this paper.

In brief, it may be said that the only safe rule to follow is to subject all patients in whom one hestitates to make the diagnosis to a laboratory examination of the blood and cerebrospinal fluid. It may be humiliating for us to admit that we cannot make the diagnosis from the early symptoms alone, but there are more painful humiliations than this, and one is to have a so-called neurasthenic patient diagnosticated later as a paretic. One would be deeply censured for not suspecting paresis in an individual who gave a history of epilepsy occurring for the first time after 25 to 30 (full maturity), and for neglecting to employ every aid for its detection. But it is far more urgent to subject the mature man or woman who is depressed, irritable, apprehensive, sleepless, nervous, and who complains of indefinite disagreeable sensations which put them out of tune with everything, to such tests than the epileptic.

In the siftings of neurasthenia will be found the early general paretics. I am not in a position to say whether the somatic signs of general paresis, which are present in practically every case of the disease, namely, the change in outline of the pupil, the loss of the pupils' reaction to light, tremor of the lips, tongue and hands; alteration of the tendon jerks (exaltation or abolition); and disturbed coordination underlying purposeful movements, are in existence before these initial symptoms. They were in existence in practically every one of the patients of this series, but it must be kept in mind that all of these patients had been under treatment before we examined them.

THE COURSE OF THE DISEASE

The course of the disease is a variable one; in a few instances it makes uniform progress, and the patient gets worse week by week. This variety makes up about 10 per cent. of the cases. Then there is about another 10 per cent. which make partial recovery, that is, recovery which permits the patients to return to their profession or occupation. There were nine such instances in this series: one physician, one police captain, one patrolman, one carpenter, one tailor, one stockbroker, one merchant and two housewives. They all died, save two, within five years after the disease began. It is often difficult to convince the families of these patients that the cessation of activity of the disease is not equivalent to recovery.

For instance, cases like the following are not uncommon:

Case 5.—A married woman, aged 41, who had borne four children and had had no miscarriages, and whose husband, a steady, sober printer, denied syphilis, had suffered from insomnia, which was of the most unyielding variety, for fifteen months. In addition she complained of pain in different parts of the body, nervousness, and tremulousness of the hands and lips, and it has been noted that she had difficulty in articulation, and that she became irritable, petulant, forgetful and emotional. The mental, physical and serologic examinations were typical of the disease. Her insomnia yielded to treatment and her general health showed great improvement under the utilization of various forms of tonic treatment. A year later her doctor writes: "She has improved constantly since she came home, so that she is mentally and physically normal. She is able to go visiting, shopping and to the theater and to attend to her household duties."

It is safe to prophesy that within a year the disease will overtake her.

It is quite unsafe to make any statement concerning the course of the disease from its conduct during a few months. A patient will be going on most favorably, when abruptly the whole picture changes.

Case 6.—Such, for instance, was the case of a telephone operator, an unmarried woman of 31, who had been able to attend to her work without causing comment or complaint up to two weeks before going to the hospital, where she was brought by her brother, who stated that she was so unsteady on her feet that it was unsafe for her to go into the street alone. Her handwriting had become illegible; her articulation was so indistinct that she could be understood only with difficulty, and her employers related that she had become so careless and unreliable in her work that they could no longer employ her. In addition to the physical signs of the disease her laboratory examination was: serum Wasserman +, cerebrospinal fluid +, globulin +, Fehling's +, cells 109.

This patient made remarkable improvement under vigorous antisyphilitic medication, so much so that she was paroled from the hospital to which she went after leaving the Neurological Institute, and remained fairly well for six months. Then she relapsed into the condition described above.

In many of these cases the inclination is to attribute the improvement in the condition of the patient to treatment. The most remarkable was the following:

Case 7.—W. M., man, aged 31, a stenographer, single, who had infection when 24, with cutaneous and mucous membrane manifestations, and had been treated with inunctions and potassium iodid for a year, when seen, April 1, 1912, complained of nervousness, tremor of the hands, inability to articulate distinctly, failing memory and low spirits and was talkative, unreasonable, and showed no insight. Serologic examination revealed: serum Wassermann +, cerebrospinal fluid +, globulin —, Fehling's +, cells 13. Physical signs: Argyll Robertson pupils, absent tendon jerks, tremor of tongue and fingers, and syllabic speech.

Between that date and Jan. 10, 1914, he was in the hospital many times and received twenty-seven injections of salvarsan. His condition improved gradually, and in October, 1913, he seemed to be almost normal; but he manifested no desire to go to work, and accepted with great equanimity support from his sisters. October 30, he complained of headache and a little difficulty in speech; that night he had a series of mild convulsions; in the morning he was completely comatose; there were slight rigidity of all four limbs, and retention of urine, and he was unable to swallow. He remained in this condition for three days. Immediately on coming out of this condition he asked the day of the week, and realized that it was election day. The next day he was able to go out and walk. After this he became very obstinate and mandatory, gradually developed euphoria and grandiose ideas, and displayed the typical expansive features of the disease.

He remained in the hospital till November 22; his garrulousness and unreasonableness had practically disappeared. He came to the hospital at intervals of two or three weeks until Jan. 10, 1914, since which time he has had no treatment. His serology then was: serum Wassermann +, cerebrospinal fluid + —, globulin —, Fehling's +, cells 6.

July 15, 1915, in reply to a letter asking him to call for examination, he wrote in a bold, steady hand: "Your letter

inquiring about my condition received. In answer I will say that I feel very well, and think there is not any need of my going down to see you. Thanking you for your kind attention, I remain, etc."

There is a large percentage of cases, namely, 20 per cent., in which truly remarkable progress is made. The disease being only fairly well marked or typically developed, the patients seem to be going along without very conspicuous change from day to day or from week to week, when suddenly they are seized with a series of convulsions, and all the symptoms of profound physical and mental disintegration. After a few days the patient will be up and about, and in about the same condition that he was before the attack, perhaps slightly more euphoric or deficient of insight or interest, or hypomaniacal, but distinctly further along the roadway of the disease.

About half of the cases make steady progress, the clinical picture changing little from week to week, but the end of each succeeding year finds the patient worse. He usually succumbs within five years from the onset of the disease.

TABES, TABOPARESIS AND PARESIS

It is often said, sometimes lightly perhaps, that tabes and general paresis are the same disease attacking different segments of the cerebral nervous system, the one of the cord, the other of the brain. They may be the same disease, inasmuch as they are both syphilitic diseases that are the result of a remote and proximate action of the *Spirochaeta pallida;* but they are totally unlike clinically, and quite different pathologically.

Psychiatrists, and to a lesser degree neurologists, are inclined to designate patients with paresis plus pain, incoordination and absent tendon jerks as examples of taboparesis. There is some justification for this, for there are cases in which the symptoms and signs of the two diseases coexist.

Much more rare than these cases of taboparesis are cases of tabes that eventuate in typical paresis; that is, patients who have been under treatment for years for ordinary tabes suddenly develop the typical manifestations of general paresis. So far as I can learn from inquiry, such cases are rare; yet I have seen four such cases within the past six years.

Brief notes of two of these are:

CASE 8.—A coachman, seen first, Dec. 14, 1909, whose complaint was pain in the legs, shooting in character, which had been in existence for three and one-half years, and which developed six weeks after a fall from a horse, had difficulty in urinating (duration about six months), constipation and impotence. The physical signs were: irregular, Argyll Robertson pupil, absent ankle jerks, absent right knee jerk, left diminished, slight ataxia of station, but not of gait, and irregular areas of hyperesthesia of the trunk and abdomen. He was under observation and treatment for two years. Then following the death of his son, he became irritable and unreasonable; finally, he got into a street altercation and was locked up and brought back to the hospital with a typical picture of paresis, which made profoundly rapid progress, and he died within four months from the time of the appearance of the mental symptoms. Shortly, before his death he developed a left third nerve palsy.

CASE 9.—Another even more unusual case was that of a man aged 43 who had syphilis when 20, and received customary treatment. When 38 he developed tabes, the evolution of symptoms being: difficulty in pedal and manual coordination, diplopia (third nerve palsy of one eye, six months later of the other), paresthesia of the hands, and darting pain in chest and upper extremities. The objective symptoms were pathognomonic. Four years after the beginning of the disease he began to be depressed at times with and without cause, but this was not interpreted as indication of mental disorder. A year later he became rather abruptly expansive, hypomaniacal and euphoric, and quickly displayed the most typical picture of paresis.

THE OUTLOOK FOR THE PREVENTION OF PARESIS

Were the state to treat syphilis, it is likely that paresis might be prevented; until it does, the prevention depends on the physician acting as an individual. It is too much to expect that all physicians will have the determination to thwart it or to be unanimous in regarding it as the chief menace to health.

TABETIC OCULAR CRISES

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Ocular crises were first described by P. K. Pel[1] (1898), but have not been generally recognized, and only a few cases are recorded. Oppenheim,[2] even in the sixth edition of his textbook, states that ocular crises with attacks of severe pain in the eyes, secretion of tears, spasm of the orbicular muscles, and hyperesthesia of the eyes and parts about the eyes, are not to be accepted as tabetic until further experience has been obtained. It is desirable, therefore, that cases of this character should be made known. Oppenheim has observed hyperesthesia of the retina in tabes which interfered greatly with a testing of the light reflex, as the eyes filled with tears on every attempt to take the light reflex.

Pel's case was one of tabes with paroxysms affecting both eyes, of ocular phenomena consisting of irritation of sensory, secretory, motor and vasomotor nerves. The mental condition of his patient during the attacks was altered. The man was restless and irritable. The ocular attacks occurred with sudden severe burning and stabbing pain in both eyes, interrupted by short intermissions. Pronounced secretion of tears with photophobia soon followed the pain, and it was difficult for the man to see because of spasm of each orbicularis palpebrarum muscle. The attacks varied in their duration. Sight was not affected in the intervals. In one attack the conjunctiva of each eye was red and swollen, and the eyes and area about the eyes were hyperesthetic, so that examination of the eyes was impossible, and the man felt exhausted after the attack. The appearance of the eyes during an attack was like the condition produced by rubbing the eyes in the presence of a foreign body beneath the lids. There is no mention of visual phenomena, and the optic nerves were normal. The condition was one of irritation of the trigeminal nerves, and the ocular pain was regarded as ciliary neuralgia. There was persisting paresthesia in the distribution of the trigeminal nerves.

Pel stated that until the time of his report no case of crises of one of the upper cranial nerves had been observed, as crises had been seen only in organs rich in vagus and sympathetic fibers. As the trigeminal nerve contains secretory, sensory, motor and vasomotor fibers, crises of this nerve might be expected, and this nerve is often affected in tabes.

Pel refers to reported cases of tabes with irritation of secretory fibers of the trigeminal nerves, as secre-

1. Pel, P. K.: Berl. klin. Wchnschr., Jan. 10, 1898, p. 25.
2. Oppenheim, H.: Lehrbuch der Nervenkrankheiten, Ed. 6, 1913, p. 181.

tion of tears (crises lacrymales, dacryorrhée ataxique), violent sneezing (crises nasales) with paresthesia of the nose, and finally increased secretion of saliva (Patrolacci, Féré, Koenig, Klippel). Klippel observed disturbance of taste in tabes. Pel speaks of ophthalmia neuroparalytica and tabetic ulcer of the mouth, trophic disturbances of the trigeminus, occurring rarely in tabes.

Pel's case differed from the examples he quotes in that it presented a combination of symptoms with pain predominating and occurring in sudden attacks, and therefore like tabetic crises. The hyperesthesia of the eyes and parts about the eyes during and following the attacks was important, and the spasm of the lids was regarded merely as a reflex act.

The case of ocular crises in tabes reported by Haskovec[3] was not exactly like Pel's case. A man, aged 37, had frequent attacks of pain, secretion of tears, and left exophthalmos. The left exophthalmos after an attack of pain became so great that the eyeball almost came out of the orbit. The secretion of tears was intense. The description makes the location of the pain uncertain, but it appears to have been in the eyes. No visual phenomena are mentioned.

Knauer's[4] patient, a woman with tabes, frequently had pain in the forehead with tenderness to pressure over the upper division of both trigeminal nerves during the pain. She had also pain in the right eye and adjoining region, with swelling and redness of the conjunctiva, free secretion of tears, photophobia, and contraction of the pupils. Only the right eye was affected in the first attack, but in later attacks the left eye became affected, as shown by redness and swelling, hyperesthesia, photophobia, sensation of a foreign body in the eye, and lacrimation. The most striking peculiarity of this case was that in one attack the right eye was affected and in another attack the left eye. Taste and smell were lost during the attack when there was hyperesthesia of the mucous membranes of the nose and throat; there was disturbance, therefore, in nerve supplies other than that of the trigeminus, but here there was loss of function, and not increase of function in another nerve territory as in my case. Knauer explains the loss in his case as a result of the hyperesthesia of the mucous membranes.

REPORT OF CASE

A colored man, who has been under my observation many years at irregular periods and is now in the service of Dr. C. K. Mills, has ocular crises of tabes with phenomena of irritation of the visual fibers not previously observed in other cases. This man was presented before the Philadelphia Neurological Society in 1910 by Dr. F. X. Dercum[5] to demonstrate that closure of the eyes greatly increased his ataxia, although the man was blind.

The case is typically one of tabes in a colored person. He has difficult micturition, optic nerve atrophy, ataxic gait, Romberg's sign, shooting pain in the lower limbs, loss of tendon reflexes, etc.

The attacks of pain in the eyes and adjoining parts date from 1901, and occurred with tabetic pain elsewhere in the body. During the attacks of ocular pain, peculiar visual phenomena developed. He described them as flashes of light, twisting and assuming the shape of reptiles, birds, houses, men, various forms of animals, etc. He asserted that he saw these objects clearly.

At the present time he describes the visual phenomena as follows: The attacks of ocular crises occur at irregular periods, and sometimes he has repeated attacks in a day; but the visual phenomena never occur without pain in the eyeballs. The pain is intense, jerking, stinging and burning, and the eyeballs feel as though they would come out of the orbits. The pain may last half an hour or longer in the eyeballs, and is accompanied by a free secretion of tears. The pain may suddenly remit and suddenly begin again with great severity. In the ocular crises he may see a body of water, as a pond, which revolves and then bursts, and gives place to figures of live lobsters, crabs and fish, moving rapidly backward and forward, some being red and some brown. At times he sees beds of "magnificent" flowers of various colors, which would give him great delight if the pain in the eyes were not so intense. He sees also faces of human beings, but not of persons known by him, he also sees blue stars on a brown background.

This man has no mental symptoms, he is entirely rational, and realizes that these visual phenomena have no real existence. He is totally blind and cannot even recognize daylight.

COMMENT

This case resembles the three cases of tabetic ocular crises reported in the literature (Pel, Haskovec, Knauer) in the sudden onset of attacks of severe orbital pain, with free lacrimation, but differs in the occurrence of visual phenomena. The latter phenomena recall to mind the scintillating scotomas and visual disturbance of certain cases of migraine or epilepsy, but they cannot be considered as identical with these. There is no evidence of cortical irritation in the ocular crises of my case. The lacrimation and pain probably are the result of irritation of the trigeminal nerves, and there appears to be a simultaneous irritation of the optic fibers, resulting in visual phenomena. I have known visual hallucinations to be caused by hemorrhage into the retina, and have referred[6] to a number of cases in which these phenomena were produced by irritation of different portions of the visual system.

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3. Haskovec, L.: Rev. neurol., 1906, p. 391.
4. Knauer: München. med. Wchnschr., Sept. 15, 1908, p. 1926.
5. Dercum, F. X.: Jour. Nerv. and Ment. Dis., May, 1911, p. 281.
6. Spiller, W. G.: The Eye and Nervous System, edited by Posey and Spiller, p. 388.

THE HISTORY OF INTRAVENOUS AND SUBCUTANEOUS ADMINISTRATION OF DRUGS*

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With the revival of interest in the treatment by drugs, and the epoch-making studies of pharmacology and experimental therapeutics in the past ten or twenty years, the administration of substances by subcutaneous or intravenous injection is being practiced on a large scale, both in experimental work on animals and in the treatment of patients. An inquiry into the historical development of these more exact and certainly more efficacious methods of drug administration may therefore be of considerable and timely interest. Curiously enough, although in the domain of surgery we find the names of numerous individuals perpetuated by being tagged to all kinds of minor and unimportant manipulations and operations, in the domain of internal medicine and more especially in connection with medicinal treatment, the origin of some of our most important and life-saving procedures and remedies is shrouded in obscurity. It is really our duty, therefore, to ascertain as far as possible and commemorate the

* Read before the Book and Journal Club of the Medical and Chirurgical Faculty of Maryland, Jan. 18, 1916.

names of those who discovered or invented these procedures and remedies.

Although we at present are logically prone to class hypodermic and intravenous methods together, and owing to the more elaborate technic involved, to think of the hypodermic first and of the intravenous injection second, historically the two methods are very far apart, and the intravenous injection of drugs anteceded the hypodermic by several centuries. It will therefore be considered first.

INTRAVENOUS INJECTIONS

If we consider transfusion of blood under intravenous injections, that procedure goes back to the remote antiquity. The Egyptians are said to have practiced it. Certainly the earliest explicit record of it dates as far back as 1492, when it was recommended for the treatment of Pope Innocent VIII. If, however, we confine ourselves strictly to the subject of injection of drugs, the first experiment of that character was performed in England, and that not by a medical man at all. It was Christopher Wren, professor of astronomy at Oxford, who first tried the bold experiment of injecting drugs into the veins of animals.[1]

Sir Christopher Wren was born in 1632 and died in 1723. He was the son of a clergyman, and at a very young age gave evidence of an exceptionally clever mind. While a boy he became interested in natural science and mathematics, assisting, when only 14 years old, Sir Charles Scarborough, physician to King Charles II, in anatomical and other experiments. He went to Oxford, distinguishing himself as a mathematician, and took his degree in 1650. His mathematical proficiency was so great that even Newton spoke highly of his work. In 1657 he became professor of astronomy at Gresham College, and in 1660 was made Savilian Professor of Astronomy at Oxford. He played not a small part in the formation of the Royal Society. A versatile genius — mathematician, astronomer, and, as he is best known, one of the world's most famous architects — Sir Christopher found time to dabble in pathogenic experiments. In the year 1656 he injected dogs with opium and crocus mettallorum. He selected big lean animals with prominent veins, and his injection apparatus consisted of a quill attached to a small bladder. The opium, we are told, stupefied the dogs but did not kill them, while the other drug caused violent vomiting.

The experiment was repeated with the same results at Pisa by Carolo Fracassato in 1658.

The first intravenous injection of a drug in man, according to Fortescue-Brickdale in his monograph on intravenous injections,[2] was also made by Christopher Wren in 1657. It appears that a certain foreign ambassador at the Court of St. James, being interested in Wren's experiments, offered a delinquent servant of his as a subject for the experiment. An injection of vinum emeticum was to be made, but the victim either really or craftily fell into a swoon, and the experiment had to be discontinued.

A little later, in 1662, J. D. Major, an English practitioner, successfully injected human beings intravenously, and describes that operation under the title of "chirurgia infusoria."[3]

Escholtz[3] published a book in 1665 in which he described intravenous injection, and mentions three patients treated by himself. One was a soldier with an ulcer of the foot, probably syphilitic, who was injected with aqua plantagenis in the crural vein; the other two were injected with aqua cochleariae for some obscure affections.

In 1666, Fabricius[4] described three cases treated by him in Danzig. The interesting point to note in this connection is that one of the patients was a soldier with syphilitic exostoses who was injected with scammonium. The other patients were epileptic women injected with resin of jalap.

Schmidt of Hamburg[5] in 1667 communicated to the Royal Society a report of five patients whom he treated by intravenous injections. Two of these were syphilitics, and were injected with jalap, which seems to have been a favorite remedy at the time.

Two works appearing at this early period give a good account of the condition of intravenous medication at that time. One is a dissertation by G. F. Stirius,[6] a pupil of Ettmüller, in 1668, in which he reviews the subject as a whole, adding an account of his own experiments. The work is in Latin. He mentions the substances used for injection, alcohol, water, opium, tartar emetic, etc., and holds that infusion is applicable to most cases, except in pregnant women. An interesting point to be noted in connection with his discussion of opium is that even at that early date the observation was made that opium acted on cats very differently from the way it affected dogs. The latter were narcotized while the former were put into a state of delirium.[7]

The other summary of the subject is a chapter on infusion or intravenous injections in Purmann's work on various surgical procedures,[8] published in English in 1683. He mentions a long list of substances which were injected in animals and man. The most popular ones seem to have been purgatives, emetics and narcotics:

> They made their first tryals on dogs, and only with spring water. They proceeded to purging and vomiting medicines, which being injected into the vena cruralis, they perceived it to have there different effects. Purging medicines being injected they purged, and vomited of the infusion of crocus metallorum. Opium made them sleep and too large a dose took away their lives.

He himself, by the way, was injected on two occasions with aqua cardui without any untoward results.

Altogether, however, the experiments at this first or early period in the history of intravenous injections were rather discouraging in their results, and for that reason the practice fell into disrepute and was not revived until the end of the eighteenth century.

The reason was that, like most novel procedures, infusion was applied indiscriminately in all kinds of cases.

The three interesting facts worthy of remembrance about this earliest period are, first, the discovery of intravenous injection by the versatile Sir Christopher Wren in 1656; second, that one of the first drugs injected was what is even now probably the most important drug we possess — opium, and third, that even as early as 1666, intravenous injections were

1. Bishop Spratt: History of the Royal Society of London, 1667, p. 317.
2. Fortescue-Brickdale: Guy's Hosp. Rep., 1904, lviii, 15.
3. Cited by Fortescue-Brickdale (Footnote 2).
4. Fabricius: Phil. Trans., ii, 569.
5. Schmidt: Phil. Trans., iii, 966.
6. Stirius, G. F.: Dissertatio medica de Chirurgia infusoria, Leipzig, 1668.
7. "So much opium as is (ordinarily) given to man will throw a cat into a fatal delirium, whereas it will cause no harm to a dog." (Opii tantum quantum hominem injecare felem vero in rabiem lethalem conjicere potest, nullam noxam cani propinatum infert.)
8. Purmann, Matthieu Godefroi: Chirurgia Curiosa, London, 1706.

practiced in the treatment of syphilis, a fact worthy of note in connection with our present salvarsan therapy.

The second period in the history of intravenous injection of drugs or infusion may be said to begin about the end of the eighteenth century and extend to the middle of the nineteenth century, and is characterized by more careful experimental work along toxicologic and pathologic lines. In this connection are to be noted the names of some very famous medical men, Fontana, Magendie, Bichat, Nysten, Orfila and others.

Freind,[3] whose works were published in 1773, experimented with injections of acids and alkalies on animals. He was also the first to demonstrate the danger of the entry of large quantities of air into a vein. Nysten,[9] Bichat, Diffenbach[10] and Magendie[11] did further work on air embolism, and Gaspard[12] demonstrated the impracticability of using oil injections.

Among the most important work in this period were the attempts to cure tetanus and hydrophobia by intravenous injections.

Baron Percy[13] in 1814 treated two series of cases of tetanus with injections of opium and stramonium, stating that in the first group three of five patients recovered, and in the second, five out of eight. Magendie in 1823 made various experiments on animals, healthy and rabid, injecting them with warm water and opium but with little success. He made the interesting observation that a rabid animal required more than the usual amount of a sedative to produce narcosis. Magendie also tried to treat cholera by injection of camphor in dilute alcohol.

Daniel,[14] in a dissertation in 1827, gave a full account of the experiments up to that date. Among the drugs which he tried to inject was mercuric chlorid, of which he found that one-quarter grain was fatal to a middle sized dog.

Among the boldest experiments of this period are those of the Boston physician, Dr. E. Hale, who succeeded in injecting himself with half an ounce of castor oil. The result was really remarkable, for he actually survived to relate the tale of his experience.

In 1869, Dr. G. B. Halford[15] reported before the Victoria Medical Society some observations, experimental and clinical, on the injection of ammonia in cases of snake bite. This work attracted a great deal of attention, but was soon contradicted by other observers and the practice was eventually abandoned.

Another important contribution to the subject was the injection by Oré[16] in 1874 of chloral instead of opium in tetanus and hydrophobia. He had some success at first, but very soon the practice was found dangerous and was also abandoned.

The next or third period in the history of intravenous injections is distinguished by the development of bacteriologic knowledge, and the injections of substances then undertaken had in view one of two objects, namely, either the increasing of the patient's resistance to infection, or the destruction of the deleterious agents of infection themselves. Under the first heading must be mentioned first the injections of balsam of Peru and later of sodium cinnamate in tuberculosis by Landerer[17] in 1892, and second, the injections of sodium cacodylate for pernicious anemia and other conditions by Gautier[18] about 1897. Under the second heading the most important contributions to note were the famous work of Baccelli[19] in 1890 on intravenous injections of quinin in malaria, and the work of Credé[20] in 1901 on the injection of silver salts in all kinds of infections. These investigations are too well known to be discussed in detail in this place. They paved the way to our present rational intravenous therapy, based on careful pathologic, pharmacologic and chemical research.

The number of drugs now used for intravenous injections is increasing daily. Some of these, such as the administration of salvarsan, strophanthin, quinin, etc., are of proved and established value; others are of doubtful usefulness, and many others are actually deleterious when injected into the veins, and their administration through that channel is to be discouraged. However useful intravenous medication may be in special cases, its field of application is certainly more limited than that of hypodermic injection, which will now be considered.

HYPODERMIC INJECTIONS

A hypodermic or subcutaneous injection, like so many other important manipulations practiced by physicians daily, seems to us to be a very simple procedure; yet its discovery was really a great intellectual achievement, and it was not evolved until recently. The desirability of administering medicinal substances through channels other than the alimentary canal was appreciated long ago, and the skin as an absorbing organ was thought of also very early. We therefore find, preliminary to the introduction of our present subcutaneous method, the employment of the so-called *epidermatic* method, that is, the application of substances in the form of ointments, liniments, etc., directly to the skin. A modification of this form of treatment was the so-called *iatraleptic* or *anatripsological*, by which was meant a vigorous rubbing in of substances into the integument.

An advance toward the present mode of treatment was the so-called *endermic* method, by which was meant the application of medicaments directly to the cutis instead of the epidermis. This was done in several ways, the simplest being by loosening or removing the epidermis by means of blisters or caustics, and then applying the drug to the raw surface. Another method was by destroying a small area of epidermis by touching it with a hot hammer. A still different method employed in some cases was by soaking threads or setons in solutions of morphin or other substances and passing them by means of a needle through folds of the skin. The endermatic method, according to Eulenburg,[21] was introduced by Lembert and Lessier about 1823.

A still further advance toward modern hypodermic therapy was the practice of *inoculation*. This method was used extensively of course for vaccination with cowpox virus, but the French surgeon LaFargue[22] in

9. Nysten: Rocherches pour faire suite a celles de Bichat, Paris, 1811.
10. Diffenbach: Jour. compl. du dict. d. sc. méd., 1829, p. 371.
11. Magendie: Jour. compl. du dict. d. sc. méd., 1823, p. 312.
12. Gaspard: Jour. compl. du dict. d. sc. méd., 1823, p. 309.
13. Percy: Jour. compl. du dict. d. sc. méd., 1818, p. 26.
14. Daniel: De Medicamimum in venos injectione, Dissertation, Berlin, 1827.
15. Halford, G. B.: Australian Med. Jour., 1869, xiv, 333.
16. Oré: Compt. rend. Acad. d. sc., 1879, pp. 515, 651.
17. Landerer: Berl. klin. Wchnschr., 1890, xxvii, 280, 312.
18. Gautier: Bull. de l'Acad. de méd., July 3, 1901.
19. Baccelli: Tr. Tenth Internat. Med. Cong., Berlin, 1890.
20. Credé: Berl. klin. Wchnschr., 1901, xxxviii, 991.
21. Eulenburg, A.: Die hypodermatische Injection der Arzneimittel, Berlin, 1867.
22. LaFargue: Bull de therap., 1897, xxxiii, 19.

1836 proposed its use for the administration of other remedies. None of the methods mentioned, however, proved satisfactory.

The invention or discovery of injecting solutions of drugs under the skin is generally attributed to the Scotch physician, Alexander Wood of Edinburgh, in 1853. Recent investigations, however, and especially the valuable contribution on the subject by Dr. Charles A. Pfender[23] of Washington, D. C., prove conclusively that the first use of hypodermic injection in therapeutics was not made by Wood, but by an Irish surgeon, F. Rynd, in 1844, or about ten years earlier. I myself have carefully gone over the literature on the subject in the Surgeon-General's Library, and find that Pfender's conclusions are incontrovertible. Rynd published in 1845 a short case report from the Meath Hospital and County of Dublin Infirmary entitled "Neuralgia: Introduction of Fluid to the Nerve." [24]

Quoting from his description of one of the cases, we read:

> On the 3d of June a solution of 15 grains of acetate of morphine dissolved in a drachm of creosote was introduced to the supra-orbital nerve and along the course of the temporal, malar and buccal nerves by four punctures of an instrument made for this purpose.

What the instrument was he did not describe in detail until 1861, when he published a description of his syringe.[25] This was a rather crude affair, through which the fluid was injected through a hollow needle by gravitation. We thus see that to Rynd belongs the priority of discovery of hypodermic injection.

It was through Alexander Wood, however, that the hypodermic method was applied in a large number of cases and carefully written up and popularized. For that reason Wood has been generally regarded as the founder of hypodermic medication.

Alexander Wood was born in Edinburgh, Dec. 10, 1817. He came from a family of physicians, and early displayed his exceptional medical skill. While serving in the capacity of secretary to the Royal College of Physicians of Edinburgh, he conceived the idea of injecting drugs under the skin for the relief of pain. He was very much interested in the treatment of neuralgia, and was following a method suggested by Valleix of applying a succession of blisters along the course of the affected nerve. After applying the blisters for a period of time he would take them off and dress the raw surface with an ointment of morphin, to which he attributed the success of his treatment. While doing this it occurred to him to try the applications of morphin by injection directly to the affected point.

In his first report on the subject in 1853, Wood says:

> Having occasion about the end of 1853 to endeavor to remove a nevus by injection with acid solution of perchlorid of iron, I procured one of the elegant little syringes constructed for the purpose by Mr. Ferguson of Giltspur Street, London. While using this instrument for the nevus it occurred to me that it might supply the means of bringing some narcotic to bear more directly than I hitherto had been able to accomplish on the affected nerve in neuralgia. I resolved to make the attempt and did not long lack opportunity.

This led to Wood's experimentation with hypodermic injections, which culminated in his classic contribution on neuralgia.[26] Quoting from the work, some of Wood's conclusions were:

> 1. Narcotics injected into the neighborhood of the painful point of a nerve affected with neuralgia will diminish the sensibility of that nerve, and in proportion diminish or remove pain.
>
> 2. The effects of narcotics so applied are not confined to this local action, but reach the brain through the venous circulation and there produce narcotic effects.
>
> 3. In all probability what is true in regard to narcotics would be proved to be equally true in regard to other classes of remedies.
>
> 4. The small syringe affords a safe, easy and almost painless method of exhibition.
>
> 5. Destitute as we are of any precise experiments as to the applicability of cellular tissue as a medium for the resorption of medicinal agents, the experiments made with the syringe show that it seems to offer an excellent surface for the absorbent action of the venous system.
>
> 6. The method now detailed seems as extensively applicable as any of the methods of applying remedies to the skin, whether enepidermic, iatrolepic, endermic, or by inoculation.

Wood's work immediately won recognition, and was received enthusiastically, especially by Charles Hunter.

Although Wood appreciated that general or systemic effects might result from local injections of drugs, he still seems to have entertained the idea that the maximum benefit from the hypodermic was exerted at the place of injection. It remained for Hunter[27] in 1859 to give the important demonstration that it is unnecessary to make the injection at the seat of the pain.

It would take us outside the limits of this paper to trace the history of hypodermic medication in detail after that date. The name of Ruppaner of Boston, however, who is responsible for the introduction of the method into the United States, must not be passed unmentioned. Ruppaner's work[28] appeared only a few years before the Civil War, and it is interesting to note that John S. Billings,[29] in his reminiscences of the Civil War, speaks of the hypodermic syringe as being a constant requisition at that time.

On reviewing the history of the subject it is well to note again that just as in the case of intravenous injection, so in the case of hypodermic injection, opium was one of the first, if not the first drug thus administered. In reading about the extensive application of opiates by this method I have been further struck by the enormous doses which our predecessors used to administer. Half a grain doses of morphin were very commonly given. Hunter mentions a man with delirium tremens whom he gave an injection of three-quarters grain of morphin acetate, and another patient actually received an injection of 1 grain.

A word as to the development of the hypodermic syringe: The syringe employed by Rynd seems to have been devised by himself. Wood, as already noted, first used a syringe made by Ferguson. Soon after that various modifications of Ferguson's syringe were introduced. I need here mention only the instrument of Pravaz, which is the prototype of our modern hypodermic syringe. Charles Pravaz of Lyons was deeply interested in the treatment of aneurysms, and while experimenting with methods of introducing caustics into aneurysms and nevi he thought of injecting a

23. Pfender, C. A.: Washington Med. Ann., 1911, x, 346.
24. Rynd: Dublin Med. Press, March 12, 1845.
25. Rynd: Dublin Quart. Jour. Med. Sc., 1861, xxxii.
26. Wood, Alexander: New Method of Treating Neuralgia by the Direct Application of Opiates to Painful Spots, Edinburgh Med. and Surg. Jour., 1855, lxxxii, 265.
27. Hunter, Charles: Med. Times and Gaz., March 5, 1859.
28. Ruppaner: Boston Med. and Surg. Jour., 1860, lxii.
29. Billings, John S.: Tr. Coll. Phys., Philadelphia, 1905, xxvii, 117.

solution into the sac by means of a needle and syringe. He had such an instrument constructed, and this soon became known as the Pravaz syringe. In January, 1853, Pravaz[30] reported his results of injecting iron perchlorid into aneurysms by this method. The Pravaz syringe is the model copied and modified by later manufacturers. Those who are interested in the development of the hypodermic syringe should not fail to visit and inspect the remarkable collection of these instruments in the care of Dr. Lamb at the Surgeon-General's Museum in Washington.

A RATIONAL TREATMENT OF THE MORPHIN HABIT

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The method of treatment for chronic morphinism which will be discussed has been successfully employed in a large series of cases at the House of Correction and Sceleth Hospital, Chicago, and in private practice. An outline[1] of the method appeared in THE JOURNAL of the American Medical Association early in 1915, and in a series of papers devoted to the treatment of chronic drug addictions, which was published in THE JOURNAL about half a year later,[2] the method was discussed in more detail and its advantages over other regimens in vogue pointed out. The treatment, therefore, is fairly well known to the profession at large.

A more comprehensive description of the method is in order because the previous descriptions have omitted many of those qualifying details which are of such great moment in the successful application by others of a new plan of therapy, and particularly because the plan is simple, nearly always successful, and is readily carried out even in a private hospital or at the patient's home, and by any physician.

It is not my purpose to compare the method with others perhaps better known, such as the Lambert-Towns,[3] the Pettey[4] or the Erlenmeyer[5] treatment. Such a comparison is unnecessary. On the basis of results, convincing evidence seems available to show that this method is a rational and at the same time an easily applied treatment. Those who are interested in a dissection of other methods commonly employed are referred to the papers already mentioned for a very thorough comparative analysis.

Though there are many angles to the plan; its essence rests in the formula:

Scopolamin hydrobromid	gr. 1/100
Pilocarpin hydrobromid	gr. 1/12
Ethyl-morphin hydrochlorid	gr. 1/2
Fluidextract cascara sagrada	m 15
Alcohol	m 35
Water	qs. ad ʒ 1

The amount prescribed and the indications for its continuance or modification vary with the case. Patients who are addicted to the use of more than 10 grains of morphin a day are given 60 minims of the mixture every three hours, day and night, for six days. The dose is reduced to 30 minims on the seventh day, to 15 minims on the eighth day, and on the ninth day to 15 minims three times during the day only. On the tenth day the mixture is discontinued altogether and tonic treatment begun, as outlined below.

Addicts accustomed to the use of less than 10 grains of morphin a day and more than 5 are started with a dose of 45 minims, which is reduced on the seventh day in a manner analogous to that just detailed; while to those who have been taking less than 5 grains, only 30 minims are given as an initial dose.

The dangers associated with the use of this combination are trivial. Scopolamin delirium occurs in about 4 per cent. of the cases. Should delirium develop, the scopolamin should be omitted for a few doses, and as the condition improves, added once more in smaller quantities. The greatest danger, however, collapse, does not arise from the scopolamin mixture per se, but is incidental to the withdrawal of the morphin. The tendency to collapse is undoubtedly favored by the presence of two drugs which act on the vagus—scopolamin, which is vago-inhibitory, and pilocarpin, which is vagotropic. If the pulse falls below 40 or goes above 120 per minute, the mixture is stopped and the patient is given the only drug which can offset the collapse, namely, morphin itself. The latter is injected in one-third grain doses every fifteen minutes until results are obtained. Patients in collapse should not be given too large doses of morphin, or its derivatives, after treatment has been in progress for several days, as the dose to which the addict has been accustomed is likely to be overwhelming. The vomiting and insomnia which occur more or less constantly are not due to the scopolamin mixture, but occur with any treatment, and accordingly are not to be looked on as special complications.

It may be stated as a safe criterion that if on the third or fourth day of treatment by this method the pupils are dilated and react to light and accommodation, the patient is reacting properly and the outlook is good.

The rationale of this combination is that scopolamin hydrobromid is one of the atropin series, and, so far as atropin is the physiologic antidote to morphin, represents the specific element of the mixture. In the strict sense, of course, it is not a specific. Its action, in the main, is similar to that of atropin, but in certain essential particulars it is more suitable for the treatment of chronic morphinism. Unlike atropin, it is sedative, causing a depression of the central nervous system; and its action on the peripheral nerve ends is more powerful. Furthermore, even in small quantities it depresses the brain, 1/120 grain, according to Cushny, being sufficient to produce sleep; it is apparently less toxic than the other members of the atropin group; and finally, quoting from the same observer, "it is most effective as a hypnotic when sleep is prevented by motor excitement, and the sleep seems to arise from the relief of this condition and not from depression of the consciousness." Thus, while possessing the chief properties of atropin, it is additionally valuable because it tends to offset such abstinence symptoms as the peripheral pain, insomnia due to motor excitement, and cerebral unrest; in the fact that it is a less dangerous drug than atropin, and because its action is manifest with small doses.

Pilocarpin acts at the same point as does scopolamin, but in an antagonistic way. It is used, therefore, to combat certain undesirable by-effects of the scopol-

30. Pravaz: Compt. rend. Acad. d. sc., 1853, xxxvi, 88.

1. Sceleth, C. E.: A Treatment for Morphin Addiction, Correspondence, THE JOURNAL A. M. A., March 13, 1915, p. 927.

2. The Morphin Habit, Therapeutics, THE JOURNAL A. M. A., Nov. 20, 1915, p. 1815; Nov. 27, 1915, p. 1912.

3. Lambert, Alexander: The Obliteration of the Craving for Narcotics, THE JOURNAL A. M. A., Sept. 25, 1909, p. 986.

4. Pettey, George E.: The Narcotic Drug Diseases and Allied Ailments, F. A. Davis, Philadelphia, 1913.

5. Cushny, Arthur R.: Text Book of Pharmacology and Therapeutics, 1915.

amin, such as the drying up of the secretions, the dilatation of the pupils, the acceleration of the heart (atropin vagus inhibition), and of the respiration and to promote secretion and excretion.

Ethyl-morphin hydrochlorid (dionin, Merck), of which the patient receives 4 grains a day during the first six days of treatment, that is, when given 1 fluidram of the mixture, serves merely as a substitute for the morphin withdrawn. It may be remarked at this point, in reply to possible adverse criticism relative to the giving of one habit-forming drug as a substitute for another, that the administration of dionin for nine days (in diminishing doses during the last three) is insufficient to cause a new habit, and that such a contingency actually does not arise.

The remaining constituents of the formula require no special word of explanation.

As regards the other steps in this mode of treatment, a few remarks will suffice. The patient on admission is put to bed, given three compound cathartic pills, followed by a saline cathartic (Epsom salt), and at once started on the scopolamin mixture. During the first few days of the course the diet should be light and easily assimilable, and liquids should be pushed; the patient should drink 3 pints or more of water a day. On the tenth day, at which time the mixture is discontinued, strychnin nitrate, one-thirtieth grain, is given for three doses; the following day the amount of strychnin is reduced to one-sixtieth grain, which is continued three times a day for a week.

By the fifth day, as a rule, the patient's desire for morphin is gone. He then manifests a desire for a more substantial diet and begins to put on weight rapidly. When the mixture has been stopped, and the patient's strength permits, graded exercises, in the open if possible, are instituted with the purpose not only of improving his physical condition but of allowing him to acquire a bodily fatigue, which is recognized by all as the best antidote to the insomnia—the abstinence symptom most likely to persist and the most difficult to conquer. A warm bath of 110 F. for ten minutes, or a neutral bath of from 94 to 98 F. for twenty minutes, will often relieve restlessness and insomnia. Carbonated waters are very gratefully received.

Contrary to the idea of many, morphin is not taken by the addict after the first few weeks, with the purpose of producing a pleasurable relaxation. Taken originally to combat pain, relieve exhaustion, etc., it is continued in increasing doses to prevent the much feared abstinence symptoms, or, as it is put by the habitué himself, "to make himself normal" again so that he can accomplish his usual work in some degree, not extraordinary results, as some believe.

The "cure" which obviates these abstinence symptoms to the greatest extent, without at the same time introducing new and dangerous factors, such as collapse, may be regarded as the best regimen available. And it is to this feature of the plan that I would particularly draw attention. In considerably over 1,500 cases of variable severity I have rid morphin addicts of their habit with no medical treatment in any form except the scopolamin mixture, the initial saline laxative, and the terminal strychnin administration. These 1,500 patients received no morphin as such whatsoever. Severe collapse was not encountered, the only abstinence symptoms of any importance being insomnia, vomiting and diarrhea; while in a small percentage of cases, scopolamin delirium developed.

This relatively simple method, as already stated, has the further advantage of not requiring institutional care. It can be successfully carried out with the aid of an intelligent nurse in any private hospital or in the patient's home. Indeed, the average physician in general practice need have no hesitancy in undertaking the treatment, if my experience is to be accepted as a criterion.

In about 2,500 additional cases, I have employed one of two modifications of this therapy. The first of these I have already touched on, namely, the giving of morphin in one-third grain doses to control collapse. This may occur in some cases, chiefly because of some previous impairment of the heart. A great deal of morphin is rarely necessary. I may cite as an illustration a young man recently under observation, who had been accustomed for six years to a daily dose of 20 grains of morphin. In this case an entirely successful result was obtained with the use of only 2¼ grains of morphin, through the entire course of treatment.

The second modification is the quick reduction method, so far as the term is applied to the withdrawal of morphin as such. This plan is that generally known as the rapid reduction method, and is carried out as follows: The patient, when first presenting himself, is given one half of his accustomed dose of morphin distributed over twenty-four hours. On the following day this amount is halved, being administered at the accustomed time. The next day one eighth of the usual amount is given; after which morphin is entirely discontinued. During this process of reduction, the scopolamin mixture is administered as previously outlined.

This regimen has the advantage over the first two described in that the patient is entirely free from abstinence symptoms, which are unnecessary in the vast majority of cases, as indicated by our statistics based on the use of the scopolamin mixture alone. Since the enactment of the Harrison law, I feel that the giving of morphin during the treatment, in quickly decreasing doses, is more justifiable than formerly. Before the law went into force, and morphin was easily obtained, it served as a valuable warning to many individuals to allow them to suffer a few pangs of deprivation—of course, never to the danger point, merely in order to disillusionize them as to the comfort with which the habit could be conquered. Today, with the drug no longer accessible, the likelihood of a recurrence is less, and the lesson is not so urgently needed. The chief indication, however, for the employment of the third method is in individuals of considerably impaired strength, in those with an enfeebled myocardium, and, to some extent, in private work. Old age is no bar to treatment; a patient aged 72 years, who used laudanum for the past thirty-two years and was using 4 drams daily, was treated with 15 minims of the mixture every three hours, and has been free from the habit for the past eight months.

As to complications in general, any condition that will not produce acute pain will be improved by the removal of the drug habit.

Heroin cases should be treated the same as morphin addicts. For opium addicts 30 minims of the mixture should be administered every three hours, and the ethyl-morphin hydrochlorid reduced to one-eighth grain per dose. For cocain addicts, if it is desired to have the patient avoid any discomfort, he should be given 15 minims of the mixture every three hours

without the ethyl-morphin hydrochlorid for three days; when cocain is used alone it is always safe to discontinue it abruptly without any treatment, as there is never any danger of collapse. With the morphin addict who is using 10 grains or more a day, however, if it is abruptly or gradually discontinued, without suitable treatment, there is danger of death from cardiac collapse. I doubt if the system can assimilate more than 10 grains of morphin at a dose. I make no distinction between the patient using 10 grains or 60 grains per dose.

Certain phases of chronic morphinism present different problems. Chief among these, perhaps, are patients first seen in collapse after long enforced abstinence or after misdirected treatment elsewhere. It is in this type that the mortality is highest, for frequently the patient's condition is so serious that morphin and cardiac stimulants are no longer of avail. There were seven deaths from the middle of July, 1911, to February, 1916. These patients were under observation on an average of five days each, this average being as high as it is because one patient lived eight days and another thirteen.

I am informed by Dr. E. R. LeCount, who made the postmortem examinations, that the only noteworthy conditions found were in one instance bronchopneumonia with scars and leptomeninges resembling those produced by syphilis. In three others there was bronchopneumonia, and in one of these an associated hypertrophic pulmonary emphysema. In another case the morphinism was accompanied by alcoholism.

Morphinism associated with delirium tremens is a serious type. The indication here is to treat the delirium tremens, at the same time giving the patient sufficient morphin to keep him comfortable. The cocain habit when combined with the use of morphin, which was true in about 35 per cent. of our cases, presents no particular difficulties. In the matter of prophylaxis, I would call attention to certain rules in the use of morphin by physicians by the observance of which the spread of the habit can be materially restricted. It is a terrible stigma on our profession that in 75 per cent. of the cases of chronic morphinism, the drug was first administered by a physician; and that in less than 10 per cent. it was not given for its prime indication—incurable pain. Too often it is not realized that small continued doses are dangerous; any amount of morphin sufficient to alleviate pain or to ease the patient is enough to create a habit. The contention that normal persons never become addicts in our experience is not true. Even in a strong-willed individual the regular use of a narcotic for three weeks can establish the habit; while, after three months of such addiction, it is almost impossible for the patient unaided to discontinue its use. Again, when morphin is prescribed in the postoperative treatment of cases, it should be the rule not to discharge the patient until he has been without the drug for at least three days. If this precaution is not observed, the tendency is great to resume its use at home. Over 85 per cent. of our morphin addicts use the hypodermic method. Incidental to this feature is to be emphasized a defect in the Harrison law, in that it makes no provision for the restricted sale of hypodermic syringes.

As to recurrences following this plan of treatment, there is to be said: Abstention from the use of morphin depends not on the use of this drug or that drug, but entirely on the individual. The man who has been given the drug for the alleviation of severe pain, the *cause of which has been removed,* will probably not return to the habit. This statement must be modified as follows: If he returns to associates who use the drug, he will very likely relapse; but even if he changes his environment, little can be expected of him if he was originally endowed with no strength of character. The human zero plus or minus the morphin habit equals zero! Our conclusion, then, as to the likelihood of recurrence may be formulated thus: The outlook is good for the man of some moral, mental and physical strength, for whom an opportunity to work can be secured in a healthy environment. The comparative difficulty of securing morphin today is an added factor favoring such an individual.

SUMMARY

There is no specific treatment for the morphin habit. The plan outlined above, however, seems to meet most accurately the specific indications from the pharmacologic point of view. Other advantages of this regimen are its simplicity, in that it can be carried out in private hospital or home, and by the nonspecialist; and its freedom from abstinence symptoms, especially the more dangerous ones.

On the other hand, no plan of therapy, however logical or successful, can assure freedom from recurrence. This is entirely a matter of the individual. One with no natural force of character is likely to relapse, as is also one who returns to a former vicious environment; while the man of higher type, who is anxious to reform, is capable of doing serious work and if given the opportunity, has an excellent chance of permanently remaining cured.

I wish to acknowledge the splendid assistance that, from time to time, has been given me by Dr. A. F. Beifeld, both in clinical observation of many of the patients whose treatment is considered here, and also for help in the preparation of this article.

Twenty-Sixth Street and California Avenue.

TREATMENT OF CASES OF EPIDEMIC MENINGITIS

ILLUSTRATING THE IMPORTANCE OF FREQUENT REPETITION OF THE INJECTION *

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The most common two mistakes in serum treatment of epidemic cerebrospinal meningitis seem to be giving too few doses of serum if the patient improves considerably after the first one or two injections, and failing to persist with the serum if the improvement is very slow. It has been the experience of the meningitis department during the past five years that it is rarely safe to give less than four doses of serum on consecutive days, even if the improvement clinically is very rapid and the organisms disappear from the fluid after one or two injections. In cases which have been running on for some time and in which the patients are evidently improving when first seen, one or two injections of serum are sometimes sufficient. Occasionally in a case seen very early and clearing up quickly, only three injections may be given. A case of average severity usually requires from four to

* From the Bureau of Laboratories, Department of Health, City of New York.

seven injections. It is safer to give the injections on consecutive days until it seems evident that the patient is out of danger, than to skip a day or two when a slight improvement occurs, thereby giving the organism a chance to increase. Puncture for the relief of pressure may have to be done several times during convalescence. At such punctures, a little serum may be injected, especially if a large amount of fluid is withdrawn. In a small percentage of cases—from 5 to 10 per cent.—a large number of injections may be necessary before the termination of the case. A certain number of such cases terminate fatally.

REPORT OF CASES

The following cases, recently treated by the department, illustrate very well the necessity of patience and persistence in administering serum when the progress is discouragingly slow:

CASE 1.—H. M., man, aged 19, seen first July 16, 1915, with negative past history, complained of headache and pain in back, July 5, which resembled a mild influenza and cleared up in a few days, the patient being quite well until July 14, when the headache returned and vomiting occurred. There was also a chill. When examined on the 16th, he was delirious; there was marked stiffness of the neck; Macewen's and Kernig's signs were positive; the knee jerks were slightly increased; the pupils were equal and reacted to light; the pulse was 60 and regular; the temperature was 101.4; respiration was Biot in type; there were no paralysis and no eruption. Fifty c.c. of cloudy fluid were withdrawn by lumbar puncture and 20 c.c. of antimeningitis serum injected. The fluid showed a great increase in cells, 95 per cent. being polymorphonuclears, and intracellular gram negative cocci by smear; albumin and globulin were both greatly increased; there was no reduction of Fehling's solution. July 17, the condition of the patient was somewhat better; the temperature was normal; he was still delirious. Forty-five c.c. of very cloudy fluid were withdrawn, and 20 c.c. of serum injected. Punctures were repeated and serum was administered July 18, 19, 20, 21 and 22. Beginning July 19, the amount of serum given was increased from 20 to 35 c.c., the amount of fluid drawn being at all times greater than this, and, until the 21st, exceedingly purulent, an inch or more of pus settling to the bottom of a large test tube containing from 25 to 30 c.c. of fluid. That of July 22 was much clearer. There continued to be a pure culture of meningococci until the fluid of July 21, though that of the 19th was scanty. Fehling's solution was not reduced until the 21st; that of the 22d showed good reduction. The albumin and globulin were always greatly increased. The temperature was normal beginning with the 17th. Much of the time there was great difficulty in swallowing owing to the extreme retraction of the head, and it was necessary to give small quantities of food at frequent intervals. July 23 and 24, as the fluids had been sterile for two days and as the patient seemed considerably better, no punctures were done. On the 25th, the puncture was done to relieve pressure; 45 c.c. of fairly clear fluid were drawn and 15 c.c. of serum injected. This fluid was sterile and gave a good reduction of Fehling's solution. For the next five days, the patient seemed to be doing well; the temperature was normal; he became clearer mentally; the retraction of the neck lessened, and he was able to take nourishment very well. July 31, however, a relapse occurred; the temperature went up to 103; the delirium returned. Forty-five c.c. of very purulent fluid were withdrawn and 35 c.c. of serum injected. This fluid showed degenerated extracellular gram negative cocci by smear, but the culture was sterile. The punctures were repeated daily until August 10, large amounts of fluid, from 50 to 75 c.c., being withdrawn; but since the cultures were constantly sterile, small quantities of serum, from 15 to 20 c.c., were injected. The fluids of August 5, 6, 8 and 9 showed a reduction of Fehling's solution. August 6, 9, 13 and 16, an autogenous vaccine was given in doses of 250, 500, 750 and 1,000 million; August 11, 13 and 16, the punctures were repeated, the fluid becoming clearer and showing a good reduction of Fehling's solution, the quantity obtained by the last puncture being only 30 c.c. August 19, the condition was so much improved that a puncture was not considered necessary. Twenty punctures had been made. Much of the time the patient was desperately ill, the family gave up hope almost entirely, and considerable persuasion was necessary to induce them to allow the treatment to be continued. The patient was extremely emaciated, as most of the time during the relapse, swallowing had been very difficult owing to the extreme retraction of the head. However, the recovery went on smoothly, though slowly. The absence of fever was very unusual, the temperature being elevated for only a day or two at the onset and again at the beginning of the relapse. Curiously enough, when the delirium had entirely cleared up, he remembered nothing of his illness or of the punctures, but simply that he had gone to bed with a very severe headache.

The other two cases were somewhat similar and need not be given in so much detail.

CASE 2.—W. F., man aged 20, seen March 24, had had pulmonary tuberculosis in an inactive form for two years; he had not felt well for two weeks, but had been acutely ill only two days; the symptoms were typical of meningitis, and on lumbar puncture, 60 c.c. of cloudy fluid were withdrawn and 20 c.c. of antimeningitis serum injected. The fluid showed meningococci both by smear and culture; Fehling's solution was not reduced. March 25, the temperature had fallen from 104 to 100.5, and the patient's condition was better; 75 c.c. of clear fluid were withdrawn and 20 c.c. of serum injected. This fluid showed meningococci by smear but not by culture, and Fehling's solution was not reduced. March 26, the temperature was normal, but punctures were repeated and serum was given on that and the following day; the fluid in both instances was sterile, and on the 27th reduced Fehling's solution. The patient continued to improve until the 30th, when the temperature rose to 102.2, and there was severe headache. Fifty c.c. of cloudy fluid were withdrawn and 20 c.c. of serum given. This fluid was sterile; Fehling's solution was slightly reduced. The punctures were repeated March 31 and April 1, 2 and 3, the fluid of April 1, only, showing meningococci; that of April 3 gave a good reduction of Fehling's solution. The temperature was normal, April 2; the patient continued to improve until April 12, when he had a second relapse; the temperature was 101.5; he had a severe headache; lumbar puncture yielded 60 c.c. of cloudy fluid; 20 c.c. of serum were given. This fluid showed extracellular and intracellular meningococci, but the culture was sterile; Fehling's solution was not reduced. By this time the family was quite worn out by the care of the patient, and he was taken to the Post-Graduate Hospital, where he recovered under serum treatment from the second relapse and has been well ever since. A second relapse is very unusual.

CASE 3.—W. R., aged 13 years, seen July 26, had been taken sick July 24; the symptoms were characteristic; there was herpes on the lips, and the patient was delirious. Fifty c.c. of cloudy fluid were withdrawn, showing meningococci by smear and culture; Fehling's solution was not reduced; 20 c.c. of serum were given. Lumbar punctures were done daily until August 6, except July 30, August 3 and August 5, when improvement clinically and in the fluid had seemed to warrant their omission. At no time, however, had the temperature been normal or the patient's general condition very encouraging. August 6, the patient suffered considerably from shock at the time of puncture, and no more punctures were attempted until the 12th. At this time the patient was greatly emaciated; the head was retracted and swallowing was almost impossible; the temperature was 104; 50 c.c. of turbid fluid were withdrawn and 10 c.c. of serum injected without untoward symptoms. A small quantity was given on account of the shock at the previous injection. This fluid showed meningococci by smear and culture, and no reduction of Fehling's solution; punctures were repeated, August 13, 14, 15, 16, 17, 19 and 21, no serum being given at the last puncture. Seventeen punctures were done. There were no organisms after August 15, and there was a good

reduction of Fehling's solution after the 16th. An autogenous vaccine was given, August 13, 17 and 21, in doses of 250, 500 and 750 million.

COMMENT

Autogenous vaccines have not been used in a sufficient number of cases to show their value definitely. However, it is the custom of the department to use them in cases that tend to become chronic and in a number of instances they seem to have been beneficial. In Case 2, vaccine was not used, as both the first attack and the relapse cleared up promptly. It has been the experience of the department that doses of serum larger than 20 c.c. need to be given with extreme caution, even though very large amounts of fluid are withdrawn. It is to be remembered that relief of pressure is in itself of considerable therapeutic value. Untoward effects from the withdrawal of large quantities of fluid have never been observed. Of course, the punctures are always with the patient lying down. The serum treatment should be continued until the fluid has been sterile for two or three days and until the patient clinically is much improved. In Case 1, for instance, no cultures grew during the relapse, but eleven punctures were done, followed in all cases but the last one or two by the administration of serum.

It will have been noticed in the case reports that considerable prognostic importance is attached to the reduction of Fehling's solution. This has already been referred to by DuBois and Neal.[1]

A more extended study of this point is now being made. In addition to the specific serum and vaccine treatment, in which one must be guided by experience, the general treatment is of great importance. Hexamethylenamin is given as a routine. It may or it may not be excreted as formaldehyd in the spinal fluid. It certainly tends to prevent cystitis if retention develops, as it often does. Sedatives must be used if the patient is delirious or restless, preferably some preparation of opium, as it has a less depressing effect on the heart than other sedatives. The eyes, mouth, skin, bladder and bowels must all receive careful attention. Most important of all is the feeding. In many instances swallowing is very difficult on account of the retraction of the head, and the greatest patience must be exercised to induce the patient to take even a little nourishment. Feeding by rectum was resorted to for a while in Case 1. It is not, however, the object of this paper to cover fully the treatment of meningitis. Our experience in that direction has been dealt with more in detail in the summary mentioned.[1] The necessity of prolonged administration of the serum, did, however, seem worth emphasizing.

1. DuBois, Phebe L., and Neal, Josephine, B.: Summary of Four Years of Clinical and Bacteriologic Experience with Meningitis in New York City, Am. Jour. Dis. Child., January, 1915, p. 1; Streptococcus Meningitis with Report of Cured Case, Arch. Pediat., January, 1915.

Adulteration of Oysters.—Inspectors of the Department of Agriculture have found that it has been the custom of some dealers in oysters to fatten them by soaking them in fresh water. Oysters will not take up sufficient of the salt water in which they grow greatly to increase their bulk but will drink fresh water or water that is slightly salted. This practice obtains with oysters in the shell as well as those shucked. The practice lowers their food value and, according to the department, is an adulteration under Section 7 of the Food and Drugs Act. According to *Commerce Reports*, the Oysters Growers' and Dealers' Association of North America is cooperating with the Department of Agriculture in stopping interstate traffic in oysters adulterated in this manner.

DYED FUR (PARAPHENYLENDIAMIN) DERMATITIS

WITH REPORT OF FIVE CASES

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The present extensive use of dyed fur, especially of fur collars which come in close contact with the sensitive skin of the face and neck, has caused many cases of acute painful dermatitis. Although arsenic used in preparing fur may occasionally cause a dermatitis, practically all the cases are caused by the wearing of brown or black furs dyed with paraphenylendiamin. This dye is an anilin derivative with the formula $C_6H_4(NH_2)_2$ and is sold under such trade names as paramine, ursol, etc. Paraphenylendiamin is an allied and homologous compound of anilin black, and is oxidized by hydrogen peroxid and other chemical substances to form Bandrowski's base. The intermediate product of oxidation is chinondichlordiimin, which is very irritating and is the cause of dermatitis from dyed fur. Where oxidation is complete, paraphenylendiamin is not irritating, and this probably explains why the brown fur is more irritating than the black. The danger of dermatitis is also lessened by careful washing of the fur after it has been dyed.

The furs which cause this dermatitis are especially the brown fur collars worn by men, and the black pony coats worn by women. The deeper part of the hairs in the fur shows a very characteristic, artificial appearing brick red color, even though the fur may superficially appear to have a natural brown color. The pony coats usually show at some point the same brick red color, although, as the hairs are short, they usually are dyed a uniform dark black.

SYMPTOMS

Usually the skin of the "collar area" of the neck is affected. Occasionally the hands are involved, and in rare instances the dermatitis may extend widely over the body. The first symptom noticed is itching and burning. Following this, in typical cases, there is a marked redness of the skin, accompanied by some swelling or edema, and intense itching and burning. A rather dry, scaly, scarlatiniform dermatitis is the rule. Occasionally flat vesicles with oozing surfaces are present, but well marked vesicles and pustules, such as are found in poison ivy dermatitis, are absent. The severity of the symptoms varies from a small, red, itchy patch, which causes a slight degree of annoyance, to a very severe dermatitis, in which the itching and burning may be sufficient to prevent sleep. In the milder or more chronic cases, there is often formed eczema-like plaques and flat papules. Absorption of large amounts of the dye from the skin may occasion serious internal trouble, as diarrhea, vertigo, albuminuria, etc.

Many persons are not susceptible to this dye, and develop no symptoms even though the dye from the fur is rubbed off and blackens the skin to a noticeable extent. Some persons are not ordinarily troubled by wearing these dyed furs, but an acute outbreak may follow, provided the skin happens to be especially sensitive, as after a close shave, or if moisture comes in contact with the fur, as from melted snow, or in extreme cold weather from precipitation of the moisture in the breath. In other words, any factor causing the fur to become damp increases very materially the

toxic properties of the dye. The fact that certain persons are not affected for some time, even months, after wearing the fur in question, has been explained on the ground of anaphylaxis,[1] or of a gradually acquired susceptibility, or of a cumulative effect.[2] This I believe to be erroneous, and the apparent cases of a gradually acquired susceptibility are probably due to accidental causes, such as allowing the fur to become moist, etc.

DIAGNOSIS

Cases of dyed fur dermatitis are now so frequent that in all cases of acute eczema or artificial dermatitis, this condition should be thought of. In diagnosis, the localization is important. An acute dermatitis of the "collar area" of the neck, including the lobes but not the upper part of the ears, is suggestive. If the patient wears furs, these should be examined for the characteristic brick red color in the deeper part of the fur. All black pony coats are evidently dyed with paraphenylendiamin. In cases of doubt, the fur should not be worn for a short time, and the eruption, if due to dyed fur, will disappear shortly under simple treatment.

PROPHYLAXIS AND LEGAL ASPECT

Such a large percentage of persons, under certain circumstances, are susceptible to poisoning from furs dyed with paraphenylendiamin, that I believe the use of this dye should be prohibited by law. This dye is also used to dye woolens, silk hose, and as a hair dye. Dermatitis also occurs in these cases. The supreme court[3] of Michigan holds that it is a question for the jury whether or not a wholesaler of furs is responsible for damages, when cases of dyed fur dermatitis occur, especially when these dyed furs are not labeled or the purchaser warned in any way that the dyed fur may give rise to serious skin trouble. Many persons buy and wear the dyed furs for a sufficient time to have confidence in them, and when finally an acute dermatitis occurs, the connection between the dermatitis and the wearing of the dyed fur is not thought of. If the selling of furs dyed with this substance is not prohibited, there should at least be a label attached stating that paraphenylendiamin has been used.

TREATMENT

The wearing of the dyed fur must be prohibited, as otherwise treatment is unsatisfactory. Simple protectant treatment, as soft zinc paste, calamine lotion, etc., is all that is needed. Theoretically sodium bicarbonate should be of value, as it oxidizes the irritant substance chinondichlordiimin to Bandrowski's base, which is nonirritating.

REPORT OF CASES

During the present winter I have seen five patients, all adults, with dyed fur dermatitis due to paraphenylendiamin.

CASE 1.—A man who wore an overcoat with a fur collar had rather mild symptoms, itching, burning, and redness of the neck, which recurred a number of times last winter. He has been well since getting rid of the fur collar.

CASE 2.—A man wore an overcoat with a fur collar last winter with but little trouble. This fall, following a shave at a barber shop, he wore the overcoat for the first time this year. The weather was quite cold, so that the collar was turned up and came into close contact with the skin of the face and neck. A severe dermatitis followed, which he thought was the barber's itch, and treated with phenol (carbolic acid) and other antiseptics. Severe inflammation developed so that he was unable to sleep for one or two nights. He was then referred to me, and was found to have an acute, swollen, scarlatiniform dermatitis of the neck, face and lobes of the ears. Under appropriate measures the patient made a prompt recovery.

CASE 3.—A woman had worn a coat with a fur collar for several years, and had noticed some itching and irritation about the neck from it, and had consequently always worn a muffler, thus protecting the skin of the neck. A few weeks ago a red patch about the size of a dollar was noticed on the right cheek. This caused some trouble from itching. Moderate swelling was present. When the coat was put on and the collar turned up, it was seen to come in contact with the skin of the face at this point. The patient obtained a new coat, and the condition disappeared very rapidly.

CASE 4.—This patient purchased the coat this winter and had a rather subacute form of the dermatitis, located on the back of the neck, where the collar came into close contact with the skin. A large eczemalike plaque with three large flat papules was present. Itching was very marked, accompanied by some burning. The coat was worn for some time after this, an attempt being made to keep the fur from coming into contact with the skin. Recovery was slow, but immediate improvement followed when the coat was entirely given up, and natural brown furs used.

CASE 5.—A woman with a black pony coat had the typical rash on the neck, hands and forearms.

636 Syndicate Building.

1. Bunch, J. L.: Brit. Dermat. Jour., September, 1915.
2. Blaschko, C.: Deutsch. med. Wchnschr., Dec. 4, 1913.
3. Liability of Vendors of Dyed Furs for Injuries to Health, Medico-legal. THE JOURNAL A. M. A., Feb. 14, 1914, p. 562.

ALARMING SYMPTOMS CAUSED BY DIARSENOL

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Diarsenol is made by the Synthetic Drug Company of Toronto, Canada; it is said to be the dichlorhydrate of dioxydiamidoarsenobenzol, although this is not stated in the literature accompanying the drug. It is a yellow powder put up in a sealed glass ampule, and dissolves readily in 50 c.c. of water. A yellow precipitate forms on the addition of a solution of sodium hydroxid to a watery solution of the drug, and clears on further addition of sodium hydroxid. My impression is that it takes less sodium hydroxid to precipitate and clear a solution of diarsenol than it does a solution of salvarsan.

The literature accompanying diarsenol states that on the approval of the commissioner of patents, arrangements have been made with Professors J. J. MacKenzie and A. P. McPhedran, both of the University of Toronto, to send out only diarsenol which has been tested biologically in the laboratories of the University of Toronto, under their supervision. The indications, contraindications, dose and technic of administration advised by the manufacturers is the same as that recommended for salvarsan.

Fourteen intravenous injections of diarsenol have been administered by me. Eleven consecutive doses were without untoward effect or phenomena differing from those attending the intravenous administration of salvarsan. In these cases the therapeutic result, as far as I am capable of judging in this short time, has been as good as that obtained by the use of the original drug. Not until the twelfth dose was administered did I encounter trouble.

In all the cases in which I administered diarsenol, the same preparatory measures and technic were

employed as in the administration of salvarsan. On the day prior to the operation the diet was restricted, directions given for a full glass of water to be taken every two hours, and a saline purge ordered at bedtime. After retiring no food or water, except two glasses of milk at 10 a. m. on the day of administration, was permitted until after the dose had been taken.

The technic of administration was as follows: All apparatus was thoroughly sterilized. Six-tenths gm. of diarsenol was dissolved in 50 c.c. of freshly redistilled and sterilized water, to which was added, drop by drop, a 15 per cent. sodium hydroxid solution, until a yellow precipitate formed and cleared by further addition of the sodium hydroxid. Extreme precaution was used to have the solution perfectly clear, and yet use no more sodium hydroxid than necessary. To this solution 200 c.c. of 0.9 per cent. salt solution was added. Boehm's apparatus was used, and the needle introduced into the vein without incision.

The phenomena encountered following the intravenous administration of diarsenol in the cases herein described have never been observed by me following the intravenous administration of salvarsan or neosalvarsan.

Case 1.—Man, aged 32, weight 132 pounds, presented himself, Dec. 8, 1915. A chancre had appeared in October, 1915, followed by secondaries. Examination disclosed an indurated mass at the site of the chancre, a macular syphilid over the trunk, numerous mucous patches and inflamed tonsils. Slight ptyalism resulted from two inunctions of mercury administered at his home town. The diagnosis was so clear that the Wassermann reaction was dispensed with. General physical and laboratory examination was negative.

Treatment.—A hot bath followed by inunction of one-fourth ounce of 50 per cent. mercurial ointment was given daily until Jan. 25, 1916. Eleven ounces of the ointment were used, and at no time were signs of mercurialism observed.

All evidences of the disease had disappeared except the glandular enlargement and induration at the site of the chancre; on this account an intravenous injection of diarsenol was advised. Complete freedom from treatment was ordered until February 3, when the routine preparatory measures for the administration of the drug were ordered. A thorough physical and laboratory examination was made with negative results.

At 3 p. m., February 4, the intravenous administration of 0.6 gm. of diarsenol, following the technic described, was begun. When about 175 c.c. had been injected the patient complained of a tingling sensation of the extremities and tongue, his face was flushed, pulsation of the arteries of the neck was easily seen, and the pulse was rapid, full and bounding. This was first thought to be psychic; but as the pulse became more rapid and weaker and the respiration rapid and shallow the administration was discontinued, leaving about 50 c.c. of the solution in the container. The pulse continued to grow more rapid and weaker, the respiration more rapid and shallow, the face very red and swollen. Vomiting ensued, followed by loss of consciousness; the pupils were dilated, the radial pulse was not palpable, only one sound of the heart was discernible, respiration was not apparent, there was a drenching sweat, and the face was still swollen but colorless.

At this juncture two hypodermic injections of 1/15 grain of strychnin sulphate, one of 1/75 grain of atropin sulphate and one of 1/100 grain digitalin were administered. Shortly the radial pulse became palpable, respiration discernible, the sweating ceased, color returned to the face, and consciousness was regained. A severe burning pain in the ball of the left foot was complained of. Gradually a normal condition ensued, except for the pain in the foot, swollen face and a feeling of severe exhaustion. The patient was assisted from the room at 5:15.

February 5, the face was slightly swollen, the urine contained albumin and hyaline and granular casts, and the patient complained of extreme weakness.

February 6, the face was normal, the urine condition was unchanged, and the patient was feeling much better. The indurated mass at the site of the chancre was entirely gone.

February 22, the urine still contained albumin and hyaline and granular casts.

Case 2.—Woman, aged 39, weight 209 pounds, mistress of brothel, presented herself, Jan. 2, 1916. There was no history of syphilis. There was general granular enlargement. The Wassermann reaction was + + + +. A bath and mercurial inunction were administered daily until January 23. Salvarsan was advised. All treatment was discontinued and an intravenous injection of 0.6 gm. of salvarsan was administered January 30. There was no reaction or unusual phenomena.

As I was unable to obtain salvarsan, an intravenous injection of 0.6 gm. of diarsenol was administered, after the usual preparation, February 5, at 3 p. m.

After about half of the dose had been given, the patient complained of a burning of the tongue and pins sticking in the lower extremities, the pulse became full and fast, the face red and puffed. The administration was discontinued; 160 c.c. of the diarsenol solution had been given. The pulse became more rapid and weaker, and the face colorless. Nausea then developed, but no vomiting; there was slight sweating, the pulse was very weak and rapid, and respiration increased in frequency. No restoratives were administered. Gradually the pulse became stronger, and color returned to the face. At 4 p. m. the patient left the room in an apparently normal condition, except a slight puffing under the eyes and slight thickening of the lips.

February 6, the patient was feeling well; the urine was negative.

Case 3.—Man, aged 37, weight 129, had had syphilis ten years. He had been under my care four years, with no treatment for five months. He had taken nine intravenous injections of salvarsan and neosalvarsan since 1911. Physical and laboratory examination was negative.

Intravenous injection of 0.6 gm. diarsenol was given January 24, with no untoward symptoms or phenomena differing from those following an intravenous injection of salvarsan.

February 6, at 4 p. m., after a negative physical and laboratory examination and preparation according to outline, another intravenous injection of 0.6 gm. of diarsenol was administered.

After the entire dose had been given and the needle withdrawn, a tingling sensation over the entire body was complained of; the face became red and puffed; arterial and precordial pulsation were visible; respiration was rapid; the pulse was rapid, full and bounding. Vomiting followed, the face became colorless but still swollen, and vomiting was profuse, of a yellow frothy character. Consciousness was lost, the pupils were widely dilated, the radial pulse was not palpable, respiration not discernible and sweating was profuse. Only one feeble heart sound could be heard. Soon the radial pulse was felt, and a normal condition rapidly ensued, except that the face was so swollen that the features could hardly be recognized, the eyes were closed and speech was impossible. At 8 p. m. the patient left the room feeling fairly comfortable.

February 7, he felt weak; the face was still slightly swollen; the urine contained albumin and casts.

February 9, the patient felt very good, and the swelling of the face had gone. Albumin and casts persisted.

February 22, albumin and casts persisted.

An attempt to explain the phenomena would be a reckless guess, but the strongest possibilities presenting themselves to my mind are:

1. A chemical poison, acting direct, or through the suprarenals, on the vasomotor center.

2. Shock, either (*a*) surgical or (*b*) anaphylactic.

I am inclined to the first explanation (chemical poison).

ARSENOBENZOL IN THE TREATMENT OF SYPHILIS

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AND
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Arsenobenzol is an arsenic compound presented to the medical profession by Dr. Jay F. Schamberg[1] and his associates, Drs. G. W. Raiziss and John A. Kolmer, from the Dermatological Research Laboratories of the Philadelphia Polyclinic for the treatment of syphilis.

The first injection was given by us, Nov. 13, 1915. In a series of 184 injections given to seventy-five patients suffering with syphilis in its various stages, we believe some conclusions as to the value of this remedy can be drawn. Its action has been uniform, its toxicity low, and its therapeutic results have been excellent. The immediate reactions have been almost negligible, and remote untoward results entirely absent. We have employed it in both early and late cases, including those with primary lesions before eruptive manifestations have occurred; in the so-called secondary and tertiary stages; also in latent cases, and those involving the cerebrospinal system.

The drug as furnished to us has been in ampules containing 0.4 gm. each. We have administered it in dosage of from 0.1 to 0.5 gm. The average amount given by us thus far has been 0.4 gm. It is a yellowish powder, which goes into an acid solution in boiling-hot water without oxidation. This acid solution must be neutralized before being injected.

The technic employed by us for the administration of arsenobenzol intravenously is as follows:

For an average dose of 0.4 gm., 50 c.c. of boiling-hot water, which has been redistilled on the same day, is poured into a mixing cylinder of a capacity of 250 c.c. The drug is then sprinkled on the surface of the water, after which the glass stopper is inserted and the flask vigorously shaken. The average time required for complete solution is about two minutes. After making sure that no gelatinous particle remains, a solution of sodium hydroxid of 15 per cent. strength is added, drop by drop, from a pipet. At first, a cloudy precipitate forms, but on further addition of the sodium hydroxid solution (usually about 15 drops in all), the arsenobenzol goes into a perfectly clear, canary-yellow solution.

A small pledget of sterile cotton is now inserted into a sterile funnel, boiling-hot water poured over it to clear it of small particles, and the solution is filtered through it into a sterile graduate, and cold water, which has been previously redistilled and boiled, is added until the solution measures 100 c.c. It is now ready for injection.

The apparatus used by us for injection (Fig. 1) consists of a percolator of the Oldberg type, made by Whital, Tatum & Co., fitted with a perforated rubber stopper connected with pure gum, thick-walled tubing about 2 feet long. Just back of the connection with the needle is a glass tube, serving as a window for the observation of the blood which flows into the tube when the needle is inserted into the vein.

A small amount of distilled water is poured into the percolator, the tube freed from air, and the needle attached and then inserted into the vein, which has been previously distended by means of a constrictor. When the operator is assured that the rate of the flow is satisfactory and that there is no subcutaneous infiltration, the solution is poured into the percolator and allowed to run slowly into the vein. Large needles and concentrated solutions of arsenobenzol should be avoided.



Fig. 1.—Apparatus used for injection of arsenobenzol. The percolator with rubber tubing attached is on the extreme left and the mixing cylinder on the extreme right.

Of the seventy-five patients treated with arsenobenzol, eight had primary lesions, six had primary and secondary lesions, thirty-one had late manifestations or latent syphilis, twenty-eight had lesions limited to the central nervous system, and two had diseases other than syphilis, one being blastomycosis and the other vulvovaginitis.

Most of the patients were given mercury in addition to the arsenobenzol, but fifteen patients have had either no medication other than arsenobenzol, or none for periods varying from a few months to several years. Of these, there were three with primary lesions which healed within one week after an injection of from 0.2 to 0.3 gm.; one primary with marked secondary manifestations (Case 1, Fig. 2) which healed promptly with 0.2 gm.; one arthritis, with immediate cessation of symptoms after internal mixed treatment had failed; one case of ulcerative and gummatous lesions of the thigh (Case 2, Fig. 3) with prompt healing; one case of squamous palmar syphiloderm, which yielded quickly, and five cases of nervous system lesions, all of which improved.

Three patients who have syphilis complicated with diseases ordinarily considered as contraindications for intravenous arsenic medication were given from one

1. General News, THE JOURNAL A. M. A., Dec. 18, 1915, p. 2179.

to four injections. In no case was there any noticeable reaction. One of these patients has a chronic nephritis and cystitis, one diabetes mellitus, and one aortic insufficiency. All have improved under the treatment.

Two patients have been given three intraspinal injections of autogenous serum, a modified Swift-Ellis technic being used. No pain resulted from two of the injections, but the second injection given to one of the patients gave rise to a slight discomfort during the night.



Fig. 2 (Case 1).—Extragenital lesion, with marked secondary manifestations; duration, ten weeks; 0.2 gm. arsenobenzol administered, Dec. 31, 1915. Marked reaction followed and continued for twenty-four hours. Patient was seen, Jan. 12, 1916; lesion had healed and symptoms subsided; no other treatment during the interim.

Following the 184 injections, reactions were observed in ten patients. Of these, six may be classed as "doubtful," and amounted to nothing more than "a queer feeling," or to a sensation described as "slightly upset." One patient became flushed and complained of "a feeling of fulness," which passed away within twenty minutes after the injection.

The remaining four patients suffered reactions classed as "definite." Of these, one patient (Case 1, Fig. 2), who had had an unrecognized extragenital lesion for three months and was extremely toxic, became nauseated, vomited, and suffered from an exaggeration of all his symptoms for twenty-four hours following the first injection. No reaction, however, occurred after the subsequent injections. Two patients were free from any noticeable symptoms after the first and second injections, but were nauseated, and vomited at least once, after the third injection; and one patient, who had had no reaction after the first injection, was nauseated after both the second and third. As yet no intramuscular injection of arsenobenzol has been administered by us, but there appears to be no reason why it should not be given in that manner, if desired.



Fig. 3 (Case 2).—Ulcerative and gummatous lesions on thigh; duration, fifteen years; 0.2 gm. arsenobenzol administered, Jan. 12, 1916. By January 20 the lesions were healed; no other treatment in the interim.

CONCLUSIONS

Arsenobenzol, together with mercury, offers as good a method of treatment of syphilis as any heretofore used.

In its uniform and nontoxic action, arsenobenzol commends itself as a remedial agent of great value in the treatment of syphilis, and its successful preparation marks an achievement in American chemotherapy.

While a sufficient experience has not as yet been had from which to draw ultimate conclusions, we believe its therapeutic accomplishments, together with its safety of administration, recommend its continued employment.

RETARDED OSSIFICATION AS AN ETIOLOGIC FACTOR IN TRAUMATIC ARTHRITIS AND EPIPHYSITIS

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The ossification of bone, in the normal process of development from birth to adolesence, gives characteristic roentgenologic appearances to the joints at different ages. For various reasons, ossification may be retarded or accelerated, and the appearance of the joint will be changed accordingly.

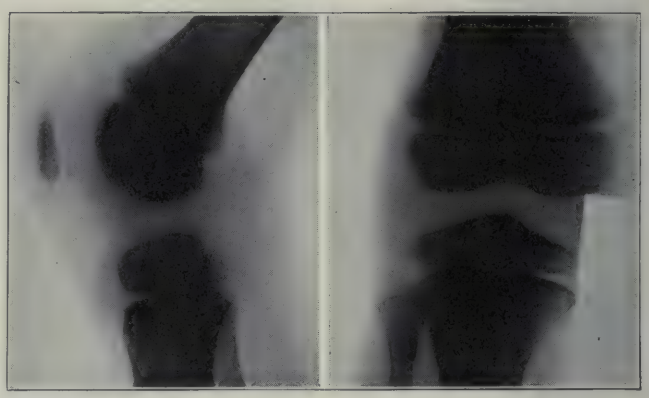


Fig. 1.—On left, lateral view of knee joint in Case 2. Appearance practically the same as in Case 1. Note small size and irregular ossification of patella. On right, anteroposterior view of knee joint in Case 2. Appearance practically the same as in Case 1. Note irregular ossification of the outer side of the epiphysis of the femur and tibia.

In an analysis of about 1,000 cases made in the Roentgen department of the Children's Hospital in Boston, the late Dr. Thomas M. Rotch was able to arrange a classification of the roentgenologic appearance of the wrist joint at different ages for normal children; the results corresponded closely to those of the earlier work of Pryor. Dr. Rotch found that the normal changes which take place in the bones of the wrist correspond so closely to those of the other joints that, in the great majority of individuals, the wrist may be accepted as a fairly correct index of general development; he also found that the normal process of ossification, as shown by the wrists, was frequently retarded and, in connection with such cases, he called attention to the danger of strain; but, so far as I know, gave no specific illustrations.

I have had the opportunity of observing three cases in which retarded ossification seemed to be the chief etiologic factor in the production of traumatic arthritis or epiphysis:

CASE 1.—A boy, aged 7 years and 8 months, complained of a painful swelling of the left knee and ankle. Family history was negative. The patient had always been very active and always well with the exception that during the past year there had been transitory swellings in joints other than those now affected. The present illness began suddenly several days before with pain and swelling in the left knee and ankle. There was no pain when the patient kept quiet, but walking was painful and caused increased swelling.

The patient was well nourished, and his skin and mucous membranes were of a good color. Examination of the heart, lungs and abdomen was negative. The joints, with the exception of the left knee and ankle, appeared to be normal. The left knee was swollen but not reddened; on palpation it was slightly tender, fluctuated and evidently contained fluid. The left leg could not be fully extended or flexed without

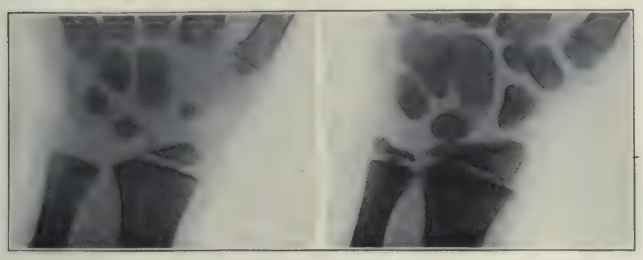


Fig. 2.—On left, wrist joint in Case 1, boy, aged 7 years and 8 months. Ossification development corresponds to that of a child about 4 years old. On right, normal wrist joint for a boy the age of the patient.

causing pain. Muscle spasm was present. The left ankle joint presented practically the same condition as the knee. The temperature was elevated about a degree, and the pulse rate was a little over 100. Urine examination was negative.

The patient was given moderate doses of acetylsalicylic acid (aspirin) and told to report in a few days. A week later the condition was practically unchanged. A roentgenogram was taken of the left knee, and the general appearance of the joint was found to correspond to that of a child several years younger; in addition, there was present an irregular ossification of the patella and marked roughening with irregular bony deposits on the outer side of the epiphysis of the femur and tibia (Fig. 1).

The von Pirquet test was negative.

The case presented such unusual features that the patient was sent into the Albany Hospital for observation. In the hospital the boy was kept in bed, and within twenty-four hours all the tenderness and swelling had disappeared from the left knee and ankle. The temperature, which was slightly elevated on admission, dropped to normal in a few hours. The subcutaneous tuberculin test was negative, as was also the Wassermann test.

The peculiar roentgenographic findings in the affected knee suggested the advisability of examining other joints with the Roentgen ray. The right knee was found to have practically the same appearance as the left, and a roentgenogram of the wrist joints showed that the boy's ossification development was retarded about three to four years (Fig. 2).

The diagnosis of traumatic arthritis and epiphysitis associated with retarded ossification was made, and the parents were advised to keep the boy quiet and not let him play so actively with boys of his own age. Syrup of ferrous iodid was advised as a tonic.

The boy was seen and examined again six months later. He had had one or two slight attacks of his old trouble in the left knee, but at the time of the examination there was no evidence of arthritis anywhere.

I have recently seen and examined the boy again, nearly two years since the original examination. He has been free from arthritis with the exception of an attack in the instep four or five weeks ago. This attack kept him from school two or three days. He has to take a long walk to school and plays vigorously with boys of his own age, from 10 to 11. His mother says he gets very tired and does not sleep well at night, but always recovers quickly when he rests.

Roentgenograms at present show that the irregular ossification in the patella and epiphysis of the tibia has disappeared; but the general ossification development, as shown by the wrists, is still retarded from two to three years.

CASE 2.—A boy, aged 7 years and 10 months, complained of pain and swelling in the left knee and right ankle. He was referred to me for Roentgen-ray diagnosis, and I am indebted to his attending physician for the history. The family history was negative. The boy never seemed strong for his weight and age, but always very active. Otherwise the past history was negative. The present illness began about a year and a half ago with pain and swelling in the knee. The condition present at that time was so strongly suggestive of tuberculosis that the patient had been treated by a plaster-of-Paris cast.

A roentgenogram of the left knee was taken with the idea of showing the location and extent of the tuberculous process. No evidence of any tuberculous process was found, however, but the appearance of the joint (Fig. 1) was so similar to that in Case 1 that a common cause was suspected. A roentgenogram of the wrist joints was taken, and ossification was found to be retarded about four years.

The diagnosis of traumatic arthritis and epiphysitis associated with retarded ossification was made; the activities of the boy were restricted, and the arthritis cleared up.

I was able to examine this patient nine months later. At that time there was no external evidence of arthritis, but roentgenograms showed that there was still some irregular ossification in the knee joint, and that ossification was still retarded about four years.

CASE 3.—A boy, aged 10, complained of pain in the right heel. The family history was negative. The boy had always been well, but rather pale and delicate looking. He had sprained the right ankle two years before, and thought that the foot had never been right since. He had had pain in the right heel for the past two weeks. He would wake up in the night crying with pain in the heel. The patient's mother said that the heel throbbed at such times. Walking was painful.

The heel was tender to the touch near the insertion of the Achilles tendon. The von Pirquet test was negative. A roentgenogram of the ankle was negative except that the epiphysis of the os calcis was not so well developed as it should be in a boy 10 years old (Fig. 3). A roentgenogram of the wrist joints showed that the ossification development was delayed between two and four years.

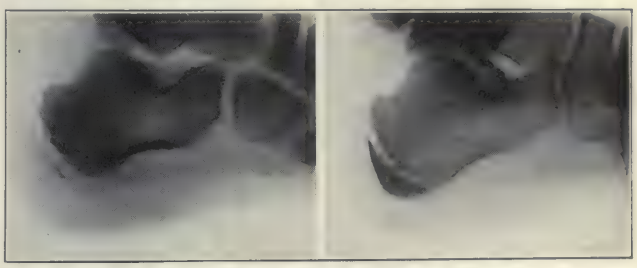


Fig. 3.—On left, small and irregular ossification of the epiphysis of the os calcis in Case 3, a boy aged 10. On right, ossification in the epiphysis of the os calcis in a girl aged 10.

The symptoms rapidly cleared up under adhesive strapping applied to the heel, and restricted activity.

The cases show that retarded ossification may be an etiologic factor in the production of traumatic arthritis and epiphysitis in children. The trauma, in such cases, consists in overstrain of the joints due to abnormal activity. The child may be leading the normal active life of a child of his own age, but anatomically he belongs to a type several years younger and, to avoid strain, his activities should be correspondingly restricted. Cases of this character are probably quite common, and are very apt to be overlooked or wrongly diagnosed.

THE STANDARDIZATION OF DIGITALIS AND THE POTENCY OF AMERICAN-GROWN DIGITALIS *

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This study was undertaken by us, at the suggestion of Dr. Janeway, in the endeavor to insure digitalis preparations of maximum and known effectiveness for use in the wards. These desiderata are so rarely fulfilled in any hospital that the results we have obtained seem worthy of a brief report.

METHODS OF STANDARDIZATION

Two methods of biologically standardizing digitalis preparations are commonly employed: the so-called "frog" method, and the so-called "cat" method. After a number of preliminary experiments it was found that the frog method was less reliable for the standardization of the infusion than the cat method[1]: the latter method was therefore exclusively employed in this work. The technic followed by us was suggested by Hatcher and Brody,[2] and is somewhat similar to that described by them, and consisted in determining the minimal fatal dose per kilogram weight of cat, the drug being injected slowly into the femoral vein. Our procedure was briefly as follows:

A healthy cat was anesthetized with ether, and a cannula inserted into a femoral vein, subsequently a minimum amount of ether being administered, just sufficient to keep the animal quiet. Ten c.c. of the infusion of digitalis were slowly injected into the vein in the course of five minutes, and thereafter 1 c.c. every two minutes until the death of the animal. The total amount of the drug injected divided by the weight of the animal gave the strength of the preparation in terms of so-called "cat units." The following protocol will serve as an illustration:

Experiment, April 30, 1915. Cat weighing 2.6 kg. Cannula in left femoral vein, light ether anesthesia.

3:20 p. m. experiment begins. Pulse 160 per min.

Slow injection of infusion digitalis.

3:25	Finished injection of 10 c.c.	Pulse 140 per minute	
3:27	Injected 1 c.c.	Pulse 120	
3:29	Injected 1 c.c.	Pulse 100	
3:31	Injected 1 c.c.	Pulse 72	respirations rapid
3:33	Injected 1 c.c.	Pulse 72	vomits
3:35	Injected 1 c.c.	Pulse 72	
3:37	Injected 1 c.c.	Pulse 60	
3:39	Injected 1 c.c.	Pulse 148	
3:41	Injected 1 c.c.	Pulse 160	
3:43	Injected 1 c.c.	Pulse 160	
3:45	Injected 1 c.c.	Pulse 180	
3:47	Injected 1 c.c.	Pulse 168	
3:49	Injected 1 c.c.	Pulse 240	
3:51	Injected 1 c.c.	Pulse 240	
3:53	Injected 1 c.c.	Pulse 240	
3:55	Injected 1 c.c.	Pulse irregular, very rapid	
3:57	Injected 1 c.c.	Pulse irregular, very rapid	
3:59	Injected 1 c.c.	Pulse dead: heart in systole	

Total amount of infusion = 26 c.c.
Therefore lethal dose = 26

2.6 = 10 c.c. per kg.

By this method different infusions of digitalis prepared from two batches of Allen's English leaves were assayed: the one from the stock of the pharmacy of the Johns Hopkins Hospital, the other an infusion procured from a well-known pharmacy in New York. The lethal dose of the former was found to be 13.5 c.c. per kilogram; that of the latter, 7.5 c.c. per kilogram. This difference in potency could be accounted for only in two ways: either by differences in the method of preparation or by variations in the intrinsic quality of the leaves.

DIFFERENCES IN POTENCY DUE TO METHOD OF PREPARATION

A comparison was made between a New York infusion of digitalis and an infusion from the same stock of leaves prepared by our own pharmacist. The lethal dose of the New York preparation was 6.6 c.c. per kilogram. The lethal dose of our own infusion from the same leaves was 9 c.c. per kilogram. Four days later the same preparations, having been kept on ice, were restandardized, and gave the lethal doses of 6.8 c.c. and 9 c.c. per kilogram, respectively, showing that the preparation did not deteriorate rapidly on standing, a fact which has been pointed out recently by Hatcher.

These figures indicated clearly a difference in potency due to the method of preparation. The New York technic for preparing the infusion was then ascertained[3] and applied to our own stock of English leaves. The lethal dose of this infusion was found to be 11.1 c.c. per kilogram of cat. An infusion made from the same leaves by the method formerly employed by our pharmacist gave a lethal dosage of 13.5 c.c.

In order to ascertain still further how great a difference in potency of infusions may result from variations in the methods of preparing them, our pharmacist, Dr. Wahl, prepared three infusions from the same lot of Allen's English leaves, by slightly different pharmaceutic methods. Infusion 1 was prepared according to the U. S. Pharmacopeia.[4] Infusion 2 was made by macerating the leaves with water plus 10 per cent. dilute alcohol, instead of adding the alcohol to the finished product as directed in the U. S. Pharmacopeia. Infusion 3 was prepared by macerating the leaves with boiling water in a closed flask, and gently beating the contents of the flask during the whole process of extraction. The lethal dose of Infusion 1 was found to be 11.4 c.c., that of Infusion 2, 9.5 c.c., and that of Infusion 3, 10.6 c.c. per kilogram weight of cat. Thus it will be seen that a considerable variation in the potency of an infusion of digitalis may result from differences in methods of preparation.

VARIATIONS DUE TO THE SOURCE OF THE LEAVES

The difference in the potency between the New York infusion and our infusions just described could not be entirely explained by variations in the method of preparation, but were also obviously due to differences in the inherent qualities of the leaves used. The next step in the investigation was therefore to assay infusions of digitalis prepared by a uniform method from various lots of digitalis leaves obtained from various sources. Great variations in the strength of the products were noted.

It was found that an infusion prepared according to the U. S. Pharmacopeia from our stock of English

* From the Medical Clinic of the Johns Hopkins Hospital, and Pharmacological Laboratory of the Johns Hopkins University.

1. It is advisable to make three toxicity experiments with each preparation and to take the average. As a rule wide variations are not encountered.

2. Hatcher and Brody: Am. Jour. Pharm., 1910, lxxxii, 360.

3. The method of preparing the infusion employed at Johns Hopkins is the official method of the U. S. P. The New York technic differed from this in some details which need not be gone into in this place.

4. Although the U. S. P. gives specific direction for preparing the infusion of digitalis, we have good reason to believe that those directions are not always followed. Compare Alpers: Jour. of Am. Pharmaceut. Assn., June, 1915, p. 715.

leaves yielded a product with the lethal dose of 13.5 c.c. That of an infusion from another lot of English leaves was found to be 9.6 c.c., while still another lot of English leaves yielded an infusion, the lethal dose of which was 8.7 c.c. per kilogram. An infusion prepared from some German digitalis leaves found in the hospital pharmacy proved very inferior in quality, giving a lethal dose of 19 c.c. per kilogram weight.

POTENCY OF AMERICAN LEAVES

It was especially interesting to find that certain American grown digitalis leaves yielded a product of a very high quality. Two lots of American leaves were assayed by us. One was a supply of Wisconsin leaves kindly presented by Dr. George B. Roth of the Hygienic Laboratory in Washington. The second was obtained from Dr. E. Kremers of the Pharmaceutical Experiment Station, University of Wisconsin. The first yielded an infusion with a lethal dose of 7.6 c.c., and the second an infusion with a potency of 7.8 c.c. per kilogram weight of cat. It is evident that both infusions made from the American grown leaves were superior in potency to those made from our stock English and German leaves, and in fact superior to all other leaves assayed by us. We have in America, therefore, a digitalis which is unsurpassed. Through the kindness of Dr. Kremers a supply of Wisconsin leaves was secured and is now being used exclusively in the wards of the Johns Hopkins Hospital.

THE MORAL

These investigations strikingly emphasize the need of standardization of digitalis. Variations in lethal dose from 6.6 to 19 c.c. per kilogram weight — approximately 300 per cent. — were found in infusions prepared from these various leaves. Certainly this is greater than should be tolerated by the profession. Yet in all probability still greater variations exist in leaves purchased in the open market.

Standardization reveals the strength of the digitalis preparation and permits of graded dosage — more or less — according to the potency of the preparation. The physician's duty to his patient does not end with the prescribing of digitalis. Plainly it is incumbent on him to secure digitalis effects if the case is a suitable one. This is more likely to be accomplished if the potency of the preparation is known.

We are also brought face to face with another fact, that the name of this or that firm does not always insure potency or digitalis effect. As we have shown, American leaves can be secured which are unsurpassed. The answer to the question of potency is to be found in standardization, which is essential to the best treatment.

A NEW HEMORRHOIDAL OPERATION: THE SNARE AND BULLET*

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AND
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The hemorrhoidal operation here described is simple, rapid, free of danger, suitable for the use of local anesthesia and has been used by us in a series of sixty cases. "Pile" operations are notoriously varied. The clamp and cautery, clamp and suture, the ligature with or without suturing of the cut mucosa, the Whitehead operation, plastic procedures, submucous excision of the varicosed veins, and injection of irritants into the "pile" mass are favored by different authorities, but during the past year we have discarded other technic for our own. In 95 per cent. of rectal operations and in all cases of hemorrhoids we use local anesthesia, which is very satisfactory for the method to be described; moreover, with the avoidance of ether or chloroform, the cause of much dread and delay by the patient will be obviated. Local anesthesia demands moderate celerity in operating, for, although pain is avoidable, the nervousness of many patients makes prolonged procedures undesirable. A good assistant will add much to the ease with which an operation is performed, and the same preparation and aftercare of the patient should be given as would have been demanded had general anesthesia been used.

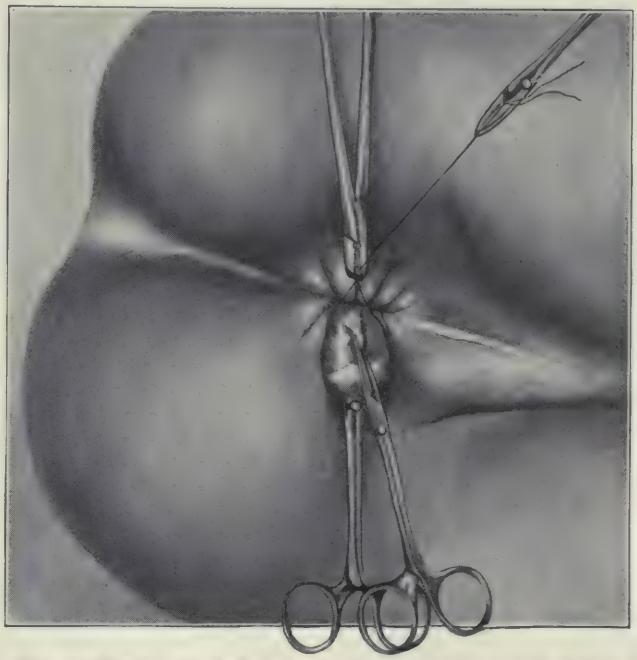


Fig. 1.—Method of closing down on loop, after which bullet is crushed and hemorrhoid distal to snare cut away.

The method advocated by us may be designated "the snare and bullet operation for hemorrhoids." The instruments required are a hypodermic syringe and local anesthetic, half a dozen artery forceps, two pairs of scissors, one pair for cutting the wire, four or five strands of strong pliable wire, both ends of each strand threaded through a perforated lead bullet, and a bullet holder and crusher. The operation resembles most the ligature method, but is more thorough, cleaner and more quickly carried out than the latter. The pile can be cut away closer to the snare than to the ligature, and the snare and bullet finally lie at a higher level than does the ligature, which the fingers must get into the anal canal to tie, a procedure that is difficult. With the ordinary ligature, hemorrhage may follow if it is tied loosely, or polyplike masses may persist as a result of incomplete cutting off of the blood supply of the hemorrhoidal pedicle. With the snare and bullet technic, no fear of a slipping ligature exists, and as a consequence of complete removal of the "pile"

*Read before the Westchester County Medical Society at St. Joseph's Hospital, Yonkers, N. Y., Jan. 18, 1916.

mass, a clean surface is left to heal without gangrene and infection, while convalescence is shortened.

The application of the snare and bullet will follow a routine technic. The tissues to be removed are thoroughly anesthetized with the local anesthetic fluid, and an incision is then made below and to either side



Fig. 2.—Hemorrhoid with prolapse; suture in place preparatory to drawing the wires taut.

of the extro-internal hemorrhoid, extending into the rectum, and dividing the deeper tissues in somewhat the form of a V wedge. A pair of forceps, previously applied to the tissues to be removed, is now

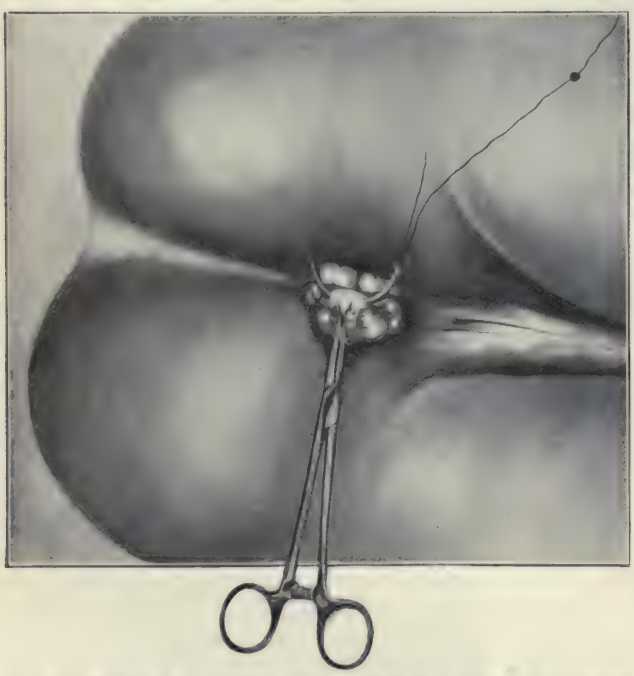


Fig. 3.—Method of inserting anchor stitch in cases of hemorrhoids associated with prolapsed mucosa.

used to exert gentle traction on the parts exposing more of the rectal mucosa proper. A second pair of forceps is then placed on the rectal mucosa, and again traction on the mass is made, and the lateral incisions are then extended inward to the degree desired. Above the last pair of forceps placed a transverse incision is made in the mucous membrane, a point of some importance since it is in this slit that the wire will sink and slipping of it be prevented. A wire loop, threaded through the perforated bullet, and its free ends held in a clamp, is then slipped over the handles of the forceps attached to the hemorrhoid, and the loop placed in position with the forefinger. While the wire loop is kept taut, the bullet is grasped by the bullet holder and crusher and forced down on the mucosa, to either the skin or mucosa side of the pedicle, preferably the latter, thus tightening the snare The bullet forceps are then closed with pressure and the lead bullet made to collapse on and hold the taut wires where they pass through it, securing the snare in proper position. Excess of the pedicle is cut away, and then the wires are severed flush with the bullet.

When extensive prolapse of the rectal mucosa accompanies the hemorrhoids, the technic is somewhat changed. The "pile" mass is freed in the same manner, but the wire, threaded on a curved needle, passes

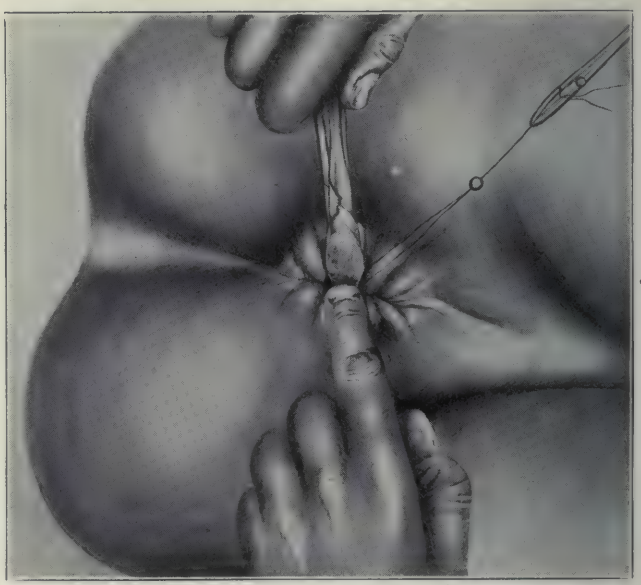


Fig. 4.—Placing snare in position with forefinger.

first transversely through the rectal mucosa above the corresponding hemorrhoidal area. One half of the wire is already threaded through a perforated bullet; the other then encircles the "pile" pedicle, as shown in illustration, and passes through the same bullet. The mucosa is incised superficially, so that the wire will become embedded when tightened, and the hemorrhoid is cut away. Others present are removed in the same manner, usually three in all, and a small gauze drain is placed in the rectum. Most of these patients are operated on in the office; but if coming from a distance, or if the condition is complicated with bowel prolapse, they remain in the hospital from twenty-four to thirty-six hours.

Voluntary urination is always possible following the proper performance of this operation, in contrast to the usual hemorrhoidectomy, after which catheterization is generally required. Provided the bowels have been thoroughly evacuated the day preceding operation, it is desirable that bowel movements be avoided for two or three days. To obtain this object, dependence is placed on a light diet, previous catharsis and,

in selected cases, one-half grain of opium twice during the day and the day following operation. Until a satisfactory bowel movement is obtained, preferably without catharsis apart from liquid petrolatum given in ounce doses at night, beginning the second or third day after operation, a selected diet, one leaving but little residue, is indicated. It is not necessary to pack the rectum or to insert plugs, which cause discomfort while in place and pain on removal. Sutures are not used, but healing takes place by granulation and sec-



Fig. 5.—Hemorrhoids and prolapse in which operation was performed by snare and bullet, Dec. 13, 1915.

ondary union. Repair is complete in from two to three weeks. The snare and bullet may come off the fourth day, but usually the fifth or sixth.

As often performed, hemorrhoidal operations are unsatisfactory, failing in their object or actually causing complications, such as anal constriction, everted mucosa, incontinence, secondary hemorrhage, pain, infection and delayed healing. By means of the snare and bullet method, such results will be less liable to

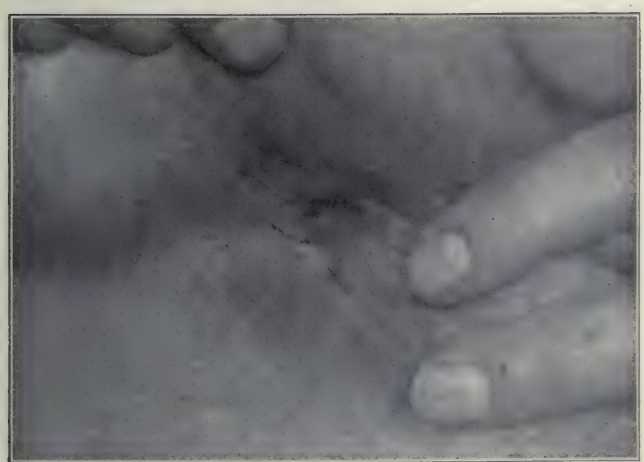


Fig. 6.—Result of operation in case illustrated in Fig. 5, Jan. 13, 1916. The case remained an ambulatory one.

occur, and a satisfactory hemorrhoidectomy technic is acquired.

17 East Thirty-Eighth Street.

Neglect of Health.—In these days, half our diseases come from the neglect of the body in the overwork of the brain. In this railway age, the wear and tear of labor and intellect go on without pause or self-pity. We live longer than our forefathers, but we suffer more from a thousand artificial anxieties and cares. They fatigued only the muscles, we exhaust the finer strength of the nerves.—Bulwer.

THE PRACTICAL APPLICATION OF BLOOD PRESSURE FINDINGS

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Blood pressure readings, as often made, are practically worthless. Almost invariably, when necessity has demanded an inquiry as to the blood pressure, the answer has been that "it" is in the neighborhood of 140, 150, 180 or 200 mm. of mercury. This, of course, refers only to the systolic pressure, the one of least importance of the entire four readings, the only one taken, and as a rule not recorded. Frequently, even the systolic pressure findings are incorrectly taken as, for instance, when the compression bag of the instrument is placed about the arm over the sleeves. It seems hardly possible, in view of the principles involved in the operation of the instrument, that such a stupid mistake could be made, but I have been an eye witness of this very performance on more than one occasion.

After seeing this done a number of times by men of good training, I determined to make a series of experimental observations, to ascertain the increase of pressure required to obliterate the vessel with the bag over the sleeve of a garment. Twenty-five examinations were made, the compression bag first over the sleeve and then over the bare arm as a control. In every case, it was as one would expect it to be, the mercury column registering a systolic pressure of from 10 to 30 mm. of mercury higher than on the bare arm. The material of which the sleeve was made influenced, of course, the amount of the increase of pressure. The dire results of a mistake of this kind may well be imagined.

Another source of error, or rather inaccuracy, is the use of the palpation method of estimating pressures. In a series of 100 experimental examinations recently made, with the sole purpose of determining the variations, if any, in the readings obtained by the palpation method and the auscultation method, the column invariably stood from 5 to 10 mm. higher with the stethoscope than with the tips of the fingers. The systolic pressure alone was investigated in these experiments, but the same thing holds good for diastolic findings. The pressure pulse and mean pressure are influenced in directly the same proportion.

This paper is based on the results obtained in 500 recorded findings from a series of examinations made during the last two years. As I said before, the systolic pressure findings are of much less importance than either the diastolic or pressure pulse records. The systolic pressure is the final result, the sum total of all the influences operating to obstruct the blood stream. In other words, it is the resistance offered by the vessel walls, plus the power of the left ventricle, plus the influence of the vasomotor system of circulatory control.

Generally speaking, its only real value is in those cases in which the diastolic pressure is known to be high, as in the course of a chronic interstitial nephritis, especially after arterial degenerative changes have occurred, and as an index to the probable condition of the diastolic pressure and the pressure pulse, or as an aid in arriving at a prognosis. Its diagnostic value is practically nil.

A homely example of the mechanism of blood pressures, or more correctly, a homely comparison, is seen

in the operation of the fire engine and fire hose, minus, however, a very important function, that of anything to represent the all important action of the vasomotors, the dilators and constrictors. The hose represents the arterial tree; the tension in the air chamber of the engine at the beginning of each stroke of the pump represents the diastolic pressure; the additional force exerted on the column of water at the end of the stroke of the pump represents the pressure pulse, and the sum total of all pressures exerted at the nozzle represents the systolic pressure. It can be readily seen that, while the force of water at the nozzle is all important so far as the fire is concerned, there will be no water to throw on the blaze if, perchance, the compression in the air chamber is inefficient, or the general tone or condition of the hose insufficient to conduct the column of water along to the nozzle and maintain it at the pressure imparted to it by the pumps. The important things are, therefore, the state of efficiency of the pumps and the ability of the hose to maintain the column of water at the requisite pressure, the condition of efficiency of the heart and blood vessels. The comparison is crude indeed when compared to the wonderful mechanism of the circulatory system, but it will serve to illustrate my meaning when I say that the systolic pressure readings are, as a rule, practically worthless, when not taken in conjunction with the other pressure findings.

DIASTOLIC PRESSURE

The diastolic pressure, on the other hand, is of the greatest importance, not only as an aid to diagnosis, but also as a prophetic index in arriving at a prognosis. To obtain diastolic records of any diagnostic value, it is absolutely essential that several examinations be made under different conditions as to time, environment, emotion, exercise, diet and medication. When this is carried out, the average record will give reliable information as to the condition of the vessels, at least beneath the arm band. It is well to direct the attention to the fact that the conditions found in the arteries immediately beneath the compression bag are not necessarily or invariably those to be found in other parts of the circulatory system. Among causes which might operate to produce different readings in the two arms, for instance, is a possible variation in the size of the vessels or a possible difference in the level at which they lie imbedded in the muscles.

The smaller a vessel is, and the greater the distance it lies from the surface, the greater is the compression likely to be required to obliterate it. That this is sometimes the case is well illustrated in one of my own patients. The diastolic pressure in the right arm invariably registers a full 5 mm. more than in the left arm, and being aware of this fact, I always take my readings from the right arm. The condition of the vessels beneath the arm band is, as a rule, a reliable index as to the condition of the vessels in general, especially in the young and middle aged; but that it is not always so I have found on several occasions, to my own discomfiture. It is not uncommon for persons with apparently soft and pliable radial arteries to suffer a cerebral hemorrhage; and, on the contrary, aged men and women are seen with hard, sclerosed, pipe-stemlike arteries who live to a great age, and die of anything rather than apoplexy. It means, of course, that the condition of the circulatory system is not necessarily everywhere the same.

A diastolic reading of 100 mm. or more usually means that there is a narrowing of the lumen of the vessels, due to a stimulation of the vasomotor constrictors; but I am convinced that it may mean the existence of a true arterial fibrosis. I am aware that it is generally agreed that an atheroma causes a reduction in diastolic blood pressure, or, at least, the pressure is increased little, if any. On the other hand, I have under my care several patients with arteriosclerosis, of a syphilitic origin, with an abnormally high diastolic pressure. The importance of determining the cause of high diastolic pressure is self evident; a hard diseased vessel wall means a serious pathologic condition, while an increase in diastolic pressure, due to increased activity of the vasomotor constrictors, is likely to be functional.

How can we distinguish between the causes of high diastolic pressure? The means employed are simple and easy of accomplishment. Herein lies one of the reasons for my statement that a single pressure reading is liable to be a source of error. Supposing a patient presents himself with a high pressure pulse, with a feeling of oppression in the precordial region, with attacks of dizziness, or a feeling of extreme weakness and lassitude, and possibly dyspnea. For example, suppose the patient is a woman whose husband is a victim of an arterial fibrosis, and, in order to extend the example, the husband has been the subject of apoplexy. After an ordinary examination, no organic trouble is found, but the sphygmomanometer registers the following blood pressures: systolic, 210 mm.; diastolic, 105 mm.; pressure pulse, 105 mm., and a mean pressure of 152.5 mm. Here we have a high systolic pressure, but we also have a high diastolic pressure, and the high systolic pressure cannot be due entirely to an increase of the pressure pulse alone. While the pressure pulse of 105 mm. is abnormally high, a diastolic pressure of 105 mm. makes it at least possible that it is due to the increased labor required of the heart, in propelling the blood stream through a rigid arterial system. The conclusion which would naturally be drawn is that an arteriosclerosis exists. But suppose that, on the following day, the systolic reading is 180 mm. and the diastolic reading is 90 mm., and on the third day it is down to 150 and 80 mm., and that from week to week, the readings vary; first high then low. One would, I am sure, change one's ideas about the existence of an arterial fibrosis. No true atheroma will flirt with the instrument in any such manner as this. Had the first blood pressure examination been depended on, not only would a wrong diagnosis have been made, fraught with dire possibilities to the patient and damaging to one's professional reputation, but also one would have rendered oneself liable to a malpractice suit. In this case, the cause of all the symptoms is a spasm of the vasomotor system, due to a stimulation of the constrictors, and the etiologic factors must be traced through the central nervous system to their source. That such mistakes occur, and not alone by small town doctors, I have reason to know. On the other hand, if the diastolic pressure remains rather constant, with little variation from day to day, except under the influence of powerful vasomotor dilators, such as the nitrites, and, even with them, the variation is not nearly so great, and one is justified in concluding that the vessel walls themselves are the culprits.

PRESSURE PULSE

The pressure pulse is so immediately important that life itself depends on it. In diseased states of the body, and especially in acute troubles, its value in indi-

cating the course of the disease cannot be overestimated. The pressure pulse is the effect rather than the cause, for a failing pressure pulse can be measured, and indicates before other physical signs that the patient is doing badly, or is improving. Its value is great in drug therapy, for a high pressure pulse usually contraindicates drugs of the digitalis, strychnin, caffein or camphor class, while a low pressure is a sure indication that drugs of the aconite, belladonna or veratrum viride class will harm the patient. It will tell in unmistakable terms what effect, if any, the treatment is having. The so-called athletic heart, the tired heart, the hypertrophied heart and the nervous heart will all be revealed in a study of the pressure pulse, taken in conjunction with the other physical findings. It accounts for a large number of high systolic pressures, which otherwise might be laid at the door of an atheroma.

As the systolic approaches the diastolic pressure, the pressure pulse naturally becomes less and less, and death supervenes when they become the same. A negative pressure pulse is inconsistent with physical life. As the pressure pulse is nothing more than the reserve force of the heart measured in millimeters, the daily use of the sphygmomanometer, particularly in the treatment of acute diseases, is indispensable, and is the most reliable means at our command for judging the efficacy of the measures employed and in forming the prognosis.

Consider, for example, in a case of pneumonia, when the question of bleeding, or the administration of digitalis or veratrum viride arises, what an aid the knowledge of the reserve heart power would be. Or in the case of a weak, flabby heart, with a tendency to dilate, and a variable high diastolic pressure, what an inexpressible aid it would be to determine that the high pressure is a compensatory move to relieve the work of a weak organ. It is much easier, everything else being equal, to fill a tube one-sixteenth of an inch in diameter than one one-eighth inch in diameter, and Nature, knowing well how true this is, attempts to reduce the volume of space to be filled, by contracting the vascular system, through the agency of the vasomotor constrictors. Herein lies one of the principal reasons against indiscriminate use of vasomotor dilators, such as sodium nitrite, in every case of high diastolic pressure.

Unless the diagnosis is correctly made, one is liable to combat the very means Nature knows to be needed in her efforts at repair. The nitrites are as likely to be contraindicated as indicated in any case of high diastolic pressure, especially if the high systolic pressure alone is considered, for a high systolic pressure is as likely to be due to a pressure pulse abnormally high as anything else. I have frequently seen a systolic pressure of 200 mm. or more, and a diastolic pressure as low as 90 mm. in persons over 50 years of age. In such cases, the cause of the violent heart action would have to be investigated, rather than efforts made to reduce pressure through the arterial system itself. Drugs of the nitrite class influence mainly the vessel walls, as is represented by the feeling of fulness in the head when amyl nitrite is inhaled, and are contraindicated when the power of the heart is to be conserved. In the light of our present knowledge of blood pressures, scientific medicine is practiced only when they are intelligently studied and considered in connection with each case that presents itself.

MEAN PRESSURE

The diastolic pressure plus half the pressure pulse must, of course, be the mean pressure, and is of value chiefly in recording the findings and keeping track of the general progress of the case. It has no particular prognostic or diagnostic value, but is used mostly to record the general condition of the patient for future reference. A diastolic pressure of 80 mm. and a systolic pressure of 120 mm. would mean a pressure pulse of the difference, or 40 mm., the three most important readings. Now the general or average or mean pressure would be the diastolic pressure, 80 mm., plus half of 40, or 20 mm., making a mean pressure of 100 mm., a normal pressure for a person from 20 to 30 years of age. In the beginning of this paper, I state that the systolic is the least important of any of the readings. This is not exactly true. It is at least more immediately important and valuable than the mean, but there can be no comparison between the relative values of it and either the diastolic pressure or the pressure pulse.

I have considered only briefly some of the features of blood pressure findings which appear to me to be, at least in this particular locality, the most important. I have the records, in tabulated form and according to age, of 500 examinations made during the last two years, but for the sake of brevity I will give the general averages for periods of ten years each, ranging from the age of 20 years to that of 60 years, including those apparently well and otherwise.

AVERAGE BLOOD PRESSURES

Age, Years	Number of Examinations	Blood Pressure, mm. Diastolic	Systolic	Pressure Pulse
From 20 to 30.....	50	81	125	44
From 30 to 40.....	72	86	142	55
From 40 to 50.....	210	89	156	61
From 50 to 60.....	168	88	183	94

A considerable proportion of the readings were made from patients with abnormally high pressures. It is my intention, in a subsequent paper, to tabulate the results according to age, occupation and condition of health. Syphilis, alcohol, tobacco, in the order named, have played an important part in the production of permanent high diastolic pressures in these cases, while certain occupations requiring long continued mental concentration, especially if associated with the excessive use of tobacco, have seemed to operate mainly in the production of high systolic pressures, due principally to excessive heart action — abnormally high pressure pulse.

Violent physical exercise produces high systolic pressure by means of cardiac hypertrophy. Speaking generally, I would say that at the age of 40 years, the only safe procedure for the individual is to have pressure examinations made every three months, and from 60 years and up, every month. Thus, in a majority of instances, a beginning dangerously high pressure due to a true arterial fibrosis or an incipient nephritis would be detected.

A word regarding what I believe to be the correct method of estimating blood pressures does not seem out of place. If possible, I have the patient lie flat on the back with the arm in supination; if this is not convenient, I have them sit quietly in a chair by a table, just sufficiently high to rest their elbows on it without raising the shoulders. The entire arm is slipped out of the clothing, and the compression bag is placed about the arm at the level of the heart. In order to quiet the nervousness which is likely to result from the proceedings, I talk to them quietly of other things, or occupy

myself with other things, for a few minutes. If the necessary manipulations in applying the instrument cause a rise in pulse beat, it is useless to proceed with the examination until the pulse rate falls to its normal level under the conditions.

When everything is ready, I place the bell of the stethoscope over the brachial artery at its bifurcation into the ulna and radial. Some slight pressure is required to hold the bell in place and to do away with the sound of friction between the skin and the instrument. The bag is then gradually inflated until the compression is just sufficient to overcome the resistance of the arterial wall. At this point the wall begins to give under the compression, and the linear contour of the wall is slightly changed. Now a faint thump is heard. The position of the mercurial column is noted and remembered. The reading immediately beneath the point at which the first faint thump is heard is the diastolic pressure. The bag is now rapidly inflated, and I listen meanwhile to the increasing and then decreasing sounds until they finally cease. At this point, the opposite walls of the vessels are in close contact and the flow of blood is interrupted. Now the mercurial column is run up a few millimeters more, and then the air allowed to escape from the compression bag very slowly. At the point, minus a millimeter, where the first faint thump is again heard, coming down, is the systolic pressure. The air is then allowed to escape rapidly until the thumping begins to grow faint again, when the air is released very slowly to the position where the last thump, coming down, is again heard. This again, plus 1 mm., is the diastolic pressure. The systolic minus the diastolic reading is the pressure pulse. Every reading is recorded to compare with the previous readings. By this means, the two pressures are obtained going up the scale and verified coming down the scale. The process is repeated on the other arm. One should be governed by the arm showing the highest readings. Compression should not be made for a longer period than a minute and a half to two minutes, which is long enough for making the readings.

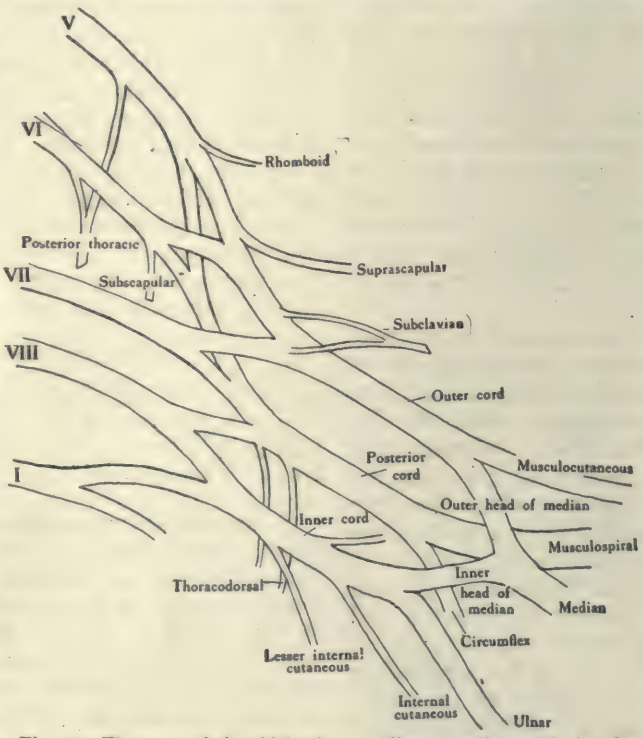


Fig. 1.—The normal brachial plexus (diagrammatic) with its five nerve roots (V, VI, VII, VIII cervical, and I dorsal) forming the three cords, which subdivide into six main brachial nerves. The suprascapular nerve is a most important branch and its impairment characterizes the deformity.

The Social Worker.—A promoter of social well-being ought to be actuated by the principles, and be governed by the motives, of a scientist. He should be thoroughly cognizant of those factors in human life which make or mar it; which build up or destroy cities, states and nations. His field of vision must include the unborn generations, and his sympathy must not be moved by the physical stimuli of the moment alone, but must be broad enough to comprehend the eternal impulses of mankind.—Harry H. Howett, *Ohio Bull. of Charities and Corrections.*

THE OPERATIVE TREATMENT OF BRACHIAL PLEXUS PARALYSIS

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Injuries to the brachial plexus are common, especially at birth; for this reason the term "brachial birth palsy" is frequently used. The prolonged forcible separation of the head from the shoulder by lateral extension during difficult labor is, in my opinion, the most frequent cause of this distressing condition. In my series of fifty-six cases with operation, it has been difficult to ascertain whether the head was pulled upward to assist the after-coming shoulder to emerge over the perineum, or was pushed downward to allow the shoulder to slide beneath the symphysis, or whether, in breech presentations, the trunk and shoulder were pulled upward or pushed downward to aid in extricating the head. It has also been hard to ascertain accurately whether there was much difficulty in freeing the after-coming arm, and whether or not the obstetrician was compelled to hook his fingers in the axilla or over the clavicle. These data are frequently overlooked in the excitement of a difficult labor, and when the paralysis of one arm is observed later, the definite cause of it can be only conjectured. The frequency of birth palsy of the right arm, with the usual occiput left anterior position of the head, would point to the perineum as being the obstruction to the delivery of the right shoulder and arm; in 70 per cent. of the fifty-six cases with operation, the paralysis was of the right arm, and in 28 per cent., of the left arm; 78 per cent. followed head presentations, while 22 per cent. were the result of breech presentations.

In adults, the usual cause of brachial paralysis is a fall on the shoulder, forcibly separating it from the head, and in this manner the plexus is suddenly stretched until its nerve roots are damaged and even ruptured. Direct blows over the lateral base of the neck at the upper portion of the supraclavicular space may also injure the brachial plexus. However, the condition occurring in adults is comparatively rare; besides, it is limited usually to the upper arm type of palsy, and is fortunately in many cases of only temporary duration, that is, merely a nerve stretching, so that the paralysis disappears, under appropriate treatment, within three months.

ANATOMIC CONSIDERATIONS

The brachial plexus, besides being comparatively superficial, is neither covered by any important struc-

tures in the neck, nor in close relation to them, and it can therefore be exposed easily and safely.

It is formed primarily by the fifth, sixth, seventh and eighth cervical and first dorsal nerve roots. The fifth and sixth nerve roots unite and form, together with a branch from the seventh root, the outer cord of the plexus — the origin of the outer head of the median nerve and the musculocutaneous nerve; the seventh, with a branch from the fifth and sixth and also one from the eighth nerve roots, forms the posterior cord of the plexus — the origin of the circumflex and musculospiral nerves, while the eighth cervical and the first dorsal roots form the inner cord of the plexus — the origin of the inner head of the median nerve, the ulnar and the internal cutaneous nerves. A very important nerve, and one most constantly involved in lesions of the brachial plexus, is the suprascapular nerve; it arises from the outer side of the fifth root or just below the junction of the fifth and sixth nerve roots, and by a rather tortuous course supplies chiefly the external rotators of the upper arm, allowing the characteristic internal anterior rotation of the arm in the brachial plexus lesions. Several small nerve branches arise from the plexus; the fifth sends a branch to the phrenic nerve (chiefly formed from the fourth cervical nerve root) and one to form the posterior thoracic nerve (the external respiratory nerve of Bell) with a branch from the sixth and seventh root; the rhomboid nerve also arises from the fifth nerve root, while the nerve to the subclavius muscle and the anterior thoracic nerves arises from below the junction of the fifth and sixth roots. The subscapular and thoracodorsal nerves arise from the seventh root, while from the union of the eighth cervical and first dorsal roots arise the lesser internal cutaneous nerve and a branch to the intercostohumeral nerve.

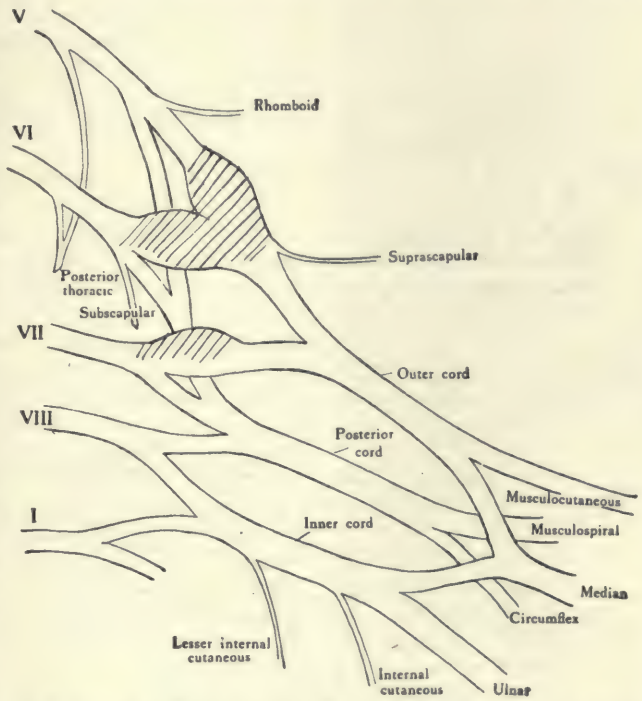


Fig. 2.—The lesions producing the most common form of brachial paralysis — the upper arm type of birth palsy (Erb's paralysis). The site of the tear is at or just above the emergence of the suprascapular nerve, the function of which is therefore impaired in almost all of the patients. Connective fibrous tissue (the shaded areas) may impair the lower nerves of the plexus in varying degree.

The plexus lies directly beneath the deep cervical fascia and on the scalenus muscles at the outer border of the scalenus anticus muscle; the fifth and sixth nerve roots emerge obliquely between the scalenus anticus and medius muscles, the seventh root about 2 centimeters below and almost horizontally, while the eighth cervical and first dorsal roots appear more posteriorly behind the scalenus anticus muscle, where they unite to form the inner cord of the plexus. The cords of the plexus extend outward and downward; they divide to form their respective nerves in definite relations to the subclavian and axillary vessels, the upper portion being above and behind the third part of the subclavian artery, while the lower portion is on the acromial side of the axillary vessels and enclosed in the axillary sheath.

It is interesting from a morphologic standpoint to note that each primary nerve root divides into a ventral and a posterior portion — the ventral division sending a branch to either the outer or inner cord of the plexus, thus supplying the ventral cutaneous areas and ventral muscular groups of the arm, whereas the posterior divisions form the posterior cord of the plexus, and supply the posterior or dorsal cutaneous areas and posterior muscular groups of the arm. Thus, we have the deltoid, biceps brachialis anticus, and the anterior flexor muscles of the forearm and of the hand, all supplied by the branches from the outer and inner cords of the plexus, whereas the triceps and the posterior extensors of the forearm and fingers are supplied by the posterior cord of the plexus. A more detailed description of the plexus and its nerves cannot be discussed in this paper.

TYPES OF BRACHIAL PLEXUS PARALYSIS

The types of brachial birth palsy depend on the site and extent of the lesion to the nerve roots of the plexus. Total paralysis of the arm, including the hand and fingers, persisting for one year after birth, indicates an extensive injury to the entire plexus and a permanently paralyzed arm; in these cases, either all of the nerve roots are completely severed, or, in many cases, only several of the nerve roots are torn, and the remaining ones are so choked by the resulting fibrous tissue formations that they cannot functionate and are thus clinically the same as severed. Naturally, fibrous tissue formations about and in nerve lesions make the results of peripheral neurologic surgery always problematic, especially following an interval of months and years after the injury. Some of the nerve roots may be torn directly out of the spinal cord itself, even producing a homolateral increase of the deep reflexes and also a Babinski reflex, as suggested by Dr. Taylor.

There are many variations of incomplete brachial paralysis. The upper arm type is the most common, in which the trouble is due to a lesion of the fifth and sixth cervical nerve roots near their union; the seventh nerve is also frequently involved. As the suprascapular nerve emerges at or just below the junction of the fifth and sixth roots, its impairment is almost characteristic of brachial paralysis, in that the external rotators of the humerus are thus paralyzed and the arm is accordingly rotated inward by the unopposed action of the pectoralis major muscle, so that the forearm and the back of the hand are turned anteriorly in the position of pronation.

The lower arm type of brachial birth paralysis is very infrequent alone, owing to the fact that in head

presentations, the greatest tension is exerted on the upper roots of the plexus rather than on the lower ones, and thus a brachial paralysis of the upper arm type results; and in breech presentations other roots than merely the lower ones are injured, owing to the more extensive damage and greater tension on the entire plexus in this position. Therefore, the lower arm type of palsy alone is rare, and it is usually associated with the upper arm type in varying degrees. In it, the hand and some of the forearm muscles are paralyzed by a lesion of the lower nerve roots of the plexus — the eighth cervical and first dorsal, and frequently the seventh cervical roots. As the sympathetic nerve fibers of the deep cervical ganglionic plexus enter the spinal cord through the first dorsal and at times through the eighth cervical roots, there is frequently a resulting ipsolateral enophthalmos and a narrowing of the pupil, owing to the unopposed action of the motor oculi nerve.

Then again, there are the mild types of brachial plexus paralysis resulting usually from an overstretching of the roots with only a small amount of connective tissue formations. Clinically, various degrees of awkwardness, usually of the upper arm type of impairment, may be the only indication of the plexus lesion.

The atrophy of the arm muscles in brachial plexus paralysis is rarely so extreme as that occurring in the severe forms of poliomyelitis involving the entire arm. Even in the upper arm type of brachial palsy, the atrophy of the deltoid and the external rotators seldom reaches that degree of wasting so characteristic of infantile paralysis affecting the same muscle groups; the "flail" shoulder joint only infrequently occurs in the brachial birth palsies. I believe this is due not only to the fact that in poliomyelitis there are usually more than just one spinal cord segment affected primarily, so that the nerve cells of the adjacent anterior horns are also involved and thus a more extensive atrophy of the neighboring muscle groups, but also to the fact that in almost one half of the cases of brachial birth palsy, the nerve roots are found at operation not to be completely severed but merely choked by masses of scar tissue formations which prevent in varying degrees the normal afferent and efferent impulses from passing through this mechanical nerve block; it may be that in these cases, trophic impulses do succeed in passing through the obstruction, and thus the atrophy is not so marked as in similar cases of poliomyelitis. There is usually, however, a definite shortening of the arm. In this series of fifty-six patients on whom operation was performed, it is interesting to note that when the atrophy was not extreme (in 64 per cent. of these cases), all of the nerve roots had been not entirely severed, but rather blocked by scar tissue formation.

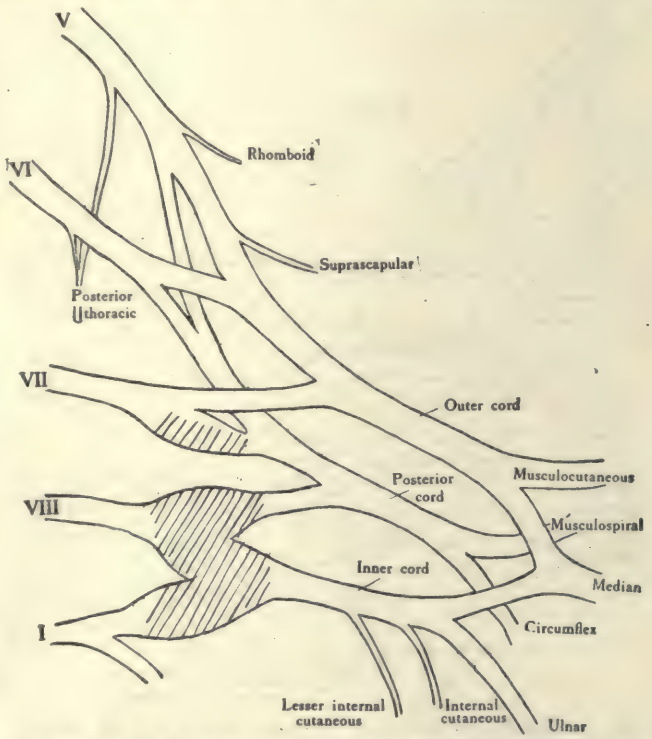


Fig. 3.—The lower arm type of brachial plexus lesion resulting from breech presentations and pulling on the affected arm. The entire plexus is usually involved in these cases, choked by a mass of resulting fibrous tissue, as in the shaded areas.

The impairment of sensation varies for the same reason. It is most unusual, even in the more extreme cases of brachial birth palsy to demonstrate anesthesia and even a marked hypesthesia except over the outer upper third of the arm. In the milder cases, especially when the atrophy is not extreme, little if any sensory impairment can be demonstrated. Naturally, in small children, impairment of sensation is always most difficult to elicit with any degree of accuracy; even in adults, however, sensory impairment may not be ascertained, except in the more severe types of plexus paralysis.

Dislocation of the shoulder joint is of fairly frequent occurrence. To be sure, any mechanical force sufficient to rupture the brachial plexus may cause a dislocation of the head of the humerus at the shoulder joint; then again, a dislocation of the shoulder joint alone may, in itself, simulate an injury to the upper roots of the brachial plexus with resulting apparent paralysis of the arm — of the upper arm type of palsy; but to maintain that the dislocation of the shoulder joint is the cause of the brachial birth palsy is in my opinion decidedly misleading. It must also be remembered that the paralysis and atrophy of the deltoid and external rotators, with a relaxation of the joint capsule due to a lesion of the upper roots of the plexus, permits the unopposed action of the pectoralis muscles to the extent that an anterior dislocation of the head of the humerus frequently results. There is no question that dislocation at the shoulder joint does occur alone in children, and frequently following difficult labors; but I do contend that if a careful examination is made, these cases of simple dislocation of the shoulder joint can be differentiated from the cases of brachial paralysis due to a lesion of the brachial plexus, and also when the dislocation is merely associated with brachial paralysis due to a lesion of the plexus; the associated dislocation may occur at the same time the plexus was injured, or it may be the result of the nerve injury.

Careful electrical tests for the reaction of degeneration in the older children, roentgenoscopy at the shoulder joint, and a thorough neurologic examination usually suffice to distinguish a simple dislocation from a simple plexus lesion. In doubtful cases, especially in the associated lesions of shoulder dislocation and plexus paralysis, it is better judgment to expose the plexus through a small skin incision than to allow the condition of nerve injury to persist for months and even

years; the longer the duration of the nerve lesion, the greater is the difficulty of anastomosing the nerve ends, the larger is the amount of scar tissue formation and the less marked the improvement ultimately. In only seven of this series of fifty-six cases with operation did the associated dislocation at the shoulder joint render the diagnosis of a brachial plexus lesion doubtful, and yet in each of the doubtful cases, an injury to the plexus was confirmed at operation. In only one case, that of a bilateral brachial paralysis of the upper arm type, a history of difficult labor and the paralysis of both arms observed by the midwife, father and the mother immediately after birth, did I not find at the operation a lesion of the plexus; there was a subluxation at both shoulder joints, reaction of degeneration of the deltoid and the external rotators and no sensory impairment elicited. As I could not demonstrate that the upper roots had been evulsed from the spinal cord within the dura, or that the roots had been torn within the vertebral foramina (which may have been the condition, although most unusual bilaterally), I now feel that this condition was one of poliomyelitis; bilateral brachial plexus paralysis is most uncommon.

Naturally, when permission for a skin incision to expose the brachial plexus cannot be obtained in doubtful cases associated with a shoulder dislocation, the impairment of the arm should be treated by all means as one of shoulder dislocation in the hope that the condition will improve; my experience with these cases, however, has not been encouraging from the end-results obtained. Improvement frequently occurs, but if the plexus is injured, not a useful arm. The fact that a dislocation at the shoulder joint in cases of brachial plexus paralysis is more frequently observed in the older children, those over 4 years of age, is of great importance in tending to show that the associated dislocation at the shoulder is merely secondary to the paralysis and atrophy of the shoulder muscles supplied by the upper roots of the injured brachial plexus; in children under 3 months of age, the dislocation of the shoulder is not so frequently observed, except alone as a simple dislocation. Besides, it is most uncommon to observe a brachial plexus paralysis of the lower arm type which is associated with a dislocation at the shoulder joint; naturally, in this type of paralysis there is little or no impairment of the muscles about the shoulder joint, and consequently a later subluxation at the joint does not occur; and yet the mechanics of this type of plexus injury by breech presentation would be more liable to produce a dislocation at the shoulder joint than in the upper type of plexus injury by head presentation.

TREATMENT

It is frequently asserted that the condition of brachial birth paralysis is cured either by immobilizing the affected arm in a sling or bandage and elevating the adjacent shoulder, thus allowing the nerve roots to unite, or by reducing the shoulder dislocation (when present) and treating the arm and shoulder in the same manner as for a simple shoulder dislocation. This statement is perfectly true regarding many mild cases of paralysis of the arm following birth in which either the brachial plexus has been merely overstretched, thus causing a temporary paralysis of the arm, or where the impairment of the arm is due to a simple dislocation at the shoulder joint. Naturally, immobilizing the affected arm and elevating the shoulder will permit the overstretched nerve roots to recover their function most readily, and even, in some cases, small tears of the nerve fibers themselves may unite, so that this treatment should be a routine procedure. Again, the reduction of a simple shoulder dislocation will cause a disappearance of the apparent paralysis of the upper arm. But to assume, therefore, that the condition of brachial plexus paralysis with rupture and separation of the nerve roots can thus be cured by this treatment in any considerable percentage of the cases is in my opinion not warranted by the end-results. I have yet to see cured by this method of treatment one case of brachial plexus paralysis in which at birth there was total paralysis of the arm, hand and fingers. No doubt improvement will occur in many cases with or even without any treatment at all, but *that* improvement rarely continues beyond 1 year of age, and the end-result is an impaired arm of greater or less severity; a useful arm is seldom obtained.

It is now my practice in cases in which there was complete paralysis of the arm, hand and fingers at birth to advise a skin incision, exposing the brachial plexus at 1 month of age. In each case in which the paralysis of the arm and hand was complete at birth, there was found at operation a rupture of two or more roots of the plexus. I feel that a total paralysis of the arm and hand indicates an extensive injury and tear in the plexus, and although an improvement frequently follows even without the special treatment of immobilization and elevation of the shoulder (which should be used in all cases, operation or no operation), yet the ultimate result will be an impaired arm. Usually, movement of the fingers occurs first, and then of the hand; possibly even the forearm can be flexed and extended with difficulty; but a perfect recovery is, in my opinion, most unusual.

In those cases of total paralysis of the arms, I advise the exposure of the plexus at 1 month of age for several reasons:

1. The child will stand the operation at that age better than at an earlier date, and as well as at any time several months later. Little if any anesthesia need be used at one month of age, and, in most operations on children under 1 year of age, the danger of the anesthetic is the greater risk.

2. The earlier the anastomosis of the nerve roots, the more perfect the union of the nerve fibers and consequently a greater improvement ultimately.

3. The earlier the operation, the less the formation of fibrous tissue, so that the operation of plexus exposure and nerve anastomosis is less difficult technically. The surrounding connective tissue resulting from the rupture of the plexus and the neighboring tissues with the associated hemorrhage of varying degree, and so forming the future scar tissue, can at this early date be dissected away with comparative ease and safety. Less resection of the nerve ends is necessary to remove the fibrous tissue formation and future scar tissue within the nerve sheaths — a very discouraging factor in peripheral nerve anastomoses after long duration and the one most frequent cause of poor results.

4. There is little or no retraction of the nerve ends at the age of 1 month, whereas, months later, the distal nerve roots may be retracted downward even beneath the clavicle, and in one case I was obliged to bisect the clavicle in order to expose the distal nerve end in the axilla and thus attempt its anastomosis with the proximal stump; in the less severe cases, the ends

may be buried in the surrounding tissues, requiring much patience, time and dissection to free them or even find them; this is particularly true of the distal end of the suprascapular nerve, which has normally a very tortuous course.

THE TECHNIC OF THE OPERATION

The exposure of the brachial plexus is a much less difficult procedure technically than is commonly believed. Not only is the plexus situated quite superficially from a surgical standpoint, but also the skin incision may be so placed in the supraclavicular space of the posterior triangle of the neck that the large blood vessels with the vagus and phrenic nerves are all internal to the pathway of approach to the plexus and are usually never seen; the spinal accessory nerve lies far above. Only the external jugular vein, occasionally unimportant superficial nerve filaments of the cervical plexus and the transverse cervical artery and vein are encountered as a rule, and these structures are frequently so placed that they may not require ligation or section. The subclavicular vessels rarely require exposure.

A transverse skin incision is advisable in that it can be placed in one of the natural horizontal folds or creases of the skin just above and parallel to the upper border of the clavicle, so that little if any scar is visible. Besides, the after-treatment of approximating the shoulder to the head by a bandage tends to hold the skin edges together, whereas this position would tend to keep the edges of the vertical skin incision separated, and a wide scar would ultimately result. Then again, a transverse incision permits a better retraction of the muscles and tissues in order to obtain a good exposure of the plexus; skilled retraction in this operation is most important. As in all peripheral neurologic anastomoses, absolute hemostasis is essential to obtain good results; the less oozing of blood, the fewer the adhesions — the bane of all nerve suturing. Warm saline compresses are possibly the most efficient means of controlling the oozing of blood, while careful, blunt dissection and gentle separation of the neighboring tissues tend to avoid the unnecessary loss of blood. It is usual to perform this operation on babies without the loss of more than 1 tablespoonful of blood, and if the blood that does stain the surrounding tissues is thoroughly removed by the application of warm saline solution before the incision is closed, adhesions and fibrous tissue formations will be practically avoided. The operation should not require more than one hour in even the more extensive injuries of the plexus, and in the younger children before the fibrous tissue has become firm and adherent the duration of the operation should be within forty minutes; if only the fifth and sixth nerve roots are involved, then twenty minutes may be sufficient. Naturally, in children of 3 months of age and younger, the less the amount and rapidity of the loss of blood, together with a light anesthetic of short duration, the better will be the assurance of an uncomplicated recovery. Then again, in ward cases, I feel it is very important following operation on these children under 1 year of age that the mother should nurse and take care of the child as under its normal conditions at home — conditions to which it has become accustomed and has adapted itself accordingly. This is particularly true following operations in selected cases of spastic paralysis due to an intracranial hemorrhage at birth, and also in conditions of spina bifida and hydrocephalus. The mother's milk, the warmth of the mother's breast and a careful avoidance of soiling the operative area, especially in cases of spina bifida in the lumbar region, are of the greatest importance in the obtaining of good results. The usual ward treatment of these babies operated on under 1 year of age is bad. In ward children under 1 year of age, if the mother cannot remain with the baby in the hospital before and after the operation, it is safer, in my opinion, to have the mother bring the child to the hospital on the morning of the operation, and then take it home several hours after the operation; naturally, if the child is not in the best of condition following the operation, then the mother and child would remain together in the hospital. Young babies accustomed to sleeping with their mothers will frequently "catch cold" if separated from them before or after an operation.

An excellent position of the patient for the operation is usually obtained by placing a firm, flat pillow, or small sand bag beneath the shoulder of the impaired arm; the anesthetist turns the head and face toward the other side, while a nurse depresses the shoulder by exerting a steady pull on the affected arm; in this manner, the supraclavicular space is freely exposed. The usual preparation of the operative area is now made, the skin incision outlined and dry sterile towels pinned to the skin so that only the skin incision is visible. The incision is a transverse one, 4 cm. in length, in a crease of the skin, about 2 cm. above and parallel to the upper margin of the clavicle. It lies in the lower part of the posterior triangular space with the external jugular vein usually as its center point. This vessel is either ligated or retracted, and then by blunt dissection and retraction of the deep cervical fat, sternomastoid and omohyoid muscles, the deep cervical fascia is exposed overlying the plexus and the scalenus muscles. The transverse process of the sixth cervical vertebra lies at the level of the junction of the fifth and sixth nerve roots, so that it can always be used as a guide. It is very easy to become "lost," if the retraction is exerted too much anteriorly or posteriorly. The deep cervical fascia is now incised over the plexus until a complete exposure of it is obtained. Normally, the deep cervical fascia is very thin and transparent, so that the underlying plexus, especially the fifth and sixth roots, can be seen glistening through it; but in these cases of injury to the plexus, the deep cervical fascia is thickened, whitish and nontransparent, owing to the fibrous tissue formation following the oozing of the blood at the time of the nerve tear; naturally, the earlier the operation, the more normal is the appearance of the fascia.

The location and course of the suprascapular nerve should now be ascertained; usually it is embedded in a mass of fibrous tissue, fat and connective tissue just external to the junction of the fifth and sixth nerve roots, and unless it is carefully dissected out, there is great risk of cutting it unknowingly so that it may be then very difficult to find the distal end. Besides, if the suprascapular nerve has not been primarily injured, but is merely unable to functionate owing to an injury of the fifth nerve root above the point of emergence of the suprascapular nerve, to cut it accidentally would only lessen the chances of a good result. I feel, therefore, that it is always advisable to locate the suprascapular nerve at the very beginning of the dissection.

In extensive lesions of the plexus, the fibrous tissue formation may be quite large, so that the nerve ends are entirely buried in a mass of scar tissue. In the

hope that the continuity of all of the nerve roots has not been destroyed anatomically, this mass of constricting fibrous tissue should be carefully dissected away, first from the fifth and sixth roots, then from the seventh, and finally from the eighth cervical and first dorsal nerve roots. It is rare for all of the roots to be torn, and if there are still normal nerve fibers in continuity within this mass of scar tissue, it is better judgment to save them, even though it does require more time, than to remove the fibrous tissue *en bloc* in the belief that all the nerve roots were completely severed, and then to find that there were still good nerve fibers within this fibrous mass, and that if they had been free from the constriction of the surrounding scar tissue they would have undoubtedly functionated.

If the nerve roots are found to be completely torn, their respective stumps should be secured, and their fibrous ends resected with a knife by slicing off transversely thin layers until the cross section of the nerve root of both the proximal and distal portions reveals the normal distinct nerve fibers in their bundles within the sheath — not the homogeneous whitish appearance of the scar tissue formation. The older the children, the more extensive is this scar tissue formation within the nerve sheath, and unless this fibrous tissue is removed (even if an inch or more of the nerve end must be resected), a good result cannot be obtained. It would be impossible for the proximal nerve fibers to grow down through the mass of fibrous tissue within the sheath of the nerve, and unless these fibrous ends are completely resected, a marked improvement cannot be expected. I believe the poor results reported in peripheral neurologic surgery are due chiefly to this mechanical obstruction to the anastomosis of the individual nerve fibers. If this obstruction is removed from each end of the torn nerve roots, it is merely a matter of technical approximation of the nerve ends, sheath to sheath, and the maintenance of this position for a period of three months until a firm anastomosis has been obtained. By elevating the shoulder and inclining the head toward the plexus, it is possible to "bridge" gaps in the resected nerve roots of 3 cm. and even greater without the tension on the nerve root becoming unduly high. When the separation of the nerve ends is greater than 3 or 4 cm., it is usually better judgment to unite the ends by one of the methods of "splicing" now used, or even "bridging" the gap by several strands of silk in the hope that the nerve fibers will be thus permitted to grow down to the distal portion of the nerve. A portion of a nerve removed from another part of the body may be used for the purpose, and the anastomosis carefully wrapped in Cargyle membrane, fat, muscle, etc. These, however, are minor considerations, when compared with the desirability of suturing the nerve ends themselves, end to end, and sheath to sheath, as carefully and as accurately as is possible, and the necessity of removing all the fibrous tissue from the ends of the nerve roots, resecting them until normal nerve fibers are visible. Fine black waxed silk is used to suture sheath to sheath, usually three sutures at one-third intervals around the nerve root. After the suture of the roots have all been "placed," the ends are brought together by approximating the head and shoulder, as described above, and the sutures carefully tied. The tissues are now carefully washed with warm saline solution, and if there is no oozing of blood, two or three catgut sutures are used to unite the subcutaneous tissues, and three or four fine silk sutures for the skin. No drain is necessary. A small sterile gauze compress is applied and retained in position by several strips of adhesive plaster, and then the usual gauze dressing. The arm is raised over the head, being made to grasp the opposite ear, if possible, and a gauze bandage with adhesive plaster holds it in position. I find this method of approximating the head and shoulder and then firmly securing the arm in position much more comfortable, safer and efficient than the various braces that have been used.

RESULTS

It is only within the past year that I have had the opportunity to operate on children with brachial plexus paralysis at the age of 3 months and younger. Before 1915, the children operated on by me were all over 1 year of age, the majority being between 4 and 6 years of age. Naturally, the older the child, the less the ultimate recovery; and yet I believe that with the improved technic even these older children can be greatly benefited. My oldest patient operated on for a brachial birth palsy was 14 years of age; the condition improved, but a good arm was not obtained. The children operated on at 3 months of age have made excellent recoveries; this is due partly to the fact that in them there was not a complete tear of all of the roots of the plexus, whereas, in the children operated on at 1 month of age, the plexus had been practically torn apart in that the arm, hand or fingers could not be moved at all, and thus the nerve lesion was always a more severe one. About half of these children operated on at 1 month of age, however, have shown a marked improvement; in four it may be possible to obtain a normal arm. As a rule, however, the children operated on at 3 months of age have shown a more constant improvement; and yet, if they had been operated on at 1 month of age, I am confident that a greater ultimate improvement would have occurred. The operation itself is not a dangerous one; there have been no deaths in this series of fifty-six cases. Two children had slight skin infections with no ill effects.

This report is made in order to emphasize the advisability of early diagnosis and anastomosis and repair of the injured brachial plexus, with the knowledge that unless the injured nerve roots of the plexus are so treated a normal arm cannot be obtained, whereas with the operation at an early date, the child has the chance of obtaining a useful arm or at least an improved arm.

20 West Fiftieth Street.

Bottled Waters.—The Bureau of Chemistry of the United States Department of Agriculture has been making an investigation of bottled waters sold in interstate commerce, which are subject to the Food and Drugs Act. After conferring with a large number of sanitarians and bacteriologists regarding a desirable standard for judging the sanitary character of bottled waters, the bureau has determined that the tolerances established by the Public Health Service of the Treasury Department for water served by interstate carriers is properly applicable to bottled waters sold in interstate commerce and imported from foreign countries. These standards are as follows:

1. The total number of bacteria developing on standard agar plates, incubated twenty-four hours at 37 C., shall not exceed 100 per cubic centimeter; provided, that the estimate shall be made from not less than two plates, showing such numbers and distribution of colonies as to indicate that the estimate is reliable and accurate.

2. Not more than one out of five 10 c.c. portions of any sample examined shall show (by the method of the Public Health Service) the presence of organisms of the *Bacillus coli* group.

VARIATIONS IN THE STRENGTH OF POSITIVE WASSERMANN REACTIONS IN CASES OF UNTREATED SYPHILIS

WITH REMARKS ON THE VARIATIONS WHICH FOLLOW THE USE OF MERCURY *

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Several writers[1] have called attention during the past few years to the conflicting results reported from various laboratories to which specimens of blood taken from the same individual at the same time were sent. In most cases the explanation offered for these differences has been that the various laboratory workers had used antigens which varied in strength.[2] This is undoubtedly true. However, in a recently completed series of more than 6,000 Wassermann reactions done on the serum from 5,000 individuals, we have made use of only one antigen, so that any variation described here cannot be attributed to this factor, as it has been repeatedly shown that this antigen is for all practical purposes constant,[3] and our conclusions after the use and comparison of more than twenty different lots of this cholesterin fortified alcoholic extract of human heart muscle antigen are in accord with those of the above mentioned authors. One purpose of this paper is to discuss those variations in results which occur independent of antigen differences. The technic used at this hospital has been described in detail previously.[4]

The variations within moderate limits of the complement titer of the serum of healthy guinea-pigs is a well recognized fact.[5] Very striking variations are also encountered in the resistance to hemolysis of the cells from different sheep so that frequently it is necessary to use 10 per cent. complement with the cells from one sheep and 8 per cent. with those from another sheep, the cells being of the same age, handled in the same way and titrated against the same lot of complement and amboceptor (Protocol 1).

PROTOCOL 1.—VARIATION IN SHEEP CELLS *

Tube No.	Standardized Amboceptor Dilution in c.c.	Guinea-Pig Serum, 10 per cent.	5 per cent. Sheep Cells A	5 per cent. Sheep Cells B	Remarks
1	.5	.5	.5 C. H.	.5 C. H.	All tubes made up to 2.5 c.c. with 0.85% salt solution and incubated 1 hr. at 37.5 C.
2	.4	.5	.5 C. H.	.5 C. H.	
3	.3	.5	.5 C. H.	.5 C. H.	
4	.2	.5	.5 C. H.	.5 C. H.	
5	.1	.5	.5 N. C. H.	.5 C. H.	
6	.25	.4	.5 C. H.	.5 C. H.	
7	.25	.3	.5 C. H.	.5 C. H.	
8	.25	.25	.5 C H.	.5 C. H.	
9	.25	.2	.5 Sl. H	.5 C. H.	
10	.25	.1	.5 0	.5 Sl. H.	

* C. H., complete hemolysis; N. C. H., nearly complete hemolysis; Sl. H., slight hemolysis; 0, no hemolysis.

That this variation in cells will in spite of the most careful and repeated titrations of the hemolytic system give slight differences in results in the Wassermann reaction is demonstrated when positive serums are titrated in duplicate for the fixing unit, and cells of different resistance used. The cells being known to vary, the complement is titrated as carefully as possible for each lot of cells (Protocol 2).

The amboceptor, then, is the only constituent of the hemolytic system which is of constant strength. Slight variations away from the ideal hemolytic system are to be expected, and will account for a slight difference in the fixing unit of positive serums as determined from day to day on the same specimen of serum. Knowing this fact, it was thought advisable to repeat the work of Craig,[6] who found in a group of syphilitics not being treated and under ideal conditions for study most surprising variations in the fixing unit, which was determined daily for the same individual. The variation in at least two of the ten cases reported by him was so extreme as to lead to a report of + — (practically a negative reaction) on one day and + + (complete inhibition) on the following day.

PROTOCOL 2.—VARIATION WHEN POSITIVE SERUMS ARE TITRATED IN DUPLICATE WITH CELLS OF DIFFERENT RESISTANCE

Patient	Cells A with 10% Comp.	Cells B with 8% Comp.		Remarks
O'C.	.012 ++++	.025 ++++	.012 +++	Same lot of complement
B.	.012 ++++	.025 ++++	.012 +	Same amboceptor
R.	.006 ++++	.012 ++++	.006 +	Same specimen of serum

We accordingly selected a group of twenty cases of untreated syphilis including every stage of the disease. The patients were all in the medical wards of the hospital, where they were on a more or less standard diet and without alcohol. All specimens were collected under aseptic precautions, and care was taken that none of these cases received any antisyphilitic treatment during the period of study. The group includes two primary cases; two secondary cases with rash and mucous patches; two cases of cerebrospinal syphilis; two cases of tabes dorsalis; two cases of tertiary syphilis with gumma formation; two cases of syphilis of the aorta; four cases in the latent stage, and four other cases also in the latent stage, but convalescent from some acute infectious disease.

The blood from each of these individuals was obtained every day for seven days. In several cases the blood was tested against seven different hemolytic systems, and in every case the seven specimens were kept until the end of the period and then tested against a single hemolytic system. The results when daily tests were made were variable within narrow limits (Protocol 3).

It will be readily seen from Protocol 3 that the variations were minute, and in addition that in at least three of the four cases tabulated the variation was in the same direction on the same day. This gives the impression that it was our technic which varied and not the patient's serum. This surmise was well borne

* From the Medical Clinic of the Peter Bent Brigham Hospital.

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4. Walker, I. C.: The Specificity of Cholesterin with Syphilitic Serums and of Cholesterin-Reinforced Heart Antigen in the Wassermann Reaction, Arch. Int. Med., October, 1914, p. 563.

5. Wood, F. C.: Chemical and Microscopical Diagnosis, Ed. 3, New York, D. Appleton & Co., 1911, p. 687.

6. Craig, Variations in the Strength of the Wassermann Reaction in Untreated Syphilitic Infections, THE JOURNAL A. M. A., April 18, 1914, p. 1232.

out by the titration of these four serums on the same day against a single hemolytic system in which no variation whatever was found (Protocol 4).

The seven specimens from each of the remaining sixteen cases in the series of twenty were likewise titrated for the fixing unit against a single hemolytic system. In no case was variation worth mentioning found. The case which showed the most appreciable variation is shown in Protocol 5.

The remaining nineteen cases showed either an absolutely constant titer for each specimen or a variation which was decidedly within the limits of mechanical accuracy. This bears out our experience of the past two years, during which time we have recorded repeated tests on the blood of more than 100 different patients with syphilis, who were either in the latent stage and given no treatment or were given only enough treatment to clear up the local lesions for which they come to the hospital wards or outdoor department. These tests have been at different intervals of time, some repeated three or four times within a month, many more repeated three or more times at intervals of six months or less. Quite a few have been repeated at intervals of a year or more. These repeated tests total approximately 300, and we have never noted sufficient variation in these cases to cause us to credit the assertion that the positiveness of the serum itself is subject to changes from day to day or from month to month without treatment. In other words, there has been no discrepancy in results not accounted for by a slight variance in the hemolytic system. Our work, then, agrees with that of Field[7] who, unknown to himself at the time, titrated the blood of one individual four times within one month with identical results.

PROTOCOL 3.—RESULTS OF DAILY TESTS

Patient	Hemolytic System						
	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7
A	.05 ++++	.05 ++++	.04 ++++	.05 ++++	.05 ++++	.05 ++++	.06 ++++
B	.02 ++++	.02 ++++	.01 ++++	.02 ++++	.02 ++++	.02 ++++	.03 ++++
C	.003 ++++	.003 ++++	.003 ++++	.003 ++++	.003 ++++	.003 ++++	.006 ++++
D	.006 ++++	.006 ++++	.003 ++++	.006 ++++	.006 ++++	.006 ++++	.012 ++++

PROTOCOL 4.—RESULTS OF TITRATION ON SAME DAY AGAINST A SINGLE HEMOLYTIC SYSTEM

Patient	Specimen						
	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7
A	.05 ++++	.05 ++++	.05 ++++	.05 ++++	.05 ++++	.05 ++++	.05 ++++
B	.02 ++++	.02 ++++	.02 ++++	.02 ++++	.02 ++++	.02 ++++	.02 ++++
C	.003 ++++	.003 ++++	.003 ++++	.003 ++++	.003 ++++	.003 ++++	.003 ++++
D	.006 ++++	.006 ++++	.006 ++++	.006 ++++	.006 ++++	.006 ++++	.006 ++++

PROTOCOL 5.—VARIATION IN CASE OF O'C., CONVALESCENT PNEUMONIA

Date	Amount of Serum Used, c.c.							
	0.10	.08	.06	.05	.04	.03	.025	.012
4/ 5/15	++++	++++	++++	++++	++++	++++	Negative	Negative
4/ 6/15	++++	++++	++++	++++	++++	++++	+++	Negative
4/ 7/15	++++	++++	++++	++++	++++	++++	++++	Negative
4/ 8/15	++++	++++	++++	++++	++++	++++	+	Negative
4/ 9/15	++++	++++	++++	++++	++++	++++	Negative	Negative
4/10/15	++++	++++	++++	++++	++++	++++	+	Negative
4/11/15	++++	++++	++++	++++	++++	++++	Negative	Negative

It has been long a matter of common knowledge that mercury in any form and given by any method is apt very quickly to cause a positive reaction to become negative. This false negative just as quickly becomes ++++ again when the administration of mercury is stopped. The comparative effect on the Wassermann reaction of various salts of mercury given intramuscularly, as well as the comparative effect of mercury given by different methods, was discussed as early as 1910 by Swift.[8]

Recently we have seen two cases frankly syphilitic showing in each instance a healing chancre, rash and mucous patches which gave entirely negative Wassermann reactions. In both cases mercury had been given to the point of salivation. One patient was given salvarsan and became ++++ ten days later. The other patient was kept under observation without any treatment and in one month became ++++.

The tendency of salvarsan to bring out a positive reaction is well shown by a comparison of these cases. They also bear out the statement of Swift that the early cases are more quickly rendered negative by mercury than the older ones.

Following the observation of these two cases, an attempt has been made to determine how long it is necessary to wait after treatment with mercury before any dependence can be placed on a negative test and also to determine how much mercury is necessary to convert a ++++ reaction to a temporarily negative one. After following a fairly large number of cases for more than a year and doing their Wassermann reactions repeatedly during this period, we have reached the conclusion that the individual variation in cases is so great that rules of only doubtful value can be

7. Field, C. W.: The Use of Cholesterin Antigen in the Wassermann Reaction, THE JOURNAL A. M. A., May 23, 1914, p. 1620.

8. Swift, H. F.: The Effect of Treatment on the Wassermann Reaction, Arch. Int. Med., December, 1910, p. 626.

established, and certainly no hard and fast statements can be made.

A group of twenty-five patients in various stages and of varying age of infection found ++++ on more than one occasion were given mercury intramuscularly until their Wassermann reactions became negative. Treatment was then discontinued until they again became ++++. The average length of time until the latter occurred was about one month. The extremes were, on the one hand, ten days, and on the other hand, four months. The more active the case the more readily the reaction returned ++++ as one would naturally suppose. Age of infection seemed to make little difference in the rapidity of the return to positive. As regards the amount of treatment necessary to get these cases negative, absolutely no conclusion can be reached except as mentioned before, that the more recent the infection the more easily the reaction is rendered negative. In some cases not included in this group, the reaction has never become negative, though they have been under treatment almost continuously for more than a year. This was noted particularly in cases of general paralysis of the insane and of syphilitic aortitis. It was also true of a number of cases in which small amounts of salvarsan were given in addition to the mercury.

A few typical examples of the cases showing changes from positive to negative and back again are shown in Protocol 6.

The regularity with which these cases change from ++++ to negative with mercury and back to ++++ again when treatment is stopped is very interesting, particularly when these cases are compared with those in which salvarsan alone is used or in which no treatment is given. The unfailing regularity with which cases not under treatment have given a ++++ reaction whenever done during a period of more than two years has already been noted in this paper. In a recent article Nelson and Anderson[9] describe in detail the changes produced on the Wassermann reaction by mercury salicylate given intramuscularly, noting also in their paper cases treated exactly similarly in which the reaction did not change. Their results directly parallel ours and those of other observers, but their conclusions differ markedly. The statement is made by them that mercury salicylate has little value in the treatment of syphilis, and they attribute the finding of negative reactions after the use of mercury to chance, and base their belief on the work of Craig.[6] In view of our findings previously noted, the conclusions of Nelson and Anderson seem to us to be open to question, and it is our belief that the negative Wassermann reactions noted by them are directly attributable to mercury. We are also of the opinion that the serum from cases of syphilis not under treatment will show very little variation in the degree of positiveness during the course of a few weeks, months or even years. What changes they ultimately undergo under these conditions we do not know because of the insufficient length of time during which our cases have been under observation. No one can deny that mercury given in any form has prompt and beneficial effect on the visible lesions of syphilis. In view of this fact and in view of its prompt effect on the Wassermann reaction, we consider the conclusions of Nelson and Anderson unwarranted.

PROTOCOL 6.—TYPICAL EXAMPLES OF CHANGES FROM POSITIVE TO NEGATIVE AND BACK AGAIN

Name	Age of Infection	Condition	Previous Treatment	Wassermann Reaction	Subsequent Course
Mr. D.	1 yr.	Latent	One dose salvarsan 1 year ago	7/24/14 ++++	12 injections mercury; 11/10/14 neg.; no treatment until 1/26/15 ++++; inunctions 3 mos.; 6/7/15 neg.; no treatment 4 mos.; 10/4/15 ++++; 2 mos. inunctions; 12/16/15 neg.
Mrs. D.	6 mos.	Periostitis, skull	None	7/24/14 ++++	14 injections mercury; 11/10/14 neg.; no treatment until 1/15/15 ++++; inunctions 3 mos.; 4/6/15 +; inunctions 2 mos.; 10/8/15 neg.; no treatment for 2 mos.; 10/8/15 ++++
Mr. N.	4 mos.	Latent	Mercury 3 mos., none for 1 mo.	9/26/14 ++++	20 injections mercury and 3 mos. of inunctions; 4/10/15 neg.; no treatment until 10/29/15 ++++; inunctions 1 mo.; 12/17/15 ++++
Mr. R.	7 mos.	Rash and mucous patches	Six mos. of mercury; salivated now	7/16/15 negative	No treatment for 1 mo.; 8/21/15 ++++; salvarsan 2.1 grams; 10/18/15 ++++; salvarsan 2.2 grams; 11/20/15 ++++; 6 injections of mercury; 12/12/15 neg.
Mr. S.	5 mos.	Rash and mucous patches	Four mos. of mercury; salivated now	5/22/15 negative	6/1/15 neg.; 6/2/15 0.3 gm. salvarsan; 6/4/15 neg.; 6/6/15 neg.; 6/8/15 neg.; 6/12/15 ++++; 1 mo. mercury inunctions; 7/15/15 neg; no treatment for 5 mos.; 12/10/15 ++++

CONCLUSIONS

1. The variations from month to month in the degree of positiveness of serums in cases of untreated syphilis is slight.
2. The fixing unit for the serums in cases of untreated syphilis does not vary appreciably from day to day.
3. Any variation found in daily titration for the fixing unit is due, provided the antigen is constant, to variation in the hemolytic system.
4. On the majority of positive Wassermann reactions, mercury has a prompt and powerful, although fleeting, action.
5. We cannot agree with the statement that mercury is of little value in the treatment of syphilis.

9. Nelson, Kent, and Anderson, E. A.: The Use of Mercury Salicylate in Syphilis: A Record of Its Influence on the Wassermann Reaction in Fifty Cases, The Journal A. M. A., Nov. 27, 1915, p. 1905.

Disinfection of Hides.—An amendment to Order 211 of the Bureau of Animal Industry, United States Department of Agriculture, provides that the skins and hides from animals condemned for tuberculosis or any disease communicable to man or other animal may be removed from the place where they have been slaughtered for tanning or other industrial use only after disinfection by being immersed for not less than five minutes in a 5 per cent. solution of liquor cresolis compositus or a 5 per cent. solution of phenol, or for not less than four hours in a mixture composed of one part mercuric chlorid to 1,000 parts salt solution containing not less than 15 per cent. of sodium chlorid. This would provide against the spread of anthrax and perhaps foot and mouth disease, as well as tuberculosis.

RECURRENT PARALYSIS OF THE FACIAL NERVE

AND ITS RELATION TO THE SO-CALLED FACIOPLEGIC MIGRAINE

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An interesting and important chapter in the symptomatology of migraine is that concerned with the paralytic complications which may occur in this disease. I do not refer to those transient and evanescent symptoms which are so common, but to the more serious and permanent sequelae. These may be divided into two groups: (*a*) those of cerebral origin, namely, hemiplegia, hemianopsia and aphasia following organic vascular lesions during the migraine seizure, and (*b*) those affecting the cranial nerves, for example, the optic nerve and retina, and more especially the ophthalmoplegias. The latter complication is by far the most important by reason of its frequency, and at the present time constitutes a well established clinical group, the ophthalmoplegic migraine, of which about 100 cases have been reported in the literature. Of these the oculomotor nerve is most frequently affected, rarely the abducens and very rarely the trochlearis. Various combinations of these ocular palsies have also been observed, and even complete ophthalmoplegia. Curiously enough, the other motor cranial nerves are not involved in migraine with the exception of the facial nerve, the so-called facioplegic migraine. The basis on which this clinical type rests is a very slight one, and in my opinion has not been proved. What is generally accepted by many systematic writers as hemicrania facioplegica is nothing more than relapsing facial palsy in a subject afflicted with migraine.

"Recurrent" or "relapsing" facial palsy is a term which has been used to describe a group of cases characterized by a peculiar tendency to multiple attacks or recurrences. The palsy may recur always on the same side, the relapsing type, or more frequently there is alternate involvement of the two sides, in which case the term "relapsing alternating" is more accurate. The individual attacks in these cases may be separated by months or years, and do not differ in etiology and symptomatology from the usual clinical types of peripheral facial palsies. The interest which attaches to them is due merely to the frequency of the occurrence in a single individual, and the underlying pathologic tendencies which may favor such a predisposition.

This tendency is not always confined to one member of a family, but familial and even hereditary types are sometimes encountered. For example, Oppenheim[1] has recorded a family in which three of its members, all sufferers from diabetes, had recurrent attacks of facial palsy. The frequency of the relapsing form of Bell's palsy is much greater than is generally supposed.

Remak,[2] in a series of 200 cases, personally observed, noted a tendency to recurrence in 3 per cent., and Bernhardt,[3] on the basis of an extensive statistical study, placed the percentage as high as 7.2 per cent.

The etiologic factors are the same as those which cause the usual facial palsy with one attack, namely, the rheumatic or refrigeration palsy after exposure to cold; infections and intoxications, as diabetes, syphilis and otitis media, and perhaps also the congenital narrowing of the stylomastoid foramen which would predispose the nerve to pressure from slight inflammatory reactions. In Bernhardt's series of relapsing palsies, otitis media, syphilis and diabetes were present in a third of the cases.

THE SO-CALLED FACIOPLEGIC MIGRAINE

I would mention here two other types of relapsing facial palsies which have found their way into medical literature and are now widely quoted as examples of periodical facial palsy in the sense in which this term was used by Moebius[4] to describe the oculomotor palsies associated with migraine. One type is based on a fragmentary clinical report by Hatchek,[5] in which relapse of facial paralysis were observed in a child with basal tumor. This case he regarded as analogous to the so-called periodic oculomotor palsies of the Moebius type. No clinical data other than the brief statement just mentioned are given in the report of the society proceedings, and yet the attempt has been made to establish an important clinical group on this slight and uncertain evidence. It is probable that most neurologists of experience have observed such intermittent and transient attacks of facial palsy from pressure in cases of tumor beneath the tentorium, and yet would not think of giving them this interpretation.

The other type is founded on the oft-quoted contribution of Rossolimo[6] entitled "Relapsing Facial Palsy in Migraine."

> In this case a woman, aged 28, had been subject since the age of puberty to recurrent attacks of migraine, an inheritance from the mother. In the migrainous attacks which were quite typical, the pain was often localized in the mastoid and occipital region. She had at various times four attacks of facial palsy, in all of which the accompanying pain was localized in and around the mastoid region. In the first attack the pain was situated in the region of the left mastoid and superior maxilla, and lasted a week. It was accompanied by tinnitus aurium and a metallic taste on the tongue, and was followed by a typical facial palsy on the left side from which she recovered in five months. The attending physician at the time ascribed the condition to an exposure to cold. Three years later there was a similar attack. After sleeping by an open window on a train she awoke with pain localized in the neighborhood of the right ear and upper jaw and with all the accompanying symptoms of the first attack. The right facial palsy which ensued cleared up in about five months. Two years later there was a palsy on the right side of a similar nature, which was also preceded by localized headaches, and three years after this the left side was again involved with pain and the usual symptoms of facial palsy.

This case is reported by Rossolimo as one of migraine with relapsing facial palsy in which there is assumed to be an etiologic relationship between the migraine, which was undoubtedly present, and the multiple recurrences of facial palsy. On this evidence Rossolimo postulates a *facioplegic type of migraine* similar in nature to the ophthalmoplegic variety of Moebius which occupies so established a place in lit-

1. Oppenheim: Recidivirende Facialis Lähmung, Lehrbuch der Nervenkrankheiten, 1914, i, 641.
2. Remak, cited by Bernhardt: Neurol. Centralbl., 1899, p. 98.
3. Bernhardt: Ueber die sogenannte recidivirenden Facialis Lähmung, Neurol. Centralbl., 1899, xviii, 98.
4. Moebius: Recidivirende Facialis Lähmung, Erlenmeyers Centralbl., 1886, pp. 82, 797.
5. Hatchek: Ueber recidivirende Facialis Lähmung, Wien. med. Presse, 1894, iv, 146.
6. Rossolimo: Recidivirende Facialis Lähmung bei Migraine, Neurol. Centralbl., 1901, xx, 744.

erature. It should be emphasized, however, that this observation stands alone and does not present sufficient grounds on which to base such an analogy. In the Rossolimo case, the symptomatology of the attacks do not differ in the least from the usual clinical picture of relapsing facial palsy.

PAIN IN FACIAL PALSY

It has been well known since the studies of Webber[7] and Testaz,[8] and especially my own contributions to the sensory functions of the facial nerve, that severe pain is a frequent precursor and accompaniment of facial paralysis. When present it is localized in the ear and mastoid region, often radiating to the occiput and trigeminal distribution. The pain under such circumstances may reach an extreme degree of intensity and persistence, and is quite sufficient in itself to explain the severe localized headaches in the Rossolimo case, and may well give rise to the suspicion of a migraine seizure. That migraine coexisted in this case there can be no question; but as both migraine and facial palsy are comparatively frequent maladies, it requires no great stretch of the imagination to explain their joint occurrence in the same individual though etiologically unrelated and distinct. And, while the idea advanced by Rossolimo is suggestive, there is no reason at present for accepting a facioplegic type of migraine, an opinion which is shared by other neurologists who have been workers in this field.

With these preliminary remarks I will proceed to the report of personal observations of cases of relapsing facial palsy associated with pain in the ear and occipital headache.

CASE REPORTS

Case 1.—*Relapsing alternating facial palsy associated with pain; three attacks.*

History.—A woman, aged 23, a gold leaf cutter by occupation, who had chorea at the age of 14, and whose family history is negative as regards facial palsy and migraine, had her first attack of facial palsy at the age of 17. It was situated on the left side. Paralysis was said to have been complete and was accompanied by earache and severe pains in the mastoid region. In the course of a few months she made a fair improvement, but there has always remained a slight permanent defect with weakness, twitchings and a tendency to contractures on the left side. The second attack of facial palsy occurred at the age of 22. In this the paralysis was situated on the *right* side and was also accompanied by quite severe pain in the ear and mastoid region. It followed an exposure to cold, sleeping by an open window on the train. The hearing was not affected, and there was no discharge from the ear. The sense of taste was lost on the right side of the tongue. Voluntary motion returned at the end of six months, and she made a very fair recovery. The third and last attack occurred in January, 1912, and was again on the right side, following seven months after the previous one. Like this it followed an exposure to cold. She had at the onset sore throat, and severe pains in the ear and mastoid region of the right side, which continued for some days.

Examination.—April 11, 1912, there was a seventh palsy of the peripheral type on the right side, involving all the branches of the nerve. Closure of the right eye was weak, and some weakness was also apparent on the left, a paretic remnant of the previous attack. On the right side there was weakness of the lower branch and on the left a tendency to overaction or contracture, the sequela of the previous lesion. There was very little movement in the upper branches on either side. On the left, which was the side of the old palsy, there were, in addition to overaction, fibrillary and clonic twitchings synchronous with the act of winking. The sense of taste was normal; hearing was equal on the two sides. There was no tinnitus aurium. Tear secretion was normal.

Electric Examination.—The right side showed complete reactions of degeneration. On the left side there was no faradic response and only very weak galvanic response, but no qualitative changes. The pupils were equal and reacted normally. All the other cranial nerves were normal. The optic disks were normal. The general neurologic examination was negative, and the urine was free from albumin and sugar.

Comment.—This was a typical example of relapsing alternating facial palsy; two of the attacks were on the right and one on the left side. As is so common in these cases, the palsy followed exposure to cold. During the early days of the palsy there was very definite and at times severe pain in the ear and mastoid region caused by involvement of the sensory system of the facial nerve.[9] After a few days this localized pain subsided, and might very well have been interpreted as a migraine phenomenon if we disregard the existence of pain as a common symptom of facial palsy. In the bilateral involvement of the face which occurs there is a weakness on one side, the result of a recent lesion, with contractural overaction on the opposite side following the older palsy.

Case 2.—*Relapsing alternating facial palsy with pain, in a girl whose father had had similar attacks.*

History.—Miss B. W., aged 21, single, was referred to me for a recent peripheral facial palsy on the left side. She stated that this was the third attack. There was no history of migraine in the family. Her father had had two attacks of facial paralysis, both on the left side, the first attack occurring fifteen years ago and the second nine years later. They were attributed by his physician to exposure to cold, and he made a good recovery from each attack. Hearing was not affected in either. The patient's first attack occurred when she was 14 years old, and it was several months before the weakness of the face disappeared. She does not remember which side of the face was affected at this time, but she does recall receiving electric treatment and that recovery was complete. The second attack occurred two years later, that is, in her sixteenth year, and involved the right side of the face and was associated with pains in the ear and mastoid region. Recovery from this attack was incomplete, and there still persists some weakness and a tendency to contracture on this side. The third and last attack began a fortnight ago with pains in and about the left ear; they were quite severe and lasted for several days. A day or two later, left facial palsy was observed.

Eamination.—March 13, 1911, there was complete paralysis of the left side of the face of the peripheral type. The taste was disturbed over the anterior two thirds of the tongue on the affected side. No herpetic vesicles or scars were present in or about the auricle, and there was no hypesthesia of the conchal region. There was no tinnitus aurium. Hearing was normal. The tear reflex was present on both sides and equal. There were also evidences of a weakness of innervation with twitchings and contractures, the result of the previous attack on the right side.

Electric Examination.—This showed partial reactions of degeneration on the affected side. Optic and other cranial nerves were normal. The general neurologic examination was negative. The urine was free from albumin and sugar.

Reexamination.—One year later, April 1, 1912, there were evidences of a slight return of power on the left side of the face in all its branches, but with a distinct tendency to overaction and contracture. Twitchings and quiverings of the muscles about the cheek and angle of the mouth were evident, especially on closure of the eyes. Electric examination showed a slight galvanic response on the left side (cathodal closure contraction was greater than anodal closure contraction) with no evidence of sluggish or vermicular contractions. There was no response to strong faradic currents.

7. Webber: Pain and Facial Palsy, Boston Med. and Surg. Jour., 1876, p. 750.
8. Testaz: Paralysie douloureuse de la septième paire, Thèse de Paris, 1887.
9. Hunt, J. Ramsay: The Sensory System of the Facial Nerve and Its Symptomatology, Jour. Nerv. and Ment. Dis., 1909, p. 321.

Comment.—This case is also a typical example of the relapsing facial palsy. Here again the associated pain and localized headache in the mastoid region is to be emphasized, due to involvement of the sensory fibers of the seventh nerve. A superficial resemblance to migraine attack may be simulated in such a case, and if migraine were also present, as in the Rossolimo case, might give rise to uncertainty as to their etiologic relationship.

CASE 3.—*Recurrent facial palsy accompanied by pain; three attacks.*

History.—The patient was a man aged 45, a cigar maker by occupation. He denied syphilis, had had no ear disease, or history of migraine, and no family history of attacks of facial palsy. His first attack occurred at the age of 10, and was on the right side. It had followed exposure to a cold wind. He recalls now no pain during this seizure, and recovery was complete in about four weeks. The second attack occurred in his thirty-sixth year, and was also on the right side. It was accompanied by considerable pain in the mastoid region. There were no disturbances of hearing. Complete recovery ensued in five weeks. The third and present attack appeared in his forty-fifth year, and was ushered in by a severe pain behind the right ear which lasted three weeks. Taste was not affected and hearing was normal. There were no sore throat and no herpetic eruption.

Examination.—December, 1911, there was a partial right facial palsy involving all three branches of the nerve. Taste was not affected. Hearing was equal on the two sides and normal. There was no hypesthesia of the concha or evidence of herpetic vesicles or scars. The tear reflex was present and equal on the two sides.

Electric Examination.—This showed partial reactions of degeneration of the right side of the face. The urine was free from albumin and sugar. The optic disks and other cranial nerves were normal. The general neurologic examination was negative.

Comment.—These were typical recurrences of facial palsy associated with localized pain in the ear and mastoid region from involvement of the sensory system of the seventh nerve.

REMARKS

The recurrent or relapsing facial palsy associated with pain in the ear and occipital region is, therefore, merely a peripheral paralysis of the seventh nerve, in which is manifested a peculiar tendency to multiple attacks or recurrences. The symptomatology corresponds in all its essentials to the more usual type in which there is but a single attack, and similar etiologic factors are also in evidence. Some emphasis may be placed on the theory of a narrow exit at the stylomastoid foramen, which was advanced by Despaigne[10] in explanation of these recurrences, and which might predispose the nerve to compression from very slight inflammatory cause. Such an anomaly might well be inherited. This, however, is only an ingenious theory, and calls for more definite pathologic confirmation. Occasionally there is a history of diabetes, so that this possibility should always be considered. Most of the cases are of infectious or refrigeration origin. In the infectious and rheumatic groups there is simply a constitutional tendency to peculiar local reactions to cold or infections, which expresses itself in terms of facial palsy, very similar to that which is observed in tonsillitis, sore throat, lumbago, sciatica and other rheumatic manifestations, with their well-known tendency to recurrences. A pathologic theory of the rheumatic or refrigeration palsies, advocated by many, is that of a perineuritis of the facial nerve similar to brachial and sciatic perineuritis of rheumatic origin. Such a lesion would be favored by the exposed situation of the nerve, any swelling of its structure within the fallopian aqueduct being immediately registered as pressure palsy, a result which would naturally be enhanced by the presence of a congenitally narrow canal. This theory would explain some of the familial and hereditary types which are occasionally observed, the constitutional tendency or diathesis being also transmitted.

Facial palsy as a sequela of the migraine attack, the *facioplegic migraine* of some writers, is not a clinical entity. At the present time there are no adequate reasons for the acceptance of such a clinical type. The Rossolimo[6] case which forms the chief support of this teaching is evidently only a recurrent facial palsy with marked sensory symptoms in a woman afflicted with migraine, and one searches the literature in vain for examples of a true facioplegic migraine. Furthermore, the fragmentary case report of Hatchek,[5] which is sometimes spoken of as a periodic facial palsy, as this term was used by Moebius to describe the periodical oculomotor palsies, is an equally erroneous interpretation. The relapses in the Hatchek case, conservatively interpreted, represent nothing more than pressure or traction of the facial nerve, this giving rise to intermittence in the paralysis, an occurrence which is by no means rare as a forerunner of permanent palsy in cases of subtentorial tumors. If the facial nerve has any relation to migraine, which is so well established in the case of the ocular nerves, this relationship has yet to be demonstrated. The cases thus far cited do not furnish sufficient grounds for any such assumption. Therefore titles like "periodic facial palsy" and "facioplegic migraine" are misnomers which have crept into some of the best monographs dealing with this subject. Such terms are misleading and denote nothing more than transient intermittent facial palsy as a focal symptom of basal tumor in the one case, and the not uncommon relapsing facial palsy associated with pain in the other. It is of course self-evident that migraine and facial palsy, both of which are common affections, may be encountered in the same individual but are etiologically distinct.

20 West Fiftieth Street.

10. Despaigne: Etudes sur la paralysie faciale peripherique, Thèse de Paris, 1888.

EXTRAGENITAL SYPHILITIC INFECTION

REPORT OF CASE

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Accidental extragenital infection from syphilis is not a rare condition, and cases are reported from time to time in medical journals. My only excuse for reporting the following case is once more to remind the physician of the need for greater care in protecting himself from infection.

This patient proves one other important fact, that since the introduction of serodiagnosis for syphilis, many totally unsuspected cases of syphilitic disease are being brought to light. Most of these cases doubtless are the result of genital infection in which the initial lesion was so insignificant that it wholly escaped observation by the patient. It is reasonable to suppose, however, that many arise from extragenital infections of which the patient is wholly innocent as well as ignorant until some late manifestation of the disease appears.

This patient also illustrates the falsity of Colles' law that, owing to a sort of protective vaccination through

the placenta with the specific virus a woman who bears a syphilitic child enjoys perfect immunity, and this in the absence of all signs of infection. If the Wassermann test had not been performed on the patient's wife, she would have seemed to escape infection. Trinchese,[1] after declaring the fallacy of both Profeta's and Colles' laws, says that there is no paternal transmission of syphilis, and hence the fetus does not generate immunizing substances and the placenta does not permit the passage of immunizing substances from the maternal to the fetal tissues. A syphilitic mother can have a child clinically free from syphilis and with a negative Wassermann, or the Wassermann may be positive; the child may have symptoms of syphilis and a positive Wassermann, or it may have symptoms and a negative Wassermann.

REPORT OF CASE

T. J. H., physician, Celtic, aged 29, whose parents were living, in good health, and who had two brothers and one sister, all of whom were in good health, had measles as a child, but otherwise no illness. There was no history of any venereal infection. The patient was married in 1910. The wife, aged 29, had five brothers and sisters, and these, as well as both parents, were all living and well. She had had no serious illness, and there was no history of venereal infection. A healthy child was born in 1911.

In the spring of 1912, while engaged in an active surgical practice, the patient developed what he supposed to be a felon of his finger. Another physician examined the finger and also pronounced it a felon. The sore was a troublesome one, and finally healed, after about six months of local treatment. The following autumn there was a mild epidemic of dengue in the town in which the patient was residing, and the patient believed that he had an attack. He suffered for several days with pains in the bones and joints, and had an eruption over the body resembling that usually seen in dengue. Following this attack the patient suffered a good deal from insomnia, and he lost weight, but continued in active practice.

Mrs. H. had been perfectly well during the entire course of her husband's illness. In November, 1912, in the eighth month of pregnancy, her older child kicked her in the abdomen. From that moment all sensation of quickening ceased, and ten days later a macerated fetus was born. The death of the fetus was attributed to injury. In 1913 she noted some tendency to alopecia, but this was transient. In October, 1914, a healthy male child was born at term. Labor was uncomplicated. The child appeared perfectly normal. In the fifth week the child was brought to the hospital with the history that it had had a slight cold in the head for several days. Examination showed the infant to be moribund. There was a scaly eruption about the finger nails, and the liver and spleen were enormously enlarged. After about five hours the child expired.

A partial necropsy was performed, and portions of the spleen and liver were removed. Syphilis being suspected, the father was minutely questioned, but denied venereal infection. Examination showed the scar on the finger from the felon. The postcervical glands were enlarged. Wassermann tests were then made on the patient, his wife and oldest child. Those of the parents were both positive. That of the child, who was evidently born before infection in 1911, was absolutely negative. A vigorous course of treatment with salvarsan was immediately instituted in both parents, in whom the serum reaction ultimately became negative. Histologic examination was made of tissues removed from the dead infant. The spleen showed many spirochetes in the walls of some of the trabeculae and blood vessels. The liver showed marked follicular cirrhosis with fatty change. Spirochetes could be demonstrated in the liver substance.

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1. Trinchese, J.: Infektions- und Immunitätsgesetze bei materner und fötaler Lues, Deutsch. med. Wchnschr., 1915, xli, No. 19; abstr., THE JOURNAL A. M. A., June 19, 1915, p. 2102.

INFECTION OF OVARIAN DERMOID CYST WITH TYPHOID BACILLUS

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Many cases have been reported of the unusual location of the typhoid bacillus. Thus, the bacilli have been found in abscesses of the liver and spleen, in subphrenic abscesses, and in sacculated and general peritonitis, osteomyelitis, periostitis, etc. The following case, if not unique, seems sufficiently rare to justify recording it. Besides the unusual location of the typhoid bacillus, the definite history of a recent attack of typhoid fever is to be noted, and also the quantity of pus produced in which no other bacteria except the typhoid bacilli were found.

Miss M. S., aged 21, schoolteacher, a native of this country, entered the New Haven Hospital, May 21, 1914, on account of enlargement of the lower part of the abdomen. About April 21 she first noticed a mass in the lower part of the abdomen, which rapidly enlarged but was accompanied by no pain. Last Christmas she was ill, and January 12 had a positive Widal reaction. She had a typical case of typhoid fever, and was out of bed by March 1. Just previous to this attack, her brother also had typhoid fever with a positive Widal reaction and no complications.

Physical examination showed a large tumor in the lower part of the abdomen, quite firm and movable, lying on the left side. Otherwise examination was negative.

Operation was performed by Dr. Ramsay. A large ovarian cyst on the left side was aspirated, and about 2 quarts of thin pus removed. A few strands of hair were attached to the cannula on removal. The tumor was ligated at its pedicle and removed.

On bacteriologic examination, a smear showed a gram-negative bacillus. The growth showed a gram-negative motile bacillus in pure culture which did not produce gas in sugar mediums, did not liquefy gelatin, and did not coagulate milk. A bouillon culture was agglutinated by a known typhoid serum in as high a dilution as 1:1,600. A rabbit immunized against this organism by injections, at first of a killed bouillon culture, and then with a living culture, gave a serum which agglutinated a known typhoid bacillus in dilutions of 1:100 and 1:200. Higher dilutions were not made. The organism was diagnosed as the *Bacillus typhosus*.

Pathologic examination of the cyst in gross after fixation revealed a growth 15 by 15 by 11 cm. in largest diameters. The fallopian tube was attached on one side when the cyst was opened, a quantity of grayish liquid, containing a fatlike substance such as is commonly found in dermoid cysts, came out, and masses of this fatty material containing hairs were removed. At one portion where the wall was thickest, there was a tuft of hair growing from the wall. At another portion there was a short nipple-like projection somewhat calcified. Microscopic examination revealed an infected ovarian cyst.

The patient made an uneventful recovery, and has had no further complications.

Causes of Death of Physicians in Norway.—I. Kobro has recently published a statistical study of the morbidity and mortality of Norwegian physicians from 1900 to 1908. The average age at death of 1,015 physicians during this period was 55.8 years. The age at graduation is usually 27. The mortality among physicians was higher than in other classes of society below the age of 70. By decades it was 17.2, in contrast with 7.8 per cent. of those outside the profession in the thirties; 19.1 and 8.69, respectively, in the forties; 17.2 and 12.22 in the fifties; 21.25 and 19.29 in the sixties, but over 80 it was 7.65 to 24.6 per cent., respectively.

New Instruments and Suggestions

A RAPID METHOD OF COUNTING LIVING BACTERIA IN MILK AND OTHER RICHLY SEEDED MATERIALS*

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In a preliminary note on this subject (*Science,* Aug. 20, 1915, p. 255), I called attention to a new method of milk analysis by which it is possible to grow the bacteria in milk into colonies in the course of a few hours. These colonies are big enough and sufficiently distinct to count under the compound microscope. In order to bring them out more distinctly, they are stained before counting. Practical tests have been made and seem to show that this method gives results that are quite uniform and satisfactory when compared with those obtained by the ordinary or standard plate method. In this paper it is proposed to discuss this method in detail.

The impatience which commercial milk men often express because they are obliged to wait so long for the results of bacteriologic milk analyses led me to think seriously of the matter of quicker methods. A study of the Stewart-Slack and Breed methods of direct microscopic examination gave me the idea that they are not entirely satisfactory. The results obtained from the direct microscopic examination and the ordinary plate methods differ so widely principally because of the fact that some of the bacteria which show up under the microscope and are counted are dead, and hence not able to produce colonies. This conclusion is borne out by Conn's recent article (*Public Health Reports,* Aug. 13, 1915, p. 2349). Furthermore neither can be used with pasteurized milk.

The present method was conceived and worked out during the fall of 1913. At this time I had the voluntary help of Miss Lucy Wells Fox.

Briefly stated, this method is as follows: One-twentieth c.c. of milk is mixed with standard nutrient agar and spread over a definite area of a sterile glass slide. When the agar is hard, this little plate culture is put in the incubator for about six hours under conditions which prevent evaporation.

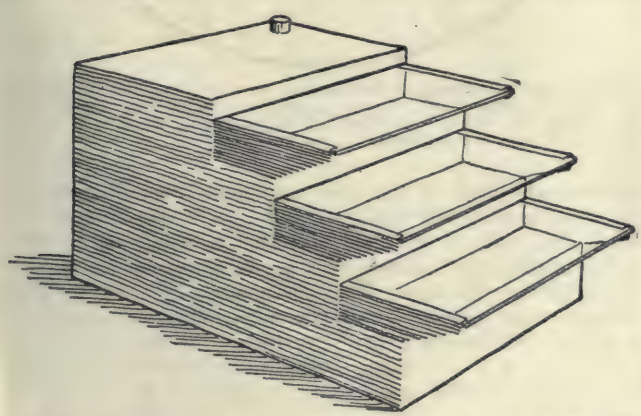


Fig. 1.—Warm box or water bath, kept at 45 C., used to keep the little plates warm while the agar is being spread.

It is then dried, given a preliminary treatment to prevent the agar from firmly binding the stain, stained, decolorized and cleared. When this dried and stained plate culture is viewed under the microscope, the little colonies are definitely stained and appear highly colored on a colorless or slightly colored background. These colonies can be readily counted and the number of bacteria per cubic centimeter calculated.

* Read at the meetings of the Society of American Bacteriologists, Urbana, Ill., December, 1915.

METHOD IN DETAIL

Preparing the Glass Slides.—The little plates are made on ordinary microscopic glass slides (2.5 by 7.5 cm.). These are carefully cleaned and are then ruled with a grease pencil so that a square surface, over the center of the slide, is surrounded by a greased line. The included area is 4 sq. cm. The ruling is best done by having a wooden or cardboard frame for the slide and some arrangement, as brads, to hold a straight edge in place. These ruled slides are then sterilized by passing them through a gas flame, and then they

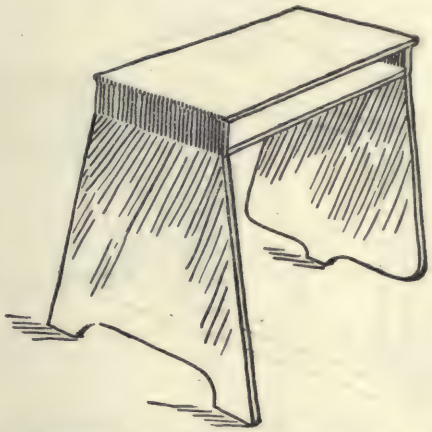


Fig. 2.—Nivellating apparatus for setting agar on little plates in a film of uniform thickness.

are placed on a warm box (45 C., 113 F.) provided with an overhanging top to protect them from the dust (Fig. 1).

Making Plates.—A few tubes of ordinary nutrient agar are then melted and placed in a water bath at 45 C. to cool. Some sterile plugged test tubes are also put in this water bath to warm up (one for each sample of milk to be tested). The milk sample to be tested is then thoroughly shaken, and 1 c.c. is transferred to one of the warm sterile test tubes. To this is added an equal amount (1 c.c.) of the melted agar. The milk and agar are thoroughly mixed, care being taken to prevent the agar from cooling below 40 C. (104 F.). It is best to warm it up frequently by putting it in the 45 C. water bath.

One-tenth c.c. of the milk and agar mixture is then (by means of a sterile pipet) transferred to a warm glass slide and spread as quickly and evenly as possible over the marked square. This can be readily done with the help of the pipet while the slide is on the warm plate (Fig. 1). The agar is allowed to set firmly by placing it on a level surface under cover for a few moments (Fig. 2). This makes a little plate culture containing 0.05 c.c. of milk.

When the milk being examined is supposed to contain more than a million bacteria per cubic centimeter, it should be diluted with sterile water or sterile milk before it is mixed with the agar. The dilution may be 1:2 or up to 1:10. This would make the final dilution as much as 1:200.

Incubation.—This is accomplished by placing the little plates in an incubator in a specially prepared cabinet (Fig. 3), or moist chamber with a layer of water in the bottom to maintain a saturated atmosphere. (A Petri dish may be used for a few slides.) The incubation temperature is 37 C. (98.6 F.), and the time varies; but, where possible, five or six hours should be allowed. For market and other milks kept in a warm place for some time before being plated, three or four hours may be sufficient. In the case of recently pasteurized or very good milks, the time will probably need to be lengthened to eight or even twelve hours.

Drying of Plates.—When the colonies are sufficiently large, the slides are dried. This should be done carefully. If they dry too fast or too long, the agar film cracks. They dry well in an incubator or over a steam radiator if protected from the iron by a piece of wood or glass. At this temperature the time required is about ten minutes.

Staining.—The dried slides are: (1) fixed in the flame; (2) put into a 10 per cent. acetic acid solution in 95 per cent. alcohol in a staining jar for one minute; (3) put into Loeffler's methylene blue, dilution 1:4, for three minutes; (4) decolorized in 95 per cent. alcohol for a few seconds or until the background is a pale blue and the dark blue colonies stand out prominently; (5) dried without washing.

COUNTING COLONIES

The slides are examined under the microscope in the usual way. For the purpose of counting the colonies, the preparation can be examined dry with the lower powers of the microscope; but if it is desired to study the structure of the colonies or count with a high dry lens, it will be necessary and it is always best to use a mounting medium and a cover glass. Cedar oil serves quite well, and in that case the cover glass can be removed for use with the oil immersion, or, of course, the mounting can be done in balsam in the usual way. A microscopic examination of these plates reveals colonies of considerable size and deeply stained in a light blue field. It is surprising to one who has never seen them before how large the colonies may become in the course of a few hours. The staining process should be so regulated that the bacteria in the colonies will be as distinctly stained as possible and yet not have the field too deep a blue.

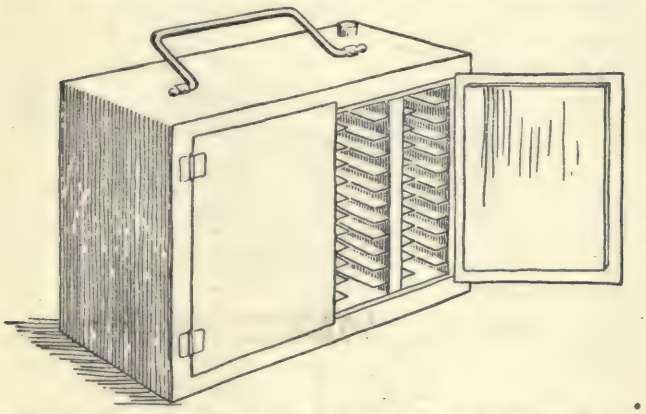


Fig. 3.—Incubating cabinet. Little plates are kept moist during incubation. Cabinet is put in incubator.

If the dilution has been properly chosen, these little plates will show from two or three to fifty colonies for each microscopic field when the low power is used (two-thirds inch or 16 mm. lens). With a medium sized eyepiece (3) the magnification is a little less than 100 diameters. This has been found a satisfactory magnification to use. If higher powers are used, it is difficult, in some milks at least, to distinguish colonies from clumps of bacteria that have not grown. The count is usually higher with the high powers of the microscope.

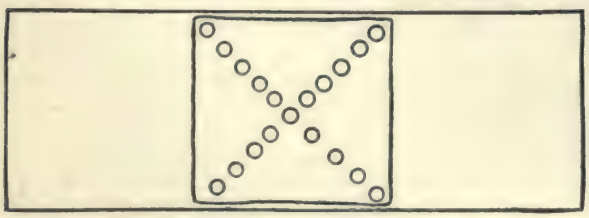


Fig. 4.—Glass slide with little plate on it. The series of circles indicate the microscopic fields which it is desirable to count in order to get a fair idea of the number of colonies on the slide.

Whatever the magnification used, the method of counting is practically the same. A good light is needed. The whole plate must be gone over in a systematic way, and the fields selected for counting must be picked out mechanically and not by choice in order to avoid the factor of personal equation as much as possible. A mechanical stage is therefore desirable, and it is suggested that at least twenty fields on each plate be counted. We usually count in two diagonal rows as indicated in the diagram (Fig. 4). In counting, a register is desirable. It is also important to count only one half of the colonies that touch the edge of the field; otherwise the area of the field would actually be considerably larger than that computed. Of the colonies in a field bisected by the margain of that field, we count only those on the right hand half (Fig. 5). Only those colonies are counted which touch the edge where the double line is drawn.

CALCULATING THE NUMBER OF BACTERIA PER CUBIC CENTIMETER

The number of bacteria per cubic centimeter of milk can be easily calculated by multiplying the number of colonies in an average microscopic field by the number of times the area of this field is contained in 400 sq.mm. (4 sq.cm.), or the area of the little plates times the dilution of the milk used.

The area of the microscopic field, for any definite combination of lenses and tube length, is a constant, and can be determined by the formula: Area $= \pi R^2$. The radius of the field can be measured by means of a stage micrometer. We found, for example, that a Leitz microscope, objective 3 and ocular 3, the area of the field was approximately 2 sq.mm. With the one-fourth inch objective (B. & L.) and No. 3 ocular, the area of the field was approximately 0.2 sq.mm., and with the same ocular but a one-twelfth inch oil immersion objective, the area was 0.02 sq.mm. In order to keep this factor an integer or with as many ciphers as possible, it is desirable to vary the tube length of the microscope. In this case it is, of course, essential to be sure that the tube is pulled out to the proper length whenever the counts are made.

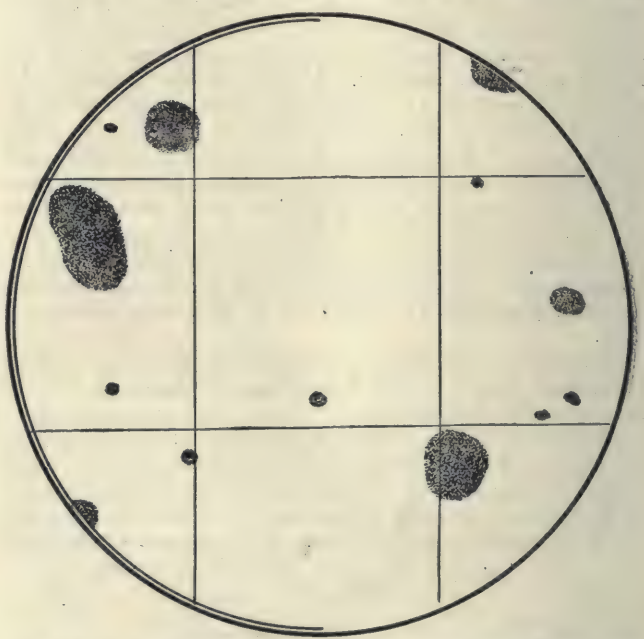


Fig. 5.—A microscopic field showing the little colonies from milk in a plate five hours old. There are twelve colonies (the thirteenth is not counted because it is bisected by the margin of the field and only one half of such are counted).

If the microscopic factor is known, then this formula is applicable:

$$\frac{\text{Number of colonies counted}}{\text{Number of fields counted}} \times \text{Reciprocal of dilution of the milk} \times \text{Microscope factor} = \text{Number of bacteria per cubic centimeter.}$$

For example:

$$\frac{600}{20} \times 20 \times 200 = \frac{2{,}400{,}000}{20} = 120{,}000 \text{ bacteria per cubic centimeter}$$

where

600 is the number of colonies counted
20 the number of fields counted
20 represents the dilution, that is, 1:20
200 the microscope factor

AN EFFICIENT AND INEXPENSIVE FOAMING INHIBITOR*

ADOLPH BERNHARD, B.S., NEW YORK

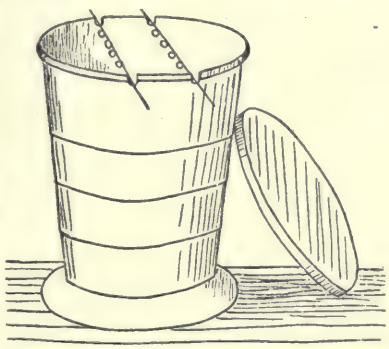
In seeking an economical substitute for caprylic alcohol as a foaming inhibitor during aeration in the determination of ammonia in urine, blood, etc., we have found that kerosene and amyl alcohol used separately are unreliable, especially when rapid suction is employed. A mixture of equal parts of kerosene and amyl alcohol is as efficient as caprylic alcohol, and can be employed with safety even with strong suction. Greater quantities of the mixture must be used, from 2 to 4 c.c. being required, whereas only a few drops of caprylic alcohol suffice. Notwithstanding this fact, the cheapness of the constituents of this mixture more than counterbalance the greater amount necessary.

We make this note in hopes it may aid other workers in this field who have been embarrassed by the difficulty in obtaining caprylic alcohol.

A SIMPLE METHOD FOR ESTIMATING THE COAGULATION TIME OF BLOOD

MARCUS WARD LYON, JR., PH.D., WASHINGTON, D. C.

The query of X. Y. Z. (THE JOURNAL, Jan. 22, 1916, p. 298), regarding a simple method of estimating the coagulation time of the blood, calls to mind the simple and cheap modification of the Biffi-Brooks apparatus, illustrated herewith, which I fixed up some years ago and used in teaching clinical laboratory methods.



Apparatus for estimating the coagulation time of the blood.

It consists of a collapsible aluminum cup with a cover, with two pairs of notches cut with a saw opposite one another in the top rim of the cup and two pieces of platinum wire, each with four loops.

In use the cup is filled with water warmed to 37 C. (98.6 F.) to within about 1 centimeter of the top. The loops of the wire are quickly touched in succession to the blood from a freely flowing puncture, and the wires suspended in the notches at the top of the cup and the cover gently laid over. At the expiration of two or three minutes the cover is removed and one loopful of blood is immersed in the water. The wire and cover are quickly replaced and the same procedure gone through with at half or one minute intervals. By noting the lapse of time from the start until a drop fails to wash out, one easily estimates the coagulation time of the blood.

In the hands of students it worked exceedingly well, and when used against the Boggs-Russell-Brodie apparatus gave approximately the same results. When not in use the wires are gently bent and placed inside the collapsed cup. As near as I can remember, the cup cost 10 and the wire 50 cents.

George Washington University.

* From the Laboratory of the German Hospital and Dispensary in the City of New York.

"Preventive Medicine."—To lengthen the interval between birth and death has been the aim of the medical profession since the days of Esculapius, but within a generation, in fact since the days of Pasteur, has arisen a new school which is destined to crowd the healers for place—the school wrongfully termed "preventive medicine," wrongfully termed because "prevention" requires no medicine; its use for the individual has passed when medicine is required, except in controlling the relation of the individual to society.—William J. V. Deacon, *Am. Jour. Pub. Health.*

Therapeutics

SCIATIC NEURALGIA AND SCIATIC NEURITIS

While the sciatic nerve or its branches may transmit painful sensations, the nerve itself may not always be affected, as pathologic conditions of the hip joint (arthritis, tuberculosis or tumor growth, as sarcoma) may cause pain down the sciatic nerve.

As with backache,[1] a patient who has sciatic pain should be carefully examined to determine, if possible, the cause. True sciatica is generally a perineuritis, from which this nerve suffers more than almost any other nerve of the body. Sciatica may be either acute or chronic. In the acute form it is perhaps the cause of more continuous and repeated suffering than almost any other curable disturbance.

Hunt[2] offers a classification of sciatica which suggests etiologic treatment. Unless the cause of the pain is removed, the nerve will continue to cause symptoms. According to this classification, the causes of neuritis are:

1. Intrapelvic disease, such as specific exudates within the pelvis, in venous congestion, pressure from a pregnant uterus, new growths, and a loaded rectum.
2. Constitutional states, such as syphilis, alcoholism, etc.
3. Damage to the nerve trunk from injury or exposure to cold.
4. Damage to the sacro-iliac joint.

The most frequent cause of sciatica in women is pelvic disturbance and pelvic pressure. In men a rheumatic and gouty tendency is frequently an associated cause, and exposure to cold seems to be a frequent exciting cause. A possibly important factor in the development of sciatica is the compression of the nerve against the tuberosity of the ischium by asymmetrical sitting on a hard seat.

The disturbance of equilibrium caused by a weakened plantar arch or other foot disturbance must be considered, as well as the possibility of a heavy patient lying in bed too long on his side, and thus causing pressure in the region of the hip. The springs of the bed and mattress, with extra pillows and cushions if necessary, should be so arranged as to relieve all possible continued injury to the sciatic nerve.

When the cause of the disturbance is considered to be a general one, a possible focus of infection should be sought. A frequent cause in adults is infection in and around teeth, or possibly in a tonsil.

Besides syphilis and alcohol as causes of sciatica, diabetes and malarial poisoning should be considered. Impaired circulation in the legs, from varicose veins or from insufficiency of the heart, may perpetuate sciatica after it has once started, and treatment in such instances must be directed toward improving the circulation.

SYMPTOMS

It is hardly necessary to refer to the symptoms of neuritis of the sciatic nerve. Often a patient can map out the course of the nerve by describing where he feels pain, and if not pain, where he feels twinges or peculiar sensations of irritation. There may be, after some days of a real inflammation of the nerve trunk, regions of paresthesia in different parts of the leg supplied by branches of this nerve, and still later

1. Backache, Therapeutics, THE JOURNAL A. M. A., March 4, 1916, p. 740.
2. Hunt: Med. Rec., New York, 1913, lxxxiii, 1153.

there may be impaired mobility of some muscles. The pain may be so severe as to be tearing or boring in character, and there may be attacks of cramps or contractions of one or more muscles causing very intense pain. There may be some reddening of the skin along the course of the nerve, local elevation of temperature, and rarely some edematous symptoms. The electric excitability may be increased at first, and later diminished. The patellar reflexes are normal at first, and later may be diminished. Occasionally a herpes may occur; there may be some local sweating, showing trophic disturbance. In chronic sciatic pain, the pain may become almost a habit or a condition expected by the patient, so that the general neurotic condition must be treated more than the local pain.

GENERAL TREATMENT

Besides removing the cause of sciatica, if such is possible, the general treatment is important. The diet should be modified according to the general condition. In some instances the meat should be removed from the diet. In other instances it should not be withdrawn; in fact, protein should be pushed and nutrition increased. Constipation should always be prevented. The treatment may be started with a brisk purge, as castor oil or calomel. The bowels should be moved daily, with salines if there is plethora, overweight and a good heart, and with vegetable laxatives if the patient is underweight, anemic, or with poor circulation.

Rest of this nerve is of primary importance, even if there is only a neuralgic condition, that is, an irritation without a neuritis or perineuritis, and it is imperative when there is a neuritis or perineuritis. A neurotic habit of the individual should always be noted. If such is present, this pain, like any other, will be harder to combat, and the main treatment should be toward the general condition, whether neurasthenic, hysteric or plainly neurotic. Like any other painful nerve, it must be kept warm. Warmth is one of the most important elements of local treatment.

In acute inflammations of this nerve the pain is so excessive that generally morphin must be given. But before morphin is resorted to, the leg should be immobilized and sometimes made rigid with a long splint. It is generally best not to give atropin with morphin, as atropin acts only on the peripheral endings of nerves, and in this case the nerve trunk is in trouble, and the atropin will combat somewhat the sedative action of the morphin. Also the morphin may have to be repeated more frequently than it would be wise to repeat the atropin. When the pain is not sufficiently severe to require morphin, antipyrin will sometimes act as a valuable sedative; also novaspirin, especially if the patient is rheumatic.

LOCAL TREATMENT

Besides the local treatment already suggested, dry cupping and cauterizing, and at times blistering along the course of the nerve, may be not only of temporary but also of permanent benefit. Sometimes the d'Arsonval high frequency current is of benefit in subacute and chronic cases. Sooner or later, gentle massage is of benefit.

When this nerve is somewhat stretched and at rest, especially when the leg is surrounded by dry heat, as by hot sand bags or other methods of applying heat, excruciating pain may entirely cease. Such patients are fortunate, as narcotics need not be given.

If there is a rheumatic condition present, large doses of salicylates are of benefit. Alkalies are frequently of service, such as potassium citrate in 2 gram doses, in wintergreen water, given three or four times in twenty-four hours. If there is a nervous irritability and considerable cerebral irritation, bromids are of value, but they should be soon discontinued, as they interfere with nutrition and are very depressant, and calcium should be substituted.

Sometimes warmth is well applied to this nerve by a cradle containing electric lamps, and the leg is subjected to this kind of heat and the resulting local sweating once or twice a day for from fifteen minutes to half an hour.

High frequency currents have been applied to this painful nerve, sometimes with good results; but often electricity in any form is not well tolerated.

Ethyl chlorid spray along the course of the nerve or in different painful regions of the nerve has been reported to be successful in modifying the pain. Epinephrin ointments have been gently rubbed into the skin along the course of the nerve with some success.

Salt solutions, cocain solutions and beta-eucain solutions have been injected around the nerve sheath in prolonged acute and subacute cases with considerable success. The injection treatment with sterile water or sterile physiologic saline solution is an old treatment, and is recently being revived. This treatment is not advised in every case of sciatic pain, as many individuals are benefited and recover from ordinary local and constitutional treatment; but when the inflammation and pain persists, it is perhaps the most successful treatment. The technic is as follows:

The patient should lie on the abdomen, on a table, with the legs fully extended. A support is placed under the lower part of the abdomen to relax the gluteal muscles. A line is drawn from the sacrococcygeal articulation to the posterior external border of the great trochanter, and at the juncture of the inner third and outer two thirds of this line is found the spine of the ischium. One inch to the outer side of this point is the point of puncture. Paint the skin with iodin. A syringe with a slip tip which allows the needle, to fit the barrel directly is preferable. The needle should be of steel, 12 cm. long with a caliber of 2 mm., and with a sharp point protected by a dull tipped stylet projecting beyond the point of the needle. Before penetrating the skin and subcutaneous tissue, the stylet is withdrawn beyond the cutting edge. It is then replaced, and the needle pushed in perpendicularly. The sciatic nerve is usually reached at a depth ranging from 6 to 12 cm. The patient may feel either a sharp pain radiating from the point of contact to the popliteal space or down to the foot; or a sharp pain in the corresponding heel; or there may occur a jerking movement of the leg; or a sudden twitch of the calf muscles. The syringe is filled with sterile physiologic saline solution at a temperature of from 95 to 100 F. The stylet is removed and the syringe slipped on to the needle. Eighty to 100 c.c. of the fluid is rapidly injected. The needle is quickly withdrawn, the iodin washed off with alcohol, and the point of puncture covered. The patient should remain in bed for at least twenty-four hours. The pain generally almost entirely disappears in twenty-four hours, although there may be some pain down the peroneal nerve. A second injection, when necessary, should not be given ordinarily until a week after the first one. When the patient feels numbness and heaviness in the extremity,

the pain from the injection ceases. The object aimed at is to infiltrate the tissue around the nerve. The nerve sheath should not be punctured, as a large amount of fluid forced into the trunk of the nerve causes paralysis and traumatic neuritis.

Beta-eucain has been used as an infiltration injection in strength of 0.1 per cent. solution and 100 c.c. in bulk. Cocain has been used in 1.5 per cent., 2 c.c. in bulk, followed by 100 c.c. of physiologic saline solution.

Injections of small bulk into the sheath of the sciatic nerve, called nerve blocking, have been done frequently in the severe forms of sciatica. A hypodermic syringe full of plain, cold water has been used, also cocain solutions, sometimes morphin solutions, and sometimes alcohol.

Whatever injection treatment is done, the treatment should be considered radical, and should be done by one who has become proficient in this operative therapy, as sometimes uncomfortable symptoms are developed.

The injection of alcohol has been shown by Cadwalader[3] to be unjustifiable, as alcohol destroys nerve tissue. He found that salt solution injection into the sciatic nerve did not cause any degeneration, while strong alcoholic solutions caused destruction of nerve tissue.

Stretching the sciatic nerve has been recommended for many years, and is sometimes of great value in relieving pain, especially if the nerve and leg are then put at rest, allowing the inflammation to heal. This may be done nonoperatively, by extending the leg in various directions and thus stretching the nerve; or it has been done operatively by an incision over the nerve at its exit from the pelvis, and the muscles pushed aside and the nerve picked up and stretched. This is a rather severe therapeutic measure. The method is described by Nannini.[4]

PAIN IN THE FEET

This troublesome subject has recently been discussed by Frauenthal.[5] He premises the diagnosis of the cause of pain in the foot by the statement that when the pain comes on acutely it is due either to an injury or to an infection; when the pain comes on gradually, there is some relaxation of ligaments or supporting structures. He deplores the promiscuous use of foot plates, some of these metal supports doing more harm than good. A proper fitting shoe is the first essential to comfort of the foot. An arch may not be broken or may not have fallen, and may not need a support. All it needs is a proper adjustment of the heel to the foot tread and a proper arch to the shoe. Also, pain in the forward part of the foot is often not caused by a weakened arch, and an arch support will not correct pain in other weakened joints or ligaments. On the other hand, when the arch has fallen or has become weak, and there is a rotation of the ankle inward, besides a proper fitting shoe a plate or support that fits the foot and corrects the deformity may and will often entirely relieve the pain in the foot and the associated pain of the leg and back. Various exercises of the foot muscles may strengthen the arch and later allow of the removal of this artificial support.

Barnes[6] of Washington calls attention to an overoverlooked cause of sore feet, and especially to the overlooked condition causing a painful ball of the foot. Pain and tenderness in this region of the foot has become much more common than formerly on account of the craze for dancing. He finds that a few anatomists call attention to sesamoid bones as being normal in this region of the foot and especially likely to be present at the metatarsophalangeal joint of the great toe, namely, the ball of the foot.

By a series of roentgenograms of normal feet and feet that are painful in this region, Barnes finds that the sesamoid bone is part of Nature's method of protecting this joint and causing normal tread and normal support. He also finds that this sesamoid bone may be fractured or may become injured and not only cause pain from its own disturbance, but cause pain in the joint above it. He orders shoes made with a depression in this region of the sole, and causes comfort, and cures his patients of their disability. In acute injuries of this region nothing will be of so much benefit as rest.

At times irritation or injury may cause an exostosis to occur in this region, which of course can be cured only by surgery.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

SAUBERMANN RADIUM EMANATION ACTIVATOR.—An apparatus for the production of radioactive drinking water by the action of radium sulphate.

Actions, Uses and Dosage.—See general article on radium, New and Nonofficial Remedies, 1916, p. 264.

Radium Heil Gesellschaft, Berlin, Germany (Radium Limited, U. S. A., New York). No U. S. patent or trademark.

Saubermann Radium Emanation Activator, 5,000 Mache Units.—An apparatus which imparts about 1.8 microcurie (5,000 Mache units) to about 500 Cc. water daily. Each apparatus is accompanied by a statement of its daily capacity and efficiency.

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A test made for the Council demonstrated that during the impregnation of the water with radium emanation for twenty-four hours, 0.035 microgram of radium element was dissolved in each 500 Cc.

3. Cadwalader, W. B.: Injection of Alcoholic Solutions of Different Strengths into Peripheral Nerves, THE JOURNAL A. M. A., June 5, 1915, p. 1892.
4. Nannini: Riforma med., 1914, xxx, 813.
5. Frauenthal: Painful Feet, THE JOURNAL A. M. A., Nov. 27, 1915, p. 1897.
6. Barnes, N. P.: Sesamoids of Flexor Brevis Hallucis, New York Med. Jour., 1915, cii, 940; abstr., THE JOURNAL A. M. A., Nov. 20, 1915, p. 1852.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, MARCH 18, 1916

FURTHER OBSERVATIONS ON THE CAUSE OF RAT-BITE FEVER

In a review of the various alleged etiologic factors in relation to rat-bite fever, or sokodu, which has long been recognized in Japan as a definite febrile disease, it was remarked in a recent number of The Journal[1] that new cases will undoubtedly soon be brought to light in greater number. This is the familiar consequence of the publicity of education. It was also pointed out that renewed study of the disease, when fresh opportunities are discovered, would be likely to settle the debated question as to whether the causative agent is a spirochete, as some have asserted, or some other form of detrimental organism.

Since our comment on the subject, further contributions have appeared. Investigators[2] at the Imperial Japanese Institute for Infectious Diseases, in Tokyo, have identified spirochetes in preparations from two well defined cases. The organism is described as somewhat larger than the *Spirochaeta pallida,* but smaller than the *Spirochaetae duttoni* and *obermeieri.* One of the patients was treated with mercury, and the other with salvarsan. Both recovered. In this connection the Japanese investigators recalled the fact that in recurrent fever, one of the spirochetal diseases which shows a temperature curve similar to that of rat-bite fever, salvarsan has proved effective; in syphilis likewise, which also resembles rat-bite fever in the swelling of the lymph glands and in skin eruptions, there is improvement with salvarsan or mercury. On the basis of these analogies as well as of the microscopic findings, they suggest, with due reserve, that the newly discovered spirochete is in all probability the cause of rat-bite fever.

On the other hand, Blake,[3] of the Peter Bent Brigham Hospital in Boston, has lately described a case of rat-bite fever which terminated fatally and furnished an opportunity at necropsy to add to the almost unknown pathologic anatomy of the disease. The clinical picture which justified the diagnosis was typical of the recognized syndrome of the disease. There was a history of a rat bite, a latent incubation period, nonsuppurative lymphangitis, high fever ushered in by a severe chill, severe generalized muscular pain, stuporous condition, and a characteristic bluish-red macular exanthem. From the blood of this patient during life Blake isolated a streptothrix in pure culture and apparently identified it with *Streptothrix muris ratti* first described by Schottmüller,[4] in 1914, after its isolation by him in eight consecutive blood cultures taken during a period of two months in a case of rat-bite fever.

Although successful animal inoculations have not yet fulfilled the strict requirements for the demonstration of the unquestioned etiologic relation of the streptothrix of Schottmüller to the disease, Blake is inclined to emphasize the high probability of this causative factor. Not only did he isolate the organism, but he succeeded further in showing the development of a powerful agglutinin in the patient's blood serum for the streptothrix. Furthermore, the necropsy revealed an ulcerative endocarditis caused by a streptothrix; and the presence of a morphologically similar organism in the sections of the mitral vegetation in the absence of other demonstrable organisms is taken as strong presumptive evidence that the same organism was the cause of the endocarditis.

In view of the fact that only one necropsy has previously been recorded in the literature of rat-bite fever, it is of interest to note the character and extent of the lesions here found. In addition to the striking streptothrix septicemia with localization of the organism in the mitral valve, producing an acute ulcerative endocarditis, there were the infarcts of the spleen and kidneys as a natural consequence. The subacute lesions of the myocardium, liver, suprarenals and kidneys, glomerular and interstitial, were all of a similar nature, consisting of areas infiltrated with leukocytes, lymphocytes, plasma and endothelial cells with varying degrees of degeneration of the normal cells of the affected area. It may be assumed that these lesions were toxic in origin, since the presence of the streptothrix itself was not demonstrated in them.

Commenting on the facts at present known in reference to rat-bite fever, with the indications of similarity in symptomatology to cases occurring in Asia, Europe and America, Blake[3] remarks that it no longer appears necessary to consider that cases arising in this country are due to the bites of rats that have been imported from Japan. The greater frequency of the disease in Japan than elsewhere is probably due to the housing conditions and habits of the people, resulting in more frequent occurrence of rat bites. So long as some uncertainty remains as to the actual etiology, the scien-

1. The Cause of Rat-Bite Fever, editorial, The Journal A. M. A., Oct. 9, 1915, p. 1285.

2. Futaki, K.; Takaki, F.; Taniguchi, T., and Osumi, S.: The Cause of Rat-Bite Fever, Jour. Exper. Med., 1916, xxiii, 249.

3. Blake, F. G.: The Etiology of Rat-Bite Fever, Jour. Exper. Med., 1916, xxiii, 39.

4. Schottmüller, H.: Dermat. Wchnschr., 1914, lviii, Supplement 77.

tific basis for rational treatment must remain in doubt. Meanwhile salvarsan and similar chemotherapy deserve continued trial on the basis of clinical experience, if nothing else.

MUMPS

In view of the succession of brilliant discoveries which have disclosed the etiologic agents in the production of many infectious diseases, thereby paving the way for the relief and control of the harm instigated by them, there is something tantalizing in the limitations of progress which have been experienced in other instances. The infectious diseases, indeed, still offer abundant opportunities for investigation. The rôle of bacteria as a cause of several has long been clearly understood. The responsibility of protozoa for certain other pathologic states is now better appreciated. For a considerable number of still different diseases there is as yet no certainty either as to the identity of the organism that causes them, or even as to whether the causative agent is really of the germinal type. Some undoubted infections still defy all search as to the nature of the etiologic factor; and in the case of some of these, the fact that the virus retains its infectious property, even after being passed through a fine porcelain filter, gives ground for the hypothesis that the germs here present are too minute to be recognized in the usual way with the present powers of our microscopes. Here one must deal with the so-called filterable viruses.

Mumps is one of the highly infectious diseases, its etiology is unknown, it is always more or less present, in cities, at least, and it is liable to be epidemic at certain seasons of the year. A number of microorganisms have been described in the past as the presumable causative agents; but every serious attempt to apply to these bacteria the criteria and demonstrations which are called for, before the relation of cause and effect in disease can be regarded as proved, has failed. In 1908 Granata[1] concluded that the virus of mumps may be of the filterable type. However, neither he nor Nicolle and Conseil,[2] who injected bacteria-free fluid from the parotids in cases of human parotitis and obtained in animals symptoms somewhat comparable with those of mumps, really succeeded in reproducing the disease satisfactorily. Not a little interest must center, therefore, in the newest experiments in this field by Dr. Martha Wollstein[3] at the Rockefeller Institute for Medical Research. She has succeeded in reproducing the chief organic lesions of parotitis in animals by means of filtered extracts of saliva derived from persons suffering from acute parotitis. Thus injections, into cats, of bacteria-free filtrates of the saliva have been capable of setting up a series of pathologic changes in the parotids and testicles, expressed by fever, leukocytosis, tenderness and swelling attended by definite histologic alterations. There is a greatly added significance in the further fact that the effect of the injection is intensified by successive transfers of the inoculated organs from animal to animal through several passages.

It is almost needless to add, at a time when the importance of adequate control of such significant findings is obviously imperative, that the effects attributed to the saliva from patients with parotitis did not follow the injection of filtrates prepared from the saliva of healthy persons. The active agent present in the infectious saliva was found to be neutralized or in some way rendered ineffective by the serum of an animal that had survived the injection of testicular and parotid emulsions, while the serum of a normal animal had no such power. Here, then, is a phenomenon surprisingly like others that are now familiar in the experience of immunology in infectious diseases. Dr. Wollstein remarks that in all these manifestations obviously ordinary bacteria can be excluded as the active agent, since they were never found in microscopic preparations of the "filtrate," or in aerobic or anaerobic tissue cultures or in sections of the inoculated parotid and testes. Under these circumstances it seems reasonable to suppose that the active agent is of living nature, thus suggesting the existence here of a minute filterable virus. As a corollary to this, the power of prevention exercised by the serum may be assumed to be due to an immune substance developed in the inoculated animals. This is an approach, at least, to the determination of the specific microbic cause of parotitis or mumps in man.

1. Granata, S.: Med. ital., 1908, vi, 647, 672.
2. Nicolle, C., and Conseil, E.: Compt. rend. Acad. d. sc., 1913, clvii, 340.
3. Wollstein, Martha: An Experimental Study of Parotitis (Mumps), Jour. Exper. Med., 1916, xxxiii, 353.

ARTIFICIAL PNEUMOTHORAX IN THE TREATMENT OF PULMONARY TUBERCULOSIS

Carson, in 1821, first recommended the use of artificial pneumothorax in the treatment of pulmonary tuberculosis. In 1882, Forlanini described the method which, after more or less sporadic trials, has been adopted in almost all sanatoriums and hospitals for tuberculosis. Recently, Sachs[1] has reviewed 1,145 cases treated by this method by twenty-four American observers. The results appear to correspond closely to those of other authors,[2] and it may be of interest to review briefly the chief points.

There are two general methods of procedure, of which the original is the simpler and the one usually employed. Without anesthesia, under aseptic conditions, a small aspirating needle connected with a suitable apparatus is introduced through an intercostal space. Entrance into the pleural cavity is ascertained

1. Sachs, T. B.: Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis, THE JOURNAL A. M. A., Nov. 27, 1915, p. 1861; Tr. Nat. Assn. f. Study and Prev. Tuberc., 1915, p. 150.
2. For example, Grundt, E.: Norsk Mag. f. Lægevidensk., 1915, lxxvi, 1527.

by the reading of the manometer which is attached. Only when free pleural space is encountered may the gas be allowed to flow in. Since, under proper conditions, the gas is sucked in, great pressure is unnecessary as well as a source of danger. Repeated introduction may be necessary. While Forlanini advocated the initial use of from 200 to 300 c.c. of gas repeated daily, it is the custom now to begin with from 500 to 1,000 c.c., repeating the inflation every two or three days until the lung is completely collapsed, as indicated by Roentgen examination. Then inflation once a week, and later, when the pleura loses its capacity for absorption, inflation at intervals of from two to three weeks usually suffices. The compression may be maintained for one to two years or more, the lung then being allowed slowly to expand. While nitrogen is absorbed less readily, sterile air gives the same result. Brauer, to avoid air embolism, recommends for the first injection the use of an incision long enough to permit inspection of the pleura. Some patients who are not improved by ordinary unilateral pneumothorax are benefited by alternate inflation of the two pleurae, an interval being allowed to elapse each time until the gas previously injected has been absorbed. Von Adelung[3] reports four cases in which simultaneous inflation of the two pleural cavities was practiced. He recommends the method in selected cases.

Compression tends not only to stop the growth of tuberculous foci but also to cause healing. Cavities are collapsed, and their contents expressed and coughed up. Tubercle bacilli may disappear from the sputum. With the lessening of lymph and blood supply, "autoinoculation" and "autointoxication" are diminished. Immediately following inflation, the temperature usually rises because of increased absorption, and expectoration and dyspnea are aggravated; but this usually is only temporary.

Of the cases studied by Sachs, 912 were far advanced. Benefit, apparently lasting, resulted in 29.9 per cent. of 1,108 cases, while the effect was merely palliative in 21.7 per cent. From these results, it is apparent that with the class of patients selected, the method is applicable in only a little over half of the cases.

Conservatism is desirable in the selection of cases. Thorough preliminary study and consideration of the probable effect on the other lung are essential. The best results are to be expected before the development of extensive adhesions, marked involvement of the opposite lung, and irreparable lowering of the general resistance. The importance of the condition of the opposite lung is indicated by the occurrence in the study by Sachs of death in about 13 per cent. and arrest or recovery in 50 per cent. of ninety-one unilateral cases, and death in 26 per cent. and recovery or arrest in 25 per cent. of 162 cases with bilateral involvement. Even in late stages good results may be obtained in patients with severe or repeated hemoptysis and with marked secondary infection, provided the side affected can be determined. Severe cardiac disease presents a contraindication.

With better technic and conservative selection of cases, accidents are diminishing in number. Pleural effusion is the most frequent complication, occurring 113 times in 748 cases reported by fifteen American authors. Peters[4] found that in 60 per cent. of cases observed by him for a year or more, varying amounts of fluid developed in the pleural cavity. He concludes that, given time, fluids develop in most of the patients, the fluid in some cases becoming purulent from the presence of tubercle bacilli only, while in a small percentage secondary infection takes place. Although a disadvantage, the fluid, according to Peters, should be let alone unless causing pressure or fever.

It may be concluded, that while the sphere of application is being modified by greater conservatism in the selection of cases, the tendency is toward the use of artificial pneumothorax in all suitable progressive cases of pulmonary tuberculosis, regardless of stage, which do not respond to ordinary sanatorium treatment.

3. Von Adelung, E.: Double Induced Pneumothorax, THE JOURNAL A. M. A., March 4, 1916, p. 735.

4. Peters: Tr. Nat. Assn. f. Study and Prev. Tuberc., 1915, p. 186.

ALVEOLAR AIR AND ACIDOSIS

In the advance of scientific medicine, new and more exact methods of diagnosis are constantly appearing. It was a great step forward when knowledge of metabolism and diseases of metabolism reached such a level that definite diagnostic and prognostic data could be obtained by laboratory means. The utilization of these data in treatment is rapidly advancing also. Calorimetry likewise has made no small contribution to clinical progress. And yet, in spite of the increased knowledge of the total metabolism and its disorders, there remains the still more difficult problem of devising methods which shall give diagnostic and prognostic light on the various processes of intermediate metabolism, processes not only of synthesis but also especially under conditions of pathologic functioning, processes of catabolism or the breaking down of food and tissue elements.

The great difficulty has been to secure methods which would give a reliable index of what was actually transpiring in the body under conditions of abnormal function. The various emunctory agents yield important evidence, of course, particularly the urine; but substances appearing in the urine are end-products, and, again, are dependent on the filtering ability of the kidney. Hence there are evident inaccuracies in such examinations, and important or even vital data may be wholly lacking. There is a practical limitation set to the direct examination of the blood by the time and technical difficulties involved. The conditions

thus sketched, therefore, make of peculiar value a method which shall throw light on these hidden problems of vital functioning, and at the same time shall be practicable for clinical use.

One such method seems to have been found in the study of the concentration of carbon dioxid in the alveolar air. This concentration corresponds to the concentration in the blood. One of the independent factors which maintains the normal equilibrium of the reaction of the blood is the influence which its content of carbon dioxid has on the activity of the respiratory center. The carbon dioxid acts as a weak acid, and the normal stimulation of the respiratory center, ordinarily produced by an increase of carbon dioxid in the blood, is not a specific action, but an action caused by an increase of active acidity, or of H-ion concentration, in the blood. The total, or titratable acidity, is due not alone to volatile acids, of which the chief is carbon dioxid, but also to nonvolatile acids whose excretion is largely through the kidneys. Any condition which increases the amount of nonvolatile acids in the blood will diminish the capacity of the blood for neutralizing carbon dioxid, or in this condition whatever carbon dioxid is added to the blood by the tissues causes a greater increase of active acidity than it otherwise would. By virtue of the strong automatic regulation of the blood reaction and the increased aeration of the blood resulting from the respiratory stimulation, the increased amount of nonvolatile acid in the blood tends, therefore, to decrease the amount of carbon dioxid in the blood and hence in the alveolar air. This is the condition called acidosis, and it is characterized clinically by air hunger, or dyspnea, stupor, delirium, vomiting, convulsions and finally coma.

Therefore, since the concentration of carbon dioxid in the alveolar air corresponds to that in the blood, and since its concentration in the blood decreases as other acid bodies increase, it is evident that the concentration of carbon dioxid in the alveolar air gives a direct and immediate quantitative gage of the degree of acidosis. The normal tension of carbon dioxid in the alveolar air is remarkably constant in different persons and in the same person at different times. The chief variations depend largely on the consumption of carbohydrate, which raises the amount. Depending somewhat on the method of analysis used, normal figures lie between 38 and 45 mm. partial pressure. The method of analysis is comparatively simple, and is practicable for clinical application, at least in institutions.

Francis W. Peabody,[1] in an extensive study of the alveolar air as an index of acidosis, has made an interesting report from the medical clinic of the Peter Bent Brigham Hospital in Boston. In diabetes, in which acidosis so commonly plays a preeminent rôle, the production of abnormal products of fat metabolism, such as aceto-acetic acid, acetone and the beta-oxybutyric acid, may go on for some time without clinical symptoms, because the blood compensates for the acid addition by an automatic chemical readjustment which maintains the blood reaction near its normal. Finally, however, the reserve supply of bases in the tissue is exhausted and the increased acidity of the blood stimulates the respiratory center, causing increased aeration, and a decrease in the carbon dioxid tension of the blood. With this increasing acidosis, greater and greater aeration is produced by the increasing respiratory stimulation, until the clinical picture of extreme air hunger is reached. Death follows unless acid formation can be decreased or basic substances increased for neutralization of the acid.

It is well known that examination of the urine is an inefficient guide to the degree and rapidity of acidosis. Direct examination of the blood for these acid substances is slow and technically difficult. Peabody therefore concludes that analysis of the carbon dioxid tension of the alveolar air gives promise of furnishing a most useful aid in estimating the severity and course of acidosis. He found that when the alveolar carbon dioxid fell below normal, the patient entered the danger zone. Between 30 and 35 mm. of carbon dioxid indicated considerable acidosis and the need of treatment. But a tension between 20 and 30 mm. is much more serious and requires the closest oversight. "A constantly falling carbon dioxid tension is a serious warning and is of great prognostic value. If the carbon dioxid tension is down to 20 mm. or lower, the patient has reached a state in which coma may suddenly appear." In one case of diabetic coma the alveolar air showed from 6 to 10 mm. of carbon dioxid. In view of these data it is also evident that the alveolar air will give an accurate index of the effect of treatment in acidosis. In fact, treatment can be directed according to the rise or fall of the carbon dioxid tension.

In chronic nephritis there is an acidosis due to retention of acid products in the circulation, owing to inability of the kidney to excrete them. This is shown by the fall in phenolsulphonephthalein output and by the increase in nonprotein nitrogen accompanying the condition. Because of the retention, urinalysis does not give much aid in determining the degree of acidosis. In those cases of uremia in chronic nephritis in which air hunger and acidosis play a prominent rôle, the characteristic fall in alveolar carbon dioxid is found and gives the same guide for prognosis and treatment as in diabetes.

Of cardiac dyspnea, Peabody finds two principal types. Many cases show a decreased carbon dioxid tension, indicating acidosis, which rapidly disappears with improved circulation. This is explained as being due to the production of acid bodies from incomplete oxygenation of the tissues, owing to the poor circula-

1. Peabody, F. W.: Am. Jour. Med. Sc., 1916, cli, 184.

tion. A second group presents evidence of more serious acidosis together with inefficient renal function. These cases of true cardiorenal disease owe their dyspnea probably to retention or nephritic acidosis. Peabody finds it hard to estimate the exact value of the acidosis in producing this type of dyspnea, but is of the opinion that it is an important element.

Such studies in pathologic physiology mark the present change from the older morphologic methods of studying change in structure. Much is to be hoped from this line of work, and the determination of the alveolar carbon dioxid undoubtedly is a valuable addition to our diagnostic and prognostic armamentarium.

THE AVOCADO—A NUTRITIVE FRUIT

In the dietary of many, if not most, Americans the fruits have won a place quite out of proportion to any nutritive value which these plant products can exhibit in terms of calories of actual foodstuffs. In practically all fruits in the fresh state the content of water is large, and what there is of true nutrients is derived for the most part from the carbohydrates present. In nearly all cases the sugars predominate, starch being present in the thoroughly ripe products only in small amounts. The content of nitrogenous material, estimated as protein, is low, amounting to as little as 0.2 per cent. in some cases, or as much as 2.5 per cent. in others. The stone fruits contain, on the average, less than 1 per cent. The banana forms an exception, to a certain degree, in that it is comparatively rich in actual nutritive substance equivalent to about 450 calories per pound of edible matter, a figure approached by the edible portions of grapes and pomegranates and exceeded by the less common persimmons. In contrast with such food values, equivalent weights of berries, melons or even apples show insignificant figures.

From the foregoing it is evident that fruits are ordinarily added to the diet not primarily because of their richness in energy-yielding or tissue-forming components, but rather because they supply other desired factors. According to one estimate from a large number of data from American dietary studies representative of ordinary food habits in their respective localities, about 8 per cent. of the total cost of the food was due to fruits which supplied less than 3 per cent. of the total calories and less than 1 per cent. of the protein intake.[1] Whatever the value of the fresh fruits in the ration, it cannot be measured primarily in quantitative terms of the ordinary foodstuffs. Desired flavor undoubtedly contributes something to the explanation of the widespread use. The mineral ingredients also have been charged with special value to account for the popularity of the fruits, and the experiments of Blatherwick[2] have made it clear that many fruits possess a potential alkalinity which is utilized in neutralizing acids within the body. This is, of course, contrary to the current conception, which recognizes the presence of organic acids in the fruit juices in abundance, but fails to appreciate that when these are burned up in the organism they yield carbon dioxid, and that thus the surplus of base-forming elements will remain as bicarbonate when these foods are oxidized in the body. Through their organic acids and in larger measure through their content of indigestible cellulose or "roughage," the fruits further exert a wholesome effect on the movements of the alimentary tract. This laxative property is especially valuable under the prevailing conditions of diet, in which there is a tendency toward the use of highly concentrated and completely digestible foods. The indefinite conception as to the real place of fruits in the dietary is expressed in a recent comment by a student of nutrition as follows: The dietetic value of fruit, aside from the actual nutrients which it contains, lies in its succulency — its minerals and organic acids. If gaged by its nutritive value alone, fruit would seem to be an expensive form of nourishment; but when its hygienic qualities are considered, its money value to the consumer is difficult to estimate. Some fruits carry more nourishment with their hygienic properties than others. Some contain minerals which are more valuable to the system or less commonly distributed than others. Therefore, while there are general properties which are common to all fruits, each has special properties which justify individual consideration.[3]

There is a decided element of novelty, therefore, in an available fruit which departs from the conventional varieties by exhibiting a content of nutrients both unlike and greater than that of most species in common use. The avocado is a fruit characterized by containing a very large amount of oil, so that the only comparable product is the olive. The avocado is by no means entirely new in this country, though native to the tropical and semitropical regions of North and South America, where it is used as a common and much prized article of food. It was introduced into California, at Santa Barbara, in 1870; but as yet its scarcity has made the price in our Eastern markets almost prohibitive from the standpoint of any widespread popular use of the fruit.[4] The avocado tree belongs to the laurel family; its fruit varies in form from round to pear-shaped with a short or elongated neck, and in weight from a few ounces to 4 or 5 pounds. It contains a single large seed which is surrounded by yellowish, buttery flesh.

1. Sherman, H. C.: Food Products, New York, The Macmillan Company, 1915, p. 357.

2. Blatherwick, N. R.: The Specific Rôle of Foods in Relation to the Composition of the Urine, Arch. Int. Med., September, 1914, p. 409.

3. Jaffa, M. E.: The Nutritive Value of the Avocado, Bull. 254, Univ. California Agric. Expt. Station, 1915, p. 395.

4. Data regarding avocado culture in California are supplied by Condit, I. J.: Bull. 254, Univ. California Agric. Expt. Station, 1915, p. 381.

Analyses of twenty-eight different varieties of avocado, lately made by Jaffa[3] in the Division of Nutrition at the University of California Experiment Station, show how widely it differs from the average of fresh fruits and prove it to be worthy of serious consideration. The edible portion contains, on an average, less than 70 per cent. of water, 2 per cent. of protein, 7 per cent. of carbohydrate, 1.2 per cent. of mineral ingredients, and no less than 20 per cent. of fat. Some varieties have exhibited nearly 30 per cent. of the latter ingredient. Olives do not exceed this. Such data, put into terms of energy units, show that the edible part of the avocado corresponds to about 75 per cent. of the fuel value of the cereals, and is not far from twice that noted for average lean meat. They explain, furthermore, why the flesh of the avocado has been termed a "vegetable butter." From the earliest records up to the present time the flesh of the avocado has been described as a natural mayonnaise and is often eaten as taken from the fruit, without additional preparation. The natives of Mexico often spread the pulp on their black bread in place of butter.

The evidence for the dietary value of the avocado is still essentially empiric. Chemical analysis alone is by no means adequate to establish the right of a new food product to a permanent place in the national dietary. Although no metabolism experiments have been carried on in connection with the avocado, Jaffa reminds us that it is only fair to assume that this fruit is as easily digested as many others whose coefficients have been determined. Such data clearly prove that the fruits are quite thoroughly digested. Although the availability of the protein is less, the digestion coefficients of the carbohydrates compare favorably with those obtained for the mixed diet, while those of the oils and mineral matter are fully equal to them. Meanwhile the enterprise of our American fruit industry must see to it that the present price of from $4 to $8 a dozen is reduced so that this little known fruit may become popular enough to be tested. The trees are prolific, and the possibility of successful marketing seems almost assured.

The Doctrine of Insect-Borne Diseases.—The doctrine of insect-borne diseases is a singular revival, under the egis of science, of the crude and direct notions of the people. They believed in the action of disease through the external surface of the body, as is implied in the idea expressed in the word contagion. Thus we find in the Homeric legend, Apollo aiming afar his shafts to spread contagion in the Grecian hosts, and later on, in the middle ages, we meet with the popular credence in ointments as the cause of the spread of plague. The discoveries made in recent years of various infections conveyed by insects have confirmed these views, establishing an extensive and remarkable group of diseases introduced through the skin: filaria, yellow fever, malaria, plague, trypanosomiasis, the spirilloses, uncinariasis, leishmaniasis, all among the most important diseases that affect man.—Dr. Juan Guiteras, address before the Pan-American Scientific Congress, 1916.

Current Comment

DEATH OF DR. RODMAN

The announcement of the death of Dr. William L. Rodman, President of the American Medical Association, which was briefly made last week, came as a shock to our readers. He had been unusually active during the last few months, and had come in contact with a great many members of the profession. He had spent much time in visiting and addressing medical meetings, and in promoting the new National Board of Medical Examiners. Dr. Rodman had been active in the affairs of the Association for many years. In 1897 he was chairman of the Section on Surgery, presiding at the Denver meeting; in 1900 he delivered the oration in surgery on gastric ulcer. He was a member of the Board of Trustees from 1900 to 1903. He was a member of the House of Delegates from Pennsylvania in 1905-1906; a member of the Committee on National Legislation for many years, and for seven years chairman of the Committee on Reciprocity, until the work of this committee was turned over to the Council on Medical Education. It was during the time that he was chairman of this committee that he became interested in the plan for a voluntary national licensing board. The ambition of years to see such a board organized was practically realized, as the board was on a permanent basis at the time of his death. Dr. Rodman took a deep interest in various matters of public welfare. He was interested in the work of reorganization of the medical department of the army and the strengthening of the preliminary requirements in the practice of medicine, in the American Society for the Control of Cancer, and during the last few months in medical military preparedness. This, we believe, is the first time that a President of the Association has died during his term of office. The By-Laws provide that in case of the death of the President the vacancy shall be filled by the ranking Vice President. Therefore Dr. Albert Vander Veer of Albany, N.Y., will complete Dr. Rodman's term as President.

WORM OVA IN FLIES

Observations made at the Mombasa Hospital of the British East African Medical Service on persons attached to the expeditionary forces involved in the European war showed that patients assigned to the surgical wards, after varying intervals, contracted bowel troubles which were found to be due to intestinal parasites. An examination of 100 natives of indigenous races, admitted into or attending the hospital, complaining of intestinal troubles, had earlier shown evidencs of helminthic disease in 83 per cent. of the cases. The most frequently found ova of parasitic worms were those of *Ankylostoma duodenale, Ascaris lumbricoides,* and tapeworm, multiple infections being very frequent. This combination of circumstances placed the flies frequenting these wards under suspicion. An investigation conducted by medical officer Shircore[1] showed that a considerable number of the flies actually harbored ova. Inasmuch as the flies are

readily captured and can be preserved and subjected to examination subsequently, when opportunity is afforded, Shircore suggests that this plan offers a method whereby prevalence of helminthiasis may be determined in a locality where it is either difficult or impossible to obtain fecal matter for examination.

THE WINE OF CARDUI SUIT

Next week what promises to be one of the most important lawsuits of its kind will be opened in the federal courts at Chicago. Technically the case is the Chattanooga Medicine Company *vs.* the American Medical Association and the editor of THE JOURNAL. In its far-reaching effects the case might be described as the "Patent Medicine" Interests *vs.* The Public Health. Out of the dozen or more suits filed against THE JOURNAL and the Association during the past ten years this will be the only one that has ever come to trial. It will give the Association the long-sought opportunity to present the facts regarding at least one phase of the worthless "patent medicine" business, and it is hoped will afford the Association an occasion to show what it has done, is doing, and intends to do, to protect the public against medical imposition and deception. There are few physicians, we imagine, who do not know in a general way of the action brought by the manufacturers of Wine of Cardui. Since the suits were commenced the enormous power and influence of almost unlimited wealth have been evident. The medicine company has, during the last year and a half, taken hundreds of depositions through the South largely from women who claim to have been cured or benefited by the use of Wine of Cardui. Not a few of these depositions, however, have been from men who have the legal right to put "M. D." after their names. The conception these persons had of their duty to the public health was such that they were willing to lend the weight of their professional influence, such as it is, to bolstering up the worthless "patent medicine" business. It is true that many of these physicians who have thus stultified themselves are, or have been, also in the drug business and thus beneficiaries of the "patent medicine" trade. The tens of thousands of dollars which have been necessarily expended in taking these depositions but feebly represent the power wielded by the nostrum fraternity. In the recent trial at Chattanooga, where the Wine of Cardui concern brought suit against the president of the Louisiana State Board of Health for exhibiting in the State "Health Train" a poster declaring the preparation fraudulent, the baneful effect of "patent medicine" influence was shown. It was brought out on the witness stand that after the poster referred to was displayed at Chattanooga a high official of the railroad over which the train was being carried brought pressure to bear to have the placard removed from the exhibit on the plea that it was detrimental to the interests of their Chattanooga patrons! The — ostensibly — free transportation this railroad had offered in the interests of the public health apparently had a very definite "string" to it. When the health authorities of a commonwealth find it imperative to shape their educational work to meet the demands of the "patent medicine" interests, cracking the whip through public-service corporations, it is about time that attention is called to these facts. It may be expected that the newspapers will contain reports on the progress of the case, which will doubtless extend over some weeks. Remembering the millions that are spent every year in "patent medicine" advertising — and during the last year the amount has apparently been enormously augmented, for reasons more or less obvious — some newspapers may color their reports to favor their advertisers: "Whose bread I eat, his song I sing!" Fortunately the daily press, generally, is no longer under the blight of the "red clause" of the "patent medicine" advertisers. There are many high-grade papers throughout the country which may be expected to handle the case without fear or favor.

1. Shircore, T. O.: A Note on Some Helminthic Diseases with Special Reference to the Housefly as a Natural Carrier of Ova, Parasitology, 1916, viii, 239.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ILLINOIS

Personal.—Dr. E. Joe McEntire, Erie, has been under treatment in the Presbyterian Hospital, Chicago.——Dr. James A. Cline, Joliet, underwent operation for disease of the throat at Wesley Hospital, March 7.——Dr. Theodore H. Trappe, Hecker, was thrown from his horse while making a professional call, February 21, and sustained severe bruises.

The Contagious Disease Situation.—Dr. C. St. Clair Drake, secretary of the state board of health, issued a warning, March 1, to local health authorities in view of the spread of communicable diseases in the state. The communities most seriously infected by smallpox are said to be Peoria and vicinity, Staunton, Decatur, Springfield and the counties of Woodford and Fayette.——At Peoria there are seventy-seven cases of scarlet fever and twenty-four of smallpox. The scarlet fever situation is improving.——Rockford reports sixty cases of scarlet fever, nine cases of diphtheria, and that measles is prevalent.——At Shelbyville, 110 houses are under quarantine for measles.

Chicago.

Municipal Health Journal.—Health Commissioner Robertson announces that the initial number of the municipal health journal will appear April 1. It will be known as *Clean Living*. Dr. Robertson plans to issue 100,000 copies for free distribution through schools and other channels.

Alienists and Neurologists to Meet.—Dr. William T. Mefford, secretary of the conference, announces that the fifth annual meeting of the Alienists and Neurologists of the United States will be held at the LaSalle Hotel, Chicago, June 19 to 23, under the auspices of the Chicago Medical Society.

Personal.—Dr. and Mrs. Edmund Andrews have returned from Florida.——Dr. and Mrs. Casey A. Wood are visiting in California.——Dr. Edwin O. Jordan has been appointed chairman of the committee on sanitation and hygiene of the University of Chicago, and Dr. Dudley Billings Reed has been appointed health officer.——Dr. Frank E. Hansen, ambulance surgeon at the Shakespeare Avenue Station, was seriously injured in a collision between the ambulance and a street car, March 8.——Dr. G. E. Wright has resigned as superintendent of the Isolation Hospital.——Dr. John A. McGill, retiring president of the Illinois St. Andrews Society, was given a dinner by the Scotsmen of Chicago, March 1.

FLORIDA

Personal.—Dr. William A. Claxton, Jacksonville, has been assigned to duty in the hospital corps in Egypt and has started for Alexandria.——Dr. Lyman G. Haskell has been elected second vice chairman, and Carroll H. Frink, secretary of the Jacksonville chapter of the American Red Cross.

Medical Library for Society.—The Hillsboro County Medical Society is planning the establishment of a comprehensive reference library in Tampa for the use of its members, and a committee has been appointed to make arrangements for the collection of subscriptions from physicians of the city for the purchase of books and subscriptions to medical periodicals. The society also has asked the city council to provide a place for the medical library in the public library building.

MARYLAND

Carolina Surgical Club at University.—The Hospital of the University of Maryland held a series of clinics, March 2, before the North Carolina Surgical Club, after which a luncheon was tendered to the visiting surgeons.

Health Meeting.—The third of a series of public health meetings was held at Catonsville, under the direction of the Medical and Chirurgical Faculty of Maryland, and the Women's Civic League of Catonsville, March 10. Lectures on "Child Welfare" were delivered by Dr. Mary Sherwood, Baltimore; Dr. Samuel J. Fort, Catonsville, and Dr. Albert L. Wilkinson, Raspeburg. Motion pictures were also shown in connection with the lecture.

Personal.—Dr. William Burgess Cornell, executive secretary of the Mental Hygiene Society of Maryland, has resigned to become medical director of the New York City Hospital and School for Children, Randall's Island.——Dr. Charles B. Thompson, at present on the staff of the Henry Phipps Psychiatric Clinic, Johns Hopkins Hospital, has been selected to succeed Dr. Cornell as executive secretary of the Mental Hygiene Society.——Dr. James H. Billingslea, Westminster, is at the Presbyterian Ear, Eye and Throat Hospital for treatment for cataract.——Dr. Harry F. Shipley, Granite, is undergoing treatment at the Mercy Hospital.——Dr. Walter E. Dandy, assistant surgeon at Johns Hopkins Hospital, has been appointed resident surgeon, succeeding Dr. Roy D. McClure, resigned to become assistant surgeon of the new Henry Ford Hospital, Detroit.——Dr. Grover A. Stem, Westminster, has returned after several months' service with the American Red Cross in the war zone.

Annual Health Conference.—The Sixth Annual Health Conference of the Medical and Chirurgical Faculty was held in Baltimore, March 6 to 11, and proved one of the most successful conferences ever held. The attendance at all the meetings has been most gratifying. The program was as follows:

March 6: "The Relation of Preventive Medicine to Child Welfare," Dr. William H. Welch.

March 7: "Relation of Heredity to Child Welfare," Dr. Adolf Meyer. "Prenatal Care," Dr. Alice Weld Tallant, Professor of Obstetrics, Women's Medical College, Philadelphia.

March 8: "Midwifery," Dr. John W. Williams. "Midwifery Conditions in Maryland," Dr. Fred V. Beitler, Halethorp.

March 9: "Infant Welfare," Dr. James H. M. Knox, Jr. "The Babies of China," Dr. Mary J. Stone.

March 10: "Nutritional Diseases of Babies," Dr. Charles W. Mitchell. "Infectious Diseases of Babies," Dr. Charles O'Donovan. "Economy and Efficiency from an Oral Hygiene Standpoint," Dr. Herbert L. Wheeler.

March 11: "What a City Should Do With or For Day Nurseries," Miss Anna W. Kerr, Department of Health, New York. "The Kindergarten in Relation to the Physical Welfare of Children," Miss Patty Hill, Professor of Kindergarten Education, Columbia University.

There were motion picture exhibitions every evening from 8 to 8:30 p.m. and the health exhibit was open daily.

MISSOURI

Changes at State Hospital No. 2.—Dr. Collis I. Roundy, St. Joseph, has been appointed a member of the medical staff.——Dr. John A. Postlewait, Tarkio, has resigned as president of the board of trustees.——Dr. William L. Whittington, St. Joseph, has been appointed superintendent, succeeding Dr. George R. Thompson.——Dr. Amos T. Fisher has resigned as pathologist, and Dr. Ray O. Lieuallen, as a member of the staff of the hospital.

Personal.—Dr. Arthur L. Anderson, Springfield, retired president of the Greene County Medical Society, was the guest of honor at a dinner given by the society, February 25, over which Dr. Joseph W. Love, Springfield, presided as toastmaster.——Dr. Joseph S. Summers, Jefferson City, suffered $2,000 damages by a fire in his office, February 24.——Dr. George Dock, St. Louis, delivered an address, March 2, before the physicians of Jacksonville, at the public library, on "The Relation of the Medical Library to the Public."

Sanatorium Notes.—Drawings have been prepared by Kansas City architects for the new $100,000 tuberculosis sanatorium for Jasper County. The site for the hospital and the decision on the plans will be decided this month.——A permanent organization looking to the relief and control of tuberculosis in Greene County was effected, February 16, at a meeting held in Springfield. The charter membership includes about fifty members of the Greene County Medical Society, Springfield Graduate Nurses' Association, Springfield Visiting Nurses' Association, and others. The first official act of the association was the proposal for an election to vote bonds of $50,000 to erect and maintain a sanatorium for tuberculosis in Greene County.

NEW YORK

The Fronczak Dinner.—A complimentary dinner was given by members of the medical profession of Buffalo, March 15, at the Hotel Stattler, to Dr. Francis E. Fronczak, the first appointed health commissioner under the new commission form of government. Dr. F. Park Lewis officiated as toastmaster. The speakers included Drs. John C. MacEvitt, Brooklyn; Deputy State Health Commissioner Dr. Linsly R. Williams, Mayor Louis P. Fuhrman, and others. Dr. Fronczak requested that instead of a token of esteem being given to him, the equivalent in money might be presented for the benefit of suffering humanity and suggested the American Red Cross as the most worthy recipient of this donation.

Roe Memorial Meeting.—A special meeting of the Rochester Academy of Medicine will be held, March 29, as a memorial to the late Dr. John Orlando Roe at which Dr. Joseph R. Culkin, president of the Academy, will give an outline sketch of Dr. Roe's life; Dr. Eugene H. Howard will present the report of the committee on resolutions; a portrait of Dr. Roe will be exhibited and accepted by the president in behalf of the academy; Dr. Bradford A. Richards will present a paper on "The Scientific Contributions of Dr. Roe" followed by a discussion and personal reminiscences, and Dr. Wendell C. Phillips, New York, will close with an address on "John O. Roe as a Scholar and Man, His Personal Characteristics and Worth."

Personal.—The Medical Advisory Board of Niagara Falls Memorial Hospital, on March 3, presented Dr. William H. Hodge with a loving cup. Dr. Hodge was organizer of the board in 1905, and has served as a member ever since and several years as chairman of the board.——Dr. James D. V. Sheehan, Syracuse, has been appointed vaccinator succeeding Dr. Juliet E. Hanchett.——Dr. John H. Benjamin, Riverhead, is reported to be ill in Dr. Pilcher's Private Hospital, Brooklyn.——Drs. John and Edward S. Van Duyn and Daniel F. Luby, Syracuse, leave for the war zone this month and will be on duty with Auxiliary Hospital No. 43, located at Dieppe, France.——Dr. Willard J. Denno, New York, now secretary of the state department of health, has been appointed secretary of the State Board of Medical Examiners.

New York City

New Charities Bulletin.—The commissioner of the Department of Public Charities of New York announces that nine hospitals of the department are about to publish a medical bulletin to be known as the "Hospital Bulletin of the Department of Public Charities."

Columbia Medical School Open to Women.—The trustees of Columbia University, at their last meeting, decided to admit women to the medical school as soon as the equipment made the step practicable. Five years ago women were admitted to the summer sessions. The entire enrolment of the medical school at present is 373.

Hospital for Wall Street District.—Application was made recently to the secretary of state for a charter for the new Broad Street Hospital. It is announced that sufficient funds have been subscribed by individuals and firms in the Wall Street district to insure the continued service of the hospital to the 1,500,000 people of the downtown section of Manhattan.

Personal.—Dr. Joseph A. Blake has been made chief of the surgical center in the Department of the Seine and Oise. This promotion is the first of its kind to be con-

ferred on an American surgeon in the service of France. It places Dr. Blake in direct control of six military hospitals. ——Dr. and Mrs. Donald B. Armstrong, Stapleton, S. I., have been awarded the $1,000 prize offered by the Metropolitan Life Insurance Company for the best pamphlet on social hygiene for boys and girls.——Dr. William B. Giles returned, February 24, after eight months' service in the French military hospitals.——Dr. Frank H. Lasher, Brooklyn, had two ribs fractured in a collision between his automobile and a wagon, February 25.

Semicentennial of Health Department.—The New York City Health Department celebrated the fiftieth anniversary of its establishment with a banquet at the Plaza Hotel, March 9, at which Health Commissioner Haven Emerson presided. Mayor Mitchell spoke on "The Health Department's Place in the City Government"; City Chamberlain Bruere on "The Future of the Health Department"; State Health Commissioner Hermann M. Biggs on "The Scientific Control of Infectious Diseases"; Dr. Walter B. James, president of the New York Academy of Medicine, on "The Medical Profession and the Public Health"; Dr. William H. Welch of the Baltimore Children's Hospital on "National Importance of Preventive Medicine," and Dr. Stephen Smith, a member of the original City Board of Health, on "Development of the Health Department as Seen by a Pioneer." Greetings from Canada were presented by Dr. Bryce.

NORTH CAROLINA

New Equipment for State Laboratory.—The state laboratory of hygiene, operated under the direction of the state board of health as one of its divisions, has recently been provided with new equipment, and it is expected to be able to offer the profession of the state better facilities for the free examination of throat secretions for diphtheria, sputum for tubercle bacilli, feces for hookworm, blood for the malarial plasmodium, etc.

Operation of New Medical Statute.—Under the first six months of the operation of the new state medical statute (taking effect July 1, 1915), transferring the authority for prosecutions of the state medical license practice laws from the local counties to the office of the attorney general at Raleigh, who on complaint of the state board of medical examiners, directs the solicitor to bring prosecutions, twelve unlicensed physicians have left the state to evade prosecution, and three have been prosecuted and convicted in the courts.

Polyclinic Organized.—The St. Agnes' Polyclinic has been organized at Raleigh in connection with St. Agnes' Hospital for Colored People. Dr. Jennie A. Duncan is resident physician and superintendent of nurses, and Dr. Lemuel T. Delany, assistant resident physician. The management of St. Agnes' Hospital, in announcing the organization of the polyclinic, invites all regular physicians to attend free of charge, and expresses the hope that the polyclinic will prove of interest to the physicians of the surrounding territory who may now be able to attend systematic clinics to be appointed for their convenience.

OHIO

Polish Doctors Organize.—Polish physicians of Cleveland have organized a local branch of the Polish Physicians' Union, with an initial membership of sixteen. Dr. Walter Peters was elected president; Dr. Frank J. Kuta, vice president, and Dr. Ignatius M. Jarzynski, secretary-treasurer.

Personal.—Dr. Arthur G. Hyde, acting superintendent of the Cleveland State Hospital for eighteen months, was appointed superintendent, March 1, succeeding Dr. Charles H. Clark, transferred to the Lima State Hospital.——Dr. John G. Frey, Cleveland, has been appointed neurologist in charge of the new Eugenic Laboratory of Cleveland.——Dr. Clarence D. Selby has been appointed commissioner of public health of Toledo, succeeding Dr. Daniel W. Iford, resigned. ——Drs. Willard J. Stone and John T. Murphy, Toledo, participated in the program of the Hardin County Medical Society at Kenton, February 29.——Dr. Charles E. Sawyer, Marion, has been appointed a member of the state medical board, succeeding Dr. T. Addison McCann, Dayton, term expired.

Cincinnati

Personal.—Dr. James M. Bentley has been appointed junior visiting physician to the contagious group of the Cincinnati General Hospital.——Dr. Georges Rasetti, who served for several years on the western front with the French army, was transferred to Bonaki, Occidental Africa, December 15.—— Dr. Thomas W. Hays, who has been ill at the Betts Street Hospital for several weeks, is reported to be convalescent.

Diphtheria.—An epidemic of diphtheria is stated to exist in the Twenty-Second Ward where thirty-seven out of eighty-five known cases in the city have been reported. The houses are placarded and every precaution to check the spread of the disease is being taken.——A formal complaint has been lodged by Health Officer John H. Landis and Assistant Health Officer Peters, with the State Board of Medical Examiners, against the method of a Cincinnati physician in treating diphtheria. This practitioner is stated to be opposed to the use of antitoxin and to have advised his patients and their families that the use of this agent was harmful rather than beneficial.

OKLAHOMA

Hospital Notes.—The new Woodward Hospital, which was opened by Dr. and Mrs. Clinton M. Tracy, January 13, is building an addition of sixteen rooms.

Smallpox in Oklahoma City.—At Oklahoma City, all the pupils of the high school were ordered to be vaccinated on account of the presence of smallpox, and the presence of the disease in one of the teachers. Two pupils refused to comply with the order and were ordered to remain out of school for thirteen days.

New District Society.—Dr. Garraed P. Cherry, Mangum, recently called a meeting of physicians of the counties comprising the third councilor district and organized a district society. Dr. Sam H. Landrum, Altus, was appointed secretary, and the next meeting will be held at Altus, April 5. The society will hold clinical meetings quarterly.

Personal.—Dr. Albert C. Hirshfield, Norman, who has returned after a year of service with the Russian Army, will locate in Oklahoma City.——Dr. Clinton M. Maupin, Waurika, has been appointed health officer succeeding Dr. Roscoe G. Dixon, Sugden, deceased.——Dr. James J. Williams, Weatherford, has been appointed a member of the State Board of Medical Examiners, succeeding Dr. Le Roy Long, Oklahoma City.——Dr. George D. McLean, Oklahoma City, has returned from service with the British Army in France.

PENNSYLVANIA

New State Hospital Wanted.—The state board of charities, at its meeting in Harrisburg, March 8, advocated the erection of a new hospital for the insane, the establishment of a home for those suffering from incurable diseases and the completion of the village for feebleminded women at Laurelton.

Philadelphia

Dermatologists Seek Charter.—A petition for a charter was filed, March 1, in the Common Pleas' Court, by Drs. J. F. Schamberg, J. M. Kolmer, David Riesman and Albert D. Ferguson, for the incorporation of a Dermatological Research Laboratory, the object as stated being "for the promotion of scientific research into the cause and care of skin disease and every other disease of cognate character."

Medical Conditions of South Philadelphia.—"The Medical Conditions of South Philadelphia" will be discussed by Director Krusen and others at a combined meeting of the South Branch of the Philadelphia County Medical Society and the South Philadelphia Business Men's Association at a meeting, to be held March 27. This will replace the stated meeting of the branch society scheduled for March 24.

Indictments in Antidope Crusade.—Twenty indictments against persons accused of violating the Harrison Narcotic Law were returned, March 10, by the federal grand jury. This makes a total of fifty-eight indictments returned by the grand jury since March 6. Of the number returned March 10, nine are against dealers and two are against physicians. The specific charges against physicians are that they furnished prescriptions for narcotics to dope victims who were not under their observations as patients taking a cure for the habit.

Personal.—Dr. Alonzo E. Taylor, Rush Professor of Physiological Chemistry at the University of Pennsylvania, sailed March 11 for Germany where he will engage in Red Cross work as an attaché of the American Embassy at Berlin. ——Dr. Francis V. Gowen sailed, March 11, for Bordeaux, France, and will be attached to a military hospital at Beaumont, Périgord.——Friends of Dr. John W. Dick gave him a testimonial banquet, March 6, to commemorate the beginning of his fiftieth year of active medical practice. Dr. Empson H. Bainbridge presented Dr. Dick with a gold stick pin bearing the numerals "50" and he also received other presents.——Dr. Daniel J. McCarthy has been appointed by

the president as an American agent to study German prison camps, and sails for Germany this week.——Dr. William J. Ryan has been appointed assistant ophthalmologist to the Philadelphia General Hospital.

WISCONSIN

Communicable Diseases.—An epidemic of scarlet fever is said to exist at Racine, where sixty cases have been reported. ——A death certificate received by the health officer of Milwaukee, March 1, gave the cause of death as typhus fever, the first death from this disease reported in Milwaukee since 1912.

Typhoid Fever.—On March 4, eleven new typhoid cases were reported in Milwaukee, making a total of 261, with twelve deaths.——The secretary of the school board has bought 500,000 paper drinking cups for the use of schoolchildren. All drinking water in the schools is thoroughly boiled.——The City Council of Milwaukee, on March 2, appropriated $10,000 as an emergency fund to be at the disposal of Health Commissioner Ruhland for use in halting the spread of typhoid fever.——Dr. Cornelius A. Harper, state health officer, Madison, was in Milwaukee, March 2, to study the typhoid situation.——Six physicians have been appointed to administer antityphoid inoculation to all persons in homes in which typhoid fever exists.——Several men employees of the dam construction work on the Mississippi River at Genoa have been stricken with typhoid fever.——The State Hygienic Laboratory, Madison, has manufactured sufficient serum for the antityphoid inoculation of several thousand persons.

CANADA

Aesculapians Elect.—The Aesculapian Club, Toronto, closed its meetings for the season of 1915-1916 on March 9. Dr. Charles J. C. O. Hastings was elected president; Dr. William Goldie, vice president; Dr. George Elliott, secretary, and Dr. Edmund E. King, treasurer.

Compensation Act.—The Medical Council of Ontario is seeking suggestions from the medical profession as to changes in the Ontario Workmen's Compensation Act. At the present time the physician attends the injured, makes out the papers for the presentation of his chaim, receives no remuneration from the employer, nor from the compensation board, and it is said, not much from the injured.

Tuberculous Conferences.—The City Health Department, Montreal, held a series of conferences during 1915 in its campaign against tuberculosis and infant mortality which were attended by over 26,000 people. Altogether 147 lectures were given and it has been decided to continue these conferences during 1916. Montreal has fourteen public baths under municipal direction. These are available to women on certain days of the week.

Personal.—Lieut.-Col. Robert M. Simpson, M.D., Winnipeg, who was placed under arrest while on active service in France, may be brought back to Winnipeg under military orders. He is charged with complicity in the Manitoba Parliament Building frauds.——Lieut.-Col. Arthur E. Ross, M.P.P., Kingston, Ont., who was offered the command of the Ontario Military Hospital, recently opened at Orpington, England, has declined to accept the position.

GENERAL

Sanitary Convention.—The fourth annual meeting of the Southern Sanitary Association will be held at Brunswick, Ga., March 23 and 24.

Michel Receives Medal of Honor.—Assist. Surg. Carl Michel, U. S. P. H. S., has been awarded a silver medal of honor by the secretary of the treasury in recognition of his efforts to save a man from drowning at El Condado Beach, San Juan, P. R., Nov. 27, 1915. Surgeon Michel swam, at the risk of his life, through a heavy surf breaking over a coral reef in an endeavor to save the man who was struggling in the heavy breakers and who was being swept out to sea.

Study of Criminal, Pauper and Defective Classes.—The establishment in the Department of Justice of a bureau for the study of the abnormal classes is provided for in a bill introduced by Senator Robinson of Arkansas. The work is to include both laboratory investigations and the collection of sociologic and pathologic data, especially such as may be found in institutions for the criminal, pauper and defective classes. Cooperation with state and municipal and other officials of this and other countries is authorized.

Mortality Statistics to be Regulated.—If a bill introduced by Representative Watkins of Louisiana be enacted, the Federal Census Bureau, in compiling mortality statistics, will make a separate tabulation and rating of the white and the colored races and the mortality rates of cities will be based on the deaths of actual residents only. The death rates of nonresidents are to be kept separately. What shall constitute a "resident" within the meaning of the law is specifically assigned to the Census Bureau for determination.

A Warning.—Dr. Frank B. Reagor of Shelbyville, Tenn., writes to THE JOURNAL asking that a warning be published against John Mack, who claims to represent the Ohio Service Co. of Cincinnati, and who is selling automobile supply service at $10. Dr. Reagor states that mail addressed to this company at Cincinnati is returned with the notation that there is no such concern in that city. In THE JOURNAL for March 4, 1916, p. 748, under the heading Kentucky News, a warning was published concerning a similar scheme used by a man who gave his name as L. A. McCoy.

Sociologic Congress.—The Sociologic Congress will hold its annual session in New Orleans, April 12 to 16, and the convention will really consist of eleven conferences which will meet separately during the morning, all coming together in the afternoon and evening for general session. The special subjects for conference are "The Government and Health"; "The School as the Conserver of Health"; "The Medical Profession in the Fight With Public Health"; "The Press as the Champion of Public Health"; "Race Relations," and "The Church as the Guardian of the People's Health." There will also be conferences on law and order, the teaching of sociology in Southern schools, travelers' aid, temperance and other vital sociologic topics.

Belgian Scholarship Committee.—The Belgian Scholarship Committee, which was founded about a year ago in Washington to collect money for destitute scholars, is now broadening its scope. Its aims are at present to give to Belgian scholars, artists and writers every chance to resume their work in arts or sciences and to raise a fund for the reconstruction of a new and better Belgium, especially in the educational field. The committee makes an appeal for promises of books to be shipped to Belgium as soon as circumstances permit and suggests that libraries, educational institutions and learned societies send the committee a list of the books they are willing to give to Belgium. Thus it will be possible to offer Belgium, soon after the cessation of hostilities, a library of books published in America or relating to American affairs. The committee also appeals for money to help Belgian scholars and artists and to carry on its activities. Associated members of the Belgian Scholarship Fund agree to subscribe at least $10 a year; sustaining members at least $100 and fellows $1,000. Checks should be drawn to the order of John Joy Edson, treasurer, and transmitted to the Belgian Scholarship Committee, 309 Wilkins Building, Washington, D. C.

Prohibition of Guaranty Legend on Food and Drug Labels.—The difficulty encountered in undertaking fairly and effectually to carry out the spirit and intent of the Federal Pure Food Law of June 30, 1906, was clearly shown in a public hearing held by the Bureau of Chemistry, Department of Agriculture, in Washington, March 10. The purpose of the hearing was to discuss the necessity of a further postponement of the date when the order forbidding the use of a guaranty legend on the labels and pakages of foods and drugs should be discontinued. The hearing was attended by representatives of the National Canners' Association, the National Wholesale Druggists' Association, the National Retail Druggists' Association, the National Drug Trades Conference and the National Association of Manufacturers of Medicinal Products, and by representatives of establishments engaged in the manufacture of labels and containers of food and drug products. At the close of the hearing the Board of Food and Drug Inspection, before which the hearing was given, took the matter under advisement.

It will be recalled that the secretary of the treasury, the secretary of agriculture and the secretary of commerce are authorized by the Pure Food Law to make regulations for carrying the law into effect. By the regulations as first promulgated it was provided that a general guaranty might be filed with the secretary of agriculture by any manufacturer of or dealer in drugs and food products who desired to assume full responsibility for the purity and correct labeling of his product even in the possession of other dealers; that each guaranty so filed should be given a serial number, and that every package of goods sold under such guaranty should

contain on the label the serial number so given and the words "Guaranteed Under the Food and Drugs Act, June 30, 1906." Attempts were soon made, however, by unscrupulous persons, through advertisements in the press and by circulars and billboard posters, to cause the public to interpret the phrase as a guaranty not by the manufacturer but by the government itself; and the Commissioner of Patents found it necessary to refuse to register trademarks of which the guaranty clause formed a part, on the ground that the phrase was misleading and under the law could not be registered. The regulation was, therefore, amended by the three secretaries, to take effect Jan. 1, 1909, so as to require that the name of the guarantor form a part of the guaranty legend, as follows: "Guaranteed by (insert name of guarantor) under the Food and Drugs Act, June 30, 1906"; but the amendment provided that two years should be allowed within which to use up old labels and plates and to provide new ones.

The amendment to the regulations that required the name of the guarantor to appeal in the guaranty legend did not accomplish the desired end, and on May 5, 1914, the filing of general guaranties and the assignment of serial numbers were discontinued, and the use of any guaranty legend on the label or package was forbidden, to take effect May 1, 1915. Subsequently the date when this amendment was to take effect was postponed until May 1, 1916, with the further proviso that products packed and labeled prior to that date in accordance with the old regulations might be sold up to Nov. 1, 1916. It was because of the approach of the dates when the prohibition of the use of the guaranty legend and of the sale of goods bearing it will become effective that this hearing was given.

Statements were submitted on behalf of the various interests represented at the hearing to show the extent, nature, and value of the stocks of labels still on hand, notwithstanding that no new labels had been ordered bearing the guaranty legend since the use of such labels had been forbidden by the amendment of May 5, 1914. The labels still in the possession of one of the large packing houses was said to be worth approximately $42,000, although three quarters of the entire product of the concern is now going out under labels conforming to the new requirements. Labels for standard goods are ordered in the largest practicable quantities from motives of economy and convenience; and by reason of crop shortages, which limit the volume packed, and of variations in the demand, a given edition of labels may last much beyond the expected time. Manufacturers of labels pointed out the difficulties in the way of canceling the guaranty legends on labels already printed, and the expense involved; and on behalf of canners and manufacturers of drugs it was alleged that the canceling of the guaranty on a label would give rise, in the mind of a possible purchaser, to the idea that the guaranty had been withdrawn on account of some impurity or deterioration in the goods. To enforce the discontinuance of labels already on hand and the change of labels on outstanding stocks of goods in the hands of jobbers and retailers would, it was claimed, not only cause a very great money loss but also lead to a great amount of confusion and trouble. On behalf of the National Association of Retail Druggists, it was urged that the presence of a guaranty legend on the label afforded a real and convenient protection to the retailer, and that no instance of fraud arising out of the legend was known to the association. The manufacturers, however, claimed that to them the guaranty legend was of no value legally or commercially, although some of them might desire to keep it on their labels from sentimental reasons. On behalf of one manufacturer it was contended that the government could not lawfully forbid the use of a guaranty legend on a label, unless the legend used could in fact be shown to be false and misleading, and inquiry was made as to whether the government would agree to a test case or agree to expedite a case so as to have the courts determine this point. Both suggestions were met with the statement that the government never agreed to test cases and that it could not undertake to expedite any other case that might be brought. The manufacturers and dealers asking the further postponement of the time when the use of the guaranty legend would become unlawful suggested no specific date for such postponement, but desired to be allowed if possible to use up all stocks of labels now on hand, regardless of the length of time required for that to be accomplished. It seemed to be the opinion of those manufacturers and dealers who were present that such an extension of time would work no injustice to such manufacturers and dealers as have already arranged to comply with the regulation within the time stated, the opinion being that the presence of the guaranty legend on a package did not stimulate its sale. An opportunity was given any one opposed to an extension of time to protest, but no one appeared.

FOREIGN

Merger of Madrid Exchanges.—The *Siglo Medico* has taken over the *Revista Clinica de Madrid* which has just closed its eighth volume. The *Siglo Medico* thus enters its sixty-third year with a more than doubled editorial staff and the backing of the *Revista.*

Precautions at Matamoras.—The health authorities at Matamoras, Mexico, opposite Brownsville, Texas, have adopted energetic measures to prevent typhus fever from entering the United States at this point. At the railway station a fumigation plant and gasoline bath equipment have been established, and every passenger arriving from points as far inland as Monterey is thoroughly fumigated and his clothes treated by gasoline before being permitted to make application for entry to the American immigration authorities.——The city officials of Matamoras have arranged for a house-to-house vaccination campaign against smallpox, and three physicians have volunteered their services for this work.

Deaths in the Profession Abroad.—R. Benavides, professor of obstetrics at the University of Lima, Peru, from 1865 to 1911, president of the Academia Nacional de Medicina for several terms, aged 84.——L. Comenge, chief of the public health service of the Barcelona district of Spain and writer on medical subjects and on the history of medicine. He is credited with having fought off the plague from Spanish possessions.——S. Stocker-Steiner of Lucerne, Switzerland, died suddenly from heart disease, aged 67. He took a leading part in the organization of the profession and in public health matters, the installation of a public water supply at Grosswangen being one of the innovations credited to his efforts.——C. Girard, professor of surgery at the University of Geneva, Switzerland, and chief of the surgical clinic, aged 66.

Our Foreign Exchanges.—The file of contents of the weeklies in foreign languages, published regularly in our Foreign Current Literature Department, is now complete for 1915 for the *Presse Médicale* and the *Bulletin de l'Académie de Médecine* of Paris, and for the *Berliner, Deutsche, Münchener* and *Wiener Wochenschrifts,* the weekly *Tijdschrift* from the Netherlands, one Swiss, three Italian and two Danish weeklies. Only one number is missing to make the file complete of the *Medizinische Klinik,* the Russian weekly *Vrach,* from Petrograd, the *Semana* from Buenos Aires, and the *Brazil Medico* from Rio. The weekly Zentralblatts for gynecelogy, surgery and internal medicine, from Leipzig, all stopped abruptly with the issue for Nov. 20, 1915. Some of the monthlies from the various countries show several gaps, as is evident in the Current Literature Department, but the three Scandinavian monthlies and a number of the French and German have been completely indexed. The showing in our Foreign Current Literature Department through 1915 thus testifies to excellent postal arrangements in the belligerent and adjacent countries even through the war. Some of the French monthlies finished late in 1915 the volume begun in 1914. One issue of the *Revue de* Chirurgie, for example, bore the date "Aug. 1914-Nov. 1915," meaning that this one copy embraced these fifteen months. Eleven regular French exchanges, including the well known *Semaine Médicale,* have given no signs of life since the war began. Some of the weeklies, like the *Lyon Médical,* changed to a monthly and have been coming regularly.

WAR NOTES

Relief for Serbians in Corfu.—Dr. Edward W. Ryan of the American Red Cross Commission to Serbia left Athens, March 2, with 240 tons of foodstuffs, clothing and medicine for the relief of Serbians on the Island of Corfu.

Government Respects Scruples.—In a circular issued by the local authorities in London, March 7, the position of a conscientious objector under the new military compulsion act is defined. They hold that the man who honestly, and as a matter of conscience, objects to combatant service is entitled to exemption. This certificate of exemption would not exempt the objector from service, for instance, in the Royal Army Medical Corps. In exceptional cases in which genuine convictions and the circumstances of the man are such that neither exemption from combatant service nor conditional exemption will adequately meet the case, absolute exemption may be granted if the tribunal is fully satisfied of the facts.

PARIS LETTER

PARIS, Feb. 17, 1916.

The War

EPIDEMIC DISEASES DURING THE WAR

Statistics show that there have been fewer epidemic diseases during the war than there were during peace. Measles and scarlet fever have almost disappeared; typhoid fever alone has increased, but it causes fewer deaths. The mortality for this disease has fallen from 12 per cent. of the patients to 2.55 per cent. in the last quarter of 1915. The mortality for all contagious diseases together, which was 0.27 per thousand in the last quarter of 1911, was, in 1915, 0.15.

Following are the figures for each disease:

	1911	1915
Measles	1.26	0.11
Scarlet fever	1.29	0.12
Mumps	2.18	0.73
Diphtheria	0.35	0.39
Cerebrospinal meningitis	0.04	0.09
Typhoid fever	1.88	4.40
Dysentery	0.11	0.18
	7.11	6.02

LECTURES ON ASPHYXIATING GASES

The administration of the medical service has organized, in all the regiments of the entrenched camp at Paris, lectures on the asphyxiating gases employed by the enemy. These lectures are given by an *aide-major,* who is a professor of chemistry and toxicology. The lecturer, after showing the composition of the asphyxiating gases used by the Germans, explained that a humid alkaline barrier is sufficient for defense. Improvised devices are not to be despised. In default of appropriate masks the nose may be plugged with a damp handkerchief on which soap has been rubbed. Experiments followed the lecture. The lecturer shut himself and his auditors up in a room where they underwent the effects of a whole series of asphyxiating gases. Each one made use of protective apparatus, the efficacy of which was thus clearly demonstrated.

MEASURES AGAINST ADULTERATED FOODS AND DRINKS

I mentioned in previous letters the brazen advertising of which the soldiers at the front are often victims. Here is an example:

MINT ALCOHOL OF THE ARMIES

Tonic. Refreshing. Prepared according to the formula of the Académie de médicine. Prevents Diseases. Three drops in a glass of water sterilize the water. Five drops give the best dentifrice. Ten give the most healthful and refreshing of drinks.

The manufacturer and vender of this product have been prosecuted for deception with regard to the nature and the quality of the goods sold. The courts condemned each of the defendants to pay 1,000 francs ($200) fine because of the falsity of the therapeutic claims and of the statement that the product is prepared according to the formula of the Académie de médecine and also because reliance on the fraudulent preparation is likely to lead the public to refrain from taking necessary precautions to avoid diseases.

AMERICAN GIFT TO THE ARMY

At the railway station of La Chapelle (Paris) a sanitary train of the American ambulance service has been put into operation. This train, offered to France by a group of Americans, includes thirteen cars, especially arranged to receive from 240 to 250 wounded. It weighs 450 tons and measures 260 meters in length (850 feet). It includes an operation room, kitchens and all modern conveniences. Each hospital car contains twenty-four litters admirably hung. A dining car and sitting-room car are for the service of the medical and sanitary staff of the train, and on each car are painted the French and American colors as well as the Red Cross.

MENINGITIS DUE TO MUMPS

At the Réunion médicale de la VI-e armée, Dr. Noël Fiessinger of Paris reported five cases of meningitis due to mumps which he had observed in a series of forty-one cases of the latter disease. Of the five meningitis cases, four occurred in a little epidemic of twelve cases of mumps in a company of Algerian sharpshooters. Meningeal complications occurred from the second to the fifth day in normal cases of mumps without being indicated by anything in the course of the parotid inflammation. They manifested themselves first by a rise in temperature to 38.5 C. (101.3 F.), by intense headache, accompanying symptoms of vomiting; the neck was stiff; there was a slight Kernig's sign, and lumbar puncture withdrew a clear fluid under pressure and containing excessive albumin and lymphocytes. These complications were temporary; in two days they disappeared while the temperature fell to 37 C. (98.6 F.). For a while headache, and vertigo and great general fatigue persisted. Lumbar puncture relieved headache in every case. It is important to detect these masked cases of meningitis, which often explain the difficult convalescence in certain cases of mumps. The fact that Fiessinger had observed four cases of meningitis among Arabs shows that this complication should not be attributed especially to a nervous predisposition, but rather to the nature of the epidemic.

THE SCHOOL OF MASSAGE FOR BLIND SOLDIERS

This institution, founded in the convalescent home at Reuilly by Mme. A. Léopold-Kahn, May, 1915, has just been definitely organized under the patronage of M. J. Brissac, director of the public charities and hygiene in the interior department. The Ecole de massage des soldats aveugles is intended to train accomplished masseurs. Several of its pupils will soon pass the examination which is to open the profession to them. In Japan the profession of masseur is reserved for the blind; for delicacy and sensitiveness of touch no one with sight can equal them.

BERLIN LETTER

BERLIN, Jan. 31, 1916.

Personal

At the conclusion of the present semester, Professor Hasse, director of the anatomic institute in Breslau, will retire from his teaching position by reason of advanced age. He was called to Breslau in 1873.

April 1, Prof. Albert Fränkel will retire from the position of director of the Hospital Am Urban in Berlin.

The War

Repeated reports have been received from the field with regard to the occurrence of nyctalopia (night blindness) among the soldiers. Professor Best of Dresden does not believe that nyctalopia is to be considered a condition peculiar to the war, but rather a disease discovered as occurring among soldiers in the trenches, where service demands activity at night, irregular meals, deprivation and strained attention, thus making unusual demands on mind as well as body; therefore such pathologic conditions are encountered but are not to be regarded as a particular war nyctalopia. A somewhat different opinion is held by Dr. Paul of Halle, the staff ophthalmologist. Sixteen nyctalopes have been referred to him since the war began. They were all strong, serviceable men, well nourished, and in no wise conveying the impression of lack of nourishment or bodily fatigue. Fourteen were members of the infantry, one was an artillery man and the other an engineer. They had served in the forefront of activities. Examination of the eyes failed to disclose any pathologic change. The oculist in the field who examined these men failed to find any pathologic change, and therefore was inclined to believe that malingering might be considered. Dr. Paul was of the opinion that the nyctalopia in these cases was not of the type occurring in times of peace, and that it was a purely nervous affection due to nerve exhaustion and psychic depression, the result of the method of warfare in vogue during this war. Dr. Paul has not seen a case of nyctalopia since last May, probably because the spring and summer weather had had a favorable influence on the psychic condition of the soldiers in the trenches. The treatment of nyctalopia is similar to that of all nervous conditions, that is, avoidance of shocks to the nervous system.

Progress in Roentgenography

At a recent session of the Berlin Medical Society, Dr. K. Lasser exhibited a new tube which, it is believed, will greatly simplify Roentgen diagnosis and therapeutics. The anticathode in this tube is made of pure wolfram. It does not become heated, and therefore the tube gives longer service than tubes in which the anticathode is made of different metal. The anticathode consists of a spiral of wolfram enclosed in an iron cylinder. The spiral is heated by means of a transformer. The apparatus is regulated with regard to the formation of hard or soft rays by means of the tension curve of the current and the elevation of temperature. This apparatus is absolutely noiseless and enables one to make pictures showing great detail, and the work can be duplicated easily, a very important feature. Practically homogeneous rays can be produced.

The Nourishment of Brain Workers

Dr. Hindhede, director of the laboratory for observations on nutrition in Copenhagen, has published a remarkable article in the *Medicinische Reform.* The American physiologist, Chittenden, recently published observations made on 108 students who were allowed an unrestricted choice in their food. Thirty-six of these students, who ingested on an average 58 gm. of albumin, failed to show any deterioration, either physical or mental, as a result of such restriction. For twenty years Hindhede has been living on such an albumin-short diet, and during that time has enjoyed the best of health. He has endeavored to ascertain whether the same state of affairs would continue under even greater restriction. Hindhede, his assistant Madsen, and two students were the subjects of the experiment. It was found that the minimum could be as low as 9.6 gm.; in fact, for a short time 5 gm. failed to influence mental or physical activity noticeably. The depreciation is 60 per cent. greater with hard labor than with moderate labor. This is opposed to the old dictum that depreciation is the same at all times, during both work and rest; in other words, that the brain worker requires as much albumin as the laborer. On the basis of 3,000 calories, the minimum is about 20 gm., somewhat less for light labor than for heavy labor. This figure is in accord with that previously given as the minimum for meat food. Hindhede is of the opinion, however, that meat, potatoes and bread albumin have the same nutritional value.

LONDON LETTER

London, Feb. 21, 1916.

The War

TUBERCULOUS CASES ON ACTIVE SERVICE

Dr. G. S. Banks, tuberculosis medical officer for Aberdeen, has issued an interesting report on sixty-four insured tuberculous persons, formerly in receipt of sanatorium treatment, who have joined the military or naval forces. The number, Jan. 12, 1916, was 64, of whom 57 were on military and 7 on naval service. Of the total, 58 were suffering from pulmonary disease, and of these, 34 had received sanatorium or hospital treatment for various periods. One man actually enlisted while he was a patient in the tuberculosis wards of the city hospital. Out of 64 who enlisted, 19 have recently been on active service, 14 at the Western front and 5 on mine sweepers. Among six men discharged from the services, 1 had enlisted no fewer than three times before being finally discharged, and 3 had been discharged from one branch of the service and then enlisted in another. As regards the severity of the disease, out of 48 pulmonary cases, 1 was of the first, 12 of the second, and 35 of the third stage. Twenty out of 43 whose sputum had been examined gave a positive result. Of the 14 cases at the Western front, of whom 3 were known to have had tubercle bacilli in the sputum, 4 were glandular and 10 pulmonary, and of these 10, 6 were in the second stage and 4 in the third. From the fact that out of 14 men accepted for foreign service only 1 had broken down in health, and that only temporarily, Dr. Banks concluded that the conditions of life in the field are not unfavorable to the maintenance of the general health of the tuberculous patient if the disease is not active or far advanced. The common belief that a great risk to health inevitably follows a continued exposure to the rigors of winter is not corroborated by this experience, and any risk which may exist is more than counterbalanced by the general influence for good which attends life in the open air.

EMERGENCY SURGICAL AID CORPS FOR ZEPPELIN RAIDS

The formation of this corps was announced in a previous letter. At a meeting held at the Royal Society of Medicine, the chairman, Sir Rickman Godlee reported that two distinct duties had been imposed on the executive: (1) that of arranging for assistance in the case of raids of any description on the East Coast from Dover to the Wash, and (2) that of organizing for similar help in the case of aerial raids on the metropolis. Since the starting of the corps, 155 practitioners had volunteered to serve. Of these a considerable number have been obliged to retire, owing to having undertaken other military duties, but 107 names still remained. There had been nine calls to date—two for the East Coast and seven for London. On eight occasions the corps was asked to "stand by" till danger appeared to be over, and was at length told that it might disperse. On the last occasion the summons did not reach them till one hour after the disaster, and by the time the corps arrived on the scene (within ten minutes of the call) all the wounded had been taken away. As a result of a private call, some of the corps went to a large hospital and were kept very busy till a late hour. Surgeon-General Culling then tendered the warm thanks of the War Office to the members of the corps for the generous way in which they had spontaneously taken on themselves such important duties. He assured them that the mere knowledge that there was such a body to fall back on in case of need was a source of great comfort to the War Office, and he added that he was authorized to say that the need for their services was graver than ever, and he believed that before long they would find more than enough to do.

THE EPIDEMIC OF CEREBROSPINAL MENINGITIS IN THE MILITARY CAMPS

After the outbreak of the war, when the new army was being formed and large numbers of young men were congregated in camps, in some of which cerebrospinal meningitis became epidemic, the Medical Research Committee (a body, as stated in previous letters, formed under the insurance act for the purpose of investigating disease), in conjunction with the War Office, appointed an advisory committee in the spring of 1915 consisting of three well-known bacteriologists, F. W. Andrews, William Bulloch and T. R. Hewlett. The activities of this committee extend over the whole country, and twenty-four cerebrospinal fever laboratories were established. A very important report has now been issued. A general conclusion arrived at is that the epidemic was not one of cerebrospinal fever as such, but was an epidemic of the meningococcus in the throats of the population at large. It was an epidemic prevailing in winter and spring, because at these seasons people are in closer contact with each other indoors. The conditions of camp life and barrack life render it preeminently liable to affect the military population. It prevails much more in towns than in the country for the same reason. The actual cerebrospinal fever is due to the fact that in some cases the germ passes from throat and nose to the brain and spinal cord. It does not pass in many cases, and why it should pass in some cases and not in others is obscure. In London during the spring and early summer the microbe was found in 10 per cent., and, another time in 13 per cent. of persons examined, who had not been in contact with the disease. The difficulty is to explain the escape of these carriers, and the failure of others to escape. It is suggested that "from time to time and hitherto very rarely in this country individual races (of the germ) attain a greater virulence, and their saprophytic spread is attended, not only by a larger number of cases of meningitis, but also by the attack of young adults who in ordinary circumstances are immune. There seems to be ground for the belief that at least one out of the three principal strains concerned in last year's epidemic was introduced by the Canadian troops."

With regard to treatment, four different kinds of serum were used, but the results were not very encouraging, and judgment is suspended meanwhile. In two cases serum derived from a patient who had recovered was injected with "almost dramatic results." In one case the patient received benefit from the injection of serum taken from himself. Vaccines were also employed, but the general experience of vaccine treatment seem to have been little more favorable than that of serum. Two of the reports speak of the use of vaccine as a safeguard against the disease. Twelve exposed to infection were vaccinated. None of them developed the disease. Again, seventy-nine "carriers" were inoculated, and no case of the fever arose among them. One case occurred among forty-nine carriers not inoculated.

BUDAPEST LETTER

Budapest, Feb. 10, 1916.

Rules for Physicians in the Care of the Eye

Prof. Emil Gross of the Budapest University has compiled the following instructions, which are circulated among all the physicians of the Hungarian army:

1. Put a protective dressing on an injured eye. On the eyelids place sterilized gauze loosely, then a piece of wadding and next a bandage.

2. This dressing should be changed after twenty-four and at the latest forty-eight hours, because the conjunctiva of the injured eye produces secretion.

3. For cleansing the eye the most suitable solution is a 3 per cent. boric acid solution—strong antiseptics are harmful.

4. Dilate the pupil by instillation of a 1 per cent. atropin solution, but if the tension of the eyeball is increasing (this can be controlled by palpation of the eyeball with the index

fingers), *stop atropin instillation;* in this case 1 or 2 drops of a 2 per cent. pilocarpin solution are indicated.

5. Small entrance opening, internal hemorrhage, or consecutive gray cataract arouse the suspicion of the presence of a foreign body; in most cases it is of metal. The diagnosis must be verified with the Roentgen ray; in case it is iron, with the sideroscope. The patient should be sent, without delay, to an eye clinic or an eye hospital, where an iron splinter can be removed with a magnet or with operation. A delay of even a single day may be fatal to the eye!

6. The remains of bruised eyes, or severely injured eyes, which do not possess light vision, should be removed in the interest of the other eye. If there are symptoms of iritis or inflammation of the ciliary body and there is no light vision, the removal of the eyes must be regarded as urgent. The enucleation of the eye shall be performed with the sparing of the conjunctiva and muscles, for otherwise the cavity is not fit for the wearing of an artificial eye. The removal of metal splinters impacted in the orbit and causing no reaction, is not necessary.

7. The earliest possible repair of defects of the eyelid is to be performed, and similarly the restoration of eventerated eyelids.

8. Suppurative conjunctivitis is contagious; such eyes should not be dressed, and the secretion must be washed out frequently. The sound eye is to be protected. Such patients should be sent to eye hospitals.

9. Trachoma can be diagnosed, sometimes, only by turning the upper eyelid up and finding in the transitional fold the characteristic nodules, hypertrophies and radiary scars.

The Rise of the Price of Certain Drugs

In view of the immense demand for certain drugs, and the difficulties of importation, the minister of public hygiene has issued an order which permits the chemists to charge higher prices for certain drugs. Of course, this increase of price is temporary and whenever the drugs are manufactured within the country, which will probably be soon, the increased prices will drop to normal. Among the drugs are preparations containing benzin, collodium flexile, camphor, mercury, linseed oil, castor oil, turpentine, chloroform and many ointments.

The Gallantry of Professor Eiselsberg

About four weeks ago Konstantin, King of Greece, telegraphed for the services of Professors Kraus and Eiselsberg, of the Vienna University. King Konstantin had to undergo an operation for empyema of the thorax, which was successfully performed by Professor Eiselsberg. King Konstantin paid a fee of 50,000 francs to Professor Eiselsberg. This fee the professor offered to the Bulgarian Red Cross, which in gratitude enlisted him as an eternal honorary member of the society.

The Right to Perform Operations on Soldiers

The minister of home defense has issued the following order: In all cases in which sick or wounded soldiers need operations, which are in themselves not dangerous, and the fitness for service depends entirely on the performing of the operation, the military surgeon has the right to perform the operation on his own responsibility without the consent of the patient.

Pathologic Conditions After Vaccination Against Typhoid

Dr. Masko has seen pathologic conditions after vaccinations against typhoid in sixty-one out of 3,000 patients treated in a garrison hospital. In all these cases there were more or less general reactions after the vaccinations. These consisted of fever, and pains in the head, limbs, joints, back and chest. In nine cases he observed rheumatic arthritis, which proved benign, with one exception, the patients recovering within one week; this rheumatism did not very much improve on treatment with salicylic acid and collargol, but it readily improved on application of hot air. In four cases symptoms of nephritis made their appearance. In three cases latent apical processes have become peremptorily acute ones, and in one case miliary tuberculosis has occurred after the inoculation. Bronchitis of short duration occurred in practically all of these cases. In thirty-five cases severe diarrhea supervened; in two cases latent dysentery became acute. In many cases the whole upper abdominal region became painful, the liver was tender on pressure; in four cases the spleen became swollen; in five cases roseolae appeared, which disappeared very quickly. Scarlet fever-like rashes have been observed in three cases, in every instance twenty-four hours after the second inoculation; they disappeared without any trace, without scaling off of the skin; in these three cases the condition of the patient was severe, the fever 39 C. (102.2 F.) subsiding only after the fourth day. In one case the rash was similar to measles, in another case to erythema nodosum. In two cases the inguinal glands became enlarged, were painful, and the patients were feverish through several days. In eleven cases a condition similar to typhoid occurred, and the pathologic appearances were severe. Dr. Masko regards this condition as a toxemic one and calls it "typhotoxicosis." In some cases Dr. Masko observed a strong Ehrlich diazo reaction, and on this ground he is of the opinion that in consequence of the typhoid vaccination, not only bactericidal and antitoxic substances appear in the blood, but also peculiar changes take place in the lymph apparatus and particularly in the lymph system of the intestinal tract, so that blood reacts more quickly and strongly against the typhoid bacilli and their toxins. However, considering the brilliant results of the antityphoid vaccinations, the described disagreeable by-effects must not prevent us from administering them. In private practice it is advisable to draw the attention of the patient to the possibility of reaction. On account of this possibility, soldiers should be given three or four days' freedom from service after vaccination. Dr. Masko used the Besredka vaccine.

Association News

THE AMERICAN MEDICAL GOLFING ASSOCIATION

At the last annual session of the American Medical Association, the American Medical Golfing Association held its first tournament in San Francisco, June 21, 1915. An organization was completed with the following officers: president, Wendell C. Phillips, New York; vice president, James Eaves, San Francisco; secretary-treasurer, Will Walter, Chicago. Plans are being made for the second tournament, to be held in Detroit in connection with the annual session of the Association. The by-laws provide that any Fellow of the Association who shall pay an enrolment fee of $2 becomes a perpetual member. When a member participates in the tournaments of the Association he shall pay a playing fee of $1, the green's fee, charged by the local club, and the annual dinner fee, as determined by the local committee (if he desires to participate in the annual dinner and meeting). Further information may be obtained by addressing the secretary-treasurer, Dr. Will Walter, 122 South Michigan Avenue, Chicago.

Marriages

CAPT. HERBERT H. SHARPE, M. C., U. S. Army, Fort Davis, Alaska, to Miss Marshalle Bates Jones at Nome, Alaska, December 20.

MAJ. CONRAD E. KOERPER, M. C., U. S. Army, Philadelphia, to Miss Florence Marguerite Bateman at Fort Clark, Texas, March 15.

CAPT. DANIEL F. MAGUIRE, M. C., U. S. Army, Fort Ontario, N. Y., to Miss Fannie Renshaw of Pensacola, Fla., February 16.

EMANUEL ZACHARY SHAPIRO, M.D., Duluth, Minn., to Miss Edna M. Baker of Virginia, Minn., at Duluth, February 17.

JAMES JOHN MCDEVITT, M.D., East Boston, to Miss Augusta Hanss Sargent of Worcester, Mass., February 29.

GROVER AUGUSTUS STEM, M.D., Westminster, Md., to Miss Irene Miller of Baltimore, in September, 1914.

CLARENCE HOMER KEMP, M.D., Elmwood, Ill., to Miss Pauline Miller of Lacon, Ill., February 25.

JOHN O'CONNELL, M.D., St. Louis, to Miss Uceyle Risch Maloney of Shreveport, La., March 1.

LOUIS STERNBERG, M.D., New York City, to Miss Henrietta Gluckman of Brooklyn, February 23.

FRANK MARTIN, M.D., Baltimore, to Miss Elizabeth Prescott Bigelow of Boston, March 1.

LORAINE A. MARTY, M.D., to Miss Olive B. Musser, both of Kansas City, Mo., January 11.

ABRAHAM RISEL HOLLENDER, M.D., to Miss Anna Winsberg, both of Chicago, March 1.

Deaths

William Louis Rodman, M.D., Philadelphia; aged 57; president of the American Medical Association; died at his home, March 8, from pneumonia, after a short illness.

Dr. Rodman was born in Frankfort, Ky., Sept. 27, 1858. He was the son of General John Rodman, who for many years was Attorney General of Kentucky. His preliminary education was received at the Kentucky Military Institute, from which he was graduated in 1875, with the degree of M.A. He later received the degree of LL.D. from his alma mater. He commenced the study of medicine under the preceptorship of his uncle, Dr. James Rodman, and his cousin, Dr. W. B. Rodman, and graduated from Jefferson Medical College in 1879. After a service as intern in Jefferson Hospital, he entered the United States Army as acting assistant surgeon and for nearly two years was stationed at Fort Sill.

In 1882 Dr. Rodman was married to Betty C. Stewart, daughter of the late Dr. J. Q. A. Stewart, a well known alienist of Kentucky. He then practiced for about two years in Abilene, Texas, after which he removed to Louisville and was appointed demonstrator of surgery in the Medical Department in the University of Louisville and clinical assistant to Dr. David W. Yandell. He held this position from 1889 to 1893, when he resigned to accept the professorship of surgery in the Kentucky School of Medicine, Louisville. In September, 1898, he was made professor of principles of surgery and clinical surgery in the Medico-Chirurgical College of Philadelphia, and moved to that city. From 1900 to 1908 he was also professor of surgery and clinical surgery in the Woman's Medical College of Pennsylvania, Philadelphia.



WILLIAM LOUIS RODMAN, M.D., 1858-1916

The work of Dr. Rodman in the American Medical Association is recognized in an editorial in this issue. Dr. Rodman was president of the Association of American Medical Colleges in 1902 and 1903, and it was largely through his efforts as president of this organization that the National Board of Examiners became possible. Dr. Rodman was deeply interested in this project of standardization of examination for medical licensure and was instrumental in securing the financing of the work. He was also president of the Philadelphia Medical Club in 1910, and was a member of the College of Physicians of Philadelphia, the American College of Surgeons, American Surgical Association, International Surgical Association, and Association of Military Surgeons of the United States. He was also a member of the staff of Blockley and the Presbyterian hospitals, Philadelphia. In 1915, Dr. Rodman was commissioned first lieutenant, Medical Reserve Corps, U. S. Army.

His chief contributions to the literature were the oration on "Gastric Ulcer"; a paper on "Cancer of the Breast" read before the British Medical Association in 1904; a monograph on "Diseases of the Mammary Gland," which appeared in 1908, and chapters contributed to the "International Text Book of Surgery," Keen's "System of Surgery," and Bryant and Bush's "Practice of Surgery."

He is survived by his widow and three children, Dr. J. Stewart Rodman, who was associated with his father in practice; Miss Virginia Rodman and Mrs. Lincoln Godfrey, Jr.

Wisner Robinson Townsend, M.D., New York City; aged 59; fell from a window of his apartment, March 12, and was instantly killed.

He was born in Clifton, N. Y., Aug. 5, 1856, the son of Wisner Helme and Emily Kyle Townsend. He received his A.B. degree at Columbia University in 1877, graduating three years later from the College of Physicians and Surgeons in the City of New York. In the same year he was given his master's degree by his alma mater. He had practiced in New York since his graduation.

He was a Fellow of the American Medical Association; second vice president in 1914-1915; a member of its House of Delegates from 1906 to 1908; a member of the Board of Trustees from 1908 to 1911, and secretary of the board for the last two years of that period. He had been secretary of the Medical Society of the State of New York since 1896, and for twelve years he had been secretary of the board of trustees of the New York Academy of Medicine. He was also a member of the American Orthopedic Association and its president in 1899, and was president of the New York State Association of Railway Surgeons in 1902. He was professor of orthopedic surgery in the New York Polyclinic; associate surgeon to the Hospital for Ruptured and Crippled; orthopedic surgeon to the French Hospital, New York; consulting orthopedic surgeon to the J. R. Smith Infirmary, Staten Island, and consulting surgeon to the Bayonne (N. J.) Hospital, and was a voluminous contributor to the literature of orthopedic surgery.

Dr. Townsend had been in bad physical condition for a considerable time, suffering from diabetes and frequent attacks of vertigo, and of late had been a victim of insomnia. It is believed that he had attempted to open the bathroom window, which was only about 2 feet from the floor, and seized with vertigo, fell to his death.

Dr. Townsend was a man of great executive ability and winning personality, and his tragic death comes as a great shock to his many professional friends throughout the United States. He is survived by a widow and two sons.

Charles M. Thomas, M.D., Philadelphia, Pa.; Hahnemann Medical College, Philadelphia, 1871; aged 66; from 1875 to 1878 demonstrator of surgery in his alma mater; from that date to 1891 professor of operative surgery, ophthalmology and otology; afterward emeritus professor of ophthalmology and otology and dean of the college from 1903 to 1906; died at his country home near Westchester, January 14.

George Huntington, M.D., Cairo, N. Y.; College of Physicians and Surgeons in the City of New York, 1871; aged 65; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of New York; president of the Dutchess County (N. Y.) Medical Society in 1888; for whom Huntington's chorea was named; visiting physician to the Matteawan General Hospital; died at the home of his son in Cairo, March 3, from pneumonia.

Daniel Elisha Foote, M.D., Belvidere, Ill.; University of Buffalo, N. Y., 1851; aged 87; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; for sixty years a resident of Belvidere; in the early fifties, surgeon of the Fifty-Seventh Infantry, New York State Militia; for several terms coroner of Boone County and a member of the school board of Belvidere; died at his home, February 22.

John Thomas Dickes, M.D., Portland, Ind.; Medical College of Indiana, Indianapolis, 1885; Kentucky School of Medicine, Louisville, 1885; aged 58; a Fellow of the American Medical Association; coroner of Jay County from 1890 to 1892, and until two years ago, county health commissioner and secretary of the County Board of Health; for thirty years a practitioner of Portland; died at his home, February 28, from heart disease.

Thomas Henry Mann, M.D., Bolton, Conn.; Albany (N. Y.) Medical College, 1870; aged 72; formerly postmaster of Fitchburg and editor of the Fitchburg (Mass.) *Evening Mail,* and also of the Milford (Mass.) *Daily News;* a veteran of the Civil War and a prisoner at Andersonville; at one time a member of the staff of Governor Littlefield of Rhode Island; died at his home, March 2.

John W. Ayler, M.D., Newport News, Va.; Medical College of Virginia, Richmond, 1864; aged 77; a member of the Medical Society of Virginia; and one of the oldest practitioners on the Virginia Peninsula; surgeon in the Confederate service during the Civil War; formerly city physician of Newport News; died at his home, February 28, from cerebral hemorrhage.

Edward Joseph Stone, M.D., Cleveland, Ohio; Bellevue Hospital Medical College, 1880; aged 58; for many years a practitioner of Oneida, N. Y.; once president of the Tioga County Medical Society and health officer; who had for many years devoted his attention exclusively to life insurance work; died suddenly, February 19, in his office in Cleveland.

Orlyn Lee Chaffee, M.D., Waverly, Iowa; Chicago Homeopathic Medical College, 1902; aged 39; a member of the Iowa State Medical Society and once president of the Bremer County Medical Society; who had been operated on at Mercy Hospital, Waverly, for gastric ulcer and gallbladder disease; died from pneumonia, March 2.

Timothy Griffith, M.D., Frostburg, Md.; New York University, New York City, 1888; aged 54; vice president of the Allegany and Garrett County Medical Society; member of the Board of Health of Frostburg; once vice president of the Medical and Chirurgical Faculty of Maryland; died at his home, March 2, from nephritis.

Edward Fayette Eldridge, M.D., San Diego, Calif.; Dartmouth Medical School, Hanover, N. H., 1882; aged 60; for many years a practitioner of Grand Junction, Colo., where he was surgeon to the railways centering at that city; author of several novels and poems characteristic of the West; died at his home, March 8.

Andrew Jackson Butler, M.D., Unadilla, N. Y.; Rush Medical College, 1891; aged 47, a Fellow of the American Medical Association and a well known practitioner of Otsego County, N. Y.; died at his home, March 4, from the effects of an incised wound of the throat, self-inflicted, it is believed, with suicidal intent.

Herbert Roland Bowers, M.D., Lancaster, Pa.; Jefferson Medical College, 1889; aged 48; formerly a member of the Medical Society of the State of Pennsylvania; surgeon to St. Joseph's Hospital, Lancaster; was struck and killed by a Pennsylvania train at Edgewood Station, near Pittsburgh, February 26.

William Theophilus Stuart, M.D., Toronto; University of Toronto, 1877; Trinity Medical College, Toronto, 1877; aged 62; for many years professor of organic chemistry in his alma mater; one of the organizers and major of the Forty-Eighth Highlanders; died in Oakville, Ont., November 13.

Erastus J. Lyons, M.D., Lake Charles, La.; New Orleans, School of Medicine, 1861; aged 76; for more than half a century a practitioner of Calcasieu Parish, La.; died at his home, February 17, from senile debility.

Edwin Landis Detwiler, M.D., Herndon, Va.; Jefferson Medical College, 1886; aged 55; a member of the Medical Society of Virginia; was shot and instantly killed, February 29, near Herndon, by a farmer who had been an inmate of the State Hospital, but had been released on parole.

Raymond Jesse Nate, M.D., Chicago; Rush Medical College, 1892; aged 45; was fatally injured, March 10, by the falling of a weighing machine in front of a drug store at Thirty-Ninth Street and Cottage Grove Avenue, and died while being taken to the Lakeside Hospital.

Edwin William Poinier, M.D., Huntington, Ind.; College of Physicians and Surgeons, Chicago, 1902; aged 36; a Fellow of the American Medical Association; for ten years a practitioner of Andrews, Ind., and county physician of Huntington County; died at his home, March 6.

George W. Tarlton, M.D., Cape Girardeau, Mo.; Washington University, St. Louis, 1881; aged 55; a member of the Missouri State Medical Association; died at his home, December 13, from arteriosclerosis, associated with interstitial nephritis and mitral regurgitation.

Harry David James, M.D., Chicago; Dearborn Medical College, Chicago, 1907; professor of ophthalmology in the Chicago Eye, Ear, Nose and Throat Hospital; died at his home, January 27, from pneumonia.

Robert F. Baker, M.D., Sparta, Tenn.; Bellevue Hospital Medical College, 1865; aged 70; a member of the Tennessee State Medical Association; died at his home near Fancher's Mills, Tenn., about February 18.

Meridith Caton Kimball, M.D., Converse, Ind.; Cincinnati College of Medicine and Surgery, 1874; aged 69; a well-known practitioner and clergyman; died at his home February 24, from heart disease.

George O. Williams, M.D., Greene, N. Y.; Albany, N. Y., Medical College, 1866; aged 72; a Fellow of the American Medical Association; died at his home in Greene, February 24, from bronchopneumonia.

William Leet Kreider, M.D., Prairie City, Ill.; Rush Medical College, 1859; aged 84; for more than sixty years a practitioner of Prairie City; died at his home, February 19, from cerebral hemorrhage.

Samuel Armstrong Aiken, M.D., Cambridge, Neb.; New York University, New York City, 1887; aged 55; died February 18, while driving his automobile near his home in Cambridge, from heart disease.

George Mason Foskett, M.D., Worcester, Mass.; University of Vermont, Burlington, 1883; aged 59; a member of the Massachusetts Medical Society; died at his home in Worcester, February 23.

George D. Dresser, M.D., New York City; New York Homeopathic Medical College, 1874; formerly of Shrub Oak, N. Y.; aged 67; died at his home, February 23, from intermittent fever.

George Edward Flood, M.D., Chicago; Detroit Medical College, 1879; aged 59; died in the Washington Park Hospital, Chicago, February 28, from uremia, after a surgical operation.

Oscar Howard Morris, M.D., Coolidge, Ga.; Southern Medical College, Atlanta, 1898; aged 40; died at his former home in Rockmart, Ga., February 20, from hemorrhage of the lungs.

John Fawcett, M.D., Lents, Ore.; Manitoba Medical College, Winnipeg, 1886; aged 59; died at his home in Lents, Portland, Ore., February 8, from Hodgkin's disease.

Leonard Adair, M.D., New York City; New York University, New York City, 1896; aged 45; died at his home in Harlem, N. Y., February 24, from nephritis.

Henry John Hertz, M.D., Zearing, Iowa; State University of Iowa, Iowa City, 1909; aged 30; died in a hospital in Iowa City, February 18, from heart disease.

T. W. Cooper, M.D., Beech Grove, Ky.; Kentucky School of Medicine, Louisville, 1875; aged 74; died at his home, February 18, from valvular heart disease.

N. B. Cotton, M.D., Bentonville, Ark.; Western Reserve University, Cleveland, 1863; aged 69; died at his home, February 22.

Correction.—The death notice of Dr. William Hammond Eaton of Adrian, Minn., which appeared in THE JOURNAL of March 11, page 830, is incorrect. Dr. Eaton is alive and did not have the accident referred to.

Resolution Endorsing the Work of the Council on Pharmacy and Chemistry

Presented at the San Francisco Session and Signed by All the Members of the House of Delegates in Attendance.—(See Journal A. M. A., July 3, 1915, p. 70.)

Resolved, We, Members of the House of Delegates of the American Medical Association, believe that every effort must be made to do away with the evils which result from the exploitation of the sick for the sake of gain. Earnestly believing that the continued toleration of secret, semisecret, unscientific or untruthfully advertised proprietary medicines is an evil that is inimical to medical progress and to the best interest of the public, we declare ourselves in sympathy with, endorse and by our best efforts will further the work which has been and is being done by the Council on Pharmacy and Chemistry of the American Medical Association in the attempt to eliminate this evil.

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Please sign on the space to the right, using black ink, and mail in the accompanying stamped envelope.

W. H. Gannaliman
Chairman of Bd of Trustees

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Correspondence

Subacromial Bursitis

To the Editor:—In the March, 1915, issue of the *American Journal of the Medical Sciences,* I published an article discussing "Prevalent Fallacies Concerning Subacromial Bursitis: Its Pathogenesis and Rational Operative Treatment." Among other points I emphasized the following: The calcareous deposit often found in these cases is not, as generally believed, in the bursa, but beneath it, in or on, or in and on, the supraspinatus tendon or, occasionally, the infraspinatus; and "excision of the bursa," recommended as a routine operative treatment by some textbook writers and others, is not only unnecessary but, in fact, cannot be performed "without a mutilating dissection" because of the extent of this large bursa and its intimate relations with the neck of the humerus and the capsule of the shoulder joint. My contentions were based on the study of many cases clinically, cadaver dissections and, at that time, seven operations.

In The Journal (Jan. 22, 1916, p. 264), Dr. Albert H. Montgomery of Chicago reported a single case of subacromial bursitis in which he had operated, on the basis of his observations and deductions in which case he disputed all of my contentions. Some of these I shall consider again in a forthcoming article. I wish here to reply, very briefly, to the two more important assertions of Dr. Montgomery, that he found the lime deposit in the outer wall of the bursa and that he extirpated the bursa. I quote from his report: "The space between the shadow and the humerus is so wide that it would scarcely seem possible that the lime salts responsible for it could be within the tendon. . . . The amorphous masses of lime salts were deposited in the upper wall of the bursa. . . . Notwithstanding the statement of Wrede and Brickner, extirpation of the bursa is possible. [Wrede made no such statement, as I recall his article in the *Archiv für klinische Chirurgie,* 1912, xcix, 259, but merely reported a single case of subacromial bursitis in which he found the deposit within the supraspinatus tendon]. . . . The calcium deposits were confined to the upper wall of the bursa. The wall lying on the humerus and supraspinatus tendons [?] was intact, and the tendon of the supraspinatus muscle appeared normal. . . . After extirpation of the bursa . . . I believe that the best treatment, however, is excision of the bursa which is possible even without a mutilating operation. . . . This case is so typical both in Roentgen-ray and operative findings as to leave no doubt that the bursa is the structure primarily involved, and disproves the rather dogmatic statements of both Wrede [*vide supra*] and Brickner."

That the deposit in Montgomery's case could scarcely be within the tendon because of the wide space between its shadow and that of the bone is a pure assumption and a faulty one. I have several roentgenograms quite like Montgomery's, and with the shadow equally far from that of the humerus, from cases in which, nevertheless, the deposit *was* found within the supraspinatus tendon; and in my article I stated that "the shadow . . . may be . . . separated by a wide space from the bone."

In a personal communication to me, Dr. Montgomery wrote: *"In speaking of extirpation of the bursa, I referred only to the diseased portion."* And yet, in a scientific discussion, he had repeatedly said that he "extirpated the bursa" and, disputing my anatomic contention, he advised this as the best treatment.

Just as he was admittedly in error in his published statement that he extirpated the bursa, and jumped to a hasty and insupportable interpretation of his Roentgen picture, so, too, I am sure, from my findings in fifteen operations and from the corroboration of other surgeons, that Montgomery was mistaken in believing that he found the lime deposit in the outer wall of the bursa. These walls are often very thin and are apt to be very adherent over the deposit (Montgomery made no mention of the contents of the bursa); and (as I emphasized in my article above referred to) unless they are first separated by a nice dissection, one is very apt, especially at his first operation, to believe that the lime deposit lying under the bursa, and often there adherent to its inner wall, is within the sac or its outer wall. In his article Montgomery stated that the inner wall of the bursa appeared normal; in his letter to me he said that he *curetted off* this [normal] wall! This supports my conviction that he had not precisely differentiated the structures.

Walter M. Brickner, M.D., New York.

Constipation in Causation of Epilepsy and Migraine

To the Editor:—Dr. Strate's inquiry (The Journal, Feb. 26, 1916, p. 675) is of the kind precisely calculated to bring out essential facts and straighten out apparent inconsistencies, or, as I prefer to think, to fill out possible omissions in my statement of the causal relationship between constipation and epilepsy. Dr. Strate says: "A symmetrical edema of both internal capsules is of course possible, but shall we say it is probable?" I fancy the answer is to be found in going back to the initial factor in the causation of the disease, and then following sequent phenomena up to the seizure. This, briefly stated, is as follows:

1. Epilepsy is an infection due to a specific organism, the primary habitat of which is the alimentary canal, more especially the cecum.

2. Distortions and displacements of the intestines, more especially of the colon and cecum, cause constipation and thereby force the absorption of the organism into the circulation.

3. The organism would seem to exercise a selective action on the internal capsule, the intermediate but sequent pathologic changes being (*a*) bacteremia with associated toxemia, (*b*) acidosis involving the entire system, and (*c*) edema of various structures and organs, but focalizing apparently by selective action at the internal capsule, both sides being considered as one.

It is the wide diffusion, the systemic extent of these pathologic changes that needs to be kept in mind. When this is done, does it not seem that the law of probability would incline to symmetrical rather than to unilateral or even more definite localization of the terminal edema? That such localizations do occur in individual cases is, however, a fact of frequent observation. In the absence of positive knowledge on the subject, may we not in a measure satisfy our logical instincts by assuming that the various conduction paths have varying powers of resistance in various persons? At any rate, why should a general infection focalize on one side rather than another?

When Dr. Strate states that my theory would more nearly account for "a typical migraine with its unilateral headache, hemianopsia, diplopia," etc., it would seem again that he has overlooked infection as the fundamental factor in epilepsy—an oversight for which I fear the arrangement of the text in my explanation of the disease is in a measure responsible. As a matter of observation, the symptoms referred to as well as other strictly neurotic symptoms are but rarely encountered among victims of the epileptic infection, the specific organism of which is now daily demonstrated in my cases. It is this infection that is constantly to be kept in mind, not only in the interpretation of the epileptic phenomena, but also, now that we have the organism, in the formulation of treatment, both medical and surgical.

Charles A. L. Reed, M.D., Cincinnati.

The Fingers of Primitive Man

To the Editor:—In the fragmentary published reports of the art of the cave man, referred to recently in The Journal (Feb. 12, 1916, p. 513), accurate details of even obvious things seem to be lacking.

In the outline drawings of the human hand it would be important to know which hand was used as the object of illustration. Some ethnologists believe that primitive man was left handed, and this led to the inference that "backward" writing like that of the Semitic language was the result of this lefthandedness.

It would be more logical to assume that primitive men lost their fingers in combat with fellow men than to infer that it was the result of a sacrificial rite or from the trauma from defective weapons. With the presumptive limited range and efficiency of primitive weapons, hand to hand combat must have been the rule. It would seem entirely probable that the teeth would play an important rôle in this weaponless warfare, and that the fingers of a combatant would be the most vulnerable point of attack as actually takes place in the jungles of Africa today.

The vicissitudes of man's early environment would logically be opposed to a theory that he voluntarily removed his most useful members. J. H. MACKAY, M.D., Houston, Texas.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

METHYL ALCOHOL AS A FUEL

A correspondent writes:

There is some question in the minds of some of us as to whether the enclosed item accords with the others on the subject which you have published in previous issues and with the actual facts as they have been clinically demonstrated. We trust we are not asking too much of you when we request that you let us have a line or two on this subject either verifying the item enclosed or pointing out wherein, if at all, it is erroneous; and, whether or not it is erroneous, whether it may not in your opinion contain advice which might be dangerous to give to the laity.

ANSWER.—Our correspondent refers to a reply to a previous correspondent (Jan. 15, 1916, p. 209), in which we said:

"There is no reason to believe that methyl alcohol as a fuel possesses any special dangers or disadvantages. The products of its complete combustion are the same as those of the combustion of ethyl alcohol, namely, water and carbon dioxid."

Our present correspondent's point is well taken. The danger of poisoning from methyl alcohol used as a fuel is probably slight, yet our answer should have pointed out the possibility of toxic effects from incomplete combustion. Two cases of poisoning attributed to wood alcohol used as a fuel are on record.

THE REQUIREMENTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY

To the Editor:—I have been reading with interest the reports of the Council, and have several of the volumes of reports of the work done.

Where can I find the data with reference to the requirements of the Council in order that the products of manufacturers may be acceptable in a scientific, ethical and therapeutic sense?

I am prompted to make inquiry because at medical society exhibits I am at times at a loss to place properly some products so freely sampled.

Again I have noted that at times a preparation starts out all right and seems to fill a place in daily work, and later I have noted newspaper exploitations of that which was started by physicians.

With the right data at hand I intend to include a few references in papers and essays that will gain attention to some points so necessary for us to keep in mind, as I believe the Council is doing a big work along its chosen line. THOMAS M. STEWART, M.D., Cincinnati.

ANSWER.—The information asked for by our correspondent will be found in the Official Rules of the Council on Pharmacy and Chemistry, which appear in New and Nonofficial Remedies (pp. 9-21 of the 1916 edition). These rules may also be obtained in pamphlet form by sending a 2 cent stamp to the Secretary of the Council, 535 North Dearborn Street, Chicago.

These are the rules by which the Council is governed in admitting articles to New and Nonofficial Remedies. As will be seen, they merely require that the composition of the remedy be nonsecret, that its uniformity be safeguarded, that no false claims be made regarding its therapeutic properties, and that its use shall be based on at least a probability of therapeutic merit. Any one who has sufficiently broad knowledge (which must include knowledge of pharmacy, pharmacology and chemistry as well as of medicine) can apply these rules, although in many cases it will be found difficult as well as tedious to obtain the evidence necessary to pass judgment on a single preparation.

Practically, the labor of critically examining and judging all the various proprietary preparations which physicians are asked to prescribe would be an intolerable burden for any one man, be he ever so well qualified. Even with all the resources of the Council on Pharmacy and Chemistry, the task is not a simple one. The easiest way to learn whether or not a certain preparation complies with the Council's rules is to see if it is described in New and Nonofficial Remedies.

The work of the Council on Pharmacy and Chemistry, and the principles on which it is conducted, are discussed in Sollmann's "Broader Aims of the Council on Pharmacy and Chemistry" and in Simmons' "Work of the Council on Pharmacy and Chemistry: Its Effect on Medical Progress." Either of these pamphlets will be sent on receipt of a self-addressed stamped envelope.

LARKSPUR FOR PEDICULOSIS

To the Editor:—Please send me a formula for preparing larkspur for use in cases of pediculosis capitis. J. P. Q.

ANSWER.—The following formula is recommended by Otto Raubenheimer (*Journal of the American Pharmaceutical Association,* October, 1912, p. 1138):

Delphinium, ground	100 gm.
Acetic acid	50 c.c.
Glycerin	50 c.c.
Alcohol	100 c.c.
Water, a sufficient quantity to make	1,000 c.c.

Boil the ground larkspur seed with 800 c.c. of water, to which the acetic acid and glycerin have been added, for ten minutes in a covered vessel, set aside till cold, then add the alcohol and allow to macerate over night. Then filter and add sufficient water through the filter to make the product measure 1,000 c.c.

Among other formulas which have been suggested in various drug journals are the following:

Larkspur seed, ground	8 ounces
Green soap	2 ounces
Potassium carbonate	1 ounce
Oil of lavender flowers	1 dram
Alcohol	24 ounces
Water	8 ounces

Macerate for ten days with occasional agitation and filter, adding enough of a mixture of alcohol 3 parts and water 1 part, to make 32 fluidounces; or the tincture may be prepared by percolation, after maceration for a few days.

The following formula is said to be cheaper and to be more easily made than ordinary tinctures:

Larkspur seed	100 gm.
Potassium carbonate	10 gm.
Alcohol	500 c.c.
Water to make	1,000 c.c.

Mix the seed and the carbonate with 500 c.c. of water; boil the mixture for five minutes; when it has become cold, add the alcohol; strain, and add enough water to make the finished product measure 1,000 c.c. Filter, if not clear.

Larkspur seed	4 ounces
Boiling water	6 ounces
Alcohol	10 ounces
Diluted alcohol to make	1 pint

Crush the seed in an iron mortar, transfer them to a suitable vessel, pour the boiling water on them, cover the vessel and let the whole stand until cool; add the alcohol, stir well, and after twenty-four hours, filter through cotton.

Larkspur is poisonous, and if there are abrasions of the skin it may be harmful. It is not mentioned in connection with the treatment of pediculosis by many medical writers who prefer kerosene. The latter is applied under a suitable cap and left on about twenty-four hours. The hair is then thoroughly combed with a fine comb to remove the nits, after which it is thoroughly washed.

Practice and Scientific Medicine.—Some practitioners of medicine, as we all know, have made little progress as the science has been developed. They practice the same way they did years ago and look on modern methods of diagnosis and treatment as absurd in the extreme. They make no attempt to familiarize themselves with medical literature, nor do they utilize the laboratory to aid them in their work. It should be stated in fairness, also, I regret to say, that the foregoing statements apply with equal force to some of our younger practitioners.—E. F. McCampbell, *Ohio Public Health Journal.*

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, April 4-5. Sec., Dr. John Wix Thomas, 200 National Bank of Arizona Bldg., Phoenix.

CALIFORNIA: Los Angeles, April 4. Sec., Dr. Charles B. Pinkham, Room 527 Forum Bldg., Sacramento.

COLORADO: Denver, April 4. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, April 11. Sec., Dr. E. P. Copeland, The Rockingham.

IDAHO: Boise, April 4. Sec., Dr. Charles A. Dettman, Burke.

MINNESOTA: Minneapolis, April 4-7. Sec., Dr. Thomas S. McDavitt, 814 Lowry Bldg., St. Paul.

MISSOURI: St. Louis, March 20-22. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

MONTANA: Helena, April 4. Sec., Dr. William C. Riddell, Helena.

NEW MEXICO: Sante Fe, April 10. Sec., Dr. W. E. Kaser, East Las Vegas.

OKLAHOMA: Oklahoma City, April 11-12. Sec., Dr. Ralph V. Smith, 502 Daniel Bldg., Tulsa.

PORTO RICO: San Juan, April 4. Sec., Dr. Quevedo Baez, 66 Allen St., San Juan.

RHODE ISLAND: Providence, April 6. Sec., Dr. Gardner T. Swarts, 315 State House, Providence.

UTAH: Salt Lake City, April 3-4. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

Missouri June Report

Dr. J. A. B. Adcock, secretary of the Missouri State Board of Health, reports the oral and written examination held at St. Louis, June 21-23, 1915. The total number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 151, of whom 142 passed and 9 failed. Two candidates were granted reregistration licenses. One candidate's license was withheld. The following colleges were represented:

College	Year Grad.	Total No. Licensed
PASSED		
Yale University	(1907)	1
Bennett Medical College	(1914) (1915)	2
Chicago College of Medicine and Surgery	(1915)	1
Rush Medical College	(1915)	3
University of Illinois	(1914) (1915, 4)	5
University of Kansas	(1913)	3
University of Louisville	(1915)	3
Tulane University of Louisiana	(1915)	1
Barnes Medical College	(1909)	1
Ensworth Medical College	(1914)	1
Kansas City Hahnemann Medical College	(1915)	1
Marion Sims College of Medicine	(1895)	1
Missouri Medical College	(1887)	1
National University of Arts and Sciences	(1912) (1915, 31)	32
St. Louis College of Phys. and Surgs.	(1914, 2) (1915, 5)	7
St. Louis University	(1915)	29
Washington University	(1915)	25
University and Bellevue Hospital Medical College	(1900)	1
Jefferson Medical College	(1913)	1
Meharry Medical College	(1915)	8
Memphis Hospital Medical College	(1912)	1
University of West Tennessee	(1914, 3) (1915, 4)	7
Vanderbilt University	(1912) (1914) (1915, 2)	4
University of Leeds	(1911)	1
University of Constantinople	(1887)	1
FAILED		
Bennett Medical College	(1910)	1
Maryland Medical College	(1902)	1
St. Louis College of Phys. and Surgs.	(1913) (1915, 2)	3
University of West Tennessee	(1914)	2
Milwaukee Medical College	(1910)* (1911)*	2

* Graduation not verified.

Porto Rico October Report

Dr. Quevedo Baez, secretary of the Porto Rico Board of Medical Examiners, reports the practical and written examination held at San Juan, Oct. 5-9, 1915. The total number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 26, all of whom passed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Bennett Medical College	(1915)	77.8
Chicago College of Med. and Surg.	(1915) 75, 76.4, 76.6, 77, 77.6, 78.3, 78.7, 81, 83.3, 87.8.	
University of Louisville	(1915)	78.1
College of Phys. and Surgs., Baltimore	(1915) 77.1, 79.5, 79.9, 81.1, 82.7, 83.2, 83.8, 86.3, 87.8.	
University of Maryland	(1915)	83.5, 83.6
Jefferson Medical College	(1915)	75.6
Medical College of Virginia	(1915)	75.1
University of Central Spain	(1915)	81.8

Book Notices

THE PRIMARY LUNG FOCUS OF TUBERCULOSIS IN CHILDREN. By Dr. Anton Ghon, O. ö. Professor of Pathologic Anatomy at the German University in Prague. English Edition. Authorized Translation by D. Barty King, M.A., M.D., M.R.C.P., Assistant Physician to the Royal Hospital for Diseases of the Chest, London. Cloth. Price, 10 shillings, 6 pence. Pp. 172, with 74 illustrations. London: J. & A. Churchill, 1916.

When a book consists of a translation by a Briton of a work published by an Austrian, which develops and recognizes as fundamental the Teutonically neglected observations of French investigators, it hardly requires this footnote, which appears at the end of the translator's preface: "Needless to say, this work was undertaken, and its publication authorized, before the outbreak of the present war." But, war or peace, the monograph by Ghon is well worthy of translation, for it presents convincingly the results of important investigations on the character of tuberculous infection in children. As the trend of opinion among students of phthisis seems to be in favor of the view that infection with tuberculosis nearly always occurs in childhood, and that this early infection determines the future of the individual as regards tuberculosis, we cannot have too much information concerning tuberculosis in the lung. Ghon's contribution consists of an analysis of the anatomic findings in 184 cases of tuberculosis in children, examined with particular reference to the pathway of infection. His large experience, of which this is only a small part, together with his well-known accuracy of observation, warrants acceptance of his results at their face value. In brief, the results are these: The common lesion of childhood is in the lymph glands about the hilum of the lung, but in most cases (92.4 per cent.) careful dissection shows a pulmonary focus which must be regarded as primary. In only 2.7 per cent. of the cases was the avenue of infection incontestably outside the lungs. Therefore the conclusion is reached that in childhood the primary infection of the lungs represents the usual form of the tuberculous infection. Furthermore, in all these children, diagnostic tuberculin reactions had been tried, and the necropsy findings corroborated the results of this test with great regularity. This is of special importance in view of the frequency of childhood infection as indicated by tuberculin reactions, and the far-reaching conclusions that have been based on this frequency of positive reactions. In only one case of all his series did Ghon fail to find tuberculosis in a child giving a positive reaction. The author has presented his work in a brief but sufficiently detailed form, and the translation is entirely satisfactory. It is an important contribution to the literature of tuberculosis, and should be examined by all interested in this subject.

GESCHICHTE DER AUGENHEILKUNDE. Von Dr. J. Hirschberg, Drittes Buch, Elfter Abschnitt—Italiens Augenärzte 1800 bis 1850. Paper. Price, 6 marks. Leipzig: Wilhelm Engelmann, 1915.

This work is a continuation of the history of ophthalmology so ably written by Professor Hirschberg for the second edition of the "Handbuch der gesamten Augenheilkunde." It is not only a biographic collection, as would be implied from the title; it is in reality an abridged history of Italian ophthalmology during the first half of the nineteenth century. Beginning with Scarpa, born in 1752, who has been called the father of Italian ophthalmology, the book contains the names and brief biographic sketches of seventy-three ophthalmologists, all of whom have contributed more or less to our present knowledge of ophthalmology. It is a little unfortunate that the arrangement is made without regard to chronological sequence. For example, Quaglino, who lived until 1894, comes near the beginning, while Quadri, whose name shares equal honors with Scarpa for brilliant achievements in the early years of the century, is not mentioned until well toward the end of the list. The various institutions in which ophthalmology is taught, with the date of founding, and the names and years of service of the professors, are also recorded. The first ophthalmologic journal

was published in 1835 by Fario; it survived only one year. No further attempt was made in this direction until 1858. At present there are six journals in existence, the oldest of which, the *Annali di Ottalmologia,* was founded in 1871, by Quaglino. It is now published under the direction of Guaita of Florence and Rampoldi of Pavia, and reflects the high standard which is universally accorded to Italian ophthalmology of the present day.

Medicolegal

Trials and Rights of Members of Medical Societies

(Reid vs. Medical Society of Oneida County et al. (N. Y.), 156 N. Y. Supp. 780)

The Supreme Court of New York, Special Term, Oneida County, holds that the plaintiff must have judgment restoring him to membership in the county society, on account of alleged irregularities in his trial on charges of unprofessional conduct in permitting certain advertising articles to appear. The court says that it assumes that the offense with which the plaintiff was charged was sufficient to justify his expulsion, if proved; that the court had nothing to do with the actual truth or falsity of the charges, but was simply to determine whether, in accordance with the constitution and by-laws of the county society, subordinate to the laws of the state, he had a fair trial: that he had notice; that he had a reasonable chance to defend himself from the charges; that proof was presented (not necessarily in accordance with legal form) to establish his guilt; that such proceedings were had before the board censors, and finally before the full meeting of the county society, as not to shock the sense of fairness. The plaintiff, having become a member of the county society, and subscribed to its constitution and by-laws, became bound thereby. The court is not unmindful of the fact that it had no right to consider the weight of the evidence presented or to substitute its judgment for the judgment of the plaintiff's fellow members; but it had the right to determine whether there was any evidence against him, and if the determination of his guilt on the charges preferred against him was totally unsustained by any evidence, such determination was contrary to natural justice, and subject to review and correction. The burden rested on the accusers to show that, at least by colorable evidence, he procured the publication of the objectionable articles. He denied the charge, and offered in evidence letters from publishers, or persons connected with several newspapers, to the effect that the charge was not true. This evidence was, at least, relevant to the issue. It was true that the letters received and offered by him were not admissible on their mere production, and it was true that their contents were hearsay; but, in fairness, if that was the reason for their exclusion, he should have been given time to produce the writers. The effect of the expulsion of a member of the medical profession from his county society is to him a very serious matter, and is far-reaching in its consequences to him, and a body having the responsibility of determining the facts in so important a trial should err on the side of enabling the accused physician every opportunity to review the charge made against his professional conduct. Moreover, the plaintiff was deprived of having his cause determined by an impartial court or jury by the action of the county society in allowing, through its presiding officer, the intemperate remarks of at least two of its members at the meeting when the plaintiff was expelled. That the two members who made the objectionable remarks were disqualified to vote on the question of the plaintiff's expulsion is too apparent for argument. It is the purpose of the state and county medical societies to keep their great profession free from incompetent and unprincipled men, and from improper practices which would tend, not only to deceive the public, but endanger health and life. But, as these medical gentlemen insist on sanitary conditions when they perform an operation, so the courts insist, on the trial of a person accused of wrongdoing, on such conditions as will insure in the end the fullest measure of justice. The plaintiff's right to a fair trial before an impartial court was of infinitely more importance than that the offense with which he was charged should be punished, and in protecting him in this right the court is protecting every member of that honorable profession from possible injustice. The Medical Society of the State of New York was improperly made a party to this action, for if he is restored to membership in the county society, he is automatically restored to membership in the state society.

Liability for Breach of Contract to Attend Patient Because Could Not Leave Another

(Hood vs. Moffett (Miss.), 69 So. R. 664)

The Supreme Court of Mississippi affirms a judgment for $150 damages in favor of Mrs. Moffett for an alleged breach of contract on the part of defendant Hood who, after having entered into a contract with the plaintiff's husband, for her benefit, to attend and render to her medical assistance at her approaching accouchement, when summoned on a Friday night said that he could not then leave another patient whom he was attending. Mrs. Moffett stated that she had given birth to a number of children, knew labor pains from past experience, and had the defendant attended her on the night or morning after he was sent for she would have been delivered of the child within two or three hours, whereas she suffered labor pains at intervals from Friday night until the following Thursday night, when she was delivered. The court says that the defendant claimed that a peremptory instruction should have been given in his favor on the ground that it is not incumbent on a physician to leave a patient who is in a precarious condition to attend one that he has previously contracted to attend. This proposition, differently expressed, amounts simply to this: If a person assumes obligations to different parties, the performance of which may become incompatible with each other, both parties being entitled in equal right, is it an excuse for a default to one party that both obligations could not be performed, and that the person bound chose to perform his obligation to the other? This question has been answered in the negative. The defendant's contract in this respect was without qualification, and the rule is that "as a man consents to bind himself so shall he be bound." Nor was there error in permitting the jury to award the plaintiff damages for mental anguish, for when physical pain is an element of damage, mental anguish accompanying it is also an element thereof, and according to the evidence of Mrs. Moffett, she suffered intense and prolonged physical pain because of the defendant's failure to attend her when requested so to do. Conceding for the sake of argument that the court below erred in instructing the jury that when the defendant found that he could not attend the plaintiff, it was his duty to have done one of two things, either send another physician or notify the plaintiff that he could not attend her, the error was not such as could be complained of by the defendant, for it was committed in his favor, since neither the sending of another physician, unless consented to by the plaintiff or her husband, nor notifying the plaintiff that he could not attend her, would have constituted a compliance with the defendant's promise. Such acts on the part of the defendant could be availed of, if at all, in mitigation of damages only. If the defendant entered into a contract to attend the plaintiff's accouchement and failed so to do without fault on the part of the plaintiff or her husband, he was liable for the injury, if any, thereby inflicted on her. The jury should not have been instructed, however, to award punitive damages. This was an action for damages alleged to have been sustained because of the breach of a contract, and the rule is, with probably two exceptions, within neither of which did this case come, that such damages are not recoverable in such an action unless the act or omission constituting the breach of the contract amounts also to the commission of a tort or wrongful act. But this error was rendered harmless for the reason that since the amount of damages awarded was only $150, it could not be said that the jury responded to the instruction and included in the verdict an award for punitive damages.

Society Proceedings

COMING MEETINGS

American Assn. of Genito-Urinary Surgs., Washington, D. C., May 9-10.
American Association of Path. and Bact., Washington, D. C., May 9-11.
American Climatological and Clin. Assn., Washington, D. C., May 9-11.
American Dermatological Association, Washington, D. C., May 8-10.
American Gastro-Enterological Association, Washington, D. C., May 8-9.
American Gynecological Society, Washington, D. C., May 9-11.
American Laryngological Association, Washington, D. C., May 9-11.
Amer. Laryn., Rhin. and Otol. Assn., W. Sul. Sprgs., W. Va., May 5-6.
American Medico-Psychological Association, New Orleans, April 4-7.
American Ophthalmological Society, Washington, D. C., May 9-11.
American Otological Society, Washington, D. C., May 8-9.
American Pediatric Society, Washington, D. C., May 8-10.
American Society of Tropical Medicine, Washington, D. C., May 9-11.
American Surgical Association, Washington, D. C., May 9-11.
American Urological Association, St. Louis, April 17-19.
Arizona Medical Association, Phoenix, April 26-27.
Arkansas Medical Society, Texarkana, May 2-4.
Association of American Physicians, Washington, D. C., May 9-11.
California State Medical Society, Fresno, April 18-20.
Cong. Am. Phys. and Surgs. of No. Am., Washington, D. C., May 9-10.
Florida Medical Association, Arcadia, May 10-12.
Georgia Medical Association, Columbus, April 19-21.
Iowa State Medical Society, Davenport, May 10-12.
Kansas Medical Society, Topeka, May 3-5.
Louisiana State Medical Society, New Orleans, April 18-20.
Mississippi State Medical Association, Greenville, May 9-11.
Missouri State Medical Association, Excelsior Springs, May 8-10.
Missouri Valley Medical Society, St. Joseph, Mo., March 23-24.
National Assn. for Study and Prev. of Tuberc., Wash., D. C., May 11-12.
North Carolina State Medical Society, Durham, April 18.
North Dakota State Medical Association, Devils Lake, May 10-11.
Oklahoma State Medical Association, Oklahoma City, May 9-11.
South Carolina Medical Association, Charleston, April 18-20.
Tennessee State Medical Association, Knoxville, April 4-6.
Texas State Medical Association, Galveston, May 9-11.

HARVARD MEDICAL SOCIETY

Meeting held Jan. 22, 1916

The President, DR. ROGER H. DENNETT, in the Chair

What is Meant by Hospital Efficiency, and Some of the Factors Which Are Often Responsible for Lack of Efficiency

DR. WINFRED H. SMITH, Johns Hopkins Hospital, Baltimore: Those who have discussed this subject have measured hospital efficiency in many different ways. The per capita cost really tells nothing, except as applied to a particular institution under consideration. The patient is the prime consideration. The primary purpose of the hospital is to treat and care for the patient, and the end-result should be all that modern skill and knowledge, supplemented by the necessary facilities, can accomplish at the hands of the carefully selected individuals composing the organization. The organization is the power that produces the results. Hospital efficiency means thoroughness, with sympathetic consideration and uniform kindness. It means the courteous reception of the patient, with due consideration to his claims to charity; prompt skilful medical and surgical attention, careful and skilful nursing, a thorough study not only of the symptoms and findings, but also of the bearing which these have on the problems of the disease, all of which means accurate and complete records; a discharge of the patient at the proper time, with a full knowledge as to his ability to carry out instructions and to the suitability of his home surroundings for continued convalescence, and the machinery with which to make proper arrangements when necessary, and throughout the whole course of hospital procedure, a careful attention to business detail, economy of time, effort and materials, at the same time avoiding any tendency to look on the patient as a mere case or number. Some of the factors which are commonly responsible for inefficiency are, first, there is a lack of funds. Second, in large cities, hospitals are located with too little consideration of the needs of the section selected, with the result that some sections have more hospitals than are needed, while other large sections are absolutely without hospital provision. Third, organization, first and last, is one of the most important factors. The board of trustees is the governing body and the final authority, and should therefore be chosen with the greatest care. The staff organization is no mean factor in hospital efficiency. No member of the staff should be eligible to the office of trustee. Appointments to the staff should be made only on merit. The superintendent should have the authority as well as the responsibility, and should at all times have the support of the trustees and of the staff.

The Dividing Line Between Medical Charity and Medical Business

DR. E. A. CODMAN, Boston: One of our pet humbugs is to confuse charity and business. Inefficiency and dishonesty in either charity or business should be equally abhorrent to our profession, and honest business will give efficient charity its full play. This is difficult under present hospital conditions. Pretense and humbug perhaps even more than commercialism tend to make one think unfavorably of his fellow men. Our present system of conducting hospitals is full of pretense and humbug. The ideals of the medical profession can be better maintained by conducting business with charity than by pretending that our charity is not business. Practically, what can the modern physician do toward the realization of these ideals? Let each hospital and each individual in each hospital put off on the man higher up every case in which he seriously doubts his own ability to effect a cure. And vice versa, let each of the "men higher up" refuse to care for the simple curable case which his juniors can treat as well as he. Most of the best men do this now, but it should be made the fashion, so that those who did not do it would become unpopular. When this is applied to individuals it will begin to be applied to hospitals. The small, poorly equipped, poorly financed nonteaching hospital should not be allowed to experiment with unusual and difficult cases. The small hospital should be encouraged to send in its bad cases to the great teaching hospitals. Let private hospitals be encouraged to treat only those cases which they are qualified to treat and render themselves subject to litigation if they are negligent or unscrupulous. We should make for the truth seeking scientific clinician a place comparable to that of the great electrical and engineering experts to whom even big business has to turn. Let the "charitable" people pay them such salaries that they in turn can be charitable if they want to, without pretending that their business is charity.

The Convalescent Field: Its New and Changing Borderlands

DR. FREDERIC L. BRUSH, Burke Foundations for Convalescents, White Plains, N. Y.: The hospital efficiencies most needing development are not now internal, but in the lines of hospital extension, in work for health outside of the main buildings. The present need is not for so many new small precarious associations, but longer, stronger extension arms to hospitals. Hospital efficiency thus covers convalescence, which is taken to include health increase, health holding and prevention of health deterioration. The larger convalescent institution, accommodating from forty to 300 or more, which might be governmental, private, corporate or a branch of a hospital organization, promises to become quite distinctively an American type of health plant, and only the formative stage has been entered. The recent extensions and plans in the convalescent field cover the following: 1. Surgical dressing cases: Wounds heal better in the convalescent home for various reasons. At the Burke Foundation we are doing 700 surgical dressings per month, and we welcome such cases as nephrectomy, empyema, recent fractures, even compound, and wounds with drains. Our troubles and failures have not been with postsurgery. 2. Heart disease: *(a)* Those with fair compensation and reserves should not be refused because labeled "heart disease," when needing convalescence for other reasons; *(b)* Those who just tire "on the job" frequently, with fairly holding compensations, should be given periodic upbuilding; *(c)* Youths should be given first place in cardiac convalescence, and many more beds should be open to them. This is to be the main point of an attack on cardiac disease. 3. We have almost no convalescent places for men, and the need is probably one-half that of women and is on the average a surer need.

4. Rheumatism. The situation is somewhat like that of heart disease, and many will be cared for along with heart disease. 5. Tuberculosis. All forms should be received freely. The quiescent may occasionally be received with precautions, for these often need in other ways precisely what the country home can give. 6. Mental convalescents. There are possibilities of bringing into the convalescent field early or "borderline," or observation mental conditions, and some of the nervous diseases. 7. Adolescence. The world over this vital age, from 12 to 16, "falls between," as to institutional care, and for well-known reasons. 8. Colored persons. There are practically 100,000 in this country, and not a convalescent bed for them. 9. Preventive convalescence. With this preventive health upbuilding there will be needed five beds where one is now needed. At a low estimate at least 10,000 persons per year should go out from the New York dispensaries alone. There is danger of overdoing convalescent provision in some directions.

The Practicability of Ratings in Appointment and Promotion of Members of the Visiting Staff

DR. ROBERT L. DICKINSON, Brooklyn: The defining of fitness is no simple matter. There is no schedule of such work and no method of charting it. Yet the claim is reasonable that nomination should be based on demonstrable performance and characteristics.

Medical Cooperation as a Test of Efficiency

DR. S. S. GOLDWATER, New York: There are two forms of cooperation for which provision should be made; first, the cooperation of the hospital with individual forces outside the institution and, second, cooperation within the institution. When the patient is brought to the hospital it is desirable that there should be some form of cooperation with the family physician. Some hospitals take the trouble to notify the physician who sends the patient as to the diagnosis, whether an operation is to be performed, and at what time it is to be done. The family physician is likewise notified of the patient's discharge. In this way the patient's relationship with the family physician will be continued, and when the patient leaves the hospital it should be kept up. In addition the family physician should have the freedom of the wards and be invited to make the rounds with the staff. In this way postgraduate instruction can be made available in a way that can be afforded by any hospital organization. The general practitioner should also have the privilege of the operating room. There should be an affiliation between independent dispensaries and hospitals. Another form of cooperation, the object of which is perhaps not so obvious, is the making of careful records of rejected cases, and thus one may be able to know what hospitals are unable to do. There should be cooperation of the hospitals with the department of health. Every case of contagious disease should not be transferred from the hospital to the board of health, regardless of the physical condition of the patient. In every hospital a special ward should be established for receiving and treating contagious diseases. If really conscientious, no hospital authorities would permit the transference of very sick patients. The hospitals should also cooperate in caring for the physical defects of school children. In from 80 to 85 per cent. of the children having defects, the parents are unable to meet the indications, and something should be done toward giving these children proper treatment. The ambulance service should be so organized that it is not necessary to call ambulances from distant parts of a city in order to transport a patient. Hospitals might combine in the use of a common power plant, kitchen, laundry, etc. Such a plan has been tried out in St. Louis, and has succeeded so well that it has been adopted in Cleveland. There should be cooperation between hospitals and medical schools for the purpose of giving to all medical students the opportunity for hospital training. I would suggest that the department of health accept no man for diagnostic work who has not had at least one year of hospital training. This would raise the standard of men in the department so that holding such a position would be considered an honor. Coming to a consideration of the subject of cooperation within the hospital, there should be cooperation between the outpatient and inpatient departments; the clinical department should be in close touch with the laboratory. All available clinical aids should be given the laboratory man. In the outpatient organization there should be better laboratory and therapeutic facilities afforded than is often the case. A hospital organization should be so complete and its parts so well correlated that every patient coming to the hospital or dispensary should get what he requires.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

March, XI, No. 3, pp. 177-244

1 *One Hundred Cases of Infantile Type of Hereditary Syphilis. B. S. Veeder and P. C. Jeans, St. Louis.
2 *Lobar Pneumonia in Childhood; Roentgen Ray Findings and Explanation of Bronchial Signs. H. H. Mason, New York.
3 Cases of Recurrent Hilus Infiltration. Unusual Form of Tuberculosis in Children. H. Wessler and M. H. Bass, New York.
4 Mesenterium Commune with Abnormal Course of Jejunum. A. Strauch, Chicago.
5 Hemorefractometry in Infectious Diseases of Children. Mello-Leitao, Minas Geraes, Brazil.
6 *Study of Blood in Tuberculous Meningitis. E. A. Morgan, New York.
7 *Rapid Method for Determination of Fat in Feces. C. H. Laws, Ann Arbor, Mich., and W. R. Bloor, Boston.
8 Cases of Sialolithiasis and Sialodochitis in Childhood. H. Neuhof, New York.

1. **Hereditary Syphilis.**—A syphilitic rash or a cutaneous lesion of some type was present in 77 of the cases analyzed by Veeder and Jeans and absent in 23. A macular, or slightly maculopapular rash occurred in 14 cases, while in 48 the eruption was confined largely to an exfoliative or desquamative dermatitis involving the soles of the feet and the palms of the hands. Rhinitis was present to a greater or less degree in 74 cases and was noted as absent in 26. In 82 cases the spleen was definitely palpable while in 18 it could not be felt on physical examination. Epiphysitis was present in 14 cases and absent in 86. In 8 of the 14 cases the epiphysitis developed between the fourth and sixth week. Of 77 infants whose weight was recorded in the histories, 7 were overweight, 10 of average weight and 60 below average weight. Eighty-one, or 85 per cent. of the infants developed symptoms in the first two months of life and about two thirds of these within the first month. The development of symptoms was delayed until late in infancy in a few cases. The Wassermann reaction was made in 82 cases. It was positive in 76 cases, or 92.6 per cent.; doubtful in 1 case, or 1.3 per cent.; negative in 5 cases, or 6.1 per cent. In 18 cases no test was made for various reasons—usually because of very small babies with active signs whose mothers gave a plus Wassermann. The mortality figure for the series reaches 40 per cent., and this despite the fact that many of these infants have been treated intensively with both neosalvarsan and mercury. The deaths are almost entirely confined to the first half year of life.

2. **Lobar Pneumonia.**—Thirty-seven cases of lobar pneumonia were studied with the Roentgen rays by Mason, most of them repeatedly. All thirty-seven cases showed a definite shadow, which was always so placed that it touched the pleura at some point. The early shadows were triangular in shape, with their bases on the pleura and their apices separated from the region of the root by normal lung. In their later development the shadows extended in size and became uniform from the periphery to the root of the lung. When the shadow involved this entire stretch, bronchial voice and breathing were present, but not otherwise. It is believed that the inference is justified that the dimensions of the shadows correspond to the extension of consolidation.

6. **Blood in Meningitis.**—Two hundred and fifty-two blood counts were made by Morgan on 169 cases of tuberculous

meningitis. The average leukocyte count was 20,900 per c.mm. with an average polynucleosis of 72.6 per cent. Only ten, or 4 per cent., of the counts were below 10,000, and twenty, or 8 per cent., were above 30,000. The lowest total count was 5,400, and the highest 70,000—the latter occurring in an uncomplicated case. The polymorphonuclear percentage ranged from 26 to 91. The age of the children varied between 2 months and 4½ years. It was thought that the variations in the blood picture might be explained by the presence or absence of an added infection, but an attempt to establish this relationship was not successful. However, the total leukocyte count and the proportion of polymorphonuclear cells vary with the stage of the disease; namely, both counts increase as the disease advances. There is a relative but not absolute diminution in the mononuclear elements of the blood. Morgan found a definite relationship between the intensity of the tuberculin skin reaction, on the one hand, and the total leukocyte count and polymorphonuclear percentage on the other. Diminution in the former is usually accompanied by an increase in the latter, both being evidences of a failing resistance by the body to the tuberculous infection.

7. **Fat in Feces.**—By means of the nephelometric principle, which has been used by Bloor for the determination of the fat in blood and milk, Laws and Bloor have found it possible to make an accurate determination of the fat in the stools in about one hour. The method consists essentially in extracting directly with acidified alcohol and ether, filtering the extract, then precipitating the fat in a watery solution and comparing the cloudy suspension so obtained with that of a similarly prepared standard solution.

American Journal of Public Health, Boston

February, VI, No. 2, pp. 97-188

9 Public Health Publicity; Art of Stimulating and Focusing Public Opinion. E. A. Moree, New York.
10 Value of Credit Balance in Public Health Administration. C. J. Hastings, Toronto, Canada.
11 Cancer and Public Health. F. C. Wood, New York.
12 Bacterial Examination of Sausages and Its Sanitary Significance. W. E. Cary, Chicago.
13 Workshop Education in Hygiene. R. C. Routsong, Dayton, Ohio.
14 Investigation Into Relationship of Flies and Diarrheal Disease in Children Under One Year of Age in New York City. P. S. Platt, New York.
15 Rural Sanitation. H. A. Streeter, Marblehead.
16 Proposed Alterations in Procedure for Standard Methods of Water Analysis. E. Bartow, Urbana, Ill.

Annals of Ophthalmology, St. Louis

January, XXV, No. 1, pp. 1-218

17 Trephining vs. Iridectomy in Glaucoma. H. W. Woodruff, Joliet, Ill.
18 Report on Gold (Mule Shoe) Drain for Chronic Glaucoma; New Method to Avoid Usually Employed Flap. A. E. Prince, Springfield, Ill.
19 Surgical Treatment of Retinal Detachment. E. S. Thomson, New York.
20 Business and Office Methods in Special Practice. L. Emerson, Orange, N. J.
21 Arrest of Cataract at Early Stage. E. L. Jones, Cumberland, Md.
22 Management of Eyelids During Cataract Operation. D. T. Vail, Cincinnati.
23 Some Impressions of Expression of Cataract With Sliding Conjunctival Flap. H. Gifford, Omaha.
24 Use of Lead Styles in Treatment of Diseases of Nasal Duct. H. Moulton, Fort Smith, Ark.
25 Ocular Tuberculosis of Nasal Origin. W. H. Luedde, St. Louis.
26 Tuberculosis of Retina, Recurring Hemorrhage and Retinitis Proliferans. E. Jackson, Denver.
27 Traumatic Rupture of Eyeball, Complete Aniridia; Preservation of Lens, With Practically Normal Vision. D. F. Harbridge, Phoenix, Ariz.
28 Use of Optochin in External Eye Diseases, Excluding Pneumococci Infections. J. S. Wyler, Cincinnati.

Boston Medical and Surgical Journal

February 24, CLXXIV, No. 8, pp. 259-300

29 How May You Assist Medical Department of United States Army? W. O. Owen, Washington, D. C.
30 Classification of Reformatory Prisoners. G. G. Fernald, Concord.
31 *Venesection as Therapeutic Measure. C. H. Lawrence, Jr., Boston.
32 Brief History of Gastric Intubation. F. H. Garrison, Washington, D. C.
33 Ringworm of Hands and Feet. J. E. Lane, New Haven, Conn.
34 What Goiters Demand Operation? F. H. Lahey, Boston.
35 Physiologic Considerations in Differential Diagnosis of Neurasthenic, Hysterical and Psychotic Symptoms. D. Gregg, Brookline.
36 Case of Chronic Nephritis with Uremia. L. Baumann and F. Stevens, Iowa City, Ia.
37 Treatment of Psoriasis with Horse Serum. A. P. Perry, Boston.

March 2, No. 9, pp. 301-336

38 Relation of Dulness to Heart Outlines. G. C. Shattuck, Boston.
39 Neurologic Surgery in War Hospital. E. C. Cutler, Boston.
40 Present Status of Gallstone Diagnosis by Roentgen Ray. F. W. O'Brien, Boston.
41 Bridging Gap in Outpatient Service. H. F. Day, Boston.
42 *Congenital Elevation of Scapula. F. E. Peckham, Providence, R. I.
43 Diagnosis and Treatment of Diabetes. M. M. Brown, North Adams.

31. **Venesection as Therapeutic Measure.**—Lawrence favors venesection, performed under proper indications. In the presence of dilatation of the heart, renal toxemia, hypertension or a combination of these conditions may be expected to act more promptly and more surely than drugs. It lowers blood pressure and at the same time produces a more efficient circulation when performed in cases of hypertension, but does not, in therapeutic "doses," lower normal arterial tension. Lawrence insists that it should never be performed in the absence of definite indications, but should not be withheld until the hope of success for any measure is gone. The amount of blood to be withdrawn is to be decided by the point at which relief is obtained. The error is generally on the side of too small an amount. Repeated blood letting, when indicated, does not seem to have any ill effects on the composition of the blood.

42. **Congenital Elevation of Scapula.**—In a case cited by Peckham he excised a wedge-shaped piece from the trapezius muscle to pull down the scapula. A vertical incision was made between the posterior border of the scapula and the spinous processes. The trapezius was diveded at the base of the spine of the scapula, and a V-shaped wedge of muscle removed. A suture was then taken through all of the tissues, sending the needle close to the bone, at the inferior angle and passing it, also close to the bone, through all tissues anywhere in the region of the tenth, eleventh or twelfth spinous process as the fixed point.

Florida Medical Association Journal, Jacksonville

February, II, No. 8, pp. 225-256

44 Sex Question in Public Health. I. Dyer, New Orleans.
45 Pellagra: Multiform Consideration. J. H. Randolph, Jacksonville.
46 What Can Be Done for Pellagra Situation in Florida. H. Hanson, Jacksonville.
47 Pellagra. J. G. DuPuis, Lemon City.
48 Id. J. Reeve, DeLand.
49 Dermatologic Aspect of Pellagra. J. L. Kirby-Smith, Jacksonville.

Journal of Cutaneous Diseases, New York

February, XXXIV, No. 2, pp. 55-158

50 *Anaphylactic Phenomenon in Eczema, Etiology and Treatment of Disease. C. P. White, Boston.
51 *Erythematous and Urticarial Eruptions Resulting From Sensitization to Certain Foods. W. L. McBride and E. H. Schorer, Kansas City, Mo.
52 Case of Immunity to Scabies. D. W. Montgomery, San Francisco.
53 Case of Early Mycosis Fungoides Clinically Indistinguishable From Parapsoriasis of Brocq. F. Wise and I. Rosen, New York.

50. **Anaphylaxis in Eczema.**—In the series of cases studied by White there were twenty-four cases of moist, oozing, crusting eczema. Four patients gave entirely negative tests and in six the controls were positive. Fourteen patients reacted positively to fat-free milk; nine to egg albumin; thirteen to salt-free butter, and six to lactose or to oatmeal water. There were twenty-four cases of red, infiltrated, dry and scaling eczema. Five patients gave entirely negative tests and in nine the controls were positive. Sixteen patients reacted positively to fat-free milk; twelve to egg albumin; sixteen to salt-free butter, and seven to lactose or to oatmeal water. There were three cases of papular eczema. None gave entirely negative tests and in two the controls were positive. Two patients reacted positively to fat-free milk; three to egg albumin, two to salt-free butter, and two to lactose or to oatmeal water. There were two cases of lichenoid eczema. One patient gave entirely negative tests and the other reacted positively to fat-free milk. There were

two patients in whom the only symptom was an infiltrated, leathery skin. One of these individuals gave entirely negative tests and the other reacted positively to fat-free milk, to egg albumin and to salt-free butter. There was one patient who exhibited merely excoriations due to intense pruritus. This individual reacted positively to egg albumin and to salt-free butter and one of the controls was also positive.

From these facts and from other investigations not detailed White makes the following deductions on the question of food in its relation to chronic eczema at various ages of life. Eczematous infants usually present in their stools an excess of fat or of starch. An excess of the former element generally means a moist eczema; of the latter, a dry type. When eczema is present and neither fat nor starch appears in excessive amounts in the feces, look for susceptibility to egg albumin or to milk, or, in default of all these more common causes, to a diminished thyroid secretion. Susceptibility to egg or to milk can be demonstrated by the new method of food inoculations. In chronic eczema the great majority of its victims seem to exhibit anaphylactic reactions to one or more types of food substances. Approximately 20 per cent. of eczematous individuals do not appear sensitized to any of the common food types. In practically 30 per cent. of these eczematous patients one or more of the controls proved positive. In the few cases in which both stool examination and cutaneous tests were made there was one contradictory finding. Fat was excessive in the stool and negative on the skin, while starch was present in the feces and negative cutaneously. It is impossible to tell from the type of eczema present what food elements will give positive skin reactions.

51. **Sensitization to Foods.**—Varieties of fundamental foods, whether they be fats, carbohydrates or proteids, produce untoward symptoms. Of these the proteids seem to have a selective action for producing urticarial or erythematous manifestations. Until one has analyzed the histories of a sufficient number of cases of these toxic erythemata, the authors claim that it is impossible to realize the constancy of symptoms produced by any one food and the variations of manifestations of the different foods. Their data are based on observations in patients varying in age from 7 months to 60 years.

Each food produces fairly constant skin lesions. (*a*) Urticaria occurs more frequently than erythemata; fish, tomatoes and cheese only producing urticaria, while cereals and pork produce erythemata in a considerable proportion of the cases. (*b*) Tomatoes and cereals usually produce these lesions within an hour after ingestion. (*c*) The eruptions usually persist less than twenty-four hours. (*d*) The peculiar reactions on ingestion of eggs, cereals and pork are inherited in a considerable percentage of the cases. (*e*) The skin manifestations in more than one half of their cases of sensibility to egg ingestion were accompanied by cough and dyspnea. Most, but apparently not all, urticarias and erythemata following ingestion of these proteids are due to phenomena similar to those observed in anaphylaxis. The etiologic factors are summarized by McBride and Schorer as follows: *A*. Sensitization or true anaphylaxis to (1) foods as such, (2) foods as changed by parasites, (3) foods as changed during disease. *B*. Consumption of partially decomposed or spoiled foods. *C*. Simple idiosyncrasy. To determine the particular food causing the manifestations, feeding and injection tests are of greatest importance. Parasites and other causes of disease must be looked for. Probably the Abderhalden tests and antitrypsin determinations may prove of value. Treatment should be specific. After getting rid of parasites and disease, if there still is hypersensibility, then immunization by feeding is usually, but not always, possible.

Journal of Experimental Medicine, Baltimore

March, XXIII, No. 3, pp. 265-429

54 Reactions Between Bacteria and Animal Tissues Under Conditions of Artificial Cultivation. Bactericidal Action in Tissue Cultures. H. F. Smyth, Philadelphia.

55 Id. Action of Bacterial Vaccines on Tissue Cultures in Vitro. H. F. Smyth, Philadelphia.

56 Id. Cultivation of Tubercle Bacilli With Animal Tissues in Vitro. H. F. Smyth, Philadelphia.

57 Aberrant Intestinal Protozoan Parasites in Turkey. T. Smith, Princeton, N. J.

58 Regenerated Epithelium in Chronic Uranium Nephritis. J. Oliver, San Francisco.

59 *Studies on Treponema Pallidum and Syphilis. Spirocheticidal Antibodies Against Treponema Pallidum. H. Zinsser and J. G. Hopkins, New York.

60 Id. Individual Fluctuations in Virulence and Comparative Virulence of Treponema Pallidum Strains Passed Through Rabbits. H. Zinsser, J. G. Hopkins and M. McBurney, New York.

61 Id. Difference in Behavior in Immune Serum Between Cultivated Nonvirulent Treponema Pallidum and Virulent Treponemata From Lesions. H. Zinsser, J. G. Hopkins and M. McBurney, New York.

62 *Experimental Study of Parotitis (Mumps). M. Wollstein, New York.

63 *Etiology, Mode of Infection and Specific Therapy of Weil's Disease (Spirochetosis Icterohemorrhagica). R. Inada, Y. Ido, R. Hoki, R. Kaneko and H. Ito, Fukuoka, Japan.

64 *Method for Rapid Preparation of Antimeningitis Serum. H. L. Amoss and M. Wollstein, New York.

65 Influence of Typhoid Bacilli on Antibodies of Normal and Immune Rabbits. C. G. Bull, New York.

59. **Spirocheticidal Antibodies Against Treponema Pallidum.**—Zinsser and Hopkins believe that their experiments have shown that the serum of rabbits and sheep immunized with cultures of *Treponema pallidum* acquires spirocheticidal properties for these culture spirochetes. The normal serum of these animals also possesses spirocheticidal action if used in sufficient quantities, and the action of the immune serum represents probably an increase of the antibodies normally present. Both normal and immune spirocheticidal properties are destroyed by heating to 56 C. The spirocheticidal action of the immune serum can be reactivated by the addition of fresh normal serum of the same species, insufficient in amount to exert a spirocheticidal effect by itself. The structure of these spirocheticidal bodies, therefore, is entirely analogous to that of the well known bactericidal antibodies known to exist in antibacterial serum.

62. **Experimental Study of Parotitis (Mumps).**—Wollstein's experimental research demonstrated that cats injected into the parotid gland and testicle with a bacterial sterile filtrate of the salivary secretion of children in the active stage of parotitis or mumps can be made to develop a pathologic condition having several points of resemblance to the condition present in mumps in human beings. The intraparotid and intratesticular injections of extracts of normal parotid gland and testicles may cause a mild rise of temperature and leukocytosis of brief duration, but swelling and tenderness are absent. The intraparotid and intratesticular injections of filtrates of normal saliva may cause a mild rise of temperture of very brief duration, but leukocytosis, swelling and tenderness do not appear. The pathologic conditions set up by the filtrate derived from the salivary secretion of cases of acute parotitis are intensified by successive transfers through a small series of cats of the extract and emulsion of the parotid gland and testicle previously inoculated. The pathologic changes are also prevented or reduced when the extract or emulsion is previously incubated with a quantity of blood serum obtained from a cat which has survived inoculation. Normal serum, on the other hand, has no such inhibiting effect. The deduction from these experiments is to the effect that the salivary secretion in parotitis or mumps contains a filterable substance capable of setting up a series of definite pathologic conditions when inoculated into the testicle and parotid glands of cats. Whether this active material is a micro-organism and if so whether it is the specific microbic cause of parotitis or mumps remains to be ascertained.

63. **Weil's Disease (Spirochetosis Icterohemorrhagica).**—In the course of investigations of that endemic disease of portions of Japan, which agrees clinically with Weil's disease, so-called, the authors discovered a spirochetal micro-organism which is now believed to be the cause of the disease. They have named it *Spirocheta icterohemorrhagia*. The spirocheta lives in the blood outside the cellular elements and in various organs and tissues. The infection occurs probably through the alimentary canal. It may, however, sometimes enter through the skin, as at times the disease begins with local swelling of the lymph glands. Among fifty-five cases admitted to the clinic, only a few indicated cutaneous origin.

Direct infection from man to man is rare. The mosquito and flea do not play a part in the propagation of the disease. The urine contains the spirochetes, beginning at an early stage of the disease, but in such small numbers as to make detection by the dark field microscope difficult. However, from the thirteenth to the fifteenth day of illness, at the time that the immune substance appears in the blood, they become numerous and are easily discovered. After the twenty-fourth to the twenty-fifth day the spirochetes begin to diminish in number and to assume a degenerative form, while they disappear completely from the urine before the fortieth day of illness. Feces from eight patients were inoculated into guinea-pigs on ten different occasions with one positive result. Sputum from two patients was injected into the guinea-pigs on three occasions. A positive result was obtained once in a case in which the sputum was bloody. Two inoculations with vomitus gave no result. A substance which has bactericidal and bacteriolytic action over the spirocheta appears in the blood.

The immunity endures for a long period of time. The disease occurs frequently among coal miners who work in that part of a mine which is inundated with water got rid of by pumping. It is, therefore, necessary to remove the water and then to disinfect the ground, when it is found that the disease occurs among the workmen who work at certain definite places in the mines. Lime is effective for the disinfection of the ground. It is also necessary to avoid infection through the healthy skin and the alimentary canal. Thus, when the infected locality is large so that it cannot be disinfected thoroughly, recourse must be had to the method of active immunization. The spirochetes are removed from the blood by salvarsan. The serum treatment of the experimentally infected animals has, so far, given satisfactory results and affords a good basis for the clinical use of the serum treatment on man. The serum treatment is not suitable for cases which suffer relapses, but may be considered hopeful for cases which have already developed an immune body in the course of the disease, with lasting immunity. The authors have also immunized horses for the purpose of obtaining an immune serum and they have had at least a partial success with horse serum. In a case in which it was administered subcutaneously the spirocheta disappeared from the blood within twenty-four hours.

64. **Rapid Preparation of Antimeningitis Serum.**—Potent antimeningitis serum has been produced safely in the horse by Amoss and Wollstein by the method of three successive intravenous inoculations of living meningococci and parameningococci repeated at stated intervals. Sudden and alarming symptoms and sudden death are avoided by employing first a desensitizing injection and then by adjusting the doses according to the febrile reaction and by making the highly diluted injections slowly. By inoculating alternately several strains of living meningococci and parameningococci, and the autolyzed products of each, a polyvalent serum of high titer can be produced in eight to twelve weeks instead of in the ten months required by the subcutaneous method.

Journal of Infectious Diseases, Chicago

March, XVIII, No. 3, pp. 239-334

66 *Examination of Urine and Feces of Suspect Typhoid Carriers; Report on Elaterin Catharsis. F. O. Tonney, F. C. Caldwell and P. J. Griffin, Chicago.
67 *Bactericidal and Protozoacidal Activity of Emetin Hydrochlorid in Vitro. J. A. Kolmer and A. J. Smith, Philadelphia.
68 Bactericidal and Protozoacidal Activity of Emetin Hydrochlorid in Vivo. J. A. Kolmer and A. J. Smith, Philadelphia.
69 Natural Resistance of Pigeon to Pneumococcus. P. Kyes, Chicago.
70 Sanitary Control of Swimming Pools. M. Levine, Ames, Iowa.
71 Experimental Cholera Carriers. O. Schöbl, New York.
72 *Localization of Streptococci in Eye. E. E. Irons, E. V. L. Brown and W. H. Nadler, Chicago.

66. **Urine and Feces in Suspect Typhoid Carriers.**—On the basis of the fact that postmortem examinations of typhoid patients commonly demonstrate the presence of typhoid bacilli in largest numbers in the small intestine, whereas they are seldom found in the colon, a plan was evolved by the authors of using, in carrier cases, a suitable cathartic to bring down the contents of the small intestine. The selection of such a cathartic involved two essential considerations: (1) The hydrogogue cathartic selected, must be sufficiently powerful to empty the bowels thoroughly and to bring down the contents of the small intestines, and (2) it must be devoid of antiseptic properties. Elaterin appeared to meet both these requirements satisfactorily. The authors' experience with the administration of hexamethylenamin to urinary typhoid carriers indicates that typhoid bacilli are not demonstrable in the urine after recent administration of this drug.

67. **Microbicidal Action of Emetin in Vitro.**—According to Kolmer and Smith emetin hydrochlorid possesses bactericidal properties, but prolonged contact with bacteria is required before this action becomes apparent. A 5 per cent. solution of emetin failed to kill *B. typhosus* in fifteen minutes, but with a special technic, in which the drug remains in contact with the test micro-organisms, emetin proved about equal to, or even on occasion five times more antiseptic and germicidal than corresponding dilutions of pure phenol. The bactericidal activity of emetin is more apparent in fluid than it is in solid culture media. In an emulsion of pus and various bacteria from pyorrhea alveolaris a 2 per cent. solution of emetin required forty-five minutes to effect sterilization, whereas a corresponding dilution of phenol proved germicidal in five minutes or less; a 0.5 per cent. solution of emetin required one and a half hours, and a corresponding dilution of phenol, forty-five minutes, to sterilize the emulsion. Emetin is highly amebacidal. The logical treatment of pyorrhea alveolaris should consist primarily in its local application combined with hypodermatic administration, especially in severe infections or in those accompanied by systemic complications.

72. **Localization of Streptococci in Eye.**—The left eye of a patient suffering from a chronic dacryocystitis became acutely inflamed (iridocyclitis), April 11, coincidently with an acute exacerbation of the inflammation of the tear sac. Hemolytic streptococci isolated from the tear sac April 28, produced typical iridocyclitis in 3 of 4 rabbits injected intravenously. Hemolytic streptococci isolated from the tear sac May 24, produced iridocyclitis in 2 of 4 rabbits injected. Cultures of hemolytic streptococci from the tear sac taken on May 26, May 28, June 2, June 7 and June 16, failed to produce iridocyclitis in a total of 22 rabbits, whether injected with other organisms from broth culture inoculated directly from the patient, or in pure culture after isolation on blood agar. It is the opinion of the authors that the failure of later cultures to produce iritis was not fortuitous, but more probably due to some change in the invasive power of the organism for ocular tissue seems evident from the fact that whereas in the first 2 series, 5 of 8 rabbits injected developed iridocycyitis, in the later five series of cultures 22 rabbits showed no such lesions. Furthermore, in the later experiments 24 other rabbits received the same streptococcus either in pure culture or with other organisms, without the production of typical iridocyclitis, such as was observed in the first 5 rabbits. The ability of the cultures to produce lesions of the eye was lost also in transfer from rabbit to rabbit, although iritis was produced in Rabbit 26 by intravenous injection of the hemolytic streptococcus from the eye of Rabbit 10. This loss of power to produce iritis in rabbits was not accompanied by any demonstrable decrease in virulence for rabbits.

In cultures the quality of localization in the eye was lost after the third or fourth subculture, usually within very few days after isolation. In the case of the first rabbits injected, however, cultures produced iritis seventeen days after isolation from the patient. Attempts to obtain a return of invasive power for tissues of the eye in strains of streptococci which had lost it, by growing the organisms in the living eye, were unsuccessful in one series after passage through 5 animals, and in one series after passage through 7 animals. These experiments seem to indicate that the invasive power of an organism for special tissue may change within a short period of time during residence in the original host, during animal passage, and in culture, without pronounced or constant changes in cultural characteristics, or in general virulence for animals.

Laryngoscope, St. Louis

February, XXVI, No. 2, pp. 81-152

73 Successful Intranasal Treatment of Affections More or Less Remote From That Organ. E. Mayer, New York.
74 Blood Clot Dressing in Closing Wound in Operations for Simple Mastoid Abscess. K. K. Wheelock, Fort Wayne, Ind.
75 Ideal Mastoid Operation. H. O. Reik, Baltimore.
76 Turbinal Origin of Bleeding Polypus of Nose. T. Matsui, Fukuoka, Japan.
77 Bloodless Method of Enucleating Tonsils. E. T. Smith, Hartford, Conn.
78 Two Cases of Tic Douloureux of Sphenoidal Inflammatory Etiology. G. Sluder, St. Louis.
79 Secondary Hemorrhage Following Posterior Tip Operation. Sodium Citrate Method of Blood Transfusion. H. Hays and R. Lewisohn, New York.

Medical Record, New York

February 26, LXXXIX, No. 9, pp. 353-398

80 Persistent Development Anomalies of Position of Large Intestine With Special Reference to Ascending Colon and Cecum. R. H. Fowler, Brooklyn.
81 Fair Face of Nature. W. P. Cunningham, New York.
82 Neurotic Manifestations in Children. A. Stern, New York.
83 How Can Physician's Total Income Be Increased? T. F. Reilly, New York.
84 Bacteriology of Recent Grip Epidemic. C. H. Nammack, New York.
85 Health Insurance and Prevention of Tuberculosis. J. B. Andrews, New York.

Modern Hospital, St. Louis

March, VI, No. 3, pp. 153-234

86 Architecture and Costs of Ithaca City Hospital. O. H. Waltz, A. T. Kerr and W. A. Higgins, Ithaca, N. Y.
87 Hospital Laboratory: Its Purposes and Methods. R. M. Pearce, Philadelphia.
88 Study of Plans for Large Modern Hospital. S. Lambert, New York.
89 Treatment of Syphilis in General Hospital. J. H. Stokes, Chicago.
90 Few Problems of Small Hospital Management. B. Golightly, Birmingham, Ala.
91 Tent Colony of Massachusetts General Hospital. H. W. Hersey, Boston.
92 Small Hospital With Minimum of Administrative Space. D. A. Bohlen, Indianapolis.
93 Compulsory Health Insurance for Every Individual. O. S. Halsey, New York.

New Mexico Medical Journal, Las Cruces

February, XV, No. 5, pp. 167-201

94 Enuresis, Habit or Disease? C. E. Lukens, Albuquerque.
95 Wassermann Efficiency. J. R. Van Atta, Albuquerque.
96 Specifics in Medicine. C. F. Montgomery, Roswell.
97 Remote Effects of Electric Shock. H. A. Ingalls, Roswell.
98 Chorea. C. M. Yater, Roswell.

New York Medical Journal

March 4, CIII, No. 10, pp. 433-480

99 *Gallbladder Diseases. C. H. Mayo, Rochester, Minn.
100 Gallstone Disease. B. T. Tilton, New York.
101 Cerebrocerebellar Ataxia. A. Gordon, Philadelphia.
102 Progress of Treatment of Skin Diseases. G. M. MacKee, New York.
103 Recovery of Streptococcus Viridans from New York Street Dust. W. C. Thro, New York.
104 Methods of Examination in Gastro-Intestinal Cases. W. V. Ewers, Rochester.
105 Bronchiectasis. E. H. Mayne, New York.
106 Diet in Heat Insufficiency. N. B. Potter, New York.
107 Diet in Arteriosclerosis. L. F. Bishop, New York.
108 Poisonous Proteins. (To be continued.) V. C. Vaughan, Ann Arbor, Mich.
109 Susceptibility of Man to Foreign Proteins. W. T. Longcope, New York.

99. **Gallbladder Diseases.**—Appreciation of the fact that infection is the prime factor in gallbladder disease has revolutionized the surgical treatment of this condition at the Mayo clinic. The mortality following cholecystectomy is less at present than that following cholecystostomy (1.2 per cent. against 3.4 per cent.) for the last three years, or including all cholecystectomies 1.5 per cent. From a series of form letters of inquiry sent to consecutive groups of patients who had been operated on by cholecystostomy during the past several years—none more recent than one year—242 replies were received, which showed that 53 per cent. of these patients were cured, 38 per cent. improved, and 9 per cent. not improved. Of the cured patients 129, 49 per cent. had stones, 11 per cent. had stones and empyema, 18 per cent. stones and cholecystitis, and 22 per cent. cholecystitis. From a series of form letters of inquiry sent to patients who had been operated on by cholecystectomy during the past several years—none more recent than one year—219 replies were received, which showed that 71 per cent. of the patients were cured, 22 per cent. improved, and 7 per cent. not improved. Of the improved patients, 48 or 57 per cent. had stones and cholecystitis, and 43 per cent. had cholecystitis alone.

Oklahoma State Medical Association Journal, Muskogee

March, IX, No. 3, pp. 53-79

110 Neglected Prostate. A. L. Blesh, Oklahoma City.
111 Facial Paralysis; Operative Treatment. G. A. Wall, Tulsa.
112 Fungus of Brain Following Injury; Report of Case. C. S. Neer, Vinita.
113 Fracture of Hyoid Bone; Report of Case. R. L. Hull and J. A. Brooke, Oklahoma City.
114 Organized Medicine. W. L. Moore, Broken Bow.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

February, XXIV, No. 2, pp. 33-68

115 Heat in Treatment of Carcinoma of Cervix. C. C. Nesselrode, Kansas City, Kan.
116 Diagnosis and Medical Treatment of Gastroduodenitis. F. B. Erwin, Wellston.
117 Diagnosis of Gastric and Duodenal Ulcers. H. D. Walcott, Dallas, Tex.
118 Progress in Prostatic Surgery. C. Capell, Kansas City, Mo.
119 Etiologic Factors of Vomiting During Pregnancy and Measures to Relieve Them. J. D. Seba, Bland, Mo.

West Virginia Medical Journal, Huntington

March, X, No. 9, pp. 291-326

120 Cause and Treatment of Grippe With Special Reference to Present Epidemic. C. P. Showalter, Clarksburg.
121 Importance of Acute Otitis Media. C. C. Jones, Cincinnati.
122 Bronchopneumonia. W. W. Morton, Bluefield.
123 Wassermann Reaction and Its Application. J. E. Norman.
124 Appendicitis. I. Hardy, Morgantown.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

February 12, I, No. 2876, pp. 225-260

1 *Trench Fever. J. W. McNee, A. Renshaw and E. H. Brunt.
2 Antenatal Clinics and Prematernity Practice at Edinburgh Royal Maternity Hospital in Years 1909-1915. (To be continued.) J. W. Ballantyne.
3 Brilliant Green as Antiseptic. A. Leitch.
4 *Physics of Surgical Dressing. A. Primrose.

1. **Trench Fever.**—This disease appears to be a definite entity and of infective nature, as is proved by its ready transmission from one person to another by the blood. The authors' two clinical types of the disease: (*a*) a short fever of about a week's duration, followed frequently after a few days by a short single relapse; (*b*) a longer illness characterized above all by the number, sharpness and periodicity of the relapses. The symptoms of both types are clinically identical, the most constant and characteristic being headache and pain in the legs and small of the back. The two types are, in their opinion, merely varieties of one and the same disease. The incubation period varies, possibly with the dose of the infective virus introduced. The shortest incubation period in the authors' experimental transmissions was six days, and the longest twenty-two days. The disease is transmissible in every case by the whole blood, whether injected intravenously or intramuscularly. The disease is not transmissible by the serum. In one instance in which the serum proved infective hemolysis of corpuscles had occurred before injection. All experiments with filtered serum were negative. The plasma was infective in one experiment, but hemolysis of red cells had occurred, so that the plasma was hemoglobin tinted. The filtered plasma in another test was not infective. These results seemed to point to the virus being contained within the blood corpuscles themselves, whether leukocytes or red cells. Blood corpuscles, after washing five times in saline to remove the plasma, were still found to be infective. Very many blood films at all stages of the disease have been examined without a parasite being detected. Blood corpus-

cles were broken down, and the hemoglobin tinted fluid passed through a filter in an attempt to prove the virus an ultramicroscopic one confined to the corpuscles. The fluid when injected, however, was not found to be infective. The only constant morphologic change in the blood is the presence of punctate basophilia. This was so marked in some cases as to require very careful investigation to differentiate it from an intracellular parasite. The blood counts, differential and ordinary, did not yield any important results. As regards the means by which the disease is transmitted in nature no evidence is offered.

4. **Physics of Surgical Dressing.**—In Primrose's opinion the best dressing for septic wounds is a moist dressing, and he has found the hypochlorous acid solution wonderfully effective. The moist dressing is applied directly to the wound, and over this dry gauze. Primrose urges that everything be done to favor free evaporation from the surface and absorption into the dressing, which should be frequently changed. He is convinced it would be greatly to the advantage of the wounded if impermeable protective and oil silk were entirely removed from the surgical armamentarium of the army. Their use in surgery is very restricted, and as they are employed in military surgery at present they do far more harm than good.

Dublin Journal of Medical Science

February, III, No. 530, pp. 71-154

5 Electrocardiograph: Notes of Cases. J. A. Lindsay.
6 Effect of War on Medical Profession. C. M. Benson.
7 Physically Defective Children and Problem of Their Education. W. A. Winter.

Glasgow Medical Journal

February, LXXXV, No. 2, pp. 81-160

8 Delay in Breech Presentations from Extension of Legs. R. Jardine.
9 Neurasthenic Element in Disease. J. Craig.
10 Aural School Clinic. J. K. Love.
11 *Treatment of Tuberculous Sinuses with Menthol. C. Bennett.

11. **Tuberculous Sinuses Treated with Menthol.**—Bennett speaks well of the results obtained from the use of menthol in the treatment of tuberculous sinuses. A prolonged trial of this substance in a large number of cases has left no doubt in his mind as to its efficacy and reliability, and he now has no hesitation in using it exclusively. Injurious action on the surrounding skin and the possibility of undesirable after-effects from absorption of the drug were conspicuous by their absence. The granulations of the sinuses remain of a healthy type, discharge is rapidly reduced to a minimum, and the period of healing noticeably shortened. An added benefit is the local anesthetic action in preventing postoperative pain. The strength Bennett has found most generally serviceable is about 5 grains menthol per dram of methylated spirit. Sterilized white gauze ribbon is soaked in the solution, and, when the excess fluid has been pressed out, is immediately used as packing. The dressing need not be changed for three days.

Journal of Laryngology, Rhinology and Otology, London

February, XXXI, No. 2, pp. 33-72

12 Two Cases of Postoperative Intracranial Infection of Otitic Origin. H. L. Whale.
13 Vincent's Infection of Middle Ear and External Canal. J. Adam.
14 Lateral Sinus Thrombosis Followed by Tuberculous Abscess of Gluteal Region Simulating Pyemic Abscess. D. McKenzie.

Lancet, London

February 12, I, No. 4824, pp. 331-386

15 Effects of High Explosives on Central Nervous System. F. W. Mott.
16 Clinical Thermometry: Continuous and Quasi-Continuous Temperature Records in Man and Animals in Health and Disease. G. S. Woodhead and P. C. Varrier-Jones.
17 *Aerial Conveyance of Infection. F. H. Thomson.
18 Urea Content of Cerebrospinal Fluid. R. G. Canti.
19 Prophylactic Vaccination Against Hay-Fever. B. P. Sormani.
20 Case of Febris Colombensis. G. A. Lurie.
21 Case of Intracranial Hemorrhage Without Symptoms of Compression. P. W. Lam and E. Law.

17. **Aerial Conveyance of Infection.**—Thomson has come to the conclusion that scarlet fever infection is not conveyed by air. It has been held for many years that the infection of diphtheria is not air borne, and the evidence in the ward in which Thomson worked only makes it clearer that this opinion is correct. Thomson is disposed to regard the evidence as strong against the conveyance of rubella infection by air. A considerable number of the cases of rubella introduced into the ward during the winter of 1914 to 1915 came from two scarlet fever wards into which the infection had come from outside the hospital, and in these two wards the infection persisted for many weeks although new patients were not admitted. Such persistence of infection in this disease is uncommon, and therefore indicated unusual activity. Thomson inclines to the view that mumps is probably not air borne, and he is still in doubt as to whether whooping cough may be occasionally air borne or not. He is quite satisfied that chickenpox infection is air borne early in the disease, but it is difficult to determine the exact time it ceases to be so. It may uncommonly be conveyed by air on the third day, but apparently not afterward. With the intention of working this subject out systematically Thomson introduced cases of scarlet fever and chickenpox into a small boys' scarlet fever ward, but not to guard against contact infection in any way. The patients were young, and the ages of the unprotected exposed to the cases of chickenpox were from 1 to 8 years. In all, seven patients suffering from both diseases passed through the ward; 1 being introduced on the sixteenth day of the chickenpox; 1 on the twelfth day; 1 on the eleventh day; 1 on the tenth day; 2 on the ninth day and 1 on the eighth day. Only one patient was introduced at a time, and was kept in the ward until all the scabs had separated, or longer; while no patient was discharged until more than twenty-two days had elapsed after the first exposure, many being kept much longer. No infection arose from any of these cases. The ward in which this work was done accommodated twenty patients.

Quarterly Journal of Medicine, London

January, IX, No. 34, pp. 67-163

22 *Three Cases of Multiple Telangiectases with Epistaxis of Familial Type. R. Hutchison and W. J. Oliver.
23 Some Functional Nervous Affections Produced by War. F. E. Batten.
24 *Acute Hodgkin's Disease, with Involvement of Internal Glands and Relapsing Pyrexia. T. H. Whittington.
25 *Case of Pyelonephritis with Glucosuria. J. H. Ryffel.
26 *Paratyphoid; Study of Fatal Cases. B. Dawson and T. H. Whittington.
27 Nephritis in British Troops in Flanders. J. R. Bradford.
28 Protective Ferments of Body. R. L. M. Wallis.

22. **Multiple Telangiectases with Epistaxis.**—In this series of three cases two of the patients showed multiple telangiectases of the face with lesions on the buccal mucous membrane; all three gave a story of frequent attacks of epistaxis occurring since their early years, with a definite history of nose bleeding in other members of the family. The first patient was a male, aged 49. As long as he could remember he had had attacks of epistaxis, which had been more severe during the last two years, especially in the morning. The bleeding persisted even when he was in bed and often occurred after meals. Spontaneous bleeding from the lips, sometimes preceded by a feeling of soreness, began about eight years ago, but these had until his admission entirely ceased during the last two years. He had bled occasionally from the ears about the fossa of the helix and from the corner of the right eye, also from the gums and from the inside of the mouth, especially after very hot drinks. He had noticed some bleeding from the rectum on straining about one year ago. From the dilated superficial vessels on the nose occasional bleeding had spontaneously occurred during the last six years, and he was for this reason unable or afraid to wash in warm water. He had never observed any hematuria, hemoptysis, or hematemesis of fresh blood, but had frequently vomited swallowed clotted blood. The red spots and vessels had been first noticed about eight years ago and were increasing in number. He did not bleed particularly readily if he cut himself, and the bleeding from the dilated vessels on the lips and nose was quite easily stopped by the application of cold water. The bleeding was, as a

rule, rather more frequent during the summer months. He had no chilblains during the winter, but at this time the numbness and cramp in the toes which he always experienced each morning, and occasionally in the finger tips was more intense. The lesions inside the nose were cauterized without checking the epistaxis or causing much general improvement. Fifteen grains of calcium lactate was given twice daily for a period of three successive days with a similar result. Under a general anesthetic the lesions on the lips and later those inside the nose, were treated with diathermy. Great improvement followed.

The second patient, the father of the first patient. Since childhood he had had frequent spontaneous attacks of bleeding from the nose, with some bleeding from the gums during the last five or six months. Some two or three years ago there had been occasional bleeding from the rectum, with never any hematuria. He had had spots on the face for years and he was unable to say when these had first appeared. There had never occurred any spontaneous bleeding from these lesions and he was not accustomed to bleed at all markedly from any wounds of the skin. The third patient was also a male aged 25, the son of the first patient. For as long as he could remember he had been troubled with epistaxis, the attacks of which had not been so frequent during the last two years. There had been no bleeding from any other areas. No melena. No hematuria. The skin lesions in these three cases and those of the nasal and buccal mucous membranes are nevoid in character and of the nature of angiomata. There did not appear to be any underlying pathologic cause for the dilatation of the superficial blood vessels of these regions. Although the second case showed a somewhat high blood pressure no definite signs of an associated interstitial nephritis were recognized. The low blood pressure in the case of the first patient is attributed to the anemia present and the more aggravated form of his epistaxis and his numerous skin lesions to the presence of a mitral incompetence, though this condition appeared to be fully compensated during the period when he was under observation. In none of the cases could any history of the indigestion which usually accompanies acne rosacea be obtained, nor was there any sign of any local atrophy in the neighborhood of the skin lesions.

24. **Acute Hodgkin's Disease.**—The most noticeable features (considering the ultimate diagnosis) in Whittington's case and the ones which led observers astray were as follows: The acute onset with symptoms and signs suggestive of peritonitis; the subsequent remarkable resemblance of the case to typhoid; the general resemblance to an acute infective fever; the relapsing course in which there were not only relapses in pyrexia but also a curious periodicity of symptoms and signs; signs suggesting portal obstruction, and lastly (and very important) the entire absence of enlarged external glands. The diagnosis was not made until after the necropsy. The whole aspect of the case seems to support the view that Hodgkin's disease is due to some infective organism, which in this case was particularly virulent, and which had its chief habitat in the retroperitoneal glands and spleen.

25. **Case of Pyelonephritis with Glucosuria.**—With edema of a distribution not usually associated with renal disease, Ryffel's patient had dry skin, marked albuminuria, pus and casts in the urine, and lipemia. After an interval polyuria and renal glucosuria developed. No evidence was obtained of impairment of renal function except as regards the excretion of chlorid, and there was some response to diuretics. The amount of pus in the urine was such to justify the supposition that organisms were present in the urine. These were ultimately found and identified as *Streptococcus Pyogenes longus* in pure culture. The case was treated as one of infection of the kidneys, vaccines and later urotropin being employed. The combination was ultimately successful. As the blood pressure was low and the patient had been inactive for a long period, progressive muscular exercises were employed in the later stages with beneficial results.

26. **Paratyphoid.**—Abdominal pain and diarrhea occurred at onset in nine and eight cases, respectively of the seventeen studied by Dawson and Whittington; together with vomiting they were the features of three cases which had a sudden onset. Headache occurred in six, cough in three and epistaxis in two cases. The tongue resembled that found in typhoid. In thirteen cases spots were present, in some instances they were of larger size and less regular outline than those of true typhoid. In four out of the seventeen cases the respiratory manifestations were so definite as to be a presenting feature of the clinical picture. The pulse was soft and in six of the seventeen cases dicrotic. Displacement outward of the apex beat was not a marked feature, even when the heart was failing. Endocarditis was not once recorded. The blood pressure varied. The highest recorded systolic pressure in this series was 130. When the condition of the patient was grave 1/100 grain strophanthin intravenously reduced the pulse from 168 to 145 in fourteen minutes, and later a second dose reduced it from 145 to 125. In eight cases the spleen was found enlarged postmortem; in six of these the enlargement had been detected during the life, and in two it had not. In one case the spleen was half the normal size. In two cases there were abscesses of the spleen. In one case of paratyphoid A infection the ulceration of Peyer's patches was very marked, while in another there were obvious signs of the healing of recent ulcers in the intestine when the patient died from a subsequent typhoid infection. In twelve out of the fourteen paratyphoid B infections the small intestine was affected to a varying extent. Usually the Peyer's patches were deeply ulcerated, and the solitary lymphoid nodules were raised and varied in size from pinheads to large peas. The lower two feet of the ileum were the constant seat of the disease, and the neighborhood of the ileocecal valve was the area the most intensely affected. The floor of the ulcers was constituted by the muscular coat or the peritoneum, and the edges of the ulcers were usually undermined and in all cases thickened. In two cases the small gut showed no lesions.

Judging from this series of cases the disease falls with more force on the large intestine in paratyphoid than in the typhoid. In ten instances of paratyphoid B infection the large intestine from the cecum to the pelvic colon was involved, the ulceration being most marked in the cecum and the colon so far as the splenic flexure. In the milder examples the lymphoid nodules were raised, hyperemic and umbilicated, whereas in the severer forms there were ulcers of varying sizes and depths. The appendix was a focus of mischief causing peritonitis in three cases. In two of these in which paratyphoid B was the cause, it was acutely inflamed. In one there was gangrene of the appendix, at the base of which there was a perforated ulcer. In another case the tip of the appendix was intensely inflamed, general peritonitis and portal pyemia had followed, and paratyphoid B was isolated from the pus both in the right iliac fossa and the liver. The appendix was the seat of the perforation of a typhoid ulcer in one case of paratyphoid A. The causes of death were as follows: perforation, 2 cases; peritonitis from infected appendix, 2 cases; hemorrhage, 2 cases; hemorrhage and toxemia, 3 cases; toxemia, 4 cases; pneumonia, 2 cases, and splenic abscess, 1 case. These represent a death rate of rather over 4 per cent. for paratyphoid B and under 1 per cent. for paratyphoid A.

Annales de Médecine, Paris

October, 1915, II, No. 5, pp. 443-562

29 *Typhoid in the Vaccinated. (Les infections typhoïdes chez les sujets vaccinés contre la fièvre typhoïde.) L. Bernard and J. Paraf.

30 Concussion of the Spinal Cord by Projectiles. (Etude clinique et anatomo-pathologique de la commotion médullaire directe par projectiles de guerre.) H. Claude and J. Lhermitte.

31 *Reactions of the Organism to the Diphtheria Bacillus Revealed by Fixation of Complement Test. P. Lévy.

32 Clinical Anatomic Study of Compression of the Spinal Cord by a Tumor. G. Caussade, A. Barré and E. Joltrain.

December, No. 6, pp. 563-626

33 Nodose Erythema, Probably of Tuberculous Origin, in a Syphilitic. (Erytheme noueux et syphilis.) A. Chauffard and A. Le Conte.

34 Typhoid Fever and Diphtheria Associated; Fourteen Cases. M. Labbé and M. Juillan.

35 Intermittent Fever from Mild Meningococcemia Consecutive to Cerebrospinal Meningitis; Recovery. J. Baur, J. Sévestre and J. Hutinel.

36 *Complications on the Part of the Ear in Epidemic Cerebrospinal Meningitis. Roger and Baldenweck.
37 *Acute Fatal Suprarenal Syndrome in Course of Bacillary Dysentery; Four Cases. P. Remlinger and J. Dumas.
38 Regeneration of Spinal Nerve Fibers After Crushing Injury of the Spinal Cord. (Régénération de fibres nerveuses spinales dans un cas d'écrasement de la moelle.) G. Roussy and J. Lhermitte.

29. **Typhoid in the Vaccinated.**—Bernard and Paraf review their experience with 800 typhoid cases among soldiers. Cultures were made from the blood in 325 cases, with negative findings in 189. Typhoid bacilli were found in 32 who had not been vaccinated, and in 45 who had been vaccinated; paratyphoid bacilli in 26 nonvaccinated, and in 222 of the vaccinated. This material includes 26 men who had been thoroughly vaccinated against typhoid. The disease presented the usual clinical picture in them and in 5 was of a severe type, but none died; 2 developed suppuration in the skin during convalescence and the psychic condition called mental puerilism. On the whole, the exceptional mildness of the disease in the vaccinated was noticeable.

31. **Fixation of Complement by Serum of Diphtheria Bacilli Carriers.**—Lévy reports that there may be fixation of complement by the serum of persons from a diphtheria environment, but it occurs more constantly and decidedly in those children who have passed through typical or abortive diphtheria. These children had evidently been rendered immune by the presence and activity of a focus of the bacilli, their products causing the production of an ample supply of antibodies. The reaction was never positive early in diphtheria.

36. **The Ear in Epidemic Meningitis.**—Roger and Baldenweck report that they saw only 4 cases of otitis media in 50 men with epidemic meningitis but the internal ear was affected in 9 of the 35 survivors, that is, in 25 per cent. In 2 of this group only one ear was affected. In 3 the ear symptoms developed early; in 3 others during convalescence. The details of each case are tabulated under thirteen headings. The auditory nerve itself seems to have been injured in most. In 5 cases there was only partial deafness. The condition seemed to be stationary in all but 2 cases during the few weeks the men were under observation; in these the deafness improved in one and progressed in the other.

37. **Acute Suprarenal Syndrome in Dysentery.**—Among 100 men with bacillary dysentery, four suddenly developed cyanosis, abnormally low temperature, heart weakness and symptoms suggesting the last stage of cholera. The assumption of suprarenalitis was confirmed at necropsy by the swollen condition of the suprarenals and absence of any other appreciable cause for the above symptoms. The cases are described with minute detail. The syndrome was alike in all, resisting all measures including a systematic course of epinephrin.

Archives des Maladies du Cœur, etc., Paris

January, IX, No. 1, pp. 1-44

39 *Effect on the Heart Action of Pressure on the Eyeball: the Oculocardiac Reflex. (Réflexe oculo-cardiaque et extrasystoles.) G.-V. Ferralis and C. Pezzi (Pavia).
40 *Varying Findings with the Oscillometer on Different Arteries. (L'étendue comparée des oscillations fournies par l'appareil de Pachon sur les différentes artères des membres chez le sujet normal.) J. Heitz.
41 *Chronic Coffee Intoxication. (Le caféisme chronique.) M. Roch (Geneva).

39. **The Eyeball-Heart Reflex.**—Dagnini reported June 17, 1908, to the Bologna Medical Society that the main reflex phenomena from stimulation of the cornea and pressure on the eyeball differ materially on a sound and a paralyzed side. Pressure on the eyeball seems to stimulate the vagus nerve throughout more effectually, Ferralis and Pezzi declare, than pressure on the vagus in the neck. They have been utilizing this oculocardiac reflex to study the relations between this nerve and extrasystoles. They examined twenty persons, healthy or with some heart affection, comparing the electrocardiograms before, during and after pressure on the eyeball, and repeating the tests often enough to determine the exact type of the individual response. The findings demonstrate, they think, beyond question that this tenth or pneumogastric or vagus nerve is certainly involved, at least indirectly, in inducing or maintaining extrasystoles. This seems to open a new vista in therapeutics. Even if we are unable to seize the primary causal agent of the pathologic contraction of the heart, atropin to act on the vagus will certainly aid in correcting the condition. Its effect naturally will be merely symptomatic, but its use is justified by the phenomena observed in the tests described, independently of its influence in accelerating the rate of the heart. This acceleration alone may cut the extrasystoles. In any event, one should be wary in giving other drugs which may be useless or even do direct harm in certain conditions, although so useful when really called for. The extrasystoles elicited by pressure on the eyeball may occur isolated or in series. Until we can explain this phenomenon with greater precision we are at least justified in treatment based on the premise that the vagus is able to create in the myocardium a particular condition which favors the appearance of premature contractions.

40. **Oscillometry.**—Heitz has been studying on fifty persons the extent of the excursions of the oscillating needle when placed on different arteries throughout the body in turn. The aim was to learn the normal range, for comparing with it the behavior of the arteries in wounded limbs. An astonishing variation—sometimes amounting to as much as 50 per cent. —in the oscillometer findings was often found in symmetrical arteries in health and between the arteries in the arms and legs.

41. **Chronic Coffee Intoxication.**—Roch remarks that severe coffee poisoning is rare and mild coffee poisoning does little harm, but there is danger that we may overlook the severe form when we do encounter it. We label the case as one of dyspepsia with dizzy spells, nervousness and insomnia, neuralgia with palpitations, or some other vague title. By overlooking the real cause, there is little if any response to the measures we may apply in treatment. He cites figures to show that Holland consumes 9 kg. of coffee per capita annually, and Belgium, 6; the United States, 5; Germany, 3, and France, 2. The aspect in severe chronic coffee poisoning is unmistakable. The person is usually thin, prematurely wrinkled, the complexion yellow, with tremor of the hands, lips and tongue. The eyes are bright and quick; mydriasis is the rule; the demeanor is hesitating, brusque or uncertain, with involuntary movements and signs of impatience, exaggeration of the tendon reflexes and neuralgias. This picture is very seldom complete, but nervous and digestive symptoms are comparatively common, and functional cardiovascular disturbance is still more frequent and important. Roch has found the pulse small, hard and rapid, the arterial pressure high. Abuse of alcohol may induce digestive and nervous symptoms like those of chronic coffee poisoning but very rarely the pallor, thinness and neuralgias of the latter. The reflexes are reduced, not exaggerated as with coffee poisoning. The latter may resemble morphin or cocain addiction but the general condition is not so bad while the nervous and circulatory erethism is more pronounced.

The effects of chronic coffee poisoning may suggest gastric cancer, neurasthenia, or Basedow's disease, and it should always be borne in mind as a possibility in puzzling cases, especially among women of the working classes. Many keep the coffee pot on the stove all day and drink repeatedly from it. In treatment, besides giving up coffee, it is necessary to supply fluids to take its place, and he often orders for this purpose a mixture of 5 gm. each of tincture of cinchona, tincture of star anise and tincture of gentian. Fifteen drops of this are added to a tumbler of water at room temperature and sipped, repeating this four times a day. This wards off thirst and the longing for the customary coffee is less intense. Sudden abstention from coffee may bring on tremor, nightmares or severe headache. Tonics may be needed for the general health, bromid or valerian to soothe the nervous system, with other symptomatic measures as required.

In poisoning from abuse of tea, the clinical picture is about the same except that cardiovascular disturbances seem to be more common and more pronounced than with coffee. Huchard has reported cases of apparent angina pectoris from this cause; the nervous system is affected more. Wallace has seen two cases of amblyopia from tea poisoning, and Gordon has reported a case with ataxia, nystagmus, con-

traction of the field of vision and exaggerated reflexes in a woman who had been taking up to forty-five cups of tea a day. Treatment should be the same as for abuse of coffee. Roch adds that under the proper measures, the effects of coffee or tea poisoning are thrown off in a few weeks, and they can usually be allowed then in moderation.

Bulletin de l'Académie de Médecine, Paris

February 8, LXXV, No. 6, pp. 107-130

42 Minute Intravenous Doses of Colloidal (Basic) Quinin Effectual in Rebellious Malaria. F. Roux.
43 Improved Technic for Localization of Projectiles by Roentgen Rays. (Deux procédés simples pour localiser rapidement les projectiles par les rayons X.) A. Strohl.
44 *Goiter, Cretinism and Myxedema in the Vosges Mountain District. L. MacAuliffe.

44. **Goiter and Cretinism in the Vosges Mountains.**—MacAuliffe has been stationed with the army in the Vosges district for seventeen months, and at the request of the municipalities utilized his leisure in medical inspection of the schools. He found the thyroid notably enlarged in 288 of the 2,311 children examined, and 18 others had large goiters; 3 were cretins and 2 semicretins, while 4 presented myxedema. Ten others resembled cretins in their face but were intelligent. Goiters were found particularly numerous in nine different villages. The water supply was from rain and melting snow, with very little mineral content. The villages were clean and the people comfortably off. Consanguineous marriages were not frequent; meat, except pork, is almost unknown.

Archives de Médecine des Enfants, Paris

December, 1915, XVIII, No. 12, pp. 629-692

45 Univèrsal Desquamative Scarlatiniform Erythema; Six Cases. (Erythrodermie desquamative généralisée.) Loewe.
46 Antityphoid Bacteriotherapy for Children; Forty-Five Cases, E. Ortiz, M. Acuña and L. Belloc (Buenos Aires). Commenced in No. 11.
47 Hereditary Malformation of Face and Skull. (Dysostose craniofaciale héréditaire.) J. Comby.

January, XIX, No. 1, pp. 1-56

48 *Serotherapy of Poliomyelitis; Thirty-Two Cases. A. Netter.
49 Causes and Treatment of Night Terrors in Children. T. A. Williams.
50 *Digestive Disturbances in the Tuberculous Child. L. Jeanneret.

February, No. 2, pp. 57-112

51 *Pneumonia Associated with Scarlet Fever. (La pneumo-scarlatine.) V. Hutinel.
52 *False Scarlet Fever of Toxic Origin. (Pseudo-scarlatines d'origine toxique.) M. Lasalle.
53 Primary Splenomegaly in Children. (La maladie de Gaucher.) J. Comby.

48. **Serotherapy of Poliomyelitis.**—Netter regards his results as promising: 6 rapid and complete cures; in 3 cases improvement approximating a complete cure; in 7 marked improvement, and in 5 appreciable improvement. In 3 no influence from the serotherapy was apparent, and 8 of the children died. The serum injected was obtained from persons who had recovered from the disease. The serum seems to keep its efficiency up to thirty years. The injection was made into the spinal canal, and repeated daily for a week. The doses ranged from 5 to 13 c.c.

50. **Digestive Disturbances in Tuberculous Children.**—Jeanneret remarks that the dyspepsia from overfeeding and overdrugging is common in private practice, but it is rare in hospital patients. Primary dyspepsia, on the other hand, is common in tuberculous children from the working classes. In fact, it is this which attracts attention and is the cause of the child's being brought to the hospital. The digestive disturbances may be mild or severe, even to the clinical picture of chronic enteritis. They are a great handicap to the child, and its debility increases every day. These digestive disturbances, however, are readily curable. Combe investigated the stools of numbers of children and found evidence that over 50 per cent. of the tuberculous children had no or very little hydrochloric acid. It is easy to supply this lack, and the children began to thrive almost at once as soon as they were given hydrochloric acid. Jeanneret now has a record of 120 tuberculous children tested for anachlorhydria; it was found in 25 per cent. in his private practice. The test is simple and the children do not object to it, swallowing readily the little bismuth capsule on a Congo red stained thread. The capsule shows in the Roentgen screen when it gets into the stomach. After waiting a moment the thread is pulled out. A change in tint shows the presence of hydrochloric acid. If the gastric secretion is found defective, he gives a teaspoonful after each meal of a mixture of 3 parts pepsin; 5 parts dilute hydrochloric acid; 50 parts syrup of raspberry, and water to 120 parts. The secondary enteritis soon subsides when the food is properly digested in the stomach. The underlying tuberculosis should be combated by modifying the soil—outdoor life, sunshine, tuberculin, etc., as indicated.

51. **Pneumonia Associated with Scarlet Fever.**—Hutinel refers in particular to pneumonia preceding the scarlatinal rash by a few days. He designates this type as pneumo-scarlatina, as both the pneumonia and the scarlatina are modified by the association. The pneumonia may appear during the eruption or in the peeling stage, particularly when there is nephritis. Each of these has a special type, as he describes in detail from his own and others' experience—a total of fifteen cases. The two diseases may have an aggravating influence on each other; the pleura is rendered more susceptible; infection is readily installed and is liable to prove very serious. There was a relapse of the scarlet fever in a third of the cases with pneumonia. The latter probably modified the reactions of the organism and impeded its efforts to immunize. An example of this modification of the reactions by an intercurrent disease is the veering to negative of a positive tuberculin skin reaction during an intercurrent measles. Typhoid, also, is materially modified by an intercurrent pneumococcus infection.

52. **False Scarlet Fever of Toxic Origin.**—Lasalle was surprised to find that the record of poisoning from copper sulphate, in France, between 1825 and 1905 was 183 cases, arsenic taking the lead with 738, phosphorus following with 347; then comes copper sulphate with 183, and verdigris with 76. Copper sulphate is used for spraying grape-vines in France, and two children who had been eating grapes thus sprayed developed symptoms deceptively simulating scarlet fever. The diagnosis of scarlet fever was made without hesitation but it had to be revised as the children were quite normal again by the fifth day. Vomiting, sore throat, headache and a lively rash over the entire body were the main symptoms.

Paris Médical

February 5, VI, No. 6, pp. 129-180

54 *Aids for Localization and Extraction of Projectiles. E. A. Weil; (Nouveaux instruments de guidage mécanique du chirurgien au cours de l'extraction des projectiles.) Béclère; (Localisation anatomique des projectiles de guerre.) F. Arcelin; (Sur l'extraction radio-chirurgicale des projectiles à l'aide du manudiascope, et accessoirement des appareils téléphoniques.) L. Bouchacourt; (Méthode radioscopique de localisation des projectiles par lecture directe et appareil de recherche chirurgicale.) R. Grandgérard; (Table des coefficients d'agrandissement des images radiographiques utilisable pour la localisation des projectiles dans les tissus.) M. de Laroquette and G. Lemaire; (Recherche radiologique des projectiles.) P. Lehmann; (Appareils et dispositifs nouveaux en radiologie.) de Keating-Hart.
55 The Nervous Strain of the War on Noncombatants. (L'angoisse de guerre et son traitement.) L. Rénon.

February 12, No. 7, pp. 181-196

56 *Diagnosis of Untreated Syphilis With Negative Wassermann for Three Months or More at First. (Réactions de Wassermann spontanément tardives.) H. Gougerot.
57 Autovaccine Therapy in Staphylococcus Septicemia. Etienne and Zuber.
58 Hernia of the Diaphragm. P. Legrain, J. Quénu and G. Richard.

54. **Localization and Extraction of Projectiles.**—This entire number of the *Paris Médical* is devoted to radiology, and is profusely illustrated, showing numbers of devices that will aid in the removal of a metal foreign body.

56. **Tardy Wassermann Reaction in the Untreated.**—Gougerot has had three patients who presented a dubious lesion suspicious of syphilis, but as the Wassermann was constantly negative on repeated tests the men insisted on giving the lesion the benefit of the doubt and refused treatment. After one hundred days, forty-five days and four months, mild secondary lesions developed and the Wasser-

mann became positive. This was at the eighth repetition of the test in one case. In all three the manifestations of the syphilis were extremely mild, notwithstanding the lack of treatment, and all promptly subsided under mercury or salvarsan. In a number of other cases given prompt treatment the Wassermann was persistently negative. We must fully realize that the case cannot be dismissed as something other than syphilis when we obtain a persistently negative response to the Wassermann even long past the traditional thirty days from the initial lesion. It is better, he continues, to suspend judgment for a whole year, and even then the Wassermann should be repeated the twenty-fourth, thirty-sixth and forty-eighth months. These are the decisive tests. Until this is done we can never be certain that a suspicious lesion developing under suspicious circumstances may not have been syphilis. Clinical examination and the ultramicroscope may clear up the diagnosis before this, but otherwise a patient menaced with syphilis must be kept under prolonged, repeated clinical and serologic surveillance or dire harm to himself and others may result.

Revue Médicale de la Suisse Romande, Geneva

January, XXXVI, No. 1, pp. 5-64

59 *Extra-Uterine Pregnancy: Eight Cases. P. Wanner.
60 Omentum Grafts. (Des greffes épiploiques.) G. Patry.
61 *Diagnosis of Torsion of the Greater Omentum. Veyrassat.

59. **Extra-Uterine Pregnancy.**—Among the seven cases described in detail was one in which the supposed extra-uterine pregnancy proved at the operation to be an ovarian cyst coexisting with a normal two-months' pregnancy. The uterus was not disturbed as the cystic ovary was removed, and the pregnancy continued to normal delivery at term. In another case the extra-uterine pregnancy was recognized as the tube ruptured, but under sedatives and repose the relics of the hemorrhage and pregnancy were evidently absorbed as the attending physician had hoped would be the case. During the following ten years the previously healthy patient was a semi-invalid, with pains in the back, stomach and abdomen, and finally difficulty in urination. Wanner then saw the patient for the first time and found when the abdomen was opened that the omentum was solidly adherent to the uterus, and that adhesions fastened the latter to the pelvic wall. All pain and disturbances ceased after resection of the omentum and of the adhesions. In one of his cases presenting symptoms of ruptured tubal pregnancy, puncture of the pouch of Douglas released a turbid fluid free from blood. This misled him to assume a tuberculous process, but uterine hemorrhage compelled intervention later and recovery followed excision of the ruptured tube. Another case emphasizes the necessity for extreme caution in palpating the abdomen when there is incipient and intact tubal pregnancy. There may be no symptoms except those of a commencing normal pregnancy. In the case reported the physician assumed that the uterus was displaced and supposedly straightened it. Hemorrhage followed and the pains in the left side continued, with occasional syncopes and finally nausea. The correct diagnosis was not made until the pregnancy was of three and a half months' standing, when fetal membranes were passed and the fetus was found in the pouch of Douglas.

61. **Torsion of the Omentum.**—Veyrassat reports three cases in which he diagnosed torsion of the greater omentum in men between 30 and 55, and successfully operated. The most characteristic sign was the localization of the pain along the greater curvature of the stomach, in the region where the omentum is attached above. The worst pain was to the left of the umbilicus, where the outer edge of the omentum is attached. Two of his patients declared the pain was located along a transverse line at about the level of the umbilicus, the maximum always on the left side. The pain was compared to cramps, colics or traction, one of the men saying he felt as if his stomach were being dragged down. The first sign of trouble was a sharp pain in the hernia and inguinal region, spreading in the abdomen, with the usual symptoms of subacute peritonitis. Palpation revealed a retroparietal mass in the right inguinal fossa, continuous with the hernia, although of varying diameter. If the hernia and torsion had been on the left side, the traction and the consequent pain would have been most severe at the extreme right of the transverse line of pain. The omentum may become twisted along with torsion of an abdominal tumor, without hernia, or the torsion may occur insidiously; in these cases the correct diagnosis is almost impossible before operating.

Berliner klinische Wochenschrift

January 17, LIII, No. 3, pp. 53-76

62 Treatment of Eczema. (Entzündliche Exsudation und Jucken. A. Bläschenekzem. Beseitigung der Exsudation.) P. G. Unna.
63 *Artificial Esophagus. (Zur totalen Oesophagoplastik.) G. Axhausen.
64 Application of Hard, Filtered Roentgen Rays in Treatment of Skin Diseases. (Anwendung harter filtrierter Röntgenstrahlen in der Dermatotherapie.) H. E. Schmidt.
65 The War Literature in the Field of Internal Medicine. (Die Kriegsliteratur aus dem Gebiet der inneren Medizin.) P. Reckzeh. Concluded in No. 6.

January 24, No. 4, pp. 77-100

66 Treatment of Eczema. (Entzündliche Exsudation und Jucken. A. Bläschenekzem. Beseitigung des Horndruckes.) P. G. Unna.
67 Welfare Work for Blinded Soldiers. (Ueber Kriegsblinde und Kriegsblinden-Fürsorge.) W. Uhthoff; (Der Blinde als Berater des Blinden und in der Blindenfürsorge.) L. Cohn.
68 *Intravenous Injections of Lactose Without Reaction: Schlayer's Kidney Test. (Ueber reaktionslos verlaufende intravenöse Milchzuckerinjektionen.) W. Wechselmann.
69 High Arching Palate and Adenoids. (Gaumenhochstand und adenoide Vegetationen.) W. Lublinski.

January 31, No. 5, pp. 101-128

70 Surgical Treatment of Wounds of Trunk Blood Vessels; 247 Cases. (Meine Erfahrungen in der Kriegschirurgie der grossen Blutgefässtämme.) H. Küttner. To be concluded in No. 6.
71 Advantages of Whole Grain Bread. (Zur Frage nach dem Nährwert des Vollkornbrotes.) F. Röhmann.
72 *Rachitis. E. Schloss.
73 Stone in the Pancreas: Two Cases. (Zur Klinik der Pankreassteinkolik.) M. Einhorn (New York).
74 *Blunders in Treatment of the Eyes. (Ophthalmologische Fehlgriffe im Felde.) R. Rauch.
75 *Iodoform in Gum Acacia Solution for Local Treatment of Hemorrhagic Stools. (Ein Mittel zur Bekämpfung der blutigen Stühle.) Moszkowski.

63. **New Esophagus Made from Loop of Duodenum.**—Axhausen gives an illustrated description of the various procedures he applied in the case of a young man with occlusion of the lower esophagus from a caustic swallowed by mistake. The technic was that of Roux and Lexer, a loop of duodenum and a tube made from skin supplying the material for the new esophagus. It seems to be functioning well; fluids and food pass directly and promptly into the stomach under the influence of gravity and the swallowing mechanism of the pharynx. This gratifying result was realized in six months with five separate surgical procedures in turn.

68. **Intravenous Injection of Lactose as Test of Kidney Functioning.**—Wechselmann has applied this test in the last two and a half years in many thousands of cases, and since he has been using an absolutely pure article he has had no mishaps or by-effects with it. His experience has confirmed its value as an index of the functioning of the glomerular apparatus. The elimination of salvarsan depends to such an extent on the integrity of this apparatus that tests of its functional capacity are of fundamental importance before giving salvarsan. The value of the lactose test has been universally recognized, he remarks; adding that recent research by Schwarz and Pulay on it has opened new prospects for it. The by-effects which have deterred a number from continuing to use it have been traced to contamination of the lactose with molds.

72. **Rachitis.**—Schloss has made a special study of the skulls of infants at an orphan asylum at Berlin, in addition to the infants of his private practice. From the findings in this large material, compared with those reported by others, it seems evident that the skeleton of from 20 to 80 per cent. of the infants examined was incomplete at the time of birth. This hypoplastic condition of the skeleton is especially noticeable in the delay or retrogression of the ossification of the skull. It is chemically evident further by a local or diffuse lack of adequate bone-forming salts. The ultimate cause of this unfinished condition of the skeleton is still a problem. It is not rachitis, but it provides an exceptionally good soil for rachitis, and may even be regarded as affording a pre-

disposition for it. But rachitis may develop when there is little or none of this predisposition.

74. **Blunders in Treating Eye Affections.**—Rauch comments on the ill advised measures he has seen applied to soldiers by medical men not trained in ophthalmology, and warns against them. He specifies in particular the harm liable to follow the mistaken practice of bandaging the eye when there is much discharge or pus. It should be allowed free escape, and Nature has provided a sufficient protecting mechanism so that even a protecting cover is not required for such affections as follicular or eczematous conjunctivitis, a suppurating lacrimal sac, trachoma, or blepharospasm. On the other hand, a protecting dressing is indispensable when there is a foreign body in the cornea or it has just been removed, or there is gonorrheal trouble in one eye and it is important to protect the sound eye against its secretions. When it is necessary to bandage one eye, he bandages both as a rule. He warns further that cocain irritates the sympathetic and may mask the presence of a foreign body. When therapeutic mydriasis is required, he prefers atropin or scopolamin to cocain. Exenteration is simpler in an emergency than enucleation, and he has done it in sixteen cases with satisfactory outcome in all. A narrow strip of gauze was introduced into the sclerotic cavity after curetting and enucleation, and a compress was applied to ward off inflammatory protrusion of the stump renewed two days later. The field surgeon can feel that he has done his full duty by those with wounds involving the eyes if he sees to their being rushed back from the front at the earliest possible moment. Get them started on the way for specialist treatment before it is too late.

75. **Emulsion of Iodoform in Treatment of Bloody Stools.**—Moszkowski has been applying with great success a method of treatment which has long done valuable service in amebic dysentery in the Dutch East Indies in the hands of de Haan and K. de Jonge. An emulsion of 80 gm. iodoform with 100 gm. gum acacia in 180 c.c. distilled water is given by rectal injection. A soft tube is introduced into the intestine for 50 cm. Then 45 or 55 c.c. of the emulsion are forced into the tube with a syringe. His thirteen patients bore the injection well and retained the fluid for two or three hours. One of these enemas answered in one case; in 3 two were required; in 2, three; in 3, four; in 3, five and in one very severe case nine of the injections were given. They not only arrested the tendency to hemorrhage but cured the diarrhea, and the tenesmus subsided almost invariably after a single injection. No dysentery bacilli were found in his cases but paratyphoid bacilli in one. The spleen was enlarged in three. Benefit was apparent in every instance, so that Moszkowski advocates giving these injections daily in all cases of bloody diarrhea regardless of whether dysentery, typhoid or other causes are responsible for the disturbances.

Correspondenz-Blatt für Schweizer Aerzte, Basel

January 29, XLVI, No. 5, pp. 129-160

76 Connection Between Ovulation and Menstruation. (Neuere Anschauungen über das Wesen und den Zusammenhang von Menstruation und Ovulation.) P. Hüssy.
77 Pathologic-Anatomic Diagnosis of Endometritis. S. Schönberg.

February 5, No. 6, pp. 161-192

78 *Organic Basis for Epilepsy and Two Successful Operative Cases of Brain Tumor. (Zwei Fälle glücklich operierter grosser Hirntumoren nebst Beiträgen zur Beurteilung organisch bedingter Epilepsie.) T. Kocher. Concluded in No. 7.
79 *Metastatic Prostatitis. H. Wildbolz.
80 Pellagra in Switzerland. B. Galli-Valerio.

78. **Brain Tumor and Epilepsy.**—Kocher declares that it cannot be reiterated too often that we should not wait for an exact local diagnosis when there is suspicion of an intracranial tumor. A decompressive operation in time may not only ward off blindness but may also relieve the subjective disturbances and prevent the peril from sudden increase in pressure on the centers of the medulla oblongata. In one of the two cases described in detail, attacks of jacksonian epilepsy gradually developed and by the end of the fourth year became transformed into "genuine" epilepsy; two years later headache and dizziness were superposed on the tendency to epilepsy but there was no sign of choked disk. This was the more remarkable as the subcortical central tumor in the left cerebrum had grown to the size of a hen's egg when removed at the tenth year. This absence of choked disk confirms Frazier's assertion that the increased tension of the cerebrospinal fluid is alone responsible for the pressure on the brain entailing choked disk. Kocher reiterates that there is no essential difference between "genuine" and jacksonian epilepsy; increased intracranial pressure is a factor in both, and he preaches that operative treatment is required for each. The pressure may be localized at some one point, and the operation will relieve this even if the actual focus is not discovered.

79. **Metastatic Prostatitis.**—Wildbolz remarks that because gonorrhea is responsible for prostatitis in the majority of cases, we must not assume that this is always the case. Germs of all kinds may reach the prostate through the blood or lymph from some remote focus. The urine is apparently normal in this case, and the symptoms from the prostatitis may be misinterpreted. He believes that this occurs surprisingly often. The prostate offers peculiarly favorable conditions for colonization of germs. Weigert found metastatic suppuration in the prostate in 7 of 17 cases of pyemia, and it is usually involved in miliary tuberculosis. In the last ten years Wildbolz has encountered 14 cases in which acute prostatitis had developed consecutive to epidemic influenza. In the majority of 22 other cases, tonsillitis or bowel trouble had preceded the prostatitis. The inflammation did not progress to actual suppuration except in 5 cases. Influenza bacilli were not found in the secretion from the prostate in any instance—merely ordinary pus germs—but these bacilli seldom get into the blood in large numbers. One of his patients had several styes precede the prostatitis; the connection with the latter was sustained by staphylococcus osteomyelitis developing during the course of the prostatitis. Another patient had a furuncle on the neck and a consecutive prostatitis and perinephritic abscess, with staphylococci in all.

The symptoms of metastatic prostatitis are pressure and pain in the perineum and rectum with frequent and repeated desire to urinate and scanty output of urine as a rule, but one patient had a metastatic abscess in the prostate which had to be opened through the perineum, and yet there had been no symptoms on the part of the urinary apparatus at any time. In some cases sudden retention of urine is the first symptom from the prostatitis. The latter is frequently accompanied by terminal hematuria, less often with the suppurating than with the nonsuppurating form. There is always considerable general disturbance with this metastatic prostatitis, with or without fever. Pressure on the prostate may be extremely painful; even introducing the finger into the rectum causes pain. The prostate is generally enlarged, soft and elastic, and the seminal vesicles may be enlarged from obstruction to their outlet by the enlarged prostate. In one of his cases epididymitis followed the metastatic prostatitis. The normal condition of the urine with the above symptoms reveals the metastatic nature of the trouble. The onset of symptoms is stormier than with simple hypertrophy or a tumor. The symptoms may be misinterpreted as indicating a tuberculous process somewhere in the urinary apparatus, or gonorrhea. The prostate may become extremely congested, without inflammation, and cause some of the above symptoms. Anything entailing congestion in the region is liable to induce this, especially chronic constipation, a sedentary occupation, sexual excesses and, above all, coitus interruptus. With simple congestion the symptoms come on more gradually, the urine persists normal, and the disturbances may keep up indefinitely, while treatment on the mistaken diagnosis of general nervousness, etc., gives no relief. Treatment of metastatic prostatitis should be on the same lines as for prostatitis from any cause. The prognosis seems to be on the whole favorable.

Deutsche medizinische Wochenschrift, Berlin

January 27, XLII, No. 4, pp. 93-120

81 Treatment of Spasms in Children. I. (Behandlung der Krämpfe im Kindesalter.) L. Tobler.
82 *Experimental Bases for Treatment of Pulmonary Tuberculosis with Roentgen Exposures. L. Küpferle and A. Bacmeister.

83 Combined Radiotherapy in Pulmonary Tuberculosis. (Die Erfolge der kombinierten Quarzlicht-Röntgentiefentherapie bei der menschlichen Lungentuberkulose.) A. Bacmeister.
84 *Disappointing Results With Endobronchial Spray in Treatment of Asthma; Ten Cases. Stephan.
85 Bullet in Larynx Wall. M. Lubinski.
86 Lessons From the War in the Domain of Internal Medicine. (Ergebnisse der bisherigen Kriegserfahrungen auf dem Gebiete der inneren Medizin.) P. Reckzeh. Commenced in preceding volume.
87 War Experiences With Wounds of Nerves and Nervous Affections. (Ergebnisse der bisherigen Kriegserfahrungen auf dem Gebiete des Nervensystems.) E. Tobias. To be concluded in No. 5.
88 Action of Bullets in Organs Containing Fluid. (Zur hydrodynamischen Geschosswirkung.) M. Reuter.

82. **Roentgen Treatment of Pulmonary Tuberculosis.**—Küpferle and Bacmeister reported in 1913 a series of experiments on rabbits inoculated with tuberculosis and systematically exposed to the Roentgen rays. The outcome was decidedly encouraging in many of the animals, and inadequate dosage explained most of the failures. In a later series they used large doses at shorter intervals, and report remarkable success; the tuberculous process was evidently arrested and healed over but the tubercle bacilli themselves were not killed. No influence from the mercury vapor lamp or cholin could be detected. The dosage found effectual for the rabbits was 20 or 23 X surface energy, given at three or five day intervals. The research was done under a subsidy from the Koch foundation, and the results are regarded as so promising that roentgenotherapy with hard, filtered rays is now being used in the clinic, and Bacmeister here reports twenty cases of stationary pulmonary tuberculosis, without fever, and with a tendency to latency, in which the treatment was applied, as also in a number of febrile and chronically progressive cases. The course has been completed by ten patients in this latter group, and they are all clinically cured. In every case benefit was manifest; three of these patients had been in his sanatorium (St. Blasien) for fourteen, eight and five months but the tuberculosis had not mitigated its progressive character until the Roentgen treatment was applied. Remarkable benefit is apparent in a number of the twenty-three others in this group still under treatment. The experimental and clinical data all confirm that the Roentgen rays act only on the relatively rapidly growing tuberculous granulation tissue. Extremely virulent and rapidly destructive processes are not influenced by them, nor cheesy processes nor the tubercle bacilli themselves. The principles for application and the technic are the same as for superficial tuberculous processes. Success depends on proper dosage and intervals, supplemented by outdoor life with graduated exercise and repose. In conclusion he reiterates that the Roentgen treatment is particularly promising, in combination with the mercury lamp treatment, for a lung compressed by induced pneumothorax and after thoracic surgery.

84. **Endobronchial Spray for Asthma.**—Stephan writes from Killian's clinic to report that the experiences there with a novocain-epinephrin solution sprayed into a bronchus through the bronchoscope have not been as encouraging as those published by others. One patient had no further attacks for nine months, but then they returned; six others escaped further attacks for a period of two to twelve weeks. One patient did not improve at all. The spray was applied from one to ten times at weekly intervals.

Medizinische Klinik, Berlin

January 30, XII, No. 5, pp. 112-138

89 Advantage of Transforming a Closed Into an Open Pneumothorax. (Zur Frage der Thorakotomie.) F. Krause.
90 Retention Catheter in Treatment of Wounds Involving the Urethra. (Harnröhrenwunden und Verweilkatheter.) A. Rothschild.
91 Successful Removal of Large Brain Tumor. J. Csiky.
92 Clinical Cure Under Induced Pneumothorax in Case of Advanced Left Pulmonary Tuberculosis. (Kasuistischer und technischer Beitrag zum "künstlichen" Pneumothorax.) C. Martin.

Münchener medizinische Wochenschrift, Munich

January 25, LXIII, No. 4, pp. 113-148

93 Lateral Transposition of Abdominal Viscera Found in Apparently Healthy Mother of Healthy Child. (Situs viscerum inversus abdominalis mit Eventration des rechtsgelagerten Magens und Stauungsektasie der Speiseröhre.) W. Fleiner.
94 *Indican in the Blood With and Without Kidney Disease. (Ueber Indikanämie und Hyperindikanämie bei Nierenkranken und Nierengesunden.) M. Rosenberg.
95 Official Directions for Prophylaxis of Scarlet Fever. (Die amtsärztliche Bekämpfung übertragbarer Krankheiten. II.) M. Henkel.
96 *Mercury Exanthem Ascribed to Salvarsan and Vice Versa. (Verwechslung von Quecksilber- und Salvarsan-Exanthemen.) A. Neisser.
97 Chilling as Preliminary Aid to Radiotherapy. (Kälte- und Uviolbehandlung in Verbindung mit Röntgen und Radium.) H. Axmann.
98 Consent Not Required for Operations on Soldiers During the War. (Soldat und Operation im Kriege.) P. Kaestner.
99 Gas Gangrene. (Zur Aetiologie und Pathogenese des Gasbrands. I.) H. Conradi and R. Bieling. Concluded in No. 5.
100 Technic for Localization of Foreign Bodies. (Feldmässige Improvisation röntgenologischer Hilfsgeräte und deren Verwendung zur Fremdkörperlokalisation und Orthoröntgenographie.) R. Grashey.
101 Wounds of the Skull. (Zur Frage der Schädelschüsse.) A. Kirchenberger.
102 First Treatment of Wounds of the Eyes. (Merkblätter für Feldunterärzte. VIII.) E. Rotter.
103 Repeated Inhalation of Oxygen Tides Past the Danger Point in Collapse From Loss of Blood. (Zur Bekämpfung von Kollapsen bei Ausgebluteten.) C. Nowakowski.
104 Intracardiac Injection of Heart Tonics. (Die intrakardiale Injektion.) Ruediger.
105 Gas Phlegmons; Recovery in One of the Two Cases After Incisions Down to the Bone. Marquardt.
106 Static and Mechanical Principles Involved in Making Artificial Limbs. (Statische und mechanische Verhältnisse bei Beinprothesen.) Stoll.
107 Splints for the Wounded. (Eine Schiene für den Kriegsgebrauch.) P. Mohring.
108 Improved Method for Keeping Records on Hospital Trains. (Ueber eine sichere und einfache Art, das Beladen von Lazarettzügen zu regeln und zu überwachen.) P. Stielow.

94. **Hyperindicanemia in Relation to the Kidneys.**—Rosenberg has been studying to determine the extreme limit of normal indicanemia, and tabulates the figures found in forty healthy persons or patients with apparently sound kidneys, in thirty-two with kidney disease but no uremia, and in twenty-nine with urea in the blood up to 1.5:1,000. Jolles' test is too delicate to be dependable, but the Obermeyer-Tschertkoff test begins to give a positive response just about at the limit where the high indican content of the blood corresponds to actual insufficiency on the part of the kidneys.

96. **Mercury or Salvarsan Exanthem?**—Neisser distinguishes between the "arsenic exanthem" and the exanthem due to a special idiosyncrasy, mostly of the urticaria type. The idiosyncrasy may be local from some preceding injury of the skin. This idiosyncrasy type is liable to develop anew each time salvarsan is given, but the tendency to the "arsenic exanthem" dies out with time. In two patients recently the acquired idiosyncrasy could be demonstrated at will by local application of a drop of the arsenic preparation, while mercury had no effect in this line. Some of his patients showing these two types of salvarsan exanthem had never been given mercurial treatment or not for many years. In conclusion Neisser reaffirms his loyalty to the combined mercury-salvarsan treatment of syphilis, declaring that he has never seen anything to indicate harm from this combined technic while he is convinced that the results are much more certain with it.

Wiener klinische Wochenschrift, Vienna

January 27, XXIX, No. 4, pp. 89-120

109 *Bronchospasm. N. v. Jagic.
110 Vaccination Against Dysentery. II. (Ueber Ruhrschutzimpfung. II.) K. Hever and F. Lucksch.
111 *Experimental Chemotherapy of Cancer. (Kritische Studien zur experimentellen Therapie maligner Neoplasmen. III.) S. Fränkel and E. Fürer.
112 Welfare Work and Training for War Invalids. (Ueber die Schulung Kriegsinvalider.) O. Burkard.
113 *Typhus. (Ueber Flecktyphus. II.) E. Wiener.

109. **Bronchospasm.**—Von Jagic reviews a number of recently acquired data which have thrown light on spasmodic contracture of the bronchi and the influence on it of epinephrin. The latter stimulates the sympathetic while depressing the tonus of the vagus; one of the main factors in the effect is the exaggeration of the excursions of the diaphragm, and this relieves the bronchospasm. After having become convinced of the harmlessness of subcutaneous injections of

epinephrin, even for the elderly, he has been using epinephrin in dyspnea from other causes, and especially with emphysema. His experience emphasizes the importance of the diaphragm's ampler excursions under the influence of epinephrin. Strasburger has recently called attention to the reduction of mucus production in the bowel under the influence of epinephrin, and this may occur likewise in the bronchi. Von Jagic has a number of asthma patients who return to get their epinephrin injection whenever an acute attack of asthma befalls them. Half an hour after the injection they return to their work as usual, and have no return of the attacks for a long time. The effect of the subcutaneous injection is prompt. When the attacks are mild or keep up a long time he gives epinephrin in suppositories.

With secondary emphysema the epinephrin relieves, but the heart may have to be kept up with digitalis, the former acting merely on the bronchospasm and diaphragm. With primary emphysema he has been impressed with the very small range of the excursions of the diaphragm, and when this was corrected by epinephrin the relief was so great that it demonstrated the importance of this and of bronchospasm in emphysema, whatever its origin. An interesting sidelight is thrown on emphysema by the positive aldehyd reaction in the urine when there is much dyspnea with emphysema, and its veering to negative after the injection of epinephrin. The same effect was realized with it in treatment of spastic bronchitis free from all signs of tuberculosis. These patients were young soldiers with bronchitis and dyspnea, increased by physical exertion, but little or no expectoration. The tendency to bronchial catarrh and dyspnea had been noted for years and palpitations often followed unusual exertion. Nothing pathologic could be detected in the heart, and in all the cases examined the excursions of the diaphragm were remarkably small and were invariably increased by epinephrin. A tendency to exaggerated tonus of the bronchial musculature may long persist alone or may lead to a secondary bronchitis.

111. **Experimental Chemotherapy of Cancer.**—Fränkel and Fürer remark that the tendency to a spontaneous cure is the most disturbing element in estimating the effect of different drugs on experimental cancer. All the drugs which have shown any action on experimental cancer have the one feature in common that they injure the vessels of the tumor, rendering them fragile so that they rupture. The tumor cells are not specifically affected, merely the vessel walls. Bearing these facts in mind, they have been conducting research with various chemicals as they will describe later. Here they present the results of their work with cholin—all practically negative.

113. **Typhus.**—Wiener concludes these impressions of his experience with typhus by emphasizing the benefit from treatment directed mainly to sustain the heart. For this he used early and repeated injections of caffein, giving sometimes five or six a day, icebag to the heart and injection of ergot or epinephrin if there was much hemorrhage. During convalescence very warm baths every day displayed a decidedly favorable influence. The most characteristic symptom of typhus is the extreme fragility of the vessel walls. This may entail thrombotic infiltration in the calves or elsewhere, recurring epistaxis or hemorrhage in the kidneys.

Gazzetta degli Ospedali e delle Cliniche, Milan

February 3, XXXVII, No. 10, pp. 145-160

114 Progressive Atrophy of Muscles; Four Cases in Two Generations in One Family. (Atrofia muscolare progressiva familiare.) S. Niero.

Policlinico, Rome

February 6, XXIII, No. 6, pp. 165-196

115 *Larynx Affections in Camp. (Flogosi laringee piu comuni nella vita castrense.) G. Ferreri.

116 Frost-Bite. (Il piede da trincea.) G. Dragotti; (Sulla clinica e la cura delle congelazioni.) T. Cecchetelli.

115. **Laryngeal Affections in Soldiers.**—Ferreri remarks that the number of cases of adenoids found among the soldiers is a surprise, and also that in large numbers of the younger men, the tonsils show no tendency to the physiologic retrogression. During the severer winter weather, disturbances from this cause were frequent, especially in those not accustomed to mouth breathing. He warns that the condition of the nasopharynx and larynx should be investigated more systematically in examining men for military service, existing anomalies corrected, and inflammatory processes cured. He commends what he calls local medicated baths of the hypopharynx as more effectual than gargling. A swallow of the disinfectant solution is taken into the mouth and the head is bent over backward until it almost touches the spine. This bathes the hypopharynx in the fluid, and with a little practice one can breathe at the same time. Men liable to throat trouble should be advised to be moderate in the use of alcohol and tobacco, avoid too hot and too cold drinks, refrain from singing or shouting in marching on a dusty road, and use individual spoon and fork and rinse out the mouth often with the "anisated water" supplied to all the soldiers. Those already showing lesions should spray or gargle besides. Irritating gases and dust, sudden changes of temperature and chilling are liable to induce a diffuse hyperemia in the laryngeal mucosa. This congestion may lead to rupture of some minute vessel under the exertion of coughing, and open the portals to infection or cause hemorrhage. Hence it is advisable to dispel the congestion by revulsion to the front of the neck, rest of the parts, some astringent spray, and a few powders of sodium benzoate (0.20 gm.) and codein (0.01 gm.).

Edema of the larynx that does not yield to an astringent spray may require tracheotomy; intubation is almost impossible and dangerous in this condition. Syphilitic and tuberculous lesions in the larynx may be favorably modified by inhalation of the fumes from a mixture of 5 parts each of balsam of Peru, menthol and turpentine, with 30 parts tincture of eucalyptus (a tablespoonful in a cup of hot water). He regards as too low Mackenzie's estimate of a syphilitic origin in 5 per cent. of all cases of chronic laryngeal trouble, saying that among the troops the proportion averages much higher. The lesion is exposed to particularly unfavorable conditions in soldiers on active service, while the danger of infecting others by means of common drinking cups, etc., is imminent. Under irritating influences the lesion may ulcerate and simulate a tuberculous process, but the latter is rendered improbable by the rapid course and enlarged glands. Syphilitic processes locate preferably on the back of the larynx, and are more of a coppery red. Mercurial inunctions are seldom practicable for soldiers on active service, and the use of neosalvarsan with calomel is preferable. In local treatment he advocates painting the lesion with a 1 per cent. mixture of mercuric acid nitrate in glycerin. Men with tertiary manifestations should be sent to the hospital.

Mitteilungen a. d. med. Fakultät der k. Univ., Tokyo

XIV, No. 3, German Ed., pp. 417-564. Last indexed Oct. 30, 1915, p. 1593

117 Size of Electrode as Influencing the Excitability of the Nerves. (Einflüsse der Elektrodenbreite auf die Erregbarkeit der Nerven.) T. Inouye.

118 Acetic-Sulphuric Acid Test for Skatol. (Neue Skatolreaktion.) Z. Hatta.

119 *Silver Chlorid Centrifuge Test for Chlorids in Urine. (Ueber die approximative Chlorbestimmung des Harnes mittels Zentrifuge.) Y. Sueyoshi.

120 *Phosphotungstate Test for Albumin in the Urine. (Neue approximative Eiweissbestimmungsmethode bei der Albuminurie.) Y. Sueyoshi.

121 Digestibility of Raw and Cooked Fish. (Einige Versuche über die Verdaulichkeit des rohen und gekochten Fischfleisches.) Y. Takasaki.

122 *Research on the Vocal Organs of Castrated Fowls. (Zum Studium des Stimmorgans beim Kapaun.) Y. Hosoya.

123 Narcotic Element Isolated from Japanese Shrub of Tea Family. (Ueber einen narkotisch wirkenden Bestandteil der Actinidia polygama Miq.—Matatabi.) S. Shimizu.

124 *The Diastatic Action of Human Saliva. (Diastatische Wirkung des menschlichen Speichels.) Z. Hatta.

125 Varicose Enlargement of Connected Splenic, Renal and Collateral Veins. (Ungewöhnlich grosser Varix anastomoticus lieno-gastro-epiploico-renalis bei Morbus Banti (?). Tödliche Magenblutung.) J. Nakamura.

119. **Centrifuge Estimation of Chlorids in Urine.**—Sueyoshi precipitates the chlorin ion with silver nitrate and nitric acid.

The amount of silver chlorid recovered from the sediment is an approximate index to the chlorid content of the urine. Other things being equal, the proportion between the total amount of sediment and the chlorid content is a constant figure. Comparative tests with this and other methods of estimation showed differences ranging from zero to merely 9 per cent.

120. **Test for Albumin in Urine.**—Sueyoshi here describes an improved technic for Tsuchiya's phosphotungstic-hydrochloric acid-alcohol reagent for detecting albumin in the urine. He tabulates the findings with various tests applied to the urine. The difference from the Kjeldahl findings was never over 13 per cent. while it was 31 per cent. with Tsuchiya's original technic. The reagent is a mixture of 20 gm. mercuric chlorid; 5 gm. potassium bromid; 10 c.c. hydrochloric acid (30 per cent.); water 55 c.c. and alcohol (95 per cent.) to 100 c.c. The test tube is filled about half full of urine and about seven-eighths as much of the reagent is poured in and thoroughly mixed with it. The albumin sediment is measured next day as usual. The precipitate in normal urine is only about 0.64 mm. deep in a straight test tube 25 cm. long with a lumen of 9 mm. The specific gravity, the temperature and the chemical reactions have no bearing on this test.

122. **The Vocal Organs in Castrated Fowls.**—Hosoya's article is accompanied by four double plates showing the loss of male characters in castrated cocks, and the anatomic bases for the resultant inability to crow.

124. **Study of the Saliva.**—Hatta tabulates the findings in the saliva in respect to quantity, ferment content and variations in response to different stimuli. The salivary diastase content did not seem to be directly influenced by the kind of food, and it showed no characteristic fluctuations in any of the diseases investigated. Tannic acid, even in minute amounts, inhibited the diastatic power of the saliva, while sodium nucleinate magnified it tenfold when in a concentration of 1.5 per cent. Below this no effect was apparent, and above 3 per cent. it actually inhibited it. Tincture and extract of valerian promoted diastatic action; this effect was most pronounced at a concentration of 7 per cent. Aqueous extracts may have a more favorable action than the tinctures, especially the extracts of strophanthus, strychnin and ipecac. The enzyme content of saliva secreted during chewing is higher than of saliva spontaneously flowing into the mouth. Still higher diastatic power was found in saliva secreted under the influence of citric acid. He calls attention to the remarkably constant proportion between the amount of saliva secreted and the ferment content, no differences at any time being found in this proportion in specimens of saliva obtained, in health, from the same person at the same time of day and under the same stimuli. The diastatic power kept unmodified for six months in saliva preserved under a layer of toluol, but it was lost in a month in saliva preserved merely by a layer of formaldehyd or phenol. Six of the sugars had no influence below a concentration of 1.5 per cent.; above this they seemed to depress the diastase content.

Russkiy Vrach, Petrograd

Dec. 12, 1915, XIV, No. 50, pp. 1177-1200

126 Purulent Infection of Gunshot Wounds and Its Etiology. A. D. Pavloffsky.
127 *Action of Thyroid Treatment on Uric Acid Secretion. (K voprosu o vliyanii tiriodina na vidielenie mochevoi kisloti mochi.) I. B. Studzinsky and S. T. Kaminsky.
128 Hippocrates. P. V. Modestoff. Commenced in No. 47.

Dec. 19, No. 51, pp. 1201-1208

129 S. P. Botkin, 1832-1889. N. A. Batueff.

Dec. 26, No. 52, pp. 1209-1212

130 *Ascoli's Precipitation Reaction in Diagnosis of Anthrax. M. P. Izabolinsky.

127. **Excretion of Uric Acid During Thyroid Treatment.**—Studzinsky and Kaminsky studied the action of thyroidin on uric acid secretion in seven persons. Two were healthy, one had a gastric ulcer, one suffered from hyperthyroidism, and three from hypothyroidism. It was found that in hypothyreosis, that is, with insufficient thyroid activity, the amount of uric acid in the urine showed a marked increase, not only during the treatment but also during the several days immediately following the suspension of the treatment. The thyroid treatment had no apparent effect on uric acid elimination in the urine in healthy persons, or in those that suffered from slight hyperthyroidism. An inconstant increase in the general amount of urine was noted which increase, however, had no apparent connection with the condition of the thyroid gland. The blood pressure showed no change from the thyroid treatment, unless possibly a slight tendency toward an increase.

130. **Precipitation Test in Diagnosis of Anthrax.**—Izabolinsky immunized rabbits by injecting intravenously, subcutaneously, or into the peritoneum extracts of anthrax bacilli prepared according to the method of Markoff: An agar culture of anthrax bacilli, after eighteen hours of growth at 37 C. was washed out with 50 c.c. of normal salt solution. This fluid having been heated to 50 C. was afterward placed in an apparatus for shaking during twenty-four hours; then filtered through a Berkefeld candle. The filtrate was mixed finally with a little phenol. Of seven rabbits injected only two gave positive results with the anthrax antigen. More favorable were the results from vaccinating rabbits with living cultures of anthrax bacilli. The best results, however, were obtained from a serum prepared according to the formaldehyd technic: A twenty-four hours culture of anthrax bacilli is rinsed with 50 c.c. of distilled water. To this amount 5 c.c. of formaldehyd are added. When the mixture becomes clear, it is rendered neutral by adding sulphuric acid, and then it is placed on a water bath at 56 C. for two hours, or longer, up to four hours, if the starch-iodin paper shows no reaction. The formaldehyd extract was injected into rabbits subcutaneously. The initial doses were 1 or 2 c.c. After five weeks of immunization, a serum was obtained that gave a precipitation ring as soon as it was brought in contact with the anthrax antigen.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

January 15, I, No. 3, pp. 193-276

131 Research on the Perception of Light by Larvae of Flies. (De lichtzin der larven van Calliphora erythrocephala—vleeschvlieg.) H. Weve.
132 Infection From Typhoid Bacilli Carriers. J. P. Bijl.
133 *Injury From Radium in Treatment of Deafness. (Nadeelig gevolg van radium-behandeling bij hardhoorendheid.) H. Burger.

133. **Aggravation from Radium Treatment for Deafness.**—Burger's patient was a man of 32 who had had four years an insidious catarrhal affection of the middle ear. After treatment, including insufflation, the hearing was increased from 15 to 20 cm. for the ticking of a watch on the right side and, for the whispering voice, from 10 to 20 cm. on the left. A later examination after another course of treatment seven years later showed the progress of the deafness: the watch could not be heard at all by the left ear and only when held to the right ear; the whispering voice at 75 cm. from the right ear and only at 1 cm. from the left. He returned six months later with the story that he had taken a course of radiotherapy, 1 mg. of mesothorium having been placed in each ear in turn for one or a few minutes. After five of these exposures in the course of about six weeks, he could no longer hear the whispering voice at all and only loud speaking 10 cm. from his best ear. This aggravation of the condition conflicts with what others have reported from radiotherapy in treatment of deafness, but Burger remarks that with radium and mesothorium treatment we are still groping in the dark.

Ugeskrift for Laeger, Copenhagen

February 5, LXXVIII, No. 5, pp. 123-162

134 *Sterilization of the Unfit. (Racehygiejniske Tvangsforanstaltninger.) C. Geill.
135 Rupture of Kidney From Contusion; Recovery After Tamponing and Draining. (Et Tilfælde af subkutan Nyreruptur behandlet operativt.) O. Keller.

134. **Sterilization of the Unfit.**—Geill discusses the present status of this question and urges that greater attention should be paid to the other side of the problem, namely, the facilitating of the raising of families by the fit, strengthening the strong.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 13 CHICAGO, ILLINOIS MARCH 25, 1916

INHIBITORY PROPERTIES OF MAGNESIUM SULPHATE AND THEIR THERAPEUTIC APPLICATION IN TETANUS *

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NEW YORK

The object of this communication is chiefly a practical one: I wish to state on the basis of our experimental work and a critical study of recent clinical data, in a brief but precise way, how magnesium sulphate should be used in the treatment of tetanus. It is not improbable that there are many who know that this salt is being used for the treatment of tetanus, but it is possible that many are unfamiliar with the pharmacologic action of this salt on which this method of treatment is based. It is conceivable that it is assumed by some that any favorable therapeutic effect Epsom salt may exert on tetanus rests on its well-known action as a purgative. Furthermore, I cannot free myself from the doubt that the physiologic phenomenon of inhibition is generally well understood, and especially that the term "inhibitory property" which has been used in the title of this paper in connection with the action of magnesium salts will be properly interpreted. My practical statements, therefore, will have to be introduced by a discussion of a theoretical character. In this discussion I shall deal briefly, first, with the phenomena of inhibition, as I understand them, and then proceed to discuss the inhibitory actions of the salts of magnesium which we have observed in our experimental studies and which led up to the use of magnesium sulphate in tetanus.

THE PHENOMENA OF INHIBITION IN BIOLOGY

The best known phenomenon of inhibition is the action of the vagus on the heart. The heart is a muscle which continually performs rhythmic contractions. When a nerve which goes to a muscle is stimulated, the muscle gets into a shorter or longer state of tetanus. But the Weber brothers discovered that stimulation of the peripheral end of the vagus nerve stops the heart in diastole; it inhibits its contractions. The phenomenon of inhibition was thus discovered. In the past seventy years a great many physiologic processes were discovered which had to be interpreted as inhibitory phenomena. I shall not attempt to discuss here the great amount of the corresponding data, which, by the way, have not yet been satisfactorily correlated. But I shall dwell on two or three points which it would be well to keep in mind. Many years after the vagus inhibition came to light, nerve fibers were discovered, the stimulation of which causes acceleration of the heart beats; it was further established that when the inhibitory vagus fibers and the accelerator nerve fibers are stimulated simultaneously, the effect of inhibition prevails during stimulation to such a degree that the activity of the accelerators cannot well be recognized. But both sets of nerve fibers differ in some peculiarities, among others, in the fact that stimulation of the accelerator nerves leaves a long after-effect, while the inhibitory nerve fibers of the vagus manifest only a short after-effect. This leads to the result that when both sets of fibers are stimulated simultaneously, a considerable acceleration of the heart beat follows soon after discontinuation of the stimulation. By this phenomenon the presence of accelerators, or, as they are also termed, augmentors, in a nerve trunk can be recognized. In other functions the opposite relations prevail, namely, the augmentors predominate *during* stimulation and the inhibitors possess the longer *after-effects*. It is readily conceivable that the effect of stimulation of a single nerve trunk could be interpreted in various ways, which, of course, I should not now attempt to analyze. I wish only to add that the above mentioned antagonism applies not only to the motor sphere, but exists also in the functions of secretion and sensation and, furthermore, is applicable also to functions in which the augmenting and inhibitory processes are not represented by well defined nerves or other morphologic units.

It is very useful to have another consideration well fixed in mind. By our daily habits we are used to the mode of thinking that any action, a motion or a secretion, is brought about by a positive cause, a definite stimulus. The absence of such an action seems to need no explanation; a thing, for instance, does not move simply because there is no cause for its motion. This, however, is not true even in the inorganic physical world; a thing does not move in a certain direction exclusively because it is prevented by an opposing force of exactly similar energy which works in an exactly opposing direction. By an analysis of numerous living phenomena I came to the conclusion that *all living functions are continually controlled by two opposing forces: augmentation or action on the one hand, and inhibition on the other hand.* The state of every function at every moment depends on the relation and the predominance of each of these opposing functions. Taking motion as an instance, the maximum effect of the action factor in a living body is tetanus and the maximum effect of inhibition is complete relaxation. The various degrees of tonus

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* Read at the meeting of the Second Pan-American Scientific Congress, Washington, D. C., January, 1916.

present an intermediary state in which one of the opposing forces is more or less predominating. For several decades this theory, and especially the notion that inhibition is a most extensive factor in all manifestations of life, played a dominating part in all my researches; it was a working factor in my early investigations of the physiologic functions of deglutition and of respiration.

THE INHIBITORY ACTION OF MAGNESIUM SALTS

About nineteen years ago I studied the effect of intracerebral injections of small quantities of various salts. While the effect of nearly every kind of salt consisted in the causation of a more or less intense and characteristic convulsive attack, I found that after an intracerebral injection of a few drops of a 5 per cent. magnesium sulphate solution, the animal turned on one side and remained for hours in a stuporous condition. Under the influence of the conception that inhibition is an important factor in the functions of the living body, the question arose in my mind whether or not a definite relation exists between the magnesium ion in the body and its various states of inhibition or depression. A review of the literature revealed that the action of magnesium salts had been very little and only superficially studied. The same may be said of the researches concerning the phenomena of inhibition; the various degrees of depression in the various functional activities were rarely united under a single general point of view. It was mostly the various forms of excitation (action) which fascinated the attention of the physiologists and were investigated as a problem of irritability. On the basis of the above formulated question, I investigated in the last dozen years in the department of physiology and pharmacology at the Rockefeller Institute, with Dr. John Auer and other associates, various actions of magnesium on the animal body. After a long experience I may say today that the *dominant* action of magnesium salts on the living body, no matter by which way it is administered, consists indeed in *depression* or *inhibition*. I shall, of course, not enter here on details. But I wish to mention here one or two facts very briefly. When, as it was found originally by Dr. Auer and myself, after the administration of a very small amount of ether, insufficient to cause anesthesia, an inefficient amount of magnesium sulphate is injected intramuscularly, a profound anesthesia follows which can be maintained for several hours. Consciousness is the first thing which is completely abolished. The unconsciousness is, as a rule, accompanied by a great muscular relaxation, while all the reflexes may still remain nearly unaffected. With a larger dose of magnesium the reflexes, too, begin to disappear, and with a still further increase of the magnesium dose the motor nerve endings become paralyzed — a curare-like action, which is accompanied, of course, by a simultaneous profound central action. These facts were especially confirmed in a number of operations performed on human beings by Dr. Peck, and in a few cases also by Dr. Elsberg.

Chemically calcium and magnesium are closely related substances. Biologically, however, they are strikingly antagonistic to one another. Auer and I found that an animal which may have been completely paralyzed by a magnesium salt can be restored within a fraction of a minute by an intravenous injection of a calcium salt. I must add, however, that this applies essentially to conditions in which the animal was exposed to the effect of magnesium for a comparatively short time. When the animal is saturated with magnesium for a longer period, the antagonistic action of calcium is less evident and is even not without some danger.

At the last meeting of the international physiologic congress in Groningen (1913) I offered the following hypothesis in explanation of the mentioned phenomena: As is well known, the various neurons are not connected by direct continuity but by mere contact. That place of contact is termed by Sherrington "synaptic membrane." The connection between motor nerve and muscle is also not of a very solid character, and is termed by some also synaptic membrane. My theory assumes that the magnesium solution contained in the lymph bathing the synaptic membrane enters with ease into these spaces, and interrupts the passage of nervous afferent impulses from one neuron to the other, especially of such impulses for which there is a less readily prepared path for transmission than the paths existing for normal active reflexes. Furthermore, the synaptic membranes between two neurons offer less resistance to the entrance of the magnesium solution than the more solid membranes between motor nerves and the muscle. What is said of magnesium applies also to calcium. When it is present in the lymph in a quantity larger than normal, it enters readily into the synaptic membrane and displaces or neutralizes there the obstructing or inhibiting magnesium. When, however, magnesium, by its long presence in the lymph, manages in some way to enter into the inside of the nerve cell, the calcium is incapable of readily dislodging or neutralizing there the magnesium. This theoretical view may have some bearing on the mode of the therapeutic action of magnesium salts in tetanus.

THE TREATMENT OF TETANUS BY MAGNESIUM SULPHATE

The effect of magnesium salts was investigated extensively on animals and in a comparatively considerable degree also on human beings by different modes of administration: by intravenous, intraspinal, intramuscular and subcutaneous injections. In all modes of administration the character of the effect is, as stated before, unmistakably depressing in character. In intravenous application the effect is rapid, but is comparatively of short duration, and when so used it must be guarded against possible harmful incidents. The inhibitory effect of an intraspinal injection sets in fairly early and may last even longer than twenty-four hours. Intramuscular injections have a fairly early effect, but only of a comparatively short duration. Subcutaneous injections act slowly, but have a cumulative action.[1]

I shall deal here exclusively with the favorable action of magnesium sulphate on tetanus. The action may appear to some as merely a symptomatic one; it relieves the convulsions. But even if this would be indeed, its only favorable effect, it would be of inestimable value, since the suffering in tetanus and the fatal outcome of this horrible disease is nearly exclusively due to the consequences of the tetanic symptoms. And I may assert that no other remedy is capable of relieving the furious symptoms to such a satisfactory degree as do the injections of magnesium

1. Local applications also exert unmistakably some favorable effect, for instance, in burns, erysipelas, pains, etc.; but I shall not deal here with this side of the subject.

sulphate. But on the basis of the above mentioned theory, we may expect from the use of magnesium sulphate perhaps even more than a symptomatic action: it is possible that the magnesium salts, accumulated in the lymph, enter into the synaptic membrane between two neurons and thus prevent the wandering of the tetanus toxin through higher neurons and into the corresponding nerve cells.

Soon after our publications on the inhibitory action of magnesium salts, clinical cases of tetanus, in which magnesium sulphate was used, began to appear in the medical literature. This was especially the case after the favorable report published by the famous surgeon, Thedor Kocher of Berne. At the outbreak of the present war, numerous cases of tetanus were treated by magnesium sulphate. I shall not enter here on an analysis of the extensive literature on that subject. I wish only to say that a study of this literature convinced me that in many instances the writers were familiar neither with the pharmacologic principles underlying this treatment, nor with its indications or contraindications, and some of the conclusions which they derived from their observations were hastily drawn and without proper criticism. Some did not know enough to distinguish between those symptoms which are due to the disease and those which were brought about by an improper use of the magnesium salts.

In the following I shall try to lay down some rules for the use of magnesium sulphate in tetanus as I learned them from our extensive experimental investigations and from an unbiased, critical study of the clinical literature of that subject. However, in employing magnesium sulphate for the treatment of tetanus and in drawing conclusions from such observations, there are a few things which one has to keep in mind, to which I wish to call attention before I proceed to describe the methods to be used, their respective advantages and disadvantages, and the procedures which are necessary to meet the latter.

There are advanced and dangerous forms of tetanus which cannot be cured, or even relieved temporarily, by any method of treatment; the failure of magnesium in such cases should in no way militate against the possible usefulness of this method. It should be further borne in mind that the treatment of tetanus by magnesium in no way precludes a simultaneous treatment with antitetanic serum. The suffering of tetanic patients is too great and the outlook is too grave to permit the experimental method of treatment in human beings, that is, to test one remedy at one time. Even if magnesium sulphate would do no more than relieve the most severe symptoms, the convulsions and the tetanus, it would be a duty to use it. If properly used, it is certainly capable of relieving severe symptoms in many cases better than any other remedy. Finally, it is necessary to know the possible dangers which may be brought about by the use of magnesium salts; at the same time it is necessary to know well the incidents of tetanus, in order not to look on them as effects of the magnesium injection; this confusion occurred in many instances.

Magnesium may bring about a temporary reversible paralysis of the respiration. I shall discuss later how to avoid this incident and how to meet it when it occurs. The circulation is not readily affected by the injection of the magnesium salt, and such an incident ought never to occur. Magnesium salts cause a temporary appearance of hyaline casts in the urine (Peck, Gates) which disappear readily and early. On account of this effect, magnesium injections, when given in larger doses, should for the present not be used in cases of outspoken nephritis. Intravenous injections of magnesium salts cause a considerable hyperglycemia with only a mild glucosuria (Kleiner and Meltzer); it is, however, a merely temporary phenomena and is no contraindication to the use of magnesium salts.

METHODS OF ADMINISTRATION OF MAGNESIUM SALTS IN TETANUS

1. *Intraspinal Injection.*—It may be stated that for adults this method of administration gives the best results. Magnesium sulphate (Epsom salt, $MgSO_4 + 7\ H_2O$) should be administered in a 25 per cent. solution, 1 c.c. of the solution to each 20 pounds of body weight. In cases of strong opisthotonus it is advisable that the injection be preceded by a moderate general anesthesia, ether or chloroform, which, however, should be discontinued immediately after the injection is completed. The injection should be made in the lumbar region at the usual place and with the usual precautions. The patient should then be placed flat on the back. The relief may begin to become manifest in a short time after the injection, and leads, as a rule, to a complete relaxation, lasting twenty-four hours and longer. During this period the patient is resting, relieved, partakes of food and may fall into a deep sleep. Sooner or later, however, stiffness and convulsive seizures will return. A second injection ought to be given before the tetanic conditions attain their original intensity. The second dose, however, ought to be smaller, for instance, about 0.8 c.c. per 20 pounds. The repeated injections ought to be adapted to the conditions of the patients which mostly do not demand a complete relaxation. It may be necessary to catheterize the patient; this and the occasional rise of temperature do not present contraindications to this method of treatment. The only serious phenomenon which may complicate this procedure is the setting in of a weakening or a temporary standstill of the respiration, due undoubtedly to a (reversible) paralysis of the respiratory center by the magnesium. As a rule, when the above described procedure is followed out carefully, this serious incident does not occur. It is, however, well to know how to proceed when this complication makes its appearance. A needle should be introduced into the lumbar canal, through which some of the spinal fluid should be permitted to run out, and then the canal should be washed out several times with a Ringer solution. During this procedure the upper part of the body should be kept elevated, to facilitate the escape of the fluid from the spinal canal. Also artificial respiration should be instituted with air or oxygen, for both of which my apparatus of pharyngeal insufflation, which I describe elsewhere, is the simplest and the most suitable one. Both the washing of the canal and the artificial respiration should be instituted at an early stage, that is, as soon as the respiration begins to become slow or shallow; the recovery will follow rapidly. Action should not be delayed until the respiration actually ceases; the preceding prolonged asphyxia may be a hindrance to the prompt recovery. The use of calcium or physostigmin, which I shall mention in describing the other methods of application, are of no avail in the intraspinal method. As stated before, the occurrence of a respiratory com-

plication is not to be feared, when used in adults according to prescribed rules. In very young children the initial dose should not be higher than 0.5 c.c. of a 25 per cent. solution per 20 pounds. For the present, it is perhaps better to advise not to use it in children as a routine method (Kocher). The intracommunication between the various sections of the intraspinal canal is probably much freer in very young children than in adults.

2. *Subcutaneous Injection.*—This method is incapable of relieving severe acute attacks of tetanic conditions unless used in immense doses. On the other hand, small doses used three or four times a day undoubtedly gradually reduce the increased irritability, and may lead even in severe cases to a final recovery.[2] The dose should be for adults about 1.2 c.c. and for children from 0.6 to 0.8 c.c. of a 25 per cent. solution per kilogram of body weight three to four times a day. It should be begun as soon as symptoms of a local tetanus (drawing of the muscles in a wounded extremity, slight difficulty in swallowing, slight trismus, etc.) make their appearance, and be continued until all tetanic symptoms disappear. The use of a moderate local or general anesthetic facilitates these injections, which should be made under the necessary aseptic or antiseptic precautions. It should be borne in mind that such injections are incapable of offering a rapid relief in acute tetanic attacks and their value should not be discredited by their failure to relieve satisfactorily acute dangerous seizures.

3. *Intravenous Injections.*—Magnesium salts disappear rapidly from the circulation; this method is therefore inappropriate for the purpose of bringing about a complete cure; besides, under prolonged use, it may act unfavorably on the circulation. In a previous communication I advised against its use. However, after a series of experiments (with Dr. Auer) on tetanic dogs and after the clinical communications of Hans Kohn and of Walter Straub, I became convinced that this method, if used properly, may save life in severe, dangerous tetanic attacks of the pharynx, the larynx or the diaphragm. It should be used in a 6 per cent. solution from 2 to 3 c.c. per minute (or in a 3 per cent. solution from 5 to 6 c.c. per minute) and should be discontinued immediately as soon as the respiration becomes slow or shallow.

As a rule, the respiration improves soon after the infusion of magnesium is discontinued. If the improvement is not prompt enough, a *small amount of calcium chlorid* (2.5 per cent.) should be slowly injected through the venous cannula, used for the infusion of magnesium, until the respiration shows a definite improvement, which may occur in less than thirty seconds. The calcium injection should then be immediately discontinued; otherwise all the previous tetanic manifestations may make their reappearance.

The striking favorable effects of intravenous injections of magnesium may disappear in from thirty to forty minutes, but the actual dangerous symptoms may be obviated for a much longer period.

4. *Intramuscular Injection Plus Ether Inhalation.*—In experiments of Auer and myself, it was established that an injection of only 2.4 c.c. of a 25 per cent. solution of magnesium sulphate, given intramuscularly, combined with a temporary mild ether inhalation, is capable of bringing about a considerable relief in less than half an hour, and may last for several hours. This method, however, is not appropriate for frequent repetitions.

Should it be found, by unforeseen circumstances, that during the use of subcutaneous or intramuscular injections the respiration becomes affected, an intramuscular injection of a 2.5 per cent. solution of calcium chlorid may slowly neutralize the unfavorable respiratory effect, without bringing back serious tetanic symptoms. I may add here that an injection of about 1 mg. of physostigmin is also often capable of improving the respiration.

SUMMARY

The best general plan for treatment of tetanus would seem to be as follows:

In each and every case of tetanus, 1.2 c.c. of a 25 per cent. solution of magnesium sulphate should be given by subcutaneous injection three or four times a day throughout the entire disease.

When the disease is complicated by severe tetanic attacks, 1 c.c. of a 25 per cent. solution for every 10 kg. (20 pounds) body weight (in adults) should be given by the intraspinal method.

When the disease is attended by immediately dangerous tetanic complications, from 2 to 3 c.c. per minute of a 6 per cent. solution of magnesium salts should be given then by an intravenous injection until dangerous symptoms subside or the respiration becomes shallow or too slow.

When the respiration seems to become impaired in consequence of the administration of magnesium salt by the intravenous, intramuscular or subcutaneous methods, calcium chlorid should be injected in the manner described above.

It is advisable to have at hand an apparatus of intrapharyngeal insufflation ready for use, whenever the respiration becomes slow or shallow.

Finally, the simultaneous treatment by antitetanic serum should not be neglected.

2. The following case of von Rosznowsky (Therap. d. Gegenw., 1914, p. 435) is very instructive: Wound from a shot in the neck, August 27. On the 31st the first appearance of tetanic symptoms. Treatment began, September 4, with injections of antitetanic serum. On the 6th, much worse. On the 7th starting magnesium treatment: 10 c.c. of a 25 per cent. solution of magnesium sulphate injected subcutaneously four times daily. Early relief and gradual subsidence of all serious symptoms. September 14 and 15, only two injections daily. Condition worse again. From the 16th on, returned again to four injections daily. Rapid progressive improvement. Stopped injections of magnesium on the 24th. Patient cured; got out of bed, October 1. In the course of seventeen days, patient received by subcutaneous injections 530 c.c. of a 25 per cent. solution of magnesium sulphate. Of the sixty injections one gave an abscess. To sum up: early appearance of tetanus, severe symptoms, visible relief and improvement under magnesium treatment, some relapse follows a temporary reduction in the number of injections, improvement after returning to the previous number. Complete cure. No other treatment and no complications or sequelae.

Making the Cure.—Where wisdom fears to venture, unwisdom and cupidity find ample room. The wise physician knows that there are ills that drugs cannot cure; that generally only aid or relieve; and that to obtain even this aid efficiently and safely, the existing scientific knowledge is none too great. Not so the unwise. He who sees in disease only a name, to him a name is sufficient cure. Let there be a mixture with a convenient and suggestive name and a pleasant taste, a compendious index of diseases and symptoms—and a lively imagination—and the cure is accomplished. Few things could be easier, and few more false. It is not surprising that the "man on the street" should fall into these errors; it is sad that any physician should be misled by the sophistry of interested drug vendors.—Editorial in *Cleveland Med. Jour.*

THE SYSTOLIC BLOOD PRESSURE IN PREGNANCY

OBSERVATIONS ON FIVE THOUSAND CONSECUTIVE CASES IN THE PREGNANCY CLINIC OF THE BOSTON LYING-IN HOSPITAL

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The Boston Lying-In Hospital maintains a pregnancy clinic for the care of patients who are to be confined either in the hospital or in the outpatient department. At her first visit, every applicant is given a thorough physical and obstetrical examination, which is repeated as occasion demands. Each time that she comes to the clinic the urine is examined for albumin and the systolic blood pressure is determined by the mercury or aneroid sphygmomanometer and palpation of the radial pulse. She is instructed in the hygiene of pregnancy, and any necessary medical or other treatment is prescribed. Normal patients are directed to return every two weeks; those presenting complications at more frequent intervals. Every patient living in Boston or the adjacent cities of Cambridge, Somerville and Chelsea is seen in her home by a nurse between her visits to the clinic, and any abnormality found is reported to the physician in charge and the patient urged to return immediately.

This paper is based on blood pressure observations in 5,000 consecutive cases, and covers the period from Feb. 28, 1912, to March 11, 1915; 4,472 patients were delivered by the hospital or outpatient services, and their subsequent obstetric histories are definitely known. The remaining 576 were confined by private physicians, other institutions, or midwives. The average patient first presents herself at the clinic about the seventh calendar month, and makes several visits before confinement. There is a growing tendency, however, to apply for treatment earlier in pregnancy, and this is earnestly encouraged. The total number of observations, therefore, is considerable and is sufficiently large to point to certain definite conclusions.

Maternity hospital statistics have always been misleading, since the large number of emergencies and serious conditions habitually treated in such institutions give a false impression as to the frequency of complications. Pregnancy clinic figures, on the other hand, represent the average run of cases, and should give the general physician a much better idea of what he is likely to meet in private practice.

I have attempted to ascertain (1) the normal range of blood pressure in pregnancy, (2) the significance of low blood pressure, (3) the significance of high blood pressure, particularly as regards the toxemias of pregnancy, and (4) certain results obtained in the prevention of eclampsia by the appropriate treatment of these toxemias.

1. THE NORMAL RANGE OF BLOOD PRESSURE IN PREGNANCY

The lowest recorded blood pressure in this series was 80; the highest, 225. Newell[1] places the limits of normal blood pressure in pregnancy from 100 to 130, and Haussling[2] from 100 to 135. I found that four fifths of all patients were never below 100 or above 130. The range between these points, therefore, may fairly be considered normal, for the great majority of cases. As shown by Table 1, low blood pressure was about four fifths as common as high blood pressure.

1. Newell, F. S.: The Blood Pressure During Pregnancy, THE JOURNAL A. M. A., Jan. 30, 1915, p. 393.
2. Haussling: Jour. Med. Soc. New Jersey, 1912, ix, 242.

2. THE SIGNIFICANCE OF LOW BLOOD PRESSURE

In a review of the blood pressure in pregnancy, Lynch[3] says, "Comparatively low blood pressure may be found in obstetric patients with no other evidence of abnormality in health." As has been previously stated, a blood pressure below 100 occurred in 9 per cent. of the present series. It is, therefore, fairly common. But Lynch goes on to state that "through the study of blood pressure we may have a forewarning as to the possibility of a complication fortunately rare at the present time, i. e., shock following labor not associated or resulting from hemorrhage." In his series of 100 private cases there were two in which there was a blood pressure below 90 during pregnancy. The present series of 5,000 cases showed that in twenty-two times as many pregnancies as reported by Lynch of markedly low blood pressure there was not a single instance of shock unaccompanied by hemorrhage following labor.

TABLE 1.—OCCURRENCE OF NORMAL, LOW AND HIGH BLOOD PRESSURES

Blood Pressure	Cases	
	Number	Per Cent.
Always between 100 and 130	4,031	80
Below 100 once or more	426	9
Above 130 once or more	543	11

Three patients were not delivered by the hospital service. Of the remaining forty-four, seven had a blood pressure of eighty, which was the lowest recorded in the series. One patient had moderate shock following the manual extraction of a retained placenta, but her blood pressure was low only once and reached normal before delivery. All others had uneventful confinements.

TABLE 2.—BLOOD PRESSURE BELOW 90

	Cases
At last visit to clinic only	13
At one visit, but rising before delivery	29
At two visits or more, not rising before delivery	3
At two visits or more, but rising before delivery	2
Total	47

An additional review of moderately low blood pressure (between 90 and 100) shows that of the 357 cases delivered by the hospital service, shock unaccompanied by hemorrhage did not occur once after normal delivery, and only four times after operative delivery. In only one of the four operative cases was the blood pressure found between 90 and 100 at more than one visit to the clinic.

TABLE 3.—BLOOD PRESSURE BETWEEN 90 AND 100

	Cases
At last visit to clinic only	175
At one visit, but rising before delivery	157
At two visits or more, not rising before delivery	25
At two visits or more, but rising before delivery	26
Total	383

A comparison of Tables 2 and 3 will show that while occasional instances of low blood pressure are frequent, a pressure consistently below 90 occurred only once in 1,000 pregnancies, and a pressure consistently between 90 and 100 once in 100 cases. This tendency to low blood pressure is apparently an individual peculiarity of the patient, and does not seem to be followed by a poor reaction to labor.

3. Lynch: Surg., Gynec. and Obst., 1913, xvii, 472.

I believe with Lynch that shock occasionally follows labor without apparent reason. Such an occurrence seems to be more common in private than in hospital practice, and is particularly likely to succeed some comparatively slight operative procedure, such as an easy low forceps delivery. The Crile theory of shock seems to offer the best explanation. Following rapid evacuation of the uterus there comes a marked lowering of intra-abdominal pressure, and thereby the external mechanical support of the splanchnic vessel walls is diminished. Should vasomotor control be inefficient, these vessels become enormously distended with blood, and the patient bleeds into her own abdominal vascular system. The resultant anemia of the medulla completes the familiar picture of surgical shock. It is evident that such a condition presupposes a certain instability of vasomotor equilibrium; but that it may be foretold during pregnancy by a low blood pressure is not borne out by our observations.

TABLE 4.—ELEVATED BLOOD PRESSURE, ALBUMINURIA AND TOXEMIA ACCORDING TO AGE

Age	No. of Cases	Percentage of Elevated Blood Pressure	Percentage of Albuminuria	Percentage of Toxemia
Under 20	421	11.4	20.0	2.8
From 20 to 30	3,165	8.9	13.7	1.0
From 30 to 40	1,283	14.3	12.2	1.5
From 40 on	131	22.1	17.5	1.5

3. THE SIGNIFICANCE OF HIGH BLOOD PRESSURE (OVER 130)

I have attempted to point out what influence, if any, age, race or nationality and parity had on elevated blood pressure, and have also noted any apparent effect on albuminuria and toxemia. Since in this series all patients considered toxemic during pregnancy exhibited at some time both an elevated blood pressure and albuminuria, the term "toxemia" is applied to those who had these two manifestations of the disease, plus one or more of the other recognized signs and symptoms, such as headache, disturbances of vision, persistent vomiting, epigastric pain, antepartum hemorrhage and edema.

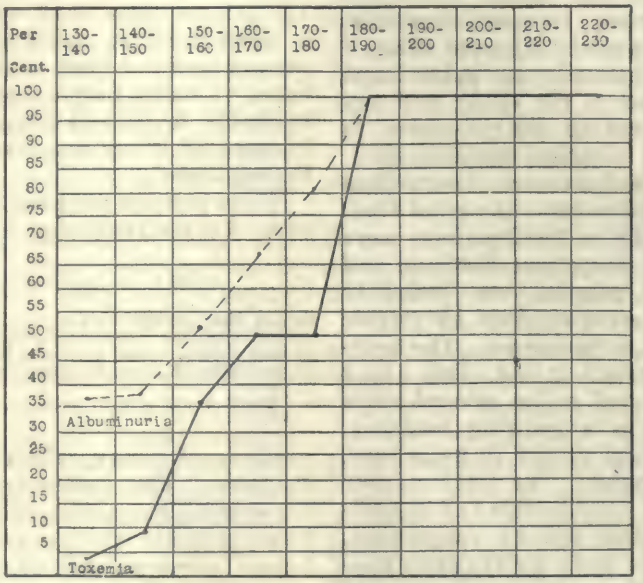


Chart 1.—Curves of toxemia and albuminuria expressed in terms of increasing blood pressure.

TABLE 5.—ELEVATED BLOOD PRESSURE, ALBUMINURIA AND TOXEMIA ACCORDING TO NATIONALITY

Country	No. of Cases	Percentage of Elevated Blood Pressure	Percentage of Albuminuria	Percentage of Toxemia
Russia	2,322	9.2	11.2	0.8
America	873	15.1	22.2	1.8
Italy	606	5.1	9.0	1.2
Austria	215	7.9	9.3	0.0
Ireland	210	11.9	17.6	2.4
Poland	172	5.8	8.1	0.6
British North America	158	17.7	18.3	3.2
Negro	105	13.4	25.7	3.8

Age.—Albuminuria and toxemia occurred most frequently in gravidas under 20. In this class of patients, elevated blood pressure was also fairly frequent and was, apparently, more commonly then a sign of toxemia than later in life.

Elevated blood pressure was most common in elderly gravidas, but with them was seemingly less important as an evidence of toxemia. Many women in the neighborhood of 40 habitually ran a low normal blood pressure, but a stationary pressure of moderate elevation was more common with them as a class than with younger women. In the decade between 20 and 30, elevated blood pressure and toxemia were least common.

Race and Nationality.—Elevated blood pressure was most common among the British North Americans, Americans, negroes and Irish. These classes also showed the highest proportion of albuminuria and toxemia. Toxemia appears to be uncommon among the Russians (practically all Jews) and the Slavs (Austrians and Poles).

Two races are represented, the white and the negro. Of the white race there were thirty different nationalities. Only those with at least 100 representatives have been considered in Table 5.

Parity.—In primiparas there was a fairly high percentage of elevated blood pressure which was not accompanied by a correspondingly high percentage of toxemia. It will be seen in comparing Tables 5 and 6 that youth has apparently more influence than primiparity on the occurrence of toxemia. In general, the frequency of elevated blood pressure tended to increase with successive pregnancies from the second to the eighth. The percentage of albuminuria showed nothing characteristic, nor did the number of pregnancies appear to have much influence on the frequency of toxemia.

One patient was a sedecipara and two were quindeciparas. No class containing less than 100 individuals has been considered.

TABLE 6.—ELEVATED BLOOD PRESSURE, ALBUMINURIA AND TOXEMIA ACCORDING TO PARITY

Parity	No. of Cases	Percentage of Elevated Blood Pressure	Percentage of Albuminuria	Percentage of Toxemia
Primiparas	1,679	12.2	14.8	1.1
Secundiparas	1,036	7.5	11.7	0.8
Tertiparas	696	7.9	11.8	1.0
Quartiparas	508	11.8	14.6	1.4
Quintiparas	360	8.9	10.6	0.6
Sextiparas	261	10.7	9.2	0.8
Septiparas	177	13.8	11.4	0.6

Comparative Values of Albuminuria and Elevated Blood Pressure as Signs of Toxemia.—(*a*) Frequency of Uncomplicated Albuminuria and Elevated Blood Pressure: Uncomplicated albuminuria was one and one-third times as frequent as uncomplicated elevated blood pressure. Often, no doubt, it was due to a contamination from leukorrheal discharge. Several

writers, however, have reported that albumin may be obtained in catheter specimens during pregnancy in a considerable number of cases, without any pathologic significance being attached to it. Elevated blood pressure then, per se, is a more frequent sign of toxemia. Albuminuria without elevated blood pressure or toxemia occurred in 463 cases, and elevated blood pressure without albuminuria or toxemia in 340 cases.

(*b*) Priority of Appearance: An elevated blood pressure is often the first sign of an approaching toxemia. In the present series it preceded albuminuria twice as often as it followed it. The majority of patients, however, presented both albuminuria and elevated blood pressure at the same visit to the clinic. Elevated blood pressure preceded albuminuria in fifty cases, accompanied albuminuria in 113 cases, and followed albuminuria in twenty-four cases.

(*c*) Frequency Percentage of Albuminuria and Toxemia with Increasing Elevation of Blood Pressure: One patient in thirty-two with a blood pressure between 130 and 140 had toxemia, and one patient in eleven with a pressure between 140 and 150. Between 150 and 160, the frequency suddenly rose to more than one in three, while one half of all patients between 160 and 180 developed the disease. All patients above 180 had toxemia. The abrupt rise in both toxemia and albuminuria when 150 is reached indicates in a striking manner that the danger point lies near that point (Chart 1).

(*d*) Frequency Percentage of Blood Pressure and Toxemia with Increasing Degrees of Albuminuria: The curve of toxemia shows a steadier rise when expressed in terms of increasing blood pressure, as in Chart 1, than when expressed in terms of increasing albuminuria, as in Chart 2. Moreover, the blood pressure curve in Chart 2 is a faithful copy of the toxemia curve, while the albuminuria curve in Chart 1 bears a much less striking resemblance to the line of toxemia. With less than a slight trace of albuminuria, no cases of toxemia were encountered.

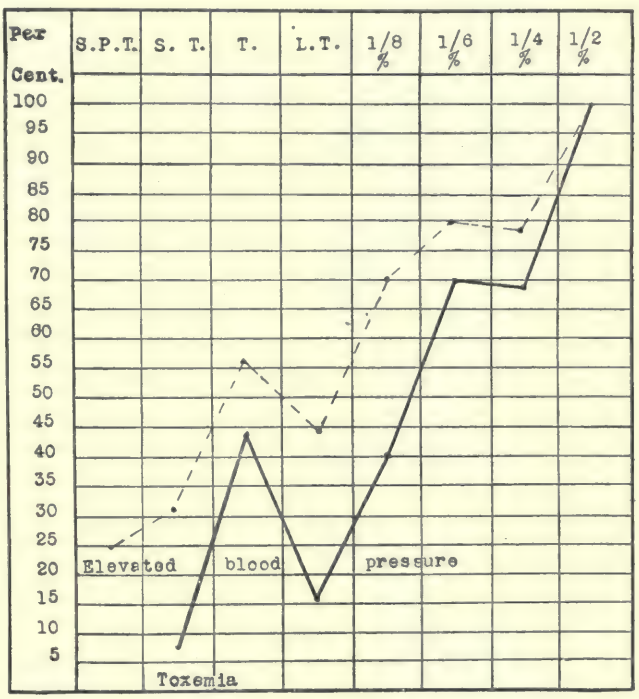


Chart 2.—Curves of toxemia and elevated blood pressure expressed in terms of increasing albuminuria. The degree of albuminuria is expressed in the common clinical terms: S. P. T., slightest possible trace; S. T., slight trace; T., trace; L. T., large trace.

In summarizing, it is fair to say that elevated blood pressure is more commonly an index of toxemia than albuminuria, and that it is apt to be an earlier sign. The degree of elevation points more surely to the likelihood of toxemia than does the degree of albuminuria. Both, however, are of the utmost importance.

Elevated blood pressure without albuminuria or evidences of toxemia occurred in 340 patients. Many of those with occasionally elevated pressure were admittedly constipated, and doubtless others were equally so, although denying it stoutly. In the vast majority the rise was temporary, and promptly succumbed to the generous administration of magnesium sulphate. A number, however, had a persistently elevated pressure, although it rarely reached the upper levels. Apparently this condition was normal for these patients, just as low blood pressure was normal for another group.

Toxemia.—Sixty-four patients, which was 1.4 per cent. of the total number, developed signs and symptoms of toxemia. Ten of these patients ceased attendance at the clinic and were delivered elsewhere. In the sixty-four patients, nephritic toxemia, defined by Williams as "associated with primary lesions of the kidneys," and "usually noted in women who were suffering from chronic nephritis prior to pregnancy, or in whom the acute process originates during that period," occurred six times, and twice in one patient. The remaining fifty-eight cases were true preeclamptic toxemias.

(*a*) Seasonal Variations: Chart 3 characterizes toxemia as a disease of cold rather than of warm weather, thus confirming the impression we have had at the Lying-In Hospital. It is not unlikely that increased diaphoresis and consumption of water in the warm season aids in the elimination of the toxins on which this disease is supposed to depend.

(*b*) Signs and Symptoms: Edema and headache were most common. True epigastric pain was rare and usually of ominous prognosis. No antepartum bleeding was noted in any case. Apparently, then, it is not a common sign of this disease.

(*c*) Albuminuria: All toxemic patients had more than the slightest possible trace of albumin.

(*d*) Elevated Blood Pressure: A pressure above 130 was noted in all toxemic patients at some time during pregnancy. Twenty-seven patients had an elevated blood pressure when first seen at the clinic. Thirty-seven had a progressively rising pressure, often from a low level. I believe that this is a better sign of approaching toxemia than a moderately elevated pressure which remains stationary, a point which has been frequently emphasized by Newell.

Eclampsia.—Nine patients out of 4,472, the number actually delivered by the hospital service, had eclampsia. This is 1:497, which is about the same ratio as that given by Williams: 1:500. Five were primiparas and four multiparas. Eight of these patients had toxemia. The other, whose blood pressure was 94 with a negative urine and no evidences of toxemia at her last visit to the clinic six weeks before labor, had two postpartum convulsions. No examination of the urine was made at that time, and the blood pressure was not determined, although the record states

that the patient's pulse was of high tension. The moral pointed by this experience is that the blood pressure should always be taken both at the time of labor and immediately following it.

Six of the nine eclamptics did not report to the clinic for over a month before the onset of the seizures, and two of these patients died. Only three patients who faithfully followed directions developed eclampsia, and only one of them died.

With the exception of the eclamptic whose last recorded blood pressure was 94, there was only one patient whose pressure had not reached at least 160 before convulsions occurred. Her highest point was 140, which substantiates a statement often made by other writers that eclampsia may occur with a blood pressure of only moderate elevation. The last previous record of this patient's blood pressure was only 110, which was apparently normal for her. This case again indicates that a rising blood pressure from a low level, even though it does not pass the arbitrary danger mark, may be a sign of impending trouble.

4. TREATMENT OF TOXEMIA

In general, the treatment at the Boston Lying-In Hospital has followed certain definite lines, although not all members of the staff in the past have by any means concurred in the ideas here expressed. All patients in the pregnancy clinic showing albuminuria or a blood pressure above 130 are at once put on a meat-free diet with restricted salt and forced fluid. The patient is directed to take large doses of magnesium sulphate and to return to the clinic in a few days. Should evidences of toxemia develop, she is admitted to the hospital, where she is put to bed and the same treatment more vigorously carried out. Should her condition grow worse or fail to improve, the majority of the staff terminate pregnancy without waiting for convulsions to occur. In the past, however, eliminative treatment has occasionally been carried beyond this point, not always with favorable results.

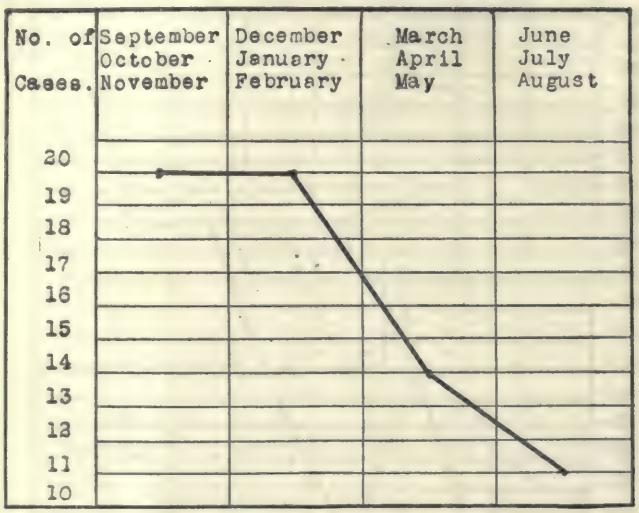


Chart 3.—Toxemia according to seasons.

Eliminative treatment alone was successful in twenty-nine of the fifty-eight cases. The process quieted down, and pregnancy was allowed to continue or labor ensued. In eleven cases labor was induced by Voorhees bags, which acted satisfactorily in nine.

One patient died undelivered after eliminative treatment. A second died after a five months' spontaneous miscarriage, and the third after a full term normal delivery. Although nine eclamptics is too small a number on which to base any conclusions, it is quite evident that none of the women who were lost died as the result of a so-called violent operative delivery.

CONCLUSIONS

1. In 80 per cent. of pregnant women, the blood pressure ranges from 100 to 130.

2. In 9 per cent. the blood pressure may be below 100 once or more. A blood pressure below 90 does not mean that the patient will have shock unaccompanied by hemorrhage at the time of confinement.

3. In 11 per cent. of cases, the blood pressure may be above 130 once or more. Age, nationality and parity seem to have some influence on blood pressure. High blood pressure in the young is more frequently a sign of toxemia than in those over 30.

4. Elevated blood pressure is more commonly an index of toxemia than is albuminuria, and it is apt to be an earlier sign. The degree of elevation points more surely to the likelihood of toxemia than does the degree of albuminuria. Both, however, are of the utmost importance.

5. Isolated cases of elevated blood pressure unaccompanied by albuminuria or evidences of toxemia occurred not infrequently. Usually they responded to free catharsis. Some pressures remained elevated in spite of treatment, and apparently were normal, during pregnancy at least, for the patients who exhibited them.

6. A progressively rising blood pressure, often from a low level, even though it never reaches the arbitrary danger point, should be regarded with apprehension as a most valuable sign of approaching toxemia.

7. Toxemia is much more common with a blood pressure above 150 than it is below that point.

8. Most cases of eclampsia occurred with a pressure of 160 or more. Eclampsia may, however, occur with a pressure of only moderate elevation.

9. All toxemics developed both albuminuria and elevated blood pressure.

10. While the incidence of eclampsia in this series is about the same as the figures usually given, it is significant that two thirds of the patients who developed convulsions absolutely neglected advice and refused to return to the clinic. Had these patients been discharged against advice during pregnancy for disobeying instructions, very favorable statistics would have been obtained. The hospital feels that it would be most unjust to the ignorant foreigners who constitute the vast majority of its patients to desert them when they most needed skilled hospital care. With proper cooperation from the patients, and eliminating the fulminating cases which develop in a few hours, there is no doubt that eclampsia should be practically a preventable disease.

96 Bay State Road.

State Production of Quinin.—In Italy, according to *Commerce Reports*, for several years the government has manufactured quinin for use against malaria. For the fiscal year ended June 30, 1914, according to the report of the director of the laboratories, the total receipts from the sale of quinin were $611,283, on which a net profit of $159,979 was realized. The whole of this sum was devoted to scientific investigation, draining of unhealthful districts, distribution of free quinin, and other preventive and curative measures against malaria. The laboratories are situated at Turin, Rome and other cities.

NONADHERING SURGICAL GAUZE

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It is essential to give a summary of the various surgical dressings experimented with in order to convey the extent of the author's research work during the past two years.

WORK WITH VARIOUS DRESSINGS

Plain Surgical Gauze.—For the treatment of open wounds presenting raw surfaces the plain gauze of narrow mesh is preferable to gauze of wide mesh as commonly used today for surgical dressings. The narrow mesh does not present wide apertures through which the granulations will grow, and when removed, the granulations are less interfered with. The absorbing quality of the narrow mesh is superior to that of a wider mesh. The gauze of wide mesh, owing to the width of apertures between the threads, permits the granulating tissue to extend upward and overlap the threads, so that in removal of the dressings the granulations are lacerated with the oozing of blood, and pain is caused to the patient.

Surgical Cotton.—This form of dressing is absolutely contraindicated in dressing raw surfaces or open wounds, especially when it is placed in direct contact with the wound. The cotton becomes saturated with the exudate from the wound and adheres to it, causing great discomfort to the patient at removal. The small cotton fibers become attached to the raw surface, remain in the wound and retard healing by their presence. The cotton dressing closely adhering to the wound acts as a seal, retains the discharge, favors bacterial growth and keeps the wound bathed in secretions.

Chamois Skin.—The best grade of chamois skin obtainable on the market was secured and sterilized by dry heating. The wounds to be experimented on were freed of all foreign bodies, cleansed with benzin, tincture of iodin was applied, the excess iodin was sponged off, a sterile piece of chamois skin was placed in direct contact with the wound and a sterile gauze bandage was applied. There were no decided advantages in the use of this material, and the disadvantages were many: the high market value of the chamois skin, and the fact that it is saturated quickly, allowing the excess secretions to bathe the wound, that it is impaired by sterilization, and that its life is good for only one dressing. It was easily removed in all cases.

Gutta Percha Tissue.—In a large majority of cases, gutta percha did not adhere to wounds or raw surfaces; but, owing to its impermeable qualities, the secretions were retained in wounds with extreme moisture present, and favored bacterial growth. In order to overcome this retaining feature, the gutta percha was perforated with small holes, one-eighth inch in diameter, and fluff dressing placed above the tissues. The end-results of this were favorable in a great majority of cases, the fluff dressing taking up the secretions and being easily removed. The perforated gutta percha was removed with a minimum of discomfort to the patient. One disadvantage was that the fluff gauze would adhere to the raw tissue under the perforations of the gutta percha, and cause oozing because of lacerations of the granulations.

Silver Foil.—This dressing has the same disadvantages as gutta percha. It seemed to have a germicidal effect on wounds, as very few cases developed sepsis. Perforated tin or silver foil gave no beneficial results over gutta percha.

Paraffin or Oiled Paper.—The stiffness and texture of such dressings when applied to sensitive raw wounds caused great discomfort to patients. It gave practically the same results as gutta percha.

Rubber Dam (Dental).—Unperforated rubber dam was useless, and when perforated it gave no advantages over gutta percha.

Narrow Mesh Fine Silver Wire Screen.—This was used in a number of cases, and a fluff dressing placed over it; but, owing to pain in its application to the wound, and to the discomfort experienced by the patient while it was in place, it had no decided advantage.

Medicated Gauze Dressing.—Regardless of the ingredients used to medicate the gauze when placed in contact with the raw surfaces and allowed to remain for any length of time, the dressing was found to adhere when attempts at removal were made. Narrow mesh gauze medicated with iodoform has less adhering qualities in the dry state than any other form used; but, owing to its disagreeable odor, it was abandoned. Wet medicated gauze dressings had less adhering qualities, but the part was macerated and the wound kept moist. When allowed to dry, these dressings all adhered.

Gauze impregnated with oily ingredients, such as balsam of Peru, etc., did not adhere, but the ingredients were quickly absorbed if the dressing was left in situ for any length of time, with the result that the dressings became attached to the wound.

Petrolatum impregnated gauze adheres more quickly than a gauze impregnated with a heavier cerate, owing to the fact that the lighter petrolatum is quickly absorbed by the tissue, and the cerate from cerate impregnated gauze is absorbed more slowly. The main disadvantage was from the constant wet condition of the wound, the absorbing quality of the gauze being lessened, owing to the impregnating medicine.

Cold Cream.—It was found that gauze impregnated with a pure, high grade facial cold cream gave very beneficial results, and adhering was less than when other greasy or oily ingredients were used.

Powder Dressing.—Powder (medicated) in any form, while causing a drying up of the wound secretions and adhering less, was difficult to remove from the wound. Owing to its crusting in the wound, it made a seal for infection to develop in the retained secretions.

PARAFFIN IMPREGNATED GAUZE

This embodies all the advantages of most of the dressings mentioned above, and has very few, if any, disadvantages. The gauze used is a medium sized meshed material impregnated with boiling paraffin and white petrolatum, and allowed to dry while being constantly agitated so as to free the apertures between the meshes of excess paraffin. When dried, the gauze is very flexible and presents a waxed screen, which is placed in contact with the wound. Fluff dressing is placed above it. The dressing when removed is found to contain the secretions from the wound, leaving the raw wound surface practically dry. When the paraffin gauze screen is exposed, it is found in close contact with the raw surface. On attempt at removal it separates very easily from the wound with almost no pain and no injury to the little granulations that have

formed since the dressing was applied. The paraffin is not absorbed by the tissues. The granulations do not cling or become attached to the wax surface of the gauze, and no bleeding is present. The petrolatum, owing to its oily nature, seems to make the gauze more flexible, as it retards the hardening feature of the paraffin. The overlying fluff gauze has very little opportunity of adhering to the granulations in the aperture of the paraffin screen, owing to the minimum amount of surface presented. The paraffin gauze allows free drainage of the wound into the fluff gauze by capillary attraction, so that a dry wound is usually found. It can be resterilized as frequently as desired by immersion in absolute grain alcohol.

The results of use of the paraffin impregnated gauze in the medical department of the elevated railroads of Chicago have been gratifying, and it is in daily use in the treatment of all classes and conditions of wounds, such as clean septic wounds, abrasions, burns, and in applications over suture lines in operations. At present quite a number of physicians are cooperating with me in testing out this gauze in their practice, and full detailed reports of their results are being obtained.

PREPARATION OF NONADHERING SURGICAL DRESSING

The purest grade of paraffin wax is brought to a temperature of 450 degrees F. by electric heat in a porcelain lined vessel. White petrolatum or lanolin (wool fat) is added in the proportions of 8 parts of paraffin to 2 of petrolatum or lanolin. This mixture is allowed to dissolve and boil for ten minutes, when it is ready for the gauze.

White gauze of either wide or narrow mesh, cut in strips of 8 by 24, is given two separate sterilizations of one hour each in an electric, dry, hot air sterilizer at a temperature of 300 F.

The gauze is then immersed in the paraffin solution and allowed to remain for ten minutes in order that the gauze fibers may be thoroughly saturated. The gauze is gradually removed from the solution and is stretched, and a current of filtered air is directed against the gauze to free the apertures of excess paraffin.

The gauze is allowed to dry, and then presents a waxed screen which is flexible according to the amount or proportions of petrolatum used with the paraffin.

The dried wax gauze is cut and packed in bulk in sterile glass containers, and sealed so as to exclude air and dust. When needed for the treatment of wounds at the surgeon's hands, the jar of gauze is opened and the necessary amount to be used is placed in direct contact with the wound or raw surface, one or two layers of nonadhering gauze placed on the wound, and ordinary surgical gauze placed above the waxed screen. The gauze can be changed as frequently as desired, and the wax screen can be left on for a more lengthy interval.

Paraffin-Stearic Acid Dressing.—A second formula for the nonadhering surgical gauze, which permits of greater length of time in contact with raw surfaces without sticking, is the paraffin-stearic acid impregnated gauze. In the preparation of this dressing, paraffin wax is brought to the boiling point at three different intervals in the course of one hour and filtered through a narrow mesh gauze in lieu of filter paper. The purpose of this frequent boiling and filtration is to bring it to a sterile state and free it from any foreign bodies like minute particles of grit, etc.

During this procedure, the stearin (stearic acid) is brought to the boiling point and filtered by the same process for the same number of times.

Then equal portions of the liquid hot paraffin and liquid hot stearic acid are poured into a white porcelain container and again brought to the boiling point and filtered as described above. The mixture is then ready for the sterile wide mesh gauze, which is immersed in it for ten minutes to allow the gauze to become thoroughly impregnated with the fluid. The wet gauze is then removed and stretched, and the excess mixture allowed to drain off. A jet of filtered and heated air is directed against the gauze, causing the film of wax over the meshes to melt and allowing a more uniform waxed screen. When dried, the gauze is placed in a sterile container and sealed.

The paraffin-stearic acid gauze dressing gives the added advantage over the paraffin-petrolatum gauze that it can remain a longer time on the wound without any adherence whatever. The flexibility is greater; the fibers have an additional coating of nonagglutinating substance. Wounds treated with this gauze are shed readily from the gauze when the healing process is complete.

ADVANTAGES

Some of the advantages of the nonadhering surgical dressing are as follows:

1. It does not become matted with secretions and débris from the wound, owing to its waxed fibers.
2. The paraffin is not absorbed by the tissue.
3. The granulations of tissue repair do not cling or adhere to the waxed gauze, as is the case with all other surgical gauze used.
4. The nonadhering gauze will not adhere to wounds when left on for any great length of time.
5. It stimulates tissue growth.
6. Because of the flexibility of the nonadhering gauze, it closely conforms to the surface to which it is applied.
7. It causes no pain to the patient at the time of application or while it is in place on the wound.
8. No pain or discomfort is caused the patient when it is removed from the wound.
9. Owing to its being a dry dressing and free from matting, it permits of adequate drainage of wound secretions.
10. It is easily and quickly sterilized by immersion in absolute grain alcohol for days without impairing its usefulness.
11. Two years' treatment of wounds of all varieties has shown its decided advantages over all other dressings in use.
12. There is freedom from infections during its use.
13. When allowed to remain on indefinitely, it becomes separated of itself, leaving the healthy, healed wound underneath.
14. By these advantages it hastens the convalescence or healing of wounds.
15. Application to clean surgical operations on the line of suture prevents adherence of the ordinary gauze dressing.
16. It is of value in covering skin graft cases, as it permits freedom of drainage.

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DIPHTHERIA IN MANILA

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MANILA, P. I.

During the last of September and first of October, 1915, six patients with diphtheria were admitted to San Lazaro Hospital, with five deaths. All of these patients except the one who recovered had been sick for a week or more on admission, and all of the deaths were due to toxemia, nephritis, bronchopneumonia or some other complication.

It has been known practically since American occupation that diphtheria existed in the islands, but this little outbreak showed more cases than usual for a given period, and also, from the high mortality, a greater virulence.

The delay in getting these patients to the hospital was due, in great part, to the ignorance of the relatives or friends of the patients as to the true nature of the disease, as they thought it was simply a sore throat, or "angina," until the condition became serious.

In view of the foregoing facts, and as diphtheria has undoubtedly gradually increased in Manila during the past few years, it was thought best to take somewhat extraordinary preventive measures. Another strong factor in influencing the director and other officials of the Philippine Health Service toward taking these measures was the fact that diphtheria antitoxin was very scarce at this time, there being on hand enough for only a very few severe cases.

It was therefore decided to take specimens from the throats of schoolchildren in Manila, and from all persons in any way contacts of positive cases. It has for years been the rule to take specimens from all direct contacts, but at this time it was thought necessary to carry out operations on a more extensive scale, and in a more thorough manner. Accordingly, during the months of October and November more than 7,000 throat specimens were taken, and of these more than 600, or about 9 per cent., were found positive for diphtheria by the Bureau of Science.

The greatest number of carriers admitted to San Lazaro Hospital on any one day was 130, October 15, and the greatest number in hospital at any one time was 246, October 21. Two consecutive negatives on different dates were required for discharge, and the longest time any carrier was held was seventeen days, although on a former occasion one was held as long as forty days. Of the number of carriers mentioned, more than twenty, or about 4 per cent., developed symptoms of diphtheria—fever, sore throat, etc.—after entering the hospital, and received serum, the average dose for these being a little less than 3,000 units. It is believed that most of these cases which developed from carriers would have become quite severe without the early use of serum, and that several of the patients would undoubtedly have died; besides this direct saving of life it is very probable, in fact almost beyond doubt, that the preventive measures taken against diphtheria saved Manila from a more or less severe epidemic.

Diphtheria among both Americans and Filipinos is well known in Manila and the islands, and does not differ essentially from the disease as found in the United States. Antitoxin is always used freely, and almost invariably with success when the patients are brought to the hospital in fair season. One good effect of the publicity given to the antidiphtheria measures taken by the Philippine Health Service, through the great number of people examined, has been the voluntary presentation at the hospital, both from the city and from the provinces, of numerous patients in the early stages, who have all recovered. Manila is at present practically free from diphtheria; there is only one mild case in the hospital and there are no carriers.

All classes of Americans and Filipinos were among those quarantined, and the enforced imprisonment was, as a rule, undergone with patience and equanimity.

STUDIES ON DIPHTHERIA

II. THE TREATMENT OF DIPHTHERIA CARRIERS BY TONSILLECTOMY *

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M. J. MILLER, M.D.
AND
R. G. PERKINS, M.D.
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In another paper[1] we have given our views on some of the phases of the carrier problem in diphtheria, and have called special attention to our definition of a "carrier" and to our tentative classification of the various forms of *Bacillus diphtheriae*. For better understanding of the following remarks we may again state our definition of a true carrier, namely, that such a person in order to become a true carrier must harbor *virulent* diphtheria bacilli (in or upon the tissues) for a period of twenty-one days or more.

In the endeavor to get rid of these menaces to the health of the community, a great variety of measures have been attempted. We have tested out to our own satisfaction many of the measures advised, but have not found them worthy of routine procedure.

The methods of treatment for freeing carriers of the organisms may be divided into three classes:

1. BIOLOGIC PRODUCTS

Various biologic products have been used in numerous series of cases with indifferent results. The diphtheria antitoxin of course should not be considered, as it has no effect on the organism. It might be noted in passing that it is remarkable how long the idea obtains in the minds of many physicians that antitoxins can in some way affect *Bacillus diphtheriae* in the body. Toxin-antitoxin mixtures are also useless.

Petruschky[2] seems to have been the first to use a vaccine. His results, while suggestive, are far from conclusive, and further work along this line must be done before discarding his method.

Hewlett and Nankivell[3] were the first to use a "vaccine" having as its active principle the "endotoxin." They prepared their vaccine from *Bacillus diphtheriae* by using a modification of the Macfadyen-Rowland method. Their results seem to give more promise than those of Petruschky. In a personal communication Dr. Hewlett states that he is quite certain of the efficacy of the treatment, and only awaits the opportunity for a more extended trial with the "endotoxin."

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* From the Department of Hygiene, Western Reserve Medical School, the Bacteriological Laboratory of the Division of Health, and the Contagious Department of the Cleveland City Hospital.

1. Ruh, H. O.; Miller, M. J., and Perkins, R. G.: Jour. Infect. Diseases, to be published.
2. Petruschky: Arb. a. d. path. Inst. zu Tübingen, 1908, vi, Pt. ii, p. 331.
3. Hewlett and Nankivell: Lancet, London, July 20, 1912, p. 143. Hewlett: Ibid., June 28, 1913.

The antibacillary serum prepared by L. Martin and Wassermann[4] and that prepared by the Lister Institute have not proved of value.

Opsonins, which were demonstrated in diphtheria patients by Tunnicliff,[5] have not been found to be of practical value in the treatment of the carrier.

Attempts to substitute some nonpathogenic or pathogenic organism for *Bacillus diphtheriae* by direct local inoculation seemed for a short time to have solved the problem, and many successful results have been claimed after inoculation of various organisms. Among these may be noted *Staphylococcus pyogenes aureus, Bacillus bulgaricus,* lactic acid organisms of various types, yeast, and even some of the higher molds. These have been tried in our series, but with no such success as to warrant continuance.

We have come to the conclusion that the use of a series of unselected cases involves the error due to the lack of certainty as to the time in which the organisms will disappear. Cultures showing a great majority of diphtheria forms on one day will suddenly show progressive diminution with the development of negative cultures in three or four days, while others will persist with morphologic changes and slow disappearance.

Nine children who had resisted local treatment for almost three months were treated three times a day for three weeks with an emulsion of a twenty-four hour milk culture of a *Bacillus bulgaricus* strain giving 2.6 acid. There was no apparent decrease in the number of diphtheria organisms. A mixture of several strains of *Staphylococcus lacticus* of Esten type, grown in lactose agar, washed off in normal saline, was then applied as a spray for four weeks with no result. Previous work in routine cases of less obstinate carrier propensities had been done with similar results. We noted that, while there might be at times a diminution and even a disappearance of the diphtheria organisms, cessation of the treatment for a few days always resulted in the reappearance of the organisms, and we believe that the great majority of successful cases obtained by these methods are either those in which organisms were about to disappear, or in which later cultures would have shown that they were merely temporarily overridden.

4. Wassermann: Ztschr. f. Hyg., 1895, xix, 408.
5. Tunnicliff: Jour. Infect. Dis., 1908, v, 14.

2. CHEMICAL SUBSTANCES

Direct local treatment by chemical substances has been a failure in the hands of the great majority of men. In a limited number of cases there have been apparently successful results, but the number is not such as to show that these cases would not have become free from the organisms without treatment. Indeed, as a result of our own observations and in agreement with those of Park and others, we are inclined to believe that undue handling of the mucosa in the nose and throat tends to stimulate the persistence of the organisms rather than their disappearance.

Among the medicaments employed with occasional successful results there may be mentioned: phenol (carbolic acid), iodin, alcohol, potassium chlorate, chromic acid and liquor formaldehydi. The latest substance to be recommended is kaolin. Hektoen and Rappaport[6] concluded that on account of the great adsorptive power of this substance its use in the treatment of diphtheria carriers should be of great benefit. They state that in cases in which it was properly applied, it removed *Bacillus diphtheriae* in three or four days. Our own results with this method of treatment have not been so successful. With diphtheria infection in the tonsils it has so far been without effect. It may be that with an improvement in our technic of application better results may be obtained.

RESULTS IN THE TREATMENT OF DIPHTHERIA CARRIERS BY TONSILLECTOMY

Case Number	Date Patient Entered Hospital	Cultures from Tonsil Crypts	Cultures from Tonsils on 21st Day	Day of Disease on Which Tonsillectomy Was Performed	Position from Which Cultures Were Taken after Tonsillectomy			Negative Cultures			Day of Discharge after Operation
					Surface	In Substance	Crypts	1st	2d	3d	
1	1/ 6/15	+	+	31	..	..	+	10	11	..	11
2	1/ 7/15	+	+	21	..	..	+	6	7	..	7
3	2/ 3/15	+	+	31	+	..	+	9	10	..	10
4	2/11/15	+	+	25	..	..	+	11	12	..	12
5	5/ 2/15	+	+	40	..	+	+	7	8	..	8
6	5/11/15	+	+	24	..	..	+	10	11	..	11
7	6/ 7/15	+	+	40	+	..	+	17	18	19	19
8	8/21/15	+	+	120	—	..	+	14	15	..	15
9	10/15/15	+	+	21	..	..	+	3	4	..	4
10	11/ 1/15	+	+	21	+	+	+	4	5	..	5
11	11/ 1/15	+	+	22	+	+	+	8	9	..	9
12	11/22/15	+	+	40	—	..	+	6	7	..	7
13	11/23/15	+	+	21	—	..	+	3	4	5	4
14	12/ 6/15	+	+	31	..	..	+	6	7	..	7
15	12/18/15	+	+	34	..	+	+	9	10	..	10
16	12/.5/15	+	+	21	+	..	+	3	4	5	4
17	1/ 5/16	+	+	25	+	+	+	3	4	5	4
18	12/ 2/15	+	+	40	—	..	+	4	5	..	5
19	12/30/15	+	+	36	—	+	+	3	4	..	4
Averages.....	.....	..	..	31+	..	..	..	7+	8+	..	8+

3. MECHANICAL METHODS

It has been our custom at the contagious department of the Cleveland City Hospital to select a certain proportion of diphtheria carriers, when the organism is found in the tonsils, for treatment by the mechanical method of tonsillectomy and adenoidectomy. Although nothing new or original is claimed for this method, we believe that by a comparison with other methods of treatment some conclusions can be reached which are not possible in other and less extensive series of cases. On careful comparison we have come to the conclusion that at present the quarantine period can be shortened considerably. Nineteen cases in all have been selected for operation. It will be noted in the accompanying table that all of these patients carried the infection in the crypts, while cultures in some cases (Cases 8, 12,

6. Hektoen, L., and Rappaport, B.: The Use of Kaolin to Remove Bacteria from the Throat and Nose, THE JOURNAL A. M. A., June 12, 1915, p. 1985.

13, 18 and 19) were negative on the surface of the tonsil even when made after excision of the tonsil. In all cases the cultures from the crypts after excision showed *Bacillus diphtheriae* in a nearly pure culture. It may be noted in passing that there is a frequent source of error in taking release cultures if the swab is not passed into the crypts and as nearly as possible to the bottom.

As might be expected, we have never experienced any adverse results from operating on a throat in which virulent organisms were present. An antitoxic immunity to *Bacillus diphtheriae* is already present, and if there should be any doubt as to its presence, an intradermal toxin test (Schick's test) could be made.

The reaction to the trauma of the operation is in no way more severe than in the ordinary operation. We have found that the disappearance of the organisms coincides very closely with the disappearance of the pseudomembrane which forms after the operation. Negative cultures are seldom obtained until all of the exudate formed after the tonsillectomy has disappeared.

The table is self-explanatory. Cultures are taken by routine, each day after the operation, from the nose, throat and posterior pharynx. In a few cases a single negative culture was obtained earlier than stated in the table, but when this was followed by a positive, we have considered it due to some slip in technic in making the culture. We have considered the first negative beyond question only when those taken on the following day have shown the same morphology. This explains the fact that in the table the first and second negative cultures are always on successive days without any intervening positive cultures.

It will be noticed from the table that the average duration of the carrier state in these selected cases was thirty-one days. The average day of release from quarantine after the tonsillectomy was eight plus.

In comparing these results with others and with our own results by other methods of treatment of carriers, we feel that at the present time this method of treatment offers to the patient a quicker release from quarantine, and to the public a greater assurance that the patient is no longer dangerous, than any other method of treatment.

NOTE.—In a recent article, Ott and Roy[7] suggest the value of iodized phenol with carriers. A careful examination of the article, however, leaves a less satisfactory impression. Of the seventeen cases noted, two of the most important, admitted as carriers, were not followed and must therefore be excluded. In all the other cases, both positive and negative cultures had been obtained previous to treatment, and yet in every case one final culture two or three weeks after discharge is taken as diagnostic of cure. In our own experience, after a patient is a chronic carrier, the absence of organisms in a single isolated instance is of little value, and where we noted, as they have in several of their cases, that the tonsils were enlarged, we were always able to get positive cultures from the crypts. We cannot feel, therefore, that there was any adequate evidence that this method of clearing up carriers is better than any of the other chemical means already reported.

7. Ott, W. O., and Roy, K. A.: The Treatment of Diphtheria Carriers with Iodized Phenol, THE JOURNAL A. M. A., March 11, 1916, p. 800.

Sleep.—Sleep is Nature's great rejuvenator, and the health seeker should avail himself of it to the full. Our sleep should not only be sufficient in duration, but also in intensity, and should be regular.—Fisher and Fisk, How to Live.

THE USE OF KAOLIN TO REMOVE DIPHTHERIA BACILLI FROM THE NOSE AND THROAT

FURTHER OBSERVATIONS *

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In a preliminary note,[1] the use of kaolin to remove bacteria from the nose and throat was suggested on the basis that kaolin by means of its adsorptive property would carry with it bacteria with which it came in contact. Since this report, a study has been made of this method in 100 unselected cases, ninety-six being diphtheria patients and four pure diphtheria carriers. By "pure diphtheria carriers" is meant a person with diphtheria bacilli in the nose or throat, who yields no history of sore throat or other symptom of diphtheria, and who gives a negative Schick test.

The method of the application of kaolin is as follows: As crude kaolin, which is moist and lumpy, has not the adsorptive power of the thoroughly dried and finely powdered product, the crude material is first thoroughly dried for several days in a bacteriologic incubator. The lumps are then broken up and the powder passed through a fine flour sieve. This stock is kept in the incubator, and each morning the small amount necessary for the day's treatment is taken to the patient's room. On damp days it is necessary, for best results, to take kaolin from the incubator oftener—two or three times during the day. The point of this is that kaolin must be perfectly dry and finely powdered when applied, else the results will be disappointing.

Whenever possible, the application of kaolin should be started as soon as the acute symptoms have subsided. The kaolin must be distributed thoroughly over the surface to be treated. When the mucous membranes are normal, this is attained more easily than when there is some pathologic condition present, such as enlarged tonsils, adenoids, or nasal disease and obstruction; here the thorough application of kaolin to the involved surface is difficult and often impossible. In small children—of less than 3 years of age—kaolin is best applied directly to the nasal mucous membrane, even when the bacilli are in the pharynx, as the powder works its way through the nasopharynx into the throat. The powder is blown into the nose by means of a rubber bulb attached to a glass tube with a tapering end that fits the nostril. Six treatments at two-hour intervals during the day is the practice, as a rule. To a large extent the powder remains in the nose, holding the organisms it has already taken up and preventing the kaolin of the next treatment from reaching the mucous surface; hence it is necessary at each treatment to remove the old kaolin before more is introduced. For this purpose a mild alkaline spray does very well, such as a solution of sodium bicarbonate and sodium biborate, 2 per cent. each.

In the case of older persons, the powder is best applied to the pharynx by having the patient swallow it. Four half-teaspoonful doses at two-hour intervals, six times during the day, are given as a rule. The kaolin remains in the mouth and pharynx for some minutes, a sufficient time for it to take up the organisms with which it comes in contact.

* From the Memorial Institute for Infectious Diseases.

1. Hektoen, L., and Rappaport, B.: The Use of Kaolin to Remove Bacteria from the Throat and Nose, THE JOURNAL A. M. A., June 12, 1915, p. 1985.

Apparently, it is not necessary to give kaolin as often or in such large amounts as was at first suggested. In the test tube, kaolin mixed with a suspension of bacteria, after an interval of five minutes, shows on the surface of each of its particles as many bacteria as after an interval of one or two hours. It seems, therefore, that kaolin takes up rather quickly the organisms with which it comes in contact.

Kaolin is not bactericidal, for fluid cultures of streptococci or diphtheria bacilli mixed with an abundance of kaolin give as good a growth as without the admixture of kaolin; neither does it protect guinea-pigs inoculated with virulent diphtheria bacilli. Hence its action in removing bacteria from mucous surfaces would seem to be wholly mechanical.

Before dismissal of any patient as free from bacilli, the cultures from nose and throat must be negative for at least three consecutive days after the discontinuation of the kaolin treatment, which is continued for from two to five days after the first diphtheria-free culture.

The main results of this treatment, indicated by the length of stay in hospital, are shown in Table 1, which

TABLE 1.—LENGTH OF STAY IN HOSPITAL OF 100 PATIENTS TREATED WITH KAOLIN, AND OF 100 PATIENTS UNTREATED

Length of Stay	Kaolin Patients—Number	Kaolin Patients—Percentage	Untreated Patients—Number	Untreated Patients—Percentage
10 days	..	..	2	2
20 days	30	30	13	13 (15)
30 days	39	39 (69)	23	23 (38)
40 days	24	24 (93)	32	32 (70)
50 days	4	4 (97)	22	22 (92)
60 days	3	3 (100)	3	3 (99)
70 days	..	..	4	4 (99)
80 days	..	..	1	1 (100)
Average stay in hospital	25.61 days		33.45 days	

also gives for comparison the length of stay in hospital of the 100 consecutive patients dismissed preceding the routine use of kaolin. In this group, negative cultures on three successive days were required for the discharge of the patient.

The ages of the two groups of patients are given in Table 2.

TABLE 2.—AGES OF THE PATIENTS

	Under 5	From 5 to 10	From 10 to 20	Over 20
Kaolin patients	28	34	20	18
Untreated patients	28	22	23	27

The average stay in the hospital for each of the kaolin patients was 7.84 days less than that for the untreated patients—a shortening of 23.4 per cent. Not only was this a marked gain for the patients; it was also a great gain for the hospital, for the hospital had saved 784 days on the 100 patients treated with kaolin.

Of various factors which may influence the results of treatment with kaolin, the only one of importance seems to be the location of the bacilli. In the present series, the nose was freed of diphtheria bacilli in half the time needed to free the throat. Much depends on whether the bacilli are superficial or lodged deep in some crypt. Table 3 gives the average duration of treatment according to the location of the bacilli.

In 20 per cent. of the patients receiving nasal insufflations of kaolin, the nasal cultures became sterile, usually in from three to five days. Although in the pharynx, the tonsillar crypts, pillars, and other folds and irregularities afford excellent hiding places for the bacteria, rendering their removal more difficult, the larger number of this series became free of diphtheria bacilli in from two to four weeks of treatment with kaolin. In six of the cases the bacilli were not removed in a considerably longer time (Table 1); in these the tonsils were diseased, not necessarily much enlarged, but with many crypts and irregularities, and there were in some cases, adenoids. After removal of tonsils and adenoids in these six cases by Dr. Friedberg,[2] five became negative immediately, as shown by negative cultures for several days afterward, and the sixth patient was freed permanently three days after the operation. Microscopic sections of tonsils in these cases showed diphtheria bacilli in superficial ulcers located usually in crypts.

TABLE 3.—NUMBER OF DAYS OF KAOLIN TREATMENT BEFORE FIRST PERMANENTLY NEGATIVE CULTURE WAS SECURED

Kind of Cases	Number of Cases	Number of Days of Kaolin Treatment	Remarks
Nasal diphtheria	15	6.4	Average in 96 cases of diphtheria, 11.9 days
Pharyngeal diphtheria	41	12.8	
Nasal and pharyngeal diphtheria	40	13.1	
Nasal carrier	1	5	
Pharyngeal carrier	1	39	Tonsillectomy
Nasal and pharyngeal carriers	2	8	

One carrier is of special interest. Diphtheria bacilli had been present in the nose for two months before admission. From the right nostril some mucopurulent discharge escaped. After eight days' application of kaolin with no improvement, examination revealed a shoe button rather firmly embedded high in the right nostril. Two days after the removal of the button the nose was permanently free from bacilli that a few days before had been virulent for guinea-pigs. The button evidently had favored the persistence of the bacilli, most likely by protecting them from being taken up by kaolin.

On comparing the figures obtained from analysis of the 100 kaolin cases with the figures given by Nuttall and Graham-Smith, I find that the results favor the use of kaolin. Of the kaolin cases, 21 per cent., as compared with 11.8 per cent., were freed of diphtheria bacilli within ten days (Table 4); 59 per cent., as compared with 31.6 per cent., within 20 days; and 90 per cent., as compared with 51.4 per cent., within 30 days. After thirty days the difference is also in favor of kaolin, but not so markedly.

TABLE 4.—COMPARISON OF THE TIME REQUIRED FOR DISAPPEARANCE OF DIPHTHERIA BACILLI IN 100 KAOLIN CASES WITH THAT REQUIRED IN GROUPS OF CASES OF SPONTANEOUS DISAPPEARANCE

Time Required for Disappearance (from Onset to First Permanently Negative Culture)	100 Kaolin Cases Per Cent.	Nuttall and Graham-Smith* (from Different Sources) Per Cent.
Within 10 days	21	11.8
Within 14 days	..	....
Within 20 days	59	31.6
Within 21 days	..	....
Within 25 days	..	....
Within 28 days	..	....
Within 30 days	90	51.4
Within 35 days	..	....
Within 40 days	95	67.7
Within 50 days	99	78.9
Within 60 days	100	86.1
Within 63 days	..	....
Within 80 days	..	93.7
Within 100 days	..	97.1
Within 200 days	..	99.62

* Nuttall, G. H. F., and Graham-Smith, G. S.: Bacteriology of Diphtheria, New York, G. P. Putnam's Sons, 1908, p. 420.

2. Friedberg, S. A.: Removal of Tonsils and Adenoids in Diphtheria Carriers, THE JOURNAL A. M. A., March 11, 1916, p. 810.

Patients with scarlet fever often have a persistent nasal discharge, and an attempt was made to stop this discharge by means of kaolin. By plating and roughly estimating the number of bacteria, I found that kaolin did not lessen the number of organisms to any marked extent, although a purulent secretion changed to a serous one promptly. Evidently the bacteria here are not so superficially placed as in diphtheria, or possibly they come from sinuses out of reach of the kaolin.

It would be of interest to study the effect of kaolin on meningococcus carriers.

CONCLUSIONS

When properly applied, kaolin by its adsorptive power mechanically removes bacteria with which it comes in contact, and its application to the nose and throat helps to remove diphtheria bacilli and to shorten the period of quarantine after diphtheria. This action of kaolin is interfered with by various local pathologic conditions, which must be remedied as promptly as possible. Removal of tonsils and adenoids is indicated when diphtheria bacilli persist unduly in spite of kaolin.

VACCINES OF FAVUS AND RINGWORM

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Several articles have recently appeared regarding the therapeutic use of vaccines of favus and ringworm. Infections of the nails and scalp by these fungi cause conditions which are very resistant to any form of treatment. Many of the reports on the use of these vaccines have been quite favorable. In the immigration hospitals at Ellis Island we see many cases of this kind. These hospitals are primarily diagnostic and only secondarily and relatively rarely therapeutic, especially in diseases which do not prevent prompt deportation of the sufferer. The promise of early and successful results from vaccine therapy, however, has made the subject worthy of our consideration.

These vaccines are more difficult to prepare than the usual bacterial vaccines, largely because of the slow growth of the organisms and the difficulty of getting them into a finely divided state for administration. Most workers seem to grow them on solid mediums (French proof agar), scrape off the growth and rub it up in various ways. Strickler[1] suggests rubbing up with crystals of sodium chlorid and then adding sufficient distilled water to make the proper solution. Another difficulty with these vaccines is standardization of the dose. The organisms cannot be counted and handled as bacteria are, and some other method must be adopted.

After some experimentation we have tried a method somewhat different from the one usually recommended. The organisms are grown in liquid medium, which is Sabouraud's proof medium, about the same as French proof agar without the agar. Sabouraud's formula[2] is:

Crude maltose (Chanut)	4 gm.
Granulated peptone (Chassaing)	0.75 to 1 gm.
Distilled water	100 gm.

This is the formula we have used, substituting, however, chemically pure maltose, Witte's peptone and tap water. The finished product is acid in reaction and titrates from 0.5 to 1 acid to phenolphthalein. This reaction is not modified. The medium is put up in flasks of about 100 to 150 c.c. capacity, with about 50 c.c. to the flask, and sterilized in the usual manner for sugar medium. The organisms are isolated on large plates of Sabouraud's glycerin agar,[3] and subcultured on large tube slants of the same material. From these slants the flasks of liquid medium are sown, care being taken to plant a number of small pieces rather than one or two large ones, the growth being well broken up by the needle before transference.

As a rule the organisms do not grow well at incubator temperature, and we are accustomed to place the flasks on top of a small incubator. Within ten days or two weeks there is ordinarily sufficient growth for the preparation of vaccines.

Under sterile conditions, the contents of the flasks are then poured into a filter paper on a funnel, the gelatinous growth is washed once or twice with salt solution, and when fairly dry is transferred from the filter to a glass dish, dried in the incubator, weighed and rubbed up in a mortar with crystals of salt, sufficient distilled water being finally added to make the proper solution. Compound solution of cresol or tricresol is then added, the vaccine sterilized by heat, and cultured on Sabouraud's glycerin agar for sterility. The growth may be rubbed up without drying either with salt crystals or with sterile broken glass, but it does not rub up so readily. If dried, care should be taken so to arrange the material in the glass dish as to permit its fairly ready removal. If smeared out in thin layers, it is sometimes difficult to remove. A piece of platinum foil, if available, offers advantages over the glass dish.

After completion it is placed in a well stoppered bottle and set in the ice chest. While the result of the sterility test is being awaited, it is shaken daily Finally, when proved sterile, it is thoroughly shaken, left to stand a few minutes till the heavier particles settle, and the supernatant cloudy fluid is poured off, placed in proper containers, labeled and dispensed to the wards for use. The heavier particles may also be thrown out by using the centrifuge at a low speed for a brief time.

This method is, of course, more applicable to stock vaccines. Autogenous vaccines may be used, but much time is thus consumed. Most workers seem to have made use of stock vaccines containing three or four strains. With some experience, however, the foregoing process can be shortened at several stages.

One advantage of drying the growth is that by weighing, more accurate dosage is insured. We have found our flasks in about two weeks to yield something like 100 mg. each of dry material, but there is much variation. The vaccines have been put up with 10 mg. of the dry material to each cubic centimeter. The initial dose is 3 or 4 mg. We have given as much as 30 mg. at a dose or even more. General reactions have not often been observed. The local reactions consist in a sluggish swelling which very

1. Strickler, Albert: The Vaccine Treatment of Ringworm of the Scalp, THE JOURNAL A. M. A., July 17, 1915, p. 224.
2. Besson, A.: Practical Bacteriology, Microbiology and Serum Therapy, New York, 1913; Translated by Hutchens.
3. This is composed of:

Granulated peptone	2 gm.
Pure anhydrous glycerin	4 gm.
Agar	1.5 gm.
Water	100 c.c.

If 2 per cent. of agar is added, the medium is firmer.

slowly disappears. Some authors have described a prompt local reaction in the lesions — a focal reaction — but we have not observed such here. Even when consideration is given to the fact that if heavy particles are allowed to settle not all of the dried material is used in the vaccine, it is still obvious that one can administer much larger doses of these vaccines than of bacterial vaccines.

This note is concerned solely with the preparation of the vaccine itself and its method of use. Our therapeutic experience has been too limited as yet for us to judge results. But up to date our results have certainly not been brilliant.

CHAPARRO AMARGOSA IN THE TREATMENT OF AMEBIC DYSENTERY

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SAN ANTONIO, TEXAS

In former reports[1] I outlined the treatment of twelve cases of amebic dysentery by the use of chaparro amargosa. As reported in a footnote,[2] there was a recurrence in Case 9, and the patient has continued to have trouble from time to time. This patient, I believe, has not been sufficiently treated; I have communicated with him by mail, and find that he keeps a supply of chaparro amargosa on hand, and when his trouble begins he treats himself, leaving off the treatment when his symptoms have subsided. So far as can be determined, all the other patients, including the patient in Case 10, have remained well for from two to four years.

Other patients have been treated, and the results have been no less satisfactory. The present brief report has to do with the results obtained in a single case; it seems worth while to put this case on record in that emetin (alkaloid) administered hypodermically every day for five months had not altered the course of the disease. The emetin used was obtained from several different sources, and was prepared by two or three drug firms, so that its potency can be taken for granted. The effect of chaparro amargosa in this case was not so immediate or so magical as that brought about in most of the other cases, but the improvement has been sufficiently rapid to justify the belief that the excessively chronic and obdurate cases of amebic dysentery can be controlled by the use of chaparro amargosa.

REPORT OF CASE

History.—W. D., an unmarried man of 56 of previous good health, developed diarrhea in April, 1914, eighteen months before he was seen. A few weeks later dysentery with the passage of a great deal of blood and mucus began. The frequency of the bowel movements has varied from five to thirty times in twenty-four hours, and at no time since the onset have the bowels moved less than five times. Abdominal pain, tenesmus, vomiting, slight fever, weakness and general malaise have been accompanying symptoms. The appetite has been fair at times and again it has been very poor. The patient's weight has decreased from 205 to 148.

During the first year, various remedies were used. In March, 1915, emetin was begun and was given hypodermically in one-half grain doses every day till the latter part of July. From August 1 to October 1 other drugs, including quinin by rectum, were tried. From October 1 to November 10, emetin was again used, 1 grain being given every other day. The patient came to me Nov. 11, 1915, the day after his last dose of emetin. At that time the bowels were moving from fifteen to twenty times a day.

Physical Examination.—The loss of weight was obvious. The skin was flabby and the mucous membranes pale. General examination was negative. In the left iliac fossa the sigmoid was palpable as a tender elongated mass. A stool passed in the office was practically pure mucus and blood, and contained many active organisms of *Endamoeba histolytica* and *Cercomonas intestinalis.* A striking characteristic of the stool was the extreme tenacity of the mucus; it was possible to raise the entire stool on an ordinary toothpick.

Treatment and Course.—After a preliminary dose of Epsom salt, a glass of fresh infusion of chaparro amargosa was given by mouth four times a day and a quart of the same infusion was introduced into the rectum in the knee-chest posture once a day. For three or four days improvement was only slight. At this time I noticed under the microscope that all unattached amebas in a particle of stool, to which the infusion had been added, were killed, while those embedded in the tenacious mucus were still active. With the idea of removing as much of this mucus as possible from the intestine, a preliminary rectal irrigation of sodium bicarbonate, 1 ounce to the quart, was used; after this was expelled the usual injection was made. Under this plan blood and mucus no longer passed, but the patient continued to have from three to five soft movements a day. Calomel, one-tenth grain, was given every hour for ten hours after the method of Freund, and continued for several days; the bowels moved from one to three times a day, assumed a semisolid consistency and no longer contained the cercomonas. At the end of ten days the patient felt quite well; his appetite was ravenous; he could eat anything; he was having from one to three semisolid bowel movements a day; he had gained 10 pounds in weight and had improved in every way. He was seen a month later and his improvement had continued, despite the development of a very large ischiorectal abscess; bowel movements were normal in frequency and consistency.

COMMENT

I appreciate that it would be easy to criticize the dosage and particularly the duration of emetin treatment in this case and to suggest that no conjunctive amebicidal irrigations were used. The fact apparently is that this case would not have responded to emetin if its administration had been differently carried out. Obstinate cases have been reported; for instance, Low[3] as late as November, 1915, wrote:

> Though practically all cases of amebic dysentery respond quickly to emetin treatment, there is a small residuum—in which there has been no doubt of the correctness of the diagnosis — which does not, symptoms continuing and amebas, vegetative and cystic, being still found in the stools. Such cases require further careful study to explain this anomaly.

No one who knows how prone this disease is to recur would be willing to contend that in the case here reported the patient is permanently cured. All that one can say is that he is clinically cured and that no amebas, vegetative or cystic, can be found in the stools.

My own experience with emetin has been quite limited; in no case of amebic dysentery have I felt the need of it. Chaparro amargosa, on the contrary, I have used repeatedly, and its effect has been unfailing. At the present time when the price of drugs is almost prohibitive and with prospects for still greater increases, it is pertinent to state that the supply of chaparro amargosa is well nigh inexhaustible.

205 Hicks Building.

1. Nixon, P. I.: Chaparro Amargosa in the Treatment of Amebic Dysentery, THE JOURNAL A. M. A., May 16, 1914, p. 1530; id., Am. Jour. Trop. Dis. and Prev. Med., 1915, ii, 572.
2. Nixon, P. I.: Chaparro Amargosa in the Treatment of Amebic Dysentery, Am. Jour., Trop. Dis. and Prev. Med., 1915, ii, 572.
3. Low, G. C.: The Treatment of Amebic Dysentery, Brit. Med. Jour., Nov. 13, 1915, p. 714.

FOOT-AND-MOUTH DISEASE IN MAN

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Although foot-and-mouth disease, or aphthae epizooticae, has been recognized in continental Europe for more than two centuries, it is only within the past few decades that the malady has attracted attention in this country. The disorder is an extremely infectious one. Clinically, it may be grouped with the acute exanthemas, although the eruption is seldom of generalized distribution. One attack confers only limited immunity, and the disease may recur within as short a period as ten or twelve days.[1]

The eruption is vesicular in character, and involves the mucous membranes as well as the skin. In cloven



Fig. 1.—Lesions of lips and conjunctivae on tenth day of disease.

footed animals, the mouth and the interdigital spaces are the regions commonly involved. The disease is more prevalent in summer than in winter. The causative agent has never been isolated, but very probably it is an ultramicroscopic micro-organism which is capable of passing through a Chamberland or Berkefeld filter (Loeffler and Frosch[2]; Nocard and Roaux[3]). The lymph contained in the vesicles is extremely virulent, and infection may result from direct contact with a wounded or otherwise pervious surface, or through the medium of contaminated food or bedding. According to Hutyra and Marek,[4] stock markets, through trading, play an especially important part in the transmission of the malady.

Of the various animals attacked, cattle are the most susceptible, then hogs, sheep and goats. Horses, dogs and cats occasionally contract the malady. Rarely, chickens, pigeons and other fowls are affected.[5]

In man the disease is usually acquired through the ingestion of contaminated milk or milk products (butter, cheese, whey, etc.). Direct inoculation is of infrequent occurrence. As encountered in man, the disease is of comparatively low virulence, although Bertarelli,[6] Schautyr[7] and others have succeeded in inoculating



Fig. 2.—Character and distribution of vesicular and pustular lesions on right hand.

animals with material secured from human subjects. As a rule, children are more severely affected than adults. In the majority of instances in man the disease takes a mild form, although fatal instances have been recorded as occurring in several of the German epidemics.[8]

The period of incubation varies from two days to two weeks. An attack is ushered in with manifestations of moderate constitutional disturbance. There may be an associated gastro-intestinal catarrh, particularly in children. Following the development of the fever and general malaise, the mouth becomes dry and

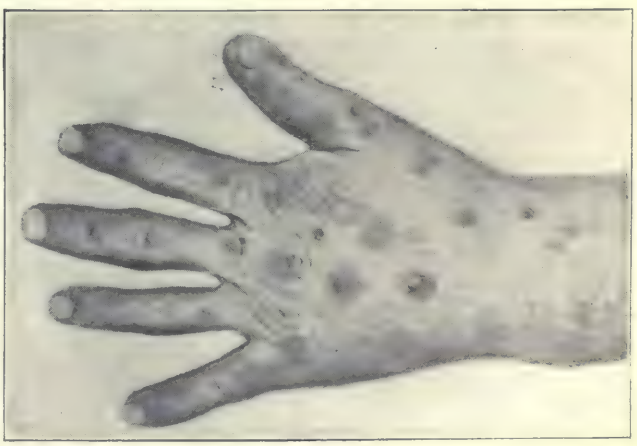


Fig. 3.—Character and distribution of lesions on left hand.

parched, and the mucous membrane swollen, reddened and glazed. In severe cases the palpebral conjunctiva, and the genital mucosa also may be involved. In the course of three or four days, superficial vesiculation

1. Kovacs and Mokaldy, cited by Hutyra and Marek (Footnote 4).
2. Loeffler and Frosch: Centralbl. f. Bakteriol., 1897, xxii, 256.
3. Nocard: Rev. gén. de méd. vet., Toulouse, 1903, i, 369.
4. Hutyra and Marek: Special Pathology and Therapeutics of the Diseases of Domestic Animals, Am. ed., i, 328; translated by Mohler and Eichhorn, Chicago, A. Eger, 1914 (a valuable presentation of the subject).
5. Spinola: Handbuch Speciellen Pathologie und Therapie für Thierarzte, 1858, ii, 883.
6. Bertarelli: Centralbl. f. Bakteriol., 1907, xlv, 628.
7. Schautyr: Arch. vet. naouk., 1893, ii, 87 (cited by Georges Hugot, Thèse de Lyon, 1913, who gives a fairly complete bibliography).
8. Siegel: Deutsch. med. Wchnschr., 1891, xvii, 1328.

occurs, discrete blisters from the size of a pinhead to that of a pea forming on the affected surfaces. In addition to the lesions on the mucous membranes, vesicles frequently appear on the dorsal surface of the hands and feet, and, occasionally, on the nose, face, ears, knees and buttocks. The bases of the majority of the lesions are ill defined and reddish or purplish. The distribution is roughly symmetric. At first the vesicles contain clear lymph, but later, as a result of pyogenic invasion, the fluid becomes yellowish and cloudy. In the course of a few days the pustules become inspissated, and finally disappear, leaving no trace. The description of the clinical picture has been admirably summarized by Clough[9]:



Fig. 4.—Character and distribution of lesions on feet and ankles.

A mild febrile infectious disease, characterized by the appearance of an erythema and a superficial vesicular eruption over the mucous membrane of the mouth and on the skin of the hands and feet; by salivation; by swelling, burning, and paresthesia of the affected parts, with subsequent desquamation; and by healing of the ulcers without scar formation.

The following case, clinically indistinguishable from foot-and-mouth disease in man, has recently been under our observation:

History.—A. J., man, white, married, aged 25, farmer and stockman, the cutaneous history of whose family was negative, had always been in good general health. Aside from the usual diseases of childhood he had never before experienced a serious illness. He resided on a farm, 2 miles south of Ellsworth, Kan. During the early fall of 1915 he was engaged in hauling and storing feed for his stock. About two weeks prior to the onset of the illness he had assisted in the transfer of small herds of cattle from one pasture to another. He had eaten a meal at a restaurant at that time.

The present illness began the night of Oct. 31, 1915, the attack being ushered in by sensations of chilliness, followed by fever, with slight sore throat, and pain in the muscles of the neck. The irritation in the throat was accompanied by a shallow, hacking cough, and increased activity of the salivary glands. The case was first seen by one of us (Dr. O'Donnell), November 4. At that time the patient appeared fairly well nourished, but ill and haggard. He had not slept for two nights on account of the pain in his throat and the profuse salivation, which compelled him to expectorate at intervals of from five to ten minutes. His temperature was 101 F., pulse 118, respiration 20. The cough was troublesome, and swallowing was difficult and painful. The cervical lymph-nodes were enlarged and tender. The tonsils were swollen and congested, the redness extending to both pillars and along the edge of the soft palate. The conjunctiva of both eyes was red and injected. The tongue was coated, moist, and red along the edges. The chest was clear. November 6, profuse salivation had developed; so much so that the patient could get very little sleep. He was compelled to empty his mouth almost constantly; the inflammatory condition in the throat had extended to the mucous membrane of the soft and hard palate, lips and cheeks. The tongue was red and sore. A number of yellowish vesicles were visible on the soft palate, cheeks, the edges of the tongue, and along the vermilion border of the lips. November 7, the temperature was 103.4 F. That evening it reached 104 F., pulse 120. The eyes were very much congested and inflamed; purulent secretions gummed the edges of the lids together, and had to be washed off frequently. In this region the process was at its height between the tenth and twelfth days. The patient's sight was so blurred that it was difficult for him to distinguish objects across the room. Lesions first appeared on the dorsal surface of the hands and feet, November 9. A few hours later the knees and buttocks also were slightly involved, and a few vesicles developed on the ears, and one near the meatus. The development of the cutaneous eruption was accompanied by tingling and burning of the parts. This was followed by the formation of reddish macules, many of which later became the sites of thick-walled vesicles from the size of a pinhead to that of a pea, with purplish areolae. In the course of from twenty-four to seventy-two hours, the lesions became pustular, and finally either underwent desiccation, or sloughed, leaving red, raw surfaces which healed quite readily, and without scarring, in the course of about three weeks. Aside from the regions mentioned, no other areas were involved. The cutaneous manifestations in some respects simulated those of a severe example of erythema multiforme of the iris type, but the lesions were smaller, and the affected parts so deeply congested as to be purplish. Following the appearance of the vesicles, the subjective symptoms became trivial in character. There were no accompanying joint pains, such as have been noted as occurring in many instances of foot and mouth disease. For laboratory study, a small but mature vesicle was excised, under local anesthesia, from the inner surface of the right knee. A number of tubes of culture mediums of various kinds

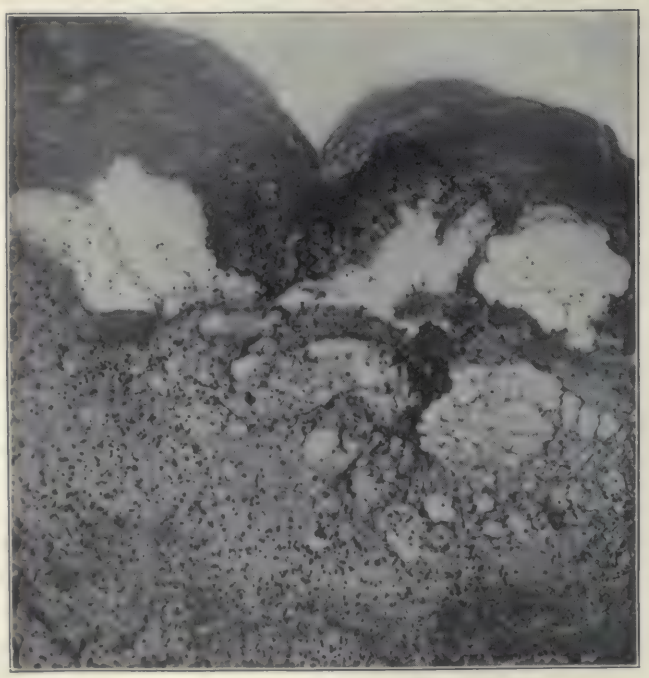


Fig. 5.—Section through a vesicle from inner surface of knee, showing parakeratosis, acanthosis, edema and cellular infiltration (moderate magnification).

9. Clough: Bull. Johns Hopkins Hosp., 1915, xxvi, 351.

were inoculated from the contents of new and old vesicles and pustules, and also with the slimy, stringy mucus which fairly poured from the patient's mouth. Owing to the difficulty experienced in securing a calf for experimental inoculation, a small but well nourished kitten was substituted.

The excised tissue was fixed in liquor formaldehydi, and later sectioned in a freezing microtome, and stained with hematoxylin-eosin.

Pathology.—The corneous layer was thickened and parakeratotic. The stratum lucidum was increased in depth, and, as a result of the large amount of fluid which was present throughout the epidermis, appeared spongy and ill defined. The rete cells were increased in size as well as in number. The majority contained more or less fluid. Many had lost their nuclei, and in a few instances these elements were replaced by nonstaining vacuoles. The vesicle was situated in the lowermost layers of the rete. Its cavity was irregular in outline, and ragged septa served to partially divide and subdivide it into numerous compartments of various shapes and sizes. The structural changes characteristic of variolo-form lesions were entirely lacking. The basal cell layer was practically obliterated. In this region also many of the nuclei had completely disappeared. The interpapillary plugs were indistinctly outlined, or altogether wanting. The entire prickle layer was spongy and edematous, and the seat of widespread fibrinous and leukocytic infiltration. No red cells were present. The infiltrative changes were most pronounced in the papillary region. Here the blood vessels and lymphatics were widely dilated, and perivascular infiltration (mostly of the small round-cell type) was a prominent feature. In the subpapillary layer the collagen bundles exhibited signs of compression, and the vascular changes were much less pronounced in character, although there was profuse round-cell infiltration in the vicinity of the coil gland ducts. Aside from the various types of staphylococci commonly found in the skin, the only organism worthy of note recovered from the lesions was a hemolytic streptococcus, which is at present being exhaustively studied by Dr. D. C. Smith. The kitten was placed in charge of Drs. Kinsey and Trickett, of the Kansas City Veterinary College, and kept under observation for several weeks. It appeared quite ill for about twenty-four hours, but no lesions of the skin or mucous membranes were observed at any time.

It is extremely unfortunate that we did not communicate the suspected character of the disorder directly to the officials of the U. S. Department of Agriculture. Had this been done, experimental inoculations could have been carried out on a much more extensive scale.

We are indebted to Dr. S. J. Crumbine of Topeka for valuable assistance and advice, and to Dr. Frank J. Hall of this city for aid in pathologic work.

A Chimera.—What a chimera is man! what a confused chaos! what a subject of contradiction! a professed judge of all things, yet a feeble worm of the earth! the great depository and guardian of truth, yet a mere huddle of uncertainty! the glory and the scandal of the universe!—Pascal.

RADIUM IN THE TREATMENT OF LYMPHANGIOMA CIRCUMSCRIPTUM

REPORT OF A CASE

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CHICAGO

History.—L. L., woman, aged 21, first came under my observation at the Cook County Hospital in April, 1914. She presented a tumor of the skin involving principally the right buttock and the inner surface of the right thigh and covering an irregular surface measuring approximately 8 by 15 centimeters.

The tumor had been present since her earliest recollection. It was composed principally of irregularly grouped wartlike projections more than a centimeter high at the most elevated parts and of a dirty yellowish color.

On close inspection, the tumor was seen to be composed of innumerable thick-walled vesicles on which had developed in places a thickened hyperkeratotic epithelium giving the wartlike appearance noted before. Parts of the tumor, however, were more flat and were bluish black, being evidently made up of blood vessels. Lying beyond the main portion of the growth were many discrete, thick walled, yellowish vesicles containing clear serum. When these were pricked a clear serous oozing took place which sometimes lasted for hours.

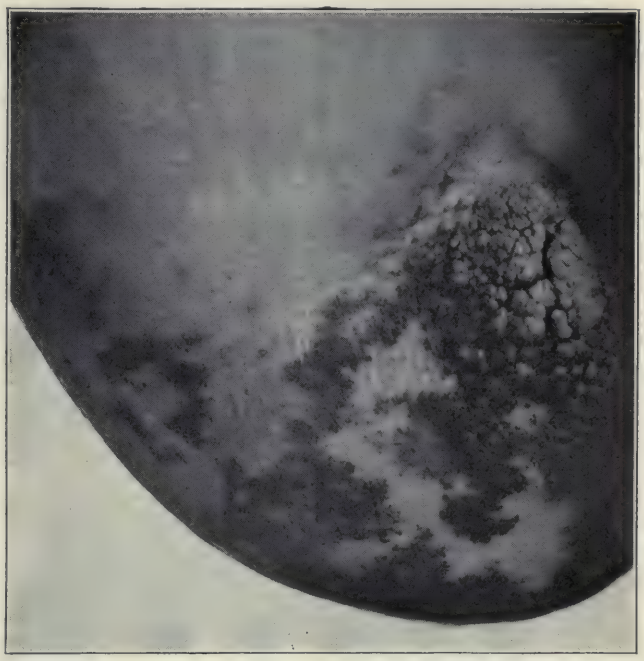


Fig. 1.—Lymphangioma circumscriptum of right buttock and inner surface of right thigh, April, 1914; patient in lithotomy position.

From between the verrucous projections which composed the bulk of the growth a serous oozing occurred at times spontaneously, this being one of the symptoms for which relief had been sought.

Occasionally a few new vesicles had appeared at the periphery, persisting so that a considerable increase in the size of the growth since childhood had been noticed.

The clinical diagnosis was lymphangioma circumscriptum (lymphangiectodes, T. and C. Fox) and hemangioma. For microscopic study a small vesicle was excised, sectioned and stained with hematoxylin and eosin and with polychrome methylene blue.

Dr. B. Barker Beeson has kindly furnished me with the following notes made from a study of the sections:

Microscopic Examination.—Epidermis: The stratum corneum is somewhat thickened in places but no evidences of parakeratosis are present. The granular layer is also slightly increased in size. A marked acanthosis or proliferation of the rete malpighii is a prominent feature, and, plus the hyperkeratosis, gives to the section a verrucous appearance. Throughout, the basal layer is normal.

Corium: In the papillary and subpapillary layers one finds dilatation of the lymphatics and blood vessels, the former being especially well marked. A round-cell infiltrate surrounds the blood vessels. The number of connective tissue cells is also somewhat increased. Here and there, near the dilated lymphatics, scattered mast cells are to be seen.

That the tumor would yield to radium was expected from the success already obtained in the treatment of many pure angiomas of the skin and from my observations of the general effects of this agent on the skin and other tissues.

When I first undertook the treatment, in April, 1914, the effect of radium on tumors of this type had not to my knowledge been studied. Even earlier than this, however, Dr. Robert Abbe[1] of New York had begun the treatment of lymphangiomas with radium, and in August, 1915, he published an account of the results obtained in four lymphangiomas of the tongue and two of the skin.

These are apparently the first cases of this type recorded in which radium was used.

The success following radium treatment is so striking that a brief account of the technic which I employed may be of interest.

Treatment. — The most prominent part of the tumor was attacked first. Radium varnish applicators of one-quarter strength were usually employed. Four applicators of this type covering an area of 16 sq.cm. were applied unscreened for a period of one hour a day on four successive days. A series of four similar courses about four to six weeks apart sufficed to level the surface of the most prominent portions of the growth. As the tumor decreased in height the treatments consisted of an hourly seance each day (0.1 mm. lead screens being used over the face of the applicators) for five successive days. Two series of treatments of this sort at intervals of six weeks sufficed to cause complete retrogression of the growth.

In the less infiltrated parts a linen "toile" (one-twentieth strength) was sometimes used.

With this applicator screened with 1/100 aluminum a series of applications of an hour each day on five successive days, repeated four times, at intervals of about six weeks, sufficed for decolorizing and removing these areas.

The treatment was carried out more or less irregularly for various reasons, but the reduction of the growth, the alleviation of all symptoms and a good cosmetic appearance were obtained rather easily.



Fig. 2.—Same case after radium treatment, December, 1915.

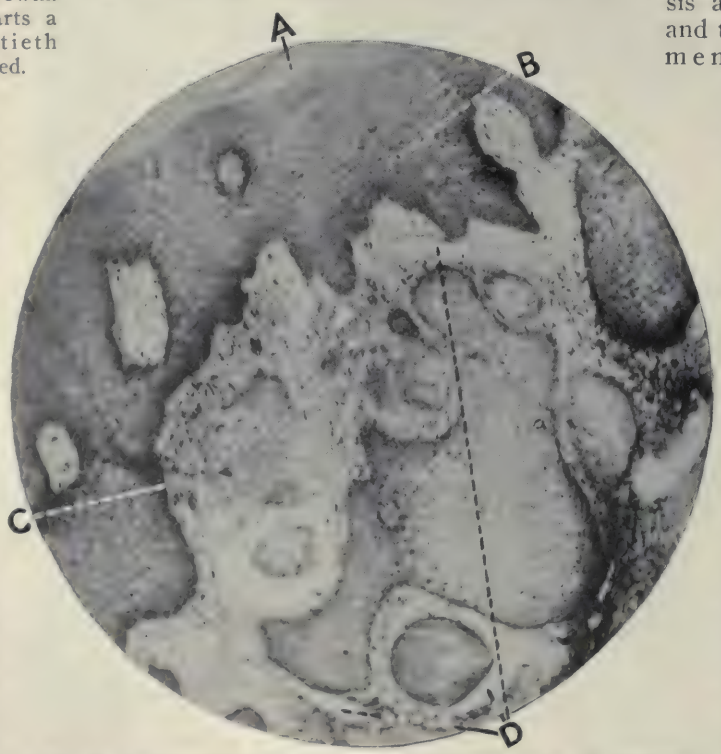


Fig. 3. — Photomicrograph, lymphangioma circumscriptum: *A*, thickened stratum corneum; *B*, rete malpighii, much increased in size; *C*, basal layer of epidermis, which is normal; *D*, dilated lymphatics.

CONCLUSION

In view of the difficulty which is frequently experienced with other methods of treatment, the use of radium in these rare and interesting cases would seem to be the method of election.

59 East Madison Street.

1. Abbe, Robert: Lymphangioma and Radium, Med. Rec., New York, 1915, lxxxviii, 215.

A METHOD FOR GRAPHIC DEMONSTRATION OF THE FOREIGN INORGANIC MATTER AND CARBON IN THE LUNGS *

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CHICAGO

Coal dust pigmentation of the lungs has been given considerable study recently by Klotz,[1] whose review of the literature bearing on the subject contains most of the information available to date. It is not necessary, therefore, to take up such a review here, and this communication deals simply with a presentation of results obtained in the analysis of several lungs removed during necropsies performed on persons dying in the Cook County Hospital, Chicago, with also a method for displaying the results of these analyses mounted with one of the corresponding lungs. In addition to a quantitative estimation of the carbon, similar determinations were made of the calcium and silica content of the lungs. The object of the work was to get a definite idea of the amounts of soot present in lungs showing different degrees of anthracosis as observed at necropsy, and to prepare museum specimens showing graphically just how much foreign material there is in the ordinary city dweller's lungs.

The following method of analysis was used: The left lung was preserved as a museum specimen, while the right lung and the parabronchial lymph glands were ground up, weighed, and the dry weight determined after the tissues had been well desiccated. The dried tissues then were pulverized in a small coffee mill, and on this finely ground material all analyses were made in duplicate. The coal dust was estimated colorimetrically[2] by comparing known quantities of toluene

* From the Department of Pathology, University of Chicago, and the Otho S. A. Sprague Memorial Institute.

1. Klotz: Pulmonary Anthracosis, A Community Disease, Am. Jour. Pub. Health, 1910, iv, 887.
2. Liefmann: Ueber den Nachweiss von Russ in der Luft, Habilitationschrift, Halle, 1907.

soot, finely divided and suspended in liquid petrolatum, with the black residue obtained by digesting 1 gm. of dried lung tissue with antiformin until the organic material largely had been removed, and this then likewise finely divided and suspended in 10 c.c. of the colorless liquid petrolatum. Following the digestion of the tissue with antiformin, the coal dust was thrown down by centrifuging in the usual way, washing with acid alcohol, then ether, and finally transferring the residue to a glass mortar with a little ether, this being evaporated over a steam bath. The carbon residue was finely divided in a glass mortar, and suspended in the 10 c.c. of liquid petrolatum. The calcium and silica were determined gravimetrically according to a method outlined by Hans Aron.[3]

The results of these analyses are given in the accompanying table.

RESULTS OF ANALYSES

	Lung			
	1	2	3	4
Moist weight, gm.	365	284	427	438
Dry weight, gm.	80	70	96	78
Percentage of dry weight	21.92	24.65	22.48	17.81
Moisture percentage of moist weight	78.08	75.35	77.52	82.19
Ash, gm.	5.441	2.710	4.760	3.182
Ash percentage of dry weight	6.80	3.86	4.95	4.08
Foreign carbon, gm.	2.72	0.71	1.20	0.19
Carbon percentage of dry weight	3.40	1.01	1.25	0.24
Silica, gm.	0.1748	0.2757	0.6895	0.0361
Silica percentage of dry weight	0.21	0.39	0.72	0.04
Calcium oxid, gm.	0.4483	0.1180	0.0170	0.0545
Calcium oxid percentage of dry weight	0.56	0.17	0.02	0.07

McCrae,[4] after reviewing the data concerning the silica content of lungs, presents analyses of seven lungs, six of which were silicotic and had been removed from the cadavers of miners, the other having been taken from the body of a native Zulu, and considered normal. The percentage of silica in the dried lung tissues varied between 0.73 in the normal to 4.47 in one of the silicotic lungs. The percentage figures obtained in my tabulated analyses are below the one (0.73) considered as normal by McCrae. This, however, is of no great significance, for from the fact that the infant's lungs contain no silica, and that probably all of the silica which accumulates in the lung tissues comes from the exterior, as McCrae suggested, the silica content of a lung would be determined by the duration of exposure to an atmosphere and the amount of silica contained in it. The same relation holds true so far as the carbon content of the lungs is concerned, for carbon is recognized equally well as being of extraneous origin. This conclusion has developed from Boer's[5] quantitative determination of carbon in the lungs of individuals at various stages of life. He observed no darkening of the solution when the lungs of small children and fetuses were digested with antiformin. He states, further, that the nature of the individual's occupation naturally exerts a great influence on the amount of coal dust inhaled and deposited in the lungs. Chimney sweepers and coal heavers must necessarily inhale more carbon particles than a sheep herder on some remote hillside. In the right and left lungs of a chimney sweep, Boer found, respectively, 8 and 5 gm. of coal dust measured colorimetrically in terms of naphthalene soot. Klotz determined the carbon content of several lungs gravimetrically, 0.145 gm. for the right lung being his lowest estimation. This lung was removed from the body of the storekeeper (aged 47) at a necropsy performed at Ann Arbor, Mich. This figure should be compared with 5.3 gm., determined in the left lung of a pedler, aged 28, at a necropsy performed in Pittsburgh. The minimum and maximum amounts in my analyses are, respectively, 0.19 and 2.72 gm., both estimations being for the right lung, and in all probability being typical for persons living in Chicago with occupations which do not expose them particularly to coal dust.



Specimen demonstrating the amount of coal pigment and inorganic matter in an average city lung. The amount of pigmentation in the lung will be seen to be not more than is commonly found in persons living to adult years in smoky cities. In the tubes are shown the amount of foreign matter actually found in the companion lung and lymph glands: carbon as soot, 2.72 gm.; calcium oxid, 0.4483 gm.; silica, 0.1748 gm.

To illustrate objectively the amounts of carbon determined in the lung tissues, pieces of glass tubing, uniform in caliber, and sealed at one end were filled with weighed amounts of toluene soot corresponding to the determinations. The soot was pressed down firmly, and the tubes made comparative by making the column height directly proportional to the quantity of soot. A small cotton plug was firmly packed into the tube, and the open end sealed. In a similar way, equivalent quantities of calcium oxid were mounted, while for the silica, "kieselguhr" was used. These tubes with the proper left lung were mounted on a glass frame and placed in a large museum jar in a manner similar to the usual method for displaying preserved specimens. Such specimens should be of value in public health demonstrations, or similar exhibitions.

3. Aron, Hans, in Abderhalden: Handbuch der biochemischen Arbeitsmethoden, 1910, i, 401.
4. McCrae, J.: The Ash of Silicotic Lungs, South African Institute for Medical Research, 1913.
5. Boer, W.: Ueber quantitative Bestimmung des anthrakotischen Lungenpigments, Arch. f. Hyg., 1911, lxxiv, 973.

The Real Object of Hygiene.—Is it [hygiene] purely for the sake of the physical and mental health which will result? Is a pig in a clean pigpen any less a pig? . . . Is the fullest meaning of constructive health work to be found in its social, political and ethical interpretation, or does it have an even more fundamental significance? Is it not true that a healthy individual and a healthy society are the only adequate means or instruments through which may come a more perfect expression of the conscious life in the universe? The public health is not only inevitably tangled in the problems of economic readjustment and of social growth, but it is of intimate significance to both individual and social spiritual evolution. The health of the people, the physical and mental welfare of the nation and of the world are essential to the higher manifestation of conscious life, the Elan Vital, striving for a more perfect expression through the medium of human kind. —Donald B. Armstrong, M.D., *American Journal of Public Health*, December, 1915.

SINUS THROMBOSIS IN COMPRESSION*

CECIL E. REYNOLDS, M.R.C.S., L.R.C.P., D.P.H.
LOS ANGELES

There are naturally many reasons why all cases of cerebral compression should be relieved as early as possible. But in cases of acute pressure on the surface of the brain of a simple nonseptic and nonmalignant character, it was at one time my cherished belief that, provided the pressure was relieved and the cause removed before the vital centers were on the verge of complete paralysis, or the vasomotor center near to the end of its secondary depression and sepsis was excluded, the patient would recover with at worst some softening of the area locally affected, and perhaps some damage to the retina, unless an aspiration pneumonia supervened. I was soon removed from a state of complacency, however, by encountering cases in which another complication confronted me, and about which I have so far been unable to find mention in the literature as one of the results of simple aseptic acute compression. I refer to thrombosis by stasis of the cerebral sinuses.

It is true that Virchow's name has long been attached to a stagnatory thrombosis known as the "marasmic or marantic clot," but in the cases I am about to describe, the individuals were exceptionally robust; and of the three main causes of thrombosis, to wit, sepsis, damage to vessel wall, and stasis, only the latter was discoverable to account for the fatal termination. It still remains, therefore, for some one to observe and formulate an average duration and degree of compression likely to produce an irremediable thrombosis.

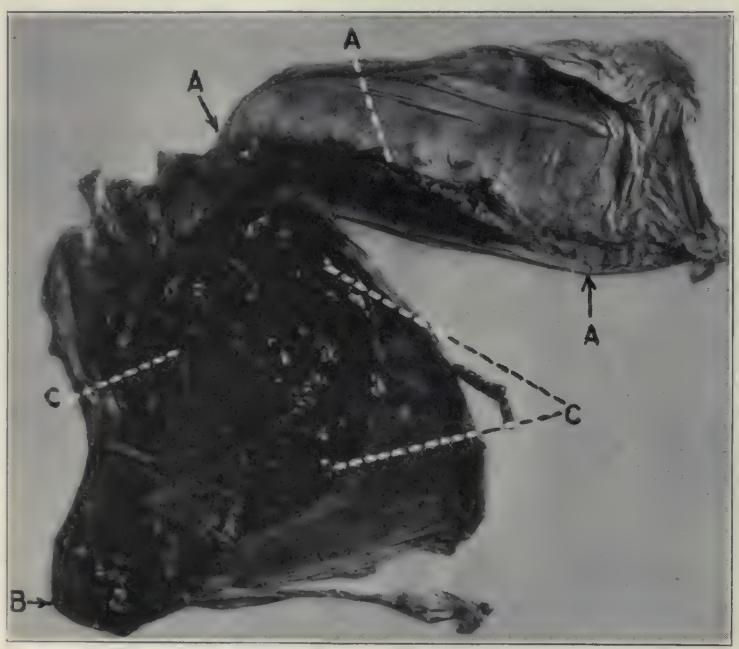


Fig. 1.—Piece of dura mater (Case 1) partly covered with remains of clot: *A, A*, superior longitudinal sinus, firmly thrombosed; *B*, posterior end of clot; *C, C*, remains of clot.

REPORT OF CASES

CASE 1.—A schoolgirl, aged 9, Dec. 4, 1914, at 4:30 p. m., was sitting on the back seat of a jitney bus, when a larger automobile collided with the bus, and the child's head came in contact with the shoulder of her aunt sitting beside her. The child complained of some headache at the time, but left the jitney and walked to a cafeteria, but she was too nauseated to eat and later vomited on the street. A druggist gave her acetylsalicylic acid (aspirin), and another druggist gave her something for a sick stomach, thereby showing more ability for commerce than for inquiry and foresight. When the patient arrived home at 5:45, she vomited again and was very drowsy.

At 6:30 o'clock she was almost speechless and soon become unconscious, vomiting watery bile at intervals. At 8 o'clock she could not be roused. At 10 o'clock convulsions set in in which the legs were drawn up and the arms and hands were pronated and flexed at the elbows and wrists, the head drawn back and the eyes deviated to the right, according to a practical nurse who was now in attendance. These convulsions occurred about every twenty minutes throughout the night.

I was called to the case for the first time next morning, December 5, at 8:45. The patient was then profoundly comatose, and the face and neck were swollen. All the limbs were flaccid; the pulse was 58, of poor volume; the temperature was 100; the respiration was of the Cheyne-Stokes type, and there was slight cyanosis. The eyes looked straight ahead and were glassy, the right pupil dilated three-fourths, the left contracted, no eyeball movements, no reflexes, visual axes parallel. The scalp was not bruised, but felt a little puffy over the region of the right temple. I operated at once with novocain. The usual subtemporal flap was turned down, and when the fibers of the temporal muscle were separated, it was found to be engorged and bled freely. On removal of the bone in the anterior temporal region, a black coagulated extradural clot was revealed. It required as large a defect in the bone as is indicated in Figure 2 to remove all of the clot and to secure the meningeal artery, which was lying free in the clot and was so friable that I had to pursue it almost to the foramen spinosum. During removal of the clot, respiration suddenly ceased with a serious fall of blood pressure, but the child was revived after fifteen minutes with the pulmotor. After being cleansed, the dura was incised, and edema fluid spurted out under pressure, but was quite clear. The brain was anemic. The dura was sutured with silk, the wound closed and a drain passed down to the dura. The patient was returned to bed pulseless, but soon rallied under restorative measures, especially a rectal drip of strong tea. From that time onward until she died, December 12, a week after the operation, there was most hopeful improvement physically, but consciousness was never fully restored.

The observation of the various reflexes was most interesting, but a detailed report of them is outside the scope of this paper. I may say, however, that the "Marie Foix reflex" was present soon after the operation. December 7, there was a brisk double Babinski, but the knee-jerks remained absent. The eyeballs moved from side to side, but the right eye at this time did not move beyond the middle line. Dr. Frank Miller found the edge of the right disk a little blurred. December 8, the right pupil began to contract up to normal, and the patient was able to cough up mucus. The triceps jerks reappeared. There was no rigidity.

December 9, purposive movements were executed, and the pupils reacted to light.

December 10, the knee jerks returned slightly. The Babinski was still brisk. Both eyes deviated, mostly to the right, but once or twice returned to the left. The axillary reflex was marked, and compression of the hands produced extreme pronation. Later the child was crying. Edema of the right eye was increasing.

December 11, crying was more frequent.

* Read before the Los Angeles County Medical Society, Feb. 3, 1916.

December 12, 6 a. m., the right pupil was again dilated; 9 a. m., cyanosis commenced; 6 p. m., patient died. The left pupil was dilated, the right pupil now contracted.

I observed one reflex that was new to me during the seven days after the operation in that light pressure forward on the angle of the jaw caused a marked downward retraction of the corner of the mouth on the left, that is, the paretic side.

The necropsy revealed no meningitis or other cause for persisting unconsciousness, except the thrombosis of the longitudinal sinus and veins leading to it. Moreover, I believe that the thrombosis was due in the first place to the length of time the pressure had existed. The clot had no tendency to soften, but I have no doubt that infection occurred later from the nose.

There was no fracture of the skull. The middle meningeal artery was severed by the sharp edge of the anterior border of the squamous temporal springing inward from its articulation with the great wing of the sphenoid over which the artery passes, and after severing the arteries it sprang into place. We found this articulation quite movable. The child in this case had previously enjoyed perfect health.

CASE 2.—August 11, Mr. C., aged 31, had felt unwell after taking a long walk in the sun. He later had frontal headache and some cough; also he vomited. He had in the past been a heavy drinker, but had not been drinking on this occasion. August 12, he rapidly became unconscious, and his physician found that he had a pulse of 80 and a normal temperature, but could not determine any paralysis. I was called to see him in the afternoon of August 13, after he had been unconscious for fourteen hours. I found him deeply comatose with stertorus breathing and all limbs flaccid. I could not determine by the Marie Foix test whether one side was more paralyzed than the other, but the eyes deviated to the right with a jerking nystagmoid movement. We removed him to the Angelus Hospital and I operated immediately. The coma was so profound that no anesthetic was used. On removing the bone over the right middle frontal lobe, I found an extensive subarachnoid hemorrhage, but in addition a great excess of intracerebral pressure. Some of the blood had caked on the surface of the brain, and since there was no sign of returning consciousness after relief of the pressure, I decided that the case was hopeless. The man died several hours later. At the necropsy we found in addition to the cortical hemorrhage a firm thrombosis of the right lateral sinus, extending into the torcula and involving the straight sinus—generally a hopeless condition.

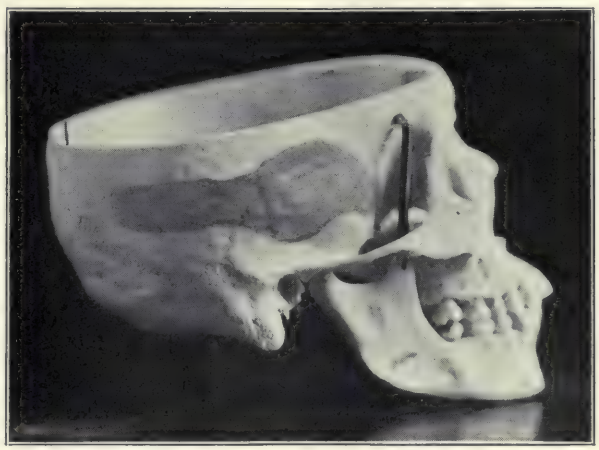


Fig. 2.—The darkened area shows the amount of bone removed in order to evacuate the clot.

There was no sign of ear, bone, nose, or scalp disease; neither had there been any symptoms referable to sinus thrombosis prior to the onset of the coma. Taken in conjunction with the fact that the temperature had been normal, and that the extravasated blood on the cortex was caked, I think it is fair to conclude that the hemorrhage was the primary lesion, and that the sinus thrombosis was the result of the prolonged pressure, as in Case 1.

COMMENT

It is, of course, well recognized that venous stasis is about the earliest effect of cerebral compression; but it is also recognized that stasis, pure and simple, is a rare cause of thrombosis in healthy young individuals; and since I have been unable to find mention of it as a possible early result of compression, I have felt that the citation of these cases may help by adding a drop to the bucket of pleas in favor of early decompression in well established cases irrespective of their cause or localization. I can look back, during the past twelve years, to sins of omission in my own practice; and I realize now that only the hand of custom and relics of antiquity prevented me from relieving, by surgery, cases of spontaneous cerebral hemorrhage that I would not have hesitated to operate on had they been traumatic. Of course, in Case 1, I am at a loss to understand why I, or some other surgeon, was not called on earlier; but Case 2 is illustrative of the rule that a doctor who would never dream of temporizing over a placenta praevia will, too often, suffer an unconsciousness of spontaneous origin to remain unlinked in his mind with surgical effort; and when confronted with a coma of spontaneous origin, there is thrown on the screen of his consciousness the series: drugs, epilepsy, uremia; and then in the apoplectic series there will occur to his mind "ice-caps, catheters, calomel and coffins." However, before surgery is employed, an accurate diagnosis of pressure is essential, for I have seen the most profound hemiplegias and comas from nothing worse than an angiospasm, and it would be unfortunate to have a patient sit up in the sudden way in which they do when recovering from an angiospastic coma during the course of an operation.

Given an increasing pressure, however, I am sure that any of us would rather immediately risk a piece of temporal bone than any cerebral function with the added risk of a fatal thrombosis.

I think, at least, that I have been able to show that the venous sinuses are less fool proof than are the medullary mechanisms, and far less recoverable.

Blood may find its way again into the compressed terminal arterioles of the cortex, but it is asking too much to expect an extensive thrombosis of the cerebral veins to be absorbed when the sinuses are also plugged.

506 Exchange Building.

Registration of Births.—The establishment of community records, such as those resulting from the registration of births, is one of the first evidences that a community expects to have some degree of permanency and the inhabitants do not consider themselves as temporary residents. This was as true of the Greek and Roman civilization as of our own. The necessity for the registration of births is felt in many of the activities of the modern state or city. The uses of registration are legal and social. It also may serve an important function in public health administration. . . . Official knowledge of every death and its cause is necessary in the interest of law, order and personal safety. Crime is likely to be more common where no official cognizance is taken of the disposal of bodies. For this reason the need for the official registration of deaths is felt by a community and enforced at an earlier stage in its development than is the registration of births.—J. W. Trask, *Public Health Reports*, Jan. 14, 1916.

INTRACRANIAL AEROCELE*

E. H. SKINNER, M.D., KANSAS CITY, MO.

Shadows of a cavity containing air or gas within the cranium were seen on Roentgen negatives of a skull that had been fractured in an explosion of a gas well. The patient (Case 5454), referred, June 27, 1914, by Dr. H. E. Pearse of



Fig. 1.—Lateral view, showing the transparent aerocele in the anterior part of the cranial cavity.

Kansas City and Dr. F. H. Morton of Okmulgee, Okla., had sustained a fracture of the right supra-orbital ridge of the skull in a gas well explosion four weeks previously. There was a healed scar over the right eye. The patient apparently had recovered, but complained of severe persistent headaches and dizziness.

Roentgen negatives taken June 27, 1914, showed a round area of increased transparency in the anterior part of the cranial cavity on the right side. In the lateral view the markings on the inner table of the skull and the diploic channels showed with unusual detail. The stereoscopic Roentgen negatives showed better the fracture of the supra-orbital ridge of the right frontal bone, the comminutions of the fracture extending into and through the posterior wall of the frontal sinus.

The Roentgen findings consisted in a comminuted fracture of the right frontal bone in the frontal sinus area with many irregularly placed fragments, and an air or gas bubble about the size of an egg in the anterior part of the right frontal lobe, which was apparently subdural. The interpretation was that it was a subdural air tumor, because it was a round shadow, and if it had been epidural, the air shadow would probably have conformed to the concavity of the inner table of the skull and depressed the dura, forming an elliptic shadow or meniscus-shaped shadow.

Operation was performed by Dr. H. E. Pearse at St. Luke's Hospital, June 29, 1914. The skull was trephined directly over the air tumor shadow 2 inches above the external angular process of the frontal bone. When the dura was exposed, there was a distinct bulge into the trephined opening with some crepitation and palpatory sense of air beneath. A blunt trocar was prepared with a rubber tube attached, the free end of the rubber tube being inserted into a beaker filled with water which was inverted in a basin of water. The dura was then nicked with a knife and the trocar inserted. Immediately the water was displaced downward in the inverted beaker as it filled with air from the tumor. The bulging dura collapsed. The trephine button was not replaced, but the wound was closed without further surgical venture.

The collected gas was chemically examined by Dr. Roy Cross, who reported as follows:

"Chemical analysis: oxygen, 1.8 per cent.; nitrogen, 98.2 per cent. No ethane, methane or unsaturated hydrocarbons. Air is usually 80 per cent. nitrogen, 20 per cent oxygen. This gas is practically air from which the oxygen has been absorbed by lymph. Oxygen has about twice the solubility of nitrogen and is infinitely more likely to undergo reduction or chemical reaction and thus be removed than is the case with nitrogen."

The fact that the patient sustained the injury in a gas well explosion prompted the collection of the contents at operation to satisfy the patient, for there was little doubt in the opinion of the surgeon and the roentgenologist that the air had leaked through the dura from the frontal sinus at the site of the fracture. The fact that there was no inflammatory reaction rather dispelled any supposition that the air tumor might have been caused by an infection.

The patient left the hospital in good condition at the end of ten days. Ten days later (twenty days after the operation) the patient developed a severe headache, temperature 104,



Fig. 2.—Postero-anterior view, showing transparent aerocele above the right orbital area.

pulse from 130 to 140, vomited and became unconscious. The pain was on the left side as far back as the ear. The left eye was swollen and edematous. The patient died the following day. Necropsy revealed leptomeningitis with a large amount of pus at the base of the brain.

1019 Rialto Building.

* Read before the American Roentgen Ray Society, September, 1914.

Therapeutics

BRACHIAL NEURITIS

Brachial neuritis may be produced by any of the chronic constitutional poisons, such as lead, arsenic, alcohol or tobacco; by uric acid disturbances; by altered metabolism of proteins; by insufficiency of the kidneys, and by diabetes. It may occur also from straining or injury to the brachial nerves or the brachial plexus. Lying on the arm at night frequently produces a brachial neuritis. The pain is particularly severe in the neuritis occurring in diabetes, but it may be severe from any cause. Pain shooting down the brachial nerves may be due to pressure from neighboring structures, as when there are rudimentary cervical ribs, or a subdeltoid bursitis.

The primary treatment depends on the etiology, and as in sciatica and in backache, a complete history should be secured and a careful examination of the patient should be made to determine the predisposing or exciting factor. This should be removed if possible. When the neuritis is due to some general poisoning, and perhaps always unless the patient is greatly debilitated, purging on several days, or alternate days, with a complete change in the diet, is a beginning treatment that may be valuable. Anything that causes pressure or injury to the brachial nerve or the brachial plexus must be removed before treatment will be at all successful. Any occupation or use of the arm that perpetuates the trouble must cease.

In rheumatic and related conditions, a course of sodium salicylate followed by a course of alkalies in conjunction with a vegetable and cereal diet will often be of rapid benefit.

If the pain is so severe as to prevent rest and sleep, the temporary use of narcotics may be necessary, and some hypnotic, as chloral or the bromids, is often advisable, at least for a short time. One of the coal-tar products may be of value. None of these depressants, however, should be long continued.

A patient with brachial neuritis rarely needs to go to bed; if he carries the arm in a sling he will get comfort and rest for the nerve, and have much less pain. The sling should support the elbow so that the arm will not drag on the painful muscles. At night, or at periods during the day, dry heat, as represented by an electric pad or a hot water bag, is of benefit. As in treating any other sore or painful nerve, the region should be kept warm with flannel or cotton. Sometimes gentle stroking upward, or massage along the course of the nerve to promote the flow of the lymph in the lymph channels, is soothing and relieves local congestion. Later, the arm may be extended and stretched, by the physician, in different directions. This stretching of the nerve seems not infrequently to relieve the pain and hasten recovery. This may be done daily or every second day for some time. Between times the arm should be at rest, until the acute and subacute stages of the inflammation are over.

Cataphoresis has many times been recommended for neuritis, and Howell[1] advocates using a 2 per cent. sodium salicylate solution or a solution of iodin locally, to be driven into the tissues by electricity, that is, by cataphoresis. Of course, the positive electrode with the constant current is made active. The negative pole may be placed anywhere on the back. According to his method, the arm is prepared by the use of hot air or hot compresses for a period before the ionization is begun, and after the treatment the arm is kept warm by being wrapped in wool or cotton.

Dry cupping of the tender nerve, especially as soon as the acute stage is over, is at times of benefit.

The high frequency current, either the d'Arsonval or the Oudin form of high frequency, has been recommended for brachial neuritis, and sometimes lessens the pain and is of benefit in hastening recovery. The treatment should be applied locally by a glass vacuum electrode, and the electrode should be passed along the whole course of the region of pain for a few minutes at first, and not for more than ten minutes at any one time, at first daily, and later less frequently.

In the recurrent deltoid muscle pains, which occur in some persons who have a tendency to malmetabolism of the proteins of meats, this form of high frequency current, or the violet ray bulb, will sometimes temporarily eradicate the pains. It may be used on the bare skin or through one layer of clothing, and close enough to spark freely into the muscle. It seems to promote resorption of the irritant deposits in the muscle or nerve tissue.

Whenever vacuum electrodes are used close to the skin, great care must be taken that burns are not caused. If the skin is covered, sometimes the current will be used longer and stronger than is intended, one being better able to observe on the bare skin the effect of the electric current; but after one or two treatments of a person, the susceptibility of his skin to irritation will be recognized, and the dosage and intensity subsequently modified to fit the individual.

Active massage is also of benefit in these cases, and the same is true of polarization with the constant or galvanic current for a few minutes, one electrode being indefinite, and the other, generally the negative, being active over the muscle for a few minutes.

When all acute symptoms of neuritis have disappeared, or the acute pain and inflammation in a muscle have disappeared, and yet recurrent aches occur, with more or less impaired motility, massage and mechanical vibrations are of value in completing the cure. If there is paresis or semiparalysis of one or more muscles, electric treatments are essential, or if the shoulder joint has become more or less impaired in its motion and function by the long continued inactivity, or adhesions have actually formed from the joint not having been properly used, active breaking up of the adhesions must be done. If too painful, this may be done rapidly under anesthesia; or less active, but repeated passive motion of this joint must be caused, tending to gain increased motility day by day until the joint becomes normal. The patient should also himself daily use the arm to a certain extent and then rest it, if necessary in a sling, for the remainder of the day, until he is able to use the arm for his duties without causing continued pain afterward.

1. Howell: Practitioner, London, March, 1914.

Spontaneous Generation.—The doctrine of spontaneous generation of life was not only current among the ancients, but we find it persisting through the middle ages, and descending to our own generation. In 1542, in his treatise called "De Subtilitate," we find Cardan asserting that water engenders fishes, and that many animals spring from fermentation. Van Helmont gives special instructions for the artificial production of mice, and Kircher in his "Mundus Subterraneus" (chapter "De Panspermia Rerum") describes and actually figures certain animals which were produced under his own eyes by the transforming influence of water on fragments of stems from different plants.—McFarland.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MARCH 25, 1916

THE NATURE OF CAFFEIN DIURESIS

The response of the kidneys after the administration of diuretics is only a single instance of the specific behavior of various organs in the presence of foreign substances in the body. Every attempt to analyze the nature of such a physiologic response of cellular parts, like the glands, to the stimulus of either a drug or a normal product of tissue disintegration brings us face to face with the diversity of the factors involved. Something unusual happens in the domain of physiologic performance; we may know the beginning and the end of the story, but the intermediate acts may remain unrevealed. When the physiologic phenomena are very complex we are likely to be quite as baffled as the untutored individual who watches the conjuror put a loaf into his hat and take out two rabbits. In the case of secretory organs in the living body, the cells are influenced in the character of their performances by the nervous impulses which come to them, by the variations in the blood supply — the blood pressure and rate of flow as well as the chemical composition of the circulating medium in respect to nutrients, oxygen and metabolic waste products. A chemical stimulant, or "hormone," discharged from one organ may reach another cell group where it can produce a typical effect independent of every other circulatory or nervous factor. Such is the complexity of the physiologic mechanism of cell life.

The realization of the almost insuperable difficulty of dealing with these highly complicated situations, in which numerous variables acting at the same moment may obscure the factor of real importance in any phenomenon, has impelled investigators to narrow their fields of observation. One result of this has been the introduction of methods for studying isolated organs, especially when they can be perfused artificially so as to supply some of the factors essential for their continued function. The earlier attempts in this direction were comparatively crude and often failed to imitate the mechanical features of the circulation. Today the details of artificial perfusion have been perfected to a point at which the pressure, rate of flow, composition and oxygen supply of the perfusing liquid appear to satisfy the normal demands of the body cells. Accordingly we find this significant description concerning one of the latest of the now numerous forms of apparatus for the perfusion of isolated organs:

> A dog's kidney was perfused with blood from the same animal. A slow elimination of fluid from the ureter occurred which was yellow in color, acid in reaction, gave slight positive reaction for albumin which was less intense than the reaction yielded by the bladder urine from the same dog, did not reduce Fehling's solution, gave Jaffé's test for creatinin and underwent ammoniacal fermentation on standing.[1]

This quotation deserves emphasis in reply to the usual criticism, applied to all perfusion experiments, that the conditions established are so far removed from those in the intact animal that conclusions drawn regarding them are not directly applicable to the organism as a whole. Certainly the technic now available is adequate to permit the retention by the kidney of the power of producing a typical secretory product.

With the help of such methods of studying the action of isolated organs, in which the participation of extrinsic nervous elements is excluded and the blood supply can be controlled at will, there is a prospect of defining more accurately the mode of action of some of the familiar drugs. An intelligent analysis of pharmacologic responses is, of course, the ideal basis for rational therapeutics. The diuretics, which are at present so widely used in medicine, have offered special difficulties in the interpretation of their behavior, because of the complexity of the kidney functions. Many, if not most, diuretics act by diminishing the osmotic concentration of the blood colloids; others exert a more specific action of some kind, perhaps on the cells of the renal tubules.

The diuretic action of caffein may increase the output of urine per unit of time 50 per cent. or more. Associated with the augmented elimination of water there is an increase in both the organic and inorganic components of the urine. This characteristic response to the presence of caffein has been explained in various ways. Some have described it as secondary to an effect on the circulation which must necessarily be an important factor in the production of urine. To elaborate on this point would necessitate a review of the modern physiology of urinary secretion. A larger number of pharmacologists are at present committed to the belief that the diuretic action of caffein is better explained as a primary stimulation of the renal epithelium, analogous to the behavior of drugs of this class as irritants to the muscular and nervous tissues. The measurement of the oxygen consumption of a gland gives some indication of the nature of the cell processes; and the fact that, according to Barcroft and

1. Richards, A. N., and Drinker, C. K.: An Apparatus for the Perfusion of Isolated Organs, Jour. Pharmacol. and Exper. Therap., 1915, vii, 467.

Straub,[2] caffein markedly increases the gaseous metabolism of the kidney is taken to point to the stimulation of the renal epithelium as the distinctive feature of its action.

Nevertheless, competent pharmacologists have only recently felt justified in stating that "our knowledge of kidney function is insufficient to permit a wholly convincing analysis of the effect of a drug upon it. The various factors in urine formation are so intricate that the personal factor must inevitably play a part in the acceptance of explanations of drug actions." [3] At the Pharmacologic Laboratory of the University of Pennsylvania, Richards and Plant[3] have succeeded in observing the effect of caffein on the perfused kidney under conditions in which the blood flow — a factor of universally admitted importance — was kept constant and independent of the action of the drug. They found that even under these conditions caffein caused diuresis. From this it may be concluded that the increase in blood flow which occurs in the intact individual as the result of the vasodilation of the kidney vessels produced by the drug is not an essential factor in caffein diuresis.

FOCAL INFECTION IN RELATION TO RHEUMATIC IRITIS

The association of iritis with arthritis and myositis is so striking that a rheumatic group comprising, according to most textbooks, about 25 per cent. of the cases, has been established. After excluding all other causal factors, such as syphilis, gonorrhea and tuberculosis, there remains a small group heretofore classed as idiopathic. In most cases, the action of toxins rather than the localization of bacteria is advanced to explain the development of iritis, repeated attacks being ascribed to sensitization of the tissues. Trauma of the eye, insignificant, or severe as in operations, has been recognized clinically as favoring the development of iritis without direct infection from the outside.

Examination of the blood and of infectious foci is giving us new views of the nature of iritis. The frequent finding of bacteria in blood cultures of apparently normal as well as of acutely febrile patients, with the presence of bacterial foci that are potential if not actual portals of entry, indicates that direct localization of organisms may be responsible for the lesions. In other words, the process may be analogous to that of arthritis, in which foci of infection are regarded as playing an important rôle. If this explanation is correct, sensitization may result from the lodging of bacterial emboli in the eye, and the rôle of trauma in the causation of disease of the eye may be as significant as it is in bone infections.

Clinical evidence in support of this view is not wanting. Stock[1] has reviewed the reports which indicate that pyogenic organisms may cause slight inflammation in the eye which soon subsides. More virulent infections, particularly with streptococci and pneumococci, as in septic abortion, have produced panophthalmitis. Experimentally, Stock produced iritis scarcely distinguishable from that of tuberculosis by intravenous injection of pathogenic yeasts. Korolkow operated on the iris of thirty-two rabbits previously injected with *Bacillus pyocyaneus,* and produced suppurative iritis in five cases. Rosenow[2] injected animals with streptococci from various sources, and observed eye lesions, such as unilateral panophthalmitis, hemorrhage in the limbus with or without episcleritis, iritis or iridocyclitis, conjunctivitis, usually bilateral, and corneal ulcer. Of these lesions, 17 per cent. developed after injection of strains isolated from arthritis and myositis, and 15 per cent. after injection of strains from herpes zoster. Other strains failed to produce lesions unless brought to a certain grade of virulence by animal passage. He considers this localization as not accidental, and suggests that about the ciliary body or iris (as about the joints and more tendinous part of the muscles) there is a gradation from an abundant to a poor blood supply, and consequently of oxygen, predisposing to the localization and growth of bacteria.

More recent experiments support the observation that many cases of iritis are infectious. Irons, Brown and Nadler[3] have produced iritis in rabbits by intravenous injection of streptococci isolated from a focus of infection in a patient suffering with iridocyclitis. Streptococci isolated from a chronic suppurating tear duct produced iritis demonstrable clinically, by microscopic examination and by cultures in three of the first four rabbits injected, and in two of four animals injected with organisms isolated from the original source at a later date. Subsequent injections of biologically similar organisms isolated from the original source at intervals of about a week failed to produce eye lesions in a series of twenty-two rabbits. In one case iritis resulted from the injection of streptococci isolated from one of the infected eyes. In none of the animals were other gross lesions observed beyond an occasional arthritis.

With more careful search for foci of infection in cases of iritis, it is probable that the so-called rheumatic group will be found larger than supposed, and that many of the cases described as idiopathic are due to bacterial embolism from an undiscovered focus. The rôle of toxins apart from their elaboration in bacterial foci must be regarded as questionable.

2. Barcroft, J., and Straub, H.: Jour. Physiol., 1910-1911, xli, 145.
3. Richards, A. N., and Plant, O. H.: Urine Formation by the Perfused Kidney: Preliminary Experiments on the Action of Caffein, Jour. Pharmacol. and Exper. Therap., 1915, vii, 485.

1. Stock, W.: Ergebn. d. allg. Path. u. path. Anat. d. Auges, Lubarsch-Ostertag, 1910, p. 112.
2. Rosenow, E. C.: Iritis and Other Ocular Lesions on Intravenous Injection of Streptococci, Jour. Infect. Dis., 1915, xvii, 403.
3. Irons, E. E.; Brown, E. V. L., and Nadler, W. H.: Localization of Streptococci in the Eye, Jour. Infect. Dis., 1916, xviii, 315.

THE AMINO-ACIDS AND GROWTH

It is becoming more apparent that in order to be entirely suitable for the nutritive needs of the body, the protein component of the diet must yield a number of different amino-acids in sufficient abundance to prevent any deficit of these in certain processes going on in the organism. This is equivalent to saying that the animal body cannot construct some, at least, of the essential amino-acids anew. The well-known nutritive inferiority of gelatin, for example, is now properly attributed to the fact that it does not yield tyrosin, tryptophan or the sulphur-containing amino-acid cystin as the result of its digestive disintegration. Consequently, gelatin alone cannot supply the nitrogenous requirements of the organism.

Amino-acid deficiencies of this sort become particularly conspicuous during growth in which the construction of new protoplasmic tissue demands the amino-acid "building stones" or "Bausteine" required to form perfect animal protein either for the blood or for the developing organs. In their extensive researches on the relation of different proteins to growth, Osborne and Mendel[1] have furnished striking instances of the failure of animals to grow when proteins "inadequate" from the amino-acid standpoint were alone supplied in the ration. Replacement of such proteins by others which furnish the missing nutrient units, or even addition of the needed amino-acids such as lysin or tryptophan or cystin, without other qualitative changes in the diet, may promptly bring about improvement in growth. Mendel has remarked that from the standpoint of economy, therefore, it is advantageous to learn the amino-acid make-up of all available food proteins, so that they can be administered in proportions furnishing a balanced total amino-acid make-up as nearly ideal as possible. This means far more, in a practical way, to animal production in agriculture than to human nutrition, in which we are more lavish with our resources.

In conformity with these ideas, a group of investigators at the Kentucky Agricultural Experiment Station[2] have conducted a series of feeding experiments on young chicks with grain rations containing a high and low content, respectively, of lysin. This amino-acid factor was selected because it had been shown by Osborne and Mendel[1] that without lysin or lysin-yielding protein in the ration, growth was not secured in the species with which they experimented. For the chick experiment a suitable mixture of foods was selected to contain a large variety of components, so as to furnish other factors such as the mineral ingredients, carbohydrates, fats, etc., in presumably adequate abundance and have a mixture of various protein foods characterized by no striking deficiency other than that of lysin in the one case. The ingredients of the ration higher in lysin included wheat, wheat bran, sunflower seed and hemp seed, cracked corn and skimmed milk. The other ration was composed essentially of barley, rice, hominy, oats and some milk products. These details are mentioned to show how a diet seemingly liberal in respect to variety of food sources may still be restricted in respect to some single essential component, and how uncertain may be the significance of the current methods of estimating food values solely on the basis of calories, total protein and other nutrients.

The outcome of these interesting experiments, so important for the question of nutrition in growth, was unmistakable. The chicks showed marked differences in the rate of growth and development, those on the rations relatively high in their yield of lysin progressing far better than the animals in which this feature was correspondingly deficient. The differences were shown favorably not only in respect to the gains in body weight but also in the more prompt development of the secondary sexual characters in the lysin-rich group. These results are of significance from both the practical and the purely scientific standpoint. As the Kentucky investigators remark, the financial returns to poultrymen from a successful method of feeding young chicks and laying hens would be enormous. To the student of human nutrition they emphasize anew the importance of the latest conceptions of protein metabolism in which the functions of the several amino-acids have become the center of lively interest.

1. The literature is reviewed by Mendel, L. B.: Nutrition and Growth, The Journal A. M. A., May 8, 1915, p. 1539.

2. Buckner, G. D.; Nollau, E. H., and Kastle, J. H.: The Feeding of Young Chicks on Grain Mixtures of High and Low Lysin Content, Am. Jour. Physiol., 1915, xxxix, 162.

LABORATORY INFECTION WITH TYPHOID

The one incontrovertible proof that a given bacterium is the cause of a specific human disease is furnished by the production of that disease in man through infection with pure cultures of the organisms. Not infrequently such evidence has been obtained by investigators through inoculation of themselves or of volunteers; occasionally some progressive murderer has conducted an accurate and convincing experiment, an account of which has subsequently been published not entirely with his approval or under his authorship; and accidental infections in laboratories have furnished conclusive proof far more often than is perhaps generally realized. Of all pathogenic bacteria, the one in worst repute in laboratories is the glanders bacillus, and probably it deserves this reputation. There are many instances, both reported and unreported, of laboratory infection with pure cultures of *Bacillus mallei*, and with these infections the mortality is extremely high. There is one striking instance of infection of several workers in a laboratory in which cultures of glanders bacilli were centrifugated in a broken tube, spraying the bacilli freely in the air. While typhus

is notorious for infecting physicians and investigators, these infections take place through natural methods and not with pure cultures, so that they add little to our knowledge of the disease. Plague bacilli have infected numerous laboratory workers, and so have cholera vibrios. Macfadyen and two of his assistants became infected with the bacillus of Malta fever during experiments with this organism, the disease ending fatally in the chief.

Perhaps on account of its widespread use in laboratories, the typhoid bacillus has been especially prominent as a cause of laboratory infections; but fortunately the mortality rate is so much lower than with most of these other diseases that it has probably not caused many fatalities. These infections have had also a certain scientific value, since typical typhoid fever cannot be produced in laboratory animals, and hence each carefully observed case of laboratory infection constitutes an accurate experiment. If we are correctly informed, the first person to demonstrate conclusively the specific etiology of typhoid fever was a serving woman in the Pasteur Institute who, for some reason tired of life, took advantage of the means at hand and swallowed a culture of typhoid bacilli. She did not die, and hence failed to accomplish both her own purpose and the final anatomic demonstration of the experiment; but she did pass through a typical course of typhoid fever. Since that time accidental and intentional infections with typhoid bacilli have been reported frequently.

So common, indeed, are such occurrences, that by simply sending out a questionnaire among his colleagues in Germany and Austria, Kisskalt[1] was able to collect reports of no less than fifty cases of certain or probable laboratory infection with typhoid. Of these, thirty-six were from pure cultures, four from urine or feces, and ten uncertain. Analysis of these cases gives much interesting information. Usually the bacilli entered the mouth while cultures were being sucked into a pipet, and although the mouth was in most cases washed out as thoroughly as possible with antiseptics of various sorts, infection occurred. There were collected in addition ten other instances in which after aspiration of typhoid bacilli into the mouth no infection occurred, and it is well known to laboratory workers that this accident happens frequently without infection resulting. The mortality was six, or 12 per cent., which indicates that in spite of the very large doses which were presumably obtained, as compared with the dosage of drinking water infection, the virulence of the disease was not much if any greater than in ordinary infections. In other respects also the disease was quite the same as when acquired from more usual sources.

There is some evidence that cultures obtained at necropsy in fatal cases usually cause more severe infections than cultures from urine or stools in nonfatal cases; but the material is not large enough to permit a positive opinion on this point. One fact which does come out definitely is that cultures carried for months and years on artificial mediums are quite as virulent for man as cultures fresh from typhoid patients. It is certain that many pathogenic bacteria lose much in virulence through long cultivation on laboratory mediums; but the typhoid bacillus seems to be less affected by artificial environment. Apparently the virulence for human subjects also bore little relation to the virulence the bacilli had shown for animals during laboratory experiments. These laboratory infections furnish ideal conditions for determining the incubation period, which was found to vary from five to twenty-one days, although all but five out of seventeen cases in which the incubation was established probably occurred between the twelfth and fourteenth days.

1. Kisskalt: Ztschr. f. Hyg., 1915, lxxx, 145.

DEGENERATIVE NEPHRITIS AND AMMONIA EXCRETION

It has been asserted as a necessary postulate of biology that no function of an organ is independent of any other, and that the doctrine of probability would lead us to expect the dependence to be often great enough to be detected.[1] In the course of the past few years, many data have been accumulated in relation to the excretion factors of the kidneys in health and in disease. Some have involved the observations afforded by the so-called tests of renal function, such as the estimation of the capacity of the kidneys to excrete phenolsulphonephthalein, sodium chlorid, lactose, iodids, etc. Others have been concerned with the variations in the composition of the blood in relation to the prompt or delayed excretion of metabolic waste products. The interrelations of the kidney function with the alveolar carbon dioxid tension, the affinity of hemoglobin in the blood for oxygen, and the alkalinity of the circulating medium furnish further illustrations of phenomena which doubtless often have a common basis, but still demand consideration from a comprehensive point of view.

The inability of the kidneys to excrete the nonprotein nitrogenous constituents which accumulate in the blood in a normal manner represents a pathologic variation which is now readily recognized by the medium of blood analysis. Palmer and Henderson[2] have recently shown some interesting correlations of this recognized abnormality with other features of defective renal function. In the late stages of chronic nephritis of the glomerular type, it is usual to find high noncoagulable nitrogen in the blood, a much reduced phenolsulphonephthalein excretion, a high blood pres-

1. Henderson, L. J., and Palmer, W. W.: On the Several Factors of Acid Excretion, Jour. Biol. Chem., 1914, xvii, 314.
2. Palmer, W. W., and Henderson, L. J.: A Study of the Several Factors of Acid Excretion in Nephritis, Arch. Int. Med., July, 1915, p. 109.

sure, large amounts of albumin and low specific gravity of the urine. Along with these symptoms there goes a volume of urine which is abnormally large, its acidity abnormally intense, and the total acid excretion much diminished. These are signs of a condition of acidosis which may be of renal origin. There seems to be little doubt at present that mild grades of acidosis regularly occur in certain of the more severe types of chronic renal disease. The new contribution of the investigators at the Massachusetts General Hospital[2] lies in the demonstration that the diminished acid excretion is due to a never-failing deficit in the urinary ammonia. In milder cases illustrating a degenerative type of nephritis and earlier stages of glomerulonephritis, the deviations from the normal, in respect to the symptoms recorded above, may not be so striking as one finds in the sharply defined group of chronic forms; nevertheless, even here suggestions of borderline acidosis are accompanied by corresponding fluctuations in the urinary ammonia.

The excretion of ammonia is certainly one of the essential factors in regulating the reaction of the body. From the clinical evidence and pathologic data at hand, Palmer and Henderson venture the general assertion that severe injury to the glomeruli is commonly accompanied by reduced ammonia excretion. A condition of acidosis may also be in evidence. It seems reasonable, therefore, to suppose, as they conclude, that the failure of ammonia to do its work in the regulation of the reaction of the body may here be the cause of this condition.

THE PITUITARY AND SEXUAL DEVELOPMENT

There is a growing belief that the pituitary body is concerned in some way with the functions of growth. The uncertainty is engendered by the circumstance that much of the earlier support for this relationship has been derived from clinical observations and incidental evidence. These are always liable to a considerable degree of error or correction, owing to the uncontrollable conditions and the numerous variables which enter into the indirect study of patients. More exact methods of investigation may always be expected to correct or revise the suggestions obtained from the bedside, the clinic or the necropsy room. In the case of the pituitary functions it has unfortunately happened that the results of experimental interference have remained somewhat in dispute. Perhaps one reason for this lies in the uncertainty which attends the use of the word "growth." The experiments of Gudernatsch and others[1] have emphasized the fact that in discussing development one must distinguish clearly between the differentiation of the parts of the body and the actual increase in size. Metamorphosis of an organism may proceed quite independently of growth in this broader sense. Confusion may therefore easily arise unless care is taken to define accurately what phases of the developmental changes are under consideration in any specific instance.

The development of the sex glands and the consequent evolution of certain secondary sexual peculiarities of form and behavior are undoubtedly closely associated with growth at certain stages. Among the reasons which have been advanced for the presumable existence of an interrelationship between the pituitary and the sex glands are the observations made in acromegaly and gigantism, on the one hand, and in the syndrome known as the dystrophia adiposogenitalis of Fröhlich, on the other. The clinical hypopituitarism of the latter type is characterized by adiposity and genital aplasia. If the pituitary insufficiency antedates puberty, the secondary sex characters may fail to develop, as in certain types of infantilism. If sexual maturity has been reached before the onset of the hypopituitarism, the secondary sex characters may become retrogressive, with associated loss of function on the part of the sex glands. Hyperpituitarism, on the other hand, shows evidences of early overactivity of these glands; though in the later stages of acromegaly, in which there is a final period of pituitary inactivity, there may be a high degree of atrophy of the sex glands and secondary sexual retrogression in both sexes. Further clinical instances of an interrelationship between the pituitary and sexual development may be seen in pregnancy, in which a hyperplasia and hypertrophy of the anterior lobe of the hypophysis often occurs, and likewise in the secondary pituitary hypertrophy seen to follow castration in man.

Experimental hypopituitarism produced by partial hypophysectomy in animals, particularly by Cushing and his collaborators,[2] has frequently been attended by a characteristic retardation of sexual development in young subjects and sexual retrogression in adults. The attempts to institute a condition of pituitary hyperfunction have not been equally successful. The device of transplantation of additional pituitary substance has proved to be unsuccessful thus far. The efforts to supply an excess of the glandular product by direct administration have been more successful in affecting alterations in the sphere of sexual development. Goetsch[3] has added a series of successful feeding experiments on rats to the literature of the subject. These show that the administration of pituitary anterior lobe extract, even by the oral path, causes increased weight and more vigorous body growth and development than untreated control animals show. There is similarly an earlier and more active genital development. The sexual instincts appear to be awakened earlier, along with the earlier maturity of the sex

1. The Thyroid and Thymus in Relation to Development, editorial, The Journal A. M. A., July 4, 1914, p. 34; Recent Experiments Relating to the Endocrine Glands and Development, Feb. 19, 1916, p. 576.

2. Cushing, Harvey: The Pituitary Body and Its Disorders, Philadelphia, 1912.

3. Goetsch, Emil: The Influence of Pituitary Feeding upon Growth and Sexual Development, Bull. Johns Hopkins Hosp., 1916, xxvii, 29.

glands. The effect of the anterior lobe feeding was seen to last throughout the adult life of the individual. The administration of the anterior lobe gland substance to parent animals evidently also exerts a stimulating influence on the offspring in intra-uterine life and during lactation; and when the experiment is carried further, and the feeding to the young is continued after weaning, it has an even greater stimulating effect on growth, weight and development, and causes earlier and more frequent breeding, and an increased number of offspring in the litters. The correlated changes in the sex glands — the ovaries, tubes and uterus of the female, and the testes of the male — produced by this feeding of a pituitary extract show an extremely selective and almost specific action of the latter on the genital system, according to Goetsch.

The posterior lobe element, on the other hand, has an undoubted retarding influence on the development of the sex glands. Therefore when the entire gland is fed, the peculiar influence of the anterior lobe portion may be obscured or nullified. Ovarian extract (corpus luteum), according to Goetsch's observation, has a stimulating influence on the female, and a retarding influence on the male, sexual development.

The outcome of the feeding of pituitary to laboratory animals, Goetsch suggests, should encourage further efforts to benefit states of ductless gland underfunction, particularly of the hypophysis, by the oral and possibly the parenteral administration of gland extracts. We are reminded that some success has already been attained by such therapy. Instances of characteristic sexual disturbances, including retarded menstruation and loss of sexual potency, may be cited. Since many of the clinical conditions showing genital aplasia, adiposity and underdevelopment combine symptoms referable to certain of the ductless glands other than the pituitary, Goetsch has suggested that the extract of the latter should be given to help bring about normal sexual development and activity, and that with it might be given extracts of other ductless glands which would seem certainly to be involved.

Typhoid Immunizations During 1915.—It has been the experience of the New York health department that persons whose circumstances permitted them to live elsewhere after the first alarm of typhoid, or who belonged to families in which the patient could be completely isolated, were apt to refuse immunization, while in crowded homes where conditions were bad the people were more ready to consent and the health department was more disposed to insist on the procedure. During 1915 there were a large number of complete immunizations in connection with institutional outbreaks. Here the situation could be controlled, and practically every one exposed to infection was immunized, the actual number of complete immunizations being 4,150 for the year. This measure appeared to have a striking influence in checking the institution outbreaks. The point to be emphasized is not the efficacy of typhoid vaccination, since that is manifest and unquestioned, but to present the subject to the private physician and to urge his cooperation with the representative of the department in securing the immunization of all persons exposed to typhoid fever (save the few cases in which it is contraindicated).

Current Comment

INORGANIC SALTS IN THE DEVELOPMENT OF THE BODY

Little of a fundamental character is known today with respect to the real rôle of the inorganic elements in the body. That a bone cannot develop without calcium, that a red blood corpuscle cannot come into existence without iron, or gastric juice exhibit its acidity without chlorin are biologic platitudes. But the list of the ions which continually find their way into the body is by no means limited to so brief a number of the elements. Potassium, sodium and magnesium, phosphorus and sulphur derivatives likewise belong in the customary intake, and they make up an integral part of living animal forms. To what extent are they also necessary? What are their various functions? It is by no means futile to ask such questions, even if we customarily are indifferent to the answers. Only recently it was pointed out[1] that potassium salts may exhibit unsuspected toxicity when they are prevented by suppression of kidney function from being promptly eliminated. Yet potassium is surely no foreign element in the human organism. The subtle part played by such elements and their salts is seen, for example, in the fact that a muscle, according to Overton, will lose its irritability if immersed in sugar solution, whereas the irritability is preserved if a small amount of sodium chlorid is added. Let us frankly confess that the physiology and pathology of the inorganic elements in the body still remain largely to be written. Jacques Loeb[2] has furnished an interesting instance of unexpected findings with respect to the relation of inorganic elements to motility. Not long ago he demonstrated that it is possible to raise the banana fly on a sterilized liquid medium consisting of water, one or two sugars (glucose and sucrose), one ammonium salt (for example, ammonium tartrate) and some inorganic salts.[3] Such a mixture is a well-known culture medium for certain micro-organisms, as yeast cells, which are capable of synthesizing their proteins and other complicated organic compounds from ammonium salts. This remarkable outcome, suggesting the possibility of development of fairly complex animal organisms by synthetic processes from very elementary compounds, has furnished an opportunity to ascertain which of these are truly indispensable. For micro-organisms the indispensable ions are, as a rule, the potassium, magnesium, phosphate and sulphate ions, while very often neither sodium chlorid nor calcium chlorid is required. In Loeb's new experiments, five successive generations of flies have been raised in platinum vessels without any sodium or calcium chlorid other than that which may appear as impurities in the chemicals used. The only salts added were potassium phosphate and magnesium sulphate. Loeb concludes that as far as the evidence from these experiments

1. The Kidneys as a Factor of Safety, Current Comment, THE JOURNAL A. M. A., Dec. 25, 1915, p. 2246.
2. Loeb, Jacques: The Salts Required for the Development of Insects, Jour. Biol. Chem., 1915, xxiii, 431.
3. Loeb, Jacques: Science, 1915, xli, 169.

goes we can, therefore, say that in these flies the muscular activity is possible either without any sodium or calcium or with only such traces as appear in the form of impurities in the chemically pure substances used in these experiments; while potassium as well as phosphate, and also sulphate, and magnesium must be added to the culture medium in appreciable quantity. No one will be justified in applying these facts obtained from lower forms directly to the higher mammals. They show, however, that when it is possible to conduct investigations under controllable and relatively simple conditions, surprising features of physiologic performance are sometimes disclosed. These should serve as clues in the endeavor to unravel the complexities of the functions of the less elementary forms of life.

ALCOHOL AND IMMUNITY

The present campaign against the undue use of alcoholic liquors differs from the crusades of a generation ago in attempting to support all of its movements by the best evidence that science can furnish. It is likely to succeed all the better, because the facts already ascertained to be true and sifted by critical analysis from the mass of conflicting statement advanced in the earlier period in themselves furnish a sufficient warning against excessive indulgence. Today it merely remains necessary to mobilize these facts and advance them in the form of reasonable arguments rather than exaggerated claims. Recently we presented evidence regarding the untoward effects of comparatively small doses of alcohol on some of the fundamental neural activities in man.[1] The inevitable outcome is the establishment of a depression even of the simplest forms of motor processes. There was nothing whatever to suggest true stimulation or increase in efficiency. There is not a little evidence pointing to an unmistakable lowering of bodily resistance to disease after the prolonged administration of alcohol.[2] This may manifest itself in a restricted formation of antibodies, and in increased susceptibility to bacterial infection, and related phenomena. One feature of this phase of the alcohol problem has lately been the subject of new investigations which relate to the immunity factor. Among others, Parkinson[3] failed to establish any influence of the use of alcohol on phagocytosis except when large doses or continuous moderate doses were taken. At the hygienic institute of the University of Munich, Reich[4] has continued the study of the blood cells in moderate drinkers as contrasted with abstainers. He found that the extent of phagocytosis of tubercle bacilli by human leukocytes in human serum showed no definite relation to the use of alcohol by the subjects. The bactericidal action of normal human blood serum on typhoid organisms was observed to be more pronounced, on the average, in abstainers than in those accustomed to large quantities of alcohol. The phagocytosis of typhoid bacilli likewise was accomplished more readily by the cells of those who do not indulge or rarely consume spirituous liquors. Furthermore, the resistance of human red blood corpuscles to hypotonic salt solution appears to be diminished in some proportionate relation to the degree of alcoholic indulgence. It should be clearly understood that these unfavorable biologic phenomena attending the more or less liberal use of alcohol are neither confined to the ingestion of this product alone nor universally or invariably obtained. There are too many variables in such reactions to permit mathematical precision of occurrence. These newer statistical indications, however, clearly conform to the generality of other evidence in placing the burden of defense on the regular use of so-called alcoholic stimulants.

1. New Evidence Against Alcohol, editorial, THE JOURNAL A. M. A., March 4, 1916, p. 742.
2. Laitinen, T.: Ueber die Einwirkung der kleinsten Alkoholmengen auf die Wiederstandsfähigkeit des tierischen Organismus mit besondere Berücksichtigung der Nachkommenschaft, Ztschr. f. Hyg. u. Infektionskrankh., 1907-1908, lviii, 139.
3. Parkinson, P. R.: The Relation of Alcohol to Immunity, Lancet, London, 1909, vii, 1580.
4. Reich, H. W.: Ueber den Einfluss des Alkoholgenusses auf Bakterizidie, Phagozytose und Resistenz der Erythrocyten, beim Menschen, Arch. f. Hyg., 1916, lxxxiv, 337.

HEXAMETHYLENAMIN AND URIC ACID

If further evidence were necessary to show the futility of administering formaldehyd derivatives like hexamethylenamin as uric acid solvents, it could be found in the observations recorded by Haskins[1] under the auspices of the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry. It is true that a solution of formaldehyd is a solvent for uric acid, and likewise that hexamethylenamin, which will liberate formaldehyd in acid solutions, has a similar solvent power. These are facts elicited from a study of pure solutions of the respective substances in the test tube. As the "Pharmacology of Useful Drugs" [2] has expressed it, however, it is one thing to hold a substance in solution or prevent its precipitation when one uses a concentrated solution of formaldehyd, and quite another matter to dissolve calculi in weak solutions, such as one may see in urine. Haskins has found that the power of urines containing hexamethylenamin to take up uric acid in addition to that already present varies with the specimen examined; in any event, however, those which exhibit an enhanced solvent power are such as correspond in their acidity reaction with normal urines which have the ability to dissolve uric acid in appreciable quantity. The hydrogen ion concentration is the dominant index in the matter. It is freely admitted that perhaps after administration of excessive doses of the drug certain portions of the secreted urine may contain a sufficient concentration of it to impart to them a uric acid solvent power greater than the same urines would otherwise manifest. But, as Haskins points out, this is scarcely of therapeutic value; for the required dose of hexamethylenamin is too large, and an equal or better effect can be produced more readily by administration of alkaline diuretics of sodium bicarbonate in reasonable quantities. Even a suitable choice of diet, as Blather-

1. Haskins, H. D.: The Uric Acid Solvent Power of Urine Containing Hexamethylenamin (Urotropin) as Compared with that of Normal Urine, Arch. Int. Med., December, 1915, p. 1055.
2. Hatcher, R. A., and Wilbert, M. I.: Pharmacology of Useful Drugs, Chicago, American Medical Association, 1915, p. 164.

wick[3] has shown, will accomplish the same end. There is no longer a valid reason why practitioners should show the slightest deference to the assumed superior solvent virtues of the formaldehyd-hexamethylenamin combinations under whatever guise they may be offered.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

DISTRICT OF COLUMBIA

Medical Care of Delinquent and Neglected Children.—Bills now pending in Congress for the reorganization of the Juvenile Court make it the duty of the parent, guardian or custodian of any child within the jurisdiction of the court to cause such child to be examined by a duly licensed and practicing physician, if the child appears to be in need of medical care, either before or after hearing. On the failure of the parent, guardian or custodian, the court may by proper order cause such an examination to be made. A report of the examination must be made to the court. In order that such a child may receive such examination and care as its welfare may require, the court may cause the child to be treated in a hospital. A clause requiring every official of the District to render to the court such assistance and cooperation as may be within his jurisdictional power will give the court the benefit of the services of the District alienist for such psychopathic investigations as may be necessary.

Object to Use of Hospital Site.—Owners and occupants of dwellings that have been constructed around the 40-acre site for a municipal hospital since it was purchased by the District government for that purpose some years ago are protesting against its use for hospital purposes. The proposed hospital is classed as a potential danger to the community because it will harbor a large number of mental suspects, human derelicts and patients suffering from contagious and loathsome diseases. The presence of the institution will, it is claimed, produce a constant feeling of gloom on all who must pass by or live near it. The use of the streets leading to the hospital by ambulances and police patrol wagons is objected to. The discharge of cured patients at the doors of the institution, leaving them to find their ways back to their places of residence, is looked on as liable to cause trouble. The use of street cars by persons visiting the inmates will, it is said, interfere with the use of the cars by persons living in the neighborhood. It is proposed to carry the fight against the use of the site to Congress, which controls the matter.

Proposed Sanitary District for Maryland and the District of Columbia.—In order that the drainage from certain areas in Maryland adjacent to the District of Columbia may be disposed of safely and economically and without polluting streams flowing through the District, the legislature of Maryland is considering a bill providing for the appointment of a commission to take the matter in charge. The commission is to make surveys and divide the area within its jurisdiction into drainage districts. On determining which of these districts is most in need of sewerage and drainage facilities and of a water supply, the commission is to perfect detailed plans and specifications for the necessary work, with an estimate of the cost, and to publish these data in the county newspapers. The boards of supervisors of elections of the various counties affected by the proposed plan must on request of the drainage commission call elections to determine the will of the people with respect to the matter. If a majority vote in favor of the project the county commissioners may then sell bonds to cover the cost of the undertaking, and the work may be proceeded with. The drainage commission is authorized to enter into an agreement with the proper authorities of the District of Columbia for the emptying of Maryland sewers into and through those of the District of Columbia, and vice versa.

3. Blatherwick, N. R.: The Specific Rôle of Foods in Relation to the Composition of the Urine, Arch. Int. Med., September, 1914, p. 409.

Medicinal Use of Alcoholic Liquors in the District of Columbia.—To meet objections to the proposed prohibition law for the District of Columbia, raised by the Medical Society of the District, Senator Sheppard of Texas, who is the sponsor for the proposed law, has given notice of his intention to offer certain amendments. Under these amendments a retail druggist may sell alcoholic liquors, which he could not do under the original bill. Each sale, however, must be covered by a written and bona fide prescription. The prescription must contain a statement that the disease of the patient requires such prescription and it must be canceled when filled. The druggist must keep a record of all sales, in which the purchaser must sign his name. Ethyl alcohol may be sold without a prescription, but sales must be recorded in the same manner as sales of alcoholic liquors. Malt extracts and other proprietary medicines containing alcohol may be sold without prescription or record if they are so medicated as to be medicinal preparations or compounds unfit for use as beverages. No physician may prescribe any alcoholic liquor except for treatment of disease which, after his own personal diagnosis, he deems to require such treatment. In addition to punishment by fine and imprisonment, it is provided that in case of second conviction the license of the physician or of the pharmacist to practice his calling shall be revoked.

ILLINOIS

Society Discusses Public Health Legislation.—At the March meeting of the Whiteside County Medical Society held in Sterling, March 16, Dr. George T. Palmer, Springfield, under the auspices of the state board of health, gave an address on "Public Health Legislation in Illinois." In addition to the members of the society, county, town and city officials were present at the meeting.

Personal.—Dr. Jacob J. Mendelsohn has resigned as resident physician of the St. Charles School for Boys and will resume private practice in Chicago.——Dr. Flint Bondurant, Cairo, has been appointed physician for the Children's Home, succeeding Dr. John J. Rendleman, Cairo, who has acted in that capacity for twenty-five years.——Dr. George P. Gill, Rockford, gave an interesting account of his experiences in the war zone before the University Club, Rockford, March 9. ——Dr. Heber Robarts has been elected president of the Safety First Society of Belleville.——A luncheon was given at the Monroe Center Hotel, March 8, in honor of Dr. Henry G. Davis, who is about to leave on an extended trip to Alaska.——The home of Dr. James J. Moran, Spring Valley, was destroyed by fire, March 8, with a loss of between $8,000 and $10,000.——Dr. Clarence M. Cheadle, Rockford, has given several lectures on conditions in Serbia recently.—— Dr. Clesson C. Atherton, assistant superintendent of the Watertown State Hospital, who has been transferred to the Jacksonville State Hospital, was given a farewell entertainment, February 28, at which Dr. Joseph A. Campbell, superintendent of the institution, presented Dr. and Mrs. Atherton with a handsome silver service, a gift from the employees. ——Dr. Edward A. Foley of the Jacksonville School for the Deaf has been appointed assistant superintendent of the Watertown State Hospital.

Chicago

Billings Received Harvard Appointment.—Dr. Frank Billings has been appointed visiting lecturer on medicine at Harvard University.

Tribute to Favill.—Members of the National Dairy Council, representing every branch of that industry, held a memorial meeting at the Hotel Sherman, February 28, to pay tribute to their late president, Dr. Henry Baird Favill.

Save the Sight of Babies.—This is the motto of a campaign which is to be inaugurated with a mass meeting in Fullerton Hall Art Institute, March 31, under the auspices of the Illinois Association for the Prevention of Blindness. Drs. Frank Cary, Edward V. L. Brown and Thomas A. Woodruff are members of the executive committee of the association.

Memorial to Student.—Medical students of the University of Chicago and Rush Medical College are cooperating in a plan to establish a research scholarship in the University as a memorial to Henry Ginsburg, an alumnus of University of Chicago of 1914, and a member of the senior class of Rush Medical College who died at Michael Reese Hospital, March 9. It is planned to raise $1,500 for the endowment of this scholarship.

Another Typhoid Source.—The health commissioner announces that the insanitary condition of the grounds of the South Shore Country Club may have been in part responsible for the epidemic of typhoid fever in the section supplied by the Sixty-Eighth Street pumping station. There is said to be a building on the club grounds containing two shower baths and three toilets which have no connection with any sewer. This building is within 100 feet of one of the principal intake wells of the pumping station.

Chicago Men Make Addresses.—Dr. Dean DeWitt Lewis was the guest of honor and delivered an address before the Calhoun County (Mich.) Medical Society at Battle Creek, March 7.——Drs. Arthur Dean Bevan and Lewis L. McArthur delivered addresses before the Los Angeles County (Calif.) Medical Association, March 2. Dr. Bevan's subject was "Obsessions in Surgical Practice," and Dr. McArthur spoke on "Thrombo-Angiitis Obliterans."——Dr. Albert E. Halstead spoke before the Muskegon-Oceana County (Mich.) Medical Society, March 1, on "Clinical Significance of Increased Intercranial Pressure."——Dr. Benjamin F. Lounsbury addressed the Linn County (Iowa) Medical Society at Cedar Rapids, March 1, on "Fracture of the Os Calcis."——Dr. Clifford G. Grulee delivered the principal address at the sixteenth annual banquet of the Phi Rho Sigma National Medical Fraternity in Omaha, February 26.

Personal.—Dr. Theodore B. Sachs resigned as president and a member of the board of directors of the Chicago Municipal Tuberculosis Sanatorium, March 20. In his letter to the mayor, Dr. Sachs expresses his opinion that "after ten months' experience with the present administration continuance of efficient service, under the present conditions is practically impossible."——Dr. Fred C. Zapffe has resigned as secretary of the Chicago College of Medicine and Surgery. ——Dr. H. Wernicke Gentles, head of the First Aid Department of the Chicago Section of the American Red Cross, will conduct a class in first aid work at the University of Chicago during the spring quarter, under the auspices of the College Y. M. C. A.——Dr. and Mrs. Arthur Dean Bevan have returned after a trip to the Pacific Coast.——Dr. Edward K. Armstrong has been appointed a member of the pediatric staff of Cook County Hospital, succeeding Dr. Joseph Brennemann, resigned.——Dr. Nelson H. Lowry is ill at his home with scarlet fever.——Dr. and Mrs. E. Wyllys Andrews have returned from Florida.——Dr. Georgiana M. D. Theobald, as the result of a recent state civil service examination, has qualified for the position of pathologist at the Illinois State Eye and Ear Infirmary.

INDIANA

New Buildings at Epileptic Village.—The Indiana Village for Epileptics, near Newcastle, is to open two new buildings for men. An appropriation has been made by the state for buildings for women, but it will be a year or so before these are completed. The superintendent is seeking a list of all the epileptics in the state with a view to their transfer to the new institution.

Sanitary Survey of Summer Resorts.—During the coming summer the water department of the Indiana State Board of Health will conduct a sanitary survey of the summer resorts of the state. The frequency of typhoid fever, following the return of persons from summer resorts, has led the board of health to believe that there must be some item of summer life which is not of the highest standard from a sanitary viewpoint.

Personal.—Dr. George B. Hoopingarner, secretary of the board of health, Elkhart, tendered his resignation after formal action by the two other members of the board to force him to resign. The mayor charged him with various omissions of duty.——Dr. Jesse L. McElroy, Darlington, has resigned as house physician to the State Hospital, Indianapolis, and has been succeeded by Dr. Frederick E. Jackson. ——Dr. Walter B. Christophel, Mishawaka, was seriously injured by the overturning of his automobile, February 21.

Conference of Charities.—The National Conference of Charities is to be held in Indianapolis, May 10-17. Among the names appearing on the program are: Dr. John N. Hurty, secretary of the state board of health, Indianapolis; Dr. Charles S. Woods, superintendent of the Methodist Hospital, Indianapolis; Dr. Fred Henshaw, dean of the Indiana Dental College, Indianapolis; Prof. L. J. Rettger of the State Normal at Terre Haute; Dr. David C. Peyton of the Indiana Reformatory; Dr. Samuel E. Smith of the Eastern Hospital for the Insane, Richmond; Dr. Juan B. Guiteras, director of the National Hospital and professor of medicine, National University, Havana, Cuba, and Dr. Eugene L. Fisk, director of hygiene, New York.

Food, Drug and Sanitary Inspectors Meet.—The final session of the conference of the state, county and city food, drug and sanitary inspectors was held, March 16, at Indianapolis. Dr. Herman G. Morgan, city sanitarian, discussed the diseases that may be spread by the milk supply of a city. Dr. John N. Hurty, state health commissioner, spoke on the subject of "How Local Officials May Cooperate with the State Board of Health." Dr. G. W. Butler, chief of the federal meat inspection work in Indiana, discussed the meat inspection work. It was decided to organize a permanent association. Dr. Herman G. Morgan, Indianapolis, was elected president; A. W. Hedrich, Chicago, vice president, and Harry S. Truitt, Columbus, secretary.

IOWA

Hospital News.—A new hospital will be erected in Estherville in the early spring by Miss Josepha Roberts. The building will cost about $7,000, will accommodate twenty patients, and will be under the charge of Drs. Albert Anderson and Raymond C. Coleman.——The state board of control has let the contract for the construction of an additional building at Oakdale, the State Tuberculosis Sanatorium, to a Cedar Rapids firm for $58,600. The new building will be four stories in height, fire proof, and will provide quarters for sixty additional patients.——Dr. Lynn L. Lorenz has leased the May Hospital, Charles City.——The Marengo Hospital will be ready for occupation about April 1.

Personal.—Dr. and Mrs. William L. Allen, Davenport, have returned after a six weeks' trip to the Pacific Coast.——Dr. Royal C. Danley, Hamburg, fractured his collar bone and suffered severe bruises by the overturning of an automobile near Shenandoah, March 9.——Dr. Michael A. Cunningham, surgeon to the State Sanatorium, Oakdale, has been made assistant superintendent of the institution.——Dr. Oliver S. Barber, Creston, has been appointed postmaster of that city. ——Dr. Campbell P. Howard, Iowa City, delivered an address before the Des Moines Pathological Society, February 25, on "Medical Aspects of the War in France."——Dr. Will D. Runyon, assistant superintendent of the State Sanatorium, Oakdale, has been appointed resident physician in the National Printers' Home, Colorado Springs, Colo.—— Dr. John Henkin has resigned his position in the children's department of the University of Iowa Hospital, Iowa City, to become an intern in Cook County Hospital, Chicago.

KANSAS

State Society Meeting.—The annual meeting of the Kansas Medical Society, which will also celebrate its semicentennial on this occasion, will be held in the Memorial Hall, Topeka, May 3 to 5. Among the speakers already secured from outside the state are Drs. George W. Crile, Cleveland, and Fred H. Albee, New York.

Dispensary Moved.—The free dispensary of the Bell Memorial Hospital, Rosedale, has moved into new quarters and a new schedule is in operation. In the morning from 10 to 12 o'clock, medical, surgical and eye cases will be treated, and the afternoon from 2 to 4 will be devoted to diseases of women and children, skin diseases, and diseases of the nose, ear and throat.

Personal.—Dr. Samuel Adams, Niles, has been appointed assistant surgeon of the Soldiers' Home, Leavenworth.—— Dr. John W. C. Boone, assistant surgeon at the State Soldiers' Home, Leavenworth, has resigned, to take effect April 5.——Dr. Jacob R. Pierce has resigned as surgeon of the Soldiers' Home and has been succeeded by Dr. S. Clifford Cox, Washington, D. C.——Dr. Henry W. Nye, Osborne, has been appointed local surgeon for the Salina Northern Railroad. ——Joseph T. Lovewell, Ph.D., for eleven years secretary of the State Academy of Sciences, and for twenty-one years professor of physics and chemistry in Washburn College, Topeka, has announced that he will retire from the public service, July 1.

LOUISIANA

Physician Wins Suit.—A jury in the district court at Baton Rouge, in a suit brought by Dr. Robert C. Kemp against Stephen P. Schuesster for $261.10 for professional services rendered the defendant's wife, rendered a verdict in favor of Dr. Kemp.

Dowling Initiated as Honorary Member of Fraternity.—Dr. Oscar Dowling, president of the state board of health, was initated, March 18, as an honorary member of the Alpha Beta Chapter of the Phi Beta Pi Medical Fraternity, located at Tulane University. Addresses were made by Drs. Homer J. Dupuy, Jr., and Henry W. E. Walther.

Transfer of Quarantine.—Mayor Behrman of New Orleans states that there has been little opposition to the Estopinal Bill, which makes an appropriation of $300,000 for a new quarantine station inside the city limits of New Orleans. Options have been secured on a tract of land on the Algiers side of the river for the quarantine station, and the transfer at an early date seems assured.

New District Society.—The first semiannual meeting of the recently organized Fourth District Medical Society, which includes the Bienville, Bossier, Caddo, Claiborne, DeSoto, Red River and Webster parishes, will be held in Shreveport, March 23. Dr. Clifford H. Iron, Benton, is president of the association; Drs. Clarence E. Edgerton, Coushatta, and John L. Kimbell, Shreveport, are vice presidents, and Dr. A. A. Harold, Shreveport, is secretary-treasurer.

MARYLAND

New Home for Hospital.—The Baltimore Skin and Cancer Hospital has recently purchased a new home on Greenmount Avenue, and proposes at an early day to establish a free dispensary in connection with the institution.

Personal.—Drs. Stewart Vernon Irwin and Jerome Pierce Webster of the staff of the Johns Hopkins Hospital have been named and now are on their way to Berlin to make a scientific examination of conditions prevailing at the great prison camps in Germany. They will report to the American Red Cross headquarters at the American Embassy.——Dr. Charles Wellman Mitchell, former dean of the medical school of the University of Maryland and a leading specialist of Baltimore in children's diseases, is very ill with pneumonia at his home.——Dr. J. McPherson Scott, mayor of Hagerstown, is seriously ill with pneumonia.——Dr. Arthur M. Shipley entertained the members of this year's graduating class of nurses and the resident physicians of the University Hospital recently at his home in Baltimore.——Dr. John F. Spearman, formerly of the staff of Mercy Hospital and now engaged in surgical work at that hospital and at the United States Marine Hospital, spoke before the members of the Medical Society of the University of Maryland and the College of Physicians and Surgeons. His address was illustrated with photographs, and entitled "Incidents of Service with the American Red Cross in Europe." Other speakers at the meeting were: Drs. E. F. Greutzner, Robert P. Bay, Harvey G. Beck and Standish McCleary. Dr. Albert H. Carroll was chairman and Dr. Alexius McGlannan, secretary. ——Dr. Frank W. Keating, superintendent of the Rosewood State Training School, at Owings Mills, recently underwent operation for appendicitis at the University of Maryland Hospital, and is reported to be improving rapidly.

MICHIGAN

Personal.—Dr. Frank W. Shumway, Lansing, has been appointed a member of the State Pardons Board, succeeding Dr. John C. Brown, Battle Creek, term expired.——Dr. Heinrich A. Reye, for two years a member of the medical staff of the Pontiac State Hospital, has resigned.——Dr. Emory J. Brady, assistant medical superintendent of the Traverse City State Hospital, has accepted the superintendency of a sanitarium in Colorado Springs, Colo.——Dr. Don M. Griswold, formerly chief of the Detroit board of health laboratories, is reported to be ill with tropical fever in Trinidad.

Scarlet Fever Prevalent.—A survey of Muskegon, Newaygo and Oceana counties for scarlet fever has been ordered by the secretary of the state board of health. Dr. George S. Williams, Muskegon, will be in charge of the survey. The epidemic is reported to be due largely to laxity of quarantine and the failure of local health officers thoroughly to grasp the conditions facing them. It is reported to be preliminary to a state-wide campaign against disease.——The Muskegon Employers' Association has officially tendered its support and cooperation to the health authorities in their fight against scarlet fever.——During January and February, 1916, 1,188 cases of scarlet fever were reported to the state board of health, nearly double the number reported during the same period of 1915.

MINNESOTA

Children's Hospital Needed.—Directors of the Charles T. Miller Hospital, St. Paul, for which $1,750,000 was bequeathed by Mrs. Miller, may be asked to apply the bequest to build a children's hospital, which is much needed in the city.

Health Advertisements.—The Street Railway Company of Minneapolis has donated advertising space in its cars for six weeks to the Public Health Committee of the Civil and Commerce Association. Cards will be placed in the cars giving advice regarding personal health and public sanitation.

Public Health Association Work.—The people of the state contributed liberally to the Red Cross Christmas seal campaign, raising $30,120 for the fund, or an increase of more than 50 per cent. over the previous year. Of this amount, $13,000 is to be applied to the public health propaganda for the state.

Communicable Diseases.—Dr. E. A. King, Minneapolis, has been temporarily appointed an assistant in the city health department during the prevalence of measles. Measles is reported to be very prevalent in Duluth. Special contagious disease inspectors have been appointed to assist in stamping out the infection. There are believed to be about 500 cases in the city.

Hospital News.—The contract for a new addition to the State Hospital has been awarded to Mankato contractors. The new hospital will accommodate seventy patients.—— The Eudestine Sisters have acquired the property of the North Minnesota Hospital, International Falls. The institution has accommodation for fifty patients.——A movement has been initiated at Barnesville to establish a hospital in that village.

Visiting Nurses.—The Minnesota State Public Health Association has employed two nurses to spend about one month in each community. They report that in cities of about 3,000 one nurse could be kept busy almost the entire year for the schoolchildren alone. In Worthington, for instance, with a population of 2,800, 25 per cent. of the children have defective vision, 20 per cent. defective hearing and 95 per cent. need the attention of dentists. Similar findings were reported at Montividego.

Sanatorium News.—In the Marshall-Roseau County Sanatorium matter, in which there was dissension over the selection of a site, Roseau County has declared its intention to withdraw from the agreement and it is now proposed to unite Marshall and Pennington counties in this project, with Thief River Falls as a site for the sanatorium.——The Aikin-Crow Wing County Tuberculosis Sanatorium Association has decided on the erection of a sanatorium on the site of the former fish hatchery of Crow Wing County near Deerwood at a cost of $30,000. The sanatorium will accommodate thirty-five patients.

Personal.—Dr. Joseph A. Gates, Kenyon, a member of the legislature from Goodhue County in 1905, 1907 and 1909, announces his candidacy for lieutenant-governor of the state. ——Drs. Edward E. Webber and Edward H. Nelson are rival candidates for president of the village of Chisholm.—— Dr. Arthur E. Benjamin, Minneapolis, has been elected president, and Dr. Ernest Z. Wanous, secretary-treasurer of the McLeod County Association of the Twin Cities.——Dr. Samuel H. Boyer, Duluth, has been appointed a member of the State Board of Medical Examiners, succeeding Dr. Frank B. Hicks, Grand Marais, term expired.

MONTANA

Personal.—Dr. Thomas A. MacKenzie, Miles City, has started for Calgary to report for duty for overseas service with the Canadian forces.——Dr. Clarke S. Smith, Kalispell, a member of the Chicago unit, has returned from service in Northern France, about forty miles from Ypres.

Hospital News.—A new fireproof hospital, four stories in height, 150 by 40 feet, is to be built in Missoula by the Northern Pacific Beneficial Association.——Work will soon be commenced on the additions to the State Tuberculosis Sanitarium, Galen, for which $20,000 was appropriated by the last legislature. The additions will increase the capacity of the institution by thirty patients. A dining room, kitchen and hospital pavilion will also be built.

NEBRASKA

New Officers.—Johnson County Medical Society at Tecumseh, February 23: president, Dr. Dora M. Judkins-Davies; vice president, Dr. Joseph M. Curtis, and secretary-treasurer, Dr. Truman E. Fairall (reelected), all of Tecumseh.

Personal.—Dr. John H. Vance, Omaha, who has been seriously ill with septicemia, is reported to be convalescent.—— Dr. William D. Guttery, superintendent of the Nebraska State Hospital, Norfolk, has been permanently suspended and has returned to his old home in Pilger. Dr. Harry R. Carson is temporarily acting as superintendent.

NEW YORK

New State Secretary Appointed.—At a meeting of the Council of the Medical Society of the State of New York, March 15, Dr. Floyd M. Crandall was appointed secretary to fill the vacancy caused by the death of Dr. Wisner R. Townsend.

Incorporate for Study of Tuberculosis.—The Association for the Promotion of Medical Research for the Prevention and Cure of Tuberculosis was incorporated, March 12. The chief office of this organization will be in Manhattan, but its field of labor will include the entire United States. It proposes to establish professorships and scholarships in medical schools, and to maintain institutions for the treatment of tuberculosis.

Would Aid State in Establishing Psychopathic Institution.—At a hearing on the Wheeler bill, March 15, Dr. Max G. Schlapp stated that a donor who did not wish his name divulged had offered $500,000 toward a psychopathic institution provided the Wheeler bill was passed by the legislature. This bill would create a state clearing house for the mentally deficient and would create a commission of seven with an executive manager to supervise the work of examining and diagnosing the cases of the mentally deficient and to investigate the causes of mental deficiency. No one opposed the bill.

Anthrax.—The Division of Industrial Hygiene of the State Industrial Commission has been investigating cases of anthrax which have developed in the state. During the last year, in the upper district of New York, eleven cases occurred in human beings, seven of which developed in tannery workmen, three among farmers and one in a schoolboy. Of these cases, four proved fatal. The appearance of the disease appeared after the handling of Chinese and South American hides. The medical inspector states that "the confiscation and destruction of infected hides of carcasses of domestic animals and the preclusion from commerce of imported spore-bearing skins, are the only means of combating anthrax which is at our disposal."

Mohansic Hospital Plan Abandoned.—Governor Whitman and legislative leaders, after a conference on March 17, decided that some sort of measure providing for the abandonment of Mohansic State Hospital and the Yorktown Heights Training School for Boys on the Croton watershed should be put through at the present session of the legislature. The question that remains to be decided is the terms on which this abandonment should be taken, some holding out that the city should reimburse the state for the money spent there since the reason for abandoning the institution is that it menaces the purity of the water supply of the city, and a former bill providing for abandonment was vetoed by Governor Glynn at the request of the mayor of the city.

New York City

A New Eye Clinic.—The West Side German Hospital and Dispensary opened its eye clinic, March 15. Dr. Alfred H. Riedel is chief of clinic.

Personal.—Dr. John E. Daugherty has been appointed medical superintendent of the Greenpoint Hospital, Brooklyn, to succeed Dr. Charles F. Sanborn.

Decennial Celebration of Society.—The Williamsburg Medical Society will celebrate its decennial by a banquet and entertainment given in honor of Dr. Abraham Jacobi, April 14, at Willoughby Mansion, Brooklyn.

Harvey Society Lecture.—The ninth lecture under the auspices of the Harvey Society, delivered at the New York Academy of Medicine, March 25, by Dr. Rollin T. Woodyatt, University of Chicago, was on "Intermediate Carbohydrate Metabolism."

Memorial Tablets Unveiled.—Memorial tablets to Dr. Abram Brothers and Dr. Archibald Isaacs, lately members of the medical staff of Beth Israel Hospital, were unveiled and dedicated at that hospital on Sunday, March 12, with appropriate ceremonies.

The Pilcher Semicentennial.—The Lewis Stephen Pilcher semicentennial will be celebrated May 11, 12 and 13, with a program consisting of public clinics and a public banquet on the evening of May 12. This celebration will be of not only national but international significance.

Memorial to Dr. O'Connell.—The last report of the late Dr. J. O'Connell, as health officer of the port, is to be printed and circulated to the extent of a thousand copies, as a memorial to his work during his term of office. The senate passed a resolution authorizing the printing, March 16.

Memorial Hospital at Irvington.—Mrs. Isaac L. Rice has purchased about 14 acres of land on Broadway, Irvington, N. Y., known as the Guiteau estate, as a site for the million dollar memorial hospital to be erected in honor of her husband. The nucleus of the institution will comprise four buildings, the main structure containing 100 beds and a number of private rooms. The hospital will be allied with the Beth Israel Hospital, and will be especially for persons suffering from nervous breakdown.

Preparing for Mosquito Campaign.—It has been announced that the week beginning May 1 will be designated "mosquito week," when special efforts will be made to exterminate the pests and do away with mosquito-breeding collections of water. In preparation for this campaign the board of health will breed a colony of mosquitos for purposes of experiment and demonstration in the public schools, hoping in this manner to familiarize the pupils with the requirements and habits of the mosquito and to interest them in its extermination.

For Drug Addicts.—The Board of Inebriety has, with the aid of the Commissioner of Charities, obtained additional facilities for the treatment of drug addicts at the City and Kings County hospitals. These hospital facilities, in addition to the hospital and industrial colony for inebriates at Warwick, N. Y., where construction is under way which will provide accommodations for 300 inmates, will make possible for these drug habitués a continuity of skilled treatment and proper control until they are ready to be returned to the city.

Hospital and School for Defective Children.—Commissioner of Charities John A. Kingsbury has announced that an initial appropriation of $600,000 has been made to start the work of rebuilding and reorganizing the New York City Child's Hospital and Schools on Randall's Island, where the city's mentally deficient children are housed, and that it is understood that $1,000,000 more will soon follow. He also announces that the name will be changed so that New York may forget the archaic institution and think of a modern and well-equipped institution for the care of mentally defective children. There are at the present time about 2,000 defectives and defective delinquents in the institution. It is estimated that there must be 120,000 defectives in the city.

Lectures on Military Administration.—A course of six lectures on military administration, medical and surgical, will be given at the College of Physicians and Surgeons in the City of New York on Tuesdays at 5 p. m., beginning March 28. These lectures will be opened to the general medical public as well as to the students. The schedule is as follows:

March 28: "Organization, Equipment and Training of Armies," Lieut.-Col. William S. Terriberry, M. C., N. Y. N. G.
April 4: "Organization of the Medical Department, and Its Service in Campaign," Major Joseph H. Ford, M. C., U. S. Army.
April 11: "Wounds in War, their Complications and Treatment," Major Joseph H. Ford, M. C., U. S. Army.
April 18: "The Personal Hygiene of the Soldier," Major Sanford H. Wadhams, M. C., U. S. Army.
April 25: "Camp Sanitation," Captain Philip W. Huntington, M. C., U. S. Army.
May 2: "Preventable Diseases in War," Captain Philip W. Huntington, M. C., U. S. Army.

Activities of the Health Committee of the Academy of Medicine.—The Public Health Committee of the New York Academy of Medicine has issued a leaflet containing a summary of its activities during January and February. These include the recommendation of the transfer of quarantine to federal control; the matter of social health insurance, including provision of periodic medical examinations; the supplying of medical, surgical and nursing aid; the cooperation with state and local health authorities; the utilization of existing dispensaries for the administration of medical benefits; the arrangement for medical and surgical care where no dispensaries exist; the construction of a contagious disease hospital in the Bronx; a study of the present facilities for diagnosis of suspected cancer tissue; a fifth medical year; the study of hospital standards, their efficiency and relation to medical examination; the Gary plan of school instruction; the question of street accidents, overcrowding of infants' wards and institutions; standardization of commercial diagnostic laboratories; legislation with reference to "patent

medicines," and medical advertisements and the concentration of activities within the department of education.

Clinic for Pay Patients at Mt. Sinai Hospital.—A clinic for pay patients has been proposed to be conducted by the Mt. Sinai Hospital in connection with a group of specialists. This clinic is for the use of ambulant patients in moderate circumstances that they may be able to consult reliable specialists without being compelled to pay office fees beyond their means. The purpose of the clinic is to confine its aid to persons having incomes of $1,200 a year or less. The patients will be admitted on week days from 7:30 to 9 p. m. There will be a registrar who will receive applicants or reject applicants not eligible for treatment, keep the records of the clinic, and collect and account for the fees. The hospital contributes the use of its dispensary building and equipment; all earnings and necessary expenditures will be divided among the members of the medical staff in proportion to their hours of attendance. The standard fee for routine or office consultation will be $1. Medicine will not be furnished by the clinic and a moderate extra charge will be made for Roentgen ray work or any other unusual laboratory investigation. The members of the staff will be prepared to see patients of the clinic in consultation with general practitioners. The fees to be charged for this work will be agreed on by the practitioner presenting the case and the clinic physician consulted, and should ordinarily not exceed $2 or $3.

PENNSYLVANIA

Personal.—Dr. Zachariah C. Myers, York, was elected president of the Pennsylvania branch of the General Alumni Association of the University of Maryland at its annual meeting in Philadelphia.——Dr. Elmer E. Bush, Danielsville, has been appointed district surgeon for the Lehigh and New England Railroad.——Dr. John C. Miller, Shenandoah, has returned after a year of Red Cross work in Europe.

Philadelphia

Personal.—Dr. Ernest LaPlace has been appointed professor of surgery in the Medico-Chirurgical College of Philadelphia, succeeding the late Dr. William L. Rodman. ——Drs. William K. Mueller, chief medical examiner, and Dr. Clinton J. Foltz, assistant medical examiner, severed their connection with the Civil Service Commission, March 15, when the new ordinance became effective.——Dr. John P. Bethel has been appointed first assistant bacteriologist in the bureau of health.——Dr. Powell P. Fenton, who has been on duty with the ambulance service in the French army, has been awarded the Cross of War by the French government for distinguished and meritorious service.——Dr. Francis V. Gowen sailed from New York for Bordeau, March 10, on the *Chicago*. He will be attached to a military hospital at Beaumont, Perigord, France.

Honor to Rodman.—The Philadelphia County Medical Society, at its meeting, March 8, adopted resolutions setting forth the high esteem and great worth of the late Dr. William L. Rodman as an author, teacher and surgeon, and placing on record its high appreciation of his professional attainments and manly character.——The funeral of Dr. Rodman was held from his house, March 10, and services were held at the Second Presbyterian Church, and the body was taken to Frankfort, Ky., for interment. The pallbearers were Surg.-Gen. William C. Braisted, U. S. Navy; Surg.-Gen. William C. Gorgas, U. S. Army; Surg.-Gen. Rupert Blue, U. S. P. H. S.; Col. Louis A. LaGarde, M. C., U. S. Army, retired; Capt. Hugh Rodman, U. S. Navy; Drs. L. Webster Fox and Joseph W. Holland, Philadelphia, and Dr. William B. Coley, New York.

TEXAS

Dispensary Established.—A free medical dispensary was opened in the basement of the Abilene County Courthouse, Abilene, March 6, under the auspices of the Women's Federated Clubs of the city. The free clinic for white women has been established at the John Sealy Hospital. The clinic will be open from 12 to 1 p. m. every day. A woman physician will be in charge on Tuesdays, Thursdays and Saturdays, and a male physician on the other three days of the week.

State Board Happenings.—Dr. Arthur McElhannon, Sherman, has been appointed a member of the State Board of Medical Examiners, vice Dr. Milton P. McElhannon, Belton, resigned.——At the annual meeting of the board, held in Temple, March 5, S. L. Scothorne, Dallas, was elected president; Dr. John S. McCelvey, Temple, secretary-treasurer; Dr. Horace C. Morrow, Austin, vice president; Dr. John H. McLean, Fort Worth, chairman of the college committee; Dr. Thomas J. Crowe, Dallas, chairman of the executive committee, and H. B. Mason, Temple, chairman of the reciprocity committee.

Health Work Demonstration.—The Texas State Board of Health has adopted the plan of demonstration of public health work. Three demonstration districts have been selected in Leon, Harrison and Polk counties, and every feature affecting the health of the inhabitants of these districts will be studied. This intensive health work begins with a series of lectures on prevention of illness delivered in every locality in the county. A sanitary survey will then be made, a laboratory established, a house-to-house canvass made, homes and public buildings inspected and all sanitary conditions pointed out, the schoolchildren inspected for physical defects, lectures on preventive diseases will be given, and during the last week of the campaign carpenters will be secured, houses screened and sanitary privies constructed. This campaign is under the direction of Dr. Platt W. Covington of the International Health Commission, working under the auspices of the state board of health.

GENERAL

The Wine of Cardui Suit.—As we go to press the jury in the suit of the Chattanooga Medicine Co. vs. the American Medical Association and the editor of THE JOURNAL is being impanelled.

The President to Regulate Sanitation in the Canal Zone.—The president will be authorized, if a bill recently introduced by Representative Britten of Illinois becomes a law, to make rules and regulations in matters of sanitation and quarantine and regulations of a police nature for the Canal Zone.

Ill with Typhus in Mexico.—Drs. Carlos Husk and Peter K. Olitsky, members of the expedition sent by the Rockefeller Foundation to combat typhus fever, became ill with typhus fever at Nuevo Laredo, Mexico. It is reported that the condition of Dr. Olitsky is improved. Dr. Husk died March 20.

Medical, Scientific, Educational and Philanthropic Institutions Not to Be Affected by Fixed Price Legislation.—A bill has been introduced into Congress by Senator Ashurst of Arizona, providing a method whereby a grower, producer, manufacturer or owner of an article under a trade-mark or special brand, who sells it to a dealer, can prescribe the price at which it shall be resold, the object being to prevent cut prices. It is expressly provided, however, that the act shall not apply in cases of sales of such articles to any society or institution established solely for educational, medical, scientific or philanthropic purposes.

Oppose Whitman's Plan.—Governor Whitman's plan to turn over the office of health officer of the port of New York to federal authorities is apparently facing defeat in the legislature as the senate finance, and assembly ways and means committees have failed to take any action on the administration bills clearing the way for this transfer, and as the finance committee has thus far refused to report the governor's nomination of Assistant Surg.-Gen. Leland E. Cofer, U. S. P. H. S., temporarily to succeed the late Dr. Joseph O'Connell, Brooklyn, as health officer. Dr. Cofer was nominated merely to fill the unexpired term of Dr. O'Connell.

Viruses, Serums, Toxins and Analogous Products for Use in the Treatment of Domestic Animals to Be Better Supervised.—A comprehensive bill to regulate commerce in and importation of viruses, serums, toxins and analogous products for use in the treatment of domestic animals has been introduced into Congress by Representative Steele of Iowa. If enacted in its present form domestic animals will have better legal protection against danger from the class of remedies named than will human beings, unless in the meantime there should be similar legislation for the protection of the humans. The execution and enforcement of the law will be under direction of the secretary of agriculture.

Social Hygiene.—The prize of $1,000, given by the Metropolitan Life Insurance Company, through the American Social Hygiene Association, for the best pamphlet on Social Hygiene for Boys and Girls, has been awarded Dr. and Mrs. Donald B. Armstrong of Stapleton, S. I. Dr. Armstrong is director of the Social Welfare Department of the New York Association for Improving the Condition of the Poor, and Mrs. Armstrong is actively interested in social and philanthropic work. Nearly 500 essays were entered in competition from all parts of the United States, Canada, Europe

and South America, and the task given the judges to compare and pass on these manuscripts was not light. The judges were: Mrs. Martha P. Falkner, superintendent of the Sleighton farms, State Training School for Girls, Darlington, Pa.; Lee K. Frankel, sixth vice president of the Metropolitan Life Insurance Company, New York; Dr. Luther H. Gulick, president of the Campfire Girls of America; Miss Julia C. Lathrop, chief of the Children's Bureau of the United States Department of Labor; Dr. Milton J. Rosenau, Harvard Medical School; Dr. Victor C. Vaughan, dean of the Department of Medicine and Surgery, University of Michigan; and Mrs. Ella Flagg Young, formerly superintendent of schools of Chicago. Dr. and Mrs. Armstrong's essay will appear in the next issue of the *Quarterly Magazine* of the American Social Hygiene Association.

Bequests and Donations.—The following bequests and donations have recently been announced:

Daviess County Hospital, Washington, $6,000, by the will of Miss Elizabeth Hogshead of that city.

Lebanon Hospital, New York, $7,000, and a medical library valued at $4,020, by the will of Abraham Meyer.

New York Eye and Ear Infirmary, $10,000, by the will of Miss Serena Rhinelander.

Methodist Episcopal Hospital, Brooklyn, $10,000, by the will of George W. Collard.

Beth Israel Hospital and Lebanon Hospital, New York, each $1,000, by the will of Henry Glass.

Beverly (Mass.) Hospital, about $7,000, being one half of the residue of the estate, by the will of Annie E. Simonds, Beverly.

Grady Hospital, Atlanta, Ga., a donation of $10,000, for the building of a nurses' home by Mrs. Joseph Hirsch, Joseph H. Hirsch, Jr., Atlanta; Mr. Milton Hirsch, Chicago, and Mrs. Arthur L. Wile, Savannah, Ga. The home for nurses is to be known as the Joseph Hirsch Memorial.

Lakeside Hospital, Cleveland, $250,000; Charity Hospital, $50,000; St. Alexis Hospital, and the School of Medicine of Western Reserve University, Cleveland, each $50,000; and the Babies' Dispensary and Hospital, $25,000; the Tuberculosis Free Dispensary and the Maternity Hospital, Cleveland, each $25,000, by the will of Robert R. Rhodes, Cleveland.

St. Luke's Hospital, Orlando, Fla., a donation of $5,000, from "a friend on the East Coast."

Dr. Calvin S. May, New York, $2,000, by the will of Mrs. Alice T. Wheelock.

Dr. George M. Swift, New York, $10,000; St. Mary's Free Hospital for Children, New York, $80.000; St. Luke's Hospital, New York, $25.000, by the will of Mrs. Mary Van Nest Jackson.

Sisters of Charity of St. Vincent De Paul, for establishing a branch of St. Vincent's Hospital at Stanford, Dutchess County, N. Y., for the treatment of sufferers from cancer, $300,000; St. Joseph's Hospital, Yonkers, N. Y., $10,000; German Hospital, Catholic Institute for the Blind, and Knapp Memorial Eye Hospital, New York, each $5,000, by the will of Mrs. Mary A. Halloran.

Davis Memorial Hospital, Elkins, W. Va., $30,000, by the will of Henry Gassaway Davis.

FOREIGN

Deaths in the Profession Abroad.—P. Grocco, senator and professor of internal medicine at the University of Florence, Italy, and author of numerous contributions to science on the pathologic physiology of the heart and lungs, aged 60. Grocco's paravertebral triangle of dulness on the side opposite a pleural effusion and his method of percussion are familiar in the textbooks.——J. F. Schmid of Bern, Switzerland, chief of the national public health service, which he was influential in organizing and had brought to a high grade of efficiency during his twenty-seven years of service in it, aged 66.

WAR NOTES

The Censor in Italy.—An Italian exchange brings word that the authorities have forbidden the publication of any items relating to the health and sanitary condition of the troops.

The Camp University in Italy.—The *Policlinico* relates that on February 13 San Giorgio di Nogaro was the scene of a notable event, namely, the inauguration of the "Universita Castrense," under the auspices of the government and the military authorities. The aim of the "Camp University" is to enable the last two years' medical students serving in the army to continue their medical studies and keep up their courses. Professor Tusini is rector of the university, and Professor Ricci has charge of the bacteriologic laboratory and instruction. The list of professors includes some of the leading scientists of Italy, serving as consultants with the army, including Ascoli, Dionisi, Lustig and Sclavo. There were 400 medical students at the inauguration, and the enthusiasm was great. Barracks have been provided for the students' lodgings; the lectures are to be given in the town hall and other buildings. Besides the facilities for teaching afforded by the base hospitals for sick and wounded soldiers, headquarters have been arranged there also for cases of nervous and mental disease, etc., and every effort is being made to have the courses complete.

BERLIN LETTER

Berlin, Feb. 15, 1916.

Congress of the German Orthopedic Society

The meeting of this society was held February 8 and 9, with a program of unusual interest.

THE SAUERBRUCH ARTIFICIAL HAND

A notable contribution was that of Professor Sauerbruch, director of the surgical clinic in Zurich, who described an artificial voluntarily functionating hand which he had devised. With this hand the patient is able to lift 10 kg., and the flexor power of the forearm muscles can be made to average between 30 and 45 kg. Exercises will increase this function, and at no time is it lessened. The finger action is regulated by means of a peculiarly constructed system of pulleys, permitting each finger to be moved separately and to any desired degree, so that objects of irregular contour can be grasped firmly. Sauerbruch discussed at great length plastic operations to be performed for the purpose of utilizing, to the fullest degree possible, not only the tendons of muscles, but also the muscles themselves. He showed how the action of the biceps and triceps muscles could be carried over to this artificial hand. In the absence of a suitable illustration, words cannot be made to describe the apparatus adequately; but it would seem that this artificial hand is "almost human." While the fingers are closed by muscular action, they are opened passively by means of springs. The fingers are closed so tightly that it is almost impossible to open the hand forcibly. This makes the hand exceedingly valuable, because while the fingers are kept closed it is impossible to drop any object which has been grasped by them. With a little practice the most wonderful things can be done with this artificial hand, although it is still an artificial hand and cannot be made to perform the work of the natural hand.

REGENERATION OF NERVES

Another paper of great interest was that of Professor Edinger of Frankfort on the regeneration of nerves and a new operation for uniting severed nerves. He believes that the reunion of divided nerves is brought about, in part at least, by means of a semifluid substance or tissue thrown out by the ganglion cells, and that new material for growth is found in the peripheral "accessory growth" cells. Edinger succeeded in constructing a similar material from silicic acid. The neuraxis or axis cylinder remains permanently separated from its neuron. The separated portion of nerve fiber disintegrates; only the accessory cells for growth remain alive. Straightway, however, a new axis cylinder is thrown out from the ganglion cell, and nerve regeneration as well as restoration of function is possible even after years have elapsed since the destruction of the nerve, unless the growth of the nerve fiber is checked by scars or otherwise. Embryonal neuroglia tissue has been utilized for plastic work, and Edinger made use of such tissue in his neuroplasty. A section of artery was removed from an animal and filled with embryonal nerve tissue. The proximal and distal ends of the divided nerve were then placed within the lumen of the artery above and below, and the nerve ends reunited themselves by growth with astonishing rapidity. Ludloff's technic is said to make it possible to adapt this procedure to any case, no matter how great the distance between the divided nerve ends. Therefore, many patients have been restored to usefulness who previously would have suffered from a perpetual paralysis of the particular muscle or muscles involved. Ludloff reports a case in which function was restored within a few weeks, although 15 cm. of the ulnar nerve had been resected.

SHOT WOUNDS OF PERIPHERAL NERVES

Professor Foerster of Breslau said that the most important shot wounds of peripheral nerves are those in which the nerves of the upper extremity are injured. Frequently the nerve is completely divided, and then again the ends may be united by scar tissue. The great problem to be considered is how function can be restored. Many of these shot wounds heal spontaneously, but some do not. Foerster sutured the nerve in seventy-seven cases, and in fourteen he performed a neuroplasty. The result in most cases was that the patients were rendered fit for duty. Stoffel of Mannheim is not so well satisfied with this work. Many operations are performed late, and frequently the distance between the divided nerve ends is very great. Poor technic also is responsible for failures. He described a new method of nerve suture which makes it possible to reunite the nerve ends without tension or hemorrhage, no matter how great

the distance between them. He reported a large number of cases in which he operated, and the results show that he was too pessimistic in his statements.

SCHOOLS FOR SOLDIERS WITH BRAIN INJURIES

In discussing this subject, Professor Goldstein of Frankfurt-on-the-Main said that injuries to the brain result not only in physical, but particularly in psychic defects, the latter predominating. Speech disturbances of various kinds practically make invalids of these patients, and they become unfitted for various occupations. Many of the mental disturbances, if not of severe type, gradually disappear spontaneously; some of the patients can be reeducated, especially if they are young, so that a sort of compensation for lost function can be established. They must be taught to speak just as children are; but they will be found to be much more backward. The only proper teacher for them is a physician who is well versed in neurology and neuriatry. A special school should be established, and the reeducation treatment must be begun early before the surgical treatment is completed. Instruction should be individual, and special consideration given to the fact that these patients tire easily and that psychic shocks must be avoided. The schools should be established in hospitals, and special institutions for further treatment provided so that the patients can remain separated from the usual run of "nervous" patients. The results obtained thus far are very promising. It probably will not be possible, however, to restore these patients so that they can return to their former places in the community, but every effort should be made to influence them psychically to a degree which will permit any one of them to return to his family.

Professor Poppelreuter (Cologne-Lindenthal) described his experience at an institution of this kind in Cologne. There were sixty patients with twelve instructors. Attached to the school is a workshop or a sort of manual training department in which can be determined the patient's ability to do work. Many of the injured are able to work, although they cannot resume their places in the ordinary workaday world. Therefore, suitable employment must be secured by some body organized for that purpose.

Professor Gutzmann of Berlin did not agree with Goldstein that these patients should be taken in hand early. He has eighty patients suffering from speech disturbances in his care at the Charité. His experience has led him to fear that harm may be done by beginning this instruction too soon.

PARIS LETTER

PARIS, Feb. 24, 1916.

The War

DISINFECTION AND IMMEDIATE OR EARLY UNION OF RECENT WOUNDS

The use of Dakin's fluid in the treatment of wounds, about which so much has been said of late, continues to be much discussed in medical societies. At a recent meeting of the Société de chirurgie de Paris, Dr. Cunéo showed that in order to disinfect a recent wound and obtain immediate or early union there is no need to employ almost continuous lavage, lasting possibly several days, with Dakin's fluid. Whenever Cunéo had to treat wounds several hours old, he disinfected and reunited them successfully in the following simple manner: In the case of a seton wound amenable to immediate disinfection, by means of a pair of long forceps he passed through the wound a gauze compress, soaked in any suitable disinfectant, such as hydrogen peroxid, undiluted or diluted, tincture of iodin, 1:20, etc. Holding the two ends of this compress, he rubbed it vigorously back and forth through the wound, removing the debris of clothing and other foreign matter. This procedure was repeated two or three times. Nine times out of ten the patient developed no complications. If the wound became infected, Cunéo laid it open. In this way he or his assistants treated hundreds of wounded. In cases of tortuous wounds, the technic was a little more complex. The wound, made larger if necessary, was held open by traction forceps. Then some tepid solution was poured in until all of the recesses were washed out. The wound, having been well cleaned, was then closed without drainage.

In the case of head injuries, Cunéo carried out the following procedure early on the day that the wounded arrived. He outlined around the cutaneous wound a large flap with the convexity uppermost; the wound was circumscribed by an incision and immediately sutured. The site of the fracture was then cleaned, the splinters removed, etc., and the generally abundant hemorrhage was arrested with tampons. Two or three days afterward, if the patient was doing well, the tampon was removed and the flap was sutured without draining. Wounds treated in this way gave a greater percentage of cures than that obtained by Cunéo with his old technic (cruciform incision, cleaning of the site of fracture, and prolonged tamponing).

Cunéo disclaimed the credit for originating the procedure described, which is in general use at the front. He believed that the recent circular addressed to the military physicians on the initiative of Dr. Tuffier extoling the use of Dakin's fluid was, at least, futile.

Dr. Tuffier replied that, although several hours after the wound has been made a mechanical disinfection, consisting of opening up, the removal of foreign material, and the excision of mortified parts, was alone sufficient to insure secondary reunion of a wound of war, such a procedure is no longer sufficient after several days have passed. At that time he believes a chemical disinfection necessary. Such a disinfectant is Dakin's fluid which therefore ought to be considered an excellent topical application.

Dr. Quénu believes that this statement of Tuffier's throws considerable light on the question of dressing with Dakin's fluid. Tuffier admits, in fact, that early primary reunion will take place with any chemical application whatever, provided the wound is cleaned during the first hours after it has been received, and is freed from contused parts and splinters. Quénu has repeated this continually to the Société de chirurgie and the Académie de médecine in response to a communication from Professor Pozzi (THE JOURNAL, Dec. 11, 1915, p. 2101, and Feb. 5, 1916, p. 442.)

Dr. Broca stated that for a long time all surgeons have been aware of primo-secondary reunion of wounds, that is to say, reunion of wounds at the stage of granulation. Why, then has this "new" method created such a sensation? Does it not seem as if Dr. Carrel, who is a physiologist but not a surgeon, finding himself confronted by facts that heretofore were unknown to him, believed his practice new because surgeons had passed over in silence observations which to them were not unusual?

Professor Monprofit of Angers believes that it is unwise to speak too much at present of immediate or secondary reunion in surgery at the front, where even now there may be seen at times unsatisfactory results from immediate reunions; it is to be feared that inexperienced persons may be induced by such reports to attempt to produce reunions that will not be favorable to the wounded. Monprofit believes that it is best to hold to the classic rules of surgery—incision, opening up, cleaning the wound, and drainage—the nature of the antiseptics used being of less importance.

Dr. Hartmann concluded: (1) that, according to the consensus of opinion, disinfection of wounds of war is easier the sooner the treatment is begun after the wounds have been received; (2) that this disinfection may be effected by different means; Tuffier himself described a series of complicated fractures of the thigh, the humerus, and the pelvis that were reunited immediately without complications after disinfection by agents other than Dakin's fluid, thereby showing that this liquid, and, consequently also, the circular he prepared, is useless; (3) that the treatment of wounds described in this circular is even dangerous since it is practiced by physicians who have only recently had any surgical experience. On the other hand, according to Monprofit, physicians in general should realize the utility of opening up and draining.

TREATMENT OF HEAD WOUNDS

Dr. Arnaud made an interesting communication on this subject to the Réunion médico-chirurgicale de la X-e armée. According to him, every head wound, however small, should be laid open to ascertain whether or not there has been any injury to the skull. Even if there seems to be a mere scratch or abrasion, the skull should be trephined, for thus it may generally be determined whether or not there has been any injury to the inner surface of the skull. It is even more important that a more serious lesion (such as a fissured, comminuted or a depressed fracture) should be trephined. The bony wound should be trimmed up and projecting tags removed. In the absence of any injury to the dura mater the prognosis of these cases is very favorable. When the dura mater has been injured, however small the lesion, the opening should be made larger, for in such cases there is often a large focus of injury subjacent to the cerebral contusion. Any splinters of bone and any foreign body (fragment of shell) must be carefully removed. In case of a deep wound of the brain, drainage must be instituted, not with gauze, but with a small drain inserted to the limits of the contused area and

left in place for some time. Patients treated in this manner are cured in large numbers, and often show no signs of deficiency. At times, however, there arise complications, indicated by fever, vomiting, agitation, or coma; it may be a case of a simple meningeal irritation, the formation of an abscess in the area of contusion, often about a foreign body that has not been removed, or a case of meningeal encephalitis. In such instances the surgeon should always have recourse to roentgenography, which will show the presence of any foreign body, and to lumbar puncture, which will afford information regarding the nature of the complication. It is most necessary that the foreign body be removed. In the case of meningeal irritation, lumbar puncture will have the best effect. If cerebrospinal fluid is obtained mixed with pus the prognosis is very bad since, in the case of an area of deep cerebral contusion, it is a matter, not of a progressive meningoencephalitis beginning in the brain, but rather of the irruption of septic substances into the ventricular cavities by means of a perforation in one of their walls.

In the case of a perforating shot wound of the head (these are extremely grave) it is necessary to trephine the two openings: the orifice of entry, which contains the splinters and is infected, must be drained particularly; on the other hand, the orifice of exit must be trephined extensively, for on this side are found fissured fractures and also a large area of cerebral contusion.

There are some cases in which the skull alone has been injured and the dura mater has not been involved; the latter, however, does not pulsate; in such cases there is a severe cerebral contusion with often extensive subdural hematoma. There may be also paralysis and convulsions. In such cases a cruciform incision should be made in the dura mater and the subarachnoid space drained. There is no need to fear infection from without or cerebral hernia. The patients recover without complication much better than if the dura mater had not been incised.

In fractures of the base of the skull in which the projectile penetrates a natural cavity (the auditory canal, the orbit, or the submalar region), it is rash to operate on the site of the fracture; the wound should merely be disinfected. To prevent the development of threatened encephalitis the surgeon must resort, as in cases of fracture of the base by contrecoup, to preventive drainage of the subarachnoid space according to the precepts of Vincent and Cushing.

THE STATUS OF THE PHYSICIANS OF THE RED CROSS SOCIETIES

In the *Caducée*, a journal of military medicine, Dr. Schneider, medical inspector of the army medical service (whose rank corresponds to that of general) complains of the status given to the physicians in the auxiliary hospitals under the Red Cross societies. The lay elements in the management of certain societies have had, in general, an unfortunate influence on their policies, notably on those which concern the status of the physician-in-chief in the auxiliary hospitals. The dominant idea of the regional committees of these societies is to obtain the services of the best physicians of the locality and to exploit their competence, their reputation, and their scientific position but not to allow them any administrative or directing authority. The physicians are to content themselves with a medical rôle, and to regard themselves as lucky if their professional standing, their manner of operating, and the importance of cures obtained or of failures are not subjects of discussion by the nurses. That civilian physicians, perhaps distinguished, but somewhat too old for heavy practice, should accept this very modest position is not at all astonishing. If they are satisfied, there is nothing to be said about it. But that the Red Cross societies should presume to impose these humble, and in fact, subordinate positions on all of the physicians they employ, and particularly on former physicians of the army, the navy, and the colonies, as well as those physicians of the reserve and the territorial army whom they have been obliged to borrow from the army medical service in certain regions for want of civilian physicians, Schneider believes, is absolutely intolerable. It is too often forgotten that the instructions of May 21, 1913, in regard to the use during war of the resources of the country for taking care of the sick and wounded in the army specify that the auxiliary hospitals shall conform to the regulations of the medical service of the army of the interior. These regulations give the supreme authority to the physician-in-chief, and subordinate the administrative power to him. The desire to deprive of such authority the military physician placed by the regional director of the army medical service at the disposal of the auxiliary society, cannot be indulged. The fact that he is employed temporarily in an auxiliary hospital should not deprive the military physician of the rights given him by the fundamental regulations of the army medical service.

It may be objected, however, that the philanthropic societies cannot subordinate their hospital directors and administrators to the physician-in-chief since the societies support these establishments and are obliged at times to resist wasteful exactions of certain physicians. While conceding this, Schneider believes that is possible to give the physicians-in-chief of the auxiliary hospitals the rights and duties of the physicians-in-chief of the military departments of the *hospices mixtes* in times of peace. In these establishments the material and financial administration belong to the steward or the lay superintendent of the hospital. This is in accordance with an agreement concluded between the war department and the administrative commission of the hospital—an agreement which fixes the daily amount to be paid by the government for the care given army patients. The physician-in-chief, however, has authority in all matters concerning the technical part of the service, hygiene, discipline, etc. This plan for the relationship between the physicians-in-chief and the administrative heads of the auxiliary hospitals is the most suitable, and strict observance of it will certainly give entire satisfaction to the interests of the societies and at the same time retain for the physician-in-chief the prestige and the just authority which he should have in a hospital caring for the sick and wounded of the army.

VACCINATION AGAINST SMALLPOX DURING THE WAR

At the Société de médecine de Nancy, Dr. Perrin mentioned that, out of 29,076 vaccinations against smallpox performed during the first seven months of the year on soldiers of all ages, 13,616 or 46.14 per cent. were successful. The group of men aged over 36 and constituting almost one-fourth of the forces in question gave over 64 per cent. of successful vaccinations. This group is composed of regulars, aged from 36 to 42, and of reserves, aged from 43 to 48. There were more successful vaccinations (78 per cent.) among the older men; among the younger ones the percentage was 75 per cent. It appears from these figures that vaccination against smallpox is useful at all ages.

LONDON LETTER

London, Feb. 28, 1916.

The War

RACIAL DAMAGE OF WAR

At the meeting of the Royal Statistical Society, Maj. Leonard Darwin read a paper on "The Statistical Inquiries Needed after the War in Connection with Eugenics." He said that our casualties might now be in number as high as 6.5 per cent., and the Germans' possibly between 20 and 30 per cent., of the number of fighting men available. Though all must devote their main energies to winning the war, yet some thought might even now be given to the inquiries which might profitably be instituted, when peace gave more leisure, concerning its racial damage, which would depend on whether those killed were above or below the average in inborn qualities. Balancing the conflicting considerations, the conclusion arrived at was that war unquestionably killed off the better types, and was therefore highly dysgenic. The active causes of the damage would not cease with the war, because the birth rates of the higher types would continue to be adversely affected. Those born in the last eighteen years would form an entirely undamaged section of the community, and it would be increasingly necessary for the next twenty years to inculcate a belief that where both parents are fairly healthy it was immoral and unpatriotic to limit the size of the family, except in view of bringing up the children in comfort, though not necessarily in luxury, and of there being fairly wide intervals between births. It followed also that the racial damage would be at its worst when peace was declared, and the checking of the multiplication of the unfit would never be more needed than then.

Sir William Turner

Sir William Turner, K.C.B., D.C.L.(Oxon.), L.L.D. (Cantab.), F.R.S., principal of the University of Edinburgh, late professor of anatomy in the university and president of the General Medical Council, the outstanding figure in British anatomy for half a century, has died in his eighty-fifth year. The son of an English father and a Scottish mother, he was born at Lancaster in 1832 and became a student in St. Bartholomew's Hospital in 1850. He graduated with honors at the London University in 1857. His

ability attracted the notice of Paget, then assistant surgeon to the hospital, who recommended him in 1854 to Goodsir, the professor of anatomy in Edinburg, when the latter was looking for a demonstrator. He soon established a reputation both as a teacher and an investigator, and when Goodsir died in 1867 he succeeded to the chair, which he occupied for thirty-six years. His successor, Prof. Arthur Robinson, thus describes his work: "Sir William Turner became an anatomist in 1854, and he remained an anatomist until his death in 1916. During the intervening period he published 276 communications, of which twenty-six were addresses mainly on anatomic or medical subjects, and four were memorial notices. The remainder dealt with human anatomy, human physiology and human pathology, comparative anatomy and anthropology. In addition, he edited Sir James Paget's 'Lectures on Surgical Pathology' and the collected work of Goodsir and of Rolleston, and he was for a long period the editor of the *Journal of Anatomy and Physiology*." Indeed, he was the founder of this journal. Among his most important original papers may be mentioned "Relations of the Human Cerebrum to the Outer Surface of the Skull and Head," "System of Anastomosing Arteries Between and Connecting the Visceral and Parietal Branches of the Abdominal Aorta," and "Supplementary Supply System of Nutrient Arteries for the Lungs." In these papers he drew attention to conditions of considerable practical importance which had previously been unrecognized. But it was in the domain of comparative anatomy and anthropology that he became most famous. His work on "Comparative Anatomy" included invertebrates, fish and mammals, and particularly the various groups of cetacea. In 1871 he commenced his important work on the placenta, and in 1876 delivered lectures at the Royal College of Surgeons of England on the comparative anatomy of the placenta. In anthropology he dealt with both prehistoric and modern man, and discussed the difference between the various races and indicated new methods for their estimation. Some of his most interesting memoirs deal with the "Craniology of the People of Scotland," and "Craniology of the People of the Empire of India." He was a must lucid writer and never ambiguous because he did not attempt to expound a subject until he had obtained a perfectly clear idea in his own mind. His influence as a teacher was so great that the list of his pupils who have become professors of anatomy in Great Britain and the colonies is quite a long one. His classical monographs on the craniologic features of the Scottish people, both ancient and modern, on the peoples of the empire of India, on the extinct natives of Tasmania, and on the natives of New Guinea and of Borneo, were based on material which he gradually accumulated—chiefly through the help of his pupils.

The Government Neglect of Science

Maj. Leonard Darwin, who presided at the third Galton lecture before the Eugenics Education Society by Prof. E. B. Poulton, said that the great lesson of Galton's life must be learned—that men are not born equal. It would be pleasant to believe that all suffering could be swept away by social reform; but we must bend our wills to the task of making the best of the world as we find it. Social conditions would not prevent national degradation if the inborn qualities of a nation were deteriorating. It was for us to devote ourselves in the first place to winning the war, and then—to quote Lincoln—to seeing "that this nation, under God, shall have a new birth of freedom." And Galton would have said that increasing freedom and racial degeneracy never marched hand in hand.

The lecture was delivered by Professor Poulton, who said that the neglect of eugenics by the government had been as conspicuous as its neglect of other branches of science. The next general election would reveal a revolution in political thought, and the Eugenics Education Society must fight alongside sciences and the great business interests of the country, insuring that scientific men and business men should have weight in our future form of government. The government had treated scientific men with incredible meanness. The late Professor Meldola was twice offered a decoration of the Legion of Honor—in 1900 and again in 1907. On both occasions the Foreign Office forbade him to accept it. It could not be supposed that either Lord Salisbury or Sir Edward Gray wished to behave in so rude a manner to a friendly nation and to a distinguished man. The cause was to be found in the wooden system erected by some jack-in-office of the permanent service in order to magnify his own petty tyranny. Then came the war, and in the utter confusion caused by our policy the country was in serious difficulty, with many important industries under enemy control and quite inaccessible. So Professor Meldola, with his unrivaled knowledge of the relations between science and industry, was asked to preside over some committees and to serve on others. He was too patriotic to refuse, but the strain was too great for one who was far from strong, and he died after a few months of overwork. The character of the examination for civil service posts and for the army must be changed, and science must be given a far more important place. That change would at once react on our public schools and the old universities, and would bring the members of future parliaments under the influence of science.

Mr. Robert Jones at the Franco-American Ambulance in Paris

When the staff of the Franco-American Ambulance in Paris heard that Mr. Robert Jones was in the city for a few hours, the members collected twenty or thirty patients with gunshot wounds of the upper limbs and induced him to give an impromptu lecture on their treatment. He laid stress on the importance, in cases in which ankylosis of the shoulder joint is to be anticipated, of keeping the upper arm during treatment in such a position that the face and top of the head can easily be reached by the hand. The advantage was that if ankylosis occurred with the humerus in this position, full utility of the upper limb was nevertheless practically conserved, since tilting of the shoulder blade would enable the patient to effect most of the other movements of the hand required in daily life. A second point was the desirability of treating all fractures of the forearm with the radius in a position of complete supination instead of halfway between that position and full pronation. Experience showed that adoption of the latter or classical position often resulted in serious loss of function, for though the hand could easily be pronated, it could not be fully supinated. If, contrariwise, a patient should be treated with the radius completely supinated from the beginning, the worst that could happen would be loss of natural pronation power, and this as compared with loss of supination power was a relatively small evil, since sufficient pronation could be secured by movement at the shoulder. A third point related to gunshot wounds involving the wrist. The joint should be kept, not in a position midway between flexion and extension (that is, with the hand in the same line as the forearm), but in one of hyperextension, or, so to speak, dorsal flexion, for should a stiff wrist result from the injury, the grasp of the fingers would be much stronger if the carpus were pushed backward than if the wrist were straight or the hand bent toward the flexor surface of the forearm. The same position also afforded a much better chance of securing a return of power in cases of wrist-drop due to lesions of the musculospiral nerve. But in such cases not merely the carpus but also the whole palmar surfaces of the fingers should be supported, the length of the digital portion of the splint being lessened as soon as the patient regained any power of extending the terminal phalanges by voluntary effort.

Sanaphos Again

The proprietors of sanaphos are still endeavoring to exploit the strong anti-German feeling of the country for the benefit of their nostrum so that it may take the place of the German sanatogen. The sale of the latter is still permitted under the condition that none of the profit be sent to Germany. The sanaphos people in a quarter page advertisement in the *Times* are asking the public to petition Parliament for the passage of an act to forbid firms trading which are mainly owned by Germans for the reasons that "(1) Sanatogen is not 'necessary' now because (2) it is not the best article of its kind now available; (3) it is surpassed by the later, more highly perfected and wholly British owned product, sanaphos." This "petition" is accompanied by some dozens of anonymous testimonials alleged to be from physicians and by a few from former users of sanatogen who declare that sanaphos is a much better article. It is evident that the methods of nostrum venders, whether German or British, do not differ and may be summed up in one word—bluff.

New School of Tropical Medicine in Calcutta

The governor has laid the foundation stone of the new tropical medical hospital. The school, which has received an endowment for ten professors, is already built, and will be opened after the war. Help has been obtained from commercial circles, wealthy Indians, and the Rockefeller Foundation. China is sending two physicians annually for training. Sir Leonard Rogers, the authority on tropical disease, declared that the school, which would be the first to be established in the tropical portion of the British empire, would be second to none in the world.

Marriages

THOMAS JOHN GANNON HOGAN, M.D., Lockport, N. Y., to Miss Anna May Harvey of North Tonawanda, N. Y., in Fredonia, N. Y., March 2.

CHARLES HERMANN EYERMANN, M.D., St. Louis, to Miss N. Irene Smith of Sullivan, Mo., in Chicago, March 4.

CULLEN WARD IRISH, M.D., Barberton, Ohio, to Miss Pauline Hartley of Athens, Ohio, March 1.

SESSLER HESS, M.D., Muskogee, Okla., to Miss Irene Marrow of Nashville, Tenn., December 24.

HUGO KENNETH SCHUSSLER, M.D., New York City, to Miss Sybil Conklin of San Diego, recently.

HALSEY DEWOLF, M.D., Providence, R. I., to Miss Edith Howe of Philadelphia, recently.

Deaths

Benjamin Franklin Campbell, M.D., Brookline, Mass.; Harvard Medical School, 1857; aged 81; a Fellow of the American Medical Association and a veteran of the Civil War, in which he served as assistant surgeon attached to the U. S. Army Field Hospital, Pamunkey River, Va., and the Webster U. S. Army General Hospital, Manchester, N. H.; for several years a member of the Boston school board; representative in the legislature from East Boston and state senator from the First Suffolk District; died at his home, March 9.

Alfred Patten, M.D., Mineola, Texas; Kentucky School of Medicine, Louisville, 1881; aged 68; a Confederate veteran; local surgeon at Mineola for the Missouri, Kansas and Texas, and Texas and Pacific systems; president of the Mineola State Bank; vice president of the Golden State Bank; and stockholder in a number of other banks; vice president of the Mineola Light, Ice and Power Company; died at his home, March 7, from pneumonia.

Irving O. Nellis, M.D., Utica, N. Y.; University of Vermont, Burlington, 1882; aged 59; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of New York; for many years a practitioner of Herkimer, N. Y., and coroner of Herkimer County for five years; health officer of Herkimer from 1884 to 1894, and later president of the village health board and deputy sheriff of Herkimer County; died at his home, March 8.

John Specht, M.D., Superior, Wis.; College of Physicians and Surgeons, Keokuk, Iowa, 1883; aged 55; a Fellow of the American Medical Association and once president of the Douglas County Medical Society; one of the leading surgeons of the northwest; once health commissioner of Superior; died in the Eitel Hospital, Minneapolis, March 8, after an operation for appendicitis and disease of the gallbladder.

Nathan Gross Bozeman, M.D., New York City; College of Physicians and Surgeons in the City of New York, 1885; aged 60; a Fellow of the American Medical Association; gynecologist to St. Mary's Hospital, and consulting surgeon to the Bayonne and Hackensack (N. J.) hospitals and the Northwestern Dispensary; a gynecologist; well known in the Middle States; died at his home, March 17, from pneumonia.

Joseph Amadie Tremblay, M.D., Ecôle de Médecine et de Chirurgie, Montreal, 1869; aged 69; a member of the Montana State Medical Association; for many years a practitioner of Missoula, Mont.; and later a resident of Butte; for three terms coroner and for many years county physician of Silver Bow County; died at the home of his daughter in Butte, March 6, from heart disease.

Walter L. Dorland, M.D., Pueblo, Colo.; Western Reserve University, Cleveland, 1874; aged 66; formerly a Fellow of the American Medical Association; a member of the Colorado State Medical Society and once president of the Pueblo County Medical Society; local surgeon of the Santa Fe System and of the American Smelting and Refinery Company; died at his home, March 8.

W. W. Fitts, M.D., Carrollton, Ga.; Atlanta (Ga.) Medical College, 1860; aged 85; a member of the Medical Association of Georgia; a practitioner and druggist, and a member of the board of directors of the First National Bank of Carrollton; for nearly thirty years president of the local board of education; died at his home, March 9.

Joseph H. Hewitt, M.D., Saranac Lake, N. Y.; Johns Hopkins University, Baltimore, 1906; aged 37; a Fellow of the American Medical Association; a member of the American Association of Pathologists and Bacteriologists; formerly a pathologist of Chicago and Cleveland; died in Saranac Lake, N. Y., January 10.

Edward M. Doyle, M.D., Yankton, S. D.; State University of Iowa, College of Medicine, Iowa City, 1888; aged 53; city commissioner of Yankton; for eighteen years a practitioner of Kansas City; for many years a member of the board of education; died at his home, March 3, from pneumonia.

Charles Farquhar, M.D., Olney, Md.; University of Pennsylvania, Philadelphia, 1885; aged 74; a Fellow of the American Medical Association; secretary and treasurer of the Olney District Board of Health of Montgomery County; died at his home, February 1.

James Lanier Darwin, M.D., Huntsville, Ala.; Bellevue Hospital Medical College, 1888; aged 56; a member of the Medical Association of the State of Alabama; who had gone to Memphis for a surgical operation; died in that city, March 3, from heart disease.

Elias Gottstark Roos, M.D., Scranton, Pa.; University of Königsberg, Germany, 1888; aged 56; a Fellow of the American Medical Association and one of the foremost surgeons of Lackawanna County, Pa.; died at his home, February 29, from heart disease.

Matthew G. Guhman, M.D., St. Louis; Missouri Medical College, St. Louis, 1891; aged 43; a member of the Missouri State Medical Association; who was injured in an automobile accident more than two years ago; died at his home from nephritis, March 10.

John J. Sweetland, M.D., Constantine, Mich.; Cincinnati College of Physicians and Surgeons, 1889; aged 52; a member of the Michigan State Medical Society; was instantly killed by the overturning of his automobile near Mottville, Mich., March 7.

The Honorable James Edwin Robertson, M.D., Montague, P. E. I.; McGill University, Quebec, 1865; aged 75; a member of the Provincial Parliament in 1870; of the House of Commons in 1882, and of the senate in 1902; died at his home, October 19.

James A. Martin, M.D., Palestine, Ill.; Medical College of Ohio, Cincinnati, 1879; aged 60; a Fellow of the American Medical Association and for many years a practitioner and druggist of Palestine; died at his home, March 4, from heart disease.

Benjamin M. Beale, M.D., Washington, D. C.; University of Georgetown, Washington, D. C., 1873; aged 61; formerly a member of the Medical Association of the District of Columbia; died at his home, March 1, from cerebral hemorrhage.

Charles Dallas McLeod, M.D., Chatfield, Ohio; Marion-Sims College of Medicine, St. Louis, 1892; aged 52; a member of the Ohio State Medical Association; mayor of Chatfield and coroner of Crawford County; died at his home, March 8.

Frederick Jacoby, M.D., Columbus, Ohio; Eclectic Medical College of Pennsylvania, Philadelphia, 1862; aged 84; for many years a practitioner of Columbus; died at the home of his daughter in Agricola, Va., March 7, from arteriosclerosis.

Benzion G. Wernick, M.D., Boston; Tufts Medical School, Boston, 1903; aged 48; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; died at his home in Roxbury, about February 24.

Hiram M. Aspy, Geneva, Ind. (license, Indiana, 1897), aged 65; a practitioner for forty years and a member of the Indiana State Medical Association; died in St. Joseph's Hospital, Fort Wayne, Ind., February 28, from disease of the stomach.

John Herbert Frey, M.D., Corsicana, Texas; University of Virginia, Charlottesville, 1889; aged 49; a Fellow of the American Medical Association, and well known as a pathologist and bacteriologist; died at his home, March 6.

Hanson Liswell Marcy, M.D., East Orange, N. J.; Hahnemann Medical College, Philadelphia, 1873; aged 65; for many years a practitioner of Richmond, Va.; died at the home of his daughter in East Orange, March 9.

Edward Cass, M.D., Dresden, Ohio; Jefferson Medical College, 1854; aged 84; a member of the Ohio State Medical Association; for many years practitioner of Detroit; died at his home, March 9, from uremia.

Osa Hoerner, M.D., Lewisburg, Ohio; Ohio-Miami Medical College of the University of Cincinnati, 1913; aged 31; a member of the Ohio State Medical Association; died at his home, March 2, from scarlet fever.

Gaspard Upton Peltier, M.D., Cohoes, N. Y.; Bishop's College, Montreal, 1873; aged 67; a member of the staff of the Cohoes City Hospital; city physician of Cohoes for two terms; died at his home, March 2.

Milton Almond Curtiss, M.D., Kirksville, N. Y.; Syracuse (N. Y.) University, 1878; aged 60; a member of the Medical Society of the State of New York; died at his home, February 29, from pneumonia.

Charles Harold Goldsmith, M.D., New York City; Eclectic Medical College of the City of New York, 1906; Long Island Hospital, Brooklyn, 1910; aged 39; died at his home, February 29, from influenza.

William S. S. Gay, M.D., Chester, Pa.; Jefferson Medical College, 1869; aged 70; for forty years a practitioner of Delaware County, Pa.; died at the home of his daughter in Cleveland, February 26.

S. H. Dickerson, Chandler, Tex. (Registration, Forty-Eighth District Judicial Board of Texas, 1899); was instantly killed by the overturning of his automobile, 4 miles west of Chandler, February 29.

James Prescott Chamberlain, Boston (license, Massachusetts, years of practice, 1894); aged 84; a practitioner for twenty-six years; died at the home of his niece in Palm Beach, Fla., March 1.

Patrick Joseph Barry, M.D., Auburn, Iowa; State University of Iowa, Iowa City, 1891; aged 48; a member of the Northwestern Medical Society of Iowa; died in Carroll, Iowa, about March 9.

Ira Charles Bush, M.D., Santa Cruz, Calif.; Rush Medical College, 1889; aged 55; a member of the Medical Society of the State of California; died at his home, February 17, from malignant disease.

Julius Henry Moore, M.D., Brooklyn; Long Island College Hospital, Brooklyn, 1874; aged 78; for many years a practitioner of Williamsburg; died at his home, March 11, from senile debility.

George W. Davis, M.D., Marion, Ind.; Eclectic Medical Institute, Cincinnati, 1880; aged 60; a Fellow of the American Medical Association; died suddenly in Marion, March 4, from heart disease.

Henry Williams, M.D., Odessa, Mo.; Missouri Medical College, 1884; aged 60; local surgeon of the Chicago and Alton Railway; died at his home, February 1, from cerebral hemorrhage.

Edgar Langston, Port Isabel, Ind. (license, Indiana, 1897); aged 83; a practitioner of Indiana for more than half a century; died at the home of his son near Ellwood, Ind., March 10.

Luke Arthur Harcourt, M.D., Sacramento; University of Buffalo, N. Y., 1868; aged 77; a member of the Medical Society of the State of California; died in San Francisco, March 3.

Francis E. Himmelwright, M.D., Philadelphia; Jefferson Medical College, 1878; aged 69; for thirty years a practitioner of northeastern Philadelphia; died at his home, March 7.

Marcus F. Scruggs, M.D., Coleman, Miss.; University of Louisville, Ky., 1882; aged 60; a member of the Mississippi State Medical Association; died suddenly at his home, March 2.

George Henry Masters, M.D., Prospect, Ohio; Columbus (Ohio) Medical College, 1877; aged 68; a veteran of the Civil War; died suddenly at his home, March 5, from heart disease.

Enoch James Conyngton, M.D., Decatur, Ala.; Washington University, St. Louis, 1883; aged 57; one of the heroes of the yellow fever epidemics in Decatur in 1888; died at his home, March 4.

Edward Joseph Cunningham, M.D., Reno, Nev.; University of Pennsylvania, Philadelphia, 1900; aged 38; died at the home of his parents in Philadelphia, March 3, from tuberculosis.

George L. Beach, M.D., Chicago; Hahnemann Medical College, Chicago, 1883; aged 55; died in Hahnemann Hospital, Chicago, March 8, from carcinoma of the prostate.

Audrim T. Greer, M.D., Abbeville, Miss.; Memphis Hospital Medical College, 1892; aged 55; died suddenly in the railway station in Holly Springs, Miss., February 24.

Ferdinand Carl Ludwig Pfefferkorn, M.D., Lawrence, Mass.; Hahnemann Medical College, Philadelphia, 1883; aged 74; died at his home, March 8, from pneumonia.

William C. Foster, M.D., East End, Pittsburgh; Jefferson Medical College, 1874; aged 63; died at the home of his brother in Petrolia, Pa., March 7, from nephritis.

Henry W. Heryford, M.D., Millville, Calif.; College of Physicians and Surgeons, Keokuk, Ia., 1885; aged 65; died at his home, February 24, from cerebral hemorrhage.

Robert Barr Clark, M.D., San Diego, Calif.; University of the Victoria College, Coburg, Ont., 1866; aged 77; died in Tacoma, Wash., February 9, from pneumonia.

Ernan A. Bush, M.D., Delphi, Ind.; Physio-Medical College of Indiana, Indianapolis, 1903; aged 34; also a druggist; died in a hospital in Indianapolis, March 10.

Samuel Currie Matthews, M.D., Clanton, Ala.; University of Alabama, Mobile, 1915; aged 26; dropped dead while cranking his automobile, February 25.

Joseph William Rowan, M.D., Toronto, Ont.; Trinity Medical College, Toronto, 1888; aged 55; died in Toronto, December 26, from a nervous breakdown.

Albert C. Matthias, M.D., McComb, Ohio; Western Reserve University, Cleveland, 1869; aged 71; a veteran of the Civil War; died at his home, March 6.

John Miller Longcoy, M.D., Lima, Ohio; Joplin (Mo.) Medical College, 1882; aged 67; died at his home, February 26, from disease of the stomach.

Winfield S. Van Horn, M.D., Findlay, Ohio; Eclectic Medical Institute, Cincinnati, 1883; aged 62; died at his home, March 7, from arteriosclerosis.

Charles A. Bailey, M.D., Los Angeles; University of Vermont, Burlington, 1878; died suddenly in Los Angeles, February 29, from heart disease.

William O. Southard, M.D., Jonesville, S. C.; Medical College of Georgia, Augusta, 1875; aged 64; also a druggist; died at his home, March 7.

William James Stockard, M.D., Lawrenceburg, Tenn.; Vanderbilt University, Nashville, Tenn., 1884; aged 60; died at his home, February 27.

Henry B. Scurlock, Losoya, Texas (license, Texas, 1907); aged 59; a practitioner since 1879; died in a hospital in San Antonio, Texas, March 9.

Antoinette C. Pfau, M.D., Cincinnati; Hygeia Medical College, Cincinnati, 1899; aged 66; died at her home, March 8, from nervous breakdown.

Charles Orrison Maine, M.D., Stonington, Conn.; Dartmouth Medical School, Hanover, N. H., 1871; aged 72; died at his home, March 8.

Girard Wilkie Shipman, M.D., Birch Run, Mich.; Detroit College of Medicine and Surgery, 1891; aged 48; died at his home, February 29.

Robert Callihan, M.D., Rohnerville, Calif.; Jefferson Medical College, 1874; aged 74; died at his home, February 28, from heart disease.

Oscar Vernon Harris, M.D., Carson, Wash.; Rush Medical College, 1889; aged 60; died in his office, March 5, from cerebral hemorrhage.

Henry Betz, M.D., Brooklyn; New York University, New York City, 1886; aged 58; died at his home, March 12, from pneumonia.

Edward Llewellyn Crandall, M.D., Troy, N. Y.; Albany (N. Y.) Medical College, 1881; aged 59; died at his home, March 6.

Herbert A. Gale, M.D., San Francisco; University of California, San Francisco, 1879; died in San Francisco, February 26.

James L. Hull, M.D., Atlanta, Ga.; Medical College of Georgia, Augusta, 1889; aged 55; died at his home, February 26.

Elias Porter, M.D., Shousetown, Pa.; Jefferson Medical College, 1853; aged 74; died at his home, March 8.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

U. S. COMMISSION TO INVESTIGATE THE PROPRIETARY MEDICINE BUSINESS

The Board of Trustees of the American Medical Association, at its meeting, February 9, had called to its attention the action of the House of Delegates relative to appealing to Congress to appoint a commission for the investigation of the proprietary medicine business. The board was advised that the officers of the Association had been informed that the most effective way of presenting this matter would be to have it brought to the attention of the president by representatives of the Association. In view of this, the board asked the following to call on the president: Dr. William L. Rodman, President of the Association, Dr. W. T. Councilman, chairman of the Board of Trustees, Dr. Alexander Marcy, Jr., Riverton, N. J., Dr. Hiram Woods, Baltimore and Dr. George H. Simmons, Chicago. Dr. Rodman arranged that the president grant an audience, March 9. Dr. Rodman died the day before—March 8—and Dr. Woods was ill and not able to be present; but the others appeared before the president. Doctor Councilman presented the subject in the form of the following letter:

THE PRESIDENT:

Sir:—The relation of the proprietary medicine business to the public health is so close and vital that the American Medical Association some years ago commenced a practical investigation of the substances which were sold to the medical profession and public as remedies for disease. The object of these investigations has been to obtain and make public the facts thus far obtained with the ultimate object of safeguarding the health of the people. The results have been published by the American Medical Association in its journal, in pamphlets and in books. Similar investigations have been made by municipal and state boards of health, among the latter being Connecticut, Indiana, Kansas and North Dakota. These proprietary and patented preparations sold to the public have been investigated also by the United States Public Health Service, by the Bureau of Chemistry of the Department of Agriculture and by the United States Post Office Department, as the activities of these several branches of the federal government brought them in relation to these articles of trade. The result of the various inquiries has been to demonstrate that much of the business in those proprietary medicines colloquially known as "patent medicines" is an evil of national scope, a menace to the public health, and a grave economic waste. While much has been accomplished in the United States by the Food and Drugs Act and through the Post Office Department, the problem as it affects the people of the whole country has been scarcely touched.

In 1907 a commission appointed by the Australian commonwealth to investigate the question of "patent medicines" in their relation to the health of the people of that country published an exhaustive report. In this considerable space was devoted to "patent" and proprietary medicines emanating from the United States. Since then the Australian commonwealth specifically debarred from that country certain medical preparations originating in the United States.

Four years ago the British Parliament appointed a select committee "to consider and inquire into the question of the sale of patent and proprietary medicines and medical preparations and appliances and advertisements relating thereto." This committee made an exhaustive investigation extending over three sessions of Parliament and held thirty-three public sittings. It made a comprehensive report, which, together with the Proceedings, Minutes of Evidence and Appendices, was published in August, 1914, by order of the House of Commons. This report, as did that of the Australian commission, included investigations of certain American products which revealed facts not to the credit of our country. The British report embodied recommendations urging the enforcement of certain laws then existing, and suggested additional, specific, remedial legislation.

The House of Delegates of the American Medical Association, apportioned among all the states and representing over seventy-five thousand physicians, at its annual session in San Francisco last June, adopted certain preambles calling attention to the conditions referred to above; and a resolution praying the president and the Congress to consider the advisability of creating a commission to investigate the proprietary medicine business in the United States—such investigation to include not only the actual products, but the methods of sale and advertising thereof; and further praying that the results of this investigation be published for the information of Congress, as well as for the enlightenment of the general public.

The American Medical Association is firmly convinced that the solution of this problem is of vital importance to the public health, and by no means negligible from an economic point of view; further that the problem is national in scope and its solution is impossible if left to the individual states.

The American Medical Association through its undersigned committee earnestly prays that you will consider the advisability of recommending to Congress the appointment of a commission or special committee empowered to investigate the entire subject and to publish its findings for the enlightenment of the public and for the welfare of the nation and to aid Congress in enacting remedial legislation if such shall be deemed necessary.

The president, while not making any definite promises, expressed his interest in, and sympathy with the proposition.

ARE PHYSICIANS SELFISH IN OPPOSING FRAUDULENT "PATENT MEDICINES"?

While the Manufacturers Say They Are, the Druggists Are Not Convinced

We have, at various times, referred to the stock argument of the manufacturers to the effect that the medical profession is actuated by selfishness in giving the public the facts regarding fraudulent "patent medicines." As we have said before, there never was, in fact, a weaker argument, although, superficially, it is doubtless accepted by many who have given the question no thought. Every physician knows that the lurid advertisements of fraudulent "patent medicines" send many, many patients to his office. Every physician who has been in practice any length of time knows also that the sale and use of fraudulent "patent medicines" are responsible for many cases of prolonged sickness, due to the neglect of disease in its early stages. That the physician can possibly be actuated by altruistic motives in giving the public facts on a subject which his special knowledge peculiarly fits him to speak authoritatively, is never admitted by the manufacturer of fraudulent nostrums. Those who thus charge the medical profession with bad faith may fool some people some of the time, but they don't fool the druggists of the country. No better illustration of this fact can be given than an editorial that appears in the current (March) issue of the *Druggists' Circular*, a journal that represents all that is best in the profession of pharmacy. The editorial, which appeared under the title, "Manufacturers of Nostrums Blind to Physicians' Humanitarianism," is here given:

"One of the favorite arguments of the fakers who oppose the letting in of the light on their fakery by physicians, health officers and the better class medical journals, is that the fake medicines are cutting into the doctors' practice and the doctors are therefore financially interested in putting the fakers out of business. That there is no foundation in truth for such an argument so far as physicians of professional standing are concerned, is well known to pharmacists generally. If there are any who do not realize that medicine is among the most altruistic professions, even if it is not the most altruistic, they have only to consider what physicians are doing to prevent disease, in order to be forced to such a realization.

"Mosquitoes, flies and other insects disseminate the germs of yellow fever, typhoid fever and other diseases. Physicians discovered this fact. Did they keep it to themselves, or did they publish it broadcast to the world? If the medical profession were as eager for practice as the nostrum fakers would have us believe, they would have said among themselves: Flies and mosquitoes are our best friends; they cause sickness and the more sickness there is the busier we are and the more money we collect. That is what the nostrum

fakers would have said, and their minds are so constituted as to be unable to entertain a thought of a man's doing for the sake of humanity something which appears on its face to be depriving him of a part of his income: it is the possession of that kind of mind that leads a man into the business of trifling for profit with human health and life.

"Boards of health everywhere are endeavoring to abate those nuisances which are the cause of sickness. Members of the medical profession are like members of a fire department in that they seek to prevent the very thing which makes their calling a necessity. What would we think of a fireman who purposely permitted a conflagration in order that his comrades might show the city how important it was to keep up a well-paid fire department? And what would be thought of a man who charged the firemen of the country with opposing, on the ground that it was cutting into the firemen's business, some device for putting out fires, when the firemen themselves knew the device to be a fake, and an obstacle to fire prevention—a menace because of the false sense of security which it gave in time of danger?

"Physicians need no help from us to set them right before the world. We are not offering this as any such help. We write it merely to call anew the attention of our readers to facts with which they are already conversant in order that they may not be misled by the false pretenses of those whose interest it is to mislead them. Much is said and written about the relations between physicians and pharmacists, the subject being one of the most hackneyed in the literature of our calling, but so long as every pharmacist knows a self-sacrificing doctor who is a sort of counterpart of old Willum MacLure, and every physician knows a pharmacist on whom he may rely as guide, philosopher and friend, those relations are not going entirely to the bad. And neither are the druggists going to allow the nostrum fakers to poison their minds against the doctors, for among druggists there is a strong spirit of humanitarianism which enables them to see a side of the medical profession to which the nostrum men are blind."—(*The Druggists' Circular, March, 1916.*)

Correspondence

The Alleged Production of Pellagra by an Unbalanced Diet

To the Editor:—The paper on pellagra by Dr. Joseph Goldberger, which appeared in THE JOURNAL, Feb. 12, 1916, has interested me very much, especially his account of the experiment on convicts in Mississippi, from which he concludes that at least six of the eleven volunteers developed pellagra while under observation and apparently as a result of consuming an unbalanced or faulty diet.

The earliest account of this experiment, which has come to my notice, appeared in the Jackson *Daily News,* Nov. 1, 1915, the headlines of which are shown in the accompanying illustration (Fig. 1). In this report is a copy of a letter from Dr. Goldberger to Governor Brewer of Mississippi, which is as follows:

"Jackson, Miss., Nov. 1, 1915.

"Governor Earl Brewer,
"Jackson, Miss.

"My Dear Governor:

"I have the honor to advise you that the experimental test of the power to cause pellagra by means of diet, which your interest and cooperation made possible at the Rankin state farm on eleven convict volunteers, terminated yesterday, Oct. 31, 1915.

"The test has been completely successful, inasmuch as not less than six of the men have developed pellagra.

"It is needless for me to tell you of the great importance of this result to humanity. For nearly two hundred years science has been groping for the cause of pellagra, a disease which in recent years has sorely afflicted our southern states, and yours among them. The official records show that in your state over one thousand deaths were assigned to this one cause alone last year, and I am informed that this number will be greatly exceeded this year.

"Science and humanity will for all time owe you a profound debt of gratitude.

"The convict volunteers have faithfully carried out their agreement to submit themselves to the test, and the test being now completed, it is my duty to most strongly urge their claim on the people of your state, through you, for a pardon of their sentence and liberation from the penitentiary.

"These men have been under great physical strain. All are sick men. I would therefore strongly advise that they remain at the farm for a period of at least two weeks to receive the proper diet in order to, at least, start them on the road to health. Unless this is done there is serious danger of permanent and grave injury to their health. Should they wish to remain it will be a pleasure to cooperate in providing the proper diet and medical supervision.

"In closing permit me, Governor, to express to you, the board of trustees and other prison authorities, my profound personal appreciation and thanks for your hearty cooperation. Without it the experiment would have been impossible, and the cause of pellagra would still be in dispute.

"Respectfully,

"JOSEPH GOLDBERGER,
"Surgeon in Charge Pellagra Investigations."

The reporter's account states further that, despite the earnest advice of Governor Brewer and Dr. Goldberger, all the members of the pellagra squad desired immediate release and that they all left for their homes Nov. 1, 1915. He says, further, "All members of the squad looked pale and emaciated and several of the number bore the sores on their bodies so distinctive of pellagra." These closing remarks of the reporter contain the only description of the lesions or their location which I have noted in this newspaper report.



JACKSON DAILY NEWS

THE ONLY DAILY NEWSPAPER PUBLISHED IN JACKSON.

JACKSON, MISS., MONDAY NOVEMBER 1, 1915.

ANTI-ALIEN LABOR LAW DECLARED INVALID

Supreme Court Holds Arizona Statute Restricts Foreigners' Liberties

LIKE CALIFORNIA JAP RESTRICTIONS

Arizonans Sought to Compel Employment of 80 Per Cent Americans.

DR. GOLDBERGER PRODUCES PELLAGRA AMONG CONVICTS

An Experiment of World-wide Interest, Made At the Rankin Convict Farm. Demonstrates Accuracy of Theory Recently Advanced.

DREAD DISEASE ROBBED OF ITS TERRORS

Dr Goldberger Put Twelve Convicts On An Unbalanced Diet On February 15th, Last, and Six of Them Now Have Pellagra in a Very Pronounced Form.

ADMIRAL FACES COURT MARTIAL; NEGLECT CHARGED

Faults in Construction of Submarine M-2 Laid at Door of Little.

Fig. 1.—Portion of first page of the Jackson *Daily News,* Nov. 1, 1915.

The next noteworthy account of this experiment (Goldberger, Joseph, and Wheeler, G. A.: Experimental Pellagra in the Human Subject Brought About by a Restricted Diet) appeared in *Public Health Reports* (Nov. 12, 1915, p. 3336). In this paper are the following statements:

"Of the 11 volunteers, not less than 6 developed symptoms, including a 'typical' dermatitis, justifying a diagnosis of pellagra. The nervous and gastro-intestinal symptoms were mild but distinct. The dermatitis was first noted between September 12 and September 24, 1915, or not later than five months after the beginning of the restricted diet. It is of great interest to note that in all our cases the skin lesions were first recognized on the scrotum. Later there appeared lesions on the backs of the hands in two cases and the back of the neck in one case. The scrotal lesions conformed to the type described and figured by Merk." ("Merk, Ludwig: Die Hauterscheinungen der Pellagra, Innsbruck, 1909, p. 24, Fig. 6.") "The conclusion is drawn that pellagra has been caused in at least 6 of 11 volunteers as the result of the restricted diet on which they subsisted."

The National Association for the Study of Pellagra held its third triennial meeting at Columbia, S. C., Oct. 21 and 22, 1915, or approximately one month after the appearance of the dermatitis in these cases. Dr. Goldberger attended this meeting. It may be pertinent to inquire why no mention of this alleged important discovery was made at this meeting and why recognized authorities on the diagnosis of pellagra, such, for example, as Dr. C. H. Lavinder, surgeon, Public Health Service, then president of the National Association for the

Study of Pellagra, or Dr. J. F. Siler, captain, Medical Corps, U. S. Army, then vice president and now president of this association, were not invited to see such alleged important cases. However, this is perhaps a matter of judgment on which stress should not be laid.

Another point of interest is the designation of the scrotal lesion as a "typical" dermatitis justifying a diagnosis of pellagra, and the statement further on that these lesions conformed to the type described and figured by Merk in Figure 6 on page 24 of his monograph. The accompanying illustration (Fig. 2) is a photograph of this figure in Merk's book. Merk observed this lesion on the scrotum in a single case seen in consultation with Deiaco. The description of the case is given in his discussion of unusual localizations of the cutaneous eruption on page 21 of his monograph. Referring to Deiaco's cases, Merk says:

"Ein sehr schoenes Beispiel ist ferner sein Fall 4 (F. Z. 31 jaehriger Maurergehilfe aus Sfruz im Nonstale), den ich durch guetige Vermittlung Deiaco's auch selbst zu sehen Gelegenheit hatte. Die ersten Anzeichen von Pellagra (unstillbare Diarrhöen) datierten auf etwa vier Jahre zurueck. Die Eruption, bei welcher die zu erwaehnenden atypischen Lokalisationen getroffen wurden, war, soweit sich aus der Anamnese schliessen liess, schaetzungsweise die dritte.

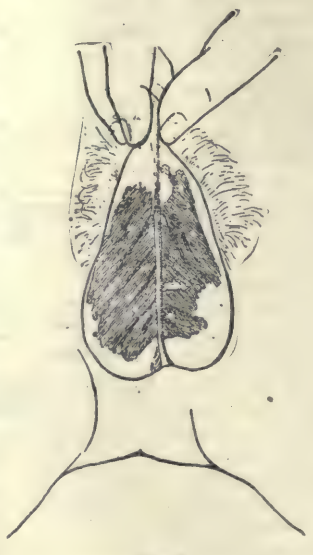
"Von typischen Stellen fanden sich 1. die Handruecken von den Naegeln der Finger an bis etwa drei Querfinger ueber das Handwurzelgelenk und manschettenfoermig auf die Beugeseite der Handwurzel uebergreifend. 2. Die Fussruecken von den Naegeln an, laengs des äusseren Fussrandes bis zu den Malleolis externis und am inneren Fussrande bis zu den inneren Knoecheln. 3. Ein rudimentaeres Casal'sches Halsband, nur in der Nackengegend bis zum hinteren Rande der Sternokleidomastoidei und knapp bis ans Haar.

"Die atypischen Lokalisationen des Falles waren gleichfalls symmetrisch und zwar an den Knieen, den Ellbogen und dem Skrotum.

"An den Knieen . . . grenzte sie sich knapp ueber den Kniescheiben in mehr oder minder buchtigen Linie nach obenzu scharf ab, reichte ungefaehr an die Kondylen heran, ohne die Vorderseite der Extremitaet zu verlassen und setzte sich an der Tibiakante zungenfoermig nach unten bis etwa zur Mitte der Unterschenkel fort.

"Aehnlich begann die Veraenderung an den Ellbogen . . . in Dreieckform mit der Basis knapp ueber denselben und hoerte, ueberall scharf begrenzt, mit einen zungenfoermigen Fortsatz etwa an der Grenze des oberen und mittleren Drittels der Ulnarkante auf.

"Die äusserst interessante Lokalisation an der Skrotalhaut . . . nahm fast genau symmetrisch an beiden Seiten der Raphe an der Unterseite eine etwa eifoermige Figur mit scharf abgegrentzen, leicht buchtigen Raendern ein."



Figur 6.

Atypische und sehr seltene Lokalisation des Erythems am Skrotum (Nach Deiaco.)

Fig. 2.—Photographic reproduction of Figure 6 on page 24 of Merk's "Die Hauterscheinungen der Pellagra," Innsbruck, 1909.

TRANSLATION.—A further very beautiful example is his (Deiaco's) Case 4 (F. Z., aged 31, mason's helper, from Sfruz in Nonstale), whom I myself had the opportunity to see through the courtesy of Deiaco. The first manifestations of pellagra (uncontrollable diarrhea) dated from about four years previous. The eruption, in the course of which these particular atypical localizations were observed, was, so far as could be ascertained from the history, considered to be the third.

The following typical localizations of the eruption were present: (1) backs of the hands from the finger nails up to about three finger-breadths above the wrist joint and extending, in the form of a cuff, on the flexor surface of the wrist; (2) the dorsal surfaces of the feet from the toe nails along the outer foot margin to the external malleolus and along the mesial foot margin to the inner ankle bone; (3) a rudimentary Casal's necklace, involving only the back of the neck and reaching to the posterior border of the sternocleidomastoid muscles and exactly to the margin of the hair.

The atypical localizations in this case were also symmetrical and occurred on the knees, the elbows and on the scrotum.

On the knees . . . the upper outline was sharply defined and extended directly over the knee cap in a more or less curved line reaching almost to the condyles, without leaving the anterior surface of the limb. From this line the eruption extended downward, tonguelike, over the tibial crest, to about the middle of the leg.

The lesion on the elbows began in a similar way, . . . in the form of a triangle with its base just over the elbow and extended as a tonguelike process to about the junction of the upper and middle thirds of the ulnar crest, with a sharp outline all around.

The extremely interesting localization on the scrotum . . . was approximately oval, almost exactly symmetrical in respect to the median raphé, and was situated on the inferior surface. The outline was sharply demarcated and somewhat wavy.

It hardly seems possible that *a "typical"* can be regarded as a proper translation of the German word *atypische,* and yet from Dr. Goldberger's use of the reference the unwary reader might be led to think that his designation of this lesion as "typical" was supported by Merk. Concerning the recognition of such *atypische* lesions as really pellagrous, Merk (Die Hauterscheinungen der Pellagra, p. 41) says:

"Im Allgemeinen kann nicht genug gewuenscht werden, dass die Diagnose solcher Unregelmaessigkeiten sehr breit fundiert werde und groesster Vorbedacht obwalte. Rein Atypien sind zweifellos ganz Singulaeres und duerften nur in vorgeschrittenden Faelle oder in spaeteren Krankheitsjahren zu erwarten sein."

TRANSLATION.—In general, it is very desirable that the diagnosis of such irregular eruptions should be securely supported by other evidence and should be very carefully considered. Pure atypical eruptions (i. e., unaccompanied by the typical eruption on the backs of the hands) are very unique and are to be expected only in advanced cases or in the later years of the disease.

Concerning the value of such lesions for the diagnosis of pellagra, Merk says on the same page:

"Die Atypien tragen zur Diagnose und Beurteilung des Gesamtleidens sozusagen nichts, zur Vervollkommung der klinischen Auffassung des Hautzustandes als solchen aber viel bei."

TRANSLATION.—The atypical eruptions contribute nothing to the diagnosis and critical judgment of the general disease, so to speak, but do contribute much to the completion of the clinical comprehension of the skin condition, as such.

It would appear, therefore, that the reference to Merk in support of the scrotal lesion as *a "typical dermatitis justifying a diagnosis of pellagra"* is, to say the least, somewhat unfortunate.

The next noteworthy account of this experiment on the convicts appeared in an editorial in THE JOURNAL, very promptly (Nov. 20, 1915, p. 1818). In this editorial occurs the statement, "These positive experiments demonstrate that pellagra is a nutritional disease, but they do not single out any particular article of food." This editorial notice and approval of the conclusions drawn has been a very potent factor in gaining for these conclusions a very general and favorable reception among the laity, as well as among those physicians and scientists who are not themselves very well acquainted with pellagra by personal experience or by study of the literature.

Recently a summary of the work of the U. S. Public Health Service on Pellagra has appeared (Goldberger, Joseph: Pellagra: Causation and a Method of Prevention, THE JOURNAL, Feb. 12, 1916, p. 471). In this, the statement in regard to the skin lesions in the convicts is repeated (p. 475), but now it is stated that the scrotal lesion conformed to the type described and figured by Merk (Hauterscheinungen der Pellagra, p. 24, Fig. 6) and also by Stannus (Stannus, Hugh S.: Pellagra in Nyasaland, *Tr. Soc. Trop. Med. and Hyg.*, 1913, vii, 32). The lesions on the hands, which appeared later in two cases, and the lesion on the neck, which was observed in one case, are again mentioned but not described, and no evidence is furnished which might enable one to differentiate these lesions from an ordinary solar erythema.

In fact, in all the papers mentioned the features of these lesions on the hands and on the neck, which might indicate their pellagrous character, are left entirely to the imagination. The emphasis appears to be laid on the scrotal lesions, and we find in this last paper the additional information that this lesion conformed to the type described and figured by

Stannus as well as that of Merk previously mentioned. Stannus, in his description of the rash of pellagra, on page 35, says:

"Special Situations: The scrotum may be involved, and on account of the special formation of the skin in this situation the rash has slightly different characters.

"In two cases with affection of the scrotum I found a condition of the skin in the groin folds resembling an intertrigo, which I think was really pellagrous."

The illustration given by Stannus, photographically reproduced in Figure 3, is manifestly merely an indication of the localization of the eruption; but even so, it is sufficient to prove that the scrotal lesion observed by him is not of the same type as the oval lesion lying beneath the scrotum symmetrically on the raphé, described by Merk, but is, in fact, anterior and at the sides of the scrotum. Stannus gives no further description of this lesion nor his reason for regarding it as pellagrous.

The claim and conclusion, very definitely and finally stated by Dr. Goldberger, that pellagra developed in these six convicts lacks, therefore, the support of any reliable published evidence. The scrotal lesions could not have conformed to both those of Merk and of Stannus, because these are themselves dissimilar. Furthermore, as indicated in very definite terms by Merk, the diagnostic value of such lesions is approximately nil, except when they occur along with the typical lesions on the hands, in which instances they suggest that the patient has suffered from pellagra a long time, possibly several years.

It would seem, therefore, especially pertinent to suggest that Dr. Goldberger should publish at an early date exact and full descriptions of all the symptoms and manifestations, together with available photographs of the lesions on which the diagnosis of pellagra was founded in these cases. Even if it should then appear, as now seems very doubtful, that one or more of the convicts actually had pellagra, the possibility of a preceding attack of the disease would require consideration. Meanwhile, the claim that pellagra has been produced by a restricted diet should be regarded with suspicion, and it would be well for those who have not yet acquired a knowledge of this disease by personal observation or by a somewhat comprehensive study of its literature to retain an open mind concerning the essential factors in its causation.

W. J. MACNEAL, M.D., New York.
Director, Department of the Laboratories, New York Post-Graduate Medical School and Hospital.

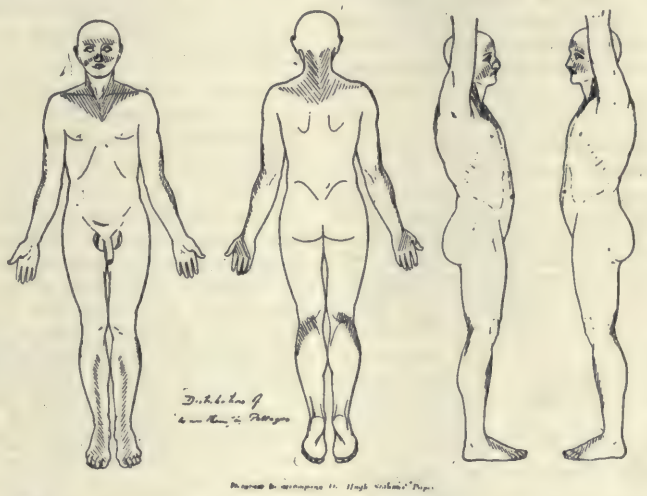


Fig. 3.—Photographic reproduction of the complete diagram showing localization of lesions, in Stannus' "Pellagra in Nyasaland" (Tr. Soc. Trop. Med. and Hyg., 1913, vii, 32).

The Alleged Production of Pellagra by an Unbalanced Diet — A Reply

To the Editor:—While preferring, pending the publication of our full report, not to enter into unnecessary discussion of the subject, the following brief statement is made to prevent, if possible, any misunderstanding of our position:

As the *Public Health Reports* in which appeared our note on the experiment on the Mississippi convicts, and from which Dr. MacNeal quotes, is not readily accessible to the general practitioner, we give the pertinent portion of this report herewith *in full,* italicizing the parts *not quoted* by Dr. MacNeal.

RESULTS

Of the 11 volunteers, not less than 6 developed symptoms, including a "typical" dermatitis, justifying a diagnosis of pellagra. The nervous and gastro-intestinal symptoms were mild but distinct. The dermatitis was first noted between September 12 and September 24, 1915, or not later than five months after the beginning of the restricted diet. It is of great interest to note that in all our cases the skin lesions were first recognized on the scrotum. Later there appeared lesions on the backs of the hands in two cases and the back of the neck in one case. The scrotal lesions conformed to the type described and figured by Merk [Merk, Ludwig: Die Hauterscheinungen der Pellagra, Innsbruck, 1909, p. 24, Fig. 6]. *This experience would suggest that the scrotal lesion is a much more common early skin manifestation than has heretofore been believed. It would probably have escaped us but for the fact that it was our routine to examine these men, and the special control group, completely stripped.*

No person in the "camp" not of the volunteer squad has presented evidence justifying even a suspicion of pellagra.

The diagnosis in the above cases was concurred in by Dr. E. H. Galloway, secretary Mississippi State Board of Health, and Dr. Nolan Stewart, formerly superintendent Mississippi State Hospital for Insane, at Jackson, Miss.

We are very greatly indebted to Dr. Marcus Haase, professor of dermatology, Medical College of the University of Tennessee, Memphis, Tenn., and to Dr. Martin F. Engman, professor of dermatology in the Washington University Medical School, St. Louis, Mo., for assistance in excluding the other known dermatoses.

CONCLUSION

The conclusion is drawn that pellagra has been caused in at least 6 of 11 volunteers as the result of the restricted diet on which they subsisted.

ACKNOWLEDGMENTS

The above experiment was made possible by the cooperation of Gov. Brewer, whose interest was enlisted by the intervention of Dr. Galloway. To these gentlemen acknowledgments are due and are here made for their invaluable assistance. — *Public Health Reports,* Nov. 12, 1915. p. 3338.

It is evident from the foregoing that the phrase "typical dermatitis" has reference to the characters (bilateral symmetry, sharp delimitation, scaling, atrophy, etc.) of the skin lesions, entirely apart from their localization (genitals, hand or neck), and that the sentence "this experiment would suggest that the scrotal lesion is a much more common early skin manifestation than has heretofore been believed" clearly makes recognition of the opinion, theretofore prevailing, that the scrotal "localization" was not a common early skin manifestation.

Note is taken of Dr. MacNeal's difficulty in understanding how the scrotal lesion in our experimental cases could have "conformed to the type described and figured" by Merk and also to that by Stannus, as the two appear to him to be dissimilar. We may say, anticipating the publication of the full report, that among the six or seven cases presenting scrotal lesions there was sufficient individual variation to justify the statement that the localization and form of the lesion in some were remarkably like the figure in Merk and in some like that in Stannus, and to establish the conviction in our own minds that these are but nonessential variations in one type.

JOSEPH GOLDBERGER, M.D., Washington, D. C.
G. A. WHEELER, M.D., Washington, D. C.
United States Public Health Service.

Education, the Social Instrument.—The foundations of health education must be laid in the schools. This is of particular importance in the light of our modern conception of health work. In our more advanced communities we scarcely need speak longer of *public* health work. It is possible now to drop the word "public" and to talk of health. This means that personal health, personal hygiene, is to be the keynote of modern sanitation. The schools are, beyond comparison, the most valuable instruments for the instruction of society's members in the matters of hygiene.—Donald B. Armstrong, M.D., *American Journal of Public Health,* December, 1915.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SCOTOMA IN MORPHIN ADDICTION

To the Editor:—Does the habitual use of morphin have any influence on the field of vision, such as causing a constriction or scotoma?

F. P. C.

Answer.—Morphin does not ordinarily produce toxic amblyopia, yet experiments made on dogs and observations on human eyes have shown that opium and its derivatives do occasionally affect the optic nerve and retina, producing these visual disturbances. For example, Stieren (The Journal, March 12, 1910, p. 869) reported the occurrence of amblyopia with great reduction of vision and a large central scotoma, following the use of "habitina," a nostrum containing 16 grains of morphin and 8 grains of heroin to the ounce. The patient was taking from 6 to 8 teaspoonfuls daily for the cure of the morphin habit.

There have been no very recent contributions to this subject in ophthalmic literature. Wagner (*Klin. Monatsbl. f. Augenh.*, 1872) reported a case of amaurosis as a result of poisoning with morphin, and Laborde (*Compt. rend. Soc. de biol.*, Jan. 13, 1877) wrote on the action of morphin on the retina in chronic morphinism. Schiess-Gemuseus reported the case of a man, aged 65, who, after taking a morphin sleeping powder and having slept thirty hours became almost blind and deaf. After an interval of three weeks he had a right-sided hemianopia and a persistent contraction of the visual field on the left side.

VENARSEN AND OTHER PREPARATIONS OF THE INTRAVENOUS PRODUCTS COMPANY

To the Editor:—At the present prohibitory prices of neosalvarsan, the average patient cannot avail himself of that most useful therapeutic agent. The Loeser-Smith Company, 177 North State Street, Chicago [distributors for the Intravenous Products Company], is sending out literature advertising a number of products, among them venarsen and venomer, for the treatment of syphilis. Can you give me a line on the two drugs named?

F. C. Schurmeier, M.D., Elgin, Ill.

To the Editor:—What is venarsen, sold by the Kirby Instrument Company? Will it take the place of neosalvarsan in the treatment of syphilis?

G. B. Taylor, M.D., Cameron, Texas.

To the Editor:—Please inform me regarding the reliability of the preparations of the Intravenous Products Company of Denver.

R. G. Yeaton, M.D., Brooklyn.

Answer.—Venarsen was examined by the Council on Pharmacy and Chemistry, and the report was published in The Journal, May 22, 1915, p. 1790. The Chemical Laboratory of the American Medical Association found the preparation to be "a simple solution containing approximately 9 grains of sodium cacodylate, 1/40 grain of mercury 'biniodide' and 3/4 grain of sodium iodid to each full dose." Sodium cacodylate is a well-known drug which is inferior in efficacy against syphilis to salvarsan or neosalvarsan. There appears to be no reason for administering it intravenously. The Council found that "no real evidence" had been presented for the claim of "lower toxicity and greater spirochaetacidal power than other known arsenic compounds," and that no justification had been established for the use of venarsen in tuberculosis and pellagra, diseases for which it is recommended by the exploiters. "Moreover, a careful physician would not give mercury and arsenic in fixed proportions." The preparation was refused recognition by the Council.

Venomer has not been examined by the Council. According to the manufacturers it is

" . . . a sterile product containing in each 5 c.c. solution .016 Gm. (1/4 gr.) Mercury Iodide, 260 Gm. (4 grs.) Sodium Iodide, .065 Gm. (1 gr.) Sodium Dimethylarsenate, in a proper vehicle for intravenous administration."

It thus appears to be a variation on venarsen, containing considerably less sodium cacodylate and considerably more mercury and iodids. This preparation, like venarsen, prompts the comment that a careful physician would not give arsenic and mercury in fixed proportions.

Venodine, another preparation of the Intravenous Products Company, was examined by the Council (The Journal, June 26, 1915, p. 2155) and refused recognition because the therapeutic claims made for it were unwarranted, and the composition was unscientific.

The company manufactures a number of "intravenous specialties." The advertising lays stress on intravenous administration or "direct medication" as "a new and alluring field for the internist." In general, it may be said that, while there is a distinct field for intravenous administration in cases and conditions in which immediate results must be secured, the indiscriminate use which the advertising of the Intravenous Products Company tends to encourage is objectionable for many reasons: It incurs an unnecessary danger, and it puts the physician to needless trouble and the patient to unnecessary expense. In addition, such preparations as venarsen and venomer mean the use of ready made mixtures in conditions in which the physician should be alert to vary the prescription according to the changing requirements of the case.

TOTAL ACIDITY OF URINE

To the Editor:—Please give me Folin's method for the titration of acidity in the urine.

A. D. Wilson, M.D., Prescott, Ariz.

Answer.—To 25 c.c. of urine are added from 15 to 20 grams of powdered potassium oxalate, and a few drops of a 1 per cent. alcoholic solution of phenolphthalein. This is shaken thoroughly and titrated immediately with tenth normal sodium hydroxid solution. The acidity is then calculated as the amount of tenth normal sodium hydroxid solution required to neutralize the twenty-four hour amount of urine. It is on an average 617.

The method is described in practically all books on diagnostic methods.

FLOATING SPOTS—MUSCAE VOLITANTES

To the Editor:—Please give me information concerning the treatment of floating dark spots before the eyes.

B. F. Hines, M.D., Tyler, Tex.

Answer.—The spots floating in the line of vision are not pathologic formations in the vitreous, but are shadows cast on the retina by cells in the vitreous. They have been attributed to irritation of the retina, or congestion of the choroid, as well as to eye strain and to constitutional disturbances. Hyperesthesia of the retina and errors of refraction have also been incriminated. Except so far as they indicate the need of examination for errors of refraction and for improving the general condition, these floating spots —muscae volitantes—are not of importance. The condition is discussed in practically all textbooks on diseases of the eye. Of course, the vitreous should be examined for the presence of opacities of abnormal character.

LOWEST BODY TEMPERATURE

To the Editor:—What is the lowest body temperature that has been recorded, with survival of the patient? Please omit my name in answering.

J. A. K., M.D.

Answer.—A search of available literature shows that the lowest body temperature in a human being who survived was 75 F. The patient was a man, aged 34, who, while intoxicated, had been exposed to a temperature of 34 over night. This case was reported by Reineke (*Deutsches Archiv für klinische Medicin*, xvi, 15). A temperature as low as 71.6 is said to have been observed in one case. The authority in the latter case, however, does not seem entirely dependable.

Squint and the Evil Eye.—It is probable that the "evil eye," for which many hapless old women were harried to their death on the suspicion of witchcraft in "the good old days," was no more than a common squint, a "cast" in the eye, or "bossing," as it is called in many parts of the country to this day. . . . Not only was the squint thought to be of evil significance, but the defect itself was considered the work of evil spirits. In "King Lear" we find the following in the scene on the heath at night: "This is the foul fiend Flibbertigibbet: he begins at curfew, and walks till the first cock; he gives the web and the pin, squints the eye, and makes the harelip; mildews the white wheat, and hurts the poor creature of the earth."—N. Bishop Harmah, *British Journal of Children's Diseases.*

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, April 4-5. Sec., Dr. John Wix Thomas, 200 National Bank of Arizona Bldg., Phoenix.

CALIFORNIA: Los Angeles, April 4. Sec., Dr. Charles B. Pinkham, Room 527 Forum Bldg., Sacramento.

COLORADO: Denver, April 4. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, April 11. Sec., Dr. E. P. Copeland, The Rockingham.

IDAHO: Boise, April 4. Sec., Dr. Charles A. Dettman, Burke.

MINNESOTA: Minneapolis, April 4-7. Sec., Dr. Thomas S. McDavitt, 814 Lowry Bldg., St. Paul.

MONTANA: Helena, April 4. Sec., Dr. William C. Riddell, Helena.

NEW MEXICO: Sante Fe, April 10. Sec., Dr. W. E. Kaser, East Las Vegas.

OKLAHOMA: Oklahoma City, April 11-12. Sec., Dr. Ralph V. Smith, 502 Daniel Bldg., Tulsa.

PORTO RICO: San Juan, April 4. Sec., Dr. Quevedo Baez, 66 Allen St., San Juan.

RHODE ISLAND: Providence, April 6. Sec., Dr. Gardner T. Swarts, 315 State House, Providence.

UTAH: Salt Lake City, April 3-4. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

THE PRACTICAL LICENSE EXAMINATION IN MINNESOTA

Abstract of a Report Received from a Visitor at a Recent Examination

The license examination given by the Minnesota State Board of Medical Examiners as observed by a visitor recently covered eleven subjects, eight of which were written and three practical. The written examinations were on three so-called "major" topics, medicine, surgery, and obstetrics and gynecology, and the "minor" subjects, materia medica, therapeutics, medical jurisprudence and preventive medicine, diseases of the eye, ear, nose and throat, anatomy and physiology. The visitor did not get a clear idea of the difference between a minor and a major subject, except that an applicant might fail in two minor topics, and still receive his license, if his average grade was sufficient. He could not do this with a major topic. Ten written questions were given in each subject, and the written examinations occupied the first two days of the examination period. The morning of the third day was given over to a laboratory examination—one hour for urinalysis, and two hours for examination in histology and pathology. Bacteriology was said to have been included formerly, but the visitor was informed that many of the older applicants damaged the specimens and the oil immersions to such an extent that it was thought feasible to abandon it.

The urinalysis was relatively simple, the time being too short for any of the more refined tests. Each student was given a specimen and a blank on which to note his findings. He was observed by the examiner while making the test, and marked on the method of procedure and on the accuracy of his report. The examination in histology and pathology covered two hours: one hour for the microscopic, and one hour for the examination of gross specimens. In the microscopic test each applicant was handed four numbered slides wrapped in tissue paper, and was informed that two were normal and two pathologic specimens. He was instructed to take them to a microscope, conveniently placed in the laboratory, and to describe and identify them. He was likewise required to describe and identify six of a number of gross specimens placed on the adjacent tables and numbered. There were about twenty of these specimens, and the visitor noticed that the examiners would assign the first six specimens to one, the last six to another, and the middle six to a third. The specimens displayed were all of very obvious lesions, such as united fracture of the femur contrasted with osteomyelitis of the same part; hemorrhage into the brain; the typical lesions of the small intestine; valvular diseases of the heart, and the like.

The afternoon was devoted to the bedside examination with special reference to physical diagnosis. In the light, pleasant wards of the University Hospital, each applicant was assigned a patient. He was given an hour or more to write the history, make a physical examination, and record his findings. No facilities for laboratory diagnosis were provided, but each applicant was informed that on request he would be given the findings of the attending physician as to blood, urine and the like.

As the first applicant signified the completion of his examination, he was taken into the adjacent room, and there presented to the two examiners the results of his examination, the examiner having before him the hospital record of the same patient. In connection with this report the examiner gave more or less of an oral test. For example, one applicant having a case of resolving pneumonia, which he had described in a very clear and creditable fashion, was asked, "In what diseases are râles found." Another had a case of myocarditis, and was asked to discuss the various heart murmurs, and the conditions in which they appeared. The visitor thought that rather insufficient attention was given to observing carefully the manner in which the applicant made this bedside examination. However, the applicants who appeared before the board at the time were especially high grade men, and it was hardly necessary to observe their work as closely as that of less experienced applicants.

Nebraska June Report

Dr. H. B. Cummins, secretary of the Nebraska State Board of Health, reports the written examination held at Lincoln, June 10-11, 1915. The total number of subjects examined in was 12; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 18, of whom 14 passed and 4 failed. Fifteen candidates were licensed through reciprocity. Three candidates were granted reregistration licenses by examination. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Chicago College of Medicine and Surgery	(1915)	80.2, 82.5, 84.4, 85
Hahnemann Medical College and Hospital	(1915)	86.4
Rush Medical College	(1915)	91.6
University Medical College, Kansas City	(1913)	75
University of Nebraska	(1915)	79, 83.8, 84.4, *
Eclectic Medical College	(1915)	79.6, 80
University of Pennsylvania	(1915)	84.1
FAILED		
Chicago Hospital College of Medicine	(1915)	71.2
University Medical College, Kansas City	(1913)	74.1
Lincoln Medical College	(1910)	70.6
John A. Creighton Medical College	(1915)	70.2

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
University of Colorado	(1912)	Colorado
Georgetown University	(1876)	Kansas
Chicago College of Medicine and Surgery	(1914)	Illinois
Bennett Medical College	(1912)	Illinois
Bennett College of Eclectic Medicine and Surgery	(1906)	Illinois
Hering Medical College	(1912)	Kansas
Northwestern University	(1913) Illinois; (1914)	Missouri
College of Physicians and Surgeons, Chicago	(1908)	Wisconsin
Southwestern Homeopathic Medical College and Hosp.	(1901)	Kentucky
University of Michigan Medical School	(1912)	Michigan
Barnes Medical College	(1910)	Illinois
St. Louis University	(1914)	Missouri
Milwaukee Medical College	(1903) Wisconsin; (1905)	Kansas

* No grade given.

Missouri Reciprocity Report

Dr. J. A. B. Adcock, secretary of the Missouri State Board of Health, reports that twenty-one candidates were licensed through reciprocity from Jan. 8 to May 1, 1915. The following colleges were represented:

College	Year Grad.	Reciprocity with
Bennett Medical College	(1912) (1913)	Illinois
Chicago College of Med. and Surg.	(1909)	Illinois
Chicago Homeopathic Medical College	(1894)	Kentucky
College of Phys. and Surgs., Chicago.	(1883) Kansas; (1912)	Illinois
Northwestern University	(1910)	Illinois
Rush Medical College	(1887)	Iowa
Indiana University	(1908)	Indiana
College of Phys. and Surgs., Keokuk	(1878) (1884)	Iowa
University of Louisville	(1892)	Kentucky
Ensworth Medical College	(1913)	Iowa
St. Louis College of Phys. and Surgs.	(1910) (1911)	Oklahoma
St. Louis University	(1908)	Illinois
Washington University	(1910)	Illinois
Lincoln Medical College	(1909)	Nebraska
Meharry Medical College	(1908) (1912)	Nebraska
University of Vermont	(1896)	Vermont

Book Notices

ORAL SURGERY. A Treatise on the Diseases, Injuries and Malformations of the Mouth and Associated Parts. By Truman W. Brophy, M.D., D.D.S., LL.D., Professor of Oral Surgery, Chicago College of Dental Surgery. Special Chapters by Matthew H. Cryer, M.D., G. Hudson Makuen, M.D., William J. Younger, M.D., F. W. Belknap, M.D., and Calvin S. Case, M.D., D.D.S. Cloth. Price, $10. Pp. 1090, with 903 illustrations. Philadelphia: P. Blakiston's Son & Co., 1915.

This work contains many varied subjects. A glance at the table of contents reveals at least some suggestion of most of the subjects in laboratory and clinical medicine. The book opens with a chapter which the author has termed "surgical" bacteriology. One often wonders whether the general subject of bacteriology were not more satisfactorily and accurately treated in works limited to the subject. This applies equally to the parent subject, pathology. Treatises on special or applied pathology and bacteriology belong more directly to the specialist. In Chapter 6, on Tumors, the discussion is general in character, with little attention to the mouth and jaws. The subject of mesothelial tumors of the mouth is an interesting one. Chapters 26 to 30 deal with harelip and cleft palate. The author's most notable work is illustrated in these chapters. Even those who do not agree with some of his methods must admit that Dr. Brophy has made as good a contribution to the surgery of cleft palate and harelip as any other American. If the book contained nothing else, these chapters would place the volume among the most useful works on regional surgery. While the volume is not well adapted to class room uses, it will render good service to students and practitioners of medicine and dentistry. The book is profusely illustrated, and represents an enormous amount of labor.

POST-MORTEM EXAMINATIONS. By William S. Wadsworth, M.D., Coroner's Physician of Philadelphia. Cloth. Price, $6 net. Pp. 598, with 304 illustrations. Philadelphia: W. B. Saunders Company, 1915.

The author of this book has evidently had an extensive experience in the field of which he writes, and has given much thought to the work in which he is engaged. A careful reading of the book, which is highly interesting, leaves one with the regret that he has not succeeded better in transmitting the fund of information which he undoubtedly possesses and uses. Each topic taken up results in criticism of all work and thought previously recorded on the subject, often accompanied by useful suggestions as to the errors to be avoided, but also often with very little guidance as to the proper way to secure the best results. There are more warnings than directions, more advice on what to do or not to do than information as to how to do it.

In fact, it may fairly be said that the author scolds his way through the subject of postmortem examinations and all that appertains thereto. A characteristic sample of the prevailing style of discussion is contained in this quotation: "The circulation of the brain is so important, and the plates in the anatomies are so beclouded by the artist's fancies for decorative pictures, that I have introduced several figures which, if carefully studied and compared, will give a very different conception of the blood supply than that presented by the strange chromos. At the postmortem it matters but little what foolish name has been attached to a part if the object is to understand the condition and the relation of cause and effect, because one must think in terms of things, not names. The circulation of the brain as described appears to be but crudely comprehended even in our best works."

As all existing work and opinions seem faulty to the writer, it is perhaps not unfair to state that not all of his ideas will meet the approval of other pathologists; for example, "The hair is characteristic of chronic gastritis," and many other statements of the class of "foot-of-the-bed diagnosis."

The mutilating method of removing the brain, which he so warmly advocates, will undoubtedly cause indignant protests from those who demand most circumspect treatment of this tender and intricate structure. Many of the comments on chemical matters are also more than puzzling to a chemist. Even after a tirade on the ignorance of others concerning the neck, there is no mention of the excellent method of studying this part of the body by carrying a transverse incision at the level of the clavicles and reflecting the skin upward.

The statement that "too much stress is laid on fat emboli" is entirely contrary to the observations made by many careful men. One wonders whether the author has sought for fat emboli systematically by appropriate methods in suitable cases. There is far too little emphasis on the utilization of histology and bacteriology in postmortem examinations. In a modern work on this subject, one would expect to find a good chapter on bacteriologic methods and principles as applied to the special problems of the mortuary, but here we find only a small discursive section devoted to generalities.

Nevertheless, despite the defects of presentation and the lack of systematic instruction, there is a great deal of value in the book, and much can be found in it that will be of value to the experienced pathologist. Many original ideas appear, and helpful suggestions and sound advice abound. The insistence on free modification of the technic in accord with the case under investigation is more needed than might be imagined, as also is the advice to postpone necropsy for due preparatory study and reflection in certain cases, especially those involving toxicologic matters. But one always wishes that the author's evident knowledge and skill in his subject were more successfully imparted to the reader.

A MECHANISTIC VIEW OF WAR AND PEACE. By George W. Crile. Edited by Amy F. Rowland. Cloth. Price, $1.25. Pp. 104, with illustrations. New York: The Macmillan Company, 1915.

This little volume is based on the proposition that "man and other animals are physicochemical mechanisms," and it will find approval or disapproval at the hands of the reader in accordance with the reader's acceptance or nonacceptance of the fundamental proposition. If man is only a physicochemical mechanism, his actions must be governed at all times by purely physicochemical laws. Evolution, if accepted (and there are few who do not accept it today), cannot be limited simply to the development of species; it must be universal in its application; hence it is not difficult for one to look on the present situation abroad as an evolutionary process, and it is perfectly evident that the author so considers it. He goes even farther than this. He attempts to show a definite relation between particular environmental conditions and the conduct and actions of individuals involved; in other words, man is only a machine, and must inevitably react to stimuli along definite lines. That the theory is fundamentally correct perhaps will be widely admitted, but the factors involved are so numerous and many of them so little understood that much difficulty will be encountered in applying the principle to specific events. The author has made a very readable explanation on a mechanistic base of war and its effects, and the fact that he has had personal experience with many of the phases of the subject presented will add much to the interest of the work.

THE STARVATION TREATMENT OF DIABETES. With a Series of Graduated Diets Used at the Massachusetts General Hospital. By Lewis Webb Hill, M.D., Children's Hospital, Boston, and Rena S. Eckman, Dietitian, Massachusetts General Hospital. With an Introduction by Richard C. Cabot, M.D. Second Edition. Cloth. Price, $1. Pp. 131. Boston: W. M. Leonard, 1916.

The first edition of this work was printed in August, 1915. The interest in the Allen treatment apparently early exhausted the edition, and the second one has appeared. It consists of several pages devoted to a description of the treatment, illustrated by a series of eleven case reports and a number of graphic charts, showing the method of recording cases used by the authors. A few pages are devoted to the examination of the urine, and the remaining two thirds—about ninety pages—to diet. Numerous recipes, suggested diet lists and tables of food values are included. In reviewing the first edition, regret was expressed that the price of the book was out of all proportion to its cost of production. This criticism still applies, yet not to the extent that it did, since the new edition has a number of additional pages.

Medicolegal

Duty of Health Officer Restricted by Lack of Funds

(Gould vs. Keller, Health Officer (S. D.), 154 N. W. R. 649)

The Supreme Court of South Dakota affirms an order denying a writ of mandamus which the plaintiff sought to compel the health officer of Sioux Falls to remove a smallpox patient from his home to the pesthouse or city hospital, or some other safe and proper place. The court says that an ordinance of the city provided that it should be the duty of the health officer to visit and examine all sick persons who should be reported to him as being sick or supposed to be sick with any infectious or pestilential disease, and cause all such infected persons to be removed to the pesthouse or city hospital, or some other safe and proper place. The smallpox patient was an employe in the home of the plaintiff. From the latter the health officer received proper notice, and visited the patient, but, instead of removing her from the plaintiff's house, he quarantined the house. It appeared that the city had no city hospital or pesthouse, and that it had not provided any other "safe and proper place" for the care of persons suffering from "infectious or pestilential disease." The health officer alleged that he was powerless to do more than he had done in the case. The trial court was right in refusing the writ prayed for. It was not shown that there was any ordinance under which the health officer was provided with, or given the power to obtain, the means or funds necessary to provide a suitable place and the necessary equipment for the care of the patient in question. It was not shown that the health officer had been provided with such means from any source. Sioux Falls is a city under commission. No officer of such city can expend any of its funds unless the appropriation ordinance for the current year provides a fund for the purpose for which the expense is sought to be made. There was no showing that the city had, by an appropriation ordinance, provided any fund on which warrants could have been drawn to provide any place for the care of this smallpox patient. Certainly no officer should be compelled to perform any duty involving the expenditure of funds, where no funds have been provided with which to meet such expenditure. How could this health officer comply with the writ prayed for? He could not compel the commissioners of the city to provide a place, and he could not be compelled to provide a place at his own expense.

Death from Typhoid Fever from Drinking Polluted Water Accidental

(Vennen vs. New Dells Lumber Co. (Wis.), 154 N. W. R. 640)

The Supreme Court of Wisconsin holds that the facts pleaded showed that the death from typhoid fever of an employee of the defendant, named Vennen, was caused by accident while performing service growing out of and incidental to his employment. The court says that the defendant was engaged in operating a manufacturing lumber establishment located on the Chippewa River, in the city of Eau Claire. In connection with its establishment it maintained an outhouse and two toilets for its employees working there and a toilet in its principal office building. All of the sewage from these toilets was discharged into the river near the defendant's establishment. The pleadings alleged that the defendant, in supplying water for its boilers, not only secured water from the city water works, but also used water from the river, which was obtained by means of intake pipes; that it was negligent in placing its intake pipes in such location that they carried into the boilers water that was contaminated by the sewage; and that this water, through the defendant's negligence, became mixed with the water from the city waterworks, because of improper connecting pipes. It was further alleged that the defendant negligently permitted and caused the employees to drink of this polluted water, and thereby caused the said Vennen to become sick with typhoid fever, which resulted in his death. The facts alleged showed that the parties to the action were subject to the workmen's compensation act. The inquiry then was: Was Vennen's death proximately caused by accident while he was "performing services growing out of and incidental to his employment"? The inference from the alleged facts was reasonably clear that at the time of the alleged injury resulting in his death he was "performing services growing out of and incidental to his employment." The contention that an injury resulting from carelessness or negligence is not one that can be said to have been accidentally sustained in the sense of the compensation act was not well founded. In the popular sense the words as used in the compensation act referring to a personal injury accidentally sustained by an employee while performing services growing out of and incidental to his employment include all accidental injuries, whether happening through negligence or otherwise, except those intentionally self-inflicted. The term "accidental," as used in compensation laws, denotes something unusual, unexpected, and undesigned. The nature of it implies that there was an external act or occurrence which caused the personal injury or death of the employee. It contemplates an event not within one's foresight and expectation resulting in a mishap causing injury to the employee. Such an occurrence may be due to purely accidental causes, or it may be due to oversight and negligence. The fact that Vennen became afflicted with typhoid fever while in the defendant's service would not in the sense of the statute constitute a charge that he sustained an accidental injury, but the allegations went further and stated that this typhoid affliction was attributable to the undesigned and unexpected occurrence of bacteria in the drinking water furnished him by the defendant, as an incident to his employment. These facts and circumstances clearly charged that Vennen's sickness was the result of an unintended and unexpected mishap incident to his employment. These allegations fulfilled the requirements of the statute that the drinking of the polluted water by Vennen was an accidental occurrence, while he was "performing services growing out of and incidental to his employment." It was alleged that the consequences of this alleged accident resulted in afflicting Vennen with typhoid disease, which caused his death. Diseases caused by accident to employees while performing services growing out of and incidental to their employment are injuries within the contemplation of the workmen's compensation act.

Destruction of Diseased Animals to Protect Public Health

(Durand et al. vs. Dyson et al. (Ill.), 111 N. E. R. 143)

The Supreme Court of Illinois, in affirming a decree in favor of the defendants, the state veterinarian and the members of the state board of live stock commissioners, holds that they and their agents and employees should not be enjoined against slaughtering, in accordance with the statute, a herd of cattle afflicted with the hoof and mouth disease. The court says that cattle afflicted with a dangerous and contagious disease are public nuisances as defined by the common law, and under the common law such a nuisance could not be legalized because it invaded the peace and safety of the people. Prevention of the spreading of dangerous diseases among cattle is now universally recognized in this country as within the domain of the police power, as it is so essential to the public safety and health. It is also now generally recognized that where the disease among cattle is so very dangerous and of so contagious or infectious a character as to be communicable to human beings through the consumption of the flesh or milk of such animals as have the disease, as the foot and mouth disease is generally considered to be, legislatures may, and should, confer on boards or commissions the power to destroy animals afflicted with such a disease when thought to be necessary to public safety. A Massachusetts case upholds a statute authorizing summary proceedings to kill horses with the glanders. Proceedings for the destruction of property in many cases must necessarily be summary and without a previous trial or hearing. It would certainly not be contended by any one that a hearing ought to be had before demolishing a building in the path of a conflagration that was rapidly destroying a city, in case of the isolation and confinement of a person afflicted with smallpox or with the bubonic plague, or before

the destruction of a dog suffering with rabies. In some cases hearings may be reasonably had before the destruction of property, but when the question is one regarding the destruction of animals or food which is not only unfit for human use, but may be fatal to those who use it, the emergency is such that the legislature should have the entire disposition of the matter without being subject to being reviewed and its acts declared void by the courts.

Roentgen-Ray Plates May be Shown to Juries

(Lupton vs. Southern Express Co. (N. C.), 86 S. E. R. 614)

The Supreme Court of North Carolina, in affirming a judgment in favor of the plaintiff for damages for personal injuries alleged to have been caused by having a heavy truck pass over one of his feet, holds that there was no error in permitting a physician who had made roentgenograms of the plaintiff's feet to exhibit the plates to the jury. The court says that there was no objection to the description of the injury as disclosed by the Roentgen-ray plates. The exception was only to the exhibition of the plates to the jury, and, as there was nothing to show any variance between the plates and the description given by the witness, the exception might be disposed of on the ground that the ruling permitting the jury to see the plates, if erroneous, was harmless. The court is, however, of the opinion that it was competent to introduce the plates and to permit the jury to see them. It has been held in several cases in the North Carolina Reports that the ordinary photograph, when shown to be a true representation and taken under proper safeguards, is admissible in evidence, and the same rule prevails as to photographs taken by the Roentgen-ray process. The rule, based on want of confidence in the intelligence of jurors, formerly prevailed that jurors might hear, but could not see; but it has been expressly repudiated in North Carolina. It was true that the witness who made the roentgenograms did not say in so many words that the photograph was an accurate and true representation of the condition of the foot, but this was a reasonable inference from his evidence. He had sworn that he would tell the truth; he was an expert and experienced in the manipulation of the Roentgen ray, and his whole evidence showed that he believed the photographs to be a true representation of the condition of the foot.

Society Proceedings

COMING MEETINGS

Alabama State Medical Association, Mobile, April 18.
American Assn. of Genito-Urinary Surgs., Washington, D. C., May 9-10.
American Association of Path. and Bact., Washington, D. C., May 9-11.
American Climatological and Clin. Assn., Washington, D. C., May 9-11.
American Dermatological Association, Washington, D. C., May 8-10.
American Gastro-Enterological Association, Washington, D. C., May 8-9.
American Gynecological Society, Washington, D. C., May 9-11.
American Laryngological Association, Washington, D. C., May 9-11.
Amer. Laryn., Rhin. and Otol., White Sulphur Sprgs., W. Va., May 5-6.
American Medico-Psychological Association, New Orleans, April 4-7.
American Ophthalmological Society, Washington, D. C., May 9-11.
American Orthopedic Association, Washington, D. C., May 8-11.
American Otological Society, Washington, D. C., May 8-9.
American Pediatric Society, Washington, D. C., May 8-10.
American Society of Tropical Medicine, Washington, D. C., May 9-11.
American Surgical Association, Washington, D. C., May 9-11.
American Urological Association, St. Louis, April 17-19.
Arizona Medical Association, Phoenix, April 26-27.
Arkansas Medical Society, Texarkana, May 2-4.
Association of American Physicians, Washington, D. C., May 9-11.
California State Medical Society, Fresno, April 18-20.
Cong. Am. Phys. and Surgs. of No. Am., Washington, D. C., May 9-10.
Florida Medical Association, Arcadia, May 10-12.
Georgia Medical Association, Columbus, April 19-21.
Iowa State Medical Society, Davenport, May 10-12.
Kansas Medical Society, Topeka, May 3-5.
Louisiana State Medical Society, New Orleans, April 18-20.
Mississippi State Medical Association, Greenville, May 9-11.
Missouri State Medical Association, Excelsior Springs, May 8-10.
National Assn. for Study and Prev. of Tuberc. Wash., D. C., May 11-12.
North Carolina State Medical Society, Durham, April 18.
North Dakota State Medical Association, Devils Lake, May 10-11.
Oklahoma State Medical Association, Oklahoma City, May 9-11.
South Carolina Medical Association, Charleston, April 18-20.
Tennessee State Medical Association, Knoxville, April 4-6.
Texas State Medical Association, Galveston, May 9-11.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

March, CLI, No. 3, pp. 313-468

1 *Causes of Death in Diabetes. E. P. Joslin, Boston.
2 *Linitis Plastica. J. Sailer, Philadelphia.
3 Clinical Study of Pain Arising From Diaphragmatic Pleurisy and Subphrenic Inflammation. J. A. Capps, Chicago.
4 Cerebral Nerve Disturbances in Exophthalmic Goiter. Report of Case Associated With Bulbar Paralysis. G. J. Heuer, Baltimore.
5 *Metabolism and Treatment of Rheumatoid Arthritis. R. Pemberton, Philadelphia.
6 Syndrome of "Coagulation Massive et Xanthochromie" Occurring in Case of Tuberculosis of Cervical Spine. R. S. Bromer, Boston.
7 Syphilitic Bursitis; Report of Case Involving Both Knees. R. W. Scott, Cleveland.
8 Cardiospasm; Report of Case. B. B. V. Lyon, Philadelphia.
9 *Case of Polyposis of Colon. H. W. Soper, St. Louis.
10 Myxedema and Nervous System; Report of Cases. R. L. Pitfield, Philadelphia.
11 Five Years' Experience in Treatment of Pulmonary Tuberculosis by Artificial Pneumothorax. M. E. Lapham, Highlands, N. C.
12 Rupture of Saccular Dissecting Aneurysm of Right Vertebral Artery. F. D. Weidman, Philadelphia.
13 Calcium and Bence-Jones Protein Excretion in Multiple Myeloma. N. R. Blatherwick, New York.

1. Causes of Death in Diabetes.—Of 945 cases of diabetes seen by Joslin 921, or 97.5 per cent. have been traced, and out of this number 425 have died. The actual causes of death are known in all but 5 patients among those dying without coma. Sixteen patients died from miscellaneous causes. Seventeen died of cancer. Cancer apparently developed after the diabetes in 8 cases, and may have developed before or coincident with the diabetes in 7 others. Pulmonary tuberculosis was responsible for the death of 16 patients. Cardio-renal and vascular changes, uncomplicated by coma, caused the death of 62 patients. There were but 36 deaths from infections. Of general infections, pneumonia heads the list with 15 deaths and influenza claims 3. Of local infections, septic and gangrenous legs account for 9, carbuncles for 4 and acute fulminating appendicitis for 2. Coma was fatal to 273 cases (64.24 per cent.), thus causing two thirds of the deaths. Analyzing the deaths from coma, Joslin emphasizes certain points. First, ether anesthesia is a burden which a light case of diabetes may easily bear; it may change a moderate to a severe case, and to a severe case it may be fatal. Second, diabetic patients with vulnerable kidneys are peculiarly susceptible to coma because the power of elimination of acid bodies is impaired. Third, an infectious process renders the diabetes more severe. A considerable percentage of the cases of coma occurred in connection with either general or local infectious processes. Fourth, an occasional case of coma is precipitated in a severe diabetic by mental excitement. Fifth, there is a definite influence exerted by a fat protein diet or extreme fat diet. Although 90 per cent. of diabetic patients will quickly and safely become sugar free by simple fasting, for the remaining 10 per cent., which would include cases already showing acid poisoning, elderly patients and diabetics with infections, Joslin suggests that prior to giving any fasting treatment a possible acidosis be anticipated by taking away the cause, namely, by the absolute exclusion of fat from the diet, but otherwise making no change in the diet or in the habits of the patient. After two days, or longer if desired, omit protein, another, though lesser contributing factor to acidosis, and thereon daily halve the carbohydrate hitherto unchanged in the diet, until 10 gm. are reached and then proceed with routine fasting treatment. Vomiting at the onset of coma usually presages death, because the patient is deprived of fluid with which to eliminate acids. Years ago in seeking for the cause of edema in a severe diabetic patient who was taking sodium bicarbonate Joslin withdrew sodium chlorid from his diet. Prompt loss of weight followed and symptoms of coma appeared. Since then he has been careful not to restrict salt. He also points out that large doses of sodium bicarbonate frequently are detrimental to a patient with threatening coma.

2. **Linitis Plastica.**—One month after an operation for double inguinal hernia Sailer's patient developed symptoms of linitis plastica. There was a persistent patulous condition of the pylorus and a persistent absence of free hydrochloric acid. Pepsin was secreted continuously, although, in the absence of free hydrochloric acid, it did not act on proteids, but it always became active as soon as the gastric contents were diluted with hydrochloric acid solution. Pus was frequently found at first; occult or visible blood never; lactice acid never. The process began in the pyloric region. The stomach wall in this region was distinctly thicker, somewhat harder and appeared more altered than the remaining portion of the stomach, although the thickening of the gastric wall extended as far as the fundus. Distinct evidence of improvement occurred twice during the course of the disease. He became so much stronger that he was able to undertake a considerable degree of outdoor exercise, walking as much as four or five miles across the country almost daily. When he became rapidly worse an operation was advised. The stomach was hard, contracted and bound by firm adhesions to all the surrounding tissues. A jejunostomy by the Witzel method was done. After the operation the patient vomited almost constantly. Very little food could be given by the tube and some of it returned through the wound. He rapidly lost weight and strength until he became a mere skeleton, and about three weeks after the operation died.

5. **Metabolism and Treatment of Rheumatoid Arthritis.**—In cases rendered free, or nearly so, of acute symptoms by dietary means, exacerbations have been caused as an "experimentum crucis," by the ingestion of pure carbohydrate. On the withdrawal of this the symptoms have again subsided. The conclusion seems unavoidable to Pemberton that carbohydrate is a factor in the etiology and treatment of many cases of this disease. Contemporaneously with natural or induced exacerbations of the disease there seems to be a tendency for the urine to show a decreased acidity, as measured by the hydrogen ion concentration. Observations on the carbon dioxid tension of the alveolar air in Pemberton's nineteen cases showed no great departure from the normal. The nonprotein nitrogen and urea of the circulating blood in uncomplicated cases of rheumatoid arthritis, examined both during ill health and convalescence, fall well within the normal range.

9. **Polyposis of Colon.**—In Soper's case the entire colon was successfully resected for polyposis. The patient was only 8 years of age.

American Journal of Physiology, Baltimore

March, XL, No. 1, pp. 1-151

14 Salivary Factor and Its Relation to Dental Caries and Immunity in Dementia Praecox and Epilepsy. J. A. Marshall, San Francisco.
15 *Effects of Subcutaneous Injection of Organ Extracts on Flow of Pancreatic Secretion. J. Rogers, J. M. Rahe, G. G. Fawcett and G. S. Hackett, New York.
16 *Acceleration of Growth After Retardation. T. B. Osborne and L. B. Mendel, New Haven, Conn.
17 *Evidence That Active Principle of Retroperitoneal Chromaphil Tissue Has Same Physiologic Action as Active Principle of Suprarenal Glands. M. E. Fulk and J. J. R. MacLeod.
18 Reactions of Striated Muscle to Potassium Chlorid Solutions. E. B. Meigs and W. G. Atwood, Woods Hole, Mass.
19 *Influence of Age on Venous Blood Pressure in Man. D. R. Hooker, Baltimore.
20 Chief Physical Mechanisms Concerned in Clinical Methods of Measuring Blood Pressure. C. Brooks and A. B. Luckhardt, Chicago.
21 *Omentum as Factor in Absorption from Peritoneal Cavity. P. G. Shipley and R. S. Cunningham, Baltimore.
22 *Studies in Blood Pressure Estimation by Indirect Methods. Mechanism of Compression Sounds of Korotkoff. J. Erlanger, St. Louis.

15. **Effects of Organ Extracts on Pancreatic Secretion.**—The authors found that the effect of the subcutaneous injection in dogs of the residue, or noncoagulable portion, of an aqueous extract of the liver is the immediate and vigorous stimulation of the external secretion of the pancreas. The residues of the thyroid and thymus produce a somewhat less vigorous and later response. The residues of the pituitary and parathyroid glands and of the spleen and pancreas are inert. The residue of the suprarenal gland, like epinephrin, vigorously inhibits the intestinal secretion of the pancreas. Only the residue or noncoagulable portion of an aqueous extract of the above mentioned organs shows any appreciable effect on the intestinal secretion of the pancreas. From these, and from the tests previously reported, the authors conclude that the residue or noncoagulable portion of an aqueous extract of the pituitary, pineal, parathyroid, thymus and suprarenal glands and of the liver, spleen and pancreas contains practically all of the material from each of these organs which can directly and immediately affect through the circulation the functional activity of any other organ.

16. **Acceleration of Growth After Retardation.**—Records are presented by Osborne and Mendel to show that after periods of suppression of growth, even without loss of body weight, growth may proceed at an exaggerated rate for a considerable period. This is regarded as something apart from the rapid gains of weight in the repair or recuperation of tissue actually lost. Despite failure to grow for some time the average normal size may thus be regained before the usual period of growth is ended.

17. **Physiologic Action of Chromaphil Tissue.**—Acid extracts of the retroperitoneal chromaphil tissue of man, the dog, the cat, the rabbit, the guinea-pig, the white rat, the calf, the sheep and the pig according to Fulk and Macleod have the same physiologic action on intestinal and uterine muscle as the active principle of the medulla of the suprarenal glands.

19. **Influence of Age on Venous Pressure.**—According to Hooker there is a progressive rise in venous pressure practically throughout life.

21. **Absorption from Peritoneal Cavity by Omentum.**—True solutions and pseudo solutions are absorbed through the blood vessels of the omentum very rapidly. The kidneys of animals killed three hours after immersion of the omentum in the citrate cyanid solution when fixed in acid formalin show macroscopically on section a deep blue color in the papillae and the cortex due to precipitation of the Prussian blue by the acid. Masses of Prussian blue are visible on section about the portal vessels in the liver. Spread preparations of the omentum and microscopic sections show the omental veins to be filled with Prussian blue precipitated in granules so fine as to have the appearance of an homogeneous mass when examined with the highest power dry lenses. Finely divided precipitates of Prussian blue can be seen in the cytoplasm of the endothelial cells themselves, though the cell nuclei are always free from any granular deposit. Experiments with trypan blue were especially striking; an hour's exposure of the omentum to a 1 per cent. solution of the dye resulted in a very perceptible staining of the animal's skin and mucous membrane. Granules of particulate material are absorbed along the same channels, since after exposure of the omentum to filtered India ink, carbon granules may be found in the portal veins. The granules absorbed are very small and in cases in which masses of ink were found they were evidently aggregates of very fine particles. The aggregates seem most liable to occur if the circulation is for any reason poor or impeded.

The drainage of particulate matter from the serous cavities via the blood stream is most extraordinary and was most unexpected since the blood vessel wall is not credited with permitting the passage of anything but fluids with a possible exception in the capillaries of the intestinal mucosa. It is probable that only the very small granules of ink pass into the omental veins. Microscopic sections of the livers of these animals show that some ink undergoes phagocytosis by the capillary endothelium but most is found as free granules in the lumen of blood vessels. In all a considerable amount of granular material must leave the cavity of the peritoneum through omental veins. In none of the sections or the numerous span preparations which they have made by various methods have Shipley and Cunningham been able to find lymphatic vessels in the omentum in any animal and sections show clearly that even if such vessels exist omental lymphatics have no important rôle in the drainage of the peritoneal cavity. On the other hand the omentum plays a very large part in the actual drainage of the peritoneal cav-

ity. True and pseudo solutions and granules of particulate material find their way through omental vessels to the organs of the body destined for their ultimate reception and storage or destruction and excretion, and the path by which they leave the omentum is not a lymphatic but a hemic one.

22. **Mechanism of Compression Sounds of Korotkoff.**—The more important observations and conclusions of Erlanger's investigations show that the Korotkoff sounds are produced by water hammer.

Annals of Surgery, Philadelphia

March, LXIII, No. 3, pp. 257-384

23 Classification of Tumors. C. M. Moullin, London.
24 *Acute Dilatation of Stomach Complicating Operations on Extremities. I. Cohn, New Orleans.
25 Reversal of Circulation in Lower Extremity. J. S. Horsley, Richmond, Va.
26 *Conservative Treatment of Gangrene of Extremities Due to Thrombo-Angeitis Obliterans. W. Meyer, New York.
27 *Hypophysial Disorder in Mammary Cancer and Its Relation to Diabetes Insipidus. S. Sekiguchi, Japan.
28 Use of Warmed Ether Vapor for Anesthesia. F. B. McCarty and B. F. Davis, Chicago.
29 Toluol as Storing Fluid for Surgical Catgut. A. Rogers, Brooklyn.
30 *Acute Secondary Tuberculous Splenomegaly: Splenectomy. J. S. Wight, Brooklyn.
31 *Anatomic and Physiologic Subdivisions of Duodenum; Pathogenesis of Ulcer. G. Jefferson and G. Flumerfelt, Victoria, B. C.
32 Ulcer of Duodenopyloric Fornix. G. Jefferson, Victoria, B. C.
33 Cystic Dilatation of Vermiform Appendix. G. E. Dodge, Tucson, Ariz.
34 Megacolon. J. C. Hubbard, Boston.
35 Sigmoidovesical Fistula; Report of Case. R. C. Bryan, Richmond, Va.
36 Stitch to Assist in Closure of Posterior Sheath of Rectus Above Douglas' Semilunar Fold. N. W. Green, New York.
37 Artificial Impaction of Hip Fracture. F. J. Cotton, Boston.

24. **Acute Dilatation of Stomach.**—Five cases including one of his own are cited by Cohn and his summary expresses his opinion: The nerve supply of the stomach and intestines is intimately connected. The inhibitor nerve supply of the stomach and intestine is identical—the splanchnic. Strong impulses applied to the splanchnics cause a cessation of peristalsis. Whether these impulses be the result of trauma, infection or what not, the effect here, as in shock, is the same—an acute dilatation of the stomach, with or without dilatation of the duodenum and, in some instances, part of the jejunum. Obstruction by the mesentery and its vessels is not present in over 50 per cent. of the cases. For the above reasons it seems most plausible that we are dealing with a disturbance of innervation, rather than a mechanical obstruction due to compression by the mesentery and its vessels.

26. **Gangrene Due to Thrombo-Angeitis Obliterans.**—Meyer suggests that in the treatment of typical thrombo-angeitis obliterans the following sequence might be observed: (1) superheated air; best combined with (2) systematic hypodermoclysis of Ringer's solution. If these simpler conservative means prove of no avail, conservative operative measures are indicated, namely, (3) tying of the femoral vein or arteriovenous anastomosis. Internally, a simultaneous administration of organotherapeutic preparations deserves a careful test. Intravenous injections of anticoagulating substances, as, for instance, of a 2 per cent. watery solution of sodium citrate, may prove to be a useful adjuvant to the systematic hypodermic administration of Ringer's solution. If gangrene has set in, it can, of course, not be made good. What has died, remains dead. But its progress may be stayed by the hypodermoclysis treatment; old and obstinate ulcerations may heal; the otherwise uncontrollable pain can be relieved.

27. **Hypophysial Disorder in Mammary Cancer.**—It is sometimes clinically noted that polyuria occurs in the last stage of cancer of the breast without any renal disorders. In Sekiguchi's two cases of cancer metastasis in the posterior lobe of the hypophysis no pathologic changes were found in the gray matter of the third ventricle. These cases can be well understood by Schaefer's theory. The pars intermedia, compressed by tumor mass in the pars posterior, developed a hypersecretory function and this secretion stimulated the epithelium of the kidneys to the overproduction of urine.

30. **Acute Secondary Tuberculous Splenomegaly.**—Wight's patient was a boy 8 years of age. The spleen weighed 950 gm., it measured 19 cm. long, 9.5 cm. broad, 4.5 cm. thick, surface irregular and microscopic examination showed it filled with very young tubercles. Four months later the boy died. The tuberculous disease was not confined to the spleen and glands at the time the spleen was removed, so that procedure was futile in arresting the disease.

31. **Subdivisions of Duodenum.**—The authors propose to divide the duodenum into two parts cephalad and caudad to the bile papilla. These parts are conveniently called suprapapillary and infrapapillary. This is not only developmentally correct, but stands the test of pathology. An examination of certain statistics of duodenal ulcers shows that they are very common in the acid suprapapillary region; that their incidence decreases as the papilla is neared, and that they are extremely rare in the alkaline infrapapillary region. The normal physiologic differences of these parts above and below the papilla is thus emphasized by pathology. Statistics allege that duodenal carcinoma is commonest in the second part. This is fallacious and is due to the inclusion of Vaterian cancers in the total of duodenal neosplasms. When these have been subtracted carcinoma seems to be commoner in the suprapapillary region than in the infrapapillary part, possibly because of the greater incidence of chronic ulceration in the former.

Boston Medical and Surgical Journal

March 9, CLXXIV, No. 10, pp. 337-370

38 Field Work of State Department of Health on Communicable Diseases. W. W. Walcott, Natick.
39 *End-Results in Seventy Consecutive Cases of Umbilical Hernia Operated on at Massachusetts General Hospital. C. C. Simmons, Boston.
40 Some Electrocardiographic Studies of Patients Under Digitalis Treatment. H. W. Stevens, Boston.
41 Abnormal Parent. A. H. Ruggles, Providence, R. I.
42 Case of Traumatic Femoral Arteriovenous Aneurysm. E. A. Supple, Boston.

39. **Cases of Umbilical Hernia Operated on at Massachusetts Hospital.**—For purposes of analysis the cases have been divided by Simmons into three groups. Group 1. Small congenital umbilical hernia in children, and small hernia in adults which were operated on incidentally in the course of another operation, but for which the patient did not seek medical advice. There were fifteen cases in this group. Four patients could not be traced, and one died of intercurrent disease. Of the remaining ten cases, three adults and seven children, all are well and without recurrence. Group 2. The typical cases of large umbilical hernia of slow growth in stout, middle-aged adults, usually women, forty-three cases. Two patients died following operation. One of these died of shock. The hernia was small, but a difficult hysterectomy was done at the same time, and was obviously the cause of death. The other died suddenly on the table. Necropsy failed to show the cause of death. Mortality one in forty-two or 2.4 per cent. In ten the hernia recurred (22.2 per cent.), a very large percentage of recurrence. In thirty cases in which the Mayo operation was performed, there were three recurrences, or 10 per cent., while in the fourteen cases in which the ring was closed vertically, with or without overlapping of the aponeurosis, six recurred, or 42.8 per cent. The only case closed transversely, without overlapping, recurred. Group 3. Strangulated hernia, twelve cases. In nine of the twelve cases an attempt was made to cure the hernia. Two of these patients died following the operation: one of pneumonia, a man of 76, and one of probable pulmonary embolism, and one has since died of cirrhosis of the liver. In the remaining three cases enterostomy was done, and a loop of gangrenous intestine resected. One of these died of peritonitis, but in the other two the fecal fistula was successfully closed at a secondary operation. In one of these the hernia was cured, while in the other it recurred.

Journal of Immunology, Baltimore

February, I, No. 1, pp. 1-128

43 *Studies in Anaphylaxis. Relation Between Precipitin and Sensitizin. R. Weil, New York.
44 *Id. Equilibrium in Precipitation Reactions. Equilibrium in Combination. R. Weil, New York.

45 Id. Equilibrium in Precipitation Reactions. Dissociation. R. Weil, New York.
46 Id. Coexistence of Antigen and Antibody in Body. R. Weil, New York.
47 *Complement Fixation in Varicella. J. A. Kolmer, Philadelphia.
48 *Complement Fixation in Vaccinia and Variola. J. A. Kolmer, Philadelphia.
49 Fate of Various Antibodies in Precipitin Reaction. F. P. Gay and R. L. Stone, San Francisco.
50 Kidney Lesions in Chronic Anaphylaxis. T. H. Boughton, Chicago.
51 Site and Rate of Destruction of Pneumococci Following Intraperitoneal Injection. F. Berry and C. O. Melick, Chicago.

43. **Relation Between Precipitin and Sensitizin.**—The word "sensitizin" is proposed by Weil to replace the term "anaphylactic antibody." The precipitating substance of immune serum is competent to sensitize guinea-pigs passively. In other words, precipitin is also sensitizin. Antibody may be deprived of its precipitating function by heat without suffering a very material diminution in its sensitizing value. This observation corresponds with the previously known fact that "precipitoid," or heated precipitin, has retained its combining power with antigen, although it has lost its precipitating power. The precipitating, or ergophore group, is said to be thermolabile; the sensitizing, or haptophore group, to be thermostabile. Only the combining (or haptophore) group is essential to passive sensitization. Anaphylaxis therefore consists simply in the cellular reaction due to the fixation of antigen by cellular antibody. These new data therefore confirm and establish the theory of anaphylaxis supported in previous studies. The presence of antibodies may be demonstrated by means of passive sensitization in spite of the fact that the test tube reactions, such as agglutination and precipitation, prove ineffective. In infectious disease the coexistence of the antigen (the infectious agent or its product) in the blood might be expected to produce this result.

44. **Equilibrium in Precipitation Reactions.**—Weil claims that antigen and precipitating antibody do not coexist in the same fluid without undergoing union and precipitation. The theory that they do so coexist is fallacious, and is based on the use of a mixed antigenic substance, such as horse serum, which actually contains numerous separate antigenic substances. Similarly, the observation that two similar antiserums may give a precipitate when mixed, is due to the fallacy involved in the use of a mixed antigen.

47. **Complement Fixation in Varicella.**—The results of complement fixation reactions with serum from varicella patients obtained by Kolmer may be summarized as follows: 1. Of twenty-eight serums from patients who presented the first evidences of varicella in from four to forty-two days prior to the tests, eleven or 39 per cent. reacted weakly positive with a salt solution antigen of varicella crusts. 2. Of 24 serums tested with a salt solution antigen of the contents of varicella vesicles, seven, about 30 per cent. reacted weakly positive. 3. Negative reactions with both varicella antigens were generally observed with the serums of adult persons who had varicella in childhood. In varicella the Wassermann reaction is negative in the absence of syphilis. The serums of several syphilitics yielding strongly positive Wassermann reactions reacted negatively with the varicella antigens. 5. In all instances the degree of complement absorption with the serum of varicella patients and varicella antigens was slight (reactions weakly or doubtfully positive). 6. Cowpox and variola antibodies did not absorb complement with varicella antigens. 7. While these experiments have shown that an antibody in the nature of an amboceptor is present in the serum of persons suffering with varicella which will absorb complement in the presence of an antigen prepared of the cutaneous lesions of this disease, yet the percentage of positive reactions and particularly the degree of complement absorption is small; while immunity principles are in all probability present in the body fluids of persons for years after an attack of varicella these could not be detected by the complement fixation tests in Kolmer's study; all positive reactions were observed during or soon after an attack of the disease and at the time of probable highest concentration of antibodies. Kolmer suggests that a more delicate technic would probably yield a higher percentage of positive reactions as is usual in all complement fixation tests with bacterial antigens, but in this study this was avoided in order to guard against the possibility of nonspecific absorption of complement.

48. **Complement Fixation in Vaccinia and Variola.**—Of thirteen persons vaccinated with cowpox virus from seven days to ten years previously, and whose serum yielded negative Wassermann reactions, positive reactions with salt solution antigens of cowpox virus were observed by Kolmer with 4 or 22 per cent. The serum of one of these four persons yielding positive reactions (vaccinated eight, twenty-one, twenty-one and twenty-four days previously) with cowpox virus, reacted positively with a salt solution antigen of variolous material. The serums of unvaccinated persons reacted negatively with all antigens. Of seventeen persons suffering with mild smallpox, the serum of nine or about 60 per cent. yielded positive complement fixation reactions with salt solution antigens of variolous and cowpox viruses. While the degree of complement absorption was relatively weak in all instances the reactions were generally stronger with the variolous antigens than with the cowpox antigens. Alcoholic extracts of variolous and cowpox viruses possessed little or no antigenic sensitiveness.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

February, VIII, No. 2, pp. 89-135

52 *Vasoconstrictive Action of Serum on Coronary Vessels of Mammalian Heart. H. Yanagawa, London.
53 *Quinin and Atophan in Inflammation of Frog's Mesentery. Y. Ikeda, London.

52. **Vasoconstrictive Action of Serum.**—Of the colloids examined by Yanagawa only serum and egg white proved to possess the characteristic vasoconstrictor action on the coronary vessels, with the accompanying changes in the heart beat, while soluble starch, dextrin, glutin, arabin, agar-agar and pepton, either had no effect or in some cases dilated the coronary vessels.

53. **Quinin and Atophan in Frog's Mesentery.**—From Ikeda's experiments it appears that there exists a synergistic action between quinin and atophan in inhibiting the migration of leukocytes in inflammation of the frog's mesentery.

Journal-Lancet, Minneapolis

March 1, XXXVI, No. 5, pp. 127-154

54 Syphilis. (To be continued.) N. L. Linneman and E. L. Tuohy, Duluth.
55 Surgical Shock. R. D. Campbell, Grand Forks, N. D.
56 Surgery of Thyroid. V. B. Knott, Sioux City, Ia.

Journal of Abnormal Psychology, Boston

February-March, X, No. 6, pp. 369-438

57 Scientific Method in Interpretation of Dreams. L. H. Horton.
58 Case of Possession. D. Fraser, Glasgow.
59 Sex Worship and Symbolism of Primitive Races. S. Brown, II, Boston.

Medical Record, New York

March 4, LXXXIX, No. 10, pp. 399-454

60 Intestinal Stasis From Standpoint of Internist. E. L. Eggleston, Battle Creek, Mich.
61 Therapeutic Suggestions Derived From Newer Psychologic Studies on Nature of Essential Epilepsy. L. P. Clark, New York.
62 Use and Abuse of Rice Diet. L. D. Bulkley, New York.
63 Radium. D. C. Moriarta, Saratoga Springs.
64 Rubber Gloves. R. T. Morris, New York.
65 Broader View of Tabes Dorsalis. F. R. Starkey, Philadelphia.
66 *Sign in Fracture of Pelvis. G. P. Coopernail, Bedford.
67 Laryngeal Tuberculosis. M. F. Lent, Lake Kushaqua.
68 Simple Tonsil Operation Under Local Anesthesia. H. Hays, New York.
69 Correction of Depressed Nasal Deformity by Transplantation of Conjoined Bone and Cartilage. W. W. Carter, New York.
70 Two Laboratory Suggestions. G. B. Lake, U. S. Army.

66. **Sign in Fracture of Pelvis.**—In practically all cases of fracture of the pelvis, Coopernail says, there will appear in from one to three days a more or less extensive ecchymosis of the perineum and scrotum in men, perineum and labia in women. In cases of not very extensive fractures of the crest of the ilium this sign may not be present. In fractures of the pubic portion of the pelvic ring (which is the most common fracture), invariably one will find ecchymosis of perineum and scrotum inside of three days. Coopernail has not been able to find this sign mentioned in medical literature.

Military Surgeon, Washington, D. C.

March, XXXVIII, No. 3, pp. 245-376

71 European Prison Camps. B. W. Caldwell.
72 Possible Reasons for Lack of Protection After Antityphoid Vaccination. H. J. Nichols, U. S. Army.
73 Prevalence of Bubonic Plague and Its Control. R. H. Creel, U. S. Public Health Service.
74 Preparations of Naval Medical Department of Battle. A. Farenholt, U. S. Navy.
75 Some Practical Points Regarding Results and Interpretations of Wassermann Test for Syphilis. C. F. Craig, U. S. Army.
76 New Manual for Medical Department. R. B. Miller, Washington, D. C.

New Jersey Medical Society Journal, Orange

March, XIII, No. 3, pp. 105-156

77 Future of Medical Profession. L. Emerson, Orange.
78 Tuberculin Therapy With Special Reference to Combination With, or Immediately Following Tuberculin Administration. E. Bonine, New York.
79 Heliotherapy. H. J. Spaulding, Union.
80 Cesarean Section. E. Field, Red Bank.
81 Status of Roentgenologist. E. Reisman, Newark.
82 Fibroid Degeneration of Appendix. R. T. Morris, New York.
83 Diagnosis of Some of Itching Diseases of Skin. M. Shapiro, Bayonne.
84 Popular Education. E. A. Y. Schellenger, Camden.
85 Case of So-Called Bone Cyst of Trochanter. H. J. Bogardus, Jersey City.
86 Cases of Kidney Disease. S. R. Woodruff, Bayonne.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

February, XXII, No. 2, pp. 45-110

87 Physiologic Action of Spartein Sulphate. C. C. Haskell and H. B. Thomas, Richmond.
88 End Results of First One Hundred and Seventy-One Consecutive Abdominal Operations for Pelvic Disease in Women. G. P. LaRoque, Richmond.
89 Final Results of Abdominal Operations for Pelvic Disease in Women. Inflammation. G. P. LaRoque, Richmond.
90 Infiltrating Glioma of Left Temporal Lobe. F. Kennedy, New York.
91 Primary Myopathy (Muscular Dystrophy). A. H. Williamson, New York.
92 Double Hemiplegia in Old Case of Caisson Disease. R. G. Cannady, New York.
93 Chronic Intestinal Obstruction vs. Intestinal Stasis. F. W. Parham, New Orleans.

Ophthalmic Record, Chicago

March, XXV, No. 3, pp. 109-162

94 Cards for Sight Testing in Schools. E. Jackson, Denver.
95 Ethylhydrocuprein. H. F. Hansell, Philadelphia.
96 Radical Cataract Operation; Causes for Its Failure and How to Overcome Them. A. S. Green and L. D. Green, San Francisco.
97 Tension Suture for Advancement Operations. H. Gifford, Omaha.
98 Buried Knot Conjunctival Suture. R. O'Connor, Oakland, Calif.
99 Skin Grafting. Use of Petrolatum in Cutting and Open Air Treatment of Thiersch Grafts. W. R. Parker, Detroit.
100 Operation of Iridotasis for Glaucoma. D. Roy, Atlanta, Ga.
101 Simple Operation for Contracted Socket. F. H. Verhoeff, Boston.
102 New Stereoscopic Exercise Card for Stimulating Binocular Fusion. G. F. Suker, Chicago.
103 Case of Postdiphtheritic Paresis of External Rectus Cured by Antitoxin. A. Mason, Waycross, Ga.
104 Unusual Magnet Extraction. J. R. Smith, Chicago.
105 Lachrymal Sac Retractor. G. Campbell, Vancouver, B. C.

Providence Medical Journal

March, XVII, No. 2, pp. 61-124

106 Gynecologic Urology. H. D. Furniss, New York.
107 Fractures of Lower End of Radius. F. E. Peckham, Providence.
108 Spasmophilia. H. G. Calder, Providence.
109 Intracutaneous Diphtheria Toxin Reaction of Schick With Some of Its Applications. E. Fish, Providence.

Public Health Journal, Toronto

March, VII, No. 3, pp. 117-172

110 Rural Sanitation. A. C. Jost, Guysboro, N. S.
111 Prevention of Lobar Pneumonia; Can Anything Be Done? M. Nicoll, Jr., New York.
112 General Management of Lobar Pneumonia. D. Bovaird, New York.
113 Bacteriology and Present Status of Specific Treatment of Pneumonia. R. Cole, New York.
114 Medical Inspection of Rural Schools. S. A. Fulton, Truro, N. S.
115 Some Pressing Problems of Modern Times. T. Oliver.
116 Principle of Gary Plan and Its Application to New York. W. G. Wilcox, New York.
117 Method of Dealing With Tuberculosis in Public Schools of Toronto. F. S. Minns, Toronto.
118 Eugenics. C. L. Redfield.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

February, XIII, No. 146, pp. 33-64

1 Case of Congenital Word and Letter Blindness. T. R. Whipham.
2 Obesity; Epileptiform Attacks; Recurrent Jaundice in Girl Aged Thirteen Years. E. G. Fearnsides.
3 Cure of Squint. N. B. Harman.

British Journal of Surgery, London

January III, No. 11, pp. 349-584

4 Vascular Lesions Produced by Gunshot Injuries and Their Results; Report of Cases. G. H. Makins.
5 Gunshot Wounds of Shoulder. J. Bland-Sutton.
6 Treatment of Wounds in War. W. W. Cheyne.
7 Bradshaw Lecture on Wounds in War. A. Bowlby.
8 Treatment of Penetrating Wounds of Skull. P. Sargent and G. Holmes.
9 Traumatic and Arteriovenous Aneurysm. Aneurysmal Varix of Internal Jugular Vein and Internal Carotid Artery. J. Bland-Sutton.
10 *Study of Changes in Leukocytes in Certain Cases of Malignant Disease. O. C. Gruner.
11 Prevention of Deformity Following Fracture or Resection of Jaw. W. H. Dolamore.
12 Cases of Perforating Wounds of Rectum. H. J. Waring.
13 Abuses and Dangers of Drainage Tubes. G. G. Turner.
14 *Surgery of Enlarged Prostate. G. Simpson.
15 Four Cases of Persisting Infection of Brain Following Injury of Projectiles. C. H. Whiteford.
16 Case of Gunshot Perforation of Stomach and Diaphragm; Operation, Recovery. V. B. Green-Armytage.
17 Intussusception of Appendix. G. Johnson.
18 Case of Tamponade of Perforated Gastric Ulcer. E. M. Corner.
19 Case of Appendicitis and Diaphragmatic Pleurisy. E. M. Corner.
20 Case of Exophthalmic Goiter and Anoci-Association. E. M. Corner.
21 Retroperitoneal Hernia: An Addendum. A. R. Short.

10. **Leukocytes in Malignant Disease.**—Investigations on blood cells lead Gruner to formulate the following rules: If the smear shows neutrophilia, and fat drops in many of the neutrophils; if the nuclei of the neutrophils are largely multifid, the case is one of a coccal infection of great or very great severity. If the smear shows a relative abundance of lymphocytes (especially of the very small variety); if there is no leukocytosis; if multifid nuclei preponderate, the case is almost certainly not one of malignant disease. If there is neutrophilia, with bizarre forms, or pseudopods in number; if the lymphocytes are in many instances showing ameboid outlines; if the monocytes show ameboid nuclei the case is almost certainly one of malignant disease.

14. **Surgery of Enlarged Prostate.**—Simpson pleads for early operation in cases of enlarged prostate. The early operation has a very low mortality rate, probably under 5 per cent., and possibly a good deal less; the inconvenience of lying in bed for two or three weeks is not more than most people would cheerfully consent to for an abdominal operation, such as gastro-enterostomy; if palliative treatment is adopted, no surgeon on earth can say that an operation will not be necessary later for retention, cystitis, or hematuria and it is fairly certain that the mortality is then distinctly higher.

British Medical Journal, London

February 19, I, No. 2877, pp. 261-296

22 Gunshot Wounds of Head. H. M. W. Gray.
23 Treatment of Maxillary Fractures. V. H. Kazanjian.
24 Dental Cases Among Soldiers. S. A. Hopkins.
25 Deformities of Jaws Resulting from Operation or Injury. P. P. Cole and C. H. Bubb.
26 *Ulcers, New and Old; Jejunal for Duodenal Ulcers. J. Bland-Sutton.
27 *Antenatal Clinics and Prematernity Practice at Edinburgh Royal Maternity Hospital, 1909 to 1915. J. W. Ballantyne.

26. See Lancet, February 19, abstract 28.

27. **Prematernity Practice at Edinburgh.**—A prematernity department in Ballantyne's opinion is an essential part of a properly equipped maternity hospital, and it ought to consist of a pregnancy ward, and antenatal clinics, and of prenatal nurses (in the extern work). The diseases which will be

specially benefited by prematernity treatment will probably be albuminuria, eclampsia before the supervention of labor, hyperemesis, chorea, acidosis, threatened abortion, heart complications, anemia, chlorosis, hydramnios, phlebitis, pyelitis, and the antepartum hemorrhages before the onset of labor; but the ward will also offer advantages to patients waiting for the induction of premature labor on account of pelvic contraction or previous dead births from any cause. Less common indications for admission will be found in melancholia, alcoholism, jaundice, gastric ulcer, myxedema, mucous colitis, phthisis, recurrent abortion or fetal death, hematuria, injuries, etc.; well-equipped laboratory, in which the finer methods of clinical investigation can be carried out, as well as by the securing of the services of a pathologist skilled in the special morbid anatomy of the fetus, embryo, placenta, membranes and liquor amnii.

Lancet, London

February 19, I, No. 4825, pp. 387-440

28 *Ulcers, New and Old; Jejunal for Duodenal Ulcers. J. Bland-Sutton.
29 Trench Nephritis. W. L. Brown.
30 Use of Condensers in Diagnosis, Prognosis and Treatment of Nerve Lesions. F. Hernaman-Johnson.
31 *Some New Forms of Occupational Dermatoses. R. P. White.
32 Some Experiments with Simpson Arc Lamp. J. H. Sequeira.
33 Method of Providing Baths for Soldier in Field. H. N. Goode.

28. Jejunal for Duodenal Ulcers.—Bland-Sutton has excised the pylorus for chronic duodenal ulcer in twenty patients. In three of them he had previously performed gastrojejunostomy. In one the symptoms returned three months after the gastrojejunostomy, in another six years, and in a third two years. One patient, the sixteenth in the series, died. He was a man aged 38, with typical symptoms of chronic duodenal ulcer. At the operation an ulcer was found close to the pylorus on the anterior wall of a well marked bulbus duodeni. Bland-Sutton departed from his usual method and sewed the cut edges of the mucous membrane with catgut. The man made good progress until the fifth day, when his temperature rose to 103 F.; he died on the nineteenth day after the operation. The suture line had sloughed in two spots. Bland-Sutton attributes this unfavorable result to the use of catgut. Since the treatment of duodenal ulcer passed into the province of surgery it has become the routine practice to perform gastrojejunostomy for its relief in the hope that by diverting the chyme through the new stoma into the jejunum the ulcer will heal. If, Bland-Sutton says, the pylorus is obstructed by the ulcer the results are usually good, because the chyme must pass through the new stoma; but when the pylorus is patent the chyme flows through it and in some instances ignores the new route. Bland-Sutton believes it is better whenever practicable to excise the pylorus with the ulcerated portion of the duodenum and rejoin the stomach and duodenum on the principle of an end-to-end anastomosis. If this method could be made safe gastrojejunostomy for the relief of chronic duodenal ulcer with an unobstructed pylorus would soon be abandoned. Experience proved that the posterior gastrojejunostomy with an obstructed pylorus is a beneficent operation, in spite of the risk the patient runs of getting a new ulcer for an old one. The new ulcer has been evolved in this generation by alterations in the environment of the jejunum brought about by surgery.

31. New Forms of Occupational Dermatoses.—White reports cases of trinitrotoluene dermatitis and nitrate of ammonia dermatitis. In the treatment of these dermatoconioses the first application is a paint. White dabs it freely on the inflamed and itching parts. He says that it must not be used on irritable mucous surface. In the early pruriginous stage of these special forms of dust dermatitis it is of the greatest value, and its repetition is requested by the invalid.

	gm. or c.c.	
℞ Camphor	8	ʒ ii
Acidi carbolici	6	ʒ iss
Hydrarg. perchlor.	1	gr. xv
Picric acid	2	ʒ ss
Sp. vini rect.	180	ʒ vi

M. Fiat. pingt.
Sig.: Apply by a swab or brush.

For home treatment White prescribes 2 ounces of the paint mixed with 4 ounces of lotio calamin. compound and the addition of ½ dram of pulvis acaciae.

Annales de Gynécologie et d'Obstétrique, Paris

January-February, XII, No. 1, pp. 1-64

34 After the Laparotomy. E. Forgue.
35 Welfare Work for Parturients. (Note sur l'application de la loi sur l'assistance aux femmes en couches.) G. Lepage.
36 Experimental Research on the Mechanism of Menstruation. H. Vignes.

Le Nourrisson, Paris

January, IV, No. 1, pp. 1-64

37 *Diagnosis of Tuberculosis in Infants. Combe.
38 Vitality of the Pathogenic Microbes of Milk. (Transmission des maladies infectieuses par le lait.) A. B. Marfan.

37. Diagnosis of Tuberculosis in Infants.—Combe comments on the aid afforded in the diagnosis of tuberculosis in infants by roentgenoscopy and the skin tuberculin test. A history of tuberculosis in the family is suggestive, and also the "vasodilatation face" as he calls the combination of slight cyanosis with a smiling and communicative air, advanced for the age, nervous restlessness and lack of sound sleep at night. The hair is long, shiny and silky, the eyes deep and luminous, with fine eyelashes and eyebrows, overred lips, bluish nails, the skin hairy and often moist. This aspect should suggest tuberculosis at a glance, but it is of only rare occurrence. More often the aspect is entirely normal, so that the positive tuberculin skin reaction is an overwhelming surprise and neither the weight nor state of nourishment show anything wrong; but roentgenoscopy confirms the tuberculin test. On the other hand, infants with chronic bronchopneumonia or those defectively developed may present such an aspect of debility that tuberculosis seems certain, when nothing later confirms this assumption. In 8.7 per cent. of the cases of tuberculosis in infants it localizes in the bones, and hence lesions should be sought in the skull, the phalanges and in the joints, although the latter localization is rare in infants. Skin tuberculids may be discovered on the trunk, shoulders or limbs, usually pinhead papules, pink, bluish and brownish in turn, with a brownish scale in the center which leaves a depression as it drops off. They grow shiny if the skin is stretched, but they never display any tendency to ulcerate. Or there may be chronic tuberculous ulcerations in the skin, or suppuration in the ear. These signs are more common in children from 2 to 6, but some may occur exceptionally in infants.

Roentgenoscopy alone, he affirms, is liable to mislead; its findings must be interpreted or corrected by clinical examination and other tests. As infants do not expectorate, there is no sputum to examine and as the infant organism is a virgin soil, there are no antibodies in the blood. Combe regards Mantoux' intradermal tuberculin reaction as more exact and much more sensitive and more reliable than the Pirquet skin test. Exactly one tenth of a milligram is injected into a fold taken up in the skin, and the diameter of the papule which develops is measured at the end of forty-eight hours. He says that during the last six years every child entering his service is "pirqueted" on one arm and "mantouxed" on the other, and he has thus been able to compare the reaction to these technics on thousands of children. Five infants presented the "vasodilatation facies" described above, with enlargement of the liver and spleen but not of the glands in the neck or mesentery. The mantoux test was positive and the tracheobronchial glands cast an abnormal shadow. These infants were below the average height and weight and the mothers were all tuberculous. The infants may have inherited antibodies which reduced the virulence of the tubercle bacilli but they were defenseless against other germs, and four died in a mild epidemic of influenza and the fifth from an unknown cause.

A positive mantoux test thus does not differentiate between latent or progressive or healed tuberculosis. A negative mantoux test testifies to the absence of the tubercle bacillus, provided that the organism of the nursling is able to generate antibodies or has had time to do so. The mantoux should

be repeated monthly, for three months, before a negative response is accepted as conclusive. In miliary tuberculosis the antibodies are absorbed by the tuberculin generated in the tuberculous lesions, and the mantoux may become negative. This is liable to occur also with intercurrent infections. Inspiration tracheal stertor indicates compression from swollen glands, as also what is known as the bitonal cough, the cough sounding as if it comes from two larynxes, owing to the lack of symmetrical functioning of the vocal cords, the sound emitted by each thus differing in pitch, etc. The temperature is scarcely ever instructive. The most important sign of tuberculosis in the nursling is the expiratory stertor, suggesting asthma. This is an almost certain sign and occurs early, and is not encountered in other affections, as a rule, in infants. Inspiration is silent, while expiration is noisy and prolonged, but the infant does not seem to notice it and keeps gay and smiling, unless the disturbance is severe and asthmatiform. As the infant trachea is so flexible, it yields readily to the encroaching glands and thus this sign develops early. Typical examples of all these types are reported in detail.

Lyon Médical, Lyons

January, CXXV, No. 1, pp. 1-32

39 Chemical Factors in Shell Wounds. (Eclats d'obus et gangrène gazeuse.) V. Hau.
40 Wounds of the Abdomen and Skull. (Blessures du crâne et de l'abdomen.) V. Hau.
41 Gunshot and Shell Wounds of the Chest. (Le syndrome hémo-pleuro-pneumonique; 53 observations personnelles.) Piéry. To be continued.

February, No. 2, pp. 33-64

42 *Prognosis of Deafness Acquired in War. (Le pronostic des surdités de guerre d'après 1,000 cas.) M. Lannois and F. Chavanne.

42. **The Prognosis of War Deafness.**—Lannois remarks that in times of peace the otologist often has to declare futile all his efforts to arrest encroaching deafness, but in war he is able to prophesy complete recovery of the hearing in many cases. Among 1,000 men in his ear and throat service near the firing line, there was more or less total deafness in 645 in which it dated from a concussion or commotion of the internal ear without direct traumatism. All but 2 per cent. recovered; these were left permanently deaf in both ears. In 189 other cases, purulent otitis media became aggravated by camp life, and the injury from a shell wound extinguished the last spark of hearing in many. Only 43 per cent. could be returned to active service; 56 per cent. to auxiliary service. Among 134 with sclerosis of the ear only 52 per cent. could be returned to active service. Neurotic deafmutism soon subsides under competent hands, but otherwise may persist for months. In two of the thirty-two cases of this kind there was a superposed organic lesion which entailed permanent deafness. The hearing was retained in only 5.2 per cent. of thirty-eight men wounded in the mastoid region; in all the others there was permanent total deafness.

Paris Médical

February 19, VI, No. 8, pp. 197-212

43 *Methods of Suturing Severed Nerves. (Sutures nerveuses.) J. A. Sicard.
44 Combined Apparatus for Compound Fracture of the Femur. (Un appareil commode d'extension et de soutien, combinaison de l'appareil à extension de Roux et de la gouttière à sangles de Blake pour le traitement de fractures compliquées de cuisse.) P. Cruet.
45 Sphincter Trouble in Paratyphoid. P. Merklen.
46 *Vaccination at Any Age. (La vaccination antivariolique est utile à tout âge.) M. Perrin.
47 *Magnesium Hypochlorite as a Disinfectant. C. Mayer.
48 Instrument for Extracting Projectiles From the Tissues. G. Sardou.
49 Interposed Short Tube of Soft Rubber Facilitates Intravenous Injections. (Technique pratique de l'injection intraveineuse. Importance du trajet intercutanéo-veineux; raccord en caoutchouc souple et mou.) G. Rosenthal.

43. **Suture of Severed Nerve.**—Sicard describes the various technics in vogue, saying that the results have not been as good as anticipated and reports of benefit have been conflicting. In his own service for treatment of wounded nerves he operates only when there is no sign of improvement in motor functioning by the end of the third month, and electric tests show the complete reaction of degeneration for all the muscles tributary below to the injured nerve, thus excluding hysteric and reflex motor disturbances. We know that a severed nerve soon sutured will regain its function in time. This occurred completely in a few months in a case in which the ulnar nerve had been cut with glass and was sutured ten hours later, and when a sciatic nerve had been cut by a scythe and was sutured in forty-eight hours. But these clean-cut wounds are very different from the wounds in war. The injured stumps have to be cut off above and below up into bleeding tissue, and the best method for bridging the gap is still a question. Sicard gives an illustrated description of a technic which he says is free from the objections of others cited. He cuts a long flap with square corners in the upper stump of the nerve, thus slitting the nerve lengthwise for this extent. A corresponding block of cellular tissue is cut from the adjoining tissue, left attached to the nerve flap throughout. This double flap is then turned over and sutured to bridge the gap, the cellular tissue being sutured to part of the lower stump of the nerve and to the adjacent cellular tissue. In this way the gap is bridged with true nerve tissue, while the flap used for the bridge is well nourished by its attached flap of cellular tissue, pedunculated above, and sutured to the cellular tissue below.

46. **Vaccination After Age of Thirty-Six.**—Perrin calls attention to the positive reaction in 64 per cent. of 29,076 men over 36 that were revaccinated in the last few months. The proportion of "takes" was highest, namely, 78.18 per cent., among the men over 43. Among 1,730 young soldiers the proportion was less than 45 and 35 per cent.

47. **Advantages of Magnesium Hypochlorite.**—Mayer says that magnesium hypochlorite is less caustic than sodium hypochlorite, while it is a powerful disinfectant and is very cheap. He prepares it by dissolving 190 gm. of magnesium sulphate in 2 liters of water and mixes this with 2 liters of water into which 100 gm. of chlorinated lime have been stirred. The precipitate of sulphate is then allowed to settle completely and the clear fluid is decanted ready for use. This fluid is tolerated perfectly by the tissues, he says, so it can be used freely. The organism bears magnesium well, quite different from free sodium or lime.

Presse Médicale, Paris

August 12, 1915, XXIII, No. 37, pp. 297-304

50 Present Status of Serum Treatment of Hemorrhage. (Le traitement des hémorragies par les sérums sanguins.) P. E. Weil.
51 Importance of Suprapubic Drainage of the Pelvis After Typhoid Perforation; No Attempt to Suture; Ten Cases; Recovery in Three. Iselin.

February 10, XXIV, No. 8, pp. 57-64

52 *Triple Vaccination Against Typhoid and Paratyphoid. (Revaccination antityphoïdique et vaccination antiparatyphoïdique.) F. Widal and J. Courmont.
53 Malignant Measles. (Traitement de la rougeole maligne par les injections intraveineuses d'or colloidal.) L.-A. Longin and V. Camuset.
54 *Wounds of the Skull. (Le traitement d'urgence des plaies pénétrantes du crâne par projectiles de guerre.) E. Velter.

February 14, No. 9, pp. 65-72

55 Improvised Apparatus for Continuous and Simultaneous Aspiration of Pus and Instillation of Fluid. (Pyoaspiration et instillation continues et simultanées des plaies de guerre.) R. Leroux.
56 *Eczema from Abuse of Disinfectants. R. Sabouraud.
57 *Aviation Sickness. (Étude expérimentale de la tension artérielle en vol.) G. Ferry.
58 Localization of Foreign Bodies. (Appareil simple pour localiser les corps étrangers.) F.-M. Cadenat.

February 17, No. 10, pp. 73-80

59 *Intermittent Insomnia as Manifestation of a Cyclic Psychosis. (L'insomnie à crises intermittentes manifestation de la psychose périodique.) G. Ballet.
60 Sensory Symptoms After Severing of Nerves. (Les symptomes sensitifs dans les sections anatomiques et physiologiques des nerfs périphériques.) Belenky.

52. **Vaccination Against Typhoid and Paratyphoid.**—Widal and Courmont comment on the frequency of paratyphoid among the troops as the most prominent epidemiologic fact of the war. Before the end of 1914 Landouzy urged that vaccination against paratyphoid as well as against typhoid be made compulsory. Experiments in this line were soon

commenced, and 4,000 men who had been vaccinated against typhoid were revaccinated with a triple vaccine. It contains the usual dose of antityphoid vaccine plus twice this dose of both paratyphoid A and B bacilli. It is made by the Salimbeni technic which does not require addition of a disinfectant. The reaction to this vaccination is not severe, merely the same as to an ordinary antityphoid vaccination. It was a question whether it would do to inject this triple vaccine in men who had already been vaccinated against typhoid, but experience has shown that the antityphoid element in the vaccine merely reenforces the previous vaccination, and does no harm in any way. They inject the triple vaccine in four doses: 1, 1.5, 2 and 3 c.c., each c.c. containing 1.5 million germs. Or the series can be crowded into three injections, 1.25, 2 and 2.5 c.c.. Under the influence of this vaccine, specific antibodies for each of the three bacilli appear in the blood. The agglutinating power sometimes ran up to 1:5,000 or even 1:10,000 for one or the other of the bacilli after the second injection.

54. **Wounds of the Skull.**—Velter is in charge of the special service, a few miles back of the firing line, for skull wounds. The wounded are brought direct by automobile and reach him in from two to six hours after the injury. He summarizes his year's experience in the advice to trephine always in every case of gunshot or shell wounds of the skull, regardless of whether the skull has been pierced or not. The trephining should be done at the earliest possible moment, and the exposure should be ample to leave nothing unexplored. It is not necessary to seek out all the intracerebral projectiles, especially small scraps, as they are often well tolerated. The wound should be closed, draining as little as possible. The earlier the operation, the less fear of infection and hence less necessity for draining. He reiterates that for wounds of the skull, perhaps more than any other wounds, the promptness of the operation is the essential factor for a favorable outcome.

56. **Artificial Eczemas.**—Sabouraud refers to the eczema which may develop around a wound from too prolonged or heedless use of iodin or hydrogen dioxid. He declares that the more efforts are made to heal up the eczema, the more inveterate it grows; all that the skin wants is to be let alone and it will heal. But if the eczema is maintained by injudicious use of local measures, a serious infectious process is liable to be set up. A dressing impregnated with a mixture of 4 gm. zinc sulphate and 1 gm. copper sulphate in 1 liter of distilled and boiled water, will keep a wound in good condition and hasten its healing.

57. **"Mal d'Aviateur."**—Ferry has been taking scientific measurements and records during a series of aeroplane flights. The tabulated data show that the changes in altitude make great demands on the heart as it is forced to adapt itself to the varying atmospheric pressure. This soon fatigues the cardiovascular apparatus. The blood pressure grows lower, this decline being more marked the more rapid the ascent and the descent. The combination of a fatigued heart and abnormally low blood pressure readily explains the sensations of somnolency, weakness and dizziness experienced by certain aviators. These are far more liable to be the result of slight anemia of the brain than of changes in the semicircular canals, to which they are generally ascribed. This assumption of a transient anemia of the brain also throws light on certain aeroplane tragedies and explains why aviators are so often found asleep on the ground beside their plane. The practical conclusions of the research are that aviators should fly on a quiet level and avoid passing too rapidly from one altitude to another. Persons with a cardiovascular apparatus unable to stand these repeated stresses should be excluded from aviation work. Any organic heart trouble, no matter how insignificant, should peremptorily forbid the profession of aviation to the candidate, and any visceral affection or congenital taint should be well weighed in the balance before admitting to the aviation training school.

59. **Insomnia as a Cyclic Psychosis.**—Ballet excludes from consideration the insomnia of the aged and of arteriosclerosis and autointoxication, discussing in particular a type of intermittent insomnia characterized by a dread of being unable to sleep, an actual phobia with anguish. This is accompanied by a train of symptoms including a certain depression during the day, a depression of mood, not physical, reduced inclination for work, and a tendency to be worried and distressed. The insomnia of this type comes on abruptly, complete, without known organic cause, and persists practically complete as it began. The patients are liable to relate that they have had in the past periods of depression or of distress or ideas of suicide. Ballet argues that these attacks of insomnia may be regarded as the manifestation of a periodical psychosis. The insomnia may alternate with attacks of agitation or of depression, or it may be the sole manifestation of the psychosis. In treatment he warns that laudanum is of little use in insomnia of this type; it is inclined to yield more readily to chloral, amylene hydrate or hypnotics of the veronal series. Baths up to the waist, at 28 C. for five minutes just before getting into bed, are often useful. He adds that we can attenuate the manifestations of a periodical psychosis and perhaps relieve the dread and insomnia, but no means are known for shortening it or postponing its recurrence.

Berliner klinische Wochenschrift

Nov. 1, 1915, LII, No. 44, pp. 1129-1152

61 The Perception of Itching. (Bewusstwerden des Juckens.) P. G. Unna.
62 Tasks and Problems of Internal Medicine in the War. Goldscheider. Concluded in No. 45.
63 Connection Between Climate and Tuberculosis. (Einiges über den Zusammenhang von Klima und Tuberkulose.) O. Schlesinger.
64 Cannula for Locating Foreign Bodies. (Zur Methodik der chirurgischen Entfernung lokalisierter Geschosse.) O. Weski.
65 Experiences With Infectious Diseases in the Troops. (Meine Kriegserfahrungen über Infektionskrankheiten.) Grundmann. Commenced in No. 42.
66 Fixation of Complement Test in Differentiation of Certain Infectious Diseases. (Versuche zur praktischen Verwertung der Amboceptorablenkung.) M. Tsurumi.
67 Disease in Fishes. (Die Krankheitserscheinungen bei den Fischen im allgemeinen.) P. Schiemenz.

Correspondenz-Blatt für Schweizer Aerzte, Basel

February 12, XLVI, No. 7, pp. 193-224

68 *Reimplantation of Genital Glands. (Ueber die Reimplantation der Keimdrüsen beim Menschen.) S. Stocker, Jr.
69 *Operative Treatment of Genuine Epilepsy. (Zwei Fälle glücklich operierter grosser Hirntumoren nebst Beiträgen zur Beurteilung organisch bedingter Epilepsie.) Theodor Kocher. Commenced in No. 6.

68. **Reimplantation of Genital Glands.**—After reviewing the various experiences in this line on record, Stocker reports two cases in which he reimplanted part of an ovary. One patient was a woman of 28 and panhysterectomy was done for a gonorrheal affection with extensive adhesions. One of the ovaries was cut out of the excised mass and sliced into disks only 2 or 3 mm. thick. An implanted disk of this kind grows into place very rapidly as blood vessels soon grow through it. The bed in which it is implanted must be rich in blood vessels and must protect the graft against injury from without. He implanted the graft in a fold in the peritoneum, and the wound healed by primary intention. Tested with epinephrin the fifth day, there was no specific response as must occur when the inhibiting influence of the ovaries has entirely dropped out. The woman never had any symptoms suggesting the artificial menopause, and was restored to health from her five years of semi-invalidism. Three years later an intestinal tumor required a laparotomy. The disk of ovarian tissue was found about the same size as when implanted, and it was very vascular. Stocker resisted the temptation to take a scrap for microscopic examination, fearing to compromise its vitality, as it had evidently been a successful graft. The second case was even more successful; the ovary and tube had been removed for ruptured tubal pregnancy first on one side and, two years later, on the other. At the second operation a disk of the ovary was reimplanted in the same way, and menstruation has continued regular since, and the woman's health has been constantly good. In a third case one testicle had been removed for a tuberculous process and a year later an operation was required on the other side for tuberculous epididymitis. A

slice of the sound part of the testicle was reimplanted in the cavity in the scrotum. The epinephrin test elicited a positive response the second day—this operation had been done under local anesthesia. Repetition of the test the seventh day was negative. Now, a year later, the implant feels as large as it did at first, and the sexual functions are apparently normal. In each of the cases all bleeding in the bed for the implant had been carefully arrested. In contrast to this successful testicle graft, he relates the history of a well-to-do young man both of whose testicles were removed at one time on account of tuberculosis. To save him the psychic shock, paraffin was injected on one side to make an artificial testicle, and he was not told that more than one had been removed at the operation. He developed melancholia and committed suicide finally. Possibly the loss of the entire testicle hormone may have been a factor in the melancholia.

69. **Epilepsy from Brain Tumor.**—In a case reported by Kocher, jacksonian epilepsy for four years was the only symptom from a large subcortical tumor in the left brain. The jacksonian then merged into "genuine" epilepsy, and six years later headache, vertigo and muscular weakness pointed to a tumor although there was still no choked disk. The operation, at the age of 43, revealed a psammoma as large as an egg which was successfully removed. In two other cases of a localized cortical focus, the resulting epilepsy was cured by the operation. All these cases and two others cited demonstrate anew the importance of increased pressure in bringing on epileptic seizures. In the case of a child with a brain tumor, lumbar puncture was being done and the pressure was seen to increase to 150. Then an epileptic attack developed and during the attack the pressure was seen to rise to 500 mm.

Deutsche medizinische Wochenschrift, Berlin

February 10, XLII, No. 6, pp. 153-180

70 *Treatment of Subperiosteal Hematomas in Rachitis. (Behandlung der Möller-Barlowschen Krankheit.) Peiper.
71 *Tests with Alien Substances of the Functional Capacity of the Kidneys. (Die Funktionsprüfung der Nieren mit körperfremden Substanzen unter bes. Berücksichtigung der Schlayerschen Methode.) G. Treupel.
72 Simpler and More Rapid Method for Cultivation of Typhoid Bacilli From the Blood. (Typhusbazillenzüchtung aus dem Blut.) H. Schürmann.
73 Treatment and Prognosis of Traumatic Aneurysms in War. (Zur Epikrise der Schussaneurysmen.) H. F. O. Haberland.
74 Dressings Medicated With Blood-Platelet Extract. (Ueber Koagulenverbandstoff.) A. Fonio (Bern).
75 Orthopedic Universal Apparatus. P. Schmidt.
76 *Advantages of Stiff Medicated Dressing. (Der Zinkleimverband.) W. Armknecht.
77 Improvised Oven and Heating Arrangement. (Ueber behelfsmässigen Ofenbau in einem Feldlazarett in Nordrussland.) Allhoff.
78 Organization of the Medical Inspection of Schools in Germany. (Die Schularztorganisation in Deutschland.) K. Süpfle. Commenced in No. 5.

70. **Moeller-Barlow's Disease.**—Peiper comments on the liability to blunder in the differentiation of the subperiosteal hematomas characteristic of this disease. He gives an illustration of one case in which the ten months' babe became pale, anemic, restless and irritable, the lower third of both femurs tender, and a hemorrhagic swelling was prominent around each of the five teeth, with hemorrhages in the conjuctivae and subperiosteal hematomas in the legs and also in the orbits causing extreme exophthalmos. If the true nature of the trouble is not recognized in time and the diet modified or it does not get casually modified, the child grows weaker and finally succumbs to a hemorrhagic bowel trouble or pneumonia. The mortality thus is high, but a change from the sterilized milk or other improper food to unboiled food transforms the clinical picture. Peiper reiterates that infantile scurvy attacks only bottle babies. Breast milk is urgently needed in advanced cases even if it can be taken only from the bottle. When only cow's milk is available, it should be obtained twice a day from the stable, kept on ice, and warmed just before feeding. The stools must be carefully watched, for young infants cannot long stand raw undigested milk. If the child cannot take care even of raw diluted milk, or if the milk is not reliable, it may be just brought to boiling and then taken off. As soon as the raw milk is tolerated, fresh fruit juices and fresh beef juice and by the fourth or fifth day or earlier a little vegetable, spinach, cauliflower, potato or asparagus tips may be distributed at the different feedings. He warns most emphatically against any attempt at operative measures for the extravasations. They retrogress under dietetic treatment; fractures and kinks in the bones heal when held between sandbags in the correct position. The children suffer so when they are moved that their clothing must be arranged to avoid moving. If the pain actually compels a sedative, he prefers 5 c.c. of a 2 per cent. solution of chloral three times a day in the milk. By the eighth or tenth day the child begins to move its apparently paralyzed legs, but complete recovery in the severer cases may require weeks or months. If breast milk is available, it should be kept up for several months, the raw milk until the symptoms subside. Peiper remarks that infantile scurvy was known before milk was ever sterilized, and that it is more common in the homes of the well-to-do. Bottle babies after the sixth month should always be getting some additional gruel or pap and by the ninth month a little vegetable, fruit juice and fruit.

71. **Tests of Kidney Functioning.**—Treupel concludes from his experience that the advantages are all on the side of using substances for functional tests which are normally constituents of the urine. The technic is a little more complicated with them, but the findings are more reliable than with the potassium iodid and lactose tests. But in puzzling cases it may be necessary to call on them all. After a standard diet for a time, have 1,600 c.c. water ingested; the normal eliminate this smoothly in twelve hours. The elimination of the test dose of 0.5 gm. potassium iodid, by the mouth, should be completed normally in fifty or sixty hours. The test dose of sodium chlorid is 10 gm. and it is recovered from the urine by Strauss' method. The test dose of lactose is 20 c.c. of a 10 per cent. solution, injected intravenously; normally it is eliminated at latest in six hours. The urine is examined for it with the polarimeter. This intravenous injection may be accompanied by chills and by fever. When the lactose takes longer than five or seven hours to be eliminated, the glomeruli are probably at fault; the tubuli, when the potassium iodid lingers for longer than sixty hours.

76. **Stiff Immobilizing Paste Dressing.**—Armknecht lauds the relief afforded by dressings made with Unna's paste of zinc oxid, ichthyol, glycerin, gelatin and water, in treatment of the milder injuries of the soft parts in war, varicose veins, etc. The bandage is wound from the toes to the knees after shaving the region.

Münchener medizinische Wochenschrift, Munich

Dec. 7, 1915, LXII, No. 49, pp. 1669-1708

79 Radiotherapy of Myoma. (Strahlenbehandlung der Myome in einer einmaligen Sitzung.) W. Friedrich and B. Krönig.
80 Mesothorium Treatment of Uterine Carcinoma; One Hundred Cases. K. Baisch.
81 Wounds of the Lungs and Pulmonary Tuberculosis. (Lungenschüsse und Lungentuberkulose.) H. Rieder.
82 *Carbon Dioxid Snow as Sensitizer in Radium Therapy. (Kohlensäureschnee als Sensibilisator in der Radium-Therapie.) E. Sommer (Zurich).
83 The Duodenal Sound as Means to Reveal Typhoid Bacilli in the Bile After Recovery From Typhoid. W. Stepp.
84 Emergency Wells. (Zur Verwendung des Abessynierbrunnens in Polen.) von Scheurlen.
85 Tannin in Alcohol as Emergency Substitute for Tincture of Iodin. H. Schmerz.
86 Plastic Operation to Make a Substitute for the Thumb. (Daumenersatz.) C. Hörhammer.
87 Improved Technic for Making Artificial Leg. (Methode zum Abnehmen von Druckgipsabgüssen und zum Baue der Prothese mit genauer Orientierung zur Achse der unteren Extremität.) J. Hanausek.
88 Jail Sentence for Two Months Up to a Year for Women Who Permit Sexual Intercourse Knowing That They Have Venereal Disease. (Strafbarkeit des Geschlechtsverkehrs bei venerischer Krankheit.) F. Schaefer.
89 Nerve Grafting. (Zur Nervenpropfung.) Enderlen and Knauer.
90 Pleurisy After War Wounds of the Chest. (Pleuritis nach Brustschüssen.) D. Gerhardt.
91 *Local Intraspinal Salvarsan Treatment of Meningeal Syphilis. Gennerich.
92 Tests for Adaptation of Vision. (Ein einfacher Apparat zur Messung der Adaptation.) K. Wessely.

93 Physiologic Removal of Splinters of Bone and Sequesters After War Wounds of Bones. R. Klapp.
94 Saving the Hand Wounded in War. (Die Erhaltung der Verwundeten Hand.) O. Witzel.
95 March Fracture. F. Eyles.
96 To Reduce Hemorrhage at Amputations. (Blutersparung bei Amputationen.) Heidenhain.
97 Means to Remove Splinters of Bone After Wounds of the Skull and Abscesses in the Brain. (Schonende Entfernung von Knochensplittern und Fremdkörpern bei Schädelschüssen und Hirnabszessen.) G. Perthes.

82. **Carbon Dioxid Snow as Sensitizer for Radium Rays.**—Sommer found that a cancroid on the nostril in one case and one at the junction of the nose and lip in another case seemed to display great resistance to radium therapy. Under the usual technic only very slow and insignificant progress was being realized. Then he applied a pencil of carbon dioxid snow under considerable pressure, kept up for forty-five hours. There was a strong reaction but the lesion was not entirely cured, and conditions were found the same after an interval of two months. Then the radium was applied anew by the former technic, and in three weeks not a trace of the cancroids was left, merely a scarcely perceptible pinkish scar in their place, and the cure has been permanent during the one and two years since. In a third case a rebellious hyperkeratosis under and around the thumb nail yielded at once to strong pressure from the dioxid snow pencil for forty-five seconds, followed by exposure to radium.

91. **Intraspinal Treatment of Syphilis.**—Gennerich refers to what he calls histologic meningeal recurrence of the manifestations of syphilis, cerebrospinal syphilis and incipient tabes and paresis, as the field for endolumbar treatment. With farther advanced tabes and paresis a trial is justified but without much hope. All affections of the spinal cord are particularly sensitive to intraspinous treatment. If salvarsan, for instance, is not distributed thin enough, injury may be inflicted equivalent to a transverse bisecting myelitis. The dosage is of the greatest importance, as we must keep the cord free from irritation. He is skeptical as to the permanent benefit from mere intravenous injections. His cases of tabes with normal cerebrospinal fluid and given a course of six intravenous injections of salvarsan yet all developed tabetic crises in a year or a year and a half. With entirely recent paresis good clinical results were sometimes obtained, and the fluid was brought to normal. Even with a number of intravenous courses he often found it impossible to bring the fluid to normal, even when as yet there were no clinical deficit symptoms. With intraspinal treatment, on the other hand, the fluid has kept constantly normal, with a single exception, and there have been no clinical manifestations even up to as late as two and a half years. He has gradually come to treat by the endolumbar technic all cases of histologic meningeal recurrence, and he has never witnessed the slightest disturbing by-effect. except in one case in which there was transient anesthesia of the legs. He adds that the results of intraspinal treatment are particularly brilliant with clinical cerebral syphilis. If it is a recent neurorecurrence, he generally begins with one or two small intravenous injections to avoid much of a febrile reaction. He reviews the experiences in the German navy, to which he is attached, saying that he has had no neurorecurrence for three and a half years, and in four years of surveillance of the cerebrospinal fluid and serologic control there have been only twelve cases of histologic meningeal recurrence soon after treatment, and only six cases with a year's interval. Gratifying results are recorded in 95 per cent. of the fresh cases of syphilis. He has never adopted the salvarsanized serum technic as he sees no advantage in it. Positive findings in the fluid are a warning to combine local treatment of the meninges with the general treatment. Not more than six or eight endolumbar injections are needed, as a rule, to restore clinically normal conditions in the fluid, but he continues with two more injections after this. By this technic the whole course of treatment of the syphilis is materially shortened and surprises averted. He says that when the histologic meningeal recurrence has retrogressed, the men can be sent back to active service without apprehension. Gennerich gives the minute details of the technic he follows, but no statistics.

Gazzetta degli Ospedali e delle Cliniche, Milan

February 10, XXXVII, No. 12, pp. 177-192

98 Insects, Flies and Dogs in Transmission of Leishmaniosis. (Come si propaga il bottone d'Oriente?) Pari.

Policlinico, Rome

February 13, XXIII, No. 7, pp. 197-228

99 *Thin Candidates for Life Insurance. (La magrezza e l'assicurazione-vita.) I. Romanelli.

99. **Thin Candidates for Life Insurance.**—Romanelli's study of this subject is based mainly on American works along this line. He is not decided himself in his views, saying that all the factors in each case should be taken into account, the age, the environment, especially living with tuberculous persons, the personal history, habits of life and occupation, ascertaining whether the person has grown thin comparatively recently or has always been lean. Only when all these are duly compared and weighed in the balance is it possible to estimate the risk. He cites a number of small tables showing, among other things, that inheritance of tuberculosis from the mother is more dangerous than from the father. Among 100 tuberculous patients Romanelli has examined at Rome, all with a history of pleurisy at some time, the interval since was one year in over 22 per cent.; two years in 13.9 per cent., and so on up to eighteen years in 3.5 per cent.; twenty years in 1.38 per cent., and over twenty years in 3.5 per cent.

Brazil-Medico, Rio de Janeiro

January 15, XXX, No. 3, pp. 17-24

100 Syphilitic Banti Syndrome. O. Clark. To be continued.
101 Hygiene in Alimentation. (Noções de hygiene alimentar.) G. Armbrust. To be continued.

January 22, No. 4, pp. 25-32

102 *Mycosis of the Lungs Produced by Brazilian Oidium. O. Magalhães.
103 *Cleaning Up of Yquitos. (Sancamento de Yquitos.) O. L. Romero.

102. **Pulmonary Mycosis.**—Magalhães now has a record of fourteen cases with six deaths and postmortem examination in five, in all of which he found what he thinks is a new mycosis in man, highly pathogenic. The lesions produced by this Brazilian oidium resemble those of tuberculosis so closely that there is little doubt it has often been mistaken for the latter, especially as it seems to be widespread throughout Brazil. Study of a number of hospital records of cases of supposed pulmonary tuberculosis but with persistently negative bacteriologic and serologic findings for both tuberculosis and syphilis may belong in this category. It is further possible that cases of pulmonary lesions subsiding under treatment for syphilis may have been in reality this mycosis, cured by the potassium iodid given for the supposed syphilis. He reviews the literature on other forms of pulmonary mycosis, and discusses the differentiation from them and from malignant and echinococcus disease, etc. The lesions with the Brazilian oidium ranged from a small patch in the apex or in a tracheobronchial gland to extensive cavities in the apex on both sides, involving large areas below. The recovery in some of the cases seemed like a resurrection; if the destruction had been the work of tubercle bacilli the patient's doom would have been sealed. The oidium mycosis continued its progressive course unmodified by the whole therapeutic arsenal until potassium iodid was systematically given, when at once it began to retrogress. Even sodium iodid is effectual. After testing the susceptibility and the state of the kidneys, he gave from 2 to 8 gm. a day. For intravenous injection he preferred isotonic sodium iodid. The improvement is soon striking; the general health improves in all directions and the parasitic hemoptysis returns no more. The pulmonary lesions retrogress entirely, leaving merely a little roughness in breathing and subdulness on percussion. There was recurrence later in one case, showing that the treatment should have been kept up a little longer. The individual tolerance for the iodids varies within wide limits, and this has to be taken into account in the dosage.

103. **The Cleaning Up of Yquitos.**—Romero relates that the three large cities in the Amazon region have now been cleared of yellow fever. The Brazilian authorities cleaned up Para and Manaos and the task has been completed for the third city, Yquitos, in Peru, which had neither sewerage,

street pavements nor water fit to drink, while the inhabitants are poor and careless of hygiene, and the remote central government apparently never gave a thought to Yquitos except to collect the taxes. Romero tells how the work was done by Dr. George Converse of the U. S. P. H. Service, and he says that it broke the record for eradicating yellow fever at the least expense. The city has 12,754 inhabitants and 18 kilometers of winding open ditches. When these are not flushed by rain they stagnate, while a heavy rain makes them overflow into the houses. The tropical heat and moisture and rank vegetation aid in breeding innumerable mosquitoes. There is no agriculture and no manufacturing there, and the food is all imported, mostly canned goods. In the 3,000 houses of the town there were 10,600 various barrels, tanks, etc., for water and only 300 modern apparatus; Romero adds that there were no privies, and only 733 latrines. The mortality in 1912 was 40.58 per thousand. These were the conditions when Converse took hold in 1913; ably sustained by the prefect, Colonel Puento, who was responsible for initiating the whole movement. Romero regards it as a particular triumph that fumigation of the houses was omitted as unessential. On the same scale of expense as at Panama and Havana, this cleaning up of Yquitos would have cost £1,867 a month but Converse accomplished it with only £323 a month, notwithstanding that the cheapest labor there is paid $3.30 a day and crude petroleum is very high. The mortality dropped at once to 28.88 and in 1914 to 21 per thousand. The army hospital record showed in 1912, 27.67 per cent. of the men in the hospital at some time. The next year, under Converse's régime, the hospital was quite empty. Converse studied every possible means to educate the public in hygiene and protection against disease and opened free dispensaries for hookworm. The Peruvian government is now taking steps to float bonds to cover the expense of installing sewers at Yquitos. Romero adds that Yquitos is an example of what can be accomplished when an energetic administration backs up the talent of a physician and utilizes the scanty means at hand. The Amazon region has now been transformed, he reiterates, into a perfectly salubrious center free from all further dread of yellow fever. (Romero's account of the cleaning up of Yquitos was presented at a recent meeting of a Rio medical society.)

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

January 22, I, No. 4, pp. 277-352

104 *Perthes' Juvenile Deforming Osteochondritis. H. M. Hijmans.
105 Factors Which Influence Intensity of Tendon Reflexes. (Over de intensiteitsverhoudingen bij den tensorreflex.) M. Ono.
106 Experimental Research on the Reversibility of Formation of Urea in the Liver. (Over de reversibiliteit der ureumvorming in de lever.) B. C. P. Jansen.
107 Case of Herpes of the Iris and Deep Dendritic Keratitis. W. P. C. Zeeman.

January 29, No. 5, pp. 353-440

108 The Present and Impending Status of Contract Practice in the Netherlands. (De geldelijke positie der ziekenfondsgeneesheeren im Nederland.) A. C. van Bruggen.
109 Study of Pulsus Alternans. (Hartalternans.) S. de Boer.
110 Infectious Erythema; Eight Cases. M. W. Scheltema.
111 Differential Diagnosis of Variola. (Over het diagnosticeeren van pokken.) J. Kuiper.

February 5, No. 6, pp. 441-520

112 *The Asymmetrical Pelvis the Cause Not the Consequence of Scoliosis. (Het asymmetrische bekken en de skoliose.) J. H. O. Reijs.
113 *Acute Pancreatitis. S. B. de Groot.
114 Bone Sequesters Cast Off Through the Larynx From Otitis Process. (Een beentje in het strottenhoofd.) D. Muyderman.

February 12, No. 7, pp. 521-600

115 *Pyelocystitis in Children. (Over de aetiologie en de behandeling met geneesmiddelen van de pyelocystitis van kinderen.) G. J. Huet.
116 Technic for Vaccination Against Smallpox. (Eenige beschouwingen over de praktijk der koepokinenting.) E. J. Hamburger.
117 *Laryngeal Tuberculosis and Pregnancy. (De tuberculose van het strottenhoofd en zwangerschap.) C. M. Hartog.
118 Acutely Developing Cataract in Eye With Inflammatory Glaucoma. (Acuut opgetreden, en weer genezen cataract bij glaucoma inflammatorium.) W. Koster.

104. **Juvenile Deforming Osteochondritis.**—This is the name given by Perthes to this affection of the hip joint which causes the child to limp for a time. Then it seems to outgrow the tendency and no ankylosis is left. Several articles on the subject have been summarized in these columns, as on page 91 of THE JOURNAL of Jan. 2, 1915. Hijmans had occasion to watch the development of the affection in a little girl of 7 who had required bloodless reduction of congenital dislocation of the left hip joint at the age of 2. At 5 she began to limp with the right leg, but roentgenograms showed the head of the femur in its normal relation to the acetabulum. There was no pain, but as the child limped more and more, another roentgenogram was taken six months later and the head of the femur was found to be flattened out into a thin plate; the right trochanter was higher than the left, and the leg was 1.5 cm. shorter than its mate; but there was still no pain. The trouble was thus the benign so-called deforming osteochondritis which develops in children between 7 and 10. The chief danger with it is that it may be mistaken for a tuberculous process and given operative treatment. This it does not need. Hijmans reiterates that the trouble is some dystrophy of the head of the femur, and all it requires is to relieve the bone of strain for a time. The functioning of the joint is gradually restored and finally becomes quite normal. He kept his little patient in bed for six weeks, allowing her to sit up in bed. This kept the hip joint from weight-bearing while yet its functioning was maintained. After this the child was allowed to be up and about but not to take long walks or play running games or climb stairs, and she rides to school. Hijmans is unable to explain why the child began to limp before any changes in the head of the femur became apparent. In conclusion he urges that the affection should be known as osteodystrophy of the hip joint rather than osteochondritis, as all observers agree that there is no inflammation. The term he proposes, osteodystrophia coxae, expresses the true nature of the affection, namely, that the upper end of the femur has failed to develop properly, either primarily or in consequence of some extraneous circumstances.

112. **Asymmetrical Pelvis and Scoliosis.**—Reijs had his attention attracted to this subject by a peculiarly instructive case, and his further research showed asymmetry of the pelvis in a surprisingly large proportion of cases of scoliosis. He thinks that the deformity of the pelvis was congenital in most of the cases, and that this brought on the scoliosis. He suggests some mathematical formulae for measurement of the pelvis, and urges that some standard method for this be adopted and that more heed be paid to the pelvis with curvature of the spine.

113. **Acute Pancreatitis.**—De Groot remarks that one reason why a pancreatitis is so seldom diagnosed is because no one thinks of it, as the symptoms may be so misleading—"Did not Germany's greatest surgeon die of acute pancreatitis a few years ago without any one's suspecting the true nature of the trouble!" But a history of abdominal pain, symptoms suggesting irritation of the upper part of the peritoneum, but not much muscular rigidity, although a resisting patch can be felt in the depths across the epigastrium, and the bowels are not completely obstructed—this combination should suggest the possibility of acute pancreatitis. We have no means to distinguish between the cases that are going to run a mild or a grave course, and so long as we have no antidote to counteract the pancreas toxic necrosis, it is better to slit the capsule without delay. Unless gallstones are evident, he advises leaving the biliary apparatus alone. The retrospective history of a case he describes in detail shows that the woman of 29 had had several attacks of intermittent pain in the epigastrium, radiating to the right side and sometimes coming on with the menses. These were symptoms of acute pancreatitis, and the pancreatic juice had induced necrosis in the vicinity. The inflammation in the pancreas subsided and the necrotic tissues shriveled and dropped off, sliding down into the ileocecal region where they formed a puzzling tumor, suggesting appendicitis. The appendix region was found sound. There was a blood-stained exudation in the abdomen but no trace of blood on the pancreas. The causes of acute pancreatitis are reviewed in detail; it seems to require activation of the ferments inside the pancreas plus diminished resisting power on the part of the latter. This is particularly liable when gallstones, blocking the outlet, cause the pancreatic juice, mixed with bile, to back up into the pancreas,

or a contusion or infectious process may induce embolism. De Jong found gallstones in only one of five cases of acute pancreatitis, and De Vries in two of his five cases. A tendency to corpulence is noted in most of the instances of acute pancreatitis.

115. **Pyelocystitis in Children.**—Huet discusses in particular the medicinal treatment of pyelocystitis in young children, reviewing the literature of the last few years on the subject and tabulating the result of personal tests and experiences. He repeated Duker's tests of the effect of various drugs on different kinds of bacteria, experimenting with hexamethylenamin, potassium citrate, sodium citrate and others, alone or in combination. The results in the test tube did not correspond with the effect in the clinic. He witnessed clinical benefit from salol only in one case. This was a 10-months babe taken with alarming symptoms. No effect was apparent from a dose of hexamethylenamin, but slight improvement followed 4 gm. potassium citrate a day, but it proved transient. No better results were obtained with 0.1 gm. salol five times a day but when this dose was increased to 0.2 gm. five times a day the fever subsided in a remarkable manner. After salol had been given for five days in succession there was slight anasarca, but this subsided and permanent recovery followed one dose of 4 gm. potassium citrate fractioned. In two chronic cases the *Bacillus lacticus aerogenes* had been found in the urine for three and six months, but under two weeks of potassium citrate the urine was cleared from it. It is evident that the effect of the drugs varies with the dosage, the acidity of the urine, and still other factors which vary from case to case. It seems to be established now that bacteria from an inflamed intestine may pass into the blood. Czerny and Moser have found both the *B. lactis aerogenes* and the colon bacillus in the blood stream under such conditions, and there is reason to assume that they may pass readily into the urine. The evidence to date seems to be against the assumption of ascending infection of the kidney pelvis from the bladder. Huet has recently encountered a small epidemic of pyelitis, all in infants. The first had a fever persisting after recovery from bronchitis and the fever was finally traced to pyelitis, and a similar pyelitis then developed at one or two weeks' intervals in the four others. There was no direct contact between the infants, and no preceding bowel trouble in any, and the children were in three different apartments. The infection must have been carried to each by the nurse who tended to them all at night and gave them their first feeding in the morning. The question whether the infection occurred by way of the urethra, in changing the diapers, or by way of the mouth, in feeding them, seems to be answered by the fact that the urine of one infant was repeatedly examined after it was taken sick, and was found constantly sterile until the pyelitis had been under way for nearly six days, with vomiting, slight edema and fever. When leukocytes and bacteria were finally found in the urine, they were accompanied by a brief high fever. The course of the infection and of the pyelitis and also the bacteriologic findings confirmed the special infection in these cases, a paracolon bacillus being cultivated from the urine of each, with identical reactions in all to indol, maltose, milk, etc., gram negative in all, and none liquefying gelatin. Two of the cases were exceptionally severe. All the data sustain the assumption that in the majority of cases the kidney pelvis is infected from within. His conclusions from his research are to the effect that drugs to disinfect the pelvis are scarcely liable to reach the bacteria ensconced in the walls of the pelvis, which is the usual rule. But the drugs play an important part in counteracting the intoxication of the urine and the consequences therefrom, so that urine antiseptics are a necessity in every acute case. The efficacy of potassium citrate is probably due to its property of mobilizing calcium. This modifies and transforms the osmotic currents; lymph streams out, sweeping out bacteria with it and bringing them within the reach of our therapeutic measures. He quotes Wright's commendation of potassium citrate as a valuable lymphagog aid in opsonin therapy. This may explain, Huet adds, why it is of so little use in acute pyelitis—before the system has had opportunity to produce opsonins—while its action in more chronic pyelitis is so effectual. Its efficacy depends on its reenforcing of the natural curative processes.

117. **Pregnancy and Laryngeal Tuberculosis.**—This is a communication presented recently to the Netherlands Otolaryngologic Society. In it Hartog protests against the optimistic report on the relations between pregnancy and tuberculosis drawn up last year by a committee appointed by the national Netherlands Medical Society. (Some of the data were mentioned in these columns, 1914, lxii, 243.) Hartog's experience has been quite the reverse with laryngeal tuberculosis, and he here relates some typical cases, emphasizing that conditions differ materially whether the tuberculous lesion is in the throat or lung. The experience of laryngologists has shown that early interruption of the pregnancy will save the lives of many pregnant women with laryngeal tuberculosis.

Finska Läkaresällskapets Handlingar, Helsingfors

LVII, No. 7, pp. 793-934

119 The So-Called Chronic Neurodermatitis. (Prurigo diathésique — Besnier; lichen simplex chronicus — Vidal.) A. Cedercreutz.
120 Prophylaxis of Cholera in Finland. (Huru Finland hindrat kolerans inträngande i landet åren 1908, 1909 och 1910.) R. Sievers.
121 *Conversion of Face Into Vertex Presentation. (Till frågan om behandlingen af förlossningen vid s. k. deflexionslagen.) S. E. Wichmann.
122 Weight and Size of the Newly Born at Term in Finland. (Förberedande undersökningar af det s. k. fullgångana finska fostrets vikt- och dimensionsförhållanden.) O. Tudeer; (Till kännedomen om kroppsvikten hos nyfödda främst med hänsyn till forhållandena i Finland.) E. Runeberg. Discussed in Nos. 9, 10 and 12.
123 Salicylic Acid in Alcohol in Local Treatment of Acne and Variola. (Salicylsyresprit vid varicellae och variola.) P. Z. Collan.

No. 8, pp. 935-1048

124 Treatment of Fractured Lower Jaw. (Om protesbehandling af underkäksfrakturer.) H. Avellan.
125 *Operative Treatment of Prolapse of Genital Organs. E. A. Björkenheim.
126 Congenital Fistulas and Cysts in the Neck. (Om kongenitala halsfistlar och cystor.) K. V. Tiisala.
127 Definition of "Sound Part" From Standpoint of Industrial and Life Insurance. (Hvilken är innebörden af begreppet "frisk och färdig kroppsdel"?) E. Ehrnrooth.

No. 9, pp. 1049-1254

128 A. Paré and His Work, 1510-1590. (Dokument ur medicinens historica.) R. Tigerstedt.
129 Eight Successful Operations on Brain or Spinal Cord. (Till hjärn- och ryggmärgskirurgien.) A. Krogius.
130 *Aspiration Treatment of Pleural Empyema. (Till kännedomen om sugbehandling af pleuraempyem i anslutning till ett fall af pyopneumotorax.) Y. Meurman.
131 *Improved Instrument for Mechanical Dilatation of the Uterine Cervix. (Till frågan om det bästa sättet att mekaniskt utvidga cervix under partus. En ny dilatator.) S. E. Wichmann.

121. **Conversion of Brow or Face Presentation into Occiput Presentation.**—Wichmann describes a method with which he changed the presentation at the first trial. Two fingers of the left hand are introduced into the vagina as for the ordinary examination. With these fingers the fetal head is pushed up until it is freely movable and these fingers support and control it throughout. The stretched and stiff right hand is then applied as for an ordinary gynecologic examination. It is held to form a lever with the thumb on the occiput and the fingers on the chest. With this leverage action the occiput is worked down and the chest up while the fingers of the other hand work the head over until the posterior fontanel can be felt in the pelvic inlet. The occiput is then released and the lever carried to the breech. This is then pushed over toward the abdomen while the chest is still immobilized by the other arm of the lever. He adds that as the intervention is outside of the uterus, the danger of infection is reduced. The technic is simple, and owing to its resemblance to the ordinary bimanual gynecologic examination is easily mastered by any physician. During the manipulation the segment of the uterus over the occiput is not stretched any more; the tension is reduced. The manipulation proceeds slowly and gently, so that the danger of asphyxia is minimal. The procedure is no more exacting than external version, and he thinks it might be applied at the onset of delivery when needed, while the child is more freely movable. It can be done with the os closed or dilated, before or after rupture

of the membranes, and regardless of whether the head is already in the pelvic inlet or not. In his six cases the presentation was converted to the occiput presentation at the first trial, and without the least trouble.

125. **Operative Treatment of Genital Prolapse.**—Björkenheim reports the ultimate outcome in 205 of the 300 cases in which operative treatment was applied for genital prolapse at the Helsingfors clinic, with an interval since of from one to twelve years. The prolapse returned in 24.4 per cent. Relapse occurred in 46.9 per cent. of the 32 cases in which the Hegar or Lawson Tait vaginal plastic method was applied. There was relapse further in 26.3 per cent. of the 80 cases in which ventrofixation was done by the Czerny-Terrier method. In 15 cases the women passed through a pregnancy later without disturbance after ventrofixation plus colpoperineorrhaphy according to Hegar, but 6 of these women had the prolapse return later. The Schauta-Wertheim technic was applied in 10 cases with relapse in 11.1 per cent. The round ligaments were shortened in 4 cases and the result has been permanently good. Vaginal hysterectomy was done in 92 cases; the ultimate outcome is known in 68, with relapse in 13.2 per cent. He ascribes the failures to lack of adequate care in the vaginal plastic operations. With anterior colporrhaphy, for instance, the bladder should be entirely detached and the cystocele reduced by suturing in a fold of the bladder. With colpoperineorrhaphy, on the other hand, a high and firm raphe should be made, as well as a broad and strong rectovaginal septum, and the levator fascia should be sutured.

130. **Aspiration Treatment of Pyopneumothorax.**—Meurman writes from the field lazarett in Poland, donated by a group of manufacturers in Finland, to give an illustrated description of the vacuum bell which he uses on suppurating wounds in the chest. The metal bell or cap measures 9 by 13 cm. and is 4 cm. high, with a rubber cover on both sides. It fitted like a suction bell over the wound in the back in the case described.

131. **Wichmann's Dilator.**—The blades of this dilator move always parallel to the axis of the pelvic inlet. It permits the cervix to be fully stretched in ten minutes in emergencies, or several hours can be taken to stretch it.

Hospitalstidende, Copenhagen

February 2, LIX, No. 5, pp. 93-116

132 *Experimental Research With Artificial Pneumothorax and Resection of the Lung. M. Fenger.

132. **Experimental Artificial Pneumothorax and Resection of the Lung.**—Fenger's article is an illustrated description of work in this line on dogs at the Copenhagen Veterinary and Agricultural College laboratory. His assumption that resection of the lung might be facilitated by an artificial pneumothorax was sustained by his actual experience. The operation is much easier with an atelectatic condition of the lung, while the tendency to heal seemed as pronounced in atelectatic as in expanded lung tissue. No evidences of permanent injury of the lung tissue could be detected from shutting off the blood supply for three-quarters of an hour, while this is a great help in operating. A single row of interrupted sutures—after ligating the bronchi and large vessels—is enough to ensure hemostasis and the healing of the defect. A number of technical points are emphasized, such as that the artificial pneumothorax does not modify general anesthesia, that overpressure does not cause the atelectatic lung to expand, suggesting that the compression causes the walls of the alveoli and bronchi to adhere together. If this is the case, there is less danger of retention in the finer air passages and consequent pneumonia. Another advantage of the artificial pneumothorax is that it permits ample oversight over the compressed lung when the pleura is opened, while the lung tissue is much easier to palpate. When adhesions prevent complete pneumothorax, even the partial compression is a great aid, and the adhesions render it possible to do the resection without the necessity for a difference in atmospheric pressure.

Norsk Magazin for Lægevidenskaben, Christiania

February, LXXVII, No. 2, pp. 181-316

133 *Pneumococcus Peritonitis; Four Cases. O. Tandberg.
134 Elderberry Juice in Treatment of Neuralgia. (Hyldebærsaft — av Sambucus nigra — som antinevralgicum.) H. J. Vetlesen.
135 *Test for Albumin in Stomach Content in Relation to Digestion Leukocytosis in the Pathologic Stomach. (Salomons prøve og fordøielsesleukocytosen ved ventrikelsygdomme.) N. Paus.
136 *Multiple Tumors. (Om samtidig forekomst av flere selvstændig voksende — "multiple" — svulster.) F. Harbitz. Commenced in No. 1.

133. **Pneumococcus Peritonitis.**—In Tandberg's four cases the patients were little girls from 3 to 12. Two were from a locality where pneumonia had been unusually prevalent. The onset was stormy in all, with fever and abdominal pains, vomiting in three cases; two of the children had diarrhea from the first, the others not until the third or seventh day; it subsided in two but in the others kept up intermittently throughout. One of the children developed pneumonia at the same time as the peritonitis, two others two or four days later, while the lungs did not seem to be affected in the fourth case. The appendix was incriminated at first, but the copious turbid pus, with the clumps of fibrin, suggested pneumococcus peritonitis as soon as the peritoneum was opened up, especially as the appendix seemed to be normal. The absence of "perforation shock" also aided in excluding appendicitis as responsible for the peritonitis. The abdomen was distended and tender in all, with rigid muscles, but not to the degree usual with peritonitis of other origin. There was an area of dulness on each side in one of the cases. Pneumococci were found in the pus in the three cases examined. On agar both pneumococci and staphylococci grew from the pus in one case and the former alone in two cases. One child, with the operation the second day, was dismissed in good condition the second month, the others, with operation not until about the seventh day could not be dismissed until after four months, but all recovered after multiple incisions and provisions for ample draining.

135. **Determination of Albumin in Stomach Content as Test for Gastric Cancer.**—Paus has applied Salomon's test for albumin in stomach content in 6 cases of known cancer, in 5 of gastric ulcer, and in 9 persons free from gastric symptoms. The findings are tabulated. The response was positive in only 5 of the 6 cancer cases. With ulcer, the reaction was always slight or negative, so that a pronounced reaction is good presumptive evidence of cancer, but when this occurs the symptoms usually point to cancer without necessity for any test. Paus investigated in the same patients further whether there was a digestion leukocytosis with cancer. He found it present in a moderate degree in the 6 cancer cases, more marked in the cases with normal stomach, while in 2 of the 5 ulcer cases there was no appreciable increase in the numbers of leukocytes after the midday meal. Analysis of these cases showed that digestion leukocytosis is evidently dependent on the functioning of the stomach as a whole, both chemical and mechanical, and has no differential significance.

136. **Multiple Tumors.**—Harbitz relates that in the last fifteen years he found cancer in 14.5 per cent. of the 3,613 cadavers examined. In 103 cases multiple tumors were found, that is, in 2.8 per cent. of all the cadavers, including 51 cases of associated malignant and benign tumors and 16 cases of multiple cancers of different types. This latter group forms 0.44 per cent. of all the cadavers and 3 per cent. of the cancer cases. In 2 cases both sarcoma and carcinoma were found separate, and in 2 cases combined; in one case there were three separate carcinomas and in 3 others carcinoma was associated with glioma or endothelioma. In some cases there were associated two or more tumors, all of manifest congenital origin. A detailed and illustrated description is given of 3 new cases of a sarcoma developing secondarily on an abdominal metastatic carcinoma from an ovarian cancer. In another case a mammary tumor proved to be a sarcoma-carcinoma with features suggesting an embryonal origin. He remarks in concluding this long study of multiple tumors that he has found nothing to throw light on the etiology and, in particular, nothing to suggest an infectious origin.

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 14 CHICAGO, ILLINOIS APRIL 1, 1916

THE ETIOLOGY AND TREATMENT OF RAT-BITE FEVER

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NEW HAVEN, CONN.

Rat-bite fever is an infectious disease following the bite of a rat, or much more rarely, the bite of some animal having contact with rats (weasel, ferret, cat). There is an incubation period of from one to sixty days, averaging about two weeks. This is followed by one or more febrile attacks, accompanied by a characteristic rash. As a rule there are many of these paroxysms, which tend to recur with remarkable regularity, at intervals of from five to ten days. The duration of the individual attack averages from two to three days. The temperature rises gradually, to attain the maximum on the second day, and falls by crisis, with profuse sweating. Severe muscular pains and dysphagia are often prominent symptoms. In the interval between attacks the patient feels almost well.

This is the usual form of the disease. In cases, however, in which there is only one attack, the fever may last for several weeks, and be of the remittent or intermittent type. Abortive forms occur, in which the fever is not high and the local symptoms dominate the picture. An afebrile form has been described, with symptoms on the part of the nervous system in the foreground.

The mortality of the reported cases, of which there are about eighty, is 10 per cent. For a full description of the disease, with a review of the literature, the reader is referred to Crohn's[1] recent article.

ETIOLOGY

Up till 1914 the causative agent had not been discovered. In that year Schottmüller[2] described a streptothrix, the *Streptothrix muris ratti,* found by him in eight successive blood cultures in a case of rat-bite fever. A closely allied organism was isolated by him in pure culture in a case of septicopyemia with a peculiar hemorrhagic and pustular rash, following the bite of a South African squirrel. Recently Blake[3] has isolated in a fatal case of rat-bite fever an organism practically identical with that of Schottmüller, obtaining it in pure culture from the blood during life, from the heart's blood postmortem, and from a diseased mitral valve. Its characteristics are briefly as follows: It is a branching filamentous organism, varying greatly in length, and showing a strong tendency to fragment into bacilluslike and coccuslike forms. The filaments may be either straight or greatly curved. They stain readily with the usual bacterial stains, and are negative or faintly positive to Gram's stain.

The occurrence of a typical case of rat-bite fever at the New Haven Hospital led me to search for the cause of the disease. At that time I was not aware of Schottmüller's work, and Blake's article had not yet appeared. On account of the resemblance of the disease to relapsing fever, its apparent curability by salvarsan, as shown by Hata,[4] and the failure of previous investigators to obtain positive results from blood cultures, it was thought that the organism might be a spirochete. For this reason fresh smears, taken at the height of the fever, were examined with dark-field illumination. With this method, threadlike organisms were discovered in the blood with little difficulty, Oct. 5, 1915, and in each succeeding paroxysm until the fever ceased. They were numerous in the following paroxysm, October 10, and rather scanty in the last two attacks. They were filamentous, varying in length from 9 to 20 microns, nonmotile, some straight, others curved or doubly curved.

Some resembled a chain of two or three bacilli, others a chain of cocci of various sizes (Fig. 1). Between the paroxysms no organisms could be found. Smears dried and stained with gentian violet, borax methylene blue and Leishman's stain gave unsatisfactory results; only short bacilluslike forms could be found. With iron hematoxylin, however, several long filaments could be demonstrated (Figs. 2 and 3). There were also rather numerous bacilluslike and coccuslike forms occurring in small heaps. Dr. Blake kindly sent stained smears from the cultures in his case for comparison. The resemblance in the morphology was striking. Unfortunately all attempts to grow the organism from the blood were failures, although the mediums which Blake found most favorable (ascitic bouillon and Loeffler's blood serum) were used. Animals (brown rats, rabbits and guinea-pigs) were inoculated with the patient's blood by Prof. C. J. Bartlett, also with negative results. It should be stated, however, that no cultures or inoculations were made at the time when the organisms were most plentiful in the blood.

Control examinations of blood smears from other diseases and from healthy persons, both with dark-field illumination and stained with iron hematoxylin, failed to show any similar bacteria.

The constant presence of the organism in the paroxysms, and its absence during afebrile periods, lead me to believe that it is the cause of the disease. Further evidence of its etiologic significance is fur-

1. Crohn, B. B.: Rat-Bite Fever, Arch. Int. Med., June, 1915, p. 1014.
2. Schottmüller, H.: Dermat. Wchnschr., 1914, lviii, Ergänzungsheft, p. 77.
3. Blake, F. G.: Jour. Exper. Med., 1916, xxiii, 39.
4. Hata, S.: München. med. Wchnschr., 1912, lix, 854.

nished by its close resemblance morphologically to the *Streptothrix muris ratti* of Schottmüller and Blake.

Recently Futaki[5] and others reported the finding of spirochetes in the skin and lymph nodes in two cases of rat-bite fever. Animal inoculations were successful, and these authors believe that they have found the cause of the disease. It is difficult to reconcile this statement with the work of Schottmüller, Blake and myself.

CASE REPORTS

CASE 1.—*History.*—Mrs. A. D., a widow, aged 46, entered the New Haven Hospital (hospital number 54,919) Sept. 18, 1915, on the surgical service of Dr. J. W. Churchman. Her past history contained nothing of importance. On the night of August 22, while asleep, she was bitten on the second toe of the left foot by a rat. She woke up and heard the animal jump to the floor; earlier in the day she had seen a rat in her room. After an incubation period of from five to eight days, the patient's memory on this point being far from exact, she was taken with marked dysphagia, fever, vomiting and headache. For four days she could swallow nothing but liquids. There was also marked frequency of micturition. The character of the fever in the first attack could not be ascertained. September 14, twenty-three days after the injury, she began to have pain and swelling in the bitten foot, and soreness in the groin on the same side.

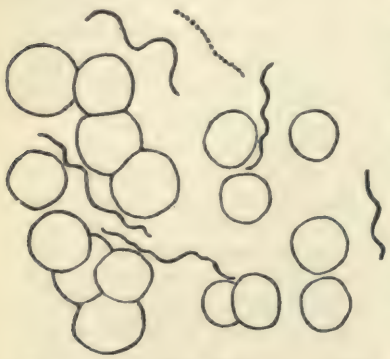


Fig. 1.—Composite sketch of several fields to show organisms as they appear with dark-field illumination.

Physical Examination (Sept. 18, 1915).—The patient was rather obese, and looked older than her age. The visceral examination was negative. On the second toe of the left foot there were two small marks like tooth marks. About the first and second toes there was a circumscribed area of erythema, about 6 cm. in diameter, edematous and very tender. In the popliteal space was another area of erythema, about 3 cm. in diameter, neither tender nor edematous. There was a slight enlargement of the glands in the groin.

Course.—The patient entered the hospital in the midst of a febrile attack, the temperature falling the next morning by crisis. After this she had six paroxysms, coming on with remarkable regularity once every six days. So exact was the periodicity that the onset of an attack could be foretold almost to the hour. The duration of the fever varied from forty-four to sixty-eight hours, that of the afebrile period from seventy-two to ninety-six hours (Fig. 4). The temperature rose gradualy at the onset, and fell by crisis in the first four paroxysms, by lysis in the last two. The symptoms consisted of fever, thirst, nausea and vomiting, headache, pains in the muscles of the neck, and in some attacks dysphagia. Toward the crisis there was profuse sweating.

Between the attacks the patient felt comfortable. The heart remained normal until convalescence, when a slight mitral murmur was discovered, possibly the result of the anemia. The spleen was palpable at only one examination, October 5; at other times it was not enlarged. There was a well marked polynuclear leukocytosis with each paroxysm, with a maximum count of 24,000 cells. Between the attacks the count was normal. The course of the leukocyte curve paralleled very closely that of the temperature, as is apparent on the chart. The eosinophils were decreased during the fever, and rose to the upper limits of normal in the period of apyrexia. The highest eosinophil count was 4 per cent., or 280 in the cubic millimeter. A single count of the red cells, October 11, showed 3,500,000, with 58 per cent. hemoglobin. In smears the red cells appeared normal, and no blasts were seen. The urine, September 20 and 30, was negative; October 11, however, a single specimen showed a heavy trace of albumin. No casts were seen, but as the urine is recorded as alkaline and cloudy, it is fair to assume that it was decomposed, and casts therefore might have been obscured or digested.

Eruption.—October 5, a copious rash was observed, which certainly was not present at entrance, but might have been overlooked at the two previous paroxysms. It consisted of about 20 bluish-red circular spots, from 1 to 3 cm. in diameter, sharply outlined, very slightly raised, situated on the cheeks, forehead, neck, back, front of chest, abdomen, arms and thighs; there were none on the lower legs and feet. Some of the spots showed an elevated area in the center, about 5 mm. in diameter, of a deeper red. The bitten toe was pale pink and somewhat swollen. The bite had healed, leaving a visible scar. The lymph nodes in the left groin were considerably enlarged, ranging in size from pea to bean; elsewhere they were normal. The later course of the eruption was curious; the spots faded in the afebrile interval, but never completely disappeared; with each paroxysm they became bright again. From time to time fresh spots appeared. The individual lesion started as a circular uniformly reddened area, which later became ring-shaped, owing to fading at the center. Those spots which had a darker center showed on fading a circular red spot in the center of a reddish ring, like the bull's-eye of a target.

Treatment.—Solution of potassium arsenite (Fowler's solution) was given without any apparent effect. October 26, at the close of the sixth paroxysm, salvarsan in the dose of 0.3 gm. was administered intravenously. The effect was striking; the attacks ceased, never to recur, and convalescence promptly set in. When last seen, Dec. 31, 1915, the patient was well.

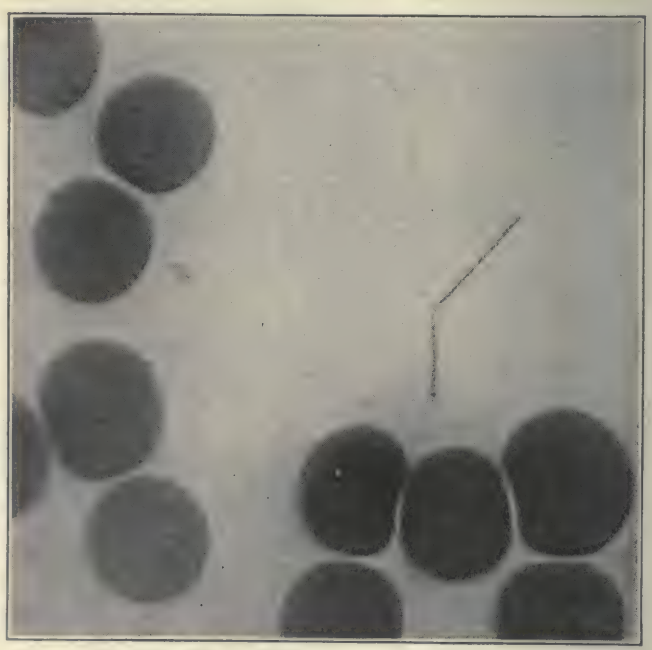


Fig. 2.—Photomicrograph of organism in blood smear, stained with iron hematoxylin. Magnification, 2,000 diameters.

Researches on the Blood.—The organisms described above were found in small numbers, October 5, on the second day of an attack. In the next paroxysm, on the first day of fever, they were abundant, often several in one field, but on the following day, though the fever was somewhat higher, no organisms were discoverable; this is like what occurs in relapsing fever, in which the spirochetes vanish from the blood shortly before the crisis. In the next attack the bacteria were very scanty, one filament being found on the

5. Futaki, Takaki, Taniguchi and Osumi: Jour. Exper. Med., 1916, xxiii, 249.

second and several on the third day. In the next and last paroxysm about six organisms were found on the second and a very few on the third day.

Cultures from the blood were made, October 5 and 17, with negative results. Plain agar, Loeffler's blood serum and ascitic bouillon were used. On the 17th, Prof. C. J. Bartlett inoculated brown rats, rabbits and guinea-pigs with the patient's blood, but without effect.

The foregoing case is the third on record in which organisms, presumably streptothrices, have been found in the blood, and the first in which they have been demonstrated in fresh smears with dark-field illumination, and in stained smears; the other two cases are those of Schottmüller and Blake.

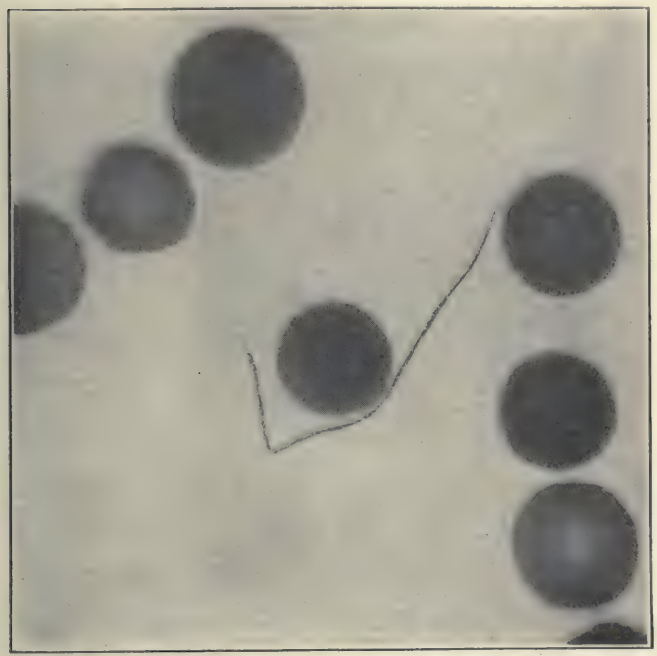


Fig. 3.—Photomicrograph of organism in blood smear, stained with iron hematoxylin. Magnification, 2,000 diameters.

While this woman was still under observation, a second patient with rat-bite fever entered the hospital.

CASE 2.—*History.*—H. A., a farmer, aged 32, entered the New Haven Hospital, Nov. 2, 1915 (hospital number 55,431), complaining of a sore arm. October 3 he was bitten by a rat on the middle finger of the right hand. The wound healed in about a week, though the finger remained somewhat swollen. October 25, after an incubation period of twenty-two days, he noticed a dull pain in the right axilla, which has persisted ever since. Two days later he felt a similar pain in the bend of the right elbow, and noticed a red streak there. October 31, the right side of the neck became very stiff and remained so for twenty-four hours. There were chilliness, headache and malaise. The patient kept at work until the day before admission to the hospital. October 30, he consulted Dr. N. A. Ludington, who found a temperature of 100 F. and very kindly referred him to me for further study.

Physical Examination.—November 2, this revealed a well developed and well nourished man, with moderate prostration. The color was good and the visceral examination negative. At the seat of the bite on the dorsum of the right middle finger there was a short linear scar, surrounded by an infiltrated, reddened and swollen area, tender on palpation, and 1 cm. in diameter. In the fold of the right elbow there was an area of erythema the size of the palm of the hand, part of which had been treated with iodin. Above the portion so treated there was an area of erythema about 5 by 7 cm. with roughly crescentic, sharply marked outlines. The lower part of the right axilla was occupied by an erythmatous area, dull pink, roughly circular, and about 8 cm. in diameter. No application of iodin had been made here. A thickened lymphatic vessel could be plainly felt just beneath the skin on the inner aspect of the upper arm. There was no general eruption. In the right axilla there was a packet of several enlarged tender lymph nodes, the whole 2 cm. in diameter. The epitrochlear node was enlarged on the right. Elsewhere the lymph nodes were normal. The temperature at entrance was 99, the leukocyte count was normal (6,300, November 2; 8,800, November 6). The differential count was also normal. Repeated examinations of blood smears with dark-field illumination failed to reveal any organisms. The urine was negative.

Subsequent Course.—November 4, the infiltration about the bite was decidedly less, the erythema at the elbow and the axilla had nearly disappeared, and the lymph nodes in the axilla were smaller. The following day he complained of some pain in the axilla and headache, and the temperature rose to 99.2. November 8, the seat of the bite was incised and curetted, and cultures made on Loeffler's serum from the blood and tissue, but with negative results. He was then given 0.3 gm. of salvarsan intravenously. A few hours later he had a chill with rise of temperature to 103, which was attributed to the injection. With this exception the temperature never rose above 99.2 while he was in the hospital. The next day he felt well and went home. He was seen by Dr. Ludington in January, 1916, and reported that he had remained well since leaving the hospital.

Case 2 illustrates the abortive type of rat-bite fever. The diagnosis rests on the history of a rat-bite, the long incubation period, the inflammation about the seat of the bite, with lymphangitis and lymphadenitis, and the characteristic areas of erythema at the elbow and axilla. There were no paroxysms, and the blood smears were negative, probably because the stage of invasion of the blood stream was never reached. The administration of salvarsan was followed by prompt recovery. It is probable, of course, that he would have recovered without it, but not so quickly.

DIAGNOSIS

Sepsis is common after the bite of any animal, or of man, owing to the almost necessary infection of the wound with bacteria from the mouth. The symptoms of rat-bite fever, however, have occurred only after the bite of the rat, or of an animal coming into close association with rats (ferrets, weasels, cats). The disease described by Schottmüller after the bite of a South African squirrel is clearly distinct from rat-bite fever, both in its clinical and its bacteriologic features. Rat-bite fever is distinguished from ordinary wound infection by the length of the incubation period, which is usually about two weeks in the former, and only a

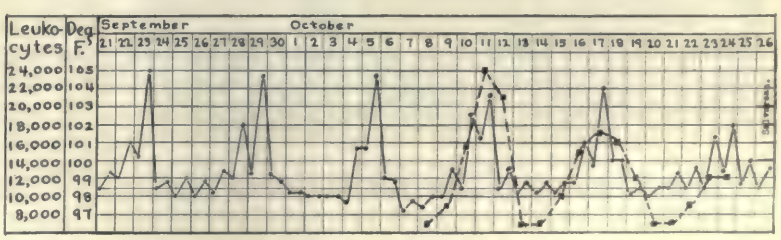


Fig. 4.—Temperature and leukocyte chart: solid line, temperature; broken line, leukocytes.

few hours in the latter. The local appearances in the two conditions may be similar; abscess formation, however, has not been observed in rat-bite fever, though occasionally there is necrosis and gangrene at the seat of the bite. An important distinguishing feature is the localized erythema about the joint proximal to the wound in rat-bite fever, which is not encountered in sepsis.

Rat-bite fever is distinguished from other infectious diseases by the history of a rat-bite, the form of the temperature curve, and the presence of a characteristic eruption. The temperature may be only slightly elevated in abortive cases, or there may be only a single attack of remittent or intermittent fever of a few weeks' duration, as in Schottmüller's case. Usually, however, there are attacks of fever of a few days' duration, ending by crisis and recurring with remarkable periodicity about once a week, the whole constituting a picture met in no other disease, with the exception of relapsing fever. In the latter, however, there are rarely more than three attacks, while in rat-bite fever the number of paroxysms is much greater, as many as twenty-six having been recorded. In relapsing fever the spirochete of Obermeyer is easily demonstrated in the blood in the early days of the attack, especially if dark-field illumination is used.

The eruption is of great diagnostic importance. It may be either local or general. In the former case it occurs as a diffuse bluish-red erythema, usually with sharply marked outlines, and of considerable extent, up to the size of the palm or even larger. It is situated at the seat of the bite, and also in the skin overlying the lymph nodes which drain the wound. Thus a bite on the face may be followed by extensive erythema in the neck, or one on the finger by a rash at the elbow and axilla, as in Case 2.

The generalized form of the eruption is striking, and when typical is almost pathognomonic. It consists of fairly numerous, large bluish-red spots, which are perfectly circular in shape, slightly raised, with sharply defined margins. The size of the spots varies from that of a pea to a silver dollar (from 0.5 to 3 cm.). In the course of a few days they frequently become ring-shaped, resembling the lesions of erythema multiforme, but differing from that disease in that they show no predilection for the extensor surfaces. They disappear on pressure, they do not itch and they do not desquamate.

Should my finding of organisms with the dark-field illumination be confirmed in subsequent cases, this method should furnish a quick and ready means of recognizing the disease. Blood cultures with the present methods would seem to be less reliable from the diagnostic point of view, on account of the difficulty in growing the organism. They remain, of course, indispensable for the scientific investigation of the disease.

TREATMENT

The prophylaxis is simple. Immediate cauterization of the wound, either by strong phenol (carbolic acid) or the actual cautery, has proved, in the extensive experience of Miyake,[6] a sure preventive. The disease, once established, has not yielded to any form of treatment until recently, when Hata[4] (in 1912) reported eight Japanese cases treated with salvarsan. The results were striking, five out of the eight patients being cured by a single injection. Of the remaining three, one had a single relapse, which subsided spontaneously; a second relapsed and was not followed further; the third, a child aged 2½ years, was greatly improved but not cured by three injections. The effect was the same whether the drug was administered at the height of the fever or during the stage of apyrexia. Since then two cases have been reported from Bombay, by Surveyor[7] and by Dalal,[8] both with cure. My cases bring the total of those treated up to twelve, with cure in ten, or 83 per cent. The dosage is the same as for syphilis.

SUMMARY AND CONCLUSIONS

1. In a typical case of rat-bite fever, organisms were found in the blood, closely resembling the *Streptothrix muris ratti* of Schotmüller and Blake. They were present in each febrile paroxysm and absent in the intervals. They were readily demonstrated by dark-field illumination, but with difficulty by staining methods, probably on account of a strong tendency to fragmentation. Blood cultures and inoculations of animals with the blood were negative.

2. The administration of salvarsan was followed by immediate cessation of the paroxysms.

3. An abortive case of rat-bite fever is reported.

424 Temple Street.

6. Miyake: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1900, v, 231.

THE CAUSE OF GASTRIC ULCER*

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AND
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URBANA, ILL.

A great many theories have been advanced concerning the cause of gastric ulcer. The main feature of most of these theories is that there is a decreased resistance of limited areas of the gastric wall followed by the digestion of these areas by the unrestricted action of the pepsin. The investigation reported in this paper is concerned with the cause of this diminished resistance. It has been recognized for a long time that the resistance to the action of the digestive juices of limited portions of the mucosa of the stomach is decreased by cutting off the blood supply to these portions as, for example, by a clot in a small blood vessel (thrombosis) or by the ligation of the vessel. Under such conditions the area is digested by the pepsin with the formation of an ulcer. The decreased resistance of the areas rendered anemic by cutting off the blood supply has usually been attributed to the deprivation of the areas of nutrition. The frequency of the occurrence of gastric ulcer among anemic persons has led many to consider anemia a predisposing factor in the production of ulcer. Lesions produced in the mucosa of normal healthy animals heal, as a rule, with more or less ease. If, however, the animal is rendered anemic by bleeding or by the introduction of some hemolytic agent, lesions in the gastric mucosa heal very tardily. When the blood supply to a portion of the mucosa is cut off, among other things, the part is deprived of oxygen, and for that reason the oxidative processes are decreased.

Araki[1] showed that the oxidative processes are decreased in rabbits rendered anemic by bleeding. In

7. Surveyor, N. F.: Lancet, London, 1913, clxxxv, 1764.
8. Dalal, A. K.: Practitioner, London, 1914, xcii, 449.

* From the Physiological Laboratory of the University of Illinois.

1. Araki: Ztschr. f. physiol. Chem., 1894, xix, 424.

phosphorus poisoning the oxidative processes of the body are decreased,[2] and it has been observed that under these conditions the tendency of the tissues to undergo autolysis is increased.[3] In diseases of the circulatory and respiratory systems, where the amount of oxygen is decreased and hence the oxidative processes are decreased, there is a great tendency of all the tissues to undergo self-digestion.[4] These facts would seem to point to some relation between the oxidative processes of the body and the resistance of the tissues to the digestive action of the proteolytic enzymes. Burge[5] showed that pepsin as well as trypsin is easily destroyed by oxidation. Lillie[6] showed that the cells of the gastric mucosa possess intense oxidative properties.

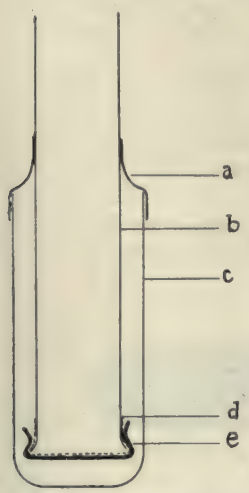


Fig. 1.—Diagram of apparatus: *a*, rubber cuff holding glass vessels *b* and *c* in position; *d*, platinum mesh; *e*, piece of gastric mucosa.

In view of the fact that pepsin is easily destroyed by oxidation, that the cells of the mucosa possess oxidative properties, and that these cells become easily digested when these properties are decreased, the hypothesis is advanced that the mucosa is not digested under normal conditions because the pepsin immediately in contact with the wall of the stomach is rendered inert by the oxidative processes of the cells. This theory assumes that normally a balance exists between the oxidative processes of the cells of the mucosa and the digestive action of the pepsin in the stomach. If this balance is destroyed, as for example by depriving a limited area of oxygen by cutting off the blood supply, thereby decreasing the oxidative processes of the area, this area should be digested by the pepsin with the production of ulcer. That the mucosa is digested with resulting ulcer under such a condition has been verified by many observers.

REPORT OF EXPERIMENTS

The following experiments were devised to imitate the protective mechanism as set forth in the foregoing hypothesis:

In Figure 1, *a* is a rubber cuff holding vessels *b* and *c* in position as indicated; *d*, a piece of platinum mesh tied over the end of cylinder *b*, and *e* a piece of gastric mucosa of the dog tied over the platinum mesh. Before the platinum mesh was tied over the end of the cylinder, platinum black was deposited on it by means of the direct electric current. To 15 c.c. of gastric juice of the dog, 15 c.c. of hydrogen peroxid were added, and the resulting solution was made acid with hydrochloric acid to the same extent as the original gastric juice. This solution was poured into cylinder *b*, and the whole preparation placed in a water bath at 38 C. (100.4 F.). Immediately after the solution was poured into the cylinder, an evolution of oxygen gas was observed in the region of the platinum mesh. This, of course, was due to the decomposition of the hydrogen peroxid by the platinum black. Thus the mucosa was exposed to the action of the gastric juice in the presence of atomic oxygen. After six hours, the piece of mucosa was removed from the tube and photographed (Fig. 2 *A*). It may be seen that the central circular area exposed to the action of the gastric juice in the presence of atomic oxygen had not been digested.

Another preparation, similar to the one described, except that no platinum black was deposited on the platinum mesh, was made and placed in the water bath at 38 C. On addition of the gastric juice diluted with hydrogen peroxid no oxygen was given off, there being no platinum black on the mesh; hence this piece of mucosa was exposed to the action of the gastric juice in the absence of atomic oxygen. Figure 2 *B* is a photograph of the piece of mucosa after the preparation had been in the bath for sixty-five minutes. It may be seen that the central circular area exposed to the action of the gastric juice had been completely digested with the formation of a hole. In Figure 2 *A* the oxidation produced by the atomic oxygen liberated at the surface of the dead mucosa protected it, while in Figure 2 *B*, no such protection being afforded, the exposed circular area was readily digested with the production of what corresponds to gastric ulcer. Figure 2 *C* is a perforating ulcer of the stomach shown for comparison.

The following experiments were carried out on unicellular organisms to show that when they are introduced into a solution of trypsin they protect themselves from being digested by means of their oxidative processes:

One hundred c.c. of clear pancreatic juice were collected from a cannula in the pancreatic duct of a dog as the result of the repeated injections of secretin into the jugular vein. The trypsinogen in this juice was converted into active trypsin by the addition of 5 c.c. of enterokinase. The resulting trypsin solution was sterilized by exposing it for a few minutes to ultraviolet radiation. It was then placed in a collodion tube and dialyzed against 5 liters of distilled water for twenty-four hours at 10 C. (50 F.) to get rid of most of the dissolved salts.

Five c.c. of the activated dialyzed juice were introduced into each of two long test tubes. Five drops of water containing a great number of living parameciums were introduced into one tube and another five drops of water containing dead parameciums, killed by exposure to ultraviolet radiation, into the other. Both tubes were placed in a water bath at 30 C. (86 F.). At the end of three hours, the parameciums, killed by exposure to ultraviolet radiation before being introduced into the pancreatic juice, were completely digested, while those introduced alive were as active as at the beginning of the experiment. At the end of seventy-two hours, when the experiment was discontinued, these parameciums were still alive and very active.



Fig. 2.—Pieces of gastric mucosa. The central areas of *A* and *B* were exposed to the action of gastric juice, *A* in the presence of atomic oxygen, *B*, in the absence of atomic oxygen. *C*, perforating ulcer of the stomach.

These two experiments show, as has been recognized for a long time, that living cells are very resistant to the action of proteolytic enzymes, while dead cells are digested with more or less ease.

2. Welsch: Arch. internat. de pharmacod. et de therap., 1905, xiv, 211. Ries: Berl. klin. Wchnschr., 1905, xlii, 44a, 54.
3. Jacoby: Ztschr. f. physiol. Chem., 1900, xxx, 174.
4. Schlesinger: Beitr. z. chem. Physiol. u. Path. (Hofmeister's), 1904, iv, 87.
5. Burge: Am. Jour. Physiol., 1915, xxxvii, 462.
6. Lillie: Am. Jour. Physiol., 1902, vii, 413.

The digestive strength of the trypsin and the resistance of the living parameciums having been determined by these control experiments, an attempt was made to lower the resistance of the organisms to tryptic activity by decreasing their oxidative processes. Five c.c. of the activated dialyzed pancreatic juice were exposed to the radiation from a quartz mercury-vapor burner for one hour to destroy the trypsin. Living parameciums were introduced into this inactive juice, and hydrogen gas was bubbled through it for ten hours at 30 C. The purpose of bubbling the hydrogen gas through the juice was to deprive the parameciums of most of the oxygen dissolved in the liquid and thus decrease the oxidative processes of the parameciums. At the end of the ten hours the organisms were alive and active. This experiment shows that the hydrogen gas bubbled through the liquid was not injurious to the parameciums and that there remained in the liquid sufficient oxygen for the life processes of the organisms.

Five drops of water containing parameciums were introduced into 5 c.c. of the activated dialyzed pancreatic juice. Hydrogen gas was bubbled through this liquid as it had been through the inactive juice containing the parameciums. The organisms were observed under the microscope at frequent intervals during the experiment. After about two hours the animals were observed to move less rapidly than at the beginning of the experiment. A little later these slowly moving organisms became more transparent and moved more slowly. As digestion proceeded, the transparency of the parameciums increased, and at the end of the third hour the partially digested organisms appeared as shadows. About half an hour later these parameciums had been completely digested and had gone into solution. These organisms were literally digested while alive and killed by the action of the trypsin itself in the process of digestion.

The preceding experiment was repeated, and when the animals were partially digested, the bubbling of hydrogen gas through the liquid was discontinued and the bubbling of oxygen gas was substituted. When this was done, the organisms that had not been too much digested were revived, and lived on as normal animals.

These experiments show that the resistance of these unicellular organisms to the digestive action of trypsin is greatly reduced when their oxidative processes are decreased, and that their resistance returns when the oxidative processes are restored. The results obtained on these living unicellular organisms would appear to lend support to the hypothesis advanced in explaining the resistance of the living cells of the gastric mucosa to the digestive action of pepsin.

CONCLUSIONS

The decreased resistance of a circumscribed area of the stomach to the digestive action of gastric juice is due to a decrease in the oxidative processes of the cells of the area. Gastric ulcer is due to the subsequent digestion of the area by pepsin.

The resistance of unicellular organisms (parameciums) to the digestive action of the proteolytic enzymes can be increased or decreased by increasing or decreasing the intensity of the oxidative processes of the organisms, the greater the intensity of the oxidative processes the greater the resistance, and vice versa.

The Soul of Enjoyment.—Health is the soul that animates all enjoyments of life, which fade and are tasteless, if not dead, without it.—Sir William Temple.

DISCISSION AND ADJUSTMENT OF AN INTRA-UTERINE STEM VERSUS DILATION

TO OVERCOME STENOSIS OF THE CERVICAL CANAL

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Next to curetting, dilation of the cervical canal, principally to overcome sterility, is the operation most frequently done without proper indication.

Those who have made observations will probably concede that in 75 per cent. of patients so treated, the intervention is unwarranted, because of absence of narrowing of the cervical canal, acute flexion, or azoospermia in the husband.

Let us take for granted, however, that there is an indication present: the cervical canal narrowed, or an acute flexion. Is cervical dilation, then, really the best means of giving permanent relief?

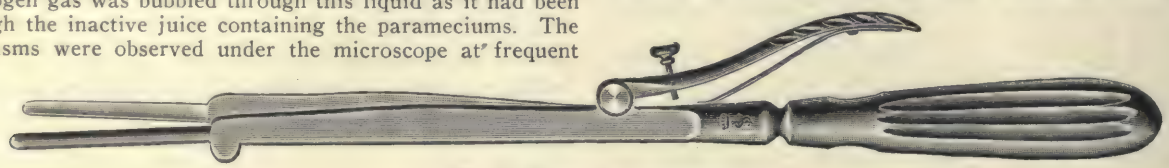


Fig. 1.—Simpson's hysterotome.

Judging from my personal experience, the question must be answered negatively, since it will be found in many cases that within from two to four months the cervical canal has again become constricted. There is, however, a method of intervention which will positively obviate this.

Cervical discission with adjustment of an intra-uterine stem will give such guarantee.

With the patient in the lithotomy position, the cervix, having been exposed with vaginal retractors, is drawn down and steadied with bullet forceps. Then with a Simpson hysterotome (Fig. 1) set with the thumbscrew before it is introduced, in order that the depth of the discission may be gaged, the cutting blade being held firmly at the chosen part, the handle is firmly depressed and the instrument withdrawn slowly. The cervical canal should not be dilated before the operation, lest it confuse the operator as to the extent of the discission advisable.



Fig. 2.—Uterine stem; hollow part on right, solid part on left.

I prefer to make the discission on the anterior and posterior surfaces of the interior of the cervix, since there is no danger of cutting vessels there, whereas on one occasion I had a profuse and serious hemorrhage by cutting laterally.

When the discission has been made, an intra-uterine stem (Fig. 2) of suitable size is adjusted. I have these stems made in various sizes. They are of hard rubber.

The lower part, through which the retaining suture of very heavy silkworm gut is passed, is solid; but the upper part is hollow, making it as light as possible, and preventing the weight of the stem, by bearing on the suture, cutting downward, which is frequently the case with the heavier glass stems used by Baldwin. I have found also the solid rubber stems too heavy for my purpose, that of leaving the stem in situ for about six weeks.

The suture is fastened by shot, beneath which a small lead plate is placed to prevent the shot from

burying itself in the cervical tissue. It is easily removed at the desired time, and one may be sure that the cervical canal will then not again contract as in a simple dilation.

The stems, for purposes of sterilization, are kept in compound solution of cresol or a saturated phenol (carbolic acid) solution.

39 East Sixty-First Street.

BULLET LESION OF CAUDA EQUINA

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While bullet lesions of the cauda equina might be of frequent occurrence in time of war, they are unusually rare in time of peace. Thus Braun[1] saw but one case in twenty-five years in one of the large Berlin hospitals, and Chipault[2] says that both vertebral and spinal cord gunshot lesions are very rare, not only in every day practice, but even in time of war.

The literature, therefore, on gunshot wounds of the cauda equina, to be reported below, is very scarce indeed. Serious as these lesions have been in the majority of cases, their prognosis has been and is much more favorable than similar spinal cord lesions, notwithstanding the length of time in which the bullet might be lodged within the cauda.

In the present case, it remained there for six years, when it was finally removed with remarkable improvement in the subjective and objective conditions of the patient.

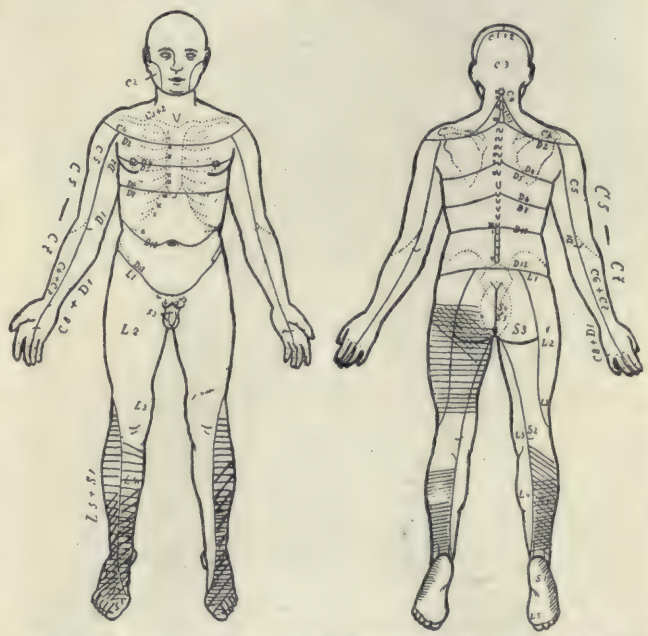


Fig. 1.—Areas in which there was reduction of sensibility: horizontal shading, touch and pain sensations; diagonal shading, temperature sensation.

REPORT OF CASE

History.—Man, aged 28, entered Cook County Hospital, Sept. 2, 1915, complaining of pain in the left lower extremity. The pain would "jump" from the left buttock to the left popliteal region, whence it would reach the left little toe and spread all over the foot and the rest of the toes. It would stop for about five or ten minutes, and then start again. The patient had to take morphin, sometimes as much as 30 grains daily; he drank beer, whisky, even wood alcohol, in fact, anything he could get hold of, to stop the unbearable pain. He could not sleep nights, could not find rest in the daytime, and could not do his work (that of a watchman), but was able to walk.

The pain originated six years ago after he had been shot in the back. One attempt to remove the bullet, four hours after he was shot, was entirely unsuccessful. The patient applied afterward about five times to the Cook County Hospital with a request to have the bullet removed, but each time operation was refused, the last time about three years ago.

In addition to the pain the patient felt weakness, especially in the left foot, which started to "give way" about ten months ago, and lately the weakness became so great that he was afraid to walk on a slippery day. He had to be careful in walking, as the right toes would "kick" the ground, and cause frequent damage to his shoes. To avoid kicking the ground he had to raise the right foot higher, while the left foot would turn inward. He was lame, as the body weight was thrown toward the left. Following the shooting, the patient immediately became paralyzed in both lower extremities. The paralysis was combined with anesthesia and loss of sphincter control. A month later cystitis developed which persisted for two years, during which time there also was loss of sexual power, though erections and desire were present. He could not move around for two years, and had to be "carried all this time in a rocker." Aside from the shooting accident, there was nothing of importance in the patient's previous history. Venereal diseases were denied; his wife had had no miscarriages; there were two healthy children.

Examination. — This revealed a well nourished white man with normal cranial nerves, normal heart, normal mentality and normal condition of the genito-urinary organs.

The *right* thigh and the *left* leg showed muscular atrophy with a clawlike position of the left toes. Measurements of the thighs, 12 inches above the external condyle, gave 18 inches for the right, and 19 for the left; the calf muscles, 12 inches above the malleoli, gave 12¼ for the right, and 11¼ for the left. The muscle power in the extensors and abductors of the left *leg* was much stronger than on the right, while the left leg muscles (the gastrocnemius) were somewhat weaker than the right ones.

The tendon reflexes, patellar and the Achilles tendon, were absent on the left, and on the right side only the patellar was present. The sensibility was merely reduced, for pain, touch and temperature in the areas supplied principally by the last two lumbar and first two sacral roots (Fig. 1). The electric examination showed complete reaction of degeneration in the left posterior tibial and left gastrocnemius, and a partial reaction of degeneration in the right extensors of the leg. Besides motor, sensory and electric changes, there were also present vasomotor and trophic disturbances. The former were represented by excessive sweating of the left foot, the latter (trophic) by the atrophies and several scars from burns caused by leaning against a radiator, the heat of which was not felt by the patient.

A combination of such findings suggested a scattered peripheral lesion of some of the nerves and muscles of the lower limbs which resulted in a peculiar clinical picture: atrophy of the right thigh, of the left leg, of the small muscles of the left foot, combined with severe pain in the left leg and motor weakness in the right leg. In addition, there were present localized electric and vasomotor changes coupled with bilateral loss of Achilles and unilateral loss of (right) patellar reflexes. Such a scattered combination of atrophies did not

1. Braun, W., and Lewandowsky, M.: Beiträge zur Frage der operativen Behandlung der Rückenmarksschüsse, Deutsch. Ztschr. f. Chir., 1908, xl, 115.

2. Chipault, in Le Dentu and Delbet: Traité de chirurgie clinique et opératoire, Paris, 1897, iv, 881.

conform with any known and well established types of muscular atrophies, dystrophies or arthritic myopathies, but plainly indicated involvement of some of the motor and sensory roots of the cauda equina that supply the lower limbs with motion and sensation. The nerves involved (right crural and left posterior tibial) indicated a lesion of the lower four lumbar and of the first sacral roots, while the sensory disturbances indicated the involvement mostly of the fourth, fifth lumbar and first sacral roots. As almost all the lumbar roots were involved, it was evident that the lesion, the seat of the bullet, was high up, at the level of the second or third lumbar root, either of which evidently was caught with its fellows on their way down to the intervertebral foramina. As the second lumbar root leaves the spinal canal between the second and third lumbar vertebrae, it was proper to assume the seat of the bullet to be at the level of the second or third lumbar vertebra. A roentgenogram by Dr. E. S. Blaine (Fig. 2) showed the bullet "apparently inside the spinal canal, at the level of the center of the third lumbar vertebra. There is also a slight fracture of the superior left auricular process and adjacent lamina of the fourth vertebra where the bullet entered."

As the bullet was in the indicated place for six years, it was easy to understand the cause of the atrophies, of the sensory disturbances, of the motor weakness, etc. The total paraplegia, the anesthesia and the loss of sphincter control which were present at the time of the accident were probably due to a traumatic myelitis or to the attempts to remove the bullet. At any rate, the symptoms of the spinal cord lesion cleared gradually away, and at the time of our examination there was a picture solely of lesion of the cauda equina, which, however, showed some peculiarities which will be mentioned later on.

Operation and Result.—The patient requested an operation in the hope of getting relief from the pain. In view of possible formations of scars around the bullet we were not sure whether an operation, successful as it might have been, would give him the desired relief. Yet the patient was willing to take chances, and the operation was performed by Dr. Allen B. Kanavel, Sept. 24, 1915. A curved incision was made from the first lumbar to the first sacral spinous process. The spinous processes of the second, third and fourth lumbar vertebrae were exposed and removed. The laminae of the same vertebrae were removed and the dura exposed. The dura was split and dissected free from adhesions to the cauda. The bullet was found at the level of the third lumbar vertebra, surrounded by two solid scars. It was carefully dislodged with blunt dissectors and removed. The slightest possible injury to the surrounding tissues was carefully avoided.

The operation was followed by numbness in the genitals, buttocks, about the anus, and by retention of urine for about six days. Four weeks after the operation the wound cleaned up, and up to November 19, that is, for about seven weeks, there still was severe pain in the legs which, however, was gradually disappearing and the patient was getting firmer on his feet. Two months after the operation the pain disappeared entirely, the gait became practically normal, the calf muscles increased in volume by one inch, the pain sensation was found to be normal—but only in the right leg—while in other areas the sensibilty showed the same disturbances as before the operation. No change was found in electric findings, in the reflexes or in the muscle power. The improvement was so marked that the patient insisted on leaving the hospital and felt able to resume work.



Fig. 2.—Roentgenogram showing location of bullet.

COMMENT

There are certain peculiarities in this case which we should like to point out. The bullet was lodged in the upper portion of the cauda equina where all the roots, on their way down, are massed together, forming with the surrounding membranes a strand resembling in external appearance the spinal cord. A bullet lodged in this mass of roots ought to affect them all, and give a clinical picture of total lesion of the cauda equina, namely, a flaccid atrophic paralysis of the entire musculature of the lower limbs, with their anesthesia, etc. In our patient the affection of the cauda equina was partial, only some of the nerve roots having been involved, those of the crural on the right, and of the posterior tibial on the left. Therefore the high seat of lesion does not exclude the possibility of a partial cauda equina lesion.

Secondly, the bullet was lodged within the canal, its neck having been caught and surrounded by the dura, and two large solid scars were compressing the roots. A question arose whether the patient's troubles were not caused by these scars as much as by the bullet, and whether even a successful removal of the bullet would bring about the cessation of the pain. The latter, during the first few weeks following the operation, was as severe as ever, but later on was gradually subsiding until it finally disappeared entirely. The possible scar formation may be one of the serious objections to an operation like that in our case, yet with care not to cause trauma to nerve tissue, as it was done by Dr. Kanavel in this patient, excellent results can be obtained, notwithstanding their presence.

The most remarkable feature is the rapid progressive improvement in the patient's subjective condition, regardless of the fact that the operation took place six years after the injury. Chipault[3] speaks of a case by Delorme in which the bullet and bone scar were removed seventeen years after a gunshot wound, and Ollivier[4] describes a cauda equina lesion by a bullet which remained there for nine years, but was not removed. The symptoms were urinary incontinence, and complete anesthesia of the postero-internal and

3. Chipault, quoted from Krajewsky: Neurol. Centralbl., 1907, p. 874.

4. Ollivier, G. P.: Traité des maladies de la moelle épinière, Ed. 3, Paris, 1837, i, 358.

anterior portions of the thigh, of the penis and scrotum, but there was no motor paralysis of the lower limbs. Ollivier, writing about the case in 1837, evidently considered it as a curiosity, as he could not understand the absence of paralysis in the presence of spinal cord symptoms, as bladder disturbances, but adds that such a strange combination evidently occurred only when the lumbar region is involved. In 1849 Hutin[5] described a bullet lesion of the cauda equina of fourteen years' duration. The bullet was not removed, but the paralysis slowly disappeared in the left leg, and remained in the right. The postmortem showed the bullet implanted in the vertebral canal, where it cut the right half of the spinal cord, or rather that of the cauda equina, leaving the left half intact.

Leyden[6] mentions two cases of bullet lesions of the cauda equina reported by Socin and Klebs. In one, the lesion was to the right of the fourth lumbar vertebra, in the other above the right posterosuperior spine. The symptoms gradually disappeared, though the bullets were not removed. In Lamb's case[7] the patient carried the bullet in the cauda equina for eighteen and one half years, and it was found at the necropsy at the level of the fifth lumbar vertebra, where it descended from above (the fourth lumbar) following suppuration.

The patient suffered from partial paralysis of the left leg, which set in nine years after the shooting, from continuous pain in the back and the left leg, urinary disorders and atrophy of the right leg. In 1904 Weisenburg[8] reported a case of cauda equina lesion by a bullet which perforated the fifth lumbar vertebra (loss of sphincter control the first two weeks, loss of Achilles jerk, increased bilateral knee jerk), but the bullet was not located. In the same year Englemann[9] reported a case in which the bullet entered the median line between the fifth lumbar and the first sacral vertebrae. The patient was operated on five days later, and sixteen days after the operation the pain totally disappeared, though the sensory disturbances were still present four months later around the arms.

Finally the cases of Raymond and Rose, and of Raymond must be mentioned. In the former[10] the bullet, as in our case, was located at the level of the third lumbar vertebra, and gave practically identical symptoms: lessened motor power in the lower limbs, atrophy of the right thigh and antero-external muscles of the leg, loss of the right patellar and Achilles jerks, which were followed six weeks later by loss of sphincter control, and anesthesia of the perineum, scrotum, penis and posteromedian surface of the thigh. The latter symptoms were due to the sinking of the bullet to the first sacral vertebra. At the operation, which was done about three months after the injury, the bullet was found to be movable and removed, followed by improvement in the patient's condition. Another patient of Raymond[11] had the bullet also at the level of the third lumbar vertebra, and was operated on about three months after the injury. Here also the bullet was movable and removed, with some improvement in the patient's condition.

These are practically all the cases that can be found in the literature in reference to the bullet lesions of the cauda equina. Of all the cases only those of Raymond bear some resemblance to ours, yet there is a difference in the length of time the lesion lasted: in our case, six years; in Raymond's, only three months. The results, however, were equally good in our case, though the operation was much more difficult and complicated.

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5. Hutin: Jour. de méd. et de chir. prat., 1849, xx, 512.
6. Leyden, E.: Traité clinique des maladies de la moelle épinière, Translated by E. Richard & C. Viry, Paris, 1879, p. 262.
7. Lamb, quoted from Vincent, E.: Des plaies par coup de feur de la moelle épinière, Rev. de chir., 1892, p. 89.
8. Weisenburg, T. H.: A Clinical Report of Three Cases of Injury of the Lower Spinal Cord and Cauda Equina, Am. Jour. Med. Sc., May, 1904, Case 2.
9. Englemann, Fritz: Akute Kompression der Cauda Equina durch ein Projektil. Operation; Heilung, München. med. Wchnschr., 1904, No. 51, p. 2292.
10. Raymond and Rose: Compression des racines de la queue de cheval par balle de revolver, laminectomie, guérison, Rev. neurol., 1906, p. 381.
11. Raymond, F.: Sur quelques affections de la queue de cheval, Arch. gén. de méd., 1906, p. 1940.

PUBLIC HEALTH MEASURES IN RELATION TO VENEREAL DISEASES*

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"Social hygiene" is an inclusive phrase covering activities of which the campaigns against venereal diseases and prostitution are only a part, but necessarily in past years the most prominent part. Eventually the social hygiene movement will become recognized by the public as a constructive effort to promote all those conditions of living, environment and personal conduct which best protect the family as an institution and secure a rational sex life for the individuals of each generation.

Prior to 1900, certain scientific and sociologic data were recorded in their bearing on the reduction of syphilis and gonorrhea, but no effective public health measures were instituted. From 1900 to 1912, existing facts were marshaled for educational campaigns, and new facts of the highest importance were discovered. In the medical field there were added new observations of gonorrhea, its ravages, communicability and treatment, the discovery of the organism of syphilis in 1905, the development of the Wassermann reaction in 1907, the preparation of salvarsan for the treatment of syphilis in 1910, and in 1911 the successful experimental inoculation of syphilis and artificial cultivation of its organism. These advances made possible by 1912 a practical campaign against venereal diseases as soon as public opinion should be developed in support of it. In the law-enforcement field, the records of the past twenty years show many persistent and self-sacrificing efforts to utilize existing statutes and to devise new legislative and administrative measures for the repression of commercialized practices inimical to high standards of public morality and health. In the religious and ethical fields, likewise, notable efforts have been made to bring about recognition of the importance of good environment and personal observance of moral living as forces in any campaign for the ultimate eradication of venereal diseases and prostitution as great social ills. The organization and extension of social hygiene society campaigns, and the promotion of similar work by numerous other national

* Presented at the Pan-American Scientific Congress, Washington, D. C., Dec. 30, 1915.
* Because of lack of space this article is abbreviated in THE JOURNAL. The complete article appears in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped, addressed envelope.

and state associations, have now prepared the way for a serious attempt to deal effectively with this great medical-social problem.

Syphilis and gonococcus infections are foremost among a group which may be designated social as well as individual disorders affecting people's lives in many tragic ways, and therefore to be attacked through social treatment as well as medical treatment. It will be profitable to summarize at this point certain facts. Venereal diseases are communicable infections due to identified organisms; their methods of transmission are known, and a practical laboratory and clinical technic has been worked out for diagnosing each of them; they are widely prevalent throughout the world and are not limited to any race, sex, age or condition of people; they find their chief opportunity for dissemination in the sex relations of infected individuals with other individuals who are susceptible; they are largely but not exclusively transmitted through the promiscuous sex relations defined as prostitution and condemned by society as harmful alike to the health, the morals and the social progress of a people; recent methods of therapy make practicable the shortening of the period of infectivity and improve the chances of ultimate recovery of the patient submitting to early and thorough treatment; once contracted, they may run their course to practical recovery with or without medical assistance, but under present conditions an unknown and large percentage of those infected never completely regain their health or cease to be carriers, and, therefore, are a continuous menace to society. Syphilis in its early stages is especially a public danger, while in its late manifestations the menace is largely confined to the individual himself; gonorrhea, on the contrary, while a public danger at all times, is particularly damaging to the individual in its early acute development, and later becomes an insidious danger to those intimately associated with him.

With these general facts before us, the medical lines of attack are clear: 1. We must seek by cooperation with or control of the infected individual to prevent his infecting others. 2. We must endeavor by education and administrative measures to enable uninfected individuals to protect themselves against infection. 3. We must develop, so far as may become possible, the defenses of society calculated to prevent the recrudescence of venereal diseases in any community which is measurably reducing them.

The measures which have been advocated to meet this program may be grouped as follows: (1) management of existing cases; (2) prophylactic measures; (3) measures contributing to their reduction and ultimate eradication.

MANAGEMENT OF EXISTING CASES

1. *Provision of public health laboratory equipment for free examinations for evidence of syphilis and gonococcus infections.*—So many state and municipal health laboratories in the United States have now established this work that its practicability has been demonstrated and its continuance assured. In 1914, the New York City Health Department examined 59,614 specimens, 75 per cent. of which were received from private physicians. The Massachusetts State Department of Health receives more than 1,000 specimens per month for its Wassermann laboratory, and has extended this service to patients of private physicians.

2. *Provision of ample facilities at public expense for clinical diagnosis and advice in cases of possible syphilis and gonorrhea.*

Interesting and encouraging experiments in this direction have been recently made. By the close of the current year, the New York City Department of Health will have aided, through its advisory clinic, more than 3,000 new patients.[1] The Oregon State Board of Health operates a similar department for diagnosis and personal advice, and in addition has developed an extensive correspondence with persons in all parts of the state who write for information. More than 5,000 interviews and letters have been handled in the past four years, the majority of individuals having applied after seeing one of the health board venereal-disease placards. With minor modifications of the general plan, a sufficient number of other health departments are now beginning this work to insure its success in the United States.

3. *Provision of adequate treatment of ambulatory cases free of cost to those requiring public assistance.*

Having provided laboratory and clinical facilities and medical advisers, it is essential to any effective administrative campaign that persons infected with syphilis or gonorrhea shall be given proper treatment and supervision until they are returned to health and are no longer a source of danger to others. These may be divided for practical purposes into ambulatory (those who may come to the physician's office or the dispensary for treatment) and hospital cases. Medical opinion has not been fully formulated as yet on what should constitute admission into these respective groups, but the prevalence of the diseases makes it mandatory that the ambulatory group shall be as large as possible.

Of the ambulatory patients, those who can pay for the services of private physicians are relatively of less danger to the community health than those who must depend on public assistance; but medical records show how very frequently the physician fails to study his venereal cases, and entirely neglects his responsibility for the protection of society and the patient's family. The highest efficiency of the private general practitioner in the treatment of venereal infections must be sought, because, with this more than with any other group of communicable diseases, the practitioner can be utilized as the representative of the health department during the indefinite periods of necessary surveillance.

Without attempting to estimate the percentage of venereal patients who can pay for their treatment and those who cannot, it is known that the proportion of the latter is high. It is also known that a certain percentage constitutes a middle group comprising those who can pay something; the evening pay clinic experiments have demonstrated this fact. Administrative efficiency demands just as good treatment for the indigent case as for the private pay case; administrative economy demands arrangement for such partial payment as may be practicable. In all cases, the interests

1. This number included men and women, 316 of whom came during the first six months in response to a small paid advertisement of free confidential advice carried by the health department in some of the daily newspapers publishing quack notices. These applicants for diagnosis and advice are told the nature of venereal diseases, the danger of improper treatment, and the necessity for strict adherence to their physicians' orders. The danger of discontinuing treatment and the unreliability of the so-called sex disease "specialists" are stated. The importance of continence for the sake of the individual and of society is emphasized. If applicants who require treatment cannot afford the services of a private physician, they are referred to a list of accredited clinics — public and private — for proper attention.

of good citizenship demand conditions under which the self-respect and privacy of the patient may be retained.

There is now being worked out in the United States a number of valuable experiments in free and pay clinics for venereal diseases, and evidence is being collected which demonstrates the need for the enforcement of standards for equipment, service and requirements for discharge of venereal patients from genito-urinary and gynecologic clinics. A recent survey[2] to determine how many clinics in New York were meeting the requirements of the Associated Outpatient Clinics reported only seven approved clinics for syphilis out of twenty-seven, and but four approved out of twenty-six clinics for other venereal diseases. Many of these could, with small effort, meet the requirements, but twelve were found hopelessly bad. Furthermore, in only two of the clinics was detailed analysis of a year's records possible without a prohibitive amount of work. The records of these two clinics showed[3] for gonorrhea only 9.7 and 9.4 per cent., respectively, dismissed as cured. These figures are probably fairly typical of every part of the United States. Dr. Davis of the Boston Dispensary reported 11.4 per cent. of 450 gonorrheal patients as cured; Dr. Sanford of the Lakeside Hospital Dispensary, Cleveland, reported a series in which 12 per cent. were cured. Equally unsatisfactory results have been found in studies of syphilis.

What this means to the public can perhaps be paralleled by the spectacular outbreak of smallpox which occurred in Montreal in 1887 when the panic-stricken inmates of a hospital, after exposure to an unrecognized case, were permitted by the authorities to scatter through the city with the result that several thousand persons developed the disease and many died. Outbreaks of venereal diseases are not spectacular or sudden, nor do the causal organisms find ready opportunity to attack new victims except through the intimate relations of sexual intercourse; but their insidious spread, aided by the prolonged periods of years during which infected individuals may be carriers, makes them far more dangerous than smallpox. In the development of adequate medical and social treatment of ambulatory venereal patients, we have presented to health departments a concrete problem for which solution is demanded by every interest, economic, social and moral.

4. *Provision of adequate hospital facilities, free of cost to individuals when necessary, for syphilis and gonorrhea cases in all stages in which hospital care is an advantage to the patient or a protection to the public.*

In a general way, what has been stated concerning private treatment, pay clinic, and free clinic service for ambulatory cases applies to similar classes of hospital cases. The hospital adds chiefly a bed and the more complete supervision possible through discipline and organized professional and nursing staffs. But these additions in certain manifestations of syphilis and gonococcus infection make all the difference between success and failure. Many experienced physicians believe that the intravenous administration of such remedies as salvarsan, when performed outside the hospital, is attended with serious risk to the patient. Furthermore, such treatment, under the adequate supervision possible in the hospital, is most likely to inhibit the transmissibility of the disease for a considerable period, or even to end its development in early cases. The treatment of many cases of gonococcus infection is surgical, and hospital care is therefore imperative; but there are others frequently denied admission whose prompt recovery and return to normal living and occupation without danger to family or fellow workmen would be greatly increased by those services which can be rendered only under hospital conditions.

There are other reasons why the hospital should be studied as an important factor in the administrative control of venereal diseases. An investigation now being conducted in New York City[4] has shown that of thirty general hospitals only ten receive patients with recognized cases of syphilis in actively infectious stages; but once admitted on some other diagnosis, twenty-seven give care and treatment, although only seventeen provide the service of a syphilologist. Only nine receive adult patients with gonorrheal infection needing hospital treatment, and two of this number specify that only surgical cases are accepted. Three city hospitals receive and treat active gonorrhea in little girls. Thirteen of the thirty will not receive medical cases with known complications of syphilis or gonorrhea. Yet during the past year, 2,607 syphilis cases were treated, according to the reports of only fifteen of these hospitals. Again it may be inferred that these conditions are probably typical of every part of the United States.

The investigation referred to will show the need of developing standard requirements for discharging venereal patients from hospitals. Five hospitals require before discharge of a syphilitic patient three tests, technically designated as (*a*) healed lesions, (*b*) entire disappearance of symptoms, and (*c*) one negative Wassermann; thirteen require none of these. One requires for the discharge of a gonorrheic patient two tests, (*a*) negative complement fixation, and (*b*) negative prostatic massage (for men) or negative cervical smear (for women); fifteen require neither of these. Ten hospitals refer discharged patients to social service departments for some form of follow-up observation. Both patients and public will profit by active health department supervision of conditions for clinic and hospital treatment and discharge of venereal patients.

5. *Extension of hospital social service work to patients with syphilis and gonococcus infection.*

The value of social service for dispensary and hospital patients has been generally recognized for practically every class of diseases except the venereal. To the pioneer activities of the Boston Dispensary in cooperation with the Massachusetts Social Hygiene Society, the social service work of the genito-urinary and syphilology divisions of the Massachusetts General Hospital, and the notable efforts of a few other institutions, the credit is due for the application of social service to syphilis and gonococcus infections. No unusual methods or expenditures are involved. Experienced workers have found it possible to obtain the social histories desired and to secure the interested

2. Barringer, B. S., and Platt, P. S.: A Survey of Venereal Clinics in New York City and a Statistical Efficiency Test, Social Hygiene, i, No. 3, published and reprinted by the American Social Hygiene Association, 105 West Fortieth Street, New York City.

3. The records of the two clinics were:

	Clinic A		Clinic B	
	Number	Per Cent.	Number	Per Cent.
Patients dismissed as cured.....	25	9.7	38	9.4
Ceased treatment improved.....	50	19.3	57	14.2
Ceased treatment unimproved..	184	71.0	308	76.4

4. A joint investigation by the Bureau of Public Health and Hygiene of the Association for Improving the Condition of the Poor, and the Committee on Public Health of the New York Academy of Medicine.

and intelligent cooperation of patients in implicitly obeying instructions for their own treatment and in bringing to the dispensary other members of their families for diagnosis and advice. This work is proving that in social service we have a weapon of very great importance in the battle against venereal diseases, and in addition a service for helpfully dealing with the personal, moral and social problems inevitably involved. The latter benefit probably outweighs the medical value of social service.

PROPHYLACTIC MEASURES

1. *Compulsory notification of syphilis and gonococcus infection to the health department for proper action in protecting the public, due precautions being taken to safeguard the rights and privacy of the individuals concerned.*

The right of society to demand the immediate reporting of each case of a dangerous communicable disease to the health authorities for such action as may be deemed necessary for public protection is established and enforced for many diseases. The notification of venereal diseases is now required by the laws of eleven states and a number of cities, but these laws have thus far not been enforced to any considerable extent. Partly this may be accounted for by the difficulties which operate against all morbidity returns, but largely it is due to three special factors: The public has been in ignorance of the nature and dangers of these diseases; the physician has believed that duty to his patient bound him to silence, and health departments have offered no practical program for dealing effectively with the problems presented by each case reported. None of these difficulties are insurmountable.

California made venereal diseases reportable by case number in November, 1910, for the purpose of developing a basis for correspondence with physicians on specific cases and the problems of public protection involved. New York City later required reports by names and address of all patients in public or charity hospitals and dispensaries, with the purpose of supplementing the work of the medical profession in private cases, by investigation and supervision of those under treatment in institutions which could not follow up their patients. The state of Vermont has enacted a new law[5] which requires the name, address, age and sex of each patient, and provides payment of the physician for reporting, and penalty for failure to report.

With complete notification by physicians and full cooperation with dispensaries and hospitals, a health department is in position intelligently to direct its work of protecting the public from all recognized cases. Reference is made below to measures proposed for securing information of other cases.

The logic of compulsory notification must be recognized. The desirability of proper data and the name of each patient being filed with the health department for identification and reference in future laboratory examinations and action, regardless of whether the patient may have changed physicians, is obvious. Evidence is not lacking to prove that patients receive the best assistance and the public receives the best protection when the physician and the health department work together in full knowledge of who the patient is, where he lives, and how he is occupied. It seems absurd to contend that health departments cannot be made just as trustworthy repositories for personal histories as doctors' offices, private laboratories and hospital wards. In time, it is probable that public opinion will demand that the health officer, as the representative of the people, shall be taken into consultation in dealing with venereal disease patients, just as he is now taken into the confidence of physicians dealing with tuberculosis, typhoid fever and other communicable diseases, which experience has shown may be treated by the private physician, provided the public interest is safeguarded through certain supervision by the health department. All the general arguments for complete reporting of other communicable diseases apply to the venereal diseases.

2. *Instruction of persons exposed in measures for the protection of themselves and their immediate associates.*

To the extent made possible by notification, the most important work in prophylaxis is the instruction of the persons exposed. This implies individual instruction in accordance with the facts for each case. This in turn demands competent, tactful, sympathetic advisers, with time available for getting the facts in each case and using them effectively with the individual. It is in this field especially that the advisory clinic and social service workers are needed. It has been demonstrated that the people will accept and even welcome this service, and that administratively and financially it is practicable.

3. *Promotion of continence as the greatest factor in personal prophylaxis.*

Turning from the problem of those known to be infected, or definitely exposed, to the unknown majority of the population who should be protected by such prophylactic measures as they may apply continuously themselves, or by which they may be protected through official and community action, sexual continence must be acknowledged as the one from which the greatest reduction of venereal diseases would result—provided it could be generally enforced outside of marriage. Evidence is accumulating which shows that the formation of public opinion in favor of continence outside of marriage is steadily gaining ground.

4. *Dissemination of general information concerning syphilis and gonorrhea and their methods of transmission.*

All the arguments which favor the dissemination of information regarding any disease apply to the dissemination of information regarding venereal diseases, but it does not follow that the same methods should be used. Without endeavoring in this paper to discuss the details of this important factor in prophylaxis, it may be said that, through health departments and many other agencies, the work has been well begun. The American Social Hygiene Association[7] has established a national clearing house for information, and many state and city social hygiene societies have been organized to do intensive local work. Other organizations, notably the American Medical Association, have published and distributed large amounts of literature.

5. Sections 3 and 4 of "An Act for the Prevention of Venereal Diseases" effective as a state law, June, 1915, read as follows: "A physician who knows or has reason to believe that a person whom he treats or prescribes for is infected with either gonorrhea or syphilis shall immediately report the name, address, age and sex of such person to the secretary of the State Board of Health, for which report he shall receive the sum of twenty-five cents, to be paid by the State Board of Health. A physician who fails to make such report shall be fined not more than two hundred dollars.

"The State Board of Health shall make and enforce such rules and regulations for the quarantining of cases of gonorrhea and syphilis reported to it as may be deemed necessary for the protection of the public. Said board shall not disclose the names or addresses of such persons reported or treated to any person other than a prosecuting officer or in court on prosecution under this act."

7. American Social Hygiene Association, 105 West Fortieth Street, New York City.

5. *Utilization of approved medical prophylactic measures under adequate restrictions and supervision.*

That society is not opposed to the popularization of methods for preventing the spread of diseases by means of medical applications, or even to the furnishing at public expense and compelling the use of medical prophylactics, is amply demonstrated by numerous instances. The requirement of vaccination against smallpox, the distribution of diphtheria antitoxin, and the preparation and administration of antirabic treatments are concrete illustrations. The opposition to medical prophylactic measures for venereal diseases is based primarily on the public determination to safeguard something it holds far more precious than health, namely, the morals of the community. The approval accorded the use of silver nitrate preparations in preventing gonococcus infection of babies' eyes is direct evidence that objections to the parallel preventive treatment for syphilis and gonorrhea in adults are not based on medical grounds.

Where it is possible, as in the army and navy, for competent officers to instruct men individually in the nature of venereal diseases and the immediate application of medical prophylactics in the event of exposure, some reduction in their prevalence has been obtained; and these measures combined with rigid requirements for reporting and follow-up preventive treatment at military quarters have very largely reduced them.[8] Some of the most experienced officers, however, believe treatment as applied by the medical staff at the military dispensary is the essential factor, and favor the use of the prophylactic packet only by those men who are granted more than ten hours' absence and who cannot be trusted to remain continent. This is such a small number that some officers are opposed to any recognition of self-applied medical prophylactic measures.

In civil life, the difficulties of instructing the general public in the uses and limitations of self-applied medical prophylactics are greatly increased. The moral arguments against attempting any such instruction are admittedly logical and strong; but discarding for the moment the relations of medicine to morals, there remains the argument that such prophylactic measures can succeed in only a percentage of those cases in which adequate instruction has been given and the individual has the intelligence to apply properly the medical preparations immediately or within a few hours after exposure. Obviously these requirements are not likely to be met by the immature boys, the drink-befuddled men, the defective girls, the average prostitutes, who constitute the bulk of the citizens who might be protected by this method. It seems apparent that medical prophylaxis can wisely be made use of only under the advice of physicians who are fully informed of the circumstances in each case, and have opportunity to observe each individual until the danger of infection has passed.

If personal supervision by a physician is an essential for the effective use of medical prophylaxis, it becomes undesirable to advocate publicly such measures for attempted application by individuals without such supervision. The private practitioner, the dispensary officer and the health department staff constitute the qualified persons for the employment of medical treatment designed to prevent the development of venereal diseases *after* exposure. The avoidance of exposure constitutes the best prophylactic measure to be advocated *before* exposure and, since there are no practical methods by which the layman can recognize persons who are infected, this means the practice of continence prior to marriage and selection of a marriage mate who has neither syphilis nor gonorrhea in a communicable form. The need for ample facilities at public expense for advisory clinics and treatment of ambulatory cases has been previously mentioned. These facilities should be extended to include applicants who apply immediately after exposure, as well as those who apply when infection has reached a well-defined stage. As in the use of a medical prophylactic for the gonococcal infection of babies' eyes, so in the common venereal infections the emphasis should be placed on popularizing the need for early and competent advice and treatment, rather than on methods of self-medication.

MEASURES CONTRIBUTING TO THE REDUCTION AND ULTIMATE ERADICATION OF VENEREAL DISEASES

For the purposes of this paper, the measures contributing to the reduction and ultimate eradication of venereal diseases may be passed over with enumeration of the principal ones which every student of the venereal disease problem must recognize to be vitally important:

1. *The repression of prostitution through law enforcement.*

2. *The provision of ample facilities for wholesome play and recreation, and reduction of environmental and social conditions which encourage extramarital sex relations.*

3. *The elimination of alcoholic drinks.*

4. *Promotion of sex education and general standards of personal conduct which are in keeping with high moral principles.*

5. *The encouragement of early marriage after maturity has been attained, and promotion of economic and social conditions conducive thereto.*

OTHER MEASURES

An increasing number of experiments are being tried along lines not specifically mentioned in the foregoing presentation of the program for action reported by the American Public Health Association committee. The so-called health certificate for marriage, or "eugenic law" as it is popularly called, is one of these. The purpose of such laws is primarily to protect matrimony from communicable diseases, particularly venereal diseases, but the administrative basis for such a law has not been satisfactorily developed. Both for the sake of the contracting parties and the children who may be born to them, it is important to develop some plan to meet this purpose, and the private physician and the health department cooperating with the clergy can do a great deal in safeguarding marriage without any law. In foreign countries, as Denmark, Norway and Sweden, where laws of this character have been enacted, the basic principle has been that an individual infected with venereal diseases must not marry unless the other contracting party is informed and both have been given verbal warning of the dangers involved.

A second type of law designed to detect and inhibit the spread of venereal infection is being seriously

8. Thus far the most comprehensive and successful work in the reduction of venereal diseases has been done by the army and navy officers. The extension of their examination methods to applicants for enlistment in all of our large cities is developing a fund of accurate and valuable knowledge concerning a large class of the civilian population. This paper does not permit of quotations from reports, but great benefit may be expected from the cooperation of the military and civil medical authorities in further studies.

tried by the state of Pennsylvania, and New York, Philadelphia and other cities. The purpose is to eliminate, from the occupations connected with the preparation or serving of foods, persons with a venereal disease in communicable form. Thus far it is encouraging that among 40,000 examinations reported in New York, only 3.5 per cent. (including other infectious diseases beside syphilis and gonorrhea) have been "found in such a state of health as to make their employment unlawful." Applicants for pedler's licenses have been examined for venereal infection and either refused the license or given it conditionally on submission to adequate treatment. One such series of over 1,000 cases[9] showed only 8.4 per cent. positive for the Wassermann test for syphilis.

As a matter not of law but of public or business policy, many institutions require physical examination of employees, including tests for venereal diseases. The United States Army and Navy are doing notable work in their endeavor to eliminate from admission applicants with venereal infection. The Rochester Health Department through its infectious disease division is effectively cooperating with employers of men. Railroad and other business corporations with sick-benefit and pension systems, life insurance companies, and other organizations similarly protect themselves so far as practicable by examination of candidates for employment. Certain colleges include observation for venereal infections as a part of the required physical examination on entrance, and many hospitals require information on the diagnosis of each patient received, refusing admission to those with venereal diseases.

Many experiments have been made and will continue to be made to develop effective and safe methods for immunizing against syphilis, and especially against gonorrhea, but none of them have reached the stage of scientific recognition which warrants discussion of their administrative application. In venereal infections, as in other infectious diseases, according to the intelligence of the individual and his family, and the adequacy of the medical services provided, the patient may be allowed full liberty in the community or should be kept under close supervision by the health authorities. Obviously, there are certain occupations in which an infected person may engage without endangering others through the necessary relations of business. The night watchman, for example, does not present the same occupational problem as the barber or the waiter. Quarantine or other form of segregation during the entire period of danger to others is impracticable in any but the most dangerous cases. It is probable that, as the program for administratively dealing with venereal diseases progresses, ways for protecting the public from them will be devised without unduly limiting the liberty of any but the few who, through special circumstance, low mentality or exceptional antisocial tendencies, must be properly segregated as dangerous carriers. In dealing with tuberculosis, the people have decided that it is wise to appropriate immense sums for sanatoriums, for treatment, for labor bureaus to place convalescents in occupations which will safeguard the public and benefit the patient, and for dispensaries to begin and end the public supervision of infected individuals. Venereal diseases constitute an equally serious problem which the public must attack in an equally thorough manner.

Sterilization of infected persons has frequently been advocated to the confusion of the public health program, as it must be evident that artificial sterility, like the involuntary sterility due to gonorrhea, can do nothing in the campaign for prevention, except for the next generation by ensuring that no infected children will be born. The advocates of a number of measures such as this are confusing the venereal disease problem with the application of the principles of heredity.

Another proposal which seems unwise as a public health measure is the penalizing of infected individuals. For disciplinary purposes, as illustrated by the reduction of pay in armies and navies during the period of illness from venereal disease, or financial reasons, as in the barring of this class of patients from medical benefits in fraternal orders, or for other reasons, such measures may in their narrow application seem justified. But this whole group of procedures has little to show as concrete evidence of being effective against disease or even a deterrent of immoral practices.

IN CONCLUSION

It must be emphasized that the public should clearly understand that medicine and morals have a large common ground of interest in the prevention of syphilis and gonococcus infections. Every effort should be made to develop the same attitude toward these diseases that is manifested toward other dangerous communicable infections, that is, one of sympathy and assistance for the individual during illness and recovery, and searching inquiry into the source of the infection and the community conditions which may have contributed to the opportunity for infection. The social ostracism often exhibited without any endeavor to deal constructively with the problem avails nothing either for medicine or morals. It is possible to deal scientifically with venereal diseases and at the same time to advocate that every individual should know that sex relations outside of marriage not only expose him to diseases which may prove disastrous to himself and others but will unfit him for his highest efficiency in citizenship, marriage and parenthood, and that society has a right to expect each man and woman to set for younger people an example of self-respect and self-control in accordance with the standards of moral living which the experience and suffering of past generations have developed.

9. Social Hygiene, ii, No. 1, p. 140. The other figures quoted here are given for comparison of pedlers with certain other groups of the population:

	Number Examined	Positive Number	Positive Per Cent.
Tombs Prison (men awaiting trial)	446	49	10.9
Hart's Island Reformatory (boys)	544	37	6.8
Bedford Reformatory (women)	191	78	40.8
Penitentiary, Blackwell's Island (mixed)	253	62	24.5
Workhouse, Blackwell's Island (mixed)	3,046	1,468	48.2
Applicants for license to peddle	1,117	91	8.4

The Social Background of School Hygiene Work.—What is the value of and the motive force for all the health work, in school and out of it, that is now being undertaken? One can readily see that it has far reaching social, economic and moral phases. Evidently it is an attempt to make sanitation universal, to eliminate preventable disease, to perfect the social and individual health status. It means increased human efficiency, greater earning capacity, a normal social life and a better physical foundation for sound social and spiritual growth. It indicates that society is attempting to meet its social responsibility by protecting the whole of human kind from the menace of its defective members. It recognizes that one of the keenest socio-sanitary indices of a community's life is the care which it takes of its future citizens.—Donald B. Armstrong, M.D., *American Journal of Public Health*, December, 1915.

THE EFFECTS OF TETHELIN

ACCELERATION IN THE RECOVERY OF WEIGHT LOST DURING INANITION AND IN THE HEALING OF WOUNDS *

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I have recently succeeded in isolating the growth-controlling principle from the anterior lobe of the pituitary body. The methods of isolating the substance, its chemical properties and physiologic actions

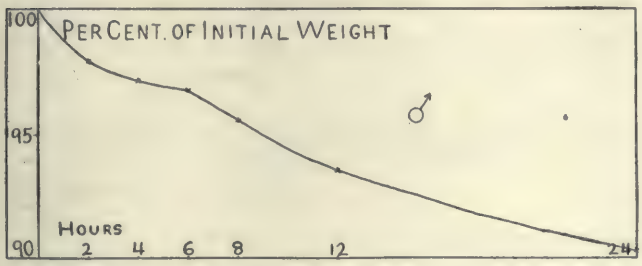


Chart 1.—Loss of weight of male mice during twenty-four hours' deprivation of food.

and the evidences of its identity with the growth-controlling principle are contained in articles which have been published elsewhere.[1] Briefly summarized, however, the method of isolating the substance, which I term "tethelin" (from τεθηλώς, growing), is as follows:

The dried tissue of the anterior lobes of ox pituitaries is extracted with boiling absolute alcohol, and the solution is evaporated under reduced pressure until solid material begins to separate out on cooling. To this solution are added one and one-half times its volume of dry ether. The substance is thus precipitated, and after washing in large volumes of alcohol-ether mixture containing alcohol and ether in the above-mentioned proportions, it may then be dried and pulverized.

Tethelin is soluble in water to the extent of about 5 per cent. It is also soluble in alcohol, ether, chloroform and carbon tetrachlorid. It is insoluble in a mixture of one part by volume of absolute alcohol and one and one-half parts by volume of dry ether. It contains 1.4 per cent. of phosphorus, and nitrogen in the proportion of four atoms of nitrogen for every atom of phosphorus, two of the atoms of nitrogen being present in amino groups and one in an NH group which is converted into an amino group by hydrolysis with barium hydroxid. It yields unsaturated fatty acid soaps of barium on hydrolysis with barium hydroxid, and among the products yielded by hydrolysis with barium hydroxid followed by hydrolysis with dilute sulphuric acid is found i-inosite.

Tethelin is very markedly hygroscopic, absorbing water rapidly from moist air. On standing after pulverization in contact with air in the presence of traces of moisture it darkens perceptibly in color, and its iodin absorption value decreases. This decomposition is accelerated by warming. If packed in evacuated glass tubes, however, and perfectly dry it may be heated to 80 C. (176 F.) without any perceptible discoloration.

Tethelin probably contains an iminazolyl group, and to this extent may be regarded as being related to the physiologically active substances of the *posterior* lobe of the pituitary body.[2] It is not, however, possessed of the characteristic physiologic activity of these substances, relatively large doses administered intravenously to rabbits (50 mg. per kilogram of body weight) producing only a very slight, transient *fall* in blood-pressure, and no diuresis.

The average yield from 300 ox pituitaries is found to be from 2.6 to 3 gm.; each anterior lobe, therefore, may be estimated to yield about 10 mg. of tethelin.

The action of tethelin in doses of 4 mg. per diem administered by mouth to mice between 4 and 60 weeks of age consists in a marked retardation of the early (preadolescent) growth in weight, and an equally marked *acceleration* of postadolescent growth. Mice which have received tethelin are much more firmly and compactly built than normal animals of the same age. Weight for weight, the tethelin-fed animals are smaller than normals, and size for size they are heavier. The favorable effect on the nutrition of the skin is exceedingly marked. The coats of adult male animals which have been fed with tethelin retain, even at 14 months of age, the glossy, silky appearance of the coats of young animals. Normal males even six months prior to this age have shaggy, "staring" and discolored coats.

Since tethelin, at all events subsequently to adolescence, would appear to be a strong stimulator of growth, it appeared probable that it might also accelerate that species of internal growth which consists in the replacement of tissue lost through excessive tissue waste consequent on any circumstance leading to an increase in nitrogen output (for example, fevers) or a curtailment of nitrogen input (for example, inanition). Accordingly the following investigations were undertaken:

Ten male and ten female mice, all about 7 months of age, were deprived of food, but allowed free access

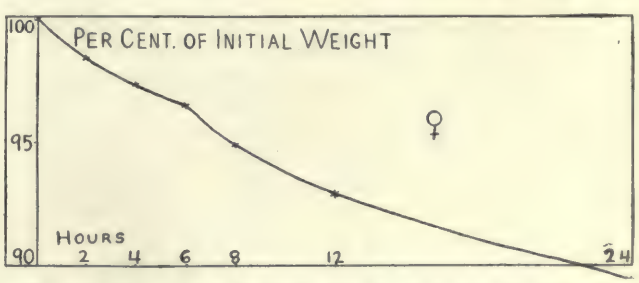


Chart 2.—Loss of weight of female mice during twenty-four hours' deprivation of food.

to water, for a period of twenty-four hours. They were weighed to the nearest tenth of a gram at the beginning of the period of fasting, and at 2, 4, 6, 8, 12 and 24 hours after the initiation of the period of fasting. The results, with the average weights expressed as percentages of the initial weights, are given in Table 1.

These results are plotted in Charts 1 and 2. It will be observed that there is a sharp break in the curves at 6 hours, accompanied by an acceleration of the rate

* From the Rudolph Spreckels Physiological Laboratory of the University of California.

1. Roberston, T. B.: Jour. Biol. Chem., 1916, xxiv, 397, 409.

2. Compare Barger, G., and Dale, H. H.: Jour. Physiol., 1910, xli, 499. Dale, H. H., and Laidlaw, P. P.: Jour. Physiol., 1911, xliii, 182. Aldrich, T. B.: Jour. Am. Chem. Soc., 1915, xxxvii, 203.

of loss of weight. This probably indicates that at the end of six hours' fasting the alimentary canal is completely emptied of its contents; the subsequent loss of weight must therefore largely if not wholly be due to actual loss of tissue substance. At the end of twenty-four hours the animals were visibly enfeebled, and the weight lost was from 10 to 11 per cent. of the original weight.

The animals were now divided into four batches of five males or females each. One batch of males and

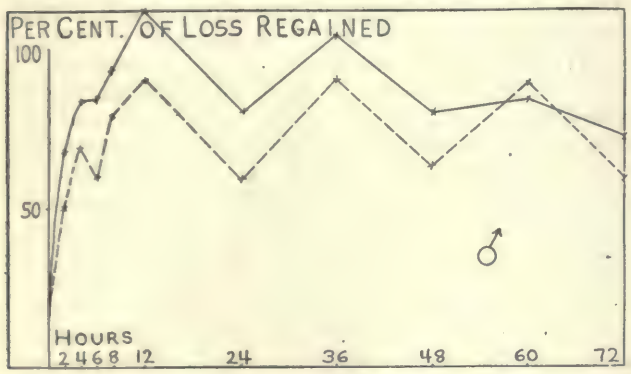


Chart 3.—Effect of 10 mg. of tethelin in accelerating the restoration of weight lost by male mice during twenty-four hours' deprivation of food: solid line, tethelin; broken line, normal.

one of females were "treated," that is, received a hypodermic injection of ⅓ c.c. of a 3 per cent. solution of tethelin (10 mg.) each. The other two batches were employed as "controls" and received no tethelin. The animals were all simultaneously given access to an abundant supply of a variety of foods (rolled barley, dried bread and mixed white and yolk of egg). They were again weighed after 2, 4, 6, 8, 12, 24, 36, 48, 60 and 72 hours, being abundantly supplied with food throughout the entire period. The results are given in Tables 2 and 3, the gains in weight being expressed as percentages of the loss regained.

The results are also depicted graphically in Figures 3 and 4. It will be seen that the administration of

TABLE 1.—LOSS OF WEIGHT DURING TWENTY-FOUR HOURS' DEPRIVATION OF FOOD

Time	Average Weight Per Cent. Males	Females
0 hours	100.0	100.0
2 hours	98.0	98.4
4 hours	97.2	97.4
6 hours	96.8	96.5
8 hours	95.6	94.9
12 hours	93.6	93.0
24 hours	90.3	89.4

tethelin leads to a very remarkable acceleration of the regain in weight following admission to food after inanition in both sexes. The actual weight of fluid administered hypodermically to the treated animals being only about 0.3 gm., or 0.1 per cent. of the weight of the animals, the mere weight of fluid administered could have no influence on the results, which must be attributed solely to the stimulation of tissue repair by tethelin. The stimulating effect evidently persists for at least thirty-six hours.

Another form of tissue repair consists in the *healing of wounds*. While experiments on animals and especially on mice do not afford the most satisfactory means of investigating this process, yet the following results are highly suggestive:

Twenty mice (fourteen males and six females) were wounded (under ether anesthesia) by removal with the aid of a punch (similar to a ticket-punch) of a disk of skin from 2 to 3 mm. in diameter from the sides or flanks of the animals. Ten of the animals (seven males and three females) received at the same time and every third day thereafter 10 mg. of tethelin dissolved in ⅓ c.c. of water and administered hypodermically on the side remote from the lesion. The remaining ten animals were used as "controls." All of the

TABLE 2.—WEIGHT REGAINED BY MALE MICE AFTER RESUMPTION OF FEEDING

Time	Percentage of Loss Regained Controls	Treated
2 hours	50	68
4 hours	70	84
6 hours	59	84
8 hours	79	96
12 hours	91	112
24 hours	59	80
36 hours	91	104
48 hours	63	80
60 hours	89	84
72 hours	59	72

TABLE 3.—WEIGHT REGAINED BY FEMALE MICE AFTER RESUMPTION OF FEEDING

Time	Percentage of Loss Regained Controls	Treated
2 hours	33	54
4 hours	33	54
6 hours	33	49
8 hours	50	70
12 hours	83	108
24 hours	54	83
36 hours	104	117
48 hours	67	78
60 hours	100	87
72 hours	79	75

animals were about 7 months of age. The following were the results obtained:

At the end of *three* days in the control animals the cavities of the wounds were incompletely filled with red or yellowish granulation tissue; the area of the lesions was not contracted, and the edges were in several instances inflamed. In the *treated* animals, all of the wounds were completely filled with granulation tissue, the area of the lesions had markedly contracted,



Chart 4.—Effect of 10 mg. of tethelin in accelerating the restoration of weight lost by female mice during twenty-four hours' deprivation of food: solid line, tethelin; broken line, normal.

and no swelling was observed at the edges of any of the wounds.

At the end of *six* days in the control animals the cavities of the wounds were now completely filled with granulation tissue, and the area of the lesions had begun to contract. In the *treated* animals, on the other hand, the granulation tissue had already and in every instance been completely replaced by white cicatricial tissue.

At the end of *ten* days the wounds in two of the *control* animals were still filled with granulation tis-

sue, the granulation tissue having been replaced by scar tissue in the remainder. The condition of the wounds in the treated animals remained unaltered.

SUMMARY

Experimental results indicate that tethelin, the growth-controlling principle isolated from the anterior lobe of the pituitary body, exerts, when administered hypodermically to mice, a remarkably stimulating action on tissue repair, as expressed in the replacement of tissue lost during a preceding period of inanition or in the healing of granulating wounds.

CHRONIC URETHRITIS IN WOMEN

A NEW METHOD OF DIAGNOSIS AND TREATMENT IN OBSCURE URETHRAL PAIN

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Chronic urethritis in women is much more common than is generally recognized. The symptoms are not always typical, and may not be referred directly to the urethra; but when a woman complains persistently and consistently of symptoms in the region of the pelvis, the urethra should not be overlooked as a possible source of the trouble, especially if no other pathologic condition can be found.

The pathologic findings in chronic urethritis are variable. The urethra may occasionally be thickened throughout from infiltration, and can then be felt as a more or less firm cord by the vagina. Through the endoscope the mucosa may have a congested appearance and may be puffy and edematous and appear granular. The vessels may be enlarged in places and even exposed, and definite ulcerations found. The congested, puffy, granular picture is the one most frequently seen. It may be diffuse, involving the entire urethra, or it may be patchy or limited to one or both ends. There is often bleeding after instrumentation. In some cases there may be a purulent secretion in the urethra, and this secretion may be seen exuding from the gland openings. This has been the exception, however, in the cases which I have encountered.

Many of the cases of chronic urethritis in women are mistaken for cystitis, the diagnosis being made on symptoms alone; and without further investigation than the examination of a voided specimen, in which some pus cells are nearly always present, irrigations of the bladder are instituted without relief of the symptoms. Irritation from repeated catheterizations may set up a urethritis, and will certainly aggravate an already existing inflammation in the urethra. There may be a chronic urethritis as a sequel to a cystitis, and there may be a chronic cystitis or trigonitis accompanying it. In such cases treatment is usually directed to the bladder alone, whereas the urethra is often accountable for a great deal of pain and discomfort. In all chronic conditions of the lower urinary tract in women, attention should be given to the urethra as a possible source of at least a part of the symptoms. In cases of chronic cystitis I have often found that, by treating the urethra at the outset, the pain could often be relieved before the bladder condition was improved at all.

The most constant symptoms are frequent and painful urination, usually burning, and there may even be vesical tenesmus. All degrees of these symptoms are seen. In the severer cases there may be a more or less constant pain of throbbing character in the region of the urethra or vagina. Some patients will have sharp, lancinating pains in the urethra. Reflex pains may be present, referred to the vagina, uterus, coccyx, rectum, etc.

In many of the cases the etiologic factor is obscure. When there has been a preexisting cystitis or acute urethritis, or when urinary infection is present at the time of examination, the causation is clear. But the condition may develop without any preceding local symptoms and with no urinary infection demonstrable. Several years ago Hunner pointed out the fact that ureteritis and urethritis were not uncommonly found in women as sequelae to chronic infections elsewhere, as infected tonsils, nose and ear infections, etc. I have seen chronic urethritis a number of times in women who suffered from an enterocolitis, and also apparently secondary to a pyorrhea alveolaris. Infection from without must also be considered. The female urethra may constantly harbor all sorts of organisms, owing largely to the close proximity of the anus and vagina. Such organisms are nonpathogenic under ordinary conditions, but they may become pathogenic under various stimuli. The *Staphylococcus albus, aureus* and *citreus,* the streptococcus, the *Micrococcus catarrhalis,* the *Bacillus lactis aerogenes,* the pneumococcus, the *Bacillus pyocyaneus* and many others have been cultivated from the urethra. Irritation and trauma from intercourse or masturbation, congestion from menstruation, etc., may be sufficient to activate these organisms. In hot weather when the patient is perspiring, and not drinking much water, the urine may become concentrated and cause irritation which may end in urethritis.

Treatment in these cases is best carried out by direct application of silver nitrate to the mucosa through a cystoscope or vesical speculum. I use a 5 per cent. solution as a rule, but sometimes use as strong as 10 per cent., and have used a 20 per cent. solution once or twice over limited areas. The treatments should be repeated from every three to five days. Dilating the urethra with sounds or dilators, in addition to the other treatment, is often beneficial, and gentle massage along the urethra, while the dilator is in place, may help. In milder cases, instillations of one of the colloidal silver preparations, such as cargentos or argyrol, may be sufficient to give relief. Instillations of iodin crystals, 0.3 gm. in 30 c.c. of liquid petrolatum, following dilatation and massage, may also be used. The best results, I think, are obtained from the applications of the straight silver nitrate solutions.

About eighteen months ago[1] I reported a series of thirty-two cases of chronic urethritis. Since then I have had twenty more cases. Of these fifty-two patients, sixteen had a simple urethritis without any accompanying trouble or history of a cystitis or acute purulent urethritis. One patient also had a ureteritis; twenty-nine had either a preexisting cystitis or some form of chronic urinary infection, such as cystitis, trigonitis or pyelitis, at the time I saw them; two had incontinence due to relaxed vesical sphincters.

Five of these patients were sent to me for diagnosis alone, and two others stopped treatment before any

1. Shallenberger, W. F.: Some Diseases of the Female Urethra, read before the Fulton County Medical Society, Atlanta, Ga.

results were obtained. Of the remaining forty-five, thirty-nine have been cured, three are still under treatment and are improved, and the other three have been greatly relieved of their symptoms.

It usually requires from four to eight applications of the silver nitrate to effect a cure, though some patients require many more than this. It is obvious that, when the etiologic factor is a tonsillitis or some similar condition, this should also receive its full share of attention.

CASE 1.—A patient referred to me by Dr. McRae had suffered from a chronic urinary infection for ten or twelve years. At the time that I saw her she had a colon bacillus cystitis and left pyelitis. There was no stone in the left kidney, and both kidneys were functionating well. She suffered intensely with pain and burning in the bladder and urethra, and increased frequency of urination. During the time that she had had the infection she had been treated by at least half a dozen different physicians. The bladder had been irrigated with all the different solutions, retention catheters had been tried, and all the urinary antiseptics had been used with no results, and during this time the urethra had never been touched. I at once directed my attention to the urethra, and after five or six treatments the pain was almost completely relieved. The pyelitis and cystitis are still present, for I have been unable to clear up the infection; but the pain can be controlled by treatments of the urethra. The patient is very large and fat, and objects strenuously to ureteral catheterization; therefore I was forced to abandon pelvic lavage, which I tried a few times in an effort to clear up the infection on the left side. She has been coming to me off and on for over two and a half years. If she stays away for any length of time the pain and burning comes back and she suffers as much as ever. But a few more treatments of the urethra soon relieve her. As long as the infection continues in the left pelvis and the bladder, she will have this urethritis. The important thing in this case is the fact that the seat of the pain seems to be entirely in the urethra, and the pain can be controlled by urethral treatments.

CASE 2.—Another patient had very severe attacks with the bladder, which necessitated the use of morphin to give relief. She had had the bladder irrigated for several months with no results. This patient was completely relieved by eight treatments with silver nitrate, and has remained well during the two and a half years since the last treatment.

The only patient whom I have treated and have been unable to relieve by the usual means as given above is the one with whom I worked out the new method that I wish to report. The method is that of nerve-blocking of the urethra.

CASE 3.—This patient was referred to me by Dr. McRae in October, 1913. She then had typical attacks of Dietl's crises with irritability of the bladder and pains in the urethra. There was no urinary infection and no stone. A collargol pyelograph showed a definite kink in the left ureter. I did a nephropexy, and the Dietl's crises were relieved, but not the bladder irritability and urethral pain. In spite of everything that I tried, this continued and the patient suffered intensely at times. Instillations of cocain and novocain solutions into the urethra always gave partial temporary relief; therefore I felt that it was the seat of the trouble. I finally tried blocking off the urethra by infiltrating the paraurethral tissue with a 1 per cent. novocain solution. This gave complete relief which lasted nearly twenty-four hours. I then injected alcohol, 60 per cent., after first infiltrating the tissue with novocain. The end-result was good and the patient remained comparatively easy for about two weeks, but the pain at the time of the injection was very severe in spite of the preliminary novocain infiltration. Therefore, I tried a solution of the novocain, 0.3 per cent., with quinin and urea hydrochlorid, 0.5 per cent., which gave excellent results. The patient has been more or less comfortable ever since (nearly three months). There have been slight pain and discomfort occasionally, but never any of the severe attacks like those which she had had before, and she will go for days without any symptoms whatever. I have also used this method in Case 1, and so far the relief has been complete. It has been only about a week, however, and so I cannot tell how permanent the result will be with her.

Aside from a means of giving relief in these intractable cases, this method affords a means of diagnosis in obscure cases of urethral pain, for, if we get cessation of pain by blocking off the urethra, we can be reasonably certain that it is the seat of the trouble. It could likewise be used to lessen the pain in cystoscopic examinations in patients in whom the urethra was sensitive and tender.

In conclusion I urge that the female urethra be given more attention as the possible seat of the trouble, especially in cases of obscure pelvic pain, and I wish to emphasize the importance of chronic urethritis as the cause of symptoms in many cases in which it has often been overlooked. I also wish to suggest nerve-blocking of the urethra in intractable cases, not only for the relief that may possibly be given, but also as a means of diagnosis.

THEORIES OF THE ETIOLOGY OF PERNICIOUS ANEMIA*

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The etiology of pernicious anemia belongs to that pleasant group of subjects which are always agreeable to discuss because our ignorance concerning them is so extensive that it is very easy to have a great deal to say about them. Indeed, when one considers the enormous amount that has been written relating to this disease and the comparatively small kernel of truth which it contains, a certain saying of Goethe's seems particularly appropriate:

> Denn eben wo Begriffe fehlen,
> Da stellt ein Wort zur rechten Zeit sich ein.[1]

During the past five years, for various reasons, among others the wider resort to splenectomy and transfusion as measures of treatment, interest in the disease has been greatly stimulated, and there is real difficulty in determining which topics to select for discussion. I must therefore at once disclaim any intention of attempting completeness in what I have to say, and purpose simply to present briefly some of the views which lately have been developed and which seem especially significant.

Even the most casual allusion to the subject, however, is hardly reasonable without a reference to the changes we are tending to adopt in our conception of the different types of anemias, owing to the somewhat clearer insight we are gaining into their nature, and a comprehension of this altered point of view is necessary in order to understand the relation which pernicious anemia is now believed to bear to the other forms. Even at this date the difficulties in attempting to establish a rational plan of classification are very great, because some of the fundamental facts needed are still lacking, and because we are not altogether certain as to what are the important and basic criteria

* From the Laboratory of Clinical Pathology, Department of Medicine, Columbia University, College of Physicians and Surgeons.
* Read before the Section on Medicine, New York Academy of Medicine, Jan. 18, 1916.
1. "When ideas are lacking, words are easily used to replace them."

by which the different groups are to be separated, and what are merely unimportant and superficial differences.

A distinction between so-called primary and secondary anemias has long been current, the former being regarded as true diseases of the blood, and the latter as more or less symptomatic manifestations of other conditions having a well understood nature and etiology. It is clear, however, that this view must be abandoned, for, logically considered, there can be no such thing as a primary anemia, since the blood is not itself an organ, but is the direct product of the activity of the various hematopoietic organs or systems, and in a sense may more properly be regarded as a secretion than as an organ. The erythrocytes, having relinquished their nuclei, have no longer the right to be considered as true cells, and even the circulating white cells have only to the slightest degree, if at all, the power of reproduction. So the blood cannot be considered as being the seat of a primary disease any more than can the gastric juice, for example, and it must be conceded that all anemias are, strictly speaking, secondary.

To classify them arbitrarily as cryptogenetic or phanerogenetic accordingly as we are acquainted with, or ignorant of, their nature is equally unreasonable, and has not even the merit of expediency, for it leads to such extraordinary associations as placing two of the most antithetical diseases of all, pernicious anemia and chlorosis, in the same group — surely two of the most uncongenial nosological bedfellows imaginable.

The anemic state in the last analysis is the result of a disturbance of the normal equilibrium between blood destruction and blood production, and we find that in one group of anemias it is chiefly the former process which predominates, while in another it is a deficiency of the latter. Therefore a wholly reasonable attitude is to divide the anemias into two broad classes, one of which embraces those types in which the most conspicuous element is a reduction in the production of blood elements, while in the other group the significant feature is their abnormal destruction. To the former belong the anemias due to cachexia, wasting diseases, tumors and some of the toxic anemias, as well as the very special and distinct form of aplastic anemia, and the interesting type known as osteosclerotic anemia, to which attention has lately been called by Assman,[2] Reich[3] and others. In the other group come first the anemias due to loss of blood through hemorrhage, either acute or chronic, and the entire class of so-called hemolytic anemias, such as those caused by hemolytic poisons of definite nature, like pyrodin, phenylhydrazin, nitrobenzol, toluylendiamin, acetanilid, potassium chlorate, etc., and by those of a vaguer character, like the toxins of certain intestinal parasites, malarial organisms, or those sometimes produced in pregnancy, syphilis and carcinoma. Then there are the various types of hemolytic icterus, and finally the progressive pernicious or Biermer's anemia.

Chlorosis, being so essentially a disease *sui generis*, depending most probably on a constitutional anomaly of the internal secretion of the female sexual glands, and differing in such fundamental characteristics from the other forms of anemia, can hardly be linked with any of them, and would better be dignified by a separate pigeonhole all to itself.

Pernicious anemia accordingly finds its place with the hemolytic anemias, that is, those in which the most striking pathogenic feature is the fact that there is abnormally great cell destruction with a pathologically increased demand on the blood-forming tissues, rather than an inadequacy of these to meet the normal needs. Yet there is more at work than a mere hemolytic agency, for in hemolytic icterus, for example, there are also evidences of severe hemolysis, yet the anemia rarely takes on a very grave character. Evidently, in pernicious anemia the myeloid tissue also is deeply implicated by the hemolytic factor and finally becomes bankrupt under the double strain of supplying the abnormal demands on its hematopoietic function and in resisting the direct onslaught of the myelotoxic substance. It should be noted, however, that the state of utter marrow exhaustion existing in the so-called aplastic anemia is of totally different nature, and is not to be considered as the end stage of, or an unusually severe form of, pernicious anemia.

Aplastic anemia, which is characterized by great reduction in platelet formation and a strong tendency to bleeding, is to be classed with the hemorrhagic or purpuric diseases, for it is primarily a leukomyelotoxicosis, rather than a hemolytic anemia, and can be produced experimentally by benzene (benzol, C_6H_6) poisoning or with Roentgen rays.

We therefore conceive of pernicious anemia as being a chronic hemolytic anemia, the result of the action of certain hemolytic agencies, probably of varying natures, which are distinctive in that they evoke a special type of regenerative response on the part of the blood-producing organs which gives a perfectly definite clinical picture. Since both the blood changes produced and the alterations in the blood-forming tissues recall the conditions observed in the developing embryo, this so-called reversion to the embryonal type of hematopoiesis is regarded as a fundamental concept in the picture of the disease. These manifestations comprise in the circulating blood the well known factors of high color index, macrocytosis, the presence of megalocytes and megaloblasts, leukopenia and relative lymphocytosis. At the same time the bone marrow bears evidence to its overstimulation through the conversion of the normally fatty marrow of the long bones into actively functionating hematopoietic centers with erythroblasts, megaloblasts and megalocytes, as well as myeloblasts and myelocytes, though the actual output of leukocytes is always reduced. Further evidence of the active efforts at hematopoiesis is offered by the presence, as shown by the observations of Meyer and Heineke[4] and others, of extramedullary foci of erythropoietic and myeloid tissue in the spleen, the liver and possibly in the lymph glands. As a rule, however, the lymphoid system as such shows no manifestations of stimulation, and the production of lymphoid cells is never increased.

It is this simulation of conditions existing in the organs and in the blood-forming mechanism during intra-uterine life that constitutes the reversion to the embryonic type of hematopoiesis considered so characteristic of pernicious anemia. On the other hand, in osteosclerotic anemia, in which the bone marrow is gradually crowded out of existence by the encroaching bony new growth, there is also a development of myeloid foci in other tissues; but though the circu-

2. Assman: Beitr. z. path. Anat. u. z. allg. Path. (Ziegler's), 1907, xli, 565.
3. Reich: München. med. Wchnschr., 1915, lxii, 944.
4. Meyer and Heineke: Tr. Deutsch. pathol. Gesellsch., 1905, ix, 226; Deutsch. Arch. f. klin. Med., 1907, lxxxviii, 435.

lating blood shows a high hemoglobin index and megaloblasts may be found, the presence of a leukocytosis and myelocytosis always distinguishes the picture from that of pernicious anemia, since the lesion of the bone marrow is not at all a toxic one.

In dealing with clinical cases it must be borne in mind that the blood picture is subject to great variations during the course of the disease, and that during remissions some of the characteristics, for example, the presence of megaloblasts, may be lacking, so that the other symptoms, such as increased urobilin excretion in stool and urine, yellowish tinge to the skin, fever, gastric symptoms, glossitis, spinal cord lesions, etc., must also be taken into account in making the diagnosis, while the blood picture alone may also, to a very considerable degree, be simulated in other types of hemolytic or chronic hemorrhagic anemia.

Granted that the disease is a primarily hemolytic one, the question as to the origin and nature of the hemolysins remains to be solved. In some cases the *materia peccans* is definitely known. For example, there is no doubt as to the rôle played in the bothriocephalus anemia by cholesteryl oleate, the cholesterol ester of oleic acid set free by the decomposing segments of this worm; and in the hemolytic anemia of pregnancy a definite hemolytic agent seems to have its origin in the placenta. Numerous authors have described hemolytic extracts obtained from the mucosa of the gastro-intestinal tract, spleen, etc., but this evidence is still incomplete, for active blood-dissolving agents can also be obtained from the organs of persons not having suffered from anemia, while the atrophic changes of the gastric and intestinal mucosa, formerly considered a typical portion of the picture, have been shown by Faber and Bloch[5] often to be absent or very slight if postmortem changes are avoided by the injection of liquor formaldehydi promptly after death. A curious fact has been pointed out by Hunter,[6] in support of the view that the disease is produced by toxins absorbed from the mouth or gastro-intestinal canal and acting through the portal circulation, for it appears that the liver in pernicious anemia may contain many times its normal amount of iron, resulting from red cell destruction, while the spleen shows no such increase, as would be expected if the hemolytic substances acted in the general circulation.

That the spleen plays an important rôle in pernicious anemia, and especially in hemolytic icterus, is also certain; but even the enormous amount of very fruitful work done in this field by Pearce[7] and his collaborators has as yet failed to clear up the situation definitely, and evidently some further extrasplenic factor or rather factors are involved. As Türk[8] puts it, "The hemolytic diseases are the children, and the spleen is their mother, but the father is still unknown, and possibly there are several fathers." Results of some significance have been obtained by Iwao,[9] who has been working on amino acids in Sasaki's Laboratory in Tokio. By injecting p-oxy-phenyl-ethyl-amin into guinea-pigs he was able to produce a blood picture closely resembling that of pernicious anemia. That of itself is not remarkable, since there are other substances that will produce a similar effect; but p-oxy-phenyl-ethyl-amin, or tyramin which has been isolated from putrefying meat, Swiss cheese and ergot can also be produced from tyrosin by the action of various bacteria, notably the colon bacillus, so that we have here the demonstration of the strongly hemolytic activity of a substance which can be, and no doubt is, produced in the human intestine. A recent theory, also implicating the gastro-intestinal tract, is that of Cederberg,[10] who believes that pernicious anemia is really a manifestation of anaphylaxis resulting through the absorption from the bowel of the body foreign protein, taking as a starting point the observation that animals dying of anaphylactic shock show a certain amount of hemolysis. In pernicious anemia a constitutional defect of the intestinal mucosa is presupposed which permits the incompletely broken down albumins to seep through into the blood stream and act as hemolytic agents.

Of interest is the work that has lately been done on the pernicious anemia of horses. This is a disease which is not infrequent in some parts of northeastern France and central Europe. The affected animals develop an anemia which has much in common with the pernicious anemia of human beings. There is an extreme anemia with a high hemoglobin index, intense polychromatophilia, leukopenia, relative lymphocytosis, disappearance of eosinophils, and reduction of platelets. The bone marrow is hyperplastic and shows evidence of abnormally active hematopoiesis and leukopoiesis. Foci of myeloid cells develop in the spleen and liver, and these organs, as well as the bone marrow, resemble those of embryos before the seventh month. An acute form of the disease is observed which terminates fatally in a week or two, with all the manifestations of an acute infection, while the chronic form may proceed for months or even up to a year. It has been considered that the disease is of an infectious nature, for it can be transmitted to horses and donkeys by the injection of serum from diseased animals, but not to animals of other varieties. The virus is resistant to drying, for the dried serum loses its infectiousness only after seven months, but it is rendered inactive by heating for one hour at 58 C. (136.4 F.).

Observations recently made by Seyderhelm,[11] if substantiated, may prove of some interest in connection with the etiology of human pernicious anemia. This worker made necropsies on eighty-one horses suffering from the disease, and found that in every case the stomach contained the larvae of several varieties of fly belonging to the *Oestridae*. It was possible to extract from the bodies of these a toxic agent of great activity, so strong indeed that in one case the injection subcutaneously of an extract of four of the larvae killed a horse in twelve minutes. The behavior of this toxic substance, which Seyderhelm calls oestrin, indicates that it is of purely chemical nature, for it withstands heating in the autoclave. Its administration to horses gives rise to an anemia in all respects resembling the spontaneously occurring disease, and the blood of these animals transmits the affection to others, though the newly formed poison differs from the old in being thermolabile. Oestrin, therefore, appears to be a substance which is able to produce in the body a chemical

5. Faber and Bloch: Ztschr. f. klin. Med., 1900, xl, 98; Arch. f. Verdauungskr., 1904, x, 1.
6. Hunter: Severest Anemias, London, 1909, p. 110.
7. Pearce and collaborators: Numerous papers in the Journal of Experimental Medicine, 1912, 1913, 1914 and 1915.
8. Türk: Deutsch. med. Wchnschr., 1914, xl, 371.
9. Iwao: Biochem. Ztschr., 1914, lix, 436.
10. Cederberg: Berl. klin. Wchnschr., 1914, li, 585.
11. Seyderhelm: The Pernicious Anemia of Horses, Inaug. diss., Strassburg, Gustav Fischer, Jena; Beitr. z. path. Anat. u. z. allg. Path., 1914, lviii, 285; Tr. Deutsch. pathol. Gesellsch., 1914, xvii, 456; Arch. f. exper. Path. u. Pharmakol., 1914, lxxvi, 149.

poison which is capable of reproducing itself when introduced into a fresh animal, and Seyderhelm suggests that such toxins, which he terms phyotoxins, may be responsible for the production of some of the other diseases thought to be caused by ultravisible viruses. In passing, it may be mentioned that Moffit[12] has injected the blood of pernicious anemia patients into horses, but without any effect.

The striking results obtained by splenectomy in pernicious anemia, Banti's disease and congenital and acquired hemolytic icterus have directed attention especially to the pathologic changes which the organ shows in this group of diseases. These appear to be of a nature to bring the red blood cells more closely into contact with the pulp cells of the spleen,[13] for this portion of the organ is found engorged, while the sinuses are relatively empty. There is a thickening and hyaline degeneration of the follicular arterioles, thus reducing their lumen and apparently side-tracking a considerable portion of the blood stream entering through the central artery, diverting it from the sinuses and causing it to flood the cell columns of the pulp. Here one finds foci of myeloid cells and evidences of phagocytosis, but it is probable that there is not so much actual blood destruction as a sort of sensitization of the red cells rendering them more susceptible to hemolytic action on the way to the liver, or perhaps by the Kupffer cells of this organ. The occurrence of remissions during which the blood picture suddenly becomes greatly altered for the better proves, however, that these purely organic changes cannot be the sole lesion and that there must be other agencies at work as well.

In this connection the studies of Eppinger[13] and of King[14] are important, for they found that in conditions associated with hemolysis, such as pernicious anemia and hemolytic icterus, there is an increase in the unsaturated fatty acids of the blood, which are known to have strongly hemolytic properties. Splenectomy, however, has the effect of reducing the amount of these, while the total fats and cholesterol of the blood which are antihemolytic are increased. These observations are highly suggestive, but not altogether in accord with the observations of McPhedran[15] on the relation of unsaturated fatty acids to hemolysis, and further work along these lines is highly desirable. None the less, the effects of splenectomy and transfusion, either separately or combined, are encouraging, and these two measures give the most hopeful outlook in treatment. From the seven splenectomies for pernicious anemia that have been performed at St. Luke's Hospital by Dr. Downes, we have gained the impression that the subsequent effects of transfusion were more marked and persisted longer than in cases in which the operation had not been done. Greater care seems necessary in the choice of donors for transfusion, and undoubtedly in time it will be found possible to devise more delicate tests than the relatively coarse ones for hemolysis and agglutination which we now apply. There are surely more subtle factors at work here, concerned perhaps with the colloids of the blood, as suggested by Doerr[16] and Moldovan[17] in connection with anaphylaxis and coagulation phenomena, and as discussed in greater detail in a paper published by Satterlee and Hooker from the laboratory of Clinical Pathology at the College of Physicians and Surgeons.[18]

Other studies which we have under way in this laboratory will, I hope, aid in determining some of these factors, especially in relation to the effect of transfusion on the ferment-antiferment balance in the blood plasma of the recipient. That some such considerations must be reckoned with is shown by the fact that sometimes a transfusion from one donor is followed by little or no benefit, while subsequent injections of blood from another individual may result in definite hematopoietic reactions, and it is always advisable, if a transfusion is not attended by good results, to select a different donor when the measure is repeated. The benefits of the procedure depend more, I think, on the stimulation that is given to the bone marrow than on the mere pouring into the vessels of a large volume of blood, and I am strongly of the opinion that small transfusions of from 100 to 200 c.c. frequently repeated are more likely to be a benefit than massive transfusions given as a last resort when the patient is moribund.

In gaging the effects of transfusion and of therapeutic measures in general, we have found in our cases that watching the fluctuation of the reticulated cells as brought out by supravital staining is of much interest and definite practical value in measuring the degree of bone marrow reaction. Another very useful guide to the intensity of the hemolytic process, and the effects of such measures as splenectomy or transfusion in checking it and also in determining the indications for splenectomy, is furnished by the study of the urobilin in the urine and particularly in the stools, or, as has lately been suggested by Schneider,[19] in the duodenal contents. The steps by which this substance is elaborated from hemoglobin through the intermediate stages of hemochromogen, bilirubin and urobilinogen, and the utilization of a portion of the urobilin for the resynthesis of hemoglobin through the intermediate formation of a new polymerization product of urobilin called urobilin complex, have been most carefully studied by Addis,[20] who has also described a useful quantitative method for determining the twenty-four hour excretion of urobilin and urobilinogen in urine and stools.

Finally, in addition to confessing that our efforts to cure the disease are still unavailing, we are obliged to admit that, unlike some of the other forms of anemia, notably chlorosis, which are diminishing, it is distinctly increasing in frequency. This has been noted not only in Europe, but also in this country. At St. Luke's Hospital during the seventeen years from Jan. 1, 1899, to Jan. 1, 1916, we have had 117 cases of pernicious anemia. Of this number, twenty-one patients were admitted within the first period of five years, thirty-two during the second period of five years, and forty during the third period of five years, while during the last two years there have been twenty-four cases, which is at the rate of sixty cases for the coming five year period. Or, expressed in percentages of the total number of medical admissions,

12. Moffit: Am. Jour. Med. Sc., 1914, cxlviii, 817.
13. Eppinger: Berl. klin. Wchnschr., 1913, L, 1509, 1572, 2409.
14. King, J. H.: Studies in the Pathology of the Spleen, Arch. Int. Med., August, 1914, p. 145.
15. McPhedran: Jour. Exper. Med., 1914, xviii, 527.
16. Doerr: Wien. klin. Wchnschr., 1912, xxv, 331.
17. Moldovan: Deutsch. med. Wchnschr., 1910, xxxvi, 2422.
18. Satterlee, H. S., and Hooker, R. S.: Transfusion of Blood with Special Reference to the Use of Anticoagulants, THE JOURNAL A. M. A., Feb. 26, 1916, p. 618.
19. Schneider, J. P.: The Splenic Pathology of Pernicious Anemia and Allied Conditions, Arch. Int. Med., January, 1916, p. 32.
20. Addis, Thomas: A Working Hypothesis of Hemoglobin Pigment Metabolism, Arch. Int. Med., March, 1915, p. 413. Addis, Thomas, and Wilbur, R. G.: Urobilin: Its Clinical Significance, Arch. Int. Med., February, 1914, p. 235.

during the first period of five years, 0.33 per cent. of the medical patients suffered from pernicious anemia, during the second period, 0.54 per cent., during the third period, 0.7 per cent., and during the last two years, 0.75 per cent., a rate of increase which certainly is noteworthy.

It is evident that while the etiology and pathogenesis of pernicious anemia are still most perplexing problems, we have gained some knowledge of the separate pieces which must be combined to form the completed puzzle. The disease is a syndrome based fundamentally on a condition of increased hemolysis plus a toxic action on the bone marrow, but the origin of these manifestations is most involved and depends on a variety of partial causes which are differently associated in different cases. One of these factors appears to be an abnormality of splenic function, conveniently termed hypersplenism, while another is the presence of some hemolytic agent. In occasional instances which we have learned to recognize, this agent is a toxin produced by the fish tapeworm, or by pregnancy, or by syphilis. In the majority of cases, however, it is still quite unknown, though it is probably of endogenous, rather than exogenous, nature, and there is much evidence in favor of the view that it is derived from the alimentary tract and belongs to the rather indeterminate group of ether-soluble substances termed lipoids. Possibly this lipoid substance serves only to render some other agent actively hemolytic — as cobra venom, for example, is activated by the lipoid lecithin with the formation of a hemolytic toxolecithid — or perhaps some action occurs such as has been shown in cases of experimental toluylendiamin anemia. Here the hemolysis is not caused directly by the chemical itself, but by a newly formed lipoid produced in the liver as the result of the poisoning, and it is interesting to note that if the spleen is first removed, much larger doses of the drug are required to produce the effect.[21] In addition there is probably a disturbance of the lipoid metabolism of the body in general, resulting in a decrease of the antihemolytic properties of the serum. This may reasonably be associated in our speculations with a disturbance of the functions of the ductless glands, notably the suprarenals, for studies on the cholesterol content of the suprarenal cortex and the blood have shown that an intimate relationship exists between the two,[22] while the antihemolytic properties of cholesterol have been well established. Still, though it has been found that in pernicious anemia the lipoids of the suprarenal cortex are diminished,[23] and also that cholesterol protects animals against experimental cobra venom anemia, attempts to use this agent in the treatment of pernicious anemia have been quite fruitless. Furthermore, one is led to believe that there must be some constitutional anomaly, some inherent weakness, either temporary or permanent, which renders the body susceptible and permits the other agencies to take effect. No one of these factors can by itself be termed the cause of the disease, for not the bothriocephalus, pregnancy, nor syphilis — oral sepsis, gastric achylia, nor hypersplenism, alone can produce it, and all such entities form only single links of the etiologic chain which binds the victim of pernicious anemia to his fate.

680 Madison Avenue.

21. Joannovics and Pick: Ztschr. f. exper. Path. u. Therap., 1910, vii, 185; Tr. Deutsch. path. Gesellsch., 1903, v, 150.
22. Landau: Tr. Deutsch. path. Gesellsch., 1914, xvii, 144.
23. Hueck: Tr. Deutsch. path. Gesellsch., 1912, xv, 251.

AFTER-RESULTS OF TONSILLECTOMY

A STUDY OF FIVE HUNDRED AND SEVENTY-ONE CASES *

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This paper is based on a study of five hundred and seventy-one boys of Girard College who have had their tonsils and adenoids removed some time during their residence in the institution, and is undertaken from the point of view of the general practitioner. The opportunity for such a study is greater here than in a general hospital, since the boys are under constant surveillance, and their medical histories are followed to the most minute detail. The regular habits of sleep, exercise and study, the wholesomeness of the food, and the hygienic care are all conducive to the development of a strong, healthy boy. Therefore it is assumed that results obtained here can be taken as an example of those expected in patients with good resistance.

It is my belief that a study, conducted by one who is not a specialist, of a fairly large number of cases, should be of value to both the profession and laity in forming their judgment as to the benefits to be derived from the removal of tonsils and adenoids.

The operations were performed by the late Dr. Joseph S. Gibb, and since Dr. Gibb's death in November, 1914, by the present laryngologist, Dr. Nathan P. Stauffer. A total enucleation of the tonsil and removal of the adenoid tissue was done in each case.

A complete nose and throat examination is made of each applicant for admission to the college, and those who, in the opinion of the laryngologist, are in need of tonsillectomy, are operated on, as a rule, during the first six months of their residence in the college. Again, all boys confined in the infirmary are referred to the nose and throat department should they show evidence of hypertrophy of the tonsil or adenoid.

During the course of this study each boy was examined, the records of the college and infirmary were freely consulted, and the boy requested to tell in his own words what he thought the operation had accomplished for him. The following order was pursued:

1. Date of operation.
2. Indication for operation.
3. Sore throats, before and after.
4. Presence of tonsillar tissue after operation.
5. Date of reoperation, and cause.
6. Mouth breathing, before and after.
7. General health after operation, in the words of patient.
8. Disease of ear, before and after.
9. Scholastic standing, before and after.
10. Enuresis, before and after.
11. Change in singing voice.
12. Miscellaneous.

1. *Date of Operation.*—The postoperative range covered a period of ten years, from 1905 to March, 1915. The average time since operation was three years, 175 patients having been operated on previous to 1910.

2. *Indication for Operation.*—Of the operations, 464 were performed either as a result of the examination for admission, or on being referred to the nose and throat department from the wards; 102 for tonsillitis; 11 for nasal catarrh; 17 for the correction of mouth breathing; 9 for improvement of ear condi-

* Read before the Section on Otology and Laryngology of the College of Physicians, Philadelphia, Feb. 16, 1916.

tions; 6 for speech defects; 5 for enuresis; 3 for difficulty in breathing; 1 for cervical adenitis, and 2 for the improvement of general health.

3. *Sore Throats.*—Three hundred and twenty had suffered from sore throats, ranging from one attack to six or more before operation, while 115 continued to have them. Therefore 205, or 64.06 per cent., were relieved by the operation.

4. *Presence of Tonsillar Tissue after Operation.*—A slight amount was noted in 183 cases, while in 72 cases enough was present to be considered as hypertrophy. The remaining 316, or 55.25 per cent., gave no evidence of tonsil present.

5. *Reoperation.*—Seventeen boys required reoperation. Of these, fifteen were reoperated as a result of sore throats, 1 for nasal catarrh, and 1 for the removal of a tonsil left in at the first operation.

6. *Mouth Breathing.*—Before the operation, 195 were mouth breathers, and 81 continued to breathe in that manner; 114, therefore, or 58.46 per cent., were relieved.

7. *General Health.*—Four hundred, or 70.05 per cent., felt the operation to have been of service to them along the following lines: the reduction of nasal catarrh; the improvement of hearing; improvement in speech; reduction of illness; physical development; improvement of digestion; improvement in school work, and the production of a state of well being.

8. *Diseases of the Ear.*—Forty-eight had suffered from discharges from the ears or defective hearing before operation, while afterward, 37, or 77.08 per cent., gradually cleared up. It is only fair to state that ear treatment was received during this period, yet I feel that the operation was an important aid in the recovery of these patients.

9. *Scholastic Standing.*—In conducting this study, forty-five were chosen. That a fair estimate of the average case should be made, they were taken alphabetically, three from a section, and boys who had been operated on long enough after their admission to form some idea as to their scholastic standing, but whose operation occurred a sufficiently long time before this study to give an opinion as to their postoperative records. The monthly averages of each boy in this group were taken up to the time of his operation, and from then to the time of the study. All marks are based on an average of 100 per cent., rather than a 10 per cent. basis, as is the custom in the college. As controls, forty-five who had *not* been operated on, living and working under the same conditions, three in a section, taken alphabetically, were studied in the same manner.

The general average of the forty-five boys who had been operated on from the time of their admission till the operation was 74.04. Of these, twenty-five, or 55.5 per cent., gave an average increase in monthly standing of 4.45 after operation, while the remaining twenty, or 44.5 per cent., suffered a decrease in average of 6.09.

The average of the forty-five boys not operated on was 74.21, and for the first group after operation, 74.06. It is interesting to note that the standing of slightly more than half of those operated on was improved, but when compared to those not operated on, no difference is seen.

A similar study was made on the smaller boys on whom operation had been performed on entering the college, but only those were selected who had a year's study after operation. Forty-five were again chosen, and their general average found to be 76.67. This was compared to the averages of forty-five boys in the same classes, not operated on, whose standing was 74.56. In other words, those operated on were 2.11 better than those on whom operation was not performed.

10. *Enuresis.*—One of the bugbears of the institution is bed wetting. We have used all manner of treatment with only average success, but it seems as though the removal of the source of irritation from the throat has been a help. Of the 571 patients, forty-six were bed wetters before operation. After the operation fifteen continued the practice, leaving thirty-one who ceased. Of these, six were circumcised at the time, and should be subtracted, leaving twenty-five, or 54.35 per cent., apparently helped if not cured. Naturally other methods of treatment were used at the same time, but the fact remains that they did not offend after the operation.

11. *Change in Singing Voice.*—At the request of Dr. Stauffer, Mr. Burton T. Scales, director of vocal music at Girard College, tested the voices of thirty-three boys immediately before operation, and again within from six to nine months. He reported an improvement in breathing, and resonance, and an average gain of two major tones in all but one, whose voice was changing during the examination.

AFTER-RESULTS OF TONSILLECTOMY

	Before	After	Improved Per cent.
Sore throats	320	115	64.06
Tonsillar tissue present	571	255	55.25
Mouth breathing	195	81	58.46
Disease of ears, impaired hearing	48	11	77.08
Enuresis	46	21	54.35
Scholarship, 45 studied	...	...	55.50
Voice, 33 tested	...	...	95.45
Health, opinion of patient	...	...	70.05

12. *Miscellaneous.*—Of thirty-four patients in a recent outbreak of scarlet fever, ten had the tonsils removed prior to the attack, about one third of those involved. This is the same relation that the total number operated on bears to the number of pupils in the college, there being 1,550 enrolled and 571 operated on. It is evident, then, that the absence of tonsils did not prevent the development of scarlet fever.

In the last twelve cases of diphtheria, three boys had their tonsils removed before operation, and of special interest in this connection is the history of a boy, having had his tonsils already removed, who was confined in the infirmary with an attack of mumps, where he was exposed to diphtheria. His throat gave positive cultures for forty-two days from that time, yet he gave no clinical evidence of the disease. In other words, he became a carrier in spite of the absence of tonsils. Again, no proof is here found as to any relation between immunity from diphtheria and the removal of the tonsils.

I wish to state that factors other than the removal of tonsils and adenoids were at work in these cases. The care of the teeth by the dental department, the careful selection of food, the control of milk and water supply, the open air life of the inmates, and the medical attention have added their quota to the results obtained, but these benefits are enjoyed by all alike; hence we feel that the results noted can, in a great measure, be attributed to the operation.

SUMMARY

1. Of 320 sufferers from sore throat, 205, or 64.06 per cent., were relieved.

2. Of 571 examined, 255, or 44.75 per cent., still had tonsillar tissue present.

3. Of 195 mouth breathers, 114, or 58.46 per cent., were relieved.

4. Of 571 questioned, 400, or 70.05 per cent., felt their health to have been improved.

5. Of 48 who had diseases of the ear or impairment of hearing, 37, or 77.08 per cent., were finally relieved.

6. Of 45 studied, 25, or 55.5 per cent., gave an increase in scholarship of 4.45 per cent., while 20, or 44.5 per cent., gave an average decrease of 6.09 per cent.

7. Of 46 subject to enuresis, 25, or 54.35 per cent., ceased to offend.

8. Of 33 tested, the voices of 32 were improved.

9. One third of the patients in a scarlet fever outbreak, and one fourth in a diphtheria series had been operated on before the attack. One boy already operated on became a diphtheria carrier.

15 East Airy Street.

HYDROPS TUBAE PROFLUENS

REPORT OF A CASE *

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By the term "hydrops tubae profluens" or "intermittent hydrosalpinx" we understand a condition of the fallopian tube in which the abdominal ostium is closed by inflammatory adhesions, while the uterine opening remains patulous. In consequence of this condition, the tube fills with serum as in ordinary hydrosalpinx; but when the pressure of this fluid inside of the tube rises to a sufficient degree, the fluid escapes through the uterine ostium and the tube becomes collapsed. Another explanation of this curious intermittent condition is that the uterine end of the tube is kinked, occluding the communication between the tube and the uterus; but as the tube distends with fluid, the kink becomes straightened, allowing the tubal lumen to become patulous again, following which, the tubal contents may escape into the uterus. The clinical appearance of such a case is one of intermittent pain in the region of the tube which is relieved by the appearance of a watery uterine discharge. The physical signs may be entirely negative, or a mass may be palpable in the region of the affected adnexa, depending on the condition of the tube at the time the examination is made, that is, whether the tube is distended or collapsed.

This condition, which is only a variety of ordinary hydrosalpinx and is not a clinical entity, is apparently not a very common one. The first description of a case of this type was recorded by Sachse;[1] but this description was based solely on the clinical syndrome, the actual pathologic condition not being demonstrated either by operation or by necropsy. The first demonstrated case of intermittent hydrosalpinx appears to be that reported by Scanzoni.[2] He states that in 1849 he assisted at a necropsy in which the left tube was the size of a goose egg, contained bloody fluid and communicated with the uterus through a tube 1⅗ inches long by ⅗ inch in diameter; however, he had never seen such a case in practice. Bland-Sutton[3] states that "there is no trustworthy pathologic evidence that these discharges escape into the uterus by way of the fallopian tubes." It is on account of such a statement that we take pleasure in presenting our specimen, which, we believe, thoroughly demonstrates the existence of an opening between the tube and the uterus.

Findley[4] reviewed the literature on the subject and reported a case of his own, bringing the number of reported cases up to fifty-nine. In some of these cases, however, operation was not performed, the diagnosis being made on the clinical symptoms alone, while a few of the other cases are of a doubtful nature. Regarding the rarity of this lesion, Findley quotes Martin,[5] who states that he could find only eight cases of hydrops tubae profluens in an examination of 1,700 cases of salpingitis. Since the report of Findley, the subject has been considered by Edelberg,[6] who reviewed eight cases of hydrops tubo-ovarialis profluens and added one of his own. A year later Norris' monograph[7] appeared with the statement that the records of the gynecologic department of the University of Pennsylvania show only three cases of intermittent hydrosalpinx in a series of 925 inflammatory tubes, of which 141 were cases of hydrosalpinx. Since this contribution from Norris, we have been able to find only one other recorded case, and that is one reported by Wanner.[8]

REPORT OF CASE

History.—F. H. (Case 122), a very stout woman, aged 33, came to the gynecologic dispensary of the University Hospital, Nov. 15, 1915. She had been married for fourteen years, and had had one child some years ago, and no miscarriages. Menstruation began at the age of 14. The periods were never regular, although the menstrual habit seemed to be of the four week type with a duration of three days. Every other month the flow was profuse, while in the intervening months it was scanty. Her last period was on Oct. 26, 1915. The previous history presented nothing of importance except that the patient had had her left tube removed four years previously. The patient complained of throbbing pains in the sacral and right ovarian regions associated with a vaginal discharge. Two weeks previously, while stepping from the sidewalk to the street, she felt a sharp stabbing pain in the right side and felt a sensation as though "something burst." Immediately after this a brownish discharge issued from the vagina and had been present ever since. During the past two weeks she had a swelling in the right side of the abdomen. The gastro-intestinal, cardiac and respiratory organs presented no symptoms.

Examination.—On admission of the patient to the dispensary, the uterus was slightly retroposed, and mobile but tender. There were induration and tenderness in the *left* ovarian region, but no mass palpable in the pelvis. The woman was of such huge proportions, however, that we did not have too much confidence in our failure to find a mass. A diagnosis of chronic pelvic inflammatory disease was made, and the patient ordered to take hot douches daily and report for observation. She returned to the dispensary every few days, and frequently reported that she had sudden attacks of severe right sided pain, followed by a brownish discharge from the vagina. Coincident with the appearance of the discharge, the pain disappeared; sometimes the discharge was

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* From the Department of Gynecology, University of Pennsylvania.

* Presented before the Philadelphia Pathological Society, Feb. 10, 1916.

1. Sachse: Medicinische Beobachtungen, 1839, ii, 207.
2. Scanzoni: Lehrbuch der Krankheiten der weiblichen Sexualorgane, Ed. 4, ii, 75.
3. Bland-Sutton: Surgical Diseases of Ovaries and Fallopian Tubes, p. 358.
4. Findley: Am. Jour. Obst., 1906, liii, 234.
5. Martin: Krankheiten der Eileiter.
6. Edelberg: Gynäk. Rundschau, 1912, vi, 601.
7. Norris: Gonorrhoea in Women, Philadelphia, 1913, p. 360.
8. Wanner: Rev. méd. de la Suisse romande, 1914, xxxiv, 608.

so profuse that it necessitated her wearing a napkin. On several occasions she complained of dull dragging pain in the left side. On the basis of a history of intermittent pain relieved by the appearance of a vaginal discharge, a diagnosis of hydrops tubae profluens was made, and the patient was transferred to the gynecologic ward for operation.

Operation.—This was performed Jan. 5, 1916, by Dr. B. M. Anspach, and revealed that the left tube had already been removed, the left ovary was transformed into a follicular cyst about the size of a peach, the right tube was enlarged and contained fluid, while the right ovary seemed to be in good condition. The operation consisted of a supravaginal hysterectomy, right salpingectomy and left oophorocystectomy. On examination of the pathologic specimen after the operation was completed, it was found that when gentle pressure was made on the tube, there was a flow of clear, watery fluid from the tubal ostium at the uterine cornu, proving that the diagnosis was correct. The patient made a good and uneventful operative recovery.

It seems to us that in this case trauma may have played an active part in the precipitation of the symptoms, inasmuch as the patient dated the beginning of her trouble from the time when she stepped from the curb to the street, which, in a woman of her size, requires considerable muscular effort.

715 North Fortieth Street—1503 Girard Avenue.

INTERLOBAR EMPYEMA TREATED BY ARTIFICIAL PNEUMOTHORAX

REPORT OF A CASE

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The web of observation and experience has in the past few years gradually closed around the indications for the use of artificial pneumothorax in pulmonary diseases. Clinicians are well enough agreed as to the proper cases in which to use the method in pulmonary tuberculosis. The case which I report was one of acute interlobar empyema, which was draining through the bronchus, treated by artificial pneumothorax by nitrogen gas.

A boy, aged 5, American, whose family and past history could not be ascertained, was brought into the Faith Home suffering from stomatitis. May 11, 1915, he developed pneumonia which ran a nine days' course, with temperature as high as 107, and on the ninth day terminated by crisis. Following this the temperature was normal for about thirty-six hours and the youngster seemed to feel well. The next day he developed a little rise of temperature, the maximum reading being 100. The maximum temperature for the next three days was 101, and on the next day the temperature fell to 99 and then rose to 103 degrees. During this period the boy developed a constant cough with free expectoration of purulent material, and his breath was very foul. This rise of temperature continued for three days, fluctuating from 101 to 102. At this time I saw him in consultation with Drs. Segura, Thorning and Stokes. The symptoms were dyspnea and cough. On the right side, in the area at the fissure between the upper and middle lobes, the lung showed an area of dulness, over which the breast sounds were absent. Above and below this area were areas of tubular breathing, and no râles were heard in these areas. Below this area downward over the lower lobe the breath sounds were diminished, and tactile fremitus, although present, was diminished; a needle introduced into the right pleural cavity showed no free fluid or pus. Roentgenoscopy corroborated our diagnosis of interlobar empyema. At this time it was decided to perform an artificial pneumothorax, and the first injection was made. The temperature was 101.2. Into the right pleural cavity were injected 300 c.c. nitrogen gas, attaining a pressure of —4 cm. water. Following this injection the temperature rose (five hours later) to 103.6 at 2 p. m.; 102.2 at 5 p. m.; 102 at 9 p. m.; 100.4 at midnight, and 98.6 at 6 a. m.; the temperature after this time remained low. In the course of an hour the patient began to cough a great deal, and during the next twenty-four hours coughed up a great deal of pus. This expectoration gradually decreased. June 1, I injected 500 c.c. of nitrogen gas into the right pleural cavity. There was no reaction following this injection. The coughing now ceased and the boy improved rapidly. June 4, I injected 500 c.c. of nitrogen gas into the right pleural cavity, attaining an intrapleural pressure of —1 cm. water. There was no expectoration following this injection. The subsequent recovery was uneventful. Within a few days the boy was sitting up in a chair. He was discharged from the hospital June 9, 1915. There were no further symptoms, and four months later the boy was perfectly well.

From the clinical symptoms, physical findings and the corroborative report of the roentgenologist, Dr. B. T. Van Zant, we felt that our diagnosis as to the opening of the abscesses into the bronchus was correct. This point was of the greatest importance; had not the opening for drainage been present, the result might have been wholly different. A roentgenogram taken four months after the last injection showed that the lung had returned to its normal condition, and, incidentally, that the compression had not exerted any harmful effect on the structure of the lung. The physical examination at this time was negative.

A CASE OF MERCURIAL POISONING WITH RECOVERY*

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AND
ADOLPH BERNHARD, B.S.
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In the great majority of cases of mercurial poisoning, the period of life, after the ingestion of the poison, is relatively a brief one, and thorough studies are therefore impossible, owing to the severity of the condition, and early death. Our patient recovered, and permitted a thorough laboratory study of her condition.

CASE REPORT

History.—F. W., woman, aged 28, was admitted to the German Hospital, Nov. 28, 1915, in a semicomatose condition and very irrational, with the diagnosis of acute mercuric chlorid poisoning. According to the mother, five days previous to admission to the hospital, the patient had swallowed half a tumblerful of water in which two tablets of mercuric chlorid had been dissolved. On further inquiry it was learned that there was almost complete suppression of urine, at least twenty-four hours prior to admission.

The past history was unimportant except for the fact that the patient has always been delicate, and at times despondent. The latter condition became more marked after a herniotomy performed two years before, since which time the patient has been unable to work. She was retiring, and had never made many friends.

Physical Examination.—The only positive findings were erosions on the under surface of the tongue, varying in size from one-quarter to one-half inch, and epigastric tenderness.

Treatment and Course.—The following treatment, suggested by Lambert and Patterson,[1] was administered on admission:

* From the Laboratory of Pathological Chemistry and the Department of Medicine, service of Dr. Caille, German Hospital and Dispensary.

1. Lambert, S. W., and Patterson, H. S.: Poisoning by Mercuric Chlorid and Its Treatment, Arch. Int. Med., November, 1915, p. 865.

(1) colonic irrigation, gastric lavage and hot packs, twice daily; (2) continuous Murphy drips containing potassium acetate, 1 dram to 1 pint of water.

The patient was given by mouth 8 ounces of the following solution every hour, alternating with the same quantity of milk:

Potassium bitartrate	1 dram
Sucrose	1 dram
Lactose	½ ounce
Lemon juice	1 ounce
Boiled water	16 ounces

On the first day, November 28, the patient's condition was the same as on admission. On catheterization, 75 c.c. of urine were obtained which, on analysis, showed a very large amount of albumin, a specific gravity of 1.020, and many coarsely granular and hyaline casts. The patient vomited continuously, and was unable to retain even small amounts of fluid, and refused nourishment. The systolic blood pressure was 136, and diastolic blood pressure 100 mm. of mercury. The leukocyte count was 11,000, of which 74 per cent. were polymorphonuclears, and 26 per cent. lymphocytes.

From November 28 to December 2, the patient began to eliminate greater quantities of urine; her condition seemed better, except that she complained of burning pain along the entire gastro-intestinal tract. The restlessness subsided, and she appeared brighter, but continued to refuse food. Gavage and duodenal feeding were resorted to, but because of marked irritability of the esophagus and stomach, had to be discontinued. Hypodermoclyses were then attempted, but soon discontinued because of the excessive pain they gave the patient.

The urine elimination during this period rose from 200 to 700 c.c., and the urine showed albumin, pus and hyaline and granular casts in moderate amounts.

Stomach washings, colonic irrigations, urine and feces, were examined in the laboratory for mercury. The Vogel[2] test was employed, a positive reaction being indicated by formation of an amalgam of the mercury with gold, in a sealed tube. On the first day the urine and feces gave a positive mercury reaction, on the second day the lavage and feces were positive, and on the third day the urine, feces and gastric contents all responded to the test for mercury.

November 30, a chemical examination was made of the blood, which showed the following interesting figures:

	Mg. per 100 c.c. of Blood	
Nonprotein nitrogen	152	73 per cent. elimination
Urea	100	
Uric acid	7.65	
Creatinin	9.3	

The phenolsulphonephthalein test on this day showed an elimination of 22 per cent. for two hours. These figures for the nonprotein nitrogen and urea are somewhat lower than those reported by Foster,[3] and Myers and Fine.[4] No study of chlorid or nitrogen metabolism was attempted, since ingestion of food was made uncertain by vomiting.

From December 2 to December 7, the patient had severe gastric pains, with continued vomiting. The gastric analysis and string test and roentgenoscopy did not indicate the presence of an ulcer. The patient's general condition was improved, with a urine elimination of 700 c.c. in twenty-four hours, showing a decreased amount of albumin, and few casts. No mercury was found in the excretions, with the exception of the feces, which were positive for one day only (December 4). December 6, the blood was again examined, showing a decrease of nonprotein nitrogen to 32 mg. per hundred c.c. of blood, of which the urea nitrogen was 65 per cent., or 21 mg., and an increased phenolsulphonephthalein elimination to 34 per cent.

At the end of this period the vomiting subsided, the patient took more nourishment, and the feces contained no more mercury. The colon irrigations and lavage were then discontinued. The blood pressure was lower (systolic 118, diastolic 70 mm. of mercury).

From December 7 to December 11, the patient's mental condition varied considerably. At times she was very irrational, and at other times clear and alert.

December 11, there was a diminution of urine with the appearance of 1.5 per cent. sugar (probably due to excessive ingestion of carbohydrate). The blood analysis, however, showed no hyperglycemia, sugar concentration being 0.64 per cent. There were slight albuminuria, and occasional granular casts.

December 9, the chemical blood analysis revealed:

	Mm. per 100 c.c. of Blood	
Nonprotein nitrogen	30	53 per cent. elimination
Urea	16	
Uric acid	5.0	
Creatinin	2.5	

From December 11 to time of discharge, December 31, the patient's general condition steadily improved, with increasing urine elimination (900 c.c. daily, and only traces of albumin, and occasional granular and hyaline casts).

SUMMARY

During the first five days, the condition of the patient seemed somewhat improved, after treatment was instituted. Urine elimination varied from 200 to 700 c.c. daily. All the excretions and stomach washings gave positive tests for mercury; the blood showed a marked retention of nonprotein nitrogenous substances and low phenolsulphonephthalein elimination. The next five days of the disease showed a general improvement in the condition of the patient, and practically all excretions showed the absence of mercury; there was increased urine and phenolsulphonephthalein elimination. The nonprotein nitrogen and urea in the blood were markedly decreased. The only other cases reported, those of Foster, and Myers and Fine, showed a greater retention of nonprotein nitrogenous constituents in the blood than our case did. Their cases never showed a decrease of these substances during the progress of the disease, while in our case the nonprotein nitrogenous substances in the blood were markedly decreased as the patient recovered, which was almost coincident with the disappearance of the mercury. The remainder of her stay in the hospital until her discharge was marked by steady improvement in her general condition; she eliminated about the normal amount of urine, which showed only traces of albumin, with occasional hyaline casts.

PURPURA HEMORRHAGICA TREATED WITH NORMAL HORSE SERUM

LAWRENCE SCHLENKER, M.D., ST. LOUIS

This case of purpura hemorrhagica, in a man aged 28, is instructive in the showing of a prompt response to treatment with normal horse serum.

History.—The patient had measles during childhood. In his eighteenth year he suffered from an illness diagnosed as nephritis, from which he recovered in three weeks. While never robust, he had had no other diseases, and assurance is positive that he was never subject to abnormal bleeding of any kind. There was no knowledge of hemorrhage in any member of his family. The present illness began the middle of December, 1915, with symptoms diagnosed as the grip. The temperature was from 103 to 104, and there were prostration, cough, and a mucopurulent expectoration. Under his physician's care he improved to some extent, when, January 9, he began to bring up large quantities of thin, bloody sputum. Two days later blood appeared in the urine, the latter soon

2. Vogel, K. M., and Lee, O. I.: Detection of Mercury in the Excretions, THE JOURNAL A. M. A., Feb. 14, 1914, p. 532.
3. Foster, N. B.: Mercury Nephritis, Arch. Int. Med., April, 1915, p. 754.
4. Myers, V. C., and Fine, M. S.: Jour. Biol. Chem., 1915, xv, 391.

taking on the appearance of pure blood. The following day purpuric spots occurred in the skin, and nasal hemorrhages took place frequently. It is stated that there were no vomiting of blood, no blood in the stools, and no aural hemorrhages. Exsanguination was now taking place so rapidly that the patient's condition was becoming alarming.

Examination.—The patient was admitted to Mount St. Rose Hospital, January 11, in a state of shock. He was extremely pallid and exhausted, dyspneic and in a cold sweat. Pulse and heart sounds were very weak, regular, and 88 to the minute. A dozen or more small purple spots were visible in the skin of the forehead and arms; in the mucous membrane of the soft palate quite a large hemorrhage was present. Both nares were filled with dried blood; the gums and teeth were smeared with blood. The sclera of the left eye contained a fairly large hemorrhage. The urine, as voided, looked much like unmixed venous blood; after standing it separated into two equal layers, a thin, light red upper stratum, and a lower layer thicker and darker. The patient was coughing up more than a pint of bloody, serous fluid in the twenty-four hours, a fluid resembling laked blood somewhat. Examination of the lungs revealed edematous râles over the back and front of both sides of the chest; there were no signs of consolidation or cavitation. The temperature registered 99 in the morning, and from 103 to 104 through the afternoon and evening. The hemoglobin estimation was 60 per cent., while blood smears were negative, except for a marked paleness of the red cells. No tubercle bacilli were found in repeated sputum examinations, by ordinary smear or by the antiformin method.

Treatment and Result.—The patient was at once given 10 c.c. of normal horse serum, subcutaneously, which dose was repeated daily for the subsequent nine days, making 100 c.c. all told. With the exception of small doses of codein, given the first few days to quiet the nervous symptoms, no other medicine was administered. There was no evidence of serum anaphylaxis at any time. Improvement in sputum, urine and in the general condition was noticeable after the second injection of serum. Blood disappeared entirely from the urine after five injections had been given. The sputum became rapidly less in volume, as well as in blood content. The moist râles in the lungs gradually became less evident.

January 29 there was neither cough nor sputum. The urine was normal in appearance, and negative to tests for albumin and sugar. Temperature was normal throughout the twenty-four hours. The pulse was stronger but still somewhat weak. Examination of the lungs showed entire absence of moist râles.

Strength, weight and color had improved greatly; the patient was up and about the institution. Except for some remaining weakness, which was steadily disappearing, he felt perfectly well.

THE MANAGEMENT OF A CASE OF CUT THROAT

BEN D. BAIRD, M.D., GALESBURG, ILL.

I report this case because of its infrequent occurrence, many interesting features, and the various problems it presented which are of interest to the surgeon.

A man, aged 50 years, weighing 94 pounds, and suffering from chronic nephritis, attempted suicide, 3 p. m., Oct. 24, 1915, by cutting his throat with a paring knife ground down to a fine point. About two hours later he was found lying unconscious in a pool of blood with a gaping wound in his throat. Life was apparently almost extinct because of the loss of blood and his already weakened condition from the chronic nephritis, but an effort was made by the physician to unite the divided trachea temporarily, after which the patient was brought 20 miles to the hospital and was seen by one of my colleagues. Under ether anesthesia the wound was reopened and the divided trachea united and the skin incision closed without drainage. The wound did not involve either of the jugulars or carotids.

On the succeeding morning it was discovered that the patient was unable to swallow, and had been unable to swallow since the infliction of the wound. This was attributed to a loss of motor influences due to a division of the recurrent larnygeal nerve, and was allowed to continue for six days, at which time the patient was in a state of almost complete prostration, owing to the lack of nutrition.

On the sixth day rectal feeding was started. On the eighth day the patient came into my hands, and at that time the wound had broken open. There was a foul smelling discharge coming from it, and at every respiratory effort the air was forced out and sucked in through the wound at the side of the neck, showing that the sutures in the trachea had not held, and he was breathing through the tracheotomy wound instead of the nostrils. A long curved uterine probe was passed into the wound in the neck, and by following the posterior wall in an upward direction the probe appeared in the pharnyx, and I was able to prove that the pharynx had also been opened as well as the trachea divided.

A rubber catheter was then inserted into the wound and passed carefully downward into the stomach, through which the patient was given warm milk, water and brandy, the first nourishment of any kind which had entered his stomach for eight days. The condition of the patient and the condition of the wound were such that it was inadvisable to close the wound at this time. The problems then were how to build up the patient sufficiently to enable him to withstand the operation which was to follow, and at the same time prevent further irritation of the already diseased kidneys by an anesthetic.

The first problem was met by feeding the patient every eight hours with warm milk, water and brandy through the rubber catheter introduced into the stomach through the esophagotomy. This was continued for nine days.

November 10, under novocain (Crile's nerve blocking method) plus a 2 per cent. cocain solution injected into the tissues as the incision was carried down, gastrostomy was performed according to Witzel's method. The patient suffered practically no discomfort from the operation, and the question of nourishment was considerably simplified, as he was able to pour his own food into the funnel, and his gain in strength was rapid and remarkable. Thirteen days later, again under local anesthesia, a tracheotomy was performed below the wound in the trachea, through which the patient was to breathe during and following operation.

Seven days later, when the patient had recovered sufficiently from the immediate effects of his previous operations, he was again returned to the operating room, and with nitrous oxid and oxygen anesthesia given through a soft rubber catheter, which was attached to the tube of the Heidbrink gas machine and introduced into the trachea, I was enabled to enlarge the old self-inflicted wound and found that the action of the muscles acting from below (sternohyoid, omohyoid and thyrohyoid) and above (mylohyoid, geniohyoid and geniohyoglossus) the incision had retracted the divided ends of the trachea and the pharyngeal opening until there was a space 2½ inches between them. This had converted the transverse incision in the pharynx into a longitudinal one from about 2 to 2½ inches in length. Granulation tissue had formed around the cut edges of the esophagus, and it was with difficulty dissected out so that the freshened edges might be coapted behind the trachea. I carefully dissected the posterior pharyngeal wall completely loose from its attachments. The freshened edges of the pharynx were brought together by inverting the edges with a very fine plain catgut continuous suture. This line of sutures was then covered with a further row of fine chromatized catgut sutures.

During this portion of the operation the divided end of the thyro-epiglottic ligament was plainly visible projecting downward from the base of the tongue. It was necessary to reconstruct or rather build up a new anterior pharyngeal wall, after which the divided ends of the trachea were freshened, care being taken to prevent blood entering the interior of the larynx where the vocal cords were plainly visible, and with strong No. 3 chromatized catgut interrupted sutures (these heavy sutures were necessary to overcome the action of the muscles), the divided ends of the trachea were brought together, care being taken to make a careful accurate approximation, as there was only the base of the tongue

above, to which the attachment could be made. After this, the overlying structures and the skin were united.

During the entire time required to do this operation, one and one-half hours, the patient was kept in the stage of analgesia, being easily aroused and talking, but lying perfectly still and feeling no pain. Immediately following the operation and at frequent intervals for several days, the patient was given nourishment through the gastrostomy tube. The element of shock was practically nil, but the subsequent edema almost completely closed the glottis for a period of three days, during which time the patient depended almost entirely on the tracheotomy tube to furnish him air.

After the fourth day he was able to breathe naturally, with only slight attention being paid to the tracheotomy tube. His voice gradually began to return, and sound nearly normal, and his general condition showed improvement. December 19, nineteen days after the repair of the pharynx and trachea, he swallowed food by the natural route for the first time without discomfort, since which time he has taken most of his food in this way. January 1, thirty-one days after his last operation, the feeding tube was removed from his stomach, and he has since taken his food naturally. His voice is about the same as it was before he received the wound. He has gained 10 pounds in weight, his urinary findings have improved, and he is now, two and a half months after his operation, really in a better physical condition than he was before he attempted suicide.

I have reported this case in order (1) to show the many steps which are at times necessary to be taken to conserve life, and (2) to point out the advisability (*a*) of the preliminary gastrostomy and tracheotomy so that air and food can be introduced into the system at a point below the site of operation, and (*b*) of the conservation of the already diseased kidneys by using nitrous oxid gas anesthesia instead of ether. The carrying of the patient through such a prolonged period in the analgesic stage is highly desirable for his own protection, should blood enter the trachea or any other respiratory interference occur, and the fact should be emphasized that these wounds close more readily a few days or weeks, if necessary, after the infliction of the injury than they do when immediate repair is attempted. This we were able to prove by experimental work on animals.

The recurrent laryngeal nerve was carefully avoided with knife, scissors and hemostats. In the carrying of this case to a successful termination, I am indebted to Dr. C. W. Marks and Dr. A. D. Pollock for assistance.

Treatment of Pruritus.—Dr. Priestley Lipscomb, Denton, Texas, writes: I have noticed, from time to time, in Current Medical Literature in THE JOURNAL, abstracts on the cause and treatment of itching, or winter pruritus. I have been a sufferer myself for four years, and believe I have finally found a cure that is not only simple but also efficient. Heat, applied in the form of hot water, will give permanent relief. Wrap the legs in a good heavy turkish towel and pour hot water over it as hot as can be borne. Keep them heated for about thirty minutes, then unwrap them and apply a little cold cream to the skin. Repeat this procedure every day for thirty days. The first few treatments will relieve the itching, but the treatment should be continued longer if relief is to be of a permanent nature. I have prescribed this treatment for others and used it on myself, and have never been disappointed in the results obtained.

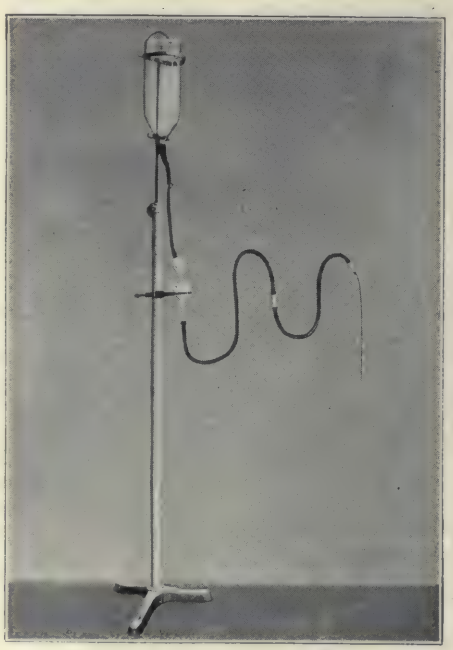
New Instruments and Suggestions

A SIMPLE METHOD OF GIVING SOLUTIONS BY BOWEL

ALANSON WEEKS, M.D., SAN FRANCISCO
Chief Surgeon, Emergency Hospital Service

After numerous experiences in watching the routine use of the Murphy drip after operations in various hospitals, I have come to the conclusion that half of the distress complained of by patients is due to the retention in the bowel of gas or too much fluid. This is especially so in little children.

For many months I have used a method which consists of the usual container and dripper supplied by all hospitals, with a small glass funnel; a funnel holder, which will fit on the container stand; 5 feet of rubber tubing, with a glass tip, and an ordinary rubber catheter to suit the case. The funnel is to hang on a level with the patient's abdomen. The container is hung so that the dripper will drip into the funnel. The solution is allowed to drip only as fast as it is absorbed, and it is unnecessary to keep it warm.



Apparatus for giving solutions by bowel.

The advantages of this outfit are: 1. The catheter can be placed in the rectum after operation, and it will be unnecessary to remove it at any time. 2. The funnel can be taken out of the hanger and hung over the bed in a basin for siphonage whenever needed. 3. It can be used to flush the bowel two or three times a day with tap water, clearing away any gas which may be retained on account of the plugging of the eyelet of the catheter.

This outfit will greatly lessen the work of the nurse and the discomfort of the patient, not only by being handled less, but also by allowing the gas at all times to bubble out of the funnel and by irrigating out the fecal matter as it appears in the rectum. I have found it of the greatest advantage over the ordinary methods in use in the case of operations on children.

If properly used, there will be no complaint of patients from the so-called "gas pains" after laparotomies.

Patients absorb a great deal more of the glucose solution with this outfit, principally, I believe, because of the lack of irritation to the rectum by too great a quantity of solution.

350 Post Street.

THE USE OF THE SAND TUBE IN ISOLATING THE BACILLUS TYPHOSUS

M. D. LEVY, M.D., GALVESTON, TEXAS
Pathologist, John Sealy Hospital

In July, 1915, Gautier[1] reported thirty cases of typhoid fever which had been diagnosed by the aid of the sand tube method initiated by Carnot and Hallé.

During the past three months, I have been using this method in isolating the typhoid bacilli from duodenal contents, blood, spinal fluid and feces, and because of its satisfactory results and simplicity in technic, feel that it should be called to more general notice.

The technic employed is the same as given by Gautier except that neutral red was not used:

A pipet 33 cm. long and 5 or 6 mm. in diameter is bent in a U shape. One arm is filled to the height of 10 cm. with very

1. Gautier, P.: Rev. méd. de la Suisse romande, July, 1915; abstr., THE JOURNAL A. M. A., Sept. 4, 1915, p. 907.

fine sand (passed through a No. 40 sieve). The other arm is filled with hot bouillon (tinted with neutral red.) This works up to the same level in both arms. The arm without sand is then inoculated with a few drops of the infected solution and the tube incubated for eighteen hours. Only the most motile bacilli pass through the sand and develop in the layer of bouillon above the sand. The typhoid bacillus is usually the only one which penetrates the sand in eighteen hours, though occasionally the *Bacillus coli* also passes through. In all of our cases an agglutination test was done with a known positive serum, dilution 1:40.

In those cultures in which there seemed to be a contamination, subcultures were made on Endo's medium, Russell's medium, in litmus milk, and in dextrose bouillon, and in each case showing a positive agglutination test from our original sand tube culture, the growths were typical of the typhoid bacilli.

By use of this method we have been able to arrive at a fairly definite diagnosis from twenty-four to forty-eight hours earlier than by the other methods used.

A SUGGESTION FOR THE TREATMENT OF FRACTURES OF THE LOWER JAW

CHARLES G. LEVISON, M.D., SAN FRANCISCO
Fellow of the American College of Surgeons; Visiting Surgeon to the Mount Zion Hospital

That fracture of the lower jaw has been a nightmare to the surgeon is shown by the fact that many surgeons, as a matter of routine, refer this type of fracture to the dentist.

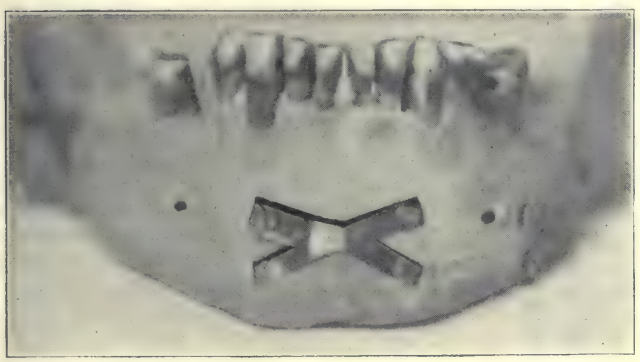


Fig. 1.—Plate applied to the chin.

The latter succeeds in obtaining fair results in complicated fractures, but these results can be achieved only after great trouble to the dentist and infinite annoyance to the patient.

Simple fractures of the lower jaw, more particularly in the median line, are comparatively easily treated but oblique fractures in any part of the mandible, especially at the angle, as well as bilateral fractures, are associated with great difficulty in maintaining approximation of the fragments so that the articulation is satisfactorily restored.

As far as my experience goes, pseudo-arthrosis of the jaw which has been wired or plated is rare, and it would appear from a review of the literature, as well as personal inquiry, that the inferior maxilla is not so prone to nonunion as a result of the employment of mechanical devices as are some of the other bones, so that the objection that is raised against the employment of plates, etc., would hardly obtain in this type of practice.

The following method for the treatment of fractures of the mandible has been found very satisfactory as far as ease of application and ultimate results are concerned, and the patient is subjected to the minimum of discomfort.

The illustrations are self-explanatory.

The plates used are made of German silver, 1/8000 inch in thickness, and the metal can easily be cut with metal shears. The shape of the plate assures the maximum of fixation. If necessary the plate can be strengthened by soldering on its middle a small piece of the same kind of metal.

The drill to be used for making the holes is a No. 48 twist drill, and the screws can be obtained in any supply store.

The ease of application of the plates and the excellent approximation, as compared with the use of wire and other methods, can best be appreciated with their employment. One great advantage of the fixation of the jaw with plates



Fig. 2.—Plate applied to the angle of the jaw.

is that the patient can use his jaw with comparative ease immediately after the operation.

The plates are to be removed at the end of four or five weeks.

516 Sutter Street.

AN EYE-SHADE FOR USE WITH THE MICROSCOPE

ELLIS KELLERT, M.D., ALBANY, N. Y.

Probably no work on microscopy has ever been written without including several paragraphs, or even an entire chapter, on the care of the eyes. In earlier times when lenses and illumination were less perfect than at present, eye-shades

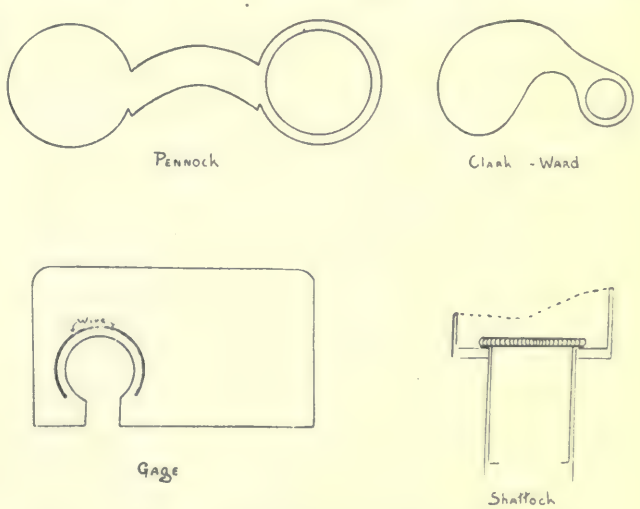


Fig. 1.—Forms of eye-shade for microscope by various designers.

of varying construction were in common use. These usually were intended to afford a blank surface to shield the unused eye, and consisted of a flat piece of board, fiber, or metal with a perforation at one side to admit the drawtube which supported the shade. Such shades have been designed by Gage, Ward, Pennock, Clark and others. Some of these are illustrated in Figure 1.

Laboratories are now constructed with large windows which permit an abundance of light to flood the microscopic

table. When one is working before such a window, the diffused light tends to render less distinct the image seen in the microscope, and very fine details may be entirely obliterated. Any device which will exclude the light entering the eye above the ocular is of distinct advantage. The image will become more sharp and, what is just as important, eye strain is diminished. A simple test will readily demonstrate the truth of this statement.

The shade herein described consists of a short piece of tubing of diameter large enough to fit over the upper end of

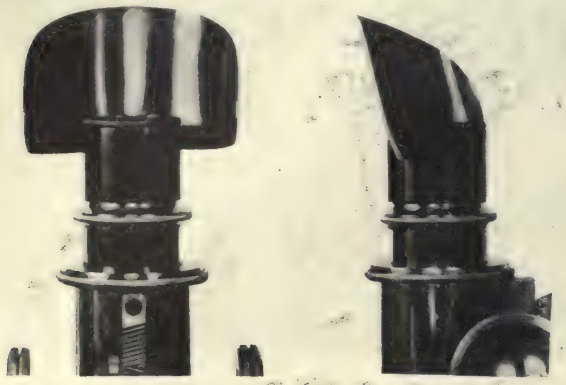


Fig. 2.—Author's eye-shade.

the draw tube. This tubing measures 2 cm. in height and is lined with felt or other soft material to prevent scratching of the lacquer. To the front of the tubing and slanting forward at a slight angle is a thin plate 8 cm. in width and 4 cm. in height. This is bent laterally so as to cup about the eye, and can be made to fit more snugly by cutting down a trifle the nasal side of the shade. It is made of aluminum with a dull black finish. The illustration (Fig. 2) affords a better idea of the construction of the shade than will a description.

I have used this eye-shade for about eighteen months, and find it of sufficient value to recommend it to microscopists. In the *British Medical Journal,* Oct. 2, 1915, Shattock describes a somewhat similar eye-shade which is also intended to prevent direct light from entering the eye above the ocular. I agree with him entirely as to the value of shading the eye in microscopic work.

A PRACTICAL CONTAINER FOR AIR SAMPLES*

JAMES L. WHITNEY, M.D., SAN FRANCISCO

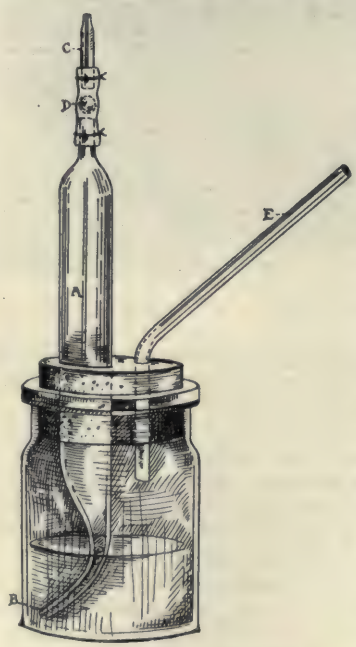
The ordinary method of collecting air samples is to employ two tonometer tubes with ground glass cocks, one of the tubes being filled with mercury. A fairly large tonometer will hold from 2 to 4 pounds of mercury, and the expense of an outfit for getting a number of samples, not to speak of its weight and bulk, is considerable. Another method is to make the collection in small bottles by the use of a mercury trough, which is also rather expensive, and involves some rather troublesome manipulations. Dr. Yandell Henderson suggested to me the use of acidulated water to replace the mercury in such a trough, and we found the results sufficiently accurate for our purposes. Since that time I have devised, and employed to a considerable extent, the small apparatus here described, as a very convenient means of collecting samples, and one which is well within the limits of accuracy demanded for most purposes.

As will be seen by reference to the illustration, the apparatus consists of a small wide-mouthed bottle of about 100 c.c. capacity, through the cork of which extends the air container (*A*). The latter can be easily made out of large glass tubing of at least 1.5 cm. inside diameter. It should be from 8 to 15 cm. in length in order to furnish the proper capacity (from 15 to 30 c.c.). It is drawn down at both ends and one end is curved as shown, so that the sample will not escape when the bottle is tilted for the transfer to the analysis apparatus. The upper end is connected by a short piece of rubber tubing with a glass tip (*C*) which should be made of small-bore tubing. As a valve a ground glass cock may be used, but quite satisfactory is a glass bead (*D*) inside the rubber tube. On pinching the rubber tube the air is allowed to pass the bead. A small bent tube (*E*) also passes through the cork of the bottle as a mouth piece. The bottle contains 1 per cent. sulphuric acid, which should be in such an amount that when the air container is full, the level of the fluid is at the small part of the container. This is in order to reduce absorption by making as small as possible the surface of fluid which is exposed to the sample. Weak acid is used instead of pure water because the absorption coefficient of 1 per cent. sulphuric acid is very low for ordinary gases. It need hardly be remarked that any dirt in the fluid should be avoided, as decomposing organic matter, etc., will materially affect the carbon dioxid content of the sample.

ANALYSIS OF SAMPLES IMMEDIATELY AND AFTER BEING IN RECEIVERS FIFTEEN MINUTES AND TWENTY-FOUR HOURS

	Samples					
	1		2		3	
	Carbon Dioxid	Oxygen	Carbon Dioxid	Oxygen	Carbon Dioxid	Oxygen
Original sample.....	6.16	12.31	3.30	16.90	3.92	15.83
After 15 minutes.....	6.08	12.16	3.31	16.90	3.93	16.00
After 24 hours.....	5.88	12.25	3.27	17.08	3.83	15.50

The method of use is as follows: After pinching the rubber tube around the bead, one blows through the tube (*E*) until the fluid rises to the tip. The bead is then released; this holds the fluid in place, and the apparatus is ready to collect a sample. Proper connection is now made to obtain the sample, and the valve is again opened. The weight of the fluid sinking in *A* will suck the sample in after it. On again releasing the bead the sample is safely held until a convenient time for analysis. When the sample is transferred to the analysis apparatus, the bottle should be held somewhat on its side, in order to allow the sample to be readily sucked out of the container, and avoid the considerable negative pressure which would occur if the bottle were upright. The apparatus is so small that the bead can be manipulated with the hand which holds the bottle, while the other hand is busy with the valves of the Haldane apparatus.



Container for air samples.

It has been found in practice that the error introduced by the use of weak acid in place of mercury is extremely small. The tabulated figures are given of the analysis of three samples to show the slight effect on the gas percentages.

It will be seen that there is a very slight loss in the carbon dioxid content, more marked when the percentage of the gas is high, but this is hardly larger than the error inherent in the portable Haldane apparatus, and is much smaller than the errors which are unavoidable in working with

* From the University of California Medical School.

patients. It is in connection with clinical work, rather than with research problems in the laboratory, that a handy receiver, such as this, will be found chiefly of value. Of course most analyses would be finished soon after sampling, so that errors larger than 0.2 per cent. would be uncommon. For very accurate work this receiver might be modified to employ mercury instead of weak acid. In this case the receiver should be shorter and of greater diameter, and the valve should be a glass stopcock instead of a bead.

University of California Hospital.

A COMBINED MOUTH GAG AND TONGUE DEPRESSOR

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The combined mouth gag and tongue depressor, shown in the accompanying illustrations, needs little further description. The gag never pinches the lip. The screw shown in Figure 2 touches the chin rest—as shown in Figure 4—



Fig. 1.—Tongue depressor with narrowing part at near end, made in two sizes.

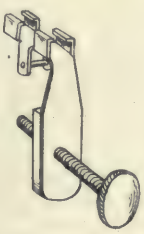


Fig. 2.—Holder for tongue depressor.

and thus holds down the tongue depressor, which fits in the groove shown in Figure 2. There is always room for the tongue between the tooth rest and the tongue depressor, so that it is not necessary to draw the tongue to one side. As the screw is turned, the blade presses on the tongue and the chin rest presses on the chin. The two counterpressures —upward and forward—hold the tongue depressor firmly in place. The chin rest swings free so as to be easily adjusted

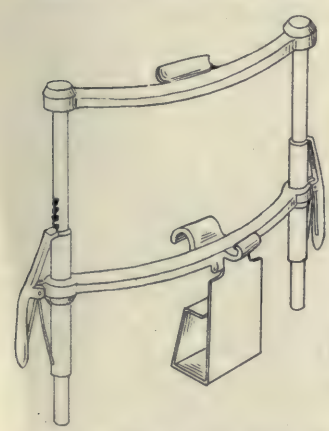


Fig. 3.—Mouth gag about half open, about half the actual size.

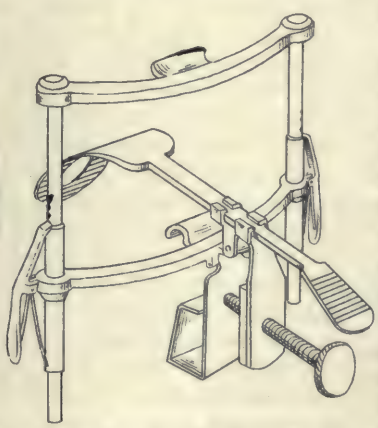


Fig. 4. — Combined mouth gag and tongue depressor about half the actual size.

to a receding or a protruding chin. The upper tooth rest should be covered with gauze or rubber tubing to protect the teeth and hold the mouth gag steady. This instrument secures a good exposure of both tonsils at once in nearly every case, and after it is once adjusted, it rarely ever has to be moved till the operation has been completed. After the tonsils are removed, two or three turns of the screw will release the holder so that it, with the tongue depressor, can be easily removed to make room for the adenoid instrument.

Therapeutics

THE EARLY RECOGNITION OF HEART DISEASE

Greater accuracy of diagnosis and better statistics will hardly account for the remarkable increase in recent years in the percentage of deaths from heart disorders. Certain factors have attained deserved prominence as potential causes of arteriocardiac disease. Among these, competitive athletics, modern business life, acute infections and especially syphilitic infection are to be noted. But while the etiologic factors are fairly well known, and their evil effects can be traced definitely, the fact remains that the first warning of serious cardiac disease is too often a sudden collapse of cardiac compensation and a varying degree of irremediable damage to the heart muscle.

The responsibility for this situation does not rest entirely with the physician, because every person over 40 owes it to himself to have a periodic medical overhauling, and advice as to prevention of these and other chronic affections. There remains, however, not a small share of responsibility for the physician, because too often when he *is* consulted, he falls into one of two errors: Either he does not make a thorough and complete examination, or else he does not appraise accurately certain definite but not prominent symptoms which are none the less guideposts to future trouble.

The recognition of the signs and symptoms of decompensation seldom fails. But how many times the hurried practitioner prescribes a tonic for the patient who comes complaining simply of tiredness and constant fatigue, even with a hasty examination failing to elicit organic changes and concomitant symptoms which would at once incriminate the heart! Not every man who is tired has heart disease, fortunately. But weariness, lassitude and decreased ambition do very often mark the first weakening of the circulation, and whether they are due to cardiac or other origin, it is the obligation of the physician to recognize them as abnormal conditions and seek further light in the examination and history.

These early signs of a weakening heart include a tendency toward breathlessness on ascending a flight of stairs, or running a few steps for a car, or walking up a hill. This is not dyspnea, and the patient may have it called to his attention only by the careful questions of the physician. Under similar conditions there may be only a sense of tightness in the chest or even of pain, which may wear gradually away or disappear at once on a few minutes' rest. Palpitation or acceleration of the heart's rate may not be noted. Sometimes the patient will admit that at night there is a little puffiness around his shoe tops, or that the feet seem somewhat swollen. There may be occasional spots and bright lights before the eyes, with a transient giddiness. Many of these symptoms pass unnoticed until recalled at the physician's questioning.

The routine examination of the heart at this stage may show some well marked valvular or other lesion, but there will often be found only such signs as a hasty examination is most apt to overlook. These may be merely a change in the quality of the first sound with a slight increase in cardiac dulness, or there may be associated an irregular pulse volume. Always in this field symptoms should receive equal or greater weight than physical signs.

Attention to these apparently trivial points will reveal many a case of cardiac disease at a stage when a modification in the regimen will of itself delay or prevent further progress. As has been said of pulmonary tuberculosis, it is not the too often impossible *early* diagnosis of cardiac disease which is to be emphasized, but the *earlier* diagnosis. Considered in the light of morbidity and mortality statistics, the earliest possible recognition of cardiac disease is just as important as the early diagnosis of tuberculosis. To detect it in this stage is usually to be able by proper diet, exercise and regulation of work to add years or decades of useful life to the measure of what would otherwise occur.

RECTAL FEEDING

Various conditions occur in which artificial feeding must be considered. The value of such feeding is still undecided, but sufficient metabolic experiments have been performed to warrant some conclusions. The most common artificial method for introducing nourishment into the system is by way of the rectum and colon. Mucous membranes have long been known to be good absorbing surfaces for certain classes of substances. They are supposed to afford an easy ingress into the lymphatics and hence into the general circulation. It is now also known that not all substances commonly used for nourishment, which help to supply sufficient calories to the system, are absorbed from the rectum and colon. There is, then, presented the problem of what substances are best absorbed, and in what ways these substances can be prepared and utilized so that they can be of service to the body. It is important to consider first those conditions in which artificial feeding is necessary. They may be grouped as follows:

1. Where there is an obstruction to the passage of food into the stomach. This obstruction may be produced by a stricture in any part of the esophagus, from new growths, from syphilitic or tuberculous ulcerations, or following the corrosive action of caustic substances which may have been swallowed.

2. Where absolute rest of the stomach is necessary, as in bleeding gastric ulcer.

3. In advanced carcinoma with pyloric obstruction, and in ulcer of the stomach or duodenum. Sometimes in the vomiting of pregnancy.

4. In severe emaciation due to improper digestion of food.

5. In coma or unconsciousness; also in paralytic conditions of the esophagus in which there is danger of introducing a stomach tube into the trachea.

Two methods for introducing substances by rectum are used: The first is the use of nutrient enemas given three or four times daily, and the second is the continuous drip method.

In the administration of nutrient enemas, cleanliness of the rectum and colon is essential. Feces or mucus on the mucous membranes prevents absorption. The rectum and colon should be washed out daily, preferably in the morning, with at least 2 quarts of warm water. If much mucus is present, 1 or 2 teaspoonfuls of sodium bicarbonate should be added to the warm water. It is not necessary to clean the rectum and colon just before each enema is introduced, as a proctitis or colitis may result. If any inflammation is present, boric acid added to the warm water will be found soothing.

The rectal tube should be slightly stiff with a diameter of from three-eighths to one-half inch. The tip of the tube is first lubricated with petrolatum, and it is then introduced to a distance of 6 or 8 inches. To the other end of the tube can be connected a longer rubber tube and a funnel. The amount of mixture to be introduced at one time should not exceed 8 ounces. The rectum can usually retain this amount, whereas a greater amount may be expelled. The mixture should be kept at body temperature, and should be introduced very slowly, the process occupying at least fifteen minutes. Too rapid an introduction tends to produce peristalsis, resulting in evacuation of the bowels.

At one time it was supposed that enemas could pass into the small intestines and there be subject to the action of the intestinal ferments. By careful Roentgen studies, however, it has been shown that the enema is not carried beyond the ileocecal valve, unless this valve is incompetent.

The kind of foodstuffs to be used should be based on a knowledge of the rate of absorption of each. The most easily absorbed substances are certain inorganic salts, dextrose, and the amino acids.

Examination of the urine at various intervals following the injection of sodium chlorid solution has shown that the chlorid content of the urine is increased. Dextrose is not only more readily absorbed than any of the other sugars, but it is also less irritant. It should rarely be given in stronger concentration than 10 per cent., since irritation may result.

Fats and oils should not be used in nutrient enemas, since neither of these is absorbed; on the other hand, their presence may hinder the absorption of other substances. Alcohol and coffee are readily absorbed, and can be used in an enema for nutrient and stimulating purposes.

Perhaps the greatest discussion in connection with rectal feeding has concerned the use of proteins. The undigested proteins are of no value at all, as they are not absorbed. In careful metabolic studies in which the daily output of urinary nitrogen was estimated, Bywaters and Short[1] showed that failure to receive any benefit from the protein material was due to either careless or incomplete peptonization of the proteins. When peptonization is carried on for twenty-four hours with a very active pancreatic extract, greater amounts of amino acids are produced. These are then absorbed, as shown by the increase of urinary nitrogen. These investigators use peptonized milk to which is added 5 per cent. dextrose and no eggs, as they found that there was a tendency to the production of hydrogen sulphid when eggs were used. Scheel and Begtrup[2] have come to similar conclusions in their metabolic studies. They assume that enough nutriment is absorbed from a properly prepared nutrient enema to save the body reserves. They use a 250 c.c. mixture containing not over 10 per cent. of dextrose, and consisting of amino acids prepared by long continued digestion of meat or milk by trypsin-erepsin. In this way they manage to supply from 400 to 600 calories daily. Their cases were all patients with gastric ulcer and hematemesis.

1. Bywaters and Short: Arch. f. exper. Path. u. Pharmakol., 1913, lxxi, 426.

2. Scheel and Begtrup: Ugesk. f. Læger, April 8, 1915, p. 543; abstr., THE JOURNAL A. M. A., May 22, 1915, p. 1804.

The drip method is increasing in favor as a means of supplying nourishment by rectum. Either a sugar solution can be used, or one containing peptonized milk and sugar. Barbee,[3] in postoperative treatment, used a 1.5 per cent. sugar solution. It was administered at the rate of from 30 to 40 drops a minute. In this way about 3 quarts of the solution could be absorbed in twenty-four hours. As the calorific value of this amount of solution is only 200 calories, it would not be life saving for any long continued period. However, he found that even after as long as seven days his patients did not lose much weight, and that no glucosuria occurred.

Adler[4] used from 4 to 8 ounces of peptonized milk, and 1 pint of 4 per cent. sugar solution. This was given by the drip method three times daily. In order to derive some information as to the actual amount of nitrogen absorbed, the caloric intake of from four to six days was compared with the output of nitrogen in the urine and the loss by return from the rectum. He found that in no case was there an absorption of more than 50 per cent. of the nitrogen supplied, and in some cases the absorption was as low as 30 per cent.

From a study of the experimental investigations in feeding both by enemas and by the drip method, it is evident that the number of calories absorbed falls far below the number actually required, and perhaps never exceeds 600 calories daily. As the actual requirement for a body at rest would be about 1,800 calories daily, it is evident that rectal feeding should be used only to tide over a temporary condition. Of course life will be prolonged when this method of feeding is utilized in hopeless obstructive carcinomatous and other growths of the esophagus, stomach or upper intestine.

In ulcer of the stomach with severe hematemesis, or in some acute stomach conditions when no food or drink by the stomach is advisable, rectal feeding may be life-saving. The water and small amount of nutriment absorbed will help to give comfort to a patient by relieving thirst and the pangs of hunger.

Various formulas for nutrient enemas have been recommended under various names. Most of them have contained eggs in some form, but it seems from the more recent investigations that it would be better not to use eggs as a nutrient in such feeding. Stone[5] recommends a more or less continuous enteroclysis by the drip method, using a solution of ordinary drinking water containing 30 gm. (1 ounce) of dextrose and 30 gm. (1 ounce) of sodium bicarbonate to the liter (quart) of water. Dextrose solutions can cause much discomfort and pain by producing flatulence. Consequently, only the weaker solutions of dextrose should be used. It must be decided which is the better method of giving the glucose solution in the individual case, whether every six hours for three times during the day, thus giving the patient a night's rest, or the use of the continuous drip method.

Gompertz of New Haven, who has carefully investigated the value and the comforts and discomforts of different nutrient solutions, and the methods of administration, prefers the "every six hour" method, using 500 c.c. (1 pint) at a time, and allowing it to pass into the colon at such a rate as will take at least two hours, or at most three hours for the patient to receive the entire amount. He thinks the dextrose (glucose) solution is less irritant given in this manner. His formula is:

	gm. or c.c.
Sodium chlorid	50
Dextrose (glucose)	50
Water	500

If this 10 per cent. glucose does not irritate the bowel and cause gas and distress, the solution may be increased to a 15 per cent. solution of glucose.

Whatever the rectal nutriment used, during such feeding the mouth should be carefully cleansed, as without eating and drinking the gums become infected. Infection easily occurs also in the different glands, especially the parotid.

3. Barbee: Northwest Med., September, 1914.
4. Adler: Amer. Jour. Med. Sc., October, 1915, p. 562.
5. Stone, W. J.: The Carbohydrate Factor in the Causation and Treatment of Hyperacidity and Ulcer, THE JOURNAL A. M. A., Jan. 29, 1916, p. 324.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

STYRACOL (see N. N. R., 1916, p. 87).—The following dosage form has been accepted:

Styracol Tablets, 5 grains.—Each tablet contains styracol, 5 grains. Prepared by Knoll & Co., Ludwigshafen a/Rh., Germany, and New York (Merck & Co., New York).

TANNALBIN (see N. N. R., 1916, p. 362).—The following dosage form has been accepted:

Tannalbin Tablets, 5 grains.—Each tablet contains tannalbin, 5 grains. Prepared by Knoll & Co., Ludwigshafen a/Rh., Germany, and New York (Merck & Co., New York).

STANOLIND LIQUID PARAFFIN.—A non-proprietary brand complying with the standards for liquid petrolatum, U. S. P., and made from American petroleum. For description see the Pharmacopeia or Useful Drugs.

Standard Oil Company of Indiana, Chicago.

It is colorless, nonfluorescent, practically odorless and tasteless. Specific gravity, 0.853 to 0.856 at 15 C. It complies with the tests of the U. S. Pharmacopeia (8th ed.).

Trachoma, a Menace to America.—The National Committee for the Prevention of Blindness has set forth in Publication 6 the history of investigations of trachoma in the United States and the facts and figures showing its prevalence, its effects on vision and the methods of control and eradication. It is said that sufficient publicity has been given to the term "trachoma" in the past twenty-five years to make it familiar, yet it is doubtful whether there is yet any general realization of its menace to the eyesight even in those communities in which it has secured a strong foothold. Among these communities eastern Kentucky has been for a number of years a focus for continuing and no doubt spreading the disease to other parts of the country, so that now, according to the investigations of the representatives of the Public Health Service and the State Board of Health of Kentucky, there are 33,000 cases of the disease in Kentucky alone. Foci of the disease exist also in other parts of the United States, some among the large industrial communities, but chiefly among the Indians on the various government reservations.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET . . . CHICAGO, ILL.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, APRIL 1, 1916

THE PROBLEM OF SANITARY SWIMMING POOLS

Swimming is gaining an increasing popularity as a wholesome form of physical exercise and relaxation, and the swimming pool has become an adjunct to all sorts of establishments which promote physical welfare. With the swimming pool have come certain problems of hygiene which tax the ingenuity of those responsible for the sanitary control of the institutions. The possibility of transmitting infectious diseases through pools has already been referred to in THE JOURNAL.[1] Perhaps, as has lately been implied, the danger of infection in swimming pools has been overemphasized, although there are recorded reports of the presence of grip, colds, pneumonia, sore throats, etc., among those who have frequented the pools in certain educational institutions.

Although the problem of pool disinfection has received considerable attention, there seems still to be not a little discrepancy in the results and lack of agreement as to the ideal procedure for securing entirely satisfactory sanitary conditions. Levine,[2] of the Iowa State College at Ames, regarding the swimming tank as a "potential vehicle of infection," has reinvestigated various suggested methods and compared their efficiency. He clearly points out that the use of chlorin, as it is applied in the familiar routine with bleaching powder, has not solved the question of the sanitary control of swimming pools as it has that of water supplies for drinking purposes. A water supply after treatment is protected against repollution. A swimming pool is constantly receiving pollution and should therefore constantly be disinfected.

It has been pointed out by Roberts[3] that, in addition to continuous disinfection, an occasional complete sterilization of swimming pools would be advantageous. Copper sulphate, free chlorin and "bleach" have been recommended, the latter being most commonly employed. The hypochlorite process is doubtless excellent for its purpose; but the rapid decomposition of the bleaching powder, its irritant effect on the eyes, and other reputed objectionable features tend to eliminate this chemical for use in any continuous disinfection process. Levine has found that continuous filtration may effect a very considerable reduction in the bacterial count of swimming pools; but this is not enough to maintain them in sanitary condition. Filtration should therefore be supplemented with disinfection. Although calcium hypochlorite may advantageously be used at intervals, Levine returns to the recommendation of copper sulphate in this field. It is cheap, it has no irritating effect, and its disinfectant action is slower and consequently more applicable to continuous disinfection, than that of hypochlorite. If it is added just prior to the opening of the pool for use, the maximal efficiency of the copper salt will be exerted during the period of maximal pollution.

The acceptance of some dependable standard method of pool disinfection which could be readily applied by persons without technical training in the swimming tanks, which are becoming yearly more numerous and popular, would advance the cause of the public health. Doubtless the time will come when a sanitary standard will be recognized for plunges as it is for various other situations which concern the hygienic welfare of the individual. Meanwhile it may be helpful to report the latest contribution to the subject. According to the Iowa experiments,[2] filtration supplemented by disinfection with one part per million of copper sulphate three times a week and, if desired, an occasional sterilization with calcium hypochlorite, will keep a swimming tank in good sanitary condition for several months.

1. The Sanitation of Swimming Pools, editorial, THE JOURNAL A. M. A., April 24, 1915, p. 1427; The Practical Disinfection of Swimming Pools, Current Comment, July 10, 1915, p. 176.
2. Levine, Max: The Sanitary Control of Swimming Pools, Jour. Infect. Dis., 1916, xviii, 293.
3. Roberts: Eng. News, 1912, lxvii, 73.

FERMENTATION AND NUTRITION

Attention has been called recently[1] to the importance of the Bulgarian bacteria group in the preparation of ensilage, the fermented green food for cattle. As the result of several hundred bacteriologic analyses of many different kinds of ensilage at all stages of fermentation, it appears that the Bulgarian group of bacteria has a particular significance in the ripening of normal ensilage. The report is interesting as indicating that the value of the fermentation products of lactic acid bacteria was recognized for cattle and used many years before its significance for man came to be appreciated. It is also interesting to find that the Bulgarian group of bacteria should occur commonly in connection with the agricultural development of a past generation when little was known of the bacteriologic rôle played by this particular kind of cattle fodder.

The use of silos or pits for the preservation of food for cattle is very old, the word, indeed, being derived from a Greek root, and its modern application coming from the ancient usage. There is even some question

1. Hunter, O. W., and Bushnell, I. D.: The Importance of Bacterium Bulgaricus Group in Ensilage, Science, March 3, 1916.

whether the fermentation of green food for cattle is not very old also, though if so it has had ups and downs in popularity, and periods when it was entirely out of use. The modern use of ensilage is probably founded on a development of the ideas connected with the fermentation of cabbage and other green vegetables in the form of what is called sauerkraut for human beings. This has been employed in one way or another probably for many centuries. To people unaccustomed to it, such a food seems almost like a spoiled product, that is, a food material which has soured while in storage. Those accustomed to its use, however, find it a grateful food material with a tradition that it is of service in the digestion of other food products. Above all, it was believed that it prevented certain unfavorable fermentations in the intestines, and tended to stimulate peristalsis and thus greatly diminish the symptoms connected with constipation, or at least sluggishness of intestinal movements.

There were other products of fermentation in food materials which produced a similar unfavorable impression when first seen or tasted, and yet those accustomed to them had learned to like them as well as to appreciate their value as causing certain conditions within the intestinal tract which were favorable to its proper activity. Sour milk, which for a time was looked on by many as a more or less noisome product, sure to do harm except to those with rugged constitutions whom nothing could possibly disturb, never lost its popularity among the working people, in dairy districts particularly, and its congener buttermilk maintained an even wider popularity. Certain kinds of cheese, whose taste and odor as well as appearance often indicated strikingly the presence of a number of varieties of bacterial fermentation, became popular among certain peoples and in certain countries. Though deprecated at first by those who had their initial experience with them, their use has now spread until it is almost universal among those who can afford to pay good prices for the food they eat and who seek that variety which some think necessary to maintain gastro-intestinal activity properly in persons who live indoors to a great extent and do not take much exercise.

Some of the fermentations which have been noted in ensilage have as an end-product the conversion of starch and sugar, though most of them lead to lactic acid. Cattle seem to thrive on both products, and human experience with the various kinds of cheeses seems to indicate that many other fermentation end-products, some of them of protein character, may prove beneficial as well as savory. In a word, the whole question of the relations of the nutrition of human beings and cattle, and the fact that many natural changes in food materials seem to be conservative rather than destructive, are here illustrated. It seems not unlikely that the development of bacteriology, which was made originally because of its significance for humanity, but has proved of great service for cattle and plants, will now be furthered notably by contributions from the bacteriologic investigations of agriculturists and horticulturists. Thus many obscure points in the extremely difficult problems of nutrition may be cleared up.

PURE LECITHIN

Seventy years ago, Gobley[1] succeeded in obtaining from egg yolk and other organs a substance of fatlike nature, containing phosphorus and nitrogen, which he called lecithin. When it was discovered that this yields fatty acids, glycerophosphoric acid and the nitrogenous base cholin by hydrolysis, a basis was furnished for some conception of the structure of this interesting lipoid substance. It was therefore defined as an ester compound of glycerophosphoric acid replaced by two fatty acid radicals and cholin according to the formula commonly published in textbooks. When it was ascertained later that somewhat similar substances are present in different organs and tissues, Thudicum[2] suggested the group name "phosphatids," which has recently found widespread acceptance. Under this are included substances of diverse origin which have found their way into biochemical literature under the designations of lecithin, kephalin, cuorin and sphingomyelin. At first these "lipoids" were associated for the most part with the nervous tissues, in which they occur in considerable abundance. Little by little it was made clear that phosphatids are widely distributed in nature. They are probably present in all types of cellular material of either plant or animal origin. A careful study of the phosphatids of milk showing the presence of at least two distinct compounds of this group was recently reviewed,[3] and reference made to the difficulties attendant on this field of research.

Physiologic chemists have realized for some time that the "lecithin" of the textbook descriptions and the "lecithin" of commerce must in many if not all cases be represented by a mixture of substances, unless lecithin is to be conceived of as a far more complex substance than the current hypotheses indicate. As a rule the amount of cholin obtainable from a given "lecithin" has been too small to account for the whole of the nitrogen present. The published data range from 25 to 90 per cent.

It now appears[4] that the substance thus known as "lecithin" is probably represented by a mixture of two substances — kephalin, which tends to become insoluble in alcohol, and a substance which remains alcohol-soluble, true lecithin. Kephalin appears to have the

1. Gobley: Jour. Pharm. Chem., 1846, i, 5.
2. Thudicum, J. L. W.: The Chemical Constitution of the Brain, London, 1884.
3. The Lecithins of Milk, editorial, THE JOURNAL A. M. A., Nov. 13, 1915, p. 1734.
4. MacLean, H.: The Composition of "Lecithin," Together with Observations on the Distribution of Phosphatids in the Tissues and Methods for Their Extraction and Purification, Biochem. Jour., 1915, ix, 351.

same general structure as the latter, except that the base present is beta-amino-ethyl alcohol instead of cholin. Both are monaminomonophosphatids with a ratio of N : P = 1 : 1. MacLean,[4] of the Department of Chemical Pathology of St. Thomas' Hospital in London, has at length succeeded in isolating the "theoretical" compound described as lecithin, in which the whole of the nitrogen is accounted for by the cholin present. The nitrogenous impurities in the usual products are very complex chemically, and appear to include substances of a purin nature. Under these circumstances it is easy to see that all conclusions of specific physiologic effects due to commercial "lecithin" are based on no small degree of conjecture and possibility of erroneous assumption. Any one who has had practical experience with the analysis of lipoid mixtures, which seem to defy almost every conventional mode of purification, will recognize a great step in advance in this achievement. It is equivalent to saying that the postulated compound lecithin is a definite chemical entity. The way is now opened for the reinvestigation of the biologic properties of lecithin as an individual purified compound of recognized chemical structure.

RECENT STUDIES OF DIPHTHERIA CARRIERS

The part which healthy carriers of diphtheria bacilli play in the spread of diphtheria has furnished a subject for much study and discussion. Numerous investigators have found culturally and morphologically typical diphtheria bacilli in the throat and nose of from 1 to 4 per cent. of healthy persons. Zingher and Soletsky[1] refer to Wilcox and Taylor as finding 4.5 per cent. of carriers among the scarlet fever patients admitted to the Willard Parker Hospital, and in one half, the bacteria were virulent.

While diphtheria bacilli cultivated in cases of clinical diphtheria are practically always virulent, those grown from carriers are often nonvirulent. The general opinion of those who have studied the subject is that the avirulent diphtheria bacilli are harmless, that they never change into the virulent form, and that carriers of such organisms are not a source of danger. Many carriers of diphtheria bacilli rid themselves of the organisms in a short time, and it is only the persistent ones which are finally of most interest. Ruh, Miller and Perkins[2] define a carrier as a person who harbors virulent diphtheria bacilli for a period of twenty-one days or more. While this limit is arbitrary, it establishes a time beyond which it is reasonable to undertake to determine whether a person who has become a persistent carrier harbors virulent bacilli or only harmless avirulent ones in order that needless isolation and restrictions may be avoided. This can be accomplished in an inexpensive manner by employing the technic of Van Riemsdijk[3] or Zingher and Soletsky. In each case two guinea-pigs are used, one for the tests, and one, which has previously received diphtheria antitoxin, as a control. Both pigs are inoculated intracutaneously with the culture to be tested. Van Riemsdijk introduces some of the culture on Loeffler's serum by means of a sharp, flat-pointed needle, while Zingher and Soletsky inject a suspension of the bacteria with a syringe. In each case virulent diphtheria bacilli cause a reaction at the point of inoculation in the test pig which is absent in the control. Two guinea-pigs can be used for testing from four to six cultures. After it has been determined which individuals are carriers of virulent bacilli and consequently a source of danger to others, the practical question arises as to how to get rid of the bacteria. In trying to solve this problem a great number of antiseptic agents have been employed with the purpose of killing the bacteria. The latest addition to the list is iodized phenol, advocated by Ott and Roy.[4] Hektoen and Rappaport[5] advised the local use of kaolin to remove the bacilli mechanically from the nose and throat, and the recent report by Rappaport[6] appears to show that the disappearance of bacilli can be hastened in this manner.

No local measure has proved entirely satisfactory, a few cases always remaining in which the bacilli persist in spite of the treatment. A careful examination in such cases usually discloses some local condition which allows the bacteria to live and grow and which prevents their being reached by any application. The most common condition of this sort is one in which there are deep pockets in the tonsils which are more or less enlarged and visibly diseased. Cultures from the throats in such cases often fail to contain diphtheria bacilli unless care is taken to secure materials from the depth of the tonsillar crypts. Friedberg[7] has removed the tonsils in such cases with satisfactory results, the cultures becoming negative at once or very shortly. Similar favorable results from tonsillectomy have been reported by Ruh, Miller and Perkins.[2] In the eighteen cases reported by them, positive cultures had been obtained over a period of thirty-one days on an average, in one over 120 days. Following the tonsillectomy, negative cultures were secured after seven days on an average, in several as early as the third day. There seem to be no contraindications to the operation aside from those obtaining in other conditions. Carriers of diphtheria bacilli are always

1. Zingher and Soletsky: Jour. Infect. Dis., 1915, xvii, 454.
2. Ruh, H. O.; Miller, M. J., and Perkins, R. G.: Studies on Diphtheria, III, The Treatment of Diphtheria Carriers by Tonsillectomy, The Journal A. M. A., March 25, 1916, p. 941.
3. Van Riemsdijk: Folia Microbiologica, 1915, iv.
4. Ott, W. O., and Roy, K. A.: The Treatment of Diphtheria Carriers with Iodized Phenol, The Journal A. M. A., March 11, 1916, p. 800.
5. Hektoen, L., and Rappaport, B.: The Use of Kaolin to Remove Bacteria from the Throat and Nose, The Journal A. M. A., June 12, 1915, p. 1985.
6. Rappaport, B.: The Use of Kaolin to Remove Diphtheria Bacilli from the Nose and Throat, The Journal A. M. A., March 25, 1916, p. 943.
7. Friedberg, S. A.: Removal of Tonsils and Adenoids in Diphtheria Carriers, The Journal A. M. A., March 11, 1916, p. 810.

immune to diphtheria, and in any case the presence of immunity can readily be determined by means of the Schick test.

Local conditions in the nose and throat other than those in the tonsils may determine the persistence of bacilli, and should be sought in the individual case, and removed or relieved whenever possible. It seems likely that the employment of local measures of this sort will serve the very useful purpose of getting rid of a large number of persistent carriers which have heretofore been subject to various forms of local treatment without benefit.

SOME FEATURES OF THE DIGESTIBILITY OF FATS

Although it is generally admitted that the fats which ordinarily find their way into the dietary of man are well utilized when the amounts ingested are not unduly large and the individual is in normal health, our knowledge of the subject is still largely empiric, being based on every-day experience in dietetics. There is, however, a practical importance in learning the digestive peculiarities of the fats which are in common use, particularly since the changing habits of our population and the increased demand for culinary and table fats tend to bring into the market varieties which have been little used. The experts of the Office of Home Economics in Washington have expressed the situation by saying that a full understanding of the materials, of the nature of household methods of handling them, and of the resulting effects is necessary as a basis for real economy as well as for more rational and satisfactory use of foodstuffs. The right use of food materials must be governed also by a knowledge of their digestibility and their value as sources of energy available to the body. Neither can one overlook the modifications which are due to the combination of ingredients into foods and to the combination of foods to form meals.[1]

Fats vary in their physical texture as well as in their chemical make-up. An opinion is more or less prevalent that some relation exists between the hardness, as expressed by the melting point, and the thoroughness of digestion, particularly with reference to fats of high melting point. At present liquid fats of oily consistency are being "hydrogenated" on a commercial scale into products of firmer texture and higher melting point for human consumption. What is the ideal texture for digestion? Is it advisable to "blend" fats of different consistency to secure a more ideal product from a digestive or even a nutrient standpoint? Some of the naturally occurring fats differ so widely in their range of melting point, from the fluid oil of the olive and cottonseed to the firm mutton suet or isolated beef stearin, that abundant opportunity is offered for a direct investigation of the subject in man.

A systematic study of this sort has been begun by the U. S. Department of Agriculture.[1] An abundant allowance of butter, beef, mutton and pork fats, respectively, was incorporated in blanc mange and added to a very simple mixed basal diet composed of wheat biscuit, fruit, tea or coffee. In this way the utilization of the milk fat and the different kidney fats could be compared in the same subjects without too many complicating factors brought about by cooking and a diversity of culinary elements.

All of the fats included in this series of experiments were well assimilated, the coefficients of digestibility ranging from 97 per cent. for butter to 88 per cent. for mutton fat. The average amounts of fat eaten per subject per day during these experiments were 90 gm. of lard, 100 gm. of beef fat, 53 gm. of mutton fat and 100 gm. of butter. In order to learn whether or not the presence of any of these types of fat in relative abundance in the diet affects the digestibility of the other constituents and the "coefficient of availability" of the ration as a whole, appropriate additional data were secured. The average coefficients of availability of energy for the rations as calculated were 93, 92.7, 91.5 and 93.9 per cent. for the diets containing lard, beef fat, mutton fat and butter, respectively. These values agree with one another closely, and are somewhat higher than the value 91 per cent. which has been found to represent the coefficient of availability of energy of the ordinary mixed diet.[2] It is reasonable to conclude, therefore, that the different fats did not exercise any unusual effect on the digestibility of the other constituents of the rations.

The facts ascertained by Langworthy and Holmes[1] with respect to possible interrelations between the coefficients of digestibility of fats and their melting points are summarized as follows:

Fat Studied	Coefficient of Digestibility. Per Cent.	Melting Point. Degrees C.
Butter fat	97	32
Lard	97	35
Beef fat	93	45
Mutton fat	88	50

From this it seems fair to conclude, with the government experts, that of those tested, the fats of low melting points are capable of more complete assimilation than those which have a high melting point. In none of the ordinary fats, however, is the utilization notably deficient.

1. Langworthy, C. F., and Holmes, A. D.: Digestibility of Some Animal Fats, Bull. 310, U. S. Dept. Agric.

2. Bull. 136, Expt. Sta., U. S. Dept. Agric., 1903, p. 113.

An Age of Pestilence.—It is estimated that during the dark ages the average of human life was less than twenty years. The birth rate was high, but notwithstanding this, Europe was sparsely inhabited. Urban life, as we now know it, was quite impossible in this age of pestilence, and would soon become so again were the functions of preventive medicine relaxed.—John W. Fries, *Southern Medical Journal.*

Current Comment

HEALTH OF AMERICAN INDIANS FOR 1915

The report of the commissioner of Indian affairs for the fiscal year 1915 gives a gratifying account of general progress, and particularly of improvement in health conditions. The total number of Indians in the United States is 333,010, of whom 101,521 are classed under the five civilized tribes, including freedmen and intermarried whites. The birth rate per thousand population was 35.25, while the death rate stood at 30.50, showing a very definite tendency toward increase of population. The greatest single cause of death was tuberculosis, which caused 35.08 per cent. of all deaths. Tuberculosis is more prevalent than in the white race, and special efforts are being made against it. Sanatorium care of the tuberculous is found most effective, and four sanatoriums are now in operation, the Laguna having a capacity of thirty-four, the Sac and Fox of eighty-eight, and the Phoenix and Fort Lapwai, of 100 each. Arrangements have been made for the erection of additional sanatoriums at the Carson, Blackfeet, Turtle Mountain, Cheyenne and Arapahoe, Pima and Mescalero reservations. Better housing conditions are constantly urged, and special inducements are given the Indians to build pleasant, healthful homes. Traveling physicians give stereopticon lectures, and a campaign of education has been inaugurated in the schools to inculcate the principles of right living, preservation of health and the prevention of disease. Essay contests on tuberculosis and on alcohol have aroused great interest. Clean-up days, and special instruction in sanitation, infant mortality and first aid to the injured are other methods of arousing practical interest. Trachoma continues to be a serious problem, but in the boarding schools, where close control can be exercised over the children, it is found that the disease can be cured or prevented. Conditions are worse among the camp Indians. Here, too, educational propaganda is being pushed. The long course and the painful nature of treatment are noted as the chief causes for the slowness in eliminating trachoma. Attention has been called particularly to dental conditions requiring treatment, especially pyorrhea, which is very prevalent. The one hospital for the insane under the Indian bureau is located at Canton, S. D. It has a capacity of fifty-one, additional patients being sent to various state institutions. Particular emphasis is placed on the disastrous effects of alcoholic drinks on the Indians, and on the measurable improvement in temperance conditions during this year. In addition to a strict enforcement of the law against selling liquor to Indians, a special campaign has been inaugurated with conspicuous success along the lines of education of the Indians in the dangers of alcohol. The field medical service of the Indian bureau consists of 1 medical supervisor, 1 special supervisor, 7 special physicians, 7 field dentists, 6 field nurses, 121 regular and 61 contract physicians, 81 nurses and 78 field matrons. In a total of 205,450 Indians coming under the reservation reports, there were 6,542 births, as against 5,632 deaths; of the deaths, 1,897, or 33 per cent., were in children under 3 years of age; 66,729 Indians were examined for the presence of disease, of whom 7,195 suffered from tuberculosis and 14,433 from trachoma; the total number of cases of tuberculosis is estimated at 22,834, and of trachoma at 34,947; 45,005 families lived in permanent houses, and 9,213 families in tepees, tents, etc. It is gratifying to note a steady advance in sanitation, housing, education and general health conditions. These must play no small part in the definite increase in the Indian population.

FATIGUE AND GASTRO-INTESTINAL MOTILITY

The movements of the alimentary tract are regulated not only by local nerve centers in the walls of the canal itself, but also through impulses which arrive from the central nervous system. In this way many influences which may even in part be conflicting in their effect can play on the gastro-intestinal tract at the same time. With the possibility of disturbing influences coming to portions of the intestine either reflexly through the central nervous mechanism or from other parts of the digestive apparatus, it is not surprising that discrepancies have arisen in regard to the interpretation of the motor phenomena. Observations of the gastro-intestinal motility by means of Roentgen examinations, which leave the organism intact and are applicable even to man, have a decided advantage, therefore, whenever it is desired to consider the general effect of any condition on this function. This lends a special value to Kast's recent study of the effect of fatigue on gastro-intestinal movement.[1] Fifty-four individuals were kept on a standard diet for a number of days, and the motor efficiency of the stomach and intestines was determined repeatedly by a combination of the Roentgen method, the use of the stomach tube, and the administration of carmin to determine the period of transit of food residues through the bowel. By taking the average, it was determined how long it took the stomach, and separately, how long it took the intestines, to propel the given amount of food. During the period of tests, the amount of physical activity was markedly increased or decreased, and the effect on the evacuating power of the stomach or intestines observed. At other times, without change in the diet or the amount of physical exercise, the amount of mental efforts was markedly increased or decreased, and the effect observed in the same manner. Summarizing the results of such experiments, it appears that the healthy individual showed very little variation as regards the evacuating power of the stomach or intestines as long as the physical exercise was not excessive. Mental efforts had no perceptible effect. In patients with moderate and marked degrees of atony and splanchnoptosis, the evacuating power of the stomach and intestines decreased in direct proportion to the amount of mental and physical exertion. Physical exertion had the same effect in such individuals if the patient was kept in a horizontal position during these exercises and during the period of observation in order to eliminate

1. Kast, L.: Effect of Fatigue upon Gastro-Intestinal Motility, Proc. Soc. Exper. Biol. and Med., 1916, xiii, 79.

the effect of splanchnoptosis in the erect position. In patients who clinically appeared susceptible to the effects of fatigue, mental exertion was more marked in its delaying effect than physical exertion.

THE PHYSICIAN IN INDUSTRY

Medical supervision of employees is no longer a novelty; that regular inspection of workmen increases efficiency, prolongs lives and lengthens the period of industrial usefulness has become generally recognized. Many of our larger industries, employing thousands of men, have equipped establishments for routine examination of employees and for the treatment of injured workmen which equal in scope and equipment some of the best hospitals. Employers have found that the careful selection of men for individual positions to which they are physically fitted means a saving in the loss of time through illness and increased output of work during regular working hours. In a recent address, Alexander[1] notes the various ways in which the physician may be of service to large industrial institutions. Aside from looking after the health of individual employees, he may search out the various conditions which affect adversely the health and comfort of all the workmen. He may aid in securing proper ventilation and lighting. Through lectures and individual instruction, the workmen may be informed concerning healthful habits to be employed at home and in the shop. A limited number of intelligent employees may be instructed in first-aid measures, enabling them, in time of emergencies, to be of service to other workmen. The work of the industrial physician is unique. He is confronted with situations which perhaps arise in no other field of medicine. His material consists usually of workmen, many of them recent immigrants, not acquainted with the English language, subject to the diseases of the country from which they came, and ignorant of the ordinary elements of hygiene which are familiar to the graduates of the modern American public school. Efforts are being made to standardize the work in the various industrial establishments — to bring about uniform standards of ventilation, light, sanitary requirements, etc. In the great field of prophylaxis in which physicians have pointed the way, such work is practical and economical.

1. Alexander, Magnus W. (executive secretary, Conference Board of Physicians in Industrial Practice): The Physician in Industry.

A Moral Obligation.—Physicians have the moral obligation to instruct the public in matters of health. Preaching before practice is of little avail. It behooves the medical profession to make at least a reasonable effort to clean its own house before it passes the broom to the public. Realizing this responsibility, the American Medical Association some years ago established its Council on Pharmacy and Chemistry. This Council is strictly an educational agency—it collects and disseminates knowledge about drugs, especially those drugs that are advertised to physicians and that are not described in the legal pharmacopeias. Physicians are thus put in a position to discriminate. Many have done so; others will; a few may never see the light on this earth.—Editorial in *Cleveland Medical Journal.*

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

State Bacteriologist Resigns.—Dr. Philip B. Moss, Montgomery, state bacteriologist and pathologist for six years, has resigned to take effect, May 1, and will move to Selma.

Hospital News.—Drs. Luther L. and Robert S. Hill have presented to the city of Montgomery the Laura Hill Sanatorium, a building of forty-five rooms valued at $26,500. The city will operate the institution as a charity hospital.

State Association Meeting.—The annual meeting of the Medical Association of the State of Alabama will be held in Mobile, April 18 to 21, under the presidency of Dr. James N. Baker, Montgomery. The Jerome Cochran lecture will be delivered by Dr. Howard A. Kelly, Baltimore, on "Radium Therapy in the Treatment of Disease." Symposiums are planned on arthritides, syphilis, diseases of the digestive tract; pellagra, tuberculosis, diseases of children, and complications of pregnancy.

CALIFORNIA

Clinic Building.—Plans have been completed for a concrete clinic building to be erected in Los Angeles under the direction of the Parent-Teachers' Association as a free clinic for schoolchildren. The building will be 40 by 140, two stories in height and will cost $25,000.

Personal.—The Fresno County Medical Society has appointed Drs. Kenneth J. Staniford and Clifford D. Sweet to conduct the work of the tuberculosis clinic in Fresno during the year.——Dr. Louis H. Freedman has been appointed chief deputy health commissioner of the International White Cross Society, with office in Los Angeles.

State Society Meeting.—The annual meeting of the Medical Association of the State of California will be held in Fresno, April 18 to 20. The Fresno County Medical Society has made elaborate arrangements for the entertainment of their guests, including automobile trips, visits to the large wineries of the county, the Sunnyside Country Club, the Kearney Farm and one of the plants of the California Associated Raisin Company.

COLORADO

Personal.—Dr. Ralph W. Mendelson, Pueblo, who has been with the army in Serbia since the opening of the war, has returned home.——Dr. James A. Matlack, Longmont, has been appointed assistant at the Mayo Clinic, Rochester, Minn.

The Manitou Waters.—The El Paso County Medical Society, at its March meeting, appointed a committee of ten, which will be known as the Manitou Mineral Waters Commission of the El Paso County Medical Society, and this committee has already secured the services of a physiologic chemist who will be engaged for a long enough period thoroughly to test the effects of the waters. He will be provided with a fully equipped laboratory for experimental purposes.

CONNECTICUT

Care for Tuberculous Patients.—The Board of Apportionment of Bridgeport has been asked to create a special fund of the surplus money in both the health and charities departments, these funds to be used to care for the tuberculous patients now in need, and to build temporary shacks to house the advanced cases for which accommodations cannot now be obtained. About $8,000 will be available for this purpose.

Talks on Ambulance Work.—Dr. Harvey Cushing, Boston, delivered a lecture before the New Haven chapter of the National Red Cross, February 23, on the ambulance work in France, illustrated by photographs.——At the same meeting Miss Sybil Eden, who had been a nurse in Serbia, gave an account of the retreat of the Serbian refugees. The proceeds of these lectures were applied to the work of the local Red Cross.

ILLINOIS

Personal.—Dr. Harry J. Freemmel, assistant physician of the Lincoln State School and Colony, resigned April 1 and

will resume practice in Chicago.——Dr. George P. Gill, Rockford, delivered an address before the Winnebago County Medical Association, March 17, in which he told of his experiences in France.

Chicago

The Sanatorium Troubles.—Following the recent upheaval at the Chicago Municipal Tuberculosis Sanatorium and the resignation of Dr. Theodore B. Sachs, thirteen members of the consulting staff of the sanatorium have resigned: Drs. Ethan Allen Gray, John L. Porter, G. Frank Lydston, William H. Wilder, Orville W. McMichael, Clifford G. Grulee, William Allen Pusey, Frank Billings, Robert H. Babcock, Arthur Dean Bevan, Joseph Zeisler, Arthur R. Edwards and Julius H. Hess.

Personal.—Dr. Giovanni B. Bruno, who has been serving in the Italian army for the past eight months, has been promoted to captaincy in the medical corps and placed in charge of a field hospital on the Isonzo facing Goritz.——Dr. Walter W. Armstrong has been transferred from head of the food bureau to the position of supervision field health officer with, it is said, an accompanying salary cut of $1,200.——Dr. and Mrs. Lewis S. Eastlake have returned after passing the winter in California and Hawaii.——Dr. Duro Guca, chief surgeon of the Bohemian-American Relief Expedition to Serbia and Montenegro, who was recently taken off a liner bound for New York on suspicion of being an Austrian spy, has been freed.——Dr. Arthur R. Elliott delivered an address before the Joliet Medical Society, March 14, on "High Blood Pressure."——Dr. Mortimer Frank will address the Harvard Medical History Club on April 4 and the Johns Hopkins Medical Historical Club on April 6.

MAINE

Feeding and Care of the Baby.—The bimonthly *Bulletin of the State Board of Health of Maine* for March is a forty page publication entitled "The Feeding and Care of the Baby" which takes up the subjects of breast feeding, bottle feeding, milk, weaning, diet in the second year, recipes for food, the general care of the baby, children's ailments, guide boards to infant welfare, and methods of controlling or checking food requirements.

MARYLAND

Health Conference.—The second annual conference of the Maryland Colored Public Health Association was held, March 15 to 17, in Baltimore. Among the speakers were Dr. John M. T. Finney of Johns Hopkins Hospital and Dr. John D. Blake, commissioner of health.

Personal.—Dr. John F. Byrne, Louis Diener and N. Moreland Owensby, Baltimore, have been given commissions in the Maryland National Guard. They have been assigned to the Medical Corps and ordered to report to Maj. Robert P. Bay, chief surgeon of the First Brigade.——Dr. L. R. Cahput has been appointed a member of the staff of Mercy Hospital.

Urges Early Transfer of Quarantine.—Surg. James A. Nydegger, in charge of the local work of the United States Public Health Service, urges an early transfer of the local quarantine station to the federal government. The government has agreed to take over the station, install a night service for the benefit of the shipping interests and take charge of the city smallpox cases as well as cases of cholera, plague or typhus fever that may develop, and also agrees to buy the quarantine property at a figure agreed on.

MASSACHUSETTS

Staff Changes in State Hospitals.—Dr. Jennie G. McIntosh, junior assistant physician at the Worcester State Hospital, has been appointed assistant physician, succeeding Dr. Roy C. Jackson, resigned.——Dr. Beatrice A. Reed has been reappointed junior assistant physician at the Taunton State Hospital.——Dr. Hattie E. Chalmers, Marlboro, has resigned as assistant physician at the State Infirmary.——Dr. Herman Caro of Monson State Hospital is taking a psychopathic hospital training course.

Proposes Consolidation of Boards.—A bill has been introduced into the legislature establishing the Massachusetts Bureau of Registration, which is to take over most of the administrative functions of the boards of registration in medicine, veterinary medicine, pharmacy, dentistry, optometry, embalming and nursing. The bureau will be supervised by a board of three, consisting of the secretaries of the boards of registration in medicine and pharmacy and a third to be designated by the governor from among the membership of the seven boards of registration. The duties of the new bureau will be to receive applications for registration, send out notices to applicants, arrange time and place for examinations, receive fees from candidates for registration, keep the records of examination and registration, receive and investigate complaints, serve as a bureau of information and publish an annual report. For this service the ex-officio members of the board will receive no extra compensation over their salaries as secretaries, but the third member will receive $500 annually in addition to his compensation as member of the board of registration.

Personal.—Dr. H. Louis Stick has resigned as superintendent of the Worcester branch of the State Hospital.——The position of assistant physician at the Deer Island Hospital has been abolished by the mayor and the incumbent, Dr. Edward J. Fitzgibbon, Dorchester, Boston, has been dropped from the city payroll.——Dr. William E. Faulkner of Harvard Medical School has left for France where he will take charge of the second Harvard Medical unit.——Dr. Charles T. Porter, Boston, who has been on duty with the Harvard Hospital unit in France, returned on the *Philadelphia,* which reached New York, March 19.——Drs. William R. Ohler, Edmund F. Walsh and John Alexander Wentworth have been made fellows in chemistry; Dr. William D. Smith has been appointed general assistant in medicine; Leonard T. Troland, instructor in psychology, and Ezra A. Cook, Sidney L. Pressy and Phillip L. Givens have been made assistants in psychology in Harvard Medical School.——Dr. William Hartwell Cressy, Boston, sailed from New York on the *Frederick VIII,* March 4, on his way to Russia as a representative of the Armenian Medical Relief Association of America.——Dr. Laurence E. Poole has resigned as bacteriologist and examining physician at the Tuberculosis Dispensary, Gardner.

MISSISSIPPI

Deem Memorial Picture Unveiled.—March 8, a memorial portrait of the late Prof. Charles S. Deem, superintendent of the Mississippi School for the Deaf, Jackson, was unveiled.

Physicians in State Legislature.—Mississippi has five physicians members of its state legislature. Dr. Carroll Kendrick, Kendrick, is a member of the senate and Drs. Charles A. Everett, Monroe, W. F. Stroud, Pinola; W. J. Redditt, Teoc, and V. Milton Perry, Satartia, are members of the house.

Personal.—Dr. Frank L. Watkins, formerly deputy state registrar in charge of vital statistics in the state board of health, has now located in Jacksonville, Fla., doing similar work for the Florida State Board of Health.——Dr. N. Jose Pinault, Pass Christian, has been appointed, by the pope, commander of the Knightly Order of Gregory the Great.——Dr. William W. Smithson, superintendent of the State Hospital for the Insane Asylum, has resigned.——Dr. George Y. Hicks, Vicksburg, is to succeed Dr. Benson B. Martin as superintendent of the State Charity Hospital, Vicksburg.

State Hospital News.—The House of Representatives, on March 17, passed by a vote of ninety-one to eleven the Kendrick senate bill authorizing the establishment of a hospital for the cure and treatment of tuberculosis in the state.——The South Mississippi Charity Hospital bill, appropriating $25,000 for the establishment of a state charity hospital in Laurel, passed the state senate by a vote of twenty-eight to four, February 24.——The joint committee of the house and senate appointed to select a site for the proposed new charity hospital, to be built in North Mississippi, has selected Tupelo as the location.

NEW JERSEY

Personal.—Dr. Robert B. Glasgow, editor of the *Burlington Gazette,* who was seriously injured by a train at a grade crossing, has recovered and resumed practice.——A silver loving cup has been presented to Dr. Julius Levy, Newark, head of the Bureau of Child Hygiene of the Board of Health, on behalf of the workers of that department.

Contagious Diseases.—The board of health of Hackensack reports 500 cases of measles with four deaths, and has invited local physicians to attend a conference at which measures will be discussed to check the disease. Reports from the state department of health show that 2,189 cases of communicable diseases were reported during the month of February.

NEW YORK

Memorial Meeting of Academy.—The Rochester Academy of Medicine held a special meeting, March 29, as a memorial

to Dr. John Orlando Roe. Dr. Joseph R. Culkin presented an outlined sketch of the life of Dr. Roe; Dr. Eugene H. Howard made the report of the committee on resolutions; a portrait of Dr. Roe was exhibited and accepted by the president on behalf of the academy; Dr. Bradford A. Richards presented a paper on "The Scientific Contributions of Dr. Roe," and Dr. Wendell C. Phillips, New York, presented an address on "John O. Roe as a Scholar and Man, His Personal Characteristics and Worth."

The Fronczak Dinner.—At the complimentary dinner given to Dr. Francis E. Fronczak, health commissioner of Buffalo, by his friends of the medical profession in the city, about 110 were present. Dr. F. Park Lewis presided as toastmaster and the toasts and responses were as follows: "Our Guest," Health Commissioner Dr. Francis E. Fronczak; "The Doctor of Medicine and the Military," Lieut.-Com. John E. MacEvitt, editor of the *New York State Medical Journal;* "The Doctor of Medicine and the Public Health," Dr. Linsly R. Williams, deputy health commissioner of New York; and "The Doctor of Medicine in Public Life," Dr. Otto Pfaff, mayor of Oneida.

New York City

Surgeon Wins Suit.—A jury in the Supreme Court, March 16, decided in favor of Dr. Herbert W. Wooton, who was sued for $50,000 damages for alleged neglect in operating on Zaidee Roland.

Pediculosis Among Immigrants.—Ninety-one immigrants who arrived on the *Patris* from the Piraeus, Greece, March 21, were placed under quarantine on Hoffman Island owing to the presence of pediculosis.

Diphtheria in Hospital.—Of the two hundred nurses in the Polyclinic Hospital, fourteen developed symptoms of diphtheria, March 12. In seven of these cases positive diagnoses were made, and all the nurses who had been exposed were isolated. This prompt action on the part of the authorities put a speedy end to the miniature epidemic.

Personal.—Dr. John E. Dougherty was appointed superintendent of the Greenpoint Hospital, Brooklyn, March 18, succeeding Dr. Charles Sanborn, resigned.——Dr. W. G. Hague delivered an address on "The Treatment of Tuberculosis" before the Spartanburg County (S. C.) Medical Society, March 14.——Dr. Samuel J. Kopetzky read a paper on "The Significance of Laboratory Findings for Diagnosis and Therapy in Otology" before the section on otology and laryngology of the College of Physicians of Philadelphia.

PENNSYLVANIA

Communicable Diseases.—Sunbury's board of health, March 21, ordered public schools closed and all children under 16 years of age to stay away from picture shows and public places of amusement because an epidemic of measles had become serious. There were 117 cases reported.

Philadelphia

Personal.—Dr. Louis N. Robinson was elected president of the Philadelphia Branch of the American Institute of Criminology at its sixth annual meeting, March 15.——Dr. L. Webster Fox has been chosen president of the Pennsylvania Home Teaching School and Free Circulating Library for the Blind.

Rush Society Lecture.—Dr. John M. T. Finney of Johns Hopkins University will deliver the fifteenth Rush Society Lecture in lecture room B of the medical laboratories of the University of Pennsylvania, Thirty-Sixth and Pine Streets, April 6, on "What Constitutes a Surgeon." This lecture is also the annual address before the Undergraduate Medical Society of the University of Pennsylvania.

Money for Hospital in France.—A check for $7,830.42 for the American Ambulance Hospital at Neuilly, France, has been sent by Dr. J. William White to the treasurer of the Committee on Philadelphia Wards in the American Hospital in Paris, completing the third subscription of $15,000. The money was collected from professors, alumni and friends of the University of Pennsylvania by Dr. White.

University Plans Military Course.—A meeting of the committee on military affairs of the University of Pennsylvania and three deans of that institution was held in the office of George Wharton Pepper. They discussed and outlined plans for the course in military training to be adopted by the university. While it is not the idea of the trustees to institute a course of military training equal to that given by the government, the training will be sufficient, however, to qualify the students to be reserve officers in the army. A special committee of trustees comprises ex-attorney-general, John C. Bell, Dr. Robert G. Le Conte, Joseph F. Rosengarten, John Cadwallader and Mr. Pepper.

Hospitals Fix Schedule for Working Men's Compensation Patients.—Twenty-seven hospitals in the city have entered into a new combination fixing a schedule of prices for workmen's compensation patients, following a protest to Governor Brumbaugh by Harry A. Mackey, chairman of the workmen's compensation board, who charged petty graft on the part of the institutions. The hospitals in the new combination are as follows: Howard, Woman's, Children's, Garretson, Fred Douglass Memorial, Samaritan, Germantown, Jewish, Mount Sinai, University of Pennsylvania, Jefferson, Philadelphia General, Presbyterian, German, Hahnemann, St. Lukes, Pennsylvania, West Philadelphia, Roosevelt, Frankford Medico-Chirurgical, Episcopal and Stetson.

SOUTH CAROLINA

Shack Donated.—A hospital shack has been donated to the Tuberculosis Camp, Columbia, by the Good Will Society. Work has been begun on the hospital nurses' shack and the sun parlor will soon be in process of erection.

Advanced to Class "A."—The Medical College of the State of South Carolina, Charleston, was advanced to class "A" at the last meeting of the Council on Medical Education, and was also elected a member of the Association of American Medical Colleges.

State Association Meeting.—The annual meeting of the South Carolina Medical Association will be held in Charleston, April 18 to 20, under the presidency of Dr. Gottlob A. Neuffer, Abbeville. The address in medicine will be delivered by Dr. Lewellys F. Barker, Baltimore; that in surgery by Dr. William J. Mayo, Rochester, Minn., and that in pediatrics by Dr. Maynard Ladd of Harvard Medical School.

TENNESSEE

State Society Meeting.—The annual meeting of the Tennessee State Medical Association will be held in Knoxville, April 4 to 6, under the presidency of Dr. Edward C. Ellett, Memphis. The annual banquet will be held on the evening of April 5.

Banquet for Duncan Eve and Duncan Eve, Jr.—The members of the Eve Society of the Vanderbilt Medical School gave a banquet at the Tulane Hotel, Nashville, February 17, in honor of Dr. Duncan Eve and Dr. Duncan Eve, Jr. R. M. Torbett presided as toastmaster.

Personal.—Dr. George F. Aycock, Nashville, has been elected superintendent of the Davidson County Tuberculosis Hospital, vice Dr. James M. Oliver, resigned.——Dr. Isaac J. Brooks, Bearden, has resigned as physician of the Brushy Mountain Branch Prison, Petros.——Dr. Lucius D. Hill, Jr., has assumed his duties as medical director of the Lincoln Memorial Hospital, Knoxville.——Dr. Morris D. Hartman, Nashville, has started for Europe, where he expects to be on duty with the Austrian Hospital Corps at Budapest.

UTAH

Volunteer Staff Organized.—A plan has been submitted to the commissioners of Salt Lake County by Dr. William R. Calderwood, president, and Dr. John S. Sharp, a member of the society, for the organization of a staff of physicians for the County Hospital to serve without pay.

Personal.—Dr. Robert W. Ashley was appointed city health commissioner of Salt Lake City, March 6, succeeding Dr. Samuel G. Paul.——Dr. Thomas J. Howells has been appointed assistant health commissioner of Salt Lake City.——Dr. S. Devon Calonge, Salt Lake City, is under quarantine in his home on account of diphtheria.

VIRGINIA

Red Cross Branch Organized.—The Alexandria Chapter of the American Red Cross was organized, February 23. Dr. Edward A. Gorman, city health officer, called the meeting to order and explained the object. First aid classes are to be organized in the near future.

Hospital Items.—Plans have been made for the incorporation of a hospital for Williamsburg. Dr. Lawrence T. Price, Richmond, president of the organization, and Drs. R. Pollard Stryker and Manuel F. Torregrosa will be associated with him in the management and conduct of the hospital, which will have a capacity for from thirty to forty patients.——

At a mass meeting recently held in Berkley, definite steps were taken for the establishment of a public hospital in that city and a committee was appointed to confer with the physicians of Berkley as to the feasibility of the project.

CANADA

Convalescent Home.—A home for convalescent soldiers from the Canadian forces is being equipped at Kingswood, near the Crystal Palace, England, and will be opened for patients by the end of March. It is being voluntarily maintained by the Massey-Harris Company, Toronto.

Honors to McGill Graduates.—Capt. Francis A. C. Scrimgeour of the class of 1905, medical officer of the Fourteenth Royal Mounted Battalion, has been given the Victoria Cross, and Major A. H. Chisholm of the same class, an officer of the Staff Army Medical Service, has been given the Distinguished Service Order by the British government.

Hospital Units Offered.—President Braithwaite of the Western University, London, Ont., has offered to the Militia Department a complete hospital staff for overseas service. The University of St. Francis Xavier, Antigonish, N. S., has offered a hospital unit for overseas service. The offer has been accepted by the war office and mobilization has commenced. The unit is to be under the command of Capt. Roderick C. McLeod, C. A. M. C., North Sydney.

Hospital News.—The Isolation Hospital at London, Ont., has been converted into a military hospital, and a building for the care of infectious diseases will be erected on the grounds of the present hospital.——The Royal Columbian Hospital, New Westminister, B. C., is asking the British Columbian government for an annual grant of $16,000 instead of $7,000 as formerly. About $5,000 is also being asked for capital expenditure. Something like $42,000 is owing to the hospital by patients, and it is impossible to collect this from the patients.

Personal.—Col. H. S. Birkett, who has been in Canada on military business, has returned to Boulogne, France, and resumed command of the McGill General Hospital. During his absence, Lieut.-Col. John M. Elder, surgeon-in-chief of the unit, was the commanding officer. The hospital now has over 700 patients, mostly medical.——Lieut.-Col. George E. Beauchamp, commanding the No. 6 General Hospital from Laval University, Montreeal, has been appointed to a full colonelcy, while Major B. G. Bourgeois, of the same unit, has been promoted to the rank of lieutenant-colonel.——Col. Henry D. Johnson, Charlottetown, P. E. I., has been appointed officer commanding the Canadian Medical Services' Special Hospital for Rheumatism, which has been established at Buxton, Derbyshire, England. Capt. Victor L. Goodwill of Charlottetown is second in command.——There are now in England about sixty hospitals and convalescent homes for Canadians, which have been established under the direction of Col. George S. Rennie, Hamilton, Ont., A.D., M.S., at Shorncliffe.——Col. Wallace A. Scott, Toronto; Maj. Alexander J. Mackenzie, Toronto, and Capt. J. Bryce McMurrich, Toronto, are attached to Moore Barracks, Shorncliffe.——Dr. Hugh A. Farris, superintendent of the St. John County Hospital for Tuberculosis, New Brunswick, has resigned.——Dr. Kate McMillan, Jacquet River, N. B., is home from Korea. Dr. McMillan went as a medical missionary to Korea in 1901, and will return after a short vacation.——Maj. H. E. Monroe, Saskatoon, Sask., who returned from the front a short time ago, has been given command of the Saskatchewan Hospital Unit which is now being mobilized.——Capt. Archibald J. Gilchrist, R. A. M. C., Toronto, mentioned on two occasions in despatches for distinguished services in the field, has been awarded the Military Cross. Captain Gilchrist is at present in a hospital but his condition is not considered serious.——Lieut.-Col. Samuel W. Hewetson, Calgary, Alberta, is now in command of No. 8 Field Ambulance.——Lieut.-Col. J. Alexander Hutchison, Montreal, has left for England, where he will probably be attached to one of the base hospitals.

GENERAL

Medico-Psychologists to Meet.—April 4, the seventy-second annual meeting of the American Medico-Psychological Association will be held in New Orleans under the presidency of Dr. Edward N. Brush, Towson, Md.

Mental Hygienists to Meet.—The second convention of societies for mental hygiene will be held at the Hotel Gruenewald, New Orleans, April 3 and 4, under the auspices of the National Committee for Mental Hygiene, and the Louisiana Society.

Limits Enrolment of Students.—A resolution recently adopted by the board of trustees of the University of Pennsylvania limits the classes for the first and second years in the School of Medicine to 100 students each. This is the fifth school to limit the enrolment in its classes, the other four being: Johns Hopkins University, Medical Department; Leland Stanford Junior University, School of Medicine; Rush Medical College, and the University of Minnesota Medical School.

Personal.—Dr. Len L. Culp, for several years physician at the Red Lake Agency, Bemidji, Minn., who has been in the United States Indian Service for ten years, has been appointed special physician for the United States Indian Service at large.——Dr. James Hunter Wells, Portland, for twenty years a medical missionary of the Presbyterian board and one of the founders of Pyengyang Station, and the Caroline A. Ladd Hospital, Korea, has resigned to accept the position of medical officer of the Seoul Mining Company, located at Holkol, 50 miles east of Pyengyang. Dr. Wells conducts two hospitals at the two mines which are in operation.——Dr. Peter K. Olitsky, who has been ill with typhus fever at Laredo, Texas, is reported to be improving.——Dr. Robert H. Crawford, one of the Red Cross surgeons engaged in touring the country for first aid educational purposes, was injured in a wreck on the Illinois Central Railroad near Greenwood, Miss., March 7.

Disbursements of Rockefeller Foundation.—Of the $1,200,000 recently distributed by the Rockefeller Foundation, the largest sum by far went to the Rockefeller Institute for Medical Research, $1,000,000 having been given for an additional endowment needed in connection with the Department of Animal Pathology recently established at Princeton, N. J. The Rockefeller Institute for Medical Research also received $25,000 for the cost of medical research and such medical supplies and services as the institute may appropriately furnish at the seat of war in Europe. The major part of this appropriation will be used for the support of the research and hospital work which is being conducted by Dr. Alexis Carrel. Among other appropriations was that of $125,000 to the China Medical Board for the purchase of additional property adjoining the Union Medical College in Peking, and $50,000 to the International Committee of the Young Men's Christian Association in support of the work in the military prison camps of Europe.

Examinations for Statistician and Physicist.—The United States Civil Service Commission announces that an open competitive examination will be held, April 25, for the position of chief statistician for vital statistics (male), in the Bureau of Census, Department of Commerce. The position carries a salary of $3,000 a year. Applicants must be graduates of recognized medical schools and must have had at least four years' experience in charge of vital statistics in a city or state, or must have had positions of similar importance requiring expert knowledge of vital statistics, and must be between 30 and 50 years of age. Applications may be made to the United States Civil Service Commission, Washington, or to the secretary of the United States Civil Service Board at Boston, Philadelphia, Atlanta, Ga., Cincinnati, Chicago, St. Paul, Seattle, San Francisco, New York, New Orleans, Honolulu, St. Louis, Balboa Heights, C. Z., and San Juan, P. R.——An open competitive examination for assistant physicist qualified in spectroscopy will be held by the United States Civil Service Commission, May 3, at various places in the United States. The salary ranges from $1,400 to $1,800 a year. Applicants must have received the degree of Doctor of Philosophy or have had three years of postgraduate training in optics, including spectroscopy. Applicants should apply for permission to take the examination to the United States Civil Service Commission, Washington, D. C., or the local secretary of the United States Civil Service Board.

FOREIGN

Weizsäcker Endowment at Tübingen.—The University of Tübingen is the sole legatee of the property of Dr. T. Weizsäcker of that place, to found a memorial fund bearing his name. The income from it is to be used to promote scientific research.

Payment for Medical Attendance on Refugees.—Dr. P. R. Folmer of Sloten, Holland, writes to the *Nederlandsch Tijdschrift voor Geneeskunde* in regard to medical practice among the refugees from the flooded districts in northern Holland. He says that these people, with their domestic

animals, have settled temporarily at various points and some have called on him for medical attendance. The question is, shall they be treated gratuitously or not, or shall the medical attendance be given in the name of their family physician at home, and an account rendered to the latter for him to collect later for the services rendered? The writer rejects the proposition to treat them gratuitously, as many of them are abundantly able to pay for medical services. He inclines to the other plan, and the *Tijdschrift* endorses its wisdom. It is a simple matter, he says, to inquire the name of the home physician and to render him an account of the services rendered. He will know whether the family is able to pay, and can collect the amount due. As the physicians in the flooded district have suffered pecuniary loss with all the other inhabitants, this plan will help to put them on their feet again.

Deaths in the Profession Abroad.—Léon Labbé, aged 84, a leading Paris surgeon, member of the Institut de France and of the Académie de Médecine.——G. Ballet, professor of nervous and mental diseases and the pathology of the brain at the University of Paris, aged about 60.——J. Van Deventer, chief of the national inspection of hospitals service for the Netherlands, aged 67. He is credited with being the pioneer in introducing professional training for nurses, having been able to equip the Buitengasthuis hospital at Amsterdam in 1880-1885 with a force of professionally trained nurses.——M. Köppen, professor of psychiatry at the University of Berlin, aged 57.——F. Schenck, professor of physiology at the University of Marburg, aged 54. Some of his textbooks on physiology are in general use.——G. Magini, research worker and professor of histology, microscopic technic and general physiology and director of the institute for histology at the University of Rome, aged 65.——F. E. Fischer, professor of surgery at the University of Strasburg, aged 68.——W. Löb, until recently privat-dozent for chemistry at the University of Berlin but moved to Vienna this year, author of "Electro-Chemistry of Organic Compounds," which has appeared in several editions and been translated into English, aged 44.——G. Lihotzky, privat-dozent of gynecology and obstetrics at the University of Vienna.

WAR NOTES

American Surgeons to Go to the Front.—It is announced that four surgeons from the American army service list will be permitted to inspect the British Army Medical Corps at the front.

Wounded and Sick Students Sent to University Towns to Convalesce.—The medical department of the German army has obtained the consent of commanding officers to permit sick and wounded university students to be sent to Giessen or Darmstadt on demand, where special university courses have been organized to enable them to continue their studies.

Banquet to Harvard Surgical Unit.—Medical Officers of the British Expeditionary forces in France recently gave a large banquet to the Harvard Surgical Unit on the occasion of its moving back into canvas for summer quarters. Speeches were made by Col. Sir Bertram Dawson, Col. Sir Almroth E. Wright, General Sawyer, Col. Fullerton, and others, and Col. David Cheever of Harvard replied on behalf of the unit.

The Berlin Fund for Civilian Physicians Serving with the Army.—A Berlin exchange states that the "Kuratorium" war fund for the physicians of Greater Berlin amounted at the close of 1915 to a total of $92,355 (369,432 marks). The associations of physicians connected with the state insurance system donated 215,777 marks toward the above total; other medical associations, 8,774, and the medical chambers of the province 55,000 marks, while individual donations totaled 87,276 marks.

Consulting Dispensaries for Venereal Disease.—The leading life insurance company in cooperation with the local state insurance companies and the organized medical profession have opened a consulting dispensary for venereal diseases at Bremen. A similar dispensary has also been organized under local auspices of the same kind in a suburb of Berlin. No attempt at treatment will be made but only advice given as to ways and means to obtain treatment and prevent contagion of others. The military authorities have agreed to refer to these "Beratungsstellen," on dismissal from army service, the men with venereal disease. It is hoped to accomplish much in the way of prophylaxis through them.

PARIS LETTER

PARIS, March 2, 1916.

The War

EMPLOYMENT OF CRIPPLES

M. Métin, the minister of labor, has just arranged with General Galliéni, the minister of war, the consolidation of the services in their respective departments which are concerned with the employment of the soldiers who have been crippled, mutilated or enfeebled by war. The bureau is to be installed in the same building in which the offices of general statistics are lodged. The officers of the organizations now in existence for the same purposes will soon be placed in adjacent buildings. Thus the work of the various branches will be coordinated.

EXTRACTION OF PROJECTILES WHICH HAVE LODGED IN THE LUNGS

At a recent session of the Société de chirurgie de Paris, Dr. Mauclaire reported five cases of extraction of projectiles from the lungs showing that this removal may be followed by complications. In Mauclaire's cases, these complications were slight; hemoptysis (two cases), pleural serous effusion (three cases). They are not always slight, however. Mauclaire believes, therefore, that projectiles should not be removed from the lungs unless they produce very serious pain, repeated pleural effusions or pulmonary congestions.

Dr. Pierre Duval remarked that the technics recommended by Marion, by Mauclaire and by others, for the extraction of projectiles from the lungs, are all somewhat defective. This is because surgeons have, up to the present time, had too timid a respect for the lung and the pleura. The lung may be operated on without special instruments or apparatus according to the ordinary principles of surgery. Total pneumothorax, partial exposure of the pulmonary lobes, freeing them from adhesion on all sides, exposure and delivery of the lobes in order to reach the mediastinum or the diaphragm, are simple procedures without particular danger. The lung is a tolerant organ which may be operated on as easily as an intra-abdominal viscus. There is no need for large thoracic openings; the resection of a single rib and retraction with the excellent retractor of Willy Meyer give all the view of the thorax that is necessary.

TRUE AND SIMULATED SCIATICA

At the Réunion médicale de la VI-e armée, Dr. A. Barré reported that, having an opportunity to study about 100 sciatica patients, he undertook to find a number of objective signs which would permit an easier diagnosis of true sciatica and the recognition of simulation. He believes that especially in military surgery the "classic" signs of sciatica are of little value. The most careful examiner runs a risk, according to the usual method, of suggestion. He advises examination of the sensibility "by surprise" and mentions several devices for the purpose. He attaches special importance to the "sign of the adductors," which consists in pinching forcibly between the thumb and fingers the internal portion of the mass of the adductors of the healthy side and the affected side. The pains are much more marked on the side of the sciatica. The modifications of the Achilles tendon reflex are often slight or nonexistent, while the "retromalleolar reflex" described by Barré is much diminished or abolished; this objective sign has great practical value. The muscular atrophy is ordinarily very slight and rarely exceeds 1 or 2 cm. There often is none in the thigh or the leg, while it is possible to perceive pronounced atrophy of the extensor brevis digitorum pedis, which is especially easy of examination. This "sign of the extensor brevis digitorum pedis" is quite frequent and generally early. The hypotonia of the muscle innervated by the painful sciatic nerve is often difficult to recognize when the attempt is made to demonstrate it by palpation or sight. Barré indicates two indirect objective signs of this hypotonia: the relaxation, the slight tension and the easy depressibility of the Achilles tendon and consequently, the lower tone of the percussion sound of this tendon and the lowering of the heel on the side of the sciatica. Another very early and very reliable sign is the lowering of the temperature of the affected side in comparison with that of the healthy side. The region in which this sign should be sought especially and which is also the only region in which at times it exists is the external surface of the leg in its lower one-half or one-third. Independent of these signs, four of which are absolutely new, Barré mentions the diminution or abolition of the cutaneous plantar reflex, definite modifications of the arterial tension and certain disturbances of the sensibility. Frequently percus-

sion of the bony projection between the Achilles tendon and external malleolus for the purpose of exploring the retro-malleolar reflex is less painful on the affected side than on the healthy side. This paradoxical fact helps to establish the reality of the sciatica. In every case in which Barré was unable to find any of the objective signs described, he was able to assert that there was simulation, to confute the malingerers and to obtain immediate or extremely rapid "cures."

Personal

At a recent session the Société de chirurgie de Paris elected Dr. Depage of Brussels and Dr. Soubbotitch of Belgrade as corresponding members.

LONDON LETTER

London, March 6, 1916.

Report of the Royal Commission on Venereal Disease

The final report of the royal commission appointed in 1913 to inquire into the prevalence of venereal diseases in their effects on the health of the community, and the means by which these can be alleviated or prevented, has been issued. Among the commissioners are Sir Malcolm Morris, Dr. F. W. Mott, and Mr. James E. Lane. The disadvantage of issuing the report when all public activities are preoccupied in fulfilling the manifold needs of the war is recognized. But it has been published because the conditions now existing and those which must follow on the conclusion of the war imperatively require that action should be taken without delay. There is no reason to believe that the percentage of infection in the naval and military forces is now greater than in normal times; but there can be no doubt that the total of infected persons has increased. The military authorities are doing their utmost to provide treatment, but the civil population requires corresponding measures, and all experience shows that after a war an excessive incidence of disease is certain to occur, even in districts previously free. The commissioners are convinced, therefore, that it will not suffice to establish treatment centers in places in which sailors and soldiers are congregated, and that these will be needed in most of the larger and in some of the smaller towns.

PREVALENCE

Except in the case of the army and navy, there are at present no means of arriving at an accurate estimate of the prevalence of venereal diseases. A large number of examinations in institutions and among special sections of the population, including postmortem tests, show an unexpectedly large prevalence. The recorded death rate per million for syphilis and three consequential diseases, distributed among eight classified groups of the population, shows the prevalence to be greatest in the unskilled labor class, and least among miners and agricultural laborers. But at present registration is defective, many deaths due to this cause escaping recognition. Sir William Osler considers that "of the killing diseases syphilis comes third or fourth." While unable to arrive at any positive figures, the commissioners come to the conclusion that the number of persons who have been infected with syphilis, acquired or congenital, cannot fall below 10 per cent. of the whole population in the large cities, and that the percentage for gonorrhea is greater.

ECONOMIC EFFECTS

It is estimated that from 30 to 50 per cent. of sterility among women is due to gonorrhea, and of registered still-births probably at least half are due to syphilis. Of 1,100 children in the London County Council schools for the blind, at least 55.6 per cent. of the cases are attributable to venereal diseases in the parents.

FREE TREATMENT

Except in the case of the army and navy, the commissioners find the existing facilities for treatment "extremely deficient." They are of opinion that no adequate system of treatment will be organized unless responsibility for it is undertaken by the state. Measures should be taken to render the best modern treatment readily available for the whole community, by the use of special wards in the general hospitals, rather than by the establishment of separate institutions. The local health authorities should organize schemes for dealing with the diseases, and as a first step should approach the general hospitals in their areas with a view to making the necessary arrangements. Treatment at any institution should be free to all, and there should be no refusal to treat a patient who is unwilling to go to his own physician. Special arrangements, such as evening clinics, should be made for the working classes. Subject to proper safeguards, local authorities should be empowered to supply salvarsan or its substitutes gratuitously to physicians. Extended facilities should be made available for diagnosis by laboratory methods, and be organized by the larger local authorities, the fullest use being made of the laboratory facilities at universities and hospitals.

COMPULSORY DETENTION

The commissioners report against any system of compulsory personal notification, believing that it would fail to secure the advantages claimed, and that better results may be obtained by improved facilities for treatment, and by a policy of education regarding the serious nature of these diseases.

THE MARRIAGE LAWS

The proposal of the divorce commission that statutory recognition should be given to the principle that infectious venereal disease constitutes an incapacity for marriage and should be a ground for divorce is endorsed. A communication made bona fide by a physician to a parent, guardian, or other person directly interested in the welfare of a woman or man, and with the object of preventing or delaying a marriage with a person who is in an infectious condition should be a "privileged" communication. This means that the person making it cannot be made responsible for libel as at present.

A FRANKER ATTITUDE

Measures are proposed to insure that every medical student has adequate practical instruction in these diseases. Their treatment by unqualified persons is condemned as disastrous, and constituting one of the principal hindrances to eradication. The recommendation of the Select Committee on Patent Medicines, that all advertisements of remedies for these diseases should be prohibited, is endorsed. Friendly societies which debar from sick benefit illness due to misconduct are urged to revise their practice. A franker attitude toward these diseases is recommended, as it would lead to less concealment involving recourse to quack remedies. On the question of education, it is urged that more careful instruction should be provided in regard to moral conduct as bearing on sexual relations. It should be based on moral principles and spiritual considerations and not merely on the physical consequences of immorality.

The War

THE HEALTH OF THE NAVY

Sir Arthur May, K.C.B., medical director-general, says that the navy is now at concert pitch, and to this state of affairs, which is a matter less of material than of personnel, the medical department has largely contributed. Notwithstanding the hardships of the long vigil, the health of the fleet today is better than it has ever been since statistics have been taken. At least half the physicians now serving in the navy have left civilian practice during the last eighteen months. No profession stands to lose so much by service with the forces as does the medical profession, simply because it is a profession which depends to so great an extent on personality. Patients are notoriously fickle, and it is possible that by the time the physician returns to civil life he will have to rebuild his practice almost from the beginning. Time after time since the war began he has been approached by physicians who have said, "I would join tomorrow if it were not for my wife and children." In such cases the director-general uses no pressure, but many men have left family and practice to come and do their share. Before the war the insufficiency of physicians in the navy had been a great shadow on his mind, but it has been lifted by the splendid manner in which civilian physicians have come forward.

PULMONARY TUBERCULOSIS IN THE ARMY

An outcry has been raised because of the discharge from the army of a considerable number of men suffering from pulmonary tuberculosis without pensioning them. The military authorities have replied that the disability or injury of a man must be due to his service in order to qualify him for a pension, and that in such cases the medical board has decided that the disease was not due to service. In some cases men manifested the disease a few months after enlistment before exposure to any hardships. It is no doubt true that under the tremendous pressure of work in examining recruits many men must have been passed suffering from the disease in an early form. Moreover, those who have recovered from the disease have often concealed the fact in

their desire to enlist. Of course the difficult question must often arise how far recrudescence is due to hardships to which the man has been exposed. As some very hard cases occur under the present condition, the government has set up a new body to deal with patients with tuberculosis other than those entitled to a pension under the present conditions.

BUDAPEST LETTER

BUDAPEST, Feb. 12, 1916.

The War

MEDICAL TREATMENT OF FAMILIES OF SOLDIERS WHO ARE AT THE FRONT

At the commencement of the war, the magistrates of larger cities entrusted the medical attendance of wives and children of soldiers to the medical officers of health, who also treated the poor. The number of such patients requiring medical attendance increased so greatly, however, that the medical officers declared themselves unable to fulfil this duty. The magistrates resolved, therefore, that a certain amount (the lowest items of the medical tariff of the respective city) should be paid to all doctors who voluntarily undertook the treatment of this class of patients. The voluntary list in most cities contains well-known names, even professors who, although much occupied without this additional work, undertake it. The expense to the cities is not important, as many doctors do not claim any salary and others, who do claim it, give this remuneration to the Red Cross organizations.

A PUZZLING INFECTION

At Balassa-Gyarmat, a large provincial town, a puzzling endemic condition occurred. In January of this year a wounded soldier was admitted to the military hospital. He had been wounded in the right shoulder nine days before admission. At the end of the same month he began to have fever, without the origin of the fever being discovered. The man suddenly became bedridden and died. Postmortem examination revealed the presence of a liver abscess, which had ruptured into the pleural cavity; otherwise there were no pathologic changes. During the first fortnight in February there were six similar cases with four deaths. The bacteriologic examination made by Professor Buday revealed the presence of a hitherto unknown anaerobic bacillus, which was present in quantities in the pus of the liver abscess. No other pyogenic organisms were found. Buday grew the organism in pure culture. By inoculating a rabbit with it he produced liver abscesses. In a few instances, abscesses appeared in the muscles and bone marrow of the experimental animals. As all the affected soldiers have been wounded ones, Buday assumes that the infection was brought into the hospital by the first soldier. Probably this new infection will be observed in other places.

HEALTH RESORT FOR TUBERCULOUS SOLDIERS

The Ministry of War has purchased Ujtatrafured—the foremost health resort in Hungary for tuberculous diseases—in order to erect a huge sanatorium for soldiers. The sanatorium will be built in modern style, and will probably serve its purpose also after the termination of the war. The cost with the purchase price will come to about 3 million kronen ($600,000).

Smallpox Epidemic in Hungary

Owing to the noncompulsory vaccination in neighboring countries, sporadic cases of smallpox have occurred in different places, chiefly among soldiers coming from the borders (not from the front). As our soldiers are, without exception, revaccinated, the epidemic could not attack our army. In fact, there are no cases at all at the front, only on the border in newly recruited soldiers, who were civilians one or two weeks ago. In order to protect the public from smallpox, the members of the Committee on Public Hygiene have ordered compulsory revaccination of all grown persons who were not vaccinated within the last five years. In municipalities health officers vaccinate free all those presenting themselves. There are about fifteen vaccine making institutions in Hungary, so there is plenty of vaccinating material.

The Death of Prof. Béla Alexander

Prof. Béla Alexander, director of the radiologic institute of the Budapest Royal Hungarian University, died at the age of 57 in Budapest, February 10. His name was widely known because of his researches in the domain of the Roentgen rays and allied subjects. He invented the making of plastic Roentgen-ray pictures, without the use of stereoscopic apparatus and simply by means of photographic technic. He was collaborator of the leading foreign Roentgen-ray journals, as the *Fortschritte auf dem Gebiete der Röntgenstrahlen* of Hamburg and the *Archives of the Roentgen Ray* of London. Only a few weeks before his death he began to write a large work with the title "War Radiology." His greatest literary work was "Die Untersuchung der Nieren und der Harnwege mit X-Strahlen" ("The Examination of the Kidneys and Urinary Tract by X-Rays"). This work was published in 1912 in Leipzig and has been translated into several foreign languages.

BERLIN LETTER

BERLIN, Feb. 8, 1916.

Congress for Internal Medicine at Warsaw

The German Congress for Internal Medicine will be held in Warsaw May 1 and 2. Last year a similar congress for surgery was held in Brussels. At this congress the diseases which are of particular importance at this time, especially typhoid, typhus, cholera, diarrhea, diseases of the heart and nephritis, will be discussed. Case reports but no papers will be read, and these will be open for discussion. Attendance will be limited to the military and civil physicians of the German Empire and its allies. Physicians of neutral countries and countries with which the central powers are at war will not be admitted. Inasmuch as this congress will be held in occupied enemy's territory, the participants must be provided with the necessary passes. The provision must be made, however, that the congress can be held only if the political and military situations prevailing now are still operative in May. We do not doubt, however, that present conditions will remain unaltered and that Warsaw will be available as a meeting place for the congress; there is little likelihood that the war will be terminated before that time. There need be no fear with regard to the feeding and housing of those who attend the congress.

Prices of Foods

The Commandant at Berlin and Mark Brandenburg, February 1, issued an order which set the price of flour as follows: 1 pound of rye flour, 22 pfennige (about 6 cents); one pound of wheat flour, 24 pfennige; 1 pound of pure wheat flour, 30 pfennige. The so-called German black bread (rye bread) is whiter than in peace times, because of the considerable addition of wheat flour; and the German "bun" (semmel), which formerly was very dark in color, has now just about the same appearance as it had in normal times.

According to the last official report from Berlin, the price has been reduced considerably for beef, veal and mutton, as well as for spinach and many other vegetables. According to the quality of the meat, 1 pound of beef costs from 1 mark 66 pfennige to 1 mark 82 pfennige (from 40 to 45 cents); veal, from 1 mark 80 pfennige to 1 mark 89 pfennige; mutton, from 1 mark 73 pfennige to 1 mark 93 pfennige; pork, 1 mark 40 pfennige. Butter costs 2 marks 68 pfennige a pound; 10 pounds of potatoes 40 pfennige; one egg 24 pfennige.

Artificial Limbs, and Care of Crippled

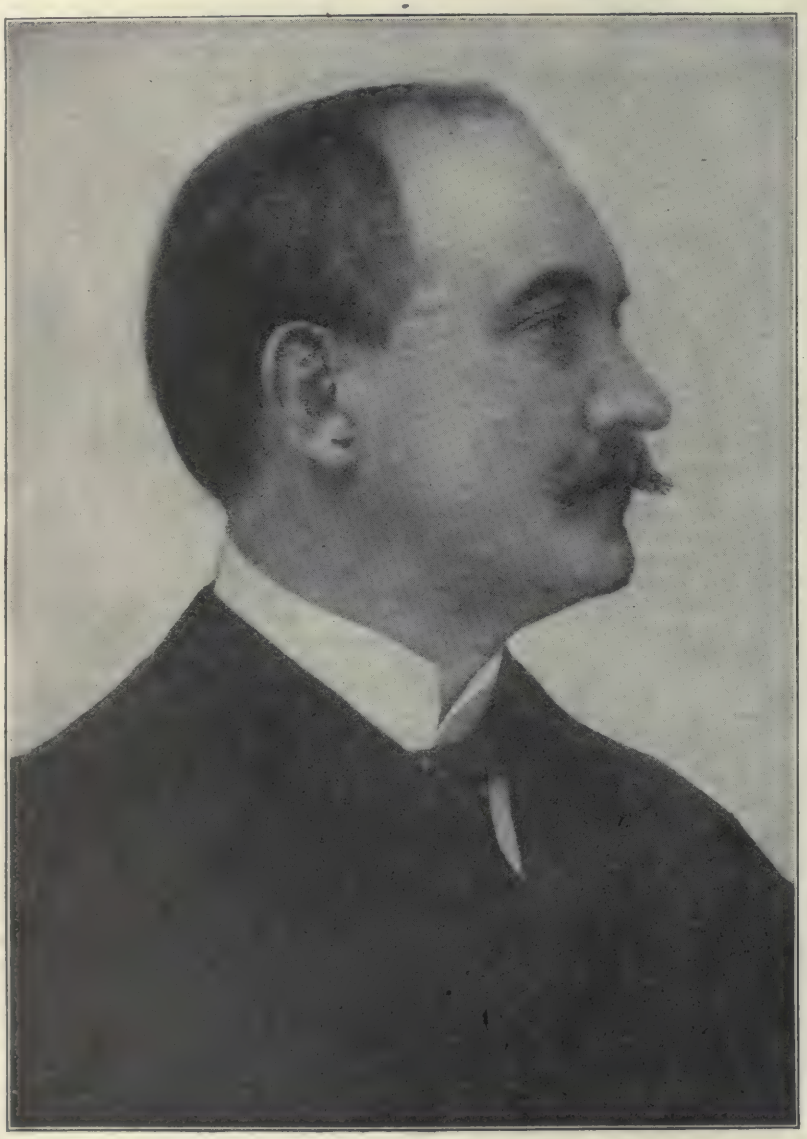
During the last few days the subject of providing artificial limbs and the care of the crippled has received considerable attention, and will be made the special order of business at the approaching congress of the German Association for the Care of the Crippled, and the German Orthopedic Society, to be held in Berlin. The basis of all this discussion will be in the papers read recently at the Berlin military surgeons' meeting by Professors Spitzy of Berlin and Wullstein of Bochum. Professor Spitzy, the director of an orthopedic institute, talked about work-therapy and schools for invalids. Spitzy's orthopedic institute, consisting of twelve divisions, with 3,500 beds, is without orthopedic aids, such as prothesis factories, barracks for the housing of schools for invalids, construction bureaus, etc. In the city there are forty-two barracks, each housing a hundred men, and fourteen of these are set aside for schools. In these school barracks provision has been made for thirty-five different vocational departments, some for hand-work and some for mechanical work, in which the invalids can be trained and instructed. There are eight instruction rooms or auditoriums for theoretical work and ordinary school work, as well as trade schools. Facilities exist for instruction in music, embroidering and crocheting, mechanical drawing, modeling, etc. In a school for the one-armed, special attention is given to the training of these persons, and agricultural schools are also in existence.

Deaths

Frank J. Lutz, M.D., a member of the Board of Trustees of the Association, and prominent as a surgeon of St. Louis, died at his home, March 24, from heart disease.

He was born in St. Louis, May 24, 1855, and after taking his A.B. degree at St. Louis University, entered St. Louis Medical College and was graduated therefrom in 1876.

He was a Fellow of the American Medical Association; a member of the House of Delegates in 1903, and had been a trustee since 1910. He was ex-president of the Missouri State Medical Association, and was chairman of the Judicial Council of that body since its reorganization in 1903. He had also been president of the National Association of Railway Surgeons and Southwestern Association of Railway Surgeons and had been secretary of the St. Louis Surgical Society since its organization. He was a Fellow of the American College of Surgeons, a member of the American Surgical Association, International Surgical Association, Association of Military Surgeons of the United States and Surgeons' Club of St. Louis.



FRANK J. LUTZ, M.D., 1855-1916

Soon after his graduation Dr. Lutz began the teaching of surgery and held successively the positions of instructor in clinical surgery in his alma mater, professor of surgical pathology in Beaumont Hospital Medical College and professor of surgery in the St. Louis University School of Medicine and the Medical Department of Washington University.

He was surgeon in chief to the Alexian Brothers Hospital and to the Josephine Hospital, St. Louis, and was also a member of the staff of the Barnard Free Skin and Cancer Hospital. From 1893 to 1897 Dr. Lutz was a member of the Missouri State Board of Health; from 1886 to 1904 he was surgeon general of Missouri with the rank of brigadier general, and was at one time vice president of the St. Louis Police Board.

During the forty years of his professional life spent in St. Louis, one of the most lasting services rendered the medical profession was his work in building up the St. Louis Medical Library which is now the library of the St. Louis Medical Society. In recognition of this service the members of the society presented a life size bronze medallion of Dr. Lutz to the society at its meeting Jan. 29, 1916, at which Dr. Amand Ravold paid an eloquent tribute to the untiring and unselfish devotion of Dr. Lutz as librarian since the foundation of the library.

Maximilian Frederick Clausius, M.D., U. S. I. S., Siletz, Ore.; Bennett Medical College, Chicago, 1886; University of Buffalo, N. Y., 1881; aged 63; a Fellow of the American Medical Association, and a member of the Association of Military Surgeons of the United States; formerly a practitioner of Palatine, Ill.; for many years an acting assistant surgeon, U. S. Army, with service in the Philippines; more recently a physician in the United States Indian Service on duty at the Siletz Agency; died at his home, February 23, from carcinoma of the stomach.

Bernard Wolff, M.D., Atlanta, Ga.; University of Virginia, Charlottesville, 1888; aged 47; a Fellow of the American Medical Association and formerly president of the Medical Association of Georgia and Atlanta Medical Society; professor of dermatology in Atlanta Medical College; dermatologist to the Grady Hospital, Atlanta Hospital and Hospital for Nervous Diseases; formerly president of the board of health of Atlanta; a dermatologist of international reputation; died in a hospital in Atlanta, March 14, three days after a surgical operation.

William Hamilton Campbell, M.D., Norwood, Cincinnati; Miami Medical College, Cincinnati, 1891; aged 54; a Fellow of the American Medical Association and American Academy of Ophthalmology and Oto-Laryngology; a well-known specialist on diseases of the eye, ear, nose and throat; ophthalmologist and formerly president of the staff of Speer's Memorial Hospital, Dayton, Ky.; who went to California early in March to join his wife; died in Los Angeles from pneumonia, March 16.

Mary M. Strong, M.D., Omaha; University of Michigan, Ann Arbor, 1888; aged 61; formerly a Fellow of the American Medical Association; said to have been the first woman to practice medicine in Nebraska; a professor of operative and clinical obstetrics in the John A. Creighton Medical College, Omaha; attending physician to the Salvation Army Rescue Home; obstetrician to Douglas County Hospital; died at her home in Omaha, March 21, from heart disease.

William Jayne, M.D., Springfield, Ill.; Missouri Medical College, St. Louis, 1840; aged 99; formerly territorial governor of the Dakotas; later mayor of Springfield, Ill., state senator from Sangamon County, and prominently identified with the banking interests of Springfield; at one time a member of the State Board of Charities; died at his home, March 20, from the effects of injuries received in a fall on an icy sidewalk in Springfield, in January last.

Carlos E. Husk, M.D., Shabbona, Ill.; College of Physicians and Surgeons, Chicago, 1898; aged 42; formerly a practitioner of Santa Barbara, Chihuahua, Mexico; a member of the expedition sent by Mount Sinai Hospital, New York City, to investigate typhus fever; was seized with the disease at Nuevo Laredo, Mexico, and died, March 20, in Laredo, Texas.

Warren Jones Copeland, Ocoee, Tenn. (license, Tennessee, 1889); aged 80; a Fellow of the American Medical Associa-

tion; for fifty-six years a practitioner and druggist of Polk County, Tenn.; surgeon in the Confederate Service throughout the Civil War; for two years thereafter a member of the Tennessee legislature and later county superintendent of public instruction; died at his home at Cookston Creek, March 16, from heart disease.

William Palmer Bolles, M.D., Roxbury, Boston; Harvard Medical School, 1871; aged 70; a member of the Massachusetts Medical Society; for many years identified with the Massachusetts College of Pharmacy; for a quarter of a century a member of the staff of the Boston City Hospital and consulting surgeon at the institution at the time of his death; died at his winter home in Santa Barbara, Calif., March 18, from heart disease.

Thomas David Baird, M.D., Walsenburg, Colo.; Rush Medical College, 1877; aged 62; a Fellow of the American Medical Association; mayor of Walsenburg; president of the city school board and Huerfano County School Board; from 1904 to 1910 regent of the state university; died at his home, March 14, from cerebral hemorrhage, after an illness of four years.

Charles Martin Campbell, M.D., Paterson, N. J.; Bellevue Hospital Medical College, 1894; aged 58; a Fellow of the American Medical Association and a member of the staff of the out-door department of St. Joseph's Hospital, Paterson; for two terms a member of the Paterson Board of Education; died at his home, March 19, from disease of the kidney.

Edmund Randolph Peaslee Fourtin, M.D., Waltham, Mass.; Harvard Medical School, 1891; aged 49; a member of the Massachusetts Medical Society; for a time a member of the staff of the Tewksbury and Foxboro state hospitals; died suddenly in Waltham, March 15, from heart disease, while making a professional call.

John K. Van Arsdale, M.D., Louisville, Ky.; University of Louisville, Ky., 1875; aged 68; for a quarter of a century a practitioner of Lincoln and Boyle counties, Ky., and later in the employ of the Louisville *Courier Journal;* died at the home of his son in New Albany, Ind., March 11, from pneumonia.

Hamilton S. McMaster, M.D., Dowagiac, Mich.; Bennett Medical College, Chicago, 1871; aged 74; a veteran of the Civil War; first city physician of Dowagiac; a trustee and director of the city schools and a member of the city council; died at his home, March 13, from heart disease.

William Harrison Pickels, M.D., El Paso, Texas; Rush Medical College, 1899; aged 41; a Fellow of the American Medical Association; formerly coroner of Grundy County and president of the Grundy County (Ill.) Medical Society; died at his home, March 9, from tuberculosis.

James C. Blickensderfer, M.D., Denver; Washington University, St. Louis, 1877; aged 68; a member of the Colorado State Medical Society; for a time a member of the staff of the Denver County and St. Joseph's hospitals; died at his home, March 3, from angina pectoris.

Louis N. Barlow, M.D., Chicago; Northwestern University Medical School, 1885; aged 54; a Fellow of the American Medical Association; and founder of the Forest Beach Tuberculosis Sanatorium in Michigan; died at his home in Chicago, March 24, from erysipelas.

Theodore McL. Northrup, M.D., St. Pauls, N. C.; University of Maryland, Baltimore, 1897; aged 42; president of the Bank of St. Pauls and interested in other local civic enterprises; died in the Charlotte (N. C.) Sanatorium, March 13, from nephritis.

James E. Brown, M.D., McGregor, Texas; Tulane University, New Orleans, 1888; vice president of the First National Bank of McGregor; died at his home, March 12.

Lewis C. Shutt, M.D., Oliver, Ind., Eclectic Medical Institute, Cincinnati, 1889; aged 60; died in the Deaconess Hospital, St. Louis, March 17, from nephritis.

Marriages

JOHN CHRISTIAN DOCTER, M.D., Drummond, Mont., to Miss Evaro Montana Avery of Missoula, Mont., March 18.

WILLIAM THOMAS PARROTT, M.D., Kinston, N. C., to Miss Jeanette E. Johnson of Wagram, N. C., March 15.

JOHN VINCENT MACGOWAN, M.D., Cincinnati, to Miss Irene Huxell of Mount Auburn, Cincinnati, March 13.

Association News

THE SCIENTIFIC EXHIBIT AT THE DETROIT SESSION

A New System of Classification and Awards

For many reasons, liberal contributions to the Scientific Exhibit are certain at the coming session of the Association in Detroit. Several excellent exhibits have already been promised. The Committee on Scientific Exhibit desires to call attention to the following:

In the evolution of this important enterprise at the Annual Session, research exhibits have come more and more to be the dominant feature. This is as it should be and no doubt will continue to be. Naturally, institutions (universities, hospitals, etc.) have contributed the bulk of this work. This has rather tended to discourage effort on the part of societies and individuals not having college or hospital connections. Accordingly, this year the committee offers a plan of classification which should stimulate participation by individuals, especially practitioners, who constitute a large majority of the membership.

AWARDS

Awards will consist of medals, cash honorariums and Certificates of Honor, according to the relative merits of exhibits. Awards will be made after careful consideration of exhibits and with discrimination. It must constantly be remembered that the purpose of these awards is to recognize work of real merit as well as to stimulate initiative in planning scientific studies. Should the exhibits in a given group prove mediocre in quality or give little promise of future development, no awards will be made. After reading carefully the following classification, each exhibitor should determine under which heading it is desirable to have the exhibit entered and catalogued:

CLASSIFICATION OF EXHIBITS

I. INSTITUTION EXHIBITS:
1. Museum collections.
Gross specimens, anatomic and pathologic.
2. Scientific demonstrations of methods, and newer things in physiology, chemistry, pharmacology, pathology, etc.
3. Hospital exhibits.

II. RESEARCH EXHIBITS:
1. From institutions.
2. By individuals:
(*a*) Representing completed work.
(The purpose of this classification is to keep institutions from competing with individuals.)
(*b*) Exhibits showing work of promise only begun.
(Under this heading would come work for which the Committee on Awards might think advisable to give a cash honorarium to encourage completion and future presentation of the results in the Scientific Exhibit.)

III. EXHIBITS RELATING TO METHODS OF LABORATORY DIAGNOSIS.

IV. PUBLIC HEALTH EXHIBITS.
Under this division only those things are desired which are new and instructive, such as exhaustive sanitary surveys, ideal work done, methods of attaining greater efficiency, etc.

V. MEDICAL SOCIETY EXHIBITS:
1. Exhibits relating to clinical, statistical or scientific medicine—conducted under the auspices of a national, state or county medical association, or other medical organization of recognized standing.
2. Medical economics. These exhibits will relate to the business aspects of the profession; the doctor's social and sociologic relationships; his services for the public weal; they will show methods for our advancement as progressive physicians and make plain how the doctor's material welfare and happiness may be enhanced.

VI. PRACTITIONERS' EXHIBIT:
1. Exhibits by physicians having college or hospital connection.
2. Exhibits by practitioners without college or hospital affiliation.
The last named should appeal to a large number. It will give even the modest country practitioner a chance, and the Committee on Scientific Exhibit will expect persons entering this classification to display an originality which will excite comment and admiration.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE WINE OF CARDUI SUIT

The trial of the suits brought by John A. Patten and the Chattanooga Medicine Company, Chattanooga, Tenn., against the American Medical Association and the editor of THE JOURNAL began in the United States District Court before Judge Carpenter, March 21.

The attorneys appearing for John A. Patten and his company are Robert H. Williams, Chattanooga, Tenn.; Warwick M. Hough, St. Louis; Francis W. Walker, Chicago, and James A. Fowler, Knoxville, Tenn.; for the Association, F. J. Loesch, T. J. Scofield, Theodore Schmidt, Chicago; James B. Sizer, Chattanooga, Tenn.; Benjamin T. Waldo, New Orleans, and C. J. Scofield, Carthage, Ill.

After the jury had been impaneled, Francis W. Walker, representing the plaintiff, began his opening statement saying:

The first case in the order of trial is the case of John A. Patten against the American Medical Association and George H. Simmons, defendants. The second case is the case of John A. Patten and Z. C. Patten, Jr., doing business under the firm name (as a partnership) of Chattanooga Medicine Company, and wherein they are both involved and, as it is claimed by us, both libeled. The case grows out of an attack made in THE JOURNAL of the American Medical Association upon a medicinal product manufactured by the Chattanooga Medicine Company and known as Wine of Cardui.

CHARGES PHYSICIANS OPPOSE ALL PROPRIETARY MEDICINES

Mr. Walker said, among other things, that as the case goes along, in its ultimate analysis, it will be discovered that:

This is an attack by a centralized medical association on the line of prohibition of the use or manufacture of any proprietary medicine or of any patent medicine, no matter how efficacious it may be. I think you will see that the case will ultimately turn out to be a proposition to the effect, as they contend, that no man or woman shall take anything for his or her own ailments unless prescribed by a physician, and then the formula or contents of the medicine is to be kept a secret from the patient himself.

THE ASSOCIATION AS VIEWED BY WINE OF CARDUI LAWYERS

Mr. Walker then outlined his view of the organization of the American Medical Association, as follows:

The American Medical Association, one of the defendants in this case, is an organization which it is not necessary for me to go into to any great extent now beyond outlining it sufficiently so that you may carry in your mind an idea of what the defendant is. There was a time in its history when it was composed entirely of doctors and organized under a different plan than the existing plan which was developed in 1897 with some changes since then in the charter and which I think, in its present form and method, has been in existence since 1904. Those dates, however, will all be made plain to you as we proceed and as those questions arise.

It is sufficient now, for the purpose of my case, to outline what I expect to show in a general way so that you may have clearly before you the character of that organization as it was at the time the articles that are sued upon were published and printed in their Journal.

As I understand it, in the various states, there are organizations in the counties of the county or city medical associations and the state medical associations of the various states. Now the American Medical Association, or the managers of it, in some way have representatives in these various county and state organizations. The American Medical Association itself was organized, as I understand it, as a method to publish and continue a journal on the line of the ideas that existed in the then managing editor of THE JOURNAL, the defendant, George H. Simmons. It was supposedly in the control of a Board of Trustees, consisting of nine members. This is the method by which the business is run. You belong to your medical society in the locality where you live, or you are a member of the state medical society, your local society being back of you. Being a member of any one of those organizations, although you may or may not be a member of the American Medical Association, the local work and general work is done in the local society or organization. But, by the mere payment of the sum of $5 for a subscription for THE JOURNAL of the American Medical Association, you become by virtue of that fact, and that fact alone (that is, providing you are a member in good standing of your local organization), a member of the American Medical Association; it being simply a method, as far as that goes, to get subscribers to THE JOURNAL of the American Medical Association. If you are a member we will say of the county or state association, upon subscribing for this medical journal (being a member of that body in good standing) you become by that fact alone, a member of the American Medical Association. You may never, under that arrangement (as will be developed later), have any voice in the naming of delegates to their convention of delegates by which the trustees are elected. You may never have a word to say as to their policy and you may never, on the information you gain that you think shows their policy, from THE JOURNAL of the American Medical Association—as we understand it you may never get any idea of their policy except from that journal.

Now bear in mind that our proof will establish I take it, that all you have to do is to pay $5, if you belong to the local association, and then you are a member of the American Medical Association and probably without a voice of any kind or character in its management or control and with no control whatever over its finances, its publication or anything it may do or say—nor its walking delegate.

As I understand it, there are some 42,000 doctors who, by subscribing for THE JOURNAL and being members of their local organizations, become by reason of that fact alone, members of the American Medical Association. In addition to that there are subscribers to the extent of some 20,000 or more, yet they are not members of the American Medical Association, either by reason of the fact that they are not doctors (and I suppose that would be very few of the number) or by reason of the fact that they do not belong to the county organization or state organization. At any rate, that will be the extent probably of the publication of this journal. It will be established in this case that there are about 160,000 or between 150,000 and 160,000 doctors in practice in the United States; so that when you take the membership of the American Medical Association, you have somewhere about one fourth or it may be a little over one fourth, but somewhere near one fourth of the doctors of the country who are members in the Association.

WINE OF CARDUI—THE WOMAN'S TONIC

Speaking of Wine of Cardui, Mr. Walker said:

The medicine in this case is what is known as Wine of Cardui and the question involved is whether that medicine, which is sold on the market as a woman's tonic, a uterine tonic, a medicine for which claims are made as a remedy for the difficulties which women alone have, has therapeutic value or not. It is for those diseases or disturbances that are peculiar to the organs of generation in a woman; those that have particularly to do with those periods which occur monthly, the menstrual period, when they suffer the most intense agony, a condition that in the medical world is known as dysmenorrhea; the condition of flooding, when they have excessive difficulty in all directions as well as a profuse bleeding, called menorrhagia; and then the lack of flow caused either by illness or lack of tone or a run down condition known as amenorrhea, when there is a scarcity and the agony that follows. All those conditions or pains that women suffer and that we men don't even comprehend or understand—this is a tonic and a medicine used for those purposes.

HISTORY OF CHATTANOOGA MEDICINE COMPANY AS OUTLINED BY MR. WALKER

Now some years ago (and I will say this so that you may keep it in mind)—Mr. John A. Patten grew up in this business. The concern was originally owned by his uncle, Z. C. Patten,—but from a youth almost he has developed with this business and he can tell you all about it. In 1906 the elder Mr. Patten who had been the former owner of the business, retired from this business and the Chattanooga Medicine Company became the property of Mr. John A. Patten and his brother Z. C. Patten [Jr.] and they continued the business and are in the manufacture of the medicine today. Long before the publication of this article in THE JOURNAL, there was published (not to be sent out except on inquiry) a book for women, or rather more of a pamphlet, called the Home Treatment Book, which made as the years went along and as medicine progressed, different statements as to the efficacy of the remedy—whether you could call them exaggerations or mere boosting—made more before Mr. Patten got hold of it than it has since. Those books, known as Home Treatment Books, are not books that are distributed promiscuously, or that accompany the medicine or that are within the package, but they are only sent out on request. If anybody asks for a book—and it will all be in evidence here, the evidence will develop all that—it is sent to them and that is where the statements in reference to both of these articles are made and they have reference to statements not in the Home Treatment Book that was in use or sent out on request at the time the articles were printed, but to statements as to what was claimed in the Home Treatment Book 10 or 15 years before the publication of these articles and long before John A. Patten and Z. C. Patten [Jr.] had in any way acquired ownership or control of the business.

These books will be presented to you, not in any garbled condition with a cut-out here and there, but in their entirety within the limits that the court puts on them at the time—the books that were used at the time the articles came out and you will see as I take it, as we expect to establish, that there is nothing in there that should not be prescribed.

Mr. Walker declared that the evidence by witnesses for the plaintiff "will show on expert testimony alone that there is a divided opinion among the experts themselves as to the efficacy or non-efficacy of the remedy." He said, further:

We expect to take the position that where there is a divided opinion of the doctors or that the efficacy of a remedy is in the realm of opinion, then nobody can charge it with being fraudulent, nor can anybody charge that it is manufactured by a man with a fraudulent and deceitful intent.

The second phase of this case, as it is developed on the evidence, will be established by the women who have used this medicine for their

own ailments over a period of time necessary to relieve them. Woman after woman in the depositions that we have taken, will be presented to you and they will testify as to the actual effect of the medicine upon them and upon their condition.

In referring to the articles which have appeared in THE JOURNAL concerning Wine of Cardui, Mr. Walker said:

It will be established in this case that when Mr. John A. Patten took charge of this medicine company in 1906, and before any food and drug act went into effect, or was introduced, he took this medicine to one of the greatest chemists (now dead) in the United States for the purpose of ascertaining whether or not any other solvent or preservative could be used rather than alcohol for the preservation of the drug; that he experimented to eliminate all the alcohol possible from the drug. He found that by the use of a certain amount of alcohol, much less than had been in use before, the drug itself would spoil and the medicine had to be thrown away. He found that twenty per cent. of alcohol was the exact amount that would answer the purposes and that anything substantially beneath that amount would make the medicine spoil, and would no longer act either as a solvent or a preservative. Long before the Food and Drug Act was passed (I think a year or more before) he did that, and the article in THE JOURNAL of the American Medical Association says he did all that because of the Food and Drug Act.

Lastly, Mr. Walker said:

You will find, I take it, that there is not the faintest possible justification either for the abusive attack on Mr. Patten or on the remedy manufactured by the Chattanooga Medicine Company.

THE ASSOCIATION'S ATTORNEY STATES THE CASE

Mr. T. J. Scofield, representing the American Medical Association said, in opening his address:

You have heard something said about the American Medical Association. You have heard disrespectful comment and assertion laid to the door of one of the noblest professions that exists in this or in any other country. You have heard it said that its instruments and its principal men constitute a monopoly and a trust; that they are opposed to self medication; that they are opposed to all kinds of proprietary medicines, and that the only thing which they have in view is to prevent the people who use medicines and need medicines from buying proprietary medicines and patent medicines in order, forsooth, that they may call on you and obtain from you a fee for a prescription for medicine which they may prescribe.

Alluding to the statements of Mr. Walker regarding the American Medical Association, Mr. Scofield said:

What is the American Medical Association? Is it composed of unscientific men? Is it composed of uneducated men? Is it composed of men who are endeavoring simply for the purpose of profit to themselves, to obtain the privilege of prescribing for your family and mine? Not as I understand it.

There is no science that has developed more rapidly in the last fifty years, more earnestly or more successfully than the science of medicine. Today there are as members of the American Medical Association some 70,000 reputable, upright men who are practicing medicine, two-thirds of whose life is spent in the sick room endeavoring to minister to the wants of those who suffer, understandingly and knowingly—who spend two-thirds of their entire life where there is suffering and where there is sorrow—and that they may be of benefit to you they are studying and studying and studying. That these men may be more efficient, that their services may be of greater avail and purpose, 70,000 of them have associated themselves together in an organization that is known as the American Medical Association. It does not seem to me—the purpose and the object considered—that it is a disgrace to belong to that body of men, but it seems to me that it is an honor.

But it is said by Mr. Walker, in telling you what the evidence in this case would develop—and I therefore assume that he was sincere with you—that the only requisite to membership in the American Medical Association was in effect to pay $5.00 and become a subscriber to THE JOURNAL of the American Medical Association.

What is THE JOURNAL of the American Medical Association? It is the official organ of these 70,000 doctors, through whose columns there is interchange of experience and discovery and of thought that may be of benefit to the other 70,000 doctors and not only to the other 70,000, but to every doctor in the United States of America who may see fit to join or may determine by subscription to learn the lesson that that JOURNAL is intended to convey and is teaching week by week.

How is the American Medical Association made up? Is it made up of a large number of subscribers for THE JOURNAL? Not at all, and the evidence will not show that. But the evidence will rather show that this body may be likened in its organization to the organization of a county under the laws of a state, and the organization of a state under the laws of the United States—a representative body; a representative government. Men who live in the county, pay their taxes and own their property, are citizens of the state. Citizens of the state are, by reason of that fact, not only citizens of the state, but citizens of the United States. And so it is with the American Medical Association.

Now, then, gentlemen, there is no initiation fee that is required of gentlemen who are practicing physicians who desire to associate themselves with the American Medical Association, whatever. The only fee requirement is that you pay your dues to your County Society which you have got to maintain and keep up, and maintain yourself in good standing in your County and in your State Society as doctors, and when you do that, *ipso facto* you are a member of the American Medical Association.

Now I am dealing in detail here by reason of the fact that misapprehensions undoubtedly are left in your minds as to the organization of this body. There is what is known as a Fellowship in the American Medical Association which is composed of a large number of physicians, whether they be surgeons or doctors of medicine who desire to take part in the progress of scientific research and discovery, who are admitted to what is known as a Fellowship in the American Medical Association, and every man who is willing to pay his part of that expense thus entailed pays $5 for his Fellowship membership each and every year, and out of that the JOURNAL of the American Medical Association is maintained, $4 of it being turned over for the maintenance of the investigations and the scientific research that that JOURNAL through the American Medical Association, is conducting and the other dollar for purposes of the general expenses of the institution. Quite a different story.

And I say to you again: Just why it is that counsel would belittle the American Medical Association as a body, in the interest of the client whom he represents here today, is beyond my conception and understanding. It is my purpose, therefore, to deal frankly and fairly and honestly in telling you what I think the evidence will develop, if the subject is gone into, and my understanding is that what I have said to you is the plan on which the American Medical Association is organized and operates. And right here let me pause long enough to say that instead of the American Medical Association being opposed to all patent and proprietary medicines, on the contrary, the American Medical Association recognizes certain ethical proprietary medicines as being medicines of value, and recommend them, and physicians in this country prescribe them.

Continuing, Mr. Scofield said that there are two bodies represented in this litigation:

One the American Medical Association and some of its officers; the other the Chattanooga Medicine Company and its owners and proprietors. John A. Patten is not a doctor and never was. He is not abreast of the science of medicine and knows not a medicine that is appropriate to be prescribed to you or given to you. His brother Z. C. Patten, who is associated with him in this business, is not a physician and never was a physician. His advertising agent, who sits yonder, is not a physician and never was a physician; but the evidence in this case will show you that he writes the medical lore and literature that Mr. Patten and his brother send broadcast all over this country as to this nostrum which they are pleased to designate a medicine under the name of Wine of Cardui. I call your attention to that fact, gentlemen, as showing you that so far as this medicine is concerned, it does not emanate from any source that has a right to diagnose disease, determine the cause of a condition that may exist where you are ailing physically, or to treat it.

Mr. Scofield said further:

With full knowledge of the fact that at least one fifth or more than one fifth of every bottle of Wine of Cardui, prior to 1906, that Mr. Patten was putting out on the market, was pure alcohol, he was nevertheless satisfied that the business should continue with the representation to the purchasing public that it was positively non-intoxicating.

THE FOOD AND DRUGS ACT

Mr. Scofield pointed out that the evidence in this case would show that John A. Patten early in the year 1906, associated with his brother Z. C. Patten, Jr., became the sole owners of the Chattanooga Medicine Company; that at that time, in the winter of 1905 and 1906, there was pending before Congress a Pure Food Law which, if enacted, required every manufacturer of any article of drugs to put in black and white on the carton in which it was contained the amount of alcohol that that medicine or preparation carried. That law was passed on the 30th day of June, 1906, and it became operative on the first day of January, 1907, which was a year or more after Mr. Patten had placed upon the labels of the bottles the fact that they contained 20 per cent. of alcohol.

Mr. Scofield said that in the literature of the Chattanooga Medicine Company, as now conducted, and under its present management, they put out and have put out in circulation twenty millions of almanacs: "The Cardui," or the "Wine of Cardui Almanac;" the "Ladies Birthday Almanac," as it is called. And they are scattered in every drug store where they can be placed throughout the south, and may be found at the cross road stores in many of the mercantile establishments that are located in country locations in every state in the south. Continuing, he said:

The evidence will show that in every one of them it is stated that the "Home Treatment for Women," which is a very valuable book for ladies who have any sort of female trouble, can be had for the asking, and they urge in these advertisements, that anybody or everybody

who wants one of them shall send them a request for it, and they will receive it by return mail, and they say: "Lest you may have some serious female trouble that is working on you, buy a bottle of Wine of Cardui today, and be taking it while you are getting this book; price $1.00 a bottle. Or what is better, if you will buy 5 bottles, we will throw in a bottle. All orders cash; nobody trusted."

In referring to Mr. Patten's church connections, Mr. Scofield said:

I do not care whether he is the bishop of the Methodist Church; I do not care whether he is a high layman in the Methodist Church; I do not care whether he is at the head of the book committee of the Methodist Church, when any man tells you that in a case of prolapsed womb, chronically so, with its ligaments stretched until the womb is practically hanging out of the body—that Wine of Cardui, the miserable nostrum that we contend it is, and that we said it was in these articles, and say now, will pull that womb up into its natural position in the human body until it has reached its ascendency and there rests, is a matter of such absurdity that it would seem to me that common intelligence would deny the truth of such representations, and yet that is one of the representations which they (the plaintiffs) make.

Mr. Scofield said that the evidence would show that Wine of Cardui was advertised for practically every ill that woman is heir to, by reason of the fact that she is a woman, and which may originate in her pelvic cavity, and that "Wine of Cardui will cure or reproduce in its virgin condition in effect a hanging breast." The defendants would be able to show by chemical analyses that have been made that Wine of Cardui contains no ingredient which has an effect upon the human uterus.

PLAINTIFF'S TESTIMONY

At the conclusion of Mr. Scofield's remarks, the taking of testimony was begun. Dr. Alexander R. Craig, secretary of the American Medical Association, and Dr. Arthur J. Cramp, in charge of the Propaganda for Reform department, were called as witnesses by the plaintiff. They testified in regard to the circulation of THE JOURNAL, and identified the plaintiff's exhibits concerning certain issues of THE JOURNAL, as well as other publications.

JOHN A. PATTEN ON THE STAND

In the direct examination by Attorney Walker, for the plaintiff, John A. Patten testified, in part, as follows:

Q.—Now, in what business are you engaged, Mr. Patten? *A.*—I am so-called managing partner of the Chattanooga Medicine Company of Chattanooga, Tennessee.

Q.—And what is the Chattanooga Medicine Company? Is that a firm or a corporation? *A.*—A firm. A co-partnership.

Q.—And who compose the firm? *A.*—My brother, Z. C. Patten, Jr., and myself.

Q.—And the firm is doing business under the name of the Chattanooga Medicine Company? *A.*—Yes.

Q.—Mr. Patten, do you know the medicine known as Wine of Cardui? *A.*—Yes.

Q.—Who is that manufactured by? *A.*—By the Chattanooga Medicine Company.

Q.—And was that being manufactured throughout the years 1914, 1915, and up to this date, 1916? *A.*—Yes.

Q.—And it was being manufactured was it, on August 11, 1914? *A.*—Yes, sir.

Q.—And on April 11, 1914? *A.*—Yes.

After testifying that the Chattanooga Medicine Company had been a partnership since Sept. 29, 1909, and stating that his attention was called to an article published in THE JOURNAL April 11, 1914, while he was in New York City, Mr. Patten on being cross-examined by Attorney T. J. Scofield, representing the defendants, testified as follows:

Q.—What is the business of the Chattanooga Medicine Company? *A.*—The manufacture and sale of three or four proprietary medicines.

Q.—What do you mean by a proprietary medicine? *A.*—Well, I mean a medicine in the first place that is not a common or official preparation in which there is a trade mark or special claim in the proprietor.

Q.—Do you mean by a proprietary medicine, such as the medicines which you manufacture, a secret formula medicine? *A.*—Well, it may be secret or it may be published.

Q.—Well, I am saying as you manufacture; what is that medicine, a secret formula medicine? *A.*—The formula is not published—no, sir.

Q.—You say there are some three or four proprietary medicines that you are interested in and that your company has manufactured? What are they, aside from Wine of Cardui? *A.*—Thedford's Black Draught, a liver medicine; Cardoseptic, used for a douche, an antiseptic preparation; and a syrup called Velvo.

Q.—Is Thedford's Black Draught a secret formula? *A.*—It is not published.

Q.—I am asking you whether or not it is a secret formula.

THE COURT:—Oh, is it known generally outside of your business, with people in the business of manufacturing medicines?

The Witness:—I desire to answer, you know, just as directly as I can. We do not publish the formula.

THE COURT:—Does anybody know it outside of your business?

A.—Well, it is pretty—pretty widely known, but we do not publish it; no.

Mr. T. J. Scofield:—Well, is the formula for Wine of Cardui pretty widely known? *A.*—I don't know.

Q.—You don't? *A.*—We don't publish it. It is secret as far as we are concerned.

Q.—As far as you are concerned? *A.*—Yes.

Q.—How about Cardoseptic; is that a secret formula? *A.*—Yes; though we give the formula to anybody who asks it; I think I have in some cases.

Q.—How about Velvo; is that a secret formula? *A.*—Yes. We make very little of it, but the formula has not been put on the wrapper nor published.

Q.—Are you connected with any other business that is engaged in the manufacture of patent or proprietary medicines of any character, whether for man or beast? *A.*—Yes. I am interested in a concern making preparations for, as you say, beasts.

Q.—Is that a secret formula? *A.*—Yes.

Q.—What is the name of the concern that manufactures that preparation? *A.*—The Bee Dee Stock Medicine Company.

Q.—Are there any other businesses with which you are connected that are engaged in the manufacture of proprietary medicine of any kind? *A.*—No, I think not.

Q.—You say you think not? Have you any interest in any other patent or proprietary medicines directly or indirectly? *A.*—Well, no, I —I don't think so. I am not actively, certainly—and I don't recall any interest in such a thing—no.

Q.—Then the only institutions that you remember are the Bee Dee Company and the Chattanooga Medicine Company with which you are associated in the manufacture of medicines, either for man or beast or woman; is that right? *A.*—Oh, I am interested in a little salve called Menthycoll.

Q.—Where is that manufactured? *A.*—It is manufactured at Chattanooga.

Q.—By the Chattanooga Medicine Company? *A.*—Well, my brother and I control it. It is made under the name of The Menthycoll Company.

Q.—Where is it made; at the plant of the Wine of Cardui Company or the Chattanooga Medicine Company? *A.*—Well, I don't know. It is made in the vicinity. I don't think it is. Very little of it is made, and I don't think it is made at the plant of the Chattanooga Medicine Company.

Q.—But in some other plant nearby? *A.*—Yes.

Q.—Is that a secret formula? *A.*—The formula is not on the package.

THE COURT:—Well, now, can't we arrive, at least, for the benefit of the Court, if not for the jury, at what is meant by a secret process or formula?

Mr. T. J. Scofield:—Well, a secret formula—

THE COURT:—If the formula is given out on application it cannot be legally or otherwise a secret formula.

Mr. T. J. Scofield:—No.

THE COURT:—Whether it is published on the wrapper or not.

Mr. T. J. Scofield:—No.

THE COURT:—Now, let us find out just what a secret formula is—

Mr. T. J. Scofield:—*Q.* Well, What is the formula of Wine of Cardui, Mr. Patten?

Mr. Walker:—That is objected to.

THE COURT:—What was the question?

Mr. Walker:—What is the formula?

Mr. T. J. Scofield:—Of Wine of Cardui.

THE COURT:—He has stated that is a secret process and was not given out and was not on the wrapper.

Mr. Walker:—That is what he said.

Mr. T. J. Scofield:—What is the formula of Cardoseptic?

Mr. Walker:—That is objected to.

Mr. T. J. Scofield:—I want to find out whether or not these are secret medicines.

Mr. Walker:—That will not answer the question of whether the formula is secret or not.

THE COURT:—This may be one of the medicines that he said was not secret.

Mr. T. J. Scofield:—I am trying to assist in ascertaining—your Honor asked the question as to what was a proprietary or secret formula medicine.

THE COURT:—Can you find that out by asking him what the formula is?

Mr. T. J. Scofield:—Is the formula of Cardoseptic maintained in secrecy by you, or is it given to the public?

Mr. Walker:—I object to it on the ground it is not material and it is not cross-examination.

THE COURT:—He may answer. (To which ruling of the Court the plaintiffs, by their counsel, then and there duly excepted.)

The Witness:—It is not on the label. I stated, in answer to your question, that we would have no objection to supplying it. I would supply it to anybody who asks for it; and I do not have it in my hand, but I will take pleasure in supplying it to you, Mr. Scofield.

Mr. T. J. Scofield:—Yes, well, I would like to have it.

At this point, an animated verbal warfare took place between counsel on both sides and the Court on the question of whether Mr. Patten should disclose the formula of Wine of Cardui, but the question was passed.

Attorney Walker then read excerpts from THE JOURNAL, April 11, 1914, entitled "Wine of Cardui"; also an article from THE JOURNAL of July 18, 1914. These articles were offered in evidence as plaintiff's Exhibits 1 and 2, as well as an article published in THE JOURNAL of June 6, 1914, entitled "An Explanation," plaintiff's exhibit No. 3, after which the further hearing of said case was adjourned until Monday, March 27.

COMPLETION OF THE PRESENTATION OF THE CASE FOR THE CHATTANOOGA MEDICINE COMPANY

On the morning of March 27, Dr. Arthur J. Cramp testified as to the distribution of reprints of the articles published in THE JOURNAL on Wine of Cardui.

Questions were also asked as to the publication of other medical journals in the United States.

Mr. John A. Patten was again called and testified as to his memberships on various committees of the Methodist Episcopal Church, stating:

"I was practically forced out of them by these publications and the campaign that followed."

Rev. John H. Race, clergyman of the Methodist Episcopal Church, one of the publishing agents of the Methodist Book Concern, testified on direct and on cross-examination as to Mr. Patten's membership in various committees also as to the duties of the Book Committee, Board of Education, Board of Managers, Methodist Brotherhood, the Layman's Association, and other organizations connected with the Methodist Episcopal Church. He further testified that Mr. Patten represented District No. 6 in the Book Committee, and that it is within the power of the Book Committee to fix the salaries of editors of the Advocates, the family church papers; to discontinue the services of any editor if it sees fit to do so on charges preferred and after trial.

Rev. Edgar Blake, minister of the Methodist Episcopal Church, residing in Evanston, Ill., Corresponding Secretary of the Board of Sunday Schools of the Methodist Episcopal Church, testified that the publication of the articles on Wine of Cardui was brought to the attention of the various members of the church, and that there was widespread discussion of the articles among them.

Introduction of the Case for the Association

Mr. Frank J. Loesch then read to the jury excerpts from the Constitution and By-Laws of the American Medical Association. He also read to the jury the entire articles published in THE JOURNAL on Wine of Cardui, attention being called to the specific portions read by Mr. Walker.

Mr. Scofield then introduced the deposition of Mrs. McElree:

DEPOSITION OF MRS. M'ELREE

After identification of the witness, Mr. T. J. Scofield asked:

Q.—Mrs. McElree, your husband, or your husband and yourself, formerly made a preparation known as Wine of Cardui, did you not? *A.*—Yes, sir.

Q.—Were you living then in Tennessee or Texas, or where? *A.*—We were living in West Tennessee.

Q.—West Tennessee? *A.*—In a small town, Arlington, out near Memphis.

Q.—Will you kindly tell the Commissioner how you made that preparation and out of what? *A.*—Well, my idea of that may be a little crude. I never helped to make it, and I was never in the laboratory. I was a very busy woman and I was never in the laboratory only for a few minutes at a time perhaps, but my understanding is, and I think I am correct, that he put the weed in a vessel and put water on it and let it stand perhaps two or three days to extract the medicinal properties, and then he drew it off and flavored it and put just enough whiskey in it to preserve it. That was all. I do not know the per cent., but it was just a small amount as could be used for the preservation of the medicine.

Q.—Now, what was the plant or the weed you say that was used? *A.*—Well, we did not know it any other way only as we got it, it was called Cardui.

Q.—Did it grow in the neighborhood in which you lived? *A.*—No, sir; it grew only where we planted it. It was not indigenous at all.

Q.—Where did you get the seed, Mrs. McElree? *A.*—Well, I got the seed from my grandmother in Fayetteville, Tennessee, middle Tennessee.

Q.—Did your grandmother tell you how to use the weed when it grew up so as to make this preparation from it? *A.*—Yes, sir; that was the only way I knew about it.

Q.—And did you communicate that intelligence to your husband so that in making it he could follow the directions which your grandmother gave? *A.*—Yes, sir. He did not know any other way to make it.

Q.—Do you know how much of the weed, as you designate it, or the Cardui, was used in making up the portion of the medicine? *A.*—Well, just on a small scale, the way grandmother gave it out to people that happened to need it, that she found out and she could get a little bunch of the weed—we used to say a little bunch that they could hold that way (indicating) to a quart of whiskey.

Mr. Hough:—Will you indicate what she means as the amount she could hold between her finger and the thumb, to a quart of whiskey?

Q.—To a quart of whiskey? *A.* Yes, sir; just a little bunch of the weed.

Q.—I think you said a quart of whiskey. You did not mean that? *A.*—I did not mean that, to a quart of medicine. They did not put only enough whiskey to preserve it and Mr. McElree, of course, began it on a small scale and he just put it in a barrel, and I think he put about two-thirds full of the weed after it was stripped and then he put the water on it and that extracted the properties of the weed and he filtered it.

Q.—Have you any recollection, Mrs. McElree, as to about when he would make a barrel of the preparation; you say he would fill the barrel about two-thirds full of the weed? *A.*—Yes, sir; about that.

Q.—And then put in water until the barrel—. *A.*—Was full.

Q.—Was full? *A.*—Yes, sir.

Q.—Would he then add whiskey to that, or would he wait until after it had been in the water for a few days and then take it off and add the whiskey? *A.*—I do not know, I could not tell you about that.

Q.—You do not know about that? *A.*—I do not know when he added the whiskey, I am not sure about that.

Q.—Will you kindly tell us, Mrs. McElree, whether or not in the medicine thus prepared, or the preparation thus made by your husband, there were any other ingredients than those you have just mentioned? *A.*—No, there was nothing else, but just a little coloring matter, just the weed.

Q.—What was the coloring matter? *A.*—It was cochineal.

Q.—Cochineal? *A.*—Yes, sir.

Q.—As it was prepared by your husband, as I understand it, it was composed of water, the Cardui or weed, as you designate it, enough whiskey to preserve it, the preparation, and a little cochineal coloring? *A.*—Yes, sir.

Q.—That was all that was contained in the preparation. *A.*—Yes, sir.

Q.—You do not know the amount, of course, as I take it, or the proportion or amount of whiskey that was put in? *A.*—No, I do not know the per cent. at all.

Q.—Was there enough whiskey put into the medicine so you could taste it and tell there was whiskey in it? *A.*—I do not know whether you could taste the whiskey, you might slightly, but I do not think I tasted it. I tasted the bitterest properties of the weed more than anything else. I do not remember that you could taste the whiskey at all. It might be said that you could taste it slightly, but I know there was not very much whiskey in it.

Q.—While Mr. McElree, your husband, and you were preparing this medicine you sold I suppose, did you, to people or give it to people as you saw fit? *A.*—Yes, sir; we began by just giving it to anyone that needed it, that we happened to know of.

Q.—Did you ever have the preparation patented at Washington? *A.*—We tried to have it patented, but my understanding is that they could not patent it.

Q.—Do you know why? *A.*—Because it was not a compound, is that the law, isn't it.

Q.—I guess so? *A.*—It was a proprietary medicine.

Q.—That is merely your understanding, that there was an application to patent, but for some reason it was not obtained? *A.*—That was the reason that was given me, that it was not a compound and could not be patented.

Q.—Do you remember, Mrs. McElree, whether the application for the patent was made in Mr. McElree's name? *A.*—Why, yes.

Q.—Then some time after that—. *A.*—That is my understanding. Of course, I never dreamed of anything else.

Q.—Do you remember, Mrs. McElree, it is quite likely you may not, because it was some years ago, do you remember what attorney it was that looked after the effort to patent the medicine, what lawyer looked after it for Mr. McElree? *A.*—No, I do not know.

Q.—How long did you and Mr. McElree continue to make the Wine of Cardui? *A.*—Well, I do not exactly know on that point.

Q.—About, approximately? *A.*—I can approximate it perhaps.

Q.—Just your best judgment, your best recollection? *A.*—I could not tell you definitely how many years. It was several years, however, but I do not know exactly the year we began, unless it was, I think may be '74 or '76, I am not sure about that.

Q.—In disposing of it I suppose your—you disposed of it locally, I presume, around in the neighborhood where you lived, or did you sell it all over the country? *A.*—Yes, sir; after Mr. McElree began to manufacture it he was advised by a very special friend, a physician, to get out of the schoolroom and to make this medicine instead of his

school work, on account of his health, and so he did finally, I think about a year after he began to talk about it, and he began to have orders from persons that knew of it, you know, it just advertised itself, and when the Chattanooga Medicine Company took it we had orders from sixteen different states.

Q.—Yes? *A.*—Yes, at our private laboratory.

Q.—Now, you put it I suppose, in sealing and filling these orders, in little bottles? *A.*—Just like the bottles we use now.

Q.—And it was called Wine of Cardui? *A.*—Yes, sir, McElree's Wine of Cardui.

Q.—And it was known as McElree's Wine of Cardui? *A.*—Yes, sir.

Q.—That was on the label, too? *A.*—Yes, sir.

Q.—And that continued to be on the label all the time you handled it and made it? *A.*—Yes, sir.

Q.—And the contents of the bottle during all the time you prepared it was made up of the ingredients which you have already detailed? *A.*—Just the same.

Q.—And of no others? *A.*—Just the same. There was nothing else in it while we had it.

Q.—Now, in speaking of the length of time you sold it yourself, and before the Chattanooga Medicine Company commenced to sell it, you cannot tell of course about the length of time, as I understand you, but approximately you say, would you say it was four, five, or six or eight or ten years? *A.*—No, it was not that long. Not over ten.

Q.—Two or three, do you think? *A.*—Well, it was longer than that. It was—I do not know exactly the year he began, and I cannot get an event that locates it to associate it with especially.

Q.—Would you think that it was two or three years or four? *A.*—Oh, yes; it was more than that. I expect it was four or five years.

Q.—Four or five years? *A.*—Well, you might say four anyhow.

Q.—You think you would be safe in saying four years? *A.*—I think I would.

Q.—So, that at the time then that you turned it over to the Chattanooga Medicine Company or Mr. Patten, and they commenced to manufacture what they called Wine of Cardui, you had established quite a reputation for it? *A.*—Yes, sir, a very good trade.

Q.—And as I understand, by that time its renown had become so great that you had orders from sixteen different states, at the time the Chattanooga Medicine Company or Mr. Patten took it over? *A.*—Yes, sir.

Q.—And you had been for some time enjoying a fairly good trade in sending it around to those different states on orders? *A.*—Yes, sir.

Q.—Now, would those orders be from druggists, drug stores, Mrs. McElree? *A.*—Some would, yes.

Q.—And some from physicians? *A.*—No, I do not know of any from physicians, but from private persons, private families.

Q.—And druggists? *A.*—Just family orders most of them, but we had some from druggists, I think.

Q.—Now, do you recall when it was that Mr. Patten or the Chattanooga Medicine Company as the case may be, commenced to manufacture Wine of Cardui or to manufacture what they called Wine of Cardui? *A.*—Well, I can approximate it I think.

Q.—About, yes, m'am. *A.*—We came to Texas in '81. Now, I am not much on dates.

Q.—Well, you just give your best recollection, that is all we want. *A.*—I never did keep them in mind much, but we came to Texas in '81 and the next summer after that we sold the royalty to Mr. Patten and he had sold the medicine before that, so I think it was in '79 or '80. '79 perhaps that they commenced to make the medicine, because they had been making it before we came to Texas, I think and I know we came in '81 and sold the royalties the next summer, it was in '82 to the best of my recollection, it was just a little over a year after we came to this state.

Q.—Now, when you sold the royalty, do you mean by that, Mrs. McElree, that you gave them the right to make the medicine according to your formula upon a payment to you of so much money a bottle? *A.*—Yes, sir.

Q.—That is what you mean by it? *A.*—Yes, sir, the royalty was some cents, I do not remember exactly, two and a half or three cents a bottle.

Q.—At the same time I suppose you continued to make it to some extent? *A.*—No, sir, we never made a bottle.

Q.—You turned it all over to them and they were to pay you? *A.*—Yes, sir, turned it over to them.

Q.—Did they have the exclusive right to manufacture it then? *A.*—So far as our interest in it was concerned they did. We had no control over the persons that had seed already, that got them from us before we began to manufacture, and that was never discussed at all. Those that raised the seed in their gardens at home continued to raise it and I suppose some do yet, but we never did raise any more.

Q.—Had you given the formula to some friends and others so as they could raise the weed and make it themselves, before that? *A.*—Well, I guess so, just like you would to a friend.

Q.—No, I say you probably had done that? *A.*—Yes, sir, just told them how to make it.

Q.—You probably gave them some of the seed to raise the plant? *A.*—Yes, sir, they did get the seed from us, but after that it was sold to the Company there was not any notice taken of that. It was in private families, one or two physicians raised it in their home gardens and continued to use it.

Q.—Do you remember, Mrs. McElree, how long they continued to pay you royalties until they finally paid you a gross sum of money instead of royalty, do you remember how long it was? *A.*—Just a very short time, just a few months.

Q.—Do you remember what the royalty was? *A.*—Not definitely. I think it was two and a half or three cents. I am not sure.

Q.—Per bottle? *A.*—Yes, sir.

Q.—What sized bottle? *A.*—Just the same as they now use for it.

Q.—The same as they now use, two and a half or three cents? *A.*—Yes, sir, I think so.

Q.—And after they had been paying that royalty to you for a few months they— *A.*—Yes, sir, it was a short time. I do not know whether it was even a quarter or not.

Q.—Then in lieu of the royalty to be paid in the future they paid you a certain amount of money? *A.*—Yes, sir.

Q.—Do you remember how much that was? *A.*—I never did know.

Q.—You do not know? *A.*—No, it was so little I reckon Mr. McElree was ashamed to tell me, and I really never did know what he got for the royalty.

Q.—You say it was little, you have an idea? *A.*—It was a very small sum. I know that.

Q.—In the manufacture of the medicine, Mrs. McElree, did you ever have to import any of the herb, or did you raise all you wanted? *A.*—No, sir. We raised all we used. That is, We—expected to raise it for the Company, but we did not do that but one season.

Q.—You did raise it for them one season, did you? *A.*—One season.

Q.—Do you know whether the herb is grown anywhere else now in this country? *A.*—Excepting those families?

Q.—That you gave it to? *A.*—Yes, sir.

Q.—In other words, you do not know whether it is raised in very large quantities? *A.*—Oh, no. No.

Q.—But just simply by such families, probably for family or neighborhood use? *A.*—Yes, sir, for family or neighborhood use, very limited use that way.

Q.—Now, Mrs. McElree, I wish to inquire, and I hope you won't think I am desiring to introduce or make inquiries concerning any delicate matters, but I consider it my duty and essential to this case to ask you to tell us what that medicine was intended to do? *A.*—Well I do not—I never knew it intended for anything but for suppression.

Q.—Of the menstrual flow? *A.*—The menstrual flow, yes, usually, in the beginning or from colds, something like that when it was interrupted.

Q.—So far as you were concerned that was the end you sold it and recommended it for? *A.*—Yes, sir.

Q.—And you did not sell it and recommend it for any other thing than that? *A.*—No, sir, I never knew it recommended for anything else.

Q.—Not by you? *A.*—Not by us, yes, sir.

Q.—And do you never recommend it to be taken by ladies who were pregnant, did you? *A.*—No, sir.

DIRECT EXAMINATION (CONTINUED)

By J. B. Sizer, Esq.

Q.—I want to ask Mrs. McElree, if you have, within the last few months, had a visit from any person representing the Chattanooga Medicine Company with reference to this litigation? *A.*—Yes, sir.

Q.—Who was that, please? *A.*—Dr. Cairns, I think.

Q.—Dr. C. J. Cairns? *A.*—Yes, sir, I suppose that is his initials.

Q.—He introduced himself as a Methodist minister, did not he? *A.*—No, I think I was introduced to him as Dr. Cairns, but I don't—

Q.—He had a letter of introduction did not he? *A.*—Yes, sir.

Q.—From whom? *A.*—Z. C. Patten.

Q.—Have you that letter with you? *A.*—Yes, sir, I have it in my possession.

Q.—Would mind producing it and letting the counsel on both sides see it? *A.*—Well, if it is not a breach to do it, I do not know that it would do any harm to either side.

Attorneys for the plaintiff submitted that the reading of the letter was not proper and the question was passed.

Mr. T. J. Scofield (continuing reading):

Q.—I will ask you then, to kindly produce that letter for the examination of counsel here, have you got it with you?

(The witness thereupon produces the letter.)

Q.—That is the letter, is it, Mrs. McElree, bearing date of March, 19, 1915? *A.*—Yes, sir, this is the letter.

Q.—Was that letter handed to you by Dr. Cairns? *A.*—Dr. Cairns, yes, sir.

Q.—You recognize Mr. Z. C. Patten's signature to that, do you? *A.*—Oh, very familiar.

The letter was then offered in evidence without further objection. It follows:

"'The Volunteer State Life Insurance Company,'
Chattanooga, Tennessee.
Z. C. Patten,
President.

March Nineteenth,
Nineteen-fifteen.

Mrs. R. L. McElree,
Dallas, Texas.

My Dear Mrs. McElree:

This will introduce to you Dr. J. G. Cairns, of this City. Jealous rivals in the medicine business — The American Medical Association — through their official journal published in Chicago, have made a vicious attack on McElree's Wine of Cardui."

Mr. Hough:—There is a pause after the American Medical Association.

Mr. T. J. Scofield:—Yes, there is a little dash. I can so indicate in reading.

Mr. Hough:—I think it will sound different.

THE COURT:—How did the witness indicate that when she gave her evidence?

Mr. T. J. Scofield:—I don't know, your Honor. This is a letter.

THE COURT:—Oh, that is a letter.

Mr. T. J. Scofield:—Yes. I don't know whether it is in the letter, or whether the stenographer—

THE COURT:—Oh, well; that is immaterial. Put the dash in.

Mr. T. J. Scofield—(Continuing reading):

"have made a vicious attack on McElree's Wine of Cardui, The Chattanooga Medicine Company, and particularly on my nephew, Mr. John A. Patten, who now has charge of the Chattanooga Medicine Company,—the object apparently being to ruin the reputation of McElree's Wine of Cardui, the originator of it, and everybody in any way connected with it. Our attorneys would like to get from you a statement of whatever you know about its discovery, either of your own knowledge or that you may remember having heard dear Dr. McElree say about it. Dr. Cairns calls on you for the purpose of getting this information. It is possible he may also wish to get from your daughter any information along these lines that she may have.

I trust you will be glad to give us the benefit of any knowledge you may have, and that you will talk freely with Dr. Cairns, who is worthy of all confidence.

With highest regards to yourself, and to your daughter, I remain,

Very cordially and sincerely yours,

Z. C. PATTEN (Signed)."

Q.—Have you in your possession, Mrs. McElree, a letter written to your husband by Mr. Patten some time in the year 1904 regarding this Wine of Cardui? *A.*—Yes, sir; I think I have. I do not remember about the date.

Q.—Will you kindly look through your correspondence and if you have such letter as described in the question, will you produce that also for examination of counsel and in order that it may be copied into this record?

Mr. Hough:—That is objected to, of course.

Mr. T. J. Scofield:—Shall I read that?

Mr. Hough:—Go ahead.

Mr. T. J. Scofield (continuing reading):

Q.—What did you say about the other letter, will you produce it? *A.*—I have a copy of it or a letter written in 1900, I believe.

Following a legal discussion a letter of Z. C. Patten, dated Dec. 27, 1904, was not admitted to the jury. Mr. Scofield then continued reading:

Q.—What was the name of your grandmother and your grandfather, I forgot which you said from whom you received the seed of this herb originally? *A.*—You mean her given name?

Q.—Yes, and the surname, both? *A.*—Full name, what do you want, both grandfather and grandmother, both, or just one?

Q.—The person from whom you received the seed? *A.*—I received it from my grandmother, her name was Francis. Francis Smith.

Q.—And her husband's name was what? *A.*—Francis Smith, they were both named Francis.

Q.—Where did they live? *A.*—Fayetteville, Tennessee.

Q.—Was it before or after your marriage to Dr. McElree that they gave you that seed? *A.*—After our marriage, when we were leaving home.

Q.—Now, can you remember the year you were married? *A.*—I suppose I can.

Q.—What year was that, please? *A.*—'58.

Q.—1858. So that it was in 1858 that you first got the seed? *A.*—Well, no, it was later than that, it was in the winter of 1860 I left home.

Q.—And did you and Dr. McElree commence to cultivate that seed and make this medicine immediately after you got the seed? *A.*—No, sir, we never dreamed of such a thing for the longest time.

Q.—It was a good many years after that then, before you commenced to make it? *A.*—It was down in '74 or '76, I am not sure which.

Q.—How did you happen to get acquainted with Mr. Z. C. Patten, and how was it that the negotiations commenced leading up to the sale of the formula to him? *A.*—I do not—I am not sure how Mr. McElree first knew them.

Q.—I believe you say that you and Mr. McElree lived at Arlington, which is a suburb of Memphis, is it not? *A.*—No, it is about 28 miles out of Memphis.

Q.—Did Mr. Patten come over to see you and your husband? *A.*—No, it was all correspondence. Mr. McElree went up there finally. I do not know when he went up there, I do not remember when he went up there, except Mr. Cunningham came to see him and wanted him to go to see Mr. Patten or the Chattanooga Medicine Company in order to put the medicine in their hands, in order that it might be distributed more readily and rapidly.

Q.—Who was Mr. Cunningham? *A.*—He was living at Cartersville, I think, in Georgia. He was editor of the *Confederate Veteran* at the time. He had his own press and was to do the advertising and went into partnership with Mr. McElree, and as soon as they had established that he forthwith wanted to go and put it into the hands of the Chattanooga Medicine Company. I do not know now for certain whether that was Mr. McElree's first knowledge of Mr. Patten or not.

Q.—You say you and Mr. McElree went? *A.*—No, I did not. Mr. McElree went with Mr. Cunningham to Chattanooga.

Q.—To Chattanooga? *A.*—Yes, sir.

Q.—The trade was closed there according to your recollection? *A.*—Yes, sir.

Q.—You say Mr. Cunningham was interested with Mr. McElree in the manufacture of this article? *A.*—Yes, sir, I think to share with him. I do not know. I am not sure about the per cent. of the proceeds, but he was to share with him for the use of the—for advertising the medicine.

Q.—Mr. Cunningham was to do the advertising and Mr. McElree the making of the medicine? *A.*—Yes, sir.

Q.—Was anyone else interested with your husband besides Mr. Cunningham in the manufacture of the medicine, or the sale of it? *A.*—No, there was nobody else ever with him in the manufacture of it.

Q.—Was there a man named Douglas, that was connected with him at any time? *A.*—No, sir.

Q.—Now do you remember whether or not it was after Mr. Cunningham became associated with your husband in the manufacture and sale of this medicine that an effort was made to patent it? *A.*—No, it was done before he sold it to the Chattanooga Medicine Company.

Q.—I know, but was Mr. Cunningham connected with your husband at that time? *A.*—No, not at that time. I think it was later.

Q.—Your recollection is then, that the application for the patent was made before Mr. Cunningham became connected with the sale of the medicine? *A.*—Yes, sir, before we knew anything of him."

Mr. Scofield:—Cross-examination.

The cross-examination of the witness was thereupon read by Mr. Hough: *"Cross-Examination."*

Q.—Mrs. McElree, you say you first heard about these seeds out of which the Wine of Cardui was made from your grandmother? *A.*—Yes, sir.

Q.—And that was after your marriage? *A.*—Oh, I knew about it ever since I can remember, but she gave me the seeds when I was leaving home, she thought it was so valuable a medicine that she said she did not want me to get out of it and to always keep it and if I never used it in my family I would find a plenty more of people that would need it. She was, I guess, a humanitarian.

Q.—Did you ever see her make any medicine from those seeds before you were married? *A.*—Yes, sir.

Q.—Did you live with her for any length of time? *A.*—I just stayed with her and went to school. I was there just through the schooldays. I went out home during the week end. I did not live with her only during my schooldays.

Q.—You mean only during your schooldays? *A.*—During the schooldays.

Q.—Do you know where your grandmother got the seeds from, or where she got the medicine from? *A.*—Yes, sir, my grandfather got them from a Cherokee Indian Doctor.

Q.—Do you know in what year? *A.*—No, sir, I do not It was when they were emigrating from Mississippi and Alabama, going up to the territory. I suppose it was while they were camped out in the suburb of our town.

Q.—Do you know the circumstances under which your grandfather got it from the Indian doctor? *A.*—I do not know any particulars, no minutia about it only he said he got the seed and told him about the use they used it for.

Q.—What did they say they used it for? *A.*—Just what I told you, and the usual—

Q.—You mean for the menstruation? *A.*—For menstruation, yes, sir.

Q.—For female troubles? *A.*—Yes, I expect that. Purely as a female remedy.

Q.—Do you know of its ever having been used with any woman who had any trouble of that kind? *A.*—Yes, sir.

Q.—What was the trouble? *A.*—Well, I do not know very definitely. I never inquired into such things, only just casually hearing of it spoken of, that it was delayed menstruation was one case I knew and then I knew of another that had suppression and was a very bad case. I have known of two or three of that kind, if not more.

Q.—You mean cases in which this medicine was given to correct that condition? *A.*—Yes, sir, and did correct it.

Q.—And did correct it? *A.*—Yes, sir. We know of just many cases in grandmother's—I have heard them speak of it just incidentally, about them coming there and getting the medicines from other towns and villages around, and the doctors there used it, used to send patients to grandmother to get the remedy. They never made it themselves, the doctors never used it but they would send them to her home to get it.

Q.—It was a common neighborhood remedy then you would call it? *A.*—Yes, sir.

Q.—For those conditions? *A.*—Yes, sir.

Q.—Do you know of any cases of young girls coming into womanhood who would use it? *A.*—Well, yes, sir, those were the kind I was speaking of.

Q.—Oh, I see. *A.*—Just then. Yes, sir.

Q.—Was the medicine always made with whiskey or alcohol or was it ever used in the form of a tea? *A.*—We never did but my sister who lived in Memphis at the time we made it, she kept it there and sold it and she found some ladies whose stomachs would not take alcohol at all, and whiskey, and she made tea and used it successfully without the whiskey, just as good as it was with it, and I expect better.

Q.—What was your sister's name? *A.*—Mrs. Rogers, Mrs. Samuel Rogers.

Q.—Is she still living? *A.*—No, she nor her husband neither are living.

Q.—Is your husband living? *A.*—No, sir.

Q.—When did he die? *A.*—In 1906, October, 1906.

Q.—Do you recollect the name of the physician who advised Dr. McElree to quit teaching school and go into the business of making this for humanity, as you stated? *A.*—Yes, Dr. Maddox.

Q.—Is he living or dead? *A.*—I do not know, I am not sure, but he may be living somewhere in Texas. He came out to Texas after we did, but I do not remember the town he lived in. Pottsville, I believe it is, I do not know whether that is the town or not, but he was the president of the medical board in Memphis at the time. He was a very able man. He was fine in his profession and he was a very safe adviser and he insisted on Mr. McElree making the Wine.

Q.—Do you know whether he ever used it in his practice? *A.*—Well, I cannot say positively but I think he did. I think that is the way he knew about whether to advise him to make it or not.

Q.—Meaning your husband? *A.*—Yes, sir, and I say, Dr. Maddox used it and introduced it, or he would not have advised Mr. McElree to make it.

Q.—You say that the plant was soaked in water first? *A.*—Yes, sir, I think so. I do not know whether Mr. McElree put the whiskey in before he filtered it or not, it may be that he did.

Q.—He may have soaked it in whiskey or alcohol, may be not? *A.*—Well, in connection with the water, he put water in there first to extract the medicinal qualities, and I suppose he may have put the alcohol in before he filtered it. Very likely he did. I do not know about that.

Q.—The purpose of putting it in, whatever it was, was to extract the medicinal qualities of the herb, whether it was water or water and whiskey, or water and alcohol, or whiskey or alcohol alone that was the purpose of it? *A.*—That was the purpose.

Q.—Do you know whether that water or whatever it was that was put in there was hot or cold? *A.*—It was cold, he never used any heat about it.

Q.—Do you know how long it was permitted to remain in that condition before he drew it off? *A.*—No, I do not think it was very long, may be two or three days, but I am not sure about that how long.

Q.—How long was your husband making this medicine before he got in touch with, did you say Mr. Cunningham, was it Dr. Cunningham? *A.*—I do not know whether he was a doctor or not.

Q.—Or Mr. Cunningham? *A.*—Just Mr. Cunningham. He had been making it some time, it was just before we went away to Texas that he came down and insisted on Mr. McElree going and making this deal with the Chattanooga Medicine Company and that just, may be a year or so before we went away. I am sure about that time, the length of time but I know we went away in '81, in the spring of '81.

Mr. Walker:—Isn't that "I am not sure about that length of time"?

Mr. Hough:—No, it says "I am sure." I think it must have meant "I am not sure," but it is written "I am sure." Isn't it.

Mr. T. J. Scofield:—It is written "I am sure," yes.

Mr. Hough:—(Continuing reading).

Q.—Did I understand you to say that you did not know just how much interest Mr. Cunningham had in the business? *A.*—No, I do not know the per cent. of his interest.

Q.—He was running the paper? *A.*—And he was doing the advertising.

Q.—He was to do the advertising? *A.*—Yes, sir, and to publish the journal.

Q.—To publish the journal? *A.*—Yes, sir.

Q.—About the medicine? *A.*—Yes, sir. Mr. McElree was to write it.

Q.—Who was to write it? *A.*—Mr. McElree.

Q.—And Mr. Cunningham was to publish it? *A.*—Publish it.

Q.—Mr. McElree was to grow the plant and make the medicine? *A.*—Yes, sir.

Q.—Do you know what that journal advertised the medicine as being good for. *A.*—No, sir, I do not.

Q.—Did you ever see a copy of it. *A.*—Yes, sir, I have seen a copy of it but I do not remember anything that was in it now. They did not get out but one or two journals before they made the trade with the Company, and then it was not edited any more. It was just begun, the editing of the journal, a very short time before we disposed of it.

Q.—Could you recollect that it was advertised as a woman's tonic? *A.*—No, I do not know that.

Q.—When Dr. McElree alone was interested it was known as a woman's tonic, wasn't it? *A.*—I do not know whether it was just put in that form exactly or not, I do not remember.

Q.—Do you know what the lettering was, or do you recall, on the labels of the bottles as they were put out by your husband before Mr. Cunningham was interested? *A.*—The label was never changed after he became interested, it was just the same.

Q.—The label continued the same after Mr. Cunningham became interested? *A.*—Yes, sir.

Q.—And then, you mean the label continued the same after the Chattanooga Medicine Company commenced to manufacture under a royalty contract. *A.*—Yes, sir. Well, perhaps I do not understand you quite there. They were not under a royalty contract, the Company was not at first. I think Mr. McElree wanted to sell him his royalty and they claimed that they were not able to buy it and did not consider the trade at all.

Q.—That is the company? *A.*—The company, but Mr. Patten bought it individually.

Q.—That is, Mr. Z. C. Patten? *A.*—Mr. Z. C. Patten bought the royalty individually.

Q.—As I understand you, the Chattanooga Medicine Company did not at first buy Mr. McElree out entirely? *A.*—No, sir.

Q.—But the Chattanooga Medicine Company made an arrangement with Mr. McElree and Mr. Cunningham under which the Chattanooga Medicine Company were to manufacture, advertise and sell it and pay Mr. Cunningham and your husband a royalty on what they sold? *A.*—Yes, sir.

Q.—At that time your husband was to furnish the seed? *A.*—No. He had already given permission, given them the seed and given them permission to raise it.

Q.—I thought you said in the beginning he furnished the seed and sold it to them? *A.*—He did when he sold it to them, he gave them the seed in order to raise it themselves, so that they might have full control of it.

Q.—Did he also continue to raise it and sell himself? *A.*—No, sir, he never did raise any more after the one season after they took charge of it. He raised the weed one season and he failed—why he raised so much more than he had ever used he thought he would have a plenty to reach to the next crop but it ran short.

Q.—That is, he could not raise enough to furnish the Chattanooga Medicine Company? *A.*—No, not in the quantity they needed.

Q.—And their sales grew so large that they needed more than he could furnish? *A.*—That is what it seemed, but they made it on so much larger scale.

Q.—While he was raising it and selling to the Chattanooga Medicine Company they were paying him in addition to the royalty for the seed and herb as he furnished? *A.*—For the herb they paid us so much a pound.

Q.—That is what I mean for the herb? *A.*—For the herb.

Q.—In addition to the royalty which they paid? *A.*—Yes, sir, that had nothing to do with royalty, the royalty was on the sale of the medicine after it was manufactured.

Q.—And the Chattanooga Medicine Company said they were not able to buy it outright but would manufacture on a royalty? *A.*—Yes, sir.

Q.—Then later Dr. McElree sold his royalty right to Z. C. Patten? *A.*—Yes, sir.

Q.—Do you recall about what year that was he sold the royalty right? *A.*—Yes, sir, I know what year that was. It was in '82.

Q.—'82? *A.*—Yes, sir.

Q.—And since then Dr. McElree has not had any other interest in it? *A.*—Nothing at all to do with it.

Q.—Did you ever know a man by the name of Blake? *A.*—Yes, sir.

Q.—Did he ever have an interest in it at any time? *A.*—Yes, sir. But I do not know to what extent his interest was. He went in with Mr. McElree, but he did not maintain that interest but for a short time.

Q.—Was that prior to the Cunningham connection? A.—Yes, sir, prior to the Chattanooga Medicine Company or the Cunningham either.

Q.—What ever that interest was Dr. McElree had bought him out before he had made an arrangement with Mr. Cunningham? *A.*—Yes, sir, their contract was made void before that.

Q.—Mrs. McElree, when did you first show these letters to any representative of the American Medical Association? *A.*—Why at my home a few weeks ago. I do not know.

Q.—Where? *A.*—At my home in Alvarado.

Q.—Who was the representative? *A.*—Dr. Heizer.

Q.—This is the gentleman sitting here? *A.*—Yes, sir, and we were looking over some old correspondence trying to find Mr. McElree's signature.

Q.—Did you know Dr. Heizer prior to that time? *A.*—No.

Q.—Who introduced him to you? *A.*—I think he was introduced through Dr. McCormack, or introduced himself, I do not remember.

Q.—Did he have a letter from Dr. McCormack? *A.*—No, sir.

Q.—Do you know Dr. McCormack? *A.*—No, only in a business way. Dr. McCormack came to see me first.

Q.—Before you saw Dr. Heizer? *A.*—Yes, sir.

Q.—Dr. McCormack came to see you, representing the medical association, too? *A.*—Yes, sir.

Q.—How long prior to the time that Dr. Heizer came? *A.*—It was two or three weeks perhaps, I do not think very long.

Q.—What did Dr. McCormack say to you? *A.*—He wanted to know the history of the medicine, its early history and the origin and the manufacture.

Q.—Did he tell you, Dr. McCormack, that Dr. Heizer would come later? *A.*—No, I think he said he would come back, when he had found himself prepared for the information he wanted to get from me and he would come back and ask me to answer these questions or answer some questions. He did not say what.

Q.—What did Dr. Heizer say to you when he came. *A.*—Well, he just asked me the same thing, about the origin and manufacture of

the medicine, the time that we had been making it, and things like that. I do not remember each question accurately, of course, but just on that same line.

Q.—For instance, how did you know that he was Dr. Heizer, was there any way to identify him? *A.*—No, sir.

Q.—He just introduced himself? *A.*—He just introduced himself.

Q.—And what did he say about himself? *A.*—He said he wanted to ask me in connection with the medicine, in the line Dr. McCormack had spoken to me about.

Q.—Did he tell you for whom it was? *A.*—The information.

Mr. Hough:—It should be an interrogation.

Mr. T. J. Scofield:—It should be an interrogation.

Mr. Hough:—(Continuing reading).

A.—The information?

Q.—Yes, that he was representing the defendants, in these suits that Mr. Patten had brought? *A.*—Well, he spoke of the suits being on hand. I did not know anything about it until they spoke of it. I never had heard of it, but he asked me about what the medicine was used for, what it was recommended for, and the per cent. of alcohol, things like that, and what it was recommended for, is the most I remember that was talked about at all.

Q.—Did you understand during that time that it was for use in the suits that Mr. Patten had brought against the American Medical Association? *A.*—I do not think I knew that definitely. I knew the suit had been spoken of and that they were on the other side but I did not put knowledge of it into connection with the Chattanooga Medicine Company especially. The reason I showed that letter of introduction it tells there what the American Medical Association was trying to do with Mr. Patten. I said if they were trying to do those things I reckon it was ignorance on my part to show it to him, to see if that was what the association was trying to establish, those things against Mr. McElree's character, and against the medicine and against the whole company I was getting at whether they were trying really pull down—

Mr. Hough:—I suppose "to" should have been there.

(Continuing reading) "pull down the character of the medicine and the men connected with it and Dr. Heizer seemed to think that he was mistaken about the object in the prosecution.

Q.—You say Mr. Heizer said Mr. Patten was mistaken in thinking that they were trying—— *A.*—Trying to hurt the men and injure them, that they were just getting at the truth, whether they were making a proper medicine.

Q.—Did they tell you they were not trying to hurt the Wine of Cardui people? *A.*—Yes, I think so, that they did not want to hurt Mr. Patten or anybody that they just wanted to get at the facts in the case.

Q.—Did Mr. McCormack make the same statement to you that they were not trying to hurt the medicine? *A.*—Well, he said they were not making the original medicine and were putting too much alcohol in it and went on to talk about the deleterious effects that it was having on people that were taking it in a general way.

Q.—You mean he told you they were not making the medicine uniform, as your husband made it and it was not as good a medicine as your husband made? *A.*—Yes, about that.

Q.—Did he say it was not as good as your husband made? *A.*—I do not think so.

Q.—Did Dr. Heizer say that? *A.*—He said he had witnesses to show that it was not like Mr. McElree made it.

Q.—Did he say it was better or worse? *A.*—He did not say, only it had more alcohol in it.

Q.—Than Dr. McElree put in? *A.*—Yes, sir.

Q.—How many visits did you have from Dr. McCormack, only the one? *A.*—Only the one.

Q.—And how many from Dr. Heizer? *A.*—Two.

Q.—What was the dates of those? *A.*—I do not know. His were not very far after Dr. McCormack's, it was in the spring.

Q.—You mean this last spring? *A.*—Yes, sir, a few weeks ago. I do not remember whether it was in March or April, along there somewhere. I did not keep up with the dates, I never did, and cannot do it.

Q.—Did Dr. Heizer make any promises of any kind to you? *A.*—No, sir.

Q.—He only said that the medicine was not being made as your husband made it. *A.*—The greatest objection either one offered to it was it was not the original medicine and it had more alcohol in it, and that people were using it to their detriment.

Q.—You mean because of the alcohol? *A.*—Yes, sir.

Q.—Did he say that people were taking it for the alcohol? *A.*—Yes, sir.

Q.—Both of them stated that to you? *A.*—I do not remember about Dr. Heizer—I mean Dr. McCormack. Dr. Heizer said that.

Q.—By what name did you know the plant, Mrs. McElree at the time you were manufacturing the medicine, at the time your husband was manufacturing the medicine? *A.*—We called it always just what my grandmother called it, and I suppose that is the name they got from the Indians.

Q.—What is the name that your grandmother called it? *A.*—She called Cardui I think, or Carduus, I think sometimes one and sometimes the other. I do not know, I think they called it Carduus altogether and Mr. McElree called it Cardui. I am not sure, I am not sure that grandmother called it Cardui. It was Carduus I know, the name on which the Cardui was based.

Q.—Have you been under Dr. Heizer's care as a physician recently? *A.*—Well, I do not know whether you would call it under his care. He examined me, the condition of my heart, yes, sir. He spoke to me about coming here or going to Alvarado and I said, "Well, I am not strong enough to go anywhere this hot weather," and I decided—I intended to come up here on a visit, but decided not to do so on account, I said, "My greatest trouble is aneurism, and I have to be careful about exerting my strength and conserving it, and he looked at it and examined my condition.

Q.—When was that, Mrs. McElree? *A.*—About a week or ten days ago. Ten or twelve days ago he came to see me about getting the deposition, and that was our conversation about where we should meet, and I spoke of coming over to Waxahachie, but I did not expect to be there that long and had decided not to come to Dallas, and he asked me if I could come over here or go to Alvarado or could come back to Waxahachie if I was in Alvarado and I said I could not go around in hot weather much anywhere.

Q.—When did he ask you that? *A.*—About ten days ago, ten or twelve, I guess now.

Q.—He was there at that time, was he? *A.*—Yes, sir.

Q.—Then after that when did you see him next? *A.*—He came out here yesterday evening.

Q.—He came out here yesterday evening? *A.*—Yes, sir.

Q.—Was he here this morning also before the rest of us came out? *A.*—I do not know. I thought you all came together. I do not know.

Q.—No, he did not come with us. Was he seeing you this morning as a physician or about these depositions? *A.*—Well, he did not say anything particularly about either one, only, of course, inquired about my condition, and that was all.

Q.—Does Dr. Heizer live in this neighborhood. *A.*—No, sir.

Q.—Where does he live? *A.*—I do not know.

Q.—How do you know he does not live in this neighborhood? *A.*—Well, I do not know. I do not know where he lives. I presumed that he lived in Kentucky, that was my impression.

Q.—What are his initials, Mrs. McElree? *A.*—I do not know.

Q.—But he is the Dr. Heizer of whom Dr. McCormack spoke? *A.*—Yes—Well, Dr. McCormack did not speak of him to me at all. He spoke of Dr. McCormack to me when he came. He did not—I do not know what he said now about Dr. McCormack. He spoke of Dr. McCormack having been here.

Q.—Do you feel certain that when he came he did not have a letter of introduction to you from Dr. McCormack? *A.*—No, I do not think he did.

Q.—Or anyone else? *A.*—No.

Q.—Let me see if I have received the right impression concerning some of the statements you made. I received the impression that Dr. Heizer, including Dr. McCormack, have made some statements to you with reference to Wine of Cardui which would cause you to have some feeling against the Pattens, or the Chattanooga Medicine Company because of their having changed the formula, as he said, is that correct?

Mr. T. J. Scofield:—There is an objection to that question, if the Court please. It is waived, go ahead.

Mr. Walker:—He waived it.

Mr. Hough:—(Continuing reading):

A.—Well, as far as speaking of the innovations in the manufacture of the medicine we did not let that affect us one way or the other especially. We just did not see it was right. It was new to us. We had not heard anything of it before and we never have yet. We do not know what changes they have made especially only that they asked about the per cent. of alcohol and I know Dr. McElree did not put enough alcohol in it to be deleterious to the health. He put just enough in it to save it.

Q.—Did they tell you or either of them tell you that you would have any interest in the matter if the Chattanooga Medicine Company or Mr. Patten had made any change? *A.*—Well, he said it was no longer McElree's Wine of Cardui, that was about all he said about it. They—if they had made innovations it was not McElree's Wine of Cardui.

Q.—Did they intimate that you would have any interest in the matter if that were a fact? *A.*—Well, he said that that would depend entirely upon our view of it, whether we wanted to have any.

Q.—He discussed that with you, did he? *A.*—Well, in an incidental way, that it was not the original.

Q.—What did he say you might do? *A.*—Well, I do not know, it seemed that he thought it would revert to us if that was true, if we wanted it to, if we chose.

Q.—He suggested that to you, did he? *A.*—Yes, sir. Just mentioned it incidentally. He did not suggest it, as a mode of procedure or anything like that.

Q.—That was while he was asking you if you would give the deposition for the defendants? *A.*—That was the first time I saw him, he was just asking about it. They had not said anything about the deposition then. He had spoken—it was the first time he came, and he was just speaking of the history of the medicine and whether it was the original medicine or not.

Q.—When your husband was manufacturing the medicine did he have a laboratory apart from the house, his residence? *A.*—Yes, sir.

Q.—How far from the house was it? *A.*—It was right in the—close to the house, right in the corner of the yard.

Q.—Have you any way of determining the percentage of alcohol which was in the medicine at the time your husband manufactured it, whether it was put in—"

Mr. Hough:—The "A" is there, but the answer is out here. (Continuing reading).

Q.—You have no way of determining it? *A.*—No, I have no way at all of determining that.

Q.—Did Mr. McElree have any assistant in the manufacture of the medicine, or did he do it all himself? *A.*—No, sir, he did it all himself.

Q.—How far from where he manufactured the medicine that the shrub or plant was growing? *A.*—Right in the same yard, right back of the yard, in the same lot.

Q.—In the same yard? *A.*—Yes, in the same lot, it was a large lot and the building was near the street and the medicine was in the back yard.

Q.—About how high did the plant grow before he cut it? *A.*—Well, it was different heights, according to the soil, generally the bunches would go about that high.

Mr. Sizer:—About eight inches, would you say? *A.*—Yes, about eight or ten inches. It was not a tall plant at all, a little bunched with heavy leaves.

Q.—Did it have to be replanted every year? *A.*—Yes, sir.

Q.—Did he ever pull it up at the roots? *A.*—He always pulled it up by the roots.

Q.—He always pulled it up by the roots, and then he would take the whole clean shrub and put it in this barrel? *A.*—No, he took the leaves off. I do not think he ever put the roots in. Did he? (Speaking to daughter):

Q.—Did he put the stem in? *A.*—Yes, sir.

Q.—He put everything in but the roots? *A.*—But the roots.

Q.—That is the flower and the stem, if there was a flower? *A.*—Yes, I think he cut it about the time it was beginning to flower.

Q.—How long since you have seen some of that growing? *A.*—It has been ever since I came to Texas, a year or two before, two or three, that was in '81. It is about thirty-five years, I guess, thirty-three or five.

Q.—Did you ever hear of that plant being called by other names than Carduus? *A.*—No, sir.

Q.—Who was Dr. Stewart? *A.*—He was a young practitioner that lived in our town at Arlington, lived there when we were making the medicine.

Q.—Do you know of his having used it? *A.*—Yes, sir, he used it extensively. He used it for his own wife.

Q.—For the condition you have referred to, for which it was advertised? *A.*—Well, no, it was flooding at the menstrual period.

Q.—At about what age was his wife? *A.*—She was young, maybe twenty-one or two years old.

Q.—Do you know what the results were of the use of the medicine by him? *A.*—It cured her and she is living today and a good strong woman. She used to be a very delicate woman.

Q.—Where does she live now? *A.*—I think she lives in Memphis, but I have forgotten her name. I think she was remarried.

Q.—A second time? *A.*—Yes, sir. Her maiden name was White. I do not remember the man that she married the second time.

Q.—Do you know whether Dr. McElree urged Mr. Z. C. Patten to buy his royalty right or whether Mr. Patten urged Dr. McElree to sell? *A.*—Mr. Patten and Mr. McElree exchanged several letters in regard to it and Mr. Patten advised Mr. McElree not to sell. He said he was not able to pay him what the medicine was worth, what the royalty was worth, and Mr. McElree I think he was in kind of a monetary strait, and he insisted I think on Mr. Patten the royalty.

Q.—And that led to the sale of the royalty right to Mr. Patten individually? *A.*—Yes, sir.

Q.—And not to the company? *A.*—Yes, sir.

Q.—Did you know a girl named Jane English? *A.*—Yes, sir.

Q.—Where did she live? *A.*—At Fayetteville, she was in school with me when I was a girl and boarded with my grandmother where I lived.

Q.—Did she have any female trouble? *A.*—Yes, sir.

Q.—Did she take Cardui for it? *A.*—Yes, sir.

Q.—What effect did it have on her? *A.*—It cured her.

Q.—At what age was she? *A.*—About sixteen.

Q.—Just coming into womanhood? *A.*—Yes, sir.

Q.—And that was the trouble? *A.*—Yes, sir.

Q.—That is, it was delayed? *A.*—Yes. Yes, they thought, well, they knew almost that was causing her bad health and she was going down. They were afraid she was very seriously sick, that she might have tuberculosis, and they gave her—grandmother gave her the Cardui and she got well, just as rosy and well as she could be.

Q.—Did your grandmother give her the Cardui as a tea, that is, with or without the whiskey? *A.*—She gave it to her with the whiskey, she never made the tea.

Q.—Your grandmother never made the tea? *A.*—No, sir.

Q.—It was other people who used the tea? *A.*—my sister in Memphis, after we began to manufacture was the only one, and after that, I do not know whether Mr. McElree told the company or not, but they used to put up the dry herb in packages, and some people used it that way, some put it in whiskey at home and some made tea of it, I do not know what the extent of it was.

Q.—Was the effect any different? *A.*—No, sir, the tea has the same effect as it does with the whiskey.

Mr. Hough:—I think that is all.

RE-DIRECT EXAMINATION

The re-direct examination was read by Mr. T. J. Scofield. Mr. T. J. Scofield (reading):

Q.—Now what about this visit of Dr. McCormack's to you, Mrs. McElree, I believe you said when he first came to see you, you asked him about this letter that Mr. Patten had written to you, is that right? *A.*—No, sir.

Q.—Who was it? *A.*—I did not say anything to Dr. McCormack about it. I do not know whether I had it then or not. I believe I had met Dr. Cairns.

Q.—Who was it you spoke to about it, was it Dr. Heizer you asked about this letter? *A.*—No, I was talking about what the Medical Association were claiming against the medicine.

Q.—Yes. *A.*—I just happened to think of that letter and that Mr. Patten stated in that the objections, or the statements they had made against the company and I just went and got that, not thinking it would do any harm at all. I do not reckon it does.

Mr. Hough:—It does not.

A.—And just showed him in that what Mr. Patten said the Association was doing against the Company and I was surprised. I was surprised at some statements they made, but Dr. Heizer said Mr. Patten was mistaken in the attitude of the Medical Association towards the Company, they just wanted to get at the facts.

Q.—And in that connection, did Dr. Heizer especially say that it was not true that the Medical Association was making any attack on the originator of Wine of Cardui.

Mr. T. J. Scofield:—Then there is an objection by you, Mr. Hough.

Mr. Hough:—It doesn't make any difference whether you do or do not read it. Do whatever you choose.

Mr. T. J. Scofield (continuing reading):

A.—(Continuing) that the Association was not making any attacks on Mr. McElree.

Q.—Yes, on the originator of Wine of Cardui. What, if anything, now, did Dr. Heizer say with respect to that statement in Mr. Patten's letter? *A.*—Well, not anything specially on that, he said he thought he was mistaken in what he thought their attitude was towards the Chattanooga Medicine Company.

Q.—Yes, and he explained to you he simply wanted to get at the facts? *A.*—To get at the facts.

Q.—Especially, I believe you say he inquired what the percentage of alcohol in the Wine of Cardui as originally made was? *A.*—Yes, sir.

Q.—And you told him you could not tell that? *A.*—Yes, sir.

Q.—I want to ask you about a man named Blake to whom you referred in the course of your cross examination. What were his initials? *A.*—T. C.

Q.—Is he living now? *A.*—I do not know, he is a minister. He lived in Nashville.

Q.—The Rev. T. C. Blake of what denomination? *A.*—Presbyterian. If he is living now, he is very old. He was an old man when I was rather young myself, it may be he is not living. I am not sure.

Q.—With reference to the original source of this seed that your grandmother gave you; of course you only know from tradition or reputation in the family where it originally came from? *A.*—Yes, and I have no doubt about it.

Q.—Your grandmother told you that some Indian doctor had given—*A.*—Grandfather got it from a Cherokee Indian Doctor when they were emigrating to the territory.

Q.—Now I believe you have further said that that herb was not indigenous in this country? *A.*—No, I said our state. I do not know about anywhere else. I said it was not indigenous in our state.

Q.—In Tennessee you mean? *A.*—Yes, sir.

Q.—Where did this Indian doctor come from? *A.*—He came from Mississippi or Alabama, down in those settlements, you know, there were so many of them down there and the government moved them to the territory.

Q.—And the doctor brought that seed as you understand, along with him? *A.*—Yes, sir; had it along with him, taking it where he was to go.

Q.—Did you understand he had been cultivating the herb or gathered the seed from some wild herb? *A.*—He had been using it as a medicine.

Q.—Did he cultivate it and raise it, I mean, the herb, himself or simply gather it in the woods and field? *A.*—I do not know that. I never heard it discussed.

Q.—Did you make any statement to Dr. Cairns, any written or typewritten statement at the time he came to see you? *A.*—Yes, sir; he took quite a lot of questions and answers, answers that I gave.

Q.—Did you sign the statement, do you remember? *A.*—No, I do not think I did. I do not think he asked me to.

Q.—He just took down the statements that you gave him? *A.*—Yes, sir; I am not sure whether I signed it or not. I do not remember, if I did, but I do not think I did. I do not think he asked me to sign it.

Q.—I think you were asked some questions on cross-examination with respect to the medicine being made by the doctor from the seeds of this herb. As a matter of fact the seeds were not used in making the medicine, were they? *A.*—Oh, no.

Q.—You use simply the leaves and the stalk of the herb? *A.*—Yes, sir.

Mr. Sizer:—I think that is all.

Mr. T. J. Scofield:—That finishes it.

Whereupon an adjournment was taken until 10:30 a. m., Tuesday, March 28, 1916.

(To be continued)

Correspondence

Subacromial Bursitis — A Reply

To the Editor:—In reply to Dr. Brickner's communication (Correspondence, THE JOURNAL, March 18, 1916, p. 912) concerning my article on subdeltoid bursitis (THE JOURNAL, Jan. 22, 1916, p. 264), I find it necessary to clear up one or two points because Dr. Brickner has quoted only small fragments of my letter to him.

The matter of extirpation of the bursa is a mere play of words, for I used the term in the sense that it is usually employed by surgeons, i. e., removal of the diseased portion. I informed Dr. Brickner that I felt that our long incision and wide retraction gave sufficient exposure to have completely removed the bursa. Our operation extirpated the bursa in the ordinary sense of the term. Only microscopic dissection would completely extirpate a structure of this kind.

In regard to curetting off the inner wall of the bursa, I told Dr. Brickner that it was removed to see if there were any calcareous deposits underneath it in the supraspinatus tendon. According to his assertion the deposits are always found beneath this inner wall of the bursa, but instead, in this case, they were entirely in the outer wall. I may add also that the inner wall was removed with the idea of preventing a possible reformation of the bursa.

Concerning the contents of the bursa, Dr. Brickner unfortunately did not acknowledge that my letter informed him that the bursa contained a collection of serous fluid, and that there were no adhesions present between the walls.

In view of the operative findings, I cannot see how our interpretation of the roentgenogram can be questioned.

A copy of the roentgenogram taken after operation showing complete removal of the calcareous deposit was sent to Dr. Brickner.

I fear Dr. Brickner is also in error in regard to Wrede's statement, for that author says in his article (*Arch. f. klin. Chir.*, 1912, xcix, 267), speaking of the operation of Stieda and Bergmann: "Der Deltoides wird in der Faserrichtung stumpf durchtrennt und mit Haken auseinander gehalten. Durch Innenrotation des Arms erscheint der Schleimbeutel in der Wunde und wird extirpirt. Dies ist anatomisch unmöglich." ("The deltoid is divided bluntly in the direction of the muscle fibers and held open with retractors. By internal rotation of the arm, the bursa appears in the wound and is extirpated. This is anatomically impossible.")

Please note that I do not dispute Dr. Brickner's findings in any of his cases, but the definite facts present in my case are entirely sufficient to disprove absolutely his dogmatic conclusion that the calcareous deposits are always present beneath the bursa.

ALBERT H. MONTGOMERY, M.D., Chicago.

Electrotherapy in Lumbago

To the Editor:—A paragraph in the article on backache (THE JOURNAL, March 11, 1916, p. 814) has attracted my attention. It says, "Sometimes faradic electricity is of value in lumbago." I am surprised that THE JOURNAL has allowed such a statement to go without further explanation of what really is of value in electrotherapeutics. Such a statement belongs almost to the dark ages. If the writer knew his subject he would have mentioned the real things, such as static, high frequency currents, and the high candle power light and others.

WILLIAM MARTIN, M.D., Atlantic City, N. J.

[COMMENT.—The faradic current as commonly used has only a mechanical action when applied to the body, as it possesses for practical purposes no amperage, a low voltage, and a constantly changing polarity. It will cause contraction of the muscles, provided the lower motor neuron is intact. When one electrode is passed over the body, a slight stimulation of the peripheral circulation is produced, but no deep seated action or chemical change can be expected to take place in the tissue. As will be seen, the therapeutic value of this current is therefore slight, and as a pain reliever it has little, if any, value.

If electricity is to be employed in the treatment of lumbago, the constant or galvanic current will be more apt to relieve the pain because the pole of the current is constant and it has sufficient amperage to bring about chemical change. If, in using the galvanic current, the positive pole is saturated with a 10 per cent. solution of cocain, and placed over the painful area, the negative electrode being placed at some indifferent part of the body and a current of from 5 to 20 milliamperes, depending on the tolerance of the pain, is applied for from ten to twenty minutes, relief of pain occurs in many cases. So far as has been determined, cocain used in this way does not produce any bad effects. High frequency currents or currents of high potential have marked anodyne effects, and the counterirritation as produced by the static spark might also be of value. The electric high candle power light might also be employed, because of the heat produced, which would have the effect of relieving pain.—ED.]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PAREGORIC EXEMPT UNDER THE HARRISON LAW

To the Editor:—In THE JOURNAL (March 4, 1916, Queries and Minor Notes) you state that camphorated tincture of opium comes under the Harrison Narcotic Law. Paregoric contains only $1\frac{85}{100}$ grains of opium to the fluidounce; Section 6 of the Harrison Narcotic Law states that this act shall not be construed to apply to preparations and remedies which do not contain more than 2 grains of opium to the fluidounce. Therefore I do not think paregoric comes under the Harrison Narcotic Law.

A. G. BOWLES, M.D., Glen White, W. Va.

ANSWER.—The query and answer to which our correspondent refers concerned a prescription containing paregoric as one of several ingredients. Our interpretation of Treasury Decision 2213 was that while paregoric and other exempted preparations might be sold as such with or without a prescription so long as no other ingredients were added, a prescription which called for paregoric as one of several constituents came under the Harrison law. This was the interpretation placed on it by others also. Several correspondents, however, have questioned the correctness of this view, and we therefore referred the matter to the Treasury Department. Treasury Decision 2309, issued March 11, 1916, specifies (final paragraph):

"The refilling of a narcotic prescription for an exempted preparation or remedy, as herein defined, combined with other non-narcotic medicinal agents, with a consequent further dilution of the mixture, will be permitted."

According to this recent ruling, our correspondent's contention is right, and a prescription which contains paregoric as an ingredient does not come under the Harrison law, provided it contains no other narcotic.

ATOPHAN—TASTELESS CASTOR OIL—NONEMETIC IPECAC—LIQUID PETROLATUM—USE OF IODIN INTERNALLY—HISTORY TEXTBOOKS—ENGLISH JOURNAL OF TROPICAL MEDICINE

To the Editor:—Will you kindly answer the following questions?

1. Is there any evidence that atophan prevents the formation of renal calculi, or dissolves them to a certain extent when they are present?
2. What makes Kellogg's Tasteless Castor Oil tasteless? How is it prepared?
3. What makes alcresta ipecac nonemetic? What is its composition?
4. Has liquid petrolatum any service in local or general peritonitis? Is the claim that general peritonitis can be cured by intra-abdominal injection of liquid petrolatum supported by clinical evidence?
5. For what diseases is tincture of iodin injected internally?
6. What textbooks of history of medicine would you recommend?
7. Is there a journal of tropical medicine edited in England? How much does it cost?

SIXTO Y. OROSA, M.D.
Sulu Public Hospital, Golo, Sulu, P. I.

ANSWER.—1. Atophan is described in New and Nonofficial Remedies for 1916, p. 53. Its administration increases the elimination of uric acid in greater ratio than the increase in the amount of urine. There is no evidence that it decreases the formation of uric acid, or that it has any effect on

deposited urates. In fact, Weintraud considers it necessary to administer sodium bicarbonate simultaneously with atophan in order to prevent precipitation of free uric acid from the urine, possibly resulting in renal colic.

2. The so-called tasteless castor oil is said to be free from decomposition products which it is claimed cause the bad taste of castor oil.

3. Alcresta ipecac is a combination of ipecac alkaloids with fullers' earth, said to be insoluble in acid liquids, and therefore not decomposed in the stomach. It is said to be decomposed by alkaline fluids in the intestine with the liberation of ipecac alkaloids. Alcresta ipecac is described in New and Nonofficial Remedies for 1916, p. 160.

4. We are unable to find any reference to the use of injections of liquid petrolatum intra-abdominally as a cure for local or general peritonitis.

5. Iodin (free) should rarely or never be injected internally.

6. A list of books on the history of medicine was published in THE JOURNAL, Feb. 7, 1914, p. 476. Among the more recent may be mentioned:

Garrison, F. H.: Introduction to History of Medicine, Philadelphia, W. B. Saunders Company, $6.
Bass, J. H.: Outline of History of Medicine, New York, W. R. Jenkins Company, $6.
Neuberger, M.: History of Medicine, New York, Oxford University Press, Vol. I, $9; Vol. II, in preparation.
Park, R.: Epitome of the History of Medicine, Philadelphia, F. A. Davis Company, $2.

7. Journal of Tropical Medicine and Hygiene, semimonthly, price, $5. Published by Messrs. Bale, Sons and Danielsson, Ltd., 83 Great Titchfield St., London, W., England.

ARTICLES ON STERILIZATION OF THE UNFIT

To the Editor:—Please tell me where I may secure literature on the sterilization of the unfit as practiced in Indiana state institutions as well as in other states. A. J. KEARNS, M.D., Loup City, Neb.

ANSWER.—The following is a list of articles on this subject:

Swift, H. M.: Sterilization of Unfit, *Maine Med. Assn. Jour.*, December, 1914.
The Davis Case and the Iowa Sterilization Law, Medical Economics, THE JOURNAL, July 25, 1914, p. 340.
Pogue, M.: Sterilization, Segregation or Custodial Care of Mental Defectives, *Illinois Med. Jour.*, October, 1914.
Peters, A. W.: Sterilization of Mental Defectives from Physiologic Standpoint, *Med. Rec.*, New York, Aug. 29, 1914.
Law Providing for Sterilization of Epileptics in Charitable Institutions Not Constitutional, Medicolegal, THE JOURNAL, March 14, 1914, p. 875.
Lydston, G. F.: Is Sterilization Destined to be a Social Menace? *Illinois Med. Jour.*, December, 1913; *Med. Rec.*, New York, Nov. 8, 1913.
Carey, H. M.: Compulsory Sterilization and Segregation of Mental Defective, *Illinois Med. Jour.*, November, 1913.
Champions, W. L.: Sterilization of Confirmed Criminals, Idiots, Rapists, Feebleminded and Other Defectives, *Georgia Med. Assn. Jour.*, August, 1913.
Bowers, E. L.: Sterilization of Degenerates, *Denver Med. Times and Utah Med. Jour.*, September, 1912, p. 148.
Mack, C. W.: Psychiatric Aspects of Sterilization Law, *Michigan State Med. Soc. Jour.*, August, 1913.
Singer, H. D.: Sterilization of Insane, Criminal and Delinquent, *Illinois Med. Jour.*, May, 1913.
Hegar, A.: Sterilization of the Unfit, *München. med. Wchnschr.*, Feb. 4, 1913.
Clark, C. M.: Plea for Sterilization of Criminals, Epileptics, Imbeciles and Insane, *Northwest Med.*, December, 1912.
Ellis, H. H.: Sterilization, *Denver Med. Times and Utah Med. Jour.*, September, 1912, p. 14.
Queries and Minor Notes, THE JOURNAL, Oct. 23, 1909, p. 1415; March 8, 1913, p. 769; Dec. 13, 1913, p. 2179.

Conservation of Food Supply.—The United States Department of Agriculture has established a laboratory to study the decomposition and fermentation of food products with the object of lessening the great waste that occurs from these causes. This work is in addition to the work of detecting adulteration. The investigations by this laboratory are intended to establish better methods for handling, packing, storing and shipping fish, poultry and eggs. The breakage of eggs in transit has heretofore occasioned great loss; this has been reduced by the adoption of methods developed by the laboratory for bracing eggs in cases, bracing cases in cars, and bracing, buffing and shifting cars. Experiments are under way to determine the best method of feeding poultry to increase weight and quality.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, April 4-5. Sec., Dr. John Wix Thomas, 200 National Bank of Arizona Bldg., Phoenix.
ARKANSAS: Regular, Little Rock, May 9. Sec., Dr. T. J. Stout, Brinkley; Eclectic, Little Rock, May 9. Sec., Dr. C. E. Laws, 712 Garrison Ave., Fort Smith.
CALIFORNIA: Los Angeles, April 4. Sec., Dr. Charles B. Pinkham, Room 527 Forum Bldg., Sacramento.
COLORADO: Denver, April 4. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
DISTRICT OF COLUMBIA: Washington, April 11. Sec., Dr. E. P. Copeland, The Rockingham.
IDAHO: Boise, April 4. Sec., Dr. Charles A. Dettman, Burke.
ILLINOIS: Chicago, May 4-6. Sec., Dr. C. St. Clair Drake, Springfield.
MINNESOTA: Minneapolis, April 4-7. Sec., Dr. Thomas S. McDavitt, 814 Lowry Bldg., St. Paul.
MONTANA: Helena, April 4. Sec., Dr. William C. Riddell, Helena.
NEVADA: Carson City, May 1. Sec., Dr. Simeon L. Lee, Carson City.
NEW MEXICO: Sante Fe, April 10. Sec., Dr. W. E. Kaser, East Las Vegas.
OKLAHOMA: Oklahoma City, April 11-12. Sec., Dr. Ralph V. Smith, 502 Daniel Bldg., Tulsa.
PORTO RICO: San Juan, April 4. Sec., Dr. Quevedo Baez, 66 Allen St., San Juan.
RHODE ISLAND: Providence, April 6. Sec., Dr. Gardner T. Swarts, 315 State House, Providence.
UTAH: Salt Lake City, April 3-4. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

Illinois October Report

Dr. C. St. Clair Drake, secretary of the Illinois State Board of Health, reports the written examination held at Chicago, Oct. 13-15, 1915. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 109, of whom 86 passed and 21 failed. Two candidates did not complete the examination. The following colleges were represented:

College	Year Grad.	Total No. Examined
PASSED		
Bennett Medical College	(1913) (1914, 3) (1915, 18)	22
Chicago College of Medicine and Surgery	(1909) (1913) (1914, 6) (1915, 12)	20
Chicago Hospital College of Medicine	(1915)	2
Chicago Medical College	(1884)	1
Hahnemann Med. Coll. and Hosp., Chicago	(1914) (1915)	2
Jenner Medical College	(1914) (1915, 7)	8
Northwestern University	(1914) (1915, 3)	4
Rush Medical College	(1896) (1915, 4)	5
University of Illinois	(1915)	6
Tufts College Medical School	(1913)	1
Harvard University	(1899)	1
Barnes Medical College	(1898)	1
Missouri Medical College	(1894)	1
National University of Arts and Sciences	(1914)	1
St. Louis College of Physicians and Surgeons	(1908)	1
St. Louis University	(1914)	1
University of Nebraska	(1915)	1
Cornell University	(1915)	1
Starling Medical College	(1884)	1
Eclectic Medical College, Cincinnati	(1894)	1
University of Virginia	(1915)	1
Milwaukee Medical College	(1911)	1
Marquette University	(1914)	1
National University of Athens	(1908) (1913)	2
FAILED		
Bennett Medical College	(1914, 2) (1915, 4)	6
Chicago College of Med. and Surg.	(1914, 2) (1915, 4)	6
Chicago Hospital College of Medicine	(1915)	3
College of Med. and Surg., Chicago, Physio-Medical	(1910)	1
Illinois Medical College	(1910)	1
State University of Iowa, College of Medicine	(1890)	1
University of Louisville	(1913)	1
National University of Arts and Sciences	(1914)	1
Meharry Medical College	(1908)	1

New Mexico October Report

Dr. W. E. Kaser, secretary of the New Mexico Board of Health and Medical Examiners, reports the written examination held at Santa Fé, Oct. 11-12, 1915. The total number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. One candidate was examined and passed. Twelve candidates were licensed on satisfactory credentials. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Chattanooga Medical College	(1903)	75

LICENSED ON SATISFACTORY CREDENTIALS

College	Year Grad.	Total No. Licensed
George Washington University	(1910)	1
College of Physicians and Surgeons, Chicago	(1893)	1
Northwestern University	(1908)	1
Kentucky University	(1905)	1
University of Louisville	(1905) (1907)	2
Tulane University of Louisiana	(1898)	1
Kansas City Medical College	(1888)	1
Marion-Sims-Beaumont College of Medicine	(1903)	1
Medical College of Ohio	(1902)	1
University of Tennessee	(1915)	2

New York October Report

Mr. Harlan H. Horner, chief of the examinations division of the New York State Board of Medical Examiners, reports the written examination held at Albany, Buffalo, New York and Syracuse, Oct. 5-8, 1915. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 171, of whom 119 passed, including 1 osteopath, and 52 failed, including 1 osteopath. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Examined
University of Colorado		(1911)	1
Georgetown University		(1913)	1
George Washington University		(1915)	1
Bowdoin Medical School		(1913)	1
College of Phys. and Surgs., Baltimore		(1913)	1
Johns Hopkins University		(1912) (1914)	2
University of Maryland		(1908) (1914)	2
Harvard University		(1908) (1915)	2
University of Michigan Medical School		(1911)	1
Dartmouth Medical School		(1910)	1
Albany Medical College		(1912) (1914, 2) (1915, 7)	10
Columbia University		(1912) (1913, 3) (1914, 4) (1915, 5)	13
Cornell University		(1913) (1914, 2) (1915, 2)	5
Fordham University		(1913, 2) (1914, 3) (1915, 3)	8
Long Island College Hospital		(1910) (1914, 2) (1915, 6)	9
New York Homeo. Med. Coll. and Flower Hospital		(1914, 7) (1915, 8)	15
Univ. and Bellevue Hosp. Med. Coll.		(1914, 4) (1915, 12)	16
University of Buffalo		(1914)	2
Hahnemann Medical College and Hospital		(1915)	1
Jefferson Medical College		(1912) (1914, 2) (1915)	4
Medico-Chirurgical College of Philadelphia		(1914)	1
Univ. of Pennsylvania		(1897) (1899) (1909) (1912, 2) (1915)	6
Woman's Medical College of Pennsylvania		(1914) (1915)	2
Vanderbilt University		(1913)	1
University of Texas		(1912)	1
University of Vermont		(1903) (1913) (1915, 3)	5
University of Virginia		(1913)	1
McGill University		(1913)	1
Queen's University		(1912)	1
University of Toronto		(1908)	1
University of Palermo		(1905)	1
Syrian Protestant College, Beirut		(1911)	1
University of California	FAILED	(1900)	1
Georgetown University		(1913)	1
George Washington University		(1915)	1
College of Phys. and Surgs., Baltimore		(1913) (1914)	2
Johns Hopkins University		(1909)	1
Boston University		(1909)	1
Albany Medical College		(1914, 5) (1915)	6
Columbia Univ., Coll. of Phys. and Surgs.		(1913) (1915)	2
Cornell University		(1915)	1
Fordham University		(1912, 2) (1913, 2) (1914) (1915, 3)	8
Long Island College Hospital		(1911) (1915)	2
New York Homeo. Med. Coll. and Flower Hospital		(1914, 5) (1915, 2)	7
New York Med. Coll. and Hosp. for Women		(1913)	1
University of Buffalo		(1901)	1
Medical College of Ohio		(1900)	1
Jefferson Medical College		(1912) (1913)	2
Medico-Chirurgical College of Philadelphia		(1915)	2
University of Pennsylvania		(1902)	1
University of Vermont		(1912) (1915)	2
Medical College of Virginia		(1915)	1
Queen's University		(1911) (1915)	2
University of Brussels		(1913)	1
University of Naples		(1883) (1905) (1912)	3

Wyoming October Report

Dr. H. E. McCollum, secretary of the State Board of Medical Examiners of Wyoming, reports the written examination held at Laramie, Oct. 13-15, 1915. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 5, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Colorado	(1912) 81.5;	(1913)	89.9
University of Nebraska		(1914) 81.3,	76.7
University of Munich		(1912)	87.9

Book Notices

A REFERENCE HANDBOOK OF THE MEDICAL SCIENCES. Embracing the entire range of scientific and practical medicine and allied science. By various writers. Third Edition. Edited by Thomas Lathrop Stedman, A.M., M.D. Volume 6. Cloth. Price, $7. Pp. 967, with illustrations. New York: William Wood & Co., 1916.

The previous volumes of this extensive work have already been reviewed in THE JOURNAL. Volume VI, just at hand, is fully equal to the previous volumes. It contains numerous short biographic sketches of such physicians as Lister, Malpighi and Murchison. Among the larger subjects discussed are the liver and its diseases, the lungs, lupus, the lymphatic system, malaria, mastoid operations, medical licensing boards, the history of medicine, meningitis, mental diseases, metabolism, the microscope, milk, muscle, myopia, naval hygiene and the naval medical service, nematoda, nephritis, the nose, obesity, obstetrics, occupational diseases, old age, ophthalmology, optometry, organotherapy, otitis media and the ovaries. While these large topics are given extensive consideration, practically no phase of medicine occurring alphabetically in the letters covered by this volume is overlooked. The article on medical licensing boards by Otto V. Huffman is comprehensive, and, needless to state, accurate. The article on malaria is by von Ezdorf. The article on the history of medicine, by Newton, contains in a small amount of space a summary of medical history which should be read by every physician. The article on the microscope is well illustrated, and makes clear the mechanics and use of this instrument. The article on nematoda is by Henry B. Ward, and is followed by an article on neoplasms by Woglom. The section on nephritis is complete and modern. Max Hühner discusses the sexual neuroses, and Dyer the subject of nevus. The discussions of treatment are rational and extraordinarily free from the taint of "patent medicine" prescribing. Nascher discusses old age. The article on organotherapy, by Croftan, appears somewhat optimistic, but is this not true of practically all articles on this subject? The volume is well illustrated; the colored plates have been carefully chosen and are instructive. Under the subject of optometry is an excellent test letter chart. The Reference Handbook of Medical Sciences continues to sustain a well deserved good reputation.

BONE-GRAFT SURGERY. By Fred H. Albee, A.B., M.D., F.A.C.S., Professor of Orthopedic Surgery at the New York Post-Graduate Medical School. Cloth. Price, $6, net. Pp. 417, with 332 illustrations. Philadelphia: W. B. Saunders Company, 1915.

This is an important contribution to the field of bone surgery. Too much is claimed for the bone graft as a therapeutic agent. Operations in which a transplant is used have been devised and recommended for conditions in which perfectly satisfactory results can be obtained by simpler methods. The impression is conveyed that almost every case treated by the author's methods will terminate successfully, whereas no evidence is given that some of his operations have as yet been performed on man. More clinical experience must be forthcoming before these measures can be accepted so unreservedly.

The first of the eight chapters deals with the fundamental principles underlying the use of the bone graft. The views are given of various workers as to the part played by the periosteum, compact bone and endosteum. The transplant should consist of all three layers and be inserted by the inlay method so that they are in apposition with the same layers of the portion into which it is inserted. General and specific indications are enumerated for the use of the transplant. The author points out that a transplant placed in an infected area may be successful, but holds out perhaps too much encouragement for its use in such cases. A list of the necessary instruments is given with detailed instruction as to their use. The advantages of electrically driven saws, drills, lathes and burrs is pointed out. The author takes too much credit for the introduction of these agents, as they were previously in use in one type or another. His outfit, however, is one of the most complete and practical combinations that has been made. The chapter dealing with the intraspinal inlay for

the treatment of tuberculous spine is very complete, as both experimental and extensive clinical data are given in its support. The results in 532 cases in which operation was performed by the author and other surgeons are given. In 184 out of 198 personal patients operated on one year or over the disease was arrested. A questionable operation is the one recommended on the sacro-iliac joint in cases of tuberculosis, particularly in the vague condition of sacro-iliac subluxation.

The chapter on fractures is one of the best. The advantages of the bone graft over nonabsorbable material is well pointed out, and the author's method of insertion is urged over the intramedullary bone peg. The difficulties of the inlay method in cases of old ununited fractures with extreme atrophy are not sufficiently discussed. The author's treatment of most of the fractures of the long bones is excellent. The bone graft peg for intracapsular fractures of the neck of the femur for which he claims credit was first used by Lexer many years ago. A successful case is cited, but the difficulties of fixation in old cases, particularly where the neck and a part of the head are worn away and the remaining portions atrophied, are not pointed out. Some of the operations recommended are quite fanciful and seem to have been devised more to extend the field of the bone graft than for their usefulness: Such are the inlay for fracture of the patella and the wedge shaped graft into the split scaphoid in congenital clubfoot and into the tibia after osteotomy for bow leg. In the arthrodeses and resections on the hip, knee and about the ankle, transplants are inserted in addition to the removal of the articular cartilage. This is also done in case the resection is for tuberculosis, and the author claims to have had no subsequent loss of transplants; but his assertion that bony union was always complete in six weeks sounds questionable. The illustrations are numerous and excellent.

OCCUPATION THERAPY. A Manual for Nurses. By William Rush Dunton, Jr., B.S., M.A., M.D., Assistant Physician at Sheppard and Enoch Pratt Hospital, Towson, Md. Cloth. Price, $1.50 net. Pp. 240, with 43 ilustrations. Philadelphia: W. B. Saunders Company, 1915.

THE WORK OF OUR HANDS. A Study of Occupations for Invalids. By Herbert J. Hall, M.D., and Mertice M. C. Buck. Cloth. Price, $1.50 net. Pp. 211, with illustrations. New York: Moffat, Yard & Co., 1915.

Dr. Dunton's book is based on a series of talks given to nurses at Sheppard and Enoch Pratt Hospital, and follows in arrangement the "course in occupation" given at that institution. Perhaps a better title would have been "Diversional Therapy." The primary purpose of occupation in therapy is "to divert the patient's attention from unpleasant subjects." A number of diversions, ranging from card games to stamp-collecting, and of diversional occupations, ranging from the making of starched beads to basketry and "drawing and painting," are described.

Dr. Hall and Miss Buck discuss occupations for invalids from a wider point of view than that of diversion. Dr. Hall believes in productive work as "not only gymnastic and physically restorative, but morally strengthening as well." The market value of effort, he believes, is "deep and significant"; and he considers it possible, by careful planning, to organize special self-supporting industries for the employment of persons handicapped in various ways.

BACTERIOLOGICAL METHODS IN FOOD AND DRUGS LABORATORIES. With an Introduction to Micro-Analytical Methods. By Albert Schneider, M.D., Ph.D., Professor of Pharmacognosy, College of Pharmacy of the University of California. Cloth. Price, $2.50 net. Pp. 288, with 93 illustrations. Philadelphia: P. Blakiston's Son & Co., 1915.

The federal and state food and drugs acts have necessitated the introduction of bacteriologic methods into food and drugs laboratories. Dr. Schneider suggests that, because of the close relationship between the work of the bacteriologist and that of the micro-analyst, it is desirable that the two branches be combined in such manner that they may cooperate as effectively as possible. This volume is intended to be instrumental in the unification of methods, which are not yet fully worked out in either branch. To this end it contains, in addition to bacteriologic methods, an outline of micro-analytic methods. Its use as a laboratory guide presupposes a knowledge of general bacteriology.

Medicolegal

Admissibility in Evidence of Certificate of Death and Testimony of Physicians

(*Gilchrist vs. Mystic Workers of the World (Mich.), 154 N. W. R. 575*)

The Supreme Court of Michigan reverses, for error in the admission of evidence, a judgment obtained by the plaintiff on a benefit certificate issued to his wife. There was offered in evidence a certificate of death, signed by the attending physician, which stated that the cause of death was peritonitis. "Contributory. Abortion, said by deceased to have been performed by Dr. ————." The trial judge sustained an objection excluding the portion quoted. The objection was that this was hearsay, and therefore incompetent, and not a proper part of the certificate required by the statute. But the supreme court is of the opinion that the certificate properly included the words "Contributory. Abortion." A fair interpretation of the certificate was that the contributing cause of death was within the knowledge of the physician, and was not hearsay. The remainder of the certificate was hearsay. The proper certificate was admissible under the statute. As to knowledge obtained by physicians in their professional capacity while attending the insured as their patient, the court holds that it was privileged and they might not testify thereto notwithstanding a waiver of the statutory privilege by the insured in her application for insurance. The court says that the Michigan statute creates an absolute privilege, with but one exception, where a waiver may be made by the representatives of the deceased patient, and that only in a contest on the question of admitting the patient's will to probate. The statute contains this stringent prohibition, and the patient's waiver of the privilege was of no force or effect. It has been the policy of the legislature and the courts of Michigan to protect this privilege. The waiver contained in the application was therefore against public policy and void, and the testimony of the attending physicians as to all knowledge obtained by them in such capacity was properly excluded. This included all of the testimony of the physicians as to matters which were obtained from the deceased in their professional capacity, together with their opinion based on such information. Nor were certain alleged statements of the deceased made to these physicians and to one of them in the presence of a nurse admissible because of the waiver clause and because they were part of res gestae or essential circumstances, as contended. The court does not consider that they could be regarded as part of the res gestae, and thinks that what is said above disposes of the contention relative to the waiver clause. But the testimony of the nurse was admissible in so far as it stated an admission by the insured of the cause of her ailment. The statute does not exclude the testimony of the nurse.

Damages for Wrongful Notice to Employees Not to Call Named Physician

(*Peek vs. Northern Pac. Ry. Co. et al. (Mont.), 152 Pac. R. 421*)

The Supreme Court of Montana directs that a judgment for $700 damages obtained by the plaintiff be corrected to award damages in the sum of $1. The court says that it was alleged that the defendants—the railway company and certain of its officials—conspiring to injure him in his profession as a physician, published and brought to the attention of the employees of the company a notice addressed to all yard employees, that: "In case of accident to an employee where medical attention is needed at once, do not in any case call Dr. Peek. If company doctor cannot be located, order ambulance and have party sent to hospital." That said notice was maliciously intended to and did injure the plaintiff in his business. That by it many of the employees of the railway company who would otherwise have dealt with the plaintiff were prevented from doing so, in consequence of which he lost business to his damage. The evidence disclosed, among other things, a letter from the president of the company to the general superintendent, directing attention to the fact that much annoyance

and some expense had been caused to the Northern Pacific Beneficial Association, an organization of employees of the railway company for the purpose of furnishing medical and surgical aid to its members, on account of a disposition on the part of certain employees to call on Dr. Peek for medical and surgical service without any proper effort being made to secure one of the association's authorized surgeons, and "without much regard for N. P. B. A. rules." In illustration of the conditions it was pointed out that Dr. Peek had recently presented a bill for $1,600 for services rendered, including an operation which it was believed was unnecessary. The plaintiff testified that there had been a visible loss of about $70 per month in his medical practice with yard employees of the company from the date of the quoted notice to them; but he prosecuted his case on the theory, which was entirely correct, that his right of action was not for the loss of general practice among employees of the railway company, but for the loss of such emergency practice chargeable to the beneficial association as would have come to him but for the notice complained of; in other words, that the defendants had and could have no authority to say that the beneficial association would not deal with the plaintiff in any case. That the beneficial association could, under proper circumstances, have lawfully signified to its members by any proper means its indisposition to have any dealings whatever with the plaintiff, the court thinks was beyond dispute. Moreover, the letter of the president of the company was ample warrant for the defendants to proceed according to its purport, but it did not go beyond the request for suitable steps to enforce the rule of the association restricting the call of outside surgeons to cases of emergency and pending the arrival of the authorized surgeon. From this the notice in question was a material departure. However, so far as damages were concerned, there was a total failure of proof—nothing to show what portion of the plaintiff's whole loss came within the class for which liability was claimed, and he must be relegated to his right to nominal damages only.

Society Proceedings

COMING MEETINGS

Alabama State Medical Association, Mobile, April 18.
American Assn. of Genito-Urinary Surgs., Washington, D. C., May 9-10.
American Association of Path. and Bact., Washington, D. C., May 9-11.
American Climatological and Clin. Assn., Washington, D. C., May 9-11.
American Dermatological Association, Washington, D. C., May 8-10.
American Gastro-Enterological Association, Washington, D. C., May 8-9.
American Gynecological Society, Washington, D. C., May 9-11.
American Laryngological Association, Washington, D. C., May 9-11.
Amer. Laryn., Rhin. and Otol., White Sulphur Sprgs., W. Va., May 5-6.
American Medico-Psychological Association, New Orleans, April 4-7.
American Ophthalmological Society, Washington, D. C., May 9-11.
American Orthopedic Association, Washington, D. C., May 8-11.
American Otological Society, Washington, D. C., May 9-10.
American Pediatric Society, Washington, D. C., May 8-10.
American Society of Tropical Medicine, Washington, D. C., May 9-11.
American Surgical Association, Washington, D. C., May 9-11.
American Urological Association, St. Louis, April 17-19.
Arizona Medical Association, Phoenix, April 26-27.
Arkansas Medical Society, Texarkana, May 2-4.
Association of American Physicians, Washington, D. C., May 9-11.
California State Medical Society, Fresno, April 18-20.
Conference of State and Prov. Boards of N. A., Washington, May 16-17.
Cong. Am. Phys. and Surgs. of No. Am., Washington, D. C., May 9-10.
Connecticut State Medical Society, Bridgeport, May 17-18.
Florida Medical Association, Arcadia, May 10-12.
Georgia Medical Association, Columbus, April 19-21.
Illinois State Medical Society, Champaign, May 16-18.
Iowa State Medical Society, Davenport, May 10-12.
Kansas Medical Society, Topeka, May 3-5.
Louisiana State Medical Society, New Orleans, April 18-20.
Mississippi State Medical Association, Greenville, May 9-11.
Missouri State Medical Association, Excelsior Springs, May 8-10.
National Assn. for Study and Prev. of Tuberc., Wash., D. C., May 11-12.
Nebraska State Medical Association, Omaha, May 23-25.
New Hampshire Medical Society, Concord, May 16.
New York State Medical Society, Saratoga Springs, May 16.
North Carolina State Medical Society, Durham, April 18.
North Dakota State Medical Association, Devils Lake, May 10-11.
Ohio State Medical Association, Cleveland, May 17-19.
Oklahoma State Medical Association, Oklahoma City, May 9-11.
South Carolina Medical Association, Charleston, April 18-20.
South Dakota State Medical Association, Aberdeen, May 23-25.
Tennessee State Medical Association, Knoxville, April 4-6.
Texas State Medical Association, Galveston, May 9-11.
West Virginia State Medical Association, Wheeling, May 16-18.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

March, XIX, No. 2, pp. 149-352

1 Sinoventricular System as Demonstrated by Injection Method. M. R. King, San Francisco.
2 *Interrelations of Mesonephros, Kidney and Placenta in Different Classes of Animals. J. L. Bremer, Boston.
3 Development of Liver and Pancreas in Amblystoma Punctatum. E. A. Baumgartner, Minneapolis.
4 Microscopic Structure of Yolk-Sac of Pig Embryo, With Special Reference to Origin of Erythrocytes. H. E. Jordan, Charlottsville, Va.
5 *Effects of Inanition on Structure of Thyroid and Parathyroids of Albino Rat. C. M. Jackson, Minneapolis.

2. **Interrelations of Mesonephros, etc.**—From the facts deduced by Bremer it appears that embryonic and fetal urinary excretion takes place wholly through the placenta in the rat, at first through the Wolffian body and later through the placenta in the rabbit, guinea-pig and man, but never through the placenta in the pig, sheep or cat.

5. **Inanition of Thyroid in Rats.**—The more important results of Jackson's investigation are summarized by him as follows: In young rats held at maintenance for several weeks (and hence in a condition of chronic inanition), the histologic changes in the thyroid are varied. The follicular epithelium is atrophied, with reduction in height. The nuclei are rarely hypochromatic (various stages of karyolysis), but hyperchromatosis is more typical, the nuclei usually presenting some stage of pycnosis. In extreme cases the nucleus becomes fragmented (karyorrhexis). Neither mitosis nor amitosis is found. The cytoplasm is usually reduced in amount considerably more than the nucleus; usually becomes rarefied with a marked vacuolization and loss of the normal granulation. In some cases the cytoplasm may become homogeneous and in advanced stages may disintegrate. The intrafollicular colloid may show no abnormal changes. Advanced stages of degeneration in the follicular epithelium, however, are accompanied by dissolution and disintegration of the colloid. The interfollicular connective tissue (stroma) usually shows no very marked change in structure, but is often increased in volume by an infiltration of ground substance, giving a somewhat edematous appearance. On this account, the whole thyroid gland may show but little loss in absolute weight, although there has been a marked atrophy of the parenchyma. In the adult rats subjected to acute and chronic inanition, the changes in the structure of the thyroid gland are likewise varied, but in general similar to those found in the younger rats. In adult rats during acute and chronic inanition, the reduction in the size of the parathyroids is nearly proportional to that of the body as a whole.

American Journal of Orthopedic Surgery, Boston

March, XIV, No. 3, pp. 119-190

6 Review of Ten Years' Work at Sea Breeze Hospital for Surgical Tuberculosis. B. H. Whitbeck, New York.
7 *Five Hundred and Thirty-Nine Cases of Pott's Disease Treated by Bone Graft. F. H. Albee, New York.
8 *Results of Nonoperative Treatment of Infantile Paralysis. A. O'Reilly, St. Louis.
9 Cervical Ribs; Report of Seven Cases With One Operative Case. W. W. Plummer, Buffalo.
10 Subungual Exostosis. A. J. Davidson, Philadelphia.
11 Old Dislocation of Clavicle in Child. C. H. Baldwin, Utica, N. Y.

8. **Nonoperative Treatment of Infantile Paralysis.**—Of forty-six cases seen by O'Reilly, 35 have received massage regularly. There were 24 acute cases, seen within one year after the onset of the disease, 22 chronic cases seen one year or more after the onset of the disease. In the group of acute cases, 11, or 46 per cent., showed some improvement, while of the chronic cases, 9, or 41 per cent. showed some improvement; and 15, or 43 per cent., of those cases receiving massage and exercises improved. Eleven cases were treated without massage and exercise, and of these, 5, or 45 per cent., improved. Of these, 56 per cent. of the cases treated showed

no improvement. O'Reilly emphasizes that it is very difficult to treat infantile paralysis nonoperatively in an outpatient clinic, owing to the difficulty of inducing the patients to attend regularly for any length of time. From 40 to 45 per cent. of the cases show some improvement when treated by braces, and this percentage is not materially increased by the use of massage. Improvement in all cases in which it was noted was not great, and recovery of muscle power in stretched and exhausted muscles seems to be slight. In the majority of cases no improvement took place after six months, especially in the more severe cases. From his experience O'Reilly believes that one is safe in operating on any case in infantile paralysis after the first year and that this should be done in suitable cases. The patients are then more easily induced to come to the clinic and the end results are more satisfactory.

American Journal of Roentgenology, New York

February, III, No. 2, pp. 63-122

12 *Treatment of Exophthalmic Goiter by Means of Roentgen Rays. G. E. Pfahler and J. D. Zulick, Philadelphia.
13 *Recent Results in Roentgen Ray Treatment of Menorrhagia, Dysmenorrhea and Uterine Myoma. S. Lange, Cincinnati.
14 Modern Roentgen Therapy. G. C. Johnston, Pittsburgh.
15 *Local Application of Radium Supplemented by Roentgen Therapy. R. H. Boggs, Pittsburgh.

12, 13 and 15. Abstracted in THE JOURNAL, Nov. 6, 1915, pp. 1669 and 1670.

Archives of Internal Medicine, Chicago

March, XVII, No. 3, pp. 343-458

16 Ventricular Hemorrhage: Symptom Group. A. Gordon, Philadelphia.
17 Gastric Mucosa in Delirium Tremens. E. F. Hirsch, Chicago.
18 *Circulatory Reaction to Graduated Work as Test of Heart's Functional Capacity. T. B. Barringer, Jr., New York.
19 *Some Attempts to Produce Exophthalmos Experimentally. A. Troell, Stockholm, Sweden.
20 Clinical Study of Edema by Means of Elastometer. A. B. Schwartz, Chicago.
21 Uric Acid Solvent Power of Urine After Administration of Piperazin, Lysidin, Lithium Carbonate and Other Alkalies. H. D. Haskins, Portland, Ore.
22 Serologic Examinations in Case of Polycythemia. H. A. Freund and W. K. Rexford, Detroit.
23 Toxicity of Various Commercial Preparations of Emetin Hydrochlorid. R. L. Levy and L. G. Rowntree, Baltimore.
24 Three Cases of Purpura Hemorrhagica in Chronic Tuberculosis. S. Bauch, New York.
25 *B. Welchii in Stools of Pellagrins. W. H. Holmes, Chicago.

18. **Test of Heart's Functional Capacity.**—A large number of experiments have been carried out by Barringer on normal persons and those suffering from heart insufficiency to determine the effect of graduated work on the pulse rate and systolic blood pressure. The work was performed by means of a Krogh bicycle ergometer in a few persons and by dumbbell exercises in the majority of subjects. It was demonstrated that a certain form of the curve of systolic blood pressure determined after the completion of work is characteristic of an overtaxing of the heart's functional capacity.

19. **Attempts to Produce Exophthalmos Experimentally.**—This is the final report of Troell's attempts to produce exophthalmos experimentally. Considered together, he says, they show that whenever they proceeded from the assumption of cooperation through sympathetic stimulation, they were negative; but that in that group of cases in which paraphenylenediamin injections were made for the purpose, they were positive, even when the cooperation of the sympathetic had been eliminated. Thus far they have proved that an exophthalmos—one not resulting from an intra-orbital tumor, or some such cause—may arise without any intermediation of the cervical sympathetic. Troell's investigations show, among other things, how necessary it is to refrain from erroneous combinations. The temporary but slight forward shift of the bulb which, at least in certain animals, is likely to be produced by a direct electric stimulation of the cervical sympathetic is one thing, the somewhat more lasting protrusio bulbi in dogs after a subcutaneous paraphenylenediamin injection is quite another matter; and exophthalmos in exophthalmic goiter, sometimes continuing for years and occasionally of extremely pronounced character, has peculiarities that make it also a distinct group. There is much to be said against the assumption that exophthalmos in exophthalmic goiter may be the result of a sympathetic stimulation. The entire aspect of the eye changes in paraphenylenediamin intoxication as a rule makes the impression of disturbance of the circulation, edema, which is by no means the most striking feature of exophthalmic goiter—although there are some similarities between them that are worthy of note (such as palpebral edema occasionally arising in exophthalmic goiter). On the whole, the question of the genesis of exophthalmos in exophthalmic goiter remains unsolved.

25. **B. Welchii in Stools of Pellagrins.**—Holmes calls attention to the presence of abnormally large numbers of organisms belonging to the *B. Welchii* group, which have been found in the stools of pellagrins. These pellagrins were on a dietary composed principally of vegetable foods high in carbohydrates. The diet was extremely low in protein and especially in protein of animal origin. *B. Welchii* has been found to produce severe diarrhea in children and adults in the presence of a high carbohydrate diet. The diarrhea caused by *B. Welchii* can be cured by a protein diet and buttermilk. Goldberger has prevented pellagra by the addition of proteins and buttermilk to the diet, and has experimentally caused pellagra by means of a pure carbohydrate diet. Whether *B. Welchii* was present in the stools of Goldberger's cases in greatly increased numbers is not known. These facts by no means prove that *B. Welchii* is the direct or sole cause of pellagra, but their coincidence is sufficiently significant to justify further investigation.

Archives of Ophthalmology, New Rochelle, N. Y.

March, XLV, No. 2, pp. 109-203

26 Purulent Conjunctivitis in Infants Under Two Months of Age. A. W. Williams and C. Rosenberg, New York.
27 Digital Compression of Lacrimal Sac in Dacryocystitis, Especially of Newborn. J. Santos-Fernandez, Havana, Cuba.
28 Anomalies of Accommodation, Clinically Considered. A. Duane, New York.
29 Tenotomy of Inferior Oblique Muscle. W. C. Posey, Philadelphia.
30 Rosacea Keratitis and Certain Other Forms of Marginal Keratitis, Neuropathic in Origin. Treatment by Pericorneal Neurotomy. F. H. Verhoeff, Boston.
31 Bacteriologic and Clinical Studies of Epidemic of Koch-Weeks Bacillus Conjunctivitis Associated With Cell Inclusion Conjunctivitis. H. Noguchi and M. Cohen, New York.
32 Clinical Pathology of Ocular Muscle Paralysis. W. Walter, Chicago.

Archives of Pediatrics, New York

February, XXXIII, No. 2, pp. 81-160

33 *Prevention of Respiratory Diseases in Early Life. R. S. Haynes, New York.
34 *Institutions as Foster Mothers for Infants. A. F. Hess, New York.
35 Mitral Stenosis in Young Children. M. H. Bass, New York.
36 *Intestinal Parasites in Children. H. B. Ward, Urbana, Ill.

33 and 34. Abstracted in THE JOURNAL, January 1, pp. 55 and 58.

36. **Intestinal Parasites in Children.**—Attention is directed by Ward to the fact that modern textbooks on pediatrics are not correct in their statements on this subject. An analysis of evidence presented by Ward shows that two general conclusions concerning parasites in children are safe: (1) they are more frequent than commonly stated; (2) there are more varieties than usually listed. Among the trematodes or flukes there are none in this country which constitute a menace to the child. Among the cestodes or tapeworms there are three species conspicuous for their size and long known by virtue of this and their abundance in certain regions. These are the pork tapeworm, tenia solium, the beef tapeworm, tenia saginata and the fish tapeworm, dibothriocephalus latus. All of these have been reported from hosts of all ages, even from suckling infants. But such cases are great rarities among many thousands of records. No one of them is as likely to be parasitic in a child as in an adult. Of the approximate thirty varieties of cestodes recorded from the human host, four are said to occur chiefly in children. Davainea madagascariensis has been reported only

from tropical regions and the total number of cases on record is small. Of nine cases, two only are in adults. Dipylidium caninum is a normal parasite of dog and cat and is extremely abundant in those hosts. About 100 cases in man are on record. Most of these concern children, even of very immature age.

Two species of Hymenolepis have been recognized in recent years as frequent parasites of man. These are Hymenolepis nana and Hymenolepis diminuta. The nematodes or roundworms furnish more parasites to the human species and consequently more to children than either of the groups mentioned before. They are of Ascaris lumbricoides, the stomach worm, Oxyuris vermicularis, the pinworm, and Trichuris trichiura, the whipworm. Hookworm disease is conspicuously a disease of the young. Protozoa play an important rôle as parasites of the human intestine. Protozoa are exceedingly common in children. Ward emphasizes the importance of frequent fecal examinations and then warns against pitfalls in the path of the diagnostician in the form of foreign materials usually of plant origin that are too easily diagnosed as worms. The most common in the feces of the child are pulp vesicles from the orange that simulate closely some sort of a fluke and the partly digested fiber of the banana, that are strikingly like a mass of small tapeworms.

Boston Medical and Surgical Journal

March 16, CLXXIV, No. 11, pp. 371-406

37 Analysis of Fourteen Cases of Diabetes Mellitus Unsuccessfully Treated by Fasting. (To be continued). E. P. Joslin, F. G. Brigham and A. A. Hornor, Boston.
38 Gunshot Wounds of Thorax. W. M. Boothby, Boston.
39 *How Can We Detect Slight Enlargement of Heart? G. C. Shattuck, Boston.

39. **How Can Slight Enlargement of Heart be Detected?**—The importance of skilful physical examination and careful history as a means of discovering abnormality in the circulatory system and slight signs of enlargement of the heart are emphasized by Shattuck. When findings are inconclusive, he says, an examination with the fluoroscope may quickly clear up the diagnosis. In other cases an orthodiagram or a teleoroentgenogram may provide important information by showing slight abnormality in the outline or measurements of the heart. Even with good technic none of these methods are faultless, and normal heart size is variable. Therefore, enlargement should be judged, not by millimeters, but by centimeters. By using heart measurements, Shattuck says, it should be possible to detect enlargements of two centimeters in transverse diameter of the heart in most cases, but enlargements of three centimeters may occur without exceeding the maximum figures and in such cases abnormality may be difficult to demonstrate. Abnormal shape may give the earliest evidence by hypertrophy. As to the relative merits of orthodiagraphy and of teleoroentgenography, neither method is satisfactory without proper equipment, nor in the hands of one unfamiliar with its difficulties and possible sources of error.

Delaware State Medical Journal, Wilmington

December, 1915, VII, No. 1, pp. 1-11

40 Physician, Past, Present and Future. H. W. Briggs, Wilmington.

Journal of Biological Chemistry, Baltimore

March, XXIV, No. 3, pp. 173-421

41 Casein of Goat's Milk. A. W. Bosworth and L. L. Van Slyke, Geneva, N. Y.
42 Soluble and Insoluble Compounds of Goat's Milk. A. W. Bosworth and L. L. Van Slyke, Geneva, N. Y.
43 *Comparison of Composition of Cow's Milk, Goat's Milk and Human Milk. A. W. Bosworth and L. L. Van Slyke, Geneva, N. Y.
44 *Chemical Changes in Souring of Milk. L. L. Van Slyke and A. W. Bosworth, Geneva, N. Y.
45 *Rate of Urea Excretion. T. Addis and C. K. Watanabe, San Francisco.
46 Increase of Nitrogen in Fermenting Manures. W. E. Tottingham, Madison, Wis.
47 Determination of Cholesterol in Blood. W. R. Bloor, Boston.
48 *Mass Action in Activation of Unfertilized Starfish Eggs by Butyric Acid. R. S. Lillie, Worcester, Mass.
49 *Presence of Epinephrin in Human Fetal Suprarenals. J. H. Lewis, Chicago.
50 Cell Penetration by Acids. W. J. Crozier, Boston.
51 Rate of Oxidations in Reversed Artificial Parthenogenesis. H. Wasteneys, New York.
52 Units of Reference for Basal Metabolism and Their Interrelations. C. R. Moulton, Columbia, Mo.
53 Electrolytic Determination of Iodin Present in Organic Matter. R. B. Krauss, Philadelphia.
54 Studies on Theory of Diabetes. Behavior of dl-Glyceric Aldehyd in Normal and Diabetic Organism. W. D. Sansum and R. T. Woodyatt, Chicago.
55 Id. Intravenous Tolerance Limit for dl-Glyceric Aldehyd and Improbability that it is Chief Intermediate in Glucose Catabolism. W. D. Sansum and R. T. Woodyatt, Chicago.
56 Experimental Studies on Growth. T. B. Robertson and L. A. Ray, Berkeley, Calif.
57 Id. Normal Growth of White Mouse. T. B. Robertson, Berkeley, Calif.
58 *Id. Influence of Anterior Lobe of Pituitary Body on Growth of White Mouse. T. B. Robertson, Berkeley, Calif.
59 *Id. Influence of Tethelin, Growth Controlling Principle of Anterior Lobe of Pituitary Body on Growth of White Mouse. T. B. Robertson, Berkeley, Calif.
60 Isolation and Properties of Tethelin, Growth Controlling Principle of Anterior Lobe of Pituitary Body. T. B. Robertson, Berkeley, Calif.

43. **Composition of Milk.**—Goat's milk is said to differ from cow's milk (1) in containing tricalcium, dimagnesium and trimagnesium and monopotassium phosphates, and (2) in containing no monomagnesium or dipotassium phosphates. Human milk differs noticeably from both cow's and goat's milk in containing no insoluble phosphates, but only the soluble compounds, monomagnesium and monopotassium phosphates. The phosphates in human milk are much less in amount that in cow's or goat's milk. All three milks contain potassium citrate, while cow's milk and human milk contain sodium citrate also. Chlorids are present in goat's milk in much larger amounts than in cow's milk or human milk; the amount in cow's milk is considerably larger than in human milk. In cow's milk and human milk the chlorid appears to be calcium chlorid, while in goat's milk potassium and sodium chlorids are also present. The total amount of salts in human milk is about one third that in cow's milk or goat's milk. The number of different salts appears to be greatest in goat's milk and least in human milk.

44. **Chemical Changes in Souring Milk.**—Fresh milk was analyzed by Van Slyke and Bosworth for its soluble and insoluble constituents, a porous porcelain filter being used to make separation. Another portion of the same milk was inoculated with a culture containing *Bacterium lactis acidi* and *Bacterium lactis aerogenes*. At the end of sixty hours determinations were made of the soluble and insoluble portions. (*a*) About 22 per cent. of the milk sugar is changed by the lactic acid bacteria, 88.5 per cent. of the amount changed being converted into lactic acid. (*b*) Citric acid completely disappears. (*c*) The insoluble inorganic constituents of the fresh milk are made soluble by the lactic acid. (*d*) Albumin of sour milk passes through the porcelain filter completely. (*e*) Calcium caseinate is changed into free protein and precipitated, the calcium forming lactate.

45. **Rate of Urea Excretion.**—According to Addis and Watanabe the rate of urea excretion in man varies under physiologic conditions in a manner which cannot be explained by the concentrations of urea in the blood and urine. There is a tendency for an increased rate of urea excretion to exist with higher blood urea concentration in cases in which the urine concentration is the same, and for an increased rate of urea excretion to be accompanied by a lowering of the urea concentration in the urine in cases in which the blood concentration is the same. This relationship, however, is one which is frequently obscured, even in individuals under the same conditions as regards nitrogen and water intake. Other factors than urea concentration are important in determining the rate of urea excretion by the normal kidney.

48. **Activation of Starfish Eggs.**—Lillie found that unfertilized starfish eggs may be caused to develop into larvae by a sufficiently prolonged exposure to weak solutions of butyric acid in sea water or van't Hoff's solution. No supplementary or "corrective" treatment is required. In order to produce complete activation the eggs must be exposed to the solution for a certain minimal time which is a function of the concentration of acid. Exposures briefer than this optimum cause partial activation, membrane formation followed by imperfect

cleavage and breakdown; activation may be completed by a second exposure to the same solution. Exposures longer than the optimum injure the eggs and interfere with activation. Activation is a progressive process which under uniform conditions of temperature and physiologic state of the eggs appears to proceed at an approximately uniform rate. This rate is closely proportional to the concentration of butyric acid, within a range of 0.0005 n to 0.006 n. The most consistent interpretation of these facts seems to be that the acid activates the egg by combining chemically with some egg constituent until a certain quantity of a definite reaction product is formed. The time required to produce this critical quantity will, in accordance with the mass action law, be inversely proportional to the concentration of acid.

49. **Epinephrin in Human Fetal Suprarenals.**—Epinephrin could not be found by Lewis in human fetal suprarenals by the use of the blood pressure method and chemical tests. A suggestion of the presence of epinephrin was found in the suprarenals of two full term fetuses by the use of strips of uterus and intestines contracting in warm oxygenated Ringer's solution. The extract of the suprarenals of a 6 months' fetus tested with a contracting intestinal strip was entirely negative. The Folin-Denis test could not be used to determine epinephrin in fetal tissues, because of their high content of uric acid.

58. **Influence of Anterior Lobe on Growth of White Mouse.**—The administration of 0.125 gm. per day per animal of fresh anterior lobe pituitary tissue to mice, beginning at four weeks after birth (conclusion of the second growth cycle), Robertson says, leads to retardation of growth during the earlier portion of the third growth cycle, between the sixth and twentieth weeks. In the latter part of the third growth cycle, however, from the twentieth to the sixtieth weeks after birth, the growth of the pituitary fed animals is markedly accelerated, so that they not only catch up to the normals, but actually, at about 1 year of age, come to surpass the normals in weight. The effect of the pituitary tissue on the variability of the weight of the animals is similar to its effect on the velocity of their growth. The variability is diminished in the earlier portion of the third growth cycle, particularly between the tenth and the twentieth weeks. Between the twentieth and the sixtieth weeks, however, the variability curves of the pituitary fed animals approach the variability curves of the normals, and at about the fortieth or fiftieth week the two variability curves intersect. Pituitary fed animals, from about the thirtieth week onward, appear more compactly built than normal animals. The pituitary fed animals, weight for weight, are smaller than the normals of the same age, and size for size they are heavier. Pituitary fed males are noticeably more belligerent in their habits than normal males.

59. **Influence of Tethelin on Growth of White Mouse.**—From the concentrated alcoholic extract of dried anterior lobes of ox pituitaries a substance may be precipitated by the addition of one and one half volumes of dry ether. This substance Robertson has termed tethelin. The effects of tethelin on the growth of white mice resemble in every particular the effects of the administration of the whole anterior lobe. These effects consist in marked retardation of the first portion of the third growth cycle followed by acceleration of the latter portion of the third growth cycle. The variability in weight of the tethelin fed animals, like that of the pituitary fed animals, is less than that of normals of the same age. Adult tethelin fed animals, like adult animals which have been fed on the anterior lobe of the pituitary body, are more compact in form and build than normal animals of the same age. Weight for weight the tethelin fed animals are smaller than the normal ones, and size for size they are heavier.

Kansas Medical Society Journal, Topeka

March, XVI, No. 3, pp. 65-96

61 Every General Practitioner Public Health Officer. L. A. Clary, Hutchinson.
62 Relation of Various Streptococci to Rheumatism and Endocarditis. F. H. Morley, Kansas City.
63 Bronchopneumonia; Its Common Complications. T. C. Kimble, Miltonvale.
64 Some Interesting Cases of Protein Sensitization. J. G. Missildine, Parsons.
65 Practical Control of Contagious Disease. H. B. Wood, Topeka.
66 Rupture of Lung by Bursting. H. W. Davis, Durham.

Medical Record, New York

March 11, LXXXIX, No. 11, pp. 455-500

67 Influenza. A. H. Doty, New York.
68 Treatment of Gastric Ulcer. A. F. R. Andresen, Brooklyn.
69 Study of Influence of Electricity on Metabolism. M. Steel, Brooklyn.
70 Can We Diagnose Appendicitis? P. I. Nixon, San Antonio, Tex.
71 Nonsurgical Treatment of Tuberculous Glands. A. F. Holding, New York.
72 Intramuscular Injections of Mercury Salicylate in Treatment of Syphilis. W. H. Best, Brooklyn.

March 18, No. 12, pp. 501-542

73 Use of Trickery to Discount Medical Testimony. E. R. Corson, Savannah, Ga.
74 *Pollen Therapy in Pollinosis. S. Oppenheimer and M. J. Gottlieb, New York.
75 Flatulence and Meteorism and Their Treatment. M. Einhorn, New York.
76 Diagnosis of Genito-Urinary Tuberculosis. J. W. Churchman, New Haven, Conn.
77 Faith Cures. J. A. Gilbert, Portland, Ore.
78 American Method of Cataract Extraction. J. Santos-Fernandez, Havana, Cuba.
79 Marantic State. C. R. Green, Troy.

74. **Pollen Therapy in Pollinosis.**—The authors warn against hay-fever vaccines which contain a mixture of a large number of pollen extracts, such mixture being given both for spring and fall cases. No diagnostic means are employed to determine which pollen or pollens are operative in a given case. Under these conditions many a patient who is suffering from the spring variety of pollinosis, being already a fit subject for further sensitization, is placed in danger of becoming sensitized to those pollens which are active during the fall. It is also stated by the authors that pollen extracts in large doses are extremely dangerous, and with the dosage not properly controlled a calamity from mishandling may cast a shadow on a very valuable proposition. The results obtained by the authors in the treatment of a large number of cases have been good. Of thirty-two cases of spring pollinosis (1915) only two had symptoms. Of fifty-two fall cases fifteen were definitely free from symptoms, twenty-five were markedly improved and twelve had their symptoms apparently in no way modified by the treatment, although it appeared that the attack took place rather later than in previous years.

New York Medical Journal

March 11, CIII, No. 11, pp. 481-528

80 Psychology of Physician as Wage Earner. C. W. Burr, Philadelphia.
81 Conservative Treatment of Tonsils. G. Hudson-Makuen, Philadelphia.
82 Removal of Troublesome Useless Uterus. A. E. Gallant, New York.
83 Curability of Chronic Urethritis. W. S. Reynolds, New York.
84 Sarcomas in Unusual Situations. H. A. Royster, Raleigh, N. C.
85 Spastic Paralysis in Children; Report of Seven Cases. J. Grossman, New York.
86 Standardization of Disinfectants. J. T. A. Walker, New York.
87 Therapeutic Value of Diathermia. A. C. Geyser, New York.

March 18, No. 12, pp. 529-576

88 Obscure Cases of Mastoid Involvement. E. B. Dench, New York.
89 Therapy as Related to Immunology of Tuberculosis. E. R. Baldwin, Saranac Lake.
90 Mental Deficiency. A. Gordon, Philadelphia.
91 Study of Drug Action. Anesthetics. T. J. Mays, Philadelphia.
92 Electrocardiograph. E. B. Krumbhaar, Philadelphia.
93 Large Congenital Hydronephrosis in Infant Six Weeks of Age. M. S. Kakels, New York.
94 Complete Separation and Anterior Luxation of Lower Epiphysis of Left Femur. U. S. Kahn, Binghamton.
95 Natural Radioactive Waters. W. H. Deaderick, Hot Springs, Ark.

Ohio State Medical Journal, Columbus

February, XII, No. 2, pp. 81-160

96 Responsibility Assumed in Nose and Throat Surgery. J. E. Brown, Columbus.
97 Arthritis Deformans from Surgical Standpoint. R. Carothers, Cincinnati.
98 Arthritis Deformans From Medical Standpoint. J. Phillips, Cleveland.

99 Proposed Plan for Reserve Surgical Corps for Regular Army. W. H. Snyder, Toledo.
100 Future of State Medicine. C. O. Probst, Columbus.
101 Dementia Paralytica, Within and Without State Hospitals. G. H. Williams, Columbus.
102 Scarlet Fever in Ohio. F. G. Boudreau, Columbus.
103 Medical Supervision in Public Schools From Standpoint of Country Practitioner. F. M. Hollingshead, Columbus.
104 Case of Juvenile Deforming Osteochondritis of Hip. J. L. Stevens, Mansfield.
105 Enforce Penalties for Violations of Law Requiring Birth Reports. M. W. Bland, Columbus.

Surgery, Gynecology and Obstetrics, Chicago

March, XXII, No. 3, pp. 251-378

106 *Operative Treatment of Pyloric Obstruction in Infants; Report of Sixty-Six Cases. W. A. Downes, New York.
107 *Adenomyoma of Round Ligament and Incarcerated Omentum in Inguinal Hernia, Together Forming One Tumor. T. S. Cullen, Baltimore.
108 Early Tuberculosis of Cervix. T. S. Cullen, Baltimore.
109 *Caudal Anesthesia in Genito-Urinary Surgery. B. Lewis and L. Bartels, St. Louis.
110 *Results of Operations for Exophthalmic Goiter. E. S. Judd and J. D. Pemberton, Rochester, Minn.
111 *Pancreatic Cyst as Cause of Unilateral Hematuria; Report of Case. J. Ransohoff, Cincinnati.
112 *Salpingitis Secondary to Appendicitis. J. E. Moore, Minneapolis.
113 *Ulcer of Jejunum; Report of Case. R. C. Bryan, Richmond, Va.
114 *Fracture of Neck of Femur. A. McGlannan, Baltimore.
115 *Induction of Labor in Normal Pelves at Term. C. B. Reed, Chicago.
116 Physiologic Method of Tendon Transplantation. L. Mayer, New York.
117 *Osteochondral Trophopathy of Hip Joint. A. T. Legg, Boston.
118 *Deaths Attributable to Intranasal Operations and Other Instrumentation. V. Dabney, Washington.
119 Some Features of Importance in Diagnosis and Prognosis of Urogenital Tuberculosis. J. F. McCarthy, New York.
120 Enlarged Thymus in Infancy; Report of Cases. J. F. Herrick, Ottumwa, Iowa.
121 *Compression Fracture of Lumbar Vertebrae; Report of Seven Cases. J. W. Sever, Boston.
122 Case of Double Urethra With Operation. D. W. MacKenzie, New York.
123 Case of Exstrophy of Bladder Operated on Nearly Thirty Years Ago. R. Winslow, Baltimore.
124 Implantation of Trigonum Into Segregated Lower End of Ileum. V. P. Blair, St. Louis.
125 Simple Modification of Old Vaginal Speculum. H. W. Hewitt, Detroit.
126 *Nitrous Oxid Oxygen Analgesia in Labor. W. C. Danforth, Evanston.
127 Pelvimeter for Measuring Pelvic Outlet. F. L. Adair, Minneapolis.
128 Self Retaining Bladder Retractor. J. C. Masson, Rochester, Minn.
129 *Local Application of Radium Supplemented by Roentgen Therapy. R. H. Boggs, Pittsburgh.
130 Causes, Mechanisms and Treatment of Flat Foot. W. J. Merrill, Philadelphia.

106 and 107. Abstracted in THE JOURNAL, January 15, pp. 215 and 216.

109. **Caudal Anesthesia.**—Ten of the 13 prostatectomies done by Lewis under caudal anesthesia needed no other anesthesia; 2 required a small amount of ether. One required complete ether anesthesia, there being no effect from caudal injection. Of the 68 cystoscopies, 46 gave excellent analgesia. Thirteen gave partial analgesia. Five gave no analgesia; 3 of these 5 failures the authors believe is due to faulty technic. One of the cystotomies (for calculus) gave good analgesia and the prostate could have been enucleated. One required a small amount of ether, as curettement of a carcinomatous mass was done. One case of external urethrotomy (perineal) gave complete analgesia. One rectal case (carcinoma) was a failure.

110. Abstracted in THE JOURNAL, January 8, p. 143.

111 and 112. Abstracted in THE JOURNAL, January 15, pp. 215 and 216.

113. **Ulcer of Jejunum.**—For four years Bryan's patient, a male, aged 48, had severe attacks of indigestion, increasing in frequency, characterized by violent cramps in the region of the stomach. Two years ago he had constant pain and nausea which continued for four months. He vomited constantly but he never noticed any blood in the vomitus. Washing out the stomach always made him feel better. The washings were green with yellow mucus. The pain would come on from two and one half to three hours after eating. Recently, in the last few months, there had been persistent pain and nausea, but no vomiting, although there was a constant desire to eat or drink something, and he had noticed that he could not eat very much at a given time. In September he was suddenly seized with a most agonizing pain in the abdomen and groins. This pain was unlike any that he had ever had before. He was found about an hour later in a collapsed condition. The picture was that of acute abdomen and the diagnosis of probable perforation of ulcer of the stomach was made. Operation was refused until seventeen hours after the onset of the trouble. Then on the anterior wall of the jejunum about 3 inches from the duodenojejunal juncture, a round punched out ulcer, the size of a cherry stone, was found. The patient's condition was desperate, no anastomosis could be made, purse string and invagination were impossible. A piece of omentum was plugged into the opening and several retaining catgut sutures sewed over it, the belly was irrigated with warm saline. A large drainage tube was inserted and a stab wound made into the pelvis. The patient died the next morning at 10 o'clock. Necropsy was refused.

114. **Fracture of Neck of Femur.**—The 55 cases reported on by McGlannan were treated by downward traction and internal rotation of the femur with the limb slightly flexed and widely abducted. The method of reduction and of fixation varied, but the essential principle was as stated above. For instance: I. Fixation in abduction by means of lateral wire splints and interrupted plaster bandages. II. Fixation in heavy plaster-of-Paris cast, extending from toe to nipple line on the fractured side and taking in the sound thigh for a short distance. III. Adhesive plaster traction in two directions (abduction and inward rotation). IV. Direct traction by means of ice tongs. V. Nailing the fragments. VI. Loose fixation by tying out the knees to a spreader attached to the bed rail. Seven patients cannot be traced. Of the remainder 17 are now dead and four are helpless, either on crutches or in wheelchairs as a result of the fracture. There are 46 recent and nine old fractures in the series. Thirty-six recent cases were treated and 10 were not. Of these 36 cases 4 patients died during the treatment, 13 were completely cured, 8 partially cured. In 3 cases sufficient time has not passed since the fracture to allow an estimate to be made. One patient is unimproved, 1 patient was seriously incapacitated by pain until her death six months after she left the hospital. Six patients cannot be traced, all of whom left the hospital in good condition, apparently cured. Of the 4 fatal cases, one patient developed uremic symptoms, restlessness and irritability, with occasional short periods of unconsciousness twelve days after the injury and died on the fifty-eighth day. A second patient died three days after fixation. In this case the examination of the urine before anesthesia did not indicate a kidney insufficiency. The third patient died on the twenty-ninth day, after a stormy illness. She was almost maniacal as a result of the use of alcohol and narcotics and finally died in uremia following two days of convulsions. The fourth patient died of edema of the lungs four days after fixation.

115. Abstracted in THE JOURNAL, Dec. 25, 1915, p. 2259.

117. **Osteochondral Trophopathy of Hip Joint.**—This term is suggested by Legg in place of Perthe's disease as being based on the actual pathology present. He has observed 55 cases. The following data are emphasized: Age of patients 2½ to 12 years. Appearance of a limp, with relation to a distinct traumatism in thirty-seven cases. Trochanteric prominence on the side affected in standing position; apparent visually and on palpation. Limitation in motion; marked in abduction; slight in internal rotation. Flexion free. No crepitation. Capsular thickening about the neck of femur. Slight muscular atrophy on side affected. Little or no pain either subjective or on manipulation. In general, little or no spasm. Trochanter slightly above Nelaton's line. Positive Trendelenburg generally present. Leg length equal with occasional variation either in shortening or lengthening. Von Pirquet negative. Tried in fifteen cases with positive results in three in which tuberculous adenitis was present. Wassermann and luetin tests negative. Tried in five cases without reaction. Family history negative. Patient's history

negative, except that the ordinary diseases of childhood had occurred in various individuals. There were no disease symptoms of any sort for a period of six months prior to the onset of the hip affection. No evidence of old rachitic condition. Duration from six months to a year, varying with the intensity of the attack. Typical Roentgen appearance consisting of an atrophied flattened epiphysis, either cap like or mushroomed in shape; hypertrophic thickening of the neck of the femur; an appearance of coxa vara. These modifications are persistent, but after the subsidence of the first attack, not progressive.

118. **Deaths Due to Intranasal Instrumentation.** — Two points are emphasized by Dabney: That the interior of the nose is both theoretically and practically a zone of considerable danger for even the slightest instrumental interference and that the indisciminate use of epinephrin in this region is fraught with danger when used for operative assistance.

121. **Fracture of Lumbar Vertebrae.**—Four of the seven fractures reported by Sever were located in the upper lumbar segment and three in the lower. In such a small series, however, this does not prove anything except that where the injury is secondary to forces applied in flexion the probabilities are that the injury will be located at the point of greatest mobility of the spine, which is at first lumbar segment.

126. Abstracted in The Journal, January 16, p. 1270.

129. Abstracted in The Journal, Nov. 6, 1915, p. 1669.

Texas State Journal of Medicine, Fort Worth

February, XI, No. 10, pp. 515-572

131 Deep Roentgen Therapy in Unfavorable Surgical Situations. E. H. Skinner, Kansas City, Mo.
132 Treatment of Deep Seated Cancer by Roentgen Method. G. D. Bond, Fort Worth.
133 Hodgkin's Disease. J. B. Smoot and W. B. Carrell, Dallas.
134 Some Complications Following Abdominal Surgery. M. M. Walker, Wichita Falls.
135 Surgical Errors. J. E. Thompson, Galveston.
136 Obstetrics and Gynecology. C. P. Yeager, Corpus Christi.
137 Injuries to Infant Produced at Birth. C. R. Hannah, Dallas.
138 After-Treatment of Mother and Babe. L. Mackechney, Wichita Falls.
139 Lacerated Cervix. R. T. Goodwin, Sinton.
140 Correction of Chronic Uterine Displacements. J. M. Inge, Denton.
141 Use and Abuse of Tonsils. W. E. Connor, Cumby.
142 Removal of Knife Blade From Nose; Symptoms and Results. E. H. Vaughn, Tyler.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

January, XX, No. 8, pp. 243-284

1 Roentgenography of Normal Parts. (To be continued.) A. McKendrick.
2 Movements of Colon. H. Walsham and W. Overend.
3 Method of Recording Radium Doses. W. C. Stevenson.

February, No. 9, pp. 285-320

4 Roentgenography of Normal Parts. A. McKendrick.
5 History of Electrotherapy. (To be continued.) H. A. Colwell.
6 Roentgenography in Gunshot Wounds of Skull. G. Vilvandré.
7 How to Measure Thickness of Wall of Roentgen Ray Tube. J. K. A. Wertheim.

British Medical Journal, London

February 26, I, No. 2878, pp. 297-332

8 *Epidemic Jaundice of Campaigns. W. H. Willcox.
9 Treatment of Toxic Jaundice Due to Tetrachlorethane Poisoning. W. H. Willcox.
10 *Treatment of Kala-Azar (Indian Form) by Tartar Emetic Intravenously and by Inunctions of Metallic Antimony. L. Rogers and N. H. Hume.
11 Attempts to Produce Safe and Effective Bacillus Dysenteriae (Shiga) Vaccine for Prophylactic Purposes. J. D. Thomson.
12 Dysentery Vaccination. A. Castellani.
13 Diagnosis of Abortive Cerebrospinal Meningitis. M. Culpin.

8. **Epidemic Jaundice of Campaigns.**—Jaundice, Willcox says, is of common occurrence among troops on campaign. In the present war jaundice has occurred among troops in almost all parts of the sphere of operations. The epidemic jaundice of campaigns appears to start as a gastro-intestinal infection, the inflammatory catarrh being most marked in the duodenum. At this stage pyrexia and a certain amount of toxemia occurs, but there does not appear to be a general blood infection usually, since blood cultures have generally been negative. A catarrhal cholangitis follows from spread from the duodenum, and marked jaundice now sets in, due to obstruction in the finer bile ducts. The jaundice is hepatogenous in type and does not appear to be associated with increased hemolysis of red blood corpuscles, anemia being absent. Fortunately, most cases do not progress beyond this stage, and the catarrhal condition subsides with clearing up of the jaundice. In very exceptional cases the infective condition may give rise to degenerative changes in the liver, and symptoms of icterus gravis will then supervene. Sometimes mild gastro-enteritis occurs in cases exposed to similar conditions; in many of them jaundice will develop, while in a few it will not. It is certain that the insanitary conditions inevitably associated with military campaigns play a most important part. Probably the infection is almost entirely gastro-intestinal in its mode of spread. As regards prophylaxis, careful attention to latrines, to prevent spread of infection by dust and flies is most important. Rest in bed in the early part of the disease should be insisted on. Careful dieting which will be mainly liquid is important. As regards medicines the following mixture has been given with advantage, three times each day:

	gm. or c.c.		
℞ Sod. bicarb.	1	3	gr. xx
Potass. citrate	2		gr. xxx
Sod. sulph.	2	or	gr. xxx
Syrup. aurantii	4		ʒ j
Aqua	32	ad	℥ j

Hexamethylenamin 10 grains three times a day in water, as a gastro-intestinal antiseptic seemed to do good in many cases.

10. **Treatment of Kala-Azar by Tartar Emetic.**—A 10 c.c. serum syringe is used by the authors and the median basilic or cephalic vein is selected. They began with only half to 1 c.c. of the 2 per cent. tartar emetic solution, but rapidly increased it to 3 or 4 c.c. and repeated the injection every two or three days, adding 1 c.c. at each injection up to a maximum of 10 c.c. if the patient had no marked gastric disturbance, in which case the dose may be reduced slightly for a time. In no case have any serious symptoms developed, although the large dose of 20 cg. has repeatedly been given. They now have no hesitation in advising the use of intravenous injections of tartar emetic as a routine method of treating kala-azar, beginning with 4 or 6 cg. on alternate days, and increasing by 1 or 2 cg. every other day up to a maximum of 20 cg., if the patient will tolerate as much. The treatment should be continued until the temperature has remained normal for several weeks with steady gain in weight, and the parasites are found to have completely disappeared from the spleen, and the leukocytes have been raised to about the normal level. In children and nervous female patients inunctions of antimony ointment, preferably in a strength of 10 per cent., is worthy of trial, although there is not yet sufficient evidence to decide how far this much simpler measure can be relied on.

Journal of Tropical Medicine and Hygiene, London

February 15, XIX, No. 4, pp. 41-52

14 *Dermatitis Cupoliformis. A. Castellani.
15 *Arneth Counts in Yellow Fever. J. W. S. Macfie.

14. **Dermatitis Cupoliformis.**—A peculiar nodulo-ulcerative condition of the skin affecting mostly Europeans in Ceylon, Castellani has called dermatitis cupoliformis or "tropical ecthyma." The disease begins with several superficial dusky red, not raised, slightly itching spots, which are generally follicular and perifollicular; they are, as a rule, situated on the feet and legs. The patient usually takes these spots for mosquito bites. Some of the spots disappear while others become slowly larger, raised, hard and infiltrated, without showing signs of vesication or pustulation, and very often, especially on the feet, somewhat cupoliform; they reach the size of a pea to that of a small cherry; there is no pustulation. After a time the center of the nodule breaks down and an ulcer forms with reddish fundus and often undermined edges.

These ulcerative lesions are somewhat painful and extremely slow to heal, complete spontaneous cure seldom taking place in less than ten to twelve months; on healing, patches of hyperpigmentation often remain. The condition is fairly common in young, strongly built European planters. If agar tubes are inoculated a streptococcus-like germ grows in pure culture from the nonulcerated lesions, while from the ulcerated lesions staphylococci and other germs may be grown, in addition to the streptococcus. This streptococcus is biologically different from all other streptococci Castellani has so far isolated in Ceylon from skin affections and systemic diseases of streptococcus origin. He named it *Streptococcus tropicalis* (1914). It is gram-positive, does not liquefy gelatin and does not produce indol.

15. **Arneth Counts in Yellow Fever.**—The Arneth counts collected in this paper by Macfie show that at the earliest phase of the disease there was found to be a very marked shift to the left of the Arneth count, the majority of the polymorphonuclear leukocytes being of the types included in Arneth's Class 1. In one case the index which was 87.0 on what was recorded as the third day of the illness, rose to 95.0 on the fourth day and was still as high as 90.5 on the fifth day. No data are available to show the effect on the Arneth count of the remission of the temperature which usually takes place on the third day. In fatal cases the Arneth index either remains very high, or mounts still higher as the disease progresses. In cases that recover, on the other hand, the index, after remaining high until about the seventh day, begins to fall rapidly and reaches a figure approximately to the normal about the tenth to the fifteenth day. Macfie believes that it is probable that there is nothing actually specific about the changes in yellow fever, and it may perhaps be anticipated that a similar profound shift to the left of the Arneth count will be found to be present in the early stages of other acute conditions accompanied by high fever and profound toxemia, such, for instance, as plague, etc. In the majority of such diseases, however, even in the early stage, there will be other signs and symptoms to aid the diagnosis; but in yellow fever in the mild attacks, and in the initial stages of the more typical forms of the disease, these are, unfortunately, often absent or of a negative character, and it is in such cases that the Arneth count may be of assistance in determining the nature of the infection.

Lancet, London

February 26, I, No. 4826, pp. 441-494

16 *Effects of High Explosives on Central Nervous System. F. W. Mott.
17 Clinical Thermometry: Continuous and Quasicontinuous Temperature Records in Man and Animals in Health and Disease. G. S. Woodhead and P. C. Varrier-Jones.
18 Paratyphoid; Its Clinical Features and Prophylaxis. W. H. Willcox.
19 Case of Ruptured Jejunum; Operation, Recovery. R. P. Rowlands.
20 Albuminuria and Trench Fever. F. G. Chandler.
21 Cicatricial Stenosis of Larynx Treated by Intubation. H. Barwell.
22 Case of Shell Concussion; Treatment by General Anesthesia. G. de H. Dawson.
23 Case of Tetanus Occurring in Soldier Two Months After Being Wounded. D. P. Penhallow.

16. **High Explosives and Central Nervous System.**—Out of 156 cases in which a previous history is reported, Mott says, fifty-two gave a history of either a previous nervous breakdown or a timid disposition, easily frightened, emotional, or afraid of the sight of blood; in a few the fact was elicited that they had had a fright in early childhood and that this recurred in dreams. Some gave a history of a neuropathic tendency or inheritance. So that all the evidence goes to prove that an acquired or inborn tendency to neurosis plays an important part in the effects on the central nervous system of exposure to shell shock in a majority of the cases. Mott has been studying for ten years the subject of hereditary predisposition of epilepsy and insanity, and the several hundred pedigrees which he possesses make him certain that of all nervous diseases epilepsy is the one in which an inborn tendency is shown more than in any other nervous affection. Shock may be a potent, exciting, or aggravating cause; "shell shock" is not per se the cause of epilepsy in the majority of cases.

Bulletin de l'Académie de Médecine, Paris

February 15, LXXV, No. 7, pp. 155-202

24 Improved Technic for Closing Gap in Skull. (Restauration des pertes de substance cranienne, par rabattement d'un volet ostéopériostique taillé aux dépens de la table externe d'une région du crâne contiguë.) Mayet and Bazy.
25 Detection of Picric Acid in the Urine. (Sur la recherche des dérivés picriques dans les urines.) L. Grimbert.
26 Measures for Native Infant Welfare in French Colonies. (Protection de l'enfance indigène dans les colonies autres que l'Algérie, le Maroc et la Tunisie.) Kermorgant.
27 *Paratyphoid Involvement of Bronchi or Lungs; Seven Cases. (Congestions pulmonaires à bacilles paratyphiques.) J. Minet.
28 Nitrogen Content of Typhoid Stools. (L'élimination fécale azotée dans la fièvre typhoïde.) R. Mercier.

27. **Paratyphoid Involvement of Bronchi or Lungs.**—Minet found paratyphoid bacilli in the sputum in a case of intercurrent bronchitis and one of acute congestion of the lungs, but complete recovery soon followed. In two other cases the lung trouble ran a chronic course with intermissions during which the bacilli were very scanty in the sputum. They were of the A type in one and B type in the other, and the lung trouble dragged along for months with progressive emaciation resembling that of chronic consumption. The paratyphoid bacilli were found in pure cultures in the sputum of each. Both men recovered finally after months in the hospital during which no treatment displayed any appreciable efficacy. In another group the paratyphoid lesion seemed to be restricted to the apex, simulating a tuberculous process, and keeping up for months the picture of acute phthisis.

Journal de Médecine de Bordeaux

February, LXXXVII, No. 4, pp. 63-84

29 Epileptic Sentinel Abandons Post. (Abandon de poste en présence de l'ennemi dans une fugue épileptique.) H. Verger.
30 War Typhoid. (La fièvre typhoïde du combattant.) J. Carles.
31 Trophic Disturbances in the Nails Consecutive to Injury of the Median Nerve and Brachial Plexus. J. Vergely.
32 Treatment of Gunshot and Shell Wounds of the Nose and Vicinity. (Les blessures du nez, des fosses nasales et des cavités accessoires en temps de guerre.) G. Canuyt.

Archiv für Verdauungs-Krankheiten, Berlin

November, 1915, XXI, No. 5, pp. 335-420

33 *Roentgenoscopy of the Stomach with a Flexible Probe. (Ueber Röntgenuntersuchungen des Magens mittels einer Tastsonde.) G. Kelling.
34 *Functional Disturbance in the Liver in Constitutional Asthenia. R. Uhlmann.
35 Improved Technic for Sigmoidoscopy. (Ein modifiziertes Sigmoskop.) E. Münzer.
36 *Feeding by the Rectum. (Untersuchungen über die Rektalernährung.) E. Begtrup (Copenhagen).

December, No. 6, pp. 421-538

37 *Present Status of Gastric Cancer. (Ergebnisse neuerer klinischer Erfahrungen über Magenkarzinom.) E. Schütz.
38 Hernia of Stomach and Omentum Through the Diaphragm. (Zwerchfellhernie des Magens und grossen Netzes, mit Bericht über einen Fall von angeborener Hernie deren Sack mit Inhalt in die rechte Brusthöhle wanderte.) M. S. Kakels and S. Basch (New York).
39 *Evacuation of the Stomach in Connection with the Acidity. (Azidität und Entleerung. Untersucht mittelst Dauermagensonde und Durchleuchtung.) E. Egan.
40 What Medicine Can Learn from Philology. (Nahrungsbedürfnis und Sprache.) W. Sternberg.

33. **Flexible Probe for Roentgenoscopy of the Stomach.**—Kelling enumerates a number of the disadvantages of the usual bismuth test meal as a means of investigating conditions in regard to the stomach. He emphasizes particularly that when the stomach walls are incapable of a motor reaction to the bismuth suspension, it lies like a dead weight in the lowest part and gives no information as to the other parts of the organ. The shape of the atonic stomach is determined by the static conditions in the abdominal cavity outside, but investigators are liable to disregard this. It would be of great assistance if the patient were placed for roentgenoscopy on an adjustable table so that the head and feet could be lowered in turn and the body turned from side to side. He gives an illustrated description of a flexible, ball-tipped opaque probe which can be drawn along the inner wall of the stomach, and thus outline it with precision. The ball at the tip is hollow and an opening on the proximal side scoops up scraps of tissue. The probe is so light and flexible

that it follows every unevenness in the stomach wall. Two days beforehand he examines the stomach with the bismuth suspension and gives a purge afterward. The introduction of the probe is directly preceded by inflation of the stomach with air.

34. **The Liver with Constitutional Asthenia.**—Uhlmann remarks that in the study of the habitus asthenicus—the constitutional inferiority of the various organ systems, Stiller's constitutional asthenia—various organs have been discussed in turn but the liver functioning seems to have escaped special study from this standpoint. He here presents a contribution in this line, reporting the findings with the galactose or levulose tests or both applied to 19 patients, typical examples of asthenia. Among 42 normal persons tested, only 2 responded positively to the galactose test, while 10 of the 19 with constitutional asthenia gave a positive response. The standard test was with 30 gm. galactose. The results obtained justify the assumption that this test will reveal functional insufficiency on the part of the liver in many persons apparently sound. The slight impairment of liver functioning may be due to constitutional physical inferiority or to a functional neurosis or thyroid disturbance or other cause. Maliwa reported in 1914 some cases of orthostatic albuminuria with galactosuria, while corresponding cases of true chronic nephritis responded negatively to the galactose test. Uhlmann had likewise a patient with orthostatic albuminuria and galactosuria who was at the same time a typical example of constitutional asthenia. This case sustains the assumption that the asthenia, and nothing connected with the kidney, was responsible for the positive response to the galactose test.

36. **Feeding by Way of the Rectum.**—Begtrup presents evidence to show that milk and eggs in nutrient enemas cannot be absorbed and eliminated, theoretically speaking. Native albumins are not absorbed as such, coagulable albumin being scarcely able to pass through an animal membrane, while there are no active digestive ferments in the lower bowel. Hence Begtrup experimented with farther digested substances, meat amino-acids and milk amino-acids, with sugar, a large proportion of which seems to be absorbed. Sugar irritates the intestinal mucosa so that the amount has to be kept low. The patients had all had hemorrhage recently from the stomach or bowel, and had been given nothing by the mouth for from two to seven days. Then the nutrient enemas were commenced and the metabolic findings systematically tabulated. Two or three nutrient enemas were given each day, diluted with water to 200 or 250 c.c. and introduced as high in the bowel as possible. The tabulated metabolic findings show a decided increase in the amount of nitrogen eliminated in the urine during the amino-acid enema period.

37. **Gastric Cancer.**—Schütz here presents his conclusions from the study of 222 cases of malignant disease of the stomach since 1908 and of 165 before that date. He thinks that abuse of alcohol is probably responsible for the preponderance of men over women; in his series, 68 to 32 per cent. The youngest patient was a woman of 26; 13 were over 70; 15 between 30 and 40 and 103 between 50 and 60. No free hydrochloric acid was found in 90 per cent. of the 197 tested for the acidity. This 90 per cent. is the highest figure of any series yet published, and emphasizes the importance of subnormal acidity in diagnosis of cancer. In none of the total number was there hyperacidity, and in the 17 with free acid it was well within modest range. Schütz emphasizes, however, that anacidity can be regarded as a sign of cancer only when it is a question of early differentiation of cancer. He found anacidity in only 7.4 per cent. of 830 cases of noncancerous stomach affections, but anacidity is liable to accompany chronic infectious disease, such as tuberculosis, and certain metabolic derangements as with the uric acid diathesis, etc. The anacidity here is not the consequence of the concomitant anemia—with the exception of pernicious anemia and leukemic states. Deficient production of hydrochloric acid seldom occurs with anemia, even extreme. The anacidity is evidently the result of some profound derangement, probably from the injurious influence of certain products of the abnormal metabolism. It is possible that a similar profound upset is responsible for the anacidity with gastric cancer, instead of local conditions. Skray found in some cases of simple achylia and subacidity that hydrochloric acid appeared in the stomach content after meat was added to a test breakfast, while with cancer no acid appeared. Schütz found in 16 cases that the stomach content had a putrid odor, a reliable sign of a neoplasm undergoing decay at some part. In 57 per cent. the evacuation of the stomach proceeded normally or overhastily. In 130 cases, the Roentgen findings were suggestive of malignant disease in 100, but in 84 of these the diagnosis was certain otherwise; in 30 the Roentgen findings testified against cancer, but the findings otherwise in 25 cases rendered cancer certain. In 16 cases the cancer was disclosed by the Roentgen findings alone. Lactic acid was demonstrated in 33 per cent., exclusively with cancers obstructing the outlet. His conclusion is that the diagnosis of malignant disease of the stomach in its earliest phases is practically an impossibility. We will succeed in diagnosing it more frequently when we make a practice of applying the various tests early in stomach trouble of any kind.

39. **Retention Stomach Tube as Aid in Study of Stomach Functioning.**—Egan's research was done at the Central Roentgen Institute at Vienna, in charge of Holzknecht. He found that the combination of retention stomach tube and roentgenoscopy afforded amazing insight into the functioning of the stomach. Experiments with administration of hydrochloric acid or soda given to twelve healthy persons and five with various stomach affections showed that the acid did not retard nor the soda hasten the evacuation of the stomach. Neither the acid nor the alkali seemed to affect the peristalsis in any way. With the retention stomach tube in place for several hours, stomach content can be aspirated every five or fifteen minutes and the chemism of the stomach traced from step to step. The stomach tube found most instructive for the purpose was a little stronger and stouter than the Einhorn duodenal tube, and has a metal olive on the tip and four opaque bars. The 200 c.c. of bismuth suspension is poured in through the tube.

Berliner klinische Wochenschrift

February 14, LIII, No. 7, pp. 153-176

41 Treatment of Mild Prurigo. (Entstehung und Beseitigung des Juckens. B. Behandlung des Prurigo mitis.) P. G. Unna. To be continued.

42 War Disturbances in Voice and Speech. (Stimm- und Sprachstörungen im Kriege und ihre Behandlung.) H. Gutzmann.

43 Operative Treatment of Irreparable Radial Paralysis. (Radialislähmung.) G. Axhausen.

44 *Roentgenotherapy of Superficial Skin Disease. (Röntgentherapie oberflächlicher Dermatosen.) E. Kuznitzky.

45 *The War Literature on Internal Medicine. P. Reckzeh. Concluded in No. 8.

44. **Roentgenotherapy of Superficial Dermatoses.**—Kuznitzky found that it is unsafe to apply the Roentgen rays without a filter in treatment of eczema and psoriasis. With the latter affection special care is necessary to avoid falling out of the hair.

45. **The War and Internal Medicine.**—Reckzeh reviews the publications of various internists on their experiences with the troops on active service. He mentions among others Schmidt's observation that men with acute polyarthritis frequently had a history of a preceding diarrheic trouble. In other cases there was a history of recent tonsillitis. The febrile rheumatism was generally mild and the joints affected were almost exclusively those in the legs. Dennig advocates systematic removal of all projectiles in the tissues, and Reckzeh agrees with him that the health of a lead carrier may suffer at some time from the presence of the projectile and a claim for an indemnity might not be entirely unjustified. In regard to infectious diseases in general, he endorses Schleich's view that the milder onset and course of many infectious diseases in this war is due primarily to a modified *genus epidemicus* and only secondarily to the prophylactic and therapeutic measures that have been introduced. Reckzeh says of epidemic meningitis that the corroborating testimony from various lands is that serotherapy is proving

brilliantly successful. The mortality has dropped from 70 or 80 per cent. to 15 or 20 or even lower. He cites Moser's denial of the probability of a primary contact infection as the cause of a certain epidemic of mumps among the soldiers. As contact infection could be almost positively excluded under the circumstances, the food or drinking water or dishes must be incriminated.

Testimony is accumulating as to the harmlessness and efficacy of vaccination against cholera. The term dysentery does not correspond to any special anatomic findings nor to any special causal factors, but Quincke emphasizes that treatment in every case should proceed on the assumption that the case is infectious. Rumpel believes that fully 50 per cent. of the troops in Belgium and northern France are infected with the Flexner dysentery bacillus, but it seems to be pathogenic for only a comparatively few. In treatment of dysentery a combination of kaolin and calomel proved useful in Wiener's hands. The consensus of opinion is all in favor of the value of kaolin in treatment of all infectious and noninfectious intestinal affections of a diarrheic nature, but Leschke lauds animal charcoal as still better. Soldin's is the only voice raised in opposition. He declares that recovery from dysentery under dietetic measures alone is as prompt as under kaolin, bismuth or tannin. The abnormal course of typhoid under the conditions of war is emphasized by Reckzeh, who cites numerous writers. Boral has encountered eleven cases of typhoidal abscess in the abdominal walls. A number of cases of typhoidal parotitis have also been reported, displaying a tendency to drag along.

Correspondenz-Blatt für Schweizer Aerzte, Basel

February 19, XLVI, No. 8, pp. 225-256

46 Successful Operative Case of Mesenteric Cysts. E. Monnier.
47 Hair Dyes. (Ueber Haarfärbemittel.) L. Merian.

Deutsche medizinische Wochenschrift, Berlin

February 17, XLII, No. 7, pp. 181-212

48 *Treatment of Disease of the Mouth in Infants. (Behandlung der Erkrankungen der Mundhöhle des Säuglings.) Peiper.
49 Dysentery Among the Troops on Active Service. (Zur Epidemiologie und Bekämpfung der Ruhrerkrankungen im Felde.) J. Koch.
50 Wounds of the Urogenital Apparatus. (Kriegsverletzungen des Urogenitalsystems.) Stutzin and Gundelfinger. To be continued.
51 Some Field Operative Statistics. (Statistisches über 222 kriegschirurgische Eingriffe.) Stutzin and Diesing.
52 *Cachexia from Destruction of Pituitary Body. (Ueber Kachexie hypophysären Ursprungs.) M. Simmonds.
53 Technic for Thorium Exposures. (Eine Bestrahlungsmethode mittels Thorium X.) F. Nagelschmidt.
54 Synthetic Oxytocics. (Ueber synthetisch hergestellte Wehenmittel.) F. Jaeger.
55 Apparently Healthy Boy of Four With Sexual Development of Youth of Seventeen. (Ueber vorzeitige Geschlechtsentwicklung.) K. Obmann.
56 Panoptic Staining of Dry Blood. (Panoptische Färbung von Blutrockenpräparaten und Panarithmische Kammerfärbung.) G. C. van Walsem (Holland).
57 High Salt Content of Sweat Under Hot Sun. (Chlor- und Stickstoffgehalt des Schweisses.) C. Kittsteiner.

48. **Disease of Infant's Mouth.**—Peiper is inclined to regard infectious processes in the mouth of an infant as of graver import even than infection of the umbilicus. Finkelstein found that of 100 infants with pronounced stomatitis, 24 per cent. of the deaths were due to causes connected with the mouth trouble. The earlier it develops the more serious for the child. All affections of the mouth hinder the child from nursing properly, and not only the child but the breast and the composition of the milk suffer in consequence. If the mouth trouble is not discovered, ill advised measures may be adopted as the child's nonthriving is ascribed to erroneous causes. So much injury may be done to the tissues of the infant mouth by wiping it out, that Peiper insists that no attempt should be made to clean an infant's mouth before it gets teeth. The mouth of a young infant should be scrupulously let alone. If it is absolutely necessary for therapeutic purposes to wash out the infant's mouth, it should be done by the physician himself or by the mother under his careful directions. He mentions that it was remarkable how the mouth affections of infants dropped off at once as soon as the official decree went forth (1912) that midwives must not wipe out infants' mouths. Prophylactic hygiene of the mouth should begin only when there are teeth to catch and hold particles of food between them. Everything that goes into an infant's mouth should be scrupulously clean; the nipple and space around should be cleaned with a rag and boiled water or 1 per cent. boric acid solution; the bottle nipple likewise, and the temperature of the milk should never be tested directly by the adult mouth. The nipple should be rinsed, washed with salt, rinsed again and kept dry. Toys should be not merely washable but should be actually washed every day. Catarrhal stomatitis generally heals on removal of the mechanical cause. If local treatment is necessary, the lesions can be dabbed once or twice a day with a 2 per cent. solution of silver nitrate or boric acid or a 20 per cent. borax glycerin or a solution of a teaspoonful of hydrogen dioxid in a glass of water. The latter must be prepared fresh every day. Thrush may be healed by dusting the lesions with finely pulverized boric acid mixed with one-fifth its bulk of saccharin. Escherich gave the child a sugar-teat with the cotton inside the gauze covered with boric acid, the whole dipped in a glass of boiled water containing a little saccharin. The objection to this is that it seems to officially sanction the use of the sugar-teat. To keep the child nourished may require patience and ingenuity, possibly feeding breast milk with a spoon. Gonococcus stomatitis of the newly born may be hastened to disappear by the 2 per cent. silver nitrate solution. For noma he recommends prompt excision into sound tissue, with cauterization, without wasting time on local medication.

52. **Cachexia of Pituitary Origin.**—Simmonds reports two more cases, supplementary to one he published two years ago, in which the only cause discovered at necropsy for a chronic and fatal cachexia was the total destruction of the hypophysis cerebri. In one case the destruction was the result of an old embolic process; in the others of a tumor growth. These three cases justify tentative pituitary treatment in cases of progressive cachexia without other known cause at almost any age.

Jahrbuch für Kinderheilkunde, Berlin

February, LXXXIII, No. 2, pp. 97-176

58 *Alimentary Anemia in Young Children. (Ueber alimentäre Anämie und ihre Stellung unter den Anämien des Kindesalters.) H. Kleinschmidt. To be continued.
59 *Elimination of Diphtheric Membranes During Intubation. (Können Pseudomembranen durch die O'Dwyer-Tube eliminiert werden?) J. Von Bokay.
60 *Influencing Growth of Tadpoles by Feeding Thymus and Genital Gland Tissue. (Beeinflussung des Wachstums von Kaulquappen durch Verfütterung von Thymus und Geschlechtsorganen.) E. Stettner.

58. **Successful Dietetic Treatment of Anemia.**—Kleinschmidt remarks that in these days of splenectomy and radiotherapy and other extreme measures in treatment of anemia, it comes as a surprise to read of gratifying success in treatment of a large group of anemias with dietetic measures alone. He declares that there is no evidence to date that inadequate nourishment is able to entail anemia. The whole blood may atrophy, proportional to the atrophy of other tissues, but there are no morphologic changes in the blood, and the hemoglobin and reds keep their proportional figures. Von Hösslin kept a puppy on a third of the food given its mate, but even after eighteen months there was no actual anemia. Further experimental research has shown that addition of iron to milk makes it a complete food for growing dogs, thus warding off anemia. But when the animals are fully grown, the addition of iron does not promote the regeneration of the blood after venesection. Children kept too long on milk do not get enough iron, and their hemoglobin percentage is low although the blood is otherwise approximately normal. Some constitutional anomaly may require mixed food instead of a too exclusive milk diet. This change to a mixed diet seems to be effectual also when the anemia is accompanied by enlargement of the spleen, whatever the cause of the enlargement may be.

The one criterion for the alimentary nature of the anemia in these cases has been the improvement under the changed diet, but Kleinschmidt here announces that his study of the

subject in forty-five cases has demonstrated a number of points by which this form of anemia can be recognized from the start. Improvement has never failed to follow appropriate dietetic measures in his experience. The children were from 3 months to 5 years old, but the majority were at the end of the nursing period. A number were of the abnormally nervous type, others were typical examples of the exudative diathesis, with or without enlarged spleen, lymphoid organs and tonsils. In a number of the children the enlargement of the spleen had been noticed before the tendency to anemia developed. The spleen was abnormally large in 35 of the 45 children, including 10 with extreme splenomegaly. Rachitis was evident in 27 of the 34 children over 7 months and under 2½ years old. The enlargement of the spleen was manifest in a number of the children as early as the third or fourth month, long before rachitis or the exudative diathesis became otherwise apparent. These children presenting alimentary anemia frequently have some minor deformity or other sign of degeneracy, hernia, flatfoot, deformed ears, etc. They may be of a fat or lean type, but all are weak and flabby, although most of them seem to be well nourished except that the fat type has a yellowish tinge to the complexion and the lean type a pallid white tinge. In both types the mucous membranes and the ears are pale. The liver is frequently large and soft, while the enlarged spleen is often quite hard. The urine was normal; the blood looked thin and bright colored, with hemoglobin range between 20 and 55 per cent. although the reds averaged five million, only in 20 per cent. were they below four million. This discrepancy between the hemoglobin percentage and the numbers of reds is characteristic. If there is hyperleukocytosis some infectious complication may be surmised. Uncomplicated alimentary anemia is characterized by predominance of mononuclears, especially lymphocytes. Necropsy usually reveals infiltration of the myocardium. It is evident that this occurs frequently, but must retrogress completely in the cases with recovery. Necropsy further shows deposits of hemosiderin in liver and spleen. This important finding points to destruction of the blood as a factor in this alimentary anemia. It can be estimated and traced by the urobilinogen content of the stools.

Among his 45 cases, in 8 the anemia was pronounced before the seventh month, and 5 with only 20 or 25 per cent. hemoglobin died, while 3 with 33, or 30 per cent., were saved. The trouble was evidently alimentary anemia from extreme constitutional inferiority. Addition of small quantities of vegetables, egg, apple sauce, etc., did not arrest the progressive anemia. The 45 children were all bottle fed, but this alimentary anemia has been noted in exclusively breast fed children. His treatment consisted in excluding milk from the diet as much as possible. Only four feedings were allowed except to the youngest of the infants. Vegetables and meat took the place of milk. The first meal was 100 gm. milk diluted with 100 gm. flour gruel or malt coffee with softened zwieback or bread, a little butter or marmalade. The second meal was fresh fruit with bread, crackers or zwieback softened in water and given with crushed banana, apple, plum or raspberries. The third meal was soup with rice or oatmeal or mashed potato, some vegetable, and one or two tablespoonfuls of meat. This meal was repeated for the fourth meal, with, for the older children, bread and butter, meat and fruit. The vegetables are all mashed soft and the meat chopped fine. As infants are unable to chew, he gives them liver or sweetbreads, slightly cooked and forced through a sieve. Calves' and chicken livers are best; beef liver and lungs can be used but are less effectual. This dietary permits great variety but the above small amount of milk must never be surpassed, and it should be allowed only for the first feeding. Very little fluid is allowed. If milk and fluid beyond what the above menu calls for are given, the child is unable to take the vegetables in sufficient amounts to correct the anemia.

The principle is not to give the vegetables, etc., along with the milk, but to give them instead of milk. When the children refuse the above menu and clamor for milk, the only way to coerce them may be by a change of nurses, a strict nurse instead of the mother, or by taking the child to the hospital. The unwonted diet may set up diarrhea in the nervously disposed, requiring a modification of the menu and postponing the improvement. No drugs were ever found necessary. Some of the children had been taking iron but without benefit. The victory over the anemia usually takes from two to six months but it may be longer than this before the spleen subsides to normal size. The clinical picture of alimentary anemia suggests toxic action, and Kleinschmidt is convinced that it is the milk, and in particular the fat in the milk, which in certain constitutionally inferior children has a destructive action on the blood.

59. **Elimination of Diphtheric Membranes During Intubation.**—Von Bokay gives illustrations of false membrane casts over 3 cm. long coughed up through the O'Dwyer ebonite tube in five cases. In one case a boy of 3 coughed up six casts, nearly all over 3 cm. long, through the tube. Intubation was required for only forty-four hours.

60. **Influence of Growth by Feeding Endocrine Glands.**—Tadpoles were fed with beef thymus tissue, with beef genital gland tissue or thyroid, separately or in various combinations. The research was along the same lines as that described recently in the editorial in The Journal, Feb. 19, 1916, p. 576. Stettner's various series of experiments are described in detail. Most of the glands with an internal secretion seemed to have a retarding action on the development of the tadpoles, delaying the metamorphosis into frogs. Thyroid tissue alone seemed to have the opposite effect. The significant fact was noticed that while thymus and genital gland tissue separately each retarded metamorphosis, given together, the tadpole developed normally. The thymus and genital gland substance seem thus to supplement each other, their combined action being necessary for normal growth.

Münchener medizinische Wochenschrift, Munich

February 15, LXIII, No. 7, pp. 225-268

61 *To Bridge a Gap in a Nerve. (Ueber die Vereinigung getrennter Nerven. Grundsätzliches und Mitteilung eines neuen Verfahrens.) L. Edinger.
62 Scarlatiniform Tardy Exanthem After Vaccination Against Typhoid and Cholera. W. Frieboes.
63 *Fulminating Sepsis Following Pyelography. (Ueber eine Gefahr der Pyelographie.) M. Simmonds.
64 Arsenic Keratosis or Mercury Exanthem? C. Philip.
65 Official Directions for Prophylaxis of Epidemic Cerebrospinal Meningitis. (Die amtsärztliche Bekämpfung übertragbarer Krankheiten. III. Genickstarre.) M. Henkel.
66 Spectacles for Roentgen Work. (Die Adaptationsbrille, ein Hilfsmittel für Röntgendurchleuchtungen.) W. Trendelenburg.
67 Localization of Foreign Bodies in the Tissues. (Fremdkörperlokalisation mittelst einer Durchleuchtung und einer Aufnahme.) A. Kautzky Bey.
68 Acute Dilatation of the Heart in Soldiers. (Zur Frage der akuten Herzerweiterung bei Kriegsteilnehmern.) H. Dietlen.
69 Value of Anticholera Vaccination. (Erfahrungen über den Wert der Choleraschutzimpfung.) Z. v. Ajkay.
70 Treatment of Grazing Wounds of the Skull. (Behandlung der Schädeltangentialschüsse.) V. Florschütz.
71 Treatment of Wounds of the Testicles. (Zur Behandlung der Hodenschüsse.) Levy.
72 *Perforation of Ulcerated Paralyzed Bladder from Manual Expression of Contents. (Zur manuellen Expression der Blase bei Rückenmarksverletzungen.) F. Erkes.
73 War Orthopedics. (Kriegsorthopädie in der Heimat.) G. Hohmann, F. Lange and F. Schede. Concluded in No. 8.
74 Importance of Baths in Treatment of Suppurating Wounds in War. (Anwendung von Bädern zur Heilung von eiternden Schussverletzungen und deren Folgen.) O. Küttner.
75 Febrile Temperature as Objective Sign of Rheumatism in Soldiers. (Ueber Kriegsrheumatismus.) M. Matyas.

61. **To Join the Stumps of a Severed Nerve.**—Edinger cites authorities and personal experiences to show that regenerating nerve fibers are easily mechanically turned aside and thus miss connection with the other stump. Even an interposed segment of nerve tissue may act as a foreign body to turn the fibers aside. His experiments have apparently demonstrated that the regenerating nerve fiber is like a jet of a thick fluid at first. This explains why it is so readily turned aside by a clot of blood, nerve tissue implant, etc. On the other hand, it pushes readily into a soft jelly and forges ahead. In order to keep the fibers pointed in the right direction, they must grow in a tube or tunnel of some kind. These conditions he meets by bridging the gap in the nerve

with an artery filled with agar jelly; 100 of these tubes have now been distributed to various operating neurologists. Ludloff bridged the gap in this way with the jelly tube in fourteen cases. The gap measured from 5 to 15 cm. and in every case there are already evidences that the nerve is regenerating, as Edinger describes in detail. In two or three weeks there was formication in the previously anesthetic area and the extent of the anesthesia became much reduced. In one case, after 10 cm. of the tibial and 8 cm. of the popliteal had been resected and the gaps bridged with the jelly tube, the plantar reflexes returned in sixteen days.

63. **Dangers of Pyelography.**—Simmonds reports a further case of death following pyelography, which he ascribes to septic infection. The man of 34 had 15 c.c. of a 5 per cent. solution of the silver salt injected as usual into the right kidney pelvis for pyelography on account of vague symptoms from this kidney. Afterward there was a transient feeling of oppression in the organ and a little vomiting that evening. By the next day the patient had no further disturbances except a slight painfulness in the kidney region, and the urine was slightly tinged with blood. The temperature began to go up in the evening and the following day there was a hemorrhagic exanthem, with high fever and anuria, and death the third day after the pyelography. Necropsy showed streptococcus sepsis and disclosed erosions in the ureter caused by the catheterization, which had opened a way for the streptococci into the blood. Whether the streptococci were from the bladder or the urethera is not known, but they were evidently carried up and into the tissues by the collargol which did not have bactericidal power enough to render them harmless. Roessle has reported a similar case, but he ascribed the fatality to silver poisoning from the silver salt getting into the erosions. Simmonds insists that fulminating sepsis is a much more plausible explanation. The cases warn that when infectious germs are known to be present in the lower urinary passages, pyelography had betted not be attempted.

72. **Manual Expression of the Bladder.**—In the case described there was complete sensory and motor paralysis of the bladder following a shell wound of the spine. The bladder was emptied by compression from without and the man soon succumbed to the consequences of perforation of an ulcer in the bladder. This method of emptying the bladder is thus shown to be fraught with danger except at the very first, before there is any inflammation in the bladder wall.

Wiener klinische Wochenschrift, Vienna

February 17, XXIX, No. 7, pp. 185-216

76 Mechanism of Morning Remissions in Fever. (Fieberstudien. I.) P. Saxl.
77 *Chronic Bacilli Carriers Cured With a Homologous Vaccine. (Die Befreiung der Bazillenausscheider von ihrem Uebel durch Behandlung mit homologem Impfstoffe.) W. Karell and F. Lucksch.
78 War Neuroses. (Zur militärärztlichen Konstatierung der Kriegsneurosen.) S. Jellinek.
79 Direct Serotherapy of Epidemic Meningitis. (Ueber die Behandlung der epidemischen Genickstarre mit epizerebralen und intrakameralen Seruminjektionen.) K. Lewkowicz. To be continued.
80 Trench Neuritis of the Legs. (Ueber namentlich in den Unterschenkeln lokalisierte Schmerzen nach Beobachtungen im Frontbereiche.) H. v. Schrötter.
81 Experimental Research on Cancer. IV. (Weitere kritisch-experimentelle Studien zur Chemotherapie des Krebses.) S. Fränkel and E. Fürer.
82 Diagnosis and Management of Stomach Trouble in Soldiers. (Diagnostik und Therapie bei magenkranken Militärpersonen.) A. Fischmann. Commenced in No. 6.

77. **Effectual Vaccine Therapy of Bacillus Carriers.**—Karell and Lucksch expatiate on the annoying problem afforded by the soldiers who are left chronic carriers after typhoid or dysentery, and thus are a constant source of danger for the regiment. As the men feel well, they disregard the precautions to which they are admonished. It has even been suggested that a regiment should be formed exclusively of chronic carriers. Karell and Lucksch noticed that a chronic dysentery bacillus carrier responded with a febrile reaction to a prophylactic antityphoid vaccination, and thereafter ceased entirely to eliminate dysentery bacilli. This sudden and complete cure of his "carriership" led to further experiments in this line. They had chronic carriers sent to them from other hospitals and here report that with injection of a homologous vaccine the bacilli promptly disappeared from the stools in thirty-five of the forty-two men thus treated and the other seven are still under treatment. The injection had to be repeated in a few of the men.

Policlinico, Rome

February, XXIII, Medical Section, No. 2, pp. 33-64

83 *The Residual Nitrogen in the Blood is Dependent on Liver Functioning. (L'azotemia nell'insufficienza epatica. Studio clinico e fisiopatologico.) P. Pozzilli.
84 Pathogenesis and Etiology of Acromegaly. R. Massalongo and C. Piazza. To be continued.
85 Some Color Reactions of Quinin. (Sulla reazione che da la chinina trattata con acqua di cloro ed ammoniaca molto diluita.) A. Baldoni.

83. **Residual Nitrogen in the Blood with Liver Disease.**—Pozzilli has been applying various tests to forty-two persons to ascertain the effect on the composition of the blood of defective functioning on the part of the liver. He studied in particular the functional capacity of the liver for the production of urea, having been impressed by the coincidence of severe liver disease in a number of patients with pronounced azotemia, that is, excess of nitrogenous bodies in the blood. He tabulates the findings in regard to the total nitrogenous bodies in the serum, the proportion in the form of urea, and the proportion of the noncoagulable nitrogen, the residual nitrogen, classifying separately the 4 normal persons, the 4 with kidney disease but apparently normal liver, the 6 with heart disease plus liver disturbance, 18 with various forms of liver disease, and 10 with respiratory affections, arteriosclerosis or diabetes. The nitrogen coefficient and the automatic regulation of nitrogen balance fluctuate with the intake of nitrogen. The coefficient may further prove misleading in case of coincident kidney and liver disease, the kidney lesion masking the liver derangement as the former tends to send up the azoturic coefficient while the liver disease tends to depress it. He emphasizes therefore that not the modifications of the azoturic index are significant as to liver disease but the fluctuations in the residual nitrogen. This is affected but little by the food and by the permeability of the kidneys. The proportion of residual nitrogen in the serum depends on the functional capacity of the liver. In health it does not seem to be found in the serum in a proportion higher than 1 per cent. This proportion grows larger when the liver is not working properly, and hence it serves as a simple and reliable index of liver functioning. In short, he declares, azotemia is a well defined syndrome and the residual nitrogen in the serum bears the same relation to liver functioning that the urea nitrogen in the serum bears to kidney functioning. In conclusion he mentions that ligation of the ureters in dogs led to marked increase in the total nitrogen and urea nitrogen content of the serum, but the residual nitrogen content remained stationary. On the other hand, ligation of the common bile duct sent up the residual nitrogen content at once.

Brazil-Medico, Rio de Janeiro

January 29, XXX, No. 5, pp. 33-40

86 *Syphilitic Pseudo-Banti's Disease. (Syndrome syphilitica de Banti.) O. Clark. Commenced in No. 1.

February 5, No. 6, pp. 41-48

87 Gonococci in Blood of a Syphilitic. (Da presença do gonococco de Neisser em lesões ecthymatosas de um syphilitico.) F. I. da Silva.

February 12, No. 7, pp. 49-56

88 Triangular Flagellate Protozoon of Tetramitidae Family. (Copromastix prowazeki, n. g.—n. sp.) H. de B. Aragão.
89 Transmission of Bovine Tuberculosis by Direct Contact and in Milk. (A tuberculose bovina transmitte-se ao homem e o leite constitue um valioso factor de contagio.) C. Ferreira.
90 Destruction of Adult Mosquitoes with Creolin Fumes. (Destruição dos mosquitos adultos pelos vapores de creolina.) G. Moniz. Commenced in No. 6.

86. **False Banti's Syndrome of Syphilitic Origin.**—Clark reports in detail a case presenting the exact picture of splenic anemia of the first stage of the Banti type, without enlargement of glands and leukocytosis. The leukocytes

numbered 5,400. In twelve other cases in the last two years the liver was the main seat of the syphilitic process, but in this case the primary and isolated syphilitic splenomegaly was accompanied by an apparently normal liver. He compares with it a number of similar cases on record, particularly in American literature. The splenomegaly, the anemia and the comparatively normal appearance of the blood corpuscles, the asthenia, the absence of myeloid reaction, of enlargement of glands, of ascites, of jaundice, the normal outline of the liver, and the absence of leukocytosis are the main features of this syphilitic as well as of true Banti's disease in its first stage. In this case there was nothing to suggest syphilis, acquired or inherited, and the Wassermann test was constantly negative. There was nothing, however, to suggest malaria, tuberculosis, leukemia, typhoid or other infection to explain the symptoms and the febrile course. Clark recalled Ricord's saying "If nothing else explains it, la syphilis est peut-être en derrière," and the prompt recovery under treatment as for syphilis confirmed the correctness of this assumption. Antisyphilitic treatment will not cure sclerosis of the spleen or liver once irrevocably installed, and if the pseudo-Banti's disease has progressed to this stage, splenectomy may be the only resort.

Finska Läkaresällskapets Handlingar, Helsingfors

1915, LVII, No. 10, pp. 1255-1419

91 Paul Ehrlich as a Research Worker. O. Schauman.
92 *Bacteriologic and Clinical Study of Retro-Uterine Abscesses in Pouch of Douglas. B. H. Jägerroos. Concluded in No. 11.
93 Blood Cysts in the Mesentery After Contusion. W. Backman.
94 Varicella in Adults; Twenty-Six Cases. (Om varicellae hos vuxna.) R. Forsius.
95 Influenza Meningitis in Two Infants. E. Nyberg.

No. 11, pp. 1421-1602

96 Defect in Development of Pectoralis Muscle in Five Members of One Family. (En ärftlig defekt i den stora bröstmuskeln.) Y. Kajava.
97 Production of Carbon Dioxid in Boys of From 10 to 18. (Om kolsyreproduktion hos gossar i åldern 10 till 18 år.) H. Olin.
98 Case of Acute Hemorrhagic Necrosis of the Pancreas. (Pancreatitis haemorrhagica acuta.) B. Nyström.
99 Fetal Chondrodystrophy; Two Cases. A. Clopatt.
100 Retro-Uterine Abscesses. B. H. Jägerroos. Commenced in No. 10. See abstract 92.

No. 12, pp. 1603-1732

101 Histogenesis of Dental Enamel. (Studier öfver emaljbildningen.) H. Eklöf.
102 Comparative Tint of Blood Serum in Health and Disease. (Jämförande bestämningar af färgstyrkan i blodserum hos människan vid normala och patologiska tillstånd.) B. Nyström.
103 *Intermittent Exophthalmos. E. Enroth.
104 Infantile Progressive Spinal Atrophy of Muscles in Small Brother and Sister. R. Granholm.
105 Transient Fever in the Newly Born. (Transitorisk feber hos nyfödda.) E. Lövegren.
106 Double Primary Syphilitic Lesion in the Eye. E. Enroth.

92. **Abscesses in the Pouch of Douglas.**—This extensive bacteriologic and clinical study of retro-uterine suppuration is profusely illustrated and fills 160 pages with the details of twenty-three cases and a long bibliography. Jägerroos says that the prognosis is generally good, but that even a strictly local process is liable to rupture and infect the peritoneum. The bacteriologic findings also have a bearing on the prognosis. Evacuation of the abscess at the earliest possible moment is the only safe measure.

103. **Intermittent Exophthalmos.**—Enroth adds another to the fifty cases on record. His patient is a woman of 25, and the cause of the trouble in her case is an obstruction in the jugular vein.

Hospitalstidende, Copenhagen

February 16, LIX, No. 7, pp. 137-152

107 *Chronic Bilateral Febrile Uveitis and Parotitis With or Without Facial Paralysis. (Om Febris uveoparotidea.) K. Lehmann. Commenced in No. 6.

107. **Febrile Iritis-Parotitis.**—The ophthalmologists have had their attention called to an eye affection, an iritis or uveitis, resembling those of syphilitic origin in some respects but absolutely rebellious to specific treatment, and remarkable, further, in that it is accompanied by inflammation of the parotid glands, slight fever and facial paralysis. Lehmann has encountered two cases himself and knows of ten others in Denmark—a total of twelve cases of what he calls febris uveoparotidea. It represents a definite syndrome of bilateral uveitis, bilateral parotitis, low, continuous fever, and, in half the cases, facial paralysis. The uveitis runs a chronic course and may eventuate in blindness in one or both eyes in the severer cases. In a few cases other glands besides the parotid were affected likewise. The prodrome is protracted; the first symptom may be the facial paralysis, which may keep up for three or four weeks before the uveitis or parotitis develops. The latter resembles mumps to a certain extent, but its long persistence, the absence of any known source of infection, the absence of any contagion from these cases, and likewise the fact that orchitis was never known in any instance, seems to exclude epidemic parotitis. The parotitis may develop as an indolent tumor, persisting for two years. In all the cases however, the parotid lesions and the facial paralysis entirely retrogressed in time. A number of points differentiate this affection from Mikulicz' disease of the lacrimal and salivary glands, as Lehmann describes in detail. In nine of the twelve patients there was nothing to suggest tuberculosis or a predisposition thereto, no traces of scrofula, and the skin and subcutaneous tuberculin tests applied to three elicited a negative response. But the other three patients were undoubtedly tuberculous; the microscope revealed tuberculous tissue in the iris of one and in a gland in the neck of another. Uhthoff of Breslau described an analogous case in 1909 which he explained as a case of tuberculous meningitis with tuberculous iridochorioiditis.

Hygiea, Stockholm

LXXVIII, No. 2, pp. 97-160

108 Psychic and Nervous Disturbances in Soldiers on Active Service. (Om psykiska och nervösa rubbningar hos soldater i fält.) O. Kinberg.

Ugeskrift for Læger, Copenhagen

February 10, LXXVIII, No. 6, pp. 163-210

109 *The Duodenal Sound Applied to Young Infants. (Duodenalsondering hos spæde Børn.) P. Hertz.
110 Mortality From Diabetes in Males According to Trades. (Dødeligheden af Sukkersyge inden for de forskellige Erhvervsgrupper i den voksne mandlige Bybefolkning.) K. A. Heiberg.
111 Treatment of Chronic Ascites. (Et usædvanlig længe forløbende Tilfælde af Ascites behandlet med talrige Udtømmelser.) C. Berg-Hansen.
112 Weak Salt Solution Best Dressing for Wounds. (Salt som Saarmiddel.) A. Maag.

109. **The Duodenal Sound Applied to Infants.**—Hertz gives roentgenograms showing the duodenal sound or catheter introduced directly into the duodenum. The catheter was about 40 cm. long and from 14 to 18 mm. in circumference, and was introduced about three hours after the last feeding. It passed smoothly along the inner wall of the stomach and into the duodenum or looped back before entering the duodenum, but the aim was attained in all the thirty young infants, including two with stenosis of the pylorus past its extreme stage. In these two cases he was able with patience and perseverance to insinuate the tip of the catheter in the pylorus—possibly the contact caused the spasm to relax a trifle—then it was easy to slip the catheter into the duodenum and pour in food. Even if the passage of the sound proves impossible at one time, it may succeed at another. Five of the children suffered from uncontrollable vomiting, and by giving them water and food through the duodenal sound the irritable stomach was left to recuperate in peace.

This proved a life-saving measure also in a few cases of gastro-enteritis. In one 4 months' babe with severe gastro-enteritis, vomiting and diarrhea, a marked turn for the better followed the introduction of 150 c.c. of water three times a day; diuresis started up at once. Subcutaneous injection of saline had been ineffectual because the fluid did not seem to be absorbed as usual on account of the doughy condition of the tissues. There had been some blood in the vomit, but this did not deter Hertz from the use of the duodenal sound, but he was always careful to pour the fluid into the sound very slowly. The child's condition was rendered particularly grave by a complicating pyelonephritis.

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 15 CHICAGO, ILLINOIS APRIL 8, 1916

PHARMACOLOGIC SUPERSTITIONS

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PHILADELPHIA

THE TEST OF UTILITY

There are a number of worthless therapeutic practices — some based on abandoned theories of pathology, some due to technical errors in pharmacologic investigations, some based on misinterpreted clinical observations, and some the mere relics of medieval superstition — which still persist in common use. Some of these receive even today the sanction of authority; men whose acumen in many lines has won our respect occasionally lend the weight of their recommendation to measures which can be defended on neither theoretical grounds nor clinical results. It has seemed to me that it might be worth while to call attention to the source of some of the more common superstitions of this character.

First, however, it is necessary to establish the criteria on which we base our judgment as to the therapeutic value of a drug. Certainly the length of time during which a drug has been employed in medicine furnishes no measure of its usefulness. Ammoniac gum was described by Dioscorides in the first century, and for more than a thousand years was highly esteemed, but has fallen into such disuse that it is no longer recognized by the U. S. Pharmacopeia. In studying the materia medica of the first, tenth and fifteenth centuries, one is struck by their similarity to each other and their difference from that of today. Remedies whose reputation was sustained unabated for 2,000 years have been unable to bear the light of modern knowledge, and within half a century have not only been completely discarded as worthless but their very names forgotten.

The first edition of the U. S. Pharmacopeia was published less than a century ago.[1] Of 624 drugs and preparations deemed by the editors of that work to be "those, the utility of which is most fully established," 305 have been already despoiled of their official recognition. I have been surprised in looking over this interesting work, not so much, however, by the number of ancient remedies which we have ceased to use, but by the absence of drugs today universally recognized as our most valuable weapons against disease. Neither iodin nor any of the iodids are in the first American Pharmacopeia; one looks in vain for potassium bromid or any other preparation of bromin; there is no form of salicylic acid except the oil of gaultheria, and that apparently was recognized only for its aromatic odor; one finds neither chloral nor any of our modern somnifacients; coca and cocain are both missing, as are also santonica and santonin; ether is recognized, but chloroform was unknown; nitroglycerin is not mentioned, the only form of nitrite recognized being sweet spirits of niter; the only mention of ergot is in the secondary list — that is, drugs of doubtful worth — where is listed *Secale cornutum* or spurred rye, but it was not deemed of sufficient importance to have any preparation recognized. One is not surprised at the absence of our modern coal tar derivatives, such as acetanilid and phenol (carbolic acid), but that the usefulness of aspidium or pilocarpus should not have been earlier discovered seems worthy of comment. In the place of these remedies which the present day physician relies on in such a host of conditions, we find horseradish, oatmeal, barley, stag's horn, metallic gold and silver, cowhage — whose sharp bristles were used as a vermifuge on the theory that they would stab the worm to death — and scores of remedies not even whose names would be known to many readers.

Are we to gage the utility of a therapeutic agent by the clinical results we think we see? Wendell Phillips said in one of his famous orations, "You read history not with your eyes but with your prejudices." The thought might well be applied to the medical profession. Practically all our experience is interpreted through the glasses of our prejudice. Never, since the days when the ancient Assyrian chanted his exorcisms of the pathogenic devil according to the phases of the moon, have men been able to free themselves in the choice of their remedies from the dominance of some theory concerning disease. Indeed, it cannot well be otherwise. The manifestations of disease are so protean, and its development subject to such an infinitude of variation, that no simple collection of observations without interpretation is of the slightest value. If those who believe that empiricism should be the only guide in the treatment of the sick could read the history of medicine "with their eyes," they would see what a feeble flickering light to the progress of medical science experience has been; nay, it has been a veritable will-o'-the-wisp, leading men astray farther and farther from the truth. For fifteen centuries the experiences of medical Europe were interpreted to suit the theories of the great Galen, and in these fifteen hundred years, with their observations of millions of deaths, physicians learned absolutely nothing of how to relieve suffering or prolong life. A splendid illustration of the blindness of humanity to their surroundings is seen in the duration of the bloodletting superstition. For three centuries physicians with the best motives bled their patients to death, absolutely incapable of realizing that their venesection killed far

1. Dec. 15, 1820.

more than it saved. Despite the frightful mortality of their methods of treatment, they clung to the error with the enthusiasm of a religious fanatic. Dr. Benjamin Rush on his deathbed, almost pulseless from the combined effects of disease and repeated venesections, begged the attending physicians to bleed him again. The story of the pneumonia "cures" is another interesting confirmation of the deceptiveness of experience. Time after time has some new method of treating this disease been brought forward with most impressive statistics which would seem to have established it as of the utmost value, and yet despite the venesection, veratrum, creosote, quinin, alcohol, camphor, ice jackets and poultices, the mortality of this disease is practically unaffected.

Of the drugs of generally recognized utility,[2] numbering about 270, not one third of those introduced within the last hundred years were discovered through the medium of bedroom observations.

If neither antiquity nor clinical results can establish the therapeutic credentials, on what grounds are we to accept therapeutic claims? There are those who pretend to believe that the final judgment as to the therapeutic value of a drug can be made in the pharmacologic laboratory; such a claim, however, is so foolish as scarcely to be worthy of a refutation. Although it is undeniable that we owe most of our useful drugs to the researches of chemists or physiologists, their conclusions concerning the value of a remedy can be accepted only when confirmed by clinical experience. I do not know how many rabbits Ehrlich and his assistants cured with salvarsan, but I do know that he was unwilling to permit this drug to be placed on the market until the conclusions of his laboratory were clinically tested in the hospital. Ehrlich felt the need of clinical confirmation in the claims for his new remedy, but it is extremely rare that laboratory workers are able to present such direct or definite evidence as to the value of a therapeutic agent.

We reach conclusions of therapeutic usefulness by a circuitous route: the pathologist tells first what he believes is the nature of the morbid disturbance, the pharmacologist explains how the drug seems to modify the bodily functions, the practitioner tries if the observation of the pharmacologist fits to that of the pathologist as one should expect. It is like a puzzle picture: the color and shape of one piece seems to indicate its juxtaposition to another; but only when they are actually fitted into each other can we be sure that they really do belong together. To change the simile, we build up a system of treatment on the foundation of pathologic hypothesis, using stones of pharmacologic experiments cemented together by deductive reasoning. The clinical imperfections of the structure may or may not be manifest at once. Only after the building has withstood many storms can we be sure of its stability. The weaknesses which develop may be due to the faults in the pathologic or pharmacologic building material, but above all to the weakness of our dialectic binding together.

Perhaps I can make my meaning clearer by concrete examples. The effects of certain drugs in relieving symptoms are so obvious that even the most casual observer can convince himself of their action. Antimony will produce emesis, or pilocarpin increase the secretion of sweat with such infallibility that even the prejudiced observer could not fail to connect cause and effect; but the question of whether the emetic action of antimony is beneficial in pneumonia, as the ancients believed, or whether the diaphoresis produced by pilocarpin is useful in uremia, as we believe, requires nicer discrimination and cannot be answered dogmatically. The commonly accepted theory of uremia is that the symptoms are caused by the retention of some poison in the system, and that by the use of eliminants we bring about the excretion of this poison through other channels. After all, however, it cannot be considered as proved that uremia is due to the retention of a poison, and our theories that purgation and sweating are capable of carrying off this poison are certainly not positively established. But because of our belief in the pathogenesis of this condition, and our faith in the effect of eliminating measures, we persuade ourselves that we see beneficial effects from the treatment.

It seems to me fair to conclude that we are justified in giving credence to claims of therapeutic usefulness when the known action of the drug permits of a plausible explanation of its asserted benefits, not inharmonious with the accepted theories of the disease and supported by a fair amount of bedside corroboration.

In the absence of a reasonable hypothesis as to the mode of action, a gigantic accumulation of clinical evidence may establish the utility of any therapeutic measure; but when a candidate for therapeutic recognition can present no scientific logic, or only one which is demonstrably erroneous, and its clinical credentials are both vague and scanty, we are certainly justified in regarding its claims with suspicion.

It is my purpose to judge some traditional remedies by the standard set forth; if there is neither reason nor result to appear in defense of a drug, no matter how ancient its lineage may be, I opine it should be relegated to the limbo of all forgotten superstitions.

COMPOUND SYRUP OF HYPOPHOSPHITES

This preparation, which is so widely employed as a tonic, especially in tuberculous conditions, contains, beside the hypophosphites of calcium, magnesium, potassium and sodium, small quantities of iron, of quinin and of strychnin. The amount of iron in 2 fluidrams of the syrup, which is the pharmacopeial dose, is equivalent to approximately $\frac{1}{20}$ grain, of quinin $\frac{1}{8}$ grain, and of strychnin $\frac{1}{75}$ grain. It is manifest that neither the iron nor the quinin can have any effect on the body, and that the strychnin can have only an infinitestimal hypothetic action. As for the hypophosphites themselves, they owe their introduction into medicine to a Dr. Churchill.[3] His theory was that phthisis was due to diminished oxidation in the tissues; phosphorus has a strong affinity for oxygen and therefore would attract oxygen into the body, but it is too highly poisonous for remedial use; the hypophosphites, being incompletely oxidized derivatives of phosphorus, would have the same affinity for oxygen, and being only slightly poisonous, could be given in larger dose. As regards this theory it may first be pointed out that there is no reason to believe that there is diminished oxidation in phthisis; in fact it would seem that it is usually increased; secondly, the hypophosphites pass through the body unchanged, that is, they do not attract oxygen in sufficient quantity to oxidize themselves.

Supposing, however, that Churchill's theory of the cause of tuberculosis were true, it would in no way

2. A Handbook of Useful Drugs, Chicago, 1913.

3. For the history of the hypophosphite fallacy see THE JOURNAL A. M. A., April 25, 1914, p. 1346.

argue in favor of the use of the compound syrup of the hypophosphites as a practical remedy. An ordinary man burns up from 800 to 1,000 gm. of oxygen a day. It requires about 3 per cent. of oxygen to saturate the earthy hypophosphites; compound syrup of hypophosphites contains, in all, approximately 7.5 per cent. of hypophosphites; therefore 2 teaspoonfuls of the compound syrup of hypophosphites has theoretical attractions for 0.018 gm. of oxygen. To cause an increase of 10 per cent. in the daily consumption of oxygen would require a dose of about 4,000 c.c., or 1 quart four times a day. While it is possible that a patient might survive the hypophosphites in this quantity, he would certainly die of strychnin or quinin poisoning.

Dr. Churchill's theory having been shown to be erroneous, it would require, according to the postulates given above, the most positive clinical evidence to establish his conclusion. In the book of over 250 pages announcing his discovery,[4] he reports the results of thirty-five cases, of which nine patients were classed as cured, eleven as improved, and fourteen died! Even allowing for the progress which has been made in recent years in the management of tuberculosis, this record seems hardly favorable enough to justify his conclusions as to the specificity of the treatment. As for other clinical evidence, it is equally unconvincing. There has been a relatively small number of papers in medical literature on this subject, and most of those which have appeared are made up almost entirely of such vague generalities as "the treatment has given me good satisfaction." In a brochure published in 1881 by McArthur — who, being commercially interested in this therapeutic measure, is not likely to have overlooked any reports favorable to it — the statement is made that the favorable conclusions are based on 259 cases, certainly not an overwhelming mass of evidence after twenty-three years of clinical trial!

Churchill recommended only the hypophosphite of lime, but Dr. McArthur modified this by adding also the hypophosphites of potassium and sodium and dispensing in the form of syrup. It is interesting to note that the real out and out hypophosphitists maintain that neither strychnin nor iron should ever be combined with the hypophosphites. Nevertheless an English pharmacist by the name of James I. Fellows, about 1870, put on the market a syrup of composition similar to that which is present in the United States Pharmacopeia. The origin of this compound, according to Fellows' claim, was his own personal experience. He had a chronic bronchitis which by some of his medical friends was pronounced tuberculous, although there seems to have been great difference of opinion among the various physicians who examined him as to the nature of his malady. He began to experiment on himself with various combinations of drugs which he imagined might be beneficial. After four years of such self-dosing he completely regained his health and attributed the result to the concoction which is now known as Fellows' Compound Syrup of Hypophosphites.

Fellows' explanation of the modus operandi of the remedy is even more remarkable than that of Dr. Churchill. Thus he begins his brochure in 1882 with the words, "This is a combination of salts allied to blood salts, and consequently true hematics, with the blood building iron and the two powerful vegetable tonics strychnine and quinine."[5] Sodium chlorid is just as nearly "allied to the blood salts" as any salt in his syrup, but one would hardly attribute to ordinary salt any specific virtues in tuberculosis.

On page 8 of the same brochure he says: "The hypophosphorus acid *seems*[6] to furnish the phosphorus for the construction of lecithin more readily than the stable form phosphoric acid. Consequently . . . the less stable form of hypophosphites can be broken up for the production of free phosphorus for the production of lecithin." In support of this hypothesis he gives not the slightest scintilla of evidence, but goes on the common principle of nostrum venders that any assertion made with sufficient dogmatism will be accepted by the medical profession. To the contrary, the investigations of Boddaert,[7] of Mossol and Gamel,[8] and of Panzer[9] have shown definitely that the statement is untrue, the hypophosphites passing through the system and being eliminated by the kidneys as any foreign salt.

An unbiased study of the evidence, it seems to me, must inevitably lead to the conclusion that any therapeutic virtue in the compound syrup of hypophosphites is due to the sugar it contains.

Some skeptical empiricist rises up to ask, If this mixture is so impotent why is it so widely employed? The reasons for its popularity are two: First, and most important, the persistent advertising methods of the manufacturers of certain brands of the compound syrup of hypophosphites, and secondly, its innocuous character. It is better to do nothing than to do the wrong thing, and when the patient insists on having some form of medicine and the physician knows of no drug which is likely to be beneficial, he satisfies the longing of the sick man by ordering the compound syrup of hypophosphites, and salves his conscience with the thought that at least he has done no harm.

LITHIA

The use of salts of lithium in the treatment of gout was introduced by Garrod.[10] He based his application of this remedy on the hypotheses that the gouty paroxysm is due to the deposit of urates in the joint, that this deposit is brought about by a diminished alkalinity of the blood which lessens the solubility of the salts of uric acid, and that lithia by a solvent action on the uric acid prevented the deposit. In support of the latter view he quotes the experiments of Binswanger, who found that one part of lithium carbonate in 120 of water would dissolve four parts of uric acid at the body temperature, and of Uré,[11] who showed that 1 grain of lithia in an ounce of water would dissolve 2.3 grains of uric acid.

Neither his theory concerning the causation of the gouty attacks nor his explanation of how lithium would prevent them can be accepted. In the first place, Magnus-Levy[12] measured the alkalinity of the blood of twelve patients before, during and after the gouty

4. Churchill: Phthisie Pulmonaire, 1858.

5. As a further example of the pseudoscientific jargon indulged in by the hypophosphitists, I may quote the following from a paper by Alcindor (Practitioner, London, 1913, xc, 123): "Prosphorus initiates and promotes among the bioplasmic elements, oxidation of the tissues, which is the primordial phenomenon of vitality, with consequent integration and disintegration and elimination of effete products."

6. Italics ours.

7. Boddaert: Arch. de pharmacod., 1895, ii, 195.

8. Mossol and Gamel: Jour. de pharm. et de chim., 1901, xiv, 337.

9. Panzer: Ztschr. f. Untersuch. d. Nahrungs- u. Genussmittel, 1902, v, ii.

10. Garrod, A. B.: Gout and Rheumatic Gout, London, 1861.

11. Uré: Pharm. Jour., August, 1843.

12. Magnus-Levy: Harvey Lecture, 1910, p. 269.

paroxysm, and failed to find any distinct change in its alkalinity. In the second place, conditions accompanied with severe reduction of the bodily alkalinity, such as diabetic coma or leukemia, do not lead to the deposit of urates. In the third place, acidulating the blood cannot change the solubility of sodium urate without transforming it into uric acid, and the deposit in the joints is not of the acid but of the monosodium urate.

As regards the solvent properties of lithium toward uric acid, while it may be regarded as true that relatively concentrated solutions of lithium will dissolve more uric acid than water, yet in proportions in which it can occur in the blood it exercises no such solvent effect. Krumhoff[13] found that water containing 0.012 per cent. of lithium chlorid would *dissolve less uric acid than distilled water*. Roberts[14] says that he has found experimentally that the addition of lithium carbonate in the proportion of 0.1 per cent. or 0.2 per cent. to blood serum had not the slightest effect in enhancing the solvent power of this medium for sodium urate. Good[15] found that the fatal dose of lithium chlorid for the cat was less than 0.4 gm. per kilogram hypodermically. Supposing that the lithium was equally distributed throughout the various tissues of the body, this would mean evidently a concentration of 0.04 per cent. in the blood. It is manifest, therefore, that lithium if given even in fatally toxic doses cannot increase the solvent power of the blood for the salts of uric acid.

Some have attempted to attribute the supposititious beneficial action of lithium in gouty conditions to its diuretic powers or to its antacid action. As to the former, Good found that lithium chlorid has no greater diuretic power than sodium chlorid. As to the alkalizing properties, while it is true that by the administration of sufficient doses of the carbonate or citrate of this base one can render the urine alkaline, the same thing is true of the corresponding salts of either sodium or potassium. Moreover, there is, to say the least, grave doubt as to the real benefit of alkalies in gout. Roberts says, "I have repeatedly administered the bicarbonate and citrate of potash continuously for three or four years in sufficient doses to maintain the urine persistently alkaline, yet I have seen the arthritic attacks recur with apparently unabated regularity."

It is to be noted that even if we accept Garrod's theories, the use of lithium must be limited to cases of typical gout with paroxysmal attacks of arthritis. Even the blind adherence to these improbable hypotheses affords no reason to believe in its usefulness in the various atypical manifestations of disturbed metabolism which we are in the habit of attributing somewhat loosely to the uric acid diathesis. By the strange irony of chance, in this country at least, the use of the salts of this metal is limited almost exclusively to the latter group of cases.

It is evident, therefore, that science lends no support to the use of lithium in medicine. Any judgment in favor of this element must be based solely on bedside experience. The clinical evidence in this disease is peculiarly unreliable; Magnus-Levy says, "Cool judgment is more difficult in the therapeutics of gout than of any other disease." In the first place, there is no criterion, save possibly the percentage of uric acid in the blood, which can serve as an index of improvement. In the second place, the disease is one which runs a very variable as well as chronic course; there are inexplicable spontaneous fluctuations in the severity of its manifestations. In the third place, the lithium is always employed in conjunction with other therapeutic measures, especially the ingestion of large quantities of water, and it is impossible for any one to say with positiveness whether any improvement which may have occurred has been due to or in spite of the lithium.

Nevertheless, regardless of its manifest fallacy, the lithium superstition still survives. This I believe is chiefly because of the beneficial effects of the so-called "lithia waters" in various conditions of disturbed nutrition. These waters, however, rarely contain more than one part of lithium in a million. That is, to get 5 grains of lithium, the patient would have to drink about 30 gallons of water! While I do not wish to deny the benefit of water in gout, I am quite certain, as must be any other rational human being who knows the facts of the case, that the value of the so-called lithia waters does not reside in their lithium content.

13. Krumhoff: Inaug. Diss., Göttingen, 1884.
14. Roberts, William: On the Chemistry and Therapeutics of Uric Acid Gravel and Gout, Croonian Lectures for 1892, London, 1892, p. 129.
15. Good: Am. Jour. Med. Sc., 1903, cxxv, 273.

SARSAPARILLA

Various preparations of sarsaparilla, mostly of proprietary nature, are widely used by the public as "blood purifiers." This term is apparently a survival of the old humoralistic pathology which considered all diseases to be due to evil humors in the blood. During the days when this theory was rampant, physicians purged, sweated and bled their patients more thoroughly than wisely in their efforts to eliminate the *materies morbi*. Sarsaparilla has a mild diaphoretic tendency, and might therefore be of some assistance in this eliminative therapeusis. Among the medical profession, however, it never enjoyed any great vogue except in the treatment of syphilis. Today it is used almost exclusively in the form of the compound syrup of sarsaparilla, partly as a means of disguising the tastes of the iodids and partly because of a sort of half belief that it may enhance the antisyphilitic action of mercury.

In regard to the use of compound syrup of sarsaparilla as a vehicle, it may be pointed out that its pleasant flavor is due to the aromatic oils, licorice and sugar which it contains; sarsaparilla itself has a mucilaginous and somewhat bitterish taste, and as far as the flavor of the syrup is concerned is of no advantage. In addition to these ingredients, the compound syrup of sarsaparilla also contains 1.5 per cent. of senna. This quantity of senna is of course too small to have any laxative effect in the doses of the syrup ordinarily administered, and if a laxative action is desirable it is necessary to reinforce the syrup with some cathartic. If, on the other hand, a laxative effect is not desired, the small quantity of senna can serve no therapeutic use and certainly does not improve the flavor of the mixture. As a vehicle, therefore, the combination is quite irrational.

As an antisyphilitic, sarsaparilla was introduced into Europe in the middle of the sixteenth century, having apparently been copied from the South American aborigines. After a brief popularity it fell into desuetude and was but little used until its revival by William Fordyce in 1757. This author[16] reported thirteen cases of syphilis which he treated with the drug with results

16. Fordyce, William: Medical Observations and Inquiries, 1757, i, 149.

satisfactory at least to himself. He asserted that the remedy had fallen into disrepute because of the ignorance concerning the class of cases for which it was suitable and the proper method of preparing the decoction; he states that those who had failed with the drug "all erred in macerating it so long in the water before they boiled it, which spoils it for the next day." The only pharmaceutic preparation which he recognized was made as follows: Three ounces of as fresh a sample of the root as obtainable were added to 3 quarts of water and brought to a boil immediately in an open vessel, the boiling continued until all but 2 pints of the water had evaporated, when it was strained and the liquor given within a period of twenty-four hours, usually divided in two or three doses. Frequently it was used in conjunction with some form of external heat, and under these circumstances produced profuse diaphoresis. Dierbach[17] describes the method of using sarsaparilla in the treatment of syphilis as follows: Half a pound of the root cut up fine is macerated with water till it is in a thick slimy condition, and then pressed through a cloth. Of this fluid the patient drinks early in the morning a glassful and then goes to bed, covers up warmly, and sweats for two hours. If he gets thirsty he must drink nothing else but the sarsaparilla slime.

In twelve out of the thirteen cases reported by Fordyce, mercury had been used either before or during the treatment with sarsaparilla, and as he records a case as cured as soon as the external manifestations of the infection have subsided, it is quite impossible to draw any conclusions as to whether or not his treatment really had any effect on the progress of the malady. In the single case in which mercury was not used, the patient was a woman with a syphilitic ulcer of the nose. The author says of the result, "By use of the decoction for fifty days inwardly and outwardly applied as before mentioned, all the sores healed up, some of the bones threw off exfoliations, others covered up without any sensible exfoliation, she recovered her health perfectly with only the loss of the bones of her nose." He himself seemed to have had subconscious doubts as to the efficacy of the treatment, for in reporting another case he says, "But as I durst not in such a case trust entirely to it (sarsaparilla) I now and then used the mercurial ointment to the quantity of half an ounce of quicksilver in the whole." On such a slender thread of clinical evidence hangs the modern use of sarsaparilla as an antisyphilitic!

The only ingredients in sarsaparilla, aside from the mucilage it contains, which could be suspected of possessing any therapeutic virtues are certain glucosidal bodies related to the saponins. As far as has been determined, the sarsaparilla saponins have no effect on the system which is not common to all of this large group of vegetable principles, and the only therapeutic influence that modern pharmacology assigns to the saponins is due to their local irritant effect on the mucous membrane of the stomach. By virtue of the nausea which they produce, they may increase the secretions of the bronchi and of the skin, and are therefore used in some quarters in the treatment of acute bronchitis.

The case for the use of compound syrup of sarsaparilla as an antisyphilitic may be summed up as follows: There is absolutely no explanation of any possible mode of action of the drug. The clinical evidence of the usefulness of sarsaparilla is both scanty and unreliable. Such testimony of beneficial action as does exist is based on the use of doses of from 2 to 4 ounces of sarsaparilla a day; this would be equivalent to about 5 fluidounces of the syrup three times a day. Therefore, in the dose ordinarily employed, there is not the slightest reason to suspect that the compound syrup of sarsaparilla can have any effect on the syphilitic process. As a vehicle it is an illogical jumble.

17. Dierbach: Jour. d. pract. Arznik. u. Wundarznk. (Hufeland's), 1837, lxxxiv, 40.

BASHAM'S MIXTURE

I have no statistics to determine the number of physicians who believe that Basham's mixture is a sort of specific for Bright's disease. The fact that the popular names of the drug and of the disease begin with the same letter of the alphabet seems, to a certain type of mind, final proof that they were meant to go together.

Some years ago, at the time when it was believed that astringents might be absorbed into the blood, ferric chlorid was recommended for the purpose of diminishing the quantity of albumin in cases of parenchymatous nephritis. According to present pharmacologic and pathologic theories, however, this seems neither possible nor desirable.

It is generally held today that the action of astringents is due to coagulation of the bodily proteins. If this view is correct, it is evident that no astringent can exist in the blood, for it would at once precipitate the blood serum, and a fatal thrombosis or embolism would occur. As we are entirely ignorant concerning the mechanism of albuminuria, it is impossible to theorize as to whether, if an astringent could reach the kidney, it would diminish the amount of albumin in the urine. There is not, however, the slightest reason to suppose that to diminish the albumin by any such mechanical means would be of the least benefit to the patient. To hide the rottenness of a beam with a coat of paint does not strengthen the building, nor does the prevention of the excretion of albumin lessen the inflammatory process in the kidney. There are symptoms whose relief is desirable, although we know that in relieving them we do not affect the progress of the disease; but albuminuria can hardly be classed as such a symptom.

I do not wish to be understood as attempting to deny the value of iron in certain cases of nephritis. There is no room for doubt that when Bright's disease is complicated with anemia, as it so often is, the use of this drug is beneficial. This, however, is somewhat beside the question; my main contention is that iron in no form exercises any specific effect on the kidney. It is indisputable that when the renal condition is complicated by anemia, iron, because of its hematinic effect, may be useful; but there is no ground for the superstition that Basham's mixture exercises a special influence. Nevertheless Tyson[18] is forced to remark, "It is prescribed constantly in the most reckless and thoughtless manner."

Dr. Basham, who seems to have originated the mixture of ammonium acetate with ferric chlorid which goes by his name, was no believer in the antiquated astringent hypothesis or yet in the specific antinephritic theory of the effects of iron, for he says in his work on renal disease, published in 1870: "Preparations of iron are the best aid to the blood forming

18. Tyson: Practice of Medicine, 1900.

function. But iron in any of these preparations cannot generate blood corpuscles. They can only be formed out of the nutritious elements of the food." In another place, "A long experience of these and other forms of renal disease where the object of the treatment is similar, has, however, convinced me that a soluble ammonio-chloride obtained by acidulating liquor amonii acetatis with dilute acetic acid, and then adding the tincture of the perchloride, is the most efficacious of all the so-called preparations of steel." I cannot assent to Dr. Basham's dictum that the solution of iron and ammonium acetate is the most efficacious preparation, for while there is no doubt as to its chalybeate power, its acidity and astringency make it peculiarly liable to disturb the digestive tract.

It verges on sophistry to attempt to justify the use of Basham's mixture in nephritis on the ground of its adding the diuretic effect of the ammonium acetate to the chalybeate action of the iron. If a saline diuretic be deemed desirable, it should be given separately so that the dose of one or the other may be increased according to the requirements of the individual case. It is manifestly bad therapeutics to administer a diuretic if not indicated simply for the sake of obtaining the action of iron on the blood.

While on the subject of iron, I feel impelled to say a word concerning the misapprehension as to the effects of this metal on the system. It is not in any proper sense a "general tonic," whatever that phrase may mean; it has one specific therapeutic action, namely, to increase the hemoglobin content of the blood. Outside of this and the local effects of certain salts, there is no known physiologic action of iron which gives any ground for its therapeutic employment.

FERRIC CHLORID

Also I cannot resist saying a word about the use, or rather abuse, of ferric chlorid as a hematinic. It would seem as though large numbers of the medical profession were unaware that there was any other soluble salt of iron known to chemistry, unless they have recourse to the advertised proprietary preparations. The pharmacopeia recognizes a soluble citrate, a soluble phosphate, an iron and ammonium citrate, as well as various compound salts of iron. The chlorid is one of the most highly astringent preparations of iron which we have, and therefore liable to cause constipation. It is strongly irritant to mucous membranes, and in delicate stomachs will often provoke nausea. The widespread employment of various proprietary forms of iron is due largely to the dread of disturbing the patient's digestive tract with the inorganic salts, a fear which is the outgrowth of unpleasant experiences with the tincture of ferric chlorid. I have heard a physician who passes among his fellows as being exceptionally educated speak of this solution as the "strongest" form of iron. What he meant I have been wondering ever since. As a matter of fact, 10 minims of the tincture of ferric chlorid contains less iron than a single Blaud's pill. As an external remedy for checking hemorrhage it is very valuable; as an internal drug it should never be employed.

OPIUM AS A LOCAL REMEDY

There is many a man who, while denying any accusation of being superstitious, nevertheless hesitates to make the thirteenth person at a table, or who has some pet habit which he regards as an omen of good luck. In a very similar way there are many physicians who profess to realize that opium has no local action but nevertheless persist in employing it as a topical remedy. And there may still be some superstitious enough really to believe that a drug so potent as a cerebral depressant must of necessity have powerful local effects. Among the most common evidences of this belief may be mentioned that ancient, if not honorable embrocation known as lead water and laudanum, the addition of opium to nutrient enemas to quiet the rectum, but above all the use of the opium suppository in various pelvic inflammations. The first of these has perhaps a slight theoretical justification, but the other two are as senseless as the incantations with which the ancients preceded their nauseating concoctions.

Crude opium frequently has a marked local irritant effect. The United States Dispensatory says, "When long chewed it excites much irritation in the lips and tongue and may even blister the mouths of those unaccustomed to its use." Dr. Hill in his history of materia medica, published in 1751, remarked of opium that "if kept long on the skin it takes off the hair and it always occasions an itching in it; sometimes it exulcerates and raises little blisters if applied to a tender part," and he recommended its use as a counterirritant. I have myself seen two cases in which blistering followed the local application of lead water and laudanum, but whether as a result of this application I cannot say.

Of course a counterirritant would likely be beneficial in various forms of arthritis in which Goulard's extract is commonly employed, and theoretically the counterirritant effect of opium might be beneficial. To this sophistical defense, however, it may be replied in the first place that we have a host of other counterirritants more reliable and safer than opium, and secondly, most of those who use it seem to do so with the idea that the opium will add anodyne or antiphlogistic effect to the astringency of the subacetate of lead. Of the local anesthetic action of opium I shall speak in a minute, but first let me digress briefly to say a few words on the astringent action of the leaden half of this medieval embrocation.

While it is true that lead acetate is an astringent, when applied over the skin its astringent action must be expended altogether on the superficial layers of the epiderm. Moreover, as is well known, when the lead is combined with the opium, it is precipitated as an insoluble meconate. Although some of the older writers attributed mysterious virtues to lead meconate, there is no reason to believe that it possesses any properties not common to the insoluble salts of the heavy metals, such as bismuth subnitrate. The improvement which follows local applications of lead water and laudanum is due in part to the lint and bandages which hold it in place, perhaps slightly to the alcohol, but chiefly to the action of time which passes by while the application is left in place.

When for any reason the ingestion of food must be interdicted for a considerable period of time, and an effort is made partially to maintain nutrition by the use of rectal feeding, the physician is confronted with the difficulty that the rectum soon becomes irritated, and ejects the enema before the nutrient it contains can be absorbed. To prevent this nearly every textbook on medicine recommends the addition of tincture of opium to the enema. This recommendation is based on the belief that opium, by virtue of its local anesthetic effect, will so benumb the mucous membrane of the bowel that it will not feel the presence of the

nutrient injection. On what this belief in the local anodyne effect of opium is based I do not know, nor do I believe that its adherents themselves have any definite idea of the origin of the fable. It is true that Wiki[19] found that the injection of the alkaloids of opium beneath the skin lessens the activity of peripheral sensory nerves. In his investigation potassium carbonate proved itself a more powerful local anesthetic; but how many would trust to potassium to calm the peristalsis of the rectum?

It may seem impiously iconoclastic to doubt the hallowed superstitions of the opium suppository. There appears to be in the minds of those who use it a subconscious delusion that as the rectum is nearer to the pelvic organs than the stomach, the opium must act more powerfully on this portion of the body when given by suppository than when given as a pill. As a matter of fact, however, physiologically the rectum is farther away from the pelvis than the stomach. For opium placed in the rectum to reach the bladder, it must be absorbed into the circulating blood and carried up to the heart and back again through the arterial system to the pelvis, and as the distance from the stomach to the heart is less than from the rectum to the heart, it follows that physiologically the stomach is nearer to the bladder. Moreover, were it possible for the morphin of an opium suppository to penetrate the layers of mucous membrane, connective tissue and muscle which separate the interior of the rectum from that of the bladder, it would have no effect on the latter organ, for the anodyne action of morphin, as of the other alkaloids of opium, is purely central. An opium suppository relieves the pain of a pelvic inflammation in the same way that a hypodermic injection of morphin does, by being carried to the brain and benumbing the perceptive centers.

CONCLUSIONS

I have considered in some detail the fallacies of a few common practices not because they are the only, or even the worst, examples of the lack of judicial spirit in therapeutics, but merely to illustrate by concrete illustrations how inadequate is the data to justify the use of some popular drugs. It would only weary the reader and serve no useful purpose to trace the history of such remedies as chimaphila, cypripedium, taraxacum, eupatorium, scutellaria, xanthoxylum, wild cherry, cactus, and a host of other contributions of the Thompsonians and the American Indians to our materia medica. I should like to emphasize, in closing, the explanation of the origin and survival of these practices. Man, despite his education, is still a superstitious animal. Two or three years ago a well known psychologist made a poll of the faculty of Harvard University and found that a majority of these men, representing the highest type of intellectual development, were willing to confess to a more or less profound belief in some pet superstition as foolish as the old notion of a black cat or a broken mirror as the harbinger of misfortune. If a patient with pneumonia recovers when we sprinkle the bed with sawdust why not sprinkle the beds of all pneumonia patients? When we combine apiol with ergot and the menorrhagia ceases shall we not attribute mystical synergistic powers to the apiol?

Herein lies one reason for the survival of many of these therapeutic superstitions, namely the simultaneous exhibition of inert and potent drugs and then assuming that the diluent has played some part in the effects. The so-called Towns treatment for the morphin habit includes a mixture of hyoscyamus, belladonna and xanthoxylum; but dare anyone with any knowledge of pharmacology attribute any part in the results of this concoction to the fluidextract of prickly ash? A host of these vegetable "simples" owe their reputation to the fact that they are almost universally exhibited with some real remedy.

Another group of drugs owes its vogue to the exploitation by manufacturers of proprietary preparations. When day after day, from glowing blotters on our desk, from pages in our medical journals, in blackest type, glares out boldly the statement that so-and-so's extract of viburnum cures amenorrhea or that somebody's else elixir of euphorbia cures bronchitis, it is a man of more than ordinary intellectual firmness who will not come to believe it. Few men realize how potent is suggestion, or how many of their beliefs are based on the dogmatic assertions of others, rather than on reason.

It is well that all physicians should from time to time analyze the reasons for the therapeutic faith that is within them. Especially searching should be the self-examination of those who are looked up to by their confrères or pupils as authorities, and unflinching should be their determination to recommend no measure of whose utility they cannot give material evidence, either scientific or empiric.

1905 Chestnut Street.

19. Wiki: Arch. internat. d pharmacod., 1911, xxi, 415.

MEDICAL EDUCATION WITH REFERENCE TO RURAL COMMUNITIES

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Medical education and premedical education have for some time been matters of interest and study to physicians and educators, and lately have been brought to the attention of our legislatures through the appeals of medical colleges for funds necessary now to conduct modern schools, the time being long past when the fees of the students were sufficient to pay the necessary expenses. To many of us it appears that the time is rapidly drawing nigh when these questions will become of vital interest to the rural citizen through the failure of the schools to supply the necessary number of doctors to satisfy the wants of rural communities.

I, myself, though under 40 years of age, have seen during my adult life practically the whole history of the advancement of medical standards in this country. Twenty years ago when I was a student at the University of Virginia (which is a Class A school) there were no entrance examinations, nor were preliminary educational requirements demanded of those who desired to enter on the study of medicine, and after two years' residence in the medical school, and the doing of satisfactory work, a man was given the degree of M.D.

No sane physician denies that there was the greatest need of regulating the right to practice medicine, and to raise the standards of educational qualifications of those who desired this right. The only criticism

that has been heard to come from those who had a right to express their opinion is that perhaps there has been too great rapidity in raising the standard, and that the time has come when the raising of the standard shall be done less abruptly and with more thought for all who may be concerned.

There is no question that today the American people are receiving vastly better medical attention than they did ten years ago, but already the cry for a doctor is coming from rural communities, and they are asking for a good doctor if possible, but in any case "a doctor."

The report of the Carnegie Foundation on medical education in the United States and Canada is certainly praiseworthy, and did an immense amount of good in weeding out "diploma-mills" and purely commercial medical schools. Unfortunately, in such an exhaustive study of medical conditions there appears too frequently the spirit of the advocate rather than that of the judge, and this is noteworthy in comparing the conditions underlying the practice of medicine in this country and in Europe. In such a comparison there are certain important factors which have been entirely overlooked. While the ratio of physicians to population has been considered, little or nothing was said as to the relative morbidity in Europe and in the United States, and that there is a great difference is at once noted by the statistician when the mortality rates of Germany, France, Austria and England are compared with those of the registration area of the United States. For example, the typhoid rate in the United States is over 2 per 10,000 living, while in England it is only 0.5 per 10,000 living. After studying medicine in Baltimore hospitals for five years, where I saw the wards filled with typhoid patients, I can well remember my surprise in not seeing a single typhoid patient in the Strassburg hospital during what we, in this country, commonly call the "typhoid season." Another important point which has a bearing on the ratio of physicians to population is the per capita wealth of the community, which is much greater in the United States than in Europe. The two factors mentioned above are important ones, and must be considered with many others, such as sickness insurance, when one estimates the number of physicians required by a given number of people.

My personal opinion with reference to medical education has been that there is need in this country of two classes of medical schools, the one, modeled after the Johns Hopkins, in which the requirements can hardly be set too high, the other and larger class for the training of the practitioners of medicine. The first type of school should have an absolutely self-limited number of students, and they should be thoroughly trained not only in clinical and laboratory medicine, but also in the methods of research. Naturally, the men who graduated from such a school would become teachers, research workers and specialists, and practitioners and consultants in the larger towns and cities. I have always felt that after a man has spent four years at college and four years additional at a good medical school he would be unwilling to settle at the "cross roads," but would rather starve in a larger community where his mental appetite, if not his physical, would at least be satisfied. To require the foregoing of all men who desire to practice medicine would undoubtedly raise the standard of the profession, but I fear that in the "long run" it would prove no more satisfactory than to require that all locomotive engineers should be graduates in mechanical engineering from an approved college.

The second type of school, in my opinion, should demand for admission that the applicant be really grounded in the essentials of a good education, namely, the requirements demanded for admission to most colleges in English and its branches, history, mathematics and, in addition, the fundamental scientific branches underlying medicine, such as chemistry, physics and biology. I myself cannot even see the absolute need of an ancient or a modern language, as even we who have "qualified" once on a time in a modern language have so forgotten it that we rarely make use of it as a help in our professional work. Every doctor who looks at this question from an absolutely common sense standpoint realizes that the knowledge of a modern language is a help but never an essential.

The second type of school should give a full four year course, and the work should have little of the elective in it. The clinical and laboratory courses in such a school should be of the very best, but the time devoted to research by the student should be limited to a minimum. Any one who has to take part in the arranging of the schedules of work to be done by medical students knows what a problem it is, and knows that the problem consists, not in finding subjects to teach, but in finding the time in four years to give the student even a satisfactory foundation.

At present the Johns Hopkins and certain other schools are examples of the class first mentioned, and these, of course, are, and will be, uninfluenced by the requirements of any governing body; but the second group would be the ones affected by rules regulating premedical education.

On page 45 of the Carnegie report it is noted as a fact that graduates of the Johns Hopkins have settled in small communities. I have made a study of the physicians practicing medicine in rural Maryland,

TABLE 1.—PHYSICIANS PRACTICING IN RURAL MARYLAND (1914)

Counties of Maryland	Graduates of				
	University of Maryland School of Medicine	College of Physicians and Surgeons	Baltimore Medical College	Johns Hopkins Medical School	All Other Medical Colleges in United States
Allegany	10	5	1	0	13
Anne Arundel	23	4	2	1	13
Baltimore	63	13	10	0	18
Calvert	4	5	1	0	1
Caroline	12	5	1	0	4
Cecil	11	3	3	0	14
Carroll	32	4	3	1	12
Charles	8	2	2	0	1
Dorchester	12	4	5	0	7
Frederick	32	2	6	0	13
Garrett	9	0	0	0	6
Harford	23	3	0	0	9
Howard	10	4	1	0	4
Kent	5	3	4	0	11
Montgomery	15	4	2	0	16
Prince Georges	13	9	2	0	21
Queen Annes	7	3	2	0	6
St. Marys	11	2	1	0	6
Somerset	11	1	2	1	9
Talbott	15	2	2	1	4
Washington	8	3	6	0	17
Wicomico	8	3	2	0	9
Worcester	8	4	1	0	12
Total	350	88	59	4	226

Physicians in rural Maryland, 727.
Ratio to population (709,000), 1: 975.
Graduates of what is now the University of Maryland School of Medicine and College of Physicians and Surgeons in rural Maryland, 497.
Number of doctors graduated from Johns Hopkins from 1897 to 1913, inclusive, is 965, of whom four have settled in rural Maryland.
Graduates of all other medical schools in rural Maryland, 226.

defining "rural" according to the United States census as those communities having less than 10,000 inhabitants. The basis of my figures is the directory (1914) of the American Medical Association. The results of the study are enumerated in the appended tables. I have arranged in Table 1 the number of physicians practicing in each county in Maryland (the four cities of Baltimore, Frederick, Cumberland and Hagerstown omitted), and have subdivided them according to whether they graduated from the Hopkins or from one of the other three Class A schools, the University of Maryland School of Medicine, the College of Physicians and Surgeons, and the Baltimore Medical College. It will be noted that in spite of the fact that the Johns Hopkins Medical School is situated in Maryland, there are only four of its graduates practicing in rural Maryland, while there are 350 graduates of the University of Maryland School of Medicine, eighty-eight graduates of the College of Physicians and Surgeons and fifty-nine graduates of the Baltimore Medical College who are practicing medicine in the Maryland counties.

TABLE 2.—PHYSICIANS IN RURAL MARYLAND (1914)
Graduated since 1896

Counties of Maryland	Graduates of				
	University of Maryland School of Medicine	College of Physicians and Surgeons	Baltimore Medical College	Johns Hopkins Medical School	All Other Medical Colleges in United States
Allegany	3	0	0	0	4
Anne Arundel	12	2	1	1	6
Baltimore	23	4	7	0	11
Calvert	2	1	1	0	1
Caroline	7	1	0	0	1
Cecil	7	1	1	0	3
Carroll	11	0	1	1	5
Charles	4	0	1	0	1
Dorchester	8	2	1	0	4
Frederick	13	0	5	0	5
Garrett	5	0	0	0	5
Harford	0	1	0	0	4
Howard	4	2	1	0	0
Kent	0	2	2	0	3
Montgomery	4	1	0	0	8
Prince Georges	5	1	0	0	9
Queen Annes	4	1	2	0	0
St. Marys	1	0	1	0	3
Somerset	5	0	1	1	4
Talbott	5	1	1	1	2
Washington	0	1	3	0	4
Wicomico	4	0	2	0	8
Worcester	4	3	0	0	6
Total	140	24	31	4	97

Hopkins graduates (1897-1913)	965;	in rural Maryland		4
U. of M. graduates (1897-1913)	1,225;	in rural Maryland		140
P. & S. graduates (1897-1913)	1,029;	in rural Maryland		24
B. M. C. graduates (1897-1913)	1,330;	in rural Maryland		31

	1905	1915
Graduates: U. of M., P. & S., B. M. C. (combined)	249	128
Freshmen: U. of M., P. & S., B. M. C. (combined)	263	44

Table 2 is perhaps more illuminating, as it shows those graduating from these four schools since 1897, the year in which the Johns Hopkins graduated its first class. As will be noted, in the sixteen years from 1897 to 1913, inclusive, the Johns Hopkins Medical School graduated 965 men, of whom only four are practicing medicine in rural Maryland. During exactly the same period the University of Maryland School of Medicine graduated 1,225, 140 of whom are practicing medicine in Maryland outside of the cities.

I believe that these figures justify my belief that the graduates of a school like the Johns Hopkins will only exceptionally settle in the country, and that if we want physicians who will practice in the country, we must make the premedical requirements less exacting *in time*, although perhaps they may be raised somewhat along certain lines above today's standard, and any increases in the requirements must be made slowly and gradually and only after most careful study of all possible consequences.

It may be noted that in the Carnegie report, in 1909 there were seven medical schools in Baltimore, one Class A plus school, the Johns Hopkins Medical School; three Class A schools, the University of Maryland School of Medicine, the College of Physicians and Surgeons and the Baltimore Medical College. The other three schools were not in Class A, and ceased to exist some years ago. Today there are only two medical schools in Baltimore, the Johns Hopkins Medical School, and the other three Class A schools merged into one under the name of the "University of Maryland School of Medicine and College of Physicians and Surgeons." The decrease in medical graduates in this state is well shown by the fact that the merged schools mentioned above graduated 249 in 1905, while in 1915 they graduated 128. A more accurate prophecy can be made by comparing the freshmen classes of these combined schools, there having been 263 freshmen in 1905 and only forty-four in 1915.

A growing country cannot be supplied by a diminishing output of medical practitioners. We are facing a real and dangerous shortage. This will become manifest when the present small classes are graduated, and the need will be emphasized by the large number of physicians required for an enlarged army and navy, and the putting into force of the whole-time county health officer advocated today by many authorities on public health.

I do not present this paper as an argument for lowering standards, but simply as a study of local conditions, with the hope that progress in regulating medical training will be done thoughtfully. As President Pritchett of the Carnegie Foundation says, "Furthermore, let us not forget in our zeal for research that the principal function of the medical school is the training of medical practitioners."

4 East Preston Street.

SOME FURTHER DEVELOPMENTS IN A PEDIATRIC DEPARTMENT OF A UNIVERSITY MEDICAL SCHOOL*

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The history of the growth of pediatrics in this country is an interesting one, starting as the subject did as a subdivision in medicine, and developing gradually until in many medical centers it is now accredited as a separate department, and offers in many schools positions for full time teachers of pediatrics parallel with positions in medicine and surgery. Its growth from a purely academic standpoint is of considerable interest and importance. At first the field of pediatrics was limited mainly to that of infant feeding, and growth along this line has probably been greater and more efficient than in any of the other subjects in pediatrics. In almost every university medical school the subject of infant feeding has been developed

* Revision of papers read before the Section on Preventive Medicine and Public Health, at the Seventh Pan-American Medical Congress, June 19, 1915, and before the American School Hygiene Association, June 25, 1915, San Francisco.

soundly and broadly, not only in the laboratory, in the hospital and the outpatient department, but also in connection with milk stations and follow-up work. This growth has been rapid and gratifying to all those who have had an opportunity to follow the development in its entirety, and such a growth should set the standard for the development of the other legitimate fields in pediatrics, for it is only by the unification of laboratory, hospital and social factors that any of the problems of child welfare can be worked out satisfactorily. The medical schools, even in this field, have differed in the emphasis put on these three lines of development. In some schools the purely teaching phase has predominated, while others have dwelt largely on research work in infant metabolism, and again, the social work has lagged far behind. But from the field of pediatrics as a whole, certain high standards have emerged along all lines, and not the least of these is the child welfare social work as it is being carried on by the New York Milk Committee and by the pediatric departments of Harvard and Western Reserve universities.

The emphasis on infant feeding and the splendid development of the early problems of nutrition have led, at length, to a study of the periods of early and late childhood, and to the importance of dietetics in the prevention and treatment of disease during those periods of child life. It is just here that the pediatric department needs a close relation with the department of nutrition and dietetics in the university. It is a difficult matter in a large clinic to work out individual dietaries for patients, but with the assistance of trained dietitians and graduate students in dietetics, it is possible in a hospital outpatient department to obtain more rapid and satisfactory results. The pediatric department, on the other hand, offers to the department of nutrition a practical laboratory, so to speak, filled with concrete problems, and thereby lends an immediate focus to the class-room work in dietetics, and adds a field for practical experience.

The familiarity with development and growth and the studies in these subjects are constantly opening newer and wider fields for investigation and teaching. The realization of the relation of internal gland secretion to physical and mental development indicates that great progress in this field is to be expected. Recent studies in this field indicate many lines for research work which must be the ground work for future conclusions, and which necessarily carry a purely medical department into fields better developed at present in academic departments. The importance of an early recognition of mental defectiveness or the early origin of mental disturbances arising during the period of adolescence demand a broader and more comprehensive handling of the subject than most medical schools are today prepared to give, owing to the fact that few medical men have had a sufficiently wide training in psychology. The academic department of psychology is prepared to give most valuable assistance to the subject of pediatrics. The abnormal psychology of the child and its physical manifestations and retardations are a part of the pediatric field which needs the affiliation with the field of psychology. The outpatient department is constantly offering material for such united study.

The mentally defective child or the mentally retarded child is the reason, furthermore, for a certain line of development in medical social service which has spread rapidly throughout the country. The juvenile delinquent has brought into existence the juvenile court, and the juvenile court recognized almost immediately that any service it might render the child must be based on the medical and psychologic study of the case; and the psychologic study does not end with the mental grading of the child. To stop there forces the court to act on incomplete data. The psychologist must study the possibilities and potentialities of the child, and be able as far as it is possible to interpret futurities in mental processes.

The further development of medical social work points very clearly to a close relation between the medical field and the academic department of social economics. The whole modern trend of medicine is toward a vital part in social and economic fields, and the progress of medicine in those fields calls for a sound basis of development; this means that the workers going into this field must be thoroughly trained from the medical standpoint as well as that of social economics. Unless such work is standardized and put on a higher plane, the splendid field of medical social service may be delayed and limited in its development. To avoid this the direction of the medical social service department might come directly under the supervision and guidance of the head of the departmen of social economics in the university, and this contact would bring before the heads of such departments the larger opportunities at their disposal for the training of their students. Such a plan is in operation now with the department of social economics in the University of California, and the director of social service in the pediatric department of the medical school is not only a graduate in medicine but is also connected with the department of social economics, thus uniting the two departments and offering to the advanced students in the academic as well as the medical department an opportunity to do field work as part of their social economic training. This scheme of interrelationship ought eventually to produce workers with a good foundation not only from a medical standpoint but also from that of academic social economics.

The department of education is another natural point of contact with the pediatric department, as a large field of educational problems depends on the mental potentialities of fairly large groups of children now attending public schools, and the modern field of education has widened to include all children, normal and abnormal, and a hospital school for defectives would offer invaluable practice work for the department of education. The special pediatric clinic for speech defects among children offers still further opportunities for teachers in training in the department of education.

The department of physical culture, occupying so large a place in all university life, would gain much in wider opportunities for the student by an interrelationship with the pediatric department, and would give much to the development of that department's physical corrective field.

Thus far the pediatric department of the University of California Medical School has established a close relationship with three academic departments of the university; a trained psychologist is a member of the pediatric staff and at the same time holds a position in the department of psychology, the department of social economics, already referred to, and the department of nutrition and dietetics. The usefulness of

these departments has been mutually broadened, and the work of educating the necessary workers for these fields has been put on a stronger basis.

The development of pediatrics has brought other more obvious relationships with the large community problems. Work in the contagious diseases and many of the infections, which are more often encountered in infancy and childhood than in later years, is receiving attention from the teaching standpoint as well as from that of research, which is necessary for healthy growth in any line. This growth is not nearly so advanced as it is along the lines of infant nutrition and development. However, with such work as the Rockefeller Institute and Hospital have contributed to these subjects in the control of meningitis and the study of infantile paralysis and pneumonia, as well as the brilliant results obtained by the use of antitoxin and vaccination, growth along these lines has taken on a much broader aspect. To study these types of infectious diseases connection can be made between pediatric departments and local and state boards of health which are in constant touch with the larger community problems. It is only by a close cooperation of hospital and laboratory with medical school inspection and boards of health, both local and state, that these larger questions of control of infection are going to be satisfactorily solved. It is, therefore, fitting that a state institution should interest itself in these larger problems relating to child welfare, a responsibility and duty which is inadequately met at present. The need for and advantage of cooperation between pediatric departments and all public and quasipublic institutions dealing with the problems of infancy and childhood has already been demonstrated in many centers. There is hardly a large or well organized department of pediatrics which is not sought after for advice by children's institutions either for regular medical supervision or at least in times of sickness.

The advantage of such relations with a department of pediatrics, rather than with individual physicians, stands out clearly to all who deal with either side of this question. It gives the institution seeking aid uniform medical supervision and the advantages of laboratory and hospital equipment, which from individual physicians can be obtained only in an often unsatisfactory way or to a limited extent. Such institutions as infant shelters or homes for orphans or destitute children and children's charitable associations, by having a definite connection with a pediatric department, not only have the advantage of the usual medical inspection, but should also have the advantages of all the other lines of activity controlled by the department, such as social service, investigation of children before admission to the institution, continuous medical supervision and psychologic examinations.

A point of contact which very few pediatric departments have made, and one which is of importance, especially in a state university, is with the juvenile court, state reformatories for juvenile offenders and state homes for feebleminded children. This side of pediatric studies has been so far neglected by most American pediatricians. As for the teaching of borderline psychopathic conditions and mental defectiveness, very few of even our first class medical schools today offer any satisfactory course in these subjects, and as a result there are few investigators along this or any of these allied subjects.

The intimate connection between the problems of the defective child, the home and the school, as well as the problems of delinquency and economic efficiency, all combine to make a most attractive and important field for investigation. To carry on such work satisfactorily, a pediatric department should have a definite connection with institutions, city and state, which handle defective and delinquent children, such as the city schools for backward children, the state homes for the feebleminded and the juvenile court. The pediatric department of the University of California Medical School has established a close affiliation with the juvenile court, where all cases of dependency and delinquency receive not only a physical examination but also a mental examination on the basis of which a court report and recommendations are made. Only by such close connections can these problems be worked out satisfactorily both for the individual and for the state.

An even wider application of this work can be carried out by connection with our school boards, making composite studies of various schools where the problem of the backward child or of children who present various educational problems arise. Such a problem as that of children coming from the immigrant class is especially important not only from a psychologic standpoint but also in the working out of a better school curriculum on a broader psychologic and educational basis. Such studies are at the present time being carried on through a cooperative scheme between the board of education, the department of medical school inspection and the pediatric department of the University of California Medical School. A report of some of these studies will be made later, but their importance will be evident to any one who has a realization of this field of child welfare work.

Further points of contact between a pediatric department and the larger problems of childhood would be a more intimate connection with the recreational and vocational problems which are now being studied in all progressive communities. Unless the medical educational centers take an interest and cooperate in such fields of progressive endeavor, our development will necessarily be more or less one sided. Of course in a pediatric department, teaching students the development as well as the diseases of infancy and childhood is first and most fundamental; but no pediatric department should feel satisfied to stop in its growth by simply developing its teaching and research work. The larger community problems should be taken up as one part of our complete growth.

Therefore, it is incumbent on medical schools to offer just as wide and practical a field to their students as possible, and for the future physician, the broader the contact with concrete problems during his period of training, the sooner will he be able to make his own definite contribution to medical life as he in turn meets it in the home, school, hospital and community. For the physician today who goes out of our medical schools without realizing some of the broader applications and fields of usefulness now open to medicine is not only incompletely informed as to the modern trend of medicine, but is also handicapping the advance of medicine as one of the great educational and social factors in the development and betterment of our race and humanity.

Proof of Talent.—It is a great proof of talents to be able to recall the mind from the senses, and to separate thought from habit.—Cicero.

APPENDECTOMY UNDER LOCAL ANESTHESIA

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Although we have for years been gradually widening the field of operation under local anesthesia, the peritoneal cavity has for most surgeons been a deterrent factor. When we consider how often we operate for hernia under local anesthesia (I myself have repeatedly done intestinal resections in strangulated hernias, inguinal, femoral, and umbilical, under local anesthesia), it seems strange that we should not long ago have added appendicitis to the list of operations to be done in this manner. I think the dread of pain in handling the peritoneum and the abdominal contents has in great measure held us back.

In the past eleven months I have operated in fifteen cases of appendicitis under local anesthesia, and the results have been so satisfactory to myself, as well as to the patients, that I venture to report them, with the full expectation of calling forth numerous theoretical objections, and in the end finding many followers.

The first great objection will be the difficulty in dealing with adhesions. The adhesions we find are of two classes, fibrous and omental. The fibrous adhesions are not sensitive and can be readily divided. The omental adhesions can be readily anesthetized by injecting into them a few drops of the local anesthetic. In a few minutes the adhesions can be ligated and divided without any pain. A few of my cases have been acute, one an empyema of the appendix; the remaining cases have been subacute or chronic. The right tube and ovary can be drawn into the wound and can be resected or excised if necessary. I hope in the near future to use this method in more and more acute cases, even in the presence of a peritonitis. In fact, a peritonitis, far from being a contraindication to doing the operation under local anesthesia, will, I hope, soon be an indication for this operation. When we consider that the system is already struggling to throw off a peritoneal infection, and that the organs of excretion are doing a large part of this defensive work, the danger of handicapping these organs still further by giving an anesthetic is apparent to us all. And if we can remove the offending appendix in the presence of a peritonitis under local anesthesia, we are giving our patient a far better chance for a rapid recovery.

There is another important point. We all know how peristalsis is inhibited after abdominal operations under ether, and how serious a complication tympanites may become. In the cases in which I have operated under local anesthesia, there has been very little or no tympanites, and peristalsis has been little or not at all inhibited. In a recent case of empyema of the appendix in a young woman, gas began to be passed fifteen hours after operation, and at no time was there any abdominal discomfort; nausea, vomiting and tympanites were entirely absent. In another recent subacute case the patient was reading the newspaper on the day after operation.

Three of my cases were intelligent private patients, and the remaining cases were from the First Surgical Service of Mount Sinai Hospital. Each patient was asked if he or she was willing to have the operation done under local anesthesia. Some of the patients were neurotic women, but most of them were fairly intelligent. Of course, the cooperation of an intelligent patient is an advantage, and I would hesitate to do the operation on a young child.

I was led to do this work by the following case:

Mrs. W. M. R., a patient of Dr. Alfred Schwab, had an acute attack of appendicitis in March, 1915. She had a bad heart, with a pulse up to 120, a marked nephritis, enlargement of the liver and ascites. When I first saw this patient with her doctor I refused to operate on her. On the following day the symptoms of acute appendicitis became more severe, and I decided to try to remove the appendix under local anesthesia. The patient, a very intelligent woman, kept up a running conversation with us during the operation; and, when it was completed, she assured us that the pain had been trifling. I saw this patient recently and she was in very good condition. Had the operation been done under ether I fear we would have had a far different result.

With increasing experience I have modified the technic somewhat. In my earlier cases I used the local anesthetic only in the abdominal wall. But we found that most patients complained, either when the appendix was being drawn into the wound, or when its mesentery was being ligated.

The technic which I now employ is as follows:

Half an hour before the operation the patient receives a quarter of a grain of morphin hypodermically. I usually use a 1 per cent. solution of novocain, to an ounce of which 20 drops of 1:1,000 solution of epinephrin are added. As much as 240 minims of this solution can be safely used for an adult, which would correspond to about 2½ grains of novocain. As a matter of fact, I have never found it necessary to use anything like that amount to do a painless appendectomy.

I have for years had a personal preference for the muscle splitting McBurney incision, and use it in most of my cases, acute as well as chronic. This incision lends itself particularly well for the operation under local anesthesia. The skin near the anterior superior spine is not very sensitive; but by far the greatest advantage of an incision in this location is the fact that it comes right down on the cecum. Rarely is it necessary to pack away the small intestines (although this can readily be done without causing pain), and there is thus less handling of the intestines. I first inject the novocain solution *into* the skin along the line of proposed incision. In doing this I try to blanch the skin with the injected solution. Then I inject under the skin, along the same line.

After a wait of three minutes, the skin and subcutaneous tissues are painlessly incised down to the aponeurosis of the external oblique. A sharp scalpel is used for dividing all layers, as scissors, being blunter than a knife, are more apt to cause pain. I next inject the novocain under the external oblique aponeurosis, and after two minutes divide it. The solution is next injected into the internal oblique muscle, parallel to the fibers of the muscle.

After another wait of a few minutes the internal oblique is cut parallel to its fibers. We then inject a little novocain under the peritoneum and wait fully three minutes before dividing it. If done in this way, there will be no pain up to this point. All manipulations should be as gentle as possible, on the part both of the operator and of the assistants. It is rarely necessary to apply artery forceps in opening the abdomen through this incision, which is an additional advantage,

as the crushing of the blood vessel with forceps may cause some pain, unless the novocain is injected around the vessel. If necessary a packing can be introduced to keep the small intestines out of the way, although it is rarely necessary with this incision.

As soon as the cecum with the appendix is exposed, some novocain is injected into the mesenteriolum. If this is not done, and I omitted to do it in my earlier cases, the patient will complain of cramplike abdominal pain referred to the navel or pit of the stomach. By anesthetizing the mesenteriolum this pain is obviated. After a wait of three minutes the appendix can be pulled out of the abdomen, the mesentery ligated and divided, and the appendix removed with almost no pain. It is not necessary to inject novocain into the base of the appendix before ligating and removing it. If the mesenteriolum is properly anesthetized, there will be no pain during the removal of the appendix. It is perfectly feasible to draw the right tube and ovary into the wound and do any operation on them that may be indicated. The abdomen is closed layer by layer in the usual manner and, if the technic has been correct, the closure of the wound is entirely painless.

I have kept a record of the statements of the patients concerning the amount of pain they felt during the operation. Most hospital patients will say that they felt some pain, but much less than they expected. My three private patients have all assured me that the operation was quite painless.

The postoperative course is of much interest. A few hours after operation there is a little wound pain which is readily controlled by codein or morphin. Peristalsis is regularly established early, in from fifteen to twenty-four hours, so that the troublesome and painful postoperative distention is completely absent. I have recently had an acute case in which during the entire convalescence no rectal tube was inserted and no enema or cathartic was given. This patient had not the slightest sign of nausea, had fluids up to a few hours of the operation, and continued to take fluids after operation; yet the operation was done in the acute stage, and pus was found inside of the appendix. Almost all of the patients have been able to take and retain fluids within a few hours after the operation. The postoperative depression so common with ether is entirely absent. Most patients are reading on the day after operation, and are sitting up in bed on the third or fourth day; in short, smooth and rapid convalescence, even in the acute cases, is a most striking phenomenon. The patients are usually able to get out of bed on the fourth or fifth day, and are ready to leave the hospital between the seventh and ninth days. Performed properly, the operation consumes more time than when done under ether; but when one is working under local anesthesia, time is not an important element.

In the ordinary uncomplicated case of appendicitis, the operation can be performed under ether in from ten to twelve minutes. Under local anesthesia it takes from twenty to thirty minutes. Much of this time is consumed in waiting for the anesthetic to act on each layer, skin, aponeurosis of external oblique, internal oblique muscle, transversalis fascia and peritoneum, and mesenteriolum. In all, from twelve to fifteen minutes are consumed in waiting. Furthermore, all manipulations must be of the gentlest, and only a sharp scalpel should be used in dividing the various layers of the abdominal wall.

I have described the operation as done through an intermuscular incision, but the operation can also be done under local anesthesia through any of the other incisions for removing the appendix. For the reasons stated above, I believe the incision I have used to be the most desirable.

NOTE.—Since writing the foregoing, I have operated in three additional cases of appendicitis under local anesthesia. With increasing experience, I feel more and more confident that its sphere of usefulness will be greatly extended. The presence of adhesions, or of a diseased tube and ovary, is no contraindication. I would not advise the procedure in young children or in the presence of a large mass.

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THE ETIOLOGY OF STUTTERING

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The sufferers from this affliction have looked to the medical profession for relief since the existence of that profession, and have looked in vain. While medicine has made almost unexampled progress in the understanding and treatment of known diseases, and has added to the list of those that were formerly unknown, regarding this old, old malady, whose record dates back at least to the Egyptian hieroglyphics, there is in the medical world of today little more than a confusion of personal opinions and theories. The amount of scientific experimentation on which these theories are based is wholly inadequate. There are physicians in plenty who still make a practice of dosing stutterers with nerve medicine. I have never known whether they were following from habit the humanitarian impulse to give relief by the methods to whose use they have become trained, or whether they really expected the remedies to effect a cure. If the latter alternative is the true one, then the physician is surely relying more heavily on what he thinks the medicine ought to do than on actual experiences with what it has done, for after a number of years of study of this question I have so far failed to find the record of a single patient cured by such treatment. Is there any other instance in the history of therapeutics in which the physician has been so slow to discontinue the use of an unsuccessful remedy? Is this instance due to the persistence of the metaphysical dogma of organic causes for all diseases?

When the physician does not feel himself justified in the administration of drugs he is frequently disposed, if the patient is a child, to say to the parents that he will "grow out" of the defect. This is sometimes a mere evasion. At other times it is another example of a belief unwarranted by actual facts. I think one can safely say that there is no such thing as "growing out" of stuttering. The child may in after years get the mastery of his speech, but his recovery is not a mere incident of growth; it is the result rather of long and painful efforts at self-education. Many, alas, are never successful in this struggle. Some find the affliction increasing in severity as age advances.

This subject is of sufficient importance to deserve better treatment. It is with the view of helping toward a clearer understanding of it that I have asked to be heard.

One of the difficulties in the way of clear thinking on this subject seems to be a matter of nosology.

For the sake of simplicity it has seemed to me to be desirable to classify the forms of speech defects which arise from *organic* lesions and anomalies in the cortical centers of control under the term "aphasia." Under another heading (I prefer the term "stammering," since it conforms to the most extensive usage, especially in the German literature, and also since it supplies a name for an otherwise undesignated group) should be classed those abnormalities of *pronunciation* which arise (1) from lack of development, as for example in the baby talk of childhood, and (2) from malformations and traumatic interferences with the organs of articulation. Under the third heading should be classed another, a wholly different, type of defect which, I think, for reasons similar to those that are applied to the term "stammering," should be called "stuttering."

This group has the advantage of being based on the one principle of causation, and hence makes for clearness and simplicity. Under each heading there can be as many names or varieties as the conditions warrant. This classification will help us to avoid such confusions as those which arise, for instance, from Scripture's[1] use of the term "lisping" as coordinate with stuttering, whereas lisping should be classed as a variety of stammering. The same confusion, only worse confounded, exists in the attempts at classifying the varieties of stuttering, in certain cases, for example, on the basis of the letters in the alphabet which give difficulty to the speaker.

The etiology, general character and modes of handling aphasia are matters of common knowledge. Stammering as herein conceived is a comparatively simple matter and admits of easy handling, and, generally speaking, is not serious. In this connection, therefore, they will be omitted.

It is to the condition designated as "stuttering" that I desire to call attention in the present connection. Stuttering is to be differentiated from the two foregoing types of speech defects, (1) on the ground of its intermittent character, (2) by reason of the fact that it is not associated with organic lesions, and (3) by reason of the fact that it is conditioned on certain states of mind in the form of emotions, feelings, attitudes or ideas. The symptoms of stuttering are many and varied. They may be divided into three general headings: (1) physiologic, (2) psychophysical, and (3) mental.

Under the physiologic heading we find in the first place disturbances of breathing. The stutterer withholds inhalation beyond the point of the inception of speech. He often attempts to speak with empty lungs. Often when he tries to inhale before speaking he will exhale while struggling with an initial consonant before producing vocal sound. In other instances the natural rhythm of breathing is disrupted so that the pneumograms present irregular, jagged forms instead of regular waves. Breathing in these instances becomes spasmodic, and speech is in jerky blurts. I have found that in normal speech the approximate temporal relation between inhalation and exhalation is expressed by the ratio 217 : 1,000, whereas with the stutterer the ratio is 535 : 1,000. There are also changes in the relationship between the thoracic and the abdominal curves which are extreme. Ten Cate[2] seems to have found that whereas the rest breathing curves of the stutterer are like those of the normal person, the speech breathing curves are markedly different and are characterized by the fact that the thoracic and abdominal breathing curves are synchronous as contrasted with the anachronous curves of the normal speaker. In my own studies I have found nothing to confirm this opinion. In a few instances I found, as others (Gutzmann, for example) have found, an opposition of phase between costal and abdominal breathing, or the see-saw respiration, a condition which, Janet[3] finds, exists in certain forms of hysteria. No one condition, however, was found to be common to all or even to a large number of cases, and no single condition was found to be permanent in any one case. There is, therefore, nothing more than a general condition of asynergy in this process of the speech function. This asynergy naturally results in the loss of efficiency in vocalization. The subjects studied by me utilized 36.5 per cent. of the expiration interval in vocalization, whereas normal speaking shows a utilization of 95.5 per cent.

The second group of symptoms I have chosen to designate as psychophysical, by which is meant certain physiologic changes which are associated with, or conditioned on, alterations in mental states, changes which have to do with processes not directly related with the function of speech. These changes are also of three classes, namely, pulse rate, volumetric changes of the blood, and galvanic changes. The pulse rate is found to be markedly increased in the period of time during which the stutterer is anticipating the necessity of speaking, also during the act of speaking, and finally, if the speaking interval is short, for several seconds afterward. The average pulse rate for the first period in my investigations was 90.2; for the second period, 99.8, and for the third period, 98.6. The range of extreme variation of the first period was from 72 to 120, for the second period from 78 to 126, and for the third period from 72 to 129.

The plethysmograms show the familiar "attention drop," indicating an initial flow of the blood from the periphery at the point of inception of speech. Succeeding the initial point there is found in the majority of cases a rise in the curves indicating a reaction. In certain instances this rise was very pronounced, amounting in cases to as much as 5 cm. in thirty seconds. Very similar to the volumetric disturbances are the galvanic changes which have been indicated by a somewhat preliminary investigation of this subject. In this, as in all of the physiologic manifestations, there is found a rough correlation between the severity of the stuttering and the variations from the normal in the registrations of the functions.

It may be said, therefore, that the physiologic and the psychophysical symptoms lack the definiteness of correlation which would be necessary to give them pathognomonic value. Gutzmann of Berlin, who has done a great amount of work on the physiologic side of the matter, says that the symptomatology of stuttering is practically infinite. In spite of this, the treatment used by him is entirely physiologic. He therefore convicts himself of doctoring symptoms. The physiologic abnormalities may all be best described by such general terms as "incoordinations," "disturbances," "asynergies" and the like.

Let me here point out very briefly without critically examining, the main varieties of mental phenomena

1. Scripture, E. W.: Stuttering and Lisping.
2. Ten Cate, M. J.: Ueber die Untersuchung der Athmungsbewegung bei Sprachfehlern, Monatschr. f. Sprachheilkunde, 1902, xii, 247, 321.
3. Janet, Pierre M. F.: The Major Symptoms of Hysteria, p. 254.

that have been found to be connected, causally, it would seem, with the rise of stuttering.

First among the mental causes should be mentioned the emotions. Assuming the causal value of these mental states, all of the foregoing physiologic disturbances may be pointed to as evidences or expressions of them. To those who would demur to the psychologic interactionism implied in the foregoing suggestion, it is possible to offer many introspective evidences of emotions couched in terms used many times by the subjects themselves, such as "fear," "anxiety," "uneasiness," "distrust" of themselves, "lack of confidence," "dread" and the like.

Besides the more profound states of mind, there are many subtle feelings which we may designate as "attitudes," the presence of which will often determine the stutterer's ability to speak. Attitude toward others is markedly effective in giving rise to the abnormality. Stutterers are often able to speak perfectly to themselves when alone, to lower animals, to children and to the socially inferior, but are unable to speak normally to persons in authority over them or in any other way superior to themselves. (Would anatomic, organic or physiologic causes thus behave?)

Abnormalities of mental imagery have in recent years been cited as constituting the real seat of the difficulty. Bluemel[3] holds that stuttering is due to "transitory auditory amnesia." Swift[4] thinks that stuttering is "an absent or weak visualization at the time of speech."

Attention is one of the most positive influences in stuttering. Contrary to what is found in the case of nervous tics, attention concentrated on speaking exaggerates the abnormalities of movement, whereas distraction will serve to allay the difficulty. Most of the ancient remedies for stuttering have owed their efficiency to their capacity for distracting attention. This is doubtless true of the famous Dieffenbach[5] method of cutting a plug out of the back of the tongue.

Again, if the stutterer feels a sense of responsibility for speaking, or if he realizes the necessity under any situation to speak, especially if he sees that embarrassment will follow if he does not speak, he will become powerless to assume voluntary control of his speech organs.

Coupled with all of the more prominent and specifically definable states of mind, there are many variations of remote subconscious associations and organizations of memory complexes that constitute the psychic background of stuttering. Quite a number of the modern psychanalysts are of the opinion that emotional complexes due to the repression of sexual experiences in childhood produce psychic traumas which affect the function of speech so as to produce the abnormal inhibitions by which stuttering is characterized. This obviously makes it analogous to hysteria, if not identical with it.

Dr. Swift[4] reaches the conclusion that stuttering is to be referred to an abnormality vaguely localized in the "region of the personality." The specific nature of the abnormality, as he conceives it, I have referred to above. Dr. Elmer L. Kenyon[6] reached somewhat the same conclusion some years ago.

It has long been noted that one of the most important factors in the cause of stuttering, in children particularly, is imitation. So important, indeed, is this factor that I have concluded that it would be possible to assign this as the cause of most cases.

A good many recent writers on the subject have called attention to the fact that the diagnosis of this condition has passed through several distinct phases. The first stage considered that the seat of the malady was in the peripheral organs, the tongue being the chief offender. Gradually the seat of the difficulty has been shifted from the peripheral to the central region. The theories as to just what the nature of this mental involvement is are quite numerous, as can be seen by reference to the ideas cited above. There are theoretical and factual objections to many of the psychologic diagnoses that have been offered. But this is not the place to discuss the value of the individual theories. It is rather the purpose to point to the fact that the almost unanimous verdict, even of medical opinion, traces the defect to causes that lie essentially in the mental realm. In spite of this fact, however, physicians all over the country seem inclined to assume the responsibility for its treatment. Dr. Kenyon,[6] although he says the public schools of the country should take care of the training of these defectives, yet asserts that "the future of the stammerer rests very largely on the interest or apathy of the medical profession in his problem." Dr. G. Hudson Makuen[7] says, "The stammerer must be taught to speak in somewhat the same way as a person is taught to play on the violin or the piano."

There is no essential structural or organic condition demanding medical attention in the case of the stutterer, any more, at any rate, than there is in the case of the musician. There seems to be no valid reason, therefore, why one should be turned over to the physician and the other to the educator. Two conclusions seem inevitable, first, that stuttering is a mental defect and, second, that the treatment of it should be primarily educational rather than medical. Both the physician and the psychologist of the present day are having more problems thrust on them than they can solve, and neither is anxious to assume new burdens. Yet, in the interest of suffering humanity it seems to me to be time for the two sciences to come to an understanding regarding the matter. Laying aside the matter of scientific and professional jurisdiction, it should be emphasized that this problem is too big to be handled by the side-line practice of the physician. In this country we not only have no public conscience, but we have not even an intelligent professional opinion on the subject. Woe betide the man who sells us impure drugs or foods, but in this realm of human needs unmolested frauds are preying on afflicted humanity. As compared with what the European countries have done in the case, we in America are merely trifling with it. In view of the gravity of the condition and in view of the numbers afflicted, such trifling is not only not creditable but also is criminal.

3. Bluemel, C. S.: Stammering and Cognate Defects of Speech, i, 187.
4. Swift, Walter B.: A Psychological Analysis of Stuttering, Jour. Abnormal Psychol., x, No. 4, p. 225.
5. Dieffenbach, J. F.: Die Heilung des Stotterns durch eine neue chirurgische Operation, Berlin, 1841, 35 pp.
6. Kenyon, Elmer L.: Pennsylvania Med. Jour., December, 1909.
7. Makuen, G. H.: Lit. Dig., March 12, 1910.

Thankfulness for Health.—Men that look no further than their outsides think health an appurtenance unto life, and quarrel with their constitutions for being sick; but I that have examined the parts of man, and know on what tender filaments that fabric hangs, do wonder that we are not always so; and considering the thousand doors that lead to death, do thank my God that we can die but once.—Browne.

CRANIOPHARYNGEAL DUCT TUMORS*

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Tumors arising from rests of embryonic tissue along the course of the craniopharyngeal duct have not received adequate or proper recognition, although they represent the most common type of heteroplastic tumor of the hypophysial region. Only three authentic cases of this type of growth in which the genesis of the tumor was recognized have been reported in this country; one is reported by Lewis,[1] and two by Cushing.[2] I report one case herewith, and have found thirty-seven undoubted cases in the literature, many of which have been reported under other titles than the foregoing.[3] With a better knowledge of this type of neoplasm, many cases should be recognized that now are diagnosticated as epithelial tumor of the infundibulum and third ventricle, papilloma of the choroid plexus, cystic endothelioma of the pia, epithelioma of the malpighian type, adenoma, adenosarcoma of the hypophysis, dermoid and cholesteatoma.

HISTORY

Erdheim[4] was the first to distinguish between tumors arising from craniopharyngeal duct inclusions and other neoplasms of the hypophysis. While working on the fat content of the hypophysis, in one of fifty normal hypophyses, he discovered a cyst 4 mm. in diameter resting on the anterior lobe in the median line in the region of the infundibulum. The cyst wall, microscopically, showed nests of stratified epithelial cells lying in an embryonic connective tissue stroma. These nests were limited externally by a single layer of cylindric cells that resembled closely the basal layer of the buccal mucosa; beneath this layer were many layers of fusiform cells that by Haidenhain's iron-hematoxylin stain were seen to have intercellular bridges; in fact, they resembled closely the prickle cells of the stratum spinosum of the buccal mucosa. Keratohyalin and cornification were absent, as were also hair follicles, sweat and sebaceous glands. Some cells were undergoing hydropic degeneration. Erdheim here remarks that no one had ever before found stratified squamous epithelium on the hypophysial gland, although careful histologic examinations had been made by Saint Remy, Schönemann, de Coulon, Benda and Thom.

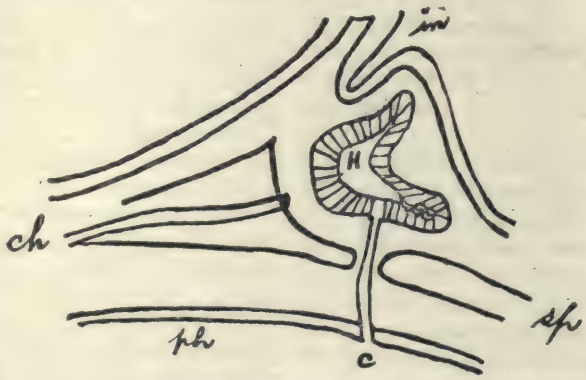


Fig. 1.—Development of the hypophysis in the embryo rabbit (after Mihalkovics): *in*, infundibulum; *H*, anterior lobe of hypophysis; *c*, craniopharyngeal canal; *sp*, sphenoid; *ph*, pharynx; *ch*, chorda.

The finding of undifferentiated buccal epithelium near the anterior lobe of the hypophysis led Erdheim to believe that they were inclusions or rests of the craniopharyngeal duct, and that they might commonly be found if careful search were made for them. Indeed, on careful examination of thirteen suitable fetuses, he discovered that ten of them, or over 80 per cent., showed remains of buccal epithelium in the infundibular region. He then looked over the tumors of the hypophysis that had been preserved in the pathologic museum of Vienna, and found seven that unmistakably were duct tumors. He also collected sixteen cases from the literature that had been reported under various other titles.

EMBRYOLOGY

Rathke in 1838 first showed that the anterior lobe of the hypophysis originated in a pouch of epithelium from the primitive foregut. The craniopharyngeal duct, about the fifth week of embryonic life, begins to traverse the sphenoidal space to reach the cranial cavity, where its extremity fuses with the posterior lobe and infundibulum, which grow down from the telencephalon to form the hypophysis. This craniopharyngeal canal usually disappears before birth; in certain instances, it may remain in the sphenoidal bone; in one instance, Suchanek found the hypophysis here, and Erdheim, in a case of acromegaly, found a normal hypophysis in the sella and a malignant adenoma in this canal.

A group of cells remains also at the inferior extremity of the canal between the mucosa of the roof of the pharynx and the bone to form the pharyngeal hypophysis.[5] Rests of buccal epithelium are also found within the persistent canal and at the cranial extremity of this canal in the region of the infundibulum and anterior lobe of hypophysis, and may later give rise to cystic or solid tumors, affording an excellent example of the Cohnheim-Ribbert theory of the origin of tumors. Analogous to the ectopic cysts arising from the hypophysial duct are those cysts which arise from the thyroglossal duct. Inclusions of mouth epithelium also occur in the jaw and give rise to polycystic adamantinomas; their histologic characteristics plainly resemble those of the hypophysis duct cysts. It may be predicted that some tumors will be found in the pharynx that have their origin in the pharyngeal hypophysis. I have found no such report in the literature to date.

PATHOLOGY

The gross characteristics of hypophysis duct tumors are typical and easily differentiated from other tumors of this region. They are always in the median line at the base of the brain, bounded anteriorly by the optic chiasmus, posteriorly by the pons, above by the floor of the third ventricle, and below by the sella. Laterally they may encroach on the cerebral peduncles and temporal lobes. The circle of Willis usually surrounds

* Owing to lack of space, this article has been abbreviated in THE JOURNAL by omission of a large table which is a compilation of all the cases in the literature. The complete article appears in the reprints, a copy of which will be sent by the author on request.

1. Lewis, Dean D.: A Contribution to the Subject of Tumors of the Hypophysis, THE JOURNAL A. M. A., Sept. 17, 1910, p. 1007.
2. Cushing, Harvey: Disorders of the Hypophysis, 1912.
3. Boyces and Beadles: Jour. f. Path. u. Bacteriol., 1893, i, report five cases of cystic tumors of the hypophysial region, some of which may have developed from inclusions of the hypophysiopharyngeal duct. They cannot be included as undoubted cases, however, as there is no record of a microscopic examination. Erdheim also mentions a case of Ilmoni's, which also must be included as a doubtful case.
4. Erdheim: Ueber Hypophysenganggeschwülste und Cholesteatom, Sitzungsber. d. k. Akad. d. Wissensch., 1904.
5. Haberfeld: Die Rachendach Hypophysis, Beiter. z. path. Anat. u. z. allg. Path., 1909, xlvi.

the tumor. The hypophysis itself may be found intact or be pressed against the floor of the sella. The infundibulum usually affords the starting point for the tumor. The first five cranial nerves may early undergo a pressure atrophy, but the olfactory nerves usually escape. The foramen of Monro may be occluded, and internal hydrocephalus may result. The optic tracts are most seriously affected, and may be spread out on the tumor like a ribbon. The sella is usually normal in size or only slightly enlarged. The tumors are usually the size of a pigeon's or hen's egg when discovered, but one case is reported the size of a human fist. The majority are cystic; when solid, they show areas of cystic degeneration. The cysts contain serous, mucoid or hemorrhagic fluid in which cholesterin crystals are sometimes seen. The inner surface of the cyst often shows papillary excrescences.

Histologically, one sees in the cyst wall an embryonic connective tissue stroma rich in nuclei and blood vessels and undergoing hydropic degeneration with the production of pseudocysts. In the stroma lie masses of epithelial cells sharply demarcated by a deeply staining layer of high cylindrical cells (basal cells) below which are many layers of ovoid or fusiform cells with lightly staining nuclei (prickle cells). By proper technic, intercellular bridges can be seen. Keratohyalin and cornification are absent, differentiating them from epidermoids and cholesteatomas. No adult hypophysis cells are present. Masses of epithelial cells are frequently encountered which have become necrotic and infiltrated with calcium salts. Hydropic degeneration is common, leading to cyst formation. In Erdheim's seven cases a malignant change to carcinoma was noticed in four, the metastases being always local. The solid tumors have a papillary arrangement of their epithelium.



Fig. 2.—Photomicrograph of a portion of wall of cyst developing from an inclusion of the craniopharyngeal duct. Note the limiting layer of high cylindric cells and the areas of cystic degeneration.

ETIOLOGY AND SYMPTOMATOLOGY

From a study of thirty-eight cases in the literature, 33 per cent. occur under 20 years of age, 42 per cent. between 20 and 40 years, and 25 per cent. over 40 years. As to sex, they are about equally divided. Of seventeen in which the symptoms were clearly stated, twelve, or over 70 per cent., were associated with adiposity and other symptoms of the Frölich syndrome, such as genital dystrophy and loss of body hair. In twenty-six cases, nineteen had symptoms of failing vision and fifteen of brain pressure, such as headaches, vomiting, dizziness, choked disk, bradycardia, epileptiform seizures and pareses. Optic atrophy was noted in seventeen cases, choked disk in two cases. The clinical course is varied; some cases reach the acute stage in three or four weeks, while others admit symptoms lasting over a period of years.

As to the cause of adiposity and genital dystrophy, Erdheim and Bartels believe that the growing tumor interferes with certain centers at the base of the brain outside the hypophysis. Lewis suggests the pars intermedia as an etiologic factor, and further states that deposition of fat may in many cases be brought on by the sedentary habits which result from loss of vision and apathy attendant on increased intracranial pressure.

Cushing[6] has indicated that hypopituitarism is the cause of dystrophia adiposogenitalis. No case reported has been associated with acromegaly.

Creutzfeldt's[7] table of fifty-five cases of tumors of the hypophysis without acromegaly which came to necropsy showed 35 per cent. which were hypophysiopharyngeal duct tumors.

DIAGNOSIS, PROGNOSIS AND TREATMENT

The sella is rarely enlarged, and roentgenoscopy will usually be negative. The early disturbance of vision and one or more symptoms of the Frölich syndrome, especially adiposity, will suggest a tumor of the hypophysial region; 70 per cent. of these are craniopharyngeal duct tumors. The finding of a cyst at operation with the microscopic demonstration of stratified epithelium of the buccal type completes the diagnosis. Epidermoids and cholesteatomas contain keratohyalin and cornification. The acromegalic shows a hyperplasia or adenoma of the anterior lobe of the hypophysis. The fetal tissues of a teratoma, the radiating mantlelike arrangement of cells of the perithelioma, and the glial and ependymal cells of the glioma and ependymal tumors should not confuse the pathologist. Tumors of the pars intermedia are rare, and resemble thyroid tissue histologically.

If drainage of the cystic type can be maintained or the accumulation of fluid prevented by other means, the patient can live for an indefinite length of time. If the cyst continues to enlarge, blindness usually results from pressure on the optic tracts or chiasm, and death follows in a few months or years from brain pressure. The outlook, on the whole, for this type of tumor, is decidedly gloomy, as it is practically impossible to separate the cyst wall from the surrounding brain structures.

6. Cushing: The Functions of the Pituitary Body, Am. Jour. Med. Sc., 1910, cxxxix, 473.

7. Creutzfeldt: Ein Beitrag zur normalen und pathologischen Anatomie der Hypophysis cerebri des Menschen, Jahrb. d. Hamburger Staats krankenanstalten, 1909, xiii, 273.

The active treatment as yet is unsatisfactory. It is surgical and consists in the puncture and drainage of the cyst by a transsphenoidal route (Kanavel). These cysts usually cease draining and produce pressure symptoms and blindness after weeks or months. It seems impossible to eradicate all of the cyst wall, although an attempt should be made to cut away as much as one can without injury to the surrounding parts. Lately, the injection of the extract of the posterior lobe of the hypophysis has been used, the idea being to absorb the contents of the cyst. Some clinicians report good results by this method, although, theoretically, it is difficult to account for such improvement.

REPORT OF CASE

R. B., man, aged 18, a patient of Dr. Kanavel, to whom I am indebted for the specimen, states that six weeks before entrance to the hospital he began to suffer with frontal headaches of a deep, throbbing character, and with failure of vision. He had no frequency of urination and was not drowsy. An examination revealed no change in the sense of smell or taste. The pupils were dilated and equal. The thyroid was not increased in size; there was no hair on the chest or in the axillae, and there was a light growth of pubic hair. There was no adiposity. The past history was uneventful except for measles and mumps when the patient was a child. Dr. Kanavel diagnosticated, clinically, a pituitary cyst, and an operation was performed by the transsphenoidal route, the nose being reflected upward. The cyst was opened, and 3 drams of a chocolate colored fluid were removed. The sella was found somewhat enlarged. After operation, the headaches were relieved and vision returned, and the patient made a good recovery. Two months later the headaches returned, and vision again failed him. Now there was dizziness and vomiting in addition to the other symptoms.

A second operation similar to the first was performed and relief again obtained. After an interval of six months, the headaches returned with still greater severity, and affected the frontal and temporal regions. The vision almost entirely failed, and an examination of the eyegrounds revealed an atrophy of the optic nerves. There was projectile vomiting.

A third operation was performed by Dr. Kanavel, and half an inch of the anterior wall of the cyst was removed, together with some blood stained fluid. The patient's symptoms were again relieved, and he subsequently received some injections of pituitary extract. The patient is still living, one and a half years after the last operation, and there has been no return of symptoms to date.

Microscopic examination of a portion of the cyst wall stained with hematoxylin and eosin reveals an embryonic connective tissue stroma in which lie masses of stratified epithelium undergoing hydropic degeneration. The masses of epithelium are bounded by a layer of high cylindric cells whose nuclei stain deeply. They resemble the basal cells of the buccal mucosa. Underneath this layer are several layers of fusiform cells whose nuclei stain less deeply. While no special stain was made at the time, these cells resemble the cells of the stratum spinosum. Keratohyalin and cornification were absent. Hypophysis cells were not seen.

The diagnosis is: a benign cystic tumor of stratified squamous epithelium originating in an inclusion of the craniopharyngeal duct.

CONCLUSIONS

1. Most cystic and solid tumors originating from the region of the infundibulum and anterior lobe of the hypophysis grow from embryonic rests of buccal ectoderm from the craniopharyngeal duct.

2. They are the most common type of intracranial tumor associated with the Frölich syndrome.

3. Eye changes occur early. Symptoms of acromegaly are absent.

Requisites for Health.—Be sober and temperate, and you will be healthy.—Benjamin Franklin.

AN EXTRAORDINARY POLYMORPHONUCLEAR LEUKOPENIA IN TYPHOID FEVER *

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AND
S. S. LEOPOLD, M.D.
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This case is reported because of the most unusual degree of polymorphonuclear leukopenia which occurred during the third week of typhoid fever.

The patient, J. S., man, aged 19, was admitted, Sept. 26, 1915, to the service of Dr. Alfred Stengel, University Hospital. He complained of weakness, headache, diarrhea, and fever of gradual onset about September 12, persisting with varying intensity up to admission. Physical examination showed an emaciated young adult male, evidently toxic and heavily infected. The pulse was dichrotic; the posterior cervical, epitrochlear and inguinal lymph nodes were slightly enlarged; the spleen was not palpable on admission, but became so three days later; the abdomen was moderately distended and exhibited a few characteristic rose-spots; the thorax was negative except for the evidences of a mild acute bronchitis. The temperature ranged in the first twenty-four hours from 103.8 to 99.4 F., the pulse from 120 to 96, and the respirations from 28 to 24. The Widal reaction taken on the day of admission (considered the seventeenth day of the disease) was strongly positive. A second Widal reaction four days later was the same. Blood culture was sterile, but a culture of the urine yielded *Bacillus typhosus*. The Wassermann reaction was negative.

TABLE 1.—BLOOD COUNT

Day of Disease	W.B.C.	Poly.		Lymph.		L. M.	T.	E.	B.
		Rel.	Abs.	Rel.	Abs.				
17	7,600	0.5	38	98	7,448	1	0.25	0	0.25
20	5,400	1.5	81	94.5	5,103	3	1	0	0
23	11,900	33	3,927	58	6,902	4	5	0	0
24	12,000	58	6,960	41	4,920	1	0	0	0
25	8,400	58	4,872	39	3,276	2	1	0	0

TABLE 2.—ARNETH COUNT

	Nuclear Divisions				
	1	2	3	4	5
J. S., twenty-fourth day	48	38	10	4	0
Normal	5	35	41	17	2

The unusual leukocytic picture observed is shown in Table 1.

There was, therefore, present on admission and for a few days thereafter, a most extraordinary reduction in the number of the polymorphonuclear neutrophils. Less striking, but still pronounced, was the increase of the lymphocytes. In character, about one half of the latter were the typical small lymphocytes, the remainder were somewhat larger with paler nuclei and were of the type described as mesolymphocytes. Eosinophils were absent as usual in typhoid fever. One week later, the absolute polymorphonuclear count had returned approximately to normal. An Arneth count on the twenty-fourth day, contrasted with the normal Arneth count, is shown in Table 2, and indicates clearly the great predominance of young forms at this period. We must conclude, therefore, that the previous reduction of the polymorphonuclears was the result of a destruction of these cells and not of their mere withdrawal from the peripheral circulation.

On the twenty-fourth day, a persistence of the lymphocytosis gave an abnormally high total leukocyte count. During the further course of the case, which was one of uncom-

* From the Medical Wards of the University Hospital.

plicated typhoid fever, the total leukocytes varied from 6,100 to 15,900; the polymorphonuclears ranged from 44 to 68 per cent., and the lymphocytes from 28 to 55 per cent. The temperature remained approximately normal after the fifty-first day.

The possibility of the condition being one of aleukemic lymphatic leukemia received due consideration. The generalized enlargement of the lymph nodes was extremely trifling, but Pappenheim has reported two cases of lymphatic leukemia without enlargement of the lymph nodes, in one of which there were found in the blood 20,000 leukocytes per cubic centimeter, of which 96 per cent. were small lymphocytes. The character of the leukocytes found, the absence of any associated changes in the erythrocytes, however, and the further course of the case made the diagnosis of leukemia untenable.

An investigation was made to discover any drug or toxic substance to which the patient might have been subjected before admission and which might have been responsible for the destruction of the polymorphonuclears, but it was fruitless. It seems proper, therefore, to regard the blood picture in this case as an extreme exaggeration of the tendency characteristic of the blood in typhoid fever, namely, a diminution in the polymorphonuclear neutrophils to a minimum about the time of defervescence, a gradual increase in the lymphocytes persisting somewhat longer than does the diminution in the polymorphonuclears, and an absence of eosinophils during the febrile period. These alterations in the blood picture in typhoid fever have been noted in the extensive studies of Türk,[1] of Naegeli[2] and of Thayer.[3] The reduction of the polymorphonuclears to such a degree as in this case, however, has not previously been reported in typhoid fever, so far as we are aware. Naegeli mentions a boy with typhoid fever with an absolute polymorphonuclear count of 900, and Thayer notes a polymorphonuclear percental count of 24.6 as the lowest observed in studying 832 cases. Of leukopenias occurring in other diseases, there are three cases in the literature of a grade comparable with ours. Vacquez and Ribierre[4] reported the case of a young man with extensive tuberculosis of the mediastinal and peribronchial lymph nodes who exhibited shortly before death a leukocyte count of 2,300, of which 8 per cent., or 184 cells, were polymorphonuclear neutrophils. Brown[5] reported the case of a young woman with staphylococcic septicemia who, six days before death, had a leukocyte count of 1,000 with only 1 per cent. of polymorphonuclears. Türk's[6] was likewise one of staphylococcic septicemia in a young woman who three days before death had a leukocyte count of 940 with no polymorphonuclear neutrophils in 532 cells examined. Two days later, the leukocytes were 1,950, of which 0.28 per cent. were polymorphonuclear leukocytes. At necropsy in this case, the bone marrow showed complete loss of the leukocytogenic series of cells, although the erythropoiesis appeared normal.

All three of these cases differ, however, from ours in that they were in an agonal state, and the reduction of the polymorphonuclears was, in the last case at least, associated with a degree of injury to the bone marrow which can scarcely have existed in our case in view of the rapid subsequent rise of the polymorphonuclear count to normal or, indeed, above normal.

We are inclined to regard the case, therefore, as merely an extreme exaggeration of the characteristic blood change in typhoid fever, the mechanism of which is still unknown.

1. Türk, W.: Klinische Untersuchungen über das Verhalten des Blutes bei acuten Infectionskrankheiten, Vienna and Leipzig, 1898.
2. Naegeli, O.: Die Leucocyten beim Typhus abdominalis, Deutsch. Arch. f. klin. Med., 1900, lxvii, 279.
3. Thayer, W.: Observations on the Blood in Typhoid Fever, Johns Hopkins Hosp. Rep., 1900, viii, 487.
4. Vacquez and Ribierre: Lymphocythémies leucémiques et aleucémiques, Bull. et mém. Soc. méd. d hôp. de Paris, 1900, Series 3, xvii, 914.
5. Brown, P. K.: Fatal Case of Acute Primary Infectious Pharyngitis with Extreme Leukopenia, Am. Med., 1902, iii, 649.
6. Türk, W.: Septische Erkrankungen bei Verkümmerung des Granulozytensystems, Wien. klin. Wchnschr., 1907, xx, 157.

NUMEROUS WAR INJURIES REQUIRING PLASTIC AND GRAFTING OPERATIONS

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NEW YORK

The following case is so interesting as to warrant reporting. How the soldier survived his injuries is a marvel to us all.

History.—G. B., aged 38, wounded Sept. 25, 1915, at Massige, received the first dressing ten hours afterward, with one antitetanic injection, and was admitted to the Hospital at Passy, September 29, under the care of Medical Chief Joseph M. Flint.

Examination.—The wounds comprised:

1. Wound at the level of the eleventh rib in the midscapular line.

2. Wound in the face (Fig. 1) involving the right half of the lower mandible, where there was a defect of at least an inch in the bone which had been blown away, the whole lower part of the cheek and right half of mouth, which involved both upper and lower lips, and tip of nose and right ala. This wound was infected with maggots, and was indescribably foul.

3. Shell wounds on the buttocks which were superficial and suppurating.

4. Shell wound just below right clavicle, with partial paralysis of right arm. Pulse was present on that side.

5. Wound of right great toe.

6. Simple Pott's fracture of both bones of the right leg, apparently involving the ankle joint, probably obtained by falling.

Treatment and Course.—The fractured leg was put up in a Cabot splint. October 28, a plaster cast was applied. Consolidation was progressing nicely.

The mouth wound was cleaned on the patient's reception with hot saline solution, hydrogen peroxid and solution permanganate 1:2,000. A piece of the lower jaw bone which was hanging solely by the mucous membrane was removed. Constant irrigation was used to help clean up the infection.

The remaining wounds healed kindly under antiseptic dressings.

Figure 1 represents the condition of the face on the patient's reception. The wound was insufferably foul, and there was a constant dribbling of saliva.

Figure 2 represents the condition, October 15, three weeks later. The rapidity of the reparative process was remarkable when one considers the number of other wounds the patient had.

Figure 3 represents the condition as it appeared six weeks after the injury. Up to this time the patient had been under the skilful care of Prof. J. M. Flint of New Haven, my immediate predecessor in the position of médecin chef of the hospital. November 17, I assumed charge, and this patient then came into my hands. November 29, a sequestrum was

removed from inside the mouth, which was loose. This was about one-fourth inch square.

Operation on the Face.—Dec. 10, 1915, I undertook a plastic operation on the face with the object of improving the disfigurement, and with the additional object also of loosening up the fragments of the lower jaw, so that they could be replaced in their proper relations with the upper teeth. It was seen that the larger left fragment was drawn over by the contraction of the scar tissue far to the right, and the lower teeth of that fragment were also posterior to the upper teeth, with the result that there was no occlusion whatsoever of the two sets of teeth.



Fig. 1.—Wound of the face, on admittance of patient.

After proper alinement of the lower teeth should be obtained, I purposed wiring the lower jaw fragment to the upper teeth, so that the defect should be fully maintained until the healing of the soft parts should be completed, when I purposed grafting in a piece of bone taken from the tibia to fill up the defect in the bone. This grafting could not be done, however, until all the process of necrosis of the bone should be fully completed.

By December 10, the cicatrization of the soft parts was complete, so I operated on the man under intranasal ether anesthesia. The vertical scar in the lower lip was split open, into the mouth, and the left larger fragment of the lower jaw was wedged over to the left, bringing its teeth in exact apposition with the teeth of the upper jaw. Dental wire was inserted about the bases of the four upper teeth, and these were twisted together. A similar wire was inserted about the bases of four of the lower teeth and twisted. The two wires, one from the upper and the other from the lower jaw, were then twisted together. The proper occlusion of the teeth was then perfect.

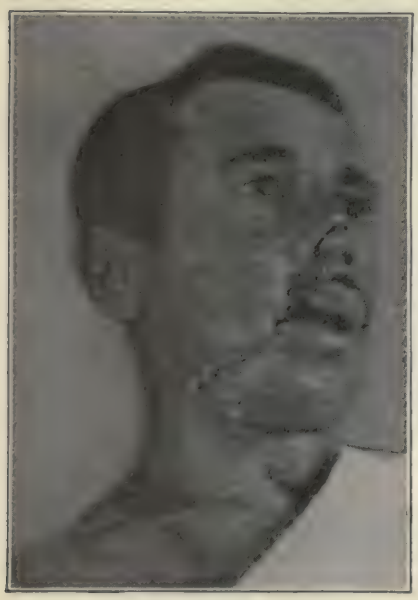


Fig. 2.—Three weeks later.

Figure 4 is a rough drawing of the plastic operation performed on the soft parts. In this operation, the objects to be accomplished were, first, to close the defect in the upper lip, second, to increase the width of the mouth, in the transverse diameter, and, third, to overcome the deforming drawing in of the edges and bottom of the scar in the lower lip and chin. The first procedure was to split the entire scar from nose to chin and to free its edges. There was seen to be too much tension to bring the edges together without tension, so a rectangular flap, *B*, was carried out in the cheek for 2 inches, consisting of skin and subcutaneous fat, but not going through the mucous membrane of the mouth. The internal edge of *B* was sutured to *D* by interrupted sutures of black silk. The edges of *A* were brought forward, after dissecting them up sufficiently, and their edges were sutured to the edges of the skin of the upper and lower lips for an extent of half an inch. This is clearly seen in Figure 5. By this means the mouth was transversely increased by half an inch. The scar on the chin was excised and the depression removed, which was then followed by accurate suturing of the edges by interrupted black silk.

The nose was a difficult proposition. The scar was split and the projection (Fig. 2) of the cartilage above the scar was removed by cutting it away as much as possible. This was followed by suturing the edges of the scar. Doubtless later on it may be advisable to insert a piece of a rib with its periosteum into the tip of the nose upward through the scar, so as to elevate the lowermost portion of the nose, which is somewhat depressed. This, however, will be purely for cosmetic purposes. At present the patient is so well satisfied with his appearance that he refuses to consider any further grafting operation designed to improve the appearance of his nose.

The results of this operation, which were most gratifying, are seen in Figure 5. Union was by first intention throughout. The wires maintained the teeth in perfect apposition and occlusion.

December 20, because of loosening of the wires about the teeth, these were replaced. Several small pieces of bone came away through the mouth subsequently. Jan. 19, 1916, it was deemed a suitable time to perform the grafting, since the wound in the mouth had healed perfectly and there was no dead bone to be detected anywhere. Intranasal ether anesthesia was administered. A transverse incision was carried along the lower border of the lower jaw across the defect in the bone. Great care was exercised in avoiding opening into the mouth at any stage of the operation. The ends of the fragments were first exposed and laid bare, and with the periosteal elevator, half an inch of their vertical diameters was also laid bare. The furrow between these fragments was then carried cautiously deeper until depth enough was obtained to inlay the graft. The upper right tibia was cleaned with iodin, and the upper internal surface was exposed. The graft to be obtained was then accurately measured on the posterior aspect of this surface, as one should avoid taking the tibial crest for a graft, since the crest is the strongest portion of the tibia, and the removal of a portion of this may so weaken the bone that a fracture will subsequently occur, as happened in two of my previous cases. Since then I have

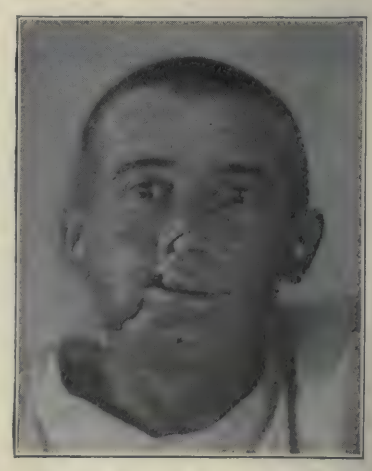


Fig. 3.—Six weeks after admittance of patient.

always avoided taking a graft from the tibial crest in consequence.

Since I had at my disposal no motor saw, the graft had to be removed with a chisel, which ordinarily acts well enough; but in this case it resulted in fracturing the graft longitudinally into two pieces. The medullary cavity was opened in taking the graft. The ends of the two fragments were notched with the chisel to receive the graft, and two holes were drilled in each fragment, and two in the graft ends. Unfortunately, at one stage, the drill accidentally escaped from the bone and went much deeper into the soft parts than was intended, although it was not appreciated at the time that the mouth had been penetrated. Had this been positively ascertained, I should not have inserted the graft at this time, since infection from the mouth is almost certain to result in the death of the graft. This I have learned in two of the five graftings that I have done for defects of the lower jaw, in which infection from the mouth occurred with the resultant deaths of the grafts.

In taking the grafts it is well to go into the medullary cavity, since in this way endosteum is retained on the graft. The periosteum had previously been marked out larger than the graft itself and the whole transverse extent of the periosteum was removed from the internal tibial surface, to the posterior part of which was attached the bone graft itself. In this way there are two bone producing structures left attached to the graft, namely, the periosteum and the endosteum, the former of which is well known to be the more important osteogenetic structure.

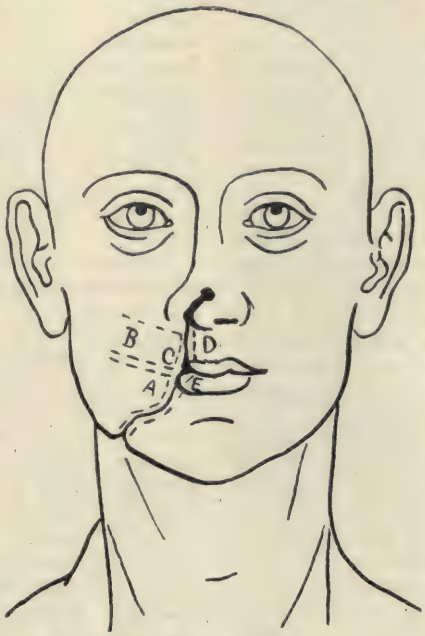


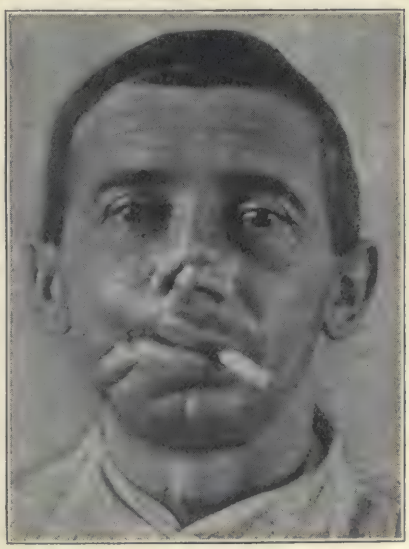
Fig. 4.—Diagram of plastic operation.

The graft was fastened in place by chromic sutures through the drill holes, the periosteal surface being external. Lane's technic was carried out carefully throughout, and neither the graft itself nor any part of any instrument coming in contact with the tissues was ever touched by the gloved hand. This I consider very important in avoiding infection. The graft measured 1½ inches long and ½ inch wide and ¼ inch thick.

At this date, one week after the operation, the wound has a foul, mouth discharge so that I now think that the drill entered the mouth when it slipped, thus infecting the graft.

I presume that the graft will die and will have to be removed. This, however, will not militate against the final result, for another graft when the wound has finally perfectly healed will be inserted, and if the mouth has not been entered, will eventuate in a perfect union of the graft with the ends of the fragments. In the meantime the defect will be maintained by frequent wiring of the teeth in their proper occlusion. One should not be discouraged at such a result, for the vicinity of the mouth is a difficult place to insert a graft, because of its liability to infection. One can insert a graft as many times as one has patience to do it until a successful result is obtained.

The length of time which I have thought best to maintain immobilization of the lower jaw to the upper, whether held by wires as in this case, or by splints, as I have done in several of my previous cases, has usually been from three to four months. At the American Ambulance Hospital in Paris where a number of these grafting cases has been done, I was told that six weeks was the usual time for which they maintained this immobilization. In several cases, however, they have had to resort to additional times of immobilization. Certainly a graft is slow in developing, and perfect immobilization is essential to the success of a graft for a longer time than is necessary in a simple fracture.


Fig. 5.—Result of operation.

An interesting feature of this patient's four wounds, of the nose, cheek, upper front chest and posterior lower chest, is that on roentgenoscopic examination it was found that no bullet or piece of shell remained in the tissues. Since these four wounds are all on an exact line, it was surmised that the same bullet or piece of shell was the author of all these four wounds.

The course of the bullet was: from the nose to the cheek and lower jaw, where it had its exit; then it entered again just below the clavicle, and penetrated through the axilla, where it injured the brachial plexus, finally making its exit beneath the middle of the scapula behind; or its course may have been in the opposite direction from a ricocheted bullet.

The injury to the brachial plexus was apparently not a total division of any of its branches, for all the movements of the hand and wrist can be done, though not to the full strength. There is a slight wrist drop and ulnar deviation of the hand with loss of radial abduction, showing a paralysis of the flexor carpi radialis. Flexion and extension of the fingers is voluntarily performed, though to a weak extent. The interossei act, since the fingers can be abducted and adducted. No operation has been deemed advisable on the brachial plexus.

Château de Passy, Jan. 30, 1916.

Factors Increasing "Expectancy of Life."—It is becoming evident that the prevention of the premature death of infants and the elimination of infectious diseases is only a part of the task of community hygiene. The increase in the adult death rate from certain types of organic disease, which has occurred during the last few decades, may not be readily explained, but it is none the less a fact not to be ignored. In the United States this increase is apparently more marked than in most European countries, and has had for one of its consequences a definite increase in the death rate of those age groups of the population from 40 years upward. Causes have been at work in the last thirty years which have increased disproportionately the mortality among American citizens of middle life. To what extent this is due to later survival of the inherently weak, to intemperate strenuousness in work and play, to the relatively sudden assumption of a sedentary life by large sections of the population, to the increased consumption of alcohol, to the presence of injurious substances in prepared foods or to what combination of all these and other factors has not been determined.—Jordan.

MULTIPLE URETERS WITH HYDRONEPHROSIS *

ALEXANDER HAMILTON PEACOCK, M.D.
SEATTLE

History.—This anatomic anomaly occurred in A. S., a boy, aged 9 months. The father, aged 29, of English descent, and the mother aged 22, of Scandinavian descent, were apparently normal and enjoyed good health. The mother had one other child, a boy aged 5 years. She had one miscarriage at 7 months, and several self-induced abortions. As far as could be traced there were no anatomic anomalies in the parents or their parents' families. The birth of this child was normal; he was early put on a feeding of sweet condensed milk, because of insufficient breast feeding.

His weight advanced steadily until the sixth month, and he seemed well in every way with the possible exception that he never urinated freely. After the sixth month he began to lose weight, became fretful and his health declined gradually with a slight but steady loss in weight, dropping from 24 pounds at 6 months, to 11 pounds just before death. A pediatrist was engaged and a milk formula was prescribed; the child's intestinal tract was thoroughly looked after, and gastric lavages, colon irrigations and frequent changing of the milk formula were without avail, as the child's abdomen continued to distend, feeling hard and tender to the touch. The mother noticed that the urine was white and looked like milk, smelling offensive and staining yellow. The last few days before death the baby refused all nourishment, convulsions set in and he died in a few hours.



Fig. 1.—Gross specimen.

Necropsy.—The child was seen after all respiration had ceased; the lungs were clean, the abdomen distended and solid on percussion. A necropsy was made ten hours after death. The heart, lungs, spleen, liver and intestines were normal. The appendix was of small caliber, somewhat elongated, and lay across one of the distended right ureters. The bladder was distended, egg shaped and measured 4 by 6 cm. The retained urine was milky, with a specific gravity of 1.015, and albumin was present; the microscope revealed many pus cells, epithelium, a few colon bacilli and staphylococci. There were four ureters.

URETER MEASUREMENTS

Ureters	Length cm.	Maximum Diameter cm.	Maximum Circumference cm.
A	22	7	25
B	20	4	10
C	16	1	2
D	15	4	11

The Ureters: A was enormously distended with a pyuria; the kidney pelvis was large; the ureter was tortuous, and opened into the bladder about one-third diameter from the prostate.

Ureter B was also greatly dilated and tortuous, had its own pelvis, and drained the upper pole of the right kidney. It descended behind the bladder, was attached for almost the entire diameter of the bladder, and had a large opening in the vesicoprostatic urethra.

Ureter C was a small rudimentary tube, a little larger than the normal adult ureter. It arose in the upper pole of the left kidney, and was firmly attached, in its lower two thirds, to Ureter D. It ran into the fundus of the bladder wall a short distance to become a blind pouch.

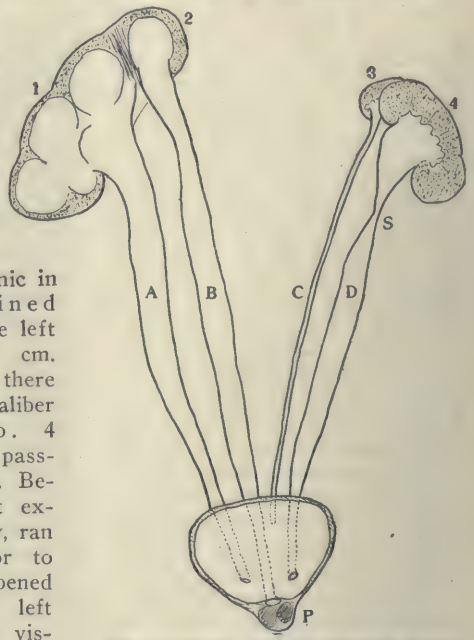


Fig. 2.—Key to drawing of gross specimen: Ureters: *A*, right major; *B*, right minor; *C*, left minor; *D*, left major. Kidneys: 1, right major; 2, right minor; 3, left minor; 4, left major. *S*, stricture; *P*, prostate.

Ureter D, colonic in appearance, drained nine tenths of the left kidney. Four cm. from the hilum, there was a small caliber stricture, a No. 4 ureteral catheter passing with difficulty. Below this point it expanded generously, ran normally posterior to the bladder, and opened into the lower left quadrant of that viscus. All of the ureter outlets were large and showed no signs of stricture or obstruction.

The kidneys also were interesting. The right one measured in length 13 cm., maximum diameter 8 cm., and maximum circumference 22 cm. It had a typical lobulated interior due to back pressure, the thin cortex showing normal kidney tissue. The upper pole was completely shut off from the main body of the organ by a dense portion, the pole having its own pelvis, calices and ureter.

The left kidney was much smaller than the right, and normal in size, its length being 6.5 cm., diameter 3.5 cm., and circumference 13 cm. The upper pole was separated by a fibrous band, and though small had its own pelvis and a few calices. The main portion of the gland was perfectly normal, both cortex and medulla; the calices and pelvis, of course, were dilated, for a hydronephrosis existed in Ureters A, B and D. No calculi were present in any portion of the urinary tract.

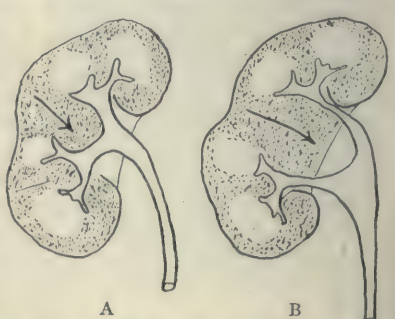


Fig. 3.—*A*, kidney showing pressure on the pelvis; *B*, kidney and divided renal pelvis, due to pressure.

The bladder was distended and its mucosa was thickened but not trabeculated. The ureter openings of A and D were of normal size; that of B was quite large. The prostate was small and fibrous. There was a stricture of the urethra 1 cm. anterior to the prostate, just admitting a No. 6 catheter.

COMMENT

As scientists we are interested in this congenital abnormality, tracing its embryologic development from the wolffian duct. The division starts as a rule in the kidney, by a deep column of cortical substance, forc-

* Reported before the King County Medical Society, Feb. 7, 1916.

ing its way down to the hilum forming two portions of the urinary gland as in Figure 3. This division may stop at the hilum or continue on down and form a branched ureter, or remain double all the way to the bladder, each having a distinct outlet and opening in the bladder. Also, most interesting are the divisions in the kidneys, suggesting four secreting organs.

As practical surgeons, we ask ourselves if the early death of this child could have been prevented by operative measures. Necropsy gave a remarkable picture of the ultimate effects on the urinary tract of obstruction and resulting back pressure. The primary obstruction appears in the posterior urethra, and in time death occurred from uremia.

964 Empire Building.

TYPHOID VACCINATION

ROUTINE IMMUNIZATION OF THIRTY-FIVE HUNDRED PATIENTS IN AN INSTITUTION *

PAUL G. WESTON, M.D.

WARREN, PA.

In 1912 I immunized 898 patients of this hospital against typhoid fever and reported the procedure.[1] Inoculation of all patients was made a matter of routine, and the number of subjects immunized since the last report was written is 2,602. In view of the paucity of similar reports in American medical literature, it seems worth while to bring the report up to date.

The principal reports of *en masse* antityphoid inoculation which I have been able to find, excluding those from the army, are summarized in Table 1.

"Time" in the table refers to the time after the last inoculation was made that the blood was taken for agglutination tests.

In this institution inoculation is voluntary for the attendants and compulsory for the patients. At first all patients over 50 years of age were excluded, as well as the patients who presented distinct contraindications. But shortly after the immunization of the first 898 patients, two cases of typhoid fever developed, one in a woman aged 65 and the other in a woman of 70. Since that time no patient has been exempted for age. A few are still omitted because of the presence of an infectious disease, nephritis, extreme enfeeblement or for other good reasons. Since immunization has been made a routine procedure, only one case of typhoid fever has developed, and that one was so mild that the diagnosis was settled only after repeated blood cultures had been made.

The vaccine used was made from the same strain of bacilli as that used by the army. The suspension of bacteria was made so that 0.5 c.c. contained either one-half billion or one billion bacilli.

Newly admitted patients are not immunized at the time of admission, but at intervals of six months all patients admitted during that time are inoculated on the same day. In an institution for the insane the procedure is rendered difficult by the resistance of some of the patients. For this reason it has been found convenient to make the inoculations at night after the patients have retired. An assistant carries two wide mouthed 30 c.c. bottles, one containing the bacterin, and the other a piece of cotton saturated with iodin. Other assistants are sent ahead rolling up sleeves. All glass syringes are used and platinum and steel needles. One needle is used for all subjects as long as it lasts, but a few extra ones are always taken along. The patient's arm is cleansed with alcohol at the insertion of the deltoid. The needle is drawn through the iodin cotton and then wiped off with cotton saturated with alcohol. By this method it is possible to inoculate all the patients of a ward in rapid succession, the time required being about thirty-three seconds per patient.

Three doses are given each patient, at intervals of ten days, the first dose containing one-half billion bacilli and the second and third doses each containing one billion.

TABLE 1.—SUMMARY OF PRINCIPAL ANTITYPHOID INOCULATION REPORTS

No.	Author	Reference	Number Inoculated	Reactions, per Cent.				Agglutination Tests								
				None	Mild	Mod.	Sev.	Number Tested	Method	Time	Dilutions and per Cent. Positive						
											1/25	1/50	1/100	1/120	1/250	1/500	1/1000
1	Davis, D. J.	THE JOURNAL, Feb. 24, 1912, p. 537	91	.....	.....	.....	.....	91	.....	Two weeks	.....	.....	.....	100	.....	.....	.....
2	Hachtel, F. W., and Stoner, H. W.	THE JOURNAL, Oct. 12, 1912, p. 1364	2,044	56.7	.....	38.4	4.8	.....	Macro.	Two weeks	.....	.....	.....	.....	.....	.....	.....
3	Spooner, L. R.	THE JOURNAL, Oct. 12, 1912, p. 1359	400	86.	.....	10.	4.	100	Micro.	Two weeks	94.2	80.6	.....	.....	.....	.....	.....
4	Weston, P. G.	THE JOURNAL, Oct. 26, 1912, p. 1536	898	98.7	0.4	0.8	0.1	898	Macro.	Ten days	.....	.....	.....	.....	100	97.7	92.25
5	Clark, O.	Iowa State Med. Jour., 1912, xix, 1	160	70.	28.	2.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
6	Brannan, J. W.	Med. Rec., New York, 1913, lxxxiii, 1	250	.....	.....	.....	Very few	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
7	Force, A. J.*	Am. Jour. Pub. Health, 1913, iii, 750	261	.....	0.7	1.2	0.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
8	Meyer, A.	Med. Rec., New York, 1913, lxxxv, 1	115	10.4	64.3	24.3	0.87	56	.....	Ten days	74.	28.7	.....	.....	.....	.....	.....
9	Pierce, S. J. S.	Canada Med. Assn. Jour., 1914, iv, 853	445	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
10	Pratt, E. C.	Illinois Med. Jour., 1914, xxvi, 571	3,150	.....	.....	.....	0.47	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
11	Wade, E. M., and McDaniel, O.	Am. Jour. Pub. Health, 1915, v, 136	.....	.....	.....	.....	.....	1,179	Micro.	One day to 4 weeks	.....	92.8	.....	.....	.....	.....	.....
12	Trowbridge, E. H.; Finkle, B. A., and Barnard, E. M.†	THE JOURNAL, Feb. 27, 1915, p. 728	1,520	.....	.....	.....	.....	1,390	.....	.....	.....	.....	.....	.....	.....	.....	.....
13	Burlingame, C. C.	Journal-Lancet, 1915, xxxv, 165	2,000	.....	.....	.....	0.	1,942	.....	.....	.....	.....	.....	.....	.....	.....	.....

* Gay-Claypole vaccine.
† 34.3 positive Widals; three months after inoculation had an epidemic of typhoid, 57 cases; 86 per cent. positive Widals.

* From the laboratory of the State Hospital.

1. Weston, P. G.: Immunization Against Typhoid of Eight Hundred and Ninety-Eight Patients in an Institution, THE JOURNAL A. M. A., Oct. 26, 1912, p. 1536.

In all, over 10,500 inoculations have been made. Many of the patients slept through the inoculation, and knew nothing of it until the next day.

The reactions were classed as follows:

Mild: An area of hyperemia from 5 to 7 cm. in diameter with or without edema and a feeling of soreness in the arm.

Moderate: Marked hyperemia and edema extending to the elbow; pains in the arm and general lassitude.

Severe: Marked hyperemia and edema, chills, pains in back and legs, patient confined to bed.

TABLE 2.—REACTIONS

Dose.	Mild.	Moderate.	Severe.
1	3,498	1	1
2	3,480	18	2
3	3,455	40	5

Table 2 includes the 898 cases previously reported under the headings "none" and "mild."

Agglutination tests were carried on in the manner described in the former paper.[1]

Blood taken from 2,500 patients before inoculation failed in every case to cause agglutination at a dilution of 1:250.

Blood taken ten days after the last inoculation of 2,500 cases, including the 898 cases previously reported, gave the following results: positive at 1:250, 100 per cent.; positive at 1:500, 98.2 per cent.; positive at 1:1,000, 97.6 per cent.; positive at 1:10,000, 91 per cent. of the 1,500 cases tested.

The duration of the immunity is unknown. It is now three and one half years since the first inoculations were made. One case of typhoid fever developed three months after inoculation. It is not my intention to reinoculate any patients unless typhoid makes its appearance among the immunized.

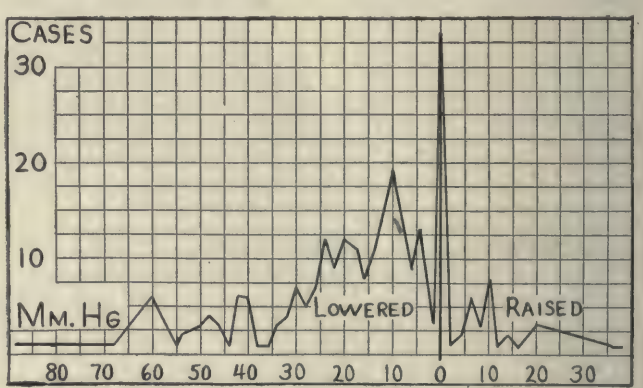
SPINAL ANESTHESIA

ANALYSIS OF TWO HUNDRED AND EIGHTY CASES

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In the 280 cases in which spinal anesthesia has been used on the inmates at the San Quentin prison, tropacocain has been the agent employed. In ordinary operations, excepting those in which the abdominal viscera are handled, no hypnotic is given the patient before the operation. The patient walks to the operating room, mounts on the table, and is ordered to lie on his left side. The back from the fourth dorsal vertebra to the coccyx is painted over with official tincture of iodin. This is allowed to remain on the skin for a few minutes and is then removed with alcohol. The patient is directed to bring his knees as near to the chin as possible, producing a curved outline to the back. A sterile sheet with an aperture 6 inches in diameter is now placed over the patient so that the hole is near the site of the spinal puncture. A platinum needle of 12 mm. diameter and about 10 cm. long is used for the spinal puncture. The needle is inserted between the second and third, or third and fourth lumbar vertebrae. As soon as the canal is entered, the obturator of the needle is withdrawn and the fluid flows out. Immediately a Lüer syringe is attached to the needle, and 25 minims of the cerebrospinal fluid are withdrawn. The syringe is detached from the spinal needle, and by means of a shorter needle the fluid thus collected is used as a solvent for the tropacocain, which is put up in sterile ampules of 1½ grains' dosage. While the attendant is dissolving the tropacocain in the cerebrospinal fluid, the operator collects from 15 to 25 minims of the fluid for purposes of Wassermann examination. This having been done, a manometer is attached to the spinal needle and the spinal pressure determined. The manometer used is merely a piece of fine bored glass tubing with an elbow arranged so that the tubing extends at right angles upward from the spinal needle. The manometer is graduated, and the pressure is determined by the height to which the fluid ascends in the glass tubing.

The tropacocain having been dissolved in the fluid, the syringe is again attached to the spinal needle. In order to prevent any air entering the spinal canal, it is our custom to pull the piston out slightly before finally injecting the medicated solution. Since excluding the air in this way, the number of headaches following operation have been greatly reduced. The solution is injected slowly and the needle is quickly removed. The patient is then ordered to lie on his back. He is then placed in a Trendelenburg position at about 10 to 12 degrees from the horizontal. The head, however, is raised above the shoulders so that although the medicated fluid may gravitate toward the first dorsal vertebra, it will not well ascend toward the vicinity of the bulb.



Curve of relative amount of rise or fall in blood pressure at end of operation: readings to left of zero, lowered after operation; to right, raised.

Within one minute the patient feels that his feet are becoming warm, and he may even feel a tingling sensation in his toes. Within two minutes, sensation is lost about the anus, and as a rule within about four minutes there is such a loss of sensation that operations for hernia may be done without pain. For operations above the umbilicus it is our custom to allow the patient to stay in the Trendelenburg position for six or seven minutes, for apparently it takes this long for the tropacocain to gravitate cephalad to bathe the nerves which supply these segments. For operations about the anus, the average Trendelenburg position has been 1⁷⁄₁₀ minutes, for operations on varicose veins 2⁵⁄₁₀ minutes, for operations on the scrotum 2⁴⁄₁₀ minutes, for hernia, 3¹⁄₁₀ minutes, and for gastroenterostomy, 4²⁄₁₀ minutes.

Tropacocain hydrochlorid in doses of 1½ grains is carefully weighed and put in thoroughly cleaned and dried homeopathic vials, long size. By means of a Bunsen burner the top is then fused so that the drug is sealed in an air tight ampule. These ampules are then sterilized either by boiling or by live steam in an

autoclave. Tropacocain is not injured by heat in this manner, and will keep indefinitely without deterioration or loss of anesthetic properties.

During every operation one attendant is assigned to watch the patient, and keep a record of his actions during the proceedings. All phenomena are carefully recorded chronologically, and remarks regarding the attitude of the patient are set down. In this series of cases the same man has done the recording so that there has been no variation, as would be expected had several operators kept the records.

The following is an illustration of a written operation record:

P., No. 28977, man, age 31, weight 147, logger.

INGUINAL HERNIA, DOUBLE

Jan. 12, 12:15 p. m.	Blood pressure: 110, systolic; 80, diastolic.
12:16 p. m.	Pulse rate, 72.
1:39 p. m.	Anesthetic administered, tropacocain 1½ grains, 2-3 lumbar.
1:39 p. m.	Head lowered; Trendelenburg position.
1:42 p. m.	Head raised; operation begun.
1:43 p. m.	Pulse rate, 126; could not move feet.
1:48 p. m.	Pulse rate, 96.
1:52 p. m.	Blood pressure: 130, systolic; 76, diastolic.
1:54 p. m.	Pulse rate, 90.
2:00 p. m.	Pulse rate, 84.
2:05 p. m.	Blood pressure: 112, systolic; 80, diastolic.
2:06 p. m.	Pulse rate, 90.
2:11 p. m.	Pulse rate, 90.
2:12 p. m.	Blood pressure: 124, systolic; 80, diastolic.
2:16 p. m.	Pulse rate, 90.
2:23 p. m.	Pulse rate, 80; operation ended. Blood pressure: 124, systolic; 80, diastolic.
3:35 p. m.	Felt first pain and could move feet.
7:15 p. m.	Blood pressure: 108, systolic; 80, diastolic.
Jan. 20, 7:15 p. m.	Blood pressure: 128, systolic; 84, diastolic.

Remarks: Pupils not changed; complexion unchanged; puncture made patient recumbent left side; cord transplanted; pressure (spinal) 15 cm. Left table in good condition. No pain.

This work was done with the assistance of two former assistant resident physicians, Dr. F. Stolle and Dr. S. H. Marks, and with the present assistant resident physician, Dr. J. P. Crawford.

The accompanying table is a summary of all the operations. It is self-explanatory.

In the plotted curve of the relative amount of rise or fall in blood pressure at the end of operation, the base line is the amount of blood pressure, and the abscissa the number of cases. The readings were taken each time with a Tycos sphygmomanometer. It is seen from the chart that the maximum fall in blood pressure was 88, whereas the maximum rise was 38 mm.

In none of these cases, however, was the blood pressure so low that it was necessary to take measures toward increasing it. Although the pressure was low, the patient did not show any signs of collapse.

As to pulse rate, it is found that the rate increases as soon as the spinal puncture is made, but after a few minutes returns to the normal beat. This increase is probably due to the fact that the patient is somewhat excited when brought to the operating room. The psychical effect of seeing the operating room attendants and feeling the prick of the spinal needle is sufficient to cause this quickening. From the data it seems that the spinal anesthesia itself has very little if any influence on the pulse.

It is extremely difficult to determine the length of anesthesia because the statements of the patients are not reliable, and it was impossible to determine by means other than their statements regarding this matter. For the purpose of creating sympathy, there is no doubt that some of the patients complained of pain really before it was felt. Only a few, however, complained while they were on the operating table, and it was only necessary in four or five cases of the series in which the operation was over an hour and a half to administer a few whiffs of chloroform or ether to quiet the patient. As near as could be determined, the average length of anesthesia was one hour and fifteen minutes.

Only 8 per cent. complained of headaches. To many surgeons, headache has been the deterring factor for using spinal anesthesia. Some assert that headache is so severe that they will not subject their patients to it. By excluding all air from the spinal canal, however, as shown before, there is very little danger of headache.

Only 18 per cent. had to be catheterized, of which over half were in operations about the anus, in which catheterization is usually expected.

In very few cases after operation has there been any vomiting. It is an extremely rare after-effect. In ordinary cases, such as hernias, varicose veins and other operations in which the intestinal tract is not

SUMMARY OF OPERATIONS

	Operations on Feet	Varicose Veins	Various Operations on Legs	Fistula in Ano	Hemorrhoids	Operation on Scrotum	Hernia	Appendectomy	Gastro-Enterostomy	Totals
Cases, number	15	23	18	29	59	30	61	32	13	280
Fall in blood pressure, number	7	22	11	19	31	19	56	25	9	199, 71.1%
Rise in blood pressure, number	5	0	4	3	14	3	2	1	2	34, 12.1%
No change in blood pressure, number	1	1	2	7	13	5	1	3	1	34, 12.1%
No data on blood pressure, number	2	0	1	0	1	3	2	3	1	13, 4.7%
Maximum fall in blood pressure, mm.	60	46	50	50	42	54	88	68	48	88
Minimum fall in blood pressure, mm.	2	8	2	4	4	6	6	2	16	2
Average fall in blood pressure, mm.	27	23	9	9	5	13	22	21	15	15
Maximum rise in blood pressure, mm.	19	0	8	36	38	16	26	20	10	38
Minimum rise in blood pressure, mm.	2	0	6	4	6	5	10	20	10	2
Average blood pressure	125	116	117	114	115	115	119	118	118	117
Average spinal pressure	14	11.5	14	17	12.5	18	14.5	16	14	14.2
Average length of operation, minutes	33	26	18	18	15	17	35	50	77	28
Average length of anesthesia, minutes	33	61	70	63	75	70	74	107	?	75
Average age, years	39	42	36	31	38	32	30	31	33	34
Average weight, pounds	159	146	159	161	176	162	170	155	159	160
Headaches	2	8	0	0	7	1	3	2	1	24, 8%
Catheterized	2	0	3	4	27	0	4	12	4	52, 18%
Average Trendelenburg position, minutes	3.5	2.5	2.8	1.7	1.7	2.4	3.1	3.2	4.2	2.5

involved, the patients are allowed to eat as soon as they return from the operating room. No ill results have followed. The food is usually relished. By the early taking of nourishment in this way, shock is reduced and the patient's convalescence is shortened.

The preparation is the same as that usually given for the inhalent anesthetics. No hypnotic is given except as previously noted above.

In only two cases out of a possible 400 has it been found impossible to produce spinal anesthesia. One patient was a woman, aged 90, suffering from hemorrhoids. She was deaf, and it was impossible to instruct her to the best position she should attain. Several attempts were made to enter the spinal canal, but the vertebrae were so ankylosed that it was impossible. In another case, a Mexican, aged 25, was stabbed through the abdominal wall into the stomach so that his recently ingested stomach contents were voided through the opening. He was brought to the hospital thirty minutes after the affray, but was in a condition of shock, and his blood pressure was very low. The puncture was made, and 10 minims of cerebrospinal fluid removed. No more could be withdrawn. On account of the small amount of fluid, it was thought well not to administer the anesthetic. In several other cases it has been found necessary after a delay of ten minutes to make another puncture and inject more of the tropacocain. The failure of the first injection was probably due to the fact that the needle may have been accidentally pulled from out the canal and the tropacocain infiltrated around the dura instead of in the canal. Invariably after the second injection the anesthesia has been satisfactorily produced.

CONCLUSIONS

1. In this series of 280 cases there has been no fatality.
2. There has been comparatively little shock.
3. There has been only 8 per cent. headaches.
4. There has been no pneumonia following operation.
5. There have been very few postoperative complications.
6. There have been no permanent paralyses following the anesthetic.
7. The period of convalescence has been shortened.
8. With the relaxed muscles, closing of the abdomen is greatly facilitated.
9. The blood pressure has fallen in most cases, but in the average case not to a dangerous degree.
10. The height to which the anesthetic is effective is influenced by the length of time the patient is in the Trendelenburg position.
11. The pulse rate is not influenced to any marked degree by tropacocain intraspinally.

Quicksilver.—According to *Commerce Reports,* the domestic output of quicksilver in 1915 was estimated to be 20,681 flasks of 75 pounds each, valued at $1,700,000. The figures for 1914 were 16,548 flasks valued at about $800,000. There was an increase of 4,133 flasks and in value more than double. The estimated output of California in 1915 was 13,916 flasks. The European war directly affected the industry by greatly increasing the demand for the metal in the manufacture of fulminate for explosives and also by reducing the customary imports from foreign countries. The exports from the United States for the calendar year 1915 were about 3,300 flasks.

TWO CASES OF INFECTION WITH STRONGYLOIDES STERCORALIS

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Strongyloides stercoralis (*Anguillula stercoralis*) is an exceedingly common intestinal parasite in the tropics of both hemispheres, and not rare in certain subtropical regions. Its great rarity north of Mason and Dixon's line justifies the reporting of the following two cases:

CASE 1.—Rose Z., aged 6 years, native of the United States, of Italian parentage, gave a history of restlessness at night, grating of the teeth, and vague abdominal pains for a considerable period. The abdominal discomfort could not be accounted for by errors of diet or any physical finding. Moreover, the child seemed listless and anemic. Hookworm was suspected and the feces were examined, with the resultant finding of strongyloides in enormous numbers. A differential blood count showed 11 per cent. eosinophils.

CASE 2.—Mary Z., sister of Case 1, aged 9 years, native of the United States, had been suffering for some time from similar abdominal pains with some diarrhea. Because of the above mentioned findings, a similar examination was made, which showed the same parasite and 17 per cent. eosinophils.

After thorough treatment with thymol, the worms disappeared in both cases, and after three weeks the eosinophilia had fallen to 5 and 6 per cent., respectively. Another sister and the mother were likewise examined for parasites, with negative results. The source of infection in our two cases remains obscure, as the children have always lived in the city of New York, where this parasite is not native. There remains the possibility of paternal infection or derivation from some infected native of Italy. As in the case of hookworm, the invasion usually takes place through the skin.

The life cycle of this parasite is of considerable interest, and bears a close relationship to the various names which have been given it by a number of writers who have described its sexually different forms as distinct species. Thus the embryos (rhabditic form) were called *Rhabditis stercoralis, Rhabdonema strongyloides* and *Rhabdonema intestinale,* while the mature parasite was classified as *Anguillula stercoralis.*

The mother worm, the *Anguillula intestinalis,* deposits its eggs in the intestinal tract, where the rhabditic forms develop. The eggs themselves are seldom found in the feces, while the embryo is usually present in great numbers. In the foregoing cases we were unable to find a single egg after prolonged search. The embryo is not to be seen macroscopically, being but 0.2 mm. in length; microscopically it is seen to be actively motile, with a cylindric body tapering at both ends.

On keeping the stool at room temperature, the embryos increase considerably in size, reaching adult form (1 mm.) and sexual differentiation. They have remained alive in the stools in both cases for over two weeks.

These parasites are the etiologic factors in the disease known as "Cochin-China diarrhea," and while common in China, the West Indies and Italy, and not very uncommon in Germany, they are comparatively rare in the United States. Very few cases have been reported here, and most of these could be traced to a foreign country as the source of importation.

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Therapeutics

PRESCRIPTION WRITING

For almost every patient at some time during his treatment, one or more prescriptions must be written. Though surgical, special and specific treatments are the only correct methods of effecting a cure; though most acute diseases tend to recovery, and though hygiene and the correction of diet tend to eradicate abnormal conditions of the body, the patient may require medicinal treatment to stop pain, to promote nutrition, to increase general elimination, to decrease a certain abnormally profuse eliminative activity, to cause sleep, to supply or aid the activity of some internal secreting gland, and to soothe, stimulate or otherwise treat the external surface of the body. Hence, no matter how often some surgeons may state that they do not need drugs, and no matter how often some consultants may deplore the use of drugs, drug treatment has a legitimate use for the vast majority of patients.

These statements are not intended to declare that many chronic conditions, especially of the nervous system, are not better treated by physical methods than by drugs. It is a fact that too much medicine is often given. Successful drugless treatment of acute and really tangible chronic illness, however, is a myth. Of course, if there is nothing the matter, a person can be cured of what he does not have by what he does not get.

No one of sane mind doubts that there are useful drugs with a demonstrable activity. That these drugs can produce the symptoms and signs of their action in patients is known to every one who has had laboratory and subsequent clinical experience. These facts should compel two restrictions in the use of drugs: 1. A drug which is not known to have some definite, safe action should not be used. 2. Only one who has the knowledge of the action of a drug on the human being in health and in disease should prescribe that drug for a patient.

A self-evident corollary is that a mixture of drugs cannot be prepared or "kept in stock" to fit a patient who may need treatment some time in the future. Each patient should be individualized and receive the drug needed, in the amount needed to cause the effect desired. He should not receive a mixture of drugs made to fit a series of patients varying in age, size, nutrition, strength, and in the severity and complications of their disease, even if they have the same disease. Proprietary, drugstore, hospital, dispensary and office mixtures are unscientific, and at times may even be dangerous. A hospital may have stock palatable solutions (if they will keep) each of some one drug. In this case the physician may readily give the amount he desires of this one drug, and the treatment will be individual and scientific.

USELESS DRUGS

It may be said that there is no harm, even if there is no benefit, in giving a patient a useless drug or a useless mixture; the word "useless" meaning, when applied to a drug, that it has no known activity and is harmless. Nevertheless harm is done for several reasons:

1. Such a statement emanates from the venders of proprietary preparations and of nostrums, the object being "to sell the goods."

2. A prescription for a useless drug causes the druggist to stock that useless drug and its preparations. A series of such prescriptions causes the druggist to urge the pharmacopeial revision committee to make this useless drug official in the United States Pharmacopeia, and causes the revision committee to attempt to give this substance a standard (generally impossible). This drug, being officialized (because "there is a demand for it"), must have official preparations, which are largely made by pharmaceutical firms, and the latter reap a large income, because up-to-date retail druggists are compelled to stock what is official in the United States Pharmacopeia. The medical student and the young practitioner, finding this drug in the standard book, the United States Pharmacopeia, *ipso facto* believe that it must be a "useful" drug. The young practitioner begins to prescribe this drug either by prescription or by proxy (some proprietary contains it perhaps), and the crime of false pretense is complete.

3. The patient may recover while taking this harmless drug, and both he and his physician, unless the latter is wise, believe that the drug accomplished this result on account of the mystery attached to the preparation, because of ignorance of its having any known activity. Later, the patient recommends the preparation to someone else, and the physician himself uses the drug again. If the patient had recovered while taking a placebo, the physician, at least, would not have been deceived, and the record of the crime of fallacy need not have been written.

4. Even a useless drug prescribed for a patient who needs nothing may foster a habit of taking medicine, when the proper treatment is to teach such a patient that no medicine is needed.

HOSPITAL MIXTURES

Investigators have shown that the medical profession is writing more simple prescriptions and is less frequently ordering mixtures and proprietaries. Nevertheless far too many fool combinations are being forced into the stomachs of suffering humanity, especially hospital patients. House-mixtures in hospitals are usually known by some semidistinctive title; but the ingredients and their amounts are not known; at least they are soon forgotten by the visiting physician and the hospital intern. If these mixtures seem to be of benefit to the hospital patients, the intern begins to think that these particular combinations are mystic; he does not realize that it is the one or two active useful drugs that did the good work, even if they were hampered by some old fashioned combination. When the intern goes into active private practice he does not know how to write an individual prescription for an individual patient. Hence he looks up his old hospital formulary, and copies the hospital mixtures, until some proprietary detail man convinces him that a proprietary mixture is better. He seizes on this, especially as he has found that his private patients will not, without more or less murmuring or rebellion, take the hospital mixtures. Thus the use of proprietary preparations is promoted by the hospitals. Many of the United States Pharmacopeial multiple mixtures are only copies of old nostrums, pet formulas of some ancient clinician, or improvements on hospital mixtures.

To be concrete, let us write simple prescriptions for drugs that are of value, that is, useful drugs in the best official preparation, and, if soluble, in the most agreeable solution possible. The value, in many

instances, of a suitable combination of active drugs individualized to the patient is not to be doubted. A pharmaceutical firm which offers an elegant preparation or a pleasant method of administration of a disagreeable, though valuable drug, or which presents a purer valuable drug, should be commended, and such preparations should be used. If a new synthetic or a more pure alkaloidal product of a useful drug, offered by a chemical firm, has been found worthy of recognition by the Council on Pharmacy and Chemistry, it should be used in suitable cases.

LATIN

It has been urged that the Latin of prescriptions is generally incorrect and that Latin is unnecessary. It is a fact that many of the medical schools do not now require Latin as a preliminary study. It has also been urged that the Latin chemical name makes the drug or preparation international and the pharmacopeias of the various nations and the books on materia medica, chemistry, pharmacology, etc., are all adopting these names. It should be remembered, however, that the Latinized titles of the various pharmacopeias differ widely. It seems wise for the present to write the titles of drugs in their official names, not in their American or local names, but Latinizing the sentences need not be insisted on. The ninth revision of the United States Pharmacopeia, which will soon be in print, has created official abbreviations which will shorten the long Latin names without causing confusion when such are used.

Another unification much to be desired is the international adoption of the metric system. This will not succeed in this country so long as the hospital repudiates the medical school instruction in the metric system by constantly using the apothecaries' system of weights and measures. The medical student writes prescriptions in the decimal system, but, generally, after he has served two years as a hospital intern, he is a hopeless habitué of the old apothecaries' system.

Education and scientific knowledge do not save a man from belief in the mysterious, or in talismans, amulets, etc. An otherwise sane man will carry a horsechestnut or wear an iron ring, or an ignorant woman will claim to stop the night sweats of phthisis by putting a pan of water under the bed (this is a recent fact, and not romance). There can be no other excuse than the belief in mystery for the otherwise able practitioner who writes prescriptions ordering some proprietary mixtures.

VEHICLES

A large number of elaborate combinations are made and sold under different names to cover the taste of drugs which are simple and useful, but disagreeable to take. Sweetness does not always make a bad tasting drug less disagreeable. Many a more or less nauseating drug is much better tolerated by dissolving it in a sour mixture, as in syrup of citric acid and water. A drug dissolved in simple water may be added to fresh lemonade or orangeade. Peppermint is pleasing to most people. As disagreeable a drug as potassium chlorate used as a gargle may be well dissolved in peppermint water.

Many drugs may be pleasantly administered in effervescing water. This may be either a simple carbonated water, or an alkaline water as Vichy. Even insoluble powders may be given this way, the powder, bismuth salts, for instance, being suspended by the air globules.

An oil like castor oil or cod liver oil may be disguised by placing a little salt in the bottom of a wineglass, filling the glass half full of water, without stirring to dissolve the salt, and then placing the oil carefully on top of the water. If this mixture is rapidly swallowed, the only taste is that of the salt. Castor oil is variously disguised by the addition of a small amount of saccharin and a little oil of anise or wintergreen, and may then be given in a little orangeade. It may be further disguised by adding fluidextract of licorice.

The disagreeable taste of Epsom salt may also be disguised by a little saccharin and oil of anise, peppermint or wintergreen.

When it is not advisable to take cascara sagrada in tablets (or if the tablet is disagreeable, powdered and placed in a capsule and thus swallowed), it has been disguised in many aromatic preparations, the dose of which is considerable in order to obtain the proper amount of the cascara sagrada. Any efficient druggist can suggest an aromatic combination that will disguise the fluidextract of this drug.

A pleasant method of administering many disagreeable drugs to children is in a teaspoonful or tablespoonful of freshly made cocoa or chocolate. A little sweetened chocolate may be crushed by the mother and given with the powder or solution.

In order to apply these principles, it is proposed, from time to time, to outline at least one recommended and used mixture, discuss its mistakes or fallacies, and suggest an efficient, logical and ethical method of prescribing the useful drugs needed for the patient suffering from the disease or condition against which the mixture is aimed.

(To be continued)

Influence of Economic and Industrial Conditions in Infant Mortality.—Henry Horace Hibbs, Jr., has stated recently (*Quarterly Journal of Economics,* November, 1915) the result of his analysis of the reports of governmental committees and sociologic organizations and of individuals on the foregoing subject. "It appears," he says, "that the fundamental cause of the excessive rate of infant mortality in industrial communities is poverty, inadequate incomes, and low standards of living with their attendant evils, including the gainful employment of mothers. The employment of the mother in gainful occupations is simply the remedy for these evils or 'adverse conditions' which the working people in industrial communities have adopted. Undoubtedly, this recourse has had an important effect on the problem, in many cases actually tending to reduce the rate of infant mortality, while in others having just the opposite effect. The primary question in considering the social causes of infant mortality is whether the employment of mothers and married women in extradomestic occupations is, from the viewpoint of society as a whole, a good remedy for poverty and an acceptable means of mitigating its influence on the health and mortality of babies and young children. From the point of view of the individual poor or poverty stricken family, the fact cannot be escaped that this effect may be both good and bad; bad, in that it causes the baby to be artificially fed, forces the mother to be absent from home, and in other ways lowers her efficiency as a mother; good, in that it increases the family income and decreases the influence of poverty. We are thus forced to conclude that the fundamental economic and industrial factor of infant mortality is low wages. The fundamental remedy is obviously higher wages. Other remedies, such as legislation restricting or regulating the employment of mothers before and after confinement, day nurseries, the instruction of mothers and school girls in domestic economy, and the like, all have their place; but the chief thing remains the provision of an adequate family income."

STATE BOARD STATISTICS FOR 1915

ANNUAL PRESENTATION BY THE COUNCIL ON MEDICAL EDUCATION OF RESULTS OF STATE BOARD EXAMINATIONS

On pages 1096 to 1105 are three tables, A, B and C, giving in detail the results of the various state medical license examinations held during 1915. These statistics are complete, since full reports were obtained from all state licensing boards and all have been carefully verified.

Tables A and B have been arranged so that, read from left to right, they give the results by colleges, showing the number of graduates appearing for examination in each state, whether they passed or failed, the total number examined during the year, the number who passed, the number who failed, the percentage of failures, and the number of states in which graduates of each school appeared for examination. Read from above downward, they give the results by states, showing the number registered and rejected from each college, the total number examined, the total number registered, the total number rejected, and the percentage of rejections. The fact that the majority of graduates take the license examination in the state in which the college is located is shown by the dark diagonal zone made by the grouping of figures, passing from the upper left to the lower right corner of each table. This shows also that *the states in which low-grade medical schools are permitted to exist are themselves the recipients of the greater portion of the ill-trained output of such schools.* These tables are worthy of careful study, since important deductions are possible. The marginal numbers will enable the reader more readily to follow the line for any college in which he is interested.

Caution in Forming Conclusions

In making comparisons on the basis of these statistics, several factors should be kept in mind. The number examined is important, since, if all other conditions are equal, the larger the number of graduates examined, the more accurate is the finding. But other conditions are seldom equal. The number of states in which a school's graduates have been examined is important. The larger this number the more accurate will be the conclusions. Again, the character of the board making the examination and the methods employed are important factors to be considered, since some boards hold very careful examinations and include practical laboratory and clinical tests, or they may mark the papers more severely, while others, especially partisan boards, may be very lenient. In this connection it should be stated that although conditions are undergoing a steady improvement, it is still true that *the character of the license examination as usually conducted is such that graduates of colleges conducted largely by quiz-class methods may easily be successful in passing it.* It is particularly important in forming conclusions based on these statistics to note for each college the states in which its graduates are not admitted to examinations—information set forth with these statistics in Table D.

Graduates of All Years Examined in 1915

Table A shows the results for all candidates who took examinations in 1915, regardless of the years in which they graduated. This shows that altogether 5,313 candidates were examined last year, as compared with 5,570 in 1914, 6,435 in 1913, 6,879 in 1912 and 6,960 in 1911. There has been a steady decrease each year since 1906, when 8,035 physicians were examined. The decrease each year has been due largely to (1) the wider extension of reciprocity and (2) the general diminution in the number of medical colleges, students and graduates. Of those examined this year, 15.6 per cent. failed, as compared with 21.6 per cent. in 1914, and 18.6 per cent. in 1913, 20.5 per cent. in 1912 and 19.9 per cent. in 1911.

There were 93 medical colleges in the United States granting degrees in 1915 which had graduates examined, as compared with 96 in 1914, 99 in 1913 and 110 in 1912. This is a decrease of 60 since 1905, when graduates of 153 medical colleges in the United States were examined. Foreign graduates were examined in twenty-five states, the total number being 86, and of this number 34, or 39.5 per cent., failed. The largest number of foreigners examined in any state was 22 in New York, where 11, or 50 per cent., failed. Graduates of Canadian schools were examined in nineteen states, more appearing, naturally, in the border-line states. The figures for the Canadian colleges are given separately in order to show the number of candidates coming from each as well as to show the successes of their graduates at the examinations. Altogether 60 candidates from Canadian colleges were examined, of whom 11, or 18.3 per cent., failed. Of all Canadian colleges, the University of Toronto had the largest number examined. The highest percentages of failures were for Montreal School of Medicine and Surgery, 100; Laval University, 50, and Queen's University, 21.4.

Undergraduates Examined During 1915

Line 105 of Table A shows the number of nongraduates examined in six states during 1915. Altogether 65 nongraduates were examined in 1915, as compared with 293 in 1914, 330 in 1911, and 703, the largest number, in 1906. Of the 65 examined in 1915, 32, or 49.2 per cent., failed, as compared with 61.4 per cent. in 1914, 37.8 per cent. in 1913, 35 per cent. in 1912, and 38.5 per cent. in 1911. Such candidates were examined during 1915 in Colorado, Massachusetts, North Carolina, Oregon and Tennessee. Of such candidates, 13 each were licensed in Massachusetts and Tennessee, 2 each in Colorado, Maine* and North Carolina, and 1 in Oregon. Meanwhile, last year, Tennessee, Massachusetts and Oregon obtained legislation requiring that all candidates shall be graduates of medical colleges. This leaves only Colorado which will examine nongraduates. Only four nongraduates, however, have been licensed in that state in ten years. The door has practically been closed, therefore, against the licensing of nongraduates—those whose medical training is known to be incomplete.

Recent Graduates Examined During 1915

Table B gives the results for graduates of 1911 to 1915, inclusive, who were examined during 1915. This table is particularly important, since it deals with recent graduates, and is, therefore, the fairest basis for comparison between colleges. Such comparisons are worthless, however, unless reference is also made to Table D, which shows in what states graduates of certain colleges are reported not eligible for examination. Of all candidates examined in 1915, 4,627, or 87.1 per cent., were recent graduates, and of this number 13.2 per cent. failed, as compared with 15.6 per cent. for all candidates. The figures regarding graduates of several medical schools which have ceased to exist, either through merger or otherwise, have been included in the line for miscellaneous colleges.

Old Practitioners Examined During 1915

Table C is so arranged as to show in comparison the results for graduates of all years (first column), for recent graduates (second column), for graduates of 1910 and previous years (third column), and for graduates of 1915 (fourth column). Of the graduates of 1910 and previous years—"old practitioners"—621 were examined, and of this number 182, or 29.3 per cent., failed, as compared with 13.2 per cent. of failures for recent graduates. This high percentage of failures is probably due chiefly to the long time these candidates have been out of college and to the fact that they are required to take the same examination as recent graduates. Undoubtedly, the less favorable conditions in medical colleges at the time these physicians graduated have had some bearing on

* The two licensed in Maine claimed graduation, which appears to be refuted by official reports.

CONTINUED ON PAGE 1108

Marginal Number	NAME OF COLLEGE	1 Alabama		2 Alaska		3 Arizona		4 Arkansas		5 California		6 Colorado		7 Connecticut		8 Delaware		9 District of Columbia		10 Florida		11 Georgia		12 Idaho		13 Illinois		14 Indiana		15 Iowa		16 Kansas		17 Kentucky		18 Louisiana		19 Maine		20 Maryland		21 Massachusetts		22 Michigan		Marginal Number
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	
	ALABAMA																																											
1	Birmingham Medical College	17	25																	1	2	12	2																					1
2	University of Alabama, School of Medicine	11	1																											1	0					2	1							2
	ARKANSAS																																										
3	University of Arkansas, Medical Dept.							21	1																																			3
	CALIFORNIA																																										
4	California Eclectic Medical College.—E.							1	0	6	6																																	4
5	College of Medical Evangelists									9	0																																	5
6	College of Physicians and Surgeons, Los Angeles					1	0			25	3																																	6
7	College of Physician and Surgeons, San Francisco			1	0	0	1			3	1																																	7
8	Hahnemann Medical College of the Pacific.—H.									7	0																																	8
9	Leland Stanford Junior Univ., School of Medicine									14	0																																	9
10	Oakland College of Medicine and Surgery									5	1																																	10
11	University of California Medical School									14	0																																	11
	COLORADO																																										
12	University of Colorado, School of Medicine											7	0											1	0																			12
	CONNECTICUT																																										
13	Yale University, School of Medicine													4	0																									1	0			13
	DISTRICT OF COLUMBIA																																										
14	Georgetown University, School of Medicine																	14	0							1	0											2	0	4	2			14
15	George Washington University Medical School																	15	2	1	0					2	0									2	0							15
16	Howard University, School of Medicine																	9	5			1	0			0	1	1	0			3	0			2	1			4	3			16
	GEORGIA																																										
17	Atlanta Medical College	0	2																	15	2	15	2															1	0			1	0			17
18	Georgia College of Eclectic Med. and Surg.—E.							2	0													1	0																					18
19	University of Georgia, Medical Dept.	0	1	1	0															0	2	12	0																					19
	ILLINOIS																																										
20	Bennett Medical College																			0	1	2	1			64	16			2	0	1	0					0	1					20
21	Chicago College of Medicine and Surgery	3	3					1	0	0	1							1	0			1	1			78	16	1	0	11	0					1	1	1	1	3	0	2	0	21
22	Chicago Hospital College of Medicine																									2	3																	22
23	Hahnemann Medical College and Hospital.—H.	0	1									1	0							7	0					20	4			3	1	1	0							1	1			23
24	Jenner Medical College									1	1															21	1																	24
25	Northwestern University Medical School									1	0															35	1	1	0	8	0	1	0											25
26	Rush Medical College			1	0	1	0			2	0			1	0					0	1	1	0	1	0	76	0	2	0	6	1	1	0			1	0			1	0			26
27	University of Illinois, College of Medicine					1	0			1	0											1	0	2	0	87	2	0	1	6	0											2	0	27
	INDIANA																																										
28	Indiana University, School of Medicine																							1	0			27	0	1	0			1	0									28
	IOWA																																										
29	State University of Iowa, College of Medicine			1	0					1	0									1	0			1	0	1	1			23	0													29
30	State Univ. of Iowa, Coll. of Homeo. Med.—H.																													2	0													30
	KANSAS																																										
31	University of Kansas, School of Medicine											0	1																			11	0							1	0			31
	KENTUCKY																																										
32	University of Louisville, Medical Department	1	0					2	0			1	0							3	0	1	0			2	1	7	0					55	3					0	1			32
	LOUISIANA																																										
33	Tulane University of Louisiana, School of Med.	8	0			0	1			1	0			1	0					4	0															52	3					1	0	33
	MAINE																																					22	1			4	1	
34	Bowdoin Medical School																																									34
	MARYLAND																																										
35	College of Physicians and Surgeons of Baltimore													1	1					1	0																	2	0	13	5	7	2			35
36	Johns Hopkins University, Medical Dept.	1	0							1	0			5	0			5	0	2	0	3	0			2	0	1	0	1	0							38	0	8	0			36
37	University of Maryland, School of Medicine													1	0					1	0					2	0	1	0									1	0	42	5	2	1			37
	MASSACHUSETTS																																										
38	Boston University, School of Medicine.—H.																									1	0					1	0					3	0			14	0			38
39	College of Physicians and Surgeons, Boston													0	3			1	0	3	0																	6	2			5	4			39
40	Medical School of Harvard University									1	1			5	1											5	0	1	0	4	0							8	0	1	1	51	0			40
41	Tufts College Medical School					1	0			1	1			1	0							1	0	1	0	1	0			1	0							5	1			63	9			41
	MICHIGAN																																										
42	Detroit College of Medicine and Surgery																									1	0																	45	2	42
43	University of Michigan Medical School	1	0	1	0													1	1	1	0							1	0											2	0	41	1	43
44	University of Michigan, Homeo. Med. School.—H.																			1	0																					17	3	44
	MINNESOTA																																										
45	University of Minnesota Medical School																									1	0					1	0											45
	MISSOURI																																										
46	Eclectic Medical University.—E.							19	2																																			46
47	Kansas City Hahnemann Medical College.—H.																															1	1											47
48	National University of Arts and Sciences																									2	2			1	0													48
49	St. Louis College of Physicians and Surgeons									1	0															2	1			1	0			0	1									49
50	St. Louis University, School of Medicine	1	0					1	0															1	0	3	1			2	0			1	0					1	0			50
51	Washington University Medical School							1	0											1	0					2	0																	51
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		

H.—Homeopathic; E.—Eclectic; P.—Passed; F.—Failed.

| Marginal Number | 23 Minnesota | | 24 Mississippi | | 25 Missouri | | 26 Montana | | 27 Nebraska | | 28 Nevada | | 29 New Hampshire | | 30 New Jersey | | 31 New Mexico | | 32 New York | | 33 North Carolina | | 34 North Dakota | | 35 Ohio | | 36 Oklahoma | | 37 Oregon | | 38 Pennsylvania | | 39 Rhode Island | | 40 South Carolina | | 41 South Dakota | | 42 Tennessee | | 43 Texas | | 44 Utah | | 45 Vermont | | 46 Virginia | | 47 Washington | | 48 West Virginia | | 49 Wisconsin | | 50 Wyoming | | Totals | Examined—Passed | Examined—Failed | Percentage of Failures | No. States Ex. In | Marginal Number |
|---|---|---

Marginal Number	NAME OF COLLEGE	1 Alabama P	1 Alabama F	2 Alaska P	2 Alaska F	3 Arizona P	3 Arizona F	4 Arkansas P	4 Arkansas F	5 California P	5 California F	6 Colorado P	6 Colorado F	7 Connecticut P	7 Connecticut F	8 Delaware P	8 Delaware F	9 District of Columbia P	9 District of Columbia F	10 Florida P	10 Florida F	11 Georgia P	11 Georgia F	12 Idaho P	12 Idaho F	13 Illinois P	13 Illinois F	14 Indiana P	14 Indiana F	15 Iowa P	15 Iowa F	16 Kansas P	16 Kansas F	17 Kentucky P	17 Kentucky F	18 Louisiana P	18 Louisiana F	19 Maine P	19 Maine F	20 Maryland P	20 Maryland F	21 Massachusetts P	21 Massachusetts F	22 Michigan P	22 Michigan F	Marginal Number
	NEBRASKA																																													
52	Lincoln Medical College.—E.																			0	1																											52
53	John A. Creighton Medical College											4	0													2	0			2	0	1	0													53
54	University of Nebraska, College of Medicine																									1	0					1	0													54
	NEW HAMPSHIRE																																													
55	Dartmouth Medical School													1	0																							1	0			1	1			55
	NEW YORK																																													
56	Albany Medical College													2	0																											2	0			56
57	Columbia University, College of Phys. and Surgs.	1	0							1	0	1	0	8	1					1	0			1	0													1	0			3	0			57
58	Cornell University Medical College									1	0			0	1											1	0													1	0			1	0			58
59	Fordham University, School of Medicine																	1	1							1	0													1	0			1	0			59
60	Long Island College Hospital																			1	0																			1	0			1	0			60
61	N. Y. Homeo. Med. Coll. and Flower Hosp.—H.					1	0			2	0			3	0	2	0	0	1																			2	0	2	0	1	0			61
62	N. Y. Med. Coll. and Hosp. for Women.—H.																																													62
63	Syracuse University, College of Medicine															1	0			1	0																									63
64	University of Bellevue Hospital Medical College													2	0																							2	0			1	0			64
65	University of Buffalo Medical Dept.																																										1	0			65
	NORTH CAROLINA																																													
66	Leonard Medical School	1	0																	0	1	1	0																							66
67	North Carolina Medical College																																													67
	OHIO																																													
68	Eclectic Medical College.—E.							1	0																	1	1																			68
69	Ohio State University, College of Medicine																																									1	0			69
70	Ohio State University, Coll. of Homeo. Med.—H.																																													70
71	University of Cincinnati, College of Medicine																																													71
72	Western Reserve University, School of Medicine	1	0																									1	0													1	0			72
	OKLAHOMA																																													
73	University of Oklahoma, School of Medicine					0	1																									4	0											73
	OREGON																																													
74	University of Oregon, Department of Medicine																																	1	0									1	0	74
	PENNSYLVANIA																																													
75	Hahnemann Medical College and Hospital.—H.															3	0			2	0																									75
76	Jefferson Medical College									8	0			3	0	3	0			3	0	2	0	2	0					1	0	1	0	1	0					1	0	4	1			76
77	Medico-Chirurgical College of Philadelphia	1	0			1	0			1	0			1	1	2	0							1	0																	2	0			77
78	Temple University, Department of Medicine																																							2	0	3	0			78
79	University of Pennsylvania, School of Medicine	1	0							1	0					1	0			2	0	2	0	1	0	1	1									1	0	1	0			3	0	3	0	79
80	University of Pittsburgh, School of Medicine											0	1	0	1																												1	0	80
81	Woman's Medical College of Pennsylvania									1	0			1	0					2	0																					3	0			81
	SOUTH CAROLINA																																													
82	Medical College of the State of South Carolina																			1	0																									82
	TENNESSEE																																													
83	Lincoln Memorial University, Medical Dept.																																	2	0											83
84	Meharry Medical College	3	1					3	2	0	1			0	1			0	1	4	3	17	8			3	4			1	1	0	1	5	0	1	1							84
85	University of Tennessee, College of Medicine	5	1					14	0											1	0	1	0											1	0	3	5	1	0					85
86	Univ. of West Tennessee, Coll. of Med. and Surg.																			0	1																	1	0			0	2			86
87	Vanderbilt University, Medical Dept.	7	1			1	1	4	1	0	1	1	0							2	1	0	1											12	0									87
	TEXAS																																													
88	Baylor University, College of Medicine																																												88
89	Fort Worth School of Medicine																																												89
90	Southern Methodist University, Medical Dept.																																												90
91	University of Texas, Department of Medicine																									1	0																			91
	VERMONT																																													
92	University of Vermont, College of Medicine													6	2			1	0	1	0			2	0	1	0											1	0			7	2	1	0	92
	VIRGINIA																																													
93	Medical College of Virginia																																	1	0					0	3					93
94	University of Virginia, Department of Medicine	1	0					1	0									3	0					1	0	1	0													2	0	1	0			94
	WISCONSIN																																													
95	Marquette University, School of Medicine									1	0													1	0	1	0																	95
	CANADA																																													
96	Laval University, Faculty of Medicine																																									1	2			96
97	McGill University, Faculty of Medicine					1	0			1	0																															3	0			97
98	Montreal School of Medicine and Surgery																																									0	1			98
99	Queen's University, Faculty of Medicine																			1	0					1	0			1	0															99
100	University of Manitoba, Manitoba Med. Coll.																																													100
101	University of Toronto, Faculty of Medicine									1	1											1	0					0	1	1	0					1	0	0	1			1	0	2	0	101
102	Western University, Faculty of Medicine																																											2	0	102
103	Foreign Colleges					1	1			2	1	2	1	0	2	1	0	0	1							6	2	0	1							1	0	1	1	5	0			103
104	Miscellaneous Medical Colleges	5	9	1	0	1	2	4	1	23	20	0	2	0	3			0	1	19	10	1	2	6	1	7	6	4	0	6	1	0	2	3	3	2	9	1	1	1	8	9	11	1	0	104
105	Undergraduates											2	0																									2	0			13	25			105
	Totals by States	124		6		17		82		176		24		63		13		64		108		193		24		503		52		89		33		90		90		69		140		303		126		
	Totals—Examined—Passed	79		6		10		75		137		19		46		13		51		83		176		23		439		49		85		29		83		69		63		111		238		120		
	Totals—Examined—Failed	45		0		7		7		39		5		17		0		13		25		17		1		64		3		4		4		7		21		6		29		65		6		
	Percentage of Failures	36.3		0.0		41.2		8.5		22.2		20.8		27.0		0.0		20.3		23.1		8.8		4.2		12.7		5.8		4.5		12.1		7.8		23.3		8.7		20.7		21.4		4.8		
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		

H.—Homeopathic; E.—Eclectic; P.—Passed; F.—Failed.

| Marginal Number | 23 Minnesota | | 24 Mississippi | | 25 Missouri | | 26 Montana | | 27 Nebraska | | 28 Nevada | | 29 New Hampshire | | 30 New Jersey | | 31 New Mexico | | 32 New York | | 33 North Carolina | | 34 North Dakota | | 35 Ohio | | 36 Oklahoma | | 37 Oregon | | 38 Pennsylvania | | 39 Rhode Island | | 40 South Carolina | | 41 South Dakota | | 42 Tennessee | | 43 Texas | | 44 Utah | | 45 Vermont | | 46 Virginia | | 47 Washington | | 48 West Virginia | | 49 Wisconsin | | 50 Wyoming | | Totals | Examined—Passed | Examined—Failed | Percentage of Failures | No. States Ex. in | Marginal Number |
|---|---|---

Marginal Number	NAME OF COLLEGE	1 Alabama P	1 Alabama F	2 Alaska P	2 Alaska F	3 Arizona P	3 Arizona F	4 Arkansas P	4 Arkansas F	5 California P	5 California F	6 Colorado P	6 Colorado F	7 Connecticut P	7 Connecticut F	8 Delaware P	8 Delaware F	9 District of Columbia P	9 District of Columbia F	10 Florida P	10 Florida F	11 Georgia P	11 Georgia F	12 Idaho P	12 Idaho F	13 Illinois P	13 Illinois F	14 Indiana P	14 Indiana F	15 Iowa P	15 Iowa F	16 Kansas P	16 Kansas F	17 Kentucky P	17 Kentucky F	18 Louisiana P	18 Louisiana F	19 Maine P	19 Maine F	20 Maryland P	20 Maryland F	21 Massachusetts P	21 Massachusetts F	22 Michigan P	22 Michigan F	Marginal Number
	ALABAMA																																													
1	Birmingham Medical College	17	25																	1	2	12	2																							1
2	University of Alabama, School of Medicine	10	1																																	2	1									2
	ARKANSAS																																												
3	University of Arkansas, Medical Dept.							21	1																																					3
	CALIFORNIA																																												
4	California Eclectic Medical College.—E.							1	0	6	6																																			4
5	College of Medical Evangelists									9	0																																			5
6	College of Physicians and Surgeons, Los Angeles					1	0			25	3																																			6
7	College of Physicians and Surgeons, San Francisco					0	1			3	1																																			7
8	Hahnemann Medical College of the Pacific.—H.									7	0																																			8
9	Leland Stanford Junior Univ., School of Medicine									14	0																																			9
10	Oakland College of Medicine and Surgery									5	1																																			10
11	University of California Medical School									14	0																																			11
	COLORADO																																												
12	University of Colorado, School of Medicine											7	0											1	0																					12
	CONNECTICUT																																												
13	Yale University, School of Medicine													4	0																													1	0			13
	DISTRICT OF COLUMBIA																																												
14	Georgetown University, School of Medicine																	14	0							1	0													2	0	4	2			14
15	George Washington University Medical School																	15	2																	2	0									15
16	Howard University, School of Medicine																	9	5			1	0			0	1	1	0			3	0			2	1			4	3					16
	GEORGIA																																												
17	Atlanta Medical College	10	2																	15	2	115	2															1	0			1	0			17
18	Georgia College of Eclectic Med. and Surg.—E.							2	0													1	0											1	0											18
19	University of Georgia, Medical Department			1	0															0	2	12	0																							19
	ILLINOIS																																												
20	Bennett Medical College																			0	1	2	1			64	16			1	0	1	0							0	1					20
21	Chicago College of Medicine and Surgery	3	2					1	0	0	1							1	0			1	1			77	16	1	0	11	0					1	1			1	1	3	0	2	0	21
22	Chicago Hospital College of Medicine																									2	3																			22
23	Hahnemann Medical College and Hospital.—H.											1	0							2	0					20	4			1	0													23
24	Jenner Medical College																									21	1																			24
25	Northwestern University Medical School									1	0															34	1	1	0	6	0	1	0											25
26	Rush Medical College					1	0			2	0											1	0	1	0	75	0	2	0	2	0	1	0			1	0					1	0			26
27	University of Illinois, College of Medicine					1	0			1	0											1	0	2	0	87	2	0	1	6	0											1	0			27
	INDIANA																																												
28	Indiana University, School of Medicine																											27	0	1	0			1	0											28
	IOWA																																												
29	State University of Iowa, College of Medicine									1	0															1	0			23	0															29
30	State Univ. of Iowa, Coll. of Homeo. Med.—H.																													2	0															30
	KANSAS																																												
31	University of Kansas, School of Medicine																															11	0											31
	KENTUCKY																																												
32	University of Louisville, Medical Department	1	0									1	0							3	0	1	0			1	1	7	0					55	3					0	1					32
	LOUISIANA																																												
33	Tulane University of Louisiana, School of Med.	7	0							1	0			1	0					4	0															52	3									33
	MAINE																																												
34	Bowdoin Medical School																																					22	1			4	1			34
	MARYLAND																																												
35	College of Physicians and Surgeons of Baltimore													1	0					1	0																	2	0	13	5	5	[illegible]			35
36	Johns Hopkins University, Medical Department	1	0							1	0			4	0			4	0	1	0	2	0			2	0	1	0	1	0									36	0	7	0			36
37	University of Maryland, School of Medicine													1	0											2	0											1	0	42	5	2	1			37
	MASSACHUSETTS																																												
38	Boston University, School of Medicine.—H.																															1	0					2	0			13	0			38
39	College of Physicians and Surgeons, Boston													0	1					3	0																	6	1			[illegible]	3			39
40	Medical School of Harvard University							1	1					4	1											4	0	1	0	3	0							8	0	1	1	48	0			40
41	Tufts College Medical School													1	0							1	0			1	0			1	0							4	1			63	9			41
	MICHIGAN																																												
42	Detroit College of Medicine and Surgery																																										45	2			42
43	University of Michigan Medical School	1	0																									1	0													1	0	40	1			43
44	University of Michigan, Homeo. Med. School.—H.																																											17	3			44
	MINNESOTA																																												
45	University of Minnesota Medical School																															1	0											45
	MISSOURI																																													
46	Eclectic Medical University.—E.							17	1																																					46
47	Kansas City Hahnemann Medical College.—H.																															1	1											47
48	National University of Arts and Sciences																									2	2			1	0															48
49	St. Louis College of Physicians and Surgeons																																	0	1									49
50	St. Louis University, School of Medicine	1	0					1	0																	3	1			2	0			1	0							1	0			50
51	Washington University Medical School																									2	0																			51
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		

H.—Homeopathic; E.—Eclectic; P.—Passed; F.—Failed.

| Marginal Number | 23 Minnesota | | 24 Mississippi | | 25 Missouri | | 26 Montana | | 27 Nebraska | | 28 Nevada | | 29 New Hampshire | | 30 New Jersey | | 31 New Mexico | | 32 New York | | 33 North Carolina | | 34 North Dakota | | 35 Ohio | | 36 Oklahoma | | 37 Oregon | | 38 Pennsylvania | | 39 Rhode Island | | 40 South Carolina | | 41 South Dakota | | 42 Tennessee | | 43 Texas | | 44 Utah | | 45 Vermont | | 46 Virginia | | 47 Washington | | 48 West Virginia | | 49 Wisconsin | | 50 Wyoming | | Totals | Examined—Passed | Examined—Failed | Percentage of Failures | No. States Ex. in | Marginal Number |
|---|---|---

Marginal Number	NAME OF COLLEGE	1 Alabama		2 Alaska		3 Arizona		4 Arkansas		5 California		6 Colorado		7 Connecticut		8 Delaware		9 District of Columbia		10 Florida		11 Georgia		12 Idaho		13 Illinois		14 Indiana		15 Iowa		16 Kansas		17 Kentucky		18 Louisiana		19 Maine		20 Maryland		21 Massachusetts		22 Michigan		Marginal Number
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	
	NEBRASKA																																											
52	Lincoln Medical College.—E.																																										52
53	John A. Creighton Medical College											4	0													2	0			2	0	1	0											53
54	University of Nebraska, College of Medicine																									1	0					1	0											54
	NEW HAMPSHIRE																																										
55	Dartmouth Medical School													1	0																							1	0					55
	NEW YORK																																										
56	Albany Medical College													2	0																									1	0			56
57	Columbia University, Coll. of Phys. and Surgs.	1	0							1	0	1	0	5	0																					1	0			3	0			57
58	Cornell University Medical College									1	0			0	1											1	0									1	0			1	0			58
59	Fordham University, School of Medicine																	1	1							1	0									1	0			1	0			59
60	Long Island College Hospital															1	0																							1	0			60
61	N. Y. Homeo. Med. Coll. and Flower Hosp.—H.					1	0			2	0			3	0	2	0	0	1																	2	0	2	0	1	0			61
62	N. Y. Medical College and Hosp. for Women.—H.																																										62
63	Syracuse University, College of Medicine															1	0																											63
64	University and Bellevue Hospital Med. Col.													1	0																													64
65	University of Buffalo, Medical Department																																											65
	NORTH CAROLINA																																										
66	Leonard Medical School	1	0																	0	1																							66
67	North Carolina Medical College																																											67
	OHIO																																										
68	Eclectic Medical College.—E.							1	0																																	1	0	68
69	Ohio State University, College of Medicine																																										69
70	Ohio State University, Coll. of Homeo. Med.—H.																																									70
71	University of Cincinnati, College of Medicine																																										71
72	Western Reserve University, School of Medicine	1	0																									1	0															72
	OKLAHOMA																																										
73	University of Oklahoma, School of Medicine					0	1																									4	0											73
	OREGON																																										
74	University of Oregon, Department of Medicine																																	1	0							1	0	74
	PENNSYLVANIA																																										
75	Hahnemann Medical College and Hospital.—H.															3	0																											75
76	Jefferson Medical College									7	0			3	0	3	0			2	0	2	0	1	0			1	0	1	0	1	0	1	0			1	0	3	1			76
77	Medico-Chirurgical College of Philadelphia	1	0							1	0			1	1	2	0																							1	0			77
78	Temple University, Department of Medicine																																					2	0	3	0			78
79	University of Pennsylvania, School of Medicine	1	0							1	0											2	0	1	0									1	0	1	0			2	0	3	0	79
80	University of Pittsburgh, School of Medicine											0	1																												1	0	80
81	Woman's Medical College of Pennsylvania									1	0																													2	0			81
	SOUTH CAROLINA																																										
82	Medical College of the State of South Carolina																			1	0																							82
	TENNESSEE																																										
83	Lincoln Memorial University, Medical Dept.																																	2	0									83
84	Meharry Medical College	3	1					2	2	0	1			0	1			0	1	4	3	17	7			3	3					0	1	5	0	1	1							84
85	University of Tennessee, College of Medicine	5	1					14	0											1	0	1	0													3	4	1	0					85
86	Univ. of West Tennessee, Coll. of Med. and Surg.																			0	1																	1	0			0	2			86
87	Vanderbilt University, Medical Department	7	1			0	1	4	1			1	0							1	1	0	1											12	0									87
	TEXAS																																										
88	Baylor University, College of Medicine																																										88
89	Fort Worth School of Medicine																																										89
90	Southern Methodist University, Medical Dept.																																										90
91	University of Texas, Department of Medicine																									1	0																	91
	VERMONT																																										
92	University of Vermont, College of Medicine													6	2			1	0	1	0			1	0	1	0													4	1	1	0	92
	VIRGINIA																																										
93	Medical College of Virginia																																	1	0					0	3			93
94	University of Virginia, Department of Medicine	1	0					1	0																	1	0											2	0	1	0			94
	WISCONSIN																																										
95	Marquette University, School of Medicine									1	0													1	0	1	0																	95
	CANADA																																										
96	Laval University, Faculty of Medicine																																							1	1			96
97	McGill University, Faculty of Medicine									1	0																													2	0			97
98	Montreal School of Medicine and Surgery																																							0	1			98
99	Queen's University, Faculty of Medicine																													1	0													99
100	University of Manitoba, Manitoba Med. Coll.																																										100
101	University of Toronto, Faculty of Medicine																													1	0					1	0	0	1			2	0	101
102	Western University, Faculty of Medicine																																									2	0	102
103	Foreign Colleges									2	1	9	1	0	1			0	1							2	2	0	1									1	0	1	0			103
104	Miscellaneous Medical Colleges	1	0					1	0	18	18			0	3			0	1	2	4	1	0	1	0	1	0					0	2	3	2	2	5	0	1	1	7	6	8			104
	Totals by States	112		1		7		71		160		17		49		11		57		59		187		9		467		46		66		32		88		85		59		135		225		123		
	Totals—Examined—Passed	73		1		4		66		127		15		38		11		45		42		173		9		414		44		66		28		82		69		54		108		193		117		
	Totals—Examined—Failed	39		0		3		5		33		2		11		0		12		17		14		0		53		2		0		4		6		16		5		27		32		6		
	Percentage of Failures	34.8		0.0		42.9		7.0		20.6		11.8		2.0		0.0		21.1		28.8		7.5		0.0		11.3		4.3		0.0		12.5		6.8		18.8		8.5		20.0		14.2		4.9		
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		

H.—Homeopathic; E.—Eclectic; P.—Passed; F.—Failed.

| Marginal Number | 23 Minnesota | | 24 Mississippi | | 25 Missouri | | 26 Montana | | 27 Nebraska | | 28 Nevada | | 29 New Hampshire | | 30 New Jersey | | 31 New Mexico | | 32 New York | | 33 North Carolina | | 34 North Dakota | | 35 Ohio | | 36 Oklahoma | | 37 Oregon | | 38 Pennsylvania | | 39 Rhode Island | | 40 South Carolina | | 41 South Dakota | | 42 Tennessee | | 43 Texas | | 44 Utah | | 45 Vermont | | 46 Virginia | | 47 Washington | | 48 West Virginia | | 49 Wisconsin | | 50 Wyoming | | Totals | Examined—Passed | Examined—Failed | Percentage of Failures | No. States Ex. in | Marginal Number |
|---|---|---

Marginal Number	NAME OF COLLEGE	Graduates of All Years					Graduates of 1911-1915					Graduates of 1910 and Previous					Graduates of 1915					Marginal Number
		Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	
	ALABAMA																					
1	Birmingham Medical College	72	40	32	44.4	7	72	40	32	44.4	7	.....	.....	.....	.....	.....	43	25	18	42.0	7	1
2	University of Alabama, School of Medicine	16	14	2	12.5	3	14	12	2	14.3	2	2	2	0	0.0	2	11	10	1	9.1	1	2
	ARKANSAS																					
3	University of Arkansas, Medical Dept.	27	24	3	11.1	3	27	24	3	11.1	3	.....	.....	.....	.....	.....	19	19	0	0.0	1	3
	CALIFORNIA																					
4	California Eclectic Medical College.—E.	23	16	7	30.4	5	23	16	7	30.4	5	.....	.....	.....	.....	.....	12	7	5	41.7	2	4
5	College of Medical Evangelists	10	9	1	10.0	2	10	9	1	10.0	2	.....	.....	.....	.....	.....	7	7	0	0.0	1	5
6	College of Physicians and Surgeons, Los Angeles.	31	28	3	9.7	4	31	28	3	9.7	4	.....	.....	.....	.....	.....	21	21	0	0.0	1	6
7	College of Physicians and Surgeons, San Francisco	12	9	3	25.0	5	10	7	3	30.0	4	2	2	0	0.0	2	2	1	1	50.0	1	7
8	Hahnemann Medical College of the Pacific.—H.	9	9	0	0.0	3	9	9	0	0.0	3	.....	.....	.....	.....	.....	5	5	0	0.0	1	8
9	Leland Stanford Junior Univ., School of Medicine	14	14	0	0.0	1	14	14	0	0.0	1	.....	.....	.....	.....	.....	14	14	0	0.0	1	9
10	Oakland College of Medicine and Surgery	6	5	1	16.7	1	6	5	1	16.7	1	.....	.....	.....	.....	.....	4	4	0	0.0	1	10
11	University of California Medical School	16	15	1	6.3	3	14	14	0	0.0	1	2	1	1	50.0	2	12	12	0	0.0	1	11
	COLORADO																					
12	University of Colorado, School of Medicine	13	13	0	0.0	5	13	13	0	0.0	5	.....	.....	.....	.....	.....	6	6	0	0.0	1	12
	CONNECTICUT																					
13	Yale University, School of Medicine	10	10	0	0.0	6	8	8	0	0.0	4	2	2	0	0.0	2	3	3	0	0.0	1	13
	DISTRICT OF COLUMBIA																					
14	Georgetown University, School of Medicine	34	30	4	11.8	9	33	29	4	12.1	8	1	1	0	0.0	1	14	14	0	0.0	5	14
15	George Washington University Medical School	38	33	5	13.2	12	31	27	4	12.9	8	7	6	1	14.3	6	23	19	4	17.4	5	15
16	Howard University, School of Medicine	46	33	13	28.3	13	45	33	12	26.7	13	1	0	1	100.0	1	8	8	0	0.0	5	16
	GEORGIA																					
17	Atlanta Medical College	172	157	15	8.7	11	172	157	15	8.7	11	.....	.....	.....	.....	.....	158	148	10	6.3	10	17
18	Georgia College of Eclectic Med. and Surg.—E.	6	5	1	16.7	5	6	5	1	16.7	5	.....	.....	.....	.....	.....	1	1	0	0.0	1	18
19	University of Georgia, Medical Department	18	14	4	22.2	6	17	14	3	17.7	5	1	0	1	100.0	1	14	13	1	7.2	3	19
	ILLINOIS																					
20	Bennett Medical College	119	96	23	19.3	15	114	92	22	19.3	15	5	4	1	20.0	3	79	68	11	13.9	9	20
21	Chicago College of Medicine and Surgery	182	140	42	23.1	29	179	139	40	22.3	29	3	1	2	66.7	3	116	96	20	17.2	20	21
22	Chicago Hospital College of Medicine	6	2	4	66.7	2	6	2	4	66.7	2	.....	.....	.....	.....	.....	8	5	3	37.5	3	22
23	Hahnemann Medical College and Hospital.—H.	47	39	8	17.0	13	30	26	4	13.3	6	17	13	4	23.5	9	20	17	3	15.0	4	23
24	Jenner Medical College	24	22	2	8.3	2	22	21	1	4.5	1	2	1	1	50.0	1	19	19	0	0.0	1	24
25	Northwestern University Medical School	57	55	2	3.5	10	51	50	1	2.0	10	6	5	1	16.7	4	33	33	0	0.0	4	25
26	Rush Medical College	146	143	3	2.1	28	128	128	0	0.0	24	18	15	3	16.7	11	86	86	0	0.0	14	26
27	University of Illinois, College of Medicine	138	129	9	6.5	18	130	124	6	4.6	18	8	5	3	37.5	5	99	98	1	1.0	9	27
	INDIANA																					
28	Indiana University, School of Medicine	34	33	1	2.9	8	31	31	0	0.0	5	3	2	1	33.3	3	28	28	0	0.0	3	28
	IOWA																					
29	State University of Iowa, College of Medicine	30	29	1	3.3	7	25	25	0	0.0	3	5	4	1	20.0	5	24	24	0	0.0	2	29
30	State Univ. of Iowa, Coll. of Homeo. Med.—H.	3	3	0	0.0	2	2	2	0	0.0	1	1	1	0	0.0	1	2	2	0	0.0	1	30
	KANSAS																					
31	University of Kansas, School of Medicine	17	16	1	5.9	5	16	16	0	0.0	4	1	0	1	100.0	1	12	12	0	0.0	2	31
	KENTUCKY																					
32	University of Louisville, Medical Department	110	95	15	13.6	25	101	89	12	11.9	22	9	6	3	33.3	6	74	73	1	1.4	14	32
	LOUISIANA																					
33	Tulane University of Louisiana, School of Med.	116	111	5	4.3	15	104	100	4	3.8	11	12	11	1	8.3	8	86	83	3	3.5	6	33
	MAINE																					
34	Bowdoin Medical School	30	28	2	6.7	4	29	27	2	6.9	3	1	1	0	0.0	1	26	25	1	3.8	2	34
	MARYLAND																					
35	College of Physicians and Surgeons of Baltimore	73	58	15	20.5	15	67	54	13	19.3	14	6	4	2	33.3	4	32	29	3	9.4	8	35
36	Johns Hopkins University, Medical Department	114	110	4	3.5	25	102	100	2	2.0	25	12	10	2	16.7	9	50	50	0	0.0	11	36
37	University of Maryland, School of Medicine	86	78	8	9.3	16	83	75	8	9.6	14	3	3	0	0.0	3	58	54	4	6.9	9	37
	MASSACHUSETTS																					
38	Boston University, School of Medicine.—H.	25	24	1	4.0	9	20	20	0	0.0	7	5	4	1	20.0	5	19	19	0	0.0	6	38
39	College of Physicians and Surgeons, Boston	28	17	11	39.3	8	22	15	7	31.8	6	6	2	4	66.7	5	5	5	0	0.0	2	39
40	Medical School of Harvard University	108	101	7	6.5	16	93	88	5	5.4	16	15	13	2	13.3	10	55	54	1	1.8	14	40
41	Tufts College Medical School	104	90	14	13.5	17	93	82	11	11.8	13	11	8	3	27.3	7	59	52	7	11.9	5	41
	MICHIGAN																					
42	Detroit College of Medicine and Surgery	53	49	4	7.5	6	50	46	4	8.0	3	3	3	0	0.0	3	48	46	2	4.2	2	42
43	University of Michigan Medical School	57	55	2	3.5	10	49	48	1	2.0	7	8	7	1	12.5	7	43	42	1	2.3	3	43
44	University of Michigan, Homeo. Med. School.—H.	29	23	6	20.7	5	28	22	6	21.4	5	1	1	0	0.0	1	20	17	3	15.0	1	44
	MINNESOTA																					
45	University of Minnesota Medical School	48	47	1	2.1	7	43	43	0	0.0	5	5	4	1	20.0	4	37	37	0	0.0	3	45
	MISSOURI																					
46	Eclectic Medical University.—E.	23	20	3	13.0	3	19	18	1	5.3	2	4	2	2	50.0	2	16	15	1	6.3	2	46
47	Kansas City Hahnemann Medical College.—H.	6	4	2	33.3	3	5	3	2	40.0	2	1	1	0	0.0	1	4	2	2	50.0	2	47
48	National University of Arts and Sciences	47	44	3	6.4	4	46	43	3	6.5	3	1	1	0	0.0	1	36	36	0	0.0	1	48
49	St. Louis College of Physicians and Surgeons	32	22	10	31.2	9	22	16	6	27.3	5	10	6	4	40.0	6	15	11	4	26.7	5	49
50	St. Louis University, School of Medicine	55	52	3	5.5	16	49	48	1	2.0	13	6	4	2	33.3	3	38	38	0	0.0	6	50
51	Washington University Medical School	35	35	0	0.0	7	30	30	0	0.0	5	5	5	0	0.0	5	26	26	0	0.0	2	51

H.—Homeopathic; E.—Eclectic.

Marginal Number	NAME OF COLLEGE	Graduates of All Years					Graduates of 1911-1915					Graduates of 1910 and Previous					Graduates of 1915					Marginal Number
		Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	
	NEBRASKA																					
52	Lincoln Medical College.—E.	9	5	4	44.4	2	7	5	2	28.6	1	2	0	2	100.0	2	6	5	1	16.7	1	52
53	John A. Creighton Medical College	62	60	2	3.2	11	60	59	1	1.7	11	2	1	1	50.0	1	45	44	1	2.2	7	53
54	University of Nebraska, College of Medicine	15	15	0	0.0	6	14	14	0	0.0	5	1	1	0	0.0	1	11	11	0	0.0	3	54
	NEW HAMPSHIRE																					
55	Dartmouth Medical School	11	10	1	9.1	8	4	4	0	0.0	4	7	6	1	14.3	5	.....	.....	.....	.....	.....	55
	NEW YORK																					
56	Albany Medical College	81	63	18	22.2	6	78	60	18	23.1	5	3	3	0	0.0	3	34	31	3	8.8	1	56
57	Columbia University, Coll. of Phys. and Surgs.	108	98	10	9.3	18	98	89	9	9.2	12	10	9	1	10.7	7	51	45	6	11.8	7	57
58	Cornell University Medical College	29	27	2	6.9	8	29	27	2	6.9	8	.....	.....	.....	.....	.....	15	14	1	6.7	5	58
59	Fordham University, School of Medicine	58	36	22	37.9	6	58	36	22	37.9	6	.....	.....	.....	.....	.....	27	18	9	33.3	2	59
60	Long Island College Hospital	108	98	10	9.3	5	104	95	9	8.7	4	4	3	1	25.0	3	69	65	4	5.8	1	60
61	N. Y. Homeo. Med. Coll. and Flower Hosp.—H.	88	63	25	28.4	13	88	63	25	28.4	13	.....	.....	.....	.....	.....	41	33	8	19.5	9	61
62	N. Y. Medical College and Hosp. for Women.—H.	7	5	2	28.6	1	7	5	2	28.6	1	.....	.....	.....	.....	.....	4	3	1	25.0	1	62
63	Syracuse University, College of Medicine	24	20	4	16.7	4	22	18	4	18.2	2	2	2	0	0.0	2	9	8	1	11.1	1	63
64	University and Bellevue Hospital Med. Col.	103	99	4	3.9	7	97	93	4	4.1	4	6	6	0	0.0	5	69	67	2	2.9	2	64
65	University of Buffalo, Medical Department	67	61	6	8.9	3	65	60	5	7.7	2	2	1	1	50.0	2	52	50	2	3.8	1	65
	NORTH CAROLINA																					
66	Leonard Medical School	13	9	4	30.8	5	12	8	4	33.3	4	1	1	0	0.0	1	.....	.....	.....	.....	.....	66
67	North Carolina Medical College	32	22	10	31.2	4	30	22	8	26.7	4	2	0	2	100.0	2	21	17	4	19.0	2	67
	OHIO																					
68	Eclectic Medical College.—E.	30	28	2	6.7	8	25	24	1	4.0	6	5	4	1	20.0	3	23	23	0	0.0	4	68
69	Ohio State University, College of Medicine	54	52	2	3.7	5	53	51	2	3.8	4	1	1	0	0.0	1	47	47	0	0.0	2	69
70	Ohio State University, Coll. of Homeo. Med.—H.	20	19	1	5.0	1	20	19	1	5.0	1	.....	.....	.....	.....	.....	20	19	1	5.0	1	70
71	University of Cincinnati, College of Medicine	20	19	1	5.0	2	20	19	1	5.0	2	.....	.....	.....	.....	.....	19	19	0	0.0	1	71
72	Western Reserve University, School of Medicine	37	37	0	0.0	5	36	36	0	0.0	4	1	1	0	0.0	1	33	33	0	0.0	2	72
	OKLAHOMA																					
73	University of Oklahoma, School of Medicine	19	16	3	15.8	4	19	16	3	15.8	4	.....	.....	.....	.....	.....	18	16	2	11.1	3	73
	OREGON																					
74	University of Oregon, Department of Medicine	26	20	6	23.1	5	21	17	4	19.0	4	5	3	2	40.0	3	18	14	4	22.2	3	74
	PENNSYLVANIA																					
75	Hahnemann Medical College and Hospital.—H.	19	19	0	0.0	9	15	15	0	0.0	7	4	4	0	0.0	2	7	7	0	0.0	5	75
76	Jefferson Medical College	167	154	13	7.8	30	158	146	12	7.6	29	9	8	1	11.1	8	41	41	0	0.0	14	76
77	Medico-Chirurgical College of Philadelphia	73	64	9	12.3	15	68	61	7	10.3	13	5	3	2	40.0	5	10	7	3	30.0	6	77
78	Temple University, Department of Medicine	22	18	4	18.2	5	22	18	4	18.2	5	.....	.....	.....	.....	.....	4	4	0	0.0	3	78
79	University of Pennsylvania, School of Medicine	91	85	6	6.6	22	74	73	1	1.4	18	17	12	5	29.4	8	17	17	0	0.0	9	79
80	University of Pittsburgh, School of Medicine	48	44	4	8.3	6	47	44	3	6.4	5	1	0	1	100.0	1	1	1	0	0.0	1	80
81	Woman's Medical College of Pennsylvania	29	27	2	6.9	13	24	22	2	8.3	10	5	5	0	0.0	4	12	11	1	8.3	7	81
	SOUTH CAROLINA																					
82	Medical College of the State of South Carolina	35	27	8	22.9	3	32	27	5	15.6	3	3	0	3	100.0	2	28	26	2	7.1	3	82
	TENNESSEE																					
83	Lincoln Memorial University, Medical Dept.	16	14	2	12.5	4	16	14	2	12.5	4	.....	.....	.....	.....	.....	7	7	0	0.0	4	83
84	Meharry Medical College	137	91	46	33.6	23	128	87	41	32.0	22	9	4	5	55.6	8	91	71	20	22.0	15	84
85	University of Tennessee, College of Medicine	80	65	15	18.7	13	76	63	13	17.1	11	4	2	2	50.0	4	48	43	5	10.4	7	85
86	Univ. of West Tennessee, Coll. of Med. and Surg.	42	25	17	40.5	8	42	25	17	40.5	8	.....	.....	.....	.....	.....	18	11	7	38.9	5	86
87	Vanderbilt University, Medical Department	92	83	9	9.8	18	82	76	6	7.3	14	10	7	3	30.0	8	62	59	3	4.8	12	87
	TEXAS																					
88	Baylor University, College of Medicine	20	20	0	0.0	3	20	20	0	0.0	3	.....	.....	.....	.....	.....	19	19	0	0.0	3	88
89	Fort Worth School of Medicine	13	12	1	7.7	2	12	11	1	8.3	1	1	1	0	0.0	1	11	11	0	0.0	1	89
90	Southern Methodist University, Medical Dept.	6	6	0	0.0	2	6	6	0	0.0	2	.....	.....	.....	.....	.....	1	1	0	0.0	1	90
91	University of Texas, Department of Medicine	34	34	0	0.0	3	34	34	0	0.0	3	.....	.....	.....	.....	.....	29	29	0	0.0	1	91
	VERMONT																					
92	University of Vermont, College of Medicine	68	60	8	11.8	13	57	51	6	10.5	11	11	9	2	18.2	6	30	29	1	3.3	5	92
	VIRGINIA																					
93	Medical College of Virginia	111	97	14	12.6	7	111	97	14	12.6	7	.....	.....	.....	.....	.....	90	79	11	12.2	7	93
94	University of Virginia, Department of Medicine	40	40	0	0.0	15	32	32	0	0.0	12	8	8	0	0.0	6	19	19	0	0.0	5	94
	WISCONSIN																					
95	Marquette University, School of Medicine	54	52	2	3.7	7	54	52	2	3.7	7	.....	.....	.....	.....	.....	46	46	0	0.0	3	95
	CANADA																					
96	Laval University, Faculty of Medicine	4	2	2	50.0	2	2	1	1	50.0	1	2	1	1	50.0	2	2	1	1	50.0	1	96
97	McGill University, Faculty of Medicine	16	15	1	6.3	6	10	10	0	0.0	5	6	5	1	16.7	4	2	2	0	0.0	1	97
98	Montreal School of Medicine and Surgery	2	0	2	100.0	2	2	0	2	100.0	2	.....	.....	.....	.....	.....	1	0	1	100.0	1	98
99	Queen's University, Faculty of Medicine	14	11	3	21.4	6	10	7	3	30.0	4	4	4	0	0.0	4	2	1	1	50.0	1	99
100	University of Manitoba, Manitoba Med. Coll.	2	2	0	0.0	1	2	2	0	0.0	1	.....	.....	.....	.....	.....	2	2	0	0.0	1	100
101	University of Toronto, Faculty of Medicine	19	16	3	15.8	11	9	8	1	11.1	6	10	8	2	20.0	7	3	2	1	33.3	3	101
102	Western University, Faculty of Medicine	3	3	0	0.0	2	3	3	0	0.0	2	.....	.....	.....	.....	.....	1	1	0	0.0	1	102
103	Foreign Colleges	86	52	34	39.5	26	29	15	14	48.3	15	57	37	20	35.1	21	.....	.....	.....	.....	.....	103
104	Miscellaneous Medical Colleges	329	185	144	43.8	45	139	67	72	51.8	35	190	118	72	37.9	38	6	6	0	0.0	2	104
105	Undergraduates	65	33	32	49.2	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	105
	Totals	5313	4486	827	15.6	....	4627	4014	613	13.2	....	621	439	182	29.3	...	2892	2674	218	7.5	....	

H.—Homeopathic; E.—Eclectic.

TABLE D.—NONRECOGNITION OF MEDICAL COLLEGES

This Table, Based on Official Reports, Shows the Numerous Pitfalls to be Avoided by Prospective Medical Students

The meaning of the letters (**a, b, c, d, x**) is given in the footnotes.

| Marginal Number | COLLEGE | Classification by Council on Medical Education† | 1 Alabama | 2 Alaska | 3 Arizona | 4 Arkansas | 5 California | 6 Colorado | 7 Connecticut | 8 Delaware | 9 Dist. of Columbia | 10 Florida | 11 Georgia | 12 Idaho | 13 Illinois | 14 Indiana | 15 Iowa | 16 Kansas | 17 Kentucky | 18 Louisiana | 19 Maine | 20 Maryland | 21 Massachusetts | 22 Michigan | 23 Minnesota | 24 Mississippi | 25 Missouri | 26 Montana | 27 Nebraska | 28 Nevada | 29 New Hampshire | 30 New Jersey | 31 New Mexico | 32 New York | 33 North Carolina | 34 North Dakota | 35 Ohio | 36 Oklahoma | 37 Oregon | 38 Pennsylvania | 39 Rhode Island | 40 South Carolina | 41 South Dakota | 42 Tennessee | 43 Texas | 44 Utah | 45 Vermont | 46 Virginia | 47 Washington | 48 West Virginia | 49 Wisconsin | 50 Wyoming | 51 Porto Rico | Reported Nonrecognition by State Licensing Boards: No. of State Boards apparently giving full recognition | No. of State Boards reporting college not fully recognized | Percentage of State Boards granting full recognition | Marginal Number |
|---|---|---

| | | |

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this result. Justice to such candidates, who have been licensed, but who, for good reasons, desire to change their locations, is the strongest argument for interstate reciprocity in medical licensure, or for special percentage allowances at the examinations for years of practice. The total number of these candidates is diminishing each year as increased reciprocal relations are established. As a rule, the states which do not have reciprocal relations with other states (as Florida, Montana, Massachusetts, Oregon, Washington, see Table 1) examined the largest number of old practitioners.

GRADUATES OF 1915 EXAMINED DURING 1915

Table C also gives the results for the graduates of 1915 who were examined during the year by the state boards, and shows that 2,892, or 54.4 per cent., of all candidates examined during the year graduated in 1915, including 13 who graduated from Canadian medical colleges. Educational statistics show that the medical colleges of the United States graduated 3,536 students last year; therefore, 81.4 per cent. of all graduates in 1915 took examinations for license during that year. In some of the states graduates in medicine are allowed to serve as hospital interns without first becoming licensed practitioners, which doubtless accounts for some of the remaining 18.6 per cent. Of the 1915 graduates examined, 218, or 7.5 per cent., failed.

TABLE E.—COLLEGES GROUPED BY STATES
Showing the Number Examined and Percentage of Failures

All Colleges of	Graduates: Of All Years, Number Examined	Of All Years, Per Cent. Failed	Of 1911 to 1915, Number Examined	Of 1911 to 1915, Per Cent. Failed	Of 1910 & Prev., Number Examined	Of 1910 & Prev., Per Cent. Failed	Of 1915, Number Examined	Of 1915, Per Cent. Failed	State Rank According to the Number Examined	Rank According to Successes at Examinations
Alabama	88	38.6	86	39.5	2	0.0	54	35.1	16	31
Arkansas	27	11.1	27	11.1	.....	.....	19	0.0	27	19
California	121	13.2	117	12.8	4	25.0	77	7.6	12	23
Colorado	13	0.0	13	0.0	.....	.....	6	0.0	31	1
Connecticut	10	0.0	8	0.0	2	0.0	3	0.0	33	1
Dist. of Columbia	118	28.8	109	18.3	9	22.2	45	8.8	13	29
Georgia	196	10.2	195	9.7	1	100.0	173	6.3	8	17
Illinois	719	12.9	660	10.9	59	25.4	460	8.3	1	22
Indiana	34	2.9	31	0.0	3	33.3	28	0.0	24	5
Iowa	33	3.0	27	0.0	6	16.7	26	0.0	25	6
Kansas	17	5.9	16	0.0	1	100.0	12	0.0	30	9
Kentucky	110	13.6	101	11.9	9	33.3	74	1.4	15	24
Louisiana	116	4.3	104	3.8	12	8.3	86	3.5	14	8
Maine	30	6.7	29	6.9	1	0.0	26	3.8	26	10
Maryland	273	9.9	252	9.1	21	19.0	140	5.0	5	16
Massachusetts	265	12.5	228	10.0	37	27.0	138	5.8	6	21
Michigan	139	8.6	127	8.7	12	8.3	111	5.4	11	13
Minnesota	48	2.1	43	0.0	5	20.0	37	0.0	21	4
Missouri	198	10.6	171	7.6	27	29.6	135	5.2	7	18
Nebraska	86	7.0	81	3.7	5	60.0	62	3.2	17	11
New Hampshire	11	9.1	4	0.0	7	14.3	.....	.....	32	14
New York	673	1.5	646	15.5	27	11.1	371	9.9	2	3
North Carolina	45	31.1	42	28.6	3	66.7	21	19.0	22	30
Ohio	161	3.7	154	3.2	7	14.3	142	0.7	9	7
Oklahoma	19	15.8	19	15.8	.....	.....	18	11.1	29	25
Oregon	26	23.1	21	19.0	5	40.0	18	22.2	28	27
Pennsylvania	449	8.5	408	7.1	41	22.0	92	4.3	3	12
South Carolina	35	22.9	32	15.6	3	100.0	28	7.1	23	26
Tennessee	367	24.3	344	23.0	23	34.8	226	15.6	4	28
Texas	73	1.4	72	1.4	1	0.0	60	0.0	18	2
Vermont	68	11.8	57	10.5	11	18.2	30	3.3	19	20
Virginia	151	9.3	143	9.8	8	0.0	109	10.1	10	15
Wisconsin	54	3.7	54	3.7	.....	.....	46	0.0	20	7
Totals Ex. in 1915	4773	17.3	4421	11.8	352	24.4	2892	7.5	....	....

This table gives data relating to the group of colleges in each state. For example, it shows that, of all the medical schools in Illinois, 719 graduates of various years were examined by state boards during 1915, and of this number, 12.9 per cent. failed. Of the 660 who graduated in recent years (1911 to 1915 inclusive), 10.9 per cent. failed; of the 59 who graduated previous to 1911, 25.4 per cent. failed, and of the 460 graduates of 1915, 8.3 per cent. failed.

The ninth column gives the rank of each state group of colleges according to the number of graduates examined. The Illinois group of colleges leads, having 719 graduates examined by state boards during 1915, followed by New York with 673, Pennsylvania with 449, Tennessee with 367, Maryland with 273 and Massachusetts with 265.

The tenth column gives the rank of each state group of colleges according to the success of the graduates at the examinations. It is interesting to compare the figures of these two last columns. While the Illinois group ranks first according to the number examined it ranks twenty-second in the success of its graduates at the examinations. While Pennsylvania ranks third as to the number examined, it ranks twelfth in the success of its graduates at the examinations, and while Tennessee ranks fourth as to the number examined, it ranks as the twenty-eighth in the success of its graduates at the examinations.

TOTAL RESULTS
Comparison with Previous Years

Year	Table A: Total Examined	Examined—Passed	Examined—Failed	Percentage Failed	B: Recent Grads. Examined	Percentage Failed	C: Older Prac. Examined	Percentage Failed	A: Nongrads Examined	Percentage Failed	I: Registered without Written Examination	Total Registered
1904	7035	5672	1363	19.3	4773	14.1	579	29.7	515	52.6	999	6671
1905	7170	5680	1490	20.8	6054	16.2	690	37.7	472	61.9	394	6074
1906	8035	6368	1667	20.7	6250	16.4	793	27.1	703	51.3	1497	7865
1907	7271	5723	1548	21.3	5922	15.1	675	27.7	674	69.6	1426	7149
1908	7770	6084	1686	21.7	6477	17.8	796	31.5	494	56.8	1276	7360
1909	7287	5857	1430	19.6	5891	15.4	958	30.0	438	54.1	1373	7220
1910	7004	5712	1292	18.4	5678	14.9	973	29.1	353	45.6	1640	7352
1911	6960	5578	1382	19.9	5685	17.2	945	29.4	330	38.5	1246	6824
1912	6879	5466	1413	20.5	5770	18.6	856	29.2	253	34.8	1257	6723
1913	6435	5236	1199	18.6	5390	16.5	225	32.1	251	37.8	1265	6501
1914	5570	4370	1200	21.6	4549	17.6	728	30.0	293	61.4	1427	5797
1915	5313	4486	827	15.6	4627	13.2	621	29.3	65	49.2	1386	5872

RESULTS FOR LARGER COLLEGES
Comparison with Previous Years (Table F)

Year	Colleges Represented	Total Examined	Per Cent. Failed	Colleges, 100 or More Examined	Total Examined	Per Cent. Failed	Colleges, 50 to 100 Examined	Total Examined	Per Cent. Failed	Colleges, Less than 50 Examined	Total Examined	Per Cent. Failed	Foreign, Misc., and Nongrads. Exam'd	Per Cent. Failed
1904	149	6241	16.4	14	2271	11.7	28	1817	16.9	107	2153	21.0	794	43.1
1905	153	6411	18.3	14	2350	12.4	37	2543	17.7	102	1518	28.9	759	51.1
1906	151	6938	17.3	16	2504	14.5	34	2381	16.9	96	2053	21.3	1097	42.5
1907	146	6207	13.8	12	1626	12.7	36	2578	14.7	98	2003	13.6	1064	55.5
1908	137	6491	17.2	19	2596	15.6	26	1825	15.5	92	2070	20.8	1279	14.6
1909	134	6341	16.2	17	2476	16.9	27	1920	12.3	90	1945	19.2	946	42.6
1910	121	5953	15.3	17	2379	13.3	25	1791	13.7	79	1783	19.3	1051	36.5
1911	119	6062	17.2	18	2508	11.0	28	1895	17.1	73	1659	20.1	898	37.6
1912	110	5563	17.1	12	1776	15.6	31	2148	17.3	67	1639	18.5	790	37.0
1913	99	5339	15.2	15	2143	12.6	27	815	37.5	57	1381	17.1	1096	35.2
1914	96	4597	16.6	13	1719	16.5	19	1342	12.5	64	1536	20.2	973	45.0
1915	95	4773	17.3	16	2043	11.5	19	1321	14.5	60	1409	13.1	540	40.9

NONRECOGNITION OF MEDICAL COLLEGES

Table D shows for each college the state in which its diplomas are not given unqualified recognition. Nonrecognition is expressed by different terms in different states. Some boards list colleges as "in good standing" or "not in good standing," some give them as "reputable" or "not reputable"; in New York full recognition is given only to colleges which are "registered," and in Michigan colleges are divided into groups, only those of Group I having full recognition. This table also shows the latest rating given to each college by the Council on Medical Education.

The information given in this table is from official correspondence, and the data have been most carefully verified. From the point of view of the prospective student who may be selecting a medical college, the facts are of extreme importance. The table shows that there are 42 medical colleges which have complete recognition in all states. If the student has completed two or more years' work in a recognized college or university before he gains entrance to a medical college, he may take his choice from among 16 other colleges, a diploma from which would admit him to the license examination in all states but South Dakota; without the two years of premedical collegiate training, however, he will find that his diploma will not enable him to secure a license in twelve states. If he gets his medical training in one of the remaining 38 colleges, he will find on graduation that his diploma is not recognized in from 13 to 35 states.

Without the information published in Table D, these state board statistics would be not merely incomplete—*they would be actually misleading.* For example, 24 graduates of the Jenner Medical College of Chicago were examined during 1915, 2 in California, and 22 in Illinois, and only 2, or 8.3 per cent., failed. The low failure percentage makes this college appear to rank among the best teaching institutions in the country. How different the picture, however, when the facts as set forth in Table D show that the diplomas of this college are not considered an acceptable qualification for the license to practice medicine in thirty-three states!

Thirty-four state licensing boards, to some extent at least, are utilizing their legal power to refuse recognition to medical colleges which do not meet certain educational standards, or which otherwise do not meet the requirements in the respective states. In the other 16 states, however, this table indicates that either the practice acts do not give the boards the right to enforce a requirement of reasonable standards, or else the boards are not exercising their authority in this respect. It is clearly evident that if the graduates of low-standard medical colleges are not eligible for license in the majority of states, they will flock to the other 16 which still grant them recognition. *These 16 states, therefore, will literally be the dumping ground for the output of low-grade medical colleges until the licensing boards obtain the needed legal powers, or until the boards having the authority take action in the matter.*

RECOGNITION OF MEDICAL COLLEGES

(*Based on Table D*)

	Number of Colleges
Recognized by all state boards	42
Not recognized by 1 to 12 state boards	23
Not recognized by 13 to 20 state boards	18
Not recognized by 21 to 35 state boards	13
Total	96

Study of Totals and Percentages

A study of totals and percentages as compared with previous years is of interest. The total examined in 1915—5,313—is the lowest number of candidates examined for license in any year since the compiling of these statistics began. There was a decrease of 257 below the number examined in 1914, 1,122 below the number examined in 1913, and a decrease of 2,522 below 1906, when 8,035 candidates were examined. Statistics regarding physicians licensed in the various states by reciprocity and by other methods are given

TABLE F.—COLLEGES HAVING FIFTY OR MORE EXAMINED

TABLE SHOWS TOTAL NUMBER EXAMINED, TOTAL NUMBER PASSED, TOTAL NUMBER FAILED, PERCENTAGE OF FAILURES AND NUMBER OF STATES IN WHICH EACH COLLEGE HAD REPRESENTATIVES

COLLEGE	Graduates of All Years					Graduates of 1911-1915					Graduates of 1910 and Previous					Graduates of 1915					Marginal Number, Table A
	Number Examined	Number Passed	Number Failed	Per Cent. Failed	No. of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	No. of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	No. of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	No. of States	
Chicago College of Medicine and Surgery	182	140	42	23.1	21	179	139	40	22.3	29	3	1	2	66.7	3	116	96	20	17.2	20	21
Atlanta Medical College	172	157	15	8.7	11	172	157	15	8.7	11	....	....	....	....	....	158	148	10	6.3	10	17
Jefferson Medical College	167	154	13	7.8	30	158	146	12	7.6	29	9	8	1	11.1	8	41	41	0	0.0	15	76
Rush Medical College	146	143	3	2.1	28	128	128	0	0.0	24	18	15	3	16.7	11	86	86	0	0.0	14	26
University of Illinois, College of Medicine	138	129	9	6.5	18	130	124	6	4.6	18	8	5	3	37.5	5	99	98	1	1.0	9	27
Meharry Medical College	137	91	46	33.6	23	128	87	41	32.0	22	9	4	5	55.6	8	91	71	20	22.0	15	84
Bennett Medical College	119	96	23	19.3	15	114	92	22	19.3	15	5	4	1	20.0	3	79	68	11	13.9	9	20
Tulane University of Louisiana	116	111	5	4.3	15	104	100	4	3.8	11	12	11	1	8.3	8	86	83	3	3.5	6	33
Johns Hopkins University, Medical Department	114	110	4	3.5	25	102	100	2	2.0	25	12	10	2	16.7	9	50	50	0	0.0	11	36
Medical College of Virginia	111	97	14	12.6	7	111	97	14	12.6	7	....	....	....	....	....	90	79	11	12.2	7	93
University of Louisville, Medical Department	110	95	15	13.6	25	101	89	12	11.9	22	9	6	3	33.3	6	74	73	1	1.4	14	32
Medical School of Harvard University	108	101	7	6.5	16	93	88	5	5.4	16	15	13	2	13.3	10	55	54	1	1.8	14	40
Columbia University, Coll. of Phys. and Surgs.	108	98	10	9.3	18	98	89	9	9.2	12	10	9	1	10.7	7	51	45	6	11.8	7	57
Long Island College Hospital	108	98	10	9.3	5	104	95	9	8.7	4	4	3	1	25.0	3	69	65	4	5.8	1	60
Tufts College Medical School	104	90	14	13.5	17	93	82	11	11.8	13	11	8	3	27.3	7	59	52	7	11.9	5	41
University and Bellevue Hospital Medical College	103	99	4	3.9	64	97	93	4	4.1	4	6	6	0	0.0	5	69	67	2	2.9	2	64
Vanderbilt University, Medical Department	92	83	9	9.8	18	82	76	6	7.3	14	10	7	3	30.0	8	62	59	3	4.8	12	87
University of Pennsylvania, School of Medicine	91	85	6	6.6	22	74	73	1	1.4	18	17	12	5	29.4	8	17	17	0	0.0	9	79
New York Homeo. Med. Coll. and Flower Hosp.	88	63	25	28.4	13	88	63	25	28.4	13	....	....	....	....	....	41	33	8	19.5	9	61
University of Maryland, School of Medicine	86	78	8	9.3	16	83	75	8	9.6	14	3	3	0	0.0	3	58	54	4	6.9	9	37
Albany Medical College	81	63	18	22.2	6	78	60	18	23.1	5	3	3	0	0.0	3	34	31	3	8.8	1	56
University of Tennessee, College of Medicine	80	65	15	18.7	13	76	63	13	17.1	11	4	2	2	50.0	4	48	43	5	10.4	7	85
College of Physicians and Surgeons, Baltimore	73	58	15	20.5	15	67	54	13	19.3	14	6	4	2	33.3	4	32	29	3	9.4	8	35
Medico-Chirurgical College of Philadelphia	73	64	9	12.3	15	68	61	7	10.3	13	5	3	2	40.0	5	10	7	3	30.0	6	77
Birmingham Medical College	72	40	32	44.4	7	72	40	32	44.4	7	....	....	....	....	....	43	25	18	42.0	7	1
University of Vermont, College of Medicine	68	60	8	11.8	13	57	51	6	10.5	11	11	9	2	18.2	6	30	29	1	3.3	5	92
University of Buffalo, Department of Medicine	67	61	6	8.9	3	65	60	5	7.7	2	2	1	1	50.0	2	52	50	2	3.8	1	65
John A. Creighton Medical College	62	60	2	3.2	11	60	59	1	1.7	11	2	1	1	50.0	1	45	44	1	2.2	7	53
Fordham University, School of Medicine	58	36	22	37.9	6	58	36	22	37.9	6	....	....	....	....	....	27	18	9	33.3	2	59
Northwestern University Medical School	57	55	2	3.5	25	51	50	1	2.0	10	6	5	1	16.7	4	33	33	0	0.0	4	25
University of Michigan Medical School	57	55	2	3.5	43	49	48	1	2.0	7	8	7	1	12.5	7	43	42	1	2.3	3	43
St. Louis University, School of Medicine	55	52	3	5.5	16	49	48	1	2.0	13	6	4	2	33.3	3	38	38	0	0.0	6	50
Ohio State University, College of Medicine	54	52	2	3.7	5	53	51	2	3.8	4	1	1	0	0.0	1	47	47	0	0.0	2	69
Marquette University, School of Medicine	54	52	2	3.7	7	54	52	2	3.7	7	....	....	....	....	....	46	46	0	0.0	3	95
Detroit College of Medicine and Surgery	53	49	4	7.5	6	50	46	4	8.0	3	3	3	0	0.0	3	48	46	2	4.2	2	42
Totals	3364	2940	424	12.6	....	3146	2772	374	11.9	....	218	168	50	22.9	....	2027	1867	160	7.9	....	

This table is especially interesting, since it gives data relating to the 35 larger medical colleges arranged according to the number of graduates examined. This allows of comparison between colleges having classes of nearly equal size. For the third consecutive year the Chicago College of Medicine and Surgery has had the largest number, the position having been held by the College of Physicians and Surgeons of Chicago in 1906, 1907 and 1912. In 1908 Jefferson Medical College had the highest number examined. In 1909, 1910 and 1911 the University of Louisville Medical Department had the largest number examined. The first place from the standpoint of the number examined, however, does not always mean first place from the standpoint of scholarship. Note the percentages of failures.

Of the 16 colleges having 100 or more examined, 10 have failure percentages of less than 10, while six stand out prominently with large failure percentages — 12.6, 13.5, 13.6, 19.3, 23.1 and 33.6. These high percentages hold for five of these colleges even in respect to graduates of 1915. The three highest failure percentages are for Meharry Medical College, 33.6; Chicago College of Medicine and Surgery, 23.1, and Bennett Medical College, 19.3.

Of the 19 colleges having between 50 and 100 graduates examined, 11 had failure percentages of less than 10; 3 had failure percentages between 10 and 20, and 5 had failure percentages above 20, the three colleges having the highest failure percentages being Birmingham Medical College, 44.4; Fordham University, School of Medicine, 37.9, and New York Homeopathic Medical College and Flower Hospiptal, 28.4.

The average percentage of failures for these larger colleges for graduates of 1910 and previous years was 22.9; for graduates of 1911 to 1915 inclusive (recent graduates), 11.9; for graduates of 1915, 7.9, and for graduates of all years, 12.6. Of the 4,773 graduates of the 95 colleges in the United States which had graduates examined by state boards in 1915, these larger (36.8 per cent. of all) schools furnished 3,364, or 70.5 per cent., of the graduates examined.

TABLE G.—COMPARISON OF RESULTS IN HOME STATES AND ELSEWHERE. BASED ON TABLE B

COLLEGES	Total Examined	Results in Home State			Results in Other States		
		Passed	Failed	Per Cent. Failed	Passed	Failed	Per Cent. Failed
ALABAMA ..... —24.9	**36**	**27**	**26**	**49.1**	**25**	**8**	**24.2**
Birmingham Medical College	72	17	25	59.5	23	7	42.5
University of Alabama, School of Med.	14	10	1	9.1	2	1	33.3
ARKANSAS ..... +35.5	**27**	**21**	**1**	**4.5**	**3**	**2**	**40.0**
University of Arkansas, Medical Dept.	27	21	1	4.5	3	2	40.0
CALIFORNIA ..... +5.7	**117**	**83**	**11**	**11.7**	**19**	**4**	**17.4**
California Eclectic Medical College	23	5	6	50.0	10	1	9.1
College of Medical Evangelists	10	9	0	0.0	0	1	100.0
College of Phys. and Surgs., Los Angeles	31	25	3	10.7	3	0	0.0
Coll. of Phys. and Surgs., San Francisco	10	3	1	25.0	4	2	33.3
Hahnemann Med. Coll. of the Pacific	0	7	0	0.0	2	0	0.0
Leland Stanford Junior University	14	14	0	0.0	0	0	0.0
Oakland College of Med. and Surg.	6	5	1	16.7	0	0	0.0
University of California Medical School	14	14	0	0.0	0	0	0.0
COLORADO ..... —	**13**	**7**	**0**	**0.0**	**6**	**0**	**0.0**
University of Colorado	13	7	0	0.0	6	0	0.0
CONNECTICUT ..... —	**8**	**4**	**0**	**0.0**	**4**	**0**	**0.0**
Yale University	8	4	0	0.0	4	0	0.0
DISTRICT OF COLUMBIA ..... +4.7	**109**	**38**	**7**	**15.6**	**51**	**13**	**20.3**
Georgetown University	33	14	0	0.0	15	4	21.1
George Washington University	31	15	2	11.8	12	2	14.3
Howard University	45	9	5	35.7	24	7	22.6
GEORGIA ..... +24.7	**195**	**128**	**2**	**1.5**	**48**	**17**	**26.2**
Atlanta Medical College	172	115	2	1.7	42	13	23.6
Georgia Coll. of Eclectic Med. and Surg.	0	1	0	0.0	4	1	20.0
University of Georgia	17	12	0	0.0	2	3	60.0
ILLINOIS ..... +4.6	**660**	**380**	**43**	**10.2**	**202**	**35**	**14.8**
Bennett Medical College	114	64	16	20.0	28	6	17.6
Chicago College of Med. and Surg.	179	77	16	17.2	62	24	27.9
Chicago Hospital College of Medicine	6	2	3	60.0	0	1	100.0
Hahnemann Medical College and Hosp.	30	20	4	16.7	6	0	0.0
Jenner Medical College	22	21	1	4.5	0	0	0.0
Northwestern University	51	34	1	2.9	16	0	0.0
Rush Medical College	128	75	0	0.0	53	0	0.0
University of Illinois	130	87	2	2.2	37	4	9.8
INDIANA ..... —	**31**	**27**	**0**	**0.0**	**4**	**0**	**0.0**
Indiana University	31	27	0	0.0	4	0	0.0
IOWA ..... —	**27**	**25**	**0**	**0.0**	**2**	**0**	**0.0**
State Univ. of Iowa Coll of Med.	25	23	0	0.0	2	0	0.0
State Univ. of Iowa, Coll. of Homeo. Med.	2	2	0	0.0	0	0	0.0
KANSAS ..... —	**16**	**11**	**0**	**0.0**	**5**	**0**	**0.0**
University of Kansas	16	11	0	0.0	5	0	0.0
KENTUCKY ..... +15.8	**101**	**55**	**3**	**5.2**	**34**	**9**	**21.0**
University of Louisville	101	55	3	5.2	34	9	21.0
LOUISIANA ..... —3.5	**104**	**52**	**3**	**5.5**	**48**	**1**	**2.0**
Tulane University of Louisiana	104	52	3	5.5	48	1	2.0
MAINE ..... +12.4	**29**	**22**	**1**	**4.3**	**5**	**1**	**16.7**
Bowdoin Medical College	29	22	1	4.3	5	1	16.7
MARYLAND ..... —1.3	**252**	**91**	**10**	**9.9**	**138**	**13**	**8.6**
College of Phys. and Surgs., Baltimore	67	13	5	27.8	41	8	16.3
Johns Hopkins University	102	36	0	0.0	64	2	3.0
University of Maryland	83	42	5	10.6	33	3	8.3
MASSACHUSETTS ..... +4.1	**228**	**129**	**12**	**8.5**	**76**	**11**	**12.6**
Boston University	20	13	0	0.0	7	0	0.0
College of Phys. and Surgs., Boston	22	5	3	37.5	10	4	28.6
Medical School of Harvard University	93	48	0	0.0	40	5	11.1
Tufts College Medical School	93	63	9	12.5	19	2	9.5
MICHIGAN ..... +20.7	**127**	**102**	**6**	**5.6**	**14**	**5**	**26.3**
Detroit College of Med. and Surg.	50	45	2	4.3	1	2	66.7
University of Michigan Medical School	49	40	1	2.4	8	0	0.0
Univ. of Michigan, Homeo. Med. School	28	17	3	15.0	5	3	42.9
MINNESOTA ..... —	**43**	**38**	**0**	**0.0**	**5**	**0**	**0.0**
University of Minnesota	43	38	0	0.0	5	0	0.0
MISSOURI ..... +7.3	**171**	**109**	**6**	**5.2**	**49**	**7**	**12.5**
Eclectic Medical University	19	.....	.....	.....	18	1	5.3
Kansas City Hahnemann Med. Coll.	5	2	1	33.3	1	1	50.0
National Univ. of Arts and Sciences	46	40	1	2.4	3	2	40.0
St. Louis College of Phys. and Surgs.	22	11	4	26.7	5	2	28.6
St. Louis University	49	31	0	0.0	17	1	5.6
Washington University	30	25	0	0.0	5	0	0.0
NEBRASKA ..... —5.5	**81**	**52**	**3**	**5.5**	**26**	**0**	**0.0**
Lincoln Medical College	7	5	2	28.6	0	0	0.0
John A. Creighton Medical College	60	38	1	2.6	21	0	0.0
University of Nebraska	14	9	0	0.0	5	0	0.0
NEW HAMPSHIRE ..... —	**4**	**1**	**0**	**0.0**	**3**	**0**	**0.0**
Dartmouth Medical School	4	1	0	0.0	3	0	0.0
NEW YORK ..... —12.0	**646**	**470**	**96**	**17.0**	**76**	**4**	**5.0**
Albany Medical College	78	55	18	24.7	5	0	0.0
Columbia University, Coll. of P. and S.	98	68	9	11.7	21	0	0.0
Cornell University Medical College	29	21	1	4.5	6	1	14.3
Fordham University	58	28	20	41.7	8	2	20.0
Long Island College Hospital	104	92	9	8.9	3	0	0.0
N. Y. Homeo Med. Coll. and Flower Hosp.	88	39	24	38.1	24	1	4.0
N. Y. Med. Coll. and Hosp. for Women	7	5	2	28.6	0	0	0.0
Syracuse University	22	17	4	19.0	1	0	0.0
University and Bellevue Hosp. Med. Coll.	97	86	4	4.4	7	0	0.0
University of Buffalo	65	59	5	7.8	1	0	0.0
NORTH CAROLINA ..... +34.2	**42**	**27**	**8**	**22.9**	**3**	**4**	**57.1**
Leonard Medical School	12	6	2	25.0	2	2	50.0
North Carolina Medical College	30	21	6	22.2	1	2	66.7
OHIO ..... +16.2	**154**	**135**	**2**	**1.5**	**14**	**3**	**17.7**
Eclectic Medical College	25	19	0	0.0	5	1	16.7
Ohio State University, Coll. of Med.	53	46	1	2.1	5	1	16.7
Ohio State Univ., Coll. of Homeo. Med.	20	19	1	5.0	0	0	0.0
University of Cincinnati, Coll. of Med.	20	19	0	0.0	0	1	100.0
Western Reserve University	3	32	0	0.0	4	0	0.0
OKLAHOMA ..... +25.6	**19**	**12**	**1**	**7.7**	**4**	**2**	**33.3**
University of Oklahoma	19	12	1	7.7	4	2	33.3
OREGON ..... —23.5	**21**	**13**	**4**	**23.5**	**4**	**0**	**0.0**
University of Oregon	21	13	4	23.5	4	0	0.0
PENNSYLVANIA ..... +1.4	**408**	**184**	**13**	**6.6**	**195**	**16**	**8.0**
Hahnemann Medical Coll. and Hosp.	15	5	0	0.0	10	0	0.0
Jefferson Medical College	158	50	5	9.1	96	7	6.8
Medico-Chirurgical Coll. of Philadelphia	68	41	2	4.7	20	5	20.0
Temple University	22	11	4	26.7	7	0	0.0
University of Pennsylvania	74	32	0	0.0	41	1	2.4
University of Pittsburgh	47	41	2	4.7	3	1	25.0
Woman's Med. Coll. of Pennsylvania	24	4	0	0.0	18	2	10.0
SOUTH CAROLINA ..... +19.5	**32**	**25**	**4**	**13.8**	**2**	**1**	**33.3**
Medical College of South Carolina	32	25	4	13.8	2	1	33.3
TENNESSEE ..... +24.1	**344**	**60**	**2**	**3.2**	**205**	**77**	**27.3**
Lincoln Memorial University	16	10	1	9.1	4	1	20.0
Meharry Medical College	128	18	0	0.0	69	41	36.9
University of Tennessee	76	5	1	16.7	58	12	17.1
University of West Tennessee	42	6	0	0.0	19	17	47.2
Vanderbilt University	82	21	0	0.0	55	6	9.8
TEXAS ..... —1.5	**72**	**64**	**1**	**1.5**	**7**	**0**	**0.0**
Baylor University	20	16	0	0.0	4	0	0.0
Fort Worth School of Medicine	12	11	1	8.3	0	0	0.0
Southern Methodist University	6	5	0	0.0	1	0	0.0
University of Texas	34	32	0	0.0	2	0	0.0
VERMONT ..... +20.7	**57**	**28**	**0**	**0.0**	**23**	**6**	**20.7**
University of Vermont	57	28	0	0.0	23	6	20.7
VIRGINIA ..... +14.0	**143**	**78**	**3**	**3.7**	**51**	**11**	**17.7**
Medical College of Virginia	111	64	3	4.5	33	11	25.0
University of Virginia	32	14	0	0.0	18	0	0.0
WISCONSIN ..... +10.3	**54**	**45**	**1**	**2.2**	**7**	**1**	**12.5**
Marquette University	54	45	1	2.2	7	1	12.5
Totals ..... +6.0	**4421**	**2543**	**269**	**9.6**	**1358**	**251**	**15.8**

In this table the graduates of each college who were examined in the state in which the college is located are grouped in one column, while graduates of that college examined in other states are in another column. For example, under Kentucky, this table shows that, of the 101 graduates of the University of Louisville Medical Department who were examined by state boards during 1915, 58 were examined in Kentucky, of which number 55 passed and 3, of 5.2 per cent., failed, while 43 were examined in other states, of which number 34 passed and 9, or 21.0 per cent., failed.

This table shows that in many instances the graduates have better chances of passing examinations in the state in which their colleges are located than they have elsewhere. This should always be considered in making comparisons between colleges. A low standard college by having all its graduates examined in the home state, or by a partisan board, may show a lower percentage of failures than a college of much higher grade which has graduates examined by several states.

The heavy-faced figures give the results by states. The first column of heavy-faced figures, preceded by the + and — signs, shows the differences between the percentages of examination in the home state and the examinations elsewhere. The plus sign indicates that graduates have better chances of success in the state where the colleges from which they graduated are located; the minus sign indicates that the chances are better elsewhere. The most marked variations in 1915 were in the examination of the graduates of the colleges of Arkansas, 35.5 per cent.; North Carolina, 34.2; Oklahoma, 25.6; Georgia, 24.7; Tennessee, 24.1, and Michigan and Vermont, each 20.7, in all of which the chances of the graduates were better in the home state. The marked variations where the graduates' chances were better elsewhere were in Alabama, 24.9 per cent.; Oregon, 23.5, and New York, 12.0 per cent.

The danger of forming hasty conclusions from these percentages taken alone, however, is very well shown by the figures for Ohio where 20 graduates of the University of Cincinnati College of Medicine were examined, and where the failure of the one examined in "other states" could have been accidental. More reliable are the percentages in Tennessee, Illinois, Pennsylvania, Kentucky and Missouri where larger numbers were examined both at home and in "other states." The totals show that, on the average, the chances of success were 6.0 per cent. better if the graduate took the examination in the state where his college was located.

in Tables I, J and K. By all methods—examination, reciprocity, under exemption, etc.—5,872 physicians were licensed during 1915, or 75 more than in 1914, but 629 less than in 1913, and 1,993 less than in 1906, when 7,865 physicians were licensed.

Other deductions from the larger tables have been made and are presented in Tables E to H, which are worthy of study.

Study of Colleges by State Groups

Table E is based on the first three large tables and gives the results for the group of colleges located in each state. It shows what states are furnishing the largest number of physicians, and the failure percentages indicate what kind of training these colleges are furnishing, so far as may be judged from the failures of their graduates before state boards. By comparing the percentages of the first column with the other columns, it can be seen whether or not there has been any reduction in failures for graduates of recent years. Of the 33 states having medical colleges which grant degrees, 15 furnished 100 or more candidates examined, 6 states furnished more than 200 each, and 4 furnished over 300 each. Illinois furnished 719 graduates, followed by New York with 673 and Pennsylvania with 449. Of the 33 groups of colleges, 18 had failure precentages of less than 10 per cent., 9 had failure percentages between 10 and 20, and 6 had over 20 per cent. of failures. Of all states, the highest failure precentage was obtained by the Alabama group, 38.6, followed by the North Carolina group, 31.1, and the District of Columbia group, 28.8. Other deductions are given with the table.

Study of Larger Colleges

Table F is also based on the three large tables, and gives the results of state board examinations as they affect the 35 largest medical colleges. Although these colleges represent 36.5 per cent. of the medical colleges in the United States having graduates examined, they furnish 70.5 per cent. of all candidates for license coming from medical schools of the United States. This table shows, however, that the graduating of large classes by a medical college does not prove excellence of teaching, since several colleges having 100 or more examined have very high failure precentages, and this holds true even for the graduates of 1915. In fact, the larger the college from the point of view of the number of students and graduates, the more serious is inferior teaching ability, indicated by a high failure percentage. In fairness to medical students, and in the interests of the public, such schools should greatly strengthen their teaching facilities or reduce the size of their classes.

Of the 3,364 candidates who came from these larger schools, 424, or 12.6 per cent., failed, as compared with 12.9 per cent. of failures for the 1,409 candidates from the 60 colleges having less than 50 each examined.

Besides the graduates of the medical colleges of the United States, 540 candidates were examined, made up of 60 graduates of Canadian colleges, 86 foreign college graduates, 329 graduates of miscellaneous colleges and 65 nongraduates. Of these 540 candidates, 221, or 40.9 per cent., failed.

Results in Home States and Elsewhere

Table G is of much interest, because it shows for each college the results of examinations in the state in which the college is located, as compared with the results of examinations in other states, where there is less probability of local influence. Of all recent graduates examined in 1915, coming from the 95 medical colleges of the United States which had candidates examined, 2,812, or 63.6 per cent., took their license examinations in the states in which were located the colleges from which they graduated. Of this number, 9.6 per cent. failed on the average, whereas, of the 1,609 candidates examined in other states, 15.6 per cent. failed. This would indicate that, on the average, the student had 6 per cent. better chances of passing the license examination by taking it in the state in which the college is located. No graduates of the medical college in Vermont failed in the examinations given in that state, although of the graduates of that college who were examined in other states, 20.7 per cent. failed. There were no failures either at home or in other states for graduates of the colleges of Colorado, Connecticut, Indiana, Iowa, Kansas, Minnesota or New Hampshire. The student's chances for success at home and elsewhere were equal, or nearly so, in the groups of colleges of Maryland, Pennsylvania and Texas. The student's chances were unusually better in the home state in Alabama, Arkansas, Georgia, Michigan, North Carolina, Oklahoma and Texas, while in New York and Oregon the student's chances were far better in other than the home state.

TABLE H.—PHYSICIANS EXAMINED BY STATE BOARDS, 1911 TO 1915, INCLUSIVE

STATE	1911		1912		1913		1914		1915		Totals			
	Registered	Rejected	Registered	Rejected	Registered	Rejected	Registered	Rejected	Registered	Rejected	Examined	Registered	Rejected	Percentage Rejected
Alabama	107	54	84	72	90	57	115	60	79	45	763	475	288	37.7
Alaska	...	...	...	...	...	...	4	0	6	0	10	10	0	0.0
Arizona	28	9	32	10	26	9	26	16	10	7	173	122	51	29.5
Arkansas	108	30	124	27	91	28	97	16	75	7	603	495	108	17.9
California	227	59	256	60	163	36	113	45	137	39	1135	896	239	21.1
Colorado	33	8	41	1	53	5	31	1	19	5	197	177	20	10.2
Connecticut	73	20	70	18	77	51	46	8	46	17	426	312	114	26.7
Delaware	22	0	22	1	12	1	18	0	13	0	89	87	2	2.3
Dist. of Columbia	25	8	49	7	55	5	47	12	51	13	272	227	45	16.5
Florida	87	23	114	31	116	49	106	37	83	25	671	506	165	24.6
Georgia	148	28	178	17	171	24	179	21	176	17	959	852	107	11.2
Idaho	41	13	35	12	21	2	19	2	23	1	169	139	30	17.8
Illinois	432	154	505	134	567	98	484	110	439	64	2987	2427	560	18.8
Indiana	114	7	95	4	101	1	48	2	49	3	424	407	17	4.0
Iowa	75	6	131	7	107	4	77	1	85	4	497	475	22	4.8
Kansas	56	25	50	12	89	7	37	4	29	4	313	261	52	16.6
Kentucky	88	36	88	8	78	12	59	7	83	7	466	396	70	15.0
Louisiana	123	30	128	36	69	20	76	24	69	21	596	465	131	22.0
Maine	86	11	74	17	46	9	54	11	63	6	377	323	54	14.6
Maryland	160	39	160	46	108	40	105	27	111	29	825	644	181	21.9
Massachusetts	226	74	227	54	215	74	226	97	238	65	1496	1132	364	24.3
Michigan	127	1	159	3	99	3	138	2	120	6	658	643	15	2.2
Minnesota	58	7	55	5	71	4	47	3	59	6	315	290	25	7.9
Mississippi	115	113	56	48	61	19	51	17	84	15	579	367	212	36.6
Missouri	182	38	213	32	200	25	195	33	200	22	1140	990	150	13.2
Montana	44	19	50	9	57	16	58	25	48	16	342	257	85	24.9
Nebraska	67	11	88	10	87	2	66	6	70	6	413	378	35	8.5
Nevada	8	1	8	1	10	3	7	3	12	1	54	45	9	16.7
New Hampshire	18	5	36	7	17	3	36	6	6	1	135	113	22	16.3
New Jersey	107	15	59	14	69	7	41	13	71	8	404	347	57	14.4
New Mexico	2	2	6	2	0	1	8	2	5	0	34	27	7	20.6
New York	536	164	433	153	511	205	501	169	618	165	3455	2599	856	24.8
North Carolina	92	30	87	37	77	34	81	37	106	30	611	443	168	27.5
North Dakota	25	1	15	7	16	13	15	1	10	5	108	81	27	25.0
Ohio	170	8	199	12	189	3	146	18	149	3	897	853	44	5.0
Oklahoma	123	39	94	27	58	5	48	12	50	13	469	373	96	20.5
Oregon	94	50	96	65	112	36	76	42	56	30	647	434	213	32.9
Pennsylvania	515	27	356	170	345	59	101	22	208	24	1827	1525	302	16.5
Rhode Island	32	5	39	12	28	4	27	5	26	6	184	152	32	17.4
South Carolina	94	27	90	35	99	47	68	37	53	36	586	404	182	31.0
South Dakota	53	5	16	1	30	1	25	4	25	0	160	149	11	6.9
Tennessee	213	42	313	76	306	94	149	205	101	4	1503	1082	421	28.0
Texas	151	19	151	13	168	11	152	11	136	11	823	758	65	7.9
Utah	22	3	20	2	24	3	13	3	21	1	112	100	12	10.7
Vermont	51	1	45	2	24	2	28	0	36	0	189	184	5	2.6
Virginia	115	43	105	30	87	19	98	10	100	8	615	505	110	17.9
Washington	102	43	69	27	63	22	92	5	75	14	512	401	111	21.7
West Virginia	88	22	66	20	58	17	51	4	70	7	403	333	70	17.4
Wisconsin	107	7	68	19	98	8	81	4	74	10	476	428	48	10.0
Wyoming	8	0	11	0	10	1	4	0	13	0	47	46	1	2.1
Totals	6960		6879		6435		5570		5313		31146			
Registered	5578		5466		5236		4370		4486		25135			
Rejected	1382		1413		1199		1200		827		6011			
Per Cent. Rejected	19.9		20.5		18.6		21.6		15.6		19.3			

This table gives the number of candidates registered and rejected on examination by each state during each of the last five years. The last four columns give the totals for the five years and the percentage rejected by each state.

Five states registered over 1,000 candidates by examination in the five years, these being Illinois, Massachusetts, New York, Pennsylvania and Tennessee. Over 2,000 were registered in only two states, New York with 2,599, and Illinois with 2,427. Altogether 25,135 physicians were registered *by examination* in five years, an average of 5,027 each year.

The eight highest percentages of rejections for the five years were in Alabama, 37.7; Mississippi, 36.6; Oregon, 32.9; South Carolina, 31.0; Arizona, 29.5; Tennessee, 28.0; North Carolina, 27.5, and Connecticut, 26.7 per cent. Massachusetts, Oregon, Tennessee and (until 1912) Mississippi included nongraduates among those examined during the last five years, and for that reason would be expected to have higher percentages rejected. On the other hand, in several states the boards refused to recognize certain colleges and eliminated many candidates prior to the examination by a careful scrutiny of credentials and as a result the percentages of failures at the examinations are lower than otherwise would be the case.

Omitting Alaska, the lowest failure percentages were in Wyoming, 2.1; Michigan, 2.2; Delaware, 2.3; Vermont, 2.6; Indiana, 4.0; Iowa, 4.8, and Ohio, 5.0.

TOTAL RESULTS FOR FIVE YEARS

Table H shows the number registered and the number rejected in each state for each of the past five years. A comparison of this table with the statistics in the last educational number of THE JOURNAL (Aug. 21, 1915, p. 697, Table 14) shows—what would be expected—that the states having the largest number of medical graduates examined the largest number of physicians. New York leads, having examined 3,455 candidates in five years, followed by Illinois with 2,987. The five states having the next highest numbers examined are Pennsylvania with 1,827, Tennessee with 1,503, Massachusetts with 1,496, Missouri with 1,140 and California with 1,135. This table shows only those registered by examination. The next table (I) shows the total registered by all methods.

TABLE I.—REGISTRATION BY STATE BOARDS DURING THE YEAR 1915

STATES	By Examination			By Reciprocity	Without Written Examination or Under Exemption	Total Registered
	Graduates, 1911-1915	Graduates, 1910 and Previous	Nongraduates			
Alabama	73	6	....	....	....	79
Alaska	1	5	....	....	....	6
Arizona	4	6	....	....	3	13
Arkansas	66	9	....	23	....	98
California	127	10	....	175	....	312
Colorado	15	2	2	63	....	82
Connecticut	38	8	....	4	5	55
Delaware	11	2	....	8	....	21
District of Columbia	45	6	....	2	....	53
Florida	42	41	....	....	....	83
Georgia	173	3	....	23	....	199
Idaho	9	14	....	3	....	26
Illinois	414	25	....	46	....	485
Indiana	44	5	....	42	....	91
Iowa	66	19	....	65	....	150
Kansas	28	1	....	54	....	83
Kentucky	82	1	....	16	4	103
Louisiana	69	0	....	8	....	77
Maine	54	7	2	6	....	69
Maryland	108	3	....	30	1	142
Massachusetts	193	32	13	....	....	238
Michigan	117	3	....	66	....	186
Minnesota	53	6	....	45	....	104
Mississippi	82	2	....	3	....	87
Missouri	176	24	....	63	....	263
Montana	28	20	....	....	....	48
Nebraska	68	2	....	41	....	111
Nevada	10	2	....	11	....	23
New Hampshire	4	2	....	20	....	26
New Jersey	65	6	....	86	....	157
New Mexico	2	3	....	2	46	53
New York	582	36	....	31	8	657
North Carolina	101	3	2	32	2	140
North Dakota	8	2	....	17	....	27
Ohio	147	2	....	72	....	221
Oklahoma	39	11	....	64	....	114
Oregon	34	21	1	....	....	56
Pennsylvania	207	1	....	11	....	219
Rhode Island	21	5	....	....	....	26
South Carolina	49	4	....	....	....	53
South Dakota	20	5	....	7	....	32
Tennessee	77	11	13	12	1	114
Texas	122	14	....	31	2	169
Utah	17	4	....	8	....	29
Vermont	31	5	....	1	....	37
Virginia	97	3	....	43	....	143
Washington	44	31	....	....	....	75
West Virginia	70	0	....	28	....	98
Wisconsin	73	1	....	52	....	126
Wyoming	8	5	....	....	....	13
Totals	4014	439	33	1314	72	5872

This table shows the total number registered during 1915 in each state by the various methods. The first three columns show those registered by examination; the first column showing the recent graduates registered, the second column, the old practitioners (graduates of 1910 and previous years) and the third column, the nongraduates. The fourth column shows the number licensed through reciprocity, the fifth column shows those licensed under various exemption clauses in the practice acts, such as because of national fame or by recognition of diplomas (New Mexico).

It is interesting to note that as a rule states which have registered large numbers through reciprocity, Michigan, Colorado and New Jersey for example, have examined very few old practitioners. The large registration through reciprocity in California is due to the fact that registration under a practice act providing for the recognition of licenses granted in other states was begun only recently. There were no reciprocal registrations in ten states, including Alaska.

The last column shows the total number of physicians registered by all methods in each state during the year. Only three states registered over 300 each, these being New York, 657; Illinois, 485, and California, 312. Thirteen states registered less than 50 each. The largest registration was 657 in New York and the smallest was 6 in Alaska. The total was 5,876, an increase of 79 over last year.

TOTAL REGISTRATION IN 1915

The tables thus far described have referred only to the results of examinations and to those registered on that basis. Table I, however, shows the total number who received licenses in each state, including those registered by examination, by reciprocity and under various exemption clauses. Altogether 5,876 physicians were registered by all methods during 1915, as compared with 5,797 in 1914, 6,501 in 1913, 6,723 in 1912, 6,824 in 1911, 7,352 in 1910 and 7,865 in 1906. There has been a constant decrease in the totals licensed by all methods until this year, which shows an increase of 79. By reciprocity or under exemption clauses, 1,386 were licensed in 1915, as compared with 1,427 in 1914, 1,265 in 1913, and 1,257 in 1912. Although there has been a slight decrease since last year, there has been a gradual increase in the numbers licensed through reciprocity since 1906.

Over 100 were registered by all methods in twenty-one states, over 200 in seven and over 300 in three, the largest numbers being registered in New York with 657, Illinois with 485 and California with 312. Of those licensed in California, 175, or 56 per cent., were registered under the new practice act, which provides for the endorsement of licenses granted by the boards of other states.

Table J gives those registered without examination on presentation of satisfactory credentials, which include a license issued by some other state. This is commonly referred to as "reciprocity," which conveys the idea that the state which accepts the license of another must be granted the same courtesy by the state issuing the original license. The term does not well describe this method of registration, however, since some state boards—Colorado and California, for example—accept the physician's credentials, if satisfactory, whether or not the state board issuing the original license returns the favor. Had not reciprocal relations been established by the 39 states shown in Table J, 1,314 physicians, many of whom have been in practice for ten or more years, would have been compelled to undergo the ordeal of a second trying examination.

RECIPROCITY AND EDUCATIONAL STANDARDS

As usually administered, reciprocal relations tend to lower rather than to elevate educational standards, and this is particularly true in some states. A study of these statistics will show that in several instances such relations exist between states differing widely in their standards of education and in the methods and severity of their examinations. It can be seen, therefore, that *a loosely administered provision for reciprocity provides a wide-open door through which unqualified candidates can obtain registration.* There are some boards, however, which wisely reserve and exercise the right to reject any candidate who does not possess satisfactory credentials even though he is licensed in a state with which it has reciprocal relations. Some boards also prudently require that the applicant, before he is eligible to registration through reciprocity, must have been engaged in the actual and reputable practice of his profession for at least a year in the state in which the original license was granted. Without this provision a candidate would be tempted to obtain his original license in the state giving the easiest examination. Without the one-year clause, therefore, standards of examination are apt to be lowered.

Again, some states wisely refuse to register by reciprocity any candidates who have failed to pass their own examination, but this rule is not generally observed. In the establishing of reciprocal relations, therefore, the state board should reserve and exercise the discretionary power *to refuse to register any candidate who could not originally have registered in that state,* and, secondly, the board should require that the applicant shall have been in actual practice of medicine for at least a year before he is eligible to registration under the reciprocity provision.

In the light of the foregoing statement in regard to reciprocity, it will be interesting to study Table K, which shows in what states the original licenses were granted of those who

TABLE J.—PHYSICIANS REGISTERED THROUGH RECIPROCITY BY STATE EXAMINING BOARDS DURING 1915

STATE BOARDS OF	Total Reg. by Recip., Ea. State	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Col.	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Army	Alaska, Hawaii, etc.	Foreign
Number	....	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
Arkansas	23	..	..	..	..	..	..	..	..	..	1	..	1	1	..	1	3	4	..	..	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	3	..	..	1	..	..	..	..
California	175	..	6	2	..	4	1	●	4	1	1	..	38	5	10	3	2	3	..	1	5	8	11	..	9	1	7	6	..	1	1	6	..	1	10	1	1	9	1	..	..	1	..	1	1	2	8	1	1	..	1	..	..
Colorado	63	..	..	2	2	..	2	..	2	1	..	..	13	3	3	2	3	..	..	1	1	2	1	1	8	..	1	..	..	..	..	..	4	..	..	4	1	..	..	..	..	2	2	..	..	..	..	..	..	1	..	..	1
Connecticut	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Delaware	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	2	1	..	..	..	..	..	..	1	..	1	..	..	..	..
Dist. of Columbia	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..
Georgia	23	..	..	2	..	..	..	..	..	..	..	..	..	..	1	1	2	2	..	..	..	..	..	..	..	..	1	..	..	..	2	..	..	1	..	..	..	..	4	..	..	..	2	1	..	1	1	..	2	..	..	..	..
Idaho	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..
Illinois	46	..	..	1	..	..	..	..	..	..	..	..	..	4	..	..	4	..	1	2	..	4	1	..	18	..	1	..	..	2	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	1	5	..	..	..
Indiana	42	..	..	..	..	..	..	..	..	..	..	..	17	..	..	..	4	..	..	4	..	2	..	..	4	..	1	..	..	..	..	1	..	..	..	4	..	..	2	..	..	3	..	..	..	..	..	..	..	..	..	..
Iowa	65	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	5	..	1	1	1	3	2	..	15	..	24	1	..	..	..	..	..	..	..	2	..	..	3	..	..	..	..	..	..	..	..	..	4	1	..	..
Kansas	54	..	..	9	..	..	..	..	..	..	..	..	11	3	4	..	..	1	1	..	..	..	1	..	13	..	4	..	..	..	..	..	..	..	..	1	3	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	..
Kentucky	16	..	..	1	..	..	..	..	..	..	..	..	1	3	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	..	2	..	..	..	..	1	..	1	..	..	..	..	..	..
Louisiana	8	..	..	1	..	..	..	..	..	..	1	..	2	..	..	1	1	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Maine	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..	..	..	..	..	..
Maryland	30	..	..	1	..	..	..	1	..	..	..	..	3	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	5	..	1	..	2	..	..	..	3	..	6	1	..	..	..
Michigan	66	..	..	..	1	..	..	..	..	..	..	..	21	3	4	..	2	..	1	2	..	..	1	..	..	..	..	..	2	1	..	5	1	..	4	..	..	3	..	1	..	2	1	..	1	1	2	..	4	..	..	..
Minnesota	45	..	..	..	..	..	..	..	..	..	..	..	15	1	6	..	1	..	..	1	..	..	..	..	3	..	2	..	..	..	..	..	1	3	..	..	..	..	..	..	..	5	..	..	..	2	..	4	1	..	..	..
Mississippi	3	..	..	1	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Missouri	63	..	..	..	1	1	..	..	..	..	..	..	14	3	7	16	4	2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	5	..	2	..	..	..	..	..	1	1	..	1	..	..	..	..
Nebraska	41	..	..	..	..	3	..	..	..	..	..	..	14	2	4	3	1	..	..	1	..	2	1	..	(	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	..
Nevada	11	..	..	..	..	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	3	..	2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..
New Hampshire	20	..	..	..	..	..	..	..	1	..	..	..	..	..	2	..	..	..	..	..	2	..	7	..	..	1	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	5	..	..	..	..	..	..
New Jersey	86	..	..	..	..	..	..	2	3	..	..	..	..	..	..	..	..	..	..	4	1	1	..	1	..	..	..	..	1	..	..	..	38	..	..	2	..	24	..	..	..	..	1	..	5	..	3	..	..	..	..	..
New Mexico	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
New York	31	..	..	..	..	..	..	3	..	..	..	..	..	3	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	13	..	..	..	..	4	..	..	..	..	..	..	..	2	..	3	..	..	1	..	..	..
North Carolina	32	1	..	..	1	..	..	..	4	..	1	..	1	..	1	1	1	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	1	2	..	8	..	..	..	5	..	..	..	..	..	..	..	..
North Dakota	17	..	..	..	..	..	..	..	..	..	..	..	6	1	1	1	..	..	..	..	..	..	5	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..
Ohio	72	..	..	..	1	..	..	1	..	..	..	..	11	4	1	2	1	1	..	3	..	9	..	..	3	..	1	..	..	2	..	10	..	..	..	..	..	11	..	..	..	..	..	..	4	..	6	1	..	..	..
Oklahoma	64	..	13	..	..	..	..	..	..	2	..	..	3	..	..	8	4	..	..	1	..	2	..	1	4	..	3	..	..	3	..	1	..	..	..	..	..	1	..	..	8	6	..	1	..	..	3	..	..	..	..
Pennsylvania	11	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	2	..	1	..	..	1	..	..	1	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	..	..	..
South Dakota	7	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tennessee	12	..	..	..	..	..	..	..	1	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	3	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..
Texas	31	..	..	3	..	..	..	..	..	..	3	..	..	1	..	..	2	..	..	2	..	1	1	1	5	..	..	..	..	..	..	..	1	4	4	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..	..
Utah	8	..	..	..	1	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Vermont	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Virginia	43	..	..	..	..	..	..	..	5	2	3	..	1	..	..	..	3	2	..	3	1	..	..	1	1	..	..	..	..	..	..	..	4	..	1	2	..	3	..	..	..	7	..	..	..	4	..	..	..	..	..	..
West Virginia	28	..	..	..	..	..	..	..	1	..	1	..	1	1	1	..	4	..	..	3	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	2	..	3	..	2	..	4	..	..	..	3	..	..	..	..	..	..
Wisconsin	52	..	..	1	..	..	..	..	..	..	..	1	25	..	1	..	1	..	..	..	1	4	3	..	4	..	..	..	..	..	..	1	1	..	..	2	..	3	..	..	..	2	1	..	..	..	..	..	1	..	..	..
Totals	1314	1	6	37	3	15	3	6	18	4	22	1	198	43	46	39	48	16	12	38	19	42	34	10	104	1	50	9	4	22	5	73	13	6	47	28	2	79	2	12	7	34	12	6	25	30	10	36	29	5	1	..	1
Number	....	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52

This table shows the number of physicians registered by each state through reciprocity during 1915. Reading from left to right, it shows the total number of physicians registered through reciprocity in the state named and the numbers of such candidates coming from the states named in the corresponding columns. Reading from above downward, the figures show the number of physicians who left the state named at the head of the column and went to each of the states named in the corresponding lines, and at the bottom, the total number of candidates leaving the state to go elsewhere. For example, reading from left to right, the table shows that South Dakota registered seven candidates through reciprocity in 1915 and that, of these candidates, 5 came from Minnesota, and 1 each from Colorado and North Dakota. Reading from above downward, the table shows that from South Dakota 5 candidates went to Minnesota, and 2 to North Dakota, the total leaving the state to go elsewhere being 7.

The line at the bottom shows in what states physicians who were registered through reciprocity obtained their original licenses. From Illinois 198 candidates obtained their original licenses, followed by Missouri with 104, Pennsylvania with 79, and New York with 73.

TABLE K.—RECIPROCAL REGISTRATION IN FIVE YEARS (SHOWING WHAT STATES ISSUED THE ORIGINAL LICENSES)

STATE	Physicians Going from States Named During					Totals
	1911	1912	1913	1914	1915	
Alabama	3	1	2	1	1	8
Arizona	.....	.....	3	13	6	22
Arkansas	11	15	37	20	37	120
California	1	.....	.....	2	3	6
Colorado	16	9	12	25	15	77
Connecticut	.....	1	2	1	3	7
Delaware	9	15	8	2	6	40
District of Columbia	23	18	17	22	18	98
Florida	.....	1	1	2	4	8
Georgia	7	13	26	17	22	85
Idaho	.....	5	.....	5	1	11
Illinois	236	193	171	197	198	995
Indiana	37	40	33	44	43	197
Iowa	63	58	36	52	46	255
Kansas	50	27	32	42	39	190
Kentucky	42	36	43	35	48	204
Louisiana	8	10	13	10	16	57
Maine	14	23	9	11	12	69
Maryland	52	48	42	44	38	224
Massachusetts	2	2	2	7	19	32
Michigan	69	59	66	58	42	294
Minnesota	29	29	29	23	34	144
Mississippi	3	5	15	10	10	43
Missouri	59	67	61	98	104	389
Montana	.....	1	.....	3	1	5
Nebraska	46	29	34	37	50	196
Nevada	2	3	4	8	9	26
New Hampshire	6	1	7	3	4	21
New Jersey	14	18	10	19	22	83
New Mexico	1	4	8	9	5	27
New York	42	46	70	101	73	332
North Carolina	16	12	14	7	13	62
North Dakota	7	12	6	5	6	36
Ohio	40	39	50	71	47	247
Oklahoma	3	28	74	22	28	155
Oregon	.....	.....	3	3	2	8
Pennsylvania	12	57	86	86	79	320
Rhode Island	.....	.....	.....	1	2	3
South Carolina	4	5	3	2	12	26
South Dakota	2	1	10	4	7	24
Tennessee	28	51	39	42	34	194
Texas	10	24	19	23	12	88
Utah	2	3	12	8	6	31
Vermont	36	30	11	21	25	123
Virginia	28	25	26	40	30	149
Washington	7	3	2	15	10	37
West Virginia	45	29	41	33	36	184
Wisconsin	41	35	28	41	29	174
Wyoming	2	4	4	3	5	18
Alaska, Hawaii, etc.	.....	1	1	2	.....	4
U. S. Army	.....	2	1	2	1	6
U. S. P. H. Service	.....	.....	.....	.....	.....	.....
Canada	.....	.....	.....	1	.....	1
Foreign and Misc.	.....	3	.....	2	1	6
Totals	1128	1141	1223	1355	1314	6161

This table shows that 6,161 candidates were registered through reciprocity during the last five years. Registration by reciprocity has been gradually increased since 1911. A study of the totals for the different states shows that of the 6,161 registered during the four years 995, or 16.1 per cent., obtained their original licenses in Illinois. This is more than twice the number coming from any other state. The states furnishing the next highest numbers are Missouri, 389; New York, 332, and Pennsylvania, 320.

Ten states (Alabama, Arizona, Florida, Massachusetts, Montana, Oregon, Rhode Island, South Carolina, Washington and Wyoming) do not have reciprocal relations and would not appear in this table except for the fact that some states, like California, Colorado and New Jersey, will accept a physician's credentials if satisfactory, whether the state issuing his original license returns the favor or not.

were registered elsewhere under the reciprocity provision during the last five years. It should be noted that of the 6,161 physicians licensed through reciprocity during the last five years, the largest number coming from any one state was 995 who obtained their original licenses in Illinois. Although Illinois and New York have about an equal number of medical college graduates each year,[1] only 332 physicians obtained original licenses in New York and registered elsewhere through reciprocity in the last five years. This is doubtless because Illinois has reciprocal relations with twenty other states while New York has established such relations with only five.

1. See Table 14, JOURNAL A. M. A., Aug. 21, 1915, p. 697.

TABLE L.—STATE REQUIREMENTS OF HIGHER PRELIMINARY EDUCATION

There are now thirty-one states which have adopted requirements of preliminary education in addition to a standard four-year high school education. These states, the number of college years required and the time the higher requirement becomes effective are as follows:

State Examining Board of	Number of Years Required	Affects Students Matriculating	Affects All Graduates
Requiring two years—			
Alabama	2	1915-16	1919
Colorado	2	1910-11	1914
Indiana	2	1911-12	1915
Iowa	2	1911-12	1915
Minnesota	2	1908-09	1912
New Hampshire	2	1915-16	1919
New Jersey	2	1917-18	1921
North Dakota	2	1908-09	1912
Oklahoma	2	1917-18	1921
South Dakota	2	1911-12	1915
Virginia	2	1917-18	1921
Wisconsin	2	1915-16	1919
Requiring one year—			
Arkansas	1	1915-16	1919
California	1	1915-16	1919
Connecticut	1	1910-11	1914
Illinois	1	1915-16	1919
Indiana*	1	1910-11	1914
Kansas	1	1910-11	1914
Kentucky	1	1914-15	1918
Louisiana	1	1915-16	1919
Maryland	1	1914-15	1918
Michigan	1	1914-15	1918
Mississippi	1	1915-16	1919
New Hampshire*	1	1914-15	1918
New Jersey*	1	1916-17	1920
North Carolina	1	1914-15	1918
Oklahoma*	1	1914-15	1918
Pennsylvania	1	1914-15	1918
Rhode Island	1	1914-15	1918
Tennessee	1	1915-16	1919
Texas	1	1914-15	1918
Utah	1	1913-14	1917
Vermont	1	1913-14	1917
Virginia*	1	1914-15	1918
Washington	1	1914-15	1918
West Virginia	1	1917-18	1921

* The 2-year requirement also adopted; effective later.

TABLE M.—ADVANCES IN STATE LICENSE REQUIREMENTS IN TEN YEARS

Requirement or provision	States having provision for			States still having no provision for
	1904	1916	Increase	
Preliminary Education—				
Any requirement	20	45	25	4
A standard four-year high school education or higher	10	39	29	10
One or two years of college work as a minimum	0	31	31	18
That all applicants be graduates of a medical college	36	48	12	1
That all applicants undergo an examination for license	45	48	3	1
Requirement of practical tests in the license examinations	1	7	6	42
Full authority by board to refuse recognition to low-grade colleges	14	34	20	15
Boards refusing to recognize low-grade colleges*	5	34	29	15
Reciprocal relations with other states	27	40	13	9
Single boards of medical examiners	36	42	6	7

* In three states, Arkansas, Connecticut and Florida, each of which has three separate boards, only the regular (nonsectarian) boards have refused recognition to low standard medical colleges.

IMPROVED STANDARDS OF LICENSURE

Table L shows the states which have adopted one or two years of college work as a minimum standard of preliminary education for those who seek the license to practice medicine in those states. The first column shows the number of years of premedical college work required by each state; the second column shows the session in which students matriculating in medical colleges are affected by the increased requirement, and the third column gives the year in and after which all graduates are affected by the increased requirement. This table shows the remarkable progress which has been made in state board requirements since 1908, prior to which no state was requiring more than a four-year high school education as the minimum standard of preliminary education. As will be noted, there are now thirty-one states which have adopted the higher standard, twelve of which require as a minimum *two years* of premedical college work. It is understood that in every instance the one or two years of collegiate

TABLE N.—ESSENTIAL FEATURES OF STATE LAWS AND CONDITIONS SURROUNDING MEDICAL LICENSURE

State	Graduation Required	Preliminary Education: Law Provides For	Preliminary Education: Years in High School Required	Preliminary Education: Years in a College of Arts‡	Medical Education: Required Years of Medical Study	Medical Education: Minimum Weeks per year	Medical Education: Required Months per year	Medical Education: Minimum Total Hours of Course	Medical Education: Intern Year Required	Has Reciprocity with Other States	Single Board of Examiners	Examination Fee (Dollars)	Reciprocal Fee (Dollars)
Alabama	....	Yes	4	2	4	....	....	.....	....	No	....	10	....
Alaska	....	Yes	4	....	4	32	8	3600	....	No	....	25	25
Arizona	....	Yes	4	....	4	....	....	.....	....	No	....	25	....
Arkansas	....	Yes	4	1	4	....	....	.....	....	....	No	15	25
California	....	Yes	4	1	4	32	8	4000	....	....	....	25	50
Canal Zone	....	....	....	....	....	....	....	.....	....	No	....	5	....
Colorado	No	Yes	4	2	4	....	9	3600	....	....	....	25	25
Connecticut	....	Yes	4	1	4	26	6½	3744	....	....	No	15	15
Delaware	....	Yes	4	....	4	....	7	.....	....	....	No	10	50
Dist. of Col.	....	No	....	....	....	....	....	.....	....	....	No	10	10
Florida	....	....	....	....	....	....	....	.....	....	No	No	15	....
Georgia	....	Yes	4	....	4	32	8	5120	....	....	....	20	50
Hawaii	....	....	....	....	....	....	....	.....	....	....	....	10	....
Idaho	....	Yes	....	....	....	....	....	.....	....	....	....	25	25†
Illinois	....	Yes	4	1	4	32	8	3200	....	....	....	10	10†
Indiana	....	Yes	4	2	4	30	7½	3000	....	....	....	25	50
Iowa	....	Yes	4	2	4	26	7	4180	....	....	....	10	50
Kansas	....	Yes	4	1	4	....	6	.....	....	....	....	15	15†
Kentucky	....	Yes	4	1	4	32	8	.....	....	....	....	10	10
Louisiana	....	Yes	4	1	4	....	....	.....	....	....	No	25	50
Maine	....	Yes	4	....	4	....	....	.....	....	....	....	15	15
Maryland	....	Yes	4	1	4	....	....	.....	....	....	No	20	25
Massachusetts	....	No	....	....	....	....	....	.....	....	No	....	20	....
Michigan	....	Yes	4	1	4	34½	8½	3600	....	....	....	25	50
Minnesota	....	Yes	4	2	4	26	6½	.....	....	....	....	10	50
Mississippi	....	Yes	4	1	4	....	....	.....	....	....	....	10	50
Missouri	....	Yes	....	....	4	....	7	.....	....	....	....	15	25
Montana	....	....	....	....	4	....	6	.....	....	No	....	25	....
Nebraska	....	Yes	4	....	4	....	6	.....	....	....	....	25	25
Nevada	....	Yes	4	....	4	....	....	.....	....	....	....	25	25
New Hampshire	....	Yes	4	2	4	....	9	.....	....	....	....	20	20
New Jersey	....	Yes	4	2	4	....	7	.....	Yes	....	....	25	50
New Mexico	*	Yes	4	....	4	30	7½	3600	....	No	....	25	25
New York	....	Yes	4	....	4	....	7	.....	....	....	....	25	25
North Carolina	....	Yes	4	1	4	....	....	.....	....	....	....	15	50
North Dakota	....	Yes	4	2	4	30	8	3600	....	....	....	25	25
Ohio	....	Yes	4	....	4	30	....	.....	....	....	....	25	50
Oklahoma	....	Yes	4	2	4	....	....	.....	....	....	....	15	25
Oregon	....	Yes	4	....	4	....	....	.....	....	No	....	10	....
Pennsylvania	....	Yes	4	1	4	32	....	.....	Yes	....	....	25	50
Philippine Is.	....	Yes	4	....	....	....	....	.....	....	No	....	25	....
Porto Rico	....	Yes	4	....	4	....	....	.....	....	No	....	20	....
Rhode Island	....	Yes	4	1	4	....	....	.....	Yes	No	....	20	....
South Carolina	....	Yes	....	....	4	26	6½	.....	....	....	....	10	10
South Dakota	....	Yes	4	2	4	26	6½	.....	....	....	....	20	20
Tennessee	....	Yes	4	1	4	....	....	.....	....	....	....	10	10
Texas	....	Yes	4	1	4	....	....	3600	....	....	....	25	50
Utah	....	Yes	4	1	4	....	....	.....	....	....	....	25	75
Vermont	....	Yes	4	1	4	....	....	3600	....	....	....	20	50
Virginia	....	Yes	4	2	4	....	....	.....	....	....	....	25	25
Washington	....	Yes	4	1	4	32	....	.....	....	No	....	25	....
West Virginia	....	Yes	4	1	4	....	....	.....	....	....	....	10	10
Wisconsin	....	Yes	4	2	4	....	7	.....	....	....	....	20	50
Wyoming	....	....	....	....	....	....	....	.....	....	....	....	25	25

* Will accept a diploma without examination if from a recognized college.

† Reciprocal fee is the same as that charged by the state from which applicant comes.

‡ Or its equivalent in the medical college.

work must have included courses in physics, chemistry and biology.

In Table M the advance in standards of licensure is shown for all states since 1904. The most marked increase is in regard to the requirement of collegiate work, already referred to. The next greatest increase (29) is in the number of states—thirty-four—which are now refusing to recognize low-standard colleges.

Table N shows the essential features of the various state license laws. It will be noted that only one state—Colorado—now admits nongraduates to the license examination, although it is noteworthy that only four nongraduates have been licensed in that state in ten years. There are seven states in which there are two or three separate boards having in charge the licensing of physicians and surgeons. In five of these states, namely, Arkansas, Connecticut, Florida, Louisiana and Maryland, the boards are entirely independent of each other; in two states, Delaware and the District of Columbia, there is a central board or authority under which the separate boards act.

In Conclusion

In the gathering and publication of these statistics the endeavor has been to give a fair presentation of facts, a knowledge of which is always beneficial. Without question, this annual presentation of the results of state license examinations has had a most helpful influence on medical education and medical licensure in this country. We reiterate our acknowledgments to the state licensing boards for their ready cooperation and the complete reports which have been furnished. For the verification of all figures the reports and data furnished by medical colleges have been most serviceable. We have no doubt that the information here published will be of service not only to the medical colleges and to the state boards, but also to the public, since the end-result is better qualified physicians.

FINANCES OF MEDICAL SCHOOLS[1]

During the last few months an attempt was made to secure from all colleges official statements in regard to the income and expenditures for the college session of 1914-1915. Of the ninety-six colleges which still exist, reports which could be used were received from eighty-two. The items for which information was obtained from these institutions were in regard to income from (*a*) students' fees; (*b*) endowments, including state or city appropriations; (*c*) other sources, and (*d*) total income. In regard to expenditures, information obtained showed the total amounts expended for (*a*) salaries of instructors; (*b*) other expenses, and (*c*) total expenditures.

The eighty-two medical colleges reported total incomes ranging from $411,570, the highest, to $4,529, the lowest. The average for each college was $68,277 and the grand total was $5,598,743.

In students' fees the income for each college ranged from $113,523, the highest, to $500, the lowest. The average income from this source was $23,795 and the grand total was $1,951,219. It will be noted, therefore, that the fees paid by medical students covers a little more than one third of the total income of the medical schools.

The total income aside from students' fees was $3,647,524, ranging from $329,221, the highest, down to the three which had no income aside from fees. The average income aside from students' fees was $44,482.

Included in the income obtained aside from students' fees, thirty-four colleges reported the receipt of a total income from endowments of $1,164,602, or an average of $34,253 for each of the institutions which reported income from this source; twenty-eight colleges reported an income from states or municipalities amounting to $864,285, or an average of $30,868 for each institution.

In regard to expenditures, seventy-eight colleges paid out $2,985,458 in salaries, an average of $38,275 for each of the schools reporting. The highest sum thus expended was $139,430 and the lowest was $3,600. The total expenditure reported by the eighty-two colleges was $5,432,768, or an average of $66,253 for each institution. For three colleges all expenditures were paid from students' fees and for one of them the expenditures were less than the income.

MEDICAL COLLEGE FINANCES FOR 1914-1915

	Income				Expenditures		
	Total	Students' Fees	Endowments†	Other Sources	Total	Salaries	Other Expenses
1	411,570	82,349	208,829	120,392	369,600	133,549	236,051
2	255,327	83,456	.....	171,871	255,327	193,064	62,263
3	241,333	77,059	116,018	48,256	241,333	139,430	101,903
4	234,303	18,242	207,635	8,426	234,303	125,377	108,926
5	195,869	20,850	6,305	168,714	195,869	60,304	135,565
6	160,996	43,176	26,458	91,362	160,996	103,444	57,552
7	146,681	58,675	55,340	32,666	146,675	58,675	88,000
8	140,084	12,000	106,340	21,738	137,243	48,221	89,022
9	133,046	25,206	94,260	13,580	127,347	65,810	61,537
10	132,414	76,750	.....	55,664	132,414	84,352	48,062
11	130,146	33,990	6,888	89,268	130,146	97,083	33,063
12	129,440	30,235	.....	99,205	129,440	118,695	10,745
13	128,262	13,822	38,000	76,440	128,262	70,742	57,520
14	127,325	14,500	110,000	2,825	127,325	65,000	62,325
15	125,000	45,000	80,000	.....	125,000	62,452	62,548
16	119,746	113,523	2,500	3,723	110,661	69,100	41,561
17	116,798	58,901	31,626	26,271	116,798	68,310	48,488
18	114,809	76,767	12,265	25,777	114,809	66,136	48,673
19	98,049	36,574	29,803	31,672	98,049	54,941	43,108
20	95,736	6,006	71,653	18,077	95,736	40,533	55,203
21	95,380	9,031	74,961	11,388	95,380	49,180	46,200
22	94,397	46,485	39,992	7,920	93,234	37,956	55,278
23	83,593	47,836	.....	35,757	69,187	26,173	43,014
24	80,429	6,849	73,580	.....	75,834	63,240	12,594
25	79,662	7,635	70,000	2,027	79,662	63,732	15,930
26*	73,840	9,500	45,040	19,300	73,840	51,920	21,920
27	72,000	72,000	.....	.....	72,000	25,000	47,000
28	69,142	16,325	43,062	9,755	69,142	57,133	12,009
29	65,000	14,000	.....	51,000	65,000	35,000	30,000
30	63,208	44,149	.....	19,059	63,208	22,675	40,533
31	58,000	33,000	25,000	.....	58,000	32,000	26,000
32	57,385	25,085	3,780	28,520	43,852	24,018	19,834
33	56,785	54,295	.....	2,490	47,571	26,718	20,853
34	54,370	54,370	.....	.....	44,266	18,000	26,266
35	53,162	26,320	.....	26,842	53,162	.....	.....
36	52,875	3,375	49,500	.....	52,540	30,044	22,496
37	52,082	34,610	.....	17,472	52,082	25,810	26,272
38	52,113	32,670	15,750	3,693	52,113	29,141	22,972
39	50,000	4,330	28,000	17,670	50,000	26,000	24,000
40	48,000	10,000	38,000	.....	44,685	24,685	20,000
41	44,868	8,021	21,200	15,647	44,868	15,778	29,090
42	43,390	9,970	32,500	920	42,384	23,966	18,418
43	41,400	11,600	15,000	14,800	41,400	14,900	26,500
44	40,600	9,698	26,788	4,114	39,132	30,783	8,349
45	40,574	35,335	4,974	265	40,574	23,808	16,766
46	40,131	15,178	14,000	10,953	40,000	22,995	17,005
47	38,893	16,280	.....	22,613	38,893	28,967	9,926
48	38,456	26,030	.....	12,426	27,671	18,249	9,422
49	36,715	13,215	23,500	.....	32,820	24,589	8,231
50	36,550	10,300	26,250	.....	32,564	15,683	16,881
51	36,440	19,050	.....	17,390	36,440	23,160	13,280
52	36,426	31,750	1,944	2,732	36,311	16,708	19,603
53	35,215	11,840	16,222	7,153	35,215	25,287	9,928
54	33,885	33,885	.....	.....	18,146	15,605	2,541
55	33,010	22,375	.....	10,635	30,076	23,000	7,076
56	32,691	21,382	7,479	3,830	32,691	13,100	19,591
57	27,081	7,992	19,000	89	26,410	17,360	9,050
58	26,791	22,912	662	3,217	26,791	17,036	9,755
59	25,141	11,154	4,971	9,016	18,175	.....	.....
60	23,675	17,501	1,655	4,519	23,675	8,675	15 000
61	23,415	17,145	.....	6,270	22,836	8,930	13 906
62	23,228	10,835	.....	12,393	23,228	7,200	16,028
63	21,849	2,169	19,680	.....	21,849	18,680	3,169
64*	20,683	3,683	16,000	1,000	20,683	13,300	7,383
65	20,000	9,000	.....	11,000	20,000	12,000	8,000
66	19,904	10,234	2,583	7,087	19,904	14,404	5.500
67	19,136	4,764	6,000	8,372	19,136	17,447	1,689
68	18,978	8,329	8,164	2,485	18,978	13,888	5 090
69*	18,000	720	17,280	.....	18,000	16,200	1 800
70*	18,000	575	.....	17,425	18,000	17,200	800
71*	17,000	1,900	15,000	100	16,300	10,300	6 000
72	16,500	13,000	3,500	.....	16,500	6,800	9 700
73*	15,307	3,688	.....	11,619	15,307	10,260	5,047
74	15,200	10,200	.....	5,000	15,170	5,170	10,000
75	14,500	6,460	8,000	40	14,500	11,500	3,000
76	12,400	4,859	.....	7,541	12,400	11,227	1,173
77*	10,000	850	.....	9,150	10,000	.....	.....
78	9,515	3,195	.....	6,320	9,515	4,500	5 015
79	8,280	2,280	.....	6,000	8,260	4,260	4,000
80	6,080	565	5,515	.....	5,425	5,300	125
81†	5,950	1,854	.....	4,096	5,950	.....	.....
82†	4,529	500	429	3,600	4,500	3,600	900
	5,598,743	1,951,219	2,028,887	1,618,637	5,432,768	2,985,458	2,360,023

* Give only two years of the medical course.
† Including aid from state or city.

The total enrolment in these eighty-two medical colleges during the session of 1914-1915 was 12,976. As may be computed, therefore, the average income received from each student in tuition fees was $150, whereas the average expenditure for each student was $419. On the average, therefore, the cost of teaching each student last year was nearly three times greater than the amount he paid in fees in that year.

1. Portion of the 1916 report of the Secretary of the Council on Medical Education, at the Annual Conference, Chicago, Feb. 7, 1916.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET . . . CHICAGO, ILL.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, APRIL 8, 1916

STATISTICS OF STATE BOARD EXAMINATIONS

We publish this week, for the thirteenth consecutive year, tabulated statistics based on official reports of examinations conducted by state medical licensing boards. Other information having a direct bearing on state boards and methods of registration has been included to enable the reader better to interpret the results. For example, Table D shows in what states certain colleges are not recognized, and has an important bearing on the statistics published. Reports have been received from all state boards, making the statistics complete. In 1903, when the publication of these data began, reports could not be secured from the majority of boards because careful and adequate records of the examinations had not been kept.

IMPORTANCE OF THESE STATISTICS

The casual reader will hardly appreciate the conditions which make the publication of these data important. Medical education and medical licensure in this country are controlled by the fifty individual states (including Alaska and the District of Columbia), each of which, in these matters, is organically independent of the others. In the fifty states are as many different practice acts, providing for sixty-two different examining and licensing boards, no two of which entirely agree in the details of the methods followed, or the standards enforced. No legislative provision exists for a national control, for cooperation between the boards, or for uniformity of standards. In some states the public is well protected against illiterate and incompetent physicians, while in other states, because of poor laws or political boards, the right to practice medicine is easily secured, no matter how incompetent the applicant may be. If a doctor has had his license revoked in one state for any cause, he may go to another state, often merely crossing a state line, and he seldom fails to secure a license in some state. If he is caught again, he may as promptly transfer his allegiance to a third state. To correct these serious conditions, an exchange of accurate information and cooperation among state boards is essential. The collection of statistics such as are published this week is a step toward this end. If this country had a national control of the licensing of physicians, such as commonly exists in other countries, it would not be necessary for the American Medical Association to do this work.

FACTS REGARDING EACH STATE

The tables give valuable information in regard to medical licensure in each state. Tables A and B show the number of candidates who appeared for examination, the colleges from which they graduated, the results of their examination, the total number registered, and the total number and percentage of those rejected. This table permits comparison of the totals and the percentages of one state with those of other states. If a state board's examinations are unusually lenient for graduates of medical schools located in that state as compared with the results for the same colleges in other states — which appears to be true in some instances — the fact is shown in Table G. If a state harbors a low-grade medical college, the figures show that the people of that state are the greatest sufferers from the maintenance of the college. To decide whether or not a low percentage of rejections means "leniency," the reader should note in Table D whether the board has *refused to examine* graduates of low-grade colleges. If so, a low failure percentage is to be expected. If, on the other hand, a board admits graduates of any and all schools, or perhaps also nongraduates, high failure percentage would be expected. If, in the latter instance, there is a low failure percentage, then "leniency" is perhaps too mild a term.

The total number of candidates examined by each board in the last five years and the percentage of rejections are shown in Table H. This permits comparison of the figures of the last year with those of the four previous years, and also the figures of one state with those of the others. Table I shows the totals registered by all methods, by examination, by reciprocity and under exemption clauses. This table also shows the number of nongraduates licensed. Table J gives the number of candidates licensed through reciprocity, and shows what states granted the original licenses. Table K gives the total number of physicians who left each state during the last five years and registered in other states through reciprocity. Table L gives the thirty-one states which have adopted higher standards of preliminary education and the dates when the higher requirements are effective. Table M shows the progress in state board requirements during the last ten years, and Table N gives a summary of the essential features of medical practice laws. On the whole, these statistics call attention to the kind of protection the people of each state have against incompetent or ill-trained physicians.

FACTS REGARDING EACH COLLEGE

The tables also give valuable information regarding medical colleges. Tables A and B indicate in what states graduates of each college were examined and the results of the examinations. Additional information for comparative study is given in Tables C and D. Table E shows the results of the examinations for the group of colleges located in each state. Table F furnishes an interesting study of the colleges having fifty or more graduates examined during the year, and allows of comparison between colleges of nearly equal size.

Before a conclusion is formed regarding any college, it is important to note in Table D whether or not its graduates are refused examination in any states. A low-grade college, by having all its graduates appear before a lenient or a partisan board, may occasionally have a very low percentage of failures. The examination results taken alone in such an instance would seem to indicate good teaching methods. This misconception is prevented, however, if it is found, as shown in Table D, that its graduates are not admitted to examination in from ten to thirty-three states. A fairly good college may occasionally have a high percentage of failures, especially if they are in states having more rigid examinations. It is seldom, however, that a well-equipped and well-conducted medical college will, year after year, receive as high as 15 or 20 per cent. of failures. In a word, these statistics throw an important side-light on the facts regarding medical colleges published in August each year in the Educational Number of THE JOURNAL.

TOTAL REGISTRATION IN ALL STATES

These statistics show the number of candidates coming not only from each medical school in this country, but also from Canadian and other foreign medical colleges. They give an accurate record of the number and source of the men who are entering the practice of medicine each year in this country. They show that 5,872 physicians were licensed in this country during 1915; 75 more than in 1914.

STATISTICS ACCURATE AND RELIABLE

The collecting and publishing of these statistics was begun by THE JOURNAL in 1903; but since 1905 that work has been continued as one of the duties of the Council on Medical Education. Every report received from state licensing boards is carefully checked, duplications are avoided, errors are corrected, and the statistics are rendered accurate and reliable. Through the possession of complete alumni lists of all existing medical colleges, the Council is in position to avoid charging a college with a failure which may have been erroneously accredited to it. The possession of this information regarding medical graduates has also permitted the discovery of numerous instances in which fraudulent credentials were presented to state boards. In each instance the board's attention has been promptly called to the facts.

INFLUENCE OF THESE STATISTICS

These statistics have had a much greater effect, however, than that rendered by a mere numerical report of physicians examined. In many states splendid systems of record-keeping are now to be found where formerly no records whatever were kept, or where the systems were far from perfect. They have also furnished abundant argument for practical tests in state license examinations and have undoubtedly had much to do with the improved character of these examinations.

The publication of these statistics has had a marked influence on medical colleges. Whereas previously medical faculties were unaware of the weakness in their methods of teaching, these statistics now show how frequently graduates fail at the state license examinations. The colleges have made marked improvement in their equipment, and better teachers have been secured and better methods adopted.

COOPERATION MUTUALLY ADVANTAGEOUS

These statistics have their greatest value when studied in connection with other data collected by the Council on Medical Education and published in THE JOURNAL and in the Council's reports. The state board statistics are made more accurate and reliable through data furnished by medical colleges; they are based on reports received direct from state boards; through a careful checking of those reports, errors are frequently corrected, the state boards are notified and in this way state records are also made more accurate. The statistics published this week, therefore, have been made possible only through the cordial cooperation of both the state boards and the medical colleges, and for this cooperation we again express our acknowledgments.

THE SPECIFICITY AND UTILITY OF THE ABDERHALDEN REACTION

Any one who has followed the voluminous literature which has appeared with reference to Abderhalden's now well-known ideas of protective enzymes and their application in serologic diagnosis must have been impressed with the numerous seemingly irreconcilable statements on the subject. The value of the reaction as a specific indication of pregnancy has been firmly upheld by one set of observers, only to be denied in equally vigorous terms and with equally convincing evidence by another group of investigators. In the case of the applications of the Abderhalden reaction to the diagnosis of pathologic conditions, as in carcinoma, for example, the situation is even more unsettled. Nothing less than the outbreak of the

European conflict seemed to succeed in putting a quietus on the lively polemic in reference to the reliability of the Abderhalden reaction which filled the columns of some of our German contemporaries a few months ago.

It would be of little interest to our readers to discuss the possible causes for the radical differences of opinion that have been ventured on this subject. It should be pointed out, however, that the Abderhalden reaction, as it has been currently employed, is attended by numerous pitfalls in the direction of errors of technic; and furthermore, it is attended by the inevitably objectionable feature of being open to subjective influence in the observation of the end-results. Those interested will therefore welcome the newest critique of the Abderhalden reaction by D. D. Van Slyke and his associates[1] at the Rockefeller Institute of Medical Research. The reaction involves proteolytic digestion. The New York investigators have substituted for the uncertain qualitative method, first proposed for detecting the proteolysis, Van Slyke's excellent method of amino nitrogen determination. This method, while it cannot be said to furnish an absolute measure of proteolysis, since it involves a determination only of end-products of proteolysis, does furnish a fair index of the relative intensities and progress of proteolytic actions. It has not only the indispensable attribute of being quantitative, but also permits accurate results with the small amounts of material that are available in the serum tests. Furthermore, it is specific for proteolysis, and permits one to follow the chemical change which is characteristic thereof.

The findings from experiments in which every recognized precaution as to manipulation, substrate, etc., was employed, speak for themselves. Practically every serum, whether from a pregnant or a nonpregnant individual, showed protein digestion when incubated with placenta tissue prepared according to Abderhalden. The range of individual variation in proteolytic activity was wide. The range covered by most of the normal serums, however, was identical with that covered by the majority of the pregnant serums. There is a tendency for results from the latter to average somewhat higher than those from nonpregnant. The difference, even in the averages, is not great, however; and the individual variations of both pregnant and nonpregnant serums make the results from the two overlap so completely as to render the reaction, even with quantitative technic, absolutely indecisive for either positive or negative diagnosis of pregnancy. Further evidence of nonspecificity is seen in the fact that carcinoma tissue was digested apparently to about the same extent as was placenta.

After this carefully planned arraignment it will require more than a little argument or revision of technic to restore confidence in the alleged specificity of the Abderhalden test. This is, of course, not the first time that evidence in the same direction has been brought forward.[2] Nevertheless this investigation by Van Slyke bears every evidence of a thorough, objective study of the subject and cannot be overlooked by future workers. At the present time it appears that "nearly all human serums can digest certain coagulated tissue proteins to some extent, but that the source and significance of the proteolytic agents, and the influences that cause their fluctuation, remain as yet undetermined."

1. Van Slyke, D. D.; Vinograd-Villchur, M., and Losee, J. R.: The Abderhalden Reaction, Jour. Biol. Chem., 1915, xxiii, 377.

HOSPITAL LABORATORIES

However great may have been the heritage of medicine from the past, the wonderful development which it has achieved in recent times is directly traceable to the scientific spirit of the present generation. A recent writer[3] on the development of this newer era has pointed out that the stimulus came partly from many extraneous and now familiar sources. The discovery of oxygen, the establishment of the theory of the conservation of energy, the overthrow of the mystic doctrine of vital force, the discovery of protoplasm, the promulgation of the cell theory of organic structure, and the formulation of the theory of evolution all contributed their share. The chief agents through which the great change has come are the laboratory, now little more than threescore and ten years old, and the method of orderly experimentation which the laboratory alone can foster.

We may well pause to ask whether or not the American hospital has done its proper share in recent years to encourage the support of this institution so potent for progress. Few if any of those who understand the true function of the hospital laboratory will contend that it has attained the position and received the help which it deserves in the organization of medical institutions. Few of the independent hospitals, in addition to those which serve largely as teaching institutions, can claim anything more than an equipment for certain routine performances which may be indispensable for accurate diagnosis. This is not due entirely or even largely to the indifference of members of our profession, but rather to the attitude of those who are responsible for the financial support and maintenance of the hospitals, namely, the boards of trustees, consisting of laymen who usually believe that their institutions discharge their duty to the community solely by the cure or relief of suffering humanity.

Doubtless this current attitude, which serves as the guiding factor in the distribution of the hospital budget, is perpetuated unchanged by the widespread,

2. Compare, for example, The Antiferments of the Blood, editorial, The Journal A. M. A., Oct. 30, 1915, p. 1554.

3. Lee, F. S.: Scientific Features of Modern Medicine, New York, 1911, p. 3.

though decreasing indifference of the members of the medical profession in what ought to receive their special concern. Their help is needed to educate those more directly responsible for the management of the hospital as a public organization to an understanding that the hospital laboratory is no longer merely a room where a few interns or a poorly paid worker is expected to make a few elementary routine chemical tests of urine or microscopic examinations of tumors. Richard M. Pearce[4] has thus summarized the functions of the hospital laboratory: 1. To aid in the diagnosis, and therefore the intelligent treatment of disease. 2. To investigate new methods of diagnosis and treatment, and put them into use with the least possible delay. 3. To advance, by investigation, our knowledge of the cause, course, diagnosis and treatment of disease.

If these tenable contentions were securely established in the minds of a wider audience than that of the physicians who serve the hospital, the laboratory would often loom up as a fundamental part rather than as a mere adjunct of the institution. Somehow, and not unnaturally, it is easy to convince a board of trustees of the importance of a well equipped and suitably conducted Roentgen-ray department, because it is easy for a layman to visualize some of its possibilities. He needs to be helped to respect the less conspicuous but equally potent possibilities which reside in the newer diagnostic tests, such as those for renal or other organic function, the abnormal composition of the blood, the serologic phenomena incident to certain diseases, and the compatibility of drugs and serums with the conditions prevalent in the individual. Voluntary or underpaid and overworked staffs cannot facilitate the discovery or even the use of the best of such contributions. Pearce has well remarked that because of the lack of such help from school laboratories, the independent hospital should have a laboratory more thoroughly equipped and more all-embracing in its activities than the school hospital. He reminds us that this is rarely the case, and that despite its isolation, which should be a stimulus to greater effort in behalf of patients, the independent hospital has laboratories, with few exceptions, far inferior as regards equipment, staff and ideals to those of hospitals connected with educational institutions. Hospitals catering to private patients certainly cannot afford an indifferent equipment.

There are signs of a changing order. The dietitian is beginning to assert her true function in the American hospital. The management is beginning to be concerned with the scientific reputation of its institution as well as with the cost-per-day features of the budget. The public is becoming interested in the "discoveries" of hospitals in its community as well as in the opportunities it extends for beneficent relief. To paraphrase Pearce, the trustees of independent hospitals can no longer consistently and blindly neglect the laboratory and research side of hospital effort. They must be awakened, where necessary, to an intelligent conception of the real value, to the hospital and the community, of the hospital laboratory as a factor in the elucidation of the problems of disease.

4. Pearce, R. M.: The Hospital Laboratory — Its Purposes and Methods, Mod. Hosp., 1916, vi, 158.

THE SOURCE AND CRITERION OF COLOR IN CERTAIN FOODS

It is a familiar observation that animal fats and therefore tissues or organs rich in fat may be more or less colored so that they assume yellow hues of varying intensity. To the lipochrome or pigment responsible for this coloration the name lutein was early applied.[1] Even in recent textbooks, one reads that, dissolved in the fat of the egg yolk, for example, is the yellow coloring matter lutein.[2]

Through a series of laborious investigations, among others by Schunck, Willstätter and by Palmer and Eckles[3] in this country, it has become clearly established that the natural yellow pigment which characterizes the milk fat, body fat, corpus luteum and blood serum of the cow is physiologically, as well as chemically, identical with the carotin of the chloroplastid, and depends on the presence of this pigment in the food for its presence in the tissues, fluids and secretions of the animal body. The yellow pigment in the egg yolk, on the other hand, has been identified from the chemical standpoint as xanthophyll, related to the colored compound of similar name occurring in plants. A small quantity of carotinlike pigment seems to accompany the xanthophyll in the once-designated lutein of the egg yolk. The yellow colorings of organs or tissues rich in fat are thus evidently associated with two characteristic pigments having specific properties.

Palmer[4] of the University of Missouri has lately added new facts to demonstrate the identity of these yellow animal pigments with the carotin and xanthophylls of plants. In the cow, and thus in beef fat and butter fat, carotin is the predominating fat pigment found. In the hen the other group is present in by far the greater proportion. Feeding tests with laying hens, in which the pigment of the feed was carotin to the relative exclusion of xanthophyll, were with-

1. It is unfortunate that this word has since been appropriated by manufacturers of organotherapeutic products to designate a part of the corpus luteum sold for medicinal purposes. Opportunity for confusion is thus readily afforded.

2. Compare Sherman, H. C.: Food Products, New York, Macmillan Company, 1914, p. 134.

3. Schunck, C. A.: Proc. Roy. Soc., 1904, lxxii, 170. Willstätter, R., and Escher, H. H.: Ztschr. f. physiol. Chem., 1911-1912, lxxvi, 214. Palmer, L. S., and Eckles, C. H.: Jour. Biol. Chem., 1914, xvii, 191; Bulls. 9, 10, 11 and 12, Missouri Agricultural Experiment Station Research, 1914. The Natural Yellow Pigments Occurring in the Body, editorial, THE JOURNAL A. M. A., Sept. 12, 1914, p. 948.

4. Palmer, L. S.: Xanthophyll, the Principal Natural Yellow Pigment of the Egg Yolk, Body Fat and Blood Serum of the Hen: The Physiological Relation of the Pigment to the Xanthophyll of Plants, Jour. Biol. Chem., 1915, xxiii, 261.

out appreciable influence on the amount of pigment carried by the blood serum and deposited in the egg yolk. The feeding to laying hens of rations relatively free from both carotin and xanthophyll resulted in a marked reduction of the amount of this pigment carried by the blood serum and deposited in the egg yolk.

It has proved to be easy to apply the findings of this investigation to the practice of the poultry raiser in the control of the color of the flesh (body fat) of poultry and of the yolks of the eggs during the winter season. Where the fancy poultry trade demands colorless flesh in pen-fattened birds, it is merely necessary to select feeds free from carotin and xanthophyll, particularly the latter. The measure of success already attained in feeding practices of this character are to be attributed to the fact that skim milk or buttermilk comprise the greater proportion of the ration. These feeds are devoid of both carotin and xanthophyll. Where the demand is for yellow eggs throughout the winter months, these experiments find their application in the use of feeds rich in xanthophyll. Yellow corn is particularly suited for this purpose, and is one of the few winter feeds carrying an abundance of the xanthophyll pigment which is carried over into the egg yolk.

Now that by the application of intelligent scientific analysis it has become possible to produce any desired degree of pigmentation of the yolk of eggs or the flesh of poultry (or the fat of milk), one must ask the reason for some of the current restrictions of the market. Palmer reminds us that the consumer demands highly colored yolks in "fancy" eggs throughout the year; and the eggs with pale yolks, so frequently found on the market during the winter months, are the object of much complaint, particularly in cities. Similarly, in some sections of the country the poultry trade demands a highly colored flesh. For the fancy trade, however, the demand is for a flesh with the least color possible. Such dietary whims, like the varying predilection for butter of different hues in different sections of the same country, cannot be defended on any physiologic basis. The color of the fats is not the expression of any unique nutritive excellence, but rather the accidental outcome of the particular group of plant products ingested by the animals at the time they produced the food product sought. In the matter of the color of butter, the prejudice against the pale varieties is rapidly disappearing, especially since the consumers are beginning to appreciate that much of the coloration is usually produced artificially in the creamery rather than by the cow. The superstition of a superior virtue associated with deep yellow butter or deep yellow egg yolks is about as rational as the persistence of the prescription and proscription of meats according to their tints.

MEDICAL EDUCATION AND RURAL COMMUNITIES

The paper on this topic by Dr. Gordon Wilson, published this week,[1] may be taken by some as slightly reactionary in regard to the standards of medical education. This is not necessarily true. In fact, a careful study of the tables presented shows no general cause for alarm. In interpreting the figures, several points must be considered:

In the first place, of the two institutions compared, one has been established for over a century and has a wider dissemination of its alumni than the other, which has been in existence for only about two decades. It is commonly known that a medical college receives a large proportion of its students through its alumni, and that most of those students when they graduate return to their home districts to practice. This doubtless explains why in Table 2 there is so wide a variance between the figures of the University of Maryland and the Baltimore Medical College, which was organized in 1881 — more nearly the time when the Johns Hopkins Medical School was established. In fact, the discrepancy between the figures of the two colleges[2] first named is even more marked than that between the figures of the Baltimore Medical College and the Johns Hopkins University, Medical Department.

In the second place, Dr. Wilson's comparison of the University of Maryland is with one of the few colleges in the United States which hold to an extremely high entrance requirement. Indeed, it is not surprising to learn that comparatively few graduates of these schools are found outside the large cities or functioning as ordinary practitioners in rural districts. The results of comparisons with such schools, therefore, do not necessarily indicate a danger of a dearth of physicians in rural districts or anywhere else, since there is no probability that so extreme a requirement for admission to medical colleges will ever be given general adoption throughout the United States. The results would be more worthy of serious consideration had Dr. Wilson compared the figures of the University of Maryland with those of another medical school which had been in existence a more nearly equal length of time, which had alumni as widely distributed, and whose standard for admission for the last ten or more years had been two years of college work rather than the degree requirement.

That there is no immediate danger of a dearth of physicians, furthermore, is evidenced by the present enrolments of medical students. Although the total number of graduates each year has been gradually diminished through the adoption of higher entrance

1. Wilson, Gordon: Medical Education with Reference to Rural Communities, THE JOURNAL A. M. A., this issue, p. 1073.

2. In Table 2, Dr. Wilson shows that of the 1,225 graduates of the University of Maryland School of Medicine in the ten years, 140 (or 11.4 per cent.) located in rural Maryland, while of the 1,330 graduates of the Baltimore Medical College, there were only 31 (or 2.3 per cent.), and of the 965 graduates of Johns Hopkins Medical School, 4 (or 0.4 per cent.) located in rural Maryland.

standards and the reduction in the number of medical colleges, it is apparent that the pendulum is about to swing back, when the number of graduates will again show an increase. This is evident since the enrolment in freshman classes in the majority of medical schools shows a decided increase over that of a year ago. It is significant to note, also, that the increase is more marked in the institutions which have adopted the requirement of two years of premedical college work.

In regard to the rural districts, as set forth in the report of the Carnegie Foundation on this subject, the existence of low standard medical colleges for thirty or more years did not succeed in forcing many practitioners to those districts. With the advent of the telephone, the automobile and better improved roads, rural localities are bound to obtain better medical service. The wider dissemination of better trained physicians will carry with it a wider knowledge of the methods by which diseases may be prevented. This will make the mortality figures, referred to by Dr. Wilson, compare more favorably with the figures in foreign countries. Certainly the public, whether living in cities or in rural communities, will be benefited by having better medical service.

Current Comment

SUGGESTED CHANGES IN THE MEDICAL CURRICULUM OF GREAT BRITAIN

A recent editorial[1] in the *British Medical Journal* deplores the fact that graduates of English universities, not excepting Cambridge and Oxford, are often totally ignorant in even the elements of science and lacking in the intellectual training which it affords. It also refers to a plan proposed by Sir William Osler which would result, not only in a more general knowledge of the sciences, but also in materially shortening the time devoted to medical instruction. Dr. Osler proposes that the preliminary sciences, physics, chemistry and biology, be taught to students in their sixteenth and seventeenth years, since he believes that at that time the majority of those looking to medicine have already selected their life work. That would enable the student to enter the university at the age of 18 and begin at once the study of physiologic chemistry, physiology and anatomy. In the university the student would take two years of laboratory subjects in medicine and two years devoted to clinical subjects—similar to the four-year course at present given in the United States. This would enable him to graduate in medicine at the age of 22 or 23. In commenting on this plan the editorial calls attention to the complaints that the medical curriculum is already overcrowded. That difficulty could be offset, however, as it is being met in the United States, by reorganizing the curriculum and retaining only those subjects which are of most importance; by limiting the time devoted to each subject in accordance with its relative importance, and by adopting a method of teaching whereby the student learns how to study and becomes acquainted with the various sources of information. This is better than merely memorizing a large quantity of medical facts, or attempting to cover all the subjects in the wide field of medicine. All this indicates that there is still room for improvement in medical education in England, and that, by comparison, American medical education is being developed along proper lines.

1. Education Today and Tomorrow, Brit. Med. Jour., Jan. 16, 1916, p. 101.

FACTS FOR PROSPECTIVE MEDICAL STUDENTS

Included in the statistics published this week are two tables which give information of extreme importance to prospective medical students. Before he selects a medical school, the student should know whether it is recognized by all state licensing boards — whether a diploma from that medical school will admit him to the examination for the license to practice in any state of his choice. He should note in Table D[1] that only forty-two medical colleges furnish qualifications which are acceptable in all states, and that the diplomas of thirty-one medical colleges are not acceptable as a qualification for the license in from thirteen to thirty-three states. Before entering on the study of medicine, also, the student should make sure that he has obtained enough preliminary education to make him eligible to receive the license in any state of his choice. It is important for him to examine Table L[2] and note that twelve states[3] now require that the applicant before beginning the study of medicine, in addition to a four-year high school education, must have completed two years of collegiate work, and that to secure a license in nineteen other states,[4] besides the high school course, he must have completed one year of collegiate work. Ignorance regarding these matters may result in a lifelong handicap. The time for the student to make up any deficiencies in preliminary education is, naturally, before he enters a medical school. Certainly he will not care to enter an unrecognized medical college when in the same time and possibly for even less money he can obtain his training in one of the best equipped medical schools. There is no dearth of high grade and well conducted medical colleges that are in position to furnish the student with a training that will enable him to perform the responsible duties which he will later assume.

INCREASED MEDICAL STAFF IN THE ARMY

The House, debating the bill for the reorganization of the army, brought before it by the House military committee, has adopted an amendment granting a provision asked for by the surgeon-general of the army providing for seven medical officers per thousand of

1. Pages 1106 and 1107.
2. Page 1114.
3. Alabama, Colorado, Indiana, Iowa, Minnesota, New Hampshire, New Jersey, North Dakota, Oklahoma, South Dakota, Virginia and Wisconsin.
4. Arkansas, California, Connecticut, Illinois, Kansas, Kentucky, Louisiana, Maryland, Michigan, Mississippi, North Carolina, Pennsylvania, Rhode Island, Texas, Utah, Vermont, Virginia, Washington and West Virginia.

line troops. Such a step is an advance in medical organization. It is in response to the achievements of military hygiene and to the appreciation, by the public at large, of the economic value of sanitation to which it has been educated within the last decade. The work of the Dodge commission, which investigated the conduct of the war with Spain, still bears fruit. The reorganization of the Medical Department in 1908 was based largely on the results of this report, and the provision affecting the personnel also finds its warrant in this report. The determination of the strength of the personnel on a percentage basis is eminently a correct one, and in any increase in the army which might occur, automatically carries with it a proportionate increase in the Medical Corps. Even the pacifist can have no objection to the increase of the scientific and noncombatant corps, charged, as it is, with the conservation of human life in the army; the militarist and economist certainly should welcome any agency which conserves the physical well-being of the trained soldier. That an efficient and sufficient Medical Department can do this, and does do this, is being demonstrated today in Europe. Indeed, it is a question whether any people as intelligent as those of the United States would again tolerate, even for a few brief weeks, the conditions which prevailed in the mobilization camps in the United States during the Spanish War. The sanitary era has arrived, and the action of the military committee is merely recognition which has arrived in the army, as well as in civil life. This is something in which the medical profession of the country at large is vitally interested. It believes that the lessons of the Spanish War should be fully considered in any reorganization of the army.

COEDUCATION IN MEDICINE

It is reported that the trustees of Columbia University have voted to admit women to the College of Physicians and Surgeons. Columbia is the third large medical school which recently has changed a policy of many years and opened its doors to women students. About two years ago similar action was taken by the School of Medicine of the University of Pennsylvania, and last year by the School of Medicine of the Tulane University of Louisiana. The idea of granting equal opportunities for the two sexes in medical schools is apparently gaining. Over forty years ago the University of Michigan admitted women students to its courses in medicine; practically all other state universities followed. From the time of its organization in 1893, the Medical Department of Johns Hopkins University has admitted women. In New York City the Women's Medical College of the New York Infirmary closed its doors only after Cornell University had established its medical school and admitted women students — in 1898. In 1902, Rush Medical College, which had formed a close affiliation with the University of Chicago, became coeducational. At the present time sixty-three medical colleges in this country admit both sexes.

ALCOHOL AND IMMUNITY AGAIN

Concerning the effect of alcohol on resistance to infection, which was recently commented on in The Journal,[1] it is of interest to note that Konrádi[2] has found that comparatively few antibodies against cholera germs developed in four persons who consumed alcohol daily in fairly large quantities, and who had been given protective inoculation against cholera. Konrádi refrains from drawing any general conclusions from these observations, which he made in the course of a study on the formation of specific antibodies after anticholera inoculation of about 1,400 persons. He mentions Laitinen's work showing lowering of resistance to infection by the prolonged administration of alcohol to animals; Pampoukis' observations that alcoholics are not favorable subjects for inoculation against rabies, and a recent report of the activities of the Pasteur Institute in Budapest during the first twenty-five years of its existence, in which Székely points out that alcoholism is a condition in which the virus of rabies may remain active in spite of the usual antirabic inoculation treatment. These empiric results are not without significance, as they are in harmony with the general bearing of the experimental results mentioned in the previous comment.

RECENT GRADUATES AND THE QUALIFICATION OF THE NATIONAL BOARD OF MEDICAL EXAMINERS

Recent graduates of medical colleges and those about to graduate should carefully consider the advisability of taking the examination proposed by the National Board of Medical Examiners and securing the certificate to be granted by that board. Although at present nine state boards are said to favor the recognition of the certificate granted by the national board, nevertheless, until after an examination has been held, it cannot be stated absolutely that any board will so recognize it. Considering the character of the men who constitute the personnel of this board, however, the prospects for a wide, if not general, recognition of its certificate are good. The qualification of this board is quite certain to be given recognition by the medical departments of the United States Army, of the Navy and of the Public Health Service, if an increase of the medical corps of those services becomes essential. It is probable also that the qualification from the national board will eventually provide the basis for a wider recognition of American medical graduates in other countries. To pass an examination such as is proposed by the national board is naturally less difficult for one who has just completed his medical training than it is for one who has been in practice for several years. The possible benefits to the holders of the certificate from this board are so many that the recent medical graduate may later have occasion for regret in case he does not take the examination at the time when he is best prepared for it.

1. Alcohol and Immunity, Current Comment, The Journal A. M. A., March 25, 1916, p. 962.
2. Konrádi: Ueber den Wert der Choleraschutzempfungen, Centralbl. f. Bakteriol., I, O., 1916, lxxvii, 339.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

DISTRICT OF COLUMBIA

Memorial to the Red Cross Founder.—A mass meeting was held, March 26, to further the movement looking toward the erection in Washington of a suitable memorial to Clara Barton, founder of the American Red Cross.

Demands Improvement at the Washington Asylum Hospital.—The Monday Evening Club, a public welfare organization, is strongly urging the enactment of legislation looking toward the improvement of the Washington Asylum Hospital. The present accommodations were provided when the institution was an adjunct to the District Workhouse and the District Poorhouse, and are generally conceded to be disgracefully inadequate and antiquated.

HAWAII

Baby Week.—The third week in April has been set as Baby Week in Honolulu, and much interest is being aroused through both the English and Japanese press.

Addition to Sanatorium.—The heirs of the late Alexander Young, who was instrumental in founding the Leahi Home, have just completed and furnished, at a cost of $16,000, an additional building as a memorial to Mr. Young and his wife. The building has accommodations for twenty patients and contains also nurses' quarters, examining rooms and executive offices.

School Inspector Appointed.—Dr. Lawrence Leslie Patterson, who has been making a special study of public health at the University of California, has been appointed city medical inspector of Honolulu by Dr. John S. B. Pratt, president of the Territorial Board of Health. Dr. Patterson will be assisted in his work by one whole time nurse and a staff of ten nurses.

ILLINOIS

Personal.—Dr. David B. Penniman, Rockford, is reported to be critically ill with phlebitis in the Rockford Hospital. ——Dr. Edgar D. Smith, Springfield, was operated on for appendicitis in St. John's Hospital, March 24.——Dr. Richard F. Marrs, Sciota, who underwent operation in the Phelps Hospital, McComb, a few weeks ago, has returned home.——Dr. Frank Weld, Belvidere, fractured his arm by a fall on the ice, recently.

Intern Examination.—The Illinois State Civil Service Commission announces that it will hold an original intern examination at various places in the state, May 6, for the position of intern in the Illinois Charitable Eye and Ear Infirmary, Chicago. This position is open to men and women over 21 years of age, citizens of the United States, who need not be residents of Illinois. The position carries no salary, but includes maintenance. The duties involve assistance and work under supervision in clinics at the infirmary, Chicago, where more than 25,000 cases were handled during the last year. A license to practice medicine in Illinois is required and this year's graduates will be admitted to the examination.

Chicago

Personal.—Dr. Charles P. Caldwell has been made a member of the directorate of the Municipal Tuberculosis Sanatorium, to succeed Dr. Theodore B. Sachs.——Dr. Adam Szwajkart has resigned as a member of the state board of health.

Physicians Resign from Sanatorium Staff.—Drs. Oliver S. Ormsby, James A. Harvey, Elmer L. Kenyon, Robert H. Herbst, Harry E. Mock, Jesse R. Gerstley and Rachelle S. Yarros have resigned from the consulting staff of the Municipal Tuberculosis Sanatorium.

New Buildings for Sanatorium.—At the meeting of the executive committee of the consulting staff of the Municipal Tuberculosis Sanatorium, and the board of directors and superintendent, March 20, it was decided to recommend the expenditure of $500,000 for new buildings, to increase the resident staff of physicians and to appoint standing committees on sanitation, buildings, statistics, dispensaries, nurses and social survey.

Chicago Physicians Down State.—At a joint meeting of the Scott and Clinton counties (Iowa) medical societies and the Whiteside County (Ill.) Medical Society held at Clinton, March 24, Dr. Joseph B. Miller, Chicago, delivered the principal address.——Dr. Ernest E. Irons was the speaker of the evening at the meeting of the Freeport Academy of Medicine and Surgery, March 21. His subject was "Practical Therapeutic Application Based Upon Recent Knowledge of Infectious Diseases."——Dr. Arthur R. Elliott delivered an address before the Indianapolis Medical Society, March 21.——Dr. Paul Gronnerud was the guest of honor at a dinner given by the Muskegon-Oceana Medical Society at Hackley Hospital, Muskegon, Mich., March 31. After the dinner Dr. Gronnerud delivered an illustrated address.

IOWA

Personal.—Dr. and Mrs. George W. Frank, Sunbury, have returned after spending the winter on the Pacific Coast and located in Davenport.——Dr. Max W. Emmert, Des Moines, has accepted a position on the surgical staff of the Medical School of the University of Nebraska, Omaha.——Dr. Arthur L. Washburn, health officer of Oskaloosa, has resigned to accept a position in a hospital in Scotland.——Dr. William L. Becker has been elected president of the board of education of Dubuque.

Hospital Notes.—At a meeting of the board of trustees of St. Luke's Hospital, Davenport, March 22, the location of the new building which, it is expected, will be erected as a result of the ten-day campaign to raise $125,000 for the institution, was discussed.——The residence of Dr. Ralston W. Sleeter, Rockford, is being remodeled for use as a hospital.——Estherville is to have a new hospital to be built at an expense of about $7,500. The building will have accommodations for about twenty patients.——The Atlantic Hospital Association announces that work will commence in the spring on the new building for the institution to cost $25,000.

MARYLAND

Tuberculosis Commission Bill.—A bill has been introduced into the state legislature to provide for a state wide unpaid commission on tuberculosis to be known as the Maryland Tuberculosis Commission and to consist of the governor, secretary of the state board of health, and six others to be named by the governor and confirmed by the senate. This commission is to make proper provision for all tuberculosis hospitals receiving state aid and to furnish accommodations for colored persons suffering from the disease. The bill appropriates $120,000 for buildings; $40,000 for maintenance, and $50,000 for the maintenance and expenses of the commission.

Personal.—Dr. J. McPherson Scott has been reelected mayor of Hagerstown for the fourth consecutive term.——Dr. Charles W. Mitchell, Baltimore, who has been seriously ill with pneumonia, is reported to be greatly improved.——Dr. John C. Hemmeter gave the last of four receptions to the students of the graduating class of the Medical School of the University of Maryland and the College of Physicians and Surgeons, at his house, March 23, when he made an address on "Goethe as a Naturalist."——Dr. Joseph C. Bloodgood, Baltimore, delivered an address at the quarterly luncheon of the California Academy of Medicine, San Francisco, March 29, and before the Commonwealth Club, April 1, and will deliver an address at the meeting of the Medical Society of the State of California, all on the subject of cancer. ——Dr. William H. Welch delivered a lecture before the Book and Journal Club of the Medical and Chirurgical Faculty of Medicine, March 22, on "The Development of Medicine in the Orient."——Dr. Henry Mills Hurd, Baltimore, gave a dinner at the Maryland Club, March 25, to members of the board of trustees of Johns Hopkins University and a number of prominent physicians of the city to mark the fiftieth anniversary of his graduation in medicine.——Assist. Surg.-Gen. Henry R. Carter, U. S. P. H. S., gave a lecture recently before the medical students of the University of Maryland on "Yellow Fever."

MASSACHUSETTS

Personal.—Dr. Jeremiah J. Daly has been appointed town physician at Andover.——Dr. George P. Twitchell, Greenfield, has been renominated as medical examiner (coroner) of Franklin County.

Alumni of School for Health Officers Receive Appointment.—Dr. H. H. Mitchell has been appointed bacteriologist of

the Indiana State Board of Health.——Dr. Ralph W. E. Cole has been reappointed health officer of York Village, Me.——Dr. Stanley H. Osborn has been appointed district health officer by the Massachusetts State Department of Health.

Merging State Boards.—A special committee of the Massachusetts legislature has recommended a central administrative bureau for the state boards of registration in medicine, dentistry, pharmacy, nurses, optometry, veterinary medicine and embalming. The boards will be continued for the examination of candidates, but all clerical work will be done in the new central bureau. The paid secretaries of all boards, except medicine and pharmacy, are to be dropped. The change is expected to save from $10,000 to $12,000 per year in salaries and clerical expenses and at the same time simplify the system of records.

MONTANA

Personal.—Dr. Jed B. Freund, Butte, has been appointed physician of Silverbow County, succeeding the late Dr. Joseph A. Tremblay.

Hospital Items.—At a called meeting of the trustees of the Bozeman Deaconess Hospital, March 22, it was decided that a new building be erected for the institution with twice the capacity of the present hospital buildings.——At a meeting of the board of directors of the Northern Pacific Beneficial Association it was voted to build a new hospital in Missoula to cost $100,000.

NEW YORK

Personal.—Dr. William J. Books has been appointed supervising physician of the city schools of Schenectady.——Dr. Frederick W. Sears, health officer of Syracuse, has returned after a ten-day trip to Porto Rico.

Health Resort Under State Control.—After a series of conferences between the governor, legislative leaders and the commissioners of the Saratoga Springs Reservation, it has been decided to place the state-owned mineral springs at Saratoga under the supervision of the state conservation commission.

The Quarantine Transfer and Dr. Cofer.—The statements made in The Journal of March 25 that the chances of the cession of the quarantine station of New York to the federal government being very slight, and of the failure to confirm the nomination of Assist. Surg.-Gen. Leland E. Cofer, U. S. P. H. S., as health officer of the port of New York, were incorrect. Correspondents state that the outlook for the transfer of the New York Quarantine Station to the federal government is very good, and that the failure to confirm the nomination of Dr. Cofer was technical and had reference merely to his status as a nonresident of New York state.

Antipneumococcus Serum Ready for Distribution.—The Department of Health Laboratory of Buffalo, through Dr. William G. Bissell, chief of the bureau of laboratories, announces that it has prepared to examine sputum from persons suffering from lobar pneumonia and also to distribute antipneumococcus serum. The methods for this work are those used by Drs. Rufus I. Cole and Alphonse R. Dochez of the Rockefeller Hospital, which divided pneumococci derived from cases of lobar pneumonia into four main types according to the immunologic reactions; namely, differential agglutination reactions with homologous serums, and differences in the protective action for mice of homologous and heterogeneous serums against infection with organisms of the different types. The circular also gives directions for collection of sputum and for the use of antipneumococcus serum.

New York City

Opposition to Night Pay Clinic.—The New York County Medical Society at its meeting, March 27, condemned by resolution, without a dissenting vote, the proposal of the Mt. Sinai Hospital to establish a night pay clinic.

Alcohol Discussed.—At the meeting of the New York Academy of Medicine, April 6, Dr. Francis G. Benedict, director of the Boston Nutrition Laboratory of the Carnegie Institute, delivered an address on "The Investigation of the Influence of Alcohol on Man, With Special Reference to Psychological Effects," illustrated by lantern slides. This address was followed by a paper by Dr. Richard C. Cabot of Boston on "The Relation of Alcohol to Personal Efficiency." The discussion was opened by Dr. Charles R. Stockard, New York, and was continued by Drs. C. E. A. Winslow of Yale University and Drs. Bernard Sachs, Haven Emerson, New York, and Prof. Frederick S. Lee.

Personal.—Dr. Charles H. Richardson, Brooklyn, is seriously ill at Roosevelt Hospital.——Dr. Lewis A. Stimson sailed on the French liner *Rochambeau* for Bordeaux, April 1.——Dr. Simon Flexner has been appointed Cutler lecturer at the Harvard University Medical School for this year.——Dr. Henry W. Wandless has been appointed clinical professor of ophthalmology in New York University and Bellevue Hospital Medical College.——Dr. James J. Walsh is to receive the Laetare Medal, which is annually given by the University of Notre Dame, South Bend, Ind., to a distinguished Roman Catholic layman.——Dr. Harry Plotz of Mt. Sinai Hospital has received a medal for bravery from the Bulgarian government on account of services rendered in stamping out typhus fever in Serbia and Bulgaria.

OHIO

Personal.—Dr. Sidney C. Venable, formerly resident physician at the Cleveland State Hospital, has been appointed assistant superintendent of the institution, succeeding Dr. Lemuel R. Brigman, temporary incumbent.——Dr. Francis C. Tyng has been appointed resident physician of the hospital.——Dr. John G. Frey has been appointed serologist to the bureau of laboratories, Cleveland Division of Public Health.——Dr. Clarence D. Selby, health commissioner of Toledo, has been appointed director of the public health laboratories of Toledo University.——Dr. Clyde E. Ford, Cleveland, has decided not to accept the position of secretary of the state board of health to which he was recently elected, but has accepted a position in New York.——Surg. Clarence W. Will, U. S. P. H. S., in charge of the United States Marine Hospital, Cleveland, has resigned, and his resignation was accepted and took effect March 15. He will enter private practice in Cleveland.——Dr. Albert C. Carney has been elected president; Dr. Wilmer E. Griffith, vice president, and Eugene Griffis, secretary-treasurer, of the Hamilton Antituberculosis League.——Dr. Louis H. Frechtling, Hamilton, has been reappointed medical director of the Antituberculosis League and will be in charge of the dispensary, which will be open on Thursday afternoons from 3 to 5 o'clock.

Cincinnati

Personal.—Dr. Edwin W. Mitchell has resigned as senior visiting surgeon of the Cincinnati Hospital after nearly twenty-five years' service, and has been succeeded by Dr. Louis G. Heyn. Dr. Mitchell was elected president of the *Lancet-Clinic* Company at the annual meeting of directors, March 8.——Dr. Elizabeth I. Adamson, intern in the Cincinnati General Hospital, has been appointed resident physician at the Ohio State Hospital, Athens.——Dr. Roger S. Morris has been elected president and Dr. Wade W. Oliver, secretary, of the Cincinnati Research Society.——Dr. Benjamin K. Rachford will deliver the dedicatory address at the opening of the new Children's Hospital, Chattanooga, Tenn., April 18.——Dr. Philip L. Coulter, a former intern in the City Hospital, who has been doing trachoma work for the government in West Virginia, is a patient in the hospital of Dr. Derrick T. Vail, suffering from acute trachoma.——Drs. John W. Murphy and Martin H. Urner have taken over the eye, ear, nose and throat practice of Dr. Thomas M. Stewart, who has removed to Oconomowoc, Wis., where he is to be one of the staff of the new Edgemoor Sanitarium.

PENNSYLVANIA

Personal.—Dr. Francis M. B. Schram, city bacteriologist of Johnstown, fractured his arm recently while cranking his automobile.——Dr. J. Treichler Butz has been appointed health officer of Allentown and also medical inspector for Lehigh County.——Dr. H. F. Lampe of Altoona has resigned as assistant physician of the Altoona Hospital to take a similar position in Kings County Hospital, Brooklyn.

Philadelphia

Fellowship in Obstetrics for Medical Women.—A fellowship in obstetrics for medical women has recently been established by the Woman's Medical College of Pennsylvania. It carries with it the sum of $1,000 for twelve months' work. It is open to women graduates of any accredited medical college, who has served as intern for at least one year in a hospital with an obstetric service, has spent at least one year in further practice, and who intends to continue in the practice of obstetrics. Other things being equal, the holder of a college degree will receive the preference. Application should be made before June 1, 1916.

Personal.—Dr. Ernest Laplace, who has been professor of surgery and clinical surgery in the Medico-Chirurgical Col-

lege for the last twenty years, has accepted also the duties of professor of principles of surgery and clinical surgery held by Dr. Rodman before his death.——Drs. John A. Brophy and H. Maxwell Langdon have been appointed visiting ophthalmologists to St. Agnes' Hospital.——Dr. John P. Bethel has been appointed first assistant bacteriologist in the bureau of health.——Dr. William Scott Wadsworth completed his seventeenth year as coroner's physician, March 21. During this time he has made between 5,000 and 6,000 necropsies.——Dr. Walter E. Lee has returned after work with the American Ambulance unit in Paris.

WISCONSIN

Exchange Lectures.—Dr. Arthur S. Loevenhart, Madison, delivered a lecture on "Biological Aspects of Oxidation" at Marquette University, Milwaukee, and Dr. Louis M. Warfield of Marquette University spoke on "Essentials of Diagnosis in Internal Medicine" at the University of Wisconsin, March 16.

Personal.—Dr. Cornelius A. Harper, Madison, has been reappointed secretary of the state board of health.——Dr. Urban J. Durner, Milwaukee, who has been working in hospitals in London for several months, has returned to his home.——Dr. Ray D. Boynton has resigned as assistant surgeon at the Wisconsin Veterans' Home, his resignation taking effect April 1.

Sterilization Law a Success.—A second series of operations has been performed on male patients at the Home for Feebleminded, Chippewa Falls, with the result, it is announced, that all the patients have recovered and that the operations have been beneficial. Up to the present time, twenty-five patients have been sterilized. The next series of operations will be made on female patients at the Chippewa Falls institution.

CANADA

Hon. Dr. Roche Honored.—The senate of Western University, London, Ont., has elected the Hon. Dr. William J. Roche, Minnedosa, Man., Canadian Minister of the Interior, Chancellor. Dr. Roche was the first medical graduate of the Western University.

Heads Ontario Hospital in England.—Col. David W. McPherson, Toronto, who was with the first Canadian Overseas Force, and who has lately been in command of the Epsom Convalescent Hospitals in England, has been appointed to the command of the Ontario Military Hospital, Orpington, Kent County. The staff for this hospital sailed some time ago and is in England ready for work, although no patients have as yet been admitted to the hospital.

Queen's Hospital Moving to England.—No. 7 General Hospital, Queen's University, Kingston, Ont., which has been stationed at Cairo, Egypt, has left for England. This hospital corps has been in Cairo since last August, and as there is now very little medical work in that region, it was decided to recall it for use on the western front in France. Reinforcements for the hospital to the number of 154 are already in England.

GENERAL

Railroads Enter Malaria Fight.—An antimalarial conference was held in Memphis, Tenn., March 31, which was participated in by physicians and health officers of Tennessee, Arkansas and Mississippi, and by the Rock Island; Louisville and Nashville; Nashville, Chattanooga and St. Louis; Cotton Belt, and Illinois Central railroads. The Medical Department of the University of Tennessee was in charge of the preparations for the conference.

Southeastern Sanitarians Meet.—The fourth annual meeting of the Southeastern Sanitary Association, consisting of medical men from the Carolinas, Georgia, Florida and Tennessee, was held in Brunswick, Ga., March 23 and 24, under the presidency of C. W. Coker, Hartsville, S. C. The following officers were elected: president, Dr. Watson S. Rankin, Raleigh, N. C.; vice presidents, Drs. Skottowe B. Fishburne, Columbia, S. C.; A. V. Wood, Brunswick, Ga.; Joseph Y. Porter, Sr., Jacksonville, Fla., and William E. Hibbett, Nashville, Tenn., and secretary-treasurer, Clarence E. Smith, Greenville, S. C.

FOREIGN

Prize for Research on Pellagra.—A notice in the *Dermatologische Wochenschrift* states that the Academy of Sciences in Roumania has recently bestowed the Adamachi prize on Drs. A. Babes and V. Busila of Bucharest for their comprehensive report on pellagra in Roumania.

Deaths in the Profession Abroad.—Lieut.-Col. James Stanley Newton Boyd, R. A. M. C., F.R.C.S., England, 1881; senior surgeon to Charing Cross Hospital, London; surgeon in chief of the Fourth London General Hospital; editor of the twelfth edition of Druitt's "Vade Mecum" and the seventh edition of Green's "Pathology and Morbid Anatomy"; one of the first lecturers at the Women's Medical School, London, and an early advocate of the claims of women to be admitted to examinations of colleges and universities; died in London, early in February, aged 59.

WAR NOTES

Gift to American Ambulance.—Dr. J. William White has sent his check for $7,830.42 to the treasurer of the Committee on Philadelphia Wards in the American Hospital in Paris to be utilized for the maintenance of the Philadelphia wards in the American Ambulance, Neuilly. This completes the third subscription of $15,000 toward the maintenance of the Philadelphia wards.

Losses in the Profession.—According to a compilation from the German casualty lists 1 to 450, the losses in the profession in the war amount to 1,164, including 264 killed and 130 who have died from sickness; 148 severely wounded, 411 slightly wounded and 76 missing. The figures include 400 army or navy surgeons, 418 belonging to the reserve forces, 304 assistant surgeons and 42 civilian physicians.

The Harvard Unit.—Dr. David Cheever, Jr., who is in charge of the second Harvard medical unit in France, reached Boston, March 20. He was accompanied by Dr. John L. Bremer of Harvard and Dr. Ernest T. F. Richards of the University of Minnesota, who were obliged to return before the completion of their six months' term of enlistment.——Dr. William E. Faulkner, Boston, has started for France to take charge of the second medical unit.

Aid for Belgian Physicians.—Report of the treasurer of the committee of American physicians for the aid of the Belgian profession for the week ending April 1, 1916, shows no contributions for the week ending April 1, 1916.

Previously reported receipts			$7,941.86
Previously reported disbursements:			
1,625 standard boxes of food at	$2.20	$3,575.00	
1,274 standard boxes of food at	2.30	2,930.20	
353 standard boxes of food at	2.28	804.84	
Total disbursements			7,310.04
Balance			$ 631.82

F. F. SIMPSON, M.D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh.

PARIS LETTER

PARIS, March 9, 1916.

The War

THE MEDICAL AND SCIENTIFIC COMMITTEE OF ECONOMIC EXPANSION

A medical and scientific committee for the economic expansion of France and her allies has just been founded at Paris. The first meeting was held at the Faculté de médecine under the chairmanship of the dean, Professor Landouzy. Dr. Bardet is general secretary of the committee, which is composed of the directors of medical and scientific journals: Professors Bourquelot, Gilbert, Langlois, Moureu, Edmond Perrier, Quénu, Albert Robin and Drs. Fiessinger, Janicot and Lucas-Championnière, all of Paris, and Professors Forgues of Montpellier and Lyonnet of Lyons. Similar committees are being formed in Great Britain and in Italy, and Russia and Japan have been invited to take part in the organization.

The purpose of all these committees is to oppose German industries in all the allied countries. Before the outbreak of war, physicians and scientists paid a heavy tribute to German industries. Not only chemical and pharmaceutical products, but also all instruments used by the medical profession, almost all optical and laboratory instruments, and lenses of almost every kind, came from Germany. The attempt now being made is to encourage the allies to produce at home, or, at any rate, to obtain from one another, such supplies as they need in medical and scientific work.

The action of the medical and scientific committees of the allied countries will be threefold: 1. They will endeavor to induce the purchaser (the practitioner or laboratory man) to ask the origin of the objects that he buys. 2. They will carry on an assiduous propaganda among manufacturers to per-

suade them to produce all the articles necessary for the use of laboratories and in the practice of medicine. 3. The committees will keep in communication with each other so that all necessary data, especially catalogues printed in several languages, may be exchanged to keep purchasers informed with regard to production and the firms which are able to supply articles which hitherto have come from Germany.

CAMP JAUNDICE AND THE PARATYPHOID EPIDEMIC AT THE DARDANELLES

Drs. Sarrailhé and Clunet have reported before the Société médicale des hôpitaux de Paris numerous cases of icterus which they observed at Gallipoli. The camp jaundice always appeared under the same conditions, that is, in fatigued troops, confined for several weeks in cramped quarters, and demoralized by poor diet and a trying climate.

In most cases, the jaundice occurred during the course of an epidemic of febrile gastric disturbances or followed such an epidemic; less frequently the icterus immediately preceded such an epidemic. At the Dardanelles, blood culture showed that this was not a mere coincidence but that the jaundice was due to a hepatic localization of a paratyphoid virus. The persisting normal color of the stools, the absence of pruritus, albuminuria and the urobilinuria associated with an elimination of pigment in urine, the diminution of globular resistance, association of bladder and liver reactions, rendered the phenomena extremely interesting.

Dr. G. Paisseau mentioned that cases of jaundice of an epidemic character, which were very numerous among the men of the Dardanelles expedition, belonged to two clearly defined clinical forms: a benign form almost constantly apyretic and a considerably more serious febrile form. The course of the benign form falls in two well-defined periods. There is an introductory phase, characterized by a syndrome of digestive disturbances which generally appear suddenly, then a period of jaundice following the first period after an interval of some days. At the outset, the patient is suddenly seized with vomiting accompanied by constipation and abdominal pains. These symptoms persist for some time, although they tend to become less severe. Between the second and eighth day, generally during the fifth or sixth, the jaundice appears. This jaundice is usually general, is accompanied by deep-colored stools and with a marked and often important increase of splenic dulness. The liver is rarely increased in size and the urine is generally colored brick red. The duration of the jaundice is not longer than from eight to ten days. The patients, after the disappearance of the jaundice, often show an emaciation and a loss of strength lasting for considerable time. The prognosis is good.

In the febrile forms, the disease, in the most clearly defined cases, presents the clinical picture of a typhoid fever, with jaundice. In this form, the frequency of vomiting and nausea, often much prolonged, the absence of decolorization of the stools and often their exhibition of various colors are noticeable. The prognosis is much worse than that of the other form.

BERLIN LETTER

Berlin, Feb. 22, 1916.

Personals

Prof. F. Schenck, the director of the Physiologic Institute at Marburg, died recently, aged 53. Having been a pupil of Schueler's, he originally devoted considerable time to physiologic chemistry. Then, for three years he was an assistant in the Physiologic Institute at Bonn. In 1889 he became a member of the faculty, but remained only one year, for in 1890 he was called to Wurzburg. Here he devoted himself largely to the study of the physiology of muscle and of respiration. He also did some work on the physiology of the eye. Two of his textbooks, "Practical Physiology" and "Essentials of Physiology," are quite well known.

War Contributions of the Berlin Medical Society

The first annual report issued by the curatorium for "war support" of the Association of Physicians of Greater Berlin shows that up to the present year 375,000 marks (about $94,000) had been collected. About one third of this sum was contributed by the doctors themselves; the remainder was given by laymen. Of the 3,220 physicians of Greater Berlin, 983 (30.5 per cent.) contributed. About 30 or 40 per cent. of the total number of physicians are with the troops; therefore an equal number did not contribute to the fund, yet were in a position to do so. Definite plans for the distribution of this money have not been made, but it has been decided that only doctors shall participate in the benefits to be provided. Their widows and children are excluded because provisions have been made for them elsewhere.

Provisions Made for Wounded Medical Students

The command has been issued for the district covered by the eighteenth army corps that all wounded medical students may, on request, be transferred to Darmstadt or Giessen so that they will have the opportunity of attending the lectures at the university or the technical high school. The latter proposes to give vacation courses as well so that soldiers on furlough may put in the time profitably.

Workmen's Organizations, and the War on Venereal Diseases

At a recent meeting of the officials of the largest and most influential of these organizations, the following rules and regulations (which received the approval of the government authorities and of the medical profession) were laid down for the prevention and cure of venereal diseases:

1. To prevent or lessen the increase of venereal diseases, it is ordered that all discharged soldiers affected with such diseases be kept under observation. To make such supervision effective, cooperation between the insured and the medical profession is necessary. Special observation stations will be established.

2. All expenses connected with this work, the cost of establishing stations, and traveling expenses of the insured will be met by the insurance companies. The plan of operation of these stations will be similar to that in force in the first-aid stations of Hamburg. The insured may apply for aid or examination at any station in any district, but must give notice of such intention so that the data on file for his case may be forwarded for record.

3. The doctors assigned to the consultation work must not give treatment. They will advise treatment and order the patient to consult his own physician for that purpose.

4. When such treatment is ordered, the insured must be referred to the sick benefit fund from which the expense of treatment will be defrayed unless he raises objections based on sufficient grounds. In such case the company will defray the expense of treatment.

5. The company will also take charge of the treatment if the patient is not insured against sickness.

Prize Essay on Eugenics

The Berlin Society of Social Hygiene, shortly after the beginning of the war, postponed indefinitely the awarding of the prize for the best essay on "Influence of Social Betterment of Families on Eugenics." The society has decided to award this prize July 31, 1916. It really consists of two prizes, one for 800 marks ($200) and one for 400 marks ($100).

LONDON LETTER

London, March 13, 1916.

War and Human Progress

At Birmingham University, Lord Bryce, the former ambassador to the United States, delivered the Huxley lecture which he entitled "War and Progress: An Inquiry from History How Far War and Peace Have Respectively Contributed to the Progress of Mankind." There had, he said, been two schools of philosophical thinkers and historians, one laying stress on the power of reason and finding in it the chief source of human progress, while the other dwelt on the power of selfishness and passion. Latterly the last-named school had sprung into conspicuous prominence. Teachers had arisen who declared war to be valuable in itself, by no means a necessary evil, but rather a positive good. This doctrine, which saw in war a constant means of human progress, based itself on two lines of argument, one drawn from the realm of animated nature and the other from history. Both lines of argument showed that all progress was achieved by strife. Examining the so-called historical argument, Lord Bryce came to the conclusion that, although a state of war and the habit of preparing for it and delighting in it had, in some cases, been found compatible with progress, there was nothing to show that they had caused it. The races which had been most engaged in fighting had not been those that had advanced most. Materially war was destruction. It tended to create and to exalt a professional class which, whether or not it was well educated, was comparatively insensible to artistic and intellectual influences and pleasure in the moral sphere. It furnished occasion for the display of some virtues in the field, but whether these virtues tended to a moral elevation reacting on the whole nation, and whether that elevation would be visible in the

European nations when this war had ended, were questions on which the war itself would throw a light. A war of aggression stimulated by national pride and ambition might have a different moral effect from one undertaken to repel a wanton attack and to protect the world itself from a menace to the sacred principles of justice and humanity. On a review of the whole matter, war would be found not to have quickened but to have greatly retarded the upward march of man. Progress had been due chiefly to thought. Thought was not helped by war. It was the races that knew how to think rather than the far more numerous races that knew only how to fight that had led the world.

Promptitude in Performing Urgent Operations at the Front

In previous letters I have stated that the arrangements for the treatment of the wounded have been organized in the most complete manner, probably more complete than has ever been achieved before. A striking example is the promptitude with which urgent operations are performed. In answer to a question in Parliament, Mr. Tennant, the under secretary for war, said: "The arrangements in France have the full approval of the consulting surgeons and of others most competent to judge. I have quite recently received a report from Sir Frederick Treves in which he states that in many cases a man in need of a grave operation has found himself on the operating table within three or four hours of his being shot, and that he was informed of cases in which operations on the skull and the abdomen had been carried out within two and a half hours of the receipt of the wound; and he adds that such prompt attention could not be obtained by a wounded civilian in any rural district in England." This is of great importance, as early operation in penetrating abdominal wounds is now the rule. This contrasts with practice in the South African war, in which expert surgeons were unanimous that the best treatment was to disturb the patient as little as possible, give no food for several days, no drink but water, and relieve the suffering by morphin. It was held that the mortality under this treatment was lower than under operation, and that recovery frequently took place even when the intestines were perforated. The mortality in cases of operation was then appalling. This was perhaps largely due to the adverse conditions under which the work was done. Influenced by the traditions of that war, expectant treatment was adopted in all cases of abdominal wounds during the first six months of the present war. The mortality was very high, much higher than in South Africa, and the results of occasional operations at the base hospitals and clearing stations were not encouraging. Within the last six months, however, an effort has been made to reduce the mortality by immediate operation in the most favorable surroundings possible. Experienced operators have been posted at the clearing stations, and arrangements made to expedite the transference of patients with abdominal wounds. Exploratory laparotomy has taken the place of rest and starvation. Saline infusion, a method in its infancy during the South African war, has been largely used to combat shock. It is not possible yet to give the statistics of the results, but surgeons are agreed that a great improvement has been effected.

Striking Decrease of Lunacy in London

A striking decrease in the number of lunatics chargeable to London is recorded in the London county council's return for 1915. Pauper, criminal and private patients for whom the county had to provide accommodation numbered, Jan. 1, 1916, 20,886, compared with 21,539 on the corresponding date in 1915, while the total number of patients (including those in the Metropolitan Asylums Board's institutions, in workhouses, and with relatives or friends) was 28,252, against 29,211. Private patients at the London county asylums have also decreased: Jan. 1, 1916, there were 458 "private list" cases, as against 488 in 1915, and 209 private patients, as against 205. Thus, for the first time since the council became the responsible authority, a decline is recorded in the number of lunatics. The decrease affects both men and women, the figure of 653 being made up of 363 males and 290 females. The ratio of the sexes in the asylum population is 9 males to 11.8 females, so that proportionately there is a greater reduction of males. It was not anticipated that there would be under war-time condition a very large decrease in the occurrence of lunacy, or, at any rate, in the number of cases certified. This appears to be due to a great decrease of poverty, the strain of which is one of the causes of insanity. The reduction of poverty is due to the abundance of employment furnished by war work and the withdrawal of a large part of our male population from civil work to the army.

Association News

THE DETROIT SESSION

Excursion from Chicago by Lake Steamer, with Stateroom While at Detroit

If a sufficient number of people are interested, the Committee on Transportation and Place of Session will make arrangements with the owners of a large, modern lake steamer for a special excursion trip from Chicago to Detroit. The plan is for the steamer to leave Chicago on the afternoon of Saturday, June 10, and to arrive in Detroit on the morning of Monday, June 12, the steamer to remain at Detroit for the 12th, 13th, 14th and 15th, on which date it will leave Detroit, and return to Chicago Saturday, June 17. The schedule arranges for a stop at Mackinac Island of from two to three hours. If a party of 300 persons engages to make this trip, a fare of $35 per capita can be obtained. This fare will include transportation, meals and berth while en route and the use of a room and serving of breakfast while at Detroit. In this way, a comfortable two-day trip in each direction is provided, and sleeping accommodations with breakfast on board is assured during the stay in Detroit. Railroad tickets reading between Chicago and Detroit will be honored on the steamer for transportation on the payment of an additional $15 to cover meals and berth. Those interested in such a boat trip are requested to write directly to the American Medical Association, addressing the chairman of the Committee on Transportation and Place of Session, 535 North Dearborn Street, Chicago.

J. RAWSON PENNINGTON, Chairman.

Deaths

Theodore Bernard Sachs, M.D., one of the most notable workers in the antituberculosis campaign in the United States and until a few days ago superintendent of the Municipal Tuberculosis Sanatorium, Chicago, committed suicide, April 2.

He was born in Dinaburg, Russia, May 2, 1868, and after graduating from the high school at Kherson and studying law for four years at the University of Odessa, came to the United States and located in Chicago. Instead of practicing law, he entered on the study of medicine and was graduated from the College of Physicians and Surgeons, Chicago, the Medical Department of the University of Illinois, in 1895.

After two years as intern in Michael Reese Hospital, he entered general practice, devoting himself especially to diseases of the heart and lungs. In 1901 he was appointed instructor in internal medicine in his alma mater and held this position for four years. From 1913 to 1915 he was attending physician at Cook County Hospital.

His reputation in his chosen field of tuberculosis, rapidly grew and he became medical director of the Edward Sanatorium, Naperville, Ill., examining physician to the National Jewish Hospital for Consumptives, Denver, physician-in-chief to the Chicago-Winfield Sanatorium, Winfield, Ill., founder, secretary and later president of the Chicago Tuberculosis Institute and director of the tuberculosis clinic of the West Side Free Dispensary.

He was a Fellow of the American Medical Association and Illinois Society for the Prevention and Cure of Tuberculosis, and in June, 1915, was elected president of the National Association for the Study and Prevention of Tuberculosis.

In 1909 Dr. Sachs was appointed a member of the board of trustees of the Municipal Tuberculosis Sanatorium. He practically gave up his private practice for several months to study out and perfect an organization for this institution. In 1911 Dr. Sachs was reappointed a trustee and was elected president of the board of trustees of the institution. During this time a system of municipal tuberculosis dispensaries in the various parts of the city was commenced, Dr. Sachs directing the work from the general office of the sanatorium. In May of last year the Municipal Sanatorium was opened.

In this work, which Dr. Sachs believed the fruition of his life endeavor, he labored incessantly, endeavoring to raise the standard of efficiency and to accomplish the greatest

good. Opposition, political in character, soon developed, attacks were made on his administration, and the continuance and persistence of these attacks made his burden too grievous to be borne and on March 20 he resigned.

The last act of his life occurred at the Edward Sanatorium, Naperville, where, unable to bear up under the strain, he took morphin and died from its effects, leaving behind him a pathetic letter to the people of Chicago, which closed with the words "I am simply weary."

Granville Priest Conn, M.D., Wayne, Pa.; Dartmouth Medical School, Hanover, N. H., 1856; aged 84; a member of the New Hampshire Medical Society, and secretary since 1869 excepting during his vice presidency in 1906 and presidency in 1881; for many years a practitioner of Concord, N. H., and a member of the New Hampshire Board of Railroad Commissioners from 1877 to 1881; assistant surgeon of the Twelfth Vermont Volunteer Infantry during the Civil War, and later compiler and editor of the History of New Hampshire Surgeons in that war; lecturer on hygiene in his alma mater from 1886 to 1896 and since that time professor or professor emeritus; city physician of Concord from 1872 to 1876; president of the New Hampshire State Board of Health since 1881; medical director of the Department of New Hampshire G. A. R. since 1889. He moved to Wayne, Pa., a few months ago and died at his home, March 24.

Thomas Davis Davis, M.D., Pittsburgh; Jefferson Medical College, 1870; aged 69; a Fellow of the American Medical Association and a member of the House of Delegates in 1909-1910, 1912 and 1914; for five years a practitioner of Dayton, Ohio, and president of the Montgomery County (Ohio) Medical Society in 1876; lecturer on ophthalmology in Starling Medical College, Columbus, in 1876 and 1877; surgeon to Mercy and St. Francis' hospitals, Pittsburgh, and the Passavant Infirmary; president of the Allegheny County Medical Society in 1892, and later of the Medical Society of the State of Pennsylvania and for several years president of the board of trustees and councilors of the society; died at the home of his son in St. Petersburg, Fla., April 1.

Edward Duggan Payne, M.D., Towanda, Pa.; Jefferson Medical College, 1857; aged 79; who entered the Navy in 1861; became medical inspector with the rank of commander June 29, 1906, and was retired April 13, 1876, with the rank of next higher grade to that held on active list on account of incapacity resulting from an incident of service, after six years and three months' sea service and three years and seven months of shore or other duty; surgeon on the U. S. S. *Congress* when that vessel and the *Cumberland* were destroyed by the *Merrimac* in Hampton Roads in 1862, and later surgeon on the *Hartford,* Admiral Farragut's flagship at the Battle of Mobile Bay; died at his home, March 24.

Francis T. B. Fest, M.D., Port Limon, Costa Rica, C. A.; University of Heidelberg, Germany, 1883; aged 54; a Fellow of the American Medical Association and president of the New Mexico Society for the Study and Prevention of Tuberculosis in 1911; for many years a practitioner of East Las Vegas, N. M., where he made a specialty of tuberculosis. At one time surgeon-general of New Mexico; for the last three years surgeon of the United Fruit Company and in charge of its hospital at Port Limon, Costa Rica; died in that place, March 13.

Gustav Adolf Langmann, M.D., New York City; University of Greifswald, Germany, 1865; aged 73; a Fellow of the American Medical Association; a member of the American Association of Pathology and Bacteriology, New York Pathological Society and New York Academy of Medicine; attending surgeon to the German and Mt. Sinai hospitals and consulting physician to the German Lloyds of New York; founder of the Nurses' Training School of the German Hospital; died at his home, March 27.

Charles Sumner Powell, M.D., Benson, Ariz.; Vanderbilt University, Nashville, Tenn., 1885; aged 61; for many years district surgeon of the Southern Pacific and El Paso and Southwestern railways; and physician to the State Industrial School; died in a hospital in El Paso, Texas, March 18.

Edgar Brenton Henderson, M.D., Marengo, Ia.; State University of Iowa, Iowa City, 1897; aged 43; a Fellow of the American Medical Association; who had been ill with nephritis, was found dead near his home, March 17.

Oliver Madison Atwood, M.D., Washington, D. C.; University of Michigan, Ann Arbor, 1873; aged 68; one of the first colored physicians to practice in Washington; died at his home, March 14, from interstitial nephritis.

Asa Stewart Iglehart, M.D., New York City; New York University, New York City, 1897; aged 46; for two years a member of the staff of St. Luke's Hospital; died in Iquique, Chile, S. A., March 18, from typhoid fever.

William P. Miller, M.D., Calhoun, Ky.; Louisville Medical College, 1894; aged 70; a member of the Kentucky State Medical Association and a Confederate veteran; died at his home, March 17, from heart disease.

Robert H. Hoge, M.D., Hoge's Store, Va.; College of Physicians and Surgeons, Baltimore, 1873; aged 64; for many years chairman of the board of health of Giles County, Va.; died at his home, March 7.

Harry Mathews Gottman, M.D., Evansville, Ind.; University of Louisville, Ky., 1905; aged 33; a Fellow of the American Medical Association; died at Asheville, N. C., March 8, from tuberculosis.

David F. Alsdorf, M.D., Guthrie, Okla.; Albany, N. Y., Medical College, 1855; aged 83; for many years a practitioner of Corunna, Mich.; died at the home of his son in Guthrie, February 15.

Fred H. Bangs, M.D., San Jose, Calif.; Homeopathic Hospital, Cleveland, Ohio, 1880; aged 57; a member of the Medical Society of the State of California; died suddenly at his home, March 13.

George L. Ireland, M.D., Winslow, Ind.; Medical College of Indiana, Indianapolis, 1882; aged 58; a member of the Indiana State Medical Association; died at his home, March 10, from pneumonia.

Adam Griggs Elder, M.D., Columbus, Ohio; Starling-Ohio Medical College, Columbus, 1908; aged 38; a member of the Ohio State Medical Association; died at his home, March 13, from typhoid fever.

Jesse N. Goodson, M.D., Kansas City, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1875; aged 69; for many years a practitioner of Maryville, Mo.; died at his home, March 16.

Mary Winifred Tucker Ward, M.D., Hampton, Neb.; University of Nebraska, Lincoln and Omaha, 1911; aged 34; died at her home, March 6, from heart disease, ten days after childbirth.

Gustav Adolph Krauss, M.D., Jersey City, N. J.; New York University, New York City, 1898; formerly a specialist on tuberculosis; died in the Trenton (N. J.) State Hospital, March 16.

Robert E. Atwood, M.D., St. Louis; St. Louis College of Physicians and Surgeons, 1896; aged 41; was found dead from heart disease in a rooming house in St. Louis, January 2.

John L. Stump, M.D., Charleston, W. Va.; Medical College of Virginia, Richmond, 1888; aged 63; died at Titusville, Fla., March 11, from heart disease.

Nelson Deloss Blood, M.D., Auburn, N. Y.; Bellevue Hospital Medical College, 1874; aged 69; died at his home from heart disease, March 11.

Ransom L. Washington, M.D., Owensboro, Ky.; Meharry Medical College, Nashville, Tenn., 1902; aged 40; died at his home, March 16.

Reinhard K. Keeler, M.D., Harleysville, Pa.; Jefferson Medical College, 1852; aged 85; died at his home, March 15, from senile debility.

Marriages

JAMES BYRON BLAIR, M.D., Winnipeg, Man., to Mrs. Ora B. Mueller of Decatur, Ill., at Terre Haute, Ind., February 10.

HARRY PATTON ST. CLAIR, M.D., to MARY PRISCILLA BROOKE, M.D., both of Butler, Pa., at Pittsburgh, March 1.

THOMAS R. LASWELL, M.D., New Hope, Ill., to Mrs. Mattie Hambleman of Murphysboro, Ill., March 11.

THOMAS ANDREWS HOPKINS, M.D., to Miss Kittie B. Heman, both of St. Louis, March 4.

MORRIS ROBERT ALTMAN, M.D., to Miss Miriam Newmark, both of New York, March 12.

ELIAS G. BROWN, M.D., Allaben, N. Y., to Miss Adelaide Day of New York, March 16.

AUSTIN H. WOOD, M.D., Baltimore, to Miss Zelda Treece of Shy Beaver, Pa., March 16.

CHARLES L. O'BRIEN, M.D., to Miss Eleanor Mahoney, both of Chicago, February 13.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE WINE OF CARDUI SUIT

(*Continued from page 1050*)

March 28, Morning

On March 28, 1916, the Court met, pursuant to adjournment, at 10:30 o'clock. The jury retired while argument was introduced regarding the introduction of evidence. Mr. T. J. Scofield then read to the jury the testimony of Mr. John A. Patten, which was given at Chattanooga, Tenn., and which, pursuant to the agreement of counsel, not only as to this but as to all other competent and relevant matter which was presented in Chattanooga, may be read as evidence in the present trial.

TESTIMONY OF MR. PATTEN AT CHATTANOOGA

Mr. Patten testified in Chattanooga as to the organization of the Chattanooga Medicine Company as follows:

Mr. T. J. Scofield:—(Reading).

Q.—I believe, Mr. Patten, you are one of the plaintiffs in this case? *A.*—Yes.

Q.—And you and your brother, Z. C. Patten, Jr., are the owners of the Chattanooga Medicine Company? *A.*—Yes, sir.

Q.—Or do business under the name of the Chattanooga Medicine Company? *A.*—Yes.

Q.—The Chattanooga Medicine Company is now a partnership? *A.*—Yes.

Q.—And has been I believe you said on yesterday, since 1909? *A.*—September, 1909.

Q.—Prior to that time the Chattanooga Medicine Company was a corporation? *A.*—Yes.

Q.—The partnership has been engaged in the same business in which the corporation was previously engaged? *A.*—Yes.

Q.—The Chattanooga Medicine Company, a corporation, manufactured and sold this Wine of Cardui among other things? *A.*—Yes.

Q.—For how many years? *A.*—Since 1879.

Q.—And you were personally connected with the business since what date? *A.*—1884.

Q.—You become secretary when? *A.*—In 1891.

Q.—And continued to be the secretary and one of the executive officers until the corporation was converted into a partnership by the surrender of its charter? *A.*—Continued as secretary, yes.

Q.—I say as secretary and one of the executive officers? *A.*—One.

Q.—Prior to the time of the surrender of the charter The Chattanooga Medicine Company was quite a close corporation, that is, its stock was owned by a few individuals? *A.*—Immediately before the surrender of the charter it was owned by the two individuals who became the members of the partnership.

Q.—Yourself and your brother? *A.*—Yes.

Q.—For how long prior to the surrender of the charter had you and your brother been the sole stockholders in the corporation? *A.*—Since early in 1906.

Q.—Since early in 1906? *A.*—Yes.

Q.—Who was president of the Corporation at the time the charter was surrendered? *A.*—Z. C. Patten, Sr.

Q.—However, he owned no stock at that time? *A.*—No.

Q.—You yourself were in active charge of the business at that time? *A.*—I was the manager.

Q.—And you had been in charge, active charge of it since early in 1906? *A.*—Yes, sir.

Q.—Of course you were entirely familiar with what was in that preparation and the method in which it was manufactured? *A.*—Yes.

Q.—And you had been for how long? *A.*—Familiar with it from 1884.

Q.—And you also were familiar with the statement made on the labels? *A.*—Yes.

Q.—And the statements made in the literature? *A.*—Well, in a general way. I could not say that I would be familiar with every statement made at every time.

Q.—Who was the supervisor of the literature of that corporation? *A.*—At what time?

Q.—Well, from the time you became in charge of it in 1906 on down? *A.*—E. A. Wheatly.

Q.—Well, of course, after you came in charge of it, you had some supervision over the literature, didn't you? *A.*—I was manager of the whole business.

Q.—The whole business? *A.*—Yes.

Q.—Now, Mr. Patten, I want to call your attention to this placard. Wine of Cardui is what you call this preparation, isn't it? *A.*—Well, that is a part of the name.

Q.—And it has been called Wine of Cardui ever since you have been connected with it, has it not? *A.*—I say that is a part of the name, and has been ever since I have been connected with it.

Q.—It is made under a secret formula, isn't it? *A.*—A formula not published, yes.

Discussion between counsel and the Court is omitted. Questions and answers then followed:

Q.—It is true, is it not, Mr. Patten, that during the entire time that you have been connected with the manufacture of this preparation, it has contained alcohol? *A.*—Yes.

Q.—It now contains 20 per cent. approximately? *A.*—Yes.

Q.—And has contained that amount how long? *A.*—Since about the first of June, 1907.

Q.—How much did it contain before that? *A.*—17 per cent. by volume immediately preceding that.

Q.—For how many years did you manufacture it with 17 per cent.? *A.*—About two or three months.

Q.—How much did it contain prior to the 17 per cent. *A.*—15 per cent. by volume.

Q.—How long did you manufacture it with 15 per cent.? *A.*—About three months.

Q.—How much did it contain prior to the time that you used 15 per cent? *A.*—About 22½ per cent. by volume.

Q.—So that in the early part of 1907, you adopted 20 per cent. of alcohol as the standard of manufacture, and have since continued that proportion approximately? *A.*—Yes.

Evidence was then read regarding the posters showing the label on the Wine of Cardui, and regarding the various issues of the Home Treatment Book. The following questions and answers were then read:

Q.—Who was it you said prepared this Home Treatment Book of 1913? *A.*—E. A. Wheatly.

Q.—Who is Mr. E. A. Wheatly? *A.*—He is in the employ of the Chattanooga Medicine Company, the title being Advertising Counsel.

Q.—Advertising Counsel; is he a doctor? *A.*—No.

Q.—Is he a surgeon? *A.*—No.

Q.—And so Mr. Wheatly, the Advertising Counsel, prepares the articles of the Chattanooga Medicine Company describing the female anatomy and recommending cures for female diseases, is that correct? *A.*—Yes.

Q.—Of course, that is all done with your knowledge as one of the members of the firm? *A.*—Yes.

Q.—Now, Mr. Patten, this preparation is called and always has been called "Wine of Cardui" has it not? *A.*—That is a part of the name.

Q.—Well, is not that the way in which the name is frequently given in the literature? *A.*—Very frequently.

Q.—Wine of Cardui. You know what wine is, Mr. Patten, don't you? You know the legal definition of wine? *A.*—No, I don't know the legal definition of it.

Q.—Well one of them is "the fermented juice of the grape"—

Objection to this question was made and sustained. Mr. Scofield then continued reading:

Q.—This preparation is not the juice of the blessed thistle, dissolved in wine, is it? *A.*—There is no grape juice in it.

Q.—Now just answer the question. It is not the juice of carduus benedictus dissolved in wine, is it? *A.*—I don't know what you mean by "the juice of carduus benedictus."

Q.—Well, is it anything dissolved in wine? *A.*—Not grape juice wine.

Q.—Is there any wine in it? *A.*—Not as you are speaking of wine.

Q.—Well, now, as you are speaking, is there any wine in that preparation within the definition of the word "wine" with which you are familiar? *A.*—I understand "wine" to be a synonym for "extract" and it is used in that connection, so far as it is descriptive, but it is used here as the trade mark name of the preparation.

Q.—No, I am not asking you that. That is not an issue in this case. Is there any wine in this preparation within any definition of the term "wine" with which you are familiar? *A.*—Not except as the alcohol is in it.

Q.—You don't mean to say that you regard alcohol and wine as synonymous do you? *A.*—No.

After argument regarding the introduction of evidence concerning the alcohol in Wine of Cardui, Mr. Scofield continued reading:

Q.—Well, it is a fact, is it not, Mr. Patten, that no claim is now made on the labels or on the cartons in which this preparation now is sold, that it will cure anything? *A.*—The word "cure" so far as I see from the wrapper (and that is in harmony with my own recollection of it) does not appear there.

Q.—So that the representations as to what this preparation will do in the way of curing people, are now confined to the advertisements and outside literature; that is true, is it not? *A.*—Well, there are statements on the paper that you have shown me regarding what it is recommended for but not—I said the word "cure" did not appear there.

Mr. T. J. Scofield:—That is all of the first part of the examination. He was subsequently recalled, if the Court please, for further cross examination, and I will read that.

Mr. Hough:—Further cross examination?

Mr. T. J. Scofield:—Or further direct examination, on behalf of the defendant.

Mr. T. J. Scofield:—(Reading).

Q.—Mr. Patten, how many of those Home Treatment Books are printed and circulated each year? A.—A comparatively limited edition, between 25,000 and 50,000 a year. They are not sent for general circulation; only in response to requests for them, or in response to a request for advice, when they accompany the reply. They mostly go to those who are already taking the medicine.

Q.—Well, when you send out a letter, when you send out the Home Treatment Book, you send a letter along with it, do you not, a form letter? A.—Yes, sir.

Q.—How many copies of the Birthday Almanac do you print each year? A.—I cannot state exactly, but more than ten million.

Q.—And they are circulated all over the United States? A.—To a certain extent, not so much in the Northeastern states.

Q.—Wine of Cardui is kept for sale, is it at drug stores generally? A.—Yes.

Q.—And you advertise in your literature that it can be bought at any drug store? A.—Yes.

Q.—It is also kept for sale at country stores, general merchandise stores, is it not? A.—A good many, not so very much.

THE COURT:—Let me ask one question at this point because it was not covered in the opening statement: Is the Wine of Cardui sold direct from the Company to the consumer, or is it only from the drug store or the general store?

Mr. T. J. Scofield:—Either way; it is sold direct from the Company, if they cannot get it at the drug store.

THE COURT:—But you can buy it from the Chattanooga Medicine Company.

Mr. T. J. Scofield:—Yes, sir.

Argument was then made as to the introduction of the admission of testimony in the Chattanooga trial on the formula. Mr. Scofield then continued reading:

Mr. T. J. Scofield:—(Reading).

Q.—Now I want to ask you when it was that viburnum prunifolium or black-haw was first put into this preparation as one of its ingredients. A.—In the latter part of 1906.

Mr. T. J. Scofield:—Then, if the Court, please, Mr. Patten asked for the privilege of making an explanation, which the court granted, and I will read it although it is incompetent.

(Reading) It has been testified to here that my brother and myself came into the possession or control of the business early in 1906. A very short time after that I consulted Dr. J. W. Mallett, a teacher of one of the branches of chemistry at the University of Virginia, in connection with the making of the preparation. I gave him two commissions; to eliminate, to reduce or eliminate the alcohol if he could, or reduce it to the lowest possible amount that would keep the medicine from spoiling if we could not eliminate it entirely, and to suggest any other change in the preparation that he could suggest that would be of benefit to it. He worked on it for two or three months and growing out of the repeated consultations and his suggestion, finally viburnum prunifolium was included in the medicine.

Q.—Doctor Mallett was a chemist? A.—And physician.

Q.—Is he a physician as well as a chemist? A.—Yes.

Q.—Then that was you said in the latter part of 1906? A.—Yes.

Q.—What amount of viburnum prunifolium,——

Mr. Hough:—I objected to that.

Mr. T. J. Scofield:—Yes, that is objected to. That last question which I started to read was withdrawn.

(Reading) Is this the carton, Mr. Patten, in which Wine of Cardui was put up and sold before you put black haw in it?

Mr. Hough:—That raises another question, your Honor. In this investigation they are limited and should be limited to what Mr. Patten was doing at the time this libel was printed. He is charged with doing something at that time which constitutes a fraud. Now, what he did ten years before is not material.

THE COURT:—Not unless it is followed up by showing that he continued to do the same thing.

Mr. Walker:—That does not meet it.

THE COURT:—The only way is to prove what he was doing at the time the Medical Association brought out their publication. Now I do not know—if they don't connect it up with the period of the libel, of course it is not competent here.

Mr. Hough:—Well, we will see how they connect it up.

THE COURT:—I will strike it out if they don't connect it up.

Mr. T. J. Scofield:—(Reading). I have not those cartons here, but they will be produced later.

A.—No, not immediately before.

Q.—How long before was this carton used? A.—About a year.

Q.—And its use was discontinued at what time? A.—In February, 1906, according to the best of my recollection.

THE COURT:—I will say further that what was done prior to the so-called libels, may have some bearing on the mental attitude of Mr. Patten.

Mr. Hough:—Where that is the effect, of course it is competent.

Mr. T. J. Scofield:—(Reading).

Q.—In February, 1906, you discontinued the use of this carton and substituted another in the place of it? A.—Yes, the directions for the change, the changed plate was ordered in January, 1906. I say I do not remember the first day that it was printed from the new copy, but before the end of January, 1906, another wrapper was prepared.

Q.—So that during the entire time that this carton was used, there was no viburnum prunifolium in the preparation? A.—Up to that, January, 1906, no.

Q.—In the carton that was adopted in the place of this one, the words "certain cure" on the front of the carton, were eliminated and the word "recommended" was inserted in place of the words, "certain cure?" A.—Yes.

Q.—Isn't this a copy of the circular that was sent out in each carton containing a bottle of this preparation up to the time the use of this carton was discontinued? (Handing paper to witness). A.—I could not testify to that, except that it appears to have been one of the circulars sent out at some time.

THE COURT:—I think it would be very much better if you had one of those cartons here so that the Jury could understand the question as put.

Mr. T. J. Scofield:—I quite agree and I will undertake to have them in right after dinner. I have not got them here.

Mr. Hough:—You are referring to the left-hand picture on the placard, as I understand it.

THE COURT:—If that is there, you may proceed.

Mr. Hough:—In other words, the point is that the placard says that that change was made after the Pure Food Law was passed and Mr. Patten says it was made before the Pure Food Law was passed, and without any reference to it.

Mr. T. J. Scofield:—(Reading).

Q.—Mr. Patten, have you ever had any chemical or medical education? A.—No.

Q.—Has you brother, Z. C. Patten, Jr.? A.—No.

Q.—You have already stated, I believe, that Mr. Wheatly is neither a physician nor a chemist nor a surgeon? A.—He bears no degree in either of those branches. He has studied both medicine and chemistry.

Q.—He never practiced either, did he? A.—Well, of course not as a physician or surgeon. I think he did some work in England as a chemist.

Q.—When did you say he went into your employ? A.—I did not say so far as I remember.

Q.—I thought you stated here the other day, when you were on the stand. A.—Before 1906, perhaps 1903 or 1904.

Q.—Prior to that time, what business had he been engaged in? A.—Connected with other Medicine concerns.

Q.—Was he not running some sort of a printing establishment here in Chattanooga? A.—Not before that time.

Q.—Not before that time? A.—No.

Q.—Was he not engaged in a sort of an advertising business agency? A.—Yes, after he came with us he was doing so.

Q.—Wasn't he before that time? A.—No.

Q.—When you commenced to use viburnum prunifolium in this preparation, did you use the bark of the stem or the root? A.—Of the tree? The stem.

Q.—Of the stem and not of the root? A.—No, I think not.

Mr. T. J. Scofield:—Now, there is a question or two that you may wish to read, of yours.

Mr. Hough:—(Reading).

Q.—Did I understand you to state that the statements on here, on this label were printed in February, 1906? (Counsel refers to reproduction of label on Dowling poster.) A.—January or February.

Q.—1906? A.—Yes.

Q.—When was the Pure Food Law passed, if you know? A.—It was passed June 30th, 1906, effective January 1st, 1907.

Q.—So that the change was not from the left hand label to the right hand label, but from another label which came between? A.—Why, the Pure Food Law had nothing to do with the change from that label there that you mention. It was changed six months before the law was passed.

Mr. T. J. Scofield:—(Reading). Q.—You were asked about these changes in the cartons. I will ask you whether or not this photograph which I hand you, shows the three cartons which were used by you during three different periods? A.—That is the only change that has been made in it.

Mr. T. J. Scofield:—These are the cartons, your Honor, that is they are pictures of the same cartons but they are not the ones that were presented to Mr. Patten while he was on the witness stand.

THE COURT:—Show them to counsel and if they are facsimile perhaps he will agree to them.

Whereupon the further hearing of said cause was adjourned until 2 o'clock the same day, March 28, 1916.

March 28, Afternoon

The Court met, pursuant to recess, at 2 o'clock p. m.

Mr. T. J. Scofield handed to the jury photographs of the cartons and the testimony of Mr. Patten in the Chattanooga trial, relative to the various changes in the cartons, was read to the jury by attorneys for the plaintiff and the defendant.

DEPOSITION OF MISS GRACE GILBERT

Attorneys for the Association then offered in evidence the testimony of Miss Grace Gilbert, a witness called by the defendant at Chattanooga. Mr. T. J. Scofield read the testimony as follows:

Q.—What is your name, please? *A.*—Miss Grace Gilbert.

Q.—What is your occupation? *A.*—I am head of the Ladies' Advisory Department, Chattanooga Medicine Company.

Q.—Head of the Ladies' Advisory Department, Chattanooga Medicine Company? *A.*—Yes, sir.

Q.—How long have you filled that position, Miss Gilbert? *A.*—About eight years.

Q.—Eight years? *A.*—Yes, sir, about eight years.

Q.—What are your duties as head of the Ladies' Advisory Department? *A.*—Well, when the letters and symptom blanks come in, I answer them and direct the work.

Q.—Are you a physician, Miss Gilbert? *A.*—No.

Q.—Have you ever had any medical education? *A.*—I know a little about anatomy, and I have a special liking for the work I do.

Q.—You have never taken any medical course at any school? *A.*—No.

Q.—You don't profess to be a physician? *A.*—No.

Q.—Do you know the difference between the symptoms that would attend a prolapsus of the uterus and menorrhagia? *A.*—No.

Q.—I believe you stated, Miss Gilbert, that, when these examination symptom blanks are returned or received at the office of the Chattanooga Medicine Company, they are turned over to you? *A.*—Yes, sir.

Q.—What do you do with them? *A.*—We answer them.

Q.—You answer them personally? *A.*—Yes, and my assistant.

Q.—You and your assistant? *A.*—Yes, sir.

Q.—Who is your assistant? *A.*—Miss Jennie Lee.

Q.—Do you have any supervision over the answers that she sends? *A.*—Yes, sir.

Q.—You direct her what answers to send? *A.*—Yes sir. She only answers blanks, examination symptom blanks.

Q.—What? *A.*—She only answers examination symptom blanks.

Q.—Does she answer all the examination symptom blanks? *A.*—Yes, sir.

Q.—Now, does she know anything about what kind of trouble certain symptoms will indicate? *A.*—Yes, sir.

Q.—How does she get that? *A.*—I give her the information that I use myself.

Q.—Where do you get it? *A.*—I get it from the Home Treatment Book, and what I have read and what I really know.

Q.—From the Home Treatment Book that is prepared by Mr. Wheatley? *A.*—Yes, sir.

Q.—Who is the advertising counsel? *A.*—Yes, sir.

Q.—That is his title? *A.*—Yes, sir.

Q.—You, yourself, would have no knowledge, you said, as to whether certain symptoms which might be stated in those blanks would indicate that a woman had a prolapsus, or dysmenorrhea, or menorrhagia or something else? *A.*—No, sir.

Q.—Miss Gilbert, do you have at the office out there, certain stereotyped——

After argument as to the admission of this question, Mr. T. J. Scofield continued reading:

Q.—Miss Gilbert, do you have at the office out there, certain stereotyped letters that you send in reply to these symptom blanks? *A.*—We have short forms.

Q.—How many different forms do you have? *A.*—About eighteen.

Q.—About eighteen? How do you determine which particular form to send for a particular set of symptoms? *A.*—When they write a letter describing their symptoms, I apply the forms in my judgment that I think would suit that particular case.

Q.—Have you copies of those different forms with you? *A.*—No, sir.

Q.—Can you get them and will you send them in here? Can you get copies of those forms, Miss Gilbert? *A.*—Yes, sir, I suppose so.

Q.—I would like to have you do that, please, and bring them in.

As an exhibit there was then offered to the jury a letter concerning which the witness stated:

Q.—Look at this paper which I hand you, and state if that is one of the letters that is sent out through your department? *A.*—This goes out in the Home Treatment Book.

The letter follows:

CHATTANOOGA, TENNESSEE.

Dear Friend:

As per your request, we hand you herewith a copy of our book "HOME TREATMENT OF FEMALE DISEASES." It contains much valuable information, and we trust it will convince you that CARDUI, the woman's tonic, is a medicine of merit in the treatment of diseases peculiar to women, as well as a strengthening woman's tonic.

It would be well for you to use THEDFORD'S BLACK-DRAUGHT, the old, reliable, vegetable liver medicine, in connection with CARDUI, to regulate the stomach, liver and bowels, as it assists the action of Cardui.

CARDOSEPTIC, (Tablets) dissolved in warm water makes a pleasant, soothing, healing, douche or injection for local female troubles.

These medicines have had wonderful success, for many years, in the treatment of the diseases for which they are recommended, and we urge you to give them a fair trial for your case.

In using them, you will find it of advantage to follow the suggestions in the book about baths, injections, diet, exercise, etc., as this will greatly assist in the treatment. If you need special advice on how to use the Cardui Home Treatment in your case, write us a letter, describing all your symptoms and troubles, and we will reply in a plain sealed envelope.

CARDUI, the woman's tonic, THEDFORD'S BLACK-DRAUGHT, for the liver, and CARDOSEPTIC, Tablets, are for sale at all drug stores, but if you have trouble in getting them we will gladly forward them to you prepaid, upon receipt of price.

Trusting to hear from you further, we are

Very truly yours,
Ladies' Advisory Department,
CHATTANOOGA MEDICINE CO.

SOME FORM LETTERS

Mr. T. J. Scofield then read in evidence the form letters, eighteen in all, which are used by the Chattanooga Medicine Company, which were exhibits in the trial at Chattanooga, a few of which follow:

CHATTANOOGA, TENNESSEE.

Dear Friend:

We have noted your symptoms as you describe them, and suggest that you begin to use CARDUI, the woman's tonic, THEDFORD'S BLACK-DRAUGHT, the vegetable liver medicine, which acts upon the liver and other digestive organs, and CARDOSEPTIC, the antiseptic douche for any local troubles from which you may be suffering.

These well-known medicines, forming the complete Cardui Home Treatment, have proven themselves of great value in correcting female troubles due to menstrual derangements such as periodical headache, backache, pain in the side, bearing-down pains, dragging sensations, dizziness, faintness, leucorrhea (Whites), as well as such signs of liver trouble as sick headache, biliousness, constipation, indigestion, etc., full directions in each package.

We have mailed you a copy of our 64-page book, "Home Treatment of Female Diseases," in which you will find much information in regard to baths, diet, sleep, exercise and vaginal injections, or douches, etc.

You can get all the medicines for the CARDUI HOME TREATMENT at any reliable druggist, but if you have any trouble in getting them, send us the money, and we will forward any of the medicines you want, direct, charges prepaid.

If you need further information, or if the book does not arrive in ten days, write us again.

We hope you will be benefited by these suggestions.

Very truly your friends,

Please note that this letter is not written by a physician, but is the embodiment of what we have learned, through many years of experience, that our medicines have done for others, who suffered in the way you describe.

CHATTANOOGA, TENN.

Dear Friend:

We have your request for additional advice and would say that from the symptoms you describe, a longer course of treatment will probably be necessary, before you can be materially benefited.

From our experience, with cases similar to yours, we suggest that you persistently continue the use of CARDUI, THEDFORD'S BLACK-DRAUGHT and CARDOSEPTIC (Douche), until more permanent results have been obtained.

We mail you another copy of our book, "Home Treatment of Female Diseases," as we think possibly you did not thoroughly read the first copy we sent you, or perhaps did not receive it. At any rate, we strongly urge you to study the book and believe that if you will follow the hints it gives on diet, exercise, baths, and vaginal injections, you will receive marked benefit.

Remember, that our medicines are for sale at all reliable druggists, but if you cannot get them, we will gladly fill your orders direct, charges prepaid, upon receipt of price.

Hoping soon to receive a favorable report of your condition, we are,

Very truly your friends,

Please note that this letter is not written by a physician, but is the embodiment of what we have learned, through many years of experience, that our medicines have done for other ladies, who have suffered in the way you describe.

CHATTANOOGA, TENN.

Dear Friend:

We have noted the symptoms you describe and in reply would say, that although some cases of barrenness are due to stunted or imperfectly developed organs, in your case, from your symptoms, we think there is reason for hope that it may be due to some local weakness or disorder, which, in other similar cases, the CARDUI HOME TREATMENT has been found to relieve.

We suggest, therefore, that you give this treatment a thorough trial, by continuing the use of CARDUI, the Woman's Tonic, three times a day, taking a dose of THEDFORD'S BLACK-DRAUGHT at bed time, as often as may be necessary to keep the bowels regular.

Our 64-page book "HOME TREATMENT OF FEMALE DISEASES," (of which we have mailed you a copy) will give you much other valuable information (see Chapter IV on

Sterility) and we trust you will read it carefully and follow its advice on baths, meals, exercise, etc.

If you need further advice write us freely.

Very truly your friends,

Please note that this letter is not written by a physician, but is the embodiment of what we have learned, through many years of experience, that our medicines have done for other ladies, who have suffered in the way you describe.

CHATTANOOGA, TENN.

Dear Friend:

Replying to your inquiry, we would say that we have received many letters from ladies who have used Cardui, the woman's tonic, and Thedford's Black-Draught during pregnancy, with good results.

These medicines have been found to help strengthen the womanly system, tone up the organs and assist in making childbirth easier. Many ladies who have suffered with miscarriages have found that after taking Cardui during pregnancy, they have become mothers of healthy children.

Others have written to tell how, during this trying time, they have been relieved of headache, backache, sideache, bearing down pains, inability to walk, morning sickness, whites, nervousness, sleeplessness, irritability of temper, and tired feeling, but the use of this well-known woman's medicine and tonic.

We have mailed you a copy of our book, "Home Treatment of Female Diseases" (See chapter Pregnancy.) In it you will find such valuable information about the care of your health, diet, exercise, and the use of vaginal injections, all of which we suggest it will pay you to study and follow.

We trust that this letter will help you and that you will use the Cardui Home Treatment with benefit to yourself and the expected child.

Very truly your friends,

Please note that this letter is not written by a physician, but is the embodiment of what we have learned, through many years of experience, that our medicines have done for other ladies, who have suffered in the way you describe.

CHATTANOOGA, TENN.

Dear Friend:

We have noted your favor of recent date and will say that for misplaced or falling womb and, possibly, affected ovaries, many reports have been made to us regarding the efficacy of CARDUI, and we suggest that you take Cardui, three times a day, increasing to four times a day shortly before, and during, menstruation. As in the conditions you describe the liver and digestive organs are more or less deranged, we think you will find BLACK-DRAUGHT of great aid to the treatment, as it acts on the liver and stomach, and regulates the bowels and digestive functions.

CARDOSEPTIC has been found to relieve itching, irritation, inflammation, and unnatural discharge, when used regularly, as a vaginal injection or douche.

We have mailed you a copy of our 64-page book, "Home Treatment of Female Diseases," in which you will find very full information about cases similar to yours. (See chapter on Displacement). The book will tell you how important it is that you should do no hard or straining work, such as lifting, sweeping, running a sewing machine, or even walking up and down stairs, or standing too long on your feet.

It also tells how beneficial it will be to rest in bed a portion of every day, describes a simple home method of womb replacement recommended by Dr. Thomas, (See page 51), and gives many valuable hints on diet, baths, exercise, etc.

Trusting that these suggestions will help you, we are

Very truly yours,

Mr. T. J. Scofield:—With the same note at the bottom, stating that it was not written by a physician.

CHATTANOOGA, TENN.

Dear Friend:

We are in receipt of your request for advice, but have no special medicine for the case described by you, and advise that you consult a good physician.

Whenever there is present constipation, biliousness, or stomach trouble, we think you will find Thedford's Black-Draught liver medicine of great benefit. Acting as it does on the organs of digestion and elimination, it tends to help the system to respond to any treatment that may be required.

Black-Draught is for sale at all druggists, and we trust that you will give it a trial.

Yours very truly,

Mr. T. J. Scofield:—With the same afternote to the effect that this letter was not dictated by a physician.

TESTIMONY OF DR. WEBSTER

DR. RALPH W. WEBSTER, called as a witness for and on behalf of the defendants, having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. T. J. Scofield:—If the Court please, Dr. Webster is a chemist whom we call to testify to facts.

Q.—What is your name, so that the reporter may get it? *A.*—Ralph W. Webster.

Q.—Where do you reside, Mr. Webster? *A.*—4644 Lake Park Avenue, Chicago.

Q.—Chicago, Illinois? *A.*—Yes, sir.

Q.—What business are you engaged in, if any? *A.*—I am a chemist and clinical pathologist.

Q.—Are you connected with any institution in this city, in connection with your work? *A.*—Yes; I have a laboratory of my own, called the Chicago Laboratory, and I am teaching in Rush Medical College.

Q.—Rush Medical College of this city? *A.*—Yes, sir.

Q.—As the Medical Department of the University of Chicago? *A.*—Yes, sir.

Q.—How long have you been engaged in that work? *A.*—Practically ever since 1898, when I graduated from Rush Medical College.

Q.—Have you continuously pursued the study of chemistry and such matters as come within your specialty since then? *A.*—Yes, sir. I graduated from Rush Medical College in 1898, and from then until 1901 I was at the University of Chicago in the Physiological Chemistry Department, and took a Doctor of Philosophy degree from the University of Chicago in 1901; and was there till 1903, when I went abroad for a year or more to study various branches of medicine and chemistry.

Q.—And then, on your return to this city, you still continued along the line of your special work? *A.*—Yes. Since 1904 I have been engaged in that work, in Chicago.

Q.—Doctor, will you tell the jury whether or not from the experience—from your study, and from the experience which you have had, you are able to make analyses of drugs or medicines, which may be submitted to you for that purpose? *A.*—I have examined a great many of them.

Q.—Do you know anything about a preparation—have you ever seen a preparation that is called Wine of Cardui, manufactured by Chattanooga Medicine Company? *A.*—I have.

Q.—Have you ever made an analysis of Wine of Cardui? *A.*—I have made several.

Q.—Where did you get the samples which you analyzed? *A.*—The first samples I obtained from Mr. Warren through Dr. Cramp, in the laboratory of the AMERICAN MEDICAL ASSOCIATION on Dearborn street. I later obtained some further samples from Mr. Leech in the laboratory of the AMERICAN MEDICAL ASSOCIATION; and I also independently purchased one bottle of Wine of Cardui in the open market.

Q.—In the City of Chicago? *A.*—Yes.

AN ANALYSIS OF WINE OF CARDUI

Q.—Now, will you tell us—taking the first sample of Wine of Cardui which you analyzed—will you give us a history of that analysis? *A.*—In the first place, I examined it with reference to its general physical appearance, noting that it was a dark brown liquid, of a rather marked peculiar odor, resembling valerian; had a bitter taste. I then determined the amount of alcohol present in the preparation, and found approximately twenty per cent. of alcohol, by volume. The total solids in the first preparation which I examined were about three per cent.—the exact figures are 3.52, I believe—three decimal fifty-two. Other specimens which I examined show figures varying from this in slight degrees, but only very slight. I then made examinations for the presence of various groups of drugs, and found no alkaloids present. By alkaloids I mean such substances as quinin, strychnin, atropin, conin, aconitin—and the more common drugs that are used for medicinal purposes—that is many of the most common drugs.

I made special examinations for drugs which contain a certain—which are used as cathartics, drugs such as senna, aloes, cascara, rhubarb, etc., and found no trace of drugs of this type present.

I also found there were no iodids, no bromids, no arsenic, no antimony, no drugs of any type of the more usually known emetic drugs, which include apomorphin, ipecac, antimony, etc.

I then examined for the presence of carduus benedictus. While there is no—to my knowledge, there is no especial test for the actual presence of carduus benedictus, there is presumptive evidence of its presence in the fact that nitrates were found, and also in the fact that I was able to obtain a small amount of non-crystalline yellowish bitter residue, which has been given by various authors the name of cnicin, which indicates its derivation from cnicus benedictus, or carduus benedictus.

I then examined for the presence of all—or then tested for the presence of viburnum. Viburnum is a drug which can be determined definitely in no way with which I am familiar.

Viburnum has a strong valerian-like odor, which was present in this preparation of Wine of Cardui, and is, therefore, presumptive evidence of the presence of viburnum. The only other way by which viburnum could be identified would be by the detection of a specific resin known as viburnin, which has no specific reactions, as far as I am aware.

The analysis as made by me shows—or showed that Wine of Cardui was a twenty per cent. alcoholic extract of carduus benedictus and viburnum, containing no potent drugs—no emetic drugs, no carthartic drugs—

Mr. Hough:—One minute. I understand he is not testifying as an expert. If he gives that opinion, he is qualifying as an expert——

THE COURT:—No. We don't want your opinion, Doctor; we want your statement, as a matter of fact, what you found.

The Witness:—I am stating that, Your Honor, as a matter of fact.

THE COURT:—That is the way I understand it; just so there is no dispute about it.

The Witness:—That is not based on my opinion.

Mr. Hough:—If the Court please, may I have that read.

THE COURT:—The witness said it was not based on his opinion at all. This is what he found.

Mr. Walker:—Well, the last answer indicated his opinion, I think, that is, the last part of his answer.

THE COURT:—I think the jury has disabused themselves of that proposition, because the witness says that this what he is telling us he found, as a matter of fact.

Mr. Hough:—Now, may we have the last question and answer read?

Mr. Walker:—Just the last part of the answer.

> "The analysis as made by me shows—or showed that Wine of Cardui was a twenty per cent. alcoholic extract of carduus benedictus and viburnum, containing no potent drugs, no emetic drugs, no cathartic drugs,—"

THE COURT:—You may go on, Doctor.

The Witness:—No—the words "potent drug" would rule out of consideration a very large number of drugs which I need not take the time to name, other than the fact that there were no drugs found which would be considered—or which were potent, powerful drugs.

THE COURT:—Now, Doctor, will you be good enough to define, for the benefit of the jury and the court, what you mean by potent drug.

The Witness:—I was just reaching that, Your Honor.

THE COURT:—Yes.

The Witness:—By a potent drug I mean a drug which has visible physiological effects noted after the taking of a reasonable amount of a drug. In other words actions which could be noted, actions which could be observed after the drug was taken. In order to show this point, several examinations were made upon myself, as regards this point.

If any emetic drugs were present, it can be demonstrated by the taking of the preparation. In order to show whether or not any emetic drugs were present, I took, at two successive intervals in a period of a half day, an entire bottle of Wine of Cardui; one-half bottle at each dose. The effects—after the taking of this half bottle were controlled later by the taking of exactly the same amount of alcohol in water, at a different period. The effects which I observed upon myself were absolutely the effects of alcohol, and nothing else. There was no emetic effect, no cathartic effect and no visible effect other than the effect that you would notice after taking alcohol.

To rule out the effect of alcohol in the Wine of Cardui, I evaporated the alcohol off of an entire bottle of Wine of Cardui, and took the residue which remained, diluted it a trifle with water, and swallowed that in two different sittings.

THE COURT:—I assume that was on a different day, Doctor.

The Witness:—Yes, sir; yes, it was. This produced absolutely no results. The taste was slightly mawkish—the taste might be described as bitter—mawkish taste. To me there was absolutely no sensation of nausea—no sensation of anything beyond the bitter taste, and the increase of saliva which goes with swallowing a bitter material; and the conclusion, or the result of the experiment was that there could have been no emetic, no cathartic principles present in this preparation; otherwise, I would have noted the result.

THE COURT:—That is eliminating, of course, any idiosyncrasies that your system may have to that particular drug.

The Witness:—Yes, Sir.

Mr. T. J. Scofield: *Q.*—Now, Doctor, as I understand you, you made several analyses? *A.*—I made analyses of six different specimens.

Q.—Was there any essential difference in the analyses which you made of these half dozen different samples of Wine of Cardui? *A.*—No essential differences. There were slight variations in the amount of solid residue and in the amount of ash and certain other constituents, but these variations were inconsequential and could be disregarded. The amounts were small and of no moment whatever.

Q.—Now, doctor, can you tell the jury whether or not there was any wine present in Wine of Cardui?

Mr. Hough:—That is objected to as immaterial.

THE COURT:—He may answer:

To which ruling of the Court the plaintiffs, etc., excepted.

A.—I should say there was no trace of wine at all.

Mr. T. J. Scofield: *Q.*—No trace of wine at all? *A.*—No.

THE COURT: *Q.*—Now, Doctor, in that connection, will you define for the Jury and the Court what you mean by wine.

A.—There are two ways of looking at a wine, two definitions and I give the general definition first, which is; that a wine is the product of the normal fermentation of grape juice and contains seven per cent. of alcohol, not less than seven per cent. and not more than sixteen, according to the standards of the United States Government. From the standpoint of medicinal properties, however, this definition is not binding. A wine, from a medicinal standpoint, is a preparation in which the medicinal properties of a drug have been extracted by wine; and by "wine" I mean the wine which I have previously defined legally, or according to the standards of the United States Government.

THE COURT: *Q.*—Do you confine wine to grapes entirely? How would you define currant wine? I have heard of such a thing.

A.—A wine, legally speaking, is a fermented product or the product of fermentation.

THE COURT:—Not "legally speaking"; we are supposed to know what that is; but what do you mean by "wine"?

A.—By "wine" medically speaking, I mean the fermented juice of the grape. Currant wine, raspberry shrub and various other preparations are, medicinally speaking, not wines in the strict sense though they are a fermented product.

Mr. T. J. Scofield: *Q.*—Now, doctor, fruit wines, are they from the natural fruit fermented or not? *A.*—Fruit wines should be made from the special fruit, the name of which the wine bears.

Q.—Doctor, is alcohol necessary for solution of the principles contained in Wine of Cardui?

Mr. Hough:—That is objected to. That is an expert question.

THE COURT:—He may answer. As you found it.

To which ruling of the court the plaintiffs and each of them, by their counsel, then and there duly excepted.

A.—I evaporated the alcohol and water from the Wine of Cardui and found a certain definite residue in each case. This residue, on treatment with water, dissolved practically completely with only the faintest trace of residue remaining, showing that alcohol was absolutely unnecessary for solution of the active ingredients present in this preparation.

Mr. T. J. Scofield:—That is all, Doctor.

CROSS-EXAMINATION BY MR. HOUGH

Q.—Doctor, when did you make these different analyses? *A.*—At various times during the last year. I cannot give the exact periods.

Q.—When did you make the first one? *A.*—If I remember correctly, I received my first specimens from Mr. Warren in February last year, and I made my first examinations soon thereafter.

Q.—Do you mean February, 1915? *A.*—Yes.

Q.—Who is Mr. Warren? *A.*—Mr. Warren is one of the chemists in the laboratory of the AMERICAN MEDICAL ASSOCIATION.

Q.—You do work for them regularly? *A.*—I cannot say that I have. I have not done work for them previously.

Q.—When did you make your second test? *A.*—I cannot tell you the exact date. Those analyses ran over the period from February until within the last month.

WITNESS' SENSATIONS ON DRINKING WINE OF CARDUI

Dr. Webster then testified as to the dates of various analyses, where he secured samples, etc. He was then asked:

THE COURT: *Q.*—Doctor, were those samples all sealed, I mean in their original condition?

A.—Yes, sir; those were in the original carton.

Q.—And bore the same label?

A.—Bore the same label, yes.

Mr. Hough: *Q.*—And you opened them yourself? *A.*—I opened them myself.

Q.—How many times did you drink some of this sample that you obtained, which I have referred to as the third sample, to test whether it had any emetic principle? *A.*—I tested one bottle as I said on my direct examination, by dividing it into two portions, taking half of it say in the morning—I cannot remember the exact hour—and the other half in the afternoon of the same day, or within two or three hours of the time I took the first half. That was one bottle.

Q.—Were you told that they wanted to prove that it was not emetic, you knew that, didn't you when you made the test? *A.*—I cannot recall that I was told that definitely; but one of the ways in which one would make a decision for himself, as to whether his chemical results were exact would be to take some of the preparation and find out.

THE COURT: *Q.*—Before you took that, you had satisfied yourself that there was no substance in it that was poisonous I presume?

A.—I had, absolutely, or I should not have taken half a bottle of it.

Mr. Hough: *Q.*—When you said you did not find any potent substance in there, you meant poisonous substance, did you not? *A.*—No, I mean any strongly acting substance; not necessarily poisonous.

Q.—Well, how can you say what is an acting substance, as a chemist making an analysis? *A.*—I have read indirectly about the action of drugs and have heard others speak of them.

Q.—You have not qualified as a therapeutist, have you? *A.*—Do you mean at the present time?

Q.—Yes, you did not—

THE COURT: *Q.*—In this particular instance, Doctor, you took a chance.

A.—I took a fighting chance, yes, sir.

Mr. Hough: *Q.*—That is, with reference to whether it was an emetic or not, but not with reference to whether he could say that it had no therapeutic value. That is what I understand he is trying to say. A.—I think I said on my direct examination that at the present time, I am Professor of Pharmacology and Therapeutics in Rush Medical College.

Q.—Then you recognize in making that statement, you were testifying as an expert? *A.*—Not at all. I am simply stating as a fact, that there were no emetic principles present, from the results upon myself. I know—

Q.—I am not talking about the emetic principle. You said that there was no potency in any of the drugs. Isn't the statement from a therapeutist, that there is no potency in a drug, an expert opinion? *A.*—I think not.

THE COURT:—I asked Dr. Webster to state to the Jury what he meant by "potency" and he told us. Now, if on cross examination you ask of this witness for matters of opinion, that does not make him an opinion witness on the part of the defendants here. I want that statement made clear in the record and I want to have it understood.

Mr. Hough:—I don't mean to qualify him as an expert.

THE COURT:—What I mean to say is that you cannot make him an opinion witness by cross examining him. He defined what "potency" meant as he used it in his direct examination; so, when he uses "potency" in his cross examination, it means the same thing.

Mr. Hough:—If I understand the witness correctly then, that don't mean that there is no therapeutic value in the drugs which he found in the medicine.

THE COURT:—He did not so testify as I understood him.

Mr. Hough:—With that understanding, I will go no further on that point. I got the contrary impression.

THE COURT:—You may ask him, however, if you choose—

Mr. Hough:—I have no desire to make him an expert.

Q.—When you tested this, you were told that it contained carduus benedictus, were you? *A.*—I am not—I would not say definitely to that, that I was told. I had seen the article.

Q.—You had seen the article and that it stated that it did contain it.

A.—I had seen a statement in THE JOURNAL of the American Medical Association, but I was not told anything. I was given the preparation and asked to see what was there.

THE COURT: *Q.*—Was there anything on the label, doctor, as to what was there?

A.—Yes, 20 per cent. alcohol.

Q.—And nothing more?

A.—No, that is the statement of all that there was in it.

Mr. Hough:—You had seen the statement also in the article that it was not an emetic? *A.*—I had seen the explanation, yes.

Q.—When anyone wants an unbiased report from a chemist, they never tell them, or let them know what is in the substance that they are to analyze, do they? *A.*—Very frequently they do, yes.

Q.—Not when they want an unbiased opinion, do they? *A.*—A chemist's opinion is always unbiased, sir.

THE COURT: *Q.*—In other words, you regard your science as an exact science.

A.—Quite exact, sir.

Mr. Hough:—Well, now then I suppose you know when you were analyzing for carduus benedictus that carduus benedictus contained a volatile principle, didn't you? *A.*—It is reported to have, yes.

Q.—Don't you know it? *A.*—Well, I won't say that I did not know it, and I won't say that I did know it. In reading what is supposed to be the principles in carduus benedictus, there is a volatile principle mentioned.

Q.—There are resins there? *A.*—Yes.

Q.—Now, when you evaporated it to dryness, you drove off all the volatile principles, didn't you? *A.*—If there were any there, I did.

THE COURT: *Q.*—Let the court interrupt once more. What do you mean by "resins?" I think the Jury and the Judge know just one kind of resin or "rosin" as we term it. What does the term comprehend?

A.—Resins are uncrystallizable materials which are obtained from drugs, residues obtained from drugs which are insoluble in water; soluble in alcohol and ether and ordinarly have no definite, known chemical composition and very few, if any of them, have definite chemical reactions by which they can be absolutely identified.

Mr. Hough: Q.—Resin bearing drugs are potent, are they not? *A.*—Yes, a great many of the resin bearing drugs are cathartic drugs.

Q.—You would call that potent, wouldn't you? *A.*—Yes, sir.

Q.—Is it not a well known fact among chemists that there are many vegetable compounds which cannot be accurately analyzed for the purpose of telling the ingredients? *A.*—Chemically speaking, yes.

Q.—Do you wish to go on record as stating that, without having read what was in THE JOURNAL, you could have determined that this contained viburnum prunifolium and carduus benedictus from the analysis alone? *A.*—Well, as I stated on my direct examination, Mr. Hough, that carduus benedictus was identified indirectly by the presence of a hypothetical substance known as cnicin which is an amorphous, yellowish, bitter material, which does not identify it absolutely—or in my case, did not identify it absolutely as cnicin, because I was not able to obtain enough of it to make a definite chemical examination as to carbon, hydrogen, oxygen and so forth, to make its molecular formula; and in the case of viburnum, I was identifying viburnum by the odor, the valerian-like odor which is somewhat characteristic, although not absolutely characteristic of viburnum.

Q.—Then you would say that from your analysis you could not say definitely that—what was in this compound? *A.*—I would not want to say that I could swear absolutely that carduus benedictus and viburnum prunifolium were present from these two points, as regards the chemical proposition.

Q.—And if the thought had not been put in your mind by the article, or what was told you, you would not have thought of either one of those, would you, except as a possibility, I mean, you could not have stated what they were?

THE COURT:—Why not include the label with the article? The label as I understand it, is "Wine of Cardui."

Mr. Hough:—But not intended to be descriptive. I mean, anything that might suggest something.

THE COURT:—That might be just a plain trade name.

Mr. Walker:—A trade name. The question is whether taking the stuff itself without the suggestion of those two names, he could have ever said that they were there?

THE COURT:—That is the question.

The Witness: A.—From my direct chemical examination, probably I would say that I could not have identified it absolutely as carduus benedictus. The viburnum was strongly presumptive, the odor was strongly presumptive of viburnum; knowing in a general way what this preparation was used for, knowing the name of the preparation, I might have stated that carduus benedictus and viburnum were present, from this combination of circumstances, had I not seen the article.

Mr. Hough: Q.—But if you had not seen the article and had not seen the name on the label, but had just been given the substance with no suggestion, then you could not have told, could you?

A.—There are certain drugs that cannot absolutely be detected chemically, and I would say that from the chemical examination alone, without outside inferences, that probably a definite statement could not have been made.

THE COURT:—By the process of exclusion what drug could this peculiar odor that you got refer to save viburnum?

A.—Valerian possibly and valerianic acid; cnicus benedictus or cnicin; it could have been obtained from very few other drugs, had I been able to get enough cnicin to identify it absolutely, so that the composition could have been limited rather closely, had nothing ever been published or said or known about the proposition.

Mr. Hough:—You mean you may have been able to say that it was one of three or four different things? *A.*—We might have gotten it down that close, yes, and by exclusion of other things and so on, you could have come closer than that perhaps.

Q.—How do you know you got any cnicin? *A.*—As I said, I cannot absolutely swear that I had cnicin. Cnicin is a compound which is obtained, according to the literature (and we have to go to the literature to obtain facts) cnicin is obtained from carduus benedictus by a certain process. This process was followed out to a certain extent in these examinations and the yellowish amorphous bitter substance, obtained.

Q.—Just state the process you went through in order to determine cnicin? *A.*—It was a pretty crude proposition in order to give the benefit of the doubt to the presence of cnicin, and it consisted in evaporating the alcohol from the preparation, shaking out with ether and evaporating the ether solution and weighing the residue, which was a yellow amorphus, bitter material. Under these conditions, cnicin is left, although cnicin in the absolutely pure state, is stated to be soluble in ether, it is soluble in ether under the conditions of the experiment, the acidity of the solution and the presence of other material, and is extracted in the official process by ether.

Q.—When you say "official process" what do you mean? *A.*—I mean the process first devised, according to the literature, by Swantner, Schreiver, Nativelle and others.

Q.—When was that? *A.*—Around 1840 I judge, or 1836.

Q.—Has any additional experimental work been done on that since 1846? *A.*—Well, I could not say. There has been a considerable amount of work done by the AMERICAN MEDICAL ASSOCIATION in the last year.

Q.—On carduus benedictus? *A.*—On a study of the Wine of Cardui which contains carduus benedictus.

Q.—I am talking about carduus benedictus. *A.*—Yes, there has been a study of carduus benedictus made.

Q.—By whom. *A.*—I cannot recall now. By several of the men.

Q.—Where was it published. *A.*—As far as I know, it has not been published.

Q.—I am asking if there has anything been published on the subject. *A.*—I beg your pardon. I did not know that you asked if it were published. As far as I know, there has no work been done on carduus benedictus on account of the fact that it was supposed, according to the work that had been done from 1840 on, to be a worthless drug, and there was no use in making any examination.

Q.—What standard book said that carduus benedictus was a worthless product? *A.*—What standard book?

Q.—Yes. Is the United States Dispensatory standard? *A.*—No, not at all.

Q.—Is that any authority? *A.*—No.

Q.—Then you would not believe anything that was in the United States Dispensatory? *A.*—I would believe a few things, but there are many, many things that I would not believe under any conditions.

Q.—What other book did you read about carduus benedictus in? *A.*—No book that I know of.

Q.—Did you read Dr. Hare's book on this subject. *A.*—No, I never read Dr. Hare's book on the subject, and I don't believe he has one.

Q.—You don't believe he has one? *A.*—Not on carduus benedictus.

Q.—Did you ever read the Dispensatory by Rusby, Hare and Casparia? *A.*—Yes, I have heard of that Dispensatory, but I do not consider it standard.

Q.—You know Dr. Hare wrote that, don't you? *A.*—Not all of it I do not think, by any means.

Q.—Of course, it was written by the three of them, they collaborated, but you know that he wrote that article on carduus benedictus? *A.*—I do not know. The United States and National Dispensatories are merely books of reference that have no standing whatever; they are not books that are recognized as standard. They are simply a compilation of facts taken from the literature and the men who have written on the various subjects and they mean nothing to one who goes to the original literature.

Q.—What is the original literature of carduus benedictus? *A.*—The works of Schreiver, Swantner and Nativelle.

Q.—Did you ever read Lobach? *A.*—No, I never heard of Lobach's work on carduus benedictus.

Q.—Did you ever hear of Lobach at all? *A.*—I have a hazy opinion that I have, but I don't know in connection with what.

Q.—Have you ever heard of Radamacher? *A.*—Yes, sir.

Q.—Did you ever read what he said about it? *A.*—Not on carduus benedictus.

Q.—Do you know what he said about it? *A.*—I do not.

Q.—If it was in the pharmacopeia, would it be considered a potent drug?

Mr. T. J. Scofield:—That is objected to as not cross examination. I have not heretofore interposed any objection, but I do not know what this is cross examination of.

THE COURT:—The witness has not qualified as an expert.

Mr. Hough:—No, but he has qualified on carduus benedictus far enough to justify him, in his own opinion in stating that it was regarded as worthless.

THE COURT:—Well, if you wish to go ahead on that line, I will overrule the objection.

Mr. Walker:—He interjected that himself.

THE COURT:—Go ahead. What this opens up on redirect I won't undertake to say.

To which ruling of the Court the defendants and each of them, by their counsel, then and there duly excepted.

Mr. Walker:—Well, will your Honor strike out all this witness's evidence on that subject?

THE COURT:—No.

To which ruling of the court the plaintiffs, etc., excepted.

Mr. Hough: Q.—You say the United States Dispensatory and Dr. Hare's National Dispensatory are not credible books. *A.*—No, I did not say that, Mr. Hough. I said they were not recognized as standard authoritative works. They have no legal standing; they are not recognized as standard works. Many of the statements in both of these books are true and many of them are wrong and fallacious and therefore not reliable.

Q.—How do you reach the conclusion that they are wrong? *A.*—Because I know personally, regarding many of the statements that I have in mind as being wrong.

Q.—What personally do you know in regard to their statements being wrong in reference to carduus benedictus? *A.*—I do not know only the fact that any statement made in this Dispensatory, any statements regarding carduus benedictus are simply statements which are taken from the previous literature. They are compilations of material which has been published and has nothing to do with Dr. Hare, Caspari, etc.

Q.—You say the original publications in reference to carduus benedictus—the original contention was that carduus benedictus was no account? *A.*—I said in reference to publications with which I was familiar.

Q.—Then they must have been familiar with some publications which you did not know anything about, if they give a different statement. *A.*—The United States Dispensatory does mention the work of Schreiver and Swantner, as I remember and refers to the articles of these men and the work of Nativelle also in which it was supposed that certain effects were ascribed to carduus benedictus by these men. That does not say in the United States Dispensatory, as I recall the article, that carduus benedictus has certain effects, but the Dispensatory says that Swantner and Schreiver and Rademacher, if you will say that it has certain effects. They ascribe certain results to it, which is of no more value (so far as my personal opinion goes) with my experience than it would be if they had said it had no effect.

Q.—They must have thought it had such an effect, or they would not have reported it and put it in?

Mr. T. J. Scofield:—That is objected to.

THE COURT:—The objection is sustained. We can assume that they thought it had such an effect.

To which ruling of the court the plaintiffs, etc., excepted.

Mr. Hough: Q.—Am I correct in saying that you state that in your opinion, it is worthless? *A.*—I have no opinion about it. I am stating as a fact that it contains no potent drugs, no emetics, no cathartics. I did not try to express any opinion regarding whether it was worthless or not.

Q.—You are talking now about Wine of Cardui, are you not? *A.*—Yes.

Q.—I am asking you about carduus benedictus. *A.*—I am not qualified as an expert.

Q.—You say that carduus benedictus has no value therapeutically? *A.*—If you ask me directly, I say, no.

Q.—How do you know? *A.*—Well, there are many ways in which I may know it; from general discussion.

Q.—You mean you know it because you read it in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION? *A.*—That might be one way that I would know it.

Q.—Now you said that you tasted it and it was mawkish? *A.*—Yes, sir.

Q.—Do you mean that? *A.*—I certainly do. I said it had a mawkish taste when the alcohol was taken off.

Q.—Mawkish means nauseous, don't it? *A.*—No.

Q.—What dictionary do you find that says that it don't mean nauseous? *A.*—Mawkish is not necessarily nauseous. There is a peculiar fur-raising—a peculiar irritating effect upon the tongue that is described as "mawkish." It is different from a nauseous taste that you get. I cannot give an explanation of the difference, but I have it distinctly in mind. I do know that there was absolutely no difficulty whatever in swallowing half a bottle of the Wine of Cardui, and there was no difficulty whatever in taking the non-alcoholic product, but I would much have preferred if I was asked to take either one, I would have much preferred the alcoholic product because it tastes better than the non-alcoholic.

The further hearing of the cause was then adjourned until the following day, March 29, 1916, at 10:30 o'clock a. m.

March 29, Morning

The Court met pursuant to adjournment at 10:30 a. m., March 29, 1916.

Dr. Ralph W. Webster resumed the stand and cross-examination was continued by Mr. Hough.

FURTHER CROSS-EXAMINATION BY MR. HOUGH

Q.—Doctor, when you stated on your direct examination that you found no potent drug in Wine of Cardui, did you mean to say that neither carduus benedictus nor viburnum prunifolium was possessed of any therapeutic or medicinal value? *A.*—I was testifying as to a fact, the fact that I found no potent drug and I stated, under the head of potent drugs, that I found no alkaloids,—

Q.—Now won't you please answer the question just as I asked it instead of going off on another matter.

THE COURT:—You may answer it, doctor, by saying whether or not, as you have defined a potent drug, you found any. *A.*—I did not.

Mr. Hough:—Now will the reporter read my question.

(The pending question of counsel was then reread.)

A.—I am not testifying as a therapeutist.

Q.—But you can say "yes" or "no" to that and then make any explanation you like. Did you mean that or did you not mean that? *A.*—I meant exactly what I said, that I found no potent drug and I think that explains itself fully, because I explained my definition of "potent drug."

Q.—Did you mean that carduus benedictus and viburnum prunifolium had no therapeutic or medicinal value, by that answer? That is a very simple question to answer "yes" or "no" it seems to me. *A.*—May I explain my answer, your Honor.

THE COURT:—Yes.

Mr. Hough:—Well I suggest, if the Court please, that I am entitled to have an answer first.

THE COURT:—Yes, you may answer the question.

Mr. Hough:—It can be answered "yes" or "no" and then you can explain it at your leisure.

(The pending question was then read.)

A.—I would say yes. My reason for answering that is simply that assuming that carduus benedictus and viburnum prunifolium theoretically had any therapeutic effects whatever, there was not sufficient material, not sufficient active constituents of those drugs present in Wine of Cardui to produce any therapeutic results, and certainly there was not sufficient of those drugs present to come under my definition or my understanding of potent drugs.

Q.—Then you mean to say that, if there had been more carduus benedictus or viburnum prunifolium in Wine of Cardui than you found, it would have possessed therapeutic value?

Mr. T. J. Scofield:—That is objected to.

Mr. Hough: Q.—Or would have been potent as you have defined the word.

Mr. T. J. Scofield:—That is objected to.

THE COURT:—He may answer.

To which ruling of the court the defendants, etc., excepted.

A.—Regarding carduus benedictus I think I stated that carduus benedictus was a drug possessed of no therapeutic value. Regarding viburnum I would not make the same statement.

Mr. Hough: Q.—Now the question of potency of drugs or of a drug possessing or not possessing therapeutic value from the chemical standpoint, is a therapeutic question. It is not a chemical question, is it? *A.*—Only in so far as the chemist can determine how much of a potent drug is present. A drug may be potent and there be very little of it present in the preparation and therefore it is not a potent preparation. The drug is potent, but the preparation is not potent.

Q.—The province of chemistry is to determine what is in an ingredient and how much; that is the province of chemistry, is it not? *A.*—Yes, sir; and in doing that they determine absolutely whether there is potency in the preparation.

Q.—Isn't that second question a therapeutic question? Doctor, would you mind looking at me when you are answering? *A.*—Not at all.

Q.—Isn't that a therapeutic question? *A.*—It is a therapeutic question as far as the direct determination of the actual effect goes, yes, sir.

Q.—Now you stated that, according to the work that had been done on carduus benedictus from 1840 on, it was a worthless drug and therefore no examination had been made since? From 1840 to what date did you mean? *A.*—I said no examination. I had in mind that the literature of recent periods had not discussed carduus benedictus in any way, the literature that I was familiar with. By "recent periods" I mean within the period of my own actual knowledge of drugs.

Q.—Now, Lobach and Rademacher come within that period, don't they? *A.*—No, Lobach worked in 1859 as I understand it.

Q.—Isn't that after 1840? *A.*—Yes, but not very much after as compared with 1916.

Q.—What was the date of Rademacher? *A.*—I could not give you the date of Rademacher; it was somewhere after 1840 I think.

Q.—The *American Journal of Medical Sciences* had an article on the subject in 1859, didn't it? *A.*—By whom?

Q.—On carduus benedictus. *A.*—I believe not, I would not say but what I have in mind in that connection is the article of Lobach on carduus marianus which is not carduus benedictus.

Q.—What is the difference between carduus marianus and carduus benedictus? *A.*—I am not a pharmacist.

Q.—How can you say there is a difference between the two? A.—The difference in the name indicates it.

Q.—Don't they state that they have the same action?

Mr. T. J. Scofield:—Wait a moment, if the Court please—

THE COURT:—The article will show that if you have it.

Mr. Hough:—I have it and I will read it to him and ask him if he disagrees with it.

THE COURT:—Not at this time.

Mr. Hough:—I think where he states that there is no writer who has said anything except that the drug was worthless, between certain periods and I identify a publication as coming between that period, I can read from that publication in order to contradict him.

THE COURT:—Yes, you can offer it in evidence when your turn comes.

Mr. Hough:—My understanding is that it should be done at the time when the witness is on the stand. That is the rule so far as we have used it heretofore.

Mr. Walker:—Has the Court got in mind the language of the answer of the witness that he gave yesterday?

THE COURT:—Perfectly. It has been repeated here today.

Mr. Walker:—It was by Mr. Hough.

Mr. Hough:—Now I ask leave to read this article in the *American Journal of Medical Sciences,* edited by Isaac Hayes, M.D., published quarterly, Philadelphia, London and Paris, 1859, a quarterly summary of the improvements and discoveries in medical science on the action of carduus marianus, carduus benedictus, and odo-pordom and scanthium to contradict the witness.

Mr. T. J. Scofield:—In his direct examination, Dr. Webster did not base any opinion he expressed upon any recognized or standard medical authority or writer on these subjects. I do not understand that on cross-examination they may ask him questions such as they have asked him, and then undertake to introduce an article from somebody on this subject, as contradictory of his testimony.

THE COURT:—The Court is of the opinion that this is not the time to offer that article. You may save your point in the record.

Mr. Hough:—I cannot continue the cross-examination of the witness on that point. I think Judge Scofield will agree with me that, under the rule that we have been offered in evidence, where you establish the right to introduce it at all you read it to the witness for the purpose of contradicting him and then ask him about that article and give him a chance to take back, if he pleases, what he has said.

THE COURT:—Well, perhaps the witness does not care to. The question is whether anything has been written about this subject since 1840. Now, if you on rebuttal, have something which was written since 1840 and the question is material, then is the time to offer it.

Mr. Hough:—I submit that now is the time, your Honor.

THE COURT:—You may save the point.

To which ruling of the court the plaintiffs, etc., excepted.

Mr. Hough: Q.—Did you read what was in that article? Have you ever read what was in that article that I have just called your attention to? A.—By Dr. Lobach?

Q.—No, from the *Journal of Medical Science.* A.—I cannot say that I ever have, because I do not know the author and I am not familiar with the title. I do not think that I have ever read it.

Q.—Have you ever read Nonaugh on the febrifuge property of cnicin? A.—I never have.

Q.—Have you ever read Wegh and Libeg on the bitter principle of carduus benedictus, centaurea benedictus? A.—I never have.

Q.—Centaurea benedictus is the same as carduus benedictus, isn't it? A.—That is the name that is applied to it, yes, sir.

Q.—And cnicus benedictus is the same thing also? A.—Yes, sir.

Q.—Have you ever read Claris, a German work on Materia Medica, in reference to what it says on carduus benedictus? A.—No, sir.

Dr. Webster was then questioned as to his knowledge of numerous literary references to carduus benedictus, including Anthon, a medical dictionary published in Germany; Haugan, on Therapeutics; Buchheim's Materia Medica; United States Dispensatory, 1877; United States Dispensatory, 1883; Thoy; Sohn, an English dictionary of active principles of plants; United States National Dispensatory, 1894; Swantner; Hale's Materia Medica and New Remedies; Green-Lippincott's Medical Dictionary; Scudder's Materia Medica, King's American Dispensary; Gould's Dictionary of Medicine; Ellingwood's Therapeutics; Dinaud on Medicinal Plants, and Potter's Therapeutics.

The Court then said:

THE COURT:—I think I will stop this examination, because this witness was not called to give answers to questions on therapeutics.

Mr. Hough:—I submit, your Honor, that the other side brought it out and that this witness brought it out this morning by the statement that these drugs were not potent, meaning thereby—

THE COURT:—Well, the innuendo is not a part of this testimony and he has explained very carefully what he meant by "potency."

To which ruling of the court the plaintiffs, etc., excepted.

Mr. Hough: Q.—I will ask the witness this question then, which I asked before, and which was not directly answered: What publications between 1840 and 1910 declared carduus benedictus to be a worthless drug? A.—I cannot state that definitely by giving any direct reference to the literature. My remembrance of all of the literature, at least all of the literature with which I am familiar and a large part of the references about which you have asked me are compilations of the literature of 1840 and from 1840 to 1859; they are dictionaries, encyclopedias, commentaries, etc., which do not in any way give any work done on carduus benedictus. No original work that I know of has been published since 1859. There may be many. I simply say none that I know of, and I do say that those quotations or those publications which you have asked me about subsequent to 1859 and between 1859 and 1905, are simply commentaries, dictionaries and encyclopedias quoting work previously issued and making no statement other than that based simply upon other literature, exactly as chemists take what is included in the Beilstein as a reference book of what has been done in the past. You go to a reference book to find out what has been done. You don't go to a reference book to find out whether it has any value or has not any value. You have got to take that from the experience of the men who are working on the subject and publishing some original observations. That is my reason for making the statement, that, as far as I am aware of, nothing has been published on the subject since 1859. I said yesterday, 1840, but I would like to modify it now and say 1859, because Dr. Lobach worked exclusively as I understand it on carduus benedictus, worked in 1859 on carduus benedictus and that is my position in answering the question.

Q.—When was the work that was done by Nativelle to which you have referred, done? A.—That to my knowledge was not work on therapeutics. The work of Nativelle was published according to my reference in the *Compt. rend. Acad. d. sc.* in 1837, Volume 15, 802.

Q.—Did it not speak of the physiological effects of cnicin? A.—I do not know. The reference I have to Nativelle's work is simply as to the properties of cnicin, its method of preparation, etc., the chemical phases.

Q.—Then you mean to tell the jury that prior to 1859, carduus benedictus was regarded as a valuable drug, but in your opinion has not been proved to be such since then? A.—No, I have not that opinion. I say that prior to 1859 there were occasional references in the literature to carduus benedictus, just as we find references in the literature to other worthless drugs. It does not say—when a man may have an opinion based on certain experiments and certain uses of the drug,—those are sometimes shown to be fallacious by applying modern methhods. What he thought at that time on the question of the actual effect, is his opinion of 1837 or 1840 or 1859. Based on modern ideas and processes, it probably would not come up to the standard of being a valuable drug.

Q.—If you know, when was carduus benedictus first mentioned in medical literature as a valuable drug? A.—I have no idea that it was ever mentioned as such.

Q.—Was it mentioned by Linnaeus? A.—I don't know.

Q.—In what year did Linnaeus live? A.—I have no idea.

Q.—Was it mentioned as early as the sixteenth century? A.—I said I did not know, Mr. Hough.

Q.—You mean that you cannot go back of 1859, so far as your knowledge goes? Is that what you mean? So far as the literature of the subject is concerned, you do not go back of 1859? A.—I have not made any search of the literature, Mr. Hough, simply in connection with my chemical work I have occasion to look up what I could find, roughly speaking, on cnicin. I found references to the work of Schreiver, Swantner and Nativelle and I occasionally looked at the United States Dispensatory of which I spoke a few moments ago, and found certain statements made there. Those are the only statements I have ever seen anywhere or anything written regarding carduus benedictus or cnicin.

Q.—Is cnicin in carduus marianus? A.—Not that I know of. I know nothing about the composition of carduus marianus and I believe now I have never heard it so stated.

Q.—Is cnicin in any other drugs that you know of? A.—I believe not. The name would imply that it came from cnicus benedictus, naturally, simply being the active principle of the drug. I do not state it definitely, however, as not being present elsewhere.

Q.—Is there any cnicin in cnicus arvenicus? A.—I never heard of that drug, I do not know.

Q.—Cnicus erculantas? A.—I never heard of it, I don't know.

Q.—Cnicus canus? A.—I know nothing about it.

Q.—Or cnicus pelustrin? You never heard of any other cnicus containing drugs? A.—I do not know that name. Those are possibly—now I am not sure but what they are possibly synonyms of cnicus benedictus. I do not know whether they are synonyms or names of other drugs. We find half a dozen names sometimes applied to a drug and I am not familiar with the other names in that connection.

WITNESS' VIEW OF WORK OF THE AMERICAN MEDICAL ASSOCIATION

Q.—Are you a member of the AMERICAN MEDICAL ASSOCIATION? *A.*—I am, yes.

Q.—Are you connected with any of the work on THE JOURNAL? *A.*—No.

Q.—What are your relations to those who are connected with THE JOURNAL in the Propaganda Department? *A.*—The same relations that every other member of the AMERICAN MEDICAL ASSOCIATION has.

Q.—Don't you do work for them right along? *A.*—No, not by any means. This is the first time I have ever had occasion to.

Q.—Are you familiar with the purposes of the Propaganda Department? *A.*—I know in a general way what the purposes of the AMERICAN MEDICAL ASSOCIATION are, yes, sir.

Q.—I said Propaganda Department. *A.*—Yes, sir.

Q.—And you knew them before the sample was given to you to analyze, did you? *A.*—Yes, I have been familiar with them for some years.

Q.—And those purposes were to make a general fight on every home made remedy that is not prescribed by a physician's prescription, were they not? *A.*—No, not as I understand it.

Q.—Isn't that what they do as a matter of fact, attack every remedy that is given except those given on a physician's prescription? *A.*—Not by any means.

Q.—Isn't that the purpose? *A.*—No, their purpose is to make an attack on fraudulent preparations. There is a very large difference between fraudulent and nonfraudulent preparations.

Q.—Do you know of a home made remedy that is sold to the public that they don't attack?

THE COURT:—What do you mean by a "home made remedy?" Do you distinguish it from a remedy made by some chemical company?

Mr. Hough:—I mean a remedy made by some chemical house for home consumption without the intervention of a doctor's prescription.

The Witness: A.—Well, there is a large number of preparations that have not as yet been attacked and I have no reason to believe that they will be or will not be.

Q.—Have they ever spoken favorably of any remedy that is given to a consumer without the intervention of a doctor's prescription? *A.*—Certainly not, if it is fraudulent.

Q.—Have they in any respect— *A.*—There is no occasion to speak favorably or unfavorably of a preparation if it is all right.

Q.—You know what I mean, Doctor. Will you give me a straight answer. *A.*—I do not understand your question.

Q.—Have they ever spoken of any (whether fraudulent or not) remedy that is manufactured to be sold direct to the consumer, favorably? *A.*—That is not the province of the AMERICAN MEDICAL ASSOCIATION.

Q.—Can't you answer that yes or no? *A.*—I do not know.

Q.—Is it not a fact that there are proprietary remedies that are regarded as ethical by the ASSOCIATION? *A.*—Well, now you are getting on ground, Mr. Hough, that is not comparable to the ground in reference to Wine of Cardui. Proprietary and patent medicines are, to my mind, somewhat distinct. Many proprietary remedies are prescribed by physicians. Many proprietary remedies are recognized and recommended by the AMERICAN MEDICAL ASSOCIATION. Patent medicines of a secret formula and which are advertised directly to the public, and which have no basis, except in fraud, are certainly not prescribed by ethical physicians or by members of the AMERICAN MEDICAL ASSOCIATION.

Q.—But I say there are proprietary remedies which are manufactured for the use of the physician to dispense on prescription, that are not attacked. That is a fact, isn't it? *A.*—These are perfectly ethical propositions. There are.

Q.—Now, the instant that some medicine is advertised to the public, then it becomes unethical and is attacked, isn't that the fact? *A.*—I don't think that is the basis of the attack of the AMERICAN MEDICAL ASSOCIATION. The attack of the AMERICAN MEDICAL ASSOCIATION, as I see it, is on the fraudulent side of the proposition.

Q.—I am asking you if what I said was not a fact? *A.*—I should say not, if I understand your question.

Q.—As an illustration then; as long as listerine was advertised to be sold only to doctors, it was an ethical preparation, was it not? *A.*—I could not answer that. I could answer if I may be allowed to explain, your Honor—

THE COURT:—Go ahead.

The Witness:—exactly what my position is. I do not know personally regarding listerine, but there are many preparations upon the market which have been used which were not attacked by the AMERICAN MEDICAL ASSOCIATION, because their composition was not known; many preparations in common use. There is bromo seltzer, orangine, headache powders of various types which have been used and prescribed by physicians in times past simply because they knew that they produced certain results, as far as the headache went, but they did not know the composition of the drug. As soon as the composition of the drug was shown by an examination made in the laboratories of the AMERICAN MEDICAL ASSOCIATION, and propaganda instituted, physicians learned that those drugs contained remedies which were dangerous when used by the laity. Therefore certain propaganda were inaugurated against headache remedies and cures of that type. Now those remedies contain ethical substances, or substances that are potent and are used and prescribed by physicians. But the physician's attitude is that he does not wish to allow the laity to get these materials into their hands, because they are dangerous to use unless the physician is prescribing them and is on hand to watch the results.

Q.—So you mean to say that they have attacked even bromo seltzer? *A.*—I don't say that they did. I cannot recall whether they attacked bromo seltzer or not. I simply use that as an example of a product that might possibly be attacked as a preparation which contains a dangerous drug and one that perhaps should have been attacked, if it has not. I do not know that it has one way or the other.

Q.—Then the attitude is that anything that is advertised to be used by the individual, without the intervention of a doctor's prescription, is fraudulent.

Mr. T. J. Scofield:—We have not so far interposed an objection, but I object to this.

THE COURT:—I do not think that is a fair summary of the evidence of the witness. Let me see if I got it right: that is, a proprietary medicine contains potent drugs which might become harmful to the laity because they take it without knowledge of what might happen to them then the propaganda of the AMERICAN MEDICAL ASSOCIATION takes it up.

The Witness:—Takes it up and shows to the public and also to the physician the danger of using a drug which they do not know the action of, do not know the possible toxic effects of. It is not a question of whether it is potent or whether it is not potent in that connection. If a drug is potent, it has an action, but the propaganda especially of the AMERICAN MEDICAL ASSOCIATION, as I understand it (and I am not a member of any of the Committees and not associated in any way, but am simply stating my understanding as an outsider) the propaganda of the AMERICAN MEDICAL ASSOCIATION is directed toward the fraudulent patent medicine. Bromo seltzer is a patent medicine (I say that as an example), and may come under the head of a fraudulent patent medicine if it don't contain a potent drug. It claims to do certain things which it can do, but it also is a dangerous drug. Wine of Cardui, to my mind, is a fraudulent preparation because it claims to do things which it cannot do and therefore the propaganda of the AMERICAN MEDICAL ASSOCIATION is directed against preparations similar to Wine of Cardui. That is simply my position. I may be right or wrong.

Mr. Hough:—Of course, that opinion is necessarily an expert opinion. *A.*—Not at all. It is purely an opinion as a physician, and an opinion based upon my direct chemical examination resulting in not finding anything of value in any amount which would produce a result. It is not expert in any sense to my mind.

Q.—Well, that is a question for somebody else to decide. Now, coming back to the original question; the instant the manufacturers of listerine advertised their remedy to the consumer, it was then attacked as fraudulent, was it not? *A.*—I know nothing of the propaganda against listerine. I do not know whether it has ever been attacked or not.

Q.—You are familiar with the literature of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, are you not? *A.*—No, not in detail. I get THE JOURNAL each week, and I run through the articles if there are any there that I care to read, and if there are not, I put THE JOURNAL aside. I by no means read all the propaganda.

Q.—Have you ever seen any statements in THE JOURNAL to the effect that if the business in manufacturing and selling proprietary remedies that go to the consumer, can be wiped out, it will increase every doctor's income on an average of two thousand dollars a year? *A.*—I certainly never have seen any such statement; whether it is there or not I cannot say.

Q.—Have you ever seen anything in the literature along that line, indicating a purpose to destroy the business of self medication? *A.*—I have not. My opinion of the AMERICAN MEDICAL ASSOCIATION is entirely too high to lead me to believe that any such statement has ever been made by the AMERICAN MEDICAL ASSOCIATION.

Q.—And if you were shown that statement in THE JOURNAL, you would not believe it? *A.*—I should have to know how it got in there, and whether I had a certified copy or not.

Q.—Of THE JOURNAL? *A.*—Yes, sir.

Q.—You knew the attitude of the Propaganda Department with reference to this medicine at the time you were making the first investigation, didn't you? *A.*—I did.

Q.—And you had the view about proprietary medicines which you have just indicated, did you? *A.*—Yes, I had the view that fraudulent proprietary patent medicines are as I have expressed myself.

Q.—Now then, in that way, you started to make this investigation with a wholly impartial frame of mind? *A.*—I did absolutely, so far as the chemical examination went. If I should have found something there that was potent, I certainly would not say that it was not there.

Q.—You stated that you found a residuum of three per cent. or approximately that? *A.*—It is varied in different specimens.

Q.—Yet, as a matter of fact the proportion was nearer four per cent. than three, was it not? *A.*—In one specimen it was a trifle over three and a half per cent., and in others it was around 2.9. I never got any higher than 3.52.

Q.—Well, the difference between the two amounts was over 14 per cent., wasn't it? *A.*—It might have been. It varied slightly, yes.

Q.—Is that an immaterial matter in chemistry where there is a variation of 14 per cent.? *A.*—Those variations—when you get down to figures, you can get a variation of 50 per cent. to 75 per cent., and that does not mean much in small quantities such as that where you have already to start with, only three per cent.

Q.—Now, did you make your report as to the first analysis in writing, or by word of mouth. *A.*—To whom?

Q.—To whosoever gave it to you, to make an analysis, the sample? *A.*—The only report that I have ever made has been verbal. As far as I know, no written report did I ever make to anyone on this examination.

Q.—When a sample is given to a chemist to analyze, does he not usually make a written report? *A.*—That is the custom. It depends on the situation and the conditions confronting him in the examination.

Q.—Have you any notes with you of the report that you did make. *A.*—No. I have some notes jotted down, of figures that I found at the time.

Q.—Well, would the oral report that you made differ in any respect whatever from the chemist's report which was printed in the first article April 11, 1914, and repeated in the second article of the JOURNAL of the AMERICAN MEDICAL ASSOCIATION for July 18, 1914? *A.*—I cannot recall the exact wording of the chemist's report. My impression is that the differences, if any, were inconsequential, and that the principal points mentioned in these articles were confirming the figures that I found, were practically the same as those reported. If any variations, they were inconsequential variations in small amounts of the substances which were reported in THE JOURNAL and which I might have varying figures for. But as I explained on my direct examination, these figures were variable figures.

Q.—I call your attention to the chemist's report printed in that article for the purpose of trying to identify and specify your own report. Now, will you state whether in any particular there was a difference between your report and that report; and if there was a difference, indicate it?

Mr. T. J. Scofield:—I suggest that whether or not there is any difference is a question for the jury; they have the chemist's report, and they have his evidence.

THE COURT:—That report is already in evidence.

Mr. Hough:—Yes, but I want his report. I want to get his report or identify it in some way. He said it was not in writing. If he says that is the same as his, all right.

THE COURT:—He has already given his, and the jury has heard it.

Mr. Hough:—It was not a complete report as I understand it.

THE COURT:—However, this answer will probably be of benefit to the jury.

Mr. T. J. Scofield:—Well, we are not objecting to it.

The Witness: A.—It agreed in all essential details with this report. (Referring to the report printed in THE JOURNAL.)

Mr. Hough: Q.—Now then, are you willing to state on your reputation as a chemist, that any chemist from that report alone (without any suggestion from the name itself) could testify as to the drugs from which that medicine was made?

Mr. T. J. Scofield:—That question is objected to. "On his reputation as a chemist"—

THE COURT:—Yes, I think the best way to put the question is to let Dr. Webster do it. He does not know what other chemists could do. Could Dr. Webster do it, that is the question.

Mr. Hough:—There are certain things that are matters of common general knowledge among chemists.

THE COURT:—Then frame your question that way. What you are asking him is as to the state of mind of capacity of some other chemists, and what they could do.

To which ruling of the court the plaintiffs, etc., excepted.

Mr. Hough:—If you had known nothing about the attitude of the AMERICAN MEDICAL ASSOCIATION, and you have no suggestion from the name (which is something that a chemist is not supposed to act upon, as I understand it) could you say from that report what ingredients, what the ingredients were that constituted that medicine.

Mr. T. J. Scofield:—That is objected to. He is putting to the doctor a question as to whether or not a certain thing could be done, under conditions that did not exist. For instance, if there was no suggestion from the name or if he had no knowledge of this proceeding that has been started here, could he then have done this and that?

THE COURT:—I think he may ask the doctor if the solution had been given to him in a bottle without a label on it, whether he would have then dealt with the compound and felt competent to have reached this same result or not.

Mr. Hough:—I don't mean the same result, so far as this report is concerned, but the inference from the report where he says that he had a knowledge of all those other things, which as I understand is not something to be taken into consideration by a chemist. Let me lead up to this in a different way.

HOW THE CHEMIST WORKS

Q.—A chemist, when a sample is submitted for analysis, relies not only upon his methods of determining quantitative results, but qualitative results as well; isn't that so? *A.*—I cannot answer that yes or no without going into an explanation of exactly what the chemist does, Mr. Hough, or what his view is regarding the examination.

Q.—He is also entitled, as a chemical question, to use organic tests, as for instance, taste and sight and smell, in determining what an ingredient is. That is permissible to a chemist, isn't it? *A.*—My answer to your question, Mr. Hough, would necessitate a little explanation, and that explanation is this: no chemist would attempt an examination of a drug or a preparation without finding out all he could about the preparation before he started the examination. If he was given a bottle of medicine, he would ask the person who gave it to him, "For what is it used? What do you think is in there? What is your idea about this medicine? What does it do to you when you take it?" He would get all those facts in the first place. If he did not have some such basis upon which to work, it is probable that he never would be in a position to absolutely determine the composition of a medicine, in months or years.

Q.—Then you mean to say that, if a medicine is given to you and you are told by someone in whom you have confidence, that this medicine is absolutely worthless, you find nothing in it that is of value? *A.*—No, by no means. If somebody tells me that a medicine is worthless and I find it loaded with strychnin, I would not consider it worthless. It makes no difference what a person tells me, but if a person tells me that this medicine is used for rheumatism and they have no idea what is in it, as a chemist I try to find out what drugs might possibly be efficacious in rheumatism, and I think of those drugs and I examine the specimen for the presence of those drugs and if I find them I so state; and if I do not find them, I say that no drugs of that type are present. There may be other drugs there.

Q.—Do you mean to say that what a person tells you about a drug plays some part in the conclusion you reach? *A.*—Not in the conclusion I reach, but in the work which I do. For instance, there are hundreds of drugs in the pharmacopeia and there are hundreds of drugs known—

Q.—You mean that it directs your attention to the particular methods to employ and shortens your labor? *A.*—It shortens my labor and shortens the search for the drug.

Q.—You don't think that so far as you are concerned, anything said about a medicine would affect your conclusion, as to whether it was potent or not? *A.*—Not the conclusion *a priori* on the subject of Wine of Cardui. The question was, what is to be found in Wine of Cardui? And I started out with the proposition of what was to be found in Wine of Cardui, what was present; to find that if I could find it or in any way determine it, to find what was present, or what really was there. I had no desire to find nothing there, and if there had been something there, I certainly should have stated it if I should have found it.

Q.—You read the articles in THE JOURNAL a long time before you did this work, did you not? *A.*—Yes, I read the articles in THE JOURNAL.

Q.—Your mind was made up on the subject, after you read THE JOURNAL, your mind was made up then that Cardui was worthless? *A.*—No. I have had occasion under one or two conditions to be opposed to the findings of the AMERICAN MEDICAL ASSOCIATION, that is, on the examination of drugs. I do not agree with them on all propositions.

Q.—Have you disagreed with them with reference to anything which they have said in the propaganda in these general attacks? *A.*—Not in the general attacks, it is simply a question of some medicines which I have happened to examine, in which varying results have been obtained.

Q.—Wherever there has been an attack on medicine in their written articles, that settled it, so far as you were concerned? You were satisfied that they were right in their conclusions. *A.*—Not absolutely. I know the men who do the work, and I have every confidence that the men who do the work are perfectly competent and perfectly fair in doing it, and I start perhaps with the idea that their work is exact and correct. If I find it not to be, however, I don't hesitate to say so.

Q.—Now then, you say that from that analysis alone, you could say that the drug was made, or the medicine was made from carduus benedictus and viburnum prunifolium. In other words, the analysis excludes any other drug? *A.*—No, I do not make that statement. I never have made that statement from that analysis as you put it to me.

Q.—You said something about the drug not being in a standard work, as I recall, and that the United States Dispensatory was not a standard work. Did you mean that? *A.*—Well, I certainly mean that if you refer to the fact that the United States Dispensatory has anything to do, anything whatever to do with fixing standards. I don't mean that it is not a book that is well known and well used. It is standard in that sense, but from the viewpoint of standard-fixing, having anything to do with saying whether or not it is a standard drug, I say absolutely that the United States Dispensatory or any other dispensatory is not a standard.

Q.—That was not the question that I asked you. I meant whether it was a credible medical work. *A.*—That was not the way in which I answered the question.

Q.—That is the way I meant to ask you. Will you answer it in that way? It is a credible medical work, isn't it? *A.*—It is credible in certain portions and very uncredible in certain other portions.

Q.—Depending upon whether you agree with the conclusions of those who complied with it, or disagree? *A.*—Not the question of whether I agree or disagree, but the question of the statements being correct or false.

Q.—What is the significance of a drug being named in the United States Dispensatory? *A.*—Nothing at all.

Q.—It don't mean anything? *A.*—Not a thing.

Q.—It means that it is worthless? *A.*—Not necessarily.

Q.—Does it mean that in their opinion, it is beneficial? *A.*—Not necessarily.

Q.—What is the significance of a drug being named in the pharmacopeia or the National Formulary? *A.*—That is something different. A drug named in the United States Dispensatory, or named in the United States Pharmacopeia or National Formulary, rather, means that those drugs are at that time accepted as drugs which may be used under certain conditions when they are indicated therapeutically. Now, there are many drugs in the United States Pharmacopeia, many prep-

arations in the National Formulary that should not be there and unquestionably these drugs will be eliminated in gradually following editions of the Formulary and of the United States Dispensatory. Every edition of the United States Dispensatory changes. Drugs are omitted that were in the previous editions.

Mr. T. J. Scofield:—You mean the Pharmacopeia?

The Witness:—In the Pharmacopeia, yes. Drugs are dropped which were in the previous edition.

Mr. Hough: Q.—But, it means that at the time they were put in, it was the consensus of those people that those were valuable drugs. *A.*—No, not absolutely.

Q.—Would they put something in the Pharmacopeia that everybody thought was worthless? *A.*—There are many things that have been in pharmacopeias that everybody thinks worthless, but they have not taken special pains to take them out, but later it will get out. There is always a division of opinion on the question of drugs that go into the Pharmacopeia. I have never been in any Committees connected with the Pharmacopeia and I know nothing about the methods which they follow in deciding as to what drugs shall be presented. But I do know that there are many things that are taken out of the Pharmacopeias and many drugs that are present in the Pharmacopeias that could just as well be out.

Q.—They are used as a basis of teaching to the students of medicine, what drugs are medicinal and how they shall be used. *A.*—In a general way they are used as a basis, yes.

Q.—So that in a general way, when a drug is in the Pharmacopeia anyone is justified in believing that it is a meritorious drug, until proven to the contrary? *A.*—Yes, if used in dosages as, and when indicated, which the Pharmacopeia does not attempt to outline. The pharmacopeia has nothing whatever to do with indications or therapeutics and so on. They have simply the question of drugs that may be used by physicians or which have been used in times past, and the dose, the average dose for the adult is stated. Now, one physician may use a drug that is in the Pharmacopeia, and use it erroneously, when there is no indication whatever. Others may use it and get results. So the thing goes.

Q.—Now you know, of course, that carduus benedictus is official in all of the European pharmacopeias today, don't you? *A.*—I know nothing about the foreign pharmacopeias. I am not interested in that phase of it.

Q.—You know that it is official in the eclectic pharmacopeia of this country, don't you? *A.*—I know nothing about eclecticism.

Q.—You know that it is official in the homeopathic pharmacopeias in this country, don't you? *A.*—I do not. I am not familiar with the homeopathic pharmacopeia, if there is such a book.

Q.—You mean that you don't pay any attention to any literature of any of the other schools? *A.*—Oh, yes, yes.

Q.—You are an allopath, are you? *A.*—I do not know what you mean by allopath.

Q.—I beg your pardon. I believe you do know what I mean. You call yourself "Regular," you prefer to call yourself "Regular." *A.*—That is a term that is applied. It don't mean anything especially at the present time. Physicians practice—if you want to use the word, and I simply use the word in deference to your question—one may become or use medicine in an allopathic form or in a homeopathic form; and you find men, homeopathic physicians, so-called, that practice regular medicine and we find regular physicians that use homeopathy. It is a dividing line that is rather hard to draw.

Q.—You mean that the two schools are coming closer together all the time? *A.*—In certain ways they are. Their principles are somewhat different so far as therapeutics go.

CROSS-EXAMINATION AS TO EFFECTS OF CARDUI ON WITNESS

Q.—Now, when you tested Wine of Cardui for its emetic principles, had you prepared yourself or your stomach in any way before you did that? *A.*—Well, I don't know. I would like to know how one might do it. I will say, no.

Q.—Well, it is a fact that there are many emetics that will act on some stomachs and not on others, isn't it? *A.*—Well, I think most drugs that are called emetics will produce emesis in most any individual, if given in sufficient amounts.

Q.—When did you take the first dose, immediately after breakfast? *A.*—No, the first half bottle that I took of that was somewhere along about 9:30. I do not know that I remember the time, sometime in the middle of the morning.

Q.—Had you had a light breakfast or a heavy breakfast? *A.*—Well, personally, I would call it a moderate breakfast.

Q.—Do you recall what you had for breakfast? *A.*—I cannot remember what I had on that morning, no.

Q.—What would be your usual breakfast? *A.*—I might have had a cereal and bacon and eggs and toast and coffee, something of that sort.

Q.—Would that have a tendency to strengthen the stomach to resist emesis? *A.*—I do not think it is a question of strengthening the stomach to resist emesis. As a chemist I am not qualified to speak as to the mechanism of emesis, or the mechanism of emetic drugs. I will simply say, that to my knowledge the eating of breakfast would perhaps retard the effect, but would not obscure it.

Q.—Now, then, taken internally by you, that taking of it was both for the purpose of determining its emetic effect and for the purpose of determining its physiological action also, was it not? *A.*—Why, I was not going into the general physiological action of the preparation. I was attempting to find whether there was any noticeable effect, visible effect from Wine of Cardui that might be different from the effect from the same amount of alcohol.

Q.—When did you take the second dose? *A.*—That afternoon, about the middle of that afternoon, the same afternoon.

Q.—Did you eat dinner in the meantime? *A.*—Lunch, yes.

Q.—Now, then, how soon after that did you take the same amount of alcohol dilute or in water, diluted in water? *A.*—The next day.

Q.—Or rather diluted with water. How much alcohol was there? *A.*—Well, the bottle would correspond—if I remember correctly it is about an ounce and eight tenths, pretty nearly two ounces of alcohol.

THE COURT:—Doctor, I noticed in one of the newspapers that they quoted you as saying that that alcohol made you giddy. I don't recall that you so testified. Is that the fact?

A.—I did not testify to that yesterday, no. As a matter of fact, the amount of alcohol did not make me dizzy. It made my face flush; made me feel the usual effects of beer, or any alcoholic drink, that such a drink might produce. I do not remember that my tolerance was low enough to produce giddiness. I cannot recall whether it was or not.

Mr. Hough:—It did not make you drunk? *A.*—Well, I am not entering into the pharmacological action of alcohol because I do not know.

Q.—That is a physical fact, is it not? *A.*—I cannot answer your question as to whether it made me drunk without going into much detail. The question of drunkenness is one that is susceptible of a great deal of argument.

Q.—Did you stagger around after you took it? *A.*—Not at all.

Q.—Did you get dizzy? *A.*—No.

Q.—The amount of alcohol was twenty per cent. in what you took? *A.*—The amount in Wine of Cardui is 20 per cent., yes.

Q.—The amount with water would be 20 per cent? *A.*—I do not know if it was 20 per cent. I do not know the amount of alcohol, but I calculated it and added some water to it and took that amount of alcohol. I did not mean it to be exactly 20 per cent.

Q.—What is that? *A.*—I did not mean it to be exactly 20 per cent. I made it up approximately to about four ounces or four and a half ounces. A bottle of Wine of Cardui is approximately nine ounces as I recollect.

Q.—What I want to get at is the dilution. *A.*—It was approximately four and a half ounces, I did not measure it exactly.

Q.—You mean four and a half ounces of water? *A.*—Of water and alcohol; an ounce and eight tenths in the bottle, I think, would be about nine tenths of an ounce of alcohol to four and a half ounces of water or in four and half ounces of water, some such amount of alcohol as that.

Q.—What percentage would you say that was, what percentage of alcohol? *A.*—It is about 20 per cent.

Q.—When you took the Wine of Cardui dose, did it flush your face? *A.*—Yes.

Q.—Was there any burning sensation in the throat by the other, the water and alcohol alone? *A.*—Well, I won't say that there was a burning taste or sensation. There is a difference in the proposition, because you have a taste of a substance which is bitter; it is not a burning sensation, it is a bitter taste. I noticed no special disagreeable sensation. It was perfectly easy to take it.

Q.—It was a pleasant dose to take? *A.*—Well, if I was looking for a pleasant preparation to take, I should not have selected that, no.

Q.—Taking the first dose made you want to take the second dose in the afternoon, did it? *A.*—I don't know that it made me desire to take the second dose. It did not have any influence one way or the other. I had no feeling about the matter.

Q.—No repugnant feeling to taking the second dose at all? *A.*—No. I have taken many drugs and preparations known as non-alcoholic beers, such as "hop-foam," and "hop-cream," sold in various parts of this state and elsewhere, tasting a great deal worse than this preparation, Wine of Cardui.

Q.—Does it not depend a good deal on the stomach as to the effect of any dose, or any medicine, containing the alcohol? Does it not depend on the condition of the stomach and the character of the stomach? *A.*—As to the effect of the alcohol?

Q.—You stated that you observed no physiological effect other than that which was due to the alcohol alone. *A.*—I was trying to get your question, Mr. Hough, I do not understand the bearing of your question.

Q.—I do not know that it is necessary for you to understand the bearing of it. *A.*—Well, I do not understand your question directly.

Q.—When you took the first drink of Wine of Cardui in the form in which it comes in the bottle, you say you observed no other effect on yourself other than that which would be due to the alcohol alone. *A.*—Yes.

Q.—Suppose you had taken a dose of the fluid extract of ergot, would you have noticed any different effect than that due to the alcohol alone? *A.*—I do not imagine that I should have noticed much, except possibly in the pulse pressure and general effects of that kind.

Q.—Ergot contains more alcohol than there is in Wine of Cardui, a larger per cent., does it not? *A.*—What preparation?

Q.—The fluid extract, pharmacopeial. *A.*—Possibly the fluid extract contains more alcohol, but the dose of ergot——

Q.—I am not talking about the dose; I am talking about the percentage of alcohol. *A.*—I cannot answer your question, because as a chemist and physician the amount of alcohol would necessarily follow as to the dose. I would not take half a bottle of fluid extract of ergot.

Q.—Why? *A.*—I would expect to get, in a general way, results that I did not care for.

Q.—That is, it has more alcohol than the other? *A.*—No, I would have more ergot than I wanted.

Q.—How would the ergot act on you? *A.*—I say I am not a therapeutist, or I am not a practicing physician and I am not qualified

as to that. I simply say that I would have more ergot than I would care to take.

Q.—Ergot is supposed to act on the uterus, isn't it? *A.*—It is said to.

Q.—Would you expect it to act on you then, if you took it? *A.*—It has other effects that I would expect. It acts on the uterus through the circulation, and on the muscles.

Q.—If you took any remedy known as a uterine tonic, would you expect it to act on you, as far as the drug was concerned? *A.*—Well, as far as the action on the uterus was concerned I would not look for that effect.

Q.—Then don't you think that it would have been better if you had tried the medicine on a person who had a uterus? *A.*—Not if I wanted to determine the emetic and cathartic effect, and that was what I was interested in.

Q.—But you testified as to the other effect. Now, is it not a well-known fact, doctor, that a whiskey soaked stomach can take more of objectionable ingredients without affecting it, than a delicate stomach? *A.*—I think that is true, but I am not qualified as a whiskey soak.

Q.—Is it not a fact that whiskey soaks have been known to drink alcohol off of an anatomical specimen without nauseous effect at all? *A.*—I cannot say.

Q.—You never heard of that? *A.*—I do not know that I have, no. I have heard stories told.

Q.—Is it not a fact that morphin, for instance, if given to you in a sufficient dose would kill you? *A.*—I do not know whether it would or not. It would depend on whether I was a morphin fiend.

Q.—Then if you were a morphin fiend, you could take more than if you were not a morphin fiend? *A.*—Yes.

Q.—And if you were not a morphin fiend, you might take a lethal dose? *A.*—Yes.

Q.—But you can give many times a lethal dose to a dog, and he will lick his chops and ask for more? *A.*—It depends on whether you give many times more than the lethal dose for a dog.

Q.—I am talking about the lethal dose for a man. *A.*—I would not say that definitely; I don't believe it.

Q.—Have you ever made any tests to see how much would kill a dog? *A.*—I have never determined the lethal dose for a dog. I have given morphin to dogs many times. I do not know what the lethal dose is in that connection, but they may have more tolerance.

Q.—Is it not a fact that you can feed arsenic to hogs without any deleterious effect? *A.*—In certain amounts. You can do that same thing to a human.

Q.—In the same amount it would kill a human, won't it. *A.*—Possibly.

Q.—So it don't always follow that if a certain thing is taken by an individual, without any effects which might be attributed to the drug itself, that it would not have an effect on some other individual differently constituted, does it? *A.*—It does not follow absoutely, Mr. Hough, but it does follow that if you get the effects on the uterus in a woman, that you certainly get indirect effects, circulatory effects and so on, in a man, which could be noted and to indicate that certain effects were possible in a woman, if a man did not get those results, those effects would not be possible or apparent in a woman. There are certain circulatory effects and certain effects of a general nature which a man would have to get.

Q.—What test did you make to see whether there was any circulatory effect on you? *A.*—I took my pulse to see whether it varied, I found my pulse was slightly more rapid, but it did not vary any more from the alcohol than it did from the other. In other words, I could distinguish no effect on the circulation which was different. I would expect to get a variation in blood pressure. I did not take it, it is true, but I gathered from the pulse examination that there would be a very slight variation, if any, in the blood pressure. It might be slightly lower at times.

Q.—Now you stated that you found potassium nitrate in this. *A.*—Yes, I obtained qualitative results. I made no quantitative determination of this factor.

Q.—Would that of itself indicate the origin of it? *A.*—Oh, no. Potassium nitrate might come from any number of preparations or plants.

Q.—This has been referred to as "a weed." Do you know of any other weeds from which useful drugs come? *A.*—Weeds?

Q.—Yes. *A.*—The most of the pharmaceutical preparations are made from herbs and a weed is a herb in a way. Not off hand can I speak of any so-called common weeds. There are some.

Q.—Digitalis comes from foxglove, which is a weed, isn't it? *A.*—Digitalis is one of the preparations that is very widely used in medicine, yes.

Q.—And that comes from a weed also? *A.*—Yes.

Q.—Is it not a fact, doctor, that the term "wine" in medicated wines, refers to substances extracted and held in solution either in wine or dilute alcohol? *A.*—Not pharmaceutically speaking, and not as a standard medical preparation. Wine, medically speaking, is a preparation made from wine which contains the active principles of the drug, the active extractives of the drugs.

Q.—You would say it is not that made from dilute alcohol, that that could not be called a wine? *A.*—I should say not. I would have to know the reason for calling it "wine."

Q.—Is Cushny any authority on that point? *A.*—The fact that Cushny states that it is made from dilute alcohol would not change my opinion.

Q.—Cushny taught in the medical schools, did he not? *A.*—Yes. He is a professor in the University of London at the present time.

Q.—Is Dr. Howard A. Kelly of Johns Hopkins University any authority on the point? *A.*—I should say not, on the question of wine.

Q.—As to what is a medicated wine? *A.*—Not an especial authority. That is not the line of work upon which Dr. Kelly is spending his time.

Q.—You mean to say that if he should state that medical wines refer to the substances extracted by dilute alcohol, that he would not be telling what is correct? *A.*—Not in my opinion. That is the only way I can answer.

Q.—Are you alone in that opinion? *A.*—No, I have two or three followers.

Q.—Has that always been the view? *A.*—I cannot say as to that.

Q.—Is it not a fact that about 100 years ago, the London Pharmacopeia substituted an equal amount of alcohol on the ground of the irregularity in the amount of alcohol in wines, as a more reliable menstruum. *A.*—Possibly 100 years ago; but ten years ago, and more for all I know, the pharmacopeias and other standard works of the United States declared that a wine was a preparation made from wine as such and I have no reference whatever to pharmacopeias of 100 years ago, or 1,000 years ago.

Q.—Would there be any difference in a preparation made from wine, having a certain amount of alcohol, and the same preparation made from alcohol alone, of the same strength. *A.*—Yes.

Q.—What would be the difference? *A.*—One would be a wine and the other would be a pure alcoholic extract.

Q.—I am talking physiologically, or so far as the action of the drug is concerned. *A.*—That would be a question, whether there was any active principle in the wine.

Q.—Is there any active principle in the wine? *A.*—Not in Wine of Cardui.

Q.—In any wine that you know of, other than the alcohol? *A.*—Not any active therapeutic principle that I know of in wine, no.

Q.—Other than the alcohol? *A.*—Some wines may contain tannic acids, which would have certain effects.

Q.—You know that this is Cushny's statement, that a medicated wine is a solution of the active substance in wine or in dilute alcohol? *A.*—I know that Cushny makes such a statement.

Mr. T. J. Scofield:—That is objected to.

The Court:—He has answered it. He says now that Cushny has made such a statement.

Mr. Hough: Q.—And you know that statement has also been made by Dr. Howard Kelly? *A.*—No, I do not know that.

Q.—Did you say that there was or was not a volatile principle in carduus benedictus? *A.*—I said there was a volatile substance, I said nothing about a volatile principle.

Q.—In the process you use to reach the residuum you would naturally drive off that volatile substance or principle, whatever it was, wouldn't you? *A.*—Yes.

Q.—You heated it when you went through that process, didn't you? *A.*—Yes, in evaporating it, to drive off the alcohol and retain the solid residue I would.

Q.—Does not heating sometimes change the character of a drug or medicine? *A.*—Yes, heating may change it, depending on certain conditions, heating may change the composition of compounds.

The further hearing of the cause was then adjourned until 2 o'clock the same day.

March 29, Afternoon

The Court met pursuant to adjournment. Dr. Ralph W. Webster resumed the stand.

CROSS EXAMINATION RESUMED BY MR. HOUGH

Mr. Hough:—Just a few more questions, Doctor.

Q.—I see that I have asked you twice a question which I don't think you have answered yet; and this question may be answered yes or no. Do you know a medical book or work published between 1859 and 1910 which says that carduus benedictus is a worthless drug? *A.*—No; nor do I a book which says it is of any value.

Mr. Walker:—Wait a minute; I object to that. I move the last part of his answer be stricken out.

The Court:—Let it be stricken out.

Mr. Hough: Q.—Now, is alcohol a preservative? *A.*—Yes; under some conditions.

Q.—In all the cases in which it is used in the pharmacal preparations, is it used as a preservative? *A.*—No.

Q.—In what case is it not used as a preservative, eliminating what you may refer to as the wines? *A.*—The tinctures and the fluid extracts. It is used to extract the principles of the drug. It has not any reference—not incidentally—to the preservative effect of alcohol. Fluid extracts and tinctures are prepared by extraction of the principles of the drug, with alcohol of one strength or another. It is not a question of preservation.

Q.—Then the alcohol is left in, in order to carry the drug that has been thus extracted; is it not? *A.*—Some of the principles are more soluble in alcohol than they are in pure water; some of the principles are soluble in alcohol of one concentration, and not in another.

Q.—I asked you whether or not the purpose of leaving the alcohol in the pharmaceutical drugs was not for the purpose of carrying the ingredients which had been extracted by the use of alcohol? *A.*—Yes; in the alcoholic preparations of the pharmacopeia.

Q.—And that also, in those cases, it does act as a preservative, doesn't it, a menstruum, and a preservative? *A.*—Yes; but primarily as a menstruum.

Q.—Now, I understand you to state that carduus benedictus is partly soluble in water; do you say that it is entirely soluble in water? *A.*—I said nothing about carduus benedictus. I was speaking of the residue from Wine of Cardui.

Q.—Well, you say that everything which is in Wine of Cardui, in the form in which it is sold, is soluble in water, as soluble as in

alcohol? *A.*—I don't say that everything is as soluble in water as in alcohol. I do say that in my experiments, practically the entire residue from the Wine of Cardui was soluble in water, after alcohol had been removed and the material evaporated to dryness, practically the entire amount of residue present, or the total solids, as I called it, in my examination, was soluble in water.

Q.—Now, could you state whether or not any of those residues were resinous? *A.*—Yes.

Q.—Are all resinous products soluble freely in water? *A.*—No.

Q.—Now, then you could not state with reference to anything which your process of reaching the residuum may have driven off, whether that other substance was soluble in water or not; could you? *A.*—No. May I explain my answer, Judge?

THE COURT:—Certainly.

The Witness:—The point shown by my examination is a point which has considerable bearing on the statement which I made regarding potency and activity of this principle of Wine of Cardui, and, therefore, it is necessary that I explain my answer.

Resins are ordinarily insoluble in water. If there had been any resins, any amount present in Wine of Cardui they would not have been soluble in water, and, therefore, it is a fact that whatever resinous principles of viburnum or cnicus benedictus, of a resinous nature, might have been present in the original preparation, they did not enter into the Wine of Cardui as such. There were no resinous products of any moment present in the Wine of Cardui, although they may have been present in the original plant. Otherwise, this residue would not have been soluble in water; and that is the reason which I have not previously brought out for my expression that there were no potent principles in Wine of Cardui; otherwise, there would have had to have been resinous materials present in sufficient amounts to have shown activity; and whatever there was present in the plant was not in the Wine of Cardui. It is not a question of what was in the cnicus benedictus, or viburnum; it is a question of what is in the Wine of Cardui.

Q.—Volatile oils have potent principles, haven't they? *A.*—Some of them.

Q.—You did not examine the volatile oils that were in the Wine of Cardui, did you? *A.*—I did not.

Q.—So you could not say as to that, whether it would have added to the potency or not, could you? *A.*—Yes, because I took some of it in which the volatile oil—assuming that it was there—was present.

Q.—Well, I assume that you stated the fact that you did not have a uterus might have made some difference as to that? *A.*—Only on certain phases of the reputed action.

Q.—In the determination of the alcohol in the Wine of Cardui, did you observe that the distillate became turbid when you reduced it to mark? *A.*—I cannot say definitely about that. My opinion is that there was a slight opalescence; but it was not very marked, in my remembrance. I could not say definitely.

Q.—And you think it would make no difference in the determination of what was present? *A.*—No—well, I think the slight opalescence, if any was present, would not have been due to the presence of anything in the nature of a volatile oil; because this would have been soluble, to an extent that it was present in the alcohol that was driven off.

Q.—Now, do I understand you to say that the definition of medicated wines is solely a matter of opinion? *A.*—No. It is a matter of a standard of generally recognized works on pharmacy; and it is a recognized principle in pharmacopeia that all wines—

Q.—In Cushny's work on Pharmacology and Pharmacy—is that a recognized standard work? *A.*—Not on pharmacy, no.

Q.—It is on pharmacology? *A.*—Yes. I would consider it such.

Q.—Would you say, if he states—I refer to Cushny on Pharmacology or Therapeutics or the action of drugs; would you say, if he states, with reference to medicated wines, that it is a drug extracted by dilute alcohol alone, that you would not regard that as anything more than a matter of opinion? *A.*—I would say that it had no basis in fact. It is a statement of Cushny's and not a statement based on any authorities.

Q.—No matter what the London Committee on Pharmacopeia did, one hundred years ago? *A.*—No, I would not consider that was binding at the present time. You know, changes are made, many changes, in the pharmacopeia, every ten years.

Q.—But as to the pharmacopeia, as it exists now? *A.*—I would say it had no reference to that made 100 years ago, at the present time.

Q.—But if it continued to this day? *A.*—Well, I know nothing—as I said in answer to one of the other questions—regarding the pharmacopeias of other countries.

Q.—Would it have any effect on your opinion? *A.*—Not as regards the standards in the United States.

Q.—And you think the standard in England might be different from the standard in the United States? *A.*—It is; in certain strength of drugs anything that indirectly—

Q.—I mean as to what would be medicated wine? *A.*—Yes. Standards for the United States are different from—may be different from those of England and France and Germany. It has no bearing on the preparations in this county.

Q.—I am not talking about anything that is official; the question is with reference to whether—if the words were descriptive, whether they would be a proper description? *A.*—I should say not for the United States.

Q.—You say no—not for the United States? *A.*—No.

Q.—But it might be for England or Germany? *A.*—Or where that pharmacopeia was accepted as standard.

Q.—Now, your view is the same with reference to the definition of the word mawkish; it makes no difference what the dictionary says mawkish means, if it says it means nauseous—it is simply a question of opinion, as between you and the dictionary; is that the idea? *A.*—No, no—

Mr. T. J. Scofield:—Wait a minute, if the Court please. He explained that yesterday.

THE COURT:—Yes. He explained what he meant by "mawkish."

Mr. T. J. Scofield:—And the sense in which he used the word.

Mr. Haugh: Q.—The word "mawkish" is defined as meaning—

THE COURT:—The witness told you what meaning he thought it had and the meaning he used in his examination. In other words, he gave his own definition and used it in that sense.

Mr. Hough:—That is all.

RE-DIRECT EXAMINATION BY MR. SCOFIELD

Q.—Doctor, in your examination in chief, and I think also in your cross-examination, you have sometimes used the words "viburnum prunifolium," and sometimes "viburnum"; when you use the word "viburnum," to what did you refer? *A.*—Viburnum prunifolium.

Q.—So that in the instances where you have used the word "viburnum" alone, you mean "viburnum prunifolium"? *A.*—Yes, sir.

Q.—As to idiosyncrasies, doctor, towards nausea; have you any such thing as that? *A.*—No, I have not. If I have any idiosyncrasy it is rather a marked susceptibility for certain drugs producing nausea rather more easily than it would normally.

Q.—Doctor, in your direct examination, in speaking of valerian acid, and the source from which it may come, did you mean to say—did you or did you not mean to say that valerianic acid is contained in cnicus benedictus, or cnicin? *A.*—No. I meant to say—if I did say that it was present in these preparations, I am in error; because there is no valerianic acid in cnicus, or cnicus benedictus.

Q.—Now, in speaking of solubility of cnicin, what is the fact, as to whether or not cnicin is, in its absolute and pure state, soluble or insoluble in ether? *A.*—It is stated to be insoluble in ether, in absolutely pure condition—difficultly soluble—nothing is absolutely insoluble in certain menstruums.

Q.—Then, if in answer to that question yesterday you said "soluble" you did not mean to say that; is that the idea? You mean to say insoluble or soluble? *A.*—If you refer to a statement made regarding cnicin being insoluble in ether under the conditions of the test, it might be rendered soluble by the presence of other conditions. I meant that it was insoluble in ether. I do not know what the point is involved.

Mr. T. J. Scofield:—That is all, Doctor.

Mr. Hough:—That is all, Doctor.

Mr. T. J. Scofield:—Dr. Hilpert.

TESTIMONY OF DR. HILPERT

Dr. Willis S. Hilpert was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. Willis S. Hilpert stated he is a chemist; he received the degree of Bachelor of Science in the University of Chicago in 1903, and the degree of Doctor of Philosophy in the same institution in 1906, studying in chemistry. He is at present connected with the Miner Laboratories. Previous to Jan. 1, 1916, he had been connected with the Laboratory of the American Medical Association. He analyzed four specimens of Wine of Cardui, which he purchased on the open market and then mixed. He described his work saying:

I took the four bottles of the Wine of Cardui, thoroughly mixed them, and shook up each bottle, so as to get all suspended matter uniformly distributed. Then I carefully mixed the contents of the four bottles, and then used that mixture as the basis of the analysis. I determined the mixture—I found the Wine of Cardui to be a brown liquid, having an odor—a slight odor of valerian, an alcoholic odor and a bitter taste. I determined the alcoholic content and found it to be about twenty per cent. I determined the total solids and found them to be about three per cent.—slightly less, I believe.

I tested for such potent substances as mercury, arsenic, copper, zinc, antimony and such; and alkaloids, such as morphin, strychnin, cocain, quinin, and found none of these present. I tested for emetic drugs, such as ipecac, tartar emetic or—tobacco—and found none present. I tested for such substances as iodids and bromids, and found none present.

I tested for substances such as tartaric succinates and glycerin, which would be present if this substance had been made from wine; and found none of them present.

I found small traces of iron, calcium, magnesium, sodium and potassium.

I determined the total nitrogen contained, and found it to be .46 per cent. of the entire—.46 drams per 100 c.c., or practically three ounces.

To sum up: I found no potent substances; by potent I mean any substance having marked physiological action; other than alcohol.

Mr. Walker:—I want to make an objection to that, and move that it be stricken out, upon the ground that whether a thing is potent, is a therapeutic question and not a chemical question.

The Court:—That may be stricken out.

To which ruling of the Court the defendants, etc., excepted.

Dr. Hilpert also testified that he tested for the so-called emodin bearing drugs, and found none present. He took five tablespoonfuls of Wine of Cardui at one time.

Evidence was interrupted through objection of the attorneys for the plaintiff on the same grounds as in the case of Dr. Webster. The Court overruled the objection and the usual exception was taken.

Dr. Hilpert then answered:

In taking the five doses of Wine of Cardui, I noticed the bitter taste and the burning sensation of the alcohol—the alcohol—or a burning sensation in my mouth and throat; later in the region of the stomach; and later a slight flushing of the face.

Under the same conditions and the same time of day, on the following day, I took the same quantity of alcohol in water, containing the same amount of alcohol as was present in the Wine of Cardui. I found the same—I experienced the same sensations in every respect, excepting that in the case of the alcohol water mixture, the burning sensation in the mouth was probably a little more pronounced; while in the case of the Wine of Cardui, there was the added bitter taste.

The Court:—You did not get the bitter taste from the watered alcohol?

The Witness:—No, sir, no, your Honor.

Mr. T. J. Scofield: *Q.*—Now, did it produce emesis? Did you vomit, or were you sick?

Objection was then taken to the introduction of such evidence and was overruled. The witness answered:

A.—I experienced no other sensations than those I described — no nausea.

Q.—Was there any cathartic effect?

The Court:—He said he experienced no other sensations than those he has described; he has told us those.

Mr. T. J. Scofield:—I understood that, Your Honor.

Q.—Now, did you take Wine of Cardui de-alcoholized? *A.*—Yes, sir.

Mr. Walker:—Wait a minute; I object to that. I wish to renew my objection as to the cathartic.

The Court:—Yes.

Mr. Walker:—Because neither the cathartic or emetic is set up in the plea, or special plea.

The Court:—There is no answer. You may strike out any reference to emetic or cathartic in the testimony of this witness. He has told us all the sensations that happened to him, and said there were no others.

Mr. T. J. Scofield:—All right, Your Honor.

Q.—Did you take any Wine of Cardui after alcohol had been evaporated? *A.*—Yes, sir.

Q.—What was it that you took, the— *A.*—I took Wine of Cardui, five doses again—the same amount—from which the alcohol had been evaporated.

Q.—What effect, if any, did it produce? *A.*—None whatever.

The Court:—How did it taste?

The Witness:—Bitter.

Mr. T. J. Scofield: *Q.*—After you had driven off the alcohol, did you find that that which remained, or the residuum was soluble in water, or otherwise? *A.*—Practically all soluble, all except a very small sediment —very small.

Mr. T. J. Scofield:—That is all, if the Court please.

CROSS-EXAMINATION BY MR. WALKER

On cross-examination the witness testified that he first tested to find mercury, arsenic, copper, antimony and zinc. He then tested for alkaloids, morphin, strychnin, quinin and cocain. He then testified that he sought the emodin bearing drugs and found none. He was then asked:

Mr. Walker:—Now, Doctor, will you be kind enough to tell the jury what you did find— *A.*—I found—

Q.—in your test? You understand, as distinguished from what you did not find? *A.*—Yes, sir. I found twenty per cent. alcohol; 2.88 per cent. solid residue, and 0.68 per cent. of ash—the entire substance evaporated down and ashed, burnt up, left that amount of residue. I found some slight amount of suspended matter.

Q.—Well, what do you mean by suspended matter? *A.*—Matter not in solution.

Q.—Anything else? *A.*—Water, and the slight odor of valerian-like substance.

Q.—How did you get at the 2½ per cent. of residue? *A.*—2.88 per cent. residue.

Q.—Well, whatever it was. How did you get at that? How did you find it—how did you get to it? *A.*—Took a definite measured amount of Wine of Cardui.

Q.—How much did you take? *A.*—I think 25 c.c., cubic centimeters; not quite an ounce; evaporated it to dryness in a weighed dish and weighed the residue.

Q.—When you evaporated it, that would release all the volatile oils, wouldn't it, and all the volatile substances? *A.*—Yes, sir, those that would be volatile at that temperature, yes.

Q.—Well, what temperature did you use? *A.*—Between 90 and 100 centigrades, or a little below the temperature of boiling water.

Q.—Now, what volatile oils would be left, if any, on this fluid, with the use of that temperature? *A.*—Well, it would depend on how long the process of evaporation had been continued.

Q.—Well, you know how long you continued your process; I am talking about this—at the temperature in which you operated? *A.*—None that I can think of now would be left.

Q.—Now, take the residue. Could you tell what that was? *A.*—I did not examine it in detail.

Q.—Well, do you want the jury to understand now that from your examination, whether in detail or otherwise, you could tell what it was. *A.*—As far as my analysis goes, it appeared to be extracted matter, organic in nature, which could be destroyed by heat; largely soluble in water, and containing none of the substances which I have enumerated.

Q.—Which you found were not there? *A.*—Yes, sir.

Q.—Now, Doctor, I understand that you took some—made some experiment on yourself? *A.*—Yes, sir.

The witness was again asked concerning the securing of the Wine of Cardui which he tested and as to his methods. He testified that the taste was bitter. He was asked:

Q.—How long did the taste stay in your mouth? I mean that you took with the tablespoonsful—when you took five tablespoonsful; how many hours did the taste remain? *A.*—Why, as far as I remember, I took it and forgot it, as far as the taste was concerned.

Q.—You have no lack of sensibility of taste; have you? *A.*—Not that I am aware of.

Q.—You say you took four tablespoonsful and lost sight of the taste, and you cannot tell me at what time the taste disappeared?

Mr. T. J. Scofield:—Five tablespoonsful.

Mr. Walker:—Five, was it? *A.*—Five, yes? No.

Q.—I suppose it would taste just as bad with five, as one; but I want to know how long that taste lasted, as you recall it? *A.*—I don't recall exactly how long—

Q.—All right. *A.*—but it did not last very long.

Q.—Now, do you have any recollection of whether the sediment that you found, the taste of that, lasted longer than the medicine, the bitter taste? *A.*—No.

Q.—Did you take your pulse before and after taking the medicine in the dosage? *A.*—I—

Q.—Did you? That is all I ask you—did you? *A.*—No.

Q.—Did you take your pulse before or after you took the sediment? *A.*—No, sir.

The Court:—Let me understand. Did you swallow this sediment, or spit it out, after you tasted it?

The Witness:—No; I swallowed it.

Mr. Walker: *Q.*—And you swallowed the liquid, too? *A.*—The whole business, yes.

Q.—And the liquid gave you a different sensation in the throat, as I understand you, than the alcohol that you took two days later? *A.*—There was a difference, yes.

Q.—Yes. Well, what was the difference? *A.*—The difference was this: in taking the straight alcohol, mixed with water, there was nothing else to impress my mind as to sensations; in taking the Wine of Cardui, there was the sensation of bitterness, which impressed me at the same time; and, probably the two coming together made the sensation of the alcohol seem less; that is, impressed me less.

Q.—That is, the sensation of the alcohol, when you took the medicine, impressed you less than when you took the straight alcohol? *A.*—Yes, sir.

Q.—Yes. But the most pronounced thing, when you took the medicine, was the bitterness of it, wasn't it? *A.*—No, I should say the both —both are very pronounced.

The Court:—When you say both, what do you mean?

The Witness:—The bitterness and the sensation of the alcohol. As I could—I experienced them simultaneously, as soon as I took the substance in my mouth—

Mr. Walker: *Q.*—Tell us what the sensations were you had, outside of the bitterness, please? *A.*—Burning in the mouth and throat; and later sensation of warmth in the region of the stomach.

Q.—Yes. *A.*—That is all; that is as far as the test—and later flushing of the face.

Q.—Hot water would do that, wouldn't it? *A.*—Not the same kind of burn.

Q.—This was a different burn? *A.*—Yes, sir.

Q.—When did you take the medicine? *A.*—Do you mean the exact date?

Q.—Oh, approximately; was it before you made the chemical experiment in November, 1915, or afterwards? *A.*—It was at the conclusion of the chemical work.

Q.—That is, you waited until you got the residue from your chemical test, and then you made both the experiment with the medicine, and then the— *A.*—With the alcohol.

Q.—and then with the sediment; is that right? *A.*—Yes, sir.

Q.—And then later with the alcohol? *A.*—Yes, sir.

Mr. Walker:—That is all.

RE-DIRECT EXAMINATION BY MR. T. J. SCOFIELD

The witness was asked whether he had ever heard the claim made that this preparation contained any other thing than alcohol.

Objection was made and sustained.

TESTIMONY OF DR. M'ABEE

Dr. William D. McAbee was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. William D. McAbee testified that he has been Assistant Chemist of the Indiana State Board of Health for seven years; attended the Case School of Applied Science at Cleveland, Ohio, 1906 and 1907. He tested samples of McElree's Wine of Cardui, purchased in the open market. The chemical examination agreed with those previously reported.

Objection was again made by the attorneys for the plaintiff to the introduction of testimony to the effects of Wine of Cardui on the male. Objections were overruled and the attorneys for the plaintiff excepted.

He took an entire bottle of Wine of Cardui during the morning and noticed that the face was flushed and there was perspiration.

The witness produced photographs of labels on six different bottles of Wine of Cardui purchased in the open market. These were introduced as exhibits. The witness promised to produce the original labels.

Mr. T. J. Scofield asked:

Q.—Now, Mr. McAbee, will you state the result of your second analysis. *A.*—I analyzed all of those together—that is, in a series, and at the same time—to detect whether or not there was any difference in the composition of the medicine which agreed in any way with the change of the label; and I found that in two of the samples there was no valerian odor—which was a distinct difference from the other; and also in one sample there was but fifteen per cent. alcohol, while the others contained approximately twenty. Those were the main differences.

The witness then identified the preparations containing the varying ingredients.

Mr. T. J. Scofield then asked:

Q.—Mr. McAbee, tell the jury whether or not alcohol is necessary for a solution of the residuum which you found on this analysis or any of the analyses? *A.*—It is not.

Q.—Did you find in any of the samples that you analyzed the presence of any wine? *A.*—No.

Q.—Tell the jury whether or not Wine of Cardui is a wine. *A.*—It is not.

Q.—Mr. McAbee, have you ever analyzed any samples of beer? *A.*—I have.

Q.—How many have you analyzed? *A.*—About 500.

Q.—Will you tell the amount of alcohol in beer by volume.

Mr. Walker:—Objected to.

THE COURT:—Well, in the beer that he examined.

Mr. T. J. Scofield:—Yes, that he analyzed.

Mr. Walker:—No, in any beer. The fact that they state, for instance, in the article, at some phase of it, that it contained in four doses, tablespoonfulls, as much alcohol as there would be in two thirds of a bottle of beer, is not a part of the attack in this case.

THE COURT:—You don't claim then that was libelous?

Mr. Hough:—No, it is a fact; it is not libelous.

Mr. Walker:—It is a fact.

Mr. Hough:—It is a fact, it is not libelous; but it is immaterial.

THE COURT:—Well, if they admit it is a fact, and make no claim that it makes a part of the libelous matter; you don't have to prove it.

Mr. T. J. Scofield:—No.

Q.—Now, Doctor, have you ever made an analysis of wine? *A.*—I have.

Q.—About how many samples of wine have you analyzed?

Mr. Walker:—That is objected to.

THE COURT:—This is merely a qualification, Mr. Walker.

Mr. T. J. Scofield: Q.—How many samples of wine have you analyzed? *A.*—About 100.

Q.—Will you tell the jury what the average per cent. of wine is alcohol, by volume. *A.*—About twelve—

Mr. Walker:—That is objected to. Wait a minute.

THE COURT:—Now, what is the statement here about wine?

Mr. Hough:—All we want to make is it is wholly immaterial how much alcohol there is in any wine; or in beer, or in—

Mr. Walker:—Whiskey—

Mr. Hough:—Or in any other substance whatever, or in any of the pharmacopeial preparations. What difference does it make to us, if he testifies that some of the pharmacopeial preparations contain 90 per cent. alcohol or only 10 per cent.; it has nothing to do with this case.

THE COURT:—This article contains some very plain facts, and statements of what purports to be facts. Some of those things were charged to be libelous. Now if a statement was made comparing this with wine, as to the amount of alcohol, and that statement is charged to be a part of the libelous matter, they are entitled to show whether that is true or not.

Mr. Hough:—We don't charge that as a part of the libelous matter, and they are not entitled to prove anything else that might be in the article other than the things that we charge to be libelous. That is the point.

Mr. T. J. Scofield:—Now I don't care to go ahead with these questions, your Honor. The same thing is true of whiskey. I am going to ask whether he ever analyzed whiskey to ascertain the quantity of alcohol by volume.

Q.—Have you ever analyzed whiskey for the purpose of ascertaining the amount of alcohol by volume?

Mr. Walker:—Now that is interesting and curious, but we object to it because it is immaterial, and we object for the same reason.

THE COURT:—He may answer.

The Witness: A.—I have.

Mr. T. J. Scofield: Q.—What did you find the average per cent. of alcohol in whiskey to be by volume?

Mr. Walker:—That is objected to. We are not making any claim—

THE COURT:—Well, as I recall it the article referred to this medicine as booze, or a tipple.

Mr. Loesch:—That is libel they charge.

THE COURT:—Just a minute, Mr. Loesch. That is what they charged to be libelous. I think under the circumstances this question is quite pertinent. He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

The Witness: A.—Fifty per cent.

Mr. T. J. Scofield: Q.—What is the equivalent of whiskey in a single dose of Wine of Cardui, as to alcohol content?

Mr. Walker:—Objected to.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

THE COURT:—That is, the dose, as I understand it, for the purpose of this trial, is one tablespoonful.

Mr. T. J. Scofield:—One tablespoonful.

Mr. Walker:—There is no use of repeating the reasons always for the objections. We have stated them once.

THE COURT:—No, this objection will be preserved in the record.

The Witness: A.—Very nearly one teaspoonful.

THE COURT:—Read the question and answer.

(Last question and answer read as follows:

"*Q.*—What is the equivalent of whiskey in a single dose of Wine of Cardui as to alcohol content? *A.*—Very nearly one teaspoonful.")

Mr. T. J. Scofield: Q.—What is the per cent. of alcohol in whiskey, you say?

Mr. Walker:—I object. He said fifty per cent.

Mr. T. J. Scofield: Q.—That is the average? *A.*—Average.

Q.—Now how does the alcohol in a dose of Wine of Cardui compare with the alcohol in a like amount of whiskey?

Mr. Walker:—That is objected to.

THE COURT:—Isn't that a question of mathematics?

Mr. Walker:—That is all it is your Honor. Twenty per cent. and fifty per cent.

THE COURT:—One is twenty per cent and the other is fifty per cent.

Mr. T. J. Scofield:—I think it is. That is all, Doctor.

CROSS-EXAMINATION BY MR. WALKER

The witness testified on cross examination as to the time he purchased and used the five bottles of Wine of Cardui. He also testified that he did not find cimicifuga, aletris, or caulophyllum. He again testified as to the contents of the six specimens.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

Q.—Dr. McAbee, do you desire to make any corrections in anything which you have said? *A.*—I do. I stated that one dose of Wine of Cardui was equivalent to very nearly a teaspoonful of whiskey. I should have said that it is equivalent to one and three-fifths teaspoonfuls of whiskey. Much more than one.

Mr. T. J. Scofield:—Anything else? Is that all, Doctor? *A.*—That is all.

Mr. T. J. Scofield then read in evidence the contents of the six photographs of labels produced by Dr. McAbee.

TESTIMONY OF DR. MILSPAUGH

Dr. Charles M. Milspaugh was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. Charles F. Milspaugh testified that he is head of the Department of Botany at the Field Museum and has held this position for twenty-two years. He identified two specimens: one as carduus benedictus, the other as marian-marianus.

Mr. T. J. Scofield asked:

Q.—Now, is that the plant—this last exhibit—that is sometimes called carduus marianus? *A.*—It is.

Q.—You are familiar with both of these plants, are you? *A.*—Both of the names, yes, sir; same plant.

Q.—Can you tell us in what respect these plants are related to each other botanically? *A.*—That is between benedictus and marianus?

Q.—Yes. *A.*—They are very closely related, both being thistle, and the same relationship that we would expect to find between wheat and oats for instance.

CROSS-EXAMINATION BY MR. HOUGH

Q.—Doctor, this is the seed of one, isn't it, this exhibit (the second) that is the seed? *A.*—That is the seed, yes, sir.

Q.—There are no seed in that, are there? (Apparently referring to the first exhibit.) *A.*—There may be in the heads. The flowering heads are there. They may be immature and not developed, or they may be mature.

Q.—Can you say how similar the seeds of this (apparently referring to the first exhibit) would be to the seeds of this (apparently referring to the second exhibit)? *A.*—This (apparently referring to the second exhibit) being marianus?

Q.—Yes. *A.*—And the other being benedictus?

Q.—Yes. *A.*—I can tell you from an observation of other specimens, yes, sir.

Q.—Well, I say, how similar would the seed of this be to the seed of this (referring to the two exhibits). *A.*—About the similarity that there is, as I say, between wheat and oats.

Q.—Between wheat and oats? *A.*—Yes, sir.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

On redirect examination Mr. Scofield asked the witness whether he has had experience as a botanist, from which he could derive knowledge as to the part of carduus marianus used in the preparation of drugs.

The witness answered that he had.

Objection was made.

The court then asked:

THE COURT:—Let us get at the source of his knowledge and then we will learn very quickly.

Mr. T. J. Scofield:—What is the source of your knowledge? *A.*—I am a physician and I have been a physician, and was educated as a physician and also I have been particularly engaged in the handling of all sorts of plant products for the last 22 years, or, in fact, really 40 years.

Q.—For what purpose? *A.*—For the purpose of distinguishing between the sources of products, such as drugs, gums, herbs, tans and dyes and everything of that character, all products of plants.

Q.—Are you able to say then whether or not in the manufacture of medicine, they use the seed or the stem or bark of the plant known as carduus benedictus, or carduus marianus? *A.*—In the case—

THE COURT:—Confine yourself to such medicines as you are familiar with, so that you are speaking to a question of fact.

The Witness: A.—In the case of marianus, the seed is used. You asked also in the case of benedictus?

Mr. Scofield:—Yes. *A.*—In that case, sometimes the whole herb, mostly the leaves and flowering head.

RECROSS-EXAMINATION BY MR. HOUGH

Mr. Hough asked the witness as to what he meant by "common use," which the witness defined. The examination continued:

Q.—For how long has it been used as a medicine? *A.*—You are speaking now of either one or both?

Q.—Either one or both. *A.*—Of either one or both. They have been used, I think, very probably since the time of Dioscorides.

Q.—You mean several hundred years? *A.*—Yes, sir.

Q.—And they were used for substantially the same thing? *A.*—No, I think not, if my memory serves me.

Q.—What? *A.*—If my memory serves me, they were not used for substantially the same thing, no.

Q.—What was each used for? *A.*—In the case of benedictus, the leaves and the flowering tops and so on, were mostly used as a light tonic.

Q.—As a uterine tonic? *A.*—Beg pardon?

Q.—As a uterine tonic? *A.*—No, I should not say uterine tonic from my knowledge.

Q.—Isn't that what your reading tells you on the subject? *A.*—No, not as I remember it.

Q.—What was the carduus marianus used for? *A.*—The carduus—the seeds of the carduus marianus—were used more particularly for female troubles.

Q.—Didn't the authorities state that they were both good for the same thing? *A.*—Not to my knowledge.

Q.—Have you ever made inquiry among the different pharmaceutical houses of the United States to see whether they make a fluid extract of carduus benedictus or not? *A.*—I have not.

Q.—Then upon what do you base your statement that those who use it as medicine, use the flower and stem? *A.*—Why, my knowledge of the history of drugs.

Q.—What is your knowledge based on? *A.*—On reading.

Q.—What have you read on that subject? *A.*—Well, I have read undoubtedly, although I cannot state absolutely now, the titles of all the works I have read in the course of the necessities of my work—probably most of the works from Dioscorides to the present day.

Q.—Do you mean to say that none of them recommend it as a uterine tonic? *A.*—I cannot say exactly what each one says. In my character of work we refer to books when we need information.

Q.—Would you say that none of them recommended carduus benedictus as a uterine tonic? *A.*—I cannot say.

Q.—But you do know that they recommend the other thistle as a uterine tonic? *A.*—The marianus?

Q.—The marianus. *A.*—Yes, sir. I do not say, a uterine tonic; I said in female troubles.

Q.—In female troubles? *A.*—And that had a very broad acceptation of the term in those days.

The further hearing of the cause was then adjourned until 10:30 o'clock the following day, March 30, 1916.

March 30, Morning

The court met pursuant to adjournment on March 30, 1916.

TESTIMONY OF DR. PAUL NICHOLAS LEECH

Dr. Paul Nicholas Leech was called as a witness on behalf of the defendant. He testified as follows:

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. Paul Nicholas Leech testified in reply to questions that he resided in Chicago, attended Miami University, graduating in 1910 with the degree of A.B., having specialized in chemistry. In the University of Chicago, he received the degree of Master of Sciences and Chemistry and the degree of Doctor of Philosophy in Chemistry. He has been employed as a chemist in the chemical laboratory of the AMERICAN MEDICAL ASSOCIATION since Oct. 6, 1913, doing analytical chemistry chiefly. He analyzed samples of McElree's Wine of Cardui which he received in the original cartons. He took four samples, mixed them well in their individual bottles and poured then into the fifth container in order to get a uniform sample. In reply to questions:

Q.—Go ahead and state results of the analysis which you made? *A.*—It had a valerian-like odor. I found alcohol to be present in the amount of 20 per cent. The solid residue varied in different samples, but the average was in the neighborhood of three per cent. The solid residue was composed mostly of organic matter and the ash—as in most organic matters, contained substances that are inflammable, carbon—just like when you burn wood, you get a residue in the ash, so that when you burn the residue from Wine of Cardui, you get an ash and this ash was .75 per cent. It contained minerals in very small quantities such as iron, potassium and soda. The amount of calcium was .75 of one per cent. The amount of sodium calculated as sodium carbonate was .24. I tested for tartrates; none were present, indicating an absence of wine. Emodin bearing drugs were not present. I tested for alkaloids and found no alkaloids. This would exclude the presence of a considerable number of potent drugs, such alkaloids as strychnin, hydrastinin, quinin, emodin, etc. I found that the volatile matter present was equivalent to four one thousandths of one per cent., in other words, 0.004 per cent. This volatile matter—that is the amount of volatile matter otherwise than steam or alcohol.

Q.—Did you determine the amount of alcohol? *A.*—The amount of alcohol was about 20 per cent.

Q.—Did you determine the amount of water? *A.*—I did not determine the amount of water.

Q.—Did you make a determination of the percentage of iron which was present? *A.*—The amount of iron in Wine of Cardui was six ten thousandths of one per cent. or 0.0006 per cent.

Q.—Is alcohol necessary for the solution of the residuum which was found? *A.*—It is not.

Q.—Now, in the examination which you made, did you find anything which is characteristic of cnicin? *A.*—I did. A yellow amorphous substance was obtained from Wine of Cardui after Wine of Cardui had been subjected to such treatment as the evaporation of the alcohol and shaking with ether and the ether portion was taken off, the ether evaporated and the residue left. Upon treating an

extract of Carduus benedictus made in the same manner, one obtains a like identical residue. This residue has been described here as cnicin.

Q.—Did you take any Wine of Cardui yourself, either before the alcohol was evaporated off or after it had been evaporated off? *A.*—I took four doses. A dose of Wine of Cardui, as it appears on the label is one tablespoonful which is approximately the equivalent of four teaspoonsful. I took four doses which would be equivalent to 16 teaspoonsful of Wine of Cardui in one dose.

Mr. T. J. Scofield then asked the witness:

Q.—After you had taken the Wine of Cardui, what effect followed, so far as you noticed upon yourself?

Objection was then made to use of the word "effect" and it was eliminated.

Attorneys for the plaintiffs also objected to questions regarding action of Wine of Cardui on the male, claiming that such evidence was not admissible because:

"that is not the way it is prescribed, or the dosage that is recommended and the effect of drinking it by a half bottle, by a man, is also not in this case, because the charge is here that it is in vogue among women who take their booze in the nature of patent medicine, and the application of it to a man or to his organs and as to its effect on him has no part in this case under the pleadings."

THE COURT:—This is the same question we had up yesterday, and it is not necessary for the court to reiterate his reasons for overruling the objection. You may answer, Doctor.

To which ruling of the court the plaintiffs, etc., excepted.

A.—There was a warming sensation in the region of my stomach; I had a flush in the face and what I should be pleased to term a headiness.

THE COURT:—A what? *A.*—A headiness, a fullness in the head; not quite dizzy but nevertheless bordering on to what I would call dizziness.

Mr. T. J. Scofield:—Was it a difficult thing to take, Doctor? *A.*—It was not so very difficult a thing to take.

THE COURT: *Q.*—Did you like it? *A.*—I did not like it, but I do not like alcohol in any form.

Mr. T. J. Scofield: Q.—Doctor, did you take any pure alcohol? *A.*—I did take pure alcohol. I took an equivalent quantity of pure alcohol, four tablespoonsful, 64 c.c. of 20 per cent. alcohol.

Q.—What did you notice, so far as you yourself was concerned after you took it, if anything? *A.*—Practically the same—I noticed practically the same feelings as I described with Wine of Cardui, except I had a little more difficulty in taking the alcohol than the Wine of Cardui.

THE COURT: *Q.*—What space of time elapsed between the time you took the Wine of Cardui and the taking of the alcohol? *A.*—Probably two or three days.

Mr. T. J. Scofield: Q.—Now, Doctor, did you make more than one analysis of Wine of Cardui? *A.*—I did not make more than one rather complete analysis of Wine of Cardui. I did make more than one analysis when it came to determining the substance of the ash, determination as to the residue, the ash, etc.

Q.—When did you make the analysis that you now have described or told us of? *A.*—Between February and May, 1915.

Q.—Last year? *A.*—Yes, sir.

Q.—Now, having torn down Wine of Cardui and separated it into its parts, did you at any time undertake to build Wine of Cardui up? *A.*—Yes, I did, over quite a considerable period.

Q.—When? *A.*—I made various preparations by using carduus benedictus and viburnum prunifolium in varying amounts, making them according to various different methods, such as an infusion and in alcohol, afterward percolating with 20 per cent. alcohol—in fact, I made a great number. I might say that all during this time I more nearly approached a substance identical with Wine of Cardui. Finally I did get a substance identical with Wine of Cardui by taking about 12 per cent. of carduus benedictus, unchopped, and about 1.4 per cent. of viburnum prunifolium, bark of the stem, and percolating this over night with 100 c.c. of 20 per cent. alcohol. Then treating this with about .24 per cent. of sodium carbonate and adding caramel which is the color of Wine of Cardui on the market and which I found to be in it about the amount of .2 per cent.

Q.—Now, Doctor, after you had built up this preparation, did you at any time analyze that? *A.*—I did, and found that the analysis corresponded to the analysis of Wine of Cardui.

Q.—That is as to the residuum? *A.*—Yes, sir.

THE COURT: *Q.*—Do you mean only as to the residuum, or as to all the experiments you made? *A.*—As to all the experiments, the amount of alcohol, the residue, the ash and the presence or absence of the different substances and so forth.

Mr. T. J. Scofield: A.—Now, what do you mean when you say it gave a corresponding result with the product which you had examined, which you bought on the market. Explain that. *A.*—The odor of the two products was alike.

Q.—I beg your pardon. Did you go into that, Doctor, and explain that? *A.*—Partially I did, yes.

Q.—Well, let us have it fully. *A.*—The odor of the two products was alike. The color of the two products was alike. For instance, in Wine of Cardui, where I ran the determination parallel, that is, if I were to run the determination on the synthetic Wine of Cardui, I would run a determination on real Wine of Cardui alongside of it, so that both would be done under exactly the same conditions and so that there would be a fairness and exactness in both conditions. For instance, in Wine of Cardui, in one determination, I got 3.27 residue; in the synthetic I got slightly less, 3.06.

Q.—When you say "synthetic" what do you mean by synthetic? *A.*—Synthetic as I would explain it is the antonym of analysis. Analysis means breaking down or tearing apart into small parts. Synthetic means building up, taking those component parts and constructing something.

Q.—So that you distinguish one as Wine of Cardui and the other as the synthetic preparation? *A.*—The synthetic preparation which I have designated all along as "Formula A." I have called it "Formula A." In other times when we have made these preparations sometimes the residue from Formula A was a little greater than the residue from Wine of Cardui; but the variations were not material and they were no more than the variations between different samples of Wine of Cardui itself. When a product such as this is made, the variations are not important, as different batches may vary.

Q.—Why is it that different batches may vary, do you know, Doctor? *A.*—Different batches might vary because of the time when the weed or the herb was collected. At different seasons they would give different amounts of extractives. There may be a small amount of dirt or clay that would be in the weed and consequently would give a little greater amount of residue. There are many factors which, in the making of a pharmaceutical preparation (such as Wine of Cardui is) would not be considered important.

Q.—Then it is true that in Wine of Cardui itself, in the preparation, there is some variation by reason of those things, is that right? *A.*—Yes, sir; that is correct.

Q.—Now, how much residue did you get from the analysis of Wine of Cardui, McElree's Wine of Cardui? *A.*—It averaged around three per cent. One instance I can remember, 3.44 per cent. and in another instance, 3.26 per cent.

Q.—How much residuum did you get from the preparation which you built up that you designate as the synthetic preparation? *A.*—In one instance I got 3.06, that I recall now.

Q.—Now, Dr. Leech, did you never make a determination of residue from fluid extract of viburnum? *A.*—Yes, sir; I did.

Q.—That is viburnum prunifolium? *A.*—Yes, sir.

Q.—What is the residuum, do you remember? *A.*—As I recall it, the residuum from 100 cubic centimeters of Wine of Cardui is 25.8.

Mr. Walker:—The question was as to viburnum prunifolium. *A.*—Fluid extract of viburnum prunifolium. Pardon me.

Mr. Walker: Q.—What was the percentage? *A.*—25.8 as I remember it.

Mr. T. J. Scofield: Q.—Did you ever make an examination of carduus benedictus, fluid extract of carduus benedictus with the idea of determining the amount of residuum from that? *A.*—I have done so. The residuum—

Q.—With what result? *A.*—The residuum from 100 c.c. of carduus benedictus was about 18 per cent., 18 grams. May I explain, your Honor, what a gram is?

Q.—Yes, what is a gram? *A.*—A gram approximately is the equivalent of 15 drops of water; and throughout this case you will probably hear the term "grain" and a grain is approximately equivalent to one drop of water. That is not exact and in science we would not take that definition, but to carry it in mind, that would probably be as good as any way.

Q.—Now, Doctor Leech, have you present with you a bottle of McElree's Wine of Cardui? *A.*—I have not.

Q.—Well, have you present with you any of the synthetic preparations which you made? *A.*—I have.

Q.—Will you please produce that. (Witness produces a bottle containing a liquid.)

Mr. T. J. Scofield:—Mr. Reporter, will you mark that Defendants' Exhibit 28.

(Bottle marked as indicated.)

Q.—Now, Doctor, in working with McElree's Wine of Cardui, did you determine, make any effort to determine, or did you determine how much valerianic acid was contained in that preparation? *A.*—From two bottles of McElree's Wine of Cardui, I found there was 0.0181; 18.1 milligrams of valerianic acid.

Q.—Did you make a determination of the amount of valerianic acid that was in the synthetic preparation which you built up? *A.*—I did not.

Q.—Did you make any determination of the amount of valerianic acid in viburnum prunifolium? *A.*—I did. It might be put in these terms: .0431 grams of valerianic acid was obtained from 10 grams of viburnum prunifolium.

Q.—Did you determine how much, or ascertain in your work how much valerianic acid there is in a dose of Wine of Cardui? *A.*—In Wine of Cardui there is, according to my determination one milligram of valerianic acid or in terms of grams, .001 grams.

Q.—Do you know what the dose of viburnum, or the fluid extract of viburnum or viburnum prunifolium, is, according to the United States Pharmacopeia? *A.*—I do.

Q.—What is it, Doctor?

Mr. Walker objected to this question and the objection was sustained after discussion, but withdrawn by Mr. Walker. The witness then testified:

A.—According to the United States Pharmacopeia the dose is given as two grams.

Mr. T. J. Scofield: Q.—As how much?

Mr. Walker:—Did he say "drachms" or "grams"?

The Witness:—Grams.

Mr. T. J. Scofield: Q.—How much valerianic acid is there in a dose of fluid extract of viburnum prunifolium?

THE COURT:—In a dose of that size. *A.*—There is 8.6 milligrams of valerianic acid.

Mr. T. J. Scofield: Q.—Can you tell us what the fraction of valerianic acid contained in McElree's Wine of Cardui is, when compared with a dose of the fluid extract of viburnum as given in the pharmacopeia of the United States? A.—About 2/17ths of a dose in McElree's Wine of Cardui.

Q.—Doctor, is there any valerianic acid in carduus benedictus? A.—There is not.

Q.—Have you made and compared preparations of carduus benedictus and carduus marianus tinctures? A.—I have.

Q.—Have you got any such preparations with you? A.—I have.

Q.—Will you produce them? A.—(Producing two bottles containing liquid.) This is tincture of carduus benedictus, containing 20 per cent. alcohol and made by treating 20 grams of carduus benedictus with 200 c.c. of 20 per cent. alcohol. (The bottle last hereinabove identified by the witness is marked Defendant's Exhibit 29.)

This is a tincture of carduus marianus containing 20 per cent. alcohol made by treating 20 grams of the seed of carduus marianus with 200 c.c. of 20 per cent. alcohol.

(The bottle last hereinabove identified by the witness is marked Defendant's Exhibit 30.)

Q.—Now, in the preparation of carduus benedictus, that tincture, what part of the carduus benedictus did you use? A.—The stem, leaves and seed.

Q.—In the preparation of the tincture of carduus marianus, what part of that herb did you use? A.—The seed.

Q.—What did you say, Doctor? A.—The seed.

Q.—Have you at any time made an examination of carduus benedictus and carduus marianus for the purpose of determining whether or not they respectively contain cnicin? A.—I have examined them for the yellow amorphous substance, so-called cnicin. I found carduus benedictus, using the whole herb to give a yellow amorphous substance, such as is described here and which we may call cnicin. Upon treating the seeds of carduus marianus in the same manner, I did not obtain cnicin.

Mr. T. J. Scofield:—That is all.

CROSS-EXAMINATION BY MR. HOUGH

THE COURT:—One question before the cross examination. Did you experiment on yourself with any of your own products as you did with the Wine of Cardui? I mean, did you take any of it? A.—No, I did not.

Dr. Leech was then asked several questions concerning the difference between fluid extracts, tinctures and doses. He mentioned fluid extracts of carduus benedictus which had been prepared in the ASSOCIATION'S laboratory and of various fluid extracts of carduus benedictus which had been purchased in the open market.

Q.—Now, do you know whether any comparison was made between the other two other than the Parke-Davis preparation, with the preparation which was made by Dr. Warren? A.—I do not. I myself did not.

Q.—What was the percentage of alcohol in the Parke-Davis preparation? A.—If I remember correctly, it was 40 per cent.

Q.—40 per cent. of alcohol? A.—Yes, sir.

Q.—Would that make a difference in comparing it with the product that you made, containing only 20 per cent. of alcohol? A.—I do not believe the alcoholic content would. I do not believe the alcoholic content in the amount of the drug used, would. In other words, a great deal more of the drug is used in making the fluid extract of carduus benedictus than is used in making an extract such as Wine of Cardui from carduus benedictus.

Q.—Why? A.—That, I presume, could be answered better by the Wine of Cardui people.

Q.—Do you mean why they use less alcohol? A.—No, less drug.

Q.—I thought you said they used more alcohol than would be used by the Wine or Cardui people? A.—May I explain?

Q.—You can answer that first, and then explain. A.—Yes. There is more alcohol in the Parke-Davis preparation, but the Parke-Davis preparation contains twice as much alcohol as the alcohol contained in Wine of Cardui, contains a residue which is six times as great as the residue obtained from Wine of Cardui. In other words, the ratio between the alcohol is one to two, but the ratio between the amount of drug in the substances, if we were to measure it by the residue, is one to six.

Q.—Now, when you reduced, or if you should reduce the Parke-Davis fluid extract to a tincture, how much of the extractives would be in that and how much of or what would be the percentage of alcohol? A.—I am not qualified as a pharmacist, and I am not prepared to answer that.

Q.—Is it not a fact, and don't you know, that there would be more alcohol and less extractive? A.—I do not.

Q.—You do not know that as a chemist then? A.—I do not.

Q.—And you do not know it as an individual? A.—I do not.

Q.—Would you call Wine of Cardui a fluid extract or a tincture? A.—I should state that Wine of Cardui approached more nearly a tincture.

Q.—You say the dose of viburnum prunifolium, as given in the United States Pharmacopeia is two grams? A.—Yes, sir.

Q.—Do you mean of the fluid extract, or the tincture? A.—Since a fluid extract is the extractives from one gram for one c.c., and the dose is two c.c., that would be extractives from two grams of virburnum prunifolium.

Q.—Did you compare the alcohol and dosage of extractives of Wine of Cardui with cimicifuga, for instance? A.—I did not.

Q.—Did you compare it with any of the other pharmacopeial preparations? A.—I did not.

Q.—Now, what is the dosage of carduus benedictus in the eclectic pharmacopeia? A.—I am not qualified as a pharmacist and I cannot say.

THE COURT:—If you know, you may tell; if it is shown in this book. A.—I do not know, your Honor.

Mr. Hough:—Do you know whether it is more or less? A.—I do not know.

Q.—Not even as an individual? A.—I do not know.

Q.—What is the dosage of carduus benedictus in the homeopathic pharmacopeia? A.—I am familiar only with the United States Pharmacopeia, since it is the official pharmacopeia.

Q.—What is the dosage of adrenalin in the United States Pharmacopeia?

THE COURT:—What is the purpose of this, Mr. Hough?

Mr. Hough:—Why, he is trying, as I understand it your Honor, to make a point about the amount of extractives here and he has compared it with certain other preparations.

THE COURT:—And he referred as to the dose, to one single work.

Mr. Hough:—You mean the pharmacopeia?

THE COURT:—Yes.

Mr. Hough:—Well, I am confining this now to the pharmacopeia; that is the last question.

Q.—What is the dose of adrenalin in the U. S. Pharmacopeia, with which you say you are familiar?

Mr. T. J. Scofield:—That is objected to.

THE COURT:—Objection sustained.

To which ruling of the court the plaintiffs, etc., excepted.

Mr. Hough:—When did you buy, or did you buy the carduus benedictus in the crude drug form? A.—I did not. It was bought by the laboratory of the AMERICAN MEDICAL ASSOCIATION, and the drugs were verified before use.

Q.—You don't know where they bought it? A.—Definitely, no. I think some were bought in the east, and some here in Chicago.

Q.—You mean it was bought from a regular drug house? A.—I think some of it came through the channels of the drug houses.

Q.—How many drug houses in the country sell crude carduus benedictus? A.—I do not know.

Q.—Do you know what the amount of alcohol is in the fluid extract of viburnum prunifolium that you have testified to, as given in the pharmacopeia? A.—If I remember correctly, it was 55 per cent.

Q.—Why did you get, if you know, one color in one of these preparations and a different color in the other? (Referring to exhibits 29 and 30.) A.—I presume, *a priori* because I used different preparations to start with.

Mr. Walker:—(Referring to exhibits 29 and 30.) The red one is carduus benedictus and the light colored one is carduus marianus?

The Witness:—You are correct.

Mr. Hough:—Q.—Why did you get different colors? A.—Because I used different preparations to start with, different drugs.

Q.—Did you ever analyze or make a preparation of the seeds of carduus benedictus alone? A.—I did not.

Q.—Did you ever make an analysis of the herb of carduus marianus—not an analysis, but a preparation? A.—I was not able to obtain all of the herb carduus marianus.

Q.—Did you try to? A.—I did.

Q.—Did you make a report in writing as to your chemical analysis? A.—I made a typewritten report and signed my name to it, that is, I typewrite the report.

Q.—May we have that report? I will ask you first,—withdraw that last question. Is there any difference between the report as made by you, and the chemist's report as it was printed in the first article of the JOURNAL of the AMERICAN MEDICAL ASSOCIATION of April 11th, 1913? A.—In all essential particulars, my report confirms that report.

Q.—Now, do you mean to say that a chemist reading that report would be justified in stating that that preparation was made from certain herbs or drugs? A.—I think that a chemist who was guarded would not take another chemist's report without making experiments himself, a chemist who was careful and discriminating.

He was then asked concerning the principles which govern a chemist making conclusions from an analysis, the final question being:

Q.—I now hand you the chemist's report in THE JOURNAL'S article to which I referred, and ask if, from that chemical report, eliminating the conclusion, a chemist would be justified in stating what the drugs were in that mixture?

To which he answered:

A.—No, he would not be justified absolutely in stating what the drugs were in that mixture.

Mr. Hough:—Doctor, I neglected to ask you whether or not you found any volatile oils in examining carduus benedictus? A.—I found that, if there were any oils present, they were in such very minute quantities, as first, not to make any noticeable effect on the alcohol determination. In fact, when the alcohol was distilled over, there was a clear distillate. The volatile matter that I recovered and which I enumerated as four one thousandths of a per cent., contained no alkaloids.

Q.—You are positive that there was not the slightest turbidity? A.—I am positive of that. I saw one or two other alcohol determinations not made by myself, in which there was no turbidity. At times there may be turbidity, but it was so slight that in three cases that I recall, there was no turbidity. And further to substantiate the fact that the oils were not there in any appreciable amount, if the substance, after the specific gravity had been taken, was shaken with ligroin, which is used in the *Bulletin of the Official Agricultural Chemist*, this did not vitiate the original results.

Q.—You say it would not be possible for any other chemist to find in carduus benedictus any more of volatile oils than you found. A.—I did not.

Q.—Do you think it might be possible? *A.*—He might have different samples of carduus benedictus.

Q.—Or he might use a different process, might he not? *A.*—Certainly.

Q.—There are some processes of analysis which would not save the volatile oils, are there not? *A.*—It depends on what you mean by "process of analysis." If you mean a process of analysis for volatile oils, then if the processes are correct, in the end they must agree. If they are not correct, they do not agree in the end and one or the other is not correct.

Q.—And which would you say was not correct, yours or the other man's? *A.*—I would have to see what the other man did, and see what his results were.

Q.—Before you would determine whether your own was correct or not? *A.*—In this instance, after I had determined it, I sent my method to one of the best known oil chemists in the United States, and he—Professor Kramer.

Q.—Never mind that. *A.*—I thought you were after the facts in the case.

Q.—Professor Kramer is here to testify? *A.*—I have never seen Professor Kramer and I would not know him if he were in the room.

THE COURT:—You need not go into that. Counsel stopped you, and you need not go into it.

Mr. Hough: *Q.*—What did you do with the cnicin which you secured by your analysis. *A.*—I secured a yellow amorphous substance, sometimes called cnicin.

Q.—You don't know whether it was cnicin or not? *A.*—It was of little importance to me whether it was cnicin or not.

Q.—Why was it of little importance to you, as a chemist? *A.*—Because I was able to get the same substance, which responded to exactly the same reactions, from Wine of Cardui, from carduus benedictus and from my synthetic preparation. They gave identically the same reactions and consequently that sufficed for the purpose for which I was working.

Q.—But you started to discover cnicin, didn't you? *A.*—Oh, no, not at all.

Q.—Don't you have to hunt for some particular thing in that process, and does not that determine the process which you use? *A.*—When there is a particular thing there which is well known, and which has received careful chemical collaboration, all right. But in the case of carduus benedictus, there has been so little work done on it—evidently not considered important—that I did not consider that I should call this cnicin, unless I made an extensive study of it.

Q.—Have you read any process for the determination of cnicin in any drug? *A.*—In a general way, yes.

Q.—Who has written on the subject? *A.*—The same authorities that were enumerated yesterday morning. Swantner, Schreiver, and I think Nativelle.

Questions were then asked concerning the process used for the determination of cnicin and concerning its properties.

TESTIMONY OF DR. CLARK

Dr. Albert Henry Clark was called as a witness on behalf of the defendant.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. Albert Henry Clark testified that he is head of the department of chemistry of the University of Illinois, School of Pharmacy. He has been a chemist for about twelve years. He is a graduate of the University of Illinois, School of Pharmacy, University of Michigan, in which institution, he obtained the Bachelor of Science degree in Pharmacy. He had been for twenty years engaged in retail drug business being a registered pharmacist in Illinois. He testified:

Q.—Doctor, have you made any analysis of McElree's Wine of Cardui, manufactured by the Chattanooga Medicine Company? *A.*—I have.

Q.—Will you state briefly now and in a general way what results you obtained from the analysis which you made? *A.*—Well, first of all, I examined it for volatile matter by steam distillation, distilling it in steam, trying to get anything that would distill over. I distilled it in a vacuum, collecting the distillate and so forth, at a low temperature, so that no volatile matter could escape. In all of these experiments I failed to find any appreciable quantity of volatile matter. The distillates were perfectly clear, did not contain any oil or anything of the kind and, on extraction of the distillates, the various solvents I could not get anything out of the distillates; just a minute trace of something that had a sort of a valerian-like smell.

Q.—Now, Doctor, just there a moment. You say the distillate was clear? *A.*—They were not opalescent.

Q.—What does that indicate, so far as volatile oils are concerned? *A.*—The absence of volatile oil and things of that character.

Q.—How were those distillates carried over, in what way? *A.*—In various ways. I distilled it directly, just by boiling the stuff, and passing the vapors through a condenser with cold water around it so as to condense those vapors just as you would condense steam. I also distilled it by passing live steam through it, which will carry over those things which would perhaps not distill over directly. I also distilled it by connecting it with a vacuum pump so that it could be distilled at low temperature.

Q.—At what temperatures? You say "low temperatures." *A.*—Well, as compared with ordinary room temperatures which ranges around 70 or 75 degrees Fahrenheit. This was about half that. Temperature much lower.

Q.—Now, continue with your statement as to what you found as a result of your analysis? *A.*—I found nothing of any—no appreciable amount of volatile matter under those circumstances. Then I determined all these distillates — or not the distillate, but the preparation in the same way, by distilling directly the amount of alcohol and I found 20 per cent. of alcohol, or approximately 20 per cent.

Q.—Speak louder. *A.*—I found 20 per cent. of alcohol or approximately 20 per cent. Then I evaporated off the alcohol and water that it contained and obtained a residue of about 3 per cent. I examined this residue for mineral matter, minerals such as copper and iron and things of that kind. I found just small amounts of them such as have been mentioned before, practically the same as the others have found. I also examined it—that examination would exclude—

Q.—Pardon me for interrupting you. You said you found small amounts of such things as have been mentioned before. *A.*—Calcium and sodium and potassium.

Q.—What do you mean by having been mentioned before? *A.*—The other witnesses have mentioned them.

THE COURT:—Have you been here all the time during this trial? *A.*—Yes, sir. Calcium, sodium, potassium and iron and such things.

Mr. T. J. Scofield: *Q.*—Go ahead. *A.*—I examined it also for alkaloids, such as you would find in many plants, quinin and things of that kind, and found none there at all. That would exclude a couple of hundred of drugs that are generally considered potent drugs, that is drugs that are powerful drugs I should say, drugs that have specific action. I examined it for metallic substances, copper and arsenic and things of that kind and found none of those present at all. None of those drugs were present. I examined it for emodin bearing drugs, such as senna—carthartic drugs—senna and rhubarb and things of that kind. There was none of those present. I found caramel—

Q.—What do you mean by caramel? *A.*—Coloring matter, burnt sugar, coloring matter; I found that present. I found minute traces of tannin; I found a very small amount of resin, very small. That is practically the chemical examination. I found on an extraction with acid—I should say with ether—I found the same amorphous, yellow bitter substances that others have found, which has been called cnicin.

Q.—When you say that others have found, you refer to the chemists who have preceded you on the stand? *A.*—Yes, sir. Perhaps I should not use that word, but it was just to shorten up the matter and I mean the others who have testified here.

Mr. Walker:—It would be easier and just as well for him to tell what he found.

THE COURT:—It would be very much easier.

Mr. Walker:—Never mind the others.

The Witness:—I found on extraction with ether, a yellow, bitter, amorphous substance, a noncrystallizable substance. Amorphous means that it will not crystallize and that had the characteristics mentioned. It gave color reactions with sulphuric acid and hydrochloric acid that are attributed to this substance called cnicin.

Mr. T. J. Scofield: *Q.*—Did that constitute the result of your examination? *A.*—I believe so.

Q.—Did you make a note of the amount of water that was contained? *A.*—I did not, not particularly.

Q.—Now, tell me whether or not, you having torn Wine of Cardui down, you undertook to build it up, or to make a synthetic preparation? *A.*—I made a synthetic preparation from carduus benedictus and from viburnum.

Q.—How many of those preparations did you make? *A.*—I made just one, one containing those two drugs.

Q.—When you say viburnum, do you mean— *A.*—Viburnum prunifolium and carduus benedictus. By extraction with 20 per cent. alcohol and adding to the percolate and the extracted liquid, caramel coloring and carbonate of soda.

Q.—Will you state the quantity of viburnum prunifolium and carduus benedictus that you used? *A.*—I used the two drugs in the proportion of 10 per cent. of viburnum to 90 per cent. of the other.

Q.—You mean viburnum prunifolium? *A.*—Viburnum prunifolium.

Mr. Walker: *Q.*—The viburnum prunifolium was 10 per cent.? *A.*—10 per cent. of viburnum, yes, sir; with 90 per cent. of the other and the two combined, 64 grains of pure fluid.

Mr. Scofield: *Q.*—How many? *A.*—64 grains, approximately that. 64 grains per fluid ounce.

Q.—About how much viburnum prunifolium does that make to the fluid ounce? *A.*—Per fluid ounce, that would make about 10 per cent. of 64 grains and that would be approximately 6 grains to the fluid ounce, 6 and a half grains.

Q.—Go ahead, now, Doctor. *A.*—That preparation I examined carefully as to the residue on evaporation of the alcohol and things of that kind; the alkaloids—and in every respect it corresponded to Wine of Cardui itself. It contained the same bitter principle, or bitter substance, yellow, amorphous bitter substance that Wine of Cardui did. It responded to the same reactions and so forth. It gave the same weight—not exactly the same weight, but about the same weight of residue and the same weight of ash and things of that kind as Wine of Cardui. It has the same valerian-like odor and the same bitter taste. That preparation here—after making the analysis, this is what I had left of it. (Exhibiting bottle.)

Mr. Hough:—Which analysis do you mean? *A.*—After making the analysis I just mentioned.

Mr. Walker:—That is the synthetic composition? *A.*—I made of the synthetic.

Mr. T. J. Scofield:—And then, it was analyzed and this is what you have left in the bottle? *A.*—This is what I have left.

THE COURT:—There does not seem to be enough to go around, gentlemen.

Mr. T. J. Scofield:—That is true, there is not enough to go around. (Counsel for respective parties examine the contents of the bottle identified by the witness.) That is not bad.

Mr. Hough:—I have not got the same kind of a stomach that the Judge has.

Mr. Walker:—That looks like the right color, but there is too little of it.

The Witness:—That preparation is a trifle lighter than the other, because I put in caramel and the caramel property was not as dark caramel as the others.

Mr. Hough:—My stomach is not as strong as yours, Judge.

Mr. T. J. Scofield:—My stomach is all right, and I could take the whole bottle.

The Witness:—It is perfectly harmless. I took five ounces of it myself.

THE COURT:—(Addressing the Reporter) Did you get Mr. Walker's frown and Mr. Scofield's smile?

Mr. Walker:—I would like to have Mr. Scofield take Wine of Cardui and keep his smile.

Mr. Scofield:—I will do it. I offer this now in evidence and ask that it be marked Defendant's Exhibit 31.

(Bottle marked as indicated.)

Q.—What else have you there in the way of synthetic preparations, if anything? *A.*—From Wine of Cardui, itself, I evaporated off the alcohol and then added water to it in order to make it up to the original volume to see if the alcohol — to show that the alcohol itself had no especial solvent effect upon the material there. That is a sample with the alcohol removed and the water added to it, and here (producing another bottle) is a sample of the genuine, of the real Wine of Cardui in the same sized bottle, for comparison. Boiling off the water—boiling off the alcohol I mean, and then adding water to it again, making up the original volume, does not precipitate out any material whatever.

Mr. T. J. Scofield:—I ask that this bottle be marked Defendant's Exhibit 32, which the witness says contains water instead of alcohol.

Mr. Walker:—Now, what are you going to do with the other. He gave you one with the alcohol in it.

The Witness:—One is Wine of Cardui, just as I took it from the bottle and the other is the one minus the alcohol but with the water added.

Mr. T. J. Scofield:—Mark the bottle I now hand you as Defendant's Exhibit 33, being the bottle of the Wine of Cardui which the witness says—no, being the Wine of Cardui which the witness says he took from the bottle.

(Bottle marked as indicated.)

The witness also produced a preparation, a specimen of Wine of Cardui, and from which the alcohol had been evaporated, 30 per cent. by volume of glycerin added to make up the original volume, also the bottle containing the alcohol, which had been evaporated off. He also produced a specimen made from carduus benedictus and viburnum prunifolium by percolation extraction with a liquid 40 per cent. glycerin and 60 per cent. water, also a sample of the Wine of Cardui which had been evaporated to a thick syrupy consistency with alcohol added and water to make up the original volume; also tablets prepared from Wine of Cardui after evaporating off water and alcohol and tablets made from the synthetic preparation of carduus benedictus and viburnum prunifolium. He also produced pills made from the extractives of Wine of Cardui and pills made from the synthetic preparation.

Mr. Hough for plaintiff, said:

"I wish to make an objection to all these exhibits on the ground that they are incompetent, irrelevant and immaterial to any issues in this case.

THE COURT:—At this time the objection will be overruled.

To which ruling of the court the plaintiffs, etc., excepted.

Mr. Hough:—I just want to get it on the record.

The witness then produced the residue from Wine of Cardui put into capsules and the residue from the synthetic preparation put into capsules. He also produced a mixture of carduus benedictus 90 per cent. and viburnum prunifolium 5 per cent.; also a preparation made from carduus benedictus and viburnum prunifolium by extraction with 20 per cent. alcohol, the same strength of alcohol as is in Wine of Cardui and containing twice as much extractive matter,

"showing that the proportion Wine of Cardui could be put up in—or it could be extracted and retain the constituents of those two drugs in a proportion twice as great as Wine of Cardui really does, and then given in the same dosage, the amount of alcohol would be just one half of what it is in Wine of Cardui."

He also produced a preparation made the same as the first one exhibited, from carduus benedictus but without any viburnum.

To all these exhibitions, Mr. Hough for the plaintiff, offered objections, all of which the court overruled and to each of which exception was taken.

Mr. Walker for the plaintiff then said:

Mr. Walker:—Now I want to ask your Honor to exclude and strike from the record the exhibits offered by this witness.

THE COURT:—The motion will be denied.

To which ruling of the court the plaintiffs, etc., excepted.

The further hearing of the case was adjourned to 2 o'clock of the same day.

March 30, Afternoon

The court met pursuant to recess. Dr. Albert H. Clark resumed the stand for further direct examination by Mr. T. J. Scofield. After objection which was overruled, he testified that he took four tablespoonsful at a single dose of Wine of Cardui. The taste was rather bitter but not unpleasantly bitter. A little while after he had taken it, he felt a sort of a warmth in the stomach and a glowing sensation in the face, which became flushed. The next day, he took the same quantity of 20 per cent. alcohol; he also took synthetic preparations minus the alcohol and perceived no effect. To all of these questions objection was made.

Mr. Scofield then asked:

Mr. T. J. Scofield:—Now, Doctor, referring to this exhibit which you made without the use of alcohol and did make with glycerin, do you know whether or not that preparation will keep? *A.*—Those preparations—one of them is almost three weeks old. The other one is almost two weeks old. They have stood for that length of time. In addition to that they were both placed in an incubator at a temperature of about 98 degrees, that is ordinary body temperature, such temperature as there is on a rather hot day, which is especially favorable toward the development of fermentation, and things of that kind. They were kept at that temperature for three days, and there are no signs of fermentation or spoiling, in the ordinary sense of the word at all, so they will certainly keep under those conditions. I might add that the other preparations, aside from those glycerin preparations—well, they are between two and three weeks old, and they are all keeping. They have not fermented or spoiled in any sense of the word.

Q.—Now referring, Doctor, to the tablets which you have here and the pills, and the preparations which are contained in capsules: Will they keep or not? *A.*—They have kept, as I say, for three weeks, nearly three weeks. No signs of spoiling that I can see at all.

The witness then testified that he had been engaged for eighteen years in the retail drug business in Illinois and for eleven years in a drug store which filled on an average of 15,000 prescriptions a year; that he had filled 10 to 15,000 prescriptions during that eleven years. He was asked as to whether he had ever been presented with a prescription calling for carduus benedictus as an element. Objection was made and sustained, and the answer sticken out on motion.

CROSS-EXAMINATION BY MR. HOUGH

On cross-examination the witness stated that menstruums and preservatives which he had mentioned other than alcohol are as good in this particular instance as alcohol itself. He testified that he had seen one fluid extract prepared by a pharmaceutical house—Parke, Davis & Company. He was asked as to whether he had any connection with the American Medical Association and as to whether he had approached the examination without prejudice. He answered that he had no connection with the American Medical Association and approached the question absolutely without any prejudice.

He was then asked:

Q.—How long would you say the samples which do not contain alcohol would keep? You have stated how long they have kept already. *A.*—Yes.

Q.—How long would you say they would keep before they would commence to deteriorate or precipitate? *A.*—Well, I have some without any glycerin. Do you mean those with glycerin or those without?

Q.—All those without alcohol. If there is a difference in the time that each would keep, just explain. *A.*—Oh, there is a difference in the time. I have a preparation there without any alcohol at all in which I evaporated it off and put in water. Do you mean that one, or the glycerin?

Q.—Well, take each one that hasn't any alcohol in it. *A.*—Well, that aqueous solution, the one in which I evaporated off the alcohol, I

simply made up the volume with water, nothing else; that probably would not keep. The ones that have glycerin in as a menstrum would keep indefinitely. The pills and the tablets would keep indefinitely.

THE COURT: *Q.*—When you say the one with the water would not keep, you have already had it two weeks, haven't you? *A.*—No, that one has not been made that long, that solution.

THE COURT:—Then that ought to be so stated.

Mr. Walker:—That was not included in the others.

THE COURT:—What?

Mr. Walker:—That was not included in the others.

THE COURT:—Oh, I thought it was.

Mr. Walker:—No.

The Witness:—I knew that would not keep, therefore, I just made that day before yesterday. That one will not keep, the one with water alone; there is no question about that. That will not keep. It is all right now, it has kept 48 hours, and it is all right now. But those with glycerin will keep indefinitely, and the pills and the tablets will keep indefinitely.

Mr. Hough: Q.—Now is there anything in glycerin which will destroy bacteria in the atmosphere? *A.*—I am not a bacteriologist. I don't know.

Q.—You don't know anything about that? *A.*—No, sir.

Q.—You don't know anything about the advantage of the use of alcohol in drugs from that point alone? *A.*—No, sir; not from the point of bacteriology; no, sir.

The witness was asked concerning the preparation of his synthetic specimen as to the taste, etc.

He was then asked:

Mr. Hough: Q.—In the manufacture of the tablet it necessarily would not contain anything of a volatile nature, would it? *A.*—There is nothing—there is only the minutest trace of volatile matter in Wine of Cardui, and of course that would disappear in the manufacture of those tablets.

Q.—Anything which was of a volatile nature would have disappeared? *A.*—Would have disappeared, but my analysis shows that there is no volatile matter in Wine of Cardui.

Mr. Hough:—I know what you want to say, and you have said it two or three times. Now if you will listen to me, and reply to my questions we will get along better. *A.*—That is right. If there were volatile matter there it would have disappeared.

Q.—What test did you make to determine the amount of volatile matter? *A.*—I did not determine the amount of volatile matter. I tried to. I tried repeatedly to determine it, and the quantity was so small, that I could not do it, I thought, in a satisfactory manner.

Q.—What method did you use to determine whether there was any volatile matter there at all? *A.*—I distilled it directly. Just simply put it in a flask and distilled it over, and condensed the distillate. I passed steam through it, what we call a steam distillation, drove the volatile matter over by steam and collected the distillate in that way. I distilled it under a vacuum, pumped out the air so that it would distill it at a low temperature, and all that kind of a thing, and distilled it over, and in every case when I would extract the distillate with ether and chloroform and solvents like that to get out any possible volatile oils and matters of that kind. I couldn't find any.

Q.—No discoloration at all? *A.*—No discoloration at all.

Q.—And not turbid? *A.*—Not turbid; no, sir.

Q.—Do you know of other processes than the one that you used for determining volatile matter in any substance? *A.*—I do not; no, sir. Those were the standard methods, and the best that I knew of.

Q.—Do you know anything about the literature of carduus benedictus? *A.*—I know the literature in a general way.

Q.—Do you know that it is stated that there is a volatile principle in it? *A.*—I do not recall that; no, sir. That may be so; but I do not recall it. If there is a volatile constituent in carduus benedictus in any considerable quantity, it is not there in Wine of Cardui.

Q.—What is that? *A.*—I say if there is a volatile constituent in carduus benedictus, the drug itself, that volatile constituent is not in Wine of Cardui to any considerable extent.

Q.—You mean unless your process failed to discover it? *A.*—Yes, but that was a standard process, and I would certainly get it.

Questions were then asked as to the process of distillation. The witness was then asked:

Q.—Did you say that glycerin would assist or retard the absorption of a drug, or have any effect? *A.*—I said I didn't know anything about it.

Q.—Oh, you don't know anything about it? *A.*—No, I don't know anything about it.

Q.—Why is alcohol used in witch-hazel? *A.*—I don't know.

Q.—You don't know? *A.*—No.

Q.—You only know it is? *A.*—There is some alcohol in it; yes, I think.

Q.—Do you know why alcohol is used in listerin? *A.*—No.

Q.—It is used, isn't it? *A.*—I don't know anything about it.

Q.—You never saw listerin? *A.*—Oh, I have seen it, yes.

Q.—And yet you don't know whether it has alcohol in it? *A.*—I suppose now-a-days it says so on the label, but a few years ago, I know when I sold it a great deal it did not say anything about it. I don't know whether it had or not.

Q.—And you mean to say that although you sold it right along, you don't know whether it had any alcohol in it? *A.*—I don't know whether it had anything else. Nobody knew.

Q.—Is extract of witch-hazel entered officially in the pharmacopeia? *A.*—Yes, sir.

Q.—And that requires that it have alcohol, doesn't it? *A.*—In speaking of "extract of witch-hazel" what do you mean? Fluid extract?

Q.—Well, what do you understand by the term? *A.*—Fluid extract of witch-hazel.

Q.—As named in the pharmacopeia? *A.*—Well, I wouldn't say positively whether fluid extract of witch-hazel is in the pharmacopeia or not. If you mean the—

Q.—Now, did you say you got cnicin? *A.*—No, I said that I got a yellowish amorphous, bitter substance that was similar in its reactions, etc., to the material that is described in the literature as cnicin.

Q.—But you did not determine for yourself, whether it was or was not cnicin? *A.*—Beyond the fact that it gave those reactions which are ascribed to the substance called cnicin.

Q.—And you found some tannin? *A.*—Minute traces of tannin.

Q.—And you found some resin? *A.*—Minute quantities of resin.

Q.—And you say that all of those, including resins, are freely soluble in water? *A.*—No, sir; I didn't say that.

Q.—You didn't say that? *A.*—I didn't say that; no, sir.

Q.—Well, what did you say? *A.*—I don't know whether I did—

Q.—They were in the residue, weren't they? *A.*—They were in the residue, yes.

Q.—And you said the entire residue was freely soluble in water? *A.*—I said that the residue when taken up with water was just the same as the original, and I have a sample over there which you can examine, and see that for yourself.

Q.—What was the reaction for this amorphous substance you referred to which you think might be cnicin? *A.*—Cnicin—it was slightly acid in reaction; in the specimen I had it was slightly acid, I believe.

The witness testified as to the taste and reaction of cnicin. He was asked:

Q.—You say you have compounded as many as 15,000 prescriptions? *A.*—Yes, I think so.

Q.—What proportion of them contained alcohol, would you say?

Mr. T. J. Scofield:—I object to that question, if the Court please.

THE COURT:—Objection sustained.

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. Hough: Q.—Did any of them contain alcohol?

Mr. T. J. Scofield:—I object to that question.

THE COURT:—Is this for the purpose of testing his qualifications as a chemist? That question was one of the preliminary questions to qualify the witness. It was not objected to. I don't see that it would have any part in this case except to qualify him as a pharmacist and as a chemist.

Mr. Hough:—But he has gone into the question of other substances, better, I think is the impression that he means to create on the jury, than alcohol.

The Witness:—No.

Mr. Hough:—Now, if, in all his prescriptions and compounds they used alcohol—

THE COURT:—Now let me ask one question. When you speak of prescriptions, were those documents brought to you from doctors, which you had to fill, as stated?

The Witness:—Yes, sir.

THE COURT:—Objection sustained.

To which ruling of the Court the plaintiffs, etc., excepted.

The witness was then asked to identify reports of articles in the literature, Schreiver's and Swantner's work and to read from the literature. Objection was made and sustained, the Court ruling that such evidence may be introduced later by the plaintiff.

TESTIMONY OF DR. ALVISO B. STEVENS

Dr. Alviso B. Stevens was called as a witness on behalf of the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. Alviso B. Stevens testified that he is a teacher of pharmacy and chemistry in the University of Michigan, College of Pharmacy; he has been a chemist and pharmacist since 1875. He has made three complete analyses of McElree's Wine of Cardui obtained in the original sealed package. He testified as to the contents as did the previous witnesses. He took first a single dose, then a double dose and finally two ounces of the Wine of Cardui which had a decided effect—some slight dizziness—the same effect being obtained by taking alcohol and water in proportion of 20 per cent. The witness also took the contents of one bottle of

Wine of Cardui minus the alcohol from two-thirds of it and testified that it had the same effect as he had from the alcohol. He also prepared a synthetic mixture. He was asked:

Q.—What was the formula from which you made the synthetic preparation which you say corresponds to McElree's Wine of Cardui, do you remember? *A.*—I think I do. I think it was 142 grams, about—well, I have it right here in my pocket, if you will allow me to read from it; 142.6 grams of carduus whole, 15.75 grams of viburnum prunifolium; alcohol 241.8 cubic centimeters, and water sufficient to make of the final product 1,135.5 cubic centimeters. To this — do you want the full formula?

Q.—When you say carduus there, what do you mean, carduus benedictus, or what? *A.*—Carduus benedictus.

The witness also made synthetic preparations with glycerin and capsules, tablets and pills. These preparations were offered in evidence as defendant's exhibits.

He was finally asked:

Q.—Now, Dr. Stevens, what have you to say about the keeping qualities of these preparations which you have made without alcohol and in the condition of pills and capsules? *A.*—Oh, they would keep any length of time.

CROSS-EXAMINATION BY MR. HOUGH

The witness was asked as to the properties of cnicin and as to the disintegration and decomposition of tablets. He was then asked:

Q.—And do you mean to say that from the analysis alone which you first made, and without reference to the name which was on the bottle, you could have stated the material, herbs or minerals or substances, whatever you choose to call them, from which the medicine was made? *A.*—Not without comparison, no.

Q.—Comparison with what? *A.*—With other — with other herbs and plants and so on.

Q.—Well, how would you know what other herbs and plants to get? *A.*—By first getting the taste of it; if we find it is bitter, naturally we would compare that with the bitter herbs or bitter plants. Then we would see if there is a bitter alkaloid, and if there is no bitter alkaloid in there, there would be no earthly use examining for quinin, strychnin and drugs of that character.

Q.—In a chemical test, it is very frequently the habit to use the — or practice the organoleptic taste first, is it not? *A.*—My practice has always been, when I get a substance of that kind, to taste, smell, etc., first; using the senses to get some idea.

Q.—What? *A.*—Simply to get some idea.

Q.—And, when you taste that and it tastes bitter, you immediately classify it among the bitters? *A.*—Exactly.

Q.—And that excludes a large number of substances which would not be classed among the bitters? *A.*—Well, not necessarily, because they might be there in addition to that.

Q.—In addition to that? *A.*—In addition to the bitter.

Q.—How do you determine—

Mr. T. J. Scofield:—Doctor, if you will kindly talk louder —

The Witness:—Yes. Was the last remark understood?

Mr. Hough: *Q.*—What is a stomachic, do you know? *A.*—Well, it is a medicine that more or less acts — medicines that act directly on the stomach. I want you to understand distinctly that I am not testifying — I do not qualify as a physician; I don't pretend to go into the medical terms at all.

Q.—Well, are all bitters classed as stomachics? *A.*—No doubt they have some such action, but they certainly are not all confined to that, by any means.

Q.—About how many bitters, do you know of? *A.*—I could not tell you now.

Q.—Well, of course, in analyzing a thing, which from test indicates that it is a bitter, you must know of all the bitters, in order to determine which it is? *A.*—You need not necessarily have to know of them all. We know a good many, of course; but you don't retain all those tastes. We take and compare each with the others. We take another drug, that has a bitter taste, and we taste that, and then compare the taste we get. Now, if it is not like the bitter of quinin, you can tell it in a moment, and it is not like the bitter of strychnin — if you have tasted those — and if you have not, then you can compare the two and you can tell the difference; and although you do not know just which it is, still you recognize that there is a difference.

Q.—And by a process of elimination you reach a conclusion as to at least one ingredient; do you? *A.*—Yes.

Q.—Now, when there are bitters in a composition which contains a mineral, at what stage of the investigation do you determine the division? *A.*—We first attempt to separate — first separate the organic matter from the inorganic matters as far as possible; if it is in the earliest stages, before we have changed it, we take and get out that bitter principle by the action of certain solvents. If it is alkaloids we use certain methods of manipulation in which we shake it out with various solvents, solvents that do not mix with water, under certain conditions. Shall I go into a detailed statement of the assay of these preparations at all?

Q.—No; that is enough, unless you want to explain your answer. *A.*—No — all right; not at all.

Questions were also asked and answered as the possibility of determining the contents of such preparations without previous knowledge as to what ingredients to search for.

TESTIMONY OF DR. LEWIS E. WARREN

Dr. Lewis E. Warren was called as a witness on behalf of the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. Lewis E. Warren testified that he has lived in Chicago for nearly seven years, engaged in pharmaceutic and analytic chemistry. He is a graduate of the University of Michigan, Department of Pharmacy, with a degree of Bachelor of Science in Pharmacy, and with a degree of Pharmaceutical Chemist. He is engaged in the laboratory of the AMERICAN MEDICAL ASSOCIATION, and was employed for two years in the laboratory of Merck & Company, New York City. He also was Food and Drug Investigating Chemist in the Bureau of Chemistry at Washington for nearly two years. He has worked in the laboratory of the AMERICAN MEDICAL ASSOCIATION for almost seven years.

He testified as to the days on which he received various samples of Wine of Cardui, and the condition of such samples when received. Different samples contained 9 and 10 ounces, respectively. As to the consistency found, his analysis agreed essentially with those of other chemists who have testified. Concerning four different specimens examined, evidently compounded at different times, he testified:

Q.—Did you find any difference between the last analysis and your third or your second or your first, and if so, what was the difference, if any? *A.*—Only in the percentage of alcohol. As I said before, the second specimen did not have the valerian-like odor which the first and the third had, and the fourth had it also. The percentage of alcohol was slightly different from the second analysis, but not from the first or the third. The amount, I think, was 19.58 or somewhere along there, about 19.8, somewhere along there. There was no practical difference between the first specimen, the third specimen and the fourth specimen that I examined, that is, no essential difference. The products varied up and down in solid residue, a little bit in the alcohol, just two or three or four or five tenths of a per cent., something like that, but no essential difference.

The various specimens were offered in evidence as defendant's exhibits.

Further hearing of the cause was then adjourned until March 31, 1916.

March 31, Morning

TESTIMONY OF MR. LEWIS E. WARREN (CONTINUED)

Mr. Lewis E. Warren resumed the stand as a witness on behalf of the defendants.

FURTHER DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. Warren was asked concerning the sensations which he felt after swallowing five doses of Wine of Cardui at one time. Objection was made and exception taken as with other witnesses. The witness experienced the same sensations as other witnesses. He was then asked:

Mr. T. J. Scofield: *Q.*—Have you ever made any examination of the fluid extract of viburnum prunifolium for the purpose of determining how much resinous matter a dose of viburnum prunifolium contains, the fluid extract? *A.*—Yes, sir.

Q.—How much is a dose of the fluid extract of viburnum prunifolium? *A.*—The pharmacopeial dose is two cubic centimeters, which is about 30 grains, 30 drops.

Q.—How much resinous matter did you find in a dose of the fluid extract in such a dose of fluid extract of viburnum prunifolium? *A.*—I made my determination on ten doses and found 795 milligrams on the ten doses, which would be about 79 milligrams on a test of one dose.

Q.—Did you ever make an examination of McElree's Wine of Cardui for the purpose of determining the amount of resinous matter in a dose of that preparation? *A.*—Yes.

Q.—What was the result of that examination? *A.*—I also used, in this case, ten doses of McElree's Wine of Cardui and used the same method for the determination of resins that I used when I determined the resins in the fluid extract of viburnum prunifolium and I got about 11 milligrams of residue out of 20 doses—I should say ten doses, I used ten doses—out of the ten doses I got 11 milligrams of residue. I do not know that that residue was resin but I got it by the method by which resins are determined. Had there been resins there, they would have come out in this particular fraction and that would be about one milligram per dose of Wine of Cardui.

Q.—Did you preserve the resins that you got from those two preparations? *A.*—I did.

The witness produced the resins which were introduced as a defendant exhibit. The witness also produced as exhibits resins of fluid extract from black-haw, and also introduced as defendant's exhibit the resins from fluid extract of viburnum prunifolium. The witness was then asked concerning the possibility of making tablets of those preparations

in the Pharmacopeia which contain alcohol. The attorneys for the plaintiff stated:

Mr. Hough:—I don't deny that they can make them. They can make tablets out of bread, or make bread pills, but the only thing I want to prove is the statement that they can do the same thing with every other pharmacopeial preparation, which the law requires to contain alcohol.

THE COURT:—That leaves up the question,—

Mr. Hough:—The fact that he actually did it, we don't question.

THE COURT:—That leaves open the question of whether you are preparing a fluid extract of something like this.

Mr. Hough:—Our medicine is a tincture.

Mr. T. J. Scofield: *Q.*—Mr. Warren, taking the fact—or taking the dosage of different medicines as given in the United States Pharmacopeia, to be correct, I will ask you if you know how many of the pharmacopeial preparations intended for internal use, contain alcohol? *A.*—Yes, sir.

Q.—How many? *A.*—That is, I have counted over the preparations which are intended for internal use and for which a dose is given, and I find 190.

Q.—Can you tell us what the range in percentage of alcohol in the 190 was? *A.*—Yes, it ranged from five tenths of one per cent. by volume to about 90 per cent. by volume.

Q.—Now, can you say how many of these different preparations contain the same quantity of alcohol to the dose as is contained in a dose of Wine of Cardui? *A.*—Yes, sir.

Q.—How many? *A.*—Two.

Q.—Can you name those two? *A.*—Yes, sir.

Q.—What are they? *A.*—Tincture of guaiac and taraxacum.

Q.—Do you know how many of those preparations, according to the United States Pharmacopeia, contain more alcohol in each dose than is contained in a dose of Wine of Cardui? *A.*—Yes, I have tabulated those.

Q.—How many? *A.*—Seven.

Q.—Can you name them? *A.*—I think so.

Q.—Well, name them. *A.*—There is the tincture of cimicifuga, spirit of anise (which is practically a flavoring preparation), spirit of juniper compound, tincture of nut galls, tincture of opium camphorated, which is paregoric; coca—Wine of Coca—and one that I do not recall.

Q.—You say there is one which you do not recall. *A.*—I enumerated—

Q.—Six. *A.*—Yes, there is one other that I do not recall at the present time, although I have it in my tabulation.

Q.—May I suggest, do you know whether or not tincture of sweet orange peel contains more alcohol than is contained in a dose of Wine of Cardui? *A.*—Yes, sir; that is the one that I omitted to mention. That is practically a flavoring preparation.

Q.—And those constitute the seven. Referring now to the dosage as announced in the Formulary, the National Formulary, can you tell how many of the preparations in the National Formulary which contain more alcohol, can you state how many of them by the dose contain more alcohol than Wine of Cardui? *A.*—That is, than in a dose of Wine of Cardui?

Q.—Yes, than in a dose of Wine of Cardui. *A.*—Yes, I made such a tabulation or count.

Q.—What is the fact about it? *A.*—I found about 203.

Q.—That contained what? *A.*—I found about 203 preparations in the National Formulary, as I remember it, about 203 that contain in each dose more alcohol—I beg your pardon, will you read the question again.

(The question was then read.)

A.—I misunderstood the question. Yes, there are about five of the 203 preparations in the National Formulary that contain alcohol.

Q.—Can you name the five? *A.*—Yes, tincture of coto, tincture of viburnum compound, spirit or elixir of potassium acetate, elixir of potassium acetate and juniper and elixir of curacao.

Q.—Do you know how the fluid extract of butternut compares? *A.*—The fluid extract of butternut is also, as I remember it.

CROSS-EXAMINATION BY MR. HOUGH

On cross-examination the witness testified that a considerable proportion of the 203 preparations named in the National Formulary have a higher percentage of alcohol than Wine of Cardui. He also testified that the resins found in viburnum prunifolium would be soluble as a minimum in from 50 to 52 per cent. of alcohol. Questions were asked concerning the alcohol in various pharmacopeial preparations:

Q.—Now, of the 190 pharmacopeial preparations in the—well, I said "pharmacopeial preparations,"—which contain alcohol, how many of them contain a larger percentage of alcohol than is in Wine of Cardui? Meaning larger than 20 per cent. *A.*—I do not know exactly, but a considerable proportion.

Q.—A considerable proportion. *A.*—Yes, sir.

Q.—More than one half? *A.*—I would probably think so; yes, sir.

Q.—Now, did you ever drink any of them to see how much you could drink before you got intoxicated? *A.*—No, sir.

Q.—When did you commence to drink Wine of Cardui?

Mr. T. J. Scofield:—I object to that question, if the Court please.

THE COURT:—When did you first experiment with it on yourself? *A.*—Well, about June, 1914.

Mr. Hough: *Q.*—When was the last time you experimented on yourself by drinking Wine of Cardui? *A.*—Of course, I want to qualify the word "drink." I cannot answer it by the word "drink." I simply swallowed a few doses.

THE COURT:—They are not trying to make you admit on the witness stand that you got the habit.

The Witness:—Why, about two weeks ago, or three weeks ago, perhaps.

Mr. Hough: *Q.*—Did your first drink make you feel like you wanted to take another drink of that? *A.*—No, I don't think so.

The examination then concerned Mr. Warren's understanding of the duties of the Propaganda Department and the distinction between proprietary and patent medicines. Proceeding:

Q.—Do you know of any preparation of medicine, or composition—the composition of which is held to be a secret by the manufacturer, of which the Propaganda Department approves when it is sold to the general public? *A.*—I do not know that I know of any; but I know this, that there are a very large number of such preparations that the Propaganda Department, so far as I know, has never said a word against, or has even proposed to say a word against, so I assume that there must be a large number. That would be a question properly for the director of the Propaganda Department to answer. I only answer from my opinion.

The witness was then asked concerning his examination of Wine of Cardui, also as to the amount of alcohol in various pharmacopeial and proprietary preparations as compared with the content of Wine of Cardui.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

Q.—Now, Mr. Warren, Mr. Hough asked you whether you have ever taken different preparations that he has mentioned. Did you ever take any pure alcohol? *A.*—Yes, sir. Not any absolute alcohol, no, sir; pure alcohol in dilution.

Q.—When did you do that? *A.*—About two or three weeks ago.

Q.—In connection with the investigation which you were making and concerning which you have testified here? *A.*—Yes, sir; the day after I took the Wine of Cardui.

Q.—Now, he asked you whether or not the Propaganda Department of the AMERICAN MEDICAL ASSOCIATION had approved different proprietary or patent medicines. I will ask you whether or not it is the function, as you understand it, of the Propaganda Department to approve any patent medicine? *A.*—It is not.

Q.—Or proprietary medicine. *A.*—It is not.

Q.—Their function is to denounce a fraudulent medicine, isn't it? *A.*—Yes, sir.

The further hearing of the cause was then adjourned until 2 o'clock the same day.

March 31, Afternoon

The court met pursuant to adjournment. Mr. T. J. Scofield presented Dr. Loevenhart as a physiologic chemical expert.

TESTIMONY OF DR. ARTHUR S. LOEVENHART

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. Arthur S. Loevenhart received the bachelor's degree in Kentucky State University in 1898; Master's Degree in the same institution 1899, Doctor of Medicine, Johns Hopkins University in 1903. He was first assistant, then associate and for two years Associate Professor of Physiologic Chemistry and Pharmacology in the Johns Hopkins University Medical School. Subsequently in 1908, he was called to the chair of Pharmacology and Toxicology in the University of Wisconsin, which chair he holds at the present time.

Dr. Loevenhart defined physiologic chemistry, pharmacology and toxology. He also testified as to his membership in various scientific organizations, as to his research work and his associations with various scientific journals.

He had analyzed two samples of Wine of Cardui, one received from the American Medical Association in its original carton, the other purchased in the open market by himself.

He was asked concerning his analyses:

Q.—State briefly the difference between the two. *A.*—The difference between the two—while they seem large in some respects, I regard as absolutely insignificant. I found that the second specimen contained perhaps ten to fifteen per cent. more of solid residue. I found that it contained about ten or fifteen per cent. less of this reducing sugar, which I regard as glucose; and it contains approximately ten or fifteen per cent., something in that neighborhood, less of ash; but these differences I regard as insignificant.

Q.—Why, Doctor. *A.*—For this reason, in making a preparation of this kind, the different lots of the plant from which you make the material vary; they must vary. They vary from season to season; also

there are small differences in the composition of plants, from season to season, or the locality from which they are collected; insignificant differences in the main, but differences that are perfectly appreciable to the chemist. And the caramel, with which this material is evidently colored varies in composition. It is simply burned sugar, and it is on the market in that form, and burnt sugar is on the market for coloring purposes and it varies in composition; and you cannot always get the same consistency. To all intents and purposes it is the same, it is the same color, and that is what you are using it for; but chemically you may have to use a little more, and you get a little lighter or a little darker burnt sugar, so that you change the amount to match the color, rather than put in a definite amount of the material.

For these reasons I regard the differences between the two specimens of Wine of Cardui as entirely insignificant, inconsequential and unavoidable.

The witness also analyzed a synthetic preparation which he found was midway between the two preparations which he had analyzed and that it was not distinguishable from the others.

He was asked:

Q.—Now, as the result of your chemical analyses, what would you say as to the presence of any substance or substances in the Wine of Cardui which could exert any appreciable action or effect in the body either in health or disease, when administered by mouth and taken into the stomach in doses recommended for Wine of Cardui? *A.*—If I understand that question correctly, I should say that the chemical analysis failed to reveal any substance in Wine of Cardui other than alcohol which could have any effect in the body, either in health or disease.

THE COURT:—The only difficulty with that answer is, Doctor, that it amounts to nothing, because we do not know whether you understand that question correctly. You said if you understand the question.

The Witness:—I think I understand it.

THE COURT:—Well, let us have it, then, so that we know what your answer is.

The Witness:—Read it, please.

(Question read.)

The Witness:—My answer to that — I had that question correct and my answer will stand.

Mr. T. J. Scofield: *Q.*—Do you understand the question, Doctor? *A.*—Yes, sir; and the answer given is that the analysis — my chemical analysis failed to reveal any substance present in the Wine of Cardui — well, I would like to modify my answer slightly, if I may.

Q.—All right; answer it. *A.*—The analysis, as made by me, failed to reveal in Wine of Cardui any substance which, taken in the dose recommended for Wine of Cardui, could exert any appreciable effect in the body, except the alcohol. With this reservation that the material is bitter.

The witness then testified as to the relation of Wine of Cardui and the synthetic preparation to fluid extract of viburnum prunifolium, stating:

Mr. T. J. Scofield: *Q.*—Now, in obtaining equivalent doses of viburnum prunifolium, as contained in the fluid extract of viburnum prunifolium, and the viburnum prunifolium as contained in the synthetic preparation of Wine of Cardui, how much alcohol would have to be consumed relatively? Will you answer that? *A.*—In obtaining equivalent doses from the synthetic preparation and from the Wine of Cardui, 27 times as much alcohol would be consumed when taken in the form of the synthetic preparation as when taken in the form of the official fluid extract of viburnum prunifolium — approximately.

The witness then described his pharmacologic action of Wine of Cardui. He had studied the effect of Wine of Cardui on the circulation and respiration of dogs. He described in detail the technic of this investigation. A teaspoonful of Wine of Cardui, in a dog weighing 14 pounds, produced no appreciable effect on the circulation or respiration.

The witness produced charts as records of this investigation and analyzed them for the jury. The chart was introduced as defendant's exhibit.

The witness was then asked:

Mr. T. J. Scofield: *Q.*—Doctor, would the fact that Wine of Cardui produces no effect, have any bearing on the question of whether it would increase the menstrual flow? *A.*—The fact that it has no effect on the blood pressure or respiration?

Q.—Yes. *A.*—Yes, sir.

Q.—As per your experiment? *A.*—Yes, sir.

Q.—What would you say as to whether it would or would not? *A.*—That requires, of course, an explanation. Drugs can be conceived to act on the menstrual flow only by influencing the amount of blood which flows through the blood vessels of the uterus or womb. A drug, in order to increase the flow, the menstrual flow, must increase the flow of blood through the womb. Now, this increase of flow through the womb could conceivably be brought about by one of two conditions; either, in the first place, by acting on these blood vessels, thus causing them to dilate — and, suppose the fluid vessels of the womb were like that (indicating with hands), a drug which could dilate those vessels and cause more blood to pass through them — that would cause a congestion of the womb and tend to increase the menstrual flow.

A drug could also increase the menstrual flow by acting on the wall, the muscle wall of the womb or uterus. If a drug caused the walls of the uterus — which is a hollow organ, of course, to become flabby, flaccid and relaxed, the vessels would — it would allow of a larger flow of blood through the vessels of the womb. And, contrariwise, a drug which tends to constrict the blood vessels, contract them down, so that the hole was very small, as if it had to flow through a very small pipe — it would tend to decrease the amount of blood flowing through the uterus; and a drug which acted on the wall of the uterus, in which these blood vessels run, causing it to go into contraction, would squeeze down on these vessels, and narrow them, and in that way, narrowing the blood vessels would decrease the blood flow through the womb, and decrease the menstrual flow; just as when you increase the blood flow you increase the menstrual flow.

Now, if this drug acted directly on the walls of the blood vessels, causing an increased flow of blood through the womb — dilating them, in other words — and thereby acting to increase the menstrual flow, it would have been indicated in my record; because when these blood vessels are dilated, the blood pressure would have been changed; and it would have been clearly indicated in my record; and, if this drug, Wine of Cardui, had the power of dilating the vessels of the womb, it would have clearly been indicated in my record on the blood pressure. It did not happen, and, therefore, there was no increased blood flow through the womb, or through any of the organs. In nearly all such cases no one single organ is affected that way, but many organs are affected.

There was no change in the blood pressure, and, therefore, I may state, and draw the conclusion that Wine of Cardui does not act on the walls of the blood vessels, either constricting them or dilating them, and it is absolutely inert with regard to the blood vessels.

Q.—Doctor, have you ever administered Wine of Cardui to a human being? *A.*—Yes, sir.

Mr. T. J. Scofield:—Just a moment. I will withdraw that last question for a short time.

Q.—How may a drug reduce or stop excessive menstrual flow, or any uterine hemorrhage? *A.*—I just— that is partly covered in my last explanation, but I may repeat it.

Q.—In what way, in the decrease or increase of the blood pressure? *A.*—Yes. A drug can decrease the menstrual flow only by decreasing the blood flow through the womb, and that decrease in blood flow through the womb can be accomplished by constriction or contraction of the blood vessels; by acting directly on the blood vessels or action on the whole uterine wall, making it contract—it is a muscular organ, of course—squeezing down the blood vessels, narrowing them in that way. (Indicating with hands.)

Q.—Doctor, what do you mean by a uterine tonic; if there be such a thing? *A.*—The word "tonic," in connection with the muscular tissue, refers to its state of contraction. I perhaps can best illustrate it with my arm. This biceps muscle, in my arm, will bend my arm. (Witness indicates by raising and lowering arm.) That muscle, now, has very little tone; the tone of that muscle is low, because it is extended, it is elongated. Now, its tone has increased (indicating by flexing arm), and it is increasing right along, and now it is in the condition of maximum tone.

Now, in reference to a muscular tissue a drug is a tonic, if it causes a contraction—a continuous contraction. Now, of course, while that arm is contracting, it may be showing relaxations and contractions, little ones, up here (indicating on arm); it may be in this condition and show relaxation and contractions still, but the condition of the tone—or its average shortness or average length in contraction or relaxation—this is relaxation and this is contraction— (indicating by flexing arm)—will be considered the tone of the muscle.

Now, with the uterus, which is a muscular organ, it may relax and be flabby, or it may be hard and contracted, squeezed down.

Now, the uterus, of course, normally, shows rhythmic movements, slow, rhythmic movements of contraction and relaxation, very slow, of course; but it is capable of contracting down hard.

Now, a drug could reasonably be called a uterine tonic, if it has the power of making the uterus contract and pass into a condition of tone, corresponding to the condition of my biceps, or corresponding to this (indicating by clasping hands)—considering a hollow organ like these hands together, squeeze them tight together, instead of having them loose or flabby—then they are in a condition of tone.

Anything that is called a uterine tonic should be capable of producing a tonic contraction in the uterus. That is the technical meaning of the word "tone."

Q.—Doctor, would it be possible for one and the same person— or, one and the same preparation, used in the same dose to be useful in the treatment of directly opposite conditions, such as a decreased and diminished menstrual flow, an excessive menstrual flow and uterine hemorrhage, and also to be useful during pregnancy? *A.*—No, sir.

Q.—Why not? *A.*—The answer follows directly from a previous explanation. If there is an increased menstrual flow, that is due, or must be related to the congestion of the uterus, too much blood in the vessels of the uterus—congested.

Now, a drug that would be useful there would have to constrict them and lessen the blood flowing through the uterus. You could not use a drug that would still further dilate the uterus and give it more blood, because you would thereby increase the congestion, and the menstrual flow would be further increased.

To be useful, in excessive menstrual flow, you would have to have a drug that would either cause the vessels to constrict by their own action, or the muscle walls of the uterus to constrict them.

Now, in case of decreased menstrual flow, that means there is not enough blood flowing through the uterus; and it can be increased by relaxing the uterus, relaxing the walls of the blood vessels so that the blood can flow through more freely. If you gave the same drug which was useful in an excessive menstrual flow, it would now

result in causing a further constriction, and it would make the condition worse.

The two cases require opposite effects; one requires relaxing the vessels of the womb for more blood to go through, and the other requires the constriction so that less blood may go through the uterus. One drug will not do two opposite things in the same dosage.

Furthermore, a drug which would be useful in excessive menstrual flow by causing contraction, and thereby decreasing the blood flow through the womb, would be dangerous during pregnancy, because it might precipitate an abortion. We never give a drug during pregnancy, which stimulates the uterine contractions—if you do that you would tend to precipitate an abortion, a premature birth, so that it could not be possibly useful—in fact, it would be dangerous. If it is a good thing in excessive menstrual flow, it must be dangerous during pregnancy.

If it is good for excessive menstrual flow, it is the opposite of what is wanted for decreased menstrual flow. If it is good for decreased menstrual flow, it is contrary, or exactly the opposite of what you would want in increased menstrual flow.

In other words, a thing is not plus and minus at the same time.

The witness then testified that he took at 11:30 in the morning, a full bottle of Wine of Cardui. Up to 12:30, there was a flushing of the face, slight sweating, difficulty in articulation. He noticed a certain amount of tingling in the legs and numbness. There was poor muscular coordination. At 12:30, the maximum effect was obtained which lasted until 2:30 when the effects began to wear off and were replaced by drowsiness and rather violent headache. There was no nausea.

The witness attributed the effect to the alcohol which the Wine of Cardui contained because the effects were absolutely typical of the moderate alcoholic intoxication; he had experienced no other effect on taking, on a previous occasion, the Wine of Cardui from which the alcohol had been evaporated.

He was then asked:

Q.—Doctor, do you think that Wine of Cardui could be used as an intoxicant— *A.*—I am absolutely—

Q.—And that in doses required to intoxicate it would not produce nausea? *A.*—I am absolutely sure of the—of course, I may say that I am not sure that all people could take it—I am absolutely sure that I can use it as an intoxicant.

Q.—Doctor, can you state what amount of alcohol is necessary to be taken to produce intoxication in an adult person, either a man or woman? *A.*—No, sir; I cannot.

Q.—Why? *A.*—The amount of alcohol required to produce intoxication in an adult man or woman varies under a great many conditions. In the first place, it depends on that person's habits. If he is used to taking alcohol, the dose which will be required to intoxicate will be larger than if he is unused to alcohol. In the second place, it will depend somewhat on his size; the larger the individual, the more alcohol it will take to intoxicate him. In the third place, it will depend on the condition of the stomach. If the stomach is empty that material will be more rapidly absorbed than if it were full and were mixed with the whole quantity of food that is in the stomach, so as to delay the absorption of it. So that, if the stomach is empty, it takes a smaller amount to intoxicate than if the stomach is full.

It depends somewhat on the time of day; because, it is common knowledge, of course, that a cup of coffee at night affects one much more than a cup of coffee in the morning.

It depends upon the surrounding circumstances. If a person takes alcohol, as I did in my laboratory when I was busy and had things to do, things to occupy my mind and nothing to excite me, it has much less effect than if I had been out in company with people and was talking and excited; it would take less alcohol to produce symptoms of incipient intoxication than it would in the quiet of my laboratory.

So there are a vast number of conditions. Then there are certain idiosyncrasies, as some people are more susceptible anyway, to alcohol, and some are less susceptible—it simply takes more just as it does of drugs—susceptibility to any drugs, intoxication by any drug will vary, so that the dose to get the same effect will be different in different individuals.

The witness then testified as to the effects of alcohol on the stomach. Assuming that alcohol will hasten the absorption of the Wine of Cardui he said that there would be no necessity or any advantage in hastening its absorption because Wine of Cardui is to be started two or three days before the menstrual period and has therefore, two or three days in which to be absorbed.

The witness then testified that he had evaporated the alcohol from the Wine of Cardui, made up the residue into twenty-four pills and administered them to a woman who was absolutely normal. He started administering the drug the day before the menstrual period. It had absolutely no effect on the period so far as could be determined.

Experiments were made by Dr. Loevenhart on thirteen rabbits with Wine of Cardui and with alcohol. He found that Wine of Cardui is as intoxicating as the same proportion of alcohol.

As to the toxic action concluded from his experiment, he said:

A.—I conclude that there is absolutely nothing in Wine of Cardui which can intensify the toxic action of alcohol. There is nothing in the Wine of Cardui which reduces the toxic action of alcohol. In other words, there is nothing present which modifies in any way the toxic or poisonous action of the alcohol which this material contains. And since there is nothing present when it is administered in toxic doses to modify the action of the alcohol, it seems a fair conclusion, especially in conjunction with the chemical analysis, that there is nothing present in the Wine of Cardui which can modify the therapeutic action of the alcohol which the Wine of Cardui contains.

The witness was asked:

Q.—Now, Doctor, from your chemical, pharmacologic and toxicologic investigation, have you an opinion as to whether Wine of Cardui contains anything else that is potent than alcohol? *A.*—No, not unless you consider the iron and the valerianate which it contains as active, potent.

Q.—Well, may iron be useful in the treatment of menstrual disorders? *A.*—Yes, sir; in certain forms of menstrual disorders it may be useful.

The witness was then informed that, according to the testimony of Dr. Leech, Wine of Cardui contains six ten-thousandths of one per cent. of iron; therefore, he was asked, how much Wine of Cardui would have to be taken by a woman in order that she might get a medicinal dose of iron? He estimated that she would have to take 2½ gallons three times a day; he also estimated that she would have to take 2$\frac{2}{10}$ gallons of Wine of Cardui to get the effect of the valerianate.

The witness testified that the 20 per cent. of alcohol in Wine of Cardui would not dissolve the residue of viburnum prunifolium, the resinous constituents of carduus benedictus and that it would not dissolve volatile oils; therefore the only effect of alcohol on the preparation is the action of the alcohol itself.

He was asked:

Q.—Now, Doctor, what is your opinion, based upon your knowledge of chemistry, toxicology and pharmacology of the value of McElree's Wine of Cardui in the treatment of disease under the experiments which you have made, and the testimony which you have given here? *A.*—In the first place, in answering that question I would like to dispose of the proposition that Wine of Cardui is bitter. Whatever effect a bitter substance may have in the body, good or bad, in the treatment of disease as it passes through the mouth, in consequence of its bitter taste, Wine of Cardui has. Although, of course, it may not be necessary to present a bitter substance in that form with the presence of that amount of alcohol. In so far as the other constituents of it, apart from the bitter taste: It is worthless, except for the alcohol, and in so far as it presents to the public for indefinite use alcohol in a preparation which does not require alcohol, pharmaceutically or medically require alcohol, to my mind it is vicious.

Q.—When you say it is vicious, what do you mean by that? *A.*—I mean it is vicious because it places in the hands of the public, with the advice to use continually over a long period of time in doses of two or three tablespoonfuls a day, a material which could be presented without the alcohol; a material which is inert except for its bitter taste and its alcohol, and a material which can be used as an intoxicant, and since it can be used as an intoxicant, undoubtedly will be used as an intoxicant.

Mr. Walker:—I move that latter be stricken out: "Undoubtedly will be."

The Witness:—In my opinion.

THE COURT:—His opinion may stand in the record.

To which ruling of the Court the plaintiffs, etc., excepted.

CROSS-EXAMINATION BY MR. HOUGH

Dr. Loevenhart was asked concerning any difference which may have existed in his analysis of Wine of Cardui and reports published in THE JOURNAL. He said that there was no essential difference. Dr. Loevenhart was asked concerning his connection with the AMERICAN MEDICAL ASSOCIATION, to which he replied that he is a member of the ASSOCIATION.

To questions, he answered that he is not a practicing physician nor a gynecologist. Proceeding:

Mr. Hough: *Q.*—What effect does the bitter principle in medicine have therapeutically? *A.*—There is an old belief in medicine that bitter substances act as a general tonic, that they improve the appetite and that it is of service in some conditions. The scientific basis of that conclusion is not very well founded at the present time. We have never been able to say very definitely that a bitter substance increases the appetite or improves digestion or increases the absorption of food, but there is a large amount of—there is a fairly widespread belief among medical men, from clinical observation, that bitters do those things in general as a class.

Q.—But you say it has not been proven pharmacologically yet? *A.*—No, it has not.

Q.—The practice of medicine commenced empirically, didn't it? A.—Yes, sir.

Q.—That means as the result of use by doctors of certain things they have come to believe that the results were attributable to the use of those things? A.—Yes, sir.

Q.—Now in comparatively recent years pharmacology comes in as a new science to try to show the doctor the reason for his belief of the method whereby certain medicines that he has been using for years or centuries accomplish the results. That is pharmacology, isn't it? A.—That is only part of pharmacology. Pharmacology is equally engaged in showing the fallacy of his beliefs, in case they are wrong.

Q.—Well, you don't mean to say that a negative pharmacologic test disproves the therapeutic value of medicine, do you? A.—Frequently.

Q.—Well, I say as a rule that don't? A.—As a rule it does.

Q.—Isn't it a well known fact, both among pharmacologists and therapeutists that a negative test proves nothing? A.—No, a negative test proves something.

Q.—Well, but it don't establish the fact that that particular substance has no medicinal or therapeutic value? A.—It may have some other effect than that for which it was studied, and of which it proved negative. It is negative in so far as it was studied.

Q.—Did you say that the pharmacologic test is more reliable than the clinical test in determining the value of a medicine. A.—Far more.

Q.—Far more? A.—Far more.

Dr. Loevenhart was then asked concerning the difference of pharmacologic and clinical experiments, and he was asked concerning the text books used in the University of Wisconsin, continuing:

Q.—What are used in your own department? A.—My students buy what books they care to. I have no preference what books they use.

Q.—What books do you use in examining them? A.—I use no books in examining them.

Q.—What books did you use when you were studying? A.—When I was studying pharmacology, as far as possible I used the original literature. I used some reference books. Among those that I used were Cushny's pharmacology. That, I think, was the only text book I used as a student.

Q.—Is that entitled "Pharmacology and Therapeutics, or the Action of Drugs?" A.—I think so. I don't recall its exact title.

Q.—It is a reliable book, isn't it? A.—A very reliable book.

Q.—Does not Cushny state that the negative test absolutely proves nothing, and must be disregarded? A.—I don't know what he states in that line. I do not recall.

Q.—You studied it, you say? A.—Yes, but I don't purpose to know every sentence there is in it.

Q.—Well, if he states that, would you disagree with him? A.—I have stated what I think. Now if that disagrees with him, I disagree with him. If it agrees with him, I agree.

Q.—You mean that you are an authority unto yourself on that? A.—To myself I am the final authority.

Mr. Walker:—He is on good terms with himself.

Mr. Hough:—Would you agree or disagree with this statement from Cushny:—

Mr. T. J. Scofield:—Now, if the Court please, I object to reading any statement from any book that he has there.

The Court:—Well, supposing that Mr. Hough puts it in his own language, as coming from Mr. Hough instead of from Cushny; you could not object to it. Then, afterwards, when the book is introduced in evidence, if it is, the significance of it will appear.

Mr. T. J. Scofield:—I deny the admissibility of it in evidence.

The Court:—It is not important whether this witness agrees or disagrees with Cushny. The witness has already given evidence of his independence.

Mr. Hough:—If the Court please; as I understand the rule with reference to the introduction of medical books it is this: that, if a witness states that a certain book is a recognized or standard work on the subject and he states that that book does not, in his opinion, state a certain thing, you can read to him from that book and thus contradict the witness.

The Court:—This witness has told you very frankly that he did not recall everything that he read in the book, or the particular thing involved in the question you put to him—he stated if it is in the book, as he stated it, he agreed with it and if it was different he disagreed with it. I think at the present time, the witness has not specifically disagreed with anything in the book.

Mr. Hough:—Does your Honor rule that when it comes time for us to present our side of the case, we may then read from the books where they contradict the witness.

The Court:—If this witness has said anything as coming from Cushny's book which is not there or has said something is there which is not, you may use the book to contradict it. But I will say now that I do not recall anything the witness has said up to the present time, that would justify you in reading anything from the book.

To which ruling of the court the plaintiffs, etc., excepted.

The witness was then asked as to his familiarity with the contents of text books. Argument was then made by attorneys of both sides as to the admissibility of text books in evidence in this case.

The jury was excused. The court stated:

The Court:—I will go that far and say that you are entitled to do it just exactly as if the doctor on the stand here said, "Yes, I have those views, and I studied under doctor so and so and I regard him as the ablest man on the subject in the country, and I have received my general education from him and especially on this line." You may then put that doctor on the stand to show that he never taught him any such thing. It is the same thing. If this witness, or any other witness accepts a book as a standard authority you may contradict the witness by that authority.

Mr. T. J. Scofield:—Whether he bases his opinion on that authority or not?

The Court:—Yes.

Mr. T. J. Scofield:—In other words, a man can have an independent opinion and state it however well he may—however well he may present it and yet not be free from the possibility of some book (that is not subject to cross-examination) being brought in to state some other opinion.

The Court:—No, I think you misconceive the whole situation. Every witness may be as independent as this witness who has said, "If the author of that book states differently, I disagree with him." I do not think there is any difficulty about that proposition.

Mr. T. J. Scofield:—That does not, as I understand the law, lay any foundation for the introduction of the book. The book was not written by any person who was in the position of a witness on the stand testifying under oath.

The Court:—The book is brought in here by the witness himself. You must presuppose that proposition.

Mr. T. J. Scofield:—That is a different proposition.

The Court:—And then the witness states that he relies on that book—

Mr. T. J. Scofield:—And that is different. Where he says he relies upon it.

Mr. Hough:—The reason of the rule, your Honor, is more strongly in favor of admitting the book that has been identified as a standard book, than the testimony of a witness who has prepared with reference to a particular case. The man who wrote the book did not write it with reference to any particular case to help one side or the other. He wrote it as an abstract proposition to be taught to the students who were to be educated.

The Court:—Oh, well, it seems to me, Mr. Hough, that a witness who is under oath in this court is at least as truthful and honest as the man who wrote the book.

Mr. Hough:—I do not mean to reflect on any witness or the honest intentions of the witness, but human nature is human nature and a man who writes of a subject without any particular partisanship one way or the other, is more apt to state his proposition unhedged by unconscious bias than a man who is on the stand, feeling that it is incumbent upon him to sustain a certain theory. So that I submit there must be some method whereby a book can be read from that is recognized as a standard book, to contradict the witness where the witness makes a statement which is contrary to what is in the book.

The Court:—Of course you could easily get into a position where the jury would be obliged to reach a verdict on the theory that there are seven books on this side, and four on the other.

Mr. Hough:—Of course that should be avoided also.

The Court:—Absolutely.

The further hearing of the cause was adjourned until Monday, April 3, 1916, at 10:30 a. m.

(To be continued)

Correspondence

Data on Hay-Fever

To the Editor:—We have received a large number of letters regarding the compilation of data on hay-fever as a result of an article "Hay-Fever: Its Cause and Prevention" (THE JOURNAL, March 4, 1916, p. 707). The American Hay-Fever-Prevention Association desires especially to receive the following data: the sex, age and occupation of hay-fever sufferers, the duration of the disease and date of commencement and ending of the attacks. If a report is obtained from a botanist giving the names of the most common anemophilous plants pollinating during the time of the attack, the information will be more valuable.

Attacks of pollinosis frequently cease from a change of wind or other reasons diminishing the supply of pollen or sometimes permanently from changing the residence to a locality removed from the exciting pollens, or from gradually developing immunity, and many remedies are therefore *post hoc, ergo propter hoc.* Remedies should therefore not be submitted unless they have been tried in a sufficiently large number of cases and carefully checked.

Physicians desiring to organize hay-fever-prevention associations, affiliated with the national association, may obtain a copy of the plan and of the constitution and by-laws of the Louisiana State Hay-Fever-Prevention Association, and will be given every reasonable assistance.

W. SCHEPPEGRELL, M.D., New Orleans.
President, American Hay-Fever-Prevention Association.

A Proposed Undergraduate Course in Clinical Physiology

To the Editor:—The article on this subject by Professor Lee (THE JOURNAL, Feb. 26, 1916, p. 639) is a remarkable contribution to medical literature. In this article a teacher of physiology frankly admits that the existing course in physiology is apparently an educational failure; that the students (undergraduates) question its value; that at the end of the required two years the students, with a "feeling of relief," leave the course and forget all that has been imposed on them. He further admits that many practitioners "lament their lack of physiologic knowledge," and gladly take up a postgraduate course in physiology that deals with matters of utility, such as "the sounds of the heart and methods of recording them." Yet in the face of this evidence, Professor Lee iterates his belief that "not by changes in existing courses in physiology" is this situation to be remedied.

It is some gain that Professor Lee recognizes the fact that the content of physiology courses as they are being given fails in furnishing the student with the desired "physiologic point of view." It is a further gain to recognize the fact that practitioners are anxious to acquire utilizable physiologic information.

Note that the postgraduate course offered deals with *human* physiology. That is exactly what the undergraduate most needs. He needs interpretation of heart action in terms of sounds and graphs derived from many normal human subjects, not in terms of "refractory periods" and "sino-auricular nodes" derived chiefly from frogs. When he enters the medical school he should drop the academic studies of the premedical course and become a specialist in the study of the *human body*—its normal mechanism and activities in the preclinical years, and its aberrances in the junior and senior years. Let the college teach physiology as a pure science in the department of biology, where it rightfully belongs, and let the medical school deal with applied physiology in relation to the human being. There is no more logic in giving a course in general physiology in our medical schools than in giving a course in general morphology, therein, exceedingly valuable as both courses may be as preparatory work.

As I have elsewhere contended (THE JOURNAL, Sept. 6, 1913, p. 732; *Boston Medical and Surgical Journal*, March 5, 1914), no one has a right to require pure science in the medical school until after the student shall have acquired sufficient skill in the applied knowledge of his chosen profession to insure his meeting with reasonable adequacy the main exigencies of his professional life. Does he acquire that skill, as determined by the "physiologic point of view," by the present methods of physiology teaching? Professor Lee's article replies in the negative. Nor does the student come back for an additional amount of the same kind of teaching; he comes for work in applied *human* physiology—the information which he urgently needs and which was unjustly denied him as an undergraduate.

What is needed in our medical schools is not so much an advanced undergraduate course in clinical physiology but such a practical applied course in freshman and sophomore physiology that the knowledge therein gained can be intelligently correlated with similar instruction in pathology, and advantageously utilized in medicine and surgery. Another thing needed in our Aesculapian pedagogy is a clear recognition that the medical school is, or ought to be, a technical school—a place for the training of men in the art and science of *medicine;* and every department ought to keep that pregnant fact sharply and constantly in view. The principal laggard today is the department of physiology; and the unsatisfactory state such remissness creates is well shown in Professor Lee's complaint. The remedy is plain; why suffer longer the disease?

A. D. BUSH, M.D., Olivet, Mich.
Department of Biology, Olivet College.

A Proposed Undergraduate Course in Clinical Physiology—A Reply

To the Editor:—Dr. Bush assumes an attitude toward both the existing course in physiology and the medical school which is not generally held. It is obviously unnecessary to discuss seriously his characterization of the course in physiology as "an educational failure."

The situation in the school would not be improved by devoting the course to "human" physiology only, even if that were desirable, or were possible in the present state of the evolution of physiologic science. One thing that I tried to make clear in my little paper read at the Chicago meeting is that some knowledge of clinical medicine is necessary before the student can fully appreciate the clinical bearings of physiology. Therefore a change in the existing course in physiology of the first or second year would not give him the physiologic point of view that he should have as a practitioner. He must have his course in physiology early in his medical studies; but later, with a clinical background, he could profitably follow a course in clinical physiology, in which he could learn how to look at various clinical problems from the standpoint of physiology more clearly than before.

The inclusion of general physiology among the other biologic sciences as a topic of general education may be heartily commended—and I may be pardoned for saying that I have advocated this for many years and have tried in diverse ways to bring it about. But this would not relieve the medical school of its physiologic opportunities and responsibilities. It would be a sad day for medicine, for medical science and medical education, if the medical school should degenerate into a mere technical school. If physiology is indeed "the principal laggard" [sic] today in preventing such a catastrophe, all honor to her!

FREDERIC S. LEE, Ph.D., New York.
Columbia University, College of Physicians and Surgeons.

Alarming Symptoms Caused by Diarsenol

To the Editor:—In THE JOURNAL, March 18, 1916, p. 865, was a report of three cases of temporarily bad results from the use of diarsenol, written by Dr. A. H. Cook. I have had two such experiences but, having discovered that it occurred only after a certain lot of diarsenol of the serial number B3400, I think it wise to report this fact, as otherwise a great many physicians may be deterred from giving the drug.

In explanation I will state that after giving several hundred doses of diarsenol without any bad effect whatever, I had two cases with the nausea, vomiting and symptoms of apparent collapse such as described by Dr. Cook. When I investigated at the Southern Pharmacy, which acts as purchasing agent of salvarsan and such drugs for the physicians in this building, it appeared that all of the bad results

reported by Dr. Cook, my two cases and two more occurring in the practice of Dr. E. D. Holland, all of us in the Dugan-Stuart Building, were due to diarsenol of the series mentioned above. This had been received by the pharmacist on a back order and at almost the same time he received a lot of the series 05600.

None of the diarsenol which was used here freely before this series B3400 gave any trouble. None of the series 05600 has given any trouble. In fact, the product now is much more soluble and makes a much lighter solution and has the physical as well as chemical appearance of salvarsan. The bad lot that gave us trouble made a dark smoky solution when dissolved in distilled water. This cleared somewhat after being made alkaline and being diluted with salt solution. The diarsenol now marketed has none of this dark appearance, but makes a bright yellow solution from the start.

E. H. MARTIN, M.D., Hot Springs, Ark.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

LITERATURE ON ROENTGEN RAY BURNS

To the Editor:—Will you please inform me where I can obtain literature regarding the pathology and treatment of x-ray burns of the abdomen? Can you refer me to any medicolegal decisions on this subject? Kindly omit name and address. R. W.

ANSWER.—The following is a list of articles on these subjects:

Another Victim of the X-Ray, London Letter, THE JOURNAL, March 14, 1908, p. 889.
Carcinoma from Roentgen-Ray Burns, editorial, THE JOURNAL, March 21, 1908, p. 966.
Iselin, H.: Cumulative Roentgen-Ray Burn, *München. med. Wchnschr.*, Dec. 3 and 10, 1912.
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INCONSISTENCIES IN THE HARRISON NARCOTIC LAW

To the Editor:—Some inconsistencies appear to crop out in the Harrison Narcotic Law. Paregoric is sold in any quantity to anybody, but a physician's prescription containing paregoric cannot be refilled. Bell's Syrup of Codein, a proprietary medicine said to contain 1 grain of codein to the ounce, is sold in a prescription or without being prescribed, whereas a prescription containing codein sulphate, 1 grain to the ounce or even less, comes under the new law and cannot be refilled. F. POWERS, M.D., Westport, Conn.

ANSWER.—As explained last week (Paregoric Exempt Under the Harrison Law, p. 1051), the inconsistency referred to by our correspondent has been partially removed by Treasury Decision 2213, which permits the refilling of a physician's prescription containing as one ingredient a preparation exempted under Section 6 of the law. The necessity for this interpretation was unfortunate. The continued use of small doses of a narcotic drug is just as capable of establishing a habit as in the case of larger doses.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, May 9. Sec., Dr. T. J. Stout, Brinkley; Eclectic, Little Rock, May 9. Sec., Dr. C. E. Laws, 712 Garrison Ave., Fort Smith.
DISTRICT OF COLUMBIA: Washington, April 11. Sec., Dr. E. P. Copeland, The Rockingham.
ILLINOIS: Chicago, May 4-6. Sec., Dr. C. St. Clair Drake, Springfield.
MASSACHUSETTS: Boston, May 9-11. Sec., Dr. Walter P. Bowers, Room 501, No. 1, Beacon St., Boston.
NEVADA: Carson City, May 1. Sec., Dr. Simeon L. Lee, Carson City.
NEW MEXICO: Sante Fe, April 10. Sec., Dr. W. E. Kaser, East Las Vegas.
NEW YORK: Albany, Buffalo, New York and Syracuse, May 16-19. Sec., Mr. Harlan H. Horner, Chief Examinations Division, Educational Bldg., Albany.
OKLAHOMA: Oklahoma City, April 11-12. Sec., Dr. Ralph V. Smith, 502 Daniel Bldg., Tulsa.

THE FUNCTION OF THE DISPENSARY*

It was suggested to the committee by the president of the Association that the dispensary or outpatient department as a factor in medical instruction should be taken up for discussion this year. In presenting their report, the members of the committee wish to state that in its preparation the executive officers of many medical schools were consulted, and they desire to express their gratitude to these gentlemen for their many helpful suggestions.

A satisfactory discussion of the part which may be played by the outpatient department in medical instruction is hardly possible without a consideration of the functions, organization and equipment of such a department. It is, we think, fair to state that the dispensary or outpatient department has in but few institutions received the attention which it has deserved. As one of our correspondents remarks, "The dispensary . . . has been treated in a stepmotherly fashion while the hospital has been the favored child." It is difficult to see why this should have been the case for, after all, the functions of a dispensary are essentially the same as the functions of a hospital, namely, the adequate care of the patient, the instruction of medical students, and the advancement of medical knowledge. From most points of view the same conditions hold in the dispensary as hold in the hospital. Adequate care of the patient must include not only careful examination and proper treatment, but also instruction in methods of life and the prophylaxis of disease. The dispensary should be a center for the dissemination among the public of knowledge of preventive medicine. In the dispensary, just as in the hospital, the presence of the medical student not only adds to the effective working force, but also stimulates the attending physicians to a better type of work. The advancement of medical knowledge by means of research has been, we believe, sadly neglected in most dispensaries, but there is no reason why adequately equipped dispensaries should not be a source of material for research, and on the other hand, there are some reasons why they are likely to be one of the main sources of material for the investigation of the early stages of many chronic diseases.

There are certain fundamental differences between dispensary patients and hospital patients, even though there is frequently no sharp line of demarcation between the two. The nonresident character of dispensary patients renders them less capable of control, and for that reason less subject to continuous study and supervised treatment. Under the newer conditions of dispensary organization, however, these difficulties can be largely minimized. It is true also that the patients encountered in dispensary practice ordinarily differ from the hospital patient in the type of disease they present. The hospital patient is usually suffering from an acute infectious disease or from the terminal stages of a chronic disease. The dispensary patient is usually suffering either from some minor ailment, from a chronic disease in its incipiency, or from an advanced chronic disease still in the ambulatory stage. In brief, the dispensary patient represents the type of

* Report of the Committee on Equipment, read at the meeting of the Association of American Medical Colleges, held in Chicago, Feb. 8, 1916.

patient that usually consults a physician at his office. As contrasted with the hospital, therefore, the dispensary offers much greater opportunities for the study of minor ailments and for the study of incipient chronic diseases. For the last reason alone, all possible diagnostic methods capable of application in ambulatory patients should be at the disposal of the dispensary physician. It is the dispensary physician who has the greatest opportunity of discovering the early manifestation of those serious chronic diseases which at the present time so frequently reach the hospital at a period when they have already become incurable. The problems presented to the dispensary physician, therefore, are by no means simple, and it is a common but mistaken assumption that medical fledglings are capable of adequately caring for this important work.

The deficiencies in organization of many existing dispensaries have to do with both their physical and human equipment. Through lack of foresight, lack of means or faulty arrangement of space, many of our dispensaries are wofully overcrowded. In many outpatient departments, even in large cities, trained supervision of the dispensary work is lacking. An insufficient social service department, or indeed the complete absence of such a department, is frequently to be noted. The clinics often attempt to cover too much ground, the medical assistance is frequently insufficient and badly classified, the records are often hardly worthy of the name, and in some institutions the lack of unity between the hospital and dispensary work is a serious defect.

In these days of efficiency experts it is hardly necessary to point out that the work of a dispensary can be greatly facilitated by sufficient space and, what is even more important, proper arrangement of that space. We believe that it is possible to work out a satisfactory unit arrangement for a teaching dispensary, and we have attempted in the accompanying sketch to suggest such a unit. We believe that the best general dispensary plan is one in which there is a central waiting room or corridor surrounded by suites of examining or dressing rooms entered from an inner corridor. Each clinic should control a working unit, and each unit should consist of a central admitting room which connects directly with the general waiting room, flanked on either side by a series of unit rooms, modified according to the need of the particular clinic. In the central admitting room of each unit the current records are kept, and the room is divided into a series of cubicles in which the histories of the patients are taken. The patient is examined or dressed in one of the small rooms which do not connect directly with the general waiting room but are separated from it by an interior corridor. The idea of the plan is that, inasmuch as many old patients do not require a complete physical examination, the cubicles of the admitting room can be used for handling them as well as for taking the histories of new patients. Each new patient, after having the history taken in the admitting room, is transferred to an examining room for a thorough physical examination. The division of the examining room into two groups by the admitting room separates the males from the females. It is a simple matter for an architect to arrange the fenestration so that rooms consisting of units or combinations of units are obtainable.

For the proper administration of the dispensary there should be in charge of it a superintendent who may or may not be a physician, but who must have had training in the social side of dispensary work. The superintendent should devote his entire time and energy to the work, and should be sufficiently well remunerated so that he can afford to do this. There should be a sufficient force of admitting clerks properly to register and index the patients, the clinics should be properly supplied with nurses, particularly those clinics in which women are patients, and clinic secretaries have proved of great value in the Massachusetts General Hospital outpatient department. The latter are young women who are desirous of doing philanthropic work and who volunteer to keep the clinics running by taking general charge of the patients, seeing that their records are properly distributed and properly filed after the daily session, caring for the transfer of patients from one department to another, caring for the follow-up systems, weighing patients, taking temperatures, and other minor duties.

It has yearly become more evident that no dispensary can be satisfactorily conducted without an adequate social service department. Those of us who have had an opportunity of working with a social service department can look back with feelings almost of horror to the time when we attempted to do without one. The reasons underlying the necessity for this department are now so obvious and well recognized that further comment is unnecessary.

Perhaps the most important essential in the proper conduct of the dispensary is an adequate medical staff, and it would seem as though it was advantageous to divide the medical attendants into the teaching staff, who should be more or less permanent paid men responsible only for the supervision of students and for teaching, and the service staff, who are unpaid volunteers whose business it is to take care of the routine work of the dispensary. In our experience it is necessary to have at least one paid man in each department. Where the dispensary is affiliated with the hospital the house staff of the hospital may well spend part of their time in the outpatient department. In a teaching dispensary it is very important that the heads of departments shall give their services to the institution at regular intervals. One of the main difficulties in the conduct of many dispensaries has had to do with obtaining a sufficient number of well trained young men to conduct the routine work. The main source of this difficulty in our opinion has been the condition of overcrowding and hurry that is characteristic of so many dispensaries and which serves not only to rob the attending physician of whatever benefit he might obtain, but also tends to convert him into a slipshod routinist. We cannot expect to attract first class men to dispensary positions until we can so arrange dispensary conditions that the work they obtain is of distinct benefit to them.

The question of dispensary records is a very important one. Unless carefully and properly kept, the records are worthless. Making all allowances for the differences in conditions, they should be as carefully and accurately kept as hospital records. Indeed, the ideal system is to keep them on the same blanks as the hospital records and to have the records of the hospital and the outpatient department interchangeable. In some institutions the hospital and dispensary have a common history room and, while there may be local reasons why this may not always be desirable, the principle should be followed where possible.

The advantages to the dispensary of close affiliation with the hospital can be fully appreciated only by those who have worked in a dispensary which is not so situated. A dispensary is a natural feeder of a hospital, and where the two are separate the difficulties as to the transfer of patients from one to the other are great and each institution loses in efficiency on account of the unnecessary duplication in equipment and staff which such a separation involves.

The equipment of a dispensary can be summed up in a general way in a sentence. It must be such that thorough examination and treatment of all patients is possible. This means, of course, that the dispensary workers must have at their command all of the usual clinical instruments of precision — thermometers, stomach tubes, blood counters, microscopes, cystoscope, etc. Further than this, there must be the necessary laboratory space for the routine laboratory procedures. From the standpoint of dispensary efficiency, a central laboratory is perhaps the best. From the standpoint of medical teaching, small clinic laboratories are perhaps better, as they allow the student to study each patient completely himself. The dispensary should also have an efficient Roentgen-ray department both for diagnosis and for treatment, a heart station with the necessary instruments, and a department of physical therapy in which massage, electricity, hydrotherapy and mechanotherapy can be carried out. It goes without saying that certain departments will require specially equipped rooms, such as dark rooms, plaster rooms, rooms for stomach washing, cystoscopic rooms, etc.

The question of the use of the dispensary in teaching may be considered from the point of view of the teacher or of the student. All of the dispensary workers engaged in teach-

ing should be appointees of the medical school, should be paid men, and should be required to make teaching their chief work. Each clinic should be in charge of a paid instructor who should conduct it and personally take charge of the students. There should be at least one such instructor to a group of five students—preferably to a group of three. The routine work should be attended to by the service physicians, who would, however, refer interesting cases to the chief of the clinic. It is easier to procure such paid instructors than to keep them. Many promising and properly trained young men are willing to accept such positions until their practice reaches a paying stage. After this stage is reached, it is difficult to retain them in the dispensary positions. This is one of the problems that must be faced in connection with dispensary instruction, and it would seem that we must either pay such instructors for their full time, or hold out to them the promise of promotion either in the dispensary itself or in the hospital.

The particular stage at which students are best put into dispensary work will perhaps depend to some extent on local conditions. In a school where the clinical clerk system is in operation and where, therefore, the student's fourth year work in medicine, surgery, pediatrics and diseases of women is adequately cared for in the hospital, it would seem as though the best disposition is to let the third year students devote their time in the dispensary to the general clinics and require the fourth year students, who obtain their general work in the hospital, to devote their dispensary period to the specialties. This can be satisfactorily done, however, only when great care is taken that the third year student shall receive adequate supervised instruction in his dispensary work so that he does not carry slipshod methods into his fourth year.

So far as the separate clinics themselves are concerned, in their relation to teaching, specialization should be encouraged. This will naturally be most feasible in the large city, much less so in the small one. There would seem to be no question that a student receives better instruction from a man who is specializing in some subject in which he is particularly interested than he does from a teacher who is not so engaged. Of great importance is the contact of the student with the working representatives of the various social organizations, which are nowadays so frequently affiliated with dispensaries. The student can learn much about such subjects as prenatal care, infant welfare, the mentally defective, and other aspects of preventive and social medicine, through the representatives of these agencies.

In connection with the teaching work of the dispensary, it seems to the committee that there are certain subjects of fundamental importance that may be covered in dispensary work and certain special methods of value. The third year student should be taught how to take histories and how to handle patients in a tactful and humane manner. He should learn how to make a thorough routine physical examination, and should preferably carry out himself the necessary work in the clinical laboratory in connection with each of his patients. He should obtain instruction and practice in the use of such instruments as the thermometer, sphygmomanometer, ophthalmoscope, etc. He should take charge of his patient throughout all special examinations, thus learning to appreciate the necessity of such examinations, and should gain some insight into the interpretation of roentgenoscopic findings, serum reactions, and similar special tests.

Certain methods are of special value in the instruction of students as well as in the care of dispensary patients. It seems to us that the class method, originally advocated for groups of tuberculous patients, could be widely extended to great advantage. It would be distinctly beneficial not only to the patient but also to the student to have classes of cardiacs, of nephritics, diabetics, neurasthenics, and patients with stomach trouble and leg ulcers. It goes without saying that this method could be extended indefinitely and should serve to stimulate interest not only in the student but also in the instructor to whom the particular cases are assigned. The proper use of the social service department and the clinic secretaries is also of great value to the teacher and student as well as to the patient. By means of card indexes and follow-up systems in the hands of the social workers, patients can be studied with much greater regularity than was formerly the case, and groups of patients presenting similar lesions can be brought together at intervals for purposes of study and instruction.

The main conclusions of the committee may be summarized as follows:

1. The dispensary or outpatient department, as a means both for the study of disease and systematic instruction of students, has been greatly neglected.

2. This will continue to be the case until our dispensaries are adequately housed, adequately equipped and adequately manned.

3. The present overcrowded condition of most of our dispensaries results in slipshod methods on the part of the assistants, and tends to the acquisition of slipshod methods by the student. It makes it difficult to procure men of the right caliber in dispensary work.

4. There is an urgent need for the recognition of the importance of dispensary work by the profession, and a recognition of the importance of adequate endowments by the laity.

5. A properly equipped and adequately manned dispensary is one of the most important factors in clinical instruction.

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Michigan October Report

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports the written examination held at Lansing, Oct. 12-14, 1915. The total number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 19, all of whom passed. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1915)	81.2, 81.5
University of Illinois	(1915)	84.4
Detroit College of Medicine and Surgery	(1915)	78.7, 80.7
University of Michigan Medical School	(1895)	75.7; (1915) 85.5
University of Michigan Homeo. Med. School	(1915)	75.3, 79.4, 82, 83.4, 84.7, 85.5, 85.7.
University of Oregon	(1915)	81.1
University of Pennsylvania	(1912)	82.9
University of Vermont	(1915)	84.6
University of Toronto	(1913)	87.9
Western University	(1912)	82.7

Forty-four candidates were licensed through reciprocity from May 14 to Dec. 9, 1915. The following colleges were represented:

College	Year Grad.	Reciprocity with
George Washington University	(1912)	Iowa
Chicago College of Medicine and Surgery	(1911) (1912) (1913, 2) (1914)	Illinois; (1914) Penna.
Chicago Homeopathic Medical College	(1890)	Colorado
College of Physicians and Surgeons, Chicago	(1912)	Indiana
Northwestern University	(1912)	Illinois
University of Illinois	(1913, 3) (1914, 3)	Illinois
Medical College of Indiana	(1897)	Indiana
Drake University	(1908)	Iowa
State University of Iowa, College of Medicine	(1897)	Iowa
Hospital College of Med., Louisville	(1888) Minn.; (1906)	Mississippi
Kentucky School of Medicine	(1888)	Ohio
Maryland Medical College	(1912)	New Hamp.
University of Maryland	(1911)	Maryland
Harvard University	(1900)	Missouri
Tufts College Medical School	(1907, 2)	New York
University of Michigan Medical School	(1897)	Wisconsin
Marion-Sims College of Medicine	(1898)	Iowa
St. Louis University	(1913)	Missouri
Washington University	(1909)	Illinois
Cornell University	(1913)	New York
Eclectic Medical College, Cincinnati	(1914)	Ohio
Jefferson Medical College	(1913)	Penna.
Woman's Medical College of Philadelphia	(1908)	New York
Vanderbilt University	(1886) Illinois; (1914)	Tennessee
University of Vermont	(1913)	Vermont
Medical College of Virginia	(1904) Virginia; (1915)	N. Carolina
Milwaukee Medical College	(1912, 2)	Wisconsin
University of Naples	(1898) Tennessee; (1904)	Illinois

Book Notices

LABORATORY METHODS, WITH SPECIAL REFERENCE TO THE NEEDS OF THE GENERAL PRACTITIONER. By B. G. R. Williams, M.D., and E. G. C. Williams, M.D., with an Introduction by Victor C. Vaughan, M.D., LL.D., Professor of Hygiene, University of Michigan. Third Edition. Cloth. Price, $2.50. Pp. 214, with 43 illustrations. St. Louis: C. V. Mosby Company, 1915.

As this book is intended for the general practitioner, one would expect from it little more than a presentation of the simpler methods of detail. It is debatable, however, whether the authors, in their efforts at simplicity, have not been somewhat lax in their method of pointing out possible errors, both in technic and in interpretation, in the tests outlined. In these days the general worker should do, or should have done under his direction, the major portion of his routine laboratory work, instead of relying on distant laboratories, none of which are in a position properly to interpret the relationship of the laboratory findings to the clinical course of the case under investigation. Unfortunately, this is not the condition, as the general worker feels that he is not in a position to perform his routine tests to the best advantage. It is true that practically all the material contained in this book should be thoroughly known to the practitioner at the time of his graduation, yet much of it escapes his memory. He requires a book for daily use, the type of book depending on his need for reference. This book on laboratory methods should be of great service in enabling the practitioner to refresh his memory. The subject-matter is divided into eighteen chapters, each treating of a separate phase of laboratory work. The newer additions have been placed, unwisely it would seem, in an appendix rather than in the body of the book. The topics are presented in a clear and concise manner, the discussion being arranged with a view to simplicity rather than to detail. The work can be recommended to those who do not desire to go into great laboratory detail, but wish simply to have a guide to the technic of every-day laboratory practice. If, at the same time, a larger reference book is at hand for occasional consultation, the worker will be so much the better fortified.

A TEXT-BOOK OF NERVOUS DISEASES FOR STUDENTS AND PRACTICING PHYSICIANS. IN THIRTY LECTURES. By Robert Bing, Dozent for Neurology at the University of Basel. Authorized Translation by Charles L. Allen, M.D. Cloth. Price, $5. Pp. 481, with 111 illustrations. New York: Rebman Company, 1915.

This book is good but not very useful. It is good because it contains all the most important facts of our present neurologic knowledge. It is not very useful because its verbosity and lack of clear, concise statement will repel the student and general practitioner, for whom it was designed. The subject-matter is presented in the form of thirty lectures, not because lectures actually delivered form the basis of the work, but because, as the author says in his preface, "of the recollection that in my student days, the reading of textbooks in lecture form was to my fellow students and myself like an oasis in the midst of the tiresome work of preparing for examinations." The clinical lectures of such masters as Trousseau, Charcot, Kraepelin and the elder Flint were and are delightful and illuminating. Those of our author might also be could he have compassed the clarity and directness of statement, the graphic emphasis and the skilful exclusion of nonessentials attained by those writers. The following sentence, taken almost at random from Bing's textbook, was read to a group of third year medical students: "Along with cases impressing themselves by typical heredofamily occurrence in which transmission occurs chiefly through the mother, who herself, however, can remain free from the disease—I designate this last as "maternal metrapectic inheritance'—come also sporadic cases, namely, in the 'juvenile scapulohumeral type' (Erb) which we will consider more at length under the discussion of the special forms of dystrophy." No one seemed to think it much of an oasis.

While no gross errors, either of commission or omission, have been noted, in some respects the arrangement of the matter seems to be rather unpractical. For instance, facial paralysis is discussed as part of a lecture on diseases of the peripheral nerves; but with the description of the affection there is nothing on treatment. For this one must depend on the general directions for treatment of diseases of the peripheral nerves. There is nothing on prognosis and nothing on differential diagnosis. The article on trigeminal neuralgia is inadequate. One is given the impression that the author has simply condensed statements taken from many sources without discreet selection, without digestion, even without rumination.

There are some excellent things in the book. Dysfunction of the endocrine glands is well treated, the section on diseases of the cerebellum is quite satisfactory, and the article on anterior poliomyelitis decidedly good. Indeed, the subject-matter as a whole is quite up to standard. A really great little textbook on nervous diseases has not yet been written, probably cannot be written. If that of Bing could be rewritten by the right man it would be among the best.

The translator seems to have been burdened with a hyperconscientiousness which has driven him to put into English much of the involved construction of the German. Otherwise the translation is pretty well done, though oversights of the proofreader are rather frequent. For the prolix style the translator cannot be held accountable; but it seems a pity to bulk up to 481 pages what might have been said in 381.

A MANUAL OF PHARMACOLOGY. By Walter E. Dixon, F.R.S., Professor of Materia Medica and Pharmacology at King's College, London. Fourth Edition. Cloth. Price, $4.20 net. Pp. 467. New York: Longmans, Green & Co., 1915.

Only drugs which have gained an incontestable place in pharmacotherapeutics are taken up; mere pharmacologic curiosities receive no attention. Wherever possible, the group treatment of drugs has been so utilized that the necessity of dilating on the properties of special drugs has been largely obviated. The drugs are taken up essentially with relation to therapeutic considerations, based wherever possible on pharmacodynamic observations. The language is direct and somewhat pregnant, yet the observations are comprehensive enough to impress on the reader the subsidiary as well as the main actions of the drugs so that a well-balanced appreciation of therapeutic values is safeguarded. While not expansive, the discussion is far from being merely compendious; there are structural chemical formulas, diagrams and instructive tracings judiciously introduced to add interest. While the book will hardly serve as a reference work in pharmacology, the very plan of exclusion that has been followed makes the book a safe guide for students beginning pharmacotherapy. It is commendable that the author has slighted such matter as encourages a venturesome use of drugs. It is well from more than one standpoint for the student not to have such a diversity of material in his therapeutic workshop but that what he does possess is as well approved and substantial as that furnished in this book.

A PRACTICAL TREATISE ON INFANT FEEDING AND ALLIED TOPICS FOR PHYSICIANS AND STUDENTS. By Harry Lowenburg, A.M., M.D., Assistant Professor of Pediatrics, Medico-Chirurgical College of Philadelphia. Cloth. Price, $3 net. Pp. 392, with 94 illustrations. Philadelphia: F. A. Davis Company, 1916.

This book aims to present practical directions for the feeding of infants and the care of the mother, with relation to the nursing period. The author has adhered to the percentage idea "as furnishing a valuable method of thinking, and not as a 'conditio, sine qua non,' the idea being that individualization is the basic principle of successful infant feeding." Needless to state, the greatest stress is laid on breast feeding. The material on this subject is practical, but presented in a didactic manner. Separate chapters are devoted to spasmophilia, exudative diathesis, and pyloric obstruction. The chapter on the latter subject contains a note on the surgical treatment, by Dr. Deaver. The author has apparently attempted to make his work inclusive rather than critical. Possibly this may explain his reckless recommendation of various proprietaries, whose value apparently he judges by the advertising literature.

Miscellany

Industrial Hygiene

A report has just appeared of the first session of the Section on Industrial Hygiene at the Fourth Annual Safety Congress of the National Safety Council in Philadelphia in October. Among the papers read and discussed was one on "Systems of Health Supervision" by Dr. George M. Price, Director of the Joint Board of Sanitary Control, of the cloak and suit industry, of New York City. Dr. Price said that health supervision in the industries depends on the two principles of industrial justice and industrial efficiency. It should comprise sanitary supervision, industrial hygienic supervision, purely medical supervision, general hygienic supervision, and health insurance. Health supervision to be complete must include some system by which the worker who is more or less disabled is taken care of while disabled, while sick and while invalided. The three sources of health supervision are individual, industrial and state. The latter, he believed, we are not yet ready to accept in this country, as being too socialistic. Industrial supervision should be general for a particular industry and not simply by the individual plant. Such a state has been brought about in the cloak and suit industry, and its authority is embodied in the Joint Board of Sanitary Control made up of representatives of the unions of workers and of the employers, the two contributing equal shares to the expenses. Among other things, there are provisions for the physical examination of those coming into the industry, the care of those ill or disabled, those sent away for their own benefit, attention to eye and dental diseases, etc.

Dr. W. H. Clarke of the Norton Company, manufacturers of grinding wheels and grinding wheel machinery, gave the experience of his firm in the development of its department of health and sanitation since 1911, when the first systematic work was inaugurated, with 1,200 employees, to the present 2,000. This was not considered welfare work, but a business proposition, and it has ranked as equally important with other departments of the shop. Physical examination is made before men are hired. The objects of physical examination of employees are to prevent contagious diseases becoming established in the works, to prevent grossly defective men attempting work for which they are incapable, and to allow adjustments by transferring a slightly defective employee to work which is more suitable to his condition. Examinations consume from twelve to twenty minutes, unless in exceptional cases, and the primary examinations had not in their experience been proved later to be inadequate. Complete records are kept, and a follow-up system is employed.

Dr. Sidney A. McCurdy of the Youngstown Sheet and Tube Company discussed the "Results Accomplished" by medical supervision from the standpoints of the needs of the individual, of the industry and of organized society, both as to its economic and its humanitarian aspects. He cited instances of industries in which, after health supervision was provided, many less days were lost by men examined; one in which tuberculosis had been practically weeded out, their own plant, in which over a hundred cases of trachoma had been discovered and treated, and one in which it was shown that the number of new men hired was less, the old, trained men, being able to remain at work to a greater extent than before medical supervision had been instituted. Safety had been advanced to new possibilities, for the man who is physically able to do his work is a safer man for himself and his fellow workmen.

The importance which the subject of medical supervision in the industries is assuming is shown by the demand made at this early stage for a standardization of methods. Dr. J. W. Schereschewsky, of the Public Health Service, said there was need for standards in respect to personnel and equipment, and standards for practice. Under the first head were to be considered the employment of whole or part time plant physicians, clerical, nursing and other assistants, their functions, the space, construction and equipment of the relief department, etc. Under the second head would be put standards of physical examination, standards with respect to rejections, standards in regard to physical defects and diseases not implying rejection, with provisions for those substandard, standards of practice with regard to injuries, treatment in cases requiring medical relief, sanitation of industrial plants, health education of the plant personnel, systems of recording and compiling records, etc. If medical supervision is to fulfil its predestined function, these must all be considered, and provision made for their adoption. It has been predicted that sickness insurance must come in this country; it has already arrived in some European countries. Until it does, Schereschewsky believes that well-organized systems of mutual sickness insurance, such as already exist in some plants, should form a part of the department of medical relief.

In line with Dr. Schereschewsky's paper, Dr. Emory R. Hayhurst, director of the department of occupational diseases, Ohio State Board of Health, presented and explained a series of standard forms for recording medical data. A standardization of such data is desirable because of the general movement for state-wide sickness insurance, similar to that of accident insurance, for all who are gainfully employed; because legal action against employers on account of alleged industrial sickness is becoming more frequent; because juries and courts are becoming more and more inclined to consider the word "injury" in compensation laws as including occupational diseases, and because efficiency men and industrial economists are seriously considering the question of the health of workers.

Dr. Alice Hamilton of Hull House sounded an important note in the discussions of the meeting with a paper on "Some of the Objections to Health Supervision," including suggestions for caring for the physically unfit workmen. She said she was spokesman only for the workman, and presented objections raised by him. If they were based on mistaken ideas, then employers should try to clear up the mistake, because otherwise the opposition would undoubtedly grow, and the workingmen would combine against all such laws and go on taking chances under the old haphazard system. One objection of the workman is that the system of examining a man to find out whether he may get a job or hold one results in throwing out a lot of workmen who believe they have a number of years of good service in them, but who have been found to have some physical defect which the employer, insured under the workmen's compensation laws, believes increases his risk. The shifting of a man from a well-paid job to a less well-paid job, for physical reasons, is something to which he will not willingly agree, even though it is represented to him that it will prolong his life. He is willing to undergo examination for communicable diseases, or for especially hazardous work, or for the safety of the public, as in the case of railroad men; but he objects when the examination is carried out, as he believes, in the interest of the employer—to lessen his risk. He mistrusts the company physician, and believes examinations should be made by neutral, impartial physicians. The workmen believe that the examinations are an adjunct to the American speeding-up system. They are put through the sieve of physical fitness, those not passing being left unprovided for. They say this must not be done until workingmen in all trades are safeguarded, and some system of state insurance for invalidity and old age provided. The man who is thrown out must be provided for before a system is established which throws him out. To Dr. Hamilton these propositions did not seem unreasonable.

Schools of Healing and the Press

In this day when medical fads are multiplying like flies in the summer time, and there is so much contention as to whether the followers of such cults are practicing medicine or not practicing medicine, it is encouraging to note that the better newspapers are recognizing that *an education* is the first essential, whatever the "method" or "system" of healing. Says the *Times Republican,* Marshalltown, Iowa: "It is ridiculous to assert that a person who can scarcely read and write, without general information or learning of any kind,

is a fit person to hold the indorsement of the state as a practitioner of a learned profession, that a few weeks' training in any system makes him arbiter of life and death, diagnostician, anatomist, physiologist and master of the human machinery and its functions. . . . The requirements that began with the general practice law and have been strengthened since have resulted in great good. No profession has taken such forward strides as the medical profession within the past thirty years. Healing is the art most of all to be closely guarded against ignorance and fraud. . . . People ill and under the shadow are the most readily deceived by design or ignorance. We may not be able to entirely suppress the designing, but we can and should deny the ignorant the right to practice the learned professions."

Sale and Use of Poisons

M. I. Wilbert, in *Public Health Reports,* quotes a table of nearly fifty drugs and chemicals which cause death. The table was compiled by the registrar of births and deaths in England and Wales. Many of the products are in common use in this country and are easily obtained. Poisoning due to the ingestion of narcotic or hypnotic drugs, not usually classed as poisons, is not infrequent, and there is obvious need of legislation to safeguard the sale and distribution of such drugs in interstate commerce. The diversity of present existing laws regulating the manufacture and sale of poisonous drugs in various states sometimes causes great embarrassment to commerce in these articles. A practical national poison law would serve as a model to determine what is a poison, and would also, if based on authentic information, be an incentive to strong adherence to the provisions of such a law. Wilbert says that one of the inherent difficulties in connection with the study of drug abuse is lack of knowledge in regard to the nature and character of the drugs sold and used, and the distinguishing features of the harmful influences exerted by drugs and compounds that are now consumed in large quantities. Many states have recently enacted or amended laws regulating the sale and use of poisonous drugs. There is still a lack of uniformity which is highly desirable in such laws, and it has been suggested that much uniformity could best be secured by amendment of state laws. Wilbert says, however, that some recently enacted state laws demonstrate the impracticability of this. The way out of the difficulty, therefore, is a national law that would at least apply to the articles here considered in interstate commerce.

Epinephrin in Treatment of Cerebral By-Effects of Salvarsan

Sauphar gave an intravenous injection of 0.15 gm. neosalvarsan to a young soldier with chronic hydrocele and positive Wassermann. Prolonged sneezing followed, with lacrimation and conjunctival congestion. A week later a second injection of 0.2 gm. was given, and by night there was great motor restlessness, with total insomnia and next day severe headache. The third morning the temperature was over 104 F., the face puffy, breathing stertorous, with total relaxation of the muscles and watery vomiting, the patient not conscious of his surroundings. Under repeated doses of epinephrin, injected under the skin or into muscle, the patient was tided along for a few hours, and by the sixth hour he fell tranquilly asleep. Recovery followed, with no remembrance of that third day. It is a typical example of what Milian calls "salvarsan serous apoplexy," and treats by keeping the patient under the influence of epinephrin. With or without premonitory phenomena the patient falls into coma the third day after the injection of the drug and dies in a few hours. Necropsy reveals nothing but edema and congestion in the brain, without the least organic change. It seems to be, he says, a "nitritoid crisis of the brain," and epinephrin in doses from 1 to 3, 4 or 5 mg. induces such intense vasoconstriction that the serous apoplexy is arrested. Sauphar, in reporting his case *(Bulletins Société médicale des hôpitaux,* 1915, p. 1276), says that his patient would undoubtedly have succumbed if it had not been for the epinephrin.

Medicolegal

Death of Hemophiliac Due to Accident—Sound Physical Condition

(Massachusetts Bonding & Insurance Co. vs. Duncan (Ky.), 179 S. W. R. 472)

The Court of Appeals of Kentucky affirms a judgment in favor of Mrs. Duncan for $2,500 for the death of her son 20 years of age, who was insured by the company against loss of life by accidental means. Five days before his death he carried a distance of some 60 feet two watermelons weighing 40 pounds each, carrying one under each arm and against his abdomen. He afterward told a physician that he slipped or fell and received a strain where the melons pressed against his abdomen, and he at once became ill. The reasons given by the company for resisting payment were that the death of the insured was not due to any personal injury effected by accidental means; that he was the victim of a spontaneous hemorrhage; that all his life he was in unsound physical condition, suffering from hemophilia; that this disease culminated in a spontaneous hemorrhage and was the sole cause of his death. In answering, in his application, the question whether he was in sound physical condition, he said that he was, and further represented that he was in good health. In answer to the question if within a year past he had a constitutional disease, he said "No." The court says that, on this branch of the case, the question came down to whether the condition described was equivalent to a disease. If so, there was a material misrepresentation of fact, for he answered that he had no disease. But when he answered that he was sound physically, it did not necessarily mean that he was as sound, or that his anatomy was as perfect, as the strongest, or even the average man. The question related only to his own condition measured by what it had been, and by the answer one naturally infers that he was sound as compared to his condition theretofore. In this particular it was for the jury to determine from the evidence whether he made truthful answers. The jury believed that his answers were truthful, and the court is of the opinion that the evidence sustained their verdict. The physician before referred to said that "Duncan was of a hemorrhagic diathesis; but that is a vulnerability, not a disease." One may be vulnerable to tuberculosis by an inherited predisposition, and still may never have it. One's skin may be thin, and in that way he may have an inherited vulnerability to sunburns, and yet keep free from them. In the same way, one may be vulnerable to hemorrhages, that is, by inheritance be more susceptible to them than others, yet he may never have a hemorrhage.

Liability for Assistant's Malpractice Not Covered by Insurance

(Seay vs. Georgia Life Insurance Co. (Tenn.), 179 S. W. R. 312)

The Supreme Court of Tennessee affirms a decree in favor of the defendant company, which was sued on a physician's liability policy by Dr. Seay after he had paid a judgment for $1,000 and costs on account of an assistant having made a mistaken diagnosis and unsuccessfully treated an injured miner whom Dr. Seay was under contract to treat as a mine employee. The court says that when the miner was hurt in an accident Dr. Seay's office was notified, and the assistant referred to responded to the call, undertook to diagnose the injuries, and proceeded to treat them. In so doing the assistant acted under general directions, within the scope of his employment, but Dr. Seay appeared to have had no knowledge of the particular case, or at any rate he gave the patient no personal attention, not seeing him at the time. The diagnosis and treatment were left wholly to the assistant. The physician's liability policy sued on undertook to indemnify Dr. Seay "against loss from the liability imposed by law upon the assured for damages on account of bodily injuries or death suffered by any person or persons in consequence of an alleged error or mistake or malpractice by any assistant in the employ of assured while acting under the assured's instructions." The question determining liability

in this case was whether the assistant was "acting under the assured's instructions," within the meaning of the policy. It was contended that the assistant acted in the line of his employment and according to previous general instructions and the custom which prevailed under the contract between him and Dr. Seay. But the words "while acting under the assured's instructions" were certainly introduced to qualify the company's liability in some way. Should the court hold an assistant acting under general instructions or within the scope of his employment to be acting under the "assured's instructions," then the qualification attempted would entirely fail. Interpreted as Dr. Seay insisted it should be, the phrase would neither expand nor restrict the insurer's liability. It would be altogether meaningless. The court may not thus deny effect to the expressed language of the parties. Moreover, all insurance is somewhat personal in its nature, resting to a great extent on the reputation and character of the assured. In a physician's contract such as this one, experience and ability of the individual insured necessarily and largely enter into the consideration. The risk assumed is the assistant "while acting under the assured's instructions." As a safeguard against the error, mistake, or malpractice of the assistant, the insurer stipulates for the instructions of the assured. The insurer, relying on the professional skill of the assured, contracts for his supervision, or at least for his instructions. It cannot be held that the insurer by this sort of a contract undertakes to answer for the mistakes or malpractice of a physician's helper acting on his own responsibility without any advice or directions from the assured; such subordinate being unknown to the insurer, and the policy without provision as to his qualifications. This would be an extraordinary hazard, and not one within the purview of this policy. In this case the assistant diagnosed and treated the patient without suggestion or aid from Dr. Seay. From a professional standpoint the assistant was acting independently. The insurer had no benefit of the supervising skill or instructions of Dr. Seay for which it had contracted. Such supervision or instructions might have averted the mistaken diagnosis and the consequent malpractice. The court is satisfied that the assistant was not "acting under the assured's instructions," within the meaning of this policy.

Immaterial Questions as to Treatment—Reading from Medical Works

(Osborn vs. Cary (Idaho), 152 Pac. R. 473)

The Supreme Court of Idaho affirms a judgment in favor of the defendant on the second appearance before it of this case, wherein it was sought to recover damages for alleged malpractice in diagnosing and treating osteomyelitis of the tibia of the right leg as septicemia, while the defendant contended that he correctly diagnosed the disease to be septicemia and administered the proper treatment therefor. The court holds that objections were properly sustained to certain questions propounded to expert witnesses, asking what the effect would have been if the treatment administered as described had been continued without further or different treatment, and what treatment a reasonably skilful physician would have attempted. These questions were objectionable because one of the hypothetic questions therein referred to assumed that during the entire period of the treatment the patient was suffering from and being treated for osteomyelitis, while the testimony of the defendant showed that he diagnosed and treated the ailment as septicemia; and, since the treatment for septicemia was not continued, it did not appear to be material what the result of its continuance would have been, nor did it appear to be material what the correct treatment for osteomyelitis was, since the defendant testified that he did not administer that treatment. On the other hand, there was no error in counsel for the defendant being permitted, in the cross-examination of certain of the plaintiff's expert witnesses, to read from a medical and surgical textbook which was admitted by the witness to be a standard authority on the subject about which they were testifying, excerpts being read from the book and it being passed to the witnesses, and they being asked whether they agreed or disagreed with it. While it is the general rule that books on scientific subjects are not admissible in evidence, except after after an expert witness has referred to a particular work to sustain his opinion, in which case only such work may be admitted to contradict him in that opinion, it is also a well-established rule that, when a witness is testifying as an expert, it is competent to test his knowledge and accuracy on cross-examination by reading to him or having him read extracts from standard authorities on the subject of his examination and by asking him whether he agrees or disagrees with them. This is in no sense the introduction of the contents of the books in evidence.

Affidavits and Diplomas Not Conclusive on State Board of Medical Examiners

(Stretch et al. vs. State Board of Medical Examiners (N. J.), 95 Atl. R. 623)

The Supreme Court of New Jersey holds that the evidence before it did not entitle the relators, as it calls them, to a writ of mandamus to compel the board to grant them licenses to practice osteopathy. The court says that it was conceded that the relators submitted in due course affidavits stating the required particulars, and that each submitted also a paper purporting to be a diploma from a college of osteopathy, which was claimed to be an institution complying with the state statute. The court did not find any testimony directed specifically to the question whether the relators were "graduates" in the real sense of the word as distinguished from mere holders of diplomas or certificates. Their claim was that the affidavit and diploma were conclusive, and that whatever be the actual facts, the state board is required to license an applicant on receipt of these papers in proper form. The court agrees with them that the statute is mandatory on the board; but its mandate depends on the actual existence of a state of facts, and neither on a representation of those facts in certain documents nor on the opinion or judgment of the board as to what those facts are. It is hardly conceivable that the legislature intended to license, as practitioners of a healing profession, any and all who should lodge certain papers with the state board, irrespective of the truth or falsity of those papers. Still the court cannot agree with the contention that the board is the judge of the facts. The court concedes this to be generally true in cases of this kind, but it thinks it will be found that they turn on the language of some statute which, expressly or by plain implication, designated the board as judge of the facts. The New Jersey statute in question is not of that class. The board, on receipt of papers in proper form, is, as the court thinks, required to pass, in the first instance, on the facts therein claimed. It may be satisfied of their truth, in which case its duty is to license. It may not be so satisfied, in which case its duty is to make reasonably prompt investigation and satisfy itself one way or the other. If its conclusion be adverse to the applicant, such applicant is not himself concluded thereby, but is entitled to have the fact ascertained judicially, and, if settled in his favor, to his license notwithstanding the prior adverse conclusion of the board. Such judicial ascertainment would, of course, be in a mandamus proceeding. However, the court doubts the propriety of embracing these four relators in one rule or in one writ. Their rights are separate and distinct, and depend on different states of facts similar only in their nature.

Placing and Keeping Patient on Hot-Water Bag

(Grosshart et al. vs. Shaffer (Okla.), 152 Pac. R. 441)

The Supreme Court of Oklahoma affirms a judgment for $2,500 damages in favor of plaintiff Shaffer against defendant Grosshart, a physician, and a sanatorium or hospital. The court says that the plaintiff employed Dr. Grosshart to perform an operation for hernia. The latter testified, in substance, that when he had about completed the operation he concluded from certain indications that the patient was about to go into a state of collapse; that, so believing, he called to a young woman who had formerly worked in the hospital, but who was no longer in its employ, and asked her to prepare the bed and room for a patient in collapse; that this prepara-

tion required as much heat as could be reasonably obtained, and included heating the bed with hot-water bottles; that he then picked the patient up in his arms and carried him to the room and laid him in the bed, and incidentally on a rubber bag full of very hot water. Other proof showed that the patient in his unconscious condition lay there a very short time, evidently until the bottle began to burn his body, when he aroused and in returning to consciousness showed signs of great agony, crying out aloud that he was "burning up," that his back was burning, and that his exertion became so violent that it took four or five people to hold him in the bed and on the bottle, and they did hold him there for quite a length of time. Finally they turned him over on his side, which probably accounted for the wound found there. Then a bystander, a friend of the patient, offered the suggestion that there might be something in the bed, and one of the nurses pulled the hot-water bottle from under the man and held it behind her and took it out of the room. Laying aside the question of agency, and whether or not the physician was responsible for the acts of the attendants, he was certainly responsible for his own acts, which consisted in directions that included the placing of the hot-water bottles where they were. He placed the man in the bed himself. The evidence showed that he saw at least a portion of the struggles the man made, and the unusual effort it required to hold him down, and heard the cries the man made that his "back was being burned." It seems to the court that, under this situation, if the physician had been exercising that care and solicitude for the welfare of his unconscious patient which the law required and the dictates of humanity would suggest, he would have associated the idea of the hot-water bottle he had directed to be placed in the bed with the man's suffering, and his unusual and violent struggles, together with his statements as to burning. The court does not mean to condemn the physician, or even to say that he was in fact negligent, and it appreciates his point of view, which evidently was that the nurse had removed the hot-water bottles to one side, and that the patient's struggles were but unusually severe manifestations of the usual phenomena observed when patients are coming from under an anesthetic, and that, so believing, he permitted the patient to be held on the bed, causing his injury. What the court does say is that, taking the situation as it finds it, and as the jury observed it, there was ample evidence to justify them in finding that the physician had not exercised proper care. There was no contention that the judgment against the sanatorium was not warranted. Nor could it be said that the judgment was excessive.

Privilege and Waiver

(*Michaels vs. Harvey et al.* (*Mo.*), *179 S. W. R. 735*)

The Kansas City Court of Appeals holds, in this personal injury case, that the evidence sufficiently disclosed that the confidential relation of physician and patient was established and existed between a physician and the plaintiff during an examination made by the physician, where he was called by a hunter of damage suits, but stated that he thought he was summoned at the patient's request and made the examination as her physician for the purpose of treating her, while she denied that either she or any one authorized by her had authorized the man, whom she referred to as "a friend of ours," to employ a physician, but accepted his services on that occasion. The fact that the examination occurred during the existence of a confidential relationship between the witness and the plaintiff was essential to the creation of the privilege invoked by her under the statute. Regarding that fact as established, the resultant privilege must be conceded. But it was waived by the plaintiff when by her own testimony and that of her other physicians she disclosed all secrets concerning the consequences to her of the physical injury she received at the hands of the defendants. It was immaterial that the physicians were not employed at the same time, but examined the plaintiff on different days. The subject-matter of the two examinations being the same, the waiver of the privilege as to one waived it as to the other. But the court does not think that it was erroneous to refuse to allow the regular physician of the defendants to testify, where he was not employed by the plaintiff, and stated that he was suffered to make an examination of her pursuant to an attempt to compromise or settle her claim against the defendants. To permit him to disclose the knowledge of her condition obtained in this manner would be violative of the rules designed to encourage the compromise and settlement out of court of disputed claims and rights.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, DETROIT, JUNE 12-16.

Alabama State Medical Association, Mobile, April 18.
American Assn. of Genito-Urinary Surgs., Washington, D. C., May 9-10.
American Association of Path. and Bact., Washington, D. C., May 9-11.
American Climatological and Clin. Assn., Washington, D. C., May 9-11.
American Dermatological Association, Washington, D. C., May 8-10.
American Gastro-Enterological Association, Washington, D. C., May 8-9.
American Gynecological Society, Washington, D. C., May 9-11.
American Laryngological Association, Washington, D. C., May 9-11.
Amer. Laryn., Rhin. and Otol., White Sulphur Sprgs., W. Va., May 5-6.
American Ophthalmological Society, Washington, D. C., May 9-11.
American Orthopedic Association, Washington, D. C., May 8-11.
American Otological Society, Washington, D. C., May 9-10.
American Pediatric Society, Washington, D. C., May 8-10.
American Society of Tropical Medicine, Washington, D. C., May 9-11.
American Surgical Association, Washington, D. C., May 9-11.
American Urological Association, St. Louis, April 17-19.
Arizona Medical Association, Phoenix, April 26-27.
Arkansas Medical Society, Texarkana, May 2-4.
Association of American Physicians, Washington, D. C., May 9-11.
California State Medical Society, Fresno, April 18-20.
Conference of State and Prov. Boards of N. A., Washington, May 16-17.
Cong. Am. Phys. and Surgs. of No. Am., Washington, D. C., May 9-10.
Connecticut State Medical Society, Bridgeport, May 17-18.
Florida Medical Association, Arcadia, May 10-12.
Georgia Medical Association, Columbus, April 19-21.
Illinois State Medical Society, Champaign, May 16-18.
Iowa State Medical Society, Davenport, May 10-12.
Kansas Medical Society, Topeka, May 3-5.
Louisiana State Medical Society, New Orleans, April 18-20.
Mississippi State Medical Association, Greenville, May 9-11.
Missouri State Medical Association, Excelsior Springs, May 8-10.
National Assn. for Study and Prev. of Tuberc., Wash., D. C., May 11-12.
Nebraska State Medical Association, Omaha, May 23-25.
New Hampshire Medical Society, Concord, May 16.
New York State Medical Society, Saratoga Springs, May 16.
North Carolina State Medical Society, Durham, April 18.
North Dakota State Medical Association, Devils Lake, May 10-11.
Ohio State Medical Association, Cleveland, May 17-19.
Oklahoma State Medical Association, Oklahoma City, May 9-11.
South Carolina Medical Association, Charleston, April 18-20.
South Dakota State Medical Association, Aberdeen, May 23-25.
Texas State Medical Association, Galveston, May 9-11.
West Virginia State Medical Association, Wheeling, May 16-18.

PHILADELPHIA COUNTY MEDICAL SOCIETY

Meeting held Feb. 23, 1916

The President, DR. JOHN D. MCLEAN, in the Chair

Eye Phenomena in Pulmonary Tuberculosis

DR. LUTHER C. PETER: In a study of 320 cases of pulmonary tuberculosis, two groups of eye phenomena were observed: (1) those due directly to tuberculous processes, and (2) those occurring coincidently with tuberculous processes. In all the cases examined, those in which the fundus could be seen by the ophthalmoscope, venous engorgement was marked; a low grade neuroretinitis was present in thirty-four cases; retinal haze in seventeen; posterior uveitis in seven, and old phlyctenular scars in three cases. The fundus phenomenon observed was more or less in direct relation to the stage of the disease, that is, well advanced or moribund cases showed a greater degree of engorgement of a neuroretinitis. One case showed a papilledema. These phenomena depict the circulatory conditions existing throughout the body. Second in importance was the absence of active phlyctenular processes. This is in accord with the generally accepted view that phlyctenulosis does not occur in adult pulmonary active tuberculosis. In children, however, the condition may be present, even during the active process. As a rule, phlycten-

ules indicate either a pretuberculous stage of the disease in a child who is not immune, or a posttuberculous stage in which the smoldering embers of tuberculosis may again be lighted up sufficiently to produce a toxemia without exciting an active tuberculosis. The third interesting fact is the total absence of tubercles along the uveal tract. A fourth phenomenon is the width of the palpebral fissure and the lagging behind of the upper eyelids, known as von Graefe's sign in exophthalmic goiter. This is due to absorption of the orbicular fat, and the lack of tone of the levator and orbicular muscles. It may be found in any case of extreme emaciation. Care was observed in the study of these cases to exclude all chronic conditions or other pathologic factors, such as syphilis, diabetes and chronic nephritis.

The Specific Roentgen Markings Characteristic of Pulmonary Tuberculosis

DR. KENNON DUNHAM, Cincinnati: There are definite markings on the Roentgen plates characteristic of pulmonary tuberculosis. In almost 3,000 carefully examined cases I have been unable to find any other disease which gives these characteristic markings. By the means of the stereoroentgenogram a diagnosis of tuberculosis can be made before the clinician can obtain positive signs. From the markings it is not always possible to distinguish the difference between an active and a healed lesion. In point of time the earliest diagnosis can be made by the roentgenologist, but if a carefully taken history is depended on, the earliest guess can be made by the clinician. Such a guess, however, applies to glandular tuberculosis, and is not correct as to pulmonary tuberculosis. The most accurate diagnosis of pulmonary lesions is obtained when *all* methods are used carefully, skilfully and intelligently. While we may be sure of a negative diagnosis by the Roentgen findings, we cannot always be certain that a slight lesion is or is not active. The Roentgen findings characteristic of pulmonary tuberculosis consist of numerous abnormal changes limited to the linear markings of the various trunks. These abnormal densities reach the periphery and are more or less fan-shaped, with the apex or the angle of the fan toward the hilum. These densities are not homogeneous, but each trunk has a distinct characteristic marking. A plate having a homogeneous distribution of its markings is probably not tuberculous. Each fan-shape density is connected to the hilum with a heavy trunk. The character of density causing these triangular changes limited to the linear markings vary greatly in character. As the lesion progresses the alterations become more marked until eventually all the markings are blotted out and there may be an appearance of a unified mass of increased density. The change in lung density is due primarily to tubercles scattered along the bronchial tree to the periphery, that is, to the pleura. To obtain the markings of an individual chest, all that is necessary is to have the roentgenologist take a pair of accurate stereoscopic plates, which should be examined in a stereoscope as carefully as is a microscopic slide.

Clinical Diagnosis of Incipient Pulmonary Tuberculosis

DR. H. R. M. LANDIS: Of the diagnostic methods, the bacteriologic, the tuberculin test and the Roentgen ray are to be looked on as valuable aids; but they do not furnish conclusive evidence of the presence or absence of incipient tuberculosis. At present our main reliance is on the clinical method. From the clinical standpoint the diagnosis presupposes a familiarity with the morbid anatomy of the disease, a clear conception of the significance of the commonly associated symptoms, the ability to elicit and interpret the physical signs, and a knowledge of the limitations of other diagnostic aids. Mistakes in diagnosis would be far less frequent were it remembered that the disease invariably manifests itself first at or near one of the apices. From the history alone the vast majority of cases of early tuberculosis can be recognized, or the presence of the disease strongly suspected. The mathematical chances of tuberculosis being present are overwhelming in any person who has a hemoptysis, an attack of pleurisy, a fistula in ano, or transient attacks of slight hoarseness, notwithstanding previous good health and excellent physical condition. Unfortunately the onset of tuberculosis is far more often insidious. In the bacteriologic diagnosis, absence of tubercle bacilli is not proof positive of the absence of the disease; probably 75 per cent. of true incipient cases are closed. In all cases of pulmonary disease the sputum should be examined for organisms other than tubercle bacilli. The tuberculin test has been almost entirely abandoned because it is not free from danger, there being many instances in which a quiescent lesion has been made active, and because the method does not distinguish between the lesion which is arrested and the one which is about to become active, or is active. There are no physical signs peculiar to a tuberculous deposit in the lungs. It is rather in their combinations, situation, successive changes and connection with symptoms that they have their value. Physical signs localized at the bases of the lungs can practically always be eliminated as indications of incipient tuberculosis. Limited, however, to one or both apices and associated with symptoms we have almost certainly to deal with a tuberculous process. Errors in diagnosis may arise from failure to observe the location and nature of the morbid process. I believe that incipient tuberculosis can be recognized in the vast majority of cases by ordinary clinical methods. In a small proportion of doubtful cases the Roentgen rays may be used to confirm or disprove the presence of a lesion. I have seen a few in which the roentgenologist made the diagnosis when the clinical method had failed; also, cases in which subsequent events or necropsy showed the roentgenologist to have been wrong. In the hands of one who has a good technic, a knowledge of the morbid processes invading the lung, and the experience to interpret the plates properly, a correct diagnosis can be made in the majority of cases by means of the stereoscopic plates. The method fails, however, just as does the clinical, in the hands of the unskilled. Furthermore, the proof is as yet forthcoming that the roentgenologist can differentiate the lung shadows due to a tuberculous infection and those due to other pathologic states; nor can he distinguish between an active and a healed tuberculous lesion.

DISCUSSION

DR. JUDSON DALAND: A large element in the failure of early diagnosis of pulmonary tuberculosis is the neglect to consider conjointly the physical and clinical signs. A tuberculous lesion extending to the second rib marks in most instances a well advanced case. The average practitioner is inclined to regard such a case as one of early tuberculosis. The occurrence of hemorrhage in an apparently healthy person, the positive findings in the sputum and the study of conditions other than the presence of the tubercle bacillus do not receive serious consideration. One of the most important factors in early diagnosis is the development of an individual technic in our physical examinations. The accuracy of the Roentgen ray in examination makes for it an important place in the diagnosis of the more obscure cases of pulmonary tuberculosis.

DR. WILLIS F. MANGES: The roentgenogram is ocular evidence that precludes the possibility of a tuberculous lesion being overlooked. We must not, of course, separate it from clinical findings, history and symptoms; but it has been our experience time and time again to show the clinician that the lesion was much more extensive than indicated by the clinical evidence. I am not satisfied that the Roentgen ray gives positive evidence of the very earliest symptom-producing tuberculous infection. I have been holding to the belief that a tuberculous process producing symptoms should show some more or less characteristic density in the lung tissue that was not merely a veiling or shadowy film, but a localized density. I have not attempted to interpret such shadows.

DR. HENRY K. PANCOAST: The Roentgen diagnosis of pulmonary tuberculosis is at present in the developmental stage. The single plate is absolutely useless and is apt to be misleading. The stereoscopic plate combined with the fluoroscopic examination is the only method of value. The study of the subject should be carried on by the roentgenologist in connection with the clinician.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

March, LXXIII, No. 3, pp. 385-576

1 *Education, Licensing and Supervision of Midwife. J. C. Edgar, New York.
2 *Is Midwife Necessity? J. M. Baldy, Philadelphia.
3 *Progress Toward Ideal Obstetrics. J. B. DeLee, Chicago.
4 Prenatal Problem and Influence Which May Favorably Affect This Period of Child's Growth. M. West, Washington, D. C.
5 Delivery by Natural Passages Following Cesarean Section; Report of Two Cases. J. T. Williams, Boston.
6 Technic at Jewish Maternity Hospital and Its Results. J. Walker, Philadelphia.
7 End-Results of Resection of Ovaries for Microcystic Disease. J. A. McGlinn, Philadelphia.
8 Morphin and Scopolamin in Gynecologic Surgery. W. F. Morrison, Philadelphia.
9 *Etiology of Appendicitis. C. Chase, Brooklyn.
10 Clinical Importance of Unilateral Fused Kidney (Including Distopic Kidney of One Side). A. Stein, New York.
11 Twin Pregnancy in Horn of Bicornuate Uterus With Retention of Fetuses for Twenty Years. E. Scott and J. Forman, Columbus, Ohio.
12 *Morphography of Two Hundred and Eighty-Five Colons. J. E. Davis, Detroit.
13 *Treatment of Pertussis. I. L. Polozker, Detroit.
14 Teething as Diagnosis for Many Ills. J. Epstein, New York.

1, 2 and 3.—Abstracted in THE JOURNAL, January 1, pp. 55 and 56.

9. **Etiology of Appendicitis.**—Chase emphasizes the importance of hematogenous infection as a cause of appendicitis. He raises the question of the possible prophylactic treatment of appendicitis by removing all discoverable foci of infection and by the early treatment of all acute infections.

12. **Morphography of Colons.**—This study was made by Davis to determine the relative positions of the colonic segments, the nature of the usual angulations, the frequency of undeveloped parts, and the extent of deviated morphology consistent with adequate physiologic function. The material used consisted in bodies embalmed with formol, phenol and glycerin compound in preparation for dissecting purposes. There were approximately 32.5 per cent. of the colons with normal morphography. In 9.9 per cent. of all cases there were persisting embryologic forms. In 0.9 per cent. there was incomplete rotation of the colon, and in 1.4 per cent. there was incomplete descent of the cecum. The transverse segment of the colon had descended to some point between the umbilicus and the pubes in 15.5 per cent. of all cases. In 17.8 per cent. of the subjects there were abnormalities of the pelvic colons. There were diverticulae in 0.9 per cent., gigantism in 0.9 per cent. and marked constrictions in 2.3 per cent. of the colons. Adhesions were observed at the hepatic flexure in 5.8 per cent., at the gastric area in 4.2 per cent., and at the ileocecal region in 7.5 per cent. of the subjects. There were distinct enlargements of the colons proximal to constricted splenic flexures with evident reasons for delayed motility, in 8.4 per cent. of the series. In 4.3 per cent. of the pelvic colons there was no angulation, only a slight curving being evident from the midportion of the descending segment to the rectal tube.

There were convincing evidences of etiologic conditions for constipation in 55 per cent. of the subjects. Two cases (or 0.6 per cent.) of herniated cecums were found. In 1.2 per cent. of the cecums they were fishtail in shape and in 20.7 per cent. decidedly pouched in form. The ascending colon was found in oblique positions in 13.7 per cent., and in horizontal positions in 0.6 per cent. of subjects. The average length of this segment was one sixth of the entire colon, approximately 10 inches. The hepatic flexure appeared in distinct coil forms in 0.9 per cent., and in very acute angulation in 21 per cent. and was absent or presented only a slight convexity toward the liver in 7.8 per cent. of the subjects. The transverse colon was found low in the pelvis in 4.9 per cent. and a marked ptosis in 23.4 per cent. The splenic flexure was absent in 4.2 per cent., coiled in 1.2 per cent., and of a clothes-pin form in 2.1 per cent. The descending colon was found to be coiled, between the splenic flexure and the pelvic brim, in 4.2 per cent. of the series. The pelvic colon was almost straight in 16.8 per cent. of the cases, was acutely angulated in 16 per cent., coiled and agglutinated in 3.1 per cent. and appeared well over on the right side in 2.4 per cent.

13. **Treatment of Pertussis.**—Polozker reports on 100 cases in which various forms of treatment were tried. It mattered very little what the medication was, the disease ran its usual course. Polozker's experience with vaccine has impressed him with its value and he says he will continue its use in the future.

Arkansas Medical Society Journal, Little Rock

March, XII, No. 10, pp. 243-266

15 Congenital Malaria. H. Thibault, Scott.
16 Rational Therapeutics. T. Douglass, Ozark.
17 Uncinariasis. S. J. McGraw, El Dorado.
18 Surgical Treatment of Placenta Praevia. E. L. Beck, Texarkana.

Boston Medical and Surgical Journal

March 23, CLXXIV, No. 12, pp. 407-440

19 Some Present Day Problems in Surgery. M. F. Fallon, Worcester.
20 Carnivorous and Herbivorous Types in Man. J. Bryant, Boston.
21 R'Aaison D'Etre of Term "Involutional" as Applied to Melancholia. J. W. Courtney, Boston.
22 Bacteriologic Work at American Ambulance. O. F. Rogers, Jr., and G. Benet, Boston.
23 Nine Cases of Spinabifida. B. B. Cates, Knoxville, Tenn.
24 Recent Epidemic of Influenza in Boston. J. A. Ceconi, Boston.
25 Analysis of Fourteen Cases of Diabetes Mellitus Unsuccessfully Treated by Fasting. E. P. Joslin, F. G. Brigham and A. A. Hornor, Boston.
26 *Simple Method of Obtaining Ragweed Pollen in Large Quantities. R. P. Wodehouse, Cambridge.

26. **Method of Obtaining Ragweed Pollen in Large Quantities.**—Wodehouse strips the flower heads from young plants, just coming into bloom, and after being allowed to become almost dry, these are crushed in a mortar with several volumes of carbontetrachlorid. After thoroughly macerating, the liquid is strained off through muslin. Most of the pollen, liberated by crushing from the anthers, passes with the CCl_4 through the muslin and can be collected on filter paper and be washed with fresh CCl_4, or with the same, after filtering out the pollen, to remove what pollen remains after the first washing. The CCl_4 can be used several times, or until it becomes impregnated with oils, etc., when it should be replaced or distilled to remove the impurities.

California State Journal of Medicine, San Francisco

March, XIV, No. 3, pp. 85-126

27 General Oversight and Filing of Records. G. L. Clark, San Francisco.
28 Case Recording. H. D. Power, San Francisco.
29 Study in Handicaps. F. Grazer and F. F. Gundrum, Sacramento.
30 Department of Psychology in Los Angeles City Schools. Study of Mentally Different. L. B. Bennett, Los Angeles.
31 Concretions of Spleen. B. Jablons, San Francisco.
32 Leukopenia; Its Relation to Neuralgia. J. H. Catton, San Francisco.
33 Typhoid Death Rate in California. W. A. Sawyer, Berkeley.
34 Oral Hygiene; Care of Mouth During Illness. J. S. Marshall, Berkeley.
35 Complete Removal of Parotid Gland Without Injury to Facial Nerve. J. H. Barbat, San Francisco.

Canadian Medical Association Journal, Toronto

March, VI, No. 3, pp. 193-288

36 *Acupuncture Best Method of Vaccination Against Smallpox. H. W. Hill, London.
37 Eyestrain. E. T. Easton, Boston.
38 Science and Medicine. H. Oertel, Montreal.
39 Method of Examination and Results in Sight, Hearing and Color Vision for One Year on Grand Trunk Railway System. H. B. Carmichael, Montreal.
40 Pellagra. L. G. Pinault, Campbellton, New Brunswick.
41 Ruptured Tubal Pregnancy. H. M. Torrington, Sudbury.
42 Unusual Case of Eclampsia. D. J. Evans, Montreal.

36. **Acupuncture Best Method of Vaccination Against Smallpox.**—Hill describes this method as follows: The arm is washed with soap and water, then with alcohol and finally

with ether. A small drop of vaccine is deposited on the clean surface. The vaccinator's hand is closed on the arm from behind so as to draw the skin tight in front, and the sewing needle point, held slantingly nearly parallel with the skin, is pressed against the skin through the drop of vaccine. Then it is that one one-thousandth of an inch of the point sticks through the upper layer of the skin, carrying the vaccine with it. The needle is instantly withdrawn and another puncture exactly like the first is made close beside it, until six punctures are made in the space of 1/16 of a square inch or less. The whole process of puncture takes perhaps fifteen seconds. At once with a bit of sterile gauze, the surface vaccine is removed, and the sleeve drawn down.

Cleveland Medical Journal

February, XV, No. 2, pp. 83-156

43 Treatment of Extra-Uterine Pregnancy. A. P. Heineck, Chicago.
44 *Ptomain Poisoning from "Creamed" Codfish. M. A. Blankenhorn, G. E. Harmon and P. J. Hanzlik, Cleveland.
45 Case of Essential Hematuria. S. Englander, Cleveland.
46 Recent Advances in Gynecology and Obstetrics. W. D. Fullerton, Cleveland.
47 Clinical Laboratory Methods. C. L. Cummer, Cleveland.
48 Neurologic Reviews. T. S. Keyser, Cleveland.

44. Ptomain Poisoning from "Creamed" Codfish.—The clinical symptoms observed in a large number of patients attacked with ptomain poisoning from "creamed" salted codfish were: epigastric distress, nausea, vomiting, intestinal colic and diarrhea. Complete recovery occurred in twelve to twenty-four hours, in a part of the individuals spontaneously, and in another part, following gastric lavage. Bacteriologic examination of the "creamed" fish showed the presence of *Bacillus coli communior,* and other saprophytes and some staphylococci. The gastro-intestinal disturbances are not attributed by the authors to infection by the organisms in the fish material. Extracts of the "creamed" fish gave practically the same physiologic reactions as the same brand of salted codfish which was previously allowed to putrefy and then prepared in the same manner as the food served to the patients. The physiologic effects consisted of a marked stimulation of intestinal and uterine peristalsis in surviving organs; and a fall of blood pressure with gradual recovery. The purified active extract of the "creamed" putrefied salted codfish contained some physiologically active base, whose chemical reactions resemble those of the group of diamins to which putrescin, cadaverin and histamin belong.

Colorado Medicine, Denver

March, XIII, No. 3, pp. 69-102

49 Subphrenic Abscess. J. N. Hall, Denver.
50 Operative Treatment of Fractures. M. E. Preston, Denver.
51 Scopolamin Amnesia, or Twilight Sleep. C. A. Ferris, Denver.
52 Case of Akromegaly With Mediastinal Tumor. J. Inglis, Denver.
53 Functional Result of Astragalectomy in Infantile Paralysis. R. G. Packard, Denver.

Georgia Medical Association Journal, Augusta

March, V, No. 11, pp. 153-177

54 *New Treatment for Burns. H. R. Slack, LaGrange.
55 Relation of Mammary Glands to Nervousness and Menstruation. E. B. Block, Atlanta.
56 Uses of Salicylate of Soda in Treatment of Disease. B. P. Oliveros, Savannah.
57 Dammerschlaf, or Twilight Sleep. I. H. Adams, Macon.
58 Treatment of Gonorrhea and Complications From Standpoint of General Practitioner. J. C. Weaver, Atlanta.
59 Landry's Paralysis; Report of Case. H. Crenshaw, Atlanta.
60 Contract Work With Life Insurance Companies for Less Than Five Dollars for Each Examination by Members of Medical Societies. M. L. Currie, Vidalia.
61 Anterior Poliomyelitis; Treatment of Infantile Paralysis. H. M. Michel, Augusta.

54. Treatment of Burns.—Slack holds that the immediate application of tincture of ferric chlorid is the best treatment for burns. Paint the entire surface over with ferric chlorid several times with cotton applicator, or camel's hair pencil, being careful not to break the blisters in the second degree burns, or to remove the charred surface in the third degree. Then apply dry gauze dressing. The first impression is of increased pain, but continue the application and it soon ceases. Whenever it becomes severe reapply the tincture of iron. Slack says this treatment is original with him and that he has been using it for over twenty years.

Journal of Cutaneous Diseases, Boston

March, XXXIV, No. 3, pp. 159-258

62 *Sugar Content of Blood in Various Diseases of Skin. H. J. Schwartz, W. J. Heimann and H. C. Mahnken, New York.
63 Complement Fixation in Acne Vulgaris. A. Strickler, J. A. Kolmer and J. F. Schamberg, Philadelphia.
64 Value of Various Diagnostic Methods for Cerebrospinal Fluid. H. Nakano, Tokyo.
65 Dermatitis Repens; Report of Two Rare Cases. H. J. F. Wallhauser, Newark, N. J.
66 Modern Treatment of Burns. G. de Tarnowsky, Chicago.
67 Rhinoscleroma; Report of Case. H. E. Alderson, San Francisco.
68 Case of Postvaccinal Psoriasis. J. E. Lane, New Haven, Conn.

62. Sugar Content of Blood.—Sixty cases of acne, seborrhea and sycosis were studied by the authors of which twenty-six showed excessive blood sugar and only twenty-four a normal amount, the remaining ten being on the border line.

Journal of Nervous and Mental Disease, Lancaster, Pa.

March, XLIII, No. 3, pp. 201-296

69 *Comparison of Mental Symptoms Found in Cases of General Paresis With and Without Coarse Brain Atrophy. E. E. Southard, Boston.
70 *Histologic Study of Optic Nerves in Insane Cases. M. M. Canavan, Boston.
71 *Rôle of Hallucinations in Psychoses. F. M. Harrison, Washington, D. C.

69. Comparison of Mental Symptoms.—A group of thirty-eight general paretics whose brains were specially examined by Southard, has been divided into two groups according to whether there was or was not coarse evidence of brain atrophy. The cases without brain atrophy were termed "mild" and those with brain atrophy were termed "severe." Amnesia, motor restlessness, disorientation, dementia and depression lead both series and in that order, except that allopsychic delusions stand fourth in the "mild" series and are far less common in the "severe." Nineteen symptoms occurred in 20 per cent. or over of the paretic series, namely, the five just mentioned, and nine others (irritability, defective judgment, psychomotor excitement, autopsychic delusions, insomnia, aphasia, hallucinations of doubtful or unspecified nature, convulsions, visual hallucinations) not always in like proportion in the two series. Five other symptoms occurred in each series, but symptoms quite sundered from one another in general significance. The "mild" cases showed a group of symptoms which might be termed contra-environmental, namely, allopsychic delusions, sicchasia (refusal of food), resistiveness, violence, destructiveness. The "severe" cases showed a group of symptoms of a quite different order, affecting personality, either to a ruin or its mechanisms in confusion and incoherence, or to the mental quietus involved in euphoria, exaltation, or expansiveness. In a series of 17,000 clinical cases (of all sorts of mental disease, alive and dead, recovered and impaired) symptomatologically analyzed, there were but ten symptoms occurring in 20 per cent. or over. These were in order, psychomotor excitement, allopsychic delusions, dementia, auditory hallucinations, motor restlessness, depression, autopsychic delusions, insomnia, incoherence, amnesia. The most positive results of this orienting study appear to be the unlikelihood of euphoria and allied symptoms in the "mild" or nonatrophic cases and the unlikelihood of certain symptoms, here termed contra-environmental, in the "severe" or atrophic cases. Such symptoms as amnesia and dementia appear to be approximately as common in "mild" as in the "severe" groups.

70. Study of Optic Nerves.—Fifty-eight unselected cases of mental disease were examined by Canavan; forty of these fifty-eight cases, or 68 per cent., exhibited changes in the optic nerves. Thirty-four cases showed chronic spinal cord changes by the same method (Weigert myelin sheath). Seven cases showed very slight changes in the spinal cord (although in all instances definite changes) when there were no changes demonstrable in the optic nerves. Of eighteen syphilitic cases (clinical evidence in some cases supported by

Wassermann reaction) there were fifteen showing optic nerve changes—one eye, three; both eyes, 12. In one case a spirochete was demonstrable by the Levaditi method in the pial sheath of the optic nerve in a case diagnosticated general paresis (although possibly one of cerebrospinal syphilis).

71. **Rôle of Hallucinations in Psychoses.**—Harrison made a careful statistical study of 514 cases. He found that hallucinations are among the commonest of symptoms met with in the insane, occurring in approximately 40 per cent. of the cases. Of the various types, those of hearing are most frequent, these occurring either separately or combined in 90 per cent. of the cases with hallucination. Next in frequency are those of hearing and sight combined, and then come visual disturbances alone. The content of the hallucinatory percepts were not characteristic for any particular psychosis. Visual disturbances seem especially peculiar to the catatonic praecox group. Hallucinations are common in dementia praecox, occurring in practically all the cases. On the other hand, they are rare in the manic depressive group, seldom if ever occurring typically. This fact is of diagnostic importance. Hallucinations are rare in arteriosclerotic dementia and senile dementia, occurring in approximately 20 per cent. of the cases. Hallucinations are rare in sane persons, even though they be of a psychopathic make-up.

Journal-Lancet, Minneapolis

March 15, XXXVI, No. 6, pp. 155-182

72 Sanitary Survey of Schools by Teacher. A. A. Whittemore, Bowman, N. D.
73 Some Essential Points in Treatment of Carcinoma of Uterine Cervix. E. W. Jones, Mitchell, S. D.
74 Syphilis. N. L. Linneman and E. L. Tuohy, Duluth.
75 Chronic Pancreatitis. J. W. Shuman, Sioux City, Ia.

Medical Record, New York

March 25, LXXXIX, No. 13, pp. 543-588

76 Pathogeny of Diabetes and Fecal Disinfection. G. D. Palacios, Caracas, Venezuela.
77 Smallpox and Vaccination. W. M. Kenna, Central Valley.
78 *Continuous Transfusion; Production of Immunity. A. Kahn, New York.
79 Soap. G. K. Dickinson, Jersey City, N. J.
80 Medical Inspection and Anthropometric Study in University of Porto Rico. L. A. Saliva, Rio Piedras, Porto Rico.
81 Plasterers' Corns and Bunions. G. F. Boehme, Jr., New York.

78. **Continuous Transfusion.**—Dogs were infected by Kahn by opening the peritoneal cavity, infected material was inserted into the cavity, and the wound was sewed tight with no drainage whatsoever. The next day the external jugular of the donor and the infected dog were exposed throughout the neck. The dogs were then turned head to head; the external jugular was cut in the middle in each dog and then joined for transfusion as follows: Upper end of vessel of dog A to lower end of vessel of dog B; the other two ends were similarly joined, then the clamps were removed, and blood was allowed to flow continuously throughout the circuit created between the two animals, from A to B and from B to A. In several of these experiments this continual trading of blood was kept up for over an hour. In dogs that were not transfused, death occurred in twenty-four to forty-eight hours, and in transfused dogs death was deferred from three to four days, or absolute recovery took place. All transfused dogs lived longer than the dogs that were not transfused.

Michigan State Medical Society Journal, Grand Rapids

March, XV, No. 3, pp. 105-162

82 Some Points in Treatment of Hypertension. J. L. Miller, Chicago.
83 Quarries in Urinary Tract. W. J. Cassidy, Detroit.
84 Vaccines and Serums in Treatment of Diseases of Eye, Ear, Nose and Throat. D. M. Campbell, Detroit.
85 Fundamental Principles Underlying Use of Obstetric Forceps. J. N. Bell, Detroit.
86 *Abscess of Tongue. J. V. White, Detroit.
87 *Tonsillectomy Some Years After Operation. B. R. Shurly, Detroit.
88 Tuberculosis of Seminal Duct. H. W. Plaggemeyer, Detroit.
89 Value of Social Service Department in Dispensary and Hospital Treatment of Syphilis. H. R. Varney, R. C. Jamieson and A. Walker, Detroit.
90 Cystic Tumors of Abdomen; Report of Three Cases. W. A. Hoyt. Ann Arbor.
91 *Some Experiments in Lung Surgery. C. Georg, Jr., Ann Arbor.
92 Case of Laryngeal Crisis in Tabes Dorsalis. J. S. Wendel, Ann Arbor.
93 Starvation Treatment of Diabetes. M. Marshall, Ann Arbor.

86. Abstracted in THE JOURNAL, Sept. 25, 1915, p. 1135.

87. Abstracted in THE JOURNAL, Sept. 18, 1915, p. 1055.

91. **Experiments in Lung Surgery.**—Georg reports details of nineteen experiments on dogs. It appears that intratracheal insufflation was not without harmful effects on the lungs even in those dogs which recovered. Interstitial emphysema and over distention of some of the alveoli of the lung were shown microscopically. These changes were much more marked in those animals that died than in those that recovered and consisted of large hemorrhagic areas with tearing of the walls of the alveoli. Insufflation also has a very harmful effect on the circulation in the lungs as is shown by the intense congestion and atelectasis found microscopically. In applying this method of anesthesia to intrathoracic operations on the human being Georg urges that great care must be exercised in order to have the pressure high enough to prevent pneumothorax and still not so high as to cause serious damage to the circulation in the lungs or to cause a severe degree of interstitial emphysema. The transplanation of a strip of fascia lata on a wound of the lung gives an added protection to it from infection. Preliminary ligation of the bronchi and careful suture of the lung tissue is insisted on by the author. After the suturing is complete careful search must be made for the escape of air from the lung wound by moistening it with salt solution. If any air escapes the wound must be reenforced by additional suturing. For intratracheal insufflation a catheter of number 18 to 24 French should be used and the pressure should be maintained at 20 to 25 millimeters of mercury.

Missouri State Medical Association Journal, St. Louis

March, XIII, No. 3, pp. 101-148

94 Diagnosis of Pregnancy by Way of Urine. E. B. Knerr, Kansas City.
95 Chronic Syphilitic Aortitis. J. C. Lyter, St. Louis.
96 Progress in Pediatrics for 1915. F. C. Neff, Kansas City.
97 Physician Himself. C. W. Head, Windsor.
98 *Changed Character of Later Lesions Occurring in So-Called Healed Tuberculous Joints. A. E. Horwitz, St. Louis.
99 Some Diseases of Duodenum and Complications Involving Surrounding Parts. N. I. Stebbins, Clinton.
100 Retouring Hinterland of Medicine. G. Homan, St. Louis.
101 Curriculum and Methods of Teaching in Nurse Training Schools. H. L. Bridge, St. Louis.
102 Case of Postoperative Ventral Hernia Without Usual Hernia Coverings. R. Hill, St. Louis.

98. **Later Lesions Occurring in Healed Tuberculous Joints.**—Three cases are cited by Horwitz. In all the cases the findings were constant and as follows: At an early age the patient suffered from a typical attack of tuberculous disease. The treatment was in accordance. A cure resulted in due time. A period of freedom existed for a number of years ranging from five to ten. Pain began to recur gradually. This was noted on use of the part only. No pain at night or when at rest. Pain greatest on first use of the joint, decreasing as motion or exercise increased. The same objective signs and findings were noted. Motions of the joint were limited on first manipulations. Further manipulations increased the range of motion and diminished the pain. Slight tenderness existed. Referred pain noted. The Roentgen ray showed the old necrosed bone and with new tissue replacing it. With these findings the treatment naturally consisted of manipulations and massage, the reverse to that employed in the original condition.

New York State Journal of Medicine

March, XVI, No. 3, pp. 105-166

103 Military Gunshot Wounds. C. Richard, U. S. Army.
104 *Treatment of Scarlet Fever With Fresh Blood From Convalescent Patients. A. Zingher, New York.
105 Schick Reaction and Its Applications. A. Zingher, New York.
106 Hereditary Syphilis in Children: Later Manifestations After Age of One Year. L. E. La Fetra, New York.
107 Syphilis in Parents as Cause of Feeblemindedness in Children. H. H. Goddard, Vineland, N. J.
108 Hereditary Syphilis; Early Manifestations From Intra-Uterine Life to One Year of Age. L. Kerr, Brooklyn.

109 *Rôle of Superior Mesenteric Vessels in Abdominal Disease. J. N. Hall, Denver.
110 Responsibility of Physician in Oral Infections. W. H. Haskin, New York.
111 Ependymitis; Report of Subacute Case Cured by Lumbar Puncture. A. C. Snell and J. Roby, Rochester.
112 Some Remote Effects of Bad Feedings. F. van der Bogert, Schenectady.
113 Nuts and Fruits; Their Value in Diet of Children. G. D. Scott, New York.

104. **Scarlet Fever Treated with Fresh Blood from Convalescent Patients.**—Zingher has employed fresh whole blood taken from the convalescent donor and injected into the patient's muscles. The blood obtained from the donor may either be injected directly, or it may be previously citrated by adding an ounce of blood to 1 c.c. of a 10 per cent. solution of sodium citrate making the final dilution of the citrate 0.33 per cent. The following muscles of the patient are chosen and a syringeful of blood is injected into each place: the gluteal regions, the outer regions of the thighs, calves, and the triceps muscles. Four ounces of blood can easily be injected into a young child, and 8 ounces into an older child or an adult. Zingher injected fourteen cases of toxic scarlet fever during the past winter. The majority of the patients were very toxic, and often delirious. The prognosis as a rule seemed doubtful and in several cases absolutely poor. The blood was obtained from donors who were convalescent from two to six weeks. The amount injected varied from 75 to 250 c.c., depending to some extent on the age of the patient. In seven of the cases the blood was citrated. One half of the patients received blood from one donor, the other half from two or more donors. The blood mass was absorbed without any local irritation except in one patient, who showed for a few days a painful tender swelling of one calf and the opposite gluteal region. It was not, however, due to infection and the local symptoms soon subsided. Of the fourteen patints injected, four died. In the remaining ten patients there appeared to be a distinctly favorable influence on the course of the disease. There was a distinct critical drop in temperature in cases not complicated by a streptococcus exudate, or inflamed cervical glands. An improvement in the general condition, however, is seen even in the later septic forms of the disease, although the local phenomena are not influenced to any extent. It seems, therefore, that in the later septic cases, in which the toxic element has disappeared from the clinical aspect of the case, these medium quantities of convalescent blood have no more specific action. By using larger quantities of fresh normal blood, a distinct beneficial effect on the disease may be exerted, especially by injecting from 8 to 10 ounces of blood, and repeating if necessary in four to five days. These larger quantities of fresh blood, containing a considerable amount of natural antibodies, have been found to exert a distinctly beneficial effect in several very septic late cases of scarlet fever admitted during the past winter.

109. Abstracted in The Journal, May 22, 1915, p. 1789.

Northwest Medicine, Seattle

March, XV, No. 3, pp. 73-108

114 Diagnosis and Treatment of Inflammatory Affections of Nasal Accessory Sinuses. C. A. Veasey, Spokane.
115 Scintillating Scotoma. G. W. Swift, Seattle.
116 Some Unusual Types of Cataract Operations. R. A. Fenton, Portland, Ore.
117 Future Ophthalmologist. J. L. McCool, Portland, Ore.
118 Blind in State of Washington. F. Bentley, Seattle.
119 *Unusual Case of Brain Abscess of Otitic Origin. E. E. Maxey, Boise, Ida.
120 Maternal Feeding. J. I. Durand, Seattle.
121 Infant Feeding. J. B. Manning, Seattle.
122 Recurring Colds in Children. P. D. McCornack, Spokane.
123 Diphtheria With Unusual Complications. M. B. Marcellus, Portland, Ore.

119. **Case of Brain Abscess.**—The mastoid portion of the temporal bone in Maxey's case consisted only of a thin shell of bone which enclosed an extension of the posterior fossa. The lateral sinus was not demonstrated, hence it must have been more than 2 cm. posterior to anterior wall of mastoid. The mastoid portion of posterior fossa was separated from external canal by not to exceed 2 mm. of bone, through which a bone necrosis caused direct communication between posterior fossa and soft parts of external canal. The median wall of mastoid cavity seemed to be intact, the only necrosed bone found being in anterior wall as mentioned above.

Pennsylvania Medical Journal, Athens

February, XIX, No. 5, pp. 315-398

124 *Venous Thrombosis and Embolism, Its Cause, Significance and Consequences. A. McLean, Detroit.
125 Some General Principles of Surgical Diagnosis. J. C. DaCosta, Philadelphia.
126 *Pulmonary Tuberculosis and Pregnancy. C. C. Norris, Philadelphia.
127 Practical Value of Diphtheria Toxin Skin Reaction. J. A. Kolmer, Philadelphia.
128 *Some Criteria Underlying Prognosis in Certain Forms of Heart Insufficiency. J. E. Talley, Philadelphia.
129 *Significance of Heart Pain. D. Riesman, Philadelphia.
130 *Inadequacy of Ordinary Methods of Disinfecting Typhoid Stools. E. M. Green, Easton.
131 Operative Treatment of Cancer of Intestines. L. J. Hammond, Philadelphia.
132 *Value of Psychopathic Hospital. D. J. McCarthy, Philadelphia.
133 Ethics of Fees and Fee Splitting. J. B. Roberts, Philadelphia.
134 Investments of Physician. T. S. Gates, Philadelphia.
135 Blood Changes in Bone and Joint Infections. J. K. Young, Philadelphia.
136 Pelvi-Abdominal Operation Performed in Roentgen Ray Room. E. O. Kane, Kane.

124. Abstracted in The Journal, Oct. 16, 1915, p. 1401.

126 and 132. Abstracted in The Journal, Oct. 23, 1915, pp. 1483 and 1484.

128. Abstracted in The Journal, Oct. 9, 1915, p. 1303.

129 and 130. Abstracted in The Journal, Oct. 30, 1915, p. 1579.

Southern Medical Journal, Birmingham, Ala.

March, IX, No. 3, pp. 193-282

137 Blood Pressure and Exercise Combined as Test of Heart Efficiency. J. S. Lankford, San Antonio, Tex.
138 New and Improved Method for Treating Opium, Morphin Addiction. S. T. Rucker, Memphis, Tenn.
139 *Pyelitis in Infancy and Early Childhood. L. R. DeBuys, New Orleans.
140 Study of Wassermann and Luetin Reactions Done Simultaneously on Five Hundred Cases. H. L. McNeil, Galveston, Tex.
141 Plea for Uniformity in Wassermann Reaction. C. W. Shropshire and C. Watterston, Birmingham.
142 Arkansas Hot Spring Baths. E. H. Martin, Hot Springs, Ark.
143 Intensive Community Health Work: Its Value in Development of Public Health Agencies. J. A. Ferrell, New York.
144 Rural Sanitation in South. Two Vital Forces: Wholetime County Health Officer and Specialized Units of Health Work by State Boards of Health. J. H. Way, Waynesville, N. C.
145 Sanitating Rural Home. R. N. Whitfield, Florence, Miss.
146 Pellagra. Diet as Essential Element in Its Cause and Cure. C. A. Grote, Jasper.
147 Soil as Possible Medium for Etiologic Factor of Pellagra. C. C. Parrish, Fort Worth, Tex.
148 Pellagra Investigations in Georgia State Sanitarium for Insane. E. M. Green, Milledgeville, Ga.
149 Plea for Conservation of Health. H. S. Mustard, Charleston, S. C.
150 Study of Bone Repair. I. Cohn and G. Mann, New Orleans.
151 Post Hospital Care of Surgical Patient. S. McGuire, Richmond, Va.
152 Movable Kidney; Its Medicolegal Significance. W. W. Crawford, Hattiesburg, Miss.
153 Congenital Cataract; Hereditary Influences. R. H. Gantt, Spartanburg, S. C.
154 Relation of Systemic Conditions to Ocular Diseases. J. O. McReynolds, Dallas, Tex.
155 Fistula-in-Ano in Child. S. L. Boccellato, Memphis, Tenn.

139. Abstracted in The Journal, Dec. 11, 1915, p. 2118.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal

December, 1915, XXXIII, No. 129, pp. 129-235

1 Foundation of Bristol Medico-Chirurgical Society and History of Military Medicine in England. G. Parker.
2 Heart Diseases and Disorders in Warfare. C. Coombs.
3 Removal of Bullets and Other Metallic Foreign Bodies. R. G. P. Lansdown.
4 Evolution of Sense of Sight. F. R. Cross.
5 Gunshot Injuries to Eyes. E. H. E. Stack.

British Journal of Children's Diseases, London

March, XIII, No. 147, pp. 65-96

6 *Case of Splenomegaly with Anemia and Hemorrhages Due to Portal Thrombosis. J. Galloway.
7 Cure of Squint. N. B. Harman.
8 *Single Pelvic Kidney. J. D. Rolleston.

6. **Splenomegaly with Anemia Due to Portal Thrombosis.**—Galloway is convinced that in this case (patient a boy 8½ years of age), the splenomegaly and anemia were actually associated with portal thrombosis, and that almost certainly the portal thrombosis was the primary cause of the whole condition. The type of pyrexia present deserved attention. There was a sudden rise of temperature from 97.8 to about 106.2 with rigor. The lad complained of a certain amount of pain in the abdomen, and he vomited a little, but very little evidence of illness was present relative to the remarkable rise of temperature. The abdomen remained flaccid though a small quantity of fluid was still present, the spleen did not enlarge, the liver remained palpable below the costal margin. The temperature fell suddenly on the following morning to 102.4, rising in the afternoon of that day to 104. On the next day it fell to 99; on the next it was subnormal, and remained normal subsequently during his stay in the hospital. The day after the rigor and sudden rise of temperature the lad seemed to be almost in the same condition as before. In spite of the very severe febrile reaction the patient showed little sign of illness. The degree of fever would certainly in other cases have given rise to symptoms of severe toxemia or septicemia, but in this case the patient's general condition was remarkably little disturbed. Galloway has very little doubt that the febrile attack was associated with the increase and spread of the portal thrombosis— probably widely in parts of the portal circulation hitherto unaffected. Galloway believes that the occurrence of fever of this character in such cases would probably assist in the recognition of portal thrombosis.

8. **Single Pelvic Kidney.**—The specimen described by Rolleston combines the following rare conditions: (1) unilateral renal defect, (2) congenital renal misplacement or dystopia, (3) dilatation and hypertrophy of the ureter, with congenital stricture at its vesical extremity.

British Medical Journal, London

March 4, I, No. 2879, pp. 333-364

9 *Treatment of Gunshot Wounds. B. Moynihan.
10 Delayed Tetanus. G. Barling.
11 Treatment of Tetanus. R. G. Abercrombie.
12 Visual Neuroses of Miners in Their Relation to Military Service. C. F. Harford.
13 Eusol Treatment for Conjunctivitis. F. Jefferson and W. E. M. Armstrong.

9. **Treatment of Gunshot Wounds.**—Excision of the wound, if it can be practiced, Moynihan says, is an ideal method. Unhappily the great majority of the injuries inflicted are of such a kind that the wound surfaces are most irregular. An accurate excision of the surfaces of an anfractuous wound is, therefore, hardly possible in the majority of cases. In all cases of large or penetrating wounds a thorough examination and preparation of the wound for its subsequent dressings must be made. The skin must be cleansed thoroughly, by soap, ether, benzin or other efficient material, and an antiseptic liquid applied. Biniodid of mercury in spirit, Harrington's solution, Macdonald's solution, or Dakin's solution are the most effective. The latter, for the purposes of war, is to be preferred, for the subsequent irrigation and dressing of the wound may be carried out with the same preparation. After cleansing the skin adequate drainage must be secured. Whatever is necessary to secure full and free drainage must be done ruthlessly since the necessity for the unimpeded escape of all wound discharges is paramount. Moynihan points out that it is not yet sufficiently realized that immobilization of wounds in the soft parts is essential. The comfort of the patient is sensibly increased, and the spread of infection is checked.

In the treatment of all gunshot wounds in which the septic processes are raging, and the temperature varies through several degrees, an immense advantage will accrue from placing the patient out of doors. Speaking of vaccine therapy, Moynihan says, if a wound is imperfectly drained or not properly dressed, the administration of heroic doses of the most potent vaccine is merely futile. When, however, a wound is well drained and there is a free access of serum to the wound, with a free opportunity for its discharge into the wound and of rapid escape from it, then it would seem reasonable to suppose that the more potent the bactericidal power possessed by the serum, the greater will its effect be in causing the wound to clean and to heal. This suggests that the vaccine treatment, in conjunction with the application of Wright's solution, will be likely to give the best results. Of the great value of the streptococcus vaccine in the serious wounds of this war Moynihan is thoroughly convinced, and he has no doubt whatever that advantage would be gained by a freer use of it in cases of infection with this most obdurate organism.

Indian Medical Gazette, Calcutta

February, LI, No. 2, pp. 41-80

14 New Operation for Cataract. H. Smith.
15 Use of Conjunctival Flap in Operations for Intracapsular Extraction of Cataract by Smith's Method. A. E. J. Lister.
16 Training of Assistant in Smith's Operation for Intracapsular Extraction of Cataract. A. E. J. Lister.
17 New Method of Extraction of Cataractous Lenses. L. B. Nath.
18 Emergent Abdominal Surgery. C. Barry and S. T. Crump.
19 Eosinophilia in Some Cases of Helminthiasis. J. A. Sinton and J. D. Baily.

Lancet, London

March 4, I, No. 4827, pp. 495-544

20 Clinical Thermometry; Continuous and Quasicontinuous Temperature Records in Man and Animals in Health and Disease. G. S. Woodhead and P. C. Varrier-Jones.
21 Tabular Statement of Five Hundred Abdominal Gunshot Injuries. C. Wallace.
22 Diagnosis of Fevers Among Mediterranean Expeditionary Force. R. A. P. Hill.
23 *Puerperal Fever Fiction and Notification Farce. W. E. Fothergill.
24 Treatment of Septic Wounds With Simpson Light. J. A. Menzies.
25 Diet as Factor in Causation of Mental Disease. (To be continued.) C. Mercier.
26 *Etiology of Sarcoma in Rat. A. S. Leyton and H. G. Leyton.

23. **Puerperal Fever Fiction and Notification Farce.**—Fothergill says it is high time that the use of the term "puerperal fever" was dropped. It has been known for over sixty years that no such disease exists, but the abstract idea connected with the name will persist so long as the name continues to be used.

26. **Etiology of Sarcoma in Rat.**—Rat sarcoma after an immersion for twenty seconds in boiling water, was finely minced with the object of breaking up some of the nuclei, and the minced tumor made into an emulsion with saline solution. The emulsion was filtered through a Chamberland filter (B or F). The filtrate was plated out in the ordinary way on glucose glycerin agar and a streptothrix isolated in several cases. In similar fashion the Leytons also isolated but not yet investigated a streptothrix from mouse carcinoma. In order to test the relationship of the streptothrix to the formation of sarcoma, it was injected several times into the subcutaneous tissue and into the peritoneal cavity of rats, and several were also fed with it weekly for some time. So far, a tumor has resulted in one of the fed rats only. In the mediastinum was a growth about the size of a cherry, together with several smaller ones. It has all the characters of a spindle cell sarcoma and is inoculable. From it the streptothrix has again been isolated. The streptothrix in question appears to be either very pleomorphic or several species are to be found in rat sarcoma. The authors have also isolated one by the same method from the washings of the hair of a sarcomatous rat, but not, so far, from that of a normal rat. According to the Leytons the site of infection would probably be the cell nucleus, since most of the characteristics of malignant growth point to irritation of the nucleus.

Practitioner, London

March, XCVI, No. 3, pp. 231-346

27 *Operative Treatment of Fractures in Warfare. A. Lane.
28 *War Fractures. G. Taylor.
29 Uses and Limitations of Stereoscopic Roentgenography in Diagnosis of Injury to Bone; After-Treatment of Fractures. F. Hernaman-Johnson.
30 *Fractures Treated by Operation. H. W. Drew.
31 Three Unusual Fracture Cases From Frensham Hill Military Hospital. J. Connell and S. F. Freyer.
32 Gunshot Wounds of Upper Limbs. E. Delorme.
33 Immediate Treatment of Head Injuries From Projectiles. A. Schwartz and P. Mocquot.
34 Amputations; Their Prevention and After-Treatment. T. H. Openshaw.
35 Shrapnel Bullet Wounds. S. Wickenden.
36 Medical Aspects of Chest Injuries. R. M. Leslie.
37 Amebic Dysentery. G. C. Low.

27. **Operative Treatment of Fractures.**—Lane states that only in very exceptional circumstances is it advisable to fix fragments of broken bones together by means of plates and screws while the wound is very foul. If, for certain reasons, such a procedure is deemed necessary, screws should not be inserted near the broken extremities, but as far from the seat of fracture as possible. Lane holds that it is advisable to postpone operative interference till the wounds have healed, when the issues are, in all probability free of organisms. If any apparently septic focus is observed during an operation, a culture and a vaccine should be obtained from it, and employed at once should symptoms of infection of the wound develop. Should there be any definite suspicion of the presence of latent sepsis, effective drainage must be adopted at once. If not, the wound should be closed completely at the time of operation. Every attempt should be made to avoid any shortening of the limb, or to reduce it to a minimum. The apposition of the whole areas of the broken ends is not necessary, since the interval will fill up subsequently if suitable means be adopted. Fragments of bone or callus should be saved and employed to fill any interval between the pieces of the shaft. Lane found that much heavier steel plates are required in this class of case than are usually employed in the less comminuted fractures of civil life. The steel plates now supplied to the military hospitals are three times as resistant as those employed previous to the war. It is most important that the joints which are in relation with the fractured bone shall be moved as soon as possible after operation, in order to avoid that stiffness and limitation of movement that so often complicate these fractures.

The sooner the patient who has been operated on for fracture of one or more long bones of the leg is up and about, the more bone will be deposited, and the more rapid will be the repair at the seat of fracture. For this purpose a good ambulatory splint is a necessity. Should the interval between the fragments be so considerable that union is not likely to take place, even after prolonged congestion, brought about by the use of an ambulatory splint, the fragments should be secured in perfect alignment by a plate fixed vertically behind the center of the shaft. When this has been done, a portion of one of the fragments, which is usually equal in thickness to a third of the total circumference of the shaft, can be sawed off and secured over the interval between the fragments, any piece of bone removed to accommodate the graft in the other fragment being fitted to occupy such existing interval as may be left between the bones. If enough material cannot be obtained from the fractured bone to make a graft, it must be secured from some other bone, but the former is usually the more convenient for the purpose. Lane is of the opinion that most of the failures of bone grafting for extensive loss of substance are due to the surgeons depending on the unsatisfactory grip which the graft alone can be made to exert on the fragments of the shaft. Finally, in closing, Lane says: "A great deal of nonsense has been talked about the screws and plates acting as foreign bodies if used in simple fractures, and producing a rarefying ostitis around them. Should such rarefying ostitis exist, it is undeniable evidence that the technic of the operator is faulty, and not the procedure. The remedy is in the hands of the surgeon, who must improve his methods. Frequent failures in unskilled hands have led many to attribute their want of success to the employment of steel plates and screws, and to attempt to avoid sepsis by using other and much less effective means."

28. **War Fractures.**—Taylor and his associates have made extensive trial of various antiseptics in the treatment of gunshot wounds, and have also used saline largely; but, Taylor has been most impressed by the sulphur and glycerin emulsion. He also emphasizes first, the danger and disaster that may result from the treatment of septic compound fractures by means of plates and screws; and, second, that these cases, if the position be unsatisfactory, should be dealt with by operation, to secure fixation and proper alignment only when the wound has healed.

30. **Fractures Treated by Operation.**—Drew is convinced that in appropriate cases and under suitable conditions, operation by plating is the only satisfactory treatment. It is better to wait until the necessary conditions can be obtained than to undertake the operation with inadequate assistance, or under conditions that are not perfect, for a week or two makes little difference to the operation.

Sei-I-Kwai Medical Journal, Tokyo

February, XXXV, No. 2, pp. 5-10

38 Tubercular Peritonitis and Its Surgical Treatment. Y. Takaki.

Archives des Maladies du Cœur, etc., Paris

February, IX, No. 2, pp. 45-92

39 *Incomplete Forms of Exophthalmic Goiter and Neuroses of Tachycardia Type. (Quelques remarques sur les névroses tachycardiques et la maladie de Basedow fruste. Type inverse rythmique et thermique; hypertension légère; formes cliniques.) L. Gallavardin.
40 *Partial and Total Heart Block. (Les dissociations auriculo-ventriculaires.) J. Heitz.

39. **Neuroses of Tachycardia Type.**—Gallavardin recalls that tachycardia of sinus origin is merely an acceleration of the normal heart rhythm, but when the stimulus starts at some abnormal part of the heart, paroxysms of irregular tachycardia may result, of the type of auricular flutter, tachycardia from massed extrasystoles, and paroxysmal tachycardia of various kinds. The sinus tachycardia, on the other hand, includes the tachycardia from efforts, emotions, intoxications, and reflex action, also the regular tachycardia of organic heart disease, and the tachycardia of exophthalmic goiter. In addition to these there is a vast group of cases of tachycardia evidently the manifestation of a neurosis, and extremely variable, varying spontaneously from moment to moment, from day to day and from period to period. The tachycardia is more pronounced in the morning than in the afternoon, and the temperature is liable to be higher in the early morning. The blood pressure is also a little above normal with these tachycardia neuroses. They may be of a spontaneously continuous type or occur in episodes or come on only after exertion. Five typical cases are described and the identity between the clinical picture and that presented by the incomplete type of exophthalmic goiter is emphasized. Both are unmistakably the result of intense stimulation of the sympathetic system. Is the thyroid at the bottom of both, he queries, or is the sympathetic syndrome elicited by a different cause in each?

40. **Epinephrin in Heart Block.**—Heitz cites Routier's classification of auricle-ventricle dissociation as simple heart block, complete dissociation, and partial dissociation. The trouble may be in conduction of the impulse or in the generation of the impulse. Recent experimental research has demonstrated that there is certainly some connection between the cardiac fibers of the sympathetic and the conduction of the impulse, but that the latter is almost entirely, but not quite, independent of these fibers. The connection is enough, however, to justify the administration of epinephrin when the conduction is being interfered with, as epinephrin has such a marked action on the sympathetic nerve. Routier arrested conduction by nipping with forceps the bundle of

His in dogs. The auricle beat was 140, the ventricle 55, in one typical experiment of the kind. Then an injection of epinephrin was made and in twenty seconds the auricle beat became 115 and the ventricle beat also 115, showing that the heart block had been overcome. As the effect of the epinephrin passed off, the auricle beat increased to 120 while the ventricle beat dropped to 42. These results of epinephrin treatment occur the same even when the first two thoracic ganglia have been removed, confirming the assumption that epinephrin acts on the terminal nervous apparatus in the heart. It accelerates the beat by its action on the nerve terminals in the coronary sympathetic plexus, but it arrests the heart block through the sympathetic fibers in the bundle of His, stimulating the bundle until it is able to resume its task of conduction, thus rendering possible the passage of the wave of contraction so long as the bundle of His is not entirely destroyed. We must yield a larger place to the nerve factor in our estimation of dissociation of the auricular and ventricular beat. The nerve factor may be within or without the heart, according as the disturbance in conduction is the result of hypertonicity of the vagus or of functional insufficiency of the sympathetic. Epinephrin has thus been demonstrated to have a regular place in treatment of heart block.

Archives Mens. d'Obstétrique et de Gynécologie, Paris

December, 1915, IV, No. 12, pp. 433-464

41 Useless Operations. (Quelques remarques à propos des opérations inutiles, donc indésirables.) G.-A. van Leeuwen (Amsterdam).
42 Protection for Pregnant Women and Infants at Paris During the War. G. Vitoux.

Bulletin de l'Académie de Médecine, Paris

February 22, LXXV, No. 8, pp. 203-244

43 *The Wassermann Reaction in Chronic Diseases. M. Letulle and A. Bergeron.
44 Systematic Care for and Training in Hygiene of Tuberculous Soldiers. M. de Fleury.
45 *Vertigo of Gastric or Aural Origin. (Vertige stomacal et vertige auriculaire. Le vertige auriculo-stomacal.) G. Linossier.
46 Paralysis of Ocular Muscles from Picric Acid. (Paralysie oculaire au cours d'une intoxication par l'acide picrique. Sur la présence de l'acide picramique dans le liquide céphalo-rachidien.) G. Guillain and H. Pecker.
47 Report of Medical Mission to Serbia. (Notes médicales à propos de mon sejour en Serbie.) Chaix.
48 *Solid Transmitter for the Ausculted Voice. (De l'auscultation de la voix solidienne, à distance en clinique pour le diagnostic précoce du début de la tuberculose pulmonaire.) Glover.
49 *Graduation and Dosage of Sunlight in Heliotherapy. (Sur un moyen simple de graduation et de dosage des rayons solaires en thérapeutique.) H. Bordier.

43. **The Wassermann Reaction in Chronic Diseases.**—Letulle and Bergeron have applied the Wassermann test to nearly every person admitted to the Boucicaut hospital in the last four years, and they obtained a positive response in 296 of the 608 patients with chronic liver, kidney, heart or vascular disease or disease of the nervous system. In 13 others the reaction was doubtful. Among 253 patients with paresis, paraplegia, myelitis or epilepsy, a positive reaction occurred in 136, that is, in more than 50 per cent. It was positive likewise in 90 of 168 with chronic disease of the heart or vascular system, and in 34 of 75 with cirrhosis of the liver, and doubtful in 3. A positive reaction was observed likewise in both of the 2 cases of paroxysmal hemoglobinuria. Among 116 patients with chronic kidney disease, 74 gave a negative reaction.

45. **Paroxysmal Vertigo.**—Linossier discusses vertigo in general and emphasizes the necessity for distinguishing between that for which the internal ear is responsible and that brought on by digestive disturbances. He expatiates further on the vertigo in which both of these factors cooperate. The digestive type is the most common, and by treating the dyspepsia we are able to eliminate the digestive factor and thus possibly arrest the manifestations entirely. In every case of Ménière's disease the stomach functioning should be carefully investigated and appropriate treatment instituted. In the discussion that followed, Hayem remarked that the congestion of the face frequently noticed with difficult digestion may extend to the internal ear and cause disturbance enough to bring on the labyrinthic vertigo even when the internal ear otherwise seems normal.

48. **Transmission of Vocal Vibrations Through Solids in Diagnosis of Pulmonary Tuberculosis.**—Glover calls the principle on which his auscultation apparatus is based the *vibrations vocales solidiennes* in contrast to the *vibrations vocales aériennes.* The voice is heard through a solid instead of through the air, and the sounds vary according as the air passages below are normal or diseased, so that by comparing the two sides the evolution or regression of anatomic lesions can be traced and they can be detected in their incipiency. No description is given of the apparatus, but Glover's work in this line won for him the Lallemand prize in physiology in 1915.

49. **Dosage in Heliotherapy.**—Bordier uses gauze stretched on a frame. Held close to the skin, each thread casts a distinct shadow, but held at a certain distance the shadows blend and the light falls evenly all over the area. It is not a filter, but merely graduates and diffuses the light, protecting against sunburn. The dosage can be graduated with a photographic paper as he describes in detail.

Lyon Chirurgical, Lyons

December, 1915, XII, No. 6, pp. 701-841

50 Why, How and Where to Operate for Abdominal Wounds? (Pourquoi, comment et où faut-il intervenir dans les plaies de l'abdomen?) G. Tisserand; (Essai sur les indications opératoires dans les plaies pénétrantes de l'abdomen.) P. Vignard; (Traitement des plaies pénétrantes de l'abdomen par projectiles de guerre.) A. Chalier; (Balles mobiles et balles fixes dans la cavité abdominale.) P. Goullioud and Arcelin.
51 *Vicarious Partial Restoration of Function Possible After Section of Spinal Cord? (Remarques sur un cas de section complète de la moelle épinière suivie d'une restauration partielle de la sensibilité et des mouvements des régions d'abord paralysées.) J.-P. Morat.
52 Septic Meningitis From Skull Wound Followed by Aseptic Suppurative Meningitis; Recovery. A. Policard and B. Desplas.
53 *Device to Correct Muscular Constriction of the Jaws. (Traitement de la constriction myopathique des mâchoires.) A. Pont.
54 Failure of Treatment of Tetanus; Fifteen Deaths in Eighteen Cases. C. Laurent.
55 Bullet Ruptures Humeral Artery; Three Cases. J. Murard.
56 Advantages of Primary Subperiosteal Removal of Splinters of Long Bones. (Résultats de l'esquillectomie sous périostée primitive dans les fractures diaphysaires par coups de feu.) R. Leriche.

51. **Restoration of Function After Severing of Spinal Cord.**—Morat suggests that it might be possible to substitute for the severed spinal cord some fibers from the sympathetic system to bridge the gap, training the ganglion system to do, alone, the work which it usually does merely as an auxiliary to the spinal cord.

53. **Muscular Contraction of Wounded Jaws.**—Pont says that in over 2,250 cases of fracture of the jaws in his special service at a base hospital, there was muscular constriction in 500. He gives photographs of some of the devices he has found useful in correcting the constriction, urging the necessity for prompt correction of myopathic constriction of any kind.

Paris Médical

February 26, VI, No. 9, pp. 213-228

57 *Hysteric Hemiplegia After Shock From Shell Explosion. (Les maladies méconnues: Anesthésies et analgésies hystériques.) P. Chavigny.
58 Organization of the Medical Department of the Italian Army. (L'organisation du service sanitaire dans l'armée Italienne.) U. Gasperini.
59 Improved Technic for Resection of Astragalus. (Nouveau procédé d'astragalectomie.) E. Destot.
60 Gas Gangrene and Its Treatment. J. Fievez.
61 *Radiotherapy of Cicatrices. M. Mercier.

57. **Hysteria in Soldiers.**—Chavigny comments on the harm liable to be done by skepticism as to the occurrence of hysteric disturbances among the troops on active service. One man, for example, had hemiplegia after a shell explosion near by, and when Chavigny first saw him, nearly a month later, he had been treated with repeated lumbar puncture and dry cupping along the spine. His hemiplegia was as complete as ever and there was already question of a pension. He had had hemi-anesthesia from the start, which should have warned of hysteria as the cause of the trouble,

and the man should have been cured long ago by reeducating the sensibility. Five other typical cases are described in which this was done, and the men were promptly cured. The revealing hemi-anesthesia was tested with the faradic current. On the sound side it elicited regularly movements of withdrawal while on the hemiplegic side even the strongest current did not seem to be felt at all. This anesthesia was thus of the true Charcot type, and as it yielded to systematic application of the faradic current to the skin, in the course of ten days to three weeks, the hemiplegia subsided with it.

61. **Radiotherapy of Impeding Cicatrix.**—Mercier reports excellent results in many cases from exposure to the Roentgen rays of cicatricial tissue impeding the use of the fingers, hand, arm, etc., after war wounds. In three or four sittings the scar tissue softens up, the fibrous tissue binding it down seems to be absorbed, and the tendons and muscles caught in the cicatrix regain their functional play. He gave from eight to twelve exposures.

Presse Médicale, Paris

February 24, XXIV, No. 11, pp. 81-88

62 Reflex Contracture and Paralysis After Gunshot and Shell Wounds. J. Babinski and J. Froment.
63 *Preferable Concentration for Surgical Solutions. B. Cunéo and L. Meunier.
64 Immobilization of Fractured Lower Jaw. (Procédé simple de contention des fractures du maxillaire inférieur.) A. Herpin.

February 28, No. 12, pp. 89-96

65 *Threads as Drains. (Le drainage filiforme.) H. Chaput.
66 Agglutination in Diagnosis of Typhoid in the Vaccinated. (La séro-réaction de Widal a-t-elle une valeur diagnostique chez les vaccinés?) M. Salomon.
67 Differentiation of True and False Heart Disease. (La récupération des faux cardiaques.) C. Aubertin.

63. **Most Favorable Concentration for Surgical Solutions.**—Cunéo and Meunier state that the freezing point of pus varies with the age of the suppuration. At first it averages —0.55 or 0.56 but as the process tends to heal, the figure drops and gradually reaches —0.40. The widest range they ever obtained was from —0.94 to —0.38. They suggest that the figure —0.40 thus represents the optimum toward which Nature is striving, and hence that surgical solutions should have this optimal freezing point of —0.40. Tests of some of the surgical solutions in vogue revealed in fact that they had this actual freezing point. They give a table of formulas for various surgical solutions with a freezing point at —0.40 including Dakin's solution; hydrogen dioxid at 1:6; a solution of 2 gm. iodin, 15 gm. potassium iodid and 1,000 c.c. distilled water; 34 gm. glucose with 1,000 c.c. distilled water; 5.75 gm. sodium chlorid and 1,000 c.c. distilled water—all with a freezing point at —0.40.

65. **Thread Drainage.**—Chaput expatiates on the advantages of one or more threads, silk fibers, wires or rubber pencils from 3 to 7 mm. in diameter to drain wounds, abscesses and fistulas. He insists that the drainage is always good because the thread passes through openings very large in comparison to its diameter; there is no dead space, and the lips of the wound fit around the thread drain like a valve, preventing ingress of air. Abscesses and other lesions heal more rapidly than with tube drains, and leave less traces. The abscess can be punctured at several points and a small silk thread introduced at each, thus facilitating healing with the least disfigurement. He reviews his extensive experiences with this filiform drainage, as he calls it, in abscesses of the breast and anus, tendon-sheath phlegmons, suppurating wounds of the knees or other joints, in peritonitis, in tuberculous bone and joint affections, and after hysterectomy and other operations. A number of minor technical points are mentioned for each of these applications. Among the advantages extolled are that the filiform drains leave no scar, protect against sloughing of tissues, are not so painful as drain tubes, avert complications, and protect against infection from without. They heal up a purulent pleurisy in a few days, without leaving a fistula or requiring resection of ribs. They do not keep the wound discharging, like tube drains, and he found that all wounds and cavities, aseptic or infected or tuberculous, healed up remarkably fast, as a rule in from ten to fifteen days.

Revue de Chirurgie, Paris

December, 1915, XXXIV, No. 10-11-12, pp. 433-706

68 *Indications for Removal of Projectile in Heart; Case of Bullet in Right Auricle. (Extraction d'une balle dans l'oreillette droite du cœur.) Couteaud and Bellot.
69 Principles for Management of Suppurating Gunshot and Shell Wounds. (Quelques préceptes élémentaires relatifs au traitement des plaies de guerre suppurées.) L. Bérard and A. Lumière.
70 Wounds of the Spleen. (Les plaies thoraco-abdominales de la rate.) X. Delore and Kocher.
71 *Primary Duodenal Cancer. (Le cancer primitif et intrinsèque—non vatérien—du duodénum.) E. Forgue and E. Chauvin.
72 *Coxa Valga. G. Worms and A. Hamant. Commenced in preceding Number.

68. **Bullet in Right Auricle.**—The soldier spat blood for several hours after the bullet wound below the clavicle, but had no seriously menacing disturbances beyond agonizing pain back of the sternum, and headache. Later there were syncopes and dyspnea after exertion, and every sudden movement was liable to bring on severe palpitations, and there was a constant sensation of constriction and oppression in the chest. The sixth month there was an acute attack of myocarditis and pericarditis, the heart action alarmingly irregular for a week. Then this severe condition became mitigated but returned again. The man was afraid to make the slightest effort, fearing to bring on a serious attack of "crazy heart," and such frequently developed, notwithstanding all his care. The sixth month the bullet was extracted at a fifty-minute operation. Scraps of cloth were found in its bed in the auricle wall, and the myocardium at this late date was found degenerated beyond repair. The man bore the operation well, but the heart action grew weaker and weaker and finally failed completely the eleventh hour.

71. **Duodenal Cancer.**—Forgue and Chauvin devote 111 pages to a study of primary and intrinsic cancer in the duodenum—apart from the ampulla of Vater. They give an illustrated description of a case in a woman of 52 who succumbed the third day after the operation, and give full summaries of forty-four cases from international literature. As cancer in this region is liable to involve or encroach on the stomach or bowel, bile ducts or pancreatic duct, or all combined, the clinical picture may be most diverse and extensive in different cases. Symptoms had been noted for from only a few days to two years in the cases compiled. The exact diagnosis is practically impossible; it was not even suspected in forty-three of the forty-five cases. An operation was attempted in only eleven of the cases. Gastro-enterostomy was done in four cases with two deaths.

72. **Coxa Valga.**—Worms and Hamant remark that the symptoms from coxa valga are generally masked by those of the bone disease responsible for its development. If not, it may simulate simple coxalgia or dislocation of the hip joint. There is no pathognomonic sign unless possibly when radiography shows the angle of the slant of the neck of the femur abnormally large. The insidious onset, the pains in the hip and knee, the slight limp, and the youth of the patients suggest tuberculous hip-joint disease. Extension for a few days promptly relieves the pain with coxa valga, and thus aids in differentiating it. Orthopedic measures are usually all that is needed, with treatment of the underlying trouble. Of the three operative methods that have been tried, linear osteotomy at the base of the neck respects the leverage for the muscles and is done outside the joint. Resection of a wedge below the trochanter corrects the vicious attitude without restoring normal conditions otherwise, but has done good service in the hands of David, Allison and Clarke, when the coxa valga interfered seriously with the use of the limb.

Revue Médicale de la Suisse Romande, Geneva

February, XXXVI, No. 2, pp. 65-132

73 *Progressive Hydrophthalmia. (L'hydrophthalmie progressive, cas particulier des dilatations idiopathiques des organes cavitaires.) L. Bard.
74 *Diagnosis of Incipient Pulmonary Tuberculosis. (Le diagnostic clinique et pratique de la tuberculose pulmonaire débutante.) R. Burnand.

73. **Progressive Hydrophthalmia.**—Bard is convinced that the condition of the eye known as buphthalmia is connected with some congenital malformation, and that it belongs in

the same category as cystic disease of the kidney or breast, hydrocephalus and certain forms of syringomyelia. The term "infantile glaucoma" is not appropriate; in a recent case encountered the tension was below rather than above normal. In all these cases of idiopathic enlargement of hollow organs, any inflammatory features are surely secondary. Cystic disease of the breast and kidney, likewise, have nothing to do with inflammation or a new growth unless secondarily. They are all more like a vascular angioma, some malformation in quality or structure, rather than shape of the wall allowing it to stretch without any pressure from within. This same explanation applies to certain cases of dilatation of the bronchi or segments of the digestive apparatus. In a recent case, idiopathic dilatation of the rectum occurred just above the normal anus, with no kink nor stricture to explain it otherwise. In another case the bladder, ureters and the pelvis of both kidneys, in a youth of 16, stretched in this way, gradually entailing atrophy of the kidneys and finally death from uremia, without anything being found during life or after death that could have presented an obstacle to the voiding of the urine and thus have explained this essential cystohydronephrosis. This anatomic-clinical type is to the urine excreting apparatus what polycystic degeneration of the kidney is to the glomerulitubuli secreting system.

74. **Clinical and Practical Diagnosis of Incipient Pulmonary Tuberculosis.**—Burnand is chief of the public sanatorium at Leysin. He relates that the course of the pulmonary trouble in patients there often belies the diagnosis that had accompanied them when they arrived. He insists that anomalies of the respiration are so common that the normal type is the exception in adults, even in those entirely free from tuberculosis, and particularly in those with healed tuberculous lesions. Many persons come to Leysin labeled tuberculous on account of debility and anemia for which in reality some heart, kidney or thyroid trouble is responsible. The assumption that tuberculosis is present when the temperature goes up half a degree Centigrade after an hour's exercise, has been shown to be erroneous by the experiences at Leysin. In a number of such cases of constant subfebrile temperature, some nontuberculous lesion outside of the lung was responsible for the abnormal temperature, although in every case the attending physician had never hesitated in ascribing it to tuberculosis as the apex findings were not quite normal. In some of the cases the subfebrile temperature was finally traced to enteritis or latent appendicitis, general nervousness, simulation, sinusitis or tonsillitis. More or less latent gynecologic or urinary disease is often responsible for the slight rise in temperature, especially of the premenstrual type. Anything of this kind readily explains a rise of temperature after an hour's exercise or a persisting, slightly abnormal temperature. In the majority of cases, however, some tuberculous lesion is responsible for the temperature, but it is hidden away in some bone or joint, and has nothing to do with the lungs. He says of "incipient" tuberculosis that the only incipiency which we are able to recognize, as a rule, is when an old latent lesion rouses to active progress. The various types of constitution are encountered among the tuberculous, he emphasizes, in as great variety as among the general populace. Those presenting the so-called pretuberculosis type are in all probability already a prey to tuberculosis. Acquired or inherited, the tuberculosis may persist torpid and attenuated, but it cannot be called latent, as it entails the aspect which we call "predisposed to pulmonary tuberculosis," malformation of the chest from the lesions within, the toxic changes in muscles or organs or a general dystrophy. Hereditary influences in the diagnosis are of less import than the familial conditions at a given time. A history of preceding affections of lung or pleura of other origin is also important as explaining the local findings.

Correspondenz-Blatt für Schweizer Aerzte, Basel

February 26, XLVI, No. 9, pp. 259-288

75 Relations Between the Ductless Glands and the Circulation of Blood. (Beziehungen der endokrinen Drüsen zum Blutkreislauf.) A. Oswald.

76 Fitness for Military Service of Swiss Recruits. (Recherches sur l'aptitude physique au service militaire et sur la résistance individuelle des recrues.) F. Messerli.

Gazzetta degli Ospedali e delle Cliniche, Milan

February 24, XXXVII, No. 16, pp. 241-256

77 The Bacterial Flora of Gas Gangrene. G. De Angelis.

Policlinico, Rome

February 20, XXIII, No. 8, pp. 229-260

78 *War Typhoid. (Appunti pratici intorno al tifo di guerra.) C. Frugoni.

79 Frostbite. (Contributo alla cura delle congelazioni; aria calda, demolizioni economiche, iniezioni antitetaniche ripetute.) L. Isnardi.

80 Eugenics and War. (L'eugenica e la guerra.) G. Dragotti.

February 27, No. 9, pp. 261-292

81 *Summary Diagnosis of Cholera. (A proposito della diagnosi batteriologica rapida del colera.) G. Castelli and L. Vigano.

82 Ligation of Lingual Artery to Arrest Secondary Hemorrhage From the Tongue. (Allacciatura dell'arteria linguale per emorragia secondaria della lingua.) L. Moncalvi.

February, Surgical Section No. 2, pp. 33-64

83 Gunshot Wounds of the Abdomen; Recovery in Severe Case. (Ferita d'arma da fuoco a pallini penetrante nell'addome con perforazione del colon ascendente ledente la loggia renale destra. —Laparatomia d'urgenza. Enterorrafia. Nefroscopia. Asportazione dei proiettili. Trattamento aperto. Guarigione.) O. Cignozzi. Commenced in No. 1.

84 *Application in the Clinic of Ambard's Formula for Estimation of Functional Capacity of the Kidneys. (Applicazioni cliniche della costante di Ambard.) V. Grossi.

85 The Functioning of the Omentum With Strangulated Hernia. (La funzione del grande epiploon negli strozzamenti erniari dell' intestino.) I. Scalone. To be continued.

78. **War Typhoid.**—Frugoni remarks that among the peculiarities of war typhoid are that the prodrome usually passes unperceived by the sick man or any one else. In his experience, the first signs of trouble were a high fever and symptoms of bronchitis or rheumatism, frequently misleading the physician to assume a simple febrile bronchitis or acute articular rheumatism. The pulse also behaves the reverse of what is usually observed in typhoid, the heart being already overfatigued to start with. The spleen is also liable to be already enlarged, in consequence of the antityphoid vaccination. He protests against special hospitals for typhoid patients, saying that any possible benefit from the specialist treatment is far outweighed by the injury from moving the sick man. He should be isolated where he is, and when this is the rule, war typhoid is no graver than under other conditions. The course was milder and briefer in the vaccinated, and in about a third of the cases the paratyphoid B bacillus seemed to be responsible, judging from the agglutination tests. Complications were frequent and severe, including fatal intestinal hemorrhage, phlebitis, cystitis, angiocholitis, suppurative otitis media, and polyneuritis.

81. **Bacteriologic Diagnosis of Cholera.**—Castelli and Vigano describe the technic with which they can examine a thousand specimens of stool a day and be ready to report in thirty hours.

84. **Ambard's Formula in Estimation of Functional Capacity of the Kidneys.**—Ambard's "uremic constant" has been described at various times in THE JOURNAL, as in the issue for March 7, 1914, p. 813. Grossi reviews the literature on the subject and his own findings with the application of numerical laws as governing the rate of excretion of urea and the proportional urea content of the blood. He ascertained the Ambard uremic index in 13 cases of renal tuberculosis; in 9 of other kidney diseases; in 8 of pyelonephritis from calculi; in 3 of kidney tumors; in 8 of disease of the bladder, and other kidney affections, to a total of over 51 cases in which the index was determined once or more times. His experience confirms the value of the index as an indication of the functioning of the kidneys as a whole. It is more reliable, he thinks, than colorimetric methods when catheterization of the ureters is impossible. Even at its best, however, he explains, the significance and the pathogenesis of the azotemia and the bases of the Ambard formula are still far from being thoroughly understood. In 2 cases of blood-borne infection of the kidney, with fatal outcome, the Ambard formula testified to almost normal conditions. The highest

index was in a case of renal tuberculosis, 2.7, and death soon ensued, as also in a case with index of 0.97. The index of 0.640 and 0.409 in a case of polycystic kidney indicates apparently that both kidneys are affected. He noticed that the index declined after a purge, suggesting that larger proportions of urea are eliminated in the stools under the influence of a purge.

Riforma Medica, Naples

January 10, XXXII, No. 2, pp. 29-56

86 Present Status of Early Diagnosis of Gastric Cancer. V. Patella. To be continued.
87 Bladder-Obturator Fistula From Stick in Girl's Bladder. D. Taddei.

January 17, No. 3, pp. 57-84

88 Gastric Cancer. V. Patella. To be continued.
89 The Dietary for the Insane From the Therapeutic Point of View. (Considerazione sul regime alimentare negli alienati.) A. Salerni.
90 Bipolar Electrode Electric Tests for Rendering Pain Objective. (La obbiettivazione del dolore al campo.) S. Ottolenghi.

Hospitalstidende, Copenhagen

February 23, LIX, No. 8, pp. 153-176

91 *Serodiagnosis From Spinal Fluid. (Undersøgelser over Weil-Kafka's Hæmolysinreaktion i Spinalvædsken, specielt ved sekundær Syfilis og Tabes dorsalis.) H. Boas and G. Neve.

91. Permeability of the Meninges in Syphilis.—Boas and Neve here report further research on the Weil-Kafka hemolysin reaction in the spinal fluid. Amboceptors against sheep corpuscles are found often in the blood but never normally in the cerebrospinal fluid. Discovery of hemolysis in the cerebrospinal fluid therefore indicates pathologic permeability on the part of the meninges, and this is evidently of frequent occurrence in syphilis. Hence, they declare, the Weil-Kafka test should be adopted as a routine procedure in diagnosis and control of syphilis. They obtained a positive hemolysin reaction in the spinal fluid in one of 9 patients with a primary lesion and positive Wassermann reaction; in 12 of 82 syphilitics in the secondary stage; in 2 of 10 in the tertiary stage; in 2 of 27 with latent syphilis, and in the one patient with inherited syphilis examined. In general paresis the reaction was positive in 73 per cent. of the 87 patients examined, and in 47 per cent. of the 34 tabetics. In 52 nonsyphilitic controls the test gave constantly negative findings except in 2 with a tumor in the brain and hemorrhagic fluid. In a number of the cases this Weil-Kafka reaction was the only one obtained and there never seemed to be any connection between it and the other reactions, the cell count, the globulin and the Wassermann reaction in the fluid and in the serum. When the reaction was estimated quantitatively, it seemed to be most intense in the paralytic dementia cases. The bibliography on the test is appended. [E. Weil and V. Kafka first called attention to it in the *Wiener klin. Wochenschrift*, 1911, xxiv, p. 335. Kafka's latest communication on it was reviewed in these columns, 1915, lxiv, p. 949. They add 1 c.c. of a thrice rinsed fresh 5 per cent. suspension of sheep blood to 10 c.c. of unheated cerebrospinal fluid, free from blood. The glass is set aside at 37 C. for an hour, and then the blood corpuscles are collected in a slowly revolving centrifuge. The supernatant fluid is decanted and the sediment is not rinsed. The sediment is then suspended in 1 c.c. saline and distributed in two test tubes. Then normal guinea-pig serum is added to each of the tubes, for the complement. The fact that the test is positive in acute meningitis does not detract from its differential value in syphilis, as there is no danger of confusion.]

Ugeskrift for Læger, Copenhagen

February 17, LXXVIII, No. 7, pp. 211-254

92 Extension of Field of Local Anesthesia. (Lokalanestesien i mere udvidet Anvendelse.) T. Iversen.
93 Artificial Limbs. (Om kunstige Lemmer.) E. Nyrop.

February 24, No. 8, pp. 255-286

94 Dietaries of 496 Families of Working Classes in Denmark. (Dyrtidskosten i Efteraaret 1915.) M. V. Bjørum and P. Heiberg.
95 *Syphilitic Heart Disease. (Mb. cordis syphiliticus.) C. Gram.

95. Syphilitic Heart Disease.—The first of Gram's two patients was a widow of 45 with pronounced heart disease presumably left by a severe attack of scarlet fever three years before. The degeneration of the myocardium apparently called for digitalis and the attacks of angina pectoris for nitroglycerin, etc. Gram was surprised to find no traces of peripheral arteriosclerosis, and he recalled that he had never known scarlet fever to entail angina pectoris. Myocarditis, endocarditis and pericarditis are common as relics of scarlet fever, but never angina pectoris. On this basis he instituted tentative treatment as for syphilis, and the prompt improvement confirmed the assumption that the trouble was some syphilitic affection of the coronary arteries although there had never been anything at any time to suggest syphilis. The Wassermann test was found positive. The second patient was about the same age and presented asystoly and attacks of tachycardia with subfebrile temperature but nothing resembling angina pectoris. As in such cases mercurial inunctions would be too betraying, he has for years always had good results with a tablespoonful three or four times a day of a mixture of 50 or 100 parts sodium iodid and 1 or 2 parts red mercuric iodid in distilled water to 3,000 parts.

Upsala Läkareförenings Förhandlingar

Nov. 26, 1915, XXI, No. 1-2, pp. 1-144. Last indexed Oct. 30, 1915, p. 159

96 True Hermaphroditism in Mammals and Man. (Om hermaphrodismus verus hos däggdjur och människa.) C. D. Josephson.
97 Pituitary Body in 123 Rabbits. (Bidrag till hypofysens åldersanatomi hos kaninen.) H. Björkman.
98 Expert Medical Testimony in Special Murder Case. (Mitt yttrande och medicinalstyrelsens utlåtande i det s. k. östmarksmålet.) A. Vestberg.

January 21, No. 3, pp. 145-217

99 The Secretion of Urine From the Chemical and Physiologic Standpoint. (Urinafsöndringen ur kemisk och fysiologisk synpunkt.) E. L. Backman.
100 *The Conception of Renal Diabetes Not Justified Clinically. (Finnes det någon renal diabetes i klinisk mening?) G. Bergmark.
101 Development of Motor Functioning During First Year of Life. (Studier öfver de motoriska funktionernas utveckling under första lefnadsåret.) G. Bergmark.

January 28, No. 4-5, pp. 219-398

102 Anatomy of the Thyroid in Rabbits. (Bidrag till sköldkörtelns åldersanatomi hos kaninen jämte några iakttagelser öfver den s. k. centralkanalen.) P. Häggström.
103 *Vomiting from Circulatory Disturbances. (Kräkningar som följd af cirkulationsrubbning.) G. Bergmark.

100. Renal Diabetes.—Bergmark thinks that the lack of an excess of sugar in the blood does not justify the assumption of renal diabetes as a clinical entity. He reports the particulars of a case which might come under the heading of renal diabetes, but then shows the fallacy of such an assumption, comparing the findings with those from a number of tests of the glucosuria in healthy persons. The patient in the case described was an unmarried woman of 34 with a small amount of sugar in the urine but none in the blood. The glucosuria was refractory to dietetic measures except that the sugar disappeared from the morning urine when she fasted. The blood sugar content was constantly normal. After ingestion of 100 gm. dextrose, there was hyperglycemia and it persisted abnormally long. He regards this as evidence against the assumption of renal diabetes. It testifies to some disturbance in the metabolism of sugar. He compares with this the cases of so-called renal diabetes that have been published, showing that only Gram's case can withstand criticism, and he is not certain as to special features of this.

103. Vomiting as Early Symptom of Heart Disease.—Bergmark had under observation for over a year a man of 74 who for eight years had had attacks of vomiting whenever he overexerted himself. He was always robust previously, but there was a history of excessive liquor drinking between 30 and 60. The vomiting seemed to be dependent on pathologic changes in the heart; necropsy revealed advanced coronary sclerosis while the stomach and intestines seemed normal. Various tests showed that under physical exertion the blood pressure ran up (from 140 to 220 on climbing stairs) and, as the blood pressure rose, the attack of vomiting came on while there was no tendency to vomit at other times. The detailed findings with three series of tests are tabulated, the whole apparently indicating that the vomiting attacks formed a kind of equivalent for angina pectoris.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 16 CHICAGO, ILLINOIS APRIL 15, 1916

THE BACTERIOLOGY AND EXPERIMENTAL PRODUCTION OF OVARITIS *

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The bacteriology of acute infections of the ovary has been studied extensively. The possible bacterial cause, on the other hand, of the chronic inflammations in the ovary, associated with sclerosis and cystic degeneration, still lacks demonstration. A comprehensive bacteriologic study of the involved tissues in this condition, in which due regard has been paid to the question of oxygen pressure, as emphasized by one of us,[1] has not been made. That some infections of the ovary may be of hematogenous origin from a distant focal source, and not direct extension from the genital tract, is supported by many recent clinical observations, and the demonstrated fact that bacteria from foci of infection and the involved tissues in other diseases, such as appendicitis, ulcer of the stomach, cholecystitis, erythema nodosum and herpes zoster tend to infect electively the corresponding organs in animals, when injected intravenously.[2] As far as we know, however, no one has heretofore proved experimentally that streptococci causing inflammation of ovaries in the human species show elective affinity for these structures in animals.

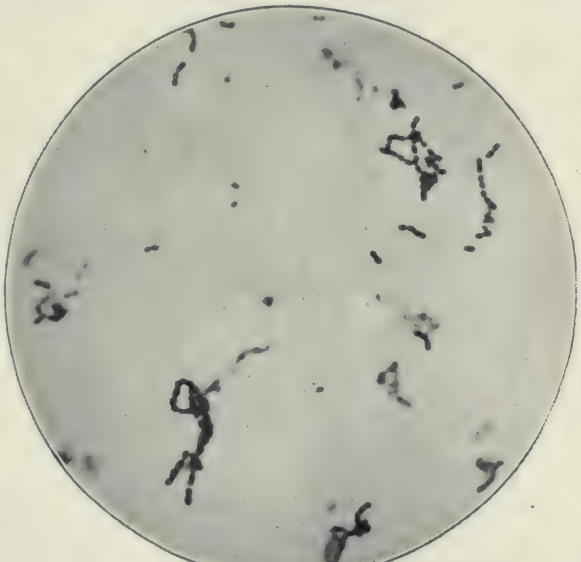


Fig. 1. — Ascites-dextrose-broth culture of streptococcus (Case 373) from human cystic ovary. Note the long chains. Gram-Weigert, × 1,200.

In this paper, we wish to record briefly the results of cultures made from tissues and the cystic fluid in a series of ovaries removed at operation, to cite the history of a few illustrative cases, and to give the results of animal experiments made with some of the strains isolated.

Most of the ovaries studied showed on microscopic examination the typical chronic fibrocystic degeneration, and were removed[3] for the usual menstrual and certain nervous disturbances believed to be due to ovarian malfunction. Only a small proportion of the cases studied gave a history of a previous acute pelvic infection, and in only three cases was there present a relatively acute process. In a number the history indicated clearly that the pelvic disturbance began after the contraction of a severe cold during the menstrual period or following definite attacks of tonsillitis. It is to be regretted, however, that we did not give more attention to the presence or absence of demonstrable foci of infection at the time of the surgical treatment.

The ages of the patients ranged from 18 to 55 years, twenty-six being under 30 years of age. Altogether cultures have been made in sixty-four cases. In fifty-six, the records of the associated abdominal findings as determined by laparotomy were quite complete — fibroids of the uterus were found in eighteen, salpingitis in eleven, chronic appendicitis in eleven, and chronic cholecystitis in eight.

The technic of making the cultures was that used by one of us in connection with a similar study in other diseases.[2] Suffice to say here that shake cultures were made in tall columns of ascites-dextrose agar from one or more portions of the ovary, at least 1 cm. in diameter, previously emulsified in a specially devised sterile air chamber.

RESULTS OF THE CULTURES

Two of three patients with acute tubo-ovarian abscesses showed pure cultures of *Streptococcus viridans* in countless numbers in the involved tissues. The pus of one of these was sterile, while the other showed a moderate number of the same streptococcus. The third acute case yielded the gonococcus in large numbers. In ten cases, the cultures remained permanently sterile. In the remaining fifty-one cases, in which the ovaries showed the usual fibrocystic degeneration,

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1. Rosenow, E. C.: The Newer Bacteriology of Various Infections as Determined by Special Methods, THE JOURNAL A. M. A., Sept. 12, 1914, p. 903.

2. Rosenow, E. C.: Elective Localization of Streptococci, THE JOURNAL A. M. A., Nov. 13, 1915, p. 1687.

3. We wish here to express our thanks to those who cooperated with us, especially Dr. J. Clarence Webster and his associates at the Presbyterian Hospital, Chicago.

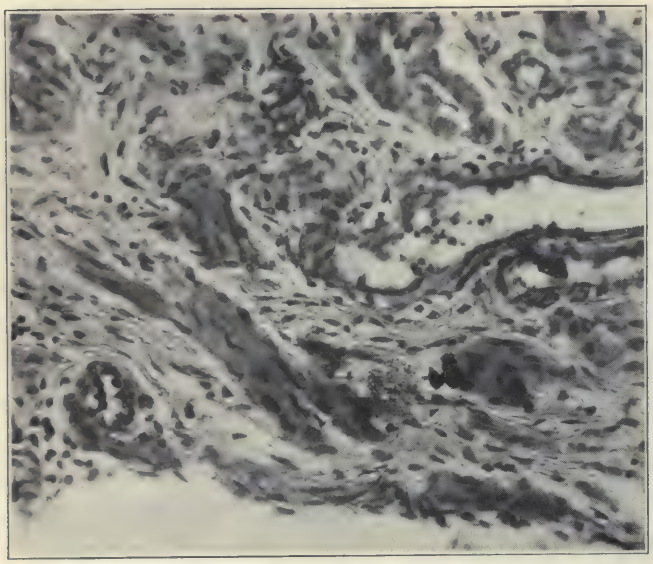


Fig. 2.—Section of cystic ovary in the young girl with imperforate vagina, showing distinct round cell infiltration and aggregations of leukocytes in what appears to be a newly formed blood vessel. Hematoxylin and eosin, × 220.

streptococci were isolated in twenty-nine, the number of colonies ranging from one, or relatively few, usually in the depths of the ascites-dextrose agar, to hundreds, and in a few instances, countless numbers. They were present in pure culture in seven, and associated in the others with the Welch bacillus and a few staphylococci or colon bacilli. Welch bacilli were found in small numbers in twenty-one, diphtheroidlike bacilli in ten, a few colonies of *Staphylococcus albus* in nine, the gonococcus in two, the colon bacillus in three, and an aerobic streptothrix in one.

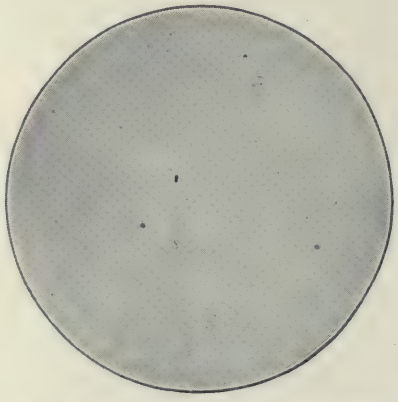


Fig. 3. — Diplococci in the interstitial tissue of the ovary shown in Figure 2. The two objects, which appear as cocci, are diplococci in partial focus. Gram-Weigert, × 1,000.

The cultures of the ovaries from the eighteen patients who had fibromyoma of the uterus were positive fifteen times, the *Streptococcus viridans* was isolated in eleven instances, and the Welch bacillus in eight. The eleven cases with salpingitis gave positive cultures from the ovary nine times, the *Streptococcus viridans* in eight, the Welch bacillus in three, and the gonococcus in two. The ovaries from the eleven patients with chronic appendicitis showed the streptococcus eight, and the Welch bacillus two times. Eight patients had chronic cholecystitis, and the ovaries from these showed the streptococcus in six. The tubes were cultured in five cases, and when positive showed organisms with similar cultural characteristics to those obtained from the patient's ovary.

In many instances, cultures were made from both the cyst fluid and the tissue. The cyst fluid was sterile in all but three instances, all three showing streptococci. The cultures from the corresponding tissues in all of these showed streptococci. Thus, in one patient, aged 23 years, showing typical cystic ovaries, there developed 450 colonies of streptococci from the tissue, and 130 colonies from the cystic fluid.

The primary cultures of the streptococcus frequently showed marked involution forms, there being present very large club-shaped organisms and often large and small coccus forms. This was often so marked, even in smears from individual colonies, that it was difficult to decide whether we were dealing with diphtheroid bacilli, a mixture of diphtheroid bacilli and micrococci, or streptococci with marked involution forms, resembling in this respect the strains obtained in erythema nodosum (Rosenow[4]). Cultivation aerobically in liquid mediums (ascites broth and litmus milk) was frequently necessary before a decision could be made. If the organisms found were diphtheroid bacilli, no growth took place. If they were streptococci, characteristic morphology, chains and fermentative properties appeared (Fig. 1). The streptococci in the primary cultures often were gram negative, especially in ascites-dextrose agar and broth. In all instances they produced small, dry, discrete, often distinctly adherent, colonies on blood agar plates surrounded by a distinct green zone. The older cultures often showed a narrow zone of hemolysis surrounding the green zone. In no instance was there found a typical hemolytic streptococcus. None of the strains fermented inulin, and none showed a capsule. A number of strains resisted autolysis in salt solution under ether, and were insoluble in bile. The staphylococcus and true diphtheroid bacilli, it would appear, are to be regarded either as accidental or harmless invaders — injections of each do not produce lesions in animals. The finding of the colon bacillus in only one case is good evidence that the intestinal wall is quite impermeable to bacteria. The significance of the Welch bacillus is not known. It probably plays no determining rôle in the etiology of this condition, and appears to exist in the tissue in the spore form. It never grows except when oxygen is absent in the depths of those tubes containing a large amount of partially emulsified tissue. Intravenous injections into animals of five of the

4. Rosenow, E. C.: The Etiology and Experimental Production of Erythema Nodosum, Jour. Infect. Dis., 1915, xvi, 367.

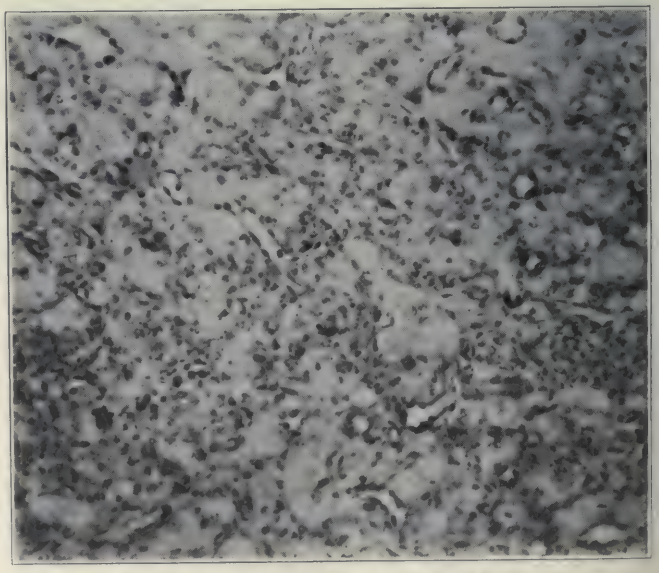


Fig. 4.—Section of the corpus luteum of the rabbit (R 177) seventy-two hours after intravenous injection of streptococci from the human cystic ovary (Case 2). Note the hemorrhage and the marked leukocytic infiltration. Hematoxylin and eosin, × 200.

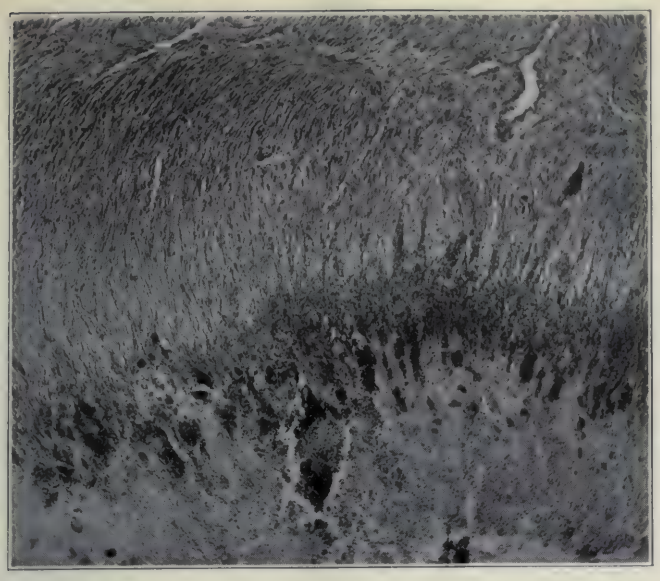


Fig. 5.—A section through the placental site in the rabbit (R 177) seventy-two hours after intravenous injection of streptococcus from human cystic ovary (Case 2). Note the marked hemorrhage, leukocytic infiltration and necrosis. Hematoxylin and eosin, × 60.

strains of streptococci showed that they were of a low grade of virulence, rabbits and dogs recovering promptly. Two of these strains, however, as shown below, showed elective affinity for the ovary in rabbits and dogs.

MICROSCOPIC ANATOMY OF THE HUMAN OVARIES

The microscopic changes were the usual kind, and do not call for detailed description. A study of sections in twenty-three cases, in which cultures were made, showed very similar findings in all. Normal graafian follicles were not found. In a number, there were remnants of follicles, which were largely replaced by connective tissue and surrounded by round cell infiltration. The stroma in all showed marked fibrosis and frequently small islets of the interstitial cells. The blood vessel walls were thickened. The walls of the small cysts were infiltrated with numerous round cells, while the larger ones were made up of old connective tissue. Nests of round cell infiltration were found in many, chiefly surrounding the blood vessels, and in the walls of the graafian follicles, and in a number aggregations of leukocytes within and around small blood vessels (Fig. 2). The latter was true especially in those in which the portion cultured showed a relatively large number of streptococci. In some there was found extravasated blood, but this appeared to be traumatic. No sections were made of the three ovaries showing acute inflammation.

The demonstration of bacteria in the tissues was difficult, because present in relatively small numbers in all, and impossible in those showing no bacteria in cultures. In eight, however, in which the cultures showed a large number of streptococci and, on microscopic examination, a correspondingly greater tissue reaction, Gram-Weigert stains showed diplococci (Fig. 3). These were found usually within leukocytes or in areas of infiltration, and in one instance (Case 960) within the lumen of a blood vessel showing normal aggregation of leukocytes.

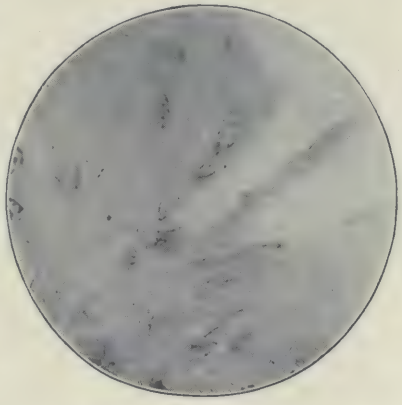


Fig. 6.—A chain of two disintegrating diplococci in the area shown in Figure 4. Gram-Weigert, × 1,000.

The findings in the two following cases are of special interest, and throw light on the source of the streptococcus and the mechanism of the occurrence of ovaritis:

CASE 1 (960).—A girl, aged 18 years, in the Presbyterian Hospital, had complained during the past year of a dull heavy aching pain in the right inguinal region, which recurred each month, lasted three days and then disappeared. She had never menstruated, and except for the delayed appearance of puberty and the foregoing symptoms, she had been quite well. Dr. Webster found an imperforate vagina, 1 inch long, the cervix not connected with the vagina, and connected with the corpus uteri only by a fibrous band, adherent omentum, retroverted uterus, fibrous degeneration of tubes with closure of the right, fibrous and cystic degeneration of the ovaries, especially the left, and adhesions about the rectum and appendix. He did a modified panhysterectomy. The left ovary and tube were obtained for study. Microscopic examination of sections of the ovary showed marked fibrosis, thickening of the blood vessel walls and cystic degeneration. There were numerous nests of perivascular, round cell infiltration, and in some areas aggregations of leukocytes within blood or lymphatic vessels, and in the vasa vasorum of a much thickened blood vessel wall. Diplococci were found in the portion of the ovary showing aggregations of leukocytes within blood vessels, and in areas showing round cell infiltration (Fig. 3). All cultures from the tube remained sterile, while those from the ovary showed twelve colonies of the usual streptococcus. A subculture from one of these colonies in ascites-dextrose-tissue broth was injected into a female dog, which remained apparently well. Three weeks later it was chloroformed, and there were found a number of encapsulated, yellowish, nodular areas beneath the capsule of the ovary, which were filled with chocolate-colored fluid, rich in fat, leukocytes and mononuclear cells. The cultures remained sterile. There were no other lesions.

CASE 2 (373).—A single woman, aged 30, entered the Presbyterian Hospital on

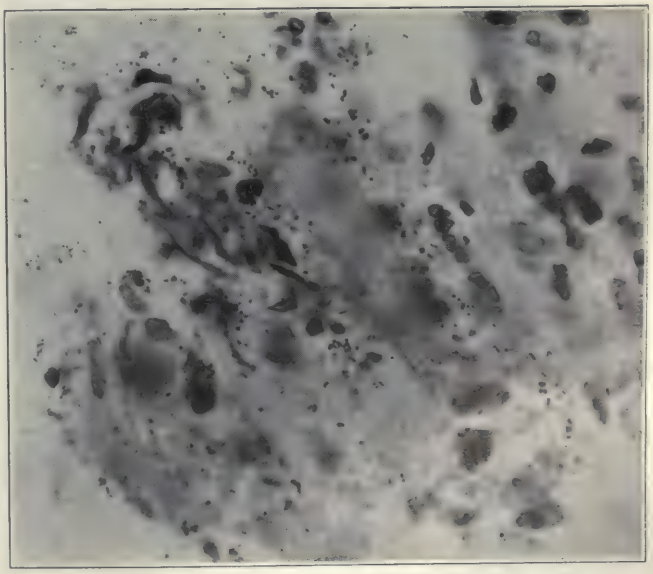


Fig. 7.—Section of the infiltrated area shown in Figure 5. Note the enormous numbers of diplococci and leukocytes. Gram-Weigert, × 1,000.

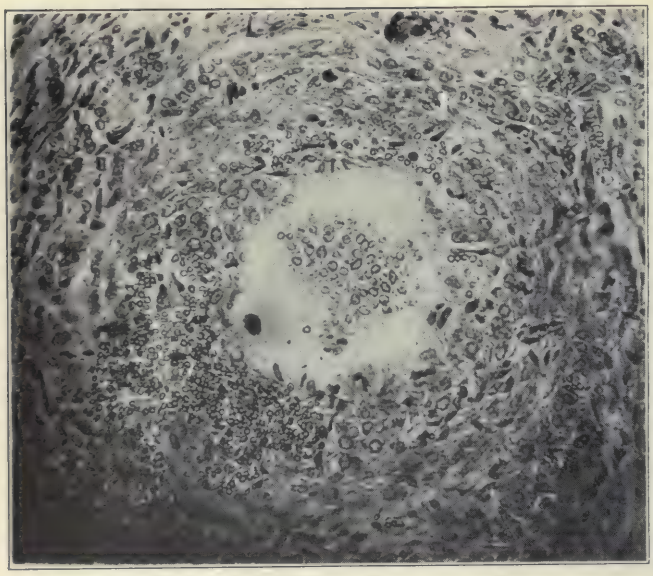


Fig. 8.—Section of the ovary of rabbit (R 219) seventy-two hours after intravenous injection of streptococci from cystic ovary. Note the marked hemorrhage in the wall of the graafian follicles. Hematoxylin and eosin, × 220.

the service of Dr. Billings, July 20, 1914, complaining of multiple enlarged, swollen, tender, painful joints and muscles, particularly of the jaw, elbows, hands and feet, with marked limitation of motion and fixation. The arthritis began three years before, some weeks after a severe attack of tonsillitis. There had been recurring exacerbations and remissions of the symptoms, but on the whole they had steadily progressed. She had lost 30 pounds in weight during the past year and a half, and in the past year had developed a severe dysmenorrhea, consisting of cramps and nausea lasting throughout the period, and often for eight or ten days following. Except for a chronic rhinitis, the patient had been in good health until three years before, following the attack of tonsillitis with abscess of the tonsil. The tonsils were removed nine weeks after the arthritis began, and she improved greatly. She had measles and whooping cough in childhood, and frequent attacks of tonsillitis during the nine years previous to the removal of the tonsils. During the past year, she was curetted twice for the dysmenorrhea without relief. The patient had a good appetite, slept well, the bowels were free and regular, there were no urinary disturbances, no leukorrhea at the time of examination, no cough, dyspnea, no night sweats, no edema of the feet, no cardiac or gastric disturbance, no jaundice, no diarrhea, and no chills or fever. The examination was negative except for the condition of the joints, a small remnant of the left tonsil and some bad teeth. Roentgenoscopy of the hands showed that there was a complete ankylosis of some fingers, and marked destruction of the cartilages in the balance of the joints. The remnant of tonsil was removed, and the condition of her teeth rectified. The patient left the hospital to return again in January, 1915. The symptoms of arthritis in general had definitely improved, but she complained of excessive menstrual flow, for which she was again curretted by Dr. Webster, but since this gave no relief, Dr. Webster, March 23, 1915, removed the left ovary, ligated the uterine artery, and removed the appendix and a small fibroid from the back of the uterus. Cultures of the ovary were made by Dr. Raulston, and a pure culture of the usual *Streptococcus viridans* obtained. The subculture in ascites-dextrose broth (Fig. 1) was injected into three female dogs and four female rabbits in doses ranging from 4 to 95 c.c. of the broth culture suspended in salt solution. All but one rabbit recovered. The animals were chloroformed on the second and third days after injection. All of the seven animals injected showed lesions of one or both ovaries. Five showed, in addition, distinct arthritis; one, myositis; one, cholecystitis, and two, hemorrhages and edema of the thymus. Three showed lesions in the uterus, and one hemorrhage in the fallopian tubes. Filtrates of this broth culture, on the other hand, injected into two rabbits in equivalent and repeated doses failed entirely to produce lesions in the ovary or otherwise.

Following the operation in March, when the one ovary and one tube were removed, the patient's general symptoms were much better, but the menorrhagia soon returned. She was again operated on, Oct. 5, 1915, and the uterus and remaining ovary removed. Cultures of the ovary were made by Drs. Gaarde and Coleman. A pure culture of the same organism was obtained, and this, when injected into rabbits, produced arthritis. Unfortunately, no examination was made for lesions in the ovary in these animals.

The following protocol will illustrate the results obtained in the animals:

Rabbit 177. Medium size, gray, female, injected intravenously, March 26, with the streptococcus from 60 c.c. of ascites-dextrose broth. March 27, seemed quite well and free from symptoms relative to the joints. March 28, chloroformed. Hemorrhages and localized areas of infiltration of the ovaries, especially the right. In the uterus were found five fetuses, measuring approximately 2 cm. in length. There was marked hemorrhage and infiltration at the point of placental attachment, and two of the placentas had partially separated. There were a number of small hemorrhages of the endometrium and subperitoneum remote from the placental site. The tubes showed no lesions. The fluid from both knees and ankle joints showed slight turbidity. No other gross lesions could be found. March 29, blood-agar cultures from the blood (0.5 c.c.) were sterile. The joint fluid and material obtained with a pipet from the hemorrhagic areas in the ovary showed a few colonies of a green-producing streptococcus, while cultures from the hemorrhagic areas at the placental site showed large numbers of the same streptococcus in pure form. December 3, sections of the ovaries showed marked hyperemia of the

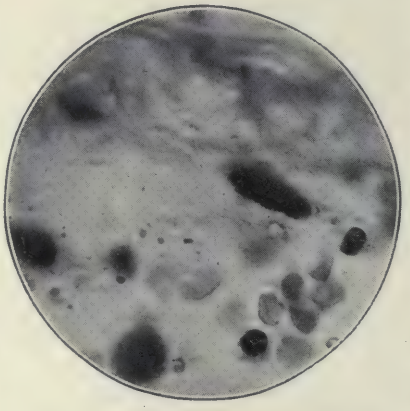


Fig. 9.—Diplococcus in the hemorrhagic area shown in Figure 7. Gram-Weigert, × 1,000.

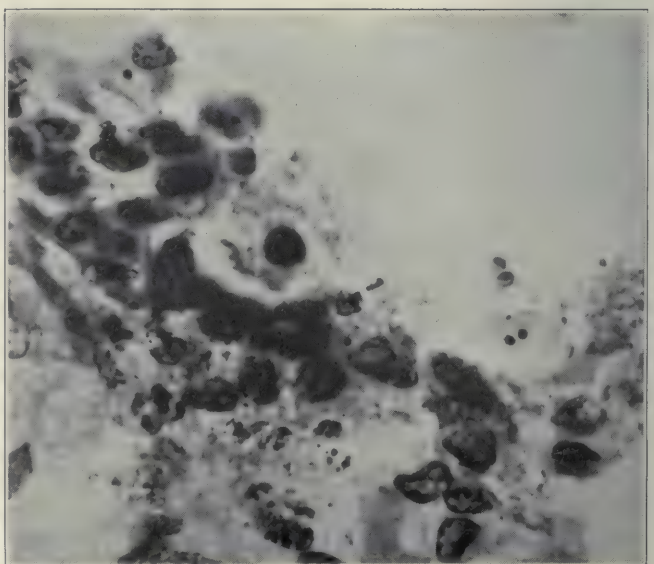


Fig. 10.—Chain of two diplococci in the interstitial tissue of the ovary of dog (D 303), showing moderate leukocytic infiltration, seventy-two hours after intravenous injection of streptococcus found in cystic ovary. Gram-Weigert, × 1,000.

vessels, and hemorrhage and leukocytic infiltration; the latter was especially marked in the portion of the ovary showing the characteristic interstitial cells and surrounding graafian follicles and what appeared to be a mature corpus luteum (Fig. 4). In the hemorrhagic and infiltrated areas were found unmistakable gram-positive diplococci. These in many instances appeared to be undergoing lysis (Fig. 6). Sections of the portion of the endometrium, with no gross changes, showed slight hyperemia of the vessels and no bacteria, while those of the hemorrhagic areas at the points of insertion of the placenta showed marked hemorrhage, marked leukocytic infiltration (Fig. 5), ulceration and many streptococci (Fig. 7).

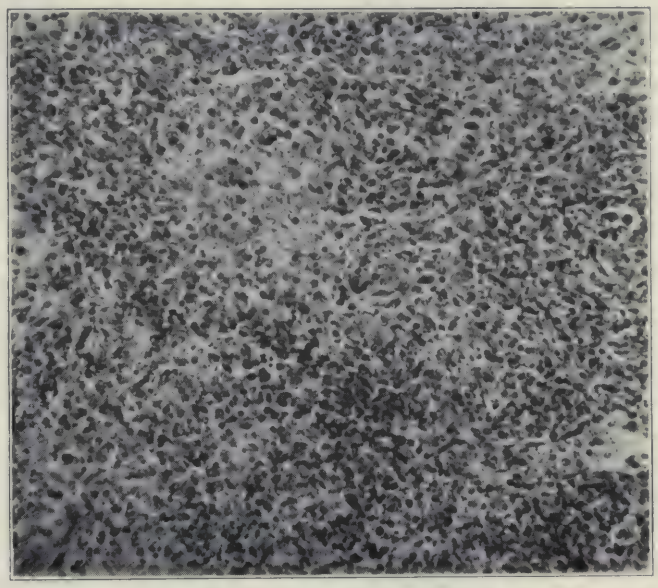


Fig. 11.—Section of the thymus in dog (D 305), showing marked hemorrhage and leukocytic infiltration. Hematoxylin and eosin, × 200.

The lesions in the ovaries of the rest of the animals were roughly in proportion to the size of the dose, and consisted of hemorrhages easily visible to the naked eye and microscopically perivascular and interstitial hemorrhages and leukocytic infiltration, chiefly under the capsule and in the walls of the graafian follicles (Fig. 8). Diplococci were demonstrated in small numbers in all (Figs. 9 and 10). In several there was found partial thrombosis of blood vessels. In one of these vessels two diplococci were demonstrated in leukocytes. The animals killed forty-eight hours after injection showed less leukocytic infiltration than those killed seventy-two hours after injection. Blood cultures from all but one were sterile. Cultures from the ovary showed a relatively small number of streptococci in four, while three were negative. The lesions in the thymus occurred oftener (40 per cent.), were more numerous and more marked than is usual following injection of streptococci (Fig. 11), and as in the ovaries, due to lodgment of streptococci but not to marked multiplication (Fig. 12).

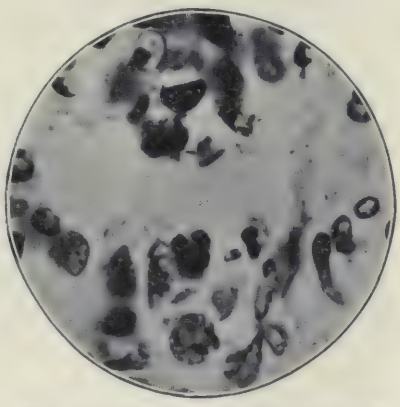


Fig. 12.—Diplococcus in the hemorrhagic thymus in rabbit (R 219). Gram-Weigert, × 1,000.

The lesions in the ovaries in the animals injected with the streptococcus were a striking picture. The demonstration of the streptococcus in the lesions, the isolation of the injected streptococcus in pure form, the absence of lesions following the injection of the broth culture filtrate, and the fact that we have not seen lesions in this magnitude in numerous animals injected with streptococci from other sources before and since, makes it certain that the result is not accidental, but due to peculiar properties of the injected streptococcus. It should be stated, however, that the number of streptococci in the ovary, even in these acute and marked experimentally produced lesions, was always small.

SUMMARY AND COMMENT

The following facts support the view that the streptococci isolated by us from the chronic lesions when there was no history of a previous acute infection, as well as those causing acute infections of the ovary, are carried to these structures by the blood more often than is generally believed:

1. The occurrence of fibrocystic degeneration of the ovaries in which the usual streptococcus was isolated in pure form in the young woman with imperforate vagina.

2. The history of tonsillitis followed by symptoms of pelvic infection in a number of patients in our series.

3. The not uncommon occurrence of pelvic infection noted in gynecologic practice following anginal attacks during the menstrual period.

4. The far more frequent occurrence of so-called idiopathic streptococcal peritonitis following anginal attacks, in the female than the male, which, according to Wilder,[5] who reviews the literature, and reports a case in point, is due to the occurrence of a primary hematogenous ovaritis and a secondary peritonitis.

5. The absence of colon bacilli in all but three ovaries in our series, a fact contrary to expectations if local invasion occurred commonly.

6. The frequent concurrence of appendicitis, cholecystitis and arthritis in these patients, diseases proved to be due usually to streptococci from a distant focus of infection.

The occurrence of fibrous and cystic degeneration in the ovary secondary to acute infection is already well established.[6] But, as pointed out, the cause of this condition without an acute infection has not previously been worked out. In our work we have isolated streptococci, often in pure culture, and demonstrated them in the tissues in the areas showing infiltration, roughly in proportion to the amount of tissue reaction in a large proportion of the ovaries studied. Two of the strains isolated showed a marked affinity for the ovary in two species of animals (rabbit and dog) producing hemorrhage and leukocytic infiltration (precursors of sclerotic changes) in and surrounding the graafian follicles and in the ovarian tissue stroma containing interstitial cells in the fully developed corpus luteum in a pregnant rabbit.

Hence, the conclusion seems warranted that fibrocystic degeneration of the ovary even in the absence of previous acute infection is due commonly to a low grade hematogenous infection by streptococci having elective affinity for these structures. Owing to the fact,

5. Wilder, R. M.: Peritonitis Following Acute Ovaritis of Anginal Origin, THE JOURNAL A. M. A., Feb. 19, 1916, p. 569.
6. Tait, L.: Diseases of the Ovaries, New York, William Wood & Co., 1883, pp. 97-110.

however, that the number of bacteria found is relatively small and that the experimental lesions in the ovary are not due to an overwhelming growth, it is clear that while excision and resection of ovaries is indicated in some instances, it should no longer be done without due regard to the existence of chronic foci of infection which may serve not only as the place of entrance but also as the place for the bacteria to acquire the peculiar properties necessary to infect the ovary. There is little indication for the removal of this type of ovary with the idea that it may play the rôle of a secondary focus of infection, yet Case 2 indicates that this at times is possible. The results suggest, however, that the eradication of primary foci of infection early in this type of patient might in some cases prevent the premature sclerotic degeneration of the ovary.

THE ETIOLOGY OF COMMON COLDS

THE PROBABLE RÔLE OF A FILTERABLE VIRUS AS THE CAUSATIVE FACTOR: A PRELIMINARY NOTE *

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Our knowledge of the causative factors concerned in the extremely prevalent catarrhal affections of the upper respiratory tract, popularly known as "common colds," is in an exceedingly chaotic state. The epidemiologic evidence seems to indicate clearly that these conditions are infectious; and this has led numerous investigators to attempt to isolate a causative organism. An etiologic relation to these infections has been ascribed to *Bacillus influenzae, Streptococcus hemolyticus, Streptococcus viridans,* the pneumococcus, *Micrococcus catarrhalis,* Tunnicliff's *B. rhinitis* and many other organisms.

Some time ago, Kruse[1] pointed out that, while common colds are undoubtedly infectious, the paucity of bacteria in the secretions and the short time that these few persist militates against the presumptive evidence that they are concerned in the infection.

In attempting to trace the causative factor by means other than the bacteriologic methods that had been resorted to previously, Kruse succeeded in producing colds experimentally with a filtrate obtained from the nasal secretion of an assistant who was ill with coryza. The secretion blown from the nose was diluted fifteen times with normal salt solution and passed through a small Berkefeld filter. A few drops of the filtrate dropped on the nasal mucosa of each of twelve men produced acute colds in four, or 33 per cent., of the twelve. The incubation period varied from one to four days. Repetition of this experiment on a more elaborate scale gave confirmation to his earlier results. In the second experiment the nasal secretion was diluted twenty times and, of the thirty-six students who volunteered for inoculation, 42 per cent. became ill with the usual symptoms of coryza within from one to four days. Kruse states that he was unable to demonstrate living organisms in his filtrates by bacteriologic methods, and concludes that the causative organism should be classified with the filterable viruses.

During the past winter I succeeded in confirming Kruse's observations; and the results of additional investigations indicate that, from the nasal secretions of persons who exhibited the characteristic symptoms of acute coryza, there has been cultivated, in vitro, a living virus. A definite conclusion as to the nature of this virus at this time would be based on questionable premises; but the experimental methods resorted to differ so radically from those previously used, and the results have been so suggestive, that it is deemed proper to publish a brief preliminary report of my observations in order that those interested may carry out investigations along similar lines.

MATERIAL

The first nasal secretion studied was obtained from one of the laboratory staff who had been ill with an acute coryza for two days. He complained of lassitude, chilly sensations, sneezing, unilateral nasal stuffiness, dull frontal headache with a feeling of oppression over the eyes, impairment of smell, and moderate aching pain in the extremities. There was the usual picture of an acute cold — injected conjunctivae, considerable lacrimation, a copious, thin, mucoid nasal discharge which excoriated the upper lip and the alae of the nose, and a very red, moist, swollen and boggy mucosa. The temperature was normal.

A second nasal secretion was collected on the first day of an acute cold experienced by myself. This attack was manifested by symptoms almost identical with those of the first case.

The third specimen was obtained from an employee of one of the large department stores who had been ill for three days. She complained of malaise, feverishness, aching pain in the back, nasal stuffiness, sneezing, frontal headache, dull pain over the eyes, impairment of taste and smell, slight soreness of the throat and moderate cough with expectoration. The nasal mucosa was moist, red, swollen and boggy. The nasal secretion was scant and mucoid and showed admixture of shreds of purulent material. The nasal alae were markedly excoriated and the eyelids were red and puffy. This patient felt certain that she had had considerable fever the preceding evening, but the temperature was normal at the time the nasal secretion was collected.

THE PREPARATION OF FILTRATES

In each case the nasal secretion was blown from the nose into a sterile Petri dish, mixed with 10 c.c. of sterile 0.8 per cent. salt solution, and carried to the laboratory in a sterile test tube. The material was then poured into a sterile shaking bottle containing smooth, round glass beads and agitated for ten minutes in a shaking machine. A thoroughly homogeneous opalescent mixture, free from clumps or strings of mucus, resulted. This mixture was then passed through a small Berkefeld N filter. The filters used in this work were new and proved impermeable to ordinary bacteria. Filtration was accelerated by suction from a Chapman water pump attached to the laboratory tap. The resulting rate of filtration was such that about 5 c.c. of brilliantly clear filtrate was collected in fifteen minutes. Human blood-agar plates prepared from the filtrates and incubated at 37 C. (98.6 F.), under both aerobic and anaerobic conditions, remained sterile at the end of seven days.

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* From the Laboratory of Preventive Medicine and Hygiene of the Harvard Medical School.

1. Kruse, W.: Die Erreger von Husten und Schnupfen, München. med. Wchnschr., 1914, lxi, 1547.

INOCULATION TESTS WITH NASAL SECRETION FILTRATES

Ten soldiers at Fort Banks, Mass., who volunteered for the experiment, were inoculated with the filtrates described above. The men were in good health at the time. Seven of them stated that they were not prone to colds and had not been ill during the winter, while the remaining three men stated that they "caught cold" easily. In each case the nose was mechanically cleansed with water, but no predisposing factors to infection, such as irritating or abrading the mucosa, were added. Inoculation was performed by simply tilting the head back so that the material would gravitate into the nose, and the filtrate was dropped into the nasal opening from a capillary pipet. From 3 to 6 drops of the filtrate were placed in each nostril.

A detailed report of the case histories in these experimental cases is reserved for a later publication. Suffice it to say that nine of the ten men inoculated developed the usual symptoms of acute coryza in from eight to thirty hours. The first symptoms, as a rule, were dryness of the nose and throat and attacks of sneezing. These were followed in a few hours by nasal stuffiness and dull frontal headache with pain over the sinuses. Several of the men complained of alternate sensations of chilliness and flushing. There was copious rhinorrhea, usually on the second or third day, in the majority of the cases. Six of the men exhibited slight rise in temperature, from 99.2 to 99.8, and in these cases the pulse was accelerated. Tinnitus aurium and slight deafness were recorded in four instances; sore throat in five; cough in three, and aching pain in the back or extremities in three. Two of the men complained of parotid tenderness and difficulty in mastication; and, in another case, a profuse crop of herpes labialis was noted. The duration of the symptoms varied from three to six days.



Appearances of subcultures of nasal secretion filtrates in tissue-ascitic fluid medium. Much of the definition observed with proper lighting is lost in the photograph, but the opalescence described in the text is evident in the three tubes to the right of the illustration. The tube on the extreme left is a control tube of the uninoculated medium.

ATTEMPTS TO CULTIVATE AN ORGANISM

The results of the inoculation experiments with nasal secretion filtrates, and the sterility of these filtrates as regards organisms capable of demonstration by ordinary bacteriologic methods, seemed to indicate clearly that the infective agent is a filterable virus. The successful cultivation of the parasite of rabies by Noguchi,[2] and the causative organism of poliomyelitis by Flexner and Noguchi[3] — both organisms being "filter passers" — suggested the application of methods similar to those of Noguchi in attempting to grow an organism from the nasal secretion filtrates.

Several mediums were used in the earlier experiments, and of these the most suitable have proved to be tissue-ascitic fluid and tissue broth. About 15 c.c. of the ascitic fluid or broth are poured into each of several test tubes measuring 1.5 by 20 cm., and a small piece of sterile fresh rabbit kidney is placed in the bottom of each tube with strict aseptic precautions. About 4 c.c. of sterile liquid petrolatum is then poured on the fluid medium, and the tubes incubated for several days at 37 C. and at room temperature, to insure their sterility. After a day or so, some of the blood from the kidney undergoes hemolysis and imparts to the medium surrounding the fragment of tissue a rose colored tint; but in tubes that are not contaminated, this zone of hemolysis remains brilliantly clear. Any tubes showing haziness or cloudiness should be discarded. The ascitic fluid should be originally sterile and not subsequently sterilized by fractional heating or filtration. For the preparation of tissue-broth medium I have used a veal-infusion broth with a reaction plus 0.8 per cent. acid to phenolphthalein. The broth is autoclaved before the tissue is added.

Sterile capillary pipets, with the capillary end drawn out to a length of about 25 cm., are used in inoculating the culture tubes. About 0.5 c.c. of the nasal secretion filtrate is drawn into the pipet and, with the exercise of great care that no air bubbles are introduced below the layer of oil, the tip of the pipet is thrust through the medium to the bottom of the tube and the filtrate introduced into that part of the medium immediately surrounding the tissue. The introduction of air bubbles at the end of the procedure may be obviated by not entirely emptying the pipet of its contents. It has proved unnecessary to incubate the tubes anaerobically, as adequate anaerobiosis is furnished by the piece of tissue in the medium.

APPEARANCE OF CULTURES

The original cultures were made from filtrates of three nasal secretions which, subsequently, proved infective by the inoculation experiments outlined above. The appearance of the cultures was identical, but varied slightly in degree. A distinct, filmy, grayish-white, opalescent halo, superimposed on a cloudy hemoglobin-stained zone surrounding the tissue, was observed at the end of twenty-four hours in both ascitic fluid and broth. This halo or ring was sharply demarcated from the clear fluid above, and showed no tendency to blend with it. The appearances were not unlike those resulting from the addition of nitric acid to urine containing a marked trace of albumin. At the end of forty-eight hours, the changes were at least 100 per cent. more marked, while on the third day the tissue was more or less obscured by the density of the cloudiness surrounding it. On the fourth day the upper column of fluid, which had heretofore remained clear, showed slight uniform haziness which increased in density subsequently. No precipitate, flocculi or granules were noted.

Control tubes inoculated with salt solution showed a very faint halo at the end of twenty-four hours, similar to that observed in the culture tubes; but there was no cloudiness in the hemoglobin-stained zone,

2. Noguchi, Hideyo: Contribution to the Cultivation of the Parasite of Rabies, Jour. Exper. Med., 1913, xviii, 314.
3. Flexner, Simon, and Noguchi, Hideyo: Experiments on the Cultivation of the Micro-Organism Causing Epidemic Poliomyelitis, Jour. Exper. Med., 1913, xviii, 461.

and the reaction did not become intensified on subsequent days. After two weeks' incubation, some autolysis of the tissue in the bottom of the tubes became evident, and haziness of the supernatant fluid medium occurred, due probably to admixture of minute particles of the autolyzed tissue carried up by convection waves. The general appearances were quite different from those in the culture tubes.

Subcultures were made from the original cultures after four days' incubation. The changes in the subculture tubes were more marked than in the original cultures, and the marked cloudiness in the tissue zone exhibited more tendency to extend upward and diffuse into the clear medium. Subcultures have been carried to the fourth generation, and it appears that they may be carried on indefinitely. In addition to the cultures of the three original filtrates, cultures, which in no way differ in appearance from those described, have been obtained from the nasal filtrates in seven cases of coryza induced by experimental inoculation.

MICROSCOPIC EXAMINATION OF CULTURES

Cultures examined under the dark-field microscope showed myriads of extremely active, minute bodies occurring singly, in pairs and in agglomerations of varying magnitude. The bodies were so active and so minute that a definite idea of their morphology could not be formed. Some showed to and fro progression, and others exhibited a tumbling type of motion — end over end. The bodies appeared to possess true motility rather than brownian movement. In addition to these bodies, there was the usual dark-field picture of dancing granules and detritus. Dark-field preparations from the medium at the bottom of tubes which had not been inoculated showed minute bodies similar to those observed in cultures, but in infinitely smaller numbers. The overwhelming predominance of these bodies in the culture preparations and their uniformity in appearance, in conjunction with the possession of what appeared to be true motility, might readily lead to the conclusion that the bodies are micro-organisms. However, the interpretation of dark-field pictures is attended with many pitfalls except when one is dealing with known organisms of definite morphology; and the conclusion that these bodies are micro-organisms would not be tenable without additional evidence.

Stained smears from the cultures showed no bodies that could be definitely recognized as micro-organisms. Preparations were stained by Gram's method and Claudius' method and with carbol-fuchsin, dilute fuchsin, Loeffler's methylene blue, dilute gentian violet, carbol-gentian violet, Nastikow's violet, Giemsa's stain and Wright's stain. Minute coccoid bodies and occasional rodlike forms were demonstrable in all of the preparations, but not in sufficient numbers to preclude the possibility that they were artefacts.

INOCULATION EXPERIMENTS WITH CULTURES

The attempt to demonstrate visible and unmistakable micro-organisms in cultures which macroscopically exhibited changes suggesting micro-organismal growth having failed, attempts were made by inoculation tests to demonstrate the presence of an infective agent in the cultures.

Subcultures which have been incubated seven days were used in the experiment. Portions of the subcultures were diluted ten times with sterile salt solution and passed through small Berkefeld N filters. The resulting filtrates were perfectly clear, and they were shown to be sterile by approved bacteriologic methods. By dilution of the nasal secretion with salt solution, the further dilution occasioned by the fluid culture mediums, and the final dilution of the portion of subculture used with sterile salt solution, the constituents of the original nasal secretion that were capable of filtration had reached, in these filtrates, a dilution of 1:90,000 plus the unknown original dilution occasioned by the fluids of the nasal secretion itself.

Eleven soldiers voluntarily submitted to inoculation with these filtrates. The technic of inoculation was identical with that used previously in the experiments with nasal secretion filtrates. Five drops of the diluted culture filtrate were dropped into each nostril.

Following an incubation period of from eight to forty-eight hours, all of the men became ill with acute colds. In one case the attack was mild or abortive and lasted but a few hours. The only symptoms in this case were an initial dryness of the nose and throat followed by slight transitory rhinorrhea. In the remaining cases the symptoms persisted for several days and consisted of sneezing, lacrimation, dryness of the nose and throat followed by swelling of the nasal mucosa and copious rhinorrhea. Practically all of the men complained of dull frontal headache and more or less discomfort over the frontal sinuses. Three of the patients exhibited rise of temperature and aching pain in the back and extremities. Cough was recorded in five cases.

Berkefeld filtrates were prepared from the nasal secretions in five of these experimental cases, the secretions being collected forty-eight hours after inoculation. Tubes of tissue-ascitic fluid were inoculated with 0.5 c.c. each of the filtrates in the manner previously described. After twenty-four hours' incubation, four of the cultures showed the characteristic appearances observed in previous cultural experiments. The medium in the fifth tube remained unchanged; but another nasal secretion filtrate in this case, prepared from secretion collected seventy-two hours after inoculation, gave positive results.

COMMENT ON RESULTS

From the experimental evidence presented in this preliminary report, it seems logical to conclude that common colds — of a certain type at least — are infectious; that the causative virus occurs in the nasal secretions, and that this virus is capable of passing through a Berkefeld N filter which has proved impermeable to ordinary bacteria. The result of these observations as to the locus of the infective agent indicates that transmission of colds from the infected to others may occur through "droplet infection" or other means of direct or indirect contact.

The cultural experiments suggest that, although its exact nature has not been proved, a virus from the nasal secretions of persons ill with acute colds has been cultivated in vitro, and that Berkefeld filtrates of subcultures of this virus are capable of producing symptoms of an acute cold in healthy persons. There are certain facts which favor such interpretation of the experimental results. The filterable constituents of the original nasal secretions were in a dilution of 1:90,000 plus in the filtrates of subcultures which produced colds experimentally; and it is beyond the realms of imagination that any toxin, virus or enzyme originally existing in the secretions could have been carried over mechanically and, in this high dilution, have exhibited

pathogenicity. Such pathogenicity is possessed, so far as is known, only by organisms capable of growth and multiplication. Secondly, the cultures showed changes which ordinarily are interpreted as indicative of bacterial growth, and these changes were not observed in controls or in uninoculated tubes of medium incubated with the cultures. Again, the changes observed in the original cultures were intensified in successive subcultures, thus bearing an inverse relation to the dilution of the material originally introduced. This phenomenon frequently occurs during the continuous cultivation of known organisms as the result of acquired adaptability to the conditions in an artificial medium. It is conceivable, if explanation of the changes is attempted from another point of view, that the cultural appearances described might be due to lysis of the tissue fragment with consequent clouding of the medium, this disintegration being induced by the action of proteolytic enzymes elaborated by an ultramicroscopic organism.

On the other hand, in the absence of ocular proof that micro-organisms, definitely recognizable as such, exist in the cultures, the assertion that a virus has been cultivated is reserved until additional evidence may accrue. I feel, however, that the observations reported have significance, and that the subject merits further study. It is hoped that additional experiments, now contemplated, may elucidate certain matters which are not clear at the present time.

In conclusion I desire to express my appreciation of the spirit of the enlisted men of the Hospital Corps and Coast Artillery Corps of the Army who, without pecuniary reward and at the expense of considerable physical discomfort, voluntarily submitted to the inoculation experiments recorded herein.

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METABOLISM IN INSANITY*

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It has, I think, become increasingly evident, during the last few years, that in approaching the problem of the pathology of insanity, we are obliged to turn our attention more and more to basic physical, chemical and biologic facts. The departures from the normal that have been brought to light by an increasing knowledge of the interplay of infection and immunity —in other words, of the processes embraced under the general term "fermentation"—as well as the phenomena presented by the internal secretions, that is, by the various hormones, direct our attention forcibly to the question of the very structure of the substances of which our bodies are composed. A moment's reflection makes us realize that all of our fluids and tissues are present in a special form of matter, namely, matter in a collodial state; and it is the structure of colloids, their physics and chemistry, and especially their phenomena as presented by the living plasma, that constitute some of the most pregnant questions of our day. These questions, indeed, are so fundamental that they have to do with the very nature of life itself. Without, however, allowing ourselves to go too far afield, let us turn our attention first to the elemental facts of the structure of colloids and to endeavor, at least in some degree, however small, to interpret their significance. That such an interpretation should from the very nature of the subject be alike imperfect and inadequate, should not deter us.

To begin: A colloid is a state, not a form, of matter. Many substances which commonly present themselves as crystalloids are, as is well known, also obtained as colloids. Thus many mineral substances, common salt, various metals—gold, silver, mercury—oxids, sulphids, etc., have been prepared in the colloidal state. These colloids share with the organic colloids, for instance, albumin, gelatin, starch, one common property, namely, of not being capable of osmosis. Evidently the failure to osmose must depend on the structure of the colloid. The particles—whether these be molecules or aggregations of molecules—are evidently too large to pass through the pores or interstices of the intervening membrane. That this is not a mere inference and that colloids actually contain such particles has been proved by the ultramicroscope. Indeed, in the instance of some inorganic colloids, it has been possible to estimate the size of the particles.

The most important inference for us, however, is that colloids do not consist of solutions, but of at least two substances, one a medium and another held in suspension. The substance which is diffused in the form of small particles through the colloid is spoken of as the disperse phase, while the medium in which they are suspended is spoken of as the continuous phase. The disperse phase may consist of solid particles, in which case the colloid is spoken of as a suspensoid, or the disperse phase may consist of liquid particles, in which case the colloid is spoken of as an emulsoid. Finally, a colloid may contain more than one disperse phase, and may thus add greatly to the complexity of its structure.

The physical properties of colloids are most interesting and important. Among these are surface tension and surface energy. The surface of a liquid is in tension against its own vapor, or, in the case of an emulsoid, against the liquid which constitutes the continuous phase. In speaking of this phenomenon as presented by the disperse phase, it is termed "surface tension"; in speaking of this phenomenon as presented by the continuous phase, it is termed "interfacial tension."

Obviously, the sum total of surface energy must depend, among other things, on the amount of surface. That the latter is greatly increased in such a structure as a colloid, in which, of necessity, the disperse phase consists of a vast number of minute particles, is readily comprehended. Thus, it is estimated that in a liter of colloidal gold solution of 0.5 gm., in which each particle has a diameter of 15 submicrons, the total surface of gold is equivalent to 65 square meters. It is clear that analogous conditions exist in protein and other organic colloids. Finally, that the surface energy is the product of the surface tension multiplied by the amount of surface is also evident.

Surface tension and therefore surface energy are influenced by various factors, especially by adsorption. In order that a clear conception may be gained as to what is meant by adsorption, a few illustrations from the domain of physics will suffice. Bunsen, for instance, showed many years ago that a plate of glass immersed in water and subsequently dried by ordinary means still retained on its surface a layer of water which, though exceedingly minute, could not be

* Presidential Address, read before the Philadelphia Psychiatric Society, Jan. 14, 1916.

removed unless the plate were heated to a temperature of 500. A pebble which has been immersed and subsequently dried retains on its surface a layer of water which will require a force equivalent to many hundreds of atmospheric pressure for its removal. Again, spongy platinum has the faculty of condensing gases on its surface so that under given conditions it rapidly rises in temperature and thus may cause the union of two gases such as hydrogen and oxygen to form water, or of nitric oxid and hydrogen to form ammonia. Charcoal, which, like spongy platinum, presents a large surface, has also a capacity for condensing large volumes of gases.

The structure of colloids, because of the minute division of the particles of the disperse phase, is such that an enormous surface is developed; and that colloids necessarily present the phenomena of adsorption need hardly be pointed out. As a matter of fact, colloids have the property of taking dissolved substances out of solution and of holding them with great intensity. Surface energy is influenced by the degree of concentration of such adsorbed substances. Increased concentration results in a reduction of surface tension and, as in the case of spongy platinum, in a release of energy. This is a fact of the greatest possible significance.

Surface energy is thus transformed, under various circumstances, first, into gross physical energy, for example, such as may bring about changes of volume, secondly, into heat, thirdly, into chemical energy, and lastly, into various forms of energy observed in living organisms, among them neuromuscular and possibly also psychic energy. It is somewhat difficult to grasp adequately the significance of this fact and to conceive of the enormous amount of surface energy contained in organisms, especially in the larger multicellular forms.

Another fact demanding consideration is that of the brownian movement. The particles of the disperse phase are not at rest. They are in constant motion, a motion difficult to describe, into which vibratory and rotatory factors as well as progressive change of position enter. The particles are electrically charged, and it would appear that these movements have to do with the stability of the colloids; the particles tend to fill the space in which they are contained like the molecules of a gas, and in this way tend to prevent the separation of the disperse from the continuous phase; but this must of course not be regarded as the principal significance of this movement. It is interesting to note that the majority of the albumins, lecithin, fats, starches, dextrin, glycogen, etc., are electronegative. In emulsoids the charge bears a relation to the contained electrolytes. Albumins, for instance, may change their electrical reaction in accordance with the addition of this or that electrolyte, that is, in accordance with the electric charge of the ion adsorbed. Further, the addition of an electrolyte results, first, in a diminution of the total surface of the disperse phase, that is, in an increase in size of the individual particles. With further addition of the electrolyte, a separation and precipitation occur. In one instance the precipitation may be brought about by anions and in another by cations. To bring about precipitation in an unstable colloid a minimal amount of electrolyte suffices. Stable colloids, on the other hand, require a large amount of electrolyte. The greater number of colloids of the animal organism belong to the stable group.

Much more complicated reactions follow when one colloid is added to another; these reactions depend on the electrolytic tension, the presence of different electrolytes, and on other circumstances still obscure in their nature. It is safe, however, to conclude that all of the factors concerned have a bearing on the life of the cell, on the metabolism of the organism, and especially on the processes of infection and immunity, on the problem of intoxication and on the formation of antibodies. The thought also is suggested that a given toxin may cease to act as a poison, not because it forms a combination with its respective antitoxin, but because the particles of its disperse phase, under the influence of the antitoxin, are forced into larger aggregations, undergo a diminution of their surface energy, and thus become incapable of acting any longer as a poison, no longer capable of acting deleteriously on the other proteins of the body. This conception bears in itself new possibilities in the battle against toxicity.

A consideration of the reaction of colloids on each other leads necessarily to the subject of fermentation. The analogies already pointed out between adsorption as exhibited by spongy platinum, and the same property as exhibited by colloids, suggests that the changes induced in other bodies are in both instances alike physical and chemical in nature, and perhaps the word "fermentation" will at some time in the future give way to another clearly expressing this fact.

Of late the entire subject of fermentation has assumed a most interesting aspect. This is well illustrated in the behavior of unicellular organisms. The unicellular organism must possess ferments which are prepared to deal with definite substances. These substances are reduced by successive stages to simple constituents, and in this process release their contained energy, and in this reduced and subdivided state are incorporated into the body of the cell. This is well illustrated in the instance of the torula. The torula does not schematically and at once decompose the grape sugar into alcohol and carbonic acid, but this is accomplished by a series of successive stages; by a series of intermediate reactions. This fact is also true of the reduction of amino acids, of the purin bases and of other substances. While some cellular forms possess ferments accurately adapted to a specific substrate, there are others in which this is not the case, and such organisms present a wider range and greater possibilities of action. Some unicellular forms, again, are able to add to their substance from simple chemical compounds, such as ammonia, nitrates, carbonates, water and salts. Others again can build themselves up only out of proteins, and the latter are incorporated only after being reduced to exceedingly simple constituents capable of taking their place in the cell body.

In multicellular organisms, a great specialization of ferment production takes place. The various organs produce substances possessing a highly specific character. These enter the blood, but they affect the cells of certain other structures only. Abderhalden illustrates this fact by the instance of the hermaphroditic pheasant in which a testicle is found on one side and an ovary on the other. The internal secretions of both glands enter the circulation, but each acts only on certain cells of its own half of the body. This is shown by the plumage, which presents the male characteristics on the side of the testicle and the female characteristics on the side of the ovary, the two being sharply differentiated in the middle of the body. To state it in other

words, we may say, also, that although the internal secretions of both glands are present in the blood plasma, the cells of the male and female half of the body respectively reduce, that is, split up, the materials offered by the blood plasma into components adapted to and peculiar to their own structure only.

It would appear that the cells of the various tissues possess a special structure and a special metabolism; that is, each cell contains a special ferment. It is by means of this ferment that the cell builds itself up, adds to its own substance, out of the general material of the blood plasma. Abderhalden assumes that, in addition, in each species of cell other ferments are present which are common to all the other cells of the body. Finally, a regular and undisturbed continuance of the manifold cell processes presupposes a certain constancy of relations and a delicate quantitative and qualitative regulation of metabolism.

Abderhalden divides substances according to the rôle they play in metabolism and in reduction respectively as follows: first, substances foreign to the body, that is, substances which in structure differ from those entering into the constitution of the organism, such as the foods, and secondly, those which are peculiar to the body, that is, substances which have been completely transformed so as to correspond or conform to the constituents of the body. Among the latter are substances peculiar to the cells and others peculiar to the plasma. Further, the substances peculiar to the plasma are foreign to the cells of the blood and the cells of the tissues, while the substances peculiar to the cells are foreign to the plasma. Again, substances that gain access to the plasma in an insufficiently reduced condition are foreign to the plasma. Only materials peculiar or conformable to the body and to the plasma can be incorporated by the organism. The access of raw and insufficiently reduced, that is, subdivided materials is guarded against by the cells of the intestinal tract and by the cells of the accessory glands, especially the liver. Again, from within, the cells of the body in their turn yield into the blood stream only such substances which have been split up so that their cell type has been lost.

These orderly physiologic processes are disturbed when foreign substances gain access to the circulation, and the question arises, How does the organism defend itself under these conditions? Experiment and observation have shown that the cells of the interior of the body have retained some of the primitive function of digestion possessed by simple nonspecialized cells. They, like the cells of the intestinal tract, have the power of reducing foreign materials, of converting the latter into indifferent substances, of fragmenting them, of utilizing them for purposes of reconstruction or as sources of energy. They are able to split fat into alcohol and fatty acids, to break up complex carbohydrates, to split up albumin into peptones, to degrade the latter to amino acids, and the amino acids into still simpler components. As we have seen, a considerable part of the process of cell metabolism is brought about by ferments. Other things being equal, every body cell is capable of digestion. Even the blood plaques are able to bring about hydrolytic cleavages.

The blood plasma does not in man under normal conditions manifest this power, but Abderhalden found that if plasma-foreign or body-foreign substances are introduced parenterally, the blood plasma shows new properties. He found that protein substances are split up; polypeptids undergo cleavage, and similar results were obtained in regard to other substances. The formation of ferments in the plasma also occurs when the intestinal tract is overfilled with proteins, peptones or carbohydrates. For instance, in massive egg-feeding, unchanged protein enters the blood and can be demonstrated by the presence of ferments. This is a most suggestive fact when we reflect on the results of overfeeding in exhausted states and on the rôle which overfeeding plays in hastening the formation of antibodies.

Abderhalden, as is now well known, terms the ferments the result of parenteral injection, "defensive ferments." They appear to have their origin from the leukocytes and probably also from the red blood cells and blood plaques.

In the instance of pregnancy, in which a substance normal to the body and yet foreign to the plasma is circulating in the blood, Abderhalden made the important discovery that the serum of pregnant women always contains defensive ferments against placental protein; that is, ferments which digest, i. e., reduce placental tissue. The villi of the chorion appeared to be the source of the protein, and yet the serum of the pregnant mare, whose placenta possess no villi, also yields the reaction. These defensive ferments of pregnancy are already demonstrable in about eight days after conception, are present during the entire period of gestation, and disappear in from fourteen to twenty-one days after expulsion of the placenta, or after separation of the placenta from the body of the uterus has occurred. Abderhalden has made the differential diagnosis between pregnant and nonpregnant women in some hundreds of cases.

Various confirmatory observations have been made in other fields. Bauer found lysis of thyroid gland in endemic goiter. Abderhalden found the same thing in a case of myxedema. Lampé and Papazalu found in exophthalmic goiter a lysis of thymus, thyroid and ovary. In scleroderma Bauer and Reines found a lysis of the thyroid.

Fauser was the first to realize that the Abderhalden method must prove of great significance for psychiatry. He at once began his studies, and in 1912 made his first communication on the subject. By May, 1913, he had studied upward of 250 insane and thirty noninsane persons. In the great majority of the dementia praecox cases Fauser found defensive ferments against the sex glands and against the cortex. He assumes that a primary dysfunction of the sex glands leads to the entrance into the blood of unchanged sex gland protein, and that in the subsequent breaking up of this protein, substances are formed which are injurious to the cortex. The substance which enters the circulation is of course the internal secretion, the hormone, of the sex gland, not the germinal product. The blood in male dementia praecox cases digests testicle only, not ovary; that of female cases ovary only, not testicle.

Only in dementia praecox cases could Fauser demonstrate defensive ferments against the sex glands. In cases in which a digestion of the sex glands was unexpectedly found and in which a diagnosis had previously been made of manic-depressive insanity or of other functional psychoses, the further clinical course of the cases proved that they were really cases of dementia praecox and that the serologic diagnosis had been the correct one. In a number of less definite

cases of dementia praecox in which defensive ferments against the sex glands were found only at times, it seemed as though this dysfunction ran parallel with fluctuations in the clinical course. In some cases again in a terminal and stationary condition, that is, in cases in which the pathologic process had run its course, no defensive ferments were found against either the sex glands or cortex.

In paresis Fauser found with diminishing exceptions defensive ferments against the cortex. Probably here also the dysfunction is not a continuous one, as the defensive ferments are not at all times present. The spinal fluid never contains ferments against the cortex, not because abnormally metamorphosed cortex products are not present, but because the spinal fluid cannot develop ferments. As in dementia praecox, the dysfunction of the cortex and eventually of other organs is not primary. In paresis the primal factor is the presence of the spirochete protein in the blood. In addition, it is not improbable that the defensive ferment formed against the spirochete protein also digests the cortex, and finally that the digested cortical substance in turn evokes the formation of a second ferment against nerve substance generally. Under such circumstances a continuous automatic lysis of the brain will take place without further intervention on the part of the spirochete.

In the so-called function psychoses — manic-depressive insanity and the simple psychopathic states — Fauser never found defensive ferments against the cortex or against the sex glands, the thyroid, pituitary, pineal or suprarenals, or against muscle, liver or kidney. It would seem that in the functional psychoses a coarse dysfunction of the cortex or other organs is not present, but rather that there is present an excessive or an insufficient production of some normal secretion, against which a defensive ferment is not formed. It would appear that we have in these facts the possibility of a differential serologic diagnosis between dementia praecox and functional forms.

Fauser's results have been confirmed by a number of other investigators. Thus Roemer and Bundschuh in a large number of cases achieved results in entire uniformity with those of Fauser. Similar results followed the investigations of Wegener, who had been personally instructed by Abderhalden in the methods. His studies included over 200 cases, and the further clinical course of all these cases confirmed the serologic diagnosis. Fischer studied twenty-four cases, and his results were in entire conformity with those of Fauser in 107 of the 115 tests made, and he is inclined to regard the defensive ferments found by Fauser in the insane as specific. Kafka, who has also made a very careful study of the subject, concluded that typical dementia praecox cases are distinguished by the formation of defensive ferments against the sex glands. Similar results, varying of course in detail, were obtained by Ahrens, Neue, W. Mayer and others. Mayer has proved by experiments on animals the absolute specificity of the Abderhalden defensive ferments.

The literature on the subject is already very extensive, and cannot even be summarized in an address. Suffice it to say that the Abderhalden method has been applied to the most varied clinical forms and often very extensively. For instance, Wegener had by January, 1914, studied about six hundred cases at the psychiatric clinic at Jena. Every case was tested with a large number of organs and tissues, for instance, with testicle, ovary, brain, spinal cord, nerve, lung, liver, pancreas, thymus, kidney, suprarenal, thyroid and muscle. His results may be briefly summarized by the statement that defensive ferments were found in all cases in which organic changes existed, while in purely functional cases, such as hysteria, manic-depressive insanity and paranoia, all examinations were negative; this was also the result in normal persons. The fact that in manic-depressive insanity no lysis was ever found proved frequently to be of value in the differential diagnosis from dementia praecox, the diagnosis being confirmed by the further clinical observation of the cases.

Similar results to the foregoing were achieved by Fuchs and Fremd, Golla and others. However, while a large number of investigators have confirmed more or less closely the observations of Fauser, failure to confirm, differences of results and criticism of both the method and the observations have not been wanting.

In a field so new as this, and in which the methods require such extraordinary care and precision, this is hardly surprising. Among those who have especially assumed an attitude of opposition should be mentioned Plaut, who has gone so far as to say that the observations of Fauser and others are the results of autosuggestion. He has, however, been sufficiently answered by Fauser, and especially by Kafka, who points to the uniformity of his own findings in the absence of any knowledge on his part as to the diagnosis of the patients from whom the serums were furnished. Further, Lampé claims the absolute specificity of the defensive ferments.

That the Abderhalden method will gradually be developed more and more there can be no doubt. Sagel, for instance, reports that he has succeeded in detecting specific ferments in the urine by means of a specially constructed polariscope. Hirsch has also by means of a new method determined the changes in concentration which ensue in the serum as a result of the solution of the peptones formed by the defensive ferments from the organic substrate. His results demonstrate the correctness of Abderhalden's views concerning both the occurrence and the specificity of the defensive ferments. Kafka and Pförringer have shown that when proteins are injected into the peritoneal cavity, proteolytic ferments can be demonstrated in the blood serum three days later, and further, that these ferments react in an absolutely specific manner on the substance used, as in the case of blood corpuscles on blood corpuscles. Kafka and Pförringer further conclude from their studies that the white cells, especially the polymorphonuclear leukocytes, play an important rôle and are absolutely necessary for the formation of a specific ferment in the blood.

Nieszytka has tabulated the results of the various investigators, and concludes that the differential diagnosis of dementia praecox from other clinical forms is furnished by the lysis of the sex glands, and that the serologic diagnosis of dementia praecox is more certain than the clinical.

The facts revealed by the Abderhalden method appear to justify the following conclusions:

1. In all cases in which either as a result of defective or aberrant organization, or of other disease, abnormal substances find their way into the blood, defensive ferments are evoked.

2. The ferments produced by the defense reaction are frequently injurious to substances other than those which gave rise to them. Notably is this the case in the instance of the cortex in dementia praecox, and perhaps also in paresis.

3. In cases in which no defensive ferments can be found, it is safe to infer that the affection is one unattended by organic changes and that it belongs to one of the purely functional groups, namely, to manic-depressive insanity or to the psychasthenic psychoses.

4. Ferments may be absent in late organic or terminal cases, as in terminal dementia praecox; when the disease has run its course, a time may be reached when poisonous substances are no longer thrown into the circulation, and in consequence defensive ferments no longer formed.

5. The toxicity in manic-depressive insanity and in other functional states appears to be due to a quantitative change rather than a qualitative change in substances normally present. In all instances, however, the symptoms are due to toxic agents, for substances in excess or abnormally deficient have all the value of poisons.

Time and the objects of this address will not permit of a consideration of the hormones, a subject which naturally suggests itself as next in order. Suffice it, however, to call attention to the fact that an internal secretion may vary in three ways: first, it may be excessive in amount, second, it may be deficient in amount, and third, it may be changed or perverted. In the latter case it will lead to the formation of defensive ferments, just as in the case of a foreign substance introduced from without.

In dementia praecox we have an instance of such a perverted secretion, namely, a qualitative change in the hormone of the sex gland. Not only is there, in addition, the development of defensive ferments injurious to the cortex, but there are also present symptoms indicating that these ferments react on the sympathetic and autonomic nervous system. Among these symptoms are such as are referable to the circulatory apparatus, to the digestive tract and to other very special forms of apparatus, such as the iris. Such phenomena are quite frequent in mental affections other than dementia praecox, and it is quite probable that they are always the result of the action of toxins on the sympathetic and autonomic nervous system.

The field which here opens to our view is so large that in the present address it can admit of only the most cursory treatment. The physiologist Langley, it will be remembered, renamed the sympathetic nervous system the autonomic nervous system, largely on the basis that the structures supplied by the sympathetic nerves are independent of the will. The cerebrospinal nerves which execute the mandates of the will, that is, carry out voluntary movements, terminate only in striated muscular fiber. The sympathetic nerves, on the other hand, terminate in smooth muscular fiber and in glandular tissue; in other words, the sympathetic fibers include all efferent nerve fibers except those which go to the voluntary muscles. In accepting the term "autonomic" as a substitute for the term "sympathetic" nervous system, we should bear in mind, however, that the first or proximal neuron of this apparatus is always situated in the gray matter of the cerebrospinal axis, that is, in the cord or in the brain stem. Further, this proximal neuron gives off an axon which, passing out by way of the rami communicantes, terminates in an arborization about the distal neuron situated in the sympathetic ganglion. Thence fibers pass to smooth muscle or gland. The sympathetic nervous system thus has an origin which is primarily cerebrospinal, and it is really an integral portion of the cerebrospinal apparatus. It is certainly not an independent system, and is only in a measure autonomic.

In recent years this sympathetic or autonomic nervous system has come to be divided into the so-called autonomic nervous system proper and the so-called sympathetic nervous system proper. The word "autonomic" is applied to that portion above the second dorsal segment of the cord and to that portion below the second lumbar segment, while that portion included between these levels is spoken of as the sympathetic proper. This division, which has no biologic basis, is made rather arbitrarily on the differences in function which obtain in some measure between the two. For instance, fibers of the sympathetic proper pass from the upper dorsal cord through the superior cervical sympathetic ganglion to the dilator muscle of the iris, to the constrictor fibers of the vessels supplying the ear, the oral and nasal cavities, the eyeball and the salivary glands. On the other hand, autonomic fibers, so-called, originate in proximal neurons in the midbrain, accompany the oculomotor nerve and terminate in arborizations about cells in the ophthalmic ganglion, from which fibers in turn originate which supply the ciliary muscle and the constrictor fibers of the iris; at the same time other autonomic fibers supply the dilator fibers of the vessels of the mucous membrane of the mouth, throat, nose and nasal sinuses and also the salivary glands. A similar duplex arrangement exists in the innervation of the heart, for example, a sympathetic innervation through the accelerator nerves and an autonomic innervation through the vagus. Likewise duplex innervations can be traced in the glands of the mucous membrane of the trachea and bronchi, the muscles of the trachea and bronchi and the glands and muscles of the intestinal tract from the esophagus to the anus and also in the case of the urinary bladder, genital organs and the vessels of these structures. To a degree these two systems are physiologically antagonistic to each other, and are each capable of separate stimulation. For instance, epinephrin induces contraction of the blood vessels, acceleration of the heart's action, dilatation of the pupils, drying of the mucous membranes, inhibition of the salivary glands, and inhibition of the motility and secretion of the stomach and of the intestines. Epinephrin, therefore, stimulates the sympathetic fibers proper and may therefore be said to be sympathicotropic and sympathicotonic.

Just as epinephrin stimulates the sympathetic system, so does pilocarpin stimulate the autonomic system. Pilocarpin is a vasodilator and in full doses slows the heart's action. At the same time it stimulates glandular action, the perspiration and saliva being greatly increased. The pupil also is contracted, and gastric and intestinal movements, as has been shown in experiments on animals, are increased. Pilocarpin can therefore be spoken of as autonomic-tropic, or, to employ the term actually in use, vagotropic and vagotonic.

Again, atropin acts as a paralyzer of the autonomic apparatus. There is here, because of the paralysis of the autonomic apparatus, dilatation of the pupils and

arrest of the secretions. In full doses the heart beats become exceedingly rapid, the pulse ranging from 120 to 160. Atropin is therefore vagotropic, but is paralyzing in its action instead of being vagotonic.

Less is known about substances or poisons which, being sympathicotropic, also paralyze the sympathetic. In paralysis of the sympathetic, there would be vascular dilatation, contraction of the pupils, slowing of the heart's action, and increased glandular activity; but when we come to look for poisons having such an action we cannot find one which will fill all of the requirements. Morphin, which contracts the pupils, and slows the heart's action, is an indifferent vasodilator; and, instead of increasing the secretions, inhibits them, unless it be that of the skin. Similarly when we turn back to stimulating drugs of the autonomic apparatus, among which, in addition to pilocarpin, may be mentioned physostigmin, cholin and digitalis, we find that there are many variations in the details of their action which do not admit of an explanation limited to an exclusive and stimulant action on the autonomic apparatus. This, it may be added, is also true of the paralyzing drugs.

When we turn our attention to the action of the internal secretions, as that of the thyroid or pituitary glands, we encounter similar difficulties. Time will not permit of a detailed discussion, but it is clear that poisons do not necessarily limit themselves in their action to one or the other subdivisions of the sympathetic system. A complete antagonism, such as outlined, does not always obtain. Sometimes portions grouped on the one hand among the autonomic or on the other hand among the sympathetic, are variously acted on by the same poison. However, for us, the fact of the direct action of special substances on various parts of the sympathetic nervous system is one of the very greatest significance, and in the recognition of this fact must lie the explanation of some of the symptoms encountered in insanity. Among the latter are the atony and dryness of the digestive tract, the phenomena presented by the circulation, the pallor, coldness and other appearances of the body surface, the dilatation or the contraction of the pupil, and other symptoms as well. The point which should be emphasized is that these phenomena must be referred to a toxic action, an action which expresses itself through the sympathetic nervous system. The latter — calling it as we will, autonomic or sympathetic — acquires additional significance when we reflect that it is through this system that the emotions, the affects, mainly find expression. Here is another fruitful field for thought, especially when we think of melancholia and mania. In closing, I may be pardoned if I venture to outline the position from which, in my judgment, the investigator should approach the problem of the pathology of insanity. He should prepare himself somewhat as follows:

1. He should study the physics of the colloids; the physics of life is largely the physics of the colloids.

2. He should study the chemistry of the colloids; the chemistry of life is largely the chemistry of the colloids.

3. He should investigate the interaction of colloids among each other, both physical and chemical, that is, he should investigate the subject of the ferments.

4. He should apply the facts acquired to the field opened up by Abderhalden and Fauser.

5. He should include in his studies the actions of the ferments, toxins or hormones on the sympathetic and autonomic nervous system; and, under these circumstances and under given conditions, the reactions of the glands of internal secretions.

Finally, he may venture to study the brain tissue itself; but the pathology of insanity is not a gross pathology. When gross changes are present, they are — with few exceptions — probably and properly to be regarded as late or terminal.

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HEALTH SUPERVISION IN SMALL TOWN SCHOOLS

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Since its inception in San Antonio twenty-five years ago, medical inspection of schools has been slow enough in coming into its own. It is perhaps only within five years that rapid advances have been made. At present most cities have some type of a medical inspection system, but on close scrutiny one is led to believe that many of these have been established as a mere formality. However, where a start has been made, future improvement may well be hoped for.

What of the small towns, those that number from 2,500 to 5,000 population? As is often the case with progressive measures, the small cities and towns have not been quick to accept medical inspection. The reasons for this stand are many, chief among them being a somewhat narrowed administrative perspective and false ideas of economy. Then, too, it may quite truthfully be stated that because of the usually superior housing, sanitary and other environmental conditions, the need for medical inspection is not so imperative in the smaller communities. On the other hand, and contrary to a general opinion, there are more children in the rural districts than in the cities.[1] The children of this country are distributed as follows:

In cities of 100,000 and over, 18.3 per cent.
In cities of 25,000 to 100,000, 7.5 per cent.
In towns from 2,500 to 25,000, 13.5 per cent.
In hamlets and towns of 2,500 and less, 60.7 per cent.

The census of 1910 states that there were in the United States 29,499,136 children under 15 years of age. There are, then, 17,994,472 children living in small communities, while but 11,504,664 live in towns of over 2,500 inhabitants. So far as medical inspection is concerned, nearly 18,000,000 of the children are being neglected. Realizing this deplorable fact, a few of the more progressive towns are instituting the plan.

The problems which arise in connection with a medical inspection system in a small town, particularly when it be residential rather than industrial in character, are many, and in frequent cases errors have been borrowed from a neighboring big brother and transplanted in the village.

First of all, and this applies to city and village alike, the name and implied junction of "medical inspection" is perhaps the most salient error of all. "Medical inspection" is not enough; "health supervision" is a far better term, and it should cease to be merely an adjunct to our educational system and become an integral part of it.

1. The statistics are taken from the 1913 Handbook of the National Children's Bureau.

The questions which demand the most serious consideration in the small town are: (1) the choice of an inspector; (2) provisions for treatment; (3) stimulation of parental cooperation, and (4) financing.

1. The choice of an inspector is the problem which all small communities face first of all. Led on by pleasing offers of material assistance from industrial life insurance companies, the town may appoint a nurse as health supervisor. Such an arrangement is not complete, and sooner or later its weak points become obvious. A school nurse is a valuable addition to any health supervision system, but alone she is only a makeshift. The ideal system for the small town should be headed by a competent and aggressive physician, whose appointment should be removed from politics and be made solely on merit. His duties are to direct the system, make the actual examination of all pupils, and consult with the superintendent, the teachers and the janitor on matters of health. A well trained nurse, preferably one with school experience, should be a full time employee of the schools, give treatments as recommended by the physician, look after the teeth and heads, and assist at the physical examinations. With such a combination, the detection of contagious diseases is simple. The nurse on her daily rounds through the school discovers suspicious cases and refers them at once to the school physician. From the economical standpoint such a plan delivers more actual benefit than a full time physician alone or a nurse alone. Often it is possible to obtain a really good physician who is willing to give a part of his time to the schools without recompense.

2. Provisions for treatment perhaps offer quite as momentous a problem as does the choice of an inspector, and it is an aspect of the situation which presents itself far more forcefully in the small town than in the city. A small percentage of towns of 5,000 inhabitants have general hospitals; hardly any have free clinics. Of what practical value can a health supervision system be without adequate means for carrying out the treatment recommended? When a nurse is employed in the school she may well give much of the necessary treatment under the direction of a physician, in cases in which the patients are unable to pay for medical attendance. In cases which demand more technical treatment than can be given by a nurse, the problem becomes a real one. In certain instances, tactful letters written to the family physician have brought valuable results. Quite obviously, this will apply in comparatively few cases. It has been found that leaving space on the defect report card,[2] which is sent to the child's home, for the family physician to make a note of his findings and recommendations and returned to the medical inspector in two weeks, has in many places brought most favorable results. The secret of the entire matter, however, lies in the amount of interest and cooperation displayed by the townspeople. This brings us to a consideration of the stimulation of parental cooperation.

3. A personal invitation from the superintendent of schools or the health supervisor to the parents to visit the school and be present at the examination of their children goes far toward bringing the citizens into touch with the system. The law of many states specifies that unless the examination is made by a woman physician, the parents shall be present at the examination of female children. Although this at first seems to be a stumbling block, it is a blessing in disguise, and brings many mothers to the school, most of whom go away impressed by the unquestionable service which health supervision offers.

The public press is a factor of great potentialities in the stimulation of public favor; but it is a deplorable fact that most editors prefer to run a page of worthless short stories and cheap buffoonery which can be bought by the pound, rather than a few terse articles on health. After persistent effort, however, many of them can be made to see the logic of running one column of health notes to every ten columns of fashions, and perhaps, after all, this is as much as we should expect.

The circulation of a health monthly or "healthgram" also spreads the good work, and after a bit it is read by every member of the household. In addition to the short articles by medical men on health topics, little points of advice, a report of prevailing epidemics and absences from school caused by sickness, and short essays on health topics written by the children themselves are of great value in lending that intimate personal note which is so desirable. The use of illustrations and cartoons makes points more lucid and more easily grasped. The bright light of publicity should be turned on the system. All its parts should be explained, and an attentive ear should be turned to all lay suggestions; many are valuable.

Extending health supervision to those districts which are designated as "rural" offers another situation which must be met. These district schools are frequently very remote from the center, and often have only a handful of pupils. It is out of the question to supply complete facilities for proper examination in each of these schools, and a visit to them with a mere cursory inspection often makes a blot on an otherwise admirable record. Instituting a "health day" has been found to meet this problem with an encouraging degree of success. A Saturday in the early fall or spring is chosen, the farmers come in bringing the children, the health supervision system is briefly explained, and the examinations are made. In one community, health day was combined with a meeting of the agricultural extension institute, the farmers quickly saw the parallel between raising better crops and better children, and two highly constructive measures were mutually benefited.

4. The question of expense is as usual a formidable one. In the small community, the administration's officers are not particularly eager to initiate any measure calling for extraordinary expense, endeavoring to keep their budget as low as possible. The only way in which to have health supervision universally adopted is by state legislation, and a beginning in this has fortunately been made. Until it becomes compulsory, however, the small towns will evade the issue. A comparison of expenses in cities and towns, the last being somewhat difficult to obtain, shows that in the cities the expense runs from 25 to 33 per cent. higher. The reasons for this are in the main quite obvious, and an analysis is not necessary. In the small town an appropriation of $2 per child should, with economy, cover the expense of the system after it has made a

2. This card contains the following data:

Date————.

Mr. ———— is found to be suffering from ———— and it is recommended that ———— consult your family physician for advice.

————, Medical Inspector.

I have been consulted by ———— and recommended ———— Date————.

————M.D.

start. Actually this is not high, and it would seem reasonable to believe that this much could be well invested in the coming generation. But when one considers the recent appropriations of a large Eastern state, which included $150,000 for health and $750,000 for fisheries and game, it would seem that that part of the country anyway was going to have better pickerel than children. In the main, however, the health appropriations are nearly large enough, and when economically administered should do much toward improving the next generation of Americans.

FLAGELLATE PROTOZOA AS AN ETIOLOGIC FACTOR OF DYSENTERIC DIARRHEA

REPORT OF A SERIES OF CASES OF TRICHOMONAS DYSENTERY, INCLUDING A LOCAL EPIDEMIC WITH SEVENTEEN DEATHS *

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Until within the last decade, flagellate protozoa, when found in the stool, were considered either incidental or secondary infections of more or less harmless nature. One of us (B. W. R), during seventeen years of laboratory experience, has never found these parasites except in cases with existing or recent acute or chronic diarrhea, and has become convinced that these parasites are of more importance as etiologic factors in diarrhea than has been given them. The *Trichomonas intestinalis* is a pear shaped organism about 17 microns long by 10 wide, with four or more flagella which serve to propel it rapidly about with a quick, jerky motion. These parasites live best in neutral or slightly alkaline mediums, and for this reason any tissue of low vitality may harbor them. As their mode of entrance is by the mouth, however, the gastro-intestinal tract is their usual habitat. The fact that they have been found elsewhere, in our opinion, does not argue against their capacity for assuming primary pathogenic rôles in the bowel, and to support this view we present some selected cases of dysenteric diarrhea in which the sole cause, so far as could be found, was the flagellate protozoa, and in which most of the patients recovered under the recognized treatment for parasitic dysentery.

Whatever their conclusions regarding the pathogenicity of these parasites, most observers give practically the same clinical history: the drinking of impure water followed in a few days by diarrhea with colicky pains, watery or slimy blood stained stools, weakness, dyspnea, loss of weight and progressive anemia simulating pernicious anemia. The skin becomes yellow, with a tendency to urticarial or pellagroid eruptions. The stools contain much mucus, pus, blood and active trichomonads. The blood shows a moderate eosinophilia, from 6 to 12 per cent. The large bowel shows superficial ulcers, the mucous membrane presenting a moth eaten appearance with here and there a diphtheritic exudate. Death may ensue, necropsy showing a cloudy swelling or fatty degeneration of heart, liver and kidneys.

* Read before the Fort Wayne Medical Society, Jan. 18, 1916.

REPORT OF CASES

CASE 1.—The first case of this kind in which we made a definite diagnosis of trichomonad infection was on May 27, 1907, and occurred in the practice of Dr. C. R. Dancer of Fort Wayne, Ind. E. R., aged 35, after drinking foul water developed typical acute dysentery, and had as many as forty-eight stools per day, containing trichomonads, with progressive anemia. Under antiparasitic treatment, complete recovery took place.

AN EPIDEMIC.—In 1909 there occurred an epidemic of dysentery in Liberty Township, Wells County, Ind. Dr. Frank Garrett of Liberty Center had, in all, seventy-eight cases of dysentery with seventeen deaths. "These patients all took sick the same way with marked or excruciating pain in the transverse colon and would be in a condition of extreme shock. There was no fever but the pulse was rapid and feeble. Stools were at first watery, soon followed by blood and mucus. Tenesmus was severe and persistent. Some patients were at the stool continuously, and several of them died on the stool. This would keep up about forty-eight hours, and if the patient survived, under treatment, the dysentery would gradually subside; but the convalescence was long and tedious, and the flux was easily excited by dietary indiscretion or exercise." The treatment consisted of ipecac in large doses combined with calomel. The first patients so treated by these drugs did so well that a large quantity of ipecac was secured, and this treatment was given, not only to the sick, but also to all the healthy people of the community, and the epidemic stopped immediately. No postmortems or laboratory examinations were made, so that the exact cause was not ascertained. We have, however, very good evidence as to the etiologic factor in the fact that a number of cases of chronic diarrhea have since been observed from Liberty Township. All had trichomonad infection as reported below, Cases 2 and 6 especially being connected directly with this epidemic. Both of these patients were stricken with the epidemic from which a chronic dysentery developed that came under our observation last year.

CASE 2.—Mrs. J. S., aged 53, with negative family and personal history, consulted Dr. F. A. Metts, Bluffton, Wells County, Ind., in June, 1915. Sixteen years ago during the epidemic she had a severe attack of dysentery, and was about six months getting over the acute attack. She had had a number of acute attacks since, with constant feeling of fulness in the rectal region. She passed much blood stained glairy mucus. She had severe headache, was quite melancholy, and was gradually losing weight. She would sit for parts of days in a sort of stupor. About four years ago she noticed an eruption over the backs of both hands, and on the right side of the neck and right malar eminence, at which time the mental symptoms first appeared.

The patient was a small, poorly nourished woman, 5 feet 2 inches, weight 103 pounds, pulse 100, and temperature 97. There was considerable tenderness over the region of the sigmoid and the whole of the colon. The reflexes were slow, the patient experienced considerable difficulty in speech, seemed in a daze and could not answer questions satisfactorily. Proctoscopic examination revealed a large shallow ulcer in the posterior wall of the rectum, and the rest of the rectum was covered with considerable mucus and was much congested. Examination of the stool revealed blood, mucus, pus and many active trichomonads.

Emetin hydrochlorid, 1 grain daily for one week, was given, the bowel was flushed with normal salt solution, and the ulcerated area painted with 5 per cent. argyrol. Improvement occurred immediately. After one week the bowel was flushed every other day with 1 per cent. hexamethylenamin solution, and 120 grains of thymol were administered in two doses, three days apart. Following this, the patient was put on weekly flushings with petroleum and given a preparation of ipecac, to be taken continuously with intervals of rest. The patient gained 25 pounds in weight, her mentality returned to normal, the skin lesions and diarrhea disappeared, and she now seems fully recovered.

CASE 3 occurred in the practice of Dr. L. H. Cook, Bluffton, Wells County, Ind. Nondes L., aged 11, living at Warren, 3 miles from the township line of Liberty Township, in December, 1913, was taken with bloody diarrhea with some pain and slight fever. There were from fifteen to twenty bowel movements a day, with loss of weight and exhaustion. In February, 1914, the stools were examined and an active monad infection found. (These monads remained alive at room temperature for five days in the laboratory, showing the extreme vitality of the Liberty Township parasite.) Under emetin treatment the monads disappeared and the diarrhea stopped.

CASE 4.—In February, 1913, a diarrheal stool sent from a patient in Liberty Township showed many monads. No history was obtained.

CASE 5.—Another patient, now living in Bluffton, but from Liberty Township, had bloody diarrhea. The stool showed monads, pus and blood. Blood examination showed 5 per cent. eosinophils. No history was obtained.

CASE 6.—E. M. R., man, aged 71, residing at Liberty Center, in practice of Dr. F. A. Metts of Bluffton, was in good health until sixteen years ago. At Liberty Center he was taken with the dysentery which was scouring the community. He was ill six weeks, and convalesced slowly. Acute dysentery left a chronic diarrhea. Since then he has had a series of acute attacks of short duration following dietary indiscretion. In February, 1915, while attending the state legislature he was again taken with an attack of dysentery confining him to his hotel for two weeks. The bowels moved every ten or fifteen minutes during the first forty-eight hours. In March he was able to be brought home on a cot, much exhausted. The bowels were somewhat better, but a marked neuritis developed in the left sciatic nerve and its branches. A skin manifestation appeared in the form of an erythema on the nose with vesicles on each side. An erythematous spot also appeared in front of the trapezius and along the sternomastoid on the left side, with a few vesicles. Both hands were bright red, with numerous vesicles, and had to be bandaged. The left ankle also showed an eruption.

The patient was well nourished, the chest was negative, pulse from 80 to 92, blood pressure 130, and occasionally there was a little fever. Rectal examination revealed shallow ulcers high up with a white flaky (diphtheritic) looking exudate. Blood showed 6 per cent. eosinophilia. Examination of feces, May 25, 1915, showed a trace of blood, and many active monads. Emetin hydrochlorid, ½ grain, was administered every day for a week, and the dose was gradually increased until, on the last three days, the patient took 1½ grains each day. June 3 the feces contained no blood and only a few monads (1 per field). All the symptoms were greatly improved, and the erythema, including that on the nose faded. The hands had improved to such an extent that scaling, which took place, was nearly complete. The second week the emetin was discontinued, and daily enemas of 3 pints of petroleum given, at the end of which time the skin was clear, the redness of the nose all gone, the hands perfectly clean and the diarrhea much better. Petroleum enemas were continued and a tonic given internally. The patient improved rapidly and began taking drives. May 30 he was out all day driving, was caught in a storm, got wet and was thoroughly chilled. There was complete anuria for twenty-four hours followed with death. Postmortem was refused. There had been no sign of renal insufficiency before.

CASE 7.—E. B. W., Bluffton, Ind., had acute dysentery with recovery. Six months later he developed melancholia with headache. The Wassermann reaction was negative, eosinophils, 23 per cent. The feces contained monads. Under salol and emetin, the nervous symptoms and eosinophilia disappeared.

These cases are reported to call attention, first, to the incidence of a local epidemic and endemic, and second, to a not infrequent cause of acute or chronic diarrhea. That these cases are not extremely rare, we are convinced, for within the last year, in routine examination of all cases of diarrhea in the practice of Dr. L. P. Drayer of Fort Wayne, six cases of trichomonas infection were found, all of which responded to ipecac treatment.

ACUTE SYPHILITIC NEPHRITIS, FROM THE STANDPOINT OF DIAGNOSIS AND SALVARSAN TREATMENT

WITH REPORT OF A CASE

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While the elaborate studies of Karvonen and of Munk, on the continent, have contributed materially to the clinical delineation of the picture of the acute nephritis of syphilis, the condition, although known to exist, has received, in the American literature at least, a minimum attention. The recent work of Stengel and Austin[1] is the principal exception. Osler and Churchman, for example, concede that the subject has been widely overlooked and has had too little study.

Acute syphilitic nephritis (nephritis acuta syphilitica praecox of Hoffmann), as distinguished from slight transient albuminuria, is a relatively uncommon complication of syphilis. Karvonen,[2] in an examination of ninety-two reported cases, could accept only twenty as authentic examples. Fournier[3] collected twenty-six instances from his experience, Hoffmann[4] had seen only six cases up to 1913, and Audrey[5] reported two cases, one of which illustrates the preroseolar type, occurring before the outbreak of secondary manifestations in the skin. Munk[6] collected data of fourteen cases in Kraus' clinic (Berlin) in three years. With the newer diagnostic criteria it seems probable that it will be more frequently recognized. The following case in my practice may serve as an illustration of both the diagnostic and therapeutic difficulties which may present themselves.

REPORT OF CASE

History.—J. S., laborer, aged 25, of negative family and past history and good habits, came under my care with a syphilitic infection of five months' duration for which he had already received three injections of neosalvarsan and twelve inunctions. The Wassermann reaction was strongly positive, the urine negative, and the general health was little affected except for some loss in weight. There were no active lesions other than slight pharyngitis. Following the ninth of a series of mercury salicylate injections, in a dosage of from ½ to 2 grains weekly, during which the urine was negative, the patient reported having suddenly been taken sick, with severe swelling of the face and general malaise. When seen, four days after onset, there was still some edema of the face and a distinct pallor. There was slight edema over the tibiae. The urine was acid, the specific gravity was 1.020, there were large numbers of granular casts and a few red cells, and albumin (not accurately measured) was very heavy. The urine of other patients receiving the same course of treatment with the same emulsion was normal.

Treatment and Course.—The patient refused to consider inpatient treatment, since he felt comparatively well. No twenty-four hour specimen could be obtained, and the case

1. Stengel and Austin: Am. Jour. Med. Sc., 1915, cxlix, 12.
2. Karvonen: Dermat. Ztschr., 1900, vii.
3. Fournier: Traité de la syphilis, Paris, 1906, i, part 1, p. 734.
4. Hoffmann: Deutsch. med. Wchnschr., 1913, xxxix, 353.
5. Audrey: Ann. de dermat. et de syph., 1912, Series 5, iii, 277.
6. Munk: Ztschr. f. inn. Med., lxxviii, Nos. 1 and 2.

had to be studied under ambulatory conditions, with the patient at work. Still suspecting a mercurial origin for the nephritis, I gave the patient a three weeks' rest, during which the urine, at first stationary, gradually grew worse, until a daytime specimen would almost coagulate on heating, the sediment containing innumerable casts and a few red cells. Mercurial inunctions of 6 gm. were resumed, which improved the patient in a week and reduced albumin to a trace in three weeks. A low protein salt free diet was prescribed. In the fourth week, in spite of inunctions, heavy exertion apparently increased the albumin almost to the original point. Pharyngeal symptoms were more marked, and patchy alopecia appeared. Mercury salicylate, 1 grain, intramuscularly, and a week of rest, cleared the urine of casts and all but a trace of albumin. Rest in bed in a hospital, apparently without mercurial treatment, the following week, resulted in a complete relapse, and the patient was not benefited by an injection of mercury salicylate when seen again.

Thus far the case illustrates both the efficiency of mercury and the value of rest, and the insufficiency of either without the other. The syphilitic origin of the condition being now fairly clear from the therapeutic test, the patient was with some hesitation given 0.13 gm. of salvarsan intravenously. Albumin before injection showed a heavy coagulum. Twenty-four hours after injection, there was barely a trace. No unfavorable reaction occurred. The patient disappeared from observation for three weeks (no treatment), and returned with a complete relapse, with weakness and loss of weight. A second injection of salvarsan, 0.2 gm. intravenously, was given. The urine was found to be practically negative a week after injection. After a third injection of salvarsan, 0.3 gm., the patient again disappeared from observation for three weeks. When seen again, he was in worse condition than at any previous time. There were marked loss in weight, furuncles on the back and extremities, and a urine suggesting that of an eclamptic. Neosalvarsan, 0.4 gm., resulted in a practically normal urine on the third day, with a considerable improvement in general condition and the rapid disappearance of the furuncles. No more salvarsan being obtainable at the time, and the patient objecting to rubs on account of the excessive hairiness of the body, mercury salicylate injections were resumed. A weekly dosage of 1 grain was insufficient to prevent the reappearance of albumin, which disappeared, however, when the dose was raised to 1½ grains. Under this dose the urine remained clear for four weeks, when albumin again appeared. On the supposition that the dose was becoming insufficient, it was increased. Slight sponginess of the gums led to a suspension with the urine still showing a marked trace of albumin. This disappeared under two weeks' rest. The origin of this albuminuria was presumably mercurial, and indicated the very narrow margin existing between the effective therapeutic and the toxic or injurious dose. The patient has since received five injections of arsenobenzol intravenously in doses ranging from 0.3 to 0.5 gm. without symptoms of intolerance. The urine before the fourth injection showed no albumin. One hyaline cast was seen. With a polarization microscope I was able to detect several clumps of double-refracting globules, which, however, were not present in the sediment after a fifth injection. A moderately positive Wassermann reaction at the end of the mercurial series became a very strong positive at the end of the five injections of arsenobenzol.

COMMENT

The clinical picture of acute syphilitic nephritis, as will be apparent from the example described above, is none too sharply defined, and can profitably be reviewed for the purpose of bringing out the distinctive points.

Onset.—Fournier emphasized the extremely early onset from the standpoint of the stage of the disease. Eleven of his twenty-six cases appeared in the second month of the infection. Audrey has reported a case developing before the outbreak of cutaneous secondary manifestations. My case began in the fifth month, which Phillips (MacDonald's case[7]) considers the average period of onset for this form of nephritis. The onset may be either abrupt or insidious, but is usually the latter. Eleven of Munk's fourteen patients showed progressive weakness with severe anemia, and complained especially of edema and weakness. Isaac[8] gave loss of weight as the most striking objective symptom in his experience. Edema, often the first distinctive clinical sign, may be extreme, with hydropic accumulations in the pleural and peritoneal cavities (Hoffmann, Fournier, MacDonald). Blood pressure in MacDonald's case was not much increased. The slight constitutional disturbance, considering the severity of the renal involvement, is remarkable, and was well illustrated in my case. Fournier emphasized a marked tendency to uremia, and described a fulminating type with rapidly fatal termination. Hoffmann, on the other hand, has never seen the complication, and Karnoven's review led him to believe that Fournier had exaggerated the danger. Abrupt onset, moderate but transient edema, marked loss of weight and weakness when the condition was at its height, but a surprising lack of more serious impairment of the general health, were the main clinical features of the present case.

Urinary Findings.—Fournier noted their resemblance to those of other forms of acute nephritis. According to Munk, there is usually oliguria (from 300 to 1,200 c.c.), color usually normal rather than smoky, specific gravity high, reaction acid. The albumin content reaches extraordinary figures, and is almost distinctive in itself. Hoffmann has seen from 3 to 13 per cent.; MacDonald's case showed at outset, one-half volume, later one-fourth and one-sixth. Hoffmann, Fournier, Isaac and others have repeatedly seen the urine coagulate on heating to the point at which it could not be poured from the tube, a finding approached at one time in my case. The sediment contains a few red cells and white cells, the latter occasionally in excess, as in the type of syphilitic nephritis occurring in congenitally syphilitic infants (Karvonen, Hahn[9]). There may be much epithelium, and usually many lipoid or fatty casts, with a few hyaline and granular casts. According to Munk, the lipoid casts are usually classed as granular by the average observer, since their true character is best seen only on examination with the polarizing microscope. Clumps of lipoid droplets are numerous at the height of the process.

Two recent findings are of importance from the standpoint of differential diagnosis. Munk proposed the presence of double-refractive lipoids in the urine as a means of differentiating inflammatory from degenerative nephritides, and in particular for the recognition of syphilitic nephritis. Stengel and Austin,[1] in a recent study, found that in twenty-three cases of nephritis with large amounts of albumin and casts, six cases with positive Wassermanns all showed double refractive lipoids in the urine, while of fourteen non-syphilitics only five showed lipoids in the urine, a finding which suggests that the criterion is scarcely absolute. Munk has found double-refracting lipoids in the urine of syphilitics without nephritis, over long periods of time, and also in the urine of tabetics and paretics. The recognition of double-refractive objects in

7. MacDonald: Lancet, London, 1915, ii, No. 4804.
8. Munk: Dermat. Ztschr., 1914, xxi, 591; discussed by Lesser, Tomasczewski, Isaac, Heller et al., ibid., p. 522.
9. Hahn: Deutsch. med. Wchnschr., 1912, xxxviii, 759.

a microscopic field necessitates the use of special equipment in the form of a pair of Nicol prisms, which limits the availability of the method. By polarized light all objects in the field which are not doubly refractive disappear, leaving only the crystals and double refractive lipoids visible against a dark background.[10]

The second finding reported by Hoffmann, who also cites Dryer and Toepel, is the presence of living *Spirochaetae pallidae* in the sediment of the last portion of the urine in one of his cases. This specimen, although taken after special precaution to prevent external contamination, was not catheter-drawn, a precaution which Hoffmann thinks necessary since the organisms may come from lesions within the urethral canal. The status of this observation is still unsettled. It should receive the attention of others with a view to determining its correctness, but has apparently been overlooked, as it was by me.

Diagnosis.—This centers about: (1) the recognition of syphilis in the patient; (2) the identification of the nephritis as due to syphilis and not simply a parenchymatous nephritis occurring in the course of syphilis, and (3) differentiation of the nephritis from one due to treatment.

On the first point, certain special details are brought out by the literature. The Wassermann examination is of great value. The history is entirely untrustworthy, since the nephritis may follow an inconspicuous or concealed primary lesion (as in women), and precede all eruptive phenomena, which may be mild even when present. Hoffmann calls attention to the completeness with which the edema, when marked, may mask the clinical signs of syphilis on the skin and mucous membranes. Suspicious lesions should be examined for the *Spirochaeta pallida* by dark field.

On the second point, the negative evidence of a lack of other adequate reason for the nephritis should arouse suspicion (Fournier). The possibility should therefore be investigated in every obscure case of nephritis. The examination of the sediment for double-refracting lipoids and for the *Spirochaeta pallida* should be carried out if possible. A therapeutic test is of the greatest importance, and will be discussed more fully under treatment. Munk rates it as the most valuable single aid after the newer laboratory diagnostic criteria. Its availability places it first for the average case, and it proved to be the main reliance in my case. The often enormous albumin content is highly suggestive of syphilitic origin, according to Fournier, Hoffmann, Lesser, Isaac and others. In less extreme cases, the value of this criterion is correspondingly reduced.

As regards the third point, the fact that vigorous treatment with mercury, as indicated by the present case, is not sufficient to prevent the onset of nephritis of syphilitic origin may make the problem of differentiating a mercurial and a syphilitic nephritis a difficult one. If the urine has been systematically examined during the mercurial course, the characteristic features of onset of a mercurial nephritis, that is, diuresis and cylindruria, as pointed out by Hoffmann, Welander and others, can usually be recognized before the albuminuria reaches the point at which confusion with a true syphilitic nephritis is liable to occur. Suspension of the mercurial treatment will usually cause a mercurial nephritis to subside, even though it does not disappear at once. If the patient improves on the suspension of mercurial treatment, the instrumentality of syphilis may be doubted but not entirely excluded. Only a culpable neglect of precaution in the administration of mercury can allow a mercurial nephritis to reach such an extreme degree that these differences disappear. The substitution of salvarsan for mercury, as pointed out later, is an easily available means of establishing the syphilitic character of an albuminuria, when previous mercurialization has confused the picture. Examination for the characteristic double-refracting lipoids, when available, is of course of great assistance.

Treatment.—The general management of a case of acute syphilitic nephritis has followed the principles applicable in the more familiar forms. The French school insists on the milk regimen. Munk, however, while conceding the value of a restriction of proteins and salt, emphasizes the fact that no regimen is acceptable which does not maintain and raise the general nutrition and strength of the patient. For this reason he opposes too much reduction of meats especially. A bland but rather liberal diet seems to be better than one which does not compensate for the rapid loss in weight so common in these cases.

The efficacy of antisyphilitic treatment and the necessity for its prompt application was well established by Fournier. The use of mercury usually produces a striking improvement. Lesser[8] has seen the albumin disappear on an average in from eight to fourteen days under vigorous inunctions. Hoffmann commends the inunction as the method of election in administering mercury, beginning with 2 gm., which is half the usual dose. Munk advocates intramuscular injections in severe cases, followed by inunctions when the acute phase is under control. Osler and Churchman[11] believe that mercury should be used entirely until the disappearance of albumin. Welander, Karvonen and others emphasize the importance of mercurial therapy, and Karvonen doubted the correctness of the diagnosis in all cases in which the patients did not improve under it, but got better when it was stopped.

On the other hand, the value of mercury is not to be accepted without reservation. Billings[12] felt that cases were often distinctly aggravated by mercury and the iodids. Munk has seen both the albuminuria and cylindruria increase at the outset of mercurial treatment, and Heller[8] emphasizes the ease with which a mercurial nephritis can be excited in these cases by an overzealous therapy. MacDonald found that his patient improved for a time very markedly under mouth administration and inunctions, but later became resistant. My own experience in the present case, while showing the value of mercury, illustrated the slowness of its action compared with that of salvarsan, and its inability to prevent the onset of the complication in the first place. It also bore out Heller's point, to which reference has been made. A dosage of less than 1 grain of the salicylate was insufficient to keep the situation under control, and yet a moderate increase (to 1½ grains) quickly gave rise to enough accumulation to cause irritation. The margin of safety was therefore distinctly a narrow one.

10. For a good illustration of such a field, see Munk: Ztschr. f. inn. Med., 1913, lxxviii, 19.

11. Osler and Churchman, in Osler and McCrae: Modern Medicine, ii, 179, 211.

12. Billings, Frank: Visceral Syphilis, THE JOURNAL A. M. A., Nov. 18, 1911, p. 1655.

The critical estimation of the value of salvarsan in the treatment of the acute nephritis of syphilis is still hampered by the scarcity of reports on its use in these unusual cases. The effect of the studies of Wechselmann[13] and his co-workers in emphasizing the possibility of renal irritation from salvarsan and from combined therapy, together with reported cases of hemorrhagic nephritis and anuria after salvarsan administration, such as those of Justi,[14] Nanta[15] and others, have tended in the past to discourage resort to it in the face of renal complications. More recently, however, large groups of cases have been reported, such as those of Lier[16] (Ehrmann's clinic, 3,000 injections) and Nicholas and Moutot[17] (Lyons, 9,000 injections), in which albuminuria in itself was not accepted as a positive contraindication to salvarsan, but merely as an indication for low initial dosage. The successful results indicate that the objections to salvarsan on the score of renal injury have been exaggerated. Nicholas and Moutot found that a number of these patients, who tolerated mercury very poorly, were not affected by salvarsan, beyond an occasional transient increase in albumin such as is frequent under mercury. Two cases of old postscarlatinal nephritis, under treatment for syphilis, seemed actually to improve after four injections. In an experience of nearly 3,000 injections under inpatient observation with special examination of the urine after salvarsan, I myself have never seen an albuminuria result from it, and have seen two cases of hematuria in the course of syphilis (gumma of the kidney?) clear up promptly under it. I have seen it well tolerated in cases of chronic interstitial nephritis without cardiac complications. There can be little doubt that the type of case reported by Nanta, for example, illustrates the damaging effect of too high initial dosage, in his case being as high as 0.6 gm. salvarsan. In Audrey's two cases of acute syphilitic nephritis, the transient increase in albumin and the delayed effect seem attributable to renal irritation from such doses as 0.4 and 0.5 gm. salvarsan at the initial injection. Since Riebes,[18] Katz[19] and others have demonstrated that the spirocheticidal effect of salvarsan, at least, is as striking with 0.3 gm. as with 0.6 gm., the justification for the larger doses in the treatment of syphilitic nephritis seems to have vanished.

The exceptionally favorable effect of salvarsan in these cases has been noted by a number of continental observers, but has had less attention in this country. Hoffmann, while considering combined treatment essential, believes that salvarsan is superior to mercury and should be used first when special caution is needed to avoid renal injury, and that it has greatly improved the prognosis of the condition. Munk found it to be well tolerated in his series, and Audrey employed it successfully, though in rather large doses. Both the first-named authors consider 0.2 gm. a satisfactory initial dose, although in my experience a much smaller dose was effective (0.13 gm.). The dose may be safely increased to 0.4 gm. after the albumin disappears. A total dosage of 2 gm. is recommended by Hoffmann, with from 160 to 200 gm. of mercurial ointment in the form of inunctions.

13. Wechselmann: Abstr., Urol. and Cutan. Rev., 1913, xvii. Wechselmann and Loewy: Berl. klin. Wchnschr., July 21, 1913.
14. Justi: Therap. Monatsh., xxvi, No. 4.
15. Nanta: Ann. d. mal. vén., 1914, lx, 352.
16. Lier: München. med. Wchnschr., 1914, lxi, 2233.
17. Nicholas and Moutot: Annal. de dermat. et de syph., 1914, p. 391.
18. Riebes: Arch. f. Dermat. u. Syph., 1913, cxviii, 757.
19. Katz: München. med. Wchnschr., 1913, lx, 2337.

While I concede the necessity for combined treatment as a general measure, my experience with the case here reported is distinctly in favor of salvarsan or arsenobenzol as compared with mercury in the control of the condition. Not only did the nephritis respond with a promptness which should limit the damage to the kidney to the least possible amount, but also the patient's gain in weight and general improvement was much more marked than under mercury. The extremely small dose necessary to produce a marked change in the urinary findings suggests further the saving of time which salvarsan can effect in making a therapeutic test, while remaining well within limits which experience is showing to be entirely safe for any other form of nephritis likely to be confused with the acute syphilitic form. The drug may claim superiority over mercury on the score of minimum renal irritation, if a safe dosage be adhered to. The margin of safety consistent with a definite therapeutic effect is certainly very much greater with salvarsan than with mercury. On the other hand, the effect of salvarsan in the doses used seemed more transient than that of mercury, probably in part because of the storage effect of intramuscular injection in the latter case. Combined treatment would seem essential if satisfactory long-run results are to be obtained.

SUMMARY

1. Syphilis as a causative factor in acute nephritis is easily overlooked or its significance not appreciated.

2. The complication may develop in the course of efficient mercurial treatment (intramuscular injections).

3. The best recognized points in diagnosis are: (*a*) establishment of the existence of early syphilis; (*b*) high albumin content; (*c*) double-refractive lipoids in the urine; (*d*) therapeutic tests. Of these, *c* and *d* are probably the most reliable, and *a*, *b* and *d* the most available.

4. *Spirochaeta pallida* should be searched for in the sediment of a catheterized specimen on the recommendation of Hoffmann.

5. The diagnosis in the present case was established by points *a*, *b* and *d*, and later *c*. Of these the therapeutic test rendered the best service, because of its availability.

6. The administration of salvarsan is a valuable aid in the diagnosis and treatment of acute syphilitic nephritis.

7. The risk in administering salvarsan in proper doses to a nephritic suspected of being syphilitic, to establish a diagnosis, is no greater and perhaps less than that incurred by using a sufficient dosage of mercury.

8. The effect of salvarsan is much more prompt, but in small doses, less lasting than that of mercury in average doses.

9. The general therapeutic response is probably better with salvarsan than with mercury.

10. Renal injury from salvarsan seems to be the result of overdosage, either in the form of too large or too frequent injections.

11. The place for mercury would seem to be after the disappearance of the albumin, to secure permanent results.

12. Small doses of salvarsan, from 0.15 to 0.2 gm. or its equivalent, at weekly intervals, are adequate, and must not be exceeded at the outset, but may be cautiously increased to 0.4 gm. later.

THE DIPHTHERIA TOXIN SKIN REACTION

A SIMPLE METHOD OF ITS APPLICATION *

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The great advantages gained by a prompt recognition of individual susceptibility or immunity to diphtheria are beyond dispute. The principles underlying the methods by means of which this information is gained have long been known. The actual technic of these methods has been repeatedly changed and simplified.

Römer injected intradermally into a guinea-pig a definite minute amount of diphtheria toxin mixed with a definite amount of the serum which was to be tested for antitoxin. If the tested serum did not contain an amount of antitoxin sufficient to neutralize the amount of toxin injected, necrosis occurred. This method was far too complicated for ordinary clinical purposes.

In 1909, Schick published a more practical technic. One fiftieth of the minimal lethal dose (for a 250 gm. guinea-pig) of diphtheria toxin diluted in normal saline solution is injected intradermally into the patient's forearm. This method requires accurate measuring of the toxin and the saline. It requires a pipet, a graduate, a syringe and saline solution, all of which must be sterile.

Recently Park and Zingher have improved this method. The toxin is furnished in capillary tubes each containing one minimal lethal dose. The contents of a single tube are mixed with 10 c.c. of sterile saline solution. By injecting 0.2 c.c. of this solution, one injects one fiftieth of the minimal lethal dose. Although this technic is simpler than the one described by Schick, it is still too cumbersome.



Needle for the intradermal introduction of diphtheria toxin, actual size, correct angle.

Our investigations showed that if the toxin injected approximated one fiftieth of the minimal lethal dose rather than accurately equaled that amount, all the indications of the test were met. We therefore devised a needle for this purpose. The technic of our method is as follows: After an area of skin on the forearm has been cleansed with alcohol, the latter is encircled by the thumb and index finger, and the skin held tense between them. The needle is dipped into the bottle of pure undiluted diphtheria toxin[1] and then *immediately* inserted *intradermally*. It is important that the needle be inserted intradermally and not subcutaneously. The needle is an ordinary hypodermic bent at a distance of one-quarter inch from its point so as to make an angle of about 170 degrees. The angle aids in inserting the needle intradermally. From the place of bending to the distal end it is shielded so that only the unshielded one-quarter inch can be inserted into the skin. The needle is so constructed that when it is inserted its full length the amount of toxin carried in is approximately one fiftieth of the minimal lethal dose. We have had the needle weighed before and after dipping it into the toxin, and the difference was found to be 0.0001 gm., which was the ultimate possibility of weighing of the scales used.

There can be nothing simpler than this technic. It is practically painless. It obviates diluting the toxin, thereby eliminating the paraphernalia needed for this purpose. The pure toxin kept on ice retains its potency for one year. The diluted toxin used in the Schick technic deteriorates in twenty-four hours. Another very important advantage is the reduction of pseudoreactions to a minimum. This question, however, will be considered later.

In all the cases tested the original Schick technic was used as a control on the right arm, while the technic described was used on the left. The tests were studied twenty-four, forty-eight and seventy-two hours after the injection. The results were as follows:

1. Every case positive by the Schick technic was positive by ours.

2. Every case negative by the Schick technic was negative by ours.

3. The traumatic pseudopositive reactions, which appear to be positive by the Schick technic although really negative, were negative by ours. Thus one source of error is *entirely* eliminated.

4. Of the anaphylactic pseudopositive reactions, which appear to be positive by the Schick technic although really negative, 75 per cent. were eliminated.

By Schick's method, if the patient's blood contains less than 0.031 unit of antitoxin per cubic centimeter, a positive reaction occurs in from twenty-four to forty-eight hours. Such a reaction signifies the absence of a sufficient amount of antitoxin to protect the patient from clinical diphtheria. "The reaction is characterized by a circumscribed area of redness and slight infiltration which measures from 1 to 2 cm. in diameter. It persists for seven to ten days, and on fading shows a superficial scaling and a persistent brownish pigmentation." This description is applicable to the reaction obtained by our technic with but one exception. Our reaction is smaller, measuring from 0.6 to 1.3 cm. in diameter.

The traumatic pseudopositive reactions obtained with the Schick technic are seen after twenty-four hours, but rapidly fade. A few persist until seventy-two hours after the injection. The outline of the reaction is usually poorly defined, and as a rule there is a definite infiltration at the site of the injection. If during an epidemic, a final reading must be made twenty-four hours after the injection, such a reaction cannot with assurance be differentiated from a positive one. The traumatic pseudopositive reaction is caused by the trauma produced by injecting intradermally *0.2 c.c. of the diluted* toxin and not to the toxin itself. Kolmer and Moshage[2] found that the injection of 0.2 c.c. of fluid produced 8 per cent. more traumatic reactions than when 0.05 c.c. was injected, even though both doses contained the same amounts of protein constituents and preservatives. Inasmuch as by our method a needle is merely pierced intradermally and no measurable volume of fluid (about 0.00014 c.c.) is injected, this useless and misleading reaction is entirely eliminated.

The anaphylactic pseudopositive reaction obtained by the Schick technic was first described by Park and

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1. The minimal lethal dose of the toxin used was 0.007 c.c. We are indebted to Drs. Park and Zingher of the Research Laboratory of the New York City Department of Health for kindly furnishing us with the toxin.

2. Kolmer, J. A., and Moshage, Emily L.: A Note on the Occurrence of Pseudoreactions on the Skin, THE JOURNAL A. M. A., July 10, 1915, p. 144.

Zingher. "It appears earlier, is more infiltrated and less sharply circumscribed" than the true positive reaction. It usually disappears in from three to four days, leaving "only a faintly pigmented area" which soon becomes invisible and "is not followed by true scaling." This form of pseudopositive reaction, according to Park, Zingher and Serota,[3] is "probably a local sensitization phenomenon of a general protein character."

Of the first 106 cases tested by us, four showed an anaphylactic pseudopositive reaction by the Schick technic, while only one responded this way by our method. Inasmuch as the total number of such reactions, in very large series, is only about 8 per cent. one must have performed thousands of tests before a sufficient number of these reactions are obtained to draw definite general conclusions. At any rate, our present experience is that about 75 per cent. of all anaphylactic pseudopositive reactions are obviated by our method. Since in both methods, theoretically, 0.00014 c.c. of toxin is used, one would expect an equal number of reactions due to the protein constituents of the bouillon. Actually, as we have stated, this did not occur. This would seem to show that all the *so-called* anaphylactic pseudopositive reactions are not due *solely* to the protein constituents of the bouillon, but that a coexistent trauma plays an important rôle.

The simplicity of the technic we have described, the elimination of the traumatic pseudopositive reactions, and the reduction of the number of anaphylactic pseudopositive reactions enhance the value of an already invaluable test.

3. Park, Zingher and Serota: Arch. Pediat., 1914, xxxi, 489.

REINFECTION IN SYPHILIS

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Since the introduction of salvarsan, many cases of a second infection with syphilis have been reported, more especially in Europe; but while cases undoubtedly have occurred in this country, not many have been carefully studied and reported. Such a case occurred recently in my private practice, and as I had the opportunity to see and treat both infections, I feel it of enough value to report.

A traveling man, aged 36, came to see me first, Nov. 6, 1911. He had a large, very typical sclerosa on the right side of the coronary sulcus, and a beginning right inguinal adenopathy. He had been exposed some weeks previously, and had been treating with his family physician. November 7, he received 0.9 gm. salvarsan intravenously. From November 16 to December 25 he received seven injections of mercury salicylate; being out of town part of the time, he did not get these regularly. A rest was given, and Feb. 22, 1912, the Wassermann test was positive. During the remainder of 1912 he took two courses of mercury rubs—sixty in all—and also about 120 c.c. of potassium iodid. Dec. 16, 1912, the Wassermann test was negative. Fearing that he would disappear, I urged him to take more treatment. Dec. 21, 1912, he received 0.9 gm. neosalvarsan, and early in 1913 took three injections of mercury salicylate, and later in the year a course of rubs.

I next saw him Jan. 28, 1916. Thirty days before he had been exposed, and in three weeks a small sore appeared on the foreskin. Becoming suspicious on account of his previous experience, he finally came to see me. I found a typical sclerosa on the top part of the foreskin, which looked to be about a week or so old. Numerous spirochetes were found, and the Wassermann test was negative. A slight enlargement of the inguinal glands could be made out.

I immediately put the patient on neosalvarsan, and the sclerosa is at present, February 15, just about healed.

This case shows that syphilis can be cured at times with what I should call a very small amount of treatment. I usually give at least twelve treatments with neosalvarsan, and treat with hypodermics of mercury for two or three years.

I am certain that the second lesion was a reinfection because it was in a different location from the first — barring out chancre redux — and the finding of numerous spirochetes together with the negative Wassermann make me absolutely sure of it. Between the two infections he was the father of two healthy children.

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A SIMPLE METHOD OF DRAINING EMPYEMA

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It is probable that this little technical device, which I believe of advantage in draining the chest, has been described before. If so, it has escaped my attention, and since a number of surgeons who have seen it used in my clinic have found it new, I take the liberty of describing it:

It is a method of preventing the ingress of air in cases in which drainage of the chest is made necessary, and at the same time by negative pressure it tends to diminish any pneumothorax that may be present. As drainage is usually established, there is ample opportunity for the escape of the purulent effusion from within, but there is no way of preventing the entrance of air through the tube, unless the siphon method is adopted by inserting the end of a long tube in some antiseptic solution in a receptacle placed by the side of the patient. Such, for example is the method of Bulau, modified recently by Holt.[1] Bryant[2] described what appears a very complicated method of aspiration drainage in which he used a collapsible rubber Politzer bag, with thumb screw and valve.

Unless some such method is adopted to prevent the inrush of air, the noise which attends the suction may be most distracting to the patient and attendants for two or three days after the operation. Furthermore, the ingress of air through the drainage tube is detrimental to the furtherance of the lung expansion, which is so essential a factor in the definitive cure of empyema. Both of these factors are cared for in the following manner:

An ordinary drainage tube is slipped into a collapsible soft rubber tube, which must fit accurately about the harder one for a distance of 1 inch or more. The soft tube is that ordinarily employed for cigaret drainage. When the harder tube is accurately fitted into the wound, any effort at inspiration will cause the soft outer tube to collapse and prevent the ingress of air. On the other hand, the pressure of the lung from within, with the normal respiratory movement, will be sufficient to open the collapsible tube and permit the escape of whatever pus may be within the chest.

1. Holt: Am. Med., 1913, p. 381.
2. Bryant, J. D.: Surg., Gynec. and Obst., 1906, p. 298.

While the drainage is profuse, the collapsible tube can be led into a bottle, which may be changed as often as is necessary. With the decrease of the discharge, the bottle can be dispensed with and the discharge guided into the dressings. It is almost needless to say that the inner drainage tube must be made to fit air tight into the wound in the intercostal space, whether or not a rib resection has been done. A suture or two through the wound margin and the proximal tube will prevent the latter from slipping into the thorax.

If it seems desirable at any time to apply suction through the tube either for the removal of retained pus or to aid lung expansion, a glass tube fitted to a Potain aspirator can easily be slipped through the collapsible tube into the firmer one without the danger of admitting air.

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VOLVULUS OF MECKEL'S DIVERTICULUM

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The importance of Meckel's diverticulum as a pathologic agent may be gathered from the facts that this congenital condition is present in some form in 2 per cent. of individuals; that it is a rather common cause of intestinal obstruction, being the causative factor in 6 per cent. of the cases in an analysis of nearly 1,000 cases of intestinal obstruction by Halstead, and that it not infrequently becomes inflamed, and when inflamed so closely resembles appendicitis in its symptomatology that a perfectly harmless appendix may be removed and the real offender be left behind. Todd reports three such cases. Finally, it gives a mortality of 50 per cent. in all cases, which strongly suggests that we do not recognize the condition early enough for proper and effective treatment.

REPORT OF CASE

History.—B. M., man, aged 20, laborer, referred by Drs. Yarbrough and Mooty of Columbia, Ala., Feb. 13, 1916, with a negative family history, had had measles and pneumonia in childhood. For the past two years he had had occasional attacks of colic of brief duration, never severe enough to compel him to quit work. One month prior to the present illness he had severe colicky pains in the abdomen, lasting all night. He vomited for two or three hours. He was all right the next day except for a sense of tenderness in the abdomen which persisted for three or four days. The present attack began forty-eight hours previously with severe colicky abdominal pains. The pain was intermittent, quite severe, "doubling up" the patient, and rather general at first, but now localized to the right of the umbilicus. He had vomited almost continuously, not even being able to retain water. Cathartics and an enema had been given without effect. For the past twelve hours he had been hiccupping almost constantly.

Examination.—This revealed a well-developed and well-nourished man, temperature 99, pulse 100, very toxic. There were rigidity and tenderness all over the abdomen, but most marked to the right and on a level with the umbilicus. There was slight distention; no palpable masses were present.

The diagnosis was acute gangrenous appendicitis, with rather unusual obstructive features, probably due to paralytic ileus. Diverticulitis did not occur to us, though with the history and high location of the tenderness and rigidity and the obstructive feature, it should have at once suggested itself to us.

Operation.—A high right rectus incision was made. There was free fluid in the abdomen, and the intestines were congested and distended. The appendix was normal. Further exploration revealed a Meckel's diverticulum 4½ inches long, averaging 2 inches in diameter, coming off about 18 inches above the cecum. This was twisted a complete turn, the distal end enormously distended and adherent to the ileum about 12 inches from its origin. The proximal end communicated with the ileum by an opening 1 inch in diameter. It was dark colored, with apparent beginning gangrene, and at two points was thinned out, and rupture was imminent. Several loops of intestine had herniated through the loop formed, but apparently not obstructed. The obstruction, I am inclined to believe, was due to ileus dependent in some way on the twist of the diverticulum. The adhesions to the intestines were freed without difficulty, the diverticulum ligated and removed, the stump inverted and the wound closed. No drainage was inserted. The patient's bowels moved rather freely for two or three days; otherwise the convalescence was uneventful.

CONGENITAL BILATERAL CAPUT OBSTIPUM

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Congenital bilateral caput obstipum or bilateral wryneck is a more or less rare condition. In the review of a number of reported cases, one is impressed with the fact that the vast majority of such cases were the result of trauma, and that external evidence of the injury was invariably present. It is a well known fact that children born in normal face presentation often present this condition to a greater or less degree, but in these cases the condition is nearly always transient, and usually disappears entirely in a day or two. That continued extension of the fetal head in utero can cause this condition is witnessed by a case recently reported by Morse. (*Surgery, Gynecology and Obstetrics,* 1915, xx, 74). In this instance, bilateral caput obstipum was found in an infant which presented by the brow and was subsequently delivered by cesarean section. The mother presented a generally contracted funnel pelvis. The deformity of the child persisted for four months, after which the normal attitude was assumed.

In the case here reported the condition lasted nearly three months, so that the subject becomes one of prognostic interest aside from its interest as a rare occurrence.

The patient, J. S., a Russian Jewess, was a primipara, aged 26, with negative family and past history. The pregnancy was normal throughout. The pelvic measurements were: spines, 25 cm.; crests, 29.75 cm.; trochanters, 32 cm.; external conjugate, 19.75 cm.; diagonal conjugate, not reached; transverse of outlet, 8.5 cm. A diagnosis of normal pelvis was made. Two weeks previous to the onset of labor, an abdominal examination showed the fetal position to be the right occipitotransverse, with the fetal head freely movable above the pelvic brim.

The entire first stage of labor was unsatisfactory, the pains being unusually infrequent and noneffectual. The patient was of a decidedly neurotic character, and at times it was difficult to believe that labor had really begun. Examination showed that the fetal position was the left mento-anterior with the head firmly engaged. After forty-eight hours of irregular and noneffectual pains it was decided to give the patient rest, and accordingly one-quarter grain of morphin was given hypodermically. The fetal heart at this time was regular and of good quality, so that any active interference was thought unnecessary. The cervix was about half dilated. After a period of nearly twelve hours of rest the labor became more active, and after a few hours a vaginal examination showed a full dilatation of the cervix. At this examination the membranes ruptured, and after a

few pains the head descended to a little below the level of the spines, where for nearly an hour it seemed to remain stationary. The labor pains were distinctly not of the usual second stage type, and pituitary extract was without effect. An anesthetic was administered and the patient was delivered by a comparatively easy forceps operation. The baby was a perfectly formed female child weighing 3,960 gm. (8¾ pounds), and 50 cm. (19⅞ inches), in length. The face showed marked edema and passive congestion, and the head seemed fixed in extreme extension. Aside from a slight abrasion on the right temple, the skin and muscles of the face and neck appeared normal. There was no suggestion of hematoma at any point. The attitude of the head seemed fixed, no matter in which position the infant was placed.

The puerperium was uneventful, and the edema and congestion of the face cleared up entirely in a few days. The extreme extension of the head, however, persisted, and as in the case reported by Morse, any attempt to flex the head seemed to make the child very uncomfortable. This degree of extension persisted for the entire first month of life. After this the child seemed to hold its head in a less extended position, and when 3 months old the condition approximated normal, although there was some tendency for the head to fall back in extension when the child was held upright.

It seems reasonable to believe that not only may continued extension of the fetal head in utero cause this deformity, but as in the case here reported, continued extension during a long labor may produce the same result.

419 Temple Street.

A CASE OF IMPASSABLE ESOPHAGEAL STRICTURE

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The following case is of interest because of the age, the poor results accomplished by operation, the reasons why, and the medical things devised in the case which may be of help to others.

History.—H. O., boy, aged 3, came under observation, June 25, 1913. Seven weeks before that time the mother was making soap, the child being with her in the same room. The child, taking advantage of the mother's absence from the room for a few minutes, took a mouthful of the mixture and swallowed it, his mouth and lips being badly burned by the caustic lye. For three days he could take only small quantities of fluid, the mouth being too sore to masticate foods. During these three days he vomited several times, and complained of a burning sensation in the region of the cardia. Four weeks after that he contracted measles, at which time the attending physician noticed that he could not swallow well. This dysphagia increased until finally he could not swallow the smallest quantity of fluids. During the two or three weeks before coming under observation he had little, if any, food, and in the last two or three days, after an hour's time trying, not a particle of milk would go down.

Operation and Result.—On examination an impassable stricture about on a level with the arch of the aorta was encountered. The child being very much reduced from starvation, operation was decided on, and performed by Dr. Grant in the New York Polyclinic on the following day. An opening was made into his stomach. A No. 18 F. olive could be passed from below through the stricture, but not from above downward. Abbe's string-cutting method was employed until a No. 34 F. could be passed from below up. The operation was terminated by gastrostomy for feeding, and a heavy braided surgeons' silk extending from the mouth to the gastrostomy opening. The child fed for several days through the gastrostomy opening. On the fourth day an effort was made to pass a tunnel bougie down the string, both ends being held taut; some resistance at the site of the stricture was encountered, allowing only a 28 F. to go through. Four or five days after this the child chewed the string, making impossible the passage of tunnel bougies unless another string was introduced.

At that point the troubles began, the child being old enough to have some sense and resist, and still not being old enough to be controlled mentally; gradually the stricture closed, and in three months' time following the operation an 18 F. olive could no longer be passed through it. During this time he was fed through the gastric fistula. Efforts were made to have him swallow a string. Twice he was anesthetized and a string introduced from his mouth into his stomach, but he immediately proceeded to chew the end in his mouth, cutting it in a short time. A special sound was made, having a long tapering point, the shaft being No. 25 F. Numbers of efforts showed that only the point of the sound could be made to pass the stricture. A very small sound was made with a bag attachment, which, after a number of trials, was passed through the stricture, the bag inflated from above first by means of air and then by means of water. These dilations were made with the bag below the stricture, efforts being made to pull it through, and with the bag at the site of the stricture, in the hope of dilating it at right angles, neither of which devices was successful. At the end of a year's time the stricture would permit of the passage of only a 20 F. olive. The difficulty in using a larger size was because of the irregularity of the caliber of the stricture, it being impossible to get a string through and control the boy from biting its upper end. At this time the child could swallow small quantities of fluid, but no semisolids or solids. Difficulty was also encountered in keeping the gastric fistula open. This became so acute that it was decided to allow it to close, taking chances with what could be done from above. The operation plainly was not a success, so far as giving permanent results in enlarging the stricture. Success was accomplished by the following:

Successful Procedure.—Giving the child a teaspoonful of olive oil to swallow, wrapping him up in a blanket so that he could not fight with his hands and feet, putting in a mouth gag of the form used in O'Dwyer's intubation set, with the child's body flat and the head extended in a typical gastroscopy position, and about three people to hold him; a filiform whalebone of the kind used to pass a prostatic stricture was passed into the stomach, the upper end of the filiform held by a nurse. On this filiform, which is a yard in length, funneled bougies were run through the stricture, gradually increasing it in size in a year's time, so that a No. 35 F. could be sent through. At a number of the times after passing a fairly large sized olive, elastic esophageal sounds were used, allowing the largest possible to get through and remain in the esophagus for some minutes.

At the present time the child requires to have the stricture kept open by dilation about once every eight weeks, and he is perfectly well, being able to swallow anything. By constant instrumentation, and according to the feeling, the stricture is not only enlarging in caliber, but also is not so dense as it was.

21 West Seventy-Fourth Street.

A Modified Bronchoscope Pump.—In operating with the aid of a bronchoscope, a clear and unobstructed field is almost indispensable. Frequent sponging with cotton or gauze not only retards the operator, but also frequently results in injury to the delicate mucous membrane. The sponges sometimes become detached from the holders, and their recovery is frequently a difficult and tedious task. During the past year I have in a measure overcome these difficulties by the employment of a suction pump, with 3 feet of small rubber tubing attached. The free end of the tube is connected with the base of an ordinary ureteral catheter, which is then placed inside the barrel of the bronchoscope. The diameter of the catheter is so small that it offers practically no obstruction, and a few strokes of the pump will serve at any time to clear the field of mucus and blood. While the method may not be a new one, I have never seen it suggested, and as it has proved so satisfactory in my hands, I trust that it will be of benefit to others.—CHARLES W. GOSNEY, M.D., Kansas City, Mo.

Therapeutics

MEDICATION

(*Continued from page 1094*)

Let Us Aim to Improve Our Medicinal Treatment of Disease

Many pharmaceutical firms offer compound solutions of acetanilid for which there seems to be no good excuse. A sample of one of these mixtures appears in a book of pharmaceutical formulas, issued in 1915:

℞ Acetphenetidin	256 grains
Acetanilid	160 grains
Caffein, citrated	64 grains
Phenyl salicylate	64 grains
Saccharin	2 grains
Oil of orange	5 minims
Alcohol	8 ounces
Glycerin	5 ounces
Water	1 ounce
Dilute alcohol enough to make	1 pint

There is no good reason for combining acetphenetidin and acetanilid. The two act in the same way. The unpleasant action on the heart is as great as though the proper dose of either was administered instead of a small dose of both. The most active being acetanilid, it may be given in a smaller dose. Acetanilid is almost always given in too large doses; a small dose is generally satisfactory. It has long been shown that caffein does not prevent the toxicity of coal-tar products on the heart; in fact, caffein aggravates that activity. If a coal-tar product is given for certain kinds of headache, the caffein may add its quota in benefiting the headache; therefore a combination of caffein with a coal-tar product is often admissible. It should be recognized, however, that caffein does not protect the heart from depression from the coal-tar drug.

In certain kinds of myalgias, which occur typically with grip, salol (phenyl salicylate) may be of value, and may be combined with a coal-tar product if desired. It is markedly insoluble, and is much better administered in capsule or powder.

As acetanilid has little taste, and the dose is small, such elaborate methods of administering it seem absurd. A capsule, or a tablet (the latter crushed by the teeth before swallowing and taken with a drink of water) of either acetanilid or acetphenetidin, with or without caffein as desired, is the best method of administering these drugs. If salol is added in the same prescription, a powder may be made which, when placed in a spoon and taken with a little water and followed with more water, will leave practically no taste in the mouth.

"ELIXIR TERPIN HYDRATE WITH CODEIN SULPHATE"

This is one of the many "elegant" pharmaceutical preparations put out by practically every manufacturing pharmacist.

Each fluidram dose contains:

Terpin hydrate	1 grain
Codein sulphate	⅛ grain

The usual dose of terpin hydrate is 5 grains; any less is of little, if any, value. Therefore, the only action of this elixir is the sedative action of the codein sulphate. Why resort to a ready-made preparation to give codein?

The terpin hydrate is best ordered in tablet (to be crushed before swallowing with water), or in powder, namely:

℞ Terpin hydrate.....6 gm. (1½ drams).
Make 20 powders.
Take a powder, with water, every 4 hours.

If one desires, he may obtain or have made a tablet containing terpin hydrate .3 gm. (5 grains), and codein sulphate .008 gm. (⅛ grain).

(*To be continued*)

THE EMETIC ACTION OF TINCTURE OF STROPHANTHUS NOT DUE TO THE OIL

Several years ago, Hatcher and Eggleston[1] investigated the emetic action of digitalis. Their results showed that the digitalis bodies produce nausea and vomiting through action on the vomiting center in the medulla. The direct action of therapeutic doses of these drugs on the gastric mucous membrane is unimportant. The fixed oil or fat from digitalis, to which the emetic properties are sometimes attributed, was given to cats in large doses without producing any symptoms[2] whatever. It is clear, therefore, that efforts to avoid nausea by removal of the oil, administration through other channels than the stomach, or any other means than regulation of the dose must prove unavailing. It might naturally have been expected that the same conclusions would apply to strophanthus preparations, especially as no satisfactory evidence has been presented in support of the claim that the oil present in tincture of strophanthus helps to produce the nausea which sometimes occurs after its use. Hatcher[3] has performed experiments with oil of strophanthus, which show that this assumption is justified. He finds that the average therapeutic dose of the tincture of strophanthus contains less than one ten thousandth part of that required to produce nausea and vomiting in the cat, relative to the weight. While removal of the oil renders the tincture more "elegant" pharmaceutically, such removal is of no therapeutic importance.

1. Hatcher, R. A., and Eggleston, C.: Jour. Pharmacol. and Exper. Therap., 1912, iv, 113.
2. Eggleston, C., and Hatcher, R. A.: The Emetic Action of the Digitalis Bodies, THE JOURNAL A. M. A., Feb. 15, 1913, p. 499.
3. Hatcher, R. A.: Oil of Strophanthus and the Emetic Action of Strophanthus, Jour. Am. Pharm. Assn., February, 1916, p. 157.

Sanitary Improvement in Oysters.—The federal authorities, in cooperation with states in which the oyster industry is carried on, have completed a survey of the oyster beds from Virginia to Massachusetts. In all instances in which pollution by sewage was found possible, the beds have been placed under restriction as to the taking and handling of oysters. It is now believed improbable that oysters subject to pollution can be taken and shipped. All the oyster beds in the states mentioned have been charted. In some cases the restrictions have compelled the transplanting of oysters for a long enough time to make them free from danger of pollution, or have limited the taking of oysters to seasons when the beds are in a clean condition. The examinations of the beds included a bacteriologic examination of the oysters, supplemented by float tests. The latter test consists in starting a float at a source of sewage or other pollution, and tracing its course to see whether or not it impinges on the oyster beds. The surveys have not yet extended to the southern Atlantic states, but requests have come from the oyster men in that section for such surveys.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET . . . CHICAGO, ILL.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, APRIL 15, 1916

THE TOXICITY OF COTTONSEED

The attempt to find an outlet for what was once a by-product of little value has resulted in the increasing use of cottonseed meal as a feed for some of the domestic animals. The annual production of the United States is about two million tons, now valued at about $53,000,000. Experience has gradually shown that although cottonseed meal may be fed profitably to horses, cattle, sheep, etc., in moderate amounts, poisoning and often death occur as a result, especially if the animal has not been gradually accustomed to it. It is generally avoided as a feed for pigs on account of the numerous deaths associated with its use. For example, feeding experiments at the North Carolina Experiment Station have shown that when swine are fed one part of cottonseed meal with three parts of corn meal death generally ensues in from five to seven weeks, although some pigs have been fed for a year or more without fatal results.

Numerous explanations have been ventured for this peculiar toxicity. The presence of pathogenic microorganisms and fungi has been suggested. According to the *Experiment Station Record*,[1] the cause of the poisoning has been variously ascribed to the lint, the oil, the high protein content, to a toxalbumin or toxic alkaloid, to cholin and betain, to resin present in the meal, and to decomposition products.

Considerable interest was aroused a few years ago when Crawford[2] announced that the chief poisonous principle in certain cottonseed meals is a salt of pyrophosphoric acid. This contention, if substantiated, would have a wide application not alone in relation to animal feeds but possibly also as a danger concerned in human nutrition. Vigorous propaganda has lately been made in favor of the use of cottonseed flour for human consumption. The assertions of Crawford have been refuted by Symes and Gardner[3] in England and likewise by Withers and Ray[4] of the North Carolina Experiment Station. There is little if any evidence to show that cottonseed meal actually contains either pyrophosphoric or metaphosphoric acid, or that the salts of these acids are correspondingly toxic in the quantities that might be present in cottonseed rations.

Withers and Carruth[5] have at length definitely associated the toxicity of cottonseed with gossypol, a substance first isolated from cottonseed oil by Marchlewski[6] in 1899. It is a phenolic substance obtainable in the form of crystalline derivatives; but the exact chemical structure has not yet been ascertained. The compound is readily soluble in organic solvents which are effective in the case of fats and related substances.

Gossypol is fatal to laboratory animals. The smallest amount of gossypol administered intraperitoneally and found fatal to rabbits was 0.24 gm. of crystalline gossypol acetate per kilogram of live weight. It forms an oxidation product which is nontoxic. Such preliminary investigations as have already been conducted indicate that methods for rendering cottonseed kernels nontoxic depend on extracting the gossypol or changing it to physiologically inert forms by oxidation or by precipitation. The seed tissue surrounding the cells probably prevents the free action of reagents which would extract gossypol or render it physiologically inert. This constitutes the principal difficulty that must be overcome by the oil miller or stock feeder in rendering cottonseed meal nontoxic. With one harmful substance in some degree identified and the probability of other alleged toxic agents such as the phosphoric acids partly excluded, it may be prophesied that an otherwise valuable food material like the cottonseed will soon be convertible into an entirely harmless product.

1. Experiment Station Record, 1910, xxii, 501.
2. Crawford, A. C.: A Poisonous Principle in Certain Cottonseed Meals, Jour. Pharmacol. and Exper. Therap., 1910, i, 519.
3. Symes and Gardner: Biochem. Jour., 1915, ix, 9.
4. Withers, W. A., and Ray, B. J.: Studies in Cottonseed Meal Intoxication, I, Pyrophosphoric Acid, Jour. Biol. Chem., 1913, xiv, 53.
5. Withers, W. A., and Carruth, F. E.: Gossypol, the Toxic Substance in Cottonseed Meal, Jour. Agric. Research, 1915, v, 261.
6. Marchlewski, L. P. T.: Gossypol, ein Bestandtheil der Baumwollsamen, Jour. Prakt. Chem., 1899, lx, 84.

A HARVEY ANNIVERSARY: 1516-1916

In August, 1615, William Harvey was appointed to the office of Lumleian lecturer of the College of Physicians of England. His first course of anatomic lectures was delivered just three hundred years ago — Tuesday, Wednesday and Thursday, April 16, 17 and 18, 1616. The following Tuesday, April 23, Shakespeare died at Stratford-on-Avon. Thus it happens that both science and literature have occasion to observe appropriate tercentenary celebrations during the present year.

Of the Shakespeare anniversary much has been written of late, and many appropriate observances have been planned. It may be asked wherein justification exists for the selection of this date for special reference to the life of Harvey. It is true that his classic treatise on the circulation of the blood was not published until sixteen years later, in 1628. But it is also more than probable that in the Lumleian

lectures of 1616 Harvey began to teach that doctrine which has immortalized his name. In this narrower sense, then, we are celebrating the earlier announcement of a great discovery. When a few years later Harvey issued his book "De Motu Cordis et Sanguinis" at Frankfort-on-the-Main, he gave his reasons for believing that the blood circulates, and explained the use of the heart in language so simple, so clear, so exact, that now, to quote one of his biographers — Parkyn — nearly three hundred years afterward, the most accomplished physiologist can hardly improve on it. This assuredly is a fact almost unique in the history of science.

The greatness of Harvey's deserts begins to appeal to us when we try to comprehend what the physiologic sciences and medicine would be today without any knowledge of the circulation of the blood. It is difficult to imagine the chaos of a higher organism devoid of what is now universally appreciated as one of the very fundamentals of life. It is sometimes maintained that the doctrine which Harvey propounded was not new with him. Even Shakespeare has been cited as being acquainted with the circulation of the blood, because he refers to its movement. But movement must not be confused with circulation. From the earliest times it has been believed that there was motion of the blood, but there was no clear or correct idea as to the nature of the movement. Haller,[1] the cyclopedic physiologist of the eighteenth century, clearly sensed the situation. He wrote:

> It is not to Caesalpinus, because of some words of doubtful meaning, but to Harvey, the able writer, the laborious contriver of so many experiments, the staid propounder of all the arguments available in his day, that the immortal glory of having discovered the circulation of the blood is to be assigned.

In his admirable "Lectures on the History of Physiology," Sir Michael Foster[2] writes:

> It is a fashion to speak of Harvey as "the immortal discoverer of the circulation"; but the real character of his work is put in a truer light when we say that he was the first to demonstrate the circulation of the blood. His wonderful book, or rather tract, for it is little more, is one sustained and condensed argument, but an argument founded not on general principles and analogies but on the results of repeated "frequent appeals to vivisection" and ocular inspection. He makes good one position, and having done that advances on to another, and so marches victoriously from position to position until the whole truth is put clearly before the reader, and all that remains is to drive the truth home by further striking illustrations.

Some languid plodder may ask, further, why the busy devotees of science and medicine should stop to recall the anniversary of the days prior to the publication of the matured account of the circulation of the blood, of which — quoting D'Arcy Power[3] — "the germ had appeared in the notes of the Lumleian visceral lecture for 1616." The answer is that without this knowledge, any real understanding of the function of the body is impossible. Says Sir John Simon:

> To medical practice it stands much in the same relation as the discovery of the mariner's compass to navigation; without it, the medical practitioner would be all adrift, and his efforts to benefit mankind would be made in ignorance and at random. . . . The discovery is incomparably the most important ever made in physiological science, bearing and destined to bear fruit for the benefit of all succeeding ages.

1. Haller, A.: Elementa Physiologiae, 1757, i, Liber III.
2. Foster, Michael: Lectures on the History of Physiology, Cambridge, 1901, p. 42.
3. Power, D'Arcy: Masters of Medicine: William Harvey, 1897, p. 188.

"COLD IN THE HEAD"

It has been commonly observed that no immunity is acquired as the result of an attack from a common cold. This, with other attendant peculiarities of coryza and related conditions, has raised the question whether colds can be attributed as largely to the agency of bacteria as has been the tendency during recent years. The very expression "catching cold" is now usually interpreted from the standpoint of infectious disease, and there can be little doubt that many features associated with the genesis of colds suggest the interference of living micro-organisms. Colds spring up suddenly among groups of persons when there are possibilities of a common exposure. Thus an entire family may become afflicted. On the other hand, an acute nasal catarrh or so-called "cold in the head" sometimes promptly follows exposure to drafts in a way that seems to exclude the probability of any special primary infective agent. This diversity of opinion with respect to the etiology of common colds, whereby some writers assert that the latter are always due to bacteria of some sort,[1] while others decline to admit this mode of origin as the only way in which the disturbance in health is created, has given rise to corresponding divergences in the advice as to the hygiene of the subject. The question may be asked, Can one become "hardened" to the possibility of attack by suitable living?

To a certain degree at least, resistance to bacterial invasion and immunity to changes in temperature and humidity must be acquired by different physiologic mechanisms. The "Handbook of Therapy," issued by the American Medical Association,[2] takes a middle course in these words:

> Whether or not every cold is due to contagion or to a germ, chilling, whether indoors or outdoors, certainly predisposes to colds. It is quite probable that chilling of the surface of the body congests the inner organs and possibly the mucous membranes of the air passages. If the mucous membrane of the nose is congested, it more readily becomes inflamed by irritation or by germs.

With respect to the condition of the nasal respiratory passages, the familiar seat of coryza, Leonard Hill[3] observed that the nasal mucosa became swollen

1. Compare Chodunsky: Erkältung und Erkältungskrankheiten, Vienna, 1907.
2. Osborne, O. T.; Fishbein, Morris, and Salisbury, J. H.: Handbook of Therapy, Chicago, 1915, p. 206.
3. Hill, Leonard, and Muecke, F. B.: Colds in the Head, Lancet, London, May 10, 1913.

and red in warm, moist air, accompanied by a marked increase in the amount of secretion. On passing from warm to cold air, he found that the mucous membranes became paler, but still remained swollen. He believes that this condition predisposes to disease for the reason that the defensive mechanism of the blood, the immunization properties of the plasma, the cleansing action of the cilia and the phagocytic action of the white blood-cells are all diminished by the cold, while the pathogenic bacteria find a suitable nidus for their growth in the secretion of the swollen mucous membrane. Hill found that keeping the air in motion in warm rooms interfered materially with the hyperemic effect, and believes that in this way the massiveness of direct infection is reduced. He also observed that warm dry air produced less swelling and secretion than warm moist air.

Further facts regarding the exact place of atmospheric changes in the production of respiratory disease have recently been contributed through the scientific work of the New York State Commission on Ventilation.[4] Clinical experiments have been conducted on nearly 150 male subjects including, among others, workers whose occupation in itself was associated with certain distinctive temperatures, such as truck drivers exposed to the varied weather conditions, boiler makers and firemen used to hot, dry atmospheres, and laundry workers who are exposed to heat and humidity. These subjects have been exposed in an experimental chamber at times for several hours to extreme heat and humidity or to cold, and at other times they have been shifted back and forth from one extreme to the other. Ordinarily it was found that heat causes a swelling of the inferior turbinates of the nose, tending to a reduction in the size of the breathing space, and to increase of secretion and reddening of the membranes. The action of cold, as a rule, is just the opposite, namely, a reduction in the size of the inferior turbinates, and a diminution of secretion and color of the membranes. In the industrial workers, mentioned above, whose occupations involved continuous exposure to extremes of heat and cold, these typical changes were not followed. This study was very successful in picturing how the membranes of the nose of such persons are less able to make the adaptations of the normal nose to changes in the atmospheric environment.

A further suggestion that abnormal conditions of a permanent nature may be produced by repeated exposure to overheating was found in observations among long-time workers in hot, moist rooms such as are found in steam laundries. In this group atrophic rhinitis was far more prevalent than among young students. Of course, contagion may be an added etiologic factor under such circumstances. Moist heat appears to produce greater changes than does dry heat in the nasal passages. There is some physiologic indication that the reaction of the nasal structures to atmospheric changes is primarily direct and local, rather than reflex; but the evidence on this point is by no means conclusive.

Cocks, who conducted most of these investigations on the respiratory tract, points out that turbinate responses are very delicate and that the changes observed are by no means always constant. Obviously it is important to place the subject of "colds in the head" on a more scientific basis as the result of investigations such as those here outlined, which do not feature the problem of pathogenesis solely from the bacteriologic standpoint. The reactions in the nasal mucous membranes produced by changes in atmospheric environment are, says Cocks, too frequent and too definite to be disregarded. Accordingly, he is convinced that the theory of bacterial infection as the sole cause of catarrhal inflammations of the upper air passages is not tenable, since the changes produced by environment must materially affect the incidence of infection.

Elsewhere[5] in this issue, Foster reports experiments from which he concludes that common colds — of a certain type at least — are infectious and that the causative virus occurs in nasal secretions. The Berkefeld filtrates of subcultures of this virus he found were capable of producing symptoms of an acute cold in healthy persons. His results are significant and should be followed by experiments for further evidence pointing toward their confirmation.

ANAPHYLAXIS IN CERTAIN SKIN DISEASES

Progress in the understanding of anaphylaxis, or the sensitization of the body to foreign proteins, has occurred in two lines. One line concerns the exposition of the chemical nature of the protein and the mechanism of production of the reaction.[6] The specificity of proteins depends not on their biologic source but on their chemical constitution. The other line of progress has concerned the elucidation of anaphylactic reaction as an etiologic explanation of various disease conditions, and has considered the control or removal of such etiologic factors.

The relation between specific protein sensitization and various diseases is being given increasing attention. Certain forms of asthma are considered by some to represent a specific reaction to bacterial proteins. So, too, it has been held that mucous colitis represents a similar reaction. Cases of peculiar sensi-

4. The newest data are reported in the outline of the activities of the commission, presented by the chief of the investigating staff, George T. Palmer, at the annual meeting of the American Society of Heating and Ventilating Engineers, New York, Jan. 20, 1916. See also Cocks, G. H.: Experimental Studies of the Effect of Various Atmospheric Conditions upon the Upper Respiratory Tract, read before the American Laryngological, Rhinological and Otological Society, at the Twenty-First Annual Meeting, in Chicago, June 15-16, 1915.

5. Foster, G. B.: The Etiology of Common Colds, THE JOURNAL A. M. A., this issue, p. 1180.

6. Proteins and Anaphylaxis, editorial, THE JOURNAL A. M. A., Jan. 1, 1916, p. 36.

tivity to various food proteins, such as pork, veal, egg albumin and fish, are of not infrequent occurrence. Autumnal and spring fever or vasomotor rhinitis are recognized as specific reactions to the invasion of proteins of pollen, bacteria or animal products, as in the dust from horses or other animals. Thus the eye of anaphylactic suspicion is being turned on many diseases of unknown or obscure etiology.

Attention has recently been directed to the possible rôle of anaphylaxis in skin diseases beyond the recognized production of serum skin reactions. McBride and Schorer,[7] for example, have shown that in predisposed persons certain protein foods cause urticaria, erythemas and other symptoms, each food giving a fairly specific type of skin reaction. They point out that fish, tomatoes and cheese more commonly cause an urticaria which, however, is of less frequent occurrence than the erythemas following the ingestion of pork or cereals. Again, tomatoes and cereals produce their reaction usually within one hour, and the duration of the lesions seldom exceeds twenty-four hours. They note the frequent hereditary nature of the sensitization to egg albumin, pork and cereals. These resemble typical anaphylactic characteristics. McBride and Schorer classify the causes of these phenomena as: (1) true anaphylaxis to foods as such, or to foods as changed by parasites or during disease; (2) consumption of partially spoiled or decomposed foods, and (3) simple idiosyncrasy. It is to be pointed out in connection with the assignment of simple idiosyncrasy as a cause of such clinical phenomena that this merely begs the question and explains nothing. These authors urge that treatment as well as diagnosis should be specific. As indicated in their classification of etiology, other disease processes must first be excluded, as also the presence of parasites, either of which might be responsible for a change of the food proteins into toxic forms, whereas the original proteins might produce no reaction. In the absence of parasites or other diseases, immunization is often possible by proper feeding.

Another application of this principle in the study of skin diseases may be made in eczema. A relation has long been held to exist between diet and eczema, and regulation of diet is an established principle of its treatment; but a reasonable and explicit explanation has been lacking, and there has been a corresponding inexactitude in treatment and diagnosis.

White[8] reports an instructive study of infantile eczema in its relation to food. Eczematous infants are generally found to have an excess of fats or carbohydrates in their stools, excess of the former being associated with moist eczema and of the latter with dry eczema. Failing an excess of fecal fat or sugar, a susceptibility to egg albumin or to milk is to be sought. White suggests a further possibility in deficient thyroid secretion. Sensitization to egg albumin or to milk can be demonstrated by a method of cutaneous inoculation analogous to the von Pirquet and the Schick reactions. Other food elements can also be tested out by cutaneous inoculations and also, as certain authors have done, by the more delicate intradermal inoculation. Ordinarily normal individuals give no response to such inoculation. White finds that the great majority of cases of chronic eczema seem to show anaphylactic reactions to one or more types of food proteins. Similar phenomena are present in acne and urticaria.

About 20 per cent. of White's patients did not exhibit sensitization to any of the common food types. He ascribes this either to the possibility that not all eczema is due to food sensitization or that these patients are sensitized to some food type which has not yet been experimentally tested. In practically 30 per cent., one or more controls were positive, a circumstance which he believes analogous to the presence of dermographia in urticaria. It is not possible to determine from the variety of eczema what particular food will give a positive skin reaction.

These far reaching studies seem to invite the question as to whether resistant affections of the skin which are not of a direct parasitic nature, such, for example, as psoriasis, may not eventually be explained in a similar manner.

7. McBride, W. L., and Schorer, E. H.: Erythematous and Urticarial Eruptions Resulting from Sensitization to Certain Foods, Jour. Cutan. Dis., 1916, xxxiv, 70; abstr., THE JOURNAL A. M. A., March 18, 1916, p. 919.

8. White, C. J.: The Anaphylactic Phenomenon in Eczema, Jour. Cutan. Dis., 1916, xxxiv, 57; abstr., THE JOURNAL A. M. A., March 18, 1916, p. 918.

NATIONAL BABY WEEK

The idea of a national baby week originated in 1915, in the General Federation of Women's Clubs, as the result of the successful local events of that character which had already been held, first in Chicago, in 1914, and later in New York, Pittsburgh, Indianapolis and elsewhere. Without the support of the Children's Bureau, however, a national baby week would probably never have been the success it has been. This bureau prepared a special bulletin on the local organization and management of baby week campaigns, and spread it broadcast through the country; it undertook to supply inquirers with information bearing on such projects, and it enlisted the sympathy and support of most of the agencies, national, state and local, public and private, available for the furtherance of the work. Forty-seven state departments of health gave their approval and encouragement, and forty-four universities, most of them state universities, joined actively in the work. Letters concerning baby week came to the Children's Bureau from 4,500 communities in the United States. It is estimated that in 4,000 communities, events of some kind have been held as the result of this agitation, varying from a single meeting up to the most elaborately planned and

conducted affairs extending over the entire week. In Kansas, 500 communities observed the occasion. In Washington, D. C., baby week comprised an exhibit, lectures, demonstrations and publicity through the newspaper press and otherwise. Churches, schools and moving picture theaters cooperated with the movement. Elsewhere there occurred several novel developments along the line of educational work that are worthy of special mention.

In Baltimore, a newspaper devoted half a page every day for several weeks to information about child welfare, with particular reference to local needs. Prizes were offered by this paper for the best three original posters based on the information contained in its columns, and as a consequence all contestants necessarily read the information furnished, as did others who were watching the result of the contest.

In Trenton, N. J., interested mothers were supplied with a list of questions concerning the care and feeding of children, and a prize was given for the best set of answers. This idea has been elaborated on in New York, where questions have been supplemented by a series of lectures to aid contestants in the preparation of the answers.

In Wisconsin, the greatest stress seems to have been laid on prenatal care. An interesting feature in Kansas was an intercounty contest, from which the healthiest county in Kansas will win the governor's trophy for 1916. In some places, contests have been held for the best baby week slogan, in others for the best advice for window publicity, and in others for the best school essay on the subject of baby welfare. At least one community has endeavored to have a flag exhibited by every family in which a child has been born during the year.

To supply suitable pamphlets for these meetings, the American Medical Association Press printed a special edition of 225,000 "Save the Babies" pamphlets.

It is impossible, of course, to measure as yet the far reaching influence of the national baby week, but undoubtedly it has left its permanent imprint on many of the communities in which it has been celebrated. Already it has led to the organization in various places of permanent groups to maintain the interest that has been aroused. In some communities it has led to the recognition of the need for better prenatal care; in others, to the need for the proper registration of births. Elsewhere, it has been determined to establish baby clinics, or "consultations." In another place the need for the improvement of the milk supply has been brought to the front. We understand that baby welfare will be featured at some of the Chautauquas held during the present year. The work that has been or is to be done by any community for the welfare of its babies must undoubtedly lead to an enlarged and better interest in the health of the community generally.

Current Comment

THE INTERNATIONAL COMMISSION ON BOUNDARY WATERS

It is with a sense of relief that one turns from the disturbed relations which have so long prevailed on our Mexican border to study the work of the International Joint Commission of the United States and Canada, a brief report of which appears in another column.[1] During the very period when our Mexican troubles have been brewing and during a veritable pandemic of international misunderstandings and strife, this commission has finally adjusted and settled more controversies between the people of Canada and the United States and between the two governments than were previously settled and adjusted through the diplomatic agencies of England and the United States since the beginning of our government.[2] The commission was created by the treaty of Jan. 11, 1909, between Great Britain and the United States, to prevent disputes regarding the use of boundary waters; to settle all questions then pending between the United States and the Dominion of Canada involving the rights, obligations and interests of either in relation to the other along their common frontier, and to make provision for the adjustment and settlement of all such questions as might thereafter arise. The most obvious need for such a commission resulted from the use of boundary waters for the development of water power, and the consequent interference with navigation and the submerging of agricultural and timber lands on both sides of the international line by works constructed on either side. The treaty under which the commission was created provided, however, that the waters therein defined as boundary waters and waters flowing across the boundary should not be polluted on either side to the injury of health or property on the other. Because of alleged violations of this clause, the commission was instructed by the two governments which it represented to investigate and to report whether these waters were or were not polluted; and if so, at what places, from what sources, and to what extent, and the necessary remedies. By authority of the commission, and under direction of Dr. Allen J. McLaughlin of the United States Public Health Service, the required investigation to determine the extent, location and sources of pollution was completed some time ago, and a report submitted under date of Jan. 16, 1914. In the seventeen field laboratories established for that purpose, there were examined bacteriologically 19,000 samples of water, representing probably the most extensive bacteriologic study of water ever made up to that time. The boundary waters generally were found to be polluted, some of them grossly so. In the Great Lakes, however, the pollution was confined to the shore fronts. The search for the remedies for the pollution has been conducted under direction of Prof. Earle B.

1. The International Joint Commission on Boundary Waters, miscellany, THE JOURNAL A. M. A., this issue, p. 1266.
2. Senator Wesley L. Jones of Washington in United States Senate, Feb. 26, 1915.

Phelps, of the United States Public Health Service, as consulting sanitary engineer. It is the report on this branch of the inquiry which was considered at the recent meeting of the commission and is now in course of publication. The report will be awaited with interest, as the polluted waters to which it relates are said to concern more or less directly the health of a population of more than 7,000,000 persons.

A MUCH-NEEDED PHARMACOLOGIC INVESTIGATION

Dr. J. D. Pilcher, professor of pharmacology in the University of Nebraska College of Medicine, has recently investigated the action on the uterus of a number of drugs whose actions have previously been little, if at all, investigated.[1] The fifteen substances examined are used chiefly as ingredients of proprietary "female remedies." One drug, blue cohosh (*Caulophyllum thalictroides*), showed a variable tonic effect. Five, pulsatilla (*Anemone pulsatilla* or *Pulsatilla pratensis*), unicorn root (*Aletris farinosa*), figwort (*Scrophularia marylandica*), valerian (*Valeriana officinalis*) and skullcap (*Scutellaria lateriflora*), were more or less depressant, the last named, however, less so than any of the others. The remainder of the drugs gave negative results; these comprised cramp bark (*Viburnum opulus*), black haw (*Viburnum prunifolium*), swamp maple (*Acer spicatum*), false unicorn (*Chamaelirium luteum* or *Helonias dioica*), liferoot (*Senecio aureus*), wild yam (*Dioscorea villosa*), motherwort (*Leonurus cardiaca*), passion flower (*Passiflora incarnata*) and squaw vine (*Mitchella repens*). The preliminary abstract published indicates that the work is not only of great interest but also of very practical importance. It has long been needed. The drugs that Pilcher found to be inert have been lauded by manufacturers of proprietaries until many of us had been led to believe that they were of real therapeutic value. The fact that two of these inert drugs have even become official (though one of them will be dropped from the forthcoming edition of the Pharmacopeia) shows the imperative need of such investigations. It is to be hoped that the full report of his work, when published, will permit the formation of an opinion as to the therapeutic value of those drugs in which some degree of activity has been found.

1. Pilcher, J. D.: The Action of Certain Drugs on the Excised Uterus of the Guinea-Pig, Proceedings of the American Society for Pharmacology and Experimental Therapeutics, Jour. Pharm. and Exper. Therap., February, 1916, p. 110.

THE LANCET-CLINIC FOR HONEST THERAPEUTICS

The *Lancet-Clinic,* Cincinnati, is one of the old standbys among the medical journals of this country. There was a time when its influence was as great as that of any other journal, for while it did not pretend to be a national institution, to all intents and purposes it was; in any event, it had a clientele in the great Mississippi Valley — which from one point of view extends from the Alleghanies to the Rockies — that was large in numbers and progressive in its ideals. In the middle of the front page of the issue for April 1 the following announcement is made in display type:

> With this issue the editorship of the *Lancet-Clinic* has passed into the hands of Dr. Martin H. Fischer. The advertising pages conform to the rules of the Council on Pharmacy of the American Medical Association.

In an editorial note in the same issue, referring to the determination of the New York *Evening Telegram* to decline the publication of certain advertisements, the *Lancet-Clinic* says:

> The columns of the medical man's favorite scientific journals should likewise be cleansed of the near-quack advertisements that disgrace them. When the lay press discovers it necessary to decline objectionable advertising through force of public opinion, the physicians should find it comparatively easy to make the publishers of medical journals realize that the best way to retain their subscriptions is by purging their journals of everything objectionable in the advertising line.

A glance through the advertising pages — and of course they have been reduced tremendously — will show that the advertisements of nostrums that were familiar to the readers of the *Lancet-Clinic* for so many years are absent. We welcome the *Lancet-Clinic* to the steadily increasing number of medical journals which prefer to make financial sacrifices rather than support and encourage the use of fraudulent nostrums. But the members of the medical profession in Cincinnati and the tributary territory should realize that this action on the part of the *Lancet-Clinic* means a great financial sacrifice, and they should step in and help to supply the deficiency by giving it their practical support in the form of subscriptions.

WHY GLYCEROPHOSPHATES?

Physicians who prescribe on definite principles must often be puzzled by the number and variety of glycerophosphates on the market. All available evidence indicates that, as sources of phosphorus to the animal organism, the glycerophosphates possess no advantages over the ordinary inorganic phosphates.[1] The glycerophosphates are split up in the intestine, and liberate inorganic phosphates. In this form they are absorbed and utilized, if they are utilized at all. There is no evidence that glycerophosphates have any pharmacologic action to warrant the belief that they are of use as therapeutic agents. The theory that organic phosphorus compounds are more readily assimilable than inorganic compounds and hence a better means of introducing phosphorus into the system is still kept alive in the promotion of certain proprietary mixtures, in spite of the scientific evidence that the organism can assimilate phosphorus quite as readily from inorganic as from organic phosphorus compounds.[2] The glycerophosphates will continue to be manufactured until physicians refuse to prescribe them. A chemist in the "research laboratory" of a well-known manufacturing firm has recently given a rather interesting reason for the use of glycerophosphates —

1. Organic Phosphorus Compounds, editorial, THE JOURNAL A. M. A., June 21, 1913, p. 1958. Marshall, E. K.: The Therapeutic Value of Organic Phosphorus Compounds, THE JOURNAL A. M. A., Feb. 13, 1915, p. 573.

2. Marshall, E. K.: The Therapeutic Value of Organic Phosphorus Compounds, THE JOURNAL A. M. A., Feb. 13, 1915, p. 573.

from the manufacturers' point of view. He is quoted as saying:[3] "On account of the instability of phosphorus in elixir of phosphorus, nux vomica and damiana we have quite recently replaced the phosphorus by glycerophosphates. Such a preparation is apparently equally as effective, for we continue to have a great demand for it." This is doubtless a sufficient reason for the substitution from the manufacturers' point of view; but how about the patient, who, after all, is the one to be considered? Is it not a matter of considerable importance to the patient whether he receives phosphorus, one of the most powerful drugs known, or the inert glycerophosphates? The chemist's statement seems to imply that it is not. It may be of interest to recall that a member of the firm whose chemist gives this "reason" for the use of glycerophosphates, in a recent address,[4] was rather severe in his condemnation of institutions of learning, hospitals, etc., for their lack of cooperation with manufacturers: he said that "they should welcome an opportunity to let any manufacturer try out or test his products in their clinics, laboratories, etc." A test as to whether there is a difference between the action of glycerophosphates and ordinary poisonous yellow phosphorus, especially when the former are mixed with extracts of nux vomica and damiana, would not be likely to appeal to many hospitals and laboratories as a very promising field of research at this day since, as has been stated, the scientific evidence at present available does not furnish any warrant for the therapeutic use of glycerophosphates.

THE ETIOLOGY OF SCARLET FEVER

A recent announcement by Mallory and Medlar,[5] of the Pathological Laboratory of the Boston City Hospital, gives occasion for the inference that scarlet fever may be due to a strongly gram-positive bacillus (*B. scarlatinae*) which is less virulent than the diphtheria organism, but which infects practically the same localities and in severe cases may extend in the same way to adjoining tissues, especially the larynx, trachea and lungs. There is no membrane formation, unless because of secondary streptococcus invasion, to call attention as in diphtheria to the lesions. Fibrin formation is usually absent or slight. The primary gross lesions are so inconspicuous as to be easily overlooked. The Boston investigators state that the toxin of the organism discovered by them causes necrosis and denudation of the covering epithelium, and leads to an exudation of serum and polymorphonuclear leukocytes. They first discovered the specific bacilli here referred to on the second day following the skin eruption in a case of scarlet fever. The organisms were present in the upper portion of the fibrinopurulent exudate covering the walls of some of the crypts of the tonsils, from which the lining epithelium had disappeared. The bacilli grow in between the epithelial cells, killing them and causing the exudate already referred to. Additional masses of the organism were found in practically pure culture in slight depressions and erosions in the squamous epithelium covering the tonsils, pillars of the fauces, the soft palate and uvula, and the root of the tongue. It is, of course, familiar that a large number of investigations have seemed to furnish evidence for the etiologic relationship of streptococci to scarlet fever. These micro-organisms have been found with striking regularity in the throats of patients exhibiting the disease. The bacillus of scarlet fever described by Mallory and Medlar is said to die out quickly in the lesions, so that after the second or third day following the eruption it is difficult or impossible to demonstrate it. The way is then opened for streptococcus invasion, and the conditions seem to favor its growth. These observations may serve to explain the failure in the past to detect the bacillus now reported. Experience in the study of scarlet fever has shown how futile it is to reach any hasty generalizations in respect to its etiology. All sorts of claims have been made. Long ago Mallory[6] expressed the belief that scarlatina is caused by protozoa which were supposed to reside between the epithelial cells in the skin; but subsequent investigations failed to substantiate this. Streptococcus infection unquestionably complicates the disease, even though there is no convincing evidence in favor of a streptococcic etiology of scarlet fever. Every new observation by competent investigators bearing on the problems of this important malady, therefore, still deserves earnest consideration with an open mind.

3. Jour. Am. Pharm. Assn., December, 1915, p. 1458.
4. Jour. Am. Pharm. Assn., September, 1915, p. 1105.
5. Mallory, F. B., and Medlar, E. M.: The Etiology of Scarlet Fever, Jour. Med. Research, 1916, xxxiv, 127.
6. Mallory: Jour. Med. Research, 1904, x.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

DISTRICT OF COLUMBIA

New Municipal Hospital.—Plans for a new municipal hospital, which are said to have received the approval of the National Commission of Fine Arts, have just been made public. The project calls for the immediate construction of the administration building, the nurses' home and a service building, and of psychopathic, medical and surgical wards to accommodate 300 patients, and to cost, with equipment, $300,000. The hospital is to take the place of the Washington Asylum Hospital, the condition of which has been commented on in The Journal, April 8, 1916, p. 1123. It is proposed to erect it on land bought for that purpose fifteen years ago, but persons dwelling in the vicinity threaten to fight any request that may be made for an appropriation for its construction on that site.

Economic Conditions in Relation to Disease.—Surgeon-General Gorgas, in a recent address before the Consumers' League of the District of Columbia, discussed the relations of wages to health. To the high wages paid in the Canal Zone he attributed no small part of the improvement in the health of the people, outside of the improvement due to the elimination of yellow fever and the reduction in the prevalence of malarial fever through drainage operations and the use of screens and oil. Calling attention to the declaration of an expert that 55 per cent. of the arable land of the United States is not under cultivation, he suggested the adoption of a system of taxation that would compel its use, and in this way draw from the more densely populated localities some of the labor, whose presence there in excess tends to keep wages down and thus tends to lower health standards.

ILLINOIS

Milk Commission for Sangamon County.—The Sangamon County Medical Society has organized a milk commission, which has established regulations for the certification of milk.

Leper Colony to be Founded.—Following the discovery, March 31, that Miguel Vasquez, Moline, was suffering from leprosy, Dr. George A. Zeller of the state board of administration announced that the state would establish a leper colony at Watertown.

Personal.—Dr. William D. Nelson, Jr., Canton, who was seriously injured, March 17, in an automobile accident in Oklahoma, has recovered and returned home.——Dr. Henry F. Becker, Danville, is reported to be ill with gastritis.——Dr. E. L. Emerson, who has practiced for many years in Matherville, has announced his intention of retiring from practice.

Chicago

Clean Living.—The first issue of *Clean Living,* the new municipal health monthly, has appeared and contains articles by Dr. G. Frank Lydston on "The Germ in the Cards"; by Dr. Henry F. Lewis on "The Philosophy of Pain," and by Dr. Maximilian Herzog on "The Prevalence of Trichinosis and its Prevention."

Personal.—Dr. George Guca, who was a passenger on the steamer *Brindisi* which was torpedoed off Albania in January, reached Boston, April 7.——Dr. Ralph H. Kuhns sailed for Europe on the *Oscar II,* April 6, and will be assigned to Red Cross work in Germany.——Dr. Norman MacLeod Harris of the University of Chicago left, April 5, for Toronto, where he will join the Canadian Army Medical Corps.

Chicago Men Speak Away from Home.—Dr. Frank E. Simpson delivered an address before the Racine County Medical Society, March 30, on "Radium and Its Uses in the Treatment of Cancer and Other Skin Diseases."——Dr. Nelson M. Percy addressed the Seventh District Medical Society at its meeting at Sioux Falls, S. D., April 4.——Dr. Alfred A. Strauss delivered an illustrated lecture before the Dubuque (Iowa) Medical Association, March 28.——Dr. Charles A. Parker addressed the Rock County (Wis.) Medical Society, March 28, on "Some Things Worth Knowing About Joints."

Sachs Memorial Meeting.—On Sunday last an audience which filled the Auditorium paid tribute to the memory of Dr. Theodore B. Sachs. Dr. Frank Billings presided and the keynote of the meeting was the prevention of political tampering with welfare work. In addition to the address of Dr. Billings, Victor Olander, secretary of the Illinois Federation of Labor; Dr. William E. Quine, Sherman C. Kingsley and Prof. Graham Taylor spoke, and resolutions introduced by John V. Farwell were adopted pledging cooperation with the committee of one hundred in its work of preventing the introduction in the Municipal Tuberculosis Sanatorium of spoils politics. Mrs. Arthur T. Aldis, president of the Visiting Nurses' Association of Chicago, also paid tribute to the devotion of Dr. Sachs to his work. Dr. Billings then spoke of the plan to erect a hospital, to cost $250,000, on the grounds of the Edward Sanatorium, Naperville, as a memorial to Dr. Sachs, and telegrams were read from Mrs. Keith Spalding and Julius Rosenwald pledging contributions of $5,000 each for this purpose.

INDIANA

Personal.—Dr. H. H. Mitchell, formerly of Boston, has been secured by the state board of health, Indianapolis, as state epidemiologist, succeeding Dr. William F. King, who will give his attention to school hygiene in the state.——Dr. Ralph R. Coble, Indianapolis, has been appointed deputy coroner of Marion County, succeeding Dr. Herbert T. Wagner.——Dr. Chester Demaree, bacteriologist of the state board of health, has resigned to accept a similar position under the State Board of Health of Iowa.——Dr. Francis M. Mueller, Lawrenceburg, has been elected president of the Dearborn County Medical Society for the Prevention of Tuberculosis.——Dr. Herman G. Morgan, city sanitarian of Indianapolis, has been elected president of the Indiana Health Inspectors' Association, which was organized in Indianapolis, March 16.

KENTUCKY

New Medical Society.—The medical men of Lewis County recently met at Maysville and organized a county medical society, electing Dr. Lewis A. Grimes, Concord, president; Dr. Tolbert B. Ginn, Charters, vice president, and Dr. Herbert M. Bertram, Vanceburg, secretary-treasurer.

Personal.—Dr. John S. Smith, McHenry, was stricken with cerebral hemorrhage, March 28, and is in a serious condition.——Dr. William R. Thompson has been elected president of the newly organized Health and Welfare League of Montgomery County at Mt. Sterling under the State Tuberculosis Commission.——Dr. Wallis Bailey, Salyersville, is reported to be in a serious condition in a hospital in Huntington, W. Va., as the result of a cerebral hemorrhage.——Dr. Dunning S. Wilson, Louisville, has been elected a director of the National Association for the Study and Prevention of Tuberculosis to fill the unexpired term of Dr. Charles J. Hatfield.——Dr. Philip L. Coulter is under treatment at Covington for acute trachoma, contracted while engaged in the campaign against trachoma in the vicinity of Welch, W. Va.——Dr. Roy F. Robinson, second assistant physician at the Western Kentucky State Hospital, Hopkinsville, has resigned and will practice in Madisonville.

MARYLAND

Personal.—Dr. Raymond L. Johnson of the resident staff of the University Hospital resigned, March 31, to accept a position with the Atlantic Coast Line Hospital, Waycross, Ga.——Dr. Joseph C. Bloodgood, Baltimore, held a cancer clinic at the University of California Hospital, San Francisco, March 31, under the auspices of the California Academy of Medicine.

Washington Suburban Sanitary Commission.—The Maryland legislature, at the session just ended, created a commission to be known as the Washington Suburban Sanitary Commission, to study the matter of water supplies and drainage systems for Montgomery and Prince George counties, which abut on the District of Columbia. The commission is authorized to negotiate with the proper authorities of the District with reference to the connection of the proposed county sewerage systems with the sewerage system of the District.

For Research Work.—Another step forward will be taken in September by the Johns Hopkins Medical School, when the immunologic department of the school will be opened. This department will occupy the fifth floor of the new Hunterian laboratory building, which is in the course of construction. The medical school has had an immunologic department in the past, but it has never been developed in the manner in which those in charge of it desired. The main purpose of the building will be to afford opportunities for bacteriologic study, particularly in connection with postmortem examinations.

To Aid Child Welfare.—The Baltimore Child Welfare Circle was formally organized, April 3, under the auspices of the Maryland Branch of the National Congress of Mothers and Parent-Teacher Associations, which set aside the day as "Fathers' and Mothers' Day." Preceding the business meeting a lecture was given by Dr. Herbert B. Davis, of the Pittsburgh Training School for Teachers, on "The Function of Child Welfare Organizations." In the evening a second meeting was held for fathers only. Dr. Davis gave an address on "American Parenthood," in an effort to make the men realize their responsibilities. Nearly 200 members have been enrolled in this chapter, and it is expected regular meetings and the routine work will be entered on shortly.

MASSACHUSETTS

Antivaccination Bill Killed.—In the House of Representatives the annual debate on the bill to permit unvaccinated children to attend the public school occurred and the measure was rejected by a vote of 120 to 103.

Health Unit Opened.—The first health unit to be established by Health Commissioner Mahoney was officially opened, March 26, at 17 Blossom Street, West End. Associated with the local health board in the conduct of the unit are the Women's Municipal League, Federated Jewish Charities, Milk and Baby Hygiene Association; Instructive District Nurses' Association; West End Mothers' Club, and Boston Dispensary.

Personal.—Dr. Joseph J. O'Brien, Dorchester, has been appointed medical inspector of the public works department, succeeding Dr. Arthur H. Davison.——Dr. William Hall Coon, formerly of the Massachusetts State Board of Health, has been placed in charge of the Department of Industrial Relations, recently established by the Fish Rubber Company, Chicopee Falls. The new department will provide for the safety and health of the employees; the increasing and betterment of hospital service, and free health insurance to all employees.

MISSOURI

Personal.—Dr. George L. McCutchan, Jefferson City, prison physician, is suffering from septicemia due to an infection received while dressing a wound for a convict.——Dr. Stephen D. Reynolds, Gower, has been appointed a member of the staff of State Hospital No. 2, St. Joseph, succeeding Dr. Calvin L. Woolsey, resigned.

Diplomas Sold.—An applicant for license to practice medicine, August Steinlage, is reported to have been arrested recently on complaint of Dr. John A. B. Adcock, Jefferson City, secretary of the Missouri State Board of Health, for fraudulently claiming to be a graduate of the Marquette University School of Medicine, Milwaukee. It appears that several diplomas bearing the name of this school have been sold recently by some "degree merchants," who are said to be conducting a "medical course" in Chicago. The officers of the medical school stated that Steinlage had never been a student there.

NEW MEXICO

Typhus Under Control.—The outbreak of typhus at Santa Rita is now reported to be under control. The first patient is improving; the second died.

Personal.—Dr. Fred L. McDaniel, U. S. I. S., Crownpoint, has resigned from the Indian Service to accept a position on the staff of the Kansas State Hospital, Osawatomie.——Dr. John W. Colbert, Albuquerque, has returned after seven months' hospital work in France.

NEW YORK

Personal.—Dr. Daniel F. Mathews has been elected health officer of Syracuse.——Drs. Walter A. Cowell and Edward Torrey have passed the competitive civil service examination for the superintendency of the Olean Tuberculosis Hospital.

Special Course for Health Officers.—Twenty health officers have been enrolled for the course of special study instituted by the College of Medicine of Syracuse University. They have all completed the prescribed reading course and are now engaged in the laboratory work and instruction, which will continue until June 10. At the end of the course an examination will be held and certificates of standing will be issued.

New Quarters for Laboratories.—At a meeting of the council of the new commission form of government of Buffalo, a resolution was adopted whereby the bureau of laboratories of the department of health of that city will be removed from their present cramped and inadequate quarters and established in a three-story stone and brick structure, formerly occupied as a police precinct station house. The building is of modern architecture and most suitably adapted for laboratory activities.

New York City

Harvey Society Lecture.—The tenth lecture of the Harvey Society series was delivered April 8 by Prof. Stanley R. Benedict of Cornell University on "Uric Acid in Its Relations to Metabolism."

Medical College Honors Oldest Graduate.—The trustees of the New York Medical College and Hospital for Women gave a luncheon at Delmonico's, April 8, in honor of the fiftieth anniversary of the graduation of Dr. Anna Manning Comfort, Syracuse, the only surviving member of the first class. Dr. J. Perry Seward, president of the faculty, presided. Dr. Comfort was the first woman to practice medicine in Connecticut.

Personal.—Dr. Louis B. Bisch has been appointed instructor in psychology for the police department and Dr. Eugene C. Rowe, criminologic examiner.——Dr. William Seaman Bainbridge gave an illustrated lecture on "Some Glimpses of the War" at the Madison Avenue Baptist Church, April 4. ——Dr. William H. Park recently gave an address before the Johns Hopkins Medical Society, Baltimore, on "Active Immunization Against Diphtheria."

The Question of Federal Quarantine.—The nomination of Assist. Surg.-Gen. Leland E. Cofer, U. S. P. H. S., as health officer of the port of New York, is still held up by Senator Sage, chairman of the state finance committee, who disapproves bringing a federal officer to the station on a temporary appointment. Senator Sage himself is reported to be increasingly favorable to the transfer and the assembly has already indicated its approval of the step.

A New Publication.—The health department announces that it has established a new publication known as the *Monthly Drug Bulletin*. In the first number of the publication are the names of many hundreds of proprietary preparations whose formula has been registered with the department of health in compliance with the requirements of the Sanitary Code. Other items pertain to the sale of wood alcohol, the recent epidemic of grip, the sale of spurious aspirin and neosalvarsan, and to other matters of special interest to the pharmacist.

Opposition to Pay Clinics and Hay Bill.—At the last meeting of the Medical Society of the County of New York, March 27, resolutions were adopted expressing disapproval of the proposed plan of Mount Sinai Hospital to open a night clinic for the medical and surgical treatment of persons on the general basis of $1 a visit. It was pointed out that this method could ultimately be extended to every hospital in the city and take a large section of the general and special practice and place it in the hands of medical institutions. At the same meeting resolutions were passed condeming the provision of the Hay Bill, which would abolish the Medical Reserve Corps of the Army, and advocating the raising of the strength of the Medical Corps of the Army so that there shall be, in times of peace, ten surgeons to each 1,000 men.

City College Plans Municipal Service Courses.—President Mezes of the College of the City of New York, recently appointed a committee to make a municipal service survey with a view to establishing courses for the purpose of preparing students for civil service positions. This committee has presented recommendations for the organization of such courses. There will be full cooperation between the city departments and the college. Under the auspices of the mayor's committee and the College of the City of New York, a course in community medicine will be offered which will include the following: Organization for health; infant welfare as an index to urban health; the child in the city schools; the worker's health and the city's responsibility; the city as a teacher and regulator of personal hygiene; special problems of hygiene in social life; social economic aspects of public health problems, and kindred subjects that may come up. Dr. Donald B. Armstrong, director of the Department of Social Welfare, New York Society for Improvement of the Condition of the Poor, will conduct the course.

Denal Hygiene for Schoolchildren.—A bill was passed by the legislature which has just been signed by the governor which provides that:

> Any dental dispensary or infirmary legally incorporated and registered by the regents, and maintaining a proper standard and equipment may establish for women students a course of study in oral hygiene. All such students upon entrance shall present evidence of attendance of one year in high schools and may be graduated in one year as dental hygienists, upon complying with the preliminary requirements to examination by the board, which are:
>
> A. A fee of five dollars.
>
> B. Evidence that they are at least 20 years of age and of good moral character.
>
> C. That they have complied with and fulfilled the preliminary and professional requirements and the requirements of the statute.
>
> After having satisfactorily passed such examination they shall be registered and licensed as dental hygienists by the regents under such rules as the regents shall prescribe.
>
> Any licensed dentist, public institution or school authorities may employ such licensed and registered dental hygienists. Such dental hygienists may remove lime deposits, accretions and stains from the exposed surfaces of the teeth, but shall not perform any other operation on the teeth or tissues of the mouth. They may operate in the office of any licensed dentist, or in any public institution or in the schools under the general direction or supervision of a licensed dentist, but nothing herein shall be construed as authorizing any dental hygienist performing any operation in the mouth without supervision. The regents may revoke the license of any licensed dentist who shall permit any dental hygienist operating under his supervision to perform any operation other than that permitted under the provisions of this section.

NORTH CAROLINA

Personal.—Dr. Everett F. Long, Denton, has been elected whole-time health officer of Davidson County.——Drs. William R. McCain and Lemuel E. Guin, Waxhaw, are ill in the Charlotte Sanatorium.——Dr. Watson S. Rankin, Raleigh, secretary of the state board of health, will deliver five addresses at the School for Health Officers to be held in Topeka, Kan., April 24 and 29.

Hospital Notes.—A new wing, to cost about $20,000, is to be added to the Clarence Barker Memorial Hospital, Biltmore. The new addition will accommodate eighteen patients, will have six new private rooms, each with a bath, a new operating room and a diet kitchen.——Dr. William T. Rainey, Badin, is in charge of the new hospital which the American Aluminum Company is building.——St. Peter's Hospital, Charlotte, announces that it has completed arrangements for the operating of a maternity department in charge of Dr. Charles H. C. Mills.——A new hospital is being built in Burlington.

OHIO

Academy Rejects City's Offer.—The Toledo Academy of Medicine at its meeting, March 14, rejected the proposition of the city of Toledo to care for charitable medical cases for $6,120 per year.

Personal.—Surg. Clarence W. Wille, who recently resigned from the United States Public Health Service, has turned over his office to his successor, Surg. John M. Holt. Dr. Wille will take up private practice in Cleveland.——Dr. Dallas K. Jones, who has been practicing in Canal Fulton for thirty years, has moved to Wooster.

Vital Statistics for 1915.—The death rate of Ohio for 1915 was 12.98 per 1,000 as opposed to 12.94 per 1,000 for the previous year, while the birth rate was 20.02 per 1,000 as opposed to 20.25 the previous year. During the year there were 101,905 births and 66,077 deaths reported. The greatest number of deaths, 7,766, was due to organic heart disease; tuberculosis comes next with 6,663; pneumonia with 6,255, and cerebral hemorrhage with 5,601. There was an increase in automobile accidents, as compared with the previous year, from 187 to 304. Nineteen per cent. of the deaths were in children under 5 years of age. Intestinal diseases caused 2,301 deaths in infants under 2 years of age as compared with 2,790 from the same cause in 1914.

Cincinnati

Contract for Medical College Awarded.—After a detailed examination of bids for the construction of the new Medical College Building toward which Mrs. Mary Emory contributed $250,000, the building committee and the commissioners of the Cincinnati General Hospital awarded the contract to a St. Louis bidder for $250,000. The building is to be fireproof throughout, of brick and reenforced concrete, three stories in height with a basement, a north and south wing, is to be 60 feet wide and 125 feet deep and the entire front is 300 feet. The central wing will contain an auditorium with a seating capacity of 500. The committee still has $255,000 obtained by donations, for equipment and interior furnishing.

PENNSYLVANIA

Personal.—Dr. William Magill Schultz recently returned to Philadelphia after six years' work as a medical missionary at Tsinan, Shantung, China.——Dr. Francis J. Meek, Shamokin, was seriously injured in a collision between his buggy and an automobile, March 29.

Pennsylvania's Health Record.—The annual report of the state commissioner of health which has just been handed to the governor shows that the year just past has been the healthiest in the history of Pennsylvania. That is to say, that in proportion to its population, the death rate has been lower than ever before, and the state has been freer from epidemics and contagious diseases.

Philadelphia

Public Lecture.—A public lecture will be given under the auspices of the College of Physicians of Philadelphia, April 15, by Surg. Archibald M. Fauntleroy, U. S. Navy, on "The Dangers and Duty of the Hour."

Vaccination Rule Upheld.—The compulsory vaccination rules of the school board were upheld, March 31, by Judge Schumaker of the Quarter Sessions Court, who dismissed, and sustained a fee of $3 and costs imposed on a defendant for refusing to have his child vaccinated.

Personal.—Dr. Richard R. Spahr has resigned from the Philadelphia General Hospital to serve in the American Ambulance at Paris. He will be accompanied by Dr. Lever F. Stewart of Clearfield.——Dr. Charles S. Hirsch has been elected genito-urinary surgeon to the Mt. Sinai Hospital.

Plans for Triple Merger of Medical Colleges.—Plans for the consolidation of the Medico-Chirurgical College and the University of Pennsylvania are nearing completion and there have been meetings between committees from the boards of trustees of the Jefferson Medical College and the University of Pennsylvania for the purpose of considering a triple merger.

City's Phenol Production.—As a result of the war the production of phenol (carbolic acid) in the United States has grown from less than 2,000 tons to about 12,000 tons a year, and it is given as a fact by chemists that, in the northeastern part of this city, there is one concern producing at least one quarter of the output of the whole world. In other words, this one laboratory, built since the war began, is producing more than 3,000 tons a year, on the average of 10 tons a day.

The Samuel D. Gross Prize.—The Philadelphia Academy of Surgery announces that essays in competition for the Samuel D. Gross prize of $1,500 will be received until Jan. 21, 1920. The conditions stipulate that the prize "shall be awarded every five years to the writer of the best original essay not exceeding 150 pages octavo in length, illustrative of some subject in surgical pathology or surgical practice, founded on original investigation, the candidates for the prize to be American citizens." Further information may be obtained by writing to the trustees of the Samuel D. Gross Prize, 19 South Twenty-Second Street, Philadelphia.

An Appeal for Surgical Instruments.—The Surgical Advisory Committee of the French War Relief, at 1428 Walnut Street, Drs. J. William White, William W. Keen and Joseph Leidy, have sent out an urgent appeal for surgical instruments for use in the smaller hospital centers in France. During the past year these small units, away from the large centers of population, have been a constant source of concern among those in close touch with the work of the medical department. In many cases the surgeons found the supply of surgical instruments totally inadequate. It is of these hospitals that the French War Relief has been particularly watchful. During the past year the medical profession throughout the United States has been very generous in responding to the request of the French War Relief Committee, but the demand still grows and is urgent owing to the increased requests for greater accommodation. After a recent battle, it is reported that operations were performed with ordinary carving knives. All donations, either in the form of supplies, instruments or money, should be sent to the French War Relief, 1428 Walnut Street, or to any of the committee.

WISCONSIN

Personal.—Dr. Gerhard A. Bading was defeated in his fight for the mayoralty of Milwaukee by the Socialist candidate, Daniel A. Hoan.——Dr. Sylvester J. Driessel, Barton, was operated on for appendicitis in St. Agnes' Hospital, Fond du Lac, March 21, and is reported to be doing well. ——Dr. Henry Wahle, who has practiced in Marshfield for nearly twenty years, has disposed of his practice to Dr. Victor A. Mason and has started for the West.

Midnight Antituberculosis Meeting.—A midnight antituberculosis meeting for shopmen was a unique feature of the two-day health institute held in South Milwaukee, March 27 and 28, by the Wisconsin Antituberculosis Association, assisted by the extension division of the University of Wisconsin. Using a lathe as a lecture platform Theodore Werle of the Wisconsin Antituberculosis Association addressed an audience of 200 members of the night shift at the Bucyrus works.

The Typhoid Situation in Milwaukee.—Since January 1, there have been 360 cases of typhoid fever in Milwaukee believed to have been caused by impure drinking water, and from these cases thirty-one deaths had resulted up to April 1. On April 3, ten new cases were reported.——Suit has been filed against the city for $10,000 damages by Mr. and Mrs. Charles Christie, who allege that their son Julius died, March 21, from typhoid fever caused by the drinking of the city water; Mr. and Mrs. Andrew Likowsky have sued for $10,000 on account of the death of their son Ignatz; Mr. and Mrs. Herman Graffinus have sued for a like amount for the death of their son Gilbert from typhoid fever, and the widow of Gustav Stibb, who died from typhoid, March 13, has sued the city for $10,000 damages for criminal carelessness.

CANADA

Medical Corps Dinner.—The officers of the Toronto Army Medical Corps held their annual dinner recently. The principal speakers were two members home on furlough from the front, Lieut.-Col. Perry G. Goldsmith and Capt. Thomas H. McKillip.

Nova Scotia Needs Physicians.—On account of the drain made by the war on the medical men of Nova Scotia, the province is now suffering from a lack of physicians, and the premier has introduced a bill extending the privilege of practicing medicine to men who have studied in medical schools for four years, although not registered in the province.

Personal.—Dr. George T. McKeough, Chatham, Ont., has been appointed a major in the Canadian Army Medical Corps.

——Dr. Rowena G. D. Hume has been elected president of the Women's Medical Association, Toronto.——Dr. W. Berkeley Stark, Toronto, sailed for England, March 11. He has been appointed on the Ontario Medical Hospital staff at Orpington.

GENERAL

Result of Red Cross Seal Competition.—The committee consisting of Philip P. Jacobs and C. M. DeForrest, New York, and Miss Mabel T. Boardman and Ernest P. Bicknell, New York, appointed to act as judges in the American Red Cross Christmas seal design competition, has awarded the first prize of $100.00 to Fred C. Beaumont of New Bedford, Mass.; the second prize of $50.00 to R. C. Stedman, Washington, D. C.; the third prize of $25.00 to Grace L. Newcomb, Washington, D. C.; the fourth prize of $15.00 to Alvin R. Miesner, Washington, D. C., and fifth prize of $10.00 to E. W. McRae, Washington, D. C.

Rockefeller Foundation Payments.—The Rockefeller Foundation announces a list of payments to unaffiliated organizations during 1915. Among these payments of special interest to the medical profession are the following: Committee on the Prevention of Tuberculosis, $500.00; Eugenic Field Workers, $2,700; Eugenic Record Office, $1,350; Hospital Saturday and Sunday Association, $500.00; National Association for the Study and Prevention of Tuberculosis, $500.00; New York Milk Commission, $4,000; Rockefeller Institute for Medical Research, for corporate purposes, $8,854.17, and Rockefeller Institute for Medical Research, for buildings, $570,559.71.

Information Wanted Regarding Dr. Burnett.—Mr. S. E. Burnett, 834 Brooklyn Avenue, San Antonio, Texas, offers a reward of $50 for definite information that will lead to the location of his son, Dr. E. J. Burnett, who is 37 years old, 5 feet 6 inches in height, weighs 160 to 170 pounds, has dark hair, has a scar on the forehead in the edge of the hair, has brown eyes, wears a mustache and goatee, has a military walk, is a habitual smoker of cigarettes and cigars and has a hibit of clearing his throat. Dr. Burnett disappeared from Kansas City in December, 1912, was treated in St. Louis City Hospital in July, 1913, and disappeared from Sikeston, Mo., in November of the same year, and was last seen in San Francisco, Portland, Ore., and Seattle in the fall of 1914.

Practice Rights of Inactive Medical Reserve Corps Officer.—The question whether appointment as first lieutenant in the Medical Reserve Corps, U. S. Army, inactive list, confers the right to practice medicine in New York State was decided on March 18, when the Appellate Court reversed a judgment obtained in the Municipal Court by Dr. James H. Haberlin against Paul W. Englehart for medical services on the grounds that Dr. Haberlin had not the right to practice medicine in New York by reason of having been appointed first lieutenant, Medical Reserve Corps, inactive list, on March 25, 1915. The judge decided that Dr. Haberlin's duties as a medical officer do not begin until he is called to active duty by the government.

Red Cross Base Hospitals.—Col. Jefferson R. Kean, M. C., U. S. Army, recently assigned to duty with the American Red Cross and appointed director general of military relief of the Red Cross, has announced a plan for organizing base hospitals in different parts of the United States. New York, Boston, Baltimore, Cleveland and Rochester, N. Y., are the points at which this work will be initiated. Base hospital units, mobile in character so that they can be transported at short notice from the civil hospital in which they are organized to any place where they may be needed, are now being organized in these cities, and the work will shortly be extended to other cities where the spirit of preparedness and patriotism is sufficiently in evidence to insure the equipment of these units without great difficulty and delay. These units must be inspected once a year by a medical officer of the service for which they are enrolled and when called to duty, active service, the Red Cross loses all administrative authority and they pass with their entire equipment into the national service with their professional specialists, nurses, cooks, attendants, administrative personnel and complete equipment.

Examination for Navy Medical Corps.—The next examination for admission to the Medical Corps of the Navy will be held on or about June 16 at Washington, D. C., Boston, New York, Philadelphia, Norfolk, Va., Charleston, S. C., Great Lakes (Chicago), Mare Island, Calif., and Puget Sound, Wash. Applicants must be citizens of the United States, between 21 and 30 years of age, graduates of reputable medical schools and must apply for admission, applications being in the handwriting of the applicants, and must be accompanied by letters or certificates from two or more persons of good repute testifying from personal knowledge as to good habits and moral character; a certificate that the applicant is a citizen of the United States, a certificate of preliminary education, graduation from an accepted high school or an accepted equivalent; a certificate of medical education giving name of school and day of graduation and certificate of hospital service or special educational or professional advantages. These applications should reach the Bureau of Medicine and Surgery, Washington, D. C., not later than June 5. Full information with instructions how to submit formal application, may be obtained by addressing the Surgeon-General of the Navy, Navy Department, Washington, D. C.

Bequests and Donations.—The following bequests and donations have recently been announced:

Holy Family Hospital, Society of St. Vincent de Paul, and St. Mary's Hospital, New York, each $2,000, by the will of John MacNamee.

St. Mary's Free Hospital for Children, New York, $3,000, the proceeds of a benefit recently given at the home of Mrs. James Speyer.

University of California for the equipment of the new 216-bed University Hospital now being built in San Francisco, Mrs. James Moffitt, "an alumnus," and Mrs. Alexander F. Morrison, San Francisco, each $5,000; William H. Crocker, $2,616.50; Wallace M. Alexander and "a friend of the University," each $2,000; M. Ohlandt, $1,500; Charles W. Merrill and D. C. Jockling, each $1,000 and the children of the late F. W. Dohrmon, $500.

The Charles T. Miller Hospital, Inc., St. Paul, $1,500,000, by the will of Mrs. Martha A. Miller.

Sisters of Charity of St. Vincent de Paul, for the formation of a branch of St. Vincent's Hospital at Stanford, Dutchess County, N. Y., for the treatment of sufferers from cancer, more than $300,000; St. Joseph's Hospital, Yonkers, $10,000; St. Lawrence Hospital, German Hospital, Catholic Institute for the Blind and the Knapp Memorial Eye Hospital, New York, each $5,000, by the will of Mrs. Mary Halloran.

Dr. William E. Young, New York, $10,000, by the will of Mrs. Susan Warner Wolff.

Protestant Episcopal Hospital, Long Island City, $1,000, by the will of Anna A. Smith.

The construction and maintenance of a city hospital for Shenandoah, Iowa, by the will of Mrs. Henry Hand.

German Hospital, Philadelphia, a contingent bequest of $10,000, by the will of Charles J. Braun.

Cleveland Medical Library, $25,000, by the will of Dr. Benjamin L. Millikin, Cleveland.

Lakeside Hospital, Cleveland, $250,000; Charity and St. Alexis' hospitals and the Western Reserve University School of Medicine, each $50,000; Babies' Dispensary and Hospital and Tuberculosis Free Dispensary and Maternity Hospital, each $25,000, by the will of Robert R. Rhodes, Cleveland.

FOREIGN

Child Welfare Congress in South America.—The first Congreso Americano del Niño is to convene at Buenos Aires next July. There are to be seven sections and all the American states are to send delegates. The congress is open to all interested in child welfare on payment of the fee of $11.36 Argentine money (about $5).

To Clean up Buenaventura.—The Colombian government has requested Dr. Edward P. Beverly of the Colon Hospital, Cristobal, C. Z., to undertake the work of cleaning up Buenaventura, which is known as the pest hole of Colombia. The two great problems in the sanitation of the town are the lack of proper sewerage and the absence of an adequate water supply.

WAR NOTES

French Hospital Efficiency.—In a recent lecture before the French Institute, Dr. Jacques Bertillon, director of the medico-surgical statistics of the French army, asserted that the mortality of sick and wounded had been reduced to 18 per 1,000. Earlier in the war the mortality had reached 53 per 1,000.

Aid Sought for Armenians.—Dr. C. D. Ussher, a medical missionary working under the American Board of Commissioners for Foreign Missions in Armenia, spoke in Pittsburgh, March 31, on "Atrocities Committed on Armenians by the Turks" and urged the organization of an auxiliary committee to the American Committee for Armenian and Syrian Relief.

Turkish Government Welcomes Help.—The American Red Cross has received a cablegram from its representative in Constantinople to the effect that the Turkish government has changed its policy and now welcomes help, and through the Minister of the Interior authorizes the American Red Cross cooperating with the Red Crescent to conduct relief work for civilians of all races. Great suffering prevails at Constantinople and the suburbs along the sea of Marmora, Adrianople, Bruss and Smyrna, where hundreds are said to be dying of starvation with no relief in sight. On receipt of this cablegram the Red Cross appropriated $10,000 to meet the emergency.

LONDON LETTER

LONDON, March 20, 1916.

The War

THE HEALTH OF THE ARMY

Mr. Tennant, the undersecretary for war, has made in Parliament a very satisfactory report on the health of the army and the provisions made for the treatment of the wounded. The incidence of disease in France is low. There is an entire absence of any epidemic. We owe thanks to the many medical and scientific men for their energy and action in this matter, and particularly in the prevention of disease. The Sanitary Committee has done splendid work, especially in Gallipoli, where they have the difficult task of counteracting tropical diseases. The outbreak of dysentery and diarrhea caused great anxiety. There is no anxiety now in relation to the health of the troops, either at Saloniki or in Egypt. At home large convalescent hospitals have been established, and in the military hospitals here men are being replaced by women. Fourteen hundred women have already asked for general service. For this we have to thank the Red Cross. Between 5,000 and 6,000 women who have been organized in voluntary aid detachments are now doing regular nursing work in hospitals. In order to obtain medical officers under conditions least harmful to the needs of the civil population and the great civil institutions, the government has established a representative body of physicians in conjunction with the national health commissioners and the Local Government Board. Physicians have come forward in the most admirable manner to meet the needs of the state. Highly successful measures have been taken against the gas attacks of the enemy. The national health commissioners have taken up the question of the early treatment of tuberculous patients removed from the army. As to the treatment of the wounded, Sir Frederick Treves, who went through the South African War and the Russo-Japanese War, has said: "Those who are familiar with the medical dispositions in the South African War will find in this campaign an advance in the medical services so great and so wide extending as to amount to an actual revolution. Not only has the sick and wounded soldier never been so well cared for in any campaign as in the present, but it is difficult to suggest in what way his welfare could be further promoted."

Sir Frederick Treves takes a couple of illustrations: "We should note in the first instance such an advanced dressing station as that at Les Brebis. The place is a mining village well within range of the enemy's fire; indeed, some twenty shells had fallen into the area on the morning of our visit. The hospital is a building which was used by miners as an entertainment hall. This hall makes an excellent ward provided with every necessary detail. Attached is a small, carefully equipped operation room, where operations of an urgent nature—such as the arrest of hemorrhage—could be carried out. Here also wounds may be cleansed and redressed, fractures more comfortably adjusted, and injections of antitetanic serum given. Close at hand were two dugouts into which patients could be taken if the shelling threatened the building. The whole station was simple, efficient, and exactly equipped for its limited purpose. There was nothing lacking and yet nothing superfluous, and the feature of extreme mobility was kept prominently in mind." Of the clearing stations he says: "From a surgical point of view they represent the most important items in the general scheme for the treatment of the sick and wounded. They are as near the front as they can be placed, they are readily accessible from the advanced dressing stations, while they are in direct touch with the base either by a line of rail or by a good main road. The tents are well warmed by stoves and well lit by electric light, while the operating theater is as good as any found in a civil hospital of its size. The huts at Remy and the wards at Bailleul could compare with the wards of any good civil hospital in England. To these clearing stations wounded men can be brought in a few hours. In the severest gunshot wounds prompt attention is the main factor in the saving of life and limb. The patient not only finds himself in an operating theater, equipped with the best and most recent appliances, but he is in the hands of an operating surgeon of the first order. At the same time the patient has the advantage of the regular and frequent visits of a consulting surgeon of European reputation. Moreover, the nursing in these stations is of the highest type, being carried out by the army nursing sisters. A great number (and often the greater number) of the patients arrive at night, and over and over again, operations are carried out the whole night through. At Lapugnoy, with its 376 beds, no less than 2,000 casualties were dealt with in one day. At the clearing station at Bailleul, the vast number of 61,000 sick and wounded have passed through the hospital since it was opened, while the number of major operations has reached to over 1,000."

In one of the minor fields of operation, Mesopotamia, the same claims cannot be made. Serious deficiency in the number of the medical corps has been disclosed. The medical arrangements are not under the control of the War Office but of the Indian government. A letter was read in the House from one of the wounded who wrote: "I must consider myself fortunate to have arrived at Basra, where some medical aid was available, without getting a septic wound. The lot of the badly wounded during the evacuation stage from the field to the base at Basra is anything but joy. The five or six days spent on the paddle steamer down the Tigris are not to be forgotten in a hurry—two hundred, or possibly more, lying anyhow on the deck, with only one medical officer and practically no medical equipment. However, I understand that proper hospital steamers are now being sent out."

A Memorial to Florence Nightingale

It is appropriate that the services of the woman who originated trained nursing of the wounded should be commemorated during the world's greatest war. The queen has unveiled a memorial in the crypt of St. Paul's Cathedral on the wall leading from Nelson's tomb to Wellington's. The memorial is a low relief in white marble, representing Florence Nightingale in half length, wearing the familiar cap, bending over a wounded soldier, to whose lips she is holding a cup. The marble is surrounded by a rich alabaster frame, the inscriptions on which are, above the plaque, "Blessed are the merciful," and below it, "Florence Nightingale, O.M.; born May 12, 1820, died August 13, 1910." The ceremony was of the simplest. There were present representatives of the army and the British dominions nursing services. The archbishop of Canterbury delivered a short address.

BERLIN LETTER

BERLIN, March 7, 1916.

Personals

Professor Leubuscher, medical referee of the grand duchy of Sachsen-Meiningen, died in Meiningen, February 28, aged 57. He achieved distinction because of his activity in the organization of the school inspection work, not only for the public schools but also for the higher schools, although the latter is rather a restricted activity in Germany. Early in his career he was assistant at the pathologic institute in Jena. In 1885 he qualified as a privat-docent in internal medicine and state medicine. In 1892 he was appointed professor extraordinary.

Prof. Julius Wohlgemuth, assistant in the pathologic institute of the University of Berlin, has been appointed to succeed the late Prof. Walther Loeb as director of the chemico-physiologic division of the Rudolf-Virchow Hospital.

Exchange of Wounded Prisoners

A meeting of the German-Swiss committee for the exchange of wounded French prisoners was held in Berlin, March 1, under the chairmanship of the director, Colonel Bohny. It will be remembered that the French and German authorities agreed to allow wounded prisoners to be removed to Switzerland. Swiss medical officers will visit the German and French prison camps and select such prisoners as are affected by this agreement. The exchange is based on equality of numbers.

Infectious Diseases

From time immemorial Russian Poland has been the seat of epidemics of infectious diseases of every kind, and hence the work of the department was especially directed toward the prevention of the spread of these diseases. Notification must be made of all infectious diseases, including cholera, typhoid, typhus, smallpox, diarrhea, epidemic cerebrospinal meningitis, scarlatina and diphtheria. Notice must also be given of all suspicious cases in which the diagnosis has not been made definitely. All corpses must be examined by physicians or a field inspector or orderly so that sources of contagion and infection will be discovered promptly even when the case terminated by death was not reported. The civil government has established a bacteriologic laboratory in Lodz. Assistance is also given by the bacteriologists of the army medical corps in Warsaw, Thorn and Bialystok as well

as by the Prussian laboratories in Beuthen, Breslau and Posen. The field inspectors have rendered very effective service in locating cases of infectious diseases, and they have also been trained to vaccinate. Two hundred and fifty isolation hospitals or stations have been provided to take care of all these patients. This does not include the hospitals already established. The disinfection service has also been perfected. German district physicians and disinfectors formed the nucleus of this service. By means of directions printed in Polish, instruction was imparted to local physicians. A school of instruction was established in Lodz, and all disinfectors are sent there for further instruction. Disinfection apparatus was constructed on the ground or imported from Germany. Smallpox was perhaps the most prevalent infectious disease. In peace times the annual number of cases in this district under the Russian government was about 11,000. The first step taken to combat this disease was to vaccinate everybody. On a certain day each week a sort of "vaccination bee" was held, and certain people were vaccinated. Every schoolchild that had not been vaccinated successfully or that was not immune, because of not having had the disease, was vaccinated during the year 1915. Whenever a case of smallpox appeared, a wholesale revaccination of every one in the vicinity was made. About 600,000 persons have been vaccinated, and the result is that the smallpox incidence has been reduced 60 per cent.

Typhus in epidemic form made its appearance only in Alexandrow and in Warsaw. The patients and all suspicious cases and carriers were isolated, but the most effective measures were those directed toward the elimination of body lice as carriers. In consequence there has been practically no further spread of the disease. The disinfection was done in six large military disinfecting stations and twenty smaller local stations. A floating disinfecting station on the Vistula has rendered good service. Suitable measures were also taken to prevent the carrying of the disease across the border into Germany. These consisted, in the main, in freeing the bodies and clothing of workmen and others from lice. The shipping interests were similarly disinfected. At Plock and Wloclawek inspection stations were established, and here all vessels and water transports and passengers are examined thoroughly and disinfected. Similar measures were taken to prevent the spread of cholera, although an agreement between Russia and Germany had been made in 1907 which made it possible to prevent the carrying of cholera across the border. The usual sanitary measures were put into force, including the most careful and thorough examination and disinfection of streets, houses, toilets, garbage and sewage disposal. In Lodz typhoid was prevalent, and on investigation it was found that the stools of these patients were not properly disinfected, nor was the proper disposition made of them. Correction of these defects immediately lowered the morbidity of typhoid. The water supply was also investigated. Lodz has 10,000 wells, of which only 7,000 had been examined. Existing wells and other sources of water supply are being examined, and many new wells are being driven.

Medicines and bandage supplies have been imported from Germany. Food supplies are inspected frequently by the local authorities, as well as the places where they are offered for sale. A special department having charge of this work has been established in Lodz. Two chemists collect the material and make the examinations. Every effort is being made to have an effective supervision of all foods, especially milk and meat, and it may be said that the people of the occupied territory are now cooperating to a great extent, as is shown by the results obtained.

PARIS LETTER

Paris, March 23, 1916.

The War

PROTECTION FURNISHED BY THE METAL HELMETS WORN BY SOLDIERS

To what degree has the metal helmet adopted by the French army fulfilled the purpose for which it was intended? Dr. B. Roussy, from study of the official records of wounds of the war, has reached the following statistical conclusions, which he has just reported to the Académie de médecine: In July, 1915, head wounds formed 8.7 per cent. of the total number of wounds; in August the proportion was 10 per cent., in December, 20 per cent., and in January, 1916, 14.5 per cent. Roussy concludes that, while apparently head wounds are now more numerous than they formerly were, the reason is that formerly the greater number of such wounds were fatal, while today the number of recoveries from wounds in the head has become much greater. The second part of Roussy's report shows the difference in severity between head wounds sustained before the wearing of the helmet became general and those received later. In many cases, the projectile indents but does not pierce the metal headpiece, producing only a contusion of the bone or perhaps merely grazing the exterior surface of the skull. In other cases, the helmet has deflected the projectile, thus making the wound far less serious.

Roussy and others believe that wearing the helmet gives the soldiers greater confidence, which considerably increases their value as combatants. He suggests, consequently, that, in addition to helmets, the soldiers should wear protective devices covering the vital organs—the heart and the abdominal viscera.

THE AUXILIARY HOSPITALS

The undersecretary of the military medical service is engaged in restoring to their original purposes, so far as possible, a certain number of buildings (especially school buildings) which had been transformed into hospitals. January 15, the medical service occupied 386 public school buildings, 244 private school buildings and 298 hotels. Of the hotels, 219 were requisitioned, 70 were occupied by agreement with the owners and 9 were offered free. Of the 290 hotels thus devoted to the uses of the medical service, 100 are situated in the *stations thermales* such as Vichy, Châtel-Guyon, Royat, la Bourboule, and Mont-Doré, or at Cannes, Nice, Mentone or in the region of Biarritz.

AUTHORIZATION OF THE SALE OF SKIMMED MILK

Milk is constantly becoming scarcer. The permanent committee of agriculture, which discussed this problem at its last meeting, has therefore concluded that it would be desirable to allow skimmed milk to be sold in commerce for the use of adults on condition that it contains not less than 15 per cent. of fat (up to the present a minimum fat content of about 33 per cent. has been required). The committee has indicated that this skimmed milk ought not to be given to infants and that whenever such milk is sold, not directly to consumers from the producers, but through middlemen, it should be pasteurized. To avoid confusion of skimmed milk with unskimmed milk and the frauds which might thus arise, the committee has advised that this product should be sold only in containers bearing in conspicuous letters the words "skimmed milk" and the directions, "not to be fed to infants."

Professors Chauveau and Mossu assert that skimmed milk has a caloric value equal to more than one-half that of unskimmed milk.

Measures Against Depopulation

A governmental study of the question of depopulation has been undertaken, and, in accordance with the report of the late Professor Lannelongue (The Journal, July 16, 1910, p. 230), a methodical program of study has been adopted. The Chamber of Commerce of Paris has just addressed to the secretaries of the departments in whose province the matter falls a remarkable report by one of its members, M. E. Henry. The report mentions that during the period from 1903 to 1913, there were two years in which deaths exceeded births. In 1907 the excess of deaths was about 19,071, and in 1911 it was 34,869. For the other years, the excess of births was slight. In 1903 the maximum figure of excess occurred; then the births exceeded the deaths by only 73,016. In Germany and Austria, on the other hand, the excess of births is constant and varies in the first-named country from 740,000 to 910,000 and in the second country between 237,000 and 342,000.

The Chamber of Commerce of Paris adopted the conclusions of this report, and passed a resolution: (1) that all the resources of literature, art and the press be utilized to inform the nation of the grave peril which the lowering of the birth rate produces in France and to encourage ideas and customs necessary to combat this lowered birth rate; (2) that Parliament introduce, as soon as possible, the judicial, administrative, fiscal and financial reforms necessary to check depopulation and especially that the various problems outlined to the Senate in Professor Lannelongue's report be studied and the remedies applied without delay; (3) that the laws on the employment of apprentices in shops where adults are employed be revised; (4) that a study be made of measures to combat alcoholism and the necessary laws passed, (5) that the aid given to large families cease to be regarded as charity and be sufficiently increased to be a substantial encouragement to those who have added to the riches of the country by building up families.

The Foundation of an Institution for the Prophylaxis of Syphilis

M. Frank J. Gould has sent to M. Chautemps, senator from the department of Haute-Savoie, a sum amounting to 250,000 francs (about $50,000) to be used against syphilis and kindred diseases. This has been used to found an association known as the Institut prophylactique intended to work for the progressive extinction of these diseases both by the direct treatment of individuals and by scientific researches and also by cooperation with administrative authorities. Dr. Roux, director of the Pasteur Institute, has been elected honorary president of the new association. Dr. Verne has been appointed director.

Death of Prof. Charles Girard

The death of Dr. Charles Girard, professor of the surgical clinic of the Faculté de médecine de Genève, has just been reported. The société suisse des cirurgiens, at its recent annual session, had elected Professor Girard president (to replace Professor Kocher, who has been president since the foundation of the society) when the telegraph brought the news of Professor Girard's death. Professor Roux of Lausanne has been made president of the society.

Death of Prof. Gilbert Ballet

Dr. Gilbert Ballet, professor in the Faculté de médecine de Paris, has just died, aged 63. His death is a great loss for pathology, neurology, and legal medicine. He early decided to devote himself to diseases of the nervous system, beginning by being head of Charcot's clinic at the Salpêtrière. From 1907 to 1909 he filled the chair of history of medicine, and in 1909 obtained a position suited to his abilities, that of professor of the clinic of mental pathology and diseases of the brain at the hospice Sainte-Anne. He was a most eloquent speaker and a remarkable professor. He was also a controversial speaker of the first rank and always took a leading part in the discussions of the Académie de médecine. He was an uncompromising enemy of alcoholism. He drew up the report of the commission appointed by the Académie de médecine to study the modifications to be introduced in the treatment of the insane. He opposed the current opinion which demands that the medicolegal expert pronounce on the degree of responsibility of the accused. The physician, he believes, has nothing to do with responsibility; he should be called on to say only if the subject is abnormal and in what way, whether or not he is dangerous, why, and in what degree. This is the thesis which he succeeded in having adopted by the Congrès des aliénistes et neurologistes français held in Geneva, in 1908. Dr. Ballet was a member and president of many societies, president of the Congrès des aliénistes et neurologistes français and founder of the Société française de psychiatrie. He had been a member of the Académie de médecine since 1912. He published a large number of works among which are his Le langage intérieure et les diverses formes de l'aphaise (thèse d' agrégation, 1886); in collaboration with Proust, a work on the Hygiene of the Neurasthenic; also, Clinical Lessons on Neuroses and Psychoses and a Treatise on Mental Pathology published in 1903. He was director of the *Revue de médecine légale et d'anthropologie criminelle.*

Marriages

ASST. SURG. LISTON PAINE, U. S. P. H. S., Victor, Mont., to Miss Virginia Pratt Spalding of Morganfield, Ky., March 22.

PASSED ASST. SURG. PENLIE BRISCO LEDBETTER, N. S. Navy, to Miss Harriet Elizabeth Hubbard of Newport, Ky., March 15.

WILLIAM MAGILL SCHULTZ, M.D., Philadelphia, to Miss Emma Downs Carter of Plainfield, N. J., March 28.

ASST. SURG. GEORGE WEHNES CALVER, U. S. Navy, to Miss Jessie Willits, at Manila, P. I., March 15.

GEORGE ANDERSON CRAFTON, M.D., to Miss Mary Mozelle Boyd, both of Fulton, Ky., March 17.

ROBERT FAGIN, M.D., Memphis, Tenn., to Miss Hattie McGee of Baldwin, Miss., April 2.

JAMES STEWART BELL, M.D., York, Neb., to Miss Kathlyn J. Kiely of Chicago, March 13.

JAMES SAMUEL GOETZ, M.D., to Mrs. Louise Strouse, both of Omaha, March 27.

Deaths

Henry Berlin, M.D., Chattanooga, Tenn.; University of Rostock, Germany, 1875; University of Tennessee, Nashville, 1885; aged 64; a Fellow of the American Medical Association and once president of the Tennessee State Medical Association; professor of abdominal surgery and clinical gynecology in Chattanooga Medical College from 1887 to 1906 and thereafter emeritus professor; surgeon and chief of staff of the Erlanger Hospital, Chattanooga, and visiting surgeon to St. Vincent's Infirmary; one of the best known and most loved physicians of Chattanooga; died at his home, March 31, from arteriosclerosis.

Samuel Pearce Duffield, M.D., Highland Park, Mich.; University of Giessen, Germany, 1858; Detroit Medical College, 1871; aged 82; a Fellow of the American Medical Association; a member of the American Chemical Society and an honorary member of the Michigan Pharmaceutical Society; a member of the faculty of Detroit Medical College from 1868 to 1872, and health officer of Detroit from 1887 to 1893, and from 1895 to 1898; one of the founders of the Parke-Davis Company which was originally known as Duffield and Parke; died at his home, March 25, from pneumonia.

Thomas Hugh O'Connor, M.D., Roxbury, Boston; College of Physicians and Surgeons, Baltimore, 1893; aged 49; a Fellow of the American Medical Association; for ten years police surgeon at Roxbury Crossing and since 1911 a school physician and medical inspector in the Division of Communicable Diseases of the Department of Health; for several years a member of the staff of the Children's Hospital; fell on the ice near his home, March 19, sustaining a fracture of the skull, and died from cerebral hemorrhage, March 30.

Emory Burr Huyck, M.D., Oak Harbor, Ohio; Baltimore University School of Medicine, 1895; aged 53; a Fellow of the American Medical Association; coroner of Ottawa County, Ohio; for fifteen years local surgeon of the Lake Shore and Michigan Southern Railway and chief surgeon of the Toledo, Port Clinton and Lakeside Company; health officer of Oak Harbor for twenty years; died at his home, March 20, from nephritis.

William Hayden Campbell, M.D., Los Angeles, Calif.; Gross Medical College, Denver, 1890; Miami Medical College, Cincinnati, 1891; aged 67; a Fellow of the American Medical Association; formerly a member of the State Board of Medical Examiners of Montana and a resident of Kalispell; who went to Los Angeles about a year ago in search of health; died at his home in that city, March 16, from pneumonia.

William Edwards Headen, M.D., Morehead City, N. C.; University of Maryland, Baltimore, 1891; aged 48; formerly a member of the Medical Society of the State of North Carolina and a member of the Board of Directors of the Morehead City Hospital and of the Bank of Morehead City; and for eight years a trustee of the Eastern Hospital, Goldsboro; died in the Morganton State Hospital, March 19.

Joseph Dyson Aspinwall, M.D., Warsaw, Ind.; Bellevue Hospital Medical College, 1883; aged 56; formerly a well known nose and throat specialist of New York City; who sustained a skull fracture while riding a bicycle in Central Park, New York, nineteen years ago, and had been mentally affected since that time, died at the home of his mother in Warsaw, March 23, from acute gastritis.

Eugene Charles Curtis Winter, M.D., Washington, D. C.; Howard University, Washington, D. C., 1883; aged 67; a member of the Medical Society of the District of Columbia; also a pharmacist; for many years physician to the poor and resident physician at the Minor Hospital for Children; died at his home in Maywood, Dominion Heights, Va., March 20, from cerebral hemorrhage.

Robert L. Lynch, M.D., Washington, D. C.; George Washington University, Washington, D. C., -896; aged 50; a Fellow of the American Medical Association; a graduate of the National College of Pharmacy and formerly one of the commissioners of pharmacy for the District of Columbia; since 1905 chemist of the Health Department; died at his home, March 26, from pneumonia.

Ralph James Howe, M.D., New York City; University and Bellevue Hospital Medical College, 1914; aged 24; until recently an intern in the City Hospital, Blackwell's Island, New York City, resigning this position to accept similar work in the Willard, N. Y., State Hospital; died in Willard, March 28, from heart disease.

Walter H. Merriam, M.D., Cleveland; Cleveland University of Medicine and Surgery, 1895; Western Reserve University, Cleveland, 1898; aged 48; a Fellow of the American Medical Association; associate in medicine in his alma mater; physician in charge of the medical dispensary of Charity Hospital; died at his home, March 28, from pneumonia.

A. A. McQueen, M.D., Weatherford, Texas; Medical College of South Carolina, Charleston, 1860; aged 79; surgeon of the Fifth Alabama Regiment, C. S. A., during the Civil War; for many years surgeon of the Texas and Pacific Railroad at Weatherford; died in that place, December 27, from senile debility.

Robert S. Hart, M.D., Pisgah, Ky.; Washington University School of Medicine, Baltimore, 1869; aged 72; a member of the Kentucky State Medical Association; a Confederate veteran; for more than forty years a practitioner of Fayette and Woodford counties; died at his home, March 21, from heart disease.

Emlen Physick, M.D., Cape May, N. J.; University of Pennsylvania, Philadelphia, 1878; aged 58; a member of the Medical Society of New Jersey; for many years president of the Society for the Prevention of Cruelty to Animals; died at his home, March 21, from cerebral hemorrhage.

Ezra Allen Hobbs, M.D., South Framingham, Mass.; Medical School of Maine, Brunswick, 1869; aged 70; an honorary member of the Massachusetts Medical Society and medical examiner for the South District of Middlesex; a veteran of the Civil War; died at his home, March 25.

John F. Carey, M.D., Braceville, Ill.; St. Louis College of Physicians and Surgeons, 1895; aged 54; a Fellow of the American Medical Association; for four terms president of the board of education and physician of Grundy County for twenty years; died at his home, March 19, from myocarditis.

John B. Watson, M.D., Deerfield, Kan.; Barnes Medical College, 1898; aged 39; a Fellow of the American Medical Association; formerly of Ashland, Ky.; was struck by a street car in Chicago, March 26, and died from his injuries half an hour later at St. Luke's Hospital.

James Manning Moore, M.D., Albany, N. Y.; Albany Medical College, 1894; aged 43; a member of the Medical Society of the State of New York; clinical assistant in his alma mater and later lecturer in physical diagnosis; died at his home, March 21, from pneumonia.

Thomas B. Earley, M.D., Philadelphia; Medico-Chirurgical College of Philadelphia, 1890; aged 49; a Fellow of the American Medical Association and a member of the staff of Jefferson Hospital for many years; died at his home, March 21, from bronchial pneumonia.

David E. DeRoss, M.D., Wichita, Kan.; Eclectic Medical Institute, Cincinnati, 1875; aged 72; secretary of the board of health of Wichita, from 1901 to 1904; a veteran of the Civil War and a survivor of the Little Big Horn campaign; died at his home, March 28.

Edward Wesley Roos, M.D., New York City; University of Buffalo, N. Y., 1903; aged 35; formerly a practitioner of Corning, N. Y., and oculist and aurist to the Corning Hospital; died at his home in New York, February 26, from nervous breakdown.

Sidney Lorenzo Williams, M.D., Birmingham, Ala.; Chattanooga, (Tenn.) Medical College, 1894; aged 53; a member of the Medical Association of the State of Alabama; a practitioner and druggist of Birmingham; died in an infirmary in that city, March 20.

Perry Lee Bolsinger, M.D., Johnstown, Pa.; Hahnemann Medical College, Philadelphia, 1900; aged 39; died March 21, in the Hahnemann Hospital, Philadelphia, where he had been operated on about three weeks before for disease of the liver.

John R. Smith, M.D., Golconda, Ill.; Jefferson Medical College, 1864; aged 71; while passing through Pratt, Kan., with his invalid daughter, March 19, on the Rock Island Railroad, was stricken with cerebral hemorrhage and died.

Percy L. McDade, M.D., Silver City, N. M.; Texas Christian University, Fort Worth, Texas, 1911; aged 34; formerly of Fort Worth, Texas; died at St. Joseph's Sanatorium, Silver City, N. M., March 17, from tuberculosis of the lungs.

Elihu L. Cook, M.D., Harlan, Ia.; College of Physicians and Surgeons, Keokuk, Ia., 1876; College of Physicians and Surgeons, Chicago, 1885; aged 76; a veteran of the Civil War; died suddenly at his home, March 28.

James H. Wells, M.D., Wilcox, Pa.; Bellevue Hospital Medical College, 1884; aged 62; for many years postmaster of Wilcox, and township clerk and treasurer; died in the Kane Summit Hospital, Kane, Pa., March 25.

Henry K. Deen, M.D., Central, Ind.; Northwestern University Medical School, Chicago, 1862; aged 75; one of the oldest practitioners of Harrison County; died at his home, about February 23.

John C. Lewis, M.D., Waukon, Iowa; State University of Iowa, Iowa City, 1889; aged 57; coroner of Allamakee County and health officer of Waukon; died at his home, March 22, from pneumonia.

John Lester Johnson, M.D., Milwaukee, Wis.; Milwaukee Medical College, 1902; aged 35; a veteran of the Spanish-American War; died at the home of his parents in Milwaukee, March 21.

William George Siegel, M.D., Brooklyn; Long Island College Hospital, Brooklyn, 1910; aged 28; assistant surgeon to Trinity Hospital, Brooklyn; died at his home, March 25, from pneumonia.

Chauncey S. Lamb, M.D., New Haven, Conn.; University of Buffalo, N. Y., 1893; aged 44; a member of the Connecticut State Medical Society; died at his home from pneumonia, March 22.

Mary E. Blackmar Brueson, M.D., Jacksonville, Fla.; Women's Medical College of Pennsylvania, Philadelphia, 1867; aged 74; died at her home in South Jacksonville, March 19.

Amos Sawyer, M.D., Hillsboro, Ill.; Washington University, St. Louis, 1859; aged 78; once president of the Central Illinois Medical Society; died at his home near Hillsboro, March 18.

Suzette Ehrmann Dunlevy, M.D., Brooklyn; Homeopathic Medical College of Missouri, St. Louis, 1879; aged 80; died at the home of her daughter in New York City, March 25.

Helen T. Myers, M.D., Colorado Springs, Colo.; Hahnemann Medical College, Chicago, 1883; aged 77; died in Falconer, N. Y., February 10, from chronic laryngitis.

Jesse N. Ball, M.D., Bogalusa, La.; Louisville (Ky.) Medical College, 1893; a member of the Louisiana State Medical Association; died suddenly at his home, March 15.

James Hope Stewart, M.D., Roxbury, Boston; College of Physicians and Surgeons, Boston, 1891; aged 74; died at the home of his daughter in Randolph, Mass., March 25.

Kenneth Gunsolus, M.D., Detroit; Queen's University, Kingston, Ont., 1871; aged 65; a member of the Michigan State Medical Society; died at his home, March 24, from arteriosclerosis.

Emil Sincere, M.D., Chicago; University of Louisville, Ky., 1874; aged 80; formerly a member of the Illinois State Medical Society; died at his home in Chicago, March 30.

Lexor B. Snow, M.D., Cleveland; Western Reserve University, Cleveland, 1887; aged 69; a member of the Cleveland Academy of Medicine; died at his home, March 16.

Frederick Eugene Grant, M.D., Kansas City, Mo.; University of Michigan, Ann Arbor, 1877; aged 68; a veteran of the Civil War; died at his home, March 15.

James H. Spears, Dresden, Tenn. (license, Tennessee, 1889); aged 75; died suddenly at his home at Liberty Church, 6 miles south of Dresden, March 23.

John William Doherty, M.D., Jersey City, N. J.; University of Vermont, Burlington, 1887; aged 50; died at his home, March 26, from angina pectoris.

Alvis Marcellus Zahorik, M.D., Chicago; Dearborn Medical College, 1906; aged 56; died at his home in Chicago, March 24, from cerebral hemorrhage.

Leighton I. Sherwood, Wenona, Ill. (license, Illinois); aged 86; a practitioner since 1859; died at his home, February 16, from bronchopneumonia.

Ernest G. H. Miessler, Chicago (license, Illinois, years of practice, 1878); a resident of Chicago since 1871; died at his home, March 2, aged 90.

Maria Louisa Cummings, M.D., Roxbury, Boston; Boston University School of Medicine, 1879; aged 73; died at her home, March 24.

Arthur Guilbeau, M.D., Breaux Bridge, La.; Tulane University, New Orleans, 1879; aged 59; died at his home, March 17.

James I. Marchand, M.D., Irwin, Pa.; Jefferson Medical College, 1862; aged 77; died at his home, March 24.

T. D. Chunn, Holly Grove, Ark. (license, Arkansas, 1903); aged 84; died at his home, March 14.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE WINE OF CARDUI SUIT

(*Continued from page 1154*)

April 3, Morning

The Court met pursuant to adjournment. Dr. Arthur Loevenhart resumed the stand as a witness on behalf of the defendants.

FURTHER CROSS-EXAMINATION BY MR. HOUGH

Mr. Walker, attorney for the plaintiffs, made a motion for the purpose of taking the deposition of Mrs. Lydia Powell of Kentucky, stating:

May it please the court, I wish to make a motion for the purpose of taking the deposition of Mrs. Lydia Powell of Kentucky, the woman in reference to whom we tried to cut out one of the pictures in one of the articles and where the JOURNAL charges that she is dead. We received word Saturday or Friday night by telegram that she was unable to come here, that she was ill in bed, but that her deposition might be taken and we want to take it. Up to that time, she was ready to come here, but she has a severe attack of grip and her doctor says she must not come. We want to take the deposition of that lady, whom they say is dead, either on written interrogatories or send some one down there for the purpose of getting her deposition.

The Court ruled that the deposition could be taken on written interrogatories.

CROSS-EXAMINATION OF DR. LOEVENHART

Mr. Hough: *Q.*—Doctor, do all works on pharmacology and therapeutics hold that, if a medicine or drug or substance has no effect on the circulation or respiration of a dog that has been anesthetized it will have no effect whatever upon a sick human being?

Objection was made by Mr. Scofield, the Court ruling that the witness might answer, to which the defendants excepted.

A.—I do not know all the textbooks of pharmacology and therapeutics.

Mr. Hough: *Q.*—Do any that you know of so state or hold?

Mr. T. J. Scofield:—That is objected to, I do not think that is proper.

THE COURT:—I think that is for the purpose of testing the general knowledge of the witness, and he may answer.

To which ruling of the Court the defendants, etc., excepted.

A.—I do not recall having ever seen a statement in any textbook on pharmacology or therapeutics bearing on that point.

Mr. Hough: *Q.*—Either directly, or indirectly? *A.*—Not as I recall.

Q.—Do you know of any work on pharmacology and therapeutics which states the contrary?

Mr. T. J. Scofield:—If the Court please, I object to that. The doctor has made no such statement at all.

THE COURT:—He may answer.

To which ruling of the Court the defendants, etc., excepted.

Mr. Hough:—I am entitled to know how much he has read.

THE COURT:—He may answer.

(The question was then read.)

A.—What is the contrary, please?

Mr. Hough: *Q.*—That the conclusion which you drew from the experimentation on the dog was not conclusive as to the effect of the medicine on a sick human being. *A.*—May I get your original statement?

(The preceding questions and answers were then read.)

A.—I have never seen a statement with reference to the proposition in any textbook, either pro or con.

Q.—Or which bears on the proposition in any way? *A.*—My general knowledge of what these books contain would lead me to draw a conclusion regarding it, I mean to say coupled with my general knowledge of the subject, it would lead me to a conclusion.

Q.—What conclusion would they lead you to?

Mr. T. J. Scofield:—That is objected to. It was not gone into on direct examination, and he has made no statement that would justify the question.

THE COURT:—I think that question is well taken. We have not the books that he has read.

Mr. Hough:—We are trying to find out, your Honor, what books he has read. He has declined to name any book pro or con and I think we are entitled to get that out of the witness.

THE COURT:—Here is a man whose life, apparently has been given up to independent research and he has testified very frankly and openly and positively. Now he has told you that, so far as the literature is concerned, that he does not find certain things—

Mr. Hough:—In the literature.

THE COURT:—Yes.

Mr. Hough:—But there must always be a foundation for the belief, teaching and principles on which an expert pharmacologist acts. He must start with some foundation in some medical work, or he must evolve the whole thing from his inner consciousness, starting on the theory that nothing has been written on the subject.

THE COURT:—But the present question is based on the experiments which the witness has made, and now you are asking him whether certain things appear in certain books, or any books.

Mr. Hough:—What I want to get at is the name of any medical work which justifies the conclusion which he drew from the experiments on the dog.

THE COURT:—Ask him if he knows of any.

Mr. Hough: *Q.*—Do you know of any? *A.*—Any what?

Q.—Any work which justifies, in its statement of principles, the conclusion which you drew as to your experiment on the anesthetized dog?

Mr. T. J. Scofield:—That is objected to for the same reasons.

THE COURT:—He may answer.

To which ruling of the Court the defendants, etc., excepted.

A.—That involves of course the question of the conclusions I drew.

Mr. Hough:—Oh, no.

THE COURT:—Oh yes, necessarily.

Mr. Hough:—It applies first to the question I asked.

THE COURT:—Read the question.

(The series of questions relating to this subject was then read.)

Mr. Hough:—It depends on whether the witness means the conclusions he drew from the experimentation, or the conclusions he drew from what he read in some other book. I am not referring to the conclusions which you drew from your experimentation.

Mr. T. J. Scofield:—If the Court please, I object to it because this is the only conclusion that the doctor drew and this is not cross-examination.

THE COURT:—I think he may answer if he can.

To which ruling of the Court the defendants, etc., excepted.

A.—I drew certain conclusions from my experiments. I drew no conclusion in reference to what my experiments showed from any other source than my experiments, except my whole past experience as an experimentor and my acquaintance with the literature on the subject.

The witness was then asked concerning his acquaintance with literature on this subject. He stated that as a student he used, among other sources, Cushny's textbook on pharmacology stating:

He gives references at the end of each chapter so that one who does not know the literature may find the names of the journals and of the principal articles there. He puts as the conclusion of the chapters in his book the things which enable you to get at the sources of the information from which he compiles his book.

Q.—Did not Cushny state that negative tests do not disprove the value of medicine?

Mr. T. J. Scofield:—That is objected to, if the Court please.

A.—I think Cushny did state that.

THE COURT:—That has appeared here before. His answer may stand.

To which ruling of the Court the defendants, etc., excepted.

Mr. Hough: *Q.*—Did you ever read Sollman? *A.*—I never read Sollman from beginning to end.

Q.—Would you regard Sollman as an authority? *A.*—Sollman's book was published, if I recall, something like ten years ago. No book published ten years ago is an authority in pharmacology today.

Q.—You mean the science changes so rapidly? *A.*—The science changes rapidly.

Q.—So what pharmacologists and therapeutists believed ten years ago, they do not believe today? *A.*—A great many things that appeared ten years ago and were stated as "It is that such and such a thing is useful," may in the meantime have been shown to be worthless, but what was definitely known to be fact, ten years ago, is a fact today. What was stated as a fact ten years ago is, in the main, a fact today. The theories may change, but the facts remain.

Q.—So that conclusions based on negative results today may be changed in the next ten years? *A.*—It is difficult to say what the future will bring forth in any branch of human knowledge. I am certainly not in a position in which I will venture to say what the future will bring forth in any branch of human knowledge.

The witness was then asked further questions concerning his knowledge of Sollman's book. He was then asked:

Mr. Hough:—I asked him if Sollman was regarded as any authority among pharmacologists.

THE COURT:—He may answer that question.

The Witness: *A.*—Sollman is personally regarded as a very competent pharmacologist. That of course does not apply to his book. I have not seen this edition of his book at all, if it exists. I have not seen the date of the copyright there at all.

He was then asked whether he agreed with the statements in Sollman's book to which he replied that he had not read the facts submitted to him in a previous edition of Sollman. He was then asked:

Q.—Have you read Cushny you say, and you state that Cushny—
A.—I have read parts of Cushny.

Q.—You know that Cushny states the rule the opposite of what you stated it, as to a conclusion from negative tests, don't you? *A.*—I will answer that question and explain. In the former edition of the book—well, in an earlier edition of any book, a man often makes statements which, in a later edition of his book, he omits. Now, this book that Mr. Hough has is an earlier edition of Cushny's book. The last edition of his book, which was gotten out about six months ago; in that edition he entirely omits this whole part. He has changed his opinion himself, I think and I think I know why he has changed it, since this book was written. Since he is not here to be questioned about it, of course, it is impossible to state just why, but this statement is not in Cushny's last edition, which was published about six months ago. It is omitted entirely.

Q.—What statement is omitted entirely? *A.*—The statement that you quoted there yesterday—or Friday.

THE COURT: *Q.*—You mean about the negative tests? *A.*—Yes, sir.

Mr. Hough: *Q.*—What does he state in his new edition with reference to negative tests? *A.*—He says nothing. He omits it so far as I could see.

Q.—He does not state that you can draw a conclusion from negative tests that a medicine is not valuable to a sick human being, does he? *A.*—He does not draw any conclusion one way or another. He omits the whole proposition as apparently unimportant or untrue according to his original book.

Q.—This edition appears to be 1910. Is that the old edition? *A.*—That is an older edition. There have been many editions of this book. The last edition was in 1915, and I think appeared about October of last year and apparently represents the writer's opinions on the part of the author.

Q.—Well now, then, can you name any authority which agrees with you on that proposition, or any medical book or any book on pharmacology?

Mr. T. J. Scofield:—I object to that question.

Mr. Hough:—I will ask to that—any book which is taught in the schools of America or used in any school in America. *A.*—I do not know what books are used in the schools of America.

Q.—Do you know of any in America, any American publication which agrees with you on that proposition? *A.*—I have never looked it up to see whether they agree with me or not. Therefore, I am unable to state.

Q.—But you say that as they are published, they are submitted to you by the publisher? *A.*—They are often, some of them are submitted to me.

Q.—Then you must know. *A.*—No, I have never looked them up on this point. I have not been interested.

Q.—What kind of a dog was that dog that you operated on? *A.*—It was a cur, I think.

Q.—A male or a female? *A.*—It was a male as I recall; I think I am correct about that.

Q.—What became of the dog? *A.*—The dog was—at the conclusion of the experiment, killed with an anesthetic without being allowed to recover consciousness and was then incinerated, or at least that was the direction I gave to my janitor as with all animals of that kind, and I presume he did that with it.

Q.—How much ether would it have taken to have killed the dog in the first place, at the time you were giving it the anesthetic? *A.*—You mean what is the fatal dose of ether for a dog?

Q.—Well, that is one way of putting it. *A.*—Pardon me?

Q.—I say, that is one way of putting it. *A.*—A vapor containing approximately six per cent. of ether will result fatally to an animal.

Q.—How much ether did you give this dog? *A.*—I did not measure or weigh the ether, or determine its concentration in the vapor that the animal was breathing. I merely know that the animal was in a stage of surgical anesthesia.

Q.—You do not know how much more added to what you gave would have killed the dog. *A.*—No, I do not, exactly. I know that the dog was not anywhere near dead, but was in excellent condition as shown by his high blood pressure and his perfectly normal respiratory movements, just as a person is when being operated upon.

Q.—Approximately how much more? *A.*—In grams?

Q.—No per cent.; twice the amount? *A.*—Twice the concentration of vapor required as an anesthetic, will kill a person or an animal.

Q.—It will? *A.*—Yes.

Q.—Would fifty per cent. more kill the dog? *A.*—That would be in the limit of what would kill; an increase of 50 per cent. over the amount required to anesthetize with ether, is in the range of the amount which will be fatal, if continued.

Q.—Now, if you had given the dog 50 per cent. more ether than you gave him— *A.*—50 per cent. more concentrated vapor than I gave him.

Q.—Well, put it that way, whatever it was. Would there have been any change between the time you gave it to him and his death, in the blood pressure or the respiration? *A.*—Oh, yes.

Q.—There would have been a difference? *A.*—Yes.

Q.—What would have been the difference, so far as the blood pressure is concerned? *A.*—The blood pressure would have gradually become lower.

Q.—What would have been the difference so far as the respiration is concerned? *A.*—The respiration would have become smaller in size and of slower rate.

Q.—Until they finally stopped? *A.*—Until they finally stopped.

Q.—How much alcohol would it take to kill a dog? *A.*—I do not recall the fatal dose of alcohol, for a dog.

Q.—I thought you told me it was well known? *A.*—I did not.

Q.—Didn't you state that— *A.*—I have never stated that in this court room or anywhere else.

Q.—Then I have confused your statement with that of some other witness. *A.*—That is all right.

Q.—You do not know? *A.*—I do not know. I do not know offhand. It is a matter that could be looked up.

Q.—Do you know approximately? *A.*—I could state what would certainly kill him, but I could not tell you what would be the smallest amount which would kill a dog.

Q.—What would certainly kill him? *A.*—Of course it will depend on the size of the dog.

Q.—I mean, a 14-pound dog. *A.*—Administered how?

Q.—Subcutaneously. *A.*—In what concentration?

Q.—You name the concentration. *A.*—You are asking me to give you a definite dose and you won't state the conditions. It will vary according to the concentration, very large.

Q.—Take pure alcohol. *A.*—Pure absolute alcohol—I will have to figure that out. Oh, it would be somewhere in the neighborhood I presume of one ounce of absolute alcohol. It would be somewhere in that neighborhood.

Q.—Would it require any different amount if it was given to him in his stomach? *A.*—Probably, it probably would.

Q.—More or less? *A.*—I should think it would require less—more to kill by stomach perhaps.

Q.—Why is that? *A.*—Although it would depend again somewhat on the concentration. If you are speaking of absolute alcohol, it might even require less. It is very difficult to state because the local action of alcohol would vary and become of great prominence.

Q.—Now, speaking of absolute alcohol, there is no such thing, is there, except in theory? *A.*—Alcohol can be prepared so nearly absolute that it is very difficult for anyone to detect any water in it.

THE COURT:—95 per cent. is called absolute, is it not?

A.—No, sir. The alcohol of commerce that is called "absolute" is something like 99.9 per cent., 99.8, 99.9 per cent.

Mr. Hough: *Q.*—How much alcohol that was of the strength of 20 per cent. would it require to kill a dog, given in his stomach? *A.*—I do not know. I have stated before that I did not know, that I was simply approximating from my general knowledge of what might be. I am simply taking my knowledge of the fatal dose of ethyl alcohol. I have not looked up the statements made in the literature.

Q.—What were you figuring? *A.*—I was figuring on the basis of the fatal dose for man.

Q.—You figure that way, don't you, as between the weight of a man and the weight of a dog? *A.*—We do.

Q.—And as you can figure— *A.*—But I may say that we figure that way simply in the absence of other data.

Q.—How much of 20 per cent. alcohol would be a fatal dose for a dog injected under the skin, subcutaneously? *A.*—I do not know.

Q.—You are unable to approximate? *A.*—I might be able to approximate, that is, I could not by any means give you the smallest amount but that is all in the literature if we care to look it up. I could not simply sit here and do a piece of research work on that proposition.

Q.—Would an ounce be sufficient? *A.*—An ounce of 20 per cent. alcohol?

Q.—Yes. *A.*—I should say not.

Q.—But anything short of the lethal dose would tend to increase to some extent both the blood pressure and the respiration, would it not? *A.*—No, sir.

Q.—Well, if the lethal dose increases the blood pressure and respiration, why don't something just a little short of the lethal dose also increase it, but not so much. *A.*—Because the lethal dose—that is to say, because the dog's blood pressure at death is zero and his respiration is zero, which is evidently not increased over the normal.

Q.—But is there not a time in giving a dog alcohol less than the amount which is required to kill, when the effect commences to be apparent on the circulation and respiration? *A.*—Certainly.

Q.—In other words, it is not necessary to wait until you give the lethal dose before the effect is known? *A.*—Oh, no.

Q.—Therefore, if you give a little less than the lethal dose, there is a change in the respiration and circulation? *A.*—Certainly.

Q.—And as you give a little less than that, there is a change, but not so great? *A.*—That is right.

Q.—And you give a little less than that and there is still a change, but not so great as before. *A.*—It depends on how much less you give.

Q.—At what point do you stop, would you say? *A.*—I am unable to say.

Q.—Then how could you say that 20 per cent. alcohol added to the anesthetic would not affect the blood pressure or respiration at all? *A.*—I said it did not. I did not say it would not. I said it did not affect the blood pressure or respiration of the animal under observation.

Q.—Would you not conclude from that, that there might be something wrong with your experiments? *A.*—Absolutely not. Having done that many times before, and found the same result, I concluded that I was getting the normal result.

Q.—A certain amount of alcohol is freely oxidized in the stomach of a man or dog? *A.*—Absolutely not.

Q.—There is no amount that is freely oxidized? *A.*—Not as far as I know. Oxidization usually does not occur in the stomach. There is no oxygen there, or but very little.

Q.—I have reference to alcohol when it is taken into the stomach; it is oxidized in the system, is it not? *A.*—It is oxidized in the system. It is not oxidized in the stomach. The stomach is outside of the body in a certain sense. It is only after it is absorbed in the system that it is oxidized.

Q.—Well, it is freely oxidized? *A.*—It is in a certain amount.

Q.—That is what I say. *A.*—Yes.

Q.—It is freely oxidized in the proportion of 20 per cent., isn't it? *A.*—Yes, if it does not go in too large an amount.

Q.—So any amount that is freely oxidized of course would not increase the blood pressure or affect the respiration, would it? *A.*—It might.

Q.—But does it as a rule? *A.*—I have never made any experiments to determine that.

Q.—Then you mean that it may or may not? *A.*—It depends on how quickly it was oxidized; how rapidly it was absorbed; as to whether it ever got into the blood in sufficient concentration to affect the blood pressure or respiration. It all depends on the rate of absorption or rate of oxidization; the rate at which it goes into the body and the rate at which it is removed from the body by oxidization.

Q.—Now, you first gave it to nine rabbits of the 13? *A.*—Yes.

Q.—Was that by the mouth? *A.*—By mouth.

Q.—Or injection. They did not die, you say? *A.*—The first nine did not. They recovered.

Q.—Are they alive now? *A.*—I could hardly state.

Q.—You do not know how long they lived afterwards? *A.*—They recovered in perfect condition. They were eating and were normal to all appearances.

Q.—Now, as to the other four, you gave how much more of Wine of Cardui? *A.*—I increased the dose of Wine of Cardui from approximately half the amount required to kill, up to the amount required to kill, by steps.

Q.—How many steps did you have to take? *A.*—I think, as near as I can remember, three, two or three steps.

Q.—How much did they increase at each day? *A.*—About one eighth or a little more than one eighth, perhaps one sixth of increase each time.

Q.—How far apart, or how rapidly did you administer it? *A.*—I administered it all in one dose by mouth.

Q.—Well, in five minutes or ten minutes? *A.*—Well, I did not time myself; it was given within a period of perhaps 15 or 20 minutes. I do not know exactly how long I took because I did not measure it and I don't like to estimate a thing like that, that happened nearly a year ago.

Q.—What was the potent amount, figured in alcohol, that they took? *A.*—The fatal dose that I found ranged between eight and eight and a quarter grams of absolute alcohol, calculated as absolute alcohol, per kilogram of body weight of the rabbit.

Q.—What was the body weight of the rabbit? *A.*—Oh, it varied. It varied from fifteen hundred and two thousand grams.

Q.—Can you tell me the exact amount? *A.*—Maybe to 2,500 grams.

Q.—Can you tell me the exact amount of 20 per cent. alcohol which you gave which killed one of the rabbits? *A.*—It ran up, as I recall, to an ounce and a half of the 20 per cent. alcohol, something in that neighborhood.

Q.—Then you cut them open and examined the stomach? *A.*—Yes, sir, after these that died. I did not kill any in which the Wine of Cardui was not fatal. I did not kill those that survived the dose and examine them. I merely opened and autopsied those that died from the Wine of Cardui, and the 20 per cent. alcohol.

Q.—You did not see any effect from anything, except the alcohol. *A.*—No, sir.

Q.—You are positive of that? *A.*—Absolutely.

Q.—Do you know how long it takes for viburnum prunifolium to affect a sick person? *A.*—I do not, or whether it can affect them at all.

Q.—Well, it is a medicine that is referred to by all writers on therapeutics, isn't it? *A.*—No, sir.

Q.—Isn't it? *A.*—I think not.

Q.—By a great many of them? *A.*—Some of them refer to it, and some do not. I could not say how many, but I feel perfectly confident that all writers on therapeutics do not refer to it.

Q.—It is in the United States Pharmacopeia, isn't it? *A.*—I believe so, yes. Yes, it is in the pharmacopeia.

Q.—That is, of the School that you belong to? *A.*—What do you mean by the school? The School of the Pharmacopeia?

Q.—Do you know anything about the different schools of medicine? *A.*—I have heard. I have heard of different schools of medicine.

Q.—What are the other schools of medicine, other than the one you belong to? *A.*—My own interest in medicine—I graduated, the only school I graduated from in medicine is the Johns Hopkins University—and my interest in medicine has been in the action of drugs.

Q.—What is your school of medicine? *A.*—My school of medicine is the school of medicine that gives the drug and observes, if possible, whether it has any effect or not.

Q.—Are you a homeopath? *A.*—I am not.

Q.—Well, what effect do you expect the medicine to give or to have on a well woman, whose menstruation was perfect? *A.*—What medicine?

Q.—Didn't you say you gave some Wine of Cardui to a well woman?

A.—Oh, I never gave Wine of Cardui. I gave the residue from the evaporation of Wine of Cardui.

Q.—Isn't that the dose that the homeopathic—isn't that the test that the homeopathist usually make? *A.*—I think they do not make such tests, but I am not sure.

Q.—Well, do you recognize the principle as being a correct principle for making tests? *A.*—To give drugs to a well person?

Q.—To give drugs to a well person and see what the effect is, and then, in different doses to cure? *Simila similibus curantur.* That is the principle upon which they go, is it not? *A.*—I have heard of that principle.

Q.—And you were applying that principle in that test, were you not? *A.*—Oh, no, I was not. The only principle I applied, or ever do apply, in the study of any drug in its action on any living creature, is to give the drug to that creature and observe as clearly and carefully as I can, whether it has any effect. Now, it is very important to me in studying the action or use of any drugs in the treatment of any diseased condition, to also know its effect on a healthy human being or a sick human being, the healthy and the sick animal, as near as possible under the same conditions as we expect to use it in the cure.

Q.—Is it not a well recognized fact that there is a difference in the action of drugs in a well person and a sick person? *A.*—As a general proposition, I do not think your statement will hold water.

Q.—Well, in what respect is the statement erroneous? *A.*—It is erroneous in this respect: I can name you many. Chloroform and ether will anesthetize a sick person or a well person. Alcohol will make a sick person or a well person drunk. Digitalis will kill a sick person or a well person, and will often slow the pulse. Purgatives purge sick people and well people. Soporifics, such as chloral, put sick people to sleep and put well people to sleep, and I might go on and state thousands of incidents.

Q.—Outside of anesthetics— *A.*—Take atropin—

Q.—What drug do you know of which would have a different effect on a sick person from what they would have on a well person. *A.*—I could not state anything very positively along that line, Mr. Hough.

Q.—Isn't that what therapeutics teach that there is a difference in the action of drugs on sick people from the action of the same drugs on well people? *A.*—No, sir, I think they do not teach that.

Q.—You know of no one who teaches that? *A.*—I recall no one who teaches that general proposition that the same drug has a different action on a well person, from what it does on a sick person.

Q.—Well, do you know of any who teach that the action is the same with all drugs on well people as on sick people? *A.*—I know no one who teaches that.

Q.—You know of no one who teaches either way? *A.*—Either of those two propositions as you have stated them.

The examination then discussed the witnesses' analysis of Wine of Cardui concerning the substance found and his method of identification. He was asked:

Q.—Would you say that the resins or resinous ingredients of viburnum prunifolium had any therapeutic value? *A.*—Having never used it, I should not make such a statement, cannot from my own knowledge, but I state that I know that viburnum prunifolium is mentioned in many places in the literature as being supposed to be useful as a uterine sedative, with the addition that frequently many physicians do not agree that it is useful, and that the opinion of many physicians is that it has not the virtues which have been claimed for it. I also know that many nostrums are stated to contain viburnum prunifolium and that they use it as a talking point, that it is a very valuable uterine sedative.

Q.—Do you know the same of carduus benedictus? *A.*—I recall no authority, no one—no piece of work in the literature, no competent physician, clinician or scientist who has ever shown that carduus benedictus is of any use whatever in the treatment of disease, except in so far as that is implied by the fact that it is a simple bitter.

Q.—Do you know to what extent it is used by the medical profession? *A.*—I do not.

Q.—Do you know whether it is used at all by them? *A.*—I do not. I have never seen a prescription with it in.

PHARMACEUTICAL PREPARATIONS

Q.—Do you know if it is manufactured by the pharmaceutical houses? You know that, don't you? *A.*—I understand that it is manufactured by certain pharmaceutical houses, but not by every pharmaceutical house. Many such firms as Mulfords and Squibbs at the present time, houses which are very closely in touch with the medical profession—I know that they do not list it in any form. That is my understanding of it. Certain other houses, I understand, do list it.

Q.—Now, coming back—before I say that, is that listed by any of them as a uterine sedative? *A.*—I do not know what—I do not see what right a pharmaceutical house has to state what the therapeutic indications for a drug are, since they have no expert knowledge on that line, and I do not know what they list it under or whether they presume to tell the medical profession or the class of the medical profession who would pay any attention to what they said, what it is used for or not. I have no knowledge along that line.

Q.—Would it not be likely that they would get it from what the doctors say they use it for? *A.*—It is possible.

Q.—Now, coming back to the medical schools, you say you are not a homeopath? *A.*—No, sir.

Q.—Do you ever apply the drugs or do you ever practice any of the principles of homeopathy? *A.*—I could not say as to that, not being familiar with the principles and practices of homeopathy.

Q.—Have you ever seen a homeopathic pharmacopeia with reference to viburnum prunifolium? *A.*—Possibly in browsing through libraries I may have seen it and I may have even taken it off the shelf and

opened it, but I have no distinct recollection of having done so. It is possible.

Q.—Have you ever seen it with reference to carduus benedictus? *A.*—I have not.

Q.—And so far as you know, you never practice or apply the principles of homeopathy? *A.*—I say, so far as I know. I may apply them or may not apply them because I do not know them.

Q.—How about eclecticism? Is that another school of medicine? *A.*—It is said to be.

Q.—Did you ever hear of it? *A.*—I have seen it—I have seen the journal of eclectic medicine, so called.

Q.—Is that your school of medicine? *A.*—I am not a member of that school so far as that is concerned, if it is a school.

Q.—Have you ever seen their pharmacopeia? *A.*—No, I have never seen their pharmacopeia as I recall it.

Q.—On either of those drugs? *A.*—No, sir.

Q.—What would you call your own school of medicine? *A.*—I would call my school of medicine that branch of medicine which investigates diseases and tries to determine their symptoms and their causes and the proper treatment of them. That is to say, so far as drugs are concerned, or the action of drugs on human beings and see what the effects are as nearly as we can determine them. If a drug is capable of acting in enormously small quantities, we find it and we observe it, and if it is capable of acting in small quantities, we see it. Of course it does not make any difference to the drug. The drug does not know whether I am an eclectic or not, or a homeopath. I simply give the drug to an animal or a human being and I give it in a quantity which gives some effect.

Q.—That is the same way with the advocates of the other schools of medicine, isn't it? *A.*—I am not acquainted with their methods. All I know is that we try to control our work as carefully as it is possible to do it. As I understand the homeopathic school of medicine, they lay a great deal of stress on symptoms. They ask a person "Have you a pain in your head or anywhere else?" and they put that down as one of the symptoms of the drug. We don't pay any great attention to the symptoms. We pay more attention to signs, things which can be determined objectively. For instance, if we give a drug for its action on the heart, we take the heart rate, we take the pulse rate and we regard it critically and objectively, and then we do not ask the patient anything. We simply record the circulation under the new conditions and the effect of the administration of the drug.

The examination again took up the constituents of the products analyzed by Dr. Loevenhart, going over the quantities of various drugs and their constituents. The question of the alcohol content was then taken up:

Q.—Is alcohol a preservative? *A.*—Yes, sir.

Q.—If Wine of Cardui were put up with 15 per cent. alcohol, and after a short time, should ferment or spoil, what would you say that action was due to? *A.*—It would depend on the conditions under which it had been preserved and whether any other substances were present. For instance, if the material contained quite a little glycerin or sugar, it would not spoil under any conditions even though there were no alcohol present.

Q.—I am not asking you about other preservatives. I am asking you about this particular thing? *A.*—I do not know what might cause it. It might be left near a radiator; it might evaporate partly or the bottle might break, I would not know why it has not kept.

Q.—An amount of alcohol which would prevent that, would serve a useful purpose? *A.*—Prevent what?

Q.—Prevent the fermentation? *A.*—Certainly, if it prevented the fermentation, the chemical change, it would be serving a useful purpose I should say, but that could also be accomplished by other products.

Q.—What is that? *A.*—I say I agree with you.

Q.—Then the use of alcohol in that connection could not be charged to be vicious, could it? *A.*—The use of alcohol in that connection could be accused as vicious, absolutely.

Q.—Even if used for preservative purposes. *A.*—Yes, sir.

Q.—Now, it would not be vicious, however, if there was more alcohol, sufficient quantities to act as a solvent of the resinous matter, then it would not be vicious, would it? *A.*—If you wanted a preparation containing resinous matter, you would have to use an amount of alcohol which would dissolve the resinous matter.

Q.—If you used more alcohol, in sufficient amount to dissolve the resinous matter in viburnum prunifolium, then the manufacture and sale of it would not be vicious? *A.*—It might be vicious.

Q.—But not for the reasons for which you stated this was vicious? *A.*—I have not stated the reasons for which this is vicious. I have never stated why I regard this as vicious.

Q.—I understood you to state that the reasons why you said this was vicious— *A.*—Wine of Cardui you mean?

Q.—Yes—was that it did not have enough alcohol to absorb the resinous matters? *A.*—That is not a full statement at all of why I regard the preparation as vicious.

Q.—Well, you may state it over again. *A.*—I regard Wine of Cardui as vicious for these reasons: in the first place the amount of alcohol which has been used in the preparation of Wine of Cardui is far in excess of the amount which is required to preserve the material; not in percentage, you understand, but in reference to the material dissolved. It would be perfectly possible, and is possible to prepare an alcoholic concentration of these plants which would contain a much higher per cent. of alcohol, but it would also contain a much higher percentage of these drugs, which if they did not have any active principle in them —which I do not agree with, because I do not know, I have not examined them except this 20 per cent. alcohol, which does not extract anything from them that is useful—the dose would be so reduced that the patient would be getting very little alcohol, as a matter of fact, very, very little alcohol. For instance, if they used the official fluid extract of viburnum prunifolium which contains 55 per cent. alcohol, the dose that the patient would get in taking one dose of that would be 1.1 c.c. of absolute alcohol, practically one quarter teaspoon, whereas in the case of Wine of Cardui, with its tablespoonful dose, it is something like I think 27 times that amount of alcohol.

Q.—Don't that depend on the number of doses of viburnum prunifolium that you take in a day? *A.*—The second reason why I regard—

Q.—One moment, please. Answer this question. *A.*—You have asked me why I regard Wine of Cardui as fraudulent and I would like to finish that.

Q.—Answer this question and then go ahead with it.

THE COURT:—I think your question answers itself, Mr. Hough.

To which ruling of the court the plaintiffs, etc., excepted.

A.—(contined) In the second place I regard it as fraudulent—

Mr. Walker:—There was no question about its being fraudulent. The question was why you thought it was vicious.

The Witness:—He was asking why it was fraudulent.

Mr. Walker:—No, he asked you why you thought it was vicious.

The Witness:—It is vicious because—it is vicious to my mind, in the second place, because it advises the taking of Wine of Cardui over long periods of time by patients for conditions in which it cannot do them any good, as shown by my work among other things. In the third place, it recommends the Wine of Cardui in conditions the early symptoms of which are extremely dangerous. Now, for instance, in cancer, the early symptoms are pain and hemorrhage. Now a woman is told, if she has pain and hemorrhage at the menstrual period, to take Wine of Cardui. She will not have an examination and she will not get an early diagnosis of her cancer and it will not be found out that she has cancer before it is too late to operate. Furthermore, it recommends itself to people for a displaced uterus, that it can take the uterus or womb that is out of position and put it back into position, a thing which it obviously cannot do. For those reasons, the fraudulent claims and the unnecessary use of large amounts of alcohol and the taking of it month in and month out, which they recommend—I might say year in and year out, almost as is possible if it is followed out according to their directions, and the amount, and its being taken day in and day out from the time of puberty, fourteen years, to the change of life, 45 years—that is the reason why I regard it so.

Q.—Now you mean, doctor, that if it was viburnum prunifolium, and it contained 55 per cent. alcohol, it would not be vicious; is that what you mean? *A.*—Not exactly.

Q.—Well, would it be vicious or would it not? *A.*—It would be vicious if it were sold to do things that it could not do.

Q.—Well, is it your opinion then that viburnum prunifolium won't do anything that the doctors give it for? *A.*—That is a matter of opinion, yes sir.

Q.—Therefore you think that the doctors who give viburnum prunifolium to cure these various menstrual troubles, are engaged in vicious work? *A.*—No, I did not say that.

Q.—Don't that follow? *A.*—No, not at all.

Q.—You say that the viciousness is something that you conclude, or that follows as a conclusion from your pharmacologic tests? *A.*—Partly.

Q.—It is a pharmacologic question, not a moral question then, is it? *A.*—Partly. They are so bound up together—

Q.—Would you consider it a therapeutic question? *A.*—A therapeutic question.

Q.—And a physiological question? *A.*—A physiologic question.

Q.—Who suggested that you use the word "vicious" in this connection? *A.*—No one suggested that I use any word in any connection.

Q.—You never discussed it with anybody? *A.*—I don't know that I have. I have absolutely never discussed that with anybody.

Q.—It is a word that you find frequently in works on pharmacology? *A.*—I could not state how frequently pharmacologists use it.

Q.—Have you ever found it in anything? *A.*—I could hardly say whether I have or not. I presume I have.

Q.—Do you know whether you have? *A.*—I do not. I presume that I have. Pharmacologists say what they think and if it involves the use of the word "vicious" they use it.

Q.—Doctor, is not quinin frequently prescribed for amenorrhea, or the absence of menstruation. *A.*—I could not say.

Q.—Is it ever prescribed for amenorrhea? *A.*—I have never seen it prescribed for that, but I presume it is.

Q.—Do you regard Dr. Kelly of Johns Hopkins as any authority? *A.*—Absolutely not.

Q.—He is not an authority? *A.*—No authority except unto himself, as far as I am concerned. I suppose he is to himself.

Q.—Would you regard the teachings of his book in any medical school as vicious? *A.*—I should not.

Q.—If he teaches or recommends anything different from your views on the subject? *A.*—I certainly should not.

Q.—Is his work a standard work? *A.*—It is not. That is to say, in so far as it implies any standards for other people, anything that anyone has to live up to, it is not. If you mean that it is a well known book, I think it is a well known book, but not a standard book.

Q.—Is there any medical work that is any more a standard book than his? *A.*—I could not say. I cannot compare the medical books, not having seen them.

Q.—Do you know of any? *A.*—I am not in the habit of comparing the relative value of all the different books or different authorities of medicine and I am incompetent to do it, anyhow.

Q.—Do you know of any book the opinion of whose author is entitled to more respect than Kelly's? *A.*—I am not in a position to pass on

the credibility of the various authors of text books. It is out of my line.

Q.—Did you study under Dr. Kelly at Johns Hopkins? *A.*—He was the Head of the Department. I may have given an anesthetic for him once or twice, but he never lectured to us. I may have seen bim operate as thousands of others have.

Q.—You never read his book? *A.*—I have never read his book, no.

Q.—Either at college or at any other time? *A.*—Absolutely at no time.

Q.—Do you know that he recommends quinin for absence of menstruation, and also for flooding? *A.*—I do not.

Q.—Do you mean that he recommends—

RULING ON INTRODUCTION OF BOOKS

THE COURT:—Mr. Hough, I have ruled that, if a witness recognizes a work as standard, you may use that to refute any views that he has offered on the witness stand. But I think you cannot examine this witness generally or specifically as to an author that apparently he has no confidence in.

To which ruling of the court the plaintiffs, etc., excepted.

Mr. Hough: Q.—You mean you have no confidence in Dr. Kelly's statements? *A.*—I have no knowledge of his statements; how can I have confidence in them?

Q.—Is not his reputation such as to inspire confidence? *A.*—I have not gone into the question of his reputation; I have not discussed Dr. Kelly with people.

Q.—And you do not know his reputation? *A.*—I know his reputation as an operator in gynecology. Any other reputation I know nothing about, because I have not gone into it.

Q.—What is his standing as a gynecologist? *A.*—As an operator in gynecology he is considered an excellent technician. He knows how to operate, he operates well and he operates a great deal.

Q.—What is his standing as a gynecologist? *A.*—As an operator in gynecology he is standing very well, I suppose. I am not in that line of work myself.

Q.—I ask you again, what is his standing as a gynecologist? *A.*—I know nothing about it, apart from power as an operator, and his power in his capacity to prescribe medicines—I know absolutely nothing about his ability, and I have never heard it discussed as to whether he knows what a drug's action is, or what it is not. He is an operator, a surgeon; a surgeon gynecologist.

Q.—And it is usual, I suppose, for a man to operate without knowing anything about gynecology? *A.*—He may or may not know anything. He may know more or less about the use of medicinal drugs in the medical treatment of women's diseases. I do not know what the rule is as to him.

Q.—Would such a man operate more on dogs or on human beings? *A.*—They usually operate more on human beings.

Q.—They ought to know a great deal to operate on human beings, ought they not? *A.*—A great deal about human beings and the results of their operations and the indications for their operations, that is the type of stuff they must know.

Q.—Do you know anything about quinin? *A.*—Yes, sir.

Q.—May amenorrhea be due to malaria? *A.*—It may, I assume.

Q.—Would quinin be a good medicine, if it were due to amenorrhea? *A.*—If amenorrhea were due to malaria, quinin would be an excellent medicine.

Q.—Now, menorrhagia may also be due to malaria, may it not? *A.*—I have never heard of it.

Q.—Have you ever heard of any other menstrual disturbances which might be due to malaria? *A.*—The only menstrual disturbance that I know of that I would presume might be due to malaria would be that whereby anemia, which always follows in malaria, causes a destruction of the blood. With blood destruction and anemia, there is always likely to be no menstruation, whether that anemia is due to hemorrhage or to destruction of the blood by the malarial organism or by any other condition always an anemia will result, or is very apt to result in suppression of the menses.

Q.—Is it not a fact that the same condition may sometimes produce flooding or hemorrhage? *A.*—I have never heard of it, it may be.

Q.—Malaria affects pregnancy, unfavorably, does it not? *A.*—All diseases are apt to affect pregnancy unfavorably.

Q.—And quinin is a good medicine to give for that disease, isn't it, malaria? *A.*—Quinin is the only reliable, perfectly reliable, drug to be used in malaria.

Q.—So that if quinin—or rather, if malaria would affect menstruation, whether it meant scantiness or profuseness, and would affect pregnancy, and quinin is good for malaria, quinin would be good for those conditions? *A.*—If they were due to malaria?

Q.—Yes, if they were due to malaria? *A.*—If those conditions were due to malaria.

Q.—Now then, menstruation is affected by other causes, isn't it, than malaria. *A.*—Yes.

Q.—And is it not a fact that the same cause may produce in a person both amenorrhea and dysmenorrhea? *A.*—Not to my knowledge.

Q.—Will it not also produce menorrhagia and metrorrhagia? *A.*—Not to my knowledge.

Q.—You know of no single cause which would produce that? *A.*—Produce what? Repeat, please.

Q.—Amenorrhea, menorrhagia, dysmenorrhea and metrorrhagia? *A.*—No, I know of no single condition that would produce those conditions.

Q.—What would produce flooding or menorrhagia?

Mr. T. J. Scofield:—That is objected to. That is not cross-examination. It has been running on for some time—but—

THE COURT:—Oh, the witness qualified generally as an expert here.

Mr. Hough:—He distinctly said—

THE COURT:—He may answer the question.

To which ruling of the court the defendants, etc., excepted.

The Witness:—Any statement that I make with regard to menstruation is of course not authoritative, as I am not a gynecologist and have never specialized or done special work along that line.

Mr. Hough: Q.—But you are a therapeutist, aren't you? *A.*—I am a therapeutist in so far as therapeutics rest on the scientific principles of drug action. I am not a therapeutist in the sense of prescribing for patients at the bedside. I am not in the practice of medicine, as I clearly stated in my qualifications.

Q.—You mean that you are just a theorist? *A.*—No, I am not a theorist, I am a practical man.

Q.—You are more than a theorist? *A.*—Yes, sir, absolutely.

Q.—You are just a theorist so far as therapeutics and gynecology are concerned, aren't you? *A.*—As far as therapeutics rest on the action of drugs, and the effect which drugs may have and as regards the effects which drugs may produce in man, and on the higher animals, I am an expert.

Q.—Well, now, you should know, of course, under those circumstances, the various things which produce amenorrhea. *A.*—Not at all, unless they are produced by drugs.

Q.—Well, a cold might produce amenorrhea, might it not? *A.*—A cold?

Q.—Yes. *A.*—Not to my knowledge, but as I say, I am not an expert in that phase of the work. My work deals with the action of drugs.

Q.—Would a man have to be an expert in order to know what some of the causes of amenorrhea are? *A.*—I think he would undoubtedly have to be an expert to know what the causes of some forms of amenorrhea are.

Q.—Do you know of anything that causes amenorrhea? *A.*—Pardon me?

Q.—Do you know of anything that causes amenorrhea? *A.*—Oh, yes.

Q.—What? *A.*—Amenorrhea may be caused, as I say—I preface all of my remarks again in this respect by saying I am not an expert in this line, and that what I say is not authoritative?

Q.—Didn't you qualify as a therapeutist? *A.*—I qualified as a therapeutist, yes.

Q.—Then you ought to know it? *A.*—No, not necessarily. Therapeutics does not deal with the causes of disease, all the possible causes of disease or diseased conditions.

Q.—It deals with the treatment of disease, don't it? *A.*—It does.

Q.—Then you think it is perfectly competent for a man to treat a disease without knowing anything about the cause of it? *A.*—It may or it may not be. He is certainly in a much better position to treat it if he knows the cause of it.

Q.—Don't you think it would be practicing a fraud on his patient if he undertook to treat it without knowing the cause? *A.*—No, because in many cases they have to work on them without knowing the cause, and there are many cases where the cause is not known at the present time.

CAUSES OF AMENORRHEA

Q.—How many causes do you know that produce amenorrhea?

Mr. T. J. Scofield:—That is objected to.

Mr. Hough:—That is the same question I originally asked.

THE COURT:—He may answer.

To which ruling of the court the defendants, etc., excepted.

A.—Amenorrhea may be caused by any condition which results in anemia of a marked grade. For instance, amenorrhea may occur as the result of blood destruction associated with the disease malaria. Amenorrhea may result from an extensive loss of blood by hemorrhage or repeated hemorrhage such as might occur from an intestinal parasite which was removing blood from the blood vessels.

Mr. Hough: Q.—Do you mean uterine hemorrhages? *A.*—No, I am talking about the extraction of blood through the action of an intestinal parasite, such as is the case in hookworm and various intestinal parasites taking blood from the intestinal wall and giving rise to anemia in consequence thereof. I am merely reciting some of the causes of anemia. Amenorrhea results from the disease of anemia itself, that is to say, chlorosis, a pernicious anemia and all the different types of anemia will result in amenorrhea or may result in amenorrhea. Furthermore, amenorrhea may be the result of a deformed uterus.

Q.—Of a which? *A.*—Of a deformed uterus.

Q.—No, I did not understand the first syllable. *A.*—A deformity of the uterus. It may result from an infantile type of uterus and there are cases, I suppose, on record that have never menstruated. Of course, different women undergo the changes of life at different times. For instance, women who apparently have been normal, have undergone the change of life I think before 30 years. The cause of the sudden or premature ending of sexual life or menstruation, rather in women, is not known. Those are certain of the causes of amenorrhea.

Q.—Now, you would not say those were all the causes of amenorrhea, would you? *A.*—I presume there are others.

Q.—In other words, stenosis may produce amenorrhea? *A.*—Possibly.

Q.—That is closing of the cervix of the womb? *A.*—Possibly.

Q.—So that it won't let the blood out? *A.*—Yes.

Q.—And congestion—I mean inflammation would cause it? *A.*—Inflammation I should say. Of course it depends on the type, but if it results in congestion of the uterus, it will probably increase in so far as it does cause congestion of the uterus, it will probably increase the menstrual flow.

Q.—Does it never produce amenorrhea? *A.*—I could not say about that.

Q.—What would you say as to metritis, does that ever produce amenorrhea? *A.*—I could not say as to that.

Q.—What would you say as to endometritis? *A.*—I could not say as to that.

Q.—What would you say as to inflammation of the fallopian tube? *A.*—I could not say about that.

Q.—What would you say as to ovaritis? *A.*—I should say in general in regard to all inflammatory conditions of the pelvic viscera and so forth that in so far as they tend to make a person anemic they would tend to produce amenorrhea. In so far as they tend to congestive processes they would result in an increase of the menstrual flow.

Q.—Haven't you put the cart before the horse? In other words, isn't it amenorrhea that produces anemia? *A.*—I think not.

Q.—Did you never hear of amenorrhea producing anemia? *A.*—I did not.

CAUSES OF MENORRHAGIA

Q.—How many causes of menorrhagia, which is flooding? *A.*—Menorrhagia may be produced by a large number of different causes. It may be a very early symptom of cancer. It may be a symptom of the fibroid tumors which occur in the uterine wall. It may be attributable to inflammatory conditions which may lacerate a blood vessel and cause a uterine hemorrhage. These are certain of the conditions which would produce metrorrhagia or menorrhagia.

Q.—Are you sure that menorrhagia is any indication of cancer? Don't you mean dysmenorrhea? *A.*—No, I mean menorrhagia.

Q.—Is dysmenorrhea an indication of cancer? *A.*—It may or may not be, I am not certain of that.

Q.—But you are positive that menorrhagia is? *A.*—It occurs sometimes in cancer, as an early symptom.

Q.—More frequently such a thing occurs with dysmenorrhea? Is it more frequently or less than in cases of dysmenorrhea? *A.*—I think more frequently, but I am not absolutely sure.

Q.—Well now, what would produce dysmenorrhea?

THE COURT:—What is the purpose of this line of examination? The witness has qualified as a basis of his opinion evidence here, and he disclaimed any general knowledge of this subject and has defined very carefully the subjects on which he testifies as an expert. He has not testified as an expert on those subjects.

Mr. Hough:—I understand that he did qualify as a therapeutist.

THE COURT:—Yes.

Mr. Hough:—And then he has stated that he—

THE COURT:—But he has also limited himself as to that.

Mr. Walker:—May I make one suggestion as to why this is competent? The witness qualified and testified to the influence of drugs in the case of amenorrhea and menorrhagia and so stated on direct examination by denying that a given drug could act where symptoms were displayed that were different like menorrhagia and amenorrhea or metrorrhagia or dysmenorrhea and he qualified on that and gave an opinion on it on direct.

THE COURT:—I don't recollect that.

Mr. Walker:—Well, it is in there and the witness I think will remember that he gave it.

THE COURT:—If that is the fact you may go on with the cross-examination.

The Witness:—If I may explain my position, since it involves an answer that I gave, I prefaced my statement on this subject—

Mr. Walker:—Wait, I object. Is he answering me now?

Mr. T. J. Scofield:—I insist that he be allowed to explain.

Mr. Walker:—Is he answering the pending question, or is he discussing what I said to the Court, or is he answering Mr. Hough.

THE COURT:—My proposition is just this; that it seems to me that no amount of cross-examination tending to limit the knowledge of the witness is going to be half so effective as the witness's frank confession of his own limitations.

Mr. Walker:—I understand he has made his limitations, but he did qualify and testify as to the effect of drugs when used in these conditions.

Mr. Hough:—I won't press the inquiry further, if he says he does not know.

Questions were then asked concerning the United States Pharmacopeia and the significance of mention of a drug in the Pharmacopeia. He was then asked:

THE PHARMACOPEIA

Q.—How many drugs in the pharmacopeia in your opinion are absolutely worthless? *A.*—I have never counted them.

Q.—100? *A.*—I have never counted them.

Q.—Have you ever looked at it at all? *A.*—I have looked at it to this extent, that I have a list of drugs that I give to my students on which I tell them that they will be examined at the end of their course, containing possibly—I do not recall, but maybe somewhere between 100 and 250 titles, whereas the total number of titles in the pharmacopeia, as I recall, is something between 900 and 1000.

Q.—So that in your opinion, there are about 600 in the pharmacopeia that are absolutely worthless? *A.*—I did not say that.

Q.—That ought not to be regarded as reputable drugs? *A.*—I did not say that.

Q.—What do you say about the other 600? *A.*—I say that to my mind they are unimportant, that is, there are other drugs equally well known or better known that accomplish the same things and that in some cases these others are worthless drugs which I do not care to have them spend their time on. I would rather have them spend their time on drugs that are undoubtedly useful and have been clearly worked out by accurate clinical methods and shown to be useful in the treatment of disease.

Q.—Do you mean by "clinical methods" pharmacological methods? *A.*—I mean there is no difference between a careful clinical test and a careful pharmacological test. If a man in the clinic makes a test, for instance, or wants to determine whether Wine of Cardui is useful, how would such a test be made? You would take a certain number of cases, perhaps 50 cases of amenorrhea, or of increased flow, and divide them into two sets. You treat 25 with Wine of Cardui, and keep the others without it, and then make an estimate of the amount of material passed at the menstrual period, and there would be absolutely no difference in such an experiment and in an animal test. That is, you do everything to control the test. You would know whether your drug was accomplishing anything, and you would arrive at the same facts and they would be as valuable as the facts of any animal experiment whatever. In other words, it is simply careful observation, ruling out chance and is not a question of opinion, such as where you ask a woman how many napkins there were, or something of that kind, and know nothing about what the actual facts are.

Q.—You mean that the physician would use Wine of Cardui in 50 cases of amenorrhea and get satisfactory results in time, that he would be justified in believing that the results would be due to the Wine of Cardui? *A.*—It would depend entirely on how the results were controlled. It would depend entirely on whether he was relying on what the patient said to him or what he knew; whether the patients were in a hospital and being watched by nurses or whether they were in their homes. It would depend on an equal number of cases not being treated with Wine of Cardui in order to see what they did.

Q.—How many drugs are regarded by you as possessing any therapeutic value, which had not been proven pharmacologically? *A.*—No drug is known as far as I am aware, which is useful in the treatment of disease which, in an appropriate pharmacological test, shows itself to be absolutely negative in all regards. That is to say, no drug is known to be useful in the treatment of any diseased conditions in man or animals, if you want to put it that way, which on proper pharmacological experiments, shows no action in the way that is either therapeutic or toxic or anything else, in properly arranged animal experiments. There is no case known.

Q.—Do you know of any substance then which will affect human beings but which has no effect on the lower animals? *A.*—I have no knowledge of such a substance.

The witness was then asked concerning the relation of the flea and the rat to bubonic plague and of the mosquito to malaria. He was asked concerning the effects of injecting bread into the veins or arteries of a dog. He was also asked:

Q.—Do you know of any other substances which will affect the human being, and which have no action on the lower animals? *A.*—I have not mentioned any substances yet.

Q.—Haven't you? *A.*—No.

Q.—Well, morphin don't affect a dog like it affects a human being, does it? *A.*—Very much the same, very much the same indeed.

Q.—How much more morphin does the dog take than the man? *A.*—To get the depressant action on the dog, the thing you see in the man, requires approximately the same dose, that is to say, without taking into consideration the difference in weight; half a grain of morphin, which is a large dose for a man, will stupefy a dog as it does the man, and render him very oblivious to his surroundings, as it does the human being.

Q.—Then any doctor, who says that you can feed a dog morphin and he will lick his chops and ask for more, does not know what he is talking about? *A.*—He positively does know what he is talking about. So does a man lick his chops and ask for more in a given length of time when the effect of the morphin passes off.

Q.—The dog don't take his as a habit, does he? *A.*—The dog can develop a habit, just as a man can, for morphin.

Q.—In the case I am citing I don't— *A.*—You are not citing any case, so far as I am aware.

Q.—I am talking about the first time you give it to a dog. *A.*—The first time you give a dose of any drug to any animal or to a man, he has no habit for it. He has to take it some time before he develops a habit, that is obvious?

Q.—But the first time you give it to him, it don't have the same effect on him that it has on the human, does it? *A.*—It has very much the same action on a dog. There are certain minor differences.

Q.—Do any authorities make that statement? *A.*—I don't know whether they do or not.

Q.—Don't the textbooks on the subjects make a contrary statement. *A.*—I think not. Having seen the action of morphin on some hundreds of dogs, I feel quite confident to say that the action, the first time you give it, give a dose to a dog, is not vastly different from the first time you give it to a man.

Q.—Would you say it is precisely the same? *A.*—No, it is not precisely the same. There are certain features that dogs show that men do not.

Q.—What about giving arsenic to a hog? *A.*—I have never given arsenic to a hog, I have never seen it given.

Q.—You have heard that hogs take arsenic without any bad effect, have you not? *A.*—I think it depends altogether on the form in which the arsenic is given, and the dose in which it is given.

Q.—I say, have you heard that a hog will take arsenic in quantities which would kill a man, without any effect? *A.*—No, I have not heard anything about it.

Q.—What is the dose of adrenalin chlorid? *A.*—The dose of adrenalin chlorid varies according to its method of administration. The dose when injected directly into the veins is very much smaller than when given subcutaneously, and the intramuscular dose is between the two.

Q.—How much is the dose when injected into the vein? *A.*—It depends on the condition of the patient, and what you hope to accomplish by giving it.

Q.—What is the minimum dose, so far as you know? *A.*—The minimum dose is very small. I do not know how small it has been used. You see we have no official standard for it. I mean to say the pharmacopeia does not contain the drug, adrenalin.

Q.—Is it as little as one one thousandth of a grain? *A.*—No, not that I know of.

Q.—Is it as much as one grain? *A.*—No, it is less than one grain.

Q.—How near to one one thousandth of a grain? *A.*—Well, one one thousandth of a grain would be a very small dose, very small dose.

Q.—Assuming that the synthetic product which you call "A" contained 6.34 grains of viburnum prunifolium, and that the dosage was a tablespoonful, how much of viburnum would a person get at a dose? *A.*—That depends entirely on what you are talking about; it depends entirely whether you are talking about the whole plant or the part of the plant that is extracted by 20 per cent. alcohol.

Q.—I am talking about viburnum prunifolium as you understand it, if I speak of the fluid extract of viburnum prunifolium. *A.*—In that case and taking as the basis for the determination the valerianate contained, I would have to figure out the corresponding amount.

The further hearing of the cause was adjourned until 2 o'clock the same day.

April 3, Afternoon

The Court met pursuant to adjournment. Dr. Arthur S. Loevenhart resumed the stand.

CROSS-EXAMINATION BY MR. HOUGH (CONTINUED)

He answered the pending question stating:

Q.—What is the answer? *A.*—If we accept as the characteristic ingredient of the extract of viburnum prunifolium the resin, then Wine of Cardui, or the synthetic preparation, contains none of it, virtually none. As it is in my hands, none. I found no resin. If we consider the characteristic ingredient the valerianate, then basing the computation on Mr. Leech's determination, about two gallons and a half to three gallons of Wine of Cardui or the synthetic preparation would contain a medicinal dose, or legal dose.

Mr. Hough asked that the answer be stricken out as not responsive. The Court ruled that parts of it were, and proper. An agreement was made by the attorney for the plaintiff and the Court concerning the question. Mr. Hough stating:

Mr. Hough:—No, your Honor, what was meant was when the report was made to him as to what it contained. He received a synthetic product which he is told contains 20 per cent. alcohol and 57 and a fraction, as I recall, grains per fluid ounce, of carduus benedictus, and 6.34 grains per fluid ounce of viburnum prunifolium. Now that is a definite and distinct and accurate statement that does not require any circumlocution to understand what that means. Now I asked him: Assuming that that contained that much, how much would a person—how many grains will a person get of the viburnum prunifolium in one dose, assuming the dose to be a tablespoonful?

THE COURT:—He may answer that, if he knows.

The Witness:—I can answer it if you permit me an explanation.

Mr. Walker:—No.

Mr. Hough:—Just answer.

THE COURT:—Just give your answer first and then explain it.

The Witness:—Yes. Will you please read the last part of the question?

(Last question read.)

The Witness:—He would obtain about three grains of viburnum prunifolium, assuming that the material contained six grains and a fraction to the ounce, and assuming that he took half an ounce, or one tablespoonful, he would get something over three grains.

Mr. Hough:—Three and seventeen one-hundredths? *A.*—Yes. It is very simple. I can explain it.

Mr. Hough:—There is nothing to explain.

THE COURT:—I told the witness to explain.

Mr. Hough:—I object to his making a speech to the jury every time—

THE COURT:—You may save the point. Let us have the explanation.

To which ruling of the Court the plaintiffs, etc., excepted.

The Witness:—If you try to extract six grains of gold with an ounce of water and you pour that water over the six grains of gold, you haven't got in your water six grains of gold, because it is not dissolved in it, and you can't say that you have it. If you do state it, you state a falsehood. This material did not contain 6.34 grains of viburnum, but the ounce of water was poured over the 6.34 grains of viburnum. Now if it had dissolved the whole business, a half an ounce would have contained a half of 6.34 grains, namely, 3.17 grains. But it did not dissolve it, and therefore to state that it did dissolve it would be a falsehood, just as it would if you poured that much over the gold and say that the solution contained that much gold. And you cannot compare it with the amount of gold you would take if you would swallow 6.34 grains of gold, except by making a determination of how much the water dissolved.

Mr. Hough:—I ask that the explanation be stricken out as not pertinent to the inquiry, because my question assumed a definite fact.

THE COURT:—No. I think your question did not, Mr. Hough. The answer may stand. Because you assumed in your question that the amount of viburnum prunifolium was a definite amount. This witness says that in the synthetic composition that he had it did not contain such an amount because it could not. That the 20 per cent. alcohol solution would not take it up.

Mr. Hough:—My question assumed that it did contain; that was the assumption.

THE COURT:—Well then, you have an answer to the question. I think that the explanation on other branches of the examination is quite pertinent. I will let it stand.

To which ruling of the Court the plaintiffs, etc., excepted.

The witness was then asked concerning the dose of carduus benedictus which a person would receive on the same assumption and also concerning the various constituents of carduus benedictus and viburnum present and not present in the 20 per cent. alcohol preparation. He was then asked:

Q.—Now, Doctor, if you had injected into that dog the proportionate dose of iron would it have made any difference whatever in those on your chart? *A.*—It would depend in what form the iron was injected, very largely.

Q.—Well, I am talking about the dose in which it is usually given for these uterine troubles, and the form in which it is given for those things? Would it have made any difference whatever in that chart? *A.*—I have never injected any iron into a vein directly, in any quantity.

Q.—You mean you don't know? *A.*—I have never done it. I don't know from my own experience.

Q.—Don't you know that it is stated that it would not make any difference? *A.*—No, I have never seen the statement that it would not make any difference.

Q.—Don't you know that it would not make any difference? *A.*—No, sir; I don't know.

Q.—Don't you believe that it would not make any difference? *A.*—It would depend, as I say, on the form in which the iron was administered, the particular compound of iron you are referring to.

Q.—You know what I am referring to, don't you? *A.*—No, I don't.

Q.—I am referring to the form of iron in which it is given for these uterine troubles. *A.*—But it is used in many forms of anemia.

Q.—That is the best answer you can give? *A.*—That is the best answer I can give.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

Q.—I will ask you, Doctor, whether or not iron is given as a uterine remedy other than as a tonic? Or blood builder? *A.*—As far as I know iron is not used in general in uterine conditions except when they are secondary to anemia or loss of blood, and where the iron is given to increase the blood formation and removing the cause therefore of the uterine disability or disease.

Q.—Now, Doctor, you stated that you did not consider Dr. Kelly an authority upon certain things concerning which you have been interrogated here. I will ask you whether or not there is any authority in science? *A.*—The only authority in science is fact.

Q.—Is what? *A.*—Is fact. That is to say, no one's word is taken as an authority. His experiments may be considered and his veracity accepted, but the same critical examination will be made of the results of any man. No man is an authority in science. No man's word is taken.

PRESCRIBING VIBURNUM

Q.—You also stated that you do not consider the prescribing of fluid extract of viburnum prunifolium as vicious. Why not? *A.*—To my mind a physician who prescribed a fluid extract of viburnum prunifolium, although of course it contains 55 per cent. alcohol, is not vicious, but any physician or pharmacologist or chemist or druggist who advertised the fluid extract of viburnum to cure things which it cannot cure and advised its being taken by them, by people, for conditions which may be serious and endanger their lives, without a medical examination, would be guilty of a vicious fraud. It makes no difference what line of work he is in, that fact would make it so, to my mind, and in my opinion. Now the second point is this: That it contains the minimum amount of alcohol per dose. It is evidently not a preparation which the person would take for the alcohol. The amount of resins, etc., whether active or not is maximum for the amount of alcohol which the person actually gets. In other words, the alcohol is proportionately much smaller. I think that answers it.

Q.—You stated, doctor, in response to a question by Mr. Hough, that in cases of malaria, quinin is given, that is, in amenorrhea which

comes from malaria. Now are there other symptoms of malaria which are helped by quinin? *A.*—The symptoms of malaria are helped by quinin, and quinin is given in malarial fever to cure the malaria, to kill the malarial parasite which is in the blood, and therefore all the symptoms which are produced by it will be alleviated by the quinin, which is a specific remedy for malaria. The amenorrhea will be improved, the chills will be lessened, the fever will be lessened—all the symptoms. Amenorrhea is only one of the symptoms which occurs in the female in a certain number of cases. The quinin is given not for the dysmenorrhea or the amenorrhea, but to remove the cause of them, and to cure all the other symptoms of the disease as well.

Q.—Now, what is the cause of malaria? *A.*—Malaria is caused by an organism that inhabits the red blood cells in the blood, the circulating blood.

Q.—What is the effect of quinin upon that organism? *A.*—It destroys the organism, kills it.

Q.—So that the object of the quinin is to destroy the cause of these various things? *A.*—Yes, it is a specific poison for the malarial parasite which you can use without injuring the health of the person.

Q.—And when the malarial parasite is kelled these conditions which it produces disappear? *A.*—Yes, sir.

TESTIMONY OF DR. LILLIAN H. SOUTH

Dr. Lillian H. South was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. Lillian H. South testified that she is a physician and surgeon residing in Bowling Green, Ky. She purchased Wine of Cardui at a drug store in Bowling Green and administered it to three cases. The first case was a woman about 43 years with a slight retroversion. She complained of flooding at the period and bleeding or flowing between the periods. On examination Dr. South found this slightly retroverted uterus, rather a large cervix and an endometritis. She continued:

A.—I made the diagnosis in this case of pre-cancerous stage, and advised her to have an operation. This she declined to do, and asked me if I would give her some medicine for the trouble. I gave her, without her knowing what she was taking, Wine of Cardui, not in the original bottle. She sent down to my office and I gave this bottle to the messenger and instructed her to take this probably three days before her time for her period, and during this flooding. I do not remember the exact amount that I poured into this bottle. I just simply took one of the bottles from the laboratory. And I did not see this patient again until several weeks later. In the meantime she had secured another physician and this other physician brought her to me and to our firm for an operation, and I was present and assisted at this operation, and at the examination of the tissues after the operation it showed that this woman was suffering from, as I said — the diagnosis being made of pre-cancerous condition. If this had gone on longer probably she would have had eventually a cancer.

Q.—Now what was the operation? *A.*—I advised her in the beginning to have this operation known as curettement — a scraping of the womb, so that if there was any cancerous tissue there it could easily be detected by a microscopic examination. I explained this to her very carefully. We found an erosion inside of the mouth of the womb.

Q.—What do you mean by that? *A.*—That means a little sore, a little bleeding place, a little ulcer, as it were. And that was carefully scraped out, and these scrapings were analyzed under the microscope. And the woman has entirely recovered. She has had no more bleeding at her periods, or no more excessive bleeding at her periods, or bleeding between the periods.

Q.—Do you occupy any official position down there in Kentucky? *A.*—Yes, sir.

Q.—What is it? *A.*—I am state bacteriologist of the state of Kentucky.

Q.—Now Doctor, you say that an analysis was made of the material which you reserved from the little sore which you speak of as an erosion. Who made that analysis? *A.*—Dr. William Welch of Johns Hopkins.

Q.—Can you tell us now about the second case that you referred to? Well, wait just a moment. What was the effect of the Wine of Cardui which was administered there? *A.*—It had no effect on her whatever, so she—

Q.—You had examined her twice, had you; at the time you gave it to her?— *A.*—Yes, sir.

Q.—and then subsequently when she came to the office? *A.*—Yes, the same conditions were present at the operation.

Q.—Now, take the second case, doctor. *A.*—The next case was in a woman who had her periods at irregular intervals. Probably in fifteen months she had had her periods three times. She had also had a discharge from the vagina, what we call leukorrhea, and a burning and itching around there, and irregular bleeding; that is, she had had, as I said before, this period twice or three times in about fifteen months. I gave her the Wine of Cardui and she knew what she was taking, and I gave it out of the original bottle. She took two or three bottles without any effect.

Q.—In what way did she take it? According to directions? *A.*—She took it according to directions on the bottle: A tablespoonful three times a day.

Q.—Did you see her after that? *A.*—I saw her constantly, every day.

Q.—How long did she continue to take the Cardui, about? *A.*—She probably has taken four or five bottles.

Q.—All together? *A.*—Yes, over a period of about, I should say, four months.

Q.—During that period when she was taking Wine of Cardui was there any change in the history of her trouble? *A.*—No, none whatever.

Q.—I will ask you then, whether or not the Wine of Cardui improved her condition? *A.*—It did not improve her condition.

Q.—You spoke of the third case, Doctor, that you treated? *A.*—The third case was in a woman about 38 years of age that had had six children, and upon examination showed a tumor.

Q.—How is that? *A.*—Upon examination showed a tumor.

Q.—A tumor? *A.*—Yes. A tumor of the womb, what we call a fibroid inside of the womb. She had very profuse hemorrhages for about six months, so much so that when she was brought under my observation she was exceedingly pale and almost bloodless. She had taken twelve bottles of Wine of Cardui without any effect upon the bleeding. This tumor was about the size of a cocoanut, and was removed, and this patient has been entirely relieved.

Q.—Had she been taking the Wine of Cardui according to directions? *A.*—She had taken it according to the directions on the bottle, and taken about twelve bottles.

Q.—What was the effect of it? *A.*—It had no effect on her. She gradually became worse.

Q.—I will ask you now, Doctor, whether any other cases have come under your observation in which you were using Wine of Cardui for female troubles? *A.*—In my examinations, and in the position I hold I come in contact with quite a good many sick women, and in the course of the history that I take I ask them what treatment they have had, or what they have done for themselves for this condition, and I frequently gain that information, that they have taken Wine of Cardui. I cannot recall exactly how many, but over quite a period of years I have gained this information from these women from time to time.

Q.—That is, in the course of your work? *A.*—Of my practice.

Q.—As a state bacteriologist? *A.*—In the course of my work as a physician.

Q.—How many years have you been practicing, Doctor? *A.*—Since 1904.

Mr. T. J. Scofield:—That is all.

CROSS-EXAMINATION BY MR. HOUGH

Q.—You are associated with Dr. McCormack, are you? *A.*—Yes, sir.

Q.—He is representing the American Medical Association? *A.*—No, sir.

Q.—Isn't he the so-called walking delegate for the American Medical Asociation?

Mr. T. J. Scofield:—I object to that question, if the Court please.

The Court:—We haven't had anything about that yet. We don't know what one is in this case.

Mr. T. J. Scofield:—We don't know anything about such a thing. You can probably tell us.

Mr. Hough:—I am trying to identify him.

Mr. Walker:—May be the witness may have some information on that.

Mr. T. J. Scofield:—Well, we will withdraw that objection if he wants to put such a question, if he thinks that is a gentlemanly thing to do.

Mr. Walker:—What is there ungentlemanly about it?

The Court:—Let us get on to another question, Mr. Hough.

The Witness:—Dr. McCormack has been called the walking delegate of the American Medical Association by the patent medicine and fraudulent medicine manufacturers, but he is not in any way connected with the American Medical Association.

The witness was then asked as to whether her office was in any way connected with that of Dr. Heizer to which she answered that it was not. She was then asked:

Q.—Who was the first woman? White or black? *A.*—The first case was white that I reported.

Q.—She was 43 years old, you say? *A.*—I say the first case that I reported was the white case.

Q.—43 years old? *A.*—Yes, about 43.

Q.—And you diagnosed her case correctly?. *A.*—Yes, sir.

Q.—And having diagnosed the case, and she asked you for medicine, you gave her Wine of Cardui? *A.*—Because she refused to do what I requested her to do, and I gave her this medicine. She didn't know what she was taking.

Q.—But you had told her it was a case requiring an operation, had you? *A.*—I told her if she wanted to be cured—

Q.—It would require an operation? *A.*—It would require this treatment.

Q.—And you knew that Wine of Cardui was advertised not to be good for any case which required a surgical operation?

Mr. T. J. Scofield:—Now wait a minute. If the Court please—well, I withdraw the objection.

Mr. Hough: *Q.*—You knew that? *A.*—No, I didn't know that.

Q.—You read it on the bottle, didn't you? *A.*—Well, I do not recall reading that, if it is.

Q.—It was also on the carton of the bottle as well as on the label on the bottle? *A.*—Well, I reckon that it was.

Q.—And knowing that it was not recommended for any case requiring a surgical operation you gave that? *A.*—I gave it because it was

recommended for bleeding at the periods and bleeding between the periods.

Q.—Provided it was not something which required a surgical operation. Now, in the third case you diagnosed it and told the woman that it was an operative case, didn't you? *A.*—Yes, sir.

Q.—And knowing that it was an operative case and that the Wine of Cardui was not recommended for that, you gave her Wine of Cardui? *A.*—She had taken this Wine of Cardui several times — long before she was told that.

Q.—Well, why did you give it to her then any longer? *A.*—I didn't give it to her. I said this case was under my personal observation when she had taken Wine of Cardui. She told me of her taking Wine of Cardui.

Q.—You don't know anything about her taking Wine of Cardui then except what she told you? *A.*—She told me that she had taken Wine of Cardui. In the history she gave she told me. I asked her distinctly how much she had taken, and she remembered distinctly that she had taken twelve bottles of Wine of Cardui.

Mr. Walker:—I ask that that be stricken out as incompetent, your Honor.

THE COURT:—It may be stricken out.

Mr. Walker:—The court said it might be stricken out, that third illustration, where she didn't know it herself, where she was told about it.

THE COURT:—Limiting it solely as to what the patient told the doctor as to what she had taken, and the amount. That is stricken out.

Mr. Walker:—As to the third illustration the doctor has no personal knowledge of it except what she was told.

THE COURT:—I was surprised that you didn't ask to have it stricken out at the time she made the statement.

Mr. Walker:—All right. Well, that is out then.

Mr. Hough: Q.—Now, your second case you say was just leukorrhea? *A.*—No, I didn't say just leukorrhea. I said she had leukorrhea.

Q.—You gave her Wine of Cardui in that case, didn't you? *A.*—Yes, sir; I gave her Wine of Cardui.

Q.—For how long did you give it to her? *A.*—She took Wine of Cardui over a period of about four months.

Q.—Was she white or black? *A.*—She was black.

Q.—Was she your cook? *A.*—Yes.

Q.—And after you gave it to her four months, what treatment did you then give her? *A.*—She did not take anything except the local treatments.

Q.—And she got well? *A.*—No, she has not gotten well.

Q.—She has not gotten well yet? *A.*—No, I did not give her the Wine of Cardui to act on the leukorrhea. I said she would not have her periods, only twice in fifteen months.

Q.—You gave it to her for that? *A.*—Yes, sir.

Q.—Were her periods established? *A.*—During those fifteen months she had had her periods twice.

Q.—And then you commenced to give her Wine of Cardui? *A.*—She had taken Wine of Cardui over a period of about four months.

Q.—Before you commenced to give it to her — that was after you commenced to give it to her? *A.*—Why, she took it when I gave it to her.

Q.—That is what I mean. *A.*—Yes.

Q.—She took it because you gave it to her? *A.*—Yes, sir.

Q.—And how old was she? *A.*—She is about 46, I believe.

Q.—She was at the menopause, wasn't she? *A.*—Well, we suspected that. She had irregular periods.

Q.—And of course you would not expect it to restore those periods at the menopause, would you? *A.*—She was more irregular.

Q.—Did she have any pain? *A.*—She suffered with backache at times.

Q.—Did it help her backaches? *A.*—No.

Q.—Did it have any effect on her whatever? *A.*—No.

Q.—And at the end of four months she quit? *A.*—Quit taking the Wine of Cardui?

Q.—Yes. *A.*—She may be taking some now for all I know. I didn't give her any more.

Q.—Well, but don't you know? Don't you know? *A.*—No, sir.

Q.—Did you give her any other medicine? *A.*—No.

Q.—Is she any better than she was? *A.*—She is just about the same.

Q.—And she is still in your employ? *A.*—Yes. I treated her for the leukorrhea since then. I gave her local applications for that.

Mr. Hough:—That is all.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

Q.—Just one moment. He asked you about Dr. McCormack. What is Dr. McCormack? What position is he in? *A.*—He has no position connected with the AMERICAN MEDICAL ASSOCIATION.

Q.—I mean in Kentucky? *A.*—Yes.

Q.—What is he there? *A.*—Dr. J. H. McCormack, he is the chief sanitary inspector of the State of Kentucky.

TESTIMONY OF MR. J. V. GRANGER

Mr. J. V. Granger was called as a witness on behalf of the defendants.

DIRECT EXAMINATION BY MR. J. B. SIZER

Mr. Josh V. Granger testified that he has been residing in Cottonwood, Houston County, Alabama, near the Florida line; that he is 47 years old; that his occupation is farming. Continuing:

Q.—Do you know of a preparation known as McElree's Wine of Cardui? *A.*—Why, yes, sir.

Q.—Did you ever take any of it? *A.*—Why, I have drunk some of it.

Mr. Walker:—That is objected to.

THE COURT:—What is the objection?

Mr. Walker:—Why, we do not recommend Wine of Cardui for men.

THE COURT:—He may answer.

Mr. Sizer: Q.—What was your answer, Mr. Granger? *A.*—I said I drank some of it.

Q.—You have drank some of it? *A.*—Yes.

Q.—How did you happen to drink it?

Mr. Walker:—That is objected to.

THE COURT:—The objection is sustained.

Mr. Sizer:—You say you have drank some of it? *A.*—Yes, sir.

Q.—When? *A.*—About five years ago.

Q.—What were the circumstances under which you drank it?

Mr. Walker:—Objected to.

THE COURT:—He may answer.

To which ruling of the court the plaintiffs, etc., excepted.

The Witness:—Why, how came I to drink it? Why, the other people around got to using it. In fact, I was—

Mr. Walker:—I move it be stricken out.

The Witness:—my wife was taking of it and they got to drinking it and insisted on me drinking with them, and I finally got to tasting of it, and they told me it wouldn't hurt me, and I told them I thought it was a medicine.

THE COURT:—Strike out what they told you.

Mr. Sizer: Q.—Don't tell what they told you, just tell what you did with it? *A.*—Well, I drank it.

Mr. Sizer: Q.—How much—

Mr. Walker:—Wait a minute. I move that answer be stricken out.

THE COURT: *Q.*—Except that he drank. Were you ill at the time that you took it, or did you take it as a beverage? *A.*—I drank it as a beverage.

THE COURT: *Q.*—Well, how long have you been drinking it that way, or did you drink it? *A.*—Why, two or three years off and on.

Mr. Sizer: Q.—Is that a prohibition country down there, Mr. Granger?

Mr. Walker:—Just a minute. I move that the answer of the witness be stricken out, that he himself, drank it as a beverage.

THE COURT:—That may stand.

To which ruling of the court the plaintiffs, etc., excepted.

Mr. Walker:—And I move that that part of his answer, if your Honor please, which included what people were doing in the neighborhood, or what he claimed they were doing, and that he drunk with the women, be stricken out.

THE COURT:—That may go out. But the other part may stand, with your exception to the question.

Mr. Sizer: Q.—Now I asked you whether or not that is a prohibition country down there where they do not sell regular liquors or whiskey? *A.*—Yes.

Mr. Walker:—Objected to.

THE COURT:—Objection sustained.

Mr. Sizer: Q.—Do you know anything about other people in the neighborhood drinking it? *A.*—Yes.

Mr. Walker:—Objected to.

THE COURT:—Why, we are getting afield here, gentlemen.

Mr. Sizer:—If your Honor please—

THE COURT:—Whether or not this article states the truth when it says Wine of Cardui is booze does not depend upon who uses it, but what is in it.

Mr. Sizer:—It depends, if your Honor please, somewhat, as I submit, on the extent to which it is used. They say it is not booze or a tipple because they cannot drink it. Now if we can prove that it is used promiscuously by people throughout the country as a substitute for intoxicating liquors, I submit that bears on the issue of whether or not it is a booze or a tipple.

THE COURT:—Why, the statement was made in Mr. Walker's opening statement that this would nauseate if taken in large quantities.

Mr. Sizer:—Yes.

THE COURT:—You may ask this question, if it nauseated him, or if he had seen other people take it and if they were nauseated or were not?

Mr. Sizer:—I propose to ask him that question, but I ask him now, according to the extent of his own knowledge, how much it was used by him and by others in his country?

Mr. Walker:—That is objected to because it is hearsay. If it is admissible at all it is admissible as to what he has seen others do.

THE COURT:—Limit it to his own knowledge, Mr. Walker.

Mr. Walker:—What he has seen people do, and not what has been heard by him.

THE COURT:—What he has seen.

Mr. Sizer:—I did not ask him to state what he had heard.

Q.—Do you know, Mr. Granger, whether or not this preparation has been used by other people in your country as a beverage? *A.*—It has.

Mr. Hough:—Just a minute. There is another objection, if your Honor please, and that is this: The statement is that this is a booze or a tipple for women, not for men, and they cannot justify by proving that some man or men drank it.

THE COURT:—I think we will pass that part for a moment. You may save that point.

To which ruling of the court the plaintiffs, etc., excepted.

Mr. Sizer:—Read the question.

(Last question read)

The Witness: *A.*—It is.

Mr. Sizer: *Q.*—Has it been used by a number or a few?

Mr. Walker:—That is objected to.

A.—A lot of them.

Mr. Sizer:—Of your own knowledge now, I am asking you from what you know of your own knowledge, if you know of it being used by a good many people or just a few?

Mr. Walker:—Objected to.

THE COURT: *Q.*—Tell us about how many you have seen; one or two or three or four or what? *A.*—A dozen or more.

THE COURT: *Q.*—What? *A.*—A dozen or more.

THE COURT: *Q.*—What were they, men or women or children? *A.*—Men.

Mr. Sizer:—I believe you said you bought it originally for your wife. Is that correct? *A.*—Yes, sir, I bought some for her.

Q.—Did she take a good deal of it?

Mr. Walker:—That is objected to.

THE COURT:—You need not go into that.

Mr. Sizer: *Q.*—Is your wife living or dead now? *A.*—She is dead.

Q.—How long has it been since you drank any of it, Mr. Granger? *A.*—About five years.

Q.—How did you happen to quit?

Mr. Walker:—That is objected to.

THE COURT:—Objection sustained. He may tell what, if any effect, it had on his system, if he knows.

Mr. Sizer:—Yes, sir, I am going to get to that.

Q.—What about the taste of Wine of Cardui? Is it pleasant to the taste or unpleasant?

Mr. Walker:—That is objected to.

Mr. Sizer:—Well, I am trying to get at—

Mr. Walker:—If it is admissible at all he can tell how it tasted.

Mr. Sizer:—Well that is what I asked him.

Mr. Walker:—No, you asked him whether to his taste it was pleasant or unpleasant.

Mr. Sizer:—All right.

Q.—How did it taste? *A.*—It tasted of a bitterish taste.

Q.—Did you have any difficulty in drinking it on account of the taste?

Mr. Walker:—That is objected to.

THE COURT:—What do you mean: "Difficulty"?

Mr. Sizer:—Well, I mean if your Honor please, whether the taste was so bad that he could not take it, as they contend.

THE COURT:—He said he did drink it.

Mr. Sizer:—Yes.

Q.—Well, was or was not the taste of such character as to prevent you or other people from drinking it as a beverage?

Mr. Walker:—Objected to.

THE COURT: *Q.*—You didn't have to make use of any mechanical means to force it down your throat? *A.*—No, sir.

Mr. Sizer: *Q.*—About how much did you drink, Mr. Granger, during the period that you did drink it? *A.*—Oh, I couldn't tell you. I drank it off and on, you know. I couldn't tell how much I would drink. Sometimes I would drink it off and on all day, and then again I may be wouldn't drink any more for a week, and then again may be I wouldn't drink any more in a month. I couldn't tell how much I would drink.

Q.—Are you accustomed to the use of intoxicating or alcoholic drinks, or were you at that time? *A.*—Yes.

Q.—Were you accustomed at that time to the use of alcoholic drinks? *A.*—Why I was—to some extent I were.

Q.—Did you know the effect of them? *A.*—Yes, sir.

Q.—Now what were the effects of Wine of Cardui as compared with the effects of other alcoholic substances?

Mr. Walker:—Objected to.

THE COURT:—On you?

Mr. Sizer: *Q.*—On you.

Mr. Walker:—Well, I don't know that he has testified that he ever took any other alcohol except Wine of Cardui.

THE COURT:—Yes, he said he did.

Mr. Walker:—He said he drank—

Mr. Hough:—The court understands we object to all of this testimony as incompetent, irrelevant and immaterial under their plea of justification.

THE COURT:—Yes.

Mr. Sizer:—Read the question.

(Question read.)

THE COURT:—Put another question, and ask him what effects he noticed from Wine of Cardui. We have had other evidence enough in the case to make the jury able to make the comparison.

Mr. Sizer:—I will put the question in that way.

Q.—What effect on yourself did you notice from the drinking of Wine of Cardui? *A.*—About the same thing as whiskey or any other drink, except it took more of it.

Q.—About how much more Wine of Cardui would you have to take to produce the same effect as a drink of whiskey?

Mr. Walker:—Objected to. That is on him?

THE COURT:—Objection sustained.

Mr. Sizer: *Q.*—Do they sell Wine of Cardui down in your country now, Mr. Granger?

A.—Not but very little.

Q.—Do you remember an occasion in which you and a number of other men drank a lot of Wine of Cardui at somebody's house down in your country?

Mr. Walker:—Objected to.

THE COURT:—What was the question?

(Question read.)

Mr. Sizer:—I want to prove the circumstances of a particular occurrence, may it please your Honor, in which he and a number of other men drank a lot of Wine of Cardui.

THE COURT:—I know, but now let us see if we cannot arrange this by an admission. Let me ask the attorneys for the plaintiff if a common human being could hold down enough of Wine of Cardui—if there is alcohol enough there to intoxicate?

Mr. Hough:—Yes, certainly, if he takes enough there is.

THE COURT:—Now if you propose to prove that a person could get drunk on Wine of Cardui—they could do it if they took enough.

Mr. Sizer:—But, your Honor, they say that they do not drink it as a beverage because it has nauseating or emetic effects, and that these are such that they cannot drink enough.

THE COURT:—Ask the witness how much he has ever seen any one human being take, and the jury can make up their minds what the effect will be.

Mr. Sizer:—Yes, sir.

Q.—How much have you drank in the course of a day, Mr. Granger, when you used to drink it?

THE COURT:—He has told us that. Now let us get down to this other.

Mr. Sizer: *Q.*—In the course of a day what is the most you ever drank, in the course of a day? *A.*—Why, I suppose a couple of bottles is as much as I ever drank myself. I have seen others drink more than that.

Q.—How much have you seen others drink in the course of a day? *A.*—Oh, two or three bottles. I have seen my brother drink a bottle of it running down and never took it from his head. Threw it right down.

Mr. Sizer: *A.*—And have you seen that done frequently or not?

Mr. Walker:—That is objected to.

THE COURT:—Objection sustained.

Mr. Sizer: *Q.*—How often have you seen that done?

Mr. Walker:—Objected to. Do you mean how often has he seen his brother take one bottle and throw it down without taking it away from his mouth?

Mr. Sizer:—How often has he seen others taking it in the course of a day?

Mr. Walker:—Objected to.

THE COURT:—He may answer.

To which ruling of the court the plaintiffs, etc., excepted.

The Witness:—Why, I disremember. I wouldn't say positive as to how many bottles I have seen others take. I have seen others drink heavy, and lots of it, but I wouldn't say as to how many bottles, for I don't remember. I wouldn't say positive how many that I had seen them drink, but I have seen them drink a sight of it.

Mr. Sizer: *Q.*—I believe you said it has been four or five years now since you drank any of it? *A.*—Yes, sir.

Q.—During how long a period of time were you addicted to the drinking of it?

Mr. Walker:—Objected to.

Mr. Sizer: *Q.*—How many years did you drink it habitually?

Mr. Walker:—Objected to.

The Witness:—Two or three years.

THE COURT:—Strike out the "habitually."

Mr. Sizer: *Q.*—How many years did you drink it?

Mr. Walker:—Objected to.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

The Witness:—Two or three years.

Mr. Sizer: *Q.*—Two or three years. Do you drink any alcoholic beverages now, Mr. Granger, at all?

Mr. Walker:—Objected to.

THE COURT:—Objection sustained.

Mr. Sizer: *Q.*—Did the drinking of this Wine of Cardui ever nauseate you, Mr. Granger, and make you sick at the stomach?

Mr. Walker:—Objected to.

The Witness:—No, sir.

THE COURT:—That answer may stand.

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. Sizer:—That is all.

CROSS-EXAMINATION BY MR. WALKER

Q.—Where do you live in Alabama? What is the county? *A.*—Houston county.

Q.—And when did you come to Chicago on this trip? *A.*—Today a week ago. I left home today a week ago, and got here Wednesday.

Q.—Last week Wednesday? *A.*—This Wednesday.

Q.—And when did you leave your home? *A.*—Monday.

Q.—Were you subpoenaed? *A.*—No, sir.

Q.—Who pays your expenses for coming here? *A.*—Why I don't know in particular.

Q.—Who told you they would pay the expenses? *A.*—Mister—Dr. Moody.

Q.—Who is Dr. Moody? *A.*—He is a doctor from our country.

Q.—From your town? *A.*—Yes, sir. He lives at Columbia now. He was at our town, at Cottonwood, but he lives at Columbia now.

Q.—Do you know Dr. Heizer? *A.*—Heizer?

Q.—Yes. *A.*—I think I have met him since I have been here.

Q.—Did you meet him in Alabama? *A.*—No, sir.

Q.—The man that you call Dr. Heizer, and that you have met here— *A.*—Yes, sir.

Q.—You never saw him in your state? *A.*—No, sir.

Q.—Is Dr. Moody in Chicago? *A.*—Yes, sir.

Q.—What has it been agreed to pay you for coming here? *A.*—He never said:

Q.—How much money have you received? *A.*—Not a bit.

Q.—Who paid for your railroad ticket? *A.*—Oh, I don't know, Mister—Dr. Moody got that.

Q.—Who is paying your hotel bill? *A.*—I suppose Dr. Moody is.

Q.—How much do you expect to be paid for coming up here?

Mr. Sizer:—I object to that, if your Honor please.

THE COURT:—Objection sustained.

Mr. Walker: *Q.*—What is your idea that you should be paid for your service in coming up here?

Mr. Sizer:—I object to that.

A.—I don't know, sir. I told—

Mr. Sizer:—Wait a minute, Mr. Granger.

THE COURT:—Objection sustained.

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. Walker: *Q.*—Mr. Granger, when was it you say that you, yourself—give us as near as you can the date when you drank Wine of Cardui? *A.*—Why, it has been some four or five years since I drank any of it.

Q.—Now five years ago, or about five years ago you quit drinking any of it? *A.*—Yes, sir.

Q.—And how long before that was it before you ever drank any? *A.*—How long before that before I drank any?

Q.—Yes? As I understand you, you said you drank some of it off and on for a year and a half or more? *A.*—Yes, sir; I drank it on and off for about two years?

Q.—For about two years? *A.*—Yes.

Q.—Then that began about seven years ago, is that right? *A.*—Something like that.

Q.—What is the greatest quantity you ever drank at any one time? *A.*—About a half a bottle.

Q.—And would you drink that during those two years, a half a day, or how frequently? *A.*—Oh, sometimes I wouldn't drink any. Sometimes I would drink about one in a day, sometimes I wouldn't drink more than that in a week, or sometimes it would be a month. Just whenever I hit it up, or got hold of it, or struck others that drank with me, or may be I would get some myself to drink.

Q.—You say you would take a drink of it about once a week, or about once a month during that two years? *A.*—Yes, sir; whenever it came convenient that I could get it, or that I struck where it was that I could buy it.

Q.—Was it relatively more frequent for you to get it once a month? *A.*—Oh, I could get it oftener than that.

Q.—Well, did you get it once a month? *A.*—Well, I don't know that I noticed making any practice of getting it once a month, but I would get it every time I would come to town, every time it was convenient.

Q.—Did you get it more than once a week? *A.*—When I would come to town, I would get it.

Q.—Did you buy it for your own consumption when you went to town, or for your wife? *A.*—I bought it for her before I bought it for drinking myself, but I didn't buy any for her after I got to drinking it myself. What I bought for her was before I found out that and knew I could drink it.

Q.—You bought it for her before you knew that you could drink it? *A.*—Yes, sir.

Q.—You saw your brother, you say, on one occasion, or more than one, drink a bottle, a whole bottle? *A.*—Yes, sir; he had been drinking, and I told him it would kill him—

Mr. Walker:—I move to strike that out. I am not asking you about that. I move to strike that out.

THE COURT:—Strike that out.

Mr. Walker:—I asked you if you ever saw your brother drink a bottle more than once. You can answer it yes or no. I didn't ask you anything else. *A.*—Yes, sir; I seen him drink—I don't know as I ever saw him drink a whole bottle at any one time before, but I seen him drink a whole sight of times.

Q.—I am talking about a whole bottle. *A.*—I don't know as I ever noticed him but one time.

Q.—All right. Then there was one occasion when you saw him drink a whole bottle at one time? *A.*—Yes, sir.

Q.—Well, what was the biggest drink you ever saw him take at one time except the time he drank the whole bottle? *A.*—Well, I reckon that was about as large a drink as I ever saw him drink at one time.

Q.—I say, what was the largest you ever saw him drink at one time except the occasion he drank the whole bottle?

THE COURT:—Mr. Walker means the next biggest one.

The Witness: *A.*—Why, he drank it like most people drink whiskey, two or three swallows at a time. He drank it and then he swallowed it down and then some more, and drank it down.

Mr. Walker:—Two or three swallows at the time and then drink it down? *A.*—A third of a bottle or half a bottle.

Q.—Is that the way you drank it, two or three swallows at the time? *A.*—Yes, about a couple of swallows at the time.

Q.—How long have you known of Wine of Cardui? Over how many years? I mean how long before you ever drank any of it? *A.*—Oh, I have known of it a good long time. I couldn't tell you exactly.

Q.—Well, give me an idea of how many years before you began to drink it seven years ago that you have known of it? *A.*—Oh, eight or ten years I said before.

Q.—You knew of its sale at various drug stores to women eight or ten years before you ever tried it, is that right? *A.*—Which?

Q.—Eight or ten years ago. *A.*—I wouldn't say positive how long, but a good long time it had been used around there.

THE COURT:—He said eight or ten years ago. I figure that is eight or ten years from this date.

Mr. Walker:—I beg your Honor's pardon.

Q.—As I understand, you took it some seven or eight years ago for the first time? *A.*—Yes.

Q.—How long before that time did you know of its being used in Alabama? *A.*—Oh, it had been used for two or three years before that.

Q.—You knew that it had been used for two or three years before you ever drank any of it? *A.*—Yes, before I ever drank any of it.

Q.—Where did you get the Wine of Cardui that you drank? *A.*—Why, I got it at different places. Some from B—— C—— at Cottonwood, and from S——, in a little country store.

Q.—Are they general store keepers, or just little stores? *A.*—General stores about the country, and they sold it there at their store.

TESTIMONY OF MR. FRANK B. SELLERS

Mr. Frank B. Sellers was called as a witness on behalf of the defendants.

DIRECT EXAMINATION BY MR. SIZER

Mr. Frank B. Sellers testified that he lives in Cottonwood, Ala., Houston County, teaches in the public school and works in his father's store in the summer time. The store is a general merchandise store, 5 miles east of Cottonwood. The store used to sell up to three or four years ago among other things Wine of Cardui, something like 6 dozen bottles a month.

The witness was asked:

Q.—Well, now, what do you know — tell the court and jury what you know relative to the use of Wine of Cardui as a beverage, whether you have ever seen people drink it, and if so to what extent?

Mr. Walker:—That is objected to on the same grounds as the other.

THE COURT:—He may answer. He may tell what he has seen. Not what somebody has told him. Not what somebody has told you, but what you have actually observed yourself.

To which ruling of the Court the plaintiffs, etc., excepted.

The Witness: *A.*—Well, when I was working there and we first began handling of it it was highly recommended for the female sex.

Mr. Walker:—I move that be stricken out.

THE COURT:—That is admitted, isn't it?

Mr. Walker:—I understand that is admitted, but they do not admit it.

THE COURT:—Strike it out.

Mr. Sizer:—Well, it may be stricken out, but we don't object.

Mr. Walker:—We will admit it, but that is not what we are talking about with this witness, your Honor.

Mr. Sizer: *Q.*—Go on, Mr. Sellers.

THE COURT:—We want to know who you have seen, not giving names, but how many people you have seen drink it? *A.*—Well, I have seen several different times six in a party come in the store and would buy

a drink. I saw them take it right from the carton, open the bottle and drink.

The Court: *Q.*—They opened it right there in the store? *A.*—Yes, sir, and drank a large amount of the liquid from the bottle; I seen them drink as high as three bottles before they left. That is how come we quit handling it, on that account, they got to drinking it—

Mr. Walker:—I move that be stricken out.

The Court:—Strike it out.

Mr. Sizer: Q.—How long did you sell it that way, Mr. Sellers? *A.*—Why, not long. After they come to use it as a beverage we quit. We didn't have any protection.

Q.—You got no police protection out there, you say? *A.*—No, sir.

CROSS-EXAMINATION BY MR. WALKER

On cross-examination Mr. Sellers testified that he came to Chicago on Wednesday with Dr. Moody and Mr. Granger and that his expenses are being paid by Dr. Moody, that he worked in his father's store from the age of 12 years on up; that the store discontinued the sale of Wine of Cardui in 1913.

He was asked:

Q.—Now, it is three years ago, that is as I understand you, that the parties — that some people came to your place and bought this Wine of Cardui and drank it, is that right? *A.*—Three years ago when we quit handling it, this summer, this coming summer three years ago.

Q.—Now, before that had you seen parties come there and drink Wine of Cardui? *A.*—Yes, sir, before that.

Q.—Well, when, first? *A.*—Well, something like about a year before that they began.

Q.—Four years ago they began then? *A.*—They got worse and worse, you see, and began drinking more.

Q.—When did the prohibition law go into effect in Alabama? Do you know? *A.*—I couldn't say.

Q.—Did you ever see anybody come and drink Wine of Cardui at your store before the prohibition law went into effect in Alabama? *A.*—Well, I couldn't say for sure.

Q.—Do you recollect of ever having seen it in your life before that law went into effect? *A.*—The Wine of Cardui?

Q.—Yes. *A.*—Yes, sir.

Q.—No, seen anybody drink it? *A.*—Yes, sir.

Q.—Before the prohibition law went into effect? *A.*—Yes, sir.

Q.—When? *A.*—Off and on a good long time before.

Q.—Well, when was the first time you ever saw anybody come to your store and drink Wine of Cardui? When? *A.*—1911.

Q.—1911. That is five years ago? Isn't it? This is 1916. Isn't it? Well, is it five years ago? *A.*—Let me see. I will have to — I recall back about nine, 1909.

Q.—Well, now, that is six or seven years ago — which? *A.*—Well, it would be seven.

Q.—Did you ever see anybody drink Wine of Cardui before that time at your place, or take it? *A.*—I couldn't say for sure.

Q.—Do you say for sure now that you saw anybody drink it in 1909? *A.*—Yes, sir.

Questions were then asked concerning the date of the Prohibition Law in Alabama. The witness was then asked:

Q.—How do you fix it that year? *A.*—Well, because some occasions happened along then. I couldn't say.

Q.—What occasions? What occasion in 1909? Did you see anybody drink Wine of Cardui, speaking of 1909 now?

The Court:—Just tell him what impresses it on your mind. You said there was something that made you remember it. Now tell what that was. *A.*—Well, just on some occasions some parties got real drunk there, and we had to call the bailiff of our beat to take charge of them.

Mr. Walker: Q.—Well, what is it that identifies it as 1909? *A.*—Well, I say that was it. They got drunk.

Q.—Did somebody get drunk in 1910? *A.*—Well, now we didn't have them arrested, but we did in 1909.

Q.—Did some get drunk in 1910? *A.*—I couldn't say so for sure.

Q.—Who was it got drunk in 1909? Let me have the names of them. And tell me where they live, each one. *A.*—Well, one is T—— H——, Gorden Route 1.

Q.—T—— H——. He got drunk in 1909. Did you have him—was he arrested?

(No response.)

Q.—Who is the other one? *A.*—The other party is dead.

Q.—Who was he? What was his name? *A.*—What was his name?

Q.—Yes. *A.*—It was one of his brothers.

Q.—H——'s brother? *A.*—I think they called him Pat—I am not sure of his name, but they called him Pat, I think.

Q.—Pat H——? *A.*—He is dead.

Q.—Anybody else? *A.*—They are the only two.

Q.—Now do you know of those men getting drunk on anything else besides Wine of Cardui? *A.*—I couldn't tell what they had — I don't know whether they had anything else or not, but they bought four bottles and drank it and raised sand before they left — what we generally call it, you see.

Q.—In 1909. Did they buy anything else besides Wine of Cardui on that occasion? *A.*—Nothing, only they bought some—

Q.—Did they buy something else? *A.*—Some canned goods for their dinner, and some cigars.

Q.—And you had them arrested? *A.*—Yes. We didn't, but some parties right near by did. It wasn't us that had them.

Q.—And you fix the date as 1909 by reason of that? *A.*—Yes, I remember it very well.

The witness was asked concerning whom he had seen drinking Wine of Cardui. He was then asked questions concerning the party of six mentioned in the direct examination:

Q.—Mr. Witness, can you name another one of the six in 1913, the six, and tell us where he is living, that is living? You ought — you need not tell us where the dead live. *A.*—No, sir; I could not.

Q.—All right. Now besides that party of six — how many bottles did they get? *A.*—Why, they got I think about six or eight.

Q.—A bottle apiece? *A.*—Yes, six or eight bottles, I say.

Q.—Did they drink it right there on the ground? *A.*—No, they drank three bottles before they left.

Q.—Those six people drank three bottles before they left, and then they took three away with them. *A.*—Oh, about five.

Q.—And you didn't have them arrested? *A.*—No, they was all right.

He was then asked concerning the source of Wine of Cardui sold in the store:

Q.—Where was your father accustomed to get it? *A.*—How did he get it — he bought it from the drummers.

Mr. Sizer:—Talk a little louder, Mr. Sellers.

Mr. Walker:—Bought it from a drummer.

Mr. Walker: Q.—Were you there at any time when he purchased it? *A.*—Yes, sir.

Q.—Do you know the man from whom he bought it, or what his name was? *A.*—I don't believe I can recall his name now.

Q.—For whom was he a drummer? Do you know?

(No response.)

Q.—I didn't hear you. *A.*—Well, I was just thinking of it.

Q.—Oh, pardon me. All right. Well, can't you think of it? *A.*—I don't believe I can.

Mr. Walker: Q.—All right. I guess that is all. Oh, wait a minute. Is your father living? *A.*—Yes, sir.

Q.—What is his name? *A.*—J. H. Sellers.

Q.—He conducts his business under the name of J. H. Sellers? *A.*—Yes, sir.

Q.—And he is still in business at the same place? *A.*—Yes, sir.

Q.—Same store? *A.*—Yes, sir.

Q.—Where you used to work? *A.*—Yes.

Q.—What other medicines does your father carry in stock besides Wine of Cardui? *A.*—Why, he don't handle the Wine of Cardui at all now.

Q.—Well, I mean then when he handled them, what did he carry? *A.*—He had Dr. King's Medicine and he had Grangers' Patent Medicine besides that.

Q.—Anything else? *A.*—No, sir.

Q.—Any other medicines besides Dr. King's and Dr. Grangers'? *A.*—Not that I remember. We carry some of Dr. King's now.

Mr. Walker:—I think that is all.

The Witness:—And also Dr. Thatcher's.

Q.—Dr. Thatcher's? *A.*—Yes, sir.

Q.—I understand you to say Dr. Keene? *A.*—King, K i n g. And Dr. Granger's and Dr. Thatcher's.

TESTIMONY OF JOE H. COOPER

Mr. Joe H. Cooper was called as a witness on behalf of the defendants.

DIRECT EXAMINATION BY MR. SIZER

Mr. Joe H. Cooper testified that he is a barber residing in Oakdale, Tenn.; he is 32 years old. Oakdale is 84 miles from Chattanooga.

Objection was made to questions regarding the introduction of evidence as to whether the witness drank Wine of Cardui, but was overruled and exception taken. Objections were made, overruled and exceptions taken to questions concerning the witness's observation of others who drank Wine of Cardui; the size of Oakdale, etc.

The witness testified that he drank Wine of Cardui as a beverage for three years, as much as a coca-cola glass full at a time. This, questioning showed, was about 5 ounces. He testified that he was not at any time nauseated, but experienced the same effect as that of whiskey.

The witness has drunk during the last three years and a half three or four glasses of beer.

CROSS-EXAMINATION BY MR. WALKER

On cross-examination Mr. Cooper testified that he came to Chicago alone, that he has seen Dr. Heizer in Chicago; that he first met Dr. Heizer about a year ago in Oakdale. He testified that he was introduced to Dr. Heizer by his brother, Dr. John W. Cooper, and that he did not drink any Wine of Cardui for Dr. Heizer.

The witness testified that he has not received any money from Dr. Heizer. He was then asked:

Q.—All right. Now, Mr. Cooper, have you received any money beyond your railroad fare, as yet? *A.*—Yes, sir.

Q.—How much? *A.*—Ten dollars.

Q.—And who paid your railroad fare up here? *A.*—The receipt that I was to sign was to the AMERICAN MEDICAL ASSOCIATION.

Q.—Well, you got a ticket, did you: is that it? *A.*—Yes, sir.

Q.—They sent you tickets to come with? *A.*—No, sir; I bought the ticket.

Q.—And besides that, you have received ten dollars? *A.*—Yes, sir.

Q.—You understand they are paying your expenses here, do you not? *A.*—Certainly.

Q.—And how much a day are you getting, if any? *A.*—I don't know.

Q.—You have no agreed sum? *A.*—No, sir.

Q.—Have you—are you to receive something— *A.*—I am.

Q.—for your time? *A.*—Certainly.

Q.—Without any reference to the amount? *A.*—I do not know what the amount will be.

Q.—Five dollars or ten dollars a day, or something like that? *A.*—I do not know what it will be.

Q.—What are you going to charge?

Mr. Sizer:—I object to that.

Mr. Walker:—Why not?

Mr. Sizer:—There is no agreement, he says.

THE COURT:—Objection sustained.

Mr. Walker:—Well, what is he going to ask? Exception.

To which ruling of the Court the plaintiffs, etc., excepted.

The witness was then asked concerning the prohibition law in Tennessee and as to what he drank previous to the time when he first drank Wine of Cardui. Since the prohibition law went into effect, he drank lemon extract, cherry bitters and gilt edge bitters as well as Wine of Cardui. He has not taken a stronger stimulant than beer since Oct. 20, 1912.

The witness was cross-examined concerning Oakdale and its population and named two men whom he had seen drinking Wine of Cardui.

REDIRECT EXAMINATION BY MR. SIZER

On redirect examination, the witness testified that he could remember no other names of men who drank Wine of Cardui as a beverage than those already mentioned.

TESTIMONY OF JULIUS S. M'GREGOR

Mr. Julius S. McGregor was called as a witness on behalf of the defendants.

DIRECT EXAMINATION BY MR. SIZER

Mr. Julius S. McGregor testified that he is a merchant and a farmer residing in Ruby, S. C.

Objection was again made to the introduction of evidence as to the drinking of Wine of Cardui as a beverage by men.

The witness testified that ten or twelve years ago, he was clerking for his father in a general store and had seen men drink from one-third to one-half bottle of Wine of Cardui at one time. He also said that his father sold about 12 dozen bottles a month. The father has not sold any Wine of Cardui for six or seven years.

He was then asked:

Mr. Sizer:—*Q.*—Did you ever see anyone get intoxicated on Wine of Cardui? *A.*—Yes, sir; I have.

Mr. Walker:—Same objection.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

The Witness:—I remember one, one specific case, W. A. W——, of my town.

Mr. Walker:—W. A. W——?

The Witness:—W. A. W——.

Mr. Sizer:—Talk louder, please.

The Witness:—Mr. W—— came into the store one afternoon and he bought a bottle of Wine of Cardui; and he went out and in a short time he came back in the space of something like an hour—he came back and bought the second bottle of Wine of Cardui. And I noticed when he came back the second time that he was under the influence of strong drink; and I did not know at that time that he was drinking it as a beverage; but some time after that I got to notice it. He was a man that traded a good deal in the store, and I noticed to see what he was doing with this Wine of Cardui. I suppose it was something like a week, and he came and bought some more bottles, and I saw him in the back lot drinking Wine of Cardui; and after this time I noticed that he was under the influence of strong drink—intoxication.

Q.—That is, after you saw him out there in the back lot drinking it, you noticed he was intoxicated? *A.*—Yes, sir.

Q.—Is that the only instance of that kind that you recall, or do you remember others of the same kind? *A.*—No, sir; I remember other instances; I remember that one afternoon a fellow, S——, Arling S——, who bought some of this, came in the store and bought this Wine of Cardui. Some time after that, I suppose probably it was 30 or 40 minutes, I went out into the back lot to see what he was doing. I knew that he went back in that direction; and I found him with one of his friends, drinking this Wine of Cardui. And I saw them open the bottle and drink of the contents; and the two drank the entire bottle.

CROSS-EXAMINATION BY MR. WALKER

The witness testified on cross-examination repeating the statements told in direct examination as to his occupation and the radius of the country served by the store. He was again asked concerning W. A. W—— mentioned in the direct examination, also concerning Arling S——. He was then asked:

Q.—Now, your father, you say, when he was in business ten or twelve years ago would buy a gross a month? *A.*—Yes, sir.

Q.—From whom? *A.*—Well, I think he bought it from the Chattanooga Medicine Company, though I would not say positively.

Q.—That is your understanding— *A.*—Yes, sir; that is my understanding.

Q.—That he would deal directly— *A.*—Yes, sir.

Q.—With the Chattanooga Medicine Company? *A.*—I think he did; Yes, sir.

Q.—What was your father's name? *A.*—D. H.

Q.—What? *A.*—D. H.

Q.—What does the D. stand for, Donald? *A.*—David.

Q.—David H.? *A.*—Yes, sir.

Q.—McGregor? *A.*—Yes, sir.

Q.—Is your father living? *A.*—Yes, sir.

Q.—When did you get to Chicago, Mr. McGregor? *A.*—I came here a week ago today.

Q.—What? *A.*—A week ago today

Q.—Did anyone come with you? *A.*—Yes, sir.

Q.—Who was in your party? Who were in your party? *A.*—Only one more.

Q.—Who was it? *A.*—Dr. R. M. Newsom.

Q.—Who? *A.*—Robert M. Newsom.

Q.—How do you spell it? *A.*—N-e-w-s-o-m.

Q.—Is he in Chicago now? *A.*—Yes, sir.

Q.—Where does he live? *A.*—He lives at the same town, my home town.

Q.—Did you ever meet Dr. Heizer? *A.*—Yes, sir.

Q.—Outside of Chicago? *A.*—Yes, sir.

Q.—Where? *A.*—I met him in Columbia.

Q.—Well, where is that? *A.*—That is the capital of South Carolina.

Q.—And how far from your city? *A.*—Why, I suppose it is about ninety miles.

Q.—How did you happen to meet him in Columbia? *A.*—Well, I was—I went with the same party that was with me, Dr. R. M. Newsom.

Q.—Dr. R. M. Newsom took you to Columbia to meet Dr. Heizer? *A.*—Well, we went together; yes, sir.

Q.—Did you know at the time you were to meet Dr. Heizer? *A.*—Why, no, sir; I did not; not until after we left the town.

Q.—Newsom asked you to go to Columbia with him? *A.*—No, sir. I expected to go the day before, and I asked Dr. Newsom to go with me, and we agreed to wait over until the second day and go. That was—

Q.—Well, you had other business in Columbia? *A.*—Yes, sir; I did.

Q.—When you got— Newsom knew you were going? *A.*—Yes, sir.

Q.—When you got down there you were introduced to Dr. Heizer by Dr. Newsom? *A.*—No, sir. We — I do not think either one had met Dr. Heizer, but we met him in Columbia at that time.

Q.—Well, where did you meet him? *A.*—We met him at the hotel, Jefferson Hotel.

Q.—Who introduced him to you? *A.*—Why, we introduced ourselves, I think. I think Dr. Newsom introduced me—Yes, sir; I think he did; I am not positive.

Q.—Do you know whether Dr. Newsom had known Dr. Heizer before that time? *A.*—No, sir; I do not know.

Q.—You do not know how their acquaintance came about? *A.*—No, sir.

Q.—Did you have any talk with Dr. Heizer at that time about coming to Chicago? *A.*—Yes, sir.

Q.—Who introduced that subject, Dr. Newsom or Dr. Heizer? *A.*—Why, Dr. Newsom, I believe, asked me if I knew anything in regard to it.

Q.—Yes. Did Dr. Heizer give you any money? *A.*—No, sir.

Q.—Who paid your fare to Chicago? *A.*—Why, I paid it myself.

Q.—And have you received any money from any one while—since you have been here? *A.*—Yes, sir.

Q.—From whom? *A.*—From Dr. Heizer.

Q.—How much? *A.*—$25.

Q.—What is your railroad fare? *A.*—Why, I don't know; I think it probably is $50 or $60.

Q.—And you have not received that back yet? *A.*—No, sir.

Q.—Do you expect to get it back? *A.*—Yes, sir; I do.

Q.—And your return fare? *A.*—Yes, sir.

Q.—And how much for your time? *A.*—Why, I do not know. There was not anything said in regard to that.

Q.—How much do you expect to ask?

Mr. Sizer:—I object to that, his expectation—

THE COURT:—Well, the amount cuts no figure. A witness may testify whether or not he expects to be paid, and let it go at that.

Mr. Walker:—Well, I will ask that:

Q.—You expect to be paid for your loss of time, I take it? *A.*—Yes, sir; I do.

The witness was then cross-examined concerning the purchase and sale of Wine of Cardui in his father's store, quantity, shipments, etc. He also named other stores in Ruby, S. C.

REDIRECT EXAMINATION BY MR. SIZER

On redirect examination, the witness was asked whether the other stores doing business in Ruby carried Wine of Cardui.

Objection was made and sustained and exception taken by the defendants.

The court then adjourned until Tuesday, April 4, 1916.

April 4, 1916, Morning

TESTIMONY OF DR. ROBERT H. NEWSOM

The court met pursuant to adjournment. Dr. Robert M. Newsom was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. SIZER

Dr. Robert M. Newsom testified that he has been a practicing physician in Ruby, S. C., for five years. He stated that 75 per cent. of the poor people in his community use Wine of Cardui, and that it is bought and used by both men and women.

Objection was made to the introduction of further evidence of this character. Mr. Sizer finally stating:

"We want to show as a matter of fact, that it is used extensively by men and women as a booze and tipple all over the South, and we have witnesses here from a number of the Southern States."

The court ruled that the evidence might be introduced and the plaintiffs excepted.

Mr. Sizer asked:

Q.—Now, doctor, will you state some concrete cases that have come under your observation, and in your practice with respect to the use of Wine of Cardui by women? *A.*—Well—

THE COURT:—Give the names and dates if you can. *A.*—All right. I wil, as near as I can. Mrs. A. T. K——, I saw her a year ago at Ruby, South Carolina. She came under my practice suffering—

Mr. Sizer:—What is the name? *A.*—A. T. K——. She came under my personal observation. She came in to see me. She was very anemic and was run down and poorly nourished and everything, and I quizzed her and asked her history about it and she gave me a history of taking Wine of Cardui.

Objection was made to the introduction of any testimony of what the patient told the physician. He was asked:

Q.—Can you recall any other case? *A.*—Miss Nancy J—— of Jefferson I can state also was a woman that was suffering with a whole lot of female troubles, prolapsus, ovarian cyst and retroversion. She was very much emaciated. I revealed that by physical examination, and this woman had been taking Wine of Cardui.

Mr. Walker:—I object to that unless he saw her take it.

A.—I saw her take it. She came under my observation and had been taking Wine of Cardui for eight or ten years.

Mr. Walker:—I object to that.

Mr. Sizer: Q.—How long did you personally know—

Mr. Walker:—I move to strike that out.

THE COURT:—Strike it out.

To which ruling of the court the defendants, etc., excepted.

The Witness:—I know she took it six months.

Mr. Walker: Q.—That is, you yourself saw her take it over a period of six months. *A.*—I did not see her take it every day.

Mr. Walker:—I move to strike that out then.

Mr. Sizer:—He says he did not see her take it every day.

Q.—How often did you see her take it during that period of time? *A.*—I saw her take it, I saw her take a dozen bottles.

Q.—How much did she take at a dose? *A.*—It got to where she would take — she would take the regular dose when she started and I saw her take about one third of a bottle. She first began to take Wine of Cardui and when she — she had been taking from the first, Wine of Cardui but it lost its strength and when the Harrison Narcotic Law came in and she could not get morphin — she had been taking morphin before.

Q.—Did you give her morphin? *A.*—I did not.

Mr. Walker:—Then I object to it. He is stating what she told him, or what she did all that time.

The Witness:—I gave it to her during the period she was taking it, but when the Harrison Narcotic Law came in, I did not.

Mr. Sizer: Q.—Do you know as a matter of fact, whether she had been taking morphin? *A.*—I know she took it.

Q.—You know she took it? *A.*—Yes, sir.

Q.—And when the Harrison Law went into effect, she could not get the morphin? *A.*—She could not get the morphin, and she resumed Wine of Cardui in large doses.

Mr. Walker:—I move that that statement be stricken out.

Mr. Sizer: Q.—Well, do you know that after that time she took Wine of Cardui? *A.*—Yes, sir; I know that after that time she took Wine of Cardui.

Q.—And took it you say, according to your knowledge over a period of six months. *A.*—Six months.

Q.—What was the largest amount you ever saw her take?

Mr. Walker:—He named that, he said one third of a bottle. *A.*—I saw her take about one third of a bottle.

Q.—Two thirds?

Mr. Walker:—No, one third of a bottle he said.

Mr. Sizer: Q.—Did she pour it out in a tablespoonful dose or drink it out of the bottle? *A.*—Drank it out of the bottle.

Q.—Now, Doctor, is there any other case? *A.*—The little G—— girl.

Q.—What was her name? *A.*—Miss — let's see.

Q.—Well, her name was G——, was it? *A.*—Jennie G——.

Q.—Did she live there at Ruby? *A.*—She gets her mail off the Pagland Route. I treated her — she came under my observation suffering — run down from anemia and I examined her and found she was suffering with hookworm.

Q.—Suffering with what? *A.*—Hookworm.

Q.—Speak louder, doctor, and try to speak more distinctly. *A.*—I discovered that by microscopic examination.

Q.—You discovered that she was suffering with hookworm? *A.*—I discovered that she was suffering with hookworm and I saw her take Wine of Cardui.

Q.—You saw her take it? *A.*—I saw her take it.

Q.—How much did she take? *A.*—Well, she would take — she took it pretty regularly by dose. I was going there treating a case of fever at the time and I saw her take it.

THE COURT: *Q.*—About how old was she? *A.*—She is 17 years old.

Mr. Sizer: Q.—Now, Doctor, won't you speak as distinctly as you can. *A.*—She was taking Wine of Cardui for suppressed menstruation or amenorrhea, it never had come on.

Q.—That is, you mean—

Mr. Walker:—I move that that be stricken out.

THE COURT:—Strike it out.

To which ruling of the court the defendants, etc., excepted.

Mr. Sizer: Q.—You mean she never had menstruated?

Mr. Walker:—Wait a moment, the court struck that out.

Mr. Sizer: Q.—Do you know, could you tell from the examination you made of her? *A.*—No, she never had menstruated.

Mr. Walker:—I move to strike that out.

Mr. Sizer: Q.—Could you tell that from your own examination of her, or as a part of her history of the case. *A.*—It was her history of the case.

Mr. Walker:—I move to strike that out.

THE COURT:—Strike it out.

To which ruling of the Court the defendants, etc., excepted.

WHAT A PHYSICIAN MAY STATE

Mr. Sizer:—If your Honor please, I believe that a physician is entitled to state what a patient tells him regarding her symptoms as a part of the clinical history of the case. If a patient goes to a doctor for treatment, he has got to know what her condition is, and what symptoms she has been manifesting, and I think the rule is that it is competent for a physician to state what the patient has told him under those circumstances, as the clinical history of the case.

THE COURT:—I think that is the rule in Illinois, Mr. Walker, unless there is a different rule in the Federal Court.

Mr. Walker:—I think under some circumstances, the rule is right, but I do not think this sort of evidence comes within the rule, myself. A doctor, who has been treating a patient may tell both the objective and subjective symptoms if he is not treating her for the purpose of giving testimony, but that does not apply here.

THE COURT:—Well, find out whether at the time this treatment is given, the doctor knew anything about this case, or whether it was pending or not.

Mr. Sizer:—Yes, sir. Well, doctor, just now state what you discovered or what examination you made and what symptoms you discovered when you first went to examine this case. *A.*—When I first saw this little girl I found she was very anemic.

THE COURT:—When was that? *A.*—That was six months ago, as near as I can remember.

Q.—Did you know anything about the pendency of this suit at that time. *A.*—I did not. I will say—I wish to withdraw that statement—it might have been eight months ago, but it was before I ever heard of a Wine of Cardui case.

Q.—You had not been asked whether you would testify in this case at that time? *A.*—No, sir; it was before that.

Mr. Sizer: Q.—Now then, did you ask her what symptoms she had been manifesting or what was the nature of her illness prior to the time of your examination, what she had been suffering with? *A.*—Yes, sir; I asked her that.

Q.—What did she tell you with regard to her symptoms when you asked her the history of her case? *A.*—Well, she told me that her menstruation was suppressed.

Q.—Speak out loud. *A.*—The menstruation was suppressed and it never had come on and she was anemic and all, and I told her that I thought she was suffering with amenorrhea.

Q.—Did she tell you she had been taking anything for the suppressed menstruation? *A.*—Yes, sir.

Q.—What did she tell you she had been taking? *A.*—Wine of Cardui.

Q.—Talk out loud, doctor? *A.*—Wine of Cardui.

Q.—Did you or not say that you had seen her take it while you were treating her? *A.*—Yes, sir.

Q.—What sized doses did she take? *A.*—She took—this little G—— girl?

Q.—Yes. *A.*—She took it about by dose and when I saw her take it she took some out of the bottle.

Q.—Out of the bottle? *A.*—And I would say it was one third of a bottle.

Q.—What was her age did you say? *A.*—She was 17 years old.

Q.—Did you treat her? *A.*—Yes, sir.

Q.—Did she get well under your treatment? *A.*—Yes, sir. I stopped her from taking Wine of Cardui, and I gave her hookworm treatment, and she got well.

Dr. Newsom then testified that a Mrs. —— came to him. He found that she was suffering with a pretty well advanced case of pulmonary tuberculosis and she was under the impression that she had female trouble and had been taking Wine of Cardui for two years. The patient died.

A Miss Louise H—— at Wadesboro, N. C., aged 28, suffering from menorrhagia caused from a result of retroversion, had been taking Wine of Cardui for two years and was getting worse every day.

A Mrs. W. J. M——, Patrick, S. C., aged 28, was suffering with malarial fever and had amenorrhea. She had been suffering for about three years and had been taking Wine of Cardui, but it did not do her any good.

The witness was then asked:

Q.—Now, do you know of any, or can you state any instances of people drinking Wine of Cardui as a beverage? *A.*—Yes, sir.

Q.—Well, go ahead and state some such instances. *A.*—Well, a Mr. W. A. W——.

Q.—Does he live there in your community? *A.*—Yes, sir.

Q.—Well, state what you know about his taking it? *A.*—Mr. W—— has come in the drug store in my own knowledge as many as twenty-five times, I would say twenty to twenty-five times—I would not like to exaggerate, but I know that many times, I have seen him buy Wine of Cardui off the shelf and drink it, and drink it and pour it out in a coca cola bottle and drink it with coca cola. I have seen him drink half a bottle at a time, and that is pretty regular, it is going on right now.

Q.—What effect would it have on him? *A.*—He would get drunk on it.

Q.—Get drunk? *A.*—Yes, sir.

Q.—You have seen that you say twenty to twenty-five times? *A.*—Yes, sir.

Q.—Anybody else? *A.*—Loony W——, his son.

Q.—That is one of these other men? *A.*—Yes, sir.

Q.—Well, what about him? *A.*—I have seen him drink it I will say five times.

Q.—Talk as distinctly as you can. *A.*—I have seen him drink it five times.

Q.—How much would he drink? *A.*—I have seen him drink half a bottle.

Q.—What effect would it have on him? *A.*—About the same effect that whiskey does if you get enough of it.

Q.—Would he get intoxicated or not? *A.*—Yes, I have seen Lonny intoxicated.

Q.—Well, any others? *A.*—And a fellow named Cort C——.

Q.—What business is he engaged in? *A.*—Farmer; all of them are farmers.

Q.—All of them are farmers. What do you say about Mr. C——. *A.*—Well, Mr. C——, I have seen him come in there and take Wine of Cardui, I will say ten times. I have seen him open it and get drunk on it before he left town.

Q.—I want to ask you, have you an interest in the drug store there, or is your office in the drug store? *A.*—I have had an interest in one, and my office is in the drug store too now.

Q.—At the time you observed these men, were you in the drug store, interested in the drug store? *A.*—I got an office in the back end of the drug store.

THE COURT: *Q.*—Was that the drug store that you were interested in? *A.*—I was not interested in it, I have not been interested in it for about a year.

Q.—At that time you had no interest in the sale of the drugs? *A.*—No, sir. I have sold several other patent medicines—

Mr. Walker:—I move to strike that out.

THE COURT:—Strike it out.

To which ruling of the court the defendants, etc., excepted.

Mr. Sizer: *Q.*—Any other cases, doctor, under that same head? *A.*—Under that same head, C——, — I treated him. He had a runaway. He drank Wine of Cardui and his horse ran away and throwed him out of the buggy and cut off his right ear. He lost his right ear and had a concussion and he is paralyzed on his right side now. He is under my treatment right now. He cannot use his arm or his leg or anything.

Q.—That was a runaway accident following the use of Wine of Cardui, you say? *A.*—Yes, sir.

Q.—Very well. Now is there any other case that you can tell about? *A.*—W. L. G——, of Greensboro.

Q.—Greensboro? *A.*—He is a traveling man.

Q.—South Carolina? *A.*—A traveling man—North Carolina.

Q.—Is that Greensboro, South Carolina? *A.*—North Carolina.

Q.—What did you see Mr. G—— do? *A.*—I saw him come in there one day—a traveling man and I did not know what in the world he was buying Wine of Cardui for, but I saw him buy two bottles, and I saw him go out of the store and drink one. He came back in and made the statement, "That is the best drink I ever drank."

Mr. Walker:—I move to strike that out.

THE COURT:—Strike it out.

To which ruling of the court the defendants, etc., excepted.

Mr. Sizer:—Never mind what he said, just what he did.

Q.—Now, Doctor, how many stores are there in Ruby at which Wine of Cardui is sold, if you know? *A.*—I declare I could not say.

Q.—Several of them?

Mr. Walker:—That is objected to.

Mr. Sizer: *Q.*—Well, more than one? *A.*—It is sold at the drug store.

Q.—Do you know whether it is sold at the other stores than the drug store? *A.*—I think—I am not sure, but I think Steen & Company sells it.

CROSS-EXAMINATION BY MR. WALKER

On cross-examination Dr. Newsom testified that he has known Dr. Heizer since last November, 1915. He met him in Columbia at the Jefferson Hotel, with Mr. McGregor.

The witness testified that he is a member of the AMERICAN MEDICAL ASSOCIATION and of a county medical society reorganized since Dr. Heizer's visit. He was asked numerous questions concerning Miss Nancy J——, as to her various symptoms and his treatment of her.

He was then asked numerous questions concerning the G—— girl, repeating the testimony previously given. He was asked:

Q.—What did you do, what did you give her? *A.*—I gave her the hookworm treatment.

Q.—And what stuff is that. *A.*—Thymol.

Q.—Anything else? *A.*—I gave her a tonic.

Q.—What kind? *A.*—Iron, arsenic and strychnin.

Q.—How, in capsules? *A.*—No, I put it in a liquid.

Q.—How much alcohol was in it? *A.*—I am not sure.

Q.—Was it by prescription? *A.*—It was by prescription, yes.

Q.—Was it a compound that was poured out of a bottle into another, or was it a concoction that the druggist made up from your prescription? *A.*—Part of it was.

Q.—Part of it was what? *A.*—I added part of it to it—wrote a prescription.

Q.—What did you add to the stuff? *A.*—Arsenic.

Q.—You added arsenic? *A.*—Yes, sir.

Q.—And what was the stuff? *A.*—Iron. It is elixir of iron, quinin and strychnin.

Q.—Elixir of iron, quinin and strychnin? *A.*—Yes, sir.

Q.—Who makes it? *A.*—I don't know.

Q.—Parke-Davis & Company? *A.*—Eli Lilly I think.

Q.—Do you know how much alcohol there is in that mixture? *A.*—I declare I would not be sure about it.

Q.—You added some arsenic to it? *A.*—Yes, sir.

Q.—And you had it made out of that elixir? *A.*—The druggist added the arsenic to it.

Q.—Now, do you make up your own prescriptions at times, mix your own compounds? *A.*—No, I never did.

Q.—How many times a day did she take this iron stuff, this girl? *A.*—Three times.

Q.—How? *A.*—By mouth, a teaspoonful, three times a day.

Q.—Was there 50 per cent. alcohol in that iron combination, that Lilly makes, iron and something else? *A.*—Tincture of iron, quinin and strychnin. I don't think so, but I am not sure; I would not be certain about it.

Q.—Would you be certain that there was not 65 per cent. in it? *A.*—I am not sure.

Q.—As to the alcohol in the medicine that you give as a doctor, do you say that that is negligible, or would that make a booze fighter out of Jennie G——? *A.*—I don't think it would; if she takes strychnin I don't think—

Q.—How many times have you seen Jennie G—— drink Wine of Cardui? *A.*—I have seen her—

Q.—Yes, seen her. Did you ever see her? *A.*—I have seen her four or five times.

Q.—You have seen her four or five times where? *A.*—At her home.

Q.—The first time you went to see her, did she drink some Wine of Cardui? *A.*—Yes, sir.

Q.—Did you ask her to? *A.*—No, I did not.

Q.—That was two months before you met Heizer? *A.*—Yes, probably a month or two before I met Heizer.

Q.—You did not ask her to drink this Wine of Cardui? *A.*—I did not, no.

Q.—How much did she drink of it? *A.*—She took I would say somewhere between a quarter and a third of a bottle.

Q.—Drank it out of the bottle? *A.*—Yes, sir.

Q.—Did she drink any more while you were there? *A.*—No.

Q.—When did you next see her drink any? *A.*—I saw her about two weeks after that.

Q.—Two weeks after that. Where did you see her, at her house or at your office? *A.*—Her house.

Q.—How much did she drink then? *A.*—She took about a tablespoonful.

Q.—Where did you next see her drink any? *A.*—I saw her every day for about three days after that. I went there to see her father.

Q.—For about three days. How much did you see her drink the next time that you ever saw her drink any more? *A.*—I never saw her drink any more.

Q.—Now she knew, didn't she—you told her when you first saw her that she had the hookworm? *A.*—I told her I thought she had; I would have her feces examined.

Q.—She knew that your medicine that you gave her was for hookworm? *A.*—Yes.

Q.—And that the tonic was to build her up? *A.*—Yes.

Q.—And did she tell you that she was taking Wine of Cardui because she had amenorrhea? *A.*—Yes.

Q.—To bring her periods around? *A.*—Yes.

Q.—You say she had never had them? *A.*—No, never had no periods.

Q.—Had she ever come around? *A.*—Yes, she has come around now, but she quit taking Wine of Cardui the last time I was there.

Mr. Walker:—I move to strike that out. I asked you if she had come around. *A.*—Yes, she came around.

Q.—Do you think the iron and alcohol—what is the other stuff in that, iron and alcohol and what else is there in your dope? *A.*—I think the hookworm treatment brought her around.

Q.—What else was there in that stuff, iron and alcohol? *A.*—I did not say there was any alcohol in it. You might, but I might not.

Q.—The stuff that Lilly makes. What else was there in there, besides the iron, what else? *A.*—Iron, quinin and strychnin.

Q.—What else? *A.*—I put arsenic in it.

Q.—Do you think the curing of the hookworm brought her around? *A.*—I think it did.

Q.—Or do you think the iron, strychnin and the other thing did? *A.*—I think the hookworm treatment brought her around.

Q.—You don't think the tonic helped her any? *A.*—I think it did.

Q.—The iron and so forth? *A.*—Yes.

Q.—Had you been acquainted with Dr. Heizer before you saw him in November? Had you been corresponding with him before then? *A.*—I saw him in November. No, I got a letter from Haines.

Q.—Who? *A.*—Haines.

Q.—Who is Haines? *A.*—He is secretary of the Bureau of Statistics of South Carolina.

Q.—When did you get that letter? *A.*—I got it about—I guess something like about seven or eight months ago, about seven months ago.

Q.—It was about the time you began to treat Nancy J—— and the G—— girl, wasn't it? *A.*—No, I saw Miss J—— a year ago.

Q.—But the G—— girl, you began treating her when you got the letter from Haines? *A.*—I don't think I ever got any letter from him when I saw her. I would not swear whether I had or had not. I did not pay any attention to it. He did not say anything much about—

Q.—Did you get any other communication from any other member of the MEDICAL ASSOCIATION? *A.*—Yes, sir, I got a letter from Dr. Heizer.

Q.—When? I mean before you saw him? *A.*—I got a letter I guess about two or three weeks before I saw him.

Q.—Were you treating the G—— girl then? *A.*—When I got the letter from him?

Q.—Did Heizer tell you— *A.*—Wait a minute. You ask two or three questions all at the same time.

Q.—I thought you had finished.

Mr. Loesch:—He has tumbled to it at last.

Mr. Walker:—What is it?

Mr. Loesch:—I remarked that you always ask the question and take the answer out of the witness's mouth. I cannot tell which is answer and which is question, your Honor back here.

Mr. Walker:—Well, that is not very important.

Mr. Loesch:—I think it is mighty important.

Mr. Walker:—I should not do it, I admit.

THE COURT:—If the Jury is in the same frame of mind, the evidence is not going to do you any harm.

Mr. Walker:—No, if they don't understand it.

Q.—Did Dr. Heizer tell you what he wanted of you in connection with this suit. *A.*—No, he did not.

Q.—Or Haines? *A.*—He did when I saw him in Columbia.

Q.—When you got the letter from Haines, did you understand from that, that there was a case— *A.*—No.

Q.—Against the AMERICAN MEDICAL ASSOCIATION? *A.*—No, I did not understand definitely that there was any case at all about it.

Q.—Did you understand that there was such a suit going on? *A.*—No, I did not.

Q.—Do you take the JOURNAL of the AMERICAN MEDICAL ASSOCIATION? *A.*—I have been taking it right lately since—

Questions were then asked concerning the symptoms of the G—— girl and of Mrs. M——. The witness was also cross-examined concerning Miss Louise H——, Mrs. W. J. M—— and Mr. W——. He was asked:

Mr. Walker: *Q.*—Now, Mr. W—— —when last did you see W. A. W—— drink any Wine of Cardui? *A.*—Well, the last time I saw him has been about, I would say, three months ago.

Q.—Were you then interested in the drug store? *A.*—Yes.

Q.—The first time you saw him then—when was that? *A.*—It has been about two years ago.

Q.—And the last time about three months ago? *A.*—Yes.

Q.—During that period you say you have seen him take Wine of Cardui 20 or 25 times? *A.*—Yes, sir.

Q.—Where was the first time that you ever saw him drink Wine of Cardui? *A.*—The first time I saw him drinking it was between the buildings, between two stores about two years ago; two wooden buildings.

Q.—Where did he get it? *A.*—I don't know where he got it.

Q.—Were you then officing in the drug store? *A.*—Yes, I have been in the drug store all the time, ever since I have been in Ruby.

Q.—How do you know he was drinking Cardui? *A.*—I saw it.

Q.—That is, you saw the bottle? *A.*—I was as close to him as to that place, (Indicating about five feet).

Q.—You saw the bottle? *A.*—Yes, sir.

Q.—And saw the carton? *A.*—Yes, sir, saw it all.

Q.—Now, had he been in the drug store where your office is, just before that? *A.*—No, he had not.

Q.—When was the next time you saw him drink Cardui? *A.*—Well, I could not say exactly the date.

Q.—As near as you can? *A.*—Well, I would say he drank it off and on about every—

Q.—The next time I am asking you about? *A.*—About three months ago he was in the drug store drinking it, three months ago.

Q.—That is the last time? *A.*—Yes, sir, that is the last time I saw him.

Further questions were asked concerning W——'s method of using Wine of Cardui:

Q.—Tell the jury how he would take it; come in and buy a bottle and open it in the drug store? *A.*—Come in and buy a bottle in the drug store and sometimes he drinks it, passes it around to some of them in there. I didn't never pay any attention to it, I just noticed it, this taking by the men of Wine of Cardui that way—

Q.—I am not asking you that? *A.*—Sometimes he poured it in a coca cola bottle and would take it with coca cola.

Q.—And do that publicly? *A.*—Yes, sir, do that publicly.

Q.—Right there in the drug store? *A.*—Yes, sir.

Q.—And drink it in coca cola, as a beverage? *A.*—As a beverage.

Q.—From the first time you saw him between the two buildings—*A.*—Yes.

Q.—He was drinking it that way? *A.*—Yes.

Q.—He was not sick? *A.*—He drank it out of the bottle the first time I ever saw him.

Q.—Was he sick as far as you know? *A.*—No, he was not sick.

Q.—Was there anything the matter with his health? *A.*—Nothing that I know of.

Q.—How many times—I think you said 20 times? *A.*—Ask it all over again, if you want to.

Q.—You have seen him come in and buy it and drink it in front of you, and you knew that he was drinking it as a beverage in that drug store?

Mr. Sizer:—I protest against this. He does not give the witness a chance to answer.

THE COURT:—If you don't let the witness answer the questions, we will never get through. He gets about two words of an answer, and then you ask him another question.

Mr. Walker:—Is there any question pending now, or shall I go on.

THE COURT:—Go right ahead.

Mr. Walker: *Q.*—How many times have you seen this man W—— —*A.*—I have seen him 20 times.

Q.—Drink it as a beverage? *A.*—I have seen him drink it 20 times I think as a beverage.

Q.—Openly? *A.*—Yes sir.

Q.—So the druggist knew it? *A.*—Yes, sir, the druggist knew it, I guess he does.

Q.—You knew it? *A.*—Yes, I knew it.

Q.—You knew he was drinking it as a beverage? *A.*—I thought he was. I did not see any other reason why he was drinking it only as a beverage.

Q.—And that is the three months when he drank it that you were interested in that same drug store? *A.*—Yes, sir.

Q.—Is that right? *A.*—Yes. No, I am not interested in the drug store—I was not three months ago. That is a mistake, I did not say that.

Q.—When did you become interested in it? *A.*—I said that I had sold out the drug store about a year ago.

Q.—You sold out the drug store? *A.*—Just about a year ago.

Q.—Then you were interested in it two years ago? *A.*—Yes, sir.

Q.—When he used to come in and drink it as a beverage? *A.*—He would come in and drink it off and on.

Q.—When you were interested in the drug store? *A.*—Yes, I think I had some in it then.

Q.—What is the name of the druggist in whose store this man drank? *A.*—R. D. M——.

Q.—R. D. M——? *A.*—Yes, sir.

Q.—Is he there now? *A.*—Yes, he is there now.

Q.—Running the drug store? *A.*—Yes, sir.

Q.—Now Lonny W——, is that the son of W. A.? *A.*—Yes.

Q.—Have you seen him come in the drug store? *A.*—Yes.

Q.—And buy Wine of Cardui? *A.*—Yes.

Q.—And drink it as a beverage? *A.*—Yes.

Q.—How many times? *A.*—About four or five times.

Q.—When last? *A.*—The last time I saw him was about four months ago.

Q.—When first? *A.*—It is about six months ago.

Q.—You saw him do that four or five times? *A.*—No, let's see. It has been a year since I first saw him drinking it, the first time.

Q.—Then you were interested in the drug store? *A.*—I was not interested in it at that time. A little over a year ago I sold out.

Q.—Did he drink it in coca cola? *A.*—No, not every time. I think he did once or twice.

Q.—Have you bought back an interest in the drug store since then? *A.*—No.

Q.—You have not any interest in it now? *A.*—Not a bit more than you have, and I reckon you haven't got any.

Q.—Does Lonny W—— live there now? *A.*—He lives at Ruby, three miles from Ruby.

Q.—Was C—— interested in the drug store with you? *A.*—Who?

Q.—M——? Is that his name? *A.*—Yes, he owns the drug store.

Q.—Was he interested in the drug store with you when it (Wine of Cardui) was sold as a beverage? *A.*—He has been interested in the drug store about two years.

Q.—Was he interested with you at any time when it was sold as a beverage? *A.*—He was interested in there when it was sold, yes.

Q.—With you? *A.*—Yes, he was interested in there with me. He had some interest there with me, some.

Q.—Who else had an interest beside yourself and M——, or whatever his name is, anybody else? *A.*—No, that is all.

The witness was then asked concerning Cort C—— and W. L. G——. He was asked concerning his acquaintance with Dr. Haines, statistician. He was asked to identify several letters which were introduced as Plaintiff's Exhibits. The first he identified as similar to a letter he had received from Dr. Heizer as well as the second. Continuing:

Mr. Walker: *Q.*—From whom, Doctor, were you in the habit of buying your Wine of Cardui, when you were in the drug business? *A.*—I never bought any.

Q.—Well, your partner, then, or your associates, where did they get it. *A.*—I don't know. I suppose they got it from the Chattanooga Medicine Company or some local dealer; I could not say for sure.

Q.—You don't know anything about it yourself? *A.*—No, I could not state positively whether they got it from a local dealer or whether they got it from the Chattanooga Medicine Company.

Q.—Now, when you were in the drug business or associated with that business a year ago, and these men were drinking Wine of Cardui as a beverage, and you knew it, did you make any written complaint or any complaint to the Federal Revenue Department of the Government? *A.*—I made complaint enough to ask the men out of there.

Q.—I did not ask you that, I move that be stricken out. I ask you if you made any complaint or sent in any information in regard to the fact that people were drinking Wine of Cardui at your drug store, as a booze, to the Revenue Department of the United States Government. That is what I asked you, did or did you not? *A.*—If you call a policeman when a man is drunk—

Q.—I am not talking about any policeman, or anyone else to take a drunken man out of your drug store. I am asking you whether you, as a doctor, seeing people buy patent medicine in your drug store, made any complaint to the Federal authorities, the Revenue Department, that anybody was drinking Wine of Cardui as a beverage, did you or did you not? *A.*—I did not, because—

Q.—I did not ask you why. I just asked you if you did.

Mr. Sizer:—I submit that that is entirely irrelevant and immaterial.

THE COURT:—I know of no law which requires a complaint to be made. It may be that they ought to have made a report as to the selling of liquor at retail without a license, but as to complaints—

The Witness:—We have got a Federal License, though.

Mr. Sizer:—I move to strike out that question and answer.

The Witness:—(Continuing): Or the drug store has.

Mr. Walker:—Did you make any report to anybody—not to the police now, but to any department of the Government, any kind of a report that people were drinking Wine of Cardui at your drug store, as a beverage.

THE COURT:—You may answer that "yes" or "no." *A.*—I made a statement, but I never have to a Government man.

Mr. Walker:—I move that "I made a statement" be stricken out.

THE COURT:—Strike it out.

To which ruling of the court the defendants, etc., excepted.

The witness was asked as to his remuneration for going to the trial, and as to whether he wrote replies to the letter of Dr. Heizer.

REDIRECT EXAMINATION BY MR. SIZER

Q.—Doctor, you testified with respect to one of these patients, I think Miss J——, that she was suffering with retroversion, prolapse, ovarian cyst, as well as hookworm? *A.*—Yes, sir.

Q.—And that you only treated her for the hookworm? *A.*—Yes, sir.

Q.—Why didn't you treat her for the other things?

Mr. Walker:—That is objected to.

Mr. Sizer:—That is a matter brought out on cross-examination.

THE COURT:—He may answer.

Mr. Walker:—He testified to the case on direct examination.

THE COURT:—Let us find out about it.

To which ruling of the Court the plaintiffs, etc., excepted.

A.—I advised an operation for the other cases, the other troubles. I know I cannot cure a prolapsed womb with medicine. I cannot cure retroversion with medicine, I cannot—

Mr. Sizer: *Q.*—You say you did advise an operation? *A.*—Yes, sir.

Q.—Did she submit to the operation? *A.*—She has not, but she says she will in a few days.

Q.—You did treat the hookworm, the only one of these complaints that you could treat with medicine? *A.*—Yes, and I got results.

Mr. Walker:—That is objected to, the argument in that question.

THE COURT:—Yes, objection sustained.

To which ruling of the court the defendants, etc., excepted.

Mr. Sizer: *Q.*—This tonic that you said you gave to one of these patients, the iron and quinin and strychnin was that a pharmacopeial preparation kept at the drug store? *A.*—Yes, sir.

Q.—And you added arsenic to it, and prescribed it for some of these patients? *A.*—Yes, sir.

Q.—In what dose? *A.*—A teaspoonful, three times a day, after meals.

Q.—Do you remember how many ounces were in the prescription? *A.*—Three ounces. I never prescribe more than three ounces at a time.

TESTIMONY OF MR. RICE STANFILL

Mr. Rice Stanfill was called as a witness on behalf of the defendant.

DIRECT EXAMINATION BY MR. SIZER

Mr. Rice Stanfill testified that he is a merchant at Ragen, Tenn. He has been selling Wine of Cardui for ten years. He has seen two or three people drink Wine of Cardui as a beverage.

Q.—Now, do you remember the names of any of those people that you have seen drink it? *A.*—Yes, sir.

Q.—Well, tell us some of them? *A.*—The first one ever drank it that I noticed for—I call it to get drunk on, was N—— G——.

Q.—Well, did he get drunk on it? *A.*—Well, yes, sir, I would call it that he got drunk.

Q.—How much of it did he drink? *A.*—Well, he drank about half a bottle, stood there a little bit and repeated.

Q.—Drank it right out of the bottle? *A.*—Yes, sir.

Q.—How long ago was that? *A.*—That is somewhere in 1912.

Q.—Now, do you remember anybody else? *A.*—Yes, sir.

Q.—Well, tell us some more names? *A.*—Well, I never sold it to a heap of men. I have sold some to women I think drink it for that.

Q.—Some women drink it, drink it for a beverage?

Mr. Walker:—That is objected to.

THE COURT:—Tell us what you know. Have you seen women drink it in your store? *A.*—No, sir.

Mr. Sizer: *Q.*—Now, Mr. Stanfill, did your wife ever take it? *A.*—Yes, sir.

Q.—When did she commence to take it? *A.*—Something like 15 years ago.

Q.—What sized dose did she take when she began? *A.*—She commenced about a teaspoonful.

Q.—She commenced about a teaspoonful? *A.*—Yes, sir.

Q.—What sized dose does she take now? *A.*—Something like an inch or an inch and a half, a pretty good dram.

Q.—A pretty good dram? *A.*—Yes, sir.

Q.—How often does she take it now? *A.*—Well, most of the time I notice her drink it—I got her to quit about six months ago, or rather she quit, but every morning she most of the time—I will see her drink it.

Q.—Every morning before breakfast? *A.*—Yes, sir.

Q.—How many drinks would she take before breakfast? *A.*—As a general thing I would get up and make a fire and she would come around and reach around to the closet and take her drink and then put on her clothes and go into the kitchen.

Q.—Is that a habitual thing every morning? *A.*—It has been that way for several years.

Q.—You say she quit about six months ago? *A.*—Yes, sir.

Q.—Did she stay quit? *A.*—I think she has. I got Dr. Keeton to talk to her about it.

Q.—He is your family physician, is he? *A.*—Yes, sir.

Q.—How long had she been drinking it in that way now? Ever since she first began 14 or 15 years ago? *A.*—No, she did not drink it that way on the start.

Q.—What did she take it for at the outset? *A.*—Well, she took it for womb trouble.

Q.—What kind of womb trouble, do you know? *A.*—Well, Dr. Keeton called it falling of the womb.

Mr. Walker:—Oh, that is objected to.

Mr. Sizer:—All right.

Q.—Do you know a man named D——? Did you ever see a man named D—— drink Wine of Cardui in your store? *A.*—Yes, sir.

Q.—What is his given name? *A.*—Joe.

Q.—Is he a farmer? *A.*—Yes, sir.

Q.—Out there in your neighborhood? *A.*—Well, yes, you might call it in our neighborhood.

Q.—When was it you saw him drink it? *A.*—Sometime this winter.

Q.—When? *A.*—This winter.

Q.—This winter? *A.*—Yes, sir.

Q.—How much did he drink? *A.*—He come up there one morning to my store and he come in and looked around and wanted something but I told him I did not have a thing.

Q.—You mean he wanted something to drink? *A.*—Yes, sir. He asked me if I didn't and I told him no, I didn't have it. Well he says, "Have you got Wine of Cardui?" And I says, "Yes, I keep that." I says, "You don't want to drink that!" He says, "Yes, I want a bottle of that." Well, he got a bottle and opened it and drank some, about half of it, and stuck it in his pocket and went on.

CROSS-EXAMINATION BY MR. WALKER

The witness was again asked concerning the treating of G—— and D——; besides he had seen a Mrs. R—— drink Wine of Cardui. He was introduced to Dr. Heizer by Dr. W. B. Keeton, his family physician. He came to Chicago with Dr. W. B. Keeton and with a fellow named Crouch and another named Serguson. Continuing:

Q.—Now, Mr. Stanfill, when you first met Dr. Heizer, did he pay you any money? *A.*—When I first met him?

Q.—Yes. *A.*—Yes, sir.

Q.—$10? *A.*—Paid me $2.

Q.—Did you get $10 from him? *A.*—The first time?

Q.—Yes. *A.*—The next day.

Q.—The next day he gave you $10? *A.*—Yes, sir, for my time.

THE COURT:—What was the $2 for? *A.*—For my time, meeting him.

Mr. Walker: *Q.*—The first day he gave you $2 and the next day $10? *A.*—Yes, sir.

Q.—How much time did you give him? *A.*—I could not tell that exactly. We got an automobile—

Q.—Who paid for the automobile? *A.*—I suppose he did. I never asked.

Q.—Was that the first day that you met Heizer or the second day? *A.*—That was the second day.

Q.—Now, where did you go with Heizer the second day? *A.*—We went out to a fellow named R——.

Q.—Did you see Mrs. R——? *A.*—Yes, sir.

Q.—Did she drink any Wine of Cardui at the time you saw her? *A.*—The day—

Q.—When you were there with Heizer? *A.*—Yes, sir.

Q.—Did Heizer get any Wine of Cardui when you went out riding in the automobile with him, did he go anywhere and get it or did you furnish it? *A.*—I furnished it.

Q.—How many bottles did he buy from you? *A.*—One.

Q.—Then you went out and went over to Mrs. R——'s place with Heizer? *A.*—Yes, sir.

Q.—And did he ask her to drink it? *A.*—No.

Q.—Did she drink it? *A.*—Yes, sir.

Q.—He did not open the bottle when he got out there? *A.*—Yes, he asked her if she was a Wine of Cardui user, and she told him yes.

Q.—And he opened the bottle? He opened this bottle? *A.*—I won't say whether he did or she did.

Q.—But she drank it? *A.*—She drank it, yes.

Q.—Did she drink it out of a spoon? *A.*—At first.

Q.—Did she drink more than once? *A.*—Yes, sir.

Q.—At his request, at Heizer's request? *A.*—No, she just showed him how, as she called it, when she was suffering, how she took it.

Q.—When she was suffering? *A.*—Yes.

Q.—Didn't she tell him that she was in the habit of taking it according to prescription on the bottle, and go to a closet and get a spoon out of which she told him that she had been in the habit of taking it, a tablespoonful—didn't she? *A.*—She told him she first commenced—

Q.—I ask you if she didn't tell him that?

Mr. Sizer:—Let him answer.

THE COURT:—Let us get the whole conversation; what she said. It will save time in the long run.

Mr. Walker:—On my examination, when I ask him for a specific thing, do I have to get the whole conversation?

THE COURT:—No, no, but I want to save time.

Mr. Walker:—I am trying to stop them from injecting something into it, if I can.

Q.—Do you know whether or not she went to a place and got a spoon and said she was in the habit of taking it by the tablespoonful as prescribed on the bottle? *A.*—No, sir, she did not say it that way.

Q.—What did she say about the tablespoon. *A.*—She told him—she went away and got one of these great big spoons. It was not a tablespoon.

Q.—Well, what did she get? A soup ladle, was it? *A.*—Yes, sir.

Q.—She got a soup ladle, did she? *A.*—That is what I would call it.

Q.—And what did she say? *A.*—She says that is the way she would take it.

Q.—Did he pay her any money? *A.*—No, sir.

Q.—Did she say that she had been taking it at the time of the change of life? *A.*—I don't remember what she said about that.

Q.—Was there anything said about the change of life? *A.*—Not that I remember of.

Q.—Where else did you go with Heizer after seeing Mrs. R——? *A.*—We went back home to my store.

Q.—Did you see anybody else with him? *A.*—No, sir.

Q.—Did you see Newt G—— with him? *A.*—No, sir.

Q.—I believe you said your wife was not here? *A.*—No, sir.

Q.—Look at the document I now show you, marked Plaintiff's Exhibit D, and state whether or not you recognize that as your wife's signature? *A.*—Well, sir, I could not tell you whether it is or not.

THE COURT:—What is the answer?

Mr. Walker:—He says he could not tell whether it is or not.

THE COURT:—Well, is the letter in her handwriting? *A.*—No, sir, I don't think it is.

The witness was then asked as to who accompanied him to Chicago and as to payment for his expenses. He purchased Wine of Cardui directly from the Chattanooga Medicine Co., and used about eight dozen a year in his store. He has been carrying it in his store for ten years. Mr. Walker then offered as an exhibit a document and asked the witness to identify the signature, which he did. Mr. Walker read the document:

Mr. Walker:—(Reading): "R. F. Stanfill, dealer in dry goods, notions and groceries. Produce Bought and Sold. Ragen, Tenn., October 5, 1914."

The first part is the letterhead printed on top.

"This is to certify that I have never sold Cardui as a beverage and only know of one case in my eight years of handling where one Newt G——came into my store under the influence of intoxicants and in this condition walked up to my shelf, and seeing Cardui, grabbed a bottle and drank half of it. I did not sell it; he took it; wanted something and this was what first came to hand. I also saw him in little or no time get awful sick from having drank it, vomiting it up. This is true facts references to his and this particular case." Signed "R. F. Stanfill."

Mr. Waldo:—What is the date?

Mr. Walker:—October 5, 1914. Now up till you had seen Dr. Heizer, you had seen no one drink it other than your wife, until you—

THE COURT:—That is what he told us; six months ago. It was the man D—— that got it.

Mr. Walker:—If that is clear, I don't need to repeat it.

The witness was asked if he had seen Dr. Heizer offer money to anybody to drink Wine of Cardui or whether he had called on any other person, which questions were answered in the negative.

REDIRECT EXAMINATION BY MR. SIZER

Q.—Mr. Stanfill, who wrote this paper that has just been read here a while ago, this letter of yours? *A.*—Well, sir, I reckon the Chattanooga Medicine man did.

Q.—Who brought it to you? *A.*—The Chattanooga Medicine man, I reckon he was. I never did hear that read before till now. He asked me to make him a little statement when he first come down there and he wrote it up and I turned around and signed it. I never heard it read till now.

THE COURT: Q.—As you have heard it read now, are the facts there stated true? *A.*—I think there is a little bit in there that I did not have anything to do with.

Mr. Sizer: *Q.*—Well it is a fact, is it that up to the 5th of October, 1914, this man Newt G——, was the only one you had seen drink Wine of Cardui? *A.*—Yes, that is a fact.

Q.—And is it true, that after he had drank that half bottle of Wine of Cardui he got sick? *A.*—No, sir; if he did, he went out of my place of business.

Q.—Was he staggering when he went out, did he seem to be intoxicated? *A.*—He went on down to the next store and got down, but—I saw that.

Q.—But you did not see him down? *A.*—No, sir.

Q.—What did this man say to you that came there and wanted you to make a statement about drinking Wine of Cardui? *A.*—He come over there and asked me if I sold Wine of Cardui, and I told him yes. He wanted to know if I sold it as a beverage, and I told him not that I knowed of right at that time. Wanted to know if I ever did, and I told him yes I did. Wanted to know the man's name, and I told him.

Q.—Then he wrote out— *A.*—He has got down there that I said he didn't pay for it.

Q.—Yes. You say you did not read that paper before you signed it? *A.*—I surely didn't.

Q.—Have you seen the man that wrote this paper around Chicago here, since you have been up here? *A.*—I believe I have.

Q.—Do you see him in the court room now? *A.*—Yes, I think he is sitting right over there.

Q.—Is that the gentleman? *A.*—Well, I would not say whether he is the first man come to Ragen or not.

Mr. Walker:—Well, he is the one we claim was there and you can have that for what it is worth.

Mr. Sizer:—Do you think he is the man that wrote that statement?

Mr. Walker:—We claim that he is.

Mr. Sizer:—I am asking the witness now. *A.*—I won't say he is. He is the last man that come to see me.

Mr. T. J. Scofield:—What is the name of the man?

Mr. Walker:—Richter.

Mr. Sizer: *Q.*—Did that man give you his name when he come up there? *A.*—Yes, he told me his name two or three or four times, but I don't remember it yet.

Q.—Mr. Walker asked you about some statement that Miss R——, or Mrs. R—— made relative to having taken Wine of Cardui and you gave part of her statement. I want to get you now to state all

that Mrs. R—— said at the time you and Dr. Heizer went down there and saw her about her taking Wine of Cardui? *A.*—She went up and got one of these here great big old spoons you know, and she said she liked Wine of Cardui, it was good medicine for her and she went and took her dose and after a while, while he questioned her about how long she had been using it and how she used it and she said sometimes she had taken something like one third or a half of a bottle in a half day. She went on and told them that she had quit taking it out of a spoon and had taken it out of the bottle, and she had taken a dose out of the bottle.

Q.—Do you know how it was that your wife happened to commence taking Wine of Cardui? In other words, did she see any literature sent out by the Chattanooga Medicine Company?

Mr. Walker:—That is objected to.

THE COURT:—Objection sustained.

To which ruling of the court the defendants, etc., excepted.

Mr. Sizer: Q.—Well, I will ask the question right away. Do you know how it was that she first began to take Wine of Cardui?

Mr. Walker:—That is objected to.

THE COURT:—He has told us why it was and he mentioned the specific disorder that she had.

Mr. Sizer: Q.—Do you know what first called her attention to it?

Mr. Walker:—That is objected to.

Mr. Sizer: Q.—How she became acquainted with it.

THE COURT:—It seems to me you have the wrong witness to prove that.

To which ruling of the court the defendants, etc., excepted.

RECROSS-EXAMINATION BY MR. WALKER

Q.—Was G—— under the influence of liquor when he came to your store and got that Wine of Cardui? *A.*—I don't think he was.

Q.—You think he was sober when he came in? *A.*—I think he was.

Q.—Was he drunk when he went out, on a half a bottle? *A.*—He drank the other half of it, over half.

Q.—Did he drink a whole bottle? *A.*—No, he didn't drink it all.

Q.—Was he drunk when he went out. *A.*—He seemed to be getting drunk, yes.

Q.—Newt G—— is a drinker, and has been over a long period of years, hasn't he? *A.*—Yes, sir.

Q.—What else have you seen him drink besides Wine of Cardui? *A.*—I have seen him drink whiskey.

Q.—And plenty of it, haven't you? *A.*—Yes, sir.

Q.—You have seen him drunk lots of times? *A.*—Several, yes, sir.

Q.—He is a booze fighter? *A.*—Yes, sir.

Q.—And he was a booze fighter when he came in and got this Wine of Cardui and took a drink of it? *A.*—I don't know whether—

Q.—He was a man who was addicted to alcoholics and wanted something to drink? *A.*—It seemed that way, yes, sir.

Mr. Walker:—I think that is all. Oh, just a minute. Mr. Richter, will you stand up a moment please.

Q.—Didn't you state to Mr. Richter, this gentleman, at the time you signed this statement, that Newt G—— got awful sick from drinking Cardui on that occasion that he drank it, and vomited it up; didn't you tell him that? *A.*—No, I did not tell him that.

Q.—Did he vomit it up? *A.*—No, he did not.

The further hearing of the cause was adjourned until 2 o'clock the same day, April 4, 1916.

April 4, 1916, Afternoon

The Court met pursuant to adjournment.

TESTIMONY OF DR. W. B. KEETON

Dr. W. B. Keeton was called as a witness on behalf of the defendants.

DIRECT EXAMINATION BY MR. SIZER

Dr. W. B. Keeton testified that he is a practicing physician living in Scott's Hill, Henderson County, Tenn. He has attended the wife of Mr. Stanfill for a displacement or a prolapsus of the uterus. He first saw her about five years ago. He saw Mrs. Stanfill six months ago.

Q.—What was she suffering with, Doctor? What was her condition at the time you saw her six months ago? *A.*—Well, at the time I saw her six months ago, she was nervous, very nervous and all—and I inquired of her what she had been taking, and she told me she had been taking Wine of Cardui.

Q.—And did she tell you how long she had been taking it? *A.*—She had been taking it about fifteen years, she said.

Q.—Well, as a physician, what—how did you diagnose her case, and what prescription did you give her? *A.*—Well, I just diagnosed her case, from the symptoms, from what she told me, in regard to what she had been taking, and from her nervousness and all—and I did not give her any treatment whatever. I advised her to quit the Wine of Cardui, and that if she needed anything in the way of a stimulant, to get her some whiskey, and I thought she would get a better result.

Q.—In your opinion, what was she suffering with at the time? *A.*—I took it she was suffering from alcohol, from the effects of taking it.

Q.—Alcohol? *A.*—Yes, sir.

Dr. Keeton then testified that he saw a man named Newt G—— at Ragen when he was drunk and that there was a bottle of Wine of Cardui about one-quarter full in Mr. G——'s pocket.

Q.—How drunk was he? *A.*—Well, he was what I would call a very drunk man. When I first saw him he was able to go, and all, and left Mr. Stanfill's store and went down there to Mr. Power's, about 100 yards. I saw him again when I went to Mr. Power's store and he had got then about where he was not able, I don't think, to travel.

Q.—You speak of Stanfill's store; is that the Stanfill who testified here this morning as a witness? *A.*—Yes, sir.

Q.—You saw this man G—— come out of Stanfill's store and go to some other place? *A.*—Yes, sir; I saw him in the store, and I saw him after he came out.

Q.—I believe you say when you treated Mrs. Stanfill five years ago she was suffering with a misplacement of the womb? *A.*—Yes, sir.

Q.—Was she still suffering with that same thing when you saw her about six months ago? *A.*—No, sir.

Q.—Do you know whether she had an operation in the meantime? *A.*—No, sir; she had not.

Q.—She had not? *A.*—She had not.

THE COURT:—You say you do not know whether she was or was not suffering from that five months ago, or six months ago?

The Witness:—She was not complaining of it.

THE COURT:—You did not make an examination?

The Witness:—No, sir; I did not.

Mr. Sizer: Q.—Who is paying your expenses up here, doctor? *A.*—The AMERICAN MEDICAL ASSOCIATION.

Q.—And they agreed, didn't they, to pay you reasonable compensation for your time while you were up here? *A.*—Yes, sir.

CROSS-EXAMINATION BY MR. WALKER

On cross-examination, Dr. Keeton testified that when he saw Mrs. Stanfill, she would not accept an operation and that he inserted a pessary. He also testified that he had received a letter from Dr. Heizer and two years ago from the AMERICAN MEDICAL ASSOCIATION.

He was asked if he would recognize the signature of Mrs. Stanfill and replied that he would not. He first became acquainted with Dr. Heizer in April, 1915, meeting him in Lexington, Tennessee.

Q.—Did you know at that time, or get information from him at that time, that there was a suit pending— *A.*—No, sir.

Q.—By Wine of Cardui—when did you first know that there was a suit pending by the Wine of Cardui against—or the Chattanooga Medicine Company against the AMERICAN MEDICAL ASSOCIATION? *A.*—Why, I think the first I learned of that there was a representative of The Chattanooga Medicine Company called there to see me.

Q.—What date? *A.*—Well, that was some 18 months ago; I do not remember the exact date.

Q.—Now, at the time you received the letter from Dr. Heizer, you knew then, did you, that there was a suit? *A.*—I had saw Dr. Heizer before I ever received the letter.

Q.—You knew, did you, at the time when you received the letter that there was a suit of the Chattanooga Medicine Company— *A.*—Yes, sir.

Q.—pending against the AMERICAN MEDICAL ASSOCIATION? *A.*—Yes, sir.

Q.—Are you a member of the AMERICAN MEDICAL ASSOCIATION? *A.*—Yes, sir.

Q.—How long have you been a member? *A.*—Well, I was a member, I think, for several years, and then I had dropped out until here quite recently.

Q.—When? *A.*—What?

Q.—When was it you became a member recently? *A.*—Well, from just a little while back, not long.

Q.—What do you mean by a little while back? *A.*—Well, a week or two ago. But I have been taking THE JOURNAL.

Q.—How long have you been in Chicago? *A.*—Me?

Q.—Yes. *A.*—I have been in Chicago a week.

Q.—A week? *A.*—Yes, sir.

Q.—Were you a member when you came up here? *A.*—No, sir.

Q.—Been made a member since? *A.*—Yes, sir.

Q.—Since your arrival? *A.*—Yes.

Q.—Who is paying your expenses here? *A.*—AMERICAN MEDICAL ASSOCIATION.

Q.—Through Mr. Heizer? *A.*—Yes, sir.

Q.—And are you getting pay as a witness—I don't mean as a witness—but for your time, independent of merely fees? *A.*—Yes, sir; yes, sir.

Mr. Sizer:—We admit that, if Your Honor please, that all of them are being paid for their time and expenses.

Mr. Walker:—I do not know how grateful I ought to be for that admission, after this delay.

Mr. Sizer:—It is just to save the time of the question, that is all.

Mr. Walker:—Yes.

Dr. Keeton was then asked whether he accompanied Dr. Heizer in an automobile ride with Mr. Stanfill and to which

he replied in the negative. He was asked if he went with Dr. Heizer to call upon anyone, to which he replied in the negative. He was asked whether he had seen or been informed that Dr. Heizer paid C—— to drink Wine of Cardui, to which he replied in the negative. He was then asked if Newt G—— was a "dipso" and alcoholic, to which he answered yes. Continuing:

Q.—One of these fellows, when he could not get whiskey, or anything, would drink raw alcohol or anything that had booze in it, if he could get it; isn't that the kind of a fellow he was? *A.*—That is my opinion.

Q.—Yes. This day that you saw him with Wine of Cardui in his pocket, did you take the bottle out of his pocket? *A.*—No, sir.

Q.—Well, how could you tell it was Wine of Cardui? *A.*—Why, he took the bottle out himself.

Q.—In your presence? *A.*—In my presence, yes, sir.

Q.—Did he take a drink? *A.*—No, sir; he started to take a drink and Mr. Sturgeson told him not to drink any more—"You have all you need."

Q.—He had all he needed? *A.*—Yes, sir.

Q.—When had you seen him before that? *A.*—I had saw him just probably half an hour before that, at Mr. Stanfill's.

Q.—When you saw him with this bottle, how much was out of the bottle? *A.*—About three fourths of it was gone when I saw him.

Q.—At that time? *A.*—Yes, sir.

Q.—Now, when was it you saw him before, how long before that? *A.*—About half an hour.

Q.—Did he have a jag then? *A.*—How is that?

Q.—He had a pretty good jag on at that time, didn't he? *A.*—He appeared to, yes.

Q.—Half an hour before? *A.*—Yes.

Q.—Where was it you saw him? *A.*—At Mr. Stanfill's store, and I saw the bottle—

Q.—You do not know where he got the jag before he got the Wine of Cardui? *A.*—No; I do not know anything about that.

TESTIMONY OF MR. M. T. CROUCH

Mr. M. T. Crouch was called as a witness on behalf of the defendants.

DIRECT EXAMINATION BY MR. SIZER

Mr. M. T. Crouch testified that he lives in Sardis, Henderson County, Tennessee, and he is a farmer. He testified that he has drunk from one-third to one-half bottle full of Wine of Cardui. Continuing:

Mr. Sizer: *Q.*—Just tell when you first began to take it, and give your experience?

Mr. Walker:—All right. Tell all about it.

The Witness:—I had been buying it for my wife about fifteen or sixteen years, Wine of Cardui for her; and I am a man that has been a booze fighter—would get too much liquor—and I kept drinking along, drinking along, and one time I got too much liquor, like today, and in the morning I felt so bad—I did not feel like I could work. We had been using it—my wife had some for four or five or six years.

Mr. Sizer: *Q.*—You mean Wine of Cardui? *A.*—Yes, sir. That morning I got up, after having too much liquor the evening before, and I did not feel like I could work at all. I just felt bad. My wife said to me—she always called me "Mart"—she says, "Mart, that stuff I am using, Wine of Cardui, makes my head swim." She did not yet tell me to take any of it at all. She said, "it makes my head swim." She got up and got out the milk bucket and went out to the milk gap to milk, and while she was gone—she kept the Wine of Cardui sitting in the safe in the dining room—

Mr. Walker:—In the safe?

The Witness:—And I just went in and took a swallow of it out of the bottle. And I came back and sat down again, and I was still feeling bad, you know, I did not feel I could go on at all, and she came back from milking, and I was sitting there, and when she got through with the milk—she had some young chickens out there that she wanted to see, and she took up some feed and went out to see to them, and when she was gone, I just slipped back to the bottle, and I—

Mr. Walker:—You had the combination to the safe.

The Witness:—And I took a long—a good drink or two—another drink—and I felt a little better; and I thought I would go to work after a little, and I did so. And from that on I never need be short of liquor, and if I could not get some handy, and we had some Wine of Cardui, why, I would drink some of it.

Mr. Sizer: *Q.*—Did it have about the same effect as liquor? *A.*—Yes, sir.

Q.—And have you been drinking it right along since that time? *A.*—Yes, sir; I have drunk it off and on now for that length of time.

Q.—What do you mean by "safe," you spoke of the Wine of Cardui being kept in the safe? *A.*—In the dining room where she kept her dishes.

Q.—That is just a cupboard, is it? *A.*—Yes.

Q.—You call it a safe down there? *A.*—Yes, sir.

Q.—You say your wife had been using it fourteen or fifteen years? *A.*—Yes, sir; some fifteen or sixteen years.

Q.—How did she happen to commence taking it; do you know? *A.*—Well, I think just from hearing other women talking about it being a woman's tonic; she just got to using it.

Q.—Yes. Do you know how much she was in the habit of using in the course of the day? *A.*—Well, when she first commenced taking it she was more careful, I noticed, about taking a spoon and measuring it out in the spoon, and taking it that way, for some two or three years may be; and then I noticed that she quit using her spoon, and when she would want her dose, she would just take the cork out of the bottle, turn it up and take a swallow of it.

Q.—About how much would she take that way?

Mr. Walker:—A swallow of it, he said.

The Witness:—Oh, well, just like she would take a good swallow, just turn up the bottle like and drink it down just like you would take a drink of water or something.

Mr. Sizer: *Q.*—Do you know about how much she would take, Mr. Crouch, when she would gulp it down that way? *A.*—No, I never did just pay right close attention to the bottle to know anything about how much it was. Then I have seen her go and take more than one dose that way. She may be would take a dose, when she would first go in after I would make a fire in the stove, and may be she would go to the safe for a swallow of that; may be before she would get breakfast done, she would take another. I have seen her drink as high as a third of one before breakfast in the morning, taking swallows out of the bottle.

Q.—How many drinks does she take a day of it now? *A.*—Now, she don't drink it like that way; as I reckon—I never did ask her, but very little questions about it. She was always bitterly opposed to me drinking liquor, and I never did question her, you know, concerning that at all. I just thought that was her business, and if she did not quarrel with me about drinking, I had no kick coming about what she done.

Q.—Mr. Crouch, do you know Dr. Heizer? *A.*—Yes, sir.

Q.—Do you see him in the court room now? Stand up, Dr. Heizer. *A.*—Yes, sir.

Q.—Is this Dr. Heizer? *A.*—Yes, sir; that is Dr. Heizer—the man he said he was.

Q.—Did he ever come to see you? *A.*—Well, he came to my town on the—well, I said that town—I lived about two miles from town. I was up at that town at work, and Dr. Heizer came to Dr. John Keeton's office there at Sardis, and I was passing along, and Dr. Keeton called me in and introduced me to Dr. Heizer.

Q.—Now, what conversation did you and Dr. Heizer have, if any, about Wine of Cardui? *A.*—What did you say?

Q.—Did you have any talk with Dr. Heizer about Wine of Cardui? *A.*—Dr. Heizer asked me if I used Wine of Cardui.

Q.—Well— *A.*—And I told him I did.

Q.—Well, what did he say then? *A.*—Well, he said, "How much do you use a day?" I says, "I have drunk some," and I says "I have kept it in my home, and my wife takes it." I said, "I have drunk some." He says, "About how much would you take at a drink?" I says, "I have drunk from a third to a half a bottle of it." He says, "That will make you sick, won't it?" I said, "No, sir; it never has." I said, "I have taken it several times that way, and it never done much." And he said, "Well, that seems like an unreasonable dose of it," he says, "would you care to drink some of it?" And I said, "No, sir, I don't know that I would."

"Well," he says, "let me see you, then"—he says—"drink some." "Well," I says, "get up some, if you want me to drink it, and I will drink it." And he handed me a bottle, and I had taken a swallow out of the bottle, and he says, "Well, now," he says, "would you care to have me take your photograph when you drink that Wine of Cardui?" And I says "No, sir, I don't care; I never done anything that I cared for anybody knowing of it, while I was telling the truth about it."

Q.—And so did he take your picture while in the act of taking the Wine of Cardui? *A.*—While I was drinking it, yes, sir.

Q.—When was that? *A.*—That was about last October, when I saw Dr. Heizer; that is the best I remember about it now.

Q.—Did he get you to go with him anywhere? *A.*—No, sir.

Q.—Or render any service that he paid you for? *A.*—No, sir; he paid me for my time, or said he would, for the time I lost from my work.

Q.—While you were drinking the Wine of Cardui? *A.*—Yes, sir.

Q.—All right. How much did you drink on that occasion? *A.*—Well, I guess a third of a bottle, may be more. I could not say positively just how much I drank.

Q.—You went from your farm into town that day? *A.*—Yes, sir; I went from the place I was living at—I don't own a farm myself; I am a renter myself—but I went from home up there, I used to, to work.

Q.—Did Dr. Heizer send out for you to come in? *A.*—No, sir; I was going up there. I just passed along by Dr. Keeton's office—Dr. John Keeton, my family physician—and he just asked me in and introduced me to Dr. Heizer.

CROSS-EXAMINATION BY MR. WALKER

Q.—Had you ever met Dr. Heizer before this occasion with Dr. Keeton? *A.*—No, sir. I did not know there was such a man in the world.

Q.—Dr. Keeton you are speaking of now— *A.*—Yes, sir.

Q.—is a nephew of the doctor that was on the stand a minute ago? *A.*—Yes, sir.

Q.—He gave you two dollars before you drank the Wine of Cardui and five dollars afterwards? *A.*—No, sir.

Q.—What did he give you before you drank the Wine of Cardui? *A.*—He never gave me anything.

Q.—Did he give you anything afterwards? *A.*—Well, he said he would pay me for my time I lost from work.

Q.—Did he give you any money— *A.*—That is the proposition.

Q.—Did he give you any money? *A.*—Yes, sir.

Q.—How much did he give you? *A.*—He gave me one dollar.

Q.—One dollar? *A.*—Yes, sir.

Q.—He did not give you two, then five? *A.*—No, sir; he did not.

Q.—How long were you drinking it? *A.*—That—what?

Q.—For what he paid the dollar? *A.*—Well, I guess a minute—may be more—not very long—just like turning it up and swallowing it like a glass of water.

Q.—A dollar a minute. Did he leave the bottle with you after you got done, or did he take it away? *A.*—I don't know what he done with the bottle.

Q.—He did not leave it with you? *A.*—No, sir; he did not.

Q.—How many bottles did he have there? *A.*—I don't know.

Q.—Now, do you know a man by the name of Pink Hatchet? *A.*—Yes, sir.

Q.—Look at this document that I now show you, marked Plaintiff's Exhibit F; and state whether or not the mark between the name M.T., M.T., not empty—A.—M.T., M.T.

Q.—Those are the initials, M.T.? *A.*—Yes, sir.

Q.—They call you that when you are full, or when you are sober, M.T.? *A.*—Yes, sir.

Q.—So that the mark made between the M.T. Crouch is your mark, made—see if you recall it—made by you and witnessed by Pink Hatchet?

Mr. Sizer:—Can you identify your mark from anybody's else mark?

Mr. Walker:—I am going to ask him if he did not sign his mark to that document in the presence of Pink Hatchet, who signed it as a witness.

The Witness:—Well, I could not say. I could not say—

Mr. Walker:—Is Mr. Richter here?

The Witness:—I am a man who has got no education whatever.

Mr. Walker: Q.—You know when you make your mark, don't you? *A.*—I made a mark to a statement; yes, sir.

Q.—Was Mr. Richter there at the time, this gentleman (indicating). *A.*—That man never told me his name—this gentleman.

Q.—Was he there with Pink Hatchet? *A.*—This gentleman—

Q.—Was he there with Pink Hatchet? *A.*—Yes, sir; he was, but he never told me his name.

Q.—Was this (indicating paper) read to you there? *A.*—No, sir.

Q.—By Mr. Richter or Pink Hatchet? *A.*—No, sir. He came to my house.

Q.—Was this document you marked read to you? *A.*—No, sir; it was not.

Q.—Read to you before you made your mark? *A.*—No. That man came to me—

Q.—No, no. Was it read to you before you put your mark on it—just answer the question? *A.*—No, sir; it was not.

THE COURT:—Was it read to you at any time?

The Witness:—No, sir.

Mr. Walker: Q.—How did you come to make your mark to it? *A.*—That gentleman just asked me if I cared to make a statement in regard to Wine of Cardui; and I said, no, sir; I don't. And he said—he just sat down on the edge of the porch—I was working for Mr. Herbert Stanfill—and his wife was expecting to die, and it was very cold that evening. I was there that night, and we were busy feeding—and I was helping him about his stock—he is a man that keeps a great lot of stock, and we were feeding. And he said, "I will not detain you but just a minute." He sat down and wrote a few lines, and said, "Will you care to make your mark to this." And I said, "No." And I made the statement just like I made it here, to Dr. Heizer, and that man asked me if I was a user of Wine of Cardui, and I said, "I am." And he said, "Does your wife take Wine of Cardui?" And I said, "Yes, sir."

Mr. Walker: Q.—Mr. Crouch, did you make a statement to Mr. Richter in the presence of Pink Hatchet? *A.*—No, sir; Pink Hatchet—

Q.—About the use of Wine of Cardui— *A.*—No. Mr. Richter, the gentleman here—Pink Hatchet was sitting out in the road, thirty yards and more away. We were sitting on the porch floor, and he just called to him and said, "Will you witness this?" He never read it to him or me.

Q.—Did he write while you were talking? Did Richter write while you were talking? *A.*—I was not talking. He was just sitting there. I just stated to him about what I had said about the Wine of Cardui.

Q.—Did you tell him in that connection that Dr. Heizer was there to see you? *A.*—I did.

Q.—That he bought a couple of bottles? *A.*—I did not. I did not tell him that he bought any.

Q.—Did you tell him that you drank a third of a bottle? *A.*—Yes, sir; from a third to a half.

Q.—And that while you were drinking it, Heizer took your picture? *A.*—Yes, sir.

Q.—And that he offered you five dollars a day and expenses— *A.*—No, sir; I never told him that he offered—

Q.—Did you tell him that— *A.*—No, sir; I did not— he did not even ask me.

Q.—if you should be wanted as a witness— *A.*—He did not stay with me, but only a—

Q.—Did you tell Richter that? *A.*—No, sir; I did not.

Q.—Did you tell him that you were in the habit of drinking a third of a bottle of Cardui at a time— *A.*—I told him—

Q.—after getting over a drunk? *A.*—Yes, sir.

Q.—Did you tell him that? *A.*—Anywhere from a third to a half.

Q.—Did you tell him that you never bought it in your life as a beverage to drink? *A.*—No, sir; I did not tell him that. He did not ask me.

Q.—Did you tell him that you bought it for your wife for female troubles? *A.*—Yes, sir; I told him—

Q.—Did your wife have female trouble? *A.*—Well, I could not tell you about that?

Q.—Did you buy it for her for female trouble? *A.*—She claimed it was a good woman's tonic—

Q.—No, did you buy it for her for female trouble? *A.*—That is what she claimed it was for. I never had any doctor make any examination, or anything of that kind.

Q.—All right. *A.*—If that ain't satisfactory about Wine of Cardui—if you people ain't afraid of being—

Q.—Just a minute. There is not anything doing now. How frequently did you buy Wine of Cardui for your wife? *A.*—Why, I would buy a bottle a month. It just was all owing to how much I drunk.

Q.—Well, if you bought any more than the bottle a month, it was because you wanted some? *A.*—Well, I guess that would be so.

Q.—How many would you buy if you wanted to get more than a bottle a month for her, would you buy it for yourself? *A.*—Why, I would take as much as half of it.

Q.—Half of one bottle? *A.*—Yes.

Q.—But when you wanted some of it would you buy two bottles or three bottles? *A.*—No. I would just get on a drunk like I told you in commencing—

Q.—Then you would take some of the bottle? *A.*—That is the only time I drank it—

Q.—Just to sober up? *A.*—like I told you, after taking too much liquor.

Q.—And you would take some out of that one bottle a month you bought for her, if there was any there in the house? *A.*—Well, there was always some. We never got out—I would have to true it up, to keep her from catching on to me using it so much.

REDIRECT EXAMINATION BY MR. SIZER

Q.—When was it, Mr. Crouch, that this man Richter came to see you to get that statement? *A.*—Well, it has been some time since Christmas he was at my house; I could not say just positively just what time it was.

Mr. Sizer:—Will you let me see, please, that paper you identified here?

Mr. Walker:—It is not in evidence, but I will tell you—

Mr. Sizer:—I just want the date. What is it, January this year?

Mr. Walker:—Do you want it in evidence?

Mr. Sizer:—Well, no.

The Witness:—I could not say positively. I just know it has been since Christmas, he was at my house.

Q.—Do you know about how long— *A.*—I know that Mr. Stanfill's wife was taken down sick Christmas Eve day, and I was there on his place and he had me hired to help him about his feeding, and I was up there assisting him in his feeding when this gentleman came.

Q.—Was that some few weeks after Christmas? *A.*—Yes, sir.

Q.—That is last Christmas? *A.*—Yes, sir; something like a couple of weeks after Christmas, for she got sick on Christmas Eve day.

Q.—That was a short time after Dr. Heizer was there? *A.*—No. Dr. Heizer was there along back, I think in October, when I met Dr. Heizer.

Q.—Now, Mr. Richter, this man, asked you what you knew about Wine of Cardui? *A.*—Yes, sir.

Q.—And you told him just about as you have told the jury here? *A.*—Yes, sir; that is just exactly what I told him.

Q.—And then he wrote out something on a paper, and you made your mark to it? *A.*—Yes, sir.

Q.—You cannot read or write, can you? *A.*—No, sir. Mr. Hatchet was not as close as here to the back of the house, and he just called to Mr. Hatchet to sign his name to the paper, asking me to make my mark; and that is just exactly the statement I made to the gentleman.

Q.—Did Mr. Richter tell you who he was representing? *A.*—No, sir; he did not. He did not tell me that.

Q.—Did he tell you where he was from? *A.*—No, sir.

TESTIMONY OF J. J. PARROT

Mr. J. J. Parrot was called as a witness on behalf of the defendants.

DIRECT EXAMINATION BY MR. SIZER

Mr. J. J. Parrot testified that he lives in Slaiden, Dixon County, Tenn., that he is a farmer; he first began to use Wine of Cardui in 1913.

Q.—How did you happen to drink it first? *A.*—Well, I got real boozy, and I wanted a little something to stimulate me, and I found out that had something to it, and I bought it and drank it.

He purchased Wine of Cardui in the general store at Slaiden from his uncle. It had an effect on him similar to whiskey. The witness knew that an uncle, F. D. P——, drank Wine of Cardui and saw him open a bottle, take it out and drink about half of it and later on in the day the balance of the bottle.

The witness testified that he knows Dr. Heizer; that he saw Dr. Heizer in Slaiden and that a picture was taken while the witness was drinking Wine of Cardui.

CROSS-EXAMINATION BY MR. WALKER

Mr. Walker asked the witness if the uncle mentioned was dead, to which he answered yes. The witness testified that he has been a whiskey drinker all his life and occasionally goes on sprees.

Mr. Walker then offered in evidence a letter stating:

Mr. Walker:—(Reading)

"Slaiden, Tenn., Dixon County,
"April 26th, '15.

"To Whom it May Concern:—

"This is to certify that Dr. Heizer asked me to come to town, paying me $2.50 for my time. He asked me if I drank any Cardui. I told him I did drink it two or three times in my life, to see what there was to it, more a matter of curiosity. I found there was nothing in drinking Cardui, only a bad taste. I never drank Cardui to get drunk, nor did I ever drink it for such purpose; only as above stated, and I told him so. Personally, from all reports, I consider Cardui a good medicine; and certainly would not resort to it for a beverage purpose.

"(Signed) J. J. Parrot."

Mr. Walker:—What is your first name? *A.*—Justin.

THE COURT:—All of the last paragraph may be stricken out, except the part which says, "personally, I would not resort to it for a beverage." What he heard as to its being a good medicine is immaterial.

Mr. Walker:—You mean this—

THE COURT:—That last paragraph.

Mr. Walker:—"Personally from all reports"—

THE COURT:—Don't read it again, please, Mr. Walker. It all may be stricken out, except what relates to it being a beverage.

Mr. Walker:—Then this part, "certainly would not resort to it for a beverage," is in.

THE COURT:—Yes.

REDIRECT EXAMINATION BY MR. SIZER

Q.—Who brought this paper, this paper to you, Mr. Parrot? *A.*—Why that gentleman across over there (indicating); I do not know his name.

Q.—The gentleman—stand up, Mr. Richter, please—is that the gentleman? *A.*—Yes, sir.

Q.—When was it he brought it to you? *A.*—Why, I am not certain just the time when that was.

Q.—Did you write this paper yourself? *A.*—No, sir; he had written it—he wrote it.

Q.—Did he write it there in your presence? *A.*—He was sitting down on the porch, I think.

Q.—Did he read it over to you after he had written it? *A.*—Why, he is supposed to, yes, sir.

Q.—Did you tell him that you had drunk Wine of Cardui only two or three times, as a matter of curiosity? *A.*—I don't think I ever told him any such thing.

Q.—Did you tell him that there was nothing in drinking Cardui, only a bad taste? *A.*—No, sir; I never told him that.

Q.—Who is Scott Dunning, whose name is signed here? *A.*—He is a young man down there at Slaiden. He is in the court room.

Q.—He came there with Mr. Parrot, did he? *A.*—He came there with the other gentleman. Would you care for me seeing that paper again—

Q.—You are entitled to look at it (handing paper to witness). When this gentleman came there with this paper, did he tell you he was representing the Chattanooga Medicine Company? *A.*—Yes, sir; he told me he was representing the Chattanooga Medicine Company.

Q.—Did he tell you he was following Dr. Heizer around? *A.*—Yes, sir.

Mr. Sizer:—That is all.

Mr. Walker:—Didn't you tell him you did not blame him? *A.*—No, sir; I never told him that.

TESTIMONY OF R. F. SABATE

Mr. R. F. Sabate was called as a witness on behalf of the defendants.

DIRECT EXAMINATION BY MR. SIZER

Mr. R. F. Sabate testifies that he is deputy sheriff residing in St. Augustine, Fla. That he has general supervision of the county prisoners, that he has seen Wine of Cardui used as a beverage twelve or fifteen times, and that it has an alcoholic effect on the prisoners under his charge whom he has seen drinking it.

CROSS-EXAMINATION BY MR. WALKER

On cross-examination Mr. Sabate testified that the first person he saw drinking Wine of Cardui as a beverage, was "about in 1907." The drinker was a man, Joseph V——, who was coming down the river. Mr. V—— died about four years after the incident. At that time during the course of a 10-mile trip up the river, about three hours, the witness saw Mr. V—— drink two bottles. In the party were the witness, Mr. V—— and Mrs. V——. Mr. V—— was a heavy whiskey drinker. The witness also saw A. V. H—— drink Wine of Cardui in 1908. He saw Mr. H—— drink it during a continuous spree of three or four days. H—— was a "dipso" or alcoholic.

The witness also saw one of the women prisoners, Hattie F——, cook at the jail, drink Wine of Cardui. Her home was near Hastings, Fla.

Q.—Is she living or dead? *A.*—She is living.

Q.—She is living. And how frequently had you seen her drink it? *A.*—Well, she would drink it every chance she could get.

Q.—Well, how frequently would she get a chance and you see her? *A.*—Well, just as soon as she would get the dollar she would get the Wine of Cardui.

Q.—And she would get the dollar once a month? *A.*—Oh, three or four times a week — four or five times a week.

Q.—How much did you ever see her drink at any one time? *A.*—Well, I have seen her take the bottle up to her head and drink what I would call a good, big drink of whiskey.

Q.—Take a swallow out of the bottle, what you would call? *A.*—Yes.

Q.—Over that six months? *A.*—Yes, during that period of six months.

Q.—Well, who else in the jail — who else have you ever seen drink it? *A.*—Well, there is a woman in jail now that tries to get it. We prohibit it now from going in there. Irene D——.

Q.—Well, have you ever seen her drinking it? Had you ever seen Irene D—— drink it? *A.*—Yes, I seen her drink it once.

Q.—In jail? *A.*—In jail.

Q.—Where did she get it? *A.*—She got it brought in to her.

Q.—Now is there anybody else you have ever seen drink it? *A.*—Yes, there was another woman at Espanola, I think her name was Nancy M——.

Q.—Was she in jail? *A.*—No.

Q.—Where did you see her drink it? *A.*—At Espanola.

Q.—Well, whereabouts, in her house, or where? *A.*—No, in the store there.

Q.—In a drug store? *A.*—General merchandise store.

Q.—Just tell the jury how she drank it. *A.*—Well, she would go in there and buy a bottle of it and go outside and take the stopper out of it and take a drink of it, and put it in her pocket and go on home.

Q.—And go on home? *A.*—Yes.

Q.—And how frequently did you ever see her do that? More than once? *A.*—Yes.

Q.—How— *A.*—I have seen her half a dozen times.

Q.—Well, how much time elapsed between each time? *A.*—Well, perhaps about every pay day, about every month.

Q.—About every month? *A.*—Yes, sir.

Q.—Anybody else? *A.*—Well, not that I could — I have seen the turpentine niggers drink it there.

Q.—The turpentine niggers? *A.*—Yes.

Q.—When they couldn't get turpentine? *A.*—Oh, they could get plenty of turpentine, but they drink it as a beverage.

Q.—Are those women that you named colored or white? *A.*—Colored.

Q.—Please tell me if you know what penitentiary H—— is confined in? *A.*—Well, the Florida penitentiary, but I don't know what camp he is in.

Q.—Is he colored or white? *A.*—He is white.

Q.—Did anyone come here with you? *A.*—Yes.

Q.—Who? *A.*—Dr. Sam. Worley.

The witness was asked concerning Dr. S. Worley, who is the county physician and how he came to speak to Dr. Worley concerning the use of Wine of Cardui as a beverage. He testified that of 300 female prisoners a year confined in prison, nearly all are colored.

TESTIMONY OF DR. S. W. EVERETT

Dr. S. W. Everett was called as a witness on behalf of the defendants.

DIRECT EXAMINATION BY MR. SIZER

Dr. S. W. Everett who has been practicing medicine for thirty-three years resides in Middle Georgia, near Covington, near Almond. He conducts a drug store.

Q.—Have you had any experience with Wine of Cardui in your family? *A.*—Yes, sir.

Q.—Well, just relate that experience to the jury. *A.*—Well, my daughter came to me, that was in 1907, and said that she felt bad, and had a bearing down in the lower part of her bowels, and she had been reading the books — the Ladies' Birthday Almanac, and said she had all the symptoms that that book described, and if I didn't care she would take some Wine of Cardui. Well, I had it to sell, and I says, "Well, if you want it I will let you have it at what it cost."

Q.—Is your daughter married and living away from you? *A.*—No, she is living there with me.

Q.—And did she— *A.*—She bought and used five and a half bottles. She bought six bottles, but didn't drink quite all the last one.

Q.—That was in what year now? *A.*—That was in 1907.

Q.—Well, did it have any effect on her? *A.*—None, only the alcohol effect. She got "giddy head" as she called it, and would go to bed.

Q.—Did her condition improve any? *A.*—Not a bit.

Q.—Did you afterward have her examined by a physician and treated? *A.*—I sent her to Atlanta to Dr. W. S. Kindrick, and he examined her and said she had a floating kidney. I was sick at the time.

Mr. Walker:—I object to what he said.

Mr. Sizer: Q.—Well, did he treat her for floating kidney? *A.*—Dr. Kindrick did.

Q.—Yes. And did she get well? *A.*—Yes, sir.

Q.—Do you know about any people buying Wine of Cardui from your store, or otherwise, and using it as a beverage? *A.*—Yes, sir.

Q.—Well, now, state what you know about that? *A.*—Well, one Mr. Will M—— would frequently buy it.

Q.—Just give us that name so we can get it. *A.*—M——.

Q.—Spell it, please? *A.*—M——.

Q.—All right. Now go on. *A.*—He was a man that is in the habit of drinking a good deal, and often times, the first year we started there, he would be on a drunk of a Saturday, and Sunday morning he would come along and buy a bottle of Wine of Cardui and drink about half of it, and tell me to set it back for him, and in an hour or so, or two hours, he would come back and drink the other half of it and go on home. He did that frequently.

Q.—Commencing about when? When did you first ever see him do that? *A.*—1913 and '14.

Q.—Well, have you seen other people drink it as a beverage? *A.*—Yes, another man by the name of John N——.

Mr. Walker:—John what? *A.*—John N——, N——.

Mr. Sizer: Q.—And how did he take it? *A.*—He was in about the same fix that the other man was, and he would drink it to taper off on. He would drink it about a half a bottle at the time.

Q.—Well, anybody else? *A.*—Yes, and another man by the name of Henry H——.

Q.—He would take it the same way? *A.*—Drink it the same way.

Q.—Anyone else you recall? *A.*—No, sir; only just in a general way, some other people have drank some of it, but I don't remember those. They didn't drink but a little of it, those.

Q.—Any women buy it and take it as a beverage, to your knowledge? *A.*—They never drank it in my house.

Q.—Any women buy it in large quantities? *A.*—No, sir.

Q.—Are you selling it now, Doctor? *A.*—Sir?

Q.—Do you sell Wine of Cardui now? *A.*—No, sir.

Q.—How long has it been since you quit? *A.*—I sold — I had one bottle in January, 1914, and sold that, and never have used any since.

Q.—Why did you quit it?

Mr. Walker:—That is objected to.

THE COURT:—Objection sustained.

Mr. Loesch:—May I ask what is the objection? Why is that objectionable? Can't a man state why he quit using it, quit selling it?

THE COURT:—I can think of a great many things that might be brought to the attention of the jury at this time and the reason given. Does it make any difference why he quit it?

Mr. Loesch:—I think it does.

THE COURT:—Well, you may save the point. Let me put this illustration: Supposing he testified—which of course is not the case here—that the United States inspector came down there and told him he couldn't sell liquor at retail unless he paid a license of $25 a year; that would not be competent evidence in this case to prove it was alcohol.

To which ruling of the Court the defendants, etc., excepted.

CROSS-EXAMINATION BY MR. WALKER

Q.—Dr. Everett, where is your daughter now? *A.*—She is at home.

Q.—Is she married or single? *A.*—She is married.

Q.—Does she live with you? *A.*—She don't live in the house with me now.

Q.—Well, was she married at the time she took this Cardui that you speak of? *A.*—Yes, sir.

Q.—And she lived then in your house? *A.*—Yes, sir; she did.

Q.—What is her name now? What is your daughter's name now? *A.*—Lillie M——.

Q.—Lillie what? *A.*—M——.

Q.—And she lives at Almond, Georgia, does she? *A.*—Yes, sir.

Q.—Now, how long did she take Wine of Cardui? *A.*—Well, I couldn't tell you exactly how long she was taking that amount of bottles, that five and a half bottles. I don't remember how long she was taking that.

Q.—And how long ago was it? *A.*—1907.

Q.—And she quit taking it? *A.*—She quit taking it, never taking any of it since she went to Atlanta.

Q.—Has she had any female troubles since? *A.*—No, sir.

Thereupon, at 3:30 p. m., an adjournment was taken until 10:30 a. m. Wednesday, April 5, 1916.

April 5, 1916, Morning

The Court met pursuant to adjournment. Dr. W. F. Ashmore was called as witness for the defendants.

DIRECT EXAMINATION BY MR. SIZER

Dr. W. F. Ashmore testified that he is a practicing physician residing in Aniston, Aniston County, South Carolina. He has been practicing for twenty-two years, the first fifteen years almost exclusively among the cotton mills and rural districts of Oconee County, South Carolina and Greenville County, South Carolina.

Q.—What is the general health conditions? *A.*—The general condition of the women of the cotton mills of South Carolina is bad, due largely to bad sanitation, ventilation and lack of education.

Q.—What kind of troubles does that induce? *A.*—We find in the mill districts—the disease we find is the hookworm disease, malaria and tuberculosis.

Q.—Doctor, do you know McElree's Wine of Cardui? *A.*—Yes, sir.

Q.—Can you state the extent to which that is taken in the region that you speak about?

Mr. Walker:—That is objected to.

A.—It is used very extensively.

Mr. Walker:—I move that his answer be stricken out.

THE COURT:—Just pause long enough, Doctor, so that we may pass on the objection. We want to know only what has come under your personal observation.

A.—Well, I will get to that just presently. I have seen in these mill districts, the women come in from their work and before going to their supper or dinner or whatever it might be, go to their Wine of Cardui bottle and drink it out of the bottle as they would do for an ordinary beverage of anything else. On inquiry I have the names and I will give you the names.

Objections were made to introduction of general evidence. The court finally stating:

THE COURT:—Let us find out when the doctor saw these patients and whether it was at a time before this suit had been brought or was in contemplation so far as he knew.

Mr. Sizer: Q.—Now, Doctor, I will get you to take the specific cases that you have treated and of which you have a memorandum or have now in mind.

Q.—Why, the case of Mrs. P. A. M——, during the year of 1910 and 1911.

THE COURT: *Q.*—That was before you ever heard anything about this suit? *A.*—Oh, yes, yes, sir. I was their family physician. She was suffering from—I will just read the history.

Mr. Walker:—That is objected to.

Mr. Sizer: Q.—Well, you can look at your memorandum and refresh your recollection, and then just state what she was suffering with and what you were called to treat her for. *A.*—She had an ovarian cyst and a floating kidney and she had been taking Wine of Cardui for this trouble.

Q.—Did she tell you, in giving the history of her case, that she had been taking Wine of Cardui? *A.*—Yes, sir.

Q.—How long did she say she had been taking it? *A.*—This was 1910—1911.

Q.—Well, did she tell you how long prior to the time when you treated her, she had been taking it?

Mr. Walker:—That is objected to.

A.—I don't remember.

Mr. Sizer:—Well, he says he does not remember, anyway.

Q.—Now, Doctor, had that treatment from Wine of Cardui in any way benefited the thing she was suffering with?

Mr. Walker:—That is objected to.

A.—No, sir, not to my knowledge.

THE COURT:—He says not to his knowledge.

Mr. Walker:—Well, he might state the facts, but he is giving opinion evidence.

The Witness:—In this case they operated.

Mr. Sizer:—Let the Doctor go on and tell the symptoms.

The Witness:—Removed the ovarian cyst and put her on a general reconstructive tonic treatment.

Q.—And she did recover? *A.*—She recovered up to about two years after that when she had a recurrent attack of gonorrheal endometritis which affected the tube and she was operated on by another physician and died.

Q.—The fallopian tube you say? *A.*—Yes, sir.

Q.—Now, take the next case? *A.*—Mrs. J. H. M. I will give you those names if you wish them in confidence. I do not care to otherwise.

THE COURT:—Let me ask counsel; are the other cases that the doctor is to testify about, typical of the one that he has just told us of? I cannot see that that has any bearing on the issues here at all.

Mr. Sizer:—I understand, if your Honor please, that each one of these cases he is testifying about are cases of women who had been taking Wine of Cardui and then came to him for treatment.

THE COURT:—The doctor don't know how long she had been taking it.

Mr. Sizer:—No, I don't know that he does.

THE COURT:—Or how much, or whether these other people had been taking it in the specified dose.

Mr. Sizer: Q.—Now, with respect to the next case you have, Doctor, do you know, or did the patient tell you, in giving the history of the case, whether she had been taking Wine of Cardui or not?

Mr. Walker:—That is objected to.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. Walker:—Let us find out what the case is, what he was treating for, if this evidence is to go in.

The Court:—I was trying to take the short way to learn whether the evidence was relevant here, but counsel may go the other way round.

Mr. Walker:—I think it is irrelevant anyway upon the grounds that we have already stated, and if it is—your Honor will find, if it is an operative case that there is no claim for Wine of Cardui as being a cure for operative cases, taken out of the bottle or in any other way, and we think that they should ask the question as to whether the second case was an operative case, so that your Honor may see right away.

The Court:—That was my recollection of the literature.

Mr. Walker:—Yes.

The Court:—So, as to operative cases, we are wasting time going into it.

Mr. Sizer:—We don't concede that at all. It is true, that on the bottle, they say they do not recommend the medicine for operative cases, but in the literature, as we think that we will show when we come to get it in, no such exceptions are made.

Mr. Hough:—It seems to me that it is time for them to put in the literature and the labels upon which they are counting. Now they have gone thus far and asked the witnesses questions on the hypothesis or theory that we advertised it for this, that and the other, without showing what we really did advertise it for.

The Court:—I think Mr. Hough's suggestion is well made, because the Court will be in a position, if you introduce the literature here that you rely upon to know whether the evidence is pertinent.

Mr. Sizer:—The proposition is this, may it please your Honor: aside from that question, here is a remedy that is sold promiscuously all throughout the country in country stores, cross roads stores and drug stores.

The Court:—That is admitted.

Mr. Sizer:—And a woman does not know probably in one case out of 100, whether she has got something that needs an operation or something that needs Wine of Cardui.

The Court:—What is the objection to offering your literature?

Mr. Sizer:—None that I know of, except this: we have a number of witnesses from a distance whose evidence we want to introduce in order to let them get back home.

Mr. Hough:—Well, we are both in that position.

The Court:—How long will it take you to read your literature, that is the literature of the Plaintiff's?

Mr. Sizer:—It will take some time I suppose.

Mr. T. J. Scofield:—It will take a half a day or a day.

Mr. Walker:—Suppose it does take half a day or a day, I don't believe we wish to have a lot of immaterial evidence in here, just to have it stricken out.

The Court:—I think we had better do it that way. You may introduce the literature first, that is, if you have it here, and if you have not, you may do it at 2 o'clock. I realize that sometimes when the Court upsets the plans of a lawyer in reference to the way in which he is going to handle his case, that he needs a little time to readjust himself.

Mr. Sizer:—Well, sir, we can introduce it at 2 o'clock, if your Honor will permit us to go on with this witness.

The Court:—Yes.

Mr. Sizer: *Q.*—Now proceed with that, Doctor.

Mr. Walker:—I object to that, and I suggest that they—if this was an operative case first, Judge. We maintain that there is nothing in the literature or on the carton or in anything else that justifies them in saying that we make any claims for cures in cases that require operation, or that the medicine effectively assists operative cases. Now it is only fair to us that the Doctor should be asked to specify whether the case is or is not or was not an operative case.

The Court:—He may do that, but I will let him proceed for the present. I will save the point for you.

To which ruling of the court in permitting the evidence referred to, before the introduction of the said literature, the plaintiffs, etc., excepted.

The Witness:—Yes, I can make that satisfactory, I think.

Mr. C. J. Scofield:—On our part we contend that they state in their literature—advise them to go ahead with Wine of Cardui from the very beginning.

The Court:—I have ruled that you may examine this witness, notwithstanding the objection, and I will save the point for the plaintiffs. This witness may be examined awaiting the reading of the literature.

Mr. C. J. Scofield:—I beg your Honor's pardon.

Mr. Sizer: *Q.*—Now, proceed, please.

The Witness:—This case, Mrs. J. H. M. I saw her in 1909. She was suffering from profuse menstruation.

Q.—Profuse menstruation? *A.*—Yes, sir.

Q.—Do you know how long she had been suffering—did she tell you? *A.*—No, I do not remember whether she told me or not, but quite a good while; I could not give the exact date.

Q.—Did she tell you she had been taking Wine of Cardui? *A.*—Yes, sir.

Q.—Had it remedied the trouble?

Mr. Walker:—That is objected to.

A.—No, she had not received any benefit from it. This patient also had pellagra.

Mr. Sizer: *Q.*—Did you proceed to give her treatment? *A.*—I advised curettage. She had complete retroversion of the uterus and I did a curettage which seemed to relieve her until about the first of February of this year, when she was sent back to me from Danville, Virginia.

Mr. Walker:—Now, it appears, your Honor, to be an operative case.

The Witness:—Wait till I get through, and then see.

The Court:—I am going to let it go in at this time and you may save the exception.

To which ruling of the Court the plaintiffs, etc., excepted.

The Witness:—In this case I did a curettage.

Mr. Sizer: *Q.*—What is a curettage? *A.*—Scraping out the womb, the cavity of the womb with a spoonlike instrument. Also brought about a menopause, or stopped the menstruation, and brought about change of life by use of the x-ray.

Q.—What was her age, Doctor? *A.*—She was 40. She went home about 10 days ago, apparently well, with the exception of the retroversion, which no medicine—in other words, retroversion is a mechanical condition and Wine or Cardui or no other medicine will relieve it.

Q.—Is there any other case that you have in mind? That is, cases now, where you have treated women who have been taking Wine of Cardui? *A.*—Take—your Honor will have to give me time. I had a severe chill last night, and I have an awful headache this morning.

The Court:—Take your time, Doctor.

The witness then described a case, Mistress J. D. R., who had taken Wine of Cardui to his certain knowledge from 1894 up to about the 4th of July, 1914. The patient had measles when about 14 years that disturbed or suppressed the menstruation of the patient. This patient was a sister of the witness. She was taken to Dr. Howard A. Kelly's private hospital in Baltimore, was operated on and is now in good health. The witness testified that his sister did not derive any benefits from Wine of Cardui.

He described the case of Mistress J. H. L., who died with pellagra. She had taken Wine of Cardui for about 15 years previous to her death. She thought she had ovarian neuralgia. She died at the age of about 60. He described the case of two Miss B——'s who were suffering from hookworm, anemia and suppressed menstruation; that they took Wine of Cardui during the year in which the witness knew them. He treated them with thymol and with a pill which consists of iron and nux vomica and strychnin and arsenic. The patients recovered and are now in good health.

Q.—Do you know of any cases where people have taken Wine of Cardui as a beverage? *A.*—I know of two cases that I can specifically state or specify. I know of, or I have seen several, but I don't care to go into details, only for the two that I know about absolutely.

Q.—Tell us about those two. *A.*—One is the case of Mr. P. L. B. He had formed the liquor habit.

Mr. Hough:—What is the name? *A.*—P. L. B.

Q.—What is his full name? *A.*—I will give it to you in confidence.

Mr. Sizer:—He will give you them in confidence.

Mr. Hough:—That is not a matter to conceal.

The Witness:—Yes, I consider it such.

Mr. Hough:—Was he a patient of yours?

The Witness:—Can't I give him these names in confidence, your Honor? Yes, he is a patient of mine.

The Court:—It seems to me that where the witness presents himself, and is willing to give the last name, and let the defendant have the benefit of that, that certainly he cannot plead any privilege to give the balance of the man's name—or to endeavor to keep the balance of the man's name away from the plaintiffs.

Mr. Sizer:—He has not given the full name, but he says that he will give the name to counsel. He says he is a patient of his, and he does not want to give his name.

The Court:—I see no objection to that.

Mr. Sizer:—We do not propose to hold it away from counsel at all.

The Court:—That is all right.

The Witness:—This young man had acquired or contracted the whiskey habit, and I have seen him on several occasions take a bottle of Wine of Cardui, off of the shelf in his drug store (he was a druggist) and drink anywhere from one third to half of it and a few hours later finish it up. The next case is Mr. J. M. H., who is a patient of mine with practically the same conditions, only he is not a druggist. I have seen him, on his terrific sprees, when he could not get whiskey, drink Wine of Cardui.

Mr. Sizer: Q.—Well, how much would he drink at a time? *A.*—Well, I could not be absolutely positive about how much, but anywhere between a third and a half of a bottle at a drink.

Q.—In addition to these two specific cases, have you seen others drink Wine of Cardui as a beverage, whose names you do not now recall? *A.*—Why, as I started to say in the beginning of my testimony, I have seen these young women at the cotton mills, come in from their work and drink Wine of Cardui.

Q.—Do you mean they would just drink it as a beverage? *A.*—I don't know. Some of them claimed that they drank it because it stimulates them up.

Mr. Walker:—I don't think that is competent, and I move that be stricken out.

THE COURT:—Strike it out.

To which ruling of the Court the defendants, etc., excepted.

CROSS-EXAMINATION BY MR. HOUGH

On cross-examination, the witness testified that he is city physician and that he has been Chairman of the Board of Health of his city for two or three years. He is a member of the South Carolina Medical Association and Ex-President of the County Medical Association.

He was asked:

Q.—You could be a member of the AMERICAN MEDICAL ASSOCIATION, by just subscribing for THE JOURNAL? *A.*—Yes, sir, but I prefer other journals, there are other journals I like better.

Q.—You say you prefer other journals? *A.*—Yes, sir.

Q.—What other journals? *A.*—I prefer the *New York Medical Journal.*

Q.—Is that the only one? *A.*—I take *Roentgen Rays Journal,* and the *American Journal of Roentgenology.*

The witness was asked to identify certain letters, one said to be an appeal from Dr. Heizer sent out to physicians to help the AMERICAN MEDICAL ASSOCIATION in this matter. He testified that he had received a letter from Dr. Haines, secretary of the South Carolina State Medical Association. He was unable to identify the letter said to be from Dr. Heizer requesting a meeting in Columbia, South Carolina.

He was asked:

Q.—Did he retain you to help in this case, against the AMERICAN MEDICAL ASSOCIATION, for the AMERICAN MEDICAL ASSOCIATION? *A.*—Well, I don't know; I could not answer the question as you put it, for I am—I don't know whether you mean "retain" as a physician, or as an attorney or what you do mean.

Q.—To assist in collecting evidence? *A.*—Yes. Not in collecting evidence, you understand.

Q.—Well, you advertised and offered $5 for— *A.*—He asked me to get—.

Q.—Let me finish the question. You advertised and offered $5 for a copy of the Home Treatment Book of 1912? *A.*—Yes, sir, and I got it.

Q.—We would have given it to you for less? *A.*—You did not offer that in your communication. You said you would sell all I wanted, sell me all I wanted at $5, but I had done got it.

Q.—Well, now, you then started out to collect evidence to help him? *A.*—In that case, yes, sir, in that specific case.

Q.—What was that date? *A.*—I beg pardon.

Q.—What was the date? *A.*—The day?

Q.—Yes? *A.*—I don't remember. Oh, you mean in Columbia?

Q.—Yes? *A.*—December 7th, I believe.

Q.—What year. *A.*—1915.

Q.—Doctor, where were these girls that were working in the cotton mill, at the time you saw them take Wine of Cardui? *A.*—Here are the names, Miss S——, Miss C——, Miss S——, Miss L——, and Mrs. C——. The first four named were at Concord, North Carolina. I practiced medicine there for a short time.

Q.—Where was the cotton mill? *A.*—It was in the city limits at Concord; I don't just remember what part of the city that is.

Q.—Did those girls live in the mill, or live at home? *A.*—They lived at home, and worked in the mill.

Q.—You followed each one of them home and saw them take Wine of Cardui? *A.*—No, sir, I did not follow them home. I was treating members of the different families, different members of the families.

Q.—How many evenings did you see them at their homes, as soon as they got out of the cotton mill? *A.*—I don't remember just how many times. That was back in 1895, and that has been nearly 20 years ago, quite 20.

Q.—You say you were not treating any of the girls at that time? *A.*—No, sir, not at that time. I was treating members of their families.

Q.—How many times did you see the girls take doses of Cardui? *A.*—I could not be absolutely sure about how many times, sir.

Q.—Are those girls and their families living down there now? *A.*—I do not know, sir, it has been about 21 or 20 years ago.

Q.—Since you have seen any of them? *A.*—Yes, sir.

Q.—Were you at the time treating any of these girls who were taking Cardui? *A.*—No, I was treating members of their families. They had a sick baby there.

Q.—Did you at any time recommend or give Wine of Cardui to any of your patients? *A.*—Not to my knowledge.

Q.—Didn't you tell some of your patients, that Cardui was probably a good thing for some conditions? *A.*—No, sir.

Q.—You never told any of them that? *A.*—No, sir. One of your representatives came to me several months ago, and wanted me to make a statement about how good it was, but I refused to do it.

Q.—Haven't you stated that you have prescribed it? *A.*—No, sir.

Q.—Or recommended it? *A.*—No, sir.

Q.—Or had permitted your patients to use it? *A.*—My patients some of them have used it without my permission?

Q.—But with your knowledge? *A.*—I have never advised any patient to use Wine of Cardui that I remember of.

Q.—Now, the first girl—did she state what her trouble was. *A.*—As I said in the beginning of my statement, they claimed that it was for a stimulant and for supposed female trouble.

Q.—Well, I mean was the first girl taking it for amenorrhea, or suppressed menstruation, or was she taking it for flooding? *A.*—I don't remember. I could not specify which girl was which at that time, for this thing has been quite a while ago.

Q.—Do you know whether the condition for which that first girl took Wine of Cardui, changed that any time after she took it? *A.*—No, sir, I don't remember it.

Q.—Do you know what the condition of the second girl was for which she took Wine of Cardui? *A.*—I don't know what the final outcome was in any of these four or five girls. There is one, Mrs. C——, I know the final outcome of that.

Q.—Is she one of the four or five girls? *A.*—She is one of the five or six, yes, sir.

Q.—Outside of Mrs. C——.

Mr. Sizer:—I would like to know, as a matter of information, are you referring to the specific cases you described? *A.*—I am referring to those women, that I saw come in from their work and take Wine of Cardui.

Mr. Hough:—The cotton mill girls? *A.*—Yes, sir. This Mrs. C——, she died in 1908 of tuberculosis.

Q.—She is dead? *A.*—Yes, sir.

Q.—And the woman that you operated on, is also dead? *A.*—One of them is, the other is not.

Q.—The other was recently operated on? *A.*—Yes, sir.

Q.—She is still living? *A.*—She is still living, and her home is in Danville, Virginia.

Q.—While we are on that point, what did you say she was operated on for? *A.*—She had profuse menstruation, and retroversion of the uterus.

Q.—But what was she operated on for? *A.*—I curetted her to stop the flow of blood, the profuse menstruation. The reason why I did not operate, that is, do a fixation, or a suspension, is that these pellagra cases—I have never had one of them that—but what the recovery was rather stormy.

Q.—Was rather what? *A.*—They don't heal well.

Q.—You mean when they have been operated on? *A.*—Yes, sir, so I make it a rule, unless it is very necessary, to keep out of their abdomens.

Q.—Do you mean then, that she was operated on for pellagra? *A.*—No, I did not say she was operated on. I told you I curetted her for the flow of blood, the profuse menstruation.

Q.—Was that all that was done to her? *A.*—I gave her the X-Ray treatment to bring about the menopause.

Q.—And then what did you give her? *A.*—I put her on Blaud's pills with iron and arsenic.

Q.—How much alcohol was in that? *A.*—None that I know of, sir.

Q.—Not any? What other tonics did you give her? *A.*—That is all.

Q.—You spoke of some general tonics? *A.*—That is a general tonic, sir.

Q.—You did not use any other than those Blaud's pills? *A.*—No, sir.

The witness was then asked further questions concerning the case of Mrs. J. M. R., his sister, who was operated on by Dr. Howard Kelly and questions covering the history of this case, especially relating to her various menstrual periods, questions going over this ground repeatedly.

He was then asked:

Q.—What did she take Wine of Cardui for, after the birth of her second child? *A.*—For this deranged menstruation.

Q.—For the suppressed menstruation? *A.*—For the deranged menstruation.

Q.—Would you say it was suppressed? *A.*—Well, the menstruation after the birth of the second child was not suppressed so much. It was more profuse menstruation.

Q.—When did the menstruation come on first after the— *A.*—I do not know, sir.

Q.—Do you know whether, when it first came on, it was scanty or profuse? *A.*—As I have said before, I did not treat her after—very much, after the birth of this second child, while I have seen her, of course, quite frequently; but I have not been their regular family physician. It is about 25 or 30 miles, possibly from there, and I have been—I have not been in touch with them all the time.

Q.—Now, during all this period, did you do anything, to prevent her taking Wine of Cardui? *A.*—I told her that she would not get any good out of it, or at least, that I had never seen any good come from it.

Q.—When did you first tell her that? *A.*—I don't remember. I have told her that on several occasions.

Q.—When was the first time you told her that? *A.*—I do not know, sir.

Q.—Before or after the birth of the second child? *A.*—I will not attempt to say, sir.

Q.—Well, how long after the birth of the second child was it that your sister's menstruation became anywhere near regular? *A.*—I really do not know, sir. I could not be—I would not attempt to be positive about those things.

Q.—When was she operated on? *A.*—She was operated on in 1914, July—if I remember correctly, about between the 1st and the 4th.

Q.—And you were her physician then? *A.*—I went with her, I carried her up to Dr. Kelly's. No, Dr. Richardson was her physician at that time.

Q.—When did you first call to see her as a physician, with reference to that condition? *A.*—Oh, I have seen her at intervals every two or three months, for quite a long time. You might say, the whole 20 years.

Q.—Do you mean in 1914, and 1913? *A.*—No, sir. I had seen her at several intervals during that time.

Q.—During 1913, how was her menstruation? *A.*—Her menstruation had been very much deranged all this time from the birth of the last child.

Q.—For how many periods after the birth of the second child did she take Wine of Cardui? *A.*—I do not remember, sir. I have answered that before.

Q.—That you don't remember. When did she stop taking Wine of Cardui? *A.*—She has not taken any to my knowledge since she was operated on.

Q.—Before she was operated on, she stopped, didn't she? *A.*—Not that I know of, no sir.

Q.—When was the last time that she took any, that you know of. *A.*—She told me that she had been taking Wine of Cardui, regularly, for the past several years. That was in going—on the train going up to Baltimore.

Q.—Did she say what effect it had had on her? *A.*—No, I don't know as she expressed herself as to that.

Q.—Didn't she indicate to you that it had been helpful? *A.*—No, sir, she didn't indicate one way or another, if I remember right, sir. I know that it had not been from my personal knowledge.

Q.—You advised the operation, did you? *A.*—Yes, sir.

Q.—How has her menstruation been since? *A.*—She has not menstruated since, that I know of. It is just possible that she might menstruate some, but if she has I do not know it. As a rule, with that operation the menstruation is practically nil.

Q.—You prescribe viburnum in your practice, don't you?

Mr. Sizer:—That is objected to. That is not cross-examination of anything we have asked this witness.

THE COURT:—I don't recall anything of that kind, in the direct at all.

Mr. Hough:—He spoke of tonics.

THE COURT:—He gave just one, and that was a pill.

Mr. Hough. Q.—Is that the only tonic you have ever prescribed?

Mr. Sizer:—That is objected to.

THE COURT:—He told what he prescribed in specific cases. He has not testified as an expert; he has testified as to facts. We are not interested in what he prescribed in other cases.

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. Hough: Q.—These women in the cotton mills—I think I failed to ask you that—that you saw taking Wine of Cardui, were taking it in medicinal doses, were they not? *A.*—I could not say, sir, whether they were or not. They were drinking it out of the bottle. I don't know whether they would take teaspoonful, tablespoonful or half a pint.

Q.—How many times did you say you saw them do that? *A.*—I would not attempt to name the distinct number of times, but I have seen it frequently.

Q.—Will hookworm derange menstruation? *A.*—Yes, sir.

Q.—Will pellagra derange menstruation? *A.*—Yes, sir.

Q.—Now there were two people, as I recall—if I am mistaken, please correct me— *A.*—Yes, sir.

Q.—that you say you had seen take Wine of Cardui as a beverage? *A.*—Two men.

Q.—Two men? *A.*—Yes, sir.

Q.—One was a druggist? *A.*—Yes, sir. He is dead. He died from alcoholic neuritis.

Q.—When did he die? *A.*—I don't know whether I have that date on here (referring to memorandum). It has been some four or five years ago. I have not the date here, but it has been quite a little while ago.

Q.—He drank whiskey, did he? *A.*—Yes, sir.

Q.—And then when he could not get anything else, you say he drank Cardui? *A.*—Yes, sir.

Q.—Then would he stop for a while? *A.*—The poor fellow, sir, when he began to—when he acquired the liquor habit, he just continued until he died. That is all there is to it. It took about—he went out inside of two years.

Q.—How about the other case? *A.*—He is living yet.

Q.—Do you mean that he never sobered up at any time? *A.*—Well, possibly, I could not say that I have never seen him sober. I treated him for quite a good while.

Q.—Did you have an office in his drug store? *A.*—No, my office was not in his drug store, but a lot of my calls went into this drug store.

Q.—Were you interested in the drug store? *A.*—No, sir, I have no finances in it whatever.

Q.—Have you ever been interested in a drug store? *A.*—No, sir.

Q.—Then you don't know whether he sobered up after drinking Cardui or not? *A.*—I say I have never seen him—I cannot recall the fact of ever seeing him sober, after he had taken to drinking whiskey.

Q.—Now, the second case? *A.*—He is living yet. He is a dope fiend now.

Q.—What do you mean by dope fiend? *A.*—He uses morphin when he can get it.

Q.—Morphin? *A.*—Morphin.

Q.—Cocain? *A.*—No, not to my knowledge.

Q.—Just morphin? *A.*—Morphin, and drinks all the whiskey he can get.

Q.—When you say "whiskey" you mean whiskey as whiskey, do you? *A.*—Yes, and if he cannot get whiskey, he will drink something else, Wine of Cardui, for instance. I have seen him drink Wine of Cardui.

Q.—Anything else? *A.*—I have seen him take Suncholaria Mixture, which is an opiate.

Q.—Anything else? *A.*—I believe that is all.

Q.—Did he have a drug store? *A.*—No, sir.

Q.—Never had any interest in a drug store? *A.*—No, sir; not to my knowledge.

Q.—Did he ever sober up at any time after he commenced to drink? *A.*—Yes, he was a periodical drinker, what you might term as a periodical drinker.

Q.—He would start out on whiskey, and then when he would get drunk, he would drink anything? *A.*—He would start out on whiskey, and I might say that when he would get drunk and run out of whiskey, he would drink anything he would get, and I have seen him drink Wine of Cardui and this Suncholaria Mixture, which is an opiate.

Q.—You will give us those names, will you? (Referring to the names of patients heretofore indicated by initials only). *A.*—Yes, sir.

Mr. Hough:—And the addresses, that's all.

REDIRECT EXAMINATION BY MR. SIZER

Redirect examination gave emphasis on the points brought out in the cross-examination; the witness testified that his sister has not the alcoholic habit.

TESTIMONY OF MR. GEORGE R. M'COY

Mr. George R. McCoy was called as witness for the defendants.

DIRECT EXAMINATION BY MR. SIZER

Mr. George R. McCoy is a traveling salesman residing in St. Charles, S. C. He was asked questions concerning his knowledge of the use of Wine of Cardui as a beverage. Objection was made and overruled. The court stating:

THE COURT:—We want what you know of your own personal knowledge, what you have seen. I think it is better for him to detail specific instances rather than to try to generalize on this proposition. I do not think it is right.

Mr. Sizer: Q.—I will ask you to state to the Court and jury any specific instance you now recall illustrating the use of Wine of Cardui for a beverage.

THE COURT:—Give the dates and names and places.

A.—I saw a nigger drinking it in my store.

Mr. Sizer: Q.—When was that? *A.*—That was about 1908.

Q.—In your store? *A.*—Yes.

Q.—How much of it did he drink? *A.*—He drank a bottle.

Q.—What was the effect on him? *A.*—Why, he became drunk.

Q.—Do you know what that man's name was? *A.*—His name was Bill P——. He was a brick maker and he was working for me at the time.

Q.—Well, any other case? *A.*—Dow H——, he was the agent up there and was a merchant. He drank it. Everybody knew it.

Mr. Walker:—I move to strike that out.

THE COURT:—Strike it out.

To which ruling of the Court the defendants, etc., excepted.

Mr. Sizer: Q.—Did you see him drink it? *A.*—Yes, sir.

Q.—How much did you see him drink? *A.*—I saw him drink a couple of bottles I guess.

Q.—At one time, you mean? *A.*—No, I saw him drink it at three different times.

Q.—How much did he drink each time? *A.*—He drank about half a bottle the first time I saw him drink it.

Q.—What did you say his name was, H——? *A.*—Dow H——.

Q.—What business is he engaged in? *A.*—He was railroad agent there, but he was then a merchant. He had lost his job with the railroad and he was in the mercantile business.

Q.—When was that that you saw him drink it? *A.*—That was about 1912, in August as well as I remember, it was in August, 1912.

Q.—Well, any other instances that you recall. *A.*—What is that?

Q.—Do you recall any other instances of the use of Wine of Cardui, as a beverage? *A.*—Why those are the only two that I saw drink it. It is perfectly known though—

Mr. Walker:—I object to that and move to strike it out.

THE COURT:—Yes, strike it out.

To which ruling of the Court the defendants, etc., excepted.

CROSS-EXAMINATION BY MR. WALKER

On cross-examination the witness was asked concerning the population of St. Charles and the surrounding territory.

He testified that he saw the negro P—— drink Wine of Cardui in his store. He last heard of P—— in 1908. In the store Mr. McCoy carried Wine of Cardui in stock. The Wine of Cardui was purchased from jobbers, traveling salesmen, and directly from the Chattanooga Medicine Co. They were in business eight years, retiring in 1908. They would sell perhaps six gross per year of Wine of Cardui. He was asked concerning P——:

Q.—Was he sober when he came into your place? *A.*—Yes, sir; he came in from his work.

Q.—And he bought one bottle of Cardui? *A.*—Yes, sir.

Q.—Was he a drinking nigger? *A.*—Yes, sir; he was.

Q.—A fellow that was in the habit of getting drunk? *A.*—He was so reported to me; yes, sir.

Q.—As you know him? *A.*—Sir? It was reported to me, I don't know.

Q.—He was a whiskey or alcohol drinker, was he? *A.*—Yes, sir.

Q.—And he got drunk on one bottle right there at your place? *A.*—Yes, sir.

Q.—This man drank one bottle and he became drunk over it? *A.*—He drank that one bottle—in other stores they handle this Wine of Cardui. I saw him drink this one bottle.

Q.—You saw him drink one bottle? *A.*—He left my store to go to his work, he was drunk.

Q.—Was he sober when he came in? *A.*—Practically sober, sir.

Q.—What do you mean by practically sober? *A.*—If he was drinking I could not tell it.

Q.—Did you make any investigation of him so as to ascertain whether he was drinking or not? *A.*—None whatever, sir.

Q.—Do you mean that he was a man that one bottle of Cardui would get drunk? This whiskey drinking nigger? *A.*—That was my experience with it, sir.

Q.—You think he was sober when he came in, and one bottle made him drunk? A.—So far as I know, he was sober; I could not say positively.

Q.—You don't know what he was drinking before he came in? *A.*—I do not. I could not detect that he had been drinking.

Q.—The other man that you named was Dow H——? *A.*—Yes, sir.

Q.—How do you spell it? *A.*—H——.

Q.—Where does he live? *A.*—Why, he lived at St. Charles then.

Q.—When did you last see him? *A.*—I saw him about two years ago.

Q.—Where? *A.*—He is on the bum.

Q.—Where? *A.*—I do not know where he is now.

Q.—Where did you see him two years ago? *A.*—I saw him at Columbia, in Columbia, drunk.

Q.—Where was he living then? Where was he living, as you understood it? *A.*—Why, he told me that he was living at Summerton, South Carolina.

Q.—How do you spell that? *A.*—S-u-m-m-e-r-t-o-n.

Q.—You have never seen him then in two years since that time? *A.*—Yes, sir; since that time.

Q.—Well, have you seen him since that time? *A.*—No, sir; I have not.

Q.—You saw him drinking Cardui you say, twice? *A.*—Yes, sir.

Q.—Where did he get it? *A.*—I went in the store and he was there, he was drunk, lying on this floor, on the floor in the office. He had fallen out of his chair evidently, and he had a bottle of this Wine of Cardui between his legs; kind of lying down and when I got in he raised up.

Q.—In whose store? *A.*—In his store.

Q.—Oh, he had a store? *A.*—Yes, sir; I told you he was in the mercantile business.

Q.—What was his business? *A.*—What?

Q.—What was his business? *A.*—I told you he was a merchant.

Q.—Did he have a general store? *A.*—Yes, he carried Wine of Cardui, too.

Q.—And he was on the floor with a bottle of Wine of Cardui? *A.*—Yes, sir; and there was eight bottles that we counted on the floor, empty bottles.

Q.—Alongside of him? *A.*—Empty bottles, yes, sir; and those wrappers around all scattered over the floor.

Q.—Empty bottles? *A.*—And the cartons were all torn up, and on the floor there was eight bottles.

Q.—And one between his legs made nine? *A.*—How is that?

Q.—And one between his legs made nine? *A.*—No, sir; that was in the amount we counted, eight.

Q.—He was full? *A.*—Sir?

Q.—He was lying on the floor drunk? *A.*—And the eight was full? No, they were empty.

Q.—How did he compare with his eight bottles with the nigger with one? *A.*—How is that?

Q.—How did he compare in drunkenness with the colored man with one? Was he worse, was he piflicated? *A.*—Yes, sir; he was perfectly drunk.

Q.—And the cartons lying around him? *A.*—Yes, sir.

Q.—When did you see this Dow H—— other than that one time drunk again? *A.*—I saw him in the store again.

Q.—In his own store. *A.*—I was asked by his wife to go in there.

Q.—I did not ask you anything about what his wife asked you. When did you see him another time drinking Cardui? *A.*—Why, it was about— I think about a week from that time.

Q.—The same year? *A.*—Yes, sir; the same month.

Q.—And the same month? *A.*—Yes, sir.

Q.—Now, when you saw him drunk on the floor, were there any other people in the store, or was he alone? *A.*—His wife was with me.

Q.—Now, the second time you saw him, where did you see him the second time, in his own store? *A.*—That was in his store; yes, sir.

Q.—Was anybody there besides yourself then? *A.*—His wife was with me.

Q.—Now what condition was he in then? *A.*—He was drunk.

Q.—How many bottles were lying around him at that time? *A.*—Why there was— I think there was about three empty bottles.

Q.—Was there any between his legs at that time? *A.*—No, sir.

Q.—Three. Was he lying on the floor? *A.*—There was a bottle open that stood right behind a post in his office.

Q.—That made four? *A.*—Yes, sir.

Q.—Was he sitting down or lying down or what? *A.*—Why, he was sitting in his chair.

Q.—He was sitting up? *A.*—Leaning back in his chair.

Q.—Did you see him drink any Cardui yourself, at any other time? *A.*—Yes, sir.

Q.—You saw him? Which time was it? *A.*—I saw him at three different times drinking some.

Q.—Are either of those the two times, one when the eight bottles were around him, and one when the four were there? Did you see him drink them? *A.*—Yes, sir; I saw him drink it. He got it out of his waste basket.

Q.—Was that the time he was lying on the floor? *A.*—No, sir; that was the time he was sitting in his chair. That was the time there was three empty bottles lying on the floor.

Q.—When else? *A.*—I saw him go to his carriage house one Sunday morning. We were watching him. Someone said that he was going to get on a jag and I walked behind him and he went in his carriage house and he went to his buggy and pulled out a bottle of this stuff from under his buggy seat and he pulled the cork and downed the whole bottle. He went from there to his barn, and he went in his barn and he was taken out that night. I don't know whether he drank any more during the day or not, but he was taken out that night and he was drunk. He had to be carried to his house.

Q.—Did you see him drink it at any other time? *A.*—No, sir; that was the last time I paid any attention to him at all.

Q.—That was in 1912? *A.*—That was in 1912; yes, sir.

The witness was asked who accompanied him to Chicago, and if he knew Dr. Heizer. He was asked the names of the jobbers from whom he had purchased Wine of Cardui. He testified that he could easily identify bottles of Wine of Cardui. In the store which he conducted castor oil, turpentine and similar drugs as well as lemon extract, orange extract, lemon and vanilla flavoring were carried in stock. The witness had never had any difficulty with the Chattanooga Medicine Co. because of bills.

REDIRECT EXAMINATION BY MR. SIZER

Q.—Mr. McCoy, is there any similarity between the cartons in which lemon extract is sold, and those in which Wine of Cardui is sold? *A.*—Why not that I noticed. I have never seen any.

Q.—What is the size of the carton in which lemon extract is sold? *A.*—Why it is sold in two different sizes in cartons. It is about, I think, four inches and about five inches and six inches. There are five and ten and twenty-five cent bottles of that extract put up. It is nothing like as large.

Q.—Nothing like as large as Wine of Cardui? *A.*—No, sir.

Q.—Did you see any lemon extract or vanilla extract cartons lying around this man? *A.*—No, sir.

Q.—They were all Wine of Cardui? *A.*—Yes, sir.

Q.—I believe you say this town of St. Charles has about 700 inhabitants? *A.*—I think so, about 700 as well as I can say.

Q.—About how many stores are there there that handle Wine of Cardui? *A.*—There was five at that time.

Q.—That handled Wine of Cardui? *A.*—Yes, sir. He was included in this five.

Q.—They all sold about the same amount that you sold?

Mr. Walker:—That is objected to.

THE COURT:—Objection sustained.

To which ruling of the Court the defendants, etc., excepted.

The Witness:—It is a good seller.

Mr. Walker:—I move that be stricken out.

THE COURT:—That is already in the record. You can strike it out this time.

Mr. Walker:—I make that motion because the witness stated it over your Honor's ruling, and over an objection.

THE COURT:—It may go out.

The further hearing of the cause was adjourned until 2 o'clock the same day, April 5, 1916.

April 5, Afternoon

The court met pursuant to recess.

Mr. T. J. Scofield:—If the court please, I now offer to read in evidence "Home Treatment for Women. Published for the private information of women who suffer from female diseases," as published by Chattanooga Medicine Company in the year 1912.

The Court:—Are you offering the whole pamphlet?

Mr. T. J. Scofield:—No. There are a lot of testimonials and things of that kind that we are passing over.

The Court:—Well, you are offering the pamphlet, I presume, and will read such portions as you see fit?

Mr. T. J. Scofield:—Yes.

The Court:—And of course the other side may read the balance if they want to.

Mr. T. J. Scofield:—Excepting that I do not wish it to be understood that we are offering any testimonials.

The Court:—Well, you are not bound by the testimonials of course. They are a part of the literature.

Mr. T. J. Scofield:—Yes.

Mr. Hough:—Well, the book is offered in evidence, and he is reading what he pleases, and we will read what we please.

The Court:—Exactly.

Mr. T. J. Scofield then read the record extracts from the "Cardui Home Treatment For Weak, Sick, Women." This reading was continued during the afternoon ending with page 55 of the "home treatment" book.

Further hearing of the cause was then adjourned until April 6.

April 6, 1916, Morning

The court met pursuant to adjournment.

Mr. T. J. Scofield offered in evidence Defendant's Exhibit 64, the Home Treatment Book for Women, copyrighted in 1913, and read to the jury the changes from the previous edition. He also offered in evidence the book for 1914. In the 1914 edition certain matter had been eliminated. Mr. T. J. Scofield offered in evidence the photographs of the advertising bill boards of the Chattanooga Medicine Company. Argument was made regarding the introduction of exhibits of an earlier date than the first article published in the journal; the court finally ruling that the defendants were entitled to put all such matter in, the plaintiffs excepting to Court's decision.

Mr. Scofield read into evidence advertisements from the *New Orleans Picayune* of Jan. 22, 1906, Feb. 1, 1906, Feb. 5, 1906, Jan. 18, 1906. Mr. Scofield read, after objection which was overruled, from the Ladies' Birthday Almanac, 1907. He next read from the Ladies' Birthday Almanac of 1908, 1909, 1910 and 1911.

The further hearing of the case was then adjourned to 2 o'clock of the same day.

April 6, 1916, Afternoon

The Court met pursuant to adjournment. Mr. T. J. Scofield continued to read the Ladies' Birthday Almanac of 1911, 1912, 1913, 1914, 1915.

Mr. T. J. Scofield said:

Mr. T. J. Scofield:—I read from "CARDUI SONG BOOK, No. 4; copyrighted in 1908 by the Chattanooga Medicine Company, Chattanooga, Tenn." Page 2. "Cardui for women"—

Mr. Hough:—One minute. Is the whole book offered in evidence? I would like to know.

Mr. T. J. Scofield:—I had not said so.

The Court:—I undertake to say Mr. Scofield is not going to give us the music.

Mr. Walker:—Well, I don't know.

Mr. T. J. Scofield:—I will alternate with Mr. Walker. I will sing one song, and he can sing the other.

Mr. Walker:—I can only whistle.

Mr. T. J. Scofield:—No; I am not offering the whole book in evidence. I am doing as I have with the others. I am reading what I think is appropriate and proper. I will try and sing the songs, if you think you can stand it and the Court will permit it. "Cardui for women. Nearly all the many disorders which attack women can be relieved or cured by the use of Wine of Cardui. It acts upon the womanly organs in a gentle, natural way. It is pure, free from mineral ingredients, nonintoxicating and perfectly harmless. Recommended for young or old. Sold everywhere."

The first page of the book:

"*The Cardui Song Book.* Published by the Chattanooga Medicine Company, Chattanooga, Tenn. INDEX TO CONTENTS: Religious:

"Abide with Me; Am I a Soldier of The Cross; From Greenland's Icy Mountains; Nearer My God to Thee; Oh for a Thousand Tongues; Onward Christian Soldier; Where He Leads Me."

Mark that Defendants' Exhibit —

Mr. Hough:—That is objected to, of course.

The Court:—I cannot see the pertinence of the index, Mr. Scofield.

Mr. Loesch:—If the Court please, I would like to show the Court the pertinence of it. In the declaration, the first count of the declaration, the complainant—the plaintiff says, or alleges, as part of the libelous matter—there is this allegation of the plaintiff: "By far the most important of these positions is the Chairmanship of the Book Committee. According to the Methodist Year Book, the Book Committee is one of the most important bodies created by the General Conference, being almost a general conference, ad interim."

They further charge as libelous: "Does the Chairman of the Book Committee of the Methodist Episcopal Church, who is such a strong advocate of temperance, really believe, etc." Then in another charge: "By what sophistries does Mr. Patten, a pillar of the Methodist Episcopal Church, square his religious principles with his business?"

Now, that is one of the sophistries, Your Honor. More than that in the second count of the declaration we have this: "As has been said before, however, the alcoholic content of Wine of Cardui is but a minor indictment against the product. The basic objection to it is that the business has been built on deceit; that its sale is a wicked and vicious fraud perpetrated on ailing women."

A religious song on the right hand side and an advertisement of Cardui on the left side—

Mr. Walker:—Are you reading from the article now?

Mr. Loesch:—I am reading from your charge in the second count.

Mr. Walker:—When did we say a religious thing on one side and something else on the other?

Mr. Loesch:—I say you publish on the right hand side of this song book a religious hymn to stir the woman's soul to its depths, and on the left side you shove in the question of Cardui. "Won't you take Cardui?"

Mr. Walker:—Well, whatever that is, I take an exception to it.

Mr. Loesch:—I think that is perfectly proper. As I say—

The Court:—What is your objection?

Mr. Walker:—Whatever that was in his remarks, whether it is an argument, or what it is, I object to it.

The Court:—If you will be good enough to state specifically what the objection is, the Court will rule on it.

Mr. Walker:—I take exception to the comments of counsel, as totally unjustified by the objection, and done with a purpose of prejudice.

The Court:—The jury will understand clearly that the argument of counsel during the trial does not furnish you with any evidence in the case. You may disregard entirely anything that Mr. Loesch has said in this argument, up to the present time. It is not evidence, and is not to be considered by you in reaching a conclusion on any disputed question of fact. He was addressing himself solely to the Court on a point of law; and Mr. Walker's exception is well taken, and you will not consider it.

Mr. Walker:—Now, your Honor, we object to the reading of this list of songs, as wholly immaterial.

The Court:—The objection will be overruled, and exception.

To which ruling of the court the plaintiffs, etc., excepted.

Mr. T. J. Scofield:—Will you mark that defendants' Exhibit 72?

Mr. Scofield also desired to introduce the "Cardui Calendar and Weather Chart," but objection was made and sustained.

TESTIMONY OF PROF. ALBERT P. MATHEWS

Prof. Albert P. Mathews was called as a witness for the defendants.

Prof. Albert P. Mathews resides in Chicago; he is professor of Physiological Chemistry in the University of Chicago and Rush Medical College. He has been a student at various universities in this country and in England and in Germany; he has been an instructor at the Harvard Medical School and in the University of Chicago.

He had made about thirty different experiments with Wine of Cardui and viburnum prunifolium.

Argument was made as to whether the witness was testifying as an expert or as to fact. He had been offered by the defendant as a witness as to fact.

The witness showed to the jury the apparatus with which the experiments had been performed, the witness saying:

The Witness:—I have tried two different series of experiments; the first were tried on the uterus taken out of the body; and the other series of experiments were tried on the uterus when it was in the body and in its normal position, with its nerve supply and blood supply intact. I will speak first of the experiments which were tried on the uterus when it is taken out of the body. The uterus, you know, is a muscular organ with a cavity inside in which the young develop, and that cavity is lined with a soft membrane.

Mr. Walker:—Well, I don't think we ought to have a lecture in anatomy.

THE COURT:—Oh, I think that is not involved here; and besides, I think that has largely been described to the jury in some of the literature that has been read.

Mr. Walker:—He is not an expert, anyway.

Mr. T. J. Scofield:—If the Court please, I do not understand whether the Court sustained the objection.

THE COURT:—I think we are going a little too far afield. We want to know exactly what Professor Mathews did.

Mr. T. J. Scofield:—That is what he is going to explain.

Mr. Walker:—No, as an expert he is describing the uterus, telling what it is.

Mr. T. J. Scofield:—Absolutely not. I suppose he is leading up to tell about taking the strips of the uterus and experimenting with them.

THE COURT:—He may tell that.

The Witness:—I have taken the uterus—the uterus, as you know—

Mr. Hough:—Will the witness sit down please?

The Witness:—I wanted to be here, just to illustrate that—certainly.

Mr. Walker:—We have no objection to the illustration, but you can sit down.

The Witness:—Is there any objection to a man standing when he testifies?

Mr. Walker:—We are making it, Professor—there is objection, when we make it.

Mr. Loesch:—Suppose you put it over here (moving apparatus in front of the witness stand).

The Witness:—I did not think there was any objection—

Mr. Walker:—We are not on the Midway now, any of us, Professor. We are not near the University. We are right here and we will be here a little time, Doctor.

The Witness:—Is that to imply that I am—

Mr. T. J. Scofield:—I object to these remarks—

Mr. Walker:—I object to the Doctor telling me when I make an objection that it is not proper or saying—

THE COURT:—I will just emphasize to the jury the fact that these petty little differences between the counsel do not constitute evidence in the case.

Mr. Hough:—I suggest that counsel ask the witness questions, and let the witness answer them.

THE COURT:—Yes.

Mr. T. J. Scofield: Q.—Doctor, will you describe the experiment, as you conducted it?

THE COURT:—The first one.

The Witness:—The experiments consisted in taking the uteri out of various animals—I used cats, dogs, some rabbits and guinea pigs. I used both pregnant and non-pregnant uteri. The uterus was taken out, and a strip of it was taken and placed in a salt solution in this vessel here (indicating apparatus), and attached at this end, as you see, and at the other end to this lever. This rubber here corresponds to the strip of the uterus muscle. When this contracts, it pulls your lever down like that (indicating on apparatus). This writes against a drum in this way, which turns around—this is the revolving drum—and as it writes, it traces a record, so that the uterus records its own contractions.

A stream of oxygen is kept going through here, so as to give the uterus strip air.

Now, under those circumstances, the strip begins to contract, and, as I say, it records its contractions on the drum.

Now, while it is contracting, one adds to the salt solution here Wine of Cardui, or any drug that you wish to test—

THE COURT:—No, no; tell just what you did with this particular experiment.

The Witness:—I added to this salt solution Wine of Cardui, in one case—in various doses, in different experiments—and viburnum prunifolium extract in the other experiments, and observed to see whether there was any change in the contractions of that strip produced by either Wine of Cardui or by viburnum prunifolium; and there was no change in the contractions produced with either of these drugs, either Wine of Cardui or an extract of viburnum prunifolium; they were entirely inactive.

Mr. T. J. Scofield:—Now, Doctor, did you make a test with any other medicine? Anything else? *A.*—Yes; I—

Mr. Hough:—That is objected to as incompetent, irrelevant and immaterial.

THE COURT:—The objections seem to me to be well taken.

Mr. T. J. Scofield: Q.—Well, Your Honor, the object is to show whether or not contractions would be increased or diminished under other ingredients which might be put into the solution, to show—

THE COURT:—The question is what would be the effect of Wine of Cardui?

Mr. T. J. Scofield:—Very well; very well.

To which ruling of the Court the defendants, etc., excepted.

The Witness:—Shall I describe the other experiments?

Mr. T. J. Scofield:—No, no, don't describe anything further.

Q.—Now, did you make a record, Doctor, of such an experiment as you have described here? *A.*—Yes, sir; I have records of all my experiments.

Q.—Now, did you make any experiment with Wine of Cardui with the uterus in the body? *A.*—I did.

Q.—Describe that briefly? *A.*—In these experiments the uterus was attached. In these experiments I used mostly dogs, but also one or two cats. This end of the lever (indicating upon apparatus) was attached to the uterus in the body of the dog. The dog was immersed in a salt solution, except the head; the dog, of course, was anesthetized; and, under those circumstances, the uterus undergoes slow contractions, and when it is arranged this way it writes a record of its contractions on the drum.

Then I injected into the jugular vein of the dog a dose of Wine of Cardui. I injected in some experiments about what would be equivalent to about half a dose for a woman, into the vein. In other experiments I injected one dose or two doses, or even as many as three or four doses of Wine of Cardui—what would correspond jn a woman to that amount, if she had taken that amount. There was no change produced in these normal contractions of the uterus, in those cases by the—following the injection of Wine of Cardui. The motions neither increased nor diminished as the—after the injection—beyond such temporary changes as you get from the act of putting a needle into the jugular vein.

I also tried injecting the drug under the skin, and also putting it directly into the intestine. I put into the intestine of a dog a common tablespoonful of Wine of Cardui, or two tablespoonsful; and there was no change produced by that—and under the skin about half a tablespoonful; there was no change in the contractions following the injection of this—of the Wine of Cardui in these ways, either.

I tried similar experiments with the viburnum prunifolium, and I injected even larger—what would correspond to even larger doses, of viburnum prunifolium into the veins of dogs, and into the—and under the skin and into the intestines; and there was no change in the contractions of the uterus—the normal contractions—as a result of these injections, either.

Mr. T. J. Scofield:—Now, Doctor, did you use the Wine of Cardui—how did you use it, evaporate it, or use it as it comes in the bottle? *A.*—I tried it both ways. I tried the Wine of Cardui as it was; and in other experiments, I evaporated off the water and alcohol and used the residue of the Wine of Cardui.

Q.—Under these different conditions, will you state whether or not there was any change in the contraction of the uterus; and difference? *A.*—There was no difference.

Q.—Now, did you notice, did you observe or see whether or not there was any change in the color of the uterus, or whether or not it became congested after the administration of the Wine of Cardui, either in the vein or under the skin? *A.*—Yes, sir. I made careful observations on the color of the uterus, and that did not change.

Q.—Now, I understand you to say that you had also made experiments and observed the same on the uterus of pregnant animals; is that right? *A.*—Yes, sir.

Q.—Please tell us briefly about such experiments? *A.*—Well, they were similar to those I have already described; only in the case of pregnant animals the motions are a little more vigorous, and they increase, as in the course of an experiment the contractions get stronger and stronger as you go along.

THE COURT:—You are speaking now about what actually happened in the experiments you made?

The Witness:—Yes, sir; certainly.

THE COURT:—You are not speaking generally?

The Witness:—No; I am describing simply my own experiments. And there was no change in the force of the contractions following the injection of either Wine of Cardui or the residue of it, or viburnum prunifolium.

Q.—Could you, from what you could see of the uterus—when it was subjected to this treatment—was there, or did you observe whether or not there was any quieting effect produced upon the muscles of contraction? *A.*—There was no quieting effect whatever.

Q.—Now, have you noticed, or have you tried any experiments with Wine of Cardui as to the action of the drug on the intestines? *A.*—The intestines were exposed here, and I could observe whether the movements of the intestines were increased or diminished; or whether there was any congestion or any paling of the intestine, following the injection of the drug; and there was none whatever. The motions of the intestine continued just as they were before, so far as one could judge by looking at that, and the color of the intestine was not changed to indicate any congestion or any constriction of the blood vessels.

Q.—Did you observe any effect on the muscular or the nervous system, such as twitching or spasms, on the injection of the drug directly into the veins? *A.*—There was no change whatever. I might—I might have been injecting so much salt solution—inert solution of salt.

CROSS-EXAMINATION BY MR. HOUGH

Q.—Doctor, do you know of any other experiments which indicate that viburnum prunifolium does have action on the isolated uterus? *A.*—Personally, I do not.

Q.—Have you read of any? *A.*—I have not read of any?

Q.—What do you mean by saying personally you do not? *A.*—I mean I have not read of any myself. In talking the subject over, I have been told there were such observations.

Q.—And that it did have an action on the isolated uterus? *A.*—I don't know.

Q.—I say, that is what you were told? *A.*—I do not know what the circumstances were, of the experiment.

Q.—I say that with reference to the— *A.*—I do not know whether it was on the isolated uterus or the uterus in the body. I don't know anything about those experiments.

Q.—Well, it was either on the isolated uterus, or the uterus in the body, wasn't it—

Mr. T. J. Scofield:—What he may have been told—I do not think that would be material.

THE COURT:—I think this question has already been answered.

Mr. Hough: *Q.*—Did you read an article on the subject in the JOURNAL of the AMERICAN MEDICAL ASSOCIATION? *A.*—On the subject of what?

Q.—Of viburnum prunifolium having an action on the isolated uterus? *A.*—No, sir.

Q.—In any other medical literature? *A.*—No, sir.

Q.—Who was it told you?

Mr. T. J. Scofield:—That I object to, if the court please.

THE COURT:—What is the purpose of this?

Mr. Hough:—Just to show that his experiments did not amount to anything, because other experiments have been made which show—

THE COURT:—You may show those other experiments. The witness has told us what he did, and found out, and if you are satisfied with it as it is, leave it.

Mr. Hough:—I am satisfied with that. I will leave it. That is all.

TESTIMONY OF PROF. J. D. PILCHER

Prof. J. D. Pilcher was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Prof. J. D. Pilcher testified that he is Professor of Pharmacology in the State Medical College of Nebraska at Omaha. He was graduated from a university and secured a degree in medicine from the Western Reserve University in Cleveland. He spent two and a half years as an intern in the hospitals in Cleveland. He is a member of the Society for Experimental Pharmacology, and of the American Physiological Society. The witness testified as to fact, describing his experiments as follows:

A.—I made a large series of experiments on the uterus of the guinea-pig, both the pregnant and the virgin, taken from the body — I used the same method as Professor Matthews—taken from the body. I used first viburnum prunifolium, the bark of both the stem and the root, and carduus benedictus, and carduus marianus, and also sodium valerianate, and then later on I made some on Wine of Cardui. I found that using the solution of up to one to two hundred and fifty, that is, one part of the drug to 250 of the bath in which this little strip of muscle was contained, it did not in any way alter normal contractions of this strip of uterus. In other words, if I represent the contractions, going this way (indicating)—

Mr. Hough:—One minute. I object to that.

THE COURT:—Just tell what you found.

The Witness:—Yes, sir. Then I made a number of experiments in the same way, using Wine of Cardui. I used solutions of Wine of Cardui of from 1 to 1,000, that is, one part of the pure Wine of Cardui to 1,000 parts, we will say—well, to illustrate, one ounce of Wine of Cardui to 1,000 ounces of solution in which the strip was contained. Then I increased the strength of the Wine of Cardui up to as much as 1 to 50 parts of the bath, and with this solution the contractions were not altered from the normal at all.

Now I also used both with the Wine of Cardui and with the viburnum prunifolium and the other drugs I mentioned, I used these from which the alcohol had been evaporated. With the Wine of Cardui I evaporated them first by placing on boiling water to drive off the alcohol, and then I evaporated them simply at body temperature, that would be about 98 I believe, by holding it under an electric fan so that the current of air would drive off the alcohol, and by similar procedures with the fluid—extracts of viburnum and the other drugs mentioned, and I found that there was no change from the normal with these evaporated solutions, either.

Mr. T. J. Scofield: *Q.*—Now, Doctor, what strength of sodium valerianate did you use? *A.*—Up to one part in 1,000. The sodium valerianate is a salt, and I simply put enough to make one part of this sodium valerianate in the bath to 1,000 parts of water.

Q.—Now, Doctor, have you made any experiments of the effect of drugs on the human uterus? *A.*—I have.

Q.—Explain the methods that you used, and the results that you obtained? *A.*—I used exactly the same method as I have just described, and with this method I used the same drugs I have described, with the exception of the sodium valerianate. I did not use that. Otherwise I used the Wine of Cardui and the other drugs I mentioned before.

Q.—Well, state what you observed as you tried these experiments? *A.*—The contractions of the uterus, of the human uterus were not in any way altered by any of these drugs. With the Wine of Cardui I used again up to from one part in 1,000 to one part in 50, and the contractions were not altered from the normal in any way, that I observed.

Q.—Now, will you tell us, Doctor, whether or not the results which you obtained in these experiments in the use of the human uterus were different from the results you obtained in the use of the uteri of animals? *A.*—No, the results were just the same whether I used the uterus of the guinea pig or the uterus of the woman, the results were just the same. That is, none of the drugs in this series that I used had any effect on the contractions at all.

Q.—I might ask you whether or not you made the experiment on the human uterus of more than one person? *A.*—Five all together.

Q.—Five uteri? *A.*—Yes, sir.

Q.—Human uteri? *A.*—Yes, sir.

Q.—And what you have said relates to them all, to each of them? *A.*—Yes, sir.

Q.—Now, will you tell, doctor, where you obtained the human uteri which you used? Where did you get the uterus? The human uterus? *A.*—I got them from — in all there were three hospitals in Omaha. I called up or notified the house physician or surgeon that I wanted material from the human uteri, of the human uterus, and they sent them to me by messenger. Simply called me up and told me they had them, and asked me if I wanted them. I said I did, and they sent them out by special messengers.

Q.—Was that the only connection you had with the obtaining of the uteri? *A.*—Yes, sir.

Q.—They came from operations which had been performed in different hospitals around over the city? *A.*—Yes, sir.

Mr. Walker:—He don't know that.

Mr. T. J. Scofield:—What is that?

Mr. Walker.—He got them from somebody that sent them from a hospital. He don't know that himself. That is all hearsay.

Mr. T. J. Scofield:—Oh, yes, I suppose that is true in a way. That is all, your Honor. But I guess they were not cutting them out without they were in the hospital.

Mr. Walker:—Oh, I think they probably operated on their jugular first and stuck the salt solution in.

That is all.

CROSS-EXAMINATION BY MR. HOUGH

Q.—Doctor, can you tell the difference between the human uterus and the uterus of an animal when you see a strip of it apart from the animal itself? *A.*—Not by simply looking at it. You said part of the uterus?

Q.—What? A strip of it apart? *A.*—I had the entire uteri. The whole uterus was sent to me.

Q.—Of which? *A.*—Of the human.

Q.—Was that a healthy specimen of a uterus? *A.*—Two came from an early cancer of the uterus, of the cervix, two of them .

Q.—Were these live or dead people? *A.*—The patients all recovered from the operation. I inquired before I came here.

Q.—What was the uterus taken out for? *A.*—Two of them, as I just stated, were taken out because they had an early carcinoma.

Q.—Do you know the names of the persons from whom the uterus was taken? *A.*—No, sir; I don't know the names. At least, not offhand.

Q.—Then you don't know if they are alive or dead, do you? *A.*—Yes, sir.

Q.—You don't know of your own knowledge if they are alive or dead? *A.*—Shortly before coming here I saw the house physician—

Q.—I am not asking you about what was told you. I am asking you about what you know. *A.*—The house physician told me that they were.

Q.—One minute. I am not asking you what the house physician told you. I am asking you what you know. *A.*—I know nothing about these patients.

Q.—That is what I wanted to know. *A.*—Aside from what the house physician told me.

Q.—What was the matter with the other three uteri? *A.*—The other three were removed because the patient had disease of the ovaries and the fallopian tubes, and the history, as I obtained it, was that the patient would make a much better recovery if the uterus was removed as well as the ovaries and the tubes. The ovaries and tubes had to be removed.

Q.—Doctor, do you know, or have you ever read of any investigations on isolated uteri or strips which produced different results from those which you produced? *A.*—No, sir.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

Q.—Doctor, what is sarcoma? *A.*—Carcinoma; cancer.

Q.—Well, carcinoma? *A.*—Cancer. It is a disease—

Mr. Hough:—Well, I object to that.

THE COURT:—Well, don't let us go into that.

Mr. T. J. Scofield:—All right, cancer. Just so we understand that. That is all, Doctor.

TESTIMONY OF DR. H. O. BYRD

Dr. H. O. Byrd was called as a witness for the defendant.

DIRECT EXAMINATION BY MR. SIZER

Dr. H. O. Byrd testified that he is a practicing physician residing in Trilby, Fla. He has been practicing since 1908 in that territory. Hookworm, malaria and tuberculosis are prevalent there. He was asked to state any specific instances in which Wine of Cardui was taken by patients whom he treated. He stated:

A.—One patient whom I treated was Miss Grace P——, last summer. She came to my sanitarium for examination and treatment. I examined her, and I found that she was suffering from a vaginitis and endometritis, both of gonorrheal origin.

Q.—Now those are inflammatory diseases, are they? *A.*—They are inflammatory diseases.

Q.—Of the vagina and the uterus? *A.*—Of the vagina and the uterus, and the endometrium, the inner lining of the womb.

Q.—And they were of gonorrheal origin, you say? *A.*—They were of gonorrheal origin. That was confirmed by microscopical examination. She also suffered from a retroflexion of the uterus, and an ovaritis and a chronic catarrhal appendicitis. She was also far advanced in a case of tuberculosis.

Q.—Now in giving the history of her case did she tell you what she had been taking? *A.*—She did. She stated that she had been taking Wine of Cardui for a period of several months.

Q.—Had it been of any benefit to her condition?

Mr. Walker:—That is objected to. I don't know that there is any claim here made of curing tuberculosis and appendicitis.

THE COURT:—The objection is sustained, because he has told the condition as disclosed to him and as he saw it.

Mr. Sizer: Q.—Yes. You have told the condition that existed when you treated her? *A.*—I might state further that she also had menorrhagia.

Q.—Was the menorrhagia produced by these conditions that you speak of, the vaginitis? *A.*—Yes, sir.

Q.—In other words, that was a symptom? *A.*—That was a symptom of the disease with which she suffered.

Q.—Well, did she say what she had been taking the Wine of Cardui for? *A.*—She said that she had been taking the Wine of Cardui for the female trouble, and when she began taking that, that is what she was taking it for, and she didn't know that she had tuberculosis until after she had been taking it several months, and she went to Dr. Snow of Tampa, and he examined her and told her that she had tuberculosis, and he referred her to my sanitarium.

Q.—You keep a sanitarium there, do you? *A.*—I did.

Q.—Well, did you treat this patient, and what was the result of this case? *A.*—I didn't treat this case. I kept her there about a week or ten days during the examination, and we don't take any far advanced cases of tuberculosis, and for that reason I did not treat her.

Q.—When she came to you was she too far advanced for any treatment to benefit her? *A.*—She was.

Q.—Now, then, take the next case. *A.*—The next case was Miss Mattie C—— K——. She was a girl nineteen years old, suffering from amenorrhea and general weakness and exhaustion. She came, and I examined her.

THE COURT:—When was that, Doctor? *A.*—That was in the year of 1913. She had been taking Wine of Cardui for some months, and she was also an advanced case of tuberculosis.

Mr. Walker:—This all goes in, I take it, under that same objection that we have made?

THE COURT:—Yes.

Mr. Sizer: Q.—From the examination that you made, to what cause did you find that amenorrhea was due? *A.*—In that case the amenorrhea was due to the tuberculosis.

Q.—That was another tuberculosis case? *A.*—It was.

Q.—Well, did you treat her? *A.*—No, I did not.

Q.—Was she also too far advanced? *A.*—She was too far advanced, and she was not allowed admittance to the sanitarium.

Q.—Did she tell you how long she had been taking Wine of Cardui for this trouble? *A.*—She said that she had been taking it for several months, first began when this weakness and amenorrhea began, and continued taking it until she came to me, which was six or eight months after she had first begun taking Wine of Cardui.

Q.—Well, now, proceed with the next case. *A.*—The next case is the case of Mrs. O. H. H——. Mrs. O. H. H—— had—

Q.—First, what was her age? *A.*—Her age was thirty.

Q.—And when was it you treated her, or examined her case? *A.*—I examined her last fall, and she had retroflexion of the uterus, she had hookworm, and she had malaria.

Q.—Well, now, what were the symptoms of those things? Did she have amenorrhea or other derangement of the menstrual functions? *A.*—She had amenorrhea, and she was anemic, she was weak, she was nervous, and she had incipient tuberculosis.

Q.—Had she been taking Wine of Cardui? *A.*—She had been taking Wine of Cardui for about four months.

Q.—Well, what did you do with her case? *A.*—I gave her thymol.

Q.—What was that for? *A.*—That was for the hookworm, and I gave her then iron, arsenic, quinin and strychnin, and put her on a nutritious diet, fresh air, rest and nourishing diet.

Q.—Is she now a patient of yours? *A.*—No, sir; she is not now.

Q.—Do you know what her condition is at present? *A.*—Why, her condition is much better than what it was. In fact, the tubercular process has been arrested, and she weighs now more than she has ever weighed in her life. Her health is better than it has been for several years.

Q.—Doctor, I wish you would define the term amenorrhea for the benefit of the jury. You used that a little while ago. What do you mean by that? *A.*—I mean by that a stoppage of the menstrual periods.

Q.—You say in her case that was due to the hookworm and the tuberculosis? *A.*—And the malaria, the three combined.

Q.—Well, take the next case, doctor.

THE COURT:—Well, just a minute. So far as that patient was concerned, when you discharged her what was her condition as to the female troubles, so far as you know? *A.*—As to the female trouble it was somewhat improved. I used a local treatment, tampons and pessaries, and supported the uterus the best that I could with that treatment. In that case it was not an operative case, owing to the fact that she had an active tuberculosis, and I did not think it advisable to give her an anesthetic, and for that reason it was not operated on. But her female condition was improved from what it was when I saw it first.

Mr. Sizer: Q.—Would it be necessary for her to have an operation in order to cure that retroflexion or retroversion, whichever you said it was? *A.*—Well, it would be necessary to cure it, but owing to the tubercular process I did not deem it advisable to operate on her at this time.

Q.—Yes. Well, now, take the next case. *A.*—The next case is the case of Miss Lulu M——, aged nineteen.

Q.—What was her name? *A.*—Lulu M——.

Q.—Spell that name? *A.*—M——. I saw her in January.

Mr. Sizer: Q.—Of this year? *A.*—Of this year.

Q.—Well, what was her condition? *A.*—She was suffering from amenorrhea symptoms, anemia, hookworm, malaria and pellagra.

Q.—Now, did the hookworm and the malaria and the pellagra produce the symptoms of anemia and amenorrhea? *A.*—It did in this case.

Q.—It did in this case. And had she been taking Wine of Cardui? *A.*—She had been taking Wine of Cardui since September.

Q.—Since September of last year? *A.*—Last year.

Q.—That is about four or five months? *A.*—Yes, sir.

Q.—Well, what treatment did you give her? *A.*—I gave her thymol; I gave her iron, arsenic, quinin, strychnin, and put her on a nutritious diet?

Q.—And what is the subsequent history of her case? *A.*—She is well.

Q.—Take the next case. Doctor, I am reminded that the term "pellagra" has never been defined. What do you mean by that? Please tell the jury what that is. *A.*—Pellagra is a disease that we have in the South, and the origin of it, of course, is not definitely settled by the medical profession, I believe. It is a wasting disease, something on the order of tuberculosis.

Q.—Well, does it, among other things, produce female derangements? *A.*—It produces female derangements, at least the symptoms of them.

Q.—Well, the symptoms of them, yes. Now do you recall any other specific cases that you treated? *A.*—I cannot recall any other specific cases owing to the fact that on the 13th of December, last, my sanitarium was burned, and all the records that I had there were destroyed. I know in a general way of numerous other cases that had been taking Wine of Cardui.

Q.—And which came to you for treatment? *A.*—And came to me for treatment.

Q.—And did you treat some of them, and did they recover? *A.*—Some of them I treated recovered. Of course there were some that I didn't treat. We did not take any far advanced or incurable cases. We only took the incipient cases and the moderately advanced.

Q.—Could you say, Doctor, what per cent of the women patients who come to you are suffering with malaria? *A.*—Well, I suppose that 90 per cent. of the patients whom I treat have an infection of malaria. I do not mean to say by that that all of them are suffering from the symptoms of malaria, but they have the infection.

Q.—And how about hookworm? *A.*—Hookworm, in my immediate district there are about 80 per cent. of the schoolchildren, in my district, that are or were infected with hookworm.

Q.—And you say both hookworm and malaria produce anemia and more or less disturbance of the menstrual functions? *A.*—Yes, sir, they do.

Q.—What per cent. would you say, according to your best estimate, of the women who come to you for treatment have been taking Wine of Cardui before they come to you?

Mr. Walker:—That is objected to.

THE COURT:—That is pretty general. We have the specific cases.

Mr. Sizer:—The records are burned, Your Honor, and I think that that is about the only thing—

THE COURT:—Yes, that is just it. Now, how are they going to get at the real facts on cross-examination?

Mr. Sizer:—All right.

Q.—Doctor, how do you determine whether a patient is suffering from hookworm? *A.*—I make a microscopical examination of his stool, and if there I find the ovum, why I diagnose it as a case of hookworm.

THE COURT:—You needn't go into details.

Mr. Sizer:—Well, that shows the presence of the hookworm? *A.*—That shows the presence of the hookworm, in the stool.

Q.—How do you determine the presence of malaria? *A.*—By microscopical examination of the blood. There we find the malarial parasite.

Q.—Do you know any cases, Doctor, of either men or women taking Wine of Cardui as a beverage? *A.*—I do.

Q.—State any cases of that kind that you know.

Mr. Walker:—Same objection as we have made all the time.

THE COURT:—Yes, and the same ruling.

To which ruling of the court the plaintiffs, etc., excepted.

A.—In 1901 and '02 I was working in a general merchandise store at Scranton, South Carolina. There I sold Wine of Cardui on numerous occasions. I sold it from one bottle to a dozen bottles at one time and to one individual. On numerous occasions I sold it to one man, particularly I have in mind, by the name of Jack L——. I have sold it to him in five and ten-dollar lots. I have seen him buy that much, wrap up all the bottles but one, and I have seen him take one bottle out behind the store, take the cork out and drink the contents of the bottle without taking it from his lips. I have also seen my brother do the same thing; S. O. Byrd.

Mr. Sizer: Q.—Any other cases of that kind that you recall now? *A.*—In 1909 my brother developed tuberculosis. He was at that time living at Homerville, Georgia, and he came down to Trilby, moved there, and there he recovered from the tuberculosis. During that time, however, he had stopped drinking, and there being no drug store there, and I having to dispense my own drugs, my practice, which was to the extent that I couldn't handle all of my own drugs, and he having had several years' experience in the drug business, I allowed him to operate a little drug store for me. There he began drinking again, and he drank Cardui, among other patent medicines, to the extent that I had to sell him out and put him out of business. I have seen him drink as much as three or four bottles in one afternoon.

Q.—Well, any other cases? *A.*—No, that is all the cases that I can call to mind at the present time.

CROSS-EXAMINATION BY MR. WALKER

Q.—Doctor, how did you get into this case? *A.*—Into what case?

Q.—The one here that you are testifying in? *A.*—I got a letter from the Secretary of the Florida Medical Association asking several—

Q.—I didn't ask you the contents. You got a letter from them? *A.*—I did.

Q.—Well, go ahead. You can tell what he asked you. *A.*—I don't know what he asked. He asked some questions in regard to Wine of Cardui. I couldn't state the questions.

Q.—Was a letter from Dr. Heizer enclosed with his letter? *A.*—There was not.

Q.—Any other letter or communication enclosed with it? *A.*—There was not.

Q.—What is the name of that gentleman who sent the questions to you? *A.*—Dr. Graham S. Henson of Jacksonville, Florida.

Q.—Did you ever meet Dr. Heizer? *A.*—I have.

Q.—When for the first time? *A.*—November the 30th, last year.

Q.—Where? *A.*—Tampa, Florida.

Q.—Who introduced you to him? *A.*—I introduced myself to him.

Q.—Was there anyone in his company at the time? *A.*—There was not.

Q.—How did you know that he was to be there at Tampa, Florida? *A.*—I had a letter from him stating that fact.

Q.—You did have a letter from Heizer? *A.*—I did.

Q.—Have you got the letter with you? *A.*—I have not.

Q.—When did you get a letter from Dr. Heizer? *A.*—I don't remember the date.

Q.—How many days before you went to Tampa? *A.*—Several days. I don't remember the date.

Q.—Did the letter call for a meeting at Tampa, Florida? *A.*—It asked would I meet him here.

Q.—Anybody go up with you from Trilby? *A.*—Yes, sir.

Q.—Who? *A.*—My wife and baby.

Q.—Any other persons? *A.*—No, none that I know of.

Q.—Who is paying your expenses? *A.*—Why, I don't know. I haven't been paid yet.

Q.—Do you expect to be paid? *A.*—I do.

Mr. Sizer:—Well, we have admitted that we expect to pay. The American Medical Association will pay all their expenses and for their time.

Mr. Walker:—And for the wife and baby do you—

Mr. Sizer:—No.

Mr. Walker:—I am asking him. I want to see how far your admission goes.

THE COURT:—He is not on the stand, Mr. Walker.

Mr. Walker:—Well, I asked the witness and he interrupted me.

THE COURT:—He admitted that they were paying the expenses of all their witnesses, and then you made the suggestion about the wife and baby, which, of course, had nothing to do with the case.

Mr. Walker:—Well, it might, if they were paying their expenses.

The Witness:—I might state that I was paying my wife's and baby's expenses.

Mr. Walker:—I move it be stricken out.

Mr. T. J. Scofield:—No, he has a right to state that.

The Witness:—Well, the question was asked about that, and—

Mr. Walker:—I didn't ask you any question about—

THE COURT:—Well, we will leave the record as it is.

Mr. Walker: Q.—When did you leave Trilby? *A.*—I left Trilby Saturday a week ago.

Q.—Were there any other people besides your wife, baby and yourself that came from Trilby? *A.*—Not that I know of.

Q.—Any from Tampa, any of your friends? *A.*—Not that I know of.

Q.—The state doctor that wrote you in the first instance, is he here? *A.*—I don't know that he is.

Q.—Have you got the letter that Heizer wrote you to come down and meet him in Tampa, have you got that with you? *A.*—No, sir, I have not.

Q.—Doctor, when was it that you put your brother in the drug store, and where? *A.*—That was at Trilby, Florida, in 1909, '10.

Q.—Is your brother living now? *A.*—He is.

Q.—Where is he living? *A.*—He is at Cade, South Carolina.

Q.—What is his given name? *A.*—Stephen O. Byrd.

Q.—Did I get the date at which you opened the drug store? I don't remember if you did give it.

Mr. Hough:—1909.

The Witness:—1909.

Mr. Walker: Q.—1909? And how long was it open? *A.*—It is open yet, but he is not operating it.

Q.—Had you had a drug store before 1909, before you put your brother in a drug store? *A.*—I didn't have a regular drug store. I handled all the medicines I prescribed.

Q.—Did you handle any patent medicines, as you call them, at that time? *A.*—I did not.

Q.—Were you interested in any drug store in 1901, prior to the—*A.*—I was not.

Q.—Have you ever been interested in any drug store other than the one that your brother operated for you? *A.*—I am interested in one now.

Q.—And is that the same one? *A.*—That is the same one.

Q.—When was it you first saw Jack L——, as you say, drink a bottle of Cardui? *A.*—That was in 1901.

Q.—Where was that? *A.*—That was at Scranton, South Carolina.

Q.—Did you live in Scranton then? *A.*—I did.

Q.—Where did he get the Cardui? *A.*—He bought it from me.

Q.—And how many bottles? On that first occasion? *A.*—I couldn't say how many bottles I sold him on the first occasion that I ever saw him drink it.

Q.—How long did you stay in Scranton? *A.*—From the time I was born until 1902.

Q.—About how long after you first sold Wine of Cardui to Jack L——? *A.*—Did you say when I sold it to him first? When did I sell it to him first?

Q.—I say, about how long after you first saw Jack L—— drink Wine of Cardui before you moved from Scranton?

Mr. Loesch:—He said he has lived in Scranton all his life.

Mr. Walker:—Why, as I understand it he is in Trilby, Florida, now.

The Witness:—I am now.

THE COURT:—Just when did you leave Scranton to go to Trilby?

Mr. Walker:—I thought he said in 1902.

The Witness:—I didn't leave Scranton—oh, I left Scranton, and from there I went to Augusta, Georgia.

Mr. Walker:—Well, did you leave Scranton in 1902? *A.*—I did.

Q.—Yes. Well, how long was it before you left Scranton that you first saw Jack L—— drink Wine of Cardui? How many months? *A.*—About a year, or possibly more.

Q.—Did you run the drug store, or sell drugs through that year? *A.*—I didn't run a drug store. I sold patent medicines in this general mercantile store.

THE COURT: *Q.*—Was this your store, or were you working for somebody else? *A.*—No, sir, it wasn't. I was working for somebody else.

THE COURT:—Clerk in the store? *A.*—Clerk in the store.

Mr. Walker: Q.—Now, how many times before you left Scranton did you see Jack L—— drink Wine of Cardui? *A.*—About a hundred times. Possibly more.

Q.—Did you sell it every time to him? *A.*—Not every time. I have seen him drink it at times when I didn't sell it to him.

Q.—How many times did you sell it to him? *A.*—How many times did I sell it to him?

Q.—Yes, how many times did you sell it to him, you, yourself? *A.*—I couldn't say, Mr. Walker.

Q.—And would he buy half a dozen bottles at a time? *A.*—He would.

Q.—And then he bought it one hundred times, then he bought this at one hundred times during that year from 1901 until you left Scranton? *A.*—Yes. The two years. I beg your pardon, 1901 and 1902.

Q.—Oh, you were in Scranton all of 1901? *A.*—All of 1901.

Q.—And all of 1902? *A.*—And all of 1902.

Q.—Then in what month was it—was it in January, 1901, that you first saw him take a drink? *A.*—I couldn't say whether it was January of February.

Q.—Well, was it February? *A.*—No, it wasn't. It was in the summer.

Q.—Or in March—oh, it was in the summer. Then when was it you saw him while you were in Scranton take the last drink of Wine of Cardui? *A.*—That was in December, 1902.

Q.—Well, you saw him one hundred times drink Wine of Cardui, you say, in a year and a half? *A.*—Yes, at least that many.

Q.—Buying how many bottles at a time? *A.*—He would buy anywhere from one bottle to a dozen.

Q.—Each time? *A.*—Each time.

Q.—A hundred times a year? *A.*—Yes, in the 18 months or the two years.

Q.—And how many bottles did he drink in your sight each time? *A.*—I have seen him drink one on numerous occasions.

Q.—One bottle. What did he do with the others? *A.*—I couldn't say. I didn't see what he did with them.

Q.—Took them away with him? *A.*—I didn't see. I suppose he drank them.

Q.—You didn't see? *A.*—I didn't see him drink them all. I suppose he drank a hundred.

Q.—Was he a negro or white man? *A.*—He is a white man.

Q.—What is the name of the store? *A.*—Winslow W——.

Q.—Is that store in existence now, or don't you know? *A.*—Well, that store was burned a couple of years, ago, but Mr. W—— is connected with another store now.

Q.—What is Mr. W——'s first name? *A.*—It is Winslow W——.

Q.—Where did he buy the Wine of Cardui? *A.*—I don't know.

Q.—You don't know whether he got it from drummers or jobbers or directly from the Chattanooga Medicine Company? *A.*—I had nothing to do with the buying of the goods. I was only a clerk.

Q.—What was Jack L——'s business? *A.*—He was a farmer.

Q.—On a farm? *A.*—He owned a farm.

Q.—Now, when did you first see your brother drink Wine of Cardui? *A.*—It was along during that same time.

Q.—That was along from 1901 to '02? Is that right? *A.*—Yes.

Q.—Was Jack L—— a drinker, an alcohol drinker? *A.*—He was a Wine of Cardui drinker.

Q.—Was he a drinker of whiskey? *A.*—Not that I know of. I never saw him take a drink of whiskey.

Q.—Did you have any whiskey at your store? *A.*—No, sir.

Q.—Was your brother a whiskey drinker? *A.*—He drank whiskey sometimes.

Q.—Yes. How many times did you see your brother drinking Wine of Cardui in 1901 or '02? *A.*—I couldn't recall the number of times.

Q.—Have you a more distinct recollection of the number of times Jack L—— drank it than you have of your own brother? *A.*—I have.

Q.—How frequently have you, yourself, seen your brother drink it? *A.*—I couldn't state the number of times.

Q.—Was he a dipso in 1901 and '02, your brother? *A.*—Was he what?

Q.—A dipso? A dipsomaniac? A drunkard? A booze fighter? *A.*—No.

Q.—Then you moved away, and then when did he get the tuberculosis? *A.*—He got that before he moved to Trilby in 1909.

Q.—And you knew he had been in the habit of drinking Wine of Cardui, when he came to Trilby? *A.*—I did.

Q.—How long after you set him up in the drug business did you begin to buy Wine of Cardui for him? *A.*—I didn't buy Wine of Cardui for him.

Q.—Well, how long afterwards, when he got back, after he quit drinking, was it that you set him up in the drug business with patent medicines that he drank, besides Wine of Cardui? *A.*—That was in the fall of 1909 or '10.

Q.—And how long was he in that business there before you put him out of the business? *A.*—Only a few months.

Q.—Did you have whiskey there at all? *A.*—No, sir.

Q.—What else did he drink? *A.*—He drank Hostetters' Bitters, Electric Bitters, and he drank some Peruna and other patent medicines. I couldn't enumerate them all.

Q.—All the stuff that you were keeping? *A.*—I didn't keep anything.

Q.—Who bought them? *A.*—He did.

Q.—Whose store was it? *A.*—His store.

Q.—Did you know he was buying them? *A.*—I did.

Q.—And that he was selling them? *A.*—I did.

Q.—And that he was drinking them? *A.*—Yes.

Q.—And you put him out of business? *A.*—I did.

Q.—Now, Grace P——, where did she live? *A.*—Grace P—— lived at—her post office was either Hudson or Fivey, I don't know which.

Q.—Was she in the habit of going to Trilby? *A.*—No, sir. I only saw her one time.

Q.—Only once? *A.*—Only once.

Q.—Did you ever see her drink Wine of Cardui? *A.*—No.

Q.—How old was she? *A.*—She was 26.

Q.—Is she living or dead? *A.*—I don't know.

Q.—What is the name of the town where she lived, if you know? *A.*—Where she lived?

Q.—Yes, when she came to your sanitarium, and you saw her first? *A.*—It was either Hudson or Fivey, I don't know which.

Q.—Did she have tuberculosis? *A.*—She did.

Q.—And vaginitis? *A.*—And vaginitis.

Q.—And endometritis? *A.*—And endometritis.

Q.—And what else? Leukorrhea? *A.*—Leukorrhea.

Q.—Or was it gonorrhea? *A.*—She had gonorrhea.

Q.—Yes? *A.*—Leukorrhea.

Q.—Anything else? She had gonorrhea, leukorrhea; is she the one that had appendicitis? *A.*—She had a chronic catarrhal appendicitis.

Q.—A chronic catarrhal appendicitis? *A.*—She had a retroflexion of the uterus.

Q.—It, of course, would not require any surgical operation to cure anything she had? *A.*—Why, if she would have been cured it would have been necessary to have had a surgical operation.

Q.—Did she die? *A.*—I don't know whether she did or not.

Q.—How long did you have her? *A.*—She was there a week or ten days.

Q.—And you didn't keep her there, because she was so far along that you couldn't take her, she couldn't be permitted to stay in your sanitarium? *A.*—She had taken Wine of Cardui until—

Q.—Did it give her the consumption or the appendicitis, or the clap, which? *A.*—It masked the symptoms of her disease until where she was incurable.

THE COURT:—Mr. Walker, there are some technical terms for these things that sound a great deal better than the common terms, if you will be good enough to use them.

Mr. Walker:—One of the terms was in the book, but I will use it that way. It was read here.

THE COURT:—That is true.

Mr. Walker:—But I will use it that way.

Q.—Did you attribute the appendicitis to the Wine or Cardui? Did you? *A.*—I couldn't.

Q.—Did you attribute the consumption to the Wine of Cardui? *A.*—I attributed—

Q.—Did you attribute the consumption to the Wine of Cardui? *A.*—I could not say I did. In a way I did.

Q.—Did you attribute the retroversion of the womb to the Wine of Cardui? *A.*—Not directly.

Q.—Did you attribute the vaginitis to the Wine of Cardui? *A.*—That aggravated the condition.

Q.—Did you attribute the leukorrhea to the Wine of Cardui? *A.*—That aggravated the condition; Wine of Cardui did.

Q.—Now, Mattie K——. What was her middle name? *A.*—Mattie C——.

Q.—Where did she live? *A.*—She lives at Floral City, Florida.

Q.—Is she living there now, do you know? *A.*—I do not know.

Q.—How old was she? *A.*—She was 19 years old.

Q.—What did she have? *A.*—She had amenorrhea and was suffering from anemia.

Q.—Did she have tuberculosis? *A.*—She had tuberculosis.

Q.—Anything else? *A.*—Not that I remember of.

Q.—Did she have tuberculosis at all? *A.*—She did.

Q.—Did she have malaria? *A.*—I do not recall that she did.

Q.—She had menorrhea? *A.*—She had amenorrhea.

Q.—Produced by these conditions of disease that you have spoken of? *A.*—Yes, sir.

Q.—What did you give her? *A.*—I did not give her anything; I did not treat her.

Q.—How old was she? *A.*—She was 19 years old.

Q.—How long did you have her under your care? *A.*—She was only there for examination, a week or ten days.

The witness was repeatedly cross-examined concerning the condition of Mrs. O. H. H—— and Miss Lulu M——. On cross-examination he was asked:

Q.—Did you ever prescribe viburnum prunifolium? *A.*—I have.

Q.—Whose? *A.*—I don't know whose.

Q.—Hayden's Viburnum Compound? *A.*—I never prescribed Hayden's Viburnum Compound.

Q.—Whose, do you remember? Was it the extract or in capsules? *A.*—I prescribed the fluid extract of viburnum.

Q.—How much alcohol was there in it? *A.*—I don't know; there is about 25 or 35 per cent., I think.

Q.—Do you know or do you recall whose manufacture it was? *A.*—No, I do not.

Q.—Do you know of any manufacture of viburnum prunifolium that is less than 55 per cent? *A.*—I do not, but I know the dose that I prescribe of viburnum prunifolium and to each dose they don't get but about ten drops of alcohol.

Mr. Sizer:—I submit that this is not cross-examination of anything.

THE COURT:—I was waiting for the objection, sir. Sustained.

Mr. Sizer:—We object to it.

To which ruling of the court the plaintiffs, etc., excepted.

Mr. Walker:—I got through with it before it came.

Mr. Sizer:—Well, it is all right; let it stand.

The witness was again examined concerning the names, addresses and ages of the various persons mentioned in his testimony. He was questioned concerning his brother as follows:

Q.—When your brother was drinking Wine of Cardui in 1901 and 1902 when you were working in that store in Scranton, did you give it to him or sell it to him? *A.*—I sold it to him.

Q.—How many times do you think you sold it to him yourself between the first of 1901 and 1902? *A.*—I do not know.

Q.—Did he drink it on the premises? *A.*—He drank it out back of the store.

Q.—He would come in and buy it from you, and then go out and drink it? *A.*—Yes.

Q.—How many times, can you tell me as a minimum that you recall when you sold it to him, and he went out to the back of the store and drank it? *A.*—Oh, not less than 20 times.

Q.—Every time he asked you for it, you would not think he intended—or would you know that he intended to go back of the store and drink it? *A.*—No, I did not know that. I could not tell what he was doing with it.

Q.—You knew that after the first time you saw him drink it, didn't you? *A.*—What was the question?

Q.—You knew that after the first time you saw him drink it, that he would do that? *A.*—No, I can't ever tell what a man is going to do.

Q.—Well, when did you wake up and discover that if you sold it to him, he would go outside and drink it? Was that after the twentieth time? *A.*—Oh, no.

Q.—Well about what time did you find out? *A.*—When I saw him drink it.

Q.—How many times do you think you sold it to him after you saw him drink it the first time? *A.*—I guess about twenty times.

REDIRECT EXAMINATION BY MR. SIZER

Q.—Doctor, you testified in answer to a question on cross-examination, that you attributed the consumption or tuberculosis that one of these patients was suffering with "in a way" to Wine of Cardui. What did you mean by that?

Mr. Walker:—That is objected to.

A.—I mean by that—

THE COURT:—He may answer.

To which ruling of the court the plaintiffs, etc., excepted.

A.—I mean by that, that the effect of the alcohol contained in the Wine of Cardui had a debilitating or depressing effect, or in other words, it aggravated the progress of the disease of tuberculosis and made it more active.

THE COURT: *Q.*—It did not contribute to the original condition, did it? *A.*—No, it did not contribute to the original condition. It only aggravated the condition and made it worse.

Mr. Walker:—Well, he said—

Mr. Sizer: Q.—Now, you also stated that it aggravated the gonorrhea. In what way did it have that effect? *A.*—Alcohol in any form will aggravate a gonorrheal infection. It makes it more active and the inflammation is greater than it would be without it.

Q.—Would it aggravate any kind of an inflammatory condition? *A.*—It will, especially gonorrheal infection.

Mr. Sizer:—That is all. Come down.

THE COURT:—Any more cross-examination?

Mr. Hough:—No, but we ask that he be classed as an expert.

THE COURT:—All this was brought out on the cross-examination.

To which ruling of the court the plaintiffs, etc., excepted.

The further hearing of the cause was adjourned until 10:30 o'clock the following day, April 7, 1916.

April 7, 1916, Morning

Court met pursuant to adjournment.

Dr. John Leeming called as a witness on behalf of the defendants, having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Q.—What is your name? *A.*—John Leeming.

Q.—What is your profession? *A.*—Physician and surgeon.

Q.—Are you a graduate of any medical institutions, and if so, what? *A.*—Yes. I am a graduate of the University of Toronto, Canada, 1886; and of the Royal College of London, England, 1887.

Q.—Have you been practicing your profession, or continuing the study of your profession from your graduation to the present time, Doctor? *A.*—Yes, sir.

Q.—What hospital experience have you had, if any? *A.*—I have been attending surgeon at the Cook County Hospital for several years; Chicago Hospital; Lakeside Hospital; Provident Hospital; Chicago Baptist Hospital, for a period of over twelve years during about twenty years of my time in Chicago.

Q.—Have you been connected with any medical colleges? *A.*—Yes, sir.

Q.—What institutions have you been connected with, if more than one? *A.*—I have been connected with the Northwestern University Medical School for about ten years, For five years of the time I was clinical teacher of diseases of women and the balance of the time, during the same five years, was Professor of Materia Medica in that institution.

Q.—You speak of clinical experience during a part of that time. Is that in the Dispensary of the institution, Doctor, or not? *A.*—Yes. That is where patients from the outside come to the Dispensary to have examinations made and treatment applied in what we term a clinical way, in contradistinction to simply a didactic lecture on the subject, and, as it applies to the diseases of women, it means demonstrations on the living subject of the method of examining, how you discover the various troubles that the patient is suffering from, and the methods of adapting the suitable forms of treatment to whatever condition is found.

Q.—Now, is that what you call clinical work? *A.*—Clinical work, yes, sir.

Q.—About how many patients have you examined or treated clinically in connection with your dispensary experience in the Northwestern University? *A.*—It averaged 1,000 cases a year in the college work alone.

Q.—You speak of the Northwestern University. Where is that institution located? *A.*—It is located, as far as their medical department is concerned, at 26th and Dearborn Streets—25th and Dearborn Streets, here in Chicago. Their other departments are in Evanston, Illinois.

THE COURT:—Except the Law Department.

The Witness:—Except the Law Department, and that is downtown here.

Mr. T. J. Scofield: Q.—The Law Department is at the corner of Dearborn and Lake Street, is it not? *A.*—Dearborn and Lake, yes, sir.

Q.—Have you ever had any experience in studying your profession abroad? *A.*—Yes, sir.

Q.—Where did you study? *A.*—I took postgraduate study in London for a year after my graduation in Toronto, and before graduating at the Royal College of London, and I have taken several trips abroad to Vienna, Berlin, Paris and London, for further postgraduate study since that time.

Q.—Are you connected with any medical societies in any way, or a member of any medical societies? *A.*—Yes, sir.

Q.—Will you tell the jury what societies you are a member of. *A.*—I am a member of the Chicago Medical Society, the Physicians Club of Chicago, the Illinois State Medical Society, the American Medical Association, the Ontario Medical Society, the British Medical Society of London, and the Vienna-American Medical Society.

Q.—Doctor, I will get you to state whether or not you are familiar with the organs of the female pelvic cavity? *A.*—Yes, sir; I am.

Q.—Are you familiar with the diseases that are found or that arise or develop in the female pelvic organs? *A.*—Yes, sir.

Q.—Will you describe the female pelvic cavity briefly? *A.*—Do you mean the cavity and also the organs which it contains?

Q.—Yes. *A.*—The female pelvic cavity is the cavity that is surrounded by the pelvic bones to which the bones of the lower extremities insert on the outside and the vertebral spine at the back connects it with the upper part of the body so far as those bony connections are concerned. This pelvic cavity forms a sort of a bony basin, made up of two large bones on the side which are called the innominate or nameless bones which meet together at a point which is known as the pubic symphysis or union. They pass around behind and are joined by what is known as the sacrum or keystone bone, which bone consists of five bones sort of welded together. Those three bones, the two on the side and the one on the back form the bony pelvic basin.

In this bony cavity there are two parts; one, the part that is low down and that is technically known as the true pelvis, and above that, where the bones that form the hip bone and flare out, above that is what is known as the false pelvis.

The true pelvis down below contains the essential organs of reproduction in the female, in the normal or in the unimpregnated state. The large false pelvis, contains the womb, the important female organ during pregnancy; the reproductive organs are situated in the true pelvis and are, first, the womb itself, that is technically known as the uterus. This organ is a purely muscular body, about three inches long and two inches wide at its upper extremity or upper end, at the top, tapering down to what is known as the neck of the womb. That is about an inch in diameter both from before backward and from side to side. The upper part of the womb is flattened from before backward, so that while its width is two inches approximately, or one and three quarters inches from before backward, it is only about an inch. It resembles, somewhat, a small sized or ordinary sized pear, upside down, which is squeezed from before backward to flatten it.

The opening into the womb is from below, the same place where the stem goes into the pear, and that leads to the canal and up to the inside of this little muscular organ.

From each side of the upper end of this womb is a tube leading to the sides, that is known as the fallopian tube; one on each side, leading out, curved a little towards the back and leading out to the ovaries which are situated at the outer lateral sides of this true pelvis.

That constitutes the three important organs of reproduction. There are other accessory organs. There is the opening leading from the neck of the womb below to the outer world, that is known technically as the vagina, into which the neck of the womb protrudes, so that when the vagina is opened with a speculum or an instrument, the neck of the womb protrudes down into it and can be seen and examined.

The bladder is situated in front, immediately behind the pubic bone, and the rectum, the lower bowel, is situated behind.

Those organs are held in this true pelvis in a peculiar way, by ligaments. The ligaments are unusually large, considering the comparatively small size of the organs and they are made unusually large and strong on account of the possibility of impregnation taking place, when greater support is required.

The main ligaments which support the womb and its appendages, as the ovaries and tubes, are sometimes called or known as the broad ligaments. The broad ligament is a reflection of that membrane known as the peritoneum which lines the whole abdominal and pelvic cavity and is reflected around each of the organs within the abdominal and pelvic cavity, or most of them, as it passes down on the inside wall near all the organs and one of them, for instance is surrounded in that way (illustrating by folding handkerchief) by this folding of the peritoneum, just as the bowel is surrounded. Then the peritoneum passes along up against the abdominal or pelvic wall and this structure, the two folds of the peritoneum is known as the ligament which enfolds that organ; like the liver, the stomach, the spleen.

Then it comes down to the uterus or womb, this peritoneum, passes over the top of the womb from before backwards, extends out along the sides and is attached to the side of the pelvic wall and from where it leaves the womb itself and passes out to the side of the pelvic wall, that structure is known as the broad ligament. An inch and a half in width and there are two layers of this peritoneum one on each side of the womb, which holds the organ with a good deal of firmness, that is, firmness in the sense that it will move very little from side to side. It permits, however, of a considerable play from before backward, that play being necessary, dependent upon whether the bladder is full or empty, or whether the bowel is full or empty, either of which conditions make a certain amount of forward or backward movement necessary.

Through this broad ligament the blood supply and the nerve supply to the uterus, proceeds; the large arteries that pass in to supply the

uterus, the one above called the ovarian artery and the other down below called the uterine artery, then, the veins that carry the venous blood back to the large ascending trunks, carrying it up to the lungs, and so on, all pass in through this broad ligament, one on each side. That is the main ligament that supports the uterus.

In addition to this there are six other ligaments, three pairs. The two at the upper end are called the round ligaments, which pass forward (illustrating with folded handkerchief) this being the upper end of the uterus, they pass forward to a point at the middle of the groin that corresponds to what is known as the internal abdominal ring, the opening through which a rupture sometimes passes. This round ligament passes forward and its outer end goes into this ring and down in the inguinal canal in the groin.

The one on the other side of the uterus is similarly constructed and situated and the purpose of the two is to hold the uterus from going backward. They pass forward and a little downward. Those two ligaments act as sort of guy-ropes to hold the upper end of the uterus from falling back beyond the normal range of movement.

Then at the lower end of the womb, where the peritoneum passes down in front, it is reflected around on to the base of the bladder, in that form (illustrating by folding handkerchief), the bladder being in the front, and this little reflection of the peritoneum is known as the vesico-uterine ligament, which means bladder and womb ligament.

In the same way behind, the peritoneum is reflected back on to the rectum, the recto-uterine ligament. So that we have two on each side behind, two on each side in front; the two round ligaments that hold the uterus from falling backward and the main broad ligaments on either side which support the womb laterally and within the folds of which the blood supply and nerve supply passes to the womb.

Q.—Doctor, you have spoken of the uterus as a muscular organ. Will you please describe the muscles of the uterus, what kind of muscles you find in the uterus?

A.—The muscular fiber of the uterus is what is known technically as unstriped muscular fiber, the same sort of muscular fiber that exists in practically all of the involuntary muscles of the body, the stomach muscle, the bowel muscles and all the blood vessels, as well as the muscles of the uterus. The few muscular fibers that there are in the round ligament, are unstriped, differing from the voluntary muscles which we have under our control, all of which have transverse strips or fibers passing crosswise. Those latter are known as voluntary muscles and they differ in their histological form. That is when you look at them with a microscope, you can see at once that, if it is unstriped muscular fiber, it is involuntary muscular fiber, that is, not under the control of the will.

The womb is made up of muscles of that character that cannot be controlled at all by the will of the individuals. The walls are, in health, about half an inch thick. I think I said before that the weight of this organ was only about two ounces, or I should have said it: I mentioned the fact that its size is about three inches, and its weight is about an ounce and a half or two ounces, while its walls are about half an inch thick.

Q.—Now, Doctor, you spoke of involuntary muscles, what do you mean by that? I do not mean to ask you to describe them again, but what do you mean by an involuntary muscle?

A.—I simply mean a muscle that is not controlled by the will. A voluntary muscle means one that is under the influence of the mind, or under the influence of the will.

Q.—A voluntary muscle, then, is a muscle which responds to the direction of the mind? *A.*—Yes.

Q.—As, for instance, I will to raise my hand, and accordingly it is done. *A.*—Yes.

Q.—An involuntary muscle is one, is it not, which does not respond to mental control? *A.*—Yes.

Q.—Doctor, have you examined and treated many cases of female troubles, such, for instance, as arise or develop in the pelvic cavity? *A.*—Yes, sir.

Q.—Can you give us some idea of your experience in connection with such troubles? *A.*—Well, my largest experience of that kind, was at the time I was demonstrating these cases at the Northwestern University clinic and during the five years there I had charge of and treated approximately 5,000 cases, and I have had a large experience with that same sort of work for twenty years of my active practice.

Q.—I will ask you whether or not in the treatment of such conditions, it is necessary to make an examination in each case, for any purpose whatever; and if it is necessary for any purpose, for what purpose? *A.*—It is necessary to make a physical examination for the purpose of determining the character of the trouble that is producing the symptoms complained of. I mean by that, that there are symptoms that are common to a great variety of female troubles. Such symptoms as pain in the lower part of the back; a feeling of weight in the pelvis; a bearing down sensation; irritability and frequency of urination; irregular and disturbed menstrual function. Symptoms of that kind may mean one of twenty or thirty different conditions; so that in making an examination or in taking a case presenting this general state of symptoms, it is necessary to make some physical examination in order to know which of the twenty or thirty different conditions is producing the symptoms so that one may intelligently and rationally apply the suitable treatment for a given case.

Q.—Having made such diagnosis, you then are able to know what treatment to give? *A.*—Yes, one should then be able to intelligently prescribe and advise for such a case.

Q.—I understand you to say that there may be a large number of different conditions that such an examination may develop and disclose. *A.*—Yes, sir.

Q.—Is the treatment for these different cases, different conditions, identical or different? *A.*—The treatment varies with practically every case. Each case calls for its own line of treatment.

Q.—Doctor, I hand you a symptom blank sent out by the Chattanooga Medicine Company, which I have filled in, and I ask you to look at that blank and read the questions and answers and state whether or not a diagnosis can be made of the condition of the patient or the cause of the condition which gives rise to what the patient is suffering with.

Mr. Hough:—That is objected to as incompetent, irrelevant and immaterial, and as not justified under the plea of justification, which does not raise that issue.

THE COURT:—The only difficulty is that it is impossible to show, it seems to me, that this corresponds with any blank that was filled out and sent to the Chattanooga Medicine Company.

Mr. T. J. Scofield:—This, if the court please, is one of the blanks, which is contained in and came from the inside of a bottle of Wine of Cardui which they sent out.

THE COURT:—Yes, but the symptoms were not filled in.

Mr. T. J. Scofield:—No, but my proposition is that they cannot be filled in in a way that will enable a physician to tell what the underlying condition is which produces the particular symptoms of which the patient complains.

THE COURT:—Can't you ask the witness that question, rather than take a supposititious case? This particular case may never have been presented to anybody.

To which ruling of the Court the defendants, etc., excepted.

Mr. T. J. Scofield:—I will ask you then, Doctor, aside from the answers which we have inserted there, whether or not it is possible to determine from any answers that may be placed upon that symptom blank by a patient or by a sick person, what the underlying condition is in that patient, which causes the symptoms of which she complains?

Mr. Hough:—In addition to the other grounds of objection, I want to call the Court's attention to the fact that the issue in this case is not the advantage or disadvantage of two different methods of treating, but the question is as to whether this medicine contains any medicinal ingredient, and this question has nothing to do with that issue.

THE COURT:—I think that objection is well taken. The only thing that we have been concerned with is the efficacy of Wine of Cardui under certain circumstances.

Mr. T. J. Scofield:—That is not the sole question that is involved in this case under the issues. The question is whether or not this is a fraudulent business.

THE COURT:—No, a fraudulent medicine.

Mr. T. J. Scofield:—And that the business itself is built on deceit.

Mr. Hough:—Yes, but because of the allegation that it does not contain medicinal ingredients. That is the tenor of the entire article.

Mr. Walker:—There is nothing in the article in reference to the requirement of surgical operations or examinations or anything of the kind, nothing about a diagnosis beforehand, in any of them.

Mr. T. J. Scofield:—Does the court sustain the objection?

THE COURT:—Yes.

To which ruling of the Court the defendants, etc., excepted.

Mr. T. J. Scofield: Q.—Doctor, have you any opinion with reference to the advisability or the value of prescribing for female troubles without first learning the underlying cause which produces the symptoms?

Mr. Hough:—That is objected to for the same reason.

THE COURT:—That is not the question here. You may take up with the witness every conceivable disorder that a woman may have and ask him what the treatment is in his opinion, and then tell him that Wine of Cardui contains certain things and ask him what, in his opinion, what effect that medicine would have on a given disorder.

To which ruling of the Court the defendants, etc., excepted.

Mr. T. J. Scofield: Q.—Doctor, what has been your experience with the use of drugs in the treatment of diseases, which are peculiar to women? *A.*—Why, I have had a large experience in that line.

Q.—Now, in applying remedies to such conditions, upon what principles do you rely? *A.*—Well, I rely upon three especial things. First is my knowledge of the drug to be used; its chemistry; what it is made up; what are its active constituents? Whether it is an acid or an alkaloid; whether it contains alkaloid; in other words the chemistry, my knowledge of the drug to be used. And then, secondly, I rely upon my knowledge of the action of that particular drug as proven by pharmacological evidence, by positive evidence as to what that drug will do, together with the pharmaceutical end of it, the combining and putting together of drugs in form, according as they are prescribed. With that knowledge of the drug and a knowledge of its physiological action, I rely upon my knowledge of therapeutics, which means the application of drugs to disease, to scientifically apply the particular drug or combination of drugs in question, to the requirements of the particular disease that I am treating.

Q.—Doctor, are you familiar with a drug known as viburnum prunifolium? *A.*—Yes.

Q.—And if so, what has been your experience with it? *A.*—Well, I am familiar with it. I have used it over a period of 10 years, probably eight or ten years. My experience with it has been that it is negative in its effect; in other words, that I could obtain no action from its use in the various cases (and in very many cases) in which I prescribed it.

Q.—Are you familiar with a drug or with an herb or a medicine made from an herb known as cnicus benedictus? *A.*—I have had no experience with the use of the drug and I am only familiar with it in name.

Q.—Doctor, assume that a medicine—for the purpose of this question I will name viburnum prunifolium—is derived from the bark of a certain shrub; that it contains an active bitter principle, freely soluble in alcohol, and also a small amount of valerianic acid, a bitter brown resin, tannin, sugar, oxalate and citrate.

Assume that this medicine exercises a sedative action upon the spinal centers; assume that it lessens reflex excitability and irritability; assume that it has a special action on the uterus through the sympathetic system of nerves; that it is a uterine sedative; assume that it is a nervine, antispasmodic, tonic, astringent and diaphoretic.

Assume for the purposes of this question that it possesses these properties and that, as a result of such properties, it has been used with some benefit and apparent success in the treatment of threatened abortion, the nervous affections, accompanying pregnancy and in certain forms of dysmenorrhea and menorrhagia.

I want you also to consider in this same hypothesis or a continuation of the same, another medicine that I will term cnicus benedictus that is made from a thistle or weed which has been introduced into this country from southern Europe.

Assume that an infusion of this herb forms a grateful bitter, tonic and stomachic; resembles calumba and it contains a volatile oil and an amorphous bitter principle, neutral in reaction, slightly soluble in water, more so in hot water, and freely soluble in alcohol. This bitter principle is analogous to salicyn in composition.

Assume that this bitter principle in dose of eight grains given in divided dose is antiperiodic and is useful in intermittent fever. Assume that when a hot infusion of the herb is taken in large quantities, it is diaphoretic in action; also that it possesses some action as an hepatic and urinary stimulant. Assume that when large doses of the active principle are used, it may produce nausea, intestinal pains and diarrhea. Assume, further, that it is described in the American Dispensatory as follows:

"A cold infusion is a tonic, a warm infusion diaphoretic and emmenagogue, and if strong, emetic. Used as a tonic in loss of appetite, dyspepsia and intermittent diseases. Valuable, also in the forming stage of febrile and inflammatory affections. Colds may be broken up with it and it acts well in menstrual suppression from cold. Dose of the powder from 10 to 60 grains."

Also that it is described in the Dispensatory of the United States of America, 19th Edition, as follows:

"Water and alcohol its virtues. The infusion with cold water is a grateful bitter; the decoction is nauseous and offensive to the stomach. The active constituents are a volatile oil and a bitter principle. This bitter principle is crystalizable, inodorous, very bitter, neutral, scarcely soluble in cold water, more soluble in boiling water and soluble in all proportions in alcohol. Its formula is C 42-16, and it is analogous to salicyn in composition.

"Assume that in a dose of five grains it is said to cause vomiting, while eight grains given in divided dose is useful in intermittent fever. In cold infusion, this drug is tonic; when taken in hot infusion in large quantities it is diaphoretic; in larger quantities emetic."

That ends that quotation. It is also described in the National Dispensatory, as follows:

"A simple bitter. It is also said to be hepatic and a urinary stimulant. It may be employed in dyspepsia, especially when the hepatic form exists and like other bitters, it has been successful in the treatment of mild malarial infection. Overdose of its active principle sometimes produces nausea, vomiting, intestinal pain and diarrhea."

It is also described in Lloyd's Specific Medicine, as follows:

"Tonic, stomachic, diaphoretic and emmenagogue. A valuable remedy in colds; in forming stages of febrile and inflammatory diseases, in suppressed menses from cold, and in a debilitated state of the stomach."

It is also described in the Edinborough New Dispensatory, 4th edition, 1796, as follows:

"The nauseous decoction is sometimes used to provoke vomiting and a strong infusion to promote the operation of other emetics. But this elegant bitter, when freed from the offensive parts of the herb may be advantageously applied for other purposes. We have frequently experienced excellent effects from a like infusion, in loss of appetite, where the stomach was injured by irregularities. A stronger infusion made in cold or warm water, if drank freely and the patient kept warm, occasions a plentiful sweat and promotes all the secretions in general."

It is also described in Potter's Materia Medica, 1912 edition, as follows:

"It contains an amorphous bitter principle, which has been used as an antiperiodic in doses of from five to ten grains, but generally produces burning sensations and pharyngeal constriction, with nausea, vomiting, colic and diarrhea. It acts chiefly as a bitter tonic, resembling calumba and taraxacum most closely."

It is also described in Schumacher's Materia Medica of 1906, as follows:

"It is a bitter tonic used in Germany in digestive weakness and tonic hepatic complaints; its active principle has been used in intermittent fever in five to ten grain doses, but in this quantity it is apt to cause nausea, vomiting and diarrhea."

Q.—Doctor, I want you to have in mind the two medicines which I have described. I want you to assume that they possess the properties, which I have mentioned, whether you think they possess those properties or not, and I want you also to assume that they are taken in combination and in such proportions, that their best action will be obtained. I want you to assume further that these medicines are in a liquid solution which contains 20 per cent. of alcohol, the dose of this solution being a tablespoonful taken by the mouth, three or four times a day, so that each dose will contain 48 drops or minims of pure alcohol. Now, I desire you to carry this hypothetical question in mind while I base a number of questions upon it in reference to this preparation. Have you in mind the combination and ingredients now, do you think, doctor, that I have described? *A.*—Yes, sir.

Q.—From the description I have given you, are you able to form an opinion in regard to the physiological action, and the therapeutic value of such a medicinal solution? *A.*—Yes, I think so.

Q.—Doctor, are you acquainted with the disease known as gonorrhea in women? *A.*—Yes.

Q.—What sort of a disease is this, and what is it due to? *A.*—Gonorrhea is an inflammation, a specific inflammation we call it because it is due to a specific micro-organism, a germ that has been isolated and described and is known by a specific name, the gonococcus of Neisser. This germ infects the tissues of the body in certain parts and sets up by its irritating action, an inflammation and that inflammation is known as gonorrheal inflammation.

Q.—Doctor, have you an opinion as to whether such a medicine, taken by the mouth for gonorrhea in woman, will act upon the course of the disease and is therefore not a mere palliative, but a scientific and specific remedy with a curative effect upon the seat of the trouble.

Mr. Hough:—That is objected to for two reasons. In the first place, the doctor is not qualified to answer the hypothetical question propounded by Judge Scofield. On the contrary he has stated facts from which it is apparent that he cannot answer that question as he says he has never tried that medicine, and knows nothing about it. In the second place the question is based upon a construction of a passage in the Home Treatment Book, which is not a proper construction to be given to that passage. Therefore the question is objected to for those two reasons. The passage referred to is under the heading of vaginitis and does not treat of gonorrhea in any way.

THE COURT:—He may answer.

To which ruling of the court the plaintiffs, etc., excepted.

A.—The question is, have I an opinion?

Mr. T. J. Scofield: Q.—Have you an opinion whether such a medicine as has been described— *A.*—Yes, I follow it now.

Q.—Taken by the mouth—all right. *A.*—My opinion is that such a medicine, taken by the mouth, is not a scientific treatment for the cure of gonorrhea in women. That it is not a palliative, which means a soothing relieving remedy, in any sense. That it would be the very opposite. That it would be harmful and hurtful to the patient who suffered from such a disease, on account of the irritating effects of the alcohol which it contains. The effect of alcohol in any form is known to have a very disastrous effect upon gonorrhea in whatever form, or whatever location it occurs. On the assumption given to me in the question of certain physiological actions of the two drugs, that are used, there is nothing in those actions (assuming them to be true) that would have any effect upon the destruction of the gonococcus, which is the essential cause of gonorrhea and therefore could not cure such a disease.

Mr. T. J. Scofield: Q.—What is necessary in order to destroy the germ; what kind of treatment? *A.*—The only treatment that will destroy the gonococcus, or essential germ of gonorrhea, is the direct application to the parts involved of a germicide that has the power of killing that particular germ when that can be reached in the early stages of this disease, before the germ itself and the inflammation which it causes has extended far up into the urethral tract, into the neck of the bladder. And it burrows down into the follicles in the mucous membrane, and when the disease advances to that stage it is difficult by local treatment or any treatment to actually apply your germicide to the gonococcus and destroy it. But it can be used successfully in the early stages of the disease, and there are many remedies as germicides that are known, which will destroy it. That is the scientific way to cure this inflammation that depends upon that specific germ.

Q.—What, in your opinion, would be the effect of giving three or four doses of such a preparation, containing 48 drops of pure alcohol per dose, taken internally by a patient who is suffering from a condition which is induced by gonorrhea? *A.*—The effect of a medicine containing that much alcohol, three or four times a day, would be to act as a marked irritation to the inflammation resulting from this germ. In different stages of the disease it acts differently. In the early stages, where the inflammation is acute, any medicine containing alcohol, even in minute doses, adds to and aggravates the acuteness of the inflammation. In the subacute stages, where the burning sensation and the heat and pain upon urination, and so on, is somewhat modified, the use of alcohol will rouse that subacute stage into an acute, burning stage again. And in cases of chronic condition, or even cases where the characteristic discharge of this disease is practically subsiding, the patient thinks she or he, as the case may be, is well, a few doses of alcohol in any form, such as you would get in a small glass of beer, or any solution containing alcohol, will immediately rouse up this latent condition into an acute form, and the

discharge will reappear, positively demonstrating that alcohol is contra-indicated, and should be avoided in all stages of gonorrhea.

THE COURT:—We will take a few minutes' recess now.

Mr. T. J. Scofield: *Q.*—Doctor, you have stated that you are familiar with the organs of the female pelvis. I have here certain charts which I wish you would examine, and state whether or not they correctly represent either the normal condition of the organs of the female pelvis, or misplacements of the same? *A.*—One of the charts represents practically a normal condition, that is the chart to the left.

Mr. Hough:—Pardon me, I suggest you mark those charts A, B, C, D and E, or 1, 2, 3, 4 and 5, and we can refer to them by number.

Mr. T. J. Scofield:—We will. We will mark them A, B, C, D and E.

THE COURT:—Beginning from the left.

(The charts referred to were marked respectively, A, B, C, D, and E.)

Mr. T. J. Scofield: *Q.*—You refer to which one of those charts in your answer? *A.*—Chart A.

Q.—What does the chart marked "B" represent? *A.*—Chart B represents an anteflexion of the uterus.

Q.—What does Chart C represent? *A.*—Chart C represents a retroflexion of the uterus.

Q.—What does Chart D represent? *A.*—Chart D represents a prolapse of the uterus.

Q.—And Chart E? *A.*—Represents retroversion of the uterus.

Mr. Hough:—Did he say what Chart A represented?

Mr. T. J. Scofield:—Yes, normal condition of the uterus. If the Court please, we offer these charts respectively as Defendants' Exhibits A, B, C, D and E of April 7, 1916.

The charts mentioned above, being respectively Defendants' Exhibits A, B, C, D and E, were received in evidence.

Mr. T. J. Scofield: *Q.*—Doctor, are you acquainted with the condition known as prolapsus or falling of the womb? *A.*—Yes, sir.

Q.—Will you tell the jury what prolapsus, or falling of the womb, is, and what causes it? *A.*—Prolapse of the womb simply means that the womb has fallen down out of its natural position, as shown in Chart A.

Q.—Before passing on, will you describe what the natural position is, and call the attention of the jury to any distinctive features that are apparent in such a state? *A.*—Well, the natural position of the uterus is high up, as indicated in Chart A. Its position from before backwards, is pointing somewhat upward. It is usually described in this way, that if a straight line is run through the canal, the uterine canal, that it would pass out of the human body at a point about at the navel. That chart shows that it would come out slightly lower than that, but that is only an approximation. It depends upon whether the bladder is entirely empty, or a quarter full, or half full.

THE COURT:—Doctor, you have described to the jury the contents of the pelvic cavity. Supposing you point out on the normal chart, Chart A, the location of the various organs so that the jury will know which is which.

A.—Yes, sir.

Mr. T. J. Scofield:—I was just about to call his attention to that.

Q.—Doctor, will you indicate, for instance, where the bladder is located at? Now, doctor, will you please indicate where the bladder is, on Chart A.

(The doctor stepped down from the witness chair, and indicated on the charts with a pointer.)

A.—This is the bladder, on Chart A, that presents that peculiar triangular shape. This is the canal leading from the bladder, which is called the urethral canal, leading to the outside. This is the pubic bone that I spoke of, in the front part of the pelvic bony basin. This is the wall of the bladder.

Q.—Now, you say the wall of the bladder. What is that? Does that divide the bladder from anything, and if so, what? *A.*—Why, yes, the wall of the bladder, which is represented by this pinkish looking line, not only represents the bladder wall, but the cellular tissue which covers the bladder wall. That is, the bladder wall is not so thick as it would appear to be in this, because there is fatty tissue in between the bladder wall and the abdominal wall here in front. There is fatty tissue. There is also cellular tissue in behind the bladder wall proper. When you come to this point where those tissues appear to unite, that forms what is known as the vesico-uterine ligament, that is the small fold of peritoneum which is represented by this dark line. It comes down behind, along the bladder, and then is reflected back and up over the womb, down along over the womb behind, and then reflected back up on to the bowel. And this organ that lies forward is the uterus or womb. As I say, the position is shown a little more forward than the average in a normal individual. The average would point about, as I stated, to the navel. But that position varies in a normal, healthy woman. When the bladder becomes a little more distended by urine coming into it through the ureters from the kidney, the uterus will be raised up so that it will assume a position in that shape (indicating), and there is a certain normal range of motion in this organ, depending on the fullness or emptiness of the bladder, and to some lesser extent upon whether the bowel is distended or not.

This passage here is called the vagina, which leads from the outer world up to and exposing at its upper end the neck of the womb, which protrudes down into the vagina. This structure here is immediately behind the vagina, and in front of the rectum; (this is the rectum here) this is a muscular structure which is known as the perineum, or the perineal body, and forms the floor of the pelvis and the support for the uterus or bladder, and the front wall of the bowel, filling up the space between the lower end of the bony spine here and the pubic bone in front, so that that structure which is made of several muscles, is represented here as being larger than natural, but is about an inch and a half in length from the posterior opening of the vagina to the rectum.

Q.—Doctor, will you tell us what the dark color that surrounds the uterus, and above the uterus, represents? *A.*—Well, this represents simply the inside of the abdominal cavity. The small intestines would be here, passing down in behind, both in front and behind. They will show just that dark color that represents the inside of the bowel, though the bowels are not shown, excepting the descending colon here is shown, which ends in the rectum.

Q.—Doctor, before leaving this position, I call your attention to Chart D, and ask you what it represents? *A.*—Chart D represents a uterine prolapse, a falling of the womb in the third degree.

Q.—Calling your attention again to Chart D, and the condition of prolapse which it represents, will you tell the jury what are the causes which lead to such a condition, if there are more than one cause? *A.*—There are a number of causes which may act separately, or may act conjointly. Very frequently more than one cause acts in producing a result of this kind. In a general way the causes of uterine prolapse may be described as follows: First, an increase in the weight of the organ or womb itself, making it heavier. Second, an interference with the supports of the womb from below, the perineal body that I pointed out a moment ago, which is sometimes torn in childbirth; a laceration of the outer part, it is commonly known as, or a lacerâtion of the perineum. Sometimes that is so extensive as to go right back into the bowel, or nearly into the bowel, and tear through the muscles. That, if not repaired, either following the confinement or at the same time, later removes the support of these pelvic organs, and especially the womb, from below. That is the second cause.

The third cause is unnatural or undue pressure from above, that is as a result of heavy lifting and straining, and tight lacing, and a straining at constipation, and women who do hard muscular work, constant pressing down on this organ, even if it is normal in size, but especially so if it is enlarged, or there is a partial tear from below, where a combination of two or three causes will tend to do that.

Another very common cause is abnormal growths in the uterus. You get tumors growing in the uterus, like fibroid tumors, uterine polypi, growths on the inside, cancer of the uterus that increase its weight, and also by its direct pressure cause it to fall down. Those are four common causes which result in falling of the womb.

Q.—Are there any conditions which you think of that are associated with prolapsus, or may be? *A.*—There are other conditions that are always present in a uterine prolapse that has developed to anything like the extent that is indicated on Chart D. Where the uterus comes down so that any part of it is in the external world, if it is only the neck of the womb, whereas in that case fully half of the organ is outside, then on account of its connections, both in front and behind, through the two pairs of ligaments that I mentioned, the vesico-uterine ligament in front, and the recto-uterine ligament behind, as soon as the uterus comes down to straighten those ligaments out, it draws these parts that the other end of the ligament is attached to behind and in front, and it draws the bladder down with it. It draws the rectum down with it, as is shown in this Chart D. This is the bladder that is distorted into that peculiar shape, and the posterior wall of the bladder is drawn down to that point (indicating) instead of being in the normal position.

Q.—Where you say "drawn down to that point," can you describe it? *A.*—A point that will correspond to the level of the external world. Which is frequently the case in this so-called cystocele, which means a prolapse of the bladder, that this part of the bladder has to be pressed up into the vagina before the bladder can be emptied, on account of its having been drawn down by these ligaments that are attached from the front of the womb to the back wall of the bladder, pulling it down out of shape. The same thing is represented by this same Chart D, on the bowel wall. Instead of the bowel wall being practically in a normal curve, as shown in the normal figure, Chart A, down in that shape through the rectum, the front wall of the bowel is drawn down as indicated here (indicating Chart D) to the outside, on account of the posterior ligament pulling the front wall of the rectum down and out with the womb.

Those two positions, known technically as cystocele (falling of the bladder) and rectocele (falling down and protrusion of the rectum) always accompany a complete prolapse of the uterus, as shown in the Chart D.

Q.—Doctor, does a complete prolapsus of the womb bear any relation to, or does it partake of the nature of a hernia or rupture? *A.*—Yes, it partakes of it in a number of senses. A rupture is simply the protrusion of an organ in the abdomen, or in any other cavity of the body out of the cavity through some unnatural opening. Now, the womb in a rupture, if it is in the abdominal or pelvic cavity, always carries with it this peritoneal covering. A prolapse of the womb that is complete—that one is not quite complete, but nearly complete (indicating Chart D).

Mr. Loesch:—Chart D.

The Witness: (Continuing)—Is a rupture of the womb down through the vagina.

Mr. T. J. Scofield:—You are referring to Chart D? *A.*—Chart D. And it is exactly, in all respects, like a rupture. There has been a gradual development of the lengthening of this peritoneum, a gradual growth of the ligaments or guy-ropes which hold the womb in its natural position until they have lengthened to such an extent that the womb is actually in a condition of rupture outside of the body, and that, of course, in reference to the causes of the increased weight, when the uterus gets down low in that shape, the circulation through the

uterus is so markedly interfered with that it causes a damming back or water logged condition of the organ, and increase of its weight, and a greater drawing upon these already elongated and overstretched and thinned ligaments.

Mr. T. J. Scofield:—I would like, if the Court please, to have the doctor here illustrate what he means about the effect upon the circulation and the damming back, with chalk and blackboard, if I may be permitted to do so. We have sent for another blackboard. If we may put it on an easel it will take only a few minutes to make the explanation.

Q.—While they are arranging that, doctor, will you tell the jury the difference between arteries, so far as their construction is concerned, and the veins in the uterus and in the pelvic cavity? *A.*—The difference between the artery and the vein is that the artery which carries blood from the heart to the different parts of the body contains more of the elastic muscular fiber, this same unstriped muscular fiber that I described before, whereas the wall of the vein contains comparatively little of that elastic fiber. The difference in their structure is shown by the fact that when you cut across an artery it stays right open like a quill, whereas, if you cut across a vein it collapses, it has no resiliency in its wall like an artery that will stand wide open, and that has a great deal to do with a number of things connected with the circulation, not only in the pelvis but the different parts of the body. The blood pressure within the arteries, as a whole, is to a large extent determined by that one fact, that the elasticity of all the vessels, of all the tubes that carry the blood helps the blood pressure, that is what really makes the pressure.

Mr. T. J. Scofield:—We have this easel and blackboard here now, your Honor.

Mr. Hough:—I submit that while this is all very interesting, I don't see that it is very material. Some explanation may be needed by the jury to understand the subsequent testimony of the doctor, but I don't see that we need to go into a lecture on physiology or anatomy.

Mr. T. J. Scofield:—I assure your Honor that I think the expert—

The Court:—I can see the importance of it, and I would hesitate to express my opinion in the presence of the jury.

Mr. T. J. Scofield:—Yes.

Q.—Doctor, if you will explain what you mean.

The Court:—Now, what is the question, Mr. Scofield?

Mr. T. J. Scofield:—The doctor had said, in speaking of prolapse, and different membranes and ligaments being drawn down, that it interfered with the circulation in those parts of the body. I asked him if he could describe that so as to make it perfectly plain, by any illustration he might make upon the blackboard, and in that connection I had asked him to describe the difference between arteries and veins, which he had just done.

(The witness, Dr. Leeming, drew an illustration in chalk on the blackboard.)

The Witness: A.—This red figure represents the uterus, or womb, itself. This was intended for white, but it got discolored, but it represents the broad ligament which falls over the womb from behind forward, and is extended out in the shape of a fold to the bony pelvic wall, covering it over, as I illustrated before, in that form.

These structures represent the arteries and veins; the red represents here the ovarian artery that passes in at the top. The green (which should be blue, of course) represents the veins which carry the blood back to the large vessels, and up. The same below, with the uterine artery. This broad ligament (indicating) carries those vessels in its walls.

Now, where the uterus is down in a condition of prolapse, as shown on Chart D, the position of this broad ligament, with its arteries and veins and small capillaries, instead of being straight out from the pelvic wall to the uterus itself, is drawn down in that shape, to permit the uterus to descend and project into the external world. This drawn down ligament contains, as I stated before, these vessels within it. On account of the difference in structure between the walls of the arteries and the walls of the veins, this downward pressure squeezes the contents between its folds, but not enough to compress the arteries, but quite enough to compress the veins, just in the same way as, if you tie a string, or a handkerchief around your hand it won't interfere with the blood passing into your fingers, but it will interfere quite largely with the return flow, and it will make your hand blue, like a tight garter will, or anything of that sort, because of the fact that the venous wall is compressible.

So that when the uterus is in a condition of complete prolapse the veins are compressed; the arteries are not sufficiently compressed to keep the blood from getting into the part, but that dammed back condition of venous blood, due to the compression of the vein, makes the whole organ increase in weight, and heavy, and adds to one of the immediate causes that originally brings on the prolapse.

Mr. T. J. Scofield:—That is sufficient, Doctor.

(The witness resumed the stand.)

Mr. T. J. Scofield: Q.—Doctor, what is an inflammatory adhesion? *A.*—An inflammatory adhesion is the result of organized exudate that is thrown out following inflammation. In an inflammation in any of the inside organs nature throws out what is technically known as an exudate, serum of the blood, and that becomes organized, and after it organizes it contracts and forms bands that attach one organ to another. We term those bands inflammatory adhesions. They are not always bands. Sometimes they are quite thick structures, but when they occur in that way, as a result of the organization of the exudate that is thrown out after an inflammation, we get adhesions of one organ with another, or with parts of the same organ, like the bowels becoming adherent to each other on account of an inflammation.

Q.—Will you tell me, Doctor, whether or not a prolapse, such as is indicated on Chart D, is ever complicated in any way with inflammatory adhesions, or accompanied? *A.*—Yes, sir, it is.

Q.—Well, when it is so accompanied, will you describe the effect upon the prolapse, and the condition that exists there? *A.*—Well, the effect is this, that where you have an uncomplicated prolapse of that kind without any adhesions, it can be handled and treated just the same as the other forms of rupture. A rupture that comes down and out can easily be put back into position, and very frequently they go back into position if the individual lies down. The rupture will go right back into place, and as soon as they get up again it will come down and out, unless properly supported.

But if it is complicated by inflammatory adhesions it is impossible to change its position. It gets down into that position, and the adhesions grow around it, around the top of the womb, and hold it in its unnatural position so that it is impossible to replace it, even under an anesthetic, because it is held in its position by these inflammatory adhesions.

Q.—Doctor, how is the condition of prolapse treated? I do not confine you now in answer to that question to the picture as shown on Chart D, but the prolapse generally. And I wish you would explain the manner in which conditions of that kind must be treated or are treated.

The Court:—I think the answer to that question will take us quite a little beyond the adjournment, so we will suspend until 2 o'clock.

A recess was here taken until 2 o'clock p. m. of the same day, April 7, 1916.

April 7, 1916, Afternoon

The Court met pursuant to adjournment. Dr. John Leeming resumed the stand and further testified as follows:

DIRECT EXAMINATION (RESUMED) BY MR. T. J. SCOFIELD

The Court:—Read the question, Mr. Reporter, that was put to Dr. Leeming before adjournment.

(Question read as follows: "*Q.*—Doctor, how is the condition of prolapse treated? I do not confine you now in answer to that question to the picture as shown on Chart D, but the prolapse generally; and I wish you would explain the manner in which conditions of that kind must be treated, or are treated.")

The Witness:—The treatment of prolapse of the womb consists of determining the underlying cause of the prolapse and removing or undoing that cause. For instance, if the prolapse is due to an enlarged, heavy uterus, the result of a tumor that is growing in its wall, a removal of that tumor is correct treatment.

If it is due to a tearing of the supports from below of the perineum, which enlarges the opening and permits the organ to come down and out, there are two methods of treatment. One is temporary palliative treatment, which consists of putting the uterus back into its natural position, if it is not bound down by adhesions, and using some mechanical device for holding it in position; such an instrument as this I hold in my hand, as a pessary (exhibiting pessary to jury). The uterus is put back into position, and this pessary is passed up into the vagina, and the uterus is supported by that pessary which gets its support from the vaginal wall, and holds it in position. That method is not used so much as formerly.

Another method is to use some sterilized lamb's wool, properly medicated, to relieve the erosion and congestion around the neck of the womb which the rubbing of the prolapse has brought about, and thereby supporting or holding it up. That form of treatment is purely palliative.

Where these parts have been torn the only way of permanently relieving a prolapse that is due to that cause is to freshen the edges of the tear and stitch them together and rebuild the perineal body, the perineum, which is the muscular structure which has been torn, the uterus being put up and its parts restored to their normal position, that holds the womb up in place.

That is, in a general way, an illustration of the method depending upon the underlying cause which has permitted the prolapse to come down, and undoing and removing and curing that cause, thereby curing the prolapse.

Mr. T. J. Scofield: Q.—Doctor, will you state the progress towards prolapse of the uterus. Is it a thing that is rapid, or is it a thing which is slow? *A.*—Prolapse of the uterus almost invariably develops gradually and very insidiously. If the weight is increased from any cause, as after confinement the uterus does not contract down from its two-pound enlargement to the two ounces or two or three ounces, but remains too big, it begins to contract upon these guy ropes which hold it.

If the floor is partially destroyed, that helps to make it pull more on these ligaments. These ligaments will not stretch to any very great extent; but, by the constant drawing on them they gradually elongate and grow longer to permit the organ to gradually get down and down lower in the pelvic strait, until a condition of first degree prolapse. This here illustrates nearly a third degree. A second degree of prolapse is where the neck of the womb comes down just to the outside world.

A first degree of prolapse is where it is down say an inch below its normal position, which should be between three and four inches above the external opening.

Q.—In the early tendency towards prolapse, and after it has commenced to prolapse, the uterus, is it possible to arrest it in any way? *A.*—The earlier the proper treatment is applied to the given case, to the particular conditions, in the way of supportive treatment, the

progress of the — the development of the prolapse is thereby prevented. If any of these methods that I have used, outside of surgical measures, mechanical support is used, the tendency for the increase in the degree of prolapse is thereby avoided, by that proper, suitable treatment.

Q.—Well, suppose that you had not used any mechanical means of that kind, but you had relied upon medicines, such as I have described in the hypothetical question, what then would be the effect? *A.*—By relying upon the medicine you have asked me to assume, which has absolutely no effect in preventing the development of prolapse or curing a prolapse that has gone, even to a slight degree—by relying upon such a solution, you permit the causes which were operating to bring about the prolapse and still act to increase the prolapse, to go on at work until the uterus gradually descends lower and lower in the canal.

Q.—Now, Doctor, bearing in mind the hypothetical question—you have that in mind, I suppose? *A.*—Yes, sir.

Q.—Without repeating it here, I will ask you whether or not you have an opinion on this question, if this medicine is taken three times a day, until about three days before the menstrual period, when four doses a day should be taken until stoppage of flow, and that in addition to that, appropriate laxatives are used, together with antiseptic douches, sitz baths, etc., whether or not this medicine will cure that prolapse? *A.*—Such a medicine, in my opinion, so used, will have absolutely no effect in curing a prolapse.

Q.—Bearing in mind the hypothetical question, I will ask you whether or not you have an opinion as to whether or not such a medicine as I have described in the hypothetical question will cure falling of the womb in all its forms? *A.*—Well, such a medicine so taken will not cure falling of the womb in all of its forms.

THE COURT:—Will it in any of its forms? In your opinion?

The Witness:—In my opinion, it will not cure falling of the womb in any form, or in any degree.

Mr. T. J. Scofield: *Q.*—Now, bearing in mind the various hypotheses that were included in the hypothetical question, I call your attention to the following language: "Falling of the womb, whites, and falling of the womb are frequent companion diseases. Both are cured by the use of this medicine and suitable laxative treatments." I ask you whether or not you have any opinion as to the accuracy and the truthfulness of this statement? *A.*—Yes; I have.

Q.—What is that opinion? *A.*—My opinion is that the statement is positively untrue.

Mr. Walker:—Judge Scofield, I presume when you asked that question you meant to embody in each question the hypothetical question; isn't that right?

Mr. T. J. Scofield:—Well, did I state that?

Mr. Walker:—No, you said bearing in mind the hypotheses—

Mr. T. J. Scofield: *Q.*—Well, I will ask you this question, Doctor: Aside from the hypothetical question, whether or not you have an opinion as to whether this medicine that I have referred to, or this solution that I referred to in the hypothetical question, together with laxative treatments, will cure falling of the womb, whites and falling of the womb when they are companion diseases; whether or not they will be cured? *A.*—If I understand you correctly, you mean assuming, as you asked me to in the hypothesis, that the two medicines contained in that solution possessed the virtues that you attributed to them?

Q.—Yes, sir. *A.*—Even under those circumstances, it will not cure falling of the womb in all of its forms or in any of its forms.

Q.—Doctor, is there a condition which you designate as anteversion, and anteflexion? *A.*—Yes, sir.

Q.—Are those conditions, or either of them, represented on either of these charts, or shown on either of these charts? *A.*—No. There is no anteversion shown on the chart, but an anteflexion is shown on chart No. 2.

THE COURT:—Chart B.

The Witness:—Oh, yes, Chart B; they are lettered. Chart B shows the anteflexion.

Mr. T. J. Scofield: *Q.*—Will you describe to the jury what that consists of? *A.*—Well, an anteversion of the womb means that the body is flexed or bent upon itself. If this instrument (illustrating with pessary) represents the womb in its normal shape and position, showing its body and its canal leading to it; and the organ is bent from that position forward to that position (indicating with pessary), we term that anteversion—that is, bent upon itself in a forward direction.

In contradistinction to an anteversion—you didn't ask me about the other, did you?

Q.—Go ahead with the anteflexion, as well. *A.*—In contradistinction to a tipping forward of the organ as a whole—that is, simply a version forward, whereas, this is a bending of the organ upon itself; and we call this second illustration an anteflexion, and the first one an anteversion; the difference being that in a version, the canal is not cut off by the displacement, whereas, in the second, or the anteflexion, the bending of it forward causes the walls of the womb at the point of the bend to impinge upon each other and cuts off the caliber of the canal and interferes with the inlet of anything from without, or the outlet of menstrual blood, or other form of secretion from within; so that a flexion and a bend causes an obstruction, whereas a version does not cause any obstruction in the canal.

Q.—Now, Doctor, bearing in mind the hypothetical question, which I gave you, and based thereon, I will ask you whether or not you have an opinion as to whether or not the medicine or the preparation therein described is indicated for either anteflexion or anteversion, when the condition is not caused by growth or tumor? *A.*—The medicine you have asked me to assume is not indicated for either of those conditions, and could have no effect whatever in changing those abnormal positions of the womb.

Q.—What do you mean — what is meant by the word "indicated"? *A.*—By "indicate" I mean that the condition calls for a certain form of medicine or a certain form of treatment. We would say that such a condition as described "indicated" a certain form of treatment, and that means that it calls for that kind of treatment—such treatment is "indicated" for a condition of that sort. It is a sort of medical term that we use in that connection and in that sense.

Q.—Will you tell the jury what treatment is indicated in that sense, for that condition, that is, anteflexion or anteversion? *A.*—The treatment that is indicated for the condition depends upon the underlying cause which produced the condition; first, a removal of that cause, whatever it may be; second, an actual replacement of that bend — an actual changing it from that position up to its normal position. (Indicating with pessary.) It will not stay in that new position, but, after it is straightened up, then we use some mechanical device, depending upon — using the same term again — the "indications"—depending upon the case we have in hand, as to whether a tampon, or any other uterine stem pessary that is sterilized, and put inside to hold it in position—whether a lamb's wool tampon or other, to hold it in position—various mechanical means for overcoming a mechanical and structural change, is the only form of treatment that will accomplish results in cases of that kind.

Q.—Have you an opinion, Doctor, whether or not such a medicine as I have described in the hypothetical question, and based on the hypothesis therein contained, will remove the cause which produces or leads to anteflexion or anteversion? *A.*—Yes, I have an opinion.

Q.—What is that opinion? *A.*—My opinion is that such a medicine, assuming all the qualities you attribute to it, will have no effect in changing those abnormal or unnatural positions of the womb.

Q.—Doctor, is there a condition of the womb that is designated as retroflexion and retroversion? *A.*—Yes, sir.

Q.—Is either of those conditions represented on the charts which are before you? *A.*—Yes, sir.

Q.—What chart represents the condition? *A.*—Retroflexion is represented on Chart C; retroversion is represented on Chart E, the one below.

THE COURT:—They are just the opposite of anteflexion and anteversion?

The Witness:—Yes; they are just the opposite, with one rather important difference, and that is that in a retrodisplacement, either a flexion or a version, there is much more room for backward displacement than there is for a forward displacement; and we get, as pretty well indicated on Chart C, and the retroversion there is where the top of the womb comes down lower than the neck of the womb; whereas, an anteflexion, it presses against the bladder, and there is less room, and you get, as a rule, less marked displacement in the forward displacements than in the backward displacements.

Mr. T. J. Scofield: *Q.*—Doctor, have you an opinion, based upon the hypothetical question which you have already answered, and assuming that the ingredients of that medicine possess the powers indicated in that question, whether or not such a medicine will remove the cause which produced the retroflexion or the retroversion? *A.*—Yes, I have an opinion.

Q.—What is that opinion? *A.*—My opinion is that it will not remove the cause which produced it, and will not affect the condition that is so produced.

Q.—Have you an opinion, under the same hypotheses, as to whether such a medicine is indicated for retroflexion or retroversion, in all of the ordinary cases, the same as for falling of the womb? *A.*—Yes, I have an opinion.

Q.—And what is that opinion? *A.*—It is not indicated in those cases and could be absolutely without effect in those cases, in the way of changing the abnormal position.

Q.—Assume that when by hard work the womb and other organs are injured or misplaced, is the medicine mentioned in the hypothetical question which I have already propounded to you a cure for such a condition — have you an opinion as to that? *A.*—Yes.

Q.—What is that opinion? *A.*—My opinion is that it is not a cure for such condition.

Q.—Doctor, I call your attention to the following quotation under the heading of "Displacement of the Womb" in the Ladies Birthday Almanac, 1907, page 31: "When a woman has displacement of the womb, forward, backward, up or down, the patient is in a very serious condition. This medicine acts upon the womb itself and helps to pull up, or otherwise replace the displaced womb." And I ask you, based upon the hypothetical question which I have put to you and which you have answered, have you an opinion as to whether or not the language which I have read to you is justified, and whether the medicine will do what that language says it will do? *A.*—I think that in part of that statement it is true. There are certain forms of displacement as indicated there where a woman is in a very serious condition; but the latter part of the statement that the hypothetical medicine you have described will have any effect in changing those unnatural positions, in my opinion, is absolutely untrue.

Q.—Have you an opinion as to whether or not, under the hypotheses submitted, that this medicine will pull up the womb? *A.*—Yes.

Q.—What is that opinion? *A.*—My opinion is that it will not.

Q.—Doctor, in the various forms of misplacements, concerning which you have testified, tell the jury whether or not there is any regularity about the character of the misplacement and the position which the uterus assumes; that is, will it descend necessarily in a direct line, or may it fall on the right or left as it descends; or what variations are possible in the misplacement of the womb? *A.*—These different forms of misplacements that have been described, two forward displacements

and two backward displacements, are frequently not found as described and as illustrated by these charts, but there are combinations of two different forms of displacements in one. Perhaps the most common one is a backward displacement, together with a lateral displacement.

Q.—And by lateral you mean a— *A.*—That is, if this instrument (indicating with pessary), a pessary, is pointing forward; this is the front of the body, and this would constitute a retroflexion. We frequently have a retroflexion combined with a lateral bend; so that if in pointing now in that direction (indicating), instead of being straight back, it is partly back and partly bent over to one side, that is a retroflexion with a latter deviation to the left; and, with such deviation you will frequently have that displacement bound down by inflammatory adhesions which hold the uterus in that unnatural position. So that in that position the round ligaments which go toward the front—the left round ligament is somewhat relaxed, while the right round ligament is overstretched to practically twice its length, on account of the deviation to one side, in addition to the backward deviation.

Q.—In such cases of misplacement, what is the first essential thing, in order to cure the condition? *A.*—The first essential thing is to restore the displacement to its natural position—the uterus which is so displaced to its natural position.

Q.—How is that done, Doctor? *A.*—Well, that is done by mechanical measures. First, in the case I have illustrated, where it is bound down by adhesions, these adhesions must be broken up. There are different ways of accomplishing that. Sometimes it can be done by long continued soft elastic pressure.

The use of lamb's wool is very valuable in many such cases, because it is very different from absorbent cotton which was formerly used. Absorbent cotton becomes matted and has no spring to it. As soon as it is wet, it is practically solid; but lamb's wool, which will not absorb the moisture, may be packed in behind that sort of a displacement, and continue to exert its lifting pressure, and by that sort of massage treatment favors the absorption of the inflammatory exudate that has produced the adhesions, and, in time, will absorb those adhesions; so that a displacement may be gotten from that position (indicating with pessary), partly up into position.

Larger and more firmly applied lamb's wool is used, until in time the whole uterus, instead of being bound down by these adhesions, becomes somewhat movable, where a pessary can be applied to continue and keep up the work which the lamb's wool has done. That is one method, but there are a variety of methods.

When you get the adhesions broken up or destroyed, then there is an operation to shorten the two round ligaments, if it is a simple retroflexion, or, if it is a retroflexion and a deviation to one side, to shorten up the elongated single ligament to hold the uterus forward in its position—depending upon just the particular kind of retroflexion you have to deal with.

Q.—Doctor, have you an opinion as to whether or not such medicine as is described in the hypothetical question, as applied to a condition of a lateral displacement of the womb backward and lateral, or forward and lateral, would shorten one of the ligaments and lengthen the other at the same time, so as to permit the womb to resume its natural position in the median line? *A.*—That is on the assumption that the medicine might have an effect in shortening one round ligament, even on that assumption—

Q.—No. I say will this medicine that I have described shorten one round ligament and lengthen the other; have you an opinion as to whether it will or not? *A.*—Yes; I have an opinion.

Q.—What is that opinion? *A.*—I have an opinion that it will not shorten one or lengthen the other, or have any effect in the way of shortening or lengthening either one of them.

Q.—Have you an opinion, based upon the hypothetical question which I have asked you, as to whether or not the medicine therein described will break up the adhesions that bind a falling womb down, when those adhesions exist? *A.*—Yes.

Q.—What is that opinion? *A.*—My opinion is that it will not break up the adhesions or tend to remove or absorb the adhesions in any way.

Q.—You have spoken, at different times in your testimony, of mechanical means. As applied to these conditions, what do you mean by "mechanical means"? *A.*—Well, I mean measures that are—I don't know any better word that that to use—mechanical in their form; like a truss that is applied to an ordinary rupture, for instance; that is a mechanical measure for keeping the rupture, after being replaced—to keep it in place. The use of a pessary is a mechanical measure. The use of tampons is mechanical.

I used the term "mechanical" in contradistinction to medicinal, or any other form of measure.

Q.—You also use it, do you not, in contradistinction to any surgical operation— *A.*—Yes.

Q.—which may be necessary? *A.*—Yes.

Q.—Doctor, what is sterility? *A.*—Sterility is a term that is used to imply the inability of an individual to bear children—bear a child.

Q.—Do you agree, Doctor, with the statement that sterility and one of the common causes of sterility is displacement of the womb? *A.*—Yes. It is one of the causes.

Q.—If it be true that one of the causes of sterility is the displacement of the womb, based upon the hypothetical question which I have already propounded to you, have you an opinion as to whether that cause of sterility can be removed by the medicine described in the hypothetical question? *A.*—Yes, I have an opinion.

Q.—What is that opinion? *A.*—My opinion is that if the sterility is due to a flexion or bend of the womb which cuts off the caliber of the canal and mechanically interferes with the male seed coming in contact with the female ovum, that the medicine which you have described will have no effect whatever in curing that form of sterility.

Q.—What are other forms of sterility, if you know, Doctor, or causes which lead to sterility? *A.*—Well, there are a lot of causes for sterility. There are other forms of mechanical sterility, in addition to this one, that is, the flexion which cuts off the canal. There is a form of sterility that is due to what is technically known as stenosis, or a narrowing or closure of the canal that leads up into the womb.

Sometimes the outside opening, where the stem of the pear goes in is so small and pinhead in size that it prevents the male seed from passing in. That is another mechanical cause of sterility.

Sometimes that contraction is present at the inner neck—not the inner neck, but at what is called the internal os, at the neck of the womb, which is about an inch long, longer than the external opening and internal opening, to get into the body of the womb—and this contraction is occasionally found outside, and is sometimes found at the inner end of the neck of the womb.

Wherever there is any closure or obstruction to the passage of the seed up into the womb, it, of course, constitutes a cause of sterility.

On the other hand, in the uterus, where the fallopian tubes pass off to either side, as the results of inflammation in these tubes, that will affect the ovaries. An inflammation in a tube which is lined on the inside with mucous membrane, causes this mucous surface to swell and thicken, and as it thickens around the inside of a tube, it tends to close the tube; just like in the eustachian tube, where catarrh in the back of the head closes that tube, it produces deafness, because the air cannot pass in and out.

Where you have that closure, it interferes with the female ovum passing down into the body of the uterus, and consequently it cannot come in contact with the male seed. That is another mechanical cause of sterility.

There are numerous causes. The fact of a diseased condition of the ovary itself, which interferes with the proper exfoliation of the ripened ovum, an undeveloped ovary, an infantile ovary, which fails to develop at the period of puberty, is another cause; and a number of general diseases that are characterized largely by an anemic weakened condition of the patient. Perhaps a few common illustrations of that would be marked malaria with anemia, the early stages of tuberculosis or consumption, where anemia occurs; and in cases of the so-called hookworm disease; in pellagra; in syphilis; and in a number of constitutional diseases; in some of the poison troubles, like lead poisoning, etc.

In these cases the function of the ovary is so interfered with that it will not throw off a normal ripened ovum that could be impregnated.

Those are some of the causes of sterility.

Q.—Doctor, have you an opinion as to whether the medicine I have described in the hypothetical question, in addition to the use of the knee-chest position, will in time in most cases result in the cure of sterility? *A.*—Yes.

Q.—What is that opinion? *A.*—My opinion is it will not.

Q.—Do you know a form of womb trouble known as inversion? *A.*—Yes, sir.

Q.—Tell the jury what that is. *A.*—Inversion of the womb means where the womb is turned inside out. Instead of the fundus or top of the womb being up at the top—if you can conceive of taking hold of the inside of the womb and pulling it right down and out through its own neck, inverting it, just as you do the finger of a glove, when you take your glove off—you just pull the thing right out through the opening.

That is termed inversion. It occurs in the womb very rarely, but sometimes after confinement, where the afterbirth is extracted by pulling on the cord, before it is properly loosened by the womb contractions as it normally is—a person will take hold of the cord and pull on it, and sometimes it pulls the womb right down inside out.

We term that "inversion" of the womb.

Q.—In the treatment of that rare condition, Doctor, take the hypothetical medicine which has already been described in the hypothetical question which I have submitted to you and you have answered. I will ask you whether or not the taking of that medicine three times a day before the menstrual period, and during the period four times a day until stoppage of the flow, in addition to which laxatives are given and sitz baths taken and antiseptic douches used; I want to ask you whether or not you have an opinion as to whether such form of treatment will be effective in curing the condition of inversion of the womb? *A.*—Yes, I have an opinion.

Q.—What is that opinion? *A.*—That such treatment would be absolutely impotent to have any effect on an inversion of the womb.

Q.—What is inflammation of the womb, or fallopian tubes? *A.*—Well, inflammation is a condition which results from some infectious matter that gets into and upon the mucous surface which lines the womb; and, as a result of this irritation, it causes swelling and redness and heat and pain and fever.

Inflammation of these parts is practically the same as inflammation in every other part, so far as its pathology is concerned, but it acts differently in these pelvic organs on account of their being closed and inside of the body, than from what it does on the outside where the products of inflammation can freely escape.

So that inflammation is—the first step is a congestion, too much blood in these parts; and then the bacteria or micro-organism which produces the inflammation, bearing in character and intensity of action, determines the acuteness or the severity of the inflammatory process or its course and duration.

An illustration of that would be the gonococcus germ that I referred to. That is a virulent form of infection that produces that specific inflammation. But in all inflammations there is some micro-organism that invades these mucous surfaces, some comparatively mild that produce what is commonly known as simple catarrh, and others that are virulent, even to the extent of the gonococcus being virulent; so that the course of an inflammation in this closed organ, and its extent, the distance that it will travel up and the extent to which it will involve

the higher organs of the pelvic tract, depends, to a large extent, upon the virulency of the inflammation and upon how it is treated, with a view of permitting these parts to get rid of the products of inflammation. Where the uterus is perfectly straight and the so-called drainage is good, so that the discharge can get away easily, it has a much less tendency to extend higher up, because the drainage is perfect; but if it seals up the neck of the womb, so that the inflammation is above the inner neck, then the products of the inflammation, which is usually pus, or an increased amount of mucus, muco-pus, is locked up, and it tends to spread up into the tubes producing an inflammation in the parts higher up, and sometimes passes out through the tubes and gets into the pelvic cavity, causing what is known as pelvic peritonitis, an inflammation of the peritoneum which forms the lining of the pelvic organs.

Q.—Now what kind of a disease is such an inflammation, is it a germ disease or not? *A.*—Yes, it is a germ disease, but the germ varies in different cases. There are some of them that are comparatively mild in their action, just the same as the difference between the ordinary germ that we get in colds and the germ that we get in la grippe, which is more severe than the simple germ that we get in colds.

Q.—How is the germ introduced into the uterus? From the outside, or does it have its origin from the inside? *A.*—It is introduced almost invariably from the outside. It passes into the lower pelvic canal and works its way from that up, in through the vagina to the neck of the womb. It then invades the mucous surface which lines the neck of the womb, producing the characteristic and common discharge that is so frequently met with and known popularly among women, as "the whites," and technically as leukorrhea. It gets in in that way from the outside.

There are rare instances where the extension of inflammation from above downward, is known. That is where an appendix may have become diseased from the infection from the bowel, and an extension of that inflammation from the appendix spreads down to the ovary and tube. That is a very rare, but a possible situation.

Q.—Where the inflammation is in the womb and is extended to the fallopian tube, in what way does it get from the womb into the fallopian tube? *A.*—It gets to the fallopian tube by a direct continuation of the mucous surface which lines the womb and the tube. That is, the inside of the womb is lined by a mucous membrane, and the tube enters right into it, one on each side, so that the mucous surface is continuous with the womb itself and with the lining of the tube, so that the inflammation extends, if it extends up into the uterus, it is simply the progress of continuation along this mucous surface, it travels directly along that mucous surface and eventually into the tube.

Q.—Now, when the inflammation has passed from the uterus into the fallopian tube, what disease is thereby produced? *A.*—It is what is commonly termed inflammation of the fallopian tube, and what is technically known as salpingitis and where the inflammation forms pus that is locked up there it produces what is commonly known as pyosalpingitis, which simply means in plain English a pus tumor in the fallopian tube.

Q.—Now, assume, Doctor, a case of pyosalpingitis that has developed in the way which you have described, have you an opinion, based upon the hypothetical question which I have propounded to you, whether or not the medicine which was described in the hypothetical question, is taken three times a day, in addition to diet and baths and injections, and so forth, will in most cases restore the patient to health? *A.*—Yes, I have an opinion.

Q.—What is that opinion? *A.*—My opinion is that that statement is absolutely untrue and that it will not restore the patient to health in any case of pyosalpingitis.

Q.—What is an ovarian abscess? *A.*—It is simply one of the terminal stages of inflammation that has affected the covering of the ovary. That is, the terminal stage of inflammation—which I think I did not explain—means or implies that there are various stages. The inflammation may gradually subside if the germ is not persistent and virulent enough to keep it up, or it may terminate by the part breaking down and forming pus which, in these closed cavities, is locked up. Pus always travels in the direction of least resistance, following a fundamental law, and as there is no place for it to get out, it causes the covering of the ovary to swell and produces what is known as an ovarian abscess, just the same as in the tube it produces pyosalpingitis which is an abscess in the tube.

Q.—Doctor, I will ask you whether or not you have an opinion as to whether or not in the case of a large ovarian abscess, the hypothetical medicine, which I have already described to you, will cure the conditions? *A.*—Yes.

Q.—What is your opinion? *A.*—My opinion is that it will not.

Q.—What is menorrhagia? *A.*—Menorrhagia is excessive menstrual flow at the menstrual period.

Q.—Doctor, I will ask you whether or not it is true that menorrhagia may be a symptom of a large variety of abnormal conditions in the pelvic organs of a woman? *A.*—Yes, sir; that is true.

Q.—Have you an opinion, Doctor, as to whether or not the medicine which I have described in the hypothetical question, is a proper scientific treatment in all such cases? *A.*—Yes, I have an opinion.

Q.—What is the opinion? *A.*—My opinion is that it is not a scientific and proper treatment in all such cases.

Q.—What is amenorrhea? *A.*—Amenorrhea is a suppression, an absence rather, of the menstrual flow.

Q.—What are some of the causes which may produce amenorrhea? *A.*—Well, a large number of the causes that are mentioned before, under the head of sterility will cause amenorrhea. Those constitutional diseases which I spoke of, and which produce anemia, that is, a poor, watery condition of the blood, so that the individual has not enough red blood to afford this loss. In these cases you frequently get primary amenorrhea, and primary amenorrhea means that where the patient reaches the age when the menstrual flow should occur, it does not come on; whereas, secondary amenorrhea means the condition where the patient has had her menstrual flow and then, on account of some intervening cause, it stops. These are some of the constitutional causes which produce amenorrhea.

There are local causes which produce it in a way of obstructions to the outflow, such as the imperforate hymen or the closing up of the canal; or an undeveloped ovary, where there is no flow as the result of an undeveloped organ, which in that case is the real, underlying cause of the menstrual function, that is, to say, the ovary is. These are the general local and constitutional causes of amenorrhea.

Q.—Doctor, based upon the hypothetical question which you have answered, have you an opinion as to whether or not that hypothetical medicine will cure the causes which produce amenorrhea? *A.*—Yes.

Q.—What is that opinion. *A.*—My opinion is that it will not.

Q.—Doctor, returning for a moment to the subject of menorrhagia, I neglected to ask you what conditions will produce or cause menorrhagia? *A.*—There are so many conditions that will produce it! This is the excessive flow of the monthly period. Any of the displacements mentioned in Charts B, C, D and E, will cause menorrhagia. Any of the combinations of displacements will cause it. Any of the inflammations from the cervix up through the inside of the uterus, in the tubes, in the ovaries, in the pelvic cellular tissues will cause menorrhagia.

Then there are causes in the way of foreign growths that are very, very common as the cause of menorrhagia. In the first place we have a growth on the inside of the uterus that is known as polypi, little soft grape-like bodies that grow from the mucous surface, the diseased mucous surface and hang down into the organ, sometimes large enough so that, when a speculum is used in the cervix and neck of the womb or in the vagina, and the cervix or neck is exposed, one of these polypi will be seen coming right out of the neck of the womb, though it is attached on the inside at the top.

They bleed very freely and sometimes a regular little bunch of grapes, so to speak, like that is on the inside of the womb. That is a very common cause of menorrhagia.

Another, perhaps still more common cause is the development in the body of the womb, in the muscle itself, of a fibroid tumor or fibroid tumors, little tumorous growths, muscular growths, sometimes small and sometimes bigger than the womb itself; sometimes of enormous size, will grow in this muscle, and where such a condition exists the individuals almost invariably have menorrhagia.

The blood vessels supplying the womb are so enlarged under those conditions that, when the menstrual period occurs, with the existence of these morbid growths, the bleeding is often so very excessive that it has to be mechanically stopped.

Another common cause is the development of cancer at the neck of the womb. In the case of any of these morbid growths, or conditions, cancerous growths in the womb, diseased conditions of the mucous membrane, as well as quite a number of constitutional diseases, menorrhagia is produced.

Q.—Doctor, what is the history of cancer, such as you have described? Is it rapid or slow in progressing? *A.*—It is rather slow at first, and, as it develops it becomes more rapid and is, as a rule, fatal in 18 months.

Q.—In 18 months after— *A.*—After its original development, so that it cannot be eradicated. That is, cancer in any part of the body has a life history of approximately 18 months.

Q.—In the early stages of cancer of the womb, can it be cured? *A.*—It can be cured if it can be removed before it has invaded the surrounding parts. That is to say, cancer travels not by the blood vessels but by the lymphatics, the lymph channels which lead to the glands adjoining the parts.

Now, if cancer, by early examination can be discovered in the neck of the womb, where there has been a laceration say, with scar tissue formation, a laceration at a confinement and some scar tissue formation—it is a suitable field for the development of carcinous growth. The neck of the womb is a common site for cancer to develop in woman. If the examination reveals that condition to exist, a piece of it is taken out and put under the microscope, and if it is discovered to be carcinous or cancer, complete extirpation of that neck of the womb, or, if necessary, if it has gone a little further, the whole uterus itself, before it has sent out what used to be called—and what is still good for the illustration—before it has sent out its roots, the invasion along these lymph channels, if it can be removed before that time, the disease can be cured.

But, if it goes on until it has invaded the lymphatic vessels and the neighboring glands it cannot be removed unless those glands and those vessels can be completely removed, which is often, especially in the pelvic region, impossible. Sometimes it can be done by a process of dissecting all the way down the arm, for instance, and taking the whole chain of glands, it can thus be completely removed even after it has gone further. But, in the uterus, unless it is done early, it cannot be successfully eradicated.

Q.—If I understand you then, delay is dangerous in connection with such a cancer? *A.*—Yes, sir; very dangerous.

Q.—Doctor, bearing in mind the various causes which you assigned as producing menorrhagia, and bearing in mind the hypothetical question which I have submitted to you, and which you have answered, will you tell us whether or not such a medicine, given three or four times a day, will cure the causes which produce menorrhagia? *A.*—Yes. In my opinion it will not cure the causes which produce it.

Q.—Referring to the question of cancer of the uterus, and its treatment, can the cancerous condition be determined or discovered in any other way than by examination? *A.*—No.

Q.—What are the manifestations which suggest such an examination to the physician?

Mr. Hough:—That is objected to if your Honor please. I think he has gone far enough into that.

The Court:—I do not think that is necessary.

To which ruling of the Court the defendants, etc., excepted.

Mr. T. J. Scofield: *Q.*—In what time, in a woman's life is she most liable to have cancer of the uterus?

Mr. Hough:—I object to that also.

The Court:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

A.—At about the age of the menopause or change of life.

Mr. T. J. Scofield:—Is it a frequent or infrequent thing at the menopause for cancer to develop? *A.*—It is a frequent thing.

Q.—I will ask you, Doctor, whether or not the disease known as hookworm, or the germs of malaria produce any functional derangements with relation to the menstrual function, and if so, what? *A.*—They produce amenorrhea, or scanty menstruation as a result of the profound anemia or poor quality of blood which those two diseases almost invariably bring about.

Q.—To correct that condition, what is the first thing necessary to be done? *A.*—The first thing to do is to cure the underlying cause of the anemia, upon which the menstrual disturbance depends.

Q.—What is the underlying cause? *A.*—That is to cure the malaria, or to cure the hookworm disease, which is producing the anemia.

Q.—Have you an opinion, based upon the hypothetical question which I submitted to you, and the medicine therein described, whether or not that medicine taken in any dosage, will kill the germs of malaria? *A.*—Yes, I have.

Q.—What is your opinion? *A.*—My opinion is that it will not.

Q.—Have you an opinion as to whether or not it will cure the germs of hookworm? *A.*—Yes.

Q.—What is your opinion? *A.*—My opinion is that it will not.

Q.—Doctor, what is dysmenorrhea? *A.*—Painful menstruation.

Q.—What is the cause of dysmenorrhea, or causes? *A.*—The causes are almost innumerable. They may be mechanical displacement, morbid growths, inflammation in any of the parts, constitutional conditions—a great variety of causes produce dysmenorrhea.

Q.—Have you an opinion whether or not the medicine mentioned in the hypothetical question will cure the causes which produce dysmenorrhea? *A.*—Yes.

Q.—What is that opinion? *A.*—My opinion is that they will not cure any of the causes that are either mechanical in the way of deformed or displaced conditions of the uterus; they will not cure any of the causes that are due to morbid growths; will not cure any of the causes that are due to the constitutional diseases that have been mentioned, and will not cure any causes other than the simple form of dysmenorrhea that might come as a result of a person getting her feet wet or taking some cold, causing a little temporary congestion of the uterus where a hot drink of any kind would have the effect of temporarily relieving it until Nature had naturally restored itself on account of its own recuperative power.

Q.—What is metrorrhagia? *A.*—It is the same thing as menorrhagia only it occurs not only at the menstrual period, but in between the periods. That is metrorrhagia means an excessive flow from the womb regardless of the menstrual period when it is so bad that it goes on for two or three or four weeks sometimes, so that the woman can hardly tell when her normal period is present.

Q.—What are the causes of metrorrhagia? *A.*—The same set of causes that I mentioned in reference to menorrhagia.

Q.—Referring to the hypothetical question again, I will ask you whether or not the hypothetical medicine taken three or four times a day, will cure the causes of metrorrhagia? *A.*—No, in my opinion it will not.

Q.—Doctor, what is meant by the term "puberty"? *A.*—Puberty is that period of a young girl's life when she is developing into womanhood, in this climate occurring at about 14 years of age, and it is the period at which her first monthly sickness shows and with that comes certain changes in the way of increased development of the reproductive organs, the breasts and so on, that develop and become more enlarged at that period and we call that period, "the period of puberty."

Q.—Doctor, will you tell us whether or not that is a natural, normal, physiological process? *A.*—Yes, sir; it is.

Q.—Referring to the hypothetical question, and the hypothetical medicine again, I will ask you to state whether or not you have an opinion as to whether every girl should take such a medicine as described in that question, at the time of puberty. *A.*—My opinion—

Mr. Loesch:—Have you an opinion?

Mr. T. J. Scofield: *Q.*—I say, have you an opinion? *A.*—Yes, I have an opinion.

Q.—What is that opinion? *A.*—My opinion is that she should not take that kind of medicine at puberty.

Q.—Why not, doctor? *A.*—Because puberty is a normal, physiological process that requires and calls for no form of medication at all. Second, because at that impressionable age in a girl's life, to give her an alcoholic preparation, which contains 48 drops of pure alcohol three times a day, is very harmful and endangers the rousing up of possibly latent tendencies in the individual; it causes excitation of the patient and the female organs generally, at a time that is very dangerous to young girls. For a variety of reasons, on account of the alcoholic stimulent that it contains, it would be a very harmful and dangerous treatment to use.

Q.—Doctor, have you an opinion as to whether or not such a medicine as I have described, containing 48 drops of pure alcohol to each dose, should be taken by every girl at the time of puberty, and that such medicine can never do her anything but good? *A.*—Yes, I have an opinion.

Q.—What is that opinion? *A.*—The opinion is that the statement is absolutely untrue.

Q.—You have already described the possible effects, as I understand it, of such a course of treatment? *A.*—Yes.

Q.—Doctor, referring to marriage, I will ask you whether or not you have an opinion as to whether or not the following statement is true and correct:

"The menstrual functions and nervous system are, as a result, very generally deranged at the time of marriage." Have you an opinion whether or not that is true? *A.*—Yes.

Q.—What is that opinion? *A.*—My opinion is that it is not true.

Q.—Upon what do you base the opinion, Doctor? *A.*—Well, for the reason that marriage is just as natural and normal a function in a woman's life as the development of puberty or any other normal, natural period in her life. It was foreordained and it is natural that a woman should be married. There is nothing in it that will derange her organs, though the possibility that some intercurrent disease may occur (as at any other period) exists. But that it will generally, and in all cases cause a derangement of her nervous functions and menstrual functions is absolutely true in my opinion, based upon my knowledge and experience.

Q.—You say absolutely—

(Last part of preceding answer read.)

A.—Untrue I mean.

Q.—Doctor, have you an opinion, as to whether or not all newly married women should take such a medicine as I have described, at the time of their marriage? *A.*—Yes.

Q.—What is that opinion? *A.*—My opinion is that she should not.

Q.—Why? *A.*—Because she does not need it. There is nothing in newly married life that requires any form of medicine, and above all a medicine that is a stimulating solution at a time when certainly, above all other times, there is no stimulant called for or required.

Q.—What is pregnancy? *A.*—Pregnancy?

Q.—Yes. *A.*—Well, that is the condition following conception, or the union of the male and female germ.

Q.—That is a perfectly natural physiological condition, is it not, Doctor? *A.*—Yes.

Q.—Now, what is your opinion, or have you an opinion as to whether or not a pregnant woman should use such medicine as I have described to you in the hypothetical question, during the whole term of pregnancy, and whether it is a fact that such medicine can never do anything but good at such times? Have you an opinion? *A.*—I have an opinion, yes.

Q.—Will you please state what that opinion is? *A.*—Well, my opinion is that it is not a fact that such a medicine should be used all through pregnancy, and it is my opinion that it is positively untrue that it could never do her anything but good.

Q.—Why, Doctor, do you reach that conclusion? Why are you of that opinion? *A.*—Because there are a great many conditions that may develop during pregnancy in a healthy woman, and disturbances of the functions of some of the organs as a result of pregnancy, where the use of such a medicinal solution would be positively harmful and dangerous. Among conditions of that sort and as a result of the pressure of the enlarging uterus as it passes out of the true pelvis into the false pelvis and up into the abdomen, where the pressure exists on surrounding organs, it sometimes interferes with their functions. Notably, the pressure backward on the kidney or the kidneys will quite often interfere somewhat, with the functions of the kidneys and produce a transient albuminuria where certain rest and certain dietary treatment should be always indulged in, and in anticipation of that condition we, as a rule, as a regular routine practice, examine the urine every week to see that there is no such complication present.

If such a complication should be present, where milk diet is indicated and required, together with rest and so on, such a medicine as described would precipitate the convulsions, and the so-called puerperal convulsions of eclampsia, where the woman was so affected. That is one illustration of a half a dozen different things where a medicine of that kind would not only do no good, but would do positive harm and would be dangerous to the woman, as well as to her ingrowing and developing child.

Q.—Would there be any possible effect of the alcohol contained in the dosage, given three or four times a day, through pregnancy, upon the unborn child? *A.*—Yes.

Q.—What would it be. *A.*—There would be a possible danger, not always present, if there is any latent inherited tendency to alcohol as there is in certain individuals, the use during the period of pregnancy of alcohol daily, even in small doses, would tend to make that tendency more marked in this unborn child when it came into the world. It would have a harmful and pernicious effect, the use of such a medicine, even if the mother were perfectly normal all through. There would be a danger of possibly developing that latent tendency in such a child.

Q.—Doctor, calling your attention again to the hypothetical medicine that I have referred to, I will ask you whether or not you have an opinion as to whether the use of such a medicine throughout pregnancy would make childbirth easier? *A.*—Yes, I have an opinion.

Q.—What is that opinion? *A.*—It would not have a particle of effect in that direction.

Q.—Why would it not have any such effect? *A.*—Assuming all the virtues that you have attributed to the ingredients of this medicine, to their very best possible capacity, it could have no effect whatever in making childbirth easy.

Childbirth depends upon the relation and size of the child's head to the female pelvis through which it has to pass. Certain things must develop and must occur. The uterine contractions must dilate and expand the neck of the womb in the first stage. In the second stage, the uterine

contractions must press this child down so that its head becomes engaged in the true pelvis and the surrounding structures gradually dilate. These physiological conditions must necessarily occur. There is absolutely nothing in such a mixture that would have a tendency to mitigate or alter or affect in any way any of those natural processes which invariably must occur in every childbirth.

Q.—Doctor, I will ask you whether or not, during pregnancy there is any tendency toward what we call Bright's disease? *A.*—Yes, that is the condition that I referred to under the heading of albuminuria on account of the pressure.

Q.—What is the effect of alcohol, 48 drops of alcohol, taken three or four times a day through a considerable portion of the period of pregnancy, what is the tendency of that in connection with Bright's disease? *A.*—The tendency is to favor its development, if there is such a tendency present in the individual. The avoidance of alcohol in any form should always be observed by any one who has any tendency to even congestion or even inflammation of the kidneys, which is Bright's disease.

Q.—If the use of alcohol under such circumstances should tend to the development of Bright's disease, what would be the possible effect upon that pregnancy? *A.*—Do you mean in a pregnant woman, or in any individual?

Q.—Yes, a pregnant woman. *A.*—Of course, it would thereby prevent the kidney from eliminating from the body its own natural poisons, which would accumulate in the blood of that individual on account of the inflamed kidney and the irritation caused by that self-produced poison in the blood, would act upon the nerve centers to such an extent as at first to produce a headache, and then the somnolent condition, then the convulsive seizure with contraction of the uterus and the premature expulsion of probably a dead child. That is the way these convulsions occur unless that condition has been anticipated and prevented by the urine analysis and by the proper sort of treatment which I indicated before.

Q.—As I understand you, you say, without such precautions, there is in some instances, a tendency toward Bright's disease, in pregnancy? *A.*—Yes, sir.

Q.—When there is such a tendency, would this medicine which I have referred to in the hypothetical question, and now designate as "the hypothetical medicine," would that be a medicine which would tend to encourage and increase that condition, or to suppress it? *A.*—It would tend to encourage it, and increase it. It would be a positive poison in such a condition to administer any medicine containing alcohol.

Q.—Have you an opinion, doctor, as to whether or not such a medicine as I have described in the hypothetical question, would have any effect upon the mil'. supply of the mother, after her child had been born? *A.*—Well, I am not sure about that. It is a possibility that, if the milk supply was deficient, that a minute amount of alcohol might favor a greater supply—that is, certain malt liquors are sometimes used, and it might be of value. I really would not express an opinion as to whether it would be valuable or not. It might in certain cases, or it might not. It is on account of its alcoholic content; the other ingredients of course would not be indicated or called for.

Q.—If it had such an effect, to what effect would that be due? Would it be due—

THE COURT:—He has answered that. He says solely on account of the alcoholic content.

Mr. T. J. Scofield: Q.—Do you know what is meant by the term "change of life"? *A.*—Yes, sir.

Q.—What other names are applied to it? *A.*—Well, the menopause, or the climacteric periods.

Q.—About when does the change of life come in a woman's life? *A.*—It averages about 42 or 43 years, but may be two or three years early or two or three years or more later.

Q.—What is the duration of the time through which a woman passes before the menopause is complete? *A.*—Usually a number of years.

Q.—What is the menopause or change of life? *A.*—It is the time in a woman's life, when her sexual organs become inactive; where her menstrual flow ceases and where her child-bearing period is at an end.

Q.—Have you an opinion, Doctor, as to whether or not the hypothetical medicine that I have referred to, should be taken regularly on the first sign of the change of life, and its use continued throughout the whole period? *A.*—Yes.

Q.—What is that opinion? *A.*—My opinion is that it should not be used at that time, at any part of that period, and certainly should not be continued all through that period.

Q.—Why? *A.*—Because it contains the equivalent of 96 drops of whiskey, and each dose is an exhilarant that causes flushing of the face, and at that period, where a woman has regularly every month been relieved of a certain amount of blood, and that function ceases, one of the most common symptoms of the commencing of the change is a flushed condition of the face, a rush of blood to the head, a feeling of nervousness, a feeling of dizziness the very condition where the exhilarating and exciting effect of alcohol is positively contraindicated and where it should not be used. The very opposite medication, if any, is called for.

Q.—What have you to say as to whether or not the time of life this change is being produced makes women particularly or peculiarly liable to the formation of drug habits?

Mr. Hough:—That is objected to. I really do not see the point of that.

THE COURT:—State the specific kind, lead the witness if you want to. I don't recall anything in the pamphlet that advises the use of this, except during the period you have mentioned.

Mr. T. J. Scofield:—That is what I am speaking of, I am referring to the menopause.

THE COURT:—Well then, put that question specifically.

Mr. T. J. Scofield: Q.—Doctor, during the menopause, is there anything at that time, which would tend to produce within a woman a habit or tendency to a drug habit? *A.*—Yes.

Q.—Will you explain what you mean by that? *A.*—Well, I mean by that, that, at this period of life, where there is a change taking place in the circulation, and where almost invariably there is a set of nervous symptoms, a set of disturbing symptoms present, there usually develops in the individual a craving for something to counteract or disguise those symptoms. Drug forming habits are very apt to occur at that period; perhaps more at that period or during that condition in a woman's life, than at any other period, simply on account of this peculiar mental and nervous state that she is in owing to that change that is taking place in her circulation and its effect upon her nervous system.

Q.—Doctor, on page 38—

THE COURT:—In the term "habit" do you include the use of alcohol? *A.*—Yes, your Honor.

Mr. T. J. Scofield:—On page 38 of the Cardui Home Treatment Book, the following ambiguous language is used:

"Cancer is also greatly feared by many women. There is no doubt that the womb at this time is less able to withstand disease, and if the patient is affected, she is not unlikely to succumb to a local disease like cancer. But cancer is really a very rare disease, and other diseases under proper treatment with Cardui as a general tonic, will eventually disappear."

Have you an opinion, Doctor, whether or not the hypothetical medicine, such as I have described, will cause cancer to eventually disappear?

Mr. Hough:—That is objected to. The language clearly excludes cancer.

THE COURT:—I thought the language excluded that, Mr. Scofield—

Mr. Hough:—It clearly does.

THE COURT:—As you read it.

Mr. T. J. Scofield:—I do not think it does, if the Court please. I said in the question, "the ambiguous language."

Mr. Hough:—That don't make it ambiguous, your stating it.

Mr. T. J. Scofield:—No, I understand that it does not make it ambiguous, but it undertakes to lure a woman into a disregard of the possibilities.

Mr. Hough:—I object to this statement that counsel is making.

Mr. T. J. Scofield:—The possibilities of this cancer, by saying that it is a very rare condition.

THE COURT:—I will excuse the jury here for a few moments. Now read that statement again, Mr. Scofield, read that statement from the book.

Mr. T. J. Scofield:—(Reading) Cancer is also largely feared by many women. There is no doubt that the womb at this time—menopause—

THE COURT:—Is largely what? Feared?

Mr. T. J. Scofield:—Yes, feared. "Cancer is also largely feared by many women."

Mr. Hough:—Does it not say "greatly feared."

Mr. T. J. Scofield:—Not as I have it in my trial book here.

THE COURT:—That is immaterial.

Mr. Hough:—Go ahead.

Mr. T. J. Scofield:—Well, I will read it from the book. "Cancer is also greatly feared by many women. There is no doubt that the womb at this time is less able to withstand disease, and if a patient is affected she is not unlikely to succumb to a local disease like cancer. But cancer is really a very rare disease, and other diseases under proper treatment with Cardui as a general tonic will eventually disappear, so that after the change has occurred you will probably feel better than ever before."

THE COURT:—You may ask the witness whether cancer is a rare disease at that time, and if by the use of the hypothetical medicine the other diseases will disappear. It seems to me that is all that statement involves.

Mr. Walker:—He has already answered that to the effect that cancers were not rare at the menopause.

Mr. T. J. Scofield:—Well, my proposition is this: he has already said that, but, by the language which they use here, they undertake to say to the women, that the possibility of cancer is negligible, and they say to them, "Don't pay any attention to it. It is a rare thing."

THE COURT:—Well, this witness disagrees with that statement and has so told you.

Mr. T. J. Scofield:—I understand, but that is a part of the representations which they make in the literature, which they send out, and as a result of that sort of thing it is probably

true that many a woman has developed a cancerous condition that has led to her death

The Court:—That you can argue to the jury when the time comes. Now, I will excuse the lawyers for a few minutes.

(The immediately foregoing colloquy was had without the hearing of the jury, as indicated by the Court's remark, excusing the jury. At this point a recess of 10 minutes occurred, at the conclusion of which, and in the hearing of the jury, the following proceedings were had.)

Mr. T. J. Scofield: Q.—Doctor, I understand you to say that it is necessary to make a physical examination to accurately determine the character of the uterine displacement, is that right? A.—Yes, sir.

Q.—I wish you would assume that a woman is suffering from some form of uterine displacement, the exact character of which you do not know; that she complains a good deal of local irritation in the pelvis, with a feeling of weight and a bearing down sensation, with backache, and that these symptoms are more marked just before the menstrual period; she also suffers from a rather profuse leukorrheal discharge. In addition to this she has a number of general symptoms; she complains of being very nervous; she is easily tired out, does not sleep well at night, complains of a good deal of headache and pain in the back of the neck.

Without knowing the exact underlying condition which is producing these local and general symptoms, I would like to ask you whether such a medicinal solution as I have described to you in the hypothetical question, each dose containing 48 drops of pure alcohol, or the equivalent of 96 drops of whiskey, taken three or four times a day, would affect a case like this? A.—Yes, I think it would.

Q.—In what way will it affect it? A.—I think a medicine of that kind in such a condition would act as a sort of a bracer to a woman so affected. I think her sort of nervousness, as described in the hypothesis, under the influence of that much stimulant, three or four times a day, would be somewhat disguised. I think she would say she felt better under the influence of that kind of medicine, she felt braced up by it, and did not feel quite so nervous, and did not have quite so much backache while she was taking it. In that general way I think it would have the effect of bracing her up and disguising her symptoms, regardless of the underlying cause which produced it.

Q.—Doctor, I wish to ask you a hypothetical question in reference to a medicinal solution: Wine of Cardui. This solution is made from two herbs, which are derived from the vegetable kingdom. One of these ingredients (cnicus benedictus) is made from a weed or thistle, and that when used in the form of an infusion this substance has a bitter action upon the stomach. Also that it contains an amorphous bitter principle which in doses of eight grains is somewhat antiperiodic, that is, anti-malarial in action, and when an infusion of the whole herb is taken, hot and in large quantities, it is diuretic and diaphoretic in action, and also that it possesses some action as an hepatic stimulant. Assume also that when large doses of the bitter principle are taken internally it produces nausea, vomiting and intestinal irritation.

Assume that this medicine is described, and that the description is correct, as follows, in the National Standard Dispensatory:

"A simple bitter. It is also said to be an hepatic and urinary stimulant. It may be employed in atonic dyspepsia, especially if hepatic torpor exists, and like other bitters it has been successful in the treatment of mild malarial infections. Over-doses of its active principles sometimes produce nausea, vomiting, intestinal pain and diarrhea."

Assume that this drug is recommended in doses of from 20 to 60 grains, and in the medicinal solution I am asking you about consider it is used in doses of approximately thirty grains.

The other drug I want you to consider in this hypothesis is black haw or viburnum prunifolium, and regardless of your own personal experience with this drug, I wish you would assume for the purpose of this question that when taken in the ordinary and usual medicinal doses of from 30 to 60 grains it possesses a sedative action on the spinal nerve centers; that it lessens reflex excitability and irritability; that it acts as a sedative to the uterus and pelvic organs; that it is an antispasmodic, and that it possesses a bitter principle that is slightly tonic.

I wish you would assume further that in the solution that I am describing to you that each dose of this medicine contains extractives from three grains of this bark.

I wish you would assume further that the medicinal solution contains 20 per cent. of alcohol, and also assume it to be a fact that 20 per cent. of alcohol will not extract the characteristic principles of this bark.

Assume that the dose of this medicinal solution in one tablespoonful, and that it is to be administered three or four times a day.

Have you an opinion as to what physiological action this medicinal solution will exert when taken by the mouth into the stomach?

Mr. Hough:—One minute, if you have finished the question.

Mr. T. J. Scofield:—Yes.

Mr. Hough:—I object to the form of it. In the form of it it answers itself. He has assumed that there is nothing in there. It is not a proper question.

The Court:—You have told us a great many things that would happen.

Mr. T. J. Scofield:—Did the Court speak to me?

The Court:—I mean when you put the question, you were asking the witness to assume that it would have certain physiological effects.

Mr. T. J. Scofield:—No, I did not, your Honor.

The Court:—That was my impression.

Mr. Hough:—Well, more than that, your Honor—

Mr. T. J. Scofield:—No, I assume for the purpose of the question that cnicus benedictus is attributed to have certain effects.

The Court:—Yes.

Mr. T. J. Scofield:—That viburnum prunifolium (black haw) is assumed to have certain effects. Black haw in doses running from 30 to 60 grains; cnicus benedictus in certain doses. Then I take a medicinal preparation in which cnicus benedictus and viburnum prunifolium are used, and extract it in a certain way, limiting the dosage, the amount of viburnum prunifolium contained in each dose, not to from 30 to 60 grams, but to approximately 3 grains; cnicus benedictus not to 60 grains, but approximately 30 grains in 20 per cent. alcohol, and I ask him then the hypothetical question as to whether or not he has an opinion as to what the medicine would do under those circumstances, and of course alcohol in itself is a preparation which has more or less action, and is present in 20 per cent.

The Court:—Now what is your objection?

Mr. Hough:—There was another element to the question as propounded which Brother Scofield did not mention, and that was: You are to assume also that this does not contain any carduus benedictus or viburnum prunifolium, and I say that that question answers itself, and is an anomalous proposition. How can it be expected to exert any influence if he is to assume that there is nothing there?

Mr. T. J. Scofield:—Oh, there is no such assumption there.

The Court:—He submitted his missing link on his restatement of it.

Mr. T. J. Scofield:—There is no such assumption at all. There is this assumption in the case, that 20 per cent. of alcohol will not extract all the characteristic properties of viburnum prunifolium, but how much 20 per cent. of alcohol will extract I don't know.

Mr. Hough:—Well, you haven't shown that the witness knows that either.

Mr. T. J. Scofield:—I don't have to show that.

The Court:—He can answer that question by saying that he doesn't know.

Mr. T. J. Scofield:—I am asking him the question as to whether or not you will get the effects of either viburnum prunifolium or cnicus benedictus, if they have effect, from such a preparation?

The Court:—As I understand it, Mr. Scofield has taken these drugs separately and assumed that they had certain characteristics if given in certain doses. Then he combines them in a solution of 20 per cent. alcohol, and asks the witness what physiological effect a certain dose containing so much of the one and so much of the other would have on the—

Mr. Hough:—Now if he will ask that question I will not object to it. But that is not the question, as I understood it.

The Court:—That is what I understood it to be.

Mr. Hough:—Because he said: You must assume further that the carduus benedictus and the viburnum prunifolium are not in there.

Mr. T. J. Scofield:—No, I didn't say that.

Mr. Hough:—I will ask the stenographer to read that assumption. That is the effect of that statement, and of course the witness must say it would not have any effect.

Mr. T. J. Scofield:—Oh, well, I never said any such thing.

The Court:—That was not the way I understood the question.

Mr. Hough:—Well, that is the ground of my objection, and if it is not in there, I have no objection to the question. If the question is as your Honor understands it, I will withdraw the objection, but if the point that I make is in there, then I think my objection is good.

The Court:—Well, state to the witness then that that is not in the question, Mr. Scofield. Take it out, then we will be sure it is not there. But I do not recall that you asked the witness, after having emasculated both of these drugs, to tell what its effect was.

Mr. Hough:—That is exactly what he did.

Mr. T. J. Scofield:—If I made any such statement as that I am the worst surprised man you ever saw.

Mr. Hough:—If you will let me take the hypothetical question there I will mark it on there for you.

Mr. T. J. Scofield:—Now let me finish, or let me put another assumption there.

THE COURT:—Read the question as put, Mr. Reporter, and speak up so we will all hear.

Mr. T. J. Scofield:—Let me finish, or let me put another assumption there at the close.

THE COURT:—Are you going to supplement it?

Mr. T. J. Scofield:—Yes.

THE COURT:—Or ask another question?

Mr. T. J. Scofield:—No, just simply supplementing it.

THE COURT:—Well now, Mr. Reporter, read the question as put to the witness by Mr. Scofield.

(Question read as follows: "*Q.*—Doctor, I wish to ask you a hypothetical question in reference to a medicinal solution: Wine of Cardui. This solution is made from two herbs, which are derived from the vegetable kingdom. One of these ingredients (cnicus benedictus) is made from a weed or thistle, and that when used in the form of an infusion this substance has a bitter action upon the stomach. Also that it contains an amorphous, bitter principle, which in doses of eight grains is somewhat antiperiodic, that is, anti-malarial in action, and when an infusion of the whole herb is taken, hot and in large quantities, it is diuretic and diaphoretic in action, and also that it possesses some action as an hepatic stimulant. Assume also that when large doses of the bitter principle are taken internally it produces nausea, vomiting and intestinal irritation.

"Assume that this medicine is described, and that the description is correct, as follows, in the National Standard Dispensatory:

"'A simple bitter. It is also said to be an hepatic and urinary stimulant. It may be employed in atonic dyspepsia, especially if hepatic torpor exists, and like other bitters it has been successful in the treatment of mild malarial infections. Over-doses of its active principles sometimes produce nausea, vomiting, intestinal pain and diarrhea.'

"Assume that this drug is recommended in doses of from 20 to 60 grains, and in the medicinal solution I am asking you about, consider it is used in doses of approximately thirty grains.

"The other drug I want you to consider in this hypothesis is black haw, or viburnum prunifolium, and regardless of your own personal experience with this drug, I wish you would assume for the purpose of this question, that when taken in the ordinary and usual medicinal doses of from thirty to sixty grains it possesses a sedative action on the spinal nerve centers; that it lessens reflex excitability and irritability; that it acts as a sedative to the uterus and pelvic organs; that it is an antispasmodic, and that it possesses a bitter principle that is slightly tonic.

"I wish you would assume further that in the solution that I am describing to you that each dose of this medicine contains extractives from three grains of this bark.")

Mr. Hough:—There is the assumption that takes it out.

Mr. T. J. Scofield:—Just simply put in the word "all" there; "all the characteristic principles."

THE COURT:—It still would have to be changed.

Mr. T. J. Scofield:—What is that?

THE COURT:—It still would have to be changed. It makes no difference as far as this question is concerned, whether you say the 20 per cent. alcohol will not take the extractives out, or will not take all of them out.

Mr. Hough:—Not a bit.

Mr. T. J. Scofield:—Suppose, if the Court please, that that is the contention of the defendants in this case, and that it is based upon the evidence in this case, and that as a matter of fact, so far as the viburnum prunifolium is concerned, that the extractives from viburnum prunifolium are not contained, as a matter of fact, in this preparation, and the evidence for the defendants not only tends to show that fact, but shows it. There is then nothing left in the medicine excepting alcohol and cnicus benedictus, and if that is the preparation put upon the market, if you have followed, so far as this hypothetical question is concerned, the evidence as to the manner in which it is made, as to the amount of viburnum prunifolium that is used in the preparation of a dose of this medicine, and as to the manner in which it is extracted, then it may be absolutely true that the characteristic properties of viburnum prunifolium are not extracted and are not contained in this medicine, and that neither all nor any of them may be present, so far as that is concerned. Now that is the proposition.

Mr. Hough:—That still does not help the question, but I differ with Brother Scofield as to his interpretation of the evidence. His witnesses who testified upon that point testified hypothetically that if certain things were so, then certain extractives might not be in there, but they have not stated what extractives are not in there which are a part of black haw or carduus benedictus, so that there is no evidence that is positive evidence that the black haw and carduus benedictus which they say is in here is not in there in its medicinal strength.

But whether it is or not, this question is objectionable in the form in which they put it.

THE COURT:—I don't think there is any question about that.

Mr. T. J. Scofield:—This question is not objectionable, if the Court please, if it be based upon our theory of the case, and if supported by the testimony.

THE COURT:—But you have not done it, there is the difficulty.

Mr. T. J. Scofield:—Well, in what respect? I can't see in what respect.

THE COURT:—You have told this witness that so far as the viburnum prunifolium is concerned, that he may disregard it, in this question. You need not have mentioned it, because you tell him there is not in this solution enough of it to pay any attention to.

Mr. T. J. Scofield—I think that is absolutely true, and I think it is based upon the evidence in this case.

THE COURT:—Then why not eliminate it from the question? You are confusing the Court and the jury and this witness by putting something in there that need not be there.

Mr. T. J. Scofield:—The Court holds then that the witness cannot answer the question?

THE COURT:—I think that question is improper.

To which ruling of the Court the defendants, etc., excepted.

Mr. T. J. Scofield:—I wish to say, however, here, that, because it is unfair to make a statement of that kind, I think, in open court and in the presence of the jury, that it is not true that the only evidence which we have in this case to support the statement which I made is hypothetical evidence, as stated by Mr. Hough.

THE COURT:—Well, that would be a matter of argument when you go to the jury.

Mr. T. J. Scofield:—There is positive testimony on the proposition.

Mr. Hough:—That statement was drawn out by your statement, which was improper in the first place.

Mr. T. J. Scofield:—I am stating what the evidence in this case shows.

THE COURT:—Well, that would be a matter of argument to the jury.

Mr. Hough:—That would be argument.

Mr. Walker:—It being a divided opinion, your Honor, I guess there is no fraud either way.

THE COURT:—Is there anything further in direct examination here?

Mr. T. J. Scofield:—No, sir, there is nothing further here.

THE COURT:—You may cross-examine, Mr. Hough and Mr. Walker.

Mr. Hough:—I would like not to have an interruption in the cross-examination, and if counsel on the other side will put on some other witness tonight, and withdraw Dr. Leeming, we can go on with that other witness tonight and start in with the cross-examination at the next session.

THE COURT:—All right.

Mr. T. J. Scofield:—What is the proposition here?

Mr. Hough:—I said I would prefer not to go on this evening with the cross-examination of Dr. Leeming.

THE COURT:—He would have but twenty minutes for his cross-examination now, and then we would suspend until Monday morning. Perhaps you have some short witness you can put on this afternoon.

Mr. T. J. Scofield:—That is very agreeable to us, if the Court please, and we have one or two witnesses that I would like to dispatch this evining, if we can do it, short witnesses.

THE COURT:—Well, we will do the best we can to help you.

Mr. T. J. Scofield:—Very well. Be back Monday morning, Doctor.

THE COURT:—I noticed that one of the witnesses whom, by special dispensation we let go on the stand yesterday so he could get away has not gone home, but is here today, so I am not particularly interested in these witnesses that want to go home.

Mr. Walker:—That was Dr. Byrd.

THE COURT:—Yes.

Mr. T. J. Scofield:—I will say this to your Honor: I requested him to stay, after Court was over last night, because I thought I might want to use him again.

(Dr. Leeming was thereupon excused.)

TESTIMONY OF DR. C. W. CASTNER

Dr. C. W. Castner was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. WALDO

Dr. C. W. Castner testified that he lives in Terrell, Cochrane County, Texas, about 37 miles east of Dallas. He has been in practice for about eight years and is at present assistant superintendent of the North Texas State Hospital for the Insane. He has had experience with Wine of Cardui in the course of his professional treatment of patients.

Q.—In your own language, and in as short a manner as possible state to the Court and the jury what that experience was, confining yourself exclusively to what you know of your own knowledge? *A.*—I call to mind just now a lady about 27 years of age who, in 1912, lived near Rockwall, Texas. This lady consulted me, stating that she had a suppression of the menses, and as a part of the clinical history of her case I learned that about four years previous she had been suffering with menorrhagia, and that after this trouble had continued for two years she was operated upon for the trouble after she had failed to get relief from Wine of Cardui.

Q.—How long at that time had she been taking Wine of Cardui, if she told you? *A.*—About two years. After the operation she told me, as a part of the continuation of the clinical history, that she had been entirely relieved of the menorrhagia, and that her periods had been regularly established. Before she had had the operation she was practically bedfast all the time for a period of four or five months. After the operation, of course, she regained her health, and got up on her feet, so to speak, and in her enthusiasm to get back towards her household and other duties she did too much physical work, and about twelve months after the operation she had resumed the use of Wine of Cardui, she said, because she had remembered when she was taking it before she had this operation, that it had an exhilarating effect, and made her feel much better when she was tired and nervous, and she used it for that purpose solely.

At the time she consulted me for suppression of menses, after an examination to determine the causes I diagnosed the trouble as being from or superinduced by anemia due to an attack of malaria of about seven or eight months' duration, at which time off and on she had been having chills, as that is a condition involved in malaria, and she had continued taking Wine of Cardui during this time, and in increasing doses, and to my own certain knowledge on two occasions I saw the lady take Wine of Cardui from the bottle, just turn the bottle up and take it, and at one time at least a third of a bottle. And the suppression of menses came about while she was taking this remedy.

Q.—Do you know what caused the suppression of the menses? *A.*—Sir?

Q.—Do you know what caused, in that patient, the suppression? *A.*—Yes. My diagnosis was confirmed by giving an antimalarial treatment, and the reestablishment of the periods came about on her leaving off the Wine of Cardui.

Q.—Do you make that statement from your examination of the patient? *A.*—Yes, sir.

Q.—Now, if you know how much she took at a dose, will you state to the jury? *A.*—Well, I know by seeing her taking that much that she would take at one time at least a third of a bottle. At the other time I should judge that she had taken probably a fifth or a sixth of a bottle, and she told me that she frequently drank a half a bottle, because it made her feel better.

Mr. Walker:—I object to that statement and move it be stricken out.

THE COURT:—What was the matter that was objected to? Was this during the consultation, for medical purposes?

Mr. Walker:—No, he was telling what he had seen the witness do, and I don't object to that, but I do object to telling what he was saying in his last statement that—

THE COURT:—I heard that. He may tell what he saw the witness do, but he cannot tell what she was doing, except during the professional relation.

Mr. Walker:—That is right.

Mr. Waldo: *Q.*—Now eliminate anything that this patient told you, other than what she told you when she was giving you the history of her case. *A.*—Well, she made that statement when she was giving me the history of her case.

Q.—The statement that you have just referred to? *A.*—Yes, sir.

Q.—That she drank from a third of a bottle to a half of a bottle at the time? *A.*—Yes, sir.

Q.—What became of her? *A.*—Well, when I moved away from the community she was still living there. I am not living in that community now. She is probably still living there yet, around Rockwall, Texas.

Q.—Did she tell you what she was taking the Wine of Cardui for? *A.*—Well, she said just because she felt sort of tired and nervous; she commenced it for that, because she felt a little tired and nervous, and remembered that when she was taking it before the operation it would disperse this feeling, and make her feel better, and brace her up, and make her forget about being tired and overworked.

Q.—And you say you diagnosed her case as malaria? *A.*—Yes.

Mr. Walker:—Judge, I didn't make the objection at the beginning of this testimony, because I understand that it is preserved all the way through?

THE COURT:—Yes.

Mr. Waldo:—Dr. Castner, have you ever been connected with any institution for the treatment of alcoholics and dipsomaniacs? *A.*—Yes, sir, I have been connected with two.

Q.—In relation to your connection with institutions of that character, have you ever had any experience with Wine of Cardui? *A.*—I have.

Q.—And state to the jury what that experience was. *A.*—Well, I will state what specific cases I have had dealings with. In 1914 while medical director of a sanitarium in Dallas, Texas, specializing in treatment of drug and alcoholic addicts, a man came to us—

Q.—In connection with any institute? *A.*—Yes, sir.

Q.—What institute? *A.*—The Keeley Institute at that time.

Q.—Go ahead.

The Witness:—I will ask your Honor if I may hand the names of the patients in this institution to the attorneys.

THE COURT:—You may hand the names to the lawyers; you need not give them publicly.

The Witness:—This man came to us, and after questioning him I determined that he was what we classify as a periodic drinker, that is, four or five times each year he would get on a periodical spree and stay under the influence of alcohol anywhere from three to four weeks without ever getting out from under its influence. On this particular occasion when he came to us he had been on a cattle ranch in some of the Western Texas counties—I think he said forty miles from the nearest point where he could obtain liquor—and was on no railroad point at all, and stated to me facts and statements which were at that time—that night that he came in, about 9 o'clock—put down on a specially prepared blank for that purpose, of preserving records of his statements; that he had been on an exclusive Wine of Cardui drunk for three weeks, drinking not less than three bottles in any one day, and sometimes he got so drunk he didn't know how many he drank, and in that condition we talked the matter over, and I had taken his statements which were in the first blank of a four-page especially-prepared folder. We made a permanent record. And during the time we were talking—his brother came with him—during the time we were talking and deciding the matter, he asked his brother to hand him his grip. He said: "I think I have got one more full bottle, and inasmuch as I paid for it and brought it along, and it will be the last, why I might just as well drink it up."

Naturally his brother and I both remonstrated with him, but with little or no effect, and he just would have a drink. He said if he would take that last drink—if we would let him drink, drink that, take the last drink, why, he would be a good patient, and become our patient.

In this grip he had about a third of a bottle which he had been drinking out of, which he handed over to me. He had taken a new, unopened bottle out of its original carton, and I removed the cork for him, just more as a matter of wanting to see him drink than anything else—I didn't think he would drink very much—but he drank, I guess within five minutes, two-thirds of the bottle, and gave me the balance.

However, during the night, I judge about 2 o'clock, early morning, I was called to his room, and he said he would like to have another drink. I told him, well, I believed at this time I would give him a drink of whiskey. He said it didn't make any difference to him, if I would only give him a drink of cheap whiskey, he would take it just the same as any other. I told him I had some pretty good whiskey, and I gave him a drink of the Institution whiskey.

In the morning, after breakfast, when his brother, himself, and I were in the office consulting over the matter, for him to take the treatment, he had rather sobered up, and the matter had been driven into his mind just where he was, and he was rather reluctant to take the treatment. And down in the city at that time were other institutions claiming to give a cure in from three to five days, while ours was four weeks. And they were cheaper, too.

Mr. Walker:—I object to this talk, your Honor, I don't think all this talk should go in.

THE COURT:—I think we are getting away from—

Mr. Walker:—I let him go along, but I think I ought to object now.

THE COURT:—He has been rambling on, but nobody seemed to object.

Mr. Walker:—Well, I made the general objection, and I supposed it applied to all this, your Honor, and—

THE COURT:—The general objection does not hit the special objection that you should make.

Mr. Walker:—No, it doesn't hit the hearsay, but I thought he would get through some time, so I let him go.

The Witness:—Well, what I wish to say is that that was made a part of the record which would have been made a part of the permanent record had he stayed with us.

Mr. Walker:—I object.

THE COURT:—Yes, go on to another question.

Mr. Waldo: *Q.*—The circumstances which you have just recited, as I understand you, occurred in the Keeley institute at Dallas, Texas? *A.*—Yes, sir, 1914.

CROSS-EXAMINATION BY MR. WALKER

On cross-examination, the witness testified that his position in the North Texas Hospital for the Insane is a political one. He has held it since June, 1915. He received a letter concerning Wine of Cardui suit from Dr. Holman Taylor, Fort Worth, Texas, secretary of the Texas State Medical Society. He also received a letter from Dr. Heizer about the first of November, 1915. He met Dr. Heizer at the

Southern Medical Convention, in Dallas, Texas, November, 1915. He came to Chicago from Terrell, Texas, alone. He testified as to the term of his service with the White Sanitarium, Dallas, Texas, and with the Keeley Institution.

He testified regarding the patients mentioned, saying:

Q.—What was the name of the woman? *A.*—Mrs. S. I don't know her first name, or her husband's name.

Q.—Well, did you know her name at the time she visited you? *A.*—I probably did, but I don't remember it now.

Q.—Well, did you have records that showed her name, or books of your own? *A.*—I probably did get them. I don't know.

Q.—Did you have her in mind when you were talking to Heizer last November? *A.*—Yes, sir.

Q.—Well, why didn't you look up her name so we could get her? *A.*—I couldn't tell you. I don't know.

Q.—What? *A.*—I don't know.

Q.—Where did you say she lived, when you knew her in 1912? *A.*—Rockwall, Texas, about five miles north—Rockwall, Texas.

Q.—Now, when she came to see you she had already been operated on? *A.*—Yes, sir.

Q.—Did you perform any operation on her? *A.*—I did not.

Q.—You didn't take out any of her womb and test it in a solution of Wine of Cardui? *A.*—No, sir.

THE COURT:—He said he didn't operate on her at all, Mr. Walker.

Mr. Walker: *Q.*—Well, was her womb there when she came to you?

Mr. T. J. Scofield:—That is objected to. It doesn't make any difference whether it was or not.

Mr. Waldo:—That is improper. That reference is improper.

Mr. Walker:—What reference? Well, there is no pending question.

Q.—When you made the examination did she have a womb? *A.*—She did.

Q.—Did she have any of the other organs, ovaries, fallopian tubes? *A.*—So far as I could tell.

Q.—Well, could you tell from an examination that you made what the operation was? *A.*—I presume, from what she told me, and from what I found, that it was polypi of the uterus.

Q.—That would be internal? *A.*—Yes, sir.

Q.—And what was the complaint that she told you she had before she had the operation? *A.*—Menorrhagia.

Q.—Did she have amenorrhea at any time in her history at all, either before or after the operation? *A.*—No, sir; not only when she consulted me.

Q.—Then after the operation she took Wine of Cardui? *A.*—About a year after the operation.

Q.—What did she take it for then? Menorrhagia? *A.*—Just for the exhilarating effect.

Q.—She told you that she took it for the booze? *A.*—Yes, sir, in a manner.

Q.—Well, didn't you say that after the operation she had menorrhagia again? *A.*—No, sir, not that I remember. Her menses were established.

Q.—What did she come to you for? *A.*—For suppression of menses.

Q.—Oh, then she had suppression? *A.*—Yes, sir.

Q.—After the operation? *A.*—About a year and a half afterwards.

Q.—She had menorrhagia before? *A.*—Yes, sir.

Q.—And suppression afterwards? *A.*—About a year and a half after.

Q.—How long had she—did she say she had had suppression before she came to see you? How long did she say? *A.*—About five or six months.

Q.—Over what length of time did she come to see you? *A.*—Well, she always came to my office, she came about—

Q.—Well, over what length of time? *A.*—About four weeks continuously, that is, about twice a week, and then I saw her a couple of times after that, probably within two or three months.

Q.—Did you give her any treatment yourself? *A.*—Yes, sir, I gave her an antimalarial treatment, and tonic.

Q.—Oh, you treated her for malaria? *A.*—Yes, sir.

Q.—And she had amenorrhea at that time? *A.*—Yes, sir.

Q.—Now was there any retroflexion or retroversion at the time you examined her? *A.*—No, sir.

Q.—Her womb was in the normal condition? *A.*—Yes, sir.

Q.—No dysmenorrhea? *A.*—Sir?

Q.—No dysmenorrhea? She made no complaint of that? *A.*—No, no complaint of it.

Q.—How many times did you treat her? *A.*—Well, outside of prescribing the original treatment, and then seeing her about twice a week for three or four weeks, that consisted of the treatment.

Q.—Just the prescription? *A.*—Yes, sir.

Q.—And seeing her for three or four weeks? *A.*—Yes, sir, she would come to my office.

Q.—No necessity for making anything but the first examination? *A.*—I didn't deem it so.

Q.—When was it you treated this woman, what year? *A.*—1912, in the fall of the year.

Q.—1912? *A.*—Yes, sir.

Q.—Where were you then? *A.*—I was located at Lavon, Texas.

Q.—And where did she live? *A.*—She lived about four miles south of Lavon, about five miles north of Rockwall. Her post office was Rockwall.

Q.—R-o-c-k-w-a-l-d, is that the way you spell the last? *A.*—R-o-c-k-w-a-l-l.

Q.—Texas? *A.*—Yes, sir.

Q.—Do you know what her maiden name was? *A.*—I do not.

Q.—And you don't know, of course, whether she is there now or not? *A.*—No, sir, I left the community. I don't know.

Q.—Now, the man that you treated, that case with Wine of Cardui in his grip, and came with his brother? *A.*—Yes, sir.

Q.—You found out that he was a Texas ranchman? *A.*—Yes, sir.

Q.—Forty miles from whiskey? *A.*—That is what he said.

Q.—And he was a fellow that was in the habit—a periodical drunkard, is that right? *A.*—He so stated, yes, sir.

Q.—Well, one of the kind that goes and gets drunk intermittently, runs along without drinking at all for a number of months, or weeks, as the case may be, and then takes it all out at once? *A.*—Yes, sir.

Q.—Down to almost tremens, isn't that right? *A.*—Yes, sir.

Q.—That is the class? *A.*—Yes, sir.

Q.—They are one of the worst kind that you alcoholic professors have to treat, isn't that right? *A.*—Yes, sir.

Q.—And they are fellows that ultimately die, when they do die, of tremens? *A.*—They frequently die of tremens.

Q.—He belonged to that class that go into tremens? *A.*—Yes.

Q.—That was the type of booze fighter that he was, wasn't it? *A.*—Yes, sir.

Q.—What was his name? You are going to give us that name privately? *A.*—Yes, sir, I will give you the name.

Q.—And will you also be kind enough to give us the name of his brother? *A.*—Yes, sir.

Q.—And his residence? *A.*—Yes, sir, I will.

Q.—You have no objection, I take it now, to telling where either of them live? *A.*—They came from San Angelo, Texas, to Dallas. That is the only address they gave.

Q.—They gave you San Antonio? *A.*—San Angelo, Texas.

Q.—San Angelo, Texas? *A.*—Yes.

Q.—And what was the county in which they said their ranch was in Texas? *A.*—I don't remember.

Q.—They were forty miles from what town? *A.*—I believe they said San Angelo.

Q.—Did they give the name of the ranch? *A.*—If they did I don't remember.

Q.—What was the cure that you gave him, if you recall? *A.*—He didn't stay to take the treatment. He stayed over night.

Q.—Did you give him any treatment? *A.*—No, sir.

Q.—He stayed one night? *A.*—Yes, sir.

Q.—What percentage of alcohol is there in the whiskey that you use at that institution? *A.*—I don't remember. We used different brands.

Q.—Well, ordinarily how much alcohol is there? *A.*—How much?

Q.—Fifty per cent, isn't there? *A.*—Forty to fifty.

Q.—Fifty per cent., isn't there? *A.*—Forty to fifty, approximately.

Q.—Yes. You said, as I understand you, that you would give him some whiskey in the morning. Was it the next morning? *A.*—About 2 o'clock.

Q.—Two o'clock in the afternoon? *A.*—Two o'clock in the morning is when he called for drink.

Q.—Oh, he was sleepless, I suppose? *A.*—Yes, sir.

Q.—Like the ordinary dipso on the verge of delirium, is that right? *A.*—Yes, sir.

Q.—And at 2 o'clock in the morning in that condition he said he didn't care whether you gave him Cardui with 20 per cent. of alcohol, or whiskey with fifty per cent, is that right? *A.*—He said if we had cheap whiskey he would just as soon have one as the other.

Q.—Cheap whiskey, that means young whiskey, or less alcohol, as you understand it? *A.*—Well, it might be both.

Q.—That is, there would be more fusel oil in the cheap whiskey than there would be in the old, in the decent whiskey, the decent drink, isn't that right? *A.*—Yes.

Q.—He wanted "rotgut" and when he couldn't get that he would take Cardui, is that right? *A.*—Well, I can't say.

Q.—Mr. Witness, you understand the term I mean by "rotgut," don't you? *A.*—I think so.

Q.—And when he called for cheap whiskey you understand that he preferred rotgut whiskey, that kind, isn't that right? *A.*—Well, he said if we did have cheap whiskey.

Q.—If you did have cheap whiskey, or rotgut whiskey, is that right? *A.*—He would just as soon have the Cardui.

THE COURT:—He mentioned only cheap whiskey.

Mr. Loesch:—He never mentioned "rotgut."

Mr. Walker: *Q.*—Well, do you understand what is generally known as the common, ordinary barrel-house whiskey? *A.*—I think so.

Q.—What is the treatment down there? What do you give?

Mr. Scofield:—I object to that. That is a secret formula.

Mr. Walker:—I don't want that. I don't want the secret formula.

Q.—But did you give him whiskey?

THE COURT:—What is the difference what they give at this sanitarium? The man didn't stay there.

The Witness:—The man didn't stay there.

THE COURT:—It certainly is not cross-examination.

Mr. T. J. Scofield:—No.

Mr. Walker:—All right, that is all.

An adjournment was taken until Monday, April 10, 1916, at 10:30 a. m.

(To be continued)

Association News

THE ANNUAL SESSION

Announcement of Railroad Rates

The Committee on Transportation and Place of Session makes the following announcement concerning rates, time limits and stop-over privileges for railroad tickets to Detroit which have been offered by the various passenger associations for the coming annual session:

Central Passenger Association.—Two cents per mile in each direction, but in no case more than summer tourist fares. Signature form of tickets will be sold June 10, 11 and 12, final return limit to reach the original starting point not later than midnight, June 20. A joint tariff authorizing fares for the annual session of the Association from points in the Central Passenger Association territory is now being compiled.

Trunk Line Association.—Two cents per mile in each direction, going and returning via same route only; tickets to be sold and good, going, June 10-12, and returning, to reach the original starting point not later than June 20.

Southwestern Passenger Association.—Two cents per mile in each direction for round trip. These tickets will be on sale from June 1 to September 30, with return limit to October 31. The exact fares can be obtained on application to the local agent.

New England Passenger Association.—Two cents per mile in each direction, short line mileage, going and returning via the same route only and over which one-way tickets are regularly sold—one and one-half westbound differential to apply. Tickets to be sold and good going June 10-12 and returning to reach original starting point not later than midnight of June 20.

Western Passenger Association.—The lines members of the Western Passenger Association have individually announced that for the annual session of the American Medical Association, they will institute and participate in the following fares and arrangements: Double the current one-way I. C. C., basing fares from a selected number of points in Western Passenger Association territory to Chicago, Peoria or St. Louis, not to exceed authorized summer tourist selling fares to those points, added to the fares tendered therefrom, such fares to be announced later. From points in Illinois, also from Bellevue, Burlington, Clinton, Davenport, Dubuque and Keokuk, Iowa, and from Hannibal, Mo., and St. Louis, tickets to be sold June 10-12, inclusive, with final return limit to reach original starting point not later than midnight of June 20. From other points in Western Passenger Association territory, tickets to be sold June 9-11, inclusive, with final return limit to reach the original starting point not later than midnight of June 21, 1916. Tickets to be limited for going passage commencing date of sale and for a continuous passage in each direction. Tickets are to be validated by the agent of terminal line at Detroit.

Eastern Canadian Passenger Association.—The rate quoted is one-way ordinary first-class fare and one-third, plus 25 cents, for the round trip. Tickets may also be issued at Montreal to Detroit and return, rail to Detroit and return to Toronto or Kingston, thence steamer to Montreal, at a through fare of $22.50.

In most instances, the foregoing reductions apply only from principal stations where tariffs are on file and through tickets are in stock. From other stations, a notice of not less than forty-eight hours should be given the ticket agent in order that he may obtain from the general passenger department of the road interested the ticket desired and a quotation of the exact rate. The committee repeats the suggestion it has made each year: Those planning to attend the Detroit session should consult their local passenger agent in order that they may receive definite information concerning the routes, stop-over privileges and fares. In addition, these agents will be able to give information concerning circuit routes which will permit those attending the meeting to arrange whatever side trips they may desire to make in connection with the journey to Detroit.

AMERICAN MEDICAL SPECIAL TRAIN CHICAGO TO DETROIT

A special train, to be known as the American Medical Special, has been arranged by the Michigan Central Railroad to leave Chicago at 11:55 o'clock Monday night, June 11, which is considered a most convenient schedule for physicians and others of Chicago and those desiring to travel via Chicago. This will be a solid sleeping car train, modern all-steel Pullman sleepers, including drawing room and compartment cars, arriving in Detroit at the new Michigan Central passenger terminal at 7:30 a. m.

In addition to this special train, the Michigan Central operates other fast daily trains on the following schedules:

Leave Chicago	9:05 a. m.	Arrive Detroit	3:35 p. m.
Leave Chicago	10:30 a. m.	Arrive Detroit	5:55 p. m.
Leave Chicago	12:30 p. m.	Arrive Detroit	6:55 p. m.
Leave Chicago	3:00 p. m.	Arrive Detroit	10:35 p. m.
Leave Chicago	5:40 p. m.	Arrive Detroit	12:01 a. m.
Leave Chicago	6:10 p. m.	Arrive Detroit	12:45 a. m.
Leave Chicago	10:00 p. m.	Arrive Detroit	6:45 a. m.
Leave Chicago	12:05 a. m.	Arrive Detroit	8:00 a. m.
Leave Chicago	3:00 a. m.	Arrive Detroit	10:30 a. m.

All these trains carry sleeping cars, parlor cars, day coaches and dining cars.

From Chicago the fare will be $11 for the round trip, tickets good on all trains, on sale June 10, 11 and 12, returning June 20. From points west of Chicago, tickets will be on sale commencing June 1, limited thirty days for return, at proportionate low round-trip fares. The special train from Chicago will be accompanied by a railroad representative to look after the comfort of the party.

For sleeping car reservations and other information address Mr. C. C. Clark, General Agent Passenger Department, No. 228 South Clark Street, Chicago; telephone, Wabash 4200.

J. RAWSON PENNINGTON, Chairman.

Correspondence

Mitral Stenosis with Radial Pulse Difference

To the Editor:—The report of a case of mitral stenosis with radial pulse difference and left recurrent laryngeal paralysis by Guttman and Neuhof (THE JOURNAL, Jan. 29, 1916, p. 335) raises some questions in my mind.

Why should encroachment on the aortic lumen have produced inequality of the popliteal pulses? One would expect these two arteries to be equally affected by pressure on the aorta. The authors also speak of a "fresh pericarditis" after three weeks. Why say "fresh"? We all know that the pericardial friction rub will persist at the base of the heart for a long time, owing, no doubt, to the proximity of pericardial surfaces at this point. We find, further, the statement that there was an "enlarged left ventricle." The physical examination revealed the evidence of a pure mitral stenosis. We all know that under such circumstances there is enlargement of the left auricle and compensatory hypertrophy of the right side of the heart. Any one who has seen postmortems in cases of pure mitral stenosis can bear witness to the fact that the left ventricle is usually found atrophic from disuse. There is a diminished systolic output in these cases which gives rise to the small pulse of mitral stenosis. Would it not, then, be more reasonable to assume that the left ventricle was dislocated to the left by the greatly enlarged right ventricle, just as, in some cases of aortic insufficiency with cor bovinum, the right ventricle is dislocated to the right by the greatly enlarged left ventricle?

Why not, then, accept the factor mentioned by Kraus rather than "discredit" so keen an observer and so able a clinician? Probably all three factors, the enlarged left auricle, the large right ventricle and the dilated pulmonary artery, are responsible for the pressure symptoms in these cases.

It might be of interest to add that other pressure symptoms have also been described. Kahler (*München. med. Wchnschr.*, 1912, lix, 1517) has described encroachment on the lumen of the left primary bronchus, and mentions instances in which

he has made the diagnosis of mitral stenosis by the bronchoscope. Kovacs and Stoerck (*Wien. klin. Wchnschr.*, 1910, xxiii, No. 42, abstr., *München. med. Wchnschr.*, 1910, lvii, 2314) have described compression, thinning of the anterior wall and dislocation of the esophagus due to pressure of the enlarged left auricle.

E. DAVID FRIEDMAN, M.D., New York.

Bureau of Mines and the First Aid Movement

To the Editor:—In connection with the propaganda for the spread of the first aid movement, which is now being fathered by a committee of which Dr. Joseph C. Bloodgood of Baltimore is the chairman, practically no credit has been given to the most active agent in this field—the United States Bureau of Mines.

For a number of years the Bureau of Mines has had specially trained groups of men living in cars equipped to fight mine fires and other mine catastrophes stationed at strategic points throughout this country. From time to time these cars travel to all the mining districts, and when not engaged in fighting fires, give instruction in first aid to the injured and in the use of the different forms of breathing apparatus to be worn in case of mine fires.

After thoroughly training many different groups in a state it is the custom of the Bureau of Mines to hold a contest in which these different teams participate. For the past three years the teams winning these state contests have participated in a national first aid meet at which suitable prizes are given. Last year at the annual nation-wide contest held by the Bureau of Mines at San Francisco, teams came from practically every mining state in the Union and from Alaska as well. So widespread has this movement become in the mining world that, almost without a single exception, every up to date mining company is devoting much time to training their men in this line. This spirit has become generalized only through the teaching of the Bureau of Mines. We are of the opinion that in less than ten years hence every underground worker in the United States will be compelled to become proficient in the handling of injured men.

I have been connected with mining hospitals for some time, and never having belonged to the Bureau of Mines, am offering this testimony to show, from the standpoint of a mining surgeon, what a potent factor in the first aid movement the U. S. Bureau of Mines has been from the earliest days of this movement.

F. E. CLOUGH, M.D., Lead, S. D.

History of Medical Education in the United States

To the Editor:—In THE JOURNAL, Feb. 5, 1916, appears a copy of an interesting letter written in 1878 by Dr. John A. Wyeth to Dr. J. Marion Sims, containing a proposition to establish a high grade medical school in New York City. This letter has called to mind a somewhat similar proposition discussed in the Medical Society of the State of Pennsylvania in the year 1884 (*Transactions*, p. 33). The resolution which opened the discussion at that time was as follows:

Whereas, The present demands for higher education in medicine require colleges to adopt a preliminary examination, and a three years' graded course, and to separate the examining board from the teaching faculty, therefore,

Resolved, That the Nominating Committee report, in addition to the usual officers, the names of seven members or delegates, not more than three of whom shall be from Philadelphia, who shall be called the Committee on Medical Education.

Resolved, That this Committee shall be directed and given authority to obtain before the next annual meeting of the society a charter for a college situated in Allegheny or Philadelphia County to be called "The Medical College of the State of Pennsylvania."

Resolved, That the charter of said college shall embody the points referred to in the above preamble, namely, a preliminary examination, a three years' graded course, and an examining board appointed by this society who shall examine all pupils and applicants for the degree of doctor of medicine, and the said charter shall prohibit the teachers acting as examiners.

Provided, however, that if, before the beginning of the session of 1884-85, all the undergraduate medical schools in the state adopt a preliminary examination, a three years' graded course, and an examining board, wholly or in part separate from the teaching faculty, then the committee shall take no steps to secure such charter; but shall report at the next meeting of the society the above facts.

After considerable discussion the whole matter was laid on the table.

Such records of the movement to improve medical education in the United States are a rather instructive exhibit of the defects in medical education thirty-five or forty years ago. Historically these have possibly a value which the Association journal may care to have recorded in its columns.

JOHN B. ROBERTS, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE NUMBER OF COLON BACILLI IN WATER AND IN MILK

To the Editor:—1. What is the Phelps method of enumerating colon bacilli in water?

2. What is the approved method for ascertaining the number per cubic centimeter of colon bacilli in milk?

W. W. WATKINS, M.D., Phoenix, Ariz.

ANSWER.—1. Phelps' method for calculating the numbers of bacteria is based on the following principle: If a series of cultures, made from appropriate dilutions, yield some positive and some negative results, the most probable value of the actual number of organisms present is indicated by the reciprocal of the greatest dilution giving a positive result. For example, if dilutions of 0.1, 0.01 and 0.001 c.c. give positive results for the first two, and negative for the last, then the most probable number of bacteria present is 100. To apply this method to the enumeration of *B. coli*, the dilutions are inoculated into litmus-lactose-broth in fermentation tubes, or plated in litmus-lactose-agar. Subcultivation is done in the usual way for specific determination. (*Am. Jour. Pub. Hyg.*, 1908, xviii, 141).

2. Milk is carefully sampled, if possible kept in the original receptacle, and cooled below 40 C. (104 F.), but not frozen, until examined. It is thoroughly well shaken before diluting, the customary precautions being employed. Dilutions (with sterilized drinking water) of 0.1, 0.01, etc., are made, each dilution being shaken vigorously to break up clumps. One c.c. of each dilution is measured into a sterile Petri dish (preferably with porous earthenware cover), litmus-lactose-agar is poured as usual, and incubation is done at 37 C. (98.6 F.) for forty-eight hours or five days at 21 C. (69.8 F.). The red colonies are counted, and subcultivation is done for specific determination.

We may refer also to the following publications of the American Public Health Association:

"Standard Methods for the Bacterial Examination of Milk."
"Standard Methods for the Bacterial Examination of Water."

TREATMENT OF "AFTER-PAINS"

To the Editor:—In women who have borne several children and whose muscles seem to be quite lax, I give 15 c.c. of ergot every six hours for three doses, then a quarter grain of morphin once or twice if necessary, to check severe after-pains. I use the Credé method immediately after delivery and after the placenta passes. This treatment is followed principally in cases of patients having had several days and nights of distressing after-pains. May I have the treatment discussed? Please tell me whether or not the morphin increases the liability to infection.

B. C. FAUST, M.D., Deary, Idaho.

ANSWER:—The Credé expression generally is understood to mean expression of the placenta from the uterus. The term cannot properly be applied to massage of the uterus after the placenta passes. Numerous authorities recommend abdominal massage not only immediately after delivery of the placenta but also continued for two or three days for the prevention and treatment of after-pains. This measure is probably of value. Ergot has also been recommended for the prevention of after-pains, but in smaller doses than those mentioned above. Ordinarily from 3 to 5 c.c. are given every three to six hours, the administration being continued sometimes for three to four days. The suggestion to use a limited number of larger doses is not unreasonable. Morphin or some similar narcotic or sedative is also recommended by most authors. There is little, if any, reason to think that morphin so used increases the liability to infection. Its tendency to produce constipation should be overcome by appropriate laxatives.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, May 9. Sec., Dr. T. J. Stout, Brinkley; Eclectic, Little Rock, May 9. Sec., Dr. C. E. Laws, 712 Garrison Ave., Fort Smith.

ILLINOIS: Chicago, May 4-6. Sec., Dr. C. St. Clair Drake, Springfield.

MASSACHUSETTS: Boston, May 9-11. Sec., Dr. Walter P. Bowers, Room 501, No. 1, Beacon St., Boston.

NEVADA: Carson City, May 1. Sec., Dr. Simeon L. Lee, Carson City.

NEW YORK: Albany, Buffalo, New York and Syracuse, May 16-19. Sec., Mr. Harlan H. Horner, Chief Examinations Division, Educational Bldg., Albany.

Medical Practice Requirements in Venezuela

A letter recently received from the American consul at La Guaira, Venezuela, gives, as follows, the requirements which have to be met by foreign physicians desiring to practice medicine in Venezuela:

The applicant must present his diploma, which must be validated (usually by a Venezuelan consul or ambassador in the United States), and must also take end examinations in sixteen or more subjects studied by medical students in the University of Caracas. He must also take a general examination. The examinations, which are both oral and written, must be in the Spanish language, and the total cost is approximately $45.

It was believed that one or two American physicians might do quite well in Caracas, as the English speaking colony there is growing.

Montana October Report

Dr. William C. Riddell, secretary of the Board of Medical Examiners of the State of Montana, reports the written examination held at Helena, Oct. 5-7, 1915. The total number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 30 of whom 25 passed and 5 failed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
University of Colorado	(1914)	79.9
Bennett Medical College	(1915)	81.6
Chicago College of Med. and Surg.	(1913) 76.4; (1915)	83
College of Physicians and Surgeons, Chicago	(1896)	81.4
Dearborn Medical College	(1906)	82.3
Rush Medical College	(1904)	76.7
University of Illinois	(1913) 83.5; (1914) 79.3; (1915)	86.2
Sioux City College of Medicine	(1905)	77.2
State University of Iowa, College of Homeo. Med.	(1894)	78.7
University of Louisville	(1915)	81.5
University of Michigan Medical School	(1906)	77
University of Minnesota	(1912)	82.8
St. Louis University	(1913) 84.4; (1914)	81.7
Washington University	(1898)	75
John A. Creighton Medical College	(1915)	85
University of Oregon	(1904)	76.2
Jefferson Medical College	(1913) 79.6; (1914)	81.3
University of Tennessee	(1914)	77.5
Milwaukee Medical College	(1910)	75.2
Marquette University	(1915)	82.7
FAILED		
College of Physicians and Surgeons, Chicago	(1908)	71.4
Hahnemann Med. Coll. and Hosp., Chicago	(1893)	74.5
University of Louisville	(1908)	55.9
College of Physicians and Surgeons, Baltimore	(1914)	73.9
John A. Creighton Medical College	(1909)	57.8

Kansas October Report

Dr. H. A. Dykes, secretary of the Kansas State Board of Medical Registration and Examination, reports the written examination held at Topeka, Oct. 12, 1915. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 6, of whom 4 passed and 2 failed. Twenty-three candidates were licensed through reciprocity. The following colleges were represented:

PASSED College	Year Grad.	Total No. Examined
Hahnemann Med. Coll. and Hosp., Chicago	(1896)	1
Northwestern University	(1915)	1
Boston University	(1915)	1
University of Nebraska	(1915)	1
FAILED		
Pacific Medical College*	(1914)	2

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of Arkansas	(1913)	Arkansas
College of Physicians and Surgeons, Chicago	(1903)	Missouri
Hahnemann Medical College and Hospital, Chicago	(1915)	Illinois
Northwestern University	(1909) Indiana; (1913) (1915)	Illinois
Medical College of Indiana	(1902)	Indiana
College of Physicians and Surgeons, Keokuk	(1898)	Iowa
State University of Iowa, College of Medicine	(1915)	Iowa
Johns Hopkins University	(1903)	Missouri
American Medical College	(1911)	Oklahoma
Eclectic Medical University, Kansas City	(1911) (1915, 6)	Arkansas
Kansas City Hahnemann Medical College	(1910)	Arkansas
St. Louis University	(1914)	Oklahoma
John A. Creighton Med. Coll.	(1912) Wisconsin; (1914)	Nebraska
University of Cincinnati	(1915)	Ohio

* This institution is located at Los Angeles, and grants as much as three years of advanced standing for work done in osteopathic colleges. It is reported not recognized by the California State Board of Medical Examiners either as a medical or as a drugless therapy college.

New Jersey October Report

Dr. Alexander MacAlister, secretary of the New Jersey State Board of Medical Examiners, reports the written examination held at Trenton, Oct. 19-20, 1915. The total number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 40, of whom 36 passed and 4 failed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Yale University	(1913) 81; (1914)	79.9
Georgetown University	(1915)	77.6
College of Physicians and Surgeons, Baltimore	(1915)	77.8
Dartmouth Medical School	(1910)	83.6
Fordham University	(1915) 75, 76.5, 80.7, 85	
New York Homeo. Med. Coll. and Flower Hospital	(1914) 75.1, 81, 82.2; (1915) 75.1, 77.7	81.4
University and Bellevue Hosp. Med. Coll.	(1911) 81.3; (1915) 85,	87.5
University of the City of New York	(1891)	75
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1915)	77.1
Jefferson Medical College	(1914) 76.7, 78.4, 79; (1915) 80.5, 80.5, 83.2, 83.7.	80.4,
Medico-Chirurgical College of Philadelphia	(1914) 82, 85.3; (1915) 76.8, 81.2.	78.1,
University of Pennsylvania	(1908) 81; (1915)	87.6
Woman's Medical College of Pennsylvania	(1915)	85.3
FAILED		
Kentucky School of Medicine	(1906)	60.7
University of Berlin	(1898)	62.6
University of Naples	(1893) 55.2; (1894)	64

Thirty-eight candidates were licensed through the endorsement of credentials from June to November, 1915. The following colleges were represented:

PASSED College	Year Grad.	Total No. Licensed
Georgetown University	(1913)	1
College of Physicians and Surgeons, Baltimore	(1907) (1912)	2
Johns Hopkins University	(1913)	1
Harvard University	(1915)	1
Columbia University, College of Physicians and Surgeons	(1896) (1900) (1911) (1913, 2)	5
Fordham University	(1913)	1
Long Island College Hospital	(1912, 2) (1913)	3
New York Homeo. Med. Coll. and Flower Hosp.	(1912) (1913)	2
New York Med. Coll. and Hosp. for Women	(1914)	1
Syracuse University	(1915)	1
University and Bellevue Hospital Medical College	(1907) (1913, 2) (1914) (1915)	5
University of Buffalo	(1896)	1
Eclectic Medical College, Cincinnati	(1915)	1
Medical College of Ohio	(1884)	1
Starling-Ohio Medical College	(1913)	1
Jefferson Medical College	(1902) (1912) (1913)	3
Medico-Chirurgical College of Philadelphia	(1915)	1
University of Pennsylvania	(1897) (1900) (1901)	3
University of Vermont	(1913)	2
University College of Medicine, Richmond	(1910)	1
University of Naples	(1913)	1

Nebraska November Report

Dr. H. B. Cummins, secretary of the Nebraska State Board of Health, reports the written examination held at Lincoln, Nov. 10-11, 1915. The total number of subjects examined in was 12; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 17, of whom 15 passed and 2 failed. Twenty-seven can-

didates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Chicago College of Med. and Surg.	(1915)	78.6
Chicago Homeopathic Medical College	(1892)	79.6
Rush Medical College	(1913)	85.9
University of Illinois	(1914) 86.4; (1915)	77.4
Baltimore University	(1889)	89.1
Tufts College Medical School	(1915)	78.2
University Medical College, Kansas City	(1913)	75
Washington University	(1915)	82.1
John A. Creighton Medical College	(1915)	78.6, 80.2
University of Nebraska	(1915)	80.2, 80.6, 81.6, 85.2
FAILED		
Cotner University	(1914)	74.2
Lincoln Medical College	(1915)	71

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Denver and Gross College of Medicine	(1909)	Colorado
Georgetown University	(1876)	Kansas
Bennett College of Eclectic Med. and Surg.	(1906)	Illinois
Bennett Medical College	(1912)	Illinois
Chicago College of Med. and Surg.	(1914)	Illinois
Coll. of Phys. and Surgs., Chicago	(1898) Illinois; (1908)	Wisconsin
Hering Medical College	(1912)	Kansas
Northwestern University	(1906) (1913) Illinois; (1914)	Missouri
Rush Medical College	(1896) Illinois; (1912) Minnesota; (1913) (1914) Illinois.	
Indiana University	(1911)	Wisconsin
Keokuk Med. College, Coll. of Phys. and Surgs.	(1906)	Iowa
State University of Iowa, College of Homeo. Med.	(1915)	Iowa
Southwestern Homeo. Med. Coll. and Hosp.	(1901)	Kentucky
University of Michigan Medical School	(1912)	Michigan
St. Louis University	(1912) (1914)	Missouri
Eclectic Medical College	(1903)	Indiana
Medical College of Ohio	(1895)	Indiana
University of Pennsylvania	(1901)	Wisconsin
Milwaukee Medical College	(1903) Wisconsin; (1905)	Kansas

South Carolina November Report

Dr. A. Earle Boozer, secretary of the State Board of Medical Examiners of South Carolina, reports the written examination held at Columbia, Nov. 9-11, 1915. The total number of subjects examined in was 8; total number of questions asked, 105; percentage required to pass, 75. The total number of candidates examined was 36, of whom 16 passed and 20 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Howard University	(1915)	84.4, 87.6
Atlanta Medical College	(1915)	76.2
Southern College of Medicine and Surgery	(1914)	76.7
Bennett Medical College	(1915)	81.5
Tufts College Medical School	(1914)	75
Jefferson Medical College	(1898) 76; (1914)	87
Med. Coll. of the State of South Carolina	(1915)	76.6, 78.4, 81
Meharry Medical College	(1915)	75, 75
University of West Tennessee	(1914)	76.6
Gate City Medical College	(1909)	75*
University of Virginia	(1901)	82.6
FAILED		
Birmingham Medical College	(1915)	63.1
Atlanta College of Physicians and Surgeons	(1912)	69.2
Atlanta Medical College	(1914) 66.7, 67.6; (1915)	64.7
Atlanta School of Medicine	(1909)	68.5
Georgia College of Eclectic Medicine and Surgery	(1912)	†
Southern College of Med. and Surg.	(1913) 63.4; (1914)	70.2
North Carolina Medical College	(1903)†; (1914)	72.9
Maryland Medical College	(1905)	65.2
University of Oklahoma	(1915)	72.2
Medical College of the State of South Carolina	(1911)	63
Meharry Med. Coll.	(1909) 68.7; (1911)†; (1912) 60.2; (1915)	14
Memphis Hospital Medical College	(1911)	65.4
University of West Tennessee	(1913)	†

* Graduation not verified.
† No grade given.

West Virginia November Report

Dr. S. L. Jepson, secretary of the West Virginia Public Health Council, reports the oral, practical and written examination held at Elkins, Nov. 9-11, 1915. The total number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 80. The total number of candidates examined was 19, of whom 15 passed and 4 failed. Thirteen candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
George Washington University	(1915)	87.5
Howard University	(1914)	83.4
Bennett Medical College	(1915) 83.8, 85.8, 87.6, 88.6,	90.6
College of Phys. and Surgs., Baltimore	(1915)	83.6
University of Maryland	(1914)	86.7
New York Homeo. Med. Coll. and Flower Hosp.	(1915)	83.7
Medical College of Virginia	(1912) 92.5; (1914) 80.1, 85; (1915)	85.8
University of Virginia	(1914)	85.8
FAILED		
Bennett Medical College	(1915)	75
College of Phys. and Surgs., Baltimore	(1915)	75.7
Medical College of Virginia	(1915)	76.5, 76.9

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Chicago College of Medicine and Surgery	(1913)	Illinois
University of Louisville	(1914, 2)	Kentucky
Maryland Medical College	(1912)	Maryland
St. Louis University	(1912)	Iowa
University of the City of New York	(1881)	Ohio
University of Oklahoma	(1913)	Maryland
University of West Tennessee	(1910)	Tennessee
Vanderbilt University	(1913)	Mississippi
Medical College of Virginia	(1912)	Virginia
University College of Medicine, Richmond	(1913)	Dist. Colum.
University of Virginia	(1897)	Virginia
University of Bonn	(1889)	Penna.

The following questions were asked:

OBSTETRICS AND GYNECOLOGY

1. What are the subjective signs of pregnancy? 2. What are the immediate dangers of abortion? 3. How is the diagnosis of ectopic gestation made before tubal rupture, or abortion? 4. What are the predisposing causes of dystocia in plural births? 5. What are the indications for podalic version? 6. Define inversion of uterus and give cause. 7. Name five varieties of endometritis. 8. Give results following removal of the uterine appendages. 9. What are the symptoms of the fibroid tumor? 10. Describe briefly the operation of trachelorrhaphy.

SPECIAL MEDICINE

1. Trachoma: Give symptoms and treatment. 2. What are some of the conditions requiring enucleation of eye ball? 3. Mastoiditis: Give symptoms and treatments. 4. Hay fever: Give causes and treatment. 5. Blood pressure: What is normal, and how determined? 6 Chest expansion: What is normal? Name some of the things that impair it. 7. Eczema capitis: Describe and treat. 8. Furuncle: Describe and treat. 9. What are the duties of a sanitary engineer; of an epidemiologist? 10. Give principal points in taking history of a case.

PRACTICE OF MEDICINE AND PEDIATRICS

1. Give diagnosis and treatment of lobar pneumonia. 2. Acute nephritis in a child of 3 years. Give hygiene and treatment. 3. Give treatment for acute rheumatic fever. 4. Chorea in a child 7 years old: Give treatment. 5. How much, what, and how often would you feed a 2 months old bottle-fed infant? 6. Etiology, symptoms and treatment of erysipelas. 7. In what diseases may you expect to find blood in stools? 8. Define, diagnose and treat acute poliomyelitis. 9. Give etiology, symptoms and treatment of facial paralysis. 10. Name two varieties of icterus neonatorum.

BACTERIOLOGY AND HYGIENE

1. Give an outline of the mechanism of immunity. 2. Describe the effect of temperature on bacteria. 3. Describe Gram's method of staining. 4. How are pure cultures of bacteria obtained? 5. Name any characteristic of the colon-typhoid group of bacilli. 6. What constitutes good drinking water? 7. What is sewer gas? 8. How much of each of the three varieties of food per day should a workingman take? 9. Give the reasons for the importance of collecting vital statistics. 10. Describe a model kitchen for an ordinary home.

SURGERY

1. Describe fully but briefly the process of repair in fractures of long bones. 2. Name the varieties, and give the causes and pathologic consequences of embolism. 3. What is the present generally accepted theory of shock, and what can be done to prevent its development after operations? 4. Give the common causes of rupture of the intestine, and discuss its diagnosis before peritonitis has developed. 5. What are the usual forms of injury which produce Pott's fracture, Colles' fracture, and fractures of the lower end of the humerus? 6. Describe ligation of the external carotid artery. 7. Give the treatment of an infected joint caused by a penetrating wound. 8. Give the symptoms and common surgical causes of compression of the brain. 9. Give the etiology of cholecystitis, and the indications for cholecystectomy. 10. What are the causes of chronic sinuses? Discuss the treatment.

MATERIA MEDICA AND THERAPEUTICS

1. Define materia medica and therapeutics. 2. Opium: Name three alkaloids; give physiologic action and doses of each. 3. Name three anthelmintics; give doses and methods of use. 4. Name three diuretics; give physiologic action of each. 5. Describe method of preparation and use of: (a) mustard plaster, (b) fly blisters, (c) turpentine stupe. 6. The Roentgen ray: Give therapy. 7. Boric acid: Give therapy. 8. Digitalis: Give therapy. 9. Iodine: Give therapy. 10. Name two germicides; give therapy of each.

CHEMISTRY AND MEDICAL JURISPRUDENCE

1. Name five elements with their symbols and atomic weight. 2. How would you make a 2 per cent. solution of silver nitrate? 3. Name the principal solid ingredients of urine. 4. What is the composition of Seidlitz powders, and what is the result of the combination? 5. Why use distilled water in chemical solutions? 6. In a burned or charred body, how would you tell whether death had occurred before or after burning? 7. Differentiate death by morphin poisoning from that by heart failure. 8. Describe the signs of death by strangulation. 9. What is the legal significance of dying declarations? 10. Describe the manner of a medical expert in court.

ANATOMY

1. Locate and describe the rectum. 2. Describe the changes in the vascular system at birth. 3. Locate the principal groups of lymphatic glands. 4. Describe the hip joint. 5. Locate and describe the spleen. 6. Describe the thoracic duct. 7. What blood vessels pass to and from the liver? 8. What are the anterior and posterior boundaries of the axilla? 9. Name the twelve parts of the cranial nerves. 10. What muscles form the calf of the leg? Describe any one of these muscles.

Miscellany

The International Joint Commission on Boundary Waters

The International Joint Commission held a meeting at Washington, D. C., March 8 and 9, to consider the final report on the engineering investigations which have been made during the past year relative to the pollution of boundary waters. The commission is composed of three members from the Dominion of Canada and three from the United States. It is formed as a permanent tribunal for the adjustment of boundary matters between the two countries under the terms of the treaty of Jan. 11, 1909, between the United States and Great Britain. The commission has from time to time considered various matters relative to water power, water diversion and obstruction to navigation, including the adjustment and control of lake levels, and has also during the past three years been considering the matter of pollution of boundary waters.

The treaty referred to states that "the waters therein defined as boundary waters and the waters flowing across the boundary shall not be polluted on either side to the injury of health or property on the other." In 1913 a reference comprising two branches was submitted to this commission whereby it was asked to determine in brief, first, whether the treaty obligations were being violated and if so, at what points and to what extent and by what causes, and, secondly, what remedies would be feasible and advisable under the circumstances. The first branch of the reference was answered by the commission in a progress report dated Jan. 16, 1914, embodying the report of the sanitary experts. Of the latter, Dr. Allan J. McLaughlin, U. S. Public Health Service, had been appointed chief sanitary expert, and with him were associated Drs. J. W. S. McCullough and John A. Amyot, and Fred A. Dallyn, all of the Provincial Board of Health of Ontario. In brief, it was found that the provisions of the treaty were seriously violated, and that public health was endangered at many points, particularly on the boundary rivers. The waters of the Great Lakes themselves, from an international standpoint, were found to be satisfactorily pure, existing pollution being confined to the shore fronts.

The second branch of the reference was essentially engineering, and its solution was placed in the hands of Prof. Earle B. Phelps as consulting sanitary engineer. Engineering offices were opened at Detroit and Buffalo in charge of Mr. Henry C. McRae and Mr. Frank C. Tolles, respectively, and during the past year comprehensive drainage and disposal schemes have been developed for these two cities and for all the smaller communities on both sides of the St. Clair, Detroit and Niagara rivers. The final report on this work has just been completed, and is now in course of publication. The meeting of the commission referred to was for the purpose of hearing and discussing this report. The general conclusions and recommendations of the report have not been accepted by the commission, and will not be until all the interested communities, as well as the state and federal representatives of the two governments, have had opportunity to review the findings and to be heard relative thereto.

Not only does this international commission represent a unique and, by contrast with other existing methods, an eminently satisfactory method of dealing with international affairs, but also the findings of the commission in the particular case in question promise to point the way toward a more systematic and consistent policy of the control of stream pollution than has heretofore been possible under existing methods of state control.

Morbidity Registration

In an article in *Public Health Reports,* Feb. 11, 1916, Dr. John S. Fulton and Dr. John S. Fulton, Jr., of the Maryland State and Baltimore health departments, respectively, advocate the formation of a morbidity registration area in the United States, similar to the registration area now established for deaths. Until the "model bill" for the notification of communicable diseases prepared by the United States Public Health Service, which names over thirty notifiable diseases, has been adopted by all or a sufficient number of states, the establishment of a registration area covering morbidity would have to be based on only the four most completely reported diseases, typhoid fever, scarlet fever, measles and diphtheria. For many years the Public Health Service has published information of the more important communicable diseases, in which it has had more recently the cooperation of some state and city health departments. This has resulted in better figures, but the information still lacks much in uniformity and completeness. In determining what states should be included, the figures from thirty-two states and the District of Columbia for the four diseases named have been taken for the years 1912, 1913 and 1914. They show that there were reported 1,171,247 cases, with a mortality of 5.95 per cent. Taking those showing a rate below this figure, the following states would be included in such provisional registration area: Connecticut, District of Columbia, Idaho, Montana, Kansas, Maryland, Massachusetts, Mississippi, Nevada, New York, Ohio, Oregon, South Dakota, Utah, Vermont and Washington. Four of these, however, Idaho, Nevada, Mississippi and South Dakota, are not now in the registration area for deaths, and could not at present be included in a provisional registration area. It is shown that in the thirty-two states and the District of Columbia, the fatality rates for the four infectious diseases named have declined from year to year, indicating, it is said, that notification is more effective each year. This is one of the results of better information concerning deaths and diseases, and is a good reason, among others, for the establishment of a registration area for morbidity.

Studies on Leprosy

Public Health Bulletin 75 of the U. S. Public Health Service contains six short papers on leprosy, its treatment and bacteriology. George W. McCoy and Harry T. Hollmann give a brief summary of the opinions of authorities on chaulmoogra oil in the treatment of leprosy and the results of their experience in its use in Hawaii. The authors have administered it in some form to nearly every leper coming under their care. The majority take it by mouth in gelatin capsules. The results have been about such as those reported in the literature elsewhere. Few of the patients have taken chaulmoogra oil alone, the tendency being, the authors say, to give everything that might be of benefit to the patient. Improvement often occurs in leprosy without special treatment. The oil was given hypodermically in forty-two cases, in sixteen of which it was given for periods of from ten to seventeen months. Ten patients improved, four remained stationary and two progressed. The remaining twenty-six patients had not taken the oil long enough to enable the authors to judge of the effect. Of the ten improved, only one had improved to such an extent that acid-fast bacilli were absent in smears from lesions. Most of the patients took oil by mouth in addition to the injections, and in some carbon dioxid snow was applied to the lesions.

McCoy and Hollmann make a separate report on their experience with carbon dioxid snow in the treatment of the lesions of leprosy. They used a snow pencil one-half by three inches in size, applied with firm pressure for ten seconds, going over the entire area of the lesion systematically until frozen. The lesion is usually depressed about 2 mm., but quickly thaws, and in two or three hours a blister forms. The treatment is repeated when the local effect has passed away, usually in two weeks. The total number of cases treated was thirty-one, of which twenty-seven were of the nodular, three of the mixed and one of the anesthetic type. One patient in whom the treatment was begun by Dr. Wayson of the leper receiving station had received the applications for three years. He showed the greatest improvement. All treated areas had been bacteriologically negative for about six months. The patient had also taken chaulmoogra oil by injection and by mouth. In another patient the indurations and nodules were nearly all absorbed, leaving pigmented

areas which, however, still contained acid-fast bacilli. A macular area in one patient and a leukoderma in another did not improve under the carbon dioxid treatment. Of the remainder of the patients, seventeen showed decrease in size of lesions treated and the cosmetic effect was favorable, but all were bacteriologically positive. Ten showed no improvement. As it has been shown that bacteria will not be killed at a temperature of 250 C. below freezing, it is not to be expected that they will be destroyed by this application. The authors believe, however, that it is as satisfactory as any other local agent.

Hollmann reports on his examinations of the blood for the lepra bacillus, employing the technic of Crow and Rivas. In twenty-two lepers examined, six specimens had demonstrable acid-fast bacilli; in two cases only a single organism was found. In one case an acid-fast bacillus was found in the blood when none were found in the skin scrapings at the site of the needle puncture. In one patient, during a period of new nodule formation, with fever, acid-fast bacilli were found in simple stained blood smears.

Goodhue and McCoy report a case of leprosy in a child 19 months old. Leprosy is rarely found in those under 5 years of age. In 1,062 lepers under observation, only eight were found under 13 years of age.

Moses T. Clegg reports the cultivation of a nonchromogenic acid-fast bacillus from a case of nodular leprosy, which during the process of isolation remained constant as to morphology. A guinea-pig inoculated with a twenty-four hour culture died three months later showing a nodule in the leg with the typical appearance of leprosy, smears from which showed large numbers of acid-fast bacilli.

McCoy reports concerning the favorable influence of glucose on the growth of acid-fast bacilli. It was observed that an acid-fast culture which had been isolated from a leprous nodule by using symbiotic bacteria (cholera vibrios) grew luxuriantly on agar containing glucose, while on plain agar multiplication was hardly visible, and on glycerin agar the growth was scanty. Experiments to ascertain the amount of carbohydrate required showed that 1 part of glucose to 1,000 of the finished nutrient agar had a pronounced influence.

The Mortality of the Industrial Population of Massachusetts

Some interesting comparisons have been made between the statistics of the state health department and those of one of the large industrial life insurance companies which, it is said, has insured one out of every six persons in Massachusetts. The figures of the insurance company for 1914 show that the number of deaths corresponds to a death rate of 12.6 per 1,000. In the general population of the state, 1 year of age and over, the death rate was 12.5 per 1,000 for the year 1913, the last year for which the general figures are available. This indicates the interesting fact that the mortality of the industrial population is representative of the population at large, and this proportion is true of the principal causes of death, which parallel closely those for the population at large. A significant finding, however, is that the rate for tuberculosis among the insured is higher than for the population at large, being 13.4 per cent. among the insured as against 9.6 for the total population. This important difference is believed to be directly charged to the greater strain to which the industrial classes are subjected, and is especially significant because it affects the main period of life, the average age of those dying from tuberculosis being 37 years. About 15 per cent. of all deaths were from organic diseases of the heart, which constitute the chief cause of death in Massachusetts, both among the insured and the noninsured. The mortality from violence was 6.7 among those insured in the company referred to, and 7.5 in the general population. This, it is said, may be interpreted to show the effect of careful sanitary inspection of factories, and the cooperation of employees with the state authorities in the movement for accident prevention. Massachusetts, as is known, is an industrial state. The figures of the insurance company are extremely valuable on account of their accuracy. In recent years a campaign of education has been carried on, and a system of nursing of sick policy holders has been instituted. This work, in connection with that of the general community, has reduced the company's death rate among policy holders, in the previous three years, 7.8 per cent. for whites and 3.8 per cent. for colored lives.

Chicago and Dr. Favill

A man died in Chicago the other day who was an ornament to human nature. He had been immensely successful, but his obituaries were not inspired by the respect which the world has for success. They were written by appreciation and by gratitude.

His career was truly remarkable. Dr. Henry Baird Favill, as the Chicago *Evening Post* remarks, performed in a community of more than two million souls the function of the country physician. It may be added that the manner of his performance was as remarkable as the fact that he did perform such a function for the fourth city of the world.

He was one of the foremost physicians in the United States. His worldly material success was very great. But the true distinction of the man, amounting to a genius, was human. It was what he was to a multitude of individuals, who suffered, who were in trouble. His was the care not only of bodies, but also of souls. And he failed nobody who sought him, tho men and women of every class and estate and sort sought him. He was spiritual supporter to a whole weak brotherhood and sisterhood.

Dr. Favill was a man of science and had no illusions. He knew what the race is, and had not a trace of sentimentalism in his composition. But he helped everybody, anybody. And the stuff of his help was the best on earth. Contact with his strength inspired strength, and insincerity was shamed in his stalwart presence. It is an old figure, but that man was a tower.

"The good great man," as the poet Coleridge knew, is the best product of the long evolutionary process. Strong men are not always kind, and kind men are not always wise. But the profit to a community of a life such as this man lived is inestimable. Chicago peculiarly was favored by his presence. He is dead at 56, and we suppose there has been wider unofficial grief and more poignant sense of loss among individuals of that community than ever there has attended the death of any man.—Minneapolis *Journal.*

Glycuronuria as a Sign of Cancer

Roger found the urine normal in respect to its glycuronic acid content in only three of forty-six cancer patients. In one of the three the cancer was on the scalp and still very small; the two others had had their cancers removed. In a third of the positive cases the reaction for glycuronic acid was maximal. The cancers were in twelve various regions in the forty-six cases, the uterus leading with twenty-two cases. The stomach came next, with eight. They were in all stages of development, and the tests showed that glycuronuria is of early occurrence in malignant disease, revealing that the liver begins to suffer early with cancer. He says that the intensity of the reaction is an index of the extent of the impairment of liver functioning, and is thus an element in the prognosis. Roger's latest communication on the subject was published in the *Bulletins de la Société médicale des Hôpitaux* of Paris, 1915, xxxi, 499.

(In this and his previous communications on the significance of glycuronuria, he says it is a simple matter to estimate the content of the urine, treating it with mercuric acetate, then with naphthoresorcin and hydrochloric acid, heating for fifteen minutes in the water bath, cooling under running water, and then shaking up with ether. With the normal content the ether turns violet; a red or dregs of wine tint indicates functional disturbance, and a yellow tint reveals absolute insufficiency on the part of the liver. He does not give the amounts of the reagent used, but with Tollens' similar technic the proportions are 1 c.c. of a 1 per cent. alcoholic solution of naphthoresorcin and 6 c.c. of hydrochloric acid to 5 c.c. of urine.)

Book Notices

Diseases of the Skin. By Henry H. Hazen, A.B., M.D., Professor of Dermatology in the Medical Department of Georgetown University. Cloth. Price, $4. Pp. 539, with 233 illustrations. St. Louis: C. V. Mosby Company, 1915.

This is one of the smaller textbooks on dermatology. The author undertakes to describe fully the common diseases of the skin, and to give less attention to the rare diseases and to those foreign diseases which are seen infrequently in this country. By so doing he is able to give within the space which he has assigned himself a satisfactory account of common skin diseases and an orientation of the whole subject, fully as complete as the undergraduate student can hope to acquire. Wisely, he has taken up rather extensively the principles of dermatology. The anatomy and physiology of the skin, and the etiology, symptomatology, pathology and treatment of skin diseases are considered in sufficient fulness to give the student some general idea of the subject before he is plunged into the confusing maze of practical dermatology. This feature of Dr. Hazen's work is thoroughly to be commended.

The rest of the book, 450 pages, is devoted to the study of the various dermatoses. The descriptions are satisfactory, and are put in simple language, so that they are rather easier reading for the untrained dermatologist than is the average book on the subject. The substance of the work is orthodox, reliable and up to date. On the whole, the author has done his work well. There are some surprising errors in proof reading; for example, on pages 38 and 39, "cubic centimeter" is used three times as a unit of linear measure. The illustrations are of varying quality. Some of them are excellent; some of them are flat and show little detail. The greatest criticism is to be made on the illustrations of photomicrographs. They, for the most part, are almost completely lacking in detail, and are so ill-defined as to be useless. The illustration of the *Spirochaeta pallida* under dark field illumination on page 271 is particularly to be criticized. The recognition of the *Spirochaeta pallida* in the dark field is an important matter at the present time. It is highly desirable, therefore, that the illustrations of the organism published for students should be true to form. The illustration referred to on page 271 bears as little resemblance to the *Spirochaeta pallida* as a spiral can. It is a much better picture of a common corkscrew, and if it is used as a guide for determining the *Spirochaeta pallida,* it will certainly cause mistake. The classification of skin diseases which the author adopts is uncommon, and would seem to give the student little opportunity to realize the interrelation of allied dermatoses. Of course, the classification of skin diseases is a matter about which each dermatologist can have his own opinion; but, even so, it is still possible to classify skin diseases for the most part under a logical arrangement that puts similar or allied diseases together, and in the interest of rendering less confusing a complex subject, this should be done.

Pellagra. An American Problem. By George M. Niles, M. D., Gastro-Enterologist to the Georgia Baptist Hospital. Second Edition. Cloth. Price, $3 net. Pp. 261, with illustrations. Philadelphia: W. B. Saunders Company, 1916.

The first edition of this work was issued in 1912. Since that time there has been witnessed a marked ebb and flow of opinion concerning the etiology of pellagra, but the tide seems now to be setting steadily in favor of the dietetic view of its causation. It is probable that, had the publication of this work been deferred a few weeks, Dr. Niles would, in consideration of Goldberger's experiments at the Mississippi State Penitentiary, have felt justified in laying even more stress than he has done on this aspect of the question. In this connection, Dr. Niles has done himself an injustice. There are passages in the book from which one might be tempted to infer that the author had not kept abreast of recent discoveries in dietetics. Thus, in defending sound maize as a diet, he contents himself with proving its nutritive sufficiency, as judged by the ordinary analytic standards. Now, in 1906, Hopkins and Wilcock showed that mice cannot be kept alive on a diet of zein (the protein of maize), carbohydrate and fat, unless tryptophan be added, zein being entirely devoid of this amino acid. It is in these subtler deficiencies that lie the dangers of an "unbalanced" diet. Goldberger's results were, perhaps, published too recently to be considered in the book under review, but they were foreshadowed by Sandwith in his presidential address to the Society of Tropical Medicine and Hygiene in October, 1915 (*Lancet,* London, 1915, ii, 905). In a work such as the present, one would expect something more than a mere passing reference to the possibilities of this side of the question.

The book has been enlarged by forty-eight pages, an increase shared between etiology and treatment. In the discussion of the former, the new matter consists, chiefly, of the report for 1913 of the Thompson-McFadden Commission and of a notice of Goldberger's earlier work. The chapter on treatment, which is one of the best in the whole literature of the subject, has been expanded by the inclusion in extenso of Goldberger's dietary. Apart from these subjects, the most important new points noted are: the recognition of numerous cases of pellagra in countries, such as England, hitherto considered free or nearly free from the scourge; the abandonment by Sambon of his gnat (*Simulium*) theory; a perhaps inevitably greater prominence given to the rôle of pyorrhea alveolaris and, therefore, of emetin (alkaloid); a difference of opinion between Niles and Goldberger as to the intrinsic curative action of cold, and Bass' suggestion of public refrigerators for pellagrins. On account of the importance of the subject, separate mention must be made of a strong warning against the danger incurred by the exposure of pellagrins to the Roentgen rays.

There is some evidence of haste in the revision. Thus on page 30, line 19 from top, the expression "at that time" would naturally be taken to indicate the year 1912, but a reference to the first edition shows that 1909 is the epoch intended. Again, on page 219, "during the last five years" occurs in both editions, in reference to one and the same period. The subtitle is an indication of the author's chief motive in writing this book, namely, his desire to enforce the lesson that pellagra has become an American problem and a serious one. His attitude and his hopes are summed up in what might well have served as a peroration to his work: "The writer trusts that the physicians who read this book may feel constrained to aid in the enforcement of the pure food laws. . . . The mass of the American citizens may be trusted to do right if it is only presented in the proper manner and . . . wise and beneficent laws . . . will make, in the not distant future, a fading *memory* of pellagra, an American problem that was successfully and effectually solved."

The Biology and Treatment of Venereal Diseases and the Biology of Inflammation and Its Relationship to Malignant Disease. By J. E. R. McDonagh, F.R.C.S., Surgeon to Outpatients, London Lock Hospital. Cloth. Price, $6. Pp. 625, with illustrations. London: Harrison and Sons, 1915.

Mr. McDonagh is known to the dermatologic world as a dermatologist with a beautiful histologic technic which he has used to fortify radical and unorthodox positions in regard to certain diseases. He has developed most unusual views in regard to pathology and in particular to the cause of syphilis. It may be inferred, then, that in this book, which takes in at one grand sweep the biology of the venereal diseases and the biology of inflammation and its relationship to malignant diseases, the author has undertaken to square subjects so unrelated by means of a comprehensive theory. The work is devoted in large part to an exposition of the author's peculiar views, and to the account of what the author thinks is the organism of syphilis. This organism is not the accepted *Spirochaeta pallida,* but an organism with an elaborate life cycle which he has described and illustrated, and which he calls the *Leucocytozoon syphilidis,* or *Coccidium syphilidis,* and which others call peculiar forms of cell degenerations. The book is an exposition of certain aspects of disease as McDonagh sees them. It cannot be regarded as an exposition of accepted facts of these diseases, or, indeed,

of views which have any general acceptance, or seem likely to have. The work is a monument to the industry of an enthusiast. It is difficult to believe that it is a monument of any usefulness.

DIET FOR CHILDREN. A Complete System of Nursery Diet with Numerous Recipes; Also Many Menus for Young and Older School Children. A Home and School Guide for Mothers, Teachers, Nurses and Physicians. By Louise E. Hogan. Third Edition. Cloth. Price, 75 cents. Pp. 160. Indianapolis: The Bobbs-Merrill Company, 1916.

The last edition of this little manual appeared about six years ago. It is a compilation of some elementary facts regarding food that should be known to those concerned with the care and feeding of children. Simple menus are given as well as numerous recipes for use in health as well as in illness. The writer recognizes that the care of any child is an individual problem for that child. The book is sane and reliable.

AN INTRODUCTION TO BACTERIOLOGY FOR NURSES. By Harry W. Carey, A.B., M.D., Associate in Medicine, Samaritan Hospital, Troy. Cloth. Price, $1 net. Pp. 144, with illustrations. Philadelphia: F. A. Davis Company, 1915.

This book is based on lectures delivered to the nurses of the Samaritan Hospital Training School during the last eight years. It is practical, and the author has confined himself to those branches of the subject which a nurse will find useful in her work.

Medicolegal

Admissible Evidence of Unlawful Practicing of Medicine by Masseur

(Hyroop vs. State (Tex.), 179 S. W. R. 878)

The Court of Criminal Appeals of Texas affirms a judgment of conviction of defendant Hyroop of unlawfully practicing medicine. The court says that one witness testified that he went to the defendant's office and told him that five weeks previously he had had a violent attack of appendicitis, but the defendant said that he did not look like a man who had appendicitis, that he was suffering from inflammation of the colon, and proceeded to treat him for that, gave him an enema, had him lie down with a rolled pillow under his hips and another under his chest, and then "mashed" him up and down, pushing him clear to the table. After that he gave him an electric treatment with an electrode, later so using the electrode as to produce what was called the violet ray. As a matter of fact, the witness was not sick with any disease or disorder, but went at the instance of others to see whether or not the defendant was practicing medicine, within the provisions of the medical practice act, and making a charge therefor. He paid $3 for the treatment. Another witness went with him. The defendant contended that this made them accomplices and that the jury should have been so instructed. But, under no rule of law of which the court knows, would their acts constitute them accomplices, the men having gone to the defendant's office to detect him, knowing or believing that he was practicing medicine in violation of law. Their testimony was clearly admissible. A third witness testified that the defendant treated him for an affection of the hand and arm, his hand and the muscles of the arm hurting, and elbow aching; that the defendant gave him an electric treatment with a battery, also gave him what was termed a "hot-air" treatment, putting the hand in a "sweat box"; that the defendant told him that he could cure him, but he did not do so, although his treatment was continued two or three months; and that the defendant charged him $25. The defendant objected to the testimony of the witness. The defendant's contention was that he was a "masseur," and therefore did not have to obtain and register a certificate. As this was his contention, it was permissible for the state to show that he was treating disease by other means and methods than usually ascribed to a masseur, and the court did not err in admitting this testimony, or in admitting that he had an account at a drug store for medicines, and in one instance had prescribed and furnished a salve for a sore on the leg of a patient. The fact that he advertised and held himself out as a masseur would not prevent the state from showing, if it could, that he treated his patients by other means than those customarily used by a masseur in his particular sphere of labor. The giving of an enema, treatment by electric machinery, and by the use of hot-air apparatus do not come within the means and modes usually ascribed to the sphere of a masseur in the treatment of a disease, and as used by them aforetimes, and could not come within the exemption as defined by the legislature in exempting a masseur in his sphere of labor. The defendant was also wrong in thinking that the treatment must have been by administering medicines before he would be included within the prohibition of the law. The fact that he did not hold himself out as a "physician and surgeon" would not prevent his conviction if he practiced medicine within the meaning of that term as defined in the revised statutes.

Information Physician Not Permitted to Disclose

(Dreyfus vs. Milwaukee Electric Railway & Light Co. (Wis.), 154 N. W. R. 840)

The Supreme Court of Wisconsin, in affirming a judgment in favor of the plaintiff for $450 for injuries alleged to have been sustained in a slight collision of street cars, says that the defendant called as a witness the physician who treated the plaintiff after the injury, and asked him whether he treated the plaintiff at that time for hernia, and whether the plaintiff complained to him of hernia. The court thinks that objections to the questions were properly sustained. The plaintiff's evidence tended to show that she suffered from inguinal hernia resulting from the accident, and the object of the testimony offered was to show that she did not complain of such an injury and that the physician did not ascertain that she had it. But section 4075 of the Wisconsin Statutes, as amended in 1913, provides, in substance, that no physician or surgeon shall be permitted to disclose information received by him while attending a patient and which information was necessary to enable the physician or surgeon to treat the patient. The word "permitted" in this section was inserted by the amendment of 1913 in place of the word "compelled." This is not important except that it demonstrates that the legislature desired to make it absolutely certain that the information gained by a physician or surgeon for the purpose of treating a patient should not be disclosed under any circumstances. The court has nothing to do with wisdom of this policy; its only duty is to see that it is carried out. If the questions propounded to the physician in this case were answered either way, the statute would be set at naught. It was the physician's duty to treat the patient for whatever disease or infirmity the diagnosis of the case showed that she had. If therefore he answered that he treated her for hernia, the necessary inference of fact must be that the statements or symptoms of the patient or the physician's examination tended to show that she was suffering from hernia; if he answered that he did not treat her for hernia, the inference of fact must be that such statements, symptoms or examination tended to show that she was not suffering from hernia, but from some other difficulty. In either case the effect would be to disclose a part of the information which the statute says shall not be disclosed.

Circumstances Must Be Considered on Timeliness of Action for Malpractice

(Byers vs. Bacon (Pa.), 95 Atl. R. 711)

The Supreme Court of Pennsylvania reverses a judgment rendered in favor of the defendant, a physician and surgeon charged with negligence in failing to remove a drainage tube. The court says that it was alleged that the defendant performed an operation on the plaintiff, and discharged him from the hospital on March 21, 1910, telling him to report to his family physician; that the drainage tube in question was allowed by the defendant to remain in the wound, but, as it was not visible from the surface, the plaintiff did not know

of its presence. He continued under the care of his family physician, and it was not until June 8, 1911, that the tube was discovered in the wound and removed. This action for damages was brought Feb. 18, 1913. The trial judge was of the opinion that the action was barred by the state statute of limitations requiring actions for damages, not resulting in death, to be brought within two years from the time when the injury was done, and therefore gave binding instructions to the jury in favor of the defendant. But the supreme court holds that the judge should have admitted the evidence offered by the plaintiff, giving to it full and fair effect—should have allowed him to make out his case as completely as he could, before determining whether the action was barred by the statute, or whether there was anything in the case which would save it. The negligence charged was not in the insertion of the tube, but it was in the failure to remove it at the proper time, or in the failure to give notice of its presence, that it might be removed by another, when it had served its proper purpose. It could hardly have been intended to remain permanently in the body of the plaintiff, and he should have been allowed to show when and by whom the tube, which was inserted by the defendant, should have been removed. It might be that good surgical practice required it to be kept in the wound after the plaintiff was discharged from the hospital and placed under the care of his family physician. If the defendant was at fault in permitting the tube to remain in the wound when it should have been removed, or in failing to give notice of its presence, the time when such dereliction of duty occurred should have been shown, as that would constitute the real injury, and would start the running of the statute of limitations. It may have been coincident with the date of the plaintiff's discharge from the hospital, but not necessarily so. Then, too, it should have been a question for careful consideration, as to whether the statute should properly have been regarded as running against the plaintiff until such time as he could reasonably be charged with knowledge of the fact that the tube had been overlooked and left in the wound.

Breach of Contract to Marry by Person Having Pernicious Anemia

(Parsons vs. Trowbridge (U. S.), 226 Fed. R. 15)

The United States Circuit Court of Appeals, Eighth Circuit, affirms a judgment for $250 damages in favor of the plaintiff, who sued the executor of the estate of one Oldfield to recover damages for an alleged breach of contract by said Oldfield to marry her. The court holds that as favorable an instruction as the plaintiff was entitled to was one given to the jury to the effect that, if it was a fact that Oldfield had a disease known as pernicious anemia, it would not be a sufficient excuse on his part for not carrying out the contract and having the ceremony performed. But if he had pernicious anemia, and believed that it would be fatal after a year or so from such time, the jury would have a right to consider that on the question of the amount of damages. Under the testimony offered, if he had pernicious anemia, which would be reasonably certain to bring about death within several months or a year, or something like that, the plaintiff would have his society for such shorter time and would be entitled to recover a lesser amount. The jury should consider the testimony with reference to pernicious anemia as bearing on that phase of the case and that only.

Soap-Berry.—In the humid parts of west Ecuador grows the jaboncello or soap-berry tree *(Sapindus saponaria)* which attains a height of about 50 feet, with wide spreading branches. It bears immense quantities of fruit the size and shape of cherries, which are so saponaceous as to be used instead of soap by many people of Ecuador. *Commerce Reports* states that although considerable quantities of the berries are utilized locally, many of these go to waste as there is little foreign demand for them. As they contain a large amount of saponin it is said they should be of value in the manufacture of soap.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, DETROIT, JUNE 12-16.

Alabama State Medical Association, Mobile, April 18.
American Assn. of Genito-Urinary Surgs., Washington, D. C., May 9-10.
American Association of Path. and Bact., Washington, D. C., May 9-11.
American Climatological and Clin. Assn., Washington, D. C., May 9-11.
American Dermatological Association, Washington, D. C., May 8-10.
American Gastro-Enterological Association, Washington, D. C., May 8-9.
American Gynecological Society, Washington, D. C., May 9-11.
American Laryngological Association, Washington, D. C., May 9-11.
Amer. Laryn., Rhin. and Otol., White Sulphur Sprgs., W. Va., May 5-6.
American Ophthalmological Society, Washington, D. C., May 9-11.
American Orthopedic Association, Washington, D. C., May 8-11.
American Otological Society, Washington, D. C., May 9-10.
American Pediatric Society, Washington, D. C., May 8-10.
American Society of Tropical Medicine, Washington, D. C., May 9-11.
American Surgical Association, Washington, D. C., May 9-11.
American Urological Association, St. Louis, April 17-19.
Arizona Medical Association, Phoenix, April 26-27.
Arkansas Medical Society, Texarkana, May 2-4.
Association of American Physicians, Washington, D. C., May 9-11.
California State Medical Society, Fresno, April 18-20.
Conference of State and Prov. Boards of N. A., Washington, May 16-17.
Cong. Am. Phys. and Surgs. of No. Am., Washington, D. C., May 9-10.
Connecticut State Medical Society, Bridgeport, May 17-18.
Florida Medical Association, Arcadia, May 10-12.
Georgia Medical Association, Columbus, April 19-21.
Illinois State Medical Society, Champaign, May 16-18.
Iowa State Medical Society, Davenport, May 10-12.
Kansas Medical Society, Topeka, May 3-5.
Louisiana State Medical Society, New Orleans, April 25-27.
Maryland Medical and Chirurgical Faculty, Baltimore, April 25-27.
Mississippi State Medical Association, Greenville, May 9-11.
Missouri State Medical Association, Excelsior Springs, May 8-10.
National Assn. for Study and Prev. of Tuberc., Wash., D. C., May 11-12.
Nebraska State Medical Association, Omaha, May 23-25.
New Hampshire Medical Society, Concord, May 16.
New York State Medical Society, Saratoga Springs, May 16.
North Carolina State Medical Society, Durham, April 18.
North Dakota State Medical Association, Devils Lake, May 10-11.
Ohio State Medical Association, Cleveland, May 17-19.
Oklahoma State Medical Association, Oklahoma City, May 9-11.
South Carolina Medical Association, Charleston, April 18-20.
South Dakota State Medical Association, Aberdeen, May 23-25.
Texas State Medical Association, Galveston, May 9-11.
West Virginia State Medical Association, Wheeling, May 16-18.

PHILADELPHIA COUNTY MEDICAL SOCIETY

Meeting held March 22, 1916

The President, DR. JOHN D. MCLEAN, in the Chair

SYMPOSIUM ON MECHANICAL AIDS

Mechanical Aids in Varicose Veins

DR. WILLIAM A. STEEL: In general, operative treatment of varicose veins by extirpation or ligation is the method of choice. Palliative treatment, however, by supportive means is indicated in patients enfeebled by age or constitutional disease or in cases in which radical measures are refused. These means are applicable only when the veins appear on the surface of the body. No suitable appliance has been devised for controlling varicosities of the external female genitalia. Varicocele and varicose veins of the leg are the varicosities amenable to mechanical treatment. Supports for the treatment of varicocele are of two classes, the suspensory and the jock strap. All types of these supports give some relief, but the best support in bad cases of varicocele is furnished by the athlete type of jock strap as worn by gymnasts, acrobats and vaudeville performers. Pressure devices for varicose veins of the leg may be divided into bandages and stockings. In the presence of ulcer, a desirable form of dressing is an imbricated arrangement of adhesive straps covering the ulcer and adjacent tissues with a spica bandage extending over the foot and leg. This is changed every third day until healing occurs. In the absence of ulcer, an elastic bandage of which there are three types, plain rubber, elastic rubber and elastic cotton web, may be used. These are applied from below upward and without reverses, covering the foot and leg, and when properly applied give the needed support. The plain rubber, however, cannot be worn continuously, because of the resultant sweating; there is difficulty in applying the webbed bandages evenly, and they are apt to loosen with walking, so that the patient eventually resorts to some form of stocking. Two general types of stockings are those made of elastic rubber webbing and those of elastic cotton webbing. Either form should not be used as an isolated section above the calf or thigh, as it acts as a constricting garter, cutting off return circulation.

Mechanical Treatment of Hernia

DR. G. G. DAVIS: Hernia is considered by some to have in most cases a congenital deficiency or peculiarity as its foundation. Whether or not this is true of the cases making their appearance in youth and adult age is somewhat of an academic question. It is a fact, however, that hernias of both the umbilical and inguinal type are quite common at birth and soon after. But rarely are early operative procedures required. In umbilical hernia in the new-born, in which the intestines protrude into the cord and so stretch the structures that rupture, infection and death are threatened, and early operative closure is imperative. In other cases, conservative measures are at times advisable. In the treatment of deformities of the new-born we should not forget the motto, "Safety first." Many cases tend to spontaneous cure, and simple treatment leads to success. In the umbilical variety of hernia I have frequently pressed the intestine back with one finger, folded the skin over and retained it by a strip of adhesive plaster extending half way around the body and held in place by the binder. Another method is that of fastening a large wooden, rubber or metal button over the hernial opening by an adhesive strap. Hernias involving the inguinal region are mostly of the oblique type. Care should be taken not to mistake an encysted hydrocele of the cord or an undescended testicle for a hernia. In this country a truss in usually used in the treatment of these cases. There is no especial advantage in persisting for years in the wearing of trusses in young children; operation is almost always successful, and is not dangerous. The requirements in a truss are that it shall be comfortable and effective, and to meet these requirements the spring should be of the proper length, strength and shape. The pad is an important part of the truss. It is oval or egg shaped, and should be fastened to the truss by adjustable means. The pads should cover the inguinal canal from the middle of Poupart's ligament to the spine of the pubis. They should lie parallel to Poupart's ligament and just above it, and make even pressure over their whole length. It is wrong to attempt to control the exit of a hernia by making pressure solely over the internal ring. Pressure should be made on the whole canal. The type of truss most favored is that known as the Hood truss. In this the springs are joined together in front by a strip of metal; but at the back a strap is used. There are two pads, one for each side. The real trouble in truss fitting is that the fitter is apt to be unwilling or unable to get the proper combination for the individual case. The parts subjected to pressure should be bathed with alcohol to which alum has been added. When applying a truss, the patient should be on his back with his shoulders raised and the knees flexed. The contents of the sac should be replaced. One should not be guilty of applying the truss before this is done. Pads preferably made of "factis," hair, or filled with water are sometimes of service in sensitive cases, at least, temporarily. When replacement of the hernia is impossible, the next best thing is to have a pouch made suspended by a waist band. Notwithstanding the fact that operations for the radical cure of hernia are much more satisfactory now than formerly, still trusses of some form are very extensively used, and the practicing physician should have some idea of their mode of application.

Mechanical Aids in Curvature of the Spine

DR. JAMES K. YOUNG: There are two principal forms of lateral curvature of the spine, functional and organic. There are also many varieties, habitual, pathologic and static. In the early stages of this disease the treatment has been quite satisfactory with exercises and light braces, and the results have often been very good. It is in the advanced cases, however, in the conditions formerly known as structural or fixed curves, in which forcible corrective methods, and particularly the Abbott methods, have given the best results. In the Abbott method the patient should be stretched daily for two weeks, the cast should be applied in the corrected position in a special frame every two months, and following this, a celluloid jacket should be worn, and exercises should be given. There are certain forms which cannot be treated by this method, especially a severe sharp angle deformity due to infantile palsy of the spine. In this form there is great danger of sloughing. Before beginning treatment it is absolutely necessary to exclude tuberculosis because of possible injury to the spinal cord. The forcible correction should be considered as a capital operation, and should be performed only by the experienced, as there is danger of injuring the nerves or spinal cord or producing fracture.

Mechanical Aids to Hearing

DR. RALPH BUTLER: Aids to hearing have found little favor as compared with aids to vision, probably because they are less efficacious, convenient and becoming than glasses; also, because the partially deaf are more sensitive in regard to their affliction than the partially blind. Mechanical aids are contraindicated when relief can be secured by treatment, or hearing is fairly good. They are of no value if the auditory nerve or centers are destroyed. Here nothing helps the patient except the sign language or lip reading, perhaps better named expression reading. In many very deaf patients the nerve and centers are normal, the trouble being in the conducting apparatus of the middle ear, and such patients are most likely to be helped by these devices. We recommend these appliances when the patient is very deaf, incurable, and finds that he can get on better with than without them. The only invisible aids to hearing which are of value are the artificial drumheads. They are occasionally of signal benefit, but obviously useless when the drumhead is thickened and stiffened from an old inflammation, and are contraindicated in purulent otitis media, or when they cause inflammation or tinnitus. They are most likely to be helpful in the presence of a dry perforation, or a relaxed drumhead. The principal types are the disk made of thin paper, or of rubber, the tiny flattened ball of cotton, or small pieces of rubber tubing. The disk of paper has the advantage that it acts as a splint and stimulates the growth of the epithelium, frequently causing the perforation to close. These disks cannot be changed by the patient, unless a handle is attached; and, like all these drumheads, they require observation to guard against irritation which may cause purulent otitis media. The indiscriminate use of the much advertised artificial ear drums or "invisible phones" is to be condemned. The increased intensity produced by the larger volume of sound collected by the conversation tube, ear trumpet and ear dome overcomes the pathologic stiffness of the ossicular chain and enables it to transmit the sounds to the nerve endings. Possibly these instruments also utilize the increased bone conduction of middle ear deafness.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, Boston

March, VI, No. 3, pp. 191-306

1 Extension of Plague Infection of Bubonic Type. R. H. Creel, San Juan, P. R.
2 Laboratory in Service of State. C. E. A. Winslow, New Haven, Conn.
3 Control of Scarlet Fever. A. J. Chesley, Minneapolis.
4 Need of Better Control of Some Neglected Contagious Diseases. J. E. Lane, New Haven, Conn.
5 Significance of Mortality Rates of Colored Population of United States. J. W. Trask, Washington, D. C.
6 Part Played by Hospitals in Control of Contagious Diseases. R. J. Wilson, New York.
7 Is Control of Measles and Whooping Cough Practicable? F. G. Curtis, Newton.
8 Public Health Publicity: Art of Stimulating and Focussing Public Opinion. E. A. Moree, New York.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

March, III, No. 9, pp. 471-528

9 Pellagra in Jamaica. J. F. Siler, U. S. Army.
10 Deep Sea Diving and Its Relation to Caisson Disease. Abstract of Available Literature. C. H. Halliday, Manila.
11 Primitive Medicine; Chills, Fever and Ague. Remarks on Piaiman's Work and Service. B. Percival, Paramaribo, D. G., South America.

Boston Medical and Surgical Journal

March 30, CLXXIV, No. 13, pp. 441-482

12 Cesarean Section: Consideration of Indications, Technic and Time of Operating. C. M. Green, Boston.
13 Modern Indications for Cesarean Section. J. T. Williams, Boston.
14 Cesarean Section — Overdone. F. S. Kellogg, Boston.
15 *Anesthesia in Obstetrics. A. Brant, Boston.
16 *Nitrous Oxid in Obstetrics. F. C. Irving, Boston.
17 Respiratory Mechanism in Pneumonia. L. H. Newburgh, J. H. Means and W. T. Porter, Boston.

15. **Anesthesia in Obstetrics.**—The one point brought out with greatest emphases by Brant is that no method of anesthesia is safe through the whole of labor. The varying indications and contraindications must, he says, be followed carefully and closely, with the safety of both mother and child in mind. For long, primiparous labors the following sequence would seem to be best: The proper use of bromids, chloral, or morphia-scopolamin in the first stage; the administration of these drugs to be stopped in time so that their effects shall have worn off by the time of expected delivery; nitrous oxid administration during pains, with or without the change to obstetric ether for delivery; or, in the hands of the trained obstetrician, the substitution of forceps for the second stage, under sufficient ether anesthesia.

16. **Nitrous Oxid in Obstetrics.**—Irving regards nitrous oxid and oxygen as being the most successful analgesic known for the relief of the pains of labor. He says it is the safest anesthesia. It has no untoward effects, immediate or remote, on either mother or baby. It does not delay labor or in any way impair the efficacy of the uterine contractions. It is pleasant to take, and recovery from it is extremely rapid and usually featureless. It can be administered anywhere and it can be employed by any physician who will take his confinement cases seriously enough to retain a capable assistant for its administration.

Bulletin of Johns Hopkins Hospital, Baltimore

April, XXVII, No. 302, pp. 93-120

18 *Ideal Operation for Aneurysms of Extremity; Report of Case. B. M. Bernheim, Baltimore.
19 *Post Partum Care of Perineum. E. D. Plass, Baltimore.
20 Cases of Gaucher's Disease Reported by Knox, Wahl and Schmeisser. F. S. Mandlebaum and H. Downey, Minneapolis.
21 Rôle of Certain Florentines in History of Anatomy, Artistic and Practical. E. C. Streeter, Boston.

18. **Operation for Aneurysms of Extremity.**—The patient whose case is cited by Bernheim had an aneurysm of the right popliteal artery, of one month's duration but which was increasing in size somewhat rapidly. At the operation a spindle-shaped tumor presented and was opened on its dorsal aspect, revealing only two openings, the entrance and exit of the popliteal artery, the two points being distant about an inch and a half from one another, and only the faintest sign of a groove being apparent between them. The popliteal vein was so densely adherent to the sac that it was impossible to separate it without taking part of the sac wall, which was done. A reconstructive Matas endo-aneurysmorrhaphy was impossible, hence Bernheim removed about 15 cm. of the internal saphenous vein from the affected leg at the knee and, after proper preparation, interpolated about 12 cm. of it between the severed ends of the popliteal artery. Only the ends of the sac were cut away, the remainder being left to be folded around the transplant as a partial reinforcement. Carrel's end-to-end suture was used. At the conclusion of the suturing blood went through the graft in a normal manner. An uninterrupted convalescence ensued. All pain and discomfort in the leg disappeared and a curious preoperative "dead feeling" of the great toe had given way to a normal feeling. Pulsation could be felt all along the vein graft as well as in the arteries of the foot.

19. **Post Partum Care of Perineum.**—In order to demonstrate whether such routine antiseptic treatment of the perineum after delivery has any distinctly beneficial effect on the course of the puerperium or on the healing of primary perineal repairs, the following clinical experiment reported by Plass was conducted. For a period of nine months all patients were divided into two groups after delivery, A and B (every alternate patient being placed in group A), and treated as follows: Those in group A were given the routine perineal care and those in group B were given no special attention. The routine care consisted in bathing the vulva and perineum with cotton pledgets soaked in 1:2,000 mercuric chlorid solution every four hours, as well as after each defecation and urination during the nine days the patient remained in bed. The patients in group B were merely kept macroscopically clean with warm tap-water and soap and a wash cloth. No attention was paid to voiding or bowel movements, unless, as sometimes happened after the initial dose of cathartic, the need of cleansing the parts was apparent. The bloody lochia were removed whenever necessary. Unless the patient was very ill, she was expected to keep herself clean. No exceptions were made to the alternate grouping of the patients. At the end of the experiment, when each group contained 200 cases, the records were carefully tabulated. The routine care was followed by many poor results, whereas excellent results were obtained in cases in which no antiseptic precautions were taken, hence the old routine was entirely abandoned. In addition to the better results obtained after the elimination of the more or less complicated antiseptic treatment, there is an economy in the time of the nurses. Plass concludes his paper as follows: The use of antiseptic solutions in the care of the perineum during the puerperium or in the after-care of primary perineorrhaphies is of no value. Macroscopic cleanliness alone gives better results and effects a considerable saving of time.

Florida Medical Association Journal, Jacksonville

March, II, No. 9, pp. 257-288

22 Artificial Infant Feeding by Malt Soup. A. G. Mitchell, Philadelphia.
23 Is Present Knowledge Sufficient to Cure and Prevent Tuberculosis? J. M. Masters, Port Orange.
24 Early Diagnosis of Tuberculosis. G. Baerecke, DeLand.
25 Cervical Laceration. D. Forster, Hawks Park.
26 Colles Fracture. J. Reeves, DeLand.
27 Typhoid. H. L. Merryday, Daytona.
28 Vaccine Therapy. W. L. Wood, New Smyrna.

Indiana State Medical Association Journal, Fort Wayne

March, IX, No. 3, pp. 93-134

29 *Diagnostic Routine in General Practice. C. R. Bird, Greensburg.
30 Treatment of Cerebrospinal Syphilis by Intraspinous Injections of Mercurialized Autoserum. G. W. McCaskey, Fort Wayne.
31 Modern Conception of One Form of Nephritis. C. P. Emerson, Indianapolis.

29. Abstracted in The Journal, Nov. 20, 1915, p. 1848.

Iowa State Medical Society Journal, Des Moines

March, VI, No. 3, pp. 99-146

32 Prophylaxis of Typhoid. F. C. Mehler, New London.
33 Nonmalignant Diseases of Prostate. B. C. Everall, Waterloo.
34 Symptoms of Surgical Conditions of Gallbladder. W. A. Rohlf, Waverly.
35 Gastrorrhagia. T. A. Moran, Melrose.
36 Surgery of Gastric Ulcer. V. B. Knott, Sioux City.
37 Results of Elliott Trephine Operation for Glaucoma. R. H. Parker, Des Moines.
38 Influence of Defective Vision on Play Life of Child. M. K. Heard, Iowa City.
39 Experiment in Child Inspection. L. C. Rockwood, Iowa City.

Journal of Cutaneous Diseases, Boston

April, XXXIV, No. 4, pp. 259-342

40 Eczema and Dermatitis, Analysis of Cases. W. J. Heimann, New York.
41 Deep Transverse Furrowing of Finger Nails Following Local Asphyxia. D. W. Montgomery, San Francisco.
42 Case of Actinomycosis; Cutaneous and Systemic. E. D. Newman, Newark, N. J.
43 Coolidge Tube and Corbett Radiometer. G. M. MacKee and J. Remer, New York.
44 Formalin Urticaria. M. L. Heidingsfeld, Cincinnati.

Journal of Infectious Diseases, Chicago

April, XVIII, No. 4, pp. 335-436

45 *Tuberculocidal Action of Arsenic Compounds and Their Distribution in Tuberculous Organism. A. Arkin and H. J. Corper, Chicago.

46 *Case of Infection of Lymph Glands With Bacillus Paratyphosus B. C. L. Cole, Fort Sam Houston, Tex.
47 *Simultaneous Injections of Streptococci and Dahlia in Guinea-Pig. W. H. Hoffman, W. B. McClure and L. W. Sauer, Chicago.
48 Correlation of Voges-Proskauer and Methyl-Red Reactions in Colon-Aerogenes Group of Bacteria. M. Levine, Ames, Iowa.
49 *Bactericidal and Fungicidal Action of Copper Salts. Studies on Biochemistry and Chemotherapy of Tuberculosis. . L. M. Dewitt and H. Sherman, Chicago.
50 Epidemic of Appendicitis and Parotitis Probably Due to Streptococci Contained in Dairy Products. E. C. Rosenow and S. I. Dunlap, Minneapolis.
51 Production and Collection of B. Coli in Quantity on Synthetic Media. R. Bengis, New York.
52 Production of Hyperimmune Serum for Infectious Abortion in Mares. E. S. Good and W. V. Smith, Lexington, Ky.
53 Intradermal Sensitization. I. Intradermal Reactions to Emulsions of Normal and Pathologic Skin. J. H. Stokes, Chicago.
54 Id. Intradermal Reaction to Agar and Interpretation of Intradermal Reactions. J. H. Stokes, Chicago.

45. **Arsenic Compounds in Tuberculosis.**—The clinical reports in the literature as summarized by Arkin and Corper show that arsenic has not been demonstrated to have any specific action in tuberculosis, and that its value in this disease can be attributed only to its favorable effects on metabolism. Furthermore, in advanced tuberculosis it may even be harmful. In order further to determine the effect of arsenic compounds on the tubercle bacillus, and their value in the treatment of tuberculosis, the authors investigated the tuberculocidal action of sodium arsenite, sodium cacodylate, mercury cacodylate, atoxyl, arsacetin, and neosalvarsan, and have sought to determine whether or not these compounds enter the tissues of the tuberculous animal. An emulsion of human tubercle bacilli was treated at 37 C. with various dilutions of each arsenic substance for a period of twenty-four hours. They found that sodium arsenite in dilutions of from 0.1 to 0.0001 per cent. has no germicidal action on the tubercle bacillus in vitro in twenty-four hours at 37 C. Sodium cacodylate in dilutions of from 2 to 0.002 per cent. has no germicidal action on human tubercle bacilli in vitro. Mercury cacodylate in dilutions up to 0.001 per cent. has a germicidal action on human tubercle bacilli. The fact that sodium cacodylate has no tuberculocidal action indicates that the mercury cacodylate owes its effect to the presence of the mercury in the molecule. Atoxyl arsacetin and neosalvarsan in dilutions of from 1 to 0.001 per cent. have no germicidal action on human tubercle bacilli in vitro. The presence of arsenic in tissues of injected animals was also investigated by Arkin and Corper.

As a result of their experiments they noted that: Arsenic in simple crystalline salt form, as sodium arsenite, sodium cacodylate, atoxyl, arsacetin and neosalvarsan, administered to tuberculous animals parenterally, is found in the liver, lungs, kidneys, blood, spleen and tuberculous tissues (lymph glands of guinea-pigs and eye of rabbit), the concentrations in the various tissues not greatly differing. No evidence of accumulation in the tuberculous tissues was obtained. Incidentally, since tin forms salts like arsenic, in which the tin is in the negative radical, experiments were performed to test whether sodium stannate was germicidal toward the tubercle bacillus. It was found that even in concentrations as high as 1.0 per cent. for forty-eight hours at 37 C., it is nongermicidal toward the human tubercle bacillus; no evidence even of attenuation was observed.

46. **Paratyphosus B Infection of Lymph Glands.**—In the case cited by Cole a condition of multiple lymphadenitis seems to have been caused by an infection with *Bacillus paratyphosus B,* and, so far as could be ascertained, the disease developed without a preliminary manifestation of a typhoid-like, gastro-enteric, or cholera-like type of infection.

47. **Streptococci and Dahlia in Guinea-Pigs.**—It seems evident from the experiments performed by the authors that intravenous injection of dahlia in general streptococcal infections is not warranted as a therapeutic measure.

49. **Bactericidal and Fungicidal Action of Copper.**—The fact demonstrated by DeWitt and Sherman show that very low concentrations of copper will, if sufficient time is allowed, kill or inhibit the growth of many pathogenic organisms, would seem to suggest that copper salts, since their toxicity is low, should have a certain therapeutic value, especially in diseases caused by those bacteria which are easily killed or inhibited by the metal. It has but slight bactericidal action on the tubercle bacillus, but in the treatment of an infectious disease an inhibitory action may be, and probably is, quite as important as complete destruction. A dilution of 1 : 100,000 prevents the growth of tubercle bacilli in the test tube. Some organisms (notably *B. prodigiosus*) are markedly susceptible to the effect of copper, while others (as *Staphylococcus aureus* and the molds) are very resistant, surviving fifteen minutes' exposure to even 5 per cent. solution.

Journal of Laboratory and Clinical Medicine, St. Louis

March, I, No. 6, pp. 371-456

55 Typhoid in Detroit. H. F. Vaughan and W. F. Walker, Detroit.
56 Immunity in Tuberculosis. G. B. Webb, Colorado Springs, Colo.
57 Tissue Cellular Protein Poisons. J. G. Cumming, Berkeley, Calif., and J. S. Chambers, Ann Arbor, Mich.
58 Automatic Pipet. A. H. Rowe, San Francisco.
59 Schick Test. D. M. Griswold, Detroit.
60 Simple Test for Estimating Chlorids in Urine, Founded on Volhard's Method. J. J. Seelman, Milwaukee, Wis.
61 Rapid and Accurate Clinical Method for Estimation of Sugar in Small Quantities of Blood (Lewis and Benedict; Pearce; Myers and Fine). J. J. R. Macleod, Cleveland.

Journal of Medical Research, Boston

March, XXXIV, No. 1, pp. 1-130

62 Immune Reactions Against Tumor Growth in Animals With Spontaneous Tumors. M. S. Fleisher and L. Loeb, St. Louis.
63 *Experimental Bland Infarction of Myocardium, Myocardial Regeneration and Cicatrization. H. T. Karsner and J. E. Dwyer, Jr., New York.
64 Superficial Fatty Streaks of Arteries: Experimental Study. J. W. McMeans and O. Klotz, Pittsburgh.
65 *Bacteria Associated With Certain Types of Abnormal Lymph Glands. J. C. Torrey, New York.
66 Study of Involutional Changes Which Occur in Suprarenal Cortex During Infancy. R. W. Lewis and A. M. Pappenheimer, New York.
67 *Glioma of Cerebellum With Metastases. F. M. Jacob, Pittsburgh.
68 *Colloidal Gold Precipitating Substance in Cerebrospinal Fluid in Paresis. P. G. Weston, Warren, Pa.
69 Comparison of Natural Hemolytic Activity of Fresh Human Serum Against Guinea-Pig and Sheep Erythrocytes. H. W. Wade, New Orleans.
70 *Etiology of Rocky Mountain Spotted Fever. S. B. Wolbach, Boston.
71 *Etiology of Scarlet Fever. F. B. Mallory and E. M. Medlar, Boston.

63. **Bland Infarction of Myocardium, etc.**—This study by Karsner and Dwyer is one of a series having as the chief object the investigation of the pathologic alterations, both gross and microscopic, which constitute the changes occurring in the process of infarction. The studies were made on dogs in whom an artificial infarct of the right coronary artery was produced by ligation of the artery. The authors found that this leads to the formation of a focalized area of congestion, hemorrhage, edema, cloudy swelling, fatty degeneration, granular and hyalin necrosis of the muscle, and necrosis of the supporting connective tissue. An infarct is produced which fundamentally has the same characters as infarcts of the kidney, spleen and lung. The infarct of the myocardium is at first a hemorrhagic infarct and later undergoes decolorization and cicatrization. The removal of the necrotic material is accomplished by liquefaction and the action of polymorphonuclear leukocytes, fibroblasts, polyblasts and multinucleated giant cells. The authors state that there is no reason for assuming that true regeneration of muscle occurs in the healing of the myocardial infarct. Cicatrization of the myocardial infarct is due to proliferation of preexistent connective tissue and blood vessels and is not materially different from cicatrization in other organs.

65. **Bacteria Associated with Abnormal Lymph Glands.**—Thirty cases in which the primary seat of the disease was in the lymphatic glands and ten cases in which the lymphatic glands were involved secondarily were examined by Torrey A diphtheroid bacillus of one type or another was recovered from twenty-two of the forty cases. Lymph glands yielding positive cultures included such diverse pathologic conditions as Hodgkin's disease, chronic hyperplastic lymphangitis of obscure nature, lymphosarcoma, sarcoma, melanoma, endo-

thelioma, tuberculous adenitis and chronic lymphatic leukemia. These findings included diphtheroids of the most divergent types morphologically and culturally. The inoculation of monkeys with several representative strains of these diphtheroids has resulted negatively. An attempt was made to obtain a toxin by growing selected cultures for nine days in slightly alkaline sugar-free broth. These cultures were inoculated subcutaneously into guinea-pigs, but without definite results. Torrey claims that the theory of a causal relationship between a diphtheroid and Hodgkin's disease rests at present on an insecure basis. The few tests which Torrey has made for agglutinins have resulted negatively. No single type of diphtheroid is apparently found alone in the enlarged glands of Hodgkin's disease. Torrey also encountered strikingly pleomorphic and granular diphtheroids in such diverse conditions as perivascular endothelioma, hyperplastic lymphangitis of obscure origin and tuberculous adenitis. A number of other aerobic bacteria were encountered in these lymph glands, but, with the exception of staphylococcus, only sporadically of anaerobic bacteria.

Torrey describes in detail one, a slender, pleomorphic, strongly gram-positive rod with rounded ends, previously described by Bloomfield. The best mode of culturing the material in order to bring these anaerobic types to development was found to consist in burying the bits of tissue at various depths in a column of ascitic glucose agar with a reaction of about plus 2 to phenolphthalein. Although this bacillus was not specific for any single pathologic condition it was recovered in the highest percentage of instances (100 per cent.) from Hodgkin's glands. In five cases, three Hodgkin's and two lymphosarcoma, it was practically the only micro-organism developing in the culture tubes. Culturally all strains of this bacillus exhibited a marked uniformity and the conclusion that they consist of a single species was substantiated by agglutination experiments. Large amounts of this bacillus in a viable condition could be injected intraperitoneally or intravenously into rabbits without producing toxic symptoms. Animal inoculations with this anaerobic bacillus were as unsuccessful as with the aerobic diphtheroids recovered from the glands. Cultural findings in various types of abnormal glands have indicated that this bacillus does not stand in specific relationship to any definite pathologic condition. Torrey agrees with Bloomfield that the evidence suggests it is present as a parasite rather than as an active pathogen. He suggests the designation *Bacillus lymphophilus.*

67. **Glioma of Cerebellum with Metastases.**—The principal points of the case studied by Jacob are: A young adult giving a typical history of brain tumor extending over a period of two years. The necropsy showed a large glioma of the cerebellum which had extended into and obliterated the fourth ventricle and occupied most of the central white matter of the cerebellum. Smaller masses of a similar character were distributed on the ependyma of the lateral ventricle, the central canal of spinal cord and the leptomeninges. All of these masses were very cellular, unencapsulated, infiltrating and, to all microscopic appearance, malignant in character. Gland-like and rosette structures were noted in many parts of the tumors. The masses in the ventricle were discrete and had a nodular papillomatous structure, but the pia mater of the cerebrum, cerebellum and cord contained a patchy growth of gliomatous tissue extending over a considerable area, involving much of the surface of the brain and cord. No masses were found in any organs outside the cranial and spinal cavities.

68. **Colloidal Gold Precipitating Substance in Cerebrospinal Fluid in Paresis.**—An attempt was made by Weston to determine the nature of the substance in the cerebrospinal fluid obtained from cases of paresis which causes the precipitation of gold from colloidal suspension, but the result was a failure. Weston claims that it is not peptone, nor does his work confirm that of Matzkiewitsch.

70. **Etiology of Rocky Mountain Spotted Fever.**—The demonstration of a parasite in the lesions characteristic of experimental spotted fever in guinea-pigs and in monkeys is recorded by Wolbach. The virus was secured in the form of infected ticks—Dermacentor andersoni, Stiles (Dermacentor venustus, Banks). The organism corresponds in some respects with the description given by Ricketts of bodies which he found in the blood of human and experimental cases, and in the tissues and eggs of infected ticks. The classification of the organism is not yet clear; of its bacillary form and multiplication by transverse division there can be no question. The characteristics not common to most bacteria are its coloration with Giemsa's stain, the character of the reaction excited in tissues and its abundant distribution within smooth muscle cells of blood vessels. The peculiarities in distribution and the staining reaction would indicate that the organism partakes somewhat of the characteristics of spirochetes. All attempts at cultivation have thus far failed.

71. **Etiology of Scarlet Fever.**—Microscopic examination of the tissues from a child dying from scarlet fever on the second day following the appearance of the skin eruption showed large and small masses of gram-positive bacilli in some of the crypts of the tonsils, in the exudation on the surface of the tonsils, in slight depressions and erosions in the squamous epithelium covering the tonsils, the pillars of the fauces, the soft palate including the uvula, and the root of the tongue, in the trachea, in the lung. Smears made from swabs thrust deeply into the crypts of the tonsils in three early cases of scarlet fever (from ten to forty-eight hours after the appearance of the eruption) showed small and occasionally large masses of gram-positive bacilli similar to those found at postmortem examination. In two patients without tonsils smears made from the pillars of the fauces and from the soft palate showed similar bacilli in small clumps. Curettings of erosions on the soft palate of one of these patients showed masses of the same bacilli. In smears made only from the surface of the tonsils of two cases the findings are doubtful. Cultures of a bacillus resembling morphologically and in staining reactions that found in the postmortem tissues and in the smears from the tonsils and soft palate have been obtained in five instances, four times from the crypts of the tonsils and once, when the tonsils were absent, from the soft palate.

The organism is a strongly gram-positive bacillus (decidedly more so than the diphtheria bacillus). In culture the bacillus is slightly smaller than the diphtheria bacillus and varies from coccus like to large bacillary forms. The bacilli in tissues and in direct smears from scarlet fever cases are slightly larger than the organisms in culture, but otherwise resemble them. The authors feel warranted to infer from their observations that scarlet fever may be due to a strongly gram-positive bacillus (*B. scarlatinae*) which is less virulent than the diphtheria bacillus, but which infects practically the same localities and in severe cases may extend in the same way to adjoining tissues, especially the larynx, trachea and lungs. The bacillus of scarlet fever dies out quickly in the lesions, so that after the second or third day following the eruption it is difficult or impossible to demonstrate it, but it opens the way for streptococcus invasion and seems to favor its growth.

Kentucky Medical Journal, Bowling Green

March, XIV, No. 3, pp. 105-168

72 Intussusception in Infants. L. S. McMurtry, Louisville.
73 Fractures. J. B. Murphy, Chicago.
74 Difficult Presentations. E. Speidel, Louisville.
75 Verumontanum With Reference to Referred Symptoms. G. H. Day, Louisville.
76 Chronic Prostatitis. H. Bronner, Louisville.
77 Public Health. J. G. Foley, Pineville.

Laryngoscope, St. Louis

March, XXVI, No. 3, pp. 153-216

78 Papilloma of Nose. J. G. Callison, New York.
79 Treatment of Diphtheria of Tracheobronchial Tree. H. L. Lynah, New York.
80 Galvano-Cautery Operation for Lower Turbinate. G. Sluder, St. Louis.
81 Relation of Otolaryngology to Other Specialties. Team Work. J. C. Beck, Chicago.
82 Case of Tubercular Leprosy Involving Upper Air Passages. H. Arrowsmith, Brooklyn.
83 Syphilis of Lung. H. Hays, New York.

84 Case of Foreign Body in Throat of Child Three and One-Half Months Old. C. M. Robertson, Chicago.
85 Unusual Dental Case Simulating Antral Sinusitis. H. B. Decherd, Dallas, Tex.
86 Injury to Soft Palate and Uvula in Tonsillectomies. J. A. Thompson, Cincinnati.

Maine Medical Association Journal, Portland

March, VI, No. 8, pp. 293-324

87 Comparative Values of Some Methods of Diagnosis in Digestive Diseases. R. F. Chase, Portland.
88 Osteomyelitis of Right Femur Complicated by Fracture Simulating Sarcoma. F. H. Jackson, Houlton.

Medical Record, New York

April 1, LXXXIX, No. 14, pp. 589-630

89 Springs of Saratoga — Their Value in Treatment of Disease. W. G. Thompson, New York.
90 Surgical Treatment of Gastric and Duodenal Ulcers. G. Woolsey, New York.
91 Indications for Surgery or Deep Roentgen Therapy for Myomata and Metropathies. C. A. Pfender, Washington, D. C.
92 Urologic Case That Teaches Necessity of Science, System and Common Sense. G. S. Peterkin, Seattle.
93 Pulmonary Tuberculosis and Body Weight. I. N. Kahn, New York.
94 *Study of Blood With New Stain. B. Lemchen, Chicago.
95 Fistula of Rectum. C. J. Drueck, Chicago.

94. **Study of Blood with New Stain.**—The stain Lemchen uses for blood smears consists of a saturated solution of benzidin in absolute alcohol. After making the blood smears on slides he puts this solution on it for about half a minute. This fixes the blood on the slide and also impregnates the stain. He then adds hydrogen peroxid. After about half a minute the slide is washed in water and dried in filter paper. The red cells are stained blue. Nucleated red cells, the cells together with the nucleus, are also stained blue. White cells do not take the stain. The blood platelets do not stain. If the blood smears stand for a couple of hours so that fibrin will form, the fibrin also stains blue. Lemchen concludes from this that the red cells and the white cells have different origin, that the platelets have not their origin in the nucleus of the red cells and also that the fibrin apparently has the same composition as the red cells. Whether or not the breaking down of the red cells forms a substance necessary for the coagulation of the blood Lemchen admits he is unable at present to say, but on the same reasoning, he assumes that in all probability, this process is originated by the red cells. This he suggests might explain the great destruction of red cells in pernicious anemia. With this same reasoning it might be assumed that the agglutinins in typhoid might have their origin in the red blood cells. This also might account for the marked anemia in typhoid, and also for the increase in size of the spleen and the great activity of the lymph and hemolymph glands.

New Orleans Medical and Surgical Journal

March, LXVIII, No. 9, pp. 567-627

96 Treatment of Extra-Uterine Pregnancy. A. P. Heineck, Chicago.
97 Pellagra. W. L. Seccor, Kerrville, Tex.
98 American Leishmaniosis of Skin and Mucous Membranes. A. Laveran.

New York Medical Journal

March 25, CLII, No. 13, pp. 577-624

99 Orientation and Equilibration. A. B. Duel, New York.
100 Military Preparedness From Medical Standpoint. E. P. Fowler, New York.
101 Treatment of Duodenal Ulcer. A. Bassler, New York.
102 Guelpa's Starvation Treatment of Diabetes. J. H. Kellogg, Battle Creek, Mich.
103 Disease in Apparently Healthy Colored Girls. G. Wilson, Baltimore.
104 Migraine. Its Cause, Treatment and Cure. A. H. M.-de S. Remy, Porto Rico.
105 Prevention of Fire in Old Buildings Housing Insane. J. A. Jackson, Philadelphia.
106 Elements of Psychanalysis. A. D. Dryfoos, New York.
107 Nervous Symptoms in Visceral Diseases. A. A. Eshner, Philadelphia.

Ohio State Medical Journal, Columbus

March, XII, No. 3, pp. 161-232

108 Resection of Posterior Roots of Spinal Cord for Cure of Spastic Paraplegias. E. M. Blahd, Cleveland.
109 Rupture of Male Urethra. E. O. Smith, Cincinnati.
110 Sclerocorneal Trephining for Glaucoma. A. Timberman, Columbus.
111 Negro Health Problem in Cities. J. H. Landis, Cincinnati.
112 Anemia; Diagnosis of Underlying Cause and Treatment. A. E. Osmond, Cincinnati.
113 Smallpox in Ohio. F. G. Boudreau, Columbus.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

March, XXIV, No. 3, pp. 69-100

114 Use of Tuberculins in Treatment of Tuberculosis. F. J. Ridge, Kansas City, Mo.
115 Can Early Diagnosis of Pulmonary Tuberculosis Be Made? S. J. Wolferman, Fort Smith, Ark.
116 Eugenics. M. A. Warhurst, Sylvian.
117 Injuries of Brain; Report of Case. J. E. Gilcreest, Gainesville, Tex.
118 Some Inflammatory Conditions About Orbit. J. G. Dorsey, Wichita, Kan.
119 Compound Fracture of Tibia and Fibula; Report of Case. F. M. Sanger, Oklahoma City.
120 Treatment of Hyperthyroidism. L. F. Watson, Oklahoma City.

Tennessee State Medical Association Journal, Nashville

March, VIII, No. 11, pp. 467-504

121 How and When to Use Digitalis. E. R. Zemp, Knoxville.
122 Scopolamin-Morphin Anesthesia — Twilight Sleep. J. M. Troutt, Knoxville.
123 Allen Treatment of Diabetes. E. McNabb, Knoxville.
124 Cervical Tear. W. N. Lynn, Knoxville.
125 Curse of Serpent. S. M. Miller, Knoxville.
126 Fracture of Capitellum. H. H. McCampbell, Knoxville.
127 Knoxville, Medical Center. C. H. Davis, Knoxville.
128 Knox County Medical Society. C. Deaderick, Knoxville.
129 Fascia Fat vs. Egg Membrane in Traumatic Defects of Skull et al. B. B. Cates, Knoxville.

Washington Medical Annals

March, XV, No. 2, pp. 81-179

130 *Cases of Ulceration and Perforation of Stomach. D. S. Lamb, Washington.
131 Diagnosis of Case of Tremor. T. A. Williams, Washington.
132 Experiences in Serbia. L. Tayler-Jones, Washington.
133 Case of Subsidence Through Roentgenotherapy of Hypophysis Cerebri. T. A. Williams, Washington.
134 Responsibility of Physicians With Respect to Insane Patient. F. A. Fenning, Washington.
135 Protection of Child From Tuberculous Kindred Ills Through Adequate System of School Hygiene. W. C. Gwynn, Washington.
136 Support of Health Office. H. W. Wiley, Washington.
137 Case of Postoperative Tetanus, After Clean Operation for Strangulated Femoral Hernia. C. N. Chipman, Washington.
138 End-To-End Arterial Anastomosis of Radial Artery Following Transfusion. D. L. Borden, Washington.
139 Use of Percy Cautery in Carcinoma of Uterus. J. D. Rogers, Washington.

130. **Ulceration and Perforation of Stomach.**—One of the cases cited by Lamb is that of a colored woman, aged 23, who had had a cough for two months, with dulness over both lungs and hemoptysis. There was an oval tuberculous ulcer of greater curvature, about 2½ inches from the pylorus; the ulcer half an inch in diameter; edges thickened and undermined; floor formed by the muscular coat. There were a few follicular ulcers in the duodenum. The necropsy showed much emaciation; an oval tuberculous tumor the size of a pigeon egg in right cerebellar hemisphere; lungs generally adherent and studded with tubercles; peritoneum generally adherent and studded with tubercles; greater omentum contracted into a band and filled with tubercles; mesentery also contracted into a solid lump, its lymphatic nodes tuberculous; liver contained a few large cheesy tubercles; spleen filled with miliary tubercles; tuberculous ulcers in ileum and cecum; tubercles in cortex of each kidney.

Wisconsin Medical Journal, Milwaukee

March, XIV, No. 10, pp. 407-452

140 Typhoid Prevention by Bacterial Vaccine. J. M. Whalen, U. S. Army.
141 Taking Blood for Wassermann Test. W. F. Lorenz, Mendota.
142 Medical Inspection in Public Schools. E. B. Brown, Beloit.
143 School Medical Inspection With Special Reference to Detection of Diphtheria Carriers. J. R. Newman, Madison.
144 Physical Education and Its Relation to Medicine. C. B. Sputh, La Crosse.
145 Bone Transplantation in Deformities of Nose; Report of Three Cases. F. S. Cook, Eau Claire.
146 Case of Thrombo-Angeitis Obliterans. E. Evans, La Crosse.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

December, 1915, XXXVIII, Part 4, pp. 391-476

1 Ophthalmologic Observations of Hughlings Jackson and Their Bearing on Nervous and Other Diseases. J. Taylor.
2 *Sensory Field of Facial Nerve: Symptomatology of Geniculate Ganglion. J. R. Hunt.
3 Case of Bilateral Lesion of Occipital Lobes With Retention of Macular as Distinct From Panoramic Vision. B. Bramwell, J. S. Bolton and W. Robinson.

2. **Sensory Field of Facial Nerve.**—A very detailed study of the facial nerve made by Hunt had for its purpose largely the determination of the symptomatology of inflammation of the geniculate ganglion. This is said to be as follows: (*a*) Pain and sensory disturbances in facial neuritis. (*b*) Neuralgic affections; primary tic douloureux, reflex otalgia, herpetic and tabetic otalgia. (*c*) A sensory pathway for the direct transmission of irritative impulses to the facial nucleus, thus favoring the production of facial twitchings and spasms. (*d*) Herpetic inflammations of the geniculate ganglion, a syndrome characterized by an eruption of herpes zoster in the geniculate zone, usually associated with facial palsy and often with auditory symptoms. The cutaneous zone of the geniculate ganglion is represented on one or more of the following landmarks of the external ear, namely, the concha, external meatus, tragus, antitragus, incisura intertragica, antihelix, fossa of the antihelix, superior portion of the external surface of the lobule, within the auditory canal and on the tympanic membrane. There is also reason to believe that the geniculate may in certain cases participate with the ninth and tenth ganglia in the innervation of a cutaneous strip on the posteromesial surface of the auricle and adjacent mastoid region.

Hunt says that it has been suggested that an eruption occurring within what he describes as the geniculate zoster zone may be of trigeminal, cervical, or glossopharyngeal vagal origin. Hunt maintains, however, that the occurrence of isolated herpes zoster oticus in this zone should be of either trigeminal or cervical origin is readily excluded by the small size and the peculiar location of the eruptive manifestations. Some of the cases are certainly of glossopharyngeal and vagal origin; that the other cases are of geniculate origin is shown by the almost constant association of facial palsy due to the proximity of the motor fibers of the seventh to the affected ganglion. Were these cases of glossopharyngeal or vagal origin, facial palsy should not occur so constantly, rather pharyngeal and laryngeal palsies or symptoms of vagal irritation. In such lesions of the vagal ganglion one would expect symptoms of pneumogastric irritation, namely, coughing, singultus, bradycardia, nausea and vomiting and yet these distinctively pneumogastric symptoms were absent in the thirty-five cases of pure herpes oticus, which Hunt analyzed in differentiating the geniculate zone.

British Medical Journal, London

March 11, I, No. 2880, pp. 365-400

4 *Case of Splenic Anemia With Splenectomy. L. Humphry, C. Allbutt, F. Deighton and D. C. Hare.
5 Principles of Treatment and Their Application to Wounds. C. F. M. Saint.
6 War Surgery. A. M. Forbes.
7 Work at Base Hospital. W. Rankin.
8 *Ulceromembranous Stomatitis and Gingivitis Among Troops on Active Service. F. B. Bowman.

4. **Case of Splenic Anemia with Splenectomy.**—The most interesting feature of this case is the record of the behavior of the polymorphonuclears and lymphocytes. Even before the operation their numbers varied widely. The first count showed the leukopenia usually associated with the disease (4,500), but later there was a high leukocytosis (33,000) coincident with the period of increased irregularity of temperature. After the operation the variations in the chart followed in the main the usual course. There was an early increase in the polymorphonuclears (77 per cent.) succeeded in about six weeks by a sharp rise in the lymphocytes (55 per cent.). A high polymorphonuclear count in the fifth week (68 per cent.) followed a few days of high temperature, which supports the observation of Fuhs that removal of the spleen does not abate the capacity for reaction against infection. Before the operation the test for the fragility of the red corpuscles was carried out by Thursfield's method with unwashed corpuscles and gave a normal result. The urine was also tested for the presence of hemolysins and a positive reaction obtained. About three months after the operation the patient seemed quite well, and said she felt well. She had done all her housework almost from the date of leaving the hospital. Her tongue, pulse, temperature were all normal; appetite good, bowels regular. Complexion now well colored, and all the tallowy tint had disappeared. The white cells numbered 41,000 per cm.; differential leukocyte count; Polymorphonuclears, 48 per cent.; lymphocytes small and medium, 44 per cent.; large mononuclears, 5 per cent.; hyalins, 1 per cent.; basophils, 2 per cent. and nucleated red cells, 1 per cent. of leukocytes counted.

8. **Ulceromembranous Stomatitis and Gingivitis.**—The following treatment was found by Bowman to have remarkably rapid and favorable results in these cases:

	gm. or c.c.	
Vinum ipecacuanhae	16	℥ ss
Glycerinum	4	ʒ j
Liquor arsenicalis	32	ad ℥ j

M. Sig.: To be used as a mouth wash; do not swallow. Label "poison."

In cases in which the gums only are affected the solution can be applied carefully to the gums and pockets around the teeth, after cleaning away the pus. A small applicator should be used. In cases in which there is ulceration elsewhere in the mouth or throat, the ulcer should be wiped out thoroughly twice every day with the above solution. All patients, whether or not the gums be infected, are instructed to drop 10 or 15 drops of the mixture on a toothbrush twice a day and to brush the teeth and gums vigorously. Employing this treatment the condition clears up with remarkable rapidity. Even in advanced cases, in Bowman's experience, the alteration in the state of the mouth is obvious in three days. The ulcers are seen to be healing; the foul odor of the breath disappears; the teeth cease to be tender. The general depression clears up, and within a week the patients who before treatment could not masticate solid food, can eat such food without discomfort and with enjoyment.

Dublin Journal of Medical Science

March, III, No. 531, pp. 155-226

9 Case of Chyluria. J. A. Lindsay.
10 Certification of Insured Persons in Ireland. R. J. Rowlette.
11 New Bismuth Medium (Skirol) for Pyelography. A. A. McConnell.
12 Two Cases of Aneurysm Due to Bullet Wounds. C. A. Ball.
13 Acute General Tuberculosis With Left Oculomotor Paralysis After Measles. J. Moore.

Edinburgh Medical Journal

March, XVI, No. 3, pp. 169-256

14 Surgical and Antiseptic Values of Hypochlorous Acid (Eusol). J. Fraser and H. J. Bates.
15 Employment of Female Nurses in Male Wards of Mental Hospitals in Scotland. G. M. Robertson.
16 Report on Radium Treatment at Royal Infirmary, Edinburgh, During Year 1915. D. Turner.
17 Case of Myotonia Congenita (Thomsen's Disease) in Child. J. Thomson.

Glasgow Medical Journal

March, LXXXV, No. 3, pp. 161-240

18 Pyuria. D. Newman.
19 Nasal Affections and Deafness. W. S. Syme.
20 Towns-Lambert Treatment of Drug Addiction. D. K. Henderson.

Journal of Laryngology, Rhinology and Otology, London

March, XXXI, No. 3, pp. 73-120

21 Skin Grafting in Mastoid Operations. H. J. Marriage.
22 Radical Mastoid Operation. J. S. Fraser.

Journal of Tropical Medicine and Hygiene, London

March 1, XIX, No. 5, pp. 53-64

23 Peripheral Neuritis in Jamaica. C. R. Edwards.
24 Pathogenic "Fecalis" Streptococci in Anglo-Egyptian Sudan. A. J. Chalmers and A. Marshall.

Lancet, London

March 11, I, No. 4828, pp. 545-600

25 Effects of High Explosives on Central Nervous System. F. W. Mott.

26 Beriberi With Special Reference to Prophylaxis and Treatment. W. H. Willcox.
27 *Unusual Form of Gunshot Arteriovenous Aneurysm. C. A. Morton.
28 Diet as Factor in Causation of Mental Disease. C. Mercier.
29 *Lower Uterine Segment; Its Origin and Its Boundaries. E. H. Tweedy.
30 *Search for Typhoid Carriers. A. Stokes and C. Clarke.

27. **Gunshot Arteriovenous Aneurysm.** — In the case recorded by Morton there was a communication between the femoral artery and vein, due to the passage of a portion of a projectile through them, and on the side of the artery opposite to the communication, in cases in which the portion of projectile had passed out of the artery, was an aneurysmal sac. In cases in which the portion of projectile had penetrated the vein, namely, on the side of the vein farthest from the artery was what Morton calls a venous aneurysm, namely, a cavity in the tissues containing old blood clot, communicating with the vein. It was an aneurysmal varix with, in addition, an arterial aneurysm and a venous aneurysm. It is interesting to note that in this case there was nothing to make either the patient or any surgeon who examined him suspect injury to the large vessels of the thigh until eighteen days after the injury.

29. **Nature of Lower Uterine Segment.**—Tweedy points out that the cervix is a tissue which does not easily tolerate a stretching force. If the elongated cervix of prolapse were really a process of stretching it would be pulled thin as a piece of twine; instead, it remains of normal thickness, no matter how greatly it is strained. We must, then conclude, he says, that the cervix is not a stretchable structure but, on the other hand, that it has a power of extraordinary rapid growth when stimulated by continuous pressure. In a case reported by Jellett a small cervical stump left after the performance of a subtotal hysterectomy was firmly stitched to the aponeurosis of the abdominal wall in an effort to cure prolapse. It remained fixed in this position, but prolapse recurred and it was of so extreme a nature that the os protruded for many inches through the vulva. This enormous elongation was not accompanied by diminution of its diameter, but rather the reverse, and in this instance the increase of the cervix must have amounted to about fifteen times its original size. Further, the vaginal portion of the cervix when not subjected to pressure does not enlarge.

30. **Search for Typhoid Carriers.**—Eight hundred and ten cases were examined by Stokes and Clarke with these results: Temporary intestinal, thirty-two, or 4.0 per cent.; temporary urinary, thirty-three, or 4.0 per cent.; chronic intestinal, eleven, or 1.6 per cent.; chronic urinary, 2, or 0.24 per cent. Of the temporary urinary carriers only two of the thirty-three found became chronic carriers. The thirty-three temporary carriers were treated with hexamethylenamin for about ten days, and then after an interval of one week were reexamined. All consistently proved negative on four consecutive examinations. The two who excreted bacilli after the twelfth week from commencement of the illness, and in one case up to the twentieth week, both suffered relapses in a late period of convalescence. They both continued to excrete up to the eighth week in one case, and the tenth week in the other, after the inception of the relapse. They were both apparently benefited by the treatment.

Bulletin de l'Académie de Médecine, Paris

February 29, LXXV, No. 9, pp. 245-264

31 Pseudo-Cancer of the Stomach of Syphilitic Nature. G. Hayem.
32 Canned Whole Meals for Soldiers. (De l'introduction des boites-repas dans le régime alimentaire des troupes se battant en rase campagne.) E. Maurel.
33 Localization of Projectiles in the Tissues. (Dispositif permettant la mesure rapide et par simple lecture de la profondeur des projectiles dans les tissus par la radioscopie.) V. Mahar.
34 Differentiation of Direct and Indirect Powder Marks. (Sur le diagnostic différentiel entre les traces d'enfumage dues à la poudre dans les coups de feu tirés à bout portant et les taches bleuâtres du plomb à l'état pulvérulent.) Ducellier.

Paris Médical

March 4, VI, No. 10, pp. 229-272

35 Treatment of Bacilli Carriers. (Le traitement des porteurs de germes, bacille diphthérique, méningocoque, bacille typhique.) P. Carnot.
36 Employment of Bandages for Irrigation of Wound-Surfaces With Therapeutic Solutions, and the Draining of Wounds. A. E. Wright.
37 *Emetin in Treatment of Amebic Abscess of the Liver. C. Dopter.
38 The Art of the Therapeutist. (Grandes et petites médications.) L. Rénon.
39 Treatment of Infected or Doubtful Wounds in War. (Traitement des plaies de guerre infectées ou douteuses.) M. Chaput; (Traitement des plaies infectées par le sérum de Leclainche et Vallée.) M. Cazin; (Médicaments et blessures de guerre.) M. Deguy.

37. **Emetin for Liver Abscess.**—Dopter relates further successful application of emetin in amebic disease of the liver, having now a record of twelve cases. While paying full credit to the marvelous efficacy of emetin in amebic disease, he insists that surgical measures are still indicated as otherwise. Only the combination of the two can be relied on.

Presse Médicale, Paris

March 2, XXIV, No. 13, pp. 97-104

40 Diagnosis of Complete Interruption of Trunk Nerve. (Le diagnostic de l'interruption complète des gros troncs nerveux des membres.) Dejerine and J. Mouzon.
41 Stirrup Method of Extension for Fractured Leg. (Traitement des fractures du membre inférieur par l'extension continue au moyen de l'étrier de Finochietto.) P. Chutro.

March 9, No. 14, pp. 105-112

42 Colloidal Gold in Treatment of Typhoid. M. Labbé and Moussaud.
43 *Suturing the Synovial Membrane to the Skin for Suppuration in the Knee. (Le traitement des arthrites purulentes du genou par l'arthrostomie ou marsupialisation de la synoviale.) G. Fieux.

43. **Open Treatment of Purulent Disease of the Knee.**—Fieux remarks that there is general harmony of opinion among army surgeons now in regard to most of the current wounds of war, but the best treatment for an infected wound of the knee is still an open question. The difficulty of draining the knee joint seems to be the chief obstacle, and he thinks that arthrostomy is a great improvement over the usual methods of draining in vogue. The limb is turned to drain automatically after a crucial incision has been made and the tips of the four flaps sutured back, thus opening up the synovial membrane like a kangaroo's pouch. Each incision is 5 or 6 cm. long; the pouch thus left open admits the thumb readily. If necessary he would make more than one of these openings, but one always proved sufficient in his experience. In one particularly severe case in which the arthritis had continued a progressive course with much accumulation of pus, it healed in seventeen days after the arthrostomy. Seven cases are described in detail to show the advantages of this suppression of drains and open pouch drainage.

Archiv für Gynaekologie, Berlin

CV, No. 1, pp. 1-150. Last indexed Dec. 18, 1915, p. 2203

44 *Some of the Physiologic Conditions of the Newly Born. (Eine klinische Studie über etliche der physiologischen Verhältnisse Neugeborener.) L. Isachsen.
45 *Pregnancy and Delivery After Treatment of Genital Prolapse by Fastening Uterus in Anteversion to the Vaginal Edge; Two Cases. (Ueber Schwangerschaft und Geburt nach Interpositio uteri vesico-vaginalis.) W. Weibel.
46 Intraperitoneal Hemorrhage From Graafian Follicle or Corpus Luteum Not Probable. (Können grosse intràperitoneale Blutungen aus Graafschen Follikeln oder Corpus luteum-Bildungen ohne Vorhandensein von Schwangerschaft entstehen?) H. Forssner (Stockholm).
47 *Mechanism Influencing Presentation at Delivery. (Die Ursachen der Kindeslagen.) F. Schatz. To be continued.
48 *Determination of Protective Ferments in Histologic Sections. (Nachweis der Abwehrfermente im histologischen Schnitte.) P. Hüssy and T. Herzog.

44. **Various Physiologic Changes in the Newly Born.**—This sixty-four page article issues from the University clinic for women at Christiania. It is based on the study of 285 infants born to clinically healthy women. The average weight was 3,558 gm. which is above the average recorded in other countries in accessible literature. The fluctuations in the weight, the temperature, conditions in regard to the umbilicus, various types of weight curves, comparison of first and later children and other data are tabulated for comparison, and nearly four pages of bibliography are appended.

45. **Pregnancy After Wertheim's Operation for Genital Prolapse.**—When Wertheim proposed this method of treating genital prolapse by drawing the fundus of the uterus

over forward and suturing it to the vagina, he had only women past the childbearing age in mind, or those that had been artificially sterilized. Others disregarded these restrictions, and this communication from his clinic reports two cases in which conception had occurred afterward; three others are cited from the literature. In two of the total five cases the pregnancy progressed normally until near term and cesarean section was successfully done. In the other cases perforation of the fetal skull became necessary or abortion had to be induced. The conditions with this interpositio uteri vesico-vaginalis resemble closely those with vaginofixation, but the posterior wall of the bladder rests on the posterior uterine wall now become anterior.

47. **Causes of Different Presentations.**—Schatz describes ingenious devices with which he has apparently demonstrated that the weight of the different parts of the fetus is not a decisive factor in the way the fetus presents. The centers of gravity fall outside the points where they would have to be if gravity were the determining factor. This article is only one of a long series recording research on the mechanism of childbirth. His experiments seem to show that the specific gravity of the various parts of the fetus, in connection with the specific gravity of the fluid in which it floats, is what determines the presentation. This explains the different positions of the fetus at different times as the various parts develop. He says that he has been unable to find in the textbooks any mention of a center of specific gravity, but that this is the key to the presentation of the fetus, he is convinced.

48. **Protective Ferments in Histologic Sections.**—Hüssy and Herzog repeated Rollett's tests of specimens of serum from pregnant women left in contact with scraps of placenta tissue for sixteen or twenty-four hours. The scraps of placenta were then stained, and examined under the microscope in comparison with scraps in contact with control serum. (Rollett's communication on the subject was mentioned in The Journal, Oct. 31, 1914, p. 1613.) They found changes in the aspect in some of the cases but they were not so pronounced and not so constant as Rollett had found them, only two in eight of the cases presenting them. The action was pronounced only on the connective-tissue stroma, the specific placenta tissue not being affected, and hence the test gives no specific diagnostic response. They conclude that the method is of no use for the diagnosis of pregnancy, and the findings throw no light on the specific nature of the protective ferments.

Berliner klinische Wochenschrift

February 21, LIII, No. 8, pp. 177-208

49 *Prickly Heat. (Entstehung und Beseitigung des Juckens. D. Miliaria rubra et alba.) P. G. Unna. To be continued.
50 Experiences With Typhus; 134 Cases. (Fleckfieberbeobachtungen.) F. Meyer, A. Klink and E. Schlesies.
51 War Epidemics in Previous Wars and the Present War. (Die Kriegsseuchen im Weltkrieg.) B. Möllers.
52 *Infectious Jaundice; Weil's Disease. (Ueber die pathologische Anatomie der ansteckenden Gelbsucht.) H. Beitzke.
53 Indications for and Outcome of Operative Treatment of War Wounds of Peripheral Nerves. (Kriegsverletzungen des peripheren Nervensystems.) R. Cassirer. Concluded in No. 9.
54 The War Literature in Domain of Internal Medicine. (Die Kriegsliteratur aus dem Gebiet der inneren Medizin.) Reckzeh. Concluded.

February 28, No. 9, pp. 209-240

55 Prickly Heat. (Entstehung und Beseitigung des Juckens. E. Miliaria tropica.) P. G. Unna. To be continued.
56 *Edema Disease in Prisoners of War Not an Infectious Disease. (Besteht ein Zusammenhang der Oedemkrankheit in den Kriegsgefangenenlagern mit Infektionskrankheiten?) Jürgens.
57 Catarrhal Intestinal Disease, Typhus, Dysentery and Mixed Infections. (Ueber Darmkatarrh, fieberhaften Darmkatarrh, Typhus, Ruhr und Mischinfektionen.) J. Arneth.
58 Treatment of Wounds of Nerves. (Behandlung der Nervenverletzungen.) S. Loewenthal.
59 Blood-Alkali-Agar Kept in Cotton-Plugged Vessel, Always Ready to Use. (Ist es möglich, einen sofort brauchbaren Dieudonnéagar herzustellen, ohne die Zusammensetzung des Substrates zu verändern?) H. C. Hall.
60 Epidemic Febrile Retronasal Inflammatory Process. (Ueber die infektiöse Entzündung des Nasenrachenraums — Angina retronasalis.) W. Blumenthal.
61 Indications for and Results of Operative Treatment of Wounds of Peripheral Nerves. (Indikation und Erfolge bei der operativen Behandlung der Kriegsverletzungen des peripheren Nervensystem.) R. Cassirer. Concluded.

49. **Prickly Heat.**—Unna says that if the skin is kept dry, miliaria rubra and alba subside as rapidly as they have developed but otherwise they are liable to breed eczema. All that is necessary in treatment is to keep the skin dry and powder thick with a drying, antiparasitic powder such as magnesium carbonate and talc, each 50 parts, with sulphur and zinc oxid, each 2.5 parts. As the vesicles dry up the itching ceases. The content of the vesicles has no connection with the sweat, but the still unknown germs causing the trouble find a good culture medium in sweat.

52. **Pathologic Anatomy of Infectious Jaundice.**—Beitzke describes the concordant necropsy findings in five cases of Weil's disease. He was able to find in two cases a total of three spirochetes resembling those recently described by Huebner and others. It is evident that the spirochetes rapidly disappear not only from the blood but from the internal organs as well. The severity of the disease and the protracted convalescence may be responsible for liver or kidney disease later. There is no doubt that it is a septic general disease with innumerable small extravasations, severe pathologic changes in the liver and degeneration of the skeletal muscles. The jaundice is not the result of obstruction; the bile ducts were always found open, the bile never thickened. But the toxic injury apparent in the liver amply explained the jaundice.

56. **Edema Disease Among Prisoners of War.**—Jürgens compares conditions in various concentration camps of prisoners of war, the evidence demonstrating that typhus, relapsing fever and other infectious diseases have nothing to do with what he calls edema disease. This is a deficiency disease, like beriberi, and develops only in those on a too one-sided diet or inadequate diet. When the men were first taken prisoners they had been suffering from privations, and when they reached the camp they were enfeebled and many came down with imported camp diseases. The edema disease that developed during convalescence was for a long time regarded as part of the infectious syndrome, but this was a mistake. The edema sickness results from a metabolic upset from dietary deficiency, and wherever this was recognized and a more varied diet provided, the men soon threw it off or its appearance was averted. The first symptoms are progressive weakness and lassitude, an apathetic aspect, flabby, yellowish skin and pale mucous membranes; then suddenly the face and lips swell, and there may be symptoms suggesting scorbutus, with serious bowel trouble. In some of the camps, the disease did not present the full syndrome until the men were set to work digging. This upset the precarious balance, and from 10 to 20 per cent. of the men then developed at once the edema and pains in the legs. The edema sickness was most prevalent among the camps of Russian prisoners, but in two camps with British, French and Russians all were undernourished and were weak when brought in, and many showed symptoms of the edema disease. In these camps the British suffered most from it, the French least. The latter received numerous packages from home which kept their diet varied. In the two mixed camps cited, no typhus or relapsing fever developed at any time, notwithstanding the prevalence of lice and that edema disease was common at first until the necessity was realized for providing a better balanced diet.

Deutsche medizinische Wochenschrift, Berlin

February 24, XLII, No. 8, pp. 213-240

62 *Treatment of Acute Inflammation in Air Passages of Infants. (Behandlung der akuten Entzündungen der Luftwege bei den Säuglingen.) E. Peiper.
63 Specific Serodiagnosis of Dysentery. (Zur Aetiologie der Ruhr.) U. Friedmann and Steinbock.
64 Treatment of Tetanus. (Zur Tetanusfrage.) A. A. L. Menzer.
65 Localization of Metal Foreign Bodies in the Tissues. (Die Lagebestimmung von Fremdkörpern nach Gillet.) H. Gocht.
66 Uniform Records for Length of Stumps. (Einheitliche Längenmessung der Amputationsstümpfe.) F. Bähr.
67 Ultrafiltration in Manufacture of Pharmaceuticals. (Bedeutung der Ultrafiltration für die Gewinnung von Arzneimitteln.) F. Mayer.
68 *Ultraviolet Rays in Treatment of Typhoid Bacilli Carriers. (Typhusbazillenträgerbehandlung durch Erregung "ultravioletter Fluoreszenz" am Orte der Toxinbildung.) V. Hufnagel, Jr.
69 Blood-Alkali Dry Culture Medium Ready for Use. (Lentzsches Blutalkalitrockenpulver zur Bereitung von Choleranährböden in Feldlaboratorien.) T. Fürst.

70 War Wounds of Urogenital Apparatus. (Kriegsverletzungen des Urogenitalsystems.) Stutzin and Gundelfinger. Commenced in No. 7.

62. **Acute Inflammation of Infant's Air Passages.**—Peiper reiterates that not the cold air brought into the room, but the kiss given the baby or other contact with some one suffering from a "cold" is the cause of the rhinitis or pharyngitis in the infant. In institutions, if one of the attendants has a "cold," the infants in her charge all contract it. The most varied germs may be found in these "colds" in infants; certain epidemics may be exceptionally mild or may be accompanied by special and severe complications, pneumonia, otitis, etc. In any event they need full attention as they may lead to serious danger for the child. Even simple rhinitis calls for active measures, ensuring the permeability of the nose before each feeding, swabbing out the nose with a disinfectant or softening crusts with medicated oil. If the mucosa is much swollen, he instils a little 1:5,000 epinephrin solution into the nostrils from a dropper several times a day. Young infants do not know how to breathe through the mouth, and it may be necessary to feed with a spoon or stomach tube. The rhinitis may be unsuspected diphtheria; more than 50 per cent. of all cases of diphtheric rhinitis terminate fatally, and they are often the source of epidemics. Antitoxin can be given as freely to infants as to older children. With beginning otitis, warm 10 per cent. phenol-glycerin twice a day with moist heat may relieve. Paracentesis is not indicated unless there is much restlessness, violent pain and high fever. If the mastoid process grows red and swollen the child should be taken to a specialist at once. If the nasopharynx is involved, finely pulverized boric acid should be blown in or the region sprayed with hydrogen dioxid (tablespoonful in a glass of water). The nose should not be rinsed out. A sweat pack often proves useful in rhinopharyngitis; the child is kept for five minutes in a bath at 38 C. and then after the respiration has been stimulated with a dash of a little cold water, the child is wrapped in the bath towel and in a thick blanket and transferred to its warmed crib and warmly covered and given a bottle of hot tea. After an hour the usually sleeping child is taken up and dried and dressed in warmed clothing.

With laryngitis and pseudocroup the child is kept in bed and given a sweat pack. The neck over the larynx is rubbed twice a day with salve and a bandage applied. Dry warm bandages he thinks are better than moist heat. Internally he gives some calomel and antimony preparation or aromatized ammonia preparation. During the attack of croup the child is set up, applying hot sponges to its neck and letting it drink a bottle of sweetened weak tea or milk with some alkaline. It is then put back in the warmed bed and soon gets to sweating, and ipecac may not be required. As soon as the first signs of laryngitis appear the air of the room should be kept moist with spray or steam or the spray or steam held in by a tent-like arrangement over the crib. The rhinitis may entail retropharyngeal abscess. The snoring breathing, fever, and stiff sideways bending of the head are explained by discovery of a fluctuating tumor back of the velum. Incision is required at once, for spontaneous opening might flood the air passages with pus, using a double edged knife, wound to the tip with adhesive plaster. The moment the pus begins to emerge, the child is bent over forward to prevent aspiration. Relief is instantaneous and the symptoms subside at once. Some surgeons prefer to incise from without, but Peiper thinks that the simpler operation should be done without delay.

68. **Ultraviolet Exposures in Treatment of Bacilli Carriers.**—Hufnagel calls attention to the chemical changes which occur in tissues after ingestion of benzol when they are then exposed to the ultraviolet rays. An ultraviolet fluorescence is induced, and this may release toxic elements from their combination with the cells so that they pass into the blood stream and are eliminated in time. He cites research in this line by Behring, Tappeiner, Jesionek and others and refers to his own success in treating tuberculosis by this means. The same method, he suggests, might prove successful in treating bacilli carriers.

Medizinische Klinik, Berlin

February 20, XII, No. 8, pp. 199-226

71 *How Much Milk Does an Infant Need? (Zum Milchbedarf des Kindes und zur Aetiologie und Behandlung der Rachitis.) E. Feer.

72 Contracture of Stump After Amputation. (Ueber Stumpfcontracturen.) A. Hartwich.

73 *Comparative Tests of the Blood Pressure. (Ueber vergleichende Blutdruckbestimmung.) P. Horn.

74 Hernia of the Diaphragm. (Paroesophagea vera congenitalis? Zugleich ein Beitrag zur Genese der klinischen Symptome der Zwerchfellhernia.) J. Freud.

75 *Gastrogenous Diarrhea. S. v. Dziembowski.

76 Cure of Alveolar Pyorrhea With Undiluted Hydrogen Dioxid. (Heilung der Zahn-Pyorrhöe durch Einspritzung von reinem Wasserstoffsuperoxyd.) E. Kuhn.

71. **How Much Milk do Infants Require?**—Feer writes from Zurich that the prevailing high prices of provisions have had one good effect in that overfeeding of infants is less common. Last summer not one child with "alimentary intoxication" (*Brechdurchfall*) was brought to the children's clinic in his charge. For both young and old, the dietary has been reduced to the indispensable minimum, and this is greatly to the advantage of infants. He states that pediatrists are inclined to restrict more and more the amount of milk given bottle-fed babies. Czerny does not allow over a quart a day for children a year old of normal size, and only 800 gm. for smaller children. Feer goes even beyond this, not allowing more than 600 gm. a day by the end of the first year and much reducing this proportion after this. His experience has shown that the children thrive better on this than on the larger amounts of milk he used to order. He gives sugar almost from the first, rapidly increasing to 20 or 30 gm. a day, keeping this up till the seventh month with only from 350 to 500 gm. milk. Starch is given after the first month, increasing from 15 to 30 gm. in the form of rice or oatmeal gruel; at the sixth month he gives a little meat broth and fresh vegetables mashed very fine and soft, giving up to three or five tablespoonfuls by the end of the year. Fruit juices or crushed fruits he gives from the fourth month onward. In the second year he gives less milk and in the third only 200 gm. during the day. It is more trouble to feed an infant in this way by the teaspoon than to give it the bottle, but he is convinced that it will thrive better and be less liable to develop rachitis. With already developed rachitis, he reduces the proportion of milk still more. Wild animals and the children of savage races get no milk beyond the mother's lactation.

73. **Comparative Blood Pressure Findings.**—Horn has been comparing on 100 persons the findings in regard to the blood pressure as determined by various technics. Korotkow's auscultation method seemed to give the most reliable data. The oscillometer findings also harmonized with them in large measure. High pulse pressure was found particularly in the cases of arteriosclerosis, contracted kidney and functional neuroses. With auscultation of the brachial artery, the cessation of the flow under compression is perceived sooner than with the palpating finger, and also the return of the pulse is detected more readily. Both for the systolic and diastolic blood pressure the findings thus with Korotkow's auscultation technic seem to be more reliable. For comparison of the systolic pressure alone, Strasburger's palpation method may be preferable.

75. **Gastrogenous Diarrhea.**—Dziembowski discusses the rôle of hydrochloric acid in digestion and the reasons why lack of an adequate amount of it is liable to entail intestinal dyspepsia. He thinks there can be no doubt that the hydrochloric acid has a certain disinfecting action on the food, destroying fermentation-producing germs which otherwise set up fermentation farther along in the alimentary canal. The lack of hydrochloric acid also does away with the reflex closure of the pylorus. We know that the pylorus closes up when hydrochloric acid comes in contact with the duodenal mucosa. When this does not occur, the pylorus gapes continuously and in time atony results—conditions thus being the extreme reverse from the pylorospasm with hyperacidity, with its resulting constipation. Still another factor in the gastrogenous diarrhea is the mechanical irritation of the bowel lining from the undigested particles of food emerging

from the stomach. This mechanical irritation extends also to the musculature of the bowel wall, and it responds to this irritation with augmented peristalsis. The bowel contents are thus passed along with abnormal haste. There may be thus abdominal pain and diarrheic stool after nearly every meal, and undigested relics of food are seen in the stools. We know that pepsin acts only in an acid medium, and that albumin cannot be digested without hydrochloric acid. Even the starch grains require hydrochloric acid to release them from their albumin setting. The stools with gastrogenous diarrhea show pronounced creatorrhea and moderate steatorrhea. The latter differs from that with pancreas disease in that no fat needles or fat crystals are evident, only lumps of fats. Gastrogenous diarrhea is liable to develop with achylia from any cause, and he discusses in detail the various causes that have been observed. With derangement of the vegetative nervous system, anacidity and hyperacidity may alternate, entailing periods of diarrhea and constipation in turn.

In treatment of gastrogenous diarrhea, we must bear in mind that the bowel mucosa is probably irritated and hence food liable to aggravate the irritation must be avoided. He approves of giving aromatic and bitter substances to stimulate gastric secretion but not meat and spices until the bowel has been restored to normal by local medication. In conclusion he recalls that unsuspected syphilis may be at the bottom of the whole trouble. Many cases are on record in which treatment for syphilis soon brought about a complete cure after failure of all other measures.

Münchener medizinische Wochenschrift, Munich

February 22, LXIII, No. 8, pp. 269-304

77 Yeast-Food on the Market Not Palatable Enough to Become Popular. (Die Nährhefe als Nahrungsmittel.) P. Schrumpf.
78 Salvarsannatrium in Concentrated Solution. (Erfahrungen mit Salvarsannatrium in konzentrierter Lösung.) A. Schmitt.
79 Dry Powder Treatment of Vaginitis. (Der Ausfluss beim Weibe. Sieben Jahre vaginaler Pulverbehandlung.) M. Nassauer.
80 *Treatment of Gastro-Intestinal Affections. (Die Behandlung von Verdauungskrankheiten im Vereinslazarett.) F. A. R. Jung.
81 A Mutable Dysentery Bacterium. (Ein Bacterium dysenteriae mutabile.) G. Wagner.
82 *Dysentery Bacillus Carriers. (Ueber Bazillenträger bei Flexner-Dysenterie.) F. Verzar and O. Weszeczky.
83 Necessity for Immediately Protecting Wounds of the Dura and Brain With a Fat and Fascia Flap. (Erste chirurgische Versorgung der Kopfschüsse im Feldlazarett.) E. Kaerger.
84 Benefit From Blue-Light Treatment in Painful External After-Affections. (Weitere Erfahrungen über die Heilwirkung der Blaulichtbestrahlung bei äusseren Störungen nach Kriegsverletzungen.) K. Hasebroek.
85 Sudeck's Atrophy of Bone Tissue. (Ueber Sudecksche Knochenatrophie.) H. Hofmann.
86 Orthopedics for the Wounded. (Kriegsorthopädie in der Heimat.) G. Hohmann, F. Lange and F. Schede; Commenced in No. 6. (Ueber die Verwendung von Stützapparaten bei Kriegsverletzten.) W. E. Smitt.
87 Folding Chair Litter. (Eine neue Verwundetentrage.) Röper.
88 Spring Frame for Superposed Litters. (Kuhl'sche Tragebänkchen und Tragegestelle.) O. Garlipp.
89 Treatment of Fractured Arm in War. (Zur Behandlung der Schussbrüche des Ober- und des Vorderarms.) F. v. Lesser.
90 Splints Better Than Plaster Casts for the Wounded. (Der Idealverband der Sanitätskompagnie.) M. Schlichtegroll.

80. **Treatment of Disease of Digestive Apparatus.**—Jung is chief of the American ambulance at Munich and he relates that many men are sent back to it from the front on account of diarrhea and bloody stools. Study of the cases classifies the trouble as a catarrhal bowel or bile duct affection, gastric or duodenal ulcer, cirrhosis of the liver or helminths. In many cases an ulcer was discovered as the catarrhal bowel trouble subsided. The stomach functioning was tested in every case, and achylia and subacidity were found in the overwhelming majority. This is directly contrary to the experiences outside of wartime. A. Schmidt has also recently called attention to this exceptional prevalence of achylia now. Jung thinks that the digestive apparatus of the men in this category had long been in a precarious condition, but with ordinary care in dieting the balance of health had been preserved. The conditions of warfare had upset this balance. Possibly, he adds, beer had aided in digestion and the lack of it now has contributed to the upset. He has two dining rooms in the hospital, one with the ordinary diet, milk or a bottle of beer and a cigar; the other dining room for "spoon food" (*Breiweich*), the meat all passed through a grinding machine, the vegetables all forced through a sieve. The men with broken jaws and all those with gastro-intestinal trouble, able to be up and about, eat in this room. By this fine division of the food, many with weak digestion are able to take care of it, even those with achylia and subacidity. By this double dining room arrangement the men live under approximately normal conditions and convalescence is accelerated.

82. **Dysentery Bacillus Carriers.**—Verzar found 13 per cent. carriers among 417 convalescents from dysentery of the Flexner type. He also traced a small epidemic to two chronic carriers who had infected first their bed-mates. Positive and negative bacteriologic findings may alternate so that three examinations at least are necessary to exclude suspicion.

Therapeutische Monatshefte, Berlin

February, XXX, No. 2, pp. 65-112

91 Suspension of Nuts in Place of Milk; Vegetable Milk. (Ueber vegetabile Milch.) C. von Noorden.
92 Operative Treatment of Refractory Bone Fistulas After Wounds in War. (Operative Behandlung hartnäckiger Knochenfisteln nach Kriegsverletzungen.) G. Axhausen. Concluded in No. 3.
93 Local Irritation From Injection of Preparations of Digitalis. I. (Die örtliche Reizwirkung der zur Injektionsbehandlung empfohlenen Digitalispräparate.) O. Loeb and S. Loewe.
94 *Clinical Pharmacology of Functional Nervous Affections. (Erfolge der klinischen Pharmakologie bei funktionellen Nervenkrankheiten.) H. Januschke.
95 Efficacy of Camphorated Oil by Subcutaneous Injection in Arresting Tendency to Hemorrhage. (Die blutstillende Wirkung des subkutan angewandten Kampferöls.) Volland.

94. **Clinical Pharmacology in Treatment of Functional Nervous Affections.**—Januschke relates that a laboratory and ward have been set aside for experimental pharmacology since 1911 at the new children's clinic at Vienna in charge of von Pirquet. In this department the data learned from experimental research are applied in practice according to a physiologic plan worked out for each case, not based on empirical routine. Januschke here gives the details of five cases of successful treatment on this basis of various functional nervous disturbances. Among them is the case of a girl of 13 with hysteric paralysis of the legs. He first tried to influence the motor centers in the brain with caffein, but found they responded only with fatigue. Then he strove to render the musculature in the legs more sensitive to the weakened nerve impulses. He set about to accomplish this by giving thiosinamin by the mouth every two hours for two weeks. This drug renders the motor nerve terminals in the skeletal muscles more sensitive to stimuli, and is thus able in animals to cure paralysis from curare or magnesium, if not too severe. By the thirteenth day the child was able to use her legs normally and has had no return of the paralysis which had persisted before for four months unmodified by all measures.

In another case a boy of 12 with an acute maniacal attack was cured by a sedative given in doses sufficient to keep the emotion centers at rest until they had a chance to recuperate. Amyl nitrite tests in another case demonstrated that some spasm of the vessels in the brain was responsible for the peculiar, frequent attacks of unconsciousness in a boy of 11. After ineffectual trials of various sedative and other drugs, the tendency was cured with calcium lactate and restriction of salt. A permanent cure was not realized until the daily dose was raised to 8 gm. of calcium lactate. The first day with this dosage he had thirty-three attacks, the second day two, and after that no more during the ten months to date. The prompt effect of the lactate was probably due in part to retention of the drug from the preceding milder course.

In the fourth case a young woman suffered from functional cramps of the stomach which rejected all food, and as a last resort gastro-enterostomy was done. The cramps and vomiting persisted, but after the gastro-enterostomy they yielded at once to atropin, which before had had no effect. After being kept for a week under the influence of atropin, the cramps disappeared and have never returned. A boy of 10 had palpitations, vertigo, nausea and syncope which Januschke ascribed to latent constipation and successfully treated with artificial Carlsbad salts in an isotonic 1.5 or 2 per cent. solu-

tion, to refrain from irritating the intestines. This isotonic laxative morning and evening has rendered him good service in over 100 cases of habitual constipation. It is based on Best's research (1913) on the behavior of isotonic solutions in the intestinal tract.

Wiener klinische Wochenschrift, Vienna

February 24, XXIX, No. 8, pp. 217-248

96 Typhus in Galicia. (Zur Frage des Flecktyphus auf dem galizischen Kriegsschauplatze.) J. Kaup.
97 Gas Phlegmons in War. W. Denk and P. v. Walzel.
98 Prognosis of Operations on Peripheral Nerves. O. Stracker.
99 Primary Suture of Bone After Fracture of Lower Jaw. (Zur primären Knochennaht bei Schussfrakturen des Unterkiefers.) B. Mayrhofer.
100 Local Serotherapy of Epidemic Cerebrospinal Meningitis. (Ueber die Behandlung der epidemischen Genickstarre mit epizerebralen und intrakameralen Seruminjektionen.) K. Lewkowicz. Commenced in No. 7.
101 Organization of Sanitary Service in War. (Aerztlich-organisatorische Eindrücke an der osterreichisch-ungarischen und an der deutschen Ostfront.) A. v. Tschermak (Prague).

March 2, No. 9, pp. 249-280

102 *Induced Fever in Treatment of Gonorrheal Complications. (Fieberbehandlung gonorrhoischer Komplikationen.) R. Müller and A. Weiss.
103 Mechanism of Action of Vaccines. (Zur Kenntnis der Wirkung der Vakzine.) F. Luithlen.
104 Wounds of Vessels and Gas Gangrene. (Gefässschuss und Gasbrand.) H. H. Heidler.
105 Paratyphoid A in Galicia. (Erkrankungen an Paratyphus A in Galizien.) E. E. Oesterlin.
106 The Austrian Red Cross Hospital at Sofia. E. Suchanek and K. Joachimsthal.
107 Trench Neuritis. (Zur Feldneuritis.) E. Stransky.
108 Wounds of the Skull. (Feldspitalärztliche Betrachtungen über Schädelverletzungen.) M. Cernic. To be concluded.

102. **Induced Fever in Treatment of Gonorrheal Complications.**—Müller and Weiss became convinced that the efficacy of vaccine therapy of gonorrhea depended mainly on the febrile reaction which it induced. The benefit was most apparent the more intense the febrile reaction, and the benefit was apparent as a rule before there could have been time for antibodies to have developed. These and other considerations suggested to them that similar benefit might be obtained from injection of any nonspecific alien albumin. They here report the results of treatment on this basis in forty cases; milk was used in some and sodium nucleinate in others, injected intramuscularly. The therapeutic effect fully equalled and usually surpassed that of intravenous vaccine therapy. The gonorrheal epididymitis, arthritis, prostatitis or urethritis promptly retrogressed, with prompt subsidence of pain and other disturbances. They regard the results as a brilliant therapeutic success.

Zeitschrift für Tuberkulose, Berlin

February, XXV, No. 3, pp. 161-240. Last indexed Feb. 19, p. 611

109 *Mobilization of the Lung as Principle in Treatment of Pulmonary Tuberculosis in Early Stages. (Mobilisation der Lungen als Grundlage der Tuberkulose-Behandlung.) E. Kuhn.
110 *Segregation and Institutional Treatment of Pulmonary Tuberculosis. (Die Sanatorienfrage.) M. Holmboe (Christiania).
111 Relations Between Alcoholism and Tuberculosis. II. (Geheimrat J. Orths Vortrag "Zur Frage nach den Beziehungen des Alkoholismus zur Tuberkulose.") C. Hart.

109. **Mobilization of the Lung in Treatment of Pulmonary Tuberculosis in Early Stages.**—Kuhn has now ten years of experience with his suction mask, a device worn over the mouth and nose which by valvular action impedes inspiration while permitting free expiration. The consequence is that the air in the air passages becomes rarefied, the muscles of chest and neck work harder, and the upper part of the chest is mobilized as under no other conditions. He says that his mask has been applied in thousands of cases, and the lungs and diaphragm thus exercised provide better conditions for recuperation and cure of tuberculous processes than any other means can offer. The blood and lymph flow more rapidly and abundantly through parts thus being exercised, while the conditions with the suction mask prevent any tugging on the tissues and ward off all tendency to hemorrhage. The lungs can be vigorously exercised in this way in cases in which the slightest physical exertion otherwise is contraindicated.

The suction mask also realizes a kind of autoinoculation therapy. The temperature is a delicate index of the action of toxins, and hence the record of the temperature is the guide as to the practicability of the suction mask in the individual case. By mobilization of the lung in this way, the blood and lymph sweep through it and wash out the bacterial products into the general circulation, thus realizing what amounts actually to a course of tuberculin treatment, with resulting production of antibodies. When the slight rise in temperature shows that toxins are being swept into the general circulation, he then gives the organism a chance for complete rest while the production of antibodies is going on. His mask thus aims to accomplish the exact reverse of the induced artificial pneumothorax, and his experience with thousands of cases has demonstrated, he reiterates, that this mobilization treatment in the early stages is the most promising of all methods of treating pulmonary tuberculosis, and that some contrivance like the suction mask seems to be the means best adapted for the purpose.

110. **Segregation and Institutional Treatment of the Tuberculous.**—Holmboe compares the methods that have been followed in various countries in treatment of the tuberculous. In Sweden, both the early and the advanced cases are taken into the hospitals and sanatoriums, of which there are a number, but the very earliest stages get no treatment. The disease is already too firmly installed before the patient reaches the sanatorium. In Germany the sanatoriums are destined for the curable cases exclusively, the restoration of the earning capacity being the aim sought. The question of the advanced cases has not yet been satisfactorily solved there. In Denmark a system of classification has been enforced, with three sets of institutions, the sanatoriums for the curable cases, tuberculosis hospitals for advanced or bed-ridden cases, and the special camps or other institutions for those able to work. The Denmark plan seems to be working well.

In Norway the system prevails of a few large, lavishly equipped sanatoriums for the curable cases. The latter can journey to them at quite a distance without harm. The advanced cases do not require such equipment, and the sick like to be near home, so small hospitals for the advanced cases are arranged in or near the large cities. Early cases can be admitted here too at need. When the institutions now being organized are completed, Norway will have, like Denmark, provisions for thus treating 1 : 2,800 inhabitants. Experience seems to show that it costs more to run a small sanatorium in proportion than a large one. A resident, full time medical director is indispensable, Holmboe thinks, and fifty or sixty tuberculous patients are all that one physician can tend. The tuberculosis sanatorium costs more to equip and maintain than an ordinary hospital, and hence the incurable should not be allowed to monopolize the beds. In Sweden there is frequent complaint that their mixed sanatoriums are so crowded with the incurable that there is no room for the curable. Another disadvantage of the mixed sanatorium is the depressing influence of the sight of the advanced cases. The experience in Norway has shown that the small institutions for the advanced cases can be kept cheerful and homelike; there are about fifty of these tuberculosis "homes" in Norway.

Gazzetta degli Ospedali e delle Cliniche, Milan

February 27, XXXVII, No. 17, pp. 257-272

112 *Sand Tube for Isolating Typhoid Bacilli From the Stools. (Cultura in tubi di sabbia, previo arricchimento, per la ricerca del bacillo del tifo nelle feci.) C. Piazza.

March 5, No. 19, pp. 291-304

113 Obliterating Phlebitis as Complication of Mumps in Adult Male; Recovery. (La flebite obliterante come complicanza della parotite epidemica.) B. Nicola.

112. **Motility Test for Typhoid Bacilli in the Stools.**—Piazza has been applying the sand technic, described recently in THE JOURNAL, April 1, 1916, p. 1022, and endorses it as simple, convenient and reliable for the differential cultivation of typhoid bacilli. The U-shaped pipet is about 33 cm. long by 5 or 6 mm. in diameter. One of the arms is filled to a height of 10 cm. with very fine sand, the other arm with

bouillon tinted with neutral red which works up through the sand to the same level in both arms, and the bouillon is then inoculated with the infected solution. The more motile bacilli make their way through the sand and proliferate on the sand side of the tube. Piazza has been inoculating a series of tubes with cultures tinted with malachite green or mixed with bile or caffein. By this enrichment technic the cultures developed more rapidly, becoming unmistakable in less than twenty-four hours. The findings are particularly useful in revealing the duration of the elimination of typhoid bacilli by convalescents and also in detecting healthy carriers.

Policlinico, Rome

March 5, XXIII, No. 10, pp. 293-324

114 Foreign Bodies in the Air Passages in War. (Corpi estranei delle vie aeree in guerra.) G. Ferreri.
115 Case of Persisting Hiccup. (Un caso singolare di singhiozzo.) L. Belloli.

Grèce Médicale, Athens

1915, XVII, No. 21-22, pp. 37-40. French edition of Iatriki Proodos

116 Stab Wound of the Spleen. (Blessure de la rate.) G. Dre Kolias.

No. 23-24, pp. 41-44

117 Acute Atrophy of the Shoulder. (Cas de scapulalgie, à forme atrophique aigue. Carie sèche type Volkmann.) S. Papadopoulos.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

February 19, I, No. 8, pp. 645-732

118 *Surgical Treatment of Bronchiectasis. J. H. Zaaijer.
119 When Should One Be Revaccinated. (Wanneer is herhaling der koepokinenting aangewezen?) J. van Roojen.
120 Course of Paralytic Dementia Under Treatment for Syphilis. (Het verloop van een geval van dementia paralytica onder antiluetische behandeling.) J. G. Drossaers.
121 The Wassermann Reaction in Case of Latent Familial Syphilis. (De beteekenis der reactie van Wassermann in een geval van latente familiaire lues.) P. A. I. J. Nuijsink.

118. Operative Treatment of Bronchiectasis.—Zaaijer's four patients all had long had distressing symptoms from their cavities but tubercle bacilli were never found in the copious and malodorous sputum. All but one had drumstick fingers. They had been given systematic internal treatment for nearly or more than a year but all in vain. One woman had had disturbances from this cause since childhood. All were materially benefited or clinically cured by the subperiosteal resection of from 13 to 20 cm. of four or five ribs, suturing in two tiers with a compressing pad above. One patient was thus completely cured in five weeks from a year's disturbances from profusely secreting fetid bronchiectasis. There was some persisting pain in the region for a time but this gradually wore off. Zaaijer reviews what others have written on the subject of operative treatment of bronchiectasis, and discusses what we accomplish by resection of ribs. The resulting deformity is comparatively slight, and the danger small, especially if done under local anesthesia. The pressure prevents fluttering of the chest wall. He advises subperiosteal resection first, and only if this proves inadequate, removal of the periosteum and intercostal muscles, supplementing the operative with internal measures as required. All his patients were clinically cured by the simpler procedure but return of trouble in one case of multiple bronchiectasis is now demanding the more complicated intervention.

Hospitalstidende, Copenhagen

March 1, LIX, No. 9, pp. 177-200

122 The Mechanism of Gas Exchange in the Lungs. (Om Lungeluftblandingers Homogenitet.) C. Sonne.
123 Another Case of Juvenile Deforming Osteochondritis. H. Bagger.

March 8, No. 10, pp. 201-218

124 *Fat Infiltration in Heart and Muscles in Diphtheria. (Fedtinfiltration i Organerne og kliniske Tilfælde ved Diphtheri.) S. T. Sørensen.

124. Fat Infiltration in the Organs in Diphtheria.—That fat infiltration occurs in the heart with diphtheria has long been known, but Sørensen has found it marked also in the muscles. He examined 7 cadavers with membranous croup and 39 with typical diphtheria. Death had occurred in the second week in 19, third week in 6, six or seventh in 7 and during the first week in only 2. Study of these various groups shows that the clinical disturbances on the part of the heart and respiration suggest the action of a paralyzing toxin acting by the intermediation of the nervous system. He thinks that this paralyzing influence is ample explanation of the infiltration of the organs, especially of the heart. It was more pronounced in the cases that lasted longer, the paralyzed muscle opposing no resistance to the depositing of fat. The paralyzing influences are what imprint its special features on the disease, including the fat infiltration of the muscles. The changes in the kidney, liver and other organs did not differ materially from those of other correspondingly severe infectious diseases. Fat infiltration was not apparent in the heart on necropsy of 13 scarlet fever children except in one who had succumbed to complicating pneumonia and empyema, and there were only traces in 2 others, one an adult. No fat infiltration was detected in the organs in 5 erysipelas cadavers, in 2 whooping cough and in one measles child. In another case of measles with fatal pneumonia there was considerable fat infiltration in heart and liver. In one case of Landry's paralysis, fat infiltration was pronounced in the diaphragm and intercostal muscles but there was none in the heart.

Hygiea, Stockholm

LXXVIII, No. 4, pp. 225-288

125 *Edema Idiosyncrasy to Acetyl-Salicylic Acid. (Till kännedomen om acetylsalicylsyre-idiosynkrasien.) O. af Klercker.
126 *Operative Treatment of Colitis; Four Cases. (Colitis gravis s. chron. suppurativa.) B. Carlson.

125. Idiosyncrasy to Acetyl-Salicylic Acid.—Af Klercker cites seventeen cases from the literature and reports three from his own practice in which the therapeutic administration of acetyl-salicylic acid was followed by edema, the lids and face swelling, the skin puffing up sometimes down as far as the chest. In some of the cases there was also a tendency to urticaria, near the swollen patches or more diffuse. In some of the cases the edema involved the mucosa of the nose and pharynx; in two cases there was edema of the larynx. The edema rapidly reached its height and subsided as a rule in twenty-four hours. The doses had ranged from 0.3 to 1 gm., and the pathologic reaction occurred always at the first dose, independent of the amount taken. Some instability of the vasomotor system is evidently responsible for the trouble, but nothing of the kind had been known in the families before. Some favoring factors were probable in certain cases, application of local heat, fear of poisoning, a preexisting infection or other cooperating cause. In fact, he is inclined to place considerable stress on the emotional factor in those with an unstable vasomotor system. In two of the other cases the drug was continued without further mishap. His patients were a boy and girl about 4 and a man of 25. The boy's eyes swelled up so they were entirely closed in half an hour after the first dose. The man had taken a 1 gm. tablet to relieve toothache, and in less than half an hour the lids and region around the eyes swelled until it looked as if a big blister had run around the right eye, and there was some urticaria on the neck. The seventeen cases tabulated were all in adults, including two physicians who published self-observed case histories.

126. Ulcerative Colitis.—Carlson's four patients now regard themselves as cured from their severe suppurative colitis, which had been debilitating them for months or years. The colon was opened at the sigmoid flexure in all, with supplementary appendicostomy in three. The interval since, free from symptoms, amounts to four years in two of the cases, women of 34 and 59. One man of 35 had had bloody stools or mucus pass every fifteen minutes, with tenesmus and remittent fever. He was bedridden in consequence from the repeated discharges and weakness. Complete clinical recovery followed the operation and after-treatment with saline douches, tannin, nitrate, bismuth and kaolin. He was then able to resume his ordinary occupations in apparent health and strength, although the fistula was still patent.

Ugeskrift for Læger, Copenhagen

March 2, LXXVIII, No. 9, pp. 287-328

127 Roentgenotherapy of Cancer. (Om Røntgenbehandling af ondartede Svulster.) S. Nordentoft.

1283.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 17 CHICAGO, ILLINOIS APRIL 22, 1916

SPASM OF THE STOMACH AND DUODENUM FROM A ROENTGENOLOGIC POINT OF VIEW *

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The roentgenologic study of disease in the gastrointestinal tract requires a thorough acquaintance with spasm of the visceral musculature, its numerous manifestations and their comparative importance. Though recognized early by Roentgen workers, spastic phenomena deserve increasing attention and study, because they are relatively common and occasionally very perplexing.

Organic deformity of the luminal contour is the principal roentgenologic sign of disease in the digestive tube, not only revealing a lesion, but directly showing its location, its size and often its character. It shows as an addition to or a subtraction from the luminal outline when brought into view by the administration of substances opaque to the Roentgen ray. Striking examples of organic deformity are seen in the filling defect resulting from gastric cancer and the niche or barium-filled crater of chronic penetrating gastric ulcer, the diagnostic value of which must be conceded.

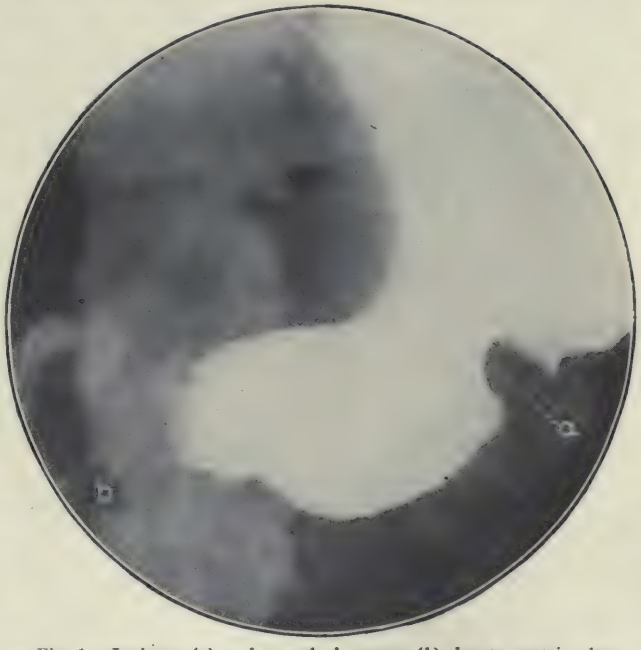


Fig. 1.—Incisura (*a*) and prepyloric spasm (*b*) due to gastric ulcer. No visible niche. Both spasms were seen during the vertical screen examination, and persisted after belladonna was given.

Many roentgenologists refuse to make a diagnosis in the absence of these signs, and claim that "sign complexes," made up of indirect manifestations, are of no value. This view is far too radical, for if Roentgen diagnosis were limited only to cases in which these direct indications are noted, many lesions of the alimentary canal would pass undiscovered. Often we are obliged to rely on more remote phenomena for diagnosis, such as alterations of motility, tonus and peristalsis.

All of these can be materially affected by spasm. Further, we are more or less dependent on changes of contour, spastic in nature but set up by an intrinsic lesion, as, for example, the incisura and spasmodic hour-glass of gastric ulcer. Still further, and even more importantly, we encounter and must be able to recognize spastic deformity of outline produced reflexly by extrinsic conditions, remote from the deformed organ. Such deformity may deceptively simulate the distortion produced either directly or indirectly by an intrinsic lesion. Thus the roentgenologist is called on to deal with two types of spasm. We can speak of one type as intrinsic and the other as extrinsic. One is often a help to diagnosis; the other often a hindrance.

SPASM OF THE STOMACH

The favorite playground of spasm, whether of intrinsic or extrinsic origin, is the stomach. Spasm of the stomach, arising from an intrinsic lesion, is generally produced by ulcer, less often by cancer.

Three forms of spasm due to gastric ulcer may be distinguished: (1) the incisura or hour-glass stomach; (2) diffuse spastic distortion, and (3) spasm of the pyloric sphincter.

1. The incisura is a spastic contraction of the circular muscle fibers in the plane of the ulcer, and shows as an indentation of the opposite curvature. Usually narrow, but of variable depth, persistent and permanent as to situation, it suggests at once the nature of the lesion and points toward its site. The cavity of the ulcer itself may often be seen as a niche or pocket, but sometimes neither can be distinguished. In the latter event, the incisura either alone or in combination with other functional disturbances may guide to the diagnosis which otherwise could not be made.

When the incisura is deep, the stomach is bilocular, and the examiner may either describe it as an hour-glass stomach, or emphasize only the incisura. In other instances the width and depth of the constriction are so extreme that the characteristics of a typical incisura are lost, and a pronounced hour-glass form is seen.

2. Gastric ulcer often gives rise to a diffuse spasm affecting a considerable extent of the pyloric segment, whether the ulcer be situated in this region or higher

* From the Mayo Clinic.

* Read before a joint meeting of the Chicago Medical Society and the Chicago Roentgen Society, March 22, 1916.

up in the stomach. The stomach, well outlined in its upper portion, shades off into a poorly filled, vaguely outlined, antral area, which may resemble the filling defect of a pyloric cancer.



Fig. 2.—Extensive prepyloric spasm due to gastric ulcer. Niche of ulcer seen at *a*. Pyloric end, *b*, showing spasm.

3. An ulcer situated in the pyloric segment is frequently accompanied by retention from the six-hour meal. Ulcers situated well away from the pylorus are occasionally associated with a six-hour retention. This retention has been variously ascribed to reflex pylorospasm, to impairment of peristalsis by the ulcer, to gastric hypotonus, and to pyloric spasticity excited by



Fig. 3.—Incisuralike spasm at *a*. No other Roentgen findings. Small mucoid cancer, lesser curvature, posterior wall, found at operation.

hyperacidity. Be this as it may, we have seen cases of gastric ulcer in which a retention from the six-hour meal was the only discoverable sign. This, taken alone, was, of course, insufficient for diagnosis.

Cancer of the stomach, aside from the organic filling defect produced by the tumor mass, may also produce more or less spastic distortion of the gastric contour. For example, a cancer involving only a portion of the lesser curvature may be accompanied by a spastic indrawing of the greater curvature opposite the lesion. When present, it is usually of considerable width, and exaggerates the luminal narrowing produced by the tumor. The examiner is quite apt to regard this indrawing as a part of the organic filling defect, but generally it is sharply sketched, while the filling defect shades off gradually. The matter becomes of importance in forming an opinion as to the probable extent of the cancerous invasion. Quite recently we have encountered a case in which a small mucoid cancer of the lesser curvature, posterior wall, was attended by a decided incisura. The growth because of its location and small size did not of itself produce any definite deformity, and the Roentgen diagnosis of a lesion was based solely on the persistent spasm.

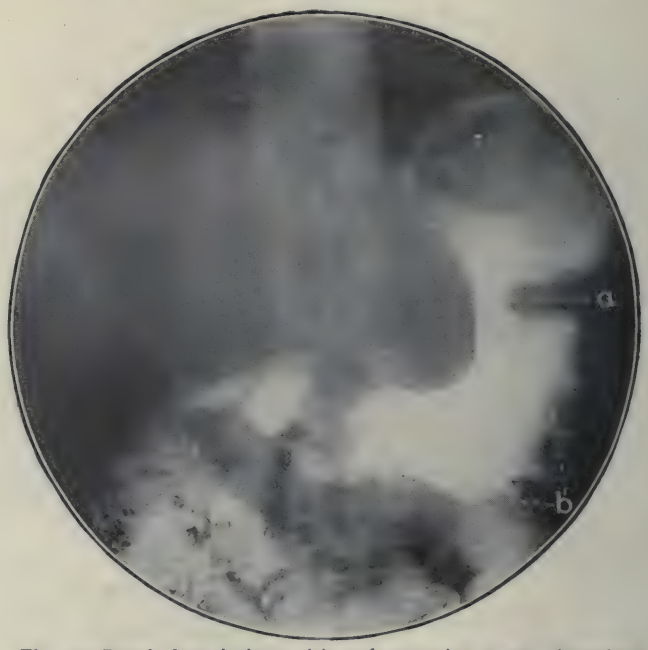


Fig. 4.—Broad deep incisura (*a*) and extensive spasm throughout greater curvature (*b*). No other Roentgen signs. Small cancer, posterior wall, found at operation.

All of the above-described spastic phenomena are intrinsic, that is, they originate from lesions of the stomach itself. Quite as frequent, perhaps even more frequent, are the extrinsic spasms — those which accompany abnormal conditions outside the stomach, often remote from it.

One of these spasms takes the aspect of an incisura, much like that of gastric ulcer, but usually it is either intermittent, or progresses toward the pylorus, like a gigantic peristaltic wave. Occasionally a marked hour-glass form of the stomach, which may either relax suddenly or persist throughout the entire period of examination, has an extrinsic cause, though it is difficult for the examiner to abandon his suspicion of a lesion in the stomach. Duodenal ulcer is occasionally associated with a gastric incisura or an hour-glass stomach. Equally misleading is a spastic filling defect, of extrinsic origin, occurring more commonly in the pyloric end of the stomach, and resembling a pyloric cancer or the diffuse spasm provoked by a gastric ulcer.

In many instances, after a barium meal, none of it is seen to pass the pylorus for several minutes. At operation a cholecystitis or a chronic appendicitis is found, but no lesion of the stomach. In such a case there is evidently a pylorospasm, not necessarily in the clinical sense, but a spasticity of the pyloric sphincter, for which the only explanation that can be offered is the diseased gallbladder or appendix. Sometimes the entire pyloric third of the stomach is shrunken to a stiff narrow tube which may be palpable to the examining fingers. The tube projects like a spigot from the well-expanded fundus, and shows a striking likeness to the canal through a pyloric tumor. In this species of spasm disease of the gallbladder is frequently found.

The foregoing extrinsically caused spastic manifestations are all localized or regional. But spasm from an outside source may affect the entire gastric musculature, giving rise to total gastrospasm. Total gastrospasm is characterized by a gastric hypertonus which far exceeds physiologic limits—



Fig. 5.—Spastic prepyloric narrowing (*a*). At operation: cholecystitis; strawberry gallbladder.

renders the stomach contracted, tense and inactive. The gas bubble is small. Little secretion is present as a rule. Canalization is delayed, the first swallows of the meal being held high up in the fundus. With continued filling, the ingesta finally reach the pylorus, and the stomach assumes its normal form but is diminutive in size. It lies high up under the left costal arch and entirely to the left of the spine. On further addition to the gastric content, the fundus expands to accommodate it, but the pyloric portion remains narrow. Peristalsis is usually absent altogether, although there may be a few faint, irregular waves. The gastric contour lacks the smooth regularity of the normal filled stomach. Mobility and flexibility are not only actually lessened somewhat by the stiffened spastic gastric wall, but, by reason of the high sheltered position of the stomach, it often seems to be practically immobile and inflexible. The pyloric sphincter, contrariwise, may remain steadily open, and there is an early, free and continuous exit of the barium meal. The whole picture is much like that of extensive gastric cancer, and might easily deceive the unwary examiner. It should be reiterated that the frequent resemblance of reflected gastrospasm, whether local, regional or total, to

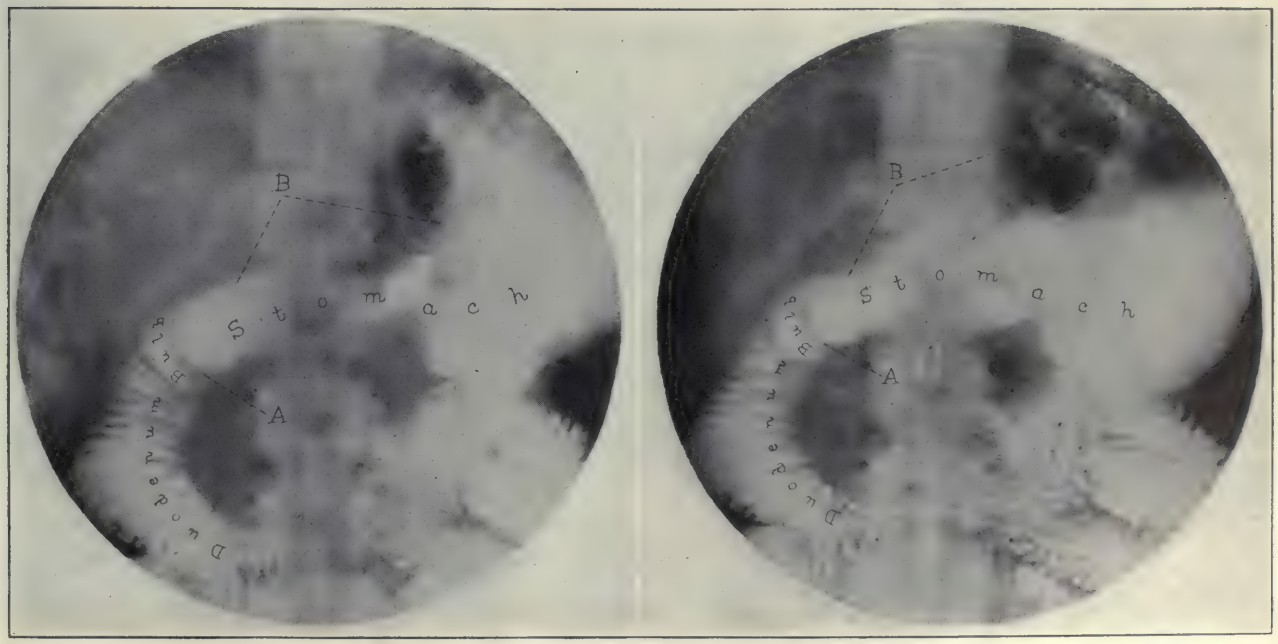


Fig. 6.—Total gastrospasm. The gastric contour is distorted as though by extensive filling defects in the body of the stomach and lesser curvature, *B*. The pylorus, *A*, is gaping. At operation the stomach was found to be normal, but there was definite disease of the gallbladder and appendix.

the filling defect of a gastric cancer or ulcer, makes its recognition imperative, not only by the novice, but by the expert as well. It follows that in the presence of what seems to be a filling defect, pre-

cautions should always be taken to exclude the possibility of spasm.

The causative agents of extrinsic gastrospasm are hard to prove definitely. Mention has been made of the association of duodenal ulcer and disease of the gallbladder and appendix with gastrospasm. These



Fig. 7.—Spastic hour-glass stomach. See Figure 8.

associations are so frequent that the assumption of an etiologic relationship seems only rational. Others have noted, as probable causes, hysteria, pancreatic disease, tabes, arteriosclerosis affecting the abdominal viscera, renal and ureteral calculi, uremia, and poisoning by lead, nicotin and morphin. A condition imitating gastrospasm is a distortion of the stomach produced by strong retraction of the abdominal wall. This is usually seen in frightened or nervous patients, who are made apprehensive by the procedures necessary to a Roentgen examination. By quieting the patient's fears and persuading him to relax, the stomach will usually assume its normal form.

Differentiation.—Given a case which shows an irregularity of the gastric contour, the examiner must determine, as far as he can, whether the distortion is due to: (1) an organic lesion producing deformity; (2) intrinsic spasm set up by a gastric lesion, or (3) spasm associated with abnormal conditions outside the stomach.

This is best carried out by a process of exclusion, for while a parallel tabulation of the traits of these three conditions shows some discouraging similarities, there are, nevertheless, certain practical tests by which differentiation can be effected in most instances.

1. Deformity of the gastric outline produced by an organic lesion is persistent, constant in situation and unvarying in aspect. If due to a new growth and accessible to manipulation, it will sometimes correspond to a palpable mass. Its borders are sometimes sharp, but more often gradually shaded off. The niche and accessory pocket of gastric ulcer are pathognomonic of themselves. Adhesions about the stomach, other than those from ulcer and gallbladder disease, are relatively rare. If the gastric lumen near the pylorus is markedly encroached on by an organic process, some degree of obstruction will be shown by a six-hour retention.

Irregularity of contour is still seen at repeated examinations. It cannot be made to disappear by giving an antispasmodic.

2. Spasm resulting directly from an ulcer or cancer in the stomach is manifest usually in the segment involved, and especially in the area opposite the lesion. It is constant in situation. It is persistent and unvarying, although it has been claimed that shallow erosions may cause intermittent spasm. If the spasm takes the form of an incisura or hour-glass, its borders are clear cut, but if a large area is involved, it may show as an indefinite zone of incomplete filling. The lesion provoking the spasm may be seen as a niche, accessory pocket or a neoplastic filling defect. The progress of the meal may or may not be retarded, depending on the extent and situation of the lesion rather than on the spasm.

Intrinsic spasm tends to persist at subsequent examination. It cannot be effaced by giving antispasmodics.

Indirect, remotely caused gastrospasm is often brief in duration or intermittent in its appearance. It may



Fig. 8.—Same case as shown in Figure 7. Note disappearance of spasm after administration of belladonna.

be of the migratory type or show a changing aspect from time to time, though continually present in one situation. No tumor mass corresponding to the defect can be felt ordinarily. The borders of the spastic area are sharply delineated, or if the spasm is shifting

during the time of the exposure, the gastric contour may be hazily blurred in outline.

Diffuse extrinsic spasm tends to accelerate gastric motility rather than retard it. If the spasm involves the pyloric sphincter, motility is often retarded, but varies from time to time in the same individual, so that a six-hour retention may be noted at one examination but not at another. Very often in such cases, the stomach is quite large, and, while there is no six-hour retention, the gastro-enterologist may report an excess of secretion.

Remotely reflected spasm is likely to be absent at a second examination. It disappears after the administration of an antispasmodic to physiologic effect.

Of course, it will be readily understood that these differential features are not absolute and inflexible, and the examiner may occasionally be foiled in a satisfactory analysis of his findings. At any rate, he ought not to omit any method that will eliminate indirect spasm from the field of consideration.

A prime quality of remotely reflexed spasm is its instability, so that a second examination may alone suffice to exclude it. A practical test, on which most roentgenologists rely for the exclusion of reflex spasm, is the administration of belladonna or its alkaloid. Irregularity of contour produced by a new growth, infiltration or adhesions of the gastric wall are, of course, not altered by this drug. Likewise, the spasm arising from a lesion, such as the incisura of gastric ulcer, withstands its influence. Spasm reflected from a distant source vanishes.

We have obtained the best results by giving belladonna in the form of the tincture in doses of from 15 to 20 drops, three times daily for two or three days, and then reexamining. The essence of the test, however, does not depend on any arbitrary dose, but on obtaining the physiologic effects of the drug, as shown by dryness of the throat, dilatation of the pupils, etc. If these effects are not obtained the second examination will be inconclusive. Hence, the patient should be seen once or twice daily and the dose increased, if necessary. On the other hand, an idiosyncrasy for belladonna may exist, and should be kept in mind.

Spasm of any sort, whether intrinsic or extrinsic, disappears under general anesthesia. The spasmodic hour-glass stomach, due to an intrinsic cause, and persisting after the administration of belladonna to physiologic effect, is not present at operation because it is relaxed by deep narcosis. Consequently, the surgeon on opening the abdomen and finding no hour-glass may complain that the Roentgen diagnosis is incorrect, and conclude that it is needless to look for any trouble in the stomach. But a careful search will usually reveal a lesion, either in the stomach, or, exceptionally, in the duodenum.

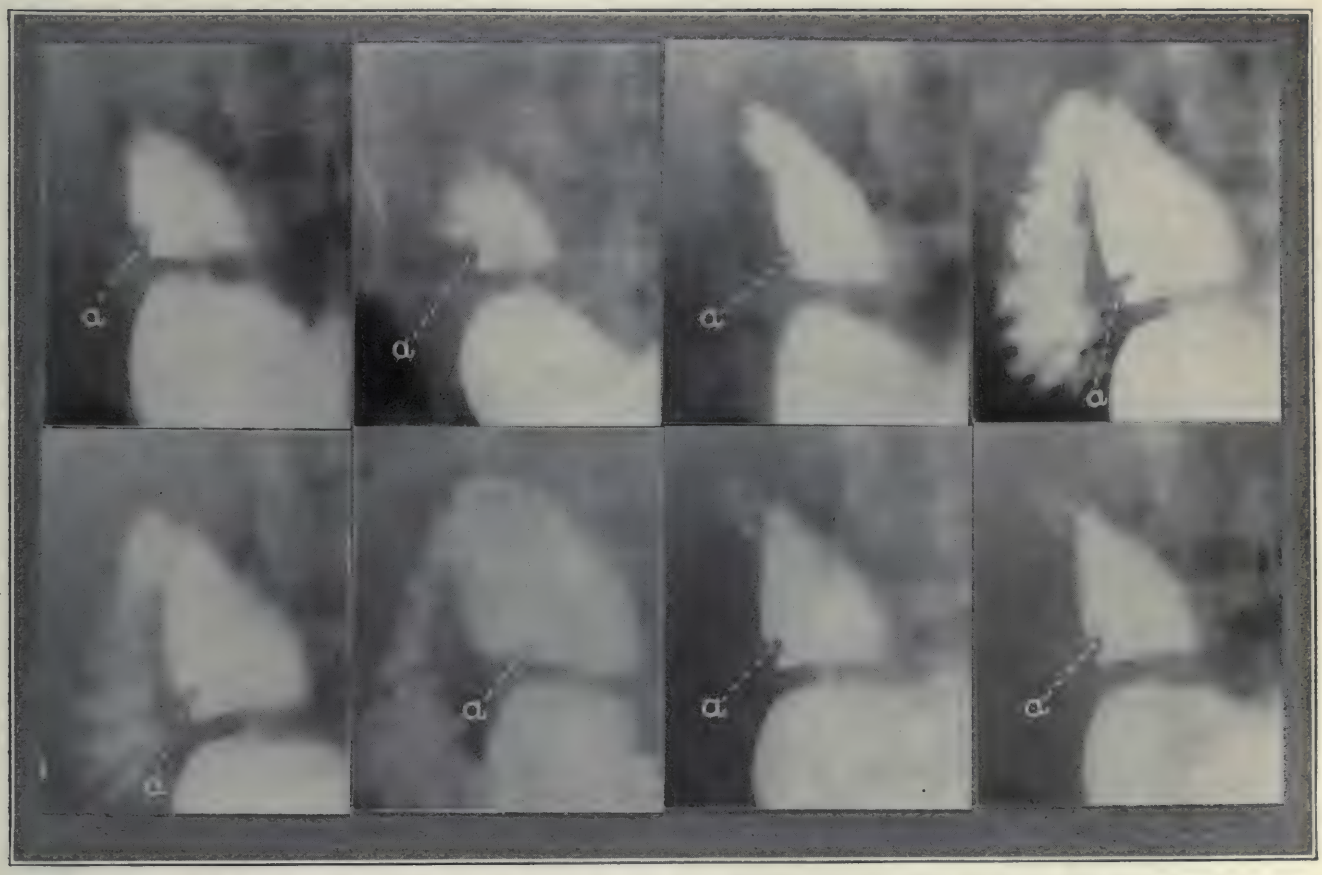


Fig. 9.—Series of bulbus duodeni, showing constant spastic incisura at *a*. Bulb otherwise normal. At operation, small ulcer, anterior wall of duodenum.

In this connection I might say that while belladonna usually relaxes gastrospasm arising from extrinsic causes, the incisura and hour-glass contraction of the stomach associated with duodenal ulcer appear to be an exception, for we have seen several instances in which this variety of spasm withstood the belladonna test.

SPASM OF THE DUODENUM

In the duodenum a probable form of intrinsic spasm which has not heretofore been emphasized is that

accompanying duodenal ulcer. Deformity of the bulb has been generally attributed to the ulcer or its scar, producing an organic filling defect. This is doubtless true in many instances, but the following phenomena deserve consideration.

1. In those cases in which organic distortion is present, the deformity noted at the Roentgen examination often far exceeds the deformity found at operation.

2. Cases are seen occasionally in which the ulcer or its scar as found at operation is small and quite insufficient of itself to produce a recognizable filling defect in the roentgenogram. This fact made us very skeptical for some time of the validity of Cole's sign. However, these cases do frequently show pronounced irregularity of the bulbar shadow, and this must be due to some cause other than the organic alteration of the bulbar wall.

3. In the above described type, on plates made in the dorsoventral position, the disfigurement is seen on the lateral borders of the bulb, although the ulcer is usually situated on the anterior wall.

4. The bulbar distortion often displays other characteristics of spasm. It is clean-cut in outline, projects deeply into the bulbar lumen, and is wholly comparable to the incisura of gastric ulcer.

5. That duodenal ulcer, like other ulcers, is an efficient spasm-producing agent is indicated by its association with spasm in the stomach and elsewhere.

From these facts it seems reasonable to conclude that intrinsic spasm plays an important part in the roentgenologic evidence of duodenal ulcers, and that in the absence of spasm no deformity of the bulb would be seen in many instances, and the case passed as negative.

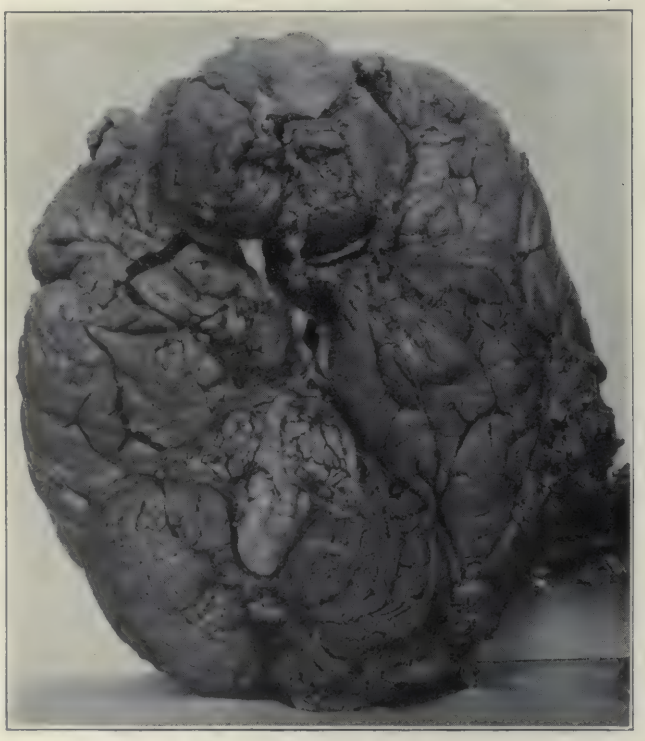


Fig. 1.—The tumor in situ.

Whether or not any of the remote causes which are believed to induce reflex spasm of the stomach may similarly affect the duodenum is uncertain. There is a more or less current view that the duodenal bulb may be distorted by reflex spasm originating in conditions far removed from the duodenum. In theory this would hold good, since extrinsic spasm has been noted in all other parts of the alimentary canal. But, after a careful review of our cases, we are unable to point out a single specific example of duodenal spasm which originated solely from a remote lesion. Occasionally there is difficulty in securing complete filling of the duodenal bulb, which changes its appearance in each view and is never fully distended, but shows no constant, localized deformity. This may possibly be due to extrinsic spasm, but even so we cannot see how it could be distinguished from the numerous instances in which the cap is not filled because of a scant pyloric inflow or rapid duodenal evacuation. Further, we would expect extrinsic duodenal spasm, if it exists, to imitate, at least occasionally, the constant and definite spasm of duodenal ulcer. This we have never observed, and it would appear that in the presence of an unchanging bulbar distortion one can safely assume that it is due to an intrinsic cause.

SARCOMA OF THE BASE OF THE SKULL*

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Among the intracranial tumors, giving rise usually to symptoms of increased intracranial pressure and sometimes to extracranial signs and symptoms, are found a certain number of sarcomas.

Statistics of intracranial tumors have accumulated slowly. This is not by reason of infrequency, but because, as Dr. Harvey Cushing[1] says, "The progress of the disease is a lamentably slow one, and patients with comparative infrequency end their days in a hospital; hence it is unusual for them to figure largely in hospital reports."

In the surgical service of Johns Hopkins Hospital[2] the number of patients with diagnosis of brain tumor has risen from 0.06 per cent. in the first 5,000 to 0.2 per cent. in the second 5,000; to 0.3 per cent. in the third 5,000; to 0.75 per cent. in the fourth 5,000, and to 1.3 per cent. in the last 3,000, which shows the rapid increase when particular attention is paid to them.

The sarcomas found among the intracranial tumors may originate inside the brain; in the pituitary substance; in the walls of the vessels; in nerve sheaths, or in the bones and periosteum of the cranium. I shall limit my remarks to those arising from the bones of the base of the skull.

The reported cases of sarcoma of the bones of the base of the skull are not numerous. In 1909 Joseph Smith[3] reported two cases of posttraumatic sarcoma of the skull and reviewed the instances collected by Weisswange[4] and Frohlking.[5] The combined series of the two latter writers amounts to 136 cases of sar-

* From the Department of Pathology and Bacteriology, State University of Iowa, College of Medicine.

1. Cushing, Harvey: Intracranial Tumors, Osler's Modern Medicine, 1910, vii, 418.
2. Cushing, Harvey: Footnote 1, p. 419.
3. Smith, Joseph: Two Cases of Posttraumatic Sarcoma of the Skull, Surg., Gynec. and Obst., 1909, viii, 375.
4. Weisswange: Primären Sarkomen der wande der Schadelhohle, Inaug. Diss., Tübingen, 1897.
5. Frohlking: Sarkomen des knocheren Schadelgewohles, Inaug. Diss., Göttingen, 1895.

coma of the skull. Sarcoma of the base is mentioned once occurring in the temporal fossa in one of Weisswange's cases.

Weisswange's paper was written in 1897. I have found reports of twenty sarcomas of the bones of the base of the skull. Of these, twelve occupied the middle fossa; two the posterior fossa, and one the middle and posterior fossae. The location of the other five I was unable to obtain. Two involved the sphenoid extensively (Rothman,[6] Cantonnet[7]); two others involved the gasserian ganglion (Power,[8] Plummer and New[9]) while one invaded all the bones of the face except the lower jaw (Jamison[10]). There were two osteosarcomas (Pisjian,[11] Friedewald[12]); one giant cell sarcoma of the alveolar type (Stetter[13]); one fibrosarcoma (Hartmann[14]); one spindle cell sarcoma (Brissaud[15]), and two round cell sarcomas (Rothman,[6] Plummer and New[9]). Metastases appeared twice, one case showing sarcoma of the internal organs (Power[8]) and another metastases to the left femur (Hartmann[14]).

In 1906 and 1907, Hartmann[14] reported extensively on tumors of the base of the skull, with reference both to their clinical manifestations and to their pathologic anatomy.

In general, he has to say of the tumors of the base of the skull that they occur widespread along the middle or posterior fossa, and may involve the middle and posterior or posterior alone. He gives Seeligman's[16] statement for tumors involving both middle and posterior fossae. They are supposed to develop extradurally, and rarely progress toward the brain from the dura, but invade the bone and sometimes send processes into the adjoining cavities. Because the tumors gradually grow about the nerve roots, gradually disturbances of the cranial nerves will appear.

There is a tendency to involve only one side; if bilateral, they are almost always carcinoma or endothelioma; exceptionally, bilateral growths may be fibrosarcoma of nerve or very malignant sarcoma.

The three cases of tumor of the base of the skull which Hartmann presents are all sarcomas. One, a small hard nodular, well encapsulated tumor of the middle fossa, passed by a pedicle through the foramen ovale and reappeared in a swelling on the side of the neck. This tumor in the skull was 5 cm. in diameter, and broke through the dura, deforming but not penetrating the temporal lobe. The consistency was hard and brittle. The whole mass was yellowish-gray. Another penetrated the bone of the left middle fossa. The third was an intradural sarcoma of the left internal auditory meatus involving the seventh nerve and the pars acustica of the eighth. From the literature, he cites a cystic sarcoma of endothelial origin in the posterior fossa on the posterior surface of the petrous portion of the temporal bone (Campo[17]); a round cell sarcoma on the under surface of the base of the sphenoid, together with a tumor at the left of the sella turcica and near the foramen magnum (Rothman[6]); a spindle cell sarcoma of the middle fossa involving the orbit and occipital bone (Brissaud[15]), and a subdural giant cell sarcoma, alveolar in type, on the posterior surface of the petrous portion of the temporal bone (Stetter[13]). Still another case is a walnut sized tumor involving the gasserian ganglion with multiple sarcomas of the internal organs (Power[8]).

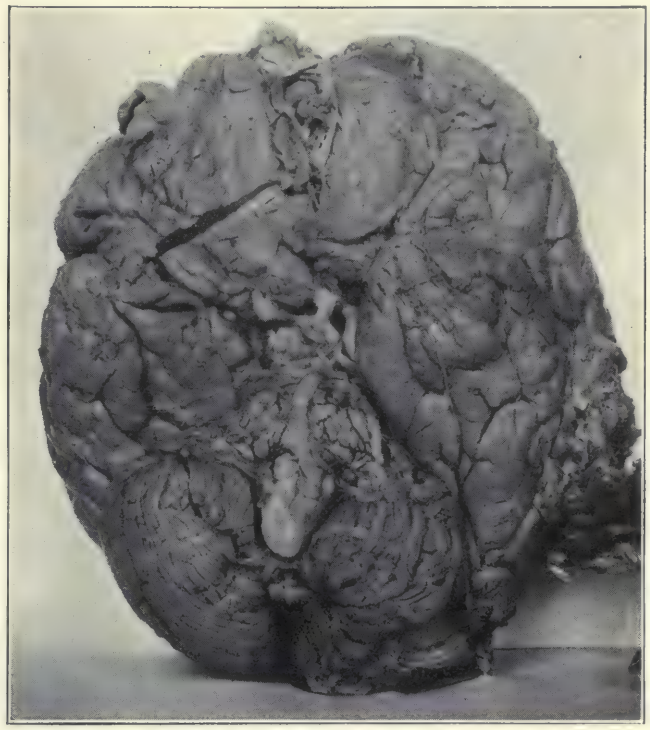


Fig. 2.—Concavity on removal of the tumor.

Cantonnet[7] reports a case of sarcoma of the sphenoid:

> Man, aged 22, entered the hospital complaining of trouble with vision and motion of his eyes, together with a paralysis of tongue and soft palate appearing slowly during five months. Physical examination confirmed his subjective symptoms. Six days after entrance, violent headache developed in the occipital region. Ten days after entrance he complained of dysphagia. A swelling in the nasopharynx was lanced, but only blood was evacuated. In a week's time the swelling began to slough. The tissue came away piecemeal without suppuration. In nine days' time the mass had enucleated itself, leaving a deep pocket with smooth sides not suppurating and not bleeding. Subjective disturbances of the trigeminal appeared, and the headache became extreme, all movements of the head being very painful. Lumbar puncture gave only normal phenomena. Mentation was not disturbed, and death occurred on the forty-first day.
>
> The necropsy showed a slight area of cortical softening in the right temporal region. The pituitary stem was thickened, being 0.5 cm. in diameter. The part of the hypophysis behind the stalk projected on the surface between the posterior clinoid processes. This mass also extended backward to the anterior occipital foramen. The anterior part of the sella was normal. On the lower surface of the base there

6. Rothman: Round Cell Sarcoma on the Under Surface of the Base of the Skull, Ztschr. f. klin. Med., xxiii, Nos. 3 and 4.
7. Cantonnet: Sarcoma de la base du crane, Bull. et mém. Soc. anat. de Paris, 1906, xxxi, 505.
8. Power, D'Arcy: A Walnut Sized Tumor Involving the Gasserian Ganglion, Tr. Path. Soc. London, 1886.
9. Plummer, W. A., and New, G. B.: Tumor of the Middle Cranial Fossa Involving the Gasserian Ganglion, THE JOURNAL A. M. A., April 4, 1914, p. 1082.
10. Jamison: Imp. Customs Med. Report, Shanghai, 1881, xxi, 92.
11. Pisjian: Algunas consideraciones sobre un caso de osteosarcoma de la base del cranio, Rev. med. de Sevilla, 1906, xlvi, 78.
12. Friedewald: Osteosarcoma at the Base of the Skull, Maryland Med. Jour., 1886-1887, xvi, 500.
13. Stetter: Subdural Cystic Giant Cell Sarcoma, Arch. f. Ohrenh., xxiv, 143.
14. Hartmann: Beiträge zur pathologischen Anatomie und Klinik der geschwulste der Schadelbasis, Jour. f. Physiol. u. Neurol., 1905-1906, vi, 209; ibid., 1906-1907, vii, 25.
15. Brissaud: Spindle Cell Sarcoma of the Middle Fossa, Lecons sur les maladies nerveuses, Saltpêtrie re, 1893-1904, p. 393.
16. Seeligman: Deutsch. Ztschr., f. Nervenh., viii, 438.
17. Campo: Cystic Sarcoma of Endothelial Origin in the Posterior Fossa, Riv. sper. di freniat., xxiii.

was a projecting mass involving the sphenoid, the basilar process and condyles of the occipital bone in their cartilaginous part. The tumor presented a prolongation from each side beneath the great wings of the sphenoid, especially on the left side, where the mass invaded the pterygoid processes and the borders of the foramina ovale, rotundum and spinosum. The temporal bones were intact. Section through the

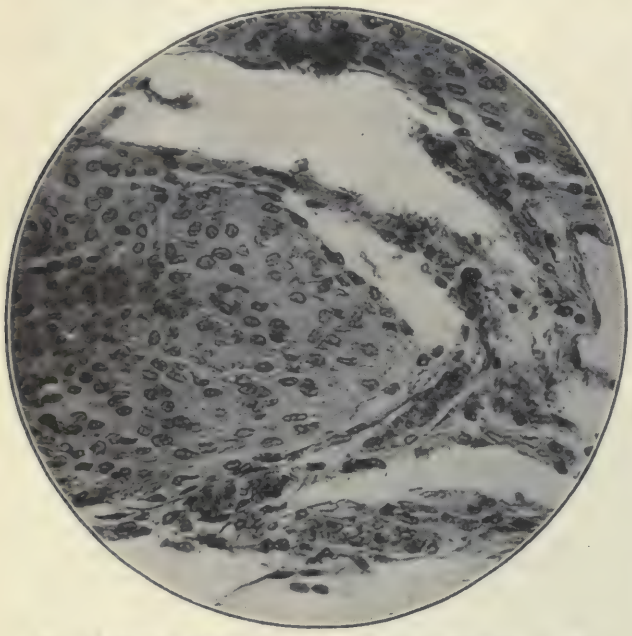


Fig. 3.—Section through central part of the tumor, × 150.

sphenoid showed the sphenoidal sinuses to be filled with tumor tissue. The left cavernous sinus was obliterated except for the carotid artery. The inferior surface of the mass formed the wall of the retropharyngeal pocket evacuated during life. The surface of the tumor was uniformly pink. The consistency was fibrous, not osseous. It was readily indented by pressure. Histologically, traces of the pituitary gland were found. The main cellular constituents were embryonic cells with large nuclei. There were no mitoses, and there was no inflammatory reaction. The diagnosis of sarcoma of the sphenoid was made because of the involvement of the sphenoid as a whole and the extension of the tumor into bone rather than brain.

Last year there was reported from the Mayo Clinic[9] a round cell sarcoma of the middle fossa involving the gasserian ganglion. In this case the appearance of symptoms was preceded by enlargement of the right cervical lymph nodes. These were removed before the patient's admission to the clinic, and their histologic nature was not determined. The symptoms were limited to the fifth nerve without sign of intracranial pressure. The extent of the tumor was not determined at operation, and no necropsy was permitted.

In connection with the case referred to, I report an instance of sarcoma of the sphenoid occupying the anterior fossa in a case which recently came to necropsy at the University Hospital:

REPORT OF CASE

History.—White man, aged 43, with negative family and social history, had had exanthems, smallpox twice, twelve attacks of pneumonia and repeated tonsillitis and quinsy each winter. There had never been any injuries to the head. Following his second attack of smallpox, which occurred nearly two years previous to death, he had headache every day varying from a dull pain in the left temple to a very severe pain radiating to the right temple and sometimes to the occiput. His eyes had been weak, and he was bothered by flashes of colored light. At the same time there was a roaring in the ears which later disappeared. There was no dizziness or diplopia. Three months following the onset of the eye symptoms, the sight of the left eye began to fail rapidly. Six months from onset the sight of the right eye also began to fail.

Physical Examination.—This showed the man to look decidedly ill and sallow, almost icteroid in color. Thoracic, abdominal and circulatory evidence was all negative.

Nervous System: The left eye is closed, but there is no paralysis of the left lid. Eyes move freely in all directions. There is no nystagmus. The right eye reacts to light and accommodation. The left eye reacts to neither. The seventh, motor fifth and twelfth are intact. There is no tenderness over the cranium. The tongue is coated, moist and straight. Muscular power is equal in upper and lower extremities. The reflexes are not significant except that the orbital is exaggerated. Touch and pain are intact throughout. The station is almost perfect. Romberg's sign is absent, and the patient walks a straight line with ease. He is unable to repeat the alphabet. There is hesitation of speech. He says he can think the right word but is unable to speak it.

Ophthalmoscopic examination showed optic neuritis with retinal exudates and no light perception in the left eye.

Urine, stool and blood examinations negative.

Cerebrospinal fluid, not under pressure, clear colorless, cell count 0. Noguchi serum-globulin +. No Wassermann done on spinal fluid.

Wassermann on blood negative.

A decompression over the left temporal region revealed nothing but increased intracranial pressure, hernia cerebri forming at once.

Necropsy.—The only point of interest in the necropsy is in the head. The hernia cerebri produced by the decompression requires no comment. The under surface of the brain presents in front a globular mass much more dense than the brain substance. This mass is about 9 cm. in diameter and is distinctly encapsulated, separating freely from the brain substance above. Below the globular mass is intimately connected with the periosteum covering the

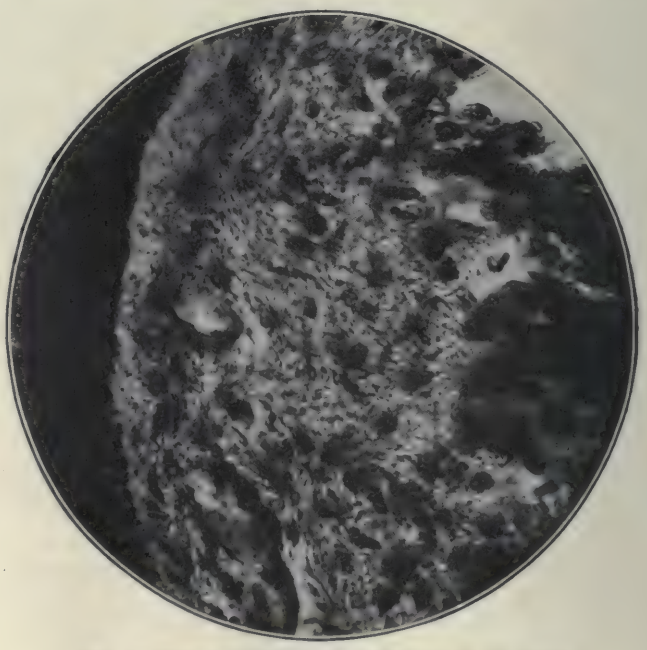


Fig. 4.—Tumor growth in the substance of the dura.

sphenoid bone, between the two lesser wings of the sphenoid. This portion of the bone, to the periosteum of which the tumor is connected, was chiseled away and removed in connection with the tumor. The covering of the ethmoid cells was chiseled away, and the walls of the cells appeared to be of the usual thickness, and nothing resembling the substance of the tumor was to be seen here, or in the sinuses of the sphenoid bone. The tumor mass is about equally

distributed to either side of the middle line. It appears that the optic nerves are somewhat flattened at their point of exit and somewhat proximal thereto. The substance of the tumor is, for the most part, firm, yet not fibrous. It is rather granular and friable. Further section of the brain or tumor was not made at this time.

The tumor measures 7.5 by 6.5 by 5 cm. Its consistence is uniform throughout. In front there is a natural cleft extending about 1.5 cm. into the substance of the tumor, from which cleft a fold of dura mater can be stripped away very readily, this having no connection with the tumor. The dura mater covering the sphenoid bone aside from that at the site of fixation of the tumor to the bone is not connected in any way to the tumor.

A section from the tumor found in the cranial cavity presents an irregularly lobulated appearance, the lobules being separated by fairly broad bands of connective tissue. Blood vessels are not very numerous, and they are carried, for the most part, by broader bands of connective tissue. The cells are of the spindle shaped type, presenting this shape more or less depending at what angle with the longer axis the knife happens to cut the cell. Mitotic figures are not numerous. A section of the tumor prepared with Mallory's anilin blue connective tissue stain shows that the tumor cells are everywhere separated by a reticulum of connective tissue.

A section was made through the point of attachment of the tumor to the sphenoid bone. Superficial to the bone the appearance of the tumor as described above may be seen, in addition to which may be mentioned dense bands of fibrous tissue, arising apparently from the bone, passing out between the lobules of the tumor. A portion of the dura mater included in this section shows an endothelial surface unbroken and without proliferation, with the exception of one small point in which the lower margin of the endothelium has disappeared entirely, and a nodule of tissue resembling that of the tumor occupies the substance of the dura and projects slightly from it. In the substance of the bone the intertrabecular spaces are seen to contain cell masses having the same order, type of cells and arrangement as those observed in connection with the tumor.

Something of the nature of these tumors may be gained from the brief review given. In general, they are well encapsulated and separated from the brain substance by pia-arachnoid, altering the brain substance by pressure changes only. The cranial nerves sometimes give the only evidence as in those growths involving the gasserian ganglion. Frequently, however, there is extracranial evidence appearing in the nasopharynx, the hollow portions of the bones adjoining the nasal cavity, the ear or in metastases, especially to the cervical lymph nodes.[18]

18. In addition to the references already given, the following will be found of interest:
Chvostek: Ein Fall von Sarkom des rechten facialis an der Schadelbasis: Wien. med. Presse, 1885, xxiv, 1057.
Fazio: Sarcoma della fossa cranica media diagnosticate in vita, Ann. clin. d. hosp. incur., 1883, N. S., viii, 155; Sarcoma of the Middle Fossa of the Skull, Gior. di. neuropatol., 1884, ii, 103.
Schwidop: Ein Fall von Sarkom der Schadelbasis mit sekund Affection des Sclafenbeines, Arch. f. Ohrenh., 1893, xxxv, 39.
Hogg: Sarcoma of the Base of the Skull Involving the Ear, Australasian Med. Gaz., 1896, xv, 282.
Camara Pestana e Bello de Moraes: Sarcoma do base do craneo, Arch. de med., 1898, ii, 67.
Lucato: Sarcoma della basa del cranio, Riv. med., 1907, xv, 127.

Deep Breathing.—Ordinarily breathing should be unconscious, but every day deep breathing exercises should be employed. "A hundred deep breaths a day" is one physician's recipe for avoiding tuberculosis. A Russian author, who suffered a nervous breakdown, found—after trying many other aids to health without success—that a retired life for several months in the mountains in which simple deep breathing exercises practiced systematically every day formed the central theme, effected a permanent cure.—*How to Live.*

RESULTS FROM BLOOD TRANSFUSION

IN THE TREATMENT OF SEVERE POSTHEMORRHAGIC ANEMIA AND THE HEMORRHAGIC DISEASES *

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My active interest in the subject of blood therapy became aroused about two years ago, when I was able to follow closely the course of a patient under the care of Dr. Franklin A. Dorman.

This patient, a primipara, after a tedious but otherwise normal labor, gave birth to an infant weighing 6 pounds, 12 ounces. There was a small perineal tear which was repaired at once. The loss of blood accompanying the delivery was insignificant. For the first week the patient was slightly toxic, the temperature ranging from normal in the morning to about 100.5 F. in the evening; during this time she was flowing very freely. As the temperature persisted and became higher, and the flow increased, Dr. Dorman decided to explore the uterus. This was done on the eleventh day, under light chloroform anesthesia, with negative findings. Hemorrhage was so profuse during the exploration that it became imperative to pack the uterus. The packing was removed after twenty-four hours, followed by a severe chill and a rise of temperature to 104.4 F. The following day there was another chill and a rise of temperature to 104.2 F. On the fourteenth day the flow was severe enough to produce syncope, and on the sixteenth day, after the expulsion of several ounces of clots, the patient collapsed and was thought to be dying. After packing of the vagina and the use of vigorous stimulation there was some reaction, but the prognosis at this stage was considered well nigh hopeless.

Dr. Edwin B. Cragin saw the patient, in consultation with Dr. Dorman, and advised the injection of blood serum to control the hemorrhage. Instead of this, however, a blood transfusion was decided on and given two days later (on the eighteenth day) by Dr. Edward Lindeman. Nine hundred c.c. of blood, from a professional donor, were transfused, followed by a chill and a rise of temperature to 103 F. The bleeding, which had resisted the usual drug treatment, stopped at once, and within six hours, the large, flabby, subinvoluted uterus, which reached nearly to the umbilicus, disappeared into the pelvis. The improvement in the patient's general appearance was striking. The flow of milk, which had about stopped, reappeared, and the mother was able to nurse her infant. From the time of the transfusion there was no further bleeding. Convalescence was rapid and uneventful.

Aside from the article of Ottenberg and Libman,[1] most of the recent papers on blood transfusion deal largely with the question of operative technic, and give a wide field of indications, but are lamentably lacking in recording the results obtained. The majority of transfusion workers are overenthusiastic, and are using the procedure without proper discrimination as to indications; onlookers, viewing this work in unwisely selected cases, are inclined to underestimate its true worth. Crile's oft quoted remark still holds good: "Judiciously employed transfusion will surely prove a valuable, often a life saving resource; injudiciously employed it will surely become discredited." In view of the conflicting opinions as to the therapeutic value of blood, the philosophic review of this subject by Hartwell[2] deserves serious consideration. As Hartwell has pointed out, the transfusion of blood from one

* Owing to lack of space, this paper has been abbreviated in THE JOURNAL by the omission of tabulated case reports. The complete article appears in the reprints, a copy of which will be sent by the author on receipt of a stamped addressed envelope.

1. Ottenberg and Libman: Am. Jour. Med. Sc., July, 1915.
2. Hartwell: New York Jour. Med., November, 1914.

individual to another should be considered as a homologous transplantation of tissue. This transplant is endowed with the characteristics of living tissue, and is not merely the transfer of a chemical and physical mixture.

After a transfusion, the recipient's blood will show an increase in the number of red cells, a rise in hemoglobin percentage and a decrease in coagulation time. There is increasing clinical evidence that whole blood is *hemostatic, hematopoietic* and, in selected instances, *antitoxic* and *bactericidal.* It is indicated, then, in (1) hemorrhage, of various types and degrees; (2) in selected cases of anemia, both primary and secondary, not due to hemorrhage, and (3) in selected toxic and septic conditions.

Blood transfusion has been used in the three classes of cases mentioned, but at this time only the first group will be considered. It is my desire, in this paper, to put on record the results obtained by blood therapy in twenty-seven cases of simple and pathologic hemorrhage. Thirty-four transfusions were given in twenty-three cases in this series. Four cases were treated by intramuscular injections of blood. For convenience the following classification will be used:

I. Simple hemorrhage:
   1. Acute posthemorrhagic anemia.
   2. Chronic posthemorrhagic anemia.

II. Pathologic hemorrhage:
   1. Hemophilia.
   2. Purpuric group.
      (*a*) Hemorrhagica neonatorum.
      (*b*) Symptomatic and idiopathic purpura.
   3. Secondary hemorrhagic disease.

I. SIMPLE HEMORRHAGE

1. *Acute Posthemorrhagic Anemia.* — This may follow trauma, labor, operation or any accidental cause, or may be a complication of ectopic pregnancy, gastric or duodenal ulcer, typhoid fever, etc. In this form of acute anemia, if the bleeding point or area can be clamped or controlled, the introduction of new blood into the system will prove specific. No other measure will so promptly resuscitate a dying patient. In fact, it is the only efficient remedy if hemorrhage has gone beyond a certain degree. When the source of the hemorrhage is not accessible without operation, as in gastric or duodenal ulcer or typhoid fever, judgment as to the proper time to administer blood is required. As a rule, it is better to wait until bleeding has ceased. If, however, the anemia is severe enough to endanger the life of the patient, even though active bleeding is still going on, it is safer to transfuse a moderate amount of blood. The hemostatic action of new blood is often prompt, and the stimulating effect is always gratifying. In the profuse bleeding, which, for example, may accompany the rupture of an ectopic pregnancy, transfusion and operation should be performed simultaneously.

2. *Chronic Posthemorrhagic Anemia.* — This may result from repeated small losses of blood, as in persistent epistaxis, intestinal ulceration, bleeding hemorrhoids, or metrorrhagia. The systematic losses of small or moderate amounts of blood cause, first, overstimulation, and later, exhaustion of the hematopoietic system. A stage is reached in which even though the source of the hemorrhage is controlled or removed, the ability to manufacture new blood seems for a time arrested. In this condition no other remedy will compare in efficacy with whole blood in producing hematopoietic stimulation. In acute anemia, a single large transfusion is indicated, while in the chronic type better results are obtained by giving serial transfusions of small or moderate amounts of blood. Transfusions were made in seven cases of acute and four of chronic posthemorrhagic anemia. The results were most satisfactory, except in the few instances in which the complicating disease rendered the prognosis hopeless.

II. PATHOLOGIC HEMORRHAGE

1. *Hemophilia.*—This is a hereditary and congenital disease characterized by frequent, obstinate and protracted bleeding, external, interstitial or synovial, spontaneous or traumatic. In this affection the essential feature is greatly delayed coagulation time. The platelet count is normal quantitatively but deficient qualitatively (Fonio). According to Howell, there is a decrease in the prothrombin. Addis has found in hemophilia no quantitative deficiency in prothrombin, but there is a qualitative difference inasmuch as it showed a very slow rate of change into thrombin in the presence of calcium and thrombokinase. He found that the addition of a very small quantity of normal prothrombin greatly accelerated the coagulation of hemophilic plasma, whereas the addition of an equal quantity of hemophilic prothrombin had no effect. He concludes, therefore, that hemophilia is due to an inherited anomaly in the construction of prothrombin, which reveals itself in the unduly long time required for activation. Theoretically and practically the best method of dealing with the intractable bleeding of hemophilia is by the transfusion of homologous blood, from an alien donor, thereby introducing an excess of the elements necessary for coagulation. Injections of whole blood or serum or the use of thromboplastin locally will often control the bleeding, but in obstinate or intractable cases the indications are best met by the transfusion of unmodified homologous blood. While the disease itself is not cured, the alarming and dangerous symptom is controlled, and immunity against excessive bleeding is established for a variable period. Prophylactic injections of blood should be administered from time to time, for as age advances the bleeding tendency diminishes, and may cease altogether at maturity.

CASE REPORTS

There are six cases of hemophilia in this series:

Case 1.—A boy had been bleeding for a week when seen, and was very anemic. An emergency transfusion of 40 c.c. of blood was given, the father acting as donor. There was immediate resuscitation, and cessation of the hemorrhage until the next day, when it began again, but less actively, and continued intermittently for another week, in spite of treatment. A donor, unrelated to the patient, was selected and another transfusion given. The bleeding, which was active at the time of the operation, stopped during the transfusion, and up to the present time (over a year) there has been no further hemorrhagic tendency.

Case 2.—There were joint hemorrhages, but active bleeding was not present at the time of the operation.

Case 3.—This was of unusual interest. As I saw the patient only once—at the time of an emergency transfusion—I quote from a history kindly furnished me by the physician in charge, Dr. C. A. Spivache: "Leo Z., born April 19, 1915. Normal presentation and delivery.

"*Family History.*—Father, 30 years of age; healthy. Mother, 25 years of age; very stout. During pregnancy she suffered with nephritis which yielded to treatment. Brother, born Feb. 10, 1914. Six days later bleeding started at the cord, and was partly controlled by local applications. Two days

later the cord was sutured and hemorrhage was controlled. On March 15, the baby was circumcised and profuse bleeding from the wound immediately set in. Local applications were unavailing. March 16, the baby had a convulsion. On March 17, the baby was exsanguinated and died.

"Present Condition.—The history of the first child led me to dissuade the parents from circumcising this baby, but as the grandfather insisted that the Jewish rite be performed, and as the mother declared that she might as well learn now whether the baby was a bleeder or not, we finally circumcised the baby on May 15, 1915, when he was 5 weeks old.

"He was circumcised at 4 p. m. The method of circumcision was according to the Jewish custom, which necessitates suction of blood from the wound by the operator. After the operation, the wound was securely tied up and no abnormal bleeding occurred at the time. Three hours later, I was hastily summoned and found the bandage and baby's garments, as well as the bed clothes saturated with blood.

"I redressed the wound, using suprarenal extract powder and injected a standard dose of coagulose intramuscularly. The bleeding at the site of the circumcision was temporarily controlled, but the puncture made by hypo bled until dressed with collodion. I watched the case for four hours and then injected coagulose again. Early the next morning I was again called and found the baby bleeding profusely. I injected coagulose for the third time, with the same result, and repeated this treatment on two succeeding occasions. On May 28 the last injection was given. Meanwhile the baby was growing weaker and anemia was marked. On the same day Dr. Alfred Hess was consulted, and he advised the use of coagulen per injection and thromboplastin locally. In spite of all treatment bleeding continued. As the baby was fast becoming exsanguinated, I advised blood transfusion as a last resort. Curious to relate, when I mentioned blood transfusion to the family, several members offered their blood, but when the time for operation arrived each one claimed a different malady. At last we found a donor and at midnight Dr. Peterson performed the transfusion; 180 c.c. were withdrawn and injected by the syringe method, intravenously. Marked improvement was noted immediately. The baby assumed a healthy glow and bleeding of the wound ceased. A new dressing was applied and allowed to remain on until June 2, when a small clot at the frenum was dislodged and a little oozing followed.

"In the evening bleeding increased. Then I gave an injection of 10 c.c. of blood intramuscularly. Bleeding stopped, and after a few days the wound healed under local treatment. A month later I saw the baby, and found him thriving and normal in every respect."

CASES 4 and 5.—These patients were brothers. The older boy had shown a bleeding tendency since infancy. The history and blood tests indicated a mild form of familial hemophilia. The younger boy bruised easily and showed a slight tendency to bleed. Both were given prophylactic injections of whole blood intramuscularly.

CASE 6.—A boy, aged 19 months, was admitted to the Post-Graduate Hospital with a history of frequent epistaxis. There were a large hematoma in the right gluteal region, and bruises on the body. The family would not or could not furnish a donor, so while we were doing a transfusion in another case, the donor allowed us to withdraw several ounces of blood to be used for this boy. An intramuscular injection of 20 c.c. of unmodified blood was given at once. The remainder of the blood was citrated and set aside. Two days later the intern, following my instructions, gave an intramuscular injection of citrated blood. The patient began to bleed from the needle puncture, and continued to bleed for two days. Pressure and serum and blood were used locally without effect. Finally, with a small round needle and fine catgut, I ligatured the puncture opening and then applied a collodion dressing and a firm bandage. There was no further bleeding.

2. *Purpuric Group.*—(*a*) Hemorrhagica Neonatorum: Hemorrhagica neonatorum probably belongs to the purpuric group, and is dependent on some form of toxemia. Under all circumstances it is a serious affection with a bad prognosis. Before the introduction of blood therapy in the treatment of this condition, the mortality was as high as from 50 to 75 per cent. The serum treatment of Welch, the intramuscular injection of whole blood (Schloss' method), and blood transfusion have been attended by brilliant results, and the mortality has been reduced to 5 or 10 per cent. According to the experience of Lespinasse of Chicago, and Green of Boston, blood transfusion is the method of choice and will often prove life-saving after the failure of all other methods. The first transfusion for hemorrhagica neonatorum was reported in 1908, by Dr. S. W. Lambert[3] of New York. The operation, direct transfusion by suture anastomosis of the left radial vein of the father to the right popliteal vein of the infant, was performed by Drs. Carrell and Brewer, and the life of a dying infant saved thereby. Lambert concludes his report as follows:

To review the facts of the case: Hemorrhages and fever began simultaneously; normal temperature was reached forty hours after the onset of fever, but the hemorrhages became progressively worse for three days after all fever had disappeared. At the time of the operation the baby was in a dying state and had palpably only a few hours to live. Immediately afterward the baby was in perfect health. There was no period of convalescence.

Such a sudden change in condition could not be due to a structural regeneration in the capillary vessels or to a sudden overcoming of an infection; clinical experience will permit of no such inference. Neither the crisis of a pneumonia nor the relief of a spasmodic croup can be compared with the observed fact in this case, either from a point of view of reversal of pathological condition or of lapse of time necessary to bring it about.

The only possible explanation of so rapid a change must be found in a chemical condition of the blood. And the final conclusion as to the nature of the disease is that melena neonatorum is a congenital malformation of the blood of unknown chemical nature. The solution of the problem of its etiology is to be found in the chemical study of the processes of osmosis in the capillary vessels, of the chemistry of the blood coagulation and along kindred lines, which are for the most part new and untouched.

My own experience in this disease is limited to one case:

A. F., boy, aged 18 days, was brought to the Post-Graduate Hospital in a critical condition, having bled for six days. The infant had been delivered naturally. The cord came away on the fourth day. On the twelfth day there was hemorrhage from the unbilicus which continued, in spite of treatment, for six days. After the hemorrhage started the child became decidedly jaundiced, but there was no evidence of icterus before this time. Having experienced the usual technical difficulties which are encountered in transfusion in infants, I determined in this case to try the method suggested by Dr. Henry F. Helmholz.[4] By the syringe-cannula method blood was taken from the vein of the donor, and 35 c.c. were injected into the longitudinal sinus, through the anterior fontanel; also an intramuscular injection of 15 c.c. was given. The hemorrhage stopped immediately, and during the six days that the infant was kept under observation did not recur. There was also improvement in the general condition of the patient, the jaundice lessening to a perceptible degree. Some days after being removed from the hospital, however, the infant died suddenly. No particulars as to the cause of death could be obtained.

This case is reported to show the prompt hemostatic effect of transfusion and also to call attention to the

3. Lambert, S. W.: Med. Rec., New York, May 30, 1908.
4. Helmholz, H. F.: The Longitudinal Sinus as the Place of Preference in Infancy for Intravenous Aspirations and Injections, Including Transfusion, Am. Jour. Dis. Child., September, 1915, p. 194.

fact that the introduction of blood into the superior longitudinal sinus, through the anterior fontanel, offers an easy method of transfusion in the newly born.

(*b*) Symptomatic and Idiopathic Purpura: Purpura is usually due to some form of bacterial, metabolic or chemical toxemia. In the symptomatic variety, if the underlying etiologic factor can be determined and eliminated, the disease will tend toward a spontaneous and permanent recovery. On the other hand, idiopathic purpura or "essential thrombopeny" or "pseudohemophilia" — call it what you will — is probably a clinical entity. It is a most serious affection with a high mortality. (In fact, if all types of purpuric disease are considered, we find that the mortality is fully 25 per cent.) While it, too, is probably due to some toxic factor, the exact etiology is still undetermined. It is characterized by a tendency to uncontrollable hemorrhage. *Prolonged bleeding time, normal coagulation time, marked diminution* in the *platelet count* and lack of *capillary resistance* (Hess' test) are the essential features of the disease. Preceding and accompanying the actual bleeding there is a decided drop in the number of platelets. With improvement the platelets rapidly increase in number.

Frank cites thirty-four cases of constitutional purpura from the literature, and four of his own. He has never known of complete recovery in any case, and is inclined to believe that in most instances the supposed recovery from an acute attack was merely the subsidence into latency of a chronic purpura, which the physician happened to see during an exacerbation.

In this group there are eight cases. In seven cases, twelve transfusions were given. In addition to the transfusions, several patients were given blood intramuscularly. One patient — with streptococcic septicemia — was given intramuscular injections of blood, transfusion not seeming to be indicated. There were two deaths in the series. In the first case death was due to acute nephritis, and occurred several months after the last transfusion. The bleeding tendency had subsided long before the nephritis became the prominent feature of the disease. The second death occurred in a woman, aged 63, who had been ill for months with purpura hemorrhagica. When brought to the hospital during a fulminating attack, she was moribund. I protested against transfusing this patient, urging that it would do no good, but the attending physician insisted that the measure be tried in the forlorn hope that it might help. It did no good.

In three cases a single transfusion corrected the bleeding tendency, and apparently cured the condition. That is, up to the present time there has been no relapse. In two cases in which hemorrhage was active and life was threatened from acute anemia, transfusion tided the patients over the emergency period. The first of these patients remained well for over a year, but recently has shown a slight tendency to bleed. The second patient, after remaining without symptoms for several months, is now under my care at the hospital.

3. *Secondary Hemorrhagic Disease.*—It is probable that all types of pathologic hemorrhage, except hemophilia and possibly constitutional purpura, belong to the class of "secondary hemorrhagic disease." This term is used merely for convenience to indicate the variety of hemorrhage seen in icterus, sepsis, nephritis, blood diseases, etc. In the management of this form of bleeding, while carrying out measures for the control of the bleeding, it is imperative that the original disease be given appropriate treatment. While I have encountered a number of cases of secondary hemorrhagic disease, only two were given blood by transfusion. The first patient had chronic nephritis, with hypertension, and had been having frequent and copious nasal hemorrhages over a period of three weeks. After the transfusion there was no further bleeding, and improvement in the general condition of the patient rapidly followed. The second case was in a boy who had a severe degree of anemia and splenomegaly, with frequent small nosebleeds. After transfusion, the hemorrhages would cease until anemia again became grave. I am indebted to Dr. R. H. Halsey for a history of the first case:

CASE 8.—"Mr. W. S. McL., aged 42, married, two children, has been accustomed to use alcohol to excess; tobacco in large amounts. Venereal history denied. Seen first, March 21, 1914, after a week of nosebleed, during which time some of the hemorrhages had been quite large, as judged by his brother, who is a physician, who said that probably some of the hemorrhages were as large as from 400 to 500 c.c. Repeated cauterizations and plugging of the nostrils had failed to stop the hemorrhages.

"Because of the general blanched appearance of the man, he was sent to the hospital. An examination of his blood showed an anemia of 32 per cent., with a color index of 0.5 and a red cell count of 3,144,000. The next day after his admittance to the hospital, he had joint pains and a general soreness, and a temperature of 102 F., with a pulse of 120; respirations, 22; systolic blood pressure, 190 mm.; diastolic, 110 mm. The urine showed a slight trace of albumin and a few hyaline casts. A diagnosis of influenza and chronic nephritis, with hypertension, was made. His temperature subsided and pulse rate diminished, so that five days later his temperature was 99, pulse about 100, blood pressure and urine the same as before. During this interval he continued to have numerous small nosebleeds, and he lost in the largest one probably 100 c.c. of blood. Because of the continued epistaxis, continued high blood pressure, the low hemoglobin estimation and low red cell count, which by this time had reached 2,300,000, it seemed wise to resort to a transfusion of blood. His brother was selected as the donor, and after examination as to the fitness of the choice, was found acceptable, and transfusion was done by Dr. Peterson, using the syringe method; slightly more than 300 c.c. of blood were taken.

"The examination of blood after the transfusion was completed showed that the red cells had increased about 1,000,000; hemoglobin about 5 per cent. The next day the red cell count had further increased, and though the hemoglobin percentage had somewhat diminished, the color index had increased. From that time on, the red cell count increased and the hemoglobin percentage increased, so that by the first week in May the red cell count was slightly over 3,600,000; hemoglobin, 70 per cent. The blood pressure remained about 185, with a diastolic of 135; pulse rate of 84, with a slight trace of albumin and a few hyaline casts in the urine. From the time of the transfusion there were no further nosebleeds, and up to the present time, eleven months later, there has been no recurrence.

"In this case the cessation of the nosebleeds was much more prompt, and the increase of hemoglobin percentage and red cell count were more rapid, than it has been my experience to obtain in any other similar case of chronic nephritis with hypertension, and these results would encourage me to try the procedure again under similar circumstances."

For the most part in this series the results of transfusion have been good, in but few cases ineffectual, and in none harmful. In certain instances, when the blood of one donor has proved disappointing, the selection of another donor has brought about strikingly

brilliant response. One donor's blood may exhibit remarkable powers of hemostasis, when given for the control of pathologic bleeding; another's may induce unusual hematopoietic stimulation in anemia; still another's, owing to the presence of certain ferments or antibodies, may exert real antitoxic effect under proper conditions. In the present state of our knowledge, transfusion is somewhat of a "hit or miss" game, when we consider the question of therapeutic results. Fortunately, however, when properly safeguarded by preliminary tests, and given with an understanding of indications, dosage and expected effects, the procedure is attended with a majority of "hits" and relatively few "misses." Having no means for the standardization of blood as a therapeutic agent, and administering it in the form of a "crude drug," we must expect variable results. From a practical point of view, my best clinical results have been obtained in hemorrhagic disease, when a young healthy donor, not fully matured, could be secured. Among college boys who give attention to athletic training may be found many desirable ones. In the future a qualitative, as well as a quantitative study of blood will be our guide in the selection of a donor in a given case. One whose blood is rich in platelets, both quantitatively and qualitatively, should be chosen when, for example, the intractable bleeding of hemophilia or constitutional purpura is encountered.

CONCLUSIONS

1. Transfusion of blood, intramuscular injections of whole blood, and intravenous and subcutaneous injections of homologous serum are the most efficient measures, and are of value in the order named, in the treatment of hemorrhage and the hemorrhagic diseases.

2. In severe cases of acute posthemorrhagic anemia, blood transfusion is the best, and at times the only efficient means of resuscitating a dying patient. In chronic posthemorrhagic anemia, provided the cause of the bleeding is removed or remedied, no other measure will compare in efficacy with transfused blood in producing hematopoietic stimulation.

3. In pathologic hemorrhage, transfusion of blood has on numerous occasions proved effective after the failure of all other measures. It should be resorted to, then, in those cases which do not respond promptly to the simpler methods of treatment.

525 Park Avenue.

Typhoid Fever.—An epidemiologic study of the cases of typhoid fever reported in New York City during 1915, recently made by the chief of the Division of Epidemiology of the Department of Health, shows that 2,456 cases were reported. The source of 1,582 of these was unknown, but of the remaining 874, 372 were traced to out-of-town sources, 165 to direct exposure, 112 to milk, 95 to contaminated food, 118 to carriers, 12 to watermelons floating in polluted water, and none to oysters or water. A comparison of these figures with those of 1905 is interesting. In that year there were 3,585 cases reported, the source of 1,312 of which was unknown. Of the remaining 2,273, 535 were due to out-of-town sources, 225 to direct exposures, 525 to milk, 124 to oysters and 864 to water. On the accepted basis of at least ten cases for every death, it would seem that about 900 cases remained unreported to the board of health in 1915. Taking the figures of 1905, of the cases infected by milk and water, which were indirectly due to rural origin, it would be found that more than 50 per cent. of the cases reported during that year were in reality infected from rural sources.

THE ANTISEPTIC ACTION OF ETHER IN PERITONEAL INFECTIONS*

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I wish to report the clinical results obtained by the use of ether in cases of peritoneal infections.

When ether is introduced into the peritoneal cavity, it acts in both its liquid and gaseous form, for the body temperature is 2 degrees Centigrade above the boiling point of ether. Its evaporation and absorption are extremely rapid in spite of the slight check caused by the extraction of heat from the surrounding tissues and of the resistance caused by the condition of the tissues, when there are a greater or less thickness of tissue to penetrate, and a state of decomposition. Ether is first dissolved in the lymph of the tissue spaces, and afterward enters the blood circulation and is carried through to the lungs, from which its rapid elimination begins to take place in from three to four minutes after its introduction.[1]

After reading the reports made by Témoin,[2] Morestin[3] and Jeanneret[4] on the use of ether in peritoneal infections I decided to try it, and have had no reason to regret that decision. I have used it for over a year as a routine in all cases of peritoneal infections that came under my care at the Elizabeth City Hospital, and with its use I still continue the employment of proctoclysis and Fowler's position in the after-treatment. By means of a sterile small cannula attached to a record syringe containing the dose of ether, and inserted immediately before the continuous suture of the peritoneum has been tied, I instil the ether into the peritoneal cavity and then closely suture the wound in the parietes. When drainage is used I inject ether through the drainage tube and clamp it for four hours. The youngest patient in whom I used these injections was 5 years old, and the amount injected was 1 ounce. In adult cases I never inject more than 3 ounces and in only one case, in which drainage was used, I gave a second injection on the fourth day.

Such after-effects of ether anesthesia as vomiting, distention of stomach and intestines with gas, and pain in the back were not aggravated by the ether injections. In all the cases of peritoneal infections treated during the year 1915 at the Elizabeth City Hospital in which ether injections were used, no untoward after-effects and complications, such as bronchitis, pneumonia, edema of lung, acute nephritis, gastric and intestinal paralysis, and acidosis, followed, except in two cases to which I shall refer later.

I have selected five cases of appendicitis by which to demonstrate the results I have obtained from the use of ether injections. The first three cases are examples of the beneficial results I generally obtain, in which the recovery is practically uneventful. The last two cases, whose anxious condition and grave nature at the time of operation admitted of no doubt, are the only two, out of a series of 248 cases, which developed serious after-effects and complications which might be attributed to the action of an overdose of ether. In all these

* Read before the Pasquotank-Camden-Dare County Medical Society, N. C., Feb. 9, 1916.

1. Morton: Woman's Med. Jour., January, 1916.
2. Témon: Bull. et mém. Soc. de chir. de Paris, May, 1913.
3. Morestin: Bull. et mém. Soc. de chir. de Paris, February, 1913.
4. Jeanneret: Rev. méd. de la Suisse romande, 1913.

five cases, except Case 3, there was no shorter period of illness than six days before the patients were sent to hospital, and the treatment given during that time was a purgative administered by a relative and an opiate by the medical attendant. The bacteriology was not investigated in the first three cases, but in the last two cases the bacteriologic examination made of the peritoneal exudate showed the presence of streptococci and *Bacillus coli*. In all of them the intra-abdominal condition found at operation was much worse than the symptoms indicated, and necessitated a prolonged drainage except in Case 3. I learned from the history that in nearly all of these cases the classical symptoms were generally present: abdominal pain and tenderness, nausea and vomiting, elevation of temperature and quickening of pulse, and in some one symptom predominated the others. At the time of admission some of these symptoms had abated and others had increased in severity. The prominent signs and symptoms which were observed at the time of admission will be referred to under each respective case.

REPORT OF CASES

CASE 1.—J. G., a boy aged 6 years, was admitted to hospital Feb. 17, 1915. The pulse was 140, the temperature 103, and the breathing almost entirely thoracic. The abdomen was rigid, distended and tympanitic. He had frequent and painful micturition and slight diarrhea. Sandeman's sign of the child's attitude—to lie with the back of the head supported by both hands—was observed. The operation was carried out immediately after admission under open ether anesthesia, and the amount of ether used was 1½ ounces.

A gridiron incision was made, and the edges of the wound carefully protected. When the peritoneum was opened, thin seropurulent pus and offensive gas escaped. The pus which was found in the right iliac fossa, pelvis, left iliac fossa and among the coils of small intestine was mopped out, the ruptured gangrenous appendix removed, and pelvic drainage carried out by means of a rubber tube through which I injected 1 ounce of ether into the peritoneal cavity and clamped the tube for four hours. A saline was given by rectum by the drop method immediately after operation and the patient was placed in Fowler's position. As the patient did not show the desired improvement, I made on the fourth day after operation a supplementary small incision over the left iliac fossa, and after allowing the pus to escape, introduced a drainage tube through which I injected 1 ounce of ether and clamped it for four hours. The patient made a good recovery and was discharged, April 6, 1915.

CASE 2.—F. G., boy, aged 5 years, a patient of Dr. Mann of Fairfield, N. C., was a pale and thin twin, who had never been strong. At the time of admission, at midnight, July 15, 1915, his temperature was 103 and pulse 146. Physical examination revealed a mass in the right iliac fossa dull to percussion, and the right leg drawn up. Immediate operation was decided on, and was carried out under open ether anesthesia. The amount of ether used was 1½ ounces.

Through a right rectus incision the peritoneum was opened and the appendix was found to be perforated and to be lying in an abscess cavity containing about 4 ounces of foul smelling pus. The appendix was removed and the cavity drained, and through the drainage tube 1 ounce of ether was injected and the tube clamped for four hours. For a few days the boy suffered from diarrhea and mucus, and undigested food appeared in the motions; then he made a good recovery and was discharged, Aug. 10, 1915.

CASE 3.—C. N., aged 27 years, a strong and healthy looking farmer, complained of indigestion and epigastric pain, Sept. 14, 1915, the day he brought his wife to the hospital to undergo an operation for appendicitis. On the following day, while on a visit to the hospital to see his wife, he told me that the attacks of pain over the middle of his abdomen, above the navel, were so severe as to compel him to rest awhile when working or walking, that he had taken a purgative, had applied a blister over his stomach and had obtained no relief, and wished me to examine him.

There was a slight elevation of temperature with slight quickening of the pulse, and local deep tenderness in the right iliac fossa was elicited, but no rigidity. I made a diagnosis of appendicitis and advised operation. It was carried out under open ether anesthesia. The amount of ether used was 6 ounces. The right rectus incision was adopted. The appendix, black, shiny and gangrenous, was found lying free without adhesions and with no perforation. It was removed and its lumen was found to be obstructed by two hard calculi, one at the base and one near the tip. Three ounces of ether were instilled into the peritoneal cavity and the wound closed without drainage. An uneventful recovery followed.

CASE 4.—L. H., boy, aged 9 years, referred by Dr. W. T. Griggs of Poplar Branch, N. C., was admitted to hospital, July 20, 1915. He looked very ill. The temperature was 103, the pulse 144, and there was practically no abdominal respiratory movement. On the strength of the history, the pulse rate and the abdominal rigidity, I opened the abdomen under open ether anesthesia. The amount of ether used was 2 ounces. A ruptured gangrenous appendix was found surrounded by a collection of seropurulent and fecal fluid, a perforation of the cecum at its junction with the appendix —as large as a dollar—and a spreading peritonitis. The pus and foreign material were mopped away, the appendix removed, the perforation in the cecum closed by through and through and Lembert sutures, and through an established tube in the pelvis I injected 1 ounce of ether and clamped the tube for four hours. At the end of the operation and before leaving the table the patient turned suddenly pale and frothed at the mouth. His pulse became thready and rapid, his breathing slow and shallow, his eyes glassy and fixed and his extremities cold. Saline infusion subcutaneously, and strychnin, 1/90 grain, and digitalin, 1/75 grain, hypodermically, were administered. The patient after two hours recovered from this condition and was put to bed in Fowler's position. The second day after operation his temperature rose to 104.6 and respiration to 40 per minute. On the third day he developed signs of basal pneumonia.

The points to be considered in this case are, first, Was the shock due to an overdose of ether, and, second, What was the cause of pneumonia? As I am not a believer in dogmatism, I call attention to the small amount of ether used—for inhalation 2 ounces and for instillation into the peritoneum 1 ounce, which passed through the lungs as a warm and moistened vapor—and to the low and toxic condition of the patient. The boy had no bad teeth, his mouth was cleansed, the ether mask was sterile, and his body was kept warm before, during and after the operation. The reader can use his own judgment as to whether ether, or septic infection, or both combined, was the injurious agent. However, in spite of such dangerous intra-abdominal pathologic condition and of such a perilous complication as pneumonia, the patient slowly recovered, and after a prolonged convalescence was discharged, Sept. 2, 1915.

CASE 5.—T. H., aged 42 years, farmer, a patient of Dr. Davis of Weeksville, N. C., had had two attacks of appendicitis previous to the night of Aug. 16, 1915, when Dr. O. McMullan was called in consultation and ordered his immediate removal to hospital. So much care was taken in carrying him to the hospital that it took from 12 midnight to 5 a. m., to travel a distance of 12 miles. On admission his temperature was 102, pulse 120 and respiration 42. He was pale, thin, emaciated and looked extremely ill. Physical examination revealed tenderness, muscular rigidity and swelling, with a tympanitic note on percussion in the right iliac fossa. The operation was carried out under open ether anesthesia. The amount of ether used was 4 ounces. A hypodermic injection of morphin, ¼ grain, atropin, 1/120 grain, and scopolamin, 1/100 grain, was given one and one-half hours previous to the operation.

When the abdomen was opened by the gridiron incision, a matted mass was found consisting of cecum, ileum and omentum enclosing a thin and extremely offensive fluid and

a long appendix, adherent near its base to the ileum, its body coiled behind the cecum and embedded in its wall and its tip gangrenous and perforated. The cecum was distended with gas, and on its posterior surface purplish areas were observed. The fluid was mopped, and the appendix with difficulty and after prolonged manipulation was separated and removed. The wound was closed and drainage used by means of a rubber tube, through which 3 ounces of ether were instilled into the peritoneal cavity, and the tube clamped. A quarter of an hour after leaving the operating table the patient became cyanosed; the pulse was thready and imperceptible, the respiration slow and shallow; the eyes were lusterless and the pupils moderately dilated; the general reflexes and resistance were lost; unconsciousness was complete. Caffein and atropin hypodermically and hot saline by rectum were administered. After two hours a slight improvement in the pulse was observed, and the cyanosis began to disappear gradually; but it was twelve hours before the reflexes and consciousness were restored. It is possible that the severe shock in this case was not due solely to ether, and probably to combined causes in which the prolonged abdominal manipulation and the septic infection were contributory factors. It was a great relief to me to feel that though death was nigh it was robbed of its fatal sting, and the patient after a slow and tedious recovery was able to leave the hospital in good health, Oct. 3, 1915.

CONCLUSIONS

1. Ether experimentally and clinically has been proved to have a bactericidal action.
2. In peritoneal infections it is a safe and beneficial antiseptic.
3. The dose of ether instillation into the peritoneal cavity is 1 ounce for a child above 4 years, and 3 ounces for an adult.
4. Generally no untoward after-effects and complications follow its use.
5. Any possible toxic action of ether on the various body organs is very slight.

THE DIAGNOSIS OF ENTERIC FEVER (TYPHOID AND PARATYPHOID A AND B) BY AGGLUTINATION TESTS*

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Dr. C. D. Hamilton[1] has asserted that "a positive Widal reaction in any person who has ever been inoculated with the antityphoid vaccine is of no value in diagnosing typhoid fever. The only reliable way of ascertaining the cause of continued fever when typhoid is suspected is by the blood culture and a total and differential leukocyte count."

This statement doubtless accurately represents the facts regarding the results of single Widal tests carried out by the older methods. Nevertheless the agglutination test when quantitatively performed by an accurate technic[2] can undoubtedly be made to give as valuable results in inoculated as in uninoculated persons; for although it is true that a single positive Widal reaction, even when done quantitatively, in the case of a person suspected of typhoid fever who has previously been inoculated with typhoid vaccine, may be of no value, yet by recording the highest dilution in which marked agglutination occurs (that is, the titer of agglutination of the serum) and repeating this quantitative determination once or twice at intervals of several days, one can readily arrive at a correct diagnosis by noting whether or not any appreciable alteration occurs in the titer of the serum at the successive examinations (that is, noting whether the agglutinating power of the serum has risen or fallen during the period of observation). For one can state with confidence that if either a marked rise or a marked fall in the agglutination titer has taken place, the person is suffering from active typhoid infection, since it has been shown[3] that in active typhoid infections the agglutination titer of the serum increases for about the first three weeks (Dreyer), after which it falls, at first rapidly and then much more gradually toward its original level. The rate of fall progressively diminishes, so that after about two months, successive observations made at short intervals will probably exhibit no appreciable change.

The agglutination technic by means of which this accurate analysis has been rendered possible is the quantitative macroscopic method introduced by Dreyer[2] in 1904, of which the brief description issued from this Department is appended:

DIRECTIONS

USE OF STANDARD AGGLUTINABLE CULTURES IN TESTING THE AGGLUTINATING POWER OF A SERUM

1. TECHNIC.

Take a stand containing 15 agglutination tubes in 3 rows of 5 each, and a dilution tube.

With the proper dropping pipet measure out into the dilution tube 54 drops of normal saline solution, 0.85 per cent. sodium chlorid, in distilled water (where the water supply is pure, tap-water can be used instead of saline solution) by means of gentle pressure on the teat.

Wash the pipet with distilled water.

Dry out the pipet with successive quantities of absolute alcohol, followed by successive quantities of ether, and get rid of the ether.

Take up the serum to be tested into the dried pipet. Measure out 6 drops of the serum into the dilution tube already containing the 54 drops of saline solution, thus obtaining a dilution of 1 in 10. Mix thoroughly.

Carefully wash out the pipet.

With the pipet measure out into each row of tubes as follows:

Number of Tube	Drops of Normal Saline Solution	Drops of Serum Dilution 1 in 10	
1	0	10	To each tube in row 1 add 15 drops of *B. typhosus* Standard Agglutinable Culture.
2	5	5	
3	8	2	To each tube in row 2 add 15 drops of *B. paratyphosus A* Standard Agglutinable Culture.
4	9	1	To each tube in row 3 add 15 drops of *B. paratyphosus B* Standard Agglutinable Culture.
5	10	0	

At each stage of the procedure the pipet is carefully washed and dried out with successive quantities of absolute alcohol followed by successive quantities of ether.

Shake each tube thoroughly in order from right to left, i. e., beginning each row with the highest dilution.

Place the stand for two hours in a water-bath at 50-55 C. (*not* in dry air).

In Tube 1 of each row the serum acts in a dilution of 1 in 25.
In Tube 2 of each row the serum acts in a dilution of 1 in 50.
In Tube 3 of each row the serum acts in a dilution of 1 in 125.
In Tube 4 of each row the serum acts in a dilution of 1 in 250.
Tube 5 containing no serum is control against spontaneous agglutination.

If the limit of agglutination is not reached within this series, higher dilutions are followed out in a similar manner.

Thus, for example, 57 drops of normal saline solution plus 3 drops of a 1 in 10 serum dilution will give a serum dilution of 1 in 200, and, using the same quantities as before, one has the serum acting in dilutions of 1 in 500, 1 in 1,000, 1 in 2,500 and 1 in 5,000. And similarly for higher dilutions.

The tubes are examined after 2 hours at 50-55 C. followed by fifteen minutes standing at room temperature. The reading is taken by comparing each tube in succession with the control tube, and is preferably made by means of artificial light against a black background. If daylight is used, the tubes inspected should be partly shadowed by passing a finger up and down behind them.

The highest dilution in which marked agglutination (without sedimentation) can be detected by the naked eye is *Standard Agglutination*. But owing to the rate at which the dilution increases in the series of tubes employed, it will commonly happen that no tube in the series exhibits *Standard Agglutination*. If this be so, it will be found in looking along the series that while one tube shows strong agglutination

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* From the Department of Pathology, University of Oxford.

1. Hamilton, C. D.: The Effect of Typhoid Vaccination on the Widal Reaction, THE JOURNAL A. M. A., Nov. 27, 1915, p. 1873.

2. Dreyer, Georges: Hospitalstidende, 1906; Brit. Med. Jour., 1904, ii, 564. Dreyer and Blake, Jex: Jour. Path. and Bacteriol., 1906, p. 1. Dreyer: Proc. Roy. Soc. Med., 1915, ix (Medical Section), p. 9. Dreyer and Torrens: Lancet, London, Dec. 18, 1915, p. 1369.

3. Schroeder, K.: Thesis, Copenhagen, 1909.

with sedimentation the next succeeding tube shows no agglutination at all, or only a trace. In such cases Standard Agglutination lies approximately midway between the two dilutions.

Should a more precise determination of the limits of agglutination be required, it can be obtained by using a stand of twelve tubes with the series of quantities given in the table contained in the directions for Preparation and Standardization of Agglutinable Cultures.

(If the stand is left at the room temperature, sixteen to twenty-four hours must be allowed before the reading is taken, but the reaction is not then so sharply defined. In this case the highest dilution in which a definite flocculent sedimentation appears corresponds approximately to Standard Agglutination.)

When the standard degree of agglutination (*"Standard Agglutination"*) occurs with Standard Agglutinable Culture in a serum dilution of 1 in x, then x divided by the figure given on the label of the Standard Agglutinable Culture employed gives the number of *"Standard Agglutinin Units"* contained in 1 c.c. of the serum examined.

Note.—The *Standard Agglutinin Unit* is that amount of agglutinating serum which when made up to 1 c.c. volume with normal saline solution causes Standard Agglutination on being mixed with 1.5 c.c. of a particular Standard Agglutinable Culture and maintained at 55 C. for two hours in a water-bath followed by fifteen minutes at the room temperature.

Thus, if standard agglutination occurs in a dilution of 1 in 1,000, and the number on the label is 2.5, then $\frac{1{,}000}{2.5}$, i. e., 400, is the number of Standard Agglutinin Units contained in 1 c.c. of the serum examined.

For uniformity and simplicity in recording results they should be expressed in *Standard Agglutinin Units.*

2. DIAGNOSIS.

A. In noninoculated persons who have not had typhoid (or paratyphoid) fever, agglutination in a dilution of 1 in 25 justifies a strong suspicion of typhoid (or paratyphoid) infection. But the test must be applied again in the course of a few days to ascertain whether there is any change in the titer of agglutination. Marked agglutination in a dilution of 1 in 50 or more is (nearly always) diagnostic of active typhoid (or paratyphoid) infection.

A *noninoculated* "carrier" will normally show no important change in the titer of his serum on repeated examination at short intervals.

B. Inoculated persons if quite recently inoculated will usually show a high titer of specific agglutination. A rapid rise in titer sets in within two to four days of inoculation. This is followed by a fall at first rapid, but subsequently becoming very slow, so that a relatively high titer is maintained for a long period (even for years). During this period examinations made at intervals of a few days give practically identical readings.

It follows that in the case of inoculated persons the diagnosis of active typhoid (or paratyphoid) infection will require two or more successive examinations of the serum.

(*a*) If the individual is suffering from active *typhoid* infection his titer of typhoid agglutination will exhibit the usual rise and subsequent regular fall seen in noninoculated subjects, but starting from and returning toward the higher base line of inoculated persons.

(*b*) If the individual is suffering from active *paratyphoid* infection one of three things may occur as regards his *typhoid* agglutination titer, namely:

1. No appreciable change may occur in the titer of typhoid agglutination.
2. A relatively slight rise may occur, followed by a fall toward the former level.
3. A marked rise may occur synchronous with the rise in paratyphoid agglutination titer, and subsequently followed by the usual fall toward the former level.

Meanwhile the titer of *paratyphoid* agglutination runs the normal course of rapid rise to a maximum (usually exceeding the maximum typhoid titer) followed by a fall, at first rapid and then slower as already described for typhoid subjects, and falling *below* the persistent base line of typhoid agglutination of inoculated persons.

C. In the case of mixed infections whether in inoculated or noninoculated persons the agglutinin curves for the different infecting organisms are usually not synchronous, and they pursue their ordinary course independently of each other.

From the Department of Pathology, University of Oxford, on behalf of the Medical Research Committee.

In Great Britain and Denmark this technic has now very largely superseded the older microscopic method on which Dr. Hamilton relies but whose fallacies have been often demonstrated.[4] Its application and the use of the standardized agglutinable cultures[5] which have been issued since July, 1915, on behalf of the Medical Research Committee (England) to British military and naval hospitals, have rendered it a simple matter to determine accurately the degree to which the serum of any given individual will agglutinate the *Bacillus typhosus* or the paratyphoid bacilli. A description of the mode of preparation and standardization of these cultures is sent out from the Oxford Laboratory in the form appended:

DIRECTIONS

PREPARATION AND STANDARDIZATION OF AGGLUTINABLE CULTURES

1. PREPARATION.

The bacillus (*B. typhosus, B. paratyphosus,* etc.) is grown for twenty-four hours at 37 C. in ordinary *veal* peptone bouillon in large Erlenmeyer flasks partly filled (1 liter of bouillon in a 1½ liter flask).

The bouillon is titrated against phenolphthalein, and two thirds of that amount of sodium hydrate which would render it neutral to phenolphthalein is added before the final boiling and filtration.

Before use the flasks of bouillon are sterilized in the autoclave at 115 C. for *not more* than fifteen minutes, and are then tested for sterility by incubation at 37 C. for forty-eight hours.

They are inoculated with a few drops each from a twenty to twenty-four hours old bouillon culture of the bacillus (*B. typhosus* or *B. paratyphosus,* etc.).

The culture used should be one which has been subcultivated daily in bouillon for one or two weeks (or longer). This continued subcultivation has the effect of increasing its agglutinability and diminishing any tendency to spontaneous agglutination.

At the end of twenty to twenty-four hours' growth at 37 C., the flasks are well shaken, and to each is added 0.1 per cent. (1 c.c. per liter) of commercial (40 per cent.) liquor formaldehydi. They are again shaken and placed in a *cold* chamber in the dark at about 2 C.

At intervals on the same day and on subsequent days for four or five days the flasks are again thoroughly shaken and *replaced at once in the cold chamber.*

After three or four days they will be found to be absolutely sterilized. Should it happen that the bacterial suspension is not entirely homogeneous it may be shaken for some hours in a mechanical shaker, or may finally be filtered through sterile cotton-wool.

2. STANDARDIZATION.

The process of standardization consists (*a*) in making up the killed culture to an opacity as nearly as possible identical with that of the Standard Agglutinable Culture, (*b*) in measuring its agglutinability as compared with the Standard Agglutinable Culture by the use of Standard Serum.

(*a*) The killed culture is diluted to the required degree with normal saline solution to which has been added 0.1 per cent. of commercial liquor formaldehydi.

In making up the Standard Agglutinable Culture issued a constant opacity is secured by the use of a special apparatus (the diaphanometer). But for ordinary purposes it will be found that reasonable accuracy is obtained by putting a measured quantity of killed culture and of Standard Agglutinable Culture in two tubes of equal size and diameter and comparing the opacity against thin black lines ruled on a white background. Diluting fluid is added until the opacity of the killed culture is brought down to that of the Standard Agglutinable Culture. The quantity of fluid thus added being known, the amount of diluting fluid which much be added to the killed cultures is readily calculated.

(*b*) To measure the agglutinability of the killed culture thus diluted, proceed as follows:

Take two stands and place twelve agglutination tubes in each. Prepare (1) a dilution of Standard Agglutinating Serum of such strength that each cubic centimeter contains from 4 to 8 Standard Agglutinin Units, and from this prepare (2) a second dilution of half that strength.

With the pipet measure out		Drops of Normal Saline Solution	Serum Dilution	
Into tube 1 of each stand		0	10	drops of dilution 1
" 2	"	2	8	"
" 3	"	4	6	"
" 4	"	5	5	"
" 5	"	6	4	"
" 6	"	3	7	drops of dilution 2
" 7	"	4	6	"
" 8	"	5	5	"
" 9	"	6	4	"
" 10	"	7	3	"
" 11	"	8	2	"
" 12	"	10	0	"

To each tube of one stand is added 15 drops of *Standard Agglutinable Culture,* and to each tube of the other stand 15 drops of the *killed culture* under standardization.

At each stage of the procedure the pipet is carefully washed and dried out with successive quantities of absolute alcohol followed by successive quantities of ether.

The stands are placed for two hours in a water bath at 50-55 C., then allowed to stand for fifteen minutes at room temperature and a reading subsequently taken by selecting in the series made with Standard Agglutinable Culture the tube which exhibits Standard Agglutination (the highest dilution in which marked agglutination, without sedimentation, can be detected by the naked eye), and ascertaining which tube in the other series shows the same degree of agglutination. Should the tube be the same in each series, the agglutinability of the killed culture is clearly equal to that of the Standard. If not the same, the degree of agglutinability of the killed culture is now readily determined.

Thus suppose that tube 5 in the Standard series corresponds to tube 2 in the other series. The Standard Agglutinable Culture is twice as agglutinable as the killed culture under standardization, since only half the quantity of serum has been required to agglutinate it to the same degree.

Hence, if any given serum presented for examination is found to agglutinate this particular killed culture in a dilution of, say, 1 in 500, then 500 multiplied by 2 and divided by the figure given on the label of the Standard Agglutinable Culture is the number of Standard Agglutinin Units in 1 c.c. of the serum examined.

Or again, if the killed culture were, say, 1.3 times as agglutinable as the Standard Agglutinable Culture, then in the same example as above, 500 divided by 1.3 and again divided by the figure given on the label of the Standard Agglutinable Culture is the number of Standard Agglutinin Units in 1 c.c. of the serum examined.

From the Department of Pathology, University of Oxford, on behalf of the Medical Research Committee.

As a matter of routine, quantitative agglutination tests are made simultaneously against *B. typhosus, B. paratyphosus* A and *B. paratyphosus* B, and the highest dilutions in which marked agglutination without sedimentation occurs are recorded. Since, wherever typhoid inoculation has been made a routine practice, it is found that about 99 per cent. of the inoculated individuals give a positive Widal reaction against *B. typhosus* for at least a year, it may be stated that if in addition to the positive Widal for typhoid there

4. Walker, Ainley E. W.: Lancet, London, Jan. 1, 1916, p. 17.
5. Dreyer, Georges: Widal's Reaction with Sterilized Cultures, Jour. Path. and Bacteriol., 1909, xiii, 332.

is a positive agglutination reaction for either of the paratyphoid organisms, the case is an active paratyphoid infection (Table 1), provided, of course, the patient has not also been inoculated with paratyphoid vaccine in addition to the typhoid vaccine. If there is positive typhoid agglutination alone and no agglutination in a dilution above 1:10 with paratyphoids, a second specimen of blood must be taken four or five days later and the test repeated. If the highest dilution in which marked typhoid agglutination occurs on the second occasion is approximately the same as that found on the first occasion, and there is still no agglutination for either of the paratyphoids, the case is not one of typhoid fever and the agglutination is due to the typhoid inoculation alone (Table 2). For it has been shown that after about the third month of antityphoid inoculation, the titer of the agglutination due to inoculation is practically stationary if examined at intervals of only a few days, and that tests made at intervals of even weeks will show only a small gradual decrease in titer.[6] If, on the other hand, the highest dilution of marked typhoid agglutination in the second test is either markedly higher or markedly lower than at the first examination, one can state that the case is one of active infection with *B. typhosus* (Table 3).

The cases given in Tables 2 and 3 serve to illustrate these points. The patient shown in Table 2 was a case of suspected enteric fever. He had been prophylactically inoculated with typhoid vaccine six months previously. A specimen of blood was taken and a quantitative agglutination test was done by Dreyer's technic and marked agglutination for typhoid was found to occur up to a dilution of 1:250, and no agglutination for paratyphoid A or B was found. A second specimen of blood was tested after an interval of five days and a third specimen after ten days, and no change was found on any occasion. Accordingly, this case was not a case of typhoid fever, and the positive typhoid agglutination was due solely to the prophylactic typhoid inoculation.

Table 3 shows a case of continued fever in a person who had been inoculated with typhoid vaccine six months previously. The first agglutination examination showed a marked positive typhoid agglutination up to a dilution of 1:2,500, and no agglutination for paratyphoid A or B. A second agglutination test made five days later showed marked agglutination for *B. typhosus* up to a dilution of 1:1,250, and again no agglutination for paratyphoid A or B. A third examination made ten days later showed that the highest dilution of marked typhoid agglutination was only 1:500, and there was still no agglutination for para-

TABLE 1.—RESULTS OF AGGLUTINATION TESTS IN PARATYPHOID A AND B IN TYPHOID INOCULATED PATIENTS

Case No.	Date of Typhoid Inoculation	Date of Agglutination Test	Dilution in Which Marked Agglutination Occurs		
			Typhoid	Paratyphoid A	Paratyphoid B
19	May, 1915, twice	Sept. 6, 1915	1:250	0	1:2,500
89	November, 1914, and May, 1915	Sept. 9, 1915	1:250	1:500	0

TABLE 2.—RESULTS OF AGGLUTINATION TESTS IN SUSPECTED ENTERIC FEVER

Case No.	Date of Typhoid Inoculation	Date of Agglutination Test	Dilution in Which Marked Agglutination Occurs		
			Typhoid	Paratyphoid A	Paratyphoid B
66	March, 1914, twice	Sept. 22, 1915	1:250	0	0
		Sept. 27, 1915	1:250	0	0
		Oct. 7, 1915	1:250	0	0

TABLE 3.—RESULTS OF AGGLUTINATION TESTS IN ACTIVE INFECTION WITH BACILLUS TYPHOSUS

Case No.	Date of Typhoid Inoculation	Date of Agglutination Test	Dilution in Which Marked Agglutination Occurs		
			Typhoid	Paratyphoid A	Paratyphoid B
60	May, 1915, twice	Sept. 22, 1915	1:2,500	0	0
		Sept. 27, 1915	1:1,250	0	0
		Oct. 7, 1915	1:500	0	0

TABLE 4.—RESULTS OF AGGLUTINATION TESTS IN SUSPECTED TYPHOID IN AN UNINOCULATED PERSON

Case No.	Date of Typhoid Inoculation	Date of Agglutination Test	Dilution in Which Marked Agglutination Occurs		
			Typhoid	Paratyphoid A	Paratyphoid B
157	Not inoculated	Feb. 28, 1916	1:100	0	0
		March 12, 1916	1:500	0	0

6. Dreyer and Walker: Jour. Path. and Bacteriol., 1909, xiv, 28; Lancet, London, Feb. 13, 1915, p. 324.

typhoid A or B. Therefore this was a case of active infection by the *B. typhosus*.

Cases of *B. typhosus* infection in recently inoculated persons are, of course, infrequent, and it happens that among those which I have myself observed there is none which was examined at a sufficiently early stage of the disease to show the marked rise of agglutination titer which is diagnostic about the first three weeks of typhoid infection; but Table 4 shows a case of an uninoculated person suspected of typhoid fever whose serum, when tested seven days after the onset of the fever, agglutinated *B. typhosus* up to a dilution of 1:100. Thirteen days later the agglutination titer had risen to 1:500. In typhoid inoculated persons, who become infected with *B. typhosus*, a similar sharp rise is found, only, the rise starts not from zero, but from the level of the agglutination titer due to the previous inoculation.

Table 1 shows a case of paratyphoid A fever, and a case of paratyphoid B fever in typhoid inoculated patients.

From these examples, which have been chosen for illustration, it can be seen that the agglutination test when carried out by an accurate quantitative technic remains the most reliable and satisfactory method which we have at hand for the diagnosis of the enteric fevers (typhoid and paratyphoid A and B), whether the individual has or has not received prophylactic typhoid inoculation.

THE TREATMENT OF HUMAN RABIES WITH QUININ AND WITH PHENOL

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Since the preventive treatment of persons bitten by rabid animals has come to be widely practiced, human rabies is a rare disease. In New York City, a few cases occur every year (in 1911 there were eleven cases; in 1912, six cases; in 1913 and 1914 eight cases each, and in 1915, one case).

Most of the persons who develop rabies have received no preventive inoculations. Occasionally the disease occurs in spite of such treatment, the gross incidence among many thousands of persons treated by different antirabic institutes averaging about 0.5 per cent.

So far as we positively know, rabies once developed is always fatal. In the few cases of recovery that have been reported, the diagnosis has been open to serious doubt. Attention has been centered on the prevention of the disease by one or other of the accepted methods (Pasteur, Högyes, Harris or Cumming), and very little effort has been made to find a specific treatment of developed rabies. Yet in view of the facts that the balance of evidence leans toward the protozoan nature of this disease, and that certain protozoan infections are amenable to cure by specific drugs, it would seem worth while not to abandon hope of finding a drug that would kill the parasite in vivo without harm to the patient.

In 1913, Moon[1] reported the recovery of three dogs treated with massive doses of quinin after the development of symptoms of rabies. Cumming,[2] and Frothingham and Halliday,[3] using rabbits, failed to confirm Moon's results. Krumweide and Mann[4] found that quinin had no effect in shortening the incubation of rabies in rabbits. Of four dogs inoculated intracerebrally with rabies virus and subsequently treated with quinin by mouth and subcutaneously, one showed a prolonged period of incubation and one a remission in the symptoms, in each case, however, not beyond the limits of variations known to occur in the natural course of the disease. The dogs all died clinically rabid, their brains showed Negri bodies, and guinea-pigs inoculated subdurally from them all died of rabies and also showed Negri bodies.

Although these experiments failed to confirm the results reported by Moon, I decided to try the quinin treatment in a human case at the first opportunity.

TREATMENT OF HUMAN RABIES WITH QUININ

In October, 1913, D. L. Harris[5] reported the case of a man who showed symptoms strongly resembling rabies, and who was treated with quinin and urea hydrochlorid, receiving 90 grains intravenously with prompt recovery. A careful reading of this report leads to the suspicion that this man did not have rabies, for the following reasons among others: There was no evidence that the dog that bit him was rabid; the man managed to drink enough whisky to get intoxicated before he entered the hospital for treatment, and his symptoms improved too rapidly. Two and one-half hours after treatment was begun, when he had had but two intravenous injections of 15 grains each, he drank 6 ounces of milk without difficulty. Later that night and on the following day, he could eat and drink, and his recovery was complete within a day or two. On the other hand, the patient's symptoms as described were so characteristic that, had he died, one would have felt certain that rabies was the cause of death, even in the absence of postmortem confirmation.

On Oct. 26, 1913, two days following the publication of Harris' report, an opportunity of trying the quinin treatment in an undoubted case of human rabies presented itself.

CASE 1.—A. A., a boy aged 7, was bitten rather deeply on the index finger, Oct. 4, 1913. The wound was improperly cauterized at a dispensary with silver nitrate. The dog was killed, and examination of the brain at the research laboratory of the New York department of health showed the presence of Negri bodies. Three days later the patient appeared at the antirabic clinic of the department of health, and the Pasteur treatment was begun under my direction. The child was irregular in attendance and received only fourteen treatments in eighteen days, the last one on October 24.

Symptoms of rabies began on October 25, and he remained at home. No report of his illness was made to the clinic. On the following afternoon he was taken to Bellevue Hospital, where the diagnosis of rabies was made. On the morning of October 27, I was notified by the house physician, who had just read Harris' article. Although the boy had then been ill for forty-eight hours, it was determined to try the quinin treatment. At this time all the classical symptoms of the disease were present: extreme nervousness, complete inability to swallow fluids and great fear of attempting to do so, clonic spasms of the muscles of the throat and face and occasional general convulsions.

At 11 a. m., 10 grains of quinin and urea hydrochlorid were given intravenously in 10 c.c. of sterile water. Three hours later, lumbar puncture was performed, clear fluid with-

1. Moon: Jour. Infect. Dis., 1913, xiii, 165.
2. Cumming: Jour. Infect. Dis., 1914, xv, 205.
3. Frothingham and Halliday: Jour. Med. Research, 1914, xxx, 275.
4. Krumweide and Mann: Jour. Infect. Dis., 1915, xvi, No. 1
5. Harris, D. L.: A Clinical Report of Seven Cases of Hydrophobia, THE JOURNAL A. M. A., Oct. 25, 1913, p. 1511.

drawn, and 7 grains of quinin were given intraspinally. This was followed by an alarming collapse which lasted about two hours. Later in the afternoon another dose of 10 grains was given intravenously. The drug had no apparent effect on the symptoms of the disease, which proceeded as usual, through convulsions and paralysis to death from exhaustion on the morning of October 28, three days after the onset of the symptoms and less than twenty-four hours after the quinin treatment was begun. Necropsy showed Negri bodies in the brain; guinea-pigs inoculated subdurally with the brain material developed rabies, and Negri bodies were found in their brains.

It was felt that this case was not a fair test of the value of quinin in rabies because the treatment was begun so late in the disease.

CASE 2.—During the spring of 1914, I was called to see a woman in the Polyclinic Hospital who presented symptoms very suggestive of rabies. The patient, a young cabaret singer, said she had been bitten by her own dog five weeks before at a time when the animal was sick. She had given the dog away immediately after being bitten, and did not know its subsequent history. She appeared at the throat clinic of the hospital complaining of spasms of the throat and inability to swallow.

On examination several hours later, she presented a very fair clinical picture of rabies: abundant ropy saliva, convulsive movements of the throat and head, marked hydrophobia and total inability to swallow anything. Examination of the throat, made with difficulty, disclosed only congestion of the fauces, pharynx and larynx. She was extremely nervous and excited.

Although I suspected hysteria, the symptoms were so nearly typical of rabies that it was decided to administer quinin. Ten grains of quinin and urea hydrochlorid were given intravenously at 5 p. m. When seen three hours later, she was so much better that no more quinin was given, and a positive diagnosis of hysteria was made. One of the ambulance surgeons thought he recognized the woman, and a search of the ambulance records disclosed the fact that she had been brought into the hospital three times before with different manifestations of hysteria. She was discharged the next day, cured.

This case appears to be somewhat similar to the one reported by Harris, and is cited to show how closely hysteria or some other psychosis may simulate true rabies.

CASE 3.—In this case, the quinin treatment was fully tried out but failed to save the patient's life. Grace P., aged 13, residing in Brooklyn, was bitten on the right wrist by a cat, Oct. 19, 1913. The wound, which was a slight one, was treated at once with tincture of iodin by the family physician, Dr. T. L. Vosseler. The cat was killed and its brain examined at the research laboratory and Negri bodies were found. October 20, the wound was recauterized at the laboratory with pure nitric acid, and Pasteur treatment, supplied by the department of health, was given daily by Dr. Vosseler for twenty-one days. The patient and her family denied any history of bites from animals or any other opportunity for rabic infection between this time and the date of the development of rabies, which occurred one year after the completion of the Pasteur treatment.

On Nov. 1, 1914, the child complained of pain in the right wrist. This lasted four days, extending from fingers to shoulder, and then subsided. During the night of November 7, following an afternoon of very active play, she began to have pharyngeal and laryngeal spasms, with some difficulty in swallowing. The next noon Dr. Vosseler was called and, finding the foregoing symptoms more pronounced, made a diagnosis of rabies. Dr. Frederick Tilney was called in consultation at 8 p. m., and confirmed the diagnosis. Later that evening I was summoned and saw the patient with Drs. Vosseler, Tilney and Thunig. The child then complained chiefly of difficulty in breathing. She was unable to swallow water, and spasms of the throat and face muscles were easily elicited by blowing a puff of cool air on the face.

It was decided to administer quinin in massive doses, beginning with an intraspinal injection. The risk of this method was fully explanied to the parents and accepted by them. At 1 a. m., November 9, 20 grains of quinin and urea hydrochlorid in 10 c.c. of boiled water were given intraspinally by Dr. Tilney after removing 18 c.c. of clear cerebrospinal fluid, which was saved for laboratory tests.

Within ten minutes the child complained that she could not move her lower limbs. She soon stopped breathing and paralysis of all the muscles of the body except those supplied by the cranial nerves occurred. For a few minutes the heart action was weak, and the child appeared about to die. The heart was stimulated, and the head of the bed raised to keep the quinin, so far as possible, in the lower part of the canal. Artificial respiration was performed for about an hour until a pulmotor could be procured, which soon (in nine minutes) restored voluntary breathing. Consciousness was retained throughout, but the child could not speak. By 3 a. m., ability to speak and to move the muscles of the arm and trunk had returned. Complete motor and nearly complete sensory paralysis of the lower extremities persisted until death.

It was evidently too dangerous to give further intraspinal injections, and the remaining doses of quinin were given intravenously as follows: November 9, 5 a. m., 20 grains; 10 a. m., 20 grains; 2 p. m., 20 grains. November 10, 1 a. m., 20 grains; 12 m., 15 grains; 5 p. m., 20 grains. November 11, 11 a. m., 20 grains; 5 p. m., 20 grains. November 12, 1 a. m., 20 grains.

Thus, a total quantity of 195 grains was given in seventy-two hours, in ten doses. The intraspinal dose was dissolved in 10 c.c. of boiled water, the first five intravenous doses in from 6 to 9 c.c., and the last four in 12 c.c. of normal salt solution. Owing to the local irritation caused by the quinin, the injection had to be given in a new place each time, and all available veins of the upper and lower limbs were used.

Without describing the symptoms in too great detail, it may be stated that the only beneficial effects of the quinin seemed to be a reduction in the amount of conscious suffering, and probably some prolongation of the course of the disease, since the child lived six days. On November 9, there were convulsions of the face, head and upper extremities, and later in the day a few general convulsions, but these were not so severe as are usually seen in rabies. Owing to the paralysis of the lower extremities caused by the intraspinal dose of quinin, there were no convulsions below the waistline at any time. On the 10th, from 2 a. m. until noon, there were severe throat spasms, general convulsions and active delirium at times. The child could not swallow either liquids or solids, except on the 12th, when she took 6 ounces of water with difficulty. From November 11 on, she could not see, and on the 12th she became comatose, after which the spasms of throat, face and arms became less frequent and less severe. Some of the injections of quinin were followed by a marked reduction in the frequency and force of the heart action. On November 11, the leukocytes were 35,000 with 86 per cent. polymorphonuclears; on the 13th, 13,500. The urine was drawn by catheter, and on the day of death it contained 25 per cent. albumin by volume and gave a prompt Fehling reaction for sugar.

Aside from the injections of quinin, the treatment consisted in sedatives, enteroclyses, hypodermoclyses, rectal feeding and cardiac stimulation by epinephrin hypodermically.

Gradually the patient's strength became exhausted, and finally death occurred suddenly from respiratory paralysis on the evening of November 13, six days after the onset of the symptoms. Necropsy was performed on November 14. Negri bodies were found in the brain, and guinea-pigs inoculated subdurally from this developed rabies in two weeks, and Negri bodies were found in their brains. Guinea-pigs inoculated subdurally with the cerebrospinal fluid did not develop rabies, thus confirming the customary experience that the spinal fluid of persons suffering from rabies is usually not infective.

This case seems to show that the administration of quinin intraspinally is extremely dangerous, that it is fairly well borne intravenously, but that not much can be expected of it in rabies, by either of these methods of administration.

TREATMENT OF HUMAN RABIES BY SUBCUTANEOUS INJECTIONS OF PHENOL

In the autumn of 1913, Haberlin[6] published the details of a case clinically resembling rabies, treated successfully by subcutaneous injections of dilute solutions of phenol (carbolic acid).

His patient, a dog catcher, of alcoholic habits, was bitten on the calf of the leg by a dog that was suspected of being rabid. This dog bit another man, who developed rabies five weeks later and died. There was no report of postmortem examination of either dog or man.

Two days after the man's death, Haberlin's patient, who had been taciturn, morose and depressed for three or four days, began suddenly in the early evening to have spasms of the pharynx and larynx and complete inability to swallow, accompanied by extreme nervous agitation and followed by violent general convulsive seizures, alternating with periods of comparative calm. He drooled and spat saliva continually. The laryngeal muscles became tetanic to a degree that seemed to threaten suffocation, and the labored attempts at expiration produced a harsh, brassy cough that somewhat resembled the so-called rabid "bark."

A diagnosis of rabies was made, and it was decided to administer phenol according to the technic of Bacelli in cases of tetanus. At 8:30 p. m., 10 c.c. of a 1 per cent. aqueous solution of phenol were injected subcutaneously. One-half hour later 10 c.c. of a 2 per cent. solution were injected, and repeated in an hour. One hour later there was a very perceptible improvement in the patient's condition. Hourly doses of the 1 per cent. solution were now resumed and continued for ten hours, a total of eleven doses of 1 per cent. and two doses of 2 per cent. solution, equivalent to 1.5 gm. of pure phenol.

At 2 a. m., six hours after beginning treatment, the patient became somnolent, and when roused could swallow readily. At this time he stated that he was now conscious of his surroundings for the first time since the early evening, and when reminded of his previous actions and statements be denied any recollection of them. His subsequent history was uneventful. On the fourth day the patient was out of doors, and on the sixth day he resumed work.

As in Harris' case, this man's recovery was so prompt that it seems hard to believe that he really had rabies, yet the clinical symptoms were characteristic and closely resembled those of the other patient who was bitten by the same dog and who died of the disease. It was determined to treat our next case of rabies by the method described.

CASE 4.—Nathan J., aged 2½ years, was bitten Nov. 10, 1914, by a stray dog which was not captured. There were twelve extensive but superficial wounds on the face. No cauterization was done by the ambulance surgeon who first saw the case. Three days later the patient was brought to the Bronx Antirabic Clinic of the department of health. There the wounds were not cauterized, since three days had already gone by, and the scarring that would have followed the application of nitric acid to such extensive face wounds did not seem justifiable in the absence of proof that the dog was rabid. Two other children were also bitten on the face by the same dog. All three were given a full course of Pasteur antirabic treatment, the adult dose being used.

On Dec. 9, 1914, six days after the completion of his treatment, the boy became feverish and restless, and was seen by the family physician, Dr. J. J. Gurtov, who made a diagnosis of influenza. On December 11, the mother noticed that the child had difficulty in swallowing. She called the doctor again and he, suspecting rabies, notified me. I saw the patient in the afternoon. The clinical picture was confusing. The child had a temperature of 104 F., and was restless and easily frightened. He drank water without much difficulty. There were no pharyngeal spasms. Blowing cold air on his face caused fright but no spasmodic twitchings.

The phenol treatment was explained to the doctor, and he was advised to begin it later in the evening if difficulty in swallowing increased, giving two doses of 2 c.c. of a 2 per cent. aqueous solution subcutaneously an hour apart, followed by hourly doses of 5 c.c. of a 1 per cent. solution. At 11:30 p. m., the symptoms having increased, the treatment was begun and continued at hourly intervals until 7:30 a. m. During this period the child was very wild at times, and would stagger and fall on attempting to walk. He had a few pharyngeal spasms, but could swallow warm fluids. The parents thought he could not see.

On December 12, I saw the patient at 9 a. m. As there was some rigidity of the neck, a lumbar puncture was performed and turbid fluid withdrawn (an unusual occurrence in rabies). Two more doses of a 1 per cent. phenol solution were given, and at 11 a. m. the child was removed to the Reception Hospital of the department of health. There, at 1 p. m., lumbar puncture was again performed. The spinal fluid was turbid, and under pressure; 20 c.c. were withdrawn, and antimeningococcic serum introduced. The fluid on examination showed abundant leukocytes but no organisms. Blood examination showed leukocytes 24,800, polymorphonuclears 84 per cent., lymphocytes 16 per cent.

The phenol injections were resumed and continued hourly. In all, the child received two injections of 2 c.c. each of a 2 per cent. and fifteen injections of a 1 per cent. solution, equivalent to about 11 grains of pure phenol.

On admission to the hospital, the child was extremely nervous, barely closed his eyes, started at the least sound and had an anxious expression. There were intermittent twitchings of the muscles and at times the whole body was involved. The right leg and arm were moved from place to place, but it was noticeable that the left leg and arm moved hardly at all. The reflexes were a little exaggerated. There was internal strabismus of the left eye and at times a convergent strabismus. The pupils were equal and reacted to light. Blowing cool air on the face caused marked disturbance, either pharyngeal spasm or a movement of the arms, as if to repel the disturber. Attempts to drink caused evident discomfort and slight spasm of the throat; later he was unable to swallow any fluids. He was conscious and would open his mouth when asked; he answered questions.

At 6:30 p. m., the patient had slight convulsions when the bedclothes were lifted or when a draught reached the face or body. The twitchings were intermittent until 7:30 p. m., when he passed into coma. Respirations became very slow, at one period as low as eight per minute. There were no more convulsions, and the child died at 8 p. m., December 12, three days after the onset of his illness, and about thirty hours after the appearance of the first suspicious symptoms.

Necropsy was performed on the following day. Only the brain was examined. The pia was congested and cloudy; there was no evidence of meningitis. Microscopic examination of the brain showed no definite Negri bodies on careful search, and the diagnosis seemed in doubt, especially in view of the finding of turbid spinal fluid, which, in rabies, is almost always clear. Two guinea-pigs were inoculated subdurally with material from the child's brain. One of these died in twelve days and one in fourteen days, both having shown clinical evidences of rabies. Negri bodies in abundance were found in the brains of both animals.

In this case the phenol injections evidently had no effect on the progress of the disease.

The other two children bitten by the same dog were given a second full course of antirabic treatment, beginning a month after the completion of the first course. Neither one developed rabies.

CONCLUSIONS

The cases cited, so far as can be judged from such a small number, show no evidence that either quinin or phenol has any specific effect on rabies.

My thanks are due to Drs. Vosseler and Gurtov for permission to report their cases, and to Dr. Anna W. Williams and Miss Alice G. Mann, who made the laboratory studies in Cases 1, 3 and 4.

1 West Eighty-First Street.

6. Haberlin: New York State Jour. Med., September, 1913, xiii, 493.

COMPLETE SYPHILITIC ALOPECIA

WITH REPORT OF CASE *

LOYD THOMPSON, PH.B., M.D.

HOT SPRINGS, ARK.

Complete syphilitic alopecia is not mentioned by most textbooks, or it is dismissed with the statement that it is a rare condition.

Abraham and Davis[1] state that "more cases than one" of complete syphilitic alopecia have come under their notice. Chambers[2] presented a case before the Toronto Clinical Society, Nov. 14, 1900. His patient was a woman, aged 20, whose hair began to fall at 5, and again at 12. At the age of 18 she was treated for interstitial keratitis. At the time of presentation there were only two hairs on the body, these being located on the anterior portion of the scalp.

In a review of the literature I have been unable to find mention of other cases, and therefore feel justified in reporting this case:

History.—J. F., man, aged 23, Jew, printer, admitted Oct. 2, 1914, had a negative family history. The mother died after parturition. The father, brothers and sisters were negative. There was no history of baldness in the family. The patient's past history was negative. In May, 1912, the patient had a chancre. The hair of the eyebrows began to fall out two weeks after the appearance of the chancre, the right side being first affected. Following this the hair of other regions began to fall out; in two months the body was entirely denuded. Three weeks following the appearance of the chancre the mouth was sore, and a rash appeared on the abdomen, back and left forearm. At this time the Wassermann reaction was strongly positive.

One week later the patient received an intravenous injection of salvarsan (dosage not known) and two more doses at weekly intervals. Following the second dose he had fever for four days. The patient came to Hot Springs in September, 1913, at which time he complained of headache, which was worse at night. He then received injections of mercury on alternate days for two weeks (dosage and salt not known) and 4 ounces of mercurial ointment by inunction. Potassium iodid was administered by mouth up to 150 grains per day for two weeks. From that time until admission to the hospital no treatment was administered. At the time of admission the patient complained of insomnia and nervousness.

Examination.—The most striking feature in this case was the absolutely complete alopecia, there not being a single hair on the entire body. No skin lesions were present and no scars. The epitrochlear glands on both sides were palpable. The inguinal glands were slightly enlarged, while the cervical glands were not palpable. The left tonsil was greatly hypertrophied with a denuded area covering one fourth of the surface. The right tonsil was only slightly hypertrophied. The pharynx was normal. The superficial veins of both legs showed slight varicosity, while there was a varicocele of the left side. The pulse was 60; systolic blood pressure, 130. The neurologic examination was negative. The urine was normal. The Wassermann test was negative. Lumbar puncture was refused.

Treatment.—The patient was placed on daily inunctions of 4 gm. of mercury, with potassium iodid by mouth up to 30 grains three times a day. He remained in the hospital until November 30, and as no improvement was observed, was discharged.

This patient left Hot Springs, early in 1915, and returned in January, 1916, during which time he received no treatment. He still showed a condition of complete alopecia.

* From the Leo N. Levi Memorial Hospital.

1. Abraham and Davis, in Power and Murphy: System of Syphilis, London, 1910, v, 100.

2. Chambers, Graham: Alopecia Universalis, abstr., THE JOURNAL A. M. A., Jan. 5, 1901, p. 57.

DIARSENOL VERSUS SALVARSAN

JAMES A. GARDNER, M.D.

Fellow of the American College of Surgeons

BUFFALO

Since it has become impossible to procure salvarsan or neosalvarsan, many have turned to a substitute, diarsenol, manufactured by the Synthetic Drug Company of Toronto, Canada. The literature on this new preparation is meager, but apparently it differs only slightly from salvarsan.

I have used over 300 doses of diarsenol, employing the same technic that I did with salvarsan. Only three patients have experienced any reaction. This percentage compares favorably with the results I have had from salvarsan.

During 1914, and as long as it could be procured, I used neosalvarsan in preference to salvarsan, because less reaction followed its use. The injections were all intravenous. The method I follow in the use of salvarsan and of diarsenol is to dissolve a full dose (0.6 gm.) in 15 c.c. of distilled water, neutralize with sodium hydroxid and then add to make the full amount, 20 c.c. If half doses are given, half the quantity of solution is used. The patients are given dosage in the office and are permitted to go home. The injection is usually given in the evening so that the patient may retire within the following hour.

If it is necessary with out of town patients to give injections during the daytime, they are advised to go to a hotel and lie down for five hours before returning home.

The average patient receives from ten to fifteen doses, depending on the stage of the case and on the strength of the Wassermann reaction. These are given every other day, beginning with a half dose and increasing the dosage so that the third is a full one of 0.6 gm., if no reaction occurs. By this method I seemingly have achieved very much better results than by giving the doses a week, two weeks or a month apart.

When I used salvarsan, patients would occasionally complain of nausea and vomiting following the injection, usually two or three hours after leaving the office. On two occasions, patients vomited while in the office.

In the administration of diarsenol, I have found a variation in the oxidation of the solution when made up. Some solutions remained a light color while others became dark almost immediately. The ampules which oxidized rapidly seemed to be those which caused the reaction, but not always so.

The histories which I give are of the cases in which considerable reaction and shock was experienced.

CASE 1.—F., man, aged 33, with history of infection ten years ago, had a + + + Wassermann reaction. He was given a 0.3 gm. and a 0.36 gm. dosage without any reaction. Immediately following the third dose of 0.42 gm. he began to have cold sweat, nausea, irregular pulse and all the evidence of shock. This lasted for about an hour, when he was able to go home. This ampule when mixed oxidized rapidly. Following this reaction no albumin or casts were found in the urine. Two days later he had a fourth dose of 0.3 gm. and continued with increasing dosage, 0.42, 0.48, 0.54, 0.6 and 0.6 gm., and in the next dose we were able to inject only 0.48 gm. when he again developed shock and had a return of the same symptoms experienced on the earlier occasion. This solution did not oxidize. He was given 15 minims of epi-

Case 2.—Mrs. M., aged 37. Husband had been infected fifteen years before, and was told that time that it did not

Case 2.—Mrs. M., aged 37, whose husband had been infected fifteen years before, was told that time that it did not amount to anything, and received two or three weeks' treatment. He consulted me because of an orchitis. A Wassermann was taken showing + + +. He was given a series of ten doses of diarsenol and later brought his wife in for a blood examination. She was found to have a + + + Wassermann. The length of her history is indefinite. She was very nervous and had a fat arm. Because of this fact she was given 0.6 gm. injection of neosalvarsan intravenously and suffered no reaction. Two days later she was given 0.38 gm. of diarsenol, became nauseated and vomited after returning home. Two days following, 0.3 gm. of diarsenol was given. When she returned home she vomited for forty-eight hours, had a marked urticaria and was much prostrated. There was no oxidation of this solution. After ten days she returned for another dose. She was given 0.4 gm. of neosalvarsan, and had a return of the same symptoms, with not quite the degree of severity experienced after the previous injection of diarsenol. This treatment was stopped and she was placed on injections of mercuric salicylate intramuscularly. I think the experience in this case demonstrates that the patient had an idiosyncrasy for arsenic, and that any preparation of arsenic acted as an acute poison.

Case 3.—G., man, aged 35, had infection, September, 1914. In December, 1914, and January, 1915, he was given two full doses of salvarsan. Jan. 29, 1915, he was given a full dose of neosalvarsan. March 1, 1916, he had a + + + Wassermann. March 3 he was given 0.3 gm. of diarsenol. This preparation oxidized very rapidly, and when administered, the patient had profound shock, sweating, weak and irregular pulse and vomiting, the symptoms lasting for about an hour. Fifteen minims of epinephrin were given. March 6, he was given a dose of 0.3 gm., March 8, 0.48 gm., and March 10, 0.48 gm. There was no oxidation of this solution. Following the last injection and while in the office the patient was nauseated and vomited. He stated that he had eaten a hearty dinner an hour and a half before, and had drunk two or three glasses of beer. Since that time he has had, March 15, 17 and 20, a dose each of 0.3 gm. without ensuing symptoms. March 23, 0.48 gm. was given. This solution oxidized rapidly, and he had return of nausea, shock and weak, irregular pulse.

In reviewing these three cases in which unpleasant symptoms followed the use of diarsenol, I think the second would have trouble following any preparation of arsenic as demonstrated by her becoming ill after either diarsenol or neosalvarsan.

In the first case the patient was exceedingly nervous and worried, being fearful that some of the solution would get outside of the vein and make his arm sore. He had had such an experience previously, and he was also anxious to keep the fact that he was taking treatment secret from his family. I felt after his first sickness that it was largely psychologic, and still feel that inasmuch as he was able subsequently to take a number of doses without any effect, mental worry was a large contributing cause of his sickness.

The third patient had five doses of diarsenol without any reaction and three doses with marked reaction. In two of these injections there was considerable oxidation of the solution but not in the third.

In the use of diarsenol I believe the clinical results obtained and the elimination of the positive Wassermann compare very favorably with the use of salvarsan. Both of these preparations are more liable to be followed by nausea and shock than neosalvarsan.

I have noticed quite frequently that more or less oxidation occurred immediately on making the solution. As a rule, however, no more reaction was noticed after these injections than following those which remained clear. But in the cases in which reaction occurred, the majority had received a solution in which there had been more or less oxidation.

The same care, in preparation and technic, in intravenous injections, should be used with diarsenol as with salvarsan.

Electric Building.

INJURY TO EYE FROM EXPLOSION OF GOLF BALL

Edward J. Bernstein, M.D., Kalamazoo, Mich.

The patient, Anna N., aged 12, was first seen March 1, 1916. She complained of a severe burn of the right eye, caused the night before by the bursting of the core of a golf ball which had been used as a toy. There was great edema of the whole conjunctiva, completely enveloping the cornea, and the lids were greatly swollen. The eye had been very well washed by the family physician, Dr. Hawkey of Bloomingdale. I cleaned it with a mild acid solution (1:2,000 hydrochloric acid) and put in 5 per cent. ethyl-morphin hydrochlorid (dionin) ointment with 2 per cent. atropin. Except for hot compresses of boric acid solution, this was the entire treatment. The eye has gone on to recovery with no symblepharon and only a slight central leukoma when the patient was last seen (March 21).

The idea of using mild acid solutions is indicated from the analysis of the contents of this particular kind of ball, as given by Dr. L. W. Crigler in the *Ophthalmic Record* (October, 1913) and in The Journal (April 26, 1913, p. 1297): a mixture of barium sulphate, sodium hydroxid and common soap. This should be borne in mind, as it is commonly supposed that the mixture is an acid one.

This is the second case which has come under my care in two years. In conversation with other physicians, I learned of similar cases, none of which were reported, as the men had no other idea than that they were altogether of too common occurrence to be noteworthy. Through the courtesy of Drs. Edward Jackson and F. Park Lewis, I have been able to find the following reports:

Capps, E. D.: *Jour. Ophth. and Oto.-Laryng.*, vii, 85.
Carpenter, J. T., and Baer, B. F.: *Pennsylvania Med. Jour.*, 1912, xvi, 228.
Crigler, L. W.: Burn of Eyeball Due to Caustic Contents of Golf Ball, The Journal, April 26, 1913, p. 1297.
Elliott, R. H.: *Brit. Med. Jour.*, March 30, 1915.
Jessop, W. H. H.: *Lancet*, London, July 18, 1914, pp. 158, 171.
Langdon, F. W.: *Ann. Ophth.*, January, 1913.
Lowell, Holbrook: Burn of Eyes from Contents of Golf Ball Core, The Journal, Dec. 27, 1913, p. 2302.
Murray, A. N.: *Ophth. Rec.*, 1915, xxiv, 637.
Nance, W. O.: *Jour. Ophth. and Oto.-Laryng.*, 1912.
Ohlemann: *Klin.-therap. Wchnschr.*, xx, 604.
Posey, W. C.: *Tr. Coll. Phys., Philadelphia*, 1915, xxxvi, 327.
Suker, G. F.: *Ophth. Rec.*, 1914, xxiii, 40.
Thomason, H. E.: Golf Ball Burn of Eye, The Journal, Sept. 20, 1913, p. 965.
Wood, C. A.: *Ophth. Rec.*, xxi, 519.

I am informed that the newer balls made in this country have no such dangerous cores, and that the various sporting journals and golf associations have posted notices warning of the danger attending attempts to open golf balls.

These accidents usually happen to children, and it is apparent that a repetition of the warning to the public is not out of place.

I shall be grateful for any further reports of similar cases which physicians may send me.

A Protecting Ointment.—Dr. Frank H. Jackson of Houlton, Maine, recommends this ointment for cases in which prolonged drainage is required, as prostatectomies, cholecystostomy, pus appendicitis cases, etc., to protect the adjoining skin not only from maceration and excoriation but also from infection:

Salicylic acid	gr. x
Ointment of ammoniated mercury	ʒ ii
Lanolin	q. s. ad ʒ i

Every surgeon has seen occasion to require something of this protective nature, and a number of men use and recommend sterile petrolatum. The ointment can be sterilized in an autoclave, and kept ready in the hospital in jars for use as required.

Special Article

TYPHOID IN THE LARGE CITIES OF THE UNITED STATES IN 1915

FOURTH ANNUAL REPORT

THE JOURNAL presents herewith its fourth annual survey[1] of typhoid fever mortality in those cities of the United States having over 100,000 population. The cities included in the summary number sixty, and are the same as those reported last year.[2]

TABLE 1.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 1 (OVER 500,000 POPULATION)

	Deaths from Typhoid per 100,000 Population			
	1915	1914	Average 1911-1915	Average 1906-1910
Chicago	5.4	7.1	8.2	15.8
Boston	5.5	9.1	8.0	16.0
New York	6.0	6.2	8.0	13.5
Philadelphia	6.6	7.4	11.2	41.7
St. Louis	7.0	11.1	12.1	14.7
Cleveland	7.8	8.3	10.0	15.7
Detroit	12.8	13.0	18.1	21.1
Baltimore	21.9	22.4	23.7	35.1
Pittsburgh	24.7	13.8	18.7	65.0

Group 1, containing the nine largest cities (over 500,000 population), makes an excellent showing. Seven of the nine cities (all except Cleveland and Pittsburgh) established in 1915 new low typhoid records, and all but Pittsburgh bettered the 1914 figures.

It is noteworthy that the rate for the city of New York in 1915 dropped slightly under that for 1914, despite the fact that an epidemic of considerable proportions occurred in South Brooklyn in August and September. The New York Department of Health ascribes the great reduction in typhoid fever that has occurred in that city in the past few years to (*a*) the effective chlorination of all the croton water and (*b*) the effective pasteurization of the milk supply.[3] As we have pointed out in our previous summaries, water chlorination and the pasteurization of milk have been conspicuous factors in reducing typhoid in other cities.

Boston also experienced an explosive outbreak of typhoid fever which was apparently due to an infection of picnickers who drank water from a brook in Franklin Park. Remarkable recklessness in choice of drinking water seems to have been shown in this case, since the water was taken from an open running brook exposed to all sorts of chance contamination, although bubbling fountains supplying good drinking water were only a few feet away. Such incidents are likely to occur so long as the general public is insufficiently educated on the dangers of contracting typhoid fever, and the responsibility in such cases can hardly be attributed properly to the board of health. Notwithstanding this outbreak, the Boston typhoid rate is exceedingly low, and practically ties that of Chicago for the post of honor in this group.

Philadelphia, like Boston and New York, suffered from a localized outbreak, an excessive number of cases occurring in October in one district; but this was not sufficient to overcome the excellent conditions maintained in other parts of the city, and a new low record stands to Philadelphia's credit.

Detroit has continued the treatment of its water with hypochlorite, and has maintained a rate substantially the same as that for 1914. Warnings to boil the water have been issued at intervals by the health officials, and it is evident that this city is now alive to the real nature of its water supply problem. An excellent detailed study of typhoid fever in Detroit has recently appeared.[4]

Baltimore records another diminution in its typhoid figures, continuing the steady decline of the last few years; every year since 1910 marks a decrease. Baltimore is to be congratulated on the completion of the new water filtration plant at Montebello, which was put in operation in September, 1915. The improvement should bring about a further reduction in the typhoid rate.

Pittsburgh for some reason suffered more severely from typhoid fever in 1915 than in any year since 1911, and falls to the bottom of the list, a position it has not occupied since these annual summaries were instituted.

The fact must not escape notice that six out of the nine cities in this group reached typhoid rates under 10 in 1915, by far the best showing yet made for the group of our largest cities.

TABLE 2.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 2 (FROM 300,000 TO 500,000 POPULATION)

	Deaths from Typhoid per 100,000 Population			
	1915	1914	Average 1911-1915	Average 1906-1910
Newark, N. J.	2.5	6.3	6.8	14.6
Seattle	2.5	4.6	5.7	25.2
Milwaukee	4.5	7.9	13.6	27.0
Los Angeles	5.5	8.0	10.7	19.0
Minneapolis	7.1	11.0	10.6	32.1
Cincinnati	7.8	6.0	7.8	30.1
San Francisco	9.4	12.9	13.6	27.3
Buffalo	9.9	15.8	15.4	22.8
Washington	11.7	12.7	17.2	36.7
New Orleans	21.5	21.5	20.9	35.6

Group 2, containing the ten cities with from 300,000 to 500,000 population, makes also a fine showing. Eight cities (all except Cincinnati and New Orleans) had a lower rate in 1915 than in the preceding year. Newark, N. J., and Seattle set a new low record for cities of this class (2.5).

Perhaps the most astonishing improvement in the group is shown by the city of Milwaukee, which in 1912 stood at the bottom of the list with a rate higher than that of New Orleans. The typhoid decrease in Milwaukee seems mainly attributable to the reduction of water-borne infection brought about by chlorination of the water supply, and demonstrates anew the efficacy of chlorination of a highly contaminated water.

Buffalo, like Milwaukee, probably owes its typhoid reduction in part to chlorination of the water supply.

In our report for 1914 we pointed out that the city of Los Angeles, which had a low typhoid mortality in that year, might be expected to lower its typhoid rate still further with the more general use of the new water supply from the Owens River Aqueduct. This prediction has been justified, as appears in the reduction in the typhoid rate from 8.0 to 5.5, which is the lowest point Los Angeles has yet reached.

Washington makes a fine record for 1915, and shows what may be accomplished by persistent efforts

1. The preceding articles were published May 31, 1913, p. 1702; May 9, 1914, p. 1473, and April 17, 1915, p. 1322.

2. The number of typhoid deaths has been sent us by the local officer of health, and the rates have been calculated on the basis of population estimates made according to the method of the U. S. Census Bureau. It may perhaps be noted that the figures kindly furnished us by the municipal officials include the deaths of nonresidents as well as residents occurring within the city limits. In some instances this undoubtedly gives an exaggerated impression of the amount of typhoid fever in a community, but at present statisticians are agreed that "the attempt to eliminate the deaths of nonresidents would often result in an understatement of the true mortality" (Bureau of the Census, Mortality Statistics, 1912, p. 13).

3. Weekly Bull., New York Dept. of Health, April 1, 1916.

4. Vaughan, H. F., and Walker, W. F.: Jour. Lab. and Clin. Med., 1916, i, 371.

at typhoid eradication in a city with a high summer temperature and other conditions tending to facilitate infection. New Orleans maintains the relatively high rate that was recorded in 1914, which was considerably above the rates for 1912 and 1913 and slightly in excess of the preceding five-year average.

TABLE 3.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 3 (FROM 200,000 TO 300,000 POPULATION)

	Deaths from Typhoid per 100,000 Population		Average	Average
	1915	1914	1911-1915	1906-1910
Portland, Ore.	5.2	6.6	10.8	23.2
Jersey City	5.6	6.7	7.2	12.6
Rochester, N. Y.	6.0	10.3	9.6	12.8
Denver	6.6	10.5	12.0	37.5
Kansas City, Mo.	7.2	16.5	16.2	35.6
St. Paul	7.4	10.5	9.2	18.3
Providence, R. I.	8.4	10.5	10.2	14.3
Louisville, Ky.	12.0	20.6	19.7	52.7
Indianapolis	12.3	21.8	20.5	30.4
Columbus, Ohio	13.3	13.1	15.8	40.0

Group 3 (cities with from 200,000 to 300,000 population) shows a very high degree of improvement in typhoid fever rates. In nearly every instance lower figures than for 1914 are reported, and the percentage reduction is gratifyingly large. Portland, Ore., still holds its place at the top of the list with the low rate of 5.2.

An interesting development in the typhoid situation in this as in other groups is the fact that while more small epidemics are reported by the city health authorities, the general typhoid rate continues to diminish. In St. Paul, and in Providence, R. I., milk-borne epidemics occurred in 1915, but, nevertheless, in both cities a substantial reduction in general typhoid prevalence is noted, bringing the total typhoid mortality to a point lower than that of the preceding year. The increase in the number of localized epidemics reported simply means that typhoid fever is being everywhere more carefully watched and more effectively combated. The city of Providence had as many as seventy-one cases and five deaths in the single month of August; yet the typhoid death rate for the year 1915 was, with one exception, the lowest known in the sanitary history of the city.

Indianapolis suffered from a suspicious outbreak of gastro-intestinal disease in November, and following this, there was an excessive amount of typhoid in December. It is believed by some that the public water supply was responsible for this occurrence, although a comprehensive investigation of the outbreak does not appear to have been made.

The city of Louisville is to be congratulated on a typhoid reduction which places it in the front rank of southern cities, and on reaching a rate (12.0) which contrasts most favorably with the high average (52.7) for the years 1906-1910.

TABLE 4.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 4 (FROM 125,000 TO 200,000 POPULATION)

	Deaths from Typhoid per 100,000 Population		Average	Average
	1915	1914	1911-1915	1906-1910
Omaha	3.7	5.9	14.9	40.7
Paterson, N. J.	5.1	8.1	9.1	19.3
Worcester, Mass.	5.6	3.7	5.0	11.8
Oakland, Calif.	6.7	6.4	8.7	21.5
Syracuse, N. Y.	5.9	10.6	12.3	15.6
Scranton, Pa.	10.4	9.1	9.3	31.5
Spokane, Wash.	10.7	12.7	17.1	50.3
Atlanta, Ga.	11.1	38.9	31.4	58.4
Fall River, Mass.	11.8	10.3	13.4	13.5
Richmond, Va.	12.7	13.1	15.7	34.0
New Haven, Conn.	18.3	13.8	18.2	30.8
Toledo, Ohio	23.9	36.3	31.4	37.5
Memphis, Tenn.	24.6	41.2	42.5	35.3
Birmingham, Ala.	33.7	40.2	....	....

Group 4, containing the cities with from 125,000 to 200,000 population, includes several southern cities which have in previous years recorded very high typhoid fever rates. Atlanta, Birmingham and Memphis all show for 1915 much lower rates than in previous years. Atlanta, in particular, had a rate only a little more than one-fourth that of the preceding year.

Omaha makes a really splendid record (3.7) for a city which only four years before (1911) suffered from a rate of 44.9.

Scranton reports a slightly higher rate than in 1914. Typhoid fever was especially prevalent in Scranton in September, and the citizens were officially warned to boil their water at that time; but there does not appear to be any particularly conclusive evidence incriminating the water supply.

Richmond, Va., which was remarkably exempt from typhoid during the first six months of 1915, had more of the disease in the latter half of the year, so that the rate is nearly up to that of 1914. The amount of typhoid in New Haven (18.3) is again discreditably high for a New England city.

Toledo shows a considerable decrease in typhoid prevalence over 1914, but the rate for this city is still disturbingly high, only five cities having a higher rate in the total of fifty-nine reporting for 1915. It is said that 10,000 surface wells are in use in Toledo, and that examination of the water from several hundred of them has given evidence of great contamination. The citizens and officials of Toledo seem thoroughly awake to the menace of the typhoid situation, and an active campaign is being waged for doing away with the surface well as a source of supply. Other possibilities will probably not be overlooked.

The city of Birmingham brings up the foot of the list, and has the highest rate (33.7) of any large city in the United States, barring Nashville (35.1).

TABLE 5.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 5 (FROM 100,000 TO 125,000 POPULATION)

	Deaths from Typhoid per 100,000 Population		Average	Average
	1915	1914	1911-1915	1906-1910
Cambridge, Mass.	1.8	1.8	4.0	9.8
Bridgeport, Conn.	5.1	3.4	5.0	10.3
Tacoma, Wash.	5.5	6.7	10.4	....
Trenton, N. J.	6.4	14.9	22.3	....
Camden, N. J.	6.7	5.8	4.5	....
Salt Lake City	7.0	11.8	13.2	....
Springfield, Mass.	10.6	21.8	17.6	....
Albany, N. Y.	12.6	17.5	18.6	17.4
Dayton, Ohio	13.6	9.2	14.8	22.5
Lowell, Mass.	16.0	9.8	10.2	13.9
Reading, Pa.	16.2	28.0	31.9	42.0
New Bedford, Mass.	18.2	9.8	15.0	16.1
Hartford, Conn.	18.3	17.7	15.9	19.0
Dallas, Texas	20.3	35.2	....	....
Grand Rapids, Mich.	24.6	26.7	25.5	29.7
Nashville, Tenn.	35.1	47.3	40.2	61.2
San Antonio, Texas*	....	18.2	....	....

* In spite of repeated efforts we have not been able to secure the number of deaths from typhoid fever during 1915 in San Antonio.

Group 5 (from 100,000 to 125,000 population) shows perhaps more fluctuation in typhoid rates than any other group of large cities. Six cities out of sixteen manifest a typhoid increase as compared with 1914. Three of these cities, Dayton, Ohio; Lowell, Mass., and New Bedford, Mass., have experienced a very considerable typhoid rise. Hartford, Conn., also suffered from a sharp outbreak in August which may have been due to a milk supply infection. The health authorities of some New England cities like New Haven, Hartford and New Bedford will perhaps be asked why these communities had rates over 18 in 1915, while Worcester had 5.6, Boston 5.5, and Cambridge only 1.8. The last named city duplicated its remarkably low rate for 1914, and has no rival in the United States for the low average of the past five

years. Why should typhoid fever year after year be five times as prevalent in New Haven as in Cambridge?

Springfield, Mass., which had a relatively high typhoid rate in 1914, shows a great reduction in 1915, and records a figure more nearly what might be expected in a city of its location and general high level of municipal intelligence and efficiency.

Grand Rapids, Mich., in 1915 again suffered from a particularly high rate (24.6), the highest in any northern city except Pittsburgh. In commenting on the Grand Rapids rate for 1914, we pointed out that the typhoid prevalence was far too great for a city provided with a filtered water supply, and suggested that some explanation was called for. This question might now be raised more insistently since an excessively high rate has been maintained for two consecutive years. The 1911-1915 average in Grand Rapids is exceeded by only five cities, three of these in the South.

Nashville still brings up the bottom of the list, but this city had much less typhoid than in 1914, and is apparently on the way to further improvement. The Nashville authorities apparently realize the importance of establishing sewer connections throughout the city, and measures are being taken to remedy the deplorable conditions that have existed in some sections. Like other southern cities it is coming to recognize that the modern city is a sanitary unit and that if opportunities for fly-borne conveyance of excretal infection are allowed to persist anywhere, the whole city is eventually the sufferer.

TABLE 6.—TOTAL AVERAGE TYPHOID DEATH RATE (1910-1915)

	Total Population (57 Cities) Estimated by U. S. Census Bureau Methods	Typhoid Deaths	Typhoid Death Rate per 100,000
1910	20,996,035	4,114	19.59
1911	21,545,014	3,391	15.74
1912	22,093,993	2,775	12.56
1913	22,642,972	2,892	12.77
1914	23,191,951	2,408	10.38
1915*	23,621,302	2,045	8.65

* Since we have failed to secure data from San Antonio, the average for 1915 is based on 56 instead of 57 cities as in previous years.

Altogether, the record for 1915 is most encouraging. Many American cities achieved very low typhoid rates, so low, in fact, that they would have been regarded a decade ago as almost unattainable by any large city. With few exceptions those cities which still have excessive typhoid are investigating local conditions and applying appropriate remedies.

For the first time since these summaries were undertaken, a comparison of two full five-year periods becomes possible in most cases. With the exception of Memphis and Albany, the average rate 1911-1915 is lower than the average rate 1906-1910. Sixteen cities (Chicago, Boston, New York, Newark, N. J., Seattle, Cincinnati, Jersey City, Rochester, N. Y., St. Paul, Paterson, N. J., Worcester, Mass., Oakland, Calif., Scranton, Pa., Cambridge, Mass., Bridgeport, Conn., and Camden, N. J.) had an average typhoid rate of less than 10 for the years 1911-1915, Rochester and Paterson joining the cities listed last year and Lowell dropping out. There was only one city (Cambridge, Mass.) in this class in 1906-1910.

In 1915, forty-three cities had a lower typhoid rate than in 1914, and fourteen a higher; thirty-two cities had a death rate under 10 in 1915, as compared with twenty-four in 1914 and nineteen in 1913. The following cities had a death rate under 5: Newark, N. J., Seattle, Milwaukee, Wis., Omaha, and Cambridge, Mass. — one more than last year.

Therapeutics

MEDICATION

(*Continued from page 1199*)

Let Us Aim to Improve Our Medicinal Treatment of Disease

Toward that end will you prescribe elixir of calcylates compound? This is a specialty sold by a New York firm in 6 ounce and pint bottles, and the dose for an adult is stated to be from 1 to 2 dessertspoonfuls three or four times a day.

Each dessertspoonful is said to contain the "equivalent of":

"Calcylates (calcium and strontium di-salicylate)	5 grains
Resin of guaiac	½ grain
Powdered digitalis leaves	¼ grain
Powdered squill	¼ grain
Extract of colchicum seed	¼ grain
Cascarin	1/16 grain
Aromatics."	

COMMENTS

1. The U. S. Pharmacopeia places the dose of strontium salicylate as 15 grains, and the dose of sodium salicylate as 15 grains. It is well known that calcium salts are slower to act and usually less soluble than sodium, potassium or strontium salts. Therefore the dose of 5 grains in a dessertspoonful of liquid of this so-called "calcylates" is too small.

2. The U. S. Pharmacopeia gives the dose of resin of guaiac as 15 grains; therefore the dose of ½ grain is very small, but is certainly large enough, as it probably has no activity at all against "rheumatism, lumbago, neuralgia, sciatica, etc.," for which conditions this mixture is recommended.

3. It is never advisable to give digitalis in a multiple mixture. If digitalis is required for activity on the heart or on the kidneys, it should be given separately, and in such dose as to cause the desired effect.

There is absolutely no excuse for this mixture. There is no possibility of this combination of salicylates called "calcylates" being of any more value, or, in fact, being of as much value in rheumatism as is sodium salicylate or some other single salicylate. It is a clinical fact that the dose of any salicylate or any combination of salicylates must be large if it is to be of value in inflammatory rheumatism. Large doses of salicylates are liable to disturb digestion; and many proprietary salicylates, or salicylic acid combinations, on the market, that are recommended "because they do not disturb the stomach," may act thus blandly because the dose is small, or because they are in such form that they are absorbed slowly or not at all. The foregoing dose of salicylates in inflammatory rheumatism in an adult is absurd. If double the dose is taken, namely 2 dessertspoonfuls — 10 grains of the salicylate — the salicylate might have some slow activity, slow because these salts, calcium and strontium salicylate, are not absorbed as readily as sodium salicylate. But why should a patient be given 2 dessertspoonfuls of medicine containing a lot of stuff in the way of guaiac, squill and colchicum, which are not needed, when he may be given his proper dose of sodium salicylate, if that is what he needs, in wintergreen water or effervescing water?

It is rare, in inflammatory rheumatism, that digitalis is indicated.

(*To be continued*)

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET . . . CHICAGO, ILL.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, APRIL 22, 1916

NEW OBSERVATIONS REGARDING GROWTH

The retardation of growth is a phenomenon which is frequently brought to the attention of the physician in a way that raises baffling questions. Sometimes retardation is associated with an obvious undernourishment, so that the cause is readily discovered in a partial inanition, due perhaps to actual insufficiency of food without any further complicating factors. In this form delayed development may occasionally be discovered among the children of the poor. Obviously, permanent gains of weight and increments in stature can ensue only when the intake of energy in assimilable forms is adequate for both maintenance and growth. There are, however, quite different cases in which growth is delayed even in the presence of an abundance of food. The adolescent organism, in such instances, is usually incompetent for some reason to utilize the available nutriment for its physiologic requirements. There may be congenital disorders that limit the possibility of growth; there may be acquired defects or diseases that occasion the retarding factor, or there may be even more subtle complications, the results of which can be seen but not adequately explained or interpreted. Our ignorance is usually veiled by assigning failure to grow in these instances to a "faulty constitution." Of late, since the possible relation of some of the endocrine glands, like the pituitary and thyroid, to growth has been brought into prominence, retardation of development has been charged in some cases to a defective evolution or functioning of the organs of internal secretion.

It is generally known, from observation of actual instances, that suppression of growth and even marked decline in weight for comparatively brief periods may be followed by resumption of growth, excellent restoration of loss of body substance, and subsequent recovery of the power to complete the developmental cycle. This is a familiar manifestation of recuperation from severe and prolonged illness in childhood. There is a widespread belief, however, that unless the capacity to grow is exercised within the period at which it is ordinarily expected to manifest itself, that is, before the age of what is termed adult life, the possibility of further true growth is permanently forfeited. This does not refer, of course, to such gains of weight as are represented by the addition of fat to the tissues characteristic of middle life — a gain in the storage depots of the organism rather than a typical increase in stature. One American physiologist has expressed the current belief by saying that the capacity for undergoing expansive growth appears to be transient, and that those cells which fail to react during the proper growing period of an animal have lost their opportunity forever.[1] In the same sense the Berlin physiologist Rubner[2] has maintained that the capacity to grow finally disappears, even when it is not called into use. In discussing the growth of children, Boas[3] has noted that although retardation of early growth is made up by abnormally rapid development at a later period, an unduly prolonged retardation cannot be entirely compensated for; accordingly, excessive early inhibition of growth may be detrimental to the individual.

Some of the problems here involved have been subjected to an investigation in a series of prolonged experiments undertaken by Osborne and Mendel[4] at New Haven, in a series of studies conducted on small animals having a brief period of growth and a short span of life. In the case of albino rats, in which increment of body weight ordinarily ceases before the age of 300 days, resumption and completion of growth were readily obtained at an age of more than 550 days. If these statistics were translated into terms of human life, they would indicate that resumption of growth would still be possible in individuals who remained ungrown until far into what is commonly termed "middle" life. It is thus evident that the growth impulse, or capacity to grow, can be retained and exercised at periods far beyond the age at which growth ordinarily ceases. This finding suggests that the capacity to grow is lost only by the exercise of this fundamental property of living organisms.

Admitting the possibility of some renewal of growth after conditions in which increment of size has been retarded, there remains the question as to whether the subsequent gain will ever entirely or adequately make good the lapses by failure. To this also Osborne and Mendel have offered an experimental answer. Even after very prolonged periods of suppression of growth, the animals can subsequently reach the full size characteristic of their species. In this respect there is no impairment of the individual. The satisfactory resumption of growth can be attained not only after stunting by underfeeding, but also after the cessation of growth which results when the diet contains pro-

1. Donaldson, H. H.: The Growth of the Brain, New York, 1903, p. 37.
2. Rubner, M.: Kraft und Stoff im Haushalte der Natur, Leipzig, 1909, p. 116.
3. Boas, F.: The Growth of Children, Science, Dec. 13, 1912, p. 815.
4. Osborne, T. B., and Mendel, L. B.: The Suppression of Growth and the Capacity to Grow, Jour. Biol. Chem., 1914, xviii, 95; The Resumption of Growth after Long Continued Failure to Grow, Jour. Biol. Chem., 1915, xxiii, 439.

teins unsuitable for the synthetic processes of growth or is low in protein. Growth in the cases referred to is resumed at a rate normal for the size of the animal at the time. It need not be slow, and frequently it actually exceeds the usual progress. The size or age at which the inhibition of growth is effected does not alter the capacity to resume growth. Even when the suppression of growth is attempted for very long periods at a very small size (body weight), the restoration may be adequate when a suitable diet is furnished.

Mere late increase in size, even though it proceeds with the uniformity of early characteristic growth, need not necessarily lead to the perfect organism and the ideal harmony and correlation of functions that might be expected in uninterrupted growth at the proper age. A noble stature may conceal inferior organs. With respect to one fundamental activity, Osborne and Mendel have obtained evidence of the absence of detrimental results. The procreative functions are not necessarily lost by prolonged failure to grow before the stage of development at which breeding is ordinarily possible.

Similar experiences are recorded in which the successive gains of size, though continued, are small. The period of growth may be greatly prolonged by inadequacies in the diet, so that growth becomes very slow without being completely inhibited. Though the time of reaching full size is thus greatly delayed, growth, as expressed by suitable body weight, can ultimately be completed even during the course of long continued retardation.

PUBLIC HEALTH LABORATORIES

An eminent historian has remarked that no science, no department of knowledge, can be thoroughly understood except in the light of its historic genesis and growth.[1] Historical study thus tends not only to be an aid to refinement, breadth of view and sympathy, but also to be helpful in the handling of great questions in any of the sciences relating to man. It is a splendid discipline for reasoning of the practical kind most needed in the affairs of life. This belief may be offered as the reason for reverting to some of the little known facts regarding certain features of the continually increasing public health movement.

According to Winslow[2] of Yale, the first application on a large scale of laboratory methods to the public health service in the United States dates from the study of the sanitary condition of the Massachusetts water supplies in 1870 by William Ripley Nichols, the pioneer sanitary chemist. This step followed the establishment of the state board of health of Massachusetts in 1869 — an act which has been productive of much progress in the development of the hygiene of water supplies and the question of sewage disposal in this country. The public health laboratory in the modern sense of a laboratory independently supported by a city or state, aiding in the routine solution of its sanitary problems, was a later growth, and dates from the advent of bacteriology as an independent discipline in this country. It must be recalled that progress in the study of micro-organisms was hampered by the inadequate technical methods in use until 1880, when Koch introduced the procedures which have made bacteriology an exact science. The use of solid nutrient mediums made possible the isolation of bacteria, and their biologic investigation in pure culture. To this were soon added the advantages of morphologic examination of micro-organisms, which came from the use of anilin staining dyes developed by Weigert, Koch and Ehrlich. The discovery, in 1880, of the typhoid bacillus, the bacillus of fowl cholera and the pneumococcus, and in 1882 of the tubercle bacillus, marked one of the important steps in the great modern era of the elucidation of the causation of infectious diseases.

Winslow states that it is difficult to assign priority to any particular state, city or university in the actual establishment of the public health laboratory in America. It was in November, 1887, that the Lawrence Experiment Station of the Massachusetts State Board of Health was established. In the same winter the state of Michigan opened a hygienic laboratory at Ann Arbor; and in 1888 Dr. Gardner T. Swarts founded at Providence what is said to have been the first municipal public health laboratory in this country. According to Winslow, the laboratory established by Dr. Herman M. Biggs in connection with the New York City Department of Health, as the result of the attempt to apply the newer bacteriologic methods to the detection of cholera among immigrants after the Hamburg epidemic of 1892, was probably the first municipal bacteriologic laboratory in this country devoted primarily to diagnostic work — possibly even the first of its kind in the world.

Few of the thousands of physicians who send specimens to the public diagnostic laboratories, and depend on this valuable assistance as one of the fundamentals of their daily routine, realize how this service has grown from its small beginnings a few years ago. Dr. W. H. Park, for example, who early began the examination of throats for diphtheria bacilli about twenty years ago, now has 250 workers under his direction in the New York City laboratories, which annually examine more than 75,000 diphtheria cultures. This, however, is only a single aspect of the diagnostic work now being carried out in many comparable institutions. We may recall the public facilities for the determination of tuberculosis, malaria, typhoid fever, gonor-

1. "L'histoire, en effet, est la forme nécessaire de la science de tout ce qui est soumis aux lois de la vie changeante et successive" (Renan: Averroes et l'averroisme).

2. The facts cited are taken from a recent address before the Laboratory Section of the American Public Health Association by its chairman, C.-E. A. Winslow (The Laboratory in the Service of the State, Am. Jour. Pub. Health, 1916, vi, 222).

rhea, syphilis, glanders, rabies and cancer; the examination of foods and drugs, of water supplies and sewage disposal, and the control of vaccine and serum manufacture. As Winslow has said, the work of the laboratory is one of the chief foundations on which all sound public health work must be based. A casual review of its history shows how its functions are multiplying, and how numerous and taxing are its problems. Only two states, Massachusetts and New York, appropriated over $40,000 for public health laboratory work in 1914. The practitioner and the patient who benefit from it should see that the public understands what these expenditures can accomplish, and encourage a liberal support to a service so eminently useful and progressive.

EMETIN: A NOTE OF WARNING

While it may be accepted as a truism that remedies marketed under fancy proprietary names too often are not what they pretend to be and do not accomplish what they claim, it must not be lightly assumed that the converse is equally true. The physician is rightly suspicious of such products; but on the other hand he should not take it for granted that because a drug bears the name of a definite chemical compound, it is true to name and pure, and therefore trustworthy in its actions. Of this fact we have recent demonstration in respect to emetin. The use of this drug has greatly increased, during the last two or three years, owing to its extensive employment in pyorrhea alveolaris and in amebic dysentery. Furthermore, it is being used by certain mail-order "pyorrhea cure" quacks. It is administered in quantities not far removed from the subtoxic dose, while, from the very nature of the maladies in which it is used, the patients are frequently in a condition of exhaustion. These facts combine to render it vitally important that, in prescribing this remedy, we should be assured that it is of uniform composition and pure. Nor, in this particular instance, is there any reason why this standard should not be constantly attained.

For this reason, a recent article in the *Archives of Internal Medicine*[1] must have come as a rude awakening to those who, relying on the conscientiousness of the manufacturer, and the reputed harmlessness of emetin, have been employing this potent remedy with an easy mind.

Two cases from the Johns Hopkins medical clinic are described in which symptoms of poisoning and in one instance death resulted from the administration of emetin hydrochlorid. The fatal case occurred in a man who entered the hospital with a diagnosis of syphilis and amebic dysentery. He was treated for twenty days by subcutaneous injections of emetin hydrochlorid. The average daily dose was 1½ grains; the total amount he received was 29 grains. A preexisting slight diarrhea was at first ameliorated and then markedly intensified till, on the eighteenth day of the treatment, there were eighteen stools in the twenty-four hours. This diarrhea ceased five days after the discontinuance of the injections. From the sixteenth day on, signs of grave kidney mischief developed. There were marked acidosis and acute renal insufficiency, with blood in the urine. Bronchopneumonia supervened and, after a period of dyspnea, the patient collapsed and died thirty days after the first injection and ten days after the last.

The other patient was a woman who received only one-half grain daily during four days, for pyorrhea alveolaris. She developed intense diarrhea with pain and tenesmus. These symptoms cleared up six days after withdrawal of the emetin. The patient was then in a toxic delirious state which lasted one week. These symptoms were quite out of proportion to the moderate dose employed. The particular preparation employed in this second case was, therefore, suspected to be unusually toxic. This suspicion was confirmed by an elaborate experimental research into the toxicity of emetin hydrochlorid preparations obtained from five different commercial sources, in the course of which investigation sixty-two animals were used. The toxic effects manifest themselves in various ways, but in using emetin one must be on the lookout for such danger signals as intense diarrhea, albuminuria, and peripheral neuritis.

It is true that this fatal case is the first recorded in the literature, while instances of grave toxic effects have not often been reported. But these facts must not be accepted at their face value. Two peculiarities of the action of emetin (or of the associated impurities) conspire to mislead. In the first place, certain of the toxic effects closely imitate the symptoms of dysentery, the very disease in which emetin is most extensively used in relatively large doses. Secondly, the maximum poisonous effect tends to be deferred, occasionally manifesting itself some days after the drug has been discontinued. The phenomena of intoxication are, therefore, apt to be interpreted as an exacerbation of the preexisting morbid condition.

The case of emetin is not unique in the history of pharmacology. At one time the products marketed under the name of "aconitin" varied startlingly in their toxicity. At that period the chemistry of aconitin and of its congeners had been very inadequately investigated. No such excuse avails regarding impure emetin. This alkaloid is a well defined chemical compound. It is commercially practicable to ascertain, with precision, the emetin content of the hydrochlorid and to insure its freedom from dangerous impurities. In the article referred to it is proved, clinically and experimentally, that at least one house of repute is supplying, under the name of emetin hydrochlorid, a

1. Levy, R. L., and Rowntree, L. G.: On the Toxicity of Various Commercial Preparations of Emetin Hydrochlorid, Arch. Int. Med., March, 1916, p. 420.

product so unusually toxic as to prohibit its use, at any rate in anything approaching the ordinary dose.

It is open to the manufacturer referred to to say that its greater toxicity is due to its greater purity. There is, however, nothing in the facts which supports such a contention, and there is much which militates against it. However this may be, one indisputable fact stands out: The products supplied as emetin hydrochlorid are variable in composition and in toxicity to a degree which constitutes a serious danger. It therefore behooves physicians to insist on some declaration from the firm supplying emetin hydrochlorid as to its purity and as to the standard employed.

OBSERVATIONS ON THE CHEMICAL SYMPTOMS OF PELLAGRA

In the midst of the controversy concerning the precise etiology of pellagra, certain facts in regard to the metabolism of persons suffering from the disease now stand out as clearly demonstrated. These are the frequent occurrence of gastric anacidity and the presence of indicanuria. If further evidence were needed to substantiate these characteristic symptoms in pellagra, it could be found in the latest contribution on this subject from the Pellagra Laboratory of the U. S. Public Health Service, at Spartanburg, S. C.[1] The anacidity so commonly found in pellagrins has usually been reported to be associated with an entire absence of pepsin or with only very small quantities of this enzyme in the gastric contents. The statistics now available for 139 cases of the disease show an absence of gastric hydrochloric acid in sixty-seven, or 48 per cent., and a deficiency of this acid in thirty-four cases, or 24 per cent.

Niles has expressed the opinion that a deficiency in the secretion of acid in the stomach is to be expected in most cases of pellagra of long standing. The investigators of the Public Health Service do not believe that it is possible yet to correlate the absence of free hydrochloric acid with any single clinical type of the disease. They found, as a rule, that when the gastric contents were of normal acidity, pepsin was present in reasonable amounts. On the other hand, a deficiency or absence of acid is all but invariably associated with a lack of pepsin. The absence of pepsin in such circumstances does not necessarily imply that the secreting cells have entirely lost the power to manufacture the enzyme. It may signify merely that the conditions produced by the failure of hydrochloric acid lead to the destruction of pepsin or pepsinogen as soon as it appears in the stomach. Administration of acid with the test meals invariably produced gastric contents which exhibited a notable peptic activity. The inclination, therefore, is to view the absence of pepsin in pellagra as a secondary effect, and to regard the gastric lesion as one which affects primarily the acid-producing mechanism alone. In the experience of the government observers, the condition of gastric anacidity, once established, appears to be very resistant to treatment, if indeed it is not quite irremediable. They therefore look on the failure of the secretion of acid as the consequence of some permanent anatomic lesion of the gastric mucous membrane.

The tendency for intestinal contents, including bile and pancreatic juice, to regurgitate into the stomach under circumstances in which the chyme is insufficiently acid to regulate the closure of the pylorus might be expected. Accordingly, Hunter and his associates[1] have shown for the first time in pellagrins that the stomach from which free acid and pepsin are absent almost always contains trypsin, sometimes in very considerable concentration. The regurgitation is evidenced not only by the appearance of trypsin in the stomach, but frequently also by the presence there of bile. Trypsin was not to be expected, and was in fact not found, in the cases in which hydrochloric acid was given by mouth, or when gastric acidity was normal or increased. In some of these cases, to be sure, there was regurgitation, as shown by the presence of bile; but if, as is probable, pancreatic juice accompanied the bile, its trypsin would, of course, be rapidly destroyed in the normally constituted gastric secretion. The Spartanburg investigators point out that the finding of trypsin shows that while the pathology of pellagra may involve the complete suppression of gastric digestion, the function of the pancreas is not appreciably affected. This would account for the circumstance that pellagrins are able, even in the entire absence of pepsin and hydrochloric acid, to utilize protein as well, or nearly as well, as healthy persons.

Indicanuria is a familiar accompaniment of a lack of hydrochloric acid in the stomach whereby bacterial changes are not inhibited by the normal antiseptic of the digestive tract at the outset of the alimentary processes. The chemists of the Thompson-McFadden Pellagra Commission of the New York Post-Graduate Medical School and Hospital[2] state that the presence of excessive amounts of indican in the urine associated with a high elimination of ethereal sulphates, when considered in connection with the abnormal amounts of indol and skatol in the feces, points to some unusual bacterial conditions in the intestine. From the data at hand this putrefaction would appear to take place rather high up in the intestine. The indicanuria in the Spartanburg series of cases has been neither so frequent nor so extreme. Furthermore, it seems here as

1. Hunter, A.; Givens, M. H., and Lewis, R. C.: Preliminary Observations of Metabolism in Pellagra, Bull. 102, Hyg. Lab., U. S. P. H. S., 1916, p. 39. Earlier observations on anacidity in pellagra have been reported by Johnson: South. Med. Jour., 1911, iv, 478; by Cecconi: Gazz. d. osp., 1911, xxxii, 77, and by Niles: Pellagra, 1912, p. 77; and the presence of indicanuria by Ormsby and Singer: Arch. Int. Med., 1912, x, 123 and 219; and by Myers, V. C., and Fine, M. S.: Am. Jour. Med. Sc., 1913, cxlv, 705.

2. Myers, V. C., and Fine, M. S.: Am. Jour. Med. Sc., 1913, cxlv, 705.

if gastric efficiency were only one of the factors in determining the extent of indican formation. The character of the diet also appears to play a part. The pellagrin with diminished gastric acidity will always show an excessive indican output when his diet is animal; on a vegetable diet, indican may be absent, moderate or high. Where the gastric acid secretion is normal a vegetable diet may fail to evoke an output of indican, though this may promptly appear on the diets containing meat. It is too early to explain the differences here pointed out. Hunter, Givens and Lewis suggest, however, that the medium offered by the intestinal contents during the vegetable regimen is certainly very different from that presented by a meat diet. This might, on the one hand, have the effect of so altering the intestinal flora that indol formers largely disappear; or, on the other, without causing any change in the species actually present, may so modify their biochemical activities that other than the familiar products of putrefaction are produced. In any event, a well marked indicanuria shows a decided tendency to decline as the patient recovers from an acute attack of pellagra.

THE NATURE OF EDEMA OF THE LUNGS

Pulmonary edema is found as an incident in connection with a considerable variety of diseases. It may be observed particularly associated with disturbances of the kidneys or the blood vessels. Edema of the lungs sometimes follows anesthesia, especially that induced by ether. It is also known as a consequence of various infectious diseases, such as typhoid fever, pneumonia, bronchitis, scarlet fever and influenza. These diverse indications of its etiologic relationships make it less surprising that, in considering the subject from the clinical standpoint, various possible explanations have been advanced. One group of writers has inclined to accept a toxic origin of the edema; others have preferred a mechanical explanation.

The logical procedure of determining the conditions which entail a pulmonary edema when they are relatively uncomplicated by a diversity of uncontrollable factors is realized in recent experimental investigations of the subject in the physiologic department at University College, London. Dr. Matsuoka[1] of Tokyo made use of the now familiar heart-lung preparation, a group of isolated "surviving" organs kept physiologically functional by the circulation of blood pumped by the heart itself and aerated by the artificially ventilated lungs of the same specimen. Under such conditions it is possible to regulate the cardiac conditions, to produce in a heart any desired output or inflow and keep them constant. Various combinations of arterial pressure and venous inflow can be secured, and the different mechanical factors on the arterial and venous sides can be examined. In such a preparation the appearance of a bloody, frothy fluid in the tracheal outlet furnishes a definite criterion of the existence of an edema of the attached lungs; earlier evidence appears in the increased volume and consistency of the lungs, and by the presence of râles.

Under the conditions here noted, obstructive edema of the lungs takes place when certain limits of combined arterial pressure and venous inflow are exceeded. The actual statistics of these factors will vary with a variety of contributory bodily conditions or circumstances. The edema is very considerably facilitated by obstruction to the aorta. Welch believed, many years ago, that by preventing the flow of the blood from the lungs, hemorrhagic infarction and not edema is produced. According to Löwit, on the other hand, obstruction of the root of the aorta causes prevention of, or difficulty in the outflow from the pulmonary veins, and also an increased filling of the right heart. Matsuoka[1] found that the blocking of the work of the left ventricle is transmitted to the pulmonary vessels, and thus the pressure in the pulmonary artery is raised. The obstruction of the aorta thus favors the production of edema of the lung in that thereby a relatively smaller amount of venous inflow is sufficient to cause the condition. The principal factors in the transudation of edematous fluids into the lung alveoli are the excessive elevation of pressure in the pulmonary circulation, however it may be brought about, and the excessive passive dilatation of the lung capillaries.

Gaseous metabolism and energy consumption of the heart are decreased in obstructive edema of the lung. Complete stoppage of the heart takes place rapidly, as the maximum metabolism of the organ, because of the decreased rate of action, is insufficient to provide the necessary energy for its contractions. Matsuoka points out that when one is faced with the danger of cardiac failure it is justifiable to administer, by inhalation, the oxygen necessary for the blood. Inasmuch as it is very difficult to supply oxygen in sufficient quantity to edematous lungs, he considers it a rational therapeutic procedure to perform a previous venesection if conditions permit it.

1. Matsuoka, Y.: A Contribution to the Pathology of Obstructive Edema of the Lung, Based on Observations with the Starling Heart-Lung Preparation, Jour. Path. and Bacteriol., 1915, xx, 53.

Medical Students Petition for Change of Name of Street.—An unusual ceremony took place recently at Seville when the medical students of the local university and others from Madrid and elsewhere gathered at Seville to celebrate the unveiling of a tablet on a street corner, a memorial to Professor Letamendi, 1828-1897. The inscription on the tablet is to the effect that "the city council of Seville has herewith granted the petition of the medical students of the University of Seville that the name of this street be changed to Letamendi, to do honor to the great Spanish physician, J. de Letamendi, to the glory of medicine and honor of Spain." Among his numerous works are "Education of the Will as the Basis of Hygiene," "Criminality from the Standpoint of Science," and various textbooks on general pathology and clinical medicine.

Current Comment

THE COST OF WATER PURIFICATION AS AFFECTED BY THE WAR

The prices of certain chemicals used in water purification have risen greatly on account of the war. The actual amount of chemicals used in water purification plants is insignificant from the standpoint of total consumption, and at present the difficulty of the situation consists in the fact that the water-works officials are at the mercy of the prices set by the needs of the manufacturers of explosives and of many industrial processes. The normal price of bleaching powder, for example, on the New York market, is about $1.25 to $1.35 per hundredweight, while the New York wholesale quotations, March 4, 1916, were from $10.50 to $12.50 per hundredweight.[1] Fortunately the advance in cost of liquid chlorin has been much less (about double the normal rate), so that chlorin disinfection may still be inexpensively carried out. The present prices of aluminum sulphate and copper sulphate are from three to fourfold the normal. The cost of iron sulphate, on the other hand, has risen but little. The increased cost of aluminum sulphate, which is so commonly used as a coagulant in the mechanical filters, is probably the most serious item of this sort in water-works expenses. It is to be hoped that water-works officials will be on their guard against any tendency toward a lowering of the efficiency of purification because of the rise in operating expense. Here, if anywhere, the motto "safety first" has its place. Any saving effected in the quantity of chlorin or other chemicals used is trivial compared with the possible dangers of infection. The present chemical situation suggests at most the substitution of liquid chlorin for calcium hypochlorite, and where practicable, of lime and iron sulphate for aluminum sulphate.

1. Monfort: Eng. News, March 16, 1916, p. 530.

WORKS AND SCIENCE

Senator Works of California, who seems to be the representative of the Christian Scientists, has introduced a resolution in the United States Senate, calling on Surgeon-General Rupert Blue of the United States Public Health Service to resign as President of the American Medical Association, a position to which he was elected last year in recognition of his distinguished services for the public health. The preamble, we are told, "declared that no government officer should be associated with such an organization." Without doubt, the preamble and resolution represent the senator's views and knowledge on scientific matters. The American Medical Association is the national organization of the profession of which Dr. Blue is a prominent and honored member. To it belong all the medical officers of the government services. If Senator Works is consistent, he will enlarge the scope of his resolution. He will forbid any chemist in the government service to belong to the American Chemical Society; any lawyer in the government service to belong to the American Bar Association; any scientist in the government service to belong to the American Association for the Advancement of Science; any engineers employed by the government to hold membership in their technical associations. No geographer, if Senator Works is consistent — but why expect the impossible? But, if it is to apply to medical men only, why limit the scope of the resolution to Surgeon-General Blue? Why not make the resolution retroactive and censure Surgeon-General Gorgas of the army for holding the presidency of the American Medical Association from 1909 to 1910, and Surgeon-General Sternberg of the army, who was President in 1898, or Surgeon-General Woodward of the army, who was President in 1882? Meanwhile, THE JOURNAL extends its sympathy to the other members of the Senate who are forced by "senatorial courtesy" to listen to such nonsense.

THE ARMY MEDICAL DEPARTMENT AND PREPAREDNESS

THE JOURNAL recently[1] discussed the relation of the Army Medical Department to preparedness. Since that time, the House has passed the Hay bill, and the Senate the Chamberlain bill. The subject is now in the hands of a conference committee which is endeavoring to harmonize the two measures. Neither of these bills, however, provides adequately for the medical service. In the previous editorial it was shown that a proportion of seven medical officers to every thousand men enlisted is, by consensus of competent opinion, the minimum basis on which a satisfactory service can be built. This is the proportion provided by Congress in the army medical reorganization bill in 1908, and the fact that the present establishment is below that mark is due to failure to provide for increase in the personnel of the Medical Department *pari passu* with the increase in the army authorized. The Hay bill recognizes the principle of a proportional establishment, but fails in the application, because it contemplates a reduction of the ratio in time of peace. The bill introduced by Senator Chamberlain, while providing a larger present absolute number of medical officers, disregards the principle entirely. During the discussion in the House of Representatives, Mr. Hay said:

> The purpose of this amendment is to give the Medical Corps of the Army seven officers to every 1,000 enlisted men. That proportion is greater than the present one, and it is a proportion which the Surgeon-General of the Army recommended to the committee as being, in his opinion, sufficient to meet any demand which may arise.

In two important respects this language tends to mislead. First, in the bill as passed this proportion is not really maintained, because provision is made for its reduction in time of peace. Second, the statement in question would seem to imply that the proportion of 7 to 1,000 is intended to provide a margin of safety for emergencies. This is not the case. This proportion is not merely that which is sufficient to meet any demand; it is also, as experience has amply demonstrated, the absolutely necessary minimum for the safe

1. Medical Preparedness and the Army, editorial, THE JOURNAL A. M. A., Feb. 19, 1916, p. 575.

working of the service. In war a maximum of medical emergencies is the normal condition. The Medical Department has not only technical but also highly specialized functions. Army medical officers for the performance of these cannot be improvised on the outbreak of war. To plan deliberately for such a result would be to invite a disaster. If the proportion of seven medical officers to every thousand men enlisted is not established and maintained in time of peace, then on the outbreak of war the inevitable expansion of the ranks of the department will find it insufficiently manned by officers trained in army administration to eke out the technical knowledge of their new colleagues from the civil ranks of the profession.

MODERN BREAD AND DEFICIENCY DISEASES

Pellagra has been added to the list of diseases caused by the absence from the diet of substances which, while necessary to metabolism, are not included in the ordinary list of proteins, carbohydrates, fats and inorganic salts. In this list are several diseases differing markedly in their manifestations. It is therefore reasonable to suppose that the substances whose absence from the diet causes these diseases are not identical. It is by no means certain that these substances are even members of the same or of a related class, although it has become usual to refer to them as vitamins. Beriberi has been definitely attributed to the absence from an unbalanced rice diet of certain vitamins which are contained in the coatings of rice grains, but which are removed in the process of polishing. Whether there is any similar cause in the case of pellagra is still unknown. These considerations lend interest to a paper by Voegtlin, Sullivan and Myers[1] which has special reference to the vitamin content. These authors review the subject and bring up to date our knowledge in respect to maize (corn) and wheat flour. They show that modern methods of milling remove the bulk of the vitamins. Two facts of importance are brought out. First, the introduction of the highly milled flours has coincided with the great increase in the cost of such articles of diet as eggs, meat and milk. There has, therefore, been an increase in the proportion of flour consumed by the poorer classes and a decrease in the proportion of other articles which might have eked out its dietetic deficiencies. Second, the peculiarities of dough made from highly milled flours have caused the extension of the use of baking powders in the preparation of bread. It is a common practice in some places to use plain sodium bicarbonate as a baking powder. This substance, disengaging carbon dioxid at the temperature of baking, leaves the alkaline carbonate in the bread. The authors of the paper referred to report that their experiments indicate that sodium carbonate, in such circumstances, destroys the vitamins. This is not the case when the practice is followed of combining the use of sodium bicarbonate with that of buttermilk or of tartaric acid, which, by neutralizing the alkali, protects the vitamins. The investigations have not yet been carried far enough to determine whether these new and associated conditions, the use of highly milled flours and of sodium bicarbonate, have any causal relation with the extension of pellagra. The experimental evidence merely shows that as far as the production of disease is concerned, the case of corn bread and bicarbonate baking powder is similar to that of polished rice. In both instances polyneuritis develops when these foods are fed to fowls, in an unbalanced diet.

1. Voegtlin, Carl; Sullivan, M. X., and Myers, C. N.: Bread as Food, Pub. Health Rep., 1916, xxxi, 935.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

FLORIDA

Hospital Notes.—Members of the Dade County Medical Society have been informed by the chamber of commerce that there is available about $30,000 for the new city hospital lot. A bond issue to provide funds for the new hospital is under consideration.

State Board of Health Train.—The health train of the state board of health which is making a tour of the state reached Gainesville, March 25. The train is composed of three cars, the first of which is the living car for the accommodation of the representatives of the board; the second contains sleeping quarters for the special train crew, but the greater part of the car is devoted to the installation of models showing sewage disposal, the contamination of driven or open wells, a model dairy, the proper feeding and clothing of babies, open-air treatment of tuberculosis and the like, while the third car is devoted chiefly to display notices which carry in graphically worded sentences warnings and advice on sanitary subjects and disease prevention, together with the display from the Florida Dental Society.

State Antituberculosis Association Organized.—The Florida Antituberculosis Association was organized at Jacksonville, March 29, the following physicians being elected officers: president, Dr. Louis A. Bize, Tampa; secretary, Dr. Carroll H. Frink, Jacksonville; honorary vice president, Dr. Joseph Y. Porter, Jacksonville; member of the executive committee, Dr. Charles E. Terry, Jacksonville, and directors, Drs. Joseph Y. Porter, Jacksonville; Robert H. McGinnis, Jacksonville; Paul C. Perry, Jacksonville; Charles E. Terry, Jacksonville; Ralph N. Greene, Chattahoochee; Arthur P. Hunter, Fort Myers; Joseph Y. Porter, Jr., Key West; John B. Maloney, Key West; George B. Glover, Monticello; S. R. Mallory Kennedy, Pensacola; John D. McRae, Tampa; Louis A. Bize, Tampa; Grace L. R. Whitford, Ozona; Hiram Byrd, Princeton, and Mary B. Jewett, Florence Villa.

GEORGIA

Personal.—Dr. Henry R. Slack, LaGrange, has returned after war service in France.——Dr. Leon Izgur has returned after several months' service as marine surgeon in the Russian service.

State Sanatorium Located.—The state board of health has accepted the Franklin Springs property as a state sanatorium for the treatment of drug addicts under the recently enacted law, which set aside $10,000 to provide an establishment for this purpose. The property will immediately be put into condition to receive patients.

Health Bill Adopted.—The Ellis Public Health Bill has been adopted by the Dougherty County grand jury as a result of the recent tuberculosis and sanitary survey of Albany and the adjacent territory. A public health nurse has been appointed to act under the direction of a full time health officer who will soon be appointed.

New Plans for Grady.—At a banquet of the Atlanta Physicians' Club, April 4, the report regarding the Grady Hospital, approved by the Fulton County Medical Society, was adopted. This report suggests that the hospital be made a

750-bed hospital of which 600 shall be free beds; that one half of these free beds shall be at the service of the physicians of the city at large and the other half be used for teaching purposes.——Four living heirs of the late Joseph Hirsh have agreed to donate $10,000 for the erection of a nurses' dormitory for the hospital. This, with the $15,000 recently appropriated by the city council, will render it possible to go on at once with the foundation and first floor of the dormitory.

IDAHO

Personal.—Dr. Clifford M. Cline, Idaho Falls, has resigned as a member of the State Board of Medical Examiners.——Dr. Edwin O. Woods, Twin Falls, has succeeded Dr. A. Henry Dunn, resigned, as physician of Twin Falls County.——Dr. Clyde E. Watson has been elected city physician of Nampa.

The Rabies Situation.—The seriousness of the rabies situation in Idaho was discussed, April 7, at the office of the state board of health by Dr. Ralph Falk, Boise, secretary of the board, and Surg. Lunsford D. Fricks, U. S. P. H. S. Plans for a campaign against rabies are being taken up on the lines now being followed in Utah, Nevada and California.

ILLINOIS

School for Health Officials.—The secretary of the state board of health announces that a summer school for health officers in the state will be opened in Springfield in September for one week.

Personal.—Dr. Elmira Hertig, Galesburg, was seriously injured in a collision between bicycles, April 4.—The winter home of Dr. Orrin Maxson, Waukegan, in Florida, was destroyed by fire recently.——Dr. A. Edward Sherman, Aurora, has been commissioned first lieutenant, Medical Reserve Corps, U. S. Army.

Stolen Diplomas Come to Light.—Several months ago ten diplomas of the Marquette University School of Medicine, Milwaukee, were stolen. Three of these have reappeared, one being in the possession of August Steinlage; a second in the possession of Dr. Alfred Noble Gray, formerly of Worth, Ill., but more recently of St. Louis, and the third was held by Vincenzo Scalette of Chicago. The Missouri State Board of Health discovered two of these diplomas when examining the credentials of applicants for examination for state licensure, and one was found by the Illinois State Board of Health under similar circumstances. This board has a fourth diploma under investigation. The other six have not yet come to light. At the instance of the Illinois State Board of Health warrants were issued in the Municipal Court, April 18, for the arrest of two men on the technical charge of the operation of a confidence game.

Chicago

Hospital Chapel Dedicated.—The Deering Memorial Chapel, located in the Wesley Memorial Hospital, was dedicated, April 9.

To Improve Marine Hospital.—In a formal report to the Public Buildings Committee of Congress, the expenditure of $50,000 for improvements for the Marine Hospital is proposed. The improvements consist of repairs to the building and the rebuilding of the seawall and breakwater.

Society Lauds Sachs.—At a meeting of the Council of the Chicago Medical Society, April 11, resolutions were adopted on the death of Dr. Theodore B. Sachs "for by his untimely passing the medical profession not only of Chicago, but of the nation, has lost one of its most valued members."

Open Meeting of Institute of Medicine.—An open meeting of the Institute of Medicine of Chicago is announced for April 29, Recital Hall, Fine Arts Building at 8 p. m. Prof. William L. Tower of the University of Chicago will deliver an address on the "Fundamental Biologic Factors in the Evolution of Human Populations." Dr. William Healy of the Psycopathic Institute will speak on "The Eugenists and Medicopsychologic Problems."

Personal.—Dr. Justin L. Mitchell, who was operated on recently at the German Deaconess Hospital, has returned home convalescent.——Dr. Lewis J. Isaacs has recovered and resumed practice.——Dr. Duncan B. McEachern has been appointed chief of the Diphtheria Hospital.——Dr. Edward H. Oschner delivered an address before the Winnebago County Medical Society at Rockford, April 11, on "The Biochemistry of Tropical Application."

Dementia Research Work Soon to Begin.—The contract between the State Board of Administration and the Otho Sprague Memorial Institute for the establishment of a laboratory at the Chicago State Hospital for research work in dementia praecox has been signed, and the opening of the laboratory now awaits only the selection of a director. The medical director of the Sprague Memorial Laboratory is Dr. H. Gideon Wells of the University of Chicago.

IOWA

State Society Meeting.—The sixty-fifth annual meeting of the Iowa State Medical Society will be held in Davenport, May 10 to 12. The address in surgery is to be delivered by Dr. J. Rilus Eastman of Indianapolis, and that in medicine by Dr. Alexander Lambert, New York.

Personal.—Dr. George W. Banning, Davenport, has returned after a winter in Florida.——Dr. John D. Hullinger, Clinton, has been reelected president of the Beaver Island Fishing and Hunting Club.——Dr. Arthur L. Washburn, health officer of Oskaloosa, has resigned to accept a position in the City Fever Hospital, Edinburgh, Scotland.——Dr. Walter L. Bierring, Des Moines, was the guest of honor at a dinner given by the Fort Dodge Medical Society, March 28, and afterward delivered an address on "The Value of Digitalis in Insufficiency of the Heart."——Dr. Max W. Emmert, Des Moines, has accepted a position on the staff of the University of Nebraska, Omaha.——Dr. William L. Becker has been elected president and Dr. Eugene R. Lewis, vice president of the directors of the Independent School District of the City of Dubuque.

MASSACHUSETTS

The Harrington Lectures.—Dr. Milton J. Rosenau, director of the School for Health Officers, Harvard University and the Massachusetts Institute of Technology, has been appointed to give the Harrington Lectures at the University of Buffalo Medical School on May 30, 31, and June 1. Two lectures will be given on "Anaphylaxis" and the third will be on "Education for Public Health Service as a Career."

State Hospital Celebration.—Under the auspices of the board of trustees and with the approval of the state board of insanity, a twenty-year review of the work of the Monson State Hospital, Palmer, will be held, May 4. The morning session will be devoted to matters of general consideration, inspection of the department of health work, exhibits, demonstrations illustrating some of the papers read by title, preparations for the afternoon meeting, etc., including a summary of researches in epilepsy with especial reference to the institution.

Personal.—Dr. Walter B. Cannon, Boston, gave a lecture before the section on general medicine of the College of Physicians of Philadelphia at Thompson Hall, April 20, on "An Explanation of Some Disorders Supposed to Have An Emotional Origin." The lecture was illustrated by lantern slides and was based on recent laboratory work in the conditions of activities of the glands of internal secretion, especially in relation to the sympathetic nervous system and emotions.——Dr. Horace K. Boutwell has been appointed district physician of Brookline, succeeding Dr. George H. Lawrence, resigned.

Eligibles for Health Officers.—Dr. Allen J. McLaughlin, commissioner of health of Massachusetts, announces that, May 25 and 26, the state department of health will hold a competitive examination for the purpose of establishing an eligible list of candidates for state district health officers under the department. The written examination will be held May 25 and 26 in the examination room of the Civil Service Commission, State House, Boston. The oral and practical examinations will be held on dates and at places to be announced at the time of the written examination. Persons possessing the necessary qualifications and desiring to enter the competitive examination should communicate with the state commissioner of health at Boston, at once.

MICHIGAN

Appreciation of Dr. Baker's Work.—At a meeting of the Tri-County Medical Association at Kalamazoo recently a resolution of appreciation of the labors of Dr. Henry B. B. Baker, for many years secretary of the state board of health, calling attention to the pioneer services which he rendered along the lines of preventive medicine, was adopted and a copy was sent to Dr. Baker, who is now living on a fruit farm in Allegan County.

Personal.—Dr. George H. Lynch has been reelected mayor of Big Rapids.——Dr. George A. Holliday has been elected

full time health officer of Traverce City.——Dr. Leo C. Donnelly, city physician in Detroit in 1910 and 1911, sailed for France on the *Espagne*, April 8, to join a field hospital staff at St. Valérie-en-Caux.——Dr. Carl A. Mitchell has been elected an alderman of Benton Harbor.——Dr. Emory J. Brady, assistant superintendent of the Newberry State Hospital, newly appointed superintendent of the Myron-Stratton Home, Colorado Springs, assumed his new duties April 1.——Dr. Rosco G. Leland, Kalamazoo, who has been ill at his home, has recovered and resumed work.——The salary of Dr. Christopher G. Parnall, Jackson, full time health officer of Jackson, has been fixed at $3,600.——Dr. Victor C. Vaughan, dean of the Uuniversity of Michigan, Ann Arbor, lectured at Menominee, April 10, on "The Influence of Disease on Civilization."——Dr. Louis T. O'Brien, Grand Rapids, has joined a British expeditionary force which is soon to leave Toronto for the front.——Dr. Robert A. Walker, Menominee, who has been suffering from septicemia for two months, has recovered and resumed practice.

MINNESOTA

Personal.—Dr. Ernest T. F. Richards, St. Paul, who has been working with a Harvard unit in France for several months, has returned home.——Dr. Edward E. Webber has been elected president of the village of Chisholm.——Dr. M. Alpheus Burns has been elected president of the village of Milan.——Dr. Julian A. DuBois, Sauk Center, is reported to be seriously ill.

NEW JERSEY

Society One Hundred and Fifty Years Old.—The Medical Society of New Jersey, the oldest state medical society in the United States, is making elaborate arrangements for its one hundred and fiftieth anniversary meeting which will be held in Asbury Park, June 20 to 22. Invitations have been extended to the presidents of every state medical society in the United States and the president elect of the American Medical Association. An attendance of more than 1,000 is expected. Dr. David C. English, New Brunswick, is chairman of the committee of arrangements. Headquarters will be at the New Monterey Hotel.

NEW YORK

To Compel Physicians to Seek Laboratory Assistance.—The Public Health Council of the state department of health at its meeting, April 4, passed the following resolution:

> It is the judgment of the Council that laboratory facilities in the state, both within and without the department, being now adequate to make diagnostic examinations in diphtheria, typhoid fever and tuberculosis, it is feasible and desirable for the department to enforce the sections of the Sanitary Code relating to prompt and uniform notification in these diseases by such means as will compel physicians at once to seek laboratory assistance in diagnosis in all doubtful cases.

Personal.—Dr. James V. May, Albany, at present chairman of the New York State Hospital Commission, has been elected superintendent of the Grafton State Colony for the Insane at Worcester, Mass., to succeed Dr. H. Louis Stick, resigned.

New York City

Dinner to Jacobi.—The board of directors of the Hospital for Deformities and Joint Diseases announces that a dinner will be given to Dr. Abraham Jacobi at the Ritz Carleton Hotel, May 3, at 7 o'clock. Dr. Levi Strauss is chairman of the dinner committee.

Baby Week.—The mayor's committee has designated the week May 6 to 13 as "Baby Week." The general committee appointed by the mayor to conduct the campaign is headed by Dr. Haven Emerson. The active work of the campaign will be undertaken by a central committee presided over by Dr. Alfred E. Shipley, Brooklyn.

Personal.—According to newspaper dispatches, Dr. Harry Plotz of Mount Sinai Hospital has been awarded a medal without swords by the Bulgarian government in recognition of his services in aiding to stamp out typhus fever in Serbia. This is one of the highest honors which it is possible to confer on a Bulgarian army surgeon.

Initiating the Mosquito Campaign.—The Interstate Mosquito Committee recently met in the offices of the health commissioner to consider the question of mosquito extermination in the vicinity of New York. It was announced that Forrest Hills had raised over $1,000 and would engage an expert to organize a campaign against the mosquito. It was also announced that the Outran Swamp, which is the chief source of annoyance to the people of Jamaica and Forest Hills, is to be drained by the construction of a temporary sewer; that Essex County expects to employ fifteen college students to continue the work of extermination begun last summer and that a "canned lecture" together with lantern slides, is being prepared by the New York Association for Improving the Condition of the Poor and which will be loaned free of charge for use by societies, churches, civic organizations, etc. The Interstate Committee is seeking financial aid in its campaign and has adopted the slogan, "A Dollar Kills a Million."

NORTH DAKOTA

Unlicensed Physicians and Midwives.—State's Attorney Langer has started a campaign against unlicensed physicians and midwives in Morton County. Two physicians have been arrested and released under bail and nine midwives have been slated for arrest unless they secure licenses without delay.

Personal.—Dr. William G. Brown, Fargo, has returned from a two months' trip to the Pacific Coast, the South, Chicago, and Rochester, Minn.——Dr. William L. Gordon, Washburn, is reported to be ill in a hospital at Chicago.——The office of Dr. Hermann R. Gundermann, Monango, was destroyed by fire recently with a loss of $600.

OKLAHOMA

Personal.—Dr. Emory S. Crow, Olustee, who was operated on for appendicitis recently, is convalescent.——Dr. James A. Ryan, Oklahoma City, gave a farewell dinner to physicians of Oklahoma City recently, at which he announced his retirement from the practice of medicine.——Dr. Oliver Bagby, Vineta, recently underwent operation at a hospital in St. Louis.——Dr. Joseph W. Bone, Sapulpa, is recovering after a surgical operation.——Dr. Leigh F. Watson, Oklahoma City, recently opened a sanatorium for the treatment of goiter and diseases of the glands of internal secretion.

New District Society.—Physicians from Cotton, Comanche, Kiowa, Greer, Harmon, Tillman and Jackson counties met at Altus, April 6, pursuant to the call of Dr. Garraed P. Cherry, Mangum, and organized the Southwestern District Medical Association of Oklahoma, electing the following officers: president, Dr. Garraed P. Cherry, Mangum; vice presidents, Drs. William T. Ray, Gould; Lang A. Mitchell, Frederick; Thomas J. Horsley, Mangum; Louis A. Milne, Lawton; George O. Webb, Temple, and Logan H. Huffman, Hobart, and secretary, Dr. General Pinnell, Lawton. The next meeting will be held in June at Lawton.

PENNSYLVANIA

Conference of Industrial Physicians.—The second conference of physicians engaged in industrial practice will be held at the state capitol, Harrisburg, May 18, under the auspices of the Division of Industrial Hygiene and Engineering of the Department of Labor and Industry. Dr. Francis D. Patterson, Philadelphia, chief of the division, will preside. The program considers many important subjects dealing with the industries, and at the close of the afternoon session moving pictures dealing with safe and unsafe practices will be exhibited.

Personal.—Dr. Calvin J. Otto, Allentown, was the guest of honor at a banquet, April 8, given by his fellow members of the Lehigh County Medical Society.——Dr. Daniel P. Gerberich, Lebanon, senator from the Seventeenth District, has made formal announcement of his retirement from public life.——Dr. Charles McDonald, who has been on duty as director of Unit E of the American Red Cross at Budapest, Hungary, has returned and has been made chief surgeon of the Remington-Armour Company at Eddystone.——Dr. Bertine S. Erwin, Mauch Chunk, who has been seriously ill, is reported to be convalescent.——Dr. D. Leonard Pratt, Towanda, has been placed in charge of the State Tuberculosis Dispensary of the Forty-Fourth District, which includes all of Bradford County.

Philadelphia

Pathological Society Address.—The annual address of the Pathological Society of Philadelphia will be delivered by Dr. William H. Park, New York, at the College of Physicians and Surgeons, Twenty-Second and Chestnut Streets, April 27, at 8:30 p. m.

Dr. Hare Honored.—A demonstration of admiration and affection was rendered to Dr. Hobart Amory Hare, April 11, by the faculty and student body of Jefferson Medical College, in commemoration of his twenty-fifth anniversary

as a member of the college faculty. A reception, which was attended by several hundred students, members of the faculty, and professional friends, was held in the hospital amphitheater. Dr. Francis X. Dercum, professor of nervous and mental diseases, acted as chairman, and a beautiful bronze statute of Mercury, by Pigalle, was presented by the students. The presentation address was made by Dr. John Chalmers Da Costa, professor of clinical surgery, and a memorable address of appreciation and acceptance was made by Dr. Hare.

Personal.—Dr. Edward Martin has been chosen chairman of the committee on military training of the board of education.——Dr. George E. McGinnis has been appointed by Governor Brumbaugh a captain of the medical corps of the National Guard and assigned to a Philadelphia company.——Dr. Wilmer Krusen, director of the department of health and charities, was guest of honor at the regular quarterly meeting of the Medical Club of Philadelphia, April 28.——Dr. Edwin B. Miller has been appointed otologist, rhinologist and laryngologist to the Roosevelt Hospital.——Dr. John A. Brophy has been elected ophthalmologist to St. Agnes' Hospital.——The Ninth Public Lecture of the College of Physicians was given, April 15, by Surg. Archibald M. Fauntleroy of the U. S. Navy. His subject was the "Dangers and Duties of the Hour."——Dr. Alonzo E. Taylor, Rush professor of physiologic chemistry in the University of Pennsylvania, sailed from New York for Europe, March 11, on the *Rotterdam* as an appointee of the War Department. He will engage in Red Cross work as an attaché of the American embassy, Berlin.

University Alumni to Elect Trustees.—Control of the management of the University of Pennsylvania has been delegated to alumni of that institution by the action of the trustees in voluntarily adopting an amendment to the university statute, providing that all vacancies on the board shall be filled by election from nominations made to the trustees by graduates. This action transfers the general administrative policy of the university from the hands of the trustees to an alumni of more than 16,000, scattered all over the world. Under the amendment, trustees of the university will advise the board of managers of the General Alumni Society of any vacancy which may occur on the board. The board of managers of the Alumni Society then will select not less than six persons from whom a selection of three will be made by the board of trustees. These three will be returned to the alumni board and ballots containing their names will be circulated to all Pennsylvania graduates. The board then will elect to membership the person who shall have received the highest number of votes. The resolution provides that unless a minimum of 4,000 votes is received the trustees may disregard the result of the election. This clause, it was pointed out, is to insure the general interest among the alumni in the election.

TENNESSEE

Personal.—Dr. Ernest M. Ragsdale, Santa Fe, has been appointed superintendent of the East Tennessee Hospital for the Insane, Bearder, succeeding Dr. Michael Campbell.——Dr. George F. Aycock has succeeded Dr. James M. Oliver as superintendent of the Davidson County Tuberculosis Hospital, Nashville.

Antituberculosis Camp Established.—An emergency antituberculosis camp has been established by the Associated Charities at Knoxville, in a pine grove on the ridge near Clinton Pike, west of the New Gray Cemetery. A pavilion for a family of four has already been erected on this site. The tract of land is sufficient for the erection of enough tents for the accommodation of all the cases of tuberculosis in Knoxville, but the Associated Charities wish it understood that the camp is only to be temporary during the development of the East Tennessee Sanatorium on Tazewell Pike, 7 miles east of Knoxville.

State Association Meeting.—The eighty-third annual meeting of the Tennessee State Medical Association was held in Knoxville, April 4 to 6, under the presidency of Dr. Edward C. Ellett, Memphis. Nashville was selected as the next place of meeting, and the following officers were elected: president, Dr. Charles N. Cowden, Nashville; vice presidents, Drs. Cawood J. Carmichael, Knoxville; John T. Moore, Allgood; and John L. McGehee, Memphis; secretary, Dr. Olin West, Nashville (reelected); and delegates to the American Medical Association, Drs. Samuel R. Miller, Knoxville; and Perry Bromberg, Nashville (reelected). A telegram was sent to the American Medical Association at the afternoon meeting on April 6 conveying the good wishes of the association and pledging the national association every possible help in the fight it is making on fake doctors and "patent medicines."——At the meeting of the eye, ear, nose and throat section of the association, April 3, Dr. Charles Huff Davis, Knoxville, was elected chairman, Dr. Alexander B. Dancy, Jackson, vice chairman, and Dr. Edwin Lee Roberts, Nashville, secretary.

TEXAS

Personal.—Dr. Lawrence W. Hollis, Jr., Abilene, has been appointed assistant state health officer at the port of Galveston, succeeding Dr. Lane B. Cooke, whose station has been changed to Vera Cruz, Mexico.

Course for Health Officers.—The State Medical College, Galveston, announces that the summer course for public health officers will be held at the Medical College, May 12 to 26, immediately following the meeting of the State Medical Association of Texas.

Typhus Fever.—During February typhus fever was reported to the state board of health in El Paso, Kinney, Maverick, Webb, Frio and Bexar counties. This invasion is following the main lines of travel from the border to the interior of the state and the cases have been confined almost exclusively to Mexicans of recent entry. Up to March 15 no new points of infection had been reported excepting in Jones and Hays counties.

CANADA

Vaccination Order Issued.—The quarantine of the Amherstburg Unit of the Ninety-Ninth Overseas Battalion, imposed on account of an outbreak of smallpox in the barracks, was removed, April 4. Altogether twenty cases were reported.

University News.—The board of governors of the Western University, London, Ont., has completed the purchase of a large farm near that city for the erection of a new university. The location consists of 100 acres overlooking London. Building operations will not be commenced until the end of the war, but plans will be prepared and the grounds laid out preparatory for actual operations as soon as the war terminates.——Queen's University, Kingston, Hospital Unit, which has been located in Cairo, Egypt, is going to France instead of England.

Personal.—Dr. Alfred Thompson, M. P., Dawson, Yukon, has been appointed by the government of Canada as superintendent of the Canadian Military Hospitals in Canada.——Dr. Charles A. Temple, Toronto, has been appointed medical officer of the Eighth Artillery Brigade, with the rank of captain.——Dr. Waring G. Cosbie, Toronto, has been appointed medical officer of the Fifty-Eighth Battalion at Bramshott Camp, England.——The Medical Officer of Health, Hamilton, Ont., Dr. James R. Roberts, who returned from active service in the Mediterranean some weeks ago, still continues in ill health, and has been allowed additional leave of absence.——Dr. J. L. Wright, a graduate of the University of Toronto in 1905, and who has been practicing in western Canada, has been appointed surgeon-major to the One Hundred and Fourth Battalion.——Dr. Allan Kinghorn, a graduate of the University of Toronto, 1904, has been appointed senior medical officer of the medical forces in Rhodesia, West Africa.——Dr. Forbes E. Godfrey, Mimico, a member of the Ontario Legislature, will accompany Premier Hearst on a trip to the West Indies.

GENERAL

The Eradication of Malaria.—At a meeting of the West Tennessee Antimalaria Congress held in Memphis, health officers of Tennessee, Arkansas and Mississippi united in the campaign for the eradication of malaria from the South, and elected the following officers: president, Dr. William Krauss; vice president, Dr. James L. Andrews; secretary, Eugene Frederick Turner, all of Memphis, and director of field work campaign, Senior Surg. Joseph H. White, U. S. P. H. S.

Wine of Cardui Suit.—The extent of the report of the Wine of Cardui suit is such that it is impossible to give the complete report, up to date with each issue. Since the completion of the material which appears in the issue for this week, as we go to press, the following have testified for the American Medical Association: Dr. J. Clarence Webster, Chicago; Dr. A. J. Reynolds, Mr. M. H. Bonner and Mr. Paul Turner, Fort Necessity, La.; Dr. Joseph B. Tanner, Benevolence, Ga.; Dr. Edward E. Montgomery, Philadelphia; Dr. C. K. Maxwell, Kellyton, Ala.; Dr. Samuel Worley, St. Augustine, Fla.; J. K. Webster, Athens, Texas; Dr. A. A. Small, Chicago; Dr. C. A. L. Reed, Cincinnati, and Dr. Wm. E. Kay, Maplesville, Ala.

Medals for Army Medical Museum.—The Army Medical Museum possesses a valuable collection of medals relating to medicine which was started and fostered by the late Dr. John S. Billings, and it is highly desirable that this collection should be added to and completed, so far as possible. The assistance and advice of physicians who are collectors of medical medals is respectfully solicited. The museum appropriations will avail to purchase individual medals which are not in the collection, the purchase of private collections, or of individual items in them, will be carefully considered, and private donations of separate medals or groups of medals will be most welcome and will be duly credited to the donors, and the transmission of catalogs of medals for sale is requested.

Medico-Psychologists Hold Meeting.—The seventy-second annual meeting of the American Medico-Psychological Medical Association was held in New Orleans, April 4 to 7, under the presidency of Dr. Edward N. Brush, Towson, Md. New York was selected as the place of meeting for 1917, and the following officers were elected: president, Dr. Charles G. Wagner, Binghamton, N. Y.; vice president, Dr. James V. Anglin, St. John, N. B., and secretary-treasurer, Dr. Henry C. Eyman, Massillon, Ohio (reelected). The prize offered by the association for the best exhibit from a state hospital was awarded to the East Louisiana State Hospital for the Insane, and that for the best exhibit by a private institution to the Shepard and Enoch Pratt Hospital, Towson, Md. The Danvers State Hospital, Massachusetts, was awarded a prize for the best art brass and leather work, the Medfield (Mass.) State Hospital a prize for the exhibit showing the greatest variety of employment, and the Nebraska State Hospital, Lincoln, a prize for the best water color drawings.

Service Officers in Medical Associations.—A joint resolution was introduced into the Senate of the United States, April 11, by Mr. Works, which makes it unlawful for any member of the Public Health Service to become a member of any medical or private health association. This resolution was read twice and referred to the Committee on Public Health and National Quarantine. It reads as follows:

Whereas, The American Medical Association is a national organization of physicians and surgeons of one school of medicine only and intended to advance the personal and private interests of its members; and

Whereas, One of the objects of said association actively and aggressively prosecuted is to procure legislation, state and national, in the interest of the school of medicine represented by it and against all others; and

Whereas, The Public Health Service of the United States is intended to represent all classes of people of all medical or nonmedical beliefs in national and interstate affairs; and

Whereas, The Surgeon-General of the Public Health Service has been elected president of said association and other officers of the Service have become members thereof; and

Whereas, It is believed that the best interests of the Public Health Service and of the people require that its officials and employees be free from influence or control by any school of medicine or mode of healing; now, therefore, be it

Resolved, By the Senate and House of Representatives of the United States of America in Congress assembled, that it shall be unlawful for any officer or employee of the Public Health Service of the Government to be or become a member or officer of, or in any way connected with, any medical or private health association or organization of any kind.

FOREIGN

Unexpected Red Cross Funds Returned.—J. M. Poyer, governor of American Samoa, has returned to the American Red Cross $878.02 of the $2,000 contributed last year for relief of the hurricane sufferers in the Manua group of islands. The people of Manua express profound gratitude for and sincere appreciation of the aid extended during their period of distress.

Deaths in the Profession Abroad.—Sir Alexander Russell Simpson, M.D., Edinburgh, 1856; F.R.C.P., Edinburgh; F.F.P.S., Glasgow, 1865; eminent as an obstetrician and gynecologist; emeritus professor of midwifery and diseases of women and children and formerly dean of the Faculty of Medicine of the University of Edinburgh; a prolific contributor to the literature of gynecology and obstetrics; a member and former officer of many learned societies; an honorary fellow of the American Gynecological Society and a corresponding fellow of the Boston Gynecological Society; aged 80; was knocked down by a motor car in Edinburgh, April 6, and died from his injuries a few hours later.——X. Delore, a prominent French surgeon, obstetrician and pediatrist, formerly a member of the faculty of the University of Lyons, aged 89. One of his four sons is continuing, as a surgeon at Lyons, his father's career.——M. A. Fargas, professor of gynecology at the University of Barcelona.——L. Guedea, professor of surgery at the University of Madrid and senator, aged about 60.——G. Menini, lecturer (libero docente) in pathology at the University of Florence, director of the clinical laboratory, and chief of a sanitation mission, sent recently by the government to Sardinia and Albania, aged 40.——P. Condulmer, chief of the school inspection service at Bologna, recently succumbed to a disease contracted in medical work on the firing line in Italy. The city council of Bologna has already founded a prize as a memorial to him to be awarded annually to some indigent child as a reward for cleanliness.

Women's Medical College and Hospital Opened in India.—The first Women's Medical College and Hospital in India was recently opened at Delhi. It has been established in memory of Lady Hardinge, wife of the Viceroy of India, who had a deep and abiding interest in the welfare of Indian women and was untiring in her efforts to found this institution for their benefit. In the presence of a representative audience, including Indian princes and leaders of Indian and European society, Lord Hardinge, as his last official act, opened the college and hospital, of which the cornerstone was laid by Lady Hardinge two years ago. The institution is to be known as the Hardinge Women's Medical College. To the college and hospital there is to be attached a training school for nurses. The college will provide for 100 women students; the hospital will have 150 beds for women, and the training school will be able to accommodate twenty-five qualified nurses and the same number of probationers. The hospital will have separate wards for Christian, Hindu, Mohammedans, Sikhs and Parsees so that every care will be taken to avoid conflict with religious and caste rules. The college building contains a central amphitheater and a hall, a library, laboratories for chemistry, physics, physiology, anatomy, pathology and bacteriology and the necessary lecture rooms. A dispensary and hospital for the treatment of outdoor patients will be added to the hospital. Bungalows will be provided for the women professors and there are separate units in the hospital, each complete in itself, containing family wards, two general wards, two small separate wards and a central building for demonstration and teaching. Each professor will have her separate and complete clinic and her own clinical laboratory, demonstration room and consulting room, with facilities for nursing. The institution is costing $2,000,000, more than one half of which was given by individuals and the remainder by the Province of the Panjab as its tribute to Lady Hardinge's memory. It is hoped that this institution may aid materially in decreasing the very high mortality of mothers and infants which at present obtains in India.

WAR NOTES

Clearing House in Paris.—The depot in Paris, at which surgical dressings sent from America are received, is now issuing supplies to 380 hospitals. During March the Boston branch of the Surgical Dressings Committee shipped 299 cases containing 317,974 surgical dressings.

Aid for Soldiers Blinded in War.—The Permanent Blind Relief War Fund at 590 Fifth Avenue, New York, is appealing throughout the United States for aid for the thousands of French, Belgian and British soldiers who have been blinded in the European War and cannot support themselves. The plan of the fund is to educate these blinded men in practical trades in which they can support themselves and help their families.

Surgery in a Dugout.—The following is from an article in the *Outlook* by Mr. Herbert Ward, the artist and sculptor, who has been connected with one of the English ambulances in France and is now in this country lecturing:

> "Night before last, in an ambulance hut near the front, during a cannonade, I first saw a certain doctor. It was in a dimly lit dugout. A man's figure lay on the operating-table, and an attendant held a candle to enable the doctor to see. It was a grave operation and not a thing to talk about. The doctor was intent on his work. An earnest, black-bearded man with bare arms, his hands moved quickly and he gave an impression of concentrated energy. The usual surroundings were there, and a few rugged, dirty brancardiers (so-called from the fact that they carry brancards, the litters or stretchers) were standing by, ready to bear the patient away.
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> "Last night, almost at the same hour, I was in the same dugout. The noise of the guns was deafening, and there had been many casualties. In the dugout there was again the man with the candle, lighting the surgeon at his work. But this time the surgeon was a clean-shaven man and the patient was the black-bearded doctor himself. He is dead now. . . .
>
> "My black-bearded doctor friend, who, after performing his operation two nights before, had clinked glasses with me as we drank to each other's health in bad lemonade, had been mortally wounded. That makes a total of nineteen doctors killed at this particular place."

PARIS LETTER

PARIS, March 23, 1916.

The War

THE INTERNMENT IN SWITZERLAND OF SICK OR WOUNDED PRISONERS OF WAR

The negotiations, begun some time ago, on the subject of internment in Switzerland of French and German prisoners of war who are not so seriously injured as to be subject to exchange, has just resulted in a new agreement between the French and German governments, which defines the list of diseases and deformities entitling prisoners to such exchange: (1) tuberculosis of the respiratory organs, even in its early stages; (2) tuberculosis of the other organs (skin, bones, joints, digestive organs, urinary passages and sexual organs, etc.); (3) chronic constitutional diseases, chronic affections of the blood and skin and chronic intoxications (malaria, diabetes, leukemia, pernicious anemia, chlorin, carbon monoxid, lead and mercury poisoning); (4) chronic diseases of the respiratory passages (stenosis, pronounced emphysema, chronic bronchitis, asthma, pleurisy); (5) chronic diseases of the circulatory organs (cardiac lesions and diseases of the cardiac muscles, aneurysm, pronounced varices, arteriosclerosis, etc.); (6) chronic affections of the digestive organs necessitating a special long-continued diet; (7) chronic diseases of the urinary and sexual organs (chronic nephritis, vesical calculus, hypertrophy of the prostate); (8) chronic diseases of the central and peripheral nervous system (hysteria, epilepsy, hyperthyroidism, chronic sciatica, paralysis, cramps and other serious nervous diseases); (9) chronic diseases of the organs of special senses (glaucoma, inflammation of the cornea, iris and choroid, etc., chronic otitis media, etc.); (10) blindness of an eye if the remaining eye does not possess normal vision; (11) bilateral deafness; (12) chronic and extensive diseases of the skin (cutaneous ulcers and fistulas); (13) chronic articular rheumatism and gout producing visible deformity; (14) malign or benign neoplasm producing marked functional disturbances; (15) general pronounced condition of feebleness due to age or disease; (16) serious syphilitic manifestations producing functional disturbances; (17) loss of a limb in officers and noncommissioned officers; (18) ankylosis of important joints, pseudo-arthrosis, shortening of limbs, muscular atrophies, paralysis due to firearms and presumably of long duration; (19) all conditions resulting from diseases or wounds not included in the previous list, but producing complete unfitness for military service for at least a year (mutilation of the face or jaw, sequelae of trephining, torpid wounds); (20) isolated cases not coming under any of the foregoing classes but urgently demanding in the opinion of the commission, internment in Switzerland, and presenting the same seriousness as those of the other categories.

The following are excluded: (1) all serious nervous and mental diseases necessitating treatment in a special establishment; (2) chronic alcoholism; (3) all transmissible diseases during the period of infectivity.

In order to make sure of the entirely correct execution of the agreement, commissions of Swiss physicians are now visiting all the camps of German and French prisoners. The prisoners are informed of the coming of the commission several days in advance, and it is their privilege to present their special disabilities before it.

PROSTHETIC APPLIANCES FOR THE MUTILATED

Ever since the war began, the medical service has been compelled to organize promptly and practically the supply of suitable prosthetic devices for the wounded. The first effort to organize consisted in installing rapidly an orthopedic center in each military region. The mutilated were removed to this center as soon as their wounds were cicatrized. There an outline of the case was drawn up which permitted the most suitable orthopedic appliances for that particular mutilation to be prepared as rapidly as possible. The distribution and selection of apparatus have been perfected gradually and new improvements are being studied. The undersecretary for the medical service has formed a committee to study orthopedics the members of which are prominent physicians, surgeons and orthopedists. The committee believes that the interests of the government, like those of the individual, require that the wounded be enabled to take up their former occupation as far as possible. According to the individual case, therefore, the committee has decided that the orthopedic appliances selected shall be such as permit the mutilated man to resume his former position as well as possible. A bank clerk or a waiter, for instance, who has lost a leg, will receive an artificial limb which will conceal the deformity. The farm laborer on the other hand, or a workman, who needs a solid, reliable limb, will receive a wooden leg which will permit him to follow an occupation necessitating the use of strength. The apparatus furnished will be repaired and renewed at the expense of the government during the whole life of the wounded man.

To meet increasing needs, the government has founded factories for the construction of prosthetic appliances at Saint Maurice near Paris, at Lyons, at Bordeaux and at Montpellier in which the mutilated men are employed, thus giving some of them a chance to follow a new occupation.

BRITISH AMBULANCES AT VERDUN

For about eight days, automobile ambulances of the British Red Cross and of the Order of St. John have aided in the transportation of the wounded at Verdun. These vehicles formed a part of a group of seventy of which the equipment and upkeep have been guaranteed by British coal mine owners and coal miners. Distributed among the Vosges and the Meuse, the British ambulance sections constitute an autonomous formation with their trucks, supplies of fuel, inspection cars, repair shops, etc. Their depot is at Bologne-sur-mer.

LONDON LETTER

LONDON, March 27, 1916.

The War

THE HEALTH OF MUNITION WORKERS

The commission appointed by the government to investigate the health of munition workers has issued another report. It is pointed out that our national experience in modern industry is longer than that of any other people. This has shown that false ideas of economic gain, blind to physiologic law, must lead, as they led through the nineteenth century, to vast national loss and suffering. It is certain that unless our industrial life is to be guided in the future by the application of physiologic science to the details of its management, it cannot hope to maintain its position hereafter among some of its foreign rivals, who already in that respect have gained an advantage. Proper attention earlier in the war to the need for weekly rest would have prevented a large part of the diminished capacity that has been allowed to appear, and would have averted much costly and wasteful expenditure on imperfect work. In many cases, perhaps in almost all, in which staleness is well marked, or has even been advanced to definite sickness, a single "day off," given occasionally at the right time, would have avoided much wasteful reduction of capacity, and in the worst cases the total loss of many days of work. In regard to special industrial diseases, operatives employed in the manufacture of the high explosive, trinitrotoluene, have been found affected with unusual drowsiness, frontal headache, eczema and loss of appetite. Generally the symptoms are at first slight, but if the exposure is continued, the symptoms tend to become more severe, while in a few cases profound jaundice with danger to life has supervened, and even death has resulted. Tetrachlorethane, a noninflammable liquid, which has a smell like chloroform and is a powerful anesthetic, leading to death, forms an ingredient of the "dope" varnish applied to aeroplanes. Several cases of poisoning have occurred among the workers, and in some jaundice with fatal termination has been observed. An apparently effective varnish has been found which does not contain the poisonous chemical, though, unfortunately, the supply of its ingredients is at present insufficient to meet the demands.

THE RECRUITING OF THE PROFESSION FOR MILITARY SERVICE

A conference of the local medical war committees in the north of England has taken place at Leeds. Dr. Cox, medical secretary of the British Medical Association, gave an address in which he said that the object of the meeting was to enlist enthusiasm so as to make the enrolment scheme a success. The method of obtaining recruits for the army medical corps which had been used up to now would not do for the future. Sections of the profession had been reached which found it extremely difficult to give up civil work, and therefore closer organization was required. No alternative to enrolment had been suggested except compulsion, which could not be applied to the medical profession alone. Compulsion, though it would render the task of the profession easier by insuring that no man should escape doing his duty, would only remove

the smallest of the profession's difficulties. The local committees would still be faced with the problems of taking the right men in the right order, or organizing the medical work of the district so as to distribute the burden on those remaining as equally as possible, and of protecting the interests of those who went. The enrolment scheme was an attempt to organize the medical profession by the medical profession for the good of the nation. The profession could do this particular work much better for itself than any state department. It was to the advantage of the profession to organize itself, and thus see that local difficulties were dealt with by people who knew those difficulties. It would not be fair unless the great majority of the men enrolled, but the central committee had given its promise that it would not victimize the public-spirited men who enrolled by proceeding to call up if the response was inadequate. What should be considered an adequate response could not be settled until the total number of men to be dealt with was known, and that could not be ascertained until the local committees had eliminated from their lists those ineligible for enrolment. If the scheme were a success it would be fair, because it would insure that all the men (with exceptions, who could always be relied on not to help in any organized scheme) were available for doing their country's work whether in the army or by remaining at home. The fairness of the scheme lay largely in the fact that it was to be worked by the cooperation of local committees which would bring to bear local knowledge, and a central committee which could be relied on to take a large and impartial view. The scheme was economical because it would form a reserve for the army medical corps which could be drawn on as wanted, and thus the director-general, instead of keeping up a constant demand in case the supply might run short, might well be content to wait until he was certain that he needed more men, and then only to ask for the minimum number required, knowing that the men were there when wanted.

VITAL STATISTICS AND THE WAR

As might be expected, the war has exercised a profound effect on the vital statistics of this country. The decline in the birth rate, which has been so frequently recorded in previous letters, has been accentuated. The births registered in the fourth quarter of 1915 correspond to a rate of 19.5 annually per thousand of the population. This rate is 4.6 per thousand below the mean birth rate in the ten preceding fourth quarters, and 2.7 below the rate in the corresponding period of 1914; it is the lowest birth rate recorded in any quarter since the establishment of civil registration. The natural increase of population in England and Wales last quarter by excess of births over deaths was 46,368, against 87,995, 89,045 and 77,394 in the fourth quarters of 1912, 1913 and 1914, respectively. The deaths registered in the same quarter correspond to an annual rate of 14.6 per thousand persons living; this rate is 0.3 per thousand above the mean rate in the ten preceding fourth quarters, and 0.7 per thousand above the rate in the fourth quarter of 1914. During the year 1915 there were 814,527 births and 562,326 deaths registered in England and Wales. The natural increase of population, by excess of birth over deaths, was, therefore, 252,201, the average annual increase in the preceding five years having been 378,360. The number of persons married during the year was 720,052. The marriage rate was 19.3 persons married per thousand of the population, which is 3.5 per thousand above the rate in 1914, and higher than the rate in any other year on record. One of the phenomena of the present time is the war wedding. The greater part of the young men of the country have joined the army and often marry before leaving for the front. The reason generally appears to be financial. If they join the ranks their wives are entitled to separation allowances, and if they are killed to pensions.

In the better classes, from which the officers usually come, the desire that their fiancées shall succeed to their property is another motive. Compared with the average in the ten years 1905-1914, the marriage rate in 1915 showed an increase of 3.9 per thousand. The birth rate was 21.8 per thousand of the population, which is 1.8 per thousand below the rate in 1914, and lower than the rate in any other year on record. Compared with the average in the ten years 1905-1914, the birth rate in 1915 showed a decrease of 3.6 per thousand. The death rate in 1915 was 15.1 per thousand, which was 1.2 per thousand above the rate in 1914. Compared with the rate in the ten years 1905-1914, the death rate in 1915 showed an increase of 0.7 per thousand.

BUDAPEST LETTER

Budapest, April 7, 1916.

The War

MEDICAL EXAMINATION OF WAR PRISONERS IN AGRICULTURAL WORK

The medical control of prisoners lent by the ministry of war for agricultural purposes is regulated by orders issued by the ministry of home defense and the ministry of agriculture. The former issued an order that no more than 200 prisoners should be lent out to one employer. It is the duty of the county magistrates to verify that at the place of the working there are no epidemics or contagious diseases. They decide whether or not the quartering of the prisoners is satisfactory, whether provision is made as to the removal of dirt, feces, etc., and whether there is plenty of wholesome water at the disposal of the prisoners. In cases of industrial accidents, the employer has to provide a certificate for the prisoners, in order that after their return to their own country they shall be able to realize their claims for pensions. According to the order, the commander and the chief medical officer of the prison camps are personally responsible for only healthy prisoners being sent out of the camp.

The minister of agriculture issued the following order: Prisoners must not leave the camp before three weeks' segregation and medical observation. When they arrive at their destination, the employer is obliged at his own expense to have all prisoners examined by district medical officers. During the period of working he has to have them examined by a medical man once every fortnight, and if necessary, oftener. The arrival of the prisoners is to be reported to the nearest military medical station.

THE EXHUMATION OF FALLEN SOLDIERS

The exhumation of soldiers killed in battle or those who have died in field sanitary institutions can be effected on the request of the nearest relatives to the ministry of home defense. The request must be supplemented by a document signed by the local magistrate (mayor, clergyman) proving that the party in question is actually a relative of the deceased. The place of burial must be sought by the party, and he has to supply a sketch illustrating the actual place of burial. The military authorities appoint a certain time, when exhumation can be made. This can be done, of course, only from single graves. Bodies of patients who died from typhus exanthematicus, smallpox, Asiatic cholera or plague are not permitted to be disinterred. In Hungary, the bodies of patients who died of scarlet fever and diphtheria can be disinterred only one year succeeding death. The exhumation is made in the presence of specially detailed military authorities. There must be present a relative of the deceased, who proves the identity of the latter. The exhumations are done by specially licensed undertakers. The bodies of dead soldiers are carried by the railway companies for a greatly reduced rate. The minister of home defense has lately issued a circular requesting the public to leave exhumations until the end of the war.

INFLUENCE OF MILITARY SERVICE ON TUBERCULOUS DISEASES

Despite the fact that most men inclined to be tuberculous, on entering military service and having the advantage of good hygiene through order, cleanliness, better nourishment, etc., enjoy a decided improvement in the first months, still after several months, sometimes even during the period of training, they have to go to the hospital. Tuberculous patients who are out in the field get worse; latent as well as inactive tuberculosis becomes manifest, and sometimes even florid. Therefore, in view of the probable increase in the number of tuberculous patients after the war, we should take care now that tuberculous patients are not sent to the front. At the outset it should be decided whether or not tuberculosis in a soldier is active, and those who fall ill during active service, and wounded tuberculous patients, should be placed in special hospitals and taught prophylaxis, as are patients in consumption sanatoriums. Dr. Scharl, director of the Budapest Consumption Sanatorium, believes that tuberculous patients who are dismissed from army service should be transferred to civilian hospitals and then kept in closed institutions for a long time. He believes that soldiers who are invalided through tuberculosis in war should be regarded as other invalids and that, by reason of the danger to others, the instruction of such people is of great importance.

UNIVERSITY EDUCATION OF INVALID OFFICERS

In the latest copy of the official gazette an order was addressed to the committees of the scientific and technical universities, and to the deans of all the higher law academies, veterinary schools, mining academies, agricultural high schools and foresting academies. The government has ordered that all those Hungarian officers, military officials and candidates in the army, navy or gendarmerie (up to the eighth class of salary, that is, the rank of a captain) invalided in the war shall be admitted as ordinary hearers (students) without admission examinations and without the necessary final examinations. Nominally most of the officers and officials are not required to pass final examinations because they have attended military intermediate schools, where their training is chiefly military, although the sciences are taught as well.

This exceptional advantage can be enjoyed only by those who can prove that they successfully attended, before the outbreak of the war, some military intermediate or high school, or the eighth class of some public gymnasium, and that they are unfit for further military service on account of invalidity arising from field service. These invalids enjoy gratuitous teaching in the universities by order of the minister of public instruction.

The Treatment of Typhoid with Intravenous Injection of Salt Solution

Dr. Mitlander has employed the intravenous injection of salt solution in more than 300 typhoid cases in Kagran and Baden in military hospitals. In light cases the patients have recovered without any special treatment. The disease lasted from 14 to 16 days. The temperature reached in some cases 40 C. (104 F.), and remissions of 3 degrees were not uncommon; clinically, however, these cases did not give the impression of being severe. In other light cases the fever has shown the regular curve upward and downward. In severe cases the curves have shown different pictures; the temperature rose to 40 C., and the remissions amounted to 3 degrees. In some cases there were great and small remissions observed with high temperature. The duration of fever lasted up to three weeks, and defervescence followed by lysis or crisis. In the severest cases, which included those of hemorrhagic diathesis, Dr. Mitlander tried to apply the intravenous infusion of from 300 to 450 c.c. of physiologic salt solution, which was preceded by the injection of 1 c.c. of 20 per cent. caffein and 10 per cent. camphor solution. A quarter of an hour afterward, chill and temperature elevation set in, and on the next day the temperature fell down critically to 36 C. (96.8 F.) but after two days rose again to 38 C. (100.4 F.) and after one week the fever generally subsided entirely. On the next day after the injection the patients feel better and give the impression of convalescence. In some cases the temperature fell by lysis, in others by crisis. The chill does not always occur after the injection. Dr. Mitlander is so well satisfied with the result, that he recommends this as a routine treatment for all military hospitals.

Marriages

ROBERT LIVINGSTON LOUGHRAN, M.D., New York City, to Miss Alethea Hagadorne Briggs of Kingston, N. Y., April 5.

LIEUT. WILLIAM D. PETIT, M. R. C., U. S. Army, Marfa, Tex., to Mrs. Inez Hysam Williams, at Marfa, March 13.

KARL ROLAND BAILEY, M.D., Jamaica Plain, Boston, to Miss Fannie J. Braune of Brookline, Mass., April 5.

VESSE REEVES HURST, M.D., to Miss Genevieve Yates, both of Longview, Tex., in New York City, February 10.

WILLIAM H. MOOK, M.D., to Mrs. Alice E. Walker, both of St. Louis, at Clayton, Mo., March 31.

LEWIS ALBERT SEXTON, M.D., Baltimore, to Miss Henrietta Stenz of New York City, April 19.

HUBERT VIVIAN GUILE, M.D., to Miss Gladys C. Arthur, both of New York City, April 6.

GEORGE A. HARRIS, M.D., Valley, Neb., to Miss Grace Coy of Waterloo, Neb., March 21.

GEORGE W. WEBSTER, M.D., to Miss Mabel Vibert MacNab, both of Chicago, April 15.

LOUIS RUBIN, M.D., to Miss Rose Kaber, both of Cleveland, March 29.

Deaths

Capt. Henry Levi Brown, M. C., U. S. Army, Detroit Medical College, 1894; aged 42; a Fellow of the American Medical Association; a graduate of the Army Medical School in 1905; who entered the army in 1898 as a contract surgeon and served with the Fourth Infantry in Cuba during the war with Spain; became a lieutenant and assistant surgeon in July, 1904, and received his promotion to captain in April, 1908; who was awarded in 1914, in competition with many American and European physicians, a $500 prize by the German government for a field surgical kit and whose latest service was with the expedition of General Pershing against Villa in Mexico; was taken ill with heart disease in Mexico, was brought back to the Military Hospital at Fort Bliss, Texas, and died there, April 15.

Nathan Oppenheim, M.D., New York City; College of Physicians and Surgeons in the City of New York, 1891; aged 50; a Fellow of the American Medical Association and of the New York Academy of Medicine; a well known specialist on diseases of children; author of "The Development of the Child" which appeared in 1899; "The Medical Diseases of Childhood," which was published in 1900; "The Care of the Child in Health," which appeared in 1901, and the "Mental Growth and Control," in 1902; attending physician to Children's Department of the New York Red Cross Hospital, the New York City Children's Hospital and schools; and the children's department of the Sydenham Hospital; died in the Hotel Belmont, New York City, April 5.

Hobart Southworth Dye, M.D., Washington, D. C.; George Washington University, Washington, 1876; aged 68; a Fellow of the American Medical Association; and a member of the Washington Society of Ophthalmologists and Otologists; in 1891-2 president of the Chenango County, N. Y., Medical Society; a member of the consulting board of the Washington Asylum Hospital; associate at the Episcopal Eye, Ear, Nose and Throat Hospital and assistant in the eye and ear department of the Emergency Hospital, Washington; died at his home, April 5, from cerebral softening following a cerebral hemorrhage.

Charles F. Gilliam, M.D., Columbus, O.; Columbus, O., Medical College, 1878; aged 62; a Fellow of the American Medical Association and American Academy of Medicine, and a member of the American Medico-Psychological Association; superintendent of the Columbus State Hospital for the Insane; while driving in his automobile over a grade crossing of the Pennsylvania System at Columbus, April 11, was struck by a train and instantly killed.

Charles Henry Richardson, M.D., Brooklyn; College of Physicians and Surgeons in the City of New York, 1884; aged 54; a Fellow of the American Medical Association and a member of the House of Delegates in 1914; a fellow of the New York Academy of Medicine; consulting physician to the Ford Home for Incurables; treasurer of the Medical Society of the County of New York since 1904; died in Roosevelt Hospital, April 5, from heart disease.

Thomas M. Dunn, M.D., Free Union, Va.; Medical College of Virginia, Richmond, 1857; aged 79; a surgeon in the Confederate Service throughout the Civil War; for several terms a member of the House of Representatives of the Virginia General Assembly and for one term a senator; deputy collector of internal revenue during Cleveland's administration; a leader in the political life of Albemarle County; died at his home, April 4.

Albert Lewis Marden, M.D., Claremont, N. H.; Dartmouth Medical School, Hanover, N. H.; 1874; aged 66; for seventeen years a practitioner of Perkinsville, Vt.; a member of the school board; in 1888 and 1889 a member of the Vermont legislature and later a practitioner of Claremont, N. H.; secretary of the board of health and a member of the staff of the Claremont Cottage Hospital; died at his home, April 2.

George M. Peairs, M.D., Joliet, Ill.; Rush Medical College, 1891; aged 49; a Fellow of the American Medical Association; one of the most prominent surgeons of northern Illinois; surgeon to St. Joseph's and Silver Cross hospitals, Joliet; local surgeon of the Elgin, Joliet and Eastern and Chicago, Lake Shore and Eastern railways and Illinois Steel Company; died at his home in Joliet, April 13.

Duncan K. Black, M.D., Greenville, Mich.; Detroit College of Medicine and Surgery, 1886; aged 54; a Fellow of the American Medical Association; local surgeon at Greenville for the Grand Trunk System; vice president of the Com-

mercial State Bank, Greenville, and a member of the local school board; died at his home, April 2, from disease of the heart and kidneys.

Emma Katherine Ogden, M.D., Detroit, Minn.; Woman's Medical College of Pennsylvania, Philadelphia, 1875; aged 76; formerly a missionary of the American Board in Madura, India, but for thirty-five years a practitioner of Detroit, Minn.; vice president of the State Pharmaceutical Society; died at her home, April 5, from pneumonia.

Vincent R. Jackson, M.D., Milwaukee; College of Physicians and Surgeons, Chicago, 1890; aged 61; surgeon of Battery A, Illinois National Guard, Danville, during the Spanish-American War; for several years an inmate of the National Soldiers' Home, Milwaukee; died in that institution, February 14, from arteriosclerosis.

Edgar Moore Senseney, M.D., St. Louis; Washington University, St. Louis, 1887; aged 60; a member of the Missouri State Medical Association; lecturer on physiology in 1888, professor of therapeutics in 1890, and thereafter professor of diseases of the nose, throat and chest in his alma mater; died at his home, April 7.

George A. Strauss, M.D., Baltimore; College of Physicians and Surgeons, Baltimore, 1883; aged 58; for two years demonstrator of chemistry in his alma mater and the Maryland College of Pharmacy, and professor of chemistry in Baltimore University; died at his home in South Baltimore, April 5, from heart disease.

John J. Brinckerhoff, M.D., Minooka, Ill.; College of Physicians and Surgeons, Chicago, 1897; aged 46; for many years a practitioner and druggist of Minooka and secretary of the Desplaines Valley Poultry Association; died in the Silver Cross Hospital, Joliet, April 4, from embolism, a few hours after tonsillectomy.

Marion Bertha McDonald, M.D., Chicago; American College of Medicine and Surgery, 1903; aged 39; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; assistant in the Eye and Ear Department of her alma mater; died at her home, April 1, from carcinoma.

Joseph Henry McCann, M.D., Detroit; University of Michigan Homeopathic Medical College, Ann Arbor, 1910; aged 31; a Fellow of the American Medical Association; for four years health officer of the Spring Wells district of Detroit; died in Grace Hospital, Detroit, April 3, after an operation for appendicitis.

John Gordon Rennie, M.D., Petersburg, Va.; University College of Medicine, Richmond, Va., 1899; aged 41; a Fellow of the American Medical Association and a member of the visiting staff of the Petersburg Hospital; died in a hospital in New York City, March 30, from nervous breakdown.

Irving Stanley Balcom, M.D., New York City; New York University, New York City, 1887; aged 52; for more than twenty-seven years a practitioner of Fordham; a member of the visiting staff of Fordham and Bellevue hospitals; died at his home, March 29, from heart disease.

Hans James Grivelly, M.D., Hohenwald, Tenn.; State University of Iowa, Iowa City, 1887; aged 67; a Fellow of the American Medical Association and a member of the Minnesota State Medical Association; died at his home, March 27, from cerebral hemorrhage.

Charles A. Jessup, M.D., St. Louis; Missouri Medical College, St. Louis, 1877; aged 64; for many years superintendent of the St. Louis City Infirmary; died at his home March 29, as the result of injuries received when he was run down by an automobile in January, last.

Helen Bartlett O'Leary, M.D., Wollaston, Mass.; Pennsylvania Medical College, Philadelphia, 1861; aged 85; professor of anatomy in the Woman's College of Physicians and Surgeons of New York in 1865 and 1866; died at her home, March 4, from senile debility.

Louis Hatton, M.D., Camden, N. J.; Philadelphia University of Medicine and Surgery, 1864; aged 82; for many years a member of the Board of Education and the Excise Commission; died at the home of his daughter in Camden, March 27.

Frank G. High, M.D., Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1896; aged 46; for many years president, secretary, and treasurer of the Pittsburgh Field Club; died at his home, March 27, from valvular heart disease.

Alexander Irvin, M.D., Wallis, Tex.; University of Nashville, Tenn., 1861; aged 79; a member of the State Medical Association of Texas; surgeon in the Confederate Service during the Civil War; died at his home, March 24.

Marion Homer Duckwall, M.D., Moweaqua, Ill.; Illinois Medical College, Chicago, 1905; aged 38; a Fellow of the American Medical Association; died at St. Mary's Hospital, Decatur, Ill., March 25, from typhoid fever.

DeForest F. Baker, M.D., Cleveland, O.; Cleveland University of Medicine and Surgery, 1878; aged 64; died at the home of his daughter in Cleveland, March 28, from stricture of the transverse colon.

Charles Heinrich Marquardt, M.D., LaCrosse, Wis.; Jefferson Medical College, 1881; aged 61; also a graduate of the Philadelphia College of Pharmacy; died at his home, March 29, from pneumonia.

Franklin Delano Worcester, M.D., Keene, N. H.; Hahnemann Medical College, Chicago, 1887; aged 64; for ten years a member of the Keene Board of Health; died at his home, March 29, from paralysis.

John M. Grau, M.D., Jerry City, Ohio; Starling Medical College, Columbus, 1892; aged 51; was killed in the Lake Shore and Michigan Southern train wreck at Amherst, O., March 28.

Harry Brundage Casselberry, M.D., Hazleton, Pa.; Jefferson Medical College, 1886; aged 49; a specialist on diseases of the eye, ear, nose and throat; died in Philadelphia, March 29.

John B. Findley, Des Moines, Ia.; (license, years of practice, Iowa, 1886); aged 66; a practitioner of Iowa for more than forty years; died at his home, March 27, from heart disease.

Lydia Maria Holmes, Arlington, Mass.; (license, years of practice, Massachusetts, 1894); aged 88; a practitioner for forty-eight years; died at her home, from pneumonia, April 1.

James A. Mulnix, M.D., Dows, Ia.; College of Physicians and Surgeons, Keokuk, 1878; aged 63; also a druggist; died at the home of his daughter in Cedar Rapids, March 29.

Dexter H. Smith, M.D., Hurley, Wis.; Denver College of Medicine, 1895; aged 46; a veteran of the Spanish-American War; died at his home, March 18, from uremia.

Samuel D. Hazard, M.D., Jeffersonville, Ind.; University of Louisville, Ky., 1888; aged 52; died at the home of his sister in Jeffersonville, March 27, from nephritis.

Thomas J. Thurber, M.D., Rochester, N. Y.; New York Homeopathic Medical College, New York City, 1883; aged 71; died at his home, March 25, from pneumonia.

William H. Ware, Clarkshill, Ind.; (license Indiana, 1904); aged 68; for forty-seven years a practitioner of Indiana; died at his home, March 25, from pneumonia.

Frank Cordle, M.D., Lindale, Ga.; Atlanta, Ga., Medical College, 1884; aged 53; a member of the Medical Association of Georgia; died at his home March 21.

John L. Mavety, M.D., Ottawa, Ont.; McGill University, Montreal, 1911; aged 29; captain, R. A. M. C.; died in France, about Dec. 14, 1915, from acute poisoning.

Christian M. Hillebrand, M.D., Waubay, S. D.; University of Berlin, Germany, 1868; aged 74; died at his home, March 23, from cerebral hemorrhage.

Archer Irwin, M.D., Hilo, Hawaii; Dalhousie University, Halifax, N. S., 1892; aged 48; a member of the Medical Society of Hawaii; died February 22.

Samuel L. Tabb, Elizabethtown, Ky.; (license Kentucky, twenty-nine years' practice, 1893); aged 70; died at his home, March 22, from heart disease.

Walter Seltzer Capp, M.D., Lancaster, Pa.; University of Pennsylvania, Philadelphia, 1905; aged 34; died at his home, March 24, from tuberculosis.

Winfield Scott Morrison, M.D., St. Joseph, Mo.; Medical College of Ohio, 1880; aged 63; died at his home, March 25, from cerebral hemorrhage.

William P. McGovern, M.D., Cedarburg, Wis.; Rush Medical College, 1882; aged 57; died at his home, March 23, from heart disease.

William Ferguson Moffett, Chicago; an eclectic practitioner since 1857; aged 88; died at his home, March 14, from endocarditis.

Reuel Stewart, M.D., Philadelphia; University of Pennsylvania, Philadelphia, 1870; aged 86; died at his home, March 29.

Walter Clarence Hanscome, M.D., Minneapolis; Rush Medical College, 1884; aged 60; died at his home, March 23.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE WINE OF CARDUI SUIT

(*Continued from page 1261*)

April 10, 1916, Morning

Court met pursuant to adjournment. Dr. John Leeming resumed the stand.

FURTHER DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. T. J. Scofield:—If the Court please, there are one or two questions which I would like to ask.

THE COURT:—Very well.

Mr. T. J. Scofield: Q.—I wish to restate the hypothetical question which I asked last.

Doctor, I wish to ask you a hypothetical question in reference to a medicinal solution, Wine of Cardui. This solution is made from two herbs which are derived from the vegetable kingdom. One of these ingredients, cnicus benedictus, is made from a weed or thistle and when used in the form of an infusion, this substance has a bitter action upon the stomach. Assume also that it contains an amorphous bitter principle, which, in doses of eight grains is somewhat antiperiodic, that is, antimalarial in action and when an infusion of the whole herb is taken hot and in large quantities it is diuretic and diaphoretic in action, and also that it possesses some action as an hepatic stimulant.

Assume also, that when large doses of the bitter principle are taken internally, it produces nausea, vomiting and intestinal irritation.

Assume that this medicine is described in the National Standard Dispensatory, and assume that the description of it is correct as follows: "A simple bitter. It is also said to be an hepatic and urinary stimulant. It may be employed in a chronic dyspepsia, especially if hepatic torpor exists and like other bitters, it has been successful in the treatment of mild malarial infections. Overdose of its active principle sometimes produces nausea, vomiting, intestinal pain and diarrhea."

Assume that this drug is recommended in doses of from 20 to 60 grains and in the medicinal solution I am asking you about it is used in doses of approximately 30 grains.

The other drug I want you to consider in this hypothesis, is black haw or viburnum prunifolium, and, regardless of your own personal experience with this drug, I wish you to assume, for the purpose of this question, that when taken in the ordinary and usual medicinal dose of from 30 to 60 grains, it possesses a sedative action on the spinal nerve centers; that it lessens reflex excitability and irritability; that it acts as a sedative to the uterus and the pelvic organs; that it is an antispasmodic and that it possesses a bitter principle and is slightly tonic.

I wish you to assume further that, in the solution I am describing to you, that each dose of this medicine contains the extractives from three grains of this bark.

I wish you to assume further that the medicinal solution referred to contains 20 per cent. alcohol. Assume that the dose of this medicinal solution is one tablespoonful and that it is to be administered three or four times a day.

Have you an opinion, as to the physiological action that this medicinal solution would exert when taken by the mouth into the stomach? A.—Yes, I have an opinion.

Q.—What is that opinion? *A.*—My opinion is that the solution would exert the physiological action of cnicus benedictus in the ordinary dose of 30 grains. That, assuming the action of viburnum prunifolium to be as stated in the full dose, but that in this hypothetical solution it is administered in only three grain doses (which is one-tenth to one twentieth of the regular dose) that the properties or virtues attributed to viburnum prunifolium in this hypothetical mixture would be obtained in one tenth or one twentieth of the full amount of those properties. That the solution would also possess and produce all the physiological action of alcohol in the amount of 48 drops of pure alcohol, to each dose. This hypothetical solution would contain a combination of those physiological actions.

THE COURT: *Q.*—Is that 48 drops of pure alcohol.

Mr. T. J. Scofield:—Yes, sir.

Q.—Doctor, referring to these various hypothetical questions which I have asked you, and each of them, would your answers to any of the questions in reference to the hypothetical medicinal solution be changed in any way, if I should ask you to assume that the cnicus benedictus was used in doses of approximately 30 grains, and the viburnum prunifolium was used in doses of approximately three grains in the solution described? *A.*—My answers would only be changed in this respect; that, in the former hypothetical question, I was assuming the usual and ordinary dose of those two drugs. If you change it, as indicated in that question, to three grains of viburnum prunifolium (whereas I assumed in the former question the ordinary dose, which is from 30 to 60 grains) my answer would be modified just to that extent, that you are only getting one tenth or one twentieth of the full dose.

Q.—In all other respects, your answers would stand? A.—My answers would be the same.

Q.—To each of those questions? *A.*—Yes, sir.

EFFECTS OF USING HYPOTHETICAL MIXTURE

Q.—Now, Doctor, when you stated that the hypothetical medicine would not have any effect in any form of falling of the womb, whether it was anteflexion or retroflexion, or prolapse or whatever it might be, upon what do you base that opinion, and why do you say that? *A.*—Well, I base it upon these facts: there is nothing in the virtues of the two drugs, giving them credit for everything they were assumed to possess in that question, if they will do the very things that I am asked to assume they will do, they will not with all those properties draw this womb up. It won't act upon the body of the uterus, or the muscle of the uterus. They won't act upon the ligaments which contain some very small amount of muscular fiber. So that there is nothing in the virtues, even giving them credit that I am asked to give them, of the drugs in question which will do it. In the second place, there is nothing in this medicine that would restore the broken floor of the pelvis, which is necessary to keep the womb in place, in prolapse. There is nothing in the medicine that will correct the underlying causes that produce prolapse.

Q.—Would your answer be any different, if in addition to the hypothesis contained in the hypothetical question, I should include the element of the knee chest position? *A.*—If you should include that in addition to the medicine?

Q.—Yes? *A.*—No, it would make no difference, so far as the giving of the medicine is concerned. The knee chest position is a good form of position for the patient to assume occasionally, night and morning, to help try to replace the displaced womb, and get it up into position. Five minutes of the knee chest position, with proper breathing, will often help to draw the womb up into position, then, when they get up into their upright position, it goes back again. But, where you are using mechanical means to keep it in position, it is a good thing to use the knee chest position, and other forms of exercise to get it into position if possible, just as in the same way, it is a good thing to replace it by manipulation with the hands and then use some support. So that the knee chest position is valuable in that limited sense.

Q.—You said in answer to a question which was propounded to you last Friday, that this hypothetical medicine would not dissolve or remove adhesions, such as you described in connection with prolapsus of the womb, and other forms of falling of the womb. Why is that true? *A.*—Because the virtues attributed to those two remedies, and which I am asked to assume to be correct, will not cause the absorption of any adhesions. It requires medicines that are alterative in character, like iodin and things of that kind, that will absorb and dissolve down inflammatory exudate. There is nothing in those medicines that will have any action upon an exudate. This has been demonstrated by actual experiment not only on the lower animals, but upon the live human being, that it will not cause muscular contraction. It will not cause contraction of adhesions, and thereby aid in the absorption of adhesions.

Q.—Now, Doctor, when you stated that the medicine referred to in connection with the hypothetical questions which were propounded to you, and also in conjunction therewith, the use of the knee chest position, would not remove the cause of sterility, why is it true that it would not remove the cause of sterility in your opinion. *A.*—Why, it is for the same reasons I have indicated, in reference to prolapsus. There is nothing in the medicine that will undo the conditions upon which sterility depends. It is due to so many different causes, none of which can be undone or removed by the use of this sort of medicine even with all the properties that are attributed to it.

Q.—When you said, as you did last Friday, that the hypothetical medicine would not have any effect in removing the cause of inversion of the womb— *A.*—Of what?

Q.—Inversion of the womb, or salpingitis, pyosalpingitis, ovarian abscess, menorrhagia, metrorrhagia and amenorrhea, why is it that you reach that conclusion, and why do you say that it will not produce any such effect? *A.*—For the same reason that I have just indicated in my last answer.

Q.—Now, Doctor, in case a woman has whites or leukorrhea, and at some time notices a slight tinge of blood in the discharge, what is the danger of the use of such a hypothetical medicine, if any, at that time? Would it or would it not be dangerous? *A.*—It might be dangerous for this reason: that the leukorrheal discharge, tinged with blood might be an evidence of some serious condition, and to use a palliative measure of any kind while an underlying, possibly serious condition is existing, and developing and growing worse, to disguise the outward sign of that inward condition by some soothing medicine, would be very dangerous and harmful.

It might be an evidence of a simple catarrh, and in such a case, it might not do much harm. But it might be evidence of a serious inflammation, and a progressive inflammation, it might be evidence of a uterine polypus. It might be evidence of cancer, where you get a discharge leukorrheal in character, occasionally tinged with blood. If that condition is disguised by the use of this medicine, or any sort of local applications in the way of washes, and the patient goes on with the idea that this is helping because it is disguised, the condition may go ahead and progress until it is beyond actual remedial treatment.

Mr. T. J. Scofield:—I think, if the Court please, that is all I care to inquire.

CROSS-EXAMINATION BY MR. HOUGH

Q.—Doctor, when you were in active practice, were you more of a surgeon than a therapeutist, or more of a therapeutist than a surgeon? *A.*—The first half of my professional work was devoted to general practice. That means, both medicine and surgery, general work. The last half of my work during that period, was devoted more to surgery and particularly to surgery in the diseases peculiar to women.

Q.—For about how many years would you say? *A.*—For about 15 years.

Q.—For the past 15 years? *A.*—Up to the time that I was in active practice, which has been until about three or four years ago.

Q.—For the past three or four years, what has been your specialty? *A.*—I have had no specialty during that period, or at any other, except as I have indicated; but I have been doing more consulting work since 1912.

Q.—Are you in the employ of any corporation, for instance? *A.*—No, sir.

Q.—Do you prepare cases for the Traction Company, medical cases? *A.*—I am frequently consulted by them.

Q.—You mean, you are not on their pay roll? *A.*—No.

Q.—Are you regularly retained for that purpose? *A.*—No; frequently employed by them.

Q.—Each employment is a separate employment? *A.*—Yes.

Q.—How frequent has that been for the past three years? *A.*—Quite frequent.

Q.—How many times a year? *A.*—Well, I cannot give it in numbers, but I have been quite frequently consulted by them, different companies, both the steam railroad companies and the surface line companies, and other outside companies, frequently consulted by them.

Q.—Would you say in all their damage cases? *A.*—No.

Q.—In all their damage cases requiring a medical expert? *A.*—No.

Q.—In what proportion about? *A.*—By some of the companies one or two cases a year; by some of them quite frequently, often a number of times a month.

Q.—That class of work—

THE COURT: *Q.*—Are these cases generally men and women, or are you asked to testify in cases where the injuries are inflicted only on women? *A.*—I am frequently consulted by these various corporations referred to, regardless of whether the plaintiff is a man or woman, but I am very rarely asked to testify. That is, I have not testified for any of them for a long time, but I have been called in consultation by them regardless of whether it is a man or a woman.

Mr. Hough: *Q.*—Would you express that as working up the medical end of the case for them? *A.*—No, I would not express it that way.

Q.—Would it be that character of work? *A.*—I would express it by saying that the attorneys have consulted me with reference to the medical features involved in the case.

Q.—Then you would assemble the testimony, the medical testimony? *A.*—No, sir.

Q.—You would not have charge of it in that way? *A.*—Oh, no, not assembling it, but in a general consultation way.

Q.—Have you had charge of the medical testimony for the defendants in this case in that same way? *A.*—No, sir. Except in consultation, yes.

Q.—You have not had anything to do with going over the testimony with the different medical men? *A.*—Well, I have had consultations with a large number of medical men; yes, in that sense I have.

Q.—I mean, in reference to what they would testify to in this case? *A.*—Oh, no. Just with reference to the medical questions involved in the case.

Q.—For how long a period of time have you been at work on that? *A.*—Well, I have not been at work at it regularly, but I have had consultations from time to time during the past month with different doctors in the city and out of the city, in consulting with them about this case.

Q.—Have you had charge also of the out of town witnesses who have testified with reference to the use of Cardui as a beverage? *A.*—No, I have not had charge of them in any sense.

Q.—You mean you did not talk with them?

Mr. Loesch:—If the Court please, I object now. The witness has said that he did not have charge and still counsel says, "Have you had charge also?" I object to the word "also."

THE COURT:—I think everybody understands that.

Mr. Loesch:—Well, I—

Mr. Hough:—I meant in the same way.

THE COURT:—The witness has answered that he did not.

The Witness:—I did not quite catch the last.

Mr. Hough: *Q.*—Did you go over their testimony with them?

A.—No, I did not go over their testimony, but I was present on two occasions, I think, two or possibly three occasions when a certain number of witnesses from out of town related their experience to some of the doctors that were there, I mean aside from those who were visiting—and I listened to their story, and I asked them certain questions in reference to it. I would not say that I went over their testimony, but just learned—

Q.—You made no suggestions to them with reference to their testimony? *A.*—I would not say that I did not make suggestions. I asked them questions and some of the answers brought up matters for discussion.

Q.—When did you stop going on the stand in the Traction cases?

THE COURT: *Q.*—When is the last time you testified for them? *A.*—For the Traction Company?

THE COURT:—In a case in which the Traction Comany was interested?

Mr. Charles J. Scofield:—We wish to object to that as not being proper evidence, and I have an authority which I will present to the Court if you wish to see it. We simply make the objection.

THE COURT:—I do not think it is important, because it is simply a little atmosphere about the history of the witness and his general line of business. I do not think it is worth while reading any law on it.

To which ruling of the Court the defendants, etc., excepted.

Mr. Charles J. Scofield:—Very well.

The Witness: *A.*—Why, I think not for about two months, or two and a half months, the last time I think I testified for the Traction Company in any case that they were interested in was about that long ago, though I have testified since that time for others.

Mr. Hough: *Q.*—When did you first commence to testify for the Traction Company?

Mr. Charles J. Scofield:—I object to that as not proper cross-examination.

THE COURT:—I do not think we ought to go too far in this, Mr. Hough.

Mr. Hough:—Very well.

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. Hough: *Q.*—Doctor, you have used the word "cure" in your testimony with reference to the hypothetical question and I now ask you whether you used that in the technical sense or in the ordinary everyday sense in which a layman would use that word? *A.*—I used it in the sense of meaning to remove the trouble, to cure the condition, literally cure the condition, in the technical sense.

Q.—Well, in the majority of cases, in that sense, there is no cure, is there? *A.*—I think in the majority of cases, there is a cure.

Q.—There is a cure? *A.*—Yes.

THE COURT:—Let me ask, does the word "cure" mean one thing to a doctor, and another thing to the patient?

Mr. Hough:—I understand that it does.

Q.—As an illustration, would you say that all displacements are pathological? *A.*—No.

DEFINITION AS TO WHAT IS PATHOLOGIC

Q.—Will you just tell the jury what you mean by "pathological." *A.*—By pathological I mean, with reference to displacements, that the displacement is beyond the normal range of movement, perhaps best illustrated by the forward and backward displacement. The uterus points forward towards the navel, but it is not held in a fixed position. It moves up and down.

Q.—I think you misunderstood the question. I asked you whether that was pathological or not? *A.*—I am going to explain, in an effort to answer your question, what I mean by pathological. Shall I continue that way?

Q.—Yes. *A.*—Any movement due to a fullness of the bladder, or emptiness of the rectum would be a normal movement, and not pathological. Any movement beyond the normal range, that requires an overstretching of the ligaments which hold it within its normal range; anything that pushes it beyond its normal natural position, would be pathological. Anything beyond what we call the normal range of movement, and that would produce symptoms of irritation or pressure, would be a pathological displacement.

Q.—Well, would you not say that pathological meant disease? *A.*—It usually is used synonymously with disease; not always, however, because certain displacements that go beyond the normal range, could not be literally termed "disease."

Q.—Now, would you say that a displacement which was accompanied by no pain, was pathological? *A.*—A displacement that is beyond the normal range of movement is anatomically speaking, a pathological displacement. Sometimes those pathological displacements produce symptoms and sometimes they do not, in their early stages, if they have developed gradually and slowly, because the parts become accustomed to the more marked or to a more enlarged range of movement than is normal. In time, as they progress a little more, the symptoms begin to appear. The slower they develop, the slower they are in producing symptoms, and sometimes the symptoms are obscure, symptoms that the patient may not notice; just the general symptom of pressure or backache and so on. But they will produce symptoms, though not so marked, on account of the slow and gradual development of these pathological displacements.

Q.—Suppose a woman should come to you, complaining of certain pains in her lower abdomen and pelvic cavity, and you would examine her and ascertain that there was some displacement, and prescribe a drug for her and as a result of taking the drug, the pain disappears and she comes to you and says that she is cured. You examine her and find that, though the pain may have disappeared, or the symptoms of inconvenience are no longer present, that the womb is in practically the same position as it was before. Would you say that she was not cured of the thing for which she came to you? *A.*—I would say that, in that case, she was not cured; that she had been temporarily relieved of the symptom of which she complained; that is, if she had a form of displacement that was pathological in the sense that I have described, that it was beyond the normal range of movement and had gradually developed so that it did not produce the marked symptoms. Something occurs in that woman's experience, possibly a little cold, a little congestion, a little too much movement, running a sewing machine or riding a bicycle, or riding horseback that, in that pathological condition adds to the congestion induced by this pathological state, though it had not been producing symptoms before.

Such a patient comes to me and complains of these pains. I make an examination and I find that pathological condition, and I give her the sort of medicine that we have been—that has been suggested to me, something that would relieve that pain; possibly a saline laxative, a dose of bromid, a dose of paregoric or something that would relieve the pain for the time being, and under the influence of that disguise, the patient gets rest and relief from the pain, and in a matter of three or four days, the effect of this cold has disappeared but she is in the same condition as she was before which had been just roused up, or had roused up the symptoms on account of her pathological condition. She goes along and she is not cured. She is just in the same condition as she was before. It has been temporarily disguised or relieved by some medicine or drug that has covered up the real condition. She is not in any sense cured.

Q.—Suppose the relief continues for 30 or 60 days. *A.*—It shows she has a chronic form of a pathological displacement that does not produce regular symptoms, but is still pathological just the same.

Q.—Would you not say that she had been cured of the condition for which she came to you for treatment? *A.*—She would be cured of the symptom, she is cured of the symptom, but not of the underlying condition.

Q.—You would insist that in that case there must be a surgical operation, notwithstanding that she is perfectly comfortable? *A.*—Not at all. No surgical operation would be considered in a slight displacement of that kind, that only produces occasional symptoms when she had perhaps overdone or something of that kind. That would just be a transient, temporary complaint of pain.

Q.—Would you say that there was anything more to be done for that woman than when that symptom has disappeared although the displacement you say continues, is there anything more you would insist upon doing for the woman? *A.*—There is.

Q.—What would you do? *A.*—I would advise this woman with one of these early displacements that had been the underlying cause of the symptom she complained of in coming to me, to avoid the causes that brought about that particular symptom. I would explain to her, her pathological displacement, and I would say to her, "It is not a serious matter, but if you will just be careful about this or that, or the cause that roused up that symptom temporarily, and for which I had to give you relief—be careful about that in the future," and in a way give her advice that would tend to prevent a recurrence of that symptom, which was due to her pathological condition.

Q.—And would you give her any medicine, or recommend any operation, in addition to simply telling her what she should do? *A.*—Since the symptom resulting from this condition was relieved by the medicine that I had already given, I would say she needed no medicine because the symptom had been removed; but I would advise her in reference to her conduct and habits, her bowel movements and diet, and to be careful not to rouse up again a symptom that was liable to occur on account of this condition. If it was more serious, and needed some mechanical support, some relief, even operative work, I would, of course, recommend it. But, in the simple case suggested to me, I take it that it does not need anything more than that form of advice.

Q.—But she would not be cured in the sense you used the term in answer to the hypothetical question? *A.*—Certainly not; she would not be cured.

Q.—But she did not have any more need of a doctor at that time? *A.*—She would not be cured any more than a person would be cured of the underlying condition that causes a headache, when the temporary headache that he had been given medicine to relieve, had passed off, although it might be due to some eye strain, or it might be due to some liver difficulty, or stomach difficulty which is still present. The symptom that had been produced by that underlying cause, is temporarily relieved but the same underlying cause may bring it on again.

Q.—You would say the same thing if the temporary relief you refer to should continue indefinitely, she still is not cured? *A.*—No, I would not say the same thing. I would say, if it continued indefinitely, and she only had a symptom of that kind once in a year, that the underlying cause was so slight that it was not at all marked, and that it hardly required any form of treatment. It would not be a pathological condition of sufficient significance to call for any form of treatment if it was a little symptom that was transient in character and only lasted for a day, because there the chances are that it would be some slight temporary difficulty.

Q.—Well, I say, the displacement, as you have used the word "cure," would not be cured. *A.*—It would not be changed at all.

Q.—You use the word "cure" in that sense? *A.*—Used it in the way of meaning an ending of the condition, upon which the symptom depended.

Q.—Doctor, do you know of the Liquor Sedans? *A.*—I do not know of its exact contents, but I know in a general way what it is.

Q.—You have used it in your practice, haven't you? *A.*—I think I have.

Q.—What is in it?

Mr. T. J. Scofield:—That is objected to as not cross-examination. I confined my examination to two medicines, or supposed medicines, so-called medicines.

Mr. Hough:—The application of it will be apparent later. I am entitled to ask this question.

THE COURT:—I will permit this question to be asked. I am not going to permit you to go all through the list and and cross-examine this doctor as to the contents of a thousand and one different drugs, just for the purpose of testing his knowledge. You say that you are going to connect this particular question later on?

Mr. Hough:—The authorities hold, Your Honor, that I can go very generally into these questions for the purpose of testing the witness' knowledge and familiarity as an expert, with the various drugs given for things concerning which he has testified.

THE COURT:—Yes, I realize that; but I do not want to open the door so wide that we are going to spend ten days on this witness by way of cross-examination.

Mr. Hough:—I think I will get through with this witness today if the witness won't deliver a lecture every time I ask a question. If he will just answer my question, without a lecture, we will get through today.

Mr. T. J. Scofield:—I think the witness ought to have an opportunity to explain.

THE COURT:—I do not think the witness has gone too far at the present time. You asked him a question that required a very comprehensive answer. He may answer this question.

To which ruling of the Court the defendants, etc., excepted.

(The pending question was then read).

A.—It contains bromides of potash and soda, I believe. It contains hyoscyamus and belladonna and viburnum prunifolium with some menstruum in the way of a pleasant syrup or elixir. I forget exactly what the menstruum is, and I do not think—I do not know the contents exactly, and do not think I have given them exactly correct, but it is a proprietary medicine, made in St. Louis, the contents being printed with the dose, on the label of the bottle.

Q.—How much alcohol is there in it? *A.*—I do not know the amount of alcohol there is in it.

Q.—Would you regard the alcohol that is in it as a negligible matter? *A.*—I do not know—I do not remember the amount of alcohol that is in it.

Q.—Disregarding the fact as to whether you remember or not, I ask you whether you would regard it as negligible? *A.*—I would not pass an opinion on it, until you tell me the amount there is in it. Then I would be able to give you an intelligent opinion.

Q.—Do you know how much alcohol was in it when you prescribed it? *A.*—I do not recall that I have prescribed it for a great many years, and I do not remember the amount of alcohol in it.

Q.—Assuming that it contains 30 per cent. alcohol, would you regard that amount as negligible? *A.*—In what dose?

Q.—In whatever dose you gave it? *A.*—In doses of two teaspoonsful (that is my recollection of the dose prescribed, as I prescribed it) the amount of alcohol would be negligible.

SYNERGY

Q.—Now, doctor, what is meant by the expression, "synergistic action of a drug?" *A.*—I do not recall that word as you pronounce it. Do you mean the synergistic action? (Witness pronounces the "y" short.)

Q.—Yes, I pronounced it so as to indicate the "y". Synergistic if you prefer that pronunciation. *A.*—I do not know the literal meaning of it.

Q.—Well, what is the meaning of the term? *A.*—It means the action of a drug upon the living tissues, according to the physiological effect.

Q.—You are sure that that is the meaning of it? *A.*—That is my understanding of it, yes.

Q.—Does it not mean the effect of a combination of two drugs as distinct from the action of the two drugs separately? *A.*—No, I do not think that is the full meaning of it. It means the action of the drug or drugs upon the human tissues. Now, whether it is in combination of two or three drugs—

Q.—Don't it have relation exclusively to the combination? *A.*—I do not know that. I do not know that to be a fact.

Q.—Do you know it to be a fact that two drugs combined will have a more pronounced effect, than the two drugs separately, when they are of the same character? *A.*—Regardless of the dose?

Q.—Even if smaller dose is used, that it will be more pronounced? *A.*—That is two drugs like two different forms of bromids, given in five grains each, instead of ten grains of the one, that the combination of the two would have a better action, than the full sized dose of one? There are cases I think where that is true.

UTERINE TONICS

Q.—And where two uterine tonics are used, the combination of the two has a more pronounced action, than either one used separately? *A.*—I think the same principle would apply on the assumption that there is such a thing as a uterine tonic.

Q.—Is there such a thing as a uterine tonic? *A.*—I do not know of anything that is a real uterine tonic.

Q.—Have you ever heard the term or seen it in medical literature? *A.*—Yes.

Q.—Frequently? *A.*—I have heard it more frequently in the last month or two than ever before.

Q.—You are familiar with the literature on the subject of gynecology, are you not? *A.*—Yes.

Q.—Do you mean to say that it don't appear frequently in that literature? *A.*—Not very frequently.

Q.—Well, as you have seen the term in medical literature, what does it mean? Just tell the jury— *A.*—As I understand it—

Q.—What a uterine tonic is. *A.*—A uterine tonic means a remedy that will tone up, add tone to the muscles that we term the uterus. It is simply a muscle. There are some medicines that will cause a contraction of these muscles, like ergot and pituitrin, medicines of that kind. Those medicines could be called, and I think properly called, uterine tonics in the sense that they cause more tone, more firmness in the contraction of the muscle of the uterus.

Q.—Do you make a distinction between a medicinal tonic and a uterine tonic? *A.*—Well, a uterine tonic may be a medicinal tonic; it may be also a general tonic. I make a distinction between a tonic that acts on the stomach for instance, and a tonic such as I have indicated, that acts upon the uterus.

Q.—What would you say then is a medicinal tonic? *A.*—Well, a medicinal tonic is a remedy that tones up generally, anything that will improve the nutrition or tone of the body generally could properly be called a tonic, a general tonic in contradistinction to a local tonic, which acts on the stomach, for instance. A tonic that acts as a general tonic to the stomach, we call that a stomach tonic, and a—such as a bitter tonic. We call that a stomach tonic, and a tonic that acts on the heart like digitalis, we call that a heart tonic and a tonic like a mineral acid that acts on the liver, we call that a liver tonic, and a tonic like ergot that is supposed to act on account of contracting the unstriped muscular fibers all over the body, and on account of

the fact that the uterus is a large body of unstriped muscular fiber, it may show its effect more in the uterus—we call that, for that reason, a uterine tonic.

Q.—Tonics act in two ways in building up the system, do they not, directly and indirectly? *A.*—Two ways? Well, I would not describe it as acting in two ways.

Q.—The action on the stomach and intestines, and the digestion, is the indirect action of the tonic, is it not? *A.*—Yes, sir.

Q.—And the action on the blood would be the direct action? *A.*—No, that would be indirect action, too, I should think.

Q.—Isn't that usually classed as direct action? *A.*—It depends on the point of view you are considering it from. You could call the action on the stomach a direct action, in the same sense, that being an action upon the nutrition, enriching the pabulin of the blood, that would be direct, a direct tonic, anything that will do that.

Q.—How does a medicinal tonic, which acts on the blood, help the system? *A.*—Well, a tonic which acts on the blood enables the blood to do two or three different things, which makes it more tonic. For instance, the blood carries the oxygen from the air to the tissues for the purpose of oxidization. It carries in it a certain substance technically known as hemoglobin, the coloring matter of the blood. It carries the oxygen in this hemoglobin, a sort of iron. If this hemoglobin is insufficient in amount, it carries less oxygen. If the red corpuscles in which the hemoglobin is situated, are smaller in number than they should be, its carrying power is lessened. If we add to the blood something that increases this hemoglobin, that adds to its number of red corpuscles, we are increasing its carrying power of oxygen, and we are adding in that way to the nutrition of the tissues by enabling the blood to do better work. That is one way in which a blood tonic acts. It acts on the whole system,

Another way, in which a tonic acts, is by taking medicine into the stomach, or by injecting it under the skin, such, for instance, as strychnia which, when carried into the blood, is conveyed to the nerve centers; the nerve centers in the brain, and in the spinal cord. The action of the strychnia in the blood even in minute quantities, stimulates these nerve centers to great excitability, more marked action, so that you get better muscular tone as a result of the effect of the strychnia upon the nerve centers.

You get medicines that act as a tonic in a variety of different ways, of which those two ways are illustrative.

Q.—Then whether they act directly or indirectly, the effect is to enable the organs of the body to perform their respective functions better? *A.*—Yes.

Q.—A prolapse is any downward deviation, is it not? *A.*—Beyond the normal range

Q.—If it is a fraction of an inch, it is a prolapse? *A.*—Well, of course any fraction of an inch is a prolapse in the literal meaning of the word, but pathological prolapse, which I presume you mean, is beyond the normal range.

Q.—Figure D would be what you call procidentia? *A.*—Not complete procidentia, partial. Complete procidentia means where the whole uterus is outside of the cavity, including the fundus. The fundus is the top of the womb. The fundus in figure D is not outside.

Q.—How many degrees of prolapsus are there, as the matter is usually referred to? *A.*—How many in Chart D?

Q.—No, in medical literature, do they not classify prolapsus into three degrees? *A.*—Oh, yes. There are different degrees of prolapsus, first, second and third degree.

Q.—What is the first? *A.*—Beg pardon?

Q.—What is the first? *A.*—The first is where the uterus has passed down beyond its normal range of motion, and is possibly an inch lower than its natural position. The second degree is from that down, so that the neck comes to the outside, just to the outside. There is no well marked line of demarcation between the full extent of the first degree, and the beginning of the second. There is no marked line, but where the uterus is down, so that the uterus is within a couple of inches of the outside, we call it, a "first degree prolapse." Where it is further down, so that the cervix is right pressing on the perineum and near the outside, we call that "second degree prolapse."

Q.—Doctor, are there any such things as medical authorities? *A.*—No, I don't think so.

MEDICAL TEXT BOOKS

Q.—Are there any such things as standard medical text books?

Mr. T. J. Scofield:—That is objected to, if the Court please.

THE COURT:—He may answer.

To which ruling of the Court the defendants, etc., excepted.

A.—There are such things as standard text books in the sense that different colleges recommend certain text books.

Mr. Hough: Q.—Is there then a difference of opinion among the medical profession as to the truthfulness and reliability of these different text books taught in the different colleges? *A.*—Why, the opinion that is held, I think, generally, is that each writer gives his own particular views on the subject that he writes about. It is authority, so far as he is concerned. It is his opinion, and opinions do differ among doctors.

Q.—Are they views which a beginner should expect to follow or not? *A.*—I think they are often a very good guide until the beginner has advanced far enough to test out the views that this particular writer has recommended in his own experience and practice.

Q.—Then he may differ with the views which he learned at school, as he engages in the practice, may he not? *A.*—If his experience leads him to contrary views, I should think he would naturally differ.

Q.—So would you say that there are as many different views on medical questions, as there are practitioners or doctors? *A.*—Not quite that many.

Q.—Not quite? *A.*—No, I think doctors sometimes agree, and there are certain questions involved in medicine, upon which practically all doctors agree.

TREATMENT OF PROLAPSE OF UTERUS

Q.—Now, doctor, when a patient comes to you, complaining of pains, and you diagnose the case as one of prolapsus in the first degree, what treatment would you subject the patient to? *A.*—That would depend entirely upon what the underlying condition, as revealed by examination, was which I found to be the cause at that first degree prolapsus, and the treatment would depend upon that finding. If it was due to subinvolution of the womb, a womb that is too large as the result of getting up following childbirth before the womb had gone down to its natural size, and owing to its increased weight for three or four months perhaps, with some rather unusual hard work of lifting or something of that kind, the womb had gradually slid down and there was no other cause for it, that I could discover by my examination, I would advise this woman to rest, not be on her feet so much, not do quite so much heavy lifting and work, and I would give her, as I have indicated, drugs and medicines by the mouth containing small doses of a bitter tonic like quinin and one grain of the extract of the active principle of ergot, ergotin and little doses of strychnin as a general tonic, with the idea of stimulating a contraction of that uterine muscle, making it press down and get smaller and smaller and smaller, until it got to its natural size.

If the result of this pressure, this partial prolapse was producing symptoms of backache, with bearing down pains especially marked at the menstrual period, I would probably use a tampon of lamb's wool; I would recommend this woman at night to use the knee chest position to relieve the passive congestion that a prolapse always brings so that the womb would be well up at night when she was lying down to go to sleep, and there would be less of that passive congestion.

Then I would put in this tampon to keep it up, so that when she stood on her feet, it would not sag down so much. That kind of combination of treatment I would recommend in the hope of gradually relieving the condition or preventing its getting any worse.

I would tell her to avoid the use—to avoid the doing of anything in the way of hard lifting or hard work. I would tell her also to avoid the use of anything stimulating in the way of eating or drinking and to keep her bowels free by a laxative medicine so that she would not have the pelvic congestion. That would be my general line of treatment for a case of that sort.

Q.—Would you give or recommend any local wash? *A.*—It would depend entirely on whether she was suffering from a leukorrheal discharge or any other form of irritation about the vagina. If she had such, I would recommend her to take some simple antiseptic wash, or if not, I would tell her to use the ordinary douches that all ladies should use being more a matter of general sanitary cleanliness and care with married women.

Q.—Now, if the prolapse was in the second stage, what would be your treatment? *A.*—Well, it would be the same line of treatment, but paying more attention to the mechanical support in the second stage, where the uterus comes right down to the floor of the pelvis because there is always something more than the subinvolution or enlarged condition of the womb.

You probably find in such a case that the uterus was enlarged either from subinvolution or some growth in it or same inflammatory condition that had thickened and enlarged its walls, but that in addition to that, that the perineum had been torn back and that the posterior part of the vagina was wide open and the bowel was beginning to come down. I would use the forms of treatment that I have already outlined, all of them, and I would recommend this patient as soon as I had got the womb up in place, and kept it up in place for a matter of weeks or a month or two, that she was to avoid with care the things that tended to bring it down. If I was seeking to make a permanent cure, I would recommend her to have the edges of this tear freshened and the floor of the pelvis restored so that it would hold the womb up in position, being one of the causes that had permitted it to come down.

If the enlargement was due to an old chronic inflammatory condition I would recommend her to have, at the same time, the inside of the womb curetted and scraped away, so that the mucous surface which was producing that abnormal secretion, would be restored and to so restore any other underlying condition (many of which there are) that would cause this second degree prolapsus. I would tell her to have those things cured.

Q.—Now, in how many cases where you simply restore the womb by tampons, or pessary, in position and recommend the raising of the hips at night, or the knee chest position and exercise and some general or uterine tonic—in how many cases does the woman get so she can dispense with the pessary and tampons? *A.*—I do not think she ever gets so, if she has second degree prolapsus, so that she can dispense with either the pessary or tampon, or something else that will take the place of the pessary or tampon.

Q.—In a first degree prolapse, does it ever occur? *A.*—In a first degree prolapse, it depends upon whether the symptoms have been sufficiently marked. Sometimes a person may have a prolapse that is down to what would be a part of a first degree prolapse without producing very marked symptoms. I have seen cases of that kind that, after some corrective treatment, such as I have outlined, and care as to their conduct and habits, and condition of bowels and so on, that they would not complain much. The condition is there just the same, and liable to be roused up by any indiscretion, but in that sense they are relieved from their symptoms for the time being, but in no sense cured of the prolapsus, which means that the ligaments which have been that much overstretched, have to be shortened and that cannot occur of course from any of these forms of treatment.

Q.—But the doctor discharges them and then they can go about their business, and they don't come back? *A.*—They don't come back again, because they don't have symptoms that are marked enough to call for medical treatment. The doctor does not discharge them necessarily.

Q.—The second or third degree, however, would require as an alternative an operation, you say? *A.*—Well, that would depend upon

whether you were using palliative treatment or curative treatment. The third degree prolapse calls for some replacement. It calls for putting the rupture back in place, and it calls for something to keep it back in place, or it calls for a more radical treatment, in the way of an operation that will permanently remove the causes which have permitted the third degree of prolapse to come down.

Q.—Now, in the operation which you have referred to in second degree prolapse, is that what you would call fixation? *A.*—No.

Q.—What would you call it? *A.*—I would call it a perineorrhaphy.

Q.—Well, what do you mean by that? Explain it so the jury will understand. What do you do? *A.*—I would freshen the edges of the torn perineum, and would put in stitches and bring these parts together and form a new perineal body, that after the womb had been lifted up this perineal body would fit in like a wedge so as to hold it up in position. That is what I mean by restoring the perineal body.

Q.—Which of the operations would you call fixation? *A.*—Fixation is an abdominal operation where you open through the abdomen, which you very rarely do for a second degree prolapse, unless it is complicated by a lot of other things, and by pulling the womb up into position and attaching the peritoneum which covers the womb to the peritoneum which lines the abdominal wall, and stitching it together, a fixation, putting it up together and sewing it literally to the abdominal wall, we call that an anterior fixation operation.

Q.—What do you call an operation which either folds over a part of the round ligament and shortens them, or taking out a section shortens them, in order to hold the womb in position? *A.*—Well, there are a number of operations that are done. The one that is best known is called the Alexander operation. These two round ligaments that go down into the groin, into the inguinal canal, the round ligaments can be reached by making a cut right in the fold of the groin, and where the uterus is bent back or turned back on itself, and these round ligaments are overstretched, from three inches long to five or six inches long, assuming that they are equally stretched, if it is nothing but a straight back prolapse. Then by cutting into the groin in these places, without opening the abdomen at all, an assistant will put his fingers under the uterus and raise the uterus up and hold it in that position while the attending surgeon draws this round ligament in the groin which he has isolated and pulls it through on the two sides. If one requires more pulling than the other, on account of the uterus being tipped over to one side, he will draw that up so much tighter, and he will just shorten up those round ligaments so that it will hold the womb that was formerly back in that position (illustrating), up in that position, making these two round ligaments from the internal ring on the inside to the upper corner of the uterus, two and a half inches long. Then he will do one of a number of things with the part of the ligament that is drawn out. It looks like a cord that is drawn out through a hole. Sometimes it is simply folded on itself. The method is to just fold it in that shape (indicating) and stitch it in that shape, and then burrow it right into the tissues as you stitch up the opening. Some others bring it up through one of the large muscles; make an opening in this rectus muscle that goes up in the abdomen, and instead of having that much space (indicating), bend it up in that form, and it grows in that position, takes hold there. Some of them cut it off and stitch it down to the canal. There are various ways of disposing of this prolongation of the outer end of the round ligament, but the principle is the same in every one. It simply draws from the inside until the uterus is drawn up into position and held in position.

Q.—Now, isn't it the trend of medical thought today that all those operations are unsatisfactory? *A.*—No, I don't think so.

Q.—Including fixations and suspensions? *A.*—Fixation is not done nearly so much as it formerly was, and is practically never done during the childbearing period of a woman's life, because of the apparent danger of the womb becoming impregnated with the front of it stitched to the abdominal wall, which would interfere with the enlargement of the womb during pregnancy. For that reason that operation has been quite largely abandoned, and also for the additional reason that these other measures that I have partly referred to have proven to be more satisfactory and more effectual than the anterior fixation operation.

Q.—Well, isn't the trend of medical thought more along the lines now of replacements and therapeutic action coupled with exercises, than operations? *A.*—There is no tendency in the trend of medical thought that I am familiar with in the direction of therapeutic action for displacement. There has never been any trend or any tendency along that line that I know of.

Q.—You mean you have never read of the discussions in the medical journals or attended medical conventions where those questions were discussed? *A.*—Not where the question of curing uterine displacement by therapeutic measures have been discussed.

Q.—I am talking about not merely that, but the treatment of female troubles by medicine instead of by surgery? *A.*—The treatment of female troubles by medicine, so far as disturbances of functioning are concerned, is always a matter of discussion among medical men, but the cure of mechanical and structural changes in these parts by medicine has never been discussed, to my knowledge.

Q.—Well, don't you know the Alexander operation is being abandoned? *A.*—Well, just exactly as Dr. Alexander performed it, because some of our modern gynecologists have suggested methods of disposing of this outer end in a way that they seem to think, and other doctors seem to think, is more satisfactory. So that the Webster operation now is used more than the Alexander operation, and the Dudley operation is supposed to be an improvement on it. It is the same principle, but a different method of technic, according to later surgeons and gynecologists, with this same kind of operation.

Q.—What is the Gilliam-Crossen operation? *A.*—Do you mean for this same purpose?

Q.—For any of these troubles? *A.*—Well, I don't know just what his technic is.

Q.—What is the Tod Gilliam operation? *A.*—I don't know.

Q.—Do you know what the plain Gilliam operation is? *A.*—Do you mean the disposal of the round ligament?

Q.—I want to know if you know what the plain Gilliam operation is? *A.*—I don't know what his technic is in this particular operation. He did a lot of operating.

Q.—Do you know what the Gilliam-Ferguson operation is? *A.*—Well, I have seen him do it a great many times, and I know what his operation is, but how Gilliam modified it I don't know.

Q.—Isn't it coming to be generally recognized in the profession now, that where the operation cures or seems to cure one pathological condition it creates six or ten new pathological conditions to confound the woman in after years? *A.*—Not by the surgeons and gynecologists that I have been acquainted with.

Q.—Well, what is the view of the therapeutists on that subject? *A.*—I have never heard, excepting from you, any view in that direction at all.

Q.—Never have heard anything? *A.*—I have never heard of modern surgical procedure creating five or six other conditions that are worse than the original condition, in favor of using some form of therapeutic measure of curing those things. I have never heard of such a thing as that.

Q.—You have never heard or seen the statement that all operations for displacements are still sub judice? *A.*—No, I have never heard of that.

Q.—Would you say that they are not? *A.*—Well, I don't know. I would only say it in the sense that they were sub judice with this modification, or with this idea, that there is always room for improvement. They are under question because we may improve in the methods, and that is what gives these various modifications to the well recognized forms of operation. The operation for appendicitis is still sub judice because we are improving in it. We never ought to bury the stump now. We never ought to do a lot of other things that they used to do, that we didn't know about at first. Now in that sense all these modern operations are still under discussion for the purpose of improving our methods.

Q.—And they operate less for appendicitis now than they did a few years ago? *A.*—No, I don't think so. I think that they operate very much more frequently now than some years ago, because that operation is simply a modern operation, comparatively modern. Many persons were dying because they were trying to take medicines to cure a condition which there was an underlying cause for that could not be cured except by operation.

WITNESS' USE OF DRUGS

Q.—Now, have you ever used medicine given by the mouth for any case of sterility? *A.*—Yes.

Q.—Did it do any good? *A.*—Yes, I know one case that I had in my experience where I think medicine did some good.

Q.—Did you ever use medicine given by the mouth for any cases of dysmenorrhea? *A.*—Yes.

Q.—Did it do any good? *A.*—Yes.

Q.—Did you ever use medicine given by the mouth for amenorrhea at puberty? *A.*—Yes.

Q.—Did it do any good? *A.*—Yes.

Q.—Have you ever given any medicine, or did you ever give any medicine by the mouth during pregnancy? *A.*—For what? For the pregnancy?

Q.—For any condition incident to the pregnancy? *A.*—Yes.

Q.—Did it do any good? *A.*—Yes.

Q.—Did you ever give any medicine to a woman during the menopause? *A.*—Yes.

Q.—For symptoms which were distressing or painful? *A.*—Yes.

Q.—Did it ever do any good? *A.*—Yes.

Q.—You prescribed, as I understand, viburnum prunifolium during a period of about ten years? *A.*—Yes.

Q.—Did you know when you were prescribing it how much alcohol there was in it? *A.*—It did not always contain alcohol when I prescribed it.

Q.—Didn't it? *A.*—No.

Q.—Mostly did, didn't it? *A.*—Yes, until I got trying it without the alcohol to see if I could get any difference in its effect.

Q.—But that is just recently, isn't it? *A.*—No.

Q.—Not recently? *A.*—That is the reason I gave it up a number of years ago.

Q.—Did you ever give any woman the alcohol habit from giving her the viburnum with alcohol in it? *A.*—I think not. I have never given it over a long enough period of time, and I never let them know what they were taking, or that they were taking an alcoholic preparation, but have prescribed it for special things for a period of a week, during a painful menstruation, for instance, and at the next painful menstruation have given them an entirely different preparation, for the very reason of keeping them from getting into the habit of taking a drug that was alcoholic and that might insidiously develop that tendency, of which there is a very great danger.

Q.—Well, anybody can go into the drug store and buy fluid extract of viburnum prunifolium, can't they? *A.*—No, I think not.

Q.—Don't you think anybody can do it? *A.*—Not by the pint.

Q.—By the bottle, as it comes? *A.*—I think they might get an ounce or so, because I don't think it comes under the Food and Drug Law that prevents the sale of—I am not quite sure about that. It may be. I never heard of anybody buying it excepting on a physician's prescription.

Q.—And they can get Liquor Sedans, or any of those things that contain alcohol, that comes in prepared bottles containing as much as a pint, can't they? *A.*—I don't think so. They ought not be able to do so. I don't know just what the law is on that subject. Of course there are many preparations that contain alcohol that can be bought, I presume. We are hoping the time will come when they won't be

able to do it, but at present I think some of it can be bought, like tincture of orange.

Q.—You hope the time is coming when they cannot use anything except on a doctor's prescription? *A.*—No, I don't mean it in that sense, but there are some official preparations that contain a large amount of alcohol, and they do not contain very many potent qualities which can be bought, like many "patent medicines," and like tincture of orange, which contains 90 per cent. alcohol. If that were used in large quantities and bought by the dozen bottles I would be just as strongly against it as any other alcoholic nostrum, although it is an official preparation.

THE COURT:—I will excuse the jury for a few minutes.

(Whereupon a recess of fifteen minutes was taken.)

A "VILLAINOUS ACT"

Mr. Hough: *Q.*—Doctor, would you say that a physician who recommended or prescribed fluidextract of viburnum prunifolium to a young girl at puberty, for amenorrhea or pains incident to that condition, was guilty of a villainous suggestion, or was guilty of a villainous act? *A.*—If he prescribed it in the form of the extract, without any alcohol in it—

Q.—I say the fluidextract? *A.*—Oh, did you say the fluidextract—I beg your pardon. No, I wouldn't say that as you said it, unless it was given over a long period of time and for continuous use without any exact knowledge of the underlying condition that existed.

THE COURT:—Well, let me ask, Mr. Hough, are you asking about a normal case?

Mr. Hough:—A normal case, yes.

THE COURT:—That is any young girl, a normal case of any young girl reaching the age of puberty.

The Witness:—Oh, I didn't so understand it. I thought you meant for some condition that called for medication. In a normal case I would certainly say it was a villainous suggestion to give any alcoholic preparation over an unlimited period of time to a young girl in her period of development, if she was normal.

Mr. Hough: *Q.*—Would it be villainous if her menstruation was coming on slowly, or not coming on, to prescribe it until it did come? *A.*—Well, assuming a normal girl?

Q.—Well, a girl that is suffering, would you call that normal? *A.*—No, I should say, with that added statement to your question, I would say that she was not perfectly normal, and that there are some underlying causes for the condition, that would require investigation.

Q.—Then you would say that a physician who prescribed fluidextract of viburnum prunifolium for that condition would be doing a proper thing? *A.*—I wouldn't know from the way you said it whether the viburnum prunifolium—even assuming that it had the virtues that I have been asked about, and claimed for it—whether it would be indicated in that case, without knowing why her menstruation was scanty or slow in developing.

Q.—Well, viburnum prunifolium contains 55 per cent. of alcohol, doesn't it? *A.*—Yes.

Q.—Now, I say, would a physician who prescribes it for any irregularity at that period, be charged with committing a villainous act? *A.*—If he prescribed it at that period for a girl who has scanty menstruation as the result of an anemia that was due to one of a dozen different things, I should say that it would be a most improper form of treatment, it would be a very harmful form of treatment, and could not have any effect in relieving the trouble because it could not get at or remove the cause that was producing the scanty menstruation.

Mr. Hough:—I ask that that answer be stricken out as not responsive.

THE COURT:—It may be stricken out. You might tell the witness what you mean by a villainous act.

Mr. Hough:—Well, he may know the meaning of the word.

Q.—I asked you whether that would be a villainous act on the part of that physician? *A.*—Well, what do you mean by a villainous act?

THE COURT:—As you understand it?

Mr. Hough: *Q.*—As you understand it? *A.*—I think under those circumstances, if I understand your question, it would be a villainous act.

Q.—Well, how do I know whether you understand my question or not? *A.*—Well, I say: As I understand it:

Q.—Well, how do you understand it? *A.*—Just the way I stated it a moment ago. If it was prescribed without a knowledge of the actual, underlying cause that produced that scanty menstruation, and where that cause might be one of a dozen constitutional conditions that would produce an anemia, which would result in scanty menstruation, to prescribe a medicine containing 55 per cent. of alcohol, and she would take that medicine, regardless of what is causing it, and use it right along, I would say that that would be most villainous and pernicious, as much so as anything I can think of.

Q.—Well, if the doctor thought it was indicated for that condition, would it still be villainous? *A.*—If he thought it was?

Q.—Yes? *A.*—I wouldn't care what the doctor thought. I am assuming the fact that if those conditions existed it would be villainous.

Q.—But I say, if the doctor thought it was indicated, would it still be villainous? *A.*—I still say I would not care what the doctor thought. If those were the facts you might get some doctor to think that it was indicated. I am satisfied that it would not be indicated under the circumstances that I am explaining.

Q.—Now, would you say that doctors who prescribe viburnum prunifolium for menstrual irregularities were practicing frauds on their patients? *A.*—Why, I prescribed it. I don't think I was practicing fraud. I prescribed it when I thought it had some effect. But on certain kinds of cases, such as I have just described I don't think it would have any effect.

Q.—And you don't think you were guilty of a villainous suggestion if you gave it, either? *A.*—No, because I didn't give it to young girls that were suffering from anemia, young girls that were suffering from hookworm or tuberculosis, or anything of that kind.

Q.—Did you give it to young girls? *A.*—I gave it to girls that were having difficult, painful menstruation.

Q.—Well, you gave it to young girls? *A.*—Not very young, no. I possibly have prescribed it for girls of fifteen or so, but usually for girls of twenty, in that neighborhood.

Q.—You spoke of viburnum prunifolium without the alcohol; that is not official, is it, in the pharmacopeia? *A.*—No.

Q.—In speaking of an official preparation, it has to have the 55 per cent. alcohol, doesn't it? *A.*—No.

Q.—Doesn't it— *A.*—It does not have to have the 55 per cent. to be official.

Q.—To be official? *A.*—No. Lots of tinctures are official that don't have 55 per cent. alcohol.

Q.—I am talking about viburnum prunifolium fluidextract. *A.*—I did not understand you to say so. I thought you said anything to be official.

Q.—No, no. I said fluidextract of viburnum prunifolium has to have 55 per cent. alcohol? *A.*—Yes, to be official, according to the British pharmacopeia.

Q.—Did I understand you to say that Wine of Cardui would be dangerous during pregnancy, because of the alcohol that is in it? *A.*—Yes; that is what I said.

Q.—Don't you know that German women drink beer all during pregnancy? *A.*—Yes.

Q.—That has more alcohol, doesn't it? *A.*—Some of the German beers probably have, yes.

Q.—Isn't it a fact that alcohol, as low as 20 per cent. is freely oxidized in the stomach? *A.*—No.

Q.—In the system? *A.*—I do not think it is oxidized in the stomach at all.

Q.—In the system? *A.*—Yes; if it is taken in small quantities.

Q.—Up to 20 per cent? *A.*—20 per cent? How much of the 20 per cent. solution do you mean? It is the quantity of alcohol I am referring to. If you take a small dose of a 20 per cent. solution it may be easily absorbed and oxidized in the tissues.

Q.—And when it is absorbed and oxidized in the tissues in that way, it has no therapeutic action, such as alcohol when used as a beverage, does it? *A.*—It has a therapeutic action.

Q.—I say such as alcohol when used as a beverage; it does not have the same physiological effect? *A.*—It does not have exactly the same in small doses, as it does in large.

Q.—Do you know how the cnicin came to be discovered in carduus benedictus? *A.*—By chemical analysis of the carduus benedictus.

Q.—No—I mean, weren't they hunting for a substitute for quinin? *A.*—I don't know about that.

Q.—And wasn't it determined by those experiments that cnicin possessed the qualities of quinin, except in a lesser degree? *A.*—I don't think that it was discovered that it contained the qualities of quinin but in a lesser degree, excepting in one slight particular that it was somewhat antiperiodic in action if used in large quantities.

Q.—Do you know of any other experiments except Nativelle's? *A.*—I don't know of the experiments of that person.

Q.—Do you know of any experiments, then? *A.*—I only know in a general way, without any particular experimenter, that cnicin, amorphous bitter principle has been discovered, but by whom or how or when, I don't know.

Q.—And that it had the characteristics of quinin? *A.*—No; except in that one particular, that it is said to be antiperiodic in its action.

EFFECTS OF VIBURNUM

Q.—I believe you have stated that during the ten years that you used viburnum prunifolium, you have prescribed it for all the irregularities of female menstruation, haven't you? *A.*—No.

Q.—Did you never prescribe it for amenorrhea? *A.*—No. I have never prescribed it only for dysmenorrhea and menorrhagia.

Q.—Did you ever use it as a tonic, after you had replaced the womb, in cases of displacements? *A.*—I have never recognized it as having any tonic effect on the uterus, and therefore have not used it for that purpose, and did not, while I was using it.

Q.—What effect did you think it was having when you did use it? *A.*—I thought it possessed a sort of soothing, sedative, antispasmodic action upon the uterus, as it was reputed to by the man who first brought it into notice; that it had the soothing, quieting effect, and in certain forms of dysmenorrhea, difficult menstruation, where I could find no underlying cause that satisfactorily explained the trouble, and where I was relying upon some medicine that would have a soothing effect, I used the fluid extract of viburnum, to see if it would exert its soothing effect; and in the form of fluid extract it contained 55 per cent. alcohol, and used in doses of from one to two teaspoonfuls, at the time, I thought I got some benefit from the use of it; and I continued to use it with that idea, until I tried it in the solid extract form—although it is unofficial—thinking that the alcohol might be causing the effect, just the same as the corresponding amount of gin in hot lemonade has had a similar effect—and I tried the viburnum in equal quantities, corresponding to the dose that I had given in the fluidextract, and in larger quantities, and I found it had absolutely no effect. And I was led to the conclusion that it was the alcohol—55 per cent. alcohol, that was producing the soothing, narcotic, quieting effect. And I experimented along that line with it until I established, in my own opinion, in my own mind, to my own satisfaction, that viburnum prunifolium had no soothing, quieting effect on the uterus; and for that reason I abandoned its use.

Q.—It is still being taught in medical schools to the new doctors, though, as a useful preparation for all those conditions, is it not? *A.*—I think it is being taught in this way: That it has been reputed to have antiperiodic, antispasmodic, uterine sedative action. It is quoted and requoted for the last fifty years, until fifteen years ago, when it

dropped out; and occasionally now is used. Doctors referred to as having been quoted by Ferres, and it is quoted by this man and that man as having a certain effect, that a great many of them make this kind of a statement—"But, as far as I am able to learn, these effects have never been satisfactorily demonstrated; its use is more feeble than was supposed; its uses have been recommended for this and that, but I have never found it to be valuable." And occasionally a man would write, "Yes, I think it has been useful in curing or preventing abortion; that it has relieved dysmenorrhea." Each man writes his own views, and the literature is more or less full of such, with references to this preparation and others.

Q.—The same is true of carduus benedictus, is it not? *A.*—Well, yes, only with considerable difference that carduus benedictus dates away back, 200 or 300 years.

Q.—You mean it is an older preparation than the viburnum prunifolium? *A.*—Well, I would not say it was older, but was written about and perhaps used farther back than viburnum prunifolium.

Q.—Well, both of them are written about even today, aren't they? *A.*—Yes.

Q.—For these things? *A.*—Both for and against these things. I have not heard anything about carduus benedictus being written about recently for these things—if by "these things" you mean as a sedative to the uterus.

Q.—Female troubles, yes, and as a uterine tonic? *A.*—No. I do not think that carduus benedictus has been written about recently; at least not to my knowledge; it may have been written about.

Q.—You never yourself used carduus benedictus, did you? *A.*—No.

Q.—You never experimented with it? *A.*—No.

Q.—Then, how could you say in answer to that hypothetical question that carduus benedictus could not have any effect in any of these conditions? *A.*—Because I have a general knowledge of the physiological action of drugs, and the question propounded to me asked me to assume that this carduus benedictus was a bitter; that it had some tonic action on the stomach; that taken in hot effusion it caused an increase of sweating, an increased flow of urine; and that it also had some effect as a stimulant to the liver, acting as a sort of liver stimulant; and that it had been used with some success, in hot effusion, in suppression of menstruation from cold.

And, having all that in mind, I was asked if I had an opinion as to what its physiological action would be, and I said yes, based upon that idea, assuming that it has these properties, I have an opinion as to whether it will cure a retroflexion of the womb, or gonorrhea, or uterine prolapse; even giving it the credit for everything you have attributed to it. That is the reason I answered in that way.

Q.—Suppose you had been asked, assuming it was a uterine tonic, would your answer have been the same? *A.*—It would have been just the same.

Q.—Would your answer have been the same, because you used the word "cure" rather than "relieve"? *A.*—No.

Q.—You have said—you would have said that it would not relieve the symptoms in any of these cases? *A.*—I would not have said that.

Q.—You would not have said that? *A.*—I would not have said that. If it is a uterine tonic, or uterine sedative, there may be some outward signs or symptoms of these underlying conditions, which in a medicine that is a uterine sedative or uterine tonic, or contains alcohol, might temporarily relieve those conditions; but would not cure the underlying conditions.

Q.—You mean, would not cure the displacement? *A.*—Would not cure the displacement, and it would not cure the amenorrhea in a woman, and it would not cure the undeveloped ovary, and it would not cure a large number of things I was asked about.

Q.—But if it relieved the woman of the pain which she suffered in connection with the displacement, according to your diagnosis, why should the woman care anything about whether the womb is displaced or not, if she suffers no more?

Mr. T. J. Scofield:—I object to that, if the Court please.

The Witness:—For the reason—

THE COURT:—Objection sustained

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. Hough:—Is it necessary to cure a displacement which has no symptoms, such as pain or inconvenience to the woman?

Mr. T. J. Scofield:—I object to that question.

THE COURT:—He may answer that.

To which ruling of the Court the defendants, etc., excepted.

The Witness:—Well, if it is discovered, although it gives no symptom, it might be wise to correct it, for fear of its later developing some symptom. Many conditions that are found accidentally on examination which the patient did not know about should be removed. Of course, we don't recommend the use of medicine or medication or manipulation, or anything for people who don't complain of anything. That is, doctors do not.

THE COURT:—That is to say, the patient may be anatomically defective and physically perfect?

The Witness:—Yes; not know of the defect; or he also may have certain conditions, in opening the abdomen, which you would discover. I used the illustration before, but perhaps it is as good as any. I frequently, in operating on the tubes, for instance, have discovered an elongated and inflamed appendix, that evidently had been inflamed before, and I have removed it, although it was not giving rise to any symptom, but because I thought possibly on some provocation it might, and while I had the abdomen open for something else, I removed the appendix at that time. I would do that at the time, although it was not producing any symptoms.

Mr. Hough: Q.—Have you ever furnished a few uteri to a friend who wanted to experiment, when you had the stomach open for something else—or the pelvic cavity open for something else? *A.*—No; I have never furnished any uteri for that purpose.

Q.—Never have? *A.*—But I know they have been experimented upon.

Q.—Now, is it not a fact that curettage has been found to be unsatisfactory? *A.*—I think in over 99 per cent. of cases it is very highly satisfactory. There are just a few occasional cases where damage has been done, the uterus has been perforated in curettage, and other damage has been done by going too deeply into parts; but in practically all the cases where curetting is done, it is a very satisfactory and very effective method of curing a chronic form of inflammation and uterine polypi, and various diseased conditions of the lining membrane of the womb.

Q.—Now, coming back to symptoms: When a patient is complaining and comes to the doctor, they come primarily for the symptoms; they want to be relieved of the symptoms, don't they? *A.*—Yes, that is usually what the patient wants.

Q.—And when the doctor gives the medicine, and the symptoms disappear, the patients go away as cured, don't they? *A.*—Well, that is not my way of it. That is, if they came with an itch on the skin, where the barber has infected them, and you give them something that relieves that sensation, they are not cured of the condition. If they have got a ringworm and you give them something so they will not feel the pain, they are not cured. If they have any number of other conditions of that kind, which give outward signs, and you use soothing medicine, some narcotic, some stimulant that disguises the condition—they are not cured, although they are temporarily relieved. They say "I feel better, and I guess that is all I want." It will come right back again, if there is any real condition, any underlying cause that produces that symptom, as soon as the temporary effect of the medicine has passed off.

Q.—Take the case of headache: they come to you with a headache, and you give them some medicine and the headache disappears? *A.*—Yes.

Q.—They feel they are cured, and, as a matter of fact, the thing that caused the headache might still exist, might it not? *A.*—They feel they are cured, as long as they are under the influence of the disguising medicine; like a strain in a defective vision, for instance. It may produce a headache, on account of its not being properly corrected with glasses. An antypyretic or anodyne, or some such medicine, will relieve that headache for the time being, and the patient will go away and say, as they frequently do, "Just as soon as I took a dose of the medicine I felt better; that is a fine medicine." But as soon as the effect of that medicine passes off, the condition that produced that headache is still there, and it is not cured.

Q.—If the next day they have not then a headache, would you say they are cured? *A.*—No. I would say they are temporarily relieved, and they would have a headache the next day if the underlying cause which produces the headache is still active. Of course, if they are lying in bed and still, it might not return.

Q.—Suppose for a week they did not have a headache, would you say that medicine you gave them cured them? *A.*—No. I would say it did not correct their eyestrain—

Q.—I was not talking about eyestrain; I was taking about the medicine you gave them for the headache. *A.*—Yes, but what for? I could not say what for, from your question. I would have to have some general idea of what the medicine was used for.

DIAGNOSIS

Q.—Of course, you ask them what their symptoms are, so as to enable you to guess at what causes their headache? *A.*—Guess? Guess, yes, that is the correct word. I do sometimes guess, if I only get one symptom as to what causes the headache; but, as a rule, I try to exclude the various things that would produce that symptom, or set of symptoms, and learn what the underlying condition is, to enable me to intelligently prescribe.

Q.—Isn't diagnosing largely guessing? *A.*—No.

Q.—Simply excluding as many symptoms or causes as you can, but still it is a guess, is it not? *A.*—No, I don't think it is largely guessing. I think now, in the advanced stage of medical science, that it has got largely beyond guesswork. It formerly was guesswork, at the time—

Q.—Would you say all doctors are equally good diagnosticians? *A.*—No, not at all.

Q.—Is there a difference in them? *A.*—Why, I think so; yes.

Q.—That is one would diagnose correctly and the other diagnose incorrectly? *A.*—I think all doctors, no matter how far advanced they are in their work, are liable, possibly, to make some mistake in cases where medicine is not an exact science; but in the great majority of instances, now, it has become practically exact, where you can prove by the microscope and by chemical analysis and by physical examination, and actually demonstrate to a certainty the condition; and not have to guess, like we used to, fifty years ago, when syphilis and gonorrhea were confused and thought to be the same thing, and fevers were all confused, and typhoid and typhus were the same thing. It was guesswork then, but we have advanced in this work and are enabled now to positively diagnose.

Q.—I am not talking about blood diseases now, but things like headaches and cold. *A.*—Headache is not a disease.

Q.—What? *A.*—Headache is not a disease.

Q.—It is a symptom of a—. *A.*—It is a symptom of some other disease.

Q.—A symptom of some other disease? *A.*—Yes, yes, sir, the same as dysmenorrhea.

Q.—It is a mistake, therefore, to refer to curing the disease, when they should refer to curing the symptoms, or relieving the patient of the symptoms? *A.*—No; just the reverse of that is what I believe in, that you should cure the disease, not try to disguise the symptoms.

Q.—Not even to relieve the symptoms? *A.*—Sometimes, if the symptom is so distressing, where the neuralgic pain is so unbearable, or the

pain of pleurisy is so bad it cannot be borne, some palliative treatment is admissible, while you are investigating and trying to get at and remove the underlying cause which produces it.

Q.—Therefore, if a person has a cold, then it is dangerous for a doctor to give any medicine for it, without going through an elaborate investigation to determine the cause of the cold? *A.*—It is not always—it is not always so.

Q.—But as to headache, it is? *A.*—Sometimes it is very dangerous, and the delay that has been induced by that form of haphazard treatment of symptoms has caused many a patient to get beyond the reach of proper treatment.

SELF MEDICATION

Q.—And if a patient thinks they have a cold, it is very dangerous for them to go and take some aspirin, without going to a doctor and having the whole thing thoroughly diagnosed, to find out about it—is it not? *A.*—In a simple thing like a cold, no; in the majority of cases it would not be dangerous. But, supposing a person had a tubercular taint, whose father or mother, or somebody in the family had died of consumption, and he had a cold and was treated in the way that disguised it by some medicine, that would stop the cough and relieve the soreness and drive it in and down. The very commencement of a tubercular bronchitis might be established if that were the method of treatment—but not so in the majority of cases, of cold cases, where Nature's recuperative power will throw off a cold; but in the exceptional cases it is a very dangerous procedure.

Q.—Well, self-medication, from the doctor's standpoint, is exceedingly dangerous, is it not? *A.*—Not at all. I have always tried to advise my patients to—or how to treat themselves for simple ailments, and when there are any dangerous signs to come up then to consult me.

Q.—If a person has a cough, it is dangerous to get any cough medicine, without having a diagnosis. *A.*—Not at all, if he understands his case and is familiar with it, and in consultation with his doctor he has been generally advised. I have known in my own case, where I have used a thing in a dozen different families, in a hundred different families for years, I would say, "If you have a little bit of a cold, don't send for me; take a little bit of loosening medicine that will help Nature to throw it off.

Q.—Now, coming back to the use of the word "cure"; and, relating to the, or having the relation to the—what you call the cause of the symptom, would your answer have been any different to the hypothetical question, if you had been asked whether or not that medicine would relieve the symptoms caused by the disease?

Mr. T. J. Scofield:—If the Court please, I object to the question. My question went to the cure—

THE COURT:—Physiological effect, I think, was the question.

Mr. T. J. Scofield:—Yes.

THE COURT:—Have you an opinion as to what physiological action this medicinal solution would exert when taken by the mouth into the stomach?

Mr. Hough:—The witness also testified that this medicine would not cure displacement. Now, I want to know whether, if he had been asked, since we have discovered the dysmenorrhea or amenorrhea—

THE COURT:—You may ask him his opinion as to this hypothetical medicine, whether it would relieve any of the symptoms of dysmenorrhea or what.

Mr. Hough:—What I want to ask him is whether if that question had been modified, so as to have been put in this other form, his answer would have been the same. I think I am entitled to ask him that question.

Mr. T. J. Scofield:—That is not cross-examination.

Mr. Hough:—It certainly is.

Mr. Scofield:—No, that is not.

THE COURT:—Read the question, Mr. Reporter.

(Question read.)

THE COURT:—I am somewhat of the same opinion, that his answer to the hypothetical question has nothing to do with that proposition, because the hypothetical question was directed to the physiological effect of certain things. Now, how could that answer have been changed, whether he was talked to about cures or relieving symptoms?

Mr. Hough:—Well, it seems to me that it is pertinent. He has also stated that his answer would have been different if the hypothetical question had assumed that carduus benedictus was a uterine tonic. I was entitled to ask that question.

THE COURT:—Yes, and did.

Mr. Hough:—And did. And I am entitled, with regard to the form of the hypothetical question, either to add to the assumptions or to take from the assumptions.

THE COURT:—It is the form of your question, Mr. Hough, that I think is objectionable. You may ask him whether this hypothetical preparation will relieve symptoms of these various things.

Mr. Hough:—Well, I will ask him—

THE COURT:—I think the situation is complicated by bringing in the word "cure" there. I think we all understand what it means now.

Mr. Hough:—What I wanted to find out was whether there was any thing tricky in his answer, based solely on the use of the word "cure," that is his understanding of the term, which is different from the common understanding of the term.

THE COURT:—The word "cure" was not used either in the hypothetical question or the answer.

Mr. Hough:—It is my understanding that the word "cure" was used exclusively. He said "will it cure these displacements?" He said, "It will not cure." He did not ask the question at the same time he put the hypothetical case—

THE COURT:—Oh, I recall it. Then you asked the question whether it would not relieve the symptom. That is what we want to learn.

Mr. Hough:—Well, would it?

Mr. T. J. Scofield:—Just a minute, if the Court please. The first hypothetical question referred to the physiological action; and in every instance where I asked a subsequent question in regard to curing, I quoted in the question the language of "Home Treatment for Women"—absolutely.

THE COURT:—Well, that might be.

Mr. T. J. Scofield:—Yes.

THE COURT:—But I think this is proper cross-examination, just the same.

To which ruling of the Court the defendants, etc., excepted.

Mr. Hough: Q.—Will it? *A.*—Well, I have got just a little mixed up on the question.

THE COURT:—Put a specific case, Mr. Hough,

Mr. Hough: Q.—Assuming that Wine of Cardui is a uterine tonic, and that carduus benedictus—I mean, that, assuming that carduus benedictus is a uterine tonic, and that viburnum prunifolium is a uterine tonic, would those amounts in Wine of Cardui relieve the symptoms such as amenorrhea, dysmenorrhea, metrorrhagia, or menorrhagia?

Mr. T. J. Scofield:—That question is objected to, unless he tells the doctor how many—

Mr. Hough:—I am basing it on the hypothetical question.

THE COURT:—He is basing it on the hypothetical question.

Mr. T. J. Scofield:—All right.

Mr. Hough: Q.—Would they?

A.—I think there are some cases that might get temporary relief from it.

THE COURT:—We will stop now until 2 o'clock.

An adjournment was taken until 2 o'clock p. m. of the same date.

April 10, 1916, Afternoon

TESTIMONY OF DR. LEEMING (*Cont.*)

Court met pursuant to adjournment. Dr. John Leeming resumed the stand for further cross-examination by Mr. Hough.

FURTHER CROSS-EXAMINATION BY MR. HOUGH (*Cont.*)

Q.—Doctor, will you tell the jury what an emmenagogue is? *A.*—An emmenagogue is a remedy that stimulates the menstrual flow.

Q.—Has it a secondary meaning in that it means making menstrual flow normal? *A.*—No, I think not. Not that it makes it normal, but that it either brings it on when it is absent, or stimulates an increase in the flow when it is present.

Q.—Would you call it a regulator? *A.*—No.

Q.—You stated that the only relief for gonorrhea was a germicide. Can you safely use a germicide in the uterus or the vagina? *A.*—Yes, with proper care and restrictions you can.

Q.—Wouldn't an antiseptic be better? *A.*—An antiseptic is also a germicide.

Q.—Well, it is not as strong, is it? *A.*—Some of them are a great deal stronger. Carbolic acid is an antiseptic and also a germicide, and is much stronger than some of the simple germicides.

TREATMENT OF GONORRHEA

Q.—Would you say that that is the best treatment for gonorrhea? *A.*—Which do you mean, the use of a germicide?

Q.—Or an antiseptic, yes. *A.*—It depends considerably upon the location of the inflammation produced by the gonorrhea. If it is a place where it can be reached so that the application of a germicide can be applied directly to the specific inflammation, it is the best treatment for curative treatment. But where it has passed up inside of the uterus, and passed up into the fallopian tubes, then, of course, it is dangerous treatment.

Q.—Would you say the most approved or best treatment is just to keep the parts clean? *A.*—Just what?

Q.—Just to keep the parts clean? *A.*—The best treatment? No, I wouldn't say that that was effectual treatment at all for gonorrhea.

Q.—Where the person was run down would you say a tonic was contraindicated? *A.*—Contraindicated, no, I would not. If he or she was run down a tonic is indicated, is called for.

Q.—You spoke of cancer being cured by surgical operation. Isn't the latest thought on that subject among medical men that cancer is a blood disease? *A.*—There is a theory to that effect that it is a blood disease with a local manifestation.

Q.—And any medicine which would tend to increase the white corpuscles in the blood and fight those other germs, would be of benefit, wouldn't it? *A.*—No.

Q.—It would not? *A.*—Not in cancer. It has been positively demonstrated that no medicine can increase the leukocytes (or white blood

corpuscles) to such an extent as to prevent the localization of cancer, or to correct it or cure it after it has once become localized.

Q.—Is the operation the only treatment? *A.*—No.

Q.—With the operation don't they give a tonic for the blood? *A.*—They give a tonic for the blood with the operation if a tonic is indicated. If it is called for. Just as they do for any other condition. If a tonic is called for, if the blood is poor, they don't refrain from giving a tonic to build up the blood because a person has cancer or a club foot or a crooked leg or anything else. If they need a tonic we give a tonic. But we do not give a tonic to cure the deformity or to cure the cancer or to cure the specific condition.

Q.—Did you say that cancer was very frequent at change of life? *A.*—Yes.

Q.—More frequent than at any other time of a woman's life? *A.*—Yes, I think more so than at any other period. That is, cancer of the cervix or cancer of the reproductive tract is more frequent then than at any other period.

Q.—Will you explain to the jury what is the plastic operation. *A.*—For what?

Q.—For any diseased condition of any part of the uterus? *A.*—Well, the plastic operation means the repairing of the soft tissues. We call a plastic operation the operation for restoring a torn perineum, for restoring a torn cervix or neck of the womb by freshening the edges, bringing raw surfaces together and suturing them or stitching them together. All operations of that class on the uterus are termed "plastic operations."

Q.—That is the class of operation that you referred to in cases of prolapse, wasn't it? *A.*—That is one of the classes of operations that I described where the prolapse is due to a destroyed or torn perineum, torn to such an extent as to remove the support from below. A plastic operation of restoring the perineum would overcome that cause.

Q.—When is that operation considered a success? *A.*—Do you mean with reference to the result or the time it is performed?

Q.—With reference to the result. *A.*—The operation is considered a success when it restores the perineal body to its proper form and brings about the natural support which the original perineum furnished in the way of the floor of the pelvis supporting the structures above it.

Q.—That operation is considered a success even though the woman has more trouble after than before, isn't it, if the tissues have joined? *A.*—I don't know of any such result as that. In the experience I have had with it they have less trouble, and great relief from the trouble after it, if it has been a success, than they have before.

Q.—Do you know of anything in the literature on the subject which says that the troubles are greater afterward than before? *A.*—I don't know anything about literature saying anything about that subject. I am simply giving you my opinion based upon my own experience and my own work in that line.

Q.—Did you ever prescribe Aletris Cordial, Doctor? *A.*—Yes, I think I did.

Q.—For how many years? *A.*—Well, a very few years.

Q.—Did you know how much alcohol was in it when you prescribed it? *A.*—No.

Q.—Do you know how much alcohol is in it now? *A.*—No.

Q.—Do you regard the amount of alcohol in it as negligible? *A.*—In the manner and form and doses and frequency of dose that I prescribed it I did.

Q.—That was for female troubles, was it? *A.*—It was for dysmenorrhea.

Q.—For nothing else? *A.*—I do not recall ever prescribing it for anything other than dysmenorrhea as a pure symptom.

Q.—Is it a frequent occurrence or not that one doctor will get good results from a medicine and another doctor will not get good results from the same medicine? *A.*—No.

Q.—That is not frequent? *A.*—I think that is not frequent. There may be a difference in the reports of different medical men, depending upon the closeness of observation or the control that is exercised on the patient, and the condition underlying the treatment, and so on, but I think that medicines will act the same in similar conditions in different patients and in the hands of different doctors. And there may be differences in their reports, just the same as there may be differences in patients saying what results they get. They may be very often mistaken in that.

Q.—You mean mistaken as to the results? *A.*—They are mistaken as to the medicine producing the result.

Q.—Well, that is something that a doctor never does know actually, does he? *A.*—No, that is not true. There are many cases where it is capable of exact and positive demonstration.

Q.—In the majority of cases they never know whether the results are due to the medicine? *A.*—Oh, I think in the majority of cases they do know.

Q.—You think they do? *A.*—I think they do, yes, that is what I stated.

A CURE

Q.—How can they tell that the result was due to the medicine? *A.*—Where you give a form of medicine, for instance for a condition of anemia: Prior to the administration of that medicine you can make an exact determination of the constituents of the blood. You use a medicine containing iron and arsenic in certain forms for a matter of a month or six weeks, or two months. You have another blood analysis made and you see a positive change in the number of red blood corpuscles, a positive change, in the form of an improvement, in the amount of hemoglobin in the blood, showing that the blood has been enriched by the form of tonic that has been used, and the symptoms that were dependent upon that weak blood, poor quality of blood, are reported to be greatly improved. That, to my mind, is a positive demonstration of the action of medicine.

Q.—Suppose we eliminate cases of blood tests. In other classes of cases, where you do not make tests of that character, can a doctor ever tell that it was his medicine that cured? *A.*—Yes.

Q.—How would they tell in such cases? *A.*—In a case of certain forms of so-called female trouble, perhaps as good an illustration as I can think of at this moment, is a case of subinvolution. Subinvolution means, as I stated before, that the uterus is too large, and boggy; hasn't got down to its usual size after confinement, or after pregnancy has been ended, either by normal delivery or by miscarriage. The uterus gradually comes down and gets back toward its normal size. Sometimes it remains too large. We call that condition subinvolution. That means that the uterus is too heavy, too big; it has too large a bleeding surface on the inside. I have had cases of that kind repeatedly where I have used medicine internally in the form of small doses of ergot, or its active principle, ergotin in combination with some form of tonic, if the particular case called for a general tonic, and I have observed under the influence of that treatment, the uterus gets smaller and smaller, contracting down, demonstrating positively what we know to be the physiological action of ergot in toning up and contracting the uterus, so that after a month's treatment of that kind the uterus, instead of measuring four inches long on the inside, will measure three inches, two and three-quarters, and get down to two and a half inches. The symptoms of excessive flowing, the symptoms of pain in the back, the various other symptoms that are complained of with the enlarged, heavy uterus, gradually getting better and better, as the uterus, under the influence of that kind of treatment, gets smaller and smaller; entire and positive demonstration of the action of the medicine in curing this condition.

Q.—With reference to that hypothetical question, doctor, of course you were familiar with it before you went on the stand, I take it? *A.*—Yes.

Q.—May I assume that you helped prepare it? *A.*—If you wish, yes. I consulted with the attorneys, and that may be considered help.

Q.—Can you say that all the statements in the hypothetical question, which were assumed to have been in the books referred to in the hypothetical question, were complete and correct statements?

Mr. C. J. Scofield:—We object to that, if the Court please, as not a proper question.

THE COURT:—The objection is sustained.

Mr. Hough:—It seems to me I am entitled to ask him if he knows certain things.

THE COURT:—You have asked him whether there was anything else outside of the hypothetical question that he might have assumed. That is the substance of your question.

Mr. Walker:—No.

Mr. Hough:—I didn't mean it that way. I say: Does he know whether the extracts from the medical works referred to in the hypothetical question are complete and correct extracts from those medical works?

THE COURT:—Well, what difference does it make on a hypothetical question whether he knows it or not? He gives his answer on the basis that they are true. Whether they are true or not is immaterial so far as this cross-examination is concerned. He is not given any information as to the truth or falsity of that assumption.

Mr. Hough:—That is what I am asking him, whether he knows that any of those things are true, just as I am permitted to ask him whether he knows what is in certain textbooks on certain subjects. It tests his general knowledge on the subject. I think that is a competent question.

THE COURT:—If he knows he may answer. Do you want to read the question over to him so that he gets everything in mind?

The Witness:—I would like to have it.

Mr. Hough:—He knows it.

The Witness:—Oh, you mean the original question—I have that in mind. But your question now, I don't quite remember it.

Mr. Hough: Q.—Doctor, do you know whether the extracts from the medical books which were referred to in the hypothetical question were correct quotations and were complete? *A.*—Yes, I know.

Mr. C. J. Scofield:—If the Court please, we wish to preserve our objection.

THE COURT:—You mean correct quotations from the book?

Mr. Hough:—Yes.

THE COURT:—Not whether it is a correct statement of fact or not, but a correct quotation?

Mr. Hough:—Yes.

THE COURT:—He may answer, if he knows, of course.

Mr. Hough:—He says he does know.

Mr. Walker:—He said they were.

The Witness:—I said I know.

Mr. Hough: Q.—Well, are they? *A.*—They are correct in substance. *Q.*—In substance? *A.*—Yes. Some things perhaps have not been put in, and possibly some things left out, but in substance they are quotations from certain books.

Q.—And would you say that they are in substance complete? *A.*—Well, I wouldn't say they were complete in the sense that they convey everything that has been said in these various books, because there

have been so many things said, but the essence of the quotations, or of the extracts of the books are pretty well covered, I think, in the hypothetical question.

The witness was then asked a long hypothetical question in which he was requested to assume that carduus benedictus, in addition to being referred to in the medical works, referred to in the previous hypothetical question, is officially in a series of pharmacopeias dating from 1627 to 1911, including those from various countries and sects in medicine. He was asked to assume that numerous quotations concerning carduus benedictus and carduus marianus are found in various books, pharmacopeias, dispensatories, dictionaries, etc., and with each quotation was given the names of the authors and compilers, together with their degrees and official positions. He was also asked in the same way to assume with reference to the drug viburnum prunifolium that various statements are made by numerous authors concerning it. And finally:

"Now, Doctor, would you say that the medicine referred to in the hypothetical question put to you by Mr. Scofield, described in the medical works referred to in his question and in the medical works which I have just read to you as therein described—would you say that that medicine would furnish no relief in any menstrual disturbance?"

(The question occupied some twenty-nine typewritten pages of the court reporter's transcript.) Mr. T. J. Scofield objected to the question. The Court excused the jury during the argument on the objection.

In the argument Mr. Scofield stated that this question was not cross-examination, but was for the purpose of bringing before the jury suggestions about what authors had stated and the adoption of opinions in books which could not have been read before the jury under other circumstances. He also suggested that none of the writers mentioned expressed positive opinion as to the different drugs, but repeat statements of previous writers. Mr. Hough insisted that his question was brought out by the question of Mr. Scofield. The Court finally ruled:

THE COURT:—I will sustain the objection to your question, and give you an opportunity during the adjournment tonight to add the qualities to these drugs that you wish to bring in by way of cross-examination and to eliminate the opinions of the authors. You may just add the additional qualities, such as that it would constipate the person who took it, give him a headache or something else. Then, if it is necessary to bring before the jury the source of your authority, it will be brought out by the other side. The objection to the question will be sustained.

To which ruling of the Court the plaintiffs, etc., excepted.

(The following proceedings were had in the presence of the Jury.)

Mr. Hough: *Q.*—Doctor, having in mind those two medicines which have been referred to you, I want you to assume that they possess the properties which they were stated to possess, whether you think they possessed the properties or not; and I also want you to have in mind the effect of the combination of two drugs of the same character; and I wish to ask you whether in view of that you would change the opinion which you expressed on the direct examination?

Mr. Scofield objected to the question and after an argument the Court stated that he would instruct the jury that they may disregard every assumption of fact in questions put to the witness unless it had been proved to their satisfaction as a fact.

Mr. Hough: *Q.*—Now, will you answer, please?

A.—The termination of the question is, would it change my answer?

Q.—Yes. *A.*—No; with perhaps one or two slight particulars—or slight exceptions.

TONIC OR SEDATIVE

Q.—What are they? *A.*—In addition to the assumed virtues of these two drugs, the only other virtue that I recall in the long question that was propounded was that it was also a uterine tonic—the viburnum prunifolium was a uterine tonic. I had already assumed that it was a uterine sedative.

Now, with that addition, it would make some change in my answer; because a uterine tonic and a uterine sedative are directly opposed to each other; and I cannot assume them both, because they are antagonistic. I assumed that it was a uterine sedative. Now, if you ask me, in addition, to assume that it was a uterine tonic, it would change my answer to this extent:

That in certain forms of enlargement of the womb, like subinvolution that I described, if this drug, or the combination of the two drugs, had a uterine tonic effect, it would tone up and tighten down the uterine muscles, and might lessen the amount of flow, in an excessive flow. It might help to relieve the weight of an enlarged subinvoluted uterus, if it was a uterine tonic, as I illustrated by the use of ergot. In that way it would change my answer.

But, if I still assumed it was a uterine sedative, at the same time, my answer would be the same as it was in answer to the former question.

Q.—Do you mean to say that there is any difference in effect between the two, uterine tonic and the uterine sedative? *A.*—Yes, sir.

Q.—Don't you know it has been advertised as a uterine tonic and sedative? *A.*—Which?

Q.—Viburnum prunifolium? *A.*—I am not considering how it has been advertised; I don't know. I am only assuming certain things as facts, not what it has been advertised for.

Q.—Do you say there is any inconsistency in calling a tonic a sedative? *A.*—I think they are directly opposed to each other. A sedative is a soothing, quieting preparation. A tonic is a toning, building up, strengthening preparation.

Q.—Would you say that such medicine is of no value in cases of irregularity? *A.*—No, I would not say so. I did not say so on the former question.

Q.—You say it is of some value for that? *A.*—I might add I have used one of the ingredients you have spoken of for that purpose, when I had in mind that it possessed certain sedative action, and, on that assumption, I thought it was of some value, until I found out that it was the alcohol it contained that was of value; and then I dropped it.

Q.—You would say the same of exaggeration and suppression; it has value in those cases—this medicine we have described? *A.*—Well, it depends upon which of the assumptions I am to take. It would have some value in suppression, if it is a uterine tonic; it might have, if it was taken, a teaspoonful every hour, 55 per cent. of alcohol; I think it might stimulate more flow, in suppression. If it is a sedative, it might have a quieting effect and might lessen the amount of flow; especially if it was in a nervous, irritable state of the patient.

Q.—Would it have any value in menstrual irregularities and uterine and ovarian troubles, when not caused by constitutional deformity or that do not require surgical treatment?

Mr. T. J. Scofield:—That I object to, if the Court please.

THE COURT:—Read the question.

(Question read.)

THE COURT:—He may answer.

Mr. T. J. Scofield:—Exception.

To which ruling of the Court the defendants, etc., excepted.

The Witness:—It would depend entirely upon whether the underlying cause of the menstrual irregularity was due to something that a uterine sedative or a uterine tonic could influence in any way. Many of the cases of irregularity, as I stated before, are due to such things as polypi, such things as inflammation of the lining membrane, such things as a general pelvic inflammation; in conditions of that kind, such medicine, whether a uterine tonic, or a uterine sedative, would have no effect in curing, but might temporarily relieve, especially if it was in the form of a fluidextract, or in the form of any alcohol, in sufficient amount to obtain the narcotic effect of the alcohol; just as gin in hot ginger, for instance, will often have the same effect, have a temporary soothing effect.

Mr. Hough: *Q.*—Did you say polypus? *A.*—I beg your pardon?

Q.—Did you say polypus? *A.*—What—polypus?

Q.—I did not catch the word? *A.*—I said polypi.

Q.—Oh, polypi? A.—Yes.

Q.—That would require surgical treatment, wouldn't it? *A.*—Well, I think it would be good treatment to remove the polypi rather than treat them therapeutically with some medicine.

Q.—Well, I excluded that kind of a case. That is a case that would require surgical treatment, and I excluded that kind of a case. Would it be good in all other kinds of cases? *A.*—All other cases—well, if you exclude all cases that have any structural change, what would you have left?

Q.—Quite a number—things for which you prescribe— *A.*—I would like to know definitely what you mean, and then I can give an intelligent answer.

Q.—Do you mean to say that there are no cases of menstrual irregularities and uterine and ovarian troubles which do not require surgical treatment? *A.*—Yes.

Q.—You mean there are some that do not require it? *A.*—Yes, a large number that do not require it.

Q.—Now, such a medicine as I have described would be good in that class of cases, wouldn't it? *A.*—It depends upon which particular kind you mean. Suppose—

Q.—Which generally require— *A.*—Suppose for instance we had, as in Chart B, which does not require surgical treatment, but requires mechanical support, and the displacement was producing marked irregularity and painful menstruation. It does not require surgical treatment, but it requires mechanical support.

Q.—Well, with mechanical support, would such a medicine be of any assistance in addition? *A.*—It might be, if it contains enough alcohol to narcotize the patient, and during a painful menstruation it might have an effect, and if you assume, in addition to that—

Q.—I am talking about the medicine, not the alcohol. *A.*—Well, alcohol is one of its ingredients. I was about to say, if, in addition to that, you assume its uterine sedative effect—a uterine sedative would be indicated for the painful menstruation that such a condition as that brought about.

Q.—Would it be of any value in any case of vaginitis? Any case of vaginitis? *A.*—I do not know of any case of vaginitis where a medicine such as you have described would be beneficial.

Q.—Are there any cases of vaginitis which can be cured by medicine at all, without surgical treatment? *A.*—Yes. I think a simple vaginitis, due to a nonvirulent infection, the simple catarrh of the vagina that produces simple whites, may be cured with any simple tonic medicine, by cleanliness and douches and proper local treatment;

whether you take medicine or not those cases get well; but I think the medicine that contains alcohol would be contraindicated in those cases, on account of its exhilarated, sort of so-called stimulating effect.

Q.—Wouldn't that depend upon the amount of alcohol in the medicine? *A.*—Yes, and the frequency with which it was taken.

Q.—If you had only such amount as is quickly oxidized in the system, it would not have a deleterious effect, would it? *A.*—I think it would have a very deleterious effect. That has been positively demonstrated in certain forms of vaginitis, due to certain specific irritants, certain specific germs.

Q.—Would it have as bad an effect as the same medicine given in 55 per cent. of alcohol? *A.*—As far as the alcohol was concerned, the larger amount of alcohol, the worst effect it would have upon any inflammatory condition.

Q.—So that you would say that fluidextract, for instance, of viburnum prunifolium, which contains 55 per cent., would be contraindicated, in any case of vaginitis? *A.*—In any case of vaginitis, or any form of inflammation, it would.

Q.—No matter what caused it? *A.*—In my opinion it would. It is always caused by infection.

Q.—What would be the smallest amount of alcohol which would not have a deleterious effect in that kind of a case, with a tonic which would be beneficial? *A.*—Well, I would not use alcohol in any quantity, if there was any local inflammatory condition existed.

Q.—You would not use a liquid medicine? *A.*—Yes, I would use a liquid medicine, but a nonalcoholic liquid medicine.

Q.—Well, what liquid medicines have you been in the habit of using in those cases? *A.*—In those cases?

Q.—Yes. *A.*—For a simple vaginitis, I have never been in the habit of using any form of medicine internally. There is no indication for any medicine internally; unless there is some other collateral condition of anemic trouble or a bowel condition, or a stomach disturbance; there is no reason why you should not use some form of medicine internally if they need it, while you are treating the vaginitis, which is a purely local inflammation; the same way as if you had an inflammation of the hand, you would not use a medicine internally, but, if you did have any other purpose for using it, you would avoid stimulating—a stimulating mixture, on account of its tendency to increase the blood flow to the capillaries, which would tend to make the inflammation more marked.

Q.—Would you have them take douches? *A.*—Sure. I would use hot douches, if there was a vaginitis, and I would use a medicated douche containing some antiseptic, depending upon the state of the inflammation, and the character of the discharge, as determined by microscopic examination of the secretion to see what particular germ was in it; as to whether it was a simple nonvirulent infection that caused it, or whether it was a gonorrheal infection that caused it, and my application of the germicide or the antiseptic would depend upon the character of the germ that was producing the inflammation.

Q.—And if the person was anemic or run down, a tonic would be indicated also, would it? *A.*—Why, certainly, yes.

Q.—What is the most common cause of falling of the womb or prolapse? *A.*—Why, the most common cause, I believe, is a removal of the supports of the womb from below.

Q.—Well, would you say that is child-bearing—due to child-bearing? *A.*—Well, that is one of the effects sometimes of child-bearing, unrepaired lacerations following childbirth.

I would not say definitely that that alone is the most common cause, as they usually work in combination. That, with an increased weight, is together the most common cause of uterine prolapse.

Q.—What is the principal cause of inflammation? *A.*—Infection.

Q.—Always infection? *A.*—Yes.

Q.—What character of infection? *A.*—It may be due to the staphylococcus or the streptococcus, or the gonococcus, or the various micro-organisms, too numerous to mention.

Q.—Well, what would you say would be your treatment in such case? *A.*—It depends upon the particular germ that was producing the inflammation. I have just stated in an answer or two ago that if you had a nonvirulent germ, sometimes a simple antiseptic douche of boracic acid, or a lysol douche two or three times a day in hot water, with simple saline laxatives that would tend to lessen the congestion of these parts—just the opposite to what a stimulant would do, that would drain away—and that application applied to the vagina and to the neck of the womb, glycerin, that takes water away from it and helps to get the congestion out of the parts—that line of treatment, with rest and avoidance of exercise that helped to bring congestion about to those parts—that, usually in the simple cases, will result in a cure.

Whereas, in the virulent cases, as I have repeatedly stated, you must put a nitrate of silver solution, argyrol solution, which is another silver preparation, or some strong preparation to these parts, to destroy and kill the germ that is producing the inflammation; and then a soothing wash afterward, and the other treatment that I have described. To kill the germ that is making it, is the underlying treatment for the inflammation.

Q.—And, if a person is run down, you would say a tonic would be indicated? *A.*—Why, certainly; that is, for the run down condition, but not for the inflammation.

Q.—What is ovaritis? *A.*—Inflammation of the ovaries.

Q.—Is that a surgical treatment, or a therapeutic treatment? *A.*—Surgical condition, do you mean?

Q.—Sir? *A.*—You said surgical treatment, I understood.

Q.—Would that require a surgical treatment? *A.*—In some cases, but a great many cases it would not. It depends upon the stage of the inflammation, the result of the inflammation and the local condition of the ovary, as to whether it is a medicinal case requiring therapeutic treatment, or whether it requires local mechanical treatment, or whether it requires surgical interference.

Q.—Well, take the case that does not require surgical treatment; what would be your treatment of that? *A.*—Well, there are so many different cases that do not require surgical treatment. For instance, you may have just a neuralgic condition of the ovary; you may have a slight thickening of the capsule covering the ovary, as the result of repeated congestion, without inflammation; that when the period of menstruation occurs the thickened capsule interferes with the rupture and permission of the ovule to escape out onto its surface and pass down through the tube. That will produce pain, the pain that comes on one or two or three days before the menstrual period; localized usually on one side; sometimes referred to as neuralgia of the ovary.

Q.—Well, now, what is the treatment? *A.*—The treatment would be to soothe the pain, to give some quieting medicine, then ask the patient to keep quiet and still; to use hot injections to draw blood away from the part, by drawing the blood down to the neck of the womb, and so on, and relieving it—put the hot water bag to the abdomen, and using saline laxatives to relieve pelvic congestion, and the internal use of paregoric or bromid, or something of that sort.

Q.—Would a uterine sedative be of any advantage? *A.*—Yes; all those things would have a general sedative effect, and, as a result of that, would have a general sedative effect upon the neuralgia or uterine or ovarian pain.

PREGNANCY

Q.—Doctor, will anything in the form of medicine make childbirth any easier for a woman? *A.*—Yes; chloroform will.

Q.—No; I am not talking about cutting her throat, or anything like that. *A.*—No. I say chloroform inhalation—

Q.—I don't mean that. If a woman is well, doesn't she go through the period better than if she is sick or weakly? *A.*—Well, I think so, sometimes; and sometimes the opposite is true.

Q.—Is there not a difference in the number of hours that they are in labor? *A.*—Yes; it varies a good deal, but it does not depend upon whether a woman is well or strong, or whether she is weak and sickly.

Q.—If she is well and strong, she goes through it better than if she is weak and sickly, doesn't she? *A.*—Very often it is just the opposite.

Q.—You mean if she is weak and sickly she goes through it better than if she is strong? *A.*—No, not better, but she does not have as much pain. The strong and healthy women that have the hard bearing down pains are more apt to suffer more than a weakly, sickly delicate woman will, who is not capable of the muscular effort that is necessary to expel the child. There is no definite rule about this.

Q.—If an apparently strong and healthy woman has a great deal of pain in that process, wouldn't it indicate that something was wrong with her? *A.*—No.

Q.—She ought not to have it, ought she? *A.*—She ought to have it; it is natural.

Q.—She ought not to have as much pain as some of them have? *A.*—It is natural for them to have pain.

Q.—Some pain? *A.*—Yes, a good deal of pain.

Q.—But not as much as some of them have? *A.*—They vary; there is no definite rule. It depends upon the relation of the child's head to the size of the pelvis, and the muscular and general tone of the individual; and I have seen perfectly normal, healthy women have almost unbearable pain, when I could detect no cause, except that they were strong and well, and it took, owing to the tightness of the muscle of the uterus itself, hard work to get the neck of the womb open. And I have seen the opposite in delicate frail women that have passed through it, it seemed to me with hardly any effect. As I said, there is no definite rule.

Q.—Did you ever give any medicine during pregnancy? *A.*—Why, certainly.

Q.—For what purpose? *A.*—Oh, for a great variety of purposes. Women are very apt to have disturbances during pregnancy, and they need particular care and particular forms of medication during pregnancy. One of the most common things that is called for is the use of the proper form of laxative remedy. Women have some tendency to suffer from constipation during pregnancy. It is supposed to be due to the fact that the enlarged uterus presses against the bowels and sort of interferes with the normal tone and the normal periodical action of the bowels; and, in the use of medicines for that purpose, we have to be particularly careful not to give medicines that would cause congestion of the pelvic organs, like aloes, and certain drugs that stimulate the lower tract, but rather some drug that acts higher up, like cascara, or senna, or something that acts on the small bowel. Saline laxatives are often good, and especially if a woman is pretty full blooded. Of course, for pale, anemic women we do not use saline, because it extracts too much water from the blood. That is one sample of the kind of medicinal treatment that is necessary during pregnancy.

Then there are every conceivable thing, from morning sickness, for which every drug in the pharmacopeia has been recommended—and perhaps black coffee before breakfast is as good as any of them. There is no specific thing that will cure the vomiting of pregnancy; one thing will answer in one woman and another thing in another, because it has had such a variety of causes.

And then when you get along in pregnancy you get other pressure symptoms; I think I referred on Friday to the kidney symptoms, which is perhaps one of the most important that calls for close watching, close management; sometimes intercurrent hemorrhages occur, also, and also displacement of the placenta; and almost innumerable complications that may occur during pregnancy that call for close and careful examination.

Q.—In addition to a laxative, Doctor, are any general tonics ever indicated in such conditions? *A.*—Why, yes; if a person is both anemic—if the stomach is atonic—as we sometimes term it—the appetite is poor, if they have bronchial affection, or any weaknesses in their chests, phosphates and emulsions of one kind and another are indicated

—just the same conditions as are present as when they are not pregnant, demand the same treatment.

Q.—Would a uterine tonic ever be indicated during that period? *A.*—Well, I do not know of any condition where you would dare give a tonic to the uterus while it contained its fetus, for fear the tightening up and contracting effect would cause a premature contraction, which always exists—that is, there is a regular rhythmic contraction going on all during pregnancy; and, to use medicine which had a tonic effect, which means to tone up that uterus, would be very dangerous treatment, for fear of so toning it up as to separate the after-birth from the inside of the uterus, or rupture the membranes and induce a miscarriage or premature labor.

Q.—Don't they give medicine to prevent a miscarriage? *A.*—Yes, I think some people do. I do. That is, I would if there was any indication for it.

Q.—And they give uterine tonics to prevent a miscarriage? *A.*—I do not think they give uterine tonics to prevent a miscarriage. They give the very opposite.

Q.—What do they give? *A.*—Bromid potassium, hypodermic morphia—they give opium suppositories, they give paregoric, where there is any tendency to much action on the part of the uterus; they usually elevate the foot of the bed, so that the blood will run toward her head; they give some kind of suppository, opium, or other. They give the very opposite to a uterine tonic to quiet that action, in the hope that the pains, on her taking something of that kind will gradually subside under the influence of the sedative.

Q.—Will you say that the opposite is a uterine sedative? *A.*—Yes, a uterine sedative would be the direct opposite of a uterine tonic.

Q.—Then anything which is a uterine sedative would be indicated in that condition? *A.*—Anything that is a general sedative. I know of no uterine sedative per se, but has a part of a general sedative effect in lowering the excitability of the spinal nerve centers, like bromids, like opiates, like belladonna, medicines that will have that soothing effect, and the same effects that I was asked to assume in this case were possessed by viburnum, that it had a soothing, antispasmodic effect; that is that effect that would be indicated.

Q.—To prevent a miscarriage? *A.*—To prevent uterine contractions that may result in a miscarriage.

Q.—Therefore it would be good during pregnancy? *A.*—If it had that effect, yes—if there was any tendency to miscarriage.

Q.—Doctor, would you say—

THE COURT:—We will stop now, gentlemen, till 10:30 in the morning, in this case.

An adjournment was taken until 10:30 o'clock a. m., of Tuesday, April 11, A. D. 1916.

April, 12, 1916, Morning

The Court met pursuant to adjournment on April 11, on which day no evidence was offered. Dr. John Leeming resumed the stand.

FURTHER CROSS-EXAMINATION BY MR. HOUGH

Q.—Doctor, do you know how many pharmacopeial preparations contain alcohol? *A.*—Not exactly.

Objection was made to this question, the court ruling that the witness might answer. He was then asked:

Mr. Hough: Q.—Do you know how many pharmacopeial preparations contain more than 20 per cent. alcohol?

Objection to this question was made by Mr. Scofield on the grounds that it was immaterial. Mr. Hough argued the question stating that the purpose of his query was to test the value of the witness' opinion as to effect of the alcohol in Wine of Cardui as compared with that in other preparations. The Court ruled that the witness might answer, stating that it is not desired, however, "to open up the door to the whole pharmacopeia." The witness finally answered:

The Witness:—I do not know exactly how many pharmacopeial preparations contain alcohol, but I think I do know the number that contain more than 20 per cent.

Mr. Hough: Q.—How many? *A.*—I think about seven.

Q.—I don't mean— *A.*—Do you mean by volume?

Q.—I mean the percentage of alcohol. I am not referring to the dosage. *A.*—Oh, I see. Oh, yes. I do not know how many there are, but there are a large number that contain more than 20 per cent. alcohol.

Q.—Now, is it your opinion, Doctor, that the alcohol in those pharmacopeial preparations which contain more than 20 per cent. would have a different effect upon the patient than the alcohol that is contained in Wine of Cardui? *A.*—So far as the effect of the alcohol in itself is concerned, it would have the same effect regardless of the other contents.

Q.—Then, if the effect of 20 per cent. alcohol in Wine of Cardui would be what you have testified to on direct examination, it would likewise have the same effect in every other pharmacopeial preparation that contained as much as 20 per cent. alcohol? *A.*—As I understand it, the physiological action of alcohol is the same regardless of the other ingredients that go with it, and whether it is in Wine of Cardui, or tincture of nux vomica or tincture of opium, so far as the alcohol is concerned in a given amount, its physiological action would be the same.

THE COURT: *Q.*—Well, could you give the alcohol in such a combination that the other drugs would neutralize or offset (so far as the physiological effect is concerned) the action of the alcohol? *A.*—Yes, that might well be. That is, if you have alcohol in 20 per cent. solution that is given in tablespoonful doses, that represents 48 drops of pure alcohol. If, in combination with that alcohol, there is a medicinal solution that has no marked, potent action, that will not interfere with that mixture being used in unlimited quantities.

If, on the other hand, you have a solution with 20 per cent. alcohol that contains some potent drug like the two I mentioned (opium and nux vomica or various others), there is something in the 20 per cent. solution that will prevent its being used in large quantities, so that there would be no danger of getting any more than the effect, ordinary effect of the alcohol. But where there is no potent drug and the main physiological action of the combination is that of the alcohol, it may be used in unlimited quantities because there is nothing in it to prevent the habit developing tendency of alcohol.

Mr. Hough:—I ask that that answer be stricken out as not responsive.

THE COURT:—Yes, it may be stricken out.

To which ruling of the Court the defendants, etc., excepted.

THE COURT:—I think the witness did not understand the question put by the court. What I intended to ask you was, whether alcohol could be used in combination with certain drugs that would offset or counteract the effect of the alcohol. *A.*—Yes, I think possibly it could. That is, a drug that was a direct sedative, combined with the alcohol, which is a diffusible stimulant, the physiological action of the two would be—would neutralize to some extent, each other.

Mr. Hough: Q.—Take the action of ergot. Do you know how much alcohol there is in that? *A.*—In which particular preparation do you mean?

Q.—Wine of ergot. *A.*—Do you mean the wine or the fluidextract?

Q.—I am asking you first about the wine of ergot, and then I will ask you about the fluidextract. *A.*—I do not know exactly what proportion there is in the wine of ergot; I never used the wine. I always used the fluidextract or the active principle of ergot.

Q.—How much is there in the fluidextract? *A.*—In the fluidextract, about 50 per cent.

Q.—And what is the dose, the maximum and minimum dose? *A.*—Ten minims is about the minimum dose, though it is sometimes used in smaller quantities. The maximum dose, the very maximum dose, I should say would be a dram, though according to the pharmacopeia, I think the maximum dose is 20 to 40 drops, but I am not quite sure as to what the pharmacopeial dose is.

Q.—Will you tell the jury what a dram is? *A.*—A dram is approximately 60 drops, or a teaspoonful.

Q.—Now, in that there is the same amount of alcohol that there is in whiskey of that proof, isn't there? *A.*—Yes.

Q.—So, in a teaspoonful of that they would get the same volume as in a teaspoonful of whiskey? *A.*—Yes.

Q.—Now, do you say that the alcohol in that would not have the same effect as the alcohol in a teaspoonful of Wine of Cardui? *A.*—So far as the physiological action of the alcohol is concerned, it would be the same in whatever preparation it was used, unless it was neutralized by the action of the drug and, in neither of the illustrations suggested (so far as I know) is it at all neutralized by the action of the ergot or the contents of the Wine of Cardui.

Q.—Doctor, you have stated that there are no such things as medical authorities. Are there any such things as standard medical works?

Mr. T. J. Scofield:—That is objected to as not cross-examination.

THE COURT:—He may answer:

To which ruling of the Court the defendants, etc., excepted.

A.—Well, from my point of view there are.

Mr. T. J. Scofield:—Wait just a moment, Doctor.

Mr. Hough:—The Court has said he may answer.

Mr. T. J. Scofield:—All right, go ahead.

The Witness:—I have answered it.

Mr. Hough: Q.—Would the authors whose names I included in my hypothetical question, and the works referred to therein, be considered standard medical works?

Mr. T. J. Scofield:—That is objected to for the same reason.

THE COURT:—What was the answer to the other question?

(Answer read as follows: "Well, from my point of view there are.")

THE COURT:—I think you had better enumerate them, Mr. Hough. The witness may recall all that you put in your hypothetical question, covering a period of 45 minutes or so, but the court does not, and I am pretty sure the jury does not.

Mr. Hough:—I will ask first if the witness recalls the names of any of them? *A.*—I recall some of them, quite a number of names.

Q.—Would you state which of the names you recall you would regard as standard medical works?

Mr. T. J. Scofield:—That is objected to if the Court please.

THE COURT:—Ought you not to put the preliminary question first Mr. Hough, as to whether or not the witness relies on any of those works in expressing his opinion?

Mr. Hough:—I was going to come to that. First, I want to get an idea of what he regards as standard works. He says there are such standard works.

THE COURT:—If, in expressing his opinion here he places no reliance upon the so-called standard works, you are not in a position to cross-examine him about the standard works, so called.

Mr. Hough:—I had not reached that part of it.

THE COURT:—Why not put the essential question first? Because if you do, we can stop this branch of the examination, if he says that he does not, or has not, in giving his opinion, relied upon any so-called standard work.

To which ruling of the court the plaintiffs, etc., excepted.

Mr. Hough:—Very well, I will put that question first.

Q.—In giving your opinion, have you relied on any—or taken into consideration, any of the so-called standard works? *A.*—Do you mean on any of the subjects that I have been asked to give an opinion upon?

Q.—Yes. *A.*—Or in reference only to the action of drugs?

THE COURT:—On any subject. *A.*—On any subject?

THE COURT:—Yes. *A.*—I have not based my opinion upon any standard works, so-called, though I have had those works and the views expressed by those writers in mind in a general way, in forming my judgment on those various questions.

THE COURT: *Q.*—Now, will you enumerate, as you recall them, what authors you had in mind, what works? *A.*—With reference to the question of drugs and their physiological action, I have had in mind the National Dispensatory as descriptive of the drugs. I look upon that as standard, so far as the description of the drug is concerned.

I have had H. C. Wood of Philadelphia in mind. I have had Shoemaker in mind; I have had Hobart Hare in mind; I have had the United States Pharmacopeia in mind, so far as its description of drugs is concerned, but not as to the therapeutic value of the drugs.

I have had Culbreath in mind, and Biddle in mind and Butler and Potter and I think probably some others, whose names do not occur to me just at this moment.

Mr. Hough:—Now, which of those, Doctor, agree with your statement which you made about viburnum prunifolium?

Mr. T. J. Scofield:—That is objected to, if the Court please.

THE COURT:—The objection is sustained.

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. Hough: Q.—Which of those authorities, Doctor, did you have in mind when you testified as you did, about viburnum prunifolium?

Mr. T. J. Scofield:—That is objected to, if the Court please. The doctor has not said that he based his opinion upon any of those books.

THE COURT:—If he recalls, he may answer.

To which ruling of the Court the defendants, etc., excepted.

The Witness: A.—I did not have any of them in mind as an authority on the subject, but as standard writers I had a number of them in mind who stated, as I have stated, that viburnum prunifolium was reputed to have certain effects as a sedative, as a sedative to the spinal cord, as a medicine which would lessen reflex excitability and irritability. I had another writer in mind who stated that it acted as a uterine sedative. Do you want me to name the individual ones each time?

Mr. Hough:—I would be glad to have you do so. *A.*—I think Bartholow and Shoemaker are the two writers that I look upon as standard writers who made the first statement that I have mentioned. I had another one in mind by the name of Jenks who made the statement that viburnum prunifolium was reputed to be a uterine sedative and the opinion that I expressed, that when I used it, I used it because it was reputed to be a uterine sedative—I agreed with it at that time before I had experimented or tested it out further and satisfied myself that it was not. Those are the writers that I had in mind.

Q.—Which of those writers did you have in mind, if any, as supporting the views which you now give as to viburnum prunifolium?

Mr. T. J. Scofield:—That is objected to. The doctor has stated that he did not base his opinion upon any of these writers, but upon his personal experience.

THE COURT:—The witness, as I understand it, entertains at this time a very different view of viburnum prunifolium than he did originally, when he began to use it and I do not understand the witness to have told us that there is any authority for his present view, except his own experience.

Mr. Hough:—I do not think that has been stated, and I think I am entitled to ascertain it. He said that he made the statement he did, having in mind the statement in certain medical works.

THE COURT:—Put the question directly to him as to his present views as to viburnum prunifolium.

Mr. Hough:—I have put the question to him as to his present views, but—

THE COURT:—Ask him if he bases them upon any authority?

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. Hough: Q.—Did you have in mind any of those authorities as supporting your views with reference to viburnum prunifolium?

Mr. T. J. Scofield:—That is objected to.

THE COURT:—He may answer.

To which ruling of the Court the defendants, etc., excepted.

A.—Not the authorities that I have mentioned, but other standard authorities—or standard writers. By that I mean—when I made the statement, standard writers, I mean men whose opinions I respected and whose views I considered in forming my opinion. I had others in mind that did agree and do agree with the opinions I hold now in reference to the action of viburnum prunifolium.

Mr. Hough: Q.—Now, will you name the medical textbooks or medical books which express those views? *A.*—I don't base it on any medical textbooks. I base it upon the actual pharmacological and clinical demonstration which proves conclusively the action, or lack of action of this drug, regardless of its reputed action.

Q.—Then you mean that you exclude all the medical textbooks referred to and base your opinion only on some report of some doctor? *A.*—No.

Mr. T. J. Scofield:—Wait a moment; I object to that question. The witness has already stated on what he bases his opinion.

THE COURT:—The witness has answered "no" and it might as well stand. We will save time.

To which ruling of the Court the defendants, etc., excepted.

Mr. Hough: Q.—Do you mean to state, Doctor, that you consider a negative pharmacological test as to the action of a drug, a vegetable drug, as conclusive as to its therapeutic value? *A.*—I mean to say that a negative, pharmacological test taken in combination with an affirmative and positive clinical test, and positive demonstration, is conclusive evidence. One alone might not be conclusive, but in combination with a negative, pharmacological test, and a positive clinical test that is capable of demonstration, that can be seen and felt and is not the reputed action that somebody supposed was there, but is capable of proof, that can be seen, that is positive evidence, and that is the sort of evidence I base my opinion on.

Q.—Well, suppose you used the words "positive and negative" in this sense; not securing any results, that is a negative test. Positive tests, securing results. Now, would you say that a negative test demonstrates the worthlessness of any vegetable drug?

Mr. T. J. Scofield:—That is objected to, if the Court please, as already answered.

THE COURT:—He may answer.

To which ruling of the Court the defendants, etc., excepted.

A.—Just taking the negative effect alone might not be positive proof. It depends upon the particular action you were looking for. If you are looking for the action of a poison, a negative test would be conclusive. But, if you were looking for the action of a slight sedative, a negative test might not be sufficient to positively demonstrate it. It would require the corroboration of some more definite affirmative evidence and that is the reason I combined the two together in this case and did not rely upon a negative, pharmacological test.

Mr. Hough: Q.—Now, to understand the use of the term as applied to tests on rabbits or dogs, if it is tested in the pharmacological way and kills the dog, or creates some abnormal symptom, that would be a positive test, would it not, as to the dog? *A.*—Which, if it killed the dog?

Q.—Yes. *A.*—Yes, that would be positive that it had killed the dog.

Q.—Or, if it created abnormal symptoms, out of the ordinary? *A.*—Well, that is a pretty general term. It would depend upon what sort of control tests were applied to see if it positively produced abnormal symptoms as a result of the experiment.

Q.—If, however, when tested subcutaneously, or by injection, or in the mouth in the proper way, there is no apparent effect, then you would call that a negative test, would you not? *A.*—Well, it would depend largely to my mind upon how you construe the apparent effect, whether it was observed microscopically or otherwise.

THE COURT:—Tell us this, Doctor; how do you define a negative test pharmacologically speaking? *A.*—I mean by a negative test—

Mr. T. J. Scofield:—Just a moment, Doctor. We have asked Dr. Leeming nothing upon the subject of pharmacological tests. He has not testified as a pharmacologist and we object to the question.

Mr. Hough:—Why, the witness has stated that he bases his opinion on pharmacological tests.

THE COURT:—He may answer.

To which ruling of the court the defendants, etc., excepted.

A.—By negative tests, pharmacologically, I mean that if two drugs are being experimented with, say on the action of a muscle, if one of these drugs (both of which are assumed to have some direct effect upon the muscle) and one drug is injected in the ordinary dosage into that muscle; the muscle is not only watched with the naked eye, but an instrument is applied to the muscle which registers its vibration and its every movement and, as a result of the one you get no response to the observation of the naked eye; no shortening of the muscle indicating contraction; no change in the color, indicating that the parts have been squeezed and become lighter in color; and the mechanical device which positively registers the movements, is perfectly negative in action, shows no response—then I conclude negatively that there is no action from that drug, while with the other drug I get just the opposite to those effects. The injection is made, the muscle contractions can be seen with the naked eye, the contraction can be accurately registered with an instrument of precision; the color of the organ or single muscle will change on account of the contraction, squeezing out some of the blood, and making it lighter in color. That would be positive, showing that the drug acted affirmatively and positively on that muscle, while the other was negative, showing no action.

Mr. Hough: Q.—Did I understand you to say, Doctor, that giving a medicine, a medicine containing 20 per cent. alcohol, in tablespoonful doses would lead to an alcoholic habit? A.—I did not make any positive statement to that effect. I simply said that it might lead to an alcoholic habit, if there was no drug combined with the 20 per cent. solution that would prevent the continued use and in unlimited quantities of the alcohol which contained this impotent drug. Then it might be used, as soon as the exhilarating effect of the alcohol was perceived by the patient and the apparent bracing up effect of it was experienced, and no other effect that would interfere with its continued use—such an individual would take bigger doses and begin to feel more exhilarated and in that way the habit would be developed.

Q.—I don't think you quite understood my question. A.—Beg pardon?

Q.—I am talking about the effect of a single dose. Do you say that the giving of a single dose of a medicine containing 20 per cent. alcohol would tend to lead to the alcoholic habit? A.—By single dose, you mean how much of the 20 per cent. solution?

Q.—Say a tablespoonful. A.—I do not think for a moment that a single dose would have any such effect, a single dose.

Q.—Would that dose influence the patient to want another dose? A.—Not a single dose, no.

Q.—How much would the percentage of alcohol have to be increased, in order to have a single dose induce the habit or create a desire for a second dose—

Mr. T. J. Scofield:—That is objected to.

Mr. Hough:—in your opinion?

THE COURT:—Recollect now that the dose is a tablespoonful. You may answer.

To which ruling of the Court the defendants, etc., excepted.

Mr. Hough:—How much— A.—As I understand it is a question—

Q.—How much more alcohol must there be in it? A.—In a tablespoonful?

Q.—Yes. A.—It would not make any difference if it was all alcohol. A single dose would not induce a habit.

Q.—A single dose would not induce a desire to repeat the dose? A.—I do not think a single dose would if it was all alcohol.

Q.—Do you want to make a correction as to your statement about Liquor Sedans? A.—Why, yes. I had another preparation in mind, made in St. Louis, as I think I said, called Bromidia and in giving what I remembered as the composition of Bromidia, I did that in answer to your question as to what Liquor Sedans contained. I was thinking of another medicine that was made in St. Louis, as I stated. The contents of Liquor Sedans is different from what I stated. It contains viburnum and hydrastis and dogwood, in alcohol.

Q.—(Handing the witness a bottle). Is that the—

Mr. T. J. Scofield:—I object to that.

THE COURT:—There is no question yet to object to.

Mr. Hough:—I was only trying to help the witness.

The Witness:—Thank you.

Mr. T. J. Scofield:—Nobody knows whether this is Liquor Sedans or alcohol and mustard or what. There is no evidence—

THE COURT:—This all results from a question asking the witness if he wanted to make a correction.

Mr. T. J. Scofield:—Yes, and he made the correction.

Mr. Hough:—No, he has not.

THE COURT:—He was not through. Proceed.

To which ruling of the Court the defendants, etc., excepted.

Mr. Hough: Q.—Now, will you state what it is, Doctor. A.—I thought I just did state that it contained viburnum prunifolium and Jamaica dogwood and hydrastis and some aromatics in an alcoholic solution.

Q.—In what per cent. of alcohol?

Mr. T. J. Scofield:—That is objected to.

THE COURT:—He may tell.

To which ruling of the Court the defendants, etc., excepted.

A.—I think 30 per cent.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

Q.—Doctor, when you stated that the hypothetical medicine which you were interrogated about both on the direct and cross-examination, would not have any effect in any form of falling of the womb, upon what reason do you base that opinion?

Mr. Walker:—That is objected to. That was all legitimate on direct examination, but I think he has already given it.

THE COURT:—He may explain, if he wants to, and give his reasons.

To which ruling of the Court the plaintiffs, etc., excepted.

A.—My reason for it is that in the hypothetical question I was asked to assume, there was nothing in the physiological action of the drugs described (even on the assumption presented to me), that could in any way change the position of the uterus or change it from a position of prolapse to its normal position.

Mr. T. J. Scofield: Q.—What have you to say as to the case of anteversion or anteflexion?

Mr. Hough:—That is objected to for the same reason. This is direct examination.

THE COURT:—Hasn't he been all over that?

Mr. T. J. Scofield:—No, I did not ask him—I did not ask the reasons in some instances and I am only now calling attention—

Mr. Hough:—That was the time to ask the reasons even if he did not.

THE COURT:—No, because you brought it out on cross-examination, asking him the specific question which he answered "yes" or "no."

Mr. Hough:—But only based upon what he had stated on direct examination.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. T. J. Scofield:—Yes. Answer the question.

A.—For the same reason I gave in the last answer, that there is nothing in the action of the drugs that could act upon the ligaments to cause them to draw the womb back into its natural position after displacement.

Q.—When you stated that the hypothetical medicine would not remove the causes which produced retroflexion or retroversion in any of the ordinary cases, upon what do you base that opinion? A.—The same thing that I have just stated.

Q.—When you stated that the hypothetical medicine would not have any effect in cases of falling of the womb, in pulling the womb up, upon what do you base that opinion? A.—I base it upon the same thing.

Q.—When you say that in your opinion, the hypothetical medicine would not remove or absorb adhesions in case of displacements, upon what do you base that opinion?

Mr. Walker:—The same objection.

THE COURT:—Yes, that objection will be preserved to all of this, and the same ruling.

To which ruling of the Court the plaintiffs, etc., excepted.

A.—Well, I base that upon this idea; that the hypothetical question assumed that the two drugs with the alcohol the composition contains, have a peculiar physiological action, but there is nothing in that physiological action that will absorb from the tissues an adhesion or the exudates that go to make that adhesion. For that reason I gave the opinion, my opinion, that there is nothing in the hypothetical solution that can absorb inflammatory adhesions.

Mr. T. J. Scofield:—When you stated, Doctor, that the hypothetical medicine which was described in the first hypothetical question, when used in connection with what has been designated as the knee chest position, would not result in the removal of the cause of sterility, upon what do you base that opinion? A.—That there is nothing in the physiological action of the drugs, as I am asked to assume their physiological action, that can change the cause which produces sterility or any of the various causes which produce sterility, that is the reason I gave that opinion.

Q.—Now, with reference to the—bearing in mind the questions which I have asked you, and applying the inquiry to inversion of the womb, please state why you gave the opinion you did. A.—The same answer which I gave to the last question will be my answer to that.

Q.—How about pyosalpinx?

Mr. Hough:—That is objected to.

THE COURT:—(Addressing counsel for defendants.) I think you have been over two thirds of this.

Mr. Hough:—And I never said a word about it on cross-examination.

Mr. T. J. Scofield:—On the cross-examination of Dr. Leeming, they asked certain questions as to these different conditions. He made his answer and there they dropped it entirely. They did not follow it further. Now I want to know the reason of the answer that he gave, with reference to these different situations which—

THE COURT:—I think you have a right to do it, but I am still of the opinion, that, on direct examination, he told us most of this.

Mr. T. J. Scofield:—No, he did not, if the court please. If he had, I would not ask these questions.

THE COURT:—Well, go ahead.

To which ruling of the Court the plaintiffs, etc., excepted.

(The question was then read.)

A.—Well, you are asking me for the reasons why I gave that opinion?

Mr. T. J. Scofield:—Yes. A.—The same reason applies that I have given to that question you have just asked me; because there is nothing in the hypothetical medicine you have assumed, even taking into consideration the virtues you have attributed to its ingredients, that could in any way act upon pyosalpinx to remove it or cure it.

Q.—Let me group three or four of them: ovarian abscess, menorrhagia, metrorrhagia and amenorrhea. What answer would you give? A.—I cannot answer that question as grouped. I can answer it so far as any physical structural change is concerned, like ovarian abscess. But with reference to menorrhagia and things of that kind, there are cases of menorrhagia where a medicine which has the virtues assumed, that you have assumed this medicine has, might give some temporary relief.

Q.—Why? A.—Which I have explained, because you have asked me to assume that it contains a uterine sedative; that it contains a medicine which lessens the reflex excitability and acts as a sedative to the spinal cord; and that it contains 20 per cent. alcohol, the equivalent of 48 drops. Now I know of certain forms of dysmenorrhea and some functional perversions of menstruation where that combination might possibly afford some temporary relief, where it is not necessary to get at, to undo and correct some underlying structural change or physical cause. I

think I described it as a sort of neuralgic, colicy or spasmodic dysmenorrhea, the form for which we use gin and hot water as a temporary relief for a few days while the flow becomes established. That is the view I hold in regard to it, assuming that they have the properties you have attributed to them.

Q.—In case a woman has what is frequently called the whites or leukorrhea and she notices some discharge of blood with it, that it is slightly tinged with blood, would there or would there not be any danger in the use of such a hypothetical medicine? *A.*—There would—

Mr. Hough:—Just a moment; that is an objectionable question.

The Witness:—There might.

Mr. Hough:—I would like to have the witness always wait and give me a chance. That is not the point as to whether there is any danger in pursuing one course as against another course.

THE COURT:—No, but this was a specific danger from a specific course.

Mr. Hough:—This is simply asking him whether it is better to pursue one form of treatment, or another form of treatment. This does not involve the question of the ingredients of this medicine.

THE COURT:—It involves only the danger of the use of this hypothetical medicine for this specific disorder.

Mr. Hough:—I am perfectly willing to admit that every witness they put on the stand will say—

Mr. T. J. Scofield:—I am not asking Mr. Hough for any admission or any speech.

THE COURT:—Objection overruled.

To which ruling of the Court the plaintiffs, etc., excepted.

A.—Where a symptom like whites is present, and is tinged with blood as stated, the presence of blood in that discharge, may be an evidence of some serious condition, such as cancer of the neck of the womb, and the use of a medicine that is soothing, as described in the hypothesis, and is somewhat narcotic on account of this stimulant and may permit such a patient with such a condition as shown by such symptom of whites and blood—may permit the patient to go on using the soothing, narcotizing and exhilarating medicine, until the condition has advanced to such a stage that it is beyond removing.

THE COURT:—Now, I undertake to say, Mr. Scofield, that on your direct examination, or the cross-examination, you will find that identical answer in almost the identical terms.

Mr. T. J. Scofield:—Well, I don't recall it. If it was drawn out, I don't recall the fact.

Q.—Doctor, in your opinion, will such a medicine, as has been described to you hypothetically, kill the germs of malaria? *A.*—No, it will not.

Q.—Why, not? *A.*—Because it has not the power, it has not the physiological properties that will enable it to destroy this plasmodium.

RECROSS-EXAMINATION BY MR. HOUGH

Q.—Doctor, did I understand you to say that you have never used the fluidextract of carduus benedictus in your practice? *A.*—That is what I stated, yes.

Q.—You have never tested it out in that way at all in your practice? *A.*—No.

Q.—Now, do you mean to say that no drugs are ever given in any of these cases that Mr. Scofield has just asked you about? *A.*—No, I do not mean to say that.

Q.—You mean to say that drugs are given in those cases don't you? *A.*—Yes, when drugs are called for in those cases for other conditions which complicate or accompany these conditions. Drugs are not given to cure this structural condition, but drugs may be given for other conditions which accompany this condition, as I explained before.

Q.—You mean that structural conditions require some operation or mechanical interference? *A.*—Structural? They may or may not. There are a number of structural conditions shown on the charts which do not require operation.

Q.—What do you call "operation?" *A.*—I am using it in the sense of a surgical procedure, a cutting operation, not a mechanical support.

Q.—Putting in a mechanical support, you would not regard as surgical? *A.*—No.

Q.—In any sense? *A.*—Well, it depends upon in what sense you construe it. It is a mechanical procedure, it comes under the head of mechanical surgery, but not in the same sense as operative surgery.

Q.—In addition to operation or the mechanical surgery, or whatever you choose to call it, medicines are given, aren't they by the mouth?

Mr. T. J. Scofield:—That is objected to.

THE COURT:—He may answer.

To which ruling of the Court the defendants, etc., excepted.

A.—They are given for other conditions of the patient, generally for local conditions of the stomach or bowels or anything that is called for by the local or general condition of the patient, but not for the structural changes.

Mr. Hough: Q.—Doctor, in order to ascertain your meaning a little better; any trouble with the eyes will cause a headache, won't it?

Mr. T. J. Scofield:—I object to that as not a recross-examination.

THE COURT:—I think we went over all the eye-headache proposition the other day.

Mr. T. J. Scofield:—Yes, he went over it.

Mr. Hough:—Did we, with this witness? I think not, your Honor. I did ask him something about what he meant by the use of the word "cure" or whether a thing is given for one condition or another condition; but it occurred to me that this illustration might better elucidate the witness's attitude with reference to the meaning of the word "cure" and whether a thing is given for one condition or another condition.

THE COURT:—I was trying to find out who had any doubt as to what the witness meant. The witness does not want to explain. Do you think this is necessary to his answer? Do you think it is ambiguous?

Mr. Hough:—I think it possibly might be a little confusing to the jury.

THE COURT:—I doubt it.

Mr. Hough:—I think I know what he means, and if the jury think it knows, why all right. May I ask with reference to this?

THE COURT:—It seems to me that we are not getting anywhere. We have been over the question of what will cure—at least what the witness means by the word "cure," and we spent a good deal of time on that.

To which ruling of the Court the plaintiffs, etc., excepted.

TESTIMONY OF DR. J. CLARENCE WEBSTER

Dr. J. Clarence Webster was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. J. C. Webster testified that he graduated at the University of Edinburgh in Scotland in 1888, became Bachelor of Medicine and Master of Surgery and later Doctor of Medicine. He is a fellow of the College of Physicians of Edinburgh and a fellow of the American College of Surgeons. He has been associated with a clinic in the chair of Obstetrics and Diseases of Women in Edinburgh, The Royal Infirmary and also worked in the hospitals of Berlin, Leipzig, Paris and Dublin. He was lecturer on diseases of women from 1897 to 1899 in Montreal and held a staff appointment in the Royal Victoria Hospital in that city. He holds at present and has held since 1899 the Chair of Obstetrics and Diseases of Women in Rush Medical College and holds staff appointments in the Presbyterian Hospital and other hospitals. As to his experience, the witness stated as an example, that the hospital report shows that in the year 1914, he had in the hospital 684 cases of diseases of women and 379 obstetrical cases. Under his charge in the Central Free Dispensary, 1,238 cases of diseases of women and obstetrics were treated. These do not include office patients.

The witness testified that he is a fellow of the American Medical Association. He was asked to name and describe the organs of the female pelvis. Mr. Hough stated:

"We will admit that the Doctor knows them."

The attention of the witness was called to the charts, A, B, C, D, E, described in the testimony of Dr. Leeming, and he identified them.

The witness was asked:

Q.—I will ask you this question then, Doctor: Is it necessary to make an examination of the female pelvis in order to determine the condition, the underlying cause of the condition, and the treatment which is necessary?

Mr. Hough:—That is objected to also?

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

THE COURT:—This of course is his opinion.

A.—It is necessary.

Mr. T. J. Scofield: Q.—Why is that true, Doctor? *A.*—Why is it true?

Q.—Yes; why is it necessary?

Mr. Hough:—That is objected to.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

A.—Because from symptoms one can rarely have any accurate idea of the pathological conditions in the body, in this part of the body. I am now referring my remarks to this department of disease. There are many symptoms which are common to different conditions and consequently it is necessary in analyzing a case, to make a careful physical examination.

Mr. T. J. Scofield:—Can you determine, or can the condition of the uterus, or the pelvic organs be determined merely by attention to the description of symptoms which a patient gives?

Mr. Hough objected to this question as not pertinent to the issue. The Court stated that "it may be, that, in the charge that the business was built up by deceit . . . the question would be proper." After argument the Court ruled that the witness might answer.

A.—I cannot.

Mr. T. J. Scofield: *Q.*—Doctor, have you had any personal experience with the use of cnicus benedictus? *A.*—No, sir.

Q.—Have you had any personal experience with the use of viburnum prunifolium? *A.*—I have.

Q.—Tell the jury what has been your experience with viburnum prunifolium, and what conclusion you have arrived at with reference to it. *A.*—One of the things that struck me very forcibly when I started my work in Edinburgh as a young practitioner, was the small number of drugs that—

Mr. Walker:—We object to it.

The Witness:—that were—

THE COURT:—I think the question does not call for any individual matter of your personal history, Doctor. It is just to give as concise an answer to the question as you can.

(The question was then read.)

THE COURT:—That is, have you used it, and to what extent and what is your opinion of its worth?

A.—When I started early in my work, I say, I used viburnum prunifolium. I used the fluidextract. It was then quite extensively used in America and in the British schools. I used it in hospital practice, I used it in dispensary practice. I used it for the purposes for which it was supposed to be beneficial, particularly cases of pelvic pain associated with the menstrual function in women. I also used it in cases of threatened abortion. After the year 1896 I ceased to use that fluidextract. I then used the solid extract. The reason why I ceased to use it was, working in the laboratory with a friend of mine who was very much interested in that drug—

Mr. Hough:—That is objected to. That does not make any difference.

THE COURT:—The reason is not important.

To which ruling of the Court the defendants, etc., excepted.

The Witness:—The reason was that this friend of mine—

Mr. Hough:—That is objected to.

THE COURT:—Don't tell any conversation, Doctor.

To which ruling of the Court the defendants, etc., excepted.

A.—I gave it up because I believed that the benefit that I got from its use in pain in association with menstruation, was due to the alcohol in it. I had never had any reason whatever to believe that it was of any value in warding off a threatened abortion. When I worked with the solid extract which contained no alcohol, I could not get the same results that I had obtained before in connection with its use in the pains of menstruation and gradually I gave up the use of the drug altogether.

Mr. T. J. Scofield: *Q.*—What is your opinion then, Doctor, from your experience with viburnum prunifolium, both in the fluidextract and as a solid extractive—what is your opinion as to the value of viburnum prunifolium, as a drug in such cases? *A.*—In such cases—

Q.—Yes. *A.*—I have come to the conclusion that it is of no value.

Q.—Now, Doctor, I wish to present to you for your consideration, a hypothetical medicine or solution.

THE COURT:—I think I will excuse the jury for a few minutes before we get to the hypothetical question.

Mr. T. J. Scofield:—It is not too long, your Honor, it will only be a page or two.

(Recess of ten minutes.)

Mr. T. J. Scofield: *Q.*—Doctor, I wish to present to you for your consideration, a hypothetical solution. This solution contains two drugs derived from the vegetable kingdom.

I will ask you to assume that the virtues of these two ingredients, which I will later describe in more detail, are obtained and preserved and held in solution by 20 per cent. of alcohol and when this liquid medicine is taken internally, each dose contains 48 drops of pure alcohol, or the equivalent of 96 drops of whiskey.

One of these ingredients (viburnum prunifolium) is derived from the bark of a certain shrub. It contains a bitter principle freely soluble in alcohol and also, a trace of valerianic acid, together with a bitter brown resin, tannin, sugar, oxalates, citrates, malates.

Assume that in the solution I am describing, that each dose of this medicine contains approximately the extractives from three grains of this bark.

Assume further, that when this medicine is taken in the ordinary and usual medicinal dose of 30 to 60 grains, it exerts a sedative action upon the spinal centers and lessens reflex excitability and irritability; that it has a special sedative action upon the uterus; that it is an antispasmodic, somewhat diuretic and astringent and that its bitter principle is slightly tonic.

The other ingredient of this solution (cnicus benedictus) is made from a weed or thistle; that an infusion of this herb has some bitter tonic action upon the stomach, like calumba, also that it contains a volatile oil and an amorphous bitter principle, neutral in reaction, slightly soluble in cold water, more so in hot water, and freely soluble in alcohol.

Assume that this bitter principle in doses of eight grains is somewhat antiperiodic in action, and that when an infusion of the herb is taken hot and in large quantities, it is diuretic and diaphoretic in action, and also that it possesses some action as a hepatic stimulant.

Assume that when large doses of the active principle are taken internally, it produces nausea, vomiting and intestinal irritation.

Assume that this drug is recommended in doses of from 20 to 60 grains and that in the medicinal solution I am asking you to consider it is used in doses of approximately the extractives from 30 grains.

Now, Doctor, I want you to have in mind the two medicines which I have described. I want you to assume that they possess the properties which I have mentioned, regardless of your personal opinion, and that they are used in combination and in the doses which I have given you, namely, the extractives from approximately three grains of one, and 30 grains of the other, and that each dose contains 48 drops of pure alcohol.

If you have this solution in mind, I want to ask you if you have an opinion as to the physiological and therapeutic value, if any, of this medicinal solution? *A.*—Yes, sir; I have.

Q.—What is that opinion? Before answering that question, let me ask you whether or not you are acquainted with gonorrhea in woman, that is, whether or not you know what it is? *A.*—Yes, sir.

Q.—Will you tell the jury what sort of a disease it is, and what produces it? *A.*—Gonorrhea is one of the so-called venereal diseases. It is produced by a micro-organism, a germ which was discovered in 1879 by Neisser and is well recognized, can be isolated and cultivated. Its characteristics are thoroughly known. It is the implantation of this germ in the genital tract of the female which produces the reaction known clinically and to the lay mind as gonorrheal inflammation.

It affects different parts. The ordinary acute infection usually attacks the lower end of the urinary passage which leads from the bladder. Frequently various little glands at the entrance of the female passage or vagina, are attacked. Very usually, in those acute cases, the lining of the neck of the womb, and frequently the high parts of the womb, going through the womb, the fallopian tubes and maybe the pelvic peritoneum, that is to say, the lining of the pelvic cavity with the structures therein contained, including the ovaries; that is the acute condition.

There is also a chronic condition, another form of gonorrheal infection of the female, which does not start in that way. The lower parts, namely the orifice of the passage to the urethra, are not affected, but the organism passes right up into the womb itself and may tend to affect it, with the tubes, the ovaries and the lining membrane of the cavity of the pelvis.

The bladder may be involved in some cases; the rectum may be involved in some cases. The disease causes—the acute disease causes a profuse discharge locally, very profuse. The chronic disease also produces a discharge from the womb, not as much as the acute disease produces. Pain and various symptoms—pain, urinary distress, accompany the early stages. In the chronic diseases, the symptoms and signs are many. They are legion, according to the amount of tissue involved and the structures involved. Do you wish me to particularize, sir?

Q.—Doctor, will you tell us whether or not vaginitis is ever due to that disease? *A.*—Vaginitis, inflammation of the female vagina, is frequently caused by that disease.

Q.—Now, then, Doctor, what is the specific germ? The specific germ of gonorrhea is what? *A.*—The gonococcus.

Q.—Can it be isolated? *A.*—It can be isolated, yes, and recognized under the microscope and in cultures.

Q.—Now, having the hypothetical, medicinal solution in mind, have you an opinion whether such a medicine taken by the mouth for gonorrhea in woman, will act upon the cause of the disease, and is therefore not a mere palliative, but a scientific and specific remedy with a curative effect upon the seat of the trouble? Have you an opinion?

Mr. Hough:—That is objected to as not being justified.

THE COURT:—Is that quoted?

Mr. T. J. Scofield:—Absolutely from the book.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

A.—I have a very decided opinion.

Mr. T. J. Scofield: *Q.*—What is that opinion, Doctor? *A.*—That no influence whatever could be exerted on the organism causing that disease.

Q.—Well, now, will you explain why, Doctor? *A.*—That organism is a very difficult one to destroy, even when many well known antiseptic solutions and germicidal solutions are employed. It requires a strong germicidal solution to kill that micro-organism. That organism may live in the tissues of the body for years in spite of all kinds of treatment.

Q.—Now, Doctor, have you an opinion as to whether or not this hypothetical solution, or medicine, will have a curative effect upon gonorrhea, a curative effect? *A.*—I said that it was my opinion that it would not cure gonorrhea.

Q.—What do you say, Doctor, in regard to the internal use of such a medicine, containing 48 drops of pure alcohol, when taken internally, three or four times a day by a patient, who is suffering from gonorrhea.

Mr. Hough:—That is objected to as incompetent, irrelevant and immaterial.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

A.—I have found in my experience that the administration of alcohol in gonorrhea in any of its forms, is bad because the effect of the alcohol is to intensify the congestion of the organs which are affected, and make the conditions worse.

Mr. T. J. Scofield: *Q.*—Doctor, I suppose you are acquainted—I think you have already stated that you know the condition of uterine prolapse or falling of the womb? *A.*—Yes, sir.

Q.—Now, will you tell the jury what it is, and what causes it? *A.*—Yes, sir. Prolapsus as the term indicates, is a medical term, also well

understood by the laity, signifying the falling down of the womb. The womb is—the organ, the womb, is placed in the pelvis for a specific purpose, and it is held there by certain ligaments. In certain disturbed conditions, from various causes, the womb may get out of place and sink down. The womb alone may do that or it may be with neighboring structures. When that occurs, the ligaments are stretched and elongated; necessarily it must be so. The descent may go on until such a condition is reached as is shown in that "D" diagram.

Your Honor, I have a cast here which will help me explain this. May I put it in evidence? A cast of prolapsus.

The witness then introduced in evidence plaster casts of the normal female perineum and external genitalia and the same regions in a case of uterine prolapse. He described uterine prolapse and its complications. Continuing:

Mr. T. J. Scofield:—Now, Doctor, will you state what are the underlying causes which permit the womb to come down in this way. *A.*—We may consider the causes—

Mr. Hough:—That is objected to as immaterial.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

The Witness: (Continuing)—under several categories. Defective support of the so-called floor of the pelvis is important. That defective support is very commonly caused by the results of childbirth. The passage of the child may tear the woman or stretch the parts and they may not come back again, they may stay stretched or torn and there is defective support.

Then again, a woman may be placed in such a position in life as that she has to get up too soon after childbirth; go to work too soon, lift or strain, scrub and do all those things, which, acting on the softened condition which exists as a result of the pregnancy and labor, tends to stretch the uterus or the parts which normally should be taut and which should at that period have rest.

It may be that tight lacing (another circumstance of life), tight lacing too soon after the labor tends to increase the so-called intra-abdominal pressure, and drive the uterus or other parts down.

Chronic bronchitis, a woman so unfortunate as to be troubled with coughing for a long time, might have her womb driven down in that way.

The size of the womb is important. The womb is enlarged for some time after a labor, and the weight of the womb is a factor to be considered. Again, there are other causes; the womb may be enlarged from inflammation, from tumors and so on, exercising an influence of driving it down.

Q.—Now, Doctor, have you an opinion, as to whether or not such a medicine, as I have described, taken by the mouth, will (quoting from Home Treatment) "cure uterine prolapsus"? *A.*—I have an opinion.

Q.—What is that opinion? *A.*—That it cannot cure uterine prolapsus.

Q.—Have you an opinion on this question: If this medicine is, (quoting from Home Treatment), "taken three times a day until about three days before the menstrual period, when four doses should be taken until stoppage of the flow; and that in addition, appropriate laxatives are used, together with antiseptic douches, sitz-baths, etc.," have you an opinion as to whether or not this medicine will cure uterine prolapse under those circumstances? *A.*—I have an opinion.

Q.—What is that opinion? *A.*—It will not cure uterine prolapse.

Q.—Have you an opinion as to whether or not this hypothetical medicine (quoting from Home Treatment) "will cure falling of the womb in all its forms." Have you an opinion? *A.*—I have.

Q.—What is the opinion, Doctor? *A.*—It will not.

Q.—Doctor, I call your attention to the following quoted from Home Treatment for Women: "Whites and falling of the womb are frequently combined diseases. Both are cured by the use of this medicine, and suitable laxative treatment." Have you an opinion as to the accuracy and truthfulness of this statement? *A.*—I have.

Q.—What is that opinion? *A.*—I regard it as inaccurate, untrue.

Q.—Why do you say that this medicine will not do these things, and why do you give that opinion? Why do you hold that opinion?

THE COURT:—When you say "this medicine" you mean your hypothetical medicine?

Mr. T. J. Scofield:—The hypothetical medicine, yes.

A.—You mean in prolapsus?

Q.—Yes, and in what I have stated here. *A.*—Whites?

Q.—Yes, upon which you have expressed an opinion. *A.*—Prolapsus uteri is a matter of damage to a machine. The machinery of the pelvis is a very complicated one, and the structures that are involved, the ligaments that are involved, especially in the progress of these conditions, cannot be changed. If tissues are torn apart, they cannot be brought together by this hypothetical medicine.

Q.—Now, Doctor, are you familiar with the different forms of flexions and versions of the uterus? *A.*—Yes, sir.

Q.—Now, without going into detail with reference to each particular form, will you give the jury a general description, using, if you wish one of these different forms of displacement as illustrated here in these charts, and explain to the jury how those conditions are brought about, what symptoms are produced, and what means you use to cure such displacements, if any.

The witness described various uterine displacements as illustrated on the charts previously mentioned. He mentioned the common causes of displacements and their usual effects on the body and the symptoms which they produce.

The court then adjourned until 2:00 p. m. the same day.

April 12, 1916, Afternoon

The court met pursuant to adjournment. Dr. John Clarence Webster resumed the stand.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD (*Continued*)

Q.—Doctor, in the last question which I asked you, among other things, I asked you what means you used to cure these displacements. That part of it you have not answered. *A.*—Various measures are adopted for treating these displacements; finding out, as one must, the causes that have been most important, one gets an indication in that direction. For instance, if a woman is overworking, overlifting, one must take into consideration that factor and give advice accordingly. There has got to be some change in her occupation, which will lessen the increased pressure that is caused by such measures. If she is run down, if she has lost too much blood from the congested, displaced uterus, one has to try to improve the condition and check the loss of blood, and make up for the loss of blood; and a very common procedure in such cases is to use hot water douches, certain local forms of medication, by tampons of glycerin; or it may be medicated glycerin; and then, if the blood is below par, one must insist on good food, sleeping—having fresh air at night, day and night, especially night, not sleeping in closed rooms, as is the case with so many people; using some iron tonic to improve the condition of the blood; and so on.

Then, as regards other measures, in some cases it is possible to gradually elevate the womb with the hands by manipulations, get it into its place and support it, use some form of support—a pessary, so-called, that is a sort of prop that is put in the vagina to hold up the womb.

In some cases it is satisfactory, while the prop is kept there; in many cases, on account of the inflammation in the pelvis, in the ovaries and tubes in particular, and the ligaments, the patient cannot wear a prop, because it hurts her; and in those cases, and there is quite a variety of them, it is necessary to prolong the period considerably in which the treatment is carried out, so as to try and reduce the inflammation, so that the prop can be introduced—can be worn.

Then there are cases in which no prop can be worn, because of the opening up of the vagina, which has been torn too much, stretched too much, and no instrument, no prop will stay in.

In those cases, it is necessary to have recourse to surgical procedures; to close the parts that have been separated, separated by tearing or stretching, to deal with the ligaments that have been stretched, so that they may be made stronger and shorter, and the uterus thereby raised and kept in its position.

There are other things that may be necessary at the same time, but that is the general routine of treatment in a case of chronic retroflexion, to which I have referred.

Q.—Now, Doctor, based upon your experience in this line of work, is the same kind of treatment always indicated for each displacement and for every form of displacement, and in every case?

Mr. Hough:—Objected to as incompetent, irrelevant and immaterial.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

The Witness:—Why, there are great varieties—great varieties in the conditions which are presented by these displacements, and naturally the treatment—the measures adopted must vary from case to case.

Mr. T. J. Scofield:—Now, Doctor, having in mind the hypothetical question which I asked you—or the hypothetical medicine—Doctor, let me call your attention to the following quotation under the head of "Displacement of the Womb": "When a woman has displacement of the womb, forwards, backwards, up or down, the patient is in a very serious condition. This medicine acts on the womb itself and helps to pull up or otherwise replace the displaced womb." What is your opinion as to the accuracy of this statement, and as to its truthfulness?

Argument was made on the reading of excerpts from the Ladies' Birthday Almanac and Home Treatment Book in questions, Mr. Hough contending that the whole section be read each time. The Court suggested that after Mr. Scofield read the plaintiffs' attorney might suggest which omitted portions, if any, be included.

The Witness:—As regards the first part of that, I would say that many of these cases are serious. As regards the second part, I would say that it was absolutely inaccurate and absolutely untruthful.

STERILITY

Mr. T. J. Scofield: Q.—Now, Doctor, what is sterility, and what causes it, briefly? *A.*—Sterility is the condition known—it is the condition in which a woman, married woman, living a natural life with her husband, does not become pregnant.

THE COURT:—It is a relative term, then. Is there any such thing as absolute sterility, so that there is nothing—congenital sterility, something that cannot be relieved under any circumstances?

The Witness:—Yes, sir.

THE COURT:—The average layman understands sterility as sterility—as a natural state. Now, as it has been used here, some of the witnesses apparently have used it in a different sense—as a temporary condition that may be subject to relief.

The Witness:—There are many varieties of sterility. Some are temporary; some are absolute. I will give you one instance of the latter. I had a patient once who was married, and who had no ovaries, no tube and no uterus. She had a vagina, and was capable of sexual intercourse, but she had no children; and she came to me, because her

husband was driving her, and angry at her because she had no children. That is a case of absolute sterility. There are—

Mr. T. J. Scofield: *Q.*—Now, the other kind, Doctor; what is the other class of sterility? *A.*—There are other conditions; for instance, a commonly recognized form of sterility is too small an entrance to the womb. Another one is closure of the tubes which lead from the womb toward the ovaries, from various causes. It may be a little growth pressing up it, it may be a kink or twist; it may be inflammation in the wall. In some cases the eggs cannot get down the tubes because at the outer end there is a film of adhesions from some inflammatory trouble, which covers the end of it. In other cases, the ovaries are the cause of the sterility. In some cases the ovary gets imbedded, covered up in a covering or capsule of adhesions, inflammatory tissue, and the eggs cannot get out of them down into the uterus.

There are quite a number of cases in which sterility is due to a catarrhal condition of the womb or the tubes, or both; a condition known as whites in women, whereby the stuff pours forth, and the semen cannot get up.

In some cases the chemical character of that discharge will destroy the spermatozoa in a short time, and fertilization will not occur. There are other causes.

Q.—Doctor, have you an opinion as to whether the hypothetical medicine I have called your attention to, in addition to the use of the knee-chest position will, in time, in most cases, result in a cure of sterility? *A.*—I have an opinion.

Q.—What is it? *A.*—That it will not.

INVERSION OF THE WOMB

Q.—Have you an opinion as to the effect of the hypothetical medicine upon the condition known as inversion of the womb? *A.*—I have.

Q.—What is that opinion? *A.*—Understanding by inversion of the womb, that condition in which it is turned inside-out, or outside-in, I have the opinion that such a medicine would be—is absolutely of no value in restoring it to its position.

Q.—What is inflammation, Doctor? *A.*—What is what?

Q.—Inflammation? *A.*—An inflammation is—

Q.—With reference—I beg your pardon—with reference to the genital organs of a woman—an inflammation with reference to the genital organs of a woman? *A.*—An inflammation is a process of irritation in the tissues, whereby there is more blood carried to the parts; it may be the blood is poured forth, or the clear part of the blood is poured forth, and cells are stimulated to production, they may multiply, and you may get a swelling, the inflammatory swelling.

Q.—Is it progressive upward, so that it may get into the fallopian tubes? *A.*—Inflammation, starting in the lower part of the genital tract, as the vagina or the neck of the womb, tends usually to extend upward through the tubes and into the peritoneal cavity.

PYOSALPINX

Q.—Now, is pyosalpinx one of the forms of inflammation? *A.*—Pyosalpinx is one of the most characteristic diseases that we have, resulting from inflammatory changes due to infection. It produces changes in the character of the tube, which is a little structure not as big as the finger—the little finger—perhaps the size of a slate pencil, or a little larger—four or five inches long, running out from the top of the womb. That—when that gets infected and becomes altered, producing the condition known as pyosalpinx, it is like an abscess, a pyosalpinx is nothing more or less than an abscess on the tube, and it may be small, or it may be big.

Q.—Now, Doctor, can you illustrate that in any way? *A.*—Yes. I can illustrate it by a specimen that I have brought down here from my own practice. I have a specimen here in which there are two pyosalpinx conditions. They are large, like a big sausage. They look like two large elongated pears. (Exhibits specimen.) Those were removed by me from a patient, and were full of pus.

Q.—How much larger are they than the normal natural tubes, Doctor? Just generally speaking? *A.*—What?

Q.—Generally speaking. *A.*—Yes, I will just tell you — one of these is about nine inches long; and its diameter—its diameter in the middle is about two inches—two by nine; the fallopian tube might very well be represented by a structure like that length of lead pencil. (Indicating lead pencil.)

Q.—Now, can you tell, Doctor, what the cause of that condition was? *A.*—Gonorrhea.

Q.—What kind of gonorrhea, gonorrheal infection? *A.*—Gonorrheal infection.

Q.—Now, Doctor, assuming that form of inflammation exists, namely, such as you have just mentioned and discussed, have you an opinion as to whether or not the hypothetical medicine which I have described, taken three or four times a day, in addition to proper regard to diet, baths, injections, etc., will, in most cases, restore the patient to health? *A.*—Cases of pyosalpinx?

Q.—Yes, sir. *A.*—Absolutely not.

Q.—That is you have an opinion it will not— *A.*—I have an opinion, yes.

Q.—And that opinion is what? *A.*—That it would not.

Q.—Now, what have you to say about an ovarian abscess? Would the same thing apply there? *A.*—An ovarian abscess is exactly comparable to the pyosalpinx. It is an abscess of the ovary.

Q.—Now, then, Doctor, explain what is meant by the terms menorrhagia and metrorrhagia? *A.*—Menorrhagia is a scientific term used to signify increased flow of blood at the menstrual periods. Metrorrhagia is another term used to imply a flow of blood from a woman between the menstrual periods.

Q.—What is the cause of these conditions, Doctor? *A.*—The causes of menorrhagia and metrorrhagia—because they may be put together—are many, various. Take, for instance, one class of cases—to quote specifically, fevers. A person, for instance, might have scarlet fever, or typhoid fever. It is quite common to have at first, in those conditions—in the acute stages, some flow of blood—a series of conditions of that character. Then a woman—a person with scurvy or with the condition known as hemophilia, with a tendency to bleed—in those cases it will flow, too.

Another important cause in woman is chronic alcoholism, producing flows of increased menstruation, and flows of blood between the menstrual periods. These great conditions of flexions, displacements of the uterus, tumors of the uterus, such as fibroids, or polypi of various kinds—chronic inflammations—and a very important cause, of course, is malignancy, which occurs in different forms, cancer being one of the most common. Those are some of the most important causes.

Q.—Now, Doctor, have you an opinion as to whether the hypothetical medicine which I have described, is a proper, scientific treatment in all such cases known as menorrhagia? *A.*—I have an opinion.

Q.—What is your opinion? *A.*—That it is not.

Q.—Doctor, in a case where a woman has whites or leukorrhea, and notices that the discharge is slightly tinged with blood, what would be the danger of the use, if any, of such a hypothetical medicine; and, if it would be dangerous, why would it be dangerous; and can you illustrate it? *A.*—Might I—yes. Might I answer that by a specific case which I have had in my practice?

Q.—As a matter of illustration, I should say—well, that is for the court. *A.*—I have this case before me; a woman 64 years, I think, of age, with a discharge of that character, blood appearing in it in small quantities, varying from time to time; that woman was of a very shy disposition; she did not care to consult a doctor—or did not, though she had doctors in her family; she treated herself by various remedies which she—

Mr. Hough:—This is objected to, if the Court please.

The Court:—Yes, Doctor. Just confine yourself to the actual things that you saw. Don't give the subjective symptoms.

To which ruling of the Court the defendants, etc., excepted.

The Witness:—Yes. Well, I saw that case. I saw that case a year after she began to notice these things, and I found that she had cancer of the neck of the womb, which involved the bladder and the rectum.

Mr. T. J. Scofield:—Is that condition progressive, Doctor, when it first manifests itself, that is, the indication of the whites and the bloody discharge—is the cancerous part of it progressive, so that it becomes worse and worse, or not? *A.*—Yes, sir; it always progresses.

Q.—Have you an opinion whether suitable treatment in the earlier stages of that disease, in that case, would have been beneficial?

Mr. Hough:—One minute; that is objected to.

The Court:—A good deal depends, Mr. Scofield, on what is meant by suitable treatment. The thing we are concerned with now—

Mr. T. J. Scofield:—Omit the words "suitable treatment."

The Court:—is whether your hypothetical medicine is a proper medicine under the circumstances; whether, in the opinion of Dr. Webster, it has or has not value.

Mr. T. J. Scofield: *Q.*—Well, what would you say in answer to the question as suggested by His Honor? *A.*—I should say it was of no value.

The Court:—Doctor, does the appearance of the blood under those circumstances indicate a single or many causes—many different sources of the trouble?

The Witness:—You mean blood occurring with leukorrhea?

The Court:—Yes.

The Witness:—Why, it may be, of course, due to various causes; not necessarily one cause.

Mr. T. J. Scofield: *Q.*—How can you ascertain what it is due to, if you can ascertain? *A.*—By physical examination, hands and eyes.

Q.—Can it be determined in any other way? *A.*—I don't know of any other way.

Q.—Now, Doctor, have you an opinion as to whether the hypothetical medicine which I have spoken of, or described to you, will cure dysmenorrhea and amenorrhea? *A.*—By dysmenorrhea—dysmenorrhea is not the disease—it is a name to signify pain that is caused by many diseased conditions, Mr. Scofield.

Q.—Well, will the hypothetical medicine mentioned then cure the cause of dysmenorrhea? *A.*—Cure the cause of dysmenorrhea?

Q.—Well, without any further information than I have given you, will that hypothetical medicine—will you say whether or not it will cure the causes of dysmenorrhea? *A.*—I should say not.

Q.—How about amenorrhea, absence of— *A.*—Amenorrhea is another term signifying a stoppage of menstruation, or a diminution of the normal menstrual flow; and it is due to a variety of conditions.

Q.—That comes you say from many causes? *A.*—Many causes.

Q.—Now, have you an opinion as to whether or not, this hypothetical medicine that I have described will cure the different causes that produce amenorrhea? *A.*—I have an opinion.

Q.—What is that opinion, Doctor? *A.*—That it would not cure the causes, which I know.

Q.—Now, what do you mean by puberty? *A.*—Puberty is the period of a young girl's life, whereby she is going through the transformation from girlhood to womanhood. The great characteristic is an increase in the size of the womb, the increase in size and activity of the ovaries, with what are called the secondary sexual characteristics, namely, the growth of the bust, the hairs on the body, the increase in the width of the pelvis and so on.

Q.—Now, then, Doctor, is that a natural function, or not— *A.*—Since all—

Q.—Or physiological? *A.*—Since all women go through it, I take it is a natural process.

Q.—Have you an opinion, Doctor, whether or not all girls, or every girl should take such a medicine as I have described to you hypothetically, at the time of puberty? *A.*—I have an opinion.

Q.—What is that opinion? *A.*—That all girls at the time of puberty should not take that or any other medicine.

Q.—Have you an opinion, Doctor, as to whether a medicine, such as I have described, which contains 48 drops of pure alcohol to each dose should be taken by every girl at the time of puberty, and that such medicine can never do her anything but good? *A.*—I have an opinion.

Q.—What is it, Doctor? *A.*—That it would be wrong for a girl at the time of puberty, because she is at the time of puberty, to take such a mixture.

Q.—Is there any special reason, Doctor, why you think it is wrong for them to take that sort of medicine at the time of puberty? *A.*—It is wrong for the—it is wrong, because the organs are in a very delicate condition, and no stimulant or irritant of the organs should be given, quite apart from the danger that there might be of the development of a liking for alcohol.

PREGNANCY

Q.—Now, Doctor, what is your opinion as to whether a pregnant woman should use such a hypothetical medicine as I have described, during the whole term of pregnancy, and whether it is a fact that such medicine can never do anything but good; have you an opinion upon that? *A.*—I have.

Q.—Well, state your opinion? *A.*—A pregnant woman—I take it you mean a normal pregnant woman?

Q.—Yes, sir. *A.*—A pregnant woman who is normal needs medicine no more than a woman who is not pregnant and is normal; and I object strongly in my practice—I object strongly—I have lived long enough in Scotland to see the effects of alcohol administered in pregnancy.

Q.—Any special reason, Doctor—complications or what might be developed under its use? *A.*—Alcohol tends to congest the pelvic organs. It may set up inflammations or aggravate preexisting inflammations in pregnancy, as in the nonpregnant condition. It may be a factor in the production of abortion. It may affect—have an effect, especially—I have always kept in mind in my practice the effect of alcohol on the kidneys, the possible effect on the kidneys, because the kidneys are the organs that we watch—or should watch, with the greatest care in pregnancy, lest anything that interferes with their elimination—with their elimination or activity, might be dangerous to the mother, and the influence of alcohol on the kidneys is well known—it is a chronic irritant of the kidneys.

Q.—Doctor, have you an opinion as to whether such a hypothetical medicine as I have described, if taken during pregnancy, will make childbirth easy? *A.*—I don't quite catch your question, sir?

Q.—I say, have you an opinion as to whether or not such a hypothetical medicine as I have described to you, if taken through pregnancy, or during pregnancy, will make childbirth easy? *A.*—I can see no connection. I cannot see how it could possibly affect childbirth, in any way.

Q.—Have you any opinion, Doctor, as to whether the hypothetical medicine, such as I have mentioned, would cure a condition of—a condition described as hanging breasts? *A.*—I have an opinion.

Q.—What is your opinion? *A.*—It could not possibly do so.

Q.—Have you an opinion as to whether or not such a hypothetical medicine as I have mentioned to you will cure undeveloped ovaries, or will develop them? *A.*—I have a very decided opinion.

Q.—What is that opinion? *A.*—That it would be absolutely impossible.

Q.—Doctor, are you acquainted with a preparation known as McElree's Wine of Cardui made by the Chattanooga Medicine Company? *A.*—I am.

Q.—Have you ever used it? *A.*—I have.

Q.—What experience have you had with this preparation? *A.*—I will have to refer to my notes, if I may, Your Honor—

Q.—To refresh your recollection? *A.*—To refresh my recollection as to it, to be exact. I have now in the Presbyterian Hospital six cases on whom I have used Wine of Cardui. I will describe them in detail.

The first case is that of a woman, a married woman, aged 37, who came to me with a bad tear of her perineum, with a prolapse of the uterus, with chronic inflammation of her tubes, and ovaries. I have been very much interested in the statements that have been made about this drug—

Mr. Walker:—I move that be stricken out—"I have been very much interested"—

THE COURT:—Strike it out.

Mr. Scofield:—If the Court please, this is simply a beginning—

THE COURT:—I know, but that may go out.

To which ruling of the Court the defendants, etc., excepted.

The Witness:—And I wished to try the effects in these conditions—that is all I was going to say.

And I have previously carried out with the chief drugs that we use in the female—treatment of female diseases—I have tried similar experiments and doses given—and used those drugs in certain ways, and I have repeated with Wine of Cardui what I have done with the other drugs.

This patient was in such condition as that she required surgical treatment. I repaired the tear of her perineum. I then opened the abdomen, in order to deal with the prolapsus and the diseased tubes and ovaries.

I decided to see if it would be possible for me to act on these stretched ligaments with Wine of Cardui. As soon as I saw the uterus, I injected into it six drams—that is about six teaspoonfuls—I injected into the uterine broad ligament, into the uterus itself, into the bases of the ligaments, because I wanted to test the effect on the uterus and on these ligaments.

There was no effect whatever; no change in the womb, no change in the ligaments.

Then I took a drug which is of great influence on the womb, and has a very marked tonic effect, namely, pituitrin; and I injected an ampul, and then a second ampul—that is a small flask that is put up for such purposes—about 15 drops or so—into the womb, and into the ligaments. At once, there was a marked, powerful contraction of the womb, it widening and hardening; but the ligaments remained as they were; the round ligaments, the broad ligaments and the ligaments behind the womb low down, called the utero-sacro ligaments.

Another patient had a retroversion of the uterus. She has pustules like this (indicating specimen), though not so large. She had a torn perineum.

I again tried with that patient the effect of Wine of Cardui, injecting it pretty much as I have described in the first case, and obtained no action whatever, either in the womb, or on those ligaments.

I then—I should say that in this case the womb was very soft and flabby. I then used a little of this pituitrin I have described, and injected it, and at once there was a spasm—contraction of the uterus. Then I thought it would be well to test Wine of Cardui as regards its power to undo spasm—undo spasm in this organ, and I injected it, but it had no effect in that direction.

The next case was that of a woman 22 years of age, where I tried the effect by introducing this Wine of Cardui into—under the skin. Just as soon as I had the abdomen open and saw the womb, I injected it under the skin, and there was no effect during ten minutes, fifteen minutes—as there would have been—as there is with all the other drugs that I have used for the purpose of obtaining some tonic action of the muscle.

I then tried again, injecting it directly into the uterus—the round ligaments, the broad ligaments—and no change whatever. Again, another test—I injected the pituitrin, and then a few moments—within a minute, usually always it began to harden and contract.

Another case: A young woman of 25, suffering from a retroflexion, with great—many adhesions, inflammation of the tubes and ovaries—a similar experiment.

One more case—I think that makes six—of a woman who came into the hospital—

Mr. Hough:—One minute.

Mr. Walker:—That is only five.

Mr. Hough:—What was the fourth case?

The Witness:—Hold on, now, Mr. Hough. A young woman of 25—

Mr. Hough:—A retroflexion—

The Witness:—Retroflexion, adhesions, inflammation of the tubes and ovaries, the last case which I say makes my sixth case—

Mr. Hough:—The fifth, first?

Mr. Walker:—That is only five you have given us.

The Witness:—Have I? One, two, three—oh, yes, that is right. I beg your pardon; I am wrong. It is five.

The last case that I will refer to is one of a woman four months pregnant, bleeding—that came in there. I placed her on Wine of Cardui, a tablespoonful dose, by the mouth, three times a day—and kept her quiet, in bed. In two days' time she was still bleeding, and I made a careful examination and found the condition was such as that the uterus had to be emptied. The condition was one in which the after-birth was low down, over the neck of the womb, that is—well, that concludes my experience.

I have had in mind in these cases the effect of Wine of Cardui on the ligaments of the womb, and on the womb itself, and the results, if it is used in that way, as compared with the use of ergot, and pituitrin, which are the two most powerful medicines that I know about in the treatment of these diseases—there was absolutely no effect either on the ligaments or on the womb.

Mr. T. J. Scofield: *Q.*—Doctor, have you—

Mr. Hough:—Before you go on, I don't have but five cases.

The Witness:—That is five, that is correct.

Mr. Hough:—Five is correct, isn't it?

The Witness:—Five is correct, yes, Mr. Hough.

Mr. T. J. Scofield: *Q.*—Doctor, based upon your experience with Wine of Cardui, have you an opinion as to whether or not Wine of Cardui is a uterine tonic? *A.*—I have.

Q.—What is that opinion? *A.*—That it is not a uterine tonic.

Q.—Based upon your experience in the use of Wine of Cardui, have you an opinion as to whether or not Wine of Cardui is a uterine sedative? *A.*—I have an opinion

Q.—What is that opinion? *A.*—That it is not a uterine sedative.

Q.—Doctor, as the result of the work which you have done with Wine of Cardui, what is your conclusion—based upon your experience with it, what is your conclusion as to Wine of Cardui as a medicine?

Mr. Hough:—I object to the question in that form. That is too general.

THE COURT:—You may ask him what his opinion is. It is the same thing.

Mr. Hough:—Well, but it does not ask a particular thing about Wine of Cardui—

THE COURT:—Ask him whether it is of value—

Mr. T. J. Scofield:—I mean in female diseases and for pelvic troubles.

The Court:—Ask him whether it is of value, or of no value.

Mr. T. J. Scofield: Q.—Well, what is your opinion, based upon your experience with Wine of Cardui, whether in uterine troubles it is of value or no value? A.—My opinion?

Q.—Yes? A.—It is my opinion that it is of no value.

Q.—Now, Doctor, I want to ask you a hypothetical question. I want you to assume the experience you have had with Wine of Cardui and the conclusions which you have had as the result of your experience with it—which you have had as the result of your experience with it, and about which you have testified in this case. I want you to assume further that Wine of Cardui is made with a 20 per cent. alcoholic menstruum, containing in each dose of a tablespoonful the extractives from approximately thirty grains of carduus benedictus, and approximately three grains of viburnum prunifolium; based upon this hypothesis, have you an opinion as to the effect of this preparation upon the conditions which you have described as uterine prolapse. Also—well, answer that one first. A.—I have an opinion.

Q.—What is it, Doctor? A.—That it would have no effect upon uterine prolapse.

Q.—Why not?

Mr. Walker:—We have been all over that I thought.

Mr. T. J. Scofield:—I think not.

The Court:—It seems to me the witness went over that.

Mr. T. J. Scofield:—We are talking about Wine of Cardui now, if the Court please.

Mr. Walker:—Oh, the other was the hypothetical medicine?

The Court:—Yes.

Mr. Walker:—Well, if that makes any difference—

Mr. Scofield:—I don't know that it does. We think it is the same thing—

The Witness:—Because it cannot act on the ligaments that are stretched or torn, or on the uterus.

The Court:—Can't you assume a general question and ask the witness whether his experience with Wine of Cardui is different from—if it would furnish the basis for any different opinion than he had of the hypothetical medicine? And if it does, in what respect?

Mr. T. J. Scofield: Q.—Doctor, based upon your experience with Wine of Cardui, have you an opinion whether or not—if the various questions which I have asked you concerning the synthetic preparation, or the hypothetical preparation, would be answered in the same way, if I should ask you these questions separately? A.—In the same way.

Q.—That is in reference to Wine of Cardui—in the same way? A.—Yes, in the same way.

Q.—Now, Doctor, I want to read a quotation from the Ladies' Birthday Almanac for 1907, page 9, under the heading "Untold Misery," as follows: "Women; why let yourselves be dragged down, made miserable, sear, yellow, withered, wrinkled and gray haired before your time, by the pain you think you have to endure? Untold misery is suffered every month by thousands of women for want of the right medicine to right their troubles—Wine of Cardui. Take it and it will help you, as it has helped a million others in the past fifty years. No matter what the pains, headache, backache, waist pain, bearing down cramps, colic, etc., caused by weakness or irregularity of your womanly functions, Wine of Cardui has been proved a successful treatment for their relief or cure." Based upon your experience with Wine of Cardui, have you an opinion as to whether this statement is true? A.—I have.

Q.—What is that opinion? A.—I don't believe it is true.

Q.—Assuming that the hypothetical solution to which I have already called your attention, and which I have described, is identical with Wine of Cardui, have you then any different opinion as to this statement which I have just read to you? A.—How is that, please?

Q.—Assuming—well, I don't know that I care about that—well, I will let that go.

Mr. Walker:—He has withdrawn it.

Mr. T. J. Scofield:—Doctor, I want to read to you a quotation from the Ladies' Birthday Almanac for 1907, page 31, under the head, "Displacement": "When the chief womanly organ, the uterus, or womb, is displaced from its natural position, the patient is in a very serious condition. Displacement of the womb forward, backward, up or down, causes severe pains, headache, backache, irregular, scanty or profuse periods, nervous troubles, sterility and many other disorders generally called female troubles. Wine of Cardui acts on the womb itself and on all the surrounding muscles and other parts, and by toning them up to a proper healthy condition helps to pull up or otherwise replace the displaced womb, thus curing all the troubles which such displacement causes. The great value of Cardui to all sick women lies in the fact that it is a woman's medicine, for woman's pains, and for all woman's peculiar ailments. For over fifty years it has been in successful use, and in that length of time has benefited or cured over a million suffering women. It is pleasant, non-intoxicating, reliable."

Based upon your experience with Wine of Cardui, and also assuming that it contains the two medicines in the quantities I described to you in a former hypothetical question, in a 20 per cent. alcohol solution, have you an opinion as to the truthfulness of the various statements made in this quotation? With reference to the curative effect of this solution upon the troubles mentioned therein? A.—I have.

Q.—What is that opinion? A.—That it has not the curative effects claimed.

Mr. T. J. Scofield:—That is all.

(To be continued)

Correspondence

An Efficient Thermometer

To the Editor:—The papers are reporting that an effort is being made at Washington to change the Fahrenheit thermometer for the Centigrade. Doing away with the Fahrenheit scale would be a step in the right direction. However, the Centigrade thermometer was made in and for the laboratory, and would never be practical for everyday human needs.

The only possible way to make a thermometer is to take two points in temperature and divide the difference into equal parts. The Centigrade scale is correct in starting at the freezing point as zero both for property and for human reasons; but in a vain and fruitless attempt at being scientific, the next point in this scale is placed at boiling water for laboratory reasons only, and is useless for every human reason. A thermometer that would render us the most efficient service must start at zero as the freezing point and take the blood heat of man at 100, these being the most vital points in temperature pertaining to our comfort and safety.

I would call this thermometer the U. S. thermometer, and its advantages are almost self-evident. For instance: One need not have a scientific education to realize that on a hot day with the thermometer at 90, there would be just 10 degrees' leeway between the blood and air, and at 95 just half that amount. Every one would learn this in spite of himself, and would glance at the thermometer, not merely from curiosity, but with intelligence that would serve a purpose.

In this thermometer how much simpler the mental calculation when the doctor says our fever is 103½ to realize that we are 3½ degrees above normal, than in the complicated process of subtracting 98⅔ (Fahrenheit normal) from 102⅔.

Ask any doctor you happen to know what the registration of 3½ degrees of fever would be in Centigrade. In this new U. S. scale the length of the degree is most convenient, fractions being rarely needed, and practically all weather reports would be in two figures: —100 to +100 or less. Also the ratio of Fahrenheit to U. S. is as 66⅔ : 100, or 2 : 3, an easy ratio for translation if need be.

Whenever we desire to read a thermometer, our prime object always is to see the relation between the present air temperature and the freezing on a cold day, or blood heat on a hot day, these points being the most vital as regards our relation to our surroundings. This new U. S. thermometer would show directly and accurately this relation, and would be the only thermometer in the world to do this.

B. P. Churchill, M.D., Milwaukee, Wis.

Electrotherapy in Lumbago

To the Editor:—Referring to Dr. William Martin's letter under this title (The Journal, April 1, 1916, p. 1051), because other forms of electricity may be better I do not like to see such an unusually applicable and good remedy as the faradic current in lumbago cast aside. Properly applied in non-traumatic lumbago it is usually followed by immediate and great relief from symptoms, and I even suspect it has some curative effect. In any event, it helps until strapping and internal remedies get in their good work. Faradic electricity is especially useful in differentiating acute rheumatic lumbago from injury.

John Woodman, M.D., New York.

History of Malaria.—Though malaria was not given its present name until 1753, the disease has been known and described in various writings for thousands of years. More than a thousand years before Christ both the tertian and quartan types of the disease were alluded to in the Orphic poems. According to Deaderick, the Iliad of Homer and the Wasps of Aristophanes contain allusions to what we now call malaria, and according to Goroff, the word AAT, found among the inscriptions of the temple Denderah, referred doubtless to malaria which recurred every year at the same season.—Bass.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

AMOUNT OF ARSENIC IN SODIUM CACODYLATE, IRON CACODYLATE AND POTASSIUM ARSENITE

To the Editor:—I wish to find the relationship by weight of arsenic between cacodylate of iron and arsenite of potassium as found in Fowler's solution.

What is the percentage by weight of arsenic in cacodylate of soda? Martinet gives it as 54 per cent. By taking the atomic weights I get the percentage under 50. Can one elicit from the atomic weights what the percentage of weight of any one ingredient in the molecule is?

What is the percentage by weight of arsenic in cacodylate of iron?

What is the percentage by weight of arsenic in arsenite of potassium as encountered in Fowler's solution?

Does 1 minim of Fowler's solution correspond to 1/100 grain of arsenite of potassium as is generally accepted?

D. W. MONTGOMERY, M.D., San Francisco.

ANSWER.—Theoretically the amount of an element contained in a chemical compound may be calculated from its chemical formula. Thus, using the atomic weights now in general use (adopted by the International Committee on Atomic Weights, 1914, O = 16) the chemical formula H_2O indicates that 100 gm. of water (H_2O) contains 11.19 gm. hydrogen and 88.81 gm. oxygen. The difficulty in calculations of this sort is that substances as found in Nature are rarely true to chemical formula for the reason that they contain impurities.

Theoretically sodium cacodylate as used in medicine corresponds in composition essentially to the formula $(CH_3)_2 AsO.ONa+3H_2O$. Therefore, it should contain 35.02 per cent. of arsenic (As). Practically the amount is somewhat variable because the salt may contain impurities and also because its water content is somewhat variable.

Theoretically the formula of iron cacodylate is $Fe((CH_3)_2 AsO_2)_3$. Therefore, it should contain 48.17 per cent. of arsenic (As). How closely the iron cacodylate found on the market corresponds to the theoretical formula we do not know. Apparently, no reports giving the composition of the commercial product have been published.

Solution of potassium arsenite, U. S. P., does not contain 1 per cent. of potassium arsenite, but instead an amount of potassium arsenite which is equivalent to 1 gm. arsenous oxid (As_2O_3), 10 gm. of arsenous oxid being used for 1,000 c.c. of the finished solution. On the basis of 1 gm. arsenous oxid in 100 c.c., solution of potassium arsenite contains in 100 c.c. 0.757 gm. arsenic (As), and 1 minim contains 1/140 grain of arsenic (As).

SALARIES AND RANK OF ARMY OFFICERS, SURGEONS, DENTISTS AND VETERINARY SURGEONS

To the Editor:—What is the salary of a lieutenant, a surgeon, a dentist and a veterinary in the U. S. Army? What rank do the last three hold when duly appointed to the army?

C. H. HILGER, M.D., West Bend, Iowa.

ANSWER.—1. The salary of a first lieutenant, U. S. Army, is $2,000 a year; of a second lieutenant, $1,700. 2. A surgeon may hold any rank from first lieutenant to brigadier general. The salary of the first lieutenant is $2,000, of the captain $2,400, and of the major $3,000. 3. An acting dentist receives $1,800 a year, and a dentist $2,000 a year. 4. A veterinary surgeon receives a salary of $1,700 a year. 5. A dentist ranks as a first lieutenant and a veterinary as a second lieutenant.

DEATH OF T. GROEDEL, JR.

To the Editor:—Some time ago, I heard that Geheimrat Professor Doctor Groedel of Nauheim, Germany, died. I do not recall having read it in THE JOURNAL, and shall be obliged to you if you will let me know whether you have any information regarding this.

LUDWIG KAST, M.D., New York.

ANSWER.—Dr. T. Groedel, a son of Medizinal-Rat Isidor Groedel of Bad Nauheim, was killed on the western firing line, Jan. 28, 1915. Like his father he was a specialist at Nauheim in heart disease and connected with his sanatorium. His death was mentioned in THE JOURNAL, March 13, 1915, p. 920. We have not heard of any other death in the Groedel family.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, May 9. Sec., Dr. T. J. Stout, Brinkley; Eclectic, Little Rock, May 9. Sec., Dr. C. E. Laws, 712 Garrison Ave., Fort Smith.

GEORGIA: Atlanta and Augusta, June 1. Sec., Dr. C. T. Nolan, Marietta.

ILLINOIS: Chicago, May 4-6. Sec., Dr. C. St. Clair Drake, Springfield.

MASSACHUSETTS: Boston, May 9-11. Sec., Dr. Walter P. Bowers, Room 501, No. 1, Beacon St., Boston.

MICHIGAN: Detroit, June 1-3. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

NEVADA: Carson City, May 1. Sec., Dr. Simeon L. Lee, Carson City.

NEW YORK: Albany, Buffalo, New York and Syracuse, May 16-19. Sec., Mr. Harlan H. Horner, Chief Examinations Division, Educational Bldg., Albany.

New Hampshire September Report

Dr. W. T. Crosby, secretary of the New Hampshire State Board of Medical Examiners, reports the written examination held at Concord, Sept. 15-16, 1915. The total number of subjects examined in was 12; total number of questions asked, 65; percentage required to pass, 75. The total number of candidates examined was 3, of whom 2 passed and 1 failed. Thirteen candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Dartmouth Medical School	(1914)	88.5
University of Vermont	(1914)	86.3
FAILED		
University of Athens	(1898)	36.3

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
George Washington University	(1912)	Dist. Colum.
Hahnemann Med. Coll. and Hosp., Chicago	(1910)	Oregon
College of Phys. and Surgs., Baltimore	(1902)	Maine
Boston University	(1881)	New York
Harvard University	(1887) (1898)	(1900) Mass.
Tufts College Medical School	(1906)	(1915) Mass.
University of Michigan Medical School	(1892)	Vermont
Missouri Medical College	(1897)	Missouri
University of Vermont	(1911)	(1913) Vermont

Maine November Report

Dr. Frank W. Searle, secretary of the Maine State Board of Registration of Medicine, reports the oral, practical and written examination held at Portland, Nov. 9-10, 1915. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 12, of whom 9 passed and 3 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Southern College of Medicine and Surg.*	(1914) 84; (1915)	76
Tufts College Medical School	(1909) 77; (1915)	83
Columbia University, College of Phys. and Surgs.	(1914)	78
Cornell University	(1915)	77
Fordham University	(1913)	79
New York Homeo. Med. Coll. and Flower Hosp.	(1912)	79
University and Bellevue Hosp. Med. Coll.	(1909)	82
FAILED		
Bowdoin Medical School	(1914)	73
Tufts College Medical School	(1915)	74
University of Toronto	(1915)	73

* These candidates' names do not appear on a verified list of the students enrolled in this institution during the session of 1913-1914. Official reports show that the college was closed in 1914, and that recognition had been withdrawn from it by the Georgia State Board of Medical Examiners.

Massachusetts November Report

Dr. Walter P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, reports the oral, practical and written examination held at Boston, Nov. 9-11, 1915. The total number of subjects examined in was 13; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 46, of whom 23 passed, including 2 osteopaths, and 23 failed, including 7 osteopaths and 1 drugless practitioner. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Chicago College of Med. and Surg.	(1914)	80
Johns Hopkins University	(1913)	85.7
Maryland Medical College	(1912) 75.2; (1913)	75
University of Maryland	(1915)	78.9
Boston University	(1915)	77.1
Harvard University	(1911) 81.4; (1915) 75, 77.4,	79
Tufts College Medical School	(1914) 79.5; (1915) 75, 75.6,	76.7
Albany Medical College	(1908)	75.5
Cornell University	(1915)	84.7
Fordham University	(1914)	75
Medico-Chirurgical College of Phila.	(1908)	78
University of Virginia	(1912)	81.9
McGill University	(1914)	77.7
University or Berne	(1906)	79.5
FAILED		
Baltimore Medical College	(1903)	73
Eastern University*	(1914)	60.3
Maryland Medical College	(1913) 66.8,	72.9
College of Phys. and Surgs., Boston	(1911) 69.2; (1914)	73.9
Tufts College Medical School	(1913) 70.2; (1915) 68.1, 68.5,	70.4
University of West Tennessee	(1915)	69
University of Vermont	(1909) 70.4; (1914)	67.2
Laval University	(1906)	50.7
Montreal School of Med. and Surg.	(1915)	68.1

* This college was officially reported as not recognized by the Maryland State Board of Medical Examiners.

Nevada November Report

Dr. Simeon L. Lee, secretary of the Nevada State Board of Medical Examiners, reports the written examination held at Carson City, Nov. 1-3, 1915. The total number of subjects examined in was 15; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 7, of whom 6 passed and 1 failed. One candidate was refused examination on the ground of unsatisfactory diploma. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
California Eclectic Medical College	(1914) 85.5; (1915) 79.8,	90.7
Tufts College Medical School	(1912)	88.1
St. Louis University	(1904)	86.7
Imperial University, Kyoto	(1908)	85.9
FAILED		
California Eclectic Medical College	(1915)	70.9

Six candidates were licensed through reciprocity from May 5 to Nov. 3, 1915. The following colleges were represented:

College	Year Grad.	Reciprocity with
Leland Stanford Junior University	(1914)	Colorado
Kentucky School of Medicine	(1900)	Indiana
University of Louisville	(1909)	W. Virginia
Baltimore Medical College	(1898)	W. Virginia
University Medical College, Kansas City	(1901) (1904)	Missouri

Texas November Report

Dr. M. P. McElhannon, secretary of the Texas State Board of Medical Examiners, reports the written examination held at Dallas, Nov. 9-11, 1915. The total number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 31, of whom 21 passed, including 6 osteopaths, and 10 failed, including 1 osteopath. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Chicago College of Medicine and Surgery	(1915)	83.2
Rush Medical College	(1914)	89.7
University of Kansas	(1915)	89.1
Tulane Univ. of Louisiana	(1913) 87.1; (1914) 84.3; (1915)	87.2
Tufts College Medical School	(1913)	86
Barnes Medical College	(1911)	83.6*
Jefferson Medical College	(1913)	90.2
Baylor University	(1915)	83.7
University of Texas	(1914) 85.2, 88.6; (1915)	89.8
University of Berlin	(1895)	75
University of Sidney	(1910)	89.4

		NO. FAILED
FAILED		
University of Louisville	(1911)	1
Meharry Medical College	(1915)	2
Memphis Hospital Medical College	(1909)	1
University of West Tennessee	(1913) (1915)	2
Fort Worth School of Medicine	(1912)	1
Institute Litarario, Mexico†	(1909)	1
National School of Medicine, Mexico	(1909)	1

* Graduation not verified.

† The name of this institution does not appear among the list of medical schools of Mexico.

Book Notices

Digest of Comments on the Pharmacopeia of the United States of America and of the National Formulary for the Calendar Year Ending Dec. 31, 1914. By Martin I. Wilbert. Paper. Price 50 cents. Pp. 516. Hygienic Laboratory Bulletin No. 105. Washington: Government Printing Office, 1916.

This octavo volume is printed as Hygienic Laboratory Bulletin 105, and is announced as being the tenth of the present series of the Digest of Comments on the Pharmacopeia. Like the preceding numbers, it represents a comprehensive index of the available literature relating to the nature, object and content of the Pharmacopeia of the United States and the National Formulary. While the references included in this volume are of interest primarily to pharmacists and pharmaceutical chemists, there is much that is of value to the physician, particularly to the physician who is interested in laboratory work either from the clinical or the chemical point of view.

This bulletin attempts to reflect, in a brief form, the essential features embodied in the several installations of the "Abstract of Proposed Changes with New Standard and Description" published during the year 1914, and a summary of the comments thereon which have appeared in medical and pharmaceutical journals. In effect, therefore, this bulletin embodies a summary of the changes which will be embodied in the forthcoming edition of the Pharmacopeia of the United States.

It also includes a somewhat comprehensive review of the fifth edition of the British Pharmacopeia which was published during the year 1914. A point of special interest in connection with the appearance of the British Pharmacopeia is the fact that despite the war and the accompanying political disturbances, it completes the adherence of the several powers signatory to the international treaty of 1906 for the unification of the pharmacopeial formulas for potent medicaments. This pharmacopeia is also interesting in that the committee having the book in charge has endeavored to produce a British pharmacopeia for the whole empire.

Among the additional features of interest included in the bulletin under discussion is a review of the comments on the food and drugs law, the laws designed to regulate the sale and use of poisons, the restrictions on the sale and use of narcotic drugs, the abuses evidenced in connection with the sale and use of so-called household remedies, and the published reports of drug inspection work. The last-named chapter is particularly interesting in that it emphasizes the tremendous amount of work which must yet be accomplished before the medicine supply business can be considered to be based on a firm scientific foundation.

Comments on the actions and uses of drugs are largely confined to reports of pharmacologic investigations and to records of unusual, toxic or secondary effects of official drugs and preparations. The latter feature, combined with an adequate reflection of the variations existing in the available official drugs and preparations, should alone suffice to make the bulletin of practical value to all medical practitioners who are in any way interested in the nature, source and supply of the medicines used or prescribed.

The New Public Health. By Hibbert Winslow Hill, M.B., M.D., D.P.H., Director, Institute of Public Health. Cloth. Price, $1.25. Pp. 206. New York: The Macmillan Company, 1916.

This book is a revision and expansion of articles published in the *Journal-Lancet* and later circulated to the newspaper press at the instance of the Minnesota State Board of Health. Dr. Hill holds that the control and ultimate suppression of infection is a matter about which we already know enough to justify intensive campaign. The new differs from the old public health in that it deals with the individual rather than with his environment. "The Old sought the sources of infection in the surroundings of man, the New in man himself." Dr. Hill adopts the artistic technic of the painters in the presentation of his subject. That part which he desires to bring into relief is alone treated in detail. Having seized his reader's attention by his manner, Dr. Hill leads it over what, in other company, might have proved dull ground. He

has important chapters dealing with individual defense, community defense, public health statistics and administration. In the conclusion the author, after disposing of certain facile but fallacious objections, sums up his argument. Two appendixes contain, respectively, data on infectious diseases and a syllabus of public health teaching, prepared by Dr. Hill in cooperation with the state superintendent of education of Minnesota. An index would have increased the utility of the work.

Miscellany

The Care of Convalescent Narcotic Addicts

The Advisory Committee of the Misdemeanants Court of Philadelphia requested the College of Physicians of Philadelphia to answer the following questions regarding the care of narcotic addicts:

"1. How should the hospital treatment be supplemented after the patients are discharged as cured?

"2. Is there any general rule as to the time of convalescence?

"3. Will the character and time of treatment of convalescence be the same in the cases of morphin, heroin and cocain; or will the treatment of convalescents vary, according to the character of the drug to which they are addicted?"

The College of Physicians authorized its standing Committee on Public Health and Preventive Medicine to formulate answers. Three answers follow:

"Before replying to the above questions, it should be distinctly understood that the consensus of medical opinion does not approve of the term 'cured,' and hence there can be no true convalescent period as applied to drug habitués for the reason that these patients almost invariably, soon or late, return to the 'habit' either by using the same drug or some alternative. This will remain true of most of these unfortunates, so long as they can procure the drugs that give rise to the 'habit.' On the other hand, it is generally admitted that in rare instances a cure is possible.

"With a clear appreciation of these facts, we would respectfully reply to your queries as follows:

"1. After a patient suffering from morphinism has been discharged from a hospital, he should visit either his physician or, in the event of his belonging to the dependent class of the body politic, a first class dispensary for nervous diseases, and one having the benefit of competent social service workers. The latter should visit the patient during the intervals between his visits to the dispensary. This strict surveillance of the patient's habits should be maintained for a long period of time.

"2. There is no fixed rule as to the time of so-called convalescence. The duration of this period will depend on the previous duration of the 'habit' and its effects on the nervous system of the patient, as well as his environment, with special reference to encouragement and moral help.

"3. The time and character of treatment to be pursued after the patient leaves the hospital is practically the same for morphin and heroin habitués, although some observers claim that the heroin habit is more easily and more speedily cured than the morphin habit. In the case of the cocain habitués the proposition is both more difficult and more serious. Cocain causes greater mental and moral changes than do morphin or heroin. As pointed out by Erlenmeyer, cocain causes typical disillusional insanity in which hallucinations are common. Says Lloyd, 'These victims deteriorate rapidly, in both body and mind, and soon become wrecks. In the cocain habitué, especially, there are loss of weight, muscular weakness, tremor, anesthesia and disturbance of the heart and lungs.'

"In our opinion, cocain habitués after being discharged from a hospital must receive the closest attention, either by the home physician or by a competent physician and social service worker connected with an outpatient department of a hospital. This habit being a particularly destructive one, the patient requires, in addition to suggestive directions, tonics, physical exercises and hydrotherapeutic measures extending over a long period of time. The management of all drug habitués should have a suggestive bearing. Finally, it is to be recollected that these patients often use more than one drug, and hence the treatment must be varied accordingly."

Medicolegal

Construction of Statute Requiring Physicians to Keep Records

(People vs. Cohen (N. Y.), 157 N. Y. Supp. 591)

The Supreme Court of New York, Special Term, Erie County, holds good a demurrer to an indictment which charged the defendant with having issued prescriptions calling for heroin, morphin, cocain and other dangerous drugs, without having kept a record of the names of the persons to whom they were issued and delivered, together with the quantity of said drugs prescribed, etc. The court says that the validity of the indictment would seem to turn on the meaning to be given the word "dispense," as employed in Section 248 of the public health law, which reads: "Physicians, etc., to Keep Records. All persons authorized by law to sell, administer, prescribe, dispense or dispose of any of the drugs enumerated in Section 245 of this chapter shall forthwith keep on record the name and address of each person to whom such drug is dispensed," etc. To "dispense" is to deal out; to distribute; to give. A "prescription" is a mere formula for the preparation of a drug and medicine. It may be filled or not, as the person to whom it is given elects; but until it has been filled and the substance delivered, the court thinks there is no "dispensing" of the drug itself. The court is therefore of the opinion that a physician who merely writes a prescription and does nothing more cannot be said to "dispense" the drug or article described in the prescription. Where the physician not only writes the prescription, but himself delivers the drug to the patient, he undoubtedly brings himself within the requirements of the act requiring him to "keep on record the name and address of each person to whom such drug is dispensed." The court does not think this is required, however, where the drug itself is not delivered by the physician. It is difficult to discover how any useful or practical purpose would be served by requiring physicians who do not themselves sell and dispense these drugs to keep a record of such prescriptions, for in such cases the identical record is preserved for public use by those who dispense the drug.

Harrison Narcotic Law Construed Against Doing of Mail Order Business

(Tucker et al. vs. Williamson et al. (U. S.), 229 Fed. R. 201)

The United States District Court, Southern District of Ohio, in sustaining a motion to dismiss the plaintiff's bill asking for injunctive relief with reference to the interpretation and enforcement of the Harrison Narcotic Law, says that the most of their business was a mail order one. They claimed to be physicians who in the course of their professional practice were prescribing for, dispensing and distributing to patients in various states a medicine prepared by them, for the relief of asthma and hay-fever, that contained cocain. The only physician who may under Section 2 (*a*) lawfully dispense or distribute the drug in question is one who is registered and who acts in the course of his professional practice only. He may not—Section 2 (*d*)—obtain it by means of the prescribed order forms for any purpose other than the use, sale or distribution of it in the legitimate practice of his profession. That he must in each instance in which he dispenses or distributes the drug be employed to prescribe for the particular patient receiving such drug is necessarily implied from the pertinent provisions of the act and the purposes to be accomplished by it. He may not engage in the business of selling, unless he sells it in filling his own prescriptions, for the sale of it is, generally speaking, the part of the druggist. He must act strictly within the line of actual employment in a legitimate and professional practice only, in which he personally judges (diagnoses) the nature, character and symptoms of the disease, determines the proper remedy for it, and prescribes the application of the remedy to the disease. Personal supervision accompanies the prescribing. The remedy is to be adapted to the disease and wants of the particular patient. That a physician may

not prescribe for other than the particular patient who employs him and who is to receive the drug follows from the language and import of Sections 4 and 8. Section 4, when it treats of physicians, deals only with the delivery of the drug, and permits its delivery by a person (an individual) only when it has been prescribed or dispensed by a registered physician who has been employed to prescribe for the particular patient who is to receive such drug. The law contemplates that there shall be no promiscuous or covert passing around of the drug to persons who have not employed the physician and received it on his prescription. The regulation promulgated by the Treasury Department that a physician must be actually absent from his office and in personal attendance on the patient in order to come within the exemption of Section 2 (*a*) accords with the design that a physician shall maintain supervision over the patient for whom he prescribes. The department thus places, and the court thinks rightfully so, a more restricted meaning on personal attendance than the courts have placed on medical attendance—it being held that to constitute the latter it is not requisite that the physician should attend the patient at his home, and that an attendance at his office is sufficient. It is by personal attendance that the greater part of the business of a regularly practicing general practitioner is done. The personal attendance clause, therefore, covers the majority of all the cases in which the drug is dispensed or distributed by such a physician. Its effect is to increase the inconvenience and difficulty, and even the expense, of procuring the drug. If, instead of personal attendance on the patient by the physician, the patient calls on the physician at his office for treatment, in which event such physician is required to make a record of the drugs mentioned in the act which he dispenses or distributes, the opportunity is afforded of personally diagnosing, studying, supervising and prescribing for such patient. If a regularly practicing physician may prescribe without seeing his patient, it is in occasional instances only.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, DETROIT, JUNE 12-16.

American Academy of Medicine, Detroit, June 9-12.
American Assn. of Genito-Urinary Surgs., Washington, D. C., May 9-10.
American Association of Path. and Bact., Washington, D. C., May 9-11.
American Climatological and Clin. Assn., Washington, D. C., May 9-11.
American Dermatological Association, Washington, D. C., May 8-10.
American Gastro-Enterological Association, Washington, D. C., May 8-9.
American Gynecological Society, Washington, D. C., May 9-11.
American Laryngological Association, Washington, D. C., May 9-11.
Amer. Laryn., Rhin. and Otol., White Sulphur Sprgs., W. Va., May 5-6.
American Neurological Association, Washington, D. C., May 8-10.
American Ophthalmological Society, Washington, D. C., May 9-11.
American Orthopedic Association, Washington, D. C., May 8-11.
American Otological Society, Washington, D. C., May 9-10.
American Pediatric Society, Washington, D. C., May 8-10.
American Society of Tropical Medicine, Washington, D. C., May 9-11.
American Surgical Association, Washington, D. C., May 9-11.
American Therapeutic Society, Detroit, June 9-10.
Arizona Medical Association, Phoenix, April 26-27.
Arkansas Medical Society, Texarkana, May 2-4.
Association of American Physicians, Washington, D. C., May 9-11.
Conference of State and Prov. Boards of N. A., Washington, May 16-17.
Cong. Am. Phys. and Surgs. of No. Am., Washington, D. C., May 9-10.
Connecticut State Medical Society, Bridgeport, May 17-18.
Florida Medical Association, Arcadia, May 10-12.
Illinois State Medical Society, Champaign, May 16-18.
Iowa State Medical Society, Davenport, May 10-12.
Kansas Medical Society, Topeka, May 3-5.
Louisiana State Medical Society, New Orleans, April 25-27.
Maine Medical Association, Portland, June 7-8.
Maryland Medical and Chirurgical Faculty, Baltimore, April 25-27.
Massachusetts Medical Society, Boston, June 6-7.
Mississippi State Medical Association, Greenville, May 9-11.
Missouri State Medical Association, Excelsior Springs, May 8-10.
National Assn. for Study and Prev. of Tuberc., Wash., D. C., May 11-12.
Nebraska State Medical Association, Omaha, May 23-25.
New Hampshire Medical Society, Concord, May 16.
New Jersey Medical Society, Spring Lake, June 20-22.
New York State Medical Society, Saratoga Springs, May 16.
North Dakota State Medical Association, Devils Lake, May 10-11.
Ohio State Medical Association, Cleveland, May 17-19.
Oklahoma State Medical Association, Oklahoma City, May 9-11.
Rhode Island Medical Society, Providence, June 1.
South Dakota State Medical Association, Aberdeen, May 23-25.
Texas State Medical Association, Galveston, May 9-11.
West Virginia State Medical Association, Wheeling, May 16-18.

TENNESSEE STATE MEDICAL ASSOCIATION

Eighty-Third Annual Meeting, Held at Knoxville, April 3-6, 1916

The President, DR. E. C. ELLETT, Memphis, in the Chair

Surgery of the Gall Passages

DR. C. N. COWDEN, Nashville: I advise intervention when a patient has had two or three distinct attacks, for a delay often means serious damage not only to the gall passages, but to the neighboring organs as well, such as pancreatitis, bands of adhesions, and other complications necessitating more difficult operative measures, higher mortality, even in the hands of experts, and more likelihood that the patient will not be completely relieved. The Mayos a few years ago were the chief advocates of cholecystostomy. While on a visit to their clinic a short time ago I saw drainage of the gallbladder in only one case, whereas over twenty cases were subjected to complete removal of the gallbladder which showed any great degree of pathology. Naturally, the surgeon concludes from his experience that cholecystectomy is the only method that is a certain cure. The surgeon must decide for each individual case, and to guide us aright, Crile has submitted some simple rules to serve to direct us. If the gallbladder has approximately normal walls, and the cystic duct is patulous, as is manifested by a free appearance of normal bile into the bladder when it is opened, then no matter what the size or number of the stones, no return of the symptoms will follow a simple drainage. Again, he insists that where we have acute cholecystitis with severe symptoms, with the patient not in the best of condition, mere drainage followed by cholecystectomy, if we have a return of symptoms, is preferable and freer from danger.

DISCUSSION

DR. WILLIAM D. HAGGARD, Nashville: We now look on infections of the gallbladder as largely lymphatic; that is, the infection is from behind and it has come from the various and sundry sources throughout the body. Realizing that fact, we must look on it as an infection, and the stone or stones really as a terminal process. If the case is quite acute and it would add something to the mortality to remove the gallbladder, drainage should suffice; but if the patient is not too sick or too fat, and the common duct is patent, it is a simple and easy matter to remove the gallbladder.

DR. WILLIAM LITTERER, Nashville: All gallbladder trouble is due to bacterial infection. There are a great many cases of typhoid infection that are attributed to infections of the gallbladder, but the patients have never had gallbladder disease.

Intestinal Obstruction

DR. W. M. MCCABE, Nashville: The treatment of intestinal obstruction is surgical. If one possessed all the magnesium sulphate, castor oil, croton oil and physostigmin sulphate which has been wasted in this condition, he would be a Croesus. If the patient is seen early before the stage of toxemia, a radical operation should be done by the ordinary methods, but it is those cases in the terminal stages of toxemia of which I especially desire to speak. Morphin, one-fourth grain, and atropin, one one hundred fiftieth grain, are administered one-half hour before the operation is begun. The deep structures of the abdominal wall are infiltrated with 0.2 per cent. novocain solution containing epinephrin. The skin is now infiltrated and the abdomen opened. A knuckle of ileum as low down as possible above the point of obstruction is caught in a Smith forceps, and a small area is surrounded by two purse string sutures of catgut. The bowel is opened and a Pezzar catheter is inserted and held in place by the first purse string. If the catheter is to be left in for some days the second purse string is tied and inverts the first purse string. If the catheter is to be removed immediately, the first purse string is to be loosened or cut, and the opening is closed with the second purse string. While the bowel is emptying itself through the catheter, a search is made for the point of obstruction, and if found is dealt with according to the pathologic condition of the patient. If the patient's condition forbids a search for the obstruction, the catheter is left in the bowel and allowed to remain for sev-

eral days. One will be surprised to find that many patients with apparently hopeless cases will begin to improve rapidly and in a few days pass fecal matter by the anus. Normal saline is also given in abundance by hypodermoclysis and enteroclysis.

Of seventy patients with intestinal obstruction operated on, we have saved 50 per cent. Of fourteen patients entering the hospital last year, one died without operative interference, and thirteen had enterostomies performed, with six deaths and seven recoveries.

DISCUSSION

DR. H. M. TIGERT, Nashville: In operating on these patients, one should not make a prolonged and fruitless search for the obstruction; but if enterostomy is done, it will be found that many patients will survive who otherwise would die, and in a great percentage of the cases it may not be necessary to go back and do any further operation.

DR. C. N. COWDEN, Nashville: The moment that intestinal obstruction takes place, Nature tries to protect itself by limiting absorption from the cavity of the intestine above the seat of obstruction, and when the obstruction is relieved one turns lots of toxic material into the lumen of the bowel below, absorption takes place rapidly, and the patient dies of overwhelming toxemia. What the surgeon needs to do in these cases is to perform enterostomy, put in a fecal catheter and bring it to the angle of the wound, and it will close.

DR. J. B. HASKELL, Memphis: To give cathartics indiscriminately for pain in the abdomen and inability on part of the bowels to move simply exaggerates the condition. Enterostomy should be resorted to.

DR. WILLIAM T. BLACK, Memphis: In my latest case, the patient went five days before I saw him. He had fecal vomiting for three or four days due to obstruction from a gallstone in the small intestine. The principal thing in these severe cases is to do enterostomy.

DR. W. M. MCCABE, Nashville: We have more patients with intestinal obstruction coming in who are practically moribund than all other types of cases combined. I have seen patients die within fifteen or twenty minutes after they entered the hospital.

Tuberculosis of the Kidney

DR. W. C. DIXON, Nashville: The treatment of renal tuberculosis is surgical, consisting in nephrectomy as soon as a diagnosis is made. Rest, diet, fresh air and tuberculin have been tried without results. Cases reported as cures will usually prove to be instances of autonephrectomy, so-called, in which the ureter is completely obstructed. As the irritated urine fails to reach the bladder, the symptoms improve.

DISCUSSION

DR. L. E. BURCH, Nashville: The majority of patients with renal tuberculosis present themselves to the practitioner with the symptoms of cystitis, frequency of urination and painful urination. Much could be gained if the practitioner did not look on cystitis as a disease but merely as a symptom of a disease.

DR. PERRY BROMBERG, Nashville: Any physician is justified in suspecting he has to deal with tuberculosis of the bladder in any case of cystitis that has been irrigated with silver nitrate solution and has been treated for a period of three or four weeks and does not yield.

A Simplified Technic in the Application of Schick's Reaction for Testing Immunity to Diphtheria

DR. WILLIAM LITTERER, Nashville: The necessary articles are a 1 c.c. hypodermic syringe, graduating to tenths, a No. 26 or No. 27 gage needle, sterile normal salt solution and the diphtheria toxin. The toxin is diluted in the salt solution according to the strength as determined by laboratory tests. The amount of the solution used will depend on the dilution. The dilution should be so made that approximately 0.2 c.c. will be the amount, as it makes a good sized bleb.

The injection should be made into the skin and not subcutaneously. This is easily accomplished if a small bit of the skin is held tightly between the thumb and forefinger of one hand, and the barrel of the syringe in the other is held lower than the needle point. The reaction, if positive, is shown by an area of inflammation varying in extent from 2 to 5 cm. in diameter. It is more intense in the center and lasts for about fourteen days, when it gradually disappears, leaving a brown desquamating surface. Those giving such a reaction are susceptible to diphtheria, while those who do not, have a natural immunity which is adequate to protect them.

A Plea for the Early Recognition and Treatment of Hyperthyroidism

DR. J. A. CRISLER AND DR. E. J. JOHNSON, Memphis: Simple goiters are seen in young girls merging into active menstrual life, and in pregnant women. All others are serious. The least harmful of the serious class are probably the large, knotty, soft, adenomatous, colloid and cystic types, and even in these types, whose greatest evil may appear to be only in the deformity presented and in certain pressure symptoms, cancer is not an infrequent invader, on the one hand, while, on the other hand, a profound thyrotoxicosis may intervene without much warning and do irreparable damage.

Menstrual Disorders

DR. LUCIUS BURCH, Nashville: All menstrual disorders are symptoms, and should call for a careful history of the case, followed by a thorough examination. This routine should invariably be carried out before prescribing. The etiologic factor in amenorrhea is usually outside of the pelvis. The majority of cases of menorrhagia and metrorrhagia are due to one of the following diseases: cancer, abortion, fibroid tumor, extra-uterine pregnancy and endometritis. Those cases of dysmenorrhea that are not due to tumors, diseased adnexa, extreme displacements or obstruction may be relieved without resorting to surgery.

Dacryocystitis as a Predisposing Cause of Corneal Ulcers

DR. LEWIS M. SCOTT, Jellico: An infected tear passage may be found in the greater number of serpiginous ulcers of the cornea. The specific micro-organism in such ulcers is the pneumococcus, and an injury to the cornea furnishes the point of entrance for such organisms in most, if not all, cases. The laboring classes are the principal sufferers from attacks of serpiginous ulcers. This is due to the fact that they are prone to neglect conditions of the nares and lacrimal apparatus needing treatment. These people are more susceptible to eye injuries, and they are disposed to overlook the importance of early and careful attention to such injuries. Chronic dacryocystitis is usually due to an extension of some catarrhal affection from the nasal mucous membrane by way of the nasal duct. This being true, most cases of lacrimal sac infections can be prevented, if early and proper attention is given to the relief of all such conditions in the nares. When once dacryocystitis is established, anything short of complete obliteration of the sac will be of little effect. We may relieve the trouble for a while by probing and irrigation, but the same underlying conditions still exist which are liable to set up a reinfection at any time. Just so long as these infected tear passages exist, just so long will the patient be predisposed to corneal ulcers, it only being necessary for a wound on the cornea to permit the invading micro-organism to gain an entrance.

Acute Middle Ear Troubles

DR. WALTER DOTSON, Lebanon: If we are sure that we are dealing with a case of acute catarrhal otitis media, drainage may be secured by one of three ways: (1) by incision through the drum membrane; (2) by applying medicated tampons to the drum membrane to produce an exosmosis of the liquid contents of the middle ear cavity, and (3) by catherization of the eustachian tubes and forcing compressed air into the tympanic cavity to expel the liquid content, or by alternating compression with suction through the catheter. When the case is one of acute suppurative otitis media, or even when we are in doubt as to which form, then there is only one means of procuring proper drainage,

and that is by a long, clean curved incision through the drumhead. I condemn a small or simple puncture of the drum membrane. Paracentesis of the drum membrane is not sufficient. It does not give ample drainage, and is neither safe nor sane surgery. The incision should begin at the upper part of the bulging point and be curved through it down to the lowest point of the membrane, cutting down into the cartilaginous ring of its insertion. After making a free incision, I insert a cold wick drain into the incision and fold this loosely, not pack it, in the external auditory canal, leaving the other free end on the outside of the canal, and dressing is completed by a pad of absorbent cotton.

The Significance of Retinal Changes in Cardiorenal Vascular Disease

Dr. F. P. Calhoun, Atlanta, Ga.: A careful inspection of the fundus of the eye in all cases should be a part of the routine examination by the ophthalmologist. Slight changes in the retina or its blood vessel system are often warnings of a serious renal or general vascular disease. Distinct arteriosclerotic changes in its retinal vessels indicate a similar state in the cerebral vessels, but not the reverse. Arteriosclerotic changes and retinal hemorrhages are each indicative of an increased blood pressure. Obscuration in vision associated with retinal arteriosclerosis offers a grave prognosis for sight. Retinal exudates occurring in a nephritis are of the utmost gravity, death usually occurring within two years. The retinitis of pregnancy does not offer the same grave significance except for the permanent impairment of sight. Retinal changes due unquestionably to syphilis do not offer any very unfavorable significance regarding life.

The Significance and Mismanagement of Acute Abdominal Pain

Dr. L. L. Sheddan, Knoxville: The conditions which give rise to acute agonizing pain in the abdomen of a paroxysmal character are: (1) acute intestinal colic, produced by the ingestion of some indigestible or impure food; (2) renal colic; (3) hepatic colic; (4) acute intestinal obstruction; (5) the crises of disease of the cord, and (6) crises of movable kidney.

The conditions which cause acute agonizing pain which is constant in character are: (1) perforations of hollow viscera; (2) acute hemorrhagic pancreatitis; (3) acute perforating or gangrenous appendicitis; (4) thrombosis and vascular changes in the mesenteric vessels; (5) twisting and torsion of the pedicle of abdominal and pelvic tumors; (6) tubal abortion or ruptured tubal pregnancy or abscess, and (7) pain of vertebral caries or cancer.

The Solar Treatment in Affections of Bones and Joints

Dr. Willis C. Campbell, Memphis: Heliotherapy, as advocated by Rollier, is by no means a simple measure to be lightly entrusted, but must be carefully and scientifically carried out directly under the supervision of one who is experienced with the method and necessary orthopedic measures. A most careful adjustment of orthopedic appliances is essential to healing of the process and the prevention of serious and unsightly deformities and malformation. Roentgenograms should be made at regular intervals, which will indicate the effect of treatment by the changes in the bone. The solar rays not only cause improvement in the general condition of the patient, but also exert a definite curative action on the local process, as evidenced by the Roentgen ray. The improvement of the patient is synchronous with pigmentation of the skin. There is marked and decided beneficial effect on acute nontuberculous septic conditions, and also tuberculous lesions secondarily infected. Consistent espionage is required on the part of the surgeon to obtain perfect cooperation on the part of the patient.

Treatment of Hip Disease

Dr. A. G. Nichol, Nashville: Early fixation in recumbency until all pain, spasm and tenderness has subsided, followed by ambulatory treatment, without weightbearing, the limb being fixed in a long plaster spica, should be recommended; then weightbearing is possible without pain and may be allowed. In the latter part of the treatment, the short spica of Lorenz may be used with greater comfort to the patient, and allow the use of the leg muscles, which will prevent much atrophy in convalescence. A supporter brace is used to be removed at night, gradually discarding appliances when all evidence of active disease has disappeared. In some cases it is advisable to use the traction method, especially should there be marked involvement of the acetabulum, but as a routine the fixation with plaster of Paris is to be preferred because of the certainty of adjustment, and the assurance that the parents cannot disturb the appliance and otherwise interfere with the mechanical intent. There are many arguments in favor of the traction method, but after weighing both sides well I feel that there is more to be gained by fixing the patient in a plaster of Paris spica than a brace that is often a source of much discussion and manipulation on the part of the parent and the spoiled child. Of great importance in either method is the continuance of supervision of all cases over a long period of time, and under no conditions should one dismiss a case until all signs of active disease have disappeared.

An Analysis of one Hundred Consecutive Cases of Appendicitis with Operation at the Newell Clinic

Dr. E. Dunbar Newell, Chattanooga: Of these 100 cases, in seventy-five we did not use a drain of any kind and there was no death. In this series of seventy-five cases we have included the chronic appendixes, the subacute cases, the cases of ordinary acute appendicitis in which the infection was confined entirely to the appendix, and the cases in which the appendix was tense from infection and pus and there was some plastic exudation and some seropus.

In twenty-five cases of this series of 100 cases we did use a drain of some kind, and in this series there were five deaths. In this drainage series are included gangrenous appendixes, ruptured appendixes with localized peritonitis, and abscess cases. In the gangrenous cases with only slight involvement of the surrounding tissues, we usually use a small soft rubber drain or a cigaret drain for forty-eight hours. When the appendix had been ruptured, a soft rubber tube was used, and in the abscess cases two soft rubber tubes were used, one inserted low down toward the pelvis and the other inserted over the base of the appendix.

In the seventy-five nondrainage cases, the stump of the appendix in every instance was ligated and inverted and covered with the stump of the meso-appendix. In the cases in which the appendix was gangrenous but there was no abscess cavity, the appendix was removed in every instance, and there was no death in this series.

Of the twenty-five drainage cases, in eight the appendix was not removed. The appendix was not removed, as there was a large abscess cavity in each instance, the patients were all in a serious condition, and the appendix could not have been removed without breaking down extensive adhesions and prolonging the operation to a dangerous limit. Of the five deaths, in only one case had the appendix been removed. During the time that this series was taken, in not a single instance did we fail to operate in any case because it was too far advanced, even though we felt sure the operation would not relieve, and so advised the relatives and friends. We were always willing to give the patient the benefit of the slim chance for life, even at the expense of adverse criticism and of our statistics. In several of the drainage cases, the duration from the onset to the time of operation was less than forty-eight hours, but in none of the five deaths was the duration less than five days, and in one case it was twelve days. A more convincing argument for early operation could not be made.

Tumors of the Female Breast

Dr. J. L. McGhee, Jr., Memphis: If we are going to operate only in cases of cancer of the breast which can be diagnosed clinically, then we shall never get very much better results than were secured twenty-five or thirty years ago. Murphy, as late as February, 1916, stated that "the ultimate mortality of cancer of the breast is just as bad

today as it was thirty-five years ago, if not worse than it was then." All lumps in the breast should be considered potential cancers until proved otherwise at the time of operation. The mere presence of a lump or knot in the breast is sufficient evidence to advise exploration and examination. Discharges from the nipple, bloody, serous or milky (from the nonlactating breast) are signs calling for the most prompt and searching study.

What Results Have the Newer Tests for Kidney Function Brought the Internist?

DR. J. B. MCELROY, Memphis: To determine the sufficiency or insufficiency of the kidneys, various clinical signs and symptoms have long been regarded as evidence of insufficient functional activity of the kidney, such as edema, uremia, cardiac hypertrophy, hypertension, and the presence of albumin and casts in the urine. But, as Blum says, it is not possible to recognize these symptoms in all cases of insufficiency in the kidneys, for sometimes all of these symptoms are indicated in the etiologic and pathologic relations of various kinds, and again there are cases of diffuse diseases of the kidney in good compensation in which neither edema, uremia, nor cardiac hypertrophy is present. Histologic examination shows always in such cases disturbance of an inflammatory nature in some areas and compensatory hypertrophy in other areas of the same organ.

It is in such cases that the newer methods offer considerable aid in the detection of insufficiency on the part of the kidney, and conversely, sometimes in eliminating the possibility of an insufficiency. Korányi, in the earlier days of functional kidney tests, showed that every diseased kidney is associated with a hyposthenuria, an inability to pass a strongly concentrated urine, and also that the power to excrete a more dilute urine is lost as well. These observations have been confirmed by Hedinger-Schlayer and by Mosenthal. So it would seem that we have in the test meal a method of detecting early kidney insufficiency and conversely excluding it when suspected.

All are agreed that these tests are of great value as to prognosis. Thayer and Snowden have clearly shown this with respect to phenolsulphonephthalein by a comparison of this test with the anatomic lesions in fifty-four cases coming to necropsy. This has also been shown with respect to the other tests—the test meals, nonprotein nitrogen, creatinin and increased salt retention.

Unquestionably the therapy by these tests has been placed on a more rational and individual basis. They have led to a healthy skepticism as to the value of diuretics in nephritis. They have shown that some patients will need a salt poor diet, that some will need a low protein diet, that a low protein diet should be accompanied by a large water intake, and that hypertension is not necessarily an indication for a low protein diet. In fact, our former management has been materially modified, as may be seen from the recent excellent article of Elliott and Janeway. With care and proper reading, the newer tests for kidney function have brought very beneficial results with respect to the diagnosis, prognosis and the treatment of the nephropathies.

The Percy Cautery Treatment of Inoperable Carcinoma of the Uterus, with Preliminary Report of Cases

DR. EDWARD T. NEWELL, Chattanooga: In the past fourteen months I have operated in fourteen cases. Eight patients were in a desperate condition and too far advanced for a hysterectomy. The parametrium was involved in all of them and the uterus fixed. There has been no primary mortality in any of these operations. All the patients are doing well with one exception. She has a return. She came back to me about six months ago with a nodule in the posterior vaginal wall, on which I used the hot cautery, knowing at that time I was affording only temporary relief. She had originally an involvement of the posterior vaginal wall and rectum. She is 55 years old, and was bedridden when I first saw her. All the remainder have gained in weight, have lost the cachexia and are doing their own work and none show signs of recurrence. Considering the high mortality and morbidity of a Wertheim operation in a widespread involvement of the tissues, unless the patient is an unusually good operative risk, I do not believe this operation is equal to the Percy cautery treatment.

CONFERENCE ON THE TRAINING OF MEDICAL MISSIONARIES

Held in New York, April 5 and 6, 1916

W. DOUGLAS MACKENZIE, D.D., Chairman of the Board of Missionary Preparation, in the Chair

The Different Types of Medical Service Called for in the Foreign Field and the Personal Qualifications Essential to Success

DR. ALDEN R. HOOVER, Missionary of the American Board in Turkey: The medical missionary must be prepared to do pioneer work and to demonstrate the worth of Western medicine. He must be able to modify his cut and dried classical methods in case of necessity, to treat patients and to perform operations under adverse conditions, and that without becoming careless of technic or skill. He must be able to build up medical work on scant funds and to give his time generously to the service of the poor, to advance in the face of governmental opposition, to use tact in cooperation with the egotistic and jealous, narrow-minded, native practitioner. He must be skilful in hospital management and the keeping of records, for he should contribute to medical journals for the benefit of the profession at large and do his part to keep the spirit of scientific investigation alive. He should be prepared to apply the principles of preventive medicine and to demonstrate the value of quarantine, disinfection and fumigation, and to teach the methods whereby infant mortality may be lessened. In addition to the regular postgraduate course the medical missionary should have a course in tropical diseases such as is offered at Harvard or London, a good preparation in bacteriology, laboratory methods, and diagnosis, blood examination with special attention to parasitology, epidemiology, toxicology, and such diseases as malaria, yellow fever, plague, sleeping sickness, etc. In the more civilized countries the systems of medicine existing need combining, remodeling, reconstructing and revising, while in the uncivilized countries the entire system of modern medicine must be introduced. The medical missionary should be a student of social conditions, hygiene, sanitation and general public health problems; he should also be a good teacher with a hobby such as agriculture, climatology, botany, zoology, etc., since by the information thus gained he may be able to contribute to the world's knowledge. We should substitute the well trained medical missionary for the "pill-box evangelist." We should have medical schools and training schools in certain strategic centers in various countries. The medical missionary must be able to see and to solve large problems, as did Gorgas in Panama, Strong in Serbia, and Greenfell in Labrador.

The Preparation of the Medical Missionary for His Task

DR. HORACE D. ARNOLD, Dean of the Graduate School of Medicine in Harvard University: It is not necessary that the medical missionary should be as fully prepared in theology as the ordained missionary, but he should be in sympathy with evangelical work. It seems to me that there is greater need for a thorough foundation in medical knowledge, and for skill in a broader field of medicine for the medical missionary than for a physician who practices at home. When we come to speak of medical standards we find it a little difficult as the situation is still chaotic in this country, each state having its own examining board. The requirements of the Council on Medical Education of the American Medical Association may be taken as the desirable minimum standard for medical missionaries. It is recommended by the Council that medical students take two years in college, including courses in physics, chemistry and biology and after graduation to spend a year as an intern in a good hospital. It would be wise for the missionary societies to place their minimum requirements as far as possible on this level. The broader education of four years in college is desirable, but

not essential. During the four years in medical school the student has all he can do to pursue his medical studies, and should not attempt to carry on other studies; neither should he attempt to specialize during this four years, except by the choice of optional or elective courses. The additional preparation which may be needed for the medical missionary may be obtained by summer courses and by a year of special preparation after he has completed his year in a hospital, when he may give attention to those branches requiring special technical skill. These are surgery, diseases of the eye, ear, nose and throat, obstetrics, gynecology and diseases of children. Preventive medicine, hygiene and sanitation should also be required, and tropical medicine if it is called for by the locality to which the medical missionary is to go. This would take until he is about 26 years of age; so it would seem that if we are to have a well equipped physician we cannot have a well trained missionary, that is, if he enters the field still young enough to be adaptable and energetic enough to be progressive. Medical missionary societies must also face the problem of keeping their physicians up to date. Every appointment to the medical missionary service should be conditioned on the passage of an examination by the medical examining board of some state or other authority.

DISCUSSION

DR. MATHINE, formerly of Turkey: Some medical missionary boards in their medical administration have one school of medicine and some another; some employ osteopathic and homeopathic physicians, and some physicians of the regular school. This presents a problem.

DR. ATTERBURY, China: There is nothing that so chills missionary work as a medical missionary who is afraid of the evangelical side of the work and is not enthused by religion. We should have an institute for the religious training of the medical missionary as well as for his secular training.

The Preparation of Women for Medical Mission Service, and How It Should Be Differentiated, If at All, From that of Men

DR. BELLE ALLEN, Baroda, India: Ideally the woman student needs a volunteer convention for vision and inspiration, scholarships provided conditionally, four years in college, and a degree with majors in biology and chemistry. During vacations she should take courses in sociology and psychology. She should acquire the scholarly habit, the world vision habit, the learner's habit and the "win one" habit. She should have an A.M. degree from a teacher's college, four years' course in a Class A medical college, and a year in a large general hospital. Then she should go into a hospital in the field in which she expects to work while she is acquiring the language. If she is fitted intellectually and temperamentally for laboratory work, she should be prepared to do research work. She should be prepared to train others for administrative work, and be capable of translating suitable textbooks into the language of the people among whom she works. Above all, she should be an interpreter of Christianity. The same medical knowledge is requisite for both men and women, remembering that the medical missionary has to deal in the Orient with a different social order from that of the Occident. The women, especially those of the better classes, have been kept in seclusion and have an innate modesty and shrinking from the male physician. This attitude should be respected. I would advocate genitourinary work for men by men and for women by women physicians.

Preparation of Medical Missionaries in Addition to Their Medical Studies

DR. PAUL W. HARRISON, Arabia: There are three essentials for the medical missionary. These are (1) biblical training; (2) five years' first class medical training, and (3) two years in the field gaining a knowledge of the language. Many additions have been suggested, but so much time is already taken up that before we introduce anything further we must show that it will be more valuable than something now studied. It is a question whether a study of the sociologic and economic conditions of a country are not of as much importance as a thorough knowledge of the language of that country. For the present our efforts should be directed along the lines of high professional standards and a knowledge of the language, regarding the other subjects as non-essentials.

DISCUSSION

DR. FRANK K. SANDERS, New York: In our discussion and papers thus far we have been regarding this matter from one side only. I should like to look at it from another angle. What should be done with the one, two or three years immediately succeeding the medical course? If two years are spent in hospitals, should not one of these be spent in a hospital at home and one in a hospital abroad, and in the latter case would it not be possible to use this second year as a language year as well as a hospital year?

DR. H. D. ARNOLD, Boston: My answer would be that the student should have two years' hospital preparation. I do not think it feasible to have a hospital experience abroad equivalent to the work of an intern in a good hospital here. There would be a definite advantage in combining the work in the field with further hospital work under a good man in a hospital in the field.

REV. WILLIAM MCCLURE, M.D., Honan, China: I wish to emphasize the importance of a course in Bible study. I do not know just where it should come, but probably with other supplementary studies during the college course.

The Fundamental Objectives and Purpose of Medical Missionary Work From the Standpoint of Missionary Administration

DR. ROBERT E. SPEER, New York, Secretary of the Board of Foreign Missions of the Presbyterian Church: Thus far there has been no mention of one objective of missionary work, and that is the care of the health of other missionaries. In some localities this may be more important than in others. A second objective of medical missionary work is to do good; at times this end may be obtained by refusing to do good; the research worker refuses to practice medicine, believing that by concentrating his efforts he may do greater good. A third objective is the relief of suffering, yet the Rockefeller Medical Board in its Branch of the Harvard Medical School in China, though not designed to relieve suffering directly, will eventually greatly diminish suffering. A fourth great objective of the medical missionary is to remove prejudice and gain access to the minds and hearts of the people. The introduction of sanitation and hygiene is one way of opening the door so that it will be more easy of access to the evangelist. We should keep control of the medical schools in missionary countries, for it is a mistake to give the materialistic people modern medicine without religion. Dr. Welch realizes this when he says that we cannot give China our modern medical education without religion, because the mental attitude of the Chinese is entirely materialistic and there is an entire absence of the spirit of altruism that pervades the Western atmosphere, and a failure to grasp the spirit of philanthropy. In a letter which I have just received from a medical missionary in Persia, the writer says: "If men knew the joy of this work they would be falling over each other to get these places. This medical work goes deeper into all phases of life than any other sort of work would do." The claims of missionary work on the medical profession are great. The man going into the work should have the spirit of the evangelist. He must have singleness of purpose and give himself up for life, resolved to live poor and to die poor. He should have the same spirit as the ordained ecclesiastic, for he must be able to handle superstition as well as disease, and, indeed, his success in conquering disease often depends on his ability to overcome superstition.

DR. ATTERBURY, China: It would be a mistake to have Western science go into the East on purely a materialistic basis. Where charlatanry has gained a foothold in these localities it has done immense harm. Medical service should be rendered by the missions and by men spiritually illuminated, and in this way we may save whole races of materialists.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

April, XI, No. 4, pp. 245-308

1 Postoperative Management of Pyloric Stenosis. (Based on Fifty Cases.) E. A. Morgan, New York.
2 Practical Value of Guinea-Pig Test for Virulence of Diphtheria Bacilli. J. A. Kolmer, S. S. Woody and E. L. Moshage, Philadelphia.
3 *Methods of Using Diphtheria Toxin in Schick Test and of Controlling Reaction. A. Zingher, New York.
4 *D'Espine's Sign in Childhood. J. L. Morse, Boston.
5 Case of Acrocephalosyndactylism—Teratologic Type. H. O. Ruh, Cleveland.
6 *Presence of Ketones and Betahydroxybutyric Acid in Urine of Normal Children. B. S. Veeder and M. R. Johnston, St. Louis.
7 Secretion of Bile in Icterus Neonatorum. A. F. Hess, New York.
8 Case of Secondary Hypertrophic Osteo-Arthropathy in Girl Eleven Years old. C. Herrman, New York.

3. **Diphtheria Toxin in Schick Test.**—The results obtained by Zingher with the test in 2,700 normal children, show that from 17 to 32 per cent. between the ages of 2 and 16 years give a positive reaction and are probably susceptible to diphtheria.

4. **D'Espine's Sign in Childhood.**—Six hundred and sixty-six patients seen by Morse during the last three years form the basis of this study. In 626 of the 666 children, or 94 per cent., the change in the voice sound occurred between the seventh cervical and the first dorsal spines. The fact that D'Espine's sign was present in but forty of 666 children, or only 6 per cent., shows that D'Espine's sign is uncommon in the children of the wealthy and well-to-do classes. D'Espine's sign was very seldom present in these children before 5 years; it was most common between 8 and 9 years, and its frequency diminishes from that time on. Morse concludes that D'Espine was correct in his original contention that the normal change in the voice occurs between the seventh cervical and the first dorsal spines. D'Espine's sign is present, therefore, when the bronchial voice or whisper is heard below the seventh cervical spine.

6. **Ketones and Betahydroxybutyric Acid in Urine.**—Small amounts of ketones and betahydroxybutyric were always found by Veeder and Johnston in the urines of normal children when their caloric requirements were fully covered by the diet. The amount was small and varied from 20 to 100 mg. in terms of acetone in twenty-four hours. The average amount excreted was from 50 to 80 mg. The age, sex and body weight of the child apparently had no effect on the amount. As a rule the amount of betahydroxybutyric acid was somewhat greater than the amount of ketones, but this did not always hold true. The authors regard these substances as present in small amounts in the urine of normal children. The large quantity of "acetone bodies" in the urine in febrile conditions and on restricted diets is due to the increase of substances normally present, rather than to the appearance of abnormal substances.

American Journal of Orthopedic Surgery, Boston

April, XIV, No. 4, pp. 191-258

9 *General Heliotherapy in Treatment of Bone and Joint Affections; Report of Cases. W. C. Campbell, Memphis, Tenn.
10 *Painful Anterior Arch of Foot; Operation for Its Relief by Means of Raising Arch. R. O. Meisenbach, Buffalo.
11 *Arthroplasty of Interphalangeal Joints. J. P. Lord, Omaha.
12 Further Application of Intra-Articular Silk Ligament in Flail Joints of Poliomyelitis Paralysis (Hip and Knee). B. Bartow, Buffalo.
13 Case of Arrested Development of Carpus and Tarsus. J. K. Young, Philadelphia.

9. **General Heliotherapy in Treatment of Bone and Joint Affections.**—Campbell has used the sun treatment in twenty-eight cases, in eight of which sufficient time had not elapsed to obtain results. In four with fistulae improvement was rapid in three, but for various reasons exposures could not be continued. Of the remaining 16 in which the treatment was satisfactorily given, 7 were tubercular, 4 osteomyelitis, 2 pneumococcic arthritis, 1 periarthritis following direct infection of the knee joint, 1 arthritis deformans, 1 decubitus. All with the exception of one case were treated within the city of Memphis, Tennessee, which is about 200 feet above the sea level, having a mean temperature of 61.7 F. (winter 42.5, summer 79.4); average number of rainy days per year, 115. Patients have been exposed every month in the year, but more continuously from March 1 to December 15. No method of fixation except the Bradford frame and extension has been used and no medication except an occasional light purgative. The improvement has been so rapid and so real that Campbell feels that the treatment has a definite action on the local process.

10. **Painful Anterior Arch of Foot.**—Meisenbach raises the heads of the metatarsals by doing an osteotomy on these bones, that is, the heads are elevated in such a way that the tendons at the same time act in an elongated position, raising the anterior arch, removing the pressure and straightening the toes, so that the new position causes the flexor tendons to stretch rather than to contract. Under ether, with the legs of the patient flexed on the operating table and a shot bag under the plantar surface of the foot, a very narrow osteotome (1 to 8 inches) is driven in the shaft of the metatarsal bone 3 cm. from the metatarsophalangeal joint space. The cutting surface of the osteotome is first driven parallel with the flexor tendon of the given integral, so as to avoid the tendon, and driven slightly oblique, until the periosteum has been cut through. It is then forcibly turned at right angles to the shaft of the metatarsal bone and the cortex of the bone chiseled through, as in osteotomy. After all the metatarsals have been divided, the surgeon places his hand underneath the anterior arch, and with a gentle pressure raises it. The toes jump forward as if the tendons had been divided, giving the result desired. Hard felt pads, which have previously been cut in a beveled oval, should then be placed underneath the anterior arch somewhat obliquely, in a line from the tuberosity of the scaphoid to the center of the anterior arch. The felt pads should be held in position by means of adhesive, extending from the first to the fifth metatarsal heads, and quite wide. After the sterile dressings are applied, the foot is put up in a plaster dressing extending to the knee.

11. **Arthroplasty of Interphalangeal Joints.**—Of the ten interphalangeal joints, in which Lord used attached flaps of ligament, fascia and fat, six have been done over and free fat and fascia used. More bone was removed and better results were secured. In a few of these, injections of yellow petrolatum were also resorted to later with some apparent benefit. A majority of the joints have been greatly improved, some to the extent that the patients were satisfied because fingers became usable, whereas before they were almost useless. Free full motion was obtained in none. Some joints, with a chronic arthritis, lingering and somewhat painful before operation, became painless afterward. Fingers that were so flexed and distorted as to prevent the wearing of gloves were made sufficiently straight and stable to permit ladies to indulge this feminine prerequisite of a finished toilette.

Annals of Otology, Rhinology and Laryngology, St. Louis

December, 1915, XXIV, No. 4, pp. 747-1000

14 Indictment of Tonsil. B. C. Gile, Philadelphia.
15 Removal of Foreign Bodies From Upper Lobe Bronchus. C. Jackson, Pittsburgh.
16 Eye Adenoids and Their Relation to Throat Adenoids. Modification of Adenotonsillectomy Operation. T. E. Oertel, Augusta, Ga.
17 Vaccine Treatment of Suppurative Otitis Media. G. M. Coates, Philadelphia.
18 Case of Right Abducens Paralysis Following Acute Mastoiditis—Gradenigo's Syndrome. H. L. Myers, Norfolk, Va.
19 Case of Teratoma of Tonsillar Space Removed From Throat of Boy Two Days Old. W. C. Braislin, Brooklyn.
20 Complete Cleft Palate With Harelip. O. Smith, Portland, Me.
21 Chronic Purulent Otitis Media With Special Reference to Tuberculosis. W. C. Phillips, New York.
22 Vertigo of Labyrinthine Origin Following Chronic Suppurative Otitis Media With Cholesteatoma. F. P. Emerson, Boston.
23 Use of Quinin and Urea Hydrochlorid as Local Anesthetic in One Hundred and Forty-Eight Cases of Tonsillectomy. L. J. Burns, Philadelphia.

24 Case of Endothelioma of Trachea. C. Goodman, New York.
25 Temporosphenoidal Abscess With Unusual Complications. J. Leshure, New York.
26 Case of Multiple Abscess of Brain; Operation—Recovery. J. Guttman, New York.
27 Bacteriology of Acute Otitis Media and Mastoiditis and Their Complications; Blood Cultures. J. G. Dwyer, New York.
28 Case of Intense Vertigo Relieved by Puncture of Dura in Neighborhood of Internal Auditory Meatus. L. W. Dean, Iowa City, Iowa.
29 Theories Concerning Paracusis Willisii. G. M. McBean, Chicago.
30 Postoperative Antiseptic Treatment of Tonsillar Fossa. G. P. Marquis, Chicago.
31 Mastoid Operation Dependent on Pathology. C. F. Welty, San Francisco.

Archives of Pediatrics, New York

March, XXXIII, No. 3, pp. 161-240

32 Prolonged Use of Tubes Following Diphtheria; Report of Case. A. J. Bell, Cincinnati.
33 *Multiple Deaths in Newborn of One Family. C. Herrman, New York.
34 *Fever; Initial Sign of Tuberculous Infection in Infants; Report of Cases. M. S. Reuben, New York.
35 *Value of Luetin Reaction in Congenital Syphilis. M. B. Gordon, Brooklyn.
36 Symptomatology of Congenital Intestinal Obstructions. F. Van der Bogert, Schenectady.
37 Diagnosis of Appendicitis in Childhood. F. L. Wachenheim, New York.
38 Nursery Unit. F. E. Johnson, New York.

33. **Multiple Deaths in Newborn of One Family.**—Five of eight newborns reported on by Herrman were taken sick at about the same age, namely, from ten to twelve days, with the same symptoms, mild catarrhal manifestations in the upper respiratory tract; the disease ran the same course, and ended fatally in from five to six days in each. The labors were not difficult, the babies had no cyanosis or disturbances of breathing at birth. Some of the babies were born at home, some in the maternity ward. There is no reason to suppose that the hygienic conditions were at fault. At the time the last baby was in the maternity ward, there were no other cases of infection in the newborn. All the infants were breast-fed exclusively, none had any distinct digestive disturbance. As to the possibility of the mother's milk being toxic, two of the children, namely, the second and the fifth, received the breast milk for six months without presenting any disturbances, and the clinical picture was that of a descending respiratory infection, not that associated with "alimentary intoxication" or an anaphylactic reaction. In view of the fact that seven of eight children died of pneumonia, five during the first three weeks, Herrman feels justified in assuming an unusual susceptibility of the respiratory tract in these infants, and this susceptibility must have been congenital. The possibility of the mother acting as a "carrier" was considered, and cultures made from her throat showed a marked preponderance of streptococci; but as the blood cultures of the infant were sterile there is no definite evidence that the mother infected her infant.

34. **Fever, Initial Sign of Tuberculous Infection.**—This paper is based on a study of nine cases. Reuben says that fever is the first sign of tuberculous infection in infants. The fever is of sudden onset; at first high (seven to fourteen days), is remittent and gradually comes down by lysis, but not to normal, it continues at slightly above normal, 100 to 101 for twelve to twenty weeks, with periods of complete absence of fever; exacerbations (two to three) of high fever, of same type as that of onset usually occur. The tuberculin reaction in these cases usually becomes positive at the onset of fever or within a few days after the onset. At the onset of the infection no physical signs are present. Within the course of a few weeks (two to three) they all develop signs in the chest, which, in cases which get well, gradually disappear. The prognosis of tuberculous infection in infancy is more favorable than was formerly supposed; 30 to 35 per cent. of these infants survive the infection. From these facts Reuben concludes that the pathologic lesions, even in infancy, may be localized and completely healed. Of prolonged febrile conditions in infants 14 per cent. diagnosed as influenza give a positive Pirquet reaction. Reuben urges that the tuberculin reaction should be carried out on every infant who has an idiopathic fever and presents no physical signs.

35. **Value of Luetin Reaction in Congenital Syphilis.**—The luetin reaction was present in 81 per cent. of the cases of congenital syphilis studied by Gordon and was absent in all nonsyphilitic cases but one. He claims that this test is more adapted for pediatric work than the Wassermann. It is especially more so in dispensary work, in cases in which it sometimes is almost impossible to obtain permission from the parents to draw blood from a child.

Boston Medical and Surgical Journal

April 6, CLXXIV, No. 14, pp. 483-518

39 Practical Points in Prevention of Asiatic Cholera. A. J. McLaughlin, Boston.
40 Fermentative Diarrhea in Infants (Carbohydrate Form). L. W. Hill, Boston.
41 Industrial Medical Supervision. A. B. Emmons, 2d, Boston.
42 Truth About Smallpox and Vaccination. G. W. Gay, Boston.
43 Alcoholic as Seen in Court. V. V. Anderson, Boston.

Journal of Experimental Medicine, Baltimore

April, XXIII, No. 4, pp. 431-562

44 Klossiella Infection of Guinea-Pig. L. Pearce, New York.
45 Chemopathologic Studies With Compounds of Arsenic. Character and Distribution of Renal Injury Produced by Arsenicals as Indicated by Processes of Repair. L. Pearce and W. H. Brown, New York.
46 *Experiments With Poliomyelitis in Rabbit. M. J. Rosenau and L. C. Havens, Boston.
47 Feeding Experiments With Bacterium Pullorum. Toxicity of Infected Eggs. L. F. Rettger, T. G. Hull and W. S. Sturges, New Haven, Conn.
48 *Serum Changes and Cause of Death in Experimental Pancreatitis. W. Petersen, J. W. Jobling and A. A. Eggstein, Nashville, Tenn.
49 *Serum Changes Following Thyroparathyroidectomy. W. Petersen, J. W. Jobling and A. A. Eggstein, Nashville, Tenn.
50 *Disappearance of Dextrose From Blood After Intravenous Injection. I. S. Kleiner, New York.
51 *Function of Kidney When Deprived of Its Nerves. W. C. Quinby, Baltimore.
52 Method for Obtaining Suspensions of Living Cells from Fixed Tissues and for Plating Out of Individual Cells. P. Rous and F. S. Jones, New York.
53 *Pure Cultivation of Spirochaeta Icterohemorrhagia (Inada). T. Ito and H. Matsuzaki, Japan.

46. **Experiments with Poliomyelitis in Rabbit.**—The poliomyelitic virus obtained from an experimental monkey has been passed through eight generations in rabbits by Rosenau and Havens. It shows no signs of dying out. On the other hand, it gives no evidence of becoming more pathogenic to the species through successive passage. The period of incubation remains variable and the percentage of takes has not increased. All inoculations are by no means successful. The animals show great individual differences in susceptibility to the virus, as is evidenced by the fact that out of fifty-four rabbits inoculated, only twenty-two, or about 40 per cent. succumbed. At several points in the series of experiments it was thought that the strain had died out. As many as six rabbits have been inoculated one after the other before the virus would catch again. Several methods of inoculation have proved successful; thus the rabbits have succumbed as a result of introducing the virus directly into the brain, by injecting it into a peripheral nerve, or directly into the circulation, or by placing it on the uninjured nasal mucosa. The symptoms produced show more or less departure from the symptoms of poliomyelitis as seen in the spontaneous disease in man and in the experimental disease in the monkey. The period of incubation is variable and apparently does not depend on the method of inoculation. The virus shows no tendency to become fixed. The authors have found the virus to be filterable. The lesions, while definite and consistent throughout the series, lack the distinctive features of the pathologic picture of poliomyelitis in man and the monkey.

48. **Serum Changes in Experimental Pancreatitis.**—It is claimed by the authors that the serum changes observed during acute experimental pancreatitis indicate that the shock and death are due to an intoxication from protein split products, and not to an intoxication from pure tryptic ferment. When the pancreatitis is produced by the injection of an antiproteolytic substance (sodium oleate), the degree of intoxication bears no relation to the degree of tissue

destruction. The increase in serum antiferment apparently favors the recovery of the animal.

49. **Serum Changes Following Thyroparathyroidectomy.**—The authors found that in thyroparathyroidectomized dogs the onset of tetany bears no constant relation to the ferment-antiferment balance of the serum. The serum lipase titer remains at a low level throughout. A progressive increase in noncoagulable nitrogen and proteoses is observed in the serum following the removal of the glands. The amino nitrogen of the serum is usually increased at the time when tetany is most marked.

50. **Disappearance of Dextrose from Blood.**—As has been found by other investigators, Kleiner states, that when a large amount of dextrose is injected intravenously into a normal dog it disappears from the circulating blood in about ninety minutes after the end of the injection. Varying amounts (an average of 60 per cent.) are excreted in the urine. Even in nephrectomized animals the same quantity will leave the circulation in the same length of time as in normal animals. This phenomenon seems to be, at least to a great extent, independent of vital processes, since dextrose, after intravenous injection into dead animals is found to leave the blood rapidly. The phenomenon is independent of the important abdominal organs, for it also occurs in animals (living or dead) in which the aorta and inferior vena cava have been ligated near the diaphragm, thus abolishing most of the circulation posterior to the diaphragm. The fact that a considerable amount of the sugar passes from the circulation into the surrounding tissues was established by finding an increase in the carbohydrates of the muscle tissue. This was done in the case of the living anterior animals and in the whole and anterior dead animals. In most of these experiments there was also evidence of the formation of polysaccharids in the muscle tissue.

51. **Function of Kidney when Deprived of Its Nerves.**—By means of vascular suture Quinby found it possible to remove the dog's kidney from the body and later to restore it to its former position. Such a kidney is removed from the control of the nervous system, at least for a time. Examination of the function of a kidney so treated shows an initial period of overaction, as compared with that of the normal kidney. This is followed by balanced action. The more recent tests of renal function show that a single, reimplanted kidney is able to maintain normal life indefinitely. The results of these experiments, together with the evidence already at hand, suggest strongly that secretory nerves to the kidney do not exist.

53. **Cultivation of Spirochaeta Icterohemorrhagia.**—Pure cultures of the spirochetal causative agent of the disease known as Weil's disease, or febrile icterus, in Japan, have been obtained by Ito and Matsuzaki in a solid, a semisolid and a fluid medium. The spirochete thus isolated remains pathogenic for guinea-pigs for many generations. Up to the present time they have succeeded in cultivating three different strains. The spirochete is a facultative anaerobe. Blood serum from a patient once attacked by Weil's disease has a slight bactericidal action on this spirochete.

Journal-Lancet, Minneapolis

April 1, XXXVI, No. 7, pp. 183-213

54 *Autografts in Infected Fields. A. A. Law, Minneapolis.
55 Autointoxication; Possible Cause of Retrobulbar Neuritis; Report of Case. J. A. Hohf, Yankton, S. D.
56 Prone Position and Its Uses. M. M. Ghent, St. Paul.
57 Diagnosis of Syphilis. G. J. Thomas, Rochester, Minn.
58 Cross Eyes. How Shall We Care For Them? L. N. Grosvenor, Huron, S. D.

54. **Autografts in Infected Fields.**—On the basis of his clinical and experimental studies, Law claims that autogenous bone-grafts in infected fields, parallel and act much as do cases of osteomyelitis, that part of the graft survives and proliferates, that part is absorbed and part sequestrates, and that the graft is itself osteogenetic and is responsible for the formation of an involucrum and sequestrum. While the exhibition of autotransplants in aught but clean fields as a general surgical procedure is not orthodox, yet due to their recognized tolerance for mild infection, in instances of established immunity and in cases in which the need is great, their use is not only permissible but advisable.

Michigan State Medical Society Journal, Grand Rapids

April, XV, No. 4, pp. 163-218

59 Value and Importance of Maternity Hospitals. E. G. Zinke, Cincinnati.
60 *Primary and End-Results in Inoperable Cancer of Cervix Treated by Cautery Method. W. F. Seeley, Ann Arbor.
61 *Relation of Localized Headaches and Some Organic Eye Lesions to Intranasal Accessory Sinus Diseases. P. J. Livingstone, Detroit.
62 *Vincent's Angina. B. V. Colver, Battle Creek.
63 Choice of Time for Operating in Acute Appendicitis and Gall-bladder Disease. J. H. Andries, Detroit.
64 History of Family Cataracts Through Four Generations. W. R. Parker, Ann Arbor.
65 Two Cases of Sarcoma of Breast. G. D. Sutton, Ann Arbor.
66 Case of Multiple Carcinoma With Involvement of Brain. A. M. Barrett, Ann Arbor.
67 Case of Gumma of Testis, Associated with Tabes. U. J. Wile, Ann Arbor.
68 Obstetrics and Gynecology Among Arabs. H. G. Van Vlack, Ann Arbor.
69 Occurrence of Epilepsy in Men of History. H. W. Shutter.

60. **Cancer of Cervix Treated by Cautery Method.**—Seeley claims that from 90 to 92 per cent. of his cases were primarily benefited, two vesicovaginal and one rectovaginal fistula failing to heal and one patient dying of peritonitis. The improvement in all cases was primarily a cessation or abatement of the most prominent symptoms, namely, foul discharge, hemorrhage and pain, with a corresponding improvement in the general condition of the patient. Eight of twenty-three patients, all with far advanced carcinoma of the cervix, are living and apparently in good health over periods of from seven months to two years and eight months, and of fifteen dead, eleven lived from four months to one year and eleven months. In six of eight patients who lived longer than one year after operation the operator was guided by the abdominal hand showing the value of laparotomy where permissible, to allow of more thorough application of the heat. The five years without recurrence usually given as a cure in postoperative cancer of the uterus has not elapsed in any case so that the number of cured cases cannot be estimated. Seeley advises that the cautery method should be used simply as a preliminary procedure to the radical operation in early cases, or reserved for the late, hopeless and otherwise inoperable conditions as an efficient palliative treatment.

61 and 62. Abstracted in THE JOURNAL, Sept. 25, 1915, pp. 1135 and 1136.

New Mexico Medical Journal, Las Cruces

March, XV, No. 6, pp. 203-242

70 Perineal Repair; Report of Case. B. L. Sulzbacher, Kansas City, Mo.
71 Artificial Feeding of Infants. F. H. Crail, East Las Vegas.
72 What New Mexico Needs Most in Tuberculosis Legislation. L. S. Peters, Albuquerque.

New York Medical Journal

April 1, CIII, No. 14, pp. 625-672

73 Duty to Mental Defectives of Present Generation. C. E. de M. Sajous, Philadelphia.
74 Colon Bacillus Infection of Bladder. R. T. Morris, New York.
75 Treatment of Persistent Occipitoposterior Positions. G. L. Brodhead, New York.
76 Medicine of Future. A. L. Benedict, Buffalo.
77 Forestry and Public Health. H. R. Hopkins, Buffalo.
78 Causes of Prolonged Disability From Fractures. S. B. Rosenzweig, New York.
79 Relapsing Fever in Serbia. J. Rudis-Jicinsky, Chicago.
80 Eye Case With Unusual Complications. F. P. Hoover, Jacksonville, Fla.
81 Sodium Bicarbonate. W. P. Herrick, New York.

Oklahoma State Medical Association Journal, Muskogee

April, IX, No. 4, pp. 79-107

82 Atypical Mastoiditis. L. C. Kuyrkendall, McAlester.
83 Constipation of Infants and Children. W. M. Taylor, Oklahoma City.
84 Importance of Early Diagnosis in Exophthalmic Goiter. L. F. Watson, Oklahoma City.

85 Paresis. F. M. Adams, Vinita.
86 Treatment of Burns. B. H. Brown, Muskogee.
87 Epidemiology of Pneumonia. H. D. King, New Orleans.

South Carolina Medical Association Journal, Greenville

March, XII, No. 3, pp. 63-93

88 Vaccines From Clinical Standpoint. T. M. DuBose, Jr., Columbia.
89 Intestinal Puzzle. G. A. Neuffer, Abbeville.
90 General Principles of Vaccine Therapy. E. Cooper, Columbia.
91 Specific Skin Reactions, Their Value and Significance. H. M. Smith, Columbia.
92 Some Experience With Twilight Sleep. W. J. Burdell, Lugoff.
93 Observations in Stomach Surgery. R. T. Ferguson, Gaffney.
94 Phenolsulphonephthalein Estimation of Renal Function in Thousand Cases. M. H. Wyman, Columbia.

Surgery, Gynecology and Obstetrics, Chicago

April, XXII, No. 4, pp. 379-506

95 *Pyloric Exclusion. R. Lewisohn, New York.
96 *End-Results of Fourteen Operations for Perforated Gastric and Duodenal Ulcers. C. L. Gibson, New York.
97 *Trophic Element in Origin of Gastric Ulcer. L. Durante, Rochester, Minn.
98 *Metastatic Carcinoma of Ovaries. W. S. Stone, New York.
99 Anterior Transperitoneal Hysterotomy. J. B. Deaver, Philadelphia.
100 Roentgen Treatment of Uterine Carcinoma. J. T. Case, Battle Creek, Mich.
101 Radium in Treatment of Carcinoma of Cervix Uteri. C. J. Miller, New Orleans.
102 Prophylaxis of Uterine Cancer. T. J. Watkins, Chicago.
103 Postoperative Tetanus. K. Speed, Chicago.
104 Anthrax; Report of Cases. J. S. Ullman, Natchez, Miss.
105 Renorenal Reflex Pain; Report of Case. H. A. Fowler, Washington.
106 *Thymus and Its Tumors; Report of Three Cases of Thymoma (Lymphosarcoma). J. Ewing, New York.
107 Physiologic Method of Tendon Transplantation. L. Mayer, New York.
108 Rectal Drainage of Appendiceal Pelvic Abscess; Report of Cases. V. L. Schrager, Chicago.
109 *Splanchnoptosis; New Operation for Gastropexy and Cystopexy. J. A. Wall, Santiago, Chile.
110 *Unusual Case of Fracture of Olecranon Process. C. W. Perkins, New York.
111 Roentgenologic Diagnosis of Prostatic Tuberculosis and Prostatic Stones. M. Reichmann, Chicago.
112 Combination Needle Holder and Ligature Scissors. L. F. Stewart, Clearfield, Pa.
113 Placenta Praevia Treated With Pituitary Extract; Report of Cases. P. Gallagher, El Paso, Tex., and H. Gallagher, Los Angeles.
114 Treatment of Femoral Aneurysm. F. G. Dyas, Chicago.

95. **Pyloric Exclusion.**—Lewisohn has devised a modification of Biondi's method for which he claims permanent and absolute occlusion of the pylorus. This modified method is performed in the following manner: Gastro-enterostomy. The gastrohepatic ligament is ligated in the pyloric region, which enables us to deliver the pylorus in front of the abdominal wall. The transverse incision through the seromuscularis is then carried around the pylorus. The muscularis is peeled away from the mucosa which is thus exposed intact for about one inch. The mucosal tube is ligated above and below with a silk or Pagenstecher ligature cut in between the ligatures and the stumps carbolized. Then the stumps are buried in the stomach end and in the duodenal end respectively.

96. **Gastric and Duodenal Ulcers; Operation, End-Results.**—One of Gibson's patients died from acute general peritonitis two hours after operation. The case was considered hopeless from the start. The remaining thirteen patients have remained under observation. In all the cases every patient on reexamination has shown an improvement in general health and relief or cure of previous gastric symptoms. Twelve of the cases have had bismuth pictures of the stomach, and the findings are shown in the accompanying photographs. Seven cases show no gastric retention at all. Two cases show only a negligible trace. Of the three other cases only one shows a considerable amount and the cause of this is quite likely to be marked ptosis of the stomach. One case shows a slight retention, notwithstanding a functionating gastro-enterostomy (the only one done in this series). In none of these cases is there any evidence, objective or presumptive, of any appreciable stenosis of the pylorus or duodenum. Ten patients have had gastric analyses. In two cases the gastric analyses could not be carried out because the Ewald meal was passed so quickly. In three cases the gastric analyses show acidity to be approximately normal; in three cases there was well marked hyperacidity; in two cases the acidity was less than normal. Gibson points out that patients operated on within a few hours, say two to four, should not have a mortality much in excess of 5 per cent. As a routine, only the simplest, speediest but sufficiently efficient operative procedure should be employed. Such operations as resection of the ulcer and gastro-enterostomy should be the exception and performed only under very distinct indications, chiefly to overcome definite stenosis produced by closure of the perforation. Operations, such as resection or gastro-enterostomy, intended to bring about the cure of the ulcer, are really unnecessary, as a careful study of the cases treated by the ordinary measures shows a tendency to spontaneous cure of the ulcer as a result of the perforation.

97. **Trophic Element in Origin of Gastric Ulcer.**—Durante states that ulcer may be produced by any agent capable of damaging the sympathetic nervous system as it is on the integrity of this system, which controls circulation, secretion and profound sensibility in the stomach, that the very life of the gastric cell may be said to depend. The theory of "trophic ulcer" must be taken in this sense. The results obtained after resection (75 experiments) of the right and left splanchnic nerves are detailed.

98. **Metastatic Carcinoma of Ovaries.**—From his review of the literature and personal observations, Stone feels justified in directing attention to the following points regarding the subject of metastatic carcinoma of the ovary: Malignant tumors of the ovaries, even when of such size as to control the clinical course of the disease, are frequently enough secondary to growths in other organs, especially the stomach and the breast, as always to justify a suspicion of their secondary nature, before any method of treatment is advised, or a probable prognosis is defined. The route of metastasis is rarely a chance distribution of embolic transportation through the blood or lymphatic vessels, but occurs, either by a direct extension through the retroperitoneal lymph nodes by permeation or retrograde transportation, or by peritoneal implantation. Peritoneal implantation is undoubtedly a more frequent route than has previously been supposed; and next to the liver, the ovaries, especially during the period of their functional activity, are more often involved in this way than any of the other intraperitoneal organs, because of their circulatory changes, the traumatism of their surface from ovulation, and the proximity to the pouch of Douglas, which is apparently more frequently the site of peritoneal implantation of cancer cells than any of the other peritoneal surfaces.

106. **Thymus and Its Tumors.**—Briefly, the cases reported by Ewing are as follows: 1. Thymoma with extensions throughout neck, mediastinum and axillae. Acute febrile course, duration seven months. Suppuration and necrosis. Death from asphyxia. No distant metastases. Tumor composed of round, cubical and cylindrical reticulum cells. 2. Perforating sternal tumor originating in the thymus. Enlargement of nodes in both axillae and behind clavicle. Duration two years, active course four months. Regression under Roentgen-ray treatment. Structure of tumor, giant cell thymoma. 3. Slowly progressive thymoma of granulomatous type, suggesting Hodgkin's disease, in a subject of 50 years. Duration two years. Large, very dense circumscribed mediastinal tumor. No metastases. Structure of cubical and polyhedral reticulum cells, with Hassall's corpuscles and many peculiar giant cells.

109. **New Operation for Splanchnoptosis.**—The procedure emphasized by Wall consists in passing three or four sutures from deep in the anterior wall of the stomach up through and fixing them to the peritoneum and fascia in the upper part of the median incision. In other words it is a method similar to that used by Duret and Rovsing except that it has the advantage of allowing folding in two directions, longitudinally and transversely.

110. **Case of Fracture of Olecranon Process.**—The fracture of the olecranon in Perkin's case was of the variety in which

all the fragments were broken into small pieces. Some of the fragments were so small that it seemed best to advise their removal and adjust the remaining large fragment of the olecranon in place as near as possible to its original position. However, it was decided to wait and see what nature would do, and if an operation were necessary it could be done later. The patient was anesthetized, the arm put in extension, and an effort made to align the fragments and place the remaining portion of the olecranon in as near as possible its original position over the trochlear surface of the lower end of the humerus. Adhesive strips and a gauze pad together with a wire splint were finally placed on the elbow. In ten days' time the splint was removed and the arm put in the first degree of flexion. Passive motion was instituted at the same time. In seven weeks' time the patient made an almost perfect recovery as regards function of the joint.

Tennessee State Medical Association Journal, Nashville

April, VIII, No. 12, pp. 505-538

115 Rôle of Seminal Vesicle in Gonorrheal Rheumatism. C. F. Anderson, Nashville.
116 Anoci-Association. C. N. Cowden, Nashville.
117 Gynecologic Surgery. E. H. Baird, Dyersburg.
118 Some Experiences of Country Physician. J. T. Graham, Mulberry.
119 Responsibility of Preventable Deaths—To Whose Account Shall Be Charged? J. A. LaRue, Pulaski.

Texas State Journal of Medicine, Fort Worth

March, XI, No. 11, pp. 573-622

120 Nephritis Problem in Medicine and Life Insurance. L. Sexton, New Orleans.
121 Renal Function Tests. J. R. Lehmann, Dallas.
122 Diagnosis and Treatment of Infection of Urinary Tract. W. W. Cobb, San Angelo.
123 Dental View of Present Treatment of Pyorrhea Alveolaris. W. O. Talbot, Fort Worth.
124 Streptococcus Viridans and Its Relation to Arthritis Deformans and Endocarditis. D. Spangler, Sherman.
125 Some Eye Complications Resulting From Diseases of Nose and Its Accessory Sinuses. C. R. Hartsook, Wichita Falls.
126 Ocular Symptoms of Organic Disease; Their Importance in Damage Suits. L. H. Lanier, Texarkana.
127 Subglottic Stricture. R. W. Moore, Fort Worth.
128 Case of Strongyloides Intestinalis. R. C. Whiddon, Gainesville.
129 Uncinaria History Schedules of Two Patients Treated With Thymol. A. J. Fechtig and J. E. Walker, Wilmington, N. C.

United States Naval Medical Bulletin, Washington

April, X, No. 2, pp. 191-400

130 General Consideration of Present Status of Vesical Papilloma. L. C. Lehr, U. S. Navy.
131 Suggested Use of Combined Table of Occupational Distribution of Physical Disability. C. N. Fiske, U. S. Navy.
132 Exclusion of Mentally Unfit From Military Services. R. Sheehan, U. S. Navy.
133 Greater Field of Activity for Medical Officers of Navy Yards. N. J. Blackwood and W. H. Bell, U. S. Navy.
134 Hospital Steward; Concerning His Qualifications—Personal, Educational and Professional. W. E. Eaton, U. S. Navy.
135 Studies Pertaining to Light on Shipboard. T. W. Richards, U. S. Navy.
136 Fumigation of U. S. Ship Tennessee by Cyanid Method. N. Roberts, U. S. P. H. Service; G. E. Robertson and A. E. Beddoe, U. S. Navy.
137 New Hospital Corps Forms. W. E. Eaton, U. S. Navy.
138 Diagnosis of Syphilis by Wassermann Reaction. A. H. Allen, U. S. Navy.
139 Apparatus for Filling Vaccine Ampules. R. G. Davis, U. S. Navy.
140 Methods of Preventing Alteration of Tincture of Iodin in Military Surgery. J. A. Biello, U. S. Navy.
141 Two Cases of Intussusception as Sequel to Whooping Cough. C. W. Depping, U. S. Navy.
142 Treatment of Fractured Femur by Means of Steinmann Nail. C. W. Depping, U. S. Navy.
143 Unusual Case of Herpes Zoster (Zoster Nuchae et Brachialis). W. E. Eaton, U. S. Navy.
144 Case of Hypernephroma. E. H. H. Old and R. H. Laning, U. S. Navy.
145 Surgical Conditions of Kidney. C. G. Smith, U. S. Navy.

West Virginia Medical Journal, Huntington

April, X, No. 10, pp. 327-362

146 Diagnosis and Treatment of Renal Tuberculosis. E. O. Smith, Cincinnati.
147 What Medical Society Means to Medical Profession and What Should Be Attitude of Physician to Society. C. O. Henry, Fairmont.
148 Report of Patient With Pressure on Spinal Cord. I. J. Spear, Baltimore.
149 Exophthalmic Goiter, Necessity of Recognition and Treatment of Rudimentary Cases. N. P. Yeardley, Parkersburg.
150 Case of Aneurysmal Varix. T. Bess, Hinton.
151 Diagnosis of Case of Tremor. T. A. Williams, Washington, D. C.
152 Albuminuria of Pregnancy: Report of Eight Cases. A. H. Hoge, Bluefield.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

March, XX, No. 10, pp. 321-356

1 Roentgenography of Chest in Children. W. J. S. Bythell.
2 Organization of Roentgen Ray Department of General Hospital in France. A. H. Pirie.
3 Convenient Radium Emanation Table for Clinical Work. W. C. Stevenson.
4 Report of Calculus in Fossa Navicularis Urethra. J. D. Morgan.

British Medical Journal, London

March 18, I, No. 2881, pp. 401-436

5 Importance of General Principles in Military Surgery. G. G. Turner.
6 *Protozoan Infections Occurring at King George Hospital. H. M. Woodcock and W. J. Penfold.
7 Spirochetes and Their Granule Phase. H. B. Fantham.
8 Relation Between Terminal Spined and Lateral Spined Eggs of Bilharzia. R. T. Leiper.
9 *Iodin in Tetanus. A. T. MacConkey and S. S. Zilva.
10 *Three Cases of Abdominal Growths Presenting Very Unusual Characters. C. A. Morton.
11 *Bloodless Operation for Hemorrhoids and Prolapsus Ani. F. M. Bell.

6. **Protozoan Infections.**—Of 384 cases examined by Woodcock and Penfold for protozoan parasites, 98 cases have shown one, sometimes more than one protozoan; the proportion of positives is 25.5 per cent. of the whole. *E. coli* was the commonest of the parasites enumerated, occurring in 14.8 per cent. of the total number of cases and in more than half of the total positives. Lamblia has been the next most frequent, but this form was found in only 5.7 per cent. of the total number of cases. The other flagellates have been less frequent. In 10 cases in which isospora (coccidia) occurred the number of the parasites in the feces was scanty, and there was no sign of pathogenicity in connection with their presence.

9. **Iodin in Tetanus.**—Experiments on guinea-pigs have forced MacConkey and Zilva to come to the conclusion that iodin injected subcutaneously has no effect on tetanus toxin which has been also injected subcutaneously in a different place. One cannot, therefore, hope to influence favorably the course of an attack of tetanus by injections of iodin alone, nor does iodin appear to have any effect in enhancing the power of serum. It would seem, then, that iodin can only be of use when applied to the infected focus, so that it can come into direct contact with the toxin before absorption.

10. **Abdominal Growths of Unusual Character.**—The cases cited by Morton are as follows: 1. Tumor composed of many hydatid cysts growing within the abdomen, and protruding into an umbilical hernia so as to form large pendulous growth. 2. Sarcoma of small intestine causing recurrent attacks of obstruction. 3. Malignant growth of the colon causing obstruction and associated with phthisis in a young man of 21.

11. **Bloodless Operation for Hemorrhoids and Prolapsus Ani.**—The operation described by Bell is intended for cases in which four or more large piles occur or in the milder grades of prolapsus ani. In other words, it may be used in any case in which Whitehead's operation is indicated, but has the advantages of being almost bloodless and less liable to complications. The usual preparation is given. The instruments required are one large slightly curved clamp, two Hagedorn needles, one semicurved needle, one pair of scissors curved on the flat, tissue forceps, thermocautery and No 4 silk for suture. After dilatation of the sphincter, a long silk suture is passed through at the junction of the skin and mucous membrane in the midperineal line and is left untied and used as a retractor; two similar sutures are inserted on

either side of the anus, so that when traction is made on all three extruded mucous membrane is converted into a triangle. Each side of the triangle is clamped in order to mark the area for excision. This area is limited externally by the junction of the skin and mucous membrane, and extends internally to within one-eighth inch of the required depth. The two Hagedorn needles are now threaded at either end of a continuous silk suture. The first stitch, which may be inserted before removal of the clamp, is placed at the apex of the triangle, and is tied at the center of the thread. The clamp being removed the two needles are passed through from opposite sides at the same point—a cobbler's stitch. Each stitch is pulled taut but not tied. The suture is continued in this manner at one-fourth inch intervals until the lower end of this side of the triangle is reached, where it is tied. The redundant tissue is clipped away at a distance of one sixteenth of an inch from the line of suture. The narrow ridge thus left is lightly touched with the thermocautery. The other two sides of the triangle are similarly treated, and the traction sutures are removed. In a series of twenty-one cases this operation has given satisfactory results.

Journal of Tropical Medicine and Hygiene, London

March 15, XIX, No. 6, pp. 65-76

12 Meteorology of Malaria. M. D. O'Connell.
13 Technic of Intramuscular Injection of Salvarsan. W. M. McDonald.

Lancet, London

March 18, I, No. 4829, pp. 601-656

14 *Pituitary Fossa and Surgical Methods of Approach to It. V. Z. Cope.
15 Study of Shell Shock. C. S. Myers.
16 Treatment of Turkish Wounded From Suez Canal. F. C. Madden.
17 *Treatment of Hemorrhoids by Injection. A. S. Morley.
18 Prognosis in Sympathetic Ophthalmia. P. Dunn.

14. Surgical Methods of Approach to Pituitary Fossa.—In Cope's opinion there are two operations which have proved fairly satisfactory for approaching the pituitary fossa, the Hirsch-Cushing submucous nasal method, and the fronto-orbital method of Frazier. Though it is not possible yet to decide finally between these, the opinion is expressed that the fronto-orbital route is more suitable in the great majority of the cases. In the three cases which Cope operated on this method was adopted with success. All three of these patients were almost blind before brought for operation. In the first case a portion of an endothelioma was removed and the general condition improved, though the sight did not improve. The third patient obtained great improvement of vision after a cyst was evacuated. The second case proved to be one of syphilitic meningitis, and though the patient said he was a little better after the operation there was no obvious improvement in his condition. Now that the mortality of the operation has diminished, Cope states that surgeons can more readily urge that patients with oncoming blindness due to pressure on the chiasma should be treated by operation more early than is now the case.

17. Hemorrhoids Treated by Injection.—The treatment employed by Morley consists in the injection into each internal pile of a few drops of phenol and glycerin.

	gm. or c.c.	
Phenol	3	gr. xlviii
Glycerin	16	dr. ii
Aquae destillat	8	dr. ii

This is a 20 per cent. solution of phenol. The amount to be injected into each pile varies from 2 to 6 minims of this solution. Great care must be taken not to inject too much, otherwise it is possible to produce slight sloughing; this is not a serious matter in itself, but it causes decided pain. The injection can easily be repeated if necessary. Morley injects all the piles at one sitting whenever it is possible to do so. Sometimes this is not practicable, because after injection a large pile sometimes swells so rapidly that the smaller piles are completely hidden for the time.

Sei-I-Kwai Medical Journal, Tokyo

March, XXXV, No. 3, pp. 11-16

19 Tubercular Peritonitis and Its Surgical Treatment (to be continued). Y. Takaki.

Bulletin de l'Académie de Médecine, Paris

March 7, LXXV, No. 10, pp. 265-286

20 *Calcium Carbid or Silver Nitrate and Zinc in Treatment of Chancroid and Similar Lesions. (Traitement du chancre mou par la poudre de carbure de calcium et par une poudre argentico-zincée.) F. Balzer.
21 Technic for Fitting Artificial Eye After Wounds in War. (Notes sur la prothèse oculaire.) G. Valois and J. Rouveix.
22 Localization and Extraction of Projectiles in the Lungs. (L'extraction opératoire des projectiles intrapulmonaires, superficiels et profounds, sous l'écran, par un procédé simple, rapide et sur.) P. de la Villéon.
23 *Condensed Milk in Rice Water in Treatment of Trench Enteritis, as Well as of Enteritis in Infants. (Nouveau traitement des entérites des tranchées par le lait condensé dilué dans l'eau de riz.) Lassablière.
24 Protection Afforded Soldiers by Metal Caps. (Rôle protecteur du casque métallique de guerre.) B. Roussy.

20. Treatment of Chancroid.—Balzer spreads pulverized calcium carbid over the surface of the chancroid in a thin layer for a single application, following it with iodoform or other mild powder. It acts effectually but less brutally than zinc chlorid or other caustics, and he has found it useful also on ulcerating lupus patches. A combination which has also proved effectual, and rendered iodoform unnecessary, is a mixture of zinc filings in a 1 per cent. solution of silver nitrate to form a paste which is applied to the chancroid, and modifies it by the zinc nitrate generated and the reduced silver. He describes a method by which this combination is obtained in the form of a dry powder. In conclusion he mentions that there is a general increase in the prevalence of venereal diseases, but the proportional increase is greater for syphilis than for gonorrhea or chancroid.

23. Rice Water for Trench Enteritis.—Lassablière remarks that the present war has seen a return to hand grenades, casques and other features of war that had been long discarded, and rice water has been likewise restored to a prominent place in the management of bowel trouble. It has been modernized, however, by addition of condensed milk, and this combination is proving extremely effectual and convenient for all concerned. In 51 per cent. of 37 men put on the condensed milk-rice water diet the diarrhea was completely conquered in from two to four days, and the blood disappeared from the stools in one day in 12; in two days in 8, and by the fourth day in all but 5. The condensed milk was given with four parts official rice water, to a total of one or two liters a day. The stay in the hospital was shorter by half than with the other usual measures.

Paris Médical

March 11, VI, No. 11, pp. 273-288

25 Loss of Power to Recognize Shape of Objects by Touch — Astereognosis—After Wounds of Parietal Lobe. M. Villaret and Maystre.
26 Technic for Resection of Upper End of Humerus. (La traversée de la région deltoidienne dans la trépanation et la résection de l'extrémité supérieure de l'humérus.) M. Soubeyran.
27 Foreign Body Weighing 56 Grams in Orbit. (Volumineux corps étranger de l'orbite.) A. Dauthuile.

March 18, No. 12, pp. 289-304

28 Electric Stop Watch Tests of the Senses in Examining Candidates for the Aviation Corps. (Mesure des réactions psychomotrices des candidats à l'aviation.) J. Camus and Nepper.
29 Apparatus to Overcome Radial Paralysis. Mouchet and Anceau.
30 Multiple Postdiphtheric Paralyses in Adult; Recovery Under Antitoxin. E. Ginestous and Turlais.
31 Early Amputation for Destructive Wounds. (L'amputation précoce dans les grands délabrements des membres.) N. Lapeyre.
32 Intensive Radiotherapy Concentrated on Wounded Nerve. (Note sur la radiothérapie des blessures des troncs nerveux.) A. Hesnard.

Presse Médicale, Paris

March 13, XXIV, No. 15, pp. 113-120

33 Artificial Legs; American Models. (Prothèse de jambe. Etude des modèles américains.) Ducroquet.
34 Modified Physiologic Serum for Dressing Wounds. (Sérum physiologique chloré pour le traitement des plaies.) P. Cruet and Rousseau.

March 16, No. 16, pp. 121-128

35 Hemiplegia From Gunshot or Shell Wounds. (Hemiplégies par blessures de guerre. Diagnostic topographique du siège des lésions.) G. Guillain and A. Barré.
36 Metal Casques for the Trenches. (Rôle protecteur du casque métallique de guerre.) B. Roussy.

37 Operative Technic for Wounds of the Skull. (Quelques points de technique de la craniectomie pour plaies cranio-cérébrales par projectiles de guerre.) Ehrenpreis.

Berliner klinische Wochenschrift

March 6, LIII, No. 10, pp. 241-268

38 *Treatment of Bullous Eruption on the Hands: Cheiropompholyx. (Enstehung und Beseitigung des Juckens. F. Cheiropompholyx.) P. G. Unna.
39 Treatment of Ulceration of the Skin in Malignant Disease. (Ueber die Behandlung von Ulcerationen der Haut bei Krebskranken mit Isoamylhydrocuprein.) J. Tugendreich.
40 *Deforming Arthritis and Its Connection With Trauma. (Ueber die Arthritis deformans und ihre Beurteilung nach Unfällen.) E. Senger.
41 Toxic Action of Fumes From Crude Nitric Acid at a Fire. (Massenvergiftung durch Einatmen salpetrigsauer Dämpfe — Nitritintoxikationen.) J. Zadek.
42 *Enteritis in Measles. (Enteritis bei Morbilli.) K. Secher (Copenhagen).
43 Cortical Sensory Disturbances of Spinosegmental Type. W. Seiffer.

38. **Treatment of Cheiropompholyx.**—Unna advises to open every vesicle in warm soapy water. The itching subsides at once, and he then paints the region with an alcoholic disinfectant which works its way better than water or fat into the crevices of the skin. He prefers for this a mixture of 1 part silver nitrate in 20 parts spirit of nitrous ether, kept in dark colored glass. If the vesicles are large, he shaves off the top with a razor. He relates that he has found a special bacillus in these vesicles. This affection, first described by Fox and Hutchinson, is the pure type of chemotaxis inflammation, and there is none of the redness or paralysis of vessels which accompany ordinary inflammation.

40. **Deforming Arthritis and Trauma.**—Senger remarks that as his experience with industrial accidents has increased, many of his ideas have become modified. In regard to deforming arthritis in particular, the prevailing view that there is little chance of a cure has been proved erroneous in his practice, and he here relates a number of instances. Deforming arthritis is curable in the majority of cases, at least to the extent of regaining the earning capacity. He defines it as a slow and gradual swelling of the joint, its functional use impaired, and roentgenoscopy showing the surface of the bone rough and uneven, and proliferation of bone tissue, with atrophy of the bone sooner or later. With roentgenoscopy we are able now to recognize it in an earlier stage, and as syphilis is often the unsuspected cause, we can ensure a prompt and complete cure in all in this group. Such patients have usually been put through various courses of other kinds of treatment, before any one thinks of the Wassermann reaction. In one case of this kind a chronic swelling of the shoulder in a girl of 15 had been attributed to a blow, but a history of inherited syphilis pointed the way to effectual treatment. Even when the arthritis is the result of traumatic injury, the joint may recuperate and parts be trained to vicarious functioning with almost complete recovery of the earning capacity. In any event, cases of deforming arthritis of traumatic or other cause should be kept under surveillance, as later examination may disclose marked improvement. Examining physicians as a rule are so convinced of the hopeless nature of deforming arthritis that they do not take the trouble to reexamine with the Roentgen rays. Senger cites a recent instance of this where a man of 44 had fallen on his back and was receiving a 20 per cent. pension for the resulting deforming arthritis. Three physicians in the following five years confirmed the incapacity, but his employer says that when the man is under the influence of liquor there is no deformity, and he is able to carry weights up to 200 pounds.

42. **Enteritis with Measles.**—Secher states that an institutional epidemic of measles in small children was accompanied by enteritis in thirteen of the thirty-one affected. Everything seemed to indicate that the enteritis was the result of the localization of the disease in the bowels. In seven the enteritis was quite severe, and two of the children died. One little girl of 4 developed enteritis along with the other children but had no signs of the measles otherwise. The microscopic findings in the intestine in one of the fatal cases is shown. The bacteriologic findings were negative.

Correspondenz-Blatt für Schweizer Aerzte, Basel

March 4, XLVI, No. 10, pp. 289-320

44 Experiments Showing Action of Swiss Bullet. (Untersuchungen über die Wirkungen des schweizerischen Spitzgeschosses.) W. Lanz. Concluded in No. 11.
45 Occupational Changes in the Hair. (Ueber Haarveränderung bei Munitions- und Kupferarbeitern.—Ein Fall von Konditorerkrankung.) L. Merian.

March 11, No. 11, pp. 321-352

46 Experiences at a Field Hospital. (Kriegschirurgische Erfahrungen aus einem Rotkreuzspital in Lyon.) C. A. Pettavel. Continued.

Deutsche medizinische Wochenschrift, Berlin

March 2, XLII, No. 9, pp. 245-276

47 *Bronchitis, Pneumonia and Pleurisy in Infants. (Behandlung der akuten Katarrhe der tieferen Luftwege, der Lungenentzündungen und Brustfellentzündung bei den Säuglingen.) E. Peiper.
48 Hospital Experiences With Internal Diseases in Soldiers. (Erfahrungen aus einem Heimatslazarett für innere Erkrankungen.) L. Michaelis. Concluded in No. 10.
49 Tetragenus Sepsis After Typhoid; Three Cases; Recovery. A. Welz and E. Kalle.
50 Roentgen Localization of Projectiles. (Zur genauen Lokalisation von Fremdkörpern mittels Röntgenstrahlen.) Hammes and Schoepf; (Einfache Vorrichtung zur Tiefenbestimmung von Fremdkörpern nach Fürstenau.) O. Langemak and W. Beyer.
51 *Hereditary Diabetes. (Zur erblichen Diabetes.) K. A. Heiberg (Copenhagen).
52 Broadening of Sphere of Public Health Work. (Die Bevölkerungsfrage.) K. Richter.
53 The Attitude of the Physician in Respect to Birth Control. (Zur Stellung des Arztes gegenüber der Geburtenbeschränkung.) M. Marcuse.

47. **Pneumonia and Pleurisy in Infants.**—Peiper remarks that the infectious nature of all affections of the trachea, bronchi and lungs in young infants is illustrated particularly by the experiences in institutions. One case inevitably entails others, unless extreme measures for isolation are adopted. Attempts to "toughen" the children, drafts while bathing, damp rooms, are liable to have a predisposing influence, but far more important than this is a substandard constitution, and especially the exudative diathesis or a tendency to rachitis. Teething has absolutely no etiologic connection with bronchial affections. With acute bronchitis, pneumonia or pleurisy, the room must be kept at an even temperature of 18 or 20 C. (64 to 68 F.), the air kept moist with steam or by hanging up wet sheets. If feverish, the child must be kept in bed, changing its position frequently, taking it up several times a day and carrying it around, letting it lie at times on its stomach, to prevent hypostasis. The child should be given a warm bath at 33 C. (91.4 F.) daily, concluding with a dash of cool water; the gasps which this induces promote lung functioning. With febrile bronchitis, cool packs may be indicated every two hours or oftener with high fever. They reduce the fever, promote expectoration as the child takes deep breaths, and serve for revulsion to the skin. Of course they are indicated only when the child is vigorous, with good heart action; otherwise tepid packs or dry heat. For the latter he smears oiled silk with warm oil and binds it around the chest with flannel. This is useful at night as it does not grow chilly. If there is great secretion of phlegm, ipecac or other expectorants may be needed, but otherwise hydrotherapeutic measures take the place of medicine. If the condition grows worse, prompt revulsion is necessary to relieve the congestion in the lungs, and a mustard pack usually answers the purpose, but strict surveillance is imperative for fear of collapse. The hyperemia of the skin relieves the lungs and the child breathes more freely and the pulse grows stronger. If there is no decided reaction and the condition persists grave, venesection may still help. He draws 50 or 100 c.c. of blood, or two or three leeches or wet cupping can be applied to the thorax. Schultze's swinging or artificial respiration may aid in throwing off mucus. Emetics cannot be used if the heart is weak, but are often useful early in the disease. They must be given in adequate doses to induce vomiting or they do no good or merely start diarrhea. The thirst should be stilled, outside of mealtimes, with tea sweetened with saccharin. Caffein and camphor must be used as needed, and possibly inhalation of oxygen. Puncture must not be delayed if signs of empyema develop, as pyemia is particularly liable to occur in infants. The prognosis is graver, the younger the child.

The differential diagnosis between infiltration and effusion may be difficult in an infant's chest, but exploratory puncture solves the question. It is harmless, and to omit it, when there are symptoms of pleural involvement, he regards as actual malpractice. The favorable experiences with simple trocar puncture commend it unreservedly in all early cases of empyema in infants. The constant oversight required justifies removal to a children's hospital.

51. **Inherited Diabetes.**—Heiberg reports the details of a new family example of inherited diabetes. A brother and sister died of diabetes at the ages of 15 and 42, and their father and his father had also died of diabetes. He examined the pancreas of the sister, who had died in coma after twelve years of symptoms of diabetes. Thirty-three islands were found in forty-nine specimens examined, a number not materially less than those encountered in other cases without this hereditary stamp. He has previously reported a family in which five of thirteen brothers and sisters developed diabetes late in life. In another family four of eight adult brothers and sisters, the mother and two of her brothers and also her father developed diabetes. His study of these cases does not indicate that there is any essential difference between the anatomic findings in the inherited and the noninherited types.

Medizinische Klinik, Berlin

February 27, XII, No. 9, pp. 227-252

54 *Injury of the Eyes From Methyl Alcohol Poisoning. (Die Schädigung des Auges bei Vergiftung durch Methylalkohol.) G. V. A. Birch-Hirschfeld.
55 Analysis of Shock From Shell Explosion. (Zur klinischen Analyse der Granatschockwirkung.) J. H. Schultz and R. Meyer.
56 Cavities in Callus as Factor in Healing of Suppuration. (Die Calluslücke, ihre Formen und ihre Bedeutung für die Heilung der chronischen Knocheneiterungen.) M. Haudek.
57 Modified Technic for Differential Pressure Procedures. (Zur Druckdifferenzfrage.) W. Jehn.
58 Mushroom Poisoning. E. Lyon. Concluded in No. 10.
59 Experiences With Typhus. (Bemerkungen über Flecktyphus.) A. v. Torday.
60 Steam Unlousing. (Eine leicht herstellbare Entlausungsanlage zur Abtötung der Kleiderläuse durch überhitzten Dampf.) H. A. Vago.

March 5, No. 10, pp. 253-280

61 *Objective Tests for Nervous Heart Disturbances. (Zur Diagnose nervöser, insbes. thyreogener Herzbeschwerden Heeresangehöriger mittels der Adrenalin-Augenprobe und der Lymphocytenauszählung.) H. Curschmann.
62 Experiences With Typhus. (Epidemiologische und klinische Erfahrungen bei Fleckfieber in Ostanatolien.) P. Neukirch and T. Zlocisti.
63 *Warning Symptoms of Cerebral Hemorrhage. (Prodromalsymptome der Hirnhämorrhagie.) H. Kisch.
64 Treatment of Abdominal Wounds in War. (Behandlung der Bauchverletzungen im Stellungskriege.) M. Strauss.
65 Device to Correct Muscular Talipes Equinus. (Postativer Apparat zur Behandlung der myogenen Spitzfusses.) A. Bum.
66 Necropsy Findings With Mushroom Poisoning. (Zur Kenntnis der Sektionsbefunde bei Pilzvergiftungen.) E. Lyon. Commenced in No. 9.
67 *Deficiency Nodular Skin Affection. (Noch einmal die Blutknötchenkrankheit.) S. v. Waldheim.

54. **Injury of the Eyes from Wood Alcohol.**—Birch-Hirschfeld says that quite a number of cases of methyl alcohol poisoning have occurred recently in soldiers, and not infrequently it has entailed severe and permanent injury of the eyesight. He has compiled a total of 235 cases, not including those that terminated fatally before the eyes were examined. He refers to the 163 cases of poisoning from methyl alcohol at the Berlin municipal lodging house three years ago, when 72 died and 4 were left permanently blind. This experience is recalled to show the difficulty of differentiating the trouble, as the symptoms were ascribed to meat poisoning at first. A number of lives would have been saved if the true cause had been suspected earlier. He reports 2 cases of blindness from this cause he has recently encountered, in one case proving permanent. In the other case vision improved to $\frac{6}{18}$ and the fundus findings grew normal. Patillo has described 2 cases in which blindness came on four or fourteen days after varnishing the inside of beer casks with varnish dissolved in methyl alcohol. Inhalation of the fumes was evidently responsible in these cases, and Hirschfeld thinks this was a factor in the cases attributed by Wood and Butler to absorption through the skin. The symptoms do not develop until after several hours or days, and then involve the digestive apparatus, nausea, dizziness, vomiting and headache, progressing rapidly to delirium and convulsions. Usually vision becomes impaired before the general symptoms mask the clinical picture. The dilated rigid pupil suggests impending trouble. If the ophthalmoscope reveals optic neuritis, this is a clue to the diagnosis, but it has no pathognomonic features. At the same time, methyl alcohol poisoning should always be suspected when, along with gastrointestinal symptoms suggesting poisoning, severe disturbance in vision develops suddenly, with central absolute scotoma and contraction of the peripheral field of vision, and the ophthalmoscope shows optic neuritis. The contraction of the peripheral field of vision usually subsides soon, but the scotoma may persist a long time. The prognosis, he thinks, can be estimated from comparison of the findings in the visual field and fundus, and the visual acuity for a few weeks. As long as the visual field keeps enlarging, the process of recuperation is not ended, as also when the absolute scotoma changes to a relative. Even in the mildest cases, more or less impairment of vision is entailed, resembling the symptoms of chronic alcohol-tobacco amblyopia. Disturbances in vision from quinin, atoxyl and arsacetin are by limitation of the visual field, central vision persisting good. With meat and fish poisoning the eye is affected by paralysis of the muscles. Male fern amaurosis alone seems to present the same symptoms as those from methyl alcohol. The ophthalmoscope findings with uncomplicated uremic amaurosis are normal. He regards the fate of the eyes with methyl alcohol amaurosis as usually sealed by the time the patient reaches the physician, and is very pessimistic as to benefit from any measures in treatment. The main point is to recognize its nature promptly and ward off similar injury from others that may be exposed. Promptly seeking out the source and energetic measures may avert much further harm. The methyl alcohol induces rapid degeneration of the nervous apparatus of the eye, affecting the cones of the retina more than the rods, the same as ethyl alcohol, nicotin, thyroidin and carbon bisulphid, while atoxyl and allied substances affect the rods while sparing the cones. There is nothing to indicate inflammatory infiltration in either type.

61. **Differentiation of Nervous Heart Disturbances by Lymphocyte-Count and Epinephrin Eye Test.**—Curschmann calls attention to the importance of lymphocytosis as indicating a substandard constitution, or as the keystone to the diagnosis of toxic influences from the thyroid. It is a symptom that cannot be simulated, and has often proved of decisive value in distinguishing between functional or organic heart disease. He recalls further that instillation of epinephrin in the eye causes mydriasis that is prompt, marked and lasting for several hours, when the thyroid is functioning abnormally. When these two tests elicit a positive response, we should regard subjective symptoms with greater respect. He describes a few typical cases to illustrate the valuable information to be derived from these tests. In one case, for instance, a neurasthenic hypochondriac had palpitation, the pulse often from 116 to 130, blood pressure 140 to 180, tremor, and a tendency to diarrhea, with 45 per cent. lymphocytosis. But there was no trace of enlargement of the pupil on repeated tests with epinephrin. The course of the case confirmed the reliability of the epinephrin test, all the suspicious symptoms gradually subsiding. In another similar case there was even moderate goiter, but the negative epinephrin test confirmed the man's fitness for military service. This case teaches the importance of the epinephrin test when the symptoms indicate aggravation of an abnormal thyroid. With this test the aggravation can be detected in its incipiency, and operative measures applied in time to prevent irreparable damage and realize a complete cure. He makes the epinephrin test by instilling two drops of 1:1,000 solution of epinephrin into the conjunctival sac of one eye. The response is inspected repeatedly during twenty-four hours. This test never causes the least disturbance, he adds, other than the specific response.

63. **Prodromal Symptoms of Cerebral Hemorrhage.**—Kisch calls attention to the enlargement of the area of dulness over

the heart and signs of sclerosis of the cerebral vessels and also of the vessels of the kidneys as signs suggesting impending cerebral hemorrhage in those inclined to corpulence and past 50, especially when associated with functional bowel disturbance. Long before the arteries feel hard or show a tortuous course, a permanently high pulse pressure reveals the tendency to arteriosclerosis, with resulting overwork on the part of the heart. He found the heart hypertrophied in 5 of 13 cases of fatal cerebral hemorrhage, Löwenfeld in 27 of 60, and Kirkes in 17 of 22. The signs of arteriosclerosis of the capillaries in the brain are frequent headaches, frequent transient vertigo, permanently restless sleep, forgetfulness, especially of names and figures, slight motor disturbances in hand or foot, sluggishness in moving the tongue, transient disturbances in speech, various sensory disturbances, chilliness in hands or feet, feeling that they "have gone to sleep," anesthesias and paresthesias. Among the latter he has noticed particularly a sensation of heat on the top of the head, or a burning patch on the skin from the size of a quarter to that of the palm of one's hand. Windscheid and Weber have recently described some mental symptoms and moods as suggestive of arteriosclerosis of the brain.

Kisch regards albuminuria as revealing arteriosclerosis of the kidney vessels in these patients. He has long warned that not enough attention is paid to albuminuria in the corpulent and obese. He found stasis hyperemia in the kidney in 5 of 18 cadavers showing extreme obesity, parenchymatous degeneration in 8, and granular atrophy in 2. Monakow found kidney disease in 30 per cent. of his apoplexy cases. The arteriosclerosis of the viscera is liable to become manifest in meteorism after each meal, a feeling of oppression and pain in the abdomen. Relief is obtained only by loosening everything tight around the body and resting for a time. Constipation and hemorrhoids are also common, the whole suggesting possibly what Ortner calls intermittent intestinal angiosclerotic dyspragia; the pushing up of the diaphragm may add shortness of breath to the clinical picture. Hereditary influences are marked, the apoplexy coming on at about the same age in the different members of a predisposed family; a man and his four sons in one family all succumbed at the same age to apoplexy. Among the factors liable to bring on the catastrophe, besides overexertion, overeating, straining at stool and violent emotions, he lists sudden joy as well as anything that upsets the physiologic or psychologic balance, and sudden extreme vicissitudes of the weather.

67. **A Deficiency Skin Affection.**—Waldheim relates that scattered small bunches on the front of the arms and legs proved to be the first manifestations of disturbances from an unbalanced diet. If the diet was not modified, the nodules became hemorrhagic progressing, if not arrested, to the severest type of papulous hemorrhagic purpura, and pain developed in the calves. Brown, tough, follicular nodules on the front of the arms and legs thus warn that the composition of the blood is suffering from some deficiency in the diet. In his experience, addition of vegetables and fruit put an end to all trouble, but without this some of the cases terminated fatally.

Münchener medizinische Wochenschrift, Munich

February 29, LXIII, No. 9, pp. 305-340

68 Venereal Disease in Garrison During the War. (Die Fortbewegung der Geschlechtskrankheiten in der Festung Breslau während des ersten Kriegsjahres.) M. Chotzen.
69 *No Connection Detectable Between Geologic Formation and Endemic Goiter. (Untersuchungen über den endemischen Kropf mit bes. Berücksichtigung des Vorkommens im Königreich Bayern.) W. Weichardt and M. Wolff.
70 Eucalyptol-Menthol Intramuscular Injections in Prophylaxis and Treatment of Postoperative Bronchitis and Pneumonia. F. Bode.
71 *Color Reaction in Urine With Cancer. (Ueber eine Farbenreaktion in Harnproben bei Magenkarzinom.) N. Welwart.
72 Vessel for Several Cultures at Once. (Eine Kolleflasche für doppelseitige Benutzung — zur Züchtung von Massenkulturen.) G. Wagner.
73 Official Directions for Prophylaxis of Epidemic Poliomyelitis and Puerperal Fever. (Die amtsärztliche Bekämpfung übertragbarer Krankheiten.) M. Henkel.
74 *Analogy Between Typhoid and Paratyphoid. (Ueber Roseola typhosa und paratyphosa.) E. Fraenkel.
75 Vaccination Against Dysentery. (Schutzimpfung gegen Ruhr.) G. Seiffert and O. Niedieck.
76 *Passive Venous Hyperemia in Treatment of War Wounds of Joints. (Ueber Stauungsbehandlung bei Gelenkverletzungen.) A. Linberger.
77 *Sugar in Treatment of Suppurating and Contaminated Wounds. (Zuckerbehandlung eiternder und verunreinigter Wunden.) F. Hercher.
78 Superior Advantages of Open Treatment for Secreting Wounds. (Für die offene Wundbehandlung.) C. v. Wild.
79 Bullet in Pericardium Causing Practically no Disturbance; Two Cases. (Geschosse im Herzbeutel.) L. Müller and W. Neumann.
80 Improved Technic for Artery-Vein Transfusion. (Zur Technik der arteriovenösen Bluttransfusion.) F. Erkes.
81 Portable Privy for the Troops. (Vorschlag zur allgemeinen Einführung verdeckter Müllgruben.) Seelhorst.
82 *Cancer of the Lung. (Fall von bösartiger Neubildung der Lunge.) Herrmann and L. Mayer.

March 7, No. 10, pp. 341-376

83 *Changes in the Blood Under Mesothorium Exposures. (Veränderungen am Blute nach Mesothoriumbestrahlungen.) B. Schweitzer.
84 Neosalvarsan in Treatment of an Epidemic of Relapsing Fever. A. Prüssian.
85 *Importance of Occult Blood as Symptom of Gastric Cancer. (Zur Bewertung des Nachweises okkulten Blutes in Mageninhalt und Stuhl für die Diagnose des Magenkarzinoms.) J. Emmert.
86 Intravenous Injection of Collargol in Treatment of Articular Rheumatism. (Behandlung der Gelenkrheumatismus mit Einspritzung von Kollargol ins Blut.) Wick.
87 Filtering out Excess of Cupric Sulphate Facilitates Trommer's Test. (Ein Hilfsmittel bei Ausführung der Trommerschen Probe.) K. Sauer.
88 *Continuous Passive Venous Hyperemia in Treatment of Severe Wounds of Joints. (Die konservative Behandlung schwerer Gelenkschussverletzungen mit Dauerstauung.) E. Sehrt. Concluded in No. 11.
89 Operative Treatment of Wounded Nerves. (Indikationstellung zur Freilegung verletzter Nerven.) H. Spitzy.
90 *To Prevent Development of Painful Neuromas After Amputations. (Ueber Nervenquetschung zur Verhütung schmerzhafter Neurome nach Amputationen.) H. Krüger.
91 Polyneuritis After Enteritis. Liebers.
92 Grazing Wound of the Skull Causing Motor Aphasia and Loss of Memory; Trephining; Recovery. E. Müller.
93 Cancer on Hand in Scar of War Wound Sixty-Seven Years Later. (Handrückenkarzinom auf der Narbe einer alten Schussverletzung.) E. Melchior.
94 Localization of Foreign Bodies in Chest and Abdomen. (Die Lokalisierung von Fremdkörpern in Brust und Bauch mittelst der Stärkebinde.) J. Rautenkrantz.
95 Support for Radial Paralysis. (Neuer Stützapparat bei Radialislähmung.) H. Hildebrand.
96 Improved Supports for Dressing Wounded Limbs. (Zur Verbandtechnik der Extremitätenschüsse.) E. Rehn; (Stützverbände für die Extremitäten.) E. Feldmann.

69. **Endemic Goiter.**—The testimony presented all speaks against any special geologic formation as responsible for development of goiter.

71. **Urine Color Test for Gastric Cancer.**—Welwart describes a blue color change in the urine which he has encountered only in three cases out of an extensive experience with the test. In each of these three cases there was malignant disease of the stomach. This material is too small for definite statements, but it suggests the advisability of further research in this line on the blue reaction which follows when acetic acid is added to the Legal acetone test.

74. **Typhoid and Paratyphoid Rose-Colored Spots.**—Fraenkel here adds further testimony to the close connection between typhoid and paratyphoid in that the rose-colored spots in both have proved to be a metastasis of bacteria in the lymphatics of the skin. He calls attention also to paratyphoid enteritis and paratyphoid pyelitis or cholecystitis but insists that the term "paratyphoid," as a special clinical picture, should be restricted to the triad: enlargement of the spleen, rose spots and diarrhea, like the triad of typhoid.

76. **Passive Hyperemia in Treatment of Wounds Involving Joints.**—Linberger never approved of Bier's stasis hyperemia as a means of treating arthritis, deeming it not entirely free from danger and requiring too much time and attention. But since Sehrt has reported such excellent results from the continuous application of the constricting band to induce stasis hyperemia, he has taken up the method anew and is now enthusiastic in regard to the superior results attained with it in the eight cases in which it has been systematically applied. They are described in detail as they illustrate the lessened tendency to suppuration and the ease with which it can be conquered if the joint does begin to suppurate. The fever went down rapidly after application of the constricting band

and the pain was mitigated, generally subsiding in from twenty-four to thirty-six hours. The stasis hyperemia permitted exercise earlier, and the functional use of the limb was regained sooner and better than with other technics. See abstract 88.

77. **Sugar as Dressing for Wounds.**—Hercher reviews over a thousand cases of wounds in war which he has treated with pulverized sugar, and states that fifty other physicians are now using it also. It does away with the necessity for rinsing out or irrigating the wound as the sugar causes such profuse oozing of fluid that the wound is copiously washed out from within. Its main efficacy is thus in its stimulation of secretion, diluting and washing out the pus.

82. **Cancer of the Lung.**—The case reported was in a man of 26 and proved fatal in three months after the first symptoms.

83. **Changes in the Blood Under Mesothorium Treatment.**—Schweitzer systematically examined the blood at intervals during courses of mesothorium treatment of inoperable uterine cancer, and reports that as the general health improved the hemoglobin and red count showed some improvement likewise. The leukocytes, however indicated some injury of the blood-producing apparatus, both a relative and absolute lymphocytosis developing, while the proportion of neutrophils declined. These changes persisted for several weeks, and are significant when considered in connection with the six cases of leukemia known to have developed in radiologists. At the same time, the final restoration to its preceding condition of the leukocyte picture in the mesothorium cases indicates that the changes are not vital.

85. **Occult Blood with Gastric Cancer.**—Emmert found occult blood in the stool or stomach content in all but one of twenty-one cases of what proved to be gastric cancer. This symptom is not only exceptionally constant but is present when the patient first applies to the physician, as a rule. In one of his cases there had been symptoms for only four weeks, and operation showed the cancer merely as a thickened patch not as large as a silver quarter. In one case of gallstone trouble the occult blood revealed the presence of the concomitant gastric cancer. A negative response to the guaiac test renders malignant disease in stomach or bowel extremely improbable, he declares. When a gastric ulcer is developing cancer, the regular presence of occult blood gives the clue to what is going on. Even when the stomach is opened up, it is not always possible to distinguish between simple ulcer and cancer. He advises applying the guaiac test at intervals even with certain ulcer, as thus any tendency to cancerous degeneration would be promptly recognized. He examined the stomach content for occult blood in 261 cases, aside from his ulcer patients. The findings were constantly negative except in 10 cases. In 6 of these the response was positive only at the first application of the test and the diet was responsible for it in some of these. No explanation for the positive response could be found in the 4 others, out of the total 261 tested.

88. **Passive Hyperemia in Treatment of Wounded Joints.**—The technic of Bier's stasis hyperemia by means of a constricting band has been materially simplified by Sehrt who applies the band once for all and leaves it undisturbed day in and day out. When the band can be applied within twenty-four up to sixty hours of the injury, the local and general infection was found to be reduced to the minimum and in many cases the infection was entirely aborted. When the injury was destructive and several drains otherwise would have had to be kept in the joint, the induced passive venous hyperemia obviated this and, Sehrt declares, gave results attainable with such regularity by scarcely any other method of treatment. As long ago as July 31 and Aug. 31, 1907, pages 181 and 802, The Journal reproduced testimony in favor of this method of treating joint trouble with maintenance of function, describing the technic, and Sehrt's recent praise of it for application to gunshot and shell wounds of joints was summarized Oct. 30, 1915, p. 1591. Since passive venous hyperemia has been systematically applied in his service in treatment of all severe wounds on arms or legs, beginning May, 1915, there has been no further case of gas gangrene from a wound on the extremities. The constricting elastic band is applied no tighter than a plaster bandage; the patient must not feel it as painful, and the pulse below must always be palpable. The band is left in place for a week or two weeks in severe cases. The limb swells below the band and may even blister, but the wound is left practically untouched, not even the smallest firmly fastened bone splinter is removed, so as not to open new outlets for lymph and blood. The region is not washed nor irrigated, the wound is merely covered loosely with gauze and the limb fastened loosely on a splint. If the gauze dressing were at all tight it would bind as the region swelled. The limb is placed flat on a pillow. The pain is promptly arrested, but is liable to return if the limb is raised above the horizontal. The gauze is soon soaked with yellow secretions and is protected from flies by covering with fresh gauze. Sometimes nests of maggots were found in the dressings, but they did not injure the wound. As soon as possible, by the fourth, sixth, tenth day, the patient must make movements inside the loose dressing. The only surgical measure applied was incision, under local anesthesia, of a gravity abscess if such developed. If the injury proved in time to be beyond the scope of conservative measures, then whatever operations had to be done had the advantage of not being in exsanguinated and septic tissues. Two illustrations show the exact technic and the details are given of twelve war wounds of the wrist and four of the elbow treated by this method, and a further instalment is to follow. See abstract 76 above.

90. **Prophylaxis of Painful Neuroma After Amputations.**—Krüger explains the bunch that develops at the end of a severed nerve as a physiologic effort toward repair. When the bunch is subjected to pressure or traction, there is liable to be pain. Crushing the nerve with a clamp draws down the nerve sheath over the nerve as it is squeezed into a flat ribbon. There are then merely two sheets of perineurium with merely traces of medulla and endoneurium between. The nerve is cut in the center of the crushed segment, and the perineurium thus forms a closed bag over the end of each stump. The regeneration process can occur only inside this bag, and all danger of a painful neuroma is averted.

Wiener klinische Wochenschrift, Vienna

March 9, XXIX, No. 10, pp. 281-312

97 Traumatic Neuroses in Soldiers on Active Service. (Zur Frage der Beurteilung traumatischer Neurosen im Kriege.) O. Marburg.

98 *Protheses to Relieve Disfigurement From Lupus. (Die Prothesenfrage bei Verstümmelungen nach Lupus vulgaris.) L. Spitzer.

99 Salvarsan or Mercury Dermatitis? (Quecksilber- oder Salvarsandermatitis?) Brandweiner.

100 Syphilis and the Aorta. (Lues und Aorta.) M. Herz.

101 Pains in the Legs in Trench Fighting. (Ueber Schmerzen in den Beinen bei im Felde stehenden Soldaten.) O. Pritzi.

102 A Trench Disease. (Eine Erkrankung des Schützengrabens.) A. Grätzer.

103 Skull Wounds in War. (Feldspitalärztliche Betrachtungen über Schädelverletzungen.) M. Cernic. Commenced in No. 9.

98. **To Correct Disfigurement from Lupus.**—The Journal has already mentioned Lang's method of providing the patients with a cast on which they make a gelatin mold that can be worn as a false nose or ear or other part desired. Spitzer here describes some specially striking cases, with illustrations before and after, of twenty-one of these "face cripples" as he calls them. The minute details for making and tinting the casts are given. They can be worn for two or three days or longer in damp weather. The gelatin casts can be melted up and used over and over again. The whole procedure takes only ten or fifteen minutes, and he trains each one to make his own casts from the first. See abstract 118 below.

Policlinico, Rome

March 12, XXIII, No. 11, pp. 325-356

104 Localization of Projectiles. (Sopra un metodo semplice ed esatto per la localizzazione radiografica dei corpi estranei.) F. Ghilarducci.

March, Medical Section, No. 3, pp. 65-96

105 Pathologic Anatomy of Paratyphoid. B. Lunghetti.

106 Pathogenesis and Etiology of Acromegaly. R. Massalongo and C. Piazza. Commenced in No. 2.

Brazil-Medico, Rio de Janeiro

February 19, XXX, No. 8, pp. 57-64

107 *Leishmaniosis of the Skin. (Observação de um caso de leishmaniose cutanea.) O. Torres.
108 The Alveolar Tension in Regulation of the Ventilation in the Lungs. (Sobre a regulação da ventilação pulmonar.) M. O. de Almeida.

107. Leishmaniosis of the Skin.—The case reported by Torres is unusual on account of the number of the sores, thirty-five active ones being counted along with twenty-nine scars of extinct sores, and nearly all arranged symmetrically. This latter feature suggests the influence of the nervous system as affording a predisposition for the locating of the lesions, direct contagion not being possible for most of the symmetrical sores scattered from head to foot. Tartar emetic displayed its usual efficacy in treatment. It was given by intravenous injection of a 2 per cent. solution, to a total of sixteen injections in the course of two months.

Russkiy Vrach, Petrograd

XV, No. 1, pp. 1-24

109 *Diathermia of the Cervical Spine. A. E. Shcherbak.
110 *Symptoms and Treatment of Gaseous Gangrene. A. A. Opokin.
111 Annual Report of the Psychiatric Department of the Russian Red Cross Society. M. K. Voskressensky.

No. 2, pp. 25-48

112 *K. A. Rauchfuss. N. I. Lunin; J. P. Serk; A. N. Shabanöff; N. P. Blumenau; S. A. Ostrogorsky.
113 Palpability and Technic for Palpation of the Liver. (O proshchupivaemosti i proshchupivanii pecheni.) V. P. Obroztzoff.
114 Extension and Bridge Plaster Dressings for Gunshot Fractures. V. K. Shamarin.
115 Huge Ovarian Cysts; Two Cases. V. I. Telegra.

No. 3, pp. 49-72

116 Mineral Mud in Treatment of the Wounded. (Opit liecheniya 137 ranenikh i bolnikh Eltonsckoe gryaziu.) M. L. N. Oleinikova.

109. Diathermia of the Spine in the Neck.—Shcherbak used diathermia by applying for five or six minutes, every other day, one electrode (57.5 sq. c.) to the cervical region, the other to the middle of the dorsal region, the strength of the current being 0.5 to 0.7 amperes. The duration of the treatment averaged ten to fifteen applications. He obtained good results in various organic nervous affections (syphilis, etc.) and especially in functional nervous derangement accompanied by vascular disorders of the brain (angioneuroses), in the form of active or passive hyperemia. The blood pressure usually showed a fall after fifteen or twenty applications.

110. Gas Gangrene.—Opokin found gaseous gangrene in 0.6 per cent. of wounded soldiers, mostly in a very severe form, with pronounced edema of the limbs, gaseous crepitation, dark brownish color, icteroid sclerae and skin and poor pulse, with unimpaired consciousness. These symptoms usually developed within two or three days after the lesion. The gas spreads along the subcutaneous tissue which appeared marbled with dark-brownish or sometimes copper-red spots of various sizes. The edema was usually intense, especially in the necrotic areas, and the edematous limbs were devoid of sensation. The temperature was about 104 F. There was no line of demarcation. The secretions from the wounds were ichorous fetid. The full clinical picture may develop within twenty-four to forty-eight hours, depending on the virulence of the infection. The pathologic varieties are the subfascial form when the process is diffuse, all the tissues being involved, and the epifascial form in which the gangrene spreads along the subcutaneous tissue without penetrating deep. First of all the muscles suffer, followed by the deep layers of the subcutaneous tissues. The histopathologic changes consist in acute exudation without small-cell infiltration. These symptoms differentiate gas gangrene from similar clinical manifestations, as acute purulent edema, or false traumatic aneurysm which, however, may coexist with the gaseous gangrene. Numerous wide incisions with draining and removal of the foreign bodies, amputations and resections were the principal surgical measures applied. Of fifteen patients thus treated, six recovered; without operation four were treated and all died. In mild cases, which were comparatively rare, conservative methods, such as vaccination, etc., are to be recommended.

112. K. A. Rauchfuss.—The recent death of K. A. Rauchfuss was mentioned in THE JOURNAL, February 26. He was the patriarch of Russian pediatrics, the founder of the pioneer Oldenburg Children's Hospital in Petrograd, the creator of laryngology in Russia, the perfector of O'Dwyer's intubation apparatus, and the author of numerous treatises on diseases of children. He was active as a citizen and in the field of organization of an institute for spreading sane ideas in regard to reducing infant mortality in Russia. In 1894 he was offered the chair of pediatrics in the University of Berlin, but he declined it in favor of Heubner, who is said to have been selected on his recommendation.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

February 26, I, No. 9, pp. 733-812

117 *Vision a Psychic Process. (Een theorie der hypermetropie.) M. Straub.
118 *Artificial Noses and Ears Made of Gelatin. (Aangezichtsprothesen.) A. S. Jacobson.
119 Useless Operations. (Noodelooze, dus ongewenschte operaties.) G. A. Van Leeuwen.
120 *Colles' Law. (Bijdrage tot de wet van Colles-Baumes.) C. Kroon.

March 4, No. 10, pp. 813-888

121 *Typhoid Among Belgian Refugees in Holland. (Over typhoied en typhoiedenting in het vluchtoord te Hontenisse.) C. A. Cammaert.
122 Consumption of Oxygen in the Serum of Warm-Blooded Animals. (Over het zuurstofverbruik in het serum van warmbloedige dieren.) F. J. J. Buytendijk.
123 Primary Cancer of the Liver. M. J. Roessingh.

March 11, No. 11, pp. 889-960

124 Three Previously Unpublished Letters of J. C. Peyer, 1653-1712. E. C. van Leersum.
125 *Study of the Renorenal Reflex, Kidney Stones and Pyelitis. (Iets over reno-renale reflexen, niersteen en nierbekkencatarrh.) A. Bijnen.
126 Life Insurance and Periodical Reexamination. (Levensverzekering en levensverlenging.) J. S. Van Heukelom.

117. Theory of Hypermetropia.—Straub states that he has worked for years to explain hypermetropia on a mechanical basis, and has had to abandon the attempt. All the evidence that he has accumulated testifies exclusively to the psychic nature of hypermetropia. All vision is a psychic phenomenon, and nearly all children are born hypermetropic. The majority are emmetropic when they reach school. Cases of squint demonstrate that the change occurs during the third year. Older persons notice that the child begins to squint at this time and to use one eye more than the other. By systematic exercises the eyes can be trained at this period to overcome the tendency to squint. In the fourth and fifth year the vision in the neglected eye may grow weaker, but may be strengthened by exercises. Hypermetropia likewise probably becomes settled during the third year, as the child then determines its mode of fixation. The hypermetropic see the world entirely different from the emmetropic, and no one can explain the phenomena of vision without taking the consciousness into consideration.

118. To Correct Disfigurement from Lupus.—Jacobson is enthusiastic over his success in supplying patients with protheses to remedy the ravages of lupus, etc., and reports a number of striking cases with illustrations before and after. He takes a cast of the face, models it to the desired outline, and then has a copper mold made from this. The patient is then supplied with a hard gelatin mixed with twice its weight of glycerin, a little water and quinin as a preservative, tinted to match the patient's complexion. This is heated in the water bath and poured into the copper mold and sets in a few minutes, thus providing an artificial nose, ear or cheek, which is light and elastic and fits perfectly to the face, to which it is stuck with mastix varnish. As the nose thus made is elastic, it moves with the muscles around, like a natural nose, and in every respect, he declares, is better than the noses made by autoplastic operations. The gelatin nose can be melted up and a new one made in a few minutes. Small defects in the face can be remedied readily by this method, and he says the gratitude of this class of patients is most touching, as they mingle unnoticed with their kind once more instead of being pointed out wherever they go. The prothesis for one young man with exceptionally destructive

lesions included the nose, upper lip and both cheeks. No illustration is given of this patient. See abstract 98 above.

120. **Colles' Law.**—Kroon relates that Finger for a time was the only syphilologist who still admitted the possibility that a woman could bear a syphilitic child without being herself syphilitic, the Wassermann reaction having shown that many apparently healthy mothers of syphilitic children yet in reality were infected. Recently, however, some scanty testimony has been collected which sustains Colles' law. Ledermann has reported three cases and Nonne in the latest edition of his book mentions some cases in which the wives of men with tabes or paralysis bore syphilitic children and yet never responded positively to the Wassermann test or showed any signs or symptoms suggesting syphilis. To this small list Kroon adds a typical case corresponding in every point to the requirements of Colles' law. The robust woman of 28 had already had eight abortions when delivered of a child with numerous external manifestations of syphilis. Her husband had been infected with syphilis twelve years before but she seemed absolutely exempt and the Wassermann reaction in the blood was negative, at two tests with a month's interval. The child was twelve weeks old and had bloody discharges from the nose, cracks in the lips and papules at the anus. The woman fed the child herself, and Kroon, assuming that she was nonsusceptible, did not attempt any treatment.

121. **Typhoid Among Belgian Refugees in Holland.**—Cammaert relates that typhoid bacilli carriers were evidently responsible for the epidemic of typhoid at the refugee camp at Hontenisse. There were 5 deaths in the 65 cases; then the epidemic was arrested by antityphoid inoculation of 996 persons. There was considerable resistance to the vaccination at first, but a cigar for the men and some trifle for the women dissipated all reluctance. In 9 cases the vaccination was done during the incubation stage of typhoid; these cases are described in detail to show the influence of the procedure on the disease process. It induced a negative phase, permitting the virus of the disease a firmer hold, or caused actual sepsis with the living typhoid bacilli, severe symptoms developing in two hours, but the disease running a favorable course after the first stormy onset in most cases. With a weak heart there is grave danger from this sudden invasion of the blood by typhoid bacilli, as he shows by the case of a woman of 55 (not vaccinated) who died the second day of typhoid and the bacilli were found in the blood.

125. **The Alleged Renorenal Reflex.**—Bijnen recalls that when a patient complains of pain in the kidney region and the urine shows signs of kidney stone or catarrhal pyelitis, roentgenoscopy is liable to show normal conditions on the side of the pains and a stone in the supposedly sound kidney. He has had six cases of this kind in the course of three years. In five there were signs of pelvic catarrh on the side of the pains, and clinically normal conditions were restored by direct medication of the kidney pelvis, although the stone in the other kidney was not removed. In the sixth case there was a stone in each kidney, and the ureter catheter findings were entirely normal on the side of the pains. This suggested the *réflexe douloureux*, but no operation was attempted. A few months later, signs of a gastric ulcer developed, and gastro-enterostomy was done. The pains in the kidney region then subsided at once and permanently. They had evidently been pains connected with the gastric ulcer, localizing in the left kidney region. In none of the six patients was it necessary to assume a renorenal reflex to explain the phenomena, and recovery occurred in all without special treatment of the diseased kidney from which the supposed renorenal reflex presumably emanated. That kidney stones may be present without causing symptoms is evident from another group of eight cases—out of twenty-four—in which kidney stones were revealed by roentgenoscopy but they had never caused any disturbance. In three cases both kidneys had stones but there was pain in only one kidney. In five cases the pains were due to catarrhal trouble of the pelvis, the stones in the other kidney causing no disturbance. Bijnen exposes both kidneys at once to the rays, the plate thus taking in the whole urinary apparatus, and thus the kidney stones in this group of eight cases were a casual discovery. In two other recent cases there seemed to be reflex anuria, but the course of the cases showed pyelitis in one kidney, cured by direct medication, and obstruction of the outlet by stones in the other kidney. Without roentgenoscopy, these would have been cited as typical instances of reflex anuria. He has never witnessed any injury from injection of a silver salt directly into the kidney pelvis, as he has applied it in almost 200 cases. When nephrectomy was required later, he never saw any signs that harm had been done by the intrapelvic injections.

Norsk Magazin for Lægevidenskaben, Christiania

March, LXXVII, No. 3, pp. 317-452

127 *Melanosarcoma in the Eye; Thirty-Four Cases. (Melanosarkom i øiet.) S. Hagen.
128 Anatomy and Pathology of the Coronary Circulation. (Spredte bemerkninger om hjertets coronarkredsløp; dets anatomi og patologi.) A. Vetlesen.
129 Diabetes With Pregnancy. (Et nyt tilfælde av diabetes med graviditet.) H. C. Geelmuyden.

127. **Melanosarcoma in the Eye.**—Hagen states that the growth in the choroid or ciliary body was removed in an early stage in 6 of the 34 cases. It had reached the second stage in 14 other operative cases, and an advanced stage in 8. In another case the sarcoma was in the iris and was successfully removed, and in the 5 other cases the growth issued from the conjunctiva. Each case is described in detail. There has been no recurrence among the 20 cases in the first or second phase of the growth but in 3 of the 7 more advanced cases the growth has returned. Recurrence is thus less to be feared than metastasis. This occurred in 8 cases, the patients succumbing to the metastasis in from two years and five months to four years after the operation, except in one case in which the interval was six years. When four years have elapsed without recurrence or metastasis, we can regard the patient as almost certainly out of danger. In the three cases of recurrence, the intervals were from one to six months. The intensity of the pigmentation and the character of the cells and vascularity of the tumor do not seem to have any influence on the prognosis.

Ugeskrift for Læger, Copenhagen

March 9, LXXVIII, No. 10, pp. 329-368

130 *Changes in the Blood Under Arc Light Therapy. (Kliniske Iagttagelser over Kulbuelysbades Indvirkning paa Blodet hos Patienter, lidende af Lupus vulgaris og kirurgisk Tuberkulose.) A. Hansen.
131 *Purgatives for Infants. (Om Afføringsmidler i den spæde Barnealder—Sp. Amerikansk Olie.) E. F.-Bjerre.

130. **Changes in the Blood Under Influence of Phototherapy.**—Hansen writes from the Finsen Light Institute to report the blood findings under a course of exposures to the artificial chemical rays of the carbon arc light in treatment of lupus or tuberculous lesions in bones or joints. This institute is said to have been the pioneer in this method of treatment with the carbon arc light alone in these affections, and he tabulates the findings in 56 patients whose blood was tested repeatedly during the exposures. There were 4 under 10 and 22 over 30; 13 were males. In one patient the hemoglobin percentage had increased by 14 marks between the first and last examination, the average increase being 5.6 marks on the Sahli hemometer. (With this, 80 is the normal figure for men and 70 for women). All the patients increased in weight except 6 over 20 whose weight did not vary, and 2 under 20, who lost somewhat in weight. The number of reds also increased. This increase was most pronounced during the early part of the course, suggesting a direct stimulating action from the light.

131. **Purgatives for Infants.**—Bjerre extols calomel as the best theoretically and also the best in his practical experience when acute gastro-enteritis requires a purge. Chronic constipation does not require anything beyond the proper diet and enemas, stopping milk for a time and giving soft mashed vegetables, cooked fruit, etc. He denounces the use of laxatives for infants except in an emergency, and says that castor oil should never be given to infants in a teaspoonful dose, but only by the drop. A teaspoonful corresponds to five times the dose for an adult, comparatively speaking.

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 18 CHICAGO, ILLINOIS APRIL 29, 1916

PROSTATECTOMY UNDER LOCAL ANESTHESIA

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Prostatism presents one of the most frequent dilemmas in the choice of an anesthetic. When the patient is in good condition, a general anesthetic may be administered with impunity; but in those conditions in which the bladder has long been infected, urinary stasis and pyelitis are present with an abundant urine of low specific gravity, and the administration of a general anesthetic presents a hazardous extra burden to the patient. It is in such cases that the use of a local anesthetic, and particularly local anesthesia and the two stage operation, make their strongest appeal.

It must be insisted at the outset that in order to spare the patient, the local anesthesia must be all that the word implies. To cause the patient pain is to produce a shock greater than that caused by a general anesthetic. No method can be said to be acceptable unless it is effective in all cases. When a method fails in a certain percentage of cases, requiring a general anesthetic for the completion of the operation, it cannot lay claim as a method of election. When it becomes necesary to shift from local to general anesthesia, there is very apt to be a period before the abandonment of the attempts at local anesthesia, before the general anesthetic is resorted to, when the patient is being caused pain. It has been my experience that it is just these patients who bear such a transition badly.



Fig. 1.—Direction of the needle in sacral blocking.

For this reason, in my recent book[1] on local anesthesia, I recommended prostatectomy with local anesthesia with great reserve because of the experience that unless the operator had learned his own technical limitations by an extensive experience the patient was apt to be done incalculable harm. Since the manuscript left my hands a year and a half ago, I have been working out a combined technic which should be successful in the hands of those of moderate experience in the use of local anesthesia.

The easiest operation to perform under local anesthesia is the suprapubic one. The perineal route requires the use of a greater amount of the local anesthetic, but the chief objection in my hands has been that quinin produces an extensive infiltration in the periprostatic tissue, and novocain-epinephrin produces an anemia during operation which obscures important sources of hemorrhage. The vessels which do not bleed during the operation, and hence are not ligated, may do so after the patient is returned to bed.

The operation of election, viewed from my experience, is performed by a combination of sacral blocking and direct prostatic infiltration through a suprapubic wound made at the time of operation, or as a preliminary operation some days before.

The reason that sacral anesthesia cannot be relied on as the sole means of anesthesia is its uncertainty. Even in the hands of the past masters of the art (Läwen, Schlimpert and Schneider), failure occurs in about 10 per cent. of cases. A method attended by such a percentage of failures must be looked on as unsatisfactory.

Läwen recommended the use of a 1.5 or 2 per cent. solution of novocain-epinephrin. As stated in my book, I have found a larger amount of a weaker solution more effective. Lewis[2] has recently confirmed this experience. The use of 60 c.c. of a 0.5 per cent. solution will give a relative anesthesia when injected into the sacral canal. This introduces about 5 grains of the drug into the system. Though this dosage will not certainly completely anesthetize the bladder and prostate, it will most certainly so obtund these parts that they will be insensitive to the traction caused in the manipulations of the operation. This is all that is required, for the injection of the prostate through the suprapubic incision will anesthetize the field of operation with certainty. When one starts in to do an operation under local anesthesia, he should possess a repertoire sufficient to meet all contingencies.

It is unfortunate that the designation "sacral anesthesia" to indicate the introduction of an anesthetic solution into the sacral canal is unsatisfactory to recent American authors. The synonym advanced, "caudal anesthesia," is less expressive than the term established by usage, and is confusing, for it may suggest injection into the caudal appendage by our

1. Hertzler, A. E.: Surgical Operations with Local Anesthesia, Ed. 2, New York, Surgery Publishing Co., 1916.

2. Lewis: Surg., Gynec. and Obst., 1916, xxii, 262.

simian ancestors, and it is only the learned who will remember that it is the cauda equina which represents the terminal filaments of the spinal cord which reach this region and to which our attempts at anesthesia are directed. So far as the technic of the method goes, it is the sacrum which the operator must keep in mind, and it is the sacral nerves which are anesthetized. It would seem, therefore, that the introduction of the new term simply muddies the water.

The technic which is most certain to give results is as follows: Sixty c.c. of a 0.5 per cent. novocain solution containing 10 minims of epinephrin, or from 60 to 90 c.c. of a 0.6 per cent. quinin and urea hydrochlorid solution, are introduced into the sacral canal. In making the sacral injection the classic method is employed as described in my book (Fig. 1). The fear of introducing the needle into the spinal dura is much exaggerated. It extends to within from 6 to 9 cm. of the hiatus. I doubt if the canal could be punctured with a straight needle if the attempt were made with deliberation. At any rate the puncture can be easily determined should this accident occur. When the needle is passed upward, if the syringe is attached and the piston pulled out sufficiently to create a vacuum, the spinal fluid would most certainly appear in the syringe. In hundreds of injections I have never yet entered the dura. The same method will detect whether or not the needle has penetrated a vein. With the syringe so attached such an accident will be much more certainly detected than if the intravascular pressure is depended on to force the blood out of the needle. The needle should be passed at least 7 cm. (3 inches) and the fluid deposited. As the needle is withdrawn, some of it may be deposited in the lower portion of the canal. The chief elements of success lie in passing the needle high enough into the canal, and the use of sufficient volume of fluid.



Fig. 2. — Prostate retractor, used with both perineal and suprapubic prostatectomy.

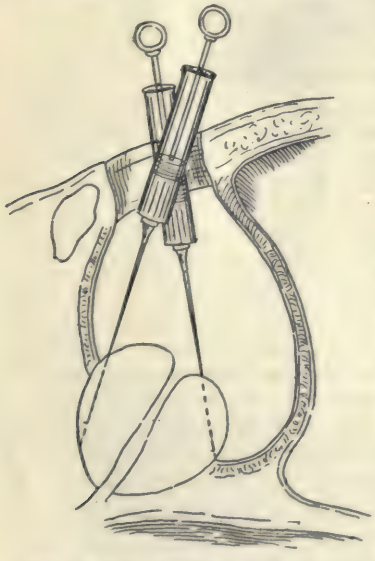


Fig. 3.—The needle passes to the prostatic capsule in as many places as possible.

After the infiltration has been made, the patient is turned on his back until the anesthetic has had time to act. This may require from fifteen to thirty minutes.

While the operator is waiting for the sacral anesthesia to act, he may occupy the time by making the suprapubic incision and infiltrating the prostate through the bladder.

The suprapubic incision may be made after infiltration with a 0.5 per cent. novocain solution or with a 1 per cent. quinin and urea hydrochlorid solution. The technic is already generally understood, and need not be repeated here.

For exposing the prostate through the suprapubic incision, I have devised a special retractor (Fig. 2), which permits a complete exposure of the prostate and an inspection of the entire interior of the bladder. This retractor was originally produced to facilitate the performance of my perineal operation with immediate closure of the wound, but I have found that it works ideally in the suprapubic incision.

The bladder having been opened, the prostate is inspected and a novocain-epinephrin solution injected about the periphery of the prostate (Fig. 3), and into the deep portion of the prostatic urethra at the point where the pendulous portion begins (Fig. 4). If any portion escapes complete anesthesia, this is the place.

After the lapse of ten or fifteen minutes more, the enucleation of the prostate may be begun by any technic the operator may prefer. A good exposure may be obtained so that sharp dissection may be employed at the beginning, or the entire operation may be done with the finger alone. After the finger enucleation is begun, it is unnecessary to use the retractor; in fact, it is in the way, as its presence is unpleasant to the operator's knuckles. If the field of operation is to be inspected after the enucleation has been completed, the retractor may be reintroduced.

If the suprapubic drainage is done some days before the enucleation of the prostate is to be undertaken, quinin and urea hydrochlorid is preferable to novocain-epinephrin, for if the former drug is used, the wound will usually be found sufficiently obtunded at the second operation to permit of the necessary manipulations without a reinfiltration of the abdominal wall and bladder about the site of drainage.

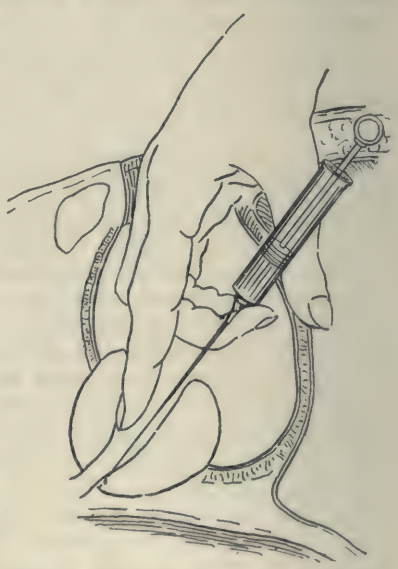


Fig. 4.—Under guidance of the index finger, the lower tip of the prostate is injected.

If a preliminary suprapubic drainage has been done and the opening is not large enough to permit infiltration of the prostate by touch, and subsequent enucleation of the prostate, a renewed infiltration of the bladder wall will be necessary. Otherwise the technic is the same as in the one stage operation.

Generally speaking, it is easier to complete the operation at the time the suprapubic opening is made. After suprapubic drainage has gone on for some days,

the bladder collapses against the prostate, which makes the manipulations more difficult than when the bladder has just recently been drained of its retained contents and is still in a state of comparative paralysis.

When the operation is done in this way, all that is demanded of the sacral anesthetic is that the lifting of the prostate with the attendant traction on the paraprostatic tissues shall be possible without pain. Complete anesthesia of the sacral plexus, therefore, is not necessary. The actual sensation from the field of operation is blocked with certainty by the prostatic infiltration made through the suprapubic wound. When it is done in this manner, the operator always has it in his power to extend the anesthesia in any direction in which he may find it deficient.

The only untoward effect I have ever noted in sacral anesthesia is the temporary anesthetization of the sciatic nerves. For any operation which requires a subsequent recumbent attitude, this is inconsequential. It is only in cystoscopy when the patient desires to go about his business at once that such results are embarrassing. I have noted this condition only after novocain. Since the effect of this drug disappears in a few hours, the disability can never be of consequence. After quinin, numbness is sometimes complained of; but I have never seen paralysis sufficient to interfere with locomotion.

Quinin and urea hydrochlorid may be used with satisfaction in all stages of this operation. Since novocain is no longer on the market, operators may be compelled to learn the quinin technic.

The plan described above enables the operator to approach the enucleation of the prostate with the certainty that the patient will not be caused pain and that a resort to general anesthesia will most certainly not be required.

Infection in Typhoid.—Contact infection is the most common mode in the distribution of typhoid. Different students of epidemiology in widely distant lands agree in this and even go so far as to place practically the same estimate on the number of cases originating in this manner. About 60 per cent. of all cases of typhoid are believed to be due to contact infection. The board of medical officers in 1898 placed the percentage of contact cases at 62.80, while Drigalski gives it for Germany as 64.7. These conclusions seem to have been reached quite independently, inasmuch as the German makes no mention of the American studies which were conducted nine years before his. Formerly, it was supposed that typhoid is mostly water-borne; the board of officers began their investigations possessed fully of this view, but their studies convinced them that this is an error and first furnished indisputable evidence that contact is the most important factor in the distribution of typhoid.—Vaughan.

CASE OF COCCIDIOIDAL GRANULOMA*

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AND
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The following case is unusual and interesting in that it adds some features to the data of a disease which may still be considered rare. As far as we have learned, it is the first reported case observed in the state of Missouri. It is one of not more than three cases which did not originate in the San Joaquin Valley, Calif. Other features, such as the evident symmetrical location of the lesions in the muscles, the continuous fever, and the unusually high leukocyte count, are of especial interest.

In all, about forty cases of coccidioidal granuloma have been reported in the literature. Dickson[1] states that thirty-five of these patients have been residents of California; three have visited the state. This is the third instance, so far as we know, in which the patient has never been in California. The first case came under the observation of Posadas in Buenos Aires, and was described by Wernicke[2] in 1891 and later discussed by Posadas[3] in 1900.

The true nature of the organism was made known by Ophüls[4] and Wolbach,[5] who demonstrated that this is not a protozoon disease but is due to a yeast organism closely related to the blastomyces. Since that time numerous papers on this subject have appeared, most of them in the nature of clinical reports.

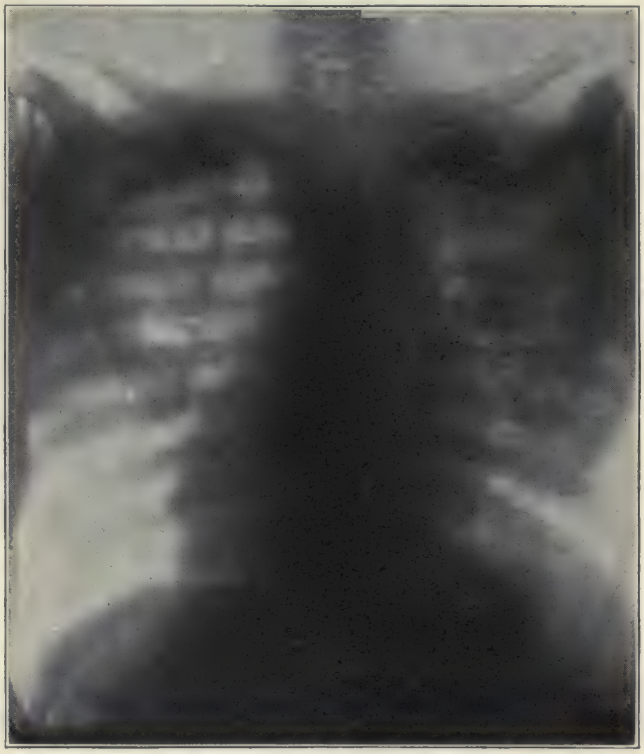


Fig. 1.—Roentgenogram showing extensive pulmonary involvement.

CASE REPORT

History.—N. T., negro, man, aged 28, single, sleeping car porter, entered the hospital, July 19, 1915. The patient was able to walk when he entered the hospital. A tentative diagnosis of early pulmonary tuberculosis was made. He complained of a cough, loss of weight, and general weakness.

The patient's family history was negative. He was born in Kentucky and lived there until the age of 6, when his family moved to Tennessee. Later he lived in Cairo, Ill. He moved to St. Louis in 1909. Up to this time he worked as a farm hand and as a hotel porter. Since 1909, he had been a porter on the Missouri Pacific Railroad, running

* From the Service of the Department of Internal Medicine of the St. Louis University, School of Medicine, St. Louis City Hospital.

1. Dickson, E. C.: Oidiomycosis in California, with Especial Reference to Coccidioidal Granuloma, Arch. Int. Med., December, 1915, p. 1028.
2. Wernicke: Jour. de microg., 1891, xv, 14; Centralbl. f. Bakteriol., 1892, xii, 861.
3. Posadas: Rev. de chir., 1900, xxi, 277.
4. Ophüls, W.: Further Observations on a Pathogenic Mold, Jour. Exper. Med., 1904, vi, 443.
5. Wolbach, S. B.: Notes from the Life-Cycle of the Organism of Dermatitis Coccidioides, Jour. Med. Research, December, 1904, p. 53.

between St. Louis and Denver. He had never been in California.

Aside from being a rather heavy smoker he denied having any bad habits, and appeared to be considerably superior to the average of his race.

The patient gave a history of typhoid fever in 1898, running a mild course. He had "malaria" five years ago. Two years ago he had a rather severe attack of tonsillitis; about ten years ago he had gonorrhea; and a sore on the penis seven years ago, but he gave no history of secondaries.

His present illness began three weeks previous to his entrance to the hospital. The patient believed he had "caught cold." He had coryza, hoarseness and a cough. Though he felt better a few days later, his cough and hoarseness remained. At the onset the cough was not productive, but later he expectorated a profuse, frothy, watery sputum. He lost about 10 pounds in three weeks, and always felt feverish in the evening.

Physical Examination.—The man was well developed, well nourished, and apparently in good general condition. The tonsils were enlarged and injected, and the pillars of the fauces slightly inflamed. The heart findings were negative. The respiratory sounds were slightly increased in pitch posteriorly over the right side, medial to the scapula. The abdominal examination proved negative, and neither the spleen nor the liver was palpable. The inguinal and epitrochlear glands were moderately enlarged and palpable on both sides. The temperature was 100 F., and the pulse 100, the respiration 28 at the time of entrance.

Course of Disease.—During his first few days in the hospital the progress of the disease suggested an infection of the upper respiratory tract. A culture from the throat was negative for diphtheria. The first six days the temperature reached normal a few times, but from then on the fever became continuous, never again reaching normal. July 30, a 2+ Wassermann reaction was obtained from the blood; Widal and blood cultures both negative. August 1, the patient called our attention to painful nodules in the calves of the legs. One nodule was found in each calf. It was slightly tender, hard, about the size of a hazelnut, and apparently situated in the gastrocnemius muscle. Following this observation new nodules appeared each day, and by August 10, thirteen in all were palpable. These were both subcutaneous and in the muscles, distributed over the front of the chest, abdomen, forearms, thighs and legs. They varied from the size of a pea to that of a hickory nut. At this time we attempted to remove a nodule from one of the pectoral muscles, but punctured it and found what appeared to be an abscess containing a slightly sanguineous, opaque fluid. In addition to many polymorphonuclear leukocytes, double contoured round bodies were found in the smears. On the same day the sputum disclosed similar bodies in large numbers. The lungs now revealed dulness on percussion over the right middle and lower lobes posteriorly, bronchovesicular breathing and subcrepitant râles, the lung picture suggesting a bronchopneumonia.

August 13, two nodes were removed from the left gastrocnemius muscle. Each node contained an abscess similar to the first one examined. Double contoured bodies were again found. The pulmonary findings were more pronounced by this time. Tubular breathing was heard posteriorly over the right base, and dulness was more marked. While a fluoroscopic examination of the lungs, at entrance, was practically negative, a roentgenogram now showed extensive consolidation of a large part of the right lung and much generalized mottling (Fig. 1).

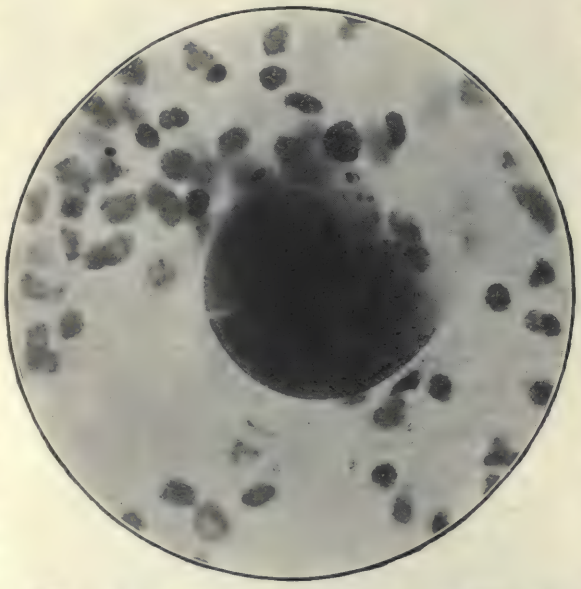


Fig. 2.—Large coccidioidal organism in sputum filled with endospores and in the process of rupturing; × about 1,500.

The patient now rapidly grew worse; his respiration became more frequent and labored, and his appearance more toxic. His mind remained clear until shortly before his death, which occurred August 20, thirty-one days after his admission, and about fifty-two days after the onset of the disease.

In the beginning his temperature was intermittent until about the seventh day after entrance, rising as high as 101.5 F. It then became continuous, the highest point being 102 in the morning and 101 in the evening. It was interesting to note that there was a morning rise for two weeks, after which the reverse was noticed. Following this, the temperature oscillated between 103.5 and 100; it finally rose to 105.5 on the twenty-fourth day, with a morning remission to 103.5, after which it gradually declined, and at the time of death reached 99.5.

The patient entered with a pulse of 100. For twenty days the pulse rate varied between 80 and 105, following the temperature curve. From then to the time of the highest temperature it rose in frequency to 168 per minute. Then it continued to follow the temperature curve. The systolic blood pressure averaged about 130 mm. of mercury.

The respiratory rate varied between 20 and 35 during the first three weeks. It then gradually increased in rapidity, and reached its greatest frequency, 80 per minute, a day before death.

It was most unfortunate that a necropsy could not be obtained.

Treatment.—At the onset the treatment was symptomatic. When the Wassermann test was found positive, potassium iodid was given by mouth, and mercury by intramuscular injection. The mercurial treatment was discontinued at the end of eight days, but 45 grains of potassium iodid were administered three times daily, and later increased to 60 grains until the sixteenth day, when it was discontinued. Following this, copper sulphate, one-fourth grain, was given three times daily for four days. The potassium iodid and mercury appeared to have no influence on his condition and were, therefore, discontinued. The copper sulphate proved irritating to the gastro-intestinal tract.

Laboratory Findings.—Blood: July 27: Erythrocytes, 4,800,000; leukocytes, 12,000; hemoglobin, 85 per cent. Differential count: Polymorphonuclears, 74 per cent.; small lymphocytes, 10 per cent.; large lymphocytes, 6 per cent.; eosinophils, 6 per cent.; transitionals, 4 per cent.

August 6: Differential count: Polymorphonuclears, 70 per cent.; small lymphocytes, 20 per cent.; large lymphocytes, 4 per cent.; eosinophils, 2 per cent.; transitionals, 2 per cent.; basophils, 2 per cent.

August 8: Erythrocytes, 3,000,600; leukocytes, 12,600; hemoglobin, 65 per cent. Differential count: Polymorphonuclears, 58 per cent.; small lymphocytes, 15 per cent.; large lymphocytes, 16 per cent.; eosinophils, 6 per cent.; transitionals, 3 per cent.; basophils, 3 per cent.

August 12: Erythrocytes, 3,860,000; leukocytes, 21,500; hemoglobin, 75 per cent. Differential count: Polymorphonuclears, 72 per cent.; small lymphocytes, 17 per cent.; large lymphocytes, 6 per cent.; eosinophils, 2 per cent.; transitionals, 3 per cent.

August 16: Leukocytes, 29,000.

August 17: Leukocytes, 31,200. Differential count: Polymorphonuclears, 80 per cent.; small lymphocytes, 16 per cent.; large lymphocytes, 2 per cent.; transitionals, 2 per cent.

August 18: Leukocytes, 32,400; numerous myelocytes appeared.

August 20: Leukocytes, 62,400 on day of death.

Urine: This was negative on entrance. August 10, a trace of albumin appeared. Later this increased somewhat, and a few hyaline and granular casts were found.

Sputum: Macroscopically this was always light colored, frothy, and contained large quantities of mucus. Small, flaky particles were suspended in this mucus. Microscopically it had the appearance of ordinary sputum, but in addition contained the aforementioned double contoured bodies. These organisms were easily demonstrated by mixing the sputum with a 4 per cent. potassium hydroxid solution. They varied in size from 3 to 50 microns, and were always circular with a distinct double refractile cell membrane, varying in thickness according to the size of the organism. No budding types were observed, but many organisms containing endospores were found. Some were seen in the process of rupturing and others were empty (Fig. 2). The sputum was repeatedly stained for tubercle bacilli with negative results, but in this process the cell membranes of the coccidioidal organism were found to be acid fast, making a marked contrast to the rest of the blue field. Evidently only a small number of fully developed forms took the stain, for far greater numbers were found by the potassium hydroxid method.

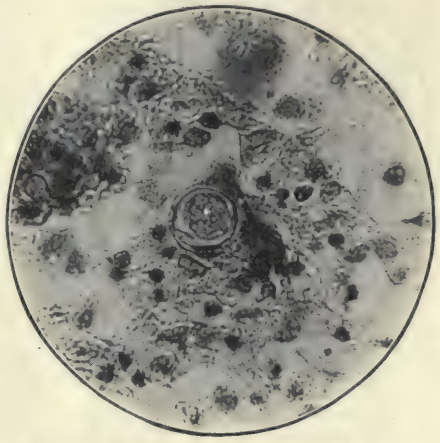


Fig. 3.—Double contoured body in granulomatous tissue from excised nodule; × 1,000.

Sections from the nodules excised from the calf muscles, August 13, had the appearance of tuberculous granulomatous tissue. Numerous giant cells were found. Typical double contoured bodies of various sizes, similar in every respect to those observed in the sputum and in the abscesses, were noted within the giant cells as well as outside of them (Fig. 3). No budding forms were discovered after painstaking search.

A nodule was submitted to Dr. Charles Klenk for bacteriologic examination. Cultures were made by him on glycerin and plain agar and in bouillon and grown at 30 C. (86 F.). Within twenty-four hours a profuse, homogeneous, grayish-white growth almost completely covered the solid medium. As the cultures became older, aerial hyphae were apparent at the edges. Microscopically, the growth consisted of branching mycelial threads with club shaped endings. At the bottom of the bouillon culture, after about a week, flaky globular bodies about the size of a small cherry and covered with fine villuslike projections were found, waving in the medium. The bacteriologic findings agreed absolutely with those described by Wolbach,[5] Ophüls[4] and others. Material from an agar slant was injected into the back of a guinea-pig intradermally. A nodule developed and increased gradually in size until at the end of three weeks it was as large as a small walnut. It fluctuated and involved the skin and subcutaneous tissue. This tissue was removed under aseptic precautions. Sections revealed numerous double contoured bodies (Fig. 4), similar in all respects to those found in the original tissue. Cultures were identical with those from the patient's nodules.

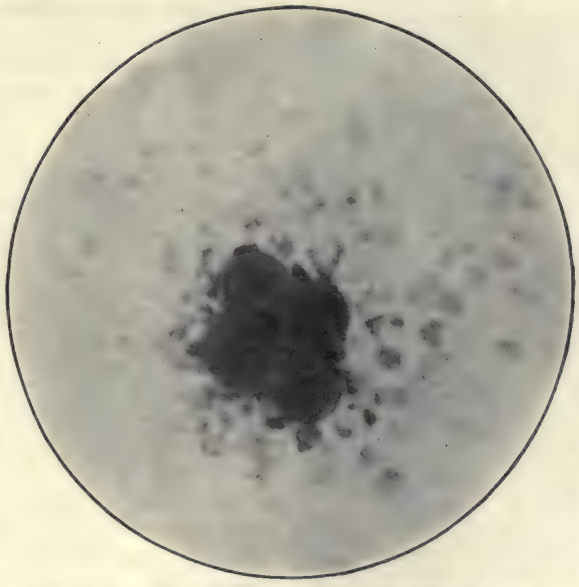


Fig. 4.—Pus from abscess in nodule excised from guinea-pig; × 1,000.

From the clinical and pathologic findings this can readily be classified as an undoubted case of coccidioidal granuloma.

COMMENT

While this case is similar in most respects to those previously reported, it is different to the extent that its duration was shorter than that of any case we have found reported in the literature.

While most of the other cases were characterized by an irregular temperature and a very moderate leukocytosis, here we had a high, sustained fever and a marked leukocytosis.

As the disease progressed, the nodules grew smaller, and a walling-off process appeared to take place. This would tend to show that some healthy reaction was going on in the region of these focal lesions. At the same time, however, the pulmonary involvement progressed rapidly, taking on the characteristics of an active bronchopneumonia, and was most probably an active factor in the fatal termination.

This condition, both clinically and pathologically, closely simulates tuberculosis in many respects.

Coccidioidal granuloma appears to be more rapidly fatal than systemic blastomycosis. In our case, the treatment recommended for blastomycosis was of no avail.

Excepting for one or two cases reported to have been treated successfully by surgical measures, such as early amputation, this disease does not appear to be amenable to any form of treatment.

601 Metropolitan Building.

Memorial to Finlay.—A bust of Dr. Charles J. Finlay was unveiled recently at the central headquarters of the national public health department at Havana, Cuba. He first suggested the possibility of the propagation of yellow fever by means of the mosquito. This was in 1881, and for twenty years he strove to convert others to this theory but without success, no scientific authority accepting the insect transmission of disease until the American Commission established the fact beyond question in 1901. The memorial has been erected by subscriptions from the physicians, pharmacists, veterinarians and nurses of Cuba and the officials of the Cuban national public health department. After paying over $2,500 for the bust, a surplus was left of over $1,000, which was presented to Finlay's widow. The French Académie des Sciences divided the Bréant prize between Finlay and Agramonte a few years ago, and their names have been proposed as candidates for the Nobel prize in medicine. The organization of the national public health department is largely Dr. Finlay's work. He succeeded Dr. Gorgas as chief health officer of Cuba in 1902. Finlay was a native of Cuba, but studied medicine at Jefferson Medical College, Philadelphia. His chief articles in support of mosquito transmission of yellow fever appeared in 1886 and in 1894, and he waited patiently and with confidence for the world to accept his views.

CANCER OF THE LIP

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DENVER

Cancer is common in the lower lip, and infrequent in the upper; it is common to men, infrequent in women, and rarely occurs in the young. Therefore, we must associate it with the occupations and habits of men chiefly.



Fig. 1.—First step of operation.

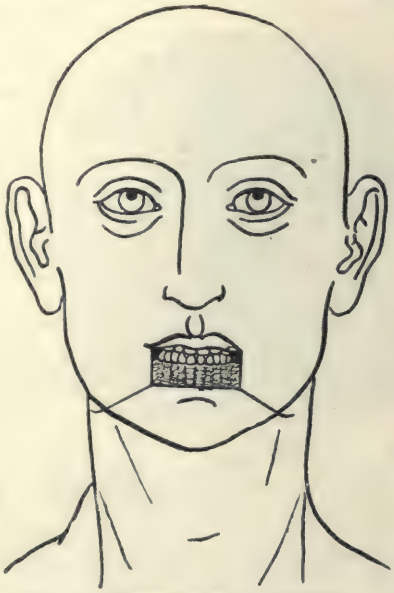


Fig. 2.—Second stage of operation.

As to etiology, we are unable to affirm, or to deny, a specific germ. The germ theory is not inconsistent with injury as a predisposing causal agent. Observation and experience teach its intimate and frequent association with trauma. Cancer does not originate in healthy tissue. Weakened, nonresistant tissue, under such favoring conditions as scar tissue, and fissures and ordinary ulcers, whether due to chemical rays or to persistent local irritation, invite it. The lips, mouth and tongue are always exposed to irritation and infection from a variety of sources — ragged teeth, the pressure of a pipe stem and the constant irritation of tobacco. Eliminating the specific ulcers, and this is not difficult, one should look with suspicion on every persistent ulcer of the lips, whether in the form of a crack or fissure or the ordinary looking superficial ulcer. As in every other part of the economy, early diagnosis is of the utmost importance, for the simple and unanswerable reason that it determines the prognosis. No one is justified in delaying action for serum tests, therapy or refined laboratory investigations, to corroborate or determine the probable diagnosis of cancer of the lip. Sight and touch, with the clinical history, are usually sufficient. A hard ulcer base, without even manifest glandular involvement, is always suspicious and significant. I know of no department of surgery which taxes more severely the skill, nice sense of proportion, harmony and delicate technic than plastic work of the mouth and face.

Early radical excision gives the only promise of permanent relief. It is cruel to torture a patient with caustic pastes, and it is inviting disaster to rely on the Roentgen ray, unless as a postoperative prophylactic measure. Both these agencies will cure a certain number, or class, of superficial ulcerations, but both are also dangerous irritants. Glandular involvement is not always early, even in malignant ulceration, and this explains why, in such cases, the cure may be permanent without the removal of glands. The basal cell forms the basis of these cases. The prickle cell is more malignant and rapid in action. It is well established, however, that any operative procedure, short of *complete* extirpation, does more harm than good. In a well established or extensive ulceration with glandular involvement, the Roentgen ray may eventually induce more rapid extravasation and metastasis, and any local irritant will do the same thing. If the disease is located between the middle and the corner of the mouth, the glands on that side will be first infected, and for a time the infection will be limited to that side. If the ulcer is in the center of the lip, and also as it approaches the center from the side, the submental glands will be affected, in keeping with the distribution of the lymphatic vessels.

The removal of the diseased lip should be the *first* step of the operation, to avoid the danger of soiling the clean-cut tissues by the discharge from the ulcerated tissue. The submaxillary glands and lymph nodes are the receptors and distributors of the virus through the lymph vessels. The sooner the diseased mass (the origin of the infection) is removed, the less the danger of distributing the virus by the manipulations incident to the operation. The reasons given by some writers for reversing this order are not tenable. The excision of the diseased lip is done usually in one or two minutes, while the extirpation of the glands is a slow and often tedious process, if thoroughly done.

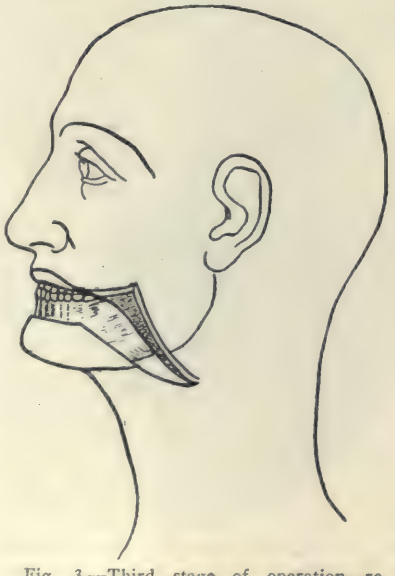


Fig. 3.—Third stage of operation—removal of glands.

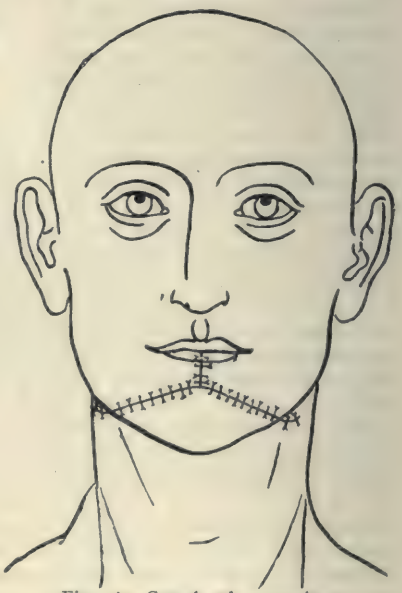


Fig. 4.—Completed operation.

Safety demands wide excision and as complete removal as possible, of submaxillary glands and lymph nodes, regardless of evidence of their being involved. In the hands of most operators who have devised methods of procedure, the incisions for flap formation are independent and distinct from those for the removal of the glands. This is unnecessary. The V



Fig. 5.—For widening mouth: first step: mucous membrane ready for dividing in middle line.

incision is a tradition; it should have no place in modern surgery, unless in a very small growth in a large mouth, for with its broad base and apex in healthy chin tissue, it inevitably results in a sucker mouth. Besides, the stable chin tissue is necessary and most important for the fixation of mouth flaps.

The semilunar incision is objectionable even in small superficial ulcers, for it leaves a depression at the site of the disease, and when half or more of the lip is excised, it, like the cuneiform operation, is not the most satisfactory condition for the making of efficient flaps in the construction of a mouth. No operation which leaves ugly and needless scars is ever desirable, and this is especially true of the face. That operation is best which involves the fewest incisions necessary for complete work, and replaces the diseased lip by soft elastic tissue, resembling the original as nearly as possible, with the least disfigurement, and best cosmetic results.

The stationary chin tissue is of great importance as a point of fixation for the sliding flaps which constitute the reconstructed mouth. The chin flaps of Langenbeck, Esmarch, Kowalzig, Blasius, Volkmann, Serre, Celess, Syme, Buchanan, and Morgan are all objectionable for the reason that this hard inelastic tissue is not suitable, and a further objection is the absence of mucous membrane, which is not conveniently supplied. The Morgan operation (Esmarch, Kowalzig, Regnier operation, Binnie) are the same in technic. The chin flaps framed in this way tend to retract and drop downward, with entropion of the lip and dribbling of saliva. The cheek flaps of Bruns, Estlander, Sedilot, Diffenbach, Trillat and Trendelenburg are needlessly mutilating and disfiguring, and always endanger Stenson's duct. The sliding chin and cheek flaps of Sutton, Nélaton, Ombredanne and Stewart have no fixed base and are objectionable for the same reason. In the Morgan operation the divided elliptic space beneath the jaw is closed partly by stitches, grafts and granulation tissue. These chin flaps do not make a mobile mouth.

I may be pardoned for again expressing the opinion that the best operative procedure for the reconstruction of the mouth involving one or both lips is the one which I devised, and first described[1] in 1899, and again more elaborately[2] in 1905.

AUTHOR'S TECHNIC

The growth is excised by rectangular incisions, the base uniting the two vertical incisions being ordinarily in the depression, or crease, between the apex of the chin and the lip. From the two inferior angles of the wound, incisions are made obliquely downward and outward, dividing all tissues, including the mucous membrane, and crossing the maxillary line at a point about equidistant between the angle of the maxilla and the symphysis, and then carried backward beneath the maxilla as far as may be necessary to permit the easy removal of glands, and at the same time afford good flaps for the mouth. Stenson's duct is never cut. The operation is repeated on the opposite side and all glands are cleaned out, the submental, by a vertical incision between the anterior belly of the digastric muscles.

The cheeks are then separated from the maxilla, at least as far as the masseter muscles if necessary. The facial arteries are cut, but the parts are vascular and the blood supply ample. The flaps are then brought forward and first united to each other with silkworm gut, in the middle line. If flaps should be too broad to fill the space accurately, they can be retrenched from the inferior border. If there is much tension, a mattress suture is inserted and tied over gauze. This removes undue tension from the middle suture line.



Fig. 6.—Completed operation for widening the mouth.

Stitches of silkworm gut or a running stitch of chromic gut are next applied to the laterial incisions. They should include the entire thickness of the cheek. If half or more of the lip is removed and the mouth does not now admit, without stretching, three fingers of the hand flat, then the mouth is enlarged by an incision backward and slightly downward, from each angle of the mouth, usually from one-half to

1. Grant, W. W.: Med. Rec., New York, March, 1899.
2. Grant, W. W.: Operation for Cancer of the Mouth, THE JOURNAL A. M. A., Sept. 30, 1905, p. 962.

three-fourths inch in length, down *to* the buccal mucous membrane, and the latter separated from the overlying tissues above and below the incision to the extent of half an inch. The lip above and below is now beveled from the inner border of the incision in order to facilitate easy covering of the lips by the mucous membrane, which is *now* divided with scissors in the middle line, nearly to the angle of the skin incision, and united to the skin by a running stitch of chromic gut. (Figs. 5 and 6).

When it is necessary, from the extent of lip removed, to employ this additional procedure, the levator angulae muscles are divided, and in consequence, the upper lip will tilt slightly for two or three months. While this is not a serious matter, being opposed by the depressors, still I am in the habit of cutting away a small wedge of skin and muscle from the upper side of the wound, with the apex at the angle of the mouth, in order to limit this temporary inconvenience. Further to control the action of these and the superioris muscles during the healing process, I apply a strip of adhesive plaster from cheek to cheek across the upper lip. The levators may be put out of action temporarily by subcutaneous division.

A small rubber drain is inserted from the posterior angle of each lateral incision beneath the maxilla, and a T drain through the submental incision into the mouth, under the tip of the tongue. The T end rests behind the incisor teeth, and the outer end is fixed by a safety pin. This drain is especially important, and limits the soiling of the wounds. Without it, saliva and mouth and throat secretions would constantly bathe the lip and wounds, and might interrupt prompt and satisfactory healing.

Though the upper lip is seldom affected by cancer, the same principle and operative technic will apply that has proved so satisfactory in the lower lip. Rectangular incisions for removal of the growth, and oblique incisions upward and outward for the formation of flaps, will satisfactorily meet the indications and necessities of the case. If the triangular shaped flaps thus formed are united while being held in downward traction, and at the same time stitched to the fixed tissue beneath the maxillary spine, the short upper lip frequently observed will not result, and this procedure, I may add, will prevent the short, concave lip so common after the ordinary harelip operation.



Fig. 7.—Width of lip excised, seven-eighths inch. In tumor, or disfigurement, the oblique incisions, upward and outward, with triangular flaps, detached from maxilla, will restore the lip to normal proportions without wrinkling of the skin, or short upper lip.

In the ordinary operation, all glands can be removed and flaps perfected through the same incisions. The new lip tissue is the most suitable for the purpose, thick, soft and elastic, presenting a good appearance and mobile lips. In the lower lip there is not a cicatrix above the angle of the mouth, and there is not a denuded surface in the whole operation to be healed by skin grafting or granulation. The cosmetic results are the best attainable. If the growth is distinctly to one side of the mouth, it follows that the flap from the opposite side will be longer than the one from the diseased side. It makes no difference, therefore, whether or not the flaps meet in the middle line. Covering of flaps and vermilion border with mucous membrane is essential to prevent disfiguring contraction.

POSTOPERATIVE TREATMENT

No condition probably requires more attentive and skilful after-treatment. The first dressing should be changed in from twenty-four to thirty-six hours, and repeated at these intervals for a week. At such time, the mouth should be irrigated through the T tube as well as the mouth, with warm boric acid and normal salt solution. The patient should be nourished with liquids through a feeding tube until the stitches are removed, after a week or ten days.

I emphasize some of these details because the mouth is never aseptic (if at all, but a short time) under *any* conditions, and in cancer is never clean.

Postoperative treatment often determines the measure of our success in many conditions, and in none does it produce more satisfactory results than in cheiloplastic work of mouth and face.

HEMOGLOBIN ESTIMATION *

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NEW YORK

Every clinician and surgeon recognizes the importance of hemoglobin estimation in affording valuable additional data in the diagnosis of certain diseases and conditions. By means of such blood examinations, the progress of the patient's condition can be watched from time to time during the treatment of the disease. In blood transfusion work its useful application has been shown by Libman and Ottenberg.[1] They recommend an easy working formula using hemoglobin estimation and body weight for calculating the amount of blood necessary to raise the hemoglobin of the recipient to a certain percentage. Blood taken from a donor can be calculated in the same manner.

The value of a reliable and convenient clinical method is obvious. An ideal clinical method should be one easy of manipulation, accurate, rapid and, if possible, utilizing an instrument both portable and inexpensive. The estimation of hemoglobin is obtained in several ways: first, directly, (*a*) photospectroscopically and (*b*) colorimetrically; second, indirectly, (*c*) by estimation of iron, and (*d*) by estimation of oxygen.

The photospectroscopic method is the best and most exact, but for general clinical purposes it is unpractical, the price of armamentarium being prohibitive. The chemical methods in use at the present time have found less favor than the colorimetric. The various methods for hemoglobin estimation described in textbooks and taught in our medical colleges are colorimetric. The following synopsis of these methods comprises a short description and comments on procedure:

Talqvist's is the simplest, but has an error of from 15 to 30 per cent. It is performed with blotting paper, which is saturated with a drop of the patient's blood and this compared with a standard color chart.

In the Oliver, Dare and Fleischel methods, the blood is compared with a changing standard of color disks or to a movable wedge of colored glass. These

* From the Pathological Laboratory, Department of Physiological Chemistry, Mount Sinai Hospital.

1. Libman, E., and Ottenberg, R.: A Practical Method for Determining the Amount of Blood Passing Over During Direct Transfusion, THE JOURNAL A. M. A., March 7, 1914, p. 764.

methods require the reading to be made in a dark room by candle light, and when the standard color matches the blood, the percentage is read off directly on the scale. It is very difficult to match the color above 80 and below 40; therefore these limits should be considered. An inexpensive and convenient method is that of Gowers, the blood being simply diluted with water drop by drop in a small calibrated tube, until it matches a standard color tube. The percentage is read off directly by noting the height on the scale, to which the meniscus of the fluid has risen. Two color standards, one for artificial light and one for daylight, are necessary; but on account of the colors fading very rapidly, Sahli had modified this method by using tenth normal hydrochloric acid to reduce the hemoglobin to hematin and substituting Gowers' two standards by one standard of hematin. Haldane allows carbon monoxid gas to bubble through the blood used for the test before diluting and compares it to a standard of carbon monoxid hemoglobin. The Sahli I have found most convenient as a clinical method, but the color standard tube gradually fades, and I have seen dense deposits form in some tubes, thus making them worthless as a standard.

The calibrated tubes of the Sahli-Gowers hemoglobinometer hold about 2.5 c.c., and are marked from 10 to 140. Fifty such markings represent 1 c.c. The tubes on the market are not all uniform, either in their markings or caliber. Of those which I examined, some measure 6, 7 or 8 mm. in diameter, permitting very serious discrepancies in the final readings. If a standard color tube has been made of one measuring 8 mm. in diameter, and the calibrated comparison tube measures only 7 mm. in diameter, there would be a difference of 1 mm. As the color intensity varies directly as the square of the radius of the vessel containing it, there would be a lack of uniformity between the calibrated and the standard tube. The difference would not be one seventh or one eighth, which is from 12 to 14 per cent., but in reality from 25 to 33 per cent., because the square of the radius of $7 = 3.5 \times 3.5$, or $12\frac{1}{4}$; and the square of the radius of $8 = 4 \times 4$, or 16. Again, if a tube measuring 6 mm. and another of 8 mm. were used conjointly, the error would, of course, be still greater. This is an important source of error, and when coupled with a faded color standard, vitiates the result still further.

I have endeavored to remedy these defects by having made for me both the calibrated and standard color tubes[2] of uniform size, and have substituted a solution of inorganic salts which is more stable and can be used by artificial light as well.

Another factor in making readings is the personal element. Some eyes are more rapidly fatigued than others, and in having the tubes so far apart as in the Sahli hemoglobinometer, it is rather difficult to compare their contents. I have devised an improved instrument which has already been described[3] as a pocket microcolorimeter.[4] It contains a small window with a prism producing the optical effect of bringing the two observation fields in close proximity, thus facilitating the color comparison.

A factor generally neglected is the change of the plasma and blood volume, and the influence which this may have on the hemoglobin estimation. I made some such observations on patients every hour for a period of five successive hours, beginning before breakfast, some patients being in a reclining position throughout the observations. There was more or less fluctuation, in some cases as much as 25 per cent., in others 7 per cent. The readings of one case, for instance, were 114 per cent. hemoglobin, then 104, 96, 84 and 88. In another case less fluctuation occurred: 98, 96, 94, 90 and 95 per cent. Whatever the cause of these fluctuations may be, it is more probable that a change in the plasma volume has taken place, instead of there being a rapid destruction and reproduction of erythrocytes and hemoglobin. If according to Keith, Rowntree and Geraghty[5] the blood volume is one twelfth of the body weight, then an individual weighing 120 pounds should have 10 pounds of blood, about 5,000 c.c. Reckoning 15 gm. of hemoglobin for 100 c.c., this would make about 750 gm. in the total blood. Quincke has estimated the life of a red cell to be about thirty days. If this is so, then about one thirtieth, or 3 per cent., of the total red cells are destroyed in twenty-four hours, which in this instance is about 25 gm., being approximately 1 gm. per hour of the total blood containing 750 gm. This would be only about a little over 0.1 per cent.

Boycott and Douglas[6] found an increase in blood volume after injection of only 4 c.c. of dextrose solution in the ear vein of normal and nephritic animals. In the latter the increase was slower and subsided more slowly than in the normal animals. Cohnheim[7] found that capillary blood in comparison with that of the arterial trunks had fewer erythrocytes, the proportion varying with their width and the rate of the blood flow. Starling[8] states that Oliver[9] has shown that lymph in the finger increases after a meal by calculating the difference in the number of corpuscles per cubic millimeter before and after compression, the number of corpuscles before compression decreasing and the number of corpuscles after compression increasing after a meal. Keith, Rowntree and Geraghty[5] found differences in total blood and plasma volume when comparing various normal and diseased individuals. The total blood according to their investigations proved to be about one twelfth of the body weight, or about 85 c.c. per kilogram. The comparative differences between individuals were between 78 and 97 c.c. per kilogram, a difference of 19 c.c., or from 20 to 25 per cent. The plasma volume was found equal to about one nineteenth of the body weight, or about 50 c.c. per kilogram. Variations of the plasma of different individuals were from 42 to 55 c.c. per kilogram, a difference of 14 c.c., or from 25 to 33 per cent.

A. A. Epstein,[10] employing small capillary glass tubes instead of the hematocrit to measure the relative quantity of plasma and corpuscles, found that the plasma volume fluctuated during several successive hours of observation on the same individual.

I have supplemented the hemoglobin estimation in a series of observations by collecting blood in capillary

2. These tubes have been made for me by E. Leitz, 30 East Eighteenth Street, New York.
3. Kuttner, Theodore: A New Pocket Colorimeter, THE JOURNAL A. M. A., July 17, 1915, p. 245.
4. The instrument is now made by E. Leitz, New York.
5. Keith, N. M.; Rowntree, L. G., and Geraghty, J. T.: A Method For The Determination of Plasma and Blood Volume, Arch. Int. Med., October, 1915, p. 547.
6. Boycott and Douglas: Blood Volume in Normal and Nephritic Animals, Jour. Path. and Bacteriol., 1914, xix, 221.
7. Cohnheim: Gesammelte Abhandlungen, Berlin, 1885; Arch. f. d. ges. Physiol. (Pflüger's), 1888, xlii.
8. Starling: Fluids of the Body, p. 75; Principles of Human Physiology, London, 1912.
9. Oliver: Proc. Roy. Soc., June 11, 1903.
10. Epstein, A. A., and Baehr, George: Studies in Experimental Diabetes After Pancreatectomy, Jour. Biol. Chem., 1916, xxiv, No. 1.

tubes according to Epstein's method during five successive hours, and have found similar variations in the relative plasma volumes. The length of the blood column was measured in each of the five tubes after they were sealed at one end, all centrifuged simultaneously; then the plasma was measured, the differences, after calculation, showing parallel fluctuations between hemoglobin content and blood plasma volume, as heretofore mentioned.

It is plain, therefore, that routine methods in vogue at present for hemoglobin estimation do not give us absolute values. It is also incorrect to have a standard equivalent to 100 per cent. for all individuals collectively, as there is no average "norm." Variations not only of the sexes but also for different ages must be taken into account. If the hemoglobin is 15 gm. for a man aged about 30, this would be 100 per cent. for him; but 11 gm. hemoglobin would be 100 per cent. for a child between 4 and 8 years. Only abnormal variations from what would constitute the "norm" of an individual should be considered pathologic.

The hemoglobin and blood count vary in different periods of life,[11] the fetus having less than the adult. A few hours after birth it is the same as that of the mother; then there is a rapid rise for two or three days, when there are about 20 to 21 gm. of hemoglobin to 100 c.c. of blood, which is the highest maximum attained. Then it sinks between the fourth and eighth years to a minimum of about 11 gm. It then rises at the age of 20 to a second maximum of from 13.7 to 17 gm. This is maintained to about the forty-fifth year, when it slowly declines again.

Sahli, making extensive hemoglobin estimations, found wide differences, some of his assistants, for instance, having 17.3 gm. hemoglobin, others 13.7 gm. per hundred c.c. of blood. He, therefore, had a standard tube equivalent to the highest amount which he found in normal individuals, or 17.3 gm. equal to 100 on his scale. He considered 80 as the average, or 100 per cent., and equivalent to 13.7 gm. All estimations made with the Sahli tube must therefore be recalculated on that basis. In looking over the literature, I find that he does not state whether the investigations were made before or after a meal, or the time of the day they were made; neither does he take the blood volume into consideration, these all being important factors.

The standard color tube which I made for use in these investigations is equivalent to 15 gm. of hemoglobin per hundred c.c. of blood, when the color matches this at 100 on the scale of the calibrated tube. It is not necessary, therefore, to make any recalculations. The amount of hemoglobin for any percentage on the scale is then easily calculated by multiplying this by 1.5, having previously pointed off one place to the left. For instance, 80 was the percentage found on the scale; then $8.0 \times 1.5 = 12.0$ gm. hemoglobin. This tube is convenient to work with in research, especially in conjunction with the investigations of iron and oxygen estimation of the blood.

Huffner,[12] Jacquet, Abderhalden and others have found the iron content of hemoglobin from normal blood to be 0.334 per cent., or about 1 mg. iron in every 300 mg. of hemoglobin. This has been confirmed more recently by Butterfield.[13] I have found about 51 mg. of iron per hundred c.c. of blood of normal individuals. If the iron of the serum, which I found to be about 1 mg., be deducted from this and the remainder be multiplied by 300, we get 15 gm. of hemoglobin, which agrees with the hemoglobin estimation very well.

Huffner[14] found as constant binding power 1.34 c.c., or 1⅓ c.c. of oxygen for 1 gm. of hemoglobin. So did Bunsen and Geppert with their oxygen pump. Plesch,[15] in 1907, and later Butterfield[13] confirmed this. Lothar Meyer (1857-1858) found the same binding power of carbon monoxid as that of oxygen for hemoglobin. Other investigators have found that carbon monoxid has a much stronger affinity for hemoglobin than oxygen, completely displacing the latter in oxyhemoglobin. The Haldane tube of carbon monoxid hemoglobin represents about 14 gm. of hemoglobin, and is equivalent to 18.5 per cent. of oxygen. The average percentage of oxygen capacity for normal arterial blood was found to be about 20 per cent. per volume, various investigators reporting from 17 to 22 per cent. Multiplying the number of grams of hemoglobin found in the blood by this factor, 1.34 or 1⅓, the result would be the oxygen capacity of the blood less the small amount in the serum. My tube, according to these calculations, is therefore equivalent to 20 per cent. of oxygen.

The technic followed for hemoglobin estimation is that of Sahli, with the exception of slight modifications. The Sahli instrument has a capillary blood pipet of 20 c.mm. capacity. In some cases of grave anemia the hemoglobin may be so low as to necessitate the use of from three to five times this amount of blood for an accurate determination. The capillary blood pipet No. 2 of the microcolorimeter permits amounts up to 100 c.mm. to be easily taken. It is necessary to use twice the amount of tenth normal hydrochloric acid when using more than 20 c.mm. of blood, but the reading must be divided by 3 or 5, as the case may be. The capillary blood pipet No. 1 is graduated in 5 c.mm. divisions, being half that of the divisions of pipet No. 2, and enables one to measure less blood for cases of polycythemia, and the reading must, of course, be multiplied by 2 or 4, respectively.

SUMMARY

1. Hemoglobin estimation is recognized as being of value in aiding diagnosis of certain normal and pathologic conditions; it is useful in following the progress of the case; it is also of value in calculating the amount of blood necessary for the recipient and the amount to be taken with safety from the donor in blood transfusions.

2. The most convenient clinical method for hemoglobin estimation is that of Sahli-Gower, but grave errors may rise, owing to the fading of the color standard tube, as well as the lack of uniformity of the diameter and graduations of the calibrated tubes.

3. An attempt has been made to obviate these errors by the use of the pocket microcolorimeter described above, comprising uniformly calibrated tubes and employing various stable standard color tubes of solutions of inorganic salts, one of these tubes being identical with the acid hematin color. This tube is equally adapted to artificial light and to daylight.

11. Compare Hammersten, O.; Leichtenstern, and Jaquet, A.: Bibliothek der gesammten medicinischen Wissenschaften, Vienna and Leipzig, Dr. A. Drasche, 1896. Williamson, C. S.: Influence of Age and Sex on Hemoglobin, THE JOURNAL A. M. A., July 24, 1915, p. 302.
12. Huffner: Ztschr. f. physiol. Chem., 1878, i, 317, 386; Arch. f. Physiol., 1894, p. 130, and Jacquet: Arch. f. Anat. u. Physiol., 1894.
13. Butterfield: Ztschr. f. Physiol. Chem., 1909, xlii, 143.
14. Huffner: Arch. f. Anat. u. Physiol., 1901, supplement.
15. Plesch: Ztschr. f. exper. Path. u. Therap., 1907, iv.

The color comparison can be made with greater facility and accuracy in the microcolorimeter because of the small window and prism arrangement.

4. The standard contains the equivalent of 15 gm. of hemoglobin per hundred c.c. of blood, this being the average amount found in normal individuals.

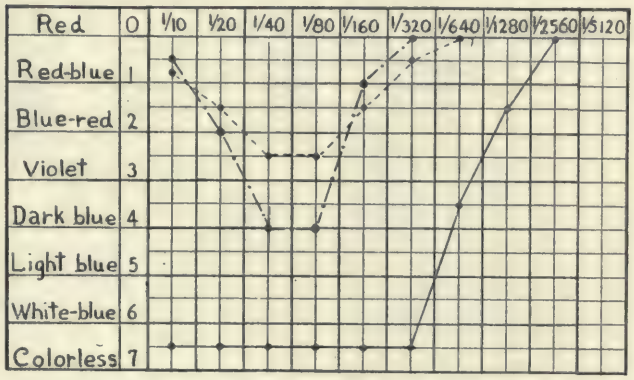
5. This standard reads 100 per cent. directly, instead of 80 being considered 100 per cent., as in the Sahli color tube, thus avoiding the recalculations necessary with the latter's hemometer.

6. Several constants for hemoglobin have been established by various investigators: (*a*) It is constant photospectrometrically; (*b*) its iron content is 0.334 per cent., or 1 mg. per 300 mg. of hemoglobin; (*c*) it combines with oxygen in the proportion of 1 gm. of hemoglobin to 1.34 c.c., or about 1⅓ c.c.; (*d*) it has a greater affinity for carbon monoxid than oxygen, the carbon monoxid displacing the oxygen completely in oxyhemoglobin.

7. Certain factors based on the foregoing constants permit of easy calculations when using the author's tube and method, thus: the percentage of hemoglobin having been obtained, it is only necessary to multiply this figure by 1½ to obtain the hemoglobin in grams per one hundred c.c. of blood. The amount of hemoglobin in grams multiplied by 1⅓ would be the theoretical equivalent of oxygen capacity. The amount of hemoglobin found when divided by 300 would be equivalent to the theoretical amount of iron present. Conversely, the amount of iron found in the blood (less the amount in the serum) multiplied by 300 should be equivalent to the amount of hemoglobin present.

8. The most suitable time for the collection of blood for hemoglobin estimation is before breakfast. The change in blood and plasma volume is of great importance. Hourly determinations of hemoglobin show fluctuations synchronous with the fluctuations of plasma volume.

9. Two pipets are used, one being the ordinary Sahli pipet, but graduated in divisions of 5 c.mm. each, the second pipet having five times the capacity but graduated in divisions of 10 c.mm. each, thus obtaining greater accuracy of determinations in cases of grave anemia as well as of polythycemia.



The Lange gold chlorid reaction. The solid line gives the curve of dementia paralytica; the line of dashes, Mongolian idiocy; the line of dots and dashes, tabes dorsalis.

The American Missionary.—Ambassador Morgenthau, who recently returned from Turkey where he had served two years as Ambassador to the Ottoman Empire, has this to say concerning missions and missionaries:

A residence of over two years in Turkey has given me the best possible opportunity to see the work of the American missionaries, and to know the workers intimately.

Without hesitation I declare my high opinion of their keen insight into the real needs of the people of Turkey. The missionaries have the right idea. They go straight to the foundations, and provide those intellectual, physical, moral and religious benefits upon which alone any true civilization can be built. The missionaries are the devoted friends of the people of Turkey, and they are my friends. They are brave, intelligent and unselfish men and women. I have come to respect all, and love many of them.

As an American citizen I have been proud of them. As an American Ambassador to Turkey I have been delighted to help them.—*Baptist Commonwealth.*

THE SPINAL FLUID IN MONGOLIAN IDIOCY *

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In a previous article[1] I presented results which indicated, with a high degree of probability, that the condition known as Mongolian idiocy was one of the manifestations of congenital syphilis. That conclusion was based on serologic tests which were made on the blood serum and the spinal fluid of twenty-one Mongolian idiots. For purposes of reference these experiments are referred to as Series 1. Through the kind cooperation of the officials of the Minnesota State School for the Feebleminded, at Faribault, Minn., it has been possible for me to examine the blood serum and spinal fluid of eighteen additional Mongolian idiots. The results of these tests, which are given in this paper, will be referred to as Series 2.

At the outset it may be stated that the findings in these cases confirm, in almost every particular, the results of Series 1. The technic of the tests in Series 2 was identical with the technic in Series 1. For particulars with regard to this technic, the reader is referred to the previous article. It may be stated, however, that the tests consisted of the Wassermann reaction, as modified by Noguchi, on both the blood serum and the spinal fluid; the cell count, which was made within two hours after the drawing of the fluid; the globulin content, as determined by the Ross-Jones ring test, the Nonne "Phase I" reaction, the Noguchi butyric acid test and the Lange gold chlorid test. The results of the tests are shown in schematic form in the table. The first column of this table gives the number of the case; the second column, the Wassermann reaction on the blood serum; the third column, the Wassermann reaction on the spinal fluid; the fourth column, the cell count; the fifth column, the Ross-Jones test; the sixth column, the Nonne reaction; the seventh column, the Noguchi butyric acid test. The Lange gold chlorid test is indicated by the figures in the last ten columns of the table, which represent the first, second, third, fourth, fifth, sixth, seventh, eighth, ninth and tenth dilutions of the spinal fluid. The degree of the dilutions are indicated in the chart. Seven color changes are distinguished in the reaction. These are indicated in the chart. The color of the original solution is called red. A cipher in the table signifies that there has been no change from the original red solution. The figures under the numbers which indicate the dilution stand for the amount of color change in the gold chlorid solution.

* From the Psychopathic Laboratory of the University of Chicago.

* Owing to lack of space, this article is abbreviated in THE JOURNAL by omission of the case reports. The complete article appears in the reprints, a copy of which can be obtained by sending a stamped addressed envelope to the author.

1. Stevens, H. C.: Mongolian Idiocy and Syphilis, THE JOURNAL A. M. A., May 15, 1915, p. 1636.

It is now clearly established that syphilitic spinal fluids yield characteristic color changes when mixed in certain dilutions with the gold chlorid solution. This test was first described by Lange[2] in 1912. Two constant and characteristic syphilitic reactions occur in this test, namely, the reaction for dementia paralytica, and that for cerebrospinal syphilis. So delicate and constant are these reactions that serologists have come to consider them of greater diagnostic importance than the Wassermann test. The two types of reaction are shown in the chart. The gold chlorid reaction of the spinal fluid of the Mongolian idiots is also shown in the chart. This graph is obtained by taking the average of the reactions of our eighteen cases as they are expressed by the figures in the table. It will be seen from this graph that the reactions are characteristic of cerebrospinal syphilis. An analysis of the results shown in the table indicate that the globulin tests were positive in every instance. These tests furthermore parallel exactly the results of the Lange test. While conclusive proof is still lacking that the Lange test depends on the globulin content of the spinal fluid, the belief that such is the case will be further strengthened by these experiments. With

RESULTS OF EXAMINATION OF BLOOD AND SPINAL FLUID IN MONGOLIAN IDIOTS

Case No.	W. R. Blood	Cerebrospinal Fluid					
		W. R.	Cells	Ross-Jones	Nonne	Noguchi	Lange Gold Chlorid 1 2 3 4 5 6 7 8 9 10
1	Negative	+	1	+	+	+	1 2 3 2 1 0 0 0 0 0
2	Negative	Negative	0	+	+	+	1 1 2 2 2 1 0 0 0 0
3	+	Negative	0	+	+	+	1 2 4 4 4 2 1 0 0 0
4	Negative	Negative	0	+	+	++	1 2 3 3 2 1 0 0 0 0
5	Negative	Negative	0	+	+	+	1 1 3 4 3 2 1 0 0 0
6	Negative	Negative	2	+	+	+	1 1 2 3 1 1 0 0 0 0
7	++	Negative	0	+	+	+	1 1 3 2 1 1 0 0 0 0
8	+++	Negative	0	+	+	+	0 0 2 3 4 3 3 3 1 0
9	Negative	Negative	0	+	+	+	1 2 3 2 1 0 0 0 0 0
10	Negative	Negative	30 bld.	+	+	+	0 1 2 1 1 0 0 0 0 0
11	Negative	Negative	0	+	+	+	0 1 1 1 2 1 0 0 0 0
12	Negative	+	1	+	+	+	1 1 2 2 1 0 0 0 0 0
13	Negative	Negative	3	+	+	+	1 1 3 4 1 0 0 0 0 0
14	++	Negative	17 bld.	+	+	+	0 1 2 3 1 0 0 0 0 0
15	+	Negative	1	+	+	+	1 1 2 3 1 0 0 0 0 0
16	Negative	Negative	1	+	+	+	2 4 3 1 1 0 0 0 0 0
17	+++	Negative	2	+	+	+	1 2 3 3 1 0 0 0 0 0
18	Negative	Negative	0	+	+	+	0 1 2 1 1 0 0 0 0 0

the exception of two fluids (Case 10 and Case 14) in which blood was present, the cell count was normal. The Wassermann reaction on the spinal fluid was positive in two cases (Case 1 and Case 12). The Wassermann reaction on the blood serum was positive in six cases (Cases 3, 7, 8, 14, 15 and 17). The general results for Series 2 may be summarized as follows:

1. The Wassermann reaction on the blood serum of Mongolian idiots was positive in 33 per cent. (six out of eighteen) of the cases.

2. The Wassermann reaction on the spinal fluid was positive in 11.1 per cent. (two out of eighteen) of the cases.

3. Pleocytosis was present in no case, except in the two already mentioned in which blood was present.

4. The globulin content was increased in 100 per cent.

5. The gold chlorid reaction was present in 100 per cent. of the cases.

6. The color changes of the gold chlorid reaction are typical of cerebrospinal syphilis.

2. Lange: Ueber die Ausflockung von Goldsol durch Liquor cerebrospinalis, Berl. klin. Wchnschr., May 6, 1912, p. 897.

While the serologic tests seem to demonstrate beyond question that this condition is a result of syphilitic infection, it is not, however, to be considered a form of frank cerebrospinal syphilis. The characteristic facies of the Mongolian syndrome and the dwarfing of the body make it appear probable that the syphilis acts primarily on some of the endocrine organs,[3] possibly the pituitary body. Studies of the metabolism of groups of Mongolian idiots show a high degree of sugar tolerance and calcium retention. In order that the hypothesis of ductless gland involvement may be tested out, it would be highly desirable for systematic necropsies to be made on the Mongolian idiots. Careful gross and microscopic examinations should be made, especially of the brain, the hypophysis, the thyroid gland and the suprarenals. A thorough search for spirochetes in the brain and blood vessels should be made. I should be deeply grateful to any one sending me material of this sort.

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THE VALUE OF HEALTH EXAMINATIONS

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A complete physical examination should be made of all employees when first hired and periodically afterward, in order to discover physical defects and to place the men at work suitable to their condition. With the general adoption of the workmen's compensation act, it will be as necessary to examine employees as it is now to examine applicants for life insurance; for, the scope of this act is being so extended that employers, or insurance companies, will become responsible for the injuries of all employees, no matter what their physical condition may be or its effect on the cause of the injuries.

Our industries are in need of a constant supply of labor. As soon as the children are turned out of school, they are absorbed into the mills and factories and put to work at whatever happens to be the first vacancy. Their ability to do this work is judged by the shop foreman, entirely by their outward appearance. If they were examined by a physician instead, many catastrophes similar to this case of mine would be saved:

A big, broad-shouldered boy, the picture of health and strength, but ignorant of his true physical condition, was hired with the remark that "he should be able to lift a house and was just the man wanted for carrying heavy material in the shop." What is the medical history of this boy? Three years ago while at school, he had an attack of rheumatic fever with a resulting endocarditis, leaving a mitral regurgitation that would be satisfactorily compensated if he lived a regular, careful life. He did his work for a few months, but noticed that he had slight pains about his heart and that his breath was getting short; but, thinking that he could fight it off, he doggedly persevered at the work, until now he is in bed with broken compensation, and it is a question if he will ever work again.

There are hundreds of similar cases in which men with serious heart lesions are stoking fires, lifting weights or doing other laborious work merely because

3. Van Der Bogert, Frank (Congenital Syphilis, Simulating Mongolism, in One of Twins, Am. Jour. Dis. Child., January, 1916, p. 55), reports a case of family syphilis in which the first child was a typical mongol; the second apparently normal; the third and fourth twins, of whom one was mongoloid in form, the other apparently normal.

they are totally unaware of their danger. Persons with lung trouble are working in dusty, gas-filled factories, and they will continue on their feet until absolutely forced to give up, when their condition may be beyond recovery. So it is with other organic troubles. The men do not know they are in poor physical condition, and when they do find it out, their disease has markedly progressed, their life is shortened, and they become a burden on their families or the community.

When man lived, labored and was supported by his own farm, he could do the work that he found by experience best adapted to his strength and physical limitations. Such men lived useful lives even though they were in poor condition. But today, the necessities of life in cities drives all men to work regardless of their condition. They must get a job, and they usually take the first they find and fight their hardest to hold it. They know what a hardship it is to be out of employment, and the thrill of fear which comes when there is a possibility of discharge. The danger of ever-present want forces them to hold their position at any cost and to work until they drop. Foremen do not care what the physical condition of the men may be. They are there to get results. The unfortunate cardiac who has given the best years of his life to an industry, and is now suffering because his early strength has been sapped by its labors, daily dreads to hear that curt, rasping command of his superior: "This factory is not a hospital. Do your work or get out. If you can't work, go to the cashier, get your pay and go home." Industries are heartless. Most have not the slightest humanitarian principles. But the case of the employee is at last being brought before the attention of the public by the advent of social legislation.

The solution of the problem is to classify our workmen according to their physical condition so that they can be given work which will not injure them. It is said that this will force a large number of men out of a position or make it impossible for them to get work. Yet, if a man is found to be physically unfit for the type of work he is attempting to do, it would really be better for him to be without that work than to remain in the position and finally lose not only the position but also health or even life.

What happens to our workmen when broken down by the industries? The general hospitals are crowded with its acute and chronic cases; tuberculosis camps and sanatoriums as well as the almshouses have their share; public charities care for families, and those who remain at home, semi-invalids to die an early death, are a heavy burden for wife and children. These conditions are largely due to the blind ignorance of our industries of the necessity of a knowledge of the workman's physical condition which would prevent the present reckless waste of good human material. In the needless death of an employee, we have not only the pain and distress to his relations but also an economic loss to society in general. The family has lost its source of support; the city and state, the money expended for education and general welfare; and the industry, a workman.

The first step in the protection of the workman was taken in the adoption of the workmen's compensation act, the most advanced social legislation of this generation. This act aims to charge to an industry the cost of the hazards of that particular industry. The law differs in some states as to who shall derive benefits from it. The Massachusetts law is very broad in its wording, for it states that all shall derive benefit who suffer "personal injury arising out of and in the course of his employment." [1] It does not confine the employee to "personal injury *by accident,*" as in the case of the English law and that of some of our states.[2] Until recently, traumatic accidents formed the largest part of its jurisdiction. Now it takes on a still broader significance because of the recent decision of the full bench of the Massachusett's Supreme Court in the case of Mrs. M.: [3]

Mrs. M., an employee in a carpet factory, was seized with an attack of angina pectoris while pulling on a carpet. The Massachusetts Industrial Accident Board decided that she received her injury "in the course of her employment" and was entitled to compensation. The full bench of the supreme court upheld the decision, and its report, quoted in part, said:

"It has been argued on behalf of the insurer that since the harm to the employee was not wholly the effect of the work, but came in a large part from the previously weakened condition of the employee's heart, hence, either there can be no award of compensation, or it should be restricted to that part of the injury which resulted directly from the work, and the part of the injury which flowed from the previous condition should be excluded. The act makes no provision for any such analysis or apportionment. It protects the employees with exceptions not here pertinent.

"There is nothing said about the protection being confined to the healthy employee. The previous condition of health is of no consequence in determining the amount of relief to be afforded. It has no more to do with it than his lack of ordinary care or to the employee's freedom from simple negligence. This act makes no distinction between wise or foolish, skilled or inexperienced, healthy or diseased employees.

"It is a most material circumstance to be considered and weighed in ascertaining whether the injury resulted from the work or from the disease. It is the injury arising out of the employment and not out of the disease of the employee for which compensation is to be made. Yet it is the hazard of the employment acting upon the particular employee in his particular condition of health and not what the hazard would be if acting upon a healthy or upon the average employee.

"Not every diseased person suffering a misfortune while at work is entitled to compensation. The direct connection between personal injury as the result and the employment as its proximate cause must be proved by facts before the right to compensation springs into being. A disease which under any rational work is likely to progress so as finally to disable the employee does not become a 'personal injury' under the act merely because it reaches the point of disablement.

"When a preexisting heart disease of the employee is accelerated to the point of disablement by the exertion and strain of the employment, not due to the character of the disease acting alone or progressing as it would in any rational work, there may be found to have been a personal injury."

Although, judicially this ruling is most clear and concise, medically, difficulties are sure to arise in its application. A man with heart trouble cannot do laborious work without some heart strain which will give symptoms while at work. A physician must admit that a man's disability might have come from some particular effort that the man alleges he made, and if so, compensation would be allowable. The court cautions that "a high degree of discrimination must be exercised to determine whether the real cause of the injury is the disease or the hazard of the employment." [3] The application of this ruling is liable to

1. Massachusetts compensation act.
2. English compensation act.
3. Madden's case, Mass. 222.

mean that every such case must be decided on its own merits, and it will cause a return of the conflicting medical opinions and bitter controversy, so common in civil cases but now absent in the administration of the act. There is also a danger of opening a new field to unscrupulous malingerers who, knowing they have an organic trouble, will produce an injury and attempt to seek benefits under the act.

A complete physical examination of the employees on hire, and then periodically afterward, with classification for work according to the results of this examination, will remove these difficulties. Men would not then be doing work for which they were physically unfit, and better protection would be granted both the insurer and the employee. At the Ford factory in Detroit, there were 11,845 men hired during the past year, given a thorough examination and placed at work that would not be detrimental to their health.[4] Very few applicants were rejected because of their physical condition. The possibilities of hiring men that might be a poor risk for any work, but who would be accepted for employment if they were exempt from the full provisions of the act, the treatment of old employees who have been broken down at their work, and the numerous other problems which at once arise in the application of the act can be solved only by the new rulings or special legislation.

Physical examinations will be a great benefit to the employee, other than from the standpoint of the compensation act, in discovering the start of a disease which might be unknown to the employee, and in his receiving early warning and advice. In tests made by the Life Extension Institute of New York, it was found that a remarkable percentage of men showed physical defects. The examination of a group of the employees of banks and commercial houses, who as a whole are temperate, intelligent and well nourished, was compared with a group from the Ford Motor Factory, with the results given below:[5]

COMPARISON OF 1,000 INDUSTRIAL AND COMMERCIAL EMPLOYEES

	Detroit, Ford, Industrial	New York City, Commercial
Average age, years	32.7	27.
Percentage passing a perfect examination; no physical impairment found and no advice for correction of living habits needed	.00	1
Percentage referred to physician for treatment	69	81
Percentage of those aware of impairment who were referred to a physician	10.15	11.54

Every disease has a start, and it can be cured or its progress checked in its early stages. The Life Extension Institute has taken up this work, and is bringing to the notice of the general public the necessity for early recognition of disease by periodic examinations. In the industries in which health examinations are made, there has been an increase in the morale of the plant and the operating efficiency. The employees are kept in good physical condition, and there is less loss of time of trained men and hence no disruption of the organization. The long bitterly fought war against typhoid, malaria, tuberculosis and the other communicable diseases has resulted in a great victory. Why shall we not be just as successful in this new campaign to check all diseases in their incipiency?

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4. Ford Times, January, 1916, p. 272.
5. Fiske, E. L.: Increasing Mortality in the United States, New York Med. Jour., Jan. 15, 1916.

ETHER: SIMPLICITY IN ITS ADMINISTRATION *

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The normal anesthetic state should closely resemble natural, physiologic sleep, and any departure therefrom may with safety be assumed to be due to the improper selection of the anesthetic agent, to faulty technic in its administration, or to the improper preparation of the patient for anesthesia. Accumulated evidence, derived from observation and study, is of practical importance in anesthetic work as in other branches of medicine, but, unfortunately, as in other branches of medicine, many clinical manifestations are interpreted to suit the preconceived notions of the observer. Personal points of view are of value in proportion to the experience, comprehensive grasp and unbiased mentality of the individual possessing them.

It is unnecessary to justify, much less to excuse the position I take with reference to simplicity in anesthetic work, simplicity in appliances, simplicity in technic and simplicity in the administration of drugs to produce the anesthetic state. When ether was first used as an anesthetic agent, it was generally supposed that it was necessary to exclude all air, and consequently various cones were made which fulfilled their mission. In my early anesthetic experience as an intern, closed metal cones containing a sea sponge were used. About a fourth of a pound of ether, or an amount sufficient to saturate the sponge, was poured into the cone. Later, cones were made of paper folded with a towel, and absorbent cotton was used instead of the sea sponge, but always with the same idea that practically all air must be excluded. During the period of no-air ether anesthesia, many more or less complicated devices for etherization were made and used in the larger and better equipped hospitals. Then followed the blessed era of the open method of etherization which is now so generally employed. Were there no other advantages than the comfort to the patient during the induction period, one would not only be justified in using the open method but should be compelled through humanitarian instincts to do so. Compare the easy, quiet manner in which a patient falls asleep when given a dilute vapor, with the strangling, suffocation and struggling which takes place when a closed method is employed.

THE OPEN METHOD

Ever since its introduction I have used the open method of etherization, which may be briefly described as follows:

A 4 or 8 ounce can of ether, the size depending on the estimated time required for the operation, is fitted with a cork, into the opposite sides of which two V shaped grooves of unequal size are cut. In the larger of the two grooves is placed a wick of cotton which reaches nearly to the bottom of the can and extends about an inch beyond the cork. If the cork and wick are properly arranged, a full, steady drop will be secured. The rate of drop can be controlled by the angle at which the can is tipped. A cone covered by two layers of fairly fine, closely woven stockinet, or its equivalent in gauze, is used.

* Read before the New York Society of Anesthetists, Feb. 21, 1916.

In all operations except those about the head and neck, the patient is anesthetized in the following manner: The eyes of the patient are covered by a pad of wet cotton. He is now told to breathe naturally, and the anesthetic is begun. If told to take deep full breaths, more oxygen is taken in than is required, and as a result, after a few inhalations, breathing is suspended until the need of oxygen is felt. When the patient starts to breathe again, he usually attempts to take a full breath and has a sensation of suffocation which causes him to struggle unless the cone is lifted from the face, allowing a generous supply of air. The contrary is true if normal breathing is carried on, narcosis developing along the lines of natural sleep. At the beginning of anesthesia, the mask is held away from the face while the ether is slowly dropped on various points. As the patient becomes accustomed to the odor, the mask is gradually lowered until it rests on the face. In a few minutes a piece of gauze is placed around the mask to shut out the air which passes under it. As much air should be allowed as is consistent with narcosis. When the cone cover is too thick, as, for example, when two layers of stockinet and ten or twenty layers of gauze are used, the method ceases to be open and may be termed the semiclosed method. With the latter technic more ether is required to moisten the cover, and the patient's exhalations to a considerable extent are retained within the mask and are reinhaled.

In mouth, jaw, throat and nose operations, I employ the intrapharyngeal method. I use a very simple apparatus which consists of an electric motor which forces air through a tube extending to the bottom of a bottle containing ether. The vapor is carried through a second tube, which extends just through the stopper of the bottle and is several inches from the surface of the ether. A valve controls the density of the vapor. In other operations about the head and neck what is termed a sterile anesthesia is given. All the anesthetic appurtenances are sterilized, and the anesthetist wears a sterile gown and gloves similar to those worn by the operator and assistants. With this form of anesthesia, there is no danger of wound infection or difficulty in managing the anesthetic, as it makes no difference if instruments, sutures or the hands of the operators come in contact with the anesthetist or his "implements of war."

As soon as the neck muscles are sufficiently relaxed to allow it, the head is turned to the side. This position prevents the tongue from falling back into the pharynx and obstructing respiration. I have found an artificial airway of distinct advantage in short, thick-necked persons, especially when the Trendelenburg position is required. The diaphragm shows the rate, depth and regularity of respiration better than listening to the breathing. A finger on the facial artery where it passes over the inferior maxillary bone keeps the anesthetist informed regarding the circulation.

TEMPERATURE OF THE ETHER

That there is any advantage in warming ether vapor to body temperature has been questioned by such able observers as Sellig,[1] Meltzer,[2] Cotton and Boothby,[3] Bevan,[4] McCarty and Davis,[5] and others. Sellig[1] says, "Despite the fact that the ether vapor was driven through a temperature approximating 100 C., it radiated its acquired heat so rapidly that at a distance of 1 meter from the source of heat it had practically assumed room temperature." McCarty and Davis,[5] using dogs, carried on a series of investigations on the use of warmed ether vapor for anesthesia. They found that the most satisfactory method of warming the ether was to heat the vaporized ether by passing it through a coil of tubing immersed in boiling water. They say:

> In the intrapharyngeal and intratracheal methods the vapor was first passed through a jar containing a thermometer bulb to record the temperature at delivery to the patient, and from this it was passed into a catheter which was inserted in the first instance through the nares into the pharynx, and in the latter, through the mouth directly into the trachea. By placing a thermometer in the trachea or in the pharynx through a high tracheotomy incision, as the case might require, we were enabled to determine the temperature of the vapor at the point of delivery in the pharynx or the trachea, and, furthermore, it became possible to estimate the efficiency of the various parts of the respiratory tract as heating chambers. As a check on this method, the intubing catheter was carried out through a tracheotomy incision directly into a bottle which was provided with a thermometer and inlet and outlet tubes. As a further check, lengths of tubing equivalent to those used intrapharyngeally and intratracheally were enclosed in an incubator at 37.5 C., and the change in temperature of the vapor recorded as it passed through this tubing at the same rate as it had been passed into the trachea. The degree of warming of the vapor corresponded closely in this artificial respiratory tract to that observed in the dog. Before concluding the intrapharyngeal experiments, the main bronchus to the lower lobe of one lung was opened, a thermometer inserted and the temperature of the vapor at that level recorded.

These authors conclude:

> When ether is administered by inhalation, unwarmed, the vapor reaches the middle of the trachea at a temperature within 1 or 2 degrees of body temperature. In intrapharyngeal insufflation, where the warming effect of the mouth is partly lost the temperature in the trachea is 3 or 4 degrees below body temperature. It is safe to assume however, that in both instances the temperature is increased to that of the body before the vapor has passed through the primary bronchi. When the unheated vapor is delivered through a catheter inserted nearly to the tracheal bifurcation, it is delivered considerably below body temperature, about 14 degrees; but of this deficiency, 10 degrees has been added by the time the primary bronchus is past, so that the vapor unquestionably has been warmed to body temperature long before it reaches the alveoli.

An investigation of my method of intrapharyngeal anesthesia was made to determine the temperature of the ether vapor at the point of its delivery. Calculations were made with vapor sufficiently strong to keep a patient surgically asleep for the radical removal of the jaw. The room temperature was 70 F. It was found that the length of the tube influenced the temperature to a considerable extent. With a tube, approximately 16 inches in length, there was a fall of 6.3 degrees C. in the first half hour. After that the temperature remained the same. With a tube 9 feet long, during the first fifteen minutes the temperature fell 1.5 degrees C., where it remained for about twenty minutes. At the end of another twenty minutes it had returned to within 0.6 degrees C. of the original temperature, and remained at this point. Drafts from an opened door or window and changes in the temperature of the room influenced the temperature of the

1. Sellig: Interstate Med. Jour., 1911, xviii, 927.
2. Meltzer: Med. Rec., New York, 1910, lxxvii, 477.
3. Cotton and Boothby: Surg., Gynec. and Obst., 1912, xv, 724.
4. Bevan, A. D.: The Choice and Technic of the Anesthetic, THE JOURNAL A. M. A., Oct. 23, 1915, p. 1418.
5. McCarty and Davis: Ann. Surg., 1916, lxiii, 305.

vapor in the delivery tube. When these investigations were summed up the fact was impressed on me that even when dealing with the greatest fall in the temperature, the patient was inhaling a vapor at about 68 F.

McCarty and Davis[5] call attention to the fallacy of the contention that ether vapor warmed to body temperature is less irritating to mucous membranes than the unheated vapor, or that it conserves the energy of the patient by lessening the elimination of heat by the lungs which would be required to warm the vapor. They also have found that the maintenance of surgical anesthesia required the same degree of concentration, approximately 6 per cent. of the warmed or unwarmed vapor. This agrees with Connell's findings.

The advocates of warming ether vapor have overlooked the fact that Nature has carefully protected the lung alveoli by placing between them and the external air a long passage through which air must pass before reaching them. During the transit the air is warmed to body temperature. Were this not true, it is doubtful if warm blooded animals could exist in the polar regions. Of much greater importance than warming the ether vapor is the conservation of the body heat during anesthesia. Vierdordt[6] gives 11 calories per hour as the normal elimination of heat by the lungs, and 90 calories by the skin. When these figures are contrasted, the necessity of preventing the loss of heat by the skin through radiation, evaporation or conduction is apparent. Boothby says, "From a calculation of the loss of heat directly attributable to warming anesthetic vapors, it is demonstrated that such a loss is negligible in comparison to that from the body surface." Loss of heat is probably due to dilatation of cutaneous vessels rather than to a disturbance of the heat regulating center or lessened heat production from diminished muscular movements, because the loss of heat can be prevented by covering, or even raised above normal if the patient is surrounded by hot bottles. The loss of heat is greater when morphin has been administered before anesthesia, and is greatest when a considerable portion of the body is exposed or covered by wet clothing. Dudley P. Allen[7] calls attention to the possible dangers of high temperature in operating rooms. He says:

> In a room having a temperature of 93-96 F., the dog's temperature was increased very greatly under anesthesia, i. e., 4.6 F. At the same time the blood pressure increased. The dog panted violently and was wet with perspiration and seemed greatly exhausted at the close of the experiment.

Allen further remarks:

> This observation fairly raises the question if operations under high temperatures are not exhausting to the patient as well as to the operator and distinctly less advantageous than operations in a room of moderate temperature with the patient well protected.

In the Presbyterian Hospital, the tables are covered by pads several inches in thickness. They are made the width of the table, and of sufficient length so that three sections cover the table. The advantage of having the cover in sections rather than in a single piece is evident when the lithotomy position is required and the end of the table lowered. One section is then removed and is out of the way of the operator. The pads are made of cotton or horsehair, covered with rubber and enclosed in a fresh case for each patient. Likewise various sized so-called "ether blankets" are used made of woolen blankets which, through repeated washings have shrunk till they are too small to be used on the hospital beds. They are covered with heavy white muslin and are quilted. The muslin covering on these blankets is a distinct advantage, as it prevents the fuzz from flying about the operating room, and it also simplifies laundering as it is much easier to remove stains from cotton than from wool. These blankets are placed snugly about the patient, leaving exposed only the field of operation. After the completion of the operation, a fresh gown and woolen covering are placed on the patient for the journey back to his room. It is a well known fact that pneumonia frequently develops in a robust person after an exposure to cold and wet. We all harbor the organisms of pneumonia, and all that is necessary for the development of the affection is a lowered vitality. The question naturally arises whether many of the postoperative pneumonias might not be prevented if greater care were exercised in preventing loss of body heat during and following operations.

THE OPEN AND CLOSED METHODS

Bryant and Henderson[8] very properly say, "The sailing orders should be to keep the patient pink." That is precisely what is obtained by the open method of etherization, and not an intermitting pink and duskiness as when the rebreathing method is used; but it is a constant condition. The well known fact that if too much air be admitted it is impossible to keep the patient asleep disproves the contention of these authors that a too open etherization produces pallor and syncope. Further, I most emphatically refute their assertion that "the patient who, throughout a prolonged operation, has had a really open anesthesia, is likely to leave the table with skin pallid, with coverings drenched in perspiration grown cold from evaporation, and vitality depressed almost to the point of shock." If the patient is in this condition it is not the result of the open etherization, but is due either to the operative procedures or to a too profound narcosis with an impending respiratory and circulatory failure. Again, these authors speak of a "dripping, frosted cone" as characteristic of the open method of etherization. It is not the fault of the method if too much ether is dropped on the cone, but is the faulty technic of the administrator. There will be no frost if a good grade of ether is used.

Again I must take issue with these authors in their assertion that there is more nausea and vomiting following the open method. The more oxygen or air allowed with the ether, the less vomiting there will be. A large proportion of my patients never vomit at all, while many of those who do vomit do so but once, and that is before consciousness returns. Their assertion that gas distention is more common following the open method is not borne out by clinical experience or experimental work. The recent findings of Woodyatt and Graham[9] show that the lack of oxygen plays an important part in the development of distention. Again, quoting from Bryant and Henderson:

> If a sufficient amount of fresh air was admitted to the mask to prevent cyanosis or even any degree of purple color in the skin, there was at all times an ample oxygen supply.

6. Vierdordt: Daten und Tabelen für Mediziner.
7. Allen, D. P.: Am. Jour. Med. Sc., 1897, p. 298.
8. Bryant, John, and Henderson, Yandell: Closed Ether and a Color Sign, The Journal A. M. A., July 3, 1915, p. 1.
9. Woodyatt and Graham: Tr. Chicago Path. Soc., 1912, viii, 353.

This condition is equally necessary to the maintenance of vitality, since anoxemia induces acidosis and a general intoxication.

Could any better argument be given for the open method than this? How do you keep the patient pink? By giving oxygen, not by shutting it out. These authors refer to anesthetics in Germany. I would not select Germany or any other foreign country to see anesthetics well administered. The best anesthesias in the world are given right here in America.

With an experience of over 30,000 open ether administrations, I may be privileged to say with assurance that the patients leave the operating room after severe major operations with normal color which indicates good circulation and with normal respiration. In our work it is a rare exception for a patient not to have a perfectly smooth narcosis lasting throughout a long, difficult operation. It is very unusual also not to have the patient sufficiently awake to move about or answer when spoken to within ten or twenty minutes after the anesthetic is withdrawn.

Offergeld[10] studied the pathologic changes in the lungs which occurred after an etherization lasting from seventy to eighty minutes. His results were obtained in guinea-pigs, rabbits and cats after using the closed method, a mixture of oxygen and ether, and by the open method. The animals which did not die were killed at various periods after the narcosis. With a closed anesthesia some of the animals died in a few days from bronchopneumonia. Some were killed in two or three days and their lungs showed patches of bronchopneumonia and desquamation of bronchial epithelium, blood and pus. None of the animals that were given ether and oxygen died. If killed at the end of the first day, patches of consolidation and some blood and desquamation of epithelium were present in the bronchi. With the open method there were no deaths. The animals were killed in from one to eight days after narcosis. Two days after the anesthesia, necropsy showed a perfectly normal condition of the lungs. When the closed method was used, it required four days for the mildest cases to repair.

CONCLUSIONS

The anesthetic state should resemble normal sleep.

Simplicity in the administration of ether, as simplicity in other branches of medicine, is desirable.

As much air or oxygen as is consistent with narcosis should be allowed.

That there is any distinct advantage in warming ether vapor is very doubtful.

The conservation of body heat during anesthesia is of great importance.

With the open method of etherization, the patient's blood is well oxygenated throughout the most difficult operation, and patients leave the operating table with normal color and normal respiration.

There is less injury to the lung epithelium when an abundance of air is allowed with the ether.

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10. Offergeld: Beitr. z. klin. Chir., 1907, lxxxiii, 505.

The Value of Health.—O blessed health! thou art above all gold and treasure; 'tis thou who enlargest the soul, and openest all its powers to receive instruction, and to relish virtue. He that hath thee hath little more to wish for, and he that is so wretched as to want thee wants everything with thee.—Sterne.

THE TREATMENT OF GENITO-URINARY TUBERCULOSIS WITH ROSENBACH'S TUBERCULIN*

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In 1910 Rosenbach[1] described a new tuberculin, and reported a number of successful results of its application in the treatment of surgical tuberculosis. Since then a number of articles[2] have appeared in the German literature dealing with the same subject, and for the most part substantiating the claims of Rosenbach and his followers.

In all the literature on the subject, only one case has been described in which the treatment has been used in tuberculosis involving the urinary tract. From this case, one of renal tuberculosis, the insufficient data, and the short period of time during which the patient was under observation, do not permit of any definite conclusions. In view of the numerous reports of cures in surgical tuberculosis, it was decided to use the tuberculin in the treatment of postoperative and inoperable tuberculosis of the genito-urinary organs. A brief synopsis will be given of the results obtained in a series of thirteen cases, under observation for periods of six months to one and one-half years.

Rosenbach's tuberculin is a product of symbiosis of the tubercle bacillus and *Trichophyton holosericum album*. It differs from other tuberculins in the following respects: In its preparation the harmful substances which have no therapeutic value have been destroyed. The toxicity is considerably less than with other tuberculins, according to some authors 100 times less so than Koch's old tuberculin. As a result, much larger doses may be given without diminishing the therapeutic and immunizing substances. No heat is used in its preparation.

The tuberculin is a perfectly clear brown fluid with a peculiar odor. It is put up in 1 c.c. and 5 c.c. ampules.

Rosenbach's tuberculin is injected either locally into the diseased part or subcutaneously. Where practicable the local injection into the fistulous tract, or into the walls and floor of the focus is to be preferred. For foci which cannot be reached, one must use the ordinary subcutaneous injections.

The initial dose should be from 0.01 to 0.1 c.c. As a rule the dose can be successively increased by 0.1 c.c. unless a severe reaction ensues. The interval between

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1. Rosenbach: Ein neues Tuberculin, Deutsch. med. Wchnschr., 1910, Nos. 33 and 34.

2. Rosenbach: Erfahrungen über die Anwendung des Tuberculin Rosenbach bei chirurgischen Tuberculosen, ibid., 1912, Nos. 12 and 13; Klinische, morphologische und experimentelle Untersuchungen über örtliche, durch örtliche injection bewirkte Tuberculin-reactionen bei Hauttuberculosen, Ztschr. f. Hyg. u. Infections-krankh., 1913, lxxiv.

Among articles by other authors are the following:

Seyberth: Beitrag zur Behandlung der örtlichen Tuberculose mit Tuberculin Rosenbach., Beitr. z. klin. Chir., lxxiv.

Kausch: Erfahrungen über Tuberculin Rosenbach., Deutsch. med. Wchnschr., 1913, No. 6.

Meyer, H.: Zur Behandlung der chirurgischen Tuberculosen mit Tuberculin Rosenbach., Beitr. z. klin. Chir., lxxxv, No. 1.

Elsasser: Erfahrungen mit dem Tuberculin Rosenbach., Deutsch. med. Wchnschr., 1913, No. 25.

Kohler and Plaut: Erfahrungen mit Rosenbach'schem Tuberculin, Ztschr. f. klin. Med., lxxiv, Nos. 3 and 4.

Beck: Die Behandlung der kindlichen Tuberculose mit dem Rosenbach-schen Tuberculin, Ztschr. f. Kinderh., vi, Nos. 5 and 6.

Curschmann: Diagnostische und therapeutische Erfahrungen mit Tuberculin Rosenbach., Verhandl. d. 29. Congr. f. inn. Med.

Iselin: Die Behandlung der chirurgischen Tuberculose, Samml. klin. Vortr., 677 (Chirurgie No. 187).

injections depends on the reaction produced as well as on the condition of the patient. As a rule, injections are repeated from every three to seven days; if severe reaction follows, from every eight to ten days. Violent reactions should be avoided, but mild reactions are rather favorable. Fever in itself does not preclude the use of tuberculin. The maximum dose of an injection should not exceed 1.5 c.c. Should a reaction occur, it is inadvisable to increase the dose at the next injection. A total of from 40 to 60 c.c. of tuberculin generally constitutes a course of treatment. Rosenbach recommends a repetition of the course of treatment some time after.

Reactions may be general or local, or both. There is often a rise of temperature a few hours after injection, which reaches its maximum in about six hours and then returns to normal. It is seldom above 38 C. (100.4 F.). At times the rise in temperature does not occur until the following day, and it may persist for twenty-four hours or longer. Headache and lassitude often accompany the febrile reaction. Local reactions are of two varieties, reactions at the site of the injection, and the reaction in the tuberculous focus. There may be no local reaction, or at the site of injection a painful red induration may develop. The local reaction at the tuberculous focus may manifest itself by redness, pain and a phlegmonous swelling. When the injections are not given locally, the reaction in the tuberculous focus is generally less marked. The cases reported have been treated according to the principles which I have outlined.

REPORT OF CASES

Case 1.—Man, aged 45. Operation, November, 1914. Nephrectomy and ureterectomy for tuberculosis of the left kidney and ureter. Patient applied for treatment in April, 1914. Examination showed two sinuses in left loin which discharged pus in moderate amounts. Patient complained of frequent burning urination, every one to two hours by day and night, with marked dysuria.

Treatment was started with 0.01 c.c. tuberculin; there being no reaction, the dose was increased to 0.1 c.c. a few days later and then increased 0.1 c.c. at each injection every five to eight days until dose of 1 c.c. was reached. No reactions were obtained until this was given. Patient then complained of pain in wound, and had general reaction. After 5 c.c. had been injected improvement was noticed, sinuses discharged less pus and looked healthy, and urinary symptoms abated. Treatment was continued for ten months, during which time 50 c.c. were injected. One sinus has closed; the other is still discharging slightly; urination is less frequent, three or four times at night, every three hours by day.

Comment.—Although this patient showed improvement, a period of ten months had elapsed, during which time the usual methods of treatment employed would most likely have effected a similar result.

Case 2.—Man, aged 36. Operation, January, 1912. Orchidectomy for tuberculous epididymitis. In 1913 nephrectomy for left renal tuberculosis. After operation, discharging sinus in kidney wound, which persisted in spite of all treatment. Ureterectomy eight months after nephrectomy.

At the beginning of tuberculin treatment in April, 1915, there was a discharging sinus in loin, and pyuria from vesical tuberculosis; tubercle bacilli were found in the urine. The patient was in poor general condition. During the course of treatment a tuberculosis of the right epididymis developed; this went on to suppuration. A tuberculous perineal fistula also developed. In the course of ten months, 55 c.c. of Rosenbach's tuberculin were administered; the general condition became progressively worse and death ensued some months later.

Comment.—In this case there was no improvement under treatment; other tuberculous foci developed.

Case 3.—Man, aged 17. Nephrectomy for tuberculosis of right kidney, December, 1911. Treatment was begun in April, 1915. The patient complained of frequent urination for the last few months—four or five times at night, every hour by day, with burning sensation in urethra and bladder. Persistent hematuria for past few weeks. Cystoscopic examination demonstrated a vesical tuberculosis, left kidney normal.

Patient was treated from April, 1915, until the end of June, 1915, during which time he received 8 c.c. of tuberculin. As no improvement was noticed, treatment was discontinued. He then reappeared in September, 1915, with the same symptoms; hematuria more marked. Tuberculin was again administered until the middle of June, the patient receiving a total of 20 c.c. At the end of that time the general condition was good; the urinary condition was unchanged. Cystoscopy showed no improvement in condition of bladder.

Comment.—There was no improvement in the vesical tuberculosis, and consequently in the urinary condition.

Case 4.—Woman, aged 30. Nephrectomy for tuberculosis of right kidney, April 10, 1914. Treatment was begun at the end of April, 1914. At that time there were two discharging sinuses in the wound. The patient complained of frequent burning urination, four or five times at night. After administration of 30 c.c. of Rosenbach's tuberculin in eight months, the sinuses closed. The urinary symptoms, however, persisted. Cystoscopy revealed two tuberculous ulcers in the bladder. These were treated with the high frequency current, after which the symptoms disappeared and the urine became clear.

Comment.—In this patient, after eight months' treatment, the sinuses following nephrectomy closed; the urinary symptoms, however, were uninfluenced by the tuberculin.

Case 5.—Man, aged 29, on admission to hospital in December, 1913, was found to be suffering from genito-urinary tuberculosis, involving the prostate, seminal vesicles, right epididymis and right kidney. Right orchidectomy was performed in December, and in February, 1914, the right kidney and ureter were removed. Later it was found that there was also a tuberculosis of the left kidney. This patient received a total of 28 c.c. of Rosenbach's tuberculin. There was absolutely no improvement in the general or local condition. The urine is now bloody, and contains much pus and many tubercle bacilli. Urination is frequent and accompanied by burning. The patient finally discontinued treatment.

Comment.—This patient showed no improvement at all during the course of treatment.

Case 6.—Woman, aged 38. Operation, 1912. Nephrectomy for tuberculosis of left kidney. A sinus persisted in the renal wound for over a year, at the end of which time the ureter was removed. Since then the sinus has not closed; it is a long, deep, tortuous tract in the left loin which discharges moderately. No urinary symptoms. General condition good. Treatment was started April 24, 1914. The patient received 45 c.c. of Rosenbach's tuberculin, injections being made into the fistulous tract. The discharge from the sinus has diminished considerably, and the tract is now very superficial.

Comment.—In this case a tuberculous sinus which had persisted for over three years was almost closed under tuberculin treatment.

Case 7.—Woman, aged 43. Operation, April, 1914. Nephrectomy for tuberculosis of right kidney. Applied for treatment, May, 1914. There were two discharging sinuses in the wound, and urination was frequent and painful, four to five times at night and from one to two hours by day. A total of 25 c.c. of Rosenbach's tuberculin was administered with no appreciable effect. The sinuses are still open and discharging, and the urinary symptoms are but slightly improved.

Comment.—Five months' treatment with tuberculin failed to close the sinuses or improve the local condition.

Case 8.—Female. Nephrectomy was performed for left renal tuberculosis in 1913; six months later the left ureter was removed on account of a discharging sinus in the renal wound. In May, 1914, the sinus was still open, and the

patient complained of frequent burning urination every hour by day and night. The urine was cloudy, and contained pus and no tubercle bacilli. After six months' treatment with Rosenbach's tuberculin, a total of 22 c.c. having been administered, the sinus was still open and discharging. The urinary symptoms continued uninfluenced. The sinus was then treated with phenol (carbolic acid) and alcohol, while tuberculin was continued. After two months of this treatment the sinus closed; the urinary symptoms persisted. Cystoscopy at this time revealed small hemorrhagic areas scattered over the bladder; no ulcers. The patient was then treated with phenol instillations, and immediately rapid improvement was noticed. She now retains urine three or four hours.

Comment.—Rosenbach tuberculin in this case did not seem to influence the urinary condition. No effect was noticed on the sinus until special local therapy was used.

CASE 9.—Woman, aged 28. Operation, October, 1913. Laparotomy for tuberculosis of adnexa; left salpingo-oophorectomy. Since the operation the patient had had a discharging sinus in the abdominal wound, which persisted in spite of all therapeutic measures. She was treated with Rosenbach's tuberculin from May, 1914, until December, 1914, after which the patient discontinued the treatment. A total of 25 c.c. of Rosenbach's tuberculin had been administered. Injections were given into the wall of the fistulous tract. The sinus was still open and discharging when patient discontinued treatment.

Comment.—Seven months' treatment with tuberculin failed to close a tuberculous sinus in the abdominal wall.

CASE 10.—Man, aged 37. Operation, May, 1914. Nephrectomy for right renal tuberculosis. The patient applied for treatment, June, 1915, complaining of frequent and burning urination, every half to one hour, day and night. The urine was cloudy and contained pus, blood and tubercle bacilli. The general condition was poor. The patient received in all 35 c.c. of tuberculin. During the course of treatment he developed a tuberculosis of the right epididymis, which progressively grew worse, until Roentgen therapy was instituted. Soon after, marked improvement was noticed. Frequency of urination improved; the patient was able to hold urine three hours by day, and voided but twice at night. The general condition was improved, there being a gain of about 5 pounds in weight.

Comment.—In this case the local urinary condition improved; a new tuberculous focus, however, developed during the course of treatment.

CASE 11.—Man, aged 42. Suprapubic cystotomy in May, 1914, for relief of marked vesical symptoms, frequency of urination, dysuria, hematuria and pyuria. The patient had a markedly contracted bladder which made cystoscopy impossible. Tubercle bacilli were not found. Sections removed from the thickened bladder wall showed tuberculosis. In October, 1914, the left kidney was removed for a large hydronephrosis which was not tuberculous in nature. The patient at this time was in rather poor general condition. Urination was painful and frequent, and part of the urine discharged through the suprapubic fistula. A total of 35 c.c. of tuberculin was administered. During the course of the treatment the patient developed a tuberculous epididymis.

Comment.—No improvement was noticed in either local or general condition during the course of the treatment.

CASE 12.—Woman, aged 33. Nephrectomy for tuberculous pyonephrosis of left kidney in December, 1913. Applied for treatment in January, 1914. There was a suppurating sinus in wound. Complained of frequent and burning urination. Cystoscopy revealed presence of tuberculous cystitis. The patient received a total of 45 c.c. of Rosenbach's tuberculin in nine months, at the end of which time very slight improvement was noticed. The sinus is still open and suppurating, although less; the bladder symptoms remain unchanged.

Comment.—Nine months' treatment with tuberculin failed to improve a tuberculous cystitis and lumbar sinus.

CASE 13.—Man, aged 27. Genito-urinary tuberculosis involving both kidneys, bladder and testicles, prostate and seminal vesicles, and also tuberculosis of the lumbar spine. Both testes were removed in July, 1913. The patient applied for treatment, October, 1914, and during the next five months, 25 c.c. of vaccine were administered. No improvement was noticed in general or local condition. The patient died about four months later from generalized tuberculosis.

Comment.—A generalized genito-urinary tuberculosis did not show any improvement after five months' treatment with tuberculin.

SUMMARY

Thirteen cases of urogenital tuberculosis were treated with Rosenbach's tuberculin. Two patients showed improvement; the others (eleven) were absolutely unimproved; a few developed additional tuberculous foci during the course of treatment. As a result of the experiences in this series of cases, it must be concluded that Rosenbach's tuberculin is of no definite value in the treatment of tuberculosis of the genito-urinary tract.

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BRUIT OVER THE EYEBALL IN EXOPHTHALMIC GOITER *

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PHILADELPHIA

About two years ago I saw a young girl with exophthalmic goiter. She had all the signs of this polysymptomatic disease, and as the vascular phenomena were especially well marked, it occurred to me to place the stethoscope over the eyeball, whereupon I heard a loud hum or bruit synchronous with the beat of the heart. When I saw her again some weeks later the sound was still present. As I had not heard or read of this sign before in connection with exophthalmic goiter, I naturally thought that I had made an original discovery. My belief was strengthened when I did not find any reference to it in any of the monographs on exophthalmic goiter. A deeper search of the literature, however, showed me that the sign had been discovered before, but had not found its way into even the most recent works on the disease. Dr. Barker[1] does not enumerate it in his comprehensive article in which he cites no less than thirteen eye signs.

Quite recently I saw with Dr. Westcott of Atlantic City a woman, aged 35, suffering from exophthalmic goiter. All the classical signs and symptoms of the disease were present, including a probable substernal goiter and pigmentation of the face. On placing the stethoscope over the eyeball, I heard the bruit most strikingly. Without telling Dr. Westcott anything, I asked him to listen. He heard the sound immediately and was much amazed by it.

The sound when present is easily elicited by placing the bowl of the stethoscope over the eyeball with the lids closed. At first one may be a little confused by a more or less continuous sound or hum which is evidently due to the muscular movements of the eyelids, but very soon one can make out the rhythmic murmur keeping time with the pulse. As I have intimated, the sound has been described by several writers. The first to notice it was Snellen, whose observation was reported by Donders.[2] Duroziez[3] heard a sound over

* Read before the Section in Medicine of the College of Physicians, Philadelphia, Nov. 22, 1915.

1. Barker, L. F.: The Diagnosis of Exophthalmic Goiter, THE JOURNAL A. M. A., Oct. 12, 1907, p. 1235.

2. Donders: Arch. f. Ophth. Albrecht von Graefe's, Berlin, 1871, p. 102.

3. Duroziez: Gaz. d. hôp., June 16, 1874, No. 69, p. 548.

the eyes in exophthalmic goiter, but as he declared that the same bruit was audible over the normal eye. we must accept his own explanation of it: that it was due to the rotary movement of the eyelids, hence not the sound in question. Hueter[4] spoke of a sound audible over the eye with the dermatophone, but as he heard the same sound over the temporal region and as he does not speak of exophthalmic goiter specifically, his observation is not germane to our subject. Schönfeld,[5] in the course of a description of a single case of exophthalmic goiter, says, "On placing the stethoscope over the eye, a hum synchronous with the pulse could be heard." Carrington[6] and Drummond[7] also give clear descriptions of the bruit.

In view of these several observations it is strange that the sign is not mentioned by systematic writers on exophthalmic goiter or by textbooks on diseases of the eye. The bruit, like other signs of exophthalmic goiter, is not constant, and I have looked for it in vain in several quite typical cases of the disease. I have noticed a similar sound several times in aortic insufficiency, which is not surprising since many of the vascular phenomena of the two affections are very similar.

1715 Spruce Street.

EXPERIMENTAL STUDIES IN THE PRODUCTION OF CHRONIC GASTRIC ULCER *

ABRAHAM O. WILENSKY, M.D.
AND
SAMUEL H. GEIST, M.D.
NEW YORK

Recently streptococci have been isolated from typical indurated ulcers of the stomach, and these when injected into the blood stream of animals have caused ulcerations of the stomach.[1]

The present investigation has for its object the production of an ulcer with a chronically inflamed and indurated edge which exhibits no tendency toward healing. It seemed to us that if organisms isolated from similar ulcers from human stomachs were injected directly into recent defects in the stomach wall of animals, the opportunity for the production of characteristic chronic ulcers would be enhanced.

In a number of animals the healing of a surgically produced defect was first studied. These defects were made by excising tissue from the stomach wall down to and including part of the muscularis, and measured from 1 to 2 cm. in diameter. It was shown that such defects healed completely in from one to two weeks. The epithelium from the neighboring mucous membrane spread across the base of the defect, and, in addition, the contraction of the stomach wall tended to make the defect appreciably smaller. As the mucous membrane approximated, small cystic spaces either directly on the surface or deeper down were formed, probably by epithelial inclusion. These were lined by the columnar epithelium of the surface of the stomach. Such a process was also observed in several human cases in which the opportunity was afforded of studying microscopically a healed ulcer.

The method of investigation was as follows:

Cats were used, and all operative procedures were done under full ether anesthesia. The abdomen was opened in the middle line, the stomach was delivered and an incision into it was made parallel to and near the major curvature so as to enable one to evert the mucous membrane of the stomach along the lesser curvature. The defects were then made as described previously along this line, and the entire base of the defect was then infected with a suspension of the bacteria by injecting it into the tissue layers.

The bacteria used were those obtained by making cultures of human gastric ulcers which were obtained by excision during the course of an operation. The method of culture was that described by Rosenow. These cultures were made by Dr. H. L. Celler, to whom we are indebted for the suspensions used in our experiments. It was possible to cultivate from these ulcers a streptococcus and in a certain number also a yeast.

Some of the defects were infected with strains obtained from a single human ulcer; others with strains obtained from two or more ulcers, and still others with these strains plus the yeast, or with yeast alone. The suspensions were made with bacteria of the third or fourth generation.

The animals were returned to their cages, and the postoperative treatment included immediate feeding which did not differ from that which the animals are accustomed to receive ordinarily. After the first twenty-four or forty-eight hours the animals ate freely. They lost no appreciable weight.

At varying intervals the animals were anesthetized and the abdomen was opened again, usually through the old scar. The stomach was delivered, and either the old gastrotomy wound was reopened, or a new one was made and the condition of the defect observed. When there seemed to be a tendency to heal, the ulcer was again infected as described previously with the same bacteria, and the stomach sutured and returned to the abdomen. In order to watch the progress of the ulcer, it was necessary to repeat this procedure several times in each animal.

Nine animals were used, and in all of them, irrespective of the size or depth of the defect or of the virulence or number of the organisms injected, the surgical defects healed as promptly as those observed in our controls. The series of experiments demonstrates that the presence of the organisms found in human gastric ulcers has no appreciable effect either in giving to the experimentally produced defects the characteristics of the chronic indurated ulcer, or in retarding the healing.

4. Hueter: Centralbl. f. d. med. Wissensch., Dec. 21, 1878, p. 929.
5. Schönfeld: Ein Fall von Morbus Basedowii, Inaug. Diss., Berlin, 1881.
6. Carrington: Tr. Ophth. Soc. United Kingdom, Session 1885-1886, vi., 99.
7. Drummond: Brit, Med. Jour., 1887, i., 1027.

* From the Pathological Laboratory of the Mount Sinai Hospital.
* Work done under tenure of a George Blumenthal, Jr., Fellowship.

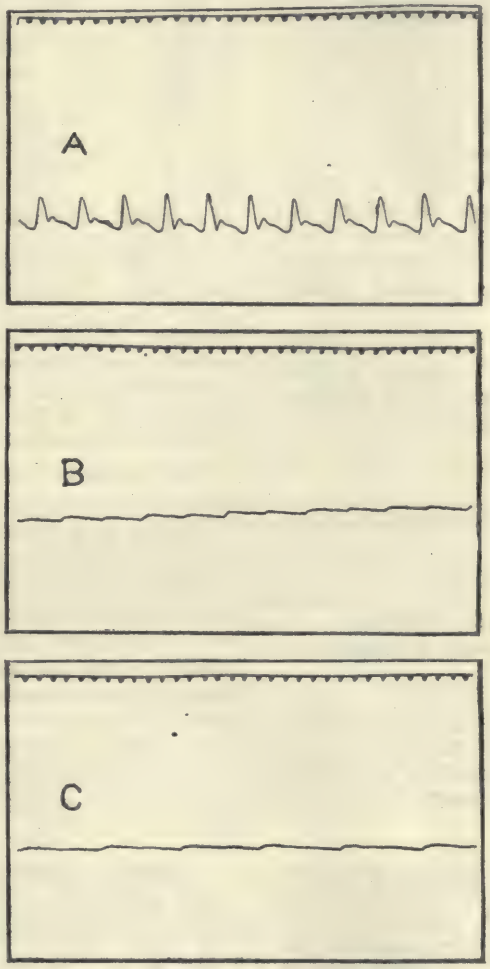
1. Rosenow, E. C.: Jour. Infect. Dis., 1915, xviii, 219; Jour. Indiana State Med. Assn., 1915, viii, 465; Elective Localization of Streptococci, THE JOURNAL A. M. A., Nov. 13, 1915, p. 1687.

Prevention of Blindness.—The April issue of the *News Letter* of the National Committee for the Prevention of Blindness contains many interesting items showing the activities of the committee and also the activities of the various states in their work for the prevention of ophthalmia neonatorum and the reduction of blindness and eye injuries in the industries. In many states a vigorous campaign is being carried on having as its object the conservation of vision and the prevention of blindness.

THE DETECTION OF PULSUS ALTERNANS *

PAUL D. WHITE, M.D.
AND
LAWRENCE K. LUNT, M.D.
BOSTON

The ease with which the grave constant type of alternation of the pulse can be detected by the auscultatory method of blood pressure estimation has caused us to investigate the value and error in this method of diagnosing the condition. The use of compression of the brachial artery in augmenting and revealing an alternation of the pulse was first described by Hoffmann[1] in 1906, and has since been mentioned by several writers. Of late Herrick[2] and McGill[3] have written of the use of auscultation over the brachial artery during its compression by the cuff of the sphygmomanometer in the diagnosis of alternation of the pulse. At a pressure just below the systolic reading, the pulse rate is halved if alternation is present. As has been pointed out by several writers, most recently by one of us,[4] the two important conditions which may produce a pulse which seems to be constantly alternating, but which is in reality a pseudo-alternans, are a rapid respiratory rate which is one half or almost one half of the pulse rate, and a bigeminy due to late premature beats alternating with beats of normal origin. The former type of pseudo-alternation may be easily detected by counting the respiratory rate if high and by directing the patient to stop breathing for a few seconds if the rate is one half or close to one half of the pulse rate. The latter type cannot be detected without graphic records. It has therefore been our aim to determine the proportion and importance of these cases of pseudo-alternation as compared with the cases of true alternation of the pulse.



Radial pulse tracings from patient showing very slight pulsus alternans revealed by compression of the brachial artery. Time interval equals 0.2 second. *A*, before application of pressure by cuff of sphygmomanometer; *B*, at a cuff pressure of 184 mm. mercury; *C*, at a cuff pressure of 186 mm. mercury.

During the past year and a half (February, 1916), 129 patients with pulsus alternans have been seen at the Massachusetts General Hospital. Of this number, thirty-seven (or 29 per cent.) showed the condition constantly, and the remainder only after premature beats. Since several minutes sometimes elapsed between the appearance of these premature beats, the use of the auscultatory blood pressure method was more laborious and uncertain than the use of the sphygmograph. A constant alternation has not been found by auscultation in some of the patients who showed by sphygmogram slight to moderate alternation only after premature beats.

Bigeminy due to very late premature contractions, so late as to be confused with alternation of the pulse, was found in seven patients during the course of the same year and a half. The proportion of cases with premature beat pseudo-alternation to cases with true constant alternation is 1 : 5.3. About once in six times, therefore, we would make the error of confusing pseudo-alternation with true alternation in using the auscultatory blood pressure method. It may be observed that not only may a bigeminal pulse be transient and variable in its occurrence in a patient, but also alternation itself found on one day may be absent on the next day or even several hours later.

The importance of the error of confusing premature beat pseudo-alternation with true alternation has not been great in our cases. Three of the seven patients with the bigeminal pseudo-alternation showed at other times true alternation, and so had a grave prognosis. One other with syphilitic aortitis has died and the other three all showed serious heart damage, from syphilis, rheumatic infection and arteriosclerosis, respectively. Gallavardin and Gravier[5] consider the retarded premature beat as a possible index of cardiac weakness, in the same class perhaps with alternation itself in pointing to myocardial exhaustion. They have found very late premature beats only in patients with alternation of the pulse.

The advantages of the auscultatory blood pressure method of finding constant alternation are the ease of the procedure and the fact that, like Gravier's[6] delicate bimanual method, it affords the earliest means of detecting the condition in patients who show only a very slight degree. Recently, in the wards of the Massachusetts General Hospital, constant alternation of the pulse has been easily and frequently detected by the interns during their estimation of blood pressure in patients, and in two cases the condition was so discovered before it could be detected by the sphygmograph. Usually differences of 6 mm. or more of mercury pressure between the beats appear in the ordinary radial pulse tracing, but smaller differences in pressure are not evident in the tracing. The accompanying illustration shows three strips of radial pulse tracing taken one morning with the Mackenzie ink polygraph from a patient with a weak heart. The

* From the Medical Service of the Massachusetts General Hospital.

1. Hoffmann, A.: München. med. Wchnschr., 1906, liii, 1977.
2. Herrick, J. B.: Pulsus Alternans Detected by the Sphygmomanometer, THE JOURNAL A. M. A., Feb. 27, 1915, p. 739.
3. McGill, Caroline: The Determination of Pulsus Alternans by the Sphygmomanometer, THE JOURNAL A. M. A., June 19, 1915, p. 2061.
4. White, P. D.: Am. Jour. Med. Sc., 1915, cl, 82.
5. Gallavardin, L., and Gravier, L.: Lyon méd., 1914, p. 830.
6. Gravier, L.: L'alternance du cœur, étude critique et clinique, Paris, 1914.

systolic blood pressure was 188 mm. of mercury. No alternation of the pulse could be felt at the wrist, and in the radial tracing (*A*), alternation was not evident. At a brachial cuff pressure of 184 mm. of mercury, the alternation could be heard with the stethoscope over the brachial artery, and became evident on the radial tracing (*B*). At a pressure of 186 mm. of mercury the pulse rate was halved; in the third tracing (*C*) at times there is the merest trace of the small beat much retarded. At 188 mm. of mercury pressure the pulse was entirely occluded. A few days after these records were obtained, a pulse tracing showed definite constant pulsus alternans.

SUMMARY

In the attempt to detect pulsus alternans by the auscultatory blood pressure method, we have found that in our cases the method is often impracticable in the postpremature beat type of alternation, which comprises the majority (70 per cent.) of the cases, but that in the graver type, that of constant alternation, it is a useful procedure. An error, however, in this method of detecting alternation of the pulse must be recognized, for about once in six times there is a bigeminal pseudo-alternation instead of a true alternation. This error is relatively unimportant in our series because of the serious myocardial damage present in the pseudo-alternating patients.

The advantages of the method lie in the ease of the procedure, and in the fact that it affords the earliest means of detecting constant alternation in patients who exhibit it to only a very slight degree.

THE LABORATORY EXAMINATION OF MATERIAL IN A CASE OF SUSPECTED SMALLPOX

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Assistant Professor of Epidemiology, University of California
BERKELEY, CALIF.

A laboratory method for the diagnosis of smallpox based on the skin reactions of immune rabbits was suggested recently by Force and Beckwith.[1] The following case illustrates the value of this method as an aid to public health administration:

During the last week of January, 1916, Dr. J. G. Cumming, director of the Bureau of Communicable Diseases of the California State Board of Health, was requested by the health officer of Stockton to give an opinion regarding the presence of smallpox in a patient who was being held in quarantine in that city. Dr. Cumming at once visited Stockton, investigated the case, and secured the following history:

The patient had been treated with bromids for some time preceding the appearance of a slight eruption. As soon as the eruption appeared, the quantity of the drug was reduced, and, as the eruption did not clear up, the drug was stopped. Several days after this the eruption became exacerbated and took on a pustular character which so resembled that of smallpox that the patient was quarantined.

After an examination of the patient, Dr. Cumming collected some of the pustular material in a capillary tube and brought it to me with the request that it be tested on smallpox immune animals. The material, which in all respects resembled ordinary pus, was diluted with saline and inoculated intradermally into two immune rabbits and a normal control. The inoculations were made on the right sides of the animals. The left sides were at the same time inoculated with commercial vaccine virus of low potency. Spots for these inoculations had been shaved on the day preceding the application of the test in order that the trauma due to shaving might disappear before the appearance of the reaction. The following results were observed:

Rabbit 4 was immunized against smallpox, March 2, 1914. Inoculated intradermally, Feb. 1, 1916, with material from the Stockton patient controlled by an inoculation of commercial virus. Twenty-four hours after inoculation there was no reaction from the suspected material, while the control inoculation showed an areola of 10 mm. with a central yellowish papule. The conditions persisted unchanged for another day, and then the control spot rapidly faded. At no time was there any evidence of reaction on the site of the inoculation with the suspected material.

Rabbit 8, immunized, March 25, 1914, was inoculated, Feb. 1, 1916, coincidently with Rabbit 4. No reaction occurred at any time at the site of inoculation with the suspected material. Control inoculation with vaccine virus showed at the end of twenty-four hours an areola of 11.8 mm. with marked induration and a yellowish spot measuring 3.5 mm. in diameter. At the end of forty-eight hours the areola measured 15.5 mm., the induration 9.5 mm., and the yellow spot 3.6 mm. The reaction faded during the next succeeding days.

Rabbit 13, a normal animal, was inoculated coincidently with Rabbits 4 and 8. No reaction occurred at any time on the site of the inoculation with the suspected material. A small nodule, 7.8 mm., appeared at the site of the inoculation with commercial virus, but no redness, except on the second day, when an areola of 16 mm. appeared. This areola faded at the end of twenty-four hours. The vaccine virus used was evidently not of sufficient potency to produce a typical vaccine vesicle in this animal, though able to produce characteristic allergic reactions in the others.

Since even an attenuated vaccine virus produced immunity reactions in the smallpox immune rabbits, it follows that the absence of such reactions at the sites of inoculation with the suspected material indicates that the material was not from a smallpox patient. Accordingly, forty-eight hours after the beginning of the test, we were able to notify the health officer of Stockton that the case was not one of smallpox and that the patient might be released from quarantine as such.

This experience demonstrates the practicability of the method as an aid in public health procedure, and also reminds us that inert vaccine virus is capable of producing reactions of immunity.

1. Force, J. N., and Beckwith, Helen L.: A Laboratory Method for the Diagnosis of Smallpox, THE JOURNAL A. M. A., Aug. 14, 1915, p. 588.

Slate Pencil in Cecum.—A woman, aged 30, operated on nearly a year ago for a double purulent salpingitis and a large left ovarian pus sac, with uneventful recovery, for several months had had irregular spells of vomiting pain in the right iliac fossa, which radiated down the right thigh and into the right labium majus. The temperature at times was slightly above normal. She had been operated on recently because of a small tumor in the right iliac fossa, vomiting and pain. Operation revealed a fixed edematous cecum and ascending colon. The enlarged retrocecal glands produced the tumor. A slate pencil 5¼ inches in length was finally removed by nicking the cecum. The sharp end of the pencil was embedded in the wall of the cecum; the remainder was free and was well caked with feces and débris, which were removed by boiling it in water. The patient, on being questioned during her convalescence, stated that she had tried to abort herself when partly intoxicated some years ago, and had forgotten that she had not recovered her instrument.—F. R. WILLIAMS, M.D., Victoria, Texas.

An Attribute of Knowledge.—Knowledge is that which, next to virtue, truly and essentially raises one man above another.—Addison.

New Instruments and Suggestions

AN ADJUSTABLE BRADFORD FRAME

ROBERT D. MADDOX, M.D., CINCINNATI

A method of constructing Bradford and Whitman frames which overcomes some of the difficulties of preparation and use, without complicating the apparatus or greatly increasing the cost, has long been desirable. To fulfil these requirements, I have made a modification which, in dimensions and appearance, is essentially the accepted form of rectangular gaspipe frame for securing immobilization in recumbency. Each side of the frame is of one length of iron pipe, joined

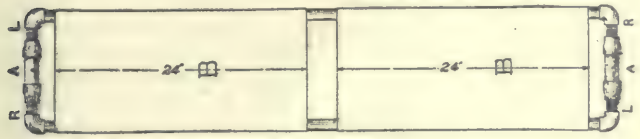


Fig. 1.—Adjustable Bradford frame.

at the ends by pieces made on the principle of the turnbuckle, so that the width can be varied. The canvas stretcher pieces are made in tubular form, and, when slipped over the ends of the frame, can be stretched tight by expanding the frame instead of the usual lacing (Fig. 1).

The side pieces are made in duplicate, of ½ or ¾ inch pipe, 54 or 72 inches long, slightly bowed outward to draw the canvas tight in the center, and malleable iron elbows are fitted to each end. Fastened in these elbows, extending in the same plane but at right angles to the side pieces, are the threaded end pieces. These are of ½ or ¾ inch pipe, 2 or 3 inches long and threaded the entire length, one right hand, and one left hand (Fig. 1, *R* and *L*).

The turnbuckle sleeves are duplicates, from 4 to 14 inches long over all, and made of pipe sufficiently large to clear the threaded end pieces, with reducing fittings on each end, threaded right hand and left hand, to engage the threaded end pieces. A ⅜ inch hole is drilled through the pipe in the center to hold the loose bar for turning (Fig. 1, *A, A*).

The canvas stretcher pieces are made of heavy cotton duck, with the selvage edge turned back for a reinforcing hem at the center end. The slides are overlapped and joined by a heavy seam, making a continuous band or tube of the canvas. When finished, the lengths of these pieces should be about 2½ inches less than half the length of the sides of

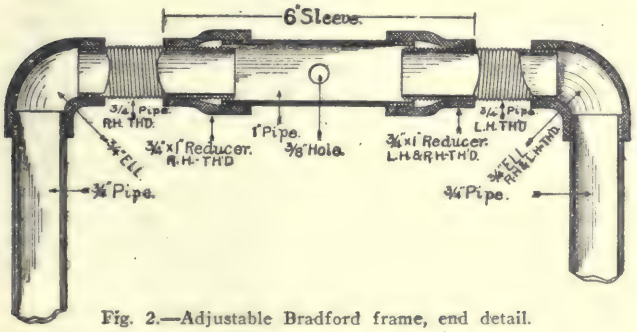


Fig. 2.—Adjustable Bradford frame, end detail.

the frame, and the width from 8 to 18 inches, varying by half an inch up to 14 inches. They should be made in sets of four to permit changing, and the size should be plainly marked on each stretcher piece (Fig. 1, *B, B*).

To assemble the frame, the side pieces are laid parallel, an end piece threaded right hand opposite to an end piece threaded left hand, and the turnbuckle sleeves placed between them so that the right hand reducer will engage the right hand end piece, and the left hand reducer the left hand end piece at the same time. The sleeves are then turned equally and the sides are brought together so that the stretcher pieces can be slipped over each end. The sleeves are then turned in the opposite direction, forcing the sides apart and stretching the canvas.

As all parts of each size are interchangeable, frames of any width can be quickly assembled to meet the need of the individual patient by using sleeves of different lengths and stretcher pieces of proper width, a 4 inch sleeve expanding the 57 inch frame from 7 to 10 inches, and a 6 inch sleeve expanding the 75 inch frame from 9½ to 13½ inches, without the sleeves being changed.

The length of the frames is the maximum that can be placed on ordinary large or small hospital beds; but the fact that this length often exceeds the length of the patient by more than 4 inches does not appear to be of importance.

This type of frame has been used at the Episcopal Hospital for Children, Cincinnati, for more than a year, and it has been found that it can be prepared and the canvas changed and kept tight more easily than those of the usual pattern.

4 West Seventh Street.

ASEPTIPHONE: AN ANTISEPTIC MOUTHPIECE FOR THE TELEPHONE

E. M. JENKINS, M.D., ITALY, TEXAS

The device shown in the accompanying illustration is designed to disinfect itself automatically and thereby minimize the danger of spreading disease through this source. The instrument consists of several shells. The inner shell has a threaded portion for attaching to transmitter in place of the old mouthpiece, an annular flange extending laterally from the outer end of the inner shell so as to confine and embrace the outer shells. In the space between the outer and intermediate shells is a pad with disinfectant solution. From this the fumes are disseminated, passing through an air chamber formed by the intermediate and inner shells, then out through the opening of the inner shells.



Antiseptic mouthpiece for telephone.

A TRANSILLUMINATOR WITH NEW POSSIBILITIES

WILLIAM G. REEDER, M.D., Chicago

The transilluminator has become an important diagnostic agent in otorhinology. Through its use, pathologic changes in many of the accessory nasal cavities have become visualized. While the full significance of the picture it portrays may be difficult to interpret, it rarely deceives as to the fundamental facts desired—the presence or absence of disease. The instruments now in common usage require the electric current, and some a rheostat. They are expensive and of a size that does not permit them to be used within small cavities. I desire to call attention to an instrument which not only overcomes some of these objectionable features, but also, on account of its size and shape, has a far broader field of usefulness.

It consists of a small dry cell battery mounted in a case similar to an ordinary flashlight, which has a small but powerful lamp mounted at the free end of a rodlike projection and protected by removable caps, one fenestrated at the side, the other at the end.

To illuminate the antrum of Highmore, the lamp is carried upward between the lip and the alveolar process until it rests

firmly on the anterior surface of the superior maxillary bone at a point directly above the root of the second premolar tooth. The light rays now penetrate the thin anterior wall of the antrum, traverse the antral box, and emerge freely through the likewise thin floor of the orbit, illuminating, under normal conditions, the eliptic area bounded by the infra-orbital margin below and the eyeball above. The pupil of the eye will also show a red reflex in health. This position of the lamp has distinct advantages over the mouth position, as the rays of light pass through no tissue other than the walls of the antrum, thus eliminating the possibility of disease of other structures disturbing the picture. The walls traversed by the light when in this position are the thinner walls of the antrum, and they vary but little in thickness in different individuals, whereas all other walls may vary greatly, often making transillumination uncertain and indistinct. The presence of artificial denture does not interfere with this method.

The illumination of the frontal sinus is best accomplished by placing the lamp with the fenestrated cap well underneath the overhanging supra-orbital margin just external to the nasal process of the frontal bone and in contact with the roof of the orbit. This gives a brilliant and extensive illumination of the frontal sinus in health, so that the edges of the sinus in many cases may be perfectly outlined; indeed, often the location of partitions may be seen. Here, again, the light traverses the thin floor of the frontal sinus, and is not influenced by the varying thickness of the external table of the skull.

This instrument is a valuable mastoid illuminator. Its small size permits it to be passed into the osseous external auditory meatus of most persons, and by turning the illuminating window toward the posterior wall the mastoid cells are brilliantly illuminated. When the auditory meatus is small, the open end cap is used, allowing only the tip of the lamp to project beyond its free border in order that the meatus may be snugly fitted, and preventing return rays of light from obscuring the picture. It may be used also by placing the lamp, with the rubber cap projecting slightly beyond it, against the external surface of the mastoid process and viewing the light that passes through the posterior osseous wall of the external auditory meatus.

The presence or absence of pathologic changes in the lacrimal sac may be elicited by this illuminator. Without the cap the lamp is passed into the nostril until it rests on the anterior end of the middle turbinate. In the presence of disease of the sac, a shadow is cast through the skin surface over the diseased area.



New transilluminator.

Likewise the lamp may be used in some cases to indicate disease of the anterior and middle ethmoidal cells, particularly in cases in which, with the added space secured by the use of cocain and epinephrin, the lamp may be passed between the middle turbinate and the septum. Disease of these structures is indicated by a shadow at the nasal portion of the orbit, and loss of the pupillary reflex.

This instrument is of value as a nasal diagnostic lamp. It is inserted into one nostril, and the interior of the nasal chambers of the other side is viewed through the vestibule opened by a nasal speculum. An unusual view of the interior of the nose may thus be obtained without the use of a head mirror.

This instrument is conveniently carried, and is ideal for bedside use and in homes where other means of illumination are not available. On account of its simplicity and its practicability, it is an instrument that will appeal to the general practitioner as well as the specialist.

Marshall Field Annex Building.

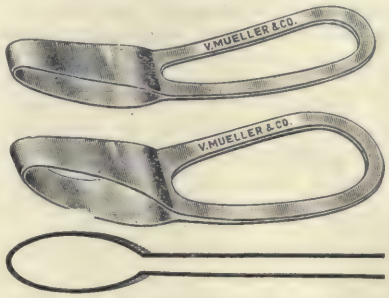
NASAL SEPTUM CLAMP OR SPLINT

TO BE USED AFTER SUBMUCOUS RESECTIONS IN PLACE OF PACKING

Frank C. Todd, M.D., Minneapolis

The illustration represents a nasal septum clamp or splint which I have been using for the past year following submucous resection of the septum.

The clamp is placed in the nose immediately after the operation, and left in place for one or two days. No packing is used whatever, even though turbinates have been operated on at the same time. I find there is less bleeding than was the case when packing was used.



Nasal septum clamp or splint.

This device was shown before the Section on Laryngology, Otology and Rhinology at the San Francisco Session. It is made of German silver, so constructed that when inserted, with a wing on each side of the septum, a slight spring action of the two wings holds the mucous membranes together. The clamp is much more comfortable than packing, and is more easily applied and removed.

My invariable custom, as was the case preceding the use of these clamps, is to keep the patient in the hospital at least two days after the operation.

These clamps come in two sizes, but the smaller size is rarely used. They are manufactured by V. Mueller & Co.

A SIMPLE METHOD OF QUANTITATIVE DETERMINATION OF COMPLEMENT FIXATION

J. O. Hirschfelder, M.D., San Francisco

In the complement fixation test the purpose is to determine the presence or absence in the serum to be tested of a body which on uniting with the antigen will prevent the complement from combining with the lysin to dissolve the blood cells.

In the antigen we have a complement fixing body (A) and a substance (B) which unites with the antibody in the serum to form a complement fixing substance. Similarly, in the serum we have a complement fixing body (C) and the antibody (D). The problem is to find the presence or absence of the antigenic substance and the specific antibody (B plus D) which on uniting fix the complement. If we wish to know how much of the latter combination is present, it is evident that we must first determine the amount of the anticomplementary action of the antigen and of the serum alone, as these vary.

The complement present in the serum of different guinea-pigs is highly variable, and, furthermore, rapidly diminishes on standing, even when kept in the ice chest. It is a simple matter, however, to determine the anticomplementary action simultaneously of the antigen (A), serum (C) and of the two mixed (B plus D).

In practice, the method used is the following: (1) Increasing quantities of complement; (2) increasing quantities of complement with a measured quantity of serum; (3) increasing quantities of complement with a measured quantity of antigen, and (4) increasing quantities of complement with the quantities of serum and antigen used in 2 and 3 mixed are simultaneously incubated at 37 C. (98.6 F.) for one hour. To each of these tubes the same quantity of cells and lysin are then added, and all are incubated for two hours. At the end of that time they are read, and the least amount of complement necessary to dissolve the cells (termed the system) is determined.

The amount of complement necessary to dissolve the cells in presence of the serum minus the amount of the system

gives the anticomplementary value of the serum (*C*), and in the same manner the anticomplementary value of the antigen (*A*) is determined.

To measure the anticomplementary value of the serum plus antigen, that is, complement binding value of antigen and serum mixed (*B* plus *D*) from the quantity of complement necessary to dissolve the cells, the amount of the system plus the anticomplementary values of Serum *C* and Antigen *A* alone are deducted. This gives the value of the mixture in terms of complement. As the value of the complement varies and the number of cells used from day to day may be different, the calculation can be made in percentages of the amount of complement used in the system, this being the complementary unit.

By taking an excess of antigen, the complementary value of the antibody in the serum tested may be readily calculated, and similarly the complementary value of the antigen by using an excess of the specific serum. If a large number of tests are made with gradually increasing quantities of complement, the titration may be made as accurately as may be desired.

By employing this method it will not be possible to get different reports from different laboratories of the Wassermann reaction with the same blood, as seems to be frequently the case now.

The antibodies of the same patient may be compared from time to time. It will probably be of value to the physician to know whether the antibodies in the blood of his patient are increasing or diminishing.

275 Post Street.

Therapeutics

MEDICATION

(*Continued from page 1307*)

Let Us Aim to Improve our Medicinal Treatment of Disease

Toward that end, will you prescribe the pills made by a Detroit manufacturer?

CACTUS COMPOUND PILLS (HEART TONIC)

Each pill is said to contain:

"Cactus grandiflorus	½ gr.
Sparteine sulphate	1/40 gr.
Digitalin, pure (German)	1/125 gr.
Strychnine sulphate	1/500 gr.
Glonoin (nitroglycerin)	1/500 gr.
Strophanthin	1/5000 gr."

1. There is no authentic proof that cactus has any physiologic, pharmacologic or clinical activity; on the contrary, exhaustive investigations have established its worthlessness.

2. The U. S. P. dose of spartein sulphate is 1/6 grain. Even if spartein could be considered as a cardiac tonic, which is doubtful, a dose of 1/40 grain would be too small to have any activity whatever.

3. The dose of pure German digitalin is stated by some authorities to be from 1/60 to 1/30 grain; therefore, 1/125 grain is a small dose. This digitalin, which is probably a mixture of glucosids, does not represent the whole activity of digitalis, and has not been found to be as valuable in cardiac insufficiency as is digitalis.

4. The U. S. P. dose of strychnin sulphate is 1/60 grain. Of course, 1/40 and 1/30 grain are often considered tonic and stimulant doses, and in emergencies much larger doses are often administered. Therefore, 1/500 grain of strychnin sulphate would be almost as negligible as a dose of charcoal or oyster shell.

5. Granted that this unstable drug is still present when the pill reaches the patient, 1/500 grain of nitroglycerin is a small dose. Its activity as a vasodilator, not as a cardiac tonic, especially when offered in a pill form for slow solubility and therefore slow absorption, would be negligible.

6. The strophanthin of the pharmacopeia is a glucosid, and the dose is 1/200 grain. If the foregoing is the crystalline strophanthin of Thom, the dose is about 1/400 grain. A dose of strophanthin of 1/5000 grain is ridiculously small. In the next place, strophanthin is of no value as a cardiac tonic in heart weakness, when administered by mouth.

The combination is absolute nonsense. Lines may be drawn through every one of the ingredients except digitalin, and the treatment then becomes one of digitalis. The selling name of "Cactus Compound Pills" is a misnomer, as the only activity of the pill would be that of a small dose of some digitalis glucosids. If it were argued that it was intended to give this small dose frequently, it should be remembered that digitalis acts very slowly, and the full physiologic effect would not be reached from a single dose until after twelve hours, at least, and sometimes not until after twenty-four. Digitalis also is slowly excreted. Therefore, to give digitalis frequently for any length of time is inexcusable medication. For the nitroglycerin to be effective, it should be given in a small dose frequently, as every two or three hours. Such frequent dosage would be inexcusable for the digitalin.

We will leave it to the mathematician and the pharmacologist to decide how many and how frequent doses of 1/500 grain of strychnin it would take for an adult to receive cardiac stimulation from it, and then to decide how much digitalin was in the system.

This preparation is an illustration of how inert or worthless drugs are perpetuated. At one time it was thought that cactus had a therapeutic value; during that time many "specialties" and proprietaries bearing its name were placed on the market. These continue to be sold, although the drug is now known to be worthless.

(*To be continued*)

The Increase of Lunacy.—The board of control of lunacy in England has recently issued a report containing some very striking charts on the increase of lunacy. They show that since the year 1859 a marked increase in lunacy has occurred in all classes of the community, but especially in the pauper classes. The first chart deals with the total number of insane persons in England and Wales reported to be under care on January 1 in each year. Thus, in 1859 there were 36,480 persons of all classes under control; in 1899, 100,000, and in 1915, 140,466. In the same period private lunatics rose from 4,397 to 9,968. The second chart deals with the comparative variations in the proportion of the insane in England and Wales to the total population, and shows that while in 1859 the ratio was 18.5 per 10,000, all classes, it had risen in 1915 to 37.7. But these figures cannot be taken absolutely, for the diagnosis of lunacy is much more accurate today than at the beginning of the period mentioned, and many cases are diagnosed and placed under control which formerly would have been ignored. However, the fact that there has been an increase is not open to doubt. As to its cause, many theories have been advanced and none is entirely satisfactory. Among them are syphilis, alcohol, tobacco, sexual excess, overstrain and overexcitement. The latest theory is that of Dr. Mercier, the well known alienist, who considers that insanity is sometimes due to excessive indulgence in some foodstuff, such as fat or sugar.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET . . . CHICAGO, ILL.

Cable Address . . . . "Medic, Chicago"

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SATURDAY, APRIL 29, 1916

THE DEATH RATE AND THE BIRTH RATE

During the past several decades the general death rate has steadily fallen in all civilized countries. If dependable statistics were available, they would probably confirm what the most reliable evidence now obtainable indicates, that this perceptible and progressive decline in the death rate is a relatively recent phenomenon. The figures for the old city of New York have been known for more than a century.[1] They show that the decennial death rate rose for the forty years following 1810-1819, but has been falling since the Civil War and is now much lower than ever before. This recent trend is fairly characteristic of other places in which conditions are somewhat similar. It does not necessarily follow that the gains are distributed evenly up and down the scale of years. On the contrary, despite the fact that there has been an unquestionable gain in the vitality of the younger age groups, there appears to be with us a rising mortality in elderly life — a feature not characteristic of the mortality statistics of the leading European countries, but almost peculiar to the United States.[2]

The cause for this apparent increase in mortality at higher ages in opposition to the general trend in other countries has evoked various explanations. Rittenhouse[3] has stated that we must admit that our civilization, in addition to its blessings, has brought us certain habits and hazards of life and degenerative influences which promote physical deterioration. As he has expressed it, notwithstanding our progress in prevention, the physically substandard and low-powered group, which numbers millions, is apparently increasing abnormally. The decline in the general death rate and increase in the average length of life are due, not to an increase in the vital strength of the people, but to the fact that we are learning how to step around certain dangers — the germ diseases. The death rate from the wearing out of the organs is steadily increasing. Fisher and Fisk[2] contend that unless this increased mortality is due to some unknown biologic influence or to the amalgamation of the various races which constitute our population, it must be ascribed, in a broad sense, to lack of adaptation to our rapidly developing civilization.

However these facts may ultimately be explained, another factor in our national life is equally interesting. It is said that as a rule influences which tend to increase deaths also tend to decrease births, and influences which tend to decrease deaths tend to increase births. But it is freely conceded that our birth rate is declining. Although there has been, in general, a falling death rate, obviously it cannot proceed very much farther. "Modern hygiene may postpone the death of man, but it cannot keep him alive forever." The ratio of decrease in the birth rate is not known because, as Rittenhouse has expressed it, we have not yet reached that stage of intelligence which grasps the importance of keeping a record of the births and deaths in all sections of our country.

With limitations to the decline in the death rate set by natural circumstances, the continuation in the fall in birth rate raises problems of national importance. Of course, up to a certain point the decline in birth rate may well have been an accompaniment or natural result of the decline in death rate. But the change has apparently proceeded beyond the point at which the proper reciprocal relationship between births and deaths holds. Willcox[1] has stated that one of the main duties of statistics is to point out the trend of the stream along which society is moving, and thus perhaps arouse a desire for a change. Accordingly, he has calculated that if changes in the birth rate like those which have been in progress in the United States since 1850 were to continue unchecked for a century and a half, there would be no children left.

It is, of course, futile to offer predictions in a serious sense; for there are too many variables which may change the continuance of any movement into the distant future. Nevertheless it seems worth while to inquire into the possible causes of the current falling tendency in the birth rate. There is little basis for the spencerian doctrine that the increasing drain of civilization on the nervous and other physiologic activities decreases the surplus left for developmental functions. Billings was probably nearer the truth when he concluded that the most important factor in the change is the deliberate and voluntary avoidance or prevention of childbearing on the part of a steadily increasing number of married people who prefer to have few children.

The question as to whether a decrease in the birth rate is desirable may be debatable. It has been said that it is this feature, and only this, which has enabled

1. This statement and other facts in relation to this topic are taken from the paper read by Willcox of Cornell University before Section VIII, Public Health and Medical Science, Second Pan-American Scientific Congress, Washington, D. C., December, 1915 (Willcox, W. F.: Fewer Births and Deaths: What do They Mean? Jour. Heredity, 1916, vii, 119).

2. Fisher, Irving, and Fisk, E. L.: How to Live, New York, 1915, p. 281.

3. Rittenhouse, E. E.: National Vitality and National Defense, Why a National Vitality Commission is Needed, address before Am. Assn. Advancement of Science, Columbus Meeting, Dec. 29, 1915.

mankind to retain the advantages promised by the much desired decline in the death rate. The individual, as Willcox has pointed out, desires a chance for a long life with its opportunities. Society is concerned that enough children should be born to secure its own permanence and a reasonable increase. Inasmuch as the death rate cannot be expected to fall much below where it now stands in healthy districts, and there is no such natural limit to the fall in birth rate, one problem of national vitality and progress becomes clear. The question of normal birth rate and natural increase in the best stock of our population falls within the province of public health inquiry. Without committing ourselves to any stand in relation to the claims of so-called eugenics, we may formulate the general question of race protection in the words of Willcox: Persons interested in maintaining the numbers and improving the quality of the population should aim not merely or mainly at a continued reduction of the general death rate but also at the general education of public opinion toward a readjustment of the birth rate in various classes which will enable society to gain from its best strains more than it does under present conditions.

THE UTILIZATION OF INTRAVENOUSLY INJECTED FAT

The question as to how the individual nutrients are utilized in the metabolic processes of the body has given rise to considerable discussion. In the case of proteins, interest is centered at present on the amino-acids which are known to be derived from them in the digestive changes within the alimentary canal, and which have now been traced farther into the circulation and tissues on their migrations through the organism. The carbohydrates are likewise known to be distributed in the form of glucose, and thus readily burned up promptly whenever they are available and a demand for energy is made. It has not been so clear whether fats are thus directly utilized for the needs of the body. There is considerable indirect evidence which is rather conclusive regarding such a possibility. For example, after a few days' starvation the body may be regarded as practically free from stored carbohydrate. Under such circumstances the fats and proteins alone remain as a source of energy. Direct investigation of the metabolism in prolonged starvation has shown that the protein destroyed is far too small in such cases to account for the heat production. By exclusion it must be assumed that, under these circumstances at least, the fats stored in the body participate in the decompositions that contribute heat and energy for the performance of muscular work.

The degree to which the different classes of foodstuffs—the proteins, fats and carbohydrates—are called on to supply energy is further indicated by the respiratory quotient. This numerical quantity is simply the ratio of the volume of carbon dioxid given out to that of the oxygen consumed. Carbohydrates, as, for example, those having the formula of $C_6H_{12}O_6$, may be looked on as consisting of carbon plus water; so that if these were the only substances oxidized, the oxygen would have been entirely used to combine with the carbon, and the respiratory quotient would be unity. In fats, however, there is some hydrogen besides carbon to be oxidized. Part of the oxygen taken up will be used for the oxidation of the hydrogen, so that there is less carbon dioxid given out than that equivalent to the oxygen taken in. The respiratory quotient of fats, therefore, is less than unity.

It has been known for some time, from studies of the respiratory quotient, that if the body has previously supplied the greater part of its needs at the expense of fats, it will do so during muscular work. Studies in this field have justified the belief that the tissues of the body are able to obtain their energy by direct utilization of the fats which they contain rather than by any devious path in which carbohydrate is first formed from the fat. Murlin and Riche[1] of the Cornell University Medical College have further clearly demonstrated that fat injected directly into the circulation can be oxidized at once. When, for example, an intravenous injection of a 3 per cent. emulsion of lard oil was made in animals, the heat production was found to rise promptly; and the respiratory quotient fell as the fat became concentrated in the blood, thus indicating that the injected fat actually burns. These experimentally ascertained facts are not without interest in relation to the proposed use of fat emulsion for nutritive purposes by direct subcutaneous or other parenteral paths, without previous sojourn in the alimentary tract.

THE OPIUM ALKALOIDS AND PAIN SENSATION

A decrease in pain perception is the most important physiologic effect of morphin and some of its associated alkaloids of the opium series. Lately not a little attention has been directed scientifically to the differentiation of the pharmacologic action of the various individual substances which are obtained from the dried juice of the poppy. For many years the galenic preparations of opium have been contrasted in their comparative potency and specific effects with the alleged effects of the constituent alkaloids. The medicinal drug opium is required to contain 10 per cent. of morphin. Opium on the market may contain from 3 to 18 per cent. of morphin, 1 to 10 per cent. of narcotin and 1 to 2 per cent. of codein, with traces of the large number of other alkaloids which have been isolated from this mixture. There can no longer be any doubt that these have individual peculiarities of phar-

1. Murlin, J. R., and Riche, J. A.: Blood Fat in Relation to Heat Production and Depth of Narcosis, Proc. Soc. Exper. Biol. and Med., 1915, xiii, 7.

macologic action that are often distinct and characteristic. The question of the possible antagonisms of the opium alkaloids has often been raised; and more recently the possibility of unique synergistic actions has been much debated. This explains the introduction and occasional exploitation of various mixtures of morphin with different percentages of other alkaloids.

It always marks a step in advance in any branch of the natural or physical sciences when it becomes possible to apply quantitative methods of study to the phenomena involved. Individual judgments, errors of observation, and subjective impressions can then be eliminated or corrected by a purely objective mode of investigation. Guesswork gives way to mathematical accuracy. This explains the enormous advantage which came with the introduction of the registering thermometer in medicine. Heartbeats can readily be counted with correctness; and now blood pressure is a value determinable with considerable precision. In the field of the nervous system it has been less easy to record symptoms or responses with equal precision. The psychic phenomena are singularly subject to the personal equation.

Working in part under the auspices of the Council on Pharmacy and Chemistry of the American Medical Association, at the pharmacologic laboratory of the Johns Hopkins University, Macht[1] and his co-workers have managed to make quantitative and scientifically accurate comparisons of the analgesic properties of various opium alkaloids. With suitably trained human subjects they succeeded in demonstrating a sufficient constancy in the threshold of pain sensation. Through numerous observations on the electrocutaneous sensation with the induction current it was established that the normal pain threshold remains surprisingly constant for many hours in succession; through a series of other experiments, lasting over twenty-five hours each, the diurnal and nocturnal variations were found to be very slight. After the normal pain threshold in any given experiment had been determined, a drug was administered by subcutaneous or intramuscular injection, and, after its absorption, repeated readings were made. In this way a rise or fall in the pain threshold, or an analgesic or hyperalgesic effect, respectively, was detected and measured. Macht points out that even the scientifically educated subject could scarcely have acquired a subjective bias as to the outcome of the comparative action of the opium alkaloids in respect to cutaneous analgesia, owing to the widely divergent published views of previous investigators. Thus, Claude Bernard[2] regarded narcein, an inert substance according to the majority of investigators, as a powerful narcotic; again, Fronmüller[3] ranked narcotin in activity as next to morphin; while Baxt[4] extolled the wonderful pain-relieving virtues of papaverin.

As an outcome of the investigations at Baltimore, it was found that in respect to their analgesic power when the six principal opium alkaloids are administered in analgesic doses, they ranged themselves in the following order, beginning with the strongest and ending with the weakest: morphin (10 mg.); papaverin (40 mg.); codein (20 mg.); narcotin (30 mg.); narcein (10 mg.); thebain (10 mg.). The fact that by morphin one subject was rendered hypersensitive to pain, and that this idiosyncrasy could be quantitatively demonstrated, confirms the existence of undoubted cases of persons who are not relieved by morphin, but are rendered even more sensitive by it.

Observations made on the effects of combinations of some of the opium alkaloids indicated that in certain cases, notably with mixtures of morphin and narcotin, a dose of the mixed alkaloids had a greater analgesic power than was represented by the arithmetical sum of its constituents. A similar action was observed with a mixture of all the alkaloids to be extracted from opium. In the light of such facts the problem of possible synergism of the alkaloids remains in evidence. It must be remembered that the observations of Macht involve only the cutaneous sensation. They are without question of value, however, in relation to the broader subject of analgesia.

1. Macht, D. I.; Herman, N. B., and Levy, C. S.: A Quantitative Study of Cutaneous Analgesia Produced by Various Opium Alkaloids, Proc. Nat. Acad. Sc., 1915, i, 582.
2. Bernard, Claude: Compt. rend. Acad. d. sc., 1864, lix, 406.
3. Fronmüller: Klinische Studien über die narcotisierende Arzneimittel, Erlangen, 1869.

YEAST IN A NEW RÔLE

In a recent essay, Mendel[5] has pointed out how the European war is affording an opportunity to study the relation of the food supply to unexpected economic and territorial conditions. From the standpoint of some of the nations involved, the situation is unique in view of the exclusion of food normally obtained in large amounts from abroad. It is interesting to note the scientific acumen with which the German nation, for example, has started a public propaganda of advice to meet the situation thus unexpectedly created. Unjustifiable waste is to be avoided at every turn; but in addition to this, attention is directed to the dietary use of products entirely neglected in the past, or relegated to the rations of the domestic animals. This is a striking aspect of the influence of the scientific spirit on the daily life and service of man.

Under the prevailing circumstances, the supply of protein is most likely to become curtailed in the continental interior; and the carbohydrates are the most abundant of the available nutrients. Inasmuch as meat is an important, if not the most prominent source of protein, the restriction of its use serves a twofold purpose: It encourages the larger consumption of food from vegetable sources, and conserves certain types of

4. Baxt: Arch. f. Anat. u. Physiol., 1869, p. 112.
5. Mendel, L. B.: Changes in the Food Supply and Their Relation to Nutrition, Yale University Press, 1916.

foods, such as the cereal grains, by obviating the necessity of converting these indirectly into food for human consumption through the expensive mediation of an animal. The possibilities of better utilization of the proteins of legumes, of coarser cortical portions of the grains until now discarded, of blood, which has found little favor in the diet of man, and of numerous other resources, have been studied and discussed in the foreign journals.

Somewhat unique among the new possibilities is the proposed use of yeast as an emergency food for man. Heretofore yeast has been known, outside of the baking processes, solely as an unused by-product of the fermentation industries. Of late it has been employed as an admixture to cattle feed, and now come the recommendations for its availability in the ration of man.[6] Yeast has the advantageous capacity of growing in solutions which are rich in carbohydrate and contain nitrogen in forms and from sources scarcely acceptable to the higher organisms. It is thus able to convert the cheapest materials into typical cell substance, and to construct protoplasm out of inexpensive pabulum. Yeast is thus comparatively rich in protein.

On the basis of actual experiments on man, Schottelius[6] has suggested that a small addition of yeast, amounting to 30 gm. (1 ounce), to the ordinary mixed diet is a desirable means of increasing its nutritive value. Völk[6] has investigated the digestibility of the nutrients — the protein, fat and carbohydrate — which occur in yeast, and has concluded that artificially cultivated and brewery yeasts are equally valuable food materials and may be used occasionally to replace meat in the diet. Furthermore, metabolism experiments of seven days' duration are reported by Loewy and von der Heide[6] in which each of the subjects (men) received 100 gm. of yeast per day as a part of a simple mixed diet. Of the 79 gm. of protein in the diet, 31 were furnished by the yeast, and the remainder by the meat, cakes and potatoes which formed the other ingredients of the ration. The digestibility of the yeast protein for the first four days of the experiment was estimated as 81 per cent., and for the last three days, 85 per cent. It will require more than formal reports of this sort to justify the extensive use of yeast in the dietary. As a therapeutic agent yeast has had a limited application with rather uncertain indications for a number of years. Peculiar potencies of the yeast cells in promoting appetite and improving nutrition in ways suggested by the modern "vitamin" hypothesis are known.[7] Perhaps the most important feature of immediate consequence lies in the recognition of how scientific studies may pave the way for a tolerant attitude toward proposed novelties in nutrition.

6. Schottelius, M.: Deutsch. med. Wchnschr., 1915, xli, 817. Völk, W.: Ztschr. Spiritusindust., 1915, xxxviii, 235. Loewy, A., and von der Heide: Berl. klin. Wchnschr., 1915, lii, 600.

7. Hopkins, F. G.: Jour. Physiol., 1912, xliv, 425. Funk, C., and Macallum, A. B.: Jour. Biol. Chem., 1915, xxiii, 413.

Current Comment

PHYSICAL PREPAREDNESS

Military service, whatever its desirability from other points of view, has at least one merit: It tends to bring out the facts with regard to the physical efficiency of the male population. Nations seldom take stock of the physical condition of their citizens except for military purposes. Sometimes the exigencies of war bring to light unwelcome facts. Whether or not universal military service is, on the whole, a good thing for any nation, there can be no doubt that it would be most wholesome and enlightening if the physical conditions of the populace were brought under a scrutiny at least as rigid and impartial as that of the medical examining officer — if it were written down in our national account books just how many of our citizens possess fairly sound vital organs and how many have been weakened by disease or wrong conditions of living; how many are in reasonable command of fairly developed muscular systems, how many are flabby and enfeebled from luxury and overindulgence, and how many exhausted and drained of their strength by overwork; how many are duly nourished, how many overfed and how many underfed. E. E. Rittenhouse,[1] in an address advocating the establishment of a national vitality commission, quotes the experience of a civilian member of last summer's Plattsburg camp. The Plattsburg regiment was recruited largely from men above the average in physical respects — outdoor and athletic men, such as polo and football players and big game hunters. Yet after a month's vigorous training the regiment as a whole was unable to accomplish a day's march a third as long as that of the regular infantry. "If this is the experience of self-selected soldiers who undertook the work because they knew of their own trained physical condition," asks Mr. Rittenhouse, "how long would it take to 'rebuild' a regiment of men from our large body of untrained citizens composed partly of men from the great physically low-powered group?" It is more than probable that a searching investigation would discover us as a nation to be fundamentally — that is, physically — equally "unprepared" for peace and for war.

A METHOD FOR OBTAINING COMPETENT HEALTH OFFICERS

With appreciation of the necessity for whole-time health officers has come a realization of the need for definite standards of fitness for such officers. Certain colleges are offering courses definitely qualifying for such work and leading to the degree of Doctor of Public Health; but graduates are as yet too few to meet the need. The United States Public Health Service has been cooperating with the civil service commissions of certain states and cities for the purpose of securing efficient health officers, and has suggested a plan which appears to be both serviceable and effective. On application from a civil service commission or other

1. Rittenhouse, E. E.: Upbuilding National Vitality: The Need for a Scientific Investigation, Science, Feb. 18, 1916, p. 221.

body delegated to select a health officer, the United States Public Health Service will prepare and forward to the proper authority questions to be used in the examination of applicants. After the examination has been given, the papers, distinguished by number only, are to be sent to the board at Washington, there to be graded and then returned to the local board. Whenever practicable, an oral examination, which usually counts 25 per cent. of the total, is given by an officer of the Public Health Service. All grades are forwarded to the civil service commission, which can then certify the successful candidate to the appointing authority. "In this way," says Assistant Surgeon-General Rucker[1] of the Public Health Service, "health officers will be selected by reason of their fitness as determined by a high standard. The civil service commission or the board of health has been rendered assistance, the office has been filled by a competent officer, and the person passing the examination has the satisfaction of having been certified by the government health agency."

ABOLISHING SECRECY IN MEDICINE—FOR LIVE STOCK

The unknown is always awe-inspiring—*omne ignotum pro magnifico*. For this reason secrecy of composition is the backbone of the fraudulent "patent medicine" business. Every one who has given the matter any study knows that the disclosure of the names and quantities of the potent ingredients of "patent medicines" would work no hardship on honest manufacturers. But the exploiter of frauds would have his most valuable advertising asset taken away from him should he be required to let his customers know the drugs they are pouring down their throats. The reason for the excitement exhibited by manufacturers of fake remedies when it is suggested that they be required to remove the veil of secrecy from their products was never better expressed than by one of their own defenders. This spokesman of the nostrum business, in urging "patent medicine" makers to fight a law requiring the publication of the names and quantities of the active ingredients of their products, did so on the ground that:

". . . it is practically impossible to prove that the therapeutic claims made for a preparation whose composition is not known, are 'false and fraudulent.'"

The same agency said, further, that to publish the names and quantities of the active drugs in "patent medicines" would mean that the manufacturers "will be supplying evidence which may result in their own undoing." A more bare-faced and cynical admission of the viciousness of a fraudulent business has probably never been penned. It explains, briefly, and succinctly, why the poisoners of the public health fear any law that will turn the light of publicity on their products. So powerful are the interests engaged in debauching the public health, that there is not today on any statute book in the United States—municipal, state or federal—any enforced law that will give the public the knowledge of what is in the remedies that are sold for self-medication. Every attempt either to pass or to enforce such a law is met with overwhelming opposition on the part of those who profit by secrecy and mystery. Curiously enough, although the public has so far been unable to protect itself in this respect, it has found it feasible to protect its live stock, at least in certain states. The laws of Nebraska, South Dakota and Oregon require that every remedy sold for the treatment of live stock shall have on its label the name of each therapeutically active ingredient in it. These laws, however, specifically provide that the term "live-stock remedies" shall not include proprietary remedies designed primarily for humans, but used occasionally for the lower animals. Hence, in these states, if the farmer wishes to doctor his pigs with safety he must do so with the medicine that is intended specifically for live stock, and not run the risk of giving a proprietary medicine that was purchased primarily for his baby. A man from Mars might wonder why a great commonwealth should afford greater protection to its live stock than it does to its own citizens. He would learn, however, that it is characteristic of the Earth-man to hold property in higher esteem than human life.

1. Rucker, W. C.: Competent Health Officers, Pub. Health Rep., March 24, 1916, p. 762.

THE HYGIENE OF SUMMER RESORTS

About a year ago, THE JOURNAL[1] called attention to the enterprise of York Village, Maine, in establishing a modern health department, and appointing a whole-time health officer. The original organization was experimental and was made for only one year. The community has evidently found no reason to regret its action, for at a recent open town meeting it was resolved to continue the work, and a sum was voted for the expenses of the forthcoming year. The original impetus to the reform was largely due to a small epidemic of typhoid fever. Naturally enough, therefore, the first year's work of the new health department was devoted chiefly to safeguarding the water, milk, ice and food supplies, and to the control of communicable diseases. The results, as judged by the morbidity statistics, were excellent. The example of York Village can be highly recommended to other resorts.

1. The Health of Our Summer Resorts, Current Comment, THE JOURNAL A. M. A., Feb. 20, 1915, p. 670.

A Study of Fever.—Jona shows by experiments on rabbits with *B. coli*, that: 1. A definite rise in body temperature is obtainable by injecting a minute amount (as small as 0.000004 gm.) of bacterial substance in a small quantity of Ringer's solution, while collapse and even death result from larger doses. 2. The active bodies are either colloids or adherent to colloids. They are entirely separated by a collodion filter. They are soluble in water and saline solutions. They are not destroyed by boiling or by any dry heat of 110 C. (230 F.). They are insoluble in and unaffected by prolonged contact with ether. They are insoluble in absolute alcohol and their potency is diminished by prolonged contact with absolute alcohol. 3. The fever produced lasts a few hours and is principally due to a diminution of heat loss. 4. In animals in which the brain stalk has been severed distal to the optic thalamus no rise of temperature occurred after the injection of an ordinary pyretic dose. —J. L. Jona in *Journal of Hygiene*, 1916, xv, 169.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Neurological Society Organized.—The Los Angeles Society for Neurology and Psychiatry has been organized with the following officers: president, Dr. Henry G. Brainerd; vice president, Dr. Charles Lewis Allen, and secretary, Dr. Edward H. Williams.

Personal.—Dr. William Palmer Lucas, San Francisco, professor of pediatrics in the University of California, has started for Belgium for relief work in connection with the dietetic problems for infants and children which have arisen there. He sailed from New York on the *Philadelphia*, April 22, and expects to be away about three months.——Dr. William H. Dukeman, Los Angeles, announces that he retired from the practice of medicine, January 1.——Dr. Theodore Koeberle, Los Angeles, is reported to be critically ill from the effects of a fall near his home which caused a fracture of the hip.

Constitutionality of Laws Which Discriminate in Favor of Those Who Heal by Prayer in Question.—The constitutionality of medical legislation enacted by the recent California legislature amending the various acts of 1907 has been raised in a case pending in the United States District Court of California. In this case P. L. Crane, a drugless healer, is plaintiff and the defendants are Governor Johnson, Attorney General Webb and District Attorney Woolwine. The case lies in the equity side of the Federal District Court on a petition for a permanent injunction to restrain the state officials named in the bill from enforcing the California Medical Practice Act because, as the bill alleged, this law is unconstitutional under the federal constitution. The bill prays for temporary relief during the pendency of the suit. Arguments were heard for the temporary injunction, which the court denied. Arguments for the permanent injunction, which will bring into issue the constitutionality of the law, are yet to be heard. The plaintiff's claim is that the California Medical Practice Act comes within the prescription of the fourteenth amendment of the federal constitution, in that the law is discriminatory in favor of those who heal by prayer, thereby militating against drugless healers.

University of California Items.—"Toland Amphitheatre" has been selected as the name of the amphitheater in the new University of California Hospital in San Francisco, in honor of Dr. Hugo H. Toland, the founder and long a member of the faculty of Toland College of Medicine, which eventually grew into the present University of California Medical School.——A new separate department of biochemistry and pharmacology has been established in the University of California Medical School. Its head will be T. Brailsford Robertson, as professor of biochemistry.——Dr. Wilbur A. Sawyer, Sacramento, secretary and executive officer of the California State Board of Health, has been made clinical professor of preventive medicine and hygiene.——Dr. James G. Cumming, director of the Bureau of Communicable Diseases of the California State Board of Health, has been made assistant professor of preventive medicine and hygiene.——Drs. William C. Hassler, John N. Force, Jacob C. Geiger and Chester G. Gillespie, C.E., of the bureau of sanitary engineering of the state board of health, have been made lecturers in preventive medicine and hygiene.——The University of California, besides the work usual to a medical school, also offers a "Curriculum in Public Health" in which the graduate degree of "Graduate in Public Health" may be earned by those who are specializing in medicine, chemistry, bacteriology, or sanitary engineering, and who plan a career in preventive medicine, sanitary science, and public hygiene.——An outright addition of $70,000 per annum has been made by the university to its provision from its general fund for the university medical school for the year beginning July 1, 1916. The university's expenditure for maintenance of medical work for the year ending June 30, 1917, exclusive of building operations, will include: medical school salaries, $87,450; medical school budgets, $49,750; total for salaries and budgets for the medical school, $137,200; for the University Hospital, a teaching hospital under the complete ownership and management of the university, $134,000, of which $35,000 will come from receipts from patients and the balance from the income on endowment and from the general fund of the university; for the George Williams Hooper Foundation for Medical Research, $50,000; making a total for medical work, of $321,000.——Further gifts of $25,616.50 have been received by the University of California to the fund for completing, furnishing and equipping the new University Hospital in San Francisco, which will be completed by the end of the present year at a cost, met by gift, of over $600,000. Additional gifts to the amount of $90,000 are being sought for the completion of the fund.

ILLINOIS

Laboratory to be Dedicated.—The new chemical laboratory building of the University of Illinois, Urbana, Champaign, which is said to be the largest chemical laboratory in the United States, was formally dedicated, April 19. The new building makes available for the chemistry department 164,288 square feet of working space.

Sanatorium Site Purchased.—Purchase of the Dodson property, east of Geneva, as a site for the Kane County Tuberculosis Sanatorium was completed, April 13. The county paid $12,000 for the land. There is great opposition to the establishment of the institution by the people of Geneva, who oppose the location of the sanatorium within one mile of the city limits.

Personal.—Dr. William Brimble-Combe, Carmi, fell downstairs, April 10, dislocating his right shoulder.——Dr. Robert C. Murphy, inspector of high and common schools and health officer of Mt. Greenwood, was elected police magistrate of the village, April 18.——Dr. George P. Gill, Rockford, who recently returned after service on the western front with the Chicago unit, delivered an address at Rockford, April 13, in which he paid tribute to Dr. James M. Neff in charge of the unit.——Dr. Carl Freund, Belvidere, an intern at Cook County Hospital, who has been seriously ill with septicemia due to a necropsy infection, is reported to be improving.

State Hospital Changes.—Dr. Patrick M. Kelly, superintendent of the Kankakee State Hospital, has resigned on account of ill health and the resignation was accepted by the State Board of Administration, April 24. In consequence of Dr. Kelly's resignation the following changes in the staff of the various state institutions have been made by the board: Dr. Ralph A. Goodner, superintendent of the Anna State Hospital, is transferred to the Kankakee State Hospital as superintendent; Dr. Joseph A. Campbell, superintendent of the Watertown State Hospital, is transferred as superintendent to the Anna State Hospital; Dr. Charles F. Read, assistant superintendent of the Peoria State Hospital, is appointed superintendent of the Watertown State Hospital; Dr. George W. Morrow, assistant superintendent of the Anna State Hospital, is transferred to a similar position at the Kankakee State Hospital; Dr. Samuel W. McKelvey, assistant physician at the Anna State Hospital, is transferred to a similar position at the Kankakee State Hospital; Dr. Eugen Cohn, assistant superintendent at the Kankakee State Hospital, is transferred to a similar position at the Chicago State Hospital; Dr. Hiram J. Smith, assistant superintendent of the Chicago State Hospital, is transferred to a similar position at the Anna State Hospital; Dr. Isaac F. Freemmel, assistant superintendent at the Chester State Hospital, is transferred to a similar position at the Lincoln State School and Colony, and Dr. Charles B. Caldwell, assistant superintendent at the Lincoln State School and Colony, is transferred to a similar position at the Peoria State Hospital.

Chicago

Sachs Memorial.—The Jewish Consumptive Relief Society devoted its meeting, April 26, to a memorial to Dr. Theodore B. Sachs.——More than $11,000 has already been contributed toward the Theodore B. Sachs fund, which is to be employed for the erection of a hospital to bear his name at the Edward Sanatorium, Naperville.——The medical members of the committee which has this fund in charge are Dr. William E. Quine, chairman; and Drs. Frank Billings, Ethan A. Gray, Robert H. Babcock, William A. Evans, Orville W. McMichael and John Ritter.

Meeting of Internists.—The eleventh regular meeting of the Chicago Society of Internal Medicine was held in the Northwestern University building, April 24. Drs. Nelson M. Percy and Frank Smithies presented a paper on "The Treatment of Pernicious Anemia by Multiple Transfusions of Whole Blood and Splenectomy," the discussion of which was opened by Dr. Carl K. Koessler. Drs. Herman L.

Kretschmer and Fred W. Gaarde reported on "Colon Bacillus Infection of the Renal Pelvis, with Special Reference to Clinical and Bacteriologic Results Following Treatment." Dr. Frank Billings opened the discussion on this report.

Chicago Physicians Address Societies.—Dr. Frank Billings delivered an address at the semicentennial celebration of the Iowa and Illinois Central District Medical Association at Rock Island, April 13. The lecture was on "General Infections from Focal Diseases" and was illustrated by lantern slides.——At the annual meeting of the Warren County Medical Society, April 7, in Monmouth, Drs. Herman L. Kretschmer and Edward H. Ochsner delivered addresses.——Dr. Charles L. Mix delivered an address before the Calhoun County (Mich.) Medical Society at Battle Creek, April 4, on "Compression of Spinal Cord by Trauma or Tumor: Diagnosis, Localization and Treatment."

Personal.—Dr. Orville W. McMichael has been elected, by the Chicago Tuberculosis Institute, attending physician of the Edward Sanatorium, Naperville, succeeding the late Dr. Theodore B. Sachs.——Dr. Ethan A. Gray has been appointed a member of the committee on business management of the Chicago Municipal Sanatorium.——Dr. Louis C. Johnston was seriously injured in a collision between his motor car and a street car, April 20.——Dr. Duro Guca has returned from a second trip to the Balkans in which the monotony was varied by the sinking of the ship, on which he was a passenger, by an Austrian submarine; by the impossibility of his reaching the field in Serbia in which he expected to work, and by his detention by the British on account of having an Austrian passport.

Committee of Arrangements for Military Surgeons' Meeting.—Surgeon General Rupert Blue, U. S. P. H. S., president of the Association of Military Surgeons of the United States, which is to hold its annual meeting in Chicago in October, has appointed the following committee of arrangements: Chairman, Lieut.-Col. Jacob Frank, surgeon general of Illinois; Brig.-Gen. Charles Adams, M. C., Ill. N. G. (ret.); Surgeon Julius Oliver Cobb, U. S. P. H. S.; Med. Dir. Thomas A. Berryhill, U. S. Navy; Asst. Surg. Charles A. Costello, M. R. C., U. S. Navy; Major James M. Phalen, M. C., U. S. Army; Lieut. Arthur D. Bevan, M. R. C., U. S. Army; Brig.-Gen. Samuel C. Stanton, M. C., Ill. N. G. (ret.); Lieut. J. Allan Hornsby, M. R. C., U. S. A.; Major Gustavus M. Blech, M. C., Ill. N. G.; Maj. Charles B. Walls, M. C., N. G.; and Asst. Surg. Overton Brooks, M. R. C., U. S. Navy.

INDIANA

More Land for State Hospital.—Thirty-four acres of land have been added to the Southeastern Hospital for the Insane, Madison. The hospital tract now consists of 374 acres.

Campaign Against Trachoma.—The city board of health, Indianapolis, has voted to begin an active campaign against trachoma. Thirty-three school inspectors and ten school nurses are busy caring for the schoolchildren suffering from trachoma.

Health Conference.—Plans have been made for the annual conference of town, city and county health commissioners to be held in Indianapolis, May 2 and 3. Among the speakers will be, Drs. Charles E. North, a milk expert of New York; Fletcher Gardner, Bloomington; Carl G. Viehe, Evansville, and H. H. Mitchell, Indianapolis.

Personal.—Dr. William T. Gott, Crawsfordville, has been reappointed a member of the State Board of Medical Registration and Examination.——Dr. Tillman O. Armfield, Elwood, has returned much improved after a winter spent in Florida. Dr. Armfield has resigned as municipal health officer and has been succeeded by Dr. James F. Ginn.

Food Handlers Must be Examined.—Dr. Herman G. Morgan, city sanitarian of Indianapolis, announces that every person who is employed as cook, waiter, baker, soda clerk, dish washer and all others who handle candy, cakes, ice cream or food, must undergo an examination by health department inspectors or other physicians and in case an infectious or contagious disease is found the employer will be required to discharge the person so afflicted instantly. This rule was adopted some time ago by the state department of health permitting cities in Indiana to take this step.

KANSAS

Personal.—Dr. Horace P. Mahan, Parsons, has resigned as a member of the staff of the State Hospital, and will practice in Kansas City.——Dr. Henry A. Dykes, Lebanon, has been reelected secretary of the State Board of Medical Registration and Examination. He has been a member of the board for eleven consecutive years and has been secretary for six years of that time.——Dr. Walter C. Palmer, Hiawatha, has gone to France for work in war hospitals.

State Board Changes.—Dr. John T. Axtell, Newton, has been appointed a member of the state board of health, succeeding Dr. James S. Cummings, Bronson.——Dr. Oscar C. Baird, Chanute, succeeds Dr. Benjamin J. Alexander, Hiawatha.——Dr. Jessie T. Orr, Olathe, was reappointed.——Dr. George R. B. Dean, McPherson, has been appointed a member of the State Board of Medical Registration and Examination, succeeding Dr. Franklin P. Hatfield, Olathe.

State Society Semicentennial.—The fiftieth annual session of the Kansas Medical Society will be held in Topeka, May 3 to 5, under the presidency of Dr. Oliver D. Walker, Salina, who will deliver an address on "The History of the Kansas Medical Society." At the public meeting, May 4, the speakers are to be Dr. Fred H. Albee, New York, who will describe "Recent Advances in Plastic Bone Surgery"; Dr. Bransford Lewis, St. Louis, who will give a "Lantern Slide Review of Cystoscopic Methods in the Diagnosis and Treatment of Ureteral Stone and Stricture"; and Dr. George W. Crile, Cleveland, who will deliver an address on "Methods and Results in Surgery of the Stomach and Intestines."

MARYLAND

Hess Dispensary Opened.—The Hess Dispensary of the Hebrew Hospital, Baltimore, was opened, April 20.

Personal.—Dr. William H. Welch delivered an address, April 21, at the opening of the first Chinese students' conference, Baltimore.——Dr. J. Percy Wade, superintendent of Spring Grove State Hospital, Catonsville, and Dr. Charles G. Hill of Mount Hope Retreat, Baltimore, have returned after a trip to New Orleans and Cuba.——Dr. Henry Barton Jacobs, Baltimore, was reelected president of the Maryland Association for the Prevention and Relief of Tuberculosis at its annual meeting, April 7, and Dr. William H. Welch, Baltimore, was elected a vice president.——The April number of the *University of Maryland Hospital Bulletin* is dedicated to Dr. Thomas A. Ashby, Baltimore, who is at present at Blue Ridge Summit, recovering from a severe illness, and contains eulogistic sketches of Dr. Ashby written by Drs. Albert H. Carroll, Randolph Winslow, Arthur M. Shipley, John M. Hundley, Samuel Merrick and John C. Hemmeter.

MASSACHUSETTS

Personal.—Dr. Charles S. Knight, Westboro, has been nominated as medical examiner and Dr. John Lowell Bacon, Southboro, assistant medical examiner for Worcester County.——Dr. Frederick C. Brigham has purchased the property of the Springfield Academy of Medicine at 349 State Street.

Cutter Lecture.—The Cutter Lecture on Preventive Medicine and Hygiene was delivered by Dr. Simon Flexner, New York, director of the Rockefeller Institute for Medical Research, on "The Finer Adjustments of the Immunity Reactions to Recovery from Infection," April 26, at Harvard Medical School.

MISSISSIPPI

Southern Charity Hospital Plan Defeated.—The house of representatives, April 3, cut out the item appropriating $25,000 for a southern Mississippi charity hospital to be located at Laurel.

Personal.—Dr. David S. Alverson, Redbone, has been appointed county physician of Warren County, succeeding Dr. George Y. Hicks, who resigned to become surgeon of the State Charity Hospital, Vicksburg.

State Association Meeting.—The forty-ninth annual meeting of the Mississippi State Medical Association will be held at the Elysian Club, Greenville, May 9 to 11, under the presidency of Dr. Inman W. Cooper, Newton. The annual oration will be delivered by Dr. E. Denegre Martin, New Orleans.

Tuberculosis Bill Approved.—The governor notified the senate of his approval of the senate bill for the creation of a state sanatorium for the care and treatment of tuberculosis and for the carrying on of a campaign against tuberculosis.

NEW HAMPSHIRE

Personal.—Dr. Jerome P. Webster, Plymouth, on recommendation of Dr. Robert U. Patterson of the American National Red Cross, has been appointed by the state department, one of four special medical attachés to be assigned to

the American embassy at Berlin.——Dr. Albert H. Varney, Newfields, celebrated his eightieth birthday anniversary, March 27.

Surgical Club Meeting.—The semiannual meeting of the New Hampshire Surgical Club was held in the Margaret Pillsbury Hospital, Concord, April 11, under the presidency of Dr. William H. Lyons, Manchester. The morning was devoted to a surgical clinic, at which operations were performed by Drs. Polak, Truesdale and John D. Adams of Boston, and in the afternoon Dr. John O. Polak, Brooklyn, read a paper on "A Study of End-Results After Operation for Pelvic Inflammatory Lesions," and Dr. Philemon E. Truesdale, Fall River, Mass., spoke on "Surgical Treatment of Ulcer At or Near the Pylorus."

NEW YORK

Correction.—In THE JOURNAL of April 15 it was stated that Dr. Daniel F. Mathews had been elected health officer of the city of Syracuse. Dr. Frederick W. Sears, health officer of Syracuse, advises that Dr. Mathews was elected health officer of the village of Solvay, which adjoins Syracuse.

Public Health Libraries.—Commissioner Biggs of the state department of health has prepared lists of books of established value on health suggestions, which he recommends libraries in the state to purchase. Three lists have been prepared: the first, which costs $10, includes twenty-four books and pamphlets; a second, which numbers thirty volumes and includes several valuable reference works, costs $25, while the third, the cost of which is $50, numbers forty-eight volumes and covers the subject of public health in a comprehensive manner.

Act to Supervise Professions.—A bill has been introduced into the senate of the state to amend the education law relative to the practice of professions in New York State by persons licensed in other states or countries and the licensing of such persons by the regents of the university under certain conditions. The law has been amended to read as follows:

> Conformable to law, the regents may supervise the entrance regulations to and the licensing and practicing of the professions of medicine, dentistry, veterinary medicine, pharmacy and optometry, and also supervise the certification of nurses and public accountants.
>
> The regents shall have power to make rules and regulations to regulate the licensing to practice of any member of any such professions, or the certification of any nurses or public accountants who shall present satisfactory evidence to the regents showing the applicant for a license to be of good moral character, of sufficient preliminary and professional education, training and skill, and to have lawfully and successfully practiced such profession or calling for such a period of time as to evidence a sufficiently high standing as to learning, experience, skill and character to warrant a license to practice in this state. The regents may dispense with all examinations in proper cases or require such examinations in other cases, as they shall deem necessary to test the professional attainments of the applicant.
>
> This act shall take effect July 1, 1916.

New York City

Honor to Jacobi.—Dr. Abraham Jacobi was the guest of honor at a dinner of the Williamsburg Medical Society, April 14. The dinner was given with a two-fold purpose, first to honor Dr. Jacobi, and, second to commemorate the tenth anniversary of the organization.

Quarantine Bill Passed.—The bill transferring the state quarantine to the federal government was passed by the senate, April 20, by a vote of 33 to 2 and the appointment of Asst. Surg.-Gen. Leland E. Cofer, U. S. P. H. S., as health officer of the port of New York, was confirmed.

Personal.—Dr. William V. P. Garretson has been appointed by the board of trustees of Bellevue and the Allied Hospitals, neurologist to the Harlem Hospital.——Dr. Anthony Bassler has been appointed consulting gastro-enterologist to Christ Hospital, Jersey City.——Dr. Nellis B. Foster has accepted the appointment of professor of medicine at the University of Michigan, Ann Arbor.

Prompt and Uniform Notification of Disease.—The Public Health Council of the State Department of Health on April 4 passed the following resolution:

> "It is the judgment of the Council that laboratory facilities in the state, both within and without the department, being now adequate to make diagnostic examinations in diphtheria, typhoid fever and tuberculosis, it is feasible and desirable for the department to enforce the sections of the Sanitary Code relating to prompt and uniform notification in these diseases by such means as will compel physicians at once to seek laboratory assistance in diagnosis in all doubtful cases."

Occupational Instruction in Hospitals.—A committee has been appointed by John A. Kingsbury, commissioner of charities, to take charge of the development of occupational work among the convalescent and chronic patients in the hospitals of the department and also among the inmates of the city homes. Dr. William Browning, Brooklyn; Dr. Charles L. Dana and Dr. Thomas W. Salmon will compose the medical advisory board.

Academy of Medicine Adopts Resolutions on Dental Colleges and Army Bill.—At the regular meeting of the Academy of Medicine, April 20, resolutions were passed approving the establishment of dental colleges in connection with universities having medical departments and also resolutions deploring the inadequate provision made for the medical service in the bills now before Congress for increasing the army of the United States, which gives less than five medical officers to 1,000 combatants, whereas experience in the present European war indicates that ten medical officers to 1,000 combatants are necessary under conditions of actual warfare. This resolution further affirms that in the United States Army in times of peace the ratio should not be less than seven medical officers to 1,000 combatants, to be increased to ten per thousand in war time.

Crusade Against Unmuzzled Dogs.—April 21 was set apart as an occasion on which loose dogs were made a mark of special observation. Under the orders of Health Commissioner Haven Emerson all the employees of the department of health were instructed to keep a sharp lookout for unmuzzled dogs in public places and to record the place and time when such dogs were observed. In the city 7,149 unmuzzled dogs were counted at large during the day, and as a result of this flagrant disregard of the law exhibited by the people of the city, instructions have been issued by the police commissioner to arrest or summon to court all who hereafter violate or disregard the dog-muzzling ordinance. Last year 3,648 persons were bitten by dogs. In 404 instances the dogs wore figure-of-eight strap muzzles; in 440 instances the dog was under leash; in by far the greater number of instances, namely, 2,332, the dog was neither leashed nor muzzled.

OHIO

Mendel at Academy of Medicine.—Lafayette B. Mendel, professor of physical chemistry in Sheffield Scientific University, New Haven, Conn., will deliver an address on "Abnormalities of Growth" before the experimental medicine section of the Cleveland Academy of Medicine, May 12.

Removal of Marine Hospital Requested.—Owing to the contemplated occupation of a considerable section of the downtown lake frontage of Cleveland by railroads, a part of which consists of hospital grounds, the removal of the Marine Hospital to a new site has been requested by the government authorities. Lakeside Hospital and other buildings of the Medical School of Western Reserve University are located in this vicinity.

Personal.—Dr. Guy H. Williams has been appointed acting superintendent of the Columbus State Hospital to succeed Dr. Charles F. Gilliam, deceased.——Dr. L. D. Upson, director of the Dayton Municipal Research Bureau, has resigned to assume similar work in Detroit.——Dr. Lauren E. Flickinger, Canton, is under treatment in Ingleside Hospital for injuries received in a collision between his automobile and an interurban car in Canton, April 1.

PENNSYLVANIA

Federation of Minor Hospitals.—The committee on postgraduate teaching of the Medical Society of the State of Pennsylvania has taken up the subject of a state federation of hospitals of not more than 100 beds. It is believed that the clinical material in these hospitals, which now is practically lost, could be utilized by adequate direct influence through county societies or under the direction of the State College of Pennsylvania, University of Pittsburgh and the University of Pennsylvania, Philadelphia.

Personal.—Dr. Clarence R. Phillips, Harrisburg, has been elected a member of the board of directors of the Associated Aid Societies of Harrisburg.——Dr. Daniel A. Webb, Scranton, left for Nova Scotia, April 13, to join the medical staff of the Eighty-Fifth Highlanders which will sail for the front early next month. Dr. Webb has been commissioned as captain, C. A. M. C. Members of the Lackawanna County Medical Society, of which Dr. Webb is president, gave a reception and dinner in his honor, April 12.——Dr. Robert W. Griffith, Kimberton, was thrown from his buggy in a runaway accident, April 11, fracturing his arm and four ribs. ——Dr. Thomas W. Kay, Scranton, has returned after a four months' trip around the world.

Philadelphia

Not to Abolish "Clean Up Week."—Owing to the indignation of the people in regard to Director Dateman's abolishment of "Clean Up Week," on account of the expense of the campaign, a resolution providing for its financing was introduced into councils, April 19. It was also announced that fourteen or fifteen inspectors will be put to work immediately, and the third week in May has been appointed as "Clean Up Week."

Additions to Medical Service Staff.—Dr. Wilmer Krusen, director of Public Health and Charities, has appointed four physicians to the staff medical service. One of the appointees, Dr. Warren B. Davis, was named as oral surgeon on the visiting staff of the Philadelphia General Hospital. Dr. Maurice Ostheimer was named as a member of the visiting staff of the Hospital for Contagious Diseases. Drs. Frank C. Hammond and F. Hurst Maier were appointed gynecologists to the same institution.

Campaign Against Mosquitoes.—In order to make a fight against mosquitoes, Dr. Wilmer Krusen, director of Public Health and Charities, has asked councils for $25,000, an ordinance for which was presented to councils, April 20. Dr. Krusen will appoint a day in May to be known as "Mosquito Day" and should councils pass the ordinance, Dr. Krusen will use the money for three specific purposes: $5,000 will go to abate nuisances which foster mosquitoes; $10,000 to destroy mosquitoes on private grounds and properties, and $10,000 to kill the pests in alleys and similar places.

Personal.—Dr. Charles H. Frazier delivered an address on "The Surgical Aspects of the Pituitary Body" before the Milwaukee (Wis.) Medical Society, April 15. Before the meeting a banquet was given in honor of Dr. Frazier by the Milwaukee Medical Society at the University Club.——Dr. Walter E. Lee has returned after several months in France. April 10 he delivered an address before the Philadelphia College of Physicians on "The American Ambulance Service in France."——Prof. William H. Park, University and Bellevue Hospital Medical College, delivered the annual address of the Pathological Society at the College of Physicians, April 27.

Welfare Association Meeting.—Members of the Babies' Welfare Association met, April 18, for their annual meeting in City Hall, and determined to continue the emergency service of last summer, which was responsible for saving the lives of many babies. There are only five local hospitals which were not affiliated with the association at its last meeting. Three of the five have no wards for children under 2 years of age and one of the remaining two, St. Mary's Hospital, applied for membership and was received into the association on the day of the meeting. The officers elected for the coming year are: president, John A. Vogelson, chief of the bureau of health; secretary, Dr. Henry H. Doan, chief of the Division of Child Hygiene, and treasurer, Dr. Arthur E. Post.

Medical Day at the University.—Awards of prizes to undergraduate students and a dinner closed Medical Day at the University of Pennsylvania, April 6. Five certificates of proficiency were given to the successful competitors. The second year prize was awarded to William Hoehn for his paper on "Changes in the Pancreas and Diabetes"; the fourth year prize was awarded to Harry M. Patrie, Louis A. Pyle and Clair F. Vale for their joint paper on "Recent Experimental Studies on the Pancreas," and a prize was awarded to J. Monroe Thornington of the class of 1919 on "Binocular Demonstration of Injected Pig Embryos." Dr. John M. T. Finney of Johns Hopkins University delivered an address on "What Constitutes a Surgeon," whom he defined as a member of a profession that has been ennobled by man and one who is ready at all times to lay down his life for the furtherance of his work. Complicated operations were demonstrated by means of motion pictures, the explanatory lecture being delivered by Dr. J. Bentley Squier of Columbia University.

WISCONSIN

Hospital Manager Elected.—H. K. Thurston, for three years statistician of the state board of control, was elected manager of the General Hospital, Madison, to succeed Curtis Livingston, resigned.

Personal.—Dr. Erwin C. C. Cary has been reappointed health officer of Reedsville and Maple Grove township.——Dr. John J. McShane, Kenosha, has been appointed city health officer of Akron, Ohio, succeeding Dr. Albert A. Kohler.

CANADA

Medical Help in Sparsely Settled Districts.—Certain districts in the Canadian Northwest, sparsely settled, are presenting a serious problem as it is becoming increasingly difficult to obtain medical attention for the sick. It is stated that a number of lives have been lost through the lack of proper medical care. The problem is so serious that the government of Saskatchewan will likely empower municipalities to vote a sum of not more than $1,500 per annum, sufficient to retain a medical man in the municipality.

Treatment of Addicts.—By new legislation enacted by the Ontario legislature provision is made for any sufferer from alcoholism or from addiction to drugs to sign a contract for treatment for a term not longer than a year. The patient must apply for treatment when he is in a condition fully to understand the nature of the bargain he is making and the obligations he is assuming. The treatment will be given in the hospitals for the insane throughout the province. There is also provision for guardians and physicians making application for confinement and treatment of wards and patients.

The Grenfell Work.—Dr. John M. Little, Jr., surgeon in charge of St. Anthony's Hospital, Labrador, delivered an address at the annual meeting of the American-Labrador Branch Needle-Work Guild of America, held in Boston, April 11. Dr. Little has been associated with Dr. Grenfell for nine years in his medical missionary work and will return to St. Anthony as soon as open water makes the trip possible. ——The work at St. Anthony's Hospital is at present under the charge of Dr. Charles S. Curtis, Boston.——Sir Wilfred Grenfell, who has been on duty with a Harvard unit "somewhere in France" is now on his way back to America.

Personal.—Captain Malloch, C. A. M. C., has been appointed commanding officer of the Daughters of the Empire Canadian Red Cross Hospital for Officers, at No. 1 Hyde Park Place, London, England.——Maj. S. Nixon Davis, C. A. M. C., Welland, Ont., has been appointed second in command of the 114th Haldimand Battalion, Ontario.——Dr. James A. M. Hemmeon, Seattle, has joined Section B of No. 1 Field Ambulance, C. E. F.——Dr. J. Arthur McCort, resident physician of the general public hospital, St. John, N. B., and Dr. Kenneth A. MacCuish, Glace Bay, N. S., have been appointed to the staff of No. 9 Stationary Hospital, the unit contributed by St. Francis Xavier University, Antigonish, N. S.——Lieut.-Col. Henry F. Gordon, Winnipeg, has been appointed officer in command of No. 12 Ambulance Corps. ——Lieut.-Col. John D. McQueen, Winnipeg, Man., who has been in command of No. 3 Field Hospital at the front, is to command the University Field Ambulance Corps, the unit recently offered by the universities of Manitoba, Saskatchewan, Alberta and British Columbia.——Dr. Ella Campbell Scarlett Synge, Vancouver, who recently returned to England from Serbia, has been appointed to the staff of the Joyce Hospital, Kent, England.

GENERAL

Gastro-Enterologists to Meet.—The nineteenth annual meeting of the American Gastro-Enterological Association will be held under the presidency of Dr. Charles G. Stockton, Buffalo, in Washington, D. C., May 8 and 9, with headquarters at the New Willard.

Mary Putnam Jacobi Fellowship.—The Mary Putnam Jacobi Memorial Fellowship has been awarded to Dr. Mildred Clark, Johns Hopkins, 1914, who will use the fellowship for research work in medical bacteriology in the department of Dr. Theodore C. Janeway at Johns Hopkins Hospital.

Bill to Issue Equipment to American Red Cross.—Mr. Chamberlin brought up in Congress consideration of Senate joint resolution which was approved, May 8, 1914, authorizing the issuance of military and naval equipment to the American National Red Cross with the additional provision that military and naval equipment may be issued to the American National Red Cross for the instruction of persons who may volunteer to receive training by that organization from May 1 to June 1.

Pediatrists to Meet.—The twenty-eighth annual meeting of the American Pediatric Society will be held at the New Willard Hotel, Washington, May 8 to 10, under the presidency of Dr. Rowland Godfrey Freeman, New York. On the second day the society will meet with the Congress of American Physicians and Surgeons and at the morning session the subject of "Syphilis" will be considered. On Wednesday afternoon there will be a symposium on "Immunization and Its Practical Application."

Bequests and Donations.—The following bequests and donations have recently been announced:

New York Medical College and Hospital for Women, New York, $5,000, by the will of Colonel Edward M. Knox.

Mt. Sinai Hospital, New York, $5,000, by the will of Herman Nathan Walter.

Aiken (S. C.) Hospital, a donation of $12,500, by William K. Vanderbilt, New York.

St. Luke's Hospital, Chicago, for a new building, donations by J. Ogden Armour, $100,000; Mrs. H. H. Walker, $50,000; Samuel Insull, $25,000; Robert Roulston, $25,000, and trustees of the hospital, $95,000.

Presbyterian Hospital, New York, $30,000, by the will of Mrs. Eveline A. Meserole.

The Military Surgeon.—The *Military Surgeon* for April comes out greatly enlarged and much improved in general appearances—mechanically and otherwise. The increase in size does not mean that the quality of the material has been sacrificed for quantity. A better quality of paper is used, and the magazine is side stitched and well illustrated. It bears evidence of the fact that the Association of Military Surgeons of the United States now appreciates its responsibilities in publishing a periodical and is determined to have a journal which will be not only a credit to the organization, but of great practical value to its members.

Wine of Cardui Suit.—In addition to the testimony published this week there remains yet unpublished the continuation of the testimony of Dr. Edward E. Montgomery, Philadelphia; Dr. C. K. Maxwell, Kellyton, Ala.; Mr. Renshaw Reed, Ellenwood, Tenn.; Dr. James A. Foster, Huntsville, Tenn.; Dr. Samuel M. Worley, St. Augustine, Fla.; J. K. Webster, Athens, Texas; Dr. Arthur A. Small, Chicago; Dr. C. A. L. Reed, Cincinnati; Dr. William E. Kay, Maplesville, Ala.; Dr. J. B. DeLee, Chicago; Dr. G. Frank Lydston, Chicago; Dr. W. W. Cornag, Lavonia, Ga., and Dr. Alonzo C. Tenney, Chicago. At the completion of the cross examination of Dr. Tenney, the court was adjourned from Monday, April 24, to Wednesday, April 26.

Death of Mr. John A. Patten.—The Wine of Cardui suits were adjourned from Monday evening, April 24, to Wednesday morning, the 26th, on account of the death of the father of one of the jurors, whose funeral took place on Tuesday, the 25th inst. On the convening of Court at 10:30 on Wednesday morning, April 26, Mr. Walker, one of the counsel for Mr. John A. Patten and the Chattanooga Medicine Co., announced that Mr. John A. Patten had died about 4 o'clock that morning. At Mr. Walker's request, Judge Carpenter excused the jury until 10:30 a. m. Tuesday, May 2, 1916.

Sociological Congress.—The Southern Sociological Congress was held in New Orleans, April 13 to 15, about 2,000 delegates were present. The following physicians were elected to office: Dr. Oscar Dowling, New Crleans, first vice president, and Dr. Edward H. Cary, Dallas, Texas, member of the executive committee. Dr. William A. Evans, Chicago, was elected chairman, and Dr. Carrie Weaver Smith, Gainesville, Texas, secretary of the Section on Health. Mrs. D. B. Safford, Hot Springs, N. C., who was in attendance at the congress, has donated 700 acres of North Carolina land, about 30 miles from Asheville, to be used by the organization in its fight against tuberculosis. A gift of several thousand dollars was also made to form a nucleus for a fund to be raised for the erection of suitable buildings for a sanatorium. It was announced that $200,000 had been pledged for sanatorium buildings and will be available as soon as the administration building has been erected.

Graduating Exercises of Naval Medical School.—At the graduating exercises of the Naval Medical School, April 12, Surg.-Gen. William C. Braisted called attention to the fact that within the last two years the secretary of the navy has recommended to Congress an increase in the Medical Corps from 347 to nearly 500; has provided in his personal bill a substantial increase in the upper grades of the Medical Corps; has established two hospital corps training schools, and has made provision for the increase of this corps by nearly 1,000 men, and has also provided an opportunity for members of this corps to obtain commissions. He has also made provision for a new hospital ship for the navy; has established training schools for nurses among the native women of Samoa and Guam; furnished medical officers and nurses to take part in the sanitary regeneration of Hayti, and has authorized the formation of a Medical Reserve Corps for the navy. He has also authorized the medical department to organize five Red Cross units, mobile hospitals of 250 beds each, with personnel and equipment, that can be called at any time where needed to any point of the Atlantic Coast line.

FOREIGN

National Medical Congress in Uruguay.—This month the first assembly of medical men from all over Uruguay was held at Montevideo. The Montevideo Medical Society was the sponsor for the movement and Prof. G. Arrizabalaga was the presiding officer. Among the chief themes discussed were syphilis and cancer in Uruguay, criminal abortion and the legal responsibility of physicians.

Deaths in the Profession Abroad.—H. F. Secrétan of Lausanne, Switzerland, aged 60, to whom his country owes the organization of industrial accident insurance. He founded a policlinic for industrial accidents which became the center in this line of work for the whole country, and his work "L'Assurance contre les Accidents" is now in its third edition. ——E. W. Pawlow, at Petrograd, an eminent Russian surgeon, aged 71. It is quite possible that this is the Pawlow who was referred to in the cables which announced the death of Prof. I. P. Pawlow, the physiologist.——E. Oberndörffer of Berlin, with the Turkish army at Bagdad, at one time on the editorial staff of the *Deutsche medizinische Wochenschrift*. ——G. Ciuffo, assistant professor of skin and venereal diseases at the University of Pavia, likewise dying at the front, as also F. Daretti of the medical faculty of the University of Rome and E. Scalese of the faculty at Pisa.

Medical Missionaries.—Dr. John A. Snell, Soochow, China, for the last seven years a medical missionary of the Methodist Episcopal Church, South, is visiting in Galveston and will take postgraduate work for a year before returning to China. ——Dr. Agnes M. Edmonds, in charge of the Gamble Memorial Hospital for Women and Children, at Chung King, West China, addressed the congregation of the Maple Avenue Methodist Episcopal Church, St. Louis, April 9. Dr. Edmonds was formerly of Pina, Mo., and has spent about fifteen years in China. The Gamble Memorial Hospital accommodates sixty-two patients. Dr. Edmonds also delivered an address at the Des Moines branch of the Women's Foreign Missionary Society of the Methodist Episcopal Church, Springfield, Mo., April 13, on "Methodism in West China."——Dr. J. W. McKean, a missionary at Chiengnai, Siam, for twenty-seven years, delivered an address before the faculty and students of the University of Nebraska, College of Medicine, Omaha, April 14, on "Leprosy."——Dr. Clarence B. Ussher of the American Mission, Van, Turkey, delivered an address before the Kansas City (Mo.) Academy of Medicine, April 14, in which he emphasized the need for medical missionaries in Turkey, Africa and China. Dr. Ussher, who formerly lived in Kansas City, spoke at the Westminster Congregation Church, April 16, on "A Turk's Sacrifice to Humanity and a Reason."——Dr. Ralph W. Mendelson, Des Moines, has been appointed sanitary expert to the King of Siam.

WAR NOTES

Tent Hospital to be Reestablished.—The French minister of war has requested the American Ambulance, Paris, to reorganize for use this summer the large tent hospital which was installed last year at Pagny-sur-Meuse.

Medical School at Battle Front.—Medical students of the Italian universities are receiving practical as well as theoretical instruction in the fifth and sixth years at Udine, where they are on duty with troops. The government provides material and professors, and the building is equipped with every detail for modern medical instruction. The students attend lectures and clinics as regularly as their military duties will permit.

Vaccination of Entire Populace in Galicia.—According to the *Klin.-Therap. Wochenschrift* the entire populace in Galicia is being vaccinated. The work is being done by students from the universities of Cracow and Lemberg. Lectures have been stopped for six weeks and the students started on the task March 7. The expense of the *Massenimpfung* is calculated at about $100,000. The students are lodged free and paid $2 a day each.

Prizes for Best Artificial Arm.—The German Engineers Association recently offered three prizes, totaling nearly $4,000, for the best device for an arm. They received eighty-two prostheses in competition and sixty were good. Two of the prizes were divided between six of the contestants, and eleven other contestants were given favorable mention for some special feature of their device, and the third prize was distributed among them. The entire sum appropriated was thus paid out, although not in three prizes as had originally been anticipated.

BERLIN LETTER

Berlin, March 28, 1916.

Personal

Because of ill health, Prof. A. Fraenkel will retire from the directorship of the Krankenhaus am Urban in Berlin, April 1. He will be succeeded by Prof. A. Plehn, who has been the physician in chief of the medical division of this hospital for the past thirteen years. Most of his time has been devoted to the study of tropical diseases and diseases of the blood. Previous to his appointment in the hospital, Professor Plehn was for many years a government physician in Kamerun, Africa.

Psychic Disturbances Incident to the War

Shortly after the beginning of the war a neutral European periodical, the *Telegraph*, of Holland, published a statement, credited to a French psychiatrist, that since the beginning of the war 750,000 German soldiers and 1,600,000 civilians had become insane. Professor Bonhoeffer, the Berlin psychiatrist, made an investigation of this subject. He found that the war cannot be held responsible for any particular psychic disturbance. In fact, the same types of mental diseases are prevailing now as in times of peace, nor is there any change in the syndrome of any psychic disorder. The usual type of psychic disturbances, that is, dementia praecox and the manic depressive insanities, are encountered in their usual form. Of course, there is bound to be some difference in the clinical history of these diseases because of the fact that these patients live in a different environment; but this cannot be held responsible for the creation of a different type of disease. Nor do these disturbances occur more frequently now than during times of peace. These facts throw an entirely new light on the etiology of mental diseases, because if exhaustion, lack of sleep and emotional disturbances really play the rôle in the production of these diseases that has been credited to them, then they ought to occur more frequently at the front during war time than at home during times of peace. Still this is not the case. In fact, we are informed by the psychiatrists at the front that, while the exhausting marches, the comparatively poor housing and the constant exposure to the shock of exploding shells are productive of nervous disturbances, a real psychosis has not been developed. Neither is it believed that life at the front will predispose to the development of psychic disturbances later on.

THE PSYCHOPATH

Of course, the so-called psychopath, the subnormal individual, probably is an exception in that he is more exposed to conditions which may early break down the sensitive borderline between the normal and the subnormal. These persons, however, also form a distinctive group in ordinary civil life and break down quickly under unusual mental strains. Therefore, the war can hardly be held responsible for the production of a condition which already exists. It has been shown that the majority of the psychic nervous disturbances encountered since the beginning of the war have occurred among these individuals. The clinical manifestation is usually a variation in temperament, paralyses, spastic conditions, peculiar forms of delirium and loss of memory sense. In fact, the picture is recognized as being of the hysterical type, and every form of hysteria is seen just as it occurs in times of peace. Hence, one cannot speak with propriety of war psychoses. The war merely causes these cases to occur earlier and more frequently, although under ordinary conditions some of these persons might have escaped the psychic breakdown. It has been the aim of the military authorities not to permit the psychopath to enlist for service, but naturally many difficulties are met in attempting to determine who is and who is not a psychopath because of the very slight differentiation that may exist between the normal and the subnormal. In the case of many psychopaths the condition is not recognized until the man has seen service, and furthermore, many psychopaths render good service without any or only slight psychic disturbances. Military service has helped some psychopaths to overcome the deficiency. Their disturbed, easily excited mentality has prompted them to enlist for service as volunteers; the strain of such service has helped them to forget their mental shortcomings, and they have been molded into good soldiers. Certain types of psychopaths, the adventurer, the youthful transgressor, the boy who has fought school discipline, the young man who has come into conflict with the police, who has fought law and order, often finds himself entirely at home and at peace with the law and himself when he sees service at the front. Many incorrigibles who have been enlisted from institutions have made splendid soldiers. Thus it will be seen that the psychopaths cannot be and should not be prohibited from entering on military service. Often the most careful selection is bound to be followed by a certain number of cases of psychic and nervous disturbances in psychopaths. Just how great this number will be cannot be stated at this time. The individual experiences of the psychiatrists at the front leads one to believe that the number is not very great. They report that their services have not been called for to treat psychic disturbances, and there has been no demand for the establishment of special so-called psychic stations at the front as was the case in the Russo-Japanese War.

ALCOHOLIC PSYCHOSES

Exogenous psychic disturbances caused by traumatic, toxic or infectious lesions of the brain are encountered, but not in great number. As to the alcoholic psychoses which played so great a rôle in the Russo-Japanese War: Awtokratow analyzed the statistics from the psychiatric central hospital in Charbin. He found that among officers there were 34.5 per cent. and among the privates 10.8 per cent. psychoses due to chronic alcoholism. These figures justify the stand taken by Russia in regard to alcohol at the beginning of the present war. Fortunately, we have not had any similar experiences. The few alcoholic psychoses reported occurred among the older soldiers who in civil life were alcoholics and were incapacitated soon after their enlistment. Therefore our experiences up to the present have been such that we feel justified in asserting that the health of the soldiers as a whole, including psychic disturbances, is remarkably good.

LONDON LETTER

London, April 3, 1916.

The War

THE SUPPLY OF PHYSICIANS FOR THE ARMY

The great demand for physicians for the army has caused the War Office to raise the military age from 40 to 45 years. It has just issued an announcement that in order to maintain the supply of medical officers required to meet the needs of the military services, it is urgently necessary in the interests of the civil community no less than of our armies that all qualified physicians not exceeding 45 years of age, irrespective of their circumstances, should without delay enter their names under the enrolment scheme which has been established by the Central Medical War Committee, and has the authorization of the War Office. The work of enrolment is carried out by three representative bodies of the medical profession known as the Central Medical War Committee for England and Wales, the Scottish Medical Service Emergency Committee, and the Irish Medical War Committee. Enrolment does not mean that the physician is at once called up for service; he may never be called up, and in any case will not be called up until the proper time has come for his services to be accepted. The purpose of the scheme is to secure that those physicians are selected for military purposes who can best be spared at the particular date and from the particular place, with due regard to the needs of the civil population, to the personal circumstances of the physician, and to the requirements of the armies. To carry out efficiently the comparative process necessary for an equitable distribution of the burden as it affects the medical profession and the civil population, all physicians of suitable age should have offered themselves for service, so that a proper selection may be made by a body equipped with the requisite information from all parts of the country and thus competent to make the necessary comparisons. The only alternatives are haphazard recruitment and arbitrary demand. For these reasons the War Office has recognized and now relies on the Central Medical War Committee and the corresponding committees in Scotland and Ireland. The committees include representatives of the royal colleges of physicians and the royal colleges of surgeons, of the universities and medical schools, and of the British Medical Association, and have associated with themselves in their work representatives of the government departments mainly concerned. The committees have an organization of representative local committees in all parts of the three countries, from which they obtain local information and advice; and they work in daily contact with the various government departments concerned. For the purpose of considering and advising, through the central committee, on cases in England and Wales, having such special features as exist, for instance, in regard to the staffs of the metro-

politan hospitals, a committee of reference has, with the approval of the War Office, been now established by the Royal College of Physicians of London and the Royal College of Surgeons of England acting jointly.

Vital Statistics

In a recent letter to THE JOURNAL, figures were given showing the decline of the birth rate. A report by Dr. Newsholme, medical officer of the Local Government Board in England, which has just been published, deals with the question. The phenomenon is not peculiar to this country, and is not so marked as in some other countries, so that its causes must be looked for in general conditions which are affecting all the nations of modern Europe, as well as the overseas dominion and apparently the United States of America also, for the statisticians of the United States have concluded that the birth rate has been declining very rapidly among Americans of the second and later generations. The accompanying table, compiled by Dr. Louis Parkes, shows the decrease in the mean birth rates between 1887-1889 and 1910-1912, a period of twenty-three years:

DECREASE IN BIRTH RATES IN TWENTY-THREE YEARS

From 7 to 9		From 5 to 7		From 3 to 5	
Country	Decrease	Country	Decrease	Country	Decrease
Hungary	8.2	Austria	6.7	Norway	4.9
Australia	8.0	Belgium	6.4	Sweden	4.6
Serbia	7.8	Italy	5.8	Denmark	4.5
Germany	7.7	Finland } Scotland }	5.4	France	4.1
England and Wales	7.0	Netherlands	5.3	Spain	4.0
		New Zealand	5.0	Russia	3.7
				Switzerland	3.3

An increase was shown by Bulgaria, 3.6; Ireland, 0.3, and Roumania, 0.3. Thus, with the exception of Bulgaria, with a decided increase of 3.6 in the birth rate, and of Ireland and Roumania with very slight increases, the birth rates of most of the other nations have been lowered in the course of the last quarter of a century, and some very considerably lowered. It is now generally admitted, both in this country and abroad, that the lowered birth rate is not due to natural causes, such as a higher average age at marriage, or to a natural decrease of fertility, or even to a lower rate of illegitimate births. It is believed to be due, in most part, to voluntary restriction, the general incentives to which must be universal among the nations, and must be of very various character, the kind of incentive which is effective in Australia or New Zealand differing materially from that which is operative in Hungary or Serbia. Dr. Parkes expressed the opinion that in the more highly civilized and industrialized countries the causes were a desire for a higher standard of social comfort, a disinclination on the part of married women to devote all their lives and energies to the rearing of the future race, and their desire for a larger share in the political and other privileges enjoyed by men, combined, in the case of both parents, with a doubt as to what the future may have in store for the offspring. Among the more intelligent of the working classes there may be fears of overpopulation, of periodic trade depressions and unemployment, and among the middle classes similar fears, due to the overcrowding of the professions and the uncertainties of a commercial career where trusts and great trade combinations seem to hold the field. With more occupations open to women as the result of the war, or of political changes following the war, both single and married women will have careers open to them which will in the mass militate against a high rate of national fecundity; and we may, he considers, expect that social changes of this character will accentuate the further fall of the birth rate for some years to come, which must result from the destruction of so many men who, in the natural course of events, if unmarried, would have become husbands and fathers, and, if married, would have increased the number of their children.

Appointment of a Chinese Physician to an English Post

A striking illustration of the great shortage of physicians in consequence of the war has just been given at Leicester. Guardians required a resident medical officer for their poor law infirmary. The applicants were a Welshman, a Japanese, a Belgian, an Indian and a Chinaman. The remuneration is $1,250 yearly, with house, coal, gas, rations and attendance. The Chinese candidate, Mr. Ping Wing Lam, M.B., Edinburgh, whose English name is William Phillips, was appointed. He had excellent testimonials, and created a very favorable impression on the guardians.

PARIS LETTER

PARIS, March 30, 1916.

The War

IMMEDIATE TREATMENT OF WOUNDS OF WAR IN AN AMBULANCE AT THE FRONT

At a recent session of the Société de chirurgie de Paris, Dr. R. Picqué read a very interesting paper on this subject. He mentioned that at the beginning of the campaign it was supposed that the gunshot wounds would predominate and that the movement of troops would be swift and sudden in proportion to the perfection of armament, so that installation of suitable provision for surgery would not be possible. Surgeons, distrusting themselves, relied on the character of the wound, and hence arose the doctrine of expectant treatment peculiar to military surgery, even in cases in which such practice was repugnant to all principles of ordinary surgery. The surgical formations of the front were to be—to use a colloquial expression—only packing and shipping rooms for the wounded before their evacuation. On the one hand, however, gunshot wounds did not show the "humanitarian" character promised, and on the other, the frequency of wounds from artillery projectiles quickly dispelled all hopes of the benign evolution of the wounds of war. It became evident that the hope of the wounded lay in immediate, active and extensive surgery performed as near as possible to the front. Therefore, mobile or immobilized ambulances near the front were created. Thanks to the complete equipment and to the selected staff permitting rapid work in these ambulances, as well as to the improvement in the rapid transportation of the wounded to ambulances, the fundamental desideratum has come to be realized, the care of the wounded, in war as in peace, attained by their immediate transportation to the place where they will receive definitive treatment, and where they will remain as long as possible. These hospitals have, little by little, received all necessary equipment for action, including at present electric lights and radiograph apparatus. Better even than this, behind the two first lines, all the *zone des étapes* contains, more or less grouped around the evacuation hospital, in addition to laboratories, etc., specialized services for the treatment of fractures, ocular conditions, urinary diseases, mental conditions, contagious diseases, etc., permitting the hospital care of all the sick and wounded discharged from the first and second lines before their return to the front or their removal to the interior.

The necessity for immediate operation is due to the seriousness of the wounds and the possibility of subsequent infection. Picqué believes that every wound of war ought to be considered actually more serious than it appears at first sight, and that every wound inflicted by an artillery projectile ought to be considered as infected at the outset. Hence it follows that all wounds made by dangerous agents or complicated or suspected of being complicated by serious septic conditions or by organic or visceral lesions, injuries of vessels or lungs, the important articulations of the head, the thorax, the abdomen or pelvis, should be treated at the ambulance.

THE JOINT SANITARY COMMISSION OF THE ALLIES

The members of the joint sanitary commission of the allies (THE JOURNAL, March 11, 1916, p. 828) were received March 23 at the war department by M. Justin Godart, undersecretary of state for the military medical service. The purpose of this commission is the exchange among the allies of information and views with regard to sanitary questions of common interest, so that experience acquired in each country and in each army may be of service to all the others. The twenty members of the commission are representatives appointed by the governments of Belgium, France, Great Britain (including India, Canada and Australia), Italy, Russia and Serbia. The program of work includes the study of information brought together by representatives of the allied nations with regard to transmissible diseases, their method of propagation, their peculiarities and their prophylactic measures to be used against them, especially typhus and cholera. The commission will also study the measures necessary for assuring the hygiene of the troops, the rational mode of feeding them, measures for sanitation of trenches, as well as certain medical and surgical problems raised by war.

FORMATION OF MUNICIPAL PROVISION STORES IN THE PROVINCES

During last October, the prefect of police of Paris formed a special commission to regulate the price of food. This measure, however, has not proved sufficient to remedy the

critical situation with regard to the food supply. It is now proposed, therefore, that municipal food stores should be formed. Certain capitalists have promised their aid. The city of Paris has bought large quantities of foodstuffs that are being sold to the public almost at cost in municipal stores. Such municipal stores are already operating in certain cities of the provinces. Thus, the city of Nimes has founded a municipal slaughterhouse which sells meat at a price just sufficient to cover the cost. The present price of meat is about 15 per cent. below the price asked before the opening of the municipal slaughterhouse, and apparently the price would be much higher today if there were no municipal enterprises of this nature. Some communes in the outskirts of Paris, especially Arcueil-Cachan, have opened municipal stores for other supplies, such as potatoes, green vegetables and coal.

A Physician Philanthropist

A physician of the department of the Aube, Dr. Millard, died some time ago, leaving by his will more than half a million francs to the city of Troyes and to various philanthropic purposes, subject only to the life interest of his widow. In particular, he bequeathed to the city of Troyes 150,000 francs (about $30,000) for its library and museum; 100,000 francs (about $20,000) for its dispensary, where it is the testator's desire that a *goutte de lait* be organized; 80,000 francs (about $16,000) for the organization of vacation colonies; 25,000 francs (about $5,000) for the Société des jardins ouvriers, and 150,000 francs (about $30,000) for the caisse d' épargne et de prévoyance (insurance fund). Dr. Millard also left the sum of 70,000 francs (about $14,000) for the Assistance publique de Paris; 20,000 francs (about $4,000) for the Orphelinat de la Seine; 20,000 francs for the Société médicale des hôpitaux de Paris and for the Association des médecins de la Seine, etc.

The Death of Dr. Léon Labbé

Dr. Léon Labbé has just died, aged 83. He was born in Merlerault, department of the Orne. He was agrégé professor of the Faculté de médecine de Paris, surgeon of the hospitals and a member of the Académie de médecine and of the Académie des Sciences. He became president of the Société de chirurgie de Paris in 1862. He was elected senator in 1892 and reelected in 1900 and in 1909. Dr. Labbé had a high reputation as a surgeon, especially in the domain of abdominal and gastric surgery.

BUDAPEST LETTER

Budapest, April 11, 1916.

The Loss of Three Sons—All Doctors

Dr. Julius Patsaner of Nagyvarad, Hungary, who retired from practice several years ago because of total deafness, is mourning the death of his third son, a physician. This one died in Rohatim, Galicia, where he acted as chief physician of a military epidemic hospital. His name was Dr. Ervin Partos (the family name has been Hungarized), and he was university assistant in Geneva, Switzerland, before the outbreak of the war. Dr. Patsaner has now lost all his sons; the three were medical men. One died of apoplexy three months ago, and one in December, 1914, in the Carpathians in the battle at the Uzsok Pass, where he was engaged at a first aid station.

Medical Statistics in Hungary

There are practicing 5,966 medical doctors in Hungary. Out of this number there are in Budapest alone 1,612 physicians, while there are 4,318 in the provinces and 36 in Fiume. There are 39 hospitals in Budapest, 388 in the provinces, 23 in Croatia and Dalmatia and 27 in Bosnia and Herzegovina. There are 17 children asylums, 12 maternity hospitals and 8 maternity hospitals connected with schools for midwifery. There are 228 mineral baths and health resorts, and 82 medicinal springs. In the Budapest University there are 23 ordinary medical professors, 32 extraordinary professors, 105 lecturers, and 83 assistants. In the University of Kolozsvar (also Hungary) there are 12 ordinary and 5 extraordinary professors, 12 lecturers and 26 teachers. The other two universities with medical faculties in Pozsony and Debreczin will not be opened until after the termination of the war.

The Neutrality of Health Resorts

Dr. E. H. Kisch, government advisor, and chief physician in Marienbad proposed fifty years ago that the neutrality of the reputed Bohemian health resorts, and others which are equipped with modern institutions for curing patients, should be declared, and that they should be recognized as neutral by all warfaring countries. He made this proposal when a war between Austria and Prussia was threatened. It was considered at a parliamentary sitting in Prague, Dec. 7, 1866, and the government was asked to further the project. Count Forgach, then governor, lent his aid. In August, 1867, there was an international conference in Paris on the aid societies for wounded soldiers. Dr. Kisch sent a pamphlet to all who took part, to persuade them to use their influence in favor of the idea and to decide that a supplementary article should be added to the articles of the Geneva Convention. Surgeon-General von Langenbeck spoke in favor of Kisch's proposal in the Paris Conference, and requested that all health resorts should be regarded as neutral within the area of war.

During the long period of peace, nothing was done about it. In 1912, during the Balkan War, Dr. Kisch took the matter up again. The president of the Austro-Hungarian Association of Health Resorts addressed a memorandum to the foreign secretary of state, and asked his support in this matter. Meanwhile, in August, 1914, the great European war broke out. The foreign ministry replied that the matter was being given serious consideration. The law of Dec. 26, 1912, permits the utilization of health resorts for military purposes in case of necessity. According to the Geneva Convention of July 6, 1906, military hospitals are protected, as are also institutions in health resorts which are employed for the military health service. Against declaring health resorts in general as neutral, said a high official of the ministry of war, there are circumstances which must be very thoroughly considered.

Dr. Kisch is a man of perseverance, and has not given up hope of being able to realize his idea after the war. He thinks that this war has proved the important rôle played by the health resorts in curing wounded and sick soldiers, and that this fact will lead after the termination of the war to repeated negotiation of his proposal. He believes he will live to see his idea accepted. In this case he said to an interviewer that Goethe's words will prove to be true: "Was man in der Jugend gewünscht, bietet das Alter in Fülle" (That which one has wished for in his youth, age offers in fulness).

Venereal Diseases in Belgrade

The figures of the provisional Austro-Hungarian health officer in Belgrade on the mortality from the venereal diseases give rise to some cause for question. The health officer stated that the death rates from syphilis and general paralysis of the insane were abnormally high in Belgrade, being proportionately about twice those of other cities. It is probable that the incidence of venereal diseases in Belgrade is high, and this is in great part explained by the presence of an unusually large number of Austro-Hungarian and German soldiers in proportion to the civil population. The incidence is not, however, so high as might be assumed from a consideration of the death rate alone. The accuracy of the officially recorded death rate depends on the accuracy with which the primary cause of death is stated in death certificates. In the case of a death from venereal disease occurring in private practice, it is rarely that the fact appears on the death certificate, which, as a rule has to pass through the hands of near relatives of the deceased. The death rate from venereal diseases is therefore probably much higher as regards persons attended in private practice then the official returns show.

The Utilization of Mountain Sanitary Motor Cars on the Southwestern Front

The Order of German Knights presented in October last year a group of powerful motor cars specially built for health purposes for mountainous territory. At that time the order made a present of six cars, which were supplemented lately by another gift of eighteen cars. These cars are of 25 horse power and did extraordinarily good service in the Serbian and Albanian field, where other vehicles can pass only with great difficulty. The cars are specially built, and have low gears so that they can easily mount even the steepest grades. Each can carry four or five wounded soldiers, and the equipment is such that any kind of stretchers can be employed. Six cars are reserved for the transport of infectious patients. Each car is illuminated by calcium carbid, is supplied with a box containing sterile dressing, and carries surgical instruments for first aid. The equipment contains two spare wheels and other accessories. Each car is supplemented by two mountain sleighs. The doctor is seated beside the driver.

Marriages

CAPT. OMAR WALKER PINKSTON, M. C., U. S. Army, Fort Sam Houston, Tex., to Miss Melle Wilson Glass of Columbus, Ohio, at Clarksburg, W. Va., March 15.

CAPT. JOHN THOMAS AYDELOTTE, M. C., U. S. Army, Alcatrez, Calif., to Mrs. Laura Rentfro Thompson at San Francisco, March 9.

ASST. SURG. GEORGE WEHNES CALVER, U. S. Navy, Cavite, P. I., to Miss Jessie Willits of Philadelphia, at Manila, P. I., March 15.

P. A. SURG. EDWARD ELIAS WOODLAND, U. S. Navy, Philadelphia, to Miss Kinda Ruth Sheley, in New York City, April 6.

LOUIS WILLIAM DUNAVAN, M.D., to Mrs. Elizabeth M. Wright, both of Chicago, at Valparaiso, Ind., April 17.

WINIFRED A. YELTON ROBB, M.D., to Judge James P. Jack, both of Newton, Ill., at Danville, Ill., March 29.

AUDREY GOSS, M.D., Chicago, to Mr. T. J. Morgan of Washington, D. C., at Wytheville, Va., April 16.

GUY E. NOBLE, M.D., St. Marys, Ohio, to Miss Hazel Kelchner of Lima, Ohio, April 15.

NATHAN KRAEMER, M.D., to Miss Matilda D. Kehlmann, both of New York City, April 9.

FRANK P. WINKLER, M.D., Sibley, Ia., to Miss Mayne Benjamin of Ashton, Iowa, January 1.

ABRAHAM MORRIS SIEGEL, M.D., Chicago, to Miss Rachel Fred of Lebanon, Ohio, April 9.

STEPHEN GREENFIELD, M.D., to Miss Beatrice Heifand, both of New York City, April 2.

HUBERT O. BELL, M.D., York, Neb., to Miss Elzora Beagle of St. Louis, April 8.

Deaths

James William White, M.D., surgeon, teacher and author; died at his home in Philadelphia, April 24, from pneumonia.

He was born in Philadelphia, Nov. 2, 1850, the son of Dr. James W. and Mary Anne McClaranen White. After instruction at the public schools and Quaker schools of Philadelphia he entered the University of Pennsylvania and was graduated with the degree of M.D. in 1871. He afterward received the degree of Ph.D. from the university and in 1900 had the degree of LL.D. conferred on him by the University of Aberdeen, Scotland. After his graduation Dr. White accompanied Professor Agassiz on the Hassler expedition to the West Indies and South America and after his return in 1872 he became resident physician at the Philadelphia Hospital, and then for two years was surgeon to the Eastern State Penitentiary.

He was a Fellow of the American Medical Association; a member of the American Surgical Association, American Genito-Urinary Association and the College of Physicians of Philadelphia and a Fellow of the American College of Surgeons. From 1878 to 1888 Dr. White served as surgeon of the First Troop Philadelphia City Cavalry. He was appointed advisory surgeon to the Pennsylvania System in 1907.

He was teacher in his alma mater for more than thirty years, at first professor of genito-urinary surgery, then professor of clinical surgery and later John Rhea Barton professor of surgery, resigning from the latter position on Oct. 4, 1910, when he was made emeritus professor of surgery. He was also a trustee of the university.

Dr. White was surgeon to the University Hospital and consulting surgeon to the Philadelphia and Jewish hospitals. He was co-author with Dr. Keen of the "American Text Book of Surgery," published in 1896, co-author with Dr. Martin of "Genito-Urinary Surgery," which appeared in 1897, and translator and editor of "Cornil on Syphilis." He was also one of the editors of the *Annals of Surgery,* and a frequent contributor to the literature of his specialty.

After his resignation, which was on account of ill health, Dr. White traveled extensively, taking a trip around the world in 1913, in which he made an extended visit in China where he was deeply interested in the University of Canton. He was given a remarkable ovation by the students and faculty of the University of Pennsylvania on his return from this trip.

Dr. White was deeply interested in the work of the American Ambulance, Paris, and headed the University of Pennsylvania unit which sailed June 12, 1915, for Europe. He was in charge of the American Ambulance for three months and returned to Philadelphia in September. Ever since his return he had suffered from osteitis deformans and had been virtually helpless. His death, however, was due to pneumonia.

Samuel Springate Thorn, M.D., Toledo, O.; New York University, New York City, 1854; aged 84; a member of the Ohio State Medical Association and Toledo Academy of Medicine and once president of the Toledo Medical Society; formerly professor of surgery in the Northwestern Medical College, Toledo; for many years chief of the surgical staff of St. Vincent's Hospital; surgeon of the Toledo, St. Louis and Western; Pennsylvania, Pere Marquette, and Detroit and Toledo Shore line railroads; a practitioner of Toledo for nearly sixty years; surgeon of the One Hundred and Thirtieth Ohio Volunteer Infantry during the Civil War; died at his home, April 13.

Wilbur J. Wilcox, M.D., Oakland, Calif.; University of California, San Francisco, 1885; aged 66; formerly a Fellow of the American Medical Association; county treasurer of San Mateo County from 1879 to 1884; a member of the city board of education for ten years; died in Merritt Hospital, Oakland, Calif., April 8, from injuries received three days before, when he was run down by his own automobile while cranking it.

Robert Morison Curts, M.D., Paterson, N. J.; Trinity Medical College, Toronto, 1892; aged 45, a Fellow of the American Medical Association and American College of Surgeons; first president of the Surgical Society of New Jersey; visiting surgeon to St. Joseph's Hospital, Paterson, and consulting surgeon to the Franklin (N. J.) Hospital; died at his home, April 16, from abscess of the liver.

Hugh K. Schussler, M.D., New York City; Hering Medical College, Chicago, 1897; Northwestern University Medical School, Chicago, 1903; aged 39; formerly of Chicago; at one time champion pistolshot of the United States and a member of the Century Opera Company; died at his home, April 16, from carcinoma of the stomach.

Heber Wilbur Coulter, M.D., Sharon, N. D.; formerly of Mountain Lake, Minn.; University of Toronto, 1903; aged 47; formerly a member of the North Dakota State Medical Association; who joined the Canadian Overseas Contingent several months ago; died in a hospital in Saloniki, Greece, March 22, following an injury.

William Jackson Seely, Red Bud, Ill.; (license, years of practice, Illinois, 1887) aged 83; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; a practitioner of Randolph County, Ill., for fifty-three years; died at the home of his daughter in Realitas, Tex., March 12.

Norton Downs, M.D., Three Runs, Pa.; University of Pennsylvania, Philadelphia, 1888; a Fellow of the American Medical Association; died at his home at Fordhook Farm, near Three Runs, April 13, from the effects of a gunshot wound of the head, believed to have been received while cleaning a loaded revolver.

Frank Lloyd Bronson, M.D., Las Vegas, N. M.; Northwestern University Medical School, Chicago, 1908; aged 32; a member of the Illinois State Medical Society and formerly a pediatrist of Streator, Ill.; who moved to New Mexico on account of his health a few months ago; died at his home in Las Vegas, April 6.

Eugene Deyerle Supplee, M.D., City Point, Va.; George Washington University, Washington, D. C., 1914; aged 23; on duty at the Dupont Hospital, Hopewell, Va.; was drowned April 2, it is believed, while endeavoring to save his wife, who had fallen overboard from a canoe in the James River below Richmond.

Charlotte Whitehead Ross, M.D., Winnipeg, Man.; Woman's Medical College of Pennsylvania, Philadelphia, 1875; aged 73; the first woman practitioner of Montreal and the first physician in the Whitemouth River District of Manitoba; died at her home in Winnipeg, February 21, from arteriosclerosis.

George Rutledge Cowan, M.D., Granite City, Ill.; Washington University, St. Louis, 1884; aged 59; a Fellow of the American Medical Association and a well known practitioner of Girard, where he practiced until 1902, Joliet and Granite City; died at his home in the latter city, April 2, from arteriosclerosis.

Zacharie Vadnais, M.D., Marquette, Mich.; Laval University, Quebec, 1898; aged 41; formerly a Fellow of the American Medical Association; a member of the Michigan State Medical Society and health officer of Marquette; died in the Newberry (Mich.) State Hospital, April 5, from general paresis.

Herman E. Vohs, M.D., Kansas City, Kan.; Eclectic Medical University, Kansas City, Mo., 1914; aged 28; an instructor in the Kansas City College of Medicine and Surgery; died in his room in Kansas City, April 2, from the effects of a gunshot wound of the heart accidentally self-inflicted.

James Robertson Pharr, M.D., Dunloop, W. Va.; Medical College of Virginia, Richmond, 1903; aged 35; formerly a member of the Medical Society of Virginia; for twelve years surgeon to the McKell and New River Coal and Coke Company; died at his home, February 21, from pneumonia.

Edwin D. Meeker, M.D., Lawton, Okla.; Washington University, St. Louis, 1891; aged 49; a Fellow of the American Medical Association; formerly surgeon at Birchtree, Mo., for the Kansas City, Fort Scott and Memphis Railroad; died at his home, April 5, from cerebral hemorrhage.

George Thorne Warford, M.D., East Orange, N. J.; University of Vermont, Burlington, 1884; aged 56; for twenty-five years a practitioner of New York City; died at his home, April 7, from the effects of a gunshot wound of the head self-inflicted, it is believed, with suicidal intent.

Joseph Studer, M.D., Peoria, Ill.; University of Basel, Switzerland, 1853; aged 87; one of the founders of St. Francis' Hospital, Peoria, in 1876, and a member of the staff for many years; who moved to California in 1910; died at his home in Los Angeles, April 7.

Orin Warren, M.D., West Newbury, Mass.; Jefferson Medical College, 1858; aged 82; a member of the Massachusetts Medical Society and consulting physician to the Anna Jaques Hospital, Newburyport, Mass.; a veteran of the Civil War; died at his home, April 6.

James Christopher Mathews, M.D., Gay, Ga.; Medical College of Georgia, Augusta, 1885; aged 60; for a time a member of the faculty of his alma mater; local surgeon of the Atlanta, Birmingham and Atlantic Railroad; died in a sanatorium in Atlanta, April 11.

Wilford Baylus Hardin, M.D., Dallas, Tex.; Southern Methodist University, Dallas, 1911; aged 27; a member of the State Medical Association of Texas; professor of gynecology in his alma mater; died in El Paso, Tex., April 10, after an attack of influenza.

Andrew Capers Doggett, M.D., Fredericksburg, Va.; University of Virginia, Charlottesville, 1875; aged 63; for thirty-five years surgeon for the Atlantic Coast Line and other railways at Fredericksburg, Va.; died at his home, April 13, from carcinoma of the stomach.

Seth Vale Goldthwaite, M.D., Allston, Boston; Boston University School of Medicine, 1880; aged 67; a member of the Massachusetts Medical Society; a veteran of the Civil War; died at his home, April 9, after an invalidism of nearly twenty years.

Oscar Joab Stafford, M.D., Portchester, N. Y.; University of Buffalo, N. Y., 1888; aged 61; a member of the Medical Society of the State of New York; while making a professional call near his home, April 12, died suddenly from heart disease.

Walter Lathrop Turnbull, M.D., San Francisco; Hahnemann Medical College of the Pacific, San Francisco, 1904; aged 39; formerly superintendent of the City and County Hospital; died in Berkeley, Calif., March 30, from lobar pneumonia.

Millard F. Corkran, M.D., Wilmington, Del.; University of Maryland, Baltimore, 1884; aged 57; a member of the Delaware State Medical Society; died in Jefferson Hospital, Philadelphia, April 7, from hemorrhage of the stomach and intestines.

Thomas Walter Dorsett, M.D., Willacoochee, Ga.; Atlanta College of Physicians and Surgeons, 1902; aged 36; a member of the Medical Association of Georgia; formerly a Fellow of the American Medical Association; died at his home, April 4.

Simeon Hunt, M.D., East Providence, R. I.; Dartmouth Medical School, Hanover, N. H., 1865; aged 78; formerly a Fellow of the American Medical Association; a member of the Rhode Island Medical Society; died at his home, April 5.

Hugh Henry Elliott, M.D., Rushville, Ind.; Miami Medical College, Cincinnati, 1895; aged 66; for many years a practitioner and pharmacist of Glenwood, Ind.; died suddenly near his home in Rushville, April 5, from heart disease.

Felix B. Robison, M.D., Coldwater, Mich.; Eclectic Medical Institute, Cincinnati, 1867; aged 72; a practitioner of Monticello, Ind., until 1913, when he moved to Coldwater; died at his home, April 3, from cerebral hemorrhage.

Smith Cooper, M.D., Wilmington, Del.; University of Pennsylvania, Philadelphia, 1876; aged 64; a Fellow of the American Medical Association and a well known practitioner and druggist; died at his home, April 6.

Otho Magruder Muncaster, M.D., Washington, D. C.; University of Maryland, Baltimore, 1866; aged 72; one of the oldest members of the Medical Society of Washington; died at his home, April 1, from leukemia.

Charles Claxton, M.D., Philadelphia; University of Pennsylvania, Philadelphia, 1882; aged 57; a fellow of the College of Physicians of Philadelphia; died at his home in Germantown, April 3, from pneumonia.

William Troy Turlington, M.D., Fremont, N. C.; College of Physicians and Surgeons, Baltimore, 1894; aged 49; a director of the Bank of Fremont; died at his home, March 30, from cerebral hemorrhage.

Claredon Skillman, M.D., Roachdale, Ind.; Barnes Medical College, St. Louis, 1903; aged 54; a practitioner and druggist; died in the Indianapolis City Hospital, April 2, from cerebellar hemorrhage.

Alfred Boultbee, M.D., Toronto, Ont.; University of Toronto, 1891; aged 47; editor of *Kennel and Bench;* one of the foremost authorities on kennel affairs in Canada; died at his home, March 16.

Samuel Herskovitz, M.D., East Chicago, Ind.; Washington University, St. Louis, 1908; aged 32; also a pharmacist; died in the South Shore Hospital, South Chicago, March 31 from gastric ulcer.

Arthur L. Hill, Monticello, Minn.; (license, Minnesota, 1896); aged 45; a Fellow of the American Medical Association; died in the Northwestern Hospital, Minneapolis, March 27.

James M. Griffin, M.D., Penfield, Ga.; Medical College of the State of South Carolina, Charleston, 1858; aged 80; died at the home of his daughter in Penfield, March 31, from senile debility.

Emil V. Klinkowstroem, M.D., Denver, Colo.; Rush Medical College, 1896; aged 61; while despondent on account of ill health, severed eight arteries and died from loss of blood, April 2.

James H. Gibson, M.D., Dunbar, Wis.; Baltimore Medical College, 1893; aged 65; for fifteen years a practitioner of Green Bay; died at his home in that city, April 5, from dropsy.

Marie W. Hawley, M.D., Bayfield, Wis.; Iowa Eclectic Medical College, Des Moines, 1883; aged 75; died at her home Dec. 28, 1915, from cerebral hemorrhage.

William Theodore McCarty, M.D., Indianapolis Medical College of Indiana, Indianapolis, 1885; aged 59; died at his home, April 7, from cerebral hemorrhage.

James Pope Brantley, M.D., Atlanta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1882; aged 68; died at his home, March 31.

Thomas Dundon Collins, M.D., Ballston Spa, N. Y.; Albany, N. Y., Medical College, 1898; aged 49; died at his home, April 5.

Lewis D. Wiley, M.D., New Berlin, Ill.; University of Louisville, Ky., 1887; aged 63; died at his home, April 4, from nephritis.

John T. Rather, M.D., Houston, Tex.; University of Louisville, Ky., 1873; aged 68; also a druggist; died suddenly, March 30.

Joseph F. Meffert, M.D., Kansas City, Mo.; Hospital College of Medicine, Louisville, 1882; died at his home, March 29.

Howard A. Brooks, St. Joseph, Mo.; (license Missouri, 1899); died in a hospital in St. Joseph, April 1.

Correction.—The announcement in The Journal of April 15 of the death of Dr. William Hayden Campbell, formerly of Kalispell, Mont., at Los Angeles, was erroneous. Dr. Campbell, who went to Los Angeles about a year ago much run down in health, has greatly improved and is believed to be well on the road to robust health.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE WINE OF CARDUI SUIT

(*Continued from page 1342*)

April 12, 1916, Afternoon (*Cont.*)

TESTIMONY OF DR. JOHN CLARENCE WEBSTER (*Cont.*)

CROSS-EXAMINATION BY MR. HOUGH

On cross-examination the witness was asked to furnish, to the counsel for the plaintiff, the names of the patients mentioned in his direct examination.

He stated specifically the various symptoms presented by the first patient and was asked to differentiate between what is learned from history and from physical examination.

Q.—Well, now, then, putting the question in the other form—what did you discover by the physical examination, which she had not told you in giving you the history of the case, before you opened the stomach? *A.*—I made a physical examination, and I found that the vagina was torn—the perineal body torn, so that the width of my hand passed right into the vagina. I found the neck of the womb lying low down, about an inch from the entrance—

Q.—One minute. Whenever there is a prolapse, the perineum is always torn; is it not? *A.*—Not necessarily; I have seen a prolapse of the uterus in a young woman who never had a child, or never had a tear.

Q.—But I mean in the case of a woman who has had a child, a prolapse is always accompanied by a torn perineum? *A.*—Not necessarily, Mr. Hough.

THE COURT:—It is usually?

The Witness:—Usually, yes, a torn or stretched perineum.

Mr. Hough: *Q.*—So that when she told you she had a prolapse you knew that there was a torn perineum, without an examination? *A.*—I made an examination for—

Q.—I am not talking about what you did to confirm her statements, but what you discovered, which you had not learned from the statements which she had made to you? *A.*—Well, generally, when a patient says she has a prolapsus, in your mind you feel that probably there is a torn perineum, or stretched perineum; certainly.

Q.—Now, then, what, in addition, did you learn from your examination, which you would not know or have reason to suspect or believe from her history of the case? *A.*—I learned the extent of the prolapsus, the size of the womb, the condition of the tubes and ovaries, the position of the bladder, and the rectum.

Q.—Now, how did you learn the condition of the tubes and ovaries from the examination which you made, prior to the opening of the stomach? *A.*—By the woman being placed on her back, her limbs elevated, my fingers placed in the vagina, two fingers of the right hand placed in the vagina, my left hand placed on her abdominal wall, she breathing gently and quietly, and my hand pressing down, I felt the enlargement of the tubes and ovaries; and it caused her great tenderness.

"PAIN IN THE OVARIES"

Q.—Had she complained of her ovaries causing her tenderness? *A.*—Not specifically; but patients very often have it—

Q.—Did she generally? *A.*—Patients very often have marked ovarian disease, and never use the word "ovary," Mr. Hough, in complaining of it.

Q.—Don't they know from the pain which they have in the ovaries? *A.*—Not at all. How could they?

Q.—Never do? *A.*—Some people say they have pains in the ovaries. I have known of patients who over and over again said they had pain in the right ovary, and opening it up, I found the appendix was at fault, and not the ovary. The patient does not know, and cannot.

Q.—You mean the patient can never tell her trouble is in the ovary? *A.*—She can only guess at it, never know. Knowledge is a matter of scientific exploration and examination.

GUESSING AND DIAGNOSING

Q.—Isn't that all the doctor does, until he cuts her open? He guesses at it, at what the disease is? *A.*—He does not guess at all. I am speaking for myself.

Q.—Doesn't he? *A.*—No.

Q.—Doesn't he frequently cut her open, and then find he has made a mistake in the diagnosis? *A.*—Certainly. *Humanum est errare;* and that applies to the surgeon as well as to any other man.

Q.—Therefore he is guessing? *A.*—He may be guessing, and yet doing his duty.

Q.—That is not what I asked you, doctor, whether he is doing his duty. The question is whether he knew absolutely, or whether he was not merely guessing. *A.*—Of course he does not know always, absolutely. That is common knowledge.

Q.—Did you ever diagnose a case of a fibroid tumor, and discover it was a living fetus, after you had cut it open? *A.*—After I had cut the abdomen open?

Q.—Yes; after you had taken out the uterus? *A.*—No, sir.

Q.—Have you ever heard of such a case? *A.*—Yes, sir; it has happened. I have heard of that many times.

Q.—It happens frequently, doesn't it? *A.*—It has happened; I cannot say how frequently.

Q.—Were you ever present at any of those operations? *A.*—Where the uterus was taken out, no.

Q.—No—a mistake, thinking it was a fibroid tumor? *A.*—I don't recall that. I have opened the abdomen myself, and have found a pregnancy present. I have made that mistake. I am not claiming any infallibility—but I never happened—it never happened to be my lot to take the uterus out and find that there was a pregnancy there.

Q.—When those things occur, you never tell the woman or her husband, do you, that you have made a mistake?

Mr. Scofield:—Now, I object to that, if the Court please, to that statement.

THE COURT:—Objection sustained.

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. Hough: *Q.*—How many times have you made a mistake when you have cut a woman open, that you know of?

Mr. T. J. Scofield:—I object to that, if the Court please.

The Witness:—I cannot tell.

Mr. Hough:—He has said that his diagnosis—

THE COURT:—Well, the doctor said he did not know. I presume that question was asked primarily to learn the witness' qualifications to give his opinion.

Mr. Hough:—Undoubtedly.

THE COURT:—It could not have been asked for any other purpose.

Mr. T. J. Scofield:—Well, I withdraw the objection, then, if the Court please. Let him answer. I withdraw the objection. Let him answer.

Mr. Hough:—He has already answered. He did not know how many times he has done it.

Mr. T. J. Scofield:—What is the answer, Mr. Reporter?

(Answer read as follows: "A.—I cannot tell.")

Mr. Hough: *Q.*—How long after the operation did you see the woman? *A.*—How long after—

Q.—We are talking now about the first case. *A.*—Yes. When did I see her next?

Q.—Yes. *A.*—Next day.

Q.—When did you see her last? *A.*—Yesterday.

Q.—She is not entirely recovered yet, is she? *A.*—No, she is not walking yet.

Q.—You do not know whether she will live or die, yet, do you? *A.*—I don't know. She is in good condition.

Q.—But the operation was a success? *A.*—It was a success. I did not describe the operation, Mr. Hough. I operated on her, you know.

Q.—I understood you to say you did operate? *A.*—Yes, I did, but I did not describe any details.

Q.—Then I must have understood it in some other way. You took out the ovaries, you said, didn't you? *A.*—I don't know as I described the entire operation. Did I?

Q.—Yes. Well, just describe the operation. You took out the ovaries? *A.*—I repaired her perineum—

Q.—First? *A.*—First.

Q.—Before you cut her stomach open? *A.*—Is this the—

Mr. Scofield:—I object to that. I have not heard him say anything about that.

Mr. Hough:—Well, the abdomen, I mean.

Mr. T. J. Scofield:—Well, that is different.

The Witness:—Yes, I operated on the perineum. We always do that before we open the abdomen; then I opened her abdomen, and treated her—operated on her after I observed the effect of these drugs.

Mr. T. J. Scofield:—Doctor, will you speak a little louder, so that the jury can hear?

The Witness:—Yes. I say after I tested the effects of these drugs, I operated on her troubles—I removed the ovaries and tubes and the principal parts of the uterus, and stitched the ligaments—shortened the round ligaments, stitched them into the stump of the uterus, so that it would help to hold it up well.

Mr. Hough: *Q.*—Now, what do you call that operation? *A.*—It is a complex operation.

Q.—But, does it have a name? *A.*—Yes; supravaginal hysterectomy, removal of the tubes and ovaries.

Q.—No, but does it go by the name of any man, the doctor who first tried the operation? *A.*—So many—there is no special name that I could give—so many doctors have introduced modifications for those operations, that at the present time I would—I do not call that by any doctor's name.

Q.—Now, am I right in thinking that you did all this before you opened the abdomen? *A.*—No, no, after opening the abdomen, Mr. Hough.

Q.—Well, I misunderstood you, then. I thought you said you first sewed up the perineum? *A.*—Yes, the perineum is the part down below that is torn.

Q.—That is, you joined it together by a surgical operation, and sewed it? *A.*—Yes, then I opened—

Q.—Now, was that before you opened this abdomen, or afterwards? *A.*—Yes, sir, before.

Q.—That was before? *A.*—Yes, sir.

CURETTEMENT

Q.—Now, did you say you did any other work before you opened the abdomen? *A.*—Curetted her.

Q.—You curetted her? *A.*—Curetted her.

Q.—In how many cases is curetting regarded as unsatisfactory? What percentage of cases, would you say? *A.*—Unsatisfactory?

Q.—Yes? *A.*—Why, Mr. Hough, I cannot answer that; I don't know.

Q.—Don't you know that medical writers refer to it as a very unsatisfactory operation? *A.*—I don't know, nor do I care what medical writers refer to. I am concerned with my own experience.

Q.—In other words, the opinions which you have been expressing, would not be affected one iota by anything that any medical writer would say on the subject? *A.*—I could not say that. I am concerned with my own experience in such matters.

Q.—Well, have you had any experience in which curetting was not satisfactory? *A.*—I have.

Q.—In what percentage of cases would you say it was not satisfactory? *A.*—I should say that in the great majority of gonorrheal inflammation in the womb, that curettement is very unsatisfactory.

Q.—In any other cases would it be unsatisfactory? *A.*—I have found it unsatisfactory in cases of chronic inflammation of the womb, which is associated with what we call a chronic venous congestion, such as is found with varicose veins. A curettement there helps a woman for a little while, and then the condition is as bad as ever again.

Q.—May we say that curettement destroys the possibility of pregnancy in a woman? *A.*—On the contrary, curettement is frequently employed for the purpose of helping a woman to conceive, by giving her a chance of developing, or growing a new lining of the womb.

Q.—Does it in any case interfere with pregnancy or prevent her from having a child again? *A.*—I don't know of any example where curettement has been done properly, and the patient has recovered satisfactorily, that there has been any effect in that direction.

Q.—Well, but do you know of any cases in which the patient did not recover satisfactorily? *A.*—Certainly; yes, sir, I do. I have seen cases where a patient has been curetted and has developed infection afterwards, and that infection has destroyed her tubes, for example, and prevented her from becoming capable of child bearing afterwards.

Q.—In such cases, is the patient ever told what has been done to them? *A.*—I—

Mr. T. J. Scofield:—I object to that question, if the Court please.

THE COURT:—Objection sustained.

Mr. Hough:—I will withdraw that question. I think he said he didn't know—had you answered?

The Witness:—No, I did not. I had not answered it.

THE COURT:—Objection sustained.

Mr. Hough: *Q.*—Well, you opened the abdomen. Then what did you do next? *A.*—I examined the contents of the abdomen, the condition of the appendix, the gallbladder, stomach, and so on.

Q.—Now, up to this time you had not made any experimentation with the Wine of Cardui, had you? *A.*—No, sir.

Q.—Now, then, you opened the stomach, and you examined these parts? *A.*—The abdomen.

Q.—I mean the abdomen. *A.*—On opening the abdomen I examined these parts; the first thing I did was to examine the uterus, and to inject the Wine of Cardui.

Q.—From the opening in the abdomen? *A.*—Yes, the abdomen was open, and there was the womb lying there, which I exposed, easily seen.

Q.—You didn't inject it through the vagina? *A.*—Oh, no.

Q.—Through the opening in the womb? *A.*—Oh, yes.

Q.—And how long did you wait to see whether it would have an action? *A.*—Well, then I waited while I was examining the rest of the abdomen, the structures, to study them, to study the condition of the uterus, the condition of the ligaments, and so on. As I said, in ten minutes there was no evident effect.

Q.—Now, how much did you inject? *A.*—Six drams.

Q.—Just as it comes, with the alcohol and all? *A.*—Yes.

Q.—And you did that, believing and knowing that it was of no value, and might be injurious because of the alcohol? *A.*—I have frequently injected alcohol in patients without any injurious effect, more than twenty per cent. alcohol, Mr. Hough, in the abdomen.

Q.—But didn't you state that you regarded the alcohol in this medicine as dangerous? *A.*—As dangerous?

Q.—Yes, for a woman to take who had any of those troubles at all? *A.*—I said that alcohol, or Wine of Cardui containing alcohol, medicines containing alcohol continued as a remedy over a period of time would not have a beneficial, but deleterious effect on the patient's diseased condition. At least I meant to so state.

Q.—You mean that one or two doses would not have any effect? *A.*—I was trying to test the effect of one dose on that patient.

Q.—But when you did it you had already formed the opinion that it would not have any effect, hadn't you? *A.*—I approached the subject in an open mind; tried to give it the same care and attention that I would use in trying any drug that might be recommended to me.

Q.—But you had already formed an opinion, hadn't you, Doctor, that it was worthless? *A.*—Oh, I had thought that it was worthless; yes, I say that.

Q.—And you had been told what the ingredients were? *A.*—I read the evidence, and knew them.

Q.—And so you approached it with that frame of mind, even though you did attempt to be unbiased in observing the effect? *A.*—I am here on oath, Mr. Hough, and I am describing what I found on using that Wine of Cardui, as accurately as I can.

Q.—Well, now, I say you had that knowledge of Wine of Cardui when you injected that amount into this woman; having the opinion that it was dangerous because it increased the inflammation? You stated that, didn't you? *A.*—Yes.

Q.—So you did it, believing it was dangerous because it would increase the inflammation, and that it would have no effect so far as the uterus was concerned? *A.*—One dose of that character would not have any effect, I mean from the alcohol, of importance, any deleterious effect.

Q.—You mean it would not increase the inflammation? *A.*—One dose?

Q.—Would have no effect? *A.*—I don't think so, no.

Q.—Now, you knew at the time you did it that the books which are written on the ingredients which are in Wine of Cardui, as assumed in the hypothetical question, said that the action was very slow? You knew that, too, didn't you?

Mr. T. J. Scofield:—I object to that question. Does he mean when taken by the mouth, or injected into the vein, or hypodermically, or how?

THE COURT:—I think there hasn't been anything said about the books up to the present time, so far as I know.

The Witness:—No, I don't think I ever knew anything about the length of time, Mr. Hough. I knew that it had been administered by the mouth.

Mr. Hough: *Q.*—I understood you to say that you had used viburnum prunifolium in liquid form in your practice? *A.*—Yes, sir.

Q.—For a number of years? *A.*—Yes, sir.

Q.—You did know what the books said on that subject, didn't you?

Mr. T. J. Scofield:—I object to that, as to whether he did or not.

THE COURT:—That is unimportant. The objection is sustained.

USE OF VIBURNUM

Mr. Hough: *Q.*—How did you come to use viburnum prunifolium in your practice originally? Did you discover it yourself? *A.*—No, sir; it was used in the school where I worked.

Q.—Was its use confined to that school? How did they commence to use it, if you know? *A.*—I don't know. I suppose they learned it from America, where it was much more used than in Europe at that time.

Q.—Do you mean some one from America came over there and told them about it? *A.*—I don't know. I don't remember.

Q.—Or whether they read about it in some book that came from America? *A.*—Possibly.

Q.—You don't know which it is? *A.*—No, sir, I don't know.

Q.—You are very sure of that—you don't know? *A.*—Yes.

Q.—Now, had you ever heard of carduus benedictus? *A.*—I never heard of carduus benedictus until I learned about this trial, or—

Q.—You mean this lawsuit? *A.*—Yes.

Q.—You had never seen it referred to in any literature when you were studying medicine? *A.*—No recollection; no, I am sure I never did.

Q.—And you didn't know that it was in the Edinburgh—that is a Scottish, isn't it—Pharmacopeia? *A.*—Yes, I never saw the Scottish Pharmacopeia.

Q.—Didn't you use the Scottish Pharmacopeia when you were in Scotland? *A.*—No, sir, that was along in—the British Pharmacopeia was in use when I was there. The Scottish was an old pharmacopeia, I believe.

Q.—Well, at any rate, you injected this amount, you stated, into the womb. Now, in what way, and in what part of the womb? *A.*—I injected part of it into the womb, a few drops, and part of it into the—

Q.—How many drops? *A.*—I had a syringe holding the six drams, the six drams that I mentioned. I presume I injected about two drams into the womb, in about the middle of the anterior wall.

Q.—Well, first you said you put in a few drops. How many drops? And where did you put that? *A.*—Into the anterior wall of the womb, in the middle line.

Q.—In the middle which? *A.*—In the middle line.

Q.—You mean midway between the fundus and the cervix? *A.*—Yes, half way across the top of the womb.

Q.—Well, then you mean in the fundus? *A.*—Yes, in the fundus; well, anterior wall, just below the fundus. Then I took out the needle and injected some more into the base—into the attachment of the round ligament on each side.

Q.—About how much more? *A.*—Of course I didn't measure that accurately. I presume about a dram.

Q.—Well, now, doctor, would you consider that a fair experiment? *A.*—Would I what?

Q.—Without measuring or knowing anything about how much you put in? *A.*—I had the total amount there.

Q.—Well, go ahead. What was the next? *A.*—And the rest I injected into the broad ligament.

Q.—Into the broad ligament, and not into the womb? *A.*—Well, I had already injected into the womb.

Q.—But you don't know how much? *A.*—The balance.

Q.—No, the balance you injected into the broad ligament, you say? *A.*—Yes.

Q.—Well, now, how much had you injected into the womb? *A.*—I said at first I thought about two drams; two drams about.

Q.—I understood you to say a few drops at first. *A.*—Well, a small quantity. About two drams.

Q.—Yes, a few drops. What do you call a few drops?

THE COURT:—There is a difference of opinion between you and the witness. The witness says two drams, and you say a few drops.

Mr. Hough:—If the court, please, he started with two drops—

THE COURT:—Well, you are both talking together, and you say drops, and he says drams. Now I don't know, and the jury doesn't know which it is.

Mr. Hough:—I will start over again.

The Witness:—If you will let me I will explain.

Mr. Hough: Q.—You started first with two drams?

The Witness: A.—I started first with a few drops; I cannot say whether it was five—

Mr. Hough:—Now just a minute.

Mr. T. J. Scofield:—I submit he ought to be allowed to finish his answer.

Mr. Hough: Q.—You started with two drams in a receptacle?

Mr. T. J. Scofield:—I object to that.

The Witness: A.—No.

Mr. Hough: Q.—How much did you start with? *A.*—Six drams.

Q.—Six drams. And you first injected a few drops into the womb just below the fundus? *A.*—Yes, sir.

Q.—Now, do you know how many drops you injected at that time? *A.*—As I said, a few drops. I can't say whether it would be six or eight or ten drops. You cannot measure—it would be difficult to measure that way, pouring out of the syringe.

Q.—Now then, the next injection was where? *A.*—Then I injected more, to probably about two drams into that same portion of the uterus.

Q.—On the same side of the womb? *A.*—The same portion.

Q.—But the same side? *A.*—The middle, yes, the same. The anterior wall. Then I went to each round ligament at the attachment to the womb and injected there about a dram, and the balance I injected into the broad ligament.

Q.—So that would make about three drams into the broad ligament, would it? *A.*—About three drams, or a little less. Somewhere about that. Between two and three drams.

Q.—Now that was before you did anything with reference to the operation, except to open the abdomen. And what was the next thing you did? *A.*—The next thing I did was to operate on the tubes and ovaries.

Q.—How soon did you commence to do that after these injections? *A.*—Oh, I stated that in ten minutes—well, I beg your pardon, Mr. Hough, I had forgotten the use of the pituitrin. I waited ten minutes, and then I used the pituitrin to test its effect on the uterus and on the ligaments. And of the pituitrin I used two ampules of fifteen minims each.

Q.—Well, what did you do next? How soon did you say? Was that ten minutes? *A.*—Yes, sir, ten minutes.

Q.—Now, then, when you made these injections how long did you wait? *A.*—Do you mean the pituitrin injections?

Q.—Yes, sir? *A.*—Inside of one minute the effect of the pituitrin was established. Contraction, hardening of the womb. No effect on the ligaments. I then proceeded to operate on the patient.

Q.—That is, the pituitrin had no effect on the ligaments? *A.*—No, no effect on the ligaments.

Q.—But did have an effect on the womb? *A.*—Yes, sir.

Q.—Now, may I ask whether the ligaments were striped or nonstriped fiber? *A.*—Non-striped fiber.

Q.—Nonstriped fiber. And pituitrin had no action on nonstriped fiber? *A.*—It had no action on the round ligaments. I have repeated that observation many times, both in the pregnant and the nonpregnant condition.

Q.—Well, now, after doing that what did you next do? *A.*—I then operated on the patient.

Q.—That is, within one minute after— *A.*—After that ten minutes' observation of the effect of Wine of Cardui.

Q.—Now, what was the operation? What did you do? *A.*—Removal of the diseased tubes and ovaries and upper part of the womb with this suturing of the round ligaments into the stump of the cervix that was left, in order to get a good, firm pelvic floor at the base of the broad ligaments.

Q.—If the woman lives will she ever be able to have a child? *A.*—No.

Q.—Do you know whether medication is ever recommended as the thing to be tried first before that kind of an operation should be performed? *A.*—This patient had been in the hands of the doctors for a long time, Mr. Hough, and for some time previous she had been at, I think it was the dispensary, the Central Free Dispensary, though I haven't got that here; she had been under treatment for a long time in the dispensary, the Central Free Dispensary.

Q.—You don't know what that treatment had been? *A.*—I can't tell you now.

Q.—How long did the operation require? *A.*—All together?

Q.—Yes? *A.*—The removal operation, you mean?

Q.—The whole thing, from the time you first cut? *A.*—I should say about one hour.

Q.—Did you have assistants with the work? *A.*—Yes, sir.

Q.—How many? *A.*—One anesthetist, two helping me in the operation, one head nurse and two assistant nurses.

Q.—Did any of them know that you were making an experiment on the uterus with Wine of Cardui? *A.*—All of them.

Q.—All of them knew that? *A.*—As far as I know, yes.

Q.—Did they all have the same opinion about Wine of Cardui before they commenced that you had? *A.*—I never discussed it with them, Mr. Hough. I can't tell you that.

Q.—Well, how did they know that the experiment was to be made for that? For the effect of Wine of Cardui? *A.*—Well, I had the Wine of Cardui, I had it given to me by my head nurse. It was poured into the glass and put into the syringe.

Q.—And you mean that none of them knew what you were going to do with it? *A.*—Why, yes, the nurses, they knew.

Q.—Any of the assistant physicians know what you were going to do with it? *A.*—Why, they saw me use it.

Q.—Did any of them protest at anything you were doing? *A.*—No, sir.

Mr. T. J. Scofield:—If the Court please, I object to that question.

THE COURT:—We will stop now for a few minutes, gentlemen.

(Thereupon a fifteen minute recess was taken.)

Mr. Hough: Q.—Doctor, how long was it before you injected the Wine of Cardui into the uterus that you had curetted the womb? *A.*—I should say fifteen to twenty minutes.

Q.—Fifteen to twenty minutes. How long did the curetting process take? *A.*—I suppose from one to two minutes.

Q.—That was performed through the vagina, wasn't it? *A.*—Yes, sir.

Q.—Was there anything else the matter with the womb that needed attention, other than the curetting? *A.*—The womb was enlarged and in a state of chronic inflammation.

Q.—How much above normal was it enlarged? *A.*—About an inch too long.

Q.—An inch? *A.*—Yes.

Q.—An inch longer than normal? *A.*—About an inch longer than normal.

Q.—What would you say it would weigh? I mean over the normal weight? *A.*—Well, I guess—that is only a guess, Mr. Hough, in answer to that.

Q.—Approximately? *A.*—Approximately I should say it weighed two and a half to three ounces; three ounces possibly.

THE COURT:—Do you mean more than normal? *A.*—No, sir.

Mr. Hough:—No, the total? *A.*—The total.

THE COURT:—The total? *A.*—About three ounces, I should think.

Mr. Hough: Q.—And what would you say was the normal weight of that womb, the womb in that woman? In some women it varies a little, doesn't it? *A.*—Oh, it varies. The normal womb in a healthy adult woman who has never borne children, it weighs from one ounce to an ounce and a half, an ounce and a quarter.

Q.—Did you say she had never borne children? *A.*—No, I say in a woman, a normal woman.

Q.—Had this woman borne children? *A.*—Yes.

Q.—What would be the average weight in a woman who had borne children? *A.*—A couple of ounces; two and a quarter.

Q.—So the increased weight would be about an ounce, approximately? *A.*—Approximately.

Q.—Now, would you think the curetting would have had any effect upon the action of the carduus, the Wine of Cardui? *A.*—The curettement?

Q.—Yes? *A.*—No, sir.

Q.—Was the womb still bleeding? *A.*—No, sir.

Q.—How had you stopped it? *A.*—By using iodin, an iodin swab to the interior.

Q.—How much did you use? *A.*—I had a small glass of the tincture of iodin. I had a long applicator with some cotton wrapped on it, soaked it in the iodin, and swabbed the interior of the uterus twice. How much actually was applied I couldn't say.

Q.—Could you tell what became of the Wine of Cardui that you injected into the womb and the broad ligament? *A.*—When fluid is injected by a needle into tissues it saturates the tissues in which it is placed. It gets into the lymph spaces, it gets into the cells of the fibrous tissue and the muscular tissue, and in time it will disseminate into the circulation.

Q.—Would any of that have flowed away at all? *A.*—I should say not in the ten minutes that I observed it before I started the operation.

Q.—And you are sure none got into the abdominal cavity outside of the womb? *A.*—Oh, yes, yes. I put it right into the muscle, the musculature of the womb.

Q.—But it would hold it like a sponge to a certain amount, wouldn't it? *A.*—It would stay in the uterus.

Q.—Well, if you got too much then it would flow away somewhere, wouldn't it? *A.*—Yes, but I held my finger on the prick-hole.

Q.—On the which? *A.*—On the hole that I made with the needle.

Q.—Well, do you know whether it went inside of the womb or not? *A.*—Inside of the womb? Do you mean into the cavity?

Q.—Yes? *A.*—No, it couldn't get into the cavity because I introduced it into the muscle.

Q.—There was no way for it to flow away, and you are sure it was all in the womb, all that was put in the womb? *A.*—All that I put in the womb, yes.

Q.—And you are sure that the half which went in the broad ligaments remained in the broad ligaments? *A.*—Yes.

Q.—How much would you say is two ampules? *A.*—Of pituitrin?

Q.—Yes. That is just a little prepared tube, isn't it? *A.*—Yes.

Q.—In a disinfected form, that is, antiseptic form? *A.*—There it is, Mr. Hough, if you would like to have it (Exhibiting).

Q.—What is that? *A.*—That is the ampule of pituitrin.

Q.—You used two of those? *A.*—Yes.

Q.—Just show it to the jury, if you please. I mean, just hold it up so the jury can see it.

(The doctor exhibited the ampule of pituitrin to the jury.)

Mr. Hough: Q.—That is simply a form in which certain medicines come, when they want to keep them? *A.*—Yes.

Q.—How much of the womb did you cut away? *A.*—All down to the neck of the womb.

Q.—Then the curetting was unnecessary, wasn't it? *A.*—Yes. The reason why I curetted was that I hoped that when I got inside I could do a conservative operation. That is frequently done.

Q.—What would you call a conservative operation? *A.*—Not removing as much as I had to remove in that case.

Q.—You mean not as much of the womb, or not removing the womb at all? *A.*—A radical operation in the abdomen, in connection with such parts, may be construed differently by different men. By radical operation is meant the removal of some important structure or organ.

Q.—Now, after the woman was operated upon, and she came out from under the anesthetic did you tell her what you had taken out? *A.*—No.

Q.—Didn't she tell you that she didn't want her womb removed? *A.*—No, she gave me her consent. I never operate without consent to do what in my judgment seems best for the patient, Mr. Hough.

Q.—Well, now, take the second case. *A.*—That consent, may I say, is always written when the patient enters the hospital, and witnessed by witnesses.

Q.—The second case was retroversion of the uterus. And a torn perineum. Was there anything else the matter? *A.*—Yes, sir, pus tubes, chronic ovaritis, enlarged womb, chronic inflammation of the womb with abundant adhesions throughout the woman's pelvis.

Q.—How old was that patient? *A.*—I find that that is not here, Mr. Hough, but I think she was thirty-eight or thirty-nine years old.

Q.—And when did this operation occur? *A.*—Last week.

Q.—Last week. Did all these operations occur last week? The five? *A.*—No. Yesterday was Monday, wasn't it, the 10th?

Q.—Day before yesterday. *A.*—Day before yesterday I had that abortion case, and the case of a girl twenty-five years old.

Q.—Are those cases four and five? *A.*—I am afraid I haven't read these in order. I can't say how the reporter got them down.

Q.—Well, they were all either last week, or since? *A.*—Yes, sir, last week, and Monday of this week.

Q.—You don't know how old the second patient was?

Mr. Walker:—He said he thought she was about 39 or 38.

The Witness:—I think thirty-eight or thirty-nine, Mr. Hough.

Mr. Hough: Q.—Married or single? *A.*—Married.

Q.—Had she had children? *A.*—Yes, sir.

Q.—Now, what did you first do with her? *A.*—I repaired her perineum.

Q.—The same as in number one? *A.*—The same as in the other case.

Q.—And next? *A.*—Opened the abdomen.

Q.—No curetting? *A.*—I don't think so. I have no curettement marked in my notes.

Q.—And after repairing the perineum you opened the abdomen? *A.*—Yes, sir.

Q.—What examination did you make of her before you commenced to operate? *A.*—I made two examinations of her, two different ones. I made an examination of her in my office about a week previously. I made another examination in the hospital.

Q.—Was she a pay or charity patient? *A.*—Pay patient.

Q.—Pay patient? *A.*—Yes, sir.

Q.—And you sent her to this hospital? *A.*—Yes, sir.

Q.—Now, what did you learn by manual or digital or physical examination about her case which you did not learn from her recital of the history of the case? *A.*—I heard her symptoms first. She complained, and told her story.

Q.—What did she say her trouble was? *A.*—Her troubles— she said nothing about, if you mean prolapse, or perineum, she said nothing about those things. She complained—

Q.—Did she have a prolapse? *A.*—No, no prolapsus. It was a retroflexion case like in that chart, Number C. (Indicating Chart C in the court room.)

Q.—Well, what did she say? *A.*—Her complaints were backache and dragging, incapacity for exertion, nervousness, loss of weight, running down, white discharge; I can't remember perhaps any more than that, but I know that those were present.

Q.—Well, now, what additional did you learn before you performed laparotomy, that is, cut the abdomen? That is the term, isn't it? Laparotomy? *A.*—Yes, sir.

Q.—And what did you learn from a physical examination in addition to what you had learned, or thought you had learned from her statement of the case? *A.*—Well, Mr. Hough, from her statement of the case I had no idea, no exact idea of what I should find, but when I examined her I had an idea and found that she had a torn perineum, that she had an enlarged, retroflexed, fixed uterus, and that on each side of that womb was a mass—

Q.—Just a second. Had she told you that she had recently had a child? *A.*—No, because she had not.

Q.—Had not? *A.*—A long time since. I found on each side a swelling that would approximately be the size of a hen's egg, a good sized hen's egg, fixed, and exquisitely tender. Those swellings were quite distinctly and decidedly tubal-ovarian inflammatory swellings, fixed.

Q.—Now, did you learn anything about her organs by cutting her open which you did not know before you performed that operation? *A.*—Nothing of any importance.

Q.—In other words, would you call that an exploratory operation? *A.*—No, sir, an exploratory operation is done in the case of a person when you have no idea and are in doubt. For instance, the other day I had a swelling in the upper part of the abdomen, and I wasn't sure whether it was a kidney swelling or a liver swelling.

Q.—You mean your abdomen, or some woman's? *A.*—A woman's abdomen. I wasn't certain at all. I explained it to the woman and her husband, and got their consent, and opened to find out. That is what I call an exploratory incision. And I found out that I was wrong. I had thought it was a kidney tumor, but it was really a cancer of the liver, and the kidney was close to it, and I was wrong.

Q.—But that was what you mean by an exploratory operation? *A.*—That is what I mean by an exploratory operation.

Q.—Now, then, will you proceed with Number 2, and proceed to tell what you did when you cut her open? *A.*—Yes, sir. I trust these are in the same order.

Q.—It was the retroversion of the uterus case. *A.*—Yes, sir, with the adhesions, and the pus tubes, conditions like this, only smaller. (Referring to uteri preserved and contained in glass vessel.)

Q.—And the torn perineum? *A.*—And the torn perineum. Well, I told you that I operated on the perineum; then we opened the abdomen. In this case my notes show three drams of the Wine of Cardui introduced into the uterus, which in this case was a firm uterus, nonrelaxed. Part of it into the uterine wall, into the muscle.

Q.—You mean the same as in Number 1? *A.*—The same as in Number 1.

Q.—And about the same place? *A.*—Yes, about the same place.

Q.—Now, you say a part of it. What part of it? *A.*—I should say about a half, Mr. Hough, because this was a small amount, and I only intended here in this experiment to inject the round ligaments again, not the broad ligaments. I injected about half, I should say, into the muscle of the uterus, and the rest on each side into the round ligament where it joins the uterus, so that I presume that a dram and a half would go into the wall of the womb, and the rest, in about equal parts, into the ends of the round ligaments.

Q.—When you say "go into" you mean you think they would retain that much? *A.*—Well, they did retain it. I saw that they retained that much. None escaped into the abdominal cavity. My finger was placed on the needle puncture at once when it was administered.

Q.—Well, now then, what did you observe? *A.*—I just observed the parts, and again in ten minutes there was no change in the muscle of the womb, no change in the round ligaments.

Q.—Did anyone else observe it with you? Were you the only observer? *A.*—Oh, no, my assistants were there. Dr. Small was there.

Q.—And this was after the first operation on the first woman, was it? Are these numbers stated in chronological order also? Was number one woman the first that you made the test on? *A.*—Well, this case that I am talking about now, Mr. Hough, the retroversion case—you see, I had two retroversion cases—this was on the 10th, that is, Monday.

Q.—Then that was not second in point of time? *A.*—No. On Monday I had two cases—I beg your pardon, that is not right. On Saturday that case was done.

Q.—You mean number two was on Saturday? *A.*—Yes, the case I am talking about now was Saturday. I have the wrong date here.

Mr. Walker:—Last Saturday?

Mr. Hough: Q.—That was this last Saturday? *A.*—Yes.

Q.—And this was the patient that first consulted you at your office? *A.*—Yes, sir.

Q.—And you sent her to the hospital? *A.*—Yes, sir.

Q.—Well, now, you observed for how long? *A.*—Ten minutes.

Q.—Ten minutes? *A.*—Yes.

Q.—Did you use a microscope of any kind, or a magnifying glass? *A.*—No, my eyes are good. Only ocular.

Q.—You couldn't observe any action? *A.*—No, sir, I couldn't observe any action, neither hardening nor softening.

Q.—Did you expect to find any action within that time? *A.*—I did, if there would be an action in the toning of the uterus.

Q.—But as in the other case, you were satisfied that there would not be? *A.*—Oh, yes. You see, in using the pituitrin and the other drugs which are tonics on the uterus the action on the uterus is very rapid, and pituitrin usually within a half a minute; sometimes not until nearly a minute.

Q.—Well, it is a well known fact that different drugs act in different lengths of time upon the uterus, isn't it? *A.*—Oh, yes.

Q.—Well, now, after you made this test what did you do next? I assume that you reached the conclusion that this had no effect on the uterus in that case? *A.*—Uterus or round ligament.

Q.—Uterus or round ligament. *A.*—I next injected one ampule of pituitrin into the uterus.

Q.—The same place? *A.*—No, into another part, a clean, unaffected part, a part where I had not injected before.

Q.—Very well. *A.*—My notes show blanching and contracting began in about one minute in the wall of the womb. No effect on the ligaments.

SYNERGISTIC ACTION

Q.—You think you excluded absolutely a synergistic action in both of these cases? *A.*—Synergistic action?

Q.—Yes. *A.*—You mean by that one drug helped the other to act?

Q.—Yes. *A.*—You mean that the Wine of Cardui helped the other to act?

Q.—Did you exclude the possibility of that? *A.*—I think so.

Q.—Well, if you had waited longer might not the Wine of Cardui have acted? *A.*—No, sir, I don't think so.

Q.—Well, but that is just a guess, isn't it? *A.*—What is that?

Q.—It is just a guess? *A.*—No, it is not a guess, because I—

Q.—How could you say that it would not have acted if you had waited longer if you didn't give any longer test? *A.*—All the drugs that I have worked with, that I know about as influencing the uterine muscle act, when injected directly into the muscle, inside of ten minutes.

Q.—All that you know of? *A.*—Yes, sir.

Q.—How many do you know of? *A.*—I know of ergot.

Q.—Does ergot act as quickly as pituitrin? *A.*—No, sir, pituitrin is the most quickly acting of all.

Q.—Did you inject ergot into any of these wombs? *A.*—No, I injected no ergot into any of these. I have frequently injected ergot into the womb.

Q.—Well, I am asking about these wombs now? *A.*—No, sir; no.

Q.—Did you compare the action of Wine of Cardui with any other drug which is supposed to act on the uterus, except pituitrin, in these cases? *A.*—Not in these cases, but I know of the action from previous work.

Q.—Well, drugs do not act on every womb exactly the same? They act differently, don't they? *A.*—I have never seen pituitrin fail to act in every case.

Q.—Did you ever use corpus luteum? *A.*—How do you mean, by injection?

Q.—Yes. *A.*—No, sir.

Q.—Any other way? *A.*—I have never given corpus luteum by the mouth, or any other way.

Q.—Did you ever use stypticin? *A.*—Stypticin, no.

Q.—By injection, or by the mouth? *A.*—No.

Q.—Styptol? *A.*—No, sir.

Q.—Did you ever try hydrastis? *A.*—Yes, sir.

Q.—By the mouth or by injection? *A.*—By the mouth and by injection.

Q.—Both ways? *A.*—Yes, sir.

Q.—How rapid is that in its action? *A.*—I have injected hydrastis; I have not used it in recent years. I used to inject it into the uterus direct, and I should say that the action begins in usually from two to three minutes; two to three minutes in my experience.

Q.—Did you ever use cimicifuga? *A.*—No, sir.

Q.—In any way? *A.*—Never.

Q.—Well, at any rate you didn't make comparison with anything else in this case except the pituitrin. And you really believed that there was no synergistic action? *A.*—I believe so, yes.

Q.—And then what did you do? *A.*—Are we still on that case?

Q.—Yes, sir; number two. *A.*—I stated that I injected one ampule of pituitrin into the uterus. You have got that.

Q.—Yes. *A.*—No effect on the uterus; no effect on the ligaments. Then I injected—

Q.—You say there was no effect from the pituitrin? *A.*—I mean there was the blanching and contraction within one minute on the uterus. No effect on the ligaments, on the round ligaments.

Q.—No effect on the ligaments? *A.*—The round ligaments.

Q.—But there had been in the other case, you say? *A.*—In which?

Q.—In number one case? *A.*—Never with pituitrin.

Q.—Never? *A.*—Never on the round ligaments. I have never seen any. Then I injected two ampules into the broad ligaments. One on each side. No effect.

Q.—Of pituitrin. In other words, the action of pituitrin on those ligaments was just the same as the action of Wine of Cardui? *A.*—On the ligaments just the same. No effect.

Q.—Now how long were you in injecting the pituitrin? *A.*—How long?

Q.—Yes. *A.*—Instantaneous. After ten minutes' observation of the effect of the Wine of Cardui.

Q.—That would take about a minute? *A.*—No, sir; not a second.

Q.—Well, but you made several injections. That would take longer than one second, wouldn't it? *A.*—I should say about a second to each one. Perhaps three or four seconds.

Q.—And how long did you wait to observe the action? *A.*—In about one minute the effect of the pituitrin was shown on the uterus.

Q.—What was that effect, as it appeared? *A.*—I beg your pardon?

Q.—What was the effect? *A.*—A blanching and whitening and a hardening of the uterine muscle; very marked.

Q.—Would you call that contraction? *A.*—Yes, sir; a stimulation, actual contraction of the muscle.

Q.—There may be blanching of the human flesh without contraction, may there not? *A.*—You can get blanching by constricting the vessels in a part.

Q.—In what other ways can you get blanching? *A.*—You can get blanching when you faint, for instance; the blood of the body goes to the great abdominal veins, and you get blanching of the face.

Q.—Any other way? *A.*—By a loss of blood from the body when a patient is hemorrhagic.

Q.—Does peroxid produce blanching? Peroxid of hydrogen? *A.*—Peroxid—I have always understood that the ladies used peroxid for blanching their hair, but I never knew any other effect.

Q.—Has no effect on the membrane? *A.*—I have never used it, sir.

Q.—Never tried it at all? *A.*—Oh, we use peroxid a good deal in dirty wounds, that is all.

Q.—Doesn't it blanch? *A.*—There is a slight blanching action.

Q.—That is without contraction, isn't it? *A.*—Oh, no; if it blanches it must contract the vessels, the capillaries.

Q.—Then you mean to say there can be no blanching without contraction? *A.*—Without contraction of vessels, the drainage of vessels.

Q.—Well now, after you made that observation what did you next do? *A.*—I then, when the contraction was well developed in the uterus and the organ was hard, I tried again the Wine of Cardui. I injected three drams.

Q.—This was on number two? *A.*—This is the same case.

Q.—Last Saturday? *A.*—Yes. I injected three drams in order to see if it might have some antispasmodic action and undo this hardening which was produced by the pituitrin.

Q.—And you found that three drams would not overcome the pituitrin action? *A.*—No, sir.

Q.—Would you say that six drams would not? *A.*—I do not know. I would say that I do not think it does.

Q.—Would you say that eight drams would not? *A.*—I should think it would not.

Q.—How many drams would it take to overcome the pituitrin action?

THE COURT:—You mean of Wine of Cardui?

Mr. Hough:—Yes, sir.

The Witness:—Of Cardui, to relax the pituitrin?

Mr. Hough: *Q.*—Yes.

A.—You are asking for my opinion?

Q.—Yes, if you can base it on anything that you know about it. *A.*—I don't believe that all the Wine of Cardui in the world would relax a uterus hardened with pituitrin.

Q.—Not even the alcohol that was in it would do it? *A.*—No, sir; I don't believe so.

Q.—But you have never experimented? *A.*—No, I have not experimented any more than I told you.

Q.—Well now then, what was the next step in that case? *A.*—I operated on her.

Q.—Before you commenced to operate how long did you wait to observe these effects of the Cardui, the second time particularly? *A.*—I watched the effect of the Wine of Cardui on the pituitrin about two minutes.

Q.—Did you expect it to act in that time? *A.*—Did I expect it to act in that time?

Q.—In that time, in two minutes? *A.*—I didn't know whether it would or not. I wanted merely to test it.

Q.—But did you expect it to act in two minutes in that quantity, if it would act at all? *A.*—If it would act at all I should expect that it might act in that time.

Q.—You mean to say then that a drug which would have that effect would either act in two minutes, or not at all? *A.*—No, I wouldn't say that.

Q.—Well, then, you didn't expect it to act in the two minutes? Your mind was firm on that point, wasn't it? *A.*—I felt that I had injected a very big dose of Wine of Cardui, and that if it had any action of that kind it would act within a short time.

Q.—But at any rate you were satisfied that it didn't act within two minutes? *A.*—Oh, yes.

Q.—Well now, then, what did you do next? *A.*—But, Mr. Hough, allow me to state that I had that uterus under observation for a longer period, during the course of my operation, and that there was no change along after ten minutes, I should say fifteen minutes or twenty minutes, there was no change.

Q.—Well, wasn't your attention directed to something else that you were doing? *A.*—Oh, yes, but I had that under my observation.

Q.—Wouldn't what you were doing in the cavity have had any effect on that? *A.*—No, sir, because the womb and the ovaries and tubes were under my observation all the time.

Q.—Well, what did you do next? *A.*—I proceeded to remove the tubes, the pus tubes, the diseased ovaries, clean away the adhesions.

Q.—And you mean you took out the ovaries also? *A.*—Oh, yes; they were badly infected and diseased, with the uterus.

Q.—And you took that out? *A.*—I may say that this was a gonorrheal case.

Q.—And you took out the ovaries? *A.*—I took out the ovaries, the diseased ovaries.

Q.—And the fallopian tubes? *A.*—And the fallopian tubes.

Q.—And the uterus? *A.*—And the uterus.

Q.—Well, you say "diseased." You took it all. Was there any part that was not diseased? *A.*—Not a part.

Q.—And you took out everything; down to where? The cervix? *A.*—To the vagina.

Q.—To the vagina. And how is the patient doing? *A.*—First rate.

Q.—She is still in bed? *A.*—Yes, sir.

Q.—Do you think she will get well? *A.*—I do.

SURGICAL OR MEDICAL TREATMENT

Q.—What percentage of cases in which that kind of an operation is performed fail to get well?

Mr. T. J. Scofield:—I object to the question, if the Court please.

THE COURT:—Objection sustained.

Mr. Hough:—Does your Honor rule that I cannot ask the witness what percentage of his patients are cured by surgical treatment?

THE COURT:—Surgical treatment?

Mr. Hough:—Yes.

THE COURT:—That has nothing to do with the issues in this case.

Mr. Hough:—Well, if they insist that surgical treatment is the reliable thing, and the medical treatment is not—

THE COURT:—No, they are not insisting that at all, as I understand it. Perhaps I have been misled as to the real issues here. I had supposed that we were confined to learning the virtues or the worthlessness of Wine of Cardui.

Mr. Hough:—That is what I thought in the beginning.

THE COURT:—And we were not discussing any other drug, or any other method of treatment.

Mr. Hough:—But counsel for the defendants have gone far afield from that question, and have put witnesses on to show that certain cases must be treated surgically.

THE COURT:—They have testified that certain difficulties cannot be relieved by medicine.

Mr. Hough:—Now then, they seek to draw the inference that if medicine is given in any case and does not cure, it is fraudulent, but if surgery doesn't cure in every case it is all right.

THE COURT:—Yes, but the difficulty is that the defense is not here to show the virtues or worthlessness of surgery. They have been charged here with promulgating a certain article which acts against this Wine of Cardui. They have said it was worthless for the things that it was advertised to cure or help. Now whether or not surgery is successful in the majority of cases, or half the cases, or only a small percentage of the cases, is unimportant.

Mr. Hough:—Well, that shows the inapplicability of this kind of testimony, which we have been objecting to from the

start. What difference does it make that they have got some cases which require a surgical operation, when in our literature we say that we do not advertise it for any case which requires surgical operation.

Mr. T. J. Scofield:—I object to this statement which the gentleman makes in the presence of the jury. Their literature says that it would cure most cases of fallen womb.

The Court:—I think there are exhibits here which would show it both ways.

Mr. Hough:—Except that we have made the point that the literature which they read on that subject was extracts, and not the entire literature, which should be considered together, and they have been permitted to ask questions on that theory.

Mr. T. J. Scofield:—It has all been read to the jury, the whole of it. There is no doubt about what you say in your advertisement.

Mr. Hough:—What was the last question?

The Court:—The last question was: What percentage of cases of that kind—in what percentage the operation was successful. The objection was sustained.

To which ruling of the Court the plaintiffs, etc., excepted.

An adjournment was taken until 10:30 a. m., April 13, 1916.

April 13, 1916, Morning

The Court met pursuant to adjournment, and Dr. John Clarence Webster resumed the stand.

FURTHER CROSS-EXAMINATION BY MR. HOUGH

Q.—Now, Doctor, take your third case. *A.*—Mr. Hough, may I specify this case and may I say to you that I have spoken to this patient? You asked me yesterday if I would tell her what I had done. I have told her this morning what I have done, the use of the Wine of Cardui, the operation. I asked her if she would come into the court if necessary; if she would give a deposition, and I also asked her if she would be good enough to see you if you would come up to the hospital at any time. I will give you her name. She says, "God bless you, Doctor, I will." Mrs. Mary W—— is her name, if you wish it and she lives in Chicago. Her age is 37.

Q.—The age of the third woman was 22 years. *A.*—I think we probably got mixed up a little bit in regard to her, Mr. Hough. 22 is the other one.

Mr. Hough:—I suggest that the statement of the witness should be stricken out that he made when I said "take your third case."

The Court:—Yes, that may go out of the record and it stands that he gave the name to you with her consent.

To which ruling of the Court the defendants, etc., excepted.

Dr. Webster was then cross-examined specifically concerning his third case, the woman 22 years of age. This patient complained of menorrhagia, headaches, dysmenorrhea, leukorrhea and frequent urination. She had been operated on one year previously by another physician but had not been helped. She had been suffering three or four years previous to the first operation. This operation consisted of shortening of the round ligaments and removal of the appendix. Dr. Webster described the findings on his own examination and stated that the patient did not say that she was worse and was certainly no better following the first operation.

Q.—Does that particular operation have a name that you know of? *A.*—Yes, sir.

Q.—What is the name of it? *A.*—The Webster round ligament operation.

Q.—Is that named after you? *A.*—It is.

Q.—Do you regard that operation as the proper operation in such conditions? *A.*—I do, but not all the conditions. What conditions do you mean? You must specify. Do you mean in her case, or generally?

Q.—Well, we will take both; first in her case, and then generally. *A.*—From what I know of her case, from opening the abdomen, I should say, no; it was not sufficient, would not be sufficient.

Q.—Well now then, generally? *A.*—In general I consider that that is a very valuable operation in displacement cases.

Q.—In what majority of the displacement cases? *A.*—The great majority of displacement cases, not associated with prolapsus as well as the backward displacement.

Q.—Do you mean it would not be a good thing in prolapsus cases? *A.*—I do not do it alone in prolapsus cases, I use a combination method with it.

He then testified as to what he learned from his physical examination of the patient, namely that the uterus was retroflexed and somewhat enlarged and that the adnexa were tender and enlarged.

Q.—Now then, when you opened the abdomen, did you learn anything about the condition which you did not know from either her history of the case, or from the physical examination? *A.*—Yes, Mr. Hough, I did and very instructive it was. I learned why the operation had been a failure.

Q.—I mean, with reference to the condition? *A.*—The round ligaments were very thin and the broad ligaments were very, very thin and lax and the round ligaments had become stretched after the operation. They are not sufficient.

Q.—What caused them to stretch after the operation? *A.*—Because the broad ligaments, these broad bands which hold the uterus, which I described yesterday, were lax and weak. Probably she was born that way, and the condition was aggravated by the girl's work. They were not sufficient to hold the uterus up, and it was for that reason that I stated that, if I had been operating on such a case I would have done more than shorten the round ligaments.

Q.—You mean at the first operation? *A.*—Yes, if I had been operating then.

Q.—What additional would you have done at the first operation? *A.*—Well, of course, not having seen her condition at the—

Q.—But you just stated you would have done more. What would you have done? *A.*—Assuming that her ligaments were the same as I found them—

Q.—That is a fair assumption that they were, is it not? *A.*—Yes, indeed, I think it is a fair presumption. I would have shortened the utero-sacral ligaments, that is, a procedure that I carry out in such cases. Those are the ligaments that are down behind the neck of the womb, and which tend to pull it upwards and backwards towards the spine. I would have used that, most emphatically, in such a case along with the shortening of the round ligaments.

Q.—Would you have done anything else? *A.*—Yes, I might have done something else; I cannot say. With regard to the condition of the tubes and ovaries I might have done something to them, and being a young woman, I would have done or tried to do something conservative.

Q.—What would you call something conservative? *A.*—Any young woman—

Q.—In this particular case? *A.*—I would have tried to destroy the diseased portion of the ovaries and leave a healthy portion to functionate.

Q.—As far as you know, or from the facts you learned though, nothing was done at all. *A.*—No, as far as I know. I have talked with the doctor, but I suppose what he said would not go, would not be evidence.

Q.—I mean, so far as any appearance of the interior of the cavity is concerned, nothing was done, they were left untouched? *A.*—There was no evidence of any operation on the ovaries or tubes.

Q.—Or any treatment of any kind? *A.*—No, sir.

Q.—Now, when you opened up the cavity, you say you discovered a retroflex condition of the uterus? *A.*—And somewhat prolapsed.

Q.—And somewhat prolapsed? *A.*—Yes, sir.

Q.—What else did you discover? *A.*—I discovered that the tubes were thickened.

Q.—You mean the fallopian tubes? *A.*—The fallopian tubes were thickened from infection, chronic inflammation, and the ovaries enlarged and very extensively degenerated.

Q.—What did you do? *A.*—Then I carried out the experiments with Wine of Cardui.

The witness described his experiment. He injected 6 drams of Wine of Cardui into the buttock hypodermically and he observed no change in the uterus or in the ligaments. He then injected 3 drams of Wine of Cardui into the wall of the uterus and the base of the round ligaments and observed no change of any kind. He introduced 3 drams into the broad ligaments, 1½ drams on each side.

Q.—Now then, what next did you do? *A.*—Then I decided on the operation that was necessary in this case and, from the extent of the disease, I decided that it was necessary to remove, extirpate those diseased genital organs and the first thing I did was to remove and tie off the vessels in the broad ligaments, supplying the tubes and ovaries. I did that on both sides. That took me perhaps ten minutes. In all this time there was no change in the appearance of the parts. Then I injected—

Q.—You are positive nothing whatever; no change whatever? *A.*—Not that I could observe, Mr. Hough.

Q.—Not that was visible to the naked eye? *A.*—Not that was visible to the naked eye. Then I introduced 15 minims of pituitrin, or one c.c. of pituitrin that I showed yesterday, into the wall of the uterus.

Q.—After you separated the broad ligaments? *A.*—After I had separated the ovaries and the tube.

Q.—Didn't you state yesterday that you only used pituitrin on the first two? *A.*—Not that I recall, no sir. Oh, no. If I did, I was wrong.

Q.—If you did, you were wrong, but you are not sure that you did? *A.*—Oh, yes, my notes were made then. In 30 seconds the uterus began to harden and contract. Then I proceeded to the removal of the upper portion of the uterus as far down as the neck of the womb and then sewed very firmly the ligaments, the round ligaments to that neck and then closed the abdomen.

Q.—You did not take out the tubes or the ovaries? *A.*—Oh, yes. I said so. I took those out with the upper part of the womb.

Q.—You took out the ovaries and took the tubes and took out practically all of the uterus? *A.*—Except the neck of the womb.

Q.—Did you leave anything for her to bear a child with? *A.*—No, sir.

Q.—She was completely denatured? *A.*—That was all explained to her as a possibility beforehand.

Q.—And if this first operation had been performed correctly, she might not have been all denatured, she might have been a well woman? *A.*—No, sir; I would not like to say that.

Q.—You would not say she might have been? *A.*—Might have been? I cannot say.

Q.—Where did you get this Cardui? *A.*—Bought it in Buck & Rayner's.

Q.—Did you buy a fresh bottle for each experiment? *A.*—No, sir.

Q.—Used the same bottle? *A.*—The same bottle.

Q.—And each experiment was on different days? *A.*—Yes, sir.

Q.—You knew that it was medicine that was recommended to be given by the mouth? *A.*—Yes, sir.

Q.—And you did not expect any effects and you did not see any effects? *A.*—That is right.

Q.—Suppose you had given pituitrin by the mouth. Would it have had any effect on the womb? *A.*—Pituitrin by the mouth? I have never given pituitrin by the mouth.

Q.—You know it would not have any effect on the womb, don't you? *A.*—I believe it would not.

Q.—It would not. Yes. Don't you know, Doctor, that if you inject into the walls of the uterus three tablespoonsful of liquid it will make a great big bump on that uterus? *A.*—Three tablespoonsful?

Q.—Three teaspoonsful? *A.*—It did not when I injected it, sir. I injected it very slowly.

Q.—Well, but if it stayed in there, it is bound to make a lump, isn't it? *A.*—It diffuses in the tissues.

Q.—Well, how much liquid could the patient absorb or the tissues absorb without any change in the outward appearance as to size? *A.*—I don't know, I never tested that.

Q.—Then how can you say that you know that three teaspoonsful will not make a lump or increase the size of the uterus? *A.*—I am only saying that I did not make a lump.

Q.—You are positive of that? *A.*—Yes.

Q.—Did you ever see a liquid injected into a uterus before? *A.*—I have injected it many times, Mr. Hough.

Q.—Did it ever at any time you have injected it, make a lump or show in the uterus? *A.*—It depends on how you inject it. If you inject it superficially, under the peritoneal covering—

Q.—I say, did it at any time show externally? *A.*—Yes.

Q.—It has? *A.*—Yes, I have injected it superficially under the peritoneum, not going deep enough, then it will make an elevation, of course.

Q.—Then, if it goes in deep enough, how do you know that it don't go into the cavity of the womb, and pass off? *A.*—Because it was passed into the muscularis, not into the uterine cavity. The wall of the uterus is half an inch to three quarters of an inch in thickness.

Q.—How thick is the broad ligament? *A.*—The broad ligament at the upper portion—

Q.—No, where you injected? *A.*—Where I injected it?

Q.—Yes? *A.*—About three quarters of an inch; the broad ligament is an inch at the starting, and then goes out to about an inch or three quarters of an inch where I injected it. The broad ligament is very lax.

Q.—How far away from the uterus was it? *A.*—Close to the uterus.

Q.—And you think it was three quarters of an inch thick there? *A.*—Yes; the broad ligament is very lax tissue. It would be very difficult to make a lump in it, it is so loose.

Q.—How rapidly does an injection of the character you used diffuse itself through the tissues where you injected this? *A.*—I believe very rapidly, right in, immediately—within a minute I think it diffuses right through the tissues.

Q.—And you have never made an injection of this character which showed on the outside of the uterus, that is, by a lump? *A.*—I said that I had made injections in the wall of the uterus. I use this work a great deal in doing cesarean section by the abdomen; in doing that I always use pituitrin, injecting it into the uterus before the cesarean section, that is to say, before I cut the uterus, in order to diminish the hemorrhagic tendency, and I say that if I inject I have injected it too superficially, right in the thin layer, then I would get a lump just as one would under the skin.

Q.—But I asked you when you injected it as you injected it in this case? *A.*—No, I have never seen a lump injecting it deeply. I was surprised there was no lump.

Q.—You mean you expected to see a lump and there was none? *A.*—I would expect to find a lump, injecting that quantity, yes, but there was no lump.

Q.—How do you account for that? *A.*—Rapid diffusion.

Q.—Why should this diffuse more rapidly than any other liquid? *A.*—Presume it is because of the alcohol. It contains alcohol, the solution, and alcohol is a very rapid diffusing liquid in the body.

Q.—This comes in contact with the living tissue when you inject it that way, does it not? *A.*—Yes, sir.

Q.—And the effect of alcohol is to coagulate the protoplasm of the blood, isn't it? It coagulates the protoplasm of the blood? *A.*—I have never—I do not know. I have never had any effect from the injection of alcohol into the body, of that character.

Q.—It is not well known that it does have that effect when brought in contact with living tissues? *A.*—It is not well known, to me, sir. I have used it many times.

Questions were then asked as to the effects of alcohol under ether anesthesia.

Q.—Would you say it would have a different effect when under the anesthetic, than when not under the anesthetic, injected in that way? *A.*—Its general effects, the effects on the circulation would be, of course, merged. They would be infinitesimal as compared with the effects of the ether. Now, as regards any local theoretical effect, I presume it would be the same in both conditions.

Q.—The effect of injecting the alcohol in that way, is more direct and more pronounced by giving it through the stomach. Is it not? *A.*—Through the mouth?

Q.—Yes, through the mouth? *A.*—Yes, sir, and that is the same way I gave the Wine of Cardui, directly. I thought—

Q.—You thought what? *A.*—I thought that if Wine of Cardui had an action on the uterus that I would see it by the direct use of it.

Q.—But that rule don't apply to all ingredients. There are some ingredients which act by the mouth, and do not act by injection, and some ingredients which act by injection and do not act by the mouth. Isn't that a fact? Like pituitrin? Pituitrin don't act by the mouth, does it? *A.*—No, it acts locally, though, on the uterus.

Q.—It don't act when taken by the mouth? *A.*—I have never used it by the mouth.

Q.—There is a difference therefore, between the action of alcohol in both respects, and certain other substances, isn't there? *A.*—I don't know. I am not a pharmacologist and I cannot speak on points of that character.

Q.—Your reading don't tell you anything on that subject? *A.*—I know, for instance, that a drug like digitalis, if given by the mouth, takes a long time to act; but if given under the skin, as we have to use it sometimes in cases of heart failure, it acts very quickly and immediately. If we had to wait for the mouth action it would not be satisfactory in emergency cases.

Q.—I don't think that is quite an answer, doctor, to my question. I say there is a difference in the action between the alcohol and certain other substances. In other words, there are some things which act—I am not asking about whether they act more rapidly or not—there are some things that act when injected, which do not act at all when taken through the mouth, like pituitrin. *A.*—I am not competent to speak about that point, Mr. Hough. That is a matter for pharmacological experience and test.

Q.—But I am asking as to your knowledge. Do you have any knowledge on that subject at all? *A.*—My knowledge is based upon my direct use of the drug.

Q.—Don't you ever form any opinion on anything that you ever read? *A.*—I get ideas from reading, suggestions.

Q.—Have you gotten any such ideas from anything that you have ever read?

Mr. T. J. Scofield:—That is objected to.

THE COURT:—I think this question has been answered a long time ago, because he told you that he never had given pituitrin by the mouth and that in his opinion, it would not operate when given by the mouth.

The Witness:—Yes, sir.

THE COURT:—He has told us it did operate when injected directly into the muscle. Now that answers your question, "Doctor, do you know of anything that will operate when directly injected into the muscle, and will not operate when given by mouth?" That has been answered.

Mr. Hough:—But I was asking whether there was any other substance—

THE COURT:—You may ask him whether he knows of any other substance.

Mr. Hough:—I asked him, and he said that he is not a pharmacologist. Then I said—or asked him if he did not know from his reading that there are such other substances. It is not necessary for him to have used it.

Q.—Have you any opinion on that subject?

Mr. T. J. Scofield:—He has answered that.

THE COURT:—You may go ahead.

To which ruling of the Court the defendants, etc., excepted.

A.—I answered by quoting what I knew of digitalis, Mr. Hough.

Mr. Hough: Q.—But that was something that acted slowly, instead of not acting at all? *A.*—Yes.

Q.—I asked you, in reference to ingredients which did not act at all, when taken by mouth, like pituitrin? *A.*—You want to know something that does not act by the mouth?

Q.—Whether you know of other substances of that character? *A.*—That does not act by the mouth, but that will act locally?

Q.—Yes.

THE COURT:—Or vice versa.

A.—Yes, sir; adrenalin on the uterus will not act when given by the mouth.

Mr. Hough: Q.—What is the dose of adrenalin, the minimum dose we will say? *A.*—Well, adrenalin I use in a solution of one in one thousand.

Q.—You mean one one thousandth part of a grain? *A.*—Yes, sir, a solution of one in a thousand, and if ten or fifteen or twenty drops of that be given by the mouth, there is no effect on the uterus.

Q.—And when injected there is an effect? *A.*—In the uterus there is an effect, yes.

Q.—In other words, all drugs and all substances don't act the same, I mean, taken by the mouth, or by injection? There is a variation in their action, isn't there? *A.*—There are variations, yes, sir, of course, at times.

The witness was then asked concerning the date of this operation and also his operation on the next case.

DR. BILLINGS' CASE

The Witness:—This case was a patient of Dr. Billings in the Presbyterian Hospital.

Mr. Hough: Q.—How long had she been a patient of Dr. Billings? *A.*—I cannot tell you that. She has been in the hospital for some time. She has been—he called me in consultation, stating that she had a very serious condition of multiple neuritis. She had been suffering for four years and had found no relief, and had come to him in the hospital for his attention. After he had examined her thoroughly, he discovered that she had pelvic disease.

Q.—You mean pelvic inflammation? *A.*—Yes, sir—infection. As Dr. Billings is one of the great authorities on that subject—

Q.—Oh, are there authorities, medical authorities? *A.*—Dr. Billings has been doing very important work with regard to the influence of infection in the body in the production of joint disease and chronic inflammations and so on.

Mr. Hough: *Q.*—You would class him as a medical authority? *A.*—In that subject.

Q.—Are there any other medical authorities?

THE COURT:—Do you mean in the literature, or individuals?

Mr. Hough:—In literature and individuals.

THE COURT:—Because I didn't understand the witness to say that Dr. Billings had written about all these things, or that he had reference to some book that Dr. Billings had written.

Mr. Hough: *Q.*—Has Dr. Billings written about anything?

The Witness: *A.*—He has written articles in the journals.

Q.—Never written a book? *A.*—I don't think he has.

Q.—Then when you use the word "authority" you do not refer to any man who ever wrote a book? *A.*—I am referring in this connection to Dr. Billings, who is a colleague of mine in the Presbyterian Hospital, and whose work I have known for many years.

Q.—Are there any medical authorities who have written a book?

Mr. T. J. Scofield:—I object to the question, if the Court please.

THE COURT:—Oh, I think we are getting away here, because, we do not know the definition of "authority." You take two lawyers, and you ask one if he recognizes the other as an authority; well, it depends altogether upon a given question coming up, whether the man who is asked this question would then say he regarded him as an authority upon that, or would agree with him.

Mr. Hough:—I want to get the witness' definition of an authority. We know that our law reports use the expression "medical authorities." I don't know whether the courts know what they meant when they used the expression, but that is an expression in common use.

THE COURT:—We all know the connection in which those phrases come into the law work.

Mr. Hough: *Q.*—Now, what is your understanding—just to digress a second—of the term "medical authority"?

Mr. T. J. Scofield:—I object to the question, if the Court please.

THE COURT:—The objection is sustained here upon this branch of the cross-examination.

Mr. Hough: *Q.*—And you say in most—

THE COURT:—He says he regarded Dr. Billings, his colleague, as an authority upon this kind of work.

Mr. Hough:—Now then, are we not entitled to know what his meaning of the word "authority" is?

THE COURT:—Yes, in that connection.

Mr. Hough: *Q.*—What is your meaning of the word "authority," when you use it in connection with medicine?

Mr. T. J. Scofield:—That, if the Court please, I object to.

THE COURT:—In connection with Dr. Billings.

Mr. T. J. Scofield:—Because he has already answered that. In connection with Dr. Billings, and his work there. He explained what he meant by it. He explained that already.

THE COURT:—You may answer, Doctor.

To which ruling of the Court the defendants, etc., excepted.

The Witness: *A.*—I regard Dr. Frank Billings—

Mr. Hough:—I don't like that form of reply, if the Court please. I ask him what is his meaning of the word "authority." Now, I don't want a lecture on Dr. Billings.

THE COURT:—You have asked him practically the meaning of the word "authority" as it was used by the witness in connection with Dr. Billings.

Mr. Hough:—Does your Honor hold that I am not entitled to ask the witness what he would mean by the term "medical authority"?

THE COURT:—You may ask him that.

Mr. Hough: *Q.*—What is your understanding of the word "medical authority"?

Mr. T. J. Scofield:—I object to that question as not cross-examination.

THE COURT:—He may answer.

Mr. T. J. Scofield:—And as being immaterial.

THE COURT:—Overruled.

To which ruling of the Court the defendants, etc., excepted.

The Witness: *A.*—As far as a human being can be an authority on anything, I would regard a man who had worked at a particular subject in a scientific manner over a period of time, and who had more experience in that subject than other people, or most other people, as the best human authority that could be found.

Mr. Hough: *Q.*—Would it make any difference whether the man had written a book or not?

Mr. T. J. Scofield:—That I object to, if the Court please.

THE COURT:—He may answer.

To which ruling of the Court the defendants, etc., excepted.

The Witness: *A.*—Would it make any difference—why, no.

Mr. Hough: *Q.*—Well, I mean, is he more or less of an authority if he has written a book on the subject that he thinks he is familiar with? *A.*—Often less in the eyes of the world, Mr. Hough.

Q.—Would you regard Bandler as an authority on the subject that he has written on: Gynecology?

Argument was then made by the attorneys for the defendants before the Court on the introduction of matter read from books, Mr. Hough reading a decision from the 89th Illinois, 516: The Connecticut Mutual Life Insurance Company vs. Ellis, and Mr. Scofield calling to the Court's attention the 265th Illinois: Ullrich vs. the Chicago City Railway Company.

Mr. Hough stated that in the Ullrich case, the decision was reversed because the counsel brought into the presence of the jury a large number of medical books and started to read from the books without first laying the foundation.

The Court stated that that foundation was not yet laid in the present case.

Mr. Hough:—I said I would try to approach it in a different way. I thought I had the foundation, and I still think I am within the rule, but if the Court thinks otherwise, I will approach it in a different way. I do not want to abuse the right, but I think I have got the right to get from the witness the foundations for this opinion, and I can go down as low as I please to get the foundation; that is my opinion. The foundations are always low down anyhow.

Q.—Had you concluded your definition of a medical authority?

Mr. Walker:—He had finished.

The Witness:—I think so, Mr. Hough.

Mr. Hough: *Q.*—And I believe you said that it was usually worse if he wrote a book; something to that effect?

The Witness: *A.*—No, I didn't say that. I said it might be often.

Mr. T. J. Scofield:—Well, what he said is in the record.

Mr. Walker:—Yes.

Mr. Hough:—What is in the record? At any rate, it was a digression, and we will go back.

THE COURT:—This was all started because of a reference to Dr. Billings.

Mr. Hough:—Yes, he used the word "authority," and he used it for the first time, and I thought they had tabooed that word.

The Witness:—In that subject, I mean.

Mr. Hough:—Of course that alarmed me.

Q.—Now this patient had been under Dr. Billings' care for how long? *A.*—I don't recall, Mr. Hough. She had been in the hospital for some time.

Dr. Webster then described what he learned from the history and from physical examination of this case. He found the uterus retroflexed with enlarged tender masses on each side fixed by adhesion, and there was marked tenderness. He reported that to Dr. Billings.

Q.—Had Dr. Billings made a similar examination to the one that you had? I mean an examination of similar character? *A.*—Yes, sir.

Q.—And had he found the same thing? *A.*—Well, he found trouble there, but he wasn't certain of the condition. He is not a gynecologist, and that is why he asked me to examine her, but he found evidence of pelvic trouble, from his examination.

Q.—What particular point was he referring to you? *A.*—Well, I will tell you that, Mr. Hough. There are a number of conditions in the body, such as chronic joint troubles, arthritis, so-called rheumatism, chronic inflammations to nerves, such as of the sciatic nerve, for instance or any other nerve in the body, which are due to infections, that are not primarily in connection with those tissues. Thus, for instance, last summer I had an acute attack of swelling of my knee joints—

Q.—Not in your own knee that you are talking about? *A.*—My own knee. And my wrist joints were also slightly affected, and I naturally began to look for a cause, and a short time previously I had had a sore throat, and knowing that tonsillar infections are a cause of distant infections in the body, I went to a throat specialist who found pus in my tonsils. I went to the hospital and had them out, and in the course of a few days my joints began to improve, and all trouble has gone. In this case, Dr. Billings suspected that the cause of this woman's neuritis of inflammation of nerves, was some infection, and he had had her examined in every part of the body, but could find nothing except trouble in her pelvis and hence he sent her to me. Then when I told him what I had found he agreed that that was the probable cause of her troubles. And asked me to operate on her.

Q.—Oh, he referred her to you for an operation, not for a diagnosis, then? *A.*—Yes, first for a diagnosis.

Q.—That is, confirmatory diagnosis, and an operation? *A.*—If I thought it advisable.

Q.—And you confirmed it and operated? *A.*—Yes.

Q.—What is the date of this operation? *A.*—That was done on Monday.

Q.—Monday of this week? *A.*—Monday of this week.

Q.—You had in mind at that time evidence in this case, didn't you, when you made these different operations? *A.*—I beg your pardon?

Q.—You had in mind evidence of this case? Evidence in this case? I say, you knew you were going to testify in the case? *A.*—Oh, yes; oh, yes.

Q.—And you had been working on the case, and you had in mind evidence in this case when you operated on these women? A.—Yes, sir.

Q.—Now, had you and Dr. Billings talked about this case? A.—No, sir, never.

Q.—Do you know whether Dr. Billings is interested in the case? A.—I think every doctor is interested in this case, Mr. Hough.

Q.—Do you mean the doctors are all standing together on the proposition? A.—I don't know about any standing together. I think they are all interested in the case.

Q.—But you are sure he has no more interest in the case than any other doctor? A.—Well, I can't answer that. I haven't discussed this case with him.

Q.—Never even mentioned it? A.—Not that I remember.

Q.—Was Dr. Billings present when you tried Cardui on any of the women? A.—No, sir.

Q.—Did you tell Dr. Billings that you had tried Cardui on any of the women that you had tried it on previous to this woman? A.—No, sir.

Q.—Did you ever tell Dr. Billings that you had tried Cardui on the woman? A.—No, sir.

Q.—Did anybody else ever tell him? A.—Not that I know of. I don't know that.

Q.—I mean you didn't inform him directly or indirectly? A.—No, sir, I took no pains to inform him directly or indirectly.

Q.—Well, now, at what stage did you make a test with Cardui? A.—The procedure that I followed out in that patient was practically the same as in the last case, except that I did not use the injections into the buttocks, Mr. Hough.

In this case Dr. Webster removed the entire uterus. He stitched the round ligaments and sides of the broad ligaments that had been cut away from the uterus, together, and into the top of the vagina, in order to hold it up securely. After the operation the patient was given heroin hypodermically and some treatment to prevent pain from gas formation in the intestines.

Dr. Webster was asked concerning the use of tonics after an operation and he stated that iron is sometimes used when patients are anemic. He was asked whether or not tonics contracted the muscles and also as to the mode of action of tonics.

Q.—You have given Hayden's Viburnum Compound, haven't you, in that hospital? A.—No, sir, never.

Q.—You never gave viburnum at all since you came to this hospital? A.—I gave up the use of viburnum—

Q.—Yes, I know you said you gave up the use of viburnum in Scotland in '96. I am asking you now whether you haven't used it out here in this hospital? A.—No, sir. Excuse me, I said that I gave up the use of the fluidextract of viburnum after the year '96, and then I worked with the solid extract of viburnum. I used that—

Q.—That was in Scotland? A.—In Scotland—in Montreal, where I was for two and a half years, before I came here.

Q.—And you thought it was no good, and you abandoned it entirely? A.—Yes, I abandoned it, yes, gradually abandoned it after I came here.

Q.—But you continued to use it after you went to this hospital in liquid form? From 1900 to 1903? A.—I may have used it, but gradually gave it up.

Q.—Oh, I know you gradually gave it up, but you used it? A.—I don't recall whether I used the fluidextract in this country or not, Mr. Hough. I may have used it.

Q.—Or would you say you do not know whether you used the fluidextract, or the tincture? A.—I never used the tincture at all.

Q.—Never used any tinctures? A.—Oh, I think so. I haven't used the tincture, because the fluidextract was the drug at that time.

Q.—Well now then, what other tonic did you give any of these four women besides iron? A.—I have not ordered any tonics for these women, Mr. Hough.

Q.—You mean the time has not come to give them a tonic? A.—No.

Q.—Well, when the time comes to give them a tonic, what tonic do you usually give in this class of cases? A.—That would depend on their condition. If they are anemic I shall give them iron, and that is all, as far as I know of.

A recess was taken until 2 o'clock p. m., April 13, 1916.

April 13, Afternoon

The Court met pursuant to recess. Dr. John Clarence Webster resumed the stand.

FURTHER CROSS-EXAMINATION BY MR. HOUGH

Q.—Doctor, you said that it depended on what the condition was, what kind of tonic was used. As I understood you to say, if they were anemic you would use iron? A.—Iron.

Q.—What other kinds of medicinal tonics would you use for other conditions, or for the same conditions? A.—I might use a tonic like strychnin. I might use arsenic.

Q.—Any vegetable tonics? A.—I have not used a vegetable tonic, as far as I can recall, for a long time, Mr. Hough.

Q.—For a long time? For how long? A.—A few years, several years. I couldn't say.

Q.—A few years. Well, when you were using vegetable tonics which ones did you use? A.—I used quassia, for example, quassia, and quinin sometimes.

Q.—The jury cannot hear you, doctor. A.—Quinin; quassia; quinin and iron, a combination. I may have used others.

Q.—Would those, all that you have named, be in liquid? A.—Not necessarily.

Q.—No, not necessarily, but would they? A.—The quinin and iron—the quinin usually in capsule, powdered form. Hydrobromate of quinin was the important one I used.

Q.—How many of them did you use that were in liquid form? A.—Usually I suppose the quassia only in liquid form.

Q.—Quinin and iron came frequently in liquid form? A.—Citrate of quinin and iron might be in liquid form. The iron I usually used in pills, solid form.

Q.—Those medicines in liquid form would contain how much alcohol, do you recall? A.—No, I do not recall.

Q.—Quassia, for instance? A.—I do not recall at all, Mr. Hough.

Q.—Do you recall that it was over 20 per cent. of alcohol? A.—I do not recall the amount of alcohol in quassia infusion.

Q.—When the other vegetable tonics contained alcohol, do you recall the amount of alcohol that was in any of them? A.—No, I do not.

THE COURT:—Let me ask this, Doctor: When you prescribe the quassia, what does that mean? Is that some standard medicine that is shown in the pharmacopeia? A.—Well, infusion of quassia.

THE COURT:—I mean, who determines what percentage of alcohol was in it? Was that known to the druggist or the pharmacist? A.—That is known to the pharmacist who makes it up. It is a regular preparation that was used.

Mr. Hough: Q.—It comes in a bottle form, doesn't it? A.—Yes, sir.

Q.—You can go in a drug store and buy it? A.—Yes, sir.

Q.—But you don't recall how much alcohol there was in it? A.—No, I do not.

Q.—You regarded whatever amount of alcohol there was in it as negligible, did you not? A.—I did not take into consideration the alcohol that was in the preparation.

Q.—Well, you regarded it as negligible? A.—Yes, yes.

Q.—You certainly did not think it would have any bad effect? A.—No, not when I used it.

Q.—When you use the quinin and iron in the liquid form, you did not consider the alcohol that was in it as deleterious? A.—No, sir.

Q.—But you do not know how much alcohol. Have you ever given iron in liquid form? A.—Yes. Not in recent years.

Q.—Well, don't you use Hemaboloids now? A.—No, sir.

Q.—That is a liquid form of iron, isn't it? A.—I don't use Hemaboloids in any form.

Q.—Don't they use it in hospitals generally? A.—I don't know.

Q.—You don't know anything about it? A.—No, sir, I don't know.

Q.—You didn't tell the jury just what quassia was, did you? A.—Quassia is a bitter, as far as I can remember; just a bitter substance.

Q.—You don't know what it is made of? A.—No, I don't.

The witness then described the last case—a woman four months pregnant. She came to the Presbyterian Hospital complaining of bleeding from the womb, stating that she had a pregnancy outside of the womb. She stated that she had menstruated last on Christmas Day and that in February there was a discharge of blood which lasted about two weeks. The bleeding started again two weeks previous to her entrance to the hospital on Saturday, April 8. A physical examination by the manual method led him to conclude that she had not a pregnancy outside the womb and that she did not require an abdominal operation. He decided that the pregnancy was in the womb and it was a case of threatened abortion. The patient complained of pains in the pelvis and in the back, intermittent in character. He ordered her to be placed in bed and told his assistant to give her Wine of Cardui by mouth in tablespoon doses. The patient knew she was receiving Wine of Cardui as she heard Dr. Webster give the instructions to his assistant.

Q.—She heard you tell the assistant to give her Wine of Cardui? Did she know anything about Wine of Cardui? A.—I didn't discuss it with her. I don't know whether she did or not, Mr. Hough.

Dr. Webster then described his treatment of this case.

Q.—You say the woman knew she was taking Wine of Cardui? Did she know that she was being experimented on by Wine of Cardui, or did she think she was getting it in good faith? A.—Why, Mr. Hough—

THE COURT:—Is that important? Is it claimed that this medicine has one effect on one who takes it in good faith, and a different effect on one who thinks she is being experimented on?

Mr. Hough:—No.

THE COURT:—Well then, I don't think that this question is important.

Mr. Hough:—The witness made the statement which called for it, I think, that she knew she was taking Wine of Cardui.

THE COURT:—Well, you asked what this woman thought about it. Now what difference does it make whether she took it in good faith, or whether she took it with malice aforethought, so far as the effect on her system was concerned?

Mr. Hough:—Now, I will ask this witness whether he gave it in good faith?

The Witness:—Certainly I gave it in good faith, Mr. Hough.

Mr. Hough: Q.—But you believed it would not act on her when you gave it to her, didn't you? A.—I believed that, yes. I wished to try it.

Q.—Well, but you knew the literature said that it would not act that quickly, didn't you?

The Court:—What literature?

Mr. Hough:—The literature in relation to the medicine, that they have put in evidence.

The Court:—Well, we have two sets of literature in this case. One says it acts, and one says it won't. Now which set do you refer to?

Mr. Hough:—Well, the one that says it will act, says that you have to take it for some time in order to get the effect.

The Witness:—Well, Mr. Hough, ordinarily in such a case—

Mr. Hough:—And if the Court please, I would like to correct an impression I think the Court has, as to any literature saying that it will act in the class of cases these witnesses have been testifying about. I objected to Judge Scofield's questions—

The Court:—Oh, that has come up time and again, because a part of the literature says you must not use this in operative cases. There is other literature which makes no mention of operative cases. It is all a question of argument to the jury.

Mr. Hough:—I beg your Honor's pardon, there is no literature that don't make mention of operative cases. And I have objected to the questions which Judge Scofield asked, as not being correct quotations from the Home Treatment Book. He promised to give me those quotations, and he has not done it yet. There is not a word in the Home Treatment Book which says that it is good in place of an operation.

The Court:—Well, I have read the whole of the Home Treatment Book, the two of them, and there is no misapprehension in my mind. Now I am not saying whether it says this or that. I am not misled, and you do not have to make any explanation from my standpoint, and your statement now was addressed to the Court to remove an apprehension. I have none, so we will go on with the examination of this witness.

Mr. T. J. Scofield:—Let me say just this, your Honor.

The Court:—Why, we have settled this question, Mr. Scofield.

Mr. T. J. Scofield:—I understand, but I want to say one thing, not on that subject. Mr. Hough has said here in the presence of the jury just now that he has asked me for the quotations which I used from the Wine of Cardui "Home Treatment for Women," and he said he hasn't got them yet. I want to say to the Court that that is not a fact. I did use one, just one expression, which they asked me where I found it, and I told them I would look it up, and I will, and if I do not find it I will tell your Honor about it.

The Court:—Let us go on with this witness.

Mr. T. J. Scofield:—But his statement that he had asked me for it, and I would not give it to him, is not true.

The Court:—Let us go on with Dr. Webster. He is a busy man. Let us get through with this cross-examination.

The witness stated that he had used Wine of Cardui on the supposition that it was a uterine sedative. He stated that he has prescribed medicine without physical examination of the patient—e. g., in anemia.

Q.—Are there any medicines which taken by the mouth, are ever beneficial in cases of amenorrhea? A.—In amenorrhea, which is due, for example, to anemia, to a poor condition of the blood, yes. A course of iron might, in course of time with attention to the general health, cause a return of the menstrual flow.

Q.—Would any uterine tonic have the same effect? A.—In such a case?

Q.—Yes? A.—Not that I know of.

Q.—Would any uterine sedative have the same effect in such a case? A.—In bringing back menstruation?

Q.—Yes? A.—Not that I know of.

Q.—What is the effect of a uterine tonic? A.—A uterine tonic in my—

Q.—On menstruation, I will ask? A.—A uterine tonic? A uterine tonic such as ergot tends to strengthen the contractions of the uterus and may lessen the flow in some cases.

Q.—Did you ever give medicine by the mouth for menorrhagia? A.—Frequently.

Q.—Did you ever give medicine by the mouth for metrorrhagia? A.—Frequently.

Q.—What is the effect in those two cases? A.—That is one of the commonest practices, Mr. Hough. The effect varies according to the conditions in the pelvis. In some cases it is beneficial. In other cases it is not.

Q.—What kind of medicine would you give in such case, those two cases? A.—My great standby—I don't know any medicine better by the mouth than ergot.

Q.—For both of those cases? A.—Bleeding in connection with the menstrual periods or between.

Q.—That is the fluidextract of ergot, is it not? A.—No, sir, I use—use the fluidextract of ergot, but my usual ergot preparation is the ergotin pill, from three to five grains three times a day.

Q.—Isn't it only recently that you have been abandoning the use of alcohol in medicine? A.—Oh, I had not thought of it in that connection. I have been under the impression that the pill of ergot is more apt to be stable. It has always been recognized in my practice that the fluidextract, which, of course, contains alcohol, might degenerate so that the active qualities of the ergot might not be effective, or their—

Q.—Well, isn't the ergot more apt to degenerate without alcohol than with it? A.—I cannot answer you that, but I have understood not, Mr. Hough.

Q.—Don't you know that alcohol is a preservative and is used to prevent just such action? A.—Alcohol is a preservative, but I know that in ergot preparations the medicine tends to lose its effect. I have always understand that wine—that the fluidextract was apt, standing in a hospital, or in an office or anywhere, after some weeks, to lose its effect and always was taught to try to get preparations that were as fresh as possible and, with my patients in the hospital, in using ergotin pills, to have fresh preparations as near as possible, or as much as possible.

Q.—Do you mean that it would lose the effect, because the alcohol would evaporate and become too small in amount? A.—No, no; changes in the ergot substance.

Q.—Do you think it is possible for the ergot substance to change in the amount of alcohol which is in the fluidextract? A.—Well, Mr. Hough, I have always understood that; I learned that years ago in Edinburgh.

Q.—You mean that you learned then that alcohol was not a successful preservative? A.—Of the ergot preparation.

Q.—Of the ergot preparation? A.—Yes.

Q.—How long since you have abandoned the liquid form in your practice? A.—I could not say that. For several years I have been using—certainly the last three or four years, I have been using the ergotin pill in my practice.

Q.—Now, in cases of dysmenorrhea, have you ever given medicine by the mouth? A.—I have.

Q.—What class of medicines? A.—In my earlier practice I used the viburnum, the fluidextract of viburnum, as I stated the other day. I used bromids, bromids of soda and bromid of potash. I used hyoscin, tincture.

Q.—How long since you have abandoned the use of alcoholic preparations in cases of dysmenorrhea, that is, in medicine in liquid form which contain any alcohol? A.—I should say that between—as far as I can recall, I should say somewhere about nine or ten years, somewhere thereabouts.

The witness was then asked concerning delay in menstruation in puberty; as to whether it occurred not due to pathologic causes. He stated that where there is delay without symptoms he does not give medicine. Where there is anemia or constipation medicine is given. He was asked concerning the use of tonics in connection with gonorrheal infection in addition to the use of an antiseptic douche.

Q.—Now, then, tonics are usually given in connection with that treatment of the antiseptic douche, are they not? A.—Not unless—I give no tonics unless the patient is very much run down and anemic, Mr. Hough.

Q.—Well, it is the usual practice to give tonics? A.—I am only speaking for myself in that.

Q.—Do you not know what any other doctors do? A.—I do not know what other doctors do in that respect. I really could not answer for them.

Q.—You do not know of your own knowledge, now, what any other doctor does in that kind of a case? A.—No, I could not say what any doctor in America or Europe does in such a connection, in the way of administering tonics. I have not asked them, and I have paid no attention to them. I have been working along my own lines and trying to find out what is best for myself.

Q.—Don't you know that medical literature recommends it?

Mr. T. J. Scofield:—That is objected to, if the Court please.

The Court:—It is a pretty comprehensive term, American literature.

Mr. Hough:—Medical literature I say.

The Court:—Well, medical literature. That is liable to open up everything.

Mr. Hough:—Is more comprehensive perhaps than American literature.

The Witness:—Yes.

The Court:—He may answer the question if he can.

To which ruling of the Court the defendants, etc., excepted.

A.—It may be, Mr. Hough, I do not know.

Mr. Hough: Q.—You do not know of any? A.—I cannot recall at this moment any medical literature referring to the use of tonics in a case of gonorrhea. It may be.

Q.—In connection, I say, with other treatment? A.—Beg pardon?

Q.—In connection with other treatment? A.—Well, I presume that tonics may be used as I have indicated I have used them. I have no doubt of it; I presume so.

Q.—Can you recall any literature which says that a tonic would be contraindicated? A.—No, I cannot.

Mr. T. J. Scofield:—I object to that question.

The Court:—He has answered the question, and it may stand.

To which ruling of the Court the defendants, etc., excepted.

Dr. Webster was asked questions pointing toward his definition of "cure."

He was asked questions pointing toward the definition of the word "cure;" e.g., the use of spectacles to relieve headache was mentioned.

Q.—But the thing which caused the headache has not been cured, that still exists, don't it? *A.*—The faulty accommodation in the eye is affected by the lens which is used.

Q.—But that still exists, the faulty action of the eye without the lens still exists? *A.*—If the lens is taken away, I understand that the faulty accommodation will be there and they must continue with the glasses.

THE COURT: *Q.*—In other words, the relief is purely mechanical? *A.*—Purely mechanical.

Mr. Hough: *Q.*—Would you say in that case, that the headache was cured? *A.*—In that case I should say the headache was cured.

Q.—But the thing that caused the headache was not cured? *A.*—Evidently, yes, sir.

Q.—Now, in the same sense you have answered all the questions of the direct examination, have you not? You referred to a cure of the thing which caused the symptom? *A.*—Yes. When I refer to cure I have in mind the underlying cause of the symptom.

Q.—So that even though the symptoms should disappear as a result of any particular treatment, the giving, for instance, of medicine by the mouth, you would not say that there had been any cure from the patient's point of view? *A.*—I would say not. May I illustrate that?

Q.—Did you answer it yes or no first? *A.*—I answered it.

(The answer was then read.)

Q.—That it was not cured? *A.*—That it was not cured.

Q.—But the patient would consider herself cured?

Mr. T. J. Scofield:—That is objected to.

THE COURT:—It is difficult for the doctor to know the abstract state of mind of the patient.

Mr. Hough:—I did not know what the limitation of his knowledge was, and I thought I would find out.

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. T. J. Scofield:—Let the witness give the illustration that he asked to give.

The Witness:—I wish to illustrate what I mean, if you will allow me.

Mr. Hough:—That is all right, go ahead, Doctor. *A.*—I will just take the last case that I went into with you, that case of placenta praevia. I will just instance the last case that you talked to me about, that case of placenta praevia. Now, that patient bled for two weeks in February and then stopped. She bled again for two weeks previous to her admission to me. That patient might have stopped bleeding again, stopped bleeding—that is conceivable. I can conceive of that patient out in the country, in the hands of a doctor who would give her some sedative medicine and get relief. He might have relief for two weeks, or three or four weeks in her case. He might say that she was cured. That patient might be allowed by him to go on a trip. A hemorrhage again might develop while she was on that trip, and it might endanger her life within five or six or ten hours. Now, I mean in such a case that while the patient's bleeding has stopped, and the patient thinks she is all right, she still has that afterbirth growing about the lower part of the womb and her life is in a critical condition.

Mr. Hough:—Well, if she has it growing about the lower part of the womb, she never will be free from that pain and bleeding, will she? *A.*—She might be. A large number of those cases never bleed until along the sixth or seventh or eighth month and the woman may consider herself a perfectly normal pregnant woman.

Q.—Have you finished?

THE COURT:—In this class of cases, are there any successful deliveries? *A.*—Successful deliveries?

Q.—Yes. *A.*—Yes, sir.

Q.—What percentage? *A.*—The percentages vary.

THE COURT: *Q.*—I mean without surgical interference? *A.*—I cannot recall, your Honor, any case of placenta praevia that has been delivered spontaneously without any assistance, except those that I have seen dead. All the cases of placenta praevia that I have had to do with, are those where treatment has been carried out. That treatment is mechanical, or manipulative. You may call it surgical in that sense; mechanical and manipulative. The risk to the child is very great, and the death rate in my experience—the death rate in placenta praevia treated through the vagina, by delivery through the vagina, is somewhere about 60 per cent. and the death risk to the mother by methods carried out through the vagina, certainly from 15 per cent. to 20 per cent. It has a high mortality, a great danger treated in that way.

Mr. Hough: *Q.*—Now you said that Cardui would not cure a prolapsus, on direct examination. Assume Cardui to be the hypothetical medicine which was described to you, and that the two ingredients which were named possessed the properties which were implied in the hypothetical question; would such a medicine be of any value in a case in which the womb was put back into position and held in position by a pessary or tampon? *A.*—If it has the qualities attributed to it, if it be a uterine sedative—

Q.—We have assumed that in the question. *A.*—Yes. And that patient had pain in connection with menstruation, it might or might not relieve her of some of the pain. I cannot say.

Q.—Of course that is true of all medicines, isn't it? *A.*—That is true of all medicine.

Q.—Now, suppose a woman came to you with a prolapsus in the first degree, we will say projecting about one quarter to one half an inch, below the perineum, without any breakage of the perineum. What would be your treatment? *A.*—You mean not protruding from the perineum?

Q.—Down a quarter or half an inch, a first degree prolapse, which has nothing to do with a pregnancy or the delivery of a child? *A.*—One quarter to how much?

Q.—Half an inch? *A.*—A slight prolapse?

Q.—Yes. *A.*—Do you mean with or without retroversion? Just the whole uterus sagging down?

Q.—Suppose it is, if it ever comes down without retroversion— assume all those cases, either with or without retroversion? *A.*—Well, it would depend upon the condition of the parts. If there was—If the uterus was very much enlarged or tender, or there was ovarian inflammation, tubal inflammation, I would by attention to the bowels, and by local treatment, a glycerin tampon treatment—

Q.—Do you mean a douche treatment? *A.*—and douches, try to reduce the inflammation in those parts, and then at the same time, attending to the woman's general health and occupation.

Q.—You mean by giving her some sort of a tonic? *A.*—No, I mean by trying to cut down the amount of work that she does, lifting and standing, and straining.

Q.—In other words, you would recommend rest? *A.*—Rest. Not necessarily in bed, but some rest from hard work. Then, if I reduced the inflammation somewhat, satisfactorily, so that she could bear the presence of a pessary, I would put the womb in position and introduce a support, a pessary to hold it there, and I would have her wear that and change it from time to time every two or three months, using a cleansing douche every day or every other day to prevent discharges accumulating around the pessary, and that would be my line of treatment in that case.

Q.—Are there any medicines, which taken by the mouth, will tend to tone up the broad or round ligaments? *A.*—I do not know of any. I have tried ergot in such cases, not for the effect on the ligaments, but for the effect on the womb, to try to harden it and reduce it and possibly check—

Q.—That would be only in cases where the prolapsus was due to the increased weight? *A.*—Oh, well, but there might be bleeding in many of these cases, increased menorrhagia or metrorrhagia either from increase—apart from the increase in size. There may be very little increase in size, and yet a bleeding tendency be present. I would give ergot.

Q.—You would never try to tone up the muscles or the ligaments? *A.*—The toning of the—

Q.—Well, would you or wouldn't you, Doctor? Would you try to tone them up? *A.*—I know nothing which will tone those ligaments.

Q.—Would you try to tone them? *A.*—I do not know how to tone them.

THE COURT:—If you could, would you do it? *A.*—Certainly, if I could, I would.

Mr. Hough:—Now, apart from toning up the ligaments, the broad ligaments, is there any advantage in toning up the general system? *A.*—Why, certainly. If the patient is illy nourished, certainly I try to get her to taking better food.

Q.—I am talking about the use of a uterine tonic or sedative? *A.*—The only use of a uterine tonic (which is ergot in my practice) in such a case, is to harden the uterus, and try to diminish the amount of discharge from it.

Q.—But are there any other uterine tonics that you know of besides ergot? *A.*—Pituitrin.

Q.—No, taken through the mouth? *A.*—Hydrastis has been given by the mouth.

Q.—Did you ever give panopepton? *A.*—No, sir, I have not; I do not know anything about panopepton.

Q.—Hydrastis? *A.*—Hydrastis.

Q.—Aletris cordial? *A.*—No, sir, I have not given that.

Q.—Liquor sedans? *A.*—No, sir, I have not.

Q.—Just viburnum and hydrastis was your limit? *A.*—I have not used viburnum for a long time.

Q.—And ergot? *A.*—Ergot.

Q.—Is anything which would tone up those parts helpful in that case? We are speaking of this case of prolapsus still? *A.*—Everything which helps to improve the patient's health, presumably, will help the local structures. If that patient were anemic, Mr. Hough, certainly I would give her iron.

Q.—You mean you would give her a tonic? *A.*—Yes, iron. Certainly I would give her iron.

Q.—As a rule, patients in that condition do become more or less neurasthenic or anemic, do they not? *A.*—Many do.

Q.—So that in the majority of cases a tonic of some sort would be indicated, would it not? *A.*—A tonic of that kind would be indicated. Where there is anemia I would give the iron tonic, certainly.

Questions were than asked concerning the symptoms of retroflexion and retroversion, and as to whether drugs might be given by mouth in the treatment of such conditions.

Q.—Doctor, do you think a delicate, anemic woman, is more apt to have an easy childbirth, than a strong woman? *A.*—No, sir; I do not.

Q.—You think the strong woman would have the easier of the two? *A.*—It has been my experience.

Q.—Has it been your practice to ever give any medicine to any woman during pregnancy? *A.*—Oh, yes, sir.

Q.—For what purpose would you give medicine? *A.*—It would depend on conditions. For instance, I would use, if there were imperfect elimination of urine—frequently use a diuretic. My favorite one is sodium acetate for that purpose. If the patient is anemic, again I would use iron. If the patient—there are a great many conditions in pregnancy, Mr. Hough. Do you want me to go over more? It would depend—

Q.—If you can think of any more? *A.*—If the patient had a history of syphilis I would use iodid of potash and mercury. I frequently use laxative medicines in pregnancy.

Q.—That medicinal treatment would help to make childbirth a little easier for her, would it? *A.*—Inasmuch as it improves her general condition, and made her stronger it would.

THE COURT:—In the case of a normal woman, Doctor, what is indicated in the way of medication? *A.*—In pregnancy?

Q.—Yes? *A.*—If she is absolutely normal?

Q.—Absolutely normal? *A.*—Digests her food, has a regular bowel movement, daily—I don't use any medicine.

Mr. Hough: *Q.*—Are there many women who are absolutely normal in these times? *A.*—As regards the need for medicine, Mr. Hough, the majority of such women that come under my observation, are; with the exception of bowel constipation. That is the commonest condition for which I give medicines in pregnancy.

Q.—Don't you give them general tonic treatment? *A.*—In pregnancy?

Q.—Yes? *A.*—If they are normal?

Q.—Well, but in the percentages that are not normal. The majority are not normal at that time, are they?

Mr. T. J. Scofield:—I object to that statement.

THE COURT:—The witness has told us that they were, that the majority was.

Mr. Hough:—I did not understand that.

Mr. T. J. Scofield:—Yes.

Mr. Hough: *Q.*—Did you say the majority was? *A.*—I said normal in requiring medicine.

Q.—Or any medicinal tonic? *A.*—Or any medicinal tonic; that is my practice.

Q.—Do you know whether that is the general practice or not?

Mr. T. J. Scofield:—That is objected to.

Mr. Hough:—I ask if he knows.

THE COURT:—He may answer.

To which ruling of the Court the defendants, etc., excepted.

A.—I do not know, Mr. Hough.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

Q.—Doctor, in your cross-examination you stated to Mr. Hough that, in a good many cases of curettement, that they were not satisfactory in result. You spoke particularly of gonorrheal conditions. Now, will you tell the jury why, if you can, it is that in such a condition curettement is not satisfactory, as a rule? *A.*—In gonorrheal inflammation of the womb, curettement—that is to say, scraping out the lining which is a thin layer about one quarter of an inch in thickness, is unsatisfactory, because all the rest of the thickness of the womb, which you see in these diagrams, is infected with the organism and after a short time these organisms will work up to the surface, infect it again and the patient will have the same discharge. It is for that reason that it is unsatisfactory.

Q.—You also stated that a curettement was not satisfactory in some other cases, mentioning the case of varicose veins. Varicose veins where, doctor? *A.*—Varicose veins that are common in the broad ligaments of the womb; the veins that run from the womb, the upper part and the lower part. Such a condition is very apt to cause a chronic venous congestion, and, after scraping the womb in such a condition, one is apt to have the patient bleeding excessively at menstruation, or it may be between times and when the womb grows over, she may be troubled again with a troublesome discharge.

Q.—Doctor, you have also stated in answer to a question by Mr. Hough, that in cases of inversion, in some instances, you would give a tonic. Would you give the tonic for the inversion or for the general health of the woman? *A.*—I stated that after replacing the inverted womb—that is the essential, and all important thing, to replace it, and it can only be replaced by mechanical means, by means of the hands—if the patient were much run down and anemic, I would give her an iron tonic.

Q.—Then, if I understand you, doctor, you would not expect to replace the inverted uterus by a tonic? *A.*—That would be absolutely impossible.

Q.—Now, doctor, in your cross-examination, the question was asked you as to these patients now in the Presbyterian Hospital, whether or not they were pay patients or charity patients. Will you tell the jury whether, so far as care and treatment of the patients who are under your control and charge in the Presbyterian Hospital, is concerned, you make any difference in the method of treatment or the care or attention that you give them, whether they are pay patients or charity patients? *A.*—The majority of my patients in the Presbyterian Hospital are patients to whom I give my services entirely free of charge, Mr. Scofield.

THE COURT:—The question is, so far as the actual services are concerned.

The Witness:—My treatment is the same for both, absolutely the same for both.

TESTIMONY OF DR. A. J. REYNOLDS

Dr. A. J. Reynolds was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. LOESCH

Dr. A. J. Reynolds testified that he resides at Fort Necessity, La. He graduated from the Memphis Hospital Medical School, Memphis, Tenn., in 1909; subsequently he was house surgeon in Industrial Hospital at Elizabeth, La., for nine months. He has had a general country practice at Fort Necessity for two years. He testified that he was called in February, 1913, to attend a woman who gave a history of having suffered for some months with pelvic pains. She had been taking Wine of Cardui for relief which she had not secured; she also had leukorrhea. On examination he found a mass of adhesions on the right side. An operation was performed by Dr. Dix of Natchez, Miss. The patient was a married woman about 23 years of age and weighed about 90 pounds. On operation were found adhesions as a result of chronic salpingitis; the broad ligaments were bound down and almost obliterated. The last time she was seen by Dr. Reynolds, after the operation, she weighed 130 pounds.

The witness was asked if he had ever seen women use Wine of Cardui as a beverage.

The Witness: *A.*—I have seen them use it, drink it from the bottle.

Mr. Loesch: *Q.*—Under what circumstances and where, Doctor? *A.*—The case in mind now was a case—I was working for the Long Bell Lumber Company at the time, and on being called to the place—

Mr. Walker:—Was that Long Bell Lumber Company? *A.*—Well, that was one of their mills, of the Long Bell Lumber Company, yes, sir. On being called to see the patient, someone of the children, I think, in the house was sick, and while there the woman of the house, the mother, took a bottle of Wine of Cardui from the sideboard and drank from the bottle. I asked her: "Why, are you sick, too?" "No, not especially; just taking Wine of Cardui; I have a pain in the back." This is the special case. That is the only one I have talked to.

THE COURT:—Don't drop your voice, doctor, because the jury are all interested in your testimony.

Mr. Loesch: *Q.*—They are all interested. Have you seen other women use it as a beverage? *A.*—I have seen them drink it like this, but not having the names in mind.

Q.—In the case that you mentioned, you have the name in mind, of that woman? *A.*—I have.

Q.—Are you willing to give that name on the stand now?

Mr. Walker:—This woman was not a patient, this woman that drank it. It was somebody he says he saw do that. It was not his patient.

THE COURT: *Q.*—This person whom you say drank it as a beverage was not a patient of yours?

The Witness:—No.

THE COURT:—You have no objection to giving the name of that woman, have you?

Mr. Loesch:—You are willing to give her name, are you not? *A.*—Yes.

Q.—What was her name? *A.*—Mrs. L——.

Q.—Where was she living at this time? *A.*—DeRidder, Route Number 2.

Q.—What city? *A.*—DeRidder.

Q.—That is all, Doctor. Take this witness.

CROSS-EXAMINATION BY MR. WALKER

The witness was asked concerning the name and address of Mrs. L——, also as to her family and the names of members of the family.

Mr. Walker:—Was it one of their children that you treated? *A.*—Yes.

Q.—Who paid that bill, the man? *A.*—No.

Q.—What was the child's name? *A.*—I don't know.

Q.—How many children were there in the family? *A.*—I don't know.

Q.—How old was the child you treated? *A.*—I don't know, sir.

Q.—What was the matter with her? Was it a girl or a boy? *A.*—A girl.

Q.—What was the matter with the girl? *A.*—I don't know.

Q.—How old was it? *A.*—I don't know that either.

Q.—Well, was it under ten or under five? *A.*—Under ten.

Q.—Was it over five? *A.*—Well, I think it was.

Q.—Somewhere between five and ten. Could you get any nearer than that to the age of this child? *A.*—No, sir.

Q.—How many times did you call to treat the child? *A.*—Oh, I don't know.

Q.—Can't you give me any idea? *A.*—I did the practicing for all these people. I don't know whether I called to see this child any more or not.

Q.—How many times did you call to see that child? *A.*—I don't know.

Q.—More than once? *A.*—For this particular ailment I don't know whether I called more than once or not.

Q.—Did you not call to see the child, that same child for another ailment? *A.*—I don't know, sir.

Q.—You don't know whether you did or not. Then you haven't any knowledge that you called to see the child more than once, that child? *A.*—No, sir; I have not.

Q.—After you called, did it die? *A.*—Not to my knowledge.

Q.—Is it dead yet, that you know of? *A.*—Not that I know, sir.

Q.—Do you know whether it is or not? *A.*—I don't know.

Q.—When you saw the mother in 1912, did you see the child again?

Mr. Loesch:—I suppose every time a doctor calls on one of your children they die, don't they, Mr. Walker?

Mr. Walker:—I think they might if they came from the lumber camp.

Mr. Loesch:—Well you must have nice doctors, to think that.

Mr. Walker:—I haven't got a doctor that don't know what is the matter with them when he calls.

Q.—What were you doing in 1912? *A.*—In 1912?

Q.—Yes. *A.*—I was company physician.

Q.—Still for the same lumber company? *A.*—The same company, sir.

Q.—And where did you see this woman—were you at the house of this woman at all in 1912? *A.*—I am not sure that I was at her house in 1912.

Q.—Did you ever call again after that call? Did they ever call you in again to treat any other member of the family? *A.*—I don't know that they did.

Q.—You don't remember that they did? *A.*—No, sir.

Q.—You are pretty sure that they did not, aren't you? *A.*—Well, I am not sure either way.

Q.—Either way. How many were there in the family? *A.*—I don't know.

Q.—Where was the woman when she took the Wine of Cardui, this woman, L——? *A.*—She was in the room.

Q.—Where the baby was? *A.*—Yes.

Q.—Was the child in bed? *A.*—Yes.

Q.—And while you were looking at the child she went over somewhere and got a bottle of Wine of Cardui? *A.*—Yes.

Q.—Where did she get it? *A.*—From the sideboard, the mantle board, or dresser. She took the bottle from the shelf in the room.

Q.—And you asked her whether there was something the matter with her? *A.*—I did.

Q.—And she said she had pains in the back, didn't she? *A.*—Yes.

Q.—Anything else? *A.*—That is all she said.

Q.—And she took a swallow out of the bottle? *A.*—Yes.

Mr. Loesch:—He didn't say that; I beg pardon, Mr. Walker, he didn't say that. He said she took a good, big drink.

Mr. Walker:—He said it now; that is good enough for me.

Mr. Loesch:—No he didn't say it; you said it. He said she took a good, big drink. Now I am not going to sit here and let you chuck words into the witness' mouth, Mr. Walker, I want to let you know that right now.

Mr. Walker:—What do you want me to chuck—Wine of Cardui?

Mr. Loesch:—Well, that is your medicine, not mine.

Mr. Walker:—I wish you would take some, and it would probably do you good.

Mr. Loesch:—Not according to the testimony of the witnesses.

Mr. Walker: Q.—Mr. Witness, how much—when this woman put the Wine of Cardui to her lips, how much did she drink? *A.*—She took a swallow.

Q.—A swallow? *A.*—A swallow or two from the bottle, from the—

Mr. Walker:—That is what I thought he said.

THE COURT:—A swallow or two?

The Witness:—A swallow or two from the bottle.

THE COURT: *Q.*—A swallow or two from the bottle? *A.*—Yes.

Mr. Walker: Q.—Well, which was it, one or two? *A.*—From the time she held the bottle to her mouth she must have taken two.

Q.—Well, which did she take, one or two? *A.*—I judge from the time she held the bottle to her mouth she must have taken two swallows.

Q.—Are you sure she didn't take more? *A.*—No, I am not.

Q.—Now you could tell—you could remember more about the Cardui and her swallows than you could about the child, can you, that you treated? *A.*—I remember what I have told you about the Cardui and child.

The witness was then asked further questions concerning the first patient mentioned in the direct examination and he gave the name and address of Dr. Dix. He was asked whether he knew Dr. Heizer and whether he had received a letter from the Louisiana State Board of Health.

He testified that he was accompanied by Mr. Bonner and Mr. Turner whose testimony follows, when he came to Chicago. He first learned of the lawsuit from the medical journals.

Adjournment was taken until 10:30 a. m., April 14, 1916.

April 14, 1916, Morning

The Court met pursuant to adjournment. Dr. A. J. Reynolds resumed the stand.

FURTHER CROSS-EXAMINATION BY MR. WALKER

Dr. A. J. Reynolds testified that he had not seen any one offer people in his neighborhood money to testify that they had seen people drink Wine of Cardui. He was asked if he knew Mr. John F. Brownell and as to whether or not he had told Mr. Brownell that if he would come to Chicago to testify that a man got drunk on Wine of Cardui. He answered that he did not tell that to Mr. Brownell. He told Mr. Turner and Mr. Bonner that if they would come to Chicago to testify, their expenses would be paid and they would receive a reasonable per diem.

REDIRECT EXAMINATION BY MR. LOESCH

The witness testified that he met Mr. Brownell accidentally in the morning on the corner near the West End meat market in the town of Winsboro, La., and that Mr. Brownell stated that "he had sold Wine of Cardui for a number of years and that he had to quit selling it; his wife drank it all the time and that he quit selling it."

TESTIMONY OF MR. M. H. BONNER

Mr. M. H. Bonner testified that he lives at Fort Necessity, La., and it is not a town, just a village—two stores. A dozen families live nearby. The first time he used Wine of Cardui was at a neighbor's house.

Q.—Speak up a little louder, otherwise we cannot hear you. The room is large. *A.*—The first I ever drank, I was at a neighbor's house one day and I saw a bottle sitting on the mantle, and I did not know what it was. I thought it was wine at the time.

Q.—What was it marked? *A.*—Wine of Cardui, but I did not know—I did not know but what it was wine.

Mr. Walker:—I move to strike that out.

THE COURT:—Strike out what he does not know.

To which ruling of the Court the defendants, etc., excepted.

Mr. Loesch: Q.—Why did you think it was wine?

Mr. Walker:—That is objected to.

THE COURT:—That is not important.

To which ruling of the Court the defendants, etc., excepted.

Mr. Loesch:—Yes it is, there is the label. That is the impression.

The Court:—Go ahead.

Mr. Loesch: Q.—Well, what did you do? *A.*—I opened it and took a drink of it.

Q.—Was that the first time you tasted it? *A.*—That is the first time, yes.

Q.—Did it make you sick? *A.*—No, it did not.

Q.—What was the effect.

Mr. Walker:—The same objection.

A.—I don't remember what the effect was.

THE COURT: *Q.*—How much did you drink? *A.*—I just took a swallow; I don't remember exactly how much I drank, I could not say.

Mr. Loesch: Q.—When was the next time?

THE COURT:—Wait a minute. Did it taste good? *A.*—Why, yes; it tasted like wine to me.

Q.—Did you like it? *A.*—It tasted pretty good; yes, sir

Mr. Loesch: Q.—When next did you drink it? *A.*—About 18 months ago as near as I remember right now. I started to a dance one evening with two other boys and we had been drinking whiskey.

Q.—Mr. Bonner, you must speak up. *A.*—We had been drinking whiskey and we drank all the whiskey we had and started to the dance and on the way there we stopped at the store, John Brownell was the proprietor of the store. We stopped there and I asked him did he have anything to drink? And he says, "I have got nothing but Cardui," and handed me a bottle across the counter and I opened it and took two or three swallows out of the bottle. He says, "It is all right, I drink it myself."

THE COURT: *Q.*—What did that cost you?

Mr. Walker:—I move that be stricken out. He repeated what he said, Brownell said.

THE COURT:—Strike out what Brownell said.

To which ruling of the Court the defendants, etc., excepted.

Mr. Loesch:—That is part of the res gestae your Honor.

Mr. Walker:—Oh, I withdraw the objection, let it go.

THE COURT:—All right.

Mr. Hough:—The court asked a question which he did not answer.

THE COURT: *Q.*—What did this cost you, this bottle? *A.*—Nothing.

Q.—It was a present from Brownell? *A.*—Yes, sir.

Mr. Loesch: Q.—Mr. Bonner, what parish is that in? *A.*—Franklin Parish.

Q.—What name? *A.*—Franklin Parish.

THE COURT:—In Louisiana they have no counties, they are all called "parishes," are they not? *A.*—Yes, sir.

Mr. Loesch:—Is Franklin Parish a dry territory? *A.*—Yes, sir; it is.

CROSS-EXAMINATION BY MR. WALKER

The witness testified that Dr. Reynolds was a brother-in-law of Mr. Turner. He testified that he first saw a bottle of Wine of Cardui and took a drink from it eight or nine years ago; that Wine of Cardui resembled blackberry wine. He started to drink whiskey when he was 23 years old and he is now 26. The Wine of Cardui was tasted in Mr. Turner's residence. He was repeatedly cross-examined concerning the various incidents described in the direct examination. He testified that in the crowd with him when he drank Wine of Cardui were Paul T——, Alsit M—— and George P——.

Q.—What is his father's name? *A.*—George P——.

Q.—The same name. You and P—— and M—— and T—— were in the crowd. Were there any girls with you? *A.*—No, sir.

Q.—Where did you drink the whiskey? *A.*—Where did we drink it?
Q.—Yes. *A.*—On the way to the dance.
Q.—Where did you get it? *A.*—Why, the niggers gave a cotton picking at home that evening.
Q.—And you got some of their whiskey? *A.*—I got some of it; yes, sir.
Q.—How much did you have? *A.*—Had about a pint.
Q.—Well, you drank all that, and then you went to whose store? *A.*—John Brownell's.
Q.—That is the man that keeps the store at what point? *A.*—He kept the store then at Lydiaville.
Q.—That is the store you went into? *A.*—Yes, sir.
Q.—A year and a half ago? *A.*—Yes, sir.
Q.—The four of you—did all four of you go in there, M——, and T—— and P——? *A.*—I believe so. I remember T—— going inside with me. I don't know that P—— and M—— went in or not, but they were on the porch you know.
Q.—Did you take the bottle outside? *A.*—No, sir.
Q.—Did you give P—— and M—— a drink? *A.*—No, sir.
Q.—You and T—— went in, you say? *A.*—Yes.
Q.—Leaving P—— and M—— on the outside? *A.*—Possibly they might have been inside, I don't remember.
Q.—What is your best recollection about it? *A.*—I remember that T—— and myself was on the inside.
Q.—Did they drink any? *A.*—They did not.
Q.—P—— and M——? *A.*—They did not.
Q.—Did T——? *A.*—He did not.
Q.—He did not? *A.*—He did not.
Q.—You just went up to Mr. Brownell—and what did you ask him? *A.*—I asked him did he have anything to drink.
Q.—And he said he had nothing but Cardui, and then he opened a bottle? *A.*—Just passed the bottle to me.
Q.—Was it there already opened? *A.*—It was.
Q.—Lying there open? Did it have a carton around it? *A.*—He just handed me the bottle.
Q.—He handed you the bottle? *A.*—Of Wine of Cardui.
Q.—Did you read the label? *A.*—I did.
Q.—It was just a plain bottle, not with a carton on it? *A.*—No, sir; there was no carton on it.
Q.—And the bottle was open? *A.*—Yes, sir.
Q.—How much was in it? *A.*—It looked like it was about two thirds full.
Q.—You took a drink out of it? *A.*—I took a drink; yes, sir.
Q.—How much did you drink? *A.*—About two or three swallows, I don't know exactly how much I took.
Q.—About two or three swallows? *A.*—Yes, sir.
Q.—Did Brownell join you? *A.*—He did not.
Q.—He put the bottle back. Did it taste like wine that time? *A.*—Yes, sir; it tasted something like wine.
Q.—What wines had you been drinking between the time you began to drink whiskey, and when you went in to Brownell? *A.*—I don't remember, I drank several kinds.
Q.—What kinds, name them? *A.*—Blackberry wine.
Q.—Any other? *A.*—Port wine.
Q.—Did this taste like port to you? *A.*—I don't know as it did.
Q.—What else? *A.*—It tasted more like blackberry wine.
Q.—What else had you drank besides port? *A.*—I drank whiskey.
Q.—Any other wine besides port? *A.*—I don't remember any other, I might have drank it.
Q.—And this tasted like that to you? A.—Tasted something like that.
Q.—That is the stuff you got at Brownell's did? *A.*—Yes, sir. Wine of Cardui is what I drank.
Q.—The bottle that Mr. Brownell gave you tasted like port wine?
Mr. Loesch:—He did not say that.
The Witness:—I said Wine of Cardui tasted something like blackberry wine.
Mr. Walker: Q.—The bottle that Brownell gave you tasted like that? *A.*—Something like it; yes, sir.
Q.—Brownell saw you take the drink? *A.*—Yes, sir.
Q.—Did he charge you anything for it? *A.*—He did not.
Q.—Then where did you boys go, you young men?

Mr. Loesch:—That is objected to.
The Court:—He may answer.

To which ruling of the Court the defendants, etc., excepted.

Mr. Walker: Q.—After you had had your drink what did you do? *A.*—We went on up to where they was to have the dance.
Q.—What did they have to drink at the dance? *A.*—Why they did not have a dance that night; they did not get the music or something, and they did not have the dance.

TESTIMONY OF MR. PAUL TURNER

Mr. Paul Turner was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. LOESCH

Mr. Paul T. Turner resides at Fort Necessity, La., about half a mile from the village. He is a brother-in-law of Dr. Reynolds. He testified that he was with Mr. Bonner at Brownell's store.

Mr. Loesch: Q.—Please state to the Court and jury what occurred there. *A.*—Well, we started to a dance and we had been drinking about a pint of whiskey, we had that—we drank that up, and we got to this store and Mr. Bonner asked for something to drink, and he handed this, this bottle of Wine of Cardui.

The witness testified that he saw Bonner drink some of the liquid in the bottle and saw on the label of the bottle that is was Wine of Cardui.

CROSS-EXAMINATION BY MR. WALKER

On cross-examination, the witness testified that he came to Chicago with Dr. Reynolds and Mr. Bonner. They have been in Chicago for three weeks. Besides their expenses which are being paid by the American Medical Association they are getting a reasonable per diem of $5. The witness is a farmer who raises cotton and makes $500 or $600 a year.

Q.—Did Dr. Reynolds tell you that if you had ever seen anybody take Wine of Cardui, or drink it, that you could come up to Chicago and get your expenses paid and earn something a day coming up here? *A.*—Yes, sir.
Q.—He did tell you. Then you told him about Bonner. *A.*—Yes, sir.
Q.—About seeing Bonner in the store taking in? *A.*—Yes, sir.
Q.—Who was in the company? *A.*—Well, there was Bonner, Mark Bonner, Alsit M——, George P—— and myself.
Q.—How old are you? *A.*—Twenty years old.
Q.—Do you drink whiskey? *A.*—Yes, sir.
Q.—How long have you been drinking whiskey? *A.*—Oh, about five or six years.
Q.—And you are 20 years old now? *A.*—Yes, sir.

REDIRECT EXAMINATION BY MR. LOESCH

Q.—You are a planter on your own account? *A.*—Yes, sir.
Q.—And you have your own farm there? *A.*—Yes, sir.

RECROSS-EXAMINATION BY MR. WALKER

Q.—Who do you split $600 with? *A.*—I don't split it with anybody.
Q.—You get it all? *A.*—Yes, sir.

TESTIMONY OF DR. JOSEPH B. TANNER

Dr. Joseph B. Tanner was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. LOESCH

Dr. Tanner resides in Benevolence, Randolph County, Ga. He has been practicing medicine for twelve years and is a graduate of the Atlanta College of Physicians and Surgeons.

The witness was asked concerning cases in his practice connected with Wine of Cardui. The names and addresses were given to the jury in confidence.

A.—The first case is Mistress A., who had been taking Wine of Cardui. I was called to see her first in 1908 or '09 I won't say which year it was, but it was either 1908 or '09 and she was complaining from painful menstruation. On examination as a part of the medical history, she told me that she had been taking Wine of Cardui for two or three years, that is, she would not be positive that it was two years or three years, but said somewhere about two or three years. On ocular examination and also with bimanual examination, I found a very small cervical canal and I advised a dilation of the canal and she would not submit to it then, but about two months later she consented to it and in the meantime she kept on taking this Wine of Cardui at each monthly period. After she submitted to the dilation she did not suffer with that difficult menstruation any more and she was a perfectly well woman. About two years after that she was taken with a case of acute pneumonia and died.
Q.—Was she under your charge at the time she died? *A.*—She was in good health up to the time of that acute pneumonia, and she only lasted about eight days.
Q.—How old was she, doctor? *A.*—She was 26 years old.
Q.—She had had no child? *A.*—No, sir.
Q.—Well, you may mention your next case. *A.*—The next is Mistress L. In the spring or summer of 1911, I was called to see her and, on examination I found that she was suffering from a cancer of the cervix and I advised an operation. She said that from the literature that she had read concerning Wine of Cardui, that she preferred to try that instead of the operation.

Mr. Walker:—I do not think that is competent.
Mr. Loesch: Q.—Had she been using it at that time?

Mr. Walker:—And I move that that be stricken out.
The Court:—Strike out what she preferred to do.

To which ruling of the Court the defendants, etc., excepted.

Mr. Loesch: Q.—Was she using Wine of Cardui at that time? *A.*—She said she had used Wine of Cardui and she had taken it for seven months at the time, about seven months, and I was called again and she said that she was willing to submit to that operation; that she had tried that Cardui and it had done her no good.
Q.—That was seven months after you first saw her? *A.*—That was seven months after the first time I seen her, and I carried her to Atlanta to Dr. Floyd McRea and he made an examination and he said it was too far gone.

Mr. Walker:—I object to that—oh, well, never mind.
Mr. Loesch: Q.—Well? *A.*—That it was too far gone, and I carried her back home and she died about three months afterwards.
Q.—You went with her to Atlanta? *A.*—I went with her to Atlanta, and was with her at St. Joseph's Hospital when Dr. Floyd McRea made the examination.

Q.—She took it for seven months after you had made your original diagnosis, and told her she had cancer?

Mr. Walker:—No, that is not what he said.

Mr. Hough:—Oh, never mind.

Mr. Loesch: *Q.*—After you made your first examination? *A.*—After I made the first examination.

Q.—In 1911? *A.*—What say?

Q.—In 1911? *A.*—1911, she had taken Wine of Cardui for about seven months.

Q.—And then— *A.*—Then I was called back again, and she said she was willing to submit to the operation, and I told her I would go with her, carry her to Atlanta to Dr. Floyd McRea and at the Infirmary Dr. Floyd McRea confirmed my diagnosis and told her that it was too late, and I carried her back home, and she died in about three months afterwards.

Q.—Between the first examination— *A.*—Between the first and the second—

Q.—When you— *A.*—she had taken Wine of Cardui.

Q.—and the second examination when she came to you, and said she would have the operation, how many months elapsed? A.—About seven months.

Q.—And she stated this second time that she had been using Wine of Cardui during that seven months? *A.*—Yes, sir; and it had done her no good.

Q.—Was she a married woman; had she any children? *A.*—She was a widow lady.

Q.—Had she any children? *A.*—Yes, sir.

Q.—What was she, a farmer—a farmer's wife? *A.*—A farmer's wife, and her children ran the farm after her husband died.

Q.—What is your next case, Doctor, if you have any? *A.*—The next is Mistress E. L. C. I was called to see her in 1913, and on examination, I could not find anything that was the matter with her, except that she was nervous and hysterical. I asked her what she had been doing and she told me she had been taking Wine of Cardui for some time. I asked her how long, and she said she could not tell me exactly how long it was, and I asked her how—did it seem to do her any good. She said that at first she could not take the dose that was prescribed on the bottle, that it made her dizzy or drunk to start with, but at the present time she was taking about two tablespoonfuls every three hours to brace her up, to keep her going at her work, and I advised her to leave it off and to go off to the Springs for a rest. I thought that would do her more good than medicine would.

Q.—Did you prescribe any medicine? *A.*—None at all.

Q.—Why not? *A.*—I did not think she needed any. There was not anything the matter with her.

CROSS-EXAMINATION BY MR. WALKER

He was cross-examined concerning the facts related in the direct examination giving essentially the same replies. He left home on the 27th of March and came to Chicago alone. He first met Dr. Heizer in Atlanta, Ga., and heard of the present suit through the Secretary of the Georgia State Medical Society. He is a member of his County and State Associations but not a Fellow of the American Medical Association nor is he a subscriber to THE JOURNAL. He was told that if he could come to Chicago and testify he would receive a reasonable per diem and his expenses would be paid.

TESTIMONY OF DR. EDWARD E. MONTGOMERY

Dr. Montgomery was called as a witness of the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. Edward E. Montgomery testified that he is a physician specializing in gynecology in Philadelphia. He graduated from the Jefferson Medical College in 1874. He has devoted his practice for the last 30 years almost exclusively to gynecology. He was intern in the Philadelphia Hospital for 15 months and staff obstetrician for 15 years. He has been professor of gynecology in the Jefferson Medical College since 1892. Asked to state his experience, he gave his hospital appointments and stated that he has operated on some 6,000 or 8,000 patients and has treated and investigated three times as many and more. He was one of the contributors to Keating and Coe on Gynecology, American Text Book on Ovarian Tumors, Department of Gynecology in Keen's System of Surgery and has written a textbook which has gone through four editions. He uses in treatment, hygienic, medical and surgical methods which he defined.

Q.—When a patient comes to you for treatment complaining of different things, what do you do in trying to ascertain what the condition is and what you are treating her for, and what your treatment should be. *A.*—I ascertain first the history of the condition, the conditions from which the symptoms which have led her to consult me, arise and in that way I obtain as accurate a history of her condition and the causes that may have led up to the suffering, as possible I then suggest a physical examination to determine further—

Q.—Now, do you regard in your case the physical examination as necessary to enable you to treat your patient intelligently? *A.*—Without question.

Mr. Hough:—The same objection. I ask that the answer be stricken out and ask the doctor please to wait for me to have an opportunity to object.

THE COURT:—The doctor has merely said that he regards his practice as the best. I think that may stand.

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. T. J. Scofield: *Q.*—Now, Doctor, have you had any experience with the use of herbs in any form, or a medicine known as cnicus benedictus? *A.*—I have not.

Q.—Have you had any experience with viburnum prunifolium? *A.*—Yes, I gave viburnum prunifolium at one time.

Q.—Now, will you please tell us what your experience with viburnum prunifolium has been and your conclusion as to its value as a medicine, if you have any such conclusion. *A.*—I gave viburnum prunifolium for the relief of dysmenorrhea and also in cases of threatened abortion, and after trying it for a length of time, and finding no benefit whatever, I have discontinued its employment.

THE COURT:—When did you give it up, doctor? *A.*—Twenty-five years ago.

Mr. T. J. Scofield: *Q.*—What is your present opinion of its value in such cases, doctor? *A.*—I think it has very little value, so little that when I have other measures that I know to be effective I would not use one of which I had doubts.

Q.—Doctor, I wish now to present to you for your consideration, a hypothetical medicine or solution.

Dr. Montgomery was then asked hypothetical questions similar to that read to the other witnesses. He defined gonorrhea and described some of its complications.

Q.—Now, Doctor, having the hypothetical medicine, or medicinal solution in mind, have you an opinion whether such a medicine taken by the mouth for gonorrhea in women will "act upon the cause of the diseases and is therefore not a mere palliative, but a scientific and specific remedy with a curative effect upon the seat of the trouble?"

Mr. Hough:—One minute, Doctor. Objected to, as the proper foundation has not been laid for that question.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

The Witness: *A.*—I cannot conceive how the remedy could have any influence at all upon the progress of the disease, that is any beneficial influence.

Mr. Hough:—Pardon me. That was not the question.

THE COURT:—The question was whether you have an opinion.

Mr. Hough:—The cause.

The Witness:—I have an opinion.

Mr. Hough:—Not progress; the cause of the disease was as it was framed, and my objection went to the form of that question. Now the witness answers as to the progress of the disease. The question is: Will that hypothetical medicine have any action on the cause of the disease? As I understand it as to the cause of the gonorrhea.

THE COURT:—Answer it first, doctor, as to the effect on the cause.

The Witness:—The cause of gonorrhea is a micro-organism. I feel that any remedy that would have a destructive influence on the micro-organism must have a very powerful effect, and a destructive influence upon the greater organism through which it passes to reach the minor.

Mr. T. J. Scofield: *Q.*—Now then, doctor, have you an opinion, having this medicinal solution in mind, whether or not it is a specific remedy for that condition, with a curative effect?

Mr. Hough:—Objected to on the ground that no foundation has been laid for that form of question.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

The Witness:—I do.

Mr. T. J. Scofield: *Q.*—What is that opinion, doctor? *A.*—That it has no such action.

Q.—Now why, doctor, has it no such action, in your opinion?

Mr. Hough:—Objected to.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

The Witness: *A.*—For the reason that, as I mentioned before, that any remedy to exert influence upon micro-organisms that are invading the body, which reaches them through the blood, must have a powerful influence upon the body itself. In the second place, this remedy contains alcohol, and if there is any one remedy which acts as an irritant and stimulates the action of the micro-organism, alcohol is that remedy. So much so is it, that if a physician wishes to determine if a case is cured of gonorrhea, he gives the patient alcohol in order to see whether the administration of this drug, the influence of this drug will revive any organisms that are remaining latent and quiet in the body of the individual.

Mr. T. J. Scofield: *Q.*—Now, what is the effect of alcohol in that respect, if there are still any organisms there? *A.*—Stimulates them and brings about a relapse or recurrence of the condition.

Dr. Montgomery described prolapse of the uterus referring to the diagram previously mentioned and giving essentially

the same description as that by the former witnesses. He testified that the hypothetical medicine such as that described would not cure uterine prolapse.

Mr. T. J. Scofield: Q.—Now, doctor, when you use the word "cure" in this connection, what do you mean to convey by that word "cure"? A.—Well, to cure the patient, to replace her organs in their normal position. To have the structures as they were before would be impossible. All that we do in cases of this kind is to restore the parts, and maintain them in as near a favorable condition as possible. We can relieve the symptoms, the distress and discomfort, but there is not a cure, in the sense of restoring these tissues to the same condition that they were in prior to the occurrence of the displacement.

Q.—Now, in what way do you relieve symptoms by mechanical means? A.—A woman who has a displacement of the first degree, which occurs, shortly after a labor, when the womb is still heavy, if that woman is directed to get down in the knee-chest position, and the vulva is separated—that is the outer part of the external canal is separated—the air pressure (fifteen pounds to the square inch) carriers this womb up to higher level. It may then, by means of an instrument, an instrument placed under it, which is known as a pessary, or by means of a medicated tampon (which means a cotton gauze with a string attached to it, and medicated) placed under it on the employment of hot and cold douches, and with the patient directed, of course, to avoid wearing tight clothing, to avoid anything that will cause the pushing down of the parts, to avoid having her bowels constipated — the womb will gradually decrease in size, and after it has decreased in size, the ligaments which were fitted for the retention of a normal uterus, a uterus of normal size may hold it back in place. Now, if that patient has taken some medicine during that time, the medicine oftentimes gets the credit which is due entirely to measures which were used outside of it.

Q.—Now, doctor, suppose that the condition is complicated with inflammatory adhesions, what will be the benefit of a knee-chest position if any? A.—The knee-chest position in those cases, together with manipulation, the introduction of the finger into the vagina, or having the patient occupy a dorsal position, that is on her back, with the limbs drawn up, the two fingers introduced into the vagina, and the hand over the abdomen, the parts can be stretched gradually in this way, practicing what is known as pelvic massage under these ligaments. These inflammatory bands become stretched, the changes take place in those, and the womb is gradually loosened and separated from its relations. Just the same as if I had an inflammation in my knee that stiffens my knee, or if I had a fracture in my arm and had it in a splint for a length of time, the parts, from want of use, would become rigid and fixed, and so on, and thus by bending and stretching the parts they again become restored to their normal relations. So that is the same in this case.

Q.—In other words, doctor, if I understand you, neither the knee-chest position nor medicine, nor a combination of the two, will put a womb in proper position, if it is bound down by adhesions? A.—Certainly not.

Q.—It requires massage and mechanical means? A.—Yes, sir.

Q.—Now, doctor, if this medicine is "taken three times a day until about three days before the menstrual period, when four doses should be taken, until the stoppage of the flow," and in addition to that appropriate laxatives are used, together with antiseptic douches, sitz-baths, etc., will you tell us whether or not in your opinion this hypothetical medicine will cure prolapse?

Mr. Hough:—One minute. Objected to on the ground that the proper foundation has not been laid for the asking of the question in that form.

The Court:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

The Witness: A.—The case, just as I mentioned before: If we have the uterus subjected to these mechanical measures which tend to overcome and to correct the displacement, which tend to hold it up until nature can bring about the resolution and involution of the uterus, the reduction to its normal size, that can be accomplished without any medicine whatever, and will be accompanied just as quickly without the medicine as it would with it, and if the medicine is given, and these measures are employed, the medicine is getting credit for that which it does not do, and indeed, if the patient is taking an alcoholic preparation, I would say that she was getting well in spite of the medicine.

Mr. T. J. Scofield: Q.—Now, doctor, are whites and falling of the womb frequent companion diseases or troubles? A.—Whites is a symptom which is common to a great variety of pelvic diseases. Any inflammation, anything that causes a congestion of the mucous membrane of the uterus will cause this discharge which is known as whites. It stimulates the flow from the glands which lie in the body of the womb, which lie in the canal and the neck of the womb, and these together will give rise to a profuse discharge in any condition in which there is a congestion of the organ, and the displacement of it causes this congestion. Now, then, discharges of this kind, just as running from the nose, scald the surfaces over which they run, and so we have the discharges from the womb running into the vagina, giving rise to more or less of scalding, and a throwing off of its outer layer of epithelium, that is, the epithelium which covers it. Just the same as you see in a child that has a catarrhal condition, that the nose will be all scalded around there.

Q.—Now, doctor, with the whites which we have been considering in connection with the prolapsus of the womb, do you ever get blood, find any traces of blood in the discharge? A.—Yes.

Q.—What is it indicative of? A.—Just as in a child who has a running of the nose, the surfaces will be scaled, they are congested, and you have bleeding, and so we have bleeding here, traces of blood will take place from the neck of the womb.

Q.—Now then, doctor, aside from prolapsus, leukorrhea (or whites) is it a symptom of any other conditions or diseases, a common symptom? A.—Yes.

Q.—Of what, doctor? A.—We have a very profuse discharge from the uterus in gonorrhea. In all inflammatory conditions of the uterus, in the displacements of the organs, that are associated with the inflammation, all these conditions give rise to discharge.

The Court:—Well, Mr. Scofield asked the significance of the appearance of blood in the discharge. A.—Well, that, as I said, is due to the extent of the inflammation, and may be a characteristic of a number of conditions, varying from an inflammation of the womb to a beginning malignant disease.

Mr. T. J. Scofield: Q.—Malignant disease? A.—Yes.

Q.—And by malignant disease you mean what, doctor? A.—Well, I mean cancer, sarcoma, chorio-epithelioma and endo-epithelioma. These are all forms of malignant disease of the womb.

Q.—Now when there are such conditions of the womb, what is the treatment or remedy for the conditions? A.—For the malignant condition?

Q.—Yes, sir. A.—The only remedy that should be considered for one moment is the removal of the entire organ involved.

Q.—Now, when should that organ be removed?

Mr. Hough:—Objected to.

The Witness: A.—The earlier—

Mr. Hough:—Objected to as incompetent, irrelevant and immaterial.

The Court:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. T. J. Scofield: Q.—Answer, doctor. A.—The earlier the better.

Q.—Are those malignant diseases that you have referred to progressive? A.—Always.

Q.—And as they progress what is the effect on not only the parts, but the system? A.—Well, the effect of the disease as it progresses is to first infiltrate; the cancer infiltrates the tissues. We have a hypertrophy of the cell portion of the structure.

Q.—Now, doctor, that means what? Hypertrophy means what? A.—Why, means growth.

Q.—Enlargement? A.—For instance, our hands are covered with skin. The skin has different layers. Now, the outer layer of that is what is known as the epithelial layer, and the epithelial layer of the lining membrane of the womb undergoes a proliferation, that is a multiplication of these cells. They are stimulated, they divide and multiply until they are crowded upon each other to such a degree that they interfere with the nourishment. The vessels that supply those become compressed, and the result is then that that tissue breaks down, and the ulceration takes place, and the loss of tissue. This proliferation has gone on beyond this, however, and we have consequently portions of this in which there is locked up the secretions which are broken down and degenerated. These are absorbed, producing a condition of what is known as toxemia; simply the circulation in the blood of these materials that have been just taken out, and we have as the result the patient suffering from both the great drain of this hemorrhage, the great drain of the breaking down and profuse discharge, and the poisonous effect of the absorption of these products.

Q.—That is what you mean by toxemia? A.—Yes.

Q.—It means poisoning? A.—Yes, sir.

Q.—Now then, doctor, so as to operate successfully on cases of this kind, when must that operation be performed with reference to the toxemia? A.—It must be performed before the disease has passed beyond the organ in which it originates.

Q.—In other words, locally? A.—Yes.

Q.—While it is confined locally? A.—While it is a local disease.

Q.—Now, what do you think, doctor, would be the effect of treating such a condition as that with such a medicinal solution as I have called your attention to in the hypothetical question, either at its inception or at any other time throughout the history of the trouble?

Mr. Hough:—That is objected to if the Court please, on the ground that no foundation has been laid for the asking of that question, and it is incompetent, irrelevant and immaterial.

The Court:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

The Witness: A.—The administration of medicines in a condition of this kind is a crime, because it simply is taking away—

Mr. Hough:—I ask that that be stricken out.

The Court:—Yes, strike out that it is a crime. Let the doctor tell what the effect would be, and the jury will determine what it is.

Mr. T. J. Scofield: Q.—Tell what effect it would have.

The Witness: A.—It is taking away—the administration of medicine in a condition of this kind, in a disease which is progressive is taking away the opportunity of that individual for life. As we have said before, the sooner the operation is done, the better the chances for the future. If the disease is carried outside of the womb, it has reached tissues beyond, which we cannot get into with the knife, and consequently the chances for the individual are gone.

A recess was here taken until 2 o'clock p. m., April 14, 1916.

(To be continued)

Correspondence

An Anaphylactic or a "Sensitin"

To the Editor:—In attempting to describe a patient who was subject to attacks resembling serum sickness after eating certain food, I said that she was sensitive to certain toxic food substances, and had been sensitized. It occurred to me that a term might be coined to describe a patient who was subject to the anaphylactic manifestations such as asthma, urticaria, tachycardia and dyspnea, just as we describe a child with a thyrosis as a *cretin,* one mentally defective as an *idiot.* To say that a patient was anaphylactic might in a loose way describe his condition or tendencies toward the exhibition of such a condition; but it does not completely fill the bill. A term like a "sensitin" might be conveniently employed to describe such a one who has been sensitized and is accordingly prone to exhibit the phenomena of anaphylaxis. ROBERT L. PITFIELD, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

KERATODERMA OF THE EXTREMITIES

To the Editor:—Kindly inform me what one could use to soften dry, hard hands. The man is a stone worker handling paving blocks—perhaps seven or eight hundred per day. So far as I can learn the trouble is due to his occupation, though he says his hands never perspire and the latter trouble probably is not due to his occupation. He gives no history of venereal disease or any previous diseases and is a perfectly healthy man. J. F. R., M.D.

ANSWER.—Although this history and description are too meager to permit a diagnosis, it is possible that the man is suffering from hereditary keratoderma of the extremities. This is, however, sometimes an acquired condition from unknown causes, and occasionally from the use of arsenic. The absence of sweat on the palms especially suggests the hereditary condition. The hereditary cases are essentially a form of ichthyosis—a congenital hyperkeratosis confined to the palms and soles, or less frequently to one or the other. There is no satisfactory treatment for it. It may be improved by the use of Roentgen rays. The best palliative treatment is the use of an ointment containing from one-half to 1 dram of salicylic acid in 1 ounce of petrolatum or rose ointment, or equal parts of petrolatum and diachylon ointment. The mixture of petrolatum and diachylon ointment is the best base if one can get a well made smooth diachylon ointment. The palms should be greased with this several times in the twenty-four hours, and thoroughly greased at bedtime, and gloves worn. It should not be used to the point where it produces an irritation of the hands.

REMOVAL OF STAIN ON CORNEA—TREATMENT OF INTRA-OCULAR HEMORRHAGE

To the Editor:—1. What will remove the stain on the cornea produced by cauterization with a silver nitrate stick after anesthetizing with cocain hydrochlorid?

2. What is the treatment of intra-ocular hemorrhage following a cataract operation? S. Y. ORESA, M.D., Jolo, Sulu, P. I.

ANSWER.—1. It has been asserted that stains of the cornea from weak solutions of silver nitrate have been removed by bathing the eye in a solution of sodium thiosulphate (hyposulphite) after first cocainizing the eye to soften the epithelium, and then gently scratching the surface of the cornea. Cauterization of the cornea, however, with a stick of silver nitrate would probably extend beyond the epithelial layer and involve the corneal tissue proper, in which case a permanent scar would result. In order to reduce the density of such an opacity, various methods of treatment are employed, such as massaging the cornea with 1 per cent. yellow mercuric oxid ointment, or with so-called "brown ointment." Instillations into the conjunctival sac of a 1 per cent. solution of atropin and from 5 to 10 per cent. solution of ethyl-morphin hydrochlorid (dionin), together with hot applications to the eye, are followed by good results in some cases. It is reported that this method of treatment combined with the administration of thiosinamin, either hypodermically or by mouth, has been followed by brilliant results in certain cases. Recent improvements in the technic of corneal transplantation have made this a useful surgical procedure in some of these conditions.

2. Hemorrhage into the anterior chamber following cataract extraction is usually caused by making too large a conjunctival flap, the blood coming from the severed scleroconjunctival vessels. It may be due also to prolonged and excessive cocainization and the too early use of suprarenal preparations. In attempting to remove the blood it is better not to manipulate the lips of the wound too much, but to flood the eye with warm boric solution and coax the blood out of the eye with dabs of cotton and by means of the anterior chamber syringe. A small quantity of blood remaining in the anterior chamber soon becomes absorbed and does little harm except temporarily to obscure the intra-ocular field of operation. If, however, it becomes organized and forms one variety of after-cataract, the use of atropin is indicated to prevent posterior synechias, and ethyl-morphin hydrochlorid to promote absorption of the deposit.

LOW BLOOD PRESSURE

To the Editor:—Please give interpretation of the following low blood pressure:

A man, aged 39, height 6 feet, weight 190 pounds, has good general health except for headache, from slight to severe, which appears about every ten days. He has had these headaches ever since 10 years of age. Two grains of calomel at bedtime will clear the head by morning.

The urine is normal; he has no syphilis; he has never used alcoholic liquors, tea, coffee or tobacco.

The systolic blood pressure is 115, diastolic, 75. The patient has had low blood pressure for at least six years.

Please give diagnosis, prognosis and treatment if any is indicated.

If you print this please leave out my name and address.

E. H. B., M.D.

ANSWER.—Taking into consideration all the facts mentioned, and assuming that no other important facts have been omitted, the patient here described is probably entirely normal with the exception of periodic headache, or migraine. The systolic blood pressure, while a trifle lower than the average, is within the range of pressure seen in normal persons. The relation of systolic (115) and diastolic (75) pressure (pressure pulse 40) is also normal. The statement that for the past six years during a period of presumably good health the blood pressure has been low is important because it indicates that the present low blood pressure does not follow a previous higher pressure, in which case the recent low pressure might indicate beginning myocardial failure. In advancing myocardial weakness, the pressure pulse would also be relatively lower than in the case here described.

Other common causes of low blood pressure, such as asthenia from wasting diseases, malignancy and Addison's disease, are excluded by the statement that the patient is in otherwise good health, and that the pressure is known to have been low for at least six years.

INDICAN IN THE BLOOD

To the Editor:—Please tell me where I can find information as to indican in the blood and methods of testing for same. Kindly omit my name. M. H. B., M.D.

ANSWER.—The following are references to literature on this subject:

Haas, G.: Ueber Indikanämie, München. med. Wchnschr., 1915, lxii, 1043; abstr., THE JOURNAL, Sept. 18, 1915, p. 1064.

Dorner, G.: Diagnose der Urämie durch Indikanbestimmung im Blutserum, transudaten und Exsudaten, Deutsch. Arch. f. klin. Med., 1914, cxiii, 342; abstr., THE JOURNAL, April 4, 1914, p. 1128.

Tschertkoff, J.: Indikanämie und Urämie (Azotämie), Deutsch. med. Wchnschr., 1914, xl, 1713; abstr., THE JOURNAL, Oct. 17, 1914, p. 1430.

Dorner precipitates from 10 to 20 c.c. of blood with five times its bulk of 95 per cent. alcohol, and then filters and evaporates the alcohol. The residue is taken up in water and precipitated with 2 or 3 drops of lead acetate, and then filled up to 10 c.c., and an equal amount of Obermayer's reagent (a solution of 2 gm. ferric chlorid in 1 liter of strong hydrochloric acid) is added. The whole is then shaken out in the water bath with 1 c.c. of chloroform. Chloroform takes on a blue tint when the reaction is positive.

Tschertkoff removes the albumin from the serum by mixing with an equal bulk of a 20 per cent. solution of trichloracetic

acid. The filtrate turns pink to a yellowish brown on standing in the light if there is much indican present in the serum. Ten c.c. of the filtrate are mixed with 10 c.c. of Obermayer's reagent, and the mixture is shaken up with 3 c.c. of chloroform. The proportionate amount of indican present is indicated from the depth of the blue taken by the chloroform, as compared with a set of standard solutions of indigo.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, May 9. Sec., Dr. T. J. Stout, Brinkley; Eclectic, Little Rock, May 9. Sec., Dr. C. E. Laws, 712 Garrison Ave., Fort Smith.

GEORGIA: Atlanta and Augusta, June 1. Sec., Dr. C. T. Nolan, Marietta.

ILLINOIS: Chicago, May 4-6. Sec., Dr. C. St. Clair Drake, Springfield.

IOWA: Iowa City, June 8-10. Sec., Dr. Guilford H. Sumner, State House, Des Moines.

LOUISIANA: New Orleans, June 8-10. Sec., Dr. E. L. Leckert, 716 Macheca Bldg., New Orleans.

MASSACHUSETTS: Boston, May 9-11. Sec., Dr. Walter P. Bowers, Room 501, No. 1, Beacon St., Boston.

MICHIGAN: Detroit, June 1-3. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

NEBRASKA: Lincoln, May 8-10 and June 8-9. Sec., Dr. H. B. Cummins, Seward.

NEVADA: Carson City, May 1. Sec., Dr. Simeon L. Lee, Carson City.

NEW YORK: Albany, Buffalo, New York and Syracuse, May 16-19. Sec., Mr. Harlan H. Horner, Chief Examinations Division, Educational Bldg., Albany.

OHIO: Columbus, June 6-9. Sec., Dr. George H. Matson, State House, Columbus.

Louisiana December Report

Dr. E. L. Leckert, secretary of the Louisiana State Board of Medical Examiners, reports the written examination held at New Orleans, Dec. 2-4, 1915. The total number of subjects examined in was 11; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 35, of whom 28 passed and 7 failed. Six candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Alabama		(1912)	75.3, 79.7
George Washington University		(1915)	81.4, 90.9
Howard University		(1912)	79
Atlanta Medical College		(1915)	89.5
Atlanta School of Medicine		(1911)	79.5
Chicago College of Med. and Surg.		(1915)	81.4
Rush Medical College		(1914)	86.8
Tulane University of Louisiana	(1912) 89.7; (1913) 86; (1914) (1915) 80.9, 81.4, 83.4, 84, 87.5, 88.4, 88.6, 88.7, 88.9, 90.4.		90.9;
University of Pennsylvania		(1914)	81.3
Memphis Hosp. Medical College		(1912)	81.5
University of Tennessee		(1914)	79.5; (1915) 83.6, 90.3
University of Toronto		(1913)	88.3
	FAILED		
Flint Medical College of New Orleans		(1910)	64.3
Meharry Medical College		(1912)	67
Memphis Hospital Medical College	(1908) 67.7; (1910) 73.2; (1911) 65.1; (1913) 69.		
University of Tennessee		(1914)	70.9

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Atlanta College of Phys. and Surgs.		(1906)	Georgia
State Univ. of Iowa, College of Medicine		(1902)	Minnesota
University of Louisville		(1907)	Kansas
University of Maryland		(1912)	Maryland
Meharry Medical College		(1912)	Illinois
Vanderbilt University		(1911)	Arkansas

Maryland December Report

Dr. J. M. Scott, secretary of the Board of Medical Examiners of Maryland, reports the written examination held at Baltimore, Dec. 14, 1915. The total number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 46, of whom 31 passed and 15 failed. Fourteen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Howard University	(1914) 79, 79;	(1915)	90
College of Phys. and Surgs., Baltimore	(1913) 85;	(1915)	77, 78, 80, 89, 89.
Johns Hopkins University	(1914) 83;	(1915)	83, 84, 87, 91
Maryland Medical College		(1913)	80
University of Maryland	(1911) 75; (1914) 78, 83, 89;	(1915)	77, 78, 79, 79, 79, 85, 86, 89.
Harvard University		(1915)	94
Temple University		(1915)	77
University of Virginia		(1914)	87
Hungarian University, Budapest		(1911)	*
	FAILED		
Bennett Medical College		(1914)	†
Chicago College of Med. and Surg.		(1915)	71
University of Louisville		(1912)	†
College of Phys. and Surgs., Baltimore	(1914) †, †;	(1915)	71
Maryland Medical College	(1912) †;	(1913)	60, †
University of Maryland	(1914) 68;	(1915)	69, 72
Medical College of Virginia	(1914) †;	(1915)	68
National School of Medicine, Mexico		(1903)	56

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
George Washington University		(1908)	Wisconsin
Bennett College of Eclectic Med. and Surg.		(1887)	Michigan
Baltimore Medical College		(1896)	Penna.
College of Phys. and Surgs., Baltimore		(1893)	Virginia
Johns Hopkins University		(1912)	Illinois
University of Maryland	(1903) Pennsylvania;	(1904)	W. Virginia
Washington University		(1915)	Missouri
Cornell University		(1910)	Illinois
University of Pennsylvania	(1889)	(1902)	Penna.
Chattanooga Medical College		(1894)	S. Carolina
University of Virginia	(1910) Virginia);	(1914)	Penna.

One candidate, a graduate of the College of Physicians and Surgeons, Baltimore, 1880, was granted a permit to register and practice by virtue of practice antedating the law.

* Licensed by special examination.
† No grade given.

Missouri December Report

Dr. J. A. B. Adcock, secretary of the Missouri State Board of Health, reports the oral and written examination held at St. Louis, Dec. 13-15, 1915. The total number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 21, of whom 15 passed and 6 failed; for one candidate the college and year of graduation was not given. Nine candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Bennett Medical College		(1915)	79
Rush Medical College		(1915)	87
University of Illinois		(1915)	84
Tulane University of Louisiana		(1915)	75
Johns Hopkins University		(1914)	75
University of Maryland		(1915)	82
Harvard University		(1915)	82
Detroit College of Medicine		(1908)	81
Barnes Medical College		(1909)	75
Homeopathic Medical College of Missouri		(1897)	75
Missouri Medical College		(1872)	75
National University of Arts and Sciences		(1915)	76
St. Louis College of Phys. and Surgs.		(1915)	75
University of West Tennessee		(1915)	75
University of Palermo		(1910)	84
	FAILED		
St. Louis College of Phys. and Surgs.		(1915)	59
Meharry Medical College		(1915)	61
University of West Tennessee	(1914) 62;	(1915)	61 *

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
College of Phys. and Surgs., Chicago		(1912)	Illinois
Hahnemann Med. Coll. and Hosp., Chicago		(1896)	Kansas
Northwestern University		(1902)	Kansas
Rush Medical College		(1912)	Illinois
Drake University		(1913)	Iowa
Louisville Medical College		(1878)	Virginia
Kansas City Hahnemann Med. College		(1914)	Kansas
John A. Creighton Medical College		(1913)	Kansas
University of the City of New York		(1894)	Ohio

* No grade given.

New Hampshire December Report

Dr. W. T. Crosby, secretary of the New Hampshire State Medical Board, reports the oral and written examination held at Concord, Dec. 20-21, 1915. The total number of subjects examined in was 12; total number of questions asked, 60; percentage required to pass, 75. The total number of candidates examined was 4, including 1 osteopath, all of whom passed. Seven candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Dartmouth Medical School		(1901)	82.5, 93.5
University of Vermont		(1915)	87

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Drake University		(1907)	Iowa
Bowdoin Medical School		(1915)	Maine
Tufts College Medical School		(1903)	Mass.
Dartmouth Medical School		(1903)	Iowa
University of Vermont		(1911)	(1913) Vermont

Ohio December Report

Dr. George H. Matson, secretary of the Ohio State Medical Board, reports the practical and written examination held at Columbus, Dec. 7-9, 1915. The total number of subjects examined in was 11; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 9, all of whom passed. Twenty-nine candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Howard University		(1915)	83.2
Eclectic Medical College, Cincinnati		(1915)	83.4
Ohio State University, College of Medicine		(1914)	75
Ohio State University, Coll. of Homeo. Med.		(1915)	76.2, 79.4
Western Reserve University		(1915)	83.8
Jefferson Medical College		(1915)	76.7, 83.3
Woman's Medical College of Pennsylvania		(1915)	87.5

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Chicago College of Med. and Surg.		(1914)	Iowa
College of Physicians and Surgeons, Chicago		(1903)	Illinois
Jenner Medical College		(1912)	Indiana
Rush Medical College	(1884) Wisconsin;	(1913)	Illinois
Hospital College of Medicine, Louisville		(1895)	W. Virginia
Louisville Medical College		(1892)	Kentucky
Baltimore Medical College	(1896) Pennsylvania;	(1898)	Vermont
Coll. of Phys. and Surgs., Baltimore	(1892) Indiana;	(1905)	Vermont
Univ. of Michigan Med. School	(1913)	(1914, 2)	(1915) Michigan
University of Michigan, Homeo. Med. School		(1915)	Michigan
Kansas City Medical College		(1898)	Illinois
St. Louis University		(1913)	Missouri
Eclectic Med. Coll. of the City of New York		(1896)	New York
New York Homeo. Med. College and Flower Hosp.		(1915)	New Jersey
Medical College of Ohio		(1881)	Colorado
Jefferson Medical College		(1914)	Penna.
Medico-Chirurgical College of Philadelphia		(1913)	Maryland
University of Pennsylvania	(1909) Pennsylvania;	(1914)	W. Virginia
University of Pittsburgh		(1909)	(1913) Penna.
Woman's Med. Coll. of Pa.	(1886) New York;	(1913)	Penna.

Virginia December Report

Dr. J. N. Barney, secretary of the Virginia State Board of Medical Examiners, reports the written examination held at Richmond, Dec. 17-20, 1915. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 24, of whom 21 passed and 3 failed, including 1 osteopath. Twenty-eight candidates, including 2 osteopaths, were licensed through reciprocity. The following colleges were represented.

College	PASSED	Year Grad.	Per Cent.
George Washington University	(1912) 85;	(1915)	81
Howard University	(1914) 77, 78,	82,	82
Vanderbilt University		(1915)	78
Medical College of Virginia	(1914) 87, 89;	(1915) 75, 76, 78, 78, 79, 80, 82,	83, 86
University of Virginia	(1914) 86;	(1915)	85, 86
	FAILED		
North Carolina Medical College		(1915)	64
Meharry Medical College		(1908)	62

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Columbian University		(1901)	Dist. Colum.
Georgetown University		(1911)	Dist. Colum.
Howard University		(1904)	Dist. Colum.
University of Georgia		(1913)	Georgia
University of Illinois		(1911)	Illinois
University of Louisville		(1909)	Kentucky
Tulane University of Louisiana		(1903) (1913)	Louisiana
Baltimore Medical College		(1903)	N. Carolina
College of Physicians and Surgeons, Baltimore		(1895) (1914)	N. Carolina W. Virginia
University of Maryland		(1909)	N. Carolina
University Medical College, Kansas City		(1911)	Missouri
College of Phys. and Surgs. in the City of N. Y.		(1883)	Dist. Colum.
Leonard Medical College		(1913)	W. Virginia
North Carolina Medical College		(1905)	Georgia
Jefferson Medical College		(1888)	Penna.
Western Pennsylvania Medical College		(1907)	Penna.
Woman's Medical College of Pennsylvania		(1911)	Maryland
Lincoln Memorial University		(1914, 2)	Tennessee
Vanderbilt University		(1914)	Tennessee
Medical College of Virginia		(1893)	Ohio
University of Virginia	(1903) Tennessee;	(1913)	Mississippi
University of Athens		(1906)	Florida

Book Notices

GENERAL MEDICINE. Edited by Frank Billings, M.S., M.D., Head of the Medical Department, Rush Medical College. Practical Medicine Series, Volume I. Cloth. Price, $1.50. Pp. 384. Chicago: The Year Book Publishers, 1916.

Since the death of Dr. Jerome H. Salisbury, the volume on general medicine of this series has been under the sponsorship of Dr. Frank Billings alone. The book is well prepared and covers thoroughly the subjects which it treats. Practically all of the abstracts of the work are extensive, perhaps more extensive than was formerly the case. The first abstract concerns a theory of immunization outlined by Drs. H. S. Williams and J. W. Beveridge, which, although the abstract does not so state, bears some relation to the so-called "autolysin" treatment for cancer.

The original matter in the series consists naturally of the editor's comments, of which there are about fifteen in the book of 370 pages. Some of these are unusually good and especially worthy of note; for example, in the consideration of the treatment of pneumonia, it is stated that:

(If antigens of pneumococci are used in pneumonia they should be homologous with the germ invading the patient. Experimental research and clinical experience with pneumococcus vaccines in pneumonia do not justify their use. Possibly an antigen made of the nontoxic remnant of the pneumococcus may prove useful, as shown by the reports of E. C. Rosenow.—Ed.)

In his consideration of an article by Dr. F. M. Allen on fasting in diabetes, Dr. Billings says:

(In the service of the Editor in the Presbyterian Hospital, Chicago, in collaboration with Dr. R. T. Woodyatt, the treatment of diabetes by a preliminary absolute fasting period, until the urine is sugar-free, has been followed for nine years. We have fasted patients for as long as eight days. The patient is encouraged to drink water freely. Acidosis usually diminishes rapidly. One may give whisky or sour wine as fuel during the fasting period. Soda bicarbonate may also be used in persistent acidosis. All that is said by Allen and Joslin concerning the treatment we can affirm.—Ed.)

THE EYES OF OUR CHILDREN. By N. Bishop Harman, M.A., M.B. Cloth. Price, 1 shilling. Pp. 119, with 32 illustrations. London: Methuen & Co., 1916.

This small volume, one of a series of eight which make up "Methuen's Health Series," deals concisely with those defects of the eyes most commonly observed during childhood. The author has had an opportunity of examining the eyes of many thousands of schoolchildren, and is therefore ably qualified to advise intelligently on the best methods of teaching children afflicted with the various forms of refractive errors, as well as to point out the importance of proper illumination of the schoolroom. This is done in language as free as possible from technical terms, which should make the book a most helpful one for parents, teachers, and all who are interested in conserving the vision of the growing child. In future editions the author should add a chapter on the prevailing pernicious custom of having the surroundings of the new-born babe, even including the uniform of the nurse, in "spotless white," the symbol of purity, perhaps, but most trying to the delicate eye structures of the infant.

YOUR BABY. A Guide for Young Mothers. By Edith B. Lowry, M.D. Cloth. Price, $1. Pp. 254. Chicago: Forbes & Co., 1915.

This guide gives an adequate description of the measures to be taken by the mother with a view to her own and her offspring's welfare. It is clearly expressed, well arranged, and provided with an excellent index.

PERSONAL HYGIENE. By Frank Overton, A.M., M.D., Sanitary Supervisor, New York State Department of Health. Cloth. Price, 40 cents. Pp. 240, with illustrations. New York: American Book Company, 1915.

GENERAL HYGIENE. By Frank Overton, A.M., M.D., Sanitary Supervisor, New York State Department of Health. Cloth. Price, 60 cents. Pp. 382, with illustrations. New York: American Book Company, 1915.

The first of these two works is a manual of elementary hygiene, including the essentials of anatomy and physiology, intended for the use of young pupils. Special stress is laid on such knowledge as may be usefully applied in daily life. The treatment is adequate and entirely modern, the language simple and clear. An interesting point is made of the casual

relation which often exists between the conventions of good manners and the requirements of personal hygiene.

The second volume, notwithstanding the difference in title, deals with substantially the same subject as the first, though in a more detailed manner. It is as admirably adapted for older and more advanced pupils as is the smaller work for their younger brothers and sisters.

Miscellany

Control of Hookworm Disease

The work done by the Pacific Mail Steamship Company in the control and eradication of pellagra is described by Dr. Herbert Gunn in the *Journal of Sociologic Medicine*, February, 1916. The plan adopted was to examine all cases in Hong Kong and to treat those found infected by the ship surgeon while en route. Thymol was used, the dose for an adult being 20 grains hourly for four doses, or 80 grains during the morning. One and one-half ounces of castor oil were given the night preceding the course of treatment, and 1 ounce of Epsom salt two hours before, and again one hour after, the administration of the thymol. Castor oil was repeated the night preceding the next course of treatment, but was not given on a day during which thymol had been taken. After two courses or four days' treatment, examination of the stool was made, and patients found cured were dismissed from further treatment or given an additional course of two days. In the uncured cases the courses of treatment and the reexaminations were continued until San Francisco was reached. Over 500 patients had been treated with no untoward results in any. Over 60 per cent. of the Chinese examined in Hong Kong were found to harbor hookworm. The total number of cases treated aboard ship was 1,776. The number not cured on arrival at San Francisco, was fifty-five, or 3 per cent. Some patients took as much as 1,720 grains of thymol in a period of twenty-six days.

In Gunn's experience there is practically no effect on the urine in the great majority of cases, and in the others it is only transitory. The greatest effect is on the intestinal tract, and even here it is as a rule but slight and transitory. Loss of weight from the repeated purging was the only ill effect that the majority of patients showed after a strenuous course of treatment. Of the 1,776 patients treated, one died of uremia. He had suffered from kidney disease four years previously. There were several cases of collapse, but none were serious and all these patients resumed treatment later, that is, on subsequent days. Vomiting frequently occurred, as often from the salts as from the thymol. In one or two patients the drug was discontinued on this account, and chloroform and eucalyptus used. In one patient an intestinal hemorrhage was reported, which was not serious, and a few days later treatment was resumed without ill effects.

China Medical Association Meets

The first meeting of the National Medical Association of China was held in Shanghai, February 7 to 12, under the presidency of Dr. F. C. Yen, surgeon in chief of the Hunan-Yale Hospital, Changsha. Fifty-five delegates were present, including representatives from the Chinese army and navy, and Chinese was adopted as the official language of the conference. Dr. Yen suggested the advisability of inviting foreign physicians to become members; the opening of a central office at Shanghai or Peking and the publication of the association's journal bimonthly in Chinese with an occasional English edition. In a lecture the same evening, Dr. Yen spoke on "The Duties of the Medical Profession" and devoted considerable time to the exposure of the worthless and harmfulness of "patent medicines." On the second day the chief address was given by Dr. Arthur Stanley, health officer of Shanghai on "Quack Medicines." On the third day a paper by Dr. H. T. Chiang, Tayek, on "The Status of Medical Practitioners" was read by Dr. W. P. Chung in which the medical practitioners of China were classified as first, the old fashioned native physicians whose only diploma was his sign board; second, nurses and assistants who had been trained in mission hospitals who are little better than the first group; third, graduates from union medical schools who are well trained, but not versed in the scientific side of medicine; fourth, graduates from Japan; and fifth, physicians properly qualified in the colleges of Europe and America. He urged the early establishment of a central medical board for registration of all practitioners and that the government subsidize the existing medical colleges in China. In the evening, Dr. W. W. Peter, secretary of the Public Health Council of the China Missionary Medical Association, gave a lecture on "Health as a Factor in National Strength." A paper by Dr. S. P. Chen of the Peking Isolation Hospital on "The Reorganization of Schools," in which he proposed the establishment of a central board of control, the reorganization of the existing medical schools, the establishment of well equipped hospitals and provision for postgraduate study, was read by Dr. Abel Tang. On the last day of the session the following ten physicians were elected first honorary members of the association: Chou Hsueh-hsi, minister of finance; Chu Chi-chien, minister of the interior; Dr. Arthur Stanley, health officer of Shanghai; Dr. Dugald Christis of the Medical College Hospital at Mukden; Dr. Duncan Main, Hangchow; Dr. Douglas Gray, physician to the British Legation at Peking; Dr. H. S. Houghton, Harvard Medical School, Shanghai; Dr. W. W. Peter of the Public Health Council of the Missionary Medical Association; Dr. E. H. Hume of the Hunan-Yale Hospital, Changsha, and Dr. G. A. Morrison, advisor to Yuan Shih-kai.

Australia and Yellow Fever

Under this title the Quarantine Service of the Commonwealth of Australia in Service Publication 6 discusses yellow fever, the possibility of its introduction into Australia as the result of changes in routes of ocean travel due to the opening of the Panama Canal, and the conditions favoring its existence in Australia once it gained a foothold. Dr. J. H. L. Cumpston, director of quarantine, discusses foci of infection on the Pacific coast of Central and South America, in the Caribbean region and in the United States. He believes, with other observers, that the stringent regulations of the health and quarantine authorities in the Panama Canal Zone make it an unlikely source of infection. The towns on the coast of Mexico, Central America and South America as far south as Chile, particularly Guayaquil, where the disease is still endemic, are believed to be constant sources of trouble which may reach to Australia. A number of places on the Caribbean Sea are also to be regarded as foci. Even New Orleans, in the opinion of Cumpston, who adopts that of Major James, who visited that city in 1912 and made a report in the *Indian Journal of Medical Research*, October, 1913, on "The Protection of India from Yellow Fever," is not exempted as a focus of yellow fever dangerous to shipping to the Orient. Major James says that though great improvement in conditions had been made in New Orleans since the epidemic of yellow fever in 1905, when 437 deaths and 3,403 cases occurred, still, in 1912, at the time of his visit, on account of lack of funds and other reasons, no continuous, systematic preventive work had been kept up, and he had been informed by officials that during the summer months mosquitoes, including the yellow fever mosquito, were plentiful. With such conditions in a highly organized community in the United States, it was felt that there were great dangers from other less well protected places in the islands of the Caribbean Sea and the northern and Atlantic coasts of South America. The danger of the introduction of the disease into Australia from the endemic foci, it is said, must be recognized and precautionary measures taken to prevent it. Among these measures would be the stationing of sanitarians as outposts at Panama and in the Pacific Islands for observation and transmission to the home country of intelligence concerning outbreaks of the disease. In Australia efforts should be directed to the reduction of mosquito sources.

Medicolegal

Care and Skill Required of Surgeons—Use of Photographs

(Pace vs. Cochran (Ga.), 86 S. E. R. 934)

The Supreme Court of Georgia, in reversing, for errors in the trial, a judgment obtained by the plaintiff on account of the alleged negligence of the defendant in setting a broken arm, says that the civil code of the state lays down the rule that a person professing to practice surgery for compensation must bring to the exercise of his profession a reasonable degree of care and skill, and that any injury resulting from a want of such care and skill will be a tort for which a recovery may be had. This briefly states the standard by which the conduct of a person claimed to have been guilty of malpractice as a surgeon may be tested. In determining the question of reasonable care and skill, the jury may consider the place of the operation, the circumstances surrounding it, the situation of the defendant with respect to the operation, and all the facts and circumstances which may be shown by the evidence and which may throw light on the ultimate question. Did the defendant, or did he not, use reasonable care and skill in the performance of the operation? If expert evidence is introduced tending to show the recognized method of performing an operation, or the manner in which it should be performed, it may be considered along with other evidence throwing light on the question. But the court prefers the standard required by the code to a comparison with an "average" surgeon. Moreover, in formulating an instruction for the jury, the court thinks it best not to state that the skill of a surgeon includes an ability to perform the operation in an "approved" way. When employed in a charge to the jury, this expression might raise a question in their minds as to the meaning of the word "approved," and as to by whom the approval should be made.

It was error to overrule a ground of demurrer which sought to have a photograph "of the present condition" of the injured member stricken and removed from the plaintiff's petition. Whether the photograph was proved genuine and correct or not, the court does not think it had any place in the petition. It was no part of the basis of the suit for damages, and should not be attached to the petition as a part thereof. But, on the trial of a case involving malpractice of medicine and surgery, a photograph of the wound, alleged to have been caused by the malpractice, which has been proved to be a correct photograph, is admissible in evidence, as tending to show the details and extent of the injury, in connection with other evidence tending to show that the condition of the injured member at the time when the photograph was taken resulted from the alleged tort or malpractice.

Employment of Surgeon by Station Master Followed by Attempted Revocation

(Vandalia Railroad Co. vs. Bryan (Ind.), 110 N. E. R. 218)

The Appellate Court of Indiana, Division No. 2, reverses a judgment for $350 obtained by plaintiff Bryan for services rendered to a man injured by one of the defendant's trains, because there was no evidence from which the value of the emergency first aid services rendered by the plaintiff and two other physicians whom he called in to aid him could be ascertained. The court says that the evidence showed that, as the company's surgeon was not in town, its station master engaged the plaintiff to render what aid was necessary. The plaintiff took the man to a hospital, found his right leg badly lacerated, hanging by shreds, and his left foot almost crushed off, so that amputation was necessary. He called to his assistance the other two physicians; they made a thorough examination, cut off the hanging parts and controlled the hemorrhage, decided that amputation was necessary, and planned for such operation. Shortly after that the station master called the plaintiff over the telephone and told him that the company had found that the man was a trespasser, it was not liable for his injury, and would not be responsible for any further medical services rendered to him. The physicians continued attention through the night, giving treatments to overcome the shock, and the next morning amputated the right leg and left foot. The plaintiff attended the man for about six weeks, making about 100 visits, and the other physicians made in that time twenty or thirty visits, the reasonable value of all the services being from $1,000 to $1,200. The physicians on cross-examination testified that after the station master revoked his authority, other competent physicians and surgeons could have taken the case from that time and rendered the attention which they gave. The court holds that the station master had authority to bind the company for emergency services, but that his authority expired when he came into communication with his superior officers. The question was, How far could the plaintiff go under the contract previously made with the station master? The plaintiff contended that all the services were necessarily incident to the first employment, and in that sense were undertaken before the revocation. The court holds that the company was liable to the plaintiff for emergency first aid services rendered, and what should constitute first aid emergency services was a question of fact for the jury. It seems to the court that all of the better reasoned cases have limited the recovery of physicians employed as was the plaintiff in this case to what should be termed as emergency or first aid services, and no more; and in all such cases an emergency exists in which the exigencies are of so pressing a nature that immediate action must be taken to relieve the injured person from his present suffering, or preserve his life, and when such services have been rendered, the emergency authorizing the original employment ceases to exist, and there is no further liability for medical services unless such further liability arises by reason of some additional contractual relation between the parties. It is the inability of the injured person to obtain medical aid for himself which gives rise to the emergency. If the condition of the patient and the emergency of the case made additional surgical and medical aid absolutely necessary, the court thinks that the physician engaged by the company's servant to perform necessary services would be justified in calling the necessary additional aid, and that in this action he could recover for their services as well as for his own. The fact that the injured man was a trespasser had no bearing on the authority possessed by the station master when he engaged the plaintiff. It was not for the plaintiff, in the emergency, to investigate whether the company was liable to the man before undertaking to aid him.

Prescriptions for Unreasonable Amounts of Narcotic Drugs

(United States vs. Curtis (U. S.), 229 Fed. R. 288)

The United States District Court, Northern District of New York, in overruling a demurrer to an indictment charging a dealer with having violated the Harrison Narcotic Law in selling to a consumer 100 quarter-grain morphin sulphate tablets, on the prescription of a physician which did not indicate that the tablets were for the treatment of an addict or habitué to effect a cure, or for a patient suffering from an incurable or chronic disease, and in selling to the consumer 10,900 such tablets, under 109 such prescriptions issued by a physician, holds that the indictment charged the commission of an indictable offense under the provisions of the law. The court says that it is quite true that the law does not prescribe or limit in terms the amount in weight or quantity of opium or coca leaves, or any compound, manufacture, salt, derivative, or preparation thereof, which may be sold, dispensed or distributed by a dealer to a consumer under and in pursuance of a written prescription issued by a physician registered under the act. It is also true that the act does not in terms limit in weight or quantity the amount of such drugs which such a physician may prescribe in the course of his professional practice only. But it seems plain to the court that it was the purpose of Congress to limit the quantity of these drugs that may be sold or dispensed by a dealer under and pursuant to a written order issued by a physician, and to limit the amount and quantity to such an amount and quantity as is or ought to be called for by a prescription issued by the physician "in the course of his professional practice only." Is it reasonable or probable

that Congress intended that physicians may prescribe unlimited quantities and that dealers may fill such prescriptions? A prescription, even if issued by a physician, which on its face calls for an unusually and unreasonably large quantity of the drug is fraudulent, of course, as it bears internal evidence that it is not issued in good faith and that it is not a prescription. The court is of the opinion, and holds, that a physician who issues a prescription for an unusually large amount of these drugs, or of any one of them, which prescription shows on its face that the quantity prescribed is unreasonable and unusual, is guilty of an offense under the law, unless such prescription indicates the necessity therefor; and the dealer who fills such a prescription or order issued by a physician is guilty of an offense under the law. If not so, then physicians may prescribe unlimited quantities, and druggists may fill the prescriptions with impunity, and thus many of the evils sought to be remedied by the enactment of the so-called Harrison Narcotic Law will be augmented, instead of being remedied.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, DETROIT, JUNE 12-16.

Alpha Omega Alpha Society, Detroit, June 12.
American Academy of Medicine, Detroit, June 9-12.
American Assn. of Genito-Urinary Surgs., Washington, D. C., May 9-10.
American Association of Anesthetists, Detroit, June 12.
American Association of Path. and Bact., Washington, D. C., May 9-11.
American Climatological and Clin. Assn., Washington, D. C., May 9-11.
American Dermatological Association, Washington, D. C., May 8-10.
American Gastro-Enterological Association, Washington, D. C., May 8-9.
American Gynecological Society, Washington, D. C., May 9-11.
American Laryngological Association, Washington, D. C., May 9-11.
Amer. Laryn., Rhin. and Otol., White Sulphur Sprgs., W. Va., May 5-6.
American Neurological Association, Washington, D. C., May 8-10.
American Ophthalmological Society, Washington, D. C., May 9-11.
American Orthopedic Association, Washington, D. C., May 8-11.
American Otological Society, Washington, D. C., May 9-10.
American Pediatric Society, Washington, D. C., May 8-10.
American Proctologic Society, Detroit, June 12.
American Society of Tropical Medicine, Washington, D. C., May 9-11.
American Surgical Association, Washington, D. C., May 9-11.
American Therapeutic Society, Detroit, June 9-10.
Arkansas Medical Society, Texarkana, May 2-4.
Association of American Physicians, Washington, D. C., May 9-11.
Conference of State and Prov. Boards of N. A., Washington, May 16-17.
Cong. Am. Phys. and Surgs. of No. Am., Washington, D. C., May 9-10.
Connecticut State Medical Society, Bridgeport, May 17-18.
Florida Medical Association, Arcadia, May 10-12.
Illinois State Medical Society, Champaign, May 16-18.
Iowa State Medical Society, Davenport, May 10-12.
Kansas Medical Society, Topeka, May 3-5.
Maine Medical Association, Portland, June 7-8.
Massachusetts Medical Society, Boston, June 6-7.
Mississippi State Medical Association, Greenville, May 9-11.
Missouri State Medical Association, Excelsior Springs, May 8-10.
National Assn. for Study and Prev. of Tuberc., Wash., D. C., May 11-12.
National Association for Study of Epilepsy, Detroit, June 16.
Nebraska State Medical Association, Omaha, May 23-25.
New Hampshire Medical Society, Concord, May 16.
New Jersey Medical Society, Spring Lake, June 20-22.
New York State Medical Society, Saratoga Springs, May 16.
North Dakota State Medical Association, Devils Lake, May 10-11.
Ohio State Medical Association, Cleveland, May 17-19.
Oklahoma State Medical Association, Oklahoma City, May 9-11.
Rhode Island Medical Society, Providence, June 1.
South Dakota State Medical Association, Aberdeen, May 23-25.
Texas State Medical Association, Galveston, May 9-11.
West Virginia State Medical Association, Wheeling, May 16-18.

NEW YORK ACADEMY OF MEDICINE

Meeting held April 6, 1916.

The President, DR. WALTER B. JAMES, in the Chair

The Investigation of the Influence of Alcohol on Man, with Special Reference to Psychologic Effects

DR. FRANCIS G. BENEDICT, Boston: The Nutrition Laboratory of the Carnegie Institution has organized and initiated an exhaustive experimental study of the physiologic consequences of the ingestion of small doses of ethyl alcohol in man. The first year's work under the psychologic part of the plan was devoted to an investigation of the effects of alcohol on a selected group of interrelated processes covering the fundamental neural activities at various levels of the cerebrospinal system, from the simplest reflexes of the lumbar cord to the most complex cortical arcs that could be accurately measured by available laboratory technics. The selection of the particular group of neuromuscular processes for measurement was determined by the following experimental demands: (1) the systemic demand for coordinate data covering as many as possible of the fundamental psychophysical operations; (2) the interpretive demand for the least possible inclusion of unknown and uncontrolled factors; (3) the practical demand for natural reaction forms which would be comparable in a large number of individuals without special practice, and would show relatively little practice effect as a result of the experimental repetition, and (4) the technical demand for dependable quantitative methods of stimulation and registration. Of the simple arcs available for experimentation, the patellar reflex and the protective lid reflex were chosen. The measurements of these reflexes included data concerning their latency, the extent of muscle contraction, and the relative duration of the refractory phase. Of the more complex cortical arcs the following were selected: (1) eye reactions to sudden peripheral stimuli; (2) speech reactions to visual word stimuli, and (3) free associations. Sensory changes, coordination, and the reciprocal innervation of the antagonistic muscles of the middle finger were also observed, and finally pulse records were taken either continuously or at homologous points in the various experimental processes.

The subjects consisted of a group of college graduates who were very moderate users of alcohol, and a smaller group of outpatients in the psychopathic hospital who had been under treatment for delirium tremens. The normal base lines in all cases included two normal experimental days for each subject and for each kind of experiment. One normal day came before and one after the experimental days when alcohol was administered. In addition a normal of the day was recorded for each experimental process on the days when alcohol was given. Two doses of alcohol were given, one containing approximately 30 c.c. and the other 45 c.c. of absolute alcohol. All the measurements showed more or less rhythmic variations. The results show two particularly significant marks of reliability: 1. Similar processes are similarly affected and in similar degree. 2. In general, the larger the dose of alcohol, the greater the experimental effect. In the patellar reflex, alcohol increased the latent time 10 per cent., while it decreased the amount of quadriceps thickening 46 per cent. In the protective lid reflex it increased the latent time 7 per cent., while it decreased the extent of lid movement 19 per cent. It increased the latent time of the eye reactions 5 per cent., and that of the speech reactions 3 per cent. Memory and the free associations were only slightly affected. Sensitivity to faradic stimulation decreased 14 per cent. after the ingestion of alcohol. The number of finger movements decreased 9 per cent., and the velocity of eye movements decreased 11 per cent. as a consequence of the ingestion of alcohol. Under all experimental conditions, alcohol produced a relative acceleration of the pulse, but in only a few cases with a large dose did this relative acceleration become a positive acceleration, so that the pulse rate in the periods subsequent to the ingestion of alcohol was faster than during the normal day; but in practically every instance alcohol prevented the regular pulse rate retardation that accompanied the successive periods of mental and physical work on normal days. This relative acceleration averaged approximately 3 per cent.

We made an effort to determine which of the antagonistic heart regulating mechanisms was responsible for the relative acceleration. There was evidence of the paralysis of the inhibitor, but it was probable that various natural and experimental conditions might be found which would shift the preponderance of paralysis to the accelerating mechanism. The small amount of change, its purely relative character, and the probability that other regulating mechanisms were affected doubtless gave the conditions for the confusion of the scientific traditions concerning the effect of alcohol on the pulse rate. The general neuromuscular depression may be regarded as presumptive evidence of the effect of alcohol

on organic efficiency. In none of our data is there any indication of a pure facilitation effect of alcohol. Not only did we find no facilitation of the motor processes, but also the depression of the simplest forms in the finger and eye movements seemed to be one of the most characteristic effects of alcohol. It is exactly these effects which correlated most closely with the average of all the effects for the several subjects. Practically it seems to follow that these processes may serve as a readily accessible indicator of individual susceptibility to alcohol. Theoretically it seems to follow that the effect on the motor coordinations indicates a central tendency of alcohol.

DISCUSSION

DR. C. E. A. WINSLOW, New Haven, Conn.: It is difficult to consider the evidence with reference to alcohol on its merits, since each new fact is likely to be modified by a preconceived picture, of which the center is either the Demon Rum or the genial god Dionysos. Our treatment of alcohol as a habit forming drug is complicated by the fact that there are not only the confirmed addicts to be considered, but those who give way only occasionally to excess, and also the steady, moderate drinkers. If there were signs of opium parlors on every street corner, or if hypodermics were passed at the close of dinner parties, our views of these drugs would be similarly complicated by a century-old atmosphere of respectability, although the danger of habit formation would be quantitatively greater than in the case of alcohol. It is unnecessary to emphasize to physicians the relation of steady drinking to diseases of the liver, kidneys and to mental disease, and its unfavorable influence on the prognosis of such infections as pneumonia. Alcohol in large and continuous doses produces more or less serious pathologic effects, but there are also to be considered the many secondary effects of alcohol in connection with the causes of disease and death. Alcohol plays a large part in automobile and factory accidents. Its relation to venereal disease is far reaching and sinister. The taking of alcohol with meals tends to overeating with its resultant alimentary disturbances and autointoxication. Investigations of English and Scottish life insurance companies, and more recently the medico-actuarial investigation conducted by Arthur Hunter, have measured the net effect of alcohol. The latter study shows a mortality of 86 per cent. in excess of normal among steady users of 2 ounces or more of alcohol a day; 74 per cent. among those who have committed alcoholic excesses within two years; from 32 to 35 per cent. among reformed persons of formerly intemperate habits, and 18 per cent. among moderate steady drinkers (lower limit two glasses of beer or one glass of whisky a day). As to the effect of alcohol on efficiency it may be said that no man about to undertake severe, exact mental work would take a drink of whisky beforehand. When one wants cool, concentrated energy he lays drink aside. The same thing has been clearly indicated by the changed attitude of European nations toward alcohol during the war. No one method of fighting against alcohol can be endorsed, and there are grave criticisms of many of the methods that have been suggested. The best way of restricting the use of alcohol is a problem in itself, but from the standpoint of public health and efficiency that way should be found. Public health departments are not limiting themselves to the prevention of specific diseases and of death, but are developing their work along hygienic lines; not alone in warding off epidemics, but in building up health and vigor. Whether or not this country keeps out of the war with Europe, the world's stage is swept for a conflict of ideals, standards and civilizations. The old ways will no longer serve. There must be national efficiency in a sense never dreamed of before. Alcohol is a serious danger to many, and on the whole a drag and a detriment which takes the keen edge off of national effectiveness. The best way of dealing with the problem should be earnestly sought.

DR. CHARLES STOCKARD: We have been studying the effect of alcohol on the developing embryo and on the descendants of animals treated with alcohol. The first experiments were made on the eggs of fish and of hens. The eggs of the former were placed in a weak solution of alcohol and water, and the eggs never developed normally, the abnormalities being confined chiefly to the central nervous system; 90 per cent. had eye abnormalities. Hen's eggs, if placed over a funnel containing alcohol fumes for a few hours before incubation, developed abnormal chicks. The question whether the embryo developing within the body of the mother can be affected by the mother being treated with alcohol was solved by experiments on guinea-pigs. Experiments were also made to determine the effect on the offspring of the father being treated with alcohol so as to change his cells. The effect was watched for five generations, and comparisons were made with the offspring of the same strain which were not treated with alcohol. A father treated with alcohol was mated with an untreated mother, and vice versa. There resulted an abnormal number of abortions, still births and abnormalities, and there was much abnormal sterility among the children, grandchildren, and even great grandchildren, of alcoholized ancestors. The worst complications resulted from the inbreeding of animals poisoned with alcohol; they produced dwarfs, deformities, paralysis agitans, cyclopean monsters and blindness. Fifteen per cent. of the inbred descendants of alcoholics were defectives; some had no eyeballs, others had only one eye, the optic nerve, optic tract and optic fibers being also lacking. We do not claim that these experiments can be transferred to man; they were made to see if it is possible to control embryonic development, whether defects due to alcohol can be transmitted by male or female or both, and it has been shown that such an effect is possible, whether or not it occurs in man.

DR. BERNARD SACHS: A few months ago we discussed syphilis in its relations to disease, and have emphasized the fact that both these poisons have an effect on the central nervous system. As to alcohol, it is unfortunate that it is not possible through laboratory experimentation to discern, as in syphilis, the early effects on the nervous system. We have no way of determining the effect of alcohol unless the disease has reached a stage where positive symptoms appear. In view of the statements made by Dr. Benedict, it is possible that some day the reaction time of alcoholic individuals may give early warning of impending changes. There is one thing about alcohol which makes it in a sense worse than syphilis; syphilis begins as an exudative process, whereas alcohol incites a destructive process, and produces degenerative disease more effectively and chronically than syphilis, and the effects are as noticeable from the long continued use of moderate doses as from the occasional use of excessive doses. Another unfavorable point is that the signs and symptoms resulting from the use of alcohol persist long after the habit ceases. Alcohol is indulged in to such an extent because of the need of occasional stimulation. It would be well if it were more generally known that the best substitute for alcohol is coffee. On the whole, coffee is not injurious unless taken to excess. It is to be regretted that its value as a stimulant has been greatly underestimated.

DR. HAVEN EMERSON: Though impartiality has been advised in the discussion and the analysis of the facts presented by the laboratory experts, it is difficult for any physician to be impartial if he has treated in homes, dispensaries or hospitals the victims of alcohol. When the title of the Bureau of Infectious Diseases was changed to the Bureau of Preventable Diseases, it indicated a change in the point of view which has been going on through the country in the interests of public health. If one considers the possibility of the prevention of congenital defects of infants due to the use of alcohol by the parents, one must admit that it is within the sphere of public health officials to take up the propaganda against alcohol. It is admitted that the death from infectious diseases is higher among alcoholics; infectious diseases are more readily acquired by alcoholics, and recovery occurs in a smaller ratio among them. This is strikingly illustrated in pneumonia, typhoid fever and septic conditions. The incidence of disease due to alcohol itself, and the results of its use in diseases of the central nervous system and of the assimilative organs, justifies an energetic campaign against its use. The question of economic efficiency cannot be considered as a part of the public health, yet the attitude of

large employers of labor indicates that they are in accord with all efforts to diminish the use of alcohol. At the present time the educational method seems to be the one which will finally prevail; permanent results cannot be accomplished by legislation or police enforcement. The country would respond to educational enlightenment, and the demand for alcohol would diminish as the knowledge of its dangers increases.

Dr. Frederick S. Lee: My study of the effect of alcohol on isolated muscle has yielded positive results. The action of alcohol on muscle varies with the relative quantity of the drug employed. In small quantities ethyl alcohol does not appear to exert any action on the frog's muscle. In medium quantity it exerts a favorable action, which is characterized by a quickening of the contraction, a quickening of the relaxation, a power of making a larger number of contractions and of performing a larger amount of work in a given time, and by a delay in fatigue. This action is exerted directly on the muscle protoplasm itself. In large quantity, ethyl alcohol exerts on a frog's muscle an unfavorable action, which is in general the reverse of that caused by medium quantities of the drug. In moderate quantities, ethyl alcohol when administered to frogs is capable of augmenting the working power of the skeletal muscles.

Dr. John H. Kellogg, Battle Creek, Mich.: From my observations in connection with settlement work in Chicago, and from my experience with chronic invalids from the pernicious effects of alcohol at the Battle Creek Sanitarium, I feel that it will eventually be proved that it is entirely possible to dispense with alcohol as a drug, as the result sought by its use can be better obtained in other ways. The great increase in the chronic diseases seen in this country can to a large extent be attributed to alcohol, especially the increase in diseases of the heart, blood vessels, etc. Dr. Lee's experiments do not seem to have a direct bearing on the use of alcohol by human beings, as they show the effect of alcohol on muscle only, and not on the nerve centers and on the nerves themselves.

Dr. Abraham Jacobi: So many diverse opinions have been expressed, that one or two more will not be amiss. My experience in over fifty years in practice gives strength to my positive assertion that there is no remedy to equal alcohol in cases of mixed infection. There are septic diseases which cannot be treated or cured unless alcohol is given in large quantities. Mixed infections in diphtheria cannot be cured by antitoxin, but treated with large doses of alcohol, the patients may be saved. I have seen many such living, dying, or moribund patients since 1858 who have recovered through taking whisky; they were not guinea-pigs, but human beings.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

April, CLI, No. 4, pp. 469-624

1 *Congenital and Acquired Enuresis From Spinal Lesion. (*a*) Myelodysplasia. (*b*) Stretching of Cauda Equina. W. G. Spiller, Philadelphia.
2 *Gelatinoid Carcinoma (Morbus Gelatinosus) of Peritoneum. T. McCrae and W. M. L. Coplin, Philadelphia.
3 Clinical Relations of Gravity, Posture and Circulation. H. Sewall, Denver.
4 *Fasting Treatment of Diabetes Mellitus, With Special Reference to Acidosis. E. Stillman, New York.
5 Ear Tests of Bárány in Locating Cerebellar and Other Encephalic Lesions. B. A. Randall and I. H. Jones, Philadelphia.
6 *Further Experimentation in Animals With Monilia Commonly Found in Sprue. B. K. Ashford, Porto Rico.
7 Present Status of Electrocardiographic Method in Clinical Medicine. A. E. Cohn, New York.
8 Occurrence of Miliary Tuberculosis of Liver in Course of Pulmonary Tuberculosis. R. G. Torrey, Philadelphia.
9 Analysis of One Hundred and Thirty-Four Cases of Bacteriemia. M. Warren and W. W. Herrick, New York.
10 Diabetes in China. A. C. Reed, Changsha, China.

1. **Enuresis from Spinal Lesion.**—That the enuresis of older children and adults, not necessarily merely nocturnal, may occasionally be a sign of spina bifida occulta, and may exist without other signs or with few signs of this defect, is shown by the cases cited by Spiller. He says that examination of the sacrum and lower lumbar vertebrae by means of the Roentgen rays will readily determine a defect in these parts if it exist, and such a defect should warrant the physician in assuming that much exercise of the lower limbs might be followed by muscular palsy in the peroneal nerve supply. This is one of the cases reported by Spiller. In the second case, the boy had had enuresis for years. A roentgenogram of the sacrum and lower lumbar vertebrae was made. This patient gave no appearance of spina bifida to the sight or touch of the examiner, except some tenderness on deep pressure over the sacrum, but the Roentgen rays showed a serious defect of the sacrum and lower lumbar vertebrae. The paralysis that developed from the comparatively light exercise of a bicycle ride of an hour and a half might have been avoided had the spina bifida occulta been suspected from the persistent enuresis.

2. **Gelatinoid Carcinoma of Peritoneum.**—The main facts in the case cited by McCrae and Coplin are as follows: A male, aged 42 years, with chronic ascites for four years and fifty-seven successful tappings. For three years the fluid showed no peculiar features and then gelatinous colloid-like material appeared and was present for a year until death. During the greater part of this time the patient's general condition was excellent. The liver and spleen showed enlargement at one time and later became reduced in size. Shortly before death many hard, rounded, movable masses were felt in the abdomen. There was intractable diarrhea for the last weeks of life. The gelatinoid material was a mucin-like substance, much like the material known as serosa mucin. It contained 11.5 per cent. of nitrogen and 0.8 per cent. of sulphur. The necropsy did not throw much light on the course of events.

4. **Fasting Treatment of Diabetes Mellitus.**—Twenty-two diabetics were studied by Stillman with reference to the effect of prolonged fasting on acidosis. They were classified into four groups, based on the type of response to prolonged fasting as indicated by the degree of blood alkalinity. The result obtained showed that when the degree of acidosis present is determined daily all cases of diabetes may be treated by the fasting method safely and with benefit.

6. **Experimentation in Animals with Monilia.**—An apparently new species of monilia has been recovered by Ashford from nearly 100 cases of sprue. From careful cultural and morphologic investigations it is a pathogen for current laboratory animals by hypodermic inoculation. When recovered from a patient with sprue and promptly injected into certain laboratory animals it generally produces their rapid death from a mycotic septicemia. When grown for a long time and frequently transplanted the same organism which rapidly killed soon after isolation from a sprue patient seems to partially or completely lose its virulence. This virulence may be recovered by passage through susceptible animals, and even reach such a point as to sicken or kill these animals by continued feeding.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

April, LXXIII, No. 4, pp. 577-768

11 Obstetric or Brachial Birth Palsy. Report of Cases. T. T. Thomas, Philadelphia.
12 Report on Four Cases of Ruptured Pelvis. W. A. Morgan, New York.
13 Neurasthenia in Relation to Gynecology; Report of Cases. R. S. Morton, New York.
14 Relation of Internal Secretions to Neurasthenia in Women. H. R. Harrower, Los Angeles, Calif.
15 Relationship Between Neurasthenia and Pelvic Disease. G. Gibson, Brooklyn.
16 Critique on Inefficiency and Neglect of Surgery of Cervix Uteri. J. W. Bovée, Washington, D. C.
17 *Control of Disagreeable Symptoms of Surgical Menopause by Corpus Luteum Extract. J. C. Hirst, Philadelphia.
18 Indications for Cesarean Section. G. M. Boyd, Philadelphia.
19 Rupture of Uterus During Labor; Report of Two Cases. J. H. Telfair, New York.

20 Ultraviolet Rays in Gynecology; Report of Cases. A. M. Hellman, New York.
21 Four Cases of Extra-Uterine Pregnancy. J. Saliba, Elizabeth City, N. C.
22 Emptying Uterus in Early Stages of Pregnancy by Aid of Pituitary Extract; Report of Two Cases. J. L. Bubis, Cleveland.
23 *Preliminary Report of Routine Wassermann Reaction in Hospital Obstetrics. L. J. J. Commiskey, Brooklyn.
24 Case of Exstrophy of Bladder. L. A. Martel, Washington, D. C.
25 How May We Make Labor More Comfortable? G. Baughman, Richmond, Va.

17. **Control of Symptoms of Surgical Menopause by Corpus Luteum Extract.**—In the surgical menopause Hirst's results with the mouth administration of corpus luteum extract have been distinctly disappointing; intramuscularly by hypodermic gratifying results were obtained as is shown by the report on five cases in which it was used.

23. **Wassermann Reaction in Obstetrics.**—Commiskey's report is based on routine Wassermann tests in 1,822 mothers and 1,074 new-born infants; the larger number of mothers being due to the fact that the women were subjected to the test eleven months earlier than the infants as a routine and also that some women left the institution undelivered. Of the mothers tested, 145 or 8 per cent. were positive, 26 or 1.4 per cent. were doubtful and 11 negatives or 0.6 per cent. had infants whose reactions were either positive or doubtful. Only 26 or 18 per cent. of these women with positive reports gave any history or showed any signs of syphilis; leaving 119 or 82 per cent. with positive reports, who showed neither clinical evidence nor gave a history of the disease. Half of the positive mothers were multiparae and half primiparae. Thirty-three or 25 per cent. received treatment to a greater or less extent. Thirty-three per cent. of the multiparae had previous stillbirths, premature labors, miscarriages or abortions, but this is only 3 per cent. greater than an equal number of negative mothers. As to the particular pregnancy during which the women were examined: 80 per cent. of them went to full term, 75 per cent. of the untreated ones doing so and 81 per cent. of the treated cases, showing a possible 6 per cent. gained by the treatment. A percentage of nine plus had premature labor, 7 per cent. of the untreated and 10 per cent. of the treated. Nine per cent. of the women miscarried, an equal percentage of treated and untreated cases. Of the women, 15 per cent. had stillborn infants, 19 per cent. of the treated cases and 13 per cent. of the untreated cases. Comparing the clinical course of the 145 Wassermann positive mothers with an approximately equal number (200) consecutive cases in which the mother and child were negative, it was seen that there was little effect on the pregnancy except in the production of an increased number of stillbirths. Regarding the 1,074 Wassermanns on new-born infants, 33 or 3.2 per cent. were positive. The 145 positive mothers had 25 or 17 per cent. positive children.

American Journal of Physiology, Baltimore

April, XL, No. 2, pp. 153-371

26 *Effect of Castration on Weight of Pituitary Body and Other Glands of Internal Secretion in Rabbit. A. E. Livingston, Ithaca, N. Y.
27 Factors Affecting Coagulation Time of Blood. Influence of Certain Metals and Electric Current. N. S. Stern, Boston.
28 Vasomotor Summations. E. G. Martin and P. G. Stiles, Boston.
29 Movements of Mitral Cusps in Relation to Cardiac Cycle. A. L. Dean, Jr., New York.
30 Physiology of Mammalian Auricle. Auricular Myogram and Auricular Systole. C. J. Wiggers, New York.
31 Protection of String Galvanometer Circuits Against External Electric Disturbances. H. B. Williams, New York.
32 Action of Potassium Cyanid on Oxygen Consumption. L. H. Hyman, Chicago.
33 Increase of Permeability to Water Following Normal and Artificial Activation in Sea-Urchin Eggs. R. S. Lillie, Woods Hole, Mass.
34 Cardiodynamics in Heart Block as Affected by Auricular Systole, Auricular Fibrillation and Stimulation of Vagus Nerve. R. A. Gesell, St. Louis.
35 *Physiology of Stomach. Secretion of Gastric Juice in Cases of Gastric and Duodenal Ulcers. L. L. J. Hardt, Chicago.
36 *Bile Pigment Metabolism. Bile Pigment Output and Diet Studies. C. W. Hooper and G. H. Whipple, San Francisco.
37 *Id. Bile Pigment Output Influenced by Diet. G. H. Whipple and C. W. Hooper, San Francisco.
38 *Influence of Hypotensive Gland Extracts on Vasomotor Irritability. A. F. Beifeld, H. Wheelon and C. R. Lovellete, Chicago.
39 Origin of Antibodies of Lymph. F. C. Becht and A. B. Luckhardt, Chicago.

26. **Effect of Castration on Glands of Internal Secretion.**—From the results of the experiments described by Livingston the following conclusions for the rabbit are drawn. There is no constant sex difference in the weight of the hypophysis. Neither males nor females show a constant hypophyseal hypertrophy following castration or spaying. The females may be regarded as showing a more constant response by the hypophysis after spaying than is to be seen among the males after castration. From the curves of growth corresponding to each group there is a constant relationship between the rate of increase in body weight and the response of the hypophysis to castration or spaying. There is less hypertrophy of the hypophysis in those groups which show an increase in rate of growth. In groups in which no effect can be shown on the rate of growth a distinct hypertrophy of the hypophysis is constant though in no case is it very marked. A marked atrophy of the uterus follows removal of the ovaries from females. No change in the weight of the heart or the kidneys can be attributed to castration or spaying. No change can be demonstrated in the thyroid with the possible exception of a moderate decrease in males after castration. The suprarenals show no marked effect. In the males a tendency toward enlargement follows castration, which does not appear after spaying females. No conclusions were reached as to the effect of castration or spaying on the thymus, or pineal gland.

35. **Gastric Juice in Gastric and Duodenal Ulcers.**—Hardt found that feeding excessive amounts of desiccated thyroid depresses the rate of secretion and concentration of acidity in the gastric juice during the first hour after feeding. The results of Steinharter ("The production of acute ulcers in rabbits by intravenous injection of *B. coli*") were not confirmed by Hardt. Gastric and duodenal ulcers were produced in dogs by intravenous injections of streptococci isolated from gastric ulcers in man, dog, sheep and cattle. This is a confirmation of the work of Rosenow. Hardt claims that there is no "hyperacidity" in the gastric juice following the experimental production of gastric ulcers. Gastric and duodenal ulcers may or may not result in a continuous hypersecretion together with a hypersecretion after eating.

36. **Bile Pigment Output and Diet Studies.**—The authors' experiences with bile fistula dogs indicate that bile is essential for the life of the animal on a mixed diet of meat, bones and bread. If bile is wholly excluded from the intestinal tract, the dog loses ground steadily, shows intestinal disorders accompanied by blood in the feces, and usually within a month dies with peculiar symptoms of intoxication. Fresh pig's bile given by stomach tube and dried ox bile given in capsules will sometimes improve the condition but not to any notable degree. Fresh dog's bile mixed with the food will sometimes give good results if the dog will eat the mixture. Given by stomach tube the results are not favorable. Cooked liver added to a mixed diet usually keeps the dog in good healthy condition for a long period of time. At present the authors are not prepared to explain this observation, but the fact may have some clinical application. Under very uniform conditions the bile pigment excretion may form a pretty uniform curve, and experimental variations under such circumstances will have some value. The usual average bile pigment excretion amounts to 1 milligram per pound body weight per six hours.

37. **Bile Pigment Output Influenced by Diet.**—Whipple and Hooper believe established the fact that carbohydrates stimulate the excretion of bile pigments in bile fistula dogs, but a convincing explanation of this phenomenon they cannot bring forward at this time. More work is required. It is at least possible that the liver has some constructive ability in pigment formation which can be modified by diet. It is also possible that the liver may be concerned in building up other body pigments than bilirubin—for example, hemoglobin.

38. **Effect of Gland Extracts on Vasomotor Irritability.**—Various pancreas and salivary gland preparations administered by the authors caused a vascular depression. This was associated with a decreased reaction to epinephrin, but with

an augmented reaction to nicotin. Such extracts cause therefore, an augmented irritability of the vasoconstrictor centers.

Archives of Internal Medicine, Chicago

April, XVII, No. 4, pp. 459-590

40 *Studies of Edema in Pneumonia. M. E. Maver and A. B. Schwartz, Chicago.
41 *Hypoglycemia and Progressive Muscular Dystrophy. R. H. McCrudden and C. S. Sargent, Boston.
42 *Clinical Study of Delayed Gastric Emptying. I. H. Levy and J. L. Kantor, Syracuse, N. Y.
43 *Studies of Biologic Methods for Diagnosis of Tuberculosis. J. Bronfenbrenner, M. H. Kahn, J. Rockman and M. Kahn, Pittsburgh.
44 *Two Additional Cases of Miliary Tuberculosis of Placenta With Clinically Latent Tuberculosis of Mother. C. V. Weller, Ann Arbor, Mich.
45 Progressive Lipodystrophy; Report of Case. C. Herrman, New York.
46 *Study of Buffer Value of Blood. R. L. Levy, Baltimore, and L. G. Rowntree, Minneapolis.
47 Adaptation of Erlanger Capsule to Any Polygraph for Obtaining Arterial Pulse Records. R. H. Halsey, New York.
48 *Study of Blood in Hemophilia. S. H. Hurwitz and W. P. Lucas, San Francisco.
49 *Significance of Uric Acid, Urea and Creatinin of Blood in Nephritis. V. C. Myers, M. S. Fine and W. G. Lough, New York.
50 *Effects of Suprarenal Feeding. R. G. Hoskins and A. D. Hoskins, Chicago.

40. **Edema in Pneumonia.**—Having invariably found the presence of some edema in pneumonia by means of the elastometer, Maver and Schwartz undertook to correlate, if possible, these findings with chlorid determinations of the blood and urine. In twenty-two observations of the chlorids in the blood serum, made in seven cases of lobar pneumonia, their results confirm those of McLean regarding the diminished concentration of chlorin in the plasma during the height of the fever, with increased concentration after crisis. While the increased concentration of NaCl in the blood occurs almost immediately after crisis, there does not seem to be a corresponding change in the elasticity of the tissues, as determined on the wrist by the elastometer. The return to a normal concentration of NaCl in the blood serum usually occurs long before the elasticity curve has reached a normal state.

41. **Hypoglycemia and Progressive Muscular Dystrophy.**—McCrudden and Sargent made urine and blood examinations in a typical case of progressive muscular dystrophy which was being studied clinically. The creatinin excretion was normal; large amounts of creatin were found in the urine; the ammonia excretion was low; there was no evidence of acidosis; the amount of sugar in the blood was low; the cholesterin content of the blood was low. A relationship between sugar content of the blood and ingestion of food suggested the possibility of a decreased power to store glycogen. Treatment which increased the glucose and cholesterin content in the blood led to improvement in the clinical condition.

42. **Delayed Gastric Emptying.**—The immediate causes of delayed gastric emptying and their relative frequency according to Levy and Kantor are: (*a*) spasm of pylorus in 58.8 per cent. of the cases, (*b*) obstruction at pylorus in 22.2 per cent., (*c*) atony of stomach in 17 per cent. The conditions most commonly predisposing to or associated with delayed gastric emptying are: (*a*) ulcer in about 50 per cent. of the cases, (*b* and *c*) autointoxication and gastric cancer, each 7.5 per cent., (*d*) ptosis with atony, 7 per cent., (*e*) cholelithiasis, 3.7 per cent. The causes of delayed gastric emptying are located in the stomach in 75.3 per cent. of the cases, elsewhere in the digestive tract in 10.3 per cent., and outside the digestive tract in 13.4 per cent.

43. **Biologic Method for Diagnosis of Tuberculosis.**—Attempts to study further the value of biologic methods of diagnosis of tuberculosis led the authors to the following conclusions: Different samples of tuberculin of Besredka, though apparently identical in the mode of their preparation, may differ among themselves in their specific values. The most striking variation is in the amount of lipins contained in tuberculin. It is necessary to free each sample of tuberculin of all its lipin fraction before using such tuberculin for the complement deviation test. It seems that different samples of tuberculin may vary also qualitatively. The variation rests apparently on the fact of the existence of strain specificity in the antibody. The existence of strain specificity in tuberculosis may explain why the results obtained by different investigators in the complement deviation test for diagnosis of tuberculosis vary so much. The tuberculin of Besredka seems to give the best results in diagnosis by the complement deviation test. Even though the test is positive in a certain number of clinically nontuberculous cases, the reaction seems to be specific. In at least 87 per cent. of such cases the fixation was obtained also with one or more preparations of tuberculosis other than that of Besredka.

44. **Placental Tuberculosis.**—The two cases of placental tuberculosis reported by Weller were discovered in the routine microscopic examination of the placentas. The mothers did not have clinically recognizable lesions at the time of delivery, but in one case an active pulmonary tuberculosis later developed. The other case became latent after the birth of the child. These cases are offered as additional proof of the fact that even an incipient and unrecognizable tuberculosis may be so influenced by pregnancy as to cause a placental, and therefore potentially a fetal, miliary tuberculosis.

46. **Buffer Value of Blood.**—This paper by Levy and Rowntree is based on a study of sixty-five cases, involving considerably more than 100 buffer determinations. The method used consists in adding increasing amounts of fiftieth-normal hydrochloric acid and fiftieth-normal sodium hydroxid solution to equal quantities of blood and observing the resulting changes in hydrogen ion concentration by means of the dialysis indicator method. The results are expressed in terms of cubic centimeters of fiftieth normal acid or alkali per 2 c.c. of blood. In certain cases with normal pH of the blood, but showing a tendency toward the development of an acidosis (as evidenced, for example, by lowered alveolar carbon dioxid tension), the buffer values were diminished. The loss of buffer for alkali was far more striking and frequent than for acid, and was often associated with lowered alveolar carbon dioxid tension. As a result of therapy, especially the use of alkali, the buffer values in some instances returned to normal. In a series of cases of acidosis the average buffer values were found to be markedly diminished, particularly during the stage in which the pH of the blood was abnormally high. Normal buffer values may be encountered, however, in the presence of a true acidosis. Coincident with clinical improvement following treatment, particularly intensive alkali therapy, both pH and buffer values approximated or became normal in several cases. It was not possible to supply buffer to the blood by the injection of phosphate mixtures. By the intravenous injection of third-normal hydrochloric acid and 4 per cent. sodium bicarbonate solution into dogs, conditions of acidosis and alkalosis were produced which were inconstantly accompanied by changes in the buffer values of the blood.

48. **Blood in Hemophilia.**—The essential defect of hemophilic blood, which accounts for its delayed coagulability, Hurwitz and Lucas believe is a diminution of the circulating prothrombin. The other two fibrin factors, antithrombin and fibrinogen, are present in normal amounts. Wide fluctuations may be observed in the prothrombin content of hemophilic plasma both during the hemorrhagic and interhemorrhagic periods. No definite relationship can be shown to exist between the extent of the prothrombin deficiency and the gravity of the clinical symptoms. Oral, subcutaneous and intramuscular injections of kephalin have no effect on the disease process. Kephalin applied locally to the bleeding wounds of hemophilics brings hemorrhage to an early arrest. Because of its great hemostatic properties and its thermostability kephalin deserves an important place in the treatment of bleeding from external wounds. Suberythema doses of Roentgen rays do not influence the disease process: no alteration was noted either in the coagulability of the blood or in the prothrombin-antithrombin balance.

49. **Significance of Uric Acid, Urea and Creatinin of Blood in Nephritis.**—A series of thirty cases are recorded by the authors with high values for the uric acid of the blood, but without a corresponding retention of urea and creatinin. These cases were apparently suffering from "early interstitial nephritis," probably secondary in many instances to other systemic disturbances. Since the blood urea was not markedly increased or the phthalein output markedly decreased (in certain cases), it is believed that the uric acid was of considerable value as an early diagnostic test. The possibility is further suggested that a retention of uric acid may be earlier evidence of renal impairment of an interstitial type than the classical tests of albuminuria and cylindruria.

50. **Effects of Suprarenal Feeding.**—Forty-five white rats were fed desiccated suprarenal by the Hoskins' for varying periods from two to nine weeks. Twenty-six animals from the same litters were kept as controls. The rate of growth and the weights of various glands were determined in each series. No differences in the two series could be detected in kidneys, heart, hypophysis, thyroid, thymus or suprarenals. The spleens of the experimental series were somewhat smaller than those of the controls, but highly variable. The ovaries in the few cases studied were larger in the experimental series. The testes (twenty-six experimental, thirteen control) showed hypertrophy. These results in confirmation of clinical evidence indicate that the suprarenals exert a stimulating effect on the testes.

Annals of Surgery, Philadelphia

April, LXIII, No. 4, pp. 385-512

51 Acidosis in Surgery. G. W. Quillian, Atlanta, Ga.
52 Case of Pulsating Exophthalmos. G. B. Rhodes, Cincinnati.
53 Operation for Removing Gallbladder. J. B. Deaver, Philadelphia.
54 Acute Operative Dilatation of Stomach; Report of Fatal Case. B. J. Lee, New York.
55 Inefficacy of Pyloric Exclusion by Fascial Bands. H. Neuhof, New York.
56 *Postoperative Intestinal Obstruction. C. L. Gibson, New York.
57 Prevention of Fecal Fistula in Suppurative Appendicitis. D. Guthrie, Sayre, Pa.
58 *Clinical and Pathologic Observations on Giant-Cell Medullary Bone Tumors. F. R. Haussling and H. S. Martland, Newark, N. J.
59 *Transplantation of Bone in Ununited Fractures of Shaft of Humerus. M. S. Henderson, Rochester, Minn.
60 *Osteomyelitis Involving Hip Joint. J. E. Moore, Minneapolis.
61 Legal Responsibility to Surgeon and Practitioner Which Use of Roentgen-Ray Involves. E. Eliot, Jr., New York.

56. **Postoperative Intestinal Obstruction.**—Gibson holds that in paralytic ileus enterostomy should not be resorted to until a trial with pituitary extract has been made. He has used it frequently since 1912 and is firmly convinced of its value. He administers it hypodermatically in the muscles, giving 1 c.c. and repeating every hour up to three doses; subsequent doses two hours apart. He has never given more than five doses in twenty-four hours. For cases of the milder variety the second injection usually brings about the passage of gas in considerable quantities and often causes a spontaneous stool. The effects may be reenforced by a suitable enema.

58. **Giant-Cell Medullary Bone Tumors.**—Two cases are cited by Haussling and Martland. The first patient presented multiple expansive bone tumors, the clinical picture resembling that of multiple myeloma; the microscopic appearance of the tumors, however, was that of the so-called medullary or myelogenous giant-cell sarcoma of chronic nonsuppurative osteomyelitis of Barrie. The tumors are too numerous to consider trauma as an etiologic factor. Although the disease is undoubtedly not arrested, as is conclusively shown by the appearance of new lesions, there has been up to the present time no tendency for the growths to break through their bony covering, or infiltrate the surrounding soft parts or form metastases. Nor has the patient's general health deteriorated. The second patient presents an expansive tumor involving the lower end of the right tibia, of over eight years' duration, which on microscopic examination shows the typical picture of the so-called medullary or myelogenous giant-cell sarcoma. The authors are of the opinion that the clinical history, operative findings and microscopic appearance undoubtedly classify this case under the heading of chronic nonsuppurative osteomyelitis (Barrie), synonyms, giant-cell sarcoma, myeloma and giant-cell tumor (Bloodgood). While there has been a fairly active and very persistent tendency to local recurrence, metastases have not occurred, and the man after a period of eight and one-half years is still in excellent health without pain and able to do his work.

59. **Bone Transplant in Ununited Fractures of Humerus.**—Henderson reports ten cases. He emphasizes the value of the inlay method as being greater than that of the intramedullary method and insists that the transplant must be as large as is practical (6 inches by ½ inch or larger). It must extend well past the thinned decalcified ends into the hard, healthy bone beyond. The short transplant is held responsible for failures. Adequate postoperative fixation is essential. A split plaster-of-Paris spica prepared a few days before the operation is fastened on with adhesive strips immediately after the operation is completed, thus eliminating the difficulty of applying the spica and the danger of disturbing the graft thereby. Two or three weeks later when the wound has healed and the stitches have been removed, a new cast is applied with the patient sitting up. Henderson thinks it is an advantage to remove the bone graft from the flat internal surface of the tibia. The strong crest of the bone is left to perform its important weight bearing function. The patient may be allowed to walk in from twelve to fourteen days. At this time the blood clot filling in the bony defect has become sufficiently organized so that no hemorrhages will occur on the use of the leg.

60 Abstracted in THE JOURNAL, Jan. 15, 1916, p. 218.

Arizona Medical Journal, Phoenix

March, IV, No. 3, pp. 1-16

62 Arizona State Laboratory. C. A. Meserve, Tucson.
63 Do We Need More Health Legislation? E. S. Godfrey, Phoenix.
64 Social Aspects of Tuberculosis Problem in Arizona. A. H. Williams, Phoenix.

Boston Medical and Surgical Journal

April 13, CLXXIV, No. 15, pp. 519-554

65 Progress of Nursing. W. H. Merrill, Lawrence.
66 What Shall Be Attitude of Public Toward Recovered Insane Patient? H. C. Solomon, Boston.
67 Relation of Syphilis to Mental Disease. S. T. Orton, Philadelphia.
68 After-Care of Mental Patients. (To be continued.) H. P. Frost, Dorchester.
69 Results of Roentgenoscopic Examination of Stomach and Duodenum in Seven Hundred and Thirty Cases. G. W. Holmes, Boston.
70 *Incidence of Visceroptosis. I. H. Levy and J. L. Kantor, Syracuse, N. Y.

70. **Incidence of Visceroptosis.**—In a series of 898 patients with digestive symptoms, examined roentgenographically by Levy and Kantor the incidence of gastroptosis was 64.4 per cent. Marked gastroptosis occurred in 46.4 per cent. of the cases. The condition was only slightly more frequent in women than in men, the proportion being about 6 to 5. The condition occurred more often in individuals under 40 years than in those 40 or over, and this relationship held for both sexes. Gastroptosis was more frequent in single than in married women, in the proportion of about 13 to 12. Practically all single women over 40 were ptotic. In addition to gastroptosis, these patients had ptosis of other organs (demonstrable by Roentgen ray or palpation) as follows: liver 77 per cent., right kidney 30 per cent., heart 22 per cent., both kidneys 3 per cent., spleen 1 to 2 per cent. This clinical study, Levy and Kantor says does not support the view that visceroptosis can be ascribed to improper garments, the occurrence of pregnancy, or to any other incidental cause. It seems that the condition is intimately related to the structure of the body, and probably arises from some congenital predisposition.

Bulletin of Lying-In Hospital of City of New York

April, X, No. 3, pp. 131-208

71 Obstetrics as It Was; as It Is; as It Should Be. E. G. Zinke, Cincinnati.
72 Spina Bifida in New-Born. J. A. Harrar, New York.
73 Open-Air Treatment in Surgery. J. W. Markoe, New York.
74 Case of B. Aerogenes Capsulatus Sepsis. M. Rosensohn, New York.
75 Two Cases of Accidental Hemorrhage. L. A. Wing, New York.
76 *Unusual Case of Rupture of Uterus. J. W. Markoe, New York.

77 *Case of Spontaneous Rupture of Uterus. R. McPherson, New York.
78 Report of Work Done in Babies' Class From October 1, 1914, to September 30, 1915. E. L. Coolidge, New York.
79 *Abderhalden Reaction. D. D. Van Slyke, M. Vinograd-Villchur and J. R. Losee, New York.
80 *Report of Two Unusual Complications of Pregnancy. R. McPherson, New York.
81 Report for 1915 of Pathologic Department of Lying-In Hospital. J. R. Losee, New York.

76. **Rupture of Uterus.**—In the case reported by Markoe the uterus seems to have held the pregnancy for about five months and then without any definite history of particular strain, the entire fundus of the uterus ruptured with the result that the fetus in its membranes passed into the general peritoneal cavity without any rupture of the membranes. From the history of the case it would seem that the fetus remained alive for some considerable time afterward.

77. **Spontaneous Rupture of Uterus.**—McPherson's patient five months pregnant was seized with sudden sharp abdominal pain and felt somewhat faint. There was no accident, fall, blow or other emergency to account for these symptoms. Although feeling rather uncomfortable she continued about her work. Late that night she felt much worse and continued to get worse until on the evening of the next day she was in extreme shock. Under the very lightest kind of ether anesthesia, the abdomen was opened, and the cavity found entirely filled with blood. A five months fetus was free in the cavity and attached by the umbilical cord to the placenta which was still in the uterus. The uterus was ruptured transversely across the fundus.

79. **Abderhalden Reaction.**—Practically every serum examined by the authors, whether from a pregnant or a nonpregnant individual, showed protein digestion when incubated with placenta tissue prepared according to Abderhalden. There is a tendency for the results from the pregnant serum to average somewhat higher than those from nonpregnant. The difference, even in the averages, is not great, however; and the individual variations of both pregnant and nonpregnant serums make the results from both overlap so completely as to render the reaction, even with quantitative technic, absolutely indecisive for either positive or negative diagnosis of pregnancy.

80. **Complications of Pregnancy.**—The first case cited by McPherson was one of intestinal obstruction from bands; the second was a chronic uterine wall abscess from suture material.

Georgia Medical Association Journal, Augusta

April, V, No. 12, pp. 179-203

82 Iris Injuries and Anomalies. C. Stockard, Atlanta.
83 Plea for Prevention of Infant Blindness and Protest Against Optometry. A. Mason, Waycross.
84 Some Points in Technic of Submucous Resection of Nasal Septum. N. Craig, Atlanta.
85 Modification of Sluder Method of Tonsil Enucleation. W. Lapat, Savannah.
86 Why Are Refraction of Eyes and Prescribing of Lenses Medical Problem? R. P. Cox, Rome.
87 Empyema of Maxillary Antrum. J. M. Smith, Valdosta.
88 Tonsils. S. T. Carswell, Brunswick.
89 Physician as Factor in Social Welfare From Viewpoint of Laity. G. A. Cornell, Douglas.
90 Few Suggestions From Registered Nurse. R. R. Kuhn, Waycross.

Journal of Biological Chemistry, Baltimore

April, XXIV, No. 4, pp. 423-543

91 *Occurrence and Determination of Creatin in Urine. F. H. McCrudden and C. S. Sargent, Boston.
92 Certain Data on Content of Cholesterol and Fatty Substances in Blood; Modification of Colorimetric Method for Estimating Cholesterol. F. A. Csonka, Pittsburgh.
93 Determination of Creatin in Muscle. L. Baumann and H. M. Hines, Iowa City, Iowa.
94 Some Indicators From Animal Tissues. W. J. Crozier.
95 Fat Assimilation. W. R. Bloor, Boston.
96 *Origin of Nitrates in Urine. H. H. Mitchell, H. A. Shonle and H. S. Grindley, Urbana, Ill.
97 Dietary Factors Operating in Production of Polyneuritis. E. V. McCollum and C. Kennedy, Madison, Wis.
98 Colorimetric Method for Estimation of Amino-Acid a-Nitrogen. Application to Hydrolysis of Proteins by Pancreatic Enzymes. V. J. Harding and R. M. MacLean, Montreal.
99 Improved Gas Chain Methods of Determining Hydrogen Ion Concentration in Blood. J. F. McClendon, Minneapolis.
100 Some Color Reactions for Indole and Scatole. V. E. Nelson, Madison, Wis.
101 Indole in Cheese. V. E. Nelson, Madison, Wis.

91. **Creatin in Urine.**—One important observation made by McCrudden and Sargent is that human urine contains a substance or substances other than creatin which can give a color reaction similar to that of creatinin on boiling with picric acid, and which, therefore, may appear in the results as creatin.

96. **Nitrates in Urine.**—The experiments described by the authors indicate in most cases beyond reasonable doubt, that the animal body may excrete in the urine more nitrate than is ingested in the food. There are two possible explanations of the source of the excess of nitrate appearing in the urine over the nitrate ingested with the food. It is conceivable that the nitric and nitrous acids in the air may gain access to the blood in the lungs and ultimately find their way to the urine. Some investigations by Lassar, confirmed by Spiegel, indicate however, that nitric acid fumes are irrespirable. Furthermore, assuming a perfect permeability of the lungs to nitric acid, the quantity in which it occurs in the air seems entirely too small to account for the discrepancies observed. The other possible explanation is that the body tissues are able to produce nitrates from unoxidized nitrogenous radicles. The production of nitrates by animal tissues is unique in being the only well established instance of the oxidation of nitrogen, aside from the conversion of nitrites to nitrates, which is apparently a reversible reaction. Further investigation is promised.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

March, VIII, No. 3, pp. 137-173

102 *Effect of Drugs on Inflammation of Frog's Mesentery. Y. Ikeda, Cambridge.
103 Segmental Action of Strychnin. H. McGuigan, R. W. Keeton and L. H. Sloan, Chicago.
104 *Pharmacology of Ureter. Action of Epinephrin, Ergotoxin and of Nicotin. D. I. Macht, Baltimore.
105 Rôle of Liver in Acute Polycythemia. Effect of Epinephrin and Emotional Stimuli on Red Corpuscle Content of Blood in Rabbits. P. D. Lamson, Baltimore.

102. **Effect of Drugs on Frog's Mesentery.**—The results of Ikeda's experiences may be summarized as follows: Drugs producing marked inhibition of leukocytic migration: quinin, atophan, mercury perchlorid, arsenic, antipyrin, morphin, chloral, calcium chlorid. Drugs producing only slight inhibition: ethylhydrocuprein, urethane. Drugs producing no inhibition: Cinchonin, scopolamin, atropin, strophanthin, colchicum, sodium salicylate, magnesium sulphate. Certain drugs, as quinin and atophan, when combined show a synergetic action in inhibiting the migration of leukocytes.

104. **Action of Epinephrin, Ergotoxin and Nicotin on Ureter.**—The effect of drugs on the ureter was studied by Macht by the use of longitudinal strips and rings of the ureters of pigs and oxen. He found that epinephrin increases the rate of ureteral contractions and the tonus of the ureter, larger doses inducing a condition of tonic spasm or tetanus. The action of epinephrin is reversed after previous administration of ergotoxin. The effect of nicotin on the ureter is a primary stimulating and secondary paralysis, and is a strong corroboration of the existence of ganglion cells. The same results were obtained with the human ureter from a case of nephrectomy.

Medical Record, New York

April 15, LXXXIX, No. 16, pp. 677-718

106 Significance of Hemorrhage in Operations on Nose and Throat. F. J. Quinlan, New York.
107 Arterial Degeneration. C. E. Nammack, New York.
108 Practical Scheme to Improve Physique of Americans. R. C. Newton, Montclair, N. J.
109 *Method of Transfusion of Blood Treated With Sodium Citrate. G. A. Rueck, New York.
110 Case of Polycythemia Vera. G. A. Friedman, New York.
111 Significance of Hemorrhoids. A. H. May, Buffalo.
112 *Dilated Heart as Sign of Early Apical Pulmonary Tuberculosis. M. Grossman, Brooklyn.

109. **Method of Transfusion of Blood Treated with Sodium Citrate.**—The blood of a human donor is kept liquid by Rueck by means of a 2 per cent. sodium citrate solution and this mixture is injected intravenously into a recipient. The method is described in detail.

112. **Dilated Heart as Sign of Early Pulmonary Tuberculosis.**—Grossman claims to have noticed in apparently strong, able-bodied individuals, where there was as yet no sign of the general physical condition being below par, that one of the earliest signs, in many cases long before the lungs showed the onset of apical pulmonary tuberculosis, was a diffuseness of the apex beat, meaning commencing dilatation of the heart. This dilatation of the heart may, under proper hygienic and tonic treatment, become so improved as to be almost absent in arrested first stage conditions. Here it would show the tubercle bacilli were not active or had been gotten under the control. But no sooner does the tuberculous process become active again than dilatation of the heart becomes apparent once more, and continues throughout the case.

Missouri State Medical Association Journal, St. Louis

April, XIII, No. 4, pp. 149-196

113 Deafness Due to Syphilis. S. E. Roberts, Kansas City.
114 New Public Health. S. J. Crumbine, Topeka, Kan.
115 Drug Addiction. M. W. Hoge, St. Louis.
116 Diagnosis of Disease, Greatest Necessity of Age. J. H. Walton, Windsor.
117 Empyema. B. A. Poorman, Kansas City.
118 Unilateral Renal Hematuria. C. M. Nicholson, St. Louis.
119 Brain Tumor; Hemangio-Endothelioma; Decompression; Removal of Tumor; Cure. W. B. Burns, Memphis, Tenn.
120 Case of Large Echinococcus Cyst. W. Kerwin, St. Louis.
121 Roentgen Bismuth Injection of Rectal Fistula. E. H. Skinner, Kansas City.

New York Medical Journal

April 8, CIII, No. 15, pp. 673-720

122 Serology and Diagnosis of Syphilis. M. L. Heidingsfeld, Cincinnati.
123 Thymic Disturbance in Adult. G. H. Hoxie, Kansas City, Mo.
124 Colloidal Solutions of Silicic Acid. S. P. Kramer, Cincinnati.
125 Unresolved Pneumonia. A. J. Quimby and W. A. Quimby, New York.
126 Management of Breech Presentation. J. C. Applegate, Philadelphia.
127 Malingerer. D. H. Williams, Chicago.
128 Beriberi. S. B. Doyle, New York.
129 Is Plastic Surgery Lost Art? J. W. Kennedy, Philadelphia.

April 15, No. 16, pp. 721-768

130 Public Health Laboratories. R. G. Perkins, Cleveland.
131 Pyelocystitis and Metastatic Abscesses Following Tonsillitis. H. B. Mills and G. A. Sowell, Philadelphia.
132 Blood Letting (Leeches) in Uremia. B. Robinson, New York.
133 Tuberculin in Surgical Tuberculosis. E. Bonime, New York.
134 Episiotomy. G. L. Brodhead, New York.
135 Malnutrition. I. S. Wile, New York.
136 Anaphylactic Conditions of Respiratory Tract. A. C. Howe, New York.
137 Physiology in Consideration of Constipation. A. C. Geyser, New York.
138 Disputed Point in Appendicitis. C. U. Collins, Peoria, Ill.

Ophthalmic Record, Chicago

April, XXV, No. 4, pp. 163-216

139 Fundamentals of Achromatism. C. F. Prentice, New York.
140 Pasteurization in Treatment of Corneal Ulcers. A. E. Prince, Springfield.
141 New Operation for Retention of Movable Stump as Substitute for Enucleation. V. Ray, Cincinnati.
142 Conjuctivitis and Keratitis From Poison Ivy. J. W. Sherer, Kansas City, Mo.
143 Spectacle Glass Injury. H. S. Gradle, Chicago.
144 Sympathetic Uveitis. R. O'Connor, Oakland, Calif.
145 Loaf Sugar Used to Lacerate Trachoma Granules at Same Time Serving as Sponge. F. G. Murphy, Mason City, Iowa.
146 Trachoma. S. R. Edwards, Calumet, Mich.

Public Health Journal, Toronto

April, VII, No. 4, pp. 175-228

147 Personal Preparedness for Disease Prevention. D. B. Armstrong, New York.
148 Practicing Physician; His Relation to Public Health Administration. J. W. Trask, Washington, D. C.
149 Field Work of Ontario District Medical Officer of Health. R. E. Wodehouse, Fort William, Ont.
150 Child Welfare. J. Thomson, Edinburgh.
151 Four Ages of Woman. J. Martin.
152 Sanitary Conditions in Rural Schools. T. J. McNally, Ontario.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Lancet, London

March 25, I, No. 4830, pp. 657-710

1 *Nervous and Other Medical Disorders as Seen at an Eye Hospital. J. Taylor.
2 *Camp Jaundice and Paratyphoid Epidemic at Dardanelles. A. Sarrailhé and J. Clunet.
3 Pain in Renal and Vesical Lesions. (To be continued.) D. Newman.
4 Aluminium Splint for Fractured Humerus. C. Mackenzie.
5 Food Economics in Relation to War. H. Campbell.
6 Case of Hermaphroditism. J. E. Middlemiss.
7 Appendicitis with Cecum on Left Side. G. W. Christie.
8 Case of Ectopic Gestation and Appendicitis. F. M. Neild.

1. **Nervous Disorders as Seen at an Eye Hospital.**—Taylor analyzed cases he saw at Moorfields during the last five years. Two hundred and thirty-three patients came on account of failing vision associated with optic atrophy. In over 200 of these cases there were definite signs of tabes or general paralysis of the insane, sometimes only the Argyll Robertson pupil—in one case on one side only, sometimes only the absence of knee jerks and lightning pains, sometimes both these conditions, occasionally gastric crises. In only two was ataxy complained of, and in only one was it very marked. Signs indicative of general paralysis were present in only three or four cases. In a few cases the optic atrophy was the result of retrobulbar neuritis, and in many of these signs indicative of disseminated sclerosis were present. In another class of cases there was evidence of lesion at the optic chiasma. In a few the condition is a toxic one—the result of tobacco, often with the addition of alcohol. There were three cases of family optic atrophy. There were sixty-two cases of ocular paralysis; in by far the largest number the third nerve was affected. In a few the sixth only was affected. Taylor saw thirteen cases of myasthenia gravis causing diplopia also cases in which the diplopia was caused by Graves' disease. He is convinced that diplopia is more frequent in Graves' disease than is generally recognized. Cases of hemianopia, retinitis, retinal embolism and thrombosis and optic neuritis are also cited.

2. **Camp Jaundice at Dardanelles.**—Typical bacteria which presented somewhat discordant reactions on lead agar and neutral red, and especially turned the Petruschky medium, while otherwise they behaved like paratyphoid B, were discovered by Sarrailhé and Clunet in cases of so-called camp jaundice. Their appearance coincides with the appearance of the jaundice, and, in fact, in almost all jaundice patients and those affected by febrile gastric derangement during the epidemic of jaundice the authors find that variety of atypical germs which approaches sometimes the paratyphoid A, sometimes the paratyphoid B, but presents certain characteristics in presence of serum reactions. They call them provisionally, for the sake of brevity, by the name of paratyphoid, species Dardanellensis, or species D. A further study of this germ is being made.

Archives de Médecine des Enfants, Paris

March, XIX, No. 3, pp. 113-168

9 Defective Development and Debility in Infants. (Des hypotrophies et des cachexies des nourrissons.) Nobécourt.
10 *Congenital Muscular Atony; Two Cases. (Deux cas de maladie d' Oppenheim dont un avec compte rendu anatomo-pathologique.) S. de Villa (Rome).
11 Blue Disease in Child With Inherited Syphilis. (Maladie bleue d' origine syphilitique.) E. Jeanselme.

10. **Oppenheim's Disease.**—De Villa's two cases confirm in every respect Concetti's conclusions based on sixty-eight cases of congenital atony of muscles, including sixteen examined postmortem. The cause is evidently arrested or retarded development, during intra-uterine existence, of the cells of the anterior cornua of the spinal cord. The lesions may extend beyond these cells and may even invade the brain, the cerebellum, peripheral nerves and muscles, but the tendency is toward progressive improvement. The asthenia of the organs of respiration, however, usually entails an early fatal termination.

Bulletin de l'Académie de Médecine, Paris

March 14, LXXV, No. 11, pp. 287-320

12 *Gold Plate to Close Defect in Skull. (Cas d'obturation d'une large perte de substance de la voute cranienne par une plaque d'or. Examen anatomique au bout de 10 ans.) Capitan and Delair.

13 Bacteriologic Findings in Stools of Soldiers Returning From the Dardanelles. (Résultats de l'analyse bactériologique des selles dans 217 cas de dysenterie provenant du corps expéditionnaire d'Orient.) Tribondeau and Fichet.

14 *Walled-Off Cerebrospinal Meningitis. (Les méningites cérébro-spinales cloisonnées et leur traitement par la trépanation et l'injection de sérum intraventriculaire.) M. Labbé, Zislin and Cavaillon.

12. **Gold Plate in Skull for Ten Years.**—Capitan and Delair found a large gold plate in the skull at necropsy of a soldier who had died with symptoms of meningitis. The plate was 0.0013 mm. thick and weighed 47 gm. when first inserted. It was studded with 3 mm. holes and the scalp had grown into these holes during the ten years the plate had been worn, and there were slight adhesions between the dura and pia in the region. The gold had evidently been perfectly tolerated, and bone tissue had grown out to its edges and over them to some extent. A small arm had been soldered to each corner of the plate, to hold it in place, but they warn that supports of this kind should never be allowed to rest in any of the sutures of the skull. Gold-plated silver plates are being used in the present war, and many men provided with them have returned to active service at the front. The secret of success they think is to fit the plate into the gap, not let it rest on the bone around.

14. **Treatment of Walled-Off Meningitis.**—Labbé and his co-workers refer to the cases of epidemic cerebrospinal meningitis in which the subarachnoid space has been walled off and hence the antiserum injected intraspinally does not get into the skull. When this is the case, and symptoms of meningitis persist although the spinal fluid has cleared up under serotherapy, they trephine and inject the antiserum directly into the ventricle. In the case of a child of 11, the fluid in the ventricle was turbid and abounded in meningococci while the spinal fluid was clear and contained only a few dead meningococci. They injected into the ventricle 20 c.c. of serum and four days later 8 c.c. The injections were borne without disturbance and progressive improvement followed, presaging complete recovery but an unforeseen syncope proved fatal. The case confirms the independence of the cranial from the spinal disease. This should be suspected when brain symptoms follow on a group of spinal symptoms. Done earlier, and perhaps on both sides, the treatment applied might have saved the patient.

Journal de Médecine de Bordeaux

March, LXXXVII, No. 5, pp. 87-98

15 Sanatoriums for Tuberculous Soldiers. (Sur l'hospitalisation des militaires tuberculeux.) C. Jolly.

16 Gunshot and Shell Wounds of the Larynx and Trachea. G. Canuyt.

Berliner klinische Wochenschrift

February 14, LIII, No. 6, pp. 129-152

17 Treatment of Itching. (Beseitigung des Juckens.) P. G. Unna. To be continued.

18 Kidney Disturbances in Soldiers on Active Duty. (Ueber Nierenerkrankungen bei Kriegsteilnehmern.) A. Albu and E. Schlesinger.

19 Surgery of Wounded Trunk Vessels. (Meine Erfahrungen in der Kriegschirurgie der grossen Blutgefässstämme.) H. Küttner.

20 Rupture of Finger Tendon From Gonorrheal Tendovaginitis. (Ruptur der gemeinsamen Fingerstrecksehne im Gefolge von gonorrhoischer Tendovaginitis.) E. Melchior.

21 The War Literature on Internal Medicine. P. Reckzeh. To be continued.

Correspondenz-Blatt für Schweizer Aerzte, Basel

March 18, XLVI, No. 12, pp. 353-384

22 Medical Impressions of the Care of the Sick and Wounded in Modern War. (Militärärztliche Studienreise nach Innsbruck.) K. Wehrlin; (Kriegschirurgische Erfahrungen aus einem Rotkreuzspital in Lyon.) C. A. Pettavel. Concluded.

Deutsche medizinische Wochenschrift, Berlin

February 3, XLII, No. 5, pp. 121-152

23 *Convulsions in Children. (Behandlung der Krämpfe im Kindesalter.) L. Tobler. Concluded.

24 Meningitis After Fracture of Base of Skull. (Pneumokokken- und Meningokokken- Meningitis nach Schädelbasisfraktur.) P. Schmidt.

25 Treatment After Wounds of the Chest. (Die Nachbehandlung der Brustkorbverletzungen.) L. Hofbauer.

26 Infectious Jaundice. (Zur Aetiologie der Weil'schen Krankheit.) A. Weil; (Ditto.) Hübener and Reiter.

27 Injury of the Ear From Explosions. (Verletzungen des Gehörorgans, mit bes. Berücksichtigung der Detonationswirkung.) E. Lehmann.

28 Extraction With Magnet of Fragment of Shell in Pleural Cavity. (Extraktion eines Granatsplitters aus der Pleurahöhle mittels des Elektromagneten.) W. Burk.

29 *The Wassermann Test Applied With Larger Amounts of Serum. (Ueber den Ausfall der Wassermann Reaction bei Verwendung grösserer Serummengen.) B. Fischer.

30 *By-Effects of Pyelography. (Zur Frage der Nebenwirkungen bei der Pyelographie.) T. Fahr.

31 Experiences With Gunshot and Shell Wounds of Nervous System. (Ergebnisse der bisherigen Kriegserfahrungen auf dem Gebiete des Nervensystems.) E. Tobias. Concluded.

32 Organization of Medical School Inspection in Germany. (Die Schularztorganisation in Deutschland.) K. Süpffe. Concluded in No. 6.

23. **Spasms in Children.**—This was the last article written by Tobler before his recent death. He points out the permanent injury liable to become manifest later in life when children have convulsions early. The greatest progress in treatment has come from the recognition of the fact that spasms and convulsions are merely a symptom. The underlying causes may be widely diverse, but if they can be traced to spasmophilia the outlook is favorable for effectual treatment. When of this type, the spasms may be tonic, persisting contractures (carpopedal spasms), general clonic convulsions (eclampsia), or spasm of the glottis. The latter is peculiarly characteristic, as also the "paw" or "writer's hand" or "accoucheur's hand," the persisting spasm of the hand or foot. The tonic rigid contracture most often takes the form of adduction of the upper arms, the elbow and wrist strongly flexed, the hands in pronation, the legs extended stiff, the feet in talipes equinus varus. General convulsions from spasmophilia have no characteristic features. It may induce spastic conditions in the viscera, spasm of the sphincters, of the swallowing or ocular muscles, or spasm of the bronchial musculature or heart, inducing dangerous symptoms. Latent spasmophilia can be detected by the mechanical overexcitability of the peripheral motor nerves, electric overexcitability of the motor trunk nerves, and the Trousseau phenomenon.

Spasmophilia is extremely rare in breast fed babies. It seems to be restricted to the period from the second to the third year of life, and to the winter and early spring months. Overfed, doughy or rachitic children are most affected. Only a third of the children with spasmophilia grow up normally; another third are mentally backward, and the others show signs of a substandard nervous system, and hence treatment and prophylaxis are of the greatest importance. At the signs of latent tetany, stridulous inspiration from a tendency to spasm of the glottis, or signs of rachitis, the diet should be regulated to ward off spasmophilia, changing to breast feeding if possible and, if not, reducing the amount of cow's milk to three-fourths liter between the ninth and twelfth months or to one-half liter during the second year, if the child is otherwise healthy. Well nourished, plump children with convulsions had better be given castor oil and all feeding stopped for twelve or twenty-four hours. Saccharin-sweetened tea is the only beverage allowed. When feeding is resumed, salt is used scantily, and he prefers a soup made from chopped carrots, instead of a meat broth. Small tentative amounts of milk can be resumed in from five to eight days; the milk sometimes aggravates the spasmophilia; if so, milk had better be dropped completely for a few weeks for children over six months old. The older the infants, the better one can manage to keep the diet well balanced.

The deleterious substances in the milk seem to be in the whey. This explains the success of "albumin milk," as this contains only half the natural amount of whey to the liter. The casein can be given in the form of white cheese, but every effort should be made to insure breast feeding in these cases, and the more imperatively, the younger the child. The dietetic measures should be supplemented with phosphorus-cod liver oil, freshly made up. He orders 0.01 parts phosphorus with cod liver oil to 100 parts, giving one half to one

teaspoonful after meals. In addition a course of calcium chlorid is given, to a total of 8 or 14 gm. of the crystallized calcium chlorid, in a 10 per cent. solution, beginning with 1 or 2 gm. at one or two hour intervals and then rapidly reducing the dose. The taste can be disguised with an aromatic ammonia preparation. The overexcitability of the nervous system yields most readily to a combination of calcium chlorid and phosphorus-cod liver oil. The calcium seems to modify the tendency to spasmophilia. It has no apparent effect on spasms of other origin. The chemical kinship between calcium and magnesium suggested that the latter might prove useful in spasmophilia, and it has proved superior when rapid action is desired. But chloral answers this purpose and is preferable for several reasons, especially when given by the rectum. With spasm of the glottis, death is usually due to heart failure. Intensive stimulation of the skin may relieve in mild cases, sprinkling or dashing cool water over the body, slapping the skin with a wet towel or with the hand, introducing the finger into the throat, or pulling out the tongue—any of these may start the inspiration. If there is the characteristic wheezing during expiration, artificial respiration may prove useful, but otherwise not. It is almost impossible to overcome by force the contraction of the glottis, so that intubation is scarcely practicable.

For convulsions from other causes than spasmophilia, the cause may be some peripheral mechanical irritation, from a pin, a string around a toe, helminths, phimosis, tumor or abscess in the brain or ear. Lumbar puncture may remove the element of pressure, and venesection may relieve uremic convulsions. If epilepsy or tetanus is involved, treatment must be proportionally like that of adults, except that experience warns against intraspinal magnesium treatment. In conclusion Tobler remarks that even infants may have spasms for which hysteria is responsible. Treatment should be by suggestion adapted to the young child's mind.

29. **The Wassermann Reaction with Large Amounts of Serum.**—Fischer has applied the Wassermann test to 1,300 specimens of blood, using with parallel technic 0.1 c.c. and 0.4 c.c. of the serum. He found that sometimes the reaction, negative with the smaller amount, was positive with the larger amount, and hence warns that a negative response should not be accepted as decisive until the technic with the larger amount has been given a trial. He regards a negative reaction at 0.4 c.c. after a systematic course of treatment as justifying suspension of treatment, but not when the reaction turns abruptly negative soon after starting treatment.

30. **By-Effects of Pyelography.**—Fahr had a patient die in a few hours after injection of a silver salt into the pelvis of the left kidney. The necropsy findings testify anew that there is no need to fear general intoxication from a silver salt injected into the kidney pelvis, but that if so much fluid is injected as to distend the pelvis, and it is retained for any time, the kidney tissues suffer injury and necrosis is liable to follow. The patient was a man of 34 and there was evidently injury from the general anesthesia, from kyphoscoliosis impeding the heart action, and from the shock from catheterizing the ureter which was obstructed by a stone at its upper end, in addition to the tendency to necrosis at various points in the kidney—these different factors evidently combined to induce the fatality.

Gazzetta degli Ospedali e delle Cliniche, Milan

March 16, XXXVII, No. 22, pp. 337-352

33 Preferable Operative Technic for Hydrocele. (Intorno la scelta del metodo operativo nella cura dell'idrocele.) N. Federici.

March 19, No. 23, pp. 353-368

34 *Chorea as an Industrial Disease. (La corea di origine tossica professionale.) C. Rubino.

34. **Chorea as an Occupational Affection.**—Rubino reports a case of chronic chorea for five years in a typesetter who had presented other symptoms of lead poisoning. The choreic movements were generalized and kept up during sleep and there was also intentional tremor. In another case the chorea had developed in a girl of 17 employed in a tobacco factory. She is sometimes able to control the choreic movements and there is no intentional tremor. The chorea came on as the menses were arrested, and Rubino argues that this and other features of the case indicate that some upset of the balance in the glands of internal secretion is responsible for the chorea. He has had a number of experiences which suggest that the tonsils have an internal secretion of some kind. If this is confirmed by others, it would explain the benefit from tonsillectomy in chorea, which Archibald has reported. The mortality among workers in the local cigar factories is higher than in the rest of the populace, and the proportion succumbing to tuberculosis is particularly high, as also the percentage of cardiovascular lesions, especially of the cerebral arteries. Of sixty women in the insane asylum of that district, nearly 25 per cent. had been employed in a tobacco factory. Peripheral neuritis, especially brachial and sciatic, and hysteria are unusually prevalent among the girls and women in the tobacco factory, but menstruation averages normally.

Policlinico, Rome

March 19, XXIII, No. 12, pp. 357-388

35 *Resistance to Heat of Non-Spore Forming Bacteria in Milk. (Sulla termoresistenza di batteri non sporigeni nel latte.) C. Gorini.

March, Surgical Section, No. 3, pp. 65-96

36 Experimental Research on Malta Fever Infection. (Sulle alterazioni sperimentali da micrococco melitense.) R. Brancati.

37 Functioning of Omentum With Strangulated Hernia. (La funzione del grande epiploon negli strozzamenti erniari dell'intestino.) I. Scalone. To be continued.

35. **Resistance to Heat of Bacteria in Milk.**—Gorini has noted a number of instances in which non-spore forming bacteria demonstrated a remarkable power of resistance to the application of heat. He is chief of the bacteriologic laboratory of the Agricultural College at Milan, and he found that this heat-resisting property is accidental and only occasional, being neither common to all the specimens nor permanent. It seems to be due to some special protecting influence from a coating of casein on the bacteria, probably result of some biochemical process on the part of the bacteria.

Riforma Medica, Naples

January 24, XXXII, No. 4, pp. 85-112

38 *Early Diagnosis of Cancer of the Stomach. V. Patella. Commenced in No. 1.

January 31, No. 5, pp. 113-140

39 Three-Day Fever at Naples. (La febbre dei tre giorni a Napoli.) A. Montefusco.

40 Suppurating Hematoma in the Iliac Fossa. L. della Valle.

February 7, No. 6, pp. 141-168

41 Volvulus of Hour-Glass Stomach. (Volvulo gastrico in stomaco a clessidra per malformazione congenita.) O. Barbacci.

42 *Action of Quinin in the Body in Connection With Production of Uro-Erythrin. N. Pane.

43 Pathogenesis of Deformities. (Patogenesi ed etiologia generale delle deformita del corpo umano.) C. Romano. To be continued.

38. **Early Diagnosis of Gastric Ulcer.**—Patella refers to five cases of stenosis of the pylorus due to a tuberculous lesion. There was no occult bleeding, and the age was between 20 and 40, which aided in excluding cancer. He says that of the 140 cases of gastric syphilis he has found on record, the chemistry of gastric secretion was studied in only eleven and in nine of these there was anacidity. Achylia was evident in the cases examined microscopically. With gastric cancer, the secretion of pepsin may continue long after that of hydrochloric acid has been lost. He reviews all the diagnostic signs that have been proposed in recent years for differentiation of gastric cancer, saying that none of the serologic reactions are very reliable and none are at all instructive in the early stages. Digestive disturbances in the previously healthy, which prove rebellious to appropriate dietary measures, and loss of weight are the most suggestive signs of malignant disease in the stomach. Study of the case for two or three weeks will generally settle the question, if it is not settled befo e by discovery of occult bleeding. The biologic diagnosis of cancer in an earlier stage is beyond our present methods of examination.

42. **Influence of Quinin on Production of Uro-Erythrin.**—Pane noticed an unusual amount of uro-erythrin in the urine of some patients who had been taking quinin for several

months, continuing it now and then after their malaria had been conquered. Each day after the quinin had been taken the urine contained, transiently, large amounts of this red pigment in the sediment. He found the same phenomenon marked in rabbits given quinin.

Brazil-Medico, Rio de Janeiro

February 26, XXX, No. 9, pp. 65-72

45 Regulation of the Breathing Movements. (Sobre a regulação da forma dos movimentos inspiratorios.) M. O. de Almeida.
46 Alimentary Hygiene. (Noções de hygiene alimentar.) G. Armbrust. Commenced in No. 1.

March 4, No. 10, pp. 73-80

47 *Prophylaxis and Treatment of Malaria. (Impaludismo.) F. Soledade. To be continued.

47. **Prophylaxis of Malaria.**—Soledade presents the official report on his attempts to clean up a certain poverty-stricken valley district in Brazil where scarcely any one is exempt from malaria. He had to educate the public in the advantages of quinin treatment, and spread the news of the opportunity for treatment he was offering. The total of the malaria patients treated was 953. The number of children with malaria parasites in the peripheral blood confirms that the children are the main source of perpetuation of the infection. He gave the quinin at meals, the daily dosage ranging from 0.4 to 1 gm. and never had any mishaps from these doses.

Russkiy Vrach, Petrograd

XV, No. 4, pp. 73-96

48 *Pseudo-Aneurysms. (Po povodu t. naz. lozhnikh aneurizm.) V. A. Oppel. Commenced in No. 31.
49 *Symptomatic Importance of Contracture of the Wrist and Terminal Phalanges. (K semiotikie ruchnoi kisti. Griffe nogtevikh phalang.) S. N. Davidenkoff.
50 *The Theory of Anaphylactic Shock. I. L. Krichefsky. Commenced in No. 31.

No. 5, pp. 97-120

51 Classifying Nomenclature of Central Nervous System Lesions Following Trauma. L. O. Darkshevitch.
52 *Extraction of Projectiles from the Chest Cavity; Twelve Cases. V. M. Mintz.
53 Chronic Interstitial Nephritis in a Child Simulating a Tumor. (Sluchai "opukholevidnago" chronicheskago mezhutochnago nephrita u rebenka.) E. N. Vinteler.

No. 6, pp. 121-144

54 Influence of "Phosphorus-Albumin" on Growth of Bones. (Vliyanie phosphatnago bielka na rost i razvitie kostei.) B. I. Slovtzoff.
55 General Predisposition to Growth of Malignant Tumors. (Obshchee predraspolozhenie organizma k rostu v nem zlokachestvennikh novoobrazovanii.) V. G. Korenchefsky. Commenced in No. 4.
56 Red Cross Hospital in Odessa for Military Officers. K. I. Korovitzky. Commenced in No. 5.
57 *Auricular Fibrillation With Complete Heart Block and Automatic Activity of the Ventricles. (Yavlenie Fredericq'a u chelovieka.) N. I. Leporsky. Commenced in No. 4.

48. **Pseudo-Aneurysms.**—Oppel relates that war wounds of large blood vessels frequently lead to formation of the so-called pseudo-aneurysm, but as the typical signs of the latter—circumscribed tumor, visible pulsation, thrills perceptible to the hand—are sometimes absent, these false aneurysms often escape detection. One of the causes for this is also the fact that they may present the clinical picture of a phlegmon though auscultation may reveal a murmur and thus help the correct diagnosis. In other cases too much attention is paid to the neighboring wounds (for instance, of the joint), and the pseudo-aneurysm is not thought of, or it is taken for a circumscribed abscess. Yet it is important to diagnose the pseudo-aneurysm in order to treat it surgically and thus obviate cardiovascular complications and severe pain due to the pressure on the large nerves. Operative treatment is not to be recommended in every case, and when indicated it should not be undertaken too early, not before four or six weeks after the injury, or until the aneurysm is completely formed and the surrounding hemorrhages have become absorbed, or when signs of infection are present. The cases should be individualized, the condition of the neighboring organs, bones and muscles being of great importance for the character of the operation (to remove or to leave the injured limb, etc.). The treatment consisted accordingly in ligation of the arteries, suturing of the wounded arteries and closing of the opening, excision of the aneurysm sac and, what is very important, simultaneous ligation of the vein. He thinks that ligating the vein, creating the so-called reduced blood circulation, saves the limb from gangrene, while the suturing of the vessels is not absolutely necessary, and is not always a safe procedure. However, excision or ligation of the central portion of dilated veins may be of great benefit for the blood circulation.

49. **Contracture of Wrist and Terminal Phalanges.**—Davidenkoff emphasizes the differential diagnostic importance of flexion contracture of the end phalanges of from two to five fingers, while the middle phalanges are extended and the basal either flexed or extended. It is typical for infantile spastic paralysis and athetosis, and has also been noted in cases of lesions of the lenticular nucleus, analogous to Wilson's disease, and in paralysis agitans. It may be considered as a symptom of involvement of the so-called extrapyramidal tracts.

50. **Theory of Anaphylactic Shock.**—Krichefsky found that the juice of a plant, *Cotyledon schneideckeri,* precipitates animal serums as well as bacterial extracts, agglutinates bacteria and red blood cells, and destroys the latter. He also found that, injected into guinea-pigs and rabbits (v. jugularis), it produces the same symptoms and pathologic changes which are characteristic for anaphylactic shock. The clinical symptoms were clonic-tonic convulsions, followed by dyspnea, coma and death. In rabbits, opisthotonos was occasionally observed and, as a rule, exophthalmos. He describes in detail the pathologic changes which were identical with those found in fatal anaphylactic shock, except for the presence of cardiac thrombi which he has never found in the latter. He also found that there is a parallelism between the precipitating or agglutinating power of the juice of the cotyledon and its ability to cause anaphylactic shock. When the precipitating substances were removed from the juice, the latter invariably lost the ability of causing shock.

He explains the death of the animals from shock as the result of a change in the distribution of the colloids in the plasma, the result of the physico-chemical action of the active substances of the juice on the blood itself, as injection of cotyledon juice into the abdominal cavity of the guinea-pigs gave negative results. Hypodermic injections elicited the sign of Arthus. Krichefsky also found in his experiments a decrease of the proportion of complement. His theory of anaphylactic shock is thus that some cause induces a different distribution of the colloids in the plasma. This assumption explains, he asserts, all the phenomena observed in clinical anaphylactic shock and in the artificial shock he was able to induce at will in his animals with this plant juice. (The cotyledon genus of plants belongs to the houseleek family.)

52. **Projectiles in the Chest.**—Mintz successfully operated in five cases, removing a bullet in the throat, two in the pericardium, one in the lower portion of the left lung, and one in the pleural cavity. The foreign bodies had been in the chest as long as three, four and seven months before the operation. In all cases adhesions were found between the lungs, pleura, heart and pericardium, yet as the further course and the favorable results showed they do not form a contraindication to a successful operation. He gives brief histories of two cases of bullets in the lungs that were left without operation until suppuration developed in the pleural cavity, and the patients died notwithstanding a subsequent operation.

57. **Heart Block.**—Leporsky describes in detail a case of heart block, with complete dissociation in the action of the auricles and ventricles, caused by the lesion of His' bundle. The symptoms of dissociation were auricular fibrillation and ventricular automatism. The complete heart block was not of a temporary, but of a continuous character, being caused by a congenital cardiac lesion. As auricular fibrillation combined with complete heart block was first observed experimentally on animals by Fredericq, it would be appropriate, Leporsky thinks, to classify in a special group cases of heart disease with this syndrome of the combination of auricular fibrillation and complete heart block. It might be known as "Fredericq's phenomenon in man."

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 19 CHICAGO, ILLINOIS MAY 6, 1916

SYPHILIS AND LIFE INSURANCE

WITH SPECIAL REFERENCE TO THE WASSERMANN AND LUETIN REACTIONS *

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PHILADELPHIA

The question of the relation of syphilis to insurance resolves itself into a discussion of the direct and primary influence of this disease and its visceral lesions on the duration of life itself, and its influence on bodily resistance toward other diseases and deleterious influences. It is universally acknowledged that persons infected with syphilis are more liable to other diseases than persons who are not, and while syphilis itself may not in the majority of cases actually threaten life in its early stages, it is generally known that its late manifestations may.

As far as I am aware, the majority of life insurance companies inquire of each applicant for insurance whether or not he or she has been infected with syphilis, and accept their answer together with the results of a physical examination by a physician as satisfactory replies. Those persons who know that they have been infected and answer accordingly, or who present the lesions of syphilis with sufficient distinctness to be recognized clinically by the medical examiner, are either rejected or accepted with a higher rating, the insurance company realizing the greater risks incurred in accepting the syphilitic for insurance. But it is well known that applicants deliberately deny or suppress the fact that they have been infected, or they may have truthfully forgotten this incident in their lives and answer negatively. Not a few persons, especially women, are ignorant of having been infected, and in others the lesions and symptoms may have been extragenital or so mild in character as to mislead even persons of superior intelligence as to their true significance, so that denial of syphilis is honest and sincere. Further than this, some companies ask only for a medical history within a certain number of years, which may easily exclude the time of syphilitic infection.

If, therefore, an applicant for insurance denies or is ignorant of being syphilitic, the company must rely on the results of the medical examination by a physician; while the average practitioner may readily enough diagnose syphilis presenting primary and secondary lesions, and strongly suspect syphilis in the presence of symptoms suggestive of tertiary lesions, he may be unable to detect the disease in the latent and tertiary stages, especially if the applicant appears in good health and denies infection and physical ailments and symptoms.

Accordingly, if experience and statistics have taught insurance companies the importance of syphilis in relation to duration of life, risk of intercurrent infection, ratings, etc., it is clear that a concerted effort should be made to detect the disease under conditions independent of the answers of the applicant and the results of physical examination, especially when the applicant is seeking a heavy insurance policy.

It is beyond the scope of this paper to discuss with any detail the question of the relation of syphilis to organic disease, especially of the nervous and cardiovascular systems and its direct bearing on duration of life; instead, I shall endeavor to point out these relations in a general way and confine myself more strictly to the present status of the specific diagnosis of syphilis, especially in the occult stages, by the complement fixation or Wassermann, and the anaphylactic or luetin, tests.

The question of frequency of syphilis is of minor importance in relation to insurance, as it has no direct bearing on any one applicant for insurance, and our figures bearing on this subject require revision in view of the results of the application of the Wassermann reaction in the diagnosis of this disease. Statistics, however, long since taught insurance companies the necessity of exercising some care in accepting syphilitics for insurance. The disease is from three to eight times more prevalent among the better than among the lower classes, although this may be apparent only because the former are more likely to seek medical attention; and it is also more prevalent among those persons living in cities than in the country districts. It has been variously estimated that from 10 to 20 per cent. of applicants for insurance have been infected with syphilis (the lower figure being probably nearer correct), and that the majority of men are infected before the twenty-third, and women before the twentieth, year of age.

The relation of syphilis to duration of life bears a more or less direct relation to the question of treatment. Virulent infection, especially of the immature and debilitated, may destroy life in a comparatively short time; in any event, the expectation of life among syphilitics must be shortened. Bramwell has estimated that the duration of life in cases of tertiary syphilis is shortened by ten years, and the general experience among insurance companies is to the effect that the disease has a heavy extra mortality at comparatively

* Paper prepared by invitation for the Annual Meeting of the Philadelphia Medical Examiner's Association, Feb. 8, 1916.

early ages, and that they have suffered considerable loss by them.

Cases of untreated syphilis are almost certain to develop late or tertiary lesions; on the other hand, syphilis is a curable disease in the majority of cases, especially when vigorous and proper treatment is instituted early in the disease. Treatment, therefore, has a very important bearing on the relation of syphilis to insurance; some companies refuse to accept the syphilitic applicant until three years have elapsed since infection, two of which must be spent under vigorous and intelligent treatment with mercury or salvarsan, and the third year under observation, during which time the person is free from symptoms of the disease. Patients receiving treatment by iodids only are regarded as bad risks; likewise alcoholics and free livers.

Our knowledge regarding the treatment of syphilis, however, has been altered very materially since the discovery of the complement fixation test for this disease and of salvarsan in its treatment. Arbitrary rules regarding treatment cannot be laid down, and, as I shall point out later, one of the greatest values of the Wassermann test is its application as a control on treatment. Briefly stated, therefore, the kind and duration of treatment, and particularly the stage of the disease when treatment is instituted, have a very important bearing on the question of risk in insuring the syphilitic; and as far as I am aware, the Wassermann reaction conducted under proper conditions and by properly qualified persons is the best index of the efficiency of any form of treatment, especially in the secondary, latent and tertiary stages.

In view of the recent researches in syphilis disclosing the *Spirochaeta pallida* in the tissues in tertiary lesions, it is very doubtful whether it is permissible to speak of the sequelae of syphilis. The toxins and other products of the spirochetes may produce degenerative changes in various organs, but it is more likely that the late consequences of a syphilitic infection, as aneurysm, aortic insufficiency, arteritis, etc., may be direct lesions of syphilis due to the presence of living spirochetes rather than sequelae in the truer meaning of the term. Noguchi and Moore, Nickols, Wile and others have demonstrated the microparasites in the brain and spinal cord of paresis and tabes dorsalis, thereby rendering obsolete the terms "parasyphilitic" and "pseudosyphilitic," and Warthin and others have likewise shown the parasites in the heart and vessel walls even in those who during life were regarded as cured. It is probable that there are different strains of the *Spirochaeta pallida* with different tissue affinities; thus a certain strain may have a selective affinity for the tissues of the central nervous system, and its host show the results of early or precocious involvement of these tissues; another strain may have a selective affinity for the cardiovascular system; another for the bones and periosteum or the skin and mucous membranes, etc., the seriousness of an infection depending on the question of strain infection. Thus the older syphilographers taught that persons showing well developed cutaneous lesions were less likely to develop lesions in the internal organs and were more amenable to treatment.

Among the later and more serious manifestations of syphilis affecting the central nervous system, not infrequently at a comparatively early age, paresis and tabes dorsalis are especially well known; new growths in the brain or cord, apoplexy before the age of 50 and especially before 40 years of age, and cerebral softening due to endarteritis obliterans are also frequently caused by living and active spirochetes.

Cardiovascular lesions are not infrequently due to syphilis. It has been variously estimated that from 66 to 84 per cent. of persons with aneurysms have syphilis, and these figures are probably low in view of the results observed with the Wassermann reaction. Sclerotic endocarditis involving particularly the aortic valves, diffuse myocarditis, circumscribed gummas in the heart, and chronic arteritis or sclerosis especially involving the coronary arteries are among the more important lesions of this system which may or may not be detected clinically.

Lesions in the liver and kidneys, the latter more prone to develop in the first year after infection, and showing albuminuria with no other demonstrable signs and disappearing under treatment, may be due to infection with syphilis. It is well recognized that syphilis plays an important rôle in tuberculosis by way of lowering bodily vitality and resistance and thereby preparing the way for successful infection by the tubercle bacillus, so that Fournier and others recognized syphilis, especially in young subjects, as an etiologic fact in tuberculosis. Likewise leukokeratosis or leukoplakia in a man or woman who does not smoke strongly suggests unrecognized syphilitic infection probably of extragenital origin; and carcinoma of the tongue, especially among syphilitic smokers, may have its origin in these lesions.

So far as the question of life insurance is concerned, particularly from the standpoint of duration of life and from the fact that the syphilitic person is more liable to develop certain diseases than the nonsyphilitic person, it would appear necessary to establish as definitely as possible the absence of syphilis among certain applicants for insurance, especially those applying late in life and for heavy policies. It is clear that the diagnosis of syphilis in the primary, secondary and in some cases in the tertiary stages, especially cases of tabes dorsalis and paresis, may present to the physician no difficulties in diagnosis; but not an inconsiderable number of applicants may have contracted syphilis at an earlier date, and apply for insurance at a time when the disease is latent and defies the most expert clinician in its detection. Or an applicant may admit infection, but claim that adequate treatment has been received. It is in these groups of cases that diagnostic tests, and especially the Wassermann and luetin tests, are likely to prove of most value. In the presence of lesions more or less definite and diagnostic clinically, these tests may have nothing more than a confirmatory value; but in latent or occult syphilis and as a guide to treatment, both, and especially the Wassermann reaction, have a particular value. Each company must decide for itself the importance of knowing whether a certain applicant for insurance is or is not syphilitic, or if so, whether treatment has been adequate; in answering these questions, particularly in the case of occult and tertiary syphilis, the Wassermann and luetin reactions, particularly the former, have proved of great value when properly conducted.

WASSERMANN REACTION

The highly specific nature of the syphilis reaction has been proved by extensive investigations with the serums of normal persons and of persons afflicted with diseases other than syphilis. Unfortunately, the reac-

tion is beset by so many technical errors that a review of the literature, especially of the early literature, shows results that are quite confusing and contradictory. Following the original communication of Wassermann and Detre, and especially after it was shown that the antigen need not be biologically specific, the subject was extensively investigated by various observers, who reported securing positive reactions in many different diseases, results that we now know must have been due largely to technical errors. At present it is known that positive Wassermann reactions may occur in frambesia and leprosy or in a few cases after anesthesia, but not in scarlet fever, malaria and the host of other infections as reported from time to time and especially by earlier investigators. In diseases like leprosy and frambesia, the symptoms are of such a character as may readily be differentiated from syphilis, and accordingly the Wassermann reaction when properly performed is of unequaled and incalculable diagnostic value.

The question is often asked, Can a diagnosis of syphilis be made by the Wassermann reaction? In the group of cases to which I am especially referring in relation to insurance, namely, those in the latent and occult stages, I unhesitatingly reply that it may, and indeed it may be that the diagnosis cannot be made otherwise, except by the luetin reaction. When properly performed, I regard an unmistakably positive reaction as a sign of syphilis. A positive reaction is of more value than a negative one, because the reaction is not yet sufficiently delicate despite certain refinements in technic. In this connection I would refer to the results of Warthin's investigations, who found the *Spirochaeta pallida* in the cardiovascular tissues of apparently "cured" and Wassermann negative persons.

Unfortunately the technic of the Wassermann reaction is subject to so many errors that uniform results from different laboratories cannot be expected. When it is remembered that traces of acid or alkali on the glassware may alter a true reaction, not to mention variations in the properties of the antigen and other biologic reagents of this test, it is to be emphasized that the Wassermann test should be entrusted only to those who are especially qualified by prolonged training and experience to prepare and standardize the reagents and conduct the tests.

Of great importance in conducting the Wassermann reaction is the question of the antigen employed. In my opinion the properties, standardization and dose employed of this reagent has more influence on the variable results obtained from different laboratories than the technic itself; it cannot be otherwise, and constitutes a strong plea for the adoption of standard reagents and ultimately of a standard technic. Certainly an alcoholic extract of syphilitic liver is not a specific antigen in the true meaning of that term; such extracts may be far inferior to extracts of normal tissue, as the specificity and great value of the Wassermann reaction does not depend on a specific antigen, but on the peculiar nature of the antibody concerned, which possesses in a highly specific manner the property of absorbing or fixing complement in the presence of lipoids. I believe that the most sensitive antigen is that of Sachs, namely, an alcoholic extract of heart reenforced with cholesterin. I have used such extracts for several years, and compared them with other extracts in thousands of tests; and while they must be used with particular care, owing to the antilytic properties of cholesterin to avoid false reactions, a satisfactory cholesterinized extract has proved most sensitive, uniform and generally satisfactory. I am convinced that the antibody in the serums of different syphilitic persons shows variable affinities for different lipoids in the antigenic extracts; that is, the serum of one person may cause well marked complement fixation with one extract and not with another, and both extracts be of known antigenic value. This observation can be made only when two or more antigens are used as a routine in conducting the Wassermann reaction, and for this reason I have long advocated the employment of two or more extracts in conducting the Wassermann test instead of relying on one extract.

It is probable that in tertiary and latent syphilis the Wassermann reaction has its greatest value in relation to life insurance. As previously stated, syphilis is so diverse in character, and may be responsible for so many diverse clinical conditions, that the reaction has become well-nigh indispensable as a diagnostic aid. There is no limit to the time following infection in which positive reactions may not be found.

In cases of untreated and active tertiary syphilis, the reaction is positive in about 96 per cent. of cases, especially in paresis, tabes dorsalis, aortic aneurysm, aortic insufficiency, etc.

In cases of latent syphilis and especially in those of long standing without treatment or with indifferent treatment, the Wassermann test is positive in about 75 to 80 per cent., and may constitute the only evidence of the existence of the disease at a time when the prompt institution of treatment may prevent the development of tertiary lesions, which are so likely to follow. In the presence of a negative reaction with the serum of an applicant presenting clinical evidences suggestive of syphilis, the cerebrospinal fluid should be tested before a final opinion is expressed.

Congenital syphilis rarely comes into consideration in life insurance, but if recognized in a young applicant, insurance is usually denied; in adults, signs of the disease under otherwise favorable circumstances need not necessarily debar the applicant. In untreated congenital syphilis of children, 1 year or over in age, the Wassermann reaction is positive in from 97 to 100 per cent. of cases, and in congenital mental deficiency the reaction has shown that syphilis plays a larger part in the etiology of this condition than is generally supposed.

The Wassermann reaction has proved quite valuable as an index to the thoroughness of treatment either by mercury or salvarsan or both. The reaction is the most constant and delicate single symptom of syphilis and usually the last to disappear; when the question of insurance depends on the question of treatment, it cannot be settled by adopting an arbitrary treatment over an arbitrary length of time, but rather in conjunction with the Wassermann reaction and clinical examination of the patient. The question of duration of treatment and cure depends on the infection and lapse of time between infection and the institution of treatment. In the light of our present knowledge, a persistently positive reaction over a long period of time must be accepted as an indication of living spirochetes which have escaped destruction. The significance of the persistently positive reaction in the presence of vigorous and prolonged treatment, however, is

not clear and requires further clinical observation and research; but the consensus of opinion at present is to the effect that such persons harbor living spirochetes, and that lesions of the central nervous system are especially likely to develop.

LUETIN REACTION

The luetin reaction of Noguchi is specific for syphilis, and constitutes an allergic reaction similar to the tuberculin reaction in tuberculosis.

The test is quite simple, and consists in the *intracutaneous* injection of 0.07 or 0.1 c.c. of luetin, which is a heat killed and sterile emulsion of different cultures of *Spirochaeta pallida*. A positive reaction is indicated by the development of a papule or pustule with erythema at the site of inoculation.

In a recent review of the literature on this reaction, Noguchi has reported positive reactions in about 80 per cent. of cases of tertiary syphilis; 70 per cent. of cases of congenital syphilis; 60 per cent. of cases of syphilis of the nervous system, such as general paralysis and tabes dorsalis, and in nearly 90 per cent. of cases of visceral syphilis, especially in cases of aortic insufficiency.

The luetin reaction is of most value in tertiary, congenital and latent syphilis and especially in those under treatment which are the group of cases of most interest in connection with the question of life insurance. The test is of little value in primary and secondary syphilis.

The Wassermann and luetin reactions do not run parallel, and in my experience the chief value of the test is in the diagnosis of those occasional cases of latent, tertiary or congenital syphilis that fail to react positively with the Wassermann reaction. I am quite convinced that in the majority of cases a negative Wassermann reaction, carefully and skilfully performed, and especially with an antigen reenforced with cholesterin, is stronger evidence of the *absence* of syphilis than is a negative luetin test. On the other hand, a definitely positive luetin reaction may be regarded as indicating that the patient is or has been syphilitic, even though the Wassermann test is negative.

The luetin test is therefore quite simple, and when properly applied should find a special field of usefulness in insurance practice; I do not think that it should replace the Wassermann test if the latter is conducted by a competent person, but it is less open to error, though less valuable as a diagnostic test, and finds its greatest usefulness as a check on the Wassermann reaction.

IN CONCLUSION

1. A syphilitic applicant is not as good a risk for life insurance as a nonsyphilitic person, and never constitutes a first-class risk.

2. Persons acquiring syphilis after 45 years of age, and syphilis among alcoholics and free livers and those showing early involvement of the nervous system are especially bad risks.

3. No syphilitic applicant should be accepted who has not undergone proper and thorough treatment, nor any who show active signs and symptoms of the disease in any of its stages.

4. It is clear that the statements of an applicant cannot always be accepted in either a positive or more particularly a negative way, in answering the questions concerning infection with syphilis. He may believe that he has contracted syphilis at an earlier date and be mistaken; more likely, however, he is ignorant of having contracted syphilis, or wilfully denies knowledge of infection or believes he is cured. It is frequently impossible, on the basis of questions and answers and physical examination alone, for the medical examiner to state positively that an applicant is or is not syphilitic, or if so, that he is cured. In applicants presenting frank primary lesion or its scar, or secondary lesions or well marked tertiary lesions, the diagnosis may readily enough be made; but an applicant in the latent and occult stages appearing in good bodily health and denying infection may readily enough pass as a first-class risk.

In the detection of these cases, the Wassermann and luetin reactions will prove of great value; likewise in deciding the question of acceptance and risk in the case of a syphilitic applicant who has undergone treatment.

Each company must decide for itself the value of such knowledge in risks and ratings; in my opinion an unquestionably positive Wassermann reaction in competent hands may be accepted as a sign of syphilis; a positive luetin reaction may be accepted an an indication that the applicant is or has been syphilitic. With the question of the presence, absence or cure of syphilis settled in this manner, in conjunction with a thorough physical examination, the company should be guided in acceptance, risks and rates by at least the same rules as govern such cases when the diagnosis is made on the basis of an applicant's statements or the results of the physician's physical examination.

ENDOCRINOPATHIC INHERITANCE*

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In 1850 a moderate giant, 6 feet 2 inches in height, married a woman of diabetic tendencies who later developed true diabetes, from which she died. This marriage gave rise to a family of three apparently normal daughters, of whom one still lives, one died at the age of 62 of carcinoma, and the third died of pneumonia following the puerperium. None of the three showed during her life any tendency, so far as we can now recognize such tendency, toward internal glandular disturbance. All three of them married. The oldest, No. 3 in Figure 1, had a family consisting of six individuals, of whom one, No. 9, had exophthalmic goiter, No. 11 harelip, No. 12 chalky degeneration of the teeth with a tendency to diabetes, and No. 14, who was born blind and puny, developed a sarcoma of the face, and died in his first year of life. No. 12 married and had two children, of whom one is distinctly hyperpituitary in character, while the other one is normal. No. 11, who had a congenital harelip, begat a family of three children, of whom the first born, No. 18, has osteomalacia resulting in a deformity of dwarflike character, while the other two are seemingly normal. No. 13 married, and has a family of two apparently normal children, one of whom, No. 23, is beginning to show an exophthalmos.

* Read before the staff of the Third Division, Neurological Institute, New York, Dec. 7, 1915.

Let us return to the first generation and examine the progeny of the second older daughter, No. 4, of the original parents. Her marriage resulted in a family of three children, the oldest of whom, No. 15, is a moderate giant, 6 feet 1 inch in height; a second, No. 16, is a giant, 6 feet 3 inches in height with a tendency to acromegaly, and the third, No. 17, a fairly normal girl. The third child of the original parents, No. 5, had two children, seemingly normal, who died in their early youth of diphtheria.

In tracing the progeny of the original parents of this family through three generations, we find certain characteristics transmitted, which in the light of present knowledge we may assume to be due to disturbed function of the endocrine glands. It may be interesting to attempt an explanation of this transmission based on the mendelian laws of heredity. Of course a great deal must be assumed in such an attempt which cannot be submittted to proof. Such an attempt must also necessarily deal with the simplest factors to which we can possibly reduce—if such reduction is at all possible—the complicated interrelations of the internal glandular system. Such a reduction, I believe, might be best expressed in terms of two factors, both of which are end-results of disharmony among the endocrine glands. One of these factors relates to the normal control of growth, and the other to the normal control of metabolism in the organism. An absence of such a normal coefficient of growth we may assume to result in various structural abnormalities of the individual, on the side either of overgrowth or undergrowth, or even vicious growth. Absence of a normal metabolic factor might be said to result in disarrangements of the secretions and excretions producing underweight or overweight, and increased or diminished oxidation of the tissues, with the incidental hyperglycemia or hypoglycemia. It is admittedly difficult to demarcate sharply the field where growth and metabolism merge into one another, and for our present insufficient and fragmentary knowledge, only the gross clinical evidences of either type are possible of recognition; and these are the only ones on which the following is based.

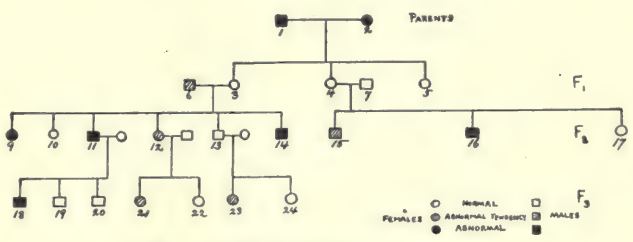


Fig. 1.—Endocrinopathic heredity chart.

Let us denote the factor controlling normal growth by G, and that controlling metabolism by M. A normal being might then be said to have a constitution containing both factors in equal degree, that is, a homozygote, represented by GGMM.

At this point it might be well to explain the terminology used in discussing the mendelian laws, and some basic assumptions underlying the theory.[1] It is assumed that both the male and female sexual cells transmit so-called unit characters to the offspring produced by their union. Each sexual cell of either type is known as a gamete, while the union of a male and female cell is known as a zygote. This zygote, therefore, embraces the unit characters of the two gametes fused together, as it were. When this zygote in its turn produces gametes, this combination is broken up, and the reverse process of disintegration of the combination of unit characters takes place. The properties of zygotes are often appreciable to observation; color and shape, for instance, are zygotic properties. But with the gametes no such observation gives any clue. For who can tell, by inspection of the egg, whether the resulting bird will be black or white? Again, a unit character is either absent in the gamete or it is present. In each case, the absence is quite as important as the presence, and must be indicated. The unit character is transmitted as such in the gamete unmodified in degree or intensity. Each gamete in respect to a unit character must be represented as containing it or lacking it. An individual is said to be homozygous for a given character when it has been formed by two gametes both containing the character; and heterozygous, when of the gametes forming it, one contains the character while the other lacks it. All the gametes of a homozygote have the particular character, while only half the gametes produced by heterozygotes contain it.

The constitution of the male original parent, No. 1, would then be gM, and that of the original female parent Gm, the small letter indicating the absence in the gamete of the unit character designated by the corresponding capital letter. In other words, the male original parent could transmit through the male gamete a normal metabolic characteristic, but not a normal growth factor; whereas the female would transmit through a female gamete a normal growth factor but an absence of a normal metabolic factor. The zygote formed from the combination of these two gametes would then be GgMm. This zygote would represent the constitution of the first family (F_1). We see in this zygote constitution both factors of normal growth and metabolism (G and M) present, and these being present in each member of the family F_1, all of this family must be apparently normal. This would account for the three apparently normal sisters in F_1. And yet it is to be remembered that each of these sisters is heterozygous to G and M.

Now let us take up the marriage of the eldest of these sisters. Her husband, No. 6, was rather tall, a little over 6 feet, and he also gave further evidence of an unstable endocrine system in that his body hair growth was almost absent, and the adiposities characteristic of the other sex were partly in evidence. His zygotic constitution might, therefore, properly be assumed to be GgMm, namely, also heterozygous to both factors. In this constitution he therefore resembled the family into which he married, although its members gave no outward sign of endocrine disturbance. Now the series of female gametes of F_1 in all possible combinations of the unit factors is as follows: gM, GM, Gm, gm.; while the male gametes of individual No. 6 may also be represented by GM, gM, Gm, gm. In order to determine all the possible kinds of zygotes formed by the possible combinations of these two series of gametes, these various gametes are arranged in a series of squares, according to fixed order. Such a square is represented in Figure 2. It will be easily seen that all possible combinations are represented.

From a study of this chart we find that of the sixteen possible combinations, nine contain both of the interacting factors G and M. Those, therefore, would

1. For a more complete discussion, the following may be consulted:
Bateson, W.: Mendel's Principles of Heredity, Cambridge, 1909.
Mendel, G. J.: Versuche über Pflanzenhybriden, Verhandl. d. Naturforschervereins, Brünn, 1865.
Weismann, August: Die Kontinuität des Keimplasmas als Grundlage einer Theorie der Vererbung, Jena, 1892.
Punnett: Mendelism, Ed. 3, New York, The Macmillan Company, 1911.

be apparently normal individuals, whereas seven would contain only one of the interacting factors, or none of them. These seven would be patently abnormal individuals. The latter seven can be subdivided into three zygotes without a metabolic factor (M), three without the growth factor (G), and one lacking both factors, and our ratios then become 9:3:3:1. This is the exact ratio obtaining in the mendelian law for the transmission of characteristics depending on two interacting factors. Of the nine seemingly normal cases, however, only one, GGMM, is homozygous to both interacting factors, and is therefore the only individual of the family who would not transmit any endocrine anomalies, and who would breed true.

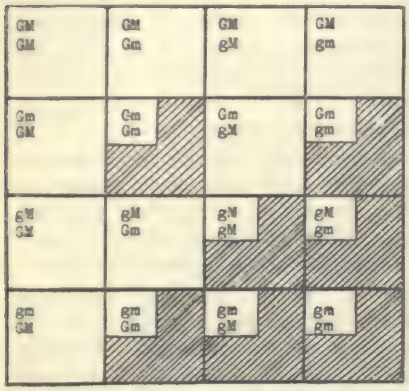


Fig. 2.—This represents all possible combinations of the gametes of the individuals of F_1 with those of individual No. 6. The clear squares give apparently normal zygotes, for they all contain both G and M, although some are heterozygous to either character. The shaded squares represent abnormal zygotes, for none contains both G and M. The ratio of normal to abnormal individuals is seen to be 9:7, although the 7 can be again subdivided, as seen in the text, into 3.3.1, making the final ratios 9:3:3:1, the mendelian ratio.

Let us see how these theoretical results compare with the actual F_2 family of the oldest daughter. The F_2 family of the oldest daughter, No. 3, had six members, two of whom, Nos. 9 and 11, had exophthalmic goiter and harelip, respectively; while three members of the family, Nos. 10, 12 and 13, are apparently normal. The chart shows that there ought to be as many abnormal individuals with metabolic changes as there are with growth abnormalities. Nos. 9 and 11 satisfy this condition. It also shows that among the so-called normal individuals of the family there would be some that are heterozygous to either one of the factors. Such an individual is present in No. 12, who showed extremely chalky teeth with an abnormal leaning to sweets in her diet. She probably was represented by the zygote GGMm. One other square of the table is extremely interesting, that is, the one representing the zygote ggmm. This would represent an individual with abnormality of growth and metabolism both. No. 14 of F_2 seemingly answers this condition; he was born blind and puny, and developed sarcoma of the face, dying in his first year. The entire family F_2 therefore had three normal and three abnormal individuals, closely corresponding to the theoretical ratio.

Individual 11 of F_2 married an apparently normal female. His progeny, representing the F_3 family, has three members, one of whom evidently inherited the father's lack of growth factor, for he has osteomalacia and was dwarfed and backward (No. 18). No. 12 of F_2 married a normal man, and yet the absence of one of the metabolic factors in her constitution (which might be represented GGMm) seems to have been transmitted to one of their two children in F_3, namely, No. 21, a seemingly normal child but with pronounced hyperpituitary characteristics. No. 13 of F_2 married a normal woman, and of th ir two children, the older one, No. 23, is beginning to develop an exophthalmos.

Returning now to the second daughter, No. 4 of F_1, we find that she married a man apparently normal, but over 6 feet in height; representing his zygotic constitution therefore as GgMM, and his wife's constitution as we have seen, GgMm, we have as the male gametes of this union gM and GM, while the female gametes are gM, GM, gm, Gm. The various combinations of these gametes are represented again by means of a comprehensive square (Fig. 3).

In this square, the ratio of normal to abnormal zygotes is 12:4 or 3:1, the mendelian ratio of inheritance in which the parents differed in only one characteristic, in this case the character being that of normal metabolism, M. The resulting abnormal zygotes have all at least one M factor, but all of them lack the G factor of normal growth. As a matter of fact, there were three members of this family (F_2), one of whom was abnormal as to growth, giving a ratio of 2:1, the theoretical ratio being, as we have seen, 3:1. One of these, No. 16, was a giant, 6 feet 3 inches in height with acromegalic tendency, while the other, No. 15, was a moderate giant 6 feet 1 inch high. We therefore see that by considering height of stature as only part of a unit character, the real unit character being a general growth-controlling one, we arrive at a fairly close correspondence to the mendelian laws of inheritance.

That this growth-controlling factor is subject to various modifiers and coefficients, producing in one individual, through absence, a giant stature, in another dwarf stature, and in a third actual lapses in bony continuity, may be reasonably assumed. The actual unit character of growth in Mendel's giant peas was not really, as he first assumed, growth in height, but internodal growth. It simply happened that excessive internodal growth corresponded to increased tallness in his plants. Increased internodal growth might just as well have produced tortuous stems of no greater height than the dwarf peas. Therefore we have a reason for the nonconformity of transmission of gigantism to mendelian laws as heretofore investigated, gigantism being simply only one form of abnormal growth, and not the unit character in itself.

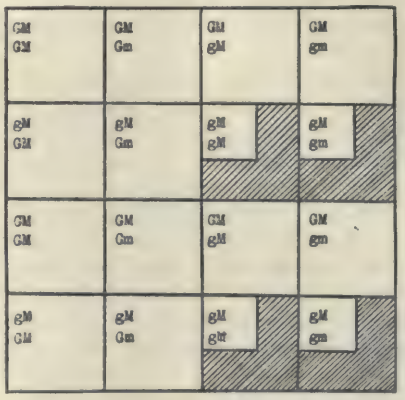


Fig. 3.—Represents the combinations of the gametes of Individuals 4 and 7 in F_1. The clear squares show the normal individuals of such a union, some being homozygous to both G and M, and others heterozygous. The shaded squares are all abnormals. The abnormals here all lack the G factor, and, as seen by the actual offspring, this was actually borne out, two of the three children having giant tendencies. The ratio here is 12:4 or 3:1, the mendelian ratio when the parents differ only in one characteristic.

The importance of investigating such inheritance as is attempted in this paper is that it may enable us to forecast, within some limits of probability, the characteristics of the offspring of certain marriages, and to advise the prospective parents of such probability. It forces on us the necessity of closer study and investigation into the nature and treatment of the endocrine disturbances. An interesting observation also in this series is that all the abnormal growth

zygotes were male, while all the abnormal metabolic ones were female. It would seem that abnormal growth is dominant in the male and recessive in the female; while abnormal metabolism may be dominant in the female and recessive in the male. But, of course, the observations are far too few to draw such general conclusions, and many more families and individuals will have to be studied to obtain sufficient data of value.

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INDUSTRIAL ANILIN POISONING IN THE UNITED STATES

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Industrial poisoning from anilin and substances closely allied to it has long been recognized in Germany, where the manufacture of anilin dyes is an enormously important industry, and the possible effects on the workmen of the various substances used or evolved during such manufacture has there been a subject of study since the sixties. More recently the growth of the dye industry in Great Britain has led to reports in that country concerning cases of anilin and of nitrobenzene poisoning.[1] As we know, there was no attempt in this country to compete with Germany in the manufacture of anilin colors or of anilin itself till the war shut off the supply and forced us to begin to make for ourselves what had heretofore been obtained from Germany. Uncertainty as to the duration of the war and lack of skill in these complicated processes delayed for many months the equipment of American factories, but once started, the movement has gained great impetus, and it is said that there are already more than a dozen factories for the production of anilin from benzene and of anilin dyes, and undoubtedly more will be constructed during the present year.

The sudden introduction of these industries brings new problems before physicians and sanitarians. Making anilin from coal tar involves exposure to poisons that are new to us in America, and because they are unfamiliar it is most improbable that the planners of these factories and the industrial chemists in charge of the processes will have given much thought to the protection of their workmen against the dangers inherent in the industry. If the experience of one town is typical, the greater number of American practitioners are not prepared to recognize the symptoms of poisoning from these bodies, or to estimate their seriousness. After the introduction, a couple of years ago, of anilin as a compound of rubber in the tire factories of Akron, Ohio, it was some time before the physicians of that city realized what was the cause of the peculiar illness that had appeared among rubber workers; many patients were treated for chronic cardiac disease, and others for epilepsy. Therefore it becomes a very important matter in the interests of public health that the medical profession should know the nature of these substances, their mode of entrance into the body, and the means which must be adopted to protect those exposed in the course of their work.

1. The earliest report quoted by Kobert (Die Intoxikationen, Stuttgart, 1906) is English: Letheby: Proc. Roy. Soc., 1863.

POISONS USED IN THE MANUFACTURE OF ANILIN AND ANILIN DYES

A short summary of the processes used in making anilin colors will show that the workmen employed in this industry are exposed to highly poisonous volatile compounds. The process starts with coal tar, which is a mixture of benzene (C_6H_6), toluene, xylene, etc., all of them volatile poisons responsible for a fairly large number of fatal industrial cases in the literature.[2] The benzene is treated with nitric and sulphuric acids to form nitrobenzene ($C_6H_5NO_2$), a poison which, according to Lewin,[3] has a mortality of 39.3 per cent., and according to von Jaksch[4], of 20 per cent. Then the nitrobenzene is reduced by means of iron filings and hydrochloric acid to anilin ($C_6H_5NH_2$). The most important colors are made by the action of nitrous acid on anilin and the allied aromatic amins. There is opportunity, therefore, for poisoning from benzene, nitrobenzene and anilin, to say nothing of the multitude of similar bodies used or produced in the various processes, such as the nitrophenols, the nitrochlorbenzenes and the naphthylamins. Methyl alcohol is one of the reagents used.

Grandhomme,[5] who was for many years attached to the great dye works at Höchst, reported 128 cases of industrial poisoning there, 109 of which were caused by anilin. Leymann,[5] who does not name the factory with which he was connected, gives a record of 171 cases of anilin and toluidin poisoning, and 101 from nitrobenzene and its allied bodies. German rubber works also have had their share of anilin poisoning. The factory inspectors' report for 1908 tells of the occurrence of wholesale poisoning in the extraction of rubber from crude gum. In this instance the workmen, seventeen in all, were working in twelve hour shifts in an atmosphere contaminated with anilin fumes. Eleven were poisoned, two being rendered unconscious and requiring hospital care. The following year two instances are reported of anilin poisoning in the recovery of rubber from scrap. Four acute cases developed in one factory, and on examination fifteen other men were found to be suffering from chronic poisoning. In the second place, where twenty-five men were employed, no less than fourteen were overcome by the fumes, and ten of them were ill for more than ten days.

ANILIN IN INDUSTRY IN THE UNITED STATES

Aside from the production of anilin colors, the oil is used in this country in the compounding of rubber, especially for tires, and in reclaiming rubber from scrap, for which purposes it has come into increasing demand during the last few years. When the war suddenly shut off the supply from Germany, some rubber manufacturers gave up using it, but others set themselves to provide it by home manufacture, so that now we must add to the men exposed to anilism in rubber manufacture those who are engaged in producing the anilin. Industrial anilin poisoning, which a few years ago was negligible in this country, has suddenly assumed decided importance. So far the making of dyes is too new to have furnished any reported cases; those which are on record come from the rubber industry and from the use of a wash for printers' ink which has anilin as one of its ingredients.

2. Rambousek: Gewerbliche Vergiftungen, Leipzig, 1911, p. 142.
3. Lewin: Virchows Arch. f. path. Anat., 1879, lxxvi, 443.
4. Von Jaksch: Die Vergiftungen, Vienna, 1912, p. 325.
5. In Rambousek (Footnote 2).

It is impossible to say how much of this substance is used in the United States or even to say how many plants use it, for the making of rubber, and even more the reclaiming of rubber, is an industry fairly hedged about with trade secrets. That is why it was so difficult for Akron physicians to trace this kind of poisoning to its source. It is, however, well known in Akron now, and common enough for the victims to be familiarly known as "blue boys," from the cyanosis which is so prominent a symptom. Since the discovery of the cause of the trouble, the rubber manufacturers have taken measures for the protection of their men, either by installing exhaust ventilators, or simply by warning them to seek the open air as soon as flushing of the face and violent headache come on. It is said that there is now far less serious poisoning in Akron rubber works.

THE TOXICITY OF ANILIN

Pure anilin has never been known to cause poisoning; but pure anilin is not used in industry. What we know under this name is a mixture of anilin (amidobenzene) with metatoluidin, paratoluidin and orthotoluidin and xylidin in varying proportions. Every medical student is familiar with the anilin oil which he uses as a clearing fluid for stained specimens, that golden brown oil with its pleasant nutlike odor. Unlike most volatile poisons, it gives no warning of its character, for it does not irritate the eyes and throat, and is apparently as harmless as cedar oil. Yet according to the researches of K. B. Lehmann,[6] anilin is toxic in even smaller doses than are benzene, chloroform or carbon disulphid. Toxic symptoms follow the inhaling of from 0.1 to 0.25 gm. of anilin, while it takes from 1 to 1.1 gm. of carbon disulphid to produce symptoms of poisoning. Anilin volatilizes at room temperature; the boiling point is high, 182 C.

Krause[7] has reported two instances of poisoning from insignificant quantities of anilin. The men were working in the Zeiss Optical Works in Jena, testing the clarity of rock crystals by dipping them in small receptacles containing anilin, and then holding them up to the light. One man worked alone in a small room, and he felt the effects at the end of his second two hour shift, complaining of nervousness and exhibiting a marked cyanosis of the skin and mucous membranes. The second was in a larger room in which the fumes were more diluted, and he worked almost four hours before becoming cyanosed. The blue color increased in intensity after a second day's work.

Still more striking in this connection is a non-industrial case related by Trespe, of a little boy who breathed what must have been a very slight quantity of fume and developed marked symptoms. He slept in the same bed with an older brother who just before going to bed had rubbed some anilin on his frost bitten fingers, with the result that he himself was severely poisoned and the little fellow moderately poisoned.

SYMPTOMS OF ANILIN POISONING

These are common to the whole group, including nitrobenzene and its derivatives, though there are minor variations which serve to distinguish anilin poisoning in a typical case. The first symptom noted is weariness, or sleepiness, flushing of the face, a sense of fulness in the head and even of slight mental confusion, dryness of the throat and difficulty in swallowing. The color of the face changes from red to livid blue, which may increase to a deep purple. The pulse is rapid and weak, the temperature subnormal. Headache comes on early and is often violent, accompanied by dizziness and nausea, and in the more serious cases there is decided dyspnea, increasing mental confusion, and finally loss of consciousness. Sometimes this occurs suddenly, sometimes not till some hours after the man has left the poisoned atmosphere. The urine at first is usually normal; later it becomes smoky in appearance.

In some cases the subjective symptoms are slight and the man seeks advice because of his livid or blue color, which is alarming to his family. This was true of two cases reported by G. Apfelbach and described farther on. Usually industrial cases do not exhibit the severest symptoms, but we have records of instances of epileptoid convulsions and of protracted coma which sometimes have proved very puzzling to the attending physician. One of these is interesting, illustrating as it does the vasomotor depression which is a feature of this poison.

> The patient, who was chief chemist in one of the large rubber companies, was found by his physician suffering from violent headache and nausea. He was profoundly cyanotic. Soon after the physician arrived, a convulsion, epileptoid in character came on—the man never had a convulsion before this—and after it he was greatly prostrated. The physician, not knowing that it was a case of anilin poisoning, administered inhalations of amyl nitrite which very much aggravated the symptoms, and for a while after that the patient's condition was most precarious.

Recovery in the milder cases is prompt, the men returning to work on the following day as a usual thing, though the cyanosis often persists for several days more. Severer cases may incapacitate for work during several weeks. Some men are said to establish a tolerance to the poison, and do not suffer a second attack; but it is more usual to find an increased susceptibility following an acute poisoning. Thus in one of the Akron plants in which anilin is being manufactured, a foreign workman, who incidentally is said to have been a heavy drinker, was told to fill a drum with anilin, and while doing this he lost consciousness and had to be taken home. The next day he came back to work, but as soon as he entered the room where the oil was being poured into drums, he again fainted away.

Chronic anilism is described by von Jaksch as a condition resulting from repeated doses of the poison so small as not to set up symptoms of acute poisoning. There are more or less headache, nausea, vertigo, muscular twitchings, disturbances of vision, sense of exhaustion and loss of strength. The skin is usually livid, or it may be jaundiced. In one instance of chronic poisoning which was reported to us in Akron, the man had been treated for chronic heart disease because of his cyanotic appearance and his dyspnea on exertion. He was found to be profoundly anemic, but there was no heart lesion, and he recovered after changing to outdoor work.

We have as yet no record in this country of the occurrence of tumors of the bladder in anilin workers, such as has been described by German observers. These tumors are adenomatous or carcinomatous and are supposedly caused by the irritation of some of the products of anilin decomposition excreted by the kidneys.

6. Lehmann, K. B., quoted in Kobert: Lehrbuch der Intoxikationen, Stuttgart, ii, 1109.
7. Krause: Med. Klin., 1908, iv, 10.

MODE OF ENTRANCE OF ANILIN

The poison may enter the skin or the lungs, more often by both ways. Birge's[8] cases are instances of pure skin absorption.

Two painters were using anilin-black paint, applying it with a brush and then washing the surface with hot water and soap suds. There were no fumes, but both men were seized with nausea, general weakness, palpitation of the heart, then violent headache with vomiting in one case and diarrhea in the other. Both passed dark colored urine. The skin was very pale, the lips blue. The next day they were able to go back to work, and by wearing rubber gloves they avoided a repetition of the trouble.

On the other hand, von Jaksch[4] reports a case of pure respiratory origin.

A boy of 17 years had been set to work for the first time mixing anilin with other compounds in an open receptacle. Headache came on almost at once, and after four hours' work he was forced to seek the outer air. He went home, and a physician, summoned some hours later, found him in coma, deeply cyanosed, with a weak, rapid pulse and dyspnea. Edema of the lungs developed and did not clear up for four or five days. The coma lasted several hours. In this case anilin could be detected in the urine.

The greater number of industrial cases follow the spilling or splashing of anilin over clothes or skin, and doubtless both skin absorption and lung absorption play their part.

PATHOLOGY OF ANILIN POISONING

Rambousek[2] places anilin and all the nitro and amido derivatives of the aromatic series among the true blood poisons, the principle action of which is to cause the formation of methemoglobin. He attributes all the resulting symptoms to the fact that in place of oxyhemoglobin with its easily released oxygen, there is methemoglobin with its firmly bound oxygen, and consequently a condition of "internal suffocation" from lack of oxygen in the tissues. The headache, feeling of anxiety, oppression, weakness, dizziness, dyspnea and finally loss of consciousness are all caused by the deprivation of oxygen. The later symptoms, icterus, methemoglobinuria, bladder irritation and bronchitis, are caused by the elimination of the poison. Kobert[1] lays almost equal stress on the importance of the blood changes; but, unlike Rambousek, he believes that there is also a direct effect on the central nervous system. Curschmann[9] agrees with the latter that anilin and the anilin group are pure blood poisons, and that all the symptoms are referable to blood changes.

Experimental studies of these blood changes were made by Price-Jones and Boycott,[10] using anilin hydrochlorid on rabbits. This compound, which is used in rubber manufacture under the name of "anilin salt," is essentially anilin dissolved in hydrochloric acid. These authors succeeded in producing severe poisoning, the hemoglobin falling to 50 per cent. The blood was turbid and brownish, and the spectroscope showed a band almost, but not quite, corresponding to that of methemoglobin. There was a transient leukocytosis, from 30,000 to 40,000, and both the circulating blood and the bone marrow showed evidence of efforts at regeneration of the red corpuscles in the form of megaloblasts, nucleated reds, and basophilic granules. The destruction of cellular elements in the blood was sometimes accompanied by an increase in the total volume.

Malden[11] examined the blood of thirteen men employed in an English factory where anilin dyes and nitrobenzene were made. Six of the thirteen had a high red count with a low color index and many imperfectly developed reds. The spectrum of methemoglobin could be detected only when it was present in the proportion of one part to ten of oxyhemoglobin. Loss of hemoglobin ran from 5 to 50 per cent. Stained specimens showed great variations in the size of the red corpuscles, from 5 to 11 microns, the large predominating, but there were no nucleated reds. It is noteworthy that basophilic granules were found in six of the thirteen men, and Malden believes that this is often the earliest sign of anilin poisoning, as it is of lead poisoning. In pronounced cases there may be ten or twelve stippled cells in every field. A differential count of whites in nine cases showed a diminution of polymorphonuclears — marked in five — with a corresponding increase in small mononuclears. Eosinophils were increased in three, mast cells in six.

Malden summarizes the effect on the blood of small repeated doses of anilin thus: reds increased in number with loss of hemoglobin; low color index; degeneration and imperfect regeneration of red corpuscles; decrease in polymorphous leukocytes, increase in lymphocytes.

DIAGNOSIS OF ANILIN POISONING

The importance of the blood examination in the diagnosis is very evident. Curschmann advises in all doubtful chronic cases an estimation of the hemoglobin, and if this has fallen 15 or 20 per cent., the man should be kept under observation, for anemia is the earliest symptom. As we have seen, Malden would look for stippled cells first. When toxic symptoms have developed, the presence of hemoglobin in the urine should be looked for. The physician who is not equipped with an apparatus for making blood examinations will depend on the cyanosis, the dark colored urine, the odor of anilin in the breath, the rapid pulse of low tension, the dyspnea, and the nervous symptoms, together with the history of employment in a factory in which this group of compounds is handled.

CASES OF INDUSTRIAL ANILIN POISONING IN THE UNITED STATES

The first cases of this sort in the literature that we have been able to discover were reported in 1913 by G. L. Apfelbach:[12]

Two men were referred by factory inspectors to Dr. Apfelbach on account of the marked cyanosis of skin and mucous membranes. The first was a press-feeder in a printing establishment who had been using a new sort of roller wash to remove the ink from the press rollers. It was a black oily fluid, which on analysis in the state laboratory was found to contain anilin. On the day when he was seen by the inspector, he had cleaned more rollers than usual, but he had been cyanosed before, though never so profoundly. The symptoms elicited by questioning were headache, mostly occipital, dizziness, pain in the epigastrium, dryness in the throat, and slight difficulty in swallowing, but none of these was severe enough to make him seek medical aid. It was the blue color which alarmed him. His pulse was of high tension, his blood pressure 170 mm. Hg (the man was 47 years old), but no other abnormality was observed with the exception of the pro-

8. Birge, E. G.: A Probable Case of Anilin Poisoning, THE JOURNAL A. M. A., Jan. 24, 1914, p. 314.
9. Curschmann: Tr. Internat. Cong. Indust. Hyg., Brussels, 1910.
10. Price-Jones and Boycott: Guy's Hosp. Rep., 1901, lxiii, 309.
11. Malden: Jour. Hyg., 1907, vii, 672.
12. Apfelbach, G. L.: Bull., Dept. Factory Inspection, State of Illinois, 1913.

nounced cyanosis and a slight difficulty in swallowing and in speech. The reflexes were normal. Examination of the blood revealed: hemoglobin, 100 + per cent.; red cells, 5,734,600; while count, 8,200 differential: polymorphonuclears, 72.8 per cent.; large mononuclears, 0.5 per cent.; small mononuclears, 20.2 per cent. The spectroscope showed methemoglobin lines. The urine was dark, smoky color, specific gravity 1.028, no albumin, no sugar, casts, etc. Employees in this printing shop had noticed the same change of complexion in other men engaged in this work, but never so severe as in this case.

Dr. Apfelbach's second patient was employed in a large dry color factory, mixing colors in an open chaser, work which he had done for several years. Occasionally he would notice that the mixture in the chaser would give off "steam" which made him sick, and this had been true just before he applied to Dr. Apfelbach for advice. The other men in the shop had alarmed him about his blue color, and he himself complained of headache, vertigo and difficulty in swallowing. The examination in this case was negative except for the presence of methemoglobin in the blood.

Birge's cases, already quoted, were next reported in 1914; and in 1915 E. R. Hayhurst,[13] in the course of his investigations of Ohio industries, found anilin poisoning in printing shops and rubber works in that state. Three cases had occurred among men employed at rubber mixing mills. The inspectors were also told of more serious poisoning among printing pressmen who used a roller wash rich in anilin. In several instances the use of this had caused loss of consciousness lasting several hours and accompanied with cyanosis.

In the course of an investigation for the federal Bureau of Labor Statistics of poisonous substances used in the rubber industry, we[14] collected some evidence concerning anilin poisoning in the chief rubber city of the country, Akron, Ohio. Anilin is used as an aid and an accelerator of vulcanization in heat curing of rubber, chiefly in tire works. Five plants in Akron were known to be using it and probably several others did. "Anilin substitute" — perhaps thiocarbanilid — and "anilin salt" — the hydrochlorid — are used in other plants. The danger is found in the room in which the compounds are measured out, on the mills on which the compounds are warmed and mixed together, and even on the calendars, on which the rubber is sheeted. The odor is plainly recognizable in all these places, unless special precautions are taken to prevent fumes by providing tightly covered receptacles and by good exhaust ventilation over the mills.

As rubber reclaiming is a process carefully guarded from the public because of trade secrets, it was not possible for us to visit any of these plants; but we found reason to believe that most of the cases of anilin poisoning in Akron — as is true in Germany — come from this branch of the industry. Not only the secrecy of the processes made it difficult to collect evidence of anilin poisoning, but also the fact that foremen and superintendents are naturally unwilling to admit that there is any danger from a substance which is in use in the factory. If, however, they are no longer using it, they may be quite willing to tell of its disadvantages. In a tire factory when no more anilin could be procured, the foreman said frankly that he was thankful not to have to handle it any more, for he had had so much trouble from the fumes among the men at the mills.

13. Hayhurst, E. R.: Industrial Health Hazards and Occupational Diseases in Ohio, Ohio State Board of Health, 1915.
14. Luce, R. V., and Hamilton, Alice: Bull. 179, U. S. Dept. of Labor, Bureau of Labor Statistics.

An interesting case indirectly connected with the rubber industry was described by an Akron physician. An old boiler was sold by one of the rubber factories, and the boiler repairer who undertook to clean it and put it in order had a typical attack of anilin poisoning.

The manufacture of anilin from benzene had begun only a short time before our investigation in Akron, but already one factory had a daily output of about 2,500 pounds and employed about fourteen men in two twelve hour shifts. In spite of a good system of exhaust ventilation which is said to have been installed, the men suffered from the fumes, and we were told that during the first four months of operation the factory lost no less than fifteen men from this cause, though it was not easy at that time to find work in Akron. The regular force was from twelve to fourteen men working in two shifts.

Shortly before the investigation referred to above, a severe case of anilism had occurred in one of the rubber factories. In this instance the poison seems to have entered both by the skin and by the lungs.

The patient was admitted to the City Hospital of Akron in a state of coma that lasted nine hours. He was deeply cyanosed, his temperature was 97.6, and pulse 116, fluttering and weak. The reflexes were normal save for a slight sluggishness of the pupils. Urine examination was negative. The patient was put to bed and given inhalations of oxygen and heart stimulants, aromatic spirits of ammonia, camphorated oil, strychnin and digalen. The temperature remained subnormal for six hours. After nine hours he regained consciousness and was discharged the following day, feeling a little weak and slightly nauseated, but otherwise normal.

His history was as follows: He was working in one of the rubber factories, and at about 1 p. m. he spilled a can of liquid over his clothes. He said it had a peculiar alcoholic odor, and when it came in contact with his skin it felt burning. The fumes were very noticeable, but he kept on at his work for about two hours more, though conscious that something was wrong. Then he began to have severe palpitation of the heart, he noticed that his face was flushed, he grew dizzy, and a violent headache came on and presently nausea, and he vomited several times. He was taken to his home, where the cyanosis kept increasing in intensity, and at about 6 in the evening he lost consciousness and was brought to the hospital. Consciousness returned at about 3 in the morning. Investigation showed that the fluid he had spilled was anilin.

Since the publication of the government report, several additional cases have been observed by one of us in connection with the rubber industry in Akron. One of them is of special interest in that we have accurate data as to the exact time of exposure to the fumes before the onset of very typical symptoms of the more intense, acute form of poisoning.

J. E. was first seen July 24, 1915. He was in profound coma, his breathing was stertorous and his pulse was irregular and of very poor quality. He was so cyanosed that the skin over his whole body was a deep plum color. That morning at 7 he had gone to work feeling perfectly well in every way and, according to the history obtained, he was exposed to fumes of anilin for an hour and forty minutes before he began to notice any symptoms of depression. First came throbbing in the head and increasing nausea, which he thought were due to the hot weather and the poorly ventilated room. He next noticed palpitation of the heart, and then a violent headache came on, increasing in intensity and accompanied by vertigo. As he said, "I felt as if I had been standing on my head for a long time and that every ounce of blood in my body had rushed to my brain." The dizziness increased and he lost consciousness completely about forty-

five minutes after the onset of the first symptoms. He was picked up by the other workmen and rushed to the hospital, where oxygen was administered as well as heart stimulants but apparently with little effect. The cyanosis persisted, the heart action was very feeble and remained so for over sixteen hours, and he did not regain consciousness till the morning of July 25, a period of about twenty-two hours.

A catheterized specimen of urine obtained on admission showed nothing of note, but a second examination was made eighteen hours later, when it was found to be smoky, specific gravity 1.022, there was a trace of albumin, no sugar, and the presence of hemoglobin was detected by the Heller test and by the Schönbein-Almèn turpentine-guaiac test, which is even more delicate than the spectroscopic. This hemoglobinuria persisted for five days.

A blood examination made on entrance gave normal findings in all respects except for a slight eosinophilia, but four days later there were stippled red cells and some irregularity in the size and shape of the reds. The hemoglobin then was 75 per cent. (Sahli).

The patient suffered from severe headache for five days and complained of weakness and exhaustion for at least two weeks longer, after which he improved slowly. He was warned not to expose himself to this danger again.

The second case is cited because it is representative of the slower and much less typical forms of anilin poisoning: H. M., a chemist employed in the research laboratories of one of the large rubber companies of Akron, was seen Nov. 1, 1915. He complained of palpitation of the heart, dizziness, marked muscular weakness and occasional nausea and violent headaches. On close questioning it became evident that the palpitation of the heart was worse and headache was more apt to come on during active work, and that this work often consisted in the handling of a compound containing anilin. Most of the work was carried on under a hood, but he admitted that the odor of anilin was at times quite noticeable. He had been doing this sort of work for months, and said that he had never been cyanosed and never had had to lose a day from the laboratory.

An examination of the urine showed nothing abnormal: The red cell count was 5,400,000, but the hemoglobin only 68 per cent., and a stained smear showed pale, unevenly staining reds. Physical examination revealed nothing of note exeept a rapid heart action; the pulse was 94.

On this scanty evidence the patient was advised to give up his work and find some outdoor occupation, which he did, and as a result the symptoms disappeared entirely in six weeks.

The third patient, a lad of 18 years, was also employed in the research laboratories of one of the rubber companies. He was given a special problem to work on, which involved the grinding and mixing of certain compounds together with anilin. He did it in a corner of the room where the fumes could not spread and expose the other workmen. After working in this way for a few weeks he began to suffer from a dull headache which persisted all day. Then one day he became conscious of a severe throbbing in his head, and his face became cyanotic. He stopped work for the day and came back the next morning feeling fairly well, but it so happened that the ventilation was unusually poor that morning and the fumes very noticeable. After just one hour's work he lost consciousness and remained in a deep coma for over twenty-four hours. He was very cyanotic and his heart action was weak; at times he was almost pulseless. Camphorated oil administered hypodermically seemed to exert a better effect than did the oxygen which was given continuously for twelve hours. In this case no blood examination was made; the urine was at first bright red, later a smoky black.

Examination of the histories of a large number of cases of anilin poisoning reveals interesting facts as to the varying susceptibility of men to this poison. We have already noted the increased sensitiveness of heavy drinkers. It seems also that men of dark hair and complexion are less susceptible than blonds, as has been observed in one of the large rubber works where records have been kept of over fifty cases of poisoning. Furthermore, it is found that young men are more susceptible than are the middle-aged, especially to the acute, violent form of anilism.

CONCLUSIONS

Commercial anilin is a well known industrial poison in Germany and in Great Britain. It is just beginning to be known in the United States, where it has already been the cause of numerous cases of poisoning among men engaged in the manufacture of rubber goods, in reclaiming rubber from scrap, in making anilin from benzene, and in using certain washes for press rollers.

It is a blood poison, causing the formation of methemoglobin with the consequent "internal suffocation."

Poisoning may take place through the skin or the lungs. Usually in industrial cases both portals of entry play a part.

Exposure to the fumes need not be excessive or long-continued to bring about serious symptoms in the susceptible.

Young men are more susceptible than the old or middle-aged, blonds than dark-haired men, heavy drinkers than the temperate.

Hot, humid weather, heated rooms and poor ventilation are important factors in the production of acute anilin poisoning.

Early recognition of anilin poisoning is of prime importance so that the sufferer may be withdrawn from the danger of further exposure to the poison.

Men working in anilin constantly seem to acquire a certain amount of tolerance to it; nevertheless, if the exposure is increased beyond the point of tolerance, there is apparently a cumulative effect, and symptoms of chronic poisoning result. After symptoms of poisoning have once manifested themselves, the patient is usually hypersensitive to the fumes.

The treatment consists in fresh air, oxygen and heart stimulants, especially camphorated oil. Prevention of subsequent exposure is imperative.

AN OUTBREAK OF TYPHOID ATTRIBUTED TO INFECTED OYSTERS

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An outbreak of typhoid fever, comprising fifty cases, which presented itself during November and December, 1916, in the city of Binghamton and in certain nearby municipalities in Broome and Chenango counties, offered an unusual opportunity for epidemiologic study, and proved particularly interesting since it was demonstrated with reasonable certainty that it was due to infected oysters.

Typhoid fever had prevailed to some extent in Binghamton and vicinity prior to the recent outbreak. Table 1 indicates the municipalities involved in this outbreak, the population of each, and the number of cases which had occurred during 1915, prior to November 1.

During the recent outbreak, cases appeared in each of these municipalities as follows: Binghamton, 25; Johnson City, 10; Windsor, 6; Norwich, 5; Oxford, 3; Greene, 1.

During December it was noted that an unusual number of cases were being reported at practically the same time from these various municipalities, in some of which, as will be noted (Table 1), there had previously been no cases for at least ten months. This naturally excited a suspicion that there might be a common origin.

Johnson City is a village practically continuous with the city of Binghamton; Windsor is situated about 15 miles from Binghamton; Greene, Oxford and Norwich are located on a division of the D. L. & W. Railroad, 20, 33 and 42 miles distant, respectively, from Binghamton.

TABLE 1.—OCCURRENCE OF TYPHOID IN 1915 PRIOR TO NOVEMBER

Municipality	Population	Cases prior to Nov. 1	
Binghamton	53,668	24	
Johnson City	5,400	6	
Windsor	2,384	None	
Norwich	8,342	2	(April and May)
Oxford	3,073	None	
Greene	2,959	None	

December 15, through conference with the health officer of Johnson City, it was learned that three of the four patients then reported as having typhoid fever were known to have had raw oysters at a time consistent with the period of incubation, while nothing else in common had been discovered. It was learned on inquiry from one of the local retailers, who had supplied two of the patients, that much of the oyster trade in Binghamton and nearby towns was supplied by two Binghamton wholesale houses, from one of which he had received his supply.

The following day at Windsor it was found that in the cases then reported, occurring in two families situated at a distance from each other, one family living in the village and the other in the country, oysters from the same source had also been eaten raw at the proper time.

In the city of Binghamton, the records of the health officer showed that attending physicians in a few cases had reported "oysters" as a possible source of infection.

These incidents, together with the reports received later from health officers of other municipalities, led to a strong suspicion that oysters were among the possible sources of infection. Owing, however, to the relative rarity of authentic oyster outbreaks, it was still assumed that some other source of infection would be discovered.

About January 1, because of the number of cases reported and the difficulties encountered, it was deemed advisable for the sanitary supervisor temporarily to lay aside all other work and give his entire time to a detailed investigation. Mr. C. A. Ferrin, an inspector of the Division of Cold Storage Inspection, was assigned to assist in tracing shipments of oysters from their source, through the wholesalers, to the large number of retailers involved; while Dr. F. M. Meader, director of the Division of Communicable Diseases, gave advice and assistance throughout the investigation. This included a house-to-house study of the cases, the thorough investigation of all "clues" to other possible sources of infection, such as water, milk and its products, celery and other raw vegetables and fruits, association with other cases, carriers, etc. As already indicated, it also included a detailed study with reference to oysters as a possible agent in the transmission of infection.

It was found that the dates of onset ranged between November 15 and December 18, with the greatest incidence of onsets at about November 21 and December 2, the dates of onset in all the municipalities being practically coincident.

Of the various agents investigated, it was evident that water could not be a common source of infection, since each municipality had its own supply. Reports of bacteriologic examinations of the water supply of the city of Binghamton, made almost daily during November, did not indicate infection. In Binghamton the cases were scattered over the routes of nineteen different milk dealers. A clue which might have cast suspicion on the milk of one dealer came to naught when it was found that he was among the few who had no cases on their routes, and that he sold no milk except at retail. Naturally, at Thanksgiving time and at Christmas, a considerable number of persons had eaten celery. It was found, however, that there was no common source of supply, and investigation of a number of truck farms supplying celery led to its elimination.

The study to determine the possible relation of oysters to the outbreak proved most interesting and instructive. Incidentally, it was noted that there were no cases occurring among the very poor, of which class Binghamton naturally has its share. If water or milk had been the responsible agent, it might reasonably have been expected that the very poor, as well as those in comfortable circumstances, would have been affected.

It was found that thirty-eight patients, or 76 per cent. of the total number, fifty, were definitely known to have had oysters — a few having eaten them to excess — on a date consistent with the period of incubation. This period was determined by going back one week, and assuming that infection may have occurred at some time in the preceding two weeks. Most of the patients had eaten the oysters raw. In one instance they had been fried, and in others stewed.

It was found that the common practice, in preparing oyster "stew," was first to "bring the water to a boil," after which the oysters were added. They were not boiled, as this process is said to make them "tough." It is apparent, therefore, that the process of cooking, as ordinarily practiced, is not likely to sterilize infected oysters effectively.

The results of investigation in the remaining twelve cases, or 24 per cent. of the total number, not included in the foregoing are summarized in Table 2.

TABLE 2.—CASES OF TYPHOID NOT DIRECTLY TRACED

	Number of Cases
Oysters, raw, at about the date given as that of onset	4
Oysters, raw, at the right time but apparently not from the common source	1
Diagnosis apparently incorrect	1
Outside infection probable	1
Secondary	2
Not determined	3
Total	12

In regard to the source of supply of the oysters consumed, it was found that they had been purchased from a large number of retailers. There were in Binghamton six wholesale distributors; much of the retail trade, however, both in Binghamton and in the other municipalities, had received its supply from one or the other of two of the larger distributors, whom we will designate as A and B. It was found that twenty-seven of the thirty-eight definite oyster cases

had in all probability had oysters supplied by A, while those eaten by ten came from B. In one case the source of supply was not determined. In other words, practically all of these cases, located in six different municipalities, had oysters believed to have been supplied by only two out of six wholesale dealers. These oysters were received by the wholesalers in sealed gallon cans, and were said to have been sold to the retailers without the cans having been opened.

Wholesaler A, in turn, received his supply from two Maryland firms of packers, one in Baltimore and the other in Cambridge, while B was supplied wholly by one packing house in Baltimore. It was stated that none of these Maryland packing concerns owned any oyster beds, but that each in turn received its supply from nine or more "shucking" houses, scattered through Maryland. At the time of writing, the matter of determining, if possible, the ultimate source of the oyster used, and whether a single "shucking" house may have supplied some of the oysters which reached both A and B, is in the hands of organizations outside of New York State. At the time of the receipt of the last report, it had been impossible to determine the source of those shipped to this section of New York State.

It is interesting to note that, at the time of our investigation, oysters from one of the Maryland packers mentioned above were under suspicion in connection with outbreaks of typhoid fever in three cities in Illinois.

Since a large number of persons other than those who developed typhoid ate oysters from the common source mentioned, while practically all of those who have been included as "oyster cases" had oysters from the same source, the inference is that, mixed with the oysters received by the two Binghamton wholesalers, were small quantities of infected oysters. From the incidence of the dates of onset, it may perhaps be assumed that the infected oysters were included in two shipments, one about November 1, the other shortly before Thanksgiving day.

SUMMARY

In November and December, fifty cases of typhoid fever occurred in six municipalities, in three of which there had been no cases in over ten months, and in one none in five months. There was apparently no possible common source of infection other than oysters purchased from various retailers, these retailers having been supplied by two of six wholesalers. In the thirty-eighth case the source of the oysters consumed was not determined, but presumably it was the common one. The two wholesalers received their supply from three Maryland packing houses, each of which drew for supply on a large number of small "shuckers" scattered throughout Maryland. Whether oysters from one "shucker" reached both of the Binghamton wholesale houses remains to be determined if possible. Apparently the infected oysters were received in two shipments, one in November, the other in December. It may be added, in conclusion, that there have been no cases in these municipalities, other than secondary, since that time.

NOTE.—Under date of April 5, I have been advised that it has been impossible to locate with certainty the source of the infected oysters responsible for this outbreak; that there are two small areas regarded as especially dangerous, one near the outfall of a sewer on which is a hospital, and that oysters from these areas have been sold during the past season.

VITAMIN SOLUTION OF THE PELLAGRA PROBLEM

A PRELIMINARY NOTE *

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A number of writers[1] have suggested the possibility of the solution of the pellagra problem in a vitamin removed in the process of milling, but there has been no experimental or clinical evidence worthy of serious consideration.

There is no doubt in the minds of a large number of the students of pellagra that the deficiency theory of Dr. Joseph Goldberger[2] is correct. This report is based on the correctness of his theory. The present work had its inception in an idea suggested by Dr. Goldberger pointing out the analogy between pellagra and beriberi. Reviewing the beriberi situation as it stands at this time, one is impressed with the fact that it is not essential to eat rice in order to suffer the disease, but that it is highly improbable that beriberi will ever become a great economic problem except in rice eating countries, though sporadic cases are occurring even in this country. With this idea in mind, one naturally turns back to the old theories that pellagra was caused by defective corn. An effort was made to determine if corn suffered in the milling process. The work was planned entirely from the standpoint of a deficiency, and developments soon justified the strong suspicion that the protective vitamin was removed by milling, just as the vitamin is removed in the milling of rice when the product is polished rice.

Until recent years,[3] in the South especially, corn was simply crushed between two stones, and the power was that of the stream nearby. Each neighborhood had its own mill. The only thing removed was the coarse particles of outer skin or husk. This method of milling has been largely replaced by steam or electric milling. By this process the corn is subjected to heat in order to loosen the outer coarse husk. Our attention at this time is directed to this portion of the industry to determine how much heat is employed. In the modern mill, in which these observations were made, the heat is a negligible quantity; but it must be remembered that 120 C. is sufficient to destroy any vitamin that may be contained. This part of the work, therefore, cannot be too strongly emphasized. After the heating process the grain is passed into a "degerminator," which removes the germ. This is done because the germ contains such a large amount of fat that rancidity would soon occur if it were left in the meal. Besides this, the germ would give to the meal a yellow color which by modern standards is counted undesirable. The offal, which contains the germ, husks and bran, some flour and flinty portions of the grain, constitutes about 30 per cent. of the entire weight of the grain. It is known as "corn chops," and is fed to the cattle. The remaining endosperm, after the removal of the offal, is finely ground, and the product is known as granulated corn meal; but in this article it will be referred to as milled meal.

* From the Public Health Laboratory of the City of Wilmington and County of New Hanover, North Carolina.

1. Castellani and Chalmers: Manual of Tropical Diseases, Ed. 2, 1913. Stitt: Diagnostics and Treatment of Tropical Diseases, 1914.
2. Goldberger, Joseph: Pellagra: Causation and a Method of Prevention, THE JOURNAL A. M. A., Feb. 12, 1916, p. 471.
3. Farmers' Bull. 298, U. S. Dept. Agric.

Nightingale[4] found that prisoners who had been fed on whole meal ground in the jail did well, and were free from disease. Owing to a crop shortage, he was forced to use milled meal, and there soon developed a disease for which he coined the term "zeism," thinking it to be an undescribed condition. The symptoms were symmetrical erythema of the exposed portions of the body surface, sore mouth, digestive disturbances with diarrhea, and even mental symptoms. He says that it somewhat resembled pellagra, but was not that disease, even if an acute form of it occurred. In 1905 the failure in making the diagnosis was because we did not recognize an acute form of pellagra which is unknown in European literature. A careful reading of Nightingale's paper will convince any one who has seen pellagra in America that this disease could not be otherwise diagnosed. Certainly if it is not pellagra, then the disease going by that name in the United States has been erroneously classified. No better animal experiment will ever be done than this experience of Nightingale to confirm the correctness of our belief that the protective vitamin is removed from corn by the present method of milling. He says that after he found that commercial corn meal caused the trouble, he secured a fresh lot of corn and had it hand milled in the jail. The result of its use is declared "immediate and magical."

Following the general plan of investigation in polyneuritis gallinarum, pigeons were selected for feeding experiments. One group was fed the best commercial meal on the local market. The result was very striking. Polyneuritic symptoms developed almost at once, and other symptoms which are exceedingly suggestive of pellagra. Among these are redness of the legs, weakness, and loss of feathers with the prospect of prompt death. The next group of pigeons was fed on the best corn, which was not kiln dried, and it was ground in the laboratory at the feeding time. These pigeons have made a striking contrast with the former group. In spite of the fact that the only food allowed was corn, they have remained perfectly healthy and active.

In a search through the mountains of North Carolina, I have found no cases of pellagra in those counties removed from the lines of railroad travel. The mountaineer lives on much the same food and in equally as unhygienic conditions as the lowlander, but there the difference in the corn is again quite striking. The mountaineer is too far away from the railroad to get milled meal, so he must send his corn to the local mill, where it is ground in small amounts at a time, and the whole grain is eaten, giving him the necessary protective substance. The man in the low country can get the meal from the village store, and thereby save the time and labor of a man and a mule to send to the mill. In so doing he fails to get the protective substance, and unless his diet is otherwise adapted to supplying the vitamin, pellagra should naturally follow. In an eastern county remote from railroad travel, there are broad areas where pellagra has never been seen, and it is notable that the people eat water-ground whole meal. In all other respects this county seemed to be peculiarly suited to pellagra, and the fact of its absence has always been very puzzling.

Beriberi occurs sporadically among those who never eat rice, but it will never be a great economic problem except in those countries in which rice forms the chief food. Pellagra, likewise, may occur in those who never eat corn, but will probably never reach any proportions except in corn-eating people. Both diseases are deficiencies, and the deficiencies may, and frequently are, made up by other wholesome vitamin-supplying foods, even when deficient grain is eaten.

These observations lead me to believe that it is probable not only that pellagra is a deficiency disease, but also that the deficiency can be definitely placed in the modern method of corn milling. It would appear, therefore, that the eating of the whole grain in corn countries will stop the ravages of pellagra. Deterioration of corn is productive of pellagra because the germ is the portion of the grain most subject to the action of molds and animal parasites.

In a subsequent report, the action of an alcoholic extract of corn chops on the pigeons made sick by milled meal will be described.

4. Nightingale: Zeism: A Disease Caused by Defective Mealie Meal, Transvaal Med. Jour., July, 1912.

FURTHER OBSERVATIONS ON THE SCHICK TEST FOR DIPHTHERIA IMMUNITY *

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About a year ago Weaver and Maher[1] reported some observations on the Schick reaction as it had been employed by them in the Durand Hospital. Since then the test has been used quite extensively in our hospital work and has proved of much advantage. We consider it one of our valuable diagnostic measures. The present report deals with some of our experiences with the test during the past year.

A slight modification in the technic of making the intracutaneous injection has been devised by Dr. Rappaport. The skin on the outer side of the arm is rendered tense by clasping the arm from behind. The needle is first thrust into the skin at right angles to the surface to a depth of about one-eighth inch. The direction of the needle is then changed so that if it were carried forward it would emerge about one-half inch from the point of entrance. The needle is then carried forward in this direction until the point is plainly visible within the epidermis. The injection is then made and the needle withdrawn. The advantages of this method over the old one are that it is less painful, requires less time, and the danger of any escape of fluid from the puncture is obviated. The toxin has always been so diluted that one-fiftieth minimum lethal dose was contained in 0.1 c.c. The test injection has been made on the outer side of the right arm, and at a corresponding point on the left arm was made a control injection consisting of the same amount of toxin plus several hundred times the amount of antitoxin required to neutralize the toxin. The mixture was so made that the amount injected was here also 0.1 c.c. The actual quantity of serum injected was from $\frac{1}{2000}$ to $\frac{1}{3000}$ c.c. of an antitoxin globulin solution.

Dilutions of toxin were prepared at intervals of from four to six weeks, the diluted toxin being distributed in tightly sealed bottles holding 5 c.c. and kept

* From the Memorial Institute for Infectious Diseases.
1. Weaver and Maher: Jour. Infect. Dis., 1915, xvi, 342.

in the refrigerator. No preservative was added. A bottle was used for only a few tests, being always kept at a low temperature when not in use. We have observed no deterioration of the diluted toxin when preserved in this manner. The toxin-antitoxin mixture for the control injections was used for only a few days, a new mixture being then prepared.

During the year, tests have been made on 194 healthy young adults. Of these, 52.6 per cent. gave negative results. These tests are shown in Table 1,

TABLE 1.—RESULTS OF TESTS IN HEALTHY YOUNG ADULTS

	Number of Cases	Positive Results Number	Negative Results Number	Negative Results Per Cent.
1. Nurses, Durand Hospital	44	18	26	59.1
2. Interns, Durand Hospital	6	3	3	50.0
3. Medical students	51	22	29	56.9
4. Nurses, X Hospital	71	44	27	38.0
5. Other adults	22	5	17	77.3
Total	194	92	102	52.6

in which they are arranged in groups. The first three groups include senior and graduate nurses and senior medical students. They were from 25 to 30 years of age, had lived largely in the country until taking up their professional studies, and had come in contact with diphtheria to a limited extent. In Group 4 were pupil nurses in a general hospital which does not admit contagious diseases. These nurses were in various stages of their training, and on an average were younger than those in Group 1 and had probably come in contact with diphtheria to a less extent. Group 5 included persons who were older than those in the other groups and who had come in contact with all sorts of infections to a greater extent.

It seems reasonable to account for the increasing proportion of persons immune to diphtheria with increasing age as resting on a production of immunity (that is, antitoxin) under the influence of mild and often unrecognized infections by diphtheria bacilli. We have been able to follow the course of events in three patients who came to the hospital after suffering several days from a mild diphtheria. On admission they still had slight angina but no pseudomembrane, and they showed little evidence of illness. They had received no antitoxin previously and, as they were apparently recovering, they were given none. At the time of entrance a positive Schick reaction was obtained and virulent diphtheria bacilli were cultivated from the throat. Schick tests were made at intervals, and negative results were obtained in a week to ten days in all. It is well known that diphtheria carriers are uniformly immune and give negative Schick reactions. It seems probable that many carriers originally suffered from a mild diphtheria, following which immunity developed. Numerous bacteriologic studies of apparently healthy persons have revealed from 1 to 6 per cent. of carriers in the groups examined. The studies have included large numbers of persons, and indicate that a relatively large number of carriers are constantly present among apparently healthy people. In 1913-1914, Goldberger and Williams[2] endeavored to learn how widely diphtheria bacillus carriers were distributed in Detroit. In a study of cultures from over 4,000 representative individuals, they found about 1 per cent. of carriers, making a probable total of from 5,000 to 6,000 in the entire population of the city. If we infer that each of these carriers has become immune through a previous mild infection, we can realize that the proportion of immune individuals is thus being constantly added to.

We have found the Schick test of much diagnostic value in carriers who are sick from other anginas than diphtheria. Especially when opportunity for infection by diphtheria bacilli is known to have occurred, any sore throat arouses suspicion. In such cases in which a diagnosis from clinical appearances is impossible, we are accustomed to make a Schick test and wait for its development and for cultures to grow. If the patient gives a negative result from the intracutaneous injection, no antitoxin is given, even though diphtheria bacilli are found in cultures. Such a case is recognized as one of angina from some cause in a diphtheria carrier. This means of diagnosis is not available if the patient has been given antitoxin. Antitoxin given intramuscularly before or simultaneously with the toxin usually completely inhibits the reaction. We have secured positive reactions in some instances in which the antitoxin followed the toxin after an interval of half an hour. Antitoxin given from three to six hours after the toxin often prevents the reaction entirely or modifies it in a marked degree.

Three cases of postdiphtheritic paralysis have been tested by this means for the presence of antitoxin. In two the result was entirely negative, indicating, as have most studies of the subject, that further injection of antitoxin is useless. In one of the cases we secured a positive reaction, and following the administration of antitoxin the advancing paralysis stopped abruptly, and the patient recovered very rapidly. We would not lay too much stress on this single case, but in cases of paralysis following diphtheria giving a positive Schick reaction the administration of antitoxin would seem to be a proper procedure.

Tests were made in sixty-six cases of scarlet fever, and the results are shown in Table 2.

The proportion of children between the ages of 2 and 5 years who gave negative results is relatively large as compared with the statistics of most observations on children of corresponding age. Our patients come almost exclusively from the most unhygienic and overcrowded districts, in which contagious diseases are constantly present and in which diphtheria is often very prevalent. The opportunities for these children to be infected by diphtheria are very abundant, and the large proportion of immunes may be thus explained.

TABLE 2.—RESULTS OF TESTS IN SCARLET FEVER PATIENTS

Age, Years	Number of Cases	Positive Results Number	Positive Results Per Cent.	Negative Results Number	Negative Results Per Cent.
From 1 to 2	5	3	60.0	2	40.0
From 2 to 5	21	7	33.3	14	66.7
From 5 to 15	28	6	21.0	22	79.0
From 15 to 24	12	6	50.0	6	50.0
Total	66	22	33.3	44	66.7

Twenty patients with tonsillitis were tested, and eighteen, or 90 per cent., gave negative results. The results are shown in Table 3.

In a few instances the reaction of a positive Schick test has appeared to be followed by antitoxin production. In three instances in which persons gave positive reactions, negative ones were given two and one-half, three and four months later. In the interval no antitoxin was administered. In most instances Schick tests made one and two months after a primary positive one also resulted positively, but the later ones

2. Goldberger and Williams: Bull. 101, Hyg. Lab., U. S. P. H. S., 1915.

were often apparently modified, although not completely inhibited. That the reaction should be followed by a limited antitoxin production is probably to be expected.

Occasionally at the height of a positive reaction a vesicle forms at the center or margin of the red area. This quickly dries and is evident only in the further evolution of the process in a rather more pronounced sealing. We have observed this in four normal persons, in two cases of scarlet fever and in one of diphtheria.

Several things of interest have been observed in connection with the control of toxin-antitoxin injections. Since the toxin is here neutralized, an entire absence of reaction is usually associated with a positive reaction in the test arm. A pseudoreaction is usually associated with a similar one in the control. A pseudoreaction in both arms sometimes subsides in two or three days, leaving a typical reaction in the test arm which runs a typical course. The control injections sometimes cause reactions which have no counterpart in the test arm, and are due to the serum injected. In persons who are hypersensitive to horse serum, a local reaction develops at the seat of injection. This usually appears within twenty-four hours, and consists of a bright redness, swelling and slight pain on manipulation. The area involved may be only a few centimeters in diameter or may extend half-way about the arm. These reactions were especially noted in persons

TABLE 3.—RESULTS OF TESTS IN TONSILLITIS PATIENTS

Ages, Years	Number of Cases	Positive Results Number	Negative Results Number	Negative Results Per Cent.
From 1 to 5	3	1	2	66.6
From 5 to 15	7	1	6	85.7
From 15 to 29	10	0	10	100.0
Total	20	2	18	90

who had received antitoxin some time before. Occasionally they appear in persons who have never previously received horse serum. In one such individual a very severe local reaction followed the control injection. Blood was drawn from the patient's vein, and of the serum 4 c.c. were injected intraperitoneally into a guinea-pig with no apparent effect. Twenty-four hours later, 5 c.c. of normal horse serum were injected intraperitoneally. Anaphylactic symptoms appeared shortly, became very pronounced in two hours, and the pig died nineteen hours after the second injection. At necropsy the usual changes associated with anaphylaxis in the guinea-pig were present. The patient yielding the serum has been subject to frequent attacks of severe urticaria from unknown cause.

Another patient who had received diphtheria antitoxin three or four years previously was given the usual toxin-antitoxin control injection. There followed an accelerated reaction consisting of local redness and swelling and a mild urticaria of the face and arms. In still another patient the two injections were given with a resulting severe positive reaction on the test arm and a slight pseudoreaction on the control arm. Ten days later the tests were repeated. The test arm was entirely negative, while the control arm showed a severe local reaction which was well developed in forty-eight hours and associated with a red macular eruption over the extensor surfaces of elbows and knees. In other cases a local sensitization has appeared after a second or third injection, the previous ones having caused no disturbance. It is remarkable that sensitization and reactions were brought about by such small amounts of horse serum, from $\frac{1}{2000}$ to $\frac{1}{3000}$ c.c. The occurrence of a marked local reaction, especially with a primary injection, would direct attention to an individual susceptibility for horse serum and warn one of the necessity of care in the administration of serum if it should be required by the individual.

For two years we have tested in a routine way all nurses coming to Durand Hospital. Those who gave positive results were given 1,000 units of diphtheria antitoxin. These persons were retested every month and were reimmunized when a positive reaction again appeared. Since this procedure has been adopted, no case of diphtheria has occurred among the nurses.

PYLEPHLEBITIS FOLLOWING APPENDICITIS

WITH REPORT OF A CASE

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History.—T. R., boy, aged 12, whom I saw, May 30, had high fever with coryza, photophobia, decided bronchial symptoms and Koplik's spots. A diagnosis of measles was made. A rash appeared, June 1; the temperature was 103, pulse 100, respirations 20. Following the eruption the temperature declined, registering 100, June 2. On the evening of this day the temperature rose to 103.4, with an increase of bronchial symptoms and cough and a patchy dulness posteriorly over both lungs but without sputum. At this time the boy complained of slight pain in the abdomen, though examination gave no evidence of any abdominal trouble. On the following day at 3 p. m. he complained of a slight chilly feeling lasting about five minutes. At 4:45 his temperature registered 104.6, pulse 112, respirations 32. At 6:30 p. m. there was another slight chill lasting thirty minutes, following which the temperature was 104, pulse 130, respirations 28. Blood smears at this time were negative for plasmodia. The urine was highly colored, and showed no diazo, no albumin and no bile or casts. June 4, there was a slight chill without much temperature response. June 5, in the early morning, there were two chills, one lasting twenty minutes. About this time we noticed some rigidity and slight tenderness in the liver region; but no pain had been complained of since the onset of the lung symptoms. The boy would play and move about in his bed without any apparent discomfort. The chills continued irregularly from this time until June 9, with a septic type of temperature without any localizing symptoms other than the slight rigidity and tenderness. A blood culture by Dr. Zeiler was negative. On the morning of June 9, the lung findings had cleared and it was noticed that the conjunctiva was icteric; there was pain and rigidity over the entire right rectus, the pain being more marked over the appendix, and the rigidity more pronounced over the liver area. The blood count showed 8,800 whites, polymorphonuclears 72 per cent., lymphocytes 16 per cent., large mononuclears 8 per cent., eosinophils 2 per cent. Urine: Specific gravity 1.016, negative albumin, sugar and acetone, no casts, bile pigment present. The boy was removed to the California Hospital, where he was operated on by Dr. W. W. Richardson.

Operation and Course.—Because of the more pronounced symptoms over the liver, an upper rectus incision was made, disclosing a markedly congested liver without mottling. It did not show any sign of liver abscess and it was not particularly enlarged, lying about the level of the costal arch with the lower edge sharply rounded. The gallbladder was distended, but normal in appearance. There was no free pus in the peritoneal cavity. In view of this practically negative liver condition, the appendix was explored through the

same wound, and it was found to be bound down by adhesions, with its apex lying in a hardened mass about the size of a walnut. It was brought out through the abdominal wound, disclosing a small perforation in its extremity. The tissue about the appendix was necrotic with fecal odor, but no pus was present. The appendix was removed, a drain established through a stab wound, and the upper wound closed. Following this operation the patient was free from chills for thirty-six hours; then there was a rigor lasting ten minutes, followed by profuse perspiration. June 13, a urinalysis showed a slight trace of bile and the presence of acetone and diacetic acid. About six days after the operation it was noticed that the conjunctival icterus was less marked. June 15, there was some nausea and vomiting of clear fluid and later on of a yellowish brown fluid. June 16, a diarrhea manifested itself by involuntary bowel movements, there being sixteen during this twenty-four hours. June 17, the urine still showed traces of bile with acetone and diacetic acid. There were seven bowel movements on this day, and vomiting occasionally occurred. The chills became much more severe, bringing a greater temperature response, more decided acceleration of the pulse and profuse perspiration. Quinin administered to the point of cinchonism had no effect on the chills.

Owing to the infection which was present, the sutures in the upper wound broke during one of the vomiting spells, and several coils of the small intestine protruded through the abdominal incision, which necessitated etherizing the patient to replace them. About June 20 the bowel movements again became more frequent, of a greenish brown color and of watery character, but no abnormal substances were found, and examination for parasites was negative. The blood count, June 21, showed white blood corpuscles 7,000, polymorphonuclears 81 per cent., lymphocytes 14 per cent., large mononuclears 4 per cent., eosinophils 1 per cent. A culture taken from the pus exuding from the appendix drain showed the colon bacillus. June 26, the patient had thirty-seven bowel movements. June 27, there were forty-four. June 28, there were eleven. These were controlled by bismuth and opium. June 30, there was some abdominal pain and distention, which gradually increased. There was also a cessation of bowel movements. Ileus being present, there was stercoraceous vomiting. A puncture wound was made in the small intestine, and a large quantity of fluid evacuated. At this time the chills were not so severe; there was much less temperature response, but profuse sweating. The principal effect, however, was noticed on the pulse, which became very much more rapid and thready, until finally the patient succumbed. Vomiting continued up to the very last.

Necropsy (by Dr. Zeiler).—Inspection: Body of emaciated boy of about 12 years of age. On the right side of the abdomen were two wounds, and some purulent fluid evident. Both wounds had apparently been drained. The abdomen and thorax were exposed through a median incision and the removal of the sternum. The lungs showed hypostatic congestion. The pleura was negative. The pericardium and heart were normal.

Abdomen: The intestines on the right side were adherent to the abdominal wall, and many coils were matted together. On separating some of the adhesions, several small pockets of pus were encountered between the matted coils of intestine. The small intestine was distended. The colon was collapsed. One loop was adherent to the upper operative wound and had evidently been opened antemortem. On separating still further a large pocket of pus was encountered, bounded by the lower edge of the liver above, and extending to the lower abdominal wound below, and between the anterior abdominal wall and the intestine. Below this, in the abdominal cavity, extending from the appendicular region into the kidney pouch, was another pus collection. On carefully separating the coils of the intestine a volvulus, consisting of a half twist of ileum on itself and bound down by recent adhesions was discovered about 3 feet from the ileocecal junction. The intestines were removed, and the appendix stump, or the place where it had been, was not discovered. A small facet which was probably an appendicular orifice was found, but was well healed over. There was free pus in the pelvis. The liver was small, pale and mottled, suggesting possibly a fatty liver with no external evidence of abscess. However, on handling the liver before removal, an abscess on the under surface of the left lobe ruptured. The liver was then left in situ and the portal vein and its tributaries were dissected.

The portal vein was partly filled with a thrombopurulent mass; its gastric and splenic tributaries were normal, and the mesenteric branch was thrombosed with the same nature of material as was found in the portal vein. This thrombosis was followed down to one of the small branches leading to the appendicular region. Following the portal vein into the liver, numerous dark necrotic areas along the course of the radicles of the portal vein were encountered, many of them miliary, others several centimeters in diameter. Some contained small quantities of pus, while others had not yet reached that stage. The spleen was slightly enlarged and soft. The kidneys were enlarged and showed evidence of cloudy swelling. The pancreas was negative.

Anatomic Diagnosis: Phlebitis of the portal vein and superior mesenteric vein; multiple abscesses of the liver extending into the portal radicles; localized disseminated peritonitis; capsulated peritonitis; operative fecal fistula of the small intestine; acute splenic tumor; cloudy swelling of the kidneys; ileus; hypostatic congestion of the lungs.

STATISTICS

Babler[1] says:

Murphy states that multiple abscesses of the liver are a rare complication of appendicitis. Ochsner, Deaver and several other American surgeons have not seen more than one case. In 1903 Gerster reported 1,189 operative cases of appendicitis, in nine of which pylephlebitis was present.

According to Rolleston,[2] Langdon Brown reports but twelve cases out of 9,494 necropsies, or 0.12 per cent. In 257 cases of suppurating appendicitis, Fitz found suppurating pylephlebitis in eleven cases, and in 2,714 clinical cases of appendicitis collected from the various London hospitals, there were ten cases of suppurative pylephlebitis, or 0.4 per cent.

SYMPTOMS OF PYLEPHLEBITIS

Pylephlebitis, according to Deiulafoy[3] and Neusser,[4] occurs most frequently during the closed abscess stage of appendicitis late in the infection, and may follow even after the removal of the appendix. It is accompanied by sharp rigors, severe fever, pains in the hypochondrium, rapid increase in the size of the liver, jaundice, etc.

Babler[5] says:

Gerster mentions the fact that chills accompanied by a rapid rise of temperature observed during the course of appendicitis, however mild as to local symptoms, may and usually do signify the entrance of septic material into the portal and general circulation. They must be looked on as signs of the greatest import. Should the seizure pass into a continuous fever with dry tongue and retching, a clouded sensorium with a rapid rising pulse of deteriorating volume and quantity, the body temperature remaining above 103 degrees, with a tendency to mounting as high as 106 degrees or higher, the diagnosis of acute septicemia will be justified.

One of the earliest and most impressive diagnostic signs of portal infection is repeated chilly sensations or distinct chills. The chill is followed by high pulse rate,

1. Babler: Ann. Surg., May, 1915, p. 589.
2. Rolleston, H. D.: Diseases of the Liver, Gall Bladder and Bile Ducts, New York, The Macmillan Company, 1912.
3. Deiulafoy, G.: A Text Book of Medicine, New York, D. Appleton & Co., 1911.
4. Neusser, E.: Modern Clinical Medicine, vol. Diseases of Digestive System, D. Appleton & Co., 1910, p. 480.
5. Babler: Ann. Surg., May, 1915, p. 591.

marked elevation of body temperature and profuse sweating. When these symptoms follow in the wake of the early clinical manifestations of an acute appendicitis, and are associated with persistent pain in the region of the liver, jaundice, general depression, septic tongue, the finding of urobilin in the urine, and marked tenderness in the hepatic area without signs of peritoneal or pleural involvement, we may feel confident that the patient is suffering from septicemia due to multiple abscesses of the liver. Pain is very constant and precedes the jaundice. According to Strümpell,[6] epigastric pain is a constant symptom. Local tenderness, which is sometimes present when the liver cannot be felt to be enlarged, is more valuable as evidence of hepatic suppuration than pain referred to the right hypochondrium.

According to Babler, the diagnosis of multiple liver abscesses complicating appendicitis must rest on the following data: (1) the history showing that the appendix was the primary seat of trouble; (2) a shifting of the symptoms from the appendix to the hepatic region; (3) the progressive increase in the severity and the character of the symptoms; (4) the repeated chills followed by high pulse rate and marked elevation of body temperature; (5) the jaundice; (6) the persistent pain in the hepatic region; (7) the urinary and blood findings; (8) the change of liver dulness; (9) the picture of marked toxemia, and (10) the absence of the signs and manifestations of extensive peritonitis. Taylor,[7] in summing up a characteristic case, says that there should be (1) evidence of primary cause, that is, appendicitis; (2) the development of the septicemic state; (3) evidence that the liver is involved.

CASE ANALYSIS

In reviewing this case, several important facts present themselves for our consideration. We are dealing here, primarily, with a case of measles, which presented nothing unusual in its onset or course until the second day following the appearance of the eruption. On the evening of this day, it was noticed that the temperature rose without any apparent cause. On the following day there was slight abdominal pain, which was not sufficient to cause discomfort to the patient, other than the mentioning of the fact. With the onset of the definite lung involvement, the temperature immediately assumed a septic character. On careful examination for five days following this acute onset, during which time there was no complaint or clinical manifestation of septic involvement, the patient was as comfortable as is found in an ordinary case of measles. The only objective finding which gave any evidence that things were not right was the character of the temperature. On the ninth day, jaundice was present for the first time, as was also the rigidity over the liver area, and the pain over the appendix. This appendix pain was elicited only after careful and painstaking palpation, and was so overshadowed by the liver symptoms that the diagnosis of appendicitis was relegated to the background.

The case under discussion, in many details, did not fit the typical case as described. There were several of the cardinal diagnostic points lacking. Primarily there was nothing in the demeanor or actions of the boy to indicate an acute appendicitis. The one attack of abdominal pain, coming as it did at the height of a measles infection, and definite lung symptoms complicating such an infection, made the diagnosis very difficult from the start, as the accompanying chilly sensation was interpreted as incident to a beginning lung complication. It will be noted from the history that, at the time of the operation, no free pus was found in the peritoneal cavity, and that the tissues about the appendix were necrotic. It was not for some days that pus formed and began to discharge from the drainage tubes. In the cases reported, the portal involvement was later than in this case, and it is my opinion that the thrombosis of the mesenteric vein occurred in the first twenty-four hours of the appendiceal infection. The absence of leukocytosis was, in a way, an effect of the measles, since in this disease there is generally a leukopenia. The jaundice was the first localizing objective finding which led us to suspect the liver infection. It occurs in less than half of the cases, and may be quite slight, transient, or noted only late in the course of the disease, and can be explained as being due to the general toxemia. In forty-four cases tabulated by Langdon Brown, there was jaundice in nineteen. In four it was slight or transient, and in five it was an initial sign.

The temperature range presents some very interesting phases, having reached a height of 106.6 on one occasion following a chill. It was also noted that the chills came at irregular intervals, on some days there being as many as five. The temperature response following each chill varied from 106.6 to 103. The temperature in the interim went to subnormal and normal only twice during the twenty-four hours. At times the chilly sensations called forth as decided a temperature response as did a pronounced rigor. Neusser lays considerable stress on the frequency of the chills as a differential diagnostic point between suppurative pylephlebitis and purulent cholangeitis:

> At best the differential diagnosis may be extremely puzzling. In cholangeitis the individual attacks are frequently separated by afebrile intervals, and during these there is a more quiet pulse rate and relative euphoria. In pylephlebitis chills frequently recur several times a day, and the thermometer shows steep curves of abnormally high rise and subnormal fall. Furthermore, in pylephlebitis diarrhea becomes more prominent.

During the course of the disease in this case there were fifty-nine rigors, beside the chilly sensations mentioned above.

CONCLUSIONS

1. I am in hearty accord with the opinion that there is no medical treatment for appendicitis: that as soon as such a condition is diagnosed it is essentially surgical.

2. An infection of high virulence, even without pus, may extend to the veins draining the appendix within the first twenty-four hours.

3. Surgical interference, however thorough, will not save the patient when once the infection has reached the portal vein.

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6. Strümpell: Spezielle Pathologie und Therapie, F. C. W. Vogel, Leipzig, 1907, i, 734.
7. Taylor: Guy's Hosp. Rep., 1902.

The Workingman's Diet.—The workingman does not want proteid, leguminous food, milk, etc., to improve his vegetable diet; he wants simply meat, not because he needs it, but because it is for him a matter of pride to follow as best he can the other classes in his diet.—Mendel, Changes in the Food Supply and Their Relation to Nutrition.

DUSTY OCCUPATIONS *

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Even in the earlier medical works, the dust of certain occupations was held a causative factor in respiratory diseases. Until recently, however, investigations have been sporadic and more or less confined to the more definitely dusty trades. A study of these shows many, not usually so considered, to be dusty. Dr. W. Gilman Thompson says:

> Dusts may be sterile and simply mechanically irritating. They merely lacerate the bronchial mucosa. Infection may follow later. Dusts may be organic, as fur and hair, which convey germs; or, like flour dust, swelling and becoming sticky, they may choke respiratory passages without serious irritant or toxic properties.

To ascertain the danger of dust to workmen was the object of this investigation. The data were obtained from the records of patients examined and treated at the Cornell University Medical College Dispensary. The diseases investigated were those occurring in furriers, barbers, bakers, tobacco workers, marble workers, stone cutters and plasterers. The variation in the number of patients in the different occupations applying for treatment is due to the presence or absence of a large manufacturing plant in the vicinity of the clinic. To illustrate, the location of a large tobacco factory near the clinic is the reason for the 125 tobacco workers, while the absence of any large marble or stone cutting plant accounts for the small number of workmen, nineteen and thirty-seven, respectively, examined from these trades. There is probably very little difference in the home hygiene of the workers taken as a whole. Special attention was given to the prevalence of respiratory diseases.

FURRIERS

The fur trade has long been considered a hazardous occupation because of the occurrence of respiratory diseases among its workers. In 1915, the department of health of the city of New York made an investigation of the fur trade under Louis I. Harris,[1] who describes the process thus:

> The raw fur is first shaved so as to remove the dried and hardened fat and connective tissue that adhere to it; this is known as "fleshing fur." The skin is then treated with sawdust, salt, sand and water, to make it soft and pliable and to remove the natural grease; this process is spoken of as "dressing furs." The fur is subsequently dyed with various vegetable and chemical dyes. Principal among these are ursol colors (anilin products), logwood, turmeric, pyrolignite of iron, Sicilian sumac, nutgall, chlorate of potash, verdigris, chrome salts and peroxid of hydrogen. The dyed fur is now ready to be made up into garments. It is wet, cut, stretched and nailed to conform to various designs sketched on tables and allowed to remain so for a number of hours, the various pieces being then sewed together by machine and finished by hand, as in the case of cloth garments. To remove dust and loose hairs the fur is frequently beaten by hand in the workrooms, or, less often, in a closed compartment. Where the beating is done by hand, two long bamboo sticks are employed, with which the employee keeps up a constant tattoo on the fur garments.

At the clinic we had few workers at the hatters' fur trade, and they are not considered in the statistics. The factor of dust is present here too from the brushing of furs and the clipping and plucking of the long hairs, which are often thrown at the feet of the worker. The use of mercuric nitrate is a serious danger in this trade.

Of the sixty-nine furriers examined at the Cornell clinic, twenty-seven were born in Russia and twenty-four in Austria-Hungary. Sixty-three were male and six female. There were twenty workers 21 years of age or under; thirty-seven between 21 and 40, and twelve over 40 years old.

Of the various tracts attacked by disease, the respiratory was the most frequently involved, forty-two of the furriers having respiratory diseases; thirty of the patients had chronic, and twelve acute disease. There were nine patients with pulmonary tuberculosis, twelve with chronic bronchitis, ten with emphysema and two with bronchial asthma. Of the two bronchial asthma patients, one said his attacks were brought on as soon as he handled fur dyed with the anilin dyes, but he was not affected by the vegetable dyed furs. The marked frequency of respiratory disease stands out clearly in these figures. These certainly do not occur among the average individuals. A visit to the shops shows a marked prevalence of dust containing dirt and particles of fur; especially is this the case when beating, a process so often performed in the general workroom, is going on. The means of prevention of this state of affairs will be considered in the general discussion of the removal of dust.

BARBERS

The occupation of the barber is not ordinarily considered dusty; but it seemed rather common to have cough among the chief complaints of a barber. In his work there is produced a large quantity of short hairs. These are affected by gravity according to their weight, the lighter ones tending to circulate in the atmosphere at the slightest draft. Some find their way into the respiratory tract with inspiration. Other factors to be taken into consideration are the nationality, as the majority of the workers were Italians, and the indoor employment.

The number of barbers was 110. Of these, sixty-eight were Italians, eleven Americans and ten Germans. There were ten workers 21 years of age or under, forty-two from 21 to 40 years, and fifty-eight above 40.

There were forty-five patients with respiratory diseases, thirty-two having chronic and thirteen acute disease. Twelve barbers suffered from pulmonary tuberculosis, six from chronic bronchitis, seven from emphysema, four from chronic pharyngitis, two from bronchial asthma and nine from acute bronchitis.

We also found thirty-one patients afflicted with diseases of the alimentary tract, there being nine with constipation and thirteen with chronic gastritis. Although the dust cannot be blamed for this, the occupation is a factor in its cause through the long hours spent indoors on the feet. This produces fatigue, which disturbs normal alimentary action.

BAKERS

The baker's trade was long considered insanitary, but has been much improved by regulation. The chief hazards are exposure to excessive heat and dust consisting mostly of flour. From the statistics given, it

* From the Occupational Disease Clinic, Cornell University Medical College.

1. Harris, L. I.: Month. Bull., Dept. Health, City of New York, October, 1915.

still shows room for improvement. The introduction of machinery in bread making is eliminating considerable dust.

Of the 130 bakers examined in the Cornell clinic, sixty-seven were Germans and the remainder were of fifteen different nationalities. All were male. Twelve workers were 21 years or under, sixty-nine between 21 and 40 years, and forty-nine over 40 years of age.

Fifty-four of the 130 bakers presented signs of respiratory disease. Thirty-one patients had chronic, and twenty-three acute diseases. Eleven had pulmonary tuberculosis, seven chronic bronchitis, eleven emphysema, two chronic pharyngitis, one bronchial asthma, nine acute bronchitis, five acute pharyngitis and eight dry pleurisy.

A fact which should be noted is the occurrence of alimentary diseases in thirty-one patients. Seventeen had gastric disturbances, and thirteen were constipated. This is probably due to a free indulgence in their own wares and the psychic disgust in some cases due to odors arising from the baking.

There was also present the more or less constant use of alcohol in the form of beer and other beverages, there being three patients with alcoholic gastritis and one with cirrhosis of the liver.

TOBACCO WORKERS

In the manufacture of tobacco, cigars and cigarets, a certain amount of dust is produced. The tobacco part of this is both toxic and irritating. The amount of dust varies with the occupation, being very slight in the manufacture of cigarets, which are made chiefly by machinery, except the filling, which is done by hand. Plenty of dust is present in the work of the strippers and tobacco handlers. In the manufacture of cigars, there are few moist leaves used. The factory room contains piles of dried leaves, especially for cigar fillers. Into this pile the hand of the worker is constantly reaching. The binder and wrapper are the only parts used in a moist condition.

DISEASES IN DUSTY OCCUPATIONS

Patients	Furriers	Barbers	Bakers	Tobacco Workers	Marble Workers	Stone Cutters	Plasterers
Number examined	69	110	130	125	19	37	36
Male	63	110	130	89	19	37	36
Female	6	0	0	36	0	0	0
Number with:							
Respiratory diseases	42	45	54	38	8	12	13
Chronic	30	32	31	21	5	9	7
Acute	12	13	23	17	3	3	6
Pulmonary tuberculosis	9	12	11	11	3	3	3
Chronic bronchitis	12	6	7	4	0	1	3
Emphysema	10	7	11	3	2	3	2
Bronchial asthma	2	2	1	0	0	0	0
Chronic pharyngitis	0	4	2	1	0	1	0
Chronic rhinitis	0	0	0	1	0	0	0
Chalicosis	0	0	0	0	0	1	0
Bronchiectasis	0	0	1	0	0	0	0
Acute bronchitis	5	9	9	9	2	1	2
Acute rhinitis	0	1	1	0	0	0	0
Acute pharyngitis	4	1	5	6	0	1	1
Acute laryngitis	1	0	1	0	0	1	0
Pleurisy with effusion	0	1	1	1	0	0	0
Dry pleurisy	2	5	8	3	1	0	3
Percentage with:							
Respiratory diseases	60+	40+	41+	30+	42+	32+	36+
Pulmonary tuberculosis	13+	10+	8+	8+	15+	8+	8+

The atmosphere in which the workers are compelled to labor contains fine particles of tobacco with its nicotin and volatile oil, and extraneous matter adherent to the tobacco and from other sources. The principal chemical constituents of tobacco are nicotin, nicotianin and volatile tobacco oil. These are poisons and irritants. Tobacco dust consists of the fine parts of the leaves, cilia and the hard woody parts.

Heucke, Schedban and Hesse made observations which proved the presence of considerable dust in the air of the workrooms taken at 3 meters from the floor for twenty-four hours.[2] This was found to be much higher than the figures obtained by Fodor as to the dust content above a city street. The sweepings of the tobacco rooms contained 73.32 per cent. sand and from 0.76 to 0.72 per cent. nicotin.

Of the 125 tobacco workers treated at the Cornell clinic, there were ninety-two cigar makers, nineteen cigaret makers and fourteen tobacco handlers. Thirty-six of the workers were female and eighty-nine male. Thirty-nine workers were born in the United States, twenty-two in Russia, twenty-seven in Austria-Hungary, fourteen in Italy, nine in Germany, and the remaining fourteen in England, Bohemia, Spain, Cuba, Greece, France and Roumania. Sixteen workers were 21 years of age or under, seventy between 21 and 40, and thirty-nine over 40. This shows the majority of workers to be young adults.

The occurrence of disease is most common in the respiratory tract, there being thirty-eight patients with these diseases. Of these, twenty-one had chronic, and seventeen acute affections. Eleven patients had pulmonary tuberculosis. Physical signs of chronic bronchitis were found in four, and emphysema in three patients. Acute bronchitis was present in nine workers and acute pharyngitis in six. One case of pleurisy with effusion should be mentioned, as it is so often followed by tuberculosis.

Thirty patients suffering from alimentary complaints cannot be passed over without comment. Chronic gastritis and constipation were the most common diseases. The principal factors here are impure air, tobacco and the lack of proper exercise, which are known to depress the appetite and disturb digestion. Perhaps the occupation is not entirely responsible, as the workers are often heavy tobacco consumers.

Under nervous diseases, the statistics show twenty-five patients. Among them we find ten patients with neurasthenia and five with headaches. The headache in one patient was classified as toxic.

There was one patient with acute nicotin poisoning, and one with tachycardia.

MARBLE WORKERS

The chief processes of marble work are those of cutting and polishing. Marble cutting may be done by hand with a mallet and chisel or with pneumatic tools. These tools stir up much dust, which is increased by the use of air pressure to keep the stone clean under the tool. The accumulated dust is also raised in cleaning up and moving the stones.

In polishing, slabs of marble are rubbed on beds of sand and chilled shot with a constant supply of water. Then the slabs are rubbed on an emery bed. Next a fine grained sandstone is used by hand. The final polish is given by buffing with a thick specially prepared felt on which a small amount of tin oxid is fed. The dusty part of this process is the handwork, and the stirring up of the dried dust produced.[3]

2. Stephani: The Diseases of the Tobacco Worker, in Weyl, Theodor: Handbuch der Arbeiter Krankheiten, translated by W. H. Coburn, Industrial Health Inspector, Nov. 15, 1913.

3. Day, W. C.: Report on Stone Industry for 1908.

Nineteen patients giving their occupation as marble workers were examined. The number of patients of each nationality was: Ireland seven, United States five, Italy two, and England, Austria, Canada, Scotland and Germany, one each. Three workers were 21 years and under, seven from 21 to 40, and nine over 40 years of age.

We find eight of the marble workers to be suffering from respiratory diseases, five chronic and three acute. Three patients had pulmonary tuberculosis, two emphysema, one dry pleurisy and two acute bronchitis.

STONE CUTTERS

Much of the stone cutting is outdoors or in large airy sheds. It consists of shaping, smoothing and cutting the stones into smaller pieces, as for paving blocks. Formerly much of the work was done by hand, but now pneumatic tools are used considerably. These produce a finer dust and tend to increase the hazard. It is held by some that the dangers are greater in sedimentary stones than the harder stones like granite, but no definite figures on this point could be obtained. Dust is also stirred up in sweeping and moving the stones about.

The number of stone cutters examined was thirty-seven. Fifteen were born in the United States, six in Ireland, four in Italy, two in Germany, Austria and England, and one each in France, Scotland, Bohemia, Hungary, Belgium and Armenia. As to ages, one was 21 years old, fifteen were from 21 to 40, and twenty-one over 40.

Twelve patients showed respiratory disease, nine being ill with chronic and three with acute diseases. Three workers had pulmonary tuberculosis, three emphysema, and one each chronic bronchitis, chronic pharyngitis, chalicosis, acute bronchitis, acute pharyngitis and acute laryngitis. Although only one case of chalicosis is recorded, a greater number would probably have been noted if other factors were studied as closely as physical signs.

PLASTERERS

In the work of the plasterer there is exposure to dust, cold and dampness. The source of the dust is from the plaster, which is usually composed of lime, sand and hair moistened. Any one at all familiar with the work of a plasterer knows what dust there is when the dried plaster is crumbled loose by walking, moving of objects and sweeping. The drafts of air through the open doors and windows fills the atmosphere with dust, and in this the worker has to breathe. There is some controversy among investigators as to the danger of lime to workers. Selkirk[4] was unable to find any instance of phthisis among them, nor could he learn of any worker in lime kilns having died of tuberculosis. That the figures for the rate of death due to consumption among the plasterers is considerably higher than that for registered males in the same district, however, is shown by the statistics compiled by F. L. Hoffman.[5]

The number of plasterers from which these statistics were obtained is thirty-six. Fifteen of these were born in the United States and ten in Ireland. One worker was 18 years of age, eighteen were from 21 to 40, and seventeen over 40 years of age.

The respiratory tract of the plasterers is chiefly affected as in the preceding trades, there being thirteen patients in this class. Seven patients had chronic and six acute respiratory disease. Three patients had pulmonary tuberculosis, three chronic bronchitis, two emphysema, two acute bronchitis, three dry pleurisy and one acute pharyngitis.

SUMMARY AND CONCLUSIONS

There are certain facts which stand out in the foregoing figures. Of the sixty-nine furriers, 13+ per cent. were ill of pulmonary tuberculosis. There were thirty with chronic respiratory diseases. Among the 110 barbers, thirty-two patients were found with chronic respiratory disease. Of the total number, 10+ per cent. were tuberculous. Of the 130 bakers, 8+ per cent. had pulmonary tuberculosis and thirty-one chronic respiratory diseases. Of the 125 tobacco workers, 8+ per cent. had pulmonary tuberculosis and twenty-one chronic respiratory disease. Among the marble workers three, or 15+ per cent., of the nineteen had pulmonary tuberculosis. Eight had respiratory disease. Of the thirty-seven stone cutters, 8+ per cent. showed signs of pulmonary tuberculosis. Nine had chronic respiratory diseases. In the records of the thirty-six plasterers, 8+ per cent. had pulmonary tuberculosis, and thirteen had respiratory disease.

In the trades investigated, we have examples of dust from an animal source (the furriers and barbers), from a vegetable (the bakers and tobacco workers), and from a mineral (the marble workers, stone cutters and plasterers). All the patients show a high percentage of tuberculosis and respiratory diseases irrespective of the character of the dust. This proves that it is dust which is the important factor. The dust prepares the lungs for the infective agent, and probably the exposure of the patient to the tubercle bacilli and other germs is not greater than that of the average workman.

Although some patients did not have their diagnosis of the pulmonary tuberculosis verified by positive sputum examinations, the physical signs in all were unquestionable. An error of diagnosis would affect only a fraction of 1 per cent. It is not the exact figures but the relative high rate that is important.

Admitting dust to be the important causative factor, we have a definite point of attack. By decreasing the amount of dust inspired, we can lessen the frequency of respiratory diseases.

Taking the trades investigated in order, let us see what can be done:

In the fur trade, one of the worst processes is beating. This should be done in a separate room with proper means of removing the dust from the atmosphere. Dust should not be allowed to accumulate, sweeping should be done after hours, preferably with dampened floors, or still better by use of the vacuum cleaner. Respirators should be worn wherever dust is prevalent.

Among the barbers, hairs should not be allowed to remain on the floors. Electric fans and currents of air should be so directed that the hairs will not be disturbed.

In the bakery, special care should be taken to avoid raising a dust. Where there is dust, proper protectors for the nose and mouth should be required.

The tobacco workers should not allow scrap to accumulate. Where it is absolutely necessary to work with the dried tobacco, suction fans and respirators

4. Selkirk, E. J. B.: Tuberculosis in Limeworkers, Brit. Med. Jour., Nov. 14, 1908; abstr., THE JOURNAL A. M. A., Dec. 12, 1908, p. 2093.
5. Hoffman, F. L.: Mortality from Consumption in Dusty Trades, Bull. 79, Bureau of Labor Statistics.

should be used. Sweeping should be done after work, and the floors should be dampened. Vacuum cleaners would be preferable.

In marble work, stone cutting and plastering, the fine material should be removed as soon as possible. Any procedure that stirs up unnecessary dust should be curtailed. Respirators are called for where dust is present and cannot be avoided.

Aside from the special features of each trade, there are certain general ones to be considered. There is the workman of the dusty trades. He must be instructed concerning the dangers of his occupation and how to avoid these. This can be accomplished through his union, and printed slips provided by the health department and distributed by his employer. He should be obliged to have a complete physical examination every six months. He should consult a physician whenever ill and not temporize or use "patent medicines." The importance of fresh air and cleanliness in his home should be impressed on him, as the insanitary condition of the tenement house is well known. Exercise should be encouraged in the sedentary trades, even if it only be a short walk in the open air.

The workroom should not be overcrowded, and should be clean and not littered by waste material. Light and ventilation should be provided. Hoods, fans, suction apparatus and vacuum cleaners should be installed. Where proper machinery will decrease the amount of dust produced, its use should be encouraged Protective apparatus, as respirators, should be provided wherever necessary. This can be accomplished by sanitary regulations under the control of the department of health.

In conclusion, there are certain evident facts. The worker in dust from an animal, vegetable or mineral source shows a high percentage of respiratory disease. While his exposure to disease germs is not greater than that of workers in other trades, dust prepares his lungs to receive the infective agents. By diminishing the amount of dust, the occurrence of these diseases will be lessened. Thus we shall have decreased the suffering, expense and loss of time of the worker, and shall have increased his health, savings and efficiency.

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STASIS OF VESICAL URINE

IN RELATION TO URINARY TRACT INFECTIONS*

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This communication is presented with a twofold purpose: (1) to draw attention to the danger of urinary tract infection from retained bladder urine, and (2) to discuss briefly several conditions in which retention is frequently encountered. Stasis of urine above the level of the bladder will not be considered.

THE CAUSE OF "CATHETER" CYSTITIS

There is an accepted belief that catheterization of the urethra is a chief cause of urinary tract infections, and that these frequently result despite employment of the most painstaking technic.

This belief I hold to be not truly in accord with actual conditions.

It has always been a surprising feature, to me, that the observance of rigid asepsis seemingly exerts only moderate influence in diminishing the number of such infections. Another curious fact is that patients catheterized by well-trained nurses suffer from cystitis, while urologists continue to pass catheters and cystoscopes with impunity.

Further, if gentle passage of a catheter results in cystitis, it is strange that normal bladders are so resistant to descending infection. In typhoid, with bacilluria in from 20 to 40 per cent., cystitis is rare. In pneumonia, in a series of twenty-five cases, Mathers[1] demonstrated a pneumococcus bacteriuria in twelve instances. In not one of these was there clinical evidence of cystitis. Moreover, Hartung[2] and others have brought forth evidence that there must be a certain predisposition before colon bacilli and other bacteria can cause infection of the bladder mucosa, and Rovsing[3] found that very great numbers of bacteria with high virulence are passed from the bladder two or three hours after injection without change in the mucous membrane.

To summarize: When cystitis develops after therapeutic catheterization, it occurs despite the utmost care. On the contrary, when catheterization is performed for conditions other than relief of retained urine, as in cystoscopic examination, subsequent infection is a rarity. Finally, both in disease and in experimental work, when virulent bacteria pass through the *normal* bladder, they tend not to cause change in the mucous membrane unless predisposing conditions facilitate infection.

I am convinced that a certain condition accounts for these cases of cystitis after catheterization, and that the catheter can be relieved of much of the responsibility. This most important factor I believe is *retention of urine,* and it is contaminated residual urine which is the trouble maker. The fact that nurses are especially called on to catheterize in cases of retention of urine accounts for infections being so much more frequent with them than with cystoscopists. I anticipate that not one of us can recall cystitis produced by careful catheterization of a healthy, *physiologically normal* bladder.

OBSERVATIONS ON THE OCCURRENCE OF RESIDUAL URINE

Throughout the past year, observations have been made on the amount of residual urine in women. The results show that under normal conditions the bladder empties itself almost completely. Those individuals who do not void thoroughly tend to develop bacteriuria, even though vesical symptoms are slight. Moreover, many cases of urinary tract infection, the source of which it has otherwise not been possible to fathom, have occurred in association with stasis of urine. During this time I have seen no case of catheter cystitis in the absence of residual urine.

Among the patients studied were several pregnant women with urinary tract infection. It is of interest to note that, in these bladders of pregnancy, a collection of residual urine was revealed to be a very common finding. Upward displacement of the bladder always occurs; often there is considerable distortion due to pressure, amounting at times to a virtual clamp-

* From the laboratory department and gynecologic service of St. Luke's Hospital.

1. Mathers: Personal communication to the author.
2. Hartung: Beitr. z. klin. Chir., 1914, xciii, 710.
3. Rovsing: Die Blasenentzündungen, ihre Aetiologie, Pathogenese und Behandlung, Berlin, Hirschwald, 1890.

ing of the bladder between the fetal head and abdominal wall. The importance of these mechanical conditions and the stasis resultant therefrom is not to be overlooked.

Disturbed evacuation of the bladder may be found in the early months and disappear later. Sometimes it comes on only with pressure of the greatly enlarged uterus of later pregnancy. Settling the fetus into the pelvis is then likely to bring relief.

In a patient illustrating this point, foul urine, much pus, and enormous numbers of colon bacilli were found for many weeks before labor. Retention was present. When the fetus settled more deeply into the pelvis, foul odor and pus disappeared at once. There was no longer retention.

In recent times it has been quite definitely shown that pyelitis of pregnancy is commonly an ascending infection. I would add to this the suggestion that retention of vesical urine is a factor of the utmost significance as a precursor of these ascending infections which cause pyelitis. This does not signify that pyelitis of pregnancy always goes hand in hand with vesical retention, but the latter condition is always a menace and is to be earnestly avoided. Its relative frequency and importance, as compared with retention due to ureteral obstruction, is worthy of study.

Mere mention suffices for some other types that are included under "urinary stasis cystitis," such, for instance, as retention with hypertrophied prostate, accumulation of urine in large-pouched cystoceles, etc. We should emphasize, however, that the amount of retention is often not proportionate to the size of the cystocele. In a patient with gradually acquired vesical distress, even the smallest pouching of the bladder is suggestive. Within the past two weeks I examined such a case, in which the bladder contained 200 c.c. of urine immediately after attempted thorough evacuation.

POSTOPERATIVE AND POSTPARTUM RETENTION

These conditions are worthy of close consideration. Cystitis is little to be feared after emergency passage of the catheter at labor, nor does it tend to result from catheterization in the operating room. The added factor of incomplete evacuation is needed to complete the chain. To cite an illustrative instance:

Eight months ago a highly nervous patient was subjected to vagino-abdominal hysterectomy for carcinoma of the uterus. Postoperative urinary retention necessitated catheterization for many days. After an otherwise normal course the patient left the hospital with a satisfactory result. Soon, however, there was noted moderate vesical distress. In the course of a month this became more annoying. Marked frequency developed. Thereafter, reasonable comfort was experienced only when recumbent. When the patient finally reported for examination there was found a retention of over 300 c.c. of foul urine, containing a pure growth of colon bacilli. Five days later there was retention of 100 c.c. A week later there were 50 c.c. The emptying power of the bladder thereafter became normal, and weekly examinations over a period of five weeks showed no retention. Infection and distress were relieved with return of normal bladder tonus and disappearance of the residual urine.

An unusual case is that of a patient of Dr. Croftan. This patient gives a history of operation three years ago for uterine fibroids. Vesical tenesmus was noted immediately after operation. Catheterization was thereafter repeatedly employed for relief, and eventually a cystocele operation was performed without alleviation of the intense distress. There was a further history of at least eight cystoscopic examinations, many with ureteral catheterization, with the common discovery of moderate diffuse colon bacillus cystitis associated with some trabeculation of the bladder. The persistence of trouble since operation, in the treatment of which rest, diet, antiseptics and vaccines had all been of no avail, forcibly suggested the likelihood of a mechanical factor at the bottom of the trouble. When tested for residual urine, 50 c.c. were obtained by catheter. The cystoscope revealed a cystitis, with a thickened, trabeculated bladder wall, and in addition a noteworthy vesical distortion. The entire bladder was pulled upward, and was of a modified funnel-shaped contour (more flattened in the roentgenogram). The walls appeared so fixed that evacuation was interfered with. Here again, we have to do with a case in which a mechanical factor appears responsible. It serves further to emphasize that *we require greater watchfulness of the mechanics of drainage of the urinary tract.*

CONCLUSIONS

1. Cystitis seldom results from cleanly and careful catheterization of a healthy, physiologically normal bladder.

2. Contamination of residual urine accounts for many otherwise inexplicable cases of urinary tract infection in women.

3. Residual vesical urine probably plays a considerable part in the development of pyelitis of pregnancy.

4. Postoperative and postpartum accumulations of residual urine greatly increase the dangers of urinary tract infections.

104 South Michigan Avenue.

ANATOMIC LESIONS IN LATE ACQUIRED SYPHILIS

A STUDY OF 314 CASES BASED ON THE ANALYSIS OF 4,880 NECROPSIES AT BELLEVUE HOSPITAL *

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There is an aphorism to the effect that to know syphilis is to know medicine, and the physician is adjured, when in doubt, to suspect syphilis, since the extension of the disease is colossal. For example, the Wassermann reaction in Bellevue Hospital has yielded strongly positive results in over 25 per cent. of the enormous number of serums examined. This, of course, does not imply that one in every four persons is syphilitic, although in many instances, the reaction was carried out as a routine measure and not necessarily because contamination was suspected. The figure quoted indicates, nevertheless, that syphilis is even more widely distributed than is generally believed, assuming, of course, that the Wassermann reaction, as carried out with the cholesterin antigen, does not justify the skepticism with which it is received in certain quarters. On the other hand, among 4,880 necropsies performed at Bellevue Hospital in the past ten years, anatomic confirmation of the existence of syphilis was found in only 314 cases, or in 6.5 per cent.

Any factor which serves to establish the existence of syphilis in the individual assumes importance to the community. Until recent years, the diagnosis of late syphilis depended on the willingness of the patient to admit contagion, or on the ability of the physician to

* From the Department of Pathology of Bellevue and Allied Hospitals.

recognize its obscure and often almost illegible legacies. As a result of the introduction of laboratory methods, not only has the avowal of the patient become a matter of frequently negligible consideration, but it is to be feared that these methods have been adopted at the expense of those signs, the recognition of which involves an intimate knowledge of the pathology of the disease.

During the past ten years I have had numerous occasions before or during the performance of necropsies to inquire of the attending physician or of the intern as to the existence of syphilis in the body under investigation. Formerly the reply almost invariably referred to the patient's denial or admission of infection — a notoriously unreliable guide, in which the contributing sources of error are not confined to the disposition of the average individual to falsify venereal history. Since the advent of the Wassermann test the answer has equally often involved the status of the patient in relation to that reaction. Seldom, however, has it been possible in my experience to elicit adequate information referable to physical changes in the later stages of acquired syphilis, sometimes in spite of the presence of definite and detectable lesions in the skin, visible mucous membranes, bony system, etc. There are circumstances in which such changes may have to be depended on entirely to determine the diagnosis of syphilis, as, for example, in those instances in which the patient's serum is not suitable for the Wassermann reaction and reactivation is impracticable, or in those numerous and highly regrettable cases in which the technic is faulty and the result misleading.

Experience of the sort indicated has prompted me to analyze the protocols of nearly 5,000 subjects coming to necropsy in Bellevue Hospital, with the object of determining the incidence, nature and distribution of the anatomic changes in acquired syphilis.

THE SKIN AND MUCOCUTANEOUS JUNCTIONS

The vast majority of all syphilitic subjects present cutaneous lesions in the secondary stage, but the eruption is frequently of such a nature that its complete disappearance is favored by evolution or by the influence of treatment. By far the larger numbers of syphilitic rashes are characterized by dilatation of the cutaneous vessels and by the transudation of small quantities of blood serum, and moderate infiltration of plasma cells. There is little, if any, tendency to sclerosis of connective tissue. Nevertheless, there are circumstances in which the secondary syphilid, with or without previous pustulation, undergoes cicatrization attended by atrophy of the surface epithelium, or by increase in the number or in the pigment of the chromatophores, producing scars which are pale, or present a pigmented periphery. The late stages of syphilis, on the contrary, are not uncommonly accompanied by ulcerative skin lesions, the healing of which produces extensive scarring.

In the Bellevue Hospital series of 314 cases of late acquired syphilis, lesions of the skin and mucocutaneous junctions were encountered 106 times, or in 33.4 per cent. Pretibial scars were present in forty-six cases. Of these, thirty-one were bilateral; eight were on the right shin and seven on the left. The scars were copper colored in four cases, pale and atrophic in twenty-two, and atrophic and pigmented in nineteen. Atrophic or pigmented scars were present in a more general distribution in sixteen instances. Thus, cutaneous scars, representing a legacy from the secondary rash, were present in 58.5 per cent. of the total number of mucocutaneous changes.

Other lesions of the skin and mucocutaneous junctions occurred in forty-four cases, as follows: rupia 17, vitiligo syphilitica 2, one of them being associated with symmetrical thickening and brownish discoloration of the hands — pellagroid syphilid; coppery rash of the face 3, papulosquamous syphilid of general distribution 2, papular syphilid of hands and forearm 1, anal condylomas 2, penile scars 17.

In short, the figure quoted indicates that late acquired syphilis is accompanied by residua of the secondary rash, or by other changes in the skin, in such a percentage of cases as to represent a diagnostic feature of great importance. Cutaneous lesions of the type indicated are frequently overlooked or misinterpreted, a statement which I venture on the basis of experiences at the necropsy table, where old syphilitic changes in the skin are not uncommonly pointed out for the first time.

THE LYMPHOID SYSTEM

Lymphoid hyperplasia is essentially an early manifestation of secondary syphilis and is marked by simple numerical increase in the lymphoid cells and in the cells of the sinuses. Enlargement of the superficial lymph nodes is but an expression of the general infection of syphilis, and bears no constant relationship to the severity of the disease. It is not infrequently marked in apparently mild syphilis, and of negligible intensity in syphilis with extensive clinical manifestations.

Hyperplasia of the lymphoid cells is by no means confined to the superficial nodes, but is shared by other lymphoid foci, notably the lingual tonsils and the spleen. Thus, in thirty subjects presenting typical manifestations of active secondary syphilis, 70 per cent. showed extensive hyperplasia of the lymphoid follicles at the base of the tongue (Symmers). In the same way, it is occasionally observed that the spleen is enlarged in secondary syphilis, and participation of the lymphoid follicles is not to be denied as a contributing factor.

Lymphoid hyperplasia in syphilis, however, is an ephemeral process, and unless it is succeeded by interstitial fibrosis, tends to disappear without any detectable residuum. It is not surprising to learn, therefore, that of the 314 cases of late acquired syphilis in the Bellevue Hospital series, only twenty, or 6 per cent., revealed hyperplastic changes in the lymph nodes. Of this number adenopathy was general in four, in two the axillary nodes were alone involved, in five cases the cervical and axillary nodes were enlarged in association with the inguinal, and in nine instances the inguinal nodes were alone involved. The significance of the latter fact is partially vitiated by the knowledge that inguinal adenopathy is common in healthy individuals.

THE OSSEOUS SYSTEM

Syphilitic lesions of the osseous system are too well known to merit discussion here beyond the statement that, in the Bellevue Hospital series, they were encountered forty-eight times, or in 14.9 per cent., and were distributed as follows: necrosis of the nasal bones 3, perforation of the nasal septum 1, perforation of the hard palate 1, chronic productive inflammatory lesions of the cranial bones 23. Of the latter, the frontal bone or its periosteum was alone involved 9 times, the

parietal 3, the frontal and temporal 2, the frontal and parietal 1, the occipital and frontal 1, the temporal 1, the sphenoid 1, and, in 5 cases, the calvarium as a whole was involved.

Chronic productive periostitis of the tibia occurred sixteen times, or in 34 per cent. of the total number of the osseous lesions.

Syphilitic changes were encountered in the metatarsal bones, the radius, humerus and first rib once each.

THE TESTICLE

There is a syphilitic lesion of the testicle characterized by slowly progressive hyperplastic changes in the connective tissue eventuating in complete or partial sclerosis of the organ, the so-called chronic interstitial orchitis. Among 171 male subjects of late acquired syphilis in the Bellevue Hospital series, chronic interstitial orchitis was found sixty-seven times, or in 39 per cent. Both testicles were involved forty times (23 per cent.), the left testicle was alone involved in eighteen (10.5 per cent.), and the right testicle in nine (5 per cent.).

In view of the fact that, in advanced cases, the testicle is greatly diminished in size and its consistence correspondingly increased, the lesion in question furnishes a sign of value in the clinical and anatomic diagnosis of syphilis.

In connection with the general subject of testicular syphilis, it is worthy of emphasis that in not one of the 314 cases of fatal acquired syphilis did we encounter gumma of the testicle proper. In one case a gumma was found in the epididymis, a reversal of the order usually quoted, since the epididymis, while frequently the point of commencement of testicular tuberculosis, is represented as enjoying relative immunity from syphilis. Nevertheless, textbooks frequently refer to gummas of the testicle as lesions of common occurrence, and not only susceptible of diagnosis and treatment, but of value as confirmatory of syphilis in other parts. This view, I believe, is exaggerated, and is the expression of an ancient error, the preservation of which is traceable to the fact that makers of textbooks too commonly adopt statements contained in earlier works. I do not recall having seen a gumma of the testicle in several thousand necropsies, and have but once encountered the lesion in specimens removed surgically. Dr. Charles Norris, although possessing great experience in pathologic work, tells me that he has seldom seen testicular gummas.

INDURATIVE ATROPHY OF THE BASE OF THE TONGUE

Pathologists have long recognized a syphilitic lesion of the base of the tongue characterized by obliteration of the normal surface markings and by smoothness and induration of the tissues in that vicinity, the so-called smooth or indurative atrophy of Virchow. The lesion is by no means rare, and is one of the most characteristic and valuable, and one of the most despised signs of late acquired syphilis. I have rarely encountered a clinician who was familiar with the lesion and who included it among the objective methods of determining the existence of syphilis. In the postmortem room, on the contrary, we are almost daily able to point out the change and to connect it with indubitable signs of syphilis in other parts.

In normal circumstances the base of the tongue presents, on either side of the median raphe, between the circumvallate papillae in front and the epiglottis behind, a dozen or more small, oval or rounded, nodular elevations representing lymphoid follicles. They frequently participate in the lymphoid hyperplasia of secondary syphilis, and as the disease progresses, tend to disappear and to be replaced by fibrous tissue, the base of the tongue becoming pale, flattened and indurated.

On the other hand, one often encounters simple smoothness and flattening of the base of the tongue in elderly or cachectic subjects in whom there is no reason to suspect syphilis, but in these individuals the essential feature of Virchow's smooth atrophy is lacking, namely, induration due to connective tissue replacement. Therefore, in approaching the diagnosis, both from the clinical and anatomic point of view, the finger should be trained to appreciate the degree of resistance offered by the base of the tongue, and the sense of sight used only as an adjunct to that of touch.

The incidence of indurative atrophy of the base of the tongue has not been definitely determined. For example, among 623 necropsies performed at the New York Hospital by Dr. Elser and myself, acquired syphilis was determined in seventy-five instances, and of this number sixty-four, or 85 per cent., presented the classical signs of indurative atrophy of the base of the tongue. On the other hand, among 4,880 necropsies performed by various individuals at Bellevue Hospital, the lesion was recognized in only 25 per cent. of 314 cases of late acquired syphilis. It so happens, however, that, in the New York Hospital necropsies, both Dr. Elser and myself were specifically interested in the investigation of syphilis of the tongue, and seldom, if ever, missed an opportunity to remove the organs of the mouth and throat in the routine performance of necropsies. At Bellevue Hospital, however, intramural conditions are such that postmortem investigation of the tongue is frequently denied, a fact which, taken in connection with the personal interest and experience of the pathologist, tends to explain the discrepancy. Lewin and Heller, in an analysis of 6,583 necropsies, found anatomic signs of syphilis in 200 subjects (3.4 per cent.), and, of these, indurative atrophy of the tongue was present in 71, or 35 per cent.

THE RESPIRATORY TRACT

In Conner's analysis of 128 cases of syphilis of the trachea and bronchi, gummas occurred in 15 per cent., ulcerative lesions in 39 per cent., endotracheal or bronchial scarring in 36 per cent., and fibrous peritracheitis in 6 per cent. In the ulcerative lesions, perforation of the tracheal or bronchial wall occurred in twelve instances, five of which were attended by erosion of blood vessels and fatal hemorrhage; in two cases the esophagus was perforated, and in three instances erosion of the tracheal wall resulted in intrathoracic abscess formation. In several of the cases, fragments of cartilage were coughed up from time to time. In thirteen of forty-seven cases of endotracheal fibrosis, the lumen of the tube was encroached on to such an extent as to occasion marked signs of irritation or suffocative attacks ending fatally. In eight cases of peritracheal fibrosis, one or both recurrent laryngeal nerves were involved in four instances.

In the Bellevue Hospital series of 314 cases of late syphilis, lesions of the respiratory tract occurred thirty-five times, or in 10.5 per cent. The larynx was involved in twelve, or 38 per cent. of the total number of lesions of the respiratory tract. Of the twelve cases of laryngeal syphilis, cicatricial lesions occurred five

times, ulcerative lesions five times, gummas once, and leukoplakia of the pyriform fossae and epiglottis, once. The figure quoted does not take cognizance of that considerable number of cases (seventeen in the Bellevue Hospital necropsies) in which the epiglottis was deformed in association with syphilitic indurative atrophy of the base of the tongue.

The lungs were involved in twelve cases (38 per cent.) in the form of a chronic productive interstitial pneumonia, in four of which bronchiectatic cavities were present. In addition, syphilitic pleural scars were encountered twice.

Ulcerative and cicatricial tracheal lesions were met with four times, and in one of these cases the deformity was of such a nature as to demand tracheotomy.

The nasal septum was perforated in four cases and the hard palate once.

THE NERVOUS SYSTEM

Lesions of the nervous system were encountered in 112 of the 314 Bellevue Hospital necropsies, or in 35.6 per cent. They were distributed as follows: chronic productive leptomeningitis 18, 2 of which were gummatous, granular ependymitis 23, chronic productive pachymeningitis 11, encephalomalacia 15, endarteritis obliterans 27, in 7 of which miliary aneurysm was associated, gummas of the brain substance 8, tabes dorsalis 4, paresis 4, gliosis of the cervical cord 2.

SYPHILIS OF THE LIVER

The tendency of syphilis is to pursue a course marked by inflammatory changes resulting in overproduction of connective tissue. In no organ is the inimical effect more pronounced than in the liver, in which sclerotic changes are frequently traceable to syphilis. In the Bellevue Hospital series, syphilis of the liver occurred 105 times (33.4 per cent.).

In atrophic cirrhosis of the liver the cause most commonly invoked is, of course, alcohol. Of nearly 300 examples of so-called alcoholic cirrhosis encountered at necropsy at Bellevue Hospital in the past ten years, concomitant anatomic changes attributable to syphilis occurred in only a negligible number. Nevertheless, in about 80 per cent. of all recent cases diagnosed clinically as atrophic cirrhosis of the liver, the Wassermann reaction was positive, and in a number of these cases the diagnosis was confirmed by postmortem examination. This fact, taken in connection with the known tendency of syphilis to produce sclerosis of connective tissue, and the peculiar susceptibility of the liver, would seem to indicate that syphilis is a more powerful factor in the production of atrophic cirrhosis than is generally recognized.

On the other hand, there is a variety of cirrhosis of the liver in which acquired syphilis is conceded as the specific cause, namely, the so-called hepar lobatum. In this form of cirrhosis, the liver is the seat of scars which are often deep and numerous and which are distributed in such an irregular manner as to divide the organ into lobes of variable size, the surface of the lobulated masses retaining, as a rule, the accustomed smoothness of the liver. In a considerable proportion of cases, the production of scars is due to the healing of gummas. In other circumstances the gnarled condition of the organ seems to represent an expression of the syphilitic tendency to cause sclerosis without the intervention of focal granulomas.

HEPAR LOBATUM

In 4,880 necropsies and 314 cases of fatal syphilis, there were fifty cases of hepar lobatum (16 per cent.).

Grouped in decades the ages were as follows:

Age	Number of cases	Percentage
20-30	12	24
31-40	13	26
41-50	11	22
51-60	9	18
61-70	1	2
Not given	4	8

Between 20 and 50 years of age there were thirty-six cases (72 per cent.). The lesion, therefore, is one of youth, or of comparative youth.

Sex and Color: The lesion occurred thirty-seven times in whites and thirteen times in negroes, thirty-one times in males and nineteen times in females. Considering the admission ratio of white to colored patients in Bellevue Hospital, the figures quoted indicate a relatively strong representation of negroes and, on the same basis, the disease would seem to be rather common among females.

Associated Syphilitic Lesions: In twenty-five of the fifty cases of hepar lobatum syphilitic changes were recognizable in the skin, visible mucous membranes, osseous system, etc. Pretibial scarring occurred twelve times, indurative atrophy of the base of the tongue nine times, lesions of the bony system ten times, lymph node adenopathy three times, eye lesions twice, penile scarring once and syphilitic cutaneous ulcers once.

Liver: In thirty-five cases (70 per cent.) the liver was coarsely nodular, and, of these, the edge of the organ projected beneath the costal margin in twelve (34 per cent.), twice reaching as low as the level of the umbilicus. In twenty-two cases the average weight of the liver was 1,596 gm., which approximates the normal. In two cases the liver was the seat of amyloid deposits. In other words, the anatomic lesions and the size and position of the liver indicate that the organ invited palpation during life.

Spleen: In thirty-two cases the spleen was enlarged. Of this number, the organ was described as "enlarged," "considerably enlarged," or "very large," in fifteen instances. In seventeen cases the extreme weight of the normal spleen, namely, 200 gm., was greatly exceeded, as shown by the following figures: 730, 440, 460, 275, 750, 980, 500, 420, 540, 800, 530, 620, 600, 300, 840, 630 and 1,340 gm. The average weight of the spleen in seventeen cases of syphilitic cirrhosis of the liver was, therefore, 634 gm., or 434 gm. in excess of the extreme normal limit. On the other hand, in seventeen unselected cases of Laennec's, cirrhosis of the liver in nonsyphilitic subjects, the average weight of the spleen exceeded the extreme normal by only 112 gm.

In twenty-one cases the spleen was in the condition of chronic interstitial splenitis, in three instances it was the seat of amyloid deposits, and on eight occasions its consistence was not recorded.

Icterus: In seven instances the conjunctivae were icteric, in six cases the conjunctivae and skin of the face were slightly jaundiced, and in one case there was moderate general jaundice. Jaundice was present, therefore, in fourteen cases, or in 28 per cent. of the total number of cases of hepar lobatum.

Ascites: Ascites was present in eleven cases, or 22 per cent.

Varices: Esophageal varices were detected four times. In one case, the anatomic condition of the varices indicated that recent rupture and hemorrhage had ensued. Superficial enlargement of the abdominal veins occurred twice and peritoneal varices once.

From the foregoing facts it is evident that considerable numbers of cases of hepar lobatum present anatomic changes which might be determined during life. In my postmortem experience I have yet to encounter a case of hepar lobatum in which the diagnosis was made, and but once was the condition suspected during life. On the other hand, I know of two cases in New York in which the clinical diagnosis of Banti's disease was followed by surgical removal of the spleen, and in both instances necropsy revealed the gnarled liver of syphilis.

The incidence of hepar lobatum in acquired syphilis is such as to warrant the search for its existence in every patient who comes under observation in the late or comparatively late days of specific infection. The history of syphilis, and the occurrence of a positive Wassermann reaction are, of course, important, but the determination of visible or palpable evidences of syphilis in the skin or visible mucous membranes, the lymph nodes, bony system, etc., or the presence of slight jaundice of the conjunctivae or skin associated with an enlarged, firm spleen, with or without ascites, should direct the attention of the clinician to the liver, especially since the determination of the disease in the living patient is of extreme importance from the standpoint of treatment. There are reasons for believing that the disease sometimes undergoes spontaneous improvement, and that active antisyphilitic treatment might, in certain cases at least, prove beneficial.

Gummas of the Liver: Gummas of the liver may occur singly, but in the great majority of cases they are multiple and lie immediately under the capsule in the form of nodular projections of variable size and consistence, or are found buried in the substance of the organ. The superior surface of the liver is the site of predilection, consequently the diagnosis is sometimes practicable.

In 314 cases of fatal syphilis in the Bellevue Hospital necropsies, gummas were encountered in various localities in sixty-seven instances. Of this number, the liver was involved thirty-five times, or in 52.2 per cent. of the total number of gummas.

Syphilitic scars in the surface of the liver were found twenty-seven times (8.6 per cent.) and amyloid disease five times.

SYPHILITIC AORTITIS, AORTIC VALVULITIS, ANEURYSM

Of the 314 cases of fatal acquired syphilis, there were 175 cases of aortitis (55.7 per cent.), a figure noticeably above that of any other individual lesion. Of the 175 cases, the arch of the aorta was involved 109 times, or in 63 per cent., and in forty-two cases the entire vessel was diseased. Combined lesions were encountered twenty-nine times (16 per cent.). Of these the combination of syphilitic aortitis of the arch and upper thoracic aorta was the most frequent, and occurred fifteen times. The combination of thoracic and abdominal aortitis was present three times, and the arch and lower thoracic aorta, the ascending and lower abdominal aorta, the thoracic and abdominal aortas, and the entire arch and the thoracic aorta shared in the process once each.

Aneurysmal Dilatation and Aneurysm: Aneurysmal dilatation of the aorta occurred thirty-nine times (22.3 per cent.). In thirty-five instances the arch was alone dilated, in three cases the aorta was dilated throughout its entire extent, and in one case the arch and thoracic aorta shared the dilatation.

Genuine aneurysm of the aorta was present forty-five times, or in 25.6 per cent. of the total number of cases of syphilitic aortitis. Of these, the arch was alone involved thirty-four times (75.5 per cent.), the thoracic aorta was concerned six times, the abdominal aorta four times, and in one case saccular aneurysms to the number of eight were scattered throughout the vessel.

The Aortic Valves: The aortic valves were sclerotic in sixty-four instances, or in 36.6 per cent. of the total number of cases of syphilitic aortitis. Of this number, the valves were definitely retracted in twenty-seven subjects, or in 42.2 per cent., and it is reasonably to be assumed that the efficiency of the ring was impaired. This figure is in close agreement with that of Longcope, for example, who, in forty-three cases of aortic insufficiency with symptoms, found an associated syphilitic aortitis in eighteen, or in 41.8 per cent.

In fifty-one of the 175 cases of syphilitic aortitis (28.9 per cent.), the lesion in the aorta was the sole detectable anatomic manifestation of syphilis. In the remaining 124 cases (71.1 per cent.), syphilitic aortitis was associated with one or more definite syphilitic changes beyond the vascular system. Skin changes occurred 34 times, indurative atrophy of the base of the tongue 28 times, penile scars 10 times, chronic interstitial orchitis 40 times, lymph node enlargement 15 times, iritis once, lesions of the upper respiratory tract twice, changes in the bony system 10 times, and in the nervous system 20 times, hepar lobatum 21 times, syphilitic scars in the liver 17 times, and in the kidneys 9 times, and gummas in various localities 26 times. Thus it is apparent that visible or palpable syphilitic changes outside the vascular system accompany syphilitic aortitis in a considerable percentage of cases.

Syphilitic aortitis frequently is associated with companion lesions in other vessels. One of the most important in this connection is to be found in the coronary arteries, involvement of which was recorded forty-five times, or in 26 per cent. Both coronaries were sclerotic in twenty-seven cases, the anterior was alone involved seven times, and the posterior once. In ten cases, one of the coronary arteries was completely occluded, and of these the anterior and posterior were each involved five times. From this it would appear that the association of coronary sclerosis in syphilitic aortitis is to be invoked as an important, if not the most important, determining factor in the production of the anginal pains by which the disease is so often accompanied.

In a single instance the anterior coronary artery was the seat of a miliary aneurysm.

In twenty of the 175 cases of syphilitic aortitis there were associated changes in the smaller cerebral arteries — syphilitic endarteritis obliterans — and in seven of them miliary aneurysm was present.

STOMACH AND INTESTINE

There is a noticeable tendency to regard syphilis of the stomach as the anatomic basis for certain gastric disorders, among them symptoms clinically indistinguishable from ulcer. In eight cases reported by Downes and Le Wald, the diagnosis of gastric syphilis was based largely on a positive Wassermann reaction,

on Roentgen-ray examination of the stomach with the discovery of deformities interpreted as syphilitic, and on improvement after operation, or under antisyphilitic treatment. In three of their cases, tissues removed at operation and examined histologically revealed granulomatous changes indicative of syphilis or tuberculosis, but in no instance did the pathologist commit himself to a positive opinion.

In the Bellevue Hospital series, gastric ulcer of indubitable syphilitic origin occurred once only. The patient was a white man, aged 32, who died from profuse hematemesis. Necropsy revealed the coarsely lobulated liver of syphilis, together with multiple gummas of the liver, and of the mesenteric, pancreatic and perigastric lymph nodes, syphilitic aortitis, and extensive ulcerative lesions of the stomach presenting the characteristic histologic features of syphilis — chronic productive inflammatory changes attended by miliary gummas, endarteritis obliterans, and circumvascular plasma and round cell infiltration. Pappenheimer and Woodruff, who studied the lesion, were able to find but twelve other acceptable examples of syphilitic gastric ulcer in the literature. My own experience in the histologic examination of gastric ulcers removed at necropsy and operation has not included a single other example of syphilis, and, unless the diagnosis of gastric syphilis is confirmed by microscopic examination, I should not be inclined to accept it.

In six subjects in the Bellevue Hospital series, syphilitic lesions of the intestine were present. Ulcerative lesions of the cecum occurred once, and ulcerative and stenotic lesions of the colon five times. In one case, the splenic flexure and the descending colon 6 cm. below were ulcerated and stenosed, and in the remaining four cases there were stenotic lesions in the rectum.

In the Bellevue Hospital series, therefore, syphilitic lesions of the stomach and intestines in late acquired syphilis occurred seven times, or in 2.2 per cent.

GUMMAS

In the Bellevue Hospital series, gummas occurred sixty-five times (20.7 per cent.). They were distributed as follows: liver 35 (or in 50.4 per cent. of the total number), spleen 8, brain 8, heart 4, kidney 4, larynx 2, muscles 2, lymph nodes 1, epididymis 1.

SUMMARY

1. In 4,880 necropsies, anatomic lesions of syphilis occurred in 314 subjects, or in 6.5 per cent.

2. Lesions of the skin and mucocutaneous junctions occurred in 106 subjects, or in 33.4 per cent. Of this number, atrophic pigmented scars of the skin, particularly that of the pretibial region, were encountered sixty-two times. Rupia occurred seventeen times, penile scars seventeen times, and condylomata lata and other syphilids ten times.

3. Enlargement of the superficial lymph nodes occurred in but 6 per cent. of the cases.

4. Lesions of the osseous system occurred forty-eight times, or in 14.9 per cent. of the cases. Chronic productive inflammatory lesions of the cranial bones were met with in twenty-three cases, and similar lesions of the tibia in sixteen.

5. Chronic interstitial orchitis occurred sixty-seven times, or in 39 per cent. of the total number of male subjects. Both testicles were involved forty times, the left eighteen, and the right nine times. Not a single instance of gumma of the testicle was found.

6. Indurative atrophy of the base of the tongue occurred in 25 per cent. of the Bellevue Hospital cases.

7. Syphilitic changes in the respiratory tract were encountered thirty-five times, or in 10.5 per cent. The larynx was involved twelve times, there were twelve instances of chronic interstitial syphilitic pneumonia, four of which were associated with bronchiectasis, ulcerative and cicatricial changes in the trachea were observed in four cases, one of them demanding tracheotomy during life, the nasal septum was perforated four times, and the hard palate once.

8. Lesions of the nervous system occurred in 112 cases, or in 35.6 per cent.

9. Syphilis of the liver was detected in 105 cases, or in 33.4 per cent. There were fifty cases of hepar lobatum, twelve of which were associated with hepatic gummas; twenty-three instances of solitary or multiple gummas without appreciable sclerotic changes in the stroma, twenty-seven syphilitic capsular scars, and five cases of simple amyloidosis of syphilitic origin.

10. Syphilitic aortitis occurred 175 times, or in 55.7 per cent. of the total number of syphilitic subjects.

(*a*) The arch was alone involved in 63 per cent.

(*b*) Dilatation of the aorta was present in 22.3 per cent.

(*c*) Aneurysm was encountered in forty-five cases, or in 25.6 per cent., and of these, the arch was involved thirty-four times, or in 75.5 per cent. of the total number.

(*d*) The aortic valves were sclerotic in sixty-four cases, and were definitely retracted in twenty-seven, or 42.2 per cent.

(*e*) In 71.1 per cent. of the 175 cases of syphilitic aortitis there were associated syphilitic changes beyond the vascular system, many of them being in the skin and visible mucous membranes.

(*f*) The coronary arteries were sclerotic in 26 per cent.

11. Lesions of the stomach and intestine occurred seven times, or in 2.2 per cent. There was one instance of genuine syphilitic ulcer of the stomach.

12. Gummas were encountered in sixty-five cases, and of these, the liver was involved in thirty-five, or in 50.4 per cent. of the total number.

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Equanimity.—Mental fortitude, incumbent on all, is especially so in the case of the medical practitioner—not alone for his own sake, in order to preserve the temperamental balance, but also for the benefit of his patients. In cases of continued illness, it is the anxiety arising from physical incapacity, even more than actual suffering, which causes the patient such acute distress: he looks to the medical adviser not merely for bodily alleviation, but in addition for intellectual support, and it is the combination of both lines of treatment which result in recovery. But let the sick man come to realize that the doctor's mind is as fluctuant and unstable as his own; that the same waves of peevishness and depression visit him; that his moral grip is equally spasmodic; and at once his own confidence is irretrievably lost. Rightly or wrongly, we think that the sphere of medicine is steadily widening to embrace eventually a domain up to the present dominated by philosophy—if dominated by any positive factor at all; and that, such being its future scope, none but those possessed of the rare capacity to see life steadily and see it whole can expect to be of utility therein. The ill-defined minor mental instability will, we believe, prove to be a malady of increasing importance—to be combated not by drugs, but by the too-often sneered-at therapy of Arnold—sweetness and light.—*Med. Press and Cir.*, 1916, p. 163.

THE PRACTICAL APPRECIATION OF EMOTIONAL GLUCOSURIA

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LOS ANGELES

In 1911, Cannon, Shohl and Wright[1] demonstrated that a glucosuria was produced in animals as the result of emotional excitement which takes the form of pain, fear or rage. These results have since been confirmed by the work of Scott,[2] Rolly and Oppermann,[3] Jacobson[4] and others.

That emotional excitement in man also tends to a glucosuria, at times permanent, at times transitory, is evidenced from the clinical reports of Kleen,[5] Naunyn[6] and others.

Such pathologic conditions as mania or mental disturbances are also often accompanied by presence of sugar in the urine, as reported by Schultze.[7] He considers that the evidence supports the view that the amount of sugar eliminated is somehow connected with the degree of depression, and is also increased with the fear-psychoses. Raimann[8] and also Mita[9] have added to this fund of clinical evidence the fact that melancholia is very often accompanied by glucosuria. The most detailed study was made by Folin and Denis[10] on the inmates of an institution for the insane. They found that 12 per cent. of the 192 subjects under investigation had glucosuria. In addition, Arndt[11] studied several cases of delirium induced by alcohol and noted the development of glucosuria with the progress of the mental incoordination.

It is, accordingly, obvious that disturbance of psychic entity is often accompanied by the presence of sugar in the urine, and the so-called "sugar-center" of Bernard is thus intimately connected with the higher centers of thought and imagination.

The question now is, Does ordinary disturbance of mental equilibrium, such as is aroused in every person by various external circumstances, tend toward the production of a glucosuria?

There is ample evidence that relatively normal causes of emotional excitement may lead to an excretion of sugar in the urine. Smillie,[12] working with medical students undergoing written examination, found that four out of nine developed a glucosuria as the result of a hard examination, while but one of the nine did this after an easy examination. Fiske and Cannon[13] found glucosuria development in twelve out of twenty-five members of a football squad after an important contest, five of whom were substitutes, not participants. The urine of the only spectator examined contained sugar. Folin, Denis and Smillie,[10] investigating the effects of examinations on students, found that six out of thirty-three medical students, or 18 per cent., developed glucosuria as the result of the examination, and that six out of thirty-six women students, or 17 per cent., showed a similar facility for excreting sugar as the result of mental strain.

In order to extend and confirm these results, I carried out, with the assistance of one of my students, Mr. E. E. Kessler, and the instructor in physiology, Mr. J. Larson, a series of experiments wherein the exciting stimuli were purely emotional in character but of different types.

The first type of stimulus was the effect of participation in a decisive football game. It was found that nine out of the seventeen subjects examined, or 53 per cent., developed a glucosuria.

The second type of disturbance was the effect of watching the game with potentiality of participation. Six of the seven substitutes examined, or 85 per cent., developed glucosuria.

The third type of excitement was observation of the game with disinterestedness as to participation. Six of the thirteen spectators, or 46 per cent., had developed a glucosuria.

The fourth and last type of stimulus studied was a short but difficult written examination given to first year medical students. Eleven of the twenty-seven urines examined, or 43 per cent., showed the presence of sugar after the test.

These results are much higher than those obtained by the workers previously quoted. Every subject reported on in our experiments failed to show the presence of sugar in the urine before the experiments.

The cumulative evidence herein cited denotes conclusively that emotional excitation of widely varying types tends toward a production of glucosuria. May it not be true that the thorough physical examination of patients, which to the physician is a routine, may be and often is an ordeal to the patient, and that as the result of the mental condition thus aroused, either through fear or anxiety, a glucosuria may develop, thus leading to a diagnosis of a condition which does not exist? That this occurs in many instances I sincerely believe. Accordingly, physicians in general should recognize this potential condition, and not rely on positive sugar tests found in urines obtained following such examination, but should obtain a sample of urine at some later date when excitation, due to changed and unaccustomed procedure, has had opportunity to die down and disappear.

The practical point now in evidence is to determine the extent of this emotional glucosuria as to the time factor. Is it of brief or long duration, and how soon after excitation does it disappear? To determine this point, we examined the urines of the eleven students who had developed glucosuria as the result of the examination, four hours after the excitation, and found that at this time only one of the eleven still showed the presence of reducing sugar. In this case the relative amount was considerably diminished.

From the latter work, it is demonstrated that emotional glucosuria is but transitory in nature and soon disappears after removal of the exciting cause, bearing out in full the foregoing contention.

1. Cannon, Shohl and Wright: Cited from Cannon: Bodily Changes in Pain, Fear, Hunger and Rage, 1915, p. 70.
2. Scott: Am. Jour. Physiol., 1914, xxxiv, 283.
3. Rolly and Oppermann: Biochem. Ztschr., 1913, xlix, 201.
4. Jacobson: Biochem. Ztschr., 1913, li, 449.
5. Kleen: On Diabetes Mellitus and Glycosuria, Philadelphia, 1900, pp. 22, 37.
6. Naunyn: Der Diabetes Mellitus, Vienna, 1898, pp. 72, 73.
7. Schultze: Verhandl. d. Ges. deutsch. Naturforsch. und Aerzte, 1908, ii, 358.
8. Raimann: Ztschr. f. Nervenh., 1902, xxiii, Abt. iii, 14, 19.
9. Mita: Monatschr. f. Psychiat. u. Neurol., 1912, xxxii, 159.
10. Folin, Denis and Smillie: Jour. Biol. Chem., 1914, xvii, 519.
11. Arndt: Ztschr. f. Nervenh., 1897, x, 436.
12. Smillie: Compare Footnote 1, p. 75.
13. Fiske and Cannon: Compare Footnote 1, p. 75.

High Tuberculosis Mortality Among Negroes.—Following is the number of deaths and the death rate, from tuberculosis, for the white and for the negro races, respectively, in New York City for the year 1915. White race: pulmonary tuberculosis: deaths, 8,279; rate, 1.54; tuberculosis, all forms: deaths, 9,595; rate, 1.79; all causes: deaths, 73,512; rate, 13.71. Colored race: pulmonary tuberculosis: deaths, 546; rate, 5.20; tuberculosis, all forms: deaths, 654; rate, 6.23; all causes: deaths, 2,681; rate, 25.53.—*Bull. N. Y. Dept. of Health.*

Therapeutics

SHOCK

The term "shock" is applied to a definite clinical picture with characteristic symptoms resulting from a number of different conditions. The symptoms may vary in their intensity and in their duration. With a correct knowledge of shock, treatment based on exact facts should be more rational. Unfortunately, there is still some difference of opinion as to the physiologic and pathologic changes that occur during shock, and the many kinds of treatment reported make the therapy confusing.

What is usually meant by shock is a condition in which there is mental apathy, extreme weakness, a small, rapid and thready pulse, subnormal temperature, pallor, diminished sensibility and irregular respiration. It is encountered in cases following extensive burns, severe injuries, perforation of ulcers, in acute pancreatitis, sepsis, hemorrhage, and during a prolonged abdominal operation in which there has been considerable handling of the viscera. Sometimes it has followed after severe athletic exertion or deep emotion. It is also seen in anaphylaxis. The term "shock" is often confused with "collapse." Crile states that in shock the onset is gradual, whereas in collapse it is sudden. Collapse is more amenable to treatment.

Various theories have been advanced as to the nature of shock. It has been attributed to cardiac or respiratory failure or exhaustion, to disturbances due to hemorrhage or vasomotor changes, to suprarenal deficiency, and to exhaustion of the cortical cells. Of these there stands forth Crile's[1] kinetic theory of surgical shock, the acapnia theory of Henderson,[2] and more recently suprarenal exhaustion, described by Corbett.[3] Seelig and Joseph[4] believe their experiments show that "a paralysis or failure of the vasomotor center is not the *primary* cause of the other symptoms of surgical shock."

SHOCK DUE TO ACAPNIA, AND TREATMENT

According to Henderson, shock is due to a loss of carbon dioxid from the system by way of the blood and tissues. The carbon dioxid escapes when the abdomen is opened, or during exposure in a long operation. On this theory experimental shock has been produced and an attempt made to restore normal conditions by injections directly into the blood stream of carbon dioxid or a carbonate.

Seelig, Tierney and Rodenbaugh[5] report good results by the intravenous injection of sodium bicarbonate. They state that there are three elements in the blood which tend to break up sodium bicarbonate, resulting in the liberation of small amounts of carbon dioxid. These are hemoglobin, serum albumin and the acid sodium phosphate of the blood.

They inject "25 c.c. of a molecular solution of sodium bicarbonate." This results in an increase in the blood pressure, which follows immediately after the beginning of the injection of the solution and is kept up for a long period. They find no increase in the heart beats, but a marked increase in the amplitude of the beats. The effects on the respiration are not constant. They explain the action of sodium bicarbonate by assuming that it exerts a specific action on heart muscle.

THE KINETIC THEORY OF ANOCIASSOCIATION

Crile bases his kinetic theory on a study of the phylogenetic history of the whole motor mechanism. He found that animals whose self preservation was dependent on some form of motor activity were more readily susceptible to shock. This motor activity is normally excited by stimulation of nerve endings. When there is no motor response to such stimulation, the energy is expended on the cortical cells. Repeated stimulation without motor response causes an exhaustion of the cortical cells. Operations on the brain and lung do not as a rule result in shock, for these are not normally exposed organs. According to Crile, all energy must receive an adequate response. This cannot occur in the unconscious patient, and the energy is expended on some part of the body, usually the cortical centers. Microscopic examination has shown that there are morphologic changes in the brain after repeated stimulation of some normally exposed part of the body when there has been no response. Inhalation anesthesia is not sufficient to prevent stimuli reaching the brain. Besides the general anesthesia, there must be interference along the path that the stimuli traverse. This can be produced by the use of local anesthesia which will block the nerve path.

From the foregoing investigations, Crile has evolved his method of the prevention of shock through anociassociation, or the prevention of nocuous or harmful associations or stimuli from reaching the brain. For general anesthesia he uses nitrous oxid. This anesthetic should be given only by a skilled anesthetist. One hour before operation the patients, excepting infants, the aged, and those with depressed vitality, are given $\frac{1}{6}$ grain of morphin and $\frac{1}{150}$ grain scopolamin. The nitrous oxid may be given with ether.

If only local anesthesia is to be used, novocain 1:400 solution is administered by infiltration. With general anesthesia, after the patient has been anesthetized, the line of incision is first infiltrated with 1:400 novocain solution. The skin is infiltrated, and then the subcutaneous tissue, the solution in the infiltrated area being spread by pressure with the hand. After this is done, in abdominal operations, the incision is made to the peritoneum, which is also infiltrated with novocain and then it is incised. It is everted and infiltrated with 0.5 per cent. solution of quinin and urea hydrochlorid. This serves as a block, and may last for several days. By this method there is offered a relaxed abdominal wall, and easy exploration is afforded.

In exophthalmic goiter a somewhat different procedure has been adopted. Prevention is also aimed against any unnecessary fear that may be a factor in the production of shock. This is done by giving fictitious anesthesia for several days prior to the operation. The patient becomes accustomed to the odor of ether. When the patient has become accustomed to the procedure, she is, without her knowledge, anesthetized, and there is made the usual infiltration with novocain solution. Crile reports excellent results with the anociassociation method. In 1,000 consecutive operations the mortality was only 0.8 per cent.

1. Crile, G. W.: Interstate Med. Jour., June, 1913, p. 499.
2. Henderson: Am. Jour. Physiol., 1908, xxi, 126; 1909, xxiii, 345; 1909, xxiv, 66; xxv, 385; xxvi, 360.
3. Corbett, J. F.: The Suprarenal Gland in Shock, THE JOURNAL A. M. A., July 31, 1915, p. 380.
4. Seelig and Joseph: Jour. Lab. and Clin. Med., February, 1916.
5. Seelig, Tierney and Rodenbaugh: Am. Jour. Med. Sc., August, 1913, p. 195.

SUPRARENAL EXHAUSTION THEORY

Corbett[3] explains shock in an interesting way. He assumes that shock is due to primary suprarenal exhaustion. He bases his conclusions on experimental evidence obtained from animals, and deductions based on the experimental work of others. The epinephrin content of the blood in animals was determined during various forms of anesthesia maintained for varying intervals. Peritoneal trauma was also produced and the epinephrin content of the blood determined. He states that a picture similar to shock is produced in animals which have been suprarenalectomized. He does not think that artificially administered epinephrin solves the problem, because normally it is present in the blood in only small amounts, and in order to maintain normal blood pressure during shock, increasing amounts of epinephrin must be injected.

TREATMENT OF SHOCK

Hogan[6] has had considerable success in treating shock, particularly in cases due to hemorrhage, by intravenous injection of colloidal gelatin. He arrives at this method by determining the amount of urine excreted following intravenous injections of salt solutions of varying strengths. On account of the noncolloidal nature of salt solutions, the water soon escapes from the blood vessels and is excreted by the kidneys. The rise in blood pressure following infusions of saline is only temporary. Colloidal gelatin or blood serum, which is also colloidal, does not have this tendency to escape from the blood vessels, and hence there results an increase in blood pressure, which persists for a longer time.

The colloidal gelatin is prepared by adding 25 gm. of the purest and freshest gelatin and 1.5 gm. of sodium chlorid to 100 c.c. of distilled water, and boiling for fifteen minutes. This is filtered through a heavy paper on a hot funnel and autoclaved at 124 C. (255.2 F.) for an hour. It is next chilled in an ice-box. If it solidifies, it has the proper colloidal qualifications. When it is to be used, the gelatin is warmed until it is melted, and is added to 1,000 c.c. of a 0.9 per cent. sodium chlorid solution which also contains 2 gm. of sodium carbonate crystals ($Na_2CO_3.10H_2O$). This is warmed to body temperature and injected. Hogan obtained excellent results in hemorrhage cases, and he thinks that shock due to injury or during operation may also be controlled in this way. Shock in septic cases is hopeless.

There are other methods of treating shock which have also been found useful and which may be resorted to. If the symptoms are not urgent, enteroclysis is of value. In the urgent cases, intravenous infusion of physiologic saline solution will fill the blood vessels more rapidly. If there have been several hemorrhages, as much as 16 ounces or more may be given. This may be carried on in conjunction with enteroclysis. To the rectal infusion, which is given by the drip method, black coffee may be added.

Subcutaneous injections of saline solution may also be given, usually into the loose tissue under the breast, 8 ounces every three hours.

To all of these solutions there may be added 5 c.c. of epinephrin solution (1:1,000) to every 500 c.c. of solution. Epinephrin (in 1:1,000 solution may be administered by itself in small doses, hypodermically.

Besides these more deliberate treatments of shock, a number of more quickly acting methods are often of value in holding the patient until one or other of these injection methods may act. Acute pain must be stopped by a hypodermic of morphin. Acute hemorrhage must be stopped at the bleeding point if possible. Acute anemia of the brain should be treated not only by elevation of the foot of the bed and elevation of the legs, but even by Esmarch bandages around the legs, driving the blood still remaining in the body toward the vital regions. A tight abdominal bandage is often a great advantage in increasing the general blood pressure. The patient should be surrounded with hot water bags to conserve heat, which he is rapidly losing. More or less vigorous massage over the cardiac region, especially the base of the heart, often causes more active contractions of the heart.

Strophanthin given intravenously into one of the veins of the elbow, provided the patient has not been taking digitalis, is sometimes effective in stimulating the heart until other measures may act. A good preparation is that in sterile ampules, each containing 1 c.c. of a 1:1,000 solution. This injection may be repeated in twelve hours, but generally not again. It is dangerous to use strophanthin if the heart is thoroughly under the influence of digitalis.

Digitalis is not valuable in emergencies, as it is too slow to act. Camphor, in sterile saturated solution in oil, given hypodermically, is somewhat of a nervous stimulant, and this may be repeated for several times at two or three hour intervals. Strychnin may be administered in doses of $\frac{1}{30}$ grain hypodermically, but this dose should not be continued oftener than once in six hours. Ergot in aseptic preparation given intramuscularly, once in from six to eight hours, will often increase the blood pressure, and therefore the circulation at the base of the brain. Pituitary extract in solution of 1:10,000 may also aid in stimulating the heart and increasing the blood pressure. If there is profuse perspiration with a failing respiration, a dose of atropin may be given hypodermically, $\frac{1}{100}$ grain.

Small amounts of hot liquids taken into the stomach are of value, as hot coffee, hot tea or hot bouillon, and if there is any improvement at all, hot, thin cereal gruels cause improvement in the general condition.

It should be urged not to push any one drug too far, or to give too many drugs at once.

The acute shock having been improved, or rather a "collapse turn," which is perhaps the better term, having been overcome temporarily, at least, the more active measures previously suggested, in the way of transfusions or intravenous injections, etc., should be inaugurated. The treatment of shock is always more or less unsatisfactory, while collapse may occur rapidly and be relieved quickly by well directed treatment. In typical shock, the progress is downward for hours, even with plenty of time to inaugurate any treatment. Hence the prevention of this condition is of paramount importance.

6. Hogan, J. J.: The Intravenous Use of Colloidal (Gelatin) Solutions in Shock, THE JOURNAL A. M. A., Feb. 27, 1915, p. 721.

Defective Vision in Schoolchildren.—More than 83,000 children in the rural schools of Pennsylvania were discovered to have defective eyesight during the medical inspection made in the school year of 1914 and 1915 under the direction of Commissioner of Health Samuel G. Dixon. Of this number 1,184 had defects of the right eye, 1,750 had defects of the left eye, and 53,814 had defects of both eyes.—*News Letter*, The National Committee for the Prevention of Blindness, April 1, 1916.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, MAY 6, 1916

THE NUTRITION OF THE NEW-BORN INFANT

No mammal mother is so completely incapacitated for carrying out the duties necessary to protect and nourish her young during the first few days after parturition as is civilized woman. On the first day after birth, the mother is usually absolutely dependent on the ministrations of others. The infant shares this dependence. Even the natural food supply of the parturient mother is extraordinarily small, for the total fuel value of the colostrum is insufficient during the first few days, even under the most favorable circumstances. These statements by careful students of the physiology of the new-born infant,[1] expressing facts long appreciated by pediatricians, serve to raise a number of questions of practical as well as of theoretical importance. There are many who will say, with the characteristic mental inertia established by long custom, that experience has given adequate indications for the management of the early days of infancy, and that attempts to "improve on Nature" are alike gratuitous and futile.

If the medical profession were to approve unhesitatingly this sort of *laissez faire* policy of viewing the experience of every day life, progress would indeed be slow. It must be remembered, furthermore, that in the case of the new-born infant, a large element of artificiality has entered into the conditions surrounding the early days of life. The accepted provision for the care and management of the infant are far from being dictated solely by "natural" provisions. It is entirely rational, therefore, to inquire as to the infant's peculiar needs during the first few days and whether the new-born child becomes automatically adjusted to the conventional state of affairs to which it is introduced.

The practices which follow parturition are by no means universal. The familiar loss of body weight shortly after birth has already been the subject of numerous experimental investigations with respect to the possibility or desirability of attempting to avert it. At the Boston Nutrition Laboratory of the Carnegie Institution of Washington, Benedict and Talbot[1] have recently made an elaborate investigation of the character and amount of the metabolism of the new-born infant. In reviewing this subject they have noted that the loss in weight may not be taken as an index of its physiologic needs for nourishment, since an analysis of the character of this loss in weight shows us that there are two distinct causes: (1) mechanical and (2) physiologic. The loss of meconium, of allantoic fluid regurgitated from the stomach, of urine, and even of preformed water is mechanical. The most important physiologic loss is that due to the actual oxidation of body substance as a result of metabolism. With the first moment after delivery and as soon as the lungs have become filled with air, the infant begins to oxidize body substance, this material being chiefly fat, with some protein and some carbohydrate. The loss of water as a factor in decline of body weight must not be overlooked.

The statement is sometimes made that the metabolism of the infant is of a peculiar kind. Thus it is alleged that there is an excess of glycogen available in the body of the new-born infant. The study of the respiratory quotient of a large number with unusual care soon after birth has now shown the precise nature of the nutritional factors concerned. Benedict and Talbot state that the profound influence of the mother's milk on the character of the catabolism is shown by the fact that the time when the milk begins to appear in the mother's breasts almost invariably coincides with the increase in the respiratory quotient. On the first day of life the infant is subsisting on the moderate amount of glycogen in the body at birth. On the second, third and fourth days the colostrum is entirely insufficient to supply the needed energy; on the fifth day the milk flow is usually established, and subsequently the respiratory quotient is not far from 0.81, indicating a catabolism in which somewhat over one third of the energy is derived from carbohydrate. This quotient is not far from that found with normal persons. There is no indication that the infant at birth has an excessive supply of glycogen in the tissues.

The observations made by these investigators indicate that there is a distinct correlation between the body temperature of the infant and the total metabolism, for on the days with low body temperature the total metabolism was likewise low. These low temperatures are seldom found other than on the first day after birth. They are regarded as due solely to the exposure incidental to the birth, the subsequent bath, and other special details of the care of a new-born infant. It is of peculiar significance, therefore, that on the first day, when the low temperatures predominate, Benedict and Talbot find likewise a somewhat

1. Benedict, F. G., and Talbot, F. B.: The Physiology of the New-Born Infant, Carnegie Institution of Washington, Publication 233, 1915.

lower metabolism per kilogram of body weight and per square meter of body surface than on the subsequent days, thus bearing out the contention that the metabolism is considerably affected by the temperature of the infant's body.

On the basis of these measurements, the daily energy requirement for infants from 1½ to 6 days old is estimated at approximately 62 calories per kilogram of body weight. This includes the requirement for maintenance and a modicum of activity; it makes no special allowance for the needs of growth, which is usually in abeyance during the period noted. The energy loss can be reduced by intelligent nursing in the early days. Muscular activity, such as is represented by unnecessary crying, can be avoided. The infant can be made comfortable by attention to minor details so as to avoid the shock of cold and other provocatives to muscular response. The temperature can be conserved in the early days of defective regulation of heat loss.

It can scarcely be doubted that even under the most favorable conditions the total amount of available energy in the colostrum which the child receives from the mother's breast during the first few days is wholly insufficient to supply the energy needs. Why Nature does not provide more liberally during the first few days is a teleologic question. Benedict and Talbot comment on the striking fact that only human mothers and new-born infants are so entirely dependent on the care of others. The relationship between this fact and the development of civilization is most interesting, and leads one to ask if this scant food supply is a natural consequence of civilization, and whether civilization is called on to remedy it.

Shall an attempt be made, as a rule, to supplement the contributions from the mother's breast? We tread here on the dangerous ground of uncertainty and controversy. If inanition actually ensues, the infant is obliged to subsist on its own body reserves, possibly to its detriment. It is argued that if acidosis resulting as a consequence is undesirable, the best method to combat it consists in feeding carbohydrate. Perhaps it is safe to abide by the advice of Benedict and Talbot. If supplemental feeding is necessary, they remark, it would seem on general principles that the food material most easily digested and most readily absorbed for oxidation would be a soluble carbohydrate. The carbohydrate possessing these qualities in the greatest degree is glucose, as it requires no hydrating ferment to convert it into the blood sugar. If the infant is to be fed, we may again emphasize the fact that a knowledge of the energy requirement for the first week is most important. Those in charge of the child at this time should, therefore, have practical experience in supplemental feeding, for a disturbance of the digestion in the first few days after birth is most harmful and may even prove fatal.

THE MUZZLING OF DOGS

The enforcement of regulations requiring the muzzling of dogs in cities is nearly always resented by the dog owner, who is quite sure that *his* dog is not likely to bite any one, and that he takes entirely too good care of the creature for it to be in any sense a danger to the community. Attempts, therefore, to make and enforce public ordinances which will absolutely prevent dog bites are looked on often as originating from heartless people who have no sympathy with animals, and who are prejudiced against domestic pets. Some recent statistics published by the New York board of health,[1] which show how large is the number of persons bitten by dogs in a city, would seem to be the best possible antidote for this sort of misunderstanding. Anything which makes it possible for the state of affairs represented by the number of dog bites reported to the New York board of health in a single year to continue is entirely too dangerous to human life to be allowed to exist unchecked, and, almost needless to say, is the cause of an immense amount of human suffering, physical and mental, because of quite inevitable solicitude as to possible results. Indeed, it is probable that if the attention of dog owners generally in large cities were called not only to the possibilities, but also to the actual danger to those around them, they would be quite willing to have their pets get accustomed to the slight inconvenience that a muzzle is to the animal for a while at first, in order to help effectively in the movement for protecting the public, which manifestly in this case needs protection.

During the past seven years, for which statistics are available, an average of more than 4,500 persons have been bitten by dogs in New York City under such circumstances that the bites were reported to the board of health. It is easy to understand that many dog owners and members of their families were bitten by pet dogs without any public record being made, so that these figures do not represent all the danger to which human beings were subjected from dog bites. During the past year, care has been taken to secure a report of the circumstances under which the bites were received in order to determine the necessity for the kind of control that canine pets need if there is to be proper limitation of this danger. Of the more than 3,000 dog bites reported since Sept. 1, 1914 (when a special muzzling ordinance went into effect), more than one tenth of the cases occurred in connection with dogs which made the attack while leashed. More than another tenth of the cases of bites were reported as inflicted by dogs supposed to be muzzled in such a way as to make biting impossible. In over 200 cases, passers-by on the street were bitten by dogs which, at the moment of making the attack, were both leashed

1. Weekly Bull., Dept. of Health, City of New York, N. S., iv, No. 49.

and muzzled. Altogether, very close to 1,000 persons were bitten in New York City under conditions in which such an accident was supposed to be rendered quite impossible because of a leash or muzzle, or both. Nearly 2,000 other persons were bitten; in 200 of these cases there was no record of the circumstances as regards the presence or absence of leash or muzzle.

These statistics bring home the necessity for the use, not of a makeshift, but of a proper form of muzzle. Dog owners are prone to think that any form of strap which passes round the head of a dog a few times is a muzzle in the sense required by law. The so-called figure eight muzzle has in the experience of New York proved to afford very little protection. Health authorities have the right to insist not only on a muzzle, but also on a proper form of muzzle.

DECREASE OF TYPHOID FEVER IN LARGE CITIES

There are few events in the history of disease prevention so striking as the decline in typhoid fever that has taken place in the last three decades throughout the civilized world. A recent president of the British Medical Association, Dr. Henry Davy,[1] stated that fifty years ago his immediate predecessor in practice frequently received as much as $1,500 a year for attending typhoid patients, but that during the past few years his own income from this source hardly averaged $25. While exact figures as to the extent of typhoid prevalence prior to about 1860 are lacking, it seems probable that typhoid fever attained a particularly high rate during the third quarter of the nineteenth century, owing to the growth of public water supplies at that period. In 1880 the typhoid rate in Berlin was 47, in Paris 90, in New York 31, and in Boston 42. Recognition of the share played by water in the dissemination of this disease led to numerous attempts to improve water supplies, and for various reasons these improvements were carried out in several European countries earlier and more completely than in the United States. The result was that in the latter part of the nineteenth century and for the first decade of the twentieth the typhoid rates in the leading capitals of Europe were much lower than in American cities of the same rank. This condition was justly regarded as a reproach to the sanitary management of American municipalities, and the contrast in typhoid fever prevalence became a frequent theme for unfavorable criticism.

The slowness of improvement in typhoid fever rates in the United States appears to have been due chiefly to two causes: first, the tardy recognition of the necessity for a pure public water supply, and, second, the large consumption of raw milk.

1. Davy, Henry: President's Address: Science in Its Application to National Health, Brit. Med. Jour., 1907, ii, 245; Lancet, London, 1907, ii, 273.

The earlier realization in many parts of Europe of the need for uncontaminated drinking water was perhaps due to the more extreme, or at all events the more obvious, pollution of European surface waters, itself a consequence of the greater density of population and smaller volume of water available for dilution. Whether for this reason or because of some defect in our social organization which prevents expert opinion from being accepted and acted on, the fact remains that until recently water-borne typhoid has been deplorably common in the large cities of this country. The unprecedented reduction that has occurred since 1905 must in part be attributed to the unremitting labors of sanitarians in educating and convincing the public concerning the dangers of impure water. It must probably also be in part ascribed to the development of the inexpensive but very effective method of purifying water by chlorination. There is little doubt that the great cost of water filtration imposed by the waste of water in American cities has been a barrier to the installation of filter plants. In many instances the amount of water pumped into the mains of American cities is from three to four times as great as the amount called for by European cities of similar size and industrial character. The high cost of purifying the excessively large volume of water thus demanded — much of it clear waste — long prevented the adoption of the older methods of water purification. The discovery of a cheap method of purification has hence been of great importance. The city of Milwaukee is an example of a community that was not sufficiently moved by the argument of a long continued high typhoid rate to undertake the construction of a filtration plant, but was quick to take advantage of the relatively cheap chlorination method. In point of fact, the typhoid reduction in cities like Milwaukee, Detroit and Buffalo has been one of the outstanding facts of sanitary progress in this country in the past few years.

The diminution of milk-borne typhoid has been quite as striking as that of the water-borne. Inspection of dairy farms may perhaps have had something to do with this, but there is reason to believe that the main factor has been the decrease in the consumption of raw milk. The growing use of heated milk — boiled or pasteurized — has gone far to diminish the amount of milk-borne typhoid to the level of that in European countries, where, as is well known, the use of unheated milk has long been relatively rare.

There is no doubt that the discovery of the existence of typhoid carriers and the measures taken to control their activities have had some share in the general reduction of the disease, but it must be remembered that the number of carriers is automatically reduced by any diminution in the amount of milk-borne and water-borne disease, and that the proportion of contact typhoid in the past has been comparatively slight. It is now clear that the principal factors in the dissemina-

tion of typhoid in the large cities of the United States have been polluted water and contaminated raw milk.

The degree of typhoid reduction that has been effected in a few years, presumably by the partial elimination of these chief causes, may be best appreciated from the data presented in our fourth annual summary of typhoid in fifty-seven large American cities, printed two weeks ago.[2] It is there shown that the typhoid rate in a population of over 20,000,000 declined from 19.59 in 1910 to 8.65 in 1915! It may be questioned whether a population of this size has ever shown in so brief a period such a sweeping typhoid reduction.

COOPERATION IN SOCIAL INSURANCE INVESTIGATION

During the last ten years, THE JOURNAL has frequently commented on the development of social insurance in Germany, England, Denmark, Norway and Sweden and other European countries. No other social movement in modern economic development is so pregnant with benefit to the public. The opinion has been expressed repeatedly that the problems involved in the conservation of the health and physical efficiency of laboring men and women in this country, and those in moderate circumstances must, sooner or later, become a vital issue. THE JOURNAL has emphasized that in each of the countries mentioned, members of the medical profession, although directly and vitally concerned in the administration of any social insurance plan, had without exception awakened too late to the importance of the question. As a result of their own lethargy and inactivity, they took no effective part in molding the legislation, and were forced to accept what was given them by the legislators and economists rather than to claim that to which they were justly entitled. In England, the country which most recently has adopted a general social insurance plan, Lloyd George, in framing his bill, consulted workmen, employees, employers, officers of labor unions, representatives of the "friendly societies," economists, sociologists and legislators, but until the bill was practically ready for presentation in the House of Commons, it apparently did not occur to any one to consult representatives of the British Medical Association, although the assistance and cooperation of physicians were absolutely indispensable to the successful operation of the law. Coming into the discussion late in the day and after many of the essential principles involved had been determined, the representatives of the British Medical profession were able to secure with extreme difficulty only a part of the concessions which they demanded. As THE JOURNAL has repeatedly pointed out, experience in other countries has clearly demonstrated that in the course of a comparatively short time the question of social insurance will become an important issue in this country. Physicians in the United States should profit by the experience of our professional brethren abroad and interest themselves in this question while it is still in a formative period.

This prediction has already been realized. Social insurance legislation in a more or less crude form has already been adopted in several states. Anticipating the introduction of bills on this subject in other states and desiring to harmonize such efforts as far as possible, the American Association for Labor Legislation sent out last fall a preliminary draft of a model bill on this subject, asking for criticisms and suggestions for its improvement. That the American Medical Association was awake to the importance of the situation was demonstrated by the admirable report presented to the House of Delegates at San Francisco in 1915 by Dr. Alexander Lambert, chairman of the Judicial Council. At the same time that the American Association for Labor Legislation sent out its tentative bill, it also through its secretary, Dr. John B. Andrews, asked for the cooperation of the American Medical Association in drafting the sections of the bill which apply to physicians and their relation to social insurance. The problem involved embraces both the ethical and economic relations of individual physicians and the social relations of the profession as a whole. It is, therefore, plainly one which comes within the province of both the Judicial Council and the Council on Health and Public Instruction. After due consideration by these two councils, a special committee was authorized, consisting of the chairmen of the two councils and a third member to be selected by the chairmen. This committee, as constituted in December, consisted of Dr. Alexander Lambert, chairman of the Judicial Council, as chairman, Dr. Henry B. Favill, chairman of the Council on Health and Public Instruction, and Dr. Frederic J. Cotton of Boston. Dr. Favill's untimely death in February was a severe loss to the committee. One of the last official acts of his life was to appear before the Board of Trustees at their February meeting with Dr. Lambert and to plead for a liberal appropriation for this committee. The Board of Trustees, realizing the importance of this work, made an adequate appropriation for the coming year. Headquarters for the committee have been established at 131 East Twenty-Third Street, New York, in close cooperation with the offices of the American Association for Labor Legislation. Dr. I. M. Rubinow, author of "Social Insurance," has been secured as the executive secretary of the committee.

This action should result in a careful, authoritative study of the many and complicated problems involved in social insurance, and should make it possible for the American Medical Association to render valuable aid in solving this important social problem. A preliminary report on the subject will be presented at the Detroit session, but it will probably require two or

2. Typhoid in the Large Cities of the United States in 1915, special article, THE JOURNAL A. M. A., April 22, 1916, p. 1305.

three years' work to collect the necessary data and arrive at definite conclusions as to what is to be the position of the medical profession of this country in the ultimate solution of the problem. In the meantime, it is urged that individual physicians and medical organizations refrain from isolated active efforts, either for or against social insurance bills in state legislatures, in order that the attitude of the profession on this subject may be harmonious and that its influence may be exerted unitedly and effectively.

WHAT IS A VITAMIN?

The term "deficiency disease" is being applied to nutritive disorders caused by the continued absence from the diet of a suitable supply of substances which, while necessary to the metabolism, are not identical with the familiar nutrient sources of energy or the inorganic salts supposed to be essential for physiologic functions. The first to point out the importance of such substances for nutrition was doubtless F. Gowland Hopkins of the University of Cambridge, England. The name "vitamin" was applied to them by Casimir Funk.

As was pointed out recently in these columns,[1] however, it is by no means certain that these substances are even members of the same or of a related class, although it has become usual to refer to them as vitamins. Inasmuch as evidence is accumulating from the researches of McCollum, Osborne, Mendel and others that the processes of growth are promoted by "accessory substances" soluble in fats, if not identical with them, and that these are quite different in chemical behavior from the "vitamins" which induce recovery from the now familiar polyneuritis of birds fed on an exclusive diet of polished rice, the propriety of the unrestricted use of the word "vitamin" may well be questioned. Judging by the indefinite way in which popular and even some scientific literature on nutrition and diet has begun to employ the term "vitamin," a word of caution seems timely.

In reviewing this situation, Mendel[2] has remarked: "It is not unlikely — to speak conservatively — that there are at least two 'determinants' in the nutrition of growth." McCollum and Kennedy[3] have offered a most appropriate criticism of the current careless use of words, as follows:

> By "vitamine" Funk and his co-workers indicate a class of substances the chemical nature of which is at present unknown. They are described as being precipitated by phosphotungstic acid and by mercuric chloride, but aside from this property there is no evidence that these substances of unknown constitution which are active in promoting growth, or in relieving the symptoms of polyneuritis, contain an amino group. Furthermore, the prefix *vita* connotes an importance in biological processes paramount to that of certain other absolutely indispensable organic complexes, among which are a number of amino acids. We feel that this term is not in harmony with a conservative tendency in the nomenclature of biological chemistry, which should avoid the employment of a term which carries the idea that one indispensable complex is of greater importance biologically than another one equally indispensable. Furthermore, the evidence of the presence of an amino group in the substances under consideration is too slight to warrant the use of the ending *amine*, which carries with it a definite meaning in organic chemical nomenclature.

Hopkins introduced the term "accessory" for substances of unknown chemical character, found in milk, which render the addition of small amounts of milk to rations consisting otherwise of purified food substances effective in promoting growth. The term "accessory" carries with it the idea of a subordinate rôle, and in this sense has been employed by writers on dietetics as synonymous with "condiment."

McCollum and Kennedy accordingly suggest "the desirability of discontinuing the use of the term 'vitamine,' and the substitution of the term 'fat-soluble A' and 'water-soluble B' for the two classes of unknown substances concerned in inducing growth." They maintain that these decidedly inelegant and clumsy terms have the merit of not attributing extravagant values to these bodies, and they differentiate between the substances or groups of substances only with respect to their solubility relations, which is the only basis of differentiation at present known. These terms have the additional advantage that further letters may readily be introduced as investigation progresses, provided there proves to be more than a single representative of each class, and also that they will automatically fall into disuse when we come to possess definite knowledge of their chemical nature. It is not the function of The Journal to invent a nomenclature for an interesting group of substances evidently important for the nutritive processes. It can only warn against the coining of words and the multiplication of designations which will inevitably bring into the domain of nutrition study a profusion of names and a confusion of ideas such as those with which immunity investigation has continually struggled.

1. Modern Bread and Deficiency Diseases, editorial, The Journal A. M. A., April 22, 1916, p. 1314.
2. Mendel, L. B.: Nutrition and Growth, The Journal A. M. A., May 8, 1915, p. 1539; the Harvey Lectures, 1914-1915, Philadelphia, 1915, p. 126.
3. McCollum, E. V., and Kennedy, Cornelia: The Dietary Factors Operating in the Production of Polyneuritis, Jour. Biol. Chem., 1916, xxiv, 491.

A Factor in Hereditary Degeneracy.—The Journal has from time to time reported the results of experiments which tended to show that the continuous absorption of toxic products, even in small quantities, produces a degenerate or weakened offspring. Stockard and Papanicolaou have recently reported (*American Naturalist*, 1916, L, 65) the results of five years of experimental work, the result of which indicates that the germ cells of normal guinea-pigs may be so modified by alcoholization as to become incapable of producing normal offspring. Further, this result follows even though the organs of the parent show little or no effect of the alcoholization. The animal becomes fat, but appears healthy. The evil effects do not end, however, with these first offspring. Even though these are not alcoholized, degenerations and lack of vitality are transmitted to the next generation and onward so that the stock eventually dies out.

Current Comment

LIMITED ENROLMENTS IN MEDICAL SCHOOLS

As already reported,[1] the trustees of the University of Pennsylvania voted recently to limit the enrolment in the first and second year classes of the medical school to 100 students each. This is the fifth medical school in the United States to take action limiting its enrolment. Four years ago the Medical Department of Johns Hopkins University limited the enrolment in its classes to ninety students each. Two years ago in the Leland Stanford Junior University, School of Medicine, the enrolment was limited to about twenty-five students in each class. Last year Rush Medical College fixed the limit at 100 students each in the first and second year classes and 120 students each in the third and fourth year classes. At the University of Minnesota the enrolment in the freshman class of the medical school has been limited to eighty students. This action was taken by each of the medical schools named since it was believed that the limit fixed represented the largest number of students compatible with the most satisfactory medical training that could be furnished with the present organization of its faculty and the capacity of its laboratories. Experience has shown that a certain amount of individual instruction is essential for the best results in medical teaching, and that very few students are able to dispense entirely with such individual attention if they are to attain a high degree of proficiency in their courses. To crowd other students into the classes, therefore, would be to lower the standard of teaching for all students enrolled. If it should become necessary to make provision for larger numbers of students, it is believed that enlarged teaching facilities should be provided, preferably by establishing an additional teaching unit having its own faculty, laboratories, equipment and hospital facilities. Efforts to care for large numbers of medical students should not be permitted to interfere in any way with the highest efficiency in medical teaching.

TEACHING UNITS AND MERGERS OF MEDICAL COLLEGES

If, as indicated in the previous comment, the highest efficiency in medical teaching is obtained with classes of 100 students or less, then to attain this highest efficiency no medical school should be planned to care for more than 400 students in the four classes. In case it becomes necessary to provide for larger numbers of students, therefore, an additional teaching unit, with its separate faculty, laboratories and hospital facilities, would become essential for each additional 400 students. Thus in a university medical school there might be developed any number of separate teaching units. Although each teaching unit would be complete in itself, all would be under a central administrative control. The same standard for admission would be applied to all alike, all units would be equally financed, and all accounts, records, correspondence with students, schedules and the like could be looked after at the central administrative office. This suggests a plan, meanwhile, whereby mergers might be brought about in several of our large cities having two or more medical colleges. Each medical college might be made a separate teaching unit of the larger medical school. Thus, by having two or more medical teaching units under a single central control, confusion and duplication of expense in administration would be avoided, and all equipment, clinical material and the like could be utilized toward the highest development not only of undergraduate but also of graduate medical teaching. There is no reason why in the larger cities in this country, where there is an abundance of excellent clinical material, medical education, including graduate medical instruction, should not attain a stage of development as high as, if not higher than, that which now prevails in some of the larger cities of Europe.

1. Limits Enrolment of Students, General News, THE JOURNAL A. M. A., April 1, 1916, p. 1036.

DOES STRAW HAVE VALUE AS A HUMAN NUTRIENT?

In the face of a possible shortage in the national food supplies, German students of nutrition have been considering with scientific acumen the solution of contingent difficulties. The outcome has been a series of recommendations which include a reduction in the consumption of meat and its replacement by foods from plant sources, and also various suggestions as to the employment of products which have not occupied a recognized place in the nutrition of man. The discussions of these topics are interesting because of their inherent significance in the science of nutrition quite as much as for their reference to a novel situation. In this spirit, reference has already been made to the possible use of yeast as food.[1] Decidedly more radical is the suggestion to employ finely ground straw in the ration of man in the belief that it might furnish not a little nutrient in case of emergencies. There are enough scientific data already available to indicate that, in general, coarse plant products of the type rich in cellulose are at best poorly utilized because of the difficulties which the texture of the materials inevitably puts in the way of the alimentary processes. It is not to be denied that chemical analysis shows straw to contain some of the familiar nutrients. The first desideratum in the case of a substance like this is comminution into extremely fine powder to permit of more ready attack by the digestive secretions. The milling features are undoubtedly capable of accomplishment; but how about actual availability of the nutrients supposedly present? The physiologist Zuntz[2] of Berlin has put the matter to a severe test. His experimental subject was the pig, an omnivorous animal even more likely than man to exhibit a favorable digestive response to a crude food product. The outcome has been that out of 100 gm. of finely comminuted straw flour an energy value of not more than 30 calories became available, whereas the same initial quantity of cereal grain yielded 340 calories in the

1. Yeast in a New Rôle, editorial, THE JOURNAL A. M. A., April 30, 1916, p. 1390.
2. Zuntz, N.: Ueber Ernährungsfragen, Ztschr. f. ärztl. Fortbild., 1915, xii, No. 17.

same animal. In other words, the straw "flour" furnished only one twelfth of the available energy that the same amount of cereal did. Nor was this all. The large bulk of the straw induces increased secretion through the alimentary tract, resulting in an actual loss rather than a gain of protein to the body. Inasmuch as the lay press has already begun to refer to the possibility of using straw flour in the diet, the utter futility of such a procedure deserves prominent emphasis.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Personal.—Dr. Abraham Trumper, Montgomery, for more than four years assistant state bacteriologist and pathologist, has resigned to accept a position with the board of health of Philadelphia.——Dr. John P. Ellsberry, physician to the Alabama Old Soldiers' Home Hospital, Mountain Creek, has resigned, taking effect May 1. Dr. Ellsberry announces his retirement from the practice of medicine and states that he will reside at Spring Hill, a suburb of Mobile.

Mental Hygienists Hold Meeting.—At the annual meeting of the Alabama Society of Mental Hygiene held in Birmingham, April 8, Prof. Charles A. Brown, Birmingham, was elected president, and Dr. William D. Partlow, Tuscaloosa, was reelected secretary and treasurer. Dr. Thomas W. Salmon, New York, medical director of the National Committee on Mental Hygiene, delivered an address to the society on "Feeblemindedness" in which he advocated that a survey be made of conditions in Alabama and urged that for the care of feebleminded persons an institution be provided, separate and apart from the State Hospital for the Insane.

State Association Meeting.—The sixty-ninth annual meeting of the Medical Association of the State of Alabama was held in Mobile, April 18 to 21, inclusive, under the presidency of Dr. J. Norment Baker, Montgomery. Dr. William W. Dinsmore, Montgomery, was elected state jail and factory inspector, to succeed Dr. William H. Oates, Montgomery. The following officers were elected: president, Dr. Henry Green, Dothan; vice presidents, Drs. Edward Burton Ward, Selma; and William C. Maples, Scottsboro; secretary, Dr. Henry G. Perry, Montgomery (reelected); treasurer, Dr. Jacob Usry Ray, Jr., Woodstock (reelected); censors, Drs. Dyer F. Talley, Birmingham; Louis W. Johnstone, Tuskegee; Benjamin L. Wyman, Birmingham; and councilors, First District, Dr. James M. Austin, Wetumpka; Drs. William A. Stallworth, Beatrice; Louis E. Broughton, Andalusia; Fifth District, Dr. Philip M. Lightfoot, Cross Keys; Seventh District, Dr. Samuel G. Cardon, Center; and Tenth District, Dr. William O. Collins, Berry. The Jerome Cochran lecture was delivered by Dr. Howard A. Kelly, Baltimore on "Radium Therapy in the Treatment of Disease." At the public meeting addresses were delivered by Dr. William W. Dinsmore, Montgomery, on "Loss of Life from Preventable Diseases"; by Dr. Benjamin L. Wyman, Birmingham, on "Simple Facts Concerning Cancer," and by Dr. Oscar Dowling, New Orleans, on "Sanitation and Hygiene."

CALIFORNIA

Antituberculosis Society Meets.—The annual meeting of the California Association for the Study and Prevention of Tuberculosis was held in Fresno, April 19, and the following officers were elected: president, Dr. George E. Ebright, San Francisco; vice presidents, Drs. Charles H. Whitman, Los Angeles, and Philip K. Brown, San Francisco; secretary, Dr. George E. Tucker, Riverside, and executive secretary, Miss E. L. M. Tait, Sacramento. The association endorsed the Kent bill, which provides a federal subsidy for states in the care of tuberculosis patients.

Health Board Appointments.—The following appointments have been made by the health board of San Francisco: Dr. Joseph H. D. Roger, relief surgeon, Emergency Hospital, succeeding Dr. Frank P. McManus, Eureka, resigned; Dr. Lorin F. Wood, Jr., acting house officer, San Francisco Hospital, succeeding Dr. Charles L. Morris, resigned; Dr. H. Antonio Rosa, Roentgen-ray department of San Francisco Hospital; Drs. Ervin J. Casper and Glover B. Wilcox, surgical department of San Francisco Hospital, as representatives of the San Francisco Polyclinic.——The Fresno Board of Health has elected Dr. Albert H. Sweeney, health officer, and Dr. William L. Adams, city physician.

State Society Meeting.—At the forty-fifth annual meeting of the Medical Society of the State of California held at Fresno, April 18 to 20, San Diego was selected as the meeting place for 1917, and the following officers were elected: president, Dr. George H. Kress, Los Angeles; vice presidents, Drs. Lamont R. Willson, Fresno, and John C. Yates, San Diego; secretary, Dr. Philip Mills Jones, San Francisco (reelected); councilors, Drs. Cornelius Van Zwaluwenburg, Riverside, First District (reelected); Edward Clarence Moore, Los Angeles, Second District; Thomas C. Edwards, Salinas, Third District (reelected); George H. Aiken, Fresno, Fourth District (reelected); Curtis G. Kenyon, San Francisco, Sixth District (reelected); James H. Parkinson, Sacramento, Eighth District (reelected); and Oliver D. Hamlin, Oakland, and Henry A. L. Ryfkogel, San Francisco, at large (reelected). In addition to the regular program a public educational lecture was delivered by Dr. F. Dudley Tait, San Francisco, April 18, on "Physiologic Conditions."

GEORGIA

Meeting of Health Officers of State.—The fourth annual session of the Georgia Association of State, Municipal and County Health Officers was held in Columbus, April 18 and 19, under the presidency of Dr. Howard J. Williams, Macon. Dr. John T. Moncrief, Columbus, was elected president; Dr. Eugene E. Murphey, Augusta, vice president, and Dr. Clarence B. Greer of the state board of health, Atlanta, secretary-treasurer.

Georgia Physicians Hold Meeting.—The sixty-seventh annual meeting of the Medical Association of Georgia was held in Columbus, April 18 to 20, inclusive, under the presidency of Dr. William S. Goldsmith, Atlanta. Augusta was selected as the next place of meeting and the following officers were elected: president, Dr. Jarvis G. Dean, Dawson; vice presidents, Drs. Jesse M. Anderson, Columbus, and C. Kosciusko Sharp, Arlington; secretary-treasurer, Dr. William C. Lyle, Augusta (reelected); councilors, Drs. William L. Champion, Atlanta, Fifth District; Dr. John O. Elrod, Forsythe, Sixth District; Dr. Eugene M. Bailey, Acworth, Seventh District, and Dr. J. C. Bloom, Eighth District; delegates to the American Medical Association: Drs. Mallie A. Clark, Macon; Floyd W. McRae, Atlanta, and Stewart R. Roberts, Atlanta, and alternates, Drs. Edward C. Davis, Atlanta; James M. Smith, Valdosta, and Arthur G. Fort, Tifton. The association adopted a resolution to defend all malpractice suits that may be brought against its members.

ILLINOIS

Child Welfare Congress.—The seventeenth annual Child Welfare Convention of the Illinois Congress of Mothers and the Parent-Teachers' Association was held in Cairo, April 11 to 13.

State Hospital Staffs to Meet.—The State Hospitals Medical Association announces that it will hold its next meeting at the Anna State Hospital, May 25 and 26. All physicians are invited to be present.

Association for the Prevention of Blindness.—A meeting of the Illinois Association for the Conservation of Vision and Prevention of Blindness was held, May 2, in the office of Dr. William H. Wilder, Chicago, for the purpose of amending the by-laws of the association by the substitution of new by-laws to conform to the charter obtained for the organization, known as the Illinois Society for the Prevention of Blindness.

Personal.—The Moline Commercial Club and other citizens of Moline have sent a petition to the Board of Administration of the State of Illinois requesting that the order transferring Dr. Joseph A. Campbell, superintendent of the Watertown State Hospital, to another institution, be rescinded and that Dr. Campbell be retained in his present position.——Dr. John A. Wheeler, Springfield, sheriff of

Sangamon County, has made formal announcement of his candidacy for the republican nomination for governor of the state.——Dr. James W. Cormany has been reelected mayor of Mt. Carroll.——Dr. and Mrs. John E. Allaben and family, Rockford, have returned after a winter spent in the south.

Chicago

Clean Living.—The initial issue of *Clean Living*, published by the Commissioner of Health of Chicago, whose object is as stated "to seek to give constructive aid and advice in the great work of making Chicago a cleaner, safer city in which to live," has appeared. It is a sixteen-page magazine with cover and contains, in addition to short articles by members of the staff, cartoons and a timely poem on the 1916 fly.

Personal.—Dr. Ethan A. Gray has been elected chairman of the Edward Sanatorium Committee of the Chicago Tuberculosis Institute.——Dr. Willis O. Nance was reelected alderman from the sixth ward at the recent municipal election by a plurality of 6,702, the largest plurality given an aldermanic candidate. At the last meeting of the city council Dr. Nance was chosen chairman of the council committee on health for the fourth consecutive time.

Medical Reserve Corps Meeting.—The annual meeting of the Association of the Medical Reserve Corps, U. S. Army, Illinois Division, was held, April 27, under the presidency of Lieut. William H. Wilder. The following officers were elected: president, Lieut. Daniel A. K. Steele; vice president, Lieut. Rufus W. Bishop; secretary-treasurer, Lieut. John A. Hornsby (reelected); and councilors, Lieuts. P. J. H. Farrell and Clarence L. Wheaton.

Tribute to Dr. Sachs.—Tributes to the life and character of Dr. Theodore B. Sachs were paid at a memorial meeting of the Jewish Consumptive Relief Society held at the Hotel Sherman, April 26, at which Mrs. I. J. Robin, honorary president of the society, spoke of "Dr. Sachs as I Knew Him"; Rev. Tobias Schanfarber spoke of "Dr. Sachs, the Man and Physician"; and Mr. James Minnich, superintendent of the Chicago Tuberculosis Institute, described the work of Dr. Sachs in the tuberculosis movement.

Sanatorium Doings.—The Cook County Board has commenced social service work in tuberculosis by the engagement of a nurse to take control of the county's out-station enterprise. The homes of all patients in the Cook County Tuberculosis Sanatorium will be visited in an endeavor to clean up tuberculosis breeding spots and to eradicate root causes of the plague.——Dr. Walter A. Gekler has been appointed superintendent and medical director of the Municipal Tuberculosis Sanatorium, succeeding Dr. John W. Coon.——Health Commissioner Robertson is said to have informed the Civil Service Commission that it is proposed to spend at least $100,000 more this year than last in the conduct of the institution.

MARYLAND

Welch Talks on China.—Dr. William H. Welch, who is a member of the China Medical Board and recently returned from China, delivered an address, April 21, at the opening of the first Chinese Students' Conference, Baltimore, on "The Educational Situation and Needs of the Chinese," in which he told of the plans of the board for the establishment of modern education in China.

Personal.—Dr. John F. Byrne, Baltimore, has resigned as health warden for the fourth ward, and will return to his duties as a member of the medical staff of the Baltimore and Ohio Railroad.——Surg. William H. Marsh, U. S. P. H. S., underwent operation at the Church Home and Infirmary, Baltimore, April 29.——Dr. Edward N. Brush, Towson, underwent operation for appendicitis recently at the Johns Hopkins Hospital. He is reported as improving.——Dr. Joseph S. Baldwin, Freeland, who was operated on recently at the Johns Hopkins Hospital, is in a critical condition.

Transfer of Quarantine to Federal Government.—Baltimore city officials are preparing to turn the quarantine over to the federal government. Surg.-Gen. Rupert Blue, United States Public Health Service, has notified the mayor that he will discuss the plans for the transfer on May 1 or 2. The federal government will buy the buildings and grounds from the city and enter into an agreement under which smallpox patients will be treated at the hospital at the rate of $1 a day a patient. It is expected that the government will retain Dr. Thomas L. Richardson, Baltimore, and his assistants now at quarantine, and they will become employees of the Public Health Service.

Nation-Wide Survey for National Resources.—Drs. William S. Thayer and John M. T. Finney were the spokesmen for a committee representing many American medical organizations that presented a plan to the president, proposing a nation-wide survey to ascertain the number of doctors, surgeons, nurses, hospitals, ambulances and scientific supplies which the government might call on in the event of war between this country and any great power. Dr. William H. Welch spoke also for the Academy of National Sciences, of which he is president, urging a survey to determine the chemical, physical and natural resources available for government use in war.

Annual Meeting of the Medical and Chirurgical Faculty.—The one hundred and eighteenth annual meeting of the Medical and Chirurgical Faculty of Maryland was held in Baltimore, April 25 to 27. The following officers were elected: president, Dr. Guy Steele, Cambridge; vice presidents, Dr. Arthur H. Hawkins, Cumberland; Daniel E. Stone, Emmetsburg, and James M. H. Rowland, Baltimore; secretary, Dr. Joseph I. France, Baltimore; treasurer, Dr. William S. Gardner, Baltimore; members of the State Board of Medical Examiners: Dr. Herbert Harlan and Dr. Harry L. Homer, both of Baltimore; delegates to the American Medical Association, Dr. Alexius McGlannan, Dr. J. Hall Pleasants, Jr., Roland Park, alternate, and Dr. Randolph Winslow to fill out the unexpired term of Dr. G. Lane Taneyhill, deceased.

NEW YORK

Personal.—Dr. Charles D. Kline has been reappointed health officer of Nyack for a term of four years.

Quarantine Bill Signed.—Governor Whitman, April 27, signed the Adler bill transferring the New York State Quarantine establishment to the federal government. This bill creates a commission consisting of the governor, lieutenant governor, attorney general, controller, and state engineer and surveyor to negotiate the transfer of the quarantine property.

To Study Health Insurance.—The Mills bill, creating a commission to investigate health insurance and to report proposed legislation to the legislature in 1917, has passed the state senate. The measure provides that the commission shall consist of two senators, two assemblymen, and four other members to be appointed by the chairman. It carries an appropriation of $25,000.

Summer School for Teachers.—A summer training school for teachers in preparation for teaching special classes in the public schools and institutions for the feebleminded will be held at the Rome State Custodial Asylum from July 3 to 29. The school will be open to graduates of normal schools and teachers in training schools. There will be no charge for tuition, but a charge of $16 will be made for board and lodging. Applications for information or entrance to this school should be addressed to Dr. Charles Bernstein, Superintendent, Rome State Custodial Asylum, Rome, N. Y.

New York City

Memorial Gift for Library.—At the meeting of the King's County Medical Society, April 18, it was announced that the friends of the late Dr. George McNaughton, Brooklyn, had presented $2,500 to the society as a memorial library fund.

New Health Officer Assumes Duties.—Assistant Surgeon General Leland E. Cofer, U. S. P. H. S., recently appointed health officer of the port of New York, assumed the duties of his office at Quarantine, April 22. His first act was to announce as his deputy Dr. William F. Mathews, who has been acting health officer of the port.

Harvey Society Lecture.—The eleventh lecture of the Harvey Society given at the New York Academy of Medicine, April 29, was by Dr. William H. Welch of Johns Hopkins University on "Medical Education in the United States." A supper was given in honor of Dr. Welch by the society in Sherry's ball room after the lecture.

College Raises Entrance Requirements.—Long Island College Hospital, Brooklyn, announces that after Jan. 1, 1918, it will require the completion of two years of study in a college of liberal arts and sciences for admission to the four-year medical course leading to the degree of M.D. At present it requires but one year of college study. Beginning with next fall, Columbia University will conduct a premedical college year at the Long Island College Hospital.

Memorial to Dr. Huddleston.—The friends of the late Dr. John H. Huddleston, wishing to establish a fitting memorial to him, have decided to form an organization for the purpose

of developing the work of caring for what are known as "cardiac children." The work will be carried on under the general supervision of an executive committee, consisting of Dr. L. Emmett Holt, chairman, and Drs. Lewis A. Conner, Haven Emerson, Philip Van Ingen, Augustus S. Knight and Herbert B. Wilcox.

Change Site of Rice Hospital.—It was announced a few weeks ago that Mrs. Isaac L. Rice would build a memorial hospital for convalescents at Irvington-on-the-Hudson. The residents have objected to the establishment of the institution as was supposed, so the site has been sold. A contract has now been signed for the purchase of an estate north of Tarrytown. The estimated cost of the proposed hospital is $1,000,000, and Mrs. Rice announces that the institution will be run in cooperation with the directors of Beth Israel Hospital and will become an extension of the work of the latter institution.

Personal.—The council of New York University has appointed Dr. Samuel A. Brown dean of the Medical Department of the University.——Dr. Edward Levy has been appointed assistant in the department of pathology, physiology and pharmacology in the Medical College of New York University.——Dr. Clarence A. McWilliams has returned after a stay of a year in France during which he acted as chief surgeon of Base Hospital No. 32, Chateau de Passy.——Dr. Fred C. Paffard, Brooklyn, is recovering from an infection of the eyes which followed an operation performed in December last.

Proposed Changes in Department.—City Chamberlain Brewer has devised a plan for the reorganization of an enlarged department of health, creating a department of public welfare to take the place of the charities department, and this plan, he believes, if carried out will result in the saving to the city of $1,000,000 a year. The plan provided that the health department shall take over the control of the hospitals now under the jurisdiction of Bellevue and Allied Hospitals and the Department of Charities and of sheltering institutions other than municipal lodging houses. He suggests that the new department have four major divisions, namely, prevention, treatment, record and sanitary control.

NORTH CAROLINA

Health Officers Hold Meeting.—The sixth annual meeting of the North Carolina Health Officers' Association was held in Durham, April 17, under the presidency of Dr. Daniel E. Sevier, Asheville; Dr. Archibald Cheatham, Durham, was elected president; Dr. Darius C. Absher, Henderson, vice president, and D. W. Cooper of the state board of health, secretary-treasurer.

State Society Meeting.—The sixty-third annual session of the Medical Society of the State of North Carolina was held in Durham, April 18 to 21, under the presidency of Dr. Marshall H. Fletcher, Asheville, who protested against the state levy of $5 from physicians and recommended the establishment of community hospitals in every North Carolina town of 5,000 population and over. Asheville was selected as the next meeting place for the association, and the following officers were elected: president, Dr. Charles O'Hagan Laughinghouse, Greenville; vice presidents, Drs. David J. Hill, Lexington; Joseph L. Spruill, Columbia, and Jacob H. Shuford, Hickory; secretary, Dr. Benjamin K. Hays, Oxford (reelected); treasurer, Dr. William M. Jones, Jr., Greensboro (reelected); councilors, Drs. Kemp P. B. Bonner, Morehead City; William H. Ward, Plymouth; Ernest S. Bullock, Wilmington; Michael M. Saliba, Wlison; Ben H. Hackney, Bynum; Alton C. Campbell, Raleigh; John E. S. Davidson, Charlotte; Joseph W. Ring, Elkin; Minor R. Adams, Statesville, and Carl V. Reynolds, Asheville; delegates to the American Medical Association; Drs. John W. Long, Greensboro, and William L. Dunn, Asheville, and alternates, Drs. David T. Tayloe, Washington, and David A. Stanton, High Point. The address in surgery was delivered by Dr. William J. Mayo, Rochester, Minn., on "Some Indications for Removal of the Spleen." Dr. Samuel E. Thompson, Carlsbad, Texas, delivered the address in medicine, and Mr. Wade H. Harris, editor of the *Charlotte Observer*, delivered an address on "The Newspaper and Public Health."

OHIO

Health Journal for Cleveland.—The Health Department of Cleveland has begun the publication of a monthly newspaper known as *Your Health*. It is issued under the direction of J. H. Halliday, chief of the Bureau of Health Education, and is distributed to the public.

Mendel to Speak Before Academy.—Dr. Lafayette B. Mendel, professor of physiologic chemistry in Sheffield Scientific School, Yale University, New Haven, Conn., will deliver an address on "Abnormalities of Growth" before the experimental medicine section of the Cleveland Academy of Medicine, May 12.

Ohio Hospital Authorities to Meet.—The second meeting and first annual convention of the Ohio Hospitals Association will be held at the Hotel Gibson, Cincinnati, May 24 to 26. The active members of the association, which number about 300, are trustees and the executive heads of hospitals, and the associate members are executive officers of hospitals. In addition to the scientific work of the meeting, arrangements have been made for large commercial and noncommercial exhibits. One of the most important educational features of the convention will be the inspection of the new Cincinnati General Hospital.

Personal.—Dr. Homer H. Heath, Toledo, has been elected chief of the reorganized staff of the Toledo Hospital.——Dr. George C. Stewart, assistant superintendent at the Cleveland State Hospital, has been appointed resident physician at the Warrensville Correction Home and Infirmary, which is maintained by the Welfare Department of the City of Cleveland. ——Dr. George W. Crile, Cleveland, delivered an address and held a clinic before the Allen County Medical Society at Lima, April 18. Dr. Crile also spoke before the Commercial Club of Omaha and the Creighton Medical College Alumni, April 24.

PENNSYLVANIA

Mosquito Campaign in Merion.—In order to make a thorough war on mosquitoes, Merion, a suburb of Philadelphia, has employed a mosquito expert who made a survey and now will make visits to property owners. He will point out where the insect may exist and ask each householder to remove the breeding place. Dr. Hornig, the city entomologist, has also lent his aid, and a bulletin, outlining the necessity for fighting both the mosquito and the fly, has been sent to every home.

Personal.—Dr. Emlyn T. Davies, Old Forge, underwent operation in the Taylor Hospital, Scranton, April 22, and is reported to be doing well.——Dr. Winfield S. McFarland, Sharpsville, who has been under treatment in the Buhl Hospital, is reported to be convalescent.——Dr. John C. Miller, Shenandoah, has started for Europe, where he will be on duty with the American Ambulance in Paris.——Dr. Charles H. Mann, Bridgeport, who has been ill for several days, is reported to be convalescent.——Dr. William H. Cameron, Pittsburgh, delivered an address on radium before physicians of Utica, N. Y., April 20.——Dr. Harold E. Hersh, Palmerton, sustained painful injuries in an automobile accident, April 15.——Dr. John A. Fritchey, Harrisburg, who has been seriously ill in a Philadelphia hospital for several weeks, is reported to be improving.

Philadelphia

Red Cross Work in Philadelphia.—Col. Jefferson R. Kean, M. C., U. S. Army, head of the Military Relief Section of the American Red Cross, was the principal speaker at a luncheon held at the Racquet Club, April 22, under the auspices of the executive committee of the local Red Cross chapter.——From April 24 to May 6, a Red Cross exhibit was held in the Widener Building and daily lectures on Red Cross work and first aid methods were delivered by men, most of whom had been identified with the American Ambulance Hospital in France and had seen service on the battlefields of the western front.

Appeal for Help to Finish Surgical Pavilion.—A committee composed of Provost Edgar Smith, Thomas S. Gates, Thomas Reath, and Doctors Edward Martin, Alfred Stengel, John B. Deaver, Charles H. Frazier, and Elijah H. Siter has issued an appeal to alumni, graduates, and Philadelphians to help finish the surgical pavilion planned some years ago by the members of the University of Pennsylvania Board of Managers. A part of this pavilion has already been built at a cost of $200,000, but owing to the need for money in the hospital there have been no surplus funds available for its completion, for which $300,000 more is needed. The size of the building will be 94 feet, 6 inches, by 92 feet, 6 inches, and 152 feet in height.

Personal.—Dr. Dudley J. Morton, chief of the Orthopedic Clinic of the Hahnemann Hospital, sailed, April 29, for France to spend four months at the American Ambulance Hospital, Nueilly-sur-Seine.——Dr. John Wanamaker III, a police surgeon, was severely beaten when he went to the

rescue of a young man who had been knocked out in a fight, April 23.——Dr. Warren B. Davis has been appointed aural surgeon on the visiting staff of the Philadelphia General Hospital.——Dr. Maurice Ostheimer has been appointed a member of the visiting staff of the Hospital for Contagious Diseases, and Drs. Frank C. Hammond and F. Hurst Maier have been appointed gynecologists of the same institution. ——Dr. and Mrs. Lewis S. Somers have returned after several weeks in Porto Rico.

SOUTH CAROLINA

Personal.—Dr. Harry S. Mustard, Charleston, has been appointed acting assistant surgeon, U. S. P. H. S., in the rural sanitation department, and has been assigned to field work in Georgia with headquarters at Rome.——Dr. Robert H. Crawford, who has been engaged in Red Cross administration work since his return from Europe, has resigned and will practice in Rock Hill.

State Association Meeting.—The sixty-eighth annual convention of the South Carolina Medical Association was held in Charleston, April 18 to 20, under the presidency of Dr. Gottlob A. Nuffer, Abbeville. Dr. Curran B. Earle, Greenville, was elected president; Drs. Charles R. May, Bennettsville; Clarence L. Kibler, Columbia, and Henry M. Stuckey, Sumter, vice presidents; Dr. Edgar A. Hines, Seneca, secretary-treasurer (reelected), and councilors, Drs. Josiah S. Matthews, Denmark, Second District; Robert R. Berry, Union, Fourth District; William S. Lynch, Scranton, Sixth District, and Washington P. Timmerman, Batesburg, Eighth District. The association also reelected the following State Board of Medical Examiners: Drs. Harry H. Wyman, Aiken; Harry L. Shaw, Fountain Inn; A. Moultrie Brailsford, Jr., Mullins, and A. Earle Boozer, Columbia. Spartanburg was selected as the next place of meeting. The address in surgery was delivered by Dr. William J. Mayo, Rochester, Minn.; that in medicine by Dr. Lewellys F. Barker, Baltimore, and that in pediatrics, by Dr. Maynard Ladd of Harvard University. A resolution was adopted by the convention that the association appoint a Committee on Medical Education, consisting of five members, to act in an advisory capacity in cooperation with the State Medical College, keeping the association and college in closer touch.

CANADA

Grenfell Returns to Labrador.—Dr. Wilfred T. Grenfell reached New York, April 16, after three months' service on the western front in France with the Harvard unit. He is now, as he says, "going back to the fighting line in Labrador."

Extending the Women's Hospital in Toronto.—The Toronto Women's Hospital will commence a three days' campaign in May to raise $120,000 for the extension of their hospital. Plans have been prepared for a four-story building to accommodate sixty beds. This, with equipment, will cost about $90,000, and an additional $25,000 would finish paying for the property.

Tuberculosis Institutions in Canada.—Tuberculosis sanatoriums in Canada now have accommodation for 1,800 beds, or one bed for every 4,407 of the population. All of these with the exception of one in Nova Scotia have been the result of private initiative and private philanthopy, assisted later on by municipal and provincial governments. In Scotland the ratio is one bed for every 1,750 of the population, while in the United States it is one for 2,900. The province of Ontario leads the other provinces in this respect where there is one bed to 2,403 of the population. Manitoba comes second in the matter of provision for the tuberculous. As a result, in Ontario there has been a very marked decrease in the deaths from tuberculosis; Manitoba comes second in the decrease of the death rate. In the provinces, where there is little or no accommodation provided, there has been no decrease in the death rate from this disease.

Personal.—Dr. Edwin C. Beer, Brandon, Man., who joined the C. A. M. C. at the beginning of the war and who has been on active service at the front, has been appointed on the staff of No. 1 Canadian General Hospital, Etaples, France.——Dr. William S. Harrison, Toronto, presided at the annual conference of the Canadian Fraternal Association held in Toronto last week, and Dr. John Ferguson, Toronto, the immediate past president, was presented with a handsome clock. Dr. George Elliott, chairman of the medical section, presented a resolution, which was unanimously adopted, calling on fraternal societies to institute campaigns of education among their members looking toward periodic medical examinations. Dr. Theodule Cypinhot, Montreal, was elected chairman of the medical section.——Dr. Charles K. Clarke, dean of the medical faculty of Toronto University, has recently received a letter from a member of the University Hospital staff at Saloniki which stated that the value of typhoid inoculation could be gaged by the remarkably few cases of fever the hospital had had to deal with in that region. All the members of the hospital unit are in good health.

Provincial Medical Association Meeting.—The thirty-sixth annual meeting of the Ontario Medical Association will be held in Toronto, May 31 to June 3, under the presidency of Dr. Harry B. Anderson, Toronto. Among the important problems to be discussed are The Workmen's Compensation Bill, the activities of the Commission on Medical Education, and the propaganda of the Committee on the Organization of County Medical Societies. The address in medicine is to be delivered by Dr. Elliott P. Joslin, Boston, on "The Treatment of Diabetes"; that in surgery by Dr. Dean DeWitt Lewis, Chicago, and that in gynecology by Dr. James F. Percy, Galesburg, Ill. Symposiums are to be held on "The Rôle of the Nose, Mouth, Throat and Accessory Sinuses in Relation to Systemic Disease"; "Drugs and Medical Agents" considered from the professional, national and economic standpoints, and "The Returned Soldier's Problems from the Medical, Military, Vocational and Economic Viewpoints." An invitation has been issued to the Canadian Medical Association to hold its executive session in connection with the annual meeting, and the medical officers of health of Ontario will hold their annual convention on the two days preceding the meeting of the Provincial Medical Association.

GENERAL

Anesthetists to Meet.—The fourth annual meeting of the American Association of Anesthetists will be held at the Hotel Tuller, Detroit, June 12, under the presidency of Dr. Willis D. Gatch, Indianapolis. The subject of the presidential address is to be "Instruction of Medical Students and Hospital Interns in Anesthesia."

Confederate Surgeons to Meet.—The twenty-sixth annual meeting of the Association of Medical Officers of the Army and Navy of the Confederate States will be held at the Hotel Tutewiler, Birmingham, Ala., May 16 to 18. The new constitution of the association is to be considered in which it is stated that the objects of the association shall be to collect all data possible relating to the medical departments of the army and navy of the Confederate States; to ascertain the military records of all officers and prepare a roster of the same; to honor the memory of its deceased members and to perpetuate the history of the medical departments and of the association.

Academy of Medicine Meeting.—The provisional program for the forty-first annual meeting of the American Academy of Medicine has appeared. The meeting will be held at the Hotel Statler, Detroit, June 9 to 12, under the presidency of Dr. Woods Hutchinson, New York. The two principal topics to be considered are to be "The Relation of Legislation to the Practice of Medicine," and "The Relation of the Science of Medicine to Legislative Enactment." On Sunday afternoon the seventh annual conference on Western medicine in Eastern lands will be held at the First Presbyterian Church, and over this conference Dr. L. Duncan Bulkley, New York, will preside.

A New Physiologic Publication.—The first issue of *Physiological Abstracts* has just appeared. It is issued under the sponsorship of the Physiological Society of Great Britain and Ireland, with the cooperation of the American Physiological Society, and ten other American, British, and continental scientific bodies. It also bears the names of many distinguished workers in the field of physiology. The list of collaborators contains no representative of the German or Austrian scientific organizations. The first number contains sixty-eight abstracts from twenty-one sources; these are arranged under subject headings such as General, Physical and Chemical, Special Senses, etc.

Ruling on Narcotic Law Revoked.—The ruling contained in Treasury Decision 2292, amending Treasury Decision 2244, requiring the narcotic content of preparations and remedies in grains to the fluid or avoirdupois ounce, or the quantity of narcotic drug in grains or fractions thereof contained in a tablet or pill, to be indicated on official narcotic order forms, was revoked, April 24. Hereafter the name of the preparation, the quantity in ounces, if it be in liquid form, or if in tablet, pill, ampule or suppository form, the units or total thereof, and the name of the particular narcotic drug contained in such preparations, tablets, pills, ampules or suppositories, need only be entered on these order forms.

Red Cross Prizes.—The American Red Cross announces that it will give various prizes on December 1 for achievements in connection with the campaign to enroll one million members. Miss Lusita Leland, New York, offers a gold medal to the individual who secures the greatest number of members for the Red Cross by December 1. Mrs. W. Murray Crane, Dalton, Mass., offers five silver medals as the second, third, fourth, fifth and sixth prizes to those who secure the largest number of Red Cross members by the same date, and Miss Mabel T. Boardman of the executive committee offers a silver medal to the community which has the largest number of members per capita and another silver medal to the chapter of the American Red Cross which can show the largest Red Cross membership increase per capita of the population of the community.

The Wine of Cardui Suits.—In The Journal last week (p. 1396) the death of Mr. John A. Patten, managing partner of the Chattanooga Medicine Company, was announced. When the present trial began there were two suits against the American Medical Association and the editor of The Journal. The first was that of John A. Patten, personally, for $200,000; the second, that of John A. Patten and Z. C. Patten, Jr., doing business as the Chattanooga Medicine Company, was for $100,000. Following the death of Mr. Patten on April 26, Judge Carpenter excused the jury until Tuesday, May 2. When the court reconvened Tuesday morning the first suit (that of Mr. Patten personally) was declared abated because of the death of the plaintiff. As we go to press the following witnesses, in addition to those mentioned last week, have testified for the American Medical Association: Dr. Nathaniel H. Adams, Oak Park, Ill.; Dr. G. M. Goodard, Waxahachie, Texas, and Dr. Hugh McKenna, Chicago.

WAR NOTES

Plastic Surgery of the Face.—On account of the unusual proportion of injuries of the face due to trench warfare, a committee has been formed to solicit subscriptions of $20,000, which will establish a hospital of 100 beds. It is eventually hoped to equip a hospital with 500 beds. Dr. Herbert L. Wheeler, New York, is chairman of the committee.

Personal.—Dr. Philip Newton, formerly of Washington, who has been in the United States on a brief furlough after nearly two years of service with the Russian army, returns shortly to Russia, taking with him fifteen new and fully equipped ambulances.——Dr. Richard H. Harte, formerly director of Public Health and Charities of Philadelphia, is on duty at the American Ambulance Hospital, Neuilly-sur-Seine.

Shipments to Central Powers Stopped.—Owing to the strictness of the blockade of the allied powers against the central powers, the American Red Cross for several months has been unable to secure the required permission from the allied powers for the shipment of supplies of any kind to the central powers. On account of the lack of proper storage room in the Brooklyn Terminal Warehouse, it has now become necessary to request Red Cross chapters and other relief organizations not to send any more supplies for the central powers to the warehouse for shipment until further notice.

Aid for Belgian Physicians.—The report of the committee of American physicians for the aid of the Belgian profession, shows no contributions for the month of April, 1916.

Previously reported receipts		$7,941.86
Previously reported disbursements:		
1,625 standard boxes of food at	$2.20	$3,575.00
1,274 standard boxes of food at	2.30	2,930.20
353 standard boxes of food at	2.28	804.84
Total disbursements		7,310.04
Balance		$ 631.82

F. F. Simpson, M.D., Treasurer,
5 Jenkins Arcade Building, Pittsburgh.

Bequests and Donations.—The following bequests and donations have recently been announced:

Germantown and Hahnemann hospitals, Philadelphia, each $5,000, for the endowment of beds by the will of Sara Stevenson Cox, who died March 31 on the Island of Jersey.

Presbyterian Hospital, Philadelphia, $10,000, by the will of Fannie Brown.

Madison (Wis.) General Hospital, donation of $1,000, in memory of his deceased daughter, Martha Louise Kroft, by Oswald Kroft, Chicago.

Home for Destitute Children, Glenwood Manual Training School, Alexian Brothers Hospital, Illinois Humane Society and Visiting Nurses' Association of Chicago, in equal parts the income from the $120,000 estate of Mrs. Laura May Whitehouse on the death of the sister of the testatrix.

Dr. John P. Ellsberry, Mountain Creek, Ala., the remainder of the estate of Miss Kate Lassiter, which has been appraised at $8,000, after the payment of legacies.

LONDON LETTER

London, April 10, 1916.

The War

AMPUTATIONS IN THE WAR

Unfortunately the present war is furnishing an enormous experience in amputations. The War Office has issued a memorandum on amputations and amputation stumps which brings together, for the benefit of physicians serving in military hospitals at home and abroad, the experience gained by the surgeons at home in the treatment of military cripples. In the fitting of artificial limbs, many of the cases which, as far as the condition of the wound goes, are ready for fitting, present stumps more or less objectionable from the limb makers' point of view. It is pointed out that while the site, and often the method of an amputation is mainly determined by the injury, the surgeon often is able to use his discretion not only in the matter of the immediate surgical condition, but also with regard to the future usefulness of the stump. For example, while, as a general rule, the amputation stump should be made as long as possible, yet the longest is not always the most useful or the best for the fitting of an artificial limb. Amputation through a joint (below the shoulder or hip) leaves no room for the fitting of a joint at its proper level in the artificial limb, and it may therefore often be better to amputate just above a joint rather than through it, unless, of course, a still lower site is available. "Guillotine" amputation—that is, straight through the limb, or circular without flaps—is excellent in suitable cases, in order to secure the freest possible drainage with the least sacrifice of tissues, but it must be followed by secondary amputation as soon as the wound is clean. With regard to amputation through the leg, the fact is emphasized that kneeling stumps are extremely undesirable at the present day, and that therefore all stumps below the knee should be kept straight in extension and not allowed to become contracted. The best amputation through the hip joint is said to be that by an anterior racquet, tying the main vessels in the first incision. From the prosthetic point of view the chief requirements of a good stump are (1) a good covering for the bone; (2) sound healing; (3) consolidation; (4) painlessness, and (5) freedom of movement. Consolidation of the soft parts continues for several months, so that if a bucket limb is applied prematurely it soon becomes loose and ill fitting from shrinkage of the stump. As a general rule, four months should elapse from the date of amputation before any attempt is made to fit an artificial limb. During this period consolidation may be hastened, and the condition of the stump much improved, by firm bandaging. The conditions which prevent or delay the fitting of an artificial limb are (1) sinuses; (2) painful stumps; (3) unsound scars, and (4) contracture in the neighborhood of the joint immediately above the amputation. Localized pain on pressure is nearly always due to a bulbous nerve end near the end of the stump, but in some cases the nerve end is spread out and adherent to the bone or to the scar. As painful nerve ends are not always evident to the patient until pain, which may be intolerable, is elicited by the pressure of the bucket, they should be sought for by the surgeon and removed before the artificial limb is fitted. The principal nerves should always be identified and cut short at the primary amputation. Diffused tenderness, on the other hand, is, except in recent stumps, usually due to periostitis or necrosis, the latter, of course, calling for operation. Pain, either localized or diffuse, is sometimes due to bony spicules projecting from the end of the bone. Such osteophytic outgrowths are commonest in stumps about the middle of the thigh, and may have to be removed before an artificial limb can be worn.

WAR MARRIAGES

At the Institute of Hygiene, Dr. Murray Leslie lectured on "The Disabled Soldier: His Future and his Economic Value." He said that the British casualties in the present war up to February 1 numbered 550,000, whereas the total casualties during the whole of the South African War were under 50,000. These numbers would be greatly increased as the war went on, and it was estimated that for every thousand deaths recorded, there would be 200 cases of permanent disablement. The mere fact of a man's being a cripple, or even being deformed, would in no wise detract from his potentialities as one of the fathers of the future generation. The present marriage rate was the highest ever known. Those marriages, for the most part, had been confined to young, strong and active soldiers, although there were numerous instances in which our girls had been only too delighted to

marry the men of their choice after they had been disfigured or disabled. Women, as a sex, had an aversion for deformities of all sorts, but that would probably not hold good to anything like the same extent if the young couple had met each other before disfigurement took place. From that point of view war engagements, as well as war marriages, were greatly to be recommended. Admiration for our disabled war heroes should be encouraged. It had been proposed to found a League for the Marrying of Wounded Heroes. It was doubtful if such a scheme could be made a practical one, but there was much to be said for the principle. The economic question was the difficulty, yet how many women there were in this country with comfortable incomes who spent large sums on pampered lapdogs.

London Vital Statistics

The London County Council has just issued a report on public health containing some interesting vital statistics which may be compared with those for the country generally given in a previous letter. The marriage rate, which fell to a minimum (16.9 per thousand living) in 1908 and 1909, attained during the year 1914 the comparatively high level of 19.2, a figure which has not been reached since 1876. The exceptional circumstances (resulting from the outbreak of war) prevailing during the latter part of the year undoubtedly exercised some influence in producing this result, but since 1909, even in normal years, the marriage rate has shown a gradual recovery from the low level reached in 1908. The birth rate, which failed in 1913 for the first time since 1903 to show a decline on the rate of the preceding year, again showed diminution during 1914, being 24.3 per thousand persons living, as compared with 24.5 per thousand in 1912 and 1913. The maximum birth rate was attained in 1876, the year preceding the fall in the marriage rate. The death rate (14.4 per thousand living) shows a slight increase on the rate for 1913. This rate has fluctuated considerably in the last decennium, reaching as high a figure as 15.8 in 1906, and falling as low as 13.6 in 1912, in which year the rate was the lowest ever recorded for London. The present rate, however, compares very favorably with the rates (exceeding 20 per thousand) in the years preceding 1890. The infant mortality rate (104 per thousand births) is slightly lower in 1913, but exceeds considerably the very low rate of 1912 (91 per thousand births). In the earlier year, it is to be observed that the summer temperature was below the average, while the rainfall, especially during the month of August, was above the average. Probably this fact had its effect on the mortality from diarrhea, for the deaths were only half as numerous in 1912 as in 1913 or 1914. Seventy-three cases of cerebrospinal fever were notified as against ninety-two in 1913. It may be stated as the outcome of investigation that the number of instances in which sufferers from cerebrospinal fever have been found to have been coincidently affected by influenza is far higher than would have been anticipated had the association been merely a matter of chance.

A Pharmacist's Fatal Mistake

The tragic blunder of a pharmacist, who in dispensing mistook strychnin for butylchloral hydrate, caused the deaths of two women. At the coroner's inquest this extraordinary mistake was attributed to nerve strain due to overwork in dispensing an enormous number of prescriptions under the insurance act.

BERLIN LETTER

BERLIN, March 30, 1916.

Martial Law and Public Health Work

Public health work has benefited from the supervision and direction of health matters by the military authorities. Although this work, so far as the military is concerned, was primarily done in behalf of the latter, the civil population was also benefited. The measures taken against the use of alcohol serve as an illustration. The excessive consumption of alcohol had a bad influence on the soldiers on furlough and particularly on the convalescents who were permitted to leave the hospital. In February, 1915, a general military order was issued prohibiting the sale of whisky, liquors, etc., to any one attached to the army. Later brandy was included, and the sale of any liquor to the civil population after 9 o'clock in the evening was also forbidden. In Muenster the sale of any spirituous liquors is forbidden on Sunday, Monday, legal holidays and the next following workday. On the remaining days the sale of such potables is permitted only between the hours of 11 a. m. and 7 p. m. Purchases made at that time must be paid for in cash and consumed at once. Spirituous and vinous liquors of all kinds may not be sold otherwise (in bottles), except by the wholesale trade or for medicinal and similar purposes.

Orders were also issued to control the spread of venereal diseases. By order of the commandant (April, 1915), prostitutes were forbidden to enter military camps, training fields and the surrounding districts. Von Hindenburg went further than this in the district under his command. Any woman who knew that she was infected and cohabited with either the male civil or military population was imprisoned for from two to twelve months. If desired by the authorities, military detention and military treatment may be instituted.

Prophylactic or immunizing vaccination against smallpox, cholera and typhoid was made obligatory and met some opposition from the antivaccinationists which was met promptly by military orders. The commandants prohibited the distribution of all antivaccination literature and suppressed propaganda. Similar measures were taken against quackery. Advertising and circularizing in the interests of any agent for which extravagant claims were made or which was deleterious to the health of the people was forbidden. In Wurttemberg the commandant went even further. He forbade the public advertising by the laity of any medicinal agent or remedy for the treatment of disease, or drugs, apparatus and appliances intended to cure or give relief from disease, unless permission to do so was granted by the medical authorities. No public notice can be given of any agent intended to abort the pregnant or to regulate menstrual disturbances. The laity was forbidden to offer treatment by means of hypnosis or "mystic" measures, or to treat leprosy, cholera, typhus, yellow fever, plague, smallpox or other infectious diseases, venereal diseases or cancer, or to administer hypnotics, or to give subcutaneous or intravenous injections. Other commandants did not go so far, but contented themselves with forbidding the public announcement of methods of cure and apparatus intended to alleviate or cure. These measures, one and all, cannot fail to be productive of great good because the prohibition of public advertising will keep the public from the quack. The layman has his attention called to quackery by the newspapers; in the absence of quack advertisements he is saved from the quack.

By discrediting regular medical practice, the quacks have succeeded in getting patients, therefore the distribution of dodgers and circulars addressed to the laity and belittling and discrediting medical practice is strictly forbidden under pain of imprisonment not to exceed one year. Nonmedical persons are forbidden to treat venereal diseases or to advertise a remedy for such diseases. In Berlin the police are even authorized to remove such signs from the houses. The traffic in agents intended for the prevention of conception and to produce an abortion is strictly prohibited. In Schleswig-Holstein special mention is made of stem pessaries and some vaginal douche apparatus. Even their use is forbidden unless ordered in writing by a physician. No one is permitted to give any "advice to ladies" or to make offers of assistance, for pay or gratuitously; in fact, anything and everything which is intended to prevent conception or to produce an abortion comes under the ordinance of prohibition (*verboten*) and is punishable by imprisonment. In some districts the newspapers are forbidden to carry such advertising. Every effort is being made to protect the general public as well as the military against quacks and quackery.

PARIS LETTER

PARIS, April 6, 1916.

The War

METAL OR CARTILAGINOUS PLATES IN CRANIOPLASTY

At a recent session of the Société de chirurgie de Paris, Dr. Pierre Duval, of the Faculté de médecine de Paris, reported 18 cranioplasties which he had performed up to the present for wounds of war. In 9, he used metal (aluminum) plates, and in 8, cartilaginous plates, following the method of Morestin. There was no difference in results between the metallic and the cartilaginous cranioplasties. Notwithstanding, Duval prefers the latter because the technic is much simpler and more rapid and it has the immense advantage of not leaving metallic foreign bodies in the tissues, which invariably have been infected. There is, perhaps, one class of cases in which the metal plate should be preferred; these are the cases in which much substance has been lost. There still remains the question of the operative indications for cranioplasty. Being a protective operation simply, it should be performed when the patient suffers from contact of his brain with the scar or is obsessed by fears of complications from this contact.

Dr. Capitan of the Collège de France and Dr. Delair have recently reported to the Académie de médecine an interesting case in which the loss of a large amount of the cranial vault was supplied by a gold plate. A patient died at the Bégin hospital in Capitan's service; necropsy showed a perforated gold plate under the skin of the head in the left temporoparietal region. Capitan found that the patient had been trephined by Dr. Schwartz in 1904, after a fall from a bicycle, and, having had epileptiform attacks later, was again trephined by Dr. Sebileau. A final operation, performed by Dr. Delair for the purpose of entirely dispelling the epileptic attacks, consisted in the insertion, for the protection of the brain, of the gold plate which was discovered at necropsy.

GOOD RESULTS OF NONOPERATIVE TREATMENT OF ABDOMINAL WOUNDS

Dr. Chevassu of the Faculté de médecine de Paris has presented to the Société de chirurgie de Paris an interesting report on 210 cases of abdominal wounds observed within a period of fifteen days in a surgical automobile ambulance. Where abdominal wounds are concerned, Chevassu was originally a believer in operation. Necessity compelled him to practice abstention. Being overwhelmed by the number of dangerously wounded men continually brought to him, he was compelled to take the more urgent cases, that is, to save limbs and to refrain from abdominal operations which take so long to perform and are at best uncertain as to the outcome. Examining the cases of abdominal wounds some days afterward, he was much pleased to find unexpectedly good results. These facts were the more impressive because they seemed to contradict current ideas. To appreciate the value of results obtained by Chevassu, it is necessary to consider only intraperitoneal wounds. Out of 210 cases in his statistics, there are 136 of this class with 57 dead and 79 discharged, or a death rate of 41.91 per cent. In the 57 fatal cases, 27 patients, or 47.36 per cent., had been operated on; 28, or 47.36 per cent., had not been operated on; 3, or 5.26 per cent., were operated on late. Out of the 79 discharged patients, 66 had had no operation, 13 had been operated on. The patients who had not been operated on were treated by immobilization, a strict diet, and morphin, and, in cases of pronounced shock, by injection of artificial serum and camphorated oil. The particularly interesting point is that out of 40 cases of wounds of the small intestines, operations have been performed in 8 with 5 deaths (a mortality of 62.5 per cent.); in 32 cases, there have been no operations and there were only 6 deaths (a mortality of 18.75 per cent.). The last-mentioned facts in particular, so at variance with the observations of most military surgeons, converted Chevassu from a noninterventionist by necessity to a noninterventionist by conviction.

Dr. Tuffier of the Faculté de médecine de Paris, who was commissioned to make a report on the work of Chevassu, did not declare himself convinced, for, out of the 32 cases of wounds supposed to involve the small intestines, he regards only 16 as absolutely certain. This is half the whole number and this half includes the 6 deaths, making a mortality of 37.25 per cent. and 62.75 per cent. of the recoveries. This is a high percentage of recoveries, very impressive in itself, but, in Tuffier's opinion, not sufficient to decide the question as between operation and nonoperative treatment. It may, in open warfare (a war of movement), justify the course of the surgeon in an ambulance encumbered by patients or in circumstances which do not permit laparotomies. It will not prevent the surgeon who is well supplied with equipment and assistants, especially under stationary conditions, from continuing to give the preference to laparotomy, which does not affect prognosis unfavorably when the condition of the patient, the material circumstances and the experience of the operator permit it.

ARE FRAGMENTS OF SHELLS SEPTIC WHEN BURIED IN CICATRIZED WOUNDS?

When fragments of shells remain imbedded in the tissues, and the wounds which have been produced are completely cicatrized, presenting no signs of inflammation, are these fragments septic or not? Dr. Prat asked this question before the Société de chirurgie de Paris. In 17 cases of this nature, in 2 of which each patient had 2 operations in different regions (that is, in 19 wounds) he had cultures made from the fragments of shells extracted; 10 were sterile and 9 positive. Of the 9 positive cultures, 2 gave a single bacterium each, 5 had 2 each, and 2 had 3 each. The germs were quite various: streptococci and staphylococci, diplococci, the *Micrococcus tetragenus*, motile bacilli taking the Gram stain, long fusiform bacterial filaments, but chiefly unidentified.

Following these operations, Prat had reunion by first intention without suppuration except in 2 cases in which the cultures from the shells were positive. Perhaps these 2 cases should be interpreted as a reawakening of latent infection. In short, in more than half the cases, the projectiles buried in the tissues after cicatrization of the wound which they produced were sterile. Those which were not sterile were very slightly septic, and this slight degree of infection in most cases did not prevent reunion by first intention without drainage of the wounds made in order to extract them. This tends to prove that the danger of infection from fragments of shells buried in the tissues after the wounds have cicatrized is not an argument for the extraction of these fragments.

DISINFECTION OF THE CLOTHING OF SOLDIERS

M. Fernand Gand has just proposed to the Académie des Sciences the use of the ordinary commercial solution of formaldehyd poured into a saturated solution of potassium permanganate for the disinfection of the clothing of soldiers. The solution rapidly becomes hot and gives off abundant vapors of great disinfecting power which rapidly penetrate the cloth. A very simple apparatus is sufficient for the use of this method. A large cask may be used for the disinfecting chamber, and a small cask joined to the other by a pipe will serve as a generator.

Improvement of the Serotherapy of Cerebrospinal Meningitis

Because antimeningococcus serum acts especially through immediate contact with meningeal pus, Dr. Félix Ramond recommends that, after the serum has been injected, the patient should be placed in the ventral position with the pelvis raised high and the head lowered. This position should be kept for from 20 to 30 minutes according to the patient's tolerance, and then the patient should be placed in the dorsal position with the same inclination for the same length of time. Thus the serum will bathe alternately the anterior and posterior purulent confluents of the medulla oblongata, the cerebellum and the cerebrum. In cases of localized meningitis especially at the summit of the cerebral cortex, Ramond believes that, six or eight hours after the injection of the serum, it is well to raise the patient's head as much as possible for several hours, in order to permit the pus in the head to descend, experience having shown that the serum reaches the base and the sides of the brain much more easily than the upper portions.

Dr. Marcel Labbé of the Académie de médecine and Drs. Zislin and Cavaillon have observed that in some cases of cerebrospinal meningitis, intraspinal injection has proved insufficient because of the various septa which prevent the serum injected into the spinal canal from passing into the brain and acting on the cerebral lesions. In such cases, Labbé, Zislin and Cavaillon believe that there should be no hesitation in trephining and injecting the serum directly into the ventricles. This operation is well tolerated and gives excellent results, as they have observed in several cases.

A Fatal Case of Meningitis from Mumps

I mentioned in a previous letter (The Journal, March 18, 1916, p. 905) a complication of mumps to which Dr. Noel Fiessinger called attention. Dr. Fiessinger observed five deaths in a series of 40 cases. Dr. Roger Voisin has recently reported to the Société médicale des hôpitaux de Paris a case of meningitis from mumps terminated by death, the diagnosis of which was confirmed by the evolution of the parotid swelling and by the results of lumbar puncture. The patient died in three days, the case thus being an exception to the usually benign course of ordinary cases of meningitis from mumps. The meningitis in Voisin's patient seems to have preceded the parotid inflammation. The alcoholic antecedents of the patient may to some extent explain the rapid death.

Marriages

Asst. Surg. Elphége Alfred Mailliot Gendreau, U. S. Navy, to Miss Josephine M. Maddox of Fredericksburg, Va., in Washington, D. C., April 13.

Machen Tadence Moore, M.D., Greenville, S. C., to Miss Mary E. Trenholm of Charleston, S. C., April 15.

William Albert Fenner, M.D., Detroit, to Miss Gizella Alsojarai Csanyi Kovach, at Detroit, April 26.

Louis Bernard Knecht, M.D., Poplar Bluff, Mo., to Miss Lottie Oughton of Belleville, Ill., April 19.

Deaths

Traverse Rocke Maxfield, M.D., Brooklyn; Michigan College of Medicine, Detroit, 1884; aged 53; formerly a member of the Medical Society of the State of New York; sanitary superintendent of the Brooklyn Sanitary Bureau of the Health Department from 1906 to 1908 and since that time head of a special bureau of hygiene for the investigation of diseases of children and sanitary and medical work in the schools; for eighteen years a member of the staff of the Health Department; a veteran of the Spanish-American War in which he served as major-surgeon; died at his home in Brooklyn, April 23, from acute gastritis.

Edgar Wachtel Palmer, M.D., Greencastle, Pa.; Baltimore Medical College, 1902; aged 46; a Fellow of the American Medical Association; formerly editor of the Greencastle *Echo-Pilot;* a member of the staff of the Chambersburg Hospital and assistant secretary of the Cumberland Valley Medical Association; president of the Greencastle School Board; died in the Chambersburg Hospital, April 17, three days after an operation for appendicitis.

Henry Altamont Moody, M.D., Mobile, Ala.; University of Louisville, Ky., 1866; aged 74; formerly a Fellow of the American Medical Association; a member and once president of the Medical Association of the State of Alabama; professor of therapeutics, materia medica, and pharmacognosy in the Medical Department of the University of Alabama, Mobile; associate editor of the *Southern Medical Journal;* died at his home in Mobile, April 16.

Robert Wray Stewart, M.D., Pittsburgh; Bellevue Hospital Medical College, 1887; aged 54; formerly a Fellow of the American Medical Association; a member of the Medical Society of Pennsylvania; at one time professor of surgery and clinical surgery in the University of Pittsburgh and for many years a member of the staff of Mercy Hospital; who went to Switzerland three years ago on account of ill health; died in Berne, Switzerland, April 17.

Henry Chandlee, M.D., Baltimore; University of Maryland, Baltimore, 1882; Hahnemann Medical College, Philadelphia, 1883; aged 62; formerly roentgenologist of the Kernan Hospital for Crippled Children, Baltimore; a member of the Medical and Chirurgical Faculty of Maryland and secretary of the Roentgenological Society of Baltimore; died in the University Hospital, Baltimore, April 20, from septicemia following a carbuncle.

Henry Yandell, M.D., Laconner, Wash.; University of Louisville, Ky., 1856; aged 82; surgeon in the Confederate service during the Civil War; for thirty years a practitioner of Yazoo City, Miss.; since 1889 a resident of the Pacific Coast; and until two years ago, surgeon in the United States Indian Service on the Snohomish Reservation; for two terms coroner of King County; died at the Mason Sanitarium, Seattle, April 14.

Richard Stein, M.D., New York City; University of Berlin, Germany, 1884; aged 54; a Fellow of the American Medical Association and New York Academy of Medicine; a member of the New York Pathological Society; visiting physician to the German and Lebanon hospitals; while reading an address before the New York Academy of Medicine, April 26, dropped dead from cerebral hemorrhage.

George William Derrick, M.D., Norwood, Mass.; Tufts College Medical School, Boston, 1903; aged 38; health officer and a member of the Board of Health of Norwood; formerly a member of the Massachusetts Medical Society; died, April 16, in the Brooks Hospital, Brookline, Mass., from septicemia, following a prick from a needle a week before.

Albert Manley Ballard, M.D., Asheville, N. C.; Harvard Medical School, 1868; aged 74; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of North Carolina; for thirty-five years a practitioner of Asheville; died at his home, April 14, from pneumonia.

Samuel Whitefield Stevenson, M.D., Mooresville, N. C.; Washington University School of Medicine, Baltimore, 1873; aged 72; formerly a member of the Medical Society of the State of North Carolina; who represented Iredell County in the state legislature in 1901 and 1903; died at his home, April 15.

Nathan Rice Simmons, M.D., Lexington, Ky.; Long Island College Hospital, Brooklyn, 1864; aged 73; a Fellow of the American Medical Association; for thirteen years health officer of Lexington, Ky.; a Confederate veteran; died at the home of his sister in Louisville, April 21, from pneumonia.

Andrew J. Richardson, M.D., New York City; New York Homeopathic Medical College, 1870; aged 68; a member of the staff of the Hahnemann Hospital and the Yorkville Dispensary and consulting physician to the Baptist Home for the Aged; died at his home, April 17, from heart disease.

Thomas J. Wills, M.D., Washington, Ga.; Atlanta (Ga.) Medical College, 1887; aged 53; a Fellow of the American Medical Association; formerly president of the Eighth District Medical Association; one of the best known practitioners of northern Georgia; died at his home, April 13.

John Ferdinand Bates, M.D., Setauket, N. Y.; Berkshire Medical College, Pittsfield, Mass., 1860; aged 81; formerly a Fellow of the American Medical Association; for more than half a century a practitioner of Setauket, L. I., N. Y.; died at his home in East Setauket, April 19.

Cyrus N. Harold, M.D., Indianapolis; Physio-Medical College of Indiana, Indianapolis, 1879; aged 60; president of the faculty and professor of gynecology and clinical medicine in his alma mater; died in Rochester, Minn., April 19, a week after a gastro-enterostomy.

Allen Smith Chatterton, M.D., Peterson, Iowa; University of Iowa, Iowa City, 1882; aged 60; a Fellow of the American Medical Association; for thirty years a practitioner of Iowa, who had been ill with nephritis for a long time; died at his home from uremia, April 12.

Vance Ludowick Price, M.D., New York City; University of Virginia, Charlottesville, 1915; aged 30; an intern in the New York City Hospital at Blackwells Island; died in that institution, Dec. 24, 1915, from general peritonitis, the result of intestinal obstruction.

George Hagope Godson, M.D., Harmon-on-Hudson, N. Y.; New York University, New York City, 1892; aged 54; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of New York; died at his home, April 22.

Abraham Herzlich, M.D., New York City; University and Bellevue Hospital Medical College, 1905; aged 32; assistant surgeon to the Hospital and Dispensary for Deformities and Joint Diseases; died at the home of his brother in New York City, about April 17.

G. W. Walker, M.D., Waxahachie, Tex.; Medical College of Georgia, Augusta, 1856; aged 80; surgeon in Hilliard's Legion of Alabama in the Confederate service during the Civil War; died at his home, February 23, from senile debility.

William Patrick McDermott, M.D., Los Altos, Calif.; University of California, San Francisco, 1874; aged 72; surgeon to the Pacific States Telephone and Telegraph Company, San Francisco; died suddenly at his home, April 16, from heart disease.

David G. Mortland, M.D., Edgerton, O.; Medical College of Ohio, Cincinnati, 1879; aged 67; formerly a Fellow of the American Medical Association; a member of the Ohio State Medical Association; died at his home, April 11, from heart disease.

George Wylie Cliness, M.D., Tulsa, Okla.; Miami Medical College, Cincinnati, 1905; aged 41; who had been ill in the Good Samaritan Hospital, Cincinnati, for several weeks; died at the home of his sister-in-law in Wilmington, Ohio, April 2.

Luther Orrin Martin, M.D., Springfield, Mass.; College of Physicians and Surgeons in the City of New York, 1875; aged 63; for twenty years a practitioner of Denver; died at his home in Springfield, February 26, from chronic nephritis.

Ferdinand Engelbrectson, M.D., Chicago; Dearborn Medical College, 1907; aged 53; a Fellow of the American Medical Association; associate surgeon for the Rock Island System; died at his home, April 23, from heart disease.

J. R. McFadden, M.D., Milford, Tex.; Medical College of the State of South Carolina, Charleston, 1859; aged 81; a brigade surgeon in the Confederate service during the Civil War; died at his home, February 6, from senile debility.

David Choate, M.D., Salem, Mass.; Harvard Medical School, 1854; aged 87; a member of the Massachusetts Medical Society; at one time city physician and a member of the school board of Salem; died at his home, April 23.

Archimides S. T. Keever, M.D., Newark, N. J.; St. Louis College of Physicians and Surgeons, 1883; aged 52; died in St. Michael's Hospital, Newark, April 7, from bronchitis.

Charles S. Meahl, M.D., Buffalo, N. Y.; University of Buffalo, 1890; aged 47; for several years examiner in lunacy for the city of Buffalo and city diagnostician; died at his home, April 17, from disease of the liver.

William R. Keve, M.D., Dayton, O.; Medical College of Ohio, Cincinnati, 1880; aged 72; for many years a practitioner of Piqua and Sidney, O.; died in St. Elizabeth's Hospital, Dayton, April 10, from pneumonia.

Thomas C. Moore, M.D., Smyrna, Del.; Hahnemann Medical College, Philadelphia, 1884; aged 61; a member of the Delaware Legislature in 1905 and 1907; died at the home of his sister in Cheswold, Del., April 12.

John Alexander Gunn, M.D., Des Moines, Iowa; University of Michigan, Ann Arbor, 1875; aged 66; was stricken with cerebral hemorrhage while on the street, April 14, and died at his home the next morning.

Joseph Shimoon, M.D., Urmi, Persia; Jefferson Medical College, 1903; a medical missionary; is reported to have been beheaded and his body burned at the stake by Turks at his home in Urmi, recently.

William I. Wolpert, M.D., Elizabeth, Ind.; Louisville Medical College, 1886; aged 56; for twenty-five years a practitioner and druggist of Elizabeth; died at his home, April 18, from cerebral hemorrhage.

Albert Francis Murch, M.D., Westbrook, Me.; Medical School of Maine, Brunswick, 1882; aged 69; a member of the Maine Medical Association; died at his home, January 27, from cerebral hemorrhage.

Oliver M. White, M.D., Highland, Tenn.; University of Tennessee, Nashville, 1889; aged about 50; died recently at Dyers, Tenn. His death is believed to have been due to suicide by strangulation.

DeWitt Hitchcock, M.D., Oxford, N. Y.; New York University, New York City, 1877; aged 66; died in a hospital in Binghamton, N. Y., April 9, after an operation for the removal of gallstones.

Charles Dillon Stevens, M.D., St. Louis, Mo.; Washington University, St. Louis, 1878; aged 63; a member of the Missouri State Medical Association; died at his home, April 9, from arteriosclerosis.

George Finis Weaks, M.D., Water Valley, Ky.; University of Nashville, Tenn., 1875; aged 61; president of the Citizens' Bank of Water Valley; died at his home, April 14, from disease of the stomach.

James Thomas Owen, M.D., Cloverport, Ky.; University of Louisville, Ky., 1867; aged 76; for forty-five years a practitioner of Breckinridge County; died at his home, April 12.

John Kennedy, Paragon, Ind. (license, Indiana, 1897); aged 82; health officer of Paragon; died at his home, April 19, from the effects of injuries received in a fall two months before.

Emil Franz Williams, M.D., Bay Settlement, Wis.; University of Louvain, Belgium, 1879; aged 58; while driving his automobile in Green Bay, April 13, died from heart disease.

Edward Kelley, M.D., Trenton, N. J.; Baltimore University, 1887; aged 62; for a time city physician of Trenton; died in St. Francis' Hospital in that city, April 6, from typhoid fever.

Solomon Samuel Kohn, M.D., Boerne, Tex.; Dartmouth Medical School, Hanover N. H., 1892; for many years a practitioner of St. Louis; died at his home in Boerne, April 7.

John Sinclair, M.D., Minneapolis; University of Toronto, Ont., 1866; Bellevue Hospital Medical College, 1866; aged 80; died at his home, April 6.

Samuel B. Howard, R.F.D. Salem, Ind. (license, Indiana, 1897); died at his home near Plattsburg, Ind., April 4, from malignant disease of the face.

Arthur Hiram Smith, M.D., Orland, Ind.; Kentucky School of Medicine, Louisville, 1898; aged 53; died in a hospital in Fort Wayne, about April 10.

James Sanford Preston, M.D., Armstrong, Mo.; St. Louis Medical College, 1867; aged 73; died at his home, March 2, from general debility.

Thomas Sims Holleyman, M.D., Covington, Ga.; Atlanta, Ga., Medical College, 1894; aged 49; died suddenly at his home, April 9.

John Watkins Culver, M.D., Jersey City, N.J.; New York University, New York City, 1895; died at his home, April 12.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

THE WINE OF CARDUI SUIT

(*Continued from page 1418*)

April 14, 1916, Afternoon

Court met pursuant to adjournment. Dr. Edward E. Montgomery resumed the stand as witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD (*continued*)

Dr. Montgomery testified that in the curing of displacements of the uterus he uses mechanical, hygienic and operative methods. Describing displacements he referred to the diagram previously identified by other witnesses. He testified that the hypothetical medicine such as was described would not be indicated in displacements. He also described what was understood by sterility.

He testified that it would be impossible for the hypothetical medicine to serve any useful purpose in the treatment of sterility or of inversion of the womb. He described inflammations of the female genital tract, including pyosalpinx. He testified that it is utterly impossible for the hypothetical medicine previously described to restore to health a patient suffering with this disease. He described menorrhagia and metrorrhagia and testified that no beneficial result can be obtained by the medicine in these conditions. Mr. Scofield read from the Ladies' Birthday Almanac.

Mr. T. J. Scofield: Q.—Now, the quotation: "Flooding is always a sign of danger. The best treatment is complete rest in bed and Wine of Cardui three times a day."

The Witness:—I am perfectly willing to accept the rest in bed.

Q.—Well, how about the rest of it? A.—I should feel that you are doing the patient an injury.

Mr. Hough:—I ask that that response be stricken out, as the witness has not said he knew anything about Wine of Cardui at all. Wine of Cardui has not been mentioned to him.

Mr. T. J. Scofield:—Well, I have got to ask another question.

The Court:—Substitute your hypothetical medicine, Mr. Scofield. Strike that answer out.

Mr. T. J. Scofield:—Yes.

Q.—Assume now, Doctor, that the hypothetical medicine which I described to you a while ago corresponds approximately to Wine of Cardui, what is known as Wine of Cardui, then would you have an opinion as to whether the best treatment in such case is complete rest in bed, and the hypothetical medicine, or Wine of Cardui? A.—I have.

Q.—What is that opinion? A.—My opinion would be that administration of such a remedy would be detrimental to the patient.

Dr. Montgomery described dysmenorrhea and amenorrhea and stated that the treatment of these symptoms was the treatment of the disease causing them.

The Court: Q.—And the remedy depends, not on the symptom, but on the source of the trouble? A.—That is right.

Mr. T. J. Scofield: Q.—Now, then, Doctor, have you an opinion as to whether or not the hypothetical medicine to which I have called your attention will cure these conditions? A.—I have.

Q.—What is that opinion? A.—Why, I think that no remedy ought to be considered as a routine method in any case. That the patient ought to be treated according to the conditions that exist in that individual, and I can conceive of no condition in which this remedy would be desirable to use.

PUBERTY AND PREGNANCY

The witness then described puberty as a normal, physiologic process, and considering the use of the hypothetical medicine stated:

The Witness: A.—To give a girl who is undergoing a physiological process, to say that she must take some medicine, and a medicine which contains alcohol or any habit-forming drug at this period of her life, which is the most impressionable period of her existence, is doing that which is placing her future in peril, and is without any possible benefit. Indeed, every scientific physician endeavors to realize that his patient is in need of a drug before he administers it, and it makes no difference how potent the drug may be, he would not give a drug to a patient unless he felt that it was required.

Mr. T. J. Scofield: Q.—Doctor, what is your opinion, if you have an opinion on the subject, as to whether or not a pregnant woman should use such a hypothetical medicine as I have described to you, during the whole term of pregnancy, and whether it is a fact that such

medicine can never do anything but good? Have you an opinion upon that? *A.*—I certainly have.

Q.—What is that opinion, doctor? *A.*—My opinion is that such a medicine could not do anything but harm. The woman, because she is pregnant, which is a physiological process, does not need medicine. She does need attention. She does need to be under supervision, either of herself or others, because she is doing the work of two people. Her processes of elimination have to take care of those of her own, and those of her offspring, and it is consequently important that the woman's secretions should be looked after, and that she should receive proper treatment if conditions require, but not otherwise.

Q.—Doctor, do you believe that such a medicine as I have described, the hypothetical medicine, if taken during pregnancy, will make childbirth easy? *A.*—I do not.

Q.—What is your opinion with reference to a pregnant woman taking such a medicine as I have described hypothetically, and which contains 48 drops of pure alcohol to each dose, during the whole term of pregnancy? *A.*—As I said before, the woman during this period of time has increased demands upon her eliminative organs. Those organs particularly are the kidneys. Women suffer more frequently from kidney disease, from albuminuria, which is a leakage of the albumin in the body, during this time. Now the remedy, or the drug which has more influence and is of greater danger in the development of such conditions is alcohol, and in my judgment of this drug the only active principle in the doses given is the alcohol, and alcohol would be certainly detrimental to a woman to be given during all this period of time.

Mr. Hough:—I ask that that be stricken out on the ground that he is assuming something contrary to what he was asked in the hypothetical question, which is, that the ingredients, other than alcohol, have some medicinal purpose.

THE COURT:—Yes, that may be stricken out. You were asked to assume that it did have certain active principles.

The Witness:—I see.

Mr. T. J. Scofield:—That is, that part of it in which he refers to the alcohol as the sole medicinal element in the medicine?

THE COURT:—Yes.

Mr. T. J. Scofield:—Just that part of it.

Q.—Now then, Doctor, I will ask you the question again, because I don't want any misunderstanding about it. What is your opinion in reference to a pregnant woman taking such a medicine as I have described, and which contains 48 drops of pure alcohol in each dose, during the whole term of pregnancy? *A.*—I would say that it is very undesirable that it should be done. And I love my profession. I am—

Mr. Hough:—I object to this.

THE COURT:—Oh, you have answered the question.

The Witness:—All right.

The menopause was defined and the witness stated that the hypothetical medicine could not be of service at this time of life. The witness was asked whether there might be any "danger at this period of life in giving a medicine to relieve the patient at that time from symptoms or conditions, or disguising and covering up a malignant condition, or any other disease." Mr. Hough objected to the question, the Court ruling that whereas a statement appears in one of the books to the effect that "the taking of this medicine can do nothing but good" evidence to the effect that the medicine might do harm was admissible. The witness then testified that the medicine could not affect malignancy and would prevent the patient from securing early treatment.

CROSS-EXAMINATION BY MR. HOUGH

On cross-examination the witness testified that he knew nothing by experience of carduus benedictus. He has heard of the drug and has read something about it. The witness was asked what he had read in books. Objection was made to the question. The Court ruling:

THE COURT:—Right or wrong, I have ruled that the books have no place here to check up on a witness, unless the witness says that he has read the books and relied upon the books for his information.

Mr. Hough: Q.—Do you remember how many books you read on that subject? *A.*—I enumerated them, the United States Dispensatory—

Q.—Those are all that you can recall? *A.*—The National Dispensatory, Scudder's Therapeutics and King's American Dispensatory.

Q.—Are they considered respectable medical works? *A.*—Yes, they are respectable.

Q.—When you say they form the basis of your opinion, do you mean that they state what you state about the medicine? *A.*—I said that the consensus of opinion that I obtained from reading those books, gave me the impression that it was a medicine of no great value. It is—when a medicine has—the different editions of the United States Dispensatory, the National Dispensatory and books of that kind, when they give nothing that has been done later than investigations of a drug—later than 1843, I am not inclined, as a scientific man, to feel that I want to waste my time, nor the interests of my patient by the employment of such a drug.

The witness testified that he has never used Wine of Cardui in his practice, and that he abandoned the use of viburnum prunifolium twenty-five years ago.

Q.—Why did you put it in your book, recommending it for some of these conditions in 1912? *A.*—Read it, will you please.

Q.—Do you say you did not put it in your book? *A.*—No, I did not. I asked you to read what I said.

Q.—Do you mean you don't know whether you put it in your book or not? *A.*—I know it is in my book.

Q.—Why did you put it in your book recommending its use?

Mr. T. J. Scofield:—That is objected to.

The Witness:—Please read what I said.

Mr. T. J. Scofield:—They have got the book right there.

THE COURT:—Show him what he said.

Mr. Hough:—(Reading) "Dysmenorrhea." (This is page 194). "Baths and drinking of salt water, the fluid extract of hydrastis, canadensis, 20 to 30 drams," I believe that means "should be administered three times daily in black coffee, beginning eight to ten days before the expected period. This plan of treatment, regardless of the supposed cause—regardless of the supposed cause of the dysmenorrhea, is beneficial. Hydrastis, extract cotton root, extract viburnum prunifolium, stypticin and ergot have all been found to give relief." *A.*—Well, now, that—in writing a book a man endeavors not only to use his own experience, but in deference to what other men say, that expression was used. But if you will turn to an earlier page of that book where it speaks of abortion, you will find what I say as to my own individual experience.

Q.—You stated that in your book in 1912, didn't you? *A.*—I did.

Q.—After you said that you had abandoned its use 25 years ago? *A.*—I did.

Q.—Now, Doctor— *A.*—I also stated in the book that I had used it in abortion.

Q.—You had used it in some other cases, without getting good results? *A.*—Yes.

Q.—I am not asking you about the other cases. Do you do more therapeutic work or surgical work? *A.*—My work is largely surgical.

ALCOHOL IN MEDICAL PREPARATIONS

Dr. Montgomery again described the type of his practice. He stated that he has sometimes seen good results following giving of medicine by mouth. He is a prohibitionist. He gives medicines containing alcohol.

Q.—What medicines did you give, or do you give in these conditions that contain alcohol now? *A.*—Well, I would not hesitate to give ergot.

Q.—How much alcohol is there in ergot? *A.*—Why, there is about 30 drops to the teaspoonful.

Q.—Thirty drops to the teaspoonful? *A.*—Yes, sir.

Q.—That would be 120 drops to a tablespoonful? *A.*—Yes.

Q.—What percentage of alcohol is there in the ergot, expressed in percentage?

THE COURT:—Haven't you got your drops too many?

Mr. Hough:—Four teaspoonsful to the tablespoonful, 30 drops to the teaspoonful, that is 120.

THE COURT:—I thought you had it two teaspoonsful to the tablespoonful. I was wrong.

The Witness:—I do not know the—

Mr. Hough:—The percentage of alcohol? *A.*—I do not know the exact percentage, no.

Q.—You regard the alcohol as negligible, that is the reason you pay no attention to it? *A.*—Well, alcohol in ergot—in the first place, ergot is not a remedy I would advise to be used for a long period of time. The alcohol in the ergot is counteracted, in the extract of ergot, is counteracted by the ergot itself.

Q.—You mean the effect of the alcohol is counteracted by the medicine that is in it? *A.*—Yes, sir, alcohol is a dilator and ergot is a constrictor.

Q.—How do you know that that is not the case in every other medicine that contains alcohol? *A.*—I would not know it, unless the medicine had been investigated.

Q.—What investigations have demonstrated that the alcohol in the fluidextract of ergot has no effect whatever? *A.*—I am unable to give you when the investigations were made, or what investigations have been made. I am simply giving you the action of the two drugs as the physiological action which has been determined by investigation, and in a long period of time.

Q.—You don't know of any treatise or work on that subject, any statement of any book or periodical where that statement is made, that the ergot in the fluid extract prevents the alcohol from having the usual alcoholic effect? *A.*—I cannot give you the—

Q.—But you know that there is a book somewhere.

Mr. T. J. Scofield:—I object to that, if the Court please.

THE COURT:—He has not said that yet. If he does, he may say so. Do you know of any such book, Doctor?

To which ruling of the Court the defendants, etc., excepted.

A.—I do not know. I cannot give the—I cannot give the book which mentions it.

Mr. Hough: Q.—Are there any other drugs that you know of that counteract the effect of the alcohol in which they are given? *A.*—There are other drugs which the individual—there would be no danger of the individual forming the—

Q.—I am not talking about that. I am talking about a drug which will counteract the effect of the alcohol. *A.*—Any drug that acts in a different way from alcohol will counteract it.

Q.—Any drug that acts in a different way from alcohol, will counteract the effect of the alcohol? *A.*—Yes, sir.

MEDICINES IN TREATING UTERINE PROLAPSE

The witness was then asked concerning his treatment of prolapsus. He stated that if the patient's condition required it, he would give a tonic.

Q.—What are your favorite tonics for such conditions? *A.*—Arsenic, quinin, strychnin; the lactophosphates of lime and the iron preparations.

Q.—There are a very large number of tonics mentioned in medical works and known by physicians for these conditions, are there? *A.*—Yes.

Q.—Other than those that you have named? *A.*—Yes.

Q.—With that treatment, would you ever suggest any cleansing process, douches, or anything of the kind? *A.*—Of course I would.

Q.—What? *A.*—I would, yes.

Q.—An antiseptic douche? *A.*—If conditions required it.

Q.—Usually there is a little inflammation with that condition, isn't there? *A.*—Yes.

Q.—There is very seldom a case that goes to a doctor—I mean of prolapsus—in which there is not some local inflammation? *A.*—Yes. But the inflammatory condition is the result of previous infection. The organisms may have lost their vitality at the time she comes to the doctor and he only has to treat the results of that inflammation.

Q.—But with an inflammation, antiseptic douches would be indicated? *A.*—Keeping the parts clean is an important consideration.

Q.—And if the prolapsus was not too pronounced, and the health of the patient becomes good, the womb would come back and stay back in place? *A.*—If the womb assumes its natural size, and its ligaments are still in a condition that will enable them to support it, the womb will stay in place.

Q.—Now, you give medicines to strengthen the unstriped muscle, don't you? *A.*—Well, not very often.

Q.—Doesn't your book speak of medicines which act on the unstriped muscle? *A.*—Yes.

Q.—Well, that is to strengthen them, isn't it? *A.*—Yes, it strengthens them.

Q.—That is to help the muscle perform its work in holding the womb in place? *A.*—Well, the unstriped muscle in the womb is not likely to be affected by medicine—in the tissues outside the womb, they are unlikely to be affected by medicine and to give medicine in the case of a woman who has prolapsus is just about as reasonable as to give—as to bathe your suspenders with a solution when the elastic tissue has been destroyed from them.

Mr. Hough:—I ask that the illustration be stricken out. It is not responsive.

Mr. T. J. Scofield:—I object to the illustration being stricken out.

THE COURT:—I think it may stand.

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. Hough: *Q.*—Do you mean to say that you treat a woman for prolapsus and then never give her any medicine through the mouth? *A.*—I don't give any medicine, unless there is some condition that requires that.

Q.—But does not that condition usually exist? *A.*—No, not necessarily.

Q.—Well, I don't say necessarily, or not necessarily, but does not it usually exist? *A.*—No.

Q.—Does it ever exist? *A.*—Yes, at times.

Q.—Now, when would you give medicine through the mouth? *A.*—I would give medicine through the mouth when the patient's nutrition was bad; when she had conditions in which there was a desirability of creating an absorption of exudate; of the regulation of her bowels; of considering her general health, building up her general health.

Q.—Or, also, if you wanted to affect the unstriped muscle, wouldn't you? *A.*—I would not give drugs for any conditions of the ligaments of the uterus.

Q.—Well then, why do you recommend drugs in your book for unstriped muscle? *A.*—I do not think I do.

Q.—You don't mention them at all? *A.*—I don't remember having mentioned them for prolapsus of the uterus.

Q.—I am not talking about prolapsus, but the effect on unstriped muscle? *Q.*—Well, the unstriped muscle of the uterus—drugs are given.

Q.—They are given? *A.*—Yes.

Q.—When are they given for the unstriped muscle of the uterus? *A.*—Why, when we wish to stimulate the contraction of the organ.

Q.—Why do you wish to stimulate the contraction of the muscle? *A.*—Well, when the uterus is large, has a fibroid growth for instance, and is enlarged, or when it is—when there is a hemorrhage as to symptom, we would give drugs then with a view to contracting the uterus so as to cut off the blood supply to a certain degree to the organ, and to cut off—to also limit the amount of blood that is sent into it.

The witness then testified as to flexions and versions, the symptoms caused by these conditions and the types of treatment used.

ALCOHOL A FOOD?

Q.—Is alcohol in your opinion ever a food in any proportion? *A.*—Well, it is a food in the sense that it increases oxidization and the burning up, but it is not as satisfactory for that purpose as sugar.

Q.—Is it a fact that alcohol up to 20 per cent. hastens the absorption of drugs? *A.*—I would not like to say as to that one way or the other.

Q.—Did you ever give any medicines in any case of amenorrhea? *A.*—Yes.

Q.—What medicines did you give? *A.*—Why, of course it depends entirely upon what causes the amenorrhea. If the woman is suffering from disturbed internal secretions, defective thyroid, I would give her—give her thyroid extract and give her corpus luteum extract and keep her bowels regular, change her method of life, her diet, encourage her to take more active exercise, baths. Those cases also are benefited at time by the iodids and by arsenic.

Q.—Suppose there was some other cause, what medicines would you use? *A.*—Well, in case of chlorosis, or a person who was in a low state of general nutrition, or one who is suffering from tubercular disease, the remedies that would improve her nutrition.

Q.—You mean that would tone up her general health? *A.*—Tone up her general health.

Q.—And give strength to the uterus, too? *A.*—Well, the uterus is not a factor in that condition. The uterus has not anything to do with the amenorrhea.

Q.—You mean it is just a scarcity of blood, chiefly? *A.*—It is due to the failure of the—especially in the forms of defective internal secretion, it is due to the failure of the blood to descend to the uterus.

Q.—Now, would there be any other causes of amenorrhea for which you would give medicines by the mouth? *A.*—No, I don't think of any.

Q.—Just those two? *A.*—Yes.

DRUGS IN DYSMENORRHEA

Q.—Now, in dysmenorrhea, you give medicines by the mouth for that, do you not? *A.*—I do occasionally, yes, sir.

Q.—You know that other doctors, practitioners generally, give a large number? *A.*—Yes.

Q.—And you know the list of drugs or medicines is rather long for that? *A.*—Yes, I do. Usually, the longer the list, the less valuable the remedies.

Q.—Sir? *A.*—The longer the list usually, the less effective the remedies.

Q.—Where do they commence to depreciate, half way down the list, or not until the end of the list? *A.*—It depends on what you head the list with.

Q.—Well, did you state what medicines you usually give in such cases? *A.*—No, I did not.

Q.—What medicines do you usually give? *A.*—Well, it depends on what I have determined is the cause of the condition. If a woman is suffering from an inflammation, with a marked anteflexion of the uterus, the condition is not usually very much benefited by the administration of medicine. In cases in which the patient is suffering from the effects of toxic products upon the uterus, which have resulted in inflammation in its structure, the employment of the iodids in the intervals of menstruation, and the giving of pulsatilla, and all the remedies which—I cannot think of the names of the drugs.

Q.—Aletris cordial, pulsatilla, and gelsemium? *A.*—I never gave any aletris cordial.

Q.—Liquor sedans? *A.*—I have never given it, but I mean drugs, such as tincture of pulsatilla, some of the drugs that are allied to digitalis which have an influence upon the circulation, I have found of benefit at this period.

Q.—Most of those are in alcohol, are they not? *A.*—Yes, they are, but they are given in such a dose that the alcohol does not affect very much. Then I have given the coal tar preparations at times, simply as—for the sedative influence upon the condition.

Q.—And you also give elixir of calcium lactophosphate? *A.*—I very rarely do.

Q.—As a tonic? *A.*—I suppose it may be found in my book with many other things that I recommended, but I rarely give it.

Q.—You know that contains 20 per cent. alcohol? *A.*—Yes, I know it does.

Q.—And the alcohol in that is negligible, in your opinion? *A.*—I do not give it, I say.

Q.—But I mean, you regarded it as negligible, when you recommended it? *A.*—Well, we have—as I mentioned before, in writing a book, you write for the majority of the profession. We don't always put in just your exact individual opinion only.

Q.—But you would not regard a doctor who used it, as a fraud, would you? *A.*—No, I don't.

Q.—You would not regard a doctor who used any medicine that you name in your book, as a fraud, would you? *A.*—No.

Q.—You would not regard that any doctor who used any medicine named in your book, which contain large amounts of alcohol was a fraud, as being liable to induce a habit, would you? *A.*—Well, not in the doses—in the way that I have recommended it be given in the book.

Q.—You would not think they were practicing a deceit on their patients, in using all those medicines, would you? *A.*—No.

Q.—Now, let us come to menorrhagia and metrorrhagia. What medicines have you ever given through the mouth for those conditions? *A.*—Ergot, quinin, cotton root, stypticin, ustilago maidis, the fungus of corn, styptol, thyroid extract and pituitrin.

Q.—You don't give pituitrin by the mouth? *A.*—No, I beg pardon.

Q.—Now, some of those contain alcohol, and some don't contain alcohol? *A.*—Yes.

Q.—You regard the alcohol as negligible, when you give it? *A.*—In the quantities contained in these drugs.

Q.—Some of them contain alcohol up to 50 per cent., don't they? *A.*—Yes.

Q.—When you give it for these conditions, the age of the woman has nothing to do with the situation, has it? *A.*—Well, yes. If a woman is reaching a period of life that is beyond—that is near the menopause, or beyond, I would want to be perfectly satisfied that there was no possibility of any malignant disease.

Q.—I am talking about the age of the woman? *A.*—Well, you spoke of the age, and I said, if she reaches the period of the menopause, I would not give the drugs unless I was absolutely certain that there was no possibility of a malignant disease, and in no case—

Q.—Do you know of any more common remedy that has been given by general practitioners in the past for amenorrhea in the virgin, than viburnum prunifolium? *A.*—Well, I do not know.

Q.—Has it not been referred to in the profession, as "the time honored remedy, viburnum prunifolium?" *A.*—For amenorrhea?

Q.—In the virgin? *A.*—No.

The witness then testified as to the use of iron, strychnin and quinin as a tonic and its use in amenorrhea, and that he would use no drug in a normal pregnancy. He described the menopause as a physiologic process, not a disease.

Q.—What are the principal medicines given by mouth for the distressing symptoms which women usually suffer during the menopause? *A.*—Well, for the nervous manifestations, we would give asafetida, and valerian, and sometimes the administration of the thyroid extract and corpus luteum.

Q.—Is that condition usually attending with flooding, or frequently attended with flooding? *A.*—No. The menopause, when flooding occurs, there is some abnormal condition that should be investigated.

Q.—What is the most frequent symptom, that is a distressing symptom to a woman, during the menopause, not connected with an abnormal condition? *A.*—The disturbance of her nervous system. Her internal secretions having been disturbed, the balance wheel is taken out. It is like an automobile running at a rapid rate. She has, suffers from flashes of the face—her face will become scarlet.

Q.—You mean hot flashes? *A.*—Yes, and then she will be perfectly cold and white and she has manifestations of sweating.

Q.—Of which? *A.*—Sweating and things of that kind, simply the indications of want of control of the vasomotor system.

Q.—Is that connected with the nervous system, the general nervous system? *A.*—Yes.

Q.—Are tonics ever given in those conditions? *A.*—They are given, but without very much benefit.

Q.—Without which? *A.*—Without very much benefit.

Q.—Do you mean that is your individual opinion, or the opinion of the— *A.*—That is my experience.

Q.—Well, practitioners generally give them, don't they? *A.*—Oh, yes. Practitioners oftentimes have to give medicines in self defense. If a patient comes to you suffering from a condition, if you treat the patient as a patient ought to be treated, and not give medicine, the patient is not satisfied, so that a physician not infrequently gives medicine simply to make the patient feel that something is being done.

Q.—You mean for the psychic effect? *A.*—Certainly.

Q.—Would the physician be practicing a fraud on the patient doing that? *A.*—No, because he is treating the patient physically and he wants to treat her in a way that will be of the least detriment to her general health.

A PLACEBO

Q.—Well, in those conditions, does he ever give anything but a placebo? *A.*—Yes.

Q.—Will you explain to the jury what a placebo is? *A.*—A placebo is a medicine like a bread pill, or something that is perfectly inert, like a starch capsule, or something like that. Now, there are times when patients are in a state of health, in a mental condition such that they must be given something to make them feel that they are given treatment. Take a patient who has been taking remedies for sleeplessness. If you said to that patient: "You don't need anything," she would feel that you were neglecting her. But if you give the patient something that is inert, that is doing her no harm, that will do her no good, so far as the remedy itself is concerned, you are treating the mental condition of the patient, and doing her good.

Q.—Isn't it always necessary to consider the mental attitude of the patient? *A.*—Always.

Q.—In other words, the psychic influence is always an important influence? *A.*—Yes, sir.

Q.—In the giving of all medicine? *A.*—Yes, sir.

Q.—And for that reason you must assert positively that the medicine will absolutely do good? *A.*—Yes. Faith in medicine is very essential.

The witness then described inversion of the uterus, its complications and treatment. He described emmenagogues.

Q.—What would you call an emmenagogue? *A.*—An emmenagogue is something that acts directly upon the uterus.

Q.—To make menstruation normal? *A.*—Well, not necessarily. An emmenagogue is something that is not infrequently used to make menstruation come when the patient is very desirous that it should come. In other words, to produce an abortion.

Q.—An emmenagogue is used for that? *A.*—Yes.

Q.—What emmenagogues have you ever heard of that were used to produce an abortion? *A.*—Why, apiol, and all the remedies that produce the effect of the emmenagogue.

Q.—You recommend apiol in your book, don't you? *A.*—Yes, but not in pregnancy.

Q.—Not in pregnancy? *A.*—No, sir.

Q.—I was not talking about pregnancy. I was talking about a case of inversion. *A.*—Well, I would not recommend apiol in inversion, no.

Q.—Because it is not a tonic? *A.*—No, because it has no effect one way or the other on an inversion.

Q.—Or on any of the conditions which accompany it? *A.*—No.

Q.—When do you give apiol? *A.*—Why, I give apiol in cases of amenorrhea, when I realize that it is not due to pregnancy.

Q.—Is that in liquid form? *A.*—No, I very rarely give it in liquid form.

Q.—It comes in liquid form, doesn't it? *A.*—I believe so.

Q.—It comes with alcohol? *A.*—It is more easily given in the small capsules.

Q.—It comes with alcohol, doesn't it? *A.*—I wouldn't like to say just at present. I don't remember.

Q.—You don't know whether it does or not? *A.*—No, I do not.

Q.—For what conditions do you give pulsatilla? *A.*—As a preliminary to the occurrence of menstruation in those cases in which the individuals suffered from dysmenorrhea.

Q.—That is 60 per cent. alcohol, isn't it? *A.*—Yes, and a very few drops of it are given; ten drops usually are given.

Q.—How much? *A.*—Ten drops at a dose.

Q.—But there is nothing to prevent the patient taking as she wants, is there? *A.*—Why, if she wants to depart and go to the other world she can take larger doses.

Q.—What is the lethal dose? *A.*—I don't remember the lethal dose.

Q.—Well, how much would she have to take to go to the other world? *A.*—Well, I wouldn't like to have a patient take a dram of pulsatilla.

Q.—You would not? *A.*—No.

Q.—But you don't know what the limit would be? *A.*—No, I do not at this moment know the limit.

Q.—How? *A.*—At this minute I do not know the limit.

Q.—Did you ever give medicine by the mouth in any cases of sterility? *A.*—Yes, sir.

Q.—What medicine? *A.*—Why, medicines that improve the general nutrition of the patient. Medicines that will decrease inflammatory conditions that exist in the uterus and its appendages, and especially thyroid extract, and corpus luteum.

Dr. Montgomery discussed sterility and mentioned the treatment. He also discussed gonorrhea and its treatment.

CANCER

Q.—Doctor, have you ever known of a true case of carcinoma that was ever cured by a surgical operation? *A.*—Yes, sir; many of them.

Q.—You mean then that there are cancer cures? *A.*—Certainly.

Q.—Why, haven't the research laboratories been hunting for that a long time? *A.*—By a surgical operation, you said.

Q.—Yes?

THE COURT:—Do you distinguish between curing and eradicating the disease?

The Witness:—Well, he asked me if the cancer—yes, I mean by cure of cancer the eradication of the disease.

THE COURT: *Q.*—By the operation? *A.*—Yes.

Mr. Hough: Q.—You say there are cases of true carcinoma that are cured by operation? *A.*—Yes, sir.

Q.—And the disease eradicated? *A.*—Yes, sir.

Q.—Isn't it a fact that they only live a few years after the operation? *A.*—Well, the disease occurs at a period of life in which possibly the individual reaches a time when she will ultimately die, but I have patients that have been twenty years living after the operation; that are still living and—

Q.—Well, but—I beg your pardon. And which? *A.*—And in which the patients are still in good health, some of them.

Q.—But don't you give those patients other treatment? *A.*—No, sir.

Q.—No other treatment whatever? *A.*—No, sir, no other treatment.

Q.—Isn't it coming to be a recognized fact that cancer is a blood disease? *A.*—No, sir.

Q.—And cannot be eradicated by operation? *A.*—No, sir.

Q.—Do you know anything about cancer research hospitals? *A.*—Yes, I do.

Q.—They are hunting for a cure for cancer? *A.*—Yes, they are hunting for a cure. They are hunting for the cause of cancer, and to meet the condition, to eradicate the disease, or to prevent the effects of the disease, by reaching it in the precancerous state.

Q.—Aren't you confusing cancer with sarcoma? *A.*—No, sir, not at all.

Q.—What is sarcoma? *A.*—Sarcoma is a malignant disease involving the connective tissues. Cancer involves the epithelial tissue, and both of them, in my judgment, due to the same cause.

Q.—And both equally curable or incurable? *A.*—Yes, sir.

Q.—Isn't it a fact that the therapeutists contend that cancer is a blood disease, and that the operation is merely palliative? *A.*—I don't know of any therapeutist—

Mr. T. J. Scofield:—Oh, wait a minute, doctor. I object to that.

THE COURT:—He may answer.

The Witness: A.—I know of no therapeutist that takes such a position. Cancer, sarcoma, any malignant disease, after a time may be carried beyond the point in which it originates, and then is a constitutional rather than a local disease. But in its origin it is a local disease, and if attacked, and the part in which it originates removed, the cancer is cured.

Q.—What is the origin of cancer? *A.*—Well, that is a question that I would be glad for somebody to tell me.

Q.—I thought you just stated that you knew? *A.*—No, I said the point in which it originates, the local situation in which it originates. Now, it may originate in different parts of the body.

Q.—Well, how can you say that it did not originate in the blood which deposited the germ at this weakened part of the body? *A.*—Well, I will not admit in the first place that there is a germ causing cancer. In the second place, the fact—

Q.—Well, would you say bacillus? *A.*—Well, I will not admit that there is a bacillus that causes cancer, that there is a micro-organism that causes cancer. I do say—

Q.—You mean, that there is no micro-organism that causes cancer? *A.*—That is what I say; I do not admit that.

Q.—That is what I wanted to know. *A.*—No, sir, I will not admit that. I will not admit that cancer—

Mr. Hough:—That is what I wanted to know. Go ahead and finish your answer. *A.*—That it begins in a point—and that is what I mean by originates—it begins usually in the neck of the womb and in that part which is most frequently subject to irritation. So far as we know now, cancer originates in cells which have been injured, previously injured, or in structures which have been previously injured and the cells therein become changed and undergo a tendency to proliferation or multiplication.

Q.—But you would be sure that the action of the blood had nothing to do with the sarcoma? *A.*—I do. The blood becomes impurified sub-

sequently by the products of the cancer, but the blood does not cause the cancer.

Q.—Has that been definitely determined? *A.*—The fact that we can remove the womb, the structures in which cancer starts, and the patient has no return of the disease and lives five, ten, fifteen years afterwards, without any return, and that if it is left until the disease passes into the nearest lymphatic glands or into structures around it and they become involved, and we operate then and the disease returns, that indicates that the disease is a local disease in its origin.

Q.—Is medicine ever given for cancer, by the mouth? *A.*—Yes, and never with any benefit.

Q.—How do you know that it is never with any benefit? *A.*—Because patients have taken it, and it has left the cancer undisturbed. Medicine has no effect upon it whatever.

Q.—Well, the practice is very general, isn't it, to give medicine by the mouth? *A.*—Not for cancer.

Q.—Well, to what extent is it given by the mouth for cancer? *A.*—No conscientious physician would waste ten minutes if he had a case and knew it was a case of cancer, by the administration of medicine.

Q.—Well, all the physicians who give medicine are conscientious, aren't they? *A.*—Not if they recognize it is a case of cancer, and give it.

Q.—Well, they believe when they give medicine that it is going to do good?

Mr. T. J. Scofield:—Wait, I object to that question.

The Court:—Objection sustained.

Mr. Hough:—I object to his using the words "conscientious physician."

Mr. T. J. Scofield:—I suppose you do.

The Court:—Well, you could have objected at the time, but you have got by that.

Mr. Hough:—Well, I was objecting in a different way, by approaching the question differently.

Q.—To what extent, do you know, is medicine given by the mouth for cancer?

The Court:—Oh, he said not at all.

Mr. T. J. Scofield:—I object to that question, if the Court please.

Mr. Hough:—Well, he said first that he knew it was given.

Q.—You said first you knew it was given. That physicians did give medicine by the mouth for cancer. *A.*—I said no conscientious physician who recognized it would do so.

Q.—I asked if you didn't know that physicians did give medicine by the mouth for cancer? Didn't you answer yes to that? *A.*—I didn't intend to, if I did.

Q.—Then you know of no physicians that give medicine by the mouth for cancer? *A.*—No.

Q.—You never heard of it? *A.*—Oh, I have heard of a great many things that I don't believe in.

Q.—That is not the question whether you believe in that treatment or not. The question is whether that is a treatment that is used by some physicians? *A.*—That is not a recognized treatment.

Q.—You mean surgeons do not recognize it? *A.*—No, or physicians, either.

Q.—Physicians that use it, recognize it, don't they?

Mr. T. J. Scofield:—He cannot tell what goes on in the minds of physicians that use it.

The further hearing of the cause was adjourned until Monday, April 17, 1916, at 10:30 o'clock a. m.

April 17, 1916, Morning

The court met pursuant to adjournment. In the absence of Mr. Hough, the defendants introduced another witness before proceeding with cross-examination of Dr. Montgomery.

TESTIMONY OF DR. C. K. MAXWELL

Dr. C. K. Maxwell was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. LOESCH

Dr. Maxwell testified that he resides in Kellyton, Ala. He has been practicing since 1891, when he graduated from the Medical Department of the University of Alabama. He has been in Kellyton eighteen or twenty years. He was called to see a Mrs. W. at 1 o'clock at night, and found her in labor. She was threatened with an abortion. She had taken half a bottle of Wine of Cardui in half a day. The patient was much exhilarated and somewhat excited. The stomach contents showed that she had a little Wine of Cardui in the stomach. He gave her a hypodermic injection of morphin and later 10 grains of potassium bromid. He stopped the taking of Wine of Cardui and the patient went along without the abortion. She was about four months advanced in pregnancy.

He also attended a Miss B., school teacher, who was nervous and broken down from overwork. She had been taking Wine of Cardui for four or five months. She told the witness that she took it because it was recommended as a woman's tonic and it braced her up and made her feel more like doing her work. He recommended two or three weeks' rest, gave her saline cathartics to aid elimination and prescribed 1/30 grain of strychnin three times a day. The patient soon recovered.

He was called in 1914 to see two negroes who had had a fight. One had cut the other in the scalp with a knife. The witness testified that he sewed up the wound, employing eight or nine stitches. The negroes stated that they had been drinking Wine of Cardui. Three empty bottles were lying where the fight occurred. The witness gave the names of the negroes.

The routine objections to this introduction of this evidence were made by the plaintiffs and overruled.

CROSS-EXAMINATION BY MR. WALKER

On cross-examination, the witness testified that he had met Dr. Heizer and that he had received a letter from Dr. H. G. Perry, secretary of the state medical society. He met Dr. Heizer in Birmingham. The witness has been in Chicago nineteen days. He came alone. His expenses are being paid by the American Medical Association. The witness testified that he has never been interested in the drug business and has not prescribed Wine of Cardui. He supplied the names and addresses of the patients mentioned in the direct examination. He gave Mrs. W. a hypodermic injection of morphin which caused nausea, and he did not make a chemical analysis of the stomach contents. The negro S. H—— was shot through the head and killed in a drunken brawl. The negro S—— was employed by the Saxton Lumber Company which was burned up.

The witness is employed by the Alabama Power Company as a witness in damage suits.

REDIRECT EXAMINATION BY MR. LOESCH

On redirect examination, the witness recollected that he had seen two boys buy a bottle of Wine of Cardui and drink the contents behind a store.

RECROSS-EXAMINATION BY MR. WALKER

The witness gave the name of one of the boys, name of his employer, and the address. He was repeatedly cross-examined concerning the incident mentioned, his distance from the boys, the appearance of the bottle, the appearance of the store, the owner of the store, etc.

CROSS-EXAMINATION OF DR. EDWARD E. MONTGOMERY (*continued*)

Dr. E. E. Montgomery resumed the stand as a witness for the defendants.

FURTHER CROSS-EXAMINATION BY MR. HOUGH

Dr. Montgomery described what he understood as a precancerous condition.

Mr. Hough: *Q.*—Doctor, is alcohol ever referred to as a habit forming drug? *A.*—Yes.

Q.—But not in the sense of morphin, and codein and their derivatives, is it? *A.*—It is not—yes, it is in the same sense.

Q.—You think it is no worse to prescribe morphin and its derivatives, codein, to a young girl at puberty, than to prescribe a medicine containing alcohol? *A.*—Yes, I should think it was very reprehensible to prescribe for a young girl at puberty any habit forming drug without it was under such supervision that it could be withheld.

Q.—Has it not been determined that alcohol is not a habit forming drug in the sense in which you apply the term to those other drugs, such as morphin and cocain and their derivatives? *A.*—Not to my knowledge.

THE MENOPAUSE

Q.—Did you say that the menopause was not a critical time in a woman's life? *A.*—Not especially.

Q.—What did you mean then, when you said in your book, on page 53, 1912 edition: "The menopause, or the conclusion of menstrual activity, is regarded as a critical period in woman's existence." *A.*—Well, I look upon that as—just as I have a good many other things that you will find in the book.

Q.—You mean you did not mean them? *A.*—They are so generally so considered that—I do not individually regard the menopause as a critical period in the individual's life.

Q.—You mean that you wrote in the book the things that you did not believe, rather than the things that you do believe? *A.*—There is no book that is written, but what the man would like to revise it before it was out of the press.

Q.—You also stated that it was very reprehensible, a very reprehensible thing to give any medicine containing alcohol in a gonorrheal condition, because it always made that condition worse, didn't you? *A.*—Yes, sir.

Q.—Now then, why did you recommend a prescription for a gonorrheal condition which contains 60 per cent. of alcohol? *A.*—Read the prescription please.

Q.—On page 327 of your book, where it says: "Gonorrhea and acute cystitis are often ameliorated by the administration of balsams as copaiba, cubebs or sandal wood oil, or when the urine is acid and scanty, the diuretics, such as alkaline and salts alone or in combination with oil of birch, buchu or triticum repens. The following prescription is often serviceable. Ammonium benzoate, three drams; tincture of hyoscyami, three drams; extract buchu, vel, tritici repens, three"— A.—Three what?

Q.—Drams, as I read it. Now you know how much alcohol was in those things, didn't you, or did you? A.—I would like to see that prescription. Let me read that and look at it, please.

Q.—(Handing book to witness). I am not a pharmacist, and I may not have read it correctly. Benzoate ammonium three drams, tincture of hyoscyami, one to two drams, extract of buchu two fluid ounces. Teaspoonful in an ounce of water, four times a day.

Q.—Now, you knew that a teaspoonful of that contained how many drops of absolute alcohol? A.—About 30.

Q.—And yet you said that it was absolutely—did you say criminal to give it in that kind of a case? A.—No, I did not say criminal. I said it was not advisable. In the dose that it is given there, and under the supervision that it would be given, the alcohol would not be very effective.

Q.—You mean then that alcohol, if given by a physician has one effect and if taken without a physician's prescription, it has a different effect? A.—No, I don't mean anything of the kind.

Q.—What has the supervision got to do with the effect of the alcohol when a certain number of drops are taken in the system? A.—If the—the advantage of having a physician look after the patient is, that when the patient is taking a medicine, if it has any bad effect, if for instance the patient is more susceptible to the effect of the remedy than another individual, that remedy can be discontinued. If the symptoms are not favorable, the remedy would be discontinued, if she had only taken three or four doses. Now this remedy as prescribed here, is given more in chronic conditions, chronic cases, and is given more particularly for the relief of bladder symptoms, and if the patient is not relieved in a very short time by the administration of this, and showed any signs of recurrence of the condition, the medicine would be discontinued.

Q.—Well, you certainly would not give 30 drops of alcohol at a dose, if you thought that it was dangerous at all, would you? A.—Oh, no; I do not think that 30 drops is dangerous.

Q.—But you think that a little more, the amount which is in Wine of Cardui, would be dangerous? A.—If continued, as suggested that Wine of Cardui should be given.

Q.—I am talking about for each dose? A.—Well, one dose of a medicine is not dangerous itself.

Q.—You stated, Doctor, that you had an opinion as to the therapeutic value of this hypothetical medicine, based upon the assumptions in the hypothetical question, but you did not state what your opinion was. What is your opinion as to the therapeutic value of that medicine based upon the assumptions in the hypothetical question. A.—That is in gonorrhea?

Mr. Hough: Q.—In any of the conditions concerning which you testified. A.—I should say that it was of no value.

Q.—No value whatever? A.—No.

Q.—Now, doctor, if you are assuming that the medicine is a uterine medicine, how can you say that in your opinion it has no value as a uterine medicine when you have never used it? A.—Well, my first—in the first place, I must confess that the assumption is rather against my will.

Q.—Well, but you mean then that you made the answers you did ignoring the things which you were asked to assume, as true? A.—Yes, I accepted that.

Mr. Hough:—Then I ask that all the answers, all the testimony of the witness be stricken out.

THE COURT:—In reference to this particular answer I assume?

Mr. Hough:—No, all the answers which he gave to Judge Scofield's questions. He said he ignored all the things which he was asked to assume.

THE COURT:—You told the witness that he stated that he had an opinion, but he had not given it. Now you confined this question to the answer the witness has given now. Now, if you want to carry it back to the other questions and answers given there, ask him whether during his testimony, he has disregarded all of those things.

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. Hough:—I understand that the witness stated that he did disregard those things.

Q.—You did disregard those things that you were asked to assume?

THE COURT:—In all your testimony.

The Witness: A.—In reference to what you have just asked me?

Mr. Hough:—No, in answer to Judge Scofield's questions, you ignored the assumptions which you were asked to assume as facts, with reference to the therapeutic value of the medicine or of the ingredients of the medicine.

Mr. T. J. Scofield:—That is objected to. The doctor stated, so far as my questions were concerned, that he had answered them upon that assumption.

THE COURT:—The motion to strike out will be denied as to anything, except the answer to this last question, that he thought it had no value. That may be stricken out.

To which ruling of the Court in denying the motion to strike out said testimony made by counsel for plaintiffs, the plaintiffs, etc., excepted.

And to which ruling of the Court in striking out the answer of the witness hereinbefore specified, the defendants, etc., excepted.

Mr. Hough: Q.—You stated, Doctor, that in your opinion, the medicine was worthless. In expressing—

THE COURT:—That has been stricken from the record.

Mr. Hough:—Sir?

THE COURT:—That was stricken from the record on your motion.

Mr. Hough:—I did not ask that that be stricken from the record. I asked that his testimony in answer to Judge Scofield's questions be stricken from the record, because, in answer to my question, he said he disregarded those assumptions.

THE COURT (Addressing the reporter):—We will let the record stand as it was then, Mr. Dickenson. Now go ahead Mr. Hough.

Mr. Hough:—Now, you did disregard those assumptions, did you?

Mr. T. J. Scofield:—Wait a minute. That is objected to, if the Court please. In what?

Mr. Hough: Q.—In all of the answers which you gave concerning the value of this medicine in any pelvic trouble?

Mr. T. J. Scofield:—I think we ought to know what he means by that, if the Court please. Is he referring to his last interrogations, or throughout the whole testimony?

Mr. Hough:—I have asked the question.

THE COURT:—He may answer.

To which ruling of the Court the defendants, etc., excepted.

A.—I accepted the question as answered me—or as asked me, rather.

Mr. Hough: Q.—You did assume that it had the medicinal properties which you were asked to assume that it had? A.—I assumed that; yes, sir.

Q.—And, assuming that it had the medicinal properties which you were asked to assume it had, you still say it is worthless as medicine? A.—I do.

The witness then discussed displacements and stated that it is desirable to consider the general conditions in treating all diseased conditions. If the condition can be relieved without it, it is better that it should be accomplished without the administration of medicine.

There was read to him a statement from one of his books advising the use of general measures of treatment in such conditions which he said was simply a summary of general measures of treatment.

Q.—What did you mean, when you stated in your book: "It is difficult to suppose that remedies will have a distinctive, selective influence on the uterus only. Those which have been so regarded are, ergot, cotton root, corn fungus, hamamelis, hydrastis canadensis, cotarnine hydrochlorid, cannabis indica and viburnum prunifolium." A.—I mean just simply what it says, that it is difficult to believe that any drug has a selective action which those that have been so regarded—I don't regard it so.

Q.—Well, what do you mean by "have been so regarded"? A.—By men who have practiced, and do still practice.

Q.—You mean practicing medicine? A.—Yes, sir, certainly.

Q.—Well, you say they don't have an action on the uterus only. That means it has an action on the uterus and acts also in other ways. A.—Certainly it acts on the uterus, in so far as the uterus is a part of the body.

Q.—I suppose any medicine which acted on the nervous system might be helpful in those conditions, might it not? A.—Certainly.

Q.—Any medicine which acted on the blood, would also be helpful in those conditions? A.—That is, if the blood needed improvement.

Q.—It usually does, don't it? A.—Not always.

Q.—Didn't you say it usually did? A.—Yes, in many cases it does, but we have to consider the blood in two directions, plethora and anemia.

Q.—Now, if there are no symptoms attending the displacement of the uterus, would you still favor an operation? I mean if the woman is suffering no inconvenience at all? A.—I said that it is well in those cases to correct the position of the womb in a—especially in a retrodisplacement, because the change of position in the womb interferes to some degree with the return of blood through the veins. The veins being thin walled and the arteries being thicker walled, the blood is being continually pumped into the organ, and has difficulty in getting out. The result is that it produces a certain amount of stagnation, which renders that womb less resistant to disease, which renders consequently the individual more susceptible to inflammation and changes in her nutrition affecting this organ, and for that reason, it is better if the womb—better that the position of the womb should be corrected. Now that may be by hygienic measures as I explained; by a change in the manner of her dress, in living, regulation of her bowels, and by mechanical means, raising the womb up and keeping it in a proper position by means of a support.

Q.—Bitter tonics are indicated in those conditions also, are they not, for the anemia? A.—Not because of the—

Q.—I don't mean for the mere mechanical condition of the uterus, but for the anemia which usually accompanies it? A.—Well, the anemia does not necessarily usually accompany such a condition.

Q.—Well, when it does? Q.—Oh, well—

Q.—The bitter tonics would be indicated, would they not? A.—Yes, bitter tonics can be used.

Q.—No, they are indicated, are they not? *A.*—Not necessarily.

Q.—What did you mean when you said on page 136 of your book, "frequent existence of anemia demands administration of reconstructives, such as quinin, strychnin, arsenic, mercury, the bitter tonics and, after proper preparation, iron." *A.*—Well, that is summed up.

Q.—You meant that, didn't you? *A.*—That is summed up as a part of the consensus of opinion, as to the different measures. A man who writes a book does not simply put down exactly his own ideas. He endeavors—

Q.—Do you disagree with that statement yourself, personally? *A.*—Yes, I don't give bitter tonics and solutions. I give them very rarely or advise them very rarely.

Q.—But this, of course, is a recommendation to practitioners generally, isn't it? *A.*—Yes.

Q.—And you recommend something for them which you would not do yourself? *A.*—I give what is followed in general practice.

The witness was then asked concerning the presence of inflammations with various uterine displacements. He said it was practically always present and that a medicine that would relieve the inflammation would tend to relieve the associated conditions.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

Q.—Doctor Montgomery, on last Friday Mr. Hough read to you something from this book in regard to the treatment of certain conditions, in which the words "viburnum prunifolium" were used, and in which it was stated that it was used for those purposes. Now, you also asked Mr. Hough to refer to a previous page of your book as to your opinion of viburnum prunifolium, which he did not do. I will now read to you from Practical Gynecology, Fourth Edition, by Montgomery, and ask you as to whether or not this expresses your individual opinion of the value of viburnum prunifolium, reading from page 137:

"Viburnum prunifolium has been greatly vaunted as a remedy for the relief of dysmenorrhea or the arrest of threatened abortion, but I have never been able to obtain any perceptible value from its use." Is that true? *A.*—That is true, sir.

Q.—Does that represent your own idea of viburnum prunifolium? *A.*—That represents my own opinion.

Q.—And whatever else was said, was not with reference to your individual opinion? *A.*—Yes, sir.

The witness was then asked concerning the dosage used when prescribing fluidextract of ergot; he stated that it is never given over a long period of time and is usually given in a small dosage.

The Court refused permission on objection of the plaintiffs to the asking of a hypothetical question concerning a recommendation of a hypothetical medicine: whether such recommendation was a fraud? The Court stated that this was for the jury and not the witness to determine.

RECROSS-EXAMINATION BY MR. HOUGH

In recross-examination, the attorneys for the plaintiffs attempted to get a definition of the words "greatly vaunted," read to the witness by Mr. Scofield. Objection was made and overruled.

The witness stated that he did not remember who "vaunted" the remedy but that they were certain medical writers.

TESTIMONY OF MR. RENSHAW REED

Mr. Renshaw Reed was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. WALDO

Mr. R. Reed lives in Ellenwood, Tenn., about 122 miles north of Chattanooga. He is 35 years of age and a widower. Objection was made to his testimony with regard to his personal experience with McElree's Wine of Cardui overruled and exception taken.

A.—My wife became in a family way.

THE COURT:—When was this? *A.*—This was in 1914, and a few months—two or three months afterwards, she complained of having hurting in her side, had a headache, dizzy headache. I insisted on her to use a doctor, and went for a doctor for her but she had heard and had seen of this Wine of Cardui, as the advertisement—and the women talking to her and advising her to use it.

Mr. Walker:—That is objected to.

THE COURT:—Yes, that is not the way to get at it, gentlemen. Can't you make it more specific.

To which ruling of the Court the defendants, etc., excepted.

A.—She did not want to use a doctor whatever, and so she went on—

Mr. Waldo: *Q.*—What did she use? *A.*—She used Wine of Cardui.

THE COURT:—How long did she use it?

Mr. Waldo: *Q.*—How much of it did she use, and how long did she use it? *A.*—She used as much as three or four bottles to my knowing.

THE COURT: *Q.*—Covering what period of time? *A.*—Well, two or three months I guess, something like that, maybe four.

Mr. Waldo: *Q.*—Now tell the jury the result of her use of Wine of Cardui.

Mr. Walker:—That is objected to.

THE COURT:—Yes. State what you observed.

To which ruling of the Court the defendants, etc., excepted.

A.—Well, she used the medicine, Wine of Cardui, and she told me that it was not doing her any good.

Mr. Waldo: *Q.*—Tell what you saw, Mr. Reed. *A.*—She did not seem to be doing any good up till the time to be confined, a few days later—why she told me she had a headache, her head was hurting her, hurting her. She asked me to go upstairs and go and lay down on the bed with her. We went up. We laid down there for a few minutes and she was talking and all at once she stopped talking. I looked around at her and she had her face drawn up this way (indicating by allowing the head to fall backwards) and her eyes throwed up and her mouth drawn around to one side, and she was shaking like this (indicating with both arms raised above the head and simulating a tremor). And it scared me and I hollered for my mother to come up. She ran up and says, "She is dying," and so on and I went for the doctor. This happened about 11:30 in the morning, and I got the doctor there about 3 o'clock in the afternoon, Dr. Foster from Huntsville. We were four miles from town. Well, that is about all I know about it. He come and he attended to the case, and my wife died. I lost my wife and baby.

Q.—You say you lost your wife and baby? *A.*—Yes, sir.

Q.—How much Wine of Cardui did your wife take? *A.*—Three or four bottles to my knowing.

Q.—Do you know what she took it for? *A.*—Yes, sir; she took it—

Mr. Walker:—That is objected to.

THE COURT:—Objection sustained.

To which ruling of the Court the defendants, etc., excepted.

Mr. Waldo: *Q.*—Over what period of time did she take it?

THE COURT:—He has already covered that. Three or four months he says.

The Witness:—Three or four months, maybe a little longer than that.

CROSS-EXAMINATION BY MR. WALKER

The witness testified that he came to Chicago with Dr. Foster.

TESTIMONY OF DR. JAMES ARNOLD FOSTER

Dr. Foster was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. WALDO

Dr. J. A. Foster lives in Huntsville, Tenn. He graduated April 1, 1901, and has been practicing since that date. He testified after objection was made which was overruled, that in 1901 a colored man, W——, entered his father's store and purchased a bottle of Wine of Cardui. The colored man pulled the label off and drank about half of the contents. He finished drinking the contents and left the store. About an hour later the witness had a call to a town southwest of Huntsville. About 2½ miles out beside the road he saw W—— and from the appearance of W——, the witness judged that he was drunk. The witness testified that a printer, named S——, had periodic drinking spells. When out of whisky, S—— would wind up by drinking Cardui.

Q.—Now, have you ever had any experience with Wine of Cardui where it was used by your patients, and where its use formed a part of the history of their case? *A.*—Well, a Mrs. Reed, Renshaw Reed's wife. They lived at Ellenwood, Tennessee. I think this was in the year 1914, perhaps March.

Q.—You mean that Mr. Reed, who has just left the stand? *A.*—Yes, sir; that is the gentleman.

Q.—Go ahead. *A.*—I was called to see his wife one afternoon and I arrived at his home immediately after 3 o'clock. His wife was having one convulsion after another. As soon as she would relax she would go into another. She was unconscious. I asked the history of the case and they said that she had been taking Wine of Cardui, had taken it up to the time of the convulsions that afternoon.

I said, "Why haven't you consulted a doctor? Haven't you noticed untoward symptoms that would call attention to the fact that she needed a doctor?" He said, "I have and I have tried to get her to have a doctor, but she is young and easily embarrassed," was his expression. "She had been reading after this Wine of Cardui, and it was recommended to cure women of their troubles and some of her lady friends had told her that it would cure her and she has insisted on taking that and she has been taking that and took it right up to close to the time of these convulsions."

Q.—What was the trouble with Mrs. Reed? *A.*—It was puerperal eclampsia.

Q.—What is that? *A.*—It is convulsions that come on at childbirth, due to poisons in the system. I believe that our best information now is that the poisonous materials—the kidneys are not throwing it out properly, and it is stored up in the system and poisons the nerves, the nervous centers of the system. That is the best information we have.

Q.—Was that what was the matter with Mrs. Reed? *A.*—That was what was the trouble with this woman.

Q.—How old was this woman? *A.*—As I remember it, she was 19 years old.

Q.—What became of her? *A.*—She died.

Q.—Do you know of any other case—when did she die, doctor? *A.*—She died sometime along in March. She died immediately after

these convulsions returned on her, and she remained in a comatose condition until the child was born dead, and I delivered the child dead.

Q.—How long after you first saw her did she die? *A.*—I think she lasted something like 24 hours, that is my best recollection.

Q.—Doctor, do you know of any other case where Wine of Cardui has been used by your patients? *A.*—I had a lady as I remember her, 48 years old. She came to consult me and said that she had pains in her lower abdomen, and her head was aching, and had a draggy feeling, and that her monthly periods—her expression was—had been gone for three or four years, and had returned again, and had returned in very dark heavy clots. She said, "I have come to you to see if you could not give me some medicine to help me out. I have had three children, but I have never been examined by a doctor, a man doctor, and I don't want to be examined, I don't feel like that I wanted to undergo an examination, because it is embarrassing to me," and she said further, "I have tried Wine of Cardui." I think she had taken two bottles— "and it does not seem to be relieving me soon enough. I have seen the advertisements of it in the Lady's Birthday Almanac and some of my friends have told me that that would relieve me, and it not being effective soon enough, I have come to you about it."

I noticed that her face had that hectic look of cancer, and I thought of tumors and of all those things that come in along at that age, and I said to her, "I could not prescribe to you under those circumstances without an examination to find out what your trouble is. It would indicate perhaps some serious trouble that medicine would not reach." And she said, "Well, I prefer to not be examined. I will go back and try Cardui a little further and if I am not relieved I will come back again."

And so she left, and I should say five or six months after that she came back and said she had come back to be examined. I examined the woman and I found carcinoma of the uterus, and it had gone so far that we could pick pieces off of the os of the uterus.

Q.—By carcinoma, you mean cancer? *A.*—Cancer. I told her that it was cancer and was too far gone for an operation, and that I could not promise her any relief—it at that time was very advanced—but that I could give her some medicine to keep it from being so offensive to her and to her friends, but that was about the extent of all I could do.

I further said, "This is a serious matter with you, and I will take you up to Knoxville to a surgeon there" (they were good people). "If you want to go, I will take you to Knoxville, and I will see if they don't confirm my diagnosis."

So she went—we went to Knoxville and we went to one of the best surgeons in Knoxville. He examined her and promptly told her the same that I had told her.

Q.—How long had she been taking Cardui? *A.*—She said she had been taking it for the five or six months between the time she first come to me, and the second time. She told me she had taken a few bottles before she came to me the first time.

Q.—There was no physical examination the first time? *A.*—No, she did not consent to that.

Q.—And did not consent to it for some months? *A.*—No, sir. I would say five or six months.

Q.—During that time she had been taking Wine of Cardui? *A.*—That was her statement.

Q.—What became of that woman? *A.*—She died a few months later.

Q.—Was she operated on, Doctor? *A.*—She was not. The surgeon refused to operate on her.

Q.—Why? *A.*—Too late; nothing to be gained.

Q.—Doctor, referring back to Mrs. Reed, when you saw her, in what state of pregnancy was she? *A.*—She was being confined, I should say the ninth month.

CROSS-EXAMINATION BY MR. WALKER

On cross-examination the witness testified that he is a member of the American Medical Association. He met Dr. Heizer one or two years ago.

Q.—As a member of the American Medical Association, did you know or receive copies of the articles of April 11, 1914, and July 18, 1914? *A.*—You mean the Journals?

Q.—Containing the articles on Wine of Cardui. *A.*—You mean in the Journals.

Q.—Yes. *A.*—I may have received them, but I did not open them. I will say that for the last six months or eight months I have not opened one of their Journals.

Q.—This is a year ago? *A.*—I did not open them then. I have been so busy that I did not have a chance to see them.

Q.—Had you finished your answer? *A.*—I am sorry to say that for the last year and a half or two years that it has been only one Journal perhaps out of every four that I have opened. I have not had time to open them.

Q.—Did you receive any other literature in regard to this case? *A.*—Not to my memory.

Q.—From the Medical Association? *A.*—I had from our State Medical Society a notification of the proceedings of this. That was the first notice that I had of this suit and of this affair of Wine of Cardui, and the American Medical Association.

The witness received a communication from Dr. Olin West, secretary of the State Medical Society. The witness saw Dr. Heizer in Huntsville. At that time Dr. Heizer went with him to call on a colored family, Bennett M—— and Mandy M——, who were photographed while drinking Wine of Cardui.

The witness was asked concerning the names and addresses as well as business of S—— and S—— W——. The father of the witness who conducted the store is now dead. The business is now being conducted by the witness's mother. He is not sure whether Wine of Cardui is now in stock.

REDIRECT EXAMINATION BY MR. WALDO

On redirect examination, objection was made to the question concerning the presence of the representatives of the Chattanooga Medicine Company in Huntsville. The question was withdrawn.

The witness testified that Mandy M—— and her husband drank one third of a bottle each. The witness saw no perceptible effect.

The further hearing of the cause was then adjourned to 2 o'clock of the same day.

(*To be continued*)

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

GLOBULIN TEST OF THE SPINAL FLUID

To the Editor:—Kindly give the technic for the globulin test of cerebrospinal fluid.

S. E. ROSENTHAL, M.D., Spokane, Wash.

ANSWER.—There are several tests given for the detection of globulin in cerebrospinal fluid. Among these the tests of Noguchi and of Nonne are probably the more commonly used.

In Noguchi's butyric acid test, 1 part (0.1 or 0.2 c.c.) of spinal fluid is mixed with 5 parts (0.5 c.c.) of a 10 per cent. butyric acid solution in physiologic salt solution. This mixture is heated to boiling and immediately 1 part (0.1 c.c.) of normal (4 per cent.) sodium hydroxid solution is added and the mixture again boiled for a few seconds. The presence of an increased content of globulin in the fluid is indicated by the appearance of a granular or flocculent precipitate which gradually settles under a clear supernatant liquid. This precipitate appears within a few minutes in a specimen containing a considerable increase in globulin, while two hours may be required to obtain a distinct reaction in specimens weaker in globulin.

Nonne's test is applied in two phases, the first phase being of the greater diagnostic import.

Phase 1: To a small portion of the clear cerebrospinal fluid an equal volume of a hot saturated solution of ammonium sulphate is added. A trace of opalescence or a distinct turbidity, usually appearing within three minutes, indicates a positive reaction. Normal fluids never show any appreciable change with this test, while pathologic types always react promptly.

Phase 2: In case no turbidity is observed in Phase 1, a drop or two of acetic acid are added to the foregoing mixture. A distinct turbidity appears at once. This phase is given, not infrequently, with normal fluids, so that little value is attached to it.

PROVOCATIVE WASSERMANN

To the Editor:—My attention has been called to the term "provocative Wassermann" in some correspondence lately. What is meant?

MARCUS BEEKMAN, M.D., Natchez, Miss.

ANSWER.—By a "provocative Wassermann" is meant a positive Wassermann test produced as the result of an injection of salvarsan. It has been definitely established that if a patient is syphilitic, a negative Wassermann test may be converted into a positive one by the injection of salvarsan. This is due to the fact that spirochetes are killed and their toxic action is temporarily increased. The bodies involved in the Wassermann test are also thereby increased. This provocative Wassermann test may be obtained in every stage of infection. The blood should be taken before the injection as a control and the influence of the salvarsan determined by taking the blood twenty-four and forty-eight hours after the injection. In any case the blood must not be taken later than forty-eight hours after the injection.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, May 9. Sec., Dr. T. J. Stout, Brinkley; Eclectic, Little Rock, May 9. Sec., Dr. C. E. Laws, 712 Garrison Ave., Fort Smith.

FLORIDA: Jacksonville, June 13-14. Sec., Dr. E. W. Warren, Palatka.

GEORGIA: Atlanta and Augusta, June 1. Sec., Dr. C. T. Nolan, Marietta.

IOWA: Iowa City, June 8-10. Sec., Dr. Guilford H. Sumner, State House, Des Moines.

KANSAS: Topeka, June 13. Sec., Dr. H. A. Dykes, Lebanon.

KENTUCKY: Louisville, June 13-15. Sec., Dr. A. T. McCormack, Bowling Green.

LOUISIANA: New Orleans, June 8-10. Sec., Dr. E. L. Leckert, 716 Macheca Bldg., New Orleans.

MASSACHUSETTS: Boston, May 9-11. Sec., Dr. Walter P. Bowers, Room 501, No. 1, Beacon St., Boston.

MICHIGAN: Detroit, June 1-3. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MISSOURI: St. Louis, June 13-15. Sec., Dr. J. A. B. Adcock, Jefferson City.

NEBRASKA: Lincoln, May 8-10 and June 8-9. Sec., Dr. H. B. Cummins, Seward.

NEW YORK: Albany, Buffalo, New York and Syracuse, May 16-19. Sec., Mr. Harlan H. Horner, Chief Examinations Division, Educational Bldg., Albany.

OHIO: Columbus, June 6-9. Sec., Dr. George H. Matson, State House, Columbus.

SOUTH CAROLINA: Columbia, June 13. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

WYOMING: Laramie, June 14-16. Sec., Dr. H. E. McCollum, Laramie.

Arizona January Report

Dr. John Wix Thomas, secretary of the State Board of Medical Examiners of Arizona, reports the written examination held at Phoenix, Jan. 4-5, 1916. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 9, of whom 3 passed, including 1 osteopath, and 6 failed, including 1 osteopath. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Tulane University of Louisiana	(1905)	77.4
Sai Sei Medical College*	(1892)	76.1
FAILED		
Columbian University	(1885)	40.9
Chattanooga Medical College	(1891)	58.1
Memphis Hosp. Medical College	(1892)	61.3
National School of Medicine, Mexico	(1910)	61
Nippon Medical College†	(1913)	66.7

* The name of this college does not appear in the official list of existing Japanese medical schools.

† Reported not recognized by the Japanese government.

North Dakota January Report

Dr. G. M. Williamson, secretary of the North Dakota State Board of Medical Examiners, reports the oral, practical and written examination held at Grand Forks, Jan. 4-7, 1916. The total number of subjects examined in was 13; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 10, of whom 5 passed and 5 failed. Thirteen candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Total No. Examined
PASSED		
Northwestern University	(1914)	1
Rush Medical College	(1913)	1
University of Minnesota	(1915)	1
St. Louis Coll. of Phys. and Surgs.	(1887)	1
Marquette University	(1915)	1
FAILED		
Chicago College of Med. and Surg.	(1915)	1
University of Illinois	(1914)	1
Medical College of Indiana	(1902)	1
Eclectic Medical College, Cincinnati	(1894)	1
Milwaukee Medical College	(1912)	1

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
University of Georgia	(1913)	Georgia
Hahnemann Med. Coll. and Hosp., Chicago	(1909)	Illinois
Northwestern University	(1910)	Illinois
Rush Medical College	(1895) Indiana; (1910) (1911)	Illinois
University of Illinois	(1914)	Illinois
University of Indiana	(1910)	Indiana
Kentucky University	(1904)	Louisiana
University of Minnesota	(1904) (1908) (1912) (1914)	Minnesota

Book Notices

THE AMERICAN ENCYCLOPEDIA AND DICTIONARY OF OPHTHALMOLOGY. Edited by Casey A. Wood, M.D., C.M., D.C.L., Professor of Ophthalmology, College of Medicine, University of Illinois. Volume 8—H to Institutions for the Blind. Cloth. Price, $6. Pp. 5673-6418, with illustrations. Chicago: Cleveland Press, 1916.

Having reached the article "Institutions for the Blind," this work must be more than half complete; and it is not too much to say that the expectations roused by the appearance of Volume I have been more than satisfied. A noteworthy feature, thoroughness and accuracy considered, has been the extreme rapidity of its appearance; for whereas the second edition of the Graefe-Saemisch "Handbuch der gesamten Augenheilkunde"—the only publication with which this encyclopedia is at all comparable—has been for more than twenty years in process of appearance, and is not yet complete, the work in question, though much more comprehensive than the corresponding German monograph, will be an accomplished fact, judged by present indications, within five years from the day Volume I was issued. This is a time record, surely.

Perhaps the most important article in the present volume is that by G. F. Libby of Denver, entitled "Heredity in Ophthalmology." In the compass of sixty-four pages, Dr. Libby has treated a complicated subject in a way which should make the article a classic for many years to come. Dr. Libby's article alone, with its clear and simple style, its numerous illustrations, its excellent arrangement and its close adherence to the actual needs of the practicing ophthalmologist, is well worth the price of the volume.

Interesting, useful and exhaustive articles also appear on "Injuries of the Eye," by Würdemann, on "Herpes Zoster Ophthalmicus," by Chance, and "Hospitals, Ophthalmic," by T. A. W.—probably Thomas A. Woodruff. Not least among the features of the book are the sketches and historical articles by Thomas Hall Shastid. They exhibit not only a most excellent literary style, but, as a biographic fountainhead, will continue to be a source of supply from which future historians of ophthalmology may draw material as well as inspiration.

If there be any fault it is that now and then a term and its definition have been included which do not specially belong within the province of ophthalmology, as "hematinometer" and "hypsometer," although it may be argued that a knowledge of general laboratory methods and of applied optics forms part of the equipment of the educated ophthalmologist.

The patience and literary skill of the editor and his collaborators are evident throughout the book. The editor takes the responsibility for the numerous definitions, which are practically all excellent. The unity and the coordination of part with part, which appear in every volume, are creditable to him. They make this vast work a genuine encyclopedia of ophthalmology.

DIAGNOSTIC METHODS, CHEMICAL, BACTERIOLOGICAL AND MICROSCOPICAL. A Text-Book for Students and Practitioners. By Ralph W. Webster, M.D., Ph.D., Assistant Professor of Pharmacological Therapeutics, Rush Medical College. Fifth Edition. Cloth. Price, $4.50 net. Pp. 758, with 208 illustrations. Philadelphia: P. Blakiston's Son & Co., 1916.

The fourth edition of this work appeared in 1914. While the European war has curtailed progress in scientific lines, sufficient new material has developed to warrant changes in the book. Among the additional subjects which Dr. Webster has included are Petroff's method of obtaining cultures of tubercle bacilli; the *Endameba gingivalis;* the *Bacillus rhinitis;* Wolff-Junghans' test for gastric carcinoma; Wagner's "dry test" for occult blood; the phenoltetrachlorphthalein test of hepatic activity; the urease method for urea; Folin's new method for creatinin in urine; Benedict and Murlin's method for urea; Folin's new method for creatin in urine; Benedict and Murlin's method for amino acids in urine; Folin and Denis' microchemical methods for nonprotein nitrogen, urea and uric acid in the blood; the Schick diphtheria toxin reaction; Bronfenbrenner's modification of Abderhalden's test, and tests of blood before transfusion. The book shows throughout a careful revision of each section with the object of having the book well up to date.

Miscellany

Why Every Medical Man in Michigan Should Attend the A. M. A. Meeting

The reasons why every medical man in Michigan should attend the A. M. A. meeting are many, and should be convincing. In the first place no medical man can attend these meetings without learning something. He will learn something which will be of value to him in his practice. He will go back to his constituency better prepared to practice his profession. The section meetings of the American Medical Association are thoroughly scientific and up to date and instructive. It has been my good fortune to attend medical meetings in nearly every part of the civilized world. I know of no more progressive, scientific and valuable meetings than those of the different sections of the A. M. A. In each section one will hear the latest phases of the special subject discussed by men eminently qualified to do so. The only trouble that one has in attending these meetings is that there is an embarrassment of riches. There are so many good things going on at the same time that one is at a loss to know which way to turn. He sometimes finds himself much in the situation of the fabled ass who, finding that he was equidistant from abundant food on each side, starved to death before he could decide on which way to go. The papers and the discussions in the different sections are certainly worth hearing, and possibly participating in. One may get valuable material himself and at the same time carry information to others.

Next in importance to the meetings of the sections, I would place the scientific exhibit. Here one finds that the latest devices, the most important instruments of precision, every mechanical help in diagnosis, the latest chemical studies, all so arranged that he who runs may read. If the meetings of the A. M. A. did nothing else than bring together the wonderful and valuable scientific exhibits which have marked these meetings for the past few years, it would fill an important function and would justify every medical man in attending. There you will find the latest microscopes, microtomes, optical instruments, blood testing apparatus, in short everything which the doctor uses. One cannot afford to miss these demonstrations. Even when the exhibit does not directly concern one's special line of practice, he learns much which increases his value as a physician; he becomes a better man and a better practitioner.

Closely connected with the scientific exhibit one will find the display of new books, new journals, new monographs, everything new from the press which may be of benefit to the medical man. In this way one is able to keep himself in touch with the times, and the doctor who falls behind the times is soon irretrievably lost. No one finds this out quicker than his intelligent patients. The intelligent people of a community will appreciate the doctor's going to the meeting of the A. M. A. They will think he is likely to learn something there which will make him a more capable and efficient practitioner of medicine. The commercial exhibits are also of great interest. The medical man is never able to get entirely away from the manufacturers. He will see what the manufacturers of instruments and the manufacturers of medicines are doing. Besides these, there are displays of charts illustrating the work of preventive medicine, showing how this disease and that has been reduced, what measures have been taken, how to secure better water and better air. School hygiene is usually well illustrated and from these exhibits the doctor returns to his home with much which he may utilize in the prevention of disease. While credit for this comes slowly from the public, it is coming surely. No physician in Michigan can afford to miss the scientific sections, the scientific exhibits, the exhibits in preventive medicine work, even the commercial exhibits which will be at his service at the meeting in Detroit in June.

There are many other reasons why the doctor should go to the meeting. He will meet with many friends, he will make many new friends, and from many of these he will learn more or less of value. He will see and hear men whose books and articles he has been reading for years, and in their presence he will be able to form a more just estimate of their real value. No one can live to himself alone, especially is this true of the practitioner of medicine. He cannot stand still intellectually. He either retrogrades or progresses, and in order to progress he must come in touch with the best that there is in the profession, and this he will find at the meeting of the American Medical Association.

There are still other important reasons why every medical man in Michigan should attend the A. M. A. meeting. The intelligent people in your community expect you to do so. They demand that their doctor should be up to the times, that he should be among the best, and that he should not become fossilized. I have no doubt that there are other reasons why every medical man in Michigan should attend the American Medical Association meeting, but it seems to me that any one of the above given should be sufficient. Let Michigan turn out *in toto*. Let every one of the three thousand or more physicians in the state meet with his fellows in Detroit in June and be rejuvenated, refreshed and a better doctor when he returns to his home.—V. C. VAUGHAN, SR., Editorial, *Jour. Mich. State Med. Soc.*, May, 1916.

Medicolegal

Duty of Surgeons—Reopening Wound to Recover Sponge—Relying on Count of Nurse—Restrictions on Testimony After Death of Patient

(Barnett's Administrator vs. Brand (Ky.), 177 S. W. R. 461)

The court of appeals reversed a judgment for a defendant charged with the death of a woman patient due to malpractice. The defendant had been employed to perform an operation for the removal of the ovaries. When the operation was performed, three other physicians and a competent trained nurse assisted. Toward the completion of the operation the patient collapsed, and it was found necessary to administer stimulants and resort to artificial respiration. On account of this condition, and to prevent the patient from dying on the table, the operation was concluded immediately. The affected parts were packed with drainage material, one end of which extended into the vagina. Before the incision was closed, the nurse stated that all the gauze pads had been removed. Later the defendant was informed by the nurse that one of the pads was missing. The incision was reopened and fresh drainage inserted. When the old drainage was removed, the missing gauze pad was found. There was evidence to the effect that the death of the patient resulted from the shock of the two operations, and also that the presence of the gauze pad was not the cause of her death, but that her condition was such that she would have died anyhow. The jury was instructed that it could not find the defendant negligent for leaving the sponge or pad in the body of the patient if it believed from the evidence that at the time it was the professional custom or usage among good surgeons generally, and in the community where that operation was performed, to secure the assistance of a trained and competent nurse and to intrust to her the duty of counting the sponges or pads, and to rely on the accuracy of her count. This was erroneous.

In performing an operation, it is the duty of a surgeon to exercise reasonable care and skill. The operation begins when the incision is made and ends when the opening has been closed in the proper way, after all the appliances necessary to a successful operation have been removed from the body. The removal of the sponges or pads is a part of the operation, and an operation cannot be said to be concluded until such removal takes place. The custom in question and the defendant's reliance on the nurse's count were proper circumstances to be considered by the jury, in connection with the other facts attending the operation, in determining whether or not the defendant exercised reason-

able care and skill in the performance of the operation. On being apprised that one of the pads was missing, it was the duty of the defendant to open the incision, explore for the pad, and promptly remove it, provided this could be done without endangering the life of the patient. If the condition of the patient was such that death would have ensued, notwithstanding the presence of the pad in the patient's abdomen, there should be no recovery of damages. If the condition of the patient was such that further delay in exploring for pads, or in closing the operation, would endanger the patient's safety, the defendant was not negligent in then leaving the pad or sponge in her abdomen.

It was not competent, under the provisions of the code, for the defendant to testify to statements made by the patient. Neither was it not competent for him to testify to what he saw or did in the performance of the operation. An operation performed by a physician is a transaction within the meaning of the code, which in certain cases bars the testimony of one party to a transaction, after the death of the other. The case was remanded for a new trial.

Society Proceedings

COMING MEETINGS

American Medical Association, Detroit, June 12-16.

Alpha Omega Alpha Society, Detroit, June 12.
American Academy of Medicine, Detroit, June 9-12.
American Association of Anesthetists, Detroit, June 12.
American Assn. of Genito-Urinary Surgs., Washington, D. C., May 9-10.
American Association of Path. and Bact., Washington, D. C., May 9-11.
American Climatological and Clin. Assn., Washington, D. C., May 9-11.
American Dermatological Association, Washington, D. C., May 8-10.
American Gastro-Enterological Association, Washington, D. C., May 8-9.
American Gynecological Society, Washington, D. C., May 9-11.
American Laryngological Association, Washington, D. C., May 9-11.
Amer. Laryn., Rhin. and Otol., White Sulphur Sprgs., W. Va., May 5-6.
American Neurological Association, Washington, D. C., May 8-10.
American Ophthalmological Society, Washington, D. C., May 9-11.
American Orthopedic Association, Washington, D. C., May 8-11.
American Otological Society, Washington, D. C., May 9-10.
American Pediatric Society, Washington, D. C., May 8-10.
American Proctologic Society, Detroit, June 12.
American Psychopathological Association, Washington, D. C., May 11.
American Society of Tropical Medicine, Washington, D. C., May 9-11.
American Surgical Association, Washington, D. C., May 9-11.
American Therapeutic Society, Detroit, June 9-10.
Association of American Physicians, Washington, D. C., May 9-11.
Conference of State and Prov. Boards of N. A., Washington, May 16-17.
Cong. Am. Phys. and Surgs. of No. Am., Washington, D. C., May 9-10.
Connecticut State Medical Society, Bridgeport, May 17-18.
Florida Medical Association, Arcadia, May 10-12.
Illinois State Medical Society, Champaign, May 16-18.
Iowa State Medical Society, Davenport, May 10-12.
Maine Medical Association, Portland, June 7-8.
Massachusetts Medical Society, Boston, June 6-7.
Mississippi State Medical Association, Greenville, May 9-11.
Missouri State Medical Association, Excelsior Springs, May 8-10.
National Assn. for Study and Prev. of Tuberc., Wash., D. C., May 11-12.
National Association for Study of Epilepsy, Detroit, June 16.
Nebraska State Medical Association, Omaha, May 23-25.
New Hampshire Medical Society, Concord, May 16.
New Jersey Medical Society, Spring Lake, June 20-22.
New York State Medical Society, Saratoga Springs, May 16.
North Dakota State Medical Association, Devils Lake, May 10-11.
Ohio State Medical Association, Cleveland, May 17-19.
Oklahoma State Medical Association, Oklahoma City, May 9-11.
Rhode Island Medical Society, Providence, June 1.
South Dakota State Medical Association, Aberdeen, May 23-25.
Texas State Medical Association, Galveston, May 9-11.
Western Roentgen Society, St. Louis, June 9-10.
West Virginia State Medical Association, Wheeling, May 16-18.

MEDICAL ASSOCIATION OF GEORGIA

Sixty-Seventh Annual Meeting, held at Columbus, April 19-21, 1916

The President, Dr. W. S. Goldsmith, Atlanta, in the Chair

Cancer of the Breast

Dr. L. C. Fischer, Atlanta: The Rodman operation, which I advocate, is accompanied by less shock and certainly less loss of blood. Many patients between the ages of 30 and 40 on whom I operated have not returned in from one to five years. The most rapid and violent recurrences occurring in my work, causing the death of the patient early, after recurrence, were in two schoolgirls, both mulattoes, aged 18 and 19, respectively. The pathologist reported adenocarcinoma. Both patients were dead within a year after I operated, with recurrence and multiple metastases.

DISCUSSION

Dr. H. S. Munroe, Columbus: Many cases embodied in statistics, diagnosed microscopically, and put down as curable, are not genuine carcinoma. The microscopist, like the clinician, makes mistakes.

Dr. F. W. McRae, Atlanta: Permanent results are due largely to the manner in which we handle our cases before and at the time of operation. It has been shown that in a large majority of cases not all cancer cells are removed at the time of operation.

Dr. A. H. Bunce, Atlanta: If we accept the theory that cancer develops from preexisting normal tissue and becomes cancer, there must be a stage when it is developing before it reaches the cancer stage. That is what MacCarty terms the precancerous stage of the growth. Therefore, the question of what the microscope shows is justifiable.

Dr. Willis F. Westmoreland, Atlanta: The encephaloid variety takes about one year from the time it starts until the death of the patient, while the scirrhus takes about eighteen months. A point that is overlooked frequently by excellent physicians in cases of scirrhus of the breast is that the involved breast may be smaller than the other.

Dr. J. M. Campbell, Atlanta: An operation for tumor of the breast, whether malignant or not, should never be postponed on account of pregnancy, because the growth at that time is more rapid. The circulation in the breast is much more extensive during the latter part of pregnancy, and consequently there is greater increase in the growth of cancer during this period.

Dr. Hugh Battey, Atlanta: I have seen a divergence of opinion between the clinical manifestations and the pathologic report—so great that we cannot demand of a woman who has a tumor of the breast to have the whole breast removed. As soon as the pathologist gives us accurate reports we shall get at the bottom of the cancer question.

Grave Danger of the Painless Blind Abscess: the Emetin Flash

Dr. Robin Adair, Atlanta: A blind abscess may be situated over the apex of an infected tooth. Into this sac projects the necrotic end of the tooth. Surrounding the area is the alveolar process which, from contact with the infection, has also become necrotic. This furnishes the ideal conditions for the growth of bacteria, and from here they are carried to other parts of the body by the blood. This condition must be treated surgically either by extraction and curettement or by root resection. Simple extraction of these teeth will not always eradicate the foci. The necrotic area above the abscess must receive a curettement. If several affected teeth are to be treated, one should be sure that only one at a sitting be operated on, as a reaction similar to the administration of a vaccine will occur. In regard to the treatment of pyorrhea, all well informed dentists now agree that emetin has no place in the treatment of the disease. The hemostatic action of the drug only covers up and lowers the resistance of the patient to the streptococcic invasion underneath. The United States government sent out a report of this investigation showing that the ameba could be destroyed by local and hypodermic injections, but that the disease is not eradicated but only covered up, and that no permanent, beneficial result can be expected from its use in pyorrhea.

DISCUSSION

Dr. E. C. Thrash, Atlanta: Every organism that is pathogenic and invades the mouth helps to keep up the irritation which produces Rigg's disease. It would be just as absurd to talk about curing that condition with any kind of local application as to talk about curing appendicitis by applying iodin. It is a condition that requires surgery, and emetin is only an adjunct to the treatment.

Dr. Charles L. Williams, Columbus: The Research Commission of the National Dental Association, which is under the charge of Dr. Hartzell of Minneapolis, has found that

the lesions produced in these animals by inoculation with various streptococci found in apical abscesses and pyorrhea pockets are similar to those found in human beings.

DR. GEORGE M. NILES, Atlanta: The question is often asked, Why is it that some people can have bad teeth and go on apparently in perfect health and not seem in any way to be affected by the constant stream of bacteria flowing down their throats like coal down a chute? The reason is that when there is a sufficiency of free hydrochloric acid in the stomach those germs are destroyed, and the individual is immune from any harmful results.

DR. A. L. FOWLER, Atlanta: Too much stress cannot be laid on foci of pus in the mouth, in the gums, in the teeth and in the tonsils. I have had some cases in which the kidneys were involved that would not clear up until the focus of infection in the mouth was removed.

DR. J. M. THOMAS, Griffin: I have had seven cases of neurasthenia that were attributed directly to Riggs' disease, and the condition was relieved only by extracting carious teeth and removing the sources of infection. One of these patients died.

Acute Torsion on the Ovary in Young Girls

DR. H. S. MUNROE, Columbus: I have had two cases of torsion of the ovary. There was no history of previous ovarian trouble. I believe that in each case a normal ovary and tube became twisted at their attachment to the uterus. In each case the uterus was very small and infantile in type, scarcely large enough to locate by touch. It is probable that this condition had something to do with the etiology of the trouble. Operation in both cases terminated favorably.

DISCUSSION

DR. W. W. BATTEY, Augusta: Torsion of the ovary is quite common in the early months of pregnancy. I recently operated in two cases of torsion of the tube and ovary in the fourth month of pregnancy. A mass was found on the right side of the uterus. I was suspicious that there was an enlarged tube and ovary. Operation revealed torsion of the tube and ovary with beginning gangrene of both. The tube and ovary were removed in both cases without any interference with pregnancy.

Gastro-Enterostomies Performed During the Two Extremes of Life

DR. E. C. DAVIS, Atlanta: The first patient was a man aged 72, who had suffered from a duodenal ulcer and its effects for thirty years. The second patient was a child of 6, who had suffered from some duodenal condition causing so-called pylorospasm since she was 1 year of age. Both of these cases were diagnosticated by Dr. G. M. Niles, who recognized the fact that both were mechanical obstructions and not responsive to medical treatment, and urged the necessity for operative relief. The little girl was operated on, and finding the duodenum partly obstructed by a group of glands as large as a small hickorynut, with a Wassermann, one plus, a gastro-enterostomy was done. She is able to eat heartily, and has no nausea, and but little pylorospasm. Apparently she is a vigorous little girl. The man was found to have partial obstruction at the pylorus. His stomach was markedly dilated and filled with fetid residuum. He was debilitated and weak, and able to be up only part of the day. The urine and Wassermann were negative. A rapid gastro-enterostomy was done, and after nearly a week of stormy convalescence he began to improve. Two years have now elapsed, and he is in better health than for years, eating anything he wants, riding horseback and taking other exercises.

DISCUSSION

DR. GEORGE M. NILES, Atlanta: These two cases show the importance of the internist, the gastro-enterologist and the surgeon working together in obscure cases. It is a case of "United we stand, divided we fall."

DR. C. C. HARROLD, Macon: I should like to ask Dr. Davis whether he has done any suspension work in these cases of marked ptosis of the stomach, and if so, whether he has derived any benefit from shortening the gastrohepatic omentum after the manner of Coffey? I have had two such cases, in one of which great improvement followed operation, but the other did not seem to improve at all.

DR. T. J. ROGERS, Savannah: I have had twelve cases in which the operation described was performed, and in every case, except one, the patients were completely relieved. This one patient was operated on so recently that one cannot state definitely what the result will be.

DR. E. C. DAVIS, Atlanta: Concerning ptosis and splanchnoptosis, many of the viscera are out of place, as well as the stomach, so that operative interference has not been very satisfactory in cases of that kind. A few of them are relieved, but I have reference particularly to those cases in which gastro-enterostomy immediately relieved the condition for which I operated rather than corrected the tendency to ptosis.

Volkmann's Contracture

DR. C. C. HARROLD, Macon: These cases can in the vast majority of instances be prevented by not having bandages too tight, and by removing or loosening dressings, as soon as the patient complains of pain. It is always dangerous to put on a circular plaster-of-Paris cast in any fracture until after the original swelling has subsided, and better not at all. After these cases have resulted, they are not hopeless. If properly and patiently treated, the patients can be improved greatly and a large percentage of them cured, instead of being left miserable cripples. The sooner treatment is instituted the better.

Removal of Foreign Bodies from the Globe by the Electromagnet

DR. F. P. CALHOUN, Atlanta: In the management of magnetizable bodies of the globe two important facts should be borne in mind: 1. Immediate treatment. That is, the body should be removed as soon as possible, for in this way many eyes can be saved from sepsis, and the body is more easily removed than after it has become embedded in blood clots or new-formed tissue. 2. The localization of the body. If it is possible, the surgeon's eye can best and easiest localize the body if it is in the anterior segment, or with the ophthalmoscope if in the posterior segment, unless the lens has been penetrated or the vitreous chamber is filled with blood. If this method fails or is unsatisfactory, then an accurate localization of the body on paper should be made by an expert radiologist. In any event a roentgenogram showing a foreign body is positive evidence of its presence, yet a negative picture does not positively mean an absence, as the fragment may be too small to show on the plate.

Diseased Conditions of Salivary Glands and Ducts

DR. DUNBAR ROY, Atlanta: Chronic conditions of the submaxillary salivary glands usually manifest themselves by the obstruction of their ducts. The latter may be due to the presence of salivary calculi or from chronic thickening of the mucous membrane lining the duct. If this obstruction continues for any length of time, there is formed a submaxillary cyst which is called a ranula. The latter varies in size from a small swelling to such large proportions that it can be seen bulging below the chin. These ranulas may be confined to one side, but usually involve the whole floor of the mouth beneath the tongue. The ranula does not produce pain but only the discomfort of its presence. The larger it is, the more discomfort it produces. The treatment of this condition varies according to its size and cause. A salivary calculus in the duct can be removed, and in this way free drainage is instituted. Strictured ducts are dilated with probes. When the ranula has existed for some time, and is large, nothing short of destruction of the sac or production of a permanent fistula will suffice for a cure.

The method of Dr. G. V. L. Brown is in many cases quite satisfactory in its final results. It consists in making a permanent fistula by running a silver wire through the sac, clamping it with a lead shot and leaving it in for months. The procedure can be done under cocain, is not painful, and the wire produces practically no discomfort. My own method is as follows: Under cocain I open the ranula sac thoroughly and empty it. I wipe out the cavity with normal saline, and then scour thoroughly the whole inside of the sac with trichloracetic acid. The results are excellent.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Roentgenology, New York

March III, No. 3, pp. 123-190

1 *Fluoroscopic Bronchoscopy. G. W. Grier, Pittsburgh.
2 *Roentgenographic Diagnosis of Metastatic Pulmonary Malignancy; Report of Cases. A. B. Moore and R. D. Carman, Rochester, Minn.
3 *Roentgen Diagnosis of Pulmonary Tuberculosis. K. Dunham, Cincinnati.
4 *Roentgen Symptomatology of Pulmonary Tuberculosis. F. S. Bissell, Minneapolis.
5 Diaphragming Roentgen Rays. H. E. Potter, Chicago.

1. Abstracted in The Journal, Oct. 30, 1915, p. 1581.

2, 3 and 4. Abstracted in The Journal, Oct. 30, 1915, p. 1580.

Archives of Diagnosis, New York

January, IX, No. 1, pp. 1-90

6 Comparison of "Drop" Percussion with Methods Now in Use and Orthodiagraphy. O. Lerch, New Orleans.
7 Two Varieties of Palpatory Percussion. E. E. Cornwall, Brooklyn.
8 Significance of Tongue in Diagnosis of Diseases of the Stomach. D. Vander Hoof, Richmond, Va.
9 Roentgenology of Digestive Tract. S. Basch, New York.
10 Diagnosis of Abnormalities of Myocardial Function. T. S. Hart, New York.
11 Diagnostic Elements of Pontocerebellar Tumors. A. Gordon, Philadelphia.
12 Glioma of Eye with Rapid Recurrence After Enucleation. A. Nettle, New York.

Boston Medical and Surgical Journal

April 20, CLXXIV, No. 16, pp. 555-590

13 *Preventable Forms of Mental Disease and How to Prevent Them. E. S. Abbot, Waverley.
14 Pellagra; Review with Report of Case. C. A. Howland, Fall River.
15 Acid Autointoxication in Infancy and Childhood; Report of Cases. J. L. Morse, Boston.
16 Frequency of Epilepsy in Offspring of Epileptics. D. A. Thom, Palmer.
17 False Aneurysm of Brachial Artery. D. P. Penhallow, Boston.

13. **Preventable Forms of Mental Disease.**—Among the diseases mentioned by Abbot are feeblemindedness; dementia praecox; manic-depressive psychoses; psychoses due to destructive diseases of the brain; toxic psychoses and a more or less heterogeneous group. For each group he discusses the causes or theories as to cause and then points out how preventive measures may be applied effectively. Feeblemindedness in the parents, he says, is the chief cause of feeblemindedness in the child. To prevent it in children, matings of defective persons must be prevented. The best and most effective prevention is segregation in schools and colonies for the feebleminded, especially of the moron girls and women during the period when they are capable of bearing children. He is of the opinion that an indefinite number of persons may be prevented from developing dementia praecox, if they can be taught in childhood and youth to adopt more healthy attitudes toward life. Parents and teachers should begin at the first appearance of "queer" traits, perhaps even, as early as infancy, and continue till adult life, to make unremitting, tactful and sympathetic efforts to get into the little mind, to understand its point of view, to suggest happier and healthier ones, to lead the child to more objective and so more healthful contacts and interests, to teach more practical substitutions and aims, better ways of reacting and better attitudes towards persons and life.

The manic-depressive psychoses suggest to Abbot fatigue psychoses, and he treats them on that basis. If the conditions which cause the fatigue persist, the symptoms grow worse and develop into the depressions, the excitements, or the stuporous and sometimes delirious and delusional states of the manic-depressive psychoses. Perhaps, Abbot says, a half, possibly more, of the manic-depressive psychoses might be prevented if every one, especially those who tire easily, and those who have already had one breakdown, would take pains to learn what things cause fatigue; if they would recognize early what symptoms mean fatigue; if they would realize that persistence in the fatiguing conditions and conduct may mean a breakdown; if they would recognize that the cure of fatigue is rest and food, not more or different activity; and if the tired person would not think himself an exception to the general rule, but would apply to his own case the principles that he can see would apply to any one else. Besides this, if each person would realize that his endurance is limited, would find its limits, and would keep within them, far fewer manic-depressive patients would be admitted to hospitals, and there would be far less "nervous prostration."

Organic brain disease and the toxic psychoses, especially the alcoholic, are also discussed. By far the most important part of the toxic group, Abbot states, is alcoholic insanity—a wholly preventable psychosis, for no one would have it if he did not drink. Fully twelve and one-half per cent., one-eighth of all admissions to the hospitals for the insane, are due directly to this cause; and in an indefinite number of other psychoses the use of alcohol is an important contributing factor. Abbot emphasizes that movements which seek to educate the public as to the exact facts, without prejudice, exaggeration or sentiment, are the best. For an intelligent and educated public sentiment will back up restrictive measures which aim at wholesale protection against the evils of alcoholism, by rigidly restricting the sale of that which causes them. Abbot believes that if every one knew what the effects of alcohol really are, its internal use would be almost limited to the prescription of physicians.

Bulletin of Medical and Chirurgical Faculty of Maryland

April, VIII, No. 10, pp. 173-191

18 Inguinal Hernia from Medicolegal Aspect. R. W. Locher, Grafton, W. Va.

Cleveland Medical Journal

March, XV, No. 3, pp. 157-214

19 Necessity for Better Study by Medical Profession of Diseases in Their Relation to Occupation. J. W. Schereschewsky, Washington.
20 Eye Function and Light. P. W. Cobb, Cleveland.
21 Result of Closing Segregated Vice District on Public Health of Cleveland. A. R. Warner, Cleveland.
22 Case of Nicotin Poisoning. H. Feil, Cleveland.

Illinois Medical Journal, Chicago

March, XXIX, No. 3, pp. 161-240

23 Surgical Problems Considered from Standpoint of Morbidity. E. H. Ochsner, Chicago.
24 Health Legislation in Last Session of Illinois Legislature. W. F. Burres, Urbana.
25 Some Forms of Renal Infection. F. Kreissl, Chicago.
26 Conservation of Life in Prostatic. J. S. Nagel, Chicago.
27 Observations on Epilepsy. E. F. Leonard, Chicago.
28 Dementia Praecox Studies. B. Holmes and J. Retinger, Chicago.
29 Alcohol in Its Relation to Insanity in Male Sex. C. C. Ellis, Chicago.
30 Bacteriology of Present So-Called Grip Epidemic. A. Gehrmann, Chicago.
31 Hydrotherapy in Cardiovascular Disorders. J. H. Kellogg, Battle Creek, Mich.
32 How Much Better Can We Treat Venereal Diseases Than We Did Twenty Years Ago? A. E. Mowry, Chicago.
33 Surgery and Syphilis. J. H. Carstens, Detroit.
34 Micro-Organic Weight. A. J. Hinkelmann, Galesburg.
35 Proteid Nutrition: Old and Modern Schools. M. Sahud, Chicago.
36 Indications for Cholecystectomy and Cholecystostomy. C. U. Collins, Peoria.

Medical Record, New York

April 8, LXXXIX, No. 15, pp. 631-676

37 Affective Physiology. G. V. N. Dearborn, Cambridge, Mass.
38 Phenomena Resultant on Fatigue and Shock of Central Nervous System Observed at Front in France. E. M. Auer, Philadelphia.
39 Acetonuria in Relation to Contagious Diseases. S. H. Blodgett, Boston.
40 Acute Surgical Abdomen. T. F. Lancer, New York.
41 Case of Sarcoma of Ovary Complicating Puerperium. G. L. Brodhead, New York.

April 22, No. 17, pp. 719-764

42 *Simple Method of Shortening Round Ligaments of Uterus for Cure of Retroversion. J. H. Kellogg, Battle Creek, Mich.

43 Esophageal Obstruction with Special Reference to Cicatricial Stenosis Diverticulum, and Foreign Bodies. E. W. Peterson, New York.
44 Autoserum in Treatment of Cancer; Report of Case. O. Paget, Freemantle, Australia.
45 Value of Modern Aids in Surgical Diagnosis. J. T. Howell, Newburgh.
46 Erysipelas Migrans and Multiple Abscesses in Six Months' Old Infant Successfully Treated With Vaccines. L. Fischer, New York.
47 Cerebral Syphilis of Recent Origin; Remarks on Therapy; Report of Cases. M. J. Karpas, New York.
48 Plan for Care of Insured Under Proposed Health Insurance Law. A. C. Burnham, New York.
49 Uniform Method for Collection of Spinal Fluid into Test Tubes. A. Levinson, Chicago.

42. **Shortening Round Ligaments of Uterus for Cure of Retroversion.**—Kellogg describes the operation which he has done for more than twenty-seven years. The method has been employed by him in more than 1,600 cases. The essential features were described several years ago, but important modifications have been made in recent years. The method consists in a blunt hook dissection of the round ligament bringing it through the roof of the inguinal canal without opening the abdomen suturing the base of the loop to the aponeurosis of the internal oblique, then draining the free end of the loop under this aponeurosis and out again so that recurrence of the prolapse is impossible. The ligament is not injured and no mutilation of any sort occurs. The small and superficial incision and the short time occupied by the operation give no occasion for shock. The operation does not give rise to complications in pregnancy as do some other methods. Scores of patients on whom Kellogg has operated have afterward become pregnant and in not a single instance has he known the operation to be responsible for miscarriage or any other complication. Patients sometimes complain of a slight drawing on either side during the early stages of pregnancy, but this symptom soon disappears. The results, when the cases are properly selected, are said to be better than those obtained from other methods. The proportion of failures within the last fifteen years has been less than 1 per cent.

New Jersey Medical Society Journal, Orange

April, XIII, No. 4, pp. 157-208

50 How Can We Detect Slight Enlargement of Heart? G. C. Shattuck, Boston.
51 Treatment of Fractures with Comparison of Open Methods. G. H. Sexsmith, Bayonne.
52 Abuse of Pituitary Extract. N. G. Price, Newark.
53 Midwife Problem—Past, Present and Future. S. Husserl, Newark.
54 External Signs of Syphilis of Eye. B. M. Howley, New Brunswick.
55 Exophthalmic Goiter. J. C. McCoy, Paterson.

New York Medical Journal

April 22, CIII, No. 17, pp. 769-816

56 Orthodontia and General Physical Health. B. W. Weinberger, New York.
57 Obstruction of Pylorus in Infants; Report of Cases. E. M. Sill, New York.
58 Intravenous Serobacterin Therapeutics. W. E. Robertson, Philadelphia.
59 Case of Diphtheritic Paralysis Complicated by Pneumococcic Meningitis; Recovery. H. B. Mills and J. A. Mendelson, Philadelphia.
60 *Immobility of Diaphragm Following Pleural Exudates. J. H. Pryor, Buffalo.
61 Case of Ischiorectal Abscess from Fish Bone. J. F. Saphir, New York.
62 Carcinoma Metastasis. G. McConnell, Waterloo, Iowa.
63 Causes of Right-Sided Abdominal Pain. S. Floersheim, New York.
64 Gonorrheal Infection of Urethral Glands. A. Lefort, Roistel, France.
65 Quinin and Urea Injections in Hyperthyroidism. L. F. Watson, Oklahoma City.
66 Medical Questions in Pennsylvania Compensation Act. (To be continued.) H. A. Mackey, Philadelphia.

60. **Immobility of Diaphragm Following Pleural Exudates.**—Eighty-three patients have been examined by Pryor. Of these, sixty-five were over 15 years of age at the time of attack and on the date of examination. Eighteen were children whose age varied from 2½ to 11 years. Of the whole number, forty-seven gave a history of having suffered from empyema, sixteen from pleurisy with effusion, and twenty from pleurisy with effusion associated with pulmonary tuberculosis. The results of careful observation in the entire group were as follows: In fifteen instances the comparative movement of the diaphragm on the affected side was normal, in seventeen the excursion was more or less restricted, and in fifty-three one half of the diaphragm was completely immobile. About one out of five recovered with function unimpaired, approximately the same proportion revealed disordered or limited action, and in one of each 1.6 instance, or about 63 per cent., all motion was lost.

Pennsylvania Medical Journal, Athens

March, XIX, No. 6, pp. 399-482

67 Pennsylvania Workmen's Compensation Legislation: How It Affects Physician, Surgeon and Hospital. W. A. Schnader, Philadelphia.
68 *Case of Cholesteatoma of Spinal Cord. W. E. Robertson and S. D. Ingham, Philadelphia.
69 *Surgical Treatment of Ascites by Direct Drainage; Report of Five Cases. R. T. Miller, Pittsburgh.
70 *Surgical Treatment for Absent Vagina. E. E. Montgomery, Philadelphia.
71 *High Frequency Destruction Treatment of Tumors of Bladder. A. A. Uhle and W. H. Mackinney, Philadelphia.
72 *Bacteriology and Treatment of Puerperal Infection and Septic Abortion. J. M. Fisher, Philadelphia.
73 *Morbidity and Mortality from Certain Communicable Diseases of Childhood as Influenced by Public Health Control. B. F. Royer, Harrisburg.
74 Syphilis of Ear. S. M. Smith, Philadelphia.
75 Visual Disturbances Occurring in Pregnancy. G. E. Curry, Pittsburgh.
76 Perisinuous Abscess and Sinus Thrombosis. H. M. Becker, Sunbury.
77 Radium in Military Surgery. W. H. Cameron, Pittsburgh.

68. Abstracted in THE JOURNAL, Oct. 23, 1915, p. 1484.

69 and 71. Abstracted in THE JOURNAL, Oct. 16, 1915, pp. 1400 and 1401.

70 and 72. Abstracted in THE JOURNAL, Oct. 23, 1915, pp. 1482 and 1483.

73. Abstracted in THE JOURNAL, Oct. 30, 1915, p. 1578.

Vermont Medicine, Rutland

February, I, No. 2, pp. 29-60

78 Biliary Tract. E. H. Ross, St. Johnsbury.
79 Infantile Paralysis in Vermont. R. W. Lovett and E. G. Martin, Boston.

March, No. 3, pp. 61-92

80 New Concept of Diseases Having Emotional Elements. W. B. Cannon, Boston.
81 First Aid to Uninjured. E. J. Melville, St. Albans.

Wisconsin Medical Journal, Milwaukee

April, XIV, No. 11, pp. 453-486

82 Schick Test in Milwaukee Health Department Work. L. Schiller, Milwaukee.
83 Nondiabetic Acetonemia. M. R. Wilkinson, Oconomowoc.
84 Some Acute Abdominal Emergencies. D. R. Connell, Beloit.
85 Focal Infections and Their Relation to Diabetes. H. P. Greeley, Waukesha.
86 Work of Robert Barany on Semicircular Apparatus of Ear and Cerebellar Localization as Diagnostic Key to Different Intracranial Conditions. F. Pfister, Milwaukee.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Tuberculosis, London

April, X, No. 2, pp. 51-110

1 Crippled Tuberculous Children: H. J. Gauvain.
2 Infection in Tuberculosis. T. Shennan.
3 *Examination of Contacts at Tuberculosis Dispensary. N. Robertson.
4 Bedroom of Consumptive. G. Jessel.

3. **Examination of Contacts.**—Robertson insists that a tuberculosis dispensary should be a place for the continued observation of contacts. The examination of contacts should therefore be very complete and thorough. A contact in perfect health, unless asked, will rarely volunteer the informa-

tion that he or she has had a hemoptysis or pleurisy years ago. The local dulness, retraction, or bronchial breathing found on examination of the chest will be explained and regarded as a possible lurking source of future trouble, and requiring watching from time to time. First, careful history-taking is essential. Second, careful questioning as to present symptoms, however slight, must be insisted on. third, careful physical examination must be made. If dubious signs are noted, the other more laborious tests may have to be applied. Frequent observation requires the keeping of records of all contact cases very accurately. Out of 464 contacts examined, 40 per cent. gave doubtful physical signs of active pulmonary tuberculosis, 13 per cent. positive physical signs. Of these 7 per cent. were positive at first visit, and 6 per cent. doubtful became positive. Forty per cent. gave negative physical signs, and 5 per cent. having doubtful physical signs became negative. All together, 51 per cent. had, therefore, doubtful physical signs of active pulmonary tuberculosis in the total 464 contacts.

British Medical Journal, London

March 25, I, No. 2882, pp. 437-472

5 Case of Bilateral Motor Apraxia (Traumatic) With Disturbance of Visual Orientation. S. Smith and G. Holmes.
6 Mental Conditions Following Strain and Nerve Shock. R. G. Rows.
7 *Mental Symptoms Complicating Case of Acute Tetanus During Treatment by Phenol Injections. J. Everidge.
8 Case of Acute Gangrenous Cholecystitis With Spreading Peritonitis. J. Morley, F. B. Smith and W. Campbell.
9 *Removal of Intracranial Foreign Body Under Roentgen Rays. J. R. Lee.
10 Paracholera. A. Castellani.
11 *Case of Chronic Nontuberculous Peritonitis in Child. C. Worster-Drought.

April 1, No. 2883, pp. 473-508

12 Toxicology of Salvarsan. W. H. Willcox and J. Webster.
13 *Case of Gas Gangrene Exhibiting Unusual Proofs of Blood Infection. G. T. Mullally and J. W. McNee.
14 Amputations at Base Hospitals in France. C. G. Watson.
15 After-Treatment of Amputation Stumps. C. W. G. Bryan.
16 Treating Gunshot Fractures by External Fixation Apparatus. B. S. Simmonds.
17 *Dysenteric Arthritis. T. G. Moorhead.
18 *Preliminary Note on Disease of the Gold Coast Called "Bungpagga." C. R. Patton.
19 *Observation in Pernicious Anemia. O. Leyton.

7. **Mental Symptoms Complicating Acute Tetanus During Treatment by Phenol Injections.**—In the case cited by Everidge the convulsions were controlled by chloral and bromid. Whenever he was allowed to come round at all the spasms became intense. As the spasms became less severe, he was treated less energetically with hypnotics. The mental condition now began to show a marked change. He became extremely restless and passed into a state of low, muttering delirium, with visions and hallucinations—a condition closely resembling delirium tremens. From time to time he attempted to get out of bed, and had to be forcibly restrained. This lasted for five days, during which time he had incontinence of urine and feces. Chloral and bromid, which had previously quieted him, had now no effect. After four four-hourly doses of half a dram of paraldehyd, however, he settled down into a quiet sleep. After nine days the mental condition appeared normal, but on the tenth day there was a bad relapse. This lasted acutely for three days, but it was not until ten days later that the mental state again became normal.

9. **Intracranial Foreign Body Removed Under Roentgen Rays.**—In Lee's case a piece of shell was located in the occipital lobe by means of the Roentgen rays and removed with the electromagnet.

11. **Chronic Nontuberculous Peritonitis.** — Worster-Drought's patient was only 4½ years of age; he had suffered from no previous illnesses excepting measles. As a baby he had been fed on cow's milk. The history of the beginning of his illness was indefinite. For about four months he had complained of pain in the "stomach" and occasionally vomited after food; there was no diarrhea. The abdomen during this period had become larger and larger and loss of flesh had been considerable. There was no suggestion of injury. The chest, face and limbs were very emaciated; the abdomen was large and prominent. The heart and lungs appeared quite normal; pulse 90, respirations 28, temperature 98.8. A large amount of ascitic fluid was present; there was no pain even on firm pressure. The condition was diagnosed as tuberculous peritonitis. Von Pirquet positive. The temperature suddenly went up to 100 and a purpuric rash appeared over the chest and arms. A few hours later the boy became comatose and died the next morning. The necropsy afforded no evidence of tuberculosis. In the abdomen was a fairly large quantity of fluid and numerous adhesions; the visceral and parietal peritoneum was enormously thickened. No enlarged glands were found either in the abdomen, mediastinum, or neck; there was no sign of tuberculous ulceration of the intestine. The heart and lungs were normal, but the stomach wall was very thick. The spleen was soft and not enlarged; the liver indicated chronic congestion; the kidneys, brain and meninges were normal.

13. **Gas Gangrene Exhibiting Proofs of Blood Infection.**—A soldier was wounded by a bullet which entered the right arm, fracturing the humerus. Gas gangrene developed in this wound two and a half days after the injury. As the man passed through a field ambulance he received the usual antitetanic injection below the left nipple, and was thereafter evacuated at once to a casualty clearing station. The next day he complained of pain at the site of the serum inoculation, and within twenty-four hours a definite patch of gas gangrene had appeared there. The day after admission to the casualty clearing station, a hypodermic injection of pituitary extract was made into the left forearm to combat collapse. Two days later the site of this puncture showed also an area of gas gangrene. From these three places (right arm, left pectoral region and left forearm) and also from the blood the same type of gas forming organism was isolated by the authors by cultures. This organism was of the "malignant edema" type, most of the bacilli showing central spores. The arm was amputated and the man made a good recovery.

17. **Dysenteric Arthritis.**—Moorhead urges that in all cases of arthritis occurring in troops a history of dysentery should be inquired for, and, if such a history is obtained, a course of emetin should at once be ordered. In his experience of six recent cases emetin clears up the arthritis most rapidly after other treatment failed. In four out of the six cases there was definite proof that amebic dysentery had been present, either by the finding of amebae in the stools at the time the arthritis was present, or owing to the fact that the patient had been previously treated in this hospital for amebic dysentery, and that amebae had been found at the time of this treatment. In two cases the history of dysentery while at the peninsula was quite definite, but Moorhead had no means of determining whether the dysentery had been of the amebic or bacillary variety. One of these cases—a bad one—was given both serum and emetin; the other was treated by emetin alone, and both rapidly recovered.

18. **Disease of the Gold Coast Called "Bungpagga."**—This appears to be a micro-organismal infection which produces a neurotoxic effect as well as a local reaction. In every pus slide examined by Patton he found a heavy infection of saccharomyces. Cultures showed a true fungus growth. Patton is of the opinion that grain becomes infected in the bin, the people eat the grain raw, and being usually constipated, their intestines are secondary incubators. The yeast cells are probably absorbed from the intestine somewhat in the same way as fat is by migratory leukocytes, and hence into the general circulation. The definite incubation period appears to be three days, during which there is malaise, headache, a sense of fatigue, anorexia, intense thirst and constipation. The onset is sudden; rigors may usher in the attack. The temperature rises rapidly to 103 or so. There is extreme tenderness in the muscles. Within twelve hours painful tumors make their appearance in the affected muscles; the abscesses seem always to occur near their insertions. There may be only one nodule, or a crop. In some cases the distribution is bilaterally symmetrical. The

tumors are deep seated; they are hard, nonfluctuating, very painful, with their long axes either in or parallel to the long axes of the muscles affected. They do not correspond to lymphatic glands. Each tumor is about the size of an hen's egg. They are at first hard and firm, and are easily visible and palpable; later on, if the patient survives they become slightly soft, but never flabby. Usually, in mild cases, the abscesses point after some weeks, and burst if unopened. As a rule, the fewer the nodules the better the prognosis. If the patient survives the acute stage he stands a good chance of recovery. The deaths usually occur within the first week, the third and sixth days seeming to be the most critical. Even during convalescence (for two months or more) the patient exhibits an occasional febrile reaction.

19. **Pernicious Anemia.**—Leyton transferred some blood from a patient suffering from erythema to a patient who had pernicious anemia, and at the same time injected into the erythremic patient some blood from the case of pernicious anemia. After a small quantity, 2 ounces of blood had been injected into the man suffering from pernicious anemia, he grew paler; he complained of nausea and faintness, and the injection was immediately stopped. He then became slightly flushed in the face, and made grimaces as if he were undergoing pain. On being asked, he stated that he had pain all over him, something like cramp, quite severe; this lasted for a minute and then disappeared and he was soon quite comfortable. Examination of the blood a week later showed that the red cells had risen from 600,000 to 1,050,000, and the hemoglobin percentage from 10 to 20. Five weeks later Leyton transferred 8 ounces of blood. The symptoms produced were similar to those produced on the former occasion, but much more severe. The patient vomited for close on half an hour, and for a time gave rise to some anxiety due to the strain thrown on his heart. The after-effects were not satisfactory, neither the number of red cells nor the quantity of hemoglobin being increased to any large extent.

Lancet, London

April 1, I, No. 4831, pp. 711-758

20 Gunshot Wounds and Injuries of Spinal Cord; Report of Cases. J. Collier.
21 Dissociation of Cutaneous Sensations in Injuries to Peripheral Nerves. D. E. Core.
22 Gunshot Injuries of Peripheral Nerves; Syndrome of Compression; Report of Cases. J. S. B. Stopford.
23 Investigations of Strains of Tubercle Bacilli Derived From Sputum. A. S. Griffith.
24 Pain in Renal and Vesical Lesions. (To be continued.) D. Newman.
25 Simple Percentage Chloroform Inhaler. C. T. W. Hirsch.
26 Case of Eclampsia With Triplets, Two of Children Being United. R. Jardine.
27 Case of Full Term Extra-Uterine Pregnancy; Operation. J. F. Devane.
28 Food Economics in Relation to War. H. Campbell.

Archives des Maladies du Cœur, etc., Paris

March, IX, No. 3, pp. 93-140

29 *Cardiovascular Symptoms and Complications of Paratyphoid Fever. J. Carles and R. Marcland.
30 *Obstruction of the Mesenteric Vessels. (De l'obstruction des vaisseaux mésentériques.) E. Pallasse.

29. **Cardiovascular Symptoms in Paratyphoid Fever.**—Carles and Marcland have made a special study of the behavior of the pulse, blood pressure and cardiovascular system in general during paratyphoid infection. The pulse does not parallel the temperature but keeps low in the milder cases. When it was not above 80 during the first few days, the disease lasted only sixteen days on an average. The duration was over twenty-five days in 30 per cent. of the cases with a pulse of 85; in 50 per cent. with 90 pulse, and in 60 per cent. with pulse of 100. The pulse is thus an important element in the prognosis; none of the men died with pulse under 100. This slow pulse differentiates paratyphoid from typhoid, and any change from this comparatively slow type warns of complicating trouble. The arterial tension is less characteristic, but it throws light on the way the heart is behaving. Pericarditis, myocarditis and endocarditis were rather frequent in the paratyphoid cases, and entailed collapse and sudden death in some instances. The heart must therefore be watched over with special care during paratyphoid, and assistance be given it at the slightest sign of its weakening. Arteritis is very rare; phlebitis is more common but has no characteristic features.

30. **Obstruction of Mesenteric Vessels.**—Pallasse states that there are about 373 cases on record of obstruction of mesenteric vessels, of the veins in 41 per cent., arteries in 53, and both in 6 per cent. of the total cases. The condition was diagnosed correctly in only 13 cases, and operative treatment, applied in 69 cases, saved only 25 of the patients, that is, 36.2 per cent. Left to itself the outcome is nearly always fatal although cases are known of spontaneous recovery. Resection of the stretch of intestine involved was the usual intervention.

Lyon Médical, Lyons

March, CXXV, No. 3, pp. 65-104

31 Organization of the Army Medical Department in the Present War. (Les formations sanitaires dans la guerre actuelle.) Jullien.
32 *Perforating Gastric Ulcer. (Ulcères pénétrants de la petite courbure de l'estomac et leur thérapeutique.) Guilleminet and Guérin.
33 The Crossed-Leg Sign of Abnormally High Blood Pressure. (Le signe de la "jambe croisée" dans l'hypertension artérielle.) Molle.

32. **Perforating Gastric Ulcers.**—The surgeons of Lyons are particularly in favor of annular pylorogastrectomy for ulcers in the lesser curvature, even when there are adhesions to other organs. These ulcers are distinguished by the tendency to bore deep and to pull the stomach out of shape. In the latest two cases, here reported, the stomach had been drawn into a symmetrical hour-glass shape and the pancreas, closely adherent, formed the floor of the perforated ulcer. The debility was so extreme that the resection and anastomosis were done at two sittings, but they were borne so perfectly that they might have been combined in a single operation. The ultimate outcome in cases of this kind after pylorogastrectomy or mediogastric resection has been most excellent, in their experience, there being no return of trouble in any instance.

Paris Médical

March 25, VI, No. 13, pp. 305-320

34 *Diagnosis and Prognosis of Paratyphoid Infection. (Etude comparative des fièvres paratyphoïdes et de la fièvre typhoïde.) L. Rimbaud.
35 Necessity for Special Services for Digestive, Infectious and Respiratory Affections. (La spécialisation nécessaire des services par appareils.) G. Rosenthal.
36 Intracranial Hemorrhage. (Ictus apoplectique.) Faivre.

34. **Paratyphoid.**—Rimbaud applied bacteriologic tests to the blood in 730 cases of apparent typhoid and obtained a positive result in 355 cases, including 163 with typhoid, 138 with paratyphoid A and 54 with paratyphoid B bacilli. The paratyphoid cases were incomparably milder than the true typhoid; complications were rare and mild. There was perforation of the bowel in only one of the 192 paratyphoid cases; but phlebitis developed in 3 cases. In his experience the heart was practically never involved and the course of the disease was brief. The mortality in the 163 typhoid cases was 27.6 per cent. and 4.6 per cent. in the paratyphoid cases. Sero-agglutination is instructive, but cultivation of the bacilli from the blood is the only means for exact differentiation. Convalescence is very slow; an attack of paratyphoid incapacitates a man for military service for three months at least.

Presse Médicale, Paris

March 23, XXIV, No. 17, pp. 129-136

37 Sinusitis From War Wounds. (Les sinusites de la face par projectiles de guerre.) Guisez and Oudot.
38 Laceration of the Lung From Explosion Near By. (Les traumatismes indirects du poumon déterminés par l'éclatement à proximité des gros projectiles de guerre.) L. Binet.

Berliner klinische Wochenschrift

March 27, LIII, No. 13, pp. 329-356

39 Calories and Bulk of Hospital Menu. (Ueber die Ernährung im Lazarettbezirk Breslau.) G. Rosenfeld.

40 *Perforation of Uterus With Prolapse of Intestine. (Uterusperforation mit Darmvorfall.) F. Heimann.
41 *Early Diagnosis of Progressive Paralysis. A. Piotrowski.
42 Improved Technic for Roentgen Work. (Die Röntgenstrahlenerzeugung in der neuen gasfreien Röhre und Spezialapparate zu ihrem Betriebe für Diagnostik und Therapie.) K. Lasser. Concluded.
43 Emergency Glasses to Combine Close and Distant Vision. (Zeitweisser Ersatz von Gläsern mit gemischtem Schliff durch Brille mit Vorhänger.) H. Bergemann.
44 *Medicolegal Decisions. (Aerztliche Rechtsfragen.) H. Lieske.

40. **Perforation of Uterus After Abortion.**—In the case described by Heimann, Winter's abortion forceps were used to extract fragments of placenta left after an abortion of three months, as they could not be reached with the finger. When drawn out it was found that the forceps had seized a loop of intestine. The woman was removed to the hospital and the loop resected through a laparotomy and the uterus sutured. Smooth recovery followed, showing that the wisest course had been pursued, there being no infection at the moment.

41. **Early Diagnosis of Progressive Paralysis.**—Piotrowski reports two cases in which, as in Nonne's case in 1914, the diagnosis of progressive paralysis was based exclusively on the serologic findings in the cerebrospinal fluid. In one case neurasthenia with a tendency to depression, with a history of syphilitic infection eleven years before, was revealed as incipient progressive paralysis by the Wassermann reaction in blood and fluid and the lymphocytosis and positive Nonne reaction in the fluid. The diagnosis was confirmed by necropsy after suicide. In another case the fluid alone gave a positive Wassermann reaction but this was enough to relieve the man of criminal responsibility for a misdemeanor although there was no history of syphilis and the blood did not respond to the Wassermann test. The man had been under treatment for nephritis, gastric catarrh, neurasthenia and hystero-hypochondria. The further course of the case confirmed the diagnosis based on the Wassermann reaction in the fluid. In the third case nothing could be found to explain the man's complaints—which were ascribed to neurasthenia and hypochondria—until the Wassermann reaction was found positive in the cerebrospinal fluid. Vigorous treatment for syphilis was at once instituted, and the condition has remained stationary. There can be no doubt that there is incipient progressive paralysis in this case also, although to date this assumption has not been confirmed by a progressive course or by necropsy as was possible in the other cases.

44. **Medicolegal Questions.**—Lieske relates a number of recent court decisions affecting physicians. One suit that has attracted attention was brought by an accident insurance company against a woman "professional bone-setter" who had treated a fractured femur for a farmer in a most unscientific manner. The company paid the farmer his weekly accident allowance for the usual period but he was then still 75 per cent. incapacitated instead of the 50 per cent. expectancy disability. The insurance company then sued the woman bone-setter for damages and won the suit.

Jahrbuch für Kinderheilkunde, Berlin

December, 1915, LXXXII, No. 6, pp. 435-510

45 *Treatment of Rachitis. VIII. E. Schloss. To be concluded.
46 *Pyelocystitis in Infants. (Ueber den Weg der Infektion bei der Pyelocystitis der Säuglinge.) G. J. Huet (Gravenhage).
47 *Sensory Disturbances in Paralysis After Diphtheria. (Sensible Störungen bei postdiphtheritischen Lähmungen.) Z. Barabas.

45. **Rachitis.**—In this eighth instalment of his long report of his comprehensive research on fourteen infants, Schloss tabulates the findings under new headings to show the influence of breast feeding, of albumin milk, and of fat milk, in connection with calcium and cod liver oil. The new classification affords better insight into the conditions. The concluding instalment is to follow, but he already emphasizes here that no benefit from the addition of phosphorus to the cod liver oil was ever apparent. Hence he has dropped phosphorus from the treatment of rachitis. Neither calcium alone nor cod liver oil alone displayed any special efficacy, but the combination of the two, with breast milk, gave the most favorable results both during the treatment and after its suspension. The calcium in the form of dicalcium phosphate or tricalcium phosphate seemed to give the maximum effect.

46. **Pyelocystitis in Infants.**—Already summarized in these columns, March 25, 1916, p. 993.

47. **Sensory Disturbances with Postdiphtheric Paralysis.**—In eight of sixteen children with postdiphtheric paralysis the sensitiveness of the skin to pain was considerably if not entirely abolished while the sensations of heat, cold and touch were apparently unimpaired. This dissociated sensory paralysis has been known only with a few diseases, syringomyelia and tabes, and in these the loss of the sensation of pain in the skin is permanent, while it was only transient in the diphtheria cases described. It was a casual discovery as it was noticed that one child who was being given strychnin by subcutaneous injections presented his arm each time spontaneously and did not shrink from nor seem to feel the prick.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

November, 1915, XLII, No. 5, pp. 389-476

48 Histologic Examination of Tissues After Intravenous Injection of Colloidal Metals. (Histologische Untersuchungen an mit intravenösen Injektionen kolloidaler Metalle behandelten Fällen.) R. Schindler.
49 *Parametritis and Paravaginitis With Retrocervical Bunches of Proliferating Epithelium. (Ueber Parametritis und Paravaginitis posterior mit heterotoper Epithelwucherung — Adenomyositis uteri et recti.) A. Mayer.
50 *Local Anesthesia for Extensive Vaginal Operations. (Zur Anwendung der Lokalanästhesie bei grösseren vaginalen Operationen.) H. Thaler.

December, No. 6, pp. 477-565

51 Insufficient Labor Contractions and Oxytocics. (Wehenschwäche und Wehenmittel.) P. Hüssy.
52 *Fibro-Adenomatous Rectocervical Serositis. (Ueber Fibroadenoma fornicale.) J. A. Amann.
53 *Indications for Cesarean Section. (Kaiserschnitt.) L. Mandl.
54 *The First Fifty Years of the Obstetric Forceps. (Notizen über der Wertschätzung und Benutzung der Geburtszange im ersten halben Jahrhundert nach ihrer Einführung in die Geburtshülfe.) E. Ingerslev (Copenhagen).

49. **Paravaginitis with Retrocervical Tumor Bunches.**—Mayer has encountered five cases of a peculiar tumor-forming inflammatory process in the tissues between the rectum and the genital organs. R. Meyer called attention to this affection seven years ago, as "posterior paravaginitis and parametritis with proliferation of epithelium." The cases of uterine adenomyomas spreading to involve the rectum probably belong in this category. Mayer describes in detail his most extensive and serious case. The patient applied for relief from intolerable pains which had been ascribed to hysteria as nothing had been found to explain them. He palpated a bunch back of the uterine cervix, involving the rectum. Some smaller bunches could be felt also on or near the sacro-uterine ligaments. On account of possible malignancy, the whole, with the tumors, was excised. Polyp-like proliferation occurred later, removed on two different occasions, one of the tumors growing as large as a fist, and suppurating. Since this last tumor retrogressed after draining there has been no further disturbance. The patient was a primipara of 31. In this and his other cases the tumors evidently had started in the serosa. They were not actual neoplasms but inflammatory hyperplasia which subsided when the main tumor was removed. He did not attempt extensive excision, as for cancer, and none of his patients developed malignant recurrence. With this adenomyositis, the rectal mucosa may bulge but it is intact, smooth and freely movable, while there is no tendency to hemorrhage, and the bulging is always in the anterior wall. Tuberculous nodules in the pouch of Douglas are generally smaller and more regular in size, and the connective tissue is less involved. Mayer found nothing to suggest either tuberculosis or gonorrhea in his cases. The histologic findings and the literature are discussed in great detail. See abstract 52.

50. **Local Anesthesia for Extensive Vaginal Operations.**—Among the operations described were five of Schauta's enlarged vaginal operation for uterine cancer, all done under local anesthesia. The nerves of the region can be blocked

by injecting a 0.5 per cent. solution of novocain into the tissues around the uterus. The patient is rendered drowsy with some sedative beforehand to spare her the emotional shock of the operation, but otherwise the reliance is exclusively on the blocking anesthesia in the parametrium. The Schauta technic was applied with perfect success to a woman of 69, extremely debilitated, with arteriosclerosis and degeneration of the heart muscle. The carcinoma on the uterine cervix was in an operable stage and it was removed without mishap and almost totally without pain or loss of blood. The only pain experienced was during traction on the adnexa. The separation of the bladder and ureters was particularly easy in all the cases on account of the epinephrin injected with the anesthetic. He injected 10 c.c. of the anesthetic subcutaneously in turn into the perineum, labia majora and left paravaginal region, and then into the labia minora, rectovaginal septum (to a depth of 6 cm.) and into the left ischiorectal adipose tissue. The uterus was then blocked by injecting 10 c.c., 5 cm. deep, where the vagina joins the uterus on each side. Then 10 c.c. was injected between the uterus and bladder and to a depth of 5 cm. in the pouch of Douglas. The anterior vaginal wall was further infiltrated to a depth of 5 cm. After waiting twelve minutes, the vagina was painted with iodin again and the operation was commenced with a left paravaginal incision, and was completed in forty-six minutes. No after-pains were felt until evening, and the woman was dismissed in six weeks.

52. **Fibro-Adenomatous Serositis.**—Amann describes a case of retrocervical fibro-adenomatous serositis in a woman of 37, and a similar process encircling the sigmoid flexure in another woman. He refers also to two similar cases in which an exploratory incision revealed a similar process fifteen and eighteen years ago. As there was no disturbance on the part of either the uterus or rectum in these last two cases, he refrained from operating, and repeated examinations since have shown very little change in the benign process. He has also encountered two cases in which the inflammatory process formed a single inflammatory process—a single adenomyoma—and three others in which the process was flat and diffuse. In all these latter the uterus was bound down in retroflexion by adhesions that had to be cut to release it. Notwithstanding the nonmalignant character of the process, operative measures are usually inevitable on account of compression of adjacent organs, especially of the intestines, and severe pain. The affection is practically the same as that described in abstract 49 above, and Amann's conclusions are the same as Mayer's.

53. **Cesarean Section.**—Mandl delivered by cesarean section a woman with a shallow, moderate sized pelvis after labor had lasted for thirty-six hours and the lower segment of the uterus was stretched with face presentation until rupture seemed imminent. In a second case, threatening symptoms from chronic heart disease were the indication for cesarean section when labor had lasted for thirty-two hours without the cervix opening more than for a finger. In another case all was made ready for cesarean section as the woman's pelvis was contracted and she longed ardently for a child. Delivery proceeded apparently normally, however, by the natural route. The child died in a day or so and necropsy showed signs of traumatic injury in the brain. Such were found also in an infant delivered by pubiotomy. Another woman with contracted pelvis who had already had two stillbirths, was delivered by cesarean section at the first labor pains. The bag of waters had ruptured and there was prolapse of the umbilical cord, but the child was safely delivered by the section. Mandl cites Couvelaire's experience that 42 per cent. succumbed of 31 infants with prolapse of the cord. In 23 cases efforts had been made to replace the cord, but they proved successful in only 6, and he advises cesarean section at once in case of failure. In considering it, Mandl emphasizes that we must draw the line between cases that have been exclusively in our hands and those that come to us haphazard or are brought for institutional care at the last moment. Statistics show, he declares, that the dangers of cesarean section are scarcely greater for the mother than induced premature delivery, version or high forceps.

54. **History of Obstetric Forceps.**—Ingerslev quotes Boer's remark in 1804 that the one who invented obstetric forceps benefited humanity more than all the heroes of the ancient and modern world, and yet no special memorial has been raised to him. Peter Chamberlen is said to have invented the forceps at the beginning of the seventeenth century in England, but he kept them for the personal use of himself and son. Ingerslev sketches the phases of evil and good repute through which the forceps have passed, devoting thirty pages to the subject.

Gazzetta degli Ospedali e delle Cliniche, Rome

March 23, XXXVII, No. 24, pp. 369-384

55 Present Status of Treatment of Infected Wounds. (Il concetto biologico della curabilita delle ferite inquinate.) E. Bertarelli.
56 *Spontaneous Pneumothorax. (Contributo alla terapia del pneumotorace spontaneo.) A. Pisani.

March 26, No. 25, pp. 385-400

57 Paratyphoid. (Osservazioni e ricerche sul paratifo.) E. Carati.

56. **Treatment of Spontaneous Pneumothorax.**—Pisani reports the fourth case on record in which a spontaneous pneumothorax was effectually cured by counter pressure from injected nitrogen, with the same technic as for induced artificial pneumothorax. The perforation in the lung tissue is closed by the pressure from the gas, and as its edges are thus held together, they soon grow together. This closing of the fistula also prevents the further irruption of septic matters from the lung into the pleura, and any tendency to pleuritis subsides. Morelli suggested in 1911 this method of treating natural pneumothorax by the technic for artificial pneumothorax, first aspirating some of the air if necessary. This has the disadvantage, however, of tending to suck more septic matters out into the pleura. Pisani has had four other patients with spontaneous pneumothorax for whom he considered this method of treatment, but conditions rendered an artificial pneumothorax impracticable. In his successful case a man of 24 with a rapidly progressing tuberculous lesion in one lung was being treated with artificial pneumothorax when suddenly a spontaneous pneumothorax became superposed on it, and suffocation was imminent. The air and nitrogen were released by punctures but each time the cavity soon filled up again with air. After nine days of this, Pisani injected 800 c.c. of nitrogen, the pressure being transformed from minus 5 to plus 11. This closed the opening into the lung completely and permanently, and compressed the lung; the spontaneous pneumothorax was cured once and for all, while the gas in the chest is exerting a curative action on the tuberculous cavity. The young man is rapidly regaining health and strength. With spontaneous pneumothorax, Morelli advised to test the pressure of the air inside the chest with a needle connected with a manometer. If the pressure is found very high, some of the air can be allowed to escape, and gas should be injected into the pleural cavity until the pressure keeps at plus 6, 15 or 20 (water). Pisani marvels that this simple and logical method of treating pneumothorax has not been extensively adopted since Morelli reported his four successful cases in 1911.

Policlinico, Rome

March 26, XXIII, No. 13, pp. 389-420

58 *Objective Signs of Sciatica. (Per l'accertamento medico-legale della ischialgia.) G. Boschi.

58. **Objective Signs of Sciatica.**—Boschi says that the way of walking, of sitting down, bending over and other movements are unmistakably characteristic of sciatica, but a good mimic could simulate them. The loss of the gastrocnemius reflex suggests actual neuritis, and other signs of a true nervous affection are a certain accentuation of the tendon reflexes, localized hypothermia, hypotrophy from functional inertia, tendency of the spine to curve away from or toward the side of the sciatica, greater depth of the gluteal groove on that side when erect, an evening rise in rectal temperature and increased albumin content of the cerebrospinal fluid. The most instructive sign is when the pupil reflexes, pulse pressure and pulse beat are noted on the reclining patient, and are then recorded again while the limb is flexed until pain begins

to be elicited even in the healthy. Tracings are given showing the profound disturbance in all these vital reactions when the leg with sciatica was flexed, and the normal, even tracings when the sound leg was flexed.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

March 18, II, No. 12, pp. 961-1056

59 *Treatment of Glaucoma. (Gezichtsvelddefecten in verband met keuze—van operatie methode bij glaucoom.) J. van der Hoeve.
60 *Operative Treatment for Insane Self Inflicted Injury; Two Cases. (Twee gevallen van heelkundige behandeling bij psychopathen.) C. J. van H. Graftdijk.

59. **Treatment of Glaucoma.**—Van der Hoeve describes five typical cases to illustrate the necessity for examining for Bjerrum's scotoma when there is the least suspicion of a tendency to glaucoma, even if the visual acuity and the outer limits of the visual field are normal. Treatment with myotics or sclerotomy can be tried when the patient can be kept under systematic observation, watching over the tension in the eyeball, the contraction of the visual field, including Bjerrum's scotoma, ready to operate at any alarming symptoms. When the visual field is contracted close to the macula, iridectomy is not advisable but contraction of the visual field or scotoma is no contra-indication to Elliot's sclerectomy.

60. **Operations to Remedy Self-Inflicted Injury by the Insane.**—The screwdrivers, nails, coins, etc., removed from the stomach of a man of 32 who had recently become demented, weighed 1,670 gm. in all. In the other case the demented young man pulled out through the anus nearly a yard of bowel mucosa. The lower part had separated from the muscular coats of the bowel, and presented an intact tube of the mucosa lining of rectum, flexure and descending colon.

Hospitalstidende, Copenhagen

March 15, LIX, No. 11, pp. 225-248

61 *Dyspepsia in Chronic Alcoholism. F. Vogelius and G. Wiltrup. Concluded in No. 12.
62 Present Status of Gastropexy. (Nyere Litteratur om Gastropexi.) T. Eiken.

61. **Dyspepsia in Chronic Alcoholism.**—Vogelius and Wiltrup have made a special study of conditions in regard to the digestive processes in twelve hard drinkers who have been under prolonged observation and in forty-five others more recently examined. The findings after an Ewald test meal, repeated from three to eight times in the course of three years, are tabulated for the first group and also the findings with tests for secretion, motor functioning and pepsin digestion and secretion of mucus as applied more recently in the other subjects. Gastritis and achylia are the rule, but a number of factors combine to induce them, not only the liquor but the irregular meals and habits of life of persons addicted to alcohol. Achylia was pronounced in 50 per cent. When they enter the hospital and get regular food and rest, the stomach usually rapidly recuperates and, as the gastritis subsides, the achylia subsides with it. This is similar to the experience with the achylia and apparently pernicious anemia encountered with bothriocephalus latus; both usually retrogress completely after expulsion of the tapeworm. In chronic alcoholism the recuperation proceeds most rapidly and completely in the comparatively young. In a few of the cases tabulated there was a history of syphilis. Nothing was found to indicate that alcoholic gastritis commences with hypersecretion. Study of all this material has shown that determination of the pepsin may be important for the prognosis as the achylia did not retrogress in the few with apepsia. The discovery of inadequate pepsin secretion therefore prophesies permanent achylia. The article is concluded in No. 13.

Norsk Magazin for Lægevidenskaben, Christiania

April, LXXVII, No. 4, pp. 453-588

63 Determination of Sex and Heredity; Research on Grasshoppers. (Om kjønnets bestemmelse og nedarvning.) O. L. Mohr.
64 Typhoid Traced to Milk. (Tyfoidfeber utbredt ved melk.) Y. Ustvedt.
65 Rupture of Intestines From Contusion at Ski Sport. (Subkutan tarmruptur under skiløpning.) S. Widerøe.
66 *Thyroid Tissue in Ovarian Tumor. (Struma thyroidea ovarii.) E. Platou.
67 *Periodical Vomiting With Acetonemia. (Periodiske brækninger med acetonæmi.) T. Frølich.

66. **Thyroid Tumor in Ovary.**—The tumor was removed from a woman of 54 who had seven living children. She had always been in good health until last year when ascites required tapping and a tumor was removed from the left ovary, after which there was no further ascites. The microscope revealed the tumor to be entirely of thyroid tissue, a colloid struma, as large as a goose egg, embedded in the ovary. Bull found some thyroid tissue in 2 of 14 dermoid cysts and Pick in 6 of 21. But in the case here described the tumor consisted apparently exclusively of thyroid tissue with a little ovarian tissue around it and there was nothing to prove a teratoid nature for the tumor. Dingel has compiled 17 similar cases of "ovarian struma" without anything to demonstrate a dermoid nature. No instance of recurrence after removal is known, and no symptoms of myxedema have ever been noted such as might be anticipated if the thyroid tissue had proliferated in the ovary for vicarious functioning. Some of Dingel's 17 patients have been under observation for over four years.

67. **Periodical Vomiting with Acetonemia.**—Frølich has had three cases of this kind in children between 3 and 7, and compares them with the four reported by Griffith in 1910 and those published by Marfan and others. The vomiting attacks may last from a few hours to two or three or even seven weeks, and during the attack the general condition may be grave. Improvement sets in as suddenly as the attack began, and the child is apparently quite well by the next day. Just preceding and during the attack, acetone is eliminated in large amounts in the breath and urine. The attack may be accompanied with fever and there are always thirst and oliguria. In his cases Frølich noted urticaria, herpes, pains in the joints and vertigo during the attacks, and Griffith mentions pruritus and pains in the joints, Comby mucomembranous colitis, and Merklen, tachycardia. Frølich found up to 0.592 gm. acetone in the 400 c.c. urine of the second day in one case, and in another child 1.210 gm. acetone. Albumin has sometimes been found in the urine, but never sugar. One of his patients had pronounced lipuria for three days. One of the children has had six attacks in eight months; the second ten in twenty-four months, and the third, five in six months. The disturbance in the intermediate metabolism responsible for this periodically recurring vomiting does no apparent harm for a time, not until compensation breaks down. The symptoms which precede the vomiting indicate some general metabolic disturbance, the skin and joint disturbances pointing to some central irritating substance, and the sudden onset being analogous to that of gout. Frølich presents evidence to prove that defective utilization of fat as well as of carbohydrates plays some part in the disturbance. Hecker ascribes the greatest share in this periodical acetonemia to retarded development of certain organ-systems or groups of cells which are especially concerned in the digestion of fat. Such children are all the time close to the limit of their digesting capacity for fat. Anything that causes them to step over this limit is liable to bring on a reaction, an intoxication, manifested clinically by vomiting, prostration and elimination of acetone. This assumption affords a working basis for further research on this recurrent vomiting in children. It is certainly more than a coincidence that Frølich's three little patients were all unusually fond of fat and that one of them had pronounced lipuria. The tendency to this periodical vomiting has always been outgrown at puberty, although a few of the patients failed to rally from their prostration. Fatty degeneration of the liver was the main pathologic finding at necropsy. When an attack is impending, a purge is indicated, but after vomiting has commenced, nothing can be given by the mouth. Sodium bicarbonate is theoretically indicated, but it is usually vomited up. In the intervals, however, he gives it regularly, with a diet rich in carbohydrates and scanty in fats. One child has thus been kept free from attacks for twelve months to date, and the second child for three months, but the other, after an interval of a few months, had a return.



Fig. 1.—Section of Detroit River Front.

THE DETROIT SESSION

AMERICAN MEDICAL ASSOCIATION, SIXTY-SEVENTH ANNUAL SESSION, DETROIT, MICH., JUNE 12-16, 1916

OFFICIAL CALL

TO THE OFFICERS, FELLOWS AND MEMBERS OF THE AMERICAN MEDICAL ASSOCIATION

The sixty-seventh annual session of the American Medical Association will be held at Detroit, Mich., June 12-16, 1916.

The House of Delegates will convene at 10 a. m., Monday, June 12. In the House the representation of the various constituent associations for 1916 is as follows:

Alabama	3	New Hampshire	1
Arizona	1	New Jersey	3
Arkansas	2	New Mexico	1
California	4	New York	11
Colorado	2	North Carolina	2
Connecticut	2	North Dakota	1
Delaware	1	Ohio	5
District of Columbia	1	Oklahoma	2
Florida	1	Oregon	1
Georgia	3	Pennsylvania	9
Idaho	1	Rhode Island	1
Illinois	9	South Carolina	1
Indiana	4	South Dakota	1
Iowa	3	Tennessee	2
Kansas	2	Texas	5
Kentucky	4	Utah	1
Louisiana	1	Vermont	1
Maine	1	Virginia	3
Maryland	2	Washington	2
Massachusetts	5	West Virginia	2
Michigan	4	Wisconsin	3
Minnesota	2	Wyoming	1
Mississippi	2	Canal Zone	1
Missouri	5	Hawaii	1
Montana	1	Philippine Islands	1
Nebraska	2	Porto Rico	1
Nevada	1		

The fifteen scientific sections of the American Medical Association, the Medical Department of the Army, the Medical Corps of the Navy and the Public Health Service are entitled to one delegate each.

The general meeting, which constitutes the opening exercises of the Scientific Assembly of the Association, will be held at 10:30 a. m., Tuesday, June 13. The various sections of the Scientific Assembly will meet Tuesday at 2 p. m., and subsequently, according to their respective programs.

The Registration Department will be open from 8:30 a. m. until 5:30 p. m., on Monday, Tuesday, Wednesday and Thursday, June 12, 13, 14 and 15, and from 9 to 10 a. m., on Friday, June 16.

ALBERT VANDER VEER, President.

ALEXANDER R. CRAIG, Secretary.

MEMBERS OF THE HOUSE OF DELEGATES

A Preliminary Roster of the Legislative Body of the American Medical Association

The list of members of the House of Delegates for the session is incomplete, as a number of the state societies are yet to hold their meetings at which delegates will be elected.

The following is a list of the holdover delegates and of the newly elected members who have reported to THE JOURNAL in time to be included:

STATE DELEGATES

ALABAMA
W. H. Sanders, Montgomery.
J. S. McLester, Birmingham.

ARKANSAS
Robert C. Dorr, Batesville.

COLORADO
H. R. McGraw, Denver.
L. H. McKinnie, Colorado Sprgs.

CONNECTICUT
D. Chester Brown, Danbury.
E. J. McKnight, Hartford.

GEORGIA
M. A. Clark, Macon.

HAWAII
C. B. Cooper, Honolulu.

ILLINOIS
Charles Joseph Whalen, Chicago.
Charles E. Humiston, Chicago.
J. M. Pfeiffenberger, Alton.

INDIANA
C. H. Good, Huntington.
Miles F. Porter, Ft. Wayne.
J. Rilus Eastman, Indianapolis.
A. E. Bulson, Jr., Ft. Wayne.

IOWA
J. C. Rockafellow, Des Moines.

KANSAS
W. F. Sawhill, Concordia.

KENTUCKY
A. T. McCormack, Bowling Green.
Milton Board, Louisville.

LOUISIANA
William H. Seeman, New Orleans.

MARYLAND
J. Hall Pleasants, Baltimore.

MASSACHUSETTS
Hugh Cabot, Boston.
B. W. Paddock, Pittsfield.

MICHIGAN
L. J. Hirschman, Detroit.
H. E. Randall, Flint.

MINNESOTA
W. A. Coventry, Duluth.
W. L. Beebe, St. Cloud.

MISSISSIPPI
J. S. Ullman, Natchez.

MISSOURI
E. J. Goodwin, St. Louis.
Robert M. Funkhouser, St. Louis.

MONTANA
J. H. Irwin, Great Falls.
A. R. Mitchell, Lincoln.

NEVADA
M. R. Walker, Reno.

NEW JERSEY
William S. Lalor, Trenton.

NEW MEXICO
S. D. Swope, Deming.

NEW YORK
Grover W. Wende, Buffalo.
William F. Campbell, Brooklyn.
Edgar A. Vander Veer, Albany.
John O. Polak, Brooklyn.
Floyd M. Crandall, New York.

NORTH CAROLINA
John A. Ferrell.
I. H. Manning, Chapel Hill.

OHIO
A. B. Walker, Canton.
H. C. Haning, Dayton.
J. H. J. Upham, Columbus.

OKLAHOMA
Walter Penquite, Chickasha.

OREGON
W. T. Williamson, Portland.

PENNSYLVANIA
W. T. Hamilton, Philadelphia.
Joseph D. Findley, Altoona.
Jesse Y. Scott, Washington.
A. R. Allen, Carlisle.
William F. Bacon, York.
Wilmer Krusen, Philadelphia.
Charles G. Strickland, Erie.
F. L. Van Sickle, Olyphant.

SOUTH CAROLINA
E. A. Hines, Seneca.

TENNESSEE
Jere L. Crook, Jackson.

TEXAS
A. B. Small, Dallas.
Holman Taylor, Ft. Worth.
M. M. Carrick, Dallas.

UTAH
Sol G. Kahn, Salt Lake.

VERMONT
Alan Davidson, St. Albans.

VIRGINIA
R. C. Bryan, Richmond.

WASHINGTON
J. M. Sleicher, Chehalis.
Don Palmer, Seattle.

WISCONSIN
A. H. Levings, Milwaukee.
J. F. Pember, Janesville.
T. H. Hay, Stevens Point.

DELEGATES FROM THE SECTIONS

PRACTICE OF MEDICINE
Harlow Brooks, New York.

SURGERY, GENERAL AND ABDOMINAL
Dean D. Lewis, Chicago.

OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY
P. Brookes Bland, Philadelphia.

OPHTHALMOLOGY
Nelson M. Black, Milwaukee, Wis.

LARYNGOLOGY, OTOLOGY AND RHINOLOGY
George E. Shambaugh, Chicago.

DISEASES OF CHILDREN
H. M. McClanahan, Omaha.

PHARMACOLOGY AND THERAPEUTICS
John F. Anderson, New Brunswick, N. J.

PATHOLOGY AND PHYSIOLOGY
A. W. Hewlett, Ann Arbor, Mich.

STOMATOLOGY
G. V. I. Brown, Milwaukee, Wis.

NERVOUS AND MENTAL DISEASES
Milton B. Lennon, San Francisco.

DERMATOLOGY
Ernest D. Chipman, San Francisco.

PREVENTIVE MEDICINE AND PUBLIC HEALTH
Eugene R. Kelly, Boston.

GENITO-URINARY DISEASES
Martin Krotoszyner, San Francisco.

ORTHOPEDIC SURGERY
John Ridlon, Chicago.

DETROIT AND ENVIRONS

The History and Description of the Convention City

DETROIT THE DYNAMIC

In 1850 there were 21,000 inhabitants in Detroit; in 1880, 116,000; in 1900, 285,000, and in 1915, 750,000. In 1900 the area of the city was 28 square miles; today it is in excess of 50 square miles. It is now seventh in population in the United States.

HISTORY OF DETROIT

Detroit is one of the old cities of the continent. It was founded in 1701 by Cadillac, who headed a small colony of French settlers. The Indians had always called the place Yon-do-ti-ga, "a great village," but the French first gave it the name Fort Pontchartrain. The colonists, however, insisted on calling their new home Detroit, the "City of the Straits." Detroit is one of the few American cities that have been under three flags and under two of them twice. The French occupied this territory until 1760, when they were overthrown by the English. Detroit was again reconquered by General Wayne in 1796. It passed once more under the control of the English in 1813, but their occupancy was very short, as the victory of Commodore Perry on Lake Erie gave the whole Northwest Territory to the United States. In 1805 Michigan was formed into a territory with Detroit as the capital. It was admitted to the Union in 1837, at which date the capital was moved to Lansing. Detroit was destroyed by fire in 1805, really a blessing in disguise, as the result was replanning of the broad streets and provision of a number of parks and public squares which comprise the city beautiful of today. Detroit has never been known as a boom town; its growth and development have been steady for the past 215 years.



Fig. 2.—Detroit and Vicinity.

TOPOGRAPHY

Before the coming of railroads, its splendid river made it an important shipping point. The Detroit River never goes on a rampage; it remains throughout the year at just about the same level. One of the finest fleets of passenger steamers in fresh water in the world hails from this port. Last season they accommodated more than eleven million passengers, three times as many as sailed from all other Great Lake ports combined, without the loss of a single life. More tonnage passes through the Detroit River than any other river in the world. During the season of active navigation there is an average of one boat every eight minutes, either up or down the river.

From its French origin, Detroit is laid out like a French city. The principal streets radiate from the city hall. The crowded thoroughfares, the many large stores, the numerous new skyscrapers, the endless procession of automobiles, the splendid and imposing hotels and countless evidences of wealth and luxury point to the fact that Detroit has joined the ranks of the great cities of the United States. Within the confines of the city there are over thirty parks, with an area of over 1,200 acres. The city has grown miles beyond its splendid grand boulevard, which one time surrounded it from river bank on the east to river bank on the west, affording a beautiful automobile drive of over 12 miles.

BELLE ISLE

Belle Isle, owned by the city, is said to be unequaled in the world as a beautiful island park. Its special attractions include an aquarium with all kinds of fresh and salt water fish, a horticulture

building, one of the best zoological gardens in America, a fine bathing beach, a public bath house with 800 rooms, yacht and boat clubs, casinos, miles of canal for boating, and a splendid boulevard for automobiles, a five and one-half mile shore drive. Unfortunately, the bridge from the mainland to the island, destroyed by fire in May, 1915, has not been rebuilt, so that at present approach to Detroit's island playground must of necessity be by boat. Commodious ferry boats run from Detroit to the island every ten minutes at the nominal fare of 10 cents for the round trip. The work of man has transformed but has not defaced this spot, of which Cadillac wrote over 200 years ago, "We found it richly set with islands as a queen's necklace with jewels, and the beautifully verdant shores of the mainland served to complete the picture of a veritable paradise."



Fig. 3.—BUSY DETROIT. Above: The Campus Martius, showing Woodward Avenue looking North. On the left is the City Hall and the Majestic Building. Middle left: Detroit's Grand Canyon. Middle right: A view in Grand Circus Park, showing, from left to right, the David Whitney Building, Hotel Statler, Hotel Tuller, Kresge Building, and Fine Arts Building. Below: Griswold Street, looking South — called the Wall Street of Detroit.

DETROIT A COMMERCIAL CENTER

Detroit's commercial and industrial prosperity has been as interesting as its growth in population. It received its great impetus in 1910, the year in which the Michigan Central tunnel under the Detroit River was opened. Since then the sum of twenty-two million dollars has been spent in enlarging terminals and increasing transportation facilities within the city.

AUTOMOBILE INDUSTRY

The automobile has done more than anything else to give Detroit "a place in the sun." It is this industry which conferred on the city the title of "Detroit the Dynamic." In 1892 a well known manufacturer built his first model, a two-cylinder motor. Six years passed, however, before any attempt was made to manufacture a motor car. In 1904 Detroit's fame as a manufacturing center for automobiles had become known abroad. One company after another was established, until in 1910 Detroit was manufacturing annually cars to the value of $134,000,000. There are at present thirty-four automobile factories in Detroit, with an estimated output in 1915 in cars of five hundred thousand, with an approximate value of four hundred millions. The thirty-four automobile manufacturing concerns welcome visitors from the outside world, and are always glad to have them inspect the plants that produce automobiles for every country on the globe. The number of people employed in this industry

alone would populate a fair sized city, as there are about 100,000 of them.

OTHER INDUSTRIES

Important and as widely known as is the automobile industry in Detroit, it must not be overlooked that Detroit is prominent in other lines of industry. The city leads in the manufacture of adding machines, pharmaceutical supplies, and in the aluminum industry. It is second in the United States in the production of brass. It is perhaps the largest manufacturing center in this country for stoves, and the second largest fur center in the United States. It has the largest ship building industry on the Great Lakes. In the last five years the gross value of Detroit's manufactured products increased by $150,000,000, or more than 59 per cent. A prominent banker is quoted as saying that he could readily name at least 100 Detroit business men worth a million dollars and over who have accumulated their wealth within the past eight years.



Fig. 4.—Above: The House of the Wayne County Medical Society. Middle left: The Reading Room. Middle right: The Auditorium. Below: The Library Stacks.

EDUCATION

The facilities for education and church attendance are particularly good. The University of Michigan, the state university, is located in Ann Arbor, 40 miles distant, and may be reached by automobile in an hour and a half over a paved road. One of the most efficient normal schools in the United States is situated in the town of Ypsilanti on the Ann Arbor road. Detroit itself is well provided with public and high schools. All denominations are well represented in edifices for worship, and the churches are well attended.

DETROIT TIME

It is difficult to determine whether Detroit is an Eastern or Middle Western city. Perhaps Detroiters themselves are in doubt. For a long while their timepieces were set to Central standard time. A year ago the city adopted Eastern standard time, which is an hour ahead. The change has been adopted with general satisfaction. The city is Eastern so far as time at least is concerned, a fact which the visiting Fellow of the American Medical Association will do well to note, though the railroads continue to operate on Central standard time.

THE WAYNE COUNTY MEDICAL SOCIETY

The majority of the medical fraternity of Detroit are members of the Wayne County Medical Society. This organization is the product of an evolution beginning in 1846, with the organization of the Sydenham Society. This was disbanded three years later when the Wayne County Medical Society was formed as a branch of the Michigan State Medical Society. This organization ceased to exist in 1851, and was succeeded by the Detroit Medical Society, which, after an active career of five years, went out of existence. From 1858 to 1866 there was no local medical society. A second Wayne County Medical Society was founded in 1866. It applied for and received a charter as a branch of the Michigan State Medical Society, Aug. 15, 1902. At this time there combined with it that branch of the profession which separated from it in 1876, and conducted successfully operations through the Detroit Medical Society. Besides, it received the hearty support of the several medical clubs of the city. Under its own name the Wayne County Medical Society began operation sixty-nine years ago. In 1910 the Society bought its new home, 33 High Street East, and four years later built its auditorium capable of accommodating over 500 members. At the nominal fee of $8 per annum, the members have the use of a library of nearly 20,000 volumes and a reading room well provided with current medical literature. In addition to the club features of the organization, the members have the benefits afforded by membership in the Michigan State Medical Society. Meetings of the various sections are held Monday nights. The programs, which are largely the work of the local members, are varied by occasional visits from men of prominence from outside the city. Besides this educational feature, the good fellowship

enjoyed and the promotion of the spirit of *rapprochement* among the membership is a sufficient excuse for the society's being.

MEDICAL COLLEGE AND HOSPITALS

Detroit is the home of the Detroit College of Medicine and Surgery, incorporated in 1868. In 1913, when advanced requirements in medical education demanded something different from the proprietary institution, the stockholders generously consented to a renewal of the charter, and at a critical moment, alumni and other friends of the institution came forward with substantial assistance, and the new organization was incorporated under the educational laws of Michigan, Aug. 19, 1913. It has been founded as a membership organization without profit-sharing stock, all powers and obligations of the corporation being vested in a permanent board of trustees. The Detroit College of Medicine and Surgery is perhaps the only institution of medical education that has access for teaching purposes to all the hospitals of the city in which it is located. It is graded in Class A by the Council on Medical Education of the American Medical Association.

The college has clinical affiliations with the following hospitals: St. Mary's, Harper, Grace, Herman Kiefer, Women's, Providence, the Children's Hospital and Dispensaries, the Samaritan, the Wayne County Asylum, the Detroit Tuberculosis Sanatorium and the Michigan State Tuberculosis Sanatorium at Howell, Mich.

HOSPITALS

The hospital capacity of Detroit may be stated as follows: St. Mary's Hospital, founded in 1845, has a capacity of 200 beds, of which 110 are available for clinical teaching; Harper Hospital, founded in 1862, has a capacity of 420 beds, with an an additional accommodation for forty-eight patients at the West Side branch of the hospital; of this number, 266 beds are available for clinical teaching. The Theodore D. Buhl Memorial Outpatient and Laboratory Building, in connection with Harper Hospital, is a model of its kind. Grace Hospital, founded in 1888, has a capacity of 242 beds, with a convalescent branch of fifty beds. The Herman Kiefer Hospital is devoted entirely to public health work, and is owned by the city and managed by the health department



Fig. 5.—Above: House of Providence Hospital. Middle left: St. Mary's Hospital. Middle right: Grace Hospital. Below: Harper Hospital.

of Detroit. Three hundred and twenty-five patients can be cared for, all of whom are available for clinical teaching. The Women's Hospital has a capacity of 100 beds. Between 800 and 900 confinements take place in this hospital each year. The Providence Hospital has 225 beds for adults, and 200 for children. There are seventy-five beds devoted to obstetrics. The Children's Free Hospital, founded in 1886, has 150 beds, all available for clinical teaching. While all hospitals are easily accessible by trolley, they are removed a sufficient distance from car lines and manufactories to insure quiet. They are all modern in their appointments, either through reconstruction or the fact that some of them have only been recently built. They are open to all reputable physicians in the city.



Fig. 6.—The Campus, Ann Arbor.

SIDE TRIPS FROM DETROIT

AN EXCURSION TO ANN ARBOR

The Regents of the University of Michigan and the faculty of the medical school invite members of the American Medical Association and their wives to visit the University, Friday, June 16. As many of the former members of the medical school will attend the Detroit meeting and can easily come to Ann Arbor at that time, the Regents have appointed Friday as a day of reunion for all classes of the school.



Fig. 7.—The Medical Building, University of Michigan.

A registration bureau for the Ann Arbor excursion will be open at the office in Detroit, until Wednesday evening, June 14. Information will be furnished concerning the expense of the excursion and all details. Those desiring to participate are urged to register promptly, as the number will have to be limited to one thousand. A train from Detroit will carry special cars, and will be met by street cars which go to Memorial Hall on the Campus. A registration and information bureau will be in the alumni room in Memorial Hall, at which visitors can obtain the program of the day, and tickets for the luncheon provided by the Regents. Alumni will be furnished with their class badges and information concerning the places of meeting of the classes and the time of class meetings and class dinners. A committee consisting of wives of members of the medical faculty will meet the ladies, and they and other guides will conduct visitors to the places of greatest interest.

Each of the members of the medical faculty will appoint an hour when he can be seen by his friends. From 10:30 to 12 there will be clinics and demonstrations at the hospitals. At 1 o'clock all will gather at the Barbour Gymnasium for luncheon. In the afternoon the medical laboratories will be open and give demonstrations. Automobile drives will be arranged for those who wish to visit the city. There will be an organ recital in the Hill Auditorium, where the Stearns collection of musical instruments will be open for inspection. Class meetings will be at 4 o'clock, and from 4:30 to 6:30 Dr. and Mrs. Vaughan will give a reception. In the evening there will be class dinners and a general dinner for those who register for the same before Wednesday evening at the Detroit office.

ST. CLAIR FLATS AND TOLEDO

One may enjoy a day's or a half day's voyage northward, passing in full view of Detroit's wonderful city park, Belle Isle; across little Lake St. Clair, through the ship canal; past the Venice of America, popularly known as St. Clair Flats, and thence up the beautiful St. Clair river to the thriving city of Port Huron, sixty miles away, a delightful trip. Or, southbound, one may ride down the Detroit River with its picture of bustling commercial activity on the American side and delightfully situated summer homes on the Canadian side. This trip carries one across the end of Lake Erie and up the Maumee to Toledo, the metropolis of Ohio.

These journeys are made on the steamers of the White Star Line, leaving Detroit daily for Port Huron at 8:45 a. m. and 2:30 p. m. If one desires a fish supper at the Flats, he can leave on the 2:30 boat, and have plenty of time for supper at one of the hotels along the Flats and return on the Steamer *Tashmoo*, arriving at Detroit at 8:45 p. m. The cuisine in



Fig. 8.—Reading from above downward: 1. Canoeists at Belle Isle. 2. Light House at the head of Belle Isle. 3. The Casino at Belle Isle. 4. Palmer Park, with Miniature Light House. 5. The Casino.

the dining room of the *Tashmoo* is excellent. Meals are served à la carte at very reasonable prices. The excursion to Port Huron going and returning on the *Tashmoo* (capacity 3,000 passengers) is not to be overlooked. For one who enjoys an all-day water ride there is no finer trip in the country. The steamer remains at its destination for an hour and a quarter, thus insuring plenty of time to see the city. Taxicabs and other cars meet each steamer to show the tourists around the city.

Another very attractive all-day ride from Detroit is in the other direction to Toledo. This trip is made on the new steamer *City of Toledo* (capacity 2,000 passengers). There is dancing in the spacious ball room of the steamer while en route. A stay of an hour and a half is made at Toledo to enable the passengers to see this busy city.

This steamer leaves Detroit every day at 8:30 a. m., Eastern time, arrives at Toledo at 1 p. m., and leaves Toledo at 2:30, arriving at Detroit at 7:15 p. m. Excellent dining room service is maintained on this steamer as well as all of the other White Star Line boats. In addition to the dining room a good lunch counter is provided on each steamer.

This company also owns and operates two attractive excursion parks, where there are numerous devices for fun and frolic for the picnickers. Tashmoo Park is located on the St. Clair River about 35 miles from Detroit, while Sugar Island lies in the other direction in the lower Detroit river



Fig. 9.—Some Detroit Hotels.

about 17 miles by water from the city. Here are shaded groves, bathing beaches, baseball diamonds, running tracks, merry go rounds, etc. No liquors are permitted on any White Star Line boat or park. Railroad tickets may be routed via White Star Line steamers from Toledo. For further information, write to C. F. Bielman, Jr., T.P.A., Detroit, Mich., or H. E. Stalker, D.P.A., Toledo, Ohio.

MOUNT CLEMENS

Mount Clemens, "the Bay City," is situated 20 miles north of Detroit, near the shores of Lake St. Clair. It may be reached by either of two trolley lines, and visitors bringing their automobiles have the choice of two excellent roads leading from the metropolis of Michigan to the bath town.

Interurban service is available every thirty minutes, and there are five trains over the Grand Trunk Lines. For the benefit of those desiring to visit Mt. Clemens during the annual session of the Association, at Detroit, the Local Committee on Arrangements has arranged with the Mt. Clemens Hotel for accommodations. Ample garage space has been secured for motorists at reasonable rates.

Mount Clemens is a city of about 10,000, its chief attraction being the mineral water baths. There are ten bath houses and many hotels, several of the latter being among the finest in the Middle West.

For special information address the Mt. Clemens Business Men's Association, or the American Medical Association Hotel Committee, 33 E. High St., Detroit, Mich.



Fig. 10.—The New Home of the Detroit Athletic Club.

PUT-IN-BAY AND CEDAR POINT

Beautiful Put-In-Bay and Cedar Point, "the Atlantic City of the West," are popular places for Detroit residents and visitors during the summer months. Both are located in Lake Erie and are reached from Detroit by the steamers *Put-In-Bay* and *Frank E. Kirby* of the Ashley & Dustin Line. Trips to the Lake Erie resorts are made every morning and evening. The Steamer *Put-In-Bay,* which makes the morning trip and is very popular with excursionists, is large and is luxuriantly fitted with all modern safety devices. Musical programs and dancing are entertainments on the boat, while the passengers are given an excellent opportunity to observe the shipping districts and the large freight steamers that carry iron ore and grain from the north ports.

The Perry Memorial is located on Put-In-Bay Island. It was completed a year ago at a cost of nearly $1,000,000. It has been acclaimed one of the wonders of the Middle West. The shaft of the memorial, which stands 350 feet in the air, is built of white granite. An elevator takes the visitors to the top, from which the view is wonderful. The memorial commemorates the victory of Oliver Hazard Perry over a British fleet in 1813. The battle was fought just off Put-In-Bay.

The bathing beach at Put-In-Bay has a clear, smooth bottom, running far out into the lake, with a depth that increases gradually. The bath houses are of ample size, with large, well lighted dressing rooms. Boating and yachting are pleasures here, and any kind of watercraft may be obtained. Ferry steamers also ply between various islands near Put-In-Bay. There are four gigantic caves in Put-In-Bay, where an almost even temperature is maintained both summer and winter. Glittering stalactites hang from overhead in the caves which have an area of many acres. In some are found miniature lakes of cool, clear water, dark as the fabled Styx.

At the fish hatcheries, excursionists have an opportunity to see millions of fish eggs in glass jars, through which streams of clear, lake water are constantly passing.

Various amusements are furnished on the Midway, while there are baseball grounds and tennis courts for those who are attracted by such pastimes. Cabaret shows as well as a large dance pavilion are popular with the excursionists.

The Steamer *Put-In-Bay* makes trips to Cedar Point from Detroit three times each week, and the summer resort is visited by thousands of excursionists every summer. The usual entertainments are provided, including vaudeville, dancing and bathing. The bathing beach at Cedar Point is famous throughout the country, and rivals the sandy beach at Atlantic City.



Fig. 11.—In Grand Circus Park.

The accommodations for visitors are ample, and will suit varying tastes and requirements, from the most luxurious to the most modest. At either Put-In-Bay or Cedar Point are every convenience which would be found at modern hotels in the larger cities.

AN INLAND SEA VOYAGE

The six day cruises of the *Noronic, Huronic* and *Hamonic,* steamers of the Northwestern Navigation Company, which leave Detroit weekly on northern trips, afford the passengers opportunities to see some of the finest scenery in the Great Lakes region, the largest elevators in the world and the great

canal locks on the American and Canadian sides at the Soo, as well as the beautiful Kakabeka Falls and the delightful scenes about Port Arthur, Fort William and Duluth. The steamers leave on the northern trips, Mondays, Wednesdays and Saturdays, the first stops being Sarnia and the Soo.

One entire day of the trip is devoted to a 40-mile jaunt inland through forests of pine, to the falls at Kakabeka, which rival Niagara. A special train carries the excursionists from Fort William to the falls, the amber waters of the Kakabeka River breaking far below on black shale.

Returning, the excursionists are taken to Port Arthur. Dinner is served at Prince Arthur hotel, a beautiful structure recently erected. After dinner the evening may be spent in the city or on the steamer.

Duluth is reached the following noon. Cars and tally-hos are at the wharf, and Duluth, a city of 90,000 perched on a hill, is seen from the vehicles which wind their way through the upper reaches until they are 600 feet above the main street of the thriving lake port.

Throughout the cruise the Northern Navigation Company provides amusement and entertainment for its passengers. The observation arrangements on the three steamers are without parallel on any of the lake boats. The observation parlors are on the upper deck, where one has the advantage of the steamer's great height.

The advantages for sight-seeing which these lake steamers give, therefore, have earned for their cruise the title, "the most beautiful inland sea voyage of them all."

TRANSPORTATION TO THE MEETING

Rates for Round Trips to Detroit—Announcement of the Transportation Committee

The Committee on Transportation and Place of Session urges Fellows to consult the local ticket agent at their home town for complete information regarding rates, time limits, extensions and stop-over privileges available in making the trip to Detroit for the annual session of the Association. There is on file in every ticket office the traffic schedule which officially informs local agents of the rates from that point. Fellows should not leave the determination of the route desired until just before they are ready to start on the trip. Local ticket agents may have to obtain special tickets for these excursions from central points, and this must be arranged in time so that the tickets may be purchased when the journey is begun. These agents will also be able to give information concerning circuit routes which will permit making whatever side trips may be desired in connection with the journey to or from Detroit.

In order to give a general idea of the rates available, the following round trip railroad fares and one-way Pullman lower berth charges to Detroit are given. In some instances, these fares are approximated:

	R. R. Fare	Pullman Fare		R. R. Fare	Pullman Fare
Baltimore	$23.80	$3.50	Milwaukee	$15.08	$3.00
Boston	28.95	4.00	Minneapolis	30.00	3.50
Buffalo	10.05	3.00	New Orleans	36.45	7.00
Chicago	11.00	2.00	New York	25.70	3.50
Cincinnati	10.50	2.00	Omaha	35.10	4.50
Cleveland	6.70	2.00	Philadelphia	23.80	3.50
Columbus	7.30	2.00	Pittsburgh	11.90	2.00
Dallas	50.30	7.00	Portland	83.50	15.00
Denver	52.50	7.50	San Francisco	83.50	15.00
Indianapolis	10.70	2.00	St. Louis	18.50	2.50
Jacksonville	36.10	6.50	St. Paul	30.00	3.50
Kansas City	29.00	4.00	Seattle	83.50	15.00
Louisville	14.65	3.50	Toronto	8.75	1.50
Los Angeles	83.50	15.00	Washington	23.80	3.50

These rates are in accordance with those which have been announced by the various passenger associations listed below:

Central Passenger Association.—Two cents per mile in each direction, but in no case more than summer tourist fares. Signature form of tickets will be sold June 10, 11 and 12, final return limit to reach the original starting point not later than midnight, June 20. A joint tariff authorizing fares for the annual session of the Association from points in the Central Passenger Association territory is now being compiled.

Trunk Line Association.—Two cents per mile in each direction, going and returning via same route only; tickets to be sold and good, going, June 10-12, and returning, to reach the original starting point not later than June 20.

Southwestern Passenger Association.—Two cents per mile in each direction for round trip. These tickets will be on sale from June 1 to September 30, with return limit to October 31. The exact fares can be obtained on application to the local agent.

New England Passenger Association.—Two cents per mile in each direction, short line mileage, going and returning via the same route only and over which one-way tickets are regularly sold—one and one-half westbound differential to apply. Tickets to be sold and good going June 10-12 and returning to reach original starting point not later than midnight of June 20.

Western Passenger Association.—The lines members of the Western Passenger Association have individually announced that for the annual session of the American Medical Association, they will institute and participate in the following fares and arrangements: Double the current one-way I. C. C., basing fares from a selected number of points in Western Passenger Association territory to Chicago, Peoria or St. Louis, not to exceed authorized summer tourist selling fares to those points, added to the fares tendered therefrom, such fares to be announced later. From points in Illinois, also from Bellevue, Burlington, Clinton, Davenport, Dubuque and Keokuk, Iowa, and from Hannibal, Mo., and St. Louis, tickets to be sold June 10-12, inclusive, with final return limit to reach original starting point not later than midnight of June 20. From other points in Western Passenger Association territory, tickets to be sold June 9-11, inclusive, with final return limit to reach the original starting point not later than midnight of June 21, 1916. Tickets to be limited for going passage commencing date of sale and for a continuous passage in each direction. Tickets are to be validated by the agent at terminal line at Detroit.

Eastern Canadian Passenger Association.—The rate quoted is one-way ordinary first-class fare and one-third, plus 25 cents, for the round trip. Tickets may also be issued at Montreal to Detroit and return, rail to Detroit and return to Toronto or Kingston, thence steamer to Montreal, at a through fare of $22.50.

"American Medical Special"

This train will run over the Michigan Central, "the Niagara Falls Route," and is scheduled to leave Chicago at 11:55 p. m., Monday, June 12, which is considered the most convenient time for those going from Chicago, and provides for a comfortable connection for those coming from points west of Chicago. The train will be made up solid of Pullman sleeping cars, including drawing room and compartment cars. It is planned to have the train arrive in Detroit at the new passenger terminal of the Michigan Central at 7:30 (Central Time) the following morning.

In addition to this special, the Michigan Central runs the following fast trains which carry sleeping cars, parlor cars, dining cars and day coaches. From Chicago, the fare will be $11, round trip, good on all trains. Tickets will be on sale June 10, 11 and 12, returning June 20. From points west of Chicago, tickets will be on sale, commencing June 1, limited to thirty days for return, at proportionate low round-trip fares:

*Leave Chicago	9:05 a. m.	Arrive Detroit	3:35 p. m.
Leave Chicago	10:30 a. m.	Arrive Detroit	5:55 p. m.
*Leave Chicago	12:30 p. m.	Arrive Detroit	6:55 p. m.
Leave Chicago	3:00 p. m.	Arrive Detroit	10:35 p. m.
*Leave Chicago	5:40 p. m.	Arrive Detroit	12:01 a. m.
*Leave Chicago	6:10 p. m.	Arrive Detroit	12:45 a. m.
Leave Chicago	10:00 p. m.	Arrive Detroit	6:45 a. m.
Leave Chicago	12:05 a. m.	Arrive Detroit	8:00 a. m.
Leave Chicago	3:00 a. m.	Arrive Detroit	10:30 a. m.

* An extra fare of 25 cents is charged Chicago to Detroit on this train.

The Pullman fares between Chicago and Detroit, one way, are as follows: Upper berth, $1.60; lower berth, $2; compartment, $6; drawing room, $7, and seat in parlor car, $1.

New York and Boston Special

The Medical Society of the State of New York has arranged with the New York Central Railroad for a special train which is scheduled to leave both New York and Boston, Sunday, June 11, as noted below.

Lv. New York (Grand Cent. Ter.)	Sunday, June 11..	5:00 p. m. (E. T.)
Lv. 125th St. Station		5:11 p. m. (E. T.)
Lv. Yonkers	N. Y. C. R. R.	5:28 p. m. (E. T.)
Lv. Harmon	N. Y. C. R. R.	5:57 p. m. (E. T.)
Lv. Boston	B. & A. R. R.	2:00 p. m. (E. T.)
Lv. Worcester	B. & A. R. R.	3:12 p. m. (E. T.)
Lv. Springfield	B. & A. R. R.	4:37 p. m. (E. T.)
Lv. Pittsfield	B. & A. R. R.	6:27 p. m. (E. T.)
Lv. Albany	N. Y. C. R. R.	8:15 p. m. (E. T.)
Lv. Schenectady	N. Y. C. R. R.	8:47 p. m. (E. T.)
Lv. Utica	N. Y. C. R. R.	10:23 p. m. (E. T.)
Lv. Syracuse	N. Y. C. R. R.	11:40 p. m. (E. T.)
Lv. Rochester	N. Y. C. R. R., Monday, June 12,	1:20 a. m. (E. T.)
Lv. Buffalo	M. C. R. R.	3:10 a. m. (E. T.)
Ar. Detroit	M. C. R. R.	7:10 a. m. (C. T.)

This special train will be run from the Grand Central Terminal, New York, and cars from Boston will be attached to the train at Albany. The equipment will be of modern all-steel Pullman open section drawing room and compartment observation car, dining car and buffet library smoking or club car.

Special rates over the New York Central Lines from the principal stations are as follows:

From	Railroad Fare	Pullman Fare Lower	Upper	Compt.	Draw. Rm.
New York*	$26.70	$3.50	$2.80	$10.00	$13.00
Albany	21.30	3.00	2.40	8.50	11.00
Schenectady	20.60	3.00	2.40	8.50	11.00
Utica	17.50	2.75	2.20	8.00	10.00
Syracuse	15.40	2.50	2.00	7.00	9.00
Rochester	12.20	2.00	1.60	6.00	7.00
Buffalo	10.05	1.50	1.25	5.00	6.00
Boston	28.95	4.00	3.20	11.50	14.00
Worcester	27.40	4.00	3.20	11.50	14.00
Springfield	25.45	3.50	2.80	10.00	13.00
Pittsfield	23.30	3.50	2.80	10.00	13.00

* Railroad fares quoted from New York include excess fare of $1 applying account of fast time of the special train. Proportionate fares from other points.

A competent representative of the passenger department of the New York Central Lines will accompany the party to look after details and the comfort of the passengers, and will reserve Pullman accommodations for the return trip in special cars or otherwise as may be desired.

Those who find it inconvenient to use this special train may obtain tickets at the rates quoted above, which can be purchased June 10 to 12 inclusive, and will be good on all trains on the payment of the excess fares applying on the fast trains. The tickets will be good returning to reach the original starting point not later than June 20, and stop-over may be made on the return at Niagara Falls and other principal points within the final limit.

The Michigan Central Railroad schedule from Buffalo to Detroit is as follows:

Lv. Buffalo 7:55 a. m. (E. T.); 2:00 p. m. (E. T.) 8:30 p. m. (E. T.) 11:55 p. m. (E. T.).
Lv Niagara Falls 8:37 a. m. (E. T.), 2:43 p. m. (E. T.); 8:05 p. m. (E. T.).
Ar. Detroit 1:25 p. m. (C. T.) 8:45 p. m. (C. T.); 12:45 a. m. (C. T.); 4:35* a. m. (C. T.).

* Passengers may remain in sleepers until 7 a. m.

Physicians' Special Lake Cruise

Provided there is a minimum party of 250 passengers, arrangements will be made to have the steamship *South American* leave Chicago Saturday, June 10, to arrive in Detroit, Monday, June 12. The schedule for the trip will be arranged so as to permit a stop of several hours at Mackinac Island for sightseeing, and the steamer will lie at the dock in Detroit until the end of the annual session. During this time the guests will be served with breakfast on the boat and will have the use of staterooms and berths. The boat which is to be used is one of the largest passenger boats on the Great Lakes, and has an accommodation for 538 passengers, all outside rooms. Special arrangements may be made for banquets and balls any evening while the steamer is lying at Detroit. The rates for this cruise will be $30.

J. RAWSON PENNINGTON, Chairman,
Committee on Transportation and Place of Session.

BY AUTOMOBILE TO DETROIT

It is expected that several hundred Fellows of the American Medical Association will travel by automobile to the annual session at Detroit. In order to aid those who desire to go by automobile, the Committee on Arrangements has worked out a series of routes which are most suitable for motorists.

The accompanying map, which is furnished by the courtesy of the Hupp Motor Car Corporation of Detroit, gives a general idea of the routes to be taken from Eastern and Central states. The lack of space prevents detailed description of these routes. The diagram is intended to show the general trend of travel from the various sections to Detroit.

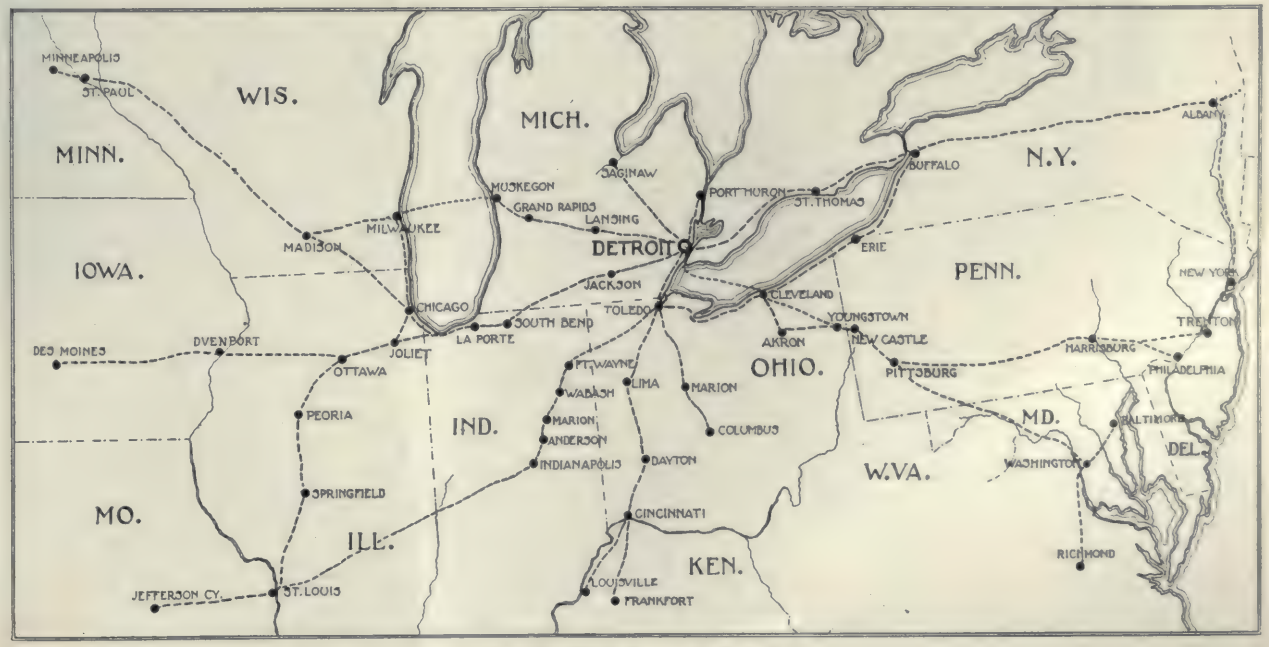


Fig. 12.—Auto Routes to Detroit.

The Hupp Motor Car Corporation has also offered, through the Committee on Arrangements, to supply any detailed information which the individual Fellows of the Association may desire. On account of road conditions it is impossible to give the exact information at this time. However, physicians should write to the Committee on Arrangements, or direct to the Hupp Motor Car Corporation, previous to starting, and such information will be secured. Information will also be available as to routes for short trips around Detroit.

Tourists from Western sections can generally secure best travel by going, first, to the Lincoln Highway. This highway passes through the section just south of Chicago, and the trip to Detroit may be made either by continuing on the highway through Aurora, Joliet, Valparaiso, Elkhart and Fort Wayne, and then leaving the highway northward to Toledo or Detroit, or a shorter route may be taken from South Bend straight into Kalamazoo and Jackson.

Motorists from the St. Louis section can get the best route by way of either Springfield, Peoria and the Lincoln Highway, or by way of Indianapolis through Anderson, Wabash and Fort Wayne. From the Northwest the best route is from Minneapolis down to Madison and on to Chicago, or, leaving Madison, to Milwaukee and taking the Pere Marquette boats to Muskegon and then by way of Grand Rapids and Lansing. Eastern motorists may take the northern route from New York to Albany, thence over to Utica, Syracuse, Rochester and Buffalo, and then by boat to Detroit, or through Canada, by way of St. Thomas to Detroit. The Ontario government has just passed a law permitting the entrance, of a duration of thirty days, for cars from other states. This is a repeal of last year's law which allowed American motorists to take out Canadian licenses. Motorists from the East and South may also travel by way of the Lincoln Highway over to Canton, from which place a cut can be made over to Cleveland, and from there by boat to Detroit or on to Toledo and Detroit; or the highway may be continued to Lima, and thence north to Toledo.

SHIPMENT OF AUTOMOBILES BY STEAMERS

The rates on automobiles by steamers vary according to the length of the wheel base and the equipment of the car. Between Detroit and Cleveland prices vary from $6 to $13, and between Detroit and Buffalo from $7 to $18.

GARAGE ACCOMMODATIONS

Those who intend to motor to Detroit are requested to reserve garage space at once. In order to assist physicians to find the accommodations they need, the local Committee on Arrangements has appointed a subcommittee on automobiles, and suggests that physicians who desire to make reservations of garage space, or who need advice concerning other matters of interest in connection with going to Detroit by automobile, address the chairman of the subcommittee at 33 High Street, East, Detroit. It is desirable to arrange for these reservations at as early a date as possible. The rates for service are stated to be:

Storage, 24 hours	$0.75 to $1.50
Washing and polishing cars	1.50 to 2.50
Labor on repairs, etc.	.75 per hour

DETROIT INFORMATION



MAP OF DETROIT

A. Armory, Detroit National Guard, N. E. corner Brush and Larned Sts.
B. Wayne County Medical Society Building, 33 High Street, East.
C. Lyceum Theater, 180 Randolph Street.
1. Statler Hotel, Washington Blvd., Bagley Ave. and Grand Circus Park.
2. Pontchartrain Hotel, S. E. corner Cadillac Square and Woodward Ave.
3. Tuller Hotel, Park Ave. and Grand Circus Park.
4. Addison Hotel, N. W. corner Charlotte and Woodward Aves.
5. Ste. Claire Hotel, N. E. corner Monroe and Randolph Sts.
6. Plaza Hotel, Madison Ave. and John R. St.
7. Cadillac Hotel, Michigan and Washington Aves.
8. Charlevoix Hotel, Park Ave. and Elizabeth St.
9. Eldorado Hotel, Winder St., East of Woodward.
10. First Presbyterian Church, Woodward Ave. and Edmond Pl.
11. Baptist Church, Institute Building, Winder St., East of Woodward.
12. Y. M. C. A. Building, N. E. corner Adams Ave. and Witherell St.
13. D. A. C. Garage, Randolph St. and Madison Ave.
14. Detroit Athletic Club, John R. St. and Madison Ave.
15. Madison-Lenox Hotel, Madison Ave.
16. Henry Clay Hotel, S. E. corner John R. and Center Sts.
17. St. Charles Hotel, Farmer St.
18. Oriental Hotel, Library Ave.
19. Library Park Hotel, Library Ave.
20. Griswold Hotel, N. E. corner Grand River Ave. and Griswold St.
21. Berghoff Hotel, Monroe Ave.
22. Burns Hotel, North Side Cadillac Square, corner Bates.
23. Metropole Hotel, Woodward Ave.
24. Normandie Hotel, Congress St., near Woodward Ave.
25. Wayne Hotel, S. E. corner Jefferson Ave., West and Third Sts.
26. Interurban Station, S. E. corner Jefferson Ave. and Bates St.
27. Grand Trunk Station, Foot of Brush St.
28. Union Station, S. W. corner Fort and Third Sts.
29. Michigan Central R. R. Depot, 15th St., near Michigan Ave.

THE SCIENTIFIC EXHIBIT

All signs point to a successful Scientific Exhibit. Much credit is due to the local committee. Extremely gratifying is it that the Far West, the South and the East will be creditably represented. This widespread geographic representation from year to year indicates that scientific workers all over the country are coming to recognize the Scientific Exhibit as an excellent arena in which to show the fruits of scientific investigation.

Brief reference should be made at this time to the classification of exhibits already published (THE JOURNAL, April 1, 1916, p. 1041), which will constitute the basis of awards made. The main divisions are as follows:

I. Institution Exhibits.
II. Research Exhibits.
III. Exhibits Relating to Laboratory Methods of Diagnosis.
IV. Practitioners' Exhibits.
V. Medical Society Exhibits.
VI. Public Health Exhibits.

Research exhibits will probably constitute the dominant feature. This has been the natural and inevitable trend in the evolution of the exhibit. This does not mean that exhibits illustrative of the fundamentals in anatomy, physiology and pathology are not acceptable, or that exhibits dealing with the public health and clinical problems are not desired. All are most necessary to make this important branch of Association work of the highest teaching value to the largest number. In the field of research it has been thought advisable to emphasize two features:

1. Exhibits of work on blastophthoria—experimental work showing effects of alcohol, lead, Roentgen rays, etc., on the germ cells.

2. Exhibits showing the application of biologic methods to clinical medicine, including sensitization, anaphylaxis, biologic serum tests, vaccines, etc. Those who contemplate showing anything in illumination of these topics should communicate with Dr. A. S. Warthin, University of Michigan Medical School, Ann Arbor, Mich.

The Roentgen-ray exhibits will differ in the manner of presentation from those previously given. Instead of the conventional illuminated boxes, those making Roentgen-ray exhibits will be required to reduce their exhibits to lantern slide form. It is proposed to have demonstration of these by subjects and at hours scheduled on the official program. An excellent dark room is available for this purpose. The range of subjects to be presented is such as will appeal to a large number. Those who contemplate participating in this phase should communicate with Dr. P. M. Hickey, 32 Adams Avenue, West, Detroit.

Under medical society exhibits it is urged that a study be made of the doctor's problems, so far as his own comfort and welfare are concerned. Abuses exist in the profession and among the laity toward the profession, which organized effort should seek to correct. A scientific presentation of the facts will aid in the solution of these problems. Let there be made a study of these conditions which should be set forth in statistics, charts, diagrams, etc. One very comprehensive exhibit of this sort is assured for the coming meeting.

Exhibits by general practitioners, as indicated by the foregoing classification, are urged by the committee. The practitioner without hospital or college connection should not minimize his importance or responsibility as a contributor to the Scientific Exhibit. Some of the very best contributions we have received have been from this source. It is fully expected that those entering this classification will display an originality which will excite comment and admiration.

Exhibitors should ship materials in ample time to arrive Friday before the meeting. It is preferable that exhibits be installed Saturday, and certainly not later than Monday. Let every exhibit be in place early Tuesday morning. Shipments should be made to the A. M. A. Scientific Exhibit, Detroit Armory, Detroit, Mich., care of Dr. J. Walter Vaughan. Meantime, general inquiries concerning the Scientific Exhibit should be sent to the director, Frank B. Wynn, 421 Hume-Mansur Building, Indianapolis.

FRANK B. WYNN, Director,
LOUIS B. WILSON, H. GIDEON WELLS,
A. S. WARTHIN, PLYNN F. MORSE,
Committee.

HOTEL RESERVATIONS

The Committee on Arrangements requests that hotel reservations be made through its subcommittee on hotels, rather than by communicating directly with the hotels. When this subcommittee receives a request for a reservation, it will take up the matter with the management of one of the hotels, and see to it that the hotel advises the applicant of the reservation made. In writing to the committee, please name a first and second choice of hotel and state the number of rooms desired for the accommodation of your party. Also, name the rate you are willing to pay. Those who desire rooms with bath should state whether a tub or a shower is preferred. The local Committee on Arrangements should be notified promptly in case a reservation which has been made is not to be used. This will permit the committee to have the space assigned to others. The Committee on Arrangements has been advised that in certain instances those who have communicated with the hotels directly have not received prompt attention. Consequently, as urged above, the committee should be addressed in order that provision may be made for the comfort and convenience of those who plan to attend the meeting. The chairman of the subcommittee on hotels is Dr. Rolland Parmeter. Communications should be addressed to him at the office of the Committee on Arrangements, 33 East High Street, Detroit.

RATES AT DETROIT HOTELS

Hotel	No. of Rooms	Rate per Day—Single	Rate per Day—Double
Addison	50	$2.00	$2.50
Berghoff	72	1.50	2.00
Brunswick	75	1.50	2.75
Burns	100	1.50	3.50
Cadillac	250	2.50	4.00
Carlsbad	82	1.50	2.50
Charles	85	1.50	2.50
Charlevoix	200	1.50	3.00
Clayton	70	1.50	3.00
Eldorado	100	2.00	3.00
Grand Union	48	1.50	2.50
Griswold	175	2.00-$2.50	3.00-$4.00
Henry Clay	240	1.50	2.00
Hoffman	200	1.25	2.50
Imperial	80	1.50	2.00
Lenox	210	2.00	3.00
Library Park	75	2.00	3.00
Madison	200	2.00	2.50
Marietta	25	1.50	2.00
Metropole (Stag)	70	1.50- 2.50	2.50- 3.00
Morgan	100	1.50	2.50
Normandie	105	1.50	3.00
Northern	20	1.00	....
Norton (Stag)	68	1.50	3.00
Oriental (Stag)	80	1.25	2.50
Oxford	72	2.50	3.00
Pontchartrain	425	2.50	4.00
Pinehurst	20	1.50	2.00
Rexmere	37	2.00	3.00
Statler	1,000	1.50- 5.00	3.00- 7.00
Ste. Claire*	100	3.50	7.00
Stevenson	150	1.25	3.00
Tuller	600	1.50	2.50
Wayne	175	2.00	3.00

* American plan.

MEETING PLACES AND HOTEL HEADQUARTERS

Letters and numerals refer to the map, p. 1510. In certain instances, changes have been made from the hotel headquarters announced in previous issues of THE JOURNAL. This list has been compiled from the latest information furnished by the Local Committee on Arrangements.

HOUSE OF DELEGATES: Wayne County Medical Society Building (B), 33 East High Street.

GENERAL MEETING: Lyceum Theater (C), 180 Randolph Street. (The public health meeting to be held Friday, June 16, will also be held in this theater.)

SCIENTIFIC EXHIBIT, REGISTRATION BUREAU, COMMERCIAL EXHIBIT, INFORMATION BUREAU, AND BRANCH POSTOFFICE: Detroit National Guard Armory (A), Corner Brush and Larned Streets.

Sections, Hotel Headquarters and Meeting Places

PRACTICE OF MEDICINE: Pontchartrain Hotel (2); First Presbyterian Church (10).

SURGERY, GENERAL AND ABDOMINAL: Tuller Hotel (3); Institute Building, Baptist Church (11).

OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY: Statler Hotel (1); Institute Building, Baptist Church (11).

OPHTHALMOLOGY: Statler Hotel (1); Ball Room, Statler (1).

LARYNGOLOGY, OTOLOGY AND RHINOLOGY: Statler (1); Convention Hall, Statler (1).

DISEASES OF CHILDREN: Addison Hotel (4); First Presbyterian Church (10).

PHARMACOLOGY AND THERAPEUTICS: Tuller Hotel (3); Roof Garden, Tuller (3).

PATHOLOGY AND PHYSIOLOGY: Tuller Hotel (3); Convention Hall, Tuller (3).

STOMATOLOGY: Ste. Clair Hotel (5); Convention Hall Floor, Pontchartrain Hotel (2).

NERVOUS AND MENTAL DISEASES: Plaza Hotel (6); Y. M. C. A. (12).

DERMATOLOGY: Pontchartrain Hotel (2); Convention Hall Floor, Pontchartrain Hotel (2).

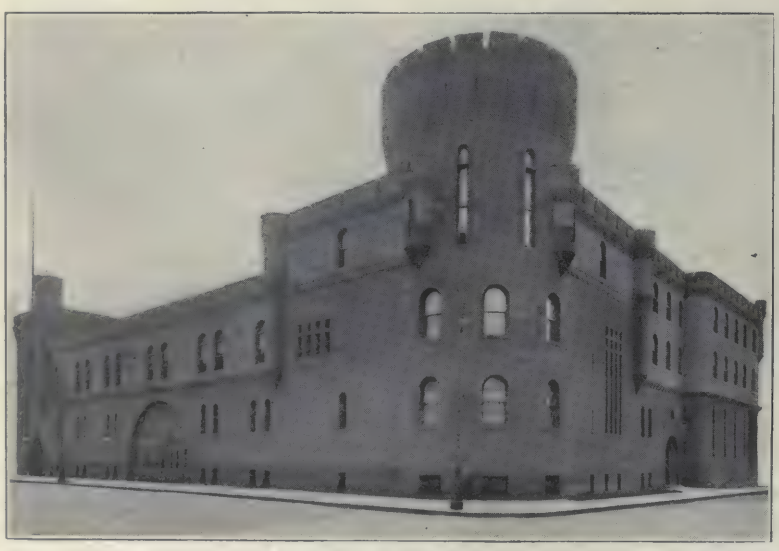


Fig. 13.—The Armory.

PREVENTIVE MEDICINE AND PUBLIC HEALTH: Cadillac Hotel (7); Second Floor Cadillac Hotel (7).

GENITO-URINARY DISEASES: Pontchartrain Hotel (2); Convention Hall, Pontchartrain Hotel (2).

HOSPITALS: Charlevoix Hotel (8); Top Floor, Tuller Hotel (3).

ORTHOPEDIC SURGERY: Charlevoix Hotel (8); Institute Building, Baptist Church (11).

REGISTRATION

The Importance of Registering Early—A Few Suggestions Which Will Facilitate Registration

The Bureau of Registration will be located in the Detroit National Guard Armory, Corner of Brush and Larned Streets. A committee of local physicians will assist those desiring to register. A branch postoffice will be opened, and a bureau of information established in connection with the Registration Bureau.

Every one who registers will be required to fill out completely, except the blank space for the number, the spaces on both parts of the double registration cards, which will be found on the tables in front of the Registration Bureau. These entries should be written very plainly, or printed, as the cards are given to the printer to use as "copy" for the *Daily Bulletin*.

1. Fellows who have their pocket cards with them can be registered with little or no delay. They should present the filled out registration card, together with their pocket card, at one of the windows marked "Registration by Pocket Card." There the clerk will compare the two cards, stamp the pocket card and return it, and supply the Fellow with a copy of the official program and other printed matter of interest to those attending the annual session.

2. Those Fellows who have forgotten their pocket cards should present the filled in registration card at the window marked "Paid—No Card." The work of registration at this window will be conducted as rapidly as possible; but the necessity of finding the Fellow's name on the Fellowship roster will occupy time and will occasion inconvenience to those who neglect to bring their pocket cards with them.

3. The Fellow whose 1916 dues are unpaid should present his filled in registration card with the amount of his Fellowship dues ($5) at one of the windows marked "Cash." Here, too, there will be occasioned some delay; but the work of registering will be conducted as promptly as possible.

4. Subscribers and others desiring to qualify as Fellows should present a filled in registration card, together with a formal application for Fellowship at the window marked "New Fellows." These applications for Fellowship can be obtained at the Registration Bureau or from the members of the Committee on Registration. In order to qualify as a Fellow, the applicant must be officially reported as a member of the constituent association of the state in which he resides, and in addition to filing this formal application, he must pay his annual Fellowship dues for the current year; if already a subscriber to THE JOURNAL, with his subscription paid for a term to or beyond Jan. 1, 1917, no additional payment is necessary. If subscription is not paid in full for the current year, the payment of a sum to extend it to Jan. 1, 1917, is required.

The registration of new Fellows will be greatly facilitated if they will provide themselves with certificates of membership issued by the secretary of their state association, certifying to their membership in the state and county branches of the organization.

It will assist in registering if those who desire to qualify as Fellows will file their applications and qualify as Fellows by writing directly to the American Medical Association, 535 North Dearborn Street, Chicago, so that their Fellowship may be entered not later than June 1. Any applications received later than June 1 will be given prompt attention, but the Fellowship certificate and pocket card may not reach the applicant in time so that he can use this card in registering at the Detroit session, and he may be required to make a second payment of his Fellowship dues, which must be held until the records at headquarters can be consulted after the close of the session, when any excess payment will be adjusted.

If, however, a member of the Association neglects to qualify as a Fellow before reaching Detroit, he may be entered as a Fellow at the meeting, as suggested above.

SOCIAL ENTERTAINMENTS

(The official Fellow's badge, or one of those provided for ladies and guests, will be required for admission to entertainments, and to other places to which entrance is granted to those in attendance on the annual session.)

Arrangements have been completed for a golf tournament open to Fellows of the Association who qualify as members of the American Medical Golfing Association. Monday, June 12, is the day set for this contest, which will be played on the Country Club course. Those desiring further information or wishing to be entered in this contest should address Dr. H. R. Varney, Kresge Building, Detroit, or Dr. Will Walter, 122 Michigan Avenue, Chicago.



Fig. 14.—Above: The Residence at Clairview, Grosse Pointe Shores. Below: The Grounds at Clairview.

Monday evening: Open house at the Wayne County Medical Society Building.

Tuesday afternoon: Receptions and afternoon teas will be given to the visiting ladies at the Country Club and the Detroit Boat Club from 3 to 5 o'clock.

Tuesday evining: Alumni and section dinners and smokers. The Blackwell Society will entertain the visiting women physicians this evening.

Wednesday afternoon: Reception and afternoon tea at the Detroit Boat Club on Belle Isle and the Country Club from 3 to 5 o'clock.

Wednesday evening: President's Reception at the Hotel Statler, followed by dancing.

Thursday afternoon: The Fellows and ladies of the American Medical Association will be tendered a garden party by Dr. and Mrs. H. N. Torrey on the grounds of their home "Clairview" at Grosse Pointe.

Thursday evening: Reception and dance at the Palais de Danse, 8:30 to 12.

Friday: Trips will be made to Ann Arbor, Mount Clemens, and other places.

The Regents and the Faculty of the Medical School invite the Fellows of the American Medical Association and their ladies to visit the University of Michigan, Ann Arbor, Friday, June 16, and have appointed this day for a reunion of all former members of the medical school. The following provisional program has been arranged:

Members of the medical faculty will announce hours when they can be seen by their friends. From 10:30 to 12 there will be clinics and demonstrations at the hospitals. At 1 o'clock a luncheon will be provided by the regents. In the afternoon demonstrations will be given in the medical laboratories.

A committee of the wives of the members of the medical faculty will meet the ladies and conduct them to places of especial interest. All the museums and collections will be open. Automobile drives will be arranged for those who wish to visit the city.

At 3 o'clock there will be an organ recital in Hill Auditorium. Class meetings will be held at 4. From 4:30 to 6:30, Dr. and Mrs. Vaughan will give a reception at their home.

Friday afternoon: A boat ride on the steamer *St. Claire* to the Flats, returning about 6 o'clock.

Friday evening: Moonlight dancing party on the steamer *St. Claire* from 8:30 to midnight.

PUBLIC HEALTH MEETING

The success of Commemoration Day at San Francisco prompted the Council on Health and Public Instruction to arrange for a public meeting following the Detroit session. This will be held at the Lyceum Theater, 180 Randolph Street, on Friday afternoon, June 16. The Michigan State Board of Health and the Detroit Department of Health are cooperating. Preceding the meeting, there will be a public health parade under the auspices of the State Board of Health. Detailed announcements will be made later.

POSTOFFICE

An Association Postoffice will be maintained at the Registration Bureau in the National Guard Armory, corner of Brush and Larned Streets. Guests are requested to order mail addressed to them "Care American Medical Association, National Guard Armory, Detroit," or to their hotels, as preferred.

MEETINGS OF NONAFFILIATED ORGANIZATIONS

The following medical societies are listed to hold their annual conventions and congresses in Detroit preceding the Scientific Assembly of the American Medical Association: American Academy of Medicine, June 9-12; American Association of Anesthetists, June 12; American Bacteriologic Society, June 12; American Therapeutic Society, June 9-10, and the Alpha Omega Alpha Society, June 12; and following the Scientific Assembly, the National Association for the Study of Epilepsy, June 16.

AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS

The organization of the American Association of Industrial Physicians and Surgeons will be completed, Monday, June 12, 1916, at Detroit. The headquarters will be at the Hotel Cadillac. Physicians engaged in industrial medicine or surgery are invited to be present. During the last two or three years, physicians engaged in industrial medicine have held meetings under the Section on Industrial Hygiene at the conventions of the American Public Health Association and the National Safety Council. At the meeting of the Section on Preventive Medicine of the American Medical Association, 1915, one session was devoted to such work. During the past year an organization committee has been formed and a charter has been secured under the laws of the state of Illinois. This charter will, however, be held open until after the Detroit session, and physicians who join the Association at that session will become charter members. Among the problems which will be discussed are:

1. Medical examination of employees; the results and the exact benefits of this procedure.
2. The surgeon as an aid in preventing accidents.
3. Emergency surgery and standardizing the proper treatment in certain types of emergency cases.
4. Standardizing the records used in this work.
5. Various forms of industrial insurance and the need of a federal health insurance law.

The officers of the organization committee are Dr. Chase Stubbs, of the National Malleable Casting Company, Chicago, chairman, and Dr. Harry E. Mock, of Sears, Roebuck & Co., Chicago, secretary.



Fig. 15.—In Gladwin Park.



Fig. 16.—Landing at The Flats.

ALUMNI REUNIONS

The following meetings are contemplated:

Detroit College of Medicine and Surgery will hold an informal dinner and smoker at the Statler Hotel, Tuesday evening, June 13, at 8 p. m., Eastern standard time. Dr. Louis J. Hirschman will be the toastmaster. Tickets are $2 a plate and should be secured on or before Wednesday, June 7, by communicating with Dr. H. F. Dibble, 355 Woodward Avenue, or Dr. A. E. Catherwood, 1337 David Whitney Building, Detroit.

University of Michigan will hold an informal dinner and smoker at the Statler Hotel, Tuesday evening, June 13, at 8 p. m., Eastern standard time. Dr. Victor C. Vaughan will be the toastmaster. Tickets are $2 a plate, and should be secured on or before Wednesday, June 7. Reservations for this dinner should be made by addressing Dr. W. F. Seeley, Tenth Floor, Kresge Building, Detroit.

Harvard University will give an informal dinner and smoker at the University Club, Tuesday evening, June 13, at 8 p. m., Eastern standard time. Communications should be addressed to Dr. F. C. Kidner, 1337 David Whitney Building, Detroit.

Johns Hopkins University will hold an informal dinner and Smoker at the Detroit Athletic Club, Tuesday evening, June 13, at 8 p. m., Eastern standard time. Reservations may be made by communicating with Dr. H. W. Plaggemeyer, 1001 David Whitney Building, Detroit.

Details for other dinners and smokers cannot be given at this date. Alumni of Rush Medical College, Western Reserve School of Medicine, Jefferson Medical College, University of Pennsylvania, and George Washington University of Medicine are requested to communicate at once with the chairman of the Subcommittee on Alumni Reunions, Dr. George E. Fay, 33 High Street, East, Detroit, signifying their intention of participating, that local committees may be advised of the number for whom to prepare dinners. Any college desiring to have a dinner should advise at once.

Section Dinners

Sections on Obstetrics, Gynecology and Abdominal Surgery, Diseases of Children, Nervous and Mental Diseases, and Practice of Medicine will have section dinners.

Fraternity Headquarters

The Alpha Epsilon Iota Fraternity will maintain headquarters in Suite 712, 38 Adams Avenue, West, Detroit, during the week of the session.

PUBLIC HEALTH SUNDAY IN DETROIT

In accordance with the plan followed for several years past, speakers on appropriate public health topics will be furnished for the churches, June 11, the Sunday preceding the session. This plan was followed last year in San Francisco, and in preceding years in Philadelphia, Minneapolis and St. Paul, with great success, practically all of the churches participating, including the Jewish, Roman Catholic and all of the Protestant denominations. The work of supplying speakers for the churches is under the direction of the Council on Health and Public Instruction. A local committee, of which Dr. Guy L. Kiefer is chairman, has been appointed to cooperate with the Council in this work. Arrangements for filling the Detroit pulpits are now going on, and it is anticipated that a large proportion of the churches will participate in the observance of Public Health Sunday. A large corps of experienced and capable speakers has been secured to fill appointments in any church desiring a public health talk. Further details will be given later as the plans develop.

PRELIMINARY PROGRAM OF THE SCIENTIFIC ASSEMBLY

PROGRAM OF OPENING MEETING

LYCEUM THEATER

Tuesday, June 13, 10:30

Music.

Call to Order. President, ALBERT VANDER VEER, Albany, N. Y.

Invocation. BISHOP CHARLES D. WILLIAMS, Detroit.

Address of Welcome to Michigan. HON. WOODBRIDGE N. FERRIS, Governor of Michigan.

Address of Welcome to Detroit. HON. OSCAR B. MARX, Mayor of Detroit.

Address of Welcome by the Medical Profession. A. W. HORNBOGEN, President, Michigan State Medical Society.

Introduction and Installation of President-Elect RUPERT BLUE, Washington, D. C.

Address. RUPERT BLUE, President.

Music.

THE PROGRAMS OF THE SECTIONS

Outline of the Scientific Proceedings — The Preliminary Program and the Official Program

The following papers are announced to be read before the various sections. The order here is not necessarily the order which will be followed in the Official Program nor is the list complete. The Official Program will be a pamphlet similar to those issued in previous years, and will contain the final program of each section with abstracts of the papers, also lists of committees, programs of the General Meeting and of the meetings of the House of Delegates, lists of entertainments, map of Detroit and other information. To prevent misunderstandings and to protect the interest of advertisers, it is here announced that this Official Program will contain no advertisements. It is copyrighted by the American Medical Association and will not be distributed before the session. A copy will be given to each member on registration.

SECTION ON PRACTICE OF MEDICINE

MEETS IN FIRST PRESBYTERIAN CHURCH

OFFICERS OF SECTION

Chairman—ROGER S. MORRIS, Cincinnati.
Vice Chairman—JOHN A. LICHTY, Pittsburgh.
Secretary—JAMES S. MCLESTER, Birmingham, Ala.
Executive Committee—W. JARVIS BARLOW, Los Angeles; CHARLES LYMAN GREENE, St. Paul; THOMAS MCCRAE, Philadelphia.

Tuesday, June 13—2 p. m.

1. Epidemics of Grip—What we are Doing to Prevent Them.
JOSEPH A. CAPPS, Chicago.
2. Blood Transfusions, with Special Reference to Group Tests and Group Reactions.
WALTER V. BREM, Los Angeles.
Discussion to be opened by W. L. MOSS, Baltimore, and REUBEN OTTENBERG, New York.
3. Preliminary Observations on the Apparently Immunizing Behavior of the Mixed Serums of Immune and Hypersensitive Guinea-Pigs.
HENRY SEWALL, WILLIAM C. MITCHELL and CUTHBERT POWELL, Denver.
Discussion to be opened by F. G. NOVY, Ann Arbor, Mich., and F. P. GAY, Berkeley, Calif.
4. Comparative Results in Antirabic Treatment with the Pasteur Method and with Desiccated Virus.
DOWNEY L. HARRIS, St. Louis.
Discussion to be opened by WILLIAM H. PARK, New York, and M. J. COURET, New Orleans.

Wednesday, June 14—9 a. m.

5. A Consideration of Types of Uremia.
NELLIS B. FOSTER, New York.
Discussion to be opened by THEODORE C. JANEWAY, Baltimore, and WARFIELD T. LONGCOPE, New York.
6. The Value of Recent Laboratory Tests in the Diagnosis and Treatment of Nephritis, with Special Reference to the Chemical Examination of the Blood.
ARTHUR F. CHACE, New York.
Discussion to be opened by OTTO FOLIN, Boston.
7. A Comparative Study of Tests for Renal Function.
HERMAN O. MOSENTHAL, Baltimore.
Discussion to be opened by LEONARD G. ROWNTREE, Minneapolis, and HENRY A. CHRISTIAN, Boston.
8. Thoracic Disease—The Status of Surgical Therapy.
SAMUEL ROBINSON, Rochester, Minn.
Discussion to be opened by WILLY MEYER, New York, and F. T. LORD, Boston.
9. Localized Apical Bronchiectasis.
THOMAS MCCRAE and ELMER H. FUNK, Philadelphia.

Wednesday, June 14—2 p. m.

JOINT MEETING WITH THE SECTION ON SURGERY, GENERAL AND ABDOMINAL

SYMPOSIUM ON THE SPLEEN

10. The Immediate Effects of Splenectomy in Pernicious Anemia.
ROGER I. LEE, Boston.
11. The Late Effects of Splenectomy in Pernicious Anemia.
E. B. KRUMBHAAR, Philadelphia.
12. The Effects of Splenectomy in Diseases Other Than Pernicious Anemia.
JOSEPH L. MILLER, Chicago.
13. Splenectomy for Hemolytic Jaundice.
C. H. PECK, New York.
14. Indications for Splenectomy in Certain Chronic Blood Disorders and the Technic of the Operation.
DONALD C. BALFOUR, Rochester, Minn.
15. Pernicious Anemia Treated by Splenectomy and Often-Repeated Blood Transfusions.
R. D. MCCLURE, Baltimore.
Discussion on the Spleen to be opened by R. M. PEARCE, JR., Philadelphia; FRANK SMITHIES, Chicago; BETH VINCENT, Boston, and H. Z. GRIFFIN, Rochester, Minn.

Thursday, June 15—9 a. m.

Election of Officers

16. The Alternating Pulse—Its Clinical Significance.
JOHN E. GREIWE, Cincinnati.
Discussion to be opened by LAWRENCE C. GROSH, Toledo, and CHARLES F. HOOVER, Cleveland.
17. The Significance of Pulse Form.
ALBION W. HEWLETT, Ann Arbor.
18. The Relation of the Form of the Ventricular Complex in the Electro-Cardiogram to Functional Derangements of the Heart.
G. CANBY ROBINSON, St. Louis.
Discussion to be opened by FRANK N. WILSON, Ann Arbor, Mich.
19. Some Factors in the Production of Cardiac Dyspnea.
FRANCIS W. PEABODY, Boston.
Discussion to be opened by E. F. DU BOIS, New York.
20. Roentgenocardiograms: Polygraphic Strip Tracings of Heart Chambers by the Roentgen Ray.
AUGUSTUS W. CRANE, Kalamazoo, Mich.

Thursday, June 15—2 p. m.

21. Chronic Colitis of Uncertain Nature.
DAVID L. EDSALL, Boston.
22. Mechanism of Hunger Pain in Chronic Ulcer.
WALTER HAMBURGER, HARRY GINSBURG and ISADORE TUMPOWSKY, Chicago.
23. Further Experiences with Carbohydrate Restriction in the Treatment of Hyperchlorhydria and Ulcer.
WILLARD J. STONE, Toledo, Ohio.
Discussion to be opened by GEORGE DOCK, St. Louis, and CHARLES G. STOCKTON, Buffalo.
24. Syphilis as a Probable Factor in Obscure Stomach Disorders.
CABOT LULL, Birmingham, Ala.
Discussion to be opened by FRANK SMITHIES, Chicago, and A. W. HEWLETT, Ann Arbor, Mich.
25. Syphilis in the Southern Negro as Determined by the Wassermann and Luetin Reactions on a Thousand Negroes.
H. L. MCNEIL, Galveston, Texas.
Discussion to be opened by M. L. GRAVES, Galveston, Texas, and C. C. BASS, New Orleans.

SECTION ON SURGERY, GENERAL AND ABDOMINAL

MEETS IN INSTITUTE BUILDING, BAPTIST CHURCH

OFFICERS OF SECTION

Chairman—E. WYLLYS ANDREWS, Chicago.
Vice Chairman—FRED T. MURPHY, St. Louis.
Secretary—E. S. JUDD, Rochester, Minn.
Executive Committee—A. F. JONAS, Omaha; CHARLES H. FRAZIER, Philadelphia; C. H. PECK, New York.

Tuesday, June 13—2 p. m.

1. Chairman's Address. E. WYLLYS ANDREWS, Chicago.
2. Suggestions as to the Method of Teaching Surgery (Lantern Demonstration). JOHN A. WYETH, New York.
   Discussion to be opened by A. D. BEVAN, Chicago.
3. Practical Results of Newer Methods in Surgery of the Stomach and Intestines. GEORGE W. CRILE, Cleveland.
   Discussion to be opened by J. M. T. FINNEY, Baltimore.
4. Nitrous Oxid-Oxygen Anesthesia in Major Surgery. A. BENNETT COOKE, Los Angeles.
   Discussion to be opened by W. I. TERRY, San Francisco.
5. Tuberculosis of the Cervical Lymphatics (Lantern Demonstration). CHARLES N. DOWD, New York.
   Discussion to be opened by JOHN F. GOLDEN, Chicago.
6. Incorrect Technic in the Application of Bismuth Paste in Chronic Suppurative Sinuses and Empyema. EMIL G. BECK, Chicago.
   Discussion to be opened by A. J. OCHSNER, Chicago.

Wednesday, June 14—9 a. m.

7. Acute Phlegmons of the Spinal Cord. JOHN B. MURPHY, Chicago.
   Discussion to be opened by JOSEPH COLLINS, New York.
8. Some Technical Features of Spinal Surgery, with Report of Results in 150 Spinal Operations (Lantern Demonstration). C. A. ELSBERG, New York.
   Discussion to be opened by HARVEY CUSHING, Boston.
9. Surgery of the Brachial Plexus. ARTHUR A. LAW, Minneapolis.
   Discussion to be opened by DEAN D. LEWIS, Chicago.
10. Free Transplantation of the Omentum Subcutaneously and Within the Abdomen. CARL B. DAVIS, Chicago.
    Discussion to be opened by JOHN STAIGE DAVIS, Baltimore.
11. Operative Treatment for Threatened Gangrene of the Foot, with Special Reference to Reversal of the Circulation (Lantern Demonstration). JOHN SHELTON HORSLEY, Richmond, Va.
    Discussion to be opened by DEWITT STETTEN, New York.
12. Stab Wounds of the Chest Involving the Diaphragm with Diaphragmatic Hernia. C. C. GREEN, Houston, Tex.
    Discussion to be opened by STUART MCGUIRE, Richmond, Va.

Wednesday, June 14—2 p. m.

JOINT MEETING WITH THE SECTION ON PRACTICE OF MEDICINE

SYMPOSIUM ON THE SPLEEN

13. The Immediate Effects of Splenectomy in Pernicious Anemia. ROGER I. LEE, Boston.
14. The Late Effects of Splenectomy in Pernicious Anemia. E. B. KRUMBHAAR, Philadelphia.
15. The Effects of Splenectomy in Diseases Other Than Pernicious Anemia. JOSEPH L. MILLER, Chicago.
16. Splenectomy for Hemolytic Jaundice. C. H. PECK, New York.
17. Indications for Splenectomy in Certain Chronic Blood Disorders and the Technic of the Operation. DONALD C. BALFOUR, Rochester, Minn.
18. Pernicious Anemia Treated by Splenectomy and Often-Repeated Blood Transfusions. R. D. MCCLURE, Baltimore.

    Discussion on the Spleen to be opened by R. M. PEARCE, JR., Philadelphia; FRANK SMITHIES, Chicago; BETH VINCENT, Boston, and H. Z. GIFFIN, Rochester, Minn.

Thursday, June 15—9 a. m.

Election of Officers

19. Removal of the Right Colon: Indications and Technic. C. H. MAYO, Rochester, Minn.
    Discussion to be opened by REA E. SMITH, Los Angeles.
20. Some Results of Colectomy and Exclusion of the Colon in Cases of Chronic Arthritis. J. T. BOTTOMLEY, Boston.
    Discussion to be opened by W. R. MACAUSLAND, Boston.
21. Perforating Ulcers of the Stomach and Duodenum. R. P. A. SULLIVAN, Brooklyn.
    Discussion to be opened by J. E. JENNINGS, Brooklyn.
22. Plastic and Reconstructive Surgery. JOHN STAIGE DAVIS, Baltimore.
    Discussion to be opened by J. S. STONE, Boston.
23. Sarcoma of Intra-Abdominal Testicle. W. W. GRANT, Denver.
    Discussion to be opened by W. B. COLEY, New York.
24. Chronic Appendicitis. F. G. CONNELL, Oshkosh, Wis.
    Discussion to be opened by H. A. BLACK, Pueblo, Colo.

Thursday, June 15—2 p. m.

25. Oration on Surgery: Surgical Aspects of the Industrial Accident Insurance. EMMET RIXFORD, San Francisco.
26. Complications and Sequelae of the Operation for Inguinal Hernia. LINCOLN DAVIS, Boston.
    Discussion to be opened by E. D. MARTIN, New Orleans.
27. The Surgical Problem of Symptomless Hematuria: Its Causes and Surgical Relief. R. L. PAYNE, JR., Norfolk, Va.
    Discussion to be opened by H. A. ROYSTER, Raleigh, N. C.
28. A Consideration of Fractures and Other Injuries of the Hip. A. R. MACAUSLAND, Boston.
    Discussion to be opened by C. E. THOMPSON, Scranton, Pa.
29. Nail Extension in Fractures of the Lower Extremity. J. C. A. GERSTER, New York.
    Discussion to be opened by R. H. SAYRE, New York.
30. The Use of Nails and Screws Through the Cartilage Surface in Fractures Into the Joint. A. T. MANN, Minneapolis.
    Discussion to be opened by F. H. ALBEE, New York.

SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY

MEETS IN INSTITUTE BUILDING, BAPTIST CHURCH

OFFICERS OF SECTION

Chairman—EDWARD M. REYNOLDS, Boston.
Vice Chairman—ALFRED B. SPALDING, San Francisco.
Secretary—BROOKE M. ANSPACH, Philadelphia.
Executive Committee—F. F. SIMPSON, Pittsburgh; E. GUSTAV ZINKE, Cincinnati; THOMAS S. CULLEN, Baltimore.

Tuesday, June 13—2 p. m.

1. Chairman's Address: The Uterine Secretions, Spermatozoa and Ovaries in Fertility and Sterility: From Microscopic Studies. EDWARD M. REYNOLDS, Boston.
2. The Corpus Luteum—Its Life Cycle and Its Rôle in Menstrual Disorders. EMIL NOVAK, Baltimore.
3. The Rôle of the Anteposed Uterus in the Causation of Backache and Pelvic Symptoms. HENRY T. HUTCHINS, Boston.
4. The Value of the Wassermann Test in Pregnancy. FREDERICK H. FALLS, Chicago.
5. Adenomyoma of the Rectovaginal Septum. THOMAS S. CULLEN, Baltimore.

Wednesday, June 14—9 a. m.

6. Colonic Infections: Some Seldom Described Nonspecific Types. J. M. LYNCH and W. L. MCFARLAND, New York.
7. Congenital Inflammation, Deformation and Defunctionalization of the Caudad Ileum and Colon: Their Relation to the Neuroses. JOSEPH RILUS EASTMAN, Indianapolis.
8. Anterior Parietal Implantation of the Colon for Ptosis. CHARLES A. L. REED, Cincinnati

9. The Prevention of Obstruction of the Passage of Gas Following Operations on the Colon.
ALBERT J. OCHSNER, Chicago.
10. Radical Operations for the Cure of Cancer of the Large Intestine. WILLIAM J. MAYO, Rochester, Minn.

Wednesday, June 14—2 p. m.

11. Intestinal Obstruction: Further Experimental Studies.
JOHN W. DRAPER, New York.
12. The Superiority of the Right Side Anus in the Handling of Partial and Complete Obstructions of the Lower Colon and Sigmoid in Cases Unsuited for Radical Operation. JOHN YOUNG BROWN, St. Louis.
13. Pelvic Infection in Women: Notes on Some Features of the Disease. THOMAS J. WATKINS, Chicago.
14. Results Following the Treatment of Pelvic Inflammatory Lesions by Surgical Measures.
JOHN G. CLARK and CHARLES C. NORRIS, Philadelphia.

Thursday, June 15—9 a. m.

Election of Officers

15. Inefficient Sterilization: A Possible Cause of Postoperative Infection in Clean Cases.
SIDNEY A. CHALFANT, Pittsburgh.
16. Posture in Obstetrics. JAMES W. MARKOE, New York.
17. The Use of Chloroform in the First Stages of Labor.
ISADORE L. HILL, New York.
18. The Present Status of the Abdominal Cesarean Section: With Report of Cases. FRANKLIN S. NEWELL, Boston.
19. Obstetric Surgery, A Modern Science: Its Scope and Limitations. EDWARD P. DAVIS, Philadelphia.
20. Meddlesome Midwifery in Renaissance.
JOSEPH B. DELEE, Chicago.

Thursday, June 15—2 p. m.

21. Umbilical Hernia and Lipectomy.
WALTER LATHROP, Hazleton, Pa.
22. Sheet Rubber Superior to Gauze Sponges in Abdominal Operation. JOHN W. KEEFE, Providence, R. I.
23. Indications for Cholecystectomy.
DONALD GUTHRIE, Sayre, Pa.
24. A Report on One Hundred Consecutive Cases of Fibromyomata Uteri Subjected to Operation.
STEPHEN E. TRACY, Philadelphia.
25. Operative Treatment of Fibromyomatous Uterine Tumors.
JOHN B. DEAVER, Philadelphia.

Friday, June 16—9 a. m.

26. Obstetric Diagnosis. E. GUSTAV ZINKE, Cincinnati.
27. Obstetrics and Gynecology Under Ideal Conditions in a General Hospital. FREDERICK C. HOLDEN, Brooklyn.
28. Recent Progress in the Surgical Treatment of Uterine Cancer. JULIUS H. JACOBSON, Toledo, Ohio.

SECTION ON OPHTHALMOLOGY

MEETS IN BALL ROOM, STATLER HOTEL

OFFICERS OF SECTION

Chairman—WALTER R. PARKER, Detroit.

Vice Chairman—VARD H. HULEN, San Francisco.

Secretary—GEORGE S. DERBY, Boston.

Executive Committee—HIRAM WOODS, Baltimore; FRANK C. TODD, Minneapolis; EDWARD C. ELLETT, Memphis, Tenn.

Members are reminded that the meetings of the section will be called to order promptly on the hour scheduled for opening.

The formal reading of the papers will be omitted, as reprints of the papers on the program have already been delivered to members of the section.

Each essayist will be given ten minutes in which to summarize the points in his paper and introduce the discussion, and five minutes in which to close the discussion.

The member appointed to open the discussion of any paper will be allowed ten minutes. Subsequent speakers will be limited to five minutes.

The papers and all discussions will be printed and bound, forming the Transactions of the Section on Ophthalmology for 1916. Copies of the Transactions may be obtained at $1 each, if subscriptions are sent to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 535 North Dearborn Street, Chicago, by July 1, as only enough copies are printed to cover subscriptions received up to the time of going to press.

Members of the section are requested to register in the section registration book at the entrance. The full name and complete postoffice address should be written plainly.

Tuesday, June 13—2 p. m.

1. Chairman's Address. WALTER R. PARKER, Detroit.
2. Syphilitic and Parasyphilitic Optic Nerve Affections. Physiologic Evidences in Favor of an Intracranial Treatment: Researches on Intravital Staining of the Optic Nerve. MARK J. SCHOENBERG, New York.
Discussion to be opened by UDO J. WILE, Ann Arbor, Mich.
3. A Case of Granuloma Pyogenicum Affecting the Eyelid.
CASSIUS D. WESCOTT, Chicago.
Discussion to be opened by LEE MASTEN FRANCIS, Buffalo.
4. A Study of Ophthalmoscopic Changes in Nephritis.
GEORGE SLOCUM, Ann Arbor, Mich.
Discussion to be opened by ALBERT E. BULSON, JR., Fort Wayne, Ind.
5. The Uses of the Desiccation Method in Ophthalmology, with Special Reference to Epitheliomas of Lids, Caruncle and Conjunctiva: Report of Cases (Lantern Demonstration). WILLIAM L. CLARK, M.D., Philadelphia.
Discussion to be opened by S. LEWIS ZIEGLER, Philadelphia.

Tuesday Evening, June 13

There will be a moonlight water excursion together with the Section on Laryngology, Otology and Rhinology as guests of the Detroit Ophthalmologic and Otologic Club and the Detroit Oto-Laryngological Society. Further information about this can be obtained from the local committee and at the opening session of the section.

Wednesday, June 14—9 a. m.

EXHIBITION OF NEW INSTRUMENTS AND APPLIANCES

6. A New Instrument for the Clinical Measurement of Dark Adaptation. HARRY S. GRADLE, Chicago.
7. The Fatigue of Accommodation as Registered by the Ergograph. LUCIEN HOWE, Buffalo.
Discussion to be opened by HIRAM WOODS, Baltimore.
8. A Primary Intradural Tumor of the Optic Nerve: Removal with Preservation of the Ball.
EDWARD C. ELLETT, Memphis, Tenn.
Discussion to be opened by EDGAR S. THOMSON, New York.
9. Homatropin Glaucoma: Its Occurrence and Prevention.
HAROLD GIFFORD, Omaha.
Discussion to be opened by EUGENE SMITH, Detroit.
10. Traumatic Pulsating Exophthalmos.
WILLIAM ZENTMAYER, Philadelphia.
Discussion to be opened by FRANK E. BURCH, St. Paul.

Wednesday, June 14—2 p. m.

11. The Etiology of Nonparalytic Ocular Imbalance: Some Original Conceptions and Interpretations Based on the Physiology and Psychology of Ocular Movements.
WILL WALTER, Chicago.
Discussion to be opened by G. C. SAVAGE, Nashville, Tenn.
12. Heterophoria in Children. WENDELL REBER, Philadelphia.
Discussion to be opened by WILBUR B. MARPLE, New York.
13. Strabismus Produced by Operations for Strabismus: A Consideration of Causes Producing Deformities Following Strabismus Operations, with Suggestions for Corrective Operative Procedure.
FRANK C. TODD, Minneapolis.
Discussion to be opened by HARRY W. WOODRUFF, Joliet, Ill.
14. A New Shortening Technic, with Report of Forty-Two Operations. RODERIC P. O'CONNOR, Oakland, Calif.
Discussion to be opened by WILLIAM CAMPBELL POSEY, Philadelphia.

Thursday, June 15—9 a. m.

Election of Officers

15. The Preparation of the Patient for Operation.
WALTER B. LANCASTER, Boston.
Discussion to be opened by WILLIAM H. WILDER, Chicago.
16. Effects of Heat on the Eye.
WILLIAM E. SHAHAN, St. Louis.
Discussion to be opened by THOMAS B. HOLLOWAY, Philadelphia.
17. Progressive Macular Degeneration in Three Members of a Family. MARCUS FEINGOLD, New Orleans.
Discussion to be opened by JOHN E. WEEKS, New York.
18. Thyroid Extract in the Treatment of Malignant Uveitis.
JAMES BORDLEY, JR., Baltimore.
Discussion to be opened by NELSON M. BLACK, Milwaukee, Wis.

Thursday, June 15—2 p. m.

19. A Comparative Study of the Fundus Oculi, Especially in Birds (Lantern Demonstration).
CASEY A. WOOD, Chicago.
20. Retinal Detachment in Hydrophthalmia.
ARNOLD KNAPP, New York.
Discussion to be opened by DON M. CAMPBELL, Detroit.
21. Discission of Crystalline Lens.
EDWARD JACKSON, Denver.
Discussion to be opened by WILLIAM E. GAMBLE, Chicago.
22. Preliminary Capsulotomy in Immature Cataract.
WILLIAM EVANS BRUNER, Cleveland.
Discussion to be opened by HOMER E. SMITH, Norwich, N. Y.

SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY

MEETS IN CONVENTION HALL, STATLER HOTEL

OFFICERS OF SECTION

Chairman—HILL HASTINGS, Los Angeles.
Vice Chairman—WILLIAM R. MURRAY, Minneapolis.
Secretary—FRANCIS P. EMERSON, Boston.
Executive Committee—ROBERT LEVY, Denver; BURT R. SHURLY, Detroit; NORVAL H. PIERCE, Chicago.

Tuesday, June 13—2 p. m.

1. Chairman's Address: Purulent Infections of the Ear, Nose and Throat. HILL HASTINGS, Los Angeles.
2. Xanthosis and Causes of Septal Bleeding.
CHESTER C. COTT, Buffalo.
3. Further Observations on the Conellan-King Diplococci Throat Infections and Their Sequelae, with Especial Reference to Arthritis (Lantern Demonstration).
JAMES J. KING, New York.
Discussion to be opened by WALT P. CONAWAY, Atlantic City.
4. The Relation of the Ductless Glands to Rhinology.
BURT R. SHURLY, Detroit.
Discussion to be opened by ROBERT LEVY, Denver.
5. The Method of Tonsillectomy by Means of the Alveolar Eminence of the Mandible and Guillotine.
GREENFIELD SLUDER, St. Louis.
Discussion to be opened by G. HUDSON MAKUEN, Philadelphia, and GEORGE PAULL MARQUIS, Chicago.

Wednesday, June 14—9 a. m.

SYMPOSIUM ON CHRONIC SUPPURATION OF THE NASAL ACCESSORY SINUSES

FRONTAL SINUS

6. The Evolution of the Frontal Sinus Operation, with Special Reference to the External Operation.
JOSEPH C. BECK, Chicago.
7. Anatomy of the Frontal Sinuses. LEE M. HURD, New York.

ETHMOID CELLS

8. Ethmoid Empyema: Acute and Chronic.
GEORGE F. COTT, Buffalo.
9. Surgery of the Ethmoid. G. E. SHAMBAUGH, Chicago.

MAXILLARY ANTRUM

10. Surgical Treatment of Chronic Suppuration of the Maxillary Sinus. WILLIAM E. SAUER, St. Louis.
11. Anatomical Variations Bearing on Surgical Treatment of Empyema. HARMON SMITH, New York.

SPHENOID SINUS

12. The Sphenoid Sinuses. HANAU W. LOEB, St. Louis.
13. Operations on the Sphenoid Sinuses.
ROSS H. SKILLERN, Philadelphia.
Discussion to be opened by H. P. MOSHER, Boston.
14. A New Method of Roentgenography of the Sphenoid and Ethmoid Cells by the Oblique Method (Lantern Demonstration). SAMUEL IGLAUER, Cincinnati.

Wednesday, June 14—2 p. m.

SYMPOSIUM ON CHRONIC SUPPURATIVE OTITIS MEDIA

PREVENTION OF OTITIS MEDIA

15. Chronic Middle Ear Suppuration.
GEORGE W. MACKENZIE, Philadelphia.

PRESENT-DAY TREATMENT

16. Nonoperative Treatment of Otitis Media.
NORVAL H. PIERCE, Chicago.
17. Operative Treatment of Otitis Media.
EUGENE A. CROCKETT, Boston.
18. End-Results of Treatment of Otitis Media.
JOHN F. BARNHILL, Indianapolis.
Discussion to be opened by J. A. STUCKY, Lexington, Ky.
19. The Mastoid Operation of Ten Years Ago and Today: Gradual Changes in Operative Methods and Technic. Brief Estimate of the Advance as Measured by Practical Results. PHILIP D. KERRISON, New York.
Discussion to be opened by J. R. PAGE, New York.
20. Vaccine Therapy: Its Possibilities and Limitations.
DAVID J. DAVIS, Chicago.
21. Clinical Experience with Use of Vaccines in Diseases of the Ear, Nose and Throat.
GEORGE M. COATES, Philadelphia.

Thursday, June 15—9 a. m.

Election of Officers

22. The Possibilities and Limitations of Nonsurgical Bronchoscopic Treatment. ROBERT F. RIDPATH, Philadelphia.
23. Possibilities and Limitations of Suspension Laryngoscopy.
ROBERT C. LYNCH, New Orleans.
Discussion to be opened by W. B. CHAMBERLIN, Cleveland.
24. New Solutions of Mechanical Problems of Foreign-Body Bronchoscopy (Lantern Demonstration).
CHEVALIER JACKSON, Pittsburgh.
Discussion to be opened by THOMAS HUBBARD, Toledo, Ohio.
25. Cleft Palate and Hare Lip (Lantern Demonstration).
THOMAS E. CARMODY, Denver.
Discussion to be opened by T. W. BROPHY, Chicago.
26. Correction of External Nasal Deformities by Subcutaneous Method (Lantern Demonstration).
LEE COHEN, Baltimore.
Discussion to be opened by W. W. CARTER, New York.

Thursday, June 15—2 p. m.

27. Clinical Types of Labyrinthitis, with Comments on Treatment. WENDELL C. PHILLIPS, New York.
Discussion to be opened by A. B. DUEL, New York.
28. The Differential Diagnosis Between Purulent Labyrinthitis and Cerebellar Lesions.
ISIDORE FRIESNER, New York.
Discussion to be opened by HORACE NEWHART, Minneapolis.
29. The Importance of Aural Symptoms in the Early Diagnois of Pontile Cerebellar Angle Growths.
WELLS P. EAGLETON, Newark, N. J.
Discussion to be opened by I. H. JONES, Philadelphia.
30. An Exhibition: Temporal Bone Dissections.
WILLIAM M. DUNNING, New York.

SECTION ON DISEASES OF CHILDREN

MEETS IN FIRST PRESBYTERIAN CHURCH

OFFICERS OF SECTION

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Vice Chairman—E. P. COPELAND, Washington, D. C.

Secretary—F. P. GENGENBACH, Denver.

Executive Committee—HENRY DWIGHT CHAPIN, New York; FRANK S. CHURCHILL, Chicago; LAWRENCE T. ROYSTER, Norfolk, Va.

Tuesday, June 13—2 p. m.

1. Chairman's Address: Dental Care in Childhood: The Most Neglected Feature of Pediatric Medicine. T. C. McCLEAVE, Oakland, Calif.
2. The Effect of Cold Air on the Blood Pressure in Pneumonia in Childhood. JOHN LOVETT MORSE and DAVID M. HASSMAN, Boston.
3. Grip in Children. LAWRENCE T. ROYSTER, Norfolk, Va.
4. Acidosis. HENRY D. CHAPIN and MARSHALL C. PEASE, JR., New York.
5. Conditions in Infancy and Childhood Associated with the Production of Abnormal Quantities of the Acetone Bodies. JOHN HOWLAND, Baltimore.
6. The Factor of Starvation in the Development of Acetonuria. BORDEN S. VEEDER, St. Louis.

Wednesday, June 14—9 a. m.

7. Report of Five Cases of Tertian Malaria Treated with Organic Synthetic Arsenic Intravenously. FRANK C. NEFF, Kansas City, Mo.

SYMPOSIUM ON SYPHILIS

8. Frequency of Hereditary Syphilis. FRANK S. CHURCHILL, Chicago.
9. Clinical Course and Physical Signs in Hereditary Syphilis. ABNER POST, Boston.
10. Late Hereditary Syphilis. P. C. JEANS, St. Louis.
11. Comparative Studies of the Luetin and the Wassermann Reactions. L. R. DeBUYS and J. A. LANFORD, New Orleans.
12. Treatment of Hereditary Syphilis. PHILIP H. SYLVESTER, Newton Center, Mass.

Wednesday, June 14—2 p. m.

13. Report of Duodenal Ulcer: Operation and Improvement. H. M. McCLANAHAN, Omaha.
14. Chronic Intestinal Disorders of Mechanical Origin in Children. C. G. KERLEY, New York.
14. Roentgen-Ray Findings of Chronic Intestinal Disorders of Mechanical Origin in Children (Lantern Demonstration). L. T. LeWALD, New York.
16. Familial Cyanosis. JULIUS H. HESS, Chicago.
17. The Treatment of Diphtheria Carriers. D. MURRAY COWIE, Ann Arbor, Mich.
18. A Study of the Deaths in Philadelphia During the Past Five Years from Scarlet Fever, Measles, Diphtheria, Whooping Cough and Typhoid Fever. EDWIN E. GRAHAM, Philadelphia.

Thursday, June 15—9 a. m.

Election of Officers

19. Alkali-Earth Alkali Equilibrium in Spasmophilia. CLIFFORD G. GRULEE, Chicago.
20. A Study of Two Hundred and Twenty-Six Cases of Chorea. ISAAC A. ABT, Chicago.
21. Obscure Fever in Infancy and Childhood. EDGAR P. COPELAND, Washington, D. C.
22. The Natural Protection of the Child Against Tuberculosis and Gradual Development of a Specific Cellular Defense. F. M. POTTENGER, Los Angeles.
23. Pediatric Nursing. J. P. SEDGWICK, Minneapolis.
24. Further Study of the Amino Acid Content of the Blood. C. J. PETTIBONE and F. W. SCHLUTZ, Minneapolis.

Thursday, June 15—2 p. m.

25. The Use of Boiled Milk in Infant Feeding. JOSEPH BRENNEMANN, Chicago.
26. The Use of Malt Soup Extract in Infant Feeding. B. RAYMOND HOOBLER, Detroit.
27. The Influence of Diet on the Development and Health of the Teeth. JAY I. DURAND, Seattle.
28. The Regulation of Children's Diet After Infancy. J. H. M. KNOX, JR., Baltimore.
29. Report of Committee on Investigation of Diarrheal Diseases. JOHN LOVETT MORSE, Chairman.
    (*a*) A Study of Diarrheas in Boston for 1915. JOSEPH I. GROVER, Boston.
    (*b*) An Analysis of the Mortality for 1915 in the Infant Welfare Society of Chicago. HENRY F. HELMHOLZ, Evanston, Ill.

SECTION ON PHARMACOLOGY AND THERAPEUTICS

MEETS IN ROOF GARDEN, TULLER HOTEL

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Tuesday, June 13—2 p. m.

1. Chairman's Address. R. A. HATCHER, New York.
2. Address of Chairman of the Delegation from the American Pharmaceutical Association. JOSEPH P. REMINGTON, Philadelphia.
3. The Constructive Work of the Council on Pharmacy and Chemistry of the American Medical Association. TORALD SOLLMANN, Cleveland.
4. The Work of the Chemical Laboratory of the American Medical Association. W. A. PUCKNER, Chicago.
5. Useful Drugs. OLIVER T. OSBORNE, New Haven, Conn.
6. The Scope and Content of Useful Drugs. M. W. GLOVER, Washington, D. C.

Wednesday, June 14—9 a. m.

7. The Results of Treatment in Cases of Arterial Hypertension, Due to and Associated with Syphilis. LOUIS A. LEVISON, Toledo, Ohio.
8. The Intensive Treatment of Syphilis. LOYD THOMPSON, Hot Springs, Ark.
9. Diagnosis and Treatment of the Flagellate Diarrheas. ARTHUR N. TASKER, New York.
10. A New Development in Sanatorium Treatment. D. E. DRAKE, New Foundland, N. J.

Wednesday, June 14—2 p. m.

11. Autogenous Colon Vaccines as Used in Chronic Intestinal Toxemia, with Special Reference to Diagnosis and Therapeusis. G. REESE SATTERLEE, New York.
12. The Status of Physical Therapeutics in the Medical College Curriculum of Today. E. L. EGGLESTON, Battle Creek, Mich.
13. Ultimate Results in the Treatment by Artificial Pneumothorax. A. G. SHORTLE, Albuquerque, N. M.
14. The Saponins: Their Distribution, Properties and Uses. CARL L. ALSBERG, Washington, D. C.
15. The Actions and Properties of Some Synthetic Local Anesthetics of the Cocain Type. GEORGE B. ROTH, Washington, D. C.

Thursday, June 15—9 a. m.

Election of Officers

16. The Mechanism of Drug Tolerance. C. W. EDMUNDS, Ann Arbor, Mich.
17. The Rational Handling of Narcotic Addicts. ERNEST S. BISHOP, New York.
18. The Relation of Diet to Pellagra. JOSEPH GOLDBERGER, Washington, D. C.
19. The Relation of Diet to Beriberi and the Present Status of Our Knowledge Relating to Vitamins. E. B. VEDDER, Washington, D. C.

SECTION ON PATHOLOGY AND PHYSIOLOGY

MEETS IN CONVENTION HALL, TULLER HOTEL

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Tuesday, June 13—2 p. m.

1. Chairman's Address. FREDERICK P. GAY, Berkeley, Calif.
2. The Internal Secretion from the Testes. WINFIELD SCOTT HALL, Chicago.
3. Results of Recent Studies on Some Ductless Glands. WALTER B. CANNON, Boston.
4. Hunger and Disease. A. J. CARLSON, Chicago.
5. Is Uric Acid Destroyed in the Human Body? H. GIDEON WELLS, Chicago.

Wednesday, June 14—9 a. m.

6. Studies On the Effects of Acids. ARTHUR D. HIRSCHFELDER, Minneapolis.
7. Additional Facts Concerning the Protein Poison. VICTOR C. VAUGHAN, Ann Arbor, Mich.

   Discussion to be opened by FREDERICK P. GAY, Berkeley, Calif.
8. Experimental Scurvy in Guinea-Pigs Produced by Milk and Milk Products. LEILA D. JACKSON, Chicago.
9. Roentgenologic Studies of the Gastro-Intestinal Tract in Diabetes. JAMES T. CASE, Battle Creek, Mich.
10. Tissue Transplantation with Reference to Permanence and Function. ORVILLE T. MANLEY, Cleveland.

Wednesday, June 14—2 p. m.

11. The Endamebas of Man and Their Relation to Disease. CHARLES F. CRAIG, Fort Leavenworth, Kan.
12. The Geographic Distribution of Amebiasis. ARTHUR H. SANFORD, Rochester, Minn.

    Discussion to be opened by A. W. HEWLETT, Ann Arbor, Mich.
13. Saccharomycosis. LORENA M. BREED, Pasadena, Calif.
14. A Comparative Study of the Syphilitic, Leprous, Roentgen Ray, Gonorrheal and Mumps Testis. ALDRED S. WARTHIN, Ann Arbor, Mich.

Thursday, June 15—9 a. m.

Election of Officers

15. Tuberculosis of the Mammary Gland. GATEWOOD, Chicago.
16. The Vascular Reactions of the Kidney in Experimental Acute Tartrate Nephritis. HOWARD T. KARSNER, Cleveland.
17. The Resistance of Erythrocytes of Normal Rabbits and the Change in Resistance Produced in Experimental Purpura. J. H. MUSSER, JR., Philadelphia.

SECTION ON STOMATOLOGY

MEETS ON CONVENTION HALL FLOOR, PONTCHARTRAIN HOTEL

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Executive Committee—S. L. MCCURDY, Pittsburgh; VIRGIL LOEB, St. Louis; WILLIAM C. FISHER, New York.

Tuesday, June 13—2 p. m.

SYMPOSIUM ON THE PRINCIPLES INVOLVED IN CHRONIC MOUTH INFECTIONS IN THEIR RELATION TO GENERAL DISEASES

1. Chairman's Address: The Prevalence of Chronic Mouth Infections and Their Management. FREDERICK B. MOOREHEAD, Chicago.
2. The Principles Involved in Chronic Infections. FRANK BILLINGS, Chicago.
3. The Bacteriology of Chronic Infections. EDWARD C. ROSENOW, Rochester, Minn.
4. Focal Infections and Dental Disease: Treatment and Results from Medical Standpoint. ERNEST E. IRONS, Chicago.

Wednesday, June 14—2 p. m.

SYMPOSIUM ON INTERSTITIAL GINGIVITIS AND PYORRHEA ALVEOLARIS

5. Bacterial Findings and Their Relationship to Pyorrhea Alveolaris and Interstitial Gingivitis. ALEXANDER W. LESCOHIER, Detroit.
6. The Roentgen Ray in Diagnosis. HOLLIS E. POTTER, Chicago.
7. The Importance of a Correct Differential Diagnosis of the Predisposing Causes in Cases of Interstitial Gingivitis or Pyorrhea Alveolaris. MEYER L. RHEIN, New York.
8. Some Studies in the Treatment of Pyorrhea Alveolaris. GEORGE B. HARRIS, Detroit.
9. The Etiology and Treatment of Interstitial Gingivitis. EUGENE S. TALBOT, Chicago.

   Discussion on Interstitial Gingivitis and Pyorrhea Alveolaris to be opened by ARTHUR BLACK, Chicago, and JOSEPH HEAD, Philadelphia.

Thursday, June 15—9 a. m.

Election of Officers

10. Ankylosis of the Temporomandibular Joint (Lantern Demonstration). CHALMERS J. LYONS, Ann Arbor, Mich.
11. A Clinical Pathologic Study of Malignant Conditions About the Face, Mouth and Jaws. JOHN W. MEANS and JONATHAN FORMAN, Columbus, O.
12. Surgical Procedures Enhancing the Retention of Artificial Dentures, with Report and Illustrations of an Unusual Case. HERBERT A. POTTS, Chicago.
13. A Study of the Lymphatics of the Dental Pulp. FREDERICK B. NOYES, Chicago.

SECTION ON NERVOUS AND MENTAL DISEASES

MEETS IN Y. M. C. A.

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Executive Committee—HOWELL T. PERSHING, Denver; W. W. GRAVES, St. Louis; FRANCIS X. DERCUM, Philadelphia.

Tuesday, June 13—2 p. m.

1. Chairman's Address: The Nervous System as Influenced by High Altitudes. GEORGE A. MOLEEN, Denver.
2. Tumors of the Third and Fourth Ventricles. PETER BASSOE, Chicago.
3. A Study of Anatomic Location and Histopathology of Ninety-Seven Brain Tumors. FRED B. CLARKE, Milwaukee, Wis.
4. A Further Note on the Diagnostic Value of Retrobulbar Neuritis in Expanding Lesions of the Frontal Lobes. R. FOSTER KENNEDY, New York.
5. Some Clinical Studies of the Problems of Cerebral Tone. CHARLES K. MILLS, Philadelphia.
6. Cerebellar Localization: An Experimental Study by a New Method. I. LEON MEYERS, Chicago.

Wednesday, June 14—9 a. m.

7. The Significance of Innumerable Minor Seizures. BERNARD SACHS, New York.
8. Epilepsy, with Special Reference to Treatment. FRANCIS X. DERCUM, Philadelphia.
9. The Progressive Torsion Spasm. J. RAMSAY HUNT, New York.

10. The Factor of Fear in Nervous Cases.
HUGH T. PATRICK, Chicago.
11. Syphilitic Psychoses Associated with Manic Depressive Symptoms and Course.
A. M. BARRETT, Ann Arbor, Mich.
12. The So-Called Lucid Interval in Manic Depressive Psychosis: Its Medicolegal Importance.
ALFRED GORDON, Philadelphia.

Wednesday, June 14—2 p. m.

13. Spinal Fluid Findings Characteristic of Cord Compression. JAMES B. AYER and HENRY R. VIETS, Boston.
14. Constitutional Inferiority in the Light of Modern Conceptions. M. J. KARPAS, New York.
15. Experimental Studies of Injection of the Gasserian Ganglion Controlled by Fluoroscopy.
LEWIS J. POLLOCK, Chicago.
16. Technic and Indications for Alcoholic Injection of the Seventh Nerve. G. M. DORRANCE, Philadelphia.
17. Myasthenia Gravis. WILLIAM A. JONES, Minneapolis.
18. A Contribution to the Pathogenesis of Progressive Muscular Dystrophy, with the Consideration of Evidence Connecting This Disease with Disturbances in the Endocrine Glands.
WALTER TIMME and PEARCE BAILEY, New York.

Thursday, June 15—9 a. m.

Election of Officers

19. Conjugal Paresis: Report of a Case.
HARRY H. DRYSDALE, Cleveland.
20. Hereditary Syphilis as a Cause of Chronic Invalidism.
HENRY F. STOLL, Hartford, Conn.
21. The Early Diagnosis of Tabes Dorsalis.
WALTER F. SCHALLER, San Francisco.
22. Shall We Treat the Paretic?
CHARLES E. RIGGS and E. M. HAMMES, St. Paul.
23. A Consideration of the Serobiologic Reactions After Five Years of Observation. CHARLES R. BALL, St. Paul.
24. Mercurial Medication with Spinal Drainage.
L. B. PILSBURY, Lincoln, Neb.

Thursday, June 15—2 p. m.

25. Traumatic Hysteria in Its Relation to Corporation Employees. W. BROWN EWING, Salt Lake City.
26. A Clinical Study of Unusual Symptoms in Hemiplegia and Diplegia. THEODORE H. WEISENBURG, Philadelphia.
27. Hormone, Reflex and Symbolic Interrelationships in Diseases of the Nervous System.
SMITH ELY JELLIFFE, New York.
28. A New Treatment of Paralysis Agitans.
WALTER B. SWIFT, Boston.
29. A Contribution to the Pathogenesis of the Migraines.
TOM A. WILLIAMS, Washington, D. C.
30. Necessity of Revising the Nomenclature of the Anatomy of the Central Nervous System.
WILLIAM FULLER, Grand Rapids, Mich.

SECTION ON DERMATOLOGY

MEETS ON CONVENTION HALL FLOOR, PONTCHARTRAIN HOTEL

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Executive Committee—JOSEPH ZEISLER, Chicago; RICHARD L. SUTTON, Kansas City, Mo.; HOWARD FOX, New York.

Tuesday, June 13—2 p. m.

1. Chairman's Address: The Teaching of Dermatology.
HOWARD MORROW, San Francisco.
2. Ringworm of the Hands and Feet.
OLIVER S. ORMSBY and JAMES HERBERT MITCHELL, Chicago.
3. Condyloma Acuminatum of the Anal Region.
A. RAVOGLI, Cincinnati.
4. Dermatologic Dietetics.
ERNEST DWIGHT CHIPMAN, San Francisco.
5. Erythrodermia Congenitale Ichthyosiforme:
GEORGE MILLER MACKEE, New York.
6. Unusual Affections of the Skin and Mucous Membranes (Lantern Demonstration).
JOHN A. FORDYCE, New York.

Wednesday, June 14—9 a. m.

SYMPOSIUM ON NEOPLASMS

7. The Etiologic Rôle of Scar Tissue in Skin Cancer.
MEYER L. HEIDINGSFELD, Cincinnati.
8. The Treatment of Epithelioma.
CLARENCE J. BROEMAN, Cincinnati.
9. The Treatment of Malignant Disease About the Mouth, by Combined Methods (Lantern Demonstration).
GEORGE E. PFAHLER, Philadelphia.
10. Radium in the Treatment of Cancer and Various Other Diseases of the Skin (Lantern Demonstration).
FRANK EDWARD SIMPSON, Chicago.
11. Leukemia Cutis: Report of a Case.
SAMUEL E. SWEITZER, Minneapolis.

Wednesday, June 14—2 p. m.

SYMPOSIUM ON SYPHILIS

12. Some Phases of Experimental Syphilis, with Special Reference to the Question of Strains.
CAPT. MATHEW A. REASONER, Washington, D. C.
13. Report of a Series of Sixty-One Extragenital Chancres.
HAROLD N. COLE, Cleveland.
14. The Dyschromias of Syphilis.
RICHARD L. SUTTON, Kansas City, Mo.
15. An Analysis on One Hundred and Twenty-Five Cases of Tertiary Syphilis, with Particular Reference to Their Early Treatment.
UDO J. WILE and JOSEPH A. ELLIOTT, Ann Arbor, Mich.
16. The Administration of Dioxydiamido Arsenobenzol Dichlorhydrate by Mouth to Man and Animals.
JAY FRANK SCHAMBERG, JOHN A. KOLMER and GEORGE W. RAIZISS, Philadelphia.
17. A Comparative Study of Salvarsan and Neosalvarsan in the Treatment of Syphilis.
WILLIAM B. TRIMBLE and JOHN J. ROTHWELL, New York.
18. Notes on the Teaching and Treatment of Syphilis.
H. G. IRVINE, Minneapolis.

Thursday, June 15—9 a. m.

Election of Officers

SYMPOSIUM ON ECZEMA

19. The Pathology and Pathogenesis of Eczema in Dermatitis: The Identity of the Two Diseases.
WALTER JAMES HEIMANN, New York.
20. Eczema of External Causation.
FRANK CROZIER KNOWLES, Philadelphia.
21. The Significance that can be Attached to Food Tests in Relation to the Causation of Eczema.
CHARLES J. WHITE, Boston.
22. Eczema of the Nipple in the Female.
DOUGLASS W. MONTGOMERY, San Francisco.

Thursday, June 15—2 p. m.

23. Impetigo Contagiosa in the Adult.
GEORGE D. CULVER, San Francisco.
24. Local Infection in Relation to Dermatology.
M. L. RAVITCH, Louisville, Ky.
25. Gastro-Intestinal Findings in Acne Vulgaris.
LLOYD W. KETRON and JOHN H. KING, Baltimore.
26. Pityriasis Lichenoides Chronica: A Clinical and Microscopic Study. FRED WISE, New York.
27. A Contribution to the Rarer Forms of Lichen Planus.
DAVID LIEBERTHAL, Chicago.
28. Itching as a Symptom.
PHILIP KILROY, Springfield, Mass.

Friday, June 16—9 a. m.

Presentation of Dermatologic Cases at Harper Hospital.
H. R. VARNEY, ANDREW P. BIDDLE and UDO J. WILE.

SECTION ON PREVENTIVE MEDICINE AND PUBLIC HEALTH

MEETS ON SECOND FLOOR, CADILLAC HOTEL

OFFICERS OF SECTION

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Secretary—O. P. GEIER, Cincinnati.
Executive Committee—GUY L. KIEFER, Detroit; M. P. RAVENEL, Columbia, Mo.; C. HAMPSON JONES, Baltimore.

Tuesday, June 13—2 p. m.

1. Chairman's Address: The Health Education of the General Public. W. C. RUCKER, Washington, D. C.

SYMPOSIUM ON HEALTH ADMINISTRATION

2. Municipal Health Administration. ERNEST C. LEVY, Richmond, Va.
3. The Administration of Maritime Quarantine. LELAND E. COFER, Washington, D. C.
4. District Health Organization. C. ST. CLAIR DRAKE, Springfield, Ill.
5. County Health Organization. WATSON S. RANKIN, Raleigh, N. C.
6. Health Laboratory Organization. WILLIAM H. PARK, New York.

Wednesday, June 14—9 a. m.

7. Report of Committee on Industrial Sanitation. J. W. KERR, Washington, D. C.; SIDNEY MORRILL MCCURDY, Youngstown, O.; OTTO P. GEIER, Cincinnati.

SYMPOSIUM ON HEALTH PROBLEMS IN INDUSTRY

8. Industrial Medicine and Surgery—The New Specialty. HARRY E. MOCK, Chicago.
9. Medical Supervision of Factory Employees; Result of Five Years' Experience. W. IRVING CLARK, JR., Worcester, Mass.
10. Medical Supervision of Street Railway Employees. CHARLES H. LEMON, Milwaukee, Wis.
11. Bad Teeth and Their Effect on the Workman's Efficiency. CARL E. SMITH, Akron, Ohio.
12. The Relation of Health Insurance to National Health. BENJAMIN S. WARREN, Washington, D. C.
13. The Relation of Health Insurance to the Wage Earner. I. M. RUBINOW, New York.

Thursday, June 15—9 a. m.

Election of Officers

SYMPOSIUM ON THE SANITATION OF FOOD SUPPLIES

14. Sanitation of Farm Sources of Food Supply. L. L. LUMSDEN, Washington, D. C.
15. Sanitation of the Shellfish Industry. H. S. CUMMING, Washington, D. C.
16. Sanitation of Markets. DONALD B. ARMSTRONG, New York.
17. The Quantitative Relationship of Milk Borne Infection in the Transmission of Human Communicable Diseases. EUGENE R. KELLEY, Boston.

SECTION ON GENITO-URINARY DISEASES

MEETS IN CONVENTION HALL, PONTCHARTRAIN HOTEL

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Secretary—W. F. BRAASCH, Rochester, Minn.
Executive Committee—HUGH H. YOUNG, Baltimore; ARTHUR L. CHUTE, Boston; GRANVILLE MACGOWAN, Los Angeles.

Tuesday, June 13—2 p. m.

1. Studies in Sterility: An Outline of a Method of Diagnosis and Treatment. VICTOR D. LESPINASSE, Chicago.
2. A Further Report on the Operative Treatment of Sterility in the Male: Tabulation of Cases in Which Operation Was Performed. FRANCIS R. HAGNER, Washington, D. C.
3. The Operative Treatment of Cryptorchidism. EDWARD L. KEYES, JR., and DAVID W. MACKENZIE, New York.
4. Gangrenous Periurethritis. J. DELLINGER BARNEY, Boston.
5. Diverticulum of the Urethra. SIMON ENGLANDER, Cleveland.
6. The Chemistry of the Gonococcus in Relation to Immunity and Therapeusis. CARL C. WARDEN, Ann Arbor, Mich.
7. The Hecht-Weinberg Test As a Control Over the Wassermann. R. B. H. GRADWOHL, St. Louis. Discussion to be opened by M. L. HEIDINGSFELD, Cincinnati.

Wednesday, June 14—9 a. m.

8. Reflex Urinary Retentions. ARTHUR B. CECIL, Los Angeles.
9. Certain Obstructions at the Vesical Orifice. OSWALD S. LOWSLEY, New York.
10. Cancer of the Prostate. GRANVILLE MACGOWAN, Los Angeles.
11. Preliminary Treatment Before Prostatectomy in Unfavorable Cases. HUGH H. YOUNG, Baltimore.
12. The Postoperative and Convalescent Period of Prostatectomy. J. BENTLEY SQUIER, JR., New York.
13. Postoperative Treatment of Patients Following Prostatectomy. JAMES A. GARDNER, Buffalo. Discussion to be opened by PAUL M. PILCHER, Brooklyn.
14. Postoperative Complications Following Prostatectomy. J. L. CRENSHAW, Rochester, Minn.

Wednesday, June 14—2 p. m.

15. Chairman's Address. LOUIS E. SCHMIDT, Chicago.
16. Colon Bacillus Pyelonephritis: Its Nature and Possible Prevention. ERNEST G. CRABTREE and HUGH CABOT, Boston.
17. Pyelitis of Children. WILLIAM C. QUINBY, Baltimore.
18. Hematuria: A Clinical Study Based on Two Hundred Cases. HERMAN L. KRETSCHMER, Chicago. Discussion to be opened by W. F. BRAASCH, Rochester, Minn.
19. The Acute Surgical Kidney. LEWIS WINE BREMERMAN, Chicago. Discussion to be opened by G. SHEARMAN PETERKIN, Seattle.
20. Ureteral Catheter Drainage in the Treatment of Renal Infections: With Special Reference to the Infected Hydronephrosis Complicating Pregnancy. JOHN R. CAULK, St. Louis.

Thursday, June 15—9 a. m.

Election of Officers

21. Surgical Therapy of Benign and Malignant Tumors of the Bladder. EDWIN BEER, New York. Discussion to be opened by H. H. YOUNG, Baltimore.
22. Frequency of Urination in Women. HENRY G. BUGBEE, New York. Discussion to be opened by W. F. BRAASCH, Rochester, Minn.
23. Cystoscopic Diagnosis of Contracted Bladder. MARTIN KROTOSZYNER, San Francisco.
24. Clinical Aspects of Ascending Renal Infection Based on Experimental Work. DANIEL N. EISENDRATH, Chicago. Discussion to be opened by L. E. SCHMIDT and G. KOLISCHER, Chicago.
25. Fat Transplantation in Renal and Prostatic Surgery. IRVIN S. KOLL, Chicago. Discussion to be opened by G. KOLISCHER, Chicago.
26. Further Observations on the Use of Thorium in Pyelography. J. EDWARD BURNS, Baltimore.

Thursday, June 15—2 p. m.

27. Removal Versus Drainage of the Seminal Vesicles. A. C. STOKES, Omaha.
28. Rôle of Infection of Seminal Vesicles as a Cause of Persistent and Recurring Cystitis. JOHN T. GERAGHTY, Baltimore.
29. Seminal Vesicle Infections: The Cause of Persistent Urethral Discharge: Report of Cases. ROBERT H. HERBST, Chicago.

SECTION ON ORTHOPEDIC SURGERY

MEETS IN INSTITUTE BUILDING, BAPTIST CHURCH

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Executive Committee—NEWTON M. SHAFFER, New York; LEONARD W. ELY, San Francisco; NATHANIEL ALLISON, St. Louis.

Tuesday, June 13—9 a. m.

1. Chairman's Address: The Problem of the Chronic Cripple. RUSSELL A. HIBBS, New York.
2. Osteoclasis and Osteotomy. WALLACE BLANCHARD, Chicago.
   Discussion to be opened by J. TORRANCE RUGH, Philadelphia, and HERBERT P. GALLOWAY, Winnipeg, Man.
3. Calcified Hematoma: A Study of the Pathology. FREDERICK C. KIDNER, Detroit.
   Discussion to be opened by D. B. PHEMISTER, Chicago.
4. The Treatment of Infantile Paralysis. ROBERT W. LOVETT, Boston.
   Discussion to be opened by E. W. RYERSON, Chicago.
5. Astragalectomy (Whitman's Operation) in Infantile Paralysis. WILLIAM R. MACAUSLAND, Boston.
   Discussion to be opened by CHARLTON WALLACE, New York, and FREDERICK C. KIDNER, Detroit.
6. The Prognosis in Infantile Paralysis. WALTER G. STERN, Cleveland.
   Discussion to be opened by ARTHUR STEINDLER, Iowa City, Iowa.

Wednesday, June 14—9 a. m.

7. Localized Osteospondylitis. WILLIS C. CAMPBELL, Memphis, Tenn.
   Discussion to be opened by ROBERT SOUTTER, Boston, and FREDERICK J. GAENSLEN, Milwaukee, Wis.
8. Syphilitic Bone and Joint Lesions Simulating Tuberculosis. ARTHUR L. FISHER, San Francisco.
   Discussion to be opened by HENRY W. FRAUENTHAL, New York, and JAMES T. WATKINS, San Francisco.
9. A Statistical Study of the Hospital and Educational Needs of Cripples in the United States. H. WINNETT ORR, Lincoln, Neb.
10. Results of Research on Conditions Affecting Posture. HENRY LING TAYLOR, New York.
    Discussion to be opened by J. E. GOLDTHWAIT, Boston.
11. Mechanical Derangements of the Knee Joint. MELVIN S. HENDERSON, Rochester, Minn.
    Discussion to be opened by JOHN L. PORTER, Chicago, and WILLIS C. CAMPBELL, Memphis, Tenn.
12. A Plea for the Prevention of Deformities Following Burns. CHARLES A. PARKER, Chicago.
    Discussion to be opened by JOHN P. LORD, Omaha.

Wednesday, June 14—2 p. m.

13. Sciatica: An Analysis of Fifty Cases. MARK H. ROGERS, Boston.
    Discussion to be opened by LEONARD W. ELY, San Francisco.
14. Fat Embolism in Bone Surgery: Incidence and Control. E. W. RYERSON, Chicago.
    Discussion to be opened by WILLIAM E. BLODGETT, Detroit.
15. Orthopedic Surgery in War Time. ROBERT B. OSGOOD, Boston.
    Discussion to be opened by NATHANIEL ALLISON, St. Louis.
16. The End-Results of Joint Tuberculosis from the Records of the New York Orthopedic Dispensary and Hospital. ROBERT E. HUMPHRIES and HERBERT A. DURHAM, New York.
    Discussion to be opened by JOHN RIDLON, Chicago.
17. The Evolution of Osteochondritis Deformans Coxae Juvenilis. ALBERT H. FREIBERG, Cincinnati.
    Discussion to be opened by J. R. KUTH, Duluth, Minn.
18. Hereditary Deforming Chondrodysplasia—Multiple Cartilaginous Exostoses. ALBERT EHRENFRIED, Boston.
    Discussion to be opened by THOMAS R. BOGGS, Baltimore, and R. T. VAUGHAN, Chicago.

Thursday, June 15—9 a. m.

Election of Officers

19. Compression Paralysis of Potts' Disease in Adults. CHARLES M. JACOBS, Chicago.
    Discussion to be opened by CLARENCE B. FRANCISCO, Kansas City, Mo.
20. Ankylosing Operations on the Spine. LEONARD W. ELY, San Francisco.
    Discussion to be opened by FRED H. ALBEE, New York.
21. The Operative Treatment of Tuberculosis of the Spine. NATHANIEL ALLISON and HERBERT H. HAGAN, St. Louis.
    Discussion to be opened by JOHN L. PORTER, Chicago.
22. A Report of Two Cases of Scoliosis with Pressure Paraplegia. JOHN RIDLON, Chicago.
    Discussion to be opened by ARTHUR J. GILLETTE, St. Paul.
23. New Methods of Precision in the Treatment of Fractures. GEORGE W. HAWLEY, Bridgeport, Conn.
    Discussion to be opened by FRED H. ALBEE, New York.
24. The Treatment of Some Fractures of the Femur. FRANK E. PECKHAM, Providence, R. I.
    Discussion to be opened by F. J. COTTON, Boston.

THE COMMERCIAL EXHIBIT AT DETROIT

A Display of Almost Everything the Practicing Physician Needs in his Professional Work—A Feature of Decided Value to Every Conventionist

The commercial exhibit will be held in the Detroit Armory (northwest corner of Brush and Larned streets), on the ground floor and in the east wing of the balcony. On the ground floor also will be found the registration and information bureau and the postoffice, and in the south and west wings of the balcony, the scientific exhibits.

As in the past, the commercial exhibits will afford the conventionist an opportunity to make a practical inspection close at hand of new books, instruments, Roentgen-ray outfits, office and hospital furniture, new and improved miscellaneous equipment, and the newer medical biologic and therapeutic products.

Fellows who attend the session should make it a point to go to the exhibit hall daily, as it will be practically impossible in one or two visits to inspect everything and receive the maximum benefit from the demonstrations that will be given.

The visiting physician is urged to feel absolutely free to examine each exhibit without thinking that he is expected to buy. The men who will be in charge of the booths are competent in their respective lines, and their main object will be to give intelligent information and satisfactory demonstrations of whatever commodity they are showing. They will be delighted to cooperate with the profession, to employ new suggestions and to interchange opinions as to the worthiness of the articles under demonstration. In this way, mutual benefit will result both to the physician and to the firm represented.

It is the aim of the American Medical Association to make the commercial exhibits of educational value. They can be consistently termed "commercial," only from the facts that the articles shown can be bought and that the manufacturer profits by increased patronage after his article has made a correct impression on the physician from a "scientific" standpoint.

Dr. John N. Bell, 33 East High Street, Detroit, is local chairman of the Commercial Exhibits, and Will C. Braun, 535 North Dearborn Street, Chicago, is superintendent of exhibits.

Following is a classified list of exhibitors:

LIST OF EXHIBITORS

Analegsic Gas-Oxygen Apparatus

	Space
Clark & Co., A. C., Chicago	72
Foregger Co., The, New York	108
Teter Manufacturing Co., Cleveland	31
Toledo Technical Appliance Co., Toledo	83-84

Apparatus, Instruments and Furniture

Allison Co., W. D., Indianapolis	94-95
Bard, Charles R., New York	46
Betz Co., F. S., Hammond, Ind.	27-28-29-39-40
De Vilbiss Mfg. Co., Toledo	85
Geiger, Dr. Chas., St. Joseph, Mo.	100
Hartz Co., J. F., Detroit	42
Jaeckh Mfg. Co., Cincinnati	80
Kuhlman & Co., A., Detroit	53-54
Mueller & Co., V., Chicago	15-16
Wilson & Wilson, Boston	105

Orthopedic and Supportive Appliances

Ambulatory Pneumatic Splint Mfg. Co., Chicago	79
Anatomik Footwear Co., New York	113
Berger Bros. Co., New Haven, Conn	35
International Corset Co., Aurora, Ill.	103-104

Automobile Equipment

Gearless Differential Co., Detroit	106

Educational

New York Post-Graduate Medical School and Hospital, New York	111

Electro-Medical and Diagnostic Appliances

Chicago Surgical & Electric Co., Chicago	67
Electro-Surgical Instrument Co., Rochester, N. Y.	60
Hanovia Chem. & Mfg. Co., Newark, N. J.	9
Weder Mfg. Co., Philadelphia	88

Foods, Analeptics and Milk Preparations

Borcherdt Malt Extract Co., Chicago	47
Borden's Cond. Milk Co., New York	51-69-70
Horlick's Malted Milk Co., Racine, Wis.	90-91
Johnson & Co., Mead, Evansville, Ind.	38
Mellin's Food Co., Boston	1
Waukesha Health Products Co., Waukesha, Wis.	109
Welch Grape Juice Co., Westfield, N. Y.	11

Medical Books

Appleton & Co., D., New York	87
Blakiston's Son & Co., P., Philadelphia	34
Chicago Medical Book Co., Chicago	5
Davis Co., F. A., Philadelphia	89
Hoeber, Paul B., New York	7
Lea & Febiger, Philadelphia	6
Lippincott Co., J. B., Philadelphia	2-3
MacMillan Co., The, Chicago	110
Mosby Medical Book & Publishing Co., St. Louis	32-33
Rebman Co., New York	17
Saunders Co., W. B., Philadelphia	18-19
Wood & Co., Wm., New York	4

Office Coats and Hospital Uniforms

Weissfeld Bros., New York	81

Microscopes and Ophthalmic Specialties

Bausch & Lomb Optical Co., Rochester, N. Y.	30
General Optical Co., Inc., New York	52
Hardy & Co., F. A., Chicago	96-97-98-99
Meyrowitz, E. B., Inc., New York	36-37
Woolf, Michael, New York	86

Pharmaceutic, Biologic and Immunizing Products

Abbott Laboratories, The, Chicago	44-55
Armour & Co., Chicago	93
Hynson, Westcott & Co., Baltimore	10
Maltine Co., The, Brooklyn	8
Mulford Co., H. K., Philadelphia	20-21
Sherman, Dr. G. H., Detroit	25
Squibb & Sons, E. R., New York	50
Standard Oil Co., Chicago	12

Roentgenographic Apparatus

	Space
Campbell Electric Co., Lynn, Mass.	56-57
Fischer & Co., H. G., Chicago	45
Meyer Co., Wm., Chicago	62-63-64
Scheidel Western X-Ray Co., Chicago	26-41
Snook-Roentgen Mfg. Co., Philadelphia	24
Victor Electric Co., Chicago	75-76-77-78
Vulcan Coil Co., Los Angeles	13
Wappler Electric Mfg. Co., New York	48-49

Resuscitating Devices

Life Saving Devices Co., Chicago	58-59

Sanatoriums and Health Resorts

Albuquerque Cham. of Com., N. M.	68
The "Colonial," Mt. Clemens, Mich.	71
Silver City Chamber of Com., N. M.	61

Sanitary Baby Clothing

Earnshaw Knitting Co., Chicago	66

Waterproof Sheeting Fabrics

Waterproof Fabric Co., Chicago	112

Sterilizers

Castle Co., Wilmot, Rochester, N. Y.	74

Sphygmomanometers and Thermometers

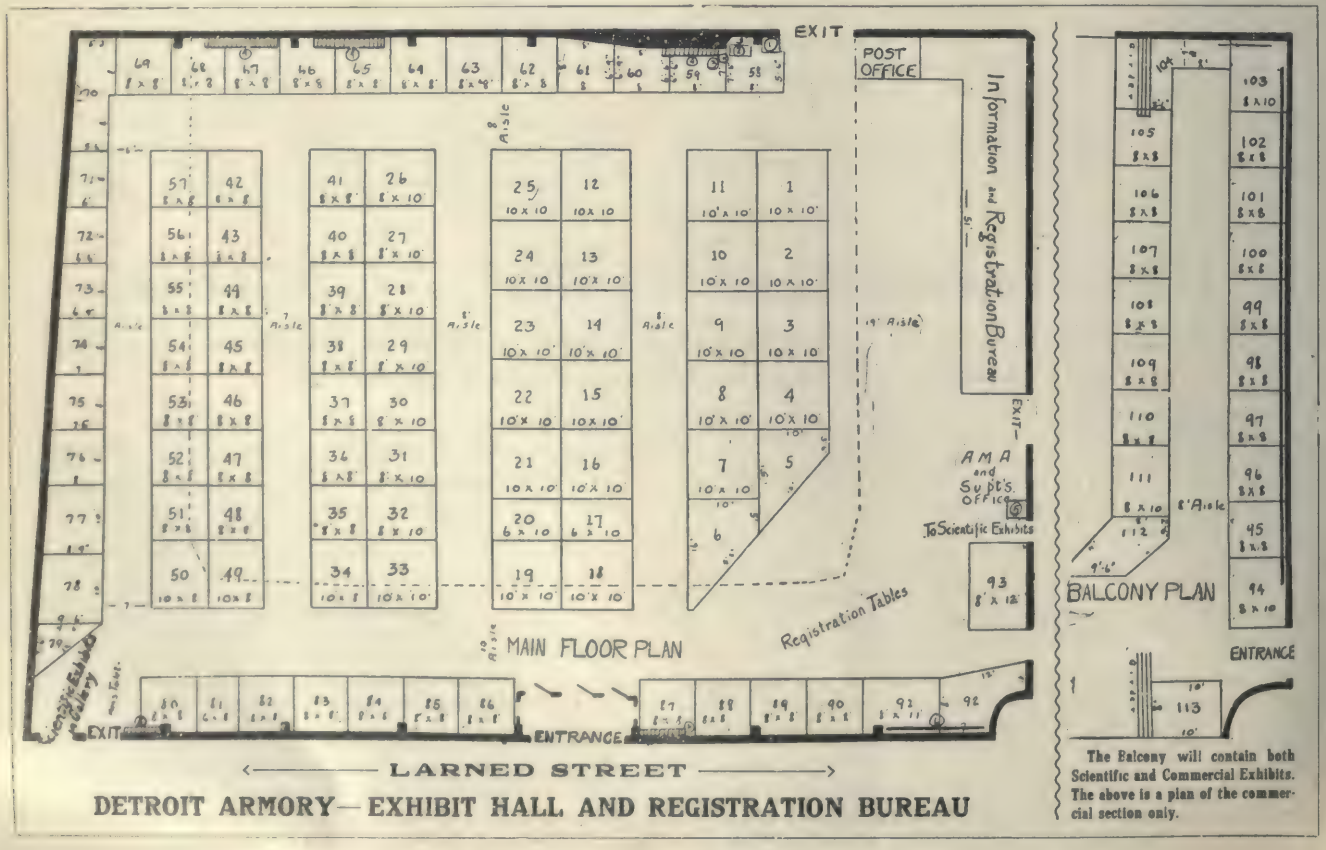
R. & E. Mfg. Co., Cleveland	65
Taylor Instr. Co., Rochester, N. Y.	14-23

Radium Preparations

Radium Chemical Co., Pittsburgh	22

X-Ray Tubes, Plates, Etc.

Brady & Co., Geo. W., Chicago	82
Eastman Kodak Co., Rochester, N. Y.	92
Green & Bauer, Inc., Hartford, Conn.	73
Macalaster-Wiggin Co., Boston	43
Machlett & Sons, E., New York	101



DETROIT ARMORY—EXHIBIT HALL AND REGISTRATION BUREAU

The Balcony will contain both Scientific and Commercial Exhibits. The above is a plan of the commercial section only.

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 20 CHICAGO, ILLINOIS MAY 13, 1916

INVESTIGATIVE AND SCIENTIFIC PHASES OF THE DIABETIC QUESTION

THEIR PROBABLE RELATIONS TO PRACTICAL PROBLEMS OF CLINICAL MEDICINE *

FREDERICK M. ALLEN, M.D.

NEW YORK

A discussion of diabetes at the present time must consist in statements more of problems than of conclusions. The attempt will be to treat the subject in its living and changing present state, with full realization of the risk of mistakes. I am indebted to the kindness of several investigators for permission to mention important unpublished work. In view of the magnitude of the subject, it is obvious that various important phases must be omitted altogether.

There is a fundamental question, What is diabetes? The word belongs historically to clinicians, and can rightly be applied only to the clinical disorder or its experimental counterpart in animals. The names "diabetes" and "glycosuria" are those of disease and symptom. The distinction is not a mere nicety or purism of speech, but is an actual requirement for clearness of thought and action. The majority of erroneous hypotheses would have been avoided if the makers had had in mind a clear distinction between glycosuria, which is a glucose in the urine, and diabetes, which is a defect of metabolism. The polyglandular doctrine would never have arisen except for the confusion between diabetes and some nondiabetic forms of glycosuria, especially that caused by epinephrin. Even totally depancreatized animals may by various injuries or intoxications be made free from both glycosuria and hyperglycemia, but they are still diabetic. Clinically, there are occasional cases of renal and other glycosuria which it would be incorrect to treat as diabetes. But the great preponderance of diabetes justifies the rule that any case of clinical glycosuria should be considered diabetes unless it can be demonstrated to be something else.

To make the diagnosis of glycosuria merely because of the seeming harmlessness of the condition has proved to be a mistake. Slight glycosuria is nearly always mild diabetes. It yields to mild antidiabetic treatment; but if neglected it may become associated with familiar diabetic complications, such as gangrene or acidosis, or it may pass more or less suddenly into the severe form. Though glycosuria is the traditional chief symptom of diabetes, it seems a justified therapeutic rule at present that every diabetic should be kept completely and continuously free from glycosuria. That physicians and patients should intelligently cooperate to this end in the stage of mild glycosuria is the most important requirement for reducing the death rate from diabetes.

When we return to the question, What is diabetes? it is possible at the present time to phrase a reply, with increasing agreement on the part of investigators, that diabetes is deficiency of the internal secretion of the pancreas. The history of this doctrine goes back to the early English and French clinicians who observed changes, especially atrophy, of the pancreas in some cases of diabetes. Brunner had tried in 1686 to remove the pancreas, and almost exactly 200 years later, after Claude Bernard and others had failed, von Mering and Minkowski succeeded. There followed a period of enthusiasm and dispute. A series of investigators published statements that they had removed the entire pancreas and found diabetes absent or transitory. Minkowski and his followers were able to retort that these authors had left small shreds of pancreatic tissue, and that the uniform production of severe diabetes was obtainable only by complete removal of the pancreas. Minkowski saw a few instances of mild or irregular diabetes when very small fragments were left, and severe diabetes when such fragments underwent necrosis. Sandmeyer left larger fragments, with the duct and part of the blood supply ligated, and saw that after marked atrophy of the pancreas remnant, requiring as long as thirteen months in one case, chronic diabetes and emaciation resulted. This form may be compared with the unusual human cases resulting from pancreatic atrophy. An important matter at that time was the proof that diabetes is not due to lack of the external pancreatic secretion; therefore pancreas remnants were left isolated from duct communication with the bowel.

The enthusiasm aroused by von Mering and Minkowski's discovery, the resulting belief in the pancreatic origin of diabetes, and the hopes for a new therapeutic era gradually died down in the face of baffling discouragements. These were essentially, first, the complete disappointment from pancreatic organotherapy, second, the repeated failures to find pancreatic lesions in diabetic necropsies, and third, the differences that were more and more insisted on between human diabetes and the form following total pancreatectomy in dogs. The result was a period when few persons were willing to affirm that diabetes is regularly and fundamentally a pancreatic disorder. Back in 1892, de Renzi and Reale reported a permanent and fatal diabetes in a dog, when a considerable

* From the Hospital of the Rockefeller Institute for Medical Research.

* Delivered as the thirteenth Rush Lecture, Philadelphia, Jan. 21, 1916.

fragment of pancreas had been left in its normal position and did not atrophy. The same authors made other claims which were erroneous, and neither they nor Pflüger gained sufficient insight into the matter to reproduce this form of diabetes. After many years, an idea suggested itself that the most promising way to study weakness of the pancreatic function is not found in the abrupt removal of the whole organ or in the atrophy of an isolated remnant. A more accurate and logical attempt to reproduce human diabetes will consist in removing portions of pancreatic tissue, leaving the remainder with its normal blood supply and its normal relation to the intestine. Accordingly, the above-mentioned form of diabetes was rediscovered in four different places at about the same time, the investigators all being ignorant of one another's work and of that of de Renzi and Reale.

The first in point of publication were Thiroloix and Jacob, who made two important observations: first, that when a sufficient portion of a dog's pancreas is removed, leaving the remainder in its normal connections with duct and blood vessels, this remnant retains normal appearance and supplies enough pancreatic juice to maintain the animal's nutrition, yet diabetes develops and runs a gradual downward course much like the human disease; second, in suitably prepared animals, this downward progress can be produced or hastened by overfeeding with carbohydrate. These authors made several mistakes, among them the statement that the islands of Langerhans are unchanged; but a 1913 announcement by Thiroloix and More indicates that they have seen the changes and propose to study them, being still ignorant, like most Europeans, that this has already been done in America.

The second in point of publication was Helly, who studied only the glycogen, finding that in this form of diabetes the animals retain more or less glycogen, here resembling human diabetics.

The third to be published was my own work, which dealt with various points concerning this type of diabetes, compared it with the normal and with other forms of diabetes and of glycosuria, and also, thanks to the cooperation of Prof. F. B. Mallory, described for the first time the specific changes in the islands of Langerhans in experimental diabetes — inasmuch as one previous statement by Minkowski concerned an isolated and accidental observation, and from his phrase "shrunken and altered islet cells" it is not possible to say definitely whether he saw the late stages of hydropic degeneration or other changes that may occur in a subcutaneous pancreatic graft.

The fourth in point of publication was Homans, who discovered this form of diabetes in cats and made the most accurate histologic studies, as will be mentioned later.

EXPERIMENTAL IMITATION OF HUMAN DIABETES

Now the question is proper, In what respects can human diabetes be imitated by this method in experimental animals?

1. The onset may be similar. When nine tenths or more of the pancreas is removed, the onset may be acute. When seven eighths or sometimes less of the pancreas is removed, the onset may be gradual, with longer or shorter periods of slight or intermittent glycosuria.

2. The effect of carbohydrate food is similar. When the work of Thiroloix and Jacob is repeated with adequate controls, it can be proved that dogs after suitable operations can be kept for months and apparently for years in the best of health on a diet within their tolerance; but a diet in excess of the tolerance gives rise to a permanent and fatal diabetes. Sugar can produce diabetes in some animals which, at least for a considerable time, can live on starch safely.

3. Individual idiosyncrasies are somewhat similar, as mentioned in Homans' recent paper. It is curious that some human patients go downhill so readily and lose tolerance so rapidly under improper diet, while others can keep up glycosuria for months and perhaps years with surprisingly little damage to either health or tolerance. Conditions in animals are more uniform and controllable; but yet, after apparently the same sort of operation, animals show variable hypertrophy of the pancreas remnant; and, aside from this, some animals will endure weeks or months of diet beyond their tolerance before they pass into hopeless diabetes, whereas other animals within a few days develop an intensity of diabetes which nothing can check.

4. The diminished permeability of the kidney for sugar is similar. When glycosuria is stopped, the blood sugar may remain above normal for indefinite periods, just as in human patients. Also, animals which have been kept free from glycosuria may show the blood sugar increasing steadily through weeks and months, with the renal impermeability apparently keeping pace, before glycosuria finally begins, so that the simple excess of sugar in the blood seems sufficient to produce sugar impermeability.

5. Nervous influences may be similar. Physicians have sometimes said, "This case is not diabetes; it is merely nervous glycosuria." A partially depancreatized dog may be subject to such nervous glycosuria, so that merely a trip to the operating room gives rise to a little sugar in the urine. This is true especially in small, nervous dogs; it has not been noticed in big, phlegmatic dogs. I have not yet seen an instance of permanent diabetes of psychic origin in any animal. This might be possible, but there is difficulty in producing in animals any such prolonged and intense nerve strain as human beings sometimes endure.

6. Traumatic diabetes occurs in occasional predisposed animals, just as in predisposed human subjects. Two dogs showed beginning or aggravation of diabetes after brief anesthesia for simple subcutaneous operations. One of these could not be made sugar-free by fasting, the condition being thus analogous to a human case recently described by Joslin. A partially depancreatized cat, injured in an accidental encounter with a dog, showed no glycosuria at the time; but as the appetite gradually returned, severe diabetes suddenly began, two weeks after the accident, and continued until checked by fasting. The many months of observation on fixed diet, before and after the accident, make it probable that this was a case of delayed onset of diabetes after traumation, exactly as recorded in various human patients. As traumatic diabetes is unusual among patients, so also these three are the only ones seen among hundreds of animal observations.

7. Diabetes decipiens is an old name for glycosuria without polyuria. It means deceiving or deceptive diabetes, and originated from the fact that early clinicians sometimes failed to diagnose diabetes when there was no polyuria. Probably such a condition means always one of two things, either an organic or functional abnormality of the kidney with diabetes, or a mild type of diabetes. Severely diabetic animals show the diu-

retic effect of carbohydrate like typical human diabetics, but it is also possible to have animals temporarily at a stage at which doses of sugar or starch produce marked hyperglycemia and glycosuria without much change in diuresis, or with an actual diminution of urine, thus indicating that the mere percentage of sugar in blood or urine is not the decisive factor.

8. These animals do not show such cachexia and impaired wound healing as totally depancreatized animals, but they go through operations successfully, as human diabetics usually do under suitable conditions. Severe diabetes in animals runs its course in a few months, and this fact may in some degree explain the relative absence of complications. In the later cachectic stages, there is increased tendency to sore eyes, distemper, skin troubles, cystitis, and what in human patients might be called a form of gangrene; that is, insignificant injury or pressure results in superficial infections and ulcers; these slowly extend instead of healing. There has never been any evidence for the belief that diabetic complications are due to high blood sugar. Against this belief is the fact that normal animals receiving sugar injections for long periods show no such complications, and this type of diabetic animals may have very high blood sugar for much longer periods than totally depancreatized animals, yet their wounds heal better. Diabetes is a specific disorder of nutrition, and it diminishes the ability of all the body cells to resist infection, repair injury, or withstand the ordinary wear and tear. Such a conception gives a rational explanation of the increased susceptibility of the human diabetic to cataract, retinitis, neuritis, arteriosclerosis, pyogenic infections and tuberculosis, and the improvement of these conditions when proper therapy improves cellular nutrition; while the diabetic dog shows increased tendency not so much to these identical complications as to the corresponding canine afflictions.

DIFFERENCES BETWEEN CLINICAL AND EXPERIMENTAL DIABETES

We now come to the chief points of alleged difference between clinical and experimental diabetes. First is the dextrose-nitrogen ratio, which is Lusk's figure of 3.65 in the severest human diabetes, whereas removal of the dog's entire pancreas gives only the Minkowski ratio of 2.8. Eppinger, Falta and Rudinger reported that they obtained ratios above 2.8 by giving epinephrin to a depancreatized dog, or by removal of three parathyroids in addition to the pancreas; but such a statement, in the sense of anything more than a temporary flushing out of preformed carbohydrate, is open to serious question and cannot be accepted unless confirmed. Phloridzin gives a 3.65 ratio in man and the dog, but only a 2.8 ratio in the cat, rabbit and goat. Here the cause of glycosuria, phloridzin, is the same, but the ratio is different because of the difference in species. Total removal of the human pancreas should theoretically give a ratio of 3.65; but it is not permissible to say that human diabetes is not pancreatic because pancreatectomy gives only a 2.8 ratio in the dog. This is one of the reasons why I am engaged in producing diabetes in various species of animals, and it will not be surprising if one or more species may be found in which pancreatectomy gives a 3.65 ratio.

The second point of difficulty has been the great increase of total metabolism in the totally depancreatized dog. The answer here is twofold. First, although the partially depancreatized animals have unfortunately never yet been studied in the respiration calorimeter, the available observations concerning the food and urine indicate that these animals will be found to resemble human diabetics rather than totally depancreatized animals. Second, although the increase of metabolism in severe human diabetes reported by Benedict and Joslin was disputed by other authorities, now, on the basis of some recent observations already discussed by Geyelin and Lusk in a meeting at the Academy of Medicine in New York, it is agreed that some cases of human diabetes may show a well-marked increase of metabolism in comparison with nondiabetics under similar conditions. A striking example is the patient of Geyelin and Du Bois, who after five days of fasting still had a daily nitrogen excretion in the neighborhood of 30 gm. and a total metabolism at least 3 per cent. above normal. There may still be discussions concerning the frequency or the cause of such increased metabolism, but the existence of such human cases and the similarity to diabetic animals is established.

The third point is the difficult one of anatomic changes in the diabetic pancreas. Using tissues stained by the ordinary methods in Mallory's laboratory, I observed that the cells of the islands of Langerhans in dogs with early diabetes begin to show vacuolation; and as the diabetes progresses, this vacuolation increases, the nuclei become pyknotic, and cells and islands finally disappear. Further work has confirmed the impression that the changes are strictly specific to diabetes, they are not due to operative trauma or other extraneous causes, and they can be produced at will by feeding predisposed animals in excess of their tolerance, the clinical and anatomic changes running parallel.

Weichselbaum had described changes of this sort in the diabetic human pancreas, under the name of hydropic degeneration, and he asserted that he had found this or other lesions of the islands in all of his 186 diabetic necropsies. Other investigators — the latest being Major — have not been convinced of the existence of any specific alterations in the diabetic human pancreas. No pathologist has ventured to claim that he could go through the necropsy material of a hospital and pick out the diabetic from the nondiabetic cases, and unless a test of this sort can succeed in at least a fair proportion of cases, we have no microscopic diagnosis of diabetes.

One statement can be made positively: The typical diabetic human pancreas does not show the striking and generalized alterations of the islands present in experimental animals, for if it did, no conscientious pathologist could miss them. It is not justifiable to fall back on difference of species as the whole explanation. With minor variations, the diabetic degeneration of the islands has been found similar in several species of diabetic animals, including the monkey. I was privileged to see material obtained by Dr. Alonzo Taylor from a case of diabetes following pancreatic operation in a human patient; the lack of perfect fixation, unavoidable because of the circumstances of the necropsy, may make judgment difficult. Ghon and Roman described a case of youthful diabetes with very small pancreas due to developmental defect, and the changes in the islands of Langerhans were obviously identical with those in partially depancreatized animals.

The classical work in the microscopic study of experimental diabetes is that of Homans. Lane and Bensley had demonstrated that the cells of normal islands are of two distinct types, a less numerous alpha type and a more numerous beta type, distinguishable by the differential staining of their granules. Whereas ordinary stains, as mentioned above, make it appear that the entire islands degenerate in experimental animals, Homans proved by the special granule stains that only the more numerous beta cells show the exhaustion and degeneration, while the less numerous alpha cells remain intact. The easiest supposition is that the specific secretion of the beta cells is concerned in carbohydrate metabolism. The function of the alpha cells is entirely unknown. In a dog with spontaneous diabetes studied by Dr. Krumbhaar, the pancreas was about twice as large as normal, and degeneration was seemingly present in both beta and alpha cells. Homans points out that in cats the changes in all the beta cells are practically simultaneous, whereas in dogs with early diabetes occasional cells show exhaustion while the majority still appear normal. Homans has described a similar occurrence in human diabetes, namely, that although much of the island tissue may appear normal, yet some beta cells in some islands show typical hydropic degeneration. It would seem that the most promising prospect for the microscopic investigation of diabetes lies in this direction, where Homans has led.

The functional element in human diabetes must also be considered, and is emphasized by the results of treatment. When the beta cells of a dog are all degenerated, nothing can stop the diabetes. But human cases of the severest type can be checked in a few days, and within a few days more some of them show a rather surprising carbohydrate tolerance. By permission it is also possible to mention a patient of Dr. Eugene Du Bois whose urine easily became sugar-free; then, on overfeeding with carbohydrate-free diet, there was an abrupt development of total diabetes as demonstrated by the D/N ratio and the respiratory quotient, and then a quick clearing up of the glycosuria on fasting — all within a very few days. These phenomena are suggestive of functional rather than anatomic alterations.

Opie founded the insular hypothesis of diabetes on clinical-pathologic observations, and the experimental evidence for it is good, inasmuch as Macallum, Laguesse and others proved the absence of diabetes when apparently nothing is left of the pancreas except island tissue, and the recent experiments show the presence of diabetes when apparently nothing is lost except the beta cells of the islands. It is not strange if there are some discrepancies between a spontaneous disease and the consequences of surgical reduction of an organ. We properly speak of human diabetes as pancreatic, because of evidence that deficiency of the internal pancreatic function is the central feature. But the cause back of the deficient function may be a disorder of the abdominal nerves, and this cause may to greater or less degree disturb the function of other organs than the pancreas. Large wet kidneys, and sometimes a hyperemic liver, are traditional in diabetes, with no definite pathologic changes in either organ. The recent treatment has brought into prominence the fact that although the kidneys are microscopically normal, abnormal renal function is the rule rather than the exception in severe diabetes. This is evidenced especially by the marked tendency to edema, which is shown to be associated with salt retention. Urea excretion is generally above normal (McLean). Decision concerning the incidence and significance of organic changes in the pancreas obviously requires further study by the best staining methods, and there is a real dearth of suitable necropsy material. Pancreatic specimens should be taken fresh, within an hour of death if possible, and should be cut almost as small as curettings, that is, a very few millimeters in dimensions, to permit quick penetration of the fixative. A simple fixative for the purpose is Zenker fluid without acetic, or with only 1 per cent. acetic acid. Physicians who can obtain such material would render a service by sending it to some one interested in the study.

The fourth and last of the differences to be considered between clinical and experimental diabetes is ketonuria or acidosis. It is an old statement that the diabetic patient dies in coma and the diabetic animal dies in cachexia. Totally depancreatized dogs may show ketonuria, generally slight, and a few authors have reported the death of some such animals in a comalike state. But the cachexia is so pronounced that clinical judgment may be difficult, and Sass found no reduction in the alkalinity of the blood of depancreatized dogs. Fasting phloridzinized dogs show more or less ketonuria, and comalike conditions have been described, but there is possible confusion due to cachexia or phloridzin intoxication, and, although blood tests are in progress, it is too early to report as yet concerning the possibilities of acidosis. It is fully understood that dogs have much less tendency to ketonuria than man, and that is one of the reasons for the present attempts to produce diabetes in species that are more like the human being in this respect. But there are two answers to the traditional argument, even when dogs serve for the comparison. First, totally depancreatized dogs and even Sandmeyer dogs have poor fat-absorbing power, whereas human diabetics have been stuffed with fat; and when the customary overfeeding of human diabetics is stopped, death in coma will be less frequent. Second, under suitable conditions, even dogs seem susceptible to coma. I have seen three dogs with fatal intoxication, and either in dogs or other species, there is some hope for an adequate imitation of human diabetes in this respect.

DIABETIC ACIDOSIS

Here it may be well to introduce a few remarks touching the present status of the subject of the so-called diabetic acidosis. Until recently the doctrine seemed comfortably established that ketonuria is the result of lack of carbohydrate, though von Noorden insisted on the influence of individual idiosyncrasy and habituation, and Magnus-Levy admitted that some unknown factor might sometimes play an accessory rôle. It was also universally believed that the one therapeutic measure of preeminently proved necessity in diabetes was the neutralization of acid intoxication by large doses of alkali. The occasional fast-days or vegetable days recommended by Bouchardat, Cantani and Naunyn were known to diminish acidosis, but there exists sufficient evidence that prolonged fasting was generally considered inadvisable or even dangerous in severe diabetes. Guelpa's practice of fasting is not an exception, for his cases were not severe. Almost two years ago, on the basis especially of the observed benefit of fasting in diabetic dogs, I tried prolonged

fasting in severe human diabetes, and found that not only did the glycosuria cease, but also there was practically complete cessation of acidosis, as judged by the clinical symptoms, ketonuria, ammonia excretion, and the dosage of bicarbonate needed to make the urine alkaline. Since that time the study of the acidosis has been more extensively and accurately carried out by Drs. Van Slyke, Cullen and Stillman, who have used alveolar air and hydrogen ion concentration methods, but especially the new Van Slyke method for determining the carbon dioxid capacity or sodium bicarbonate concentration of the blood. It is desired here only to mention briefly some results of the fasting treatment and their bearing on current theories of acidosis.

First, consider the theory of acidosis due to lack of carbohydrate. Fasting produces a slight ketonuria in normal persons. When it is followed by carbohydrate-free diet, a marked acidosis with typical clinical symptoms may result, as shown especially by Landergren and Forssner. But when the typical severe diabetic fasts, symptoms of coma promptly clear up, the ketone and ammonia excretion fall precipitously, the carbon dioxid of the alveolar air and blood rises to an approximately normal level, and these things then remain so on strictest carbohydrate-free diet, sometimes even if the diet is heavy with fat; the ferric chlorid reaction remains negative, and there are only traces of acetone, a slightly high ammonia, and a slightly low blood alkalinity.

Then, there is von Noorden's theory of habituation; the severe diabetic becomes accustomed to living without carbohydrate, and therefore he develops the power of disposing of such a diet without ketonuria. But a patient recently treated by Dr. Stillman was a child aged 26 months, who had had diabetes only three weeks and had constantly had carbohydrate in the diet, and when placed suddenly on complete fasting the child's acidosis cleared up promptly and completely. On the other hand, patients who have had moderate diabetes and have lived on carbohydrate-free diet for months or years may show an actual increase of acidosis when they fast.

Then there is the other von Noorden theory of individual idiosyncrasy as respects the function of burning acetone bodies; some diabetics have a specific weakness of this function, so that they cannot be made free from acidosis and are in imminent danger of coma. It will be noticed that the present therapy turns the former question directly around; these patients with the highest acidosis are the very ones who most often clear up completely under the conditions in which normal persons or milder diabetics develop acidosis; and concerning the very patients who were previously suspected of an abnormally low power of burning acetone bodies, we must now ask, Have they an abnormally high power of burning acetone bodies?

The glycogen supply has been held important; Forssner, for example, believed that by fasting and exercise to diminish the glycogen, he disposed normal persons to increased acidosis. Also, diabetics with acidosis have been known to go into coma after overexertion. But the normal person and the mild diabetic who develop acidosis on fasting are certainly richer in glycogen than the severe diabetic, whose acidosis clears up on fasting. Moreover, the analyses in the literature indicate that patients who die in coma may possess considerable glycogen. Von Noorden gives the record of two patients who received levulose and had 2.5 per cent. liver-glycogen at necropsy, yet they died in coma. Though exercise should be used judiciously, and should not be commenced until a threatening acidosis has been reduced, yet, after this time, many severe diabetics are benefited by vigorous exercise during fasting or on carbohydrate-free diet thereafter; the result is not ketonuria or coma.

The burning of sugar has been deemed all-important, and it might be considered that diabetic acidosis clears up on fasting because the glycosuria stops and the patient now burns his own protein sugar, whereas previously he was losing more or less protein sugar. But in the above-mentioned severe case of Geyelin and Du Bois, the acidosis dropped enormously on fasting even while the dextrose-nitrogen ratio was still 3.65 : 1. Benedict and Osterberg found that the ketonuria of phloridzinized dogs fell from 50 to 90 per cent. when they were fed protein, though all protein sugar was quantitatively excreted. Carbohydrate, frequently in the form of bread and milk, has been widely used in attempts to ward off coma. A 26-months-old diabetic baby was mentioned previously. By mistake, toward the close of his fasting period, this child received a meal of bread and milk. The exact quantity is not known; but the child never had total diabetes, and the urine had become almost sugar-free, so it is fair to assume that some carbohydrate was burned. But the result was a sudden heavy glycosuria and ketonuria, an abrupt fall in the blood carbon dioxid, and a return of threatening acidosis symptoms; and all these cleared up on continuance of fasting.

When the severe diabetic fasts, there is generally a marked fall in metabolism, and this might be assumed as a basis for a diminished production of acetone bodies. But in the Geyelin-Du Bois case the acidosis dropped while the metabolism was still high. Children are supposed to be specially subject to acidosis, but children with severe diabetes clear up on fasting without difficulty. The acetone bodies are derived chiefly from fat, and Folin and Denis are the latest to describe the tendency of fat persons to acidosis while fasting, so it might be thought that the severe diabetic loses his acidosis readily because he is so emaciated; having so little fat to burn, he must burn something else instead. But the baby mentioned above was as plump and chubby as could be wished, and the acidosis cleared up. On the other hand, a man with only slight acidosis but most extreme emaciation failed to become free from acidosis on fasting, and his ketonuria stubbornly resisted the subsequent treatment for a considerable time. Also, Dr. Geyelin has made the observation that one or two of his patients with moderate diabetes showed slight persistent ketonuria as long as they were undernourished, but when the calories were brought up to the requirement by merely increasing the carbohydrate-free diet, the ketonuria ceased.

The state of intoxication here discussed is familiar to everybody and has become an old story in diabetes; but what is this condition, and what name can properly be applied to it? The name "acidosis" sounds most scientific at the present time. The school of Naunyn and Magnus-Levy has insisted on the diminished alkalinity of the body fluids as the essential feature, and on this basis recent work has brought the dyspnea and coma of diabetic acidosis into relation with the similar symptoms in uremia and other intoxications, including some disorders of childhood. It is true that these diabetics when left to themselves regularly show an excretion of abnormal acids in the urine, and a diminished alkalinity of the blood. But the one outstanding

historical feature is the failure of the alkali therapy for coma. The excuse about not being able to give enough alkali to neutralize the enormous quantities of acid present is open to some question. If one does succeed in giving enough bicarbonate to turn the urine alkaline, a diabetic on the verge of coma may not show the same perfect clearing of symptoms as an acid-poisoned rabbit. Take a patient who is just going to sleep, of the type which, as past experience has shown, in a majority of cases cannot be saved by alkali, and give him no alkali, merely let him alone without food; in twenty-four hours he may be out of danger. That does not look like such enormous quantities of acid accumulated in the fluids and cells. Von Noorden and a few others have insisted that some diabetics die in coma when the urine has been kept constantly alkaline for a considerable period and up to the end. I have personal knowledge of two patients who died when the alkalinity of the blood had been kept normal or above normal by means of bicarbonate. Dr. Joslin in Boston seldom if ever uses bicarbonate now. Sodium bicarbonate promotes diuresis under favorable conditions, and the intravenous infusions raise blood pressure. But there is the old instance in which Hilton-Fagge obtained a similar brief reviving effect by the use of an acid solution intravenously. Last month Poulton published a brief report, and by comparison of his figures with those of Barcroft, he draws the conclusion that, according to the curve of hemoglobin dissociation, a normal person after moderate exercise has a more acid blood than a diabetic in coma. The carbon dioxid findings appear not to agree with this.

Other possible names for the intoxication are ketogenesis, ketonuria and ketonemia. Against ketogenesis it may be objected that more or less production of one or more acetone bodies is a regular process of normal metabolism. Ketonuria lays stress on the increased concentration of acetone bodies in the urine, rather than in the blood and tissues, whereas the latter is the more important factor, and is supposed to be especially dangerous in some cases of retention with very little ketonuria. Ketonemia correctly designates the circulating excess of acetone bodies, but, if used to cover the entire condition, it implies that specific poisoning with acetone bodies is the essential feature. Ehrmann and collaborators supported this view by producing an alleged imitation of diabetic coma in young dogs by feeding or injection of the alkali salts of butyric or diacetic acid.

According to this view the body burns and excretes all the acetone substances it can, and the excretion is facilitated by alkali; but owing to the excess present, these defenses are inadequate and the body is poisoned, even though the substances are present not as free acids but as neutral salts. But in Ehrmann's experiments, ketonuria was slight; and it remains unexplained why the normal organism overwhelmed with the alkali salts of keto-acids fails to excrete them in the large quantities characteristic of the intoxicated diabetic patient.

The toxicity of acetone bodies is relatively slight, so that large quantities of them must be present for fatal poisoning. In diabetic necropsies Sassa has lately found values somewhat lower than those reported by Magnus-Levy. When patients with only slight ketonuria go into coma, the assumption has been that the acetone bodies were retained. Weiland claims to have found at necropsy no great increase of beta-oxybutyric acid in the organs of such patients; but he does not give figures. Marriott's tables show a severe diabetic not in coma with 65 mg. of total acetone bodies per hundred gm. of blood, whereas a child in coma had only 48 mg. per hundred gm. of blood. Clinicians consider a sudden high ketonuria especially dangerous, and in the Landergren-Forssner experiments the acute ketonuria was associated with decided symptoms of intoxication. Yet Benedict and Lewis produced by phloridzin in human subjects a dextrose-nitrogen ratio of 3.6, and a sudden heavy ketonuria with ammonia excretion above 4 gm. daily, and symptoms such as seen in diabetic patients were absent.

The name "diabetic coma" might appear safe and conservative; but the condition is not always diabetic, and there is a question whether it is always coma. Forssner was not a diabetic, yet he showed the typical intoxication, and might well have gone into coma if the experiment had been prolonged. Coma is merely an end-state, and there must be a name for the less severe degrees of the intoxication. The intoxication observed by Folin and Denis in fasting obese women has been mentioned. The subjects need not be obese. Bönniger and Mohr observed ketonuria of over 24 gm. in a fasting woman; Gerhardt and Schlesinger 40 gm. daily in hysterical vomiting; von Noorden 48 gm. on the third day of fasting of a girl with gastric ulcer. None of the persons who showed symptoms were deprived of carbohydrate in anything resembling the exquisite manner of Benedict and Lewis' phloridzinized subjects, who were free from such symptoms. Howland and Marriott have lately reported ketonuria, acidosis and intoxication symptoms seemingly not explained by carbohydrate deficiency, and in at least one patient on full mixed diet. Clinicians are aware that occasional diabetic patients die not in coma, but in what has been called diabetic collapse or heart failure. It is not known whether this is an expression of the same intoxication that causes coma.

Also, consider again the phenomena of fasting. Two patients excrete sugar on carbohydrate-free diet. One has little ketonuria or acidosis; the other has much. Apparently, one of them can resist ketonuria or acidosis better, or has less tendency to it, than the other. Then they fast, and the one who seemed to have poor resistance becomes free from ketonuria and acidosis. The one who seemed to have good resistance does not become free. The ammonia in the latter's urine may or may not increase; the carbon dioxid of alveolar air and blood falls perhaps dangerously low, and there are intoxication symptoms. From 5 to 20 gm. of sodium bicarbonate may raise the carbon dioxid and clear the clinical symptoms. The questions arise: Why are there such marked signs of acidosis chemically and clinically, when such a small dosage of alkali suffices to remove them? Why does this patient, who appeared to resist acidosis so well, not form the small amount of ammonia required to neutralize his acids?

Then there are the rare patients who develop alarming symptoms on fasting. The cases may at first seem severe or only moderate. The glycosuria may clear up or remain heavy. But the acetone bodies and ammonia are high and the carbon dioxid low. Symptoms commonly associated with acidosis appear—weakness, malaise, nausea, vomiting. Maximum doses of bicarbonate may raise the alkalinity of the blood to normal, but do not save the patient. Consciousness may be retained practically to the end. In an ordinary

patient verging on coma, carbohydrate-free diet is a fairly sure means of producing coma. But in the type of patient here described, carbohydrate-free diet, given in time, may clear up the acidosis symptoms, and some days later a second fast is well borne and there is no further difficulty. The patient of Geyelin and Du Bois is the best therapeutic example of this kind of case to date. After five days of fasting, sugar, nitrogen, acetone bodies, and ammonia were high; intravenous bicarbonate infusions raised the carbon dioxid capacity of the blood to 30, but dyspnea and drowsiness gave unmistakable warnings. The patient was accordingly fed. His urine was as unfavorable as before; his carbon dioxid under smaller doses of alkali fell as low as 19, yet his clinical condition was transformed. A second fast cleared up everything successfully. A striking feature is found in the classical symptoms of acidosis present when the carbon dioxid reading was 30, and the marked clinical improvement in these symptoms when the reading had fallen to 19.

Further paradoxes and contradictions could be mentioned if space permitted. It is a sufficient summary to say that some empiric observations exist, but, fundamentally, nobody knows anything about acidosis. We are not even sure of a correct name for the diabetic intoxication. Yet methods are now available—methods for carbon dioxid and hydrogen ion concentration, and micro methods for acetone bodies. It is safe to say that diabetic intoxication and coma will now be studied more carefully and accurately, and within a few years our understanding will have advanced beyond the chaos here depicted. The condition may turn out to be a true acidosis, or a specific intoxication with acetone bodies, or varying combinations of the two elements; or it may be a poisoning with unsuspected intermediary products of fat metabolism. Even clinical observation should be sharpened. It is now probable that typical Kussmaul dyspnea or big breathing is characteristic of acidosis; yet Weiland mentions deep breathing with alkaline urine, and observations in various states of acidosis should easily show the facts. It is probable that patients do not show typical coma without acidosis, though they die with an obvious intoxication.

A further metabolic problem has been raised, since, in the severe diabetics who clear up on fasting, Benedict and Joslin and Du Bois have found some higher respiratory quotients than seem explainable by combustion of the materials supposedly available. Strangely enough, there exists no satisfactory information concerning the amount of sugar present in the tissues under various conditions, but animal experiments now conducted by Dr. Palmer will throw some light on this subject. Joslin has suggested that the high quotients may represent combustion of acetone bodies. The lesson of clinical experience seems to be that, irrespective of individual idiosyncrasy, patients who have once experienced intense acidosis develop a peculiar power of disposing of these acid metabolic products. Perhaps it is a specific increased power of burning acetone bodies or avoiding their excessive formation; perhaps it is the same power of doing without carbohydrate, possessed by carnivorous animals. Again, as alkalies are known to increase the loss of acetone bodies, supposedly by facilitating their excretion, the simple explanation may be that the patient who has had high ketonuria has thereby developed a diminished renal permeability to acetone bodies, strictly comparable to the diminished permeability of the diabetic kidney for sugar, and that this raised threshold dams back the acetone bodies from the urine to greater extent than normal, so that they circulate in higher concentration, are more dangerous when there is great excess, but also under favorable conditions are burned in higher degree, according to the law that seems to govern all combustible substances. Dr. Fitz is at work on this and related problems. Altogether, the indications are that the treatment by fasting will result in throwing considerable new light on the theoretical conceptions of diabetic intoxication and acidosis.

In the practical therapy of acidosis, it is still a wise general rule to use alkali and other customary measures at the outset, as recommended in the first paper concerning the fasting treatment,[1] though under proper conditions and with adequate tests of the acidosis, nearly all cases can be managed without alkali. If alkali is used, the dosage can be smaller than formerly employed for threatened coma, and the injurious or dangerous effects of the large doses may thus be avoided. For the average patient, a proper fasting and dietary régime quickly obviates the need for alkali. For the occasional patient who reacts badly to fasting, the practice in this hospital is not to resort to excessive doses of bicarbonate, but to terminate the fast by giving restricted diet. After a week or two of such diet, a second fast has regularly proved successful. In no case is alkali given for more than a very short period, and the ideal in all cases is to prevent the formation of the acid substances rather than to attempt to neutralize or eliminate them by means of sodium bicarbonate.

TREATMENT

Leaving this digression concerning acidosis, let us return to our original question, What is diabetes? If it springs from deficiency of the internal secretion of the pancreas, what are the results or manifestations of this deficiency? The most obvious fault is in the sugar metabolism; here the distinctive feature of diabetes is not glucose in the urine, but diminished power to use glucose. But diabetes is probably something broader than this. The normal person eats food, digests it, and absorbs it into his blood, and his cells assimilate it for their nutrition. The diabetic eats, digests and absorbs normally, but does not assimilate normally. Diabetes may probably be defined as a specific deficiency of the power of assimilating food.

The question may be pushed further; what is the mechanism of this power, the reason for this deficiency? Concerning this, I have previously proposed a tentative hypothesis of "binding substances." The hypothesis is merely suggestive. It is entirely without chemical support. But since chemical methods have not yet been able to grasp the problem of the mechanism of diabetes, the negative chemical evidence is not decisive. In addition to the previous observations concerning the diuretic action of sugar, the following may possibly have some connection with this idea of the ability of cells to bind food substances. First, the accumulation of reserves, as when the body gains weight, diminishes tolerance and aggravates diabetes; whereas the reducing of the reserve stores, by low diet or by exercise, increases tolerance and checks diabetes. Second, any kind of food — except apparently alcohol, which has no storage form—

1. Allen, F. M.: Studies Concerning Diabetes, THE JOURNAL A. M. A., Sept. 12, 1914, p. 939.

weakens the assimilative power for other foods. Adding carbohydrate to a diabetic diet may give rise to ketonuria. Adding fat to a diabetic diet may give rise to glycosuria. This fact was partially obscured when it was the practice to give severe diabetics carbohydrate for the sake of relieving acidosis. Certainly an excess of carbohydrate, by forcing combustion of carbohydrate and also diminishing combustion of fat, may temporarily diminish ketonuria; but the injury to the patient's actual functional capacity is still evident. After a sufficient period of carbohydrate excess, there is greater ketonuria than before on the same diet as before; and, as shown above, it is difficult to maintain that ketonuria is due merely to lack of carbohydrate. The true conditions are more clearly observable under the fasting treatment.

The history of diabetic therapy, so far as it is significant or valuable, consists merely in an interweaving or alternation of two principles. One is restriction of the sugar-yielding elements of the diet, namely, carbohydrate and protein. The other is diminution of the total caloric value of the diet. The latter is the older. Willis reported benefit from a diet limited to milk and barley-water cooked with bread. There have been milk and vegetable cures since then; but whereas the authors aimed at a nontoxic diet, what they really achieved was undernutrition. Then came Rollo with his notion of animal food to strengthen digestion, and thus the benefit of carbohydrate restriction was accidentally discovered. The harmfulness of excessive protein-fat diet was soon recognized, and Bouchardat, Cantani and Naunyn introduced fast-days and lower diet. Then came the ritual of von Noorden's oat cure, and the widespread ideas concerning special properties in oatmeal, which ought not to have gained credence among those acquainted with the literature of previous carbohydrate and vegetable diets. Blum broke the spell by having the courage to declare that oatmeal is like any other form of starch; and then straightway others made the test, and it became established that there is no special virtue of any kind in oatmeal. The oat cure gave patients a few days' rest from protein-fat excess by substituting carbohydrate excess. Its advocates claimed that it avoided the undernutrition characteristic of other carbohydrate cures, by making up a diet adequate in protein and calories on the oat days; but the undernutrition was present in the fast-days or vegetable days preceding and following the "cure," and therein lay the principal benefit. The oat cure merely shows that a large proportion of diabetics still manifest a surprisingly high carbohydrate tolerance when conditions are not too unfavorable. It is a failure in genuinely severe cases.

The fasting treatment has been previously outlined,[2] and details will be published later. The patients treated at the Rockefeller Hospital now number above sixty. It remains true that cases of diabetes of severest type have been made and kept free from glycosuria and ketonuria. There have been deaths from complications and accidents before treatment could be completed, and physicians will be able to judge concerning these when the details are published. No complication has appeared in any case after treatment, unless the one death from tuberculosis be classified here. Five patients broke their diet and are dead. In the others, who have followed the diet, no inherent downward tendency has yet been observed, and progressive improvement seems to be evident in the majority. The longest observation is now only twenty-one months, so the ultimate results are still subject to question. It would not be strange to find that some severe diabetics have too little assimilative function left to maintain life, but thus far it has been possible to avoid such a confession. To some extent the tolerance, but especially the general well-being of the patients, have been improved by the introduction of vigorous exercise,[3] and most of those treated are now earning their living. It is hoped that a real reduction of the mortality of diabetes will be possible; but if ultimate results disappoint this hope, the treatment is justified by the benefit to the comfort and usefulness of the patients. It is in harmony with the observed benefits of carbohydrate restriction and undernutrition in the past history of diabetes, and it makes an efficient application to diabetes of one of the best established principles of all therapeutics, namely, rest of a weakened function. What is further desirable is obviously some positive means of strengthening the weakened function; but no such method has yet been discovered for diabetes.

2. Allen, F. M.: Prolonged Fasting in Diabetes, Am. Jour. Med. Sc., 1915, cl, 480.

A CASE OF DIABETES OF MAXIMUM SEVERITY WITH MARKED IMPROVEMENT

A STUDY OF BLOOD, URINE AND RESPIRATORY METABOLISM *

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It has recently been possible to study in great detail a patient with diabetes who showed, six weeks after an acute onset, symptoms of maximum severity. This was followed by marked improvement under treatment, and within two months he was able to tolerate 160 gm. of carbohydrate on a mixed diet of 3,000 calories without hyperglycemia or the appearance of sugar or acetone bodies in the urine. It is the purpose of this paper to give a brief summary of the more important observations.[1]

The points of particular interest in regard to this case are:

1. Excessive protein waste over a long period of time.

2. Complete inability to oxidize sugar, including all of the sugar formed from the protein molecule.

3. Extreme acidosis, increasing during the first fast. The fat metabolized by the patient was practically all used in the formation of beta-oxybutyric acid.

4. Low respiratory quotient rising when the blood sugar was increasing and the acidosis was decreasing.

5. Very slight increase in basal heat production during the stage of unusual severity, with marked

3. Allen, F. M.: Note Concerning Exercise in the Treatment of Severe Diabetes, Boston Med. and Surg. Jour., 1915, clxxiii, 743.

* From the Medical Clinic of the Presbyterian Hospital, Columbia University, and the Russell Sage Institute of Pathology in affiliation with the Second Medical Division, Bellevue Hospital.

1. A more detailed account of the case with discussion of the treatment will shortly be published by one of the writers (H. R. G.), and the full calorimeter results with discussion will be published by Gephart, Aub and Du Bois.

decrease in metabolism during the period of low diet and recovery.

The excessive nitrogen loss which occurred in the first fasting period and continued over the following eight days during which the patient was given food seems to be higher than any hitherto observed in man. It is analogous to that seen in the fasting depancreatized[2] or phlorizinized[3] dog. Even when the D:N ratio fell to 1.12:1, the nitrogen excretion remained high. Münzer and Strasser[4] report the case of a man, fasting, whose nitrogen output was 32 gm. for the first day of coma, which was the day before he died. Von Noorden,[5] referring to this case, attributes the extreme destruction of protein tissue to toxic substances produced in coma. Mandel and Lusk[6] and Allard[7] report severe cases with from 11 to 14 gm. of nitrogen per day in the urine.

Our patient during his initial fast and subsequent low diet showed an output of glucose that could have been derived only from protein. For a considerable period the dextrose of the urine bore the ratio to the nitrogen of the urine of 3.6:1. This, as Lusk[6] has shown, is indicative of the total inability of the body to oxidize sugar. He has adequately termed this the "fatal ratio," as the few patients with uncomplicated diabetes recorded as having shown this ratio under properly controlled investigative conditions have died.[8]

The study of the patient in the Sage calorimeter[9] has shown the low respiratory quotients which Lusk[10] has calculated would be found in cases with the maximum D:N ratio of 2.6:1. The nonprotein quotients were 0.699, 0.743, 0.706, and 0.718, whereas the theoretical would be 0.707 somewhat modified by the formation of ammonia and of beta-oxybutyric acid. Apart from the figure of 0.743, which is difficult to explain, the other quotients show that the patient was not oxidizing any sugar at all.

The extraordinary rise in the respiratory quotient during the period of recovery is similar to that found in convalescence from typhoid fever.[11] With a greatly diminished total metabolism, the increasing tolerance for carbohydrate allowed the patient to derive a large percentage of calories from sugar. Still, some of the quotients are higher than can easily be explained. Joslin[12] has noted the same phenomenon.

Allen[13] has shown that with diabetics, acidosis usually decreases during a fast and in most cases disappears entirely. It is interesting to note that Cyril K., whose case is reported below, developed during his first fast an increasing degree of acidosis which reached an extreme grade as shown by clinical symptoms, by the decreased carbon dioxid tension in his alveolar air and by decreased carbon dioxid combining capacity of his blood plasma measured by the Van Slyke apparatus.[14] The acidosis as measured by these signs decreased markedly the day before there was a fall in the very high output of beta-oxybutyric acid. Subsequently the acidosis disappeared at the end of the second fast.

Benedict and Joslin,[15] in a recent study of the basal metabolism of severe diabetics, believe that these patients show an increase of from 15 to 20 per cent. above that of normals of corresponding height and

CLINICAL AND EXPERIMENTAL DATA IN CASE OF CYRIL K.

Date	Food Intake, Gm.			Output Glucose, Gm.	Urine N, Gm.	D:N Ratio	Beta-oxybutyric Acid Gm.	Blood CO_2, mm. Hg	Blood Sugar, per Cent.	Aver. R. Q.	Aver. Non-protein R. Q.	Average Cal. per Hour	Aver. Cal. per Sq. M. per Hour, Linear Formula*	Weight, Kg.
	Carbo.	Prot.	Fat											
1915														
Dec. 8- 9	0	0	0	74.9	27.9	2.68	43.7	30.4	0.313					
Dec. 9-10	0	0	0	78.3	29.8	2.61	34.6	....	.....	.....	.....	.....	.....	57.4
Dec. 10-11	0	0	0	74.2	24.8	2.95	....	26.6	0.340	.....	.....	.....	.....	57.8
Dec. 11-12	41.5	17.5	17.7	108.0	30.6	2.17	60.0	21.1	0.312	.....	.....	.....	.....	58.2
Dec. 12-13	50.	50.1	69.6	112.0	34.5	1.8	53.0	22.7	.....	.....	.....	.....	.....	56.7
Dec. 13-14†	50.	55.2	58.5	118.7	35.4	1.92	57.9	22.5	.....	.....	.....	.....	.....	57.0
Dec. 14-15	53.3	58.	51.2	118.5	37.73	1.73	55.2	....	.....	.....	.....	.....	.....	57.2
Dec. 15-16	23.5	118.6	41.0	167.9	36.37	3.97	70.8	19.95	.....	0.687	0.699	81.86	45.7‡	56.7
Dec. 16-17	0.4	99.	5.6	153.4	38.27	4.01	75.1	19.6	.....	0.714	0.743	76.43	42.6‡	56.8
Dec. 17-18	0.4	39.4	2.9	140.29	36.29	3.87	87.38	35.4	.....	.....	.....	.....	.....	57.9
Dec. 18-19	0	0	0	55.14	20.01	2.76	58.52	35.4	0.150	0.707	0.706	73.18	40.8	56.5
Dec. 19-20	0	0	0	44.25	16.72	2.65	56.84	49.7	.....	.....	.....	.....	.....	57.2
Dec. 20-21	1.0	10.	0	35.34	14.07	2.44	41.17	52.5	0.177	0.721	0.718	66.33	37.0	56.9
Dec. 21-22	1.6	20.	0	39.73	14.4	2.65	26.21	....	0.170	.....	.....	.....	.....	56.6
Dec. 22-23	5.6	21.	0.1	25.97	18.25	1.12	10.95	52.8	0.181	0.734	0.728	62.82	35.9	54.3
Dec. 23-24§	0	0	0	17.01	10.43	....	.....	46.3	0.206	.....	.....	.....	.....	54.9
Dec. 24-25	0	90.	15.8	15.16	18.32	....	.....	46.2	.....	.....	.....	.....	.....	53.0
Dec. 25-26	0	90.	15.8	32.75	32.70	....	.....	40.9	.....	.....	.....	.....	.....	53.4
Dec. 26-27	0	0	0	10.4	14.18									
Dec. 27-28	0	0	0	0	10.50	....	.....	....	.....	.....	.....	.....	.....	52.6
Dec. 28-29	0	0	0	0	9.05	....	0.241	40.95	0.195	.....	.....	.....	.....	52.3
Dec. 29-30	0	51.9	7.9	?	13.79	....	.....	....	.....	.....	.....	.....	.....	52.6
Dec. 30-31	0	0	0	+	13.72	....	.....	....	.....	.....	.....	.....	.....	52.3
1916														
Jan. 31- 1	0	0	0	0	8.78	....	.....	....	.....	.....	.....	.....	.....	51.2
Feb. 16¶	....	....	....	0	....	0	0	....	.....	0.915	0.973	42.96	25.4	45.8
Mar. 8¶	....	....	....	0	....	0	0	....	.....	0.860	0.872	50.02	29.1	48.3

§ Returned from Bellevue Hospital.

* Average basal normal 39.7 calories per square meter per hour.

† Transferred to Bellevue Hospital.

‡ After meals which might cause increase in metabolism of 5 to 10 per cent. above basal.

¶ Transferred to Bellevue Hospital. Liberal diabetic diet the days before these calorimeter observations.

2. Falta, Grote and Staehelin: Beitr. z. chem. Physiol. u. Path. (Hofmeister's), 1907, x, 199.
3. Reilly, Nolan and Lusk: Am. Jour. Physiol., 1895, i, 395.
4. Münzer and Strasser: Arch. f. exper. Path. u. Pharmakol., 1893, xxxii, 376.
5. Von Noorden: Die Zuckerkrankheit, 1912, p. 119.
6. Mandel, A. R., and Lusk, Graham: Diabetes Mellitus, THE JOURNAL A. M. A., July 23, 1904, p. 241.
7. Allard: Arch. f. exper. Path. u. Pharmakol., 1907, lvii, 1.
8. Greenwald: Jour. Biol. Chem., 1913, xvi, 375. A personal communication from Dr. Greenwald reports his patient still alive with high tolerance. Dr. N. B. Foster (Deutsch. Arch. f. klin. Med., 1913, 501) has reported a similar case. This patient has been lost track of, but is believed to be dead.
9. Clinical Calorimetry: Papers 1-8, Arch. Int. Med., May, 1915.
10. Lusk, Graham: Clinical Calorimetry, Eighth Paper, On the Diabetic Respiratory Quotient, Arch. Int. Med., May, 1915, p. 939.
11. Coleman, Warren, and Du Bois, E. F.: Clinical Calorimetry, Seventh Paper, Calorimetric Observations on the Metabolism of Typhoid Patients With and Without Food, Arch. Int. Med., May, 1915, p. 887.
12. Joslin, E. P.: Carbohydrate Utilization in Diabetes, Arch. Int. Med., November, 1915, p. 693.
13. Allen: New York State Jour. Med., 1915, xv, 330.
14. Van Slyke: Proc. Soc. Exper. Biol. and Med., 1915, xii, 165.
15. Benedict and Joslin: A Study of Metabolism in Severe Diabetes, Publication 176, Carnegie Institution of Washington, 1912.

weight. This they attribute to the stimulation of acidosis. Some observers consider that there is little or no increase in severe diabetes.

Cyril K., when first observed in the calorimeter, showed a slight increase above the average metabolism. The average normal basal calories per square meter per hour is 39.7; the results obtained December 15 are about 15 per cent. above this level, and December 18, 7 per cent. above. On both of these days the determinations were not basal but were raised perhaps from 5 to 10 per cent. by food taken the morning of the observations. His first basal determination, December 18, showed an increase of only 3 per cent. above the normal in spite of large nitrogen elimination and some acidosis. The remarkable fall of metabolism to 36 per cent. below normal, February 16, as a result of prolonged underfeeding, has never before been equaled.

In view of the fact that high protein metabolism is known to increase the total heat production, it seems fair to attribute the increased metabolism of Cyril K. to this factor rather than to acidosis.

CASE HISTORY

History.—Cyril K., man, aged 19, college student, admitted to Presbyterian Hospital, service of Dr. Swift, Dec. 7, 1915, discharged March 7, 1916, had no history of diabetes in his family. There was no history of recent infection. His average weight with clothes was 172 pounds. He was always active, engaged in violent athletics, and had been a heavy meat eater. Nov. 1, 1915, he noticed that he was getting thin. He felt weak. He had no ambition and was easily tired. Nov. 15, 1915, a physician found sugar, 4.5 per cent. Polydipsia appeared and polyuria was noted in twenty-four hour specimen (128 ounces). About November 20, he weighed only 155 pounds with his overcoat on. He has been on a supposed low carbohydrate diet (from 15 to 30 gm.?) with large meat intake since Nov. 15, 1915. Since December 1, he had felt very drowsy and slept a great deal. His last food was taken at 7 p. m., December 6. December 7 in the morning he vomited water with lemon juice.

Physical Examination.—The patient was 6 feet 2 inches (188 cm.) tall, and extremely emaciated. He was very drowsy. His speech was slow and deliberate. He answered questions intelligently but with evident effort to rouse himself from semistupor. The skin was very dry, as were also the lips and mucous membrane of the entire mouth. The pharynx was dry and parched. There was an "acetone odor" on the breath. Inspiration and expiration were slightly prolonged and deep.

Dec. 11, 1915, he had grown slightly worse. There was considerable nausea. The mental condition was more drowsy. Respirations were typically of the "air hunger" type. The patient had been receiving from 53 to 114 gm. of sodium bicarbonate daily, chiefly intravenously. He had had considerable nausea. As the condition did not improve on fasting, it was deemed advisable to give him food.

December 13, in the afternoon, the patient seemed better. There was less "air hunger," and he was brighter mentally, more alert, and less drowsy.

December 14, he was transferred to Bellevue Hospital. He had been able to eat milk and eggs for the past sixty hours.

December 14 to 18, drowsiness, air hunger and anorexia were disappearing. A furuncle on the back of the neck was incised, and 3 or 4 c.c. of pus evacuated.

December 19 to 23, there were no clinical signs of acidosis. The patient felt and looked much better. The furuncle was beginning to heal.

December 23, the patient was returned to the Presbyterian Hospital.

Jan. 1, 1916, he became permanently sugar free, and ketone bodies disappeared from the urine, after a second fast.

February 24, there was a tolerance of 160 gm. of carbohydrate and 3,500 calories.

February 27 to 29, a peritonsillar abscess developed, accompanied by marked decrease in food tolerance and a return of hyperglycemia.

March 7, former tolerance was regained. Blood sugar was normal, 0.081 per cent. The patient was discharged, weight 105 pounds. The food consisted of 90 gm. of carbohydrate; total calories, 2,559.

March 21, when the patient was last seen, he had gained 8 pounds over his weight when discharged, and he had increased his carbohydrate intake 20 gm. without the appearance of sugar (other two food constituents being the same). There was no glycosuria.

CONCLUSIONS

In its clinical course this case is somewhat analogous to an acute infection, as suggested by rapid onset, severity of symptoms and subsequent regaining of a high food tolerance. The fact that a peritonsillar abscess lowered the food tolerance markedly shows that the patient still has a potential diabetes.

Laboratory observations on this patient bear out the complete analogy to the severest form of experimental diabetes, which in animals has always proved fatal.

Complete analogy to experimental diabetes has never been observed in human beings before, certainly not with marked improvement.

UMBILICAL DYSPEPSIA *

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DETROIT

A defect in the abdominal parietes preventing closure of the umbilical canal results in what is known as a congenital opening. Only when there is protrusion do we regard it as a hernia. It is a somewhat common occurrence to find the opening at the navel unobliterated. The defect is at the opening for the omphalomesenteric duct and the urachus. In the majority of instances, no injury results from this nonclosure. Increased abdominal pressure, coughing, lifting, straining at stool, etc., often lead to an umbilical hernia, which I do not wish to consider here.

This umbilical opening may at first be very small—so small as to escape the notice of the examining physician, and later assume large dimensions. It is always congenital in origin.

All these patients have symptoms of nervous dyspepsia due to increased irritability of the autonomic nervous system. They are often free from distressing symptoms for days, and then, from some trivial cause, the symptoms recur. The appetite is apt to be capricious; coarse food may be taken without aggravation of symptoms, and then again a diet which ordinarily might be taken with impunity by a person suffering from organic disease of the gastro-intestinal tract is rejected as not agreeing with the patient.

The patient complains of fulness of the head, headache, inability to work, vertigo, lassitude and depression. He may experience uneasy sensations from one to two hours after meals, or have a feeling of heaviness immediately after eating. The degree of discomfort does not depend on the quality or quantity of food taken. The patient is usually constipated. The nutrition is good. When the subjective symptoms

* Read before the American Gastro-Enterological Association, Washington, D. C., May 8, 1916.

become severe, loss of weight results from refusal of the patient to partake of adequate nourishment. Deep palpation with the ball of the finger over the umbilicus elicits severe pain. This may radiate in different directions, or be referred to some distant part of the abdomen. As soon as the pressure is released, the pain ceases. The stomach may functionate in a perfectly normal manner. In some cases, however, hyperacidity is present. The diagnosis is made by the pressure pain over the umbilicus, together with the discovery of the failure of parietal union.

The chemical examination of the stomach contents in all these cases shows a hyperacidity.

In a number of cases we were unable to demonstrate umbilical openings, but on pressure over the umbilicus, severe pain was elicited at the site of pressure and often referred pain and distress in other parts of the abdomen.

As the treatment of these cases has been along similar lines, I shall describe it without going into the details of each case. The principal idea is to eliminate irritation of the patent umbilicus. This is best accomplished by bringing the edges of this congenital opening as close together as possible with adhesive plaster 2 inches wide and long enough to extend from 2½ to 4 inches on either side of the umbilical opening. The surface of the abdomen where this is to be applied is thoroughly cleansed with soap, water and alcohol. One must be particularly careful that the umbilicus ieself is well cleansed. If there is an excessive growth of hair on the abdomen, it is shaved off with a safety razor. I have found this instrument much more satisfactory than the ordinary razor. The first piece of adhesive is applied in the following manner: The edges of the navel are approximated by an assistant, and the strip of adhesive is applied directly over the umbilicus and drawn as tightly as possible. Without an assistant the binding can be done by applying the adhesive to one side of the abdomen and then pressing with the hand on the opposite side, and fastening the other end of the plaster to this side. The puckering of the skin in the midline is smoothed away. The remaining two strips of plaster are fastened so as to overlap the central strip above and below. In this manner we have been able to give almost immediate relief from pain and the distressing symptoms. The patient is able to take his bath in the same manner to which he has been accustomed, as the adhesive is very resistant to the action of water. Its removal when loose is facilitated by the use of ether or oil of wintergreen.

This treatment is usually continued from four to ten weeks. On removal of the adhesive, one will often find vesicles and sometimes pustules in the area which has been covered. A single application of tincture of iodin over this area will go far toward clearing up these eruptions. If necessary, application of the adhesive may be discontinued for several days at a time.

A valuable adjunct to this treatment is the use of an elastic abdominal support.

The medical treatment is determined by the character of the gastric secretions. In cases of hyperchlorhydria the alkalies are given. The presence of vagotonia necessitates the use of belladonna or its alkaloid, atropin. I have also found the bromids of valuable assistance in bringing about recovery, especially in cases which show symptoms of depression.

The appetite may often be stimulated, if necessary, by the use of stomachics or other bitters. The diet should be composed of large quantities of rich, nourishing, easily digested foods, it being advisable to increase the amount of butter, cream, milk, eggs and other articles of a similar nature.

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CONTROL OF DIPHTHERIA

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The practice in vogue for the control of diphtheria outbreaks is based on bacteriologic control of all contacts and convalescents. Those yielding cultures of the Klebs-Loeffler bacillus are isolated and kept in isolation until negative cultural results are obtained. Failing this result, the virulence test is relied on as a criterion of safety. Thus the laboratory leads the way, field work being subordinated to it.

Two years' practical experience, both as bacteriologist and as epidemiologist, has convinced me of the fallacy of depending primarily on laboratory tests.

CARRIERS

Carriers are of two types, pharyngeal and nasal. The former, constituting less than one fourth of all carriers, show acute hyperemia superimposed on chronic pharyngeal hypertrophy. The culture result is positive and there is a history of an attack of diphtheria.

The second or nasal type is characteristic. There is a bloody, purulent anterior nasal discharge, usually unilateral, with excoriation of the upper lip and neighboring skin. By attention to these signs one may easily pick out three fourths of all true carriers.

The nasal type divides into two classes: One gives a history of an attack of diphtheria, with frequent epistaxis in its course or during convalescence, the characteristic discharge having developed after a few weeks or, rarely, a few months; in the other, the patient presents the lesion without having had the disease. The nasal type predominates among children under 10 years of age, and, of these, those who have not had the disease have been infected either by nasal carriers or by older children in their family who have had it. Nasal carriers who have not already had the disease do not develop pharyngeal diphtheria.

The seasonal prevalence in carriers coincides with that of coryza.

CONTROL PROCEDURE

In the first year's campaign, I followed, substantially, the prevalent practice as already outlined. But, in the course of it, I found reason to regard inspection of nasopharynges as less misleading than culture data. Thus, not a single case of diphtheria could be traced to infection from those in whom physical examination gave a negative and culture a positive result.

In the second year, therefore, I modified my practice and, giving more prominence to field work, took courage to rely mainly upon it. No contacts were isolated if the nasopharynx was normal, even though the cultural result were positive. In the same conditions quarantine was raised. Those of the exposed who showed acute pharyngeal hyperemia were isolated

and kept under observation. I had no reason to regret this course of action, for no return cases or development of carriers resulted from its adoption. On the other hand, I was able to trace two new infections to a case in which, although the pharynx was yet mildly inflamed, quarantine had been raised on the strength of two successive negative cultures. This person proved to be a pharyngeal carrier.

Missed cases and carriers were also sought by a neighborhood survey on the following lines: investigation of all school absentees and all children in school with nasal discharges, their names and addresses being furnished by postal card notification through the schoolteacher. From the data so obtained, in conjunction with that of the neighborhood cases, a card index is made which is of the greatest aid in tracing each future focus of infection.

The procedure followed in the first year necessitated the making of 5,000 cultures. In the second only a third of that number were made, but the inspections were doubled.

RESULTS

We started in October with a number of reported cases of diphtheria equal to that for the same period of previous years. In December, January and February, for the first time in its history, the city had weeks without a reported case. Other weeks produced half as many cases as the corresponding weeks of the previous year, and only a quarter as many as earlier years. The results of a comparison between the statistics of New Haven and those of neighboring cities and towns for the same period are equally favorable to the former.

To secure practically complete control, two further precautionary measures are needful. The first is the recurring inspection, by field nurses, of children under school age in families with no school absentees. The second is the notification, to the board of health, of the arrival of families moving into the city.

CONCLUSIONS

In the control of diphtheria, the field work of the epidemiologist plays the more important rôle.

The means by which he operates are the physical examination of patients and contacts, the subsequent careful supervision of the former at the time of head colds and sore throats, and the constant family and neighborhood survey for carriers.

Scurvy and Pasteurized Milk.—During a discussion on "Vitamins" at a meeting of the Academy of Medicine, New York, the opinion was expressed and confirmed by reports of clinical observations that pasteurized milk was responsible for a mild form of scurvy which was apparently on the increase in this city. The fact was emphasized, however, that this did not mean that the use of pasteurized milk should be abandoned but that it should be supplemented by orange juice or other suitable antiscorbutic. Following this meeting the department of health announces that instructions have been given to the physicians and nurses in charge of its milk stations and the baby welfare work in the homes to be on the outlook for any of the early signs of scurvy and to insist on the use of orange juice or other suitable antiscorbutic when babies are exclusively fed on pasteurized milk. It is also announced that the department of health has no intention of altering its policy with reference to pasteurized milk and that it likewise does not look with favor on any administration of milk control in any community which eliminates the privilege of securing a safe high-grade raw milk for those whose lives may depend on its use.

OBSERVATIONS IN THE DIAGNOSIS AND TREATMENT OF BRAIN INJURIES IN ADULTS*

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The mortality resulting from brain injuries is very high. During the period from 1900 to 1910, the mortality figures at three of the large hospitals in New York ranged from 46 to 68 per cent. of all cases of brain injuries. In a report recently published by Dr. Besley[1] of the Cook County Hospital of Chicago regarding 1,000 consecutive patients having fractures of the skull, the mortality was 53 per cent. This death rate is indeed appalling, and it undoubtedly accounts for the attitude of many doctors and most hospitals toward patients having fractures of the skull, particularly of the base. If the patient recovers, remarkable—he had a fracture of the skull. If he dies—well, he had a fracture of the skull.

It is this attitude of comparative hopelessness in the treatment of brain injuries that has allowed these cases to be almost neglected in the general hospital. I well remember being severely reprimanded as a house officer for having admitted to the hospital from the ambulance a fracture of the base of the skull, and not having sent the patient to Bellevue Hospital. As a house surgeon, my instructions were to keep the beds free of fractures of the base of the skull, the reason being that so little apparently could be done for these conditions. The patients either improved after a long convalescence, or more frequently they died, the treatment other than the ordinary routine palliative procedures being of little or no benefit.

The belief has long been maintained that the patients with brain injuries, especially following fractures of the base of the skull, get along just as well without operation as with operation. This position is well taken if the patients requiring operation are not operated on until they reach the dangerous stage of medullary compression and even the later stage of medullary edema; then it matters very little whether the patient is operated on or not—in fact, what chance of recovery the patient may have is taken away by an operation at that late and dangerous period of medullary edema, the operation being just an added shock, so that death is usually hastened. The mortality from 1900 to 1910 was 87 per cent. following operation on patients who showed signs of high medullary compression and edema. The patient, however, should not be allowed to reach that dangerous medullary stage. It should be anticipated by repeated examinations and tests, and if the early signs of a definite increase of the intracranial pressure appear, then the operation should be advised immediately.

An early operation is advisable, not only as a means of saving the life of the patient, but also to lessen the danger of posttraumatic conditions, so common after fractures of the skull. These conditions of nervous instability, such as marked depression, irritableness, persistent headache and even epilepsy following brain injury, especially as the result of basal fractures, are due in the majority of cases, I believe, to the resulting unrelieved increased intracranial pressure prolonged

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* Read before the New York Neurological Society, March 7, 1916.

1. Besley, F. A.: A Contribution to the Subject of Skull Fractures, THE JOURNAL A. M. A., Jan. 29, 1916, p. 345.

over a period of several weeks or more, and frequently resulting in the chronic edematous, swollen brains, so commonly observed at later operation on these patients. The cortical irritability may become so high as to allow epileptiform seizures to occur.

During the past three years I have had the opportunity of examining personally and treating 282 adult patients having one or more traumatic lesions of the brain. Of the 239 recent acute conditions, operations were performed in seventy-nine, or 34 per cent., of the patients treated, whereas of the forty-three old chronic injuries of the brain, twenty required surgical treatment. I shall consider only brain injuries occurring in adults, and not the rather common traumatic cerebral lesions of children resulting from difficult labor and intracranial hemorrhage at birth, with or without the use of instruments, and later giving the clinical picture of impaired mentality and the various forms of cerebral spastic paralysis.

ACUTE BRAIN INJURIES

The 239 recent brain injuries were due to the following causes:

1. Fractures of the base of the skull alone, 159; operations, 40; total died, 35 (without operation, 29; with operation, 6).
2. Fractures of vault of skull alone, 27; operations, 15; total died, 5 (without operation, 4; with operation, 1).
3. Associated fractures of vault and base, 41; operations, 15; total died, 17 (without operation, 14; with operation, 3).
4. Bullet wounds of brain, 9; operations, 7; total died, 5 (without operation, 2; with operation, 3).
5. Stab wounds of brain, 3; operations, 2; died, 1 (with operation; hemorrhage into ventricle and meningitis).

That is, of a total of 239 patients with recent brain injuries (227 of them being the result of fractures of the skull), 79 of them were operated on with 14 deaths, whereas 160 of the patients were not operated on and 49 deaths resulted, making the total number of deaths 63, and thus a total mortality of 30.7 per cent. (It must be remembered that many of the patients who died without operation were in a moribund condition owing not only to the shock and the brain injury but also to other severe injuries, such as internal injuries, rupture of the large viscera, fractures of the long bones, etc. If we exclude these moribund patients who died within three hours after admission to the hospital, then the total mortality would be only 19 per cent.)

Naturally the most common cause of brain injuries in times of peace are fractures of the skull, either of the vault or of the base. Fractures of the skull, however, may occur, and undoubtedly do frequently occur, without there being a resulting lesion of the brain which can be clinically demonstrated. These latent fractures of the skull are very common. In these cases there are no definite clinical signs to indicate an injury of the brain. Only the Roentgen rays can demonstrate the presence of the fracture, particularly of the vault, and there are undoubtedly many of these cases in which the Roentgen rays do not reveal the fracture. In these latent fractures, as well as the fractures which can be demonstrated by palpation, the escape of blood and cerebrospinal fluid into the ear, the orbit, the nose, the mouth and the tissues of the scalp and mastoid areas—fractures which do not produce signs of brain injury—operation is not performed. One does not operate for the fracture of the skull, but only to remove or to lessen the effect of the fracture on the brain when these injuries can be demonstrated clinically. To be sure, all depressed fractures of the vault should be elevated or removed for fear of the later effect of such a local pressure and possible cortical irritant.

It is in fractures of the base, however, that much diversity of opinion has occurred; naturally, the fracture itself could not be operated on, and only within the last few years has it been realized that the fracture itself is of very little consequence—it is the resulting hemorrhage and edema of the brain which are the dangerous complications of basal fractures. Meningitis is always a complication to be feared in fractures opening into the ears, nose and pharynx, and in compound fractures of the vault. Therefore, in basal fractures an operation is advisable to lessen the increased intracranial pressure and thus avoid the danger of a medullary compression and possible medullary edema—whether there is a large localized intracranial hemorrhage, multiple punctate hemorrhages throughout the cortex, or merely a wet edematous, swollen brain; the last condition is a most common cause of death following basal fractures, and unless a necropsy is performed immediately after death, a normal appearing brain is frequently exposed. In this series of seventy-nine patients operated on, I have been impressed by the absence of extradural middle meningeal hemorrhage unassociated with subdural lesions; I feel that it is a rather uncommon condition by itself—less frequent than our textbooks would tend to impress on us.

The presence of paralysis, a change in the reflexes—both superficial and deep, localized epileptiform seizures and rarely impairment of sensation are at times of great assistance in determining the site of the brain lesion. Unfortunately, in the great majority of the cases there are no such localizing signs, and chiefly for this reason, it has been thought advisable, in the past, to wait for these localizing signs. Thus the patient was frequently allowed to reach the dangerous stage of medullary impairment. Naturally, in cases of large single hemorrhage, if the operative incision could be placed directly over the lesion, then the clot could be entirely removed. This ideal result is rarely possible on account of the infrequency of single localized hemorrhage, and the difficulty of localizing the single hemorrhage when present. It is my opinion that in patients having no definite localizing signs, who show definite signs of an increased intracranial pressure—whether that pressure is due to hemorrhage or to edema—an early subtemporal decompression is advisable, both to lessen the general intracranial pressure and thereby the local effects of a single hemorrhage if present, and to provide a means of drainage of the blood and the increased cerebrospinal fluid from the middle fossa—the most common site of basal fractures and the important drainage cistern above the tentorium.

Regarding the signs of increased intracranial pressure, it is rarely possible to observe with the ophthalmoscope the early stages of choked disk within six hours after the injury. If the shock is slight and the intracranial hemorrhage is a fairly rapid one with insufficient outlet, then a blurring of the nasal halves of the optic disks may occur. As a rule, however, the signs of shock overshadow or even prevent the signs of increased intracranial pressure. If the patient recovers from the shock, then the blood pressure gradually rises until the signs of an increased intracranial pressure appear. It is poor surgical judgment to operate on patients having brain injuries, no matter how extreme, if the patient is in such shock that the

pulse rate is greater than 120; for obviously the shock overshadows the signs of intracranial pressure, if present, and any operation at this stage will be but an added shock and thereby merely hasten death. If the patient cannot survive the condition of shock, any operative procedure will certainly not aid him.

Naturally, if the patient is in a condition of severe shock with a pulse rate above 120, it is much wiser to avoid all unnecessary examinations, and depend on the routine expectant palliative treatment for such conditions: absolute quiet, ice bag to the head, hot rectal solutions of normal saline and black coffee, and opiates, hypodermically, if necessary, to quiet the patient.

If the patient can survive this acute condition of shock, then the pulse rate gradually descends, the blood pressure rises, and the deep reflexes return. It is then, even if several days have been required for the patient to overcome the extreme signs of shock, that repeated ophthalmoscopic examinations of the fundi should be made, small amounts of cerebrospinal fluid withdrawn by lumbar puncture to estimate its pressure and the presence of blood, and the rate of the pulse and respirations carefully noted every ten minutes. Should the pulse rate gradually descend from 100 to 90, and then to 80, 70 and then 60, and even lower, and if the ophthalmoscope shows the signs of increasing intracranial pressure confirmed by lumbar puncture with or without the presence of blood (for I have found subdural hemorrhage in a number of patients and yet the cerebrospinal fluid by lumbar puncture was clear), then a relief of this intracranial pressure should be strongly considered, whether it is due to a localized hemorrhage or merely to a very edematous, swollen brain.

Any operative procedure for the relief of the intracranial pressure should be undertaken while the pulse rate is descending, at 60 or below, for once it has reached its lowest level of medullary compression, the danger of a medullary edema is great. If it does occur, the pulse rate begins to rise rapidly, and I have yet to see a patient recover, whether or not operation is performed, once the pulse rate has descended to its lowest level and then begun to rise rapidly. The danger of the operation while the pulse rate is descending is far less than the danger of the possible onset of the signs of a medullary edema, the mortality being then practically 100 per cent. The appearance of a definite paralysis of the extremities or the onset of convulsive seizures will naturally tend to an early operation.

In the less severe conditions of intracranial pressure resulting from brain injuries, repeated lumbar punctures are at times of great value in lessening the intracranial pressure and thereby the stupor or delirium and the severe headache, and improving the general condition of the patient in many ways. If, however, the intracranial pressure is very high, this method of lowering it is rather dangerous for fear of medullary choking in the foramen magnum; this danger, however, is not so great as in tumor cases.

Changes in the reflexes are interesting in these cases. In several of them as the patient emerges from the condition of shock to enter the pressure stage, the abdominal reflexes will frequently appear depressed on the side opposite to the cerebral lesion, and at the same time it is usually possible to obtain a definite Chaddock reflex; but the Babinski reflex is absent and reappears only later, especially if the abdominal reflex cannot then be elicited at all. It may be that the Chaddock method of eliciting the dorsal extension of the great toe is possibly a more delicate one than the Babinski method, as it is in many cases its forerunner.

The Roentgen rays are of little importance in the treatment of fractures of the skull. In doubtful depressed fractures of the vault they are, at times, of some help; but in basal fractures, and even in linear fractures of the vault, not only is it rare for the line of fracture to be revealed by the Roentgen rays, but the treatment is the same whether or not a fracture is evident.

The fracture is really the unimportant factor in brain injuries, and in many cases the presence of a fracture so situated as to allow the escape of blood and cerebrospinal fluid from the intracranial cavity would so lessen the danger of the increased intracranial pressure that an operation would be avoided. This natural decompression and drainage would always be greatly welcomed if it were not for the danger of infection. In several cases of the most severe brain injuries, there was no fracture to be demonstrated at the necropsy. In two cases in which the patients recovered from the operations, no fracture of the vault was found at the site of the impact of the bullet and of the baseball, respectively, and yet in both of these cases a large supracortical hemorrhage was exposed. Subconjunctival as well as orbital hemorrhage does not necessarily indicate a fracture of the adjacent bone; similarly, blood may be present in the middle ear and yet no fracture can be demonstrated at necropsy—merely a subperiosteal hemorrhage. The presence of cerebrospinal fluid in the middle ear, with or without a rupture of the tympanic membrane, naturally is conclusive of a fracture.

In conditions of gunshot and stab wounds of the head, just as in intraperitoneal wounds, if it is ascertained that the subdural cavity has been entered, then an enlargement of the opening in the vault should always be made; if the intracranial pressure is high, a subtemporal decompression is advisable. Not only will this method of treatment lessen the great danger of infection and meningitis, but also it will permit free drainage of any hemorrhage, and thus tend to prevent future complications, especially epileptiform seizures. Naturally, if the location of the foreign body or bullet is subcortical, it is much wiser, as a rule, not to attempt its removal for fear of damaging the adjacent nerve cells and tracts; in selected cases, the interrupter magnet may be used to locate the foreign body and even extract it along its pathway through the cortex.

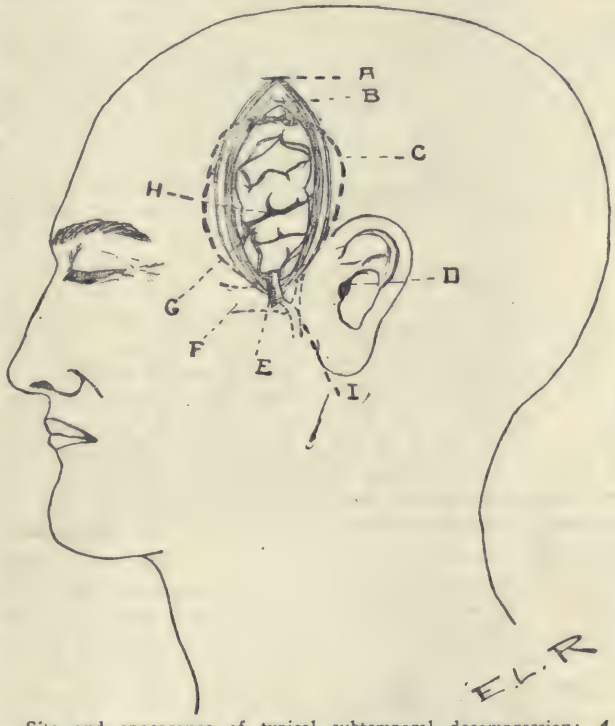
CHRONIC BRAIN INJURIES

It was surprising to ascertain the high percentage of posttraumatic conditions occurring in brain injuries. In 1913, I began to trace the patients discharged as cured from three of the large hospitals in this city during the period of ten years from 1900 to 1910. These patients had all been diagnosed as having fractures of the skull, either of the vault or of the base. The period of hospital residence varied from fourteen days to six weeks. Naturally, it was rather difficult to locate many of these patients, as ambulance patients of the poorer class change their residence frequently. I was able to learn personally of only 34 per cent. of those discharged as cured. Of this 34 per cent., however, 67 per cent. were still suffering from the effects of the injury; that is, they did not enjoy the same good health as they did before the injury. The most common complaint was headache, especially on exertion; they were easily fatigued; then came vertigo, which

was always subjective in character; there was a lessened emotional control, usually of the depressed type—at times the patients were irritable, unable to keep employment, and then again listless, lacking interest in things and termed "happy-go-lucky," "good-for-nothing," "bums," etc. Epileptiform spells were not of infrequent occurrence.

The histories of these patients revealed that 88 per cent. of them, apparently those with the more severe lesions, had remained in the hospital more than three weeks, and that 74 per cent. of them had had a pulse rate below 70. That is, these patients who were, we may say, permanently impaired by the brain injury, all required a hospital residence longer than two weeks, and the majority of them showed at least one sign of a possible increased intracranial pressure by the lowered pulse rate. It was the exceptional patient on whom an ophthalmoscopic examination or a lumbar puncture had been made.

It is my belief that these impaired posttraumatic patients are the ones who had and still have an increased intracranial pressure as a result of the accident, whether it is due to a hemorrhage of varying degree or to a wet edematous brain, and it is this condition which prolongs their hospital residence. I believe that these patients are the ones who should be most carefully examined both with the ophthalmoscope and by repeated lumbar punctures, if necessary, in order to ascertain the presence of a marked increase of the intracranial pressure. It is my opinion that a definite increase of the intracranial pressure prolonged over a period of weeks following the injury may so impair the function and the blood supply of the cortical nerve cells that a posttraumatic condition may easily result; a prolonged increase of the cerebrospinal fluid may be the forerunner of the chronic edematous wet brains so commonly observed later in these patients.



Site and appearance of typical subtemporal decompression: *A*, upper boundary of incision at parietal crest; *B*, attachment of temporal muscle and fascia; *C*, extent of bone removed; *D*, external auditory meatus; *E*, drain under temporosphenoidal lobe; *F*, lower boundary of incision at zygoma; *G*, branch of middle meningeal artery, ligated by silver clip; *H*, sylvian fissure; *I*, location of temporal artery.

Not only to lessen the high mortality of brain injuries, but also to avoid these common posttraumatic conditions, I feel that an early relief of a marked increase of the intracranial pressure in these patients is most advisable, and even in those patients who, months after the injury and the routine expectant palliative treatment, still show definite signs of a posttraumatic condition with increased intracranial pressure, I believe that a decompression will frequently effect a cure. Naturally, great care must be used to differentiate the organic posttraumatic conditions from the functional types; a careful ophthalmoscopic examination and the measurement of the pressure of the cerebrospinal fluid by lumbar puncture are essential; any localizing signs and especially jacksonian seizures are very helpful. I have been much impressed by the frequency of a bilateral Babinski reflex in these patients and also depressed and even absent abdominal reflexes, so that I feel that if patients were more carefully observed after their discharge from the hospital, the necessity for an early relief of the condition would be more commonly realized.

During the past three years, I have operated on twenty-nine patients who had had a brain injury of from six months' to sixteen years' duration. These patients all showed definite signs of an intracranial lesion associated with increased intracranial pressure. Epileptiform attacks occurred in eleven of them. One patient died after the operation from infection—an inexcusable complication. Of the other twenty-eight patients, eleven are now entirely well; nine are improved, and the remaining eight patients are the same as before the operation; in no patient was the condition made worse.

A CAUSE

The frequency of intracranial tumors of the sarcomatous type, especially of the meninges and bone, occurring in patients who have had a fracture of the vault, is more than a mere coincidence. These tumors usually form at or beneath the site of the fracture of the vault, are of slow growth, and the first signs other than headache are usually those of cortical irritation, and later of increased intracranial pressure. I have recently removed a large sarcoma of dura and bone from the left temporosphenoidal area, just beneath a linear fracture of the left squamous bone, which had caused rupture of the left meningeal artery and a resulting extradural hemorrhage over that area. The irritative presence of this hemorrhage may have stimulated the tumor growth.

OPERATIVE TREATMENT

The most satisfactory operation for the treatment of brain injuries, particularly those resulting from fractures of the base of the skull and associated with high intracranial pressure, is the subtemporal decompression; that is, the bone underlying the temporal muscle is rongeured away to a diameter of 2 to 3 inches, and the dura opened so that free drainage of subdural blood and cerebrospinal fluid may occur. As the dura is nonelastic in adults, it is always opened and left open so that a permanent decompression is obtained; this is essential in order to offset the pressure effects of a later swollen, edematous brain. A vertical skin incision from the parietal crest to the zygoma (and not a curved incision) is used in order to obtain better hemostasis, to preserve more easily the attachment of the temporal muscle to the parietal crest and thus insure a stronger closure of the muscle over the

bony opening, and, lastly, to facilitate the drainage of subdural blood and cerebrospinal fluid from the middle fossa at the lowest point. The fibers of the temporal muscle are merely separated longitudinally so that they can easily be reunited after the underlying bone has been removed. A rubber tissue drain is left at the lower angle of the incision for two days, and in this manner there is a free outlet for any subdural hemorrhage; usually, the cerebrospinal fluid becomes clear within thirty-six hours.

As the majority of fractures of the skull occur in the middle fossa and the squamous area of the vault, the subtemporal decompression exposes this area most directly, and allows a careful exploration of the middle meningeal artery, which may be torn. The operation is not a formidable one; naturally, perfect asepsis is essential. The anesthetic should be administered by an expert.

CONCLUSIONS

The mortality of brain injuries in adults is high chiefly because patients are allowed to reach the dangerous stage of medullary compression—the result of extreme intracranial pressure and a condition that should be and can be in most cases anticipated by careful examinations and then avoided by an early decompression. Patients, however, should not be operated on when in a condition of shock sufficient to produce a pulse rate of over 120.

All depressed fractures of the vault should be elevated or removed for fear of later complications.

Naturally all fractures of the skull are not operated on—the expectant palliative treatment alone is in most cases all that is necessary to obtain an excellent recovery, but there is a large number of patients, less than 50 per cent., who do require the operative relief of the increased intracranial pressure due to hemorrhage or to an increase in the amount of cerebrospinal fluid sufficient to produce a wet edematous swollen brain.

The posttraumatic conditions are frequently the result of this prolonged increase of the intracranial pressure, and a large percentage of these conditions can be improved by lessening this intracranial pressure even months after the injury.

The operation of choice in both the selected acute and the chronic cases of brain injury is the subtemporal decompression.

20 West Fiftieth Street.

Public Health in Queensland.—The annual report of J. I. Moore, Commissioner of Public Health of Queensland, to June 30, 1915, shows a gratifying state of the public health for the period named. The estimated population for 1914 was 674,932, an increase of 22,377 over 1913. The crude birth rate per thousand on the estimated population for 1914 was 29.46 as against 30.26 for the preceding year. Though this presents a slight decrease, it is shown that it compares favorably with eleven other countries, none of which exceeds the figure for Queensland, that for Germany being 28.3 and that for France being as low as 19. The crude death rate for 1914 was 9.97, which is said to compare favorably with other Australasian states, and is lower than that of twelve other countries, the figures for which for the year 1912 range from 12.4 for Canada to 18.2 for Italy. The infant mortality rate per thousand born for children under 1 year was 63.87, an increase over the previous year, when the figure was 62. This again is shown to be lower than the figures of other countries for the years 1912 and 1914, which range from 69.7 for New South Wales to 147 for the German Empire in 1912. The marriage rate, 8.73, showed a slight increase over the previous year when it was 8.68.

SEX GLAND IMPLANTATION

ADDITIONAL CASES AND CONCLUSIONS TO DATE

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CHICAGO

Reports[1] have been published of the experimental work which I have performed in sex gland implantations with material taken from dead bodies. The reports comprise certain physiologic and therapeutic observations and conclusions based on the experiments, together with illustrations of the microscopic and histologic results of the implantations. In summary, my various contributions present the following:

1. For hormone therapy purposes, successful total or partial hetero-implantation of human sex glands in both male and female is practicable. By "successful" implantation, I mean the formation of new blood supply, and a more or less prolonged existence of the gland with coincident hormone production.

2. The prospect of success from anastomotic implantation—with resulting generative functioning—at present is not brilliant, although possibly not hopeless.

3. Glands taken from the living subject are most desirable, though rarely obtainable.

4. Glands taken from the healthy dead body at any time prior to the beginning of decomposition are of therapeutic value equal to that of those taken from the living, if implantation is successful.

5. In human beings the glands of the male may be successfully implanted on the female, and probably the reverse obtains. The hormone of the one possibly is useful to the other.[2]

6. The tissues of the female apparently are more hospitable to the implanted male sex glands than are the tissues of the male.[3]

7. The physiologic and therapeutic results occur independently of the site of implantation, but the vicinity of the peritoneum (extra-abdominal) and the canal of Nuck in the female, and of the tunica vaginalis in the male, are the sites of election.

8. Blood pressure apparently is modified, suggesting improved nutrition of the heart and vessels.

9. The development of senility possibly can be retarded and longevity increased by internal sex secretions derived from implantation.

10. That arteriosclerosis in its early stages will be benefited by sex gland implantation is probable. Inferentially, senile dementia, if taken early, possibly may show beneficial results.

11. The climacteric probably may be postponed, or at least the disagreeable features of the climacteric may be relieved.

12. Defective and aberrant psychic or physical sex development and differentiation—inversions and perversions—are definite indications for sex gland implantation. Certain cases of cryptorchidism and imperfect testicular development are an especially promising field.

13. Certain psychopathies, such as dementia praecox, possibly may be benefited by implantation.

14. Chronic diseases of the skin, due to or modified by nutritional disturbances—notably certain types of chronic eczema, psoriasis and ichthyosis—in a certain

1. Lydston, G. F.: Bull. Chicago Med. Soc., March 7, 1914; New York Med. Jour., March 21, April 4, July 11, Oct. 17, 24, and 31, Nov. 17, 1914, and March 27 and April 3, 1915.

2. In a recent experiment with domestic fowls the male gland seemingly disturbed the normal sex development of the female, notably retarding, possibly preventing, egg production, while apparently increasing general physical development.

3. This is not borne out by my subsequent experience.

proportion of cases are likely to benefited, possibly cured, by sex gland implantation.[4]

15. All conditions incidental to sex gland mutilations in either sex afford a positive indication for sex gland implantation, the probability of benefit being inversely as the length of time that has elapsed since the mutilation, and dependent on the age at which it occurred.

16. In properly selected cases, successful implantation ought inevitably to increase physiologic efficiency with all the benefits accruing therefrom. With increased physiologic efficiency come individual and social efficiency.

17. In general, all morbid conditions in which malnutrition exists are likely to be benefited by the sex hormone, which is a powerful physiologic cell stimulant and nutrient.

As I elsewhere have shown,[5] microscopic sections of implanted glands apparently show regeneration of the circulation and of the interstitial connective tissue which, inferentially, produces the so-called internal secretion. What is true of the sex glands also is true of all other glands which produce hormone. All hormone-producing glands from dead bodies are available sources of material for hormone therapy. Emulsions of glandular organs from dead bodies apparently are available sources of material for hormone therapy. Emulsions of glandular organs from dead human bodies, acting in less degree but in manner similar to implantation, may be of therapeutic value, and possibly superior to so-called extracts and to desiccated substances from the glands of the lower animals.[6]

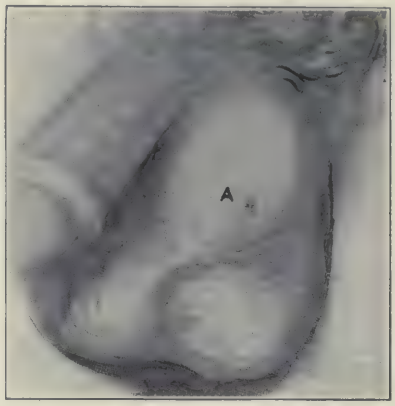


Fig. 1.—Testis from a body dead ten hours from cocain poisoning, implanted in a case of dementia praecox; *A*, implanted gland. Implantation eleven hours later—twenty-one hours after death. Drawing made six weeks after the implantation. Seven months ater the implantation the implanted testis was a firm, characteristically shaped body about one-half its original size.

In the papers mentioned, I have presented in detail certain features of my experimental work, with additional observations which, I hope, have served to make the work more comprehensive, complete and convincing.

I present herewith brief reports of four additional cases of successful testicle implantations. I will at this time say but little further than I already have said regarding the physiologic and therapeutic effect of sex gland implantation. Suffice it to state that not only have previous observations been verified, but also I have noted certain apparent results which still further confirm my present belief that in the sex gland hormone we have the most powerful cell stimulant, nutrient and regenerator at present available to medical science. I reserve a detailed discussion of the additional apparent evidence until such time as I feel that the facts are established on a reasonably firm basis, free from the suspicion of coincidence or intercurrent factors. Note in this connection the case of double testicular implantation herein reported. This case apparently is conclusive.



Fig. 2.—Double implantation of testes from a dead body in a case of double complete atrophy.

REPORT OF CASES

CASE 1.—The subject was a young man, aged 22, with a neuropathic and psychopathic heredity. There was an obscure history of a head injury four years before, which probably had nothing to do with his psychopathy. Three years prior to the time I first saw him, the patient developed psychopathic symptoms, and the case was diagnosed by competent authority as dementia praecox. In my opinion, the case at the time I first saw it was a typical dementia praecox. As previously reported,[7] the condition was as indicated in Figure 1.

At present, more than fifteen months after the implantation, a nodule of gland tissue about the size of a hazelnut still is perceptible at the site of the implantation. When the case was last reported there had been considerable improvement in the patient's condition. He had ceased his frequent writing of incoherent, rambling dissertations on architecture and kindred topics, and no longer complained of hearing enemies whispering criticisms adverse to him, which symptoms had been very prominent. His mother stated that he was more ambitious and energetic. At present he is attending school and appears to be getting on fairly well with his studies. He is distinctly more vigorous than at any time since his illness began. I, of course, am not prepared to say that the improvement is due to the implantation, or to share in the enthusiasm exhibited by his family. That the improvement may be due to a remission is obvious. I present the case as merely worthy of note.

CASE 2.—This is by far the most remarkable of my entire large series of implantations, and to my mind is as conclusive evidence of the value of the work as a single case possibly could be. It is especially weighty evidence when considered in connection with the apparent results of my other implantation work.

A man, aged 29, sustained an injury to his testes while playing football, twelve years before he consulted me in July, 1915. His right testicle was enormously swollen (probably hematocele) and very painful. When the swelling subsided, the gland had entirely disappeared. The remaining testicle atrophied to a moderate degree. Virility was unimpaired, and the patient married three years later. No children were born of the union.

About two months prior to my examination the patient, without preceding trauma or known infection, suddenly developed pain in the left ileolumbar region, left spermatic cord, and the remaining testicle. The testicle did not swell, but, the patient stated, the veins above it were swollen. The temperature record was not available. There were no urinary symptoms. At the end of three weeks the testicle had completely atrophied, and some weeks later the case was referred to me.

4. Note in this connection a severe case of psoriasis of many years' duration which cleared up completely within two weeks after an implantation.

5. Lydston, G. F.: New York Med. Jour. (Footnote 1).

6. Lydston, G. F.: Experiments with Emulsions of Organs Taken from the Dead Human Body and of Sex Glands from the Lower Animals, Am. Med., December, 1914.

7. This case was reported in full in the New York Medical Journal, April 3, 1915.

On examination, I found a healthy-looking subject, overfat, with moderately feminine secondary sex characteristics. The beard was almost negligible; the mammae moderately large, and the pelvis distinctly broader than the normal masculine type. The patient stated that his physique had shown these peculiarities increasingly since his injury, twelve years before, but that his sexual power had been "satisfactory" until after the loss of the second testicle. During all these years he had not been physically as fit as before, and for about a year he had with difficulty met the physical and mental exigencies of his business, this lack of efficiency having rapidly increased since the loss of the remaining testicle. Since the loss of the second testicle there had been complete impotence.

Examination showed scarcely a vestige of tissue at the end of the spermatic cords—nothing, indeed, that could be accepted as even a remnant of gland tissue. The penis was of only moderate development, with a long prepuce, but otherwise normal.

Aug. 1, 1915, I implanted on this patient both testes taken from a boy of 14, dead of a crushing injury. The subject was just approaching puberty, and not well developed. The testes were removed six hours after death, and kept on ice in sterile salt solution until the operation, thirty-nine hours after the death of the donor. The implantation was made in the scrotal sac on each side, at the normal site of the testes. The glands were implanted entire, the epididymes not being removed. Healing was prompt; there was only 1 degree of transient febrile reaction, and very slight inflammatory swelling about the implanted glands. Five days after the implantation I performed a circumcision. The patient returned home in two weeks. Vigorous and painful erections occurred after the eighth day, and required an ice bag. Successful coitus was practiced three weeks after dismissal from the hospital. At present, seven months after operation, the patient reports that he is perfectly normal, is taking active gymnastic exercise, and has lost nearly 20 pounds of his flabby fat. Erections are vigorous and more frequent than in the average normal subject of similar age. The patient lays especial stress on his mental and physical fitness for business. The implanted testes have atrophied only moderately, and are of relatively fair size and fairly normal consistency. The epididymes are plainly distinguishable. As Dr. William T. Belfield, who courteously examined the case and questioned the patient, remarked, "The testes, while small, are as well developed and apparently as normal as in many perfectly virile men who come under our observation."



Fig. 3.—Experimental implantation of a single testis from a dead body.



Fig. 4.—Experimental implantation of a single testis from a dead body.

In passing I wish to state that, for a while after the implantation, the patient experienced normal orgasms without emission. He stated to Dr. Belfield and myself that after a few weeks he began to have emissions of a considerable amount of fluid, and that these emissions were almost constant. The emitted fluid, while it has not been examined, of course is not testicular secretion—no anastomosis having been done—but comes from the urethra, Cowper's glands, the prostate, and the seminal vesicles. In brief, it probably is composed of all the usual normal elements of the normal semen, save the testicular secretion, of which the spermatozoa are the important element.

For some weeks after the implantation the patient complained of "frightful nervousness." As he described them, his symptoms were not unlike those produced by strychnin and similar spinal excitants. The "nervous" symptoms finally disappeared. I attributed them to the unwonted dose of hormone supplied by the implanted testes, to which the nervous system gradually became accustomed.

A feature of the foregoing case that is worthy of especial comment is the preservation of virility—until the loss of the remaining gland—after the accident of more than twelve years ago, despite the subsequent impairment of development of masculine secondary sex characteristics. It would seem that: 1. A relatively large dose of hormone is necessary to perfect development of secondary sex characteristics. 2. A very small dosage is sufficient to preserve virility. 3. Once virility is established, an extremely small dosage of sex hormone will preserve the psychosexual and physiosexual sex characteristics that are so essential to potency. It has been observed that individuals possessed of exceedingly rudimentary testes often are virile. Indeed, it has been my observation that such persons sometimes are possessed of more than the average degree of virility. I recall several cases of cryptorchidism coming under my observation in which there was a normal degree of virility with complete sterility.

I will not enter here into an exhaustive study of the physiologic and therapeutic suggestions offered by the foregoing case, as they have been comprehensively discussed elsewhere.[5] This much appears evident, namely, that my implantation work has passed the experimental stage. It would require a degree of skepticism which I am free to say does not inspire me at this stage of my work to attribute to psychic impress such results as have been obtained, notably in the case of double implantation herewith recorded.

It will be interesting to note the further progress of the case relative to atrophy of the implanted glands. Thus far there has been less atrophy than in my other cases, in a similar length of time. Possibly the preservation of the epididymis has something to do with this. As to how long the therapeutic results will endure, one cannot predict. Possibly permanently, or at least long after the last vestige of implanted gland tissue has disappeared. I am confident that, as long as even a small portion of the implanted tissue remains, its favorable effects will endure. Even though an occasional repetition of the implantation should prove necessary to maintain the patient's normal sex standard, the result still would be remarkable and the scientific status of the method sustained.

CASE 3.—This case was purely experimental, and no exhaustive report will be made at this time. The subject was a healthy professional man, aged 58, who submitted himself to the experiment from purely scientific motives. The companion testis of that used in Case 2 was employed. The implantation was made in the left scrotal sac. The local

result of the implantation was what I now feel justified in calling "typical," save that the subject got about on his feet after twenty-four hours, which resulted in considerable swelling and tenderness of the operated region. When the patient keeps to his bed, the reaction is very slight, compared to the tissue "insult."

In this case there was a rise of temperature of 1 degree, which subsided in twenty-four hours. Seven months after the implantation a nodule about the size of a good-sized grape is still perceptible.

Certain oddities of apparent physiologic effects were noted in this case, which, if sustained by future observation, will be reported.

CASE 4.—A man, aged 60, apparently normal in every respect, submitted to implantation, with the view of increasing physical vigor and endurance in general, and sexual vigor in particular. I secured the necessary material from an apparently healthy lad of 17 years of age, dead twelve hours of crushing injury of the head. Death had occurred about four hours after the injury. The operation was performed shortly after that in Case 2, so that at present, over seven months have elapsed since the implantation. The testes were refrigerated for about forty-eight hours. A single gland, the right, was employed. The epididymis was removed, and numerous areas of the cortex denuded. The implantation was made in the right scrotal sac. The implantation was perfectly successful. There was practically no febrile reaction, and very little swelling at the site of the implantation. No opportunity has presented itself for a review of the case, but the patient writes that he is well satisfied with results, and that there still is "quite a lump" at the site of the implantation.

CONCLUSION

Not only do I feel strengthened in my heretofore published impressions of the value of sex gland implantation, notably in the matter of increasing physical efficiency, and especially physiosexual efficiency, but also I am convinced that, when technic and material are right, and the recipient properly selected, preservation of hormone production by the implanted gland for at least a prolonged period is certain. That permanent physiologic and therapeutic advantageous results are equally certain, I now am strongly inclined to believe. Thus far I have observed no case in which the implanted tissue had completely disappeared, or even practically so, prior to from twelve to eighteen months.

32 North State Street.

INTRAVENOUS INJECTIONS OF SODIUM CITRATE

WITH REFERENCE TO TRANSFUSION

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The sodium citrate method of transfusion as developed by Lewisohn and by Weil is gradually being recognized by different observers as a reliable and efficient procedure. Before its adoption can be more universal, two points of prime importance will have to be definitely established:

1. Is the sodium citrate per se harmful? Can it be repeatedly injected?
2. Is the blood when suspended in sodium citrate and transfused still viable and able to functionate?

The last question will be answered by more numerous statistics than at present available. Thus far, most of the reports show encouraging results. From my experience of forty transfusions at the German Hospital, the beneficial effects compare favorably with those obtained by methods in which unmixed blood is used. (A more detailed account will be given in the future.)

As for the first question, Lewisohn found that 1.5 gm. of sodium citrate was a fatal dose for a dog weighing 11 pounds. Fifteen gm. would then be a fatal dose for a patient weighing 110 pounds. The usual quantity employed in transfusions is 2 gm. — 100 c.c. of a 2 per cent. solution of sodium citrate plus 900 c.c. of blood (a 0.2 per cent. solution of sodium citrate). No references to the repeated use of sodium citrate in man are available. Such statistics were furnished by experiments undertaken in connection with the therapeusis of thrombo-angiitis obliterans as started by Dr. Willy Meyer.

Four patients not suffering from any anemia received repeated intravenous injections of a 2 per cent. solution of sodium citrate in distilled water:

CASE 1.—A. S., man, aged 35, weight 125 pounds, received in all 9 gm. of sodium citrate from June 6 to July 28, in seven doses of 50 c.c. (1 gm.) and one dose of 100 c.c. (2 gm.).

CASE 2.—M. F., man, aged 32, weight 135 pounds, received in all 13 gm. from June 16 to August 4 in five doses of 50 c.c. and four doses of 100 c.c.

CASE 3.—J. C., man, aged 42, weight 165 pounds, received in all 12.5 gm. from June 6 to August 25 in seven doses of 50 c.c., two doses of 100 c.c. and one dose of 75 c.c.

CASE 4.—I. F., man, aged 43, weight 190 pounds, received in all 19.5 gm. from June 6 to November 4 in six doses of 50 c.c., six doses of 100 c.c. and one dose of 75 c.c.

By far the majority of the injections were well tolerated and were not followed by any apparent untoward symptoms. After eight of the total forty injections, the patients experienced a slight chill and a rise of temperature of from 1 to 3 degrees, from one to two hours after the treatment. One patient was not more susceptible than another, and the reactions did not come with any particular solution. The examination of the urine showed no evidence of renal irritation.

Thus, it was concluded that sodium citrate per se is not harmful, even if repeatedly injected over a long period of time.

Since these observations, I have employed a 2.5 per cent. stock solution of sodium citrate (100 c.c. plus 900 c.c. of blood, that is, a 0.25 per cent. final solution of sodium citrate) in my transfusions, as I have repeatedly observed that a 0.2 per cent. solution was not sufficient to keep the blood of some donors from clotting. Nothing is more discouraging than to find that the 900 c.c. of blood collected had entirely or partially clotted. Thus far no such accident has been noted when 100 c.c. of a 2.5 per cent. solution of sodium citrate was employed for 900 c.c. of blood.

CONCLUSIONS

1. The sodium citrate method of transfusion is not to be considered in any way dangerous because of the sodium citrate employed.
2. A 0.25 per cent. solution of sodium citrate has been found more reliable in preventing coagulation.

Knowledge Derived from Antiquity.—Every generation enjoys the use of a vast hoard bequeathed to it by antiquity, and transmits that hoard, augmented by fresh acquisitions, to future ages.—Macaulay.

THE TECHNIC AND RESULTS OF THE OPEN METHOD OF OPERATION ON BONES AND JOINTS*

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At the International Congress of Medicine held in Budapest in 1909, Sir William Macewen read a paper on "Intra Human Bone Grafting: Reimplantation and Transplantation of Bone." He presented the history of his classical case, in which he had operated thirty years previously, now thirty-six years ago, and had succeeded in reproducing — by the transplantation of small bony fragments of tibiae — practically the normal shaft of the humerus, which had been destroyed by osteomyelitis.

Macewen's work and the publication of his results seem to have marked the beginning of a new era in the surgery of bone lesions. The application of the principles underlying bony development and growth as worked out by him were quickly utilized in the treatment of fractures.



Fig. 1.—Tibial transplant (indicated by arrow) 6 inches long and ⅞ inch deep, containing periosteum and through to the endosteum of the marrow grafted into the spine for Pott's disease: *A*, diseased bone. This picture was taken two and a half months after operation, transplant healing in without complication.

While the subject of my paper deals with the general subject of bone surgery, it pays particular attention to the subject of fractures.



Fig. 2.—Fracture of the patella one year after old fracture, at which time it had been taken care of by open operation.

One may rapidly pass over the subject of diagnosis of fractures because of the fact that practically every injury to the body today is subjected to an examination by the Roentgen ray. By this means a precise diagnosis of the type of fracture may be made. Making the picture from various angles enables one to get a correct idea of the position of the bony fragments and the relation which these broken parts bear to the surrounding soft structures.

In all but the cases in which it is obvious from the roentgenograms that open operation is necessary, we usually attempt reduction under anesthesia, giving the patient a chance of reduction by the simple method. In some of our cases we attempted reduction by means of the Roentgen-ray screen, which method — based on my present experience — I should not recommend.

We should lay down a fairly definite line between those cases which should be treated by open operation and those which should not, because of the ease of reduction by the open method and the tendency not to take into account the dangers attendant on the open method. The real danger attending the open operation for the treatment of fractures is the very low resistance which bone offers to infection. Because of either the danger of infection in the open operation or the failure to produce union by the closed method, special methods of treatment have been devised for certain types of fractures. Of special interest in this connection is the form of treatment outlined by Dr. Frederic Cotton of Boston for the reduction of intracapsular fractures of the neck of the femur.

Two cases presented at the Boston City Hospital Clinic by him during the Clinical Congress of North American Surgeons showed ideal results. During the meeting, considerable discussion was aroused by the diversity of opinion expressed by different surgeons regarding the proper position to be taken in the treatment of fractures by the open method — whether reduction was secured by the use of bone transplantation, metallic plates, or nails. Dr. Albee of New York and others believe that this class of surgery should be undertaken only by the specialist and with exact and precise technic: that in order to do the best work possible, the surgeon must be equipped with a



Fig. 3. — Same as Figure 2 two years after second operation, showing complete bony union. The patient asserted that the first operation was performed by the use of catgut sutures only. In the second operation, performed by me, in addition to the use of chromic catgut for bringing the capsule together, a peripatellar bronze wire was used. In the second picture, taken two years after the second operation, the wire, after performing its function, has worked down, owing to the pull of the patellar ligament. The patient has complete function in every respect.

* Owing to lack of space, many of the roentgenograms of other cases have been omitted but will appear in the reprints, which the author will be pleased to send on receipt of a stamped, self-addressed envelope.



Fig. 4.—Intracapsular fracture of the neck of the femur.



Fig. 5.—Reconstruction of the neck of the femur by the use of an ordinary carpenter's nail. This picture shows how perfectly reduction can be made by this method.

very elaborate bone outfit — with the greatest possible refinement in instruments. He places much stress on the use of the twin saws. He believes that the minimum amount of trauma is caused to the transplant by the use of the electric driven saw. On the other hand, Dr. H. Sherman of California thinks that this type of surgery will be practiced generally, that it requires nothing more than a hammer and chisel in the way of special instruments, and that the ordinary surgical technic will fulfil the requirements.

I believe that Albee's opinion is the proper one. Too much stress cannot be placed on the subject of technic, which should be carried out by the method of allowing only instruments to come in contact with the wound. After a fair experience in this line of work for the last seven years, I am firmly convinced that if one could carry out Lane's technic, there would be no infection in uncomplicated open operations for fractures.

One of the phases of the modern technic in the treatment of both recent and old fractures is the ease with which reduction is accomplished by the aid of "human" traction performed by from one to three assistants and a short skid instrument used in the wound. This is a much more intelligent plan of determining the amount of strain that might be placed on nerves and blood vessels; a much simpler plan than that advocated by some surgeons, namely, a complicated and cumbersome traction apparatus as an absolute essential in every case of an old fracture. I have used both methods, and possess one of the simpler types of traction machines, and find its greatest benefit in the aid it gives in the application of the plaster - of - Paris dressing.

With respect to the finer points of technic of this operation, we follow these rules in practically all cases:



Fig. 6. — Appearance of a fracture six weeks after injury, with nonunion, some shortening, and the skin in bad condition because of the various appliances previously used necessitating a preparation of the skin requiring a period of three weeks, before open operation was performed.



Fig. 7.—Lane plates in place two months after operation, with the bone solidly united. Note that the bony implants were used in bridging over a part of the bony defect. The fibula was not disturbed. The plates healed in perfectly. This patient left the hospital eleven weeks after operation with his leg in perfect condition—no shortening and not the slightest deformity.

1. The entire limb is prepared before operation by shaving, and washing with green soap, alcohol and ether. After drying, dry boric powder covered with sterile gauze is applied forty-eight hours preceding the operation. Three coats of iodin are applied to the dry surface just before operation.



Fig. 8.—An old fracture of both bones of the forearm. The patient came to me three and one-half weeks after the injury. Marked displacement and deformity were shown.

2. All material used in the operation, including instruments and sponges, comes directly from the sterilizer, not being touched by the gloved hands of doctors or nurses. Nothing but instruments and sponges are allowed inside the wound.



Fig. 10.—View of an ununited fracture of the surgical neck of the humerus in a man, aged 64. Patient came into my service five months after accident.

3. The skin in all cases is closed with a subcutaneous suture of silkworm gut.

The accompanying roentgenograms were taken in the Roentgen-ray department of St. Joseph's Hospital, and were selected from over fifty operations that I performed. Two cases of particular interest were intracapsular fractures of the hip joint, for the reasons I shall presently give.

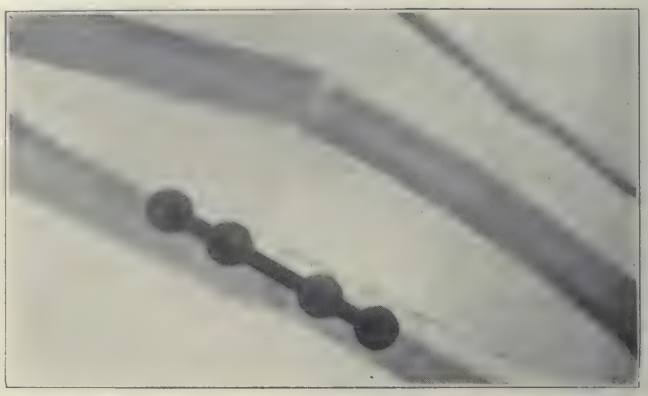


Fig. 9.—Application of a Lane plate to the ulna, the radius not entirely straight, but firmly united, and consequently not disturbed. The patient was discharged with a perfectly good functional result.

To those who claim that the intracapsular fracture may be approximated either by nail or by bony peg, without opening the capsule, I would say that in both of these cases the spherical fragment of the head — the anatomic positions of which appeared to show the



Fig. 11.—Taken ten weeks after operation with tibial transplant 5½ inches in length inserted into the head and shaft by means of the doweling bone instrument. It was necessary to apply a light Lane plate to hold the head from slipping from the shaft. This picture also shows callus formation between the ends of the fragments along the line of the transplant. The patient at this date was able to use his arm quite freely, and had started doing light work at his trade. *A* and *B* denote upper and lower ends of transplant.

fragments in apposition — presented on opening the joint, the synovial surface of the lateral surface of the head apposing the fracture surface of the distal position of the neck. The fractured surface of the head was rotated 90 degrees from normal, lying in contact with the inner surface of the anterior portion of the joint capsule. The head was turned into its proper relation with the lower fragment only with difficulty.

I believe that the plan of incision used in these cases, which was carefully worked out on the cadaver before the operation, gives the most accessible route to the neck of the femur, particularly when the break is within the capsule. The incision begins at a point 1 inch below and behind the anterior superior spine of the ileum carried back to a point above the posterior to the great trochanter, and then down along the outer surface of the femur.

In these cases there was only one



Fig. 12.—Fracture of the olecranon, two months after operation. Callus formation is complete. The head of the nail has come off. I do not use this type of nail now. I find that the ordinary carpenter's nail is more satisfactory.

been obliged to take off the Lane plates in only two cases. The two hip cases, both of which were of the intracapsular type of fracture, which were placed in excellent anatomic position, resulted only in fibrous union, though healing took place by first intention and without complication. The results in these two cases, and observation in this group of bone lesions, make me a strong believer in the use of the bone graft for this type of fracture. Failure of bony union in these two cases led me to make a fairly extensive review of the literature on the subject of bone transplantation. Experimentation has led to conflicting views pertaining to the influence and fate of bone transplants. Respecting the rôle played by the autogenous bone transplant, over which there is so much discussion today, it would seem that it matters very little clinically whether the transplant is osteogenetic or osteoconductive.



Fig. 13.—Anteroposterior view of the right elbow of a boy, aged 20 years, showing an absence of the carrying angle of the arm. This defect was due to an injury to the internal condyle in infancy, the epiphyseal line being injured so that growth did not take place as rapidly on that side as the opposite, producing the characteristic deformity shown.



Fig. 14.—An osteotomy above the elbow and a correction of the deformity shown in Figure 13, the corrected fragments being held in place by means of a wedge-shaped piece of magnesium plate.

of infection resulting after operation. Whether or not this was hematogenous in origin, I am not prepared to say. However, the patient made a good recovery with no bad effects. Infection occurred in another case of a crushing injury with the comminuted fragments of bone driven practically through the skin. The skin also was badly lacerated. There was some paralysis in this leg. This result should not be charged up to the technic. The majority of patients have been kept under observation for a considerable length of time, some two years or more. I have



Fig. 15.—Same as Figure 14, the arrow showing the magnesium plate holding in place after the callus is well formed.

In 1912, Macewen[1] stated that his experiments seemed to show that periosteum was not a bone-producing tissue, but rather served the function of a limiting membrane. Davis and Hunnicutt,[2] working in the Hunterian Laboratory of Experimental Surgery, Johns Hopkins University, repeated many of Macewen's experiments, and at the same time carried out a number of their own. Their conclusions are practically the same as Macewen's. They recommend the transplanting

1. Macewen: Growth of Bone.
2. Davis and Hunnicutt: Ann. Surg., June, 1915.

of periosteum with the bone graft because they believe that it receives nourishment much more quickly — because of the vascular elements which it contains — thereby not allowing it to undergo absorption so early as the grafts transplanted without periosteum.

Murphy, in 1906, made the statement that the essential factor lies in placing the bone transplant in contact with living osteogenetic centers, and that the question of whether or not the transplant retained its periosteum was a secondary consideration. Irrespective of what present day investigators have brought to light respecting osteogenesis, clinically the application of Murphy's theories has produced splendid results in bone surgery.



Fig. 16.—Supracondylar fracture in a child with soft tissues interposed between the bony fragments.

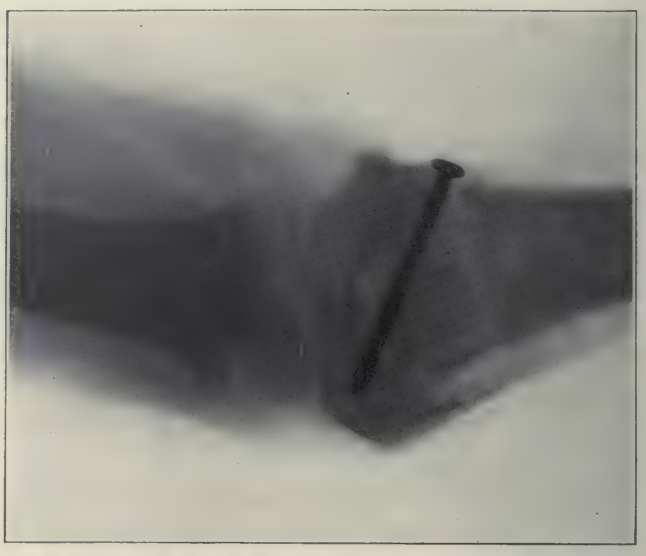


Fig. 17.—Several months after operation, showing union; fragments held in place by a nail.

CONCLUSIONS

1. Open operations in the treatment of fractures should be undertaken only after sufficient Roentgen examinations or surgical consultations, or both, to show conclusively that good results cannot be obtained by the closed method.

2. The lack of resistance to infection inherent in bone tissue requires special technic in the execution of this work not generally required in the ordinary surgical procedure.



Fig. 18.—Separation of the epiphysis of the right radius in a boy, aged 16 years. This injury was of eight months' duration at the time of operation.



Fig. 19.—Employment of any ordinary carpenter's nail to hold fragments in place owing to the contractures due to the length of time bone was unreduced. This picture was taken one year after operation.

3. The introduction of foreign substances, as nails and plates, should be avoided when possible, as these are not conducive to rapid bony repair. In those fractures resulting in marked deformity, however, the correction of which requires more than a temporary immobilizing position, a nail or plate — with or without a bone graft inlay — fulfils the requirement more nearly than any other form of surgical treatment.

4. The bone implant or autotransplant with periosteum intact in indicated cases should be the material of choice for the surgical reconstruction of fractures.

5. The periosteum of the transplant, whether osteogenetic or not, should remain intact in order to protect the nutrition of the graft to the maximum degree.

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Japanese Rural Health Conditions.—The Japan *Advertizer* in January printed a report by Rev. E. K. McCord of Sendai to the annual conference of Federated Missions in Tokyo on rural conditions from their sanitary, social and industrial aspects. This report says that as a preparatory course, leading up to theology and fitting rural minds for its reception, it would be well to preach first "drainology." In the matter of water supply for human consumption and of sewage disposal, or of conditions of light and heat within the home, rural Japan is said to be still largely primitive. But eight villages and only twenty-five cities and large towns have water systems. The supply usually comes from shallow wells, subject to surface contamination during rainy seasons, while in many instances the sole source of supply is the little stream running back of the house, flanked by many compost heaps, which serves for all domestic, including culinary, purposes. It is said there are numerous sanitary organizations within the villages, voluntary or official, but they are generally lacking in initiative and energy to clean out disease breeding conditions. There is, however, in some places inspection of wells and a semiannual house cleaning, which extends to the ditches, and epidemics of infectious diseases are always vigorously fought.

MULTIPLE ACUTE GASTRIC ULCERS AFTER USING PERCY'S "COLD IRON" FOR INOPERABLE CARCINOMA

PRELIMINARY REPORT OF A FATAL CASE *

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In this case, rigid application of Percy's "cold iron" was ineffectual in eradicating the carcinoma, and was followed by death after four days with lesions similar to those of extensive cutaneous burns.

History.—Woman, aged 52 (two children) had had no bleeding since the menopause at 42 until November, 1915. Then she had profuse vaginal bleeding for five days which recurred once. Further symptoms were loss of weight, slight pain, constipation and painful defecation.

The general physical examination was negative. Hemoglobin was 56 per cent. Pelvic examination showed the cervix entirely destroyed by a rough, firm growth extending far out into each broad ligament, fixing the uterus firmly in the pelvis.

The clinical diagnosis was inoperable carcinoma of the cervix.

Operation.—The technic most recently advocated by Percy[1] was rigidly followed in every detail. A midline incision showed the uterus firmly fixed to the pelvis and a hard mass 3 by 6 cm. in each broad ligament. There were hydrosalpinx, left, and hydro-ureter, right, diameter 15 mm. The internal iliac arteries and infundibulopelvic ligaments were ligated with silk. The left tube was removed. The vagina was dilated to admit the whole hand, and tissue was removed for section.

A Percy cautery (Point "A") was introduced into the uterine cavity, and heating was continued one hour at a temperature low enough to avoid all charring, and never heating the tissues to a point at which the assistant's gloved (medium weight rubber) hand in the abdomen could not retain hold on the uterus with comfort.

A Percy cautery (Point "E") was then introduced into the middle of the right broad ligament mass, and heating was continued one-half hour under the same conditions. The left broad ligament was treated in exactly the same way for one-half hour. The structures became movable.

On the second, third and fourth days after the operation there was acute gastric dilatation. On the third day there was a urinary fistula, and on the fourth day a paralytic ileus.

During preparation for enterostomy, the patient died suddenly.

Abstract of Protocol.—The peritoneal cavity contained 100 c.c. of serosanguineous fluid with a little fibrinous exudate at the operative site. The intestines were distended. No obstruction could be demonstrated.

The pleural cavities each contained 500 c.c. of bloody fluid. There were a few subserous ecchymoses. Extensive pulmonary edema was present.

The stomach was distended with gas. Its mucosa was perforated by about twenty-four clean, round ulcers which measured from 1 to 7 mm. in diameter. Microscopically the loss of substance extended to the submucosa and was unassociated with any cellular change.

The other viscera showed extreme cloudy swelling, together with renal epithelial necrosis.

The operative site was extensively softened, and much had sloughed away. A vesicovaginal fistula involved the orifice of the right ureter. Grossly and microscopically intact squamous cell carcinoma was found peripheral to large areas of general necrosis. Many mitotic figures were seen. In one area seemingly dead carcinoma was found in the midst of normal looking connective tissue. Examination of the regional lymph glands has revealed no carcinoma.

The small pelvic veins were thrombosed, and an embolus of one of the small pulmonary arteries was found.

The brain has not yet been examined.

CONCLUSIONS

1. In the case reported, prolonged "cooking" of carcinomatous masses resulted in acute systemic effects similar to those following extensive cutaneous burns.
2. Histologic examination of the pelvic tissue shows viable carcinoma four days after thorough application of the "cold iron."

* From the Gynecological Clinic and the Department of Pathology of the Johns Hopkins Hospital.

1. Percy, J. F.: Heat in the Treatment of Carcinoma of the Uterus, Surg., Gynec. and Obst., 1916, xxii, 77.

EARLY DIAGNOSIS OF A CASE OF MYXEDÈME FRUSTE

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Several years ago Hertoghe of Belgium described an incomplete form of myxedema which he called "myxedème fruste." This condition, commonly found among women, is considered by some merely as a temporary or permanent state of thyroid insufficiency, by others as an incipient or abortive form of true myxedema; while Hertoghe looks on it as a clinical entity. A case of this kind recently came under my observation. The early recognition of the condition, the seemingly classical grouping of the signs and symptoms and the very prompt response to treatment, warrant, I believe, a report of the case.

Mrs. L. W., aged 28, came to me, Oct. 1, 1915, complaining of headaches. Inquiry into her family history revealed nothing except that one sister died of tuberculosis. Her past history was negative. Up to the date of her marriage, one year and a half previously, her menses had been regular. Nine months ago she gave birth to a baby, and her menstruation returned within two months, but had become very profuse.

Besides the headaches, for which she came to me, she also complained of a sense of tiredness, which grew worse, almost amounting to fatigue, as the day progressed. The headaches were dull and diffuse. Further inquiry also revealed the fact that for several months past her hands felt particularly dry. Her hair, too, had begun to fall out, particularly when the patient was combing it.

Physical examination showed little. Only one symptom described by Hertoghe was very characteristic. The outer third of the eyebrow was very sparse. The hair of the scalp was rather coarse, and there was also somewhat marked facial hirsuties. The examination of the urine was negative; blood pressure was 120 systolic, 85 diastolic.

The patient was put on 1 grain of thyroid extract three times a day. The baby was weaned. Ten days later the woman reported that her headaches had completely disappeared, there was no longer any sense of tiredness, the hands had ceased to feel dry and the hair stopped coming out. The cure seemed to have been magical. To make sure that the diagnosis of thyroid insufficiency, or the myxedème fruste of Hertoghe, was correct, treatment was stopped. About four weeks thereafter the woman returned, complaining of the same symptoms as on the first visit. She was then once more placed on thyroid extract, and the symptoms vanished as quickly as before. The treatment was kept up for two months, with gradually diminishing doses. Aside from the amelioration of the subjective symptoms, the hair became less coarse, the outer third of the eyebrow grew back, and the menses were no longer profuse. It is now four months since the patient has discontinued taking thyroid, but none of the symptoms have reappeared.

It is quite probable that pregnancy was the etiologic factor in this case.

65 Second Avenue.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

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SATURDAY, MAY 13, 1916

THE TESTES AND THE SYMPATHETIC SYSTEM

Removal of the sexual glands produces profound changes in the organism, evidenced as alterations of bodily physique and of temperament. If the extirpation is made at an early period in life, the so-called secondary sexual characters may fail to exhibit themselves in the usual manner, and thus occasion the retention of infantile characteristics in place of typical features of adult form and behavior.[1] There is reason to believe that we may properly speak of "genital hormones" at the present time, in explanation of the undoubted chemical correlation exerted by the genital glands on other parts of the reproductive apparatus as well as on the organism in general. At any rate, the secondary sexual characters must be associated with the influence of chemical substances produced by the ovary and testis, respectively. Castration after puberty cannot modify profoundly the development of structures like the skeleton, which are already completed; but it may unquestionably bring about obvious structural and even functional changes which can be determined by careful observation.

The fact that phenomena of the sort here discussed are actually under the dominance of hormones, rather than the effect of alterations in the nervous communications between the parts of the body concerned, is demonstrable by direct experiment. Frequently the reimplantation of the missing tissue will restore a lost function or induce a return of normal manifestations. This has been seen in the case of the period of "rut," in the female, which has been abolished by extirpation of the ovary and reinduced by implantation in the peritoneum of an ovary from another animal of the same species.

The more intimate nature of the physiologic alterations involved in castration has remained largely a mystery because few detailed observations have been made on the phenomena by the critical methods of modern science. Recent studies have furnished evidence that changes in functional as well as morphologic processes follow the removal of the primary reproductive glands in the male.[2] The circulatory reactions to nicotin, which consist ordinarily in a rise of blood pressure even with very small doses of the drug, are lowered as a result of gonadectomy. Recalling that the specific action of nicotin falls not on the central nervous axis but on the peripheral ganglions of the autonomic nervous system, it seems clear that castration exerts an influence on the sympathetic nervous outfit. Its irritability is decreased, and this may partially account for the changes in disposition in castrated animals. To these facts may now be added the further observation of a more or less complete restoration of the usual response to nicotin in the same (castrated) animals after implants of testicular tissue. The presence of successful testicular grafts in any part of the body seems to result in renewed activity of the vasomotor mechanism. The general level of the blood pressure is raised again. Such phenomena point, in the opinion of Wheelon, to the conclusion that a direct relationship does exist between the internal secretions of the testis and the sympathetic nervous system. Castration seems to result in a depressed activity of the nervous mechanism, while subsequent establishment of the lost parts tends to lift the depression and at least partially to reinstate normal activity.

1. What Determines the Development of the Secondary Sexual Characters? editorial, The Journal A. M. A., Feb. 17, 1912, p. 484; The Modification of Secondary Sexual Characters, Feb. 21, 1914, p. 618.

2. Wheelon, Homer: Extirpation of the Testes and Vasomotor Irritability, Am. Jour. Physiol., 1914, xxxv, 283; Wheelon, Homer, and Shipley, J. L.: The Effects of Testicular Transplants upon Vasomotor Irritability, ibid., 1916, xxxix, 394.

THE VOLUME OF THE BLOOD AND ITS PLASMA

A knowledge of the total volume of the circulating fluid in the body ought to be of considerable value, not only as one of the physiologic constants which science may be expected to establish in relation to the human organism, but also because of the important part which it may play in certain pathologic considerations. An appreciation of the absolute quantity of the blood has a bearing on the interpretation of such conditions as anemia and diseases of the heart. The possible part played by undue blood volume in cases of arterial hypertension at once suggests itself, for one naturally asks whether or not an increase in the blood mass with overfilling of the vascular system is in any way responsible for the condition. Enlarged hearts also raise the question as to the possible relation of an exceptionally large blood volume to the genesis of a situation sometimes marked by myocardial insufficiency.

The most prominent routine methods of ascertaining vascular conditions consist in determining the number of red cells or ascertaining the oxygen carrying power as gaged by the content of hemoglobin. These procedures give no evidence regarding the total blood volume concerned in the performances of the organism, since they measure concentration rather than absolute

values. Determinations of the blood volume of the body go back to the days of Haller. The figures most widely quoted in earlier days were derived by Welcker's method, which necessitated an analysis of the entire body and was therefore merely of indirect experimental value. The familiar figure giving the total amount of circulating fluid in man as equivalent to one thirteenth of the weight of the body was based on two observations made by Welcker's method long ago on executed criminals. Haldane subsequently introduced an ingenious method which permitted the determination of the total volume in the living individual. The statistics obtained by this as well as by the comparable procedure of Plesch show a decidedly smaller blood volume. The variations in the individual estimations are considerable, ranging from one sixteenth to one thirtieth of the body weight, with a general average of about one nineteenth.

The total number of analyses of blood volume on record are small at most. The methods referred to have many inherent difficulties, require complicated apparatus and involve injury or discomfort for the subject. We must, therefore, welcome the recent additions to the subject made in the medical and urologic clinics of the Johns Hopkins Hospital by Keith, Rowntree and Geraghty.[1] The principle underlying their newer method is the introduction directly into the circulation of a nontoxic, slowly absorbable dye, which remains in the plasma long enough for thorough mixing, and the determination of its concentration in the plasma colorimetrically by comparison with a suitable standard mixture of dye and serum. The dye which fulfils such conditions is vital red (disodium disulphonaphthol azotetramethyl triphenyl methane), which is practically nontoxic in doses of 3 milligrams per kilogram of body weight. The fate of the dye in the body has not all been determined; it leaves the blood vessels so slowly, owing to its nondiffusibility and comparative indestructibility, that considerable amounts can still be found in the plasma three or four days following its injection. The estimations of the blood or plasma volumes are easily made within six minutes of the time of the simple injection by venipuncture. Repeated determinations on the same individual yield practically identical results, provided no appreciable change in the subject's condition has occurred, thus attesting the efficiency of the method from the standpoint of uniformity.

The blood values obtained by the Baltimore investigators on normal individuals are somewhat at variance with the variable blood-body mass relationship reported by Haldane. They support the earlier figures. Some of the facts reported are as follows: The average blood volume was 5,350 c.c., or approximately 85 c.c. per kilogram. On a gravimetric basis, the blood constituted 8.8 per cent., or one eleventh of the body weight. The variations in health were not great — from one thirteenth to one tenth of the body weight. There appear to be no great extremes in the relation of plasma to body weight in health. A normal man of 140 pounds has 3 liters of plasma, or 50 c.c. per kilogram, the extremes being from 42 to 56 c.c. The normal distribution values of the blood components, obtained by the hematocrit method, were approximately 43 per cent. for erythrocytes and 57 per cent. for plasma.

The fact that this method of determining the blood volume yields greater values than have generally been found by the Haldane method might suggest that some of the injected dyestuff is bound somewhere by fixed tissues. And the fact that there is a greater constancy in the values obtained on a normal individual than there is with the Haldane method does not absolutely dispose of this possibility; it does show, however, that if there is any absorption by fixed tissues, the factor of such absorption must be quite uniform. Therefore, while there may remain a slight possibility that determinations of the absolute volume of blood yield results a little too high, the serviceability of the method for determinations of the comparative volumes of the blood in the different conditions that these investigators have studied hardly comes in question.

Enough facts are now available through the use of the new and ingenious method to show that changes in blood volume are insignificant in experimentally induced hypertension and hypotension, and cannot be brought into causal relationship with them. It is possible to find the statement that the total blood volume is altered by the height of the blood pressure as well as by the oxygen tension of the air breathed.[2] The new investigations on patients with hypertension and chronic nephritis show that the blood volume is normal and frequently low. True plethora is not present in hypertension; one must conclude, therefore, that a small and contracted vascular system and not an increased blood mass is responsible for the increased blood pressure.

Among other observations of interest brought out by the first applications of the new method is the fact that in pregnancy, before term, the blood and plasma volumes are increased. A condition of serous plethora exists. Within a week or two after delivery the blood values return to normal. Keith, Rowntree and Geraghty[1] recall that these findings confirm the belief widespread among obstetricians that pregnant women stand hemorrhage unusually well. Comparatively very large bleedings in eclampsia are well borne. It would appear, they add, that Nature has here a factor of safety, the large blood volume safeguarding against the effects of hemorrhage before, during and after labor. Or it may be that the larger blood supply is nec-

1. Keith, N. M.; Rowntree, L. G., and Geraghty, J. T.: A Method for the Determination of Plasma and Blood Volume, Arch. Int. Med., October, 1915, p. 547.

2. Starling, E. G.: Human Physiology, 1915, p. 857.

essary for proper nutrition of the child. In obesity the plasma and blood volumes are relatively small. Many patients with anemia exhibit a relatively large plasma volume. It is shown that a high blood count may sometimes be dependent on a low plasma value; sometimes the plasma volume is large so that a true blood plethora is indicated. In anasarca accompanying myocardial insufficiency, the blood volume may be absolutely increased.

The introduction of a useful clinical method of the sort which has been discussed here will supplement in an admirable way the current estimations of the blood cells and respiratory pigment, hemoglobin. The effects of hemorrhage or infusion can be directly determined in all of their relationships. The variations in the mass of the blood in disease or in therapeutic procedures can now be ascertained directly in man and taken into consideration in a rational way.

CLOTHING AND HEALTH OF INFANTS

The recommendation of hygienic clothing for adults is difficult because of the twofold function of dress in grown individuals. The purpose of clothing is primarily to insulate the body against cold and to maintain a constant body temperature. Clothing further serves as a protection against external objects; but from time immemorial decoration has been one of the most significant and directive influences in the selection of body coverings. It has been remarked that pride should not be the only source of warmth; and that although persons cannot easily overlook or neglect the dictates of custom and fashion, the selection of clothing should be based as largely as possible on occupation, conditions of health, and the requirements of age. Precisely as clothing in winter should prevent an undue loss of heat from the skin, so in summer it should not interfere with the dissipation of heat.

Infants, it might naturally be expected, would be clothed with a maximum regard for physiologic propriety and a minimum consideration for conflicting fashions. The demands for freakish dress are certainly less likely to pertain to the period of infant life, during which one may reasonably expect clothing to be hygienic if not artistic. The admonition to conserve the heat of the young is freely given, in view of the fact that heat is easily dissipated through thin textiles and scant clothing with which the young are sometimes provided without realization of the harm to which their frail bodies are thereby exposed. The contrary danger of heat stasis in infants as the result of improper clothing during periods of high external temperature and humidity is less well recognized. At any rate it received little scientific attention prior to the studies of McClure and Sauer at the Otho S. A. Sprague Memorial Institute Laboratory of the Children's Memorial Hospital in Chicago. They showed that in animals, coverings may so seriously interfere with the loss of body heat at moderately high temperatures as to cause death.[1] In the case of clothed infants, the determining factor in the rate of heat loss by conduction and radiation is the difference between the surface temperature of the clothes and the temperature of the surrounding air; in the case of the unclothed infant it is the difference between the air and the surface temperature of the skin. A series of readings made on infants wearing ordinary hospital clothing showed that when the room temperature reached about 31 C. (87.8 F.) the temperature at the surface of the clothes was so nearly the same that heat loss by conduction and radiation no longer remained possible. The skin surface of the unclothed infant, however, still showed sufficient excess to facilitate a loss of heat in the same environment.

Data such as these point out clearly the danger limits of undue clothing of infants in hot surroundings. They deserve emphasis because in the absence of the power of speech in early life the health and comfort of children are dependent in no small measure on the intelligent procedure of those in whose care the young are entrusted. Clothing may be a menace as well as a blessing. One reason for this has become apparent from these new researches.

THE GASTRIC MOVEMENTS IN PYLORIC STENOSIS

Clinical observations have furnished evidence that in cases of pyloric obstruction an alteration of the usual movements of the stomach may occur. Distention of this organ commonly attends pyloric stenosis, and hypermotility has repeatedly been described as accompanying it. Most of the facts on record have been obtained under conditions in which the stomach was more or less filled with food or otherwise distended, as it frequently is when the pyloric functions are interfered with. The question quite naturally follows as to whether these alterations in motor activity are attributable to the presence of food in the obstructed organ and whether the distention is a factor in the altered muscular performance, or whether the latter is a direct consequence of the pathologic condition involved.

Carlson[2] has shown that the "pangs of hunger" are associated with and probably due to rhythmic contractions of the stomach wall, which come on about meal time, especially if this be delayed. This phenomenon has often been recorded by the modern graphic methods of physiology, in both man and animals, so that the type and character of the hunger contractions

1. McClure, W. B., and Sauer, L. W.: Clothing as a Factor in the Production of Heat Stasis, Am. Jour. Dis. Child., June, 1915, p. 490; The Influence of Clothing on the Surface Temperature of Infants, December, 1915, p. 425.

2. New Facts About Hunger, editorial, THE JOURNAL A. M. A., July 11, 1914, p. 169.

of the stomach are now well known. By producing a surgical stenosis of the pylorus in animals, Elsesser,[3] working in Carlson's laboratory at the University of Chicago, has been able to test the question of altered motility and tonicity in the empty stomach. Even under this condition, hypertonicity and hypermotility are in evidence. The latter is exemplified in an increase in the amplitude of the various "hunger contractions"; and the hypertonicity appears in periods of gastric tetanus prolonged beyond the normal, as well as an increase in the strength of the tonic contractions. These motor phenomena closely simulate those seen in man, with a filled stomach, in the presence of pathologic lesions of the pylorus.

It is thus clear, as Elsesser points out, that partial stenosis of the pylorus induces a neuromuscular hyperactivity, as exemplified in hypermotility, irrespective of the presence of food in the stomach cavity. Hypermotility may often be seen temporarily during ordinary gastric digestion, in the presence of food and a temporary retardation of its passage through the pylorus. But the fact that the hypermotility can now be shown to be present even in the empty stomach indicates that the motor changes following mere mechanical obstruction of the pylorus are fundamental and important.

The mechanism of this increased motility can as yet only be conjectured. In any event it is not due to bacterial toxins from local foci of infection, because of the precautions taken to avoid them in the experimentally produced stenosis. In a very limited number of observations at the Presbyterian Hospital, Chicago, on infants with congenital pyloric stenosis and pylorospasm, Carlson and Ginsburg[4] have likewise shown a condition of hypertonus and hypermotility in the empty stomach. Ordinarily the sensation of hunger runs parallel to the vigor of stomach motility in the normal person. With hypermotility and hypertonicity it might be expected that the subject would experience more persistent and vigorous hunger pangs. As this is apparently not the case in stenosis of the pylorus, it is assumed that there are changes in the sensory nervous mechanism of the stomach coincident with the motor and secretory changes.

3. Elsesser, O. J.: Contribution to the Physiology of the Stomach, XXXI, The Effect of Experimental Partial Stenosis of the Pylorus on the Motility of the Empty Stomach, Am. Jour. Physiol., 1916, xxxix, 303.

4. Carlson, A. J., and Ginsburg, H.: Contributions to the Physiology of the Stomach, XXX, The Tonus and Contractions of the Empty Stomach of Infants with Congenital Pyloric Stenosis, Pylorospasm and Chronic Vomiting (Merycism), Am. Jour. Physiol., 1916, xxxix, 310.

Differentiation of B. Typhosus, B. Paratyphosus (A) and B. Paratyphosus (B).—In citrate broth to which human blood has been added (2 c.c. blood in each 10 c.c. of medium) the para-A bacillus does not cause coagulation. Whenever a clot is formed as the result of the growth of a bacillus of this group it is always either Eberth's bacillus or the para-B. In litmus-citrate broth para-A produces a rose-violet tint, while the other members of the group give *finally*, a blue color.—A. Leboeuf, J. Bounafous and P. Braun in *Compt. rend. Soc. de biol.*, 1915, lxxviii, p. 665.

Current Comment

ATMOSPHERIC TEMPERATURE AND IMMUNITY REACTIONS

As an incident in research to determine the unhygienic factors in the atmospheric environment of man, the New York State Commission on Ventilation has investigated the effect of high atmospheric temperatures on immunity reactions.[1] The temperature of poorly ventilated establishments has already been demonstrated to be a prominent agency in determining the malaise experienced in such surroundings by many persons. The details still remain to be ascertained, though many significant facts have already been determined. There is considerable evidence that, in animals at least, the progress of an infection already established is in greater or less degree checked by an artificial fever due to extremely high atmospheric temperature. It is not unlikely, however, that a moderate amount of heat may produce a different result from temperatures so severe as to lead to a condition of fever in the subjects. Accordingly, the commission has dealt with the problem by comparing the immunity reaction of experimental animals to injections of washed erythrocytes, when the subjects were kept in an environment recording from 29 to 32 C. (84.2 to 89.6 F.), in contrast with room temperatures of from 18 to 21 C. (64.4 to 69.8 F.). The results appear to indicate a distinct decrease in the rate of hemolysin formation on the part of the heated animals. The influence of heat appears to show itself in a delayed formation of hemolysins rather than in a permanent inhibition. The New York observers admit that the wide variations exhibited in individual animals preclude the possibility of drawing definite and final conclusions from these results. Their general tendency, as evidenced by averages, agrees with the results of other observers, and they strongly suggest that moderately high air temperatures (30 C., 86 F.) do not favor the development of immune bodies in the blood as higher temperatures producing a condition of fever have been reported to do. On the other hand, they may be distinctly inimical to such development.

THE INHERITANCE OF CONGENITAL PTOSIS OF THE EYELID

As a result of the growing interest and research in the science of genetics, attention has been focused from new points of view on the problems of heredity. At first it was chiefly in the domain of agriculture, in the breeding of plants and animals, that the facts of inheritance were analyzed from the standpoint of mendelian principles. There is increasing evidence, however, that the facts of heredity in man are also amenable to the same scientific treatment. With respect to certain qualities, at least, the older idea that the offspring may be regarded as a sort of arithmetical mean of both of its parents can no longer be maintained. Frequently the quality is transmitted from parents to

1. Winslow, C.-E. A.; Miller, J. A., and Noble, W. C.: The Effect of Moderately High Atmospheric Temperatures upon the Formation of Hemolysins, Proc. Soc. Exper. Biol. and Med., 1916, xiii, 93.

child either completely or not at all. The doctrine of dominant and recessive characters, as they are commonly termed in the discussions on heredity, has found numerous applications in the history of individual families, and has played a significant part in the theories of eugenics. Out of the statistics and observations which are now being collected on an extensive scale to illustrate all manner of features of inheritance, it is possible to select many examples of the transmission of both anatomic and physiologic defects in man. Thus among functional disorders alcaptonuria and cystinuria appear to occur most commonly where there is blood relationship. Congenital deformities such as polydactylism are probably the most familiar of the inherited defects which show transmission according to definite laws of heredity. An illustration of how such peculiarities are being brought to light incidentally is furnished by the chance discovery of four generations of "slit-eyed" persons in northern Georgia by the horticulturist of the Georgia Experiment Station.[1] Congenital ptosis of the upper eyelid is, of course, no novelty in ophthalmologic experience. This peculiar trait, which causes the persons involved to throw their heads back or turn them to one side in order to get clear vision, makes them conspicuous wherever they appear. The interest in the Georgia records lies in the long succession of cases of direct relationship. They include, among the actually known descendants exhibiting the lid defect, three great-grandchildren, six grandchildren, a son and his father. Among the children involved are both boys and girls, so that the defect involving the musculature of the upper eyelid cannot be regarded as sex-linked in its inheritance, as are color blindness and one form of night blindness. One cannot build hypotheses from a paucity of data; nevertheless the history here quoted might give rise to a suspicion that the trait is what students of heredity term a simple mendelian recessive. On this tentative basis, current theories would suggest either the absence of the factor for the normal development of the lid muscle or the presence of an inhibitor of normal development.

OVERACTIVITY IN ATHLETIC SPORTS

In a recent survey[2] of the physiologic aspects of sport in ancient and modern times it is stated that:

> The Greeks lifted their sports to a higher level than ours by surrounding them with imagination and making them a training in esthetics as well as in physical excellence. The American idea is too closely connected with the mere wish to win and the performance of mere "stunts," and not enough with the idea of beauty of physique and control of the body. There is accumulating considerable evidence that college athletics often seriously injure those who engage in them, although they were originated and encouraged for precisely the opposite effect. The value of exercise consists not in developing large muscles nor in accomplishing athletic feats, but in attaining physical poise, symmetry of form, and the harmonious adjustment of the various parts of the body, as well as in furthering the proper activity of cell tissues and organs and the elimination of waste products.

This conclusion is quite in accord with the considerations of this subject that have repeatedly appeared in The Journal. The problem of how to deal with the situation of athletic sports in our educational institutions, particularly the strenuously competitive sports like football and rowing, deserves far more serious study than it has ever received. Opinions must be fortified by statistics as to the actual health of college athletes in their after-life and the possible correlation of bodily ills or defects with undesirable athletic activities. Mortality or morbidity statistics are not yet sufficiently abundant to merit dependence on them, especially in view of the manifold agencies for harm that play on the individual. The persons engaged in the furtherance of athletic sports are, in the main, so enthusiastic about the promotion of physical well-being by the collegiate games that their statements often smack of prejudice. Critical statements and warning evidence on the other side of the question must actually be sought out if they are to enter into the controversy regarding the value of competitive sports. In view of this, a statement of the director[3] of the Yale University gymnasium, who could scarcely be suspected of being an antagonist of athletics, merits special emphasis:

> If I were asked to give an opinion, not based on statistics but on observation, as to the danger which is now present or threatened, I have no hesitation in saying that they [athletics] are too strenuous, the athlete is pushed beyond the limits of safety, he is sacrificed to win games, and the influence of such overactivity has reached the boys in the preparatory schools where it continues to develop harm.

THE NATURE OF ADIPOCERE

Adipocere, or corpse wax, is a product formed particularly in bodies or parts of bodies which have been buried in moist places or have been in contact with water for some time. The muscles and other non-skeletal structures are apparently replaced by a substance of a waxy or fatlike character. The results of the examination of many specimens of such adipocere indicate that it is composed largely of higher fatty acids, along with magnesium, calcium and ammonium soaps of palmitic and stearic acids. Voit pointed to the formation of adipocere in the protoplasmic tissues as an illustration of the long debated formation of fats directly from proteins, but his view has been generally abandoned. It is now usually contended that through the agency of bacteria as well as tissue fat-splitting enzymes, or lipases, body fats are split into their component fatty acids and glycerol. The olein, which is always abundantly present admixed in tissue fat and is liquid at ordinary temperatures, is known to decompose in the genesis of adipocere with the formation of solid fatty acids. That adipocere occurs almost exclusively in fat bodies lends decided support to the probability that all the soaps and fatty acids found in it are formed from the original fats of the corpse. Wells[4] states that as the subcutaneous fat is hardened by the formation of soaps, and the bones

1. Stuckey, H. P.: The Slit-Eyed People, Jour. Heredity, April, 1916, p. 147.
2. Fisher, Irving, and Fisk, E. G.: How to Live, New York, 1915, p. 96.
3. Anderson, W. G.: Further Studies in the Longevity of Yale Athletes, Med. Times, March, 1916.
4. Wells, H. G.: Chemical Pathology, 1907, p. 342.

remain to hold the parts in position, the general form of the body is preserved, creating the impression that its entire substance has been converted into adipocere, when the total mass may actually weigh only 20 pounds or so, and, according to Zillner's estimate, not more than one tenth of the muscle substance is replaced by adipocere. This false impression is perhaps responsible for the mistaken idea concerning the conversion of muscle proteins into fatty acids. An exceptionally comprehensive chemical examination of the composition of adipocere, lately made at McGill University by Ruttan and Marshall,[5] gives even better insight than did the earlier investigations into the make-up and presumptive origin of the unique product. In the specimen examined, the fatty acids and traces of fats, etc., soluble in ether constituted 94 per cent. of the adipocere. Only traces of nitrogen were present. The Canadian biochemists, therefore, feel justified in concluding that adipocere is the residue of the preexisting fats of animals. It is composed almost entirely of the insoluble fatty acids left after the slow hydrolysis of the fats in wet ground. The protein matter has entirely disappeared, and the glycerol, soaps, etc., resulting from the hydrolysis, are carried away in aqueous solution. The insoluble hydroxystearic acids which are so characteristic of adipocere are derived from a portion of the oleic acid in the original fat by hydration. No margaric acid or hydroxymargaric acid is present. Ammonium and other soluble soaps are absent, and only the calcium salts are present in small quantity in a matured specimen of adipocere, such as that reported on.

MUSCLE WASTING IN NERVE LESIONS

The rapid loss in muscle substance, following injuries to the motor nerves supplying the muscles, has been a matter of common observation for many years. Whether the atrophy in these cases has been due to inactivity of the limb, resulting from a paralysis, or to the cutting off of a hypothetic trophic influence said to be exerted by the nerve on the muscle, has not, as yet, been finally determined. Experimental evidence[6] seems now available with regard to the state of the muscle fibers during the period of paralysis, and the rate at which the denervated muscles undergo atrophy. Further enlightenment on the vexed question of the efficacy of electric treatment of paralyzed members is also produced by this work. Langley and Kato cut the tibial nerve in one of the legs of rabbits. The weight of the gastrocnemius, soleus and plantaris muscles was determined in the animals thus operated on, at periods varying from one to thirty-five days, in both the operated and unoperated legs. By comparing the weights of these muscle groups in the two legs, it was possible to determine with considerable accuracy the percentage of loss of muscle substance. Within five weeks after the injury, the muscles lose about a half of their weight. During the first two weeks the loss amounts to nearly 30 per cent. The authors make the interesting observation that the muscle fibers of the denervated muscle are not quiescent, but, contrary to previous assumptions, are in a state of active fibrillar contraction. By thus demonstrating the existence of a weak, rapid, rhythmic contraction of the muscle fibers, which goes on incessantly, the view that the atrophy of paralyzed limbs is due to inactivity is deprived of whatever support it may have had. Important evidence is given also as to the efficacy of certain therapeutic measures which have long been employed in the treatment of infantile paralysis and the paralysis resulting from other lower motor neuron lesions. The authors attempted to determine the relative efficacy of massage, passive movement of the limb, and electric treatment of the denervated muscle group. Again operating on rabbits, they performed a series of experiments in which the tibial nerves in both legs were cut. In different animals, one leg was treated by massage, or passive movement, or electricity, while the other leg was not treated. It was thus possible to determine the difference in weight between the two atrophying muscle groups, one of which was being treated, while the other was untreated. The results show that the loss of weight with massage was 37.8 per cent., while the loss of weight in the nonmassaged muscle group was 41 per cent. Passive movements of flexion and extension gave a loss of 12.3 per cent. in the treated leg, as against 16.4 per cent. in the untreated leg. The electric treatment was most efficient. The stimulus consisted in condenser shocks of from 0.016 to 0.025 microfarads. The treated muscles showed a loss of weight of 12.9 per cent., while those untreated gave a loss of 18.5 per cent. in the same time. Aside from the clinical observations of neurologists, these experiments furnish the first definite proof of the efficacy of electric treatment, in muscles which are undergoing atrophy. Orthopedic surgeons have long been skeptical of the use of electricity in nerve lesions. The neurologists, on the other hand, have been zealous advocates of its use. Conclusive evidence by appeal to experiment has at last been adduced. It should be noted that no form of treatment prevented the fibrillar contractions of the paralyzed muscles, nor did it change the sluggish contraction which is typical of muscles in which the nerve has degenerated.

5. Ruttan, R. F., and Marshall, M. J.: Jour. Biol. Chem., March, 1916; Proc. Soc. Biol. Chem., p. xii.

6. Langley, J. N., and Kato, T.: The Rate of Loss of Weight in Skeletal Muscles after Nerve Section, with Some Observations of the Effect of Stimulation and Other Treatment, Jour. Physiol., 1915, xlix, 432.

Red Cross Work in the Ladrones.—Prompt action taken by the American Red Cross in 1915, in response to an appeal transmitted by the Navy Department, kept from starvation a number of destitute persons on the Island of Rota in the Ladrones Group in the Pacific. On receipt of the appeal the American Red Cross, through the cooperation of the Navy Department, authorized by cable the loading of relief stores on the U. S. S. *Supply* at Manila, this vessel being ordered to stop at Rota and discharge the food sent by the Red Cross. After taking this action, the American Red Cross notified the Japanesse Red Cross of the receipt of the appeal and thus the conditions in Rota were brought to the attention of the Japanese government. Through the American Ambassador at Tokyo, Japan, the government sent the American Red Cross a draft covering the original expense in Rota, together with thanks for the action taken.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

State Association Meeting.—The twenty-fifth annual meeting of the Arizona Medical Association was held in Phoenix, April 26 and 27, under the presidency of Dr. John W. Flinn, Prescott. The following officers were elected: president, Dr. Robert Ferguson, Bisbee; vice presidents, Drs. W. Warner Watkins, Phoenix; Arthur C. Carlson, Jerome, and Frederick T. Wright, Douglas; secretary, Dr. Clarence E. Yount, Prescott (reelected); treasurer, Dr. Roderick D. Kennedy, Globe, and delegate to the American Medical Association, Dr. John J. McLoone, Phoenix. On the Monday preceding the session the State Health Officers' Association met, and on Tuesday the meeting of the State Association for the Study and Prevention of Tuberculosis was held.

CALIFORNIA

Medical Library Donated.—The medical library of the late Dr. Warren Vernon Grimes, Pacific Grove, has been donated by his widow to the Lane Medical Library, San Francisco.

Personal.—Drs. H. Bert Ellis, Los Angeles; Oliver D. Hamlin, Oakland; Victor G. Vecki, San Francisco, and Henry P. Newman, San Diego, were elected delegates to the American Medical Association at the annual meeting of the Medical Society of the State of California.——Dr. Frederick P. Gay, Berkeley, professor of pathology in the University of California, is on sabbatical leave for six months.——Dr. Shadworth O. Beasley, San Francisco, has returned after several months' service in Serbia.

Summer Graduate Medical Course at Stanford.—The trustees and medical faculty of Stanford University have issued the annual announcements of the summer graduate course, which will begin July 6 and close August 15. Instruction will be given in San Francisco in the Medical School Building at Sacramento and Webster Streets; the Lane Hospital at Clay and Webster Streets; the San Francisco Hospital at Twenty-Second Street and Potrero Avenue; and the Isolation Hospital at Army and DeHaro Streets. The course of instruction includes clinical medicine, clinical pathology, actinography, clinical neurology, dermatology and syphilis, pediatrics, serology, clinical surgery, operative surgery, anatomy, orthopedic surgery, clinical ophthalmology, the eye and general medicine, principles and practice of refraction, otology and laryngology, genito-urinary surgery, gynecology, practical obstetrics, cystoscopy, anesthesia and pathology.

CONNECTICUT

Personal.—Dr. John Gilman, Stanton, New London, has been appointed, by Governor Holcomb, a member of the State Board of Education of Connecticut.

State Society to Meet.—The Connecticut State Medical Society will hold its one hundred and twenty-fourth annual meeting at Bridgeport, May 17 and 18, under the presidency of Dr. Max Mailhouse, New Haven, with headquarters at the Hotel Stratfield. The annual banquet will be held May 18 and a smoker on the evening of May 17. The subject of the president's address is to be "Some Defects and Inconsistencies in Medical Statutes and Medicolegal Procedures."

ILLINOIS

Governor at Charity Ball for Hospital.—Governor Dunne led the grand march at the formal opening of the charity ball at Pana for the benefit of the new Huber Memorial Hospital, April 24. Preceding the ball a banquet was held at which the governor delivered an address on behalf of the hospital.

Central Illinois Physicians Elect.—The forty-third annual meeting of the District Medical Society of Central Illinois was held in Pana, April 25, and the following officers were elected: president, Dr. William G. Turney, Cowden; vice presidents, Drs. Herbert C. Jones, Decatur; Oliver L. Crow, Assumption; secretary, Dr. Louis H. Miller, Pana, and treasurer, Dr. Grover C. Bullington, Nokomis.

State Society Meeting.—The sixty-sixth annual meeting of the Illinois State Medical Society will be held in Champaign, May 16 to 18, under the presidency of Dr. Charles W. Lillie, East St. Louis. The oration in surgery will be delivered by Dr. B. Merrill Ricketts, Cincinnati, on "Anesthesia From the Dawn and Its Relation to Surgery," and the oration in medicine by Lieut.-Col. William B. Banister, M. C., U. S. Army, Chicago, on "The Medical Mechanism of War in the United States." The pulpits of Champaign and Urbana will be occupied by Chicago physicians on the Sunday preceding the meeting.

Personal.—Dr. H. Douglas Singer, director of the State Psychopathic Institute, Kankakee, spoke before the Pittsburgh Neurological Society, May 4, on "Dynamic Psychology and the Practice of Medicine."——Dr. F. J. Haessler was elected president of the Chicago Heights Country Club, May 3.——Dr. Walter E. Scarborough, Sullivan, formerly coroner of Moultrie County, has accepted a position as surgeon with the Canadian troops.——Dr. Eugen Cohn, assistant superintendent of the Kankakee State Hospital and recently transferred to the Chicago State Hospital, was the guest of honor at a dinner tendered him by the staffs of the Kankakee State Hospital and Psychopathic Institute, April 27.

Chicago

Ricketts Prize Awarded.—The Howard Taylor Ricketts prize for research work done by students in the Departments of Pathology and Bacteriology of the University of Chicago, which is awarded each year on May 3, the anniversary of Dr. Ricketts' death from typhus fever, has this year been awarded to Oscar J. Elsesser.

Personal.—Dr. Walter A. Gekler has assumed the position of medical director of the Municipal Tuberculosis Sanatorium, succeeding Dr. John W. Coon.——Dr. Harry A. Salzman has given up private practice to accept a position as surgeon in the United States Coast and Geodetic Survey at Manila, P. I.——Dr. Alexander S. Rochester has returned from Los Angeles and associated himself for a second time with Dr. Casey A. Wood. He has also been appointed assistant ophthalmologist and otologist to St. Luke's Hospital.

Hospital Semicentennial.—On May 9 to 11 the ceremonies celebrating the fiftieth anniversary of the founding of the Alexian Brothers' Hospital were held. Since the foundation of the hospital by Brother Bonaventure Thelen in 1866, more than 100,000 patients have been treated in the hospital. The anniversary commenced with pontifical high mass conducted by the Archbishop of Chicago and, in connection with the ceremonies, several of the brothers were especially honored. A large hospital fund is being raised in connection with the jubilee and the hospital will be opened to friends and supporters of the institution and to the public at large.

Chicago Men Address Societies.—Dr. William Healy of the Cook County Psychopathic Institute delivered an address before the Chamber of Commerce of Des Moines, May 3, and in the afternoon delivered a public lecture under the auspices of the Chamber of Commerce, the City Federation of Teachers and the Board of Education.——Dr. John S. Nagel made an address before the Livingston County Medical Society at Pontiac, May 4, on "The Senile Prostate," and Dr. Paul Gronnerud, an address on "Hysterectomy."——Dr. James B. Herrick will deliver an address at the annual graduating exercises of the Rockford Hospital Training School for Nurses, June 2.——Dr. George F. Suker spoke on "The Eye Symptoms in Disease of the Hypophysis" from the standpoint of the general practitioner, and Dr. Frank E. Simpson delivered an address on "Radium in the Treatment of Cancer and Various Diseases of the Skin," before the Linn County Medical Society at Cedar Rapids, April 26.——Dr. Charles A. Elliott spoke before the Sangamon County Medical Society at Springfield, April 24, on "Gastric Secretions, Motility, Technic and Value of the Fractional Test Meal."

LOUISIANA

New Parish Society Organized.—A meeting of physicians of Jefferson Parish and vicinity was held at the home of Dr. M. Earle Brown, Gretna, at which the Jefferson Parish Medical Society was organized.

Personal.—Dr. Frank H. Walke has been appointed president of the Shreveport Board of Health, succeeding Dr. G. C. Chandler.——Dr. Richard F. Harrell, Alexandria, has removed to Shreveport with offices in the First National Bank Building.——Dr. Barbour D. Cooper, Mansfield, was recently operated on for appendicitis at Mansfield Sanitarium.

Hospital for Consumptives.—An advisory committee consisting of Drs. Rudolph Matas, Solon G. Wilson, John B.

Elliott, Jr., Joseph A. Danna, Luther Sexton, Charles J. Landfried, and William M. Lynch has been appointed by the Board of Administration of the John Dibert Memorial Hospital for Consumptives. The work of this committee is to gather such data as is necessary to guide the board in the preparation of plans, and to hasten the construction work of the hospital. Mrs. Dibert has already given the city a check for $50,000, and will soon turn over to the city the remainder of the donation of $200,000.

State Society Meeting.—The thirty-seventh annual meeting of the Louisiana State Medical Society was held in New Orleans, April 25 to 27, under the presidency of Dr. James C. Willis, Shreveport. The following officers were elected: president, Dr. William H. Seemann, New Orleans; vice presidents, Drs. Thomas S. Jones, Baton Rouge; Charles V. Unsworth, New Orleans and Jacob M. Bodenheimer, Shreveport; secretary-treasurer, Dr. Laurence R. DeBuys, New Orleans (reelected); councilors, first district, Dr. Wilkes H. Knolle, New Orleans; second district, Dr. Homer J. Dupuy, Jr., New Orleans; third district, Dr. Beverly W. Smith, Franklin; fourth district, Dr. Joseph E. Knighton, Shreveport; fifth district, Dr. Courtland P. Gray, Monroe; sixth district, Dr. James J. Roberts, Baton Rouge; seventh district, Dr. E. M. Ellis, Crowley, and eighth district, Dr. E. Lee Henry, Lecompte. Nominations for State Board of Medical Examiners: Drs. Edmund L. Leckert and James A. Henderson, both of New Orleans, and delegate to the American Medical Association, Dr. William H. Seemann, New Orleans. Alexandria was selected as the next place of meeting.

MARYLAND

Higher Entrance Standard.—The Faculty of Physic of the University of Maryland, School of Medicine, and College of Physicians and Surgeons of Baltimore announces that beginning with Jan. 1, 1918, two years of premedical work of college grade will be required for admission.

Honor to Winslow.—Physicians of Baltimore and other cities united in paying tribute to Dr. Randolph Winslow, May 8, at a testimonial dinner given at the Hotel Belvidere in honor of the completion of his twenty-fifth year as a member of the faculty of the University of Maryland. Dr. William P. Stubbs was chairman of the committee of arrangements.

Gift to Johns Hopkins Hospital.—A gift of $150,000 has been made to the Johns Hopkins Hospital by the will of Miss Jessie Gillender, who died in February, at Los Angeles. A part of the money is to be used in scientific research into the cause, prevention and cure of epilepsy. It is thought that this laboratory will be connected with the Henry Phipps Psychiatric Clinic. This gift opens a new field for research work at the institution.

Personal.—Dr. Playford L. Rush, an intern of the University Hospital, underwent operation during the past week for appendicitis.——Dr. Frederick N. Tannar recently underwent an operation for appendicitis at the Franklin Square Hospital and is reported as doing favorably.——Dr. Robert J. Henry of Glyndon has been reappointed a justice of the Peace of Baltimore County.——Dr. Joseph S. Baldwin, Elko, is reported to be critically ill with malignant disease at Johns Hopkins Hospital.——Dr. Henry O. Reik, delivered an illustrated lecture on "Our National Parks in Their True Colors" at the Peabody Institute, April 25.——Dr. Edward N. Brush, Towson, who was operated on for appendicitis, April 25, is reported to be securely convalescent.

Campaign to Make City Clean and Sanitary.—A committee appointed by the mayor to conduct a campaign against rats, flies, mosquitoes, and dirt of all kinds, also insanitary conditions generally, held its first meeting, May 4. The committee is composed of Dr. John D. Blake, commissioner of health; Dr. W. T. Howard, Jr., assistant commissioner of health; W. A. Larkins, commissioner of street cleaning, and other city officials. The movement was formally launched at a public meeting, May 12, when addresses were made by Surg.-Gen. Rupert Blue, U. S. P. H. S.; Dr. William H. Welch of Johns Hopkins, and the mayor. They will explain the necessity of a general clean-up. John F. Aubrey, who is taking a special course in biology and chemistry at the Johns Hopkins University, will have charge of the mosquito crusade and will enter actively on his duties as supervisor of the antimosquito forces on June 1. For this crusade alone $30,000 has been appropriated. The department has already done considerable preliminary work to eliminate the mosquito.

University of Maryland Faculty Matters.—The first step toward the admission of women as students on an equal footing with men or on any footing in the medical department of the University of Maryland was taken, May 5, when their admission was recommended at a meeting of the medical faculty. Action was deferred until the meeting in June. Many of the professors are in favor of the movement, and it stands an excellent chance of being made a part of the policy of the department in the near future.——Another step decided on at the meeting of the faculty was that the senior class beginning next session will be divided into trimesters, instead of the usual semesters and the students will be required to spend one third of their time in the University Hospital, one third in the Mercy Hospital and one third in the Maryland General Hospital. While at the University Hospital, the senior students will live in the hospital itself and be assistants in clinical work.——Dr. James M. H. Rowland was elected dean to suceed Dr. William F. Lockwood, resigned. Dr. Randolph Winslow was elected president of the faculty, Dr. John W. Chambers, vice president, and Dr. William S. Gardner, secretary. Dr. William Simon resigned as professor of chemistry. Dr. Henry J. Walton was recommended to succeed the late Dr. Henry Chandlee as head of the Roentgen-ray department. Dr. Robert P. Bay was recommended for clinical professor of surgery and surgeon at the University Hospital. Dr. Page Edmonds was recommended as professor of clinical neurology and as surgeon to the University Hospital. Action on the recommendations will be taken also at the next meeting, but ratification is assured.

MASSACHUSETTS

Quiet Zone Ordinance.—Subject to the approval of the mayor, the Boston city council on April 17 made it a punishable offense to make unnecessary noise near a hospital and also established zones of quiet around hospitals, including the placing of signs reading "Warning! Hospital—Make No Noise."

State Medical Society Meeting.—The one hundred and thirty-fifth anniversary meeting of the Massachusetts Medical Society will be held, June 6 and 7, at the Copley-Plaza Hotel, Boston, and at the Peter Bent Brigham Hospital, under the presidency of Dr. Charles F. Witherington, Boston. The Shattuck lecture will be delivered on the evening of June 6 by Dr. Theodore C. Janeway, Baltimore, on "The Etiology of Diseases of the Circulatory System." The annual dinner will be served on June 7.

Personal.—Dr. Vincent Y. Bowditch was reelected president of the Massachusetts Antituberculosis League at its second annual meeting, April 27. Drs. Walter P. Bowers, John H. Gifford, Allan J. McLaughlin and George L. Schmidt were elected vice presidents.——A new hospital has been provided at a cost of $25,500 on the grounds of the Boston City Hospital for Dr. John J. Dowling, the superintendent.——Dr. H. S. Halloway, Boston, has been appointed state bacteriologist of Alabama, succeeding Dr. Moss, resigned.

NEW YORK

Higher Entrance Requirement.—An official communication states that the New York University has authorized the medical department to increase its requirement for admission to two years of college work beginning with the session of 1918-1919.

Social Science Society Organized.—The Albany Social Science Society was organized in March by a group of city and county officials called together by the commissioner of charities, Mr. Alwin C. Quentel, and of this society, Dr. Clinton P. McCord was elected president.

State Society Meeting.—The one hundred and tenth annual meeting of the Medical Society of the State of New York will be held in Saratoga Springs, May 16 to 18, under the presidency of Dr. W. Stanton Gleason, Newburgh, with headquarters at the United States Hotel.

Personal.—Mr. Paul E. Batzell, secretary of the Buffalo Association for the Relief and Control of Tuberculosis, has resigned to accept a position in New York. Dr. John H. Pryor has been elected a director of the association.——Dr. Arthur Eisbein has been appointed city diagnostician of Buffalo, succeeding Dr. Charles S. Meahl, deceased.

County Tuberculosis Hospitals.—*Health News* for April is characterized as the County Tuberculosis Hospital Number and is largely devoted to a consideration of the provisions

now made and those that should be made for the care of those suffering from tuberculosis. On the first of January of the present year, eighteen of the fifty-seven counties in the state had free beds available for the treatment of tuberculosis. The total number of beds available in the eighteen counties is 1,478. In the five counties of Greater New York, with a population practically the same as the fifty-seven counties, there are 4,000 free beds. The city has been able to lower its death rate from tuberculosis 2.4 times as rapidly as has the remainder of the state with a service furnished to but one half of its people.

Authority of Boards of Health Threatened.—A bill known as the Simpson bill passed the legislature and is now before the governor for action. It amends the Public Service Law so as to vest the power to regulate the number of passengers to be carried in street cars solely with the Public Service Commission. This amendment provides that "Nothing contained in the public health law or in any other statute, either general or local, shall hereafter be construed to authorize any local board or department of health or other local authority of a city to make or enforce ordinances, rules, regulations, or orders limiting or regulating the number of passengers to be carried on any such car or cars." The intent and purpose of this bill is not to vest more power with the Public Service Commission but to nullify the authority of the Board of Health of New York City, which about a year and a half ago passed an ordinance limiting the number of passengers to be carried in street cars.

New York City

Beriberi.—The four-masted schooner *Tifton* arrived at New York, April 27, from Liberia, after a voyage of eighty-three days, with most of the crew incapacitated by reason of beriberi.

Conference of Charities and Correction.—The seventh annual local conference of charities and correction will be held in New York, May 25 to 27, at which the subjects for discussion will be "Public Health"; "Education"; "Families"; "Municipal Needs"; "Children," and "Delinquency."

Harvard Professor at Academy.—At the meeting of the New York Academy of Medicine, May 4, Dr. Walter B. Cannon, George Higginson professor of physiology in Harvard Medical School, delivered an address on "An Explanation of Some Disorders Supposed to Have an Emotional Origin." The discussion was opened by Henry Rutgers Marshall, L.H.D., D.S.

To Care for Health of Club Women.—At the biennial convention of the General Federation of Womens Clubs to be held in New York, May 23 to June 2, an emergency staff of 100 women physicians and as many nurses has been selected which will be under the charge of Dr. Rosalie S. Morton. Two stations will be open at all hours at the Seventh Regiment Armory and other stations will be maintained at the Hotel Astor and other hotels.

United Hospitals Fund.—The United Hospitals Fund, formerly known as the Hospital Saturday and Sunday Association, has just distributed the contributions for the year 1915, amounting to $110,000, among the various hospitals of the city. This is the largest amount that the association has ever distributed in a single year. The distribution is based on the amount of free work done by the various hospitals. Mount Sinai Hospital received the largest sum, $8,745, and New York and St. Luke's hospitals were close seconds.

Personal.—Dr. William H. Steers of Brooklyn has been appointed a major in the medical corps of the New York National Guard.——Dr. Ramon Guiteras gave a lecture illustrated with French war views at his residence on the afternoon of May 2.——Dr. Charles E. Low of the Rockefeller Sanitary Commission has been appointed director of public health for the city of Spartanburg, S. C.——Dr. William B. Giles, who has recently returned from France, gave a demonstration at Durham, N. C., April 20, on "The Method Used in Locating Bullets in Wounded Soldiers in the Hospitals of France."

NORTH CAROLINA

New Building for State Hospital.—At the annual session of the board of directors of the State Hospital for Insane at Morganton, April 6, building plans for a new woman's building, to accommodate 100 patients, were approved and the structure will be built immediately.

Sanatorium Site Donated.—Mrs. D. B. Safford, Hot Springs, has donated to the Southern Sociologic Congress 700 acres of land near Asheville, as a site for a great sanatorium for the treatment of tuberculosis. She also presents $20,000 in cash as a nucleus to start a fund for the construction of buildings and the securing of equipment.

Sanatorium Building Opened.—The state board of health has accepted the new building at Sanitarium, and it was recently opened to patients. The structure is of brick and cement, fireproof construction throughout, with wide verandas; through the door of each room patient's beds are easily rolled through the wide corridors, or directly outside, where most of the day may be spent on the spacious porch. Between each two rooms is a large bathroom with ample bathroom facilities, including a shower bath in each room. The authorities, as well as the architect are much pleased with the new building. With the crowded state of the institution, and the waiting list, the sanatorium is again full.

OHIO

Battlefield Surgery Demonstrated.—At the Protestant Hospital, Columbus, on May 3, surgical work as performed on the battlefield was demonstrated before the Second Field Hospital and Second Ambulance Company, Ohio National Guard, and officers and men of the line, by Maj. Harry H. Snively, Columbus, who was in charge of a Red Cross hospital in Russia, and Dr. John W. Means.

Personal.—Dr. Charles W. Wendelker has been elected secretary-treasurer of the Portsmouth Antituberculosis League.——At a meeting of the Springfield Hospital Board, April 27, the present staff was reappointed and Dr. William A. M. Hadley was appointed a member of the staff in the eye, ear and nose department.——Dr. Florus F. Lawrence, Columbus, has been invited to become senior surgeon of a French military hospital near Verdun.

Reorganization of Faculty.—The board of trustees of the Ohio State University announced, May 2, an outline of the next year's plans of operation under the new dean, Dr. Eugene F. McCampbell. All clinical work is hereafter to be confined to the Protestant and St. Francis' hospitals and the work of the college is to be organized under nine department heads instead of twenty-six as heretofore. Dr. Clyde Brooks of the University of Pittsburgh is to be head of the department of physiology, physiologic chemistry and pharmacology. Under the reorganization about fifty local physicians and surgeons, who have been giving gratuitous service to the university, will leave the faculty.

State Medical Society Meeting.—The Ohio State Medical Association will hold its seventy-ninth annual session at Cleveland, May 17 to 19, with headquarters at the Hotel Statler, under the presidency of Dr. William E. Lower, Cleveland. At the annual banquet of the association on the second day, instead of the usual afterdinner toasts, Mr. John Kendrick Bangs is to be the attraction and will speak on "Some Salubrities I Have Known." P. A. Surg. Wade H. Frost, U. S. P. H. S., will read a paper on "The Relation of Stream Pollution and Public Health" which will be the initial report on the survey of the Ohio Valley which is being made by the Public Health Service and the health authorities of the state.

Cincinnati

Personal.—The names of Dr. Julien E. Benjamin, Walter H. Stix and Rufus Southward have been submitted to Safety Director Friedlander, who will select one of the three as a successor of Dr. Louis G. Heyn.——Dr. Benjamin K. Rachford was the guest of honor at a luncheon given by the clinical committee of the Child Welfare Section of Kosmos at Chattanooga, April 18.——Dr. Clarence W. Betzner has been made assistant receving physician of the General Hospital, succeeding Dr. Max Shawecker.——Dr. Frank M. Coppock, Jr., has resigned as a member of the resident staff of the General Hospital.

Assets of Medical Department.—Dr. Frank B. Cross, secretary of the faculty of the Medical Department of the University of Cincinnati, in his report to the State Medical Board, says that the value of the new buildings to be finished December 1 of this year is $325,000; the medical grounds are valued at $60,000, and the equipment at $150,000. The pathologic institute is valued at $190,000, and its equipment at $71,285. The value of the present Ohio-Miami Medical building, the clinic building and equipment is $71,439.81. The various funds, bequests and gifts total $528,700, and the total valuation of buildings, equipment and endowment is $1,346,404.

PENNSYLVANIA

First Aid Corps at Capitol.—A First Aid Corps of more than one hundred has been organized among the employees of the state department of health at the state capitol, Harrisburg, by Commissioner of Health Dixon.——Orders have been issued by Dr. Dixon for the instruction in first aid of the nursing staffs of the 115 state tuberculosis dispensaries, and classes have also been organized at the state sanatoriums at Mt. Alto, Cresson and Hamburg.

Mellon Lecture.—The second Mellon Lecture, under the auspices of the Biological Society for Medical Research of the University of Pittsburgh, will be delivered by Prof. Theobald Smith of the Rockefeller Institute for Medical Research, Princeton, N. J., at the Mellon Institute for Industrial Research, Pittsburgh, May 17, at 8:15 p. m. The subject of the address will be "Certain Aspects of Natural and Acquired Resistance to Tuberculosis and Their Bearing on Preventive Measures."

Philadelphia

Work of Women's Committee at Blockley.—The women's advisory committee to the department of health and charities appointed by Dr. Ziegler and retained by the present health director, Dr. Krusen, with the latter's cooperation, has been greatly improving conditions at the Philadelphia General Hospital.

Donations to Retreat.—The Preston Retreat some time ago made an appeal for funds in the city papers and recently received a check for $5,000 from a donor who desires that the money be used for the purpose of establishing a perpetual bed in memory of Mrs. T. Morris Perot, one of the most active friends of the institution. In addition to this gift, a landscape gardener of Narberth has sent fifty trees to be planted in the grounds surrounding the hospital.

Personal.—Dr. John B. Deaver was the guest of honor, April 26, at the banquet and meeting of the Chicago Medical Society.——Dr. Wilmer Krusen, director of public health and charities, was the guest of honor at a reception, April 28, given at the Bellevue-Stratford by the Medical Club of Philadelphia. Dr. Krusen was introduced by Dr. Judson Daland, president of the Medical Club of Philadelphia.——Dr. E. Kilburne Tullidge, who recently returned from service as captain surgeon in the Austrian army, delivered an address before the Southeastern chapter of the American Red Cross, April 27.

Need for Women Physicians in China.—Dr. Shi-Ma-Lei, president of the Women's Christian Temperance Union of China, and head of the Mission Hospital, Qkiu Kaing, delivered an address at the Arch Street Methodist-Episcopal Church, April 27, under the auspices of the Women's Medical College of Pennsylvania, in which she described the great need for women physicians in China. During the last year, the hospital with which she is connected handled 24,484 cases. There is a special need for women physicians because of the prejudice the Chinese women have against treatment by male physicians.

Physicians Wanted for Service in China.—An appeal was made to the medical fraternity of Philadelphia at the College of Physicians, May 5, to supply at once fifty physicians and surgeons for service in China. The appeal was made by Prof. W. H. Welch of Johns Hopkins University, a member of the Chinese Medical Board and Dr. H. J. Howard, connected with the Canton, China, Hospital. Both speakers emphasized the urgent need for a large number of American medical men to handle 5,000,000 cases of trachoma, cataract and other eye diseases prevailing among the Chinese, and it was announced that the Carnegie fund would soon endow two new hospitals, one at Pekin and the other at Canton.

VIRGINIA

Medical Society Organized.—The Hopewell Medical Society was organized, April 26, with the following officers: president, Dr. James H. Hargrave, Jr., City Point; vice president, Dr. Thomas F. Gill, Marshall, and secretary-treasurer, Dr. Benjamin L. Naiman.

Hospital Notes.—A new hospital was opened, April 17, in the DuPont plant, Hopewell, for the treatment of contagious diseases.——The American Locomotive Company has filed plans for the erection of a two story brick emergency hospital within the enclosure of their plant on Hospital and Seventh streets, Richmond, at a cost of $6,500.

Sanatorium Plans.—The state board of health has selected the Norfolk and Western demonstration farm at Ivor, Southampton County, as the site for the tuberculosis sanatorium for colored people. The institution will be known as the Ivor Farm Sanatorium. It is on the main line of the Norfolk and Western Railroad, and contains 226 acres of improved land, with a number of buildings.

Personal.—Dr. Charles R. Robins of the staff of the Virginia Hospital, Richmond, has announced that he will not be a candidate for reelection.——Dr. T. Edwin Baird, Norfolk, has been reappointed quarantine officer for the District of Elizabeth River for two years.——Dr. Edward L. Flanagan has been appointed whole time health officer for Greenville County.——Dr. Stuart McGuire, dean of the Medical College of Virginia, Richmond, was the principal speaker at the anniversary meeting of the William Edgar Marshall Medical Society of the Wake Forest, N. C., Medical School, April 6, and his topic was "The Discoveries That Have Put the Medical Profession on Its Present Basis."

Faculty Changes.—Dr. Robert C. Bryan, Richmond, has been elected professor of genito-urinary surgery in the Medical College of Virginia, succeeding Dr. Lewis C. Bosher, resigned.——Dr. Bryan sailed for France, April 29, for three months' service at Mrs. Harry Payne Whitney's American Hospital, Jouilly.——Dr. Frederick M. Hanes, professor of pharmacology and therapeutics, has resigned and will take up professional work at Winston-Salem.——Dr. Charles C. Haskell has been appointed professor of pharmacology, and Dr. James M. Hutcheson, professor of therapeutics.——Dr. Alfred L. Gray, professor of physiology, has been transferred to the chair of roentgenology and has been succeeded by Dr. Charles H. Lewis.——Dr. E. Guy Hopkins has been elected president of clinical pathology.

CANADA

Academy Meeting.—At the annual meeting of the Academy of Medicine, Toronto, May 4, the following officers were elected: president, Dr. Herbert A. Bruce; vice president, Dr. John Ferguson; secretary, Dr. Jabez H. Elliott, and treasurer, Dr. William A. Young.

Health Officers' Conference.—The fifth annual conference of the health officers of Ontario will be held in Toronto, May 30 and 31. Among those who are to take part in the program are: Dr. William H. Park, director of laboratories, New York, and T. Chalkley Hatton, chief engineer, sewerage commission, Milwaukee.

Personal.—Lieut.-Col. Nasmith, Ph.D., C. M. G., chief of laboratories, department of health, Toronto, analyst and sanitary officer to the first Canadian Overseas Force, will have conferred on him, by the University of Toronto, the degree of LL.D., at convocation, May 19. It will be conferred *in absentia,* as Colonel Nasmith is at present in France.——Lieut.-Col. Samuel Hanford McKee, Montreal; Lieut.-Col. Frederick Etherington, Kingston, and Maj. Evans Greenwood Davis, London, Ont., Canadian Medical Service, have been created Companions of St. Michael and St. George by King George.——Lieut. Normal S. Shenstone, Toronto, has received the appointment of assistant to Lieut.-Col. Irving H. Cameron, chief of the surgical staff of the Ontario Military Hospital, Orpington, Kent, England.

The Cubicle System.—The first annual report of the Infants' Department of the Hospital for Sick Children, Toronto, deals with the cubicle system organized in the hospital, July 1, 1914. At that time a new wing was completed with accommodation for sixty-five children under 2 years of age, and admitting all diseases of infancy excepting infectious diseases. Opening off the main corridor are glass cubicles, each accommodating two or three infants, and four large cubicles holding from six to eight children each. There is a hot room, or premature cubicle, for those too delicate to keep up their body temperature. There is also a chemical laboratory established through the generosity of a woman of Toronto. The department of infant welfare work is made the clearing house for baby welfare work for the city department of health. Scientific research is conducted in connection with the laboratories of the University of Toronto. The great majority of the cases treated are digestive. Fourteen cases of pyloric obstruction, or stenosis, have been treated with but four deaths. During the first year there were 710 cases, comprising fifty-four different diseases of childhood, with a total mortality of 40.07 per cent. When it is considered that 26 per cent. of these died in the first twenty-four hours and 33 per cent. in the first forty-eight hours after admission, the mortality is very low. The lowest mortality occurred in July and the highest in September.

GENERAL

House Passes Leprosarium Bill.—The House of Representatives, on May 5, passed house bill No. 103, an act to provide for the care and treatment of persons afflicted with leprosy and to prevent the spread of leprosy in the United States, in which it asks the concurrence of the Senate.

Plea for a National Leprosarium.—Senator Ransdell of Louisiana has sent a personal letter to every senator and representative urging them to support pending legislation providing for the establishment of a national lepers' home. The bill has been favorably reported by the Senate Committee on Public Health and National Quarantine, and is now on the Senate calendar.

Discontinuance of Guarantee Labels Postponed.—The Department of Agriculture has postponed to May 1, 1918, the date for the discontinuance of the use of the guarantee legend under the Food and Drugs Act of June 30, 1906. The postponement is made, however, only in favor of labels printed prior to May 5, 1914, when the regulations prohibiting the use of the guarantee legend were promulgated.

Indian Service Men Meet.—At the annual meeting of the trustees of the reorganized Association of the United States Indian Medical Service, the following officers were elected: president, Dr. Ralph H. Ross, Wahpeton, N. D., especial physician; vice president, Dr. Eugene W. Hill, Desmet, Idaho; secretary, Dr. Roger V. Parlett, Whiteriver, Ariz., and treasurer, Dr. Fred W. Shaw, Crozier, N. M.

Wine of Cardui Suit.—In addition to the witnesses reported in THE JOURNAL for May 6, 1916, p. 1476, the following have testified up to the time of going to press: Dr. Frank Billings, Chicago; Dr. H. L. Appleton, Gadsden, Ala.; Dr. J. W. Fennell, Landersville, Ala.; Dr. William O. Krohn, Chicago; Dr. R. L. Thomas, Cincinnati; Mr. J. E. Keeton, Tuscumbia, Ala.; Dr. W. Henry Greer, New Decatur, Ala.; Dr. Edmund W. Simmons, Summerville, S. C.; Dr. J. J. Vance, Marvel, Ala., and Dr. Torald Sollmann, Cleveland.

Railway Surgeons Elect Officers.—At the annual meeting of the Association of Railroad Chief Surgeons, held in Chicago, May 1 and 2, the following officers were elected: president, Dr. Oscar LeSeure, Michigan Central Railroad, Detroit; vice president, Dr. Daniel Z. Dunott, Western Maryland Railroad, Baltimore; secretary-treasurer, Dr. Louis J. Mitchell, Chicago (reelected). Dr. John P. Caster, Topeka, retiring president, in his address recommended the physical examination of all applicants for employment on railways as a means to promote safety of operation.

National Conference of Charities.—The National Conference of Charities and Correction will hold its annual meeting in Indianapolis, May 10 to 17. This conference will discuss such important subjects as: the police as a social force; state and municipal farm colonies for criminals; civic efforts in small communities; industrial hygiene; the relation of ill-health to crime, insanity and poverty; the Gary school plan and other matters bearing on the social efficiency of the public schools; the modern problem of alcoholism; unemployment and "Uplift" programs as they appear to the outsider.

Report of Health Officer of the Port of New York.—The recent report of the health officer of the port of New York for 1915 carries the report of the death of its author, Dr. Joseph J. O'Connell, on Jan. 1, 1916. A portrait of the late health officer is printed as a frontispiece and there is an eloquent tribute to his memory from the pen of the department secretary, Mr. John A. Heffernan.

Apart from the usual contents of the report, containing valuable information, there are published a number of important articles on questions more or less directly related to the work of the department, for example, a study of the relation of anaphylaxis to nephritis and one on the action of sodium iodoxybenzoate in promoting the production of agglutinins.

Bequests and Donations.—The following bequests and donations have recently been announced:

Episcopal Hospital, Philadelphia, $50,000, by the will of Marie S. Wilson.

New York Skin and Cancer Hospital, and New York Association for Improving the Condition of the Poor, each $50,000; the Home for Incurables, New York Institute for the Blind, and Hahnemann Hospital, each $25,000; and St. Luke's Hospital, New York, a share in the residue of her estate, by the will of Miss Martha H. Andrews.

Presbyterian Hospital, New York, $25,000, by the will of Mrs. Caroline A. Wilson.

For the establishment of a city hospital at Marshall, Mo., $100,000, by the will of John Fitzgibbons.

Presbyterian Hospital, Chicago, the income of $12,000, for the maintenance of a room for young girls; Chicago Visiting Nurses, $10,000, and United Charities of Chicago, $5,000, by the will of Mrs. Elia M. Walker.

Canadian Red Cross fund, more than $14,000, the proceeds of a concert held at the Auditorium, Chicago, April 29.

Auburn, N. Y., City Hospital, $20,000, by the will of Caroline Willard.

St. Luke's Hospital, New York, $100,000, by the will of Mrs. Ellen Stebbins Curtis James.

Assistant Epidemiologist Wanted.—The United States Civil Service Commission announces an open competitive examination for assistant epidemiologist, for men only. The position pays a salary of from $2,000 to $2,500 per annum, and vacancies will be filled from the eligible list. Graduation from medical school or college of recognized standing, or graduation in sanitary engineering from a college or university of recognized standing, and at least three years' experience in epidemiologic work and experience in laboratory technic, especially in regard to typhoid fever, are prerequisites for this examination. Applicants must be between the ages of 23 and 40, and must be citizens of the United States. Those who desire to take this examination should apply for Form 304 and special form to the United States Civil Service Commission, Washington, D. C., or to the secretary of the local United States Civil Service Board.——The commission also announces an open competitive examination for medical intern at the Government Hospital for the Insane, Washington, D. C., for men and women, the examination to be held June 7. The position pays $900 per annum and maintenance, and is tenable for one year. Applicants must be unmarried, more than 20 years of age, and citizens of the United States. They must be graduates of reputable medical colleges or senior students in such institutions, and those who meet these requirements and desire to take this examination should apply for Form 1312, stating the title of the examination desired, to the United States Civil Service Commission, Washington, D. C., or the secretary of the local United States Civil Service Board.

Standardization of Milk and Milk Products.—Representatives of creamery interests throughout the United States, and the food commissioners of several states, conferred with representatives of the Bureau of Animal Industry, Department of Agriculture, at Washington, D. C., May 4, with reference to the publication of the results of certain investigations that that bureau had made into the condition of a considerable number of creameries. A progress report was made while the investigation was under way, which on its face showed very unsatisfactory conditions in the creameries visited; and this report, it was said, had been seized on by the oleomargarin interests for the exploitation of their own wares at the expense of creamery products generally. On behalf of the creamery men it was contended that the report conveyed an erroneous impression, prejudicial to them, and it was urged that action be taken to counteract the alleged harm and to prevent the issue hereafter of harmful reports, unless well founded. No definite conclusion or plan of action was formulated. On the two days following the conference of the creamery interests and food commissioners with the Bureau of Animal Industry, the milk producers and other dairy interests of the United States held a convention "to develop uniform practical regulations governing the production and care of dairy products." The standardization of conditions under which milk and cream are handled, pasteurization in the dairy industry, constructive dairy inspection, standards for butter, and the legal regulation of the dairy industry were discussed. Resolutions were adopted to bring about closer relations between the Department of Agriculture and the various dairy interests of the country. A committee was appointed to discuss with the secretary of agriculture the future relations of the Department of Agriculture with dairy interests and prospective legislation liable to affect those interests. A permanent organization was effected, with Mr. M. D. Munn, president of the American Jersey Association and the National Dairy Council, as chairman, and W. T. Creasy, secretary of the National Dairy Union, as secretary.——The Bureau of Chemistry, Department of Agriculture, also has the matter of milk standards actively under consideration, and has announced a hearing in New York, May 9 and 10, by the Joint Commission on Definitions and Standards, for the discussion of standards for milk, cream, condensed milk, and other milk products. This hearing is for the convenience of persons in the New England and other states adjacent to New York. Hearings for the convenience of persons residing in other parts of the country are to be held in the near future.

FOREIGN

Deaths in the Profession Abroad.—H. Hirschsprung, formerly privat-docent of pediatrics at the University of Copenhagen, aged 85.——A. Wolff, professor of dermatology at the University of Strassburg, aged 66.

Age Limit Reduced for Wage Earners' Insurance in Germany.—The age limit has been reduced to 65, so that now the old age pension becomes available at 65, whether the recipient is incapacitated or not. The orphan pension has also been increased, the first orphan receiving $\frac{3}{20}$ and each additional orphan $\frac{1}{20}$, instead of $\frac{1}{40}$ as heretofore, of the parent's invalid pay.

Diploma Factory in Brazil.—Dr. E. L. Lekert, secretary of the Louisiana State Board of Medical Examiners, reports that he has refused to recognize a diploma from the Instituto Nacional de Sciencias, Department de Sciencias Medicas of Brazil of which a "Dr. F. Lawrence" is given as the director. This action was taken after word had been obtained from Brazil, through the New York Education Department, that the institution named was "merely an office to sell diplomas which are not legalized."

Personal.—Dr. Cora Kipp, formerly of Mineral, Ill., who has been a missionary in Bareilly and Brindaban, India, since 1910, has returned for a vacation.——Dr. Paul Wilburforce Harrison, formerly of Nebraska, but for five years a medical missionary at Bahreim, Arabia, under the auspices of the Dutch Reformed Church of America, is at present on a furlough in the United States and delivered an address at Grinnell, Iowa, April 24. Dr. Harrison expects to take a trip through a hitherto unexplored portion of Arabia on his return to his work in July next.

Working Day Begins an Hour Earlier in Germany.—According to a Berlin exchange, the authorities ordered all the clocks in Germany advanced one hour in the night of April 30, so that May 1 began at 11 p. m. instead of at midnight. The clocks are to be changed back again September 30, so that October 1 will not begin until an hour after midnight, September 30. The setting the day forward an hour during the summer reduces the number of hours in the evening for which artificial light is required. Estimating the saving at 1 pfennig per capita throughout Germany during the summer six months, this represents a saving of about $23,000,000, in addition to the hygienic benefit of another hour of sunlight. The war conditions have rendered the change possible without friction as international time-tables do not have to be considered.

WAR NOTES

New Hospital Unit.—St. Francis Xavier University, Antigonish, Nova Scotia, has formed a hospital unit which is now preparing to go to the front. It consists of twelve surgeons, twenty-seven nurses and 120 men. The unit will be under the command of Col. Dr. Roderick C. McLeod.

Red Cross Shipments.—Between Sept. 7, 1914, and April 1, 1916, there had been shipped by the American Red Cross to Armenia, Haiti, Mexico, Poland and Syria, 387 packages of supplies valued at $15,370.59, and there were at that date on hand, for Poland, 138 packages valued at $11,556.40, and thirty-one packages, valued at $1,475, held in reserve for the United States.

Scarcity of Physicians in Poland.—Our Munich exchange relates that an official report states that sixty-four different localities in Poland have no physician, and that the total throughout averages only one physician to each 40,000 persons. The German authorities offer free lodging and certain perquisites to physicians who will go there, and they guarantee financial support up to $50 a month when needed.

What the Red Cross Has Done.—Between Sept. 7, 1914, and April 1, 1916, the American Red Cross has made 169 shipments to the allied powers made up of 29,287 packages of a total value of $790,070.25, and in addition 3,096 cases of supplies valued at $123,876.35 were purchased by the American Red Cross for the French government and shipped to France. To the central powers were shipped, in the same period, thirty-four shipments consisting of 5,372 packages of a total value of $248,521.32. In addition there were purchased and shipped to the Austrian Red Cross, Vienna, thirty-four cases of antitoxin valued at $131,986.50, and to the German Red Cross, Berlin, thirty-four cases of antitoxin valued at $229,595.60. These supplies were paid for by the Austrian and German Red Cross, respectively. There were in the hands of the American Red Cross on April 1, for the allied powers, 1,048 pakages, valued at $41,549.86, and, for the central powers, 569 packages, valued at $2,793.96.

PARIS LETTER

PARIS, April 13, 1916.

The War

LECTURES IN THE CENTERS FOR SPECIALIZED SERVICES

In view of the extension of the specialized services and the small number of physicians qualified to assure their operation, the undersecretary for the military medical service thought it desirable to have given at each regional center a series of lectures by the principal specialists attached to the service. In the eighth region a course of twelve lectures was given within a short space of time, four or five days. It seems to meet this need in a practical manner.

COMMITTEE OF ASSISTANCE FOR TUBERCULOUS SOLDIERS

The committee for assistance for tuberculous soldiers has just been organized under the presidency of M. Léon Bourgeois. The officers include Drs. Landouzy and Debove, dean and professor, respectively, in the Faculté de médecine de Paris, vice-presidents, and Professor Letulle, secretary general.

ANTITYPHOID VACCINATION

The laboratory of antityphoid vaccinotherapy of the Ecole d' application de médecine et pharmacie militaires de Val-de-Grâce has just manufactured its 100,000th liter of vaccine. This remarkable figure is explained by the fact that the laboratory has not only furnished antityphoid and paratyphoid vaccine for the French army and civil population of France, but has also sent considerable amounts to the colonies, to Russia, Italy, to Belgium, to Greece and to Serbia.

HYGIENE AT THE FRONT

The undersecretary for the medical service has just put into operation a douche bath and disinfection system offered by the Russian government to the French army. It comprises six immense tents and twelve automobile trucks capable of transporting the entire outfit at once to any point whatever at the front. The disinfection of clothing and the destruction of parasites is done while the men are going through the douche. Four tents out of the six which make up the outfit are devoted to this daily operation. Set up in the form of a quadrilateral, they are grouped around a boiler which distributes heat and water according to the requirements. The first tent contains closets for all the articles which cannot sustain a higher temperature than 50 C. (122 F.) without being spoiled, that is, leather vests, caps, belts, etc. These are the first objects which the soldier takes off. After having attached to his wrist a numeral, the soldier passes into a second tent to undress. He finds there, arranged on numbered benches, two cloth sacks. He places in one of these his papers and personal belongings, in the other his clothing; these sacks bear the same number as that given to him on entry; this will enable him to find his complete equipment on issuing from the third tent, which is the douche room, with twenty-five spray heads and floored with slats. In the last tent the men dress themselves, their clothing having meanwhile been disinfected by the boiler at a temperature of 115 C. (239 F.). This installation can treat more than 1,000 men a day, 150 at a time.

FRAUD IN REGARD TO THE CHARACTER OF PRODUCTS FOR USE OF SOLDIERS

The firm of Potel and Chabot, during 1915, manufactured meat pastilles for the soldiers in the field, the advantages of which, they said, were as follows:

> The strength of our meat juice is such that 8 of these pastilles represent the nutritive value of 400 gm. of pure meat or the daily nourishment of a man. . . . Our box of 24 pastilles represents, in its small compass, a reserve of provisions for three days. For the soldier in the field, therefore, it is the indispensable aid which will sustain his strength during days of great fatigue, and in certain cases, may save his life.

The box of twenty-four pastilles is sold for 4.50 francs (about 90 cents); the box of twelve pastilles for 2.50 francs (about 50 cents).

One of the members of the firm has just been prosecuted for fraud, and was fined 1,000 francs (about $200) on the ground that this meat juice is incapable of sustaining life, is no more stimulant than the usual commercial extract of beef, and represents in nutritive value about its own weight of fresh meat, so that eight pastilles, weighing 20 gm., represents 20 gm. of fresh meat and not 400 gm. as the advertising indicates; present conditions, moreover, in which the neediest family is ready to make sacrifices for the health of some dear one in the army, render particularly reprehensible the false claims that a product sold at an exorbitant

price is capable of saving the life of a soldier under critical circumstances.

TREATMENT OF THORACIC WOUNDS IN MILITARY SURGERY

The Réunion médico-chirurgicale de la V-e armée devoted two recent sessions to an interesting discussion of the treatment of thoracic wounds. According to Dr. Maisonnet, there are three kinds of symptoms to be considered in particular: (1) symptoms of serious asphyxia, which are rarely observed, being due to extensive lesions that indicate a rapidly fatal outcome; on the contrary, dyspneic symptoms which improve rapidly under treatment are frequently seen; (2) hemorrhages; hemoptysis is observed in 6 per cent. of the cases; hemothorax is always more or less frequent; parietal hemorrhages are rare; (3) symptoms of infection which are produced either by the projectile or by additional lesions. Bullets and fragments of shell of great velocity do not carry much infection. Fragments of shell which remain in the thorax generally become encysted and produce infectious complications in 8 per cent. of cases; fractures of the ribs are very frequent, being found generally at the orifice of exit. The presence of respiratory difficulties or hemorrhages calls for appropriate treatment. It is necessary, above all, to insure absolute immobilization. Morphin quiets the dyspnea. The hemostatic vasoconstrictors (ergotin and emetin) find regular employment here. This treatment should begin at the first aid post, at which rest rooms should be provided. The patient ought not to be transported in an ambulance until after the disappearance of the shock. Ether and caffein should not be used lest they increase shock. Better results are obtained with camphorated oil and with serum given subcutaneously up to the dose of a liter a day in two or three doses. In cases of progressive hemothorax, puncture is absolutely contraindicated. In a few cases of fixed hemothorax, puncture should be employed during the first days, but only when necessitated by the presence of compression. It is without danger from the eighth to the tenth day and should be employed with a very slow withdrawal of the fluid. Surgical treatment includes complete disinfection, enlargement of the orifice, and daily renewal of the dressings. Infectious complications occur from the eighth to the twelfth day, and, therefore, evacuation should be performed toward the seventh day in thoracic bullet wounds, but not before the fifteenth day in wounds made by fragments of shell.

Dr. Fuster believes that thoracic wounds are benign in comparison with abdominal wounds. The patient cannot be immobilized and allowed to rest in the first aid posts. This should be done in the ambulances operating at a very short distance from the front. The treatment should be medical chiefly. The systematic use of emetin hydrochlorid in doses of from 0.03 to 0.04 gm. per day for eight days has given good results.

Dr. Picqué, surgeon of the hospitals of Paris, says that nothing seems less surgical at first view than thoracic wounds from projectiles in war. In serious cases, the patients die at the first aid posts, or soon after they are placed in ambulances. Necropsy shows that, in all cases, there are large lacerations in the lungs, or bilateral perforations complicated by pericardiac or vertebral lesions, or perforations involving both the thorax and abdomen and complicated by lesions of the liver, stomach, spleen or the kidneys. In a certain number of benign cases, recovery takes place without clearly defined pleuropulmonary signs or after spontaneous regression following a slight effusion. The most numerous cases are those of complete perforation by bullet wounds or incomplete perforation by fragments of shell complicated by a moderate hemopneumothorax. The treatment, according to the degree of injury and the stage, is either puncture or pleurotomy. Is it better to refrain from operating until the liquid withdrawn by puncture shows macroscopic signs of purulence? Or is it preferable to employ pleurotomy systematically in all cases of hemothorax? Both these rules are too sweeping. Careful medical observations and cytologic study of the effusions make it possible to diagnose the condition early and to avoid useless thoracotomy. In forty-eight cases of hemothorax observed by Picqué, recovery occurred in thirty-one in which repeated puncture alone was employed; only seventeen required pleurotomy. Pleurotomy is merely a palliative operation for the improvement of the pleural complication. Cicatrization in favorable cases occurs in a few weeks. In all cases, in spite of the most scrupulous care, recovery never occurs with the same regularity as in cases of other wounds of other regions. Intermittent febrile reactions often occur, being probably due to infection of the pulmonary parenchyma or to localized infection. The extraction of projectiles which are poorly tolerated by the lung and susceptible of producing fatal septicemia should enter into the surgical treatment of thoracic wounds.

APPARATUS FOR MUSCULAR PROSTHESIS IN PARALYSIS CAUSED BY SECTION OF THE NERVE

Dr. Cunéo of the Faculté de médecine de Paris, at a recent session of the Société de chirurgie de Paris, read a paper on apparatus for remedying paralysis caused by section of the nerve. These forms of apparatus may be divided into two groups, those intended for permanent, and those for temporary prosthesis. The first are designed to replace the action of one or several muscles. They should not only correct the attitude of the paralyzed limb, but also restore as nearly as possible the normal function. Such apparatus should be light in weight, convenient and not unpleasing in appearance; skilled workmen are required for their construction. Such apparatus, however, should be prescribed only as a *pis aller* and should be reserved for the cases in which operation cannot reestablish the natural function. The devices for temporary prosthesis are intended to prevent or correct the wrong attitudes and deformities which can be definitely cured only by the anatomic or physiologic restoration of the injured organs. The importance of these devices for temporary prosthesis cannot be too strongly emphasized. The unsatisfactory results from operation for compression or section of the nerves are due in great part to secondary deformities, and Cunéo maintains that the use of devices to correct or prevent these deformities not only obviates the necessity for secondary operation, but also greatly hastens the return of voluntary movement. The employment of such temporary prosthetic devices should be more general. It is therefore important that a type of apparatus which does not require especially skilled workmen for its manufacture should be devised. In collaboration with M. Rolland, Cunéo has attempted to devise a type of apparatus which can be constructed by any one, anywhere, and, it might almost be said, from anything, since the material consists merely of plaster strips, iron wire and rubber tubes. Being intended in the first place for the prevention of deformities, these devices are not constructed to permit the use of the limb under treatment. They are, on the other hand, devised to bring the muscles into play as far as possible, which is very important. Cunéo has been led to give his attention especially to deformities due to paralyses of the nerves of the arm. His devices for this purpose consist essentially of an immovable plaster splint applied usually to the palmar surface of the forearm and bearing straight or curved pieces of strong iron wire; to the wire arches are attached tractors composed of tubing, bringing action to bear on the osseous levers through intermediary carefully padded metallic disks.

The wires produce various attitudes of the limb at the surgeon's pleasure, permitting a modification of the direction of the traction and adaptation of apparatus to each case. These devices have produced remarkable results even in deformities which have been in existence for several months. Cunéo has obtained complete rectification in certain cases of contracted joints. It is essential, however, to apply the traction only with greatest slowness. Just as dentists by slow but constant application of elastic traction have succeeded in modifying the form of the dental arches and alveolar cavities, so the very slight traction of these devices gradually produces a lengthening of the fibrotendinous parts and even affects the articular deformities when these are not too greatly accentuated. It is necessary that the elastic traction reproduce the suppressed muscular force. Cunéo believes that, contrary to what was thought at first, it is easier to produce this result by traction made more or less perpendicular to the osseous levers than by traction parallel to the latter.

Election of Two Foreign Associates to the Academy of Medicine

The Académie de médecine has just elected two foreign associates, Prof. Hector Treub of Amsterdam, and Sir Almroth Wright of London.

Death of Dr. Théodore Guilloz

Dr Théodore Guilloz, member of the central service of roentgenography of the twentieth and twenty-first regions and adjunct professor of the clinic of electrotherapy in the Faculté de médecine de Nancy, has just died. He had for a long time specialized in roentgenography, and had been affected by Roentgen-ray dermatitis which compelled the amputation of several fingers.

LONDON LETTER

LONDON, April 17, 1916.

The War

SPECIAL HOSPITAL FOR THE STUDY AND TREATMENT OF "SOLDIER'S HEART"

Since the beginning of the war a large number of soldiers have been invalided home on account of the condition known as "soldier's heart." It was a serious scourge during the American Civil War, and aroused so much attention then that a special hospital was opened in Philadelphia for its study. When the condition showed itself in the present war, the War Office called the Medical Research Committee of the national insurance act to assist it in opening an investigation. The work was entrusted to Sir James Mackenzie. The government has decided to establish at Hampstead a special hospital for the treatment of these cases. The staff includes the leading heart specialists—Sir Clifford Allbutt, Sir William Osler, Sir James Mackenzie and Dr. Thomas Lewis. The hospital is thoroughly equipped. One room is set apart as a bacteriologic laboratory, another room is devoted to the electrocardiograph, another to the orthodiagraph, and another to the Roentgen rays.

THE WITTENBERG CAMP

The publication of the official report on the Wittenberg camp has caused a profound sensation throughout the country. The report is principally based on the evidence of repatriated army surgeons—Major Priestley, Captain Vidal and Captain Lauder. They are the survivors of six British army surgeons sent by the German authorities to take up the medical service in this camp of war prisoners when typhus manifested itself. The area of the camp is about 10½ acres, in which there were 17,000 prisoners, of whom the majority were Russians. In the severe winter both heating arrangements and clothing were deficient so that every window was kept shut to husband what little warmth there was. The food is reported as bad and insufficient. The report states that no precautions were taken to free the Russian prisoners from lice on their arrival at the camp, and for personal cleanliness all that was available was a cupful of soft soap issued at intervals of weeks to a room containing at least 120 men. When typhus broke out among the Russians, Captain Vidal asked that the healthy British, who numbered from 700 to 800, should be placed in a separate compound, but this was refused. The report states that when the disease became epidemic, the German staff left the camp precipitately and that with but few exceptions from this time on all communication between the prisoners and their guards was indirect. Food and supplies were passed into the camps by chutes and trolley. The conditions are described as insanitary, with no arrangements for the separation of those infected from those not yet infected. Three of the British medical officers contracted the disease and died. No covering was provided for patients while their outer clothing was being disinfected. The committee stated in the report that no soap was obtainable until a supply was secured from England by Captain Vidal's efforts. There were numerous cases of posttyphus gangrene.

Cultivation of Medicinal Herbs

Mr. E. N. Holmes, curator of the Pharmaceutical Society's Museum, gave a lecture on the cultivation of medicinal herbs in Great Britain. He said that hitherto we had depended mainly on Germany and Austria for our supply of medicinal herbs, and it was difficult to understand why there should be any necessity to import herbs that grew wild in this country. For instance, it seemed absurd to import coltsfoot by the ton when every clayey railway bank or heavy waste-ground was covered with the plant. In Germany children were taught to recognize and collect medicinal herbs that grew near their homes; these were dried in small quantities in sheds or attics, and probably finished off in farmhouse bread ovens after the removal of the bread. In the absence of any system of collection in this country, vast quantities of valuable herbs were left to waste. We could become independent of Germany for our supplies of two valuable drugs—belladonna and foxglove. Belladonna was found in twenty-eight British counties. An enormous increase in the yield could be obtained if the head gardeners on estates where it grew wild were instructed to distribute, in April, all seedling plants to other positions in the same woods, since the seedlings were often too crowded. If this were done and the plants cut at the proper time and sold to the agents of wholesale drug firms, there would be no need to import belladonna, and it was quite possible that there would be a sufficient supply even for export to those of our dominions where the climate and local conditions prevented its successful culture. With regard to foxglove, there was an enormous quantity growing wild in damp, hilly woods in this country, and if large landowners whose soil was silicious would give instructions to their head gardeners to plant out the young plants or scatter the seed in autumn in fresh localities, there would be no necessity to import foxglove from the continent.

Rheumatism as an "Accident"

The wide interpretation given to the term "accident" under the workmen's compensation act has been illustrated in previous letters to THE JOURNAL. By a decision of the House of Lords, the highest court of appeal in this country, rheumatism has been brought within the category. The case was an appeal from the Second Court of Session in Scotland. A miner was employed as a brusher at a colliery. Oct. 23, 1914, the water pump broke down and a large quantity of water accumulated in the pit bottom. Work was suspended, and five days later he was directed to go down the pit. He went down in the belief that he was going to do his ordinary work as a brusher, but on reaching the pit bottom he was told off to bale the water. On this work he was engaged up to his chest in water for eight hours. During the next day or two he felt great stiffness and cold and pains in his joints, but continued to work till the morning of November 2. November 3, he consulted a physician who found that he was suffering from subacute rheumatism. Jan. 26, 1915, he returned to work, but was unable to earn his full wages, and his incapacity did not wholly cease until March 2, 1915. During the whole of this time he was suffering from rheumatism caused by the extreme damp and exposure to which he had been subjected. The sheriff substitute had found that this was an injury caused by accident "arising out of and in the course" of the man's employment, and made an award in his favor. Viscount Haldane said that the question was whether, on the foregoing facts, the event could be, in point of law, an accident within the meaning of the act. He thought that had the man died suddenly while so exposed there could be no doubt that this would have given a title to his dependents to claims on the footing of injury from accident, and he was unable to see why a claim in respect of a less serious mishap should be excluded by the circumstance that the miscalculated action of entering the water took time to produce its consequence. In his judgment, the miscalculated action of entering the water must be taken to have constituted a definite event which culminated in rheumatic affection and to have imported into that event the character of an accident within the meaning of the act. The other lords concurred, and the appeal was dismissed.

State-Aided Treatment of Venereal Diseases

Mr. Long, president of the Local Government Board, received a deputation from the National Council for Combating Venereal Diseases, which presented a petition urging the importance of giving effect to the recommendations of the Royal Commission on Venereal Diseases (THE JOURNAL, April 1, 1916, p. 1038), particularly as regards the provision of adequate facilities for diagnosis and treatment. Mr. Long congratulated the commission on the successful conclusion of their labors, and assured the deputation that so far as he and the department were concerned, they were pushing an open door. The government was prepared to provide the necessary grant to carry out the recommendations of the royal commission with regard to the provision of facilities for diagnosis and treatment. These grants would cover 75 per cent. of the cost incurred by local authorities. It was not proposed to create special hospitals for the treatment of venereal diseases, as it was felt that treatment could be carried out more efficiently and with less danger of prejudice at the existing general hospitals. Mr. Long welcomed an assurance given by the bishop of Southwark that the movement would receive the full support of the religious and social organizations of the country. Mr. Long's announcement gives effect to the most immediate and practical recommendation contained in the report of the royal commission. Of the major recommendations this is the only one practicable through departmental action only. The others—such as confidential registration of causes of death, legal protection for physicians in making certain confidential communications, and the making of venereal disease an inacapacity for marriage would, of course, require legislation.

Marriages

CORNELIUS DEWEESE, M.D., Washington, D. C., and Laurel, Md., to Miss Bessie Anna Munnikhuysen at Baltimore, April 26.

ERNEST HAROLD KING, M.D., Middletown, Conn., to Miss Leola Nelson of Harrington, Del., at Baltimore, May 1.

JAMES MATTHEW DOBBINS, M.D., Long Island City, N. Y., to Miss Margaret Walton of Kingston, N. Y., April 26.

RALPH VINCENT ALLEN, M.D., Canandaigua, N. Y., to Miss Lulu Mae Wood of Cattaraugus, N. Y., April 23.

THADDEUS D. SMITH, M.D., Neenah, Wis., to Miss Frederica Krueger of Kew Gardens, L. I., N. Y., April 29.

THOMAS VINCENT UNIAC, M.D., to Miss Anna I. McGlynn, both of Lawrence, Mass., April 26.

FRANCIS ALOYSIUS CREGG, M.D., to Miss Emily G. Burke, both of Lawrence, Mass., April 27.

OSCAR G. FISCHER, M.D., to Miss Charlotte Louise Ferguson, both of Chicago, April 24.

THOMAS HEINRICH RUSSELL, M.D., to Miss Amelia Randall, both of New York City, April 26.

Deaths

Charles Augustus Wheaton, M.D., St. Paul; Harvard Medical School, 1877; aged 62; for many years one of the most prominent surgeons of the northwest; professor of clinical medicine, later professor of surgery and emeritus professor of surgery in the University of Minnesota; for many years a Fellow of the American Medical Association and a member of the American Association of Obstetricians and Gynecologists; Mississippi Valley Medical Association and National Association of Railway Surgeons; consulting surgeon to the legal departments of the Northern Pacific and Great Northern system; at one time surgeon-general of Minnesota and a member of the police board of St. Paul; who was obliged to retire from active practice eight years ago on account of ill health; died in St. Joseph's Hospital, April 29.

Samuel Franklin Coues, M.D., Rear Admiral, U. S. Navy (retired); died at his home in Cambridge, Mass., May 1, aged 90. Admiral Coues was born in Portsmouth, N. H., Sept. 17, 1825; was graduated from Harvard University in 1845, and from Jefferson Medical College in 1849; he entered the navy as assistant surgeon in 1851; ten years later he was made surgeon, served throughout the Civil War, was promoted to medical director, Aug. 15, 1876, and was retired, Sept. 17, 1887, on attaining the age of 62 years, with the rank of next higher grade to that held on active list. He served as president of the Naval Academy Board of Philadelphia from 1884 to 1887 and his last duty was that of commander of the Naval Hospital, Chelsea, Mass. Since his retirement, Admiral Coues had made his residence in Cambridge.

Charles William Peck, M.D., Brandon, Vt.; Long Island College Hospital, Brooklyn, 1866; aged 75; a Fellow of the American Medical Association; president of the Vermont State Medical Society in 1909, and once president of the Rutland County Medical Society; a member of the New York and New England Association of Railway Surgeons; a veteran of the Civil War; representative from Brandon in the state legislature of 1902; first health officer of Brandon and continuously in that position until 1914, when he was obliged to resign on account of ill health; died at his home, April 21.

Lewis D. Dunn, M.D., Moline, Ill.; Rush Medical College, 1857; aged 81; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; for many years surgeon of the local ship's crew of the Illinois Naval Militia, with service during the Spanish-American War; for forty years local surgeon of the Rock Island System; formerly president of the Illinois State Board of Health; president of the Moline Library Board for many years and for eight years a member of the common council of Moline; died at his home, April 25, from cerebral hemorrhage.

Samuel Max Brickner, M.D., Saranac Lake, N. Y.; College of Physicians and Surgeons in the City of New York, 1891; aged 48; a Fellow of the American Medical Association, American Gynecological Society and American Association of Anatomists; a well known gynecologist of New York; for several years associate editor of the *New York Medical Journal,* and for the last two years editor of the *Medical Pickwick;* formerly adjunct attending gynecologist to Mt. Sinai Hospital, New York City; and gynecologist to Mt. Sinai Hospital Dispensary; died at Saranac Lake, N. Y., May 5.

David Fisher Atwater, M.D., Springfield, Mass.; Yale University, New Haven, Conn., 1839; Medical Institution of Yale College, 1842; aged 98; said to have been the oldest alumnus of Yale; delegate from the Medical Society of the County of Kings, New York, in 1847 to the convention which became the American Medical Association; at one time city physician of Brooklyn, and a member of the board of aldermen; surgeon of the Sixty-Fourth Regiment, New York State Infantry, before the Civil War; died at his home, May 2.

John Rice Fletcher, M.D., Chicago and Winnetka, Ill.; College of Physicians and Surgeons, Baltimore, 1891; aged 51; formerly a Fellow of the American Medical Association; a member of the American Academy of Ophthalmology and Oto-Laryngology, and American Otological Society and once president of the Chicago Laryngological and Otological Society; professor of diseases of the ear, nose and throat in the Chicago Post-Graduate School; died at his home in Winnetka, April 28, from pneumonia.

Edward Ownings Guerrant, M.D., Wilmore, Ky.; Bellevue Hospital Medical College, 1867; aged 78; a practitioner of Mt. Sterling, Ky., from 1867 to 1873; a Confederate veteran; since 1876 a clergyman of the Presbyterian Church; D.D., Austin College, Sherman, Texas; for nearly twenty years president of the American Inland Mission and editor of the *Soul Winner;* died at Douglas, Ga., April 26, from diabetes.

Albert McMichael, M.D., Detroit; Eclectic Medical College of Pennsylvania, Philadelphia, 1878; aged 55; a member of the Michigan State Medical Society; for three terms president of the Board of Education of Detroit; a member of the staff of Grace Hospital; died in that institution, April 28, from septicemia associated with nephritis.

Alvan Felch Bucknam, M.D., Warren, Ill.; Medical School of Maine, Brunswick, 1864; aged 78; formerly a Fellow of the American Medical Association; assistant surgeon of the Second Massachusetts Volunteer Cavalry during the Civil War; said to have been the oldest practitioner of Jo Daviess County; died at his home, May 4.

Charles Prottsman Bowden, M.D., Appleton City, Mo.; Jefferson Medical College, 1891; aged 49; a member of the Missouri State Medical Association and one of the board of managers of State Hospital No. 3, Nevada; was instantly killed, April 19, by the collapse of a barn in which he had taken refuge from a tornado.

Loren Russell Bryan, M.D., Union, Ore.; University Medical College, Kansas City, Mo., 1913; aged 28; formerly a member of the Oregon State Medical Association and an intern in the Good Samaritan Hospital, Portland; died in a hospital in LaGrande, Ore., April 19, after an operation for appendicitis.

Paul Duncan McMillan, M.D., Chicago; Washington University, 1905; aged 38; a member of the medical staff of Cook County Infirmary, Oak Forest, Ill.; who was operated on for removal of the spleen a year ago, on account of Banti's disease; died in the Cook County Infirmary, May 4, from intestinal hemorrhage.

Theophile Joseph Ellinger, M.D., Philadelphia; University of Pennsylvania, Philadelphia, 1879; aged 59; a Fellow of the American Medical Association; for ten years a police surgeon of Philadelphia; died suddenly from heart disease while making a professional call in Philadelphia, April 29.

Charles W. Enos, M.D., Denver, Colo.; Homeopathic Medical College of Missouri, St. Louis, 1874; aged 66; president and professor of materia medica in the Denver Homeopathic Medical College from 1897 to 1907; died in the Park Avenue Hospital, Denver, April 20, from phlegmonous laryngitis.

Theodore D. Brooks, M.D., Piqua, Ohio; Medical College of Ohio, Cincinnati, 1864; aged 74; surgeon of the Thirty-Eighth Ohio Volunteer Infantry during the Civil War; for two years principal of the Bellefontaine (Ohio) High School; died at his home, April 24, from heart disease.

William Bernard Murphy, M.D., Minneapolis; Hamline University, Minneapolis, 1897; aged 44; a Fellow of the American Medical Association; formerly druggist at the Minneapolis City Hospital and later a member of the staff of the institution; died at his home, April 24, from lobar pneumonia.

Charles Augustus Fernald, M.D., Boston, Mass.; Harvard Medical School, 1872; aged 68; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; died at his home, March 15, from cerebral hemorrhage.

Earl Henry Trezona, M.D., Gibson City, Ill.; Hahnemann Medical College, Chicago, 1911; aged 29; while driving over a grade crossing of the Wabash Railroad at Garber, Ill., in his automobile, April 30, was struck by a train and instantly killed.

John A. Barr, M.D., Fountain Green, Ill.; College of Physicians and Surgeons, Keokuk, Ia., 1875; Jefferson Medical College, 1877; aged 68; coroner of Hancock County, Ill., for two terms; died at his home, April 20, from tuberculosis.

Buford Wayne Young, M.D., Hinton, W. Va.; Medical College of Virginia, Richmond, 1907; aged 30; a member of the staff of the Bigony Hospital, Hinton; died in the Hinton Hospital, April 14, after an operation for appendicitis.

James P. Rhea, M.D., Emmett, Tenn.; Chattanooga, Tenn., Medical College, 1902; aged 44; while delirious, jumped from the upper story of the Salvation Army Home, Bristol, waded Beaver Creek and died from exposure, April 27.

Mary Catherine Buell, M.D., Cumberland, Md.; University of Minnesota, Minneapolis, 1897; aged 59; formerly a Fellow of the American Medical Association; died February 8, from intestinal obstruction following colectomy.

Bertan Henry Wheeler, M.D., Kansas City, Mo.; Kansas City (Mo.) Medical College, 1894; aged 44; a Fellow of the American Medical Association; formerly coroner of Jackson County, Mo.; died at his home, April 27.

John Ross Hinde, M.D., Los Angeles; Rush Medical College, 1902; aged 40; formerly a Fellow of the American Medical Association and a practitioner of Lewistown, Ill.; died in Los Angeles, about April 21.

Charlie Andy Fowler, M.D., Supply, Ark.; University of Arkansas, Little Rock, 1910; aged 32; a member of the Arkansas Medical Society; died about April 17, after an operation for appendicitis.

James J. Wall, M.D., Mallet Creek, Ohio; Cincinnati College of Medicine and Surgery, 1876; aged 66; a member of the Ohio State Medical Association; died at his home, April 24.

Theodore Koeberle, M.D., Eagle Rock (Los Angeles), Calif.; Medical College of Georgia, Augusta, 1885; aged 78; died at the home of his daughter in Eagle Rock, Calif., April 23.

Charles Edward Weidman, M.D., Cresbard, S. D.; Albany (N. Y.) Medical College, 1895; aged 45; a Fellow of the American Medical Association; died at his home, about April 21.

Vincent S. Vestal, M.D., Van Buren, Ark.; Northwestern Medical College, St. Joseph, Mo., 1881; aged 65; also a druggist; died at his home near Dripping Springs, Ark., April 23.

Samuel Henry, M.D., Camp Point, Ill.; New York Medical College, New York City, 1853; aged 89; for sixty-two years a practitioner of Camp Point; died at his home, April 14.

Francis Talbot Chadwick, M.D., Asbury Park, N. J.; New York University, New York City, 1864; aged 72; also a druggist; died at his home, April 24, from acute gastritis.

Charles Henry Mitchell, M.D., Lynn, Mass.; College of Physicians and Surgeons, Boston, 1893; aged 69; died at the Lynn City Home, March 2, from angina pectoris.

James Simpson Niven, M.D., London, Ont.; University of Dublin, Ireland, 1870; L.R.C.P., Ireland, 1871; aged 68; died at his home, January 25, from pleuropneumonia.

Harry Robert Frank, M.D., Brantford, Ont.; Trinity Medical College, Toronto, 1894; aged 45; died at his home, January 31, from erysipelas following an injury.

Edwin E. James, M.D., Cascade, Mont.; University of Pennsylvania, Philadelphia, 1875; aged 65; died at his home April 1, from cerebral thrombosis.

Elisha Wilbur Sweet, Worcester, Mass. (license, Massachusetts, years of practice); aged 70; a veteran of the Civil War; died at his home, April 23.

Isaac Hansen Bowers, M.D., Indianapolis; Pulte Medical College, Cincinnati, 1896; aged 54; died at his home April 16, from heart disease.

George M. Bassett, Vandalia, Ill.; (license, Illinois, years of practice, 1878); aged 66; died at his home, April 14, from bronchopneumonia.

Association News

THE DETROIT SESSION

Special Train from Philadelphia — Additional Banquets and Smokers

PHILADELPHIA SPECIAL TO THE DETROIT SESSION

The *Weekly Roster* of the Philadelphia County Medical Society announces that Philadelphia physicians and their friends plan to leave Philadelphia, using the "Pennsylvania Limited," leaving from the Broad Street Station at 1:12 p. m., Sunday, June 11, arriving in Detroit early in the morning of the 12th. Arrangements have been made for a special round trip ticket which will be on sale and good going June 10, 11 and 12, returning to the original starting point not later than June 20. The fare from Philadelphia will be $23.80 and the return trip will be over the same route as the one going. Only tickets having Detroit as the destination will be honored on this train, without extra fare. Pullman fares are: drawing room, $13; compartment, $10; lower berth, $3.50; upper berth, $2.80. If the number should warrant it, a special train will be operated as a section of the "Pennsylvania Limited," and the committee of which Dr. James M. Anders, 1605 Walnut Street, Philadelphia, is chairman desires to learn of those who plan to use this train.

MEDICAL COLLEGE REUNIONS

In addition to the reunions announced in THE JOURNAL, May 6, the following have been scheduled for the evening of Tuesday, June 13. The smokers will be held at 8 o'clock, while the more formal dinners will be at an earlier hour.

The Detroit College of Medicine and Surgery will have a smoker at the Hotel Statler for which tickets may be obtained by addressing Dr. A. E. Catherwood, David Whitney Building, Detroit, or Dr. H. F. Dibble, Woodward Avenue, Detroit. The price of these tickets is $1.50.

The Western Reserve University School of Medicine will hold a banquet in the Silver Room of the Hotel Griswold. The tickets are $2 per plate and may be obtained by addressing Dr. H. K. Shawan, 1001 David Whitney Building, Detroit.

There will be a banquet for the women physicians who attend the Detroit session, given at the Hotel Statler. Tickets may be obtained by addressing Dr. Grace Clarke, Gladwin Building, Detroit.

The University of Michigan Alumni will hold an informal buffet smoker at the Hotel Statler. Those desiring to attend should address Dr. Ward F. Seeley, Kresge Building, Detroit, on or before June 9. Price of tickets, $1.50.

The Section on Nervous and Mental Diseases will banquet at the Hotel Pontchartrain at 7 p. m. The tickets are $4 per cover and may be obtained by addressing Dr. Charles W. Hitchcock, David Whitney Building, Detroit.

The Section on Obstetrics, Gynecology and Abdominal Surgery will hold a dinner and smoker. Particulars can be obtained by addressing Dr. George Kamperman, David Whitney Building, Detroit.

The Jefferson Medical College Alumni will hold a smoker at the Hotel Pontchartrain. Further particulars can be obtained by addressing Dr. A. D. LaFerte, David Whitney Building, Detroit.

Customs in Diet.—To one who has given little thought to the subject, the dietary habits of a community or nation may appear as something fairly fixed from generation to generation. This is, however, far from a correct view. Adequate nutrition may be exemplified alike among the meat and blubber-eating Eskimos and the strictly vegetarian Hindoos. But particularly where the dietary instincts have led mankind to adopt a more diversified mixed ration one may discover shifts of custom and changes of eating habits within comparatively short periods. A comprehensive survey of this feature and dietetics and an examination of the underlying causes would furnish interesting physiologic, sociologic, and economic details.—Lafayette B. Mendel, Changes in the Food Supply and Their Relation to Nutrition.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

THE WINE OF CARDUI SUIT

(*Continued from page 1487*)

April 17, 1916, Afternoon

TESTIMONY OF DR. SAMUEL M. WORLEY

Dr. Samuel M. Worley was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. LOESCH

Dr. Worley testified that he graduated from the Chattanooga Medical College, Chattanooga, Tenn., in 1902 and has been practicing in St. Augustine, Fla., for fourteen years. He has been county jail physician, appointed by the county board, for four or five years. In his jail practice, he has seen a number of prisoners drink Wine of Cardui frequently. He saw a negro woman named B. S—— drink Wine of Cardui three or four times.

A.—I was called out to the jail to see her, and she was having a kind of a fit, and I saw the empty bottle there.

Q.—Empty bottle of what? *A.*—Empty Wine of Cardui bottle, and the case in which it came, and I gave her a hypodermic injection of apomorphin and she vomited this black-looking liquid up, and she got all right after a while, but I saw her the next day and she looked like she had been on an awful drunk. And I had seen her before under the same influence from whisky and from this other stuff too.

Q.—By the other stuff you mean the Wine of Cardui? *A.*—Wine of Cardui; yes, sir.

Q.—Can you recall any other instance or any other person? *A.*—Yes, sir; a white man by the name of A. V. H——, living at Espanola, Florida, I saw him one time drink it.

Q.—To what extent did you see him drink it? *A.*—I saw him get pretty well fixed up on it, pretty well intoxicated, ready to shoot anybody in sight.

Mr. Walker:—I move that the shooting part of it—

Mr. Loesch: *Q.*—Well, did you see him pull a revolver? *A.*—No, sir; but I saw him with a shotgun in his hands though, threatening to shoot people to such an extent that I decided I would shoot myself before I would let him shoot me.

Mr. Walker:—I move that be stricken out.

Mr. Loesch:—Wait a moment.

Q.—What was his condition at the time? *A.*—He was drunk.

Q.—From what? *A.*—He had been drinking whisky, and when he came back to his commissary he opened up some bottles of Wine of Cardui, and I saw him drink one of them and I saw him open up another one—

Q.—Where is H—— now? *A.*—He is in the convict camp, I suppose; he is under a life sentence.

Q.—For what? *A.*—For murdering his wife in cold blood.

Q.—He is the same H—— that was testified about the other day? *A.*—I don't remember any testimony the other day. His name is A. V. H——. He was a turpentine operator.

He saw a "trusty" prisoner named D. J—— buy a bottle of Wine of Cardui and drink it; he also saw a negro woman named M. J—— and a negro woman named I. D—— drink Wine of Cardui from a bottle.

He saw Mrs. J. B—— drink Wine of Cardui. The witness described the turpentine camps and stated that he had seen men and women come into a store, buy a bottle of Wine of Cardui, open it up and drink the contents on a number of occasions.

CROSS-EXAMINATION BY MR. WALKER

The witness testified that he came to Chicago with Mr. R. T. Sabate, who testified a few days previously. The witness has known Dr. Heizer since November, 1915. He had received communications from Dr. Heizer regarding the Wine of Cardui suit. The witness gave the attorneys for the plaintiffs the names and addresses of the various persons whom he saw drink Wine of Cardui. He was repeatedly cross-examined concerning the incidents described in the direct examination.

He named the various turpentine camps in which he saw Wine of Cardui sold and gave the names and addresses of the proprietors of these camps.

TESTIMONY OF DR. J. K. WEBSTER

Dr. Webster was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. LOESCH

Dr. J. K. Webster testified that he resides in Athens, Texas, Henderson County, where he has been practicing for nine years. He graduated in 1891 from the Kentucky School of Medicine, Louisville, Ky. He saw a Mrs. M. W—— take Wine of Cardui before meals when he boarded with her family. He was called in professionally and she told him that she had taken Wine of Cardui for the relief of cramping for a period extending over several years. He found that she was suffering from retroversion and slight prolapse and hysterical convulsions, and recommended operation, which the patient did not desire to have.

He saw a Miss A. F—— who was suffering from hysterical seizure and who was nervous; the physical examination showed a retroversion and a narrowing or almost a closure of the mouth of the womb. She had been taking Wine of Cardui to relieve this condition for nearly a year and had been growing continuously worse. He prescribed anti-malarial treatment, discontinuing the Wine of Cardui, dilated the mouth of the womb and gave the patient two months' rest under the care of a trained nurse. He stated that she was relieved in this way.

Mrs. M. M—— he saw in 1914 when she was suffering with profuse hemorrhages. The womb was enlarged and he found a polypus in the neck of the womb. He packed the uterus with gauze, later he removed the neck of the uterus and then found another polypus. As the womb was greatly enlarged, he advised an operation. The patient declined the operation and continued taking Wine of Cardui, which she had been taking for eight years at intervals. Finally in 1907 he assisted in removing the uterus and ovaries and the patient recovered.

He also saw a Mrs. L. B——, to whom he was called for the treatment of gastritis. She suffered with dysmenorrhea and he found a retroversion and enlargement of the uterus and tender ovaries. The patient had been taking Wine of Cardui for a number of years without relief. The patient later had an operation and is now in better health.

He was called to treat Mrs. L. B—— for leukorrhea. He found considerable inflammation and ulceration of the neck of the womb with a discharge of pus and mucus. She had been taking Wine of Cardui for two or three months. He did curettement and the patient recovered.

Mrs. A. B—— he saw in 1895. He was called for a threatened abortion; when he arrived the uterus had emptied itself completely. The patient gave the history of having miscarried two or three times every year for three years previously. She also stated that she had taken Wine of Cardui to prevent miscarriage. He advised her to leave the Wine of Cardui alone, do less hard work, take quinin and iron as a tonic and in the next pregnancy to take no medicine. The next child was born at full term.

The witness testified that he had seen B. J. W—— of Dawson, Texas, drink Wine of Cardui from a bottle in a drug store. He was with two men and the three drank the bottleful and three fourths of another, in the course of an hour. He also saw Joe H—— of Athens, Texas.

Q.—When did you see him use it? *A.*—I saw him once in 1914.

Q.—Where? *A.*—At the back door of the drug store where I office. He and three others were drinking from a Wine of Cardui bottle. I don't know whether they drank it all at that time or not. Again in 1915 I saw the same man with two companions take the bottle out of the carton, draw the cork and they drank it there in the inside of the drug store, at the back end of the drug store.

Q.—Drank the entire bottle? *A.*—I suppose they did. They threw it out of the door.

Q.—Were they sober when they came in? The last time? *A.*—Apparently so.

CROSS-EXAMINATION BY MR. WALKER

The witness testified that he has been in Chicago since March 29. He first saw Dr. Heizer in March, 1915, at Dallas, Texas. He was in Dallas for a meeting of the Southern Medical Association. The witness is not a subscriber to The Journal, and had not seen the articles in The Journal concerning the Wine of Cardui suit.

The witness then gave to the attorneys for the plaintiffs the names and addresses of the patients referred to, also the

name of the owner of the drug store in which he saw Williams and the others drink Wine of Cardui, also the names of the clerk in the drug store and the stockholders.

He testified that he has seen Hostetter's Bitters, Peruna and lemon extracts drunk as a substitute for whisky, in addition to Wine of Cardui.

The witness was also repeatedly cross-examined concerning his examination and treatment of patients mentioned in the direct examination. He testified that he prescribed iron, quinin, strychnin and arsenic in capsules.

The witness, again questioned, told his experience as to various operations performed on patients, number of visits and the treatment.

The further hearing of said cause was adjourned to 10.30, April 18, 1916.

April 18, 1916, Morning

TESTIMONY OF DR. J. K. WEBSTER (*continued*)

The Court met pursuant to adjournment. Dr. J. K. Webster resumed the stand for the defendants.

FURTHER CROSS-EXAMINATION BY MR. WALKER

Dr. Webster was again examined in detail regarding the patients mentioned in the direct examination.

TESTIMONY OF DR. ARTHUR A. SMALL

Dr. Arthur A. Small was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. Arthur A. Small testified that he is a physician and surgeon practicing in Chicago. He graduated from the University of Toronto in Canada in 1895 and later at the Royal College of Surgeons and Physicians in London, England. He worked as intern in Toronto, had a year and a half postgraduate study abroad and since he came to Chicago has been senior physician at St. Joseph's Hospital.

The witness has heard of cnicus benedictus but has had no experience with it. He has had experience with viburnum prunifolium.

Q.—Now, will you explain to the jury, or rather tell the jury what your experience has been with viburnum prunifolium? *A.*—When I was resident in the general hospital in Toronto, that is a hospital of 400 beds, they have a department there especially for diseases of women, and in that department over a course of some months, cases in which women were suffering from too great flowing both during their monthly sickness and between it, cases in which women had too big uteri, those cases were treated with viburnum prunifolium. In some of those cases, for example, those women who had too great a flowing—of course they were all in bed at the time—during the taking of the viburnum, the flowing would stop, during the taking of it, at times the flowing would stop. In the same case, the viburnum would then be stopped and the women might stop for some time and then commence to flow again, not taking any medicine, and no medicine at all being given, and then again that woman would commence to flow again. That is, the taking of the viburnum in those cases which were flowing, had no effect on it. They might stop or they might flow. The same thing would happen if that woman was simply resting.

In those cases, in which the uterus was too big, which was found by measuring it on the inside with an instrument, and in which the viburnum was given over a course of weeks, it had no effect in making that womb smaller. That is practically the experience that I had at that time.

Q.—You say it had no effect in making the womb smaller. In what way did you read that conclusion? How did you determine that, if you did determine it? *A.*—That was determined in two ways. It was determined first by simply feeling that organ with both hands, and determining roughly in that manner. It was determined accurately by passing an instrument, which is called a sound—it is simply a long bit of wire, about the thickness of a small slate pencil, and it has markings of the fractions of an inch on it—by inserting that on the inside of the womb, the measurement was recorded, it would record, of course, the length of the inside of that cavity. The inside cavity will diminish as the outside measurements diminish.

Q.—Now, Doctor, did you insert the sound of which you have spoken, when the wombs were under treatment with viburnum or not? *A.*—Yes.

Q.—Did you do that frequently, or rarely? *A.*—It was done frequently.

Q.—Was it tried with the same patient on many different times, the sound inserted? *A.*—Yes.

Q.—While she was under viburnum treatment? *A.*—Yes.

Q.—Now, what was the effect of the tests on the particular women from time to time, or on a particular woman while she was under the viburnum treatment, as to the insertion of the sound, and as to the numbers indicated thereupon? *A.*—Well, the effect was that there was no appreciable difference in the measurements of that organ. That is one thing, and the other is that there was no difference in the flowing of those women who were flowing, as to whether they were taking viburnum or whether they were simply resting in bed.

Q.—Now, as a result of your experience with viburnum in that hospital, have you an opinion as to whether or not viburnum is a medicine of any value in the treatment of female diseases? *A.*—I have an opinion, yes.

Q.—What is that opinion, Doctor? *A.*—In my opinion, it is of no value. I have personally never used it since that time.

The witness was then asked a hypothetical question similar to that which has been asked other witnesses. There was read to him a statement from the Cardui Song Book, No. 4, to the effect:

> "No matter from what form of female disease you may be suffering, it would benefit you to take Wine of Cardui."

He was then asked to mention a few diseases from which a female might be suffering, which he did. Argument was then made by the attorney for the plaintiff against the question in that the diseases named were not female diseases, the court ruling that it is perfectly apparent that tuberculosis and cancer may affect certain organs that are peculiar to women.

A.—In my opinion, such a medicine given for tuberculosis of the female organs would mask the symptoms which that disease would give, and would mask the general symptom of weakness and fatigue which that disease would give a woman, so that diseases grow to an extent to which it would not grow if such a type of medicine was not taken.

The witness then described the way in which tuberculosis may affect the female organs. He testified that a hypothetical medicine such as has been described would aggravate and would not cure this condition.

Mr. T. J. Scofield:—In answer to my previous question, you spoke of cancer of the female organs as being one condition from which a woman might suffer. Now this has been gone into, Doctor, a number of times in the examination, and I do not wish for you to go into it in detail, but I want to know how such a medicine as I have described to you, the hypothetical medicine, would affect such a condition. *A.*—Such a medicine affects cancer in two different ways. There may be a cancer which will give no local symptoms of pain, and the only symptom which there will be given to the individual will be simply one of fatigue, feeling more tired and not being up to their usual grade.

A medicine of this type with the amount of alcohol which was stated it contained, will give that person a brace so that the symptoms that are applied to the whole body will not be felt, or may not be felt at all, so that (not being felt and assistance not given to the individual) the local disease will grow.

Then again, that medicine might affect in some individuals the small amount of pain which is felt usually, only a small amount at first when the cancer commences. So in those two ways it would affect it so that the disease would progress.

Mr. T. J. Scofield:—Then, Doctor, assume that this hypothetical medicine, to which I have directed your attention, should be taken by a woman, suffering from the condition of cancer of the womb, if she should continue to take this medicine in doses, running from three or four doses a day—or from two to three doses a day—for a period of four, five, six, seven, eight, nine, ten, eleven, or twelve months, what would be the probable effect upon the conditions?

Mr. Hough:—That is objected to for the reason already given.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

A.—The effect on the condition would be that the disease would have progressed so that it in all probability would not be operable.

Mr. T. J. Scofield: Q.—What do you mean by that when you say not operable? *A.*—I mean that the condition had grown, and it had involved the parts which were near it to an extent that the trouble could not be taken out by surgical means.

Dr. Small then described fibrosis of the uterus and stated that the hypothetical medicine would aggravate the condition. He stated that cancer is curable in its early stages by removal and that it is never a medical condition. To determine whether or not the condition is surgical or medical one must make a thorough examination.

There was then read to the witness a quotation from the New Orleans *Picayune* of an advertisement of Wine of Cardui suggesting that women avoid a surgical examination, the Court ruling against the question on objection of the plaintiffs. The Court stated again that the issue in this case is: "Is the medicine a fraud; is it worthless and is it a business built up on deceit?"

There was then read to the witness a long quotation from the Home Treatment Book describing the methods of treatment recommended in the book for prolapse of the uterus. The witness was asked if he had an opinion as to whether such treatment would effect a cure, to which he answered that it would not. He also answered that the treatment described in the Home Treatment Book would not cure

flexions of any kind and he stated his reasons. The witness then defined the terms uterine tonic and uterine sedatives.

Q.—Will you explain, Doctor, whether or not in your opinion, those two terms "uterine tonic" and "uterine sedative" are consistent or inconsistent, and give your reasons for it? *A.*—They are absolutely inconsistent. It is, for example—if a mother was rocking and singing her baby to sleep to prevent it from crying, as a sedative, and at the same time was shaking that baby to wake it up. That is, they are absolutely antagonistic. You cannot contract your muscle of the uterus, and at the same time have it expanded or distended.

The attention of the witness was called to a Cardui advertisement in the *Picayune* and he stated that in his opinion the advice in the advertisement was not true. The witness stated that the action of the various active principles in the hypothetical medicine would vary as to the individual taking the medicine.

The witness was then read an advertisement from the New Orleans *Picayune* of Feb. 5, 1906, and he was asked as to its truthfulness. He replied that the hypothetical medicine would not relieve or cure complaints common to women. The witness said that he had personal experience with Wine of Cardui. He was present when Dr. Clarence Webster injected Wine of Cardui into the uterus and ligaments of a patient who was operated on and described the experiment of Dr. Webster as it was previously described.

He stated that on the basis of such an experiment he would testify that Wine of Cardui is not a uterine tonic and also that it is not a uterine sedative. On the basis of that experiment it was his opinion that pituitrin is a uterine tonic. He testified that in his opinion on the basis of this experiment Wine of Cardui would have no effect on the ligaments of the uterus and so could not pull a uterus up that was prolapsed.

The witness defined the difference in action of drugs when given by mouth compared with those given hypodermically.

The witness was asked to define "menopause" and state some of the most common conditions from which women suffered at that time.

A.—Some of the most common are tumors of the uterus, that is, muscle tumors or fibroid tumors of the uterus and malignant or cancerous tumors of that organ, as to diseases.

Q.—Why is that, Doctor? *A.*—Well, it is a mechanical explanation, that that organ which is gradually giving up its function which it has performed since the woman has entered into puberty, that organ is gradually giving up its function, and so undergoing a change, is more liable to disease. That is, it cannot defend itself so well.

Q.—Now, Doctor, do the various diseases or conditions which you have referred to as occurring at that time, require the same treatment or different treatments? *A.*—They require different treatment.

Q.—That is, do they require exactly the same kind of treatment or different treatment? *A.*—They require different treatment.

Q.—I will ask you this, Doctor: do you know of any form of treatment which would answer for each of these conditions and every one of them for each and every one of these different conditions, one common form of treatment? *A.*—I do not know of one common form of treatment, no, sir.

Q.—I will ask you now, Doctor, whether or not having in mind the hypothetical question, which we have submitted to you, and the medicinal solution described therein, whether that solution with its alcoholic content is a proper and a scientific medicine to use all through the period of the menopause?

Mr. Hough:—That is objected to, if the Court please.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

A.—In my opinion, it is not.

Mr. T. J. Scofield: Q.—Why, not, Doctor? *A.*—It is not for perhaps one chief reason. Not only the diseases I mentioned, but in that time of life there are conditions, that is, the condition of nervousness which so many women suffer from simply having hot flashes, and nervous spells, so-called, both mentally and in a bodily way, very often feeling depressed mentally—that a medicine such as described in this condition, occasions an unnatural uplift to the individual, which will mask conditions which are very liable to become serious.

The further hearing of the cause was adjourned until 2 o'clock the same day, April 18, 1916.

April 18, 1916, Afternoon

TESTIMONY OF DR. ARTHUR A. SMALL (*continued*)

The Court met pursuant to recess. Dr. Arthur A. Small resumed the stand for the defendants.

CROSS-EXAMINATION BY MR. HOUGH

On cross-examination Dr. Small testified that the tests made with viburnum in Toronto were conducted under the direction of the professor of gynecology of the University of Toronto, Dr. J. F. W. Ross, who died about three years ago. Dr. Small was chief assistant of Dr. Ross at that time. Between fifteen and twenty days were involved in the experiment, and both the fluidextract and the solid extract of viburnum prunifolium were used. In some of the patients who had pain with the other symptoms the alcoholic solutions would prevent or lessen the pain.

Q.—Have you ever known it to do any good in cases of dysmenorrhea, any cases? *A.*—Well, some that had the alcoholic preparations, the pain was diminished, and sometimes stopped.

Q.—How about the flowing? *A.*—As I said, the flowing, when they were taking it, would stop, and again, when they were not taking it would stop, but it had over a long period of time no direct effect on the flowing.

Q.—Well, how could you say which of the cases were coincidences and which were cause and effect? *A.*—You could see which were coincidences in this way: For instance, one case coming in that was flowing, given viburnum prunifolium, in that case the flowing would stop. Given then for a few days after that, then the flowing stopped. After three or four days the flowing came on again, no medicine being taken. Waiting another three or four days, without any medicine being taken, in some cases the flowing would stop, stop for practically the same amount of time as if they were taking the medicine. That is, in one case observed over a long period of time there was no difference as to whether they were taking medicine or were not taking the medicine.

Q.—Well, that would be metrorrhagia, wouldn't it? *A.*—Yes.

Q.—Not dysmenorrhea? *A.*—What I was just speaking of was menorrhagia, but some of those cases also had dysmenorrhea.

Q.—I said "metrorrhagia," not "menorrhagia." *A.*—Yes, I said metrorrhagia.

Q.—That was the case you were referring to? *A.*—Yes.

Q.—And you think from that experiment you could say that it was only a coincidence in each case? *A.*—I only gave that as one instance. I think that that experiment with different people and watched carefully, that that would be conclusive, yes, sir.

The witness testified that he believed that the majority of men at the University of Toronto have stopped using viburnum prunifolium. He cannot remember any specific instance in which viburnum was used in the hospital in Chicago. He, himself, has not used it. He stated that should he be called to see a case of amenorrhea due to anemia he would treat it with iron, which he always prescribes in solid form in a capsule. He has not given iron in liquid form for fifteen years. The only other drug which he has used in such cases is arsenic. When malaria is present he gives large doses of quinin. In menorrhagia, depending on the cause, he has most frequently given the fluidextract of ergot. He has also given iron and arsenic. He has sometimes given hydrochloric acid, tincture of digitalis, tincture of hyoscyamus, tincture of gentian compound and tincture of strophanthus. He does not know the exact amount of alcohol in these preparations. In dysmenorrhea he has usually given treatment to stop the pain until he could treat the cause. His treatment of retroversion and retroflexion depends entirely on the cause of the condition. He has at times advised operation and has given purgatives. The witness stated that he is speaking entirely from his own experience and from what he has heard men say who have done much operative work.

Dr. Small described the way in which displacements are brought about and explained why the uterus when long displaced does not spring back into position when the cause of the displacement is removed; namely, the elasticity of the ligaments is lost because they have been overstretched for a long period of time.

He then described the symptoms of inflammation of the uterus and the treatment, describing also the necessity of operation to clear up adhesions due to inflammation. He described the treatment of retroflexion and stated that he did not believe that it could be cured by mechanical means. If the flexion caused no symptom it would not be considered an operative case. If there were symptoms of pain he would give potassium bromid. He testified as to what he could consider pathologic flexions and whether the term is limited to conditions which produce symptoms and occasion to discomfort. The witness stated that the treatment of retroflexions would vary with the individual.

Dr. Small, in reply to questions, discussed the treatment of prolapse, stating that no prolapse of the second degree could be cured without operation. The first treatment would

be to place the organ back in place, support it with a pessary, and give ergot to reduce the size of the organ. The treatment of cases of first degree prolapse which are not operative would be to place the organ in its proper condition, to watch the organ over several weeks, to give medicine which will reduce its size, and to tell the woman to stand as little as possible, etc. Ergot would be given to reduce the size of the uterus.

The witness testified that he does not use pulsatilla or aletris and that he does use adrenalin, gelsemium and nux vomica. He has used digitalis and quinin. These were not used specifically for the treatment of prolapse, but for secondary complications.

Concerning the hypothetical medicine he believes that its only usefulness would be as a slight bitter tonic to the stomach. This he qualified by stating that the dose of viburnum in the preparation was so slight as to have practically no effect.

SYNERGISM

Q.—Do you know anything about the synergistic action of drugs? *A.*—I know what the word means, yes.

Q.—Well, assuming that the other drug has the properties which were credited to it, would you say that it was not affected by the amount of viburnum which is added in the hypothetical question? *A.*—Yes, I would say that I don't think that any bitter tonic can have any synergistic value in any way when combined with another drug.

Q.—Well, how about the addition of the other drug to the carduus benedictus? *A.*—Well, that is what I was referring to.

Q.—Yes, but you classify viburnum prunifolium as a bitter tonic? *A.*—No.

Q.—Didn't you assume that carduus benedictus was a uterine medicine? *A.*—I assumed whatever was in the hypothetical. I don't remember that the hypothetical said it was. I don't remember that.

The witness was then cross-examined as to his knowledge of cnicus benedictus, which he stated was based on the hypothetical question. He was not certain whether the hypothetical question stated it was antispasmodic or antiperiodic. These two terms he described:

The Witness:—An antispasmodic would be something that would prevent spasms.

Mr. Hough: *Q.*—Is an antispasmodic a sedative? *A.*—It might be, yes, in certain conditions.

Q.—Would you say it was a sedative as distinguished from a tonic? *A.*—Yes.

Q.—Well, now, what would you say is an antiperiodic? *A.*—Well, an antiperiodic is, I think, a term which is used really for a substance which has slight antimalarial qualities.

Q.—A medicine that had antimalarial qualities would be good then for any condition which was created by malaria, would it? *A.*—If it had, yes.

Q.—Well, but you assumed that it had those, however? *A.*—Yes, I say yes.

Q.—Therefore that medicine would be good in any menstrual disturbance due to malaria, would it? *A.*—It might.

Q.—Then you have assumed and had it in mind that it might be a uterine medicine—mustn't you, necessarily? *A.*—If it said that, yes.

Q.—Yes. Now the viburnum prunifolium is a uterine medicine too, isn't it? *A.*—It was assumed.

Q.—It was assumed. And you say the combination of two uterine medicines of that character has no synergistic action? *A.*—Yes, that would be my opinion, yes.

Q.—That it has or has not? *A.*—Has not.

Q.—What is your understanding of the word "synergistic"? *A.*—My understanding is this, that it is two medicines which, when combined, do not just give you the summation of their action, that is, for instance, if morphin acts equal to the figure three, and some other drug acts equal to the figure four, it does not simply give you the action seven, but gives you a multiple of that action.

Q.—Well, now, apart from the hypothetical question, do you know whether viburnum prunifolium would have any synergistic action mixed with anything, any other medicine? *A.*—I personally do not know of any, no.

Q.—You mean it would be your opinion that it does not have any synergistic action? *A.*—Yes.

Q.—And that is based upon your opinion that it is of no value as a medicine? *A.*—No, that is based both—it is based on the hypothetical question with its—

Q.—Well, it is your opinion that viburnum prunifolium is absolutely inert and of no value therapeutically in any of these cases? *A.*—Do you mean my personal opinion?

Q.—Yes. *A.*—Yes.

Q.—And your personal opinion would not be affected by what any number of medical writers said on the subject, would it? *A.*—Well—

Argument was then made by the attorneys for the defendants against the introduction of excerpts from various books. The Court stated that questions as to whether the witness agreed with some certain authority were improper, but there was no objection to the use of language from various books in putting questions to the witness.

Q.—Do you regard Dr. Butler as any authority on these subjects, Dr. George F. Butler? *A.*—No; I have not heard of him as an authority on those subjects.

Q.—Do you know Dr. George F. Butler? *A.*—No, I do not, sir.

Q.—The Dr. George F. Butler who is the head of the Department of Therapeutics and preventive and clinical medicine, of the Chicago College of Medicine and Surgery—the medical department of Valparaiso University. Do you know that Dr. Butler? *A.*—I do not, sir.

Q.—Never heard of him? *A.*—I have heard of him, but I do not know him, sir.

Mr. T. J. Scofield:—Dr. Butler resides in Chicago.

Mr. Hough:—I beg your pardon; he does not reside in Chicago.

Mr. T. J. Scofield:—This is his headquarters. He may be down in Mud Springs. He has an office right here, and is here every week.

Mr. Hough:—Will you bring him in?

Mr. T. J. Scofield:—I will do it, if you will pay me a fee for bringing him in, for his services.

Mr. Hough:—I will do it; I will do it.

THE COURT:—Does that include merely bringing him in to the court room, or putting him on the stand?

Mr. Walker:—That is a promise, Judge.

Mr. Hough: *Q.*—Doctor, is it not a fact that the action of black haw is best understood by classing it with the volatile oil group? *A.*—That I don't know, sir.

Q.—Is it not a fact that it acts as an antispasmodic, diuretic nervine tonic, being especially useful in various uterine disorders, such as spasms and membranous dysmenorrhea? *A.*—Are you asking me if that is true?

Q.—Isn't that a fact? *A.*—Not as far as I know—it is not.

Q.—Is it not a fact that the various vasomotor disturbances in the menorrhagia incident to the menopause are frequently relieved by this remedy? *A.*—No, sir; I do not think that is true.

Objection was made by the attorneys for the defendants to such questions, and after argument the Court ruled:

THE COURT:—You may ask him whether that treatment, in his opinion, is the proper treatment. And you have asked him that three times and he said no.

To which ruling of the Court the defendants, etc., excepted.

Mr. Hough: *Q.*—Is it not a fact that this remedy is also of some value in the prevention of abortions?

Mr. T. J. Scofield:—If the Court please, I object to the question.

THE COURT:—He may answer.

To which ruling of the Court the defendants, etc., excepted.

THE COURT:—You are speaking of black haw, now.

Mr. Hough:—Black haw, yes.

The Witness:—I think it is of absolutely no effect whatsoever, in abortion, absolutely none.

Mr. Hough:—Is it not a fact that its sedative properties render it serviceable in relieving the severity of after-pains? *A.*—I don't think that is true.

Q.—Doctor, how would the giving of this medicine mask cancer, for instance? *A.*—The hypothetical medicine?

Q.—Yes sir. *A.*—Well, the hypothetical medicine which was given to me had in it 48 minims of absolute alcohol. I think that that, given over a lengthy time, will mask the commencing symptoms; as I said before, of a cancer.

Q.—Would that masking process be due to the alcohol alone? *A.*—Yes; in the hypothetical question—in the hypothetical medicine, yes.

Q.—The medicine itself, that is the viburnum prunifolium and the carduus benedictus would have no such effect, would it? *A.*—No; I think not, in the doses which were given in that hypothetical—that is three grains only of the viburnum to the dose.

Q.—And how much of the other? *A.*—I think 30 grains of the carduus benedictus.

Q.—Now, would it in dosage, without the alcohol, the viburnum prunifolium and the carduus benedictus? *A.*—Yes. I think, assuming the virtues which were given in that hypothetical question, that it was a sedative to the spinal cord centers and reduces reflexes, irritability—which means reduces the nerve impulses—I think, in certain doses with that assumption, it would.

Q.—Well, how much larger doses of the viburnum prunifolium and the carduus benedictus would have to be given in order to have that effect? *A.*—Well, I think that at least—at the very least, ten times the viburnum would have to be given to have that effect.

Q.—I am not talking about the viburnum alone; I am talking about the carduus benedictus also. *A.*—Well, the carduus benedictus was given in its minimum dose, I believe, in that question.

Q.—Then, how could you say it would have no action? *A.*—Well, I think it would have no action in preventing the pains or the fatigue which would come with that condition.

Q.—Didn't you just state that the hypothesis required you to assume that it was a uterine medicine? *A.*—In the very slightest extent—if I remember.

Q.—Well, then, how much more of the carduus benedictus would there have to be in the medicine, in order to make the effect more pronounced? *A.*—Well, from what I remember of that hypothetical question, I don't think that any dose of carduus benedictus would

have an effect upon the uterus; because if given in larger doses, it is said that it causes nausea and purgation; and I think, to get any physiological effect from that medicine it could not be given in large enough doses to prevent the pain which would come with that condition.

Q.—Then would not that indicate, if its dose was the 30 grains, that that was sufficient to accomplish the result? *A.*—No—accomplish the result as a bitter stomach tonic.

Q.—Known also as a sedative to the uterus—you so stated, haven't you? *A.*—No—I don't think it would be—my assumption was that it was such a slight sedative that that would not act in that way.

Q.—You would not know how much more would be required to make the action more pronounced? *A.*—Well, I say that I don't think of a drug of that type, that you could put enough in it to act in that way, without causing the nausea and irritation of the bowels, which it is said to do.

Q.—Then you say that the viburnum prunifolium and the carduus benedictus, of itself, could not mask such a disease as cancer? *A.*—In this hypothetical question, no, I don't think it would.

Q.—And whatever masking was done, would be by the alcohol alone? *A.*—Yes.

Q.—Now, what is the effect on the human system of that much alcohol taken by itself? *A.*—Well, I think that—of course it would very a great deal with the individual. I think that with the majority of individuals it would simply give them a feeling of exhilaration.

The witness was then asked as to the effect of alcohol in the dosage given. He stated that it would be merely exhilarating and explained the way in which it would tend to mask the symptoms of cancer. He stated that the hypothetical medicine could act only as a bitter tonic and would not have any other effect on any female disturbances.

Dr. Small was then cross-examined concerning the experiment by Dr. Webster which he observed. He was asked concerning any blanching which might be produced by alcohol. He was asked concerning the action of pituitrin and as to why it does not act when given by the stomach. This, he stated, is because it is an animal product and is disintegrated in the stomach. He stated that only the posterior part of the pituitary body is used and he believes that the anterior portion is not used because it has been determined that it does not have the action. He does not know what action the anterior portion of the gland may have.

Mr. Hough: *Q.*—Now, would you say that that experiment proved anything more than that Wine of Cardui did not act as promptly as pituitrin? *A.*—Yes; I would say it proved a great deal more.

Q.—It would? Did it prove any more than that it is not as strong, as well as not as prompt in its action as pituitrin? *A.*—Yes; I think it did.

Q.—Well, how could you draw any other conclusion than that it simply did not act as promptly? *A.*—Well, that any medicine which will not act—which does not act by the mouth, or it is said to, and which does not act when introduced into—or under the skin, in practically a thousand times the dose which is taken by mouth—if that does not act within a few minutes, then, from the experiences we have had with other drugs, I would say that that was of no value to that particular part of the body.

There were then read to the witness statements from the Home Treatment Book regarding the treatment of prolapsus and displacements. He stated that such treatment would in some instances be sufficient to relieve the condition. In most cases other treatment would be required. The witness also stated that retroflexion could not be straightened or relieved by the use of a pessary, laxatives or tonics. He does not use any mechanical treatment for retroflexions. Retroflexion is a surgical proposition pure and simple if it is causing severe symptoms.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

On redirect examination the witness stated that blood tonics are rarely used in female disturbances as there is no service in giving a blood tonic for local conditions. Bitter tonics are used by both men and women to increase the appetite. He stated that he understood that there was but a fraction of a grain of cnicus benedictus in the hypothetical medicine and even assuming that carduus benedictus had an antiperiodic action such a dosage would not have an antiperiodic action.

RECROSS-EXAMINATION BY MR. HOUGH

On recross examination the witness testified that his knowledge of the amount of cnicus benedictus was based on what he heard said by Dr. Loevenhart. On motion of the attorneys for the plaintiffs the testimony was stricken out.

Further hearing of the cause was then adjourned until April 19, 1916.

April 19, 1916, Morning

TESTIMONY OF DR. CHARLES A. L. REED

The Court met pursuant to adjournment. Dr. C. A. L. Reed was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. C. A. L. Reed testified that he is a physician and surgeon residing in Cincinnati, Ohio. He has been practicing medicine for thirty years. He is a graduate of the Cincinnati College of Medicine and Surgery of Cincinnati. Subsequently, he had a postgraduate course under Mr. Lawson Tate in Birmingham, England, and he also studied in London, Paris and Berlin. He is consulting gynecologic surgeon to three hospitals in Cincinnati and is a member of various medical societies. He has taught the subject of gynecology in the Medical Department of the University of Cincinnati, and has written a book on the subject of diseases of women.

He testified that inflammations are caused by the invasion of bacteria and described the infection of the various organs of the female genital tract. He named the various displacements of the uterus and described various forms of new growths which occur in the female genital tract. He is not familiar with cnicus benedictus but he knows of viburnum prunifolium. He discontinued the use of the latter because he found it worthless.

Dr. Reed was then asked the hypothetical question whether he had an opinion concerning the availability of a hypothetical solution for the cure of inflammation of the female generative organs.

Q.—What is that opinion? And I wish you to state that opinion fully. *A.*—My opinion is that such a preparation as you have described has no relation to the proper treatment or cure of inflammations, such as I have described. My reasons—and I infer that your question asks me to give the reasons—

Q.—Yes, that is what I want? *A.*—My reason for that answer, or the reasons are several. The treatment, of all inflammations consists first, in the removal of the cause. The cause of the inflammations, such as I have described, are germs or organisms. The preparation, such as you have described, or any preparation administered as that preparation is administered, will have no effect whatever in removing these germs and organisms, and therefore would have no influence whatever in the treatment of the disease or inflammation.

I think that covers it. My further explanation would go upon the other side of the question, as to what would comprise proper treatment.

Q.—Let me ask you, Doctor: what about the effect of the alcoholic content of such a solution under those conditions? *A.*—If the inflammation had invaded the urethra, or the bladder, or had extended up to the kidneys, the use of alcohol in any quantity whatever would be very deleterious.

If the infection should be located at a point where the alcohol or its secondary products in the process of escaping from the system, would not come in contact with it, it would have a less modifying influence upon the disease.

The tendency of alcohol in any quantity is to produce more or less congestion of the blood vessels of the stomach and the intestines and, if long continued, of the liver and kidneys. This congestion is participated in by the structures described as the seat of the inflammation, and therefore the inflammation is in that way and to that extent made worse.

Dr. Reed testified that the medicine can have no effect on the cure of uterine displacements or new growths and gave his reasons.

Q.—Now, Doctor, in the treatment of such conditions as you have referred to, like new growths and fibroids, and conditions of that kind, and cancer also, is there any danger by treating these patients by the mouth, of covering up conditions which exist there, so far as those conditions go, and letting these diseases or conditions progress? *A.*—There is.

Mr. Hough:—I object to that, if the Court please.

THE COURT:—You mean with reference to your hypothetical medicine.

Mr. Scofield:—Yes.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

A.—The hypothetical medicine, if used in the case of cancer, or used in the case of bleeding fibroids, or of a bleeding polypus, would tend to put the patient in increasing danger, for two reasons:

First, it would beguile her into a sense of false security, in which sense of false security, she would live in expectation of results in the direction of cure, that she would not realize. During all of this time, her general strength is being impaired by the continuous drain upon the system, from the continuous loss of blood, or the intermittent or interrupted, but excessive loss of blood, and in the instance of cancer, her life is still further endangered by permitting the disease to advance, until it gets beyond the possibility of surgical relief.

CROSS-EXAMINATION BY MR. HOUGH

On examination, the witness testified that he was a trustee of the Association about sixteen years ago. He was president of the Association in 1901 and 1902, and was chairman of the legislative committee for a few years following his retirement from the presidency.

Q.—What were the duties of the Legislative Committee? *A.*—The duties of the Legislative Committee were to carry on an educational propaganda with reference to the public health question, and to bring the matter to the attention of the various legislative bodies in the country.

Q.—And with Congress? *A.*—And with Congress. That is a legislative body.

Q.—That was recently disbanded, was it? *A.*—The Legislative Committee was disbanded I presume, four or five years ago, at the time of my retirement when that body or organization was merged into the "Council of Education and Public Health."

Q.—Was not that disbanded immediately after President Wilson's message to Congress about the insidious lobby there? *A.*—It was not. It was long before President Wilson was inaugurated.

Q.—You are positive that it was not in action in Washington when President Wilson went there? *A.*—I am positive that the Legislative Committee was disbanded before President Wilson was inaugurated.

Q.—Have you held any other public office, Doctor? *A.*—Well, I was a member of the State Medical Board in Ohio.

Q.—Were you ever appointed to any national office? *A.*—No, I never have been appointed to a national office. I was on the Commission to Panama, one time.

Q.—Didn't President Roosevelt appoint you to some office or send your nomination to the Senate? *A.*—Yes.

Q.—What office was that? *A.*—It was not an office. I was appointed as a member—I was nominated at least as a member of the Medical Reserve Corps of the United States Army.

Q.—You were not confirmed, were you? *A.*—I was not.

Q.—Did he withdraw your nomination? *A.*—He did.

Q.—Have you been appointed to any other office that you were confirmed in? *A.*—I have not.

Q.—Doctor, you have no connection with the American Medical Association now? *A.*—Except that I am a member.

Q.—You are not employed by it in any way? *A.*—None at all.

Q.—Other than in this case? *A.*—I am not employed in this case.

Q.—You say you are not employed in this case? *A.*—Not in the ordinary sense of the word "employment." I am here in this case but it is not in any sense an employment. I am here at my own motion, my own instance, my own expense and without compensation.

Q.—Did you suggest yourself as a witness? *A.*—I did not.

The witness was then asked as to his familiarity with various writings on the subject of alcohol to which he answered that he knew of them only in a general way. He testified that the hypothetical medicine would not be good for any menstrual disturbances but that some medicines such as pituitrin and ergot might be of service in some cases. He does not know of any condition in which the hypothetical medicine would be of benefit. He discussed the terms antispasmodic and antiperiodic used in the hypothetical question and stated that assuming that the drugs had these properties they would produce such effects. He defined his use of the word tonic and stated that if it were used in the conditions described, it should be used most discriminatingly. He defined the types of anemia.

Q.—Well, you say a tonic should be given most discriminatingly meaning by that, that it should be given only by a doctor, that is what you meant? *A.*—I think that is the only way that that discrimination can be exercised in a serious case. I think in an ordinary case, when a person wants a tonic under ordinary conditions, with nothing practically the matter, it does not make much difference what they take.

Q.—You say there are such things as uterine tonics? *A.*—Yes.

Q.—Have you ever heard of viburnum prunifolium as a uterine tonic? *A.*—I have heard of it, yes.

Q.—Have you ever heard of carduus benedictus as a uterine tonic? *A.*—Only very recently.

Q.—You mean you have never read the literature on the subject? *A.*—I have seen that there are some mentions of it in that connection. No, not studied the literature.

Q.—Well, apart from a study of the literature, where have you seen any literature on the subject?

After objection, which was overruled on argument, the witness answered:

A.—There is very much that I read in a casual way, in going over the journals or in picking up a book, and that is what I mean by literature, and I have read about this thing here and there, without being able to give you the reference of the bibliography of the subject.

Mr. Hough:—There is a bibliography then of carduus benedictus, is there? *A.*—Yes, there is a bibliography on every phase of a medical subject, I fancy, and on that subject I would expect to find it in the Index Medicus.

Q.—Did you ever look in any of the pharmacopeias for it? *A.*—I did not.

Q.—Did you ever look in any of the foreign works for it? *A.*—I did not.

Mr. T. J. Scofield:—That is objected to.

THE COURT:—Oh, he has answered, it may stand.

To which ruling of the Court the defendants, etc., excepted.

Mr. Hough: *Q.*—Now you said that in your opinion, as I understood you, that hypothetical medicine would have absolutely no effect in any of the conditions concerning which you were asked? *A.*—Yes.

Q.—Did you state that? *A.*—I stated that.

Q.—Well, if it has absolutely no effect, how could it ever mask anything? *A.*—Simply by beguiling the patient into a sense of false security or false expectancy.

Q.—It must have some effect in order to beguile, must it not? *A.*—I fancy, yes, a certain psychic effect, a mental effect that comes from the suggestion of the remedy and with the promise and expectation of cure, or of results and hopefulness that those things will be realized.

Q.—That would be the only effect then, the psychic effect? *A.*—Essentially. In the form given, the alcoholic element—there is another thing that is there. If it is a sedative, as assumed, that lessens the consciousness of pain. The giving of alcohol, to a certain extent, lessens the consciousness of discomfort.

Q.—Well, now you are saying that that hypothetical medicine does have some effect, aren't you? *A.*—Well, my answer to that was, that it would have no effect in effecting a cure. I did not say that it would have no effect, but no effect in effecting a cure.

Q.—A cure for what? *A.*—A cure for the inflammation of the generative organs; a cure for displacement of the uterus; a cure for new growths of the uterus and cancer.

The witness testified that he discontinued the use of viburnum prunifolium with the discovery that he was getting no results from it. He was questioned as to his knowledge of the Propaganda Department of the American Medical Association. He was not aware that they had attacked other preparations containing viburnum prunifolium beside Wine of Cardui. He has heard of Hayden's Viburnum Compound.

The witness then described his method of examination in a case of amenorrhea, particularly in the virgin. After a thorough examination not including a vaginal examination, if there is constipation he prescribed a laxative. He sometimes gives drugs to act on the kidneys, such as potassium acetate with small doses of magnesium sulphate and most frequently large doses of simple hot water. He does not remember that he has ever given a fluidextract or a tincture for this disease.

The witness has never prescribed Liquor Sedans or Aletris Cordial. The witness testified that he has never given cimicifuga or Hoffmann's Drops in amenorrhea. He may have given hydrastis many years ago. He may also have given compound spirits of ether. He does not know the exact amount of alcohol in the latter. He discontinued it as it was an unduly stimulating diuretic. He has given nux vomica—from five to ten drops of the tincture. He was not familiar with the percentage of alcohol and he regarded the alcohol in the dosage given as negligible, especially as it was given for a few doses only. The witness described his method of treatment of dysmenorrhea. He defined the term and outlined the causes.

Q.—What is amenorrhea? *A.*—Amenorrhea is a scanty menstruation, from a failure of the menstrual fluid to form.

Q.—Or to get out of the uterus, isn't it? *A.*—No, that is pent up, that is a retention of the menstruation which is quite a different thing.

Q.—Well, but that is classed as amenorrhea, is it not? *A.*—No, I never have classed it so, and it is not susceptible to real classification, because if the menstruation, menstrual fluid, is once deposited in the uterus, it may be held there for a time, but the time comes when it comes away.

Q.—Well, until it can come away, it produces congestion, don't it? *A.*—Yes, I would say that it would cause congestion.

Q.—And if the womb was crooked back that way, as in that third picture, it would not be possible for the flow to come out, would it?

Mr. Walker:—That is Chart C? *A.*—Yes, it is possible, but that is what causes the pain in connection with it.

Mr. Hough: *Q.*—Well, that would also be amenorrhea, or scanty menstruation, would it not? *A.*—No, it is not scanty menstruation, because the menstrual fluid has formed, and because it has not appeared upon the surface, is no evidence that the menstrual fluid has not formed within the uterus.

Q.—Is not that the meaning of amenorrhea, that it don't come away? *A.*—The meaning of amenorrhea, as I have here employed it, is that the menstrual fluid does not form within the uterus.

Q.—Well, you say, as you have employed it? *A.*—Yes.

Q.—But as it is employed by medical writers, don't it mean that it don't come away? *A.*—I think some of the older medical writers employ the term of "suppressed menses" and "retention of the menses." There is the distinction.

Q.—They are all classed as amenorrhea, are they not? *A.*—Amenorrhea means no menstruation and etymologically it means that the menstrual fluid does not form.

Q.—Then you would not regard it as amenorrhea, if the menstrual fluid had formed, but was retained? *A.*—That is retention of menstruation.

Q.—And you would not regard that as amenorrhea? *A.*—No.

The witness then illustrated to the jury with a rubber tube the mechanics of flexion of the uterus and illustrated with a handkerchief and the aid of one of the members of the jury, the methods of treatment of flexions by shortening the ligaments.

Mr. Hough: *Q.*—Now, when you say that you take a tuck, do you mean that you cut out a section? *A.*—I do not mean that. I plicate it, bend it upon itself and stitch it under circumstances and by a method that makes it permanently short, normally short.

Q.—Now, you do not fix the womb in any other way? *A.*—In certain cases in which the convex, that is the big outer surface has become permanently elongated, I take out a little notch there, and shorten it so that the walls will be equalized.

Q.—In the womb itself? *A.*—In the womb itself.

Q.—There is no other fixation? *A.*—There are other methods of fixation, which I do not practice.

Q.—What are the methods of fixation which you do not practice? *A.*—Well, there are some practitioners, who sew the top of the womb fast to the anterior abdominal wall, I do not do that. The methods which I have indicated are those that I employ.

Q.—Now, is it not a fact that that method of shortening the ligaments has not been found to give satisfaction? *A.*—On the contrary, it has given very high satisfaction.

Q.—To all the practitioners, or only to yourself? *A.*—I am speaking for myself, and the general adoption of the practice by the profession, would indicate that it is generally satisfactory.

Q.—Has that operation a name? *A.*—It is known as the shortening of the round ligaments, or a shortening of the broad ligaments.

Q.—It is not named after an individual? *A.*—Well, the method of shortening the ligaments has been variously named. The original operation was known as the Alexander operation.

Q.—Well, has not that been generally abandoned? *A.*—Yes, because that is not the operation that I have described.

Q.—Well, what is the difference between the Alexander operation, and the operation you have described? *A.*—The Alexander operation consisted in making a little incision in either groin and trying to fish out the end of this elongated broad ligament and draw it up, but this gave the operator no opportunity to control the adhesions or to correct other associated conditions, and it has been found unsatisfactory and has been very generally abandoned by the profession.

Q.—Now, do you operate, or advise an operation in every case of retroflexion? *A.*—I do not.

Q.—What cases of retroflexion would you treat without operation? *A.*—Those that do not produce serious symptoms.

The witness testified that in cases which he examined and in which he found a retroflexed condition of the uterus not producing symptoms he would perform no operation. He described the symptoms of retroflexion.

Q.—Well, what would those symptoms be? *A.*—Symptoms of retroflexion, quite different from those which I have described being peculiar to these other conditions.

Q.—What would they be? *A.*—I was just about to tell you that they would be pressure upon the rectum, pressure upon the sacral nerves; pain in the back, inclined to be reflected down the legs; possibly some pressure against the bladder with a frequent desire to urinate, and there may be or may not be a leukorrheal condition. There is generally a good deal of tenderness all through that part of the body called the pelvis, and the patient would, in that condition, generally complain of pain upon any little jar or movement, any little violence transmitted to them. That is the general character—

Q.—Might there not also be pain during the menstrual period? *A.*—Yes, there might be pain during the menstrual period, and it might be very severe.

Q.—Might there also be a scanty menstruation? *A.*—Yes, there might, but it is not incompatible with that, but the tendency of retroflexion in its influence upon menstruation, is to produce the opposite condition of excessive flow.

Q.—Now, when a woman comes to you with any of those conditions, you make an examination, such as you have described, and reach the conclusion that those symptoms are due to retroflexion? *A.*—Yes.

Q.—And you find no adhesions and conclude that it is not an operative case, what is your treatment? *A.*—But, when she has these symptoms, I do conclude that it is an operative case.

Q.—What symptoms could a woman have from which you would conclude it was not an operative case? *A.*—If they do not produce any particular discomfort, if I can put her to bed, and permit the temporary congestion, which has come about as a result of this displacement, to disappear, and the tenderness thereby be overcome, she may possibly get up and be about and be very well, and not feel that an operation is necessary.

Q.—What medicines would you give in that case? *A.*—I think I would—the medicines that I would give would be local. I would give her a hot douche, and possibly apply some medicine locally to increase the watery flow from the pelvis. If she were constipated, as sometimes occurs, but not always, I would undertake to correct that condition by the administration of enemas, preferably. Sometimes I might think it wise to give a brisk laxative for a day, or a dose now and then, but not to be continued, and that is about the line of treatment. But the chief remedy is rest.

Q.—You would use no mechanical appliances at all? *A.*—I would not.

Q.—And by that process, the symptoms would disappear? *A.*—Yes, I want to revise my answer with respect to the use of no mechanical devices. I presume that the application of medicine locally, on what we call a tampon, which is a piece of lamb's wool, sterilized and saturated with the medicine we wish to apply, is in a certain sense mechanical, and does help to hold the uterus steady for the time being, and in that way assist in the recovery to that extent, yes, sir.

Q.—Do the symptoms in any case disappear without the flexion being entirely cured? *A.*—Very frequently.

Q.—Now, then, you would say that the flexion was not cured but the condition for which she was treated, was cured? *A.*—I would simply say that the symptoms had disappeared, the flexion still there.

Q.—It would not be necessary to do anything more, so far as the flexion is concerned? *A.*—Not in the absence of symptoms. It does not make much difference to a woman whether her womb is straight or bent, unless it is giving rise to a class of symptoms not taken into account, because I have had in mind in response to your opinion a class of symptoms which you would call acute. But if they cause sterility, inability to conceive, or conceiving, if they cause abortion, that is another class of symptoms that might be taken into account, and which would call for interference, even in the absence of symptoms that I have described. I had in mind simply acute conditions for which a woman ordinarily applies for relief and immediate treatment.

The further hearing of the cause was adjourned until 2 o'clock the same day, April 19, 1916.

April 19, 1916, Afternoon

TESTIMONY OF DR. C. A. L. REED (*continued*)

The Court met pursuant to adjournment. Dr. C. A. L. Reed resumed the stand.

CROSS-EXAMINATION BY MR. HOUGH (*continued*)

Dr. Reed stated that all cases of prolapse are operative if the object is to cure; if it is desired to relieve the woman of pain and other symptoms then many of the cases of prolapse get along without operation. By operation he does not include mechanical measures. In cases in which operation is not performed the uterus is given a temporary support, the patient is put to rest until congestion and tenderness are relieved. He stated that all deviations of the uterus are pathologic, whether accompanied by symptoms or not. He never does a ventral fixation because it is generally followed by traction and pain and does not correct the pathologic condition. He does not do suspensions of the uterus.

The witness defined a plastic operation and stated that operations for controlling the pathology of the uterus have not been found unsatisfactory. He did not know of any abnormal condition of the blood which might produce uterine displacements. Displacements of the stomach and of the intestines may cause displacements of the uterus.

Dr. Reed answered that alcohol in a medicine might have a different effect than the same amount of alcohol would have as a beverage, depending on the medicine with which the alcohol was associated.

Q.—To what extent would you say that would be the result? *A.*—Well, that would depend entirely upon the preparation or upon the combination of remedies. For instance, if they were to give a patient a large dose of bicarbonate of soda, or a large dose of any other alkali, so that it would be in the stomach at the same time that the alcohol was taken into the stomach, it would have a tendency to neutralize the acid forming proclivities of the alcohol, and you would modify its effects; which I presume is the physiological reason underlying the so-called high-ball.

Q.—Would it affect the toxic effect—the toxic action of the alcohol? *A.*—To a certain extent, yes.

Q.—Do you regard alcohol as a food in any sense? *A.*—In a very limited sense.

Q.—How limited? *A.*—Well, there are certain cases in which, as a carbohydrate it would occasion the more rapid evolution of heat, and, in that sense, it would possibly be construed as a food, and yet, even that lacks certain food qualities, because a food implies something that is tissue-forming in its tendency; and alcohol contains nothing of that character.

Q.—Up to what per cent. should it be regarded as a food, from any point of view? *A.*—I think that is totally impossible to express in terms of percentage.

Q.—Well, would you say that alcohol up to 20 per cent. would be regarded as a food? *A.*—Well, alcohol up to 20 per cent.—if that 20 per cent. were taken continuously, it would certainly not be a food; but it would be the very opposite of a food.

The witness stated that his views on alcohol were based on his clinical experience with it, and he described various

clinical tests which he has made. He does not know of the work of Atwater and Chittenden. Objection was made to the reading of statements from medical works to the witness and sustained by the court. The witness stated, after objection was overruled, that he does not know it as a fact that alcohol exists normally in the human organism and within proper limits is undoubtedly a food. It is his opinion that alcohol may not be very serviceable in fevers, and he does not prescribe it in "low conditions of fever, acute inflammation and depressing maladies of all kinds."

Dr. Reed stated that it is not a fact that "alcohol may be a stimulant or a sedative or a tonic or a digestive or an actual food, and that unless we run on into excess, no physical damage can be done to the tissues, and that its use could do no harm, in small quantities."

The only remedy for cancer known to the witness is surgical removal. He believes that cancer is a local disease, with a possibility of its being communicated through the blood to a site of development in some other locality, but it is generally carried through the lymphatic glands.

The witness believes that tonics given discriminatingly may increase the tone of the system, and that the knee-chest position and general medical and hygienic treatment may be of value in the treatment of uterine prolapse. He believes that many hemic drugs may be used in the treatment of anemia and amenorrhea.

Q.—And is it a fact that apiol is recommended as being able to produce the menstrual flow? *A.*—I don't recall that fact—the specific fact escapes me.

Q.—That is in your book, is it not? *A.*—I am not sure that it is. I don't recall.

Q.—Would you say it is not? *A.*—No, I would not say that it is not.

Q.—I will show you the statement in your book, to refresh your memory. *A.*—Yes.

(Mr. Hough hands book to witness).

The Witness:—It is there; and it is quoted as having been extolled by the French, and I put the statement in there for what it is worth.

Mr. Hough: *Q.*—What is apiol? *A.*—Well, it is as defined there. It is a preparation that—of vegetable origin, and is one with which I am totally unfamiliar.

Q.—Well, what kind of vegetable origin? *A.*—I don't recall just what it is, in that statement before you—I put that in as a quotation from the literature.

Q.—Is it a weed? *A.*—I think possibly it is.

Q.—And that preparation contains a large amount of alcohol, doesn't it? *A.*—It is described there. I have told you that I am personally unfamiliar with it. That is a quotation from French literature.

Q.—Do you mean you write in your book things you don't know anything about? *A.*—Whenever they come from a half way respectable authority, I put it into my book, as I have explained, that it is intended not as an expression of my individual views, but as an exposition of the subject at the moment of writing.

Q.—Is it a fact that the pain of dysmenorrhea is much relieved by drugs which are not strictly anodyne, but rather antispasmodic? *A.*—I would infer that a drug that is antispasmodic would have a tendency to relieve the condition of dysmenorrhea in certain cases.

Q.—Now, you are asked to assume this hypothetical medicine was antispasmodic; how then could you state it could not have any effect in any of the menstrual disturbances? *A.*—Well, in the dosage that was given, it was totally impossible for it to have had that effect, even assuming that it is the medicinal dose that is given—it was one-tenth of a dose.

Q.—How can you say that if you say you do not know anything about carduus benedictus, and are only asked to assume that it is antispasmodic? *A.*—Well, I am simply basing it upon the assumption that was given me.

After argument by attorneys as to the exact wording of the hypothetical question the witness was asked:

Q.—I say, if you had sufficient dosage of those two remedies, would you answer differently from the way you answered the hypothetical question on direct examination? *A.*—If it were an antispasmodic, and if it were given in an antispasmodic dose, it would relax the spasm, and, relaxing the spasm, would relieve the pain. That is the assumption.

Q.—Then you could not say that the medicine would be worthless, could you? *A.*—No—on the hypothesis as given; but it would be worthless in that dose of one-tenth of a grain, if eight grains were the medicinal dose.

The witness was asked concerning the general medical treatment of pelvic disease and its relation to the condition of the blood.

Q.—Doctor, you said you had prescribed compound spirits of ether, but had never prescribed Hoffmann's drops? *A.*—I understand that they are the same thing. I am sufficiently unfamiliar with the preparation that I did not understand for the moment that they are convertible terms.

Q.—You mean you are not familiar with something you have been prescribing? *A.*—I applied the term relating to the spirits—the sweet spirits of niter—for the moment. I give so comparatively few drugs, that these terms are not at once familiar to me.

Q.—You are primarily a surgeon? *A.*—Primarily.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. Scofield asked the witness two questions to which objections were made by the plaintiffs and sustained by the Court because they would open the book of Dr. Reed from cover to cover to the plaintiffs.

Mr. T. J. Scofield: *Q.*—Doctor, it has been said by Mr. Hough here that your name was presented to the Senate by the President of the United States for confirmation on an appointment to a certain position. What was that position? *A.*—That was a position in the so-called medical reserve corps of the United States Army, in connection with a large number of other surgeons in different parts of the country.

Q.—Then Mr. Hough asked you to state whether or not it was not true that your name was withdrawn, and was not therefore confirmed? *A.*—Yes, sir.

Q.—Will you please tell the jury under what circumstances that occurred, that your name was withdrawn by the President? *A.*—During a meeting of the Legislative Committee of the American Medical Association at Washington I had occasion to criticize the President, the then President of the United States who had made this nomination, for the attitude that he took in reference to questions arising about the pure food and drug act, which I was endeavoring to protect as best I could, and which I believe my friend, Mr. Hough, was antagonizing—

Mr. Hough:—What is that, Doctor?

The Witness:—The Pure Food and Drug Act.

Mr. Hough:—Excuse me; I was not; I was in favor of it.

The Witness:—And the—as a result of that criticism, the President was offended and withdrew the nomination.

RECROSS-EXAMINATION BY MR. HOUGH

Q.—Doctor, one minute. Sit down, please. The grounds for the President's withdrawal were filed by the President in the War Department, weren't they? *A.*—I have understood that he filed a memorandum with respect to it.

Q.—Didn't you see the memorandum, or a copy? *A.*—No.

Q.—Wasn't it put on the ground that there existed grave professional reasons rendering Dr. Reed unfit for the service, including untruthfulness? *A.*—No; not that I remember. I never saw that.

Q.—Did you never see that? *A.*—I never did.

Q.—Wasn't it published in all the papers at the time? *A.*—I didn't see it, if it was; and—whatever he might have said or done, it was on the heels of an adverse criticism of his position, and as a direct result of that criticism.

Q.—Do you know what the professional reasons were that the President named? *A.*—I do not.

Mr. T. J. Scofield:—I object to that, if the Court please.

THE COURT:—I do not see the importance of any of this.

Mr. Hough:—I would not have asked it, if Mr. Scofield had not asked for it.

Mr. T. J. Scofield: *Q.*—You were not a member of the Ananias Club, were you, Doctor, at that time?

The Witness:—No, no.

Mr. Walker:—He seems to have had a club by himself.

THE COURT:—It looks as if the President had the club.

Mr. Walker:—Well, a rose by any other name would smell as sweet.

TESTIMONY OF DR. WILLIAM E. KAY

Dr. William E. Kay was called as witness for the defendants.

DIRECT EXAMINATION BY MR. WALDO

Dr. William E. Kay testified that he resides in Maplesville, Alabama. He has been in practice since 1905 at several locations in the state of Alabama. He has had some personal experience with Wine of Cardui. He testified that he was willing to give to the counsel for the plaintiffs the name and addresses of the patients about whom he would testify.

A.—Well, this lady's name was—I will refer to her as A, Mrs. A., who was in a family way, and I had—and I, being the family physician, had the pleasure of visiting the family from time to time, during her conception; and she was using this tonic, as she termed it, Wine of Cardui, in order that she might have an easy labor at full term, as she expressed herself.

Q.—Was she using it under your directions? *A.*—No, sir.

Q.—Go ahead.

Mr. Walker:—Of course, this all goes in under the objection we have made to all this testimony?

THE COURT:—Oh, yes, certainly.

The Witness:—So at the expected full term, or when she was expecting—or she was threatening confinement, they called me in, of course, to wait on her; and, on arrival, and making an examination,

I found that she was in the first stages of labor; and she had a very tedious labor; I think I was with her from early in the morning until possibly 2 o'clock in the afternoon; and, even at that time I had to take the child with forceps.

As she approached the second stage of labor, she was seized with a convulsion, which we term a state of puerperal convulsion.

Q.—Explain to the jury what that means. *A.*—Well, that means that a patient, suffering from absorption of poisons that should have been eliminated by the bowels and kidneys, but which had been carried into the circulation and caused these poisons, these conditions which developed.

Q.—Now, go ahead, Doctor. *A.*—Of course, I immediately, having my instruments and everything already sterilized, applied them, as quickly as possible, and delivered the woman of the baby, which saved the baby's life.

Mr. T. J. Scofield:—Doctor, you will have to speak a little louder.

The Witness:—Which saved the baby's life, of course; and the mother just continued on in convulsions; at first, say about thirty minutes between the first convulsion and the second, after which they continued to come closer and closer together, until finally there was one constant convulsion; and you could not tell where one started and the other ended. In the meantime, I sent for consultation to come and assist me in the case, after she had been delivered.

Q.—Doctor, over how long a period had she taken Wine of Cardui? *A.*—Well, she had been taking it for about six months.

Q.—Six months, during her pregnancy? *A.*—Yes, sir.

Q.—Did she recover? *A.*—Yes, sir; she made an uneventful recovery; and is getting along nicely now.

In another case Mrs. F., whom he saw frequently during her pregnancy, as he was called in occasionally to relieve slight nervous spells, or constipation, he found that the patient had been using Wine of Cardui during her period of gestation. In the seventh month she went into convulsions, which he endeavored to relieve. He found that the patient was suffering from malaria. She was prematurely delivered of a child in about seven months and one week.

He was called in consultation with two other physicians to see a patient, Mrs. J., whom he found suffering with a profound case of hematuria, and in the 8th month of pregnancy. He found that she had been using Wine of Cardui for six or seven months. She would take two tablespoonfuls at a dose. The patient said she was taking three tablespoonfuls three or four times a day "because her mother-in-law had advised her to take it, that she would have an easy time at childbirth. That is what the literature said—is what she said." The witness testified that the physician attending the patient later informed him that the patient did not have an easy time at childbirth. On objection of the attorneys for the plaintiffs this statement was stricken out.

The witness testified that he had seen Mr. F. J., a colored man, living at Maplesville, drink Wine of Cardui quite a few times, as often as two or three times a week. He also saw a Mr. D., of Millport buy a bottle of Wine of Cardui, and drink it in the drug store. He seemed to be intoxicated shortly afterward. He also saw a Mr. A. J. R., of Inland, Ala., drink Wine of Cardui.

Mr. Waldo: *Q.*—Go ahead, Doctor, tell us about that case? *A.*—He was what you might call—what he really was—he would drink considerably, that man; and, at that time I kept a little shop there, I kept a kind of a drug department, a few little drugs in it, and carried some Wine of Cardui; and he would come by my office and get a bottle and drink part of it, every once in a while—on a few evenings. He did that on numerous occasions.

Q.—Well, how many occasions, Doctor? *A.*—Well, I might say on ten or fifteen—I might say on fifteen different occasions.

Q.—What effect did it have on him? *A.*—Well, he said that—

Q.—I don't want anything that he said. I want to know what you observed, Doctor? *A.*—It kind of looked like it intoxicated him a little bit. You could tell from his actions, you know—his general appearance, that he was feeling good.

He also saw a Mr. T., of Inland, Ala., drinking Wine of Cardui outside the drug store.

The witness testified that a Mrs. G., living at Randolph, Ala., who was a profound morphin habitué, came to him for treatment. Her history showed that for eight or nine years previous to her contracting the morphin habit she had taken Wine of Cardui regularly and increased the dose of a tablespoonful up to half a bottle.

"She said she got more relief out of one quarter of a grain of morphin than she did from half a bottle of the Wine of Cardui. That is why she discarded that and took up the morphin."

Mrs. P., of Aldrich, Ala., was another morphin habitué, whose clinical history revealed that for six or eight years previous to her taking morphin she was a constant user of Wine of Cardui. She began using it according to the directions, and later increased the dose until she took half a bottle. Neither of these patients was cured.

The witness had two or three cases of women who had been taking Wine of Cardui and consulted him in reference to it producing an abortion. A Mrs. F. C. had been taking it to produce a miscarriage.

Q.—She took it to produce a miscarriage or to prevent a miscarriage? *A.*—To produce it.

Q.—Well, go ahead? *A.*—That was her argument to me. She consulted me—or came to me and consulted me about it, with reference to it, and wanted to know what I thought about it; and I told her I did not know but very little about it. I asked her why she was taking it, and she said that the directions and the literature that came with it influenced her to take it for that purpose.

Q.—Did she say how much she had taken? *A.*—She had taken a tablespoonful every two hours.

Q.—Over how long a period? *A.*—Well, she had been taking it for a week.

Q.—A week? *A.*—Yes, sir, at that time.

An adjournment was taken until April 20, 1916, at 10 o'clock.

April 20, 1916, Morning

Court met pursuant to adjournment. Dr. William E. Kay resumed the stand for the defendants.

CROSS-EXAMINATION BY MR. WALKER

On cross-examination Dr. Kay was asked concerning the various locations in which he had resided since the date of his graduation. He named Aliceville, Birmingham and Inland, Ala. In Inland he practiced several years and conducted a drug store in which he carried pharmaceuticals with a few proprietaries, among the latter Wine of Cardui. From Inland he went to Fort Springs—a health resort—from there to Aldrich and from Aldrich to Maplesville, where he now resides. He came to Chicago three weeks previous to the date on which he testified. He had received a letter from the Secretary of the State Medical Society of Alabama. Later he communicated with Dr. Heizer. He is a member of his county and state society, and recently subscribed to The Journal. He met Dr. Heizer in Montgomery, Ala. The witness testified that his expenses are being paid and that he is to get a per diem beyond his expenses. He was then closely cross-examined concerning the cases which he treated and which were described in the direct examination. He was asked concerning the woman who developed eclampsia.

Q.—What is the cause of eclampsia? *A.*—That is a condition that comes about, as I understand it, from the absorption of poisons, certain toxins that should be cast out through the kidneys and be eliminated by the kidneys and bowels, from the fetus which is in utero gestation, during the time of pregnancy. These conditions that should be carried off and cast out through the kidneys and bowels, that should be eliminated, are being absorbed and carried into the blood as I understand it, and produce the poison.

Q.—Have you not learned as a physician that the cause of that disease is undiscoverable, that condition of eclampsia? *A.*—No, sir; I have not.

Q.—That is, that the cause is not known?

Mr. Loesch:—He has given the cause.

The Court:—He has answered it.

The Witness:—I just gave the cause now.

Mr. Walker: *Q.*—You have given that as your opinion of the cause? *A.*—Yes.

Q.—Well, these cases happen, do they not, when a woman has taken no medicine of any kind, cases of eclampsia? *A.*—I have not any history to that effect.

Q.—In your own experience? *A.*—In my experience.

Q.—Or from your reading? *A.*—No, sir; I have not.

The witness testified that he has treated approximately twenty cases of female disease a year. In the treatment of eclampsia he gave veratrum hypodermically, and salts to aid elimination. He has treated up to the present time perhaps two thousand patients in childbirth. The patient whom he saw with malarial hematuria he treated with calomel.

The witness was then cross-examined concerning Mr. D., whom he saw drink Wine of Cardui in Millport, while he himself was living at Fort Springs. Mr. D. drank Wine of Cardui in the drug store.

Q.—Now go ahead. He came in the drug store? *A.*—He came in the drug store there, and he was the man that drank. I knew him as being a habitual alcohol drinker before this time.

Q.—How long had you known him? *A.*—Oh, I had been knowing him since 1905.

Q.—Go ahead. *A.*—Well, he came in the drug store there, and was making some inquiry about some bitters and one stuff and another like that you know, and he said that—he asked me what the Wine of Cardui was good for. I told him that I did not know what it was good for, that I understood that it was recommended as being—very highly recommended at least, as a female tonic. Well, he says, "That is what I am looking for. I have had a female trouble now for 10 years." He bought a bottle, and drank about half of it right there in my presence.

Q.—Did you ever see him drink other than on that one occasion? *A.*—Yes, sir.

Q.—Before that time, or was this the first time? *A.*—That was the first time I ever saw him drink Wine of Cardui.

Q.—When did you ever see him drink Wine of Cardui at any other time? *A.*—After that?

Q.—Yes. *A.*—Some few days after that I saw him in a restaurant, he drank some.

Dr. Kay was then cross-examined concerning the latter incident. He stated that Mr. D. came into the restaurant, took from his pocket a carton containing Wine of Cardui, drank the contents of the bottle, put the bottle back in the carton and put it on the floor.

Dr. Kay was cross-examined concerning the drinking of Wine of Cardui by Mr. F. J., a colored man. Mr. F. J. was employed by Dr. Kay to take care of his garden and horses. Mr. F. J. drinks Wine of Cardui perhaps two or three times a week and the witness has seen him drink it frequently within the last eight months.

Q.—How many times do you say in a week you would see him drinking it back of your barn? *A.*—At least three times a week.

Q.—Did he take any particular day? *A.*—Not necessarily so.

Q.—Was it Tuesdays, Thursdays and Fridays, or Mondays, Wednesdays and Saturdays, those three days? *A.*—I suppose he drank it any time he felt like he wanted a toddy.

Q.—Did you observe which days? What do you say about which days it was? *A.*—No, I did not necessarily observe the days that he drank it.

Q.—Was it his habit to send for you when he wanted to take a drink of Cardui? *A.*—No, it was my habit though to go around and see that he was doing my work, currying off my horses—

Q.—And see that he was drinking?

Mr. Waldo:—Let him finish.

Mr. Walker: *Q.*—You took good care, did you, to see that he was drinking it at least during the last eight months? *A.*—I certainly wanted to see that he was straight when he was hitching up my horses, and driving my teams.

Q.—Since you met Heizer in the last eight months, didn't you want to see that he did drink Cardui? *A.*—No, but how could I help it.

Q.—Didn't you try to see to it, that he did drink Cardui? *A.*—No, sir.

Q.—Didn't you keep him on the job there, so that he could make money enough to get the Cardui? *A.*—Keep him on the job?

Q.—So that he could get enough to get Cardui? *A.*—Not necessarily.

Q.—That is, after you met Heizer I mean, within the last eight months. *A.*—He was working for me, before I ever knew anything about Mr. Heizer, or Dr. Heizer.

Q.—But I am talking about his drinking it three times a week for the last eight months? *A.*—That is the only time that he has been so closely associated in my business.

Q.—You saw that he did keep about as close to you as possible during this last eight months? *A.*—Sure, he did my office work, cleaning up my office.

Q.—Did it all the better I suppose on Cardui? *A.*—I don't know where he got his Cardui, I have not handled any of it since.

Q.—I suppose he did his work all right? *A.*—Oh, he got along, yes, somehow, most of the time.

Q.—Now, was this fellow a drinking man other than—I mean this J—, was he in the habit of getting drunk? *A.*—He would get on a drunk once in a while.

Q.—How long had you known him? *A.*—F. J.?

Q.—Yes. *A.*—I have known him off and on for four years.

Q.—Four years? *A.*—Yes, sir.

Q.—And you hired him knowing that he was a fellow that got drunk? *A.*—Well, when I hired him I did not know that he got drunk, but I found out afterwards that he did.

Q.—And you kept him during the last eight months? *A.*—Yes, sir.

Q.—And you kept him for the purpose, didn't you, of having him drink Cardui, knowing that he was a drunkard? *A.*—No, I did not keep him for that purpose.

Q.—After you met Heizer? *A.*—He worked for me nearly every year, ever since I have been at Maplesville, a few months at a time.

The witness then discussed the case of Mr. A. J. R., whom he saw drinking Wine of Cardui possibly 15 or 20 times during a year. Mr. A. J. R. first purchased the Wine of Cardui from Dr. Kay for his wife. The witness stated that Mr. A. J. R. would come into the drug store perhaps twice a week. When he purchased Wine of Cardui he would tip up the bottle and drink from it.

Q.—He took the bottle out of the carton and took the cork out, and drank another drink? *A.*—Yes, sir.

Q.—And then walked off with the bottle? *A.*—Yes, sir.

Q.—And he did that until you were out of Wine of Cardui, is that right? *A.*—Yes, sir; he did that.

Q.—When you sold all you had to Riley, you quit taking it? *A.*—I did not necessarily sell it all to him.

Q.—When you had sold it all to R—— you kept it till it was all gone—he came in, I suppose, twice a week until it was all gone? *A.*—He was in there oftener than that.

Q.—To drink Cardui, twice a week? *A.*—Yes, Cardui twice a week.

Q.—You sold it every time he wanted it? *A.*—Sure, that is what I had it for, to sell.

The witness then described the case of Mr. T., who was working for Mr. A. J. R.

Dr. K. was next cross-examined concerning two patients who were morphin habitués; the first—Mrs. C.

Q.—Did she come to your office? *A.*—Yes, sir.

Q.—As I understand you, she wanted you to abort her? *A.*—She came to my office—

Q.—To have an abortion performed? *A.*—To get advice with reference to—

Q.—In reference to an abortion? *A.*—With reference to taking Wine of Cardui to produce an abortion, don't get it wrong.

Q.—Did you tell her to get Wine of Cardui to produce an abortion? *A.*—I did not.

Q.—Did she have an abortion? *A.*—She had an abortion.

Q.—Did you abort her? *A.*—No, I did not.

Q.—How long after she first came to see you, was it that she had the abortion? *A.*—Had the abortion?

Q.—Yes. *A.*—It was about a week.

Q.—Did you attend her? *A.*—I did. She was flooding to death, nearly.

Q.—What? *A.*—She was flooding from the aborted condition, and had to have a physician to stop the hemorrhage.

Q.—Did you make an examination of her when she called at your office? *A.*—I did not.

Q.—You don't know what the local condition was then? *A.*—No, sir; I did not make any examination.

Q.—How long was it after her call at your office, that you went to see her? *A.*—After she had called at my office?

Q.—Yes. *A.*—About a week I should say.

Q.—Had you seen her in the meantime at all? *A.*—I had seen her passing about; yes, sir.

Q.—That is, on the streets? *A.*—Yes, sir.

Q.—Up till what time before you were called? *A.*—Up till a day or two, possibly a couple of days before I was called to see her.

Q.—She told you that she was taking Wine of Cardui, to produce an abortion? *A.*—She did.

Q.—And that she learned from the literature of Wine of Cardui, that it would have that effect? *A.*—Have that effect, that is what she said.

Q.—Did she tell you where the literature was of the Chattanooga Medicine Company, that indicated that Wine of Cardui was good to produce an abortion? *A.*—She did not.

Q.—Did you tell her that Wine of Cardui would produce an abortion? *A.*—I did not.

Q.—Did you tell her to take it? *A.*—I did not.

Q.—What did you tell her when she told you she was taking Wine of Cardui to produce an abortion? *A.*—I told her that I knew nothing about Wine of Cardui, and therefore I would not recommend it for what she—

Q.—To produce an abortion? *A.*—For what she proposed to use it for.

Q.—What did you recommend to produce the abortion, if you would not recommend Wine of Cardui? *A.*—I did not recommend anything.

Q.—What? *A.*—I did not recommend anything.

Q.—But a week after you had told her that you would not recommend Wine of Cardui to produce an abortion, she had one? A.—She aborted just the same, a week later.

Q.—You don't know whether she acted on your advice or not? *A.*—No, sir; I do not.

The second habitué was accustomed to take morphin by the mouth. The witness stated that while he kept the store at Inland he purchased perhaps two orders of Wine of Cardui consisting perhaps in all of two and one-half dozen bottles.

REDIRECT EXAMINATION BY MR. WALDO

The witness testified that he was not the only person in Inland who sold Wine of Cardui.

RECROSS-EXAMINATION BY MR. WALKER

The witness testified that the Commissary of the Fairchild Coal Co. also sold Wine of Cardui at Inland.

Further hearing of the case was then adjourned until 2 p. m. of the same day.

(To be continued)

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CHAULMOOGRA OIL—LEPROSY

To the Editor:—Please inform me what articles have appeared in The Journal on the use of chaulmoogra oil; also, the issues containing the symposiums on leprosy.

E. A. Foley, M.D., East Moline, Ill.

Answer.—The following is a list of references on these subjects, including the two issues of The Journal containing symposiums:

Blue, Rupert: The Public Health Aspects of Leprosy in the United States, The Journal, Sept. 20, 1913, p. 943.
Boeckmann, Eduard: Clinical Aspect of Leprosy, The Journal, Sept. 20, 1913, p. 946.
Dyer, Isadore: The Dermatologic Asvects of Leprosy, The Journal, Sept. 20, 1913, p. 950.
Hassin, G. B.; Burke, Gordon, and Nuzum, John: Leprosy or Syringomyelia? The Journal, July 17, 1915, p. 235.
Montgomery, D. W.: Illustrations of the History of Leprosy, The Journal, Sept. 11, 1915, p. 927.
Morrow, Howard, and Lee, A. W.: Symptoms and Diagnosis of Leprosy, The Journal, Sept. 11, 1915, p. 931.
Chipman, E. D.: The Etiology and Treatment of Leprosy, The Journal, Sept. 11, 1915, p. 934.
Heiser, V. G.: Chaulmoogra Oil in Treatment of Leprosy, *New York Med. Jour.*, Feb. 12, 1916; abst., The Journal, March 4, 1916, p. 773.

SHOES FOR LOCOMOTOR ATAXIA

To the Editor:—I understand that it is possible for persons afflicted with locomotor ataxia to procure shoes which enable them to walk. According to my information these shoes are very expensive, costing as much as $1,500. I should like to know just where such shoes may be procured, and any other facts regarding them which you will be able to give me.

J. L. P.

Answer.—We are unable to find any reference to shoes of the type described by our correspondent. Perhaps he has in mind the Frenkel reeducation method for the teaching of walking to persons afflicted with locomotor ataxia. An article somewhat on this subject is that by Schurig, E. F.: Slippers Which Facilitate Climbing Stairs, *München. Med. Wchnschr.*, Dec. 26, 1911; abstr., The Journal A. M. A., Feb. 3, 1912, p. 383.

ALANT-CAMPHOR OF INULIN

To the Editor:—Recently a statement has appeared to the effect that alant camphor of inulin is fatal in solution of 1: 10,000 to the bacillus of tuberculosis. Has that statement been substantiated?

J. Tracy Melvin, M.D., Portersville, Calif.

Answer.—Alantol or alant-camphor occurs in minute quantity in the fresh tubers of *Helenium inula*. We are unable to find any references to its use in the treatment of tuberculosis or to the fact that it possesses any bactericidal action.

MEDICINE AS A CAREER

To the Editor:—I have been asked to address a college Young Men's Christian Association on the subject "Medicine as a Profession." Will you kindly suggest something that I might read to help me in preparing this talk?

R. M. W., M.D., —.

Answer.—A list of references to articles on "Medicine as a Career" was published in The Journal, March 4, 1916, p. 760.

Housing and Health.—*Health News*, issued by the United States Public Health Service, April 19, announces that plans have been completed for the erection of a series of model homes in the city of Washington to demonstrate the relationship between good housing and good health. They are to be known as the Ellen Wilson Homes and are not an experiment, but a demonstration. Congress has enacted a law which goes into effect July 1, 1918, by which all alley buildings in the district must cease to be used for dwelling purposes. Congress, in its act incorporating the Ellen Wilson Homes, limited the dividends to 5 per cent. net, but this enterprise will yield a far greater dividend, not in cash, but in satisfaction because of needed work well done.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Delaware: Dover and Wilmington, June 20-22. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.
Florida: Jacksonville, June 13-14. Sec., Dr. E. W. Warren, Palatka.
Georgia: Atlanta and Augusta, June 1. Sec., Dr. C. T. Nolan, Marietta.
Iowa: Iowa City, June 8-10. Sec., Dr. Guilford H. Sumner, State House, Des Moines.
Kansas: Topeka, June 13. Sec., Dr. H. A. Dykes, Lebanon.
Kentucky: Louisville, June 13-15. Sec., Dr. A. T. McCormack, Bowling Green.
Louisiana: New Orleans, June 8-10. Sec., Dr. E. L. Leckert, 716 Macheca Bldg., New Orleans.
Michigan: Detroit, June 1-3; Ann Arbor, June 19-21. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.
Minnesota: Minneapolis, June 6-9. Sec., Dr. Thomas S. McDavitt, 814 Lowry Bldg., St. Paul.
Mississippi: Jackson, June 20-21. Sec., Dr. J. D. Gilleylen, Jackson.
Missouri: St. Louis, June 13-15. Sec., Dr. J. A. B. Adcock, Jefferson City.
Nebraska: Lincoln, June 8-9. Sec., Dr. H. B. Cummins, Seward.
New Jersey: Trenton, June 20-21. Sec., Dr. Alexander MacAlister, 429 E. State St., Trenton.
New York: Albany, Buffalo, New York and Syracuse, May 16-19. Sec., Mr. Harlan H. Horner, Chief Examinations Division, Educational Bldg., Albany.
Ohio: Columbus, June 6-9. Sec., Dr. George H. Matson, State House, Columbus.
South Carolina: Columbia, June 13. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.
Virginia: Richmond, June 20-23. Sec., Dr. J. N. Barney, Fredericksburg.
Wyoming: Laramie, June 14-16. Sec., Dr. H. E. McCollum, Laramie.

Alabama January Report

Dr. W. H. Sanders, secretary of the Alabama State Board of Health, reports the written examination held at Montgomery, Jan. 11-14, 1916. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 29, of whom 9 passed and 20 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Birmingham Medical College	(1914) 75; (1915) 75, 75.1,	77.3
Tulane Univ. of Louisiana	(1907) 83.4; (1911) 77.6; (1915)	82.5
University of Tennessee	(1914)	79.9
Vanderbilt University	(1912)	79.8
FAILED		
Birmingham Medical College	(1914) 67.4, 70.1; (1915) 41.8, 54.8, 64, 66.5, 67.4, 68.9, 71.3	
Howard University	(1914)	*
Chicago College of Med. and Surg.	(1910) 64.9; (1914)	54.6
Jefferson Medical College	(1912)	70.7
Meharry Medical College	(1912) 55.6; (1915) 60.3,	72.6
Memphis Hosp. Medical College	(1911)	55.3
University of Tennessee	(1915)	56.7
Vanderbilt University	(1914) 69.1; (1915)	73

* No grade given.

Missouri Reciprocity Report

Dr. J. A. B. Adcock, secretary of the Missouri State Board of Health, reports that 33 candidates were licensed through reciprocity from Aug. 1, 1915, to Jan. 1, 1916. The following colleges were represented:

College	Year Grad.	Reciprocity with
Atlanta College of Physicians and Surgeons	(1902)	Mississippi
Chicago College of Medicine and Surgery	(1913)	Illinois
College of Physicians and Surgeons, Chicago	(1904)	Illinois
Rush Medical College	(1912)	Illinois
Indiana University	(1907)	Indiana
College of Physicians and Surgeons, Keokuk	(1878)	Iowa
Iowa College of Medicine, Eclectic	(1883)	Iowa
College of Physicians and Surgeons, Kansas City	(1904)	Kansas
University of Kansas	(1912) (1914, 2)	Kansas
Kentucky School of Medicine	(1897)	Kentucky
Southwestern Homeo. Med. Coll. and Hosp.	(1905)	Colorado
University of Louisville	(1882)	Kansas
Tulane University of Louisiana	(1913)	Louisiana
College of Physicians and Surgeons, Baltimore	(1907)	Penna.
Ensworth Medical College	(1907) (1911)	Oklahoma
Kansas City Hahnemann Med. Coll.	(1907) (1912) (1914)	Kansas
Kansas City Medical College	(1904)	Kansas
St. Louis University	(1906) (1911)	Illinois
University Medical College, Kansas City	(1904) (1908)	Kansas
	(1913)	Oklahoma
University of Buffalo	(1879)	California
Starling Medical College	(1903)	W. Virginia
Jefferson Medical College	(1902)	Louisiana
University of Pennsylvania	(1905)	Penna.
Meharry Medical College	(1903)	Kentucky
University of Tennessee	(1892)	Indiana

Book Notices

THE ENDOCRINE ORGANS. An Introduction to the Study of Internal Secretion. By Sir Edward A. Schäfer, LL.D., D.Sc., M.D., Professor of Physiology in Edinburgh University. Cloth. Price, $3.50 net. Pp. 156, with illustrations. New York: Longmans, Green & Co., 1916.

This book comprises the course of Lane medical lectures, given at Stanford University in 1913, revised and brought up to date. It aims to "supply a concise account of our present knowledge for the benefit of students and practitioners who may be desirous of obtaining more information regarding the internal secretions than is afforded by the ordinary textbooks of physiology, but have not the time or opportunity to peruse extensive monographs or consult original articles." There are six chapters on the thyroids and parathyroids, one on the thymus, three on the suprarenals, five on the hypophysis, one on the pineal gland, one on the pancreas and the intestinal mucosa, and finally three chapters on the ovaries and testes. Professor Schäfer is one of the pioneers in the research on internal secretion, and this book is, on the whole, the best summary of this subject that has so far appeared in the English language. It is in most cases uptodate, and conflicting views are analyzed with admirable lucidity. It is to be regretted that Dr. Schäfer did not include references at least to the most important papers on the various glands. Such references would have been useful for those who do not have access to the larger works of Biedl and of Gley, or the special monographs on individual glands. But despite this omission, the book will be helpful to all who aim to keep abreast with the progress in this important field of biology and medicine.

MANUAL OF VITAL FUNCTION TESTING METHODS AND THEIR INTERPRETATION. By Wilfred M. Barton, M.D., Associate Professor of Medicine, Medical Department, Georgetown University. Cloth. Price, $1.50 net. Pp. 255. Boston: Richard G. Badger, 1916.

The author has compiled the various tests for determining the efficiency of vital organs—that is, the liver, kidneys, pancreas, heart and ductless glands. He has omitted those of the eye, ear, nervous system, etc. In his consideration he states first the various functions which these vital organs are supposed to fulfil, and then gives in brief the tests which have been evolved by different experimenters. Following this discussion is a consideration of the literature on the subject, indicating by reports of results with the test the extent to which it may be depended on. The author has thoroughly considered the literature, and points out the advantages of these tests from a medical and surgical standpoint. As might be expected, the work on functional tests of the ductless glands is not so comprehensive as that on the larger organs which are considered, nor is there available the clinical confirmation as to the value of these tests. For practically all of them the statement is made that time alone will show the possibilities of their use in the treatment of disease. Such a compilation as that which Dr. Barton has made has certainly been needed. The numerous experimental studies which are now being conducted in these fields will no doubt make repeated revisions of the book necessary during the next few years.

CHANGES IN THE FOOD SUPPLY AND THEIR RELATION TO NUTRITION. By Lafayette B. Mendel, Professor of Physiological Chemistry in the Sheffield Scientific School of Yale University. Cloth. Price, 50 cents. Pp. 61. New Haven: Yale University Press, 1916.

The author discusses the production of foodstuffs, methods of preservation and conservation, and the relative value of various elements in the diet. Of special value is his consideration of customs in diet, in which he calls attention to the increasing use of fresh fruits and the physiologic basis for it. He refers also to the increasing use of fats and the decreasing use of alcohol. In the last portion of the book, which concerns the changing of social and industrial conditions, Professor Mendel considers recent discoveries anent the relation of the food supply to the war, the importance of the vitamins, and the application of science to the kitchen.

Medicolegal

Revocation of License for Wholesaling Prescriptions for Whisky

(*State ex rel. Conway vs. Hiller et al.* (*Mo.*), *180 S. W. R. 538*)

The Supreme Court of Missouri affirms in this proceeding against the members of the state board of health a judgment sustaining the action of the board in revoking the relator's license to practice medicine and surgery in Missouri for ten years in pursuance of its statutory power to revoke licenses for unprofessional or dishonorable conduct. It is stated in the opinion in the case that the complaint alleged, and the evidence showed, that the relator, in a local option town and county, was engaged in the wholesale business of filling out blank prescriptions for whisky alone, to be used as a beverage, by inserting in these blank prescriptions the names of purchasers, and signing his own name thereto, as a physician, charging and receiving 25 cents for each of the prescriptions, which were sold largely to negroes. While he might have been successfully prosecuted under the Missouri statute imposing a fine on any physician, or pretended physician, who shall make or issue any prescription to any person for intoxicating liquors in any quantity, or for any compound of which such liquors shall form a part, to be used otherwise than for medicinal purposes, etc., it did not militate in the least against the right of the state board of health, under the circumstances detailed in the record, to revoke his license. It needs no citation of authorities to demonstrate that the relator's conduct aforesaid, as disclosed by the undisputed facts in the record, was both unprofessional and dishonorable.

Injury to Undiseased Parts in Performance of Operations—Evidence

(*Evans vs. Roberts* (*Iowa*), *154 N. W. R. 923*)

The Supreme Court of Iowa affirms a judgment in favor of the plaintiff, a child, conditioned on consent being given to a reduction of the judgment from $1,100 to $750, for an injury to her tongue in an operation for the removal of adenoids. The court says that the family physician, who thereafter attended the plaintiff, described what was taken off as a small piece, beginning near the point of the tongue and extending a half or three-fourths inch around on the left side or edge. It was also shown that there were a few words, especially those beginning with "t" and "th," which the plaintiff was unable to speak as clearly or plainly as she could before the injury, and the tongue itself was slightly shortened and scarred. This was not the ordinary case in which a practitioner is sought to be charged with liability for alleged improper treatment of some bodily ailment or infirmity. The defendant's negligence, if any, was in failing to take due care to avoid injury to the undiseased parts in the vicinity of which the operation was performed; and while it might be true that, had the operation on the adenoids been unsuccessful and disappointing, no inference of negligence or want of skill would arise therefrom, it did not follow that this rule applied with the same force to an injury done by him to sound and undiseased parts of the plaintiff's person, which he was not called on to treat and did not pretend to treat. If a surgeon, undertaking to remove a tumor from a person's scalp, lets his knife slip and cuts off his patient's ear, or if he undertakes to stitch a wound on the patient's cheek, and by an awkward move thrusts his needle into the patient's eye, the charitable presumptions which ordinarily protect the practitioner against legal blame where his treatment is unsuccessful are not here available. It is a matter of common knowledge and observation that such things do not ordinarily attend the service of one possessing ordinary skill and experience in the delicate work of surgery. It does not need scientific knowledge or training to understand that, ordinarily speaking, such results are unnecessary, and are not to be anticipated if reasonable care is exercised by the operator. When they do happen, then proof of other facts and circumstances having any fair tendency to sustain the charge of

negligence will be sufficient to take the question to the jury; and this may be true, even though, if the alleged negligence pertained solely to the treatment of the diseased parts, the court might be inclined to dispose of it as a matter of law. The defendant having stated at the time that the "gag slipped," the jury, in the absence of other explanation, might naturally and properly infer that he failed properly to fit and adjust it for its intended purpose. Again, if the father of the child was to be believed, the defendant pulled the curet from the child's mouth with a more or less sudden and violent jerk, which was scarcely consistent with care to avoid injury of this kind to his patient, and that the effect of such violence was seen, not only in the wounded tongue, but also in a bruised and lacerated mouth as well. This was ample to take the question of negligence to the jury. Nor can it be said that negligence in cases of this nature can be established only on the testimony of experts. The jury here did not have to consider whether the method of the defendant in removing the adenoids was correct or scientific, but whether the unintentional wounding of the plaintiff's tongue was occasioned by lack of reasonable care on his part. This, it would seem very clear, involved no question of science, or necessarily of expert knowledge. Moreover, there was no error in permitting a specialist in this class of cases to describe the methods and instruments ordinarily employed in the removal of adenoids from the throat of a child and to put in evidence a gag and a curet as specimens of the instruments so used. Damages in such cases, in which no element of wilfulness or recklessness is shown, ought to be strictly compensatory, and not punitive.

Waiver of Privilege by Delay in Objecting to Questions

(Burke vs. Chicago & N. W. Ry. Co. (Minn.), 154 N. W. R. 960)

The Supreme Court of Minnesota says that the most important and difficult question before it in this personal injury case was whether or not the physician who first examined and treated the plaintiff, and who was called as a witness by the defendant, was properly permitted to testify, over the objection of the plaintiff that the testimony was privileged, to an admission made by the plaintiff as to a physical ailment existing prior to the accident. A majority of the court is of the opinion that the plaintiff had previously waived his right to restrict the physician in the giving of his testimony; that when a question is asked a physician, necessarily calling for testimony which is privileged under the statute, and a fair opportunity is given the plaintiff to make an objection, he must make it then or lose his right to object afterward during the trial. This gives a definite working rule, easily followed and easy of application. A minority of the court does not agree with the conclusions stated.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, DETROIT, JUNE 12-16.

Alpha Omega Alpha Society, Detroit, June 12.
American Academy of Medicine, Detroit, June 9-12.
American Association of Anesthetists, Detroit, June 12.
American Proctologic Society, Detroit, June 12.
American Therapeutic Society, Detroit, June 9-10.
Conference of State and Prov. Boards of N. A., Washington, May 16-17.
Connecticut State Medical Society, Bridgeport, May 17-18.
Illinois State Medical Society, Champaign, May 16-18.
Maine Medical Association, Portland, June 7-8.
Massachusetts Medical Society, Boston, June 6-7.
National Association for Study of Epilepsy, Detroit, June 16.
Nebraska State Medical Association, Omaha, May 23-25.
New Hampshire Medical Society, Concord, May 16.
New Jersey Medical Society, Spring Lake, June 20-22.
New York State Medical Society, Saratoga Springs, May 16.
Ohio State Medical Association, Cleveland, May 17-19.
Rhode Island Medical Society, Providence, June 1.
South Dakota State Medical Association, Aberdeen, May 23-25.
Western Roentgen Society, St. Louis, June 9-10.
West Virginia State Medical Association, Wheeling, May 16-18.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

May, XI, No. 5, pp. 309-404

1 *Acidosis Occurring With Diarrhea. J. Howland and W. M. Marriott, Baltimore.
2 *Studies in Metabolism of Children. Excretion of Creatinin and Creatin in Acute Nephritis. I. S. Cutter and M. Morse, Omaha.
3 *Id. Creatin Retention in Marasmus. I. S. Cutter and M. Morse, Omaha.
4 Two Cases of Obstetric Paralysis Involving Only Musculospiral Nerve. L. H. Smith, Washington, D. C.
5 Permeability of Gastro-Enteric Tract of Infants to Undigested Protein. O. M. Schloss, New York, and T. W. Worthen, Hartford, Conn.
6 *Experiences With Ethylhydrocuprein in Treatment of Measles, Scarlet Fever and Other Infections. A. D. Hirschfelder and F. W. Schlutz, Minneapolis.
7 Case of Prolonged Anuria Following Scarlet Fever With Few Symptoms. F. E. Clough, Lead, S. D.

1. **Acidosis with Diarrhea.**—Howland and Marriott give in detail their observations which seem to show that the hyperpnea in many cases of severe diarrhea is associated with, and dependent on, the presence of acidosis. The presence of the acidosis was confirmed by determining a lowering of the carbon dioxid tension of the alveolar air, by an increase in the hydrogen ion concentration of the blood serum, by a diminution of the alkali reserve of the serum, by an increase in the amount of alkali required to alter the reaction of the urine (alkali tolerance) and by a diminution of the combining power of the hemoglobin with oxygen. It is shown that the administration of sodium bicarbonate will often bring about a cessation of the hyperpnea and cause the laboratory tests to give the results that are found with normal infants. The acidosis is not due to the presence of acetone bodies. It has not been demonstrated that it is due to loss of base. It is probable that it is due to deficient excretion of acid phosphate by the kidneys.

The authors state that the excessive diarrhea should be prevented, if possible, by opium in some form, such as paregoric, preferably in small doses, frequently repeated, to be reduced or stopped when the evacuations diminish in frequency or copiousness. Water must be given freely by mouth, if possible; if vomiting prevents this, as it frequently does, it must be given by rectum, subcutaneously or intravenously. When the presence of the acidosis is determined, alkalies must be administered promptly, until the reaction of the blood is again normal. The authors have used sodium bicarbonate for this purpose. Vomiting often prevents the administration by mouth, and absorption by the bowel is unreliable in the presence of diarrhea. The soda may then be given subcutaneously or intravenously. When a sufficiently large vein can be found, intravenous administration is the method of choice, even if there is no vomiting. Immediate action can thus be obtained.

The strength of the solution for intravenous use is 4 per cent. Depending on the size of the infant, from 75 to 150 c.c. of solution should be given and repeated in three hours if the hyperpnea does not cease. A large amount of alkali is required, for not only is the alkalinity of the blood reduced but also that of all the tissues of the body. After one or two intravenous injections, the soda should be continued by mouth in doses of 1 to 3 gm. every two or three hours until the urine is alkaline to litmus. In all cases of severe diarrhea, even though there are no evidences of acidosis, the authors deem it advisable to use sodium bicarbonate until the urine is alkaline. Its administration may prevent the development of acidosis.

2. **Excretion of Creatinin and Creatin in Acute Nephritis.**—The data derived from a study of two children aged 5 and 13, whose cases were followed for periods of thirty-five days and ten days, respectively, are presented by Cutter and Morse. In both cases, especial care was given to the collec-

tion of the daily twenty-four hour specimens of urine. The diets in each case were practically creatin and creatinin in calories. The most conspicuous feature of the curves of excretion of both constituents and in both cases was the wide variation from day to day. Moreover, this variation, which approaches a rhythm, is independent of all known concomitant factors, such as food, temperature, etc. It appears that a threshold exists which, on being reached, leads to excretion of the creatin and creatinin. Retention in the sense of almost if not quite total suppression of excretion of these components does not exist for a period of more than twenty-four hours. In fact, there is a negative balance in every instance in which a period of one week or over is considered. The curves exhibit no correlation between the behavior of creatinin and that of creatin. It was impossible to determine anything which might suggest an origin of one from the other.

3. **Creatin Retention in Marasmus.**—In the case presented by Cutter and Morse there is a clear lowering of creatin excretion during a long period of loss in body weight. Vomiting occurred after each intake of food per os, due, apparently, to pyloric spasm and this condition did not cease entirely after the growth curve began to rise, following the use of mother's milk.

6. **Ethylhydrocuprein Treatment of Measles, Scarlet Fever, Etc.**—Observations made by Hirschfelder and Schultz on scarlet fever gave negative results. Patients were treated with ethylhydrocuprein, in capsules, in doses of 0.1 to 0.5 gm., three times a day, according to the age of the patient. In the seven treated cases, the fever and acute symptoms showed an average duration of nine days, while in the seven untreated cases occurring at the same time, the average duration was 7.4 days. Eleven unselected cases of measles were treated and showed an average duration of 4.3 days, while among ten unselected cases occurring under the same circumstances the average duration was eight days. Moreover, all the treated cases were free from complications, while in the untreated there were six cases of severe complications among the sixteen consecutive cases.

American Journal of Public Health, Concord, N. H.

April, VI, No. 4, pp. 307-430

8 Recent Advances in Knowledge of Infectious Diseases. A. Arkin, Morgantown, W. Va.
9 Tests of New Process of Sewage Purification With Grease Recovery and Apparent Profit. R. S. Weston, Boston.
10 What Campaign Against Venereal Disease Demands of Hospitals and Dispensaries. M. M. Davis, Jr., Boston.
11 Municipality and Venereal Disease Problem. G. W. Goler, Rochester, N. Y.
12 Sewage Problem in Small Towns. P. Hansen.
13 Disinfection as Factor in Control of Communicable Diseases. B. F. Knause, New York.
14 Commission Supervision of Industrial Hygiene. W. D. Yaple.
15 Colon Bacteria and Streptococci and Their Significance in Milk. L. A. Rogers, W. M. Clark and A. C. Evans, Washington, D. C.
16 Public Health Publicity; Art of Stimulating and Focusing Public Opinion. E. A. Moree, New York.

Boston Medical and Surgical Journal

April 27, CXXIV, No. 17, pp. 591-632

17 Chronic Backache. Report of Cases. H. W. Marshall, Boston.
18 Four Cases of Fracture of Lumbar Vertebrae and Transverse Processes. J. W. Sever, Boston.
19 Occupation as Remedial Factor in Hospitals for Mentally Sick. E. L. Haines, Boston.
20 Alcohol in Relation to Mental Disease. A. J. Rosanoff, New York.
21 Cerebral Syphilis; Method of Treatment by Prolonged Intraspinal Injection of Serum Under High Pressure. J. B. Ayer, Boston.

California State Journal of Medicine, San Francisco

April, XIV, No. 4, pp. 127-168

22 Cases of Malignant Testicle. W. P. Willard, San Francisco.
23 Water Borne Epidemic of Typhoid at Santa Barbara. J. C. Geiger, Berkeley.
24 Experiences With Roentgen Rays in Gynecologic Practice. H. F. Kreutzmann, San Francisco.
25 Botulism in California. E. C. Dickson, San Francisco.
26 Diagnosis of Malaria. J. R. Snyder, Sacramento.
27 Arthroplasty of Elbow. Report of Case. R. Brown, Santa Barbara.

Colorado Medicine, Denver

April, XIII, No. 4, pp. 103-134

28 Symptoms and Surgical Management of Acute Suppurative Otitis Media. J. J. Pattee, Pueblo.
29 Peripheral Facial Paralysis. G. A. Moleen, Denver.
30 Colloid Chemistry in Its Relation to Medicine. P. Hillkowitz, Denver.
31 *Lange's Colloidal Gold Reaction. W. W. Williams and W. Burdick, Denver.

31. **Lange's Colloidal Gold Reaction.**—The material on which this report by Williams and Burdick is based consists of 263 gold reactions with the spinal fluids from 184 different individuals. In nearly all of the cases a Wassermann test was also made on the blood serum. The cases were classified into four main groups, based on the clinical diagnosis. The miscellaneous group comprises 96 tests on 79 individuals. About one-half of the fluids were obtained from presumably normal persons. In none of twelve cases of tertiary syphilis were there any evident clinical signs of involvement of the central nervous system. However, eight of the fluids gave reaction in the syphilitic zone. One gave a curve very suggestive of paresis, but was not verified clinically. The other positive curves, and one of two fluids from secondary syphilis, were much less marked and a doubt existed what significance should be attached to them. All of these cases gave a positive blood Wassermann reaction and five of them also gave a positive fluid Wassermann. Among seven cases giving a syphilitic history, but apparently cured, three gave a positive blood Wassermann only with the cholesterinized antigens and two a positive fluid Wassermann. These two fluids presented increased globulin, cell counts of 4 and 36, and both gave syphilitic zone gold reactions. Cases of tuberculous and epidemic cerebrospinal meningitis gave similar gold curves. The maximal color changes always occurred in the higher dilutions, to the right of the center line.

Two cases of epilepsy gave normal curves. A third, however, gave a distinct syphilitic curve, with increased globulin and a positive fluid Wassermann. The blood Wassermann was negative. Under antisyphilitic treatment this patient has greatly improved. The curve from a case of disseminated sclerosis was normal; with the other, the curve was in the paretic zone, and gave positive globulin and Wassermann tests. The fluid from a uremic case gave a marked syphilitic curve, also, both the blood and fluid Wassermann reactions were positive and the fluid contained an increased amount of globulin. The curves from cases of dementia praecox, brain tumor and morphinism were normal. The remaining 38 fluids in this group all gave negative Wassermann and globulin tests; the gold curves, were also all within normal limits, by which the authors mean that the greatest color change never exceeded violet or 2. The general paresis group consists of 52 examinations on 46 cases. Nearly all the fluids in this group produced very intense and uniform reactions, characterized by complete precipitation of the gold in the first four to six dilutions causing a clear, colorless solution. There were 87 examinations of 41 tabetic fluids and 28 tests on 18 cases of cerebrospinal syphilis. All of the reactions were characterized by producing their maximal color changes in the third, fourth and fifth tubes; that is, in the syphilitic zone. In the vast majority of the tabetic reactions the contents of the first two or three tubes became a curious color described as an odd shade of pink containing brick dust. This color has appeared so constantly that the authors feel justified in attaching diagnostic importance to it.

Canadian Medical Association Journal, Toronto

April, VI, No. 4, pp. 289-384

32 Effects of Wet and Cold; Trench Feet. F. M. Bell, Ottawa, Ont.
33 Provincial Health Act; Its Merits and Defects. T. H. Whitelaw, Edmonton, Alberta.
34 Paralysis From Fright. R. D. Rudolf, France.
35 Cancer of Stomach and Pellagra in Same Patient. F. W. Rolph, Toronto.
36 Sarcoma of Intestines in Child Seven Years of Age. L. S. Mackid, Calgary.
37 Number One Canadian General Hospital as Part of Canadian Medical Organization in France. A. M. Forbes.

Florida Medical Association Journal, Jacksonville

April, II, No. 10, pp. 289-320

38 To Prevent Nervousness in Children. T. A. Williams, Washington, D. C.
39 Significance of Differential Blood Count. M. P. DeBoe, Cocoa.
40 Neurasthenia; Symptoms, Diagnosis and Treatment. L. H. Martin, Melbourne.
41 Sciatic Neuritis; Analysis of Typical Case. H. Crenshaw, Atlanta, Ga.
42 Alcoholic Gastritis. G. M. Niles, Atlanta, Ga.
43 Kidney Disorders of Childhood. J. H. Fellows, Pensacola.
44 Roentgen Ray Therapy. E. T. Campbell, Starke.
45 Case of Absence of Vagina and Uterus. E. W. Warren, Palatka.

Indiana State Medical Association Journal, Fort Wayne

April, IX, No. 4, pp. 135-178

46 *Toxemias of Pregnancy. C. E. Ferguson, Indianapolis.
47 Painless Childbirth. L. Burkhardt, Indianapolis.
48 Cesarean Section in Conservative Obstetrics. G. B. Jackson, Indianapolis.
49 Effect of Toxemia of Pregnancy on Newborn. H. F. Beckman, Indianapolis.

46. Abstracted in The Journal, Nov. 20, 1915, p. 1847.

Journal of Experimental Medicine, Baltimore

May, XXIII, No. 5, pp. 563-701

50 Bactericidal Properties of Quaternary Salts of Hexamethylenetetramin. Problem of Chemotherapy of Experimental Bacterial Infections. W. A. Jacobs, New York.
51 *Id. Relation Between Constitution and Bactericidal Action in Substituted Benzylhexamethylenetetraminium Salts. W. A. Jacobs, M. Heidelberger and H. L. Amoss, New York.
52 Id. Relation Between Constitution and Bactericidal Action in Quaternary Salts Obtained From Halogenacetyl Compounds. W. A. Jacobs, M. Heidelberger and C. G. Bull, New York.
53 *Protection of Pathogenic Micro-Organisms by Living Tissue Cells. P. Rous and F. S. Jones, New York.
54 *Effect of Digitalis on Normal Human Electrocardiogram, With Especial Reference to A-V Conduction. P. D. White and R. R. Sattler, Boston.
55 *Influence of Tethelin, and of Other Alcohol-Soluble Extractives From Anterior Lobe of Pituitary Body on Growth of Carcinomas in Rats. T. B. Robertson and T. C. Burnett, Berkeley, Calif.
56 *Intravenous Injection of Magnesium Sulphate for Anesthesia in Animals. J. Auer and S. J. Meltzer, New York.
57 *Experimental Study of Additive and Antagonistic Actions of Sodium Oxalate, and Salts of Magnesium and Calcium in Rabbit. F. L. Gates and S. J. Meltzer, New York.
58 Distribution of Trypan-Red to Tissues and Vessels of Eye as Influenced by Congestion and Early Inflammation. P. A. Lewis, Philadelphia.
59 Appearance of Pressor Substance in Fetal Hypophysis. D. Lewis, Chicago.
60 *Chemical vs. Serum Treatment of Epidemic Meningitis. S. Flexner and H. L. Amoss, New York.

51. **Bactericidal Action in Substituted Benzylhexamethylenetetraminium Salts.**—By the addition of substituted benzyl halids to hexamethylentetramin, a series of quaternary salts of this base was obtained. These salts represent a new group of organic bactericides. The results obtained in the tests with these substances on *B. typhosus* demonstrated the existence of direct relationships between chemical constitution and bactericidal action within the series. Several substances in which two hexamethylenetetraminium side-chains occurred were found to be the most active of the substances of this series when tested against *B. typhosus.* Comparative tests with other bacterial types demonstrated that these compounds possessed a marked degree of specificity for *B. typhosus.*

53. **Protection of Pathogenic Micro-Organisms.**—The experiments reported on by Rous and Jones show that living phagocytes are able to protect ingested organisms from the action of destructive substances in the surrounding fluid, and even from a strong homologous antiserum. There was evidence that the protection by phagocytes is largely if not entirely conditioned on their being alive. These facts the authors would take into consideration in the study of diseases caused by infectious agents capable of living within tissue cells.

54. **Effect of Digitalis on Human Electrocardiogram.**—White and Sattler gave digitalis by the mouth to five normal young male adults in amounts ranging from 2.0 to 3.0 gm. of standardized leaves in the course of seven to ten days. The As-Vs interval was prolonged in four to five subjects, the greatest prolongation occurring in the case of the subject who received the most digitalis and none at all in one who received only 2.0 gm. There was no prolongation to so great an interval of 0.2 second until 2.7 gm. had been taken. The effects of the digitalis on conduction time began five to six days after the drug had been started and after 1.5 to 1.8 gm. had been taken. The effects persisted for one to two weeks after the drug had been stopped. Atropin removed completely the effect of digitalis on A-V condition. The slowing heart rate after exercise was accompanied by an enhancement of the defect in conduction. The change in conduction through digitalis was therefore almost entirely, if not entirely, due to increase of vagal tone and irritability. Digitalis did not affect to an appreciable extent the Q-end of S and the Q-end of T intervals. Exercise and atropin both shortened the ventricular complex Q-end of T while the subject was under digitalis. The amplitude of the T wave, especially in Lead II, was changed within forty-eight hours after digitalis had been started, a decrease then beginning which became greater as the drug was continued and which persisted until ten to nineteen days after the digitalis had been stopped. The change in the T deflection preceded by several days the change in conduction time. The T wave, therefore, in the normal subject as well as in the patient gives us the earliest indication of digitalis action. The amplitudes of P, Q, R and S were not materially influenced by the amounts of digitalis given. The pulse rate in two subjects became lower than usual at night as the result of the digitalis; otherwise there was no evidence of vagal action on the sino-auricular node. Blood pressure was uninfluenced by the digitalis. Mild subjective sensations occurred in all the subjects during the administration of the drug. A curious, hitherto undescribed, digitalis arrhythmia consisting of blocked auricular premature beats occurred in one subject after 3.0 gm. of digitalis had been taken.

55. **Influence of Tethelin on Growth of Carcinomas.**—The experimental work done by Robertson and Burnett showed that the hypodermic administration of tethelin increases markedly the rate of growth of the primary tumor and the tendency to form metastases in rats inoculated with carcinoma, in this, as in other respects, reproducing the action of the whole anterior lobe of the pituitary body. Other alcohol-soluble extractives of the anterior lobe of the pituitary body, with the exception of the lecithin fraction, exerted no appreciable effect on the growth of carcinomas in rats. The lecithin fraction, as in previously reported experiments in which lecithin obtained from eggs was obtained, causes evident retardation of the growth of carcinomas in rats.

56. **Injection of Magnesium Sulphate for Anesthesia in Animals.**—The results of their experiments Auer and Meltzer believe justify the following general conclusions: By the intravenous injection of M/4 magnesium sulphate into dogs at a certain rate, a stage can be reached where the abdominal walls are completely relaxed and when section of the abdomen and stimulation of sensitive parts of the parietal peritoneum do not produce pain or elicit any reaction of the animal. At the same time spontaneous respiration may still be maintained within normal limits and the lid reflex be fair or even normal. In this stage intratracheal intubation for artificial respiration can easily be accomplished. This stage may be attained in twelve to fourteen minutes when the rate of injection is about 3 c.c. per minute. When this stage is once attained the rate of injection should gradually be reduced, otherwise, sooner or later, spontaneous respiration will be abolished, and by a further maintenance of the rate of injection all the skeletal muscles may become paralyzed. When the injection of magnesium is continued for a longer period, the paralytic effects of the magnesium injection will set in, even when administered at a slow rate. The paralysis of the respiratory function is readily met by intrapharyngeal insufflation. The paralytic effect of the magnesium may be abolished fairly rapidly by an intravenous injection of about 10 c.c. of an M/8 calcium chlorid solution; or it may disappear slowly, after the infusion of the magnesium solution is discontinued for some time. The latter mode of disappearance may be favorably accelerated by an

intravenous infusion of 60 to 100 c.c. of an M/4 solution of sodium sulphate. The production of anesthesia by intravenous injection of magnesium sulphate should not be undertaken unless an apparatus for intrapharyngeal insufflation is at hand, because in exceptional cases the disappearance of spontaneous respiration may be one of the earliest consequences of the magnesium injection. The injection of calcium chlorid should not be employed in cases in which the subject shows cardiac insufficiency. In such instances, moreover, injections of magnesium should not be used for the purpose of anesthesia; at least not until greater experience has been acquired in the employment of this method.

57. **Sodium Oxalate, and Salts of Magnesium and Calcium in Rabbit.**—Gates and Meltzer claim that the experiments detailed by them firmly establish the following facts: Subcutaneous or intramuscular injections of sodium oxalate in subtoxic doses, when administered to an animal which received a subminimal dose of magnesium sulphate, produce profound anesthesia and paralysis of long duration, although the usual effects of sodium oxalate alone are of a stimulating character. The combined injections of subminimal doses of sodium oxalate and magnesium sulphate produce a strong reduction, or even, at times, a complete abolition of the conductivity of the motor nerve endings. An intravenous injection of calcium salts brings on a recovery from the profound and prolonged effects of the combined action of sodium oxalate and magnesium sulphate, which is as prompt as is observed in experiments in which effective doses of magnesium alone were given.

60. **Treatment of Epidemic Meningitis.**—Protargol and lysol have shown themselves not to be curative, but rather to be injurious in experimental meningococcic infection produced in guinea-pigs and monkeys by Flexner and Amoss. Far from exhibiting power to convert a fatal into a nonfatal issue, they have shown rather a reverse tendency. Even when, as in certain tests on monkeys, recovery occurred after employing protargol, the symptoms of the treated animals were intensified as compared with the untreated control animals. The manner of action of the chemicals is precisely the reverse of the antiserum. The latter acts leukotactically and brings into the infected serous cavities a far larger number of leukocytes than would otherwise appear there in the same period of time. Moreover, by preparing the meningococci for phagocytosis by supplying opsonin and by facilitating that process by agglutinating the diplococci, the serum greatly promotes the englobing of the micro-organisms. Finally, through the possession of antitoxic power it neutralizes whatever endotoxin may be liberated by the disintegrating diplococci. The antiserum is capable of overcoming part of the defects of the chemicals. Because of its leukotactic and phagocytic properties, the antiserum removes some of the damage which the chemicals produce on account of their antagonism to those essential phenomena. But combinations of the chemical and the antiserum have proved less effective in combating experimental meningococcic infection than the antiserum alone, from which the deduction may be made that whatever benefit may attach to effective direct bactericidal action by the chemicals, irrespective of the type of meningococcus causing the infection, is lost because of the dangers arising from their antiphagocytic effects and lack of detoxicating properties.

Journal of Infectious Diseases, Chicago

May, XVIII, No. 5, pp. 437-567

61 *Bacteria of Milk Freshly Drawn From Normal Udders. A. C. Evans, Washington, D. C.
62 *Etiology and Experimental Production of Herpes Zoster. E. C. Rosenow, Chicago, and S. Oftedal, Rochester, Minn.
63 Epidemiology of Pellagra in Nashville, Tennessee. J. W. Jobling and W. Petersen, Nashville, Tenn.

61. **Bacteria of Fresh Milk from Normal Udders.**—In 32, or 16.1 per cent. of the whole number of samples studied by Evans bacteria were not multiplying in numbers worth considering. Three types of bacteria were found commonly present in milk from all five dairies; they were streptococci, staphylococci, and bacilli. The ordinary milk-souring organism, *Streptococcus lacticus* (Kruse), was not found in any of the samples of milk. Long-chained streptococci which failed to give the reduction of litmus in milk cultures characteristic for *Streptococcus lacticus* were isolated from 29, or 15.1 per cent. of the whole number. The highest number found per cubic centimeter was 264,000. Micrococci were found in 113, or 58.8 per cent. of the whole number. The highest number found per cubic centimeter was 80,000.

62. **Experimental Production of Herpes Zoster.**—It would appear from the experimental and clinical studies made by Rosenow and Oftedal that herpes zoster is due to a streptococcus having elective affinity for the ganglia and the posterior roots. The possibility, however, that the disease in some instances may be due to other bacteria having a similar affinity is admitted. The streptococcus found by them resembles morphologically the diplococci found in the gasserian ganglia by Sunde. The occurrence of relatively slight lesions in ganglia without peripheral herpes, adjoining those showing marked lesions accompanied by herpes; and the finding in the probable atrium of infection of bacteria having affinity for the posterior roots and ganglia in a patient who continued to have pain after the lesion of the skin had healed, and not in those patients who were free from pain, suggests to the authors that the pain in post herpetic neuralgia and allied conditions is due to active but slight infection of the ganglia or posterior roots. The occurrence of herpes zoster in patients who have ulcer of the stomach or empyema according to Rosenow and Oftedal is probably not a reflex arc effect or infection of the ganglia by way of the nerve lymphatics, but is due to a hematogenous infection from a focus harboring streptococci that have an elective affinity for the structures involved. The occurrence in 8 per cent. of the animals used of ulcer of the stomach (proved to be due to local streptococcal infection in the mucous membrane following injection of these strains), is in line with this idea. The fact that visceral herpes with accompanying lesions of the vagus and sympathetic ganglia has been produced experimentally, supports the view held by clinical observers that visceral herpes occurs in man, and since it occurred chiefly in animals with severe, usually fatal, bilateral herpes, it affords experimental evidence in favor of the general impression that bilateral herpes is apt to end fatally.

The absence of streptococci in the clear blister fluid both in man and in animals when the organisms are present in the ganglia, and the presence of pain before peripheral lesions can be made out, suggests to the authors that the lesions in the ganglia are primary, and that the peripheral manifestations—herpes of the skin, tongue, lip, and the viscera—are secondary trophic effects. The occurrence of herpes in cases of pressure-paralysis of the spinal cord would seem to be in accord with this idea. The finding of the streptococcus in the turbid bloody blister-fluid in one man and in the severer peripheral lesions—skin, mucous membrane, tongue, and viscera—in experimental disease, the common occurrence of thrombosed blood vessels containing diplococci in both the peripheral and central lesions, and the absence of bacteria and demonstrable changes in the intervening nerve trunks, suggest strongly that while the primary milder lesions are trophic, making a "locus minoris resistantiae," the severer lesions, presenting as they do all the features of an infectious process, are the result of a superimposed hematogenous infection.

Journal of Laboratory and Clinical Medicine, St. Louis

April, I, No. 7, pp. 457-540

64 Hay Fever and Certain Other Local Anaphylactic Phenomena Referable to Respiratory Mucous Membranes. A. P. Hitchens and C. P. Brown, Glenolden, Pa.
65 Cerebellar Localization in Light of Recent Research. D. Black, Cleveland.
66 Regular Ectopic Rhythms. F. N. Wilson, Ann Arbor, Mich.
67 *Effect of Venous Stasis on Proteins of Human Blood Serum. A. H. Rowe, San Francisco.
68 *Protein Poison of Vaughan. R. W. Pryer, Detroit.
69 Treatment of Syphilis of Central Nervous System; Report of Cases. H. G. Pamment, Toledo.
70 *Heteroplastic Bone and Bone Marrow Formation Associated With Tuberculosis in Suprarenal. P. G. Woolley, Cincinnati.
71 Cardiac Formula for Relative Measurements of Valvular Orifices. R. A. Keilty, Philadelphia.

72 Compression Syndrome of Cerebrospinal Fluid; Report of Case. G. W. Brock, Atlanta, Ill.
73 *Present Status of Suprarenal Problem. R. G. Hoskins, Chicago.
74 *Results of Quantitative Albumin Determinations (Potassium Ferrocyanid) From Six Thousand Cases of Suspected Tuberculosis. M. L. Holm and E. R. Chambers, Lansing, Mich.
75 Fridericia's Method for Determination of Carbon Dioxid in Alveolar Air. J. J. R. Macleod, Cleveland.

67. **Effect of Venous Stasis on Proteins of Human Blood Serum.**—From the experimental data obtained by Rowe it appears that with a constant degree of venous stasis between the diastolic and systolic pressure, the total proteins increase with the duration of the stasis. When blood was taken from a vein, one minute after an ordinary tourniquet was applied to produce stasis, there was only 0.17 per cent. increase in the total protein and therefore too small an amount to split into albumin and globulin. The nonprotein elements underwent no change due to the stasis. In one case the globulin increase was greater than the albumin possibly due to the fact that the amount of globulin in the normal specimen was greater in relation to the albumin than in any other case of this series.

68. **Protein Poison of Vaughan.**—Pryer summarizes his paper as follows: All proteins contain a poisonous group. The protein poison is not b-imidazolethylamin, although the physiologic actions of the two are very similar. The protein poison is not a cholin derivative. Protein poison is not a simple chemical compound, but is a protein change product, acid in reaction, capable of forming salts and reacting much like the globulins in its behavior to neutral salts.

70. **Bone and Bone Marrow Formation in Tuberculous Suprarenal.**—In the case reported by Woolley the clinical diagnosis was spastic paraplegia. The anatomic diagnosis was, generalized miliary tuberculosis; tuberculous costochondritis; acute vegetative aortic endocarditis; tuberculous pyonephrosis; serous meningitis; pyorrhea alveolaris; varicose leg ulcer; mediastinal anthracosis; calcified mesenteric lymph glands; suprarenal tumor (?). This tumor was examined microscopically. Nothing remarkable was encountered in the cortex. Aside from a moderate lipoid change, and the presence of a few foci of so-called adenomas, there was nothing worthy of note, except at one or two places where a few spicules of bone were observed surrounding a cellular structure which resembled bone marrow. The medulla was evidently hyperplastic and at one point was the area which at postmortem had been described as possibly an adenoma. This turned out to be a mass of myeloid tissue almost completely surrounded by well formed bone, and containing within it at more than one point several miliary tubercles. Further search in other sections brought to light occasional tubercles in the cortex of the suprarenal, usually closely associated with the myeloid areas. Careful study of these anomalous foci gave definite evidence that they were actually and typically bone marrow surrounded by bone. There was a rich capillary network with endothelial lining between which were numbers of lymphocytes, leukocytes, myelocytes and giant cells, beside developmental forms of red blood cells. The bone was lined with periosteum and endosteum. Woolley believes that the fundamental lesion was a chronic tuberculous one, and that the bone and medulla formation was secondary to the irritation produced by the tubercle bacilli.

73. **Present Status of Suprarenal Problem.**—In concluding his paper, Hoskins says, that the fundamental question remains yet to be answered: Why does the removal of the suprarenal glands cause death? The trend of the evidence now available suggests that muscular metabolism is at fault. If that be true the solution, like that of many other of the most puzzling medical problems, rests in the hands of the biologic chemists.

74. **Potassium Ferrocyanid Test in Tuberculosis.**—Holm and Chambers have employed their potassium ferrocyanid test on over 6,000 sputums and it has proved entirely satisfactory. Out of the total sputums examined, tubercle bacilli were present in 1,412 (albumin present in 97 per cent.) and absent in 4,588 (albumin present in 60 per cent.). In addition they examined discharges from a considerable number of abscesses as well as secretions and exudates from various other parts of the body. Such abscesses have generally shown albumin ranging in volume from 10 to 35 per cent. Two cases of pulmonary edema gave albumin over 50 per cent. by volume. Twenty-eight cases of pneumonia in various stages gave albumin ranging from 10 to 50 per cent. by volume. Eleven cases of pleuritic effusion, diagnosed as tuberculosis gave albumin above 50 per cent. by volume. One case of tuberculosis of the bowel gave about 1 per cent. volume of albumin in the stool and seven cases of tuberculosis of the kidney showed 10 to 25 per cent. of albumin by volume in the urine.

Journal of Nervous and Mental Disease, Lancaster, Pa.

April, XLIII, No. 4, pp. 297-392

76 Two Cases (Brothers) of Progressive Lenticular Degeneration. A. S. Hamilton and H. W. Jones, Minneapolis.
77 *Study of Some Cases Diagnosed as Paresis in Pre-Wassermann Days. L. G. Lowry, Hathorne, Mass.
78 Unusual Case of Psychasthenia. G. E. Price, Philadelphia.
79 Dystonia Musculorum Deformans; Report of Case. T. Diller and G. J. Wright, Pittsburgh.
80 Peripheral Neuritis With Korsakow's Symptom Complex. (To be continued.) A. A. Wilson, Washington, D. C.

77. **Paresis in Pre-Wassermann Days.**—Data are presented by Lowrey dealing with 58 cases diagnosed with more or less certainty as paresis at Danvers between May, 1898, and May, 1912 (prior to the routine use of the Wassermann test). Of 13 cases in which paresis was not excluded, 1 is a paretic and 1 remains unclassed. Of the other 11, 4 are cases of dementia praecox, and the diagnoses were long ago established. Of 17 cases in which paresis was the probable diagnosis, not one is a paretic. Ten are cases of dementia praecox. Of 28 cases in which paresis was certain, 8 are paretic and 2 more are probably so. Fourteen cases can definitely be classed elsewhere and 7 are cases of dementia praecox. The other four cases are not paretic, but cannot be classed. The serologic investigation of cases in which paresis is suspected is an absolute requisite for establishing a correct diagnosis. Had the Wassermann and spinal fluid tests been known at the time these patients were presented for diagnosis, paresis might have been immediately excluded or confirmed. Clinical observation over a sufficient length of time will correct the diagnosis in the majority of cases, but this method has very obvious disadvantages. Lowrey points out that his study presents a basis for the conclusion that dementia praecox is often extremely hard to differentiate from paresis. A case of dementia praecox may present unequal pupils, exaggerated knee jerks, etc., and it is here that laboratory tests are of great aid.

Journal-Lancet, Minneapolis

April 15, XXXVI, No. 8, pp. 215-246

81 Mouth as Factor in Pathogenesis of Heart, Kidney and Joint Inflammations. T. B. Hartzell, Minneapolis.
82 Madelung's Deformity; Report of Case. G. Earl, St. Paul.
83 Treatment of Intractable Pruritus Ani by Local Anesthetic Methods. W. E. Ground, Superior, Wis.

Medical Record, New York

April 29, LXXXIX, No. 18, pp. 765-806

84 Periostitis and Osteitis. C. L. Dana, New York.
85 Autosensitized Vaccines. M. G. Wohl, Omaha.
86 Transportation of Wounded on Austro-Russian Front. E. K. Tullidge, Middletown, Conn.
87 Postoperative Treatment of Peptic Ulcer and Cholecystitis. J. R. Verbrycke, Jr., Washington, D. C.
88 Some Clinical Phases of Vasomotor Neuroses. W. E. Hartshorn, New Haven, Conn.
89 Shakespearean Conceptions of Some Medical Topics. J. A. Hagemann, Pittsburgh.
90 Treatment of Disease by Injections of Deep-Sea Water and Radium. F. E. Park, Stoneham, Mass.

New York Medical Journal

April 29, CIII, No. 18, pp. 817-864

91 Constitutional Conditions Caused by Oral Sepsis. J. Daland, Philadelphia.
92 Syphilis in Epilepsy. W. T. Shanahan, J. F. Munson and A. L. Shaw, Sonyea.
93 War of Metric System. A. L. Benedict, Buffalo.
94 Paralytic Feet. P. W. Roberts, New York.

95 Advantages of Pyelotomy in Renal Calculus. H. Moyrand, Grenoble, France.
96 Anorectal Fistula. A. A. Landsman, New York.
97 Urologic Diagnosis. J. Wittenberg, New York.
98 Teachers' Vitality as Indicated by Blood Ptosis Test. I. H. Goldberger, New York.
99 Medical Questions in Pennsylvania Compensation Act. H. A. Mackey, Philadelphia.

New York State Journal of Medicine

April, XVI, No. 4, pp. 167-222

100 Bladder Irritations and Inflammations in Women. H. N. Squire, Utica.
101 *Treatment of Hydrocephalus by Cisterna Sinus Drainage. I. S. Haynes, New York.
102 Treatment of Syphilis in Secondary Stage. S. Pollitzer, New York.
103 Heart in Syphilis. H. Brooks, New York.
104 Importance of Early and Proper Treatment in Diseases and Injuries of Eyes. J. S. Kirkendall, Ithaca.
105 *Eye Findings in One Hundred Patients With Pulmonary Tuberculosis. A. J. Bedell, Albany.
106 Pellagra. G. K. Collier, Sonyea.
107 Standardization of Conditions Affecting Posture. H. L. Taylor, New York.
108 *Case of Primary Melanotic Sarcoma of Lung Presenting Difficulties in Differentiating From Tuberculosis. O. F. Kunkel, Bells Camp, Pa., and E. Torrey, Olean.
109 Cases of Subacromial Bursitis and Concretions. W. W. Plummer, Buffalo.
110 *Results of Schick Test at Rochester Orphan Asylum. S. S. Bullen, Rochester.
111 Case of Brain Tumor (Glioma) in an Infant. G. A. Marion, Rochester.

101. Treatment of Hydrocephalus by Cisterna Sinus Drainage.—Haynes has operated on eight patients by this method. Termination: Died on table from shock 1. One hour after operation, shock, 1. On the third day, 1. On the fifth day, bronchopneumonia, 1. Head showed decided improvement. On the sixth day, 1. Total, 5. Discharged from hospital.—One lived eighteen months afterward with apparent arrest of hydrocephalus, died finally of "summer complaint." Another died one month after operation. Head much improved, attack of gastro-intestinal disturbance with apparent recovery. Died suddenly when in apparent good condition. A third was hopeless at the end of a month, drainage had ceased and the disease returned. A fourth was much improved, but died one or two months later in July or August with fever and diarrhea. Head had not increased in size. The fifth discharged in "fine condition." Could not be traced. The sixth, three months later, "very much improved physically and mentally." The seventh was discharged improved. At end of two months condition began to return. Readmitted and operated second time. Slight if any improvement.

105. Eye Findings in Pulmonary Tuberculosis.—Seventeen females and eighty-three males were examined by Bedell. The results showed: hypermetropic eyes, 54; myopic, 3; myopic astigmatism, 12; mixed astigmatism, 7; hypermetropic astigmatism, 26; compound hypermetropic astigmatism, 39; emmetropic, 4. The pupils were equal in sixty-nine and unequal in thirty-one.

108. Melanotic Sarcoma of Lung.—For eight months the general picture of this case was identical with that of many cases of tuberculosis. During this time the authors noticed that the patient's general condition appeared to improve to about the same degree under sanatorium treatment as would a case of tuberculosis. The diagnosis of malignancy could not be made until the patient developed an effusion. The true type of malignant tumor could only be determined at necropsy.

110. Results of Schick Test.—One hundred and thirty-two normal, healthy children were tested by Bullen in May, 1914, and the test was repeated on 100 of them in April, 1915. On both occasions, practically 55 per cent. were found to have sufficient natural antitoxin in their tissues to neutralize the toxin injected, that is, at least $\frac{1}{30}$ unit per c.c. of serum, sufficient to protect against diphtheria. Eighteen children who gave positive reactions in May, 1914, showed no reactions in April, 1915. Fifteen children who gave no reactions when first tested, showed more or less strongly marked reactions at the second test.

Northwest Medicine, Seattle

April, XV, No. 4, pp. 109-144

112 Fracture Problem. C. F. Eikenbary, Spokane.
113 Plea for Conservative Treatment of Fractures. H. E. Allen, Seattle.
114 Fracture Records, National Effort Toward Standardization. T. W. Huntington, San Francisco.
115 Prenatal Care. A. N. Creadick, Portland, Ore.
116 Twilight Sleep and Conversational Anesthesia. T. M. Burns, Denver.
117 Nerve Blocking in Labor. R. W. King, Salt Lake City.
118 War Surgery and Treatment. E. V. Morrow, Belgium.
119 Neosalvarsan Fatality. W. R. Jones and K. J. Holtz, Seattle.

Ohio State Medical Journal, Columbus

April, XII, No. 4, pp. 233-304

120 Clinicopathologic Study of Poisoning by Bichlorid of Mercury. S. A. Hatfield, Columbus.
121 Pathology, Diagnosis and Treatment of Tuberculosis of Kidney. C. A. Coleman, Dayton.
122 Medicine and Public. J. W. Clemmer, Columbus.
123 Food Poisoning. H. D. Jackson, Circleville.
124 Negro Health Problem in Small Cities. J. R. McDowell, Springfield.
125 Indications for Removal of Eye. J. R. Mossgrove, Steubenville.
126 Local Anesthetics in Nose, Throat and Larynx Operations. M. Metzenbaum, Cleveland.
127 Measles in Ohio; Annual Mortality, Geographic and Seasonal Distribution; Etiology, Transmission and Prevention. F. G. Boudreau, Columbus.
128 Suggestions to Physicians for More General Use of Diagnostic Laboratories of State Health Department. L. H. Van Buskirk, Columbus.

Southern Medical Journal, Birmingham

April, IX, No. 4, pp. 287-382

129 *Allen (Fasting) Treatment of Diabetes. I. I. Lemann, New Orleans.
130 Weaning. J. R. Snyder, Birmingham.
131 Training Babies. L. W. Elias, Asheville, N. C.
132 Morphinism and Kidney Disease. J. W. Stevens, Nashville, Tenn.
133 Autotherapy. J. C. Parham, Charleston, S. C.
134 Conservation of Health. J. W. Duke, Oklahoma City.
135 Malaria and Pseudomalaria. A. A. Herold, Shreveport, La.
136 Treatment of Malaria Relative to Its Eradication. T. E. Wright, Monroe, La.
137 Two Years Public Health Campaign in Rural County. C. A. Grote, Jasper.
138 History of Pellagra — Certain Salient Points. C. H. Lavinder, Ellis Island, N. Y.
139 Pellagra. J. F. Yarbrough, Columbia.
140 *Control of Persistent Uterine Bleeding Complicating Menopause Fibromyomata and Carcinoma of Uterus by Radium. C. J. Miller, New Orleans.
141 Neglected Appendicitis — Its High Mortality Diagnostic and Therapeutic Responsibility. F. G. DuBose, Selma.
142 Study of Intestinal Stasis. J. E. Johnson, Memphis, Tenn.
143 Protection and Closure of Incisions. R. M. Harbin, Rome, Ga.
144 After-Treatment of Abdominal Operations. L. Abramson, Shreveport, La.
145 Present Status of Gastrojejunostomy. A. L. Blesh, Oklahoma City.
146 Immediate and After-Treatment of Railway Injuries. W. W. Grant, Denver.
147 Operative Technic of Late Traumatic Cataract. E. R. Carpenter, El Paso, Tex.
148 Local Anesthesia in Conjunction With General Anesthesia in Mastoid Operations. T. W. Moore, Huntington, W. Va.
149 Lateral Sinus Thrombosis. J. H. Barnes, Enid, Okla.
150 Mastoiditis With Lateral Sinus Thrombosis and Cerebellar Abscess; Operation; Recovery. J. H. Foster, Houston, Tex.

129. Abstracted in THE JOURNAL, Dec. 11, 1915, p. 2118.
140. Abstracted in THE JOURNAL, Dec. 11, 1915, p. 2117.

Texas State Journal of Medicine, Fort Worth

April, XI, No. 12, pp. 623-678

151 Respiratory Symptoms in Heart Disease. J. S. Lankford, San Antonio.
152 Obligation of Medical Examiner. H. W. Cook, Minneapolis.
153 Life Insurance as Specialty. I. McNeil, El Paso.
154 Relation Between Life Insurance Agent and Local Medical Examiner. P. H. Scardino, Houston.
155 Cooperation of Medical Director and Local Examiner. B. L. Jenkins, Clarendon.
156 Relation of Medical Examiner to Medical Director. M. B. Grace, Seguin.
157 Use of Vaccines in Infectious Diseases of Ear, Nose and Throat. R. E. Moss, Antonio.
158 Hexamethylenamin in Diseases of Ear, Nose and Throat. C. B. Williams, Mineral Wells.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

April, XIII, No. 148, pp. 97-128

1 Vascular Disease in Young; Report of Cases. C. W. Chapman.
2 Common Speech Disorders of Childhood. J. Priestley.
3 Infiltration of Heart by Large Round-Celled Sarcoma. E. C. Williams.

British Medical Journal, London

April 8, I, No. 2884, pp. 509-540

4 *Penetrating Wounds of Abdomen. J. Fraser and H. T. Bates.
5 *Method of Treating General Peritonitis With Obstruction, and Its Application in Military Surgery. W. S. Handley.
6 Cases of Traumatic Gastric Ulcers. T. R. Elliott and H. Henry.

4. **Penetrating Wounds of Abdomen.**—Fraser and Bates are convinced that in the vast majority of cases of penetrating wounds of the abdomen operative measures offer the best chance of success. They qualify this statement by excluding from the category uncomplicated wounds of the liver and certain wounds of the kidney. When the wound affects the hollow viscera of the abdomen, it is only as the rarest exception that a spontaneous recovery occurs. When these cases arrive in the hospital they are almost universally in a state of intense collapse, therefore, it is advisable to wait for a period of from one to two hours, until the increased shock of the journey has subsided. To this rule one exception is made: those cases which show evidence of rapid and progressive hemorrhage; in such cases the risks attendant on immediate operation are taken. These cases are generally complicated by some degree of hemorrhage, and stimulant measures in all probability tend to increase the bleeding; therefore the authors limit the preoperative stimulation to getting the patient thoroughly warm and administering 1 c.c. pituitary extract. During the operation every precaution is taken to minimize the degree of shock; the operating room is thoroughly heated, the table is provided with a hot-water bed; the authors have found it advantageous to operate on these patients while they are in the Trendelenburg position. Immediately before the operation commences the administration of subcutaneous saline by a Lane's bag is begun, and it is continued throughout the operation; three to four pints of fluid are frequently given in this way. Henderson's closed ether anesthesia has given great satisfaction. The abdomen is opened by a large incision. If the abdominal cavity contains a large quantity of blood, sufficient of this is rapidly swabbed away with a long roll of dry gauze to clear the view. A systematic examination of the various viscera is now carried out. As to whether the abdominal cavity should be washed out, in early cases with extensive soiling of the peritoneal cavity they have done so; in later cases, and in those which showed evidences of peritonitis they have not done so. They have found it sufficient to establish drainage by a single Keith's tube, passing into the pouch of Douglas. In special instances such as have already been mentioned they have found it necessary to drain locally or in the flanks.

5. **Method of Treating General Peritonitis.**—This paper deals exclusively with cases in which the accepted modes of treatment have failed to avert or relieve paralytic obstruction of the bowels. The principle involved is stated generally in the following terms: In cases of peritonitis involving the lower part of the peritoneal cavity up to the level of the pelvic brim, when obstruction supervenes, it can be treated successfully by the improvisation of a shortened but complete alimentary canal above that level. In peritonitis limited to the pelvis, the intestinal paralysis affects exclusively the portions of gut contained in the pelvic basin, namely, the lower portion of the ileum, and the pelvic colon and upper portion of the rectum. In so-called general peritonitis, at the time intestinal obstruction supervenes, the line separating the inflamed and uninflamed districts of the peritoneum is roughly a horizontal line drawn through the umbilicus. Below this line lies paralyzed intestine, above it intestine which is still functionally active. Thus in clinical "general peritonitis" the conditions are not dissimilar in kind from those present in ileus duplex, but the level separating the inflamed district of the peritoneum from the upper uninflamed portion is situated higher up. The parts of the alimentary canal which are still unparalyzed, and therefore available for constructing the suggested emergency alimentary canal, are the stomach, the jejunum, and probably the transverse colon, which lies on the boundary line of the inflamed district. All the rest of the intestine, small and large, is paralyzed. Handley's scheme of treatment is as follows: (1) for the pelvic peritonitis and intestinal obstruction (ileus duplex) consequent thereon—ileocolostomy to the ascending colon with cecostomy; (2) for so-called "general peritonitis," that is, unlocalized peritonitis, extending roughly up to the level of the umbilicus, with intestinal obstruction (hypogastric ileus)—jejunocolostomy to the transverse colon, with cecostomy. In all cases pelvic drainage must be provided.

Glasgow Medical Journal

April, LXXXV, No. 4, pp. 241-312

7 Gas Gangrene in Present War. M. Weinberg.
8 Cases of Complications of Pregnancy. R. Jardine.
9 Pyuria, Its Causes and Diagnosis. D. Newman.

Indian Medical Gazette, Calcutta

March, LI, No. 3, pp. 81-120

10. *Pituitary Extract in Labor at Government Maternity Hospital, Madras. C. A. F. Hingston.
11 Tuberculosis in Indian Army in France. R. F. Hebbert.
12 Lucky Wound of Head. C. H. Reinhold.
13 Noguchi's Serum Test for Syphilis. W. R. Galwey and C. H. Marchant.
14 Medical and Surgical Notes at Miraj Hospital. W. J. Wanless and C. E. Vail.
15 Intestinal Parasites in Central Jail, Rajahmundry. R. W. Chester.
16 Vesicovaginal Fistula. H. Smith.
17 Beta Naphthol in Ankylostomiasis. O. R. Corteling.
18 Ectopic Gestation — Rupture; Operation; Recovery. S. Gaster.
19 Case of Impetigo Bullosa. K. P. Lahiri.

10. **Pituitary Extract in Labor.**—During the last two years over 1,000 doses of pituitary extract have been given at the Government Maternity Hospital to women in different stages of labor. Hingston has come to the conclusion that the earliest time to give pituitary extract is when the cervix is effaced, whatever size the external os may be. On account of the intense pain due to uterine contractions, pituitary extract should not be given alone, and when it has been injected chloroform inhalation or morphin injection should be administered at once. The record of these cases shows that there is no danger to the child or mother when pituitary extract is given. No death has occurred in cases in which pituitary extract and small doses of morphin (¼ grain) or pituitary extract and chloroform have been administered. No deaths have occurred after the injection of pituitary extract and large doses of morphin (1 grain), but in these cases some difficulty has been experienced in inducing natural breathing in the infant. No children have been lost in these cases. Hingston insists that scopolamin should not be given when pituitary extract is used, as the child may not survive and will certainly be born in a poisoned condition. Two infants were lost; although the heart beat strongly for more than an hour respiration could not be induced even with Sheil's fluid. Pituitary extract administered with small doses of morphin, ¼ grain, repeated once or twice, has been found to be a great success, but Hingston considers that the best method is to give pituitary extract injection in combination with chloroform inhalation.

Journal of Pathology and Bacteriology, Cambridge

January, XX, No. 3, pp. 213-365

20 *Serologic Investigation of Heterologous Immunity to Malignant Tumors of Mouse and Rat. M. Tsurumi.
21 Transplantable Sarcoma of Guinea-Pig. J. A. Murray.
22 Comparison of Various Strains of Bacillus Pseudotuberculosis Rodentium (Pfeiffer), With Special Reference to Certain Variation Phenomena. S. Kakehi.
23 Pathology of Cardiac Dropsy. C. Bolton.
24 Certain Anaerobes Isolated From Wounds. M. Robertson.
25 *Staining of Bacterial Capsules in Films and Sections. R. Muir.

20. **Malignant Tumors of Mouse and Rat.**—By immunizing rabbits against mouse tumors, Tsurumi was able to obtain antiserum hemolytic for mouse erythrocytes. This immune serum also contained specific agglutinins for the red blood corpuscles of the corresponding species and com-

plement fixing antibodies are present in the immune serum obtained by immunizing rabbits with mouse and rat tumors. The precipitin reaction with mouse-tumor and rat-tumor antiserum while quite definite was not very strong.

25. **Staining of Bacterial Capsules.**—With one preparation Muir demonstrated the gram-positive reaction and at the same time brings about a differential staining of the capsule. This addition to "Gram's method" can be applied both to film preparations (wet and dry) and to paraffin prepared sections. The original article should be consulted for the details of this method.

Lancet, London

April 8, I, No. 4832, pp. 759-808

25 *Use of Stock Vaccine in Infection by Bacillus Typhosus. T. H. Whittington.
27 *Agglutination Tests in Inoculated Persons, and Influence of Febrile Conditions on Inoculation Agglutinins. G. Dreyer, A. G. Gibson and E. W. A. Walker.
28 *New Apparatus for Isolation and Cultivation of Anaerobic Micro-Organisms. J. McIntosh and P. Fildes.
29 Gunshot Wounds of Spine; Their Surgical Aspect. D. Armour.
30 *Anesthesia for Enucleation of Tonsils. J. Blomfield.
31 Pain in Renal and Vesical Lesions. D. Newman.
32 Connection Between Soldier's Heart and Hyperthyroidism. F. A. Stoney.
33 Food Economics in Relation to War. H. Campbell.

26. **Stock Vaccine in Bacillus Typhosus Infection.**—The 230 cases studied by Whittington were absolutely proved to be typhoid, clinically and bacteriologically. Half of them were treated with vaccines and the other half were control cases. The vaccine used (with four exceptions) was a stock vaccine, made up in dilution of 250 millions to the c.c. The other 4 cases had a sensitized vaccine. The initial dose, the interval between the doses, and the rate of increase of the dose were all the subject of careful trial. The total mortality in the 230 cases (115 vaccinated, 115 selected controls) was 52 (22.6 per cent.), this being made up by 29 deaths in the vaccinated cases (25 per cent.), and 23 deaths in the unvaccinated (20 per cent.). The average length of the primary period of pyrexia (neglecting fatal cases) was twenty-seven and one-half days. The average date on which the temperature settled was the twenty-ninth day in the vaccinated cases and the twenty-sixth day in the controls. The total number of cases having a relapse was 22 (9.5 per cent.), and of these 12 occurred among the vaccinated and 10 among the unvaccinated. The total number of patients with complications or sequelae of some kind or another was 111, and of these 58 were among those who had vaccine and 53 among the unvaccinated. Thirty of the total number of cases had been inoculated once or twice during the nine months preceding their illness. *B. typhosus* was isolated from each. In these vaccine had no good effect on the mortality or on the incidence of complications. Good results were obtained where good results can be expected by ordinary methods of treatment alone. In summarizing, Whittington says: From all this it would appear (*a*) that it is in just those cases in which the physician so much requires help that vaccine is disappointing; (*b*) that vaccine neither shortens the fever nor reduces the number of complications in even that class of case which is likely to do well; and (*c*) that there is a decided suspicion that vaccine increases the incidence of hemorrhage. Therefore the use of a stock vaccine in typhoid cannot be recommended as a routine treatment.

27. **Agglutination Tests in Inoculated Persons.**—The conclusions arrived at by the authors are in disagreement with those of Tidy. On the basis of an extensive mass of evidence Dreyer, Gibson and Walker claim: 1. That the febrile condition associated with paratyphoid does not cause disappearance of typhoid agglutinins from the blood of persons inoculated against typhoid. 2. That "other febrile conditions" also, in so far as they have hitherto presented themselves, do not cause disappearance of typhoid agglutinins from the blood of inoculated persons. 3. That the statement that "a positive agglutination reaction to *B. typhosus* after the fifth day of pyrexia has the same value in an inoculated as in an uninoculated person" is entirely erroneous.

28. **Apparatus for Isolation of Anaerobic Micro-Organisms.**—The method used by McIntosh and Fildes consists in enclosing the culture medium in an airtight vessel which has suspended in it a piece of asbestos wool impregnated with palladium black. The vessel is then attached to a hydrogen generator and hydrogen is allowed to pass in, when it will be occluded by the palladium and combined with any oxygen present. A negative pressure thus develops inside the vessel and hydrogen will pass in until no oxygen remains. The apparatus is then detached from the generator, but the action will still continue and any traces of oxygen which diffuse from the medium itself will be rapidly removed. Thus a more or less complete vacuum toward oxygen is obtained.

30. **Anesthesia for Enucleation of Tonsils.**—The best method, both for children and adults, Blomfield says, consists in giving a preliminary dose of atropin, gradually inducing a very deep degree of narcosis by a mixture of chloroform and ether, supplemented in some cases by a few minutes of open ether, and in some adults by a very few minutes of ether from a Clover's inhaler. There should be no congestion whatever by the time the operation begins, and the atropin prevents any undue mucus secretion. The anesthesia thus obtained generally suffices for the entire operation. When it does not, chloroform is used from a Junker's inhaler or the open mask is reapplied. The same extreme degree of narcosis necessary during dissection need not be kept up while the bleeding is being stopped, in the case of operators who prefer to see deliberately to the stopping of all hemorrhage after each tonsil is removed. So long as there is no return to consciousness it is far better that the absolute absence of reflexes kept up during removal of the tonsil should lapse, while the hemorrhage is receiving attention, to a condition in which the coughing reflex and the faucial reflex are present.

Archives des Maladies du Cœur, Paris

April, IX, No. 4, pp. 141-188

34 *Influence of Chronic Lung Disease on the Heart Valves. (Syndrome tricuspidien terminal dans les lésions chroniques du poumon.) R. Lutembacher.

34. **The Heart Valves with Chronic Lung Disease.**—Lutembacher calls attention to the tricuspid syndrome liable to develop in the course of chronic disease of the lung and which, in turn, imprints a special character on the pulmonary affection. Death is liable to occur from the valvular trouble rather than from the lung process. He describes five cases in which this terminal tricuspid syndrome occurred abruptly in the course of pulmonary tuberculosis of the sclerotic type, without cachexia, in persons of 40 and 50, free from previous history of heart trouble. In one case the tricuspid syndrome occurred with primary cancer of the lung compressing the left branch of the pulmonary artery, and in another the terminal tricuspid syndrome was secondary to primary sclerosis of the pulmonary artery. This functional incompetency of the tricuspid valve secondary to hypertension in the lesser circulation is encountered often in the tuberculous but is seldom recognized. The symptoms from it are often attributed directly to the lung process. Even if valvular trouble is suspected, the mitral valve is supposed to be the one at fault. But the regularity of the pulse in contrast with the congestion and the aspect of asystoly, and the "wooden-shoe" shape of the heart, instead of the transverse heart of mitral incompetency, differentiate tricuspid mischief. The hypertension in the lesser circulation acts on the right heart just as arterial hypertension affects the left heart.

Bulletin de l'Académie de Médecine, Paris

March 21, LXXV, No. 12, pp. 321-331

35 *Treatment of "Partitioned-Off" Meningitis. (Sur les méningites cérébrospinales cloisonnées. Interventions possibles. Injections intraventriculaires après ou sans trépanation.) A. Netter.

March 28, No. 13, pp. 333-372

36 *Early Closing of Wounds With Healing by Primary Intention: Carrel's Method. (Réunion secondaire des plaies de guerre par première intention dans les formations sanitaires de l'avant — Méthode Carrel.) Uffoltz.
37 The Birth Rate in France and Its Colonies. (Discussion de la communication sur la "Protection de l'Enfance indigène, etc.") A. Pinard.
38 *Venereal Diseases During the War at Military Hospitals in Paris. Gaucher.
39 Night Blindness in Soldiers: Hemeralopia. L. Weekers.

40 *Dispensary Treatment of Syphilis. (Du rôle des dispensaires de l'hôpital Broca dans la lutte contre la syphilis.) E. Jeanselme and L. Hudelo.
41 Tardy Tetanus Entailing Crippling Contracture. Phocas and Rabaud.

35. **Partitioned-Off Meningitis.**—Netter discusses the preferable technic for treatment, with illustrative cases, when the meningitic effusion is partitioned off from the general cerebrospinal fluid. He has applied intraventricular injections of antimeningitis serum in twelve cases, all in infants, and in two others injected the serum between the upper vertebrae. None of the infants recovered, but L. Fischer of New York, Lewy and Bouché have each reported a successful case of the intraventricular treatment. Netter trephined before injecting the serum into the ventricle in the case of a woman of 29 with meningitis and purpura. She had apparently recovered under intraspinal serotherapy alone, but had a third relapse and was given two intraventricular injections, supplemented by intravenous injections of the serum, as Penna of Buenos Aires advocates. The woman seemed relieved, but four hours later died with symptoms suggesting anaphylaxis. The disease was of a particularly rebellious type, of ninety-three days' duration.

36. **Abortive Treatment of Infection in Wounds.**—Uffoltz reports the application of Carrel's method in eighteen cases to demonstrate the fine results obtained with it even in the field environment. Twelve were shell wounds and six extensive lacerations from bullets, and yet all healed by primary intention without exception. He declares that this testifies to the efficacy of the Carrel technic in transforming infected wounds into a practically sterile condition, thus warding off septicemia and hastening healing so that it is complete in from one-half to two-thirds less time than under other conditions. One case is described as a vast shell wound of the left arm with extensive and deep loss of substance, destruction of the biceps, and the humerus denuded but not injured. Dakin's fluid was applied by the continuous instillation method, the man having reached the surgeon's hands in three hours after the injury. The ninth day the wound measured 11.5 cm. long by 5 cm. wide. The deeper tiers were then brought closer together by a U suture tied over a rubber tube. The eleventh day a second similar suture was made. The nineteenth day these sutures were removed. The wound was then up to the surface, measuring 10.3 by 2.9 cm. and the edges were brought closer together with strips of adhesive plaster. The twenty-fifth day the wound measured only 1.8 cm. and by the forty-second day it was merely linear, and the forty-eighth day had entirely healed.

In commenting on Uffoltz' communication, Pozzi read a letter from Carrel relating that Dakin's hypochlorite solution is now made with a modified formula. The chlorinated lime (200 gm.) is added to 5 liters of ordinary water in a 12 liter jar, thoroughly agitated two or three times, and set aside over night. Then 100 gm. of anhydrous sodium carbonate and 80 gm. of sodium bicarbonate are dissolved cold in 5 liters of ordinary water. This fluid is then poured all at one time into the maceration of the chlorinated lime, the whole vigorously agitated for a minute and then left quiet for the calcium carbonate to settle. At the end of half an hour the clear fluid is siphoned off and filtered through paper to obtain a perfectly limpid fluid, which is then ready for use. The solutions must not be heated. (The Carrel method was described in these columns, March 4, 1916, p. 775, and the Dakin solution was discussed February 5, p. 447.)

The solution is sensibly isotonic to the blood serum and should respond to the following test: Pour 200 c.c. of the solution into a glass and drop on its surface a few centigrams of phenolphthalein powder, then agitate by whirling the glass around as if to rinse its walls; the fluid should remain colorless. Any tinge of red indicates the presence of a notable quantity of alkali, free or incompletely carbonated on account of some fault in technic.

38-40. **The Venereal Disease Dispensary.**—Several speakers at this meeting of the Académie commented on the increase in the venereal diseases since the war began, and especially the increasing prevalence of syphilis. Recent cases of syphilis used to form a tenth of the cases in Gaucher's service, but they now form a sixth. Jeanselme and Hudelo expatiated on the great advantages of dispensaries for the venereal diseases. At the Broca hospital they had two dispensaries arranged and in 1915 there were 4,330 applicants; 21,192 injections of arsenical or mercurial preparations were made to 2,688 syphilitics. Those in an acutely contagious stage are kept in the hospital for a week if they so demand, or are given an intravenous injection of salvarsan. Only one in nine of the syphilitics required the hospital treatment. At the end of the week each was examined anew and as a rule could be then treated further as an outpatient. By this prompt treatment in the early stages infection of others is obviated, the therapeutic effect is more rational and effectual, and the patients are saved time and money. The drugs used are expensive, but as the hospital treatment is reduced so materially, the expense on the whole is far less than with the old methods of treating syphilis. They urge that dispensaries of this kind with laboratories for serologic, chemical, bacteriologic and cytologic tests should be organized at least in connection with all the hospitals in the cities and country, and at other points.

Paris Médical

April 1, VI, No. 14, pp. 321-360

42 *Advantages of Drainage by Threads. (Technique du drainage filiforme.) H. Chaput.
43 Critical Study of American Models of Artificial Legs After Amputation of the Thigh. (Les appareils américans pour amputation de cuisse; étude critique.) Ducroquet.
44 Streptococcus and Other Complications of Apparently Simple Wounds of the Chest Wall. A. Martin.
45 *Advantages of Closing Gaps in Skull After Wounds in War. (Les indications de la prothèse dans les pertes de substance de la voute cranienne par blessures de guerre.) Mariau.
46 Gravity of Suppuration in Wounded Knee. (Arthrites suppurées du genou par blessures de guerre.) R. Gouverneur.
47 Treatment of Fractures in the Field Ambulance. E. Vidal.
48 Hook to Aid in Extraction of Projectiles Embedded in Bone. L. Imbert.

April 8, No. 15, pp. 361-376

49 Trench Foot and Its Treatment. (Les froidures des tranchées.) F. Debat.
50 Continuous Elastic Traction to Overcome Muscular Contracture. (Traitement des cicatrices vicieuses et de certaines contractures musculaires par application d'appareils à traction élastique continue.) G. Lemerle.
51 Radiotherapy of Traumatic Peripheral Nervous Affections Consecutive to War Wounds. G. Bonnus.
52 *The Mirror as Aid in Obtaining Sputum for Examination. G. Rosenthal.

42. **Thread Drainage.**—Chaput lauds anew the superior advantages of threads or fine rubber cords or bougies, the rubber drains not over 4 or 6 mm. in diameter. He declares that this filiform drainage is perfect, wards off infection and keeps out air, while preventing any dead spaces and causing no oozing, bleeding or pain. Wounds and abscesses heal much faster with the thread drainage, and there is none of the backward valve action of ordinary drains, the thread serving as a normal valve.

45. **Gold Plate to Close Gap in Skull.**—Fabret, a dentist, has applied an extremely thin gold plate in sixteen cases of skull wounds, as Mariau describes, with full details in two cases. In both of these the right region of Rolando had been injured and jacksonian epilepsy persisted after trephining. The plate was made to fit exactly into the gap, with three projecting arms to hold it in place. There have been no further attacks in these patients, and in many other cases atrocious headaches, throbbing and epileptic crises have been permanently banished during the months to date.

52. **The Mirror Method of Obtaining Sputum.**—To avoid contaminating the sputum with germs in the mouth, Rosenthal has his patients cough a little as he is examining them with the mirror. This forces sputum on the mirror, and it can be drawn out without touching the tissues.

Presse Médicale, Paris

March 30, XXIV, No. 18, pp. 137-144

53 *Vein Transplanted to Patch Lacerated Urethra. (L'autoplastie veineuse de l'urètre traumatisé.) F. Legueu.
54 Dermatitis Around Wounds. (Dermatoses développées autour des plaies de guerre et trajets fistuleux.) A. Desaux.
55 Apparatus for Continuous Extension. (Appareils à extension continue.) J. Mouls.

April 3, No. 19, pp. 145-152

56 *Muscular Reflexes of the Foot and Hand. (Les réflexes musculaires du pied et de la main — myo-diagnostic mécanique.) J. A. Sicard and P. Cantaloube.

57 Paratyphoid Congestion of the Lungs. (Congestions pulmonaires à bacilles paratyphiques.) J. Minet.

58 Transmission of Sounds Through Chest Wall in Diagnosis of Pneumothorax. (La pectoriloquie aphone comme moyen de diagnostic dans le pneumothorax au début.) V. Mandru and J. Balanesco.

April 6, No. 20, pp. 153-160

59 *Clinical Signs of Injury of the Sympathetic and Vascular Systems After Wounds of Arm or Leg. (Les signes cliniques des lésions de l'appareil sympathique et de l'appareil vasculaire dans les blessures des membres.) H. Meige and Mme. A. Bénisty.

60 Laws Regarding Grounds for Pensions. (Pensions de retraites et réformés No. 1.) A. Laquerrière.

53. **Urethra Made from Vein.**—Legueu cut a segment from the external saphenous vein at the triangle of Scarpa, slipped a No. 20 catheter inside the vein, and tied the vein, well stretched, to the catheter. Then he introduced the catheter into the urethra which had been torn in a bicycle accident. The autoplasty was a complete success, the new passage twenty months later being permeable for No. 44, 46 and 48 catheters. A preliminary perineal urethrostomy had been done and been given six months to heal.

56. **Muscle Reflexes.**—Sicard and Cantaloube remark that the capacity of the muscles for direct reflex action has never been thoroughly studied, and they offer here a contribution in this line. Their illustrations show a number of points on the foot and hand where tapping with a hammer induces characteristic reflex action in health, and its absence has direct diagnostic significance, as they describe in detail.

59. **Lesions of Sympathetic Nerves and Vessels in War Wounds.**—Meige and Bénisty have long insisted that injured vessels and their innervation are responsible for some of the disturbances usually credited to injury of the trunk nerves after gunshot or shell wounds of the limbs. This they believe to be particularly the case in the "causalgic" type described by Weir Mitchell, and the sympathetic nerves are the ones involved. The profusion of anastomoses in the sympathetic system explains the generalization of the suffering, the general discomfort and restlessness, as with enteralgia, uterus colic, etc. Injury of vessels not only interferes with the circulation but the sympathetic fibers which accompany the vessel suffer with it and this entails whole series of vasomotor, thermic, secretory and trophic reactions in addition to pain. Study of the clinical signs indicating involvement of the sympathetic system in wounds of the members is a new chapter in neurology. These signs they discuss and interpret in turn.

Revue de Chirurgie, Paris

January, XXXV, No. 1, pp. 1-175

61 Technic for Extraction of Projectiles With Aid of Hirtz' Compass. P. Duval.

62 Flap of Skin From a Finger in Repairing After Certain Wounds of the Hand. (Cheiroplastie dactylienne.) E. Quénu.

63 *Etiology and Treatment of Traumatic Talipes Equinus. (Pieds bots équins traumatiques.) P. Hardouin.

64 *Treatment of Abdominal Wounds in the Field Ambulance. A. Schwartz and P. Mocquot.

65 *The Omentum as Factor in Pericolitis. (Epiploon et péricolite.) P. Descomps.

66 Strangulation of Small Intestine Owing to Artificial Anus. (De l'étranglement de l'intestin grêle dans un prolapsus du gros intestin au niveau d'un anus contre nature.) M. Guibé. To be continued.

63. **Traumatic Talipes Equinus.**—Hardouin has seen hundreds of men with this deformity as a sequel to a wound of the leg. It may occur by one of ten different mechanisms, and prevention is extremely important. He is positive that it might have been prevented in 75 per cent. of the cases, and been materially mitigated in the others. These assertions are sustained by the experience that in certain hospitals this deformity occurs only exceptionally, while in others it is common. The importance of preventive physiotherapy is seldom realized by the untrained war nurses. Their knowledge of physiotherapy is generally comprised in the word "massage," and this they apply only in the form of simple friction. Early exercise of the ankle after a wound of the leg is imperative. Even the pressure of the bed clothes, when the men have to stay long in bed, may bring on the talipes, but the usual cause is that the men get up and use the leg too early, stepping on the toes to reduce the pain, and thus fastening the deformity on themselves. Various methods for correcting the established deformity are outlined.

64. **Abdominal Wounds.**—Schwartz and Mocquot summarize 60 cases in which they operated at once and saved 19 of the men. In 3 other cases the symptoms of peritoneal reaction compelled an exploratory laparotomy, but the projectile had not passed beyond the wall. The spontaneous recovery in such cases, and also when the projectile had entered through the chest, are often cited as evidence against the necessity for operating in all abdominal wounds. But in reality the bowel had not been injured. A wound of the bowel is evident when gas or feces escapes from the wound in the skin or the injured loop of intestine protrudes, or if blood issues from the anus, or the projectile is expelled in the stools, or if within a few hours signs of generalized peritonitis become apparent. Two men with abdominal wounds recovered without an operation, neither presenting serious symptoms at any time. These two cases confirm the occasional comparative harmlessness of wounds in the side regions of the abdomen; even when the large intestine is involved, spontaneous recovery is possible. But cases like these are extremely rare, and all the arguments are in favor of operative treatment of wounds penetrating the abdomen. Not the least convincing of these arguments is that if the laparotomy saves the man he is restored to practically complete health and not left a cripple. The care before and after the operation is discussed as of vital import.

65. **Omentum and Pericolitis.**—Descomps' study of the omentum in normal conditions and in the inflammatory processes observed in the course of chronic appendicitis and colitis with stasis confirms the preponderant part played by the omentum in the development of the phenomena of pericolitis. It is explained by embryologic data. He emphasizes the favorable therapeutic influence of resection of the omentum and separation of the adhesions around the colon in treatment of appendicitis, and also as the first measure in treatment of colitis and stasis. This is always an easy and benign intervention and frequently cures alone, or at least prepares the way for effectual medical treatment. The omentum aids in the production of peritonitis in various ways. As a rule the anatomic and clinical omentum reactions are chronic, but they may occur in acute form and these in turn lead to chronic colitis and stasis.

Revue Médicale de la Suisse Romande, Geneva

March, XXXVI, No. 3, pp. 133-208

67 Impossible to Testify to the Absence or Complete Cure of Gonorrhea in Women. (Peut-on certifier l'absence de la blennorrhagie chez la femme ou sa guérison absolue?) C. DuBois.

68 Saponin Hemolysis Test of Fragility of Red Blood Corpuscles. (De la résistance globulaire à la saponine.) R. Rochedieu.

69 Glycuronic Acid in Urine as Index of Liver Functioning. (La glycuronurie et ses variations. Un nouveau procédé d'exploration hépatique.) P. Gautier.

70 Amaurosis From Three Grams of Quinin in Twenty-Four Hours; Recovery. (Cas d'amaurose quinique.) G. Porte.

Correspondenz-Blatt für Schweizer Aerzte, Basel

March 25, XLVI, No. 13, pp. 385-416

71 Immobilizing Fractured Clavicle With Rod Passed Through Bend of Elbows Behind the Back. (Neue Methode zur Behandlung der Claviculafrakur.) Lüthi.

April 1, No. 14, pp. 417-448

72 Fatal Thrombosis of Sinus Cavernosus Secondary to Furuncle on the Nose. (Furunkel der Nase mit Exitus letalis infolge septischer Thrombose des Sinus cavernosus.) R. Wacker.

73 *Tuberculous Tumors in Cervical Spinal Cord. (Weiterer Beitrag zur Klinik und Chirurgie des intramedullären Konglomerattuberkels.) O. Veraguth and H. Brun. Commenced in No. 13.

74 *Fungus Infection of Vulva and Vagina. (Zur Moniliainfektion der weiblichen Genitalien — Kolpitis et Vulvitis mycotica.) O. von Herff.

April 8, No. 15, pp. 449-480

75 Chlorophyll in Therapeutics. (Chlorophyll und Chlorosan.) E. Bürgi.

76 Tonsillitis of Gastro-Intestinal Origin. (Zur Aetiologie der Angina der Kinder.) E. Döbeli.

73. **Tuberculous Tumors in Spinal Cord.**—The patient was a physician of 35. A mass of tubercles forming a round tumor was shelled out of the cervical spinal cord, with great

improvement at first. But a second and a third tumor of the same kind developed, the latter in a vital region. This case, and especially the necropsy findings, illustrate anew the remarkable tolerance of the spinal cord for slowly increasing compression, and the prospects for successful removal of a slowly growing "tubercle conglomerate." In locating an intramedullary tumor, the most precise palpation of the spinal cord may be necessary. We need not hesitate to open up the spinal cord when palpation reveals suspicious findings at any point. The region of the dorsal fissure and the dorsal columns is best adapted for this purpose.

74. **Mycosis of External Genitals.**—Herff has found a 1:1,000 or 1:5,000 solution of mercuric chlorid the most effectual means for treating mycotic colpitis and vulvitis. It is applied four times a day and soon conquers the mycosis. He has encountered several cases of this kind, the fungus in question being always the *Monilia albicans* or *candida.*

Monatsschrift für Kinderheilkunde, Berlin

XIII, No. 9, pp. 393-430

77 *The Schick Test for Immunity to Diphtheria. (Ueber die lokale Diphtheriebouillon-Reaktion beim Menschen.) G. Bessau and J. Schwenke.

78 *Experimental Keratomalacia From Unbalanced Diet. (Zur Aetiologie der Keratomalazie.) E. Freise, M. Goldschmidt and A. Frank.

No. 10, pp. 431-476

79 *Disturbances in Infants From Unbalanced Proportions of Elements of Food Otherwise Suitable in Composition and Quantity. (Ueber Ernährungsstörungen ex correlatione.) G. Bessau.

80 *Case of Pseudotetanus in Boy Under Two. A. Hirsch.

81 *Glands Are Not Normally Palpable in Infants. (Ueber die Palpation peripherer Drüsen und deren klinische Bedeutung bei Kindern der ersten zwei Lebensjahre.) C. Coerper.

77. **Diphtheria Bacilli Endotoxin as Element in the Reaction to the Schick Test for Immunity to Diphtheria.**—In the editorial discussion of this test in The Journal, April 10, 1915, p. 1246, a warning was given against atypical reactions to the test. Bessau and Schwenke here explain why the reaction is sometimes atypical, devoting fifteen pages to the tabulated results of the test applied repeatedly to twenty children. They used first the original Schick technic; then repeated with fivefold the dose of the bouillon culture, and again with the culture heated to boiling point. In half of the children the reaction to the intracutaneous injection of the bouillon culture, according to the Schick technic, was unmistakably a toxin process as it could be completely annulled by antitoxin. In six of the twenty children the reaction was only partially annulled by antitoxin, and in four others the antitoxin did not seem to have any annulling action on the toxin. There is thus a nonneutralizable element in the diphtheria bouillon, and this element is apparently not modified by heat. In all probability, this heat-resisting substance is a preformed toxin in the diphtheria bacilli.

Their study of the responses to the intracutaneous test thus demonstrates that, besides the true diphtheria toxin, a diphtheria endotoxin plays a part that cannot be ignored. The test was applied from six to thirteen times to each of the children. The responses indicate that the reaction cannot be regarded as a pure toxin reaction and, this being the case, the reaction cannot be regarded as an index of the antitoxin content of the blood, and hence of the immunity to diphtheria. If the child is peculiarly susceptible to the diphtheria endotoxin, it will respond with an energetic reaction to the test even although it may have abundance of antitoxin in its blood. It might be well to investigate whether control tests with boiled diphtheria bouillon cultures might not give more reliable conclusions. They add that the fact that so many children display such susceptibility to the endotoxin is in itself interesting. Most of the research on immunity to diphtheria has been done on guinea-pigs. It is a question whether the conclusions from this can be applied to human beings. The guinea-pig is extremely susceptible to true diphtheria toxin but scarcely at all to the endotoxins of the diphtheria bacilli. The matter is thus much more complicated for man, and it is possible that the question of immunity to diphtheria, which seemed to have been settled, will have to be taken up and studied anew.

78. **Keratomalacia a Deficiency Affection.**—White rats fed with Hopkins' experimental diet, casein, alcohol-extracted starch, sugar and lard heated to 140 C., developed softening of the eyeball, beginning with falling out of the eyelashes. The process closely resembled keratomalacia in man, but it could be arrested or prevented by adding raw milk to the diet. This keratomalacia in rats is thus analogous to the scorbutus which can be induced in guinea-pigs by an unbalanced diet and the similar experimental polyneuritis in fowls. Rats that had attained nearly their full growth were not affected in the same way as the young; their further growth was arrested, but the eyes were not affected. This restriction to the period of liveliest growth is a feature also of experimental scorbutus in guinea-pigs. Only 4 per cent. of the ration in natural milk was required to abort or cure the eye trouble. Desiccated milk, even up to 10 per cent. proved absolutely ineffectual. The ration otherwise was not changed. As the milk was given apart from the other food, stimulation of the appetite could not have been a factor in the change.

79. **Putrefaction Versus Fermentation Alimentary Disturbances in Infants.**—Bessau here discusses digestive disturbance due not to too much or too little food but to the correlation of the different elements of the diet. Infants are particularly sensitive to incorrect proportions of fat and carbohydrates in their diet; the proper ratio between these seems to have a special bearing on the natural immunity of the nursling. The recent tendency in infant feeding to bring the fat content up to approximate that of breast milk is based mainly on the observation of the lesser resistance to infections of infants brought up with little fat and much carbohydrates. He expatiates on the seriousness of the effects liable to be entailed by slight causes of this nature.

The key to the understanding of this fact lies in the modification of the bacterial processes in the intestines by slight proportional variations in the chemical composition of the bowel content. We know by experience that by promoting putrefaction in the bowel we can cure acute digestive disturbances, and induce them by promoting fermentation. With breast feeding, fermentation is restricted to the large intestine, but it is intensive there. No substitutes for breast milk have been found which share this property of keeping the fermentation processes limited to the large intestine. When they invade the small intestine and get the upper hand over the putrefaction processes, then we have trouble. The fermentation becomes pathologic the moment the regulating functions of the lining of the small intestine become impaired. Impairment of the bactericidal function, probably, is what entails the digestive disturbance, and pathologic permeability entails the intoxication.

When a change in the diet which induces fermentation in the bowel cures the digestive disturbances and intoxication, we must believe that the lack of fermentation or the preponderance of putrefaction was the cause of the trouble. We must recognize, therefore, nutritional disturbance from putrefaction as well as from fermentation. As Bessau says, *Ich habe es gewagt dem Gärnährschaden einen Faulnährschaden gegenüberzustellen.* Records of metabolism experiments are not complete unless they mention the type of the stools, whether fermentation or putrefaction predominates. Even the mere description of the aspect of the stools throws light on the bacterial processes at work. It is evident that the addition of some element to the food has an entirely different action according as it transforms the bacterial processes and hence modifies the metabolism, or has no such effect.

This idea of nutritional disturbance *ex correlatione* has brought into a new light the question of the absolute minimum of certain elements of the food in infant feeding. The carbohydrates, for instance, have the important task of holding in check the injurious putrefaction processes in the bowels; according to the composition of the carbohydrates given, the carbohydrate minimum fluctuates.

In conclusion he remarks that with albumin milk, on the one hand, and Keller's malt soup on the other hand, we are prepared to combat fermentation and putrefaction nutritional disturbances; their therapeutic efficacy can scarcely be overestimated. But what is still lacking is a generally applicable

method of feeding which can be relied on when breast feeding is impracticable. It must fulfil a large number of requirements, chief among them the requirement that it must keep down putrefaction in the intestines without eliciting pathologic fermentations. It must be the happy medium, as it were, between the two extremes, albumin milk and malt soup. Servile imitation of the chemical composition of breast milk has met with but little success so far. It actually seems as if the physiologic bacteriochemical relations were harder to reach in this way than possibly by some short cut disregarding the chemical composition of human milk.

80. **Pseudotetanus in Children.**—Hirsch reports another case of the affection to which Escherich gave this name as a clinical entity. He had compiled or encountered fifteen cases, and seven others have been published since. The afebrile course and recovery in from two to eight weeks are characteristic. In Hirsch's case, trismus was the first symptom to attract attention; usually it is the legs that are first affected. Inoculation of white mice with 1 c.c. of the serum from Hirsch's little patient gave negative results. He is inclined to regard the affection as an atypical form of true tetanus, rather than of tetany, as Escherich believed. In this and some of the other cases, features suggesting hysteria were noted during convalescence—evidently what Hamburger calls the *"psychogener Rest"* of the affection.

81. **Palpability of the Glands in Infants.**—Coerper's material for this article was accumulated before the war at the infant asylum at Barmen, but it has been written during his service as navy surgeon. He examined a thousand infants for palpable glands, the technic that according to Toby Cohn's method; it has proved as reliable for infants and children as for adults. Eleven various gland-systems are reviewed in detail, and the findings tabulated according to age, clinical condition, feeding, etc., and also according to age in months and weight. In 100 newly born infants, one gland could be palpated in one axilla in 95, and in over half of these, by the third day, some palpable gland was discovered elsewhere. The negative findings were in the 5 prematurely born infants. The number of palpable glands increases from birth onward, manifestly owing to injuries of various kinds, chilling, infection from the mother while nursing, etc. Infants with three or more palpable glands always showed signs of injury of some kind, usually obstetric trauma, while the children born without artificial aid or protracted labor had only the one palpable gland in one axilla, and this he ascribes to the physiologic mammary processes in the newly born. With the exception of this one axillary gland in the first three weeks of life, palpable glands in infants testify to damage of some kind; no other palpable glands are normal. The discovery of palpable glands elsewhere warns that something is or has been wrong, and the findings recorded show that no infants escape injury.

In the 200 healthy infants he found an average of 2.1 glands in those one month old, the average increasing to 4 by the end of the year. The averages in the breast fed were 2 at one month, increasing to 3 at six months. In those with mild digestive disturbances, the number was 4.2 at one month, up to 4.6 at six months. With severe digestive trouble, the averages were 6 at one month up to 9 at eleven months, and 7.5 at twelve months. With eczema, the average ranged from 4 to 6.2; with syphilis from 3.6 to 10; with rachitis, from 3.8 to 4.9. The 29 tuberculous infants averaged only 4 to 6; in only 2 of the tuberculous children was a supraclavicular gland palpable. The glands of the head-neck group formed nearly 50 per cent. of all the glands that could be palpated. The arm-chest group formed 30 per cent. and the inguinal 15 per cent. Certain pathologic conditions seem to be accompanied by unusually large numbers of palpable glands. Nutritional disturbances stand at the head of this list, the number of palpable glands larger, the severer the disturbance. Syphilis and sepsis are accompanied by numerous and tuberculosis with comparatively few palpable glands, but in none of these is the glandular enlargement specific. The other 16 palpable supraclavicular glands were in 8 children with severe nutritional disturbance, 5 with rachitis, 1 syphilitic and 2 apparently healthy infants.

Münchener medizinische Wochenschrift, Munich

March 28, LXIII, No. 13, pp. 449-484

82 Local Treatment of External Tuberculosis. (Behandlung der äusseren Tuberkulose mit Lecutyl und künstlichem Sonnenlicht.) A. Strauss.
83 *Amyloid Degeneration Seems to Be Work of Bacillus of Friedländer Group. (Die amyloide Degeneration als der Ausdruck einer primären oder sekundären Infektion mit Kapselbazillen.) A. Frank.
84 *Influence of Yeast in Food on Elimination of Uric Acid. (Einfluss der Hefe, speziell Nährhefe, auf die Harnsäureausscheidung.) H. Salomon.
85 Yeast as Food. (Bedeutung der Nährhefe als Nahrungsmittel.) H. Wintz.
86 *Desiccated Organs for Abderhalden Test. (Trockenorgane für die Abderhaldensche Reaktion.) G. Seiffert.
87 Official Directions for Prophylaxis of Tuberculosis. (Offene Lungen- und Kehlkopftuberkulose. Amtsärztlicher Antrag.) M. Henkel.
88 Differentiation of Mercury and Salvarsan Exanthems. (Ueber die Verwechslung von Quecksilber- und Salvarsanexanthemen.) Wechselmann.
89 The Length of Roentgen Rays as Gage of Their Hardness. (Die Wellenlänge der Röntgenstrahlen als Härtemass.) A. Sommerfeld.
90 Treatment of Gunshot and Shell Fracture of Femur. (Zur Behandlung der Oberschenkelschussfraktur im Felde.) F. Danziger.
91 Extreme Movability of Hip Joint After Healing of Fractured Femur. (Ein eigenärtiges Phänomen bei geheilter Schussfraktur des Oberschenkels.) H. Küttner.
92 Successful Suture After Six Hours of Bullet Holes in Heart; Death From Injury Elsewhere. (Zur Herzchirurgie.) C. Müller.
93 Case of Traumatic Exophthalmic Goiter. Schützinger.
94 Treatment of Aneurysm From Gunshot Wounds. (Ueber das durch Schussverletzung entstandene Aneurysma.) Hauber.
95 Standard for Litter Permitting Extension, Etc. (Das Krankentragebett mit Hochlagerung und Zug bei Oberschenkel-, Becken- und Wirbelbrüchen.) J. Fessler.
96 *Sodium Citrated Blood for Transfusion. (Zur Frage der Bluttransfusion im Kriege.) H. Fischer (New York).
97 *Gas Gangrene. (Kritisches über Gasgangrän.) E. Fraenkel.
98 Universal Angle Gage. (Ein Universalwinkelmesser.) Moeltgen.
99 Improved Technic for Support With Peroneus Paralysis. (Stütze für Peroneuslähmung.) J. Batsch.
100 *Leather Strap Support for Pelvis in Applying Plaster Cast. (Improvisation einer Beckenstütze.) K. Lossen.
101 Chilling the Metal Loosens Syringe Piston When it Sticks. (Einfaches Verfahren festsitzende Stempel in Rekordspritzen zu mobilisieren.) G. Weill.

83. **Bacillus Causing Amyloid Degeneration.**—The necropsy findings in a number of cases of amyloid degeneration convinced Frank that this was the work of some bacillus only slightly pathogenic and locating by preference in chronic suppurative processes induced by other bacteria. His assumption was confirmed by discovery of a bacillus of the capsulatus group in the blood and lungs of a man of 60, free from pathologic history except for repeated attacks of pneumonia. He succumbed in one and the spleen, liver, kidneys, heart and intestines were found in amyloid degeneration but no signs of suppuration or scars of such were detected. The bacillus was in pure culture and it reproduced typical and extensive amyloid degeneration in white mice, most prominent in the spleen. Frank's further research indicated that the experimental amyloid degeneration was a kind of coagulation necrosis, for which the toxins from the bacteria were evidently responsible. In the pneumonia case reported, this bacillus had evidently been alone responsible for the amyloid degeneration and the pneumonia had been its work, but, as a rule, it most commonly infests tuberculous cavities, etc. Blum found tuberculosis in 75 per cent. of 297 cadavers with amyloid degeneration, and some nontuberculous suppurative process in 10 per cent. In four cases of generalized amyloidosis, Frank found ulcerative pulmonary tuberculosis in three and tuberculous osteomyelitis in the fourth case and the capsulatus bacillus he describes was cultivated from the lesions in each. He isolated it also from the feces and urine in some of these cases. It is possible, he adds, that the bacillus in question is Friedländer's *Bacillus capsulatus;* its toxic products seem to have the property of inducing amyloid degeneration, just as the tubercle bacillus induces cheesy degeneration. The suppuration and necrosis are subordinate processes.

84. **Influence of Yeast on Elimination of Uric Acid.**—Salomon has been testing the yeast food—*Nährhefe*—put on

the market recently in Germany, and tabulates the metabolic findings in a girl of 17 and man of 30 on a purin-free diet with and without the yeast food. They show that the output of uric acid in the urine was increased as much by 10 gm. of the dried yeast as by 100 gm. meat. Persons inclined to gout or to urate concrements should be cautious in regard to ingestion of yeast, and Salomon even goes so far as to warn against the small but regular ingestion of yeast in ordinary bread. Baking powder may be preferable to yeast in baking biscuits, etc., for those with a tendency to gout and the uric acid diathesis in general.

86. **Pulverized Organs for the Abderhalden Reaction.**—Seiffert announces that tissues prepared with alcohol and ether and desiccated rapidly in a vacuum are proving apparently dependable and extremely convenient for the Abderhalden technic.

96. **Sodium Citrate as Aid in Transfusion of Blood.**—Fischer's experience has been as favorable with this method as that of others who have published their experiences with it. [He and Lewisohn ascribe the priority to a Belgian physician, Dr. Hustin, whose report on the subject appeared in the *Ann. et Bull. Soc. Roy. de Méd. et Nat.*, Brussels, 1914, No. 4, p. 104.]

97. **Gas Gangrene.**—Fraenkel says that gas gangrene affects the extremities exclusively, with the single exception of the uterus, in which an exactly analogous process may develop. The term gas gangrene should be reserved for the process in which the gas production is a coordinate symptom, accompanying the dying of the tissues. Gas production in already dead tissues is an entirely different affair.

100. **Improvised Support for the Pelvis.**—To apply a plaster cast to the pelvis, Lossen has one or two strong hooks fastened to the table so they stand 30 or 40 cm. high. A strong leather strap is passed around each thigh and the patient is placed with his back on one table and his feet on another. The straps are passed over the hooks and support the pelvis with perfect ease and with nothing to interfere with the cast as the straps are included in it. The ends can be cut off afterward or left for convenience in traction later. The pressure from the straps offers several advantages, especially the correction of the tendency to lordosis of the lumbar vertebrae.

Grèce Médicale, Athens

January, XVIII, No. 1-2, pp. 1-4.

102 Treatment of Tuberculous Cavity in Left Lung by Compressing With Paraffin Filling. (Traitement chirurgical de la tuberculose pulmonaire par décollement de la plèvre pariétale, et affaissement partiel du poumon, tamponné par la paraffine.) G. dré Kolias.

Pediatria, Naples

March, XXIV, No. 3, pp. 129-192

103 The Landau Reaction in Inherited Syphilis. (Reazione di Landau ed eredo-silfilide.) L. Chiaravalloti.

104 Ultraviolet Rays Check Proliferating Power of Protozoa. (L'azione antiriproduttiva dei raggi ultravioletti studiata sui protozoi leishmanie.) F. Porcelli-Titone.

105 Rachitis in Palermo. (Contributo statistico-clinico alla conoscenza della diffusione del rachitismo nella citta e circondario di Palermo.) S. Maggiore.

106 Jaundice From Congenital Obliteration of Bile Duct. (Caso d'ittero per obliterazione congenita delle vie biliari extraepatiche.) R. K. Marinucci.

Hygiea, Stockholm

LXXVIII, No. 5, pp. 289-352

107 Case of Pulmonary Syphilis; Ten Years' Course; Necropsy. (Ett fall av lungsyfilis.) A. Gullbring.

108 Prophylaxis of Infectious Diseases in France. (Frankrikes åtgäder mot de smittsamma sjukdomarna under kriget.) C. Kling.

Ugeskrift for Laeger, Copenhagen

March 23, LXXVIII, No. 12, pp. 419-458

109 *Hemoptysis and Exercise. (Blodspytning og Legemsbevægelser.) S. Bang. Commenced in No. 11.

110 *Determination of Hemoglobin Percentage. (Nogle Iagttagelser angaaende Hæmoglobinbestemmelser.) E. Meulengracht.

109. **Hemoptysis and Exercise.**—Bang declares that the traditional idea that after hemorrhage from the lungs one must keep absolutely still is based on theory and is not sustained by actual facts. He has made a special study of the subject on 2,000 men at a sanatorium, and found that the initial hemorrhage came on while the men were lying in bed or in a reclining chair in 69 per cent. of 354 cases; while dressing, sitting up in bed or just lying down in 15 per cent.; while walking or working in 6 per cent. and otherwise out of bed in 8 per cent. In only 2 of the total number were the patients climbing stairs and yet those 2,000 men must have climbed the stairs over a million times and taken at least 10,000 warm baths, and 25,000 douches while at the sanatorium. These figures show that exercise is not such an important factor in bringing on hemoptysis as generally assumed. No one part of the twenty-four hours seems to be more liable to it than others, and in his total material there were only 10 cases in which hemoptysis came on at stool; including 3 primary and 7 secondary hemorrhages. Straining to defecate had probably more to do with the hemorrhage than the exercise of going to the toilet. In only 23 of the total 354 was there any connection between the hemorrhage and climbing the stairs, and in 17 of these 23 the bleeding was merely a continuation of recently initiated hemoptysis, and in 14 it was very slight. In the other cases the men had gone up and down the stairs previously without hemoptysis, and this small proportion of 9 out of 354 cases may be ascribed to coincidence in some instances. The small number and the insignificance of the hemorrhages demonstrate, he is convinced, that even this comparatively severe exercise of climbing stairs is not so dangerous as generally assumed. Even when the bleeding point was still open, the blood did not spurt. He regards it as significant that the condition was constantly febrile in 50 cases, and that fever had developed just before the hemorrhage in 45, and just afterward in 31, while 11 of the patients had been severely chilled and 10 had been given a tuberculin injection just before. There were thus conditions predisposing to congestion or stasis in 45 per cent. of all the cases. He advocates being more liberal in allowing the patients to move after a hemoptysis. The effect on the mind and the appetite of allowing the patient to sit up in bed or at least to assume a half reclining attitude is a great gain. This in itself has been known to arrest hemorrhage from the lungs. On the other hand, the contraction of the abdominal muscles in rising up in bed to a sitting position presses on the vena cava as in straining at stool and is liable to start reflex action from the splanchnic nerve. This one movement, sitting up in bed, is probably what has given movements of any kind such a reputation for being dangerous. But this danger is entirely averted if the patient is placed from the start in the half seated posture. Expectoration, eating, vomiting, the toilet, etc., all proceed much more easily and smoothly when half sitting up, and the dread and discomfort are materially less. None of Bang's hemoptysis patients lost in weight, and he shortened the interruption in the general course of treatment to the minimum, letting them eat as otherwise. The main purpose, however, of this more liberal treatment is to ward off evil consequences from the extravasated blood. We have learned recently that tubercle bacilli occur in the blood more often than we had supposed, and the extravasated blood may sweep pus and mucus from the diseased into sound regions or they may be aspirated. In his experience, febrile consequences were far less common in the patients given this more liberal treatment. Morphin he thinks should be entirely discarded.

In short, he concludes, immobilizing treatment has many and grave dangers and inconveniences while a more liberal treatment has many direct advantages, and although its dangers, perhaps, cannot be absolutely denied, yet they loom up larger in theory than in actual experience.

110. **Hemoglobin Tests.**—Meulengracht describes some comparative tests with various hemoglobinometers which have demonstrated that the temperature affects the response with the Autenrieth and Sahli instruments. Low temperatures give lower and high, higher values. A standard interval is also necessary; ten minutes with the Autenrieth, and one minute with the Sahli. The metal in the Fleisch!-Miesher instrument has a direct catalytic action and the values are too low.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 21 CHICAGO, ILLINOIS MAY 20, 1916

VACCINE TREATMENT

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CHICAGO

My intention is to discuss briefly certain more or less recent developments in connection with vaccine treatment. For this purpose it is not now necessary to review in detail the various stages in the growth of knowledge on which the principles and practice of vaccination, preventive as well as curative, are based. The aim in either case has been to strengthen and to hasten the natural processes that result in protection against infection and in cure of infection.

Curative vaccine treatment, which I shall discuss, is a direct outgrowth of the increasingly successful prevention of various infectious diseases by means of artificial immunization, and may be said to represent a culmination of the efforts to combat infection with its own weapons, as it rests primarily on the assumption that under certain conditions the production of specific antibodies by the infected organism can be increased with curative results on injection of special preparations of the virus or the bacteria which caused the infection.

This conception is in full harmony with the accepted interpretation of the preventive action of many bacterial and other vaccines or antigens as due to the easily demonstrable formation of new and specific antibodies, which persist for a longer or shorter time, and to the greater readiness, which also is demonstrable in various ways, with which such formation is renewed when the antigen again enters the vaccinated body, as may occur in the form of the living germs. Except as tested in Pasteur's experiments on inoculation against rabies after the infection has been received, this explanation of the supposedly curative action of vaccines has not been put to the direct test in animal experiments, largely, it seems, because the animal infections with which we are acquainted are not regarded as suitable for that purpose since they do not appear to duplicate sufficiently the human conditions. Whether or not the practical results of vaccine treatment for curative purposes support the hypothesis as to the mode of action on which it is based is even now a debatable question. The conditions under which vaccine treatment is practiced have been allowed to change so much since its formal introduction by Wright in 1902, and have acquired in large degree such character, that there are no secure foundations for comprehensive interpretation and final judgment as to the practical value and significance of the results. A hurried review of events may serve to make this point clearer.

In the early days after Wright's discovery of the opsonins and his advocacy of specific vaccine treatment under the guidance of the opsonic index, much attention was given to this index as a measure of specific resistance and in less degree as a means of diagnosis. Soon doubts arose as to the value of the index; the accuracy of the method was questioned, and emphasis was put on the limitations of the results as not being a measure of the final degree of immunity because applicable to one factor only, leaving unmeasured other factors equally important and not necessarily subject to parallel fluctuations of activity. The outcome was the abandonment of the index as an essential element in vaccine treatment, which in the meantime rapidly passed into general use and, at least in this country, soon became the object of an unrestrained and indiscriminate exploitation, to which the medical profession has offered but little resistance. In a short time various practices were introduced, which are not in harmony either with the conditions demanded by the primary hypothesis or with the teachings of bacteriology and immunology, and which before long reduced vaccine treatment as generally practiced from a carefully controlled, essentially scientific procedure to one of guesswork and routine.

The first departure from the course of safety and conservatism was the uncontrolled delegation of the making of vaccines to commercial concerns. According to the fundamental principles, every consideration but that of expediency demands that therapeutic vaccines shall be composed of bacteria as little different and as little removed as possible from the strains causing the infections against which the vaccines are to be used. It is evident that in preparing vaccines on a large scale this condition cannot be met because the changes in virulence and affinities which take place in bacteria under artificial cultivation cannot be avoided. Indeed, there is always danger that with time the specific element on which the desired antigenic effect depends may be lost altogether. There is the further difficulty that the antibodies evoked by one strain may not act on other strains of the same species. That this is not placing undue importance on some remote possibility of no real practical significance is shown conclusively by the regular occurrence of fixed varieties according to antigenetic properties in certain species of pathogenic bacteria as illustrated so well by the pneumococcus. So far as we now know, there are no all-inclusive strains of bacteria causing human infections which might be used to overcome this narrow specificness of immunizing action. In recognition of this drawback to wholesale vaccine making, the

polyvalent vaccine was evolved and made to contain so many strains from different sources that every possibility would seem to have been covered. But after all this is an unsatisfactory substitute for the fresh autogenous vaccine, which, it would seem, offers the best hope that the indications of each case at all times will be met in the most direct way. The principle of using autogenous vaccine as the rule has the further great advantage that to secure it the definite etiology of the infection must be established — a true etiologic diagnosis must be made and there is an end to guesswork. Undoubtedly the good results obtained by careful scientific physicians who use autogenous vaccines are due in no small degree to the careful study of the patient whereby is disclosed not only the nature of the outstanding infection but in many cases also hidden bacterial foci that often perhaps are the primary source of the evident localizations, and hence require removal before permanent cure can be established.

It was the inability of most physicians to make or have made the bacteriologic studies necessary to obtain the etiologic diagnosis coupled with demand for vaccine treatment that paved the way for the commercial vaccine and also for the second, but less excusable and more harmful, departure from the proper course, namely, the acceptance by physicians of the short cut to vaccine treatment without careful diagnosis offered by the ready made mixed vaccines and by semisecret, unstandardizable mixtures of bacterial products—phylacogens. Carried to its logical conclusion, the reasoning that led to these makeshifts would justify the same treatment of all infections, the only diagnosis required being infection. As to semisecret cultural filtrates, no reason can be found to warrant their use as vaccines: their antigenic values, if they have any, have not been determined; they are not uniform in composition and cannot be standardized; they are more or less toxic, the toxicity being affected by small but uncontrollable differences in the conditions under which bacterial growth takes place. At the same time as commercial mixed vaccines contain no autogenous elements, there is the further evident objection that there exists no such constancy of bacterial association in mixed infections as would permit the use of ready made mixtures under the principles of specific vaccine treatment. By accepting the mixed vaccines of commerce, the physician abandons reason and begins to grope in the dark, forgetting that "a multitude of remedies is the child of ignorance." His examination of patients tends to become more and more superficial, his diagnosis slipshod, and his treatment routine, without positive indications, and without individualization. If more than one vaccine needs to be given, why not follow the simple and perfectly rational plan of mixing them at the time of injection or of injecting them separately?

As vaccine treatment became readily available by means of stock and mixed vaccines of all kinds, its use was extended to practically all forms of infection, acute and chronic, general and local, and even to conditions clearly not infectious in nature, regardless of whether or not there was any good reason to believe that benefit would come from efforts to stimulate the output of specific antibodies under all these circumstances. As we look back it seems now as if special efforts were made "to hasten the use of the remedy while it still cured." As would be expected, the interpretation of the results often has lacked the discrimination and questioning which accompany the efforts of critical intelligence. The great difficulties in the way of reaching sound conclusions as to the real value of a special therapeutic method — at best with an indirect and auxiliary action—in a great variety of infections that are subject to spontaneous improvements, and most of which as a rule are spontaneously curable, did not in all cases lead to proper caution in judging the apparent results of the routine and indiscriminate use of vaccines in this large field. The observations have not been always trustworthy or the reasoning just. The simple fact is that we have no reliable evidence to show that vaccines, as used commonly, have the uniformly prompt and specific curative effects proclaimed by optimistic enthusiasts and especially by certain vaccine makers, who manifestly have not been safe guides to the principles of successful and rational therapeutics.

While uncertainty and disappointment have developed in regard to the usefulness of vaccines, this must be ascribed more to fault of exploitation than to fault of the thing exploited; for in the original field, restricted to subacute and chronic local infections under mechanical conditions that are favorable for healing, cautious observers, proceeding as nearly as possible in accord with the principles of immunity, have reached the conclusion that specific vaccine treatment may be of great auxiliary value in stimulating the defensive resources of the organism.

That the beneficial action of specific vaccines in hastening recovery in subacute and chronic localized infections may result from increase of specific antibodies, as assumed, looks like a reasonable explanation, as the infecting germs may be so enclosed and walled off that antigenic substances in adequate quantities do not reach the centers of antibody production. It is of course altogether possible that other factors also are concerned in the effects of vaccines, as, for example, stimulation of the leukocytic activity, which is subject to variation, liberation of nonspecific ferments, and protein fever; but until recently only scant attention was given to such possibilities. According to this view of the nature of the action of vaccines, acute infectious diseases were regarded as not suitable for vaccine treatment because here the infecting germs, widely distributed in the body, would furnish all the stimulus needed to call forth an abundant supply of antibodies. The original theory of vaccine treatment really furnishes no basis for the application of vaccines to acute infectious diseases and when, nevertheless, reports were made of striking effects from vaccines in acute disease, especially in typhoid fever and in pneumonia, we had no preconceived or readily available explanation to offer of the unexpected results. This brings us to the consideration of the remarkable development during the last year or two of vaccine treatment of typhoid fever.

While isolated instances of rapid improvement and even crisis ending in recovery are and have been ascribed to the injection of specific vaccines and also of semisecret culture filtrates in various acute infectious diseases, the true significance of such results in many cases remains doubtful on account of the variable spontaneous course of such diseases. But in the case of typhoid fever at least, as I hope to make clear, the situation is different.

Vaccine treatment of typhoid fever was practiced first so long ago as 1893 by Eugene Fraenkel, who gave

subcutaneous injections of heated thymus broth cultures of typhoid bacilli apparently with benefit. It had been found that this vaccine would protect animals against living typhoid bacilli, and Fraenkel wanted to determine whether or not it would modify the clinical picture of typhoid fever when injected during the attack. The method received but little attention and, save for interesting experiments of Petruschky and of Richardson, it was not until about 1909 that reports began to appear of more or less favorable results from the subcutaneous injections of typhoid vaccines of various kinds. The results were not striking and yet not without encouragement, as the intensity of the symptoms and the duration of the attack seemed to be reduced. In a few cases rather quick cures followed, as had been noted by Fraenkel also. Then came the intravenous injection of the vaccine by Ichikawa (1912) and others, with such noteworthy effects as to attract general attention and secure for the method prompt trial at many hands.

At present it seems to be the opinion of almost all who have used the intravenous method of injection that by it the course may be modified and shortened, and in a considerable number of cases even cure by crisis produced. As it is very rarely that typhoid ends by spontaneous crisis — according to good authority in about 0.1 per cent. of the cases — the occurrence of recovery by crisis in from 30 to 40 per cent. after intravenous injection certainly cannot be ascribed to any chance spontaneous cure. The striking immediate results of an effective injection are now well known: Within half an hour or so a chill, often severe, occurs with a rapid rise of the temperature, followed after some hours by a progressive fall, relaxation, profuse perspiration, and rapid subjective and general improvement; first the number of leukocytes falls, and then there is a rapid rise to 15,000 or more. The subsequent course may be a permanent return to normal temperature and prompt recovery — crisis; a rise of temperature to the previous level and then a gradual fall to normal in a few days — lysis; or the attack may be resumed, running an apparently unmodified or somewhat milder course than before the injection. When the attack is resumed, reinjection after a few days may cut it short; but it appears that if from two to three injections from three to four days apart have only temporary effect, no abortive cure need be expected.

Crisis has been produced in typhoid fever by the injection not only of typhoid vaccines of various kinds, but also of colon vaccine, of mouse typhoid vaccine, of meningococcus vaccine, and even of albumose. Indeed, the specific nature of Fraenkel's results in 1893 was challenged promptly by Rumpf, who claimed the same results from the injection of products of pyocyaneus bacilli. In other infections than typhoid, nonspecific products intravenously may cause acute critical reactions, as typhoid vaccines in paratyphoid fever, colon vaccines in puerperal sepsis, pneumococcus and typhoid vaccines in erysipelas,[1] and typhoid vaccines in pneumonia.[1] In normal persons the intravenous injection of typhoid vaccine may give a reaction much like that in typhoid fever, but a larger dose may be required. I may mention, too, that in pneumonia intravenous injection of autolyzed pneumococci, prepared by Rosenow's method, may cause an immediate chill with rise and fall of temperature and fall and rise of leukocytes; in short, the same phenomenon as seen in the induced crisis in typhoid, and followed in some cases by prompt recovery.[1] The intravenous injection of protein substances appears to produce a reaction which closely resembles the chills and fever that occur naturally in the course of various infections. We are reminded of reactions observed by Vaughan in his experimental study of protein fever and also of effects said to follow intravenous injections of nonprotein colloids, for instance, gold.

Whether or not the production of this kind of reaction is associated frequently with improvement and prompt recovery in other diseases than typhoid is not known. Typhoid fever is the only disease which has been treated systematically by the new method, and as yet specific vaccines have been used almost entirely. In their admirable and thorough study of a series of fifty-three cases of typhoid, treated with Gay's vaccine, Gay and Chickering[2] found that no permanent benefit resulted in 34 per cent., lysis with shortened course in 24.5 per cent., and critical cure in 41.5 per cent. They report no alarming symptoms from the injections; but others using different methods have reported instances of collapse, of hemorrhage, and of hyperpyrexia with delirium and death, so that this treatment is not to be lightly undertaken.

Gay would ascribe the rapid cure to the combined action of specific antibodies and the leukocytosis. This view is supported by the facts observed by several that the most pronounced results have been obtained after the tenth day of the disease when the general reaction against the infection is fully developed, and that much less effect has been achieved in the incubation period. As the same results may be produced in typhoid fever by nonspecific vaccines and even by albumose as by various forms of typhoid vaccines, although whether in the same percentages is not known, it is natural that other views should be presented. Jobling and Petersen[3] find that in animals the intravenous injection of killed bacteria mobilizes nonspecific ferments, and they suggest that the effects of specific vaccines and other products in typhoid fever are due to the work of these ferments in destroying bacilli and in reducing toxic substances to nontoxic. It has been suggested also that following the shock of the intravenous injection the organism passes into a refractory condition (antianaphylaxis) in which it ceases to react to the typhoid bacillus and its products. These views, it seems to me, may serve as suggestions for more formal hypotheses to direct investigations for the purpose of learning more of the nature and the effects of the reaction as well as its therapeutic value.

SUMMARY

If the presentations in this paper are trustworthy, it may be concluded that the general results so far from the routine use of commercial vaccines, polyvalent and mixed, have no value as evidence for or against the curative usefulness of vaccine treatment, and hence no value, either, with respect to the soundness of the theory on which vaccine treatment primarily has been developed.

In subacute and chronic localized infections, the results appear to indicate that specific vaccines properly and skillfully used have value, quite likely because they increase the production of specific antibodies, as

1. Unpublished observations by George Mathers and C. W. Wells.

2. Gay, F. P., and Chickering, H. T.: Treatment of Typhoid Fever by Intravenous Injections of Polyvalent Sensitized Typhoid Vaccine Sediment, Arch. Int. Med., February, 1916, p. 303.

3. Jobling, J. W., and Petersen, William: Bacteriotherapy in Typhoid Fever, THE JOURNAL A. M. A., Aug. 7, 1915, p. 515.

demanded by the theory, but probably also because they stimulate leukocytic and other activities.

In typhoid fever and possibly also in other infectious diseases, the intravenous injection of specific vaccines and also of other substances may induce crisis and prompt recovery. The mechanism of this action is not fully understood; but as it involves something more than or different from specific stimulation of the production of antibodies, it cannot be interpreted in terms of the current conception of the action of vaccines. We are entering, therefore, a new and interesting development in the study and treatment of infectious diseases.

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THE DETERMINATION OF ALVEOLAR CARBON DIOXID TENSION BY A SIMPLE METHOD*

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BALTIMORE

In acidosis the tension, that is to say, the effective concentration of carbon dioxid in the alveolar air, is diminished.[1] By the determination of this tension the diagnosis of acidosis may be made, the degree of severity estimated, and the results of treatment followed. The determination may be carried out in a few minutes' time and with no especial discomfort to the patient. Two procedures are involved: the collection of the alveolar air, and the analysis of the sample.

COLLECTION OF ALVEOLAR AIR

The method of collection is essentially that of Plesch,[2] as modified by Higgins.[3] A rubber bag of approximately 1,500 c.c. capacity[4] is connected by means of a short rubber tube to a glass mouthpiece.[5] About 600 c.c. of air are blown into the bag with an atomizer bulb, and the rubber tube clamped off by a pinchcock. The subject should be at rest and breathing naturally.[6] At the end of a normal expiration, the subject takes the tube in his mouth; the pinchcock is released and the subject's nose closed by the observer. The subject breathes back and forth from the bag four times in twenty seconds, emptying the bag at each inspiration. The observer should indicate when to breathe in and out. Breathing more frequently will not greatly alter the results. At the end of twenty seconds, the tube is clamped off and the air analyzed. The analysis should be carried out within three minutes' time, as carbon dioxid rapidly escapes through rubber.

The foregoing procedure applies to patients who are capable of cooperating to some extent. In the case of comatose patients, the initial amount of air in the rubber bag must be greater (1,000 c.c. at least), and the period of rebreathing prolonged to 30 seconds.[7] This is necessary, as it is not feasible that the bag be completely emptied of air at each inspiration; and therefore a longer time is required for the carbon dioxid tension in the bag and in the lungs to become equal. The initial amount of air in the bag should be such that it is at least one half and preferably as much as two thirds emptied at each inspiration. Since comatose patients cannot hold the mouthpiece, some form of mask is necessary. This may be a gas anesthetic mask[8] or such a device as described below for use with infants.

A special mask has been devised for the collection of alveolar air from infants.[9] It is made from the nipple of a wide mouth (Hygeia) nursing bottle and a piece of thin rubber tissue (dental dam). A sheet of the tissue (8 by 10 inches) is perforated in the center by a piece of hot metal or glass tubing of large bore. The hole is stretched and pulled over the nipple and slipped down to the lower rim. A small amount of rubber cement is applied to hold the tissue and nipple together. A strip of adhesive plaster three-eighths inch wide is applied around the rim of the nipple so as to overlap the rubber tissue and hold it firmly in place. The extreme tip of the nipple is cut off and a short glass tube, three eighths inch in diameter, inserted.

"In making a collection of alveolar air from infants a rubber bag of 500 c.c. capacity is connected with the mask and partially filled with air by means of an aspirator bulb. The neck of the bag is closed off by a pinchcock or with the fingers, the mask placed over the nose and mouth of the infant and the rubber tissue closely drawn around the face so as to prevent the escape of air. The mask should, if possible, be placed over the face just at the end of expiration. Respirations are allowed to continue for from twenty-eight to thirty-two seconds, and at the end of an expiration the neck of the bag is closed off and the mask removed from the face. We have found that it is necessary that the infant should be breathing quietly for one minute previous to the collection of the air sample, as vigorous crying, just before the mask is put on, leads to a lowering of the carbon dioxid tension, as determined, by several millimeters. Crying during the collection of the sample almost invariably occurs and facilitates mixing of the gases. The effect is to raise the tension somewhat if crying is very vigorous, but not to such an extent as to be significant. The initial amount of air in the bag must be such that during inspiration the bag is from one-half to two-thirds empty, but never completely collapsed. The amount of air required for infants under 1 year of age varies from 250 c.c. to 400 c.c."

The mask described above for use with infants may be very conveniently used for the collection of alveolar air samples from dogs. The animal's nose is inserted into the mask and the rubber tissue drawn closely around the muzzle. The time of a collection need not exceed twenty-five seconds.

For analysis of the air samples, the apparatus required comprises eight test tubes, containing standard phosphate solutions; a standard bicarbonate solution; a small test tube; a glass tube or pipet drawn out to a capillary point, and a box for color comparison.

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* From the Harriet Lane Home and the Department of Pediatrics, the Johns Hopkins University.

1. For discussions of the significance of alveolar carbon dioxid tension, see Porges, Leimdorfer and Markovici: Ztschr. f. klin. Med., 1911, lxxiii, 389. Higgins and Means: Jour. Pharmacol. and Exper. Therap., 1915, vii, 1. Peabody: Am. Jour. Med. Sc., 1916, cli, 184. Howland and Marriott: Bull. Johns Hopkins Hosp., 1916, xxvii, 63.

2. Plesch: Ztschr. f. exper. Path. u. Therap., 1909, vi, 380.

3. Higgins: Pub. 203, Carnegie Institute of Washington, 1915, p. 168; Boothby, W. M., and Peabody, F. W.: A Comparison of Methods of Obtaining Alveolar Air, Arch. Int. Med., March, 1914, p. 497.

4. A basket ball bladder or a hot water bag answers very well. If the latter is used, the neck may be closed by a rubber stopper carrying a short glass tube three-eighths inch in internal diameter.

5. An ordinary piece of glass tubing with rounded edges, 1½ inch. long, and three-eighths inch in internal diameter.

6. Especially to be guarded against is a deep, voluntary inspiration just before the collection begins, as this causes too low a determination.

7. The bag is clamped off at the end of that expiration occurring nearest to thirty seconds, as no great error is introduced by prolonging the time of rebreathing by two or three seconds.

8. Some advantage may be gained by inserting a large three-way stopcock of metal or glass between the mask and the bag. When such a stopcock is used, the mask is first put in place on the patient's face with the cock so turned that he breathes the outside air for a few respirations. At the end of an expiration the cock is quickly turned so as to bring the bag and the mask into connection.

9. Howland and Mariott: Am. Jour. Dis. Child., May, 1916.

PRINCIPLE OF THE METHOD OF ANALYSIS

The method depends on the fact that if a current of air containing carbon dioxid is passed through a solution of sodium carbonate or bicarbonate until the solution is saturated, the final solution will contain sodium bicarbonate and dissolved carbon dioxid. The reaction of such a solution will depend on the relative amounts of the alkaline bicarbonate and the acid carbon dioxid present. This, in turn, will depend on the tension of carbon dioxid in the air with which the mixture has been saturated and *will be independent of the volume of air blown through, provided saturation has once been attained.* High tensions of carbon dioxid change the reaction of the solution toward the acid side. Low tensions have the reverse effect; hence the reaction of such a solution is a measure of the tension of carbon dioxid in the air with which it has been saturated.

The reaction of such a solution may be determined by adding to it an indicator such as phenolsulphonephthalein,[10] which shows over a considerable range of reaction definite color changes. A certain color indicates a certain reaction.

Solutions of a given reaction may be prepared by mixing acid and alkaline phosphates in definite proportions. Such solutions may be kept unaltered for long periods of time and can be used as standards for comparison.

PREPARATION OF STANDARD PHOSPHATE SOLUTIONS[11]

Fifteenth molecular acid potassium phosphate: Of the pure, recrystallized salt (KH_2PO_4), 9.078 gm. are dissolved in distilled water, 200 c.c. of 0.01 per cent. phenolsulphonephthalein solution are added, and the whole is made up to 1 liter.

Fifteenth molecular alkaline sodium phosphate: The pure, recrystallized salt ($Na_2HPO_4 . 12H_2O$) is exposed to the air for from ten days to two weeks, protected from dust. Ten molecules of water of crystallization are given off and a salt of the formula $Na_2HPO_4 . 2H_2O$ is obtained. Of this salt, 11.876 gm. are dissolved in water, 200 c.c. of 0.01 per cent. phenolsulphonephthalein solution are added, and the whole is made up to 1 liter. The solutions are mixed in the proportions indicated in the tabulation.

PROPORTIONS IN WHICH SOLUTIONS ARE MIXED

Mm.	10	15	20	25	30	35	40	45
Acid potassium phosphate, c.c.	17.8	25.2	31.0	35.7	40.5	45.0	47.0	50.2
Alkaline sodium phosphate, c.c.	82.2	74.8	69.0	64.3	59.5	55.0	53.0	49.8

The solutions thus made are put in small test tubes (a convenient size is 10 by 75 mm.) and stoppered or sealed off. These standard tubes should be kept in a dark place when not in use.

The standard bicarbonate solution is prepared either by weighing out 0.530 gm. of desiccated sodium carbonate or by measuring accurately 100 c.c. of tenth normal sodium hydroxid into a 1 liter volumetric flask. Two hundred c.c. of 0.01 per cent. phenolsulphonephthalein are added, and the whole is made up to the mark with distilled water. Carbon dioxid from a cylinder or from the lungs may be passed through this solution to convert the alkali into bicarbonate, or the solution may simply be used as it is, as the alveolar air that will be blown through the solution subsequently will accomplish the same purpose.

The comparison with the standard colors is conveniently made with a box similar to that used with the Sahli hemoglobinometer, but containing three instead of two holes. It is a small, flat box of blackened metal, 55 by 45 by 20 mm., backed with opal glass and with three slits open on the front. By the use of this device, slight color changes may be easily detected, and the temperature of the tubes is not raised by the heat of the hands. In addition, the whole device, with tubes, may be immersed in water at a given temperature.

All of the standard solutions used in this method should be kept in glass which does not readily give off alkali, that is to say, such a glass as "Jena," "Non-sol" or "Pyrex." A small amount of toluene or thymol added to each solution serves to prevent the growth of molds.

TECHNIC OF THE METHOD OF ANALYSIS

In analyzing a sample of air, about 2 or 3 c.c. of the standard bicarbonate solution are poured into a clean test tube of the same diameter as the tubes containing standard phosphate solutions, but from 100 to 150 mm. long. Air from the bag is then blown through the solution by means of a glass tube drawn out to a fine capillary point, until the solution is saturated, as shown by the fact that no further color change occurs.[12] The tube is stoppered and the color immediately compared with that in the standard tubes. By interpolation, one can readily read to millimeters. Color changes are not quite so sharp above 35 mm. as at the lower end of the scale, but here changes are of less significance. In making the color comparisons, the solution being compared is placed between the two standards which it most nearly matches. When there is doubt as to whether the color of the solution is higher or lower than one of the standards, changing the order in which the tubes are placed in the comparison box will generally make the relationships clear.

The standard solutions described are so prepared as to give correct results when the determination is carried out at a temperature of from 20 to 25 C. (from 68 to 77 F.). When the room temperature is considerably higher or lower than these points it is advisable to immerse the tubes in water at approximately 25 C. during the blowing. They may be removed from the water for the color comparison, however, provided this is quickly made. The differences due to the ranges of temperature occurring under ordinary circumstances are practically negligible.

No correction for barometric pressure is required as from the nature of the determination, barometric fluctuations are self-corrective. Variations in the temperature of the subject are never great enough to affect the value as much as 1 mm., and therefore may be neglected.

RESULTS

If the simple conditions described above for the collection and analysis of air samples are complied with, duplicate determinations usually agree within 2 mm. More than one determination should be made in every instance, especially in confirmation of a low tension, since errors in the technic of collection of the sample lead to too low rather than to too high results.

10. Levy, R. L.; Rowntree, L. G., and Marriott, W. M.: A Simple Method for Determining Variations in the Hydrogen-Ion Concentration of the Blood, Arch. Int. Med., September, 1915, p. 389.

11. Standardized phosphate mixtures, sealed in tubes, the standard bicarbonate solution, tubes, color comparison box and other accessories may be obtained from Hynson, Westcott & Co., Baltimore.

12. If the operator first blows his own breath through the solution so as to bring it into approximate equilibrium with alveolar air, saturation may be accomplished with as little as 100 c.c. of air from the bag, blown through during thirty seconds. The same bicarbonate solutions may be used for repeated determinations.

In the case of failure of successive determinations to agree, the fault is much more likely to lie in the collection than in the analysis of the sample.

In normal adults at rest, the carbon dioxid tension in the alveolar air, determined as described above, varies from 40 to 45 mm. Tensions between 30 and 35 mm. are indicative of a mild degree of acidosis. When the tension is as low as 20 mm., the individual may be considered in imminent danger. In coma, associated with acidosis, the tension may be as low as 8 or 10 mm. In infants, the tension of carbon dioxid is from 3 to 5 mm. lower than in adults.

Conditions other than acidosis may affect the carbon dioxid tension. Stimulation of the respiratory center leads to increased pulmonary ventilation and a consequent lowering of the alveolar carbon dioxid tension. Such stimulation may be brought about by caffein,[1] and possibly also by intracranial lesions. The respiratory center may be depressed by morphin, and as the result of certain[13] infections. This leads to an increased carbon dioxid tension. Changes in the excitability of the respiratory center, however, are but rarely great enough to affect significantly the composition of the alveolar air.

"Alveolar" air collected as described above is essentially air which has come in equilibrium with the venous blood in the pulmonary capillaries. The tension of carbon dioxid is approximately that in the venous blood. "Alveolar" air collected by the Haldane or Friederecia methods is air which has come in approximate equilibrium with the arterial blood, and hence is of a carbon dioxid tension from 10 to 20 per cent. lower.

Changes in the pulmonary epithelium such as would prevent the air in the lungs from coming in equilibrium with the blood in the capillaries would, of necessity, affect the composition of the alveolar air. Since very little is known as yet regarding the exact effect of such changes, one is hardly justified in drawing conclusions regarding acidosis from the composition of the alveolar air in patients with pulmonary affections.[13]

13. Means, Newburgh and Porter: Boston Med. and Surg. Jour., 1915, clxxiii, 742.

Earliest Connection of Plague with Rodents.—The Biblical use of the word "plague" is, like its medieval use, more often than not, in the general sense of a pestilence or epidemic disease, rather than in the specific sense of the disease now known as bubonic plague. The expression "a plague of leprosy" is a common one, and there is no reason to suppose that any of the ten plagues of Egypt were of the character of the malady now under discussion. But in a few instances there are some grounds for believing that the disease mentioned was in truth bubonic plague and no other. The most remarkable reference is found in 1 Samuel iv, v, vi, where the Philistines were smitten with emerods or tumors in their secret parts. The Ark was sent to Gath, then to Ekron, and the plague followed it. In the meantime there seems to have been a veritable plague of mice. In the ordinary version there is only incidental reference to "the mice that mar the land" (1 Sam. vi, 5), but in the Septuagint version the references are more distinct, "in the midst of the land thereof mice were brought forth, and there was a great and deadly destruction in the city," and further (1 Sam. vi, 1) that "their land swarmed with mice." The Philistines returned the Ark to Beth-shemesh, with golden images of the tumors and of the mice, but still the plague followed it, and no less than 50,070 persons perished. This is the earliest reference connecting bubonic plague with rodents, and it has taken three thousand years to invent the rat flea and its specific bacillus as agents for spreading the disease.—John W. Fries, *Southern Medical Journal.*

SOME MODERN VIEWS OF SYPHILIS OF THE NERVOUS SYSTEM

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About forty years ago, when Fournier had the temerity to intimate that in the great majority of cases of locomotor ataxia syphilis was the cause, Ricord, his confrère and the most prominent syphilographer of the day, said that Fournier had taken on himself a very bad burden. A few years later, when Erb in Heidelburg assumed responsibility for a similar point of view, medical Germany was mobilized against him. So the matter stood for some years and was threshed out with acrimony on both sides.

Later, Negeotte brought forth his epoch-making observation, that in locomotor ataxia there is invariably some evidence of inflammation in the meninges of the cord. Following the practice of Quincke, the routine examination of the spinal fluid determined the presence of cellular peculiarities invariably present in cases of locomotor ataxia as well as in those of general paresis. General paresis and locomotor ataxia from that time have proceeded side by side in the estimation of the medical profession as either being caused by syphilis or being intimately associated with syphilitic processes affecting the neural axis.

Then came Schaudinn with the discovery of the spirochete as the actual cause of syphilis, closely followed by Wassermann, whose reaction proved the essential fact of syphilis in these diseases. The matter has been finally and positively clinched through the discovery, by Moore and Noguchi, of the spirochete in the lesions of tabes and general paresis. Now we are in a position to say that locomotor ataxia and general paresis are manifestations of syphilis. We should no longer use the terms "parasyphilis" or "metasyphilis," coined by Fournier and his followers, because we are dealing with actual syphilis — with late syphilis.

PREVALENCE OF SYPHILIS

For a great many years writers and teachers have contended that there was wide prevalence of syphilis, especially in urban populations. Approximations, based on clinical histories and objective signs, both in private practice and in hospitals, indicated that about 20 to 25 per cent. of all adult males were syphilitic. If this is true, the question as to how many of this tremendous army of syphilitics are subsequently to develop syphilis of the cerebrospinal system is of the utmost importance. Only since we have had the advantage of the Wassermann reaction as a means of diagnosis have we been in a position practically to solve the problem.

The report of Vedder[1] on syphilis among recruits is instructive. The examinations on which this report is based were made at Fort Slocum, near New York, and at Jefferson Barracks, near St. Louis. In New York the majority of those applying for admission to the army were of city extraction and habits, while those in St. Louis came largely from the surrounding country districts. Of all who applied, only those were accepted who were physically fit, and those who showed evidences of syphilis or gave a history of recent syphilis were excluded. Out of the entire number applying, only 17 per cent. were accepted; that is

1. Vedder: Prevalence of Syphilis in the Army, Surg.-Gen. Bull. 8, June, 1915.

to say, 83 per cent. were rejected. In the 17 per cent. selected, the Wassermann test of the blood, made apparently with scrupulous care and checked by competent associate observers, indicated that 16.7 per cent. were syphilitic. The astonishing and alarming fact stands out, that the rural population at Jefferson Barracks seemed to have nearly as high a percentage of syphilis as the urban population examined at Fort Slocum. We are therefore clearly within conservative lines when we estimate that one man in every five is syphilitic.

PREVALENCE OF NERVOUS SYPHILIS

Now the question is, if so many people are syphilitic, how many will have syphilis of the nervous system? Examinations of the spinal fluid in cases of primary and secondary syphilis, according to Finger, give positive reaction for the various tests in 70 per cent. of cases; that is to say, in early syphilis the spinal fluid shows an actual syphilitic process in the nervous apparatus seven times in ten. Altmann and Dreyfuss found this to be true in 82 per cent. of cases. Still further, Hoffmann, Nichols and Steiner have found that, in 15 per cent. of cases in the primary and secondary stages, before changes can be found by Wassermann or other reaction, these spinal fluids are infectious and the disease can be transmitted by their inoculation.

Here emerges the astounding fact, that every case of syphilis from the very first is a case of cerebrospinal syphilis, of nervous syphilis, and that no case of syphilis runs its course, even for a short time, without producing changes in the neural apparatus. Such changes formerly were considered to be a late complication. The ectodermal origin of the neural axis may explain the early involvement of these tissues by a disease marked preeminently by skin lesions.

Thanks to the newer serologic tests, we are awakened to the fact that nervous syphilis has a much wider clinical territory than was even suspected. For instance, Collins,[2] excluding tabes, general paresis and the usual forms of cerebrospinal syphilis, is able to tabulate 245 cases encountered within a short time in his division at the New York Neurological Institute. These syphilitic cases were recognized only by means of the blood and spinal fluid investigations.

FREQUENCY OF TABES AND GENERAL PARESIS

What is the frequency of the late syphilis, which we formerly called parasyphilis or metasyphilis; of tabes, optic atrophies and general paresis?

White, in an examination of 1,016 cases of syphilitic men, found these late syphilitic manifestations in about 1 per cent. Pick and Bandler found paresis in 2.12 per cent. But the most significant statistics that I have found are those tabulated by Mattuschek and Pilcz. They have the detailed histories of 4,134 Austrian army officers who were infected with syphilis between 1880 and 1890, and these cases, which were complete in every detail and brought down to the year 1912, were then reviewed. As you can understand, in the Austrian army the records are reliable and complete, and after such a period of time they would justify definite deductions. Out of this large number, over 4,000 syphilized men, examined twenty-two years after the last of them were infected, Mattuschek and Pilcz found that 4.67 per cent. had developed paresis, more than 1.5 per cent. had developed tabes, or 6.27 per cent. had developed one or both of these diseases. Through all the usual manifestations of syphilis, 20 per cent. of the 4,134 had greatly abridged or lost their lives.

There is, apparently, a peculiar difference in the susceptibility of men and women to the development of these late forms of syphilis. Fischer examined 1,178 syphilitic men and found 3.7 per cent. paretic, while in 888 women he found 0.5 per cent.; that is to say, women are apparently less susceptible to tabes and paresis than are men. But perhaps an explanation of this peculiar sex variation can be found, and I will revert to the matter a little later.

VARIATIONS OF THE SYPHILITIC ORGANISM

It is an interesting fact that Schaudinn was not a physician, but a zoologist. The discovery of the spirillum of syphilis was, in a sense, accidental, in that Schaudinn was selected, in conjunction with Hoffmann, by a committee of the German Academy of Sciences, to investigate the contention of Siegel, that he had found a certain organism, the *Cytorrhyctes luis*, in syphilitic lesions and claimed it to be the cause of syphilis. It was established that this organism has nothing at all to do with syphilis, but it plays an important rôle in having led to the detection of the spirochete. Schaudinn had been deeply interested in the spirilla of animal diseases, in African sleeping sickness and in the relapsing fevers, and with a mind saturated with the subject, he turned his attention to syphilis, naturally first looking for those forms of life with which he was on familiar terms, and he shortly detected the *Spirochaeta pallida*.

This spirochete is not the simple animal that was first supposed, but is capable of great variations in character and in clinical manifestations.

VARIATIONS IN VIVO

The spirochete presents variable strains. It has not the simplicity of the bacteria, although, thanks to Rosenow, we now look on bacteria as capable of great morphologic and clinical differences.

Clinically, for a long period of years it has been recognized that syphilis is not always the same thing, and it has been known to clinicians that there is a variety of syphilis which might be called nervous syphilis. The French observers have been particularly active in gathering data on this point of view. I remember one report concerning five young soldiers who were syphilized from the same source at the same time, four of whom developed general paresis and one developed locomotor ataxia.

A more interesting case is mentioned incidentally by Erb, but was first published by Lavelle. It is the tragic story of a Martha X., who in 1870 was the mistress of a medical student who died in 1873 of cerebral syphilis. In 1871 she transferred to a second medical student, who afterward married and had healthy children, but died in 1880 of general paresis. In the following year she took up with a third student, who also later had healthy children in wedlock, but died in 1882 of general paresis. Then a chemist fell under her spells, and he died in 1890 of general paresis. He was followed by an engineer, who in 1893 died of general paresis. An interesting point here is, that the first victim died of cerebrospinal syphilis and his successors perished from general paresis, a clinical variation that is to be correlated with spirochetal variation.

2. Collins: New York Med. Jour., 1916, ciii, 389.

Clinicians have seen cases of locomotor ataxia in husband and wife, and all clinicians in the field of mental disease have seen husband and wife present general paresis. Conjugal syphilis, conjugal general paresis, conjugal tabes, and conjugal optic atrophy are common terms. In these cases generally the wife has contracted the disease in wedlock from her husband. In nearly all such cases, as is a common observation in the syphilis of married women, there is no history of a primary lesion, and secondaries have been slight or entirely unobserved. The wife has contracted a syphilis of a modified character; in other words, the spirochete has undergone variation in vivo.

Herein may be the explanation of the reduced incidence of tabes and general paresis in syphilitic women. The conjugal cases, however, may indicate that syphilitic infection is possible in very late stages of syphilis, and then it produces a similar form of disease. As a matter of fact, even the unmarked wives and children of paretics and tabetics will usually be found to be Wassermann positive.

Ehrlich agreed with the view that spirochetes produce self-destructive antibodies in the human organism. A few of the original strain, of superior vital qualities, perhaps, are able to persist in spite of the antagonism of the antibodies, and they propagate a second strain, which in its turn arouses the forces of resistance, and so on ad infinitum. Finally, a strain is evolved which is apparently of a lowered fecundity, but of increased resistiveness, and the condition then tends to come to a standstill. In the final stage probably the organism acquires an immunity to the usual remedies. Here is possibly an explanation of the fact that in locomotor ataxia and general paresis mercury and the iodids are of much less value than in the conditions which precede, such as cerebrospinal syphilis, the arteriomeningeal lesions, and the ordinary manifestations of the tertiary stage. Indeed, syphilitic lesions marked by gummy processes rarely are followed by the so-called parasyphilitic disorders. In this clinical observation we see the manifestation of another variation of the spirochete.

VARIATIONS IN VITRO

Variation of the organism has been confirmed by experiments in the laboratory. Noguchi found that the spirochetes obtained from the brains of general paretics required for their development and propagation about sixty to eighty days; Graves of St. Louis, using the blood of general paretics, found that he could produce syphilitic lesions in rabbits by inoculation, but that it required about sixty days; and both these investigators found that with spirochetes obtained from early stages of syphilis three or four weeks were sufficient. The late-stage organism had clearly undergone a differentiation.

Today in Washington, in the laboratory of the Army Medical School,[3] the investigators can produce several varieties of spirochete. They can breed a variety which will produce a hard chancre, or a variety which will produce a chancre lacking the old hunterian characteristics of a saucerlike, indurated base. They can produce a spirochete which will give a rich mucocutaneous efflorescence, or a spirochete which will be poor in cutaneous manifestations, with a tendency to confine its influence on the nervous system. Perhaps we may reach a time when, if we can determine the source of the infection of a syphilitic patient, the stage of the disease and its characteristics in the carrier, we may be able to draw some conclusion as to the course that lies before the patient, and the nature of the clinical history which he may be expected to run.

What of the various methods of intracranial, intraspinal, intravenous, and combined applications of the arsenicals and mercurials? I must admit that all of these measures thus far have not enabled us to cure or positively arrest locomotor ataxia or general paresis. In those cases in which the lesions have not reached the stage of latest syphilis, those in which the disease falls especially on the vessels and the meninges, the prospects of cure are of the very best. It is essential in the conduct of such treatment that we be guided, not by the Wassermann in the blood, but by the condition of the cerebrospinal fluid.. No man, in my estimation, is giving his patient the best treatment, or even the proper treatment, who withholds the administration of these remedies before he has obtained, for a period of years, negative results by the Wassermann, the other accepted tests, and the cytologic count in the spinal fluid. The granting of marriage certificates to those who have had syphilis should not turn on the examination of the blood by the Wassermann method, but on careful examination of the spinal fluid.

The problem of treatment appears not to be one of the surgical or mechanical administration of the old or new remedies, but the discovery of some agent particularly biocidal to the organism in its latest variations.

804 Pullman Building.

3. Personal communication to the author.

RECURRENT GENERALIZED HERPES OF INFECTIOUS ORIGIN

REPORT OF A CASE *

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This report of a case of generalized herpes simplex that was recurrent over a period of two years will undoubtedly show its infectious origin. This type of herpes is rare, and the observations made offer suggestions as to the etiology of the more common herpes simplex.

Cases of herpes may be roughly divided into three groups. Though in all three groups the skin lesions show a necrosis and exudation of varying intensity, these and other pathologic findings are most pronounced in the herpes zoster group. Von Barensprung[1] and others described changes in the posterior root ganglion in herpes zoster; but it remained for Head and Campbell[2] to describe these changes in detail. They found, in the ganglion of the posterior root of a part corresponding to terminal skin lesions, changes of acute degeneration, that is, exudation of round cells and hemorrhages, and destruction of cells and fibers. They found acute degeneration and sclerosis in the posterior nerve roots, in the peripheral nerves and the posterior columns of the cord.

The recent work of Rosenow and Oftedal[3] has

* Read before the Society of Alumni, Lebanon Hospital, February, 1916.

1. Von Barensprung: Annalen d. Charite-Kranken., ix, 1861.
2. Head and Campbell: Brain, 1900, xxiii.
3. Rosenow, E. C., and Oftedal, S.: The Etiology and Experimental Production of Herpes Zoster, The Journal A. M. A., June 12, 1915, p. 1968.

added much to our knowledge of herpes. Streptococci were isolated from removed tonsils, and from pyorrheal pockets and spinal fluid of herpes zoster patients; these were injected into animals with resulting lesions of herpes and changes in the vagus and sympathetic ganglia. Gram-staining diplococci and diplococci in chains were found in and about the ganglia. Other streptococci, or those isolated from tonsils or elsewhere after the patient is cured, do not manifest this similar elective localization when injected into animals. The cultures from peripheral lesions were negative. This work appears to be confirmatory evidence of the infectious origin of herpes zoster.

In a second group of herpes, those due to a known toxic or infectious agent, like changes have been described in the posterior root ganglion. Acute inflammatory changes in the gasserian ganglion have been described when herpes occurred during cerebrospinal meningitis,[4] pneumonia,[5] arsenic, carbonic oxid poisoning, etc. Sunde[6] found a gram-positive diplococcus in the gasserian ganglion of a man with herpes who died of pneumonia.

In these two classes of herpes, herpes zoster and the toxic or infectious cases, the lesions of the nervous system and the microbic origin are established.

On the other hand, in still another group, that of herpes simplex, there is no direct evidence of changes in the ganglia. Heretofore no micro-organism has been found in the terminal lesions; and there has also been absence of other evidence of the infectious nature of herpes simplex.

In my case of generalized herpes simplex, the causative organism — a streptococcus — was isolated. It is termed "simplex" because it accompanied no infectious disease; it was due to no known toxic poison, nor was it a herpes zoster.

The case is of special interest because of (1) its recurrence over a period of two years; (2) the isolation of the causative organism, streptococcus; (3) its cure by vaccine therapy.

Much information and data were kindly furnished by Dr. M. Salzer of Cincinnati, who treated this patient several months before she was seen by me, and to whom my thanks are due. Dr. Berghausen of Cincinnati made the original cultures and vaccine.

REPORT OF CASE

Mrs. X., aged 30, past history negative, for over two years had been having almost continuous crops of herpetic eruptions. The parts chiefly affected were lips, nose, both ears, chest, both wrists, occasionally the leg and forearm. The lesions consisted of vesicles, very fine to pinhead in size, on a base that was red and swollen. Contents of vesicles were clear and would dry up with practically no scaling.

A typical attack would be preceded by much itching and burning, and swelling of the lips. There would be chilly sensations down the spine, profound depression of spirits and total loss of appetite. Then numbers of fine vesicles would appear on a reddened base on the much swollen lips. These would be followed by lesions on the nose, ears and elsewhere. Itching and burning continued throughout.

Physical Examination.—The patient looked thin and anemic; she had lost about 12 pounds in weight. There was a marked lateral curvature of the spine. All organs were normal. Temperature and pulse rate were normal. Blood examination showed a secondary anemia, otherwise negative. The Wassermann was negative. Roentgen-ray examination of the chest, abdomen, head—sinuses and teeth—was negative. There was very little tonsillar tissue.

Special efforts were made to locate the source of infection in the tonsils, teeth or sinuses without success.

Blood culture was negative. Cultures, however, made on blood agar of material aspirated from vesicles, and probably some from tissue about the vesicles, showed a streptococcus in long chains. From subcultures a vaccine was made.

The patient was injected with this autogenous vaccine in doses ranging from 100 million to 1 billion bacteria. Injections were given every three or four days. Reactions followed injections, outbreak of herpetic lesions, and rise of temperature with larger doses. After five weeks of this treatment by Dr. Salzer, the patient came under my care.

The disease had now lasted over two years, and protracted stays in bed were the only means which seemed to check attacks. All the usual methods of treatment, external, internal, hypodermic, change of climate, etc., were tried.

It seemed to me that, as there was some amelioration in the symptoms, gain in strength and lengthening of intervals between attacks, it would be best to continue the only measure that brought relief outside of rest, the vaccine method of treatment. It was essential to use the patient's own organism, as vaccination with other strains of streptococci would not, according to Rosenow's findings, have produced the antibodies of her particular strain. In an endeavor to do away with the negative phase, and in order to give larger doses, I sensitized the autogenous vaccine.

Sensitization was performed by adding to every cubic centimeter of autogenous vaccine 2 c.c. of a polyvalent antistreptococcus serum. This was placed in a thermostat at 37 C. (98.6 F.) for twenty-four hours, and shaken frequently. The preparation was centrifuged. The bacteria were then washed free of serum with sterile saline. After testing sterility, the bacteria, plus antibody, were ready for injection.

Six injections of this sensitized autogenous vaccine were given in one month. The dose was increased from 200 million to 2 billion bacteria. There were no local reactions until the two largest (1½ and 2 billions) were reached, when there was a slight outbreak of the eruption. There were minor constitutional reactions at times, such as depression of spirits, chilliness and loss of appetite following injections; but a gain in well-being, strength and in weight was almost immediate. One more injection quickly controlled a slight outbreak that occurred about a month after treatment had been discontinued.

Five months have elapsed since, and there has been no recurrence; meanwhile the patient has gained 11 pounds in weight, and she is strong and happy.

CONCLUSIONS

The isolation of the micro-organism from the skin lesion, the institution of a negative phase by its injection, with skin manifestations, and the cure, unattainable by any other means than the increase of immunity for the streptococcus by the injection of streptococcus vaccines; are all direct evidence of the infectious nature of this herpes. It is therefore a step toward proving the infectious origin of herpes simplex, and another step in the direction of showing the common origin of all herpes.

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4. Councilman, Mallory and Wright: Massachusetts State Board Reports, 1898.
5. Howard, W. T., Jr.: Am. Jour. Med. Sc., cxxv, 256.
6. Sunde: Deutsch. med. Wchnschr., 1913, xxxix.

The Care of Epileptics.—Thirteen states have colonies for epileptics. The total number of epileptics in the United States is 200,000. Of these only 3½ per cent. are properly cared for. Of 1,320 deaths in the Craig colony 513 were due to causes related to epilepsy. The average age at death was 30 years. In 600 necropsies about 60 per cent. showed gross brain lesions, but only a very few showed anything that might have been treated surgically. The most striking and frequent change was enlarged lateral ventricles and cystic or granular choroids.—Twenty-Second Annual Report of the Craig Colony for Epileptics, New York.

SOME OF THE SURGICAL ASPECTS OF PAINFUL BACK

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CHICAGO

I wish to consider a condition equally as important as arthritis of the spine or sacro-iliac subluxation, although it is not so common. It is a condition more common than is generally supposed, and equally as potent a factor in the causation of sciatica, scoliosis and painful back. I refer to a class in which, in the past, operation has been performed for various supposed pelvic and abdominal conditions, also for cord tumors and Pott's disease, or they have been treated medically for lumbago, rheumatism and sciatica without relief.

The cause of pain and disability in these cases is an anatomic variation in the shape or size of the transverse process of the fifth lumbar vertebra, sometimes spoken of as the lumbar rib. A study of the roentgenograms of the lumbar and pelvic region shows that variation in the size and shape of the lumbar process occurs as frequently as anatomic variations in other parts of the body. Adams[1] reports a study of fifty consecutive cases in the Massachusetts General Hospital in which careful Roentgen examinations were made. Of these, forty-four cases showed bony defects in the sacrum or fourth and fifth lumbar vertebrae. Seven of these showed an anomaly of the fifth lumbar inferior articular process, and two others showed an enlargement of the transverse process.

In the majority of cases the condition is undoubtedly an acquirement during the years devoted to hard labor, especially in people following occupations requiring an unnatural posture, such as woodchoppers, automobile repairmen, washerwomen, sailors, etc. For this reason it is more common in middle adult life and among the male sex, although Kleinschmidt[2] reports a case in which the symptoms first appeared at the age of 5, and Adams[3] one case in a girl of 16 who was operated on. It is evident that while occupation is the chief contributing cause of enlargement of the fifth lumbar transverse process, it is not the only one. Meisenbach[4] reports a case of fracture with a large callous formation, as does Ferrall.[5] Infectious diseases, especially syphilis, are probably an etiologic factor. Denucé[6] reports a case of enlargement, as shown by the Roentgen ray, associated with sciatica, in which the patient recovered under antisyphilitic treatment.

The factors involved in the production of pain are apparently not the same in all cases. There are several possible ways in which the pain may be caused; one by impingement of the process on the ilium separating the sacro-iliac joint. The transverse process may act as a fulcrum separating the sacrolumbar joint. There is a third possibility, as indicated by the case of Adams,[3] in which an erosion of the ilium occurred as the result of constant friction. Irritation may set up a hyperplasia of the surrounding soft tissues which might include the nerve, or direct pressure on the nerve itself, as a cervical rib presses on the brachial plexus, illustrated by Kleinschmidt[2] and by my own case.

The roots of the fifth lumbar nerve originate from the spinal cord between the levels of the twelfth dorsal and first lumbar vertebrae. They enter into the formation of the cauda equina, and combining, take exit through the intervertebral foramina between the last lumbar vertebra and the sacrum, as the fifth lumbar nerve. The anterior primary division of the fifth nerve descends over the ala of the sacrum and divides into the anterior and posterior parts, which are joined by corresponding parts of the fourth lumbar nerve. The two resulting trunks are known as the lumbosacral cord. The anterior part contributes to the formation of the tibial and the posterior part to the peroneal nerve. The lumbosacral cord lies directly on the bones of the linea innominata, whereas the other portions of the sacral plexus lie on the pyriform muscle.

The fifth lumbar nerve, through the sacral plexus, supplies sensory fibers to the outer side of the leg, to the inner side of the dorsum of the foot, the back of the leg, the inner and outer sides of the great, second and third toes, and the inner side of the fourth toe. It sends motor fibers to the gluteus maximus, minimus and medius, the short head of the biceps, the semimembranosus and semitendinosus, the long head of the biceps, and a number of muscles on the back of the leg, the inner and outer sides of the front of the leg, and the inner side of the sole of the foot.

The remarkable fact has been noted (Oppenheim[7]) that in cases in which compression or other injury affects the sciatic in the pelvis, the paralytic symptoms are most marked in the peroneal nerve, presumably because its fibers lie directly on the bone.

In a careful search of the literature I have been able to find but twenty cases reported. Six of these patients were not operated on. Of these, four cases (6 and 14) were lost track of. The other two, including the case of Denucé,[6] mentioned above, and a case of Calve's[8] showed improvement. Fifteen patients were operated on with the results given in the accompanying tabulation.

In addition to these I wish to report three cases. One of the patients was operated on by Dr. P. B. Magnuson, and one by myself. The third patient refuses operation at the present time, but is still under observation. In Case 1 the history was furnished by Dr. Magnuson.

CASE 1.—*History.*—Mrs. S. W., a housewife, aged 35, white, was admitted to Wesley Hospital, Jan. 13, 1915. Her family history was negative, as was also the menstrual history; she had had no past illness. She had two children, both normal births.

Eight years ago, following the birth of her last child, the patient noticed pain on the left side over the left upper sacral region which radiated down over the sciatic nerve back of the left knee. This was exaggerated by bending over the washtub or lifting. This pain has continued in greater or less severity, depending on the labor performed, until the present date.

About six years ago the patient noticed a mild pain on the right side in the upper sacral region, but about 1½ or 2 inches further away from the spine than the pain on the left side, which greatly increased until at the present time she is unable to stand erect, leaning toward the left. Flexion is

1. Adams, Z. B.: The Relation of Bony Anomalies of the Lumbar and Sacral Spine to the Cause and Treatment of Scoliosis, Am. Jour. Orthop. Surg., 1914-1915, xii, 45.
2. Kleinschmidt, quoted by Denucé: Centralbl. f. Chir., 1912, xxxix, 645.
3. Adams, Z. B.: Am. Jour. Orthop. Surg., 1910-1911, viii, 299.
4. Meisenbach, Roland, in discussion of Fassett, F. J.: Late Results of Excision of the Transverse Process of the Fifth Lumbar Vertebra, THE JOURNAL A. M. A., Nov. 20, 1915, p. 1775.
5. Ferrall, O.: An Anatomic Explanation of Many Cases of Low Backache and Sciatica, New Orleans Med. and Surg. Jour., 1914-1915, lxvii, 608.
6. Denucé: Rev. d'orthop., December, 1913, p. 531.
7. Oppenheim: Text Book of Nervous Diseases, i, 461.
8. Calve: Orthop. et tuberc. chir., 1914, i, 376.

limited toward the right; flexion forward relieves the pain somewhat on the right side, but increases it on the left side. There is no pain radiating down the sciatic nerve on the right side. It is constant and continuous in one spot. Roentgenoscopy reveals a long, lateral process on the fifth lumbar vertebra on the right side impinging against the crest of the ilium at the point which corresponds to the area of the intestines and the seat of pain on the right.

The patient has spent the last six months in bed. The back is flat in the lumbar region, and there is some rotation of the spine toward the left.

Operation and Result.—The patient was operated on, Jan. 21, 1915. A longitudinal semilunar incision with the convexity toward the right was made from the spine. The lumbar muscles were pulled aside, and the fifth lumbar lateral process was exposed deep down under the muscles. An attempt was made to introduce a periosteotome between this process and the ilium, which was unsuccessful. The process impinged and apparently was adherent to the crest of the ilium. With a Fenger dissector bent under the process at the base, a thin bladed chisel was driven down through it transversely. It was then grasped with an 8 inch forceps and pulled out. The left sacro-iliac joint was then exposed, the ligaments cut, and with a lever this joint was pried in such a way as to pull the sacrum back and pry the ilium forward, after which the ligaments were sutured and the wound closed.

The patient remained in bed, lying on her face or side, for six weeks, and according to her statement she had less pain following the operation than she had had at any time for the last six years. At the end of six weeks a straight, front laced corset with heavy band and buckle around the hips was applied, and the patient was allowed to stand on her feet at the end of eight weeks. She went home during the ninth week, and when she was last seen by the operator, about five months after leaving the hospital, she had gained 20 pounds in weight, was doing her own housework, including the washing, said she had not had any pain in her back, that she was no longer nervous as she had been before the operation, and from her own statement was completely cured of her trouble.

CASE 2.—*History.*—H. M., man, referred for operation by Dr. M. T. Goldstine, entered my service at Wesley Memorial Hospital, Aug. 4, 1915. He was by occupation a butcher, aged 37, married. Family and past history were negative.

For six months previous to entering the hospital the patient had complained of aching pain over the right hip and right lower lumbar region. The pain gradually increased in severity until for a period of six weeks before entering the hospital he was unable to assume an upright position. At this time the pain radiated downward and into the peroneal group of muscles. He consulted physicians who treated him for arthritis and lumbago without any improvement. Even under immobilization the condition became worse. Physical examination showed a well developed man of about 170 pounds. He was unable to stand erect; there was marked lateral curvature of the spine convex to the right, slight atrophy of the gluteal muscles, and marked atrophy of the peroneal group. There was tenderness just above the right sacro-iliac joint, and rigidity of the lower vertebrae.

The head, neck, chest and abdomen were negative. The right knee jerk was exaggerated, the left normal, other reflexes normal. There was tenderness over the peroneal muscles of the right leg.

The laboratory findings, blood, urine and Wassermann test were negative. A roentenogram showed a large, bifid, transverse process on the left side of the fifth lumbar vertebra. The right transverse process was a straight prolongation, pointing outward and downward, impinging on the sacro-iliac articulation.

Operation and Result.—A curved incision was made over the lower lumbar and sacral region to the right of the median line. The lumbar muscles were split along the outer edge by blunt dissection and the transverse processes of the fourth and fifth lumbar vertebra exposed. A curved periosteotome was used to free the anterior surface of the process, pressing the nerve trunk gently out of the field. During this maneuver one marked contracture of the leg occurred, showing pressure on the nerve. The instrument was then pressed up tightly against the spine and placed in the hands of an assistant with instructions to hold tightly against the process, while with a hammer and chisel the process was removed.

There was some separation of the sacro-iliac joint, which was curetted to obtain bony ankylosis. The incision was closed in the usual manner.

Although it was anticipated that the pain might be more severe for a few days after the operation, such was not the case. The following day the patient stated that the pain was gone. Recovery was uninterrupted. A plaster cast was applied for a couple of weeks after the patient got up, padded and cut in such a manner as to have a tendency to straighten the spine.

Within three months the patient had returned to his usual occupation, was absolutely free from pain, and had assumed his characteristic military attitude.

CASE 3.—*History.*—S. M., man, aged 42, single, a stationary engineer, was sent in to my service at Wesley Memorial Hospital by a physician who had diagnosed Pott's disease. The family and past history were negative.

About three months before entering the hospital the patient had what he called "a stitch in the back." He rested for a couple of weeks and was then able to return to work. He was working in an artificial ice plant at the time. Some weeks later he put in an extra hard day's work when other men were on a holiday. From then on, pain was constant and the back seemed to be curved.

Physical examination was negative except for a slight curvature of the spine, marked tenderness above the sacro-iliac joint on the right side, and some limitation of motion, although there was no rigidity of the spine.

RESULTS OF OPERATION

Author	Publication	No. of Cases	No. of Operations	Results
Adams	Am. Jour. Orthop. Surg., 1910-1911, viii, 299.	1	1	Perfect
Kleinschmidt	Zentralbl. f. Chir., 1912, xxxix, 645	1	1	Fair
Blanchard and Parker	Am. Jour. Orthop. Surg., xiii, No. 2	1	1	Perfect
Fassett	THE JOURNAL, Nov. 20, 1915, p. 1775	3	5	Good
Henderson	THE JOURNAL, Nov. 20, 1915, p. 1775; Am. Jour. Orthop. Surg., 1914-1915, xii, 54.	3	3	1 poor; 1 good; 1 too recent to report
Ryerson	THE JOURNAL, Nov. 20, 1915, p. 1775; ibid., Jan. 2, 1915, p. 24.	2	1 resection; 1 Albee operation to prevent stooping forward	Good Good
Lord	THE JOURNAL, Nov. 20, 1915, p. 1775	1	1	Good
Reilly	Am. Jour. Orthop. Surg., 1914-1915, xii, 54.	1	1	Perfect
Meisenbach	THE JOURNAL, Nov. 20, 1915, p. 1775	1	Old fracture with callus removed by saw	Good
Goldthwaite	Boston Med. and Surg. Jour., 1911, clxiv, 365.	1	Process not removed; laminectomy for cauda equina tumor	Poor

The laboratory findings were negative. The Roentgen ray showed a large transverse process of the fifth lumbar vertebra.

The patient refused operation, and therefore was put at rest. He improved sufficiently to return to work, but is not free from pain.

25 East Washington Street.

CAROTID TUMOR AND ANEURYSM OF THE INTERNAL CAROTID

REPORTS OF CASES

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The common carotid has been ligated many times, and the reason for reporting these cases is not that this operation was performed, but because the two conditions for which it was ligated are rare.

CASE 1.—A young woman, aged 16, had, on the right side of her neck, a hard lump, deeply seated, and about opposite the hyoid bone. It presented just in front of the anterior margin of the sternocleidomastoid muscle. It was slightly movable from side to side, but not movable in the vertical direction. Its position was so deep that it seemed to be in very close relationship to the transverse processes of the cervical vertebrae. The patient had suffered no inconvenience from the mass; there were no symptoms, and the reason she came for operation was the presence of a growing lump in her neck. Examination showed no evidence of pressure on either the pneumogastric, hypoglossal or recurrent laryngeal nerves. The lump was single, and the most careful palpation failed to reveal the presence of other masses in the neck. Because it was so firm, so fixed, single, and so deeply seated, it was thought to be a sarcoma; but a diagnosis of carotid tumor was not made before operation. An incision was made along the anterior margin of the sternomastoid muscle, and the lump isolated. It was found to be firm in consistency, not attached to the vertebrae, and after careful dissection, it was seen that the common carotid artery tunneled the growth. The internal jugular vein was firmly incorporated in the mass, but the pneumogastric nerve was not seen. The growth could not be removed without the removal of the entire carotid sheath; so that the common carotid artery and the internal jugular vein were ligated above and below the growth, and the mass lifted out. Almost immediately after the proximal ligature was applied, the anesthetist noticed a marked change in the character of the pulse. Up until this time, the patient had been taking a quiet anesthetic with a good pulse. The pulse immediately became very fast, but was still regular. The operation was hastily concluded. The wound was sutured without drainage, and the patient returned to bed with a pulse around 160. The pulse did not improve, continued rapid, and indeed, at times, was above 180. It was regular, however, and of fair volume. This rapid pulse continued four days, but during this time, the appearance of the patient was good. In spite of the rapid pulse, she had very little discomfort, no dyspnea, and no cyanosis. The only treatment during this time was an ice bag over the heart, and hypodermic doses of morphin. After four days of this rapid pulse, the patient was given strychnin nitrate, 1/30 grain hypodermically. Within a few hours from the beginning of the administration of the strychnin, the pulse rapidly improved, and on the morning of the fifth day was 100. This patient made an otherwise uninterrupted recovery, and recently, after a lapse of nearly five years, returned to the hospital with a chronic appendicitis, for which the appendix was removed. At this time, there was no evidence of recurrence.

Carotid tumors are seldom reported in the literature. Frazier[1] reports sixty instances collected from the literature; twenty-nine of these cases were reported by Keen and Funke,[2] and thirty-one by Callison and MacKenty.[3] Of these sixty cases, five were found at necropsy. Graham[4] reported that he found thirty-five cases with thirty-four complete case reports, and added two of his own, which made thirty-six complete reports. Of these thirty-six, all three carotids were tied twenty-two times, the external carotid only five times. The tumor was removed without ligation seven times. There were evidences of vagus disturbances six times. The hypoglossal nerve was cut eight times. Hemiplegia occurred five times, with one death. There was recurrence in four cases, and an immediate mortality of six. There was one cerebral hemorrhage with recovery. Two cases of bilateral carotid tumors have been reported. Since the foregoing reports, five additional cases have been reported, which, with the case just narrated, bring the total up to sixty-six.

Hertzger[5] gives a full report of the pathology. These tumors usually have a history of slow growth. They are definitely encapsulated, noninfiltrating, do not return after complete removal, and give rise to no symptoms other than deformity. Later on, however, as the tumor slowly increases in size, there may be many symptoms of pressure; interference with the recurrent laryngeal, hypoglossal and pneumogastric nerves, and pressure on the larynx. Pathologists report these tumors either as endothelioma, sarcoma or, more correctly, perithelioma. It is usually impossible to dissect them away from the carotid vessels, and if the entire tumor is not removed they usually recur. In the seven cases removed without ligation, in Graham's list, four recurred. These tumors vary somewhat in location. The tumor is usually found at the bifurcation of the common carotid. In its growth it usually involves all three carotids in its mass. Sometimes, however, the growth is entirely downward from the bifurcation, and in the latter group this case belongs. Complete removal is always hazardous because of the accidents which follow ligation of the common carotid, and because the tenth nerve is often so incorporated into the mass that it cannot be seen as a separate tissue, and is therefore destroyed by ligation.

The carotid body or gland, sometimes called the ganglion intercaroticum, was first described by Haller in 1743. It contains many nerve fibers and some ganglion cells, which led to the supposition that it belongs to the sympathetic nervous system. The body is related to the chromaffin system, and experimental work shows that its function is not important nor even essential. These tumors are usually mistaken for enlarged lymph nodes or lymphosarcoma. They grow very slowly and usually do not attain excessive size. Several of the cases reported were the size of a hen's egg, but most of the tumors were much smaller. The close relationship of the mass to the carotid artery makes its differentiation from aneurysm at times difficult. There is occasionally some vasomotor disturbance, irregular flushing of the face, and moderate exophthalmos. In most of the cases reported the diagnosis was not made until after removal. It is a disease which usually begins in the young, but no case has been reported before the eighteenth year. In the sixty cases, nineteen occurred after 40 years of age. Most surgeons have advised operating on these tumors only when they

1. Frazier: Progr. Med., March, 1914.

2. Funke: South. Med. Jour., 1914, vii, 554.
3. Callison and MacKenty: Ann. Surg., 1913, lviii, No. 6.
4. Graham: Cleveland Med. Jour., 1913, xii.
5. Hertzger: Treatise on Tumors.

are seen early in their growth. Later on, when they have reached considerable size, and have become widely attached, operation becomes much more difficult, with a high immediate mortality.

CASE 2.—Jan. 11, 1915, a woman, aged 41, came into our care who was complaining of a mass in her throat, of gradually increasing dyspnea, very great shortness of breath on exertion, some stridor, of a persistent and irritating cough, and considerable difficulty in swallowing. On examination, there was no external evidence of a mass, but there projected into the pharynx, behind the posterior pillar of the tonsil, a mass whose surface was smooth, very elastic and tight on palpation, and pulsating. The pulsation was apparently expansile. Bimanual examination with one finger in the pharynx disclosed a pulsating mass which could be compressed between the fingers, so that its bulk was considerably lessened. On pressure, there was a very loud bruit when the bell of the stethoscope was placed just behind the jaw and below the ear. If the carotid were grasped between the thumb and finger through the sternomastoid muscle (Rouge's method), the pulsation in the mass disappeared, and by pressing on the mass with the finger in the pharynx, it largely disappeared. The same disappearance of bruit and lessening in size of mass could be demonstrated by compressing the carotid arteries between the finger and the transverse processes of the cervical vertebrae. The patient complained a great deal of a roaring sound, which was very noticeable when she slept on that side. This roaring was especially exaggerated when she was exercising. She was seen by a number of surgeons, and various diagnoses were made. The diagnoses narrowed themselves down to three: aneurysm of the internal carotid, tumor and cold abscess. Roentgenoscopy of the cervical region revealed a very slight erosion of the transverse processes of the third and fourth cervical vertebrae. There was no evidence of necrosis in any of the bodies of the vertebrae. An exploratory incision was made high up in the neck, just behind the angle of the jaw, and the common carotid and its bifurcation exposed. The common carotid was normal, and the external carotid easily uncovered. The internal carotid, as such, could not be found. Its position was occupied by an oval pulsating mass which began where the external carotid came off from the common carotid. This mass was only slightly larger than the artery at first, but gradually became larger as it ascended into the neck. Compression on the common carotid was made, and with the finger in the pharynx, the pulsation disappeared, and compression caused the disappearance of the mass. As soon as compression was removed from the artery, the pulsating mass immediately reappeared. As consent had not been given for so serious an operative procedure as the ligation of the common carotid, the wound was closed, and the patient convalesced uneventfully. The gravity of her condition was explained to her family and to herself, and ten days later, the carotid was again exposed and ligature applied. This patient made an absolutely uneventful recovery. None of the usual phenomena following ligature of the carotid appeared. Great care was taken at the time not to injure the internal jugular vein, and especially not to injure the pneumogastric nerve. There was no weakness in the opposite side of the body, no paralysis of any kind, no disturbance of cerebration, and no evidence of pneumogastric injury. The roaring immediately disappeared, pulsation in the mass ceased, and Jan. 2, 1916, one year after ligation, the mass is still present, although slightly smaller, without pulsation; and symptoms of pressure, cough, shortness of breath and difficulty in swallowing have largely disappeared.

Aneurysms of the internal carotid artery are divided anatomically into intracranial and extracranial aneurysms. Intracranial carotid aneurysms are reported with comparative frequency. In 1,000 ligations of the common carotid, 113 were for pulsating exophthalmos. Pulsating exophthalmos is usually caused by an arteriovenous aneurysm between the cavernous sinus and the internal carotid, and this condition is usually brought about by trauma to the skull.

Extracranial internal carotid aneurysms are very rare. Crisp mentions only two in a collection of 551 aneurysms. In Matas'[6] collection of aneurysms treated after this method by American and foreign surgeons, there is not a single case of internal carotid aneurysm of the extracranial variety. Herzen records it as occurring only once in his cases. Monod and Vanverts in their collective cases mention one case in which restorative endo-aneurysmorrhaphy was attempted and failed because of secondary hemorrhage. The most complete report is one by Bobbio,[7] who reports eighteen cases of aneurysm of the internal carotid which he had been able to find in the literature. In these cases the common carotid was tied eleven times with five deaths. It is fortunate that these aneurysms are rare, according to Matas, because when they do occur they are often mistaken for other conditions with fatal results. Thus, in 11 extracranial aneurysms collected by Werner, only six were correctly diagnosed before treatment. They are often mistaken for growths projecting into the pharnyx, or for abscess near the pharnyx. Matas divides these aneurysms etiologically into three groups: traumatic or false aneurysms, erosion aneurysms, and true arteriosclerotic aneurysms.

The common carotid artery was first tied for aneurysm by Sir Astley Cooper in 1805 at Guy's Hospital, and the patient died on the nineteenth day. The same surgeon repeated the operation in 1808 with success. The common carotid had previously been tied for hemorrhage unsuccessfully by Mr. Abernathy in 1795, and successfully by Mr. Fleming in 1803. Since that time the common carotid has been tied repeatedly and the average mortality has been about 27 per cent. One of the most remarkable reports showing the advantage of band over ligation was a case reported by Charles H. Mayo[8] at the American Surgical Association in Washington in 1910. This patient was a woman, aged 56, who had an arteriovenous intracranial aneurysm, presumably of the internal carotid and cavernous sinus, with frightful head noises and exophthalmos. She was operated on under local anesthesia, and a metal band made of a little clip of block tin was applied and tightened. While the wound was being closed the patient said that the light was going out. The wound was opened and the band loosened until vision returned. Six months later the band was still in situ, and the patient was much improved. These bands are soft enough to be compressed digitally and yet thick enough to remain closed without clips. A long piece of metal with the end turned in the shape of an aneurysm needle is slipped around the artery and the handle part cut away. This makes a very convenient method of handling the clip.

Matas advises the following routine, although he has had no personal experience with aneurysms of the internal carotid: First, the common carotid should be tied, or preferably partially obliterated by the Halsted band, and later on, completely closed. If the aneurysm should relapse, extirpation might be attempted, but this would be an extremely hazardous undertaking, and hardly advisable. A preferable procedure would be an obliterative endo-aneurysmorrhaphy, provided it were possible to secure the upper pole of the sac below the base of the skull. In order to reach the sac, temporary resection of the lower jaw would have to be done. In these cases endo-aneurysmorrhaphy should be limited to

6. Matas, in Keen's Surgery, 1909, v.
7. Bobbio: Policlinico, Rome, February, 1906.
8. Mayo, C. H.: Tr. Am. Surg. Assn., 1910, p. 52.

internal suturing of the orifices of the sac and occlusion of the sac by packing. The chief risk of total extirpation would be uncontrollable bleeding from the dilated internal jugular at this point, and destruction of the lower cranial nerves at their exit from the skull. Most operators prefer ligation of the common carotid to ligation of the internal carotid in the treatment of these aneurysms; and in this case ligation of the internal carotid was not possible because the sac of the aneurysm began at the bifurcation. The internal carotid was first ligated by Gurdon Buck of New York, reported in 1850, and in this connection it might be interesting to state what is already known to most of us, that the first ligature applied on the proximal side of an aneurysm was done by Dominique Anel, Jan. 30, 1710, who ligated the brachial artery for aneurysm with recovery. The most violent opposition was encountered, and as an example of the skill of detractors, they claimed, first, that it was not the brachial artery that was tied; secondly, that the ligature did not cure the aneurysm, and thirdly, that cure was by lucky chance only. The old operation had been practiced in small aneurysms previous to this, which was to open the sac and ligate all bleeding points within the sac. Morel attempted this operation in an aneurysm of the carotid in 1687, and lost his patient on the table from hemorrhage. It was interesting to note in looking up the history of aneurysms that the femoral artery was not first tied for popliteal aneurysm by John Hunter, Dec. 12, 1785, but that Desault had performed the same operation successfully January 22 of that year.[9]

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THE CHARCOT-MARIE-TOOTH TYPE OF PROGRESSIVE NEUROMUSCULAR ATROPHY

WITH A REPORT OF TWO CASES *

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Charcot and Marie,[1] in a joint contribution in 1886, first described this type of atrophy, which they considered in the nature of a dystrophy. Tooth[2] in England in the same year described it independently, practically giving this affection a similar summary. In 1889, however, Hoffman discovered a neurotic atrophy in the peroneal nerves, which immediately removed the affection from the category of the dystrophies and placed it in the class of primary neural degenerations. Since these notable contributions, American neurologists, notably Sachs[3] and Spiller,[4] have described cases confirming the clinical syndrome of this condition. The literature on the subject, although not very voluminous, is apparently divided among American, English and French authors, with an occasional case reported by Italian observers. German observers, in a number of reported cases, have a tendency to include this distinct neurologic condition among the spinal atrophies, which Maslianka[5] deprecates very much, as not in accord with a true conception of the pathology of the disease.

Although textbooks and monographs dwell on the rarity of the affection, Maslianka refutes the idea that it is exceptional in occurrence. He believes that it is a fairly common disease, and that a great many more cases would be found if our clinical acumen was somewhat sharpened. Either his contentions are correct or the disease is rare in this country.

No known cause has been formulated. A number of observers state that their cases followed a febrile disturbance. One of my cases followed such a course. Gowers[6] would class this affection among the abiotrophies, that is, a tendency for nervous tissue to suffer early decay and death.

The pathology of the disease was in a chaotic state following Charcot and Marie's monograph, as it was then thought to be a dystrophy; but Hoffman, Bernhardt, Siemerling, Sainton,[7] Déjerine and Armand-Delille, in necropsy material and from a study of the recorded cases, came to the conclusion that the lesions consisted of a degeneration of the muscles, nerves and posterior columns of the spinal cord, involving the sensory and motor sides of the nerves peripherally and centrally.

Although the hereditary factor is commented on strongly by most authors, isolated cases have been described in which heredity played no rôle in the disease. My cases lacked this distinguishing feature.

Occurring in families in which the hereditary factor is strong, brothers and sisters are equally affected; but if we are to include isolated cases, we find that males are five times more susceptible than females.

The extreme age limits of described cases are 2 and 39 years. Most cases have had their onset between the tenth and twentieth year. My cases commenced at 16 and 20 years, respectively.

CLINICAL COURSE

The onset is slow, although in one of my cases it was rather rapid. The patient may not appreciate the atrophy until function of the limbs is interfered with. Most of the cases reported in the literature mention the legs as first affected; then after a variable time, lasting from several months to several years, the upper extremities become involved. It also may remain permanently localized either to the upper or lower extremities, although this is unusual. My cases, of three to six years' duration, respectively, have so far selected the lower extremities. When involving the upper extremities, the thenar, hypothenar and interosseus muscle bundles first show atrophy; then follow the flexors and extensors. In the lower extremities, the peroneal group and antero-external part of the foot first show atrophy and diminution in muscle volume.

9. In addition to the references already given, the following will be found of interest:
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Balfour and Wildner: Surg., Gynec. and Obst., 1914, xviii, 803.
Levings: Wisconsin Med. Jour., 1914, xiii, 17.
Da Costa: New York Med. Jour., xciv, 253.
Frazier: Progr. Med., March, 1915.
Collier: Surg., Gynec. and Obst., April, 1915.
Halsted, W. S.: The Results of the Complete and Incomplete Occlusion of the Abdominal and Thoracic Aortas by Metal Bands, THE JOURNAL A. M. A., Dec. 29, 1906, p. 2147; Jour. Exper. Med., 1909, xi; No. 2; Ann. Surg., 1913, lviii, 183.
Cunningham, A. R. T.: Report of a Case of Gradual Occlusion of the Common Carotid Artery in the Treatment of Pulsating Exophthalmos, THE JOURNAL A. M. A., Jan. 31, 1914, p. 373.

* Patients presented before the Harlem Medical Society, March 1, 1916.

* From the Hospital for Deformities and Joint Diseases, Service of Dr. Henry W. Frauenthal.

1. Charcot and Marie: Rev. de méd., 1886.
2. Tooth: Brain, x, 243.
3. Sachs: New York Med. Jour., 1888.
4. Spiller: Osler's Modern Medicine.
5. Maslianka: Thèse contribution à l'étude clinique de l'amyotrophie-Charcot-Marie.
6. Gowers: Text Book of Nervous Diseases.
7. Sainton, M. Paul: Thèse de Paris, 1899.

A distinguishing feature of this atrophy is its symmetry and its distal character. The proximal portions of the limbs are well preserved and show their normal contour, in striking contrast to the wasted distal portions.

As a result of the atrophy, the extensors give way, thus giving us various degrees of claw hand, foot drop and equinovarus deformities. The atrophy and paralysis are absolutely parallel, which condition naturally influences the gait of the patient or the use of the hands. In moderate grades of wasting, there is very little interference with function of the limbs, although the gait may readily show impairment, or the hands loss of power for finer movements. In extreme grades of wasting, total helplessness supervenes. Bony atrophy is absent and constitutes a singular feature of the cases. Face, chest and trunk muscles are normal, and remain unaffected throughout the course of the disease.

Fibrillary contraction constitutes a persistent feature of the affection. It exists only in atrophying muscles, and stops when they are completely wasted. My cases did not show this markedly, but the extreme atrophy present in both cases readily explains its absence.

The reflexes in most cases reported are abolished, although Maslianka insists that they are variable, either normal, diminished, lost or increased. One of my cases showed normal patellar reflexes, while the other case showed them markedly exaggerated. The last condition may indicate lateral tract involvement, as particularly emphasized by Spiller. Ankle clonus has been described in one case. The cremasteric abdominal and upper arm reflexes have been constantly reported as normal.

Electrical reactions naturally depend on the grade of atrophy. In extreme atrophy, there is no response either to faradism or galvanism. My cases showed an almost insignificant response in both tibialis anticus muscles with the strongest galvanic current.

The sensibility is not very much disturbed subjectively. Forms of cramps and paresthesias have been described, but violent and continuous pain is not a feature of the disease. In contrast to these accepted observations, one of my patients developed such severe pain in one leg that she applied for admission to a hospital where a diagnosis of osteomyelitis was made and an amputation performed below the knee. A small tarsal bone was subsequently removed from the other foot, but without relief to the patient in her remaining leg. Objective sensibility is not altered. The muscular sense is intact, and hyperesthesia is rare. Vasomotor disturbances are, however, a marked feature. The limbs are cold, cyanotic and erythematous, and at times show violaceous patches. One of my cases showed this in striking fashion.

Sphincteric troubles are absent, and evidently do not belong to this malady. Organs of sense are intact and show no special disturbances. The psychic state is good and the general health is remarkably well preserved. The evolution of the disease is so slow and encompasses so long a period that it is quite compatible with long life and preservation of function. An intercurrent illness usually closes the scene.

CASE REPORTS

CASE 1.—E. C., woman, aged 26, Russian, is the sixth child in a family of ten; seven sisters and brothers are dead of various causes. The parents are living and well. Two brothers are in good health. There are no similar conditions in any member of the family. The patient had the usual infantile disturbances, but is quite sure that she never had any acute or serious illness. She is under the impression that her legs have always been thin, but she was able to use them with perfect freedom up to the age of 20, when she commenced to suffer a good deal of pain in both feet. This was followed by gradually increasing weakness in both legs. The patient at about this time observed the atrophy, which progressed gradually for about five years, then suddenly stopped, and for the past year has been practically stationary. The pain in both feet persisted from the onset of the malady, so much, in fact, that it became quite unbearable, necessitating her admission to a hospital in this city. A diagnosis of osteomyelitis (?) was made and an amputation below the knee performed on the left leg. The pain persisting in the other leg, a small tarsal bone was next removed. These operative procedures did not improve her condition, and at present she gets about fairly well with an artificial limb and brace.

The general physical and laboratory examinations are uniformly negative. The upper extremities show no abnormalities, either on inspection or with regard to function. The right leg and foot below the knee joint reveal an extreme atrophy which contrasts strangely with the well preserved contour of the thigh. This emphasizes the distal character of the atrophy and the preservation of the proximal part of the limb. There are no objective sensory disturbances elicited. The limb has a marked cyanotic hue and is covered with irregular violaceous patches. Foot drop and equinovarus are present and quite evident on account of extreme shrinking of the foot. In fact, it is extremely difficult, except by a liberal stretch of the imagination, to associate this small atrophic infantile foot with an adult. The reflexes are present on both sides and equally exaggerated, the response in the stump of the amputated leg appearing as a grotesque and startling phenomenon. Under extreme galvanic stimulation, we get an insignificant response in the tibialis anticus. All other muscles fail to respond with the strongest currents. Muscle fibrillation is absent. The patient's general health is excellent. She manages to get about fairly well, and is in no way depressed in spite of her distressing condition.

CASE 2.—J. B., man, aged 19, loom fixer by occupation, had the usual diseases of childhood. He has never had any acute illness except that in connection with his present affection. His habits are good. He does not drink, and is a moderate user of tobacco. All venereal infection is denied. The family history has no bearing on the patient's present complaint, nor are there any other members of the family similarly affected. The patient, as heretofore noted, was perfectly well up to the age of 16, when he had a febrile illness of unknown etiology and classification lasting three days. He recovered quickly and seemed quite well for two months, when the present trouble commenced. This manifested itself by an inability to walk properly. There was loss of power in both legs and feet which progressively became worse for one year; then the condition remained stationary and has remained so ever since, that is, for a period of two years. At no time were there any bladder, rectal or sensory disturbances.

The general physical examination reveals no abnormalities, and the laboratory tests are uniformly negative. The upper extremities show no involvement. Examination of the legs shows an evident atrophy which has involved both feet. Here we also note the distal character of the atrophy, the proximal portions of the limbs, that is, the thighs, are not involved and show a normal fleshy contour. There are absolutely no sensory disturbances to be elicited, either subjectively or objectively. A double foot drop is quite evident, and the gait, which is quite good, is suggestive of a "steppage." There is marked vasomotor disturbance, mottled areas of erythema and cyanosis being present in both limbs. The patellar and Achilles reflexes are normal on both sides, and there is an equal response. With the strongest galvanic stimulation, a very feeble "wormlike" response is elicited in the tibialis anticus of both sides; all other muscles fail to respond with the strongest faradic or galvanic stimulation. The general health is excellent and the mental state has always been good.

CONCLUSION

It is hoped that this study will stimulate workers in the field of neurology to recognize and isolate these neural disturbances as belonging to a distinct clinical entity and not to class them with the dystrophies with which they are often confounded.[8]

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STREPTOTHRIX IN BRONCHOPNEUMONIA OF RATS SIMILAR TO THAT IN RAT-BITE FEVER

A PRELIMINARY REPORT *

RUTH TUNNICLIFF, M.D.
CHICAGO

Bronchopneumonia is frequent in the white rat, and occurs also in the gray rat. In the course of a study of this condition, especially as it occurs in the white rat, a streptothrix was found which may be of interest in connection with rat-bite fever in man.

Sixty white rats showing acute or chronic bronchopneumonia have been examined. A long, fine, straight or wavy filamentous organism was observed in smear preparations or by dark field illumination in fifty-six. Three lesions in which no organisms were seen were chronic. The organisms are most abundant in acute lesions. It is a gram-negative organism and stains fairly distinctly with carbol-gentian-violet and the Giemsa stain. It is distinguished from cilia by its greater length, more pointed ends and its occasional wavy form. In the dark field I have observed once or twice a slow wormlike motion, and one organism showed a corkscrew motion. They are barely visible in the tissues stained with methylene blue, but are distinct in tissues impregnated with silver nitrate according to Levaditi's method. Here, they appear more wavy and more fragmented than in other preparations. These organisms were not observed in twenty-four normal rats.

A streptothrix resembling these organisms was cultivated from twenty rats, and isolated in pure culture thirteen times. Cultures from thirty-three rats remained sterile. Why successful cultures were obtained from some rats and not from others is undetermined. The character of the lesion does not seem to make any difference. Successful cultures were more frequent in the case of sick rats and from lesions in which other bacteria were present. The other organisms isolated from twenty-two rats were *Streptococcus viridans* and *pyogenes,* pneumococcus, staphylococcus, diphtheroid bacilli, anaerobic spirilla, and a profusely growing gram-negative bacillus which was probably a contamination. Seven of these were isolated from cultures in which the streptothrix did not grow. Successful cultures were grown on human blood agar or ascites-goat-blood-agar. The various mediums for growing spirochetes were used, but no spirochetes were cultivated. This streptothrix is a faculative anaerobe, growing best at 37 C. (98.6 F.) Slight growth appears at room temperature after several days' incubation. Growth generally appears in from forty-eight to seventy-two hours as discrete, colorless or grayish pin-point colonies. At first they appear dull, but later become glistening and increase slightly in size. The medium is not changed. The growth in the fluid of condensation and in ascites broth is white and flocculent, the medium remaining clear. The growth on Loeffler's blood serum is similar to the growth on blood agar, but does not always occur. There is no growth on plain and dextrose agar, ascites dextrose agar, in plain and dextrose broth or in milk.

In cultures the organism is slender, branching, straight or wavy, filamentous, varying greatly in length and showing bacillus and coccuslike forms. True branching is seen in young cultures, but is not especially frequent. They often show spindle or irregular shaped swellings. Twisted and wavy forms are more frequent on solid mediums than in ascites broth, where they appear generally as long threads or chains of bacilli. They do not show a radial arrangement at the periphery of the colony. They stain with ordinary stains. They are gram-negative, except the swellings, and are not acid fast. The organism here is nonmotile.

An increase in opsonins and agglutinins for this organism has been observed in infected rats.

Young healthy rats injected intraperitoneally with cultures show acute lesions in the lungs. The organism has been isolated in pure culture from the heart's blood and lung.

This streptothrix appears to be the same as *Streptothrix muris ratti* isolated in pure culture from the blood of patients with rat-bite fever by Schottmüller[1] and Blake,[2] and seen in the blood during the paroxysms by Tileston.[3] Futaki[4] and his associates describe a motile spirochete in the skin and lymph node of two cases of rat-bite fever, but details of experiments and cultures are not available. Some of the spiral forms in my Levaditi specimens closely resemble the spirochetes shown in their drawing. Rats causing rat-bite fever have not been examined as far as known. I have examined twenty-eight wild rats, and found one infected. The lesions in the lung were the same as those observed in the white rats, and showed the same organism. As the trachea of infected rats is full of mucus containing large numbers of the organisms, it is readily seen that a bite from such a rat might be infectious.

8. In addition to the references already given, the following will be found of interest:
Pediatria, Naples, 1912, xx, 133.
Ponticaccia: Riv. ven. d. sc. med., 1912.
Souques: Icon. de la Salpêtrière, 1914, xxvii, 175.
Jour. Nerv. and Ment. Dis., 1915, p. 570.
Virchows Arch. f. path. Anat., cxxxii, 259.
Arch. f. Psychiatrie, xxxi, 105.

* From the Memorial Institute for Infectious Diseases.

1. Schottmüller: Dermat. Wchnschr., 1914, lviii, Suppl., p. 77.
2. Blake: Jour. Exper. Med., 1916, xxiii, 39.
3. Tileston, Wilder: The Etiology and Treatment of Rat-Bite Fever, THE JOURNAL A. M. A., April 1, 1916, p. 995.
4. Futaki: Jour. Exper. Med., 1916, xxiii, 249.

Tuberculosis in Madrid.—On the basis of a census of all known cases of tuberculosis in Madrid during the last four years, according to the *Siglo Medico,* Dr. Codina, at a recent meeting of the Academia de Medicina, stated that of the 1,300 streets in the city, over 79 per cent. had had one or more cases of tuberculosis, and over 26 per cent. of the houses sheltered tuberculous inmates on a given day, and over 60 per cent. had had one or more tuberculous inmates in the course of the four years. That is, over three fifths of the houses of Madrid have sheltered tuberculosis in the last few years, and there are fifty-two houses that have each had from eleven to thirty-one cases. He stated further that 92.69 per cent. of the tuberculous have less than a peseta —20 cents—a day to live on; 7.11 per cent. have from 1 to 2 pesetas, and only 0.2 per cent. as much as from 2 to 4 pesetas. Overcrowding and illiteracy are shown anew to be potent factors in tuberculosis; only 35.14 per cent. of the tuberculous in Madrid can read.

THE BACILLUS EPILEPTICUS *

THIRD REPORT

CHARLES A. L. REED, M.D.

CINCINNATI

In 1914 I affirmed[1] that constipation was a factor, and a very essential factor, in the causation of epilepsy. I have found that constipation, always present in the patients who came to me, was caused by mechanical disturbance or distortion of the intestines, and that when these conditions of the intestines were corrected by surgical means, the patients in a large number of instances were cured without other treatment, not only of their constipation, but very often of their epilepsy.

My increasing experience has confirmed the correctness of these views with respect to both the causation and the treatment of the disease. I was aware from the start, however, that, while the connection between constipation as the cause and epilepsy as the effect was obvious from the history of the cases, there had been given no adequate explanation or actual demonstration of the connecting link between the two conditions.

While this was true, a careful study of the symptomatology, as manifested in my cases, had early convinced me that this connecting link consisted in some form of infection.

Was the infection, however, restricted, as it seemed, to the intestinal canal? Were the bacteria in the intestines responsible for the evolution of toxins which, when absorbed, caused epilepsy? Were the ordinarily known organisms of the intestinal flora responsible for such toxins, or were the toxins elaborated by some special organism? Or was the offending organism, whether of the known flora or not, absorbed directly into the blood? And, after all, was the constipation which was present in all of my cases responsible for the enforced absorption, toxic or bacterial or both, into the circulation?



Fig. 1.—Bacillus epilepticus from the blood of an epileptic patient; (*a*) the isolated organism in the right upper quadrant is an early growth; (*b*) the remainder of the field is occupied chiefly with mature culture from agar-agar slant.

It was convictions such as I have expressed and questions such as I have just propounded that induced me to inaugurate investigations which have resulted in the isolation, cultivation and experimental study of an organism which, it would seem, according to the law of Koch, has a causal relation to epilepsy. I feel that it is important to place findings, as far as they have gone, and conclusions, as far as they have been reached, before the profession, that they may at least serve as the basis of further investigations, especially by those with large clinical and laboratory facilities at their disposal.

METHODS OF INVESTIGATION

The investigations, begun clinically by myself, were further developed by placing Dr. E. P. Hyatt in charge of the hematologic work of my laboratory. Investigations were made in the laboratory, in the hospitals with which I am connected, and in the Nursing Home for Epileptics. All patients were kept under strict observation. The experimental work was done at the last named institution, where the animals were kept under constant surveillance. All my patients afflicted with constipation, whether epileptics or not, on application at the office, were thoroughly examined, special attention being directed to Roentgen examination of the abdominal viscera, repeated analyses of the urine, and careful bacteriologic and other analytic examination of the blood. The blood was taken from a vein in the forearm under the usual aseptic precautions, from 1 to 2.5 c.c. being the amount ordinarily taken. This blood was examined on admission by direct smears and, later, by cultures. It was soon noticed that there was an organism, always the same organism, present in blood of epileptics, but that it was never present in the blood of nonepileptics. It was sometimes, although rarely, found in the direct smears; but the cultures showed that it was present in a majority of cases. Examination was also made of the contents of each colon that I removed. The contents of each vermiform appendix were similarly examined, as were the enlarged and indurated lymphatics of the mesocecum and the mesocolon. These glands were either removed with the large bowel or taken out in the course of some other operation and submitted to special examination. The result was that the organism which was being found so uniformly in the blood at the time of preliminary examination was found with equal uniformity in the contents of the cecum, in that of the appendix, and also in the lymphatic glands of the same patient at the time of operation. Similar investigations in nonepileptics were always negative. It was concluded, therefore, that the cecum of epileptics was the very constant habitat of the organism, that the lymph channels were the highways of its transit, and that the blood was its final destination. It was also noted in each of these cases that the cecum was very large, flabby and mobile, and that its dilatation with resulting attenuation of its walls was obviously the effect of stasis induced by retardative conditions further along.

These observations compelled the further conclusion that mechanical conditions of the intestines, more especially of the cecum, forced the absorption of the organisms, and that such absorption would not occur in the same degree, if at all, if these retardative conditions did not exist — a conclusion which is amply confirmed by both clinical observation and postoperative results.

* Read before the Medical Research Society of Cincinnati, April 6, 1916.

1. Reed, C. A. L.: Constipation and Epilepsy, Lancet-Clinic, July 25, 1914; The Probable Cause and Logical Treatment of Epilepsy, THE JOURNAL A. M. A., March 27, 1915, p. 1047.

THE BACILLUS EPILEPTICUS A SPORE-BEARING ORGANISM

A further study of the organism shows that it stains best with carbolfuchsin. Methyl blue may be employed. Gram's method also may be used, although it is less satisfactory than the others. These stains, when positive, reveal the organism. It is better, however, for reasons which shall become apparent, to stain at the same time for both the organism and for spores. For this purpose, Abbott's method is usually employed which, when positive, shows the organisms red and the spores blue. The result, however, so far as the direct smears are concerned, is usually negative. The occasional very positive findings and the desirability of having the early and conclusive information thus afforded, however, make it important always thus to examine the fresh blood.

Cultures are then made in either agar-agar or bouillon, although the organism will grow in other mediums. Incubation progresses most favorably at from 37 to 40 C. (98.6 to 104 F.). The growth is, however, more prompt at the latter temperature. The growths begin to manifest themselves from the second to the fifth day, and first show their presence by marked turbidity of the medium. A smear made early, as soon as this turbidity has become marked, shows a few organisms which may be recognized as short thick bacilli with blunt ends (Fig. 1 *a*). They are actively motile. The organism continues to grow, and when mature is very large, so large, indeed, that both from its size and other morphologic features, it is suggestive of a saprophyte which might easily be derived from nonsterile mediums (Fig. 1 *b*). This appearance was at first so impressive that it was accepted as conclusive, and our positive cultures were abandoned as probable contaminations. Our error, however, was fortunately detected when both the *organism and its spores were repeatedly detected in direct smears.* The sporulation becomes marked relatively to the age of the culture. It is first manifested by the appearance of a light area in the center of the older organisms. This light area grows until it practically fills the body of the bacillus. As the organism grows still older and the nutritive value of the medium becomes exhausted, the bacillus disappears, leaving behind it the now liberated light areas or spores (Fig. 2). This cycle of evolution varies from forty-eight hours to from ten to twelve days. The whole process often repeats itself several times in the same medium. If Abbott's spore-staining method is now employed, the smears from the cultures show the field to be almost entirely filled with oval blue spores, with only occasional red-stained bacilli in various stages of development. These findings are practically always positive in epileptics, and always negative in nonepileptics. It should be noted that the organisms are more abundant in the blood immediately preceding or at the moment of the seizures, although they may be secured at other times. They are less readily found in long interval cases. It follows, therefore, that the investigations are most readily conducted in institutions where the patients are under entire control.

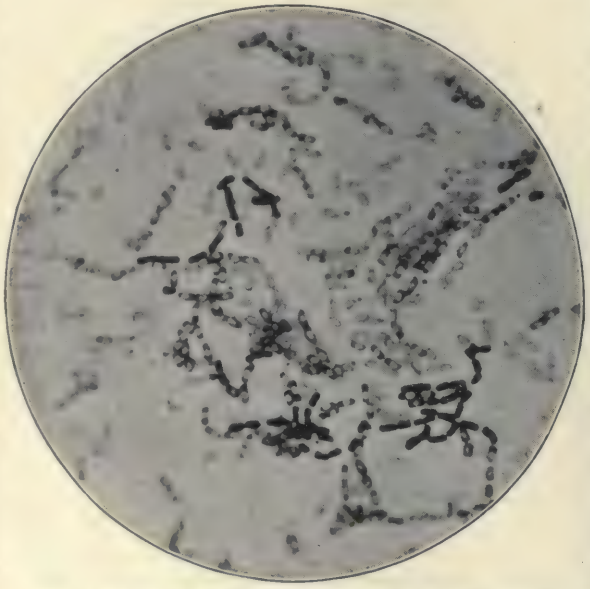


Fig. 2.—Bacillus epilepticus from human subject; old culture from agar slant, showing excessive spore formation.

EXPERIMENTAL STUDY OF THE ORGANISM

Experimental study of this organism has been made on rabbits by (*a*) intravenous inoculation, (*b*) intraperitoneal injection, and (*c*) administration by the alimentary canal.

Intravenous inoculation was practiced by injection into a rabbit through the marginal vein of one ear. A growth from an agar slant was suspended in 8 c.c. of physiologic salt solution. Of this suspension, 2 c.c. were injected at one time, followed at twenty-four hour intervals by from 1 to 1.5 c.c. similarly administered. On the second day, the rabbit was observed to act peculiarly, as if confused. The next day, it had a recognizable convulsion, followed by stupor. After this the convulsions were more frequent. These would come on suddenly. The animal would fall on its side, in a state of unconsciousness. As it fell, it would emit a peculiar sound described by one of the watchers as a "half cry, half choking sound." During the period of unconsciousness, which was complete, there was staring of the eyes, the head turned to one side, the muscles of the neck twitched, and there were alternate contraction and extension of all four of the legs and feet. This would last from three to five minutes, after which the rabbit would lie in a stupor for from fifteen to twenty minutes. Early in the course of the convulsions, the animal would appear normal in the interval between the last stupor and the next seizure. On the fourth day, a direct smear revealed the organism present in the blood (Fig. 3), while a hanging drop showed that it was highly motile. On the fifth day, however, the seizures became coalescent and the rabbit died in status epilepticus. Several repetitions of this experiment showed that the phenomena induced were essentially uniform in all cases, the variation in the time of the first onset and in intensity being relative to the magnitude of the dose and the frequency of its repetition. In certain instances in which small but repeated doses were given the convulsions did not appear for fourteen days or even longer.

Intraperitoneal injection was practiced to determine the toxicity of the cultures. This was done by injecting the peritoneal cavity of a large rabbit with about 8 c.c. of the suspension similar to that previously described. The animal almost at once became restless and moved about the cage constantly. In an hour, it became drowsy and lay quietly down on its side, unable to move. It died in this condition at the end of seven hours. Necropsy revealed absence of fluid from the peritoneum, which was not in the least inflamed. No

organisms were found in the blood. Death was therefore obviously due to simple absorption of toxins. This observation was subsequently confirmed by several repetitions.

Administration by the alimentary canal came about first quite accidentally. A rabbit which had had some of the bacillary suspension injected into the vein of the ear was put back into the cage with a rabbit which had had no such treatment. The inoculated rabbit speedily developed convulsions from which in due course it died. In the meantime, the other rabbit, the one which had not been injected, developed convulsions. The organism was found in the blood of this rabbit. After a period of about ten days, it, too, died in continuous convulsions. In accounting for the development of epilepsy in the second rabbit, it was remembered that it had licked the blood from the ear of its mate after the latter had been returned to the cage. This blood was the slight reflux from the vein and, of course, brought out with it some of the organisms, which in turn were carried into the alimentary canal of the second rabbit. This observation was an obvious demonstration that the organism reached the blood through the alimentary canal. It was further confirmed by the fact that rabbits developed epilepsy when confined in cages which were purposely kept foul with the fecal discharges of animals in which the alimentary canal had been infected with the organism. The animals which thus contracted the disease had taken food which had come in contact with the infected discharges. We have had no evidence of the hematogenous infection of the intestines in animals which had been subjected only to intravenous inoculation.

THE BACILLUS EPILEPTICUS AND NATURAL IMMUNITY

In one particular rabbit in which a twenty-four hour growth from an agar-agar slant had been intravenously injected as before described, convulsions typically epileptic soon developed. These increased in frequency and severity for the next two weeks. The organism was demonstrated in the blood. A little later, the seizures began to define a decrescendo in both frequency and severity into what seemed to be definite attacks of petit mal. The last of these occurred just a month after the beginning of the experiment. Since then the animal has had no sign of the disease. Repeated examinations have failed to show the organism in the blood. This spontaneous recovery has been observed in several other rabbits.

This demonstrated triumph of natural immunity over the organism in rabbits throws an illuminating ray on similar results following operation in many of my cases. To understand this fact, it is important, however, first to remember that in these instances of natural immunization in rabbits, the initial and only infection was effected by intravenous injection. In other words, there was no focus like a large flabby and infected cecum to act as a fountain head for continued systemic invasion. As a result, when the natural immunizing power of the animal had once prevailed over the invaders, the war was over. There were no fresh reserves to take the place of the vanquished, and recovery resulted. The probabilities are that if a preliminary focus had been established in the alimentary canal of these animals, the result would have been different. As a matter of fact, all animals infected through the alimentary canal have died of epileptic seizures. This principle is further illustrated in the postoperative records of certain of my cases in which, following surgical restoration of the normal fecal current and without other treatment, there was a continuance of the convulsions for some time. Then the seizures began to grow lighter and fewer until there was a complete transition from the grand mal to the petit mal type. Then, after a time, these ceased to occur. In several of these cases, there has been no return of the seizures, their apparent cure varying from several months to as much as four years, in one case for twenty-one years.

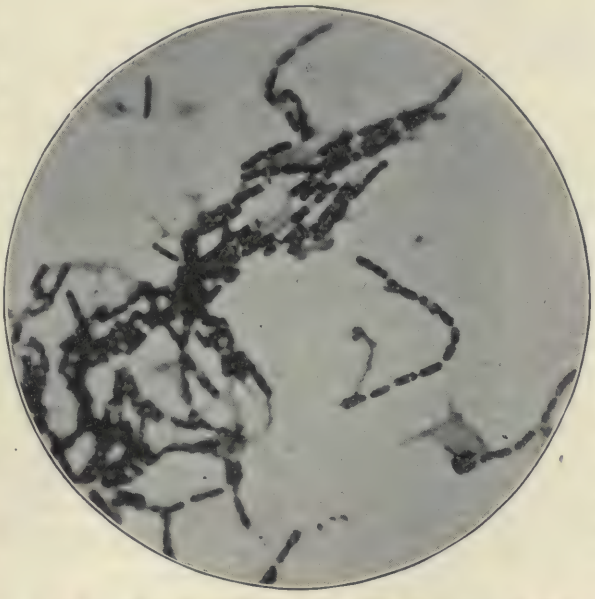


Fig. 3.—Bacillus epilepticus from blood of rabbit six days after intravenous inoculation. An early growth is here seen isolated in the left upper quadrant.

METHOD OF INVASION OF THE HUMAN SYSTEM

The facts already given would seem to be suggestive if not conclusive as to the infection of the general system through that gateway. These conclusions, it would seem, are further confirmed by direct observation in many human subjects. Thus it needs to be here restated that, in cases in which the blood had proved positive as to the presence of the *Bacillus epilepticus,* the same organism has been found in the cecum and in the enlarged and indurated lymphatics of the mesocecum. In cases treated by appendicostomy or cecostomy, the organism is readily demonstrated in the cecal drainage until after the bowel has been successfully subjected to postoperative bactericidal treatment. In cases in which the vermiform appendix has been removed at previous operation, the organism has been demonstrated in the cecum. In cases in which I have removed a part of the vermiform appendix in the course of an appendicostomy, the organism has been demonstrated in the interior of the removed segment. These observations, of course, are further confirmed by both the clinical phenomena and pathologic conditions uniformly found in so-called "idiopathic" epileptics.[2] Thus the relationship between constipation and epilepsy would seem further to confirm the fact of a primary cecal focus under circumstances of stasis which naturally favors the more rapid multiplication of the organisms. The ptotic or other retardative condition with resulting back pressure, always present in some form in these cases, mechanically enforces the absorption not only of toxins evolved by the organisms, but also of the organisms

2. Reed, C. A. L.: Diagnostic Methods and Pathologic Constants in Idiopathic Epilepsy, THE JOURNAL A. M. A., Jan. 29, 1916, p. 336.

themselves. These facts, associated with the additional fact that we have not so far found the organism about the tonsils or the teeth, would seem to indicate that the alimentary canal is at least the chief, if not the exclusive, atrium for the invasion of the system. The final answer on this point ought, however, to be based on a much wider range of observation.

COMMUNICABILITY

The mere fact that one rabbit developed epilepsy by licking epileptic germs from the ear of another rabbit, and that other rabbits developed the disease by eating food that had become contaminated by contact with fecal discharges from epileptic rabbits, at once provokes thought as to the possible communicability of the disease from one human being to another. This possibility becomes the more impressive in view of two cases now under my observation. Both patients are physicians. One, a vigorous man of about 35, who had never been seriously ill, not only attended but assisted in the nursing of an epileptic on whom I had done an ileosigmoidostomy, and in whom there was speedy development of paralytic ileus. In an effort to secure action from the bowel, the physician himself administered several enemas. About five months later, this physician himself fell in an epileptic seizure, and has since had three other grand mal attacks. Another physician, aged a little over 50, at this time in the hospital following operation at my hands, has had epileptic seizures of gradually increasing severity for the last twelve years. He recalls that several months before his initial attack, he personally administered an enema or several of them in a case of status epilepticus. His blood, cecum, vermiform appendix and retrocecal lymphatics were all positive as to *Bacillus epilepticus* at the time of operation. In neither of these cases could there be anything more than a presumption based on circumstantial evidence, that, through some accidental means — possibly the hands of the victims themselves — the organism had been carried from the alimentary canal of the patient to that of the attendant. The fact, however, that the records of institutions for epileptics show that a very large proportion of the cases come from the insanitary abodes of vice, poverty and other evidences of degeneracy, in short, from environments in which personal hygiene is at its lowest ebb, is suggestive of contamination rather than of inheritance. It must be conceded that while the evidence so far accumulated is largely circumstantial and inconclusive, additional significance is given to it by the character of the organism itself. The fact that it is a spore-bearing bacillus, and that the spores are among the most resistant yet discovered, adds to the obvious danger. In a non-nutritive wet medium, they have survived under observation for quite four months without evidence of diminished vitality. No observation has been made as to their survival in either a dry or moderately moist environment. In view of the fact that the organism demonstrably reaches the soil through fecal discharges, and in view of the fact that its spores are highly resistant and that they can and do survive for long periods, there is strong probability that the soil may be recognized as its extracorporeal habitat. This probability is increased by the fact that, morphologically, the nearest analogue of the spore-bearing bacillus of epilepsy is the equally spore-bearing bacillus of tetanus, and that the primary habitat of the latter has been demonstrated to be the soil. The fact that a larger number of people have epilepsy than have tetanus is another fact suggestive of the relatively greater dissemination of the cause. In view of all these facts, it may be well to take due precaution against communication until further investigation can confirm or disprove their apparent significance.

PATHOGENICITY

I know no better way to outline the pathogenic effects of this organism on the human system than by quoting from my Los Angeles address of Feb. 18, 1915, several months before we had succeeded in isolating the bacillus. I then said:[3]

> The most important conclusion that has been forced upon me by my clinical observation is that the rôle of constipation, as a causative factor in epilepsy, is due to the more than probable fact that the really initial cause is to be found in a specific infection. I am so convinced of the accuracy of this conclusion that, in the absence of actual identification of the micro-organism, not only its existence, but many of its characteristics may be predicated upon its clinical manifestations. Thus it may be safely assumed that this organism, probably a bacillus, belongs to the gas-forming series. Its habitat is the alimentary canal, probably originally the duodenum, but in all instances, finally, the colon. It is, furthermore, obviously toxogenic. From its general habitat in the intestinal mucosa, the infection may travel in either or both of two directions, namely, outward with the intestinal juice, the succus entericus, and if not promptly carried away in the alvine current, must be taken up again in the process of absorption, and in this way become an additional element in systematic contamination.

In further discussion of this then hypothetic organism and its toxins, I added that they, one or both,

> have the faculty of accumulating in the tissues and in the circulatory media. Once within the blood current, they display a selective affinity for the sensory and motor centers. It is, furthermore, obvious that their effects upon these centers are relative to the size of the accumulated dose and the tolerance of the individual. When the accumulation goes beyond the point of tolerance, we may have, first, a flash of unconsciousness with a minimum of muscular disturbance, or none at all (petit mal); or second, sudden and profound loss of consciousness, with violent convulsive disturbance (grand mal); or third, persistent and almost coalescent seizures of the latter variety (status epilepticus). I have demonstrated to my own satisfaction that these manifestations are identical in essence, because they are identical in causation, the variation in degree and intensity being determined by corresponding variation in the dose of the causative agent.
>
> Another constitutional effect is to produce a certain amount of mental dulness, with depression amounting, in most cases, to actual narcotism of from a few minutes to several hours following explosions.
>
> The infection is, furthermore, responsible for two other series of phenomena. The first is local, within the intestines, and is characterized by the elaboration of gas having a characteristic and very offensive odor. This gas formation may occur in some degree during the interval between attacks, but is always more marked at the time of attacks, or more properly, explosions. It is then associated with more or less violent muscular disturbance of the intestines, and with the sudden stimulation of the salivary, urinary and cutaneous secretions. The saliva, urine and perspiration are liable to have the same odor as the gas generated in the intestines. It would seem at this time as if the patient had literally been the victim of an internal explosion, the resulting offensive and characteristic odor corresponding, for purposes of illustration, to that of burnt powder. Another constitutional effect of epileptic infection is to bring the mean average temperature below the normal standard, approximately to 97 F. This mean average is associated

3. Reed, C. A. L.: Constipation in Relation to Various Diseases. Lancet-Clinic, March 13, 1915.

with some vacillation, which increases until an explosion is reached, after which it again for a while remains near the mean average of the individual case.

CONCLUSIONS

This review, and the facts presented, force certain conclusions which are not without practical significance.

1. Epilepsy is an infection depending on a specific spore-bearing organism which it would seem that I am justified in calling *Bacillus epilepticus*.[4]

2. The *Bacillus epilepticus* invades the system through the alimentary canal, its chief focus being the cecum, from which it reaches the circulation by forced absorption induced by mechanical retardation of the fecal current.

3. The *Bacillus epilepticus*, by virtue of its spore-bearing characteristic, under ordinary circumstances and without appropriate treatment, has the ability in most cases to perpetuate itself indefinitely in both the cecum and the blood.

4. In a certain very limited number of instances, the *Bacillus epilepticus* seems to be overcome by the natural immunity, but only where there is no focus in the intestines for the continued infection of the system—a circumstance which would seem to account for the spontaneous recovery.

5. Treatment, surgical and bactericidal, to be rational and effective, must be addressed to the organism, with reference, first, to arresting its intake from the intestines, and, secondly, to its neutralization and eradication from the blood.

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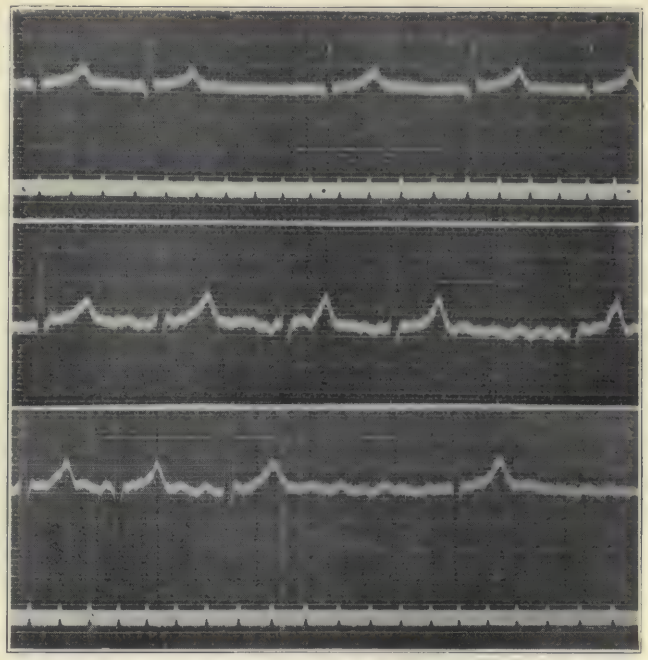


Fig. 1.—Electrocardiogram obtained July 23, 1915, at 11 a. m., showing auricular fibrillation; first and second leads.

4. In my article on "Diagnostic Methods and Pathologic Constants in Idiopathic Epilepsy" (Footnote 2) I referred to this organism as the "epilepticoccus." This grew out of the fact that its morphology as shown at different stages of development was confusing as to classification. Bra indicated this confusion by referring to it as a possible *"coccobacille, diplobacille, streptobacille,"* and finally designating it the "neurococcus." Hyatt has, however, demonstrated that it is a bacillus. This prompts me to add that the researches chronicled in the foregoing summary had advanced to practical completion, and the organism had been isolated and identified, when a search of the Index Medicus brought to my attention the fact that the same subject had been gone over quite fourteen years previously by M. Bra (Compt. rend., Acad. d. sc., Jan. 6, 1902; Rev. neurol., 1902, p. 447; Bull. off. Soc. méd. d. prat., 1902, xii, 289; Rev. neurol., 1903, v. 408), to whom credit for priority of investigation must be freely accorded. As a surgeon, I had approached the question in a quite accidental way and from the strictly surgical standpoint. I was amazed, therefore, to find that so important an observation as that by Bra, although primarily published in a neurologic journal, had since been practically ignored by the neurologic profession. Bra isolated the same organism, injected it into rabbits, produced epileptic convulsions in them and regained the organism from the blood of the infected rabbit. The organism was found in seventy consecutive epileptics, while it was not found in twenty consecutive nonepileptics. It is thus apparent that the observations and conclusions by Bra, like those of my own which I have here recorded, conform strictly to the law of Koch. But my own investigations, while completely confirming the long neglected findings of Bra, have, however, carried the discoveries further by showing that the organism is a bacillus, that it bears spores, that it invades the system through the alimentary canal, that it is highly toxogenic, that it is susceptible of communication, that it is in a measure controlled by both surgical and bactericidal means, and it may be and generally is self-perpetuating in both the alimentary canal and the blood. It would seem, indeed, as if Bra's great work were another example of an important discovery having been overlooked by the world, just as the discovery of the law of heredity by Mendel was overlooked for many years until it was rediscovered by de Vries.

TRANSIENT AURICULAR FIBRILLATION

IN A HEALTHY MAN FOLLOWING HYDROGEN SULPHID POISONING *

G. CANBY ROBINSON, M.D.
ST. LOUIS

Auricular fibrillation is now firmly established as the disturbance of the cardiac mechanism causing the absolutely irregular pulse, a very frequent clinical phenomenon and the most usual type of cardiac irregularity observed in patients with heart disease.

The nature of the fibrillary process has been interpreted in various ways, such as being the result of multiple stimulus formation in various parts of the cardiac musculature (Lewis[1]) and as a lowering of the refractory phase of the various cardiac muscle bundles (Rothberger and Winterberg[2]). The theory of Garrey[3] rests, however, on a firmer experimental basis than any other that had been advanced. He considers that fibrillary contractions of the heart muscle depend on the establishment within the musculature of multiple regions of block or reduced conductivity. The impulses thus blocked or delayed take abnormal and circuitous paths, and return to the same portion of the muscle after the refractory state has passed off, but while other portions are still refractory. The latter portions are subsequently involved in a similar manner, and the whole tissue mass is thus thrown into a continuous incoordinated contraction, not initiated or sustained by new impulses arising from any definite location.

Although Garrey's observations give a clearer understanding of the nature of the fibrillary process, the essential causes which may determine its onset in the human auricles remain obscure. Gossage and Hicks[4] have discussed the question of causation of auricular fibrillation, and point out two possibilities: The first possibility considers that the fibrillation is due to some morbid condition of the muscle fibers, the actual ultimate stimulus which starts it being some sudden strain or the cumulative effect of prolonged overwork, as might be imagined to occur in valvular disease. The second possibility considers that the fibrillation is due to some extrinsic stimulus (for example, an altered chemical constitution of the blood) which, while more likely to influence an already diseased organ, might yet, if sufficiently strong, cause fibrillation in a heart that

* From the Department of Internal Medicine, Washington University Medical School.

1. Lewis: The Mechanism of the Heart Beat, London, 1911.
2. Rothberger and Winterberg: Ueber Vorhofflimmern und Verhofflattern, Arch. f. d. ges. Physiol., 1914, clx, 42.
3. Garrey: The Nature of Fibrillary Contraction of the Heart: Its Relation to Tissue Mass and Form, Am. Jour. Physiol., 1914, xxxiii, 397.
4. Gossage and Hicks: On Auricular Fibrillation, Quart. Jour. Med., 1913, vi, 435.

was previously healthy. These authors point out that there are obvious arguments to be brought forward against the latter view from clinical experience, and that it is very difficult to establish the fact that fibrillation ever takes place in a normal healthy heart in man. They report three cases in which fibrillation set in in hearts which were presumably healthy, and in one of these no lesion was found at necropsy, either grossly or microscopically. From their observations they conclude that auricular fibrillation may possibly occur in hearts which were previously healthy, and that if this is true, its essential cause must, in these cases, be outside the heart and not in any anatomic or pathologic change in the heart itself.

In a previous paper[5] I have reported a case of paroxysmal auricular fibrillation in which the heart showed no anatomic lesion demonstrable by clinical examination, and advanced the hypothesis that the onset of recurrent attacks of fibrillation may have depended on changes in the blood supply to the auricular musculature.

As the question of the essential cause of auricular fibrillation is of clinical importance, it seems of value to record cases in which the onset of auricular fibrillation has apparently occurred under well defined conditions, and especially when cardiac disease can be reasonably eliminated as a causative factor. For this reason the following case seems worthy of record:

REPORT OF CASE

A healthy man of 44 was brought into the Barnes Hospital, July 23, 1915, from a chemical factory where he had been suddenly overcome by fumes. He had been working outdoors and was overcome on the morning of the first day at this type of work. He had been mixing some green liquid which did not have much odor, when he suddenly felt dizzy and began to see green and blue colors. He tried to move away and call for help, but fell unconscious. He soon regained consciousness, but found he could not raise his head. In falling he sustained a lacerated wound of the scalp. He had always been a healthy, strong man, and had had no previous serious illness.

On admission the patient was somewhat dazed. The pulse was irregular, 69 per minute. When the routine physical examination was made, the sensorium was clear. There was no dyspnea or cyanosis. The conjunctivae were not injected, but the pharynx was somewhat reddened. Throughout both lungs, subcrepitant râles were heard. The heart outline by percussion was normal in shape and size, extending 3.5 cm. to the right and 9.5 cm. to the left of the midsternal line. The heart sounds were very distant and indistinct, and occurred irregularly. No murmurs were heard, and each heart beat produced a pulse wave at the wrist. The lacerated wound of the scalp was found to be trivial. The pulse was 66 per minute, and irregular in force and rhythm. Electrocardiograms obtained at 11 a. m., about one hour after admission, were typical of auricular fibrillation (Fig. 1).

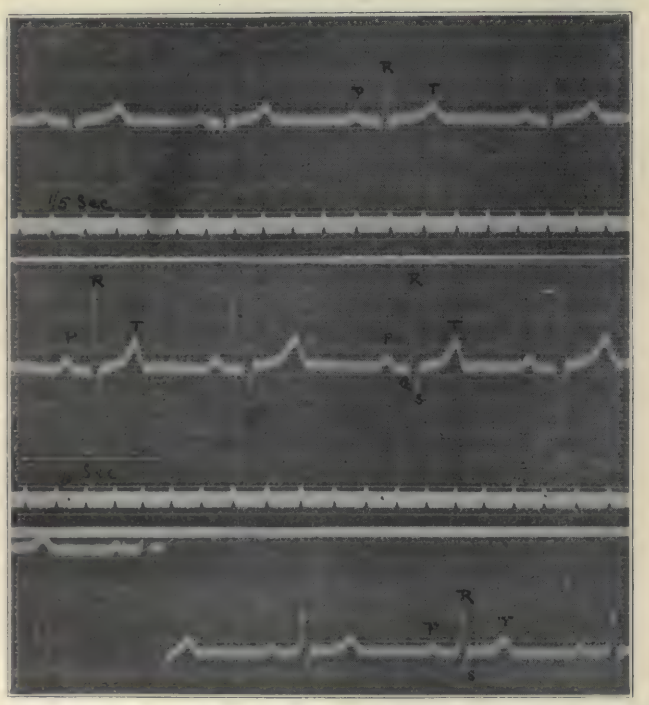


Fig. 2.—Electrocardiogram obtained July 23, 1915, at 7 p. m., showing the normal cardiac mechanism; first, second and third leads.

In a few hours the pulse had become normal, and the electrocardiograms obtained at 7 p. m. showed that the normal cardiac mechanism had been reestablished (Fig. 2). There was, however, a slight delay in conduction, the P-R interval measuring from 0.19 to 0.20 second. The heart rate was 60 per minute. Percussion showed the cardiac dulness to extend 3.5 cm. to the right and 10 cm. to the left of the midsternal line. Heart sounds were clear and of fair quality, being less distant than before. The systolic blood pressure was 120 mm. Hg, the diastolic 75.

On admission the patient showed a leukocytosis, the count being 20,900 per cubic millimeter, 88 per cent. of which were polymorphonuclear neutrophils. The urine showed no abnormalities, and the Wassermann reaction was negative. There was no fever or dyspnea at any time.

The patient made an uneventful recovery, and seemed to be a healthy, normal man in every way, except for nerve deafness in the left ear. He left the hospital in three days and went back to work in the chemical works. He remained there at work for about a month, and although he was not again observed, his foreman reported that he seemed well in every way.

At the chemical works it was reported that he had been overcome with hydrogen sulphid, which was being passed through a copper sulphate solution.

COMMENT

The action of hydrogen sulphid on the heart, apparently, has never been the subject of experimental investigation. Lehmann[6] reports observations on rabbits, cats, dogs and men, and does not record any cardiac arrhythmia.

The poisonous effect of hydrogen sulphid is due in part to its local irritant action, and in part to its direct effect on the central nervous system (Cushny[7]). The respiratory passages and mucous membrane become inflamed, and unconsciousness occurs from direct action on the brain and medulla. The sudden onset of unconsciousness, as seen in this patient, is not uncommon, as has been observed in sewer gas poisoning. According to Lehmann, 1 part in 2,000 parts of air may induce severe symptoms, and 1 part in 1,000 is probably sufficient to produce a fatal outcome.

In the case reported, transient auricular fibrillation occurred in a healthy man with an apparently normal heart, following hydrogen sulphid poisoning, and apparently as a result of this poison. In what way the poison set up the abnormal auricular activity, whether by direct action on the auricular musculature, whether by its action on the nervous centers controlling cardiac activity, or whether by changes in the blood,

5. Robinson, G. C.: Paroxysmal Auricular Fibrillation, Arch. Int. Med., February, 1914, p. 298.

6. Lehmann: Experimentelle Studien über den Einfluss technisch und hygieinisch wichtiger Gase und Dämpfe auf den Organismus, V, Schwefelwasserstoff, Arch. f. Hyg., 1892, xiv, 135.

7. Cushny: A Text-Book of Pharmacology and Therapeutics, Philadelphia, 1915, Ed. 6.

cannot be determined. The case is one, however, which seems to point out that auricular fibrillation in man may be set up by an extracardial factor alone.

GRANULOMA PYOGENICUM OF THE LIP

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Despite the comparative frequency with which granuloma pyogenicum occurs, the condition has attracted very little attention in this country. The disorder was first described under the title of "botryomycosis hominis" in 1897, by Poncet and Dor,[1] who believed the disease to be analogous to botryomycosis of horses (Rivolti[2]). Two years later Sabrazès and Laubie[3] demonstrated the identity of the so-called "botryomycosis" with the common *Staphylococcus aureus,* and their conclusions were verified by Bodin[4] in 1902. Since then French writers have referred to the condition as "pseudo-botryomycosis hominis" or "granulome pedicule" (Lenormant).[5] In 1904, Hartzell[6] reported a series of four cases of the disease from America, and suggested for it the very apt designation of "granuloma pyogenicum," a title which has received general approval and acceptance. Kuttner[7] has proposed the name of "granuloma telangiectodes," but it is hardly probable that this appellation will be widely adopted, as it is neither so euphonious nor so appropriate as the one introduced by Hartzell. Wile[8] has recently made an exhaustive study of the condition. He concludes that "the entire group of so-called pseudo-botryomycosis hominis, granuloma simplex, granuloma telangiectodes and granuloma pyogenicum may be grouped in one class, and may be regarded as ordinary granulation tissue, appearing, for as yet undetermined reasons, in the unusual form of a tumor. The etiologic factor is not a fungus, but probably the *Staphylococcus aureus,* perhaps in an unfavorable soil or in an attenuated form. The histologic changes are essentially the same in all forms, minor differences being simply in degree of vascularity and inflammation. Although never malignant, the growths tend to recur, unless cauterization of the base is practiced."

The little tumors are commonly, but not invariably, situated on those parts which are most frequently subjected to trauma; consequently the hands and feet are favorite sites for their development (Brocq[9]).

Cases involving the lip have been reported by Poncet,[1] Savariaud and Deguy,[10] Delore,[11] Legroux,[12] Picqué,[13] Le Berre,[14] Terrier,[15] Balzer and Alquier[16] and Noury[17] in France, and Gilchrist[18] in America. During the past year I have observed three instances in which this region was affected.

REPORT OF CASES

CASE 1.—In a housewife, aged 25, referred to me by Dr. M. A. Hanna of Kansas City, the lesion had developed on a small, raw surface left by a fever blister near the mucocutaneous juncture on the lower lip, at a point not far from the median line, and had existed eight months. At first it appeared only as a small red papule, but it gradually increased in size until, at the end of three months, it was as large as a grain of wheat. The surface was smooth, red and shiny, and the lesion bled profusely when handled. The base was not indurated. There was no pain at any time. On examination, the patient was found to be a slender but well nourished woman, with brown hair and eyes, and a smooth, soft skin. With the exception of a few acne lesions on the face and chest, the integument on parts other than the lip was normal. The growth was a small, pedunculated tumor, about the size and shape of a cherry-stone, dark red, with a shiny, glazed epithelial covering. Histologically it consisted of a mass of new and old connective tissue, permeated by numerous large, thin-walled vessels, and enclosed in a thin epithelial capsule which consisted of four or five layers of slightly altered prickle cells, an attenuated stratum granulosum, and a loosely adherent stratum corneum. The papillary bodies near the base of the pedicle were hypertrophied, but within the growth they had totally disappeared, leaving the under surface of the limiting membrane smooth and

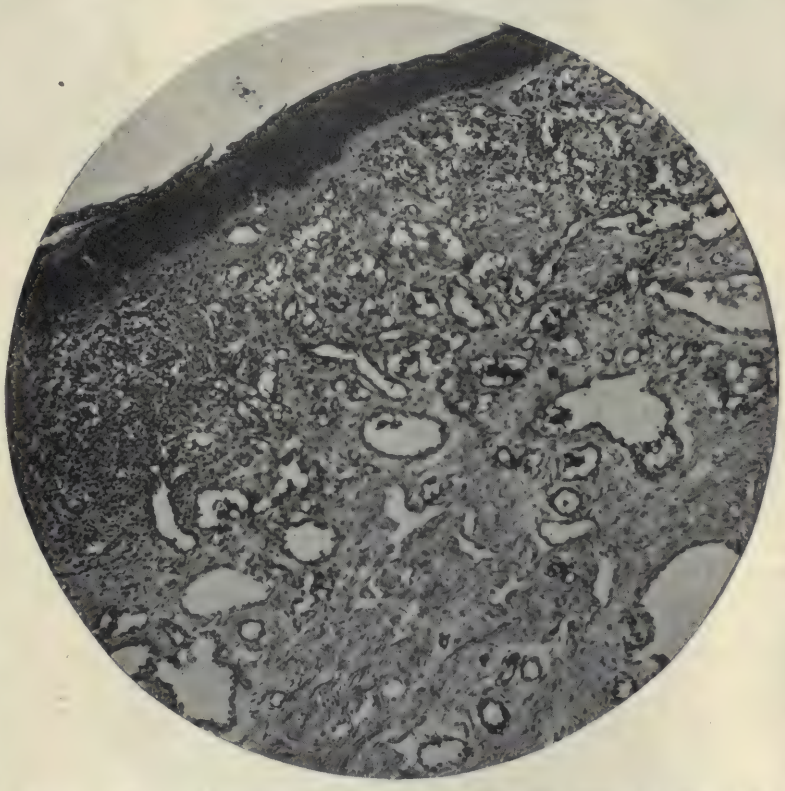


Fig. 1 (Case 1).—Granuloma pyogenicum of the lip, near base of growth. Composition of epithelial covering is shown, together with character of connective tissue stroma, and size and distribution of blood vessels and cavities. An area of leukocytic infiltration is shown at the left hand margin (Leitz, No. 4 ocular, No. 3 objective, 18 cm. extension).

1. Poncet and Dor: Rev. de chir., 1897, xviii, 996; Arch. gén. de méd., 1900, iii, 129; Lyon méd., x, No. 24, p. 97; ibid., 1898, Nos. 5 and 6, pp. 145 and 189.
2. Rivolti: Gior. d. Anat., Pisa, 1884, x, 12.
3. Sabrazès and Laubie: Arch. gén. de méd., 1899, p. 118.
4. Bodin: Ann. de dermat. et de syph., 1902, iii, p. 289.
5. Lenormant: Ann. de dermat. et de syph., 1910, v, Series 1, p. 161.
6. Hartzell: Jour. Cutan. Dis., 1904, p. 520.
7. Kuttner: Beitr. z. klin. Chir., 1905, xlvii, 1.
8. Wile: Unna's Festschrift, Monatsh. f. prakt. Dermat., 1910.
9. Brocq: Traité élémentaire de dermatologie pratique, Paris, 1907, i, 795.
10. Savariaud and Deguy: Gaz. d. hôp., 1902, p. 115.
11. Delore: Lyon méd., 1899, No. 29; Gaz. d. hôp., November, 1900, p. 117; Lyon méd., 1900, No. 18; Gaz. d. hôp., 1902, p. 102.
12. Legroux: Thèse de Paris, 1904.
13. Picqué: Tr. Soc. de chir., 1903.
14. Le Berre: Thèse de Paris, 1904.
15. Terrier: Tr. Soc. de chir., 1900.
16. Balzer and Alquier: Ann. de dermat. et de syph., 1901, p. 479.
17. Noury: Thèse de Bordeaux, 1915.
18. Gilchrist: Jour. Cutan. Dis., 1904, p. 524.

unmarked. The dense connective tissue in the center of the tumor was traversed by innumerable blood vessels of various sizes, running in all directions. Numerous leukocytes, lymphocytes, and plasma cells were observed along the courses of the capillaries and scattered about in the stroma. Only a few groups of cocci were found, and these were located near the base of the growth.

CASE 2.—In a man, aged 25, a law student, referred to me by Dr. Jabez N. Jackson, the lesion had developed from a tiny razor cut, on the left side of the lower lip, and had been present four months. It had been removed twice during this



Fig. 2 (Case 1).—Granuloma pyogenicum of the lip, of eight months' duration.



Fig. 3 (Case 2).—Granuloma pyogenicum of the lip, of five months' duration.



Fig. 4 (Case 3).—Granuloma pyogenicum of the lip, of seven months' duration.

period, once by means of a ligature and again with scissors, but had promptly recurred each time. As in Case 1, there was profuse hemorrhage on even slight manipulation of the tumor, and the patient was greatly worried, suspecting malignancy.

CASE 3.—This occurred in a housewife, aged 30, referred to me by Dr. W. Connelly Anderson of Kansas City, Mo. The lesion which was a trifle larger than the head of an ordinary pin, had developed on the site of a fever blister, and had been present seven months. Superficial cauterization with silver nitrate had aggravated the condition instead of benefiting it. The tumor was soft and compressible, but bled on very slight provocation. The patient said that the growth temporarily increased in size immediately preceding each menstrual period.

TREATMENT

In all three instances excision, under novocain anesthesia, was practiced, the raw bases sponged dry, and then thoroughly and deeply frozen by means of a hard, pointed stick of Pusey's carbon dioxid snow. While this agent is not a direct antiseptic, it is probable that the arterial hyperemia which follows its use is of assistance in combating infection, and the cauterizing action of the refrigerant leaves little to be desired in the treatment of growths of this character.

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The Art of Authorship.—The two most engaging powers of an author are to make new things familiar, and familiar things new.—Johnson.

HYDROSALPINX WITH TWISTED PEDICLE

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I believe that hydrosalpinx with twisted pedicle has not been given the attention as a definite surgical condition which is its due. Ovarian cyst with twisted pedicle receives definite consideration in every differential diagnosis in which an acute pelvic lesion with tumor arises, yet hydrosalpinx with twisted pedicle is not mentioned in some of our textbooks of differential diagnosis, and others merely mention the possibility. I have encountered two such cases within a brief space of time, and feel that they should be reported. Both of these patients suffered the sudden, severe seizure which is characteristic of the same accident with ovarian cyst, and in each instance a complete twist of the broad ligament was found beneath a tremendously dilated fallopian tube. The tumor mass was in each instance from blue to black, and the fallopian tube contained blood. The lesion found in each was a hematosalpinx, and should be so styled; yet the foregoing caption is given since a study of the history of these cases, together with a careful study of the pathologic material, leaves little doubt as to the fact that these patients suffered primarily from hydrosalpinx of very considerable size; that the enlarged tube became twisted on its broad ligament pedicle in a manner quite analogous to the ovarian cyst twist, and that the effusion of blood into the tube was secondary and was the direct result of the circulatory disturbance caused by the twist in the broad ligament.



Hydrosalpinx with twisted pedicle. Tumor mass in Case 1 (Whitacre).

These cases recall to my mind a number of earlier cases in which a large, freely movable hydrosalpinx was encountered, and in which this twist might easily have occurred. The infrequency of the accident here-

with reported will probably be explained by the fact that hydrosalpinx is usually accompanied by more or less extensive adhesions within the pelvis, and that these adhesions prevent free mobility of the cystlike tube.

CASE 1.—Miss A., aged 23, was referred to me in April, 1915, by Dr. Rich of Roy, Wash. She had suffered from gonorrhea two years previously, had borne a child one year previously, and had suffered to a moderate degree from pelvic discomfort and pain. Three days previous to her admission to the hospital, she had been seized with sudden severe pain in the right iliac region, vomited and felt very ill. A rapidly increasing pulse and temperature, rigidity of the right rectus, constant pain, and the discovery of a tumor mass in the right side led to the conclusion that the patient suffered from acute appendicitis with abscess formation. My own examination of the patient introduced an element of doubt regarding this diagnosis, since bimanual examination revealed a large, rounded, movable mass which occupied the entire right half of the pelvis and extended beyond the median line. The mass was not extremely sensitive, seemed just beneath the abdominal wall, and was not particularly marked in the culdesac. Ovarian cyst with twisted pedicle and ectopic pregnancy were not fully excluded, and an exploratory incision was made in the midline. There was much free blood-colored serum in the free peritoneal cavity, and a dark blue or black cystlike tumor presented. A complete turn was demonstrable in the pedicle of this freely movable tumor, and it became at once evident that the tumor mass was made up of a tremendously enlarged left tube and a huge ovary, and that the twisted pedicle was the broad ligament. The tumor mass, which is shown in the accompanying illustration, measured 7 inches in length and 5 inches in diameter. The recovery of the patient was uneventful.

CASE 2.—Mrs. B., aged 45, married, multipara, was seen in consultation with Dr. P. B. Swearingen of Tacoma. It is unnecessary to give the history of this patient in detail except to state that the early symptoms of severe abdominal pain, vomiting, distention, and the failure to move the bowels by enemas, were suggestive of intestinal obstruction, and that our subsequent study of the case led us to operate on her for ovarian cyst with twisted pedicle. The lesion was precisely the same as that found in Case 1 except that the bluish-black mass was not quite so large. This patient also made an uneventful recovery.

I feel that even though these cases present a symptomatology and call for an operative management which differs in no way from ovarian cyst with twisted pedicle, they should have a definite pathologic classification.

The Reporting of Venereal Diseases.—A recent *Bulletin* of the health department of New York City reviews the situation with reference to the reporting of venereal diseases, and states that there has been a perceptible falling off in the number of cases reported during 1915. It is believed that this is largely due to a falling off in the number of cases reported by hospitals and institutions. Whereas during 1914 a total of 14,484 were reported from this source, during the year 1915 the figure dropped to 10,065, a decrease of more than 4,000 cases. The percentage of positive cases reported through the department's laboratory during 1915 also shows a diminution of 5 per cent. over that of 1914. The records show that the number of cases referred by the profession to the venereal diagnostic clinics is steadily increasing despite the larger number of physicians who are making the tests themselves. It seems that as in the past physicians have refrained from reporting their cases in private practice; only 103 cases of venereal disease having been reported through this source for the entire year of 1915. The report points out, in this connection, that every safeguard is provided to protect the secrecy of such reports, and that it is not obligatory to report the cases by name, the initials alone being sufficient.

THE MICROSCOPIC EXAMINATION OF FINGER NAIL DEPOSITS

SIGNIFICANCE IN FORENSIC MEDICINE AND IN PUBLIC AND PERSONAL HYGIENE

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The microscopic examination of the deposits under the finger nails promises to be of importance in forensic medicine and also in certain phases of public sanitation and personal hygiene. This form of examination has been known for some time, and has been practically applied in a number of criminal cases both in this country and in Europe, but so far it has not been adopted as an officially recognized routine in the examination of criminals or those suspected or accused of having committed certain crimes. The possibilities of this procedure became apparent to me over twenty-five years ago when incidentally examining the scrapings from my own finger nails and those of my laboratory assistants. The number and variety of substances found was astonishing. Since that time the microscopic examination of finger nail deposits has been made a laboratory exercise for students in connection with the study of fiber and of body cells and bacteria.

This particular exercise was at first sandwiched in as a diversion rather than a part of the regular course. Each student of a class of forty or fifty was requested to mount the scrapings from the nails of the second and third fingers of the right hand (in case of right handed persons) on a slide in a drop of water and to examine this carefully under the high power (450 diameters) of the compound microscope. The findings proved interesting and not infrequently astonishing to the student. The most important part of this laboratory exercise was the interpretation of the findings. The findings gave evidence of the routine labors engaged in for periods of from one to eight days previous, and of personal habits, of the kind and quality of clothing worn, of business occupations, etc.

It was found that there was a very notable difference in the contents of the deposits of the nails of the right and the left hands, and also in the deposits of the nails of fingers and thumb of the same hand. Numerous examinations proved that the ordinary methods of cleaning the hands by means of soap, hot water and clean towel, inclusive of the usual nail trimming and polishing, as observed by persons of clean and sanitary habits, does not materially alter the microscopic findings; in other words, the usual hand toilet operations do not clean the hands and certainly do not cleanse the inner surface of the free ends of the finger nails. Even the vigorous use of the nail brush with soap and hot water does not result in a removal of all the deposits. Of far greater influence is the habitual close trimming of the finger nails as observed by some persons. If the nails are regularly trimmed very close, to the point of nearly causing bleeding, very little deposit of any kind will find lodgment. This practice is rare, however, and may be considered the exception to the rule.

The bacteriologic findings of the finger nail deposits are also very interesting. The streptococcus group apparently predominates in most persons, rather than the staphylococcus or the colon bacillus group, as one might reasonably expect. The organisms found in the rather limited number of cases (143) examined predominate in the following order:

1. Streptococcus group, the acid fast varieties predominating.

2. Staphylococcus group.

3. *Bacillus coli* group, almost invariably present.

4. Bacilli, cocci and spirillae probably derived from mouth, soil, food, water, body surface, nose, eyes, sewage, dust, dirt, etc.

5. Occasional yeast cells, spores and filaments of higher fungi.

6. Larvae of vermes; occasional amebas; diatoms, algae; etc.

From the medicolegal standpoint, the examination of nail deposits will prove of greatest value in those criminal acts in which great violence is employed, as in murder, physical encounters of all kinds, and rape or attempted rape. In such cases it would be desirable to examine the nail deposits of both the accused and the accuser, for as is known, persons are not infrequently falsely accused, and particularly is this true in charges of rape or attempted rape. For example, scratches and other skin abrasions on hands and face of the accused should reveal skin epithelium, dermal fragments, blood corpuscles and possibly hair fragments of the accused in the nail deposits of the victim. If such findings proved wholly negative, especially in the absence of marked injury to the genitalia of the accuser, it would point to either false accusation or perhaps voluntary submission. Valuable evidence may also be obtained in other criminal acts. A husband was accused of having induced his wife to submit to the performance of criminal abortion and to have disposed of the fetus. The examination of the husband's finger nail deposits revealed a number of frustules of fresh water diatoms and a few filaments of oscillaria which led to the suspicion that he had buried the fetus in some marshy soil. Careful search along the marshy edge of a nearby stream revealed no newly made grave, but a slightly scooped out depression in the edge of the stream itself proved to be the burial place, and on digging disclosed the nearly full term fetus.

Efficiency in the line of investigation suggested above depends on long experience in micro-analytic work and on a wide range of microscopic study of all kinds of substances, animal, vegetable and mineral. The time required to qualify as expert in this line would vary, depending on personal differences; but in all probability the requisite experience, in addition to the necessary educational preparation, such as medical course, university course, special college course, etc., could not be attained in less than ten years of constant application.

In medicolegal cases the nail deposits should be taken in the presence of the chief of police, if possible. In some cases it may be desirable and necessary to take the nail deposits on the spot, and the analyst must therefore be vested with the necessary police authority to do this, and he must furthermore be authorized to call to his assistance any police officer that may be available. The deposits should be examined immediately, if possible, in a laboratory supplied with the necessary apparatus and chemical reagents. There must be on hand suitable report blanks on which the findings are to be recorded in ink or by means of an indelible pencil.

After the examination is completed, the findings should be summarized and interpreted. The greatest care must be observed in the interpretation of the results of the examination. The analyst must qualify as an expert and he must be free from all bias and in no case must he allow prejudice to influence him in any manner whatsoever. When called on to give an opinion, he must be able to speak as one who knows, and he must cast aside all prejudice both as to the scientific and moral principles which may be involved and as to the persons or personalities implicated. At no time must he allow himself to be in any way influenced by the opinions expressed by any member or members of the police force with whom he is of necessity associated.

Thus far the medical profession has given little attention to the part played by the finger nail deposits in the transmission of infections. That there is danger in the handshake is generally recognized and admitted by the laity as well as the medical fraternity, but so far there is no effort made to do away with this ancient custom. There are certain persons who refuse to shake hands or who do so under mental protest. The Chinese do not shake hands with each other, but perform this ceremony by shaking hands with themselves.

The chief source of danger in the handshake is in the deposits under the finger nails rather than in the hand and fingers. The more important infections traceable to the finger nail deposits may be divided into two groups as follows:

1. Autoinfections.—There is no doubt that many skin diseases are traceable to scratching. Of such nail borne autoinfections we may mention lupus, acne, boils and carbuncles, and septicemia. In this manner infections are carried to nose, to eyes, to ears and to mouth and throat. Skin infections are transferred from one part of the body to another by the scratching and skin picking habit or by constantly "digging" or "picking" at a sore spot, and as a result some persons are never quite free from boils and acneic eruptions, particularly persons with low opsonic indexes to the causative infections. Infants and young children are constantly picking up infections with their finger nails and transferring these to the mouth, nose, throat and eyes. Nail biters very frequently infect themselves through the materials under the nails. Children and some women have the habit of bringing the fingers to the mouth, thus favoring the transfer of infecting material from finger nails to mouth.

2. Heteroinfections.—In many cases the infection is traceable to the finger nail deposits of others, as by handshaking, stroking or caressing the head or face, etc. There is the case of the husband whose neck on the left side was never long free from one or more small pimples or boils traceable to his wife's habit of playfully pinching his neck. He ascribed the trouble to starched collars, but several changes in the laundry brought no relief. During the prolonged absence of his wife on a visit with relatives, the trouble disappeared entirely to reappear again on her return with a renewal of the playful habits.

It certainly requires no lengthy argumentation to prove that there is danger in the finger nail deposits. Most valuable information could no doubt be obtained through a careful microscopic and bacteriologic investigation of the nail deposits of the different classes and races of people. Such information would be of inestimable value to physicians, to sanitarians and to the public in general. Furthermore, the occasional if not routine examination of finger nail deposits of patients

would frequently give the attending physician valuable information regarding the source of the causative infections and personal habits which might have bearing on the disease.

This brief outline of a very important as well as interesting subject will, it is hoped, serve as a stimulus to others for making additional observations and investigations along the lines indicated.

THE PSEUDOREACTION IN THE SCHICK TEST AND ITS CONTROL*

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The pseudoreaction in the Schick test is caused, not by the soluble diphtheria toxin, but by the protein substance of the diphtheria bacillus which is present in the solution used for the test. The reaction may be obtained in individuals who have enough natural antitoxin to render them immune to diphtheria. It is important, therefore, to control these pseudoreactions, which are quite frequent in the adult, especially women (from 20 to 30 per cent.), but relatively rare in children. These control tests may be made after the reaction with the regular Schick test has developed, or, especially in the adult, the two tests may be made simultaneously, one on each forearm, and the clinical course of the reactions thus compared.

For the Schick test, the bureau of laboratories of the health department is supplying an outfit which contains carefully measured amounts of undiluted diphtheria toxin. This outfit, as previously described by me,[1] consists of a capillary tube which contains a little over one minimum lethal dose of a ripened diphtheria toxin, a small rubber bulb for expelling the toxin, and a 10 c.c. bottle of normal saline solution for diluting the toxin. Every 0.2 c.c. of the dilution represents one fiftieth minimum lethal dose, the amount used in the Schick test.

The outfit for controlling the positive, pseudo and combined reactions is similar to the Schick test outfit, but the toxin in the capillary tube has been heated to 75 C. (167 F.) for five minutes. Heating the toxin at this temperature destroys the soluble diphtheria toxin, but does not appreciably affect the protein of the diphtheria bacillus.

We made an attempt during the past two and one-half years, during which time the work with the Schick test has been carried on by us at the Willard Parker Hospital and various other institutions, to control as many of the pseudo and combined reactions as possible. Convinced of the fact that the pseudoreaction was a local anaphylactic response to the protein of the diphtheria bacillus, we at first used a solution containing the autolyzed substance of the Klebs-Loeffler bacillus. This autolysate consisted of a forty-eight hour agar growth of the diphtheria bacillus (No. 8 Park & Williams) which was suspended in salt solution in the proportion of 10 c.c. of saline to a Blake bottle culture. The bacterial suspension was washed four times with saline solution, made up to its original volume with distilled water, then shaken for two hours, killed at 57 C. (134.6 F.) for forty-five minutes and allowed to autolyze in the thermostat over night. The solution was then passed through a Berkefeld filter, and the filtrate considered as a concentrated autolysate. Ten c.c. of the autolysate, representing the growth of one Blake bottle, injected subcutaneously into a guinea-pig, did not show any evidence of soluble toxin. When the bacterial suspension was injected before its passage through a Berkefeld filter, a small knoblike induration developed, which soon disappeared. For use in the control of the Schick test in human beings, the concentrated autolysate was diluted 1:20 with salt solution, and 0.2 c.c. injected intradermally. Typical false reactions were obtained in the pseudo and combined Schick cases, but none in the negative or positive cases. By using a more concentrated solution of the autolysate, faint reactions could be obtained even in individuals who gave a negative Schick reaction.

The difficulty of estimating the amount of bacillus protein in the diphtheria toxin broth used in the Schick test, which would serve as a guide in making a proper dilution of the autolysate, prompted us finally to abandon the autolysate as a suitable control, and use either a toxin which had been slightly overneutralized with antitoxin, or a heated toxin in a dilution similar to that used in the Schick test. In the overneutralized toxin (2 units of antitoxin to each L + dose of toxin) we had added, however, another element, the antitoxin. This, though in extreme dilution (1 part to a million as finally injected), might yet be objected to as a possible additional source of error. We finally used the heated toxin as representing probably the most accurate way for obtaining a proper control test. A dilution of the protein substance of the diphtheria bacillus is thus obtained which is exactly similar to that in the solution used for the Schick test. The capillary tubes in the outfits represent simply a convenient and accurate way for heating the carefully measured amounts of diphtheria toxin.

The Research Laboratory of the New York City Health Department is now supplying these outfits. They will remain good for use for a long time, since there is no danger of deterioration of an unstable toxin.

The following are the directions accompanying the outfits:

DIRECTIONS FOR USING HEATED DIPHTHERIA TOXIN IN CONTROLLING THE SCHICK REACTION

Break off one end of the capillary tube, push the broken end carefully through the neck of the rubber bulb until it punctures the diaphragm within, and enters the cavity of the bulb; then break off the other end of the tube. Hold the bulb between the thumb and middle finger, place the index finger over the opening in the larger end of the bulb and expel the toxin into the saline. Rinse out the capillary tube by drawing up saline several times, then cork the bottle and shake the diluted toxin. Inject 0.2 c.c. *intracutaneously* on the flexor surface of the forearm or arm. Observe the reaction at the site of injection at the end of twenty-four, forty-eight, seventy-two and ninety-six hours, and compare with the original Schick reaction.

The capillary tube in this outfit contains the culture fluid similar to that used in the Schick test, but heated to 75 C. for five minutes. The heating destroys the diphtheria toxin, which is the active agent in the positive Schick reaction, but does not affect the protein substance of the diphtheria bacillus, which produces the pseudoreaction.

In an individual who gave a *positive* reaction only, the control test with the heated toxin will be negative. In one

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* From the Research Laboratory of the Department of Health, City of New York.

1. Zingher, Abraham: A Simple Outfit for the Distribution of Toxin for the Schick Test, THE JOURNAL A. M. A., July 24, 1915, p. 329.

who gave a *pseudoreaction*, the control reaction will be of about the same size and appearance, and pass through the same clinical course as the original reaction; e. g., the two reactions showing a similar central area of redness of varying size, surrounded by a secondary areola which shades off into the surrounding skin. Both reactions begin to appear in about six to eighteen hours, reach their height in twenty-four to thirty-six hours and disappear in three to four days, leaving a poorly defined area of pigmentation and generally no scaling.

In an individual who gave a *combined* reaction in the original test, both the positive and the pseudoreaction may be detected. The positive reaction becomes manifest in the original test at the end of three to four days, when the pseudo-element of the reaction has disappeared, as a definite circumscribed area of redness, which measures from 1 to 2.5 cm. in diameter and shows superficial scaling with beginning brownish pigmentation. The pseudoreaction is detected in the control test with the heated toxin; the reaction will not be as marked as in the original Schick test, but passes through the typical clinical course of a false reaction.

FRACTURE OF THE GREATER CORNU OF THE HYOID BONE RESULTING FROM MUSCULAR ACTION *

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Fractures of the hyoid bone due to muscular action are very rare. Stimson[1] mentions only two such cases out of forty-five hyoid fractures collected by Malgaigne, Hamilton, Gibb, Gurlt and himself.

The following case of fracture of the left greater cornu of the hyoid bone, having resulted from muscular action, will consequently be of interest:

Miss E. H., aged 29, domestic by occupation, called on me, Feb. 18, 1916, complaining of pain and swelling in the neck, and particularly of change of voice, the occasional absence of which so alarmed her as to be the incentive toward seeking medical aid.

The week previously, February 11, while engaged in the task of arranging portières, she inclined her head forcibly backward, and at the time felt and heard, as she expressed it, "something break in the neck." Swelling of the neck anteriorly, localized pain in the neck produced by motions of the head or tongue, bloody sputum, deglutition embarrassed by frequent choking, and alteration of voice variously muffled, hoarse, or absent were the symptoms early manifested. Cough and dyspnea were not experienced.

The patient was a tall, healthy looking, well developed muscular young woman, whose past medical history was uneventful, barring a tonsillectomy and an appendicectomy undergone a few years previously, since which time she has enjoyed excellent health.

A very discernible, well defined swelling, without ecchymosis, occupied the anterior and anterolateral cervical regions, beginning sharply at the superior border of the hyoid bone, and continuing into and traversing the submental region as far as the inferior border of the inferior maxillary bone.

Emphysema was not present. The hyoid bone was well outlined on palpation, disclosing no perceptible irregularity, save a slight inward deviation of the left greater cornu. Pain and tenderness were elicited when pressure was made at a point on the bone near the juncture of its left greater cornu with its body. Slightly to the left of this point was a slightly enlarged, tender submaxillary lymphatic gland. Examination of the floor of the mouth and oropharynx proved negative.

As a week had elapsed since the occurrence of the accident, and as union takes place promptly in hyoid fractures, crepitus and preternatural mobility were not present.

The contours and external surfaces of the thyroid and cricoid cartilages were unaltered, and both could be freely manipulated without any pain or discomfort. At the time of the examination, the dysphagia, bloody sputum, and pain due to motion of the tongue had all disappeared, and, according to the patient, the cervical swelling was diminishing.

Further intended study of the case by laryngoscopy and roentgenography was prevented by failure of the patient, who lives out of the city, to report subsequently. March 6, information indirectly obtained revealed only that the patient was still hoarse.

The fact that this patient was treating the external swelling with liniments for a week prior to calling on professional aid, which would not have been sought had she not been frightened by occasional speechlessness, renders it strongly probable that fractures of the greater cornu of the hyoid bone sequential to muscular action are more frequent than shown by the literature, and warrants the belief that cases presenting as many symptoms as the one just narrated, not to mention cases manifesting more vague and fewer symptoms, occur and run their course without recourse to the physician or surgeon.

The treatment was expectant, the patient being ordered to refrain from use of the voice, and to secure approximate immobility of the head and neck by means of wearing a high, stiff collar.

1304 Colwell Street.

* Read before the Allegheny County Medical Society, March 21, 1916.

1. Stimson: Practical Treatise on Fractures and Dislocations, Ed. 6, Philadelphia, Lea & Febiger, 1910, p. 180.

A CASE OF BOTHRIOCEPHALUS LATUS INFECTION

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Cases of *Bothriocephalus latus* infection are so rare in this country that it seems advisable to report all cases as they present themselves, if only to awaken interest and stimulate the search for others.

In 1904 Edsal[1] said that American literature does not provide a sufficient number of cases to indicate that the parasite is by any means common; but the authentic cases that he has found, together with a few reliable cases reported to him in private communications, led him to believe that those whose practices or hospital services brought them in touch with foreigners, especially Russians, Finns, and Swedes, are most likely to meet this parasite.

Many practitioners are content to make a diagnosis of "tapeworms," without identifying the species. This accounts for the small number of known cases.

At any rate, the *Bothriocephalus latus* is comparatively rare in this country, only twenty-two cases having been reported in America up to 1904. Since then there have been only eight other cases that I could find in the literature on the subject. Only one of these cases[2] was in an American-born boy, of Finnish parentage. This boy had never left the state of Minnesota. In all probability native foci may develop in the United States through the agency of our foreign-born element, and therefore it is necessary to report and follow up all cases if we wish to keep this parasite from getting a foothold in this country.

Nichorson believes that the probable reason that practically no cases develop in this country is our method of preparing fish for food; the larvae being destroyed in cooking. He states that he has frequently found the larvae of the *Bothriocephalus latus* in fish caught in the Great Lakes. Huber reports seven cases, seen in as many years, all of which were in Polish patients.

The case I wish to report presents nothing especially new. The specimen of the bothriocephalus is excellent.

The patient, Mrs. I. C., living in St. Louis, a native of Vilna, Russia, called at my office Jan. 23, 1915. She complained of indefinite pains in the abdomen, especially in the left side, lower quadrant. There was no fever or vomiting;

1. Edsal: Am. Med., 1904, viii, 1087.
2. This case was reported by Nichorson in 1906.

she had a sensation of fulness in the stomach, only slightly relieved by active purgation. Her appetite was poor and she had been sleeping poorly; during the last few months she felt weak and depressed. For the past few years she had noticed sections of tapeworms in her stools. Sixteen years ago, she also passed sections of tapeworm, at which time she was given an anthelmintic, and passed a tapeworm 15 feet long; she did not remember whether or not the head was recovered. She felt quite well for twelve years, when she again passed sections of the worm. At this time she suffered with fainting spells and attacks, similar to the present.

She was again given anthelmintics, with no results. From that time to this she has been passing sections at irregular intervals. She never felt perfectly well. A sister and her mother both had this parasite. The patient states that it was the custom in their vicinity of Russia for everybody to take worm medicine.

Physical examination revealed a small woman of fairly good color; the pupils reacted to light and accommodation; teeth fair, pharynx negative, no glandular enlargement, no enlarged thyroid. Lungs and heart were negative, abdomen very sensitive along the course of the descending colon. The pelvis was negative, except for some tenderness in the left adnexa. Blood smears were negative, hemoglobin 90, urine negative, stools showed sections of *Bothriocephalus latus* and numerous eggs; temperature 98.4, pulse 76, respiration 22.

She was ordered to take castor oil on the night of January 23, eat nothing but Holland herring, and drink considerable water. On the 24th at noon she was given a 10-grain capsule of male fern every half hour until six were taken; four hours later 2 ounces of castor oil were given.

At midnight of the 24th, she was taken with severe cramps, followed by perspiration and severe diarrhea. All the feces were collected. Up till 12 o'clock on the 25th, ten stools in all were passed. The stools were examined and 27 feet of the *Bothriocephalus latus* were recovered, including the head. The specimen was sent to the Washington University Museum.

The following day the patient felt quite well, her appetite was good, and all tenderness had disappeared. No eggs were found in the stools.

Carleton Building.

SPLIT TENSOR FASCIAE FEMORIS

LEO BERND, M.D., PHILADELPHIA

B. W., aged 18, in playing football had a dislocation of the right hip which was reduced without much trouble. The hip continued weak and seemingly became dislocated on the slightest adduction. The patient wore a cast for a month and then a brace. In the fall of 1915 he tried to play football, but became so much worse that it came out even when he did the "crawl" stroke in swimming.

Roentgenoscopy revealed no abnormal condition of the joint in either abduction or adduction. In consultation with W. M. Jackson Merrill, a diagnosis was made of a split in the tensor fasciae femoris muscle which caused the trochanter to buttonhole through the split in the muscle. The patient was anesthetized, an incision over the trochanter was made, and a split in the muscle about 4 inches long was found. Three mattress sutures of chromic kangaroo tendon were inserted, one continuous chromic catgut suture, three interrupted silkworm sutures through the skin and fascia, then a subcutaneous suture. Gauze soaked in alcohol was used as a dressing. A plaster cast from the knee over the hip was finally applied.

At the end of two weeks the patient was discharged. Four weeks later he was in swimming and going to dances with no return of symptoms. The "crawl" stroke swimming is the exercise advised as it is not a side kick, but an up and down motion of the feet and anterior muscles of the leg.

The case is unusual, and unless the slit had been sewed up, the boy would have been an invalid, as he could not exercise and was becoming a nervous wreck.

New Instruments and Suggestions

HYDROCHLORIC ACID AS A DECOLORIZING AGENT FOR THE TUBERCLE BACILLUS*

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The purpose of this paper is the determination of the value of hydrochloric acid as a decolorizing agent for the tubercle bacillus. This acid has been used in my laboratory for over two years in the preparation of several hundred specimens. These include blood, sputum, smears, urine, feces, tissues, both frozen and paraffin sections, and cultures.

I believe that it is wise to use any method of technic, once established, without variation. In this way it is possible to arrive at accurate comparative results. Technics, too, should be carefully scrutinized for points of error, and after all possible sources of mistake are corrected, one may go ahead with any given line of work. Nothing is more discouraging than to have an otherwise carefully prepared research clouded by faulty technic.

In selecting a decolorizing agent one finds a great variety in use and the variations in the percentages advised are marked. The methods range from a few seconds with 30 per cent. nitric acid to an indefinite time with 1 per cent. acid alcohol. In my early work, I used Pappenheim's solution, which is both a decolorizer and a counterstain. For the examination of routine smears I found this very satisfactory, but owing to numerous criticisms I decided to change.

The various acids were tried and hydrochloric acid finally decided on. This is not generally advocated and, so far as I know, has never been suggested stronger than 25 per cent. I started primarily with 30 per cent. and have been using this routinely for the past two years, allowing it to remain in contact with the material thirty seconds by the watch. Lately I have increased this to one minute, but I think that thirty seconds is sufficient for a properly prepared slide.

In the determination of the action of hydrochloric acid on the tubercle bacillus, I used: (1) a fresh culture one month old isolated from the sputum; (2) one one year old originally isolated from the sputum and the transplant three months old, and (3) fresh sputum. From each of these fourteen slides were made. They were stained five minutes with carbolfuchsin cold, the excess drained off and 30 per cent. hydrochloric acid applied. The first slide was washed off in one minute, the second in two minutes, and so on every minute up to ten; then fifteen, twenty, twenty-five and thirty minutes were allowed, in order, for each of the remaining slides. All were counterstained one minute with Loeffler's methylene blue.

It was found that the tubercle bacillus retained its acid-fast properties in all instances, including thirty minutes' decolorization, with several variations. In all a fading of the red in the bacilli is quite noticeable after five minutes. There is a tendency to become refractile which is later lost. Some bacilli retain a bright red color, especially the solid forms, while some at the same time have become mere shadows. In proportion, at thirty minutes the shadowy forms predominate. There is only a slight tendency to take on the blue color. This is more noticeable in the old culture, which had some blue forms from the beginning. Finally the old culture as a whole retained more of the acid-fast property than either the young culture or the sputum.

I wish to call attention to the uselessness of heating carbolfuchsin in the preliminary stain. This is an entirely unnecessary procedure in my experience, which covers several years in the use of cold stain. The use of heat is one of those methods which is mechanically advocated by one textbook after another, is probably not practiced by most men doing considerable work, and is the source of much inconvenience to the man who has an occasional slide to examine.

* Presented before the Philadelphia Pathological Society, Jan. 27, 1916.

* From the McManes Laboratory of Pathology, University of Pennsylvania.

I have not studied hydrochloric acid in relation to the other acid-fast organisms. In thick smears and in sputum, after washing the hydrochloric acid with water, it may be necessary to run on a few drops of 95 per cent. alcohol. In most instances, and in thin smears, this is unnecessary, since the Loeffler's blue is an alcoholic solution and will, if allowed to remain three or four minutes, completely decolorize the thick areas.

CONCLUSIONS

1. Make thin smears on slides, fix with heat, stain with cold carbolfuchsin five minutes, decolorize with 30 per cent. hydrochloric acid thirty seconds or more by watch and counterstain with Loeffler's methylene blue.
2. Thirty per cent. hydrochloric acid for one minute will not decolorize any strain of tubercle bacillus with which I have worked.
3. In this percentage and for this time hydrochloric acid will decolorize all artefacts such as rims of red blood cells, bits of leukocytes, granules of protoplasm and all ordinary nonacid-fast organisms.

STABILIZED GENTIAN VIOLET

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Of the many stains which serve the bacteriologist in the capacity of a differential stain, there is not any single stain which has so wide an application as the one known as Gram's. The only disadvantage in the use of the stain is that the gentian violet used deteriorates, and on that account should be freshly prepared when wanted. In a laboratory in which smears for gonorrhea are examined at frequent intervals, it is quite a convenience to have the differential stain, Gram's stain, made up ready for use, and it was this necessity which led us to experiment with different formulas as well as with different organic preservatives in an effort to find a method of stabilizing the gentian violet solution.

CHEMICAL

Gentian violet is a mixture of pentamethyl and hexamethyl pararosanilin, and belongs to the class of stains known as

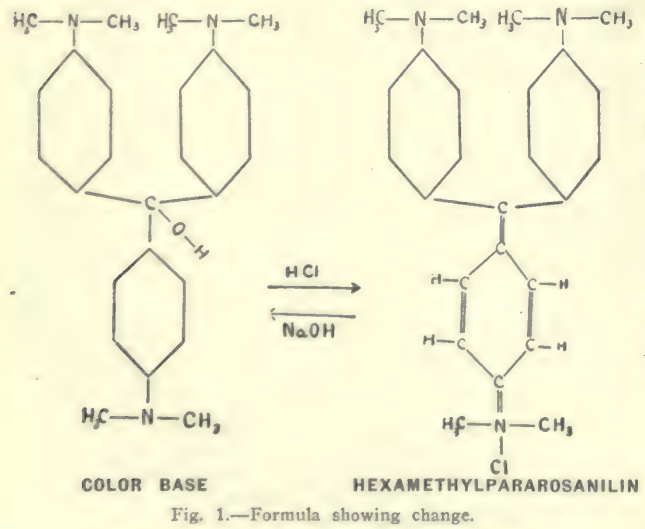


Fig. 1.—Formula showing change.

the triphenylmethane dyes. In the manufacture of this dye it is prepared first as the colorless color base and then subsequently converted into the colored compound by treatment with hydrochloric acid. This change is represented by the graphic formula (Fig. 1). The hydrochloric acid neutralizes the hydroxyl group in the colorless base, and immediately the chlorin atom migrates from the position which the hydroxyl group occupied to the amino group, with a corresponding rearrangement of the intramolecular structure which gives the recognized quinonoid grouping. If a solution of gentian violet is made alkaline with sodium hydroxid, the reaction is reversed and the colorless color base is again formed. Anilin is one of the ingredients in the regular Gram violet solution, and on account of the amino group acts like a weak base. The instability of the violet solution is therefore probably due in part to its action.

The ammonia of the air in the average laboratory probably also plays its rôle in decolorizing the stain. To prove that

STAINING OPERATION TIME MINUTES					RESULT OF EXAMINATION *				1,000 cc. CONTAINS 10% ALCOHOL PLUS			
STAINING SOLUTION NO.	GENTIAN VIOLET SOLUTION	GRAM'S IODIN	ALCOHOL 95%	SAFFRANIN COUNTER-STAIN	GONOCOCCUS GRAM-NEG.	STAPHYLOCOCCUS GRAM-POS.	BACILLUS TYPHOSUS GRAM-NEG.	DIPLOCOCCUS GRAM-POS.	ACID NORMALITY	ANILIN C.C.	GENTIAN VIOLET gm	% STRENGTH of SOL. AFTER 5 MONTHS
1	1	½	3	½	0	6	0	4	.33	36	8	79.1
2	1	½	3	½	0	7	0	5	.20	36	8	83.3
3	1	½	3	½	0	7	0	6	.20	32	8	93.5
4	1	½	3	½	0	8	0	8	.066	32	8	87.5
5	1	½	3	½	0	8	0	8	.033	32	8	88.0
6	1	½	3	½	0	5	0	3	.010	36	8	62.5
7	1	½	3	½	0	7	0	6	.005	36	8	77.0
8	1	½	3	½	0	8	0	7	.010	28	8	83.5
9	1	½	3	½	0	9	0	9	.005	28	8	89.5
10	1	½	3	½	0	10	0	10	.001	28	8	81.2
11	1	½	3	½	0	10	0	10	—	36	8	5.0

* Arbitrary unit for staining density: 0 = no stain, 10 = completely stained.

Fig. 2.—Results of test.

small amounts of a base would destroy the color in the violet solution, a series of tests were made, and it was found that N/500 sodium hydroxid would precipitate completely in one hour the color from a 1:10 dilution of the regular violet stain, and that N/10,000 sodium hydroxid would precipitate completely the same strength solution in three weeks. Along with the same series, a test with N/100 acetic acid in 1:10 dilution of the stain showed entire preservation after eight weeks' time. These tests proved conclusively that the stain could be preserved with small amounts of acids.

The next series of tests undertaken was to determine the concentration of acid which was best suited for this purpose. Eleven different solutions were prepared, ten of which contained acid, while the eleventh was made in the regular manner except that no acid was added. At the end of five months the gentian violet was determined quantitatively in each of the eleven solutions. These results are tabulated in the last column of Chart 2. It will be seen that in no instance did any one of the solutions which were preserved with acid deteriorate below 62 per cent., while the average strength is about 85 per cent. of the original strength. On the other hand, the one which was not preserved dropped to 5 per cent. of the original strength.

BACTERIOLOGIC

At the time the foregoing stains were prepared, it was deemed absolutely necessary that the preserved stain be tested out on known gram-positive and gram-negative organisms. To do this we used pus from a case of known gonorrhea containing the gram-negative diplococcus, typhoid culture (gram-negative), staphylococcus (gram-positive) and diplococcus (gram-positive). The four smears were placed

side by side on each of eleven slides, and each slide stained in exactly the same manner. Figure 2 gives the results of this test.

From this chart we see that a high concentration of acid is objectionable, because the gram-positive organisms have a tendency to lose their stain. Test Stain 9 was selected as the proper one for general use, as this showed practically no effect of acid on the staining quality. Accordingly, a large batch of stain having the formula of the one tested was made up, and is the one which we use regularly in the laboratory in general diagnoses. It has the following formula:

Anilin	28 c.c.
Gentian violet, Grüber	8 gm.
Alcohol, 95 per cent	100 c.c.
N/1 hydrochloric acid	5 c.c.
Distilled water	q. s. ad 1,000 c.c.

The gentian violet is dissolved in the alcohol. The hydrochloric acid is added to the anilin, and the whole is dissolved in enough water to make 900 c.c. The aqueous solution is filtered and added to the alcoholic solution of the stain. The whole is filtered, and is then ready for use.

This stain keeps for about three months under ordinary laboratory conditions.

A NEW APPARATUS FOR DRAINAGE OF THE PLEURAL CAVITY

WILLIAM LERCHE, M.D., ST. PAUL

After recent experience with a case of cancer of the esophagus, in which I performed intrathoracic resection of the organ, I decided in future similar cases to drain the pleural cavity for twenty-four hours after the operation. The removal of the drainage tube, however, would have to be effected without admitting air to the pleural cavity. To this end I have devised a simple apparatus. Although the apparatus was originated for intrathoracic surgery, it is in cases of empyema that I expect it to become of great practical utility, because it is easily applied under local anesthesia, and the negative pressure which is essential to facilitate the expansion of the lung can easily be regulated.

In Figure 1 are shown the details of the apparatus: *a, a,* outer circular chamber in which the air can be rarefied by the suction bulb connected at *f,* thus fixing the apparatus to the skin; *b,* central chamber loosely filled with iodoform gauze around the drainage tube *c; c,* the drainage tube fitted air tight by rubber tubing at *e; d,* the rubber tubing connecting the drainage tube with a Woulfe's bottle, shown in Figure 2.

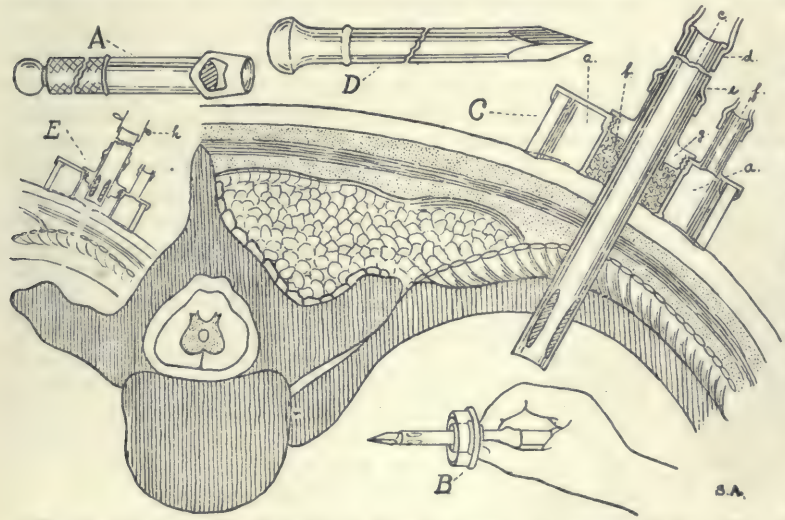


Fig. 1.—Apparatus for drainage of pleural cavity. *A,* circular knife (28 French) for removing a circular piece of skin exactly corresponding to the size of the drainage tube; *B,* apparatus with trocar held ready for introduction; *C,* apparatus in position; *D,* trocar; *E,* position of drainage tube after its removal from the pleural cavity.

In Figure 2, the apparatus, *a,* is held in contact with the skin by rubber tubing, *b, b, b,* encircling the body and over the right shoulder, and is furthermore glued to the skin by the aid of collodion applied to the bottom of the walls of the inner and outer chambers. The rubber tubing and the collodion when dry are sufficient to hold the apparatus on air tight; but until the collodion has dried and when the drainage tube is being removed, suction may be applied by the aid of the rubber bulb, *j,* to prevent the apparatus from being pulled off. The Woulfe's bottle, *e,* is provided with a quick-

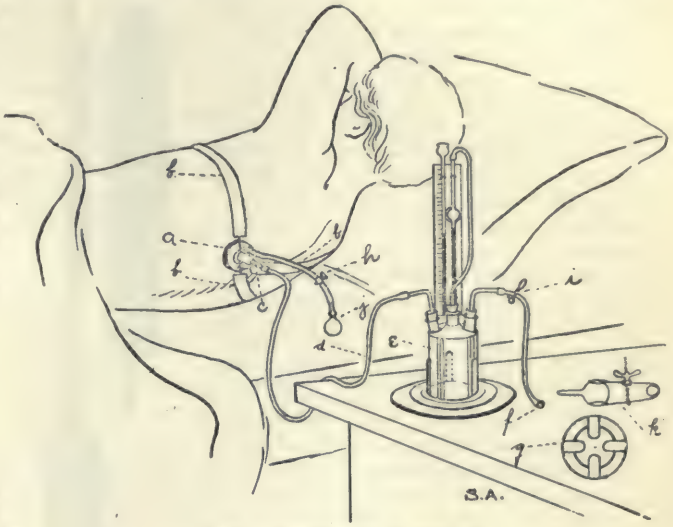


Fig. 2.—Apparatus in position.

silver gage for the observation of the intrathoracic pressure. The outlet from the bottle is at *f,* where a little valve (enlarged at *g*) fitted into the end of the rubber tubing prevents the air from returning to the bottle. Instead of the valve a rubber bulb with a contrivance by which the air pressure can be regulated by a thumb screw, as seen in *k,* may be inserted at *f.* When the intrathoracic pressure is as desired, the outlet of air can be shut off by the clip, *i.* After drainage, the rubber tube connecting the drainage tube, *c,* Figure 1, with the Woulfe's bottle is clamped, and tube *c* is withdrawn from the pleural cavity by a gentle rotary motion until its distal end gets some distance into the central chamber (as shown in *E*), where it is left until the wound in the chest wall has healed sufficiently to prevent air from entering the pleural cavity.

The most comfortable position for the patient, after intrathoracic resection of the esophagus, is to lie on the right side half way on the back. When, therefore, the drainage tube is introduced into the pleural cavity before it is closed, as low down as possible and close to the mediastinum, it will drain at the most dependent point.

In case of empyema, the drainage tube may be introduced between ribs, or a rib may be trephined with an instrument corresponding in size to the drain.

Lowry Building.

Campaign Against Blindness.—The first annual report of the National Committee for the Prevention of Blindness, covering the first ten months of 1915, has just been published. This committee was formed to coordinate the activities of various local organizations. It also carries on field and research work, preparation of literature on the subject and the supply of lecture material for the publicity campaign. Ophthalmia neonatorum and blindness due to alcohol have received most of the attention. More than 90 per cent. of the funds for the work were provided by the Rockefeller Institute and the Russell Sage Foundation. The seventh annual report of the New York State Committee for the Prevention of Blindness is included with that of the national committee.

AN ELECTRIC COLOR FINDER

TO BE USED IN MAPPING OUT THE VISUAL FIELD AND THE BLIND SPOT

F. Phinizy Calhoun, A.B., M.D., Atlanta, Ga.

While I am not an advocate of electrically illuminated test objects in preference to the ordinary methods now used in mapping out the visual field and the blind spot, I believe such devices have their field of usefulness and can often be employed to advantage, for example, in office or dispensary work on dark days or in the evenings, and bedside examinations in poorly illuminated rooms or wards. To meet such requirements I have devised, and used for nearly two years, an illuminated color finder patterned after the very excellent and well-known instrument of Dr. Clifford Walker of Boston.



Electric color finder.

The instrument is about 10 inches long, and the head contains four perfect colors (white, blue, red and green) made in thin paper and protected by layers of glass, arranged on a slide which is controlled by a thumb guide placed out of the way near the handle. The thumb guide brings into view any one of the colored disks, which is illuminated by a miniature frosted lamp placed behind the color slide and supplied by a hand battery (or a rheostat attachment). There is an additional slide which fits on the face of the instrument and contains a 1, 2 or 3 mm. opening. The entire exterior is painted dull black and appears neat.

I am indebted to E. B. Meyrowitz of New York, maker of the instrument, for suggestions in its perfection.

THE INTRAVENOUS USE OF MERCURIC CHLORID

A NOTE ON A NEW METHOD OF ADMINISTRATION, WITH SPECIAL REFERENCE TO PREVENTION OF VEIN OBLITERATION

P. I. Nixon, M.D., San Antonio, Texas

Since salvarsan and neosalvarsan are no longer obtainable, the use of various mercury salts intravenously has become more widespread. This method of treating syphilis is not new, the use of mercuric chlorid having been introduced by Baccelli in 1893. It has been revived from time to time, and each time abandoned because obliteration of the veins has been produced. This is a definite disadvantage and a very possible danger; I myself have seen it eventuate in a local slough and edema of the forearm.

Any method of administration, therefore, which promises to prevent or decrease the frequency of vein obliteration is to be welcomed. The method which I am reporting is so simple that it is quite possible that it has been described before; it certainly is not in general use, and I have not been able to find a description of it in the literature. It is infinitely more simple than the method described by Thompson,[1] and accomplishes the same purpose in a more aseptic and less painful manner. It has the added advantage of using no heterologous serum.

The method is as follows: Mercuric chlorid, from one-tenth to one-third grain, depending on the dose, is dissolved in 10 c.c. of freshly distilled water and drawn into a 20 c.c. syringe. The needle with the syringe attached is introduced into the vein, and 10 c.c. of blood are aspirated into the syringe. The mixture is then injected in the usual manner, without withdrawal of the needle from the vein.

It will be seen that the object of the method is to substitute the insoluble, comparatively nonirritating mercury albuminate for the soluble, irritating mercuric chlorid—a substitution which takes place in vivo when mercuric chlorid is injected directly into the vein. I have found out experimentally that there is more than enough albumin in 10 c.c., or even 5 c.c. of blood to change the mercuric chlorid in the largest desirable dose; and Byrnes[2] has previously worked out the same problem.

I have used this technic in fifty injections without obliterating a single vein. To put the method to a thorough test, I have selected small lateral veins and at approximately the same point given as many as ten injections, at three day intervals, without disturbing the vein.

One cannot hold that this method is established by this small series of injections. In my hands it has been very satisfactory. Its ultimate utility will be proved or disproved only after it has been tried out more extensively by different observers.

205 Hicks Building.

1. Thompson, Loyd: The Intravenous Injection of Mercurialized Serum in Syphilis, The Journal A. M. A., May 1, 1915, p. 1471.

2. Byrnes, C. M.: The Intradural Administration of Mercurialized Serum in the Treatment of Cerebrospinal Syphilis, The Journal A. M. A., Dec. 19, 1914, p. 2182.

Therapeutics

HEMORRHAGIC CONDITIONS

VISCOSITY

By viscosity is usually meant cohesion between the particles in a fluid. It is a physical characteristic of all fluids, and hence of blood. It was thought that through a study of this property of blood some information of value in the diagnosis and treatment of disease might be gained.

In order to obtain a relative value for the viscosity of blood, it is compared to distilled water, which is considered unity. It has been found by means of various viscosimeters that the viscosity of blood in the normal person is between 4.5 and 5.5. This value may be influenced in various ways. It has been found that cold baths increase and warm baths diminish the viscosity.[3] Various diets continued over a period of time will also influence the viscosity of the blood. Meat eaters show an increased viscosity, and vegetarians a lowered viscosity. Heavy muscular work and profuse perspiration will increase viscosity, while the ingestion of large amounts of fluid will tend to diminish it.[4] Whereas chloroform and ether have no effect on viscosity of blood, alcohol, no matter how introduced, whether by mouth or intravenously, will increase it.

Heubner[5] calculated that from two thirds to three fourths of the viscosity of blood was due to the corpuscles. This is proved by the fact that immediately after hemorrhage the viscosity is diminished. In the anemias, even those associated with such chronic conditions as nephritis, cardiac conditions, tuberculosis or carcinoma, there is a diminished viscosity.[6] In primary pernicious anemia it is unusually low, Austrian[6] finding it as low as 1.7. In all of these cases there was, of course, a diminished corpuscle content of the blood.

In cases in which the number of corpuscles is increased, as in polycythemia, the viscosity is high. In one case mentioned by Austrian, the red blood corpuscle count was over 8,000,000 and the viscosity 13.6. In diabetes mellitus, if polycythemia is present, the viscosity will be higher than normal.

3. Burton-Opitz, Russell: The Viscosity of the Blood, The Journal A. M. A., July 29, 1911, p. 353.

4. McCaskey, G. W.: The Viscosity of the Blood, The Journal A. M. A., Nov. 14, 1908, p. 1653.

5. Heubner, quoted by McCaskey (Footnote 2).

6. Austrian: Johns Hopkins Hosp. Bull., January, 1911, p. 9.

In asphyxia or conditions in which there is associated dyspnea or cyanosis, such as decompensated cardiac lesions, pneumonia or emphysema, the viscosity is increased. In jaundice it is also higher, owing probably to cholemia. It is increased in arteriosclerosis, although it bears no relation to the blood pressure. In typhoid fever it is unchanged, whereas in malaria it may be normal or subnormal, depending on the amount of anemia present.

Perhaps the only time when an increased viscosity would be considered an important factor is when an increase may mean added work to an already weakened cardiac musculature. Such would be the decompensated hearts, or in pneumonia, or where there is hypertension. In the latter class of cases iodids are of value. Boveri,[7] in a study of twelve cases, found that there was a marked diminution in the viscosity in eight of these cases following the administration of iodids. It has also been shown that good hygienic treatment with plenty of fresh air will tend to lower the viscosity.

BLOOD PLATELETS

Duke[8] has pointed out the importance of the blood platelet count in studying those pathologic conditions in which such an irritant as a chemical or bacterial toxin has entered the blood stream. Blood platelets have an important function. They have long been thought to be intimately connected with hemorrhagic diseases, and it has been supposed that they form a nidus from which fibrin extends in the formation of a clot. Other factors such as antithrombin, prothrombin and calcium are also more or less disturbed in hemorrhagic diseases. They appear to be closely associated with the blood platelets, or some substance produced by the blood platelets, since the latter disintegrate during normal coagulation of the blood.

Duke[9] believes that purpura hemorrhagica "is due wholly or entirely to an almost complete absence of blood platelets from the blood." He has shown that although the coagulation time may be normal, the bleeding time is prolonged. The bleeding time is determined by blotting up on absorbent paper at half minute intervals the blood from a bleeding point. The rate of decrease in size of the blots gives an index of the rate of decrease in the intensity of the hemorrhage. Duke quotes many others who also found a decrease in the number of blood platelets in purpura hemorrhagica.

Unless stained immediately after obtaining the blood, blood platelets will degenerate rapidly. They stain blue or violet with the usual stains, and are about one fourth to one half the size of a red blood corpuscle. They contain no nucleus and no hemoglobin.

Brockbank,[10] after carefully studying stained blood smears, states that the blood platelets originate from the red blood corpuscles. Wright[11] thinks that they are derived from large giant cells, called megakaryocytes, found in bone marrow. The normal blood platelet count varies between 150,000 and 500,000. It may vary in normal conditions. In the new-born child after the first week the number is nearer the upper border of the normal count, that is, about 400,000. During menstruation it may be below normal.

It is interesting to follow the blood platelet count in some of the pathologic conditions. Duke[9] states that Osler, Riess and others have found a reduced number in pernicious anemia. Others have found the count low in pneumonia, lymphatic leukemia, aplastic anemia and typhoid fever. Dimon[12] states that in splenomyelogenous leukemia there is a high count, from 500,000 to 1,000,000, while in lymphatic leukemia the platelet count may be reduced to between 30,000 and 150,000.

Duke[8] states that there is a general agreement that during febrile periods of acute infectious diseases the count is reduced, whereas during convalescence it is increased. He cites, as an example, diphtheria, in which, during the febrile period, the count in one case was 3,000, and during convalescence as high as 750,000. In chronic tuberculosis the count is usually high, even going above 1,000,000. In occasional cases it may be low. This is also true of chronic nephritis. In other conditions, like pneumonia and typhoid fever, the count is reduced. Duke explains these counts by assuming that in those cases in which the count is high, only a mild irritant is produced which has no strong toxic action on the blood-platelet forming organs. On the other hand, in cases in which the number is reduced, the toxin produced exerts a powerful irritant action. He proved these assumptions by finding the platelets reduced after injections into animals of diphtheria toxin, killed typhoid bacilli, benzol (benzene, C_6H_6) and tuberculin.

(To be continued)

7. Boveri: Presse méd., 1908, lxiii, 546.
8. Duke, W. W.: Variation in the Platelet Count, THE JOURNAL A. M. A., Nov. 6, 1915, p. 1600.
9. Duke, W. W.: The Pathogenesis of Purpura Hemorrhagica with Especial Reference to the Part Played by Blood-Platelets, Arch. Int. Med., November, 1912, p. 445.
10. Brockbank: Lancet, London, June 8, 1912, p. 1526.
11. Wright: Jour. Morphology, July, 1910.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

MEAD'S DRY MALT SOUP STOCK.—A mixture containing desiccated maltose and desiccated dextrin (about equal parts) 47 per cent., wheat flour, 47 per cent., potassium carbonate 1 per cent. and moisture, 5 per cent. U. S. patent No. 1,171,724 (Feb. 15, 1916; expires 1933).

(Accepted for inclusion with the appendix to New and Nonofficial Remedies.)

Prepared by Mead Johnson & Co., Jersey City, N. J.

PHENOLPHTHALEIN - Monsanto. — A non-proprietary brand complying with the standards for phenolphthalein (N. N. R., 1916, p. 245).

Manufactured by the Monsanto Chemical Works, St. Louis.

12. Dimon: New York State Jour. Med., 1913, xiii, 561.

Child Labor Legislation.—The Children's Bureau of the U. S. Department of Labor has compiled and recently published a compendium of child labor legislation in the United States, which contains all legislation in force on Oct. 1, 1915. Two charts show the minimum ages and the hours of labor in the various states. Seven tables contain analyses of the laws relating to minimum ages, requirements for entering employment, hours of labor, compulsory school attendance, employments in theater and public exhibitions. There is also included the text of the different laws.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET . . . CHICAGO, ILL.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, MAY 20, 1916

ACIDOSIS AND THE DIARRHEAS OF INFANCY

Acidosis is being much discussed in relation to the pathologic phenomena associated with it. Only a few years ago the term was usually limited to those abnormal manifestations of the presence of acetone, diacetic acid and betahydroxybutyric acid which are now more appropriately classed under the designation of ketone substances, the immediate causes of ketonuria or acetonuria. Subsequently acidosis was the name also applied to a condition in which the increased elimination of ammonia by the kidneys indicated the abnormal accumulation of acids, not necessarily of the group just referred to, somewhere in the body. The ammonia, acting as a neutralizing base, furnished an index of the occurrence of undue quantities of acid somewhere in the metabolic cycle.

From the broader standpoint of today it is conceivable that acidosis may result when any abnormal acids, such as betahydroxybutyric or lactic acid, are produced in excess in the body. It is possible also that acidosis may result when bases are lost from the body to an exceptional degree. Finally, an added category is suggested by the possibility that some types of acidosis may be associated with the failure of the acid excretory function of the kidney. Under ordinary conditions much acid is eliminated, chiefly in the form of acid phosphate, by renal activity, as the usual preponderatingly acid reaction of the urine testifies. A failure of this special regulatory function of the kidney would result in a retention of acid phosphate with a consequent true acidosis.

An exceptionally interesting instance of an acidosis, which may prove to be of the renal retention type, has been described by Howland and Marriott[1] of the Harriet Lane Home and the Department of Pediatrics of the Johns Hopkins University. It attends attacks of severe diarrhea not of the ileocolitis type in infants. The various signs now recognized as indicative of a disturbance in the acid-base regulation have been detected in suitable cases. Thus alterations in respiration are observed, the usual abdominal type of breathing by the young being succeeded by one which is both costal and abdominal. Again, a lowered tension of carbon dioxid in the alveolar air, likewise a symptom of acid intoxication,[2] is found in the diarrheal cases, sometimes even when a distinct hyperpnea could not be definitely detected. The infants here concerned may further have a greatly increased hydrogen ion concentration in the blood serum; and the acidosis may also be revealed by a diminution of the alkali reserve of the serum, an increase in the amount of alkali required to alter the reaction of the urine (alkali tolerance), and by a diminution of the combining power of the hemoglobin with oxygen.

The time has passed when all types of acidosis are to be interpreted in the same way. Howland and Marriott have furnished reason for believing that in the cases of infantile diarrheas to which they refer the acidosis is not due to the presence of acetone bodies. It has not been demonstrated that it is due to loss of base. Probably it is due to deficient excretion of acid phosphate by the kidneys. At any rate, this at present appears to be the most likely explanation. It is known that in severe diarrhea, the urinary secretion may be markedly diminished even to the point of complete anuria, the kidney becoming functionally more or less inactive, even though no organic changes may be present. That diminished acid excretion and consequent retention of acid phosphate in the body fluids would occur under these conditions would seem probable. In support of the hypothesis is the finding of an increase in the phosphate content of the blood serum in the course of severe diarrhea.

The hypothesis outlined suggests a tentative method of treatment. All measures should, of course, be used to prevent the cessation of renal activity, especially since the secretion of urine is often very scanty and often ceases for hours at a time. The best of all procedures is the constant administration of water or salt solution by mouth if possible; if vomiting prevents this, as it frequently does, water must be given by rectum, subcutaneously or intravenously. But beyond these obviously desirable measures, as well as the accepted methods of controlling the excessive diarrhea itself, the existence of an acidosis, as seen in the hyperpnea or other more accurate signs, should be energetically combated. Alkalies, such as sodium bicarbonate, must be freely administered in any effective way until the reaction of the blood is again normal. Large doses may be required. The results of such treatment, vigorously applied, are reported to be encouraging. As Howland and Marriott point out, the condition resulting from the acidosis or accompanying

1. Howland, John, and Marriott, W. McKim: Acidosis Occurring with Diarrhea, Am. Jour. Dis. Child., May, 1916, p. 309. Preliminary reports on this subject have been made in the Proceedings of the Society for Experimental Biology and Medicine, 1914, xii, 51, and in the Bulletin of Johns Hopkins Hospital, 1916, xxvii, 63.

2. For a discussion of the significance of carbon dioxid tension in the alveolar air, see Peabody: Am. Jour. Med. Sc., 1916, cli, 184. Howland and Marriott: Bull. Johns Hopkins Hosp., 1916, xxvii, 63.

it is most serious even if its exact nature is not understood. Therefore, they add, in all cases of severe diarrhea, even though there are no evidences of acidosis, it is advisable to use sodium bicarbonate until the urine is alkaline. Its administration may prevent the development of acidosis. When further observations have made clear the processes on which the acidosis depends, we may be able to direct our treatment more intelligently. At present we are forced to combat the result and not the cause. It is certainly a helpful step in the direction of progress, however, to have some scientifically justifiable evidence on which to base a therapeutic program for these severe diarrheas, even if further researches shall lead to a modification or reversal of the plan of treatment.

VACCINE TREATMENT

Looking backward over the development of active immunization by vaccines during the last fifteen years, we appear to be at the termination of one epoch in the therapeutics of infectious disease. In this issue, Hektoen[1] traces the stages by which vaccines which were first employed with attempted scientific control have come into indiscriminate and unrestrained use, with no guide beyond the statements which commercial vaccine makers are pleased to furnish with their wares. Already most physicians are realizing that the many claims made for vaccines are not borne out by facts, and that judging from practical results there is something fundamentally wrong with the method as at present so widely practiced. As clearly shown by Hektoen, "the simple fact is that we have no reliable evidence to show that vaccines, as used commonly, have the uniformly prompt and specific curative effects proclaimed by optimistic enthusiasts and especially by certain vaccine makers, who manifestly have not been safe guides to the principles of successful and rational therapeutics."

But out of this wild period from which we are emerging there have come certain benefits which promise to be more or less permanent. The study of prophylactic immunization against typhoid and other similar diseases has been fostered, and the time of attainment of its present efficacy perhaps hastened; the effects of active immunization in accelerating the development of immunity and recovery in certain chronic localized infections of known etiology have been studied; the search for sources of infection from which autogenous vaccines could be obtained has led to a more careful examination of patients, who have thus been indirectly benefited by having the source of their troubles discovered and removed.

It has been difficult for most physicians to distinguish between the relatively limited field of prophylactic immunization in which scientifically controlled experiments and carefully observed and analyzed results have confirmed the claims of the method, and the other field of the use of vaccines in which mixtures of bacteria and their products have been indiscriminately introduced into patients suffering from all manner of disease, infectious and noninfectious, acute and chronic, without study of the patient, or knowledge of the etiology or pathology of the disease. But the latter use of vaccines cannot be condemned merely on the ground of its empiricism. As Theobald Smith has said, "We cannot do without empiricism wholly. We owe valuable suggestions and discoveries to it. These are like clearings in the forest unconnected with other clearings, but destined to become the nucleus of a healthy scientific growth." When, however, it becomes evident that empiricism has run riot, that it has wholly divorced itself from scientific control, and when, in addition, its results, impartially reviewed, are shown to be unbeneficial, we must conclude that such a clearing has been badly located, and that it never can occupy a worthy place on the highway of scientific medical progress.

In regard to the more recently developed methods of intravenous therapy in typhoid fever, Hektoen points out that certain new concepts and theories are introduced which need diligent study and correlation before their application to the problem can be settled. Here again we find ourselves in another pioneer clearing in an unexplored forest. Only the future can determine whether this clearing is to become a useful station, or whether after a brief existence as a point of interest it will prove to be far removed from the thoroughfare of legitimate travel. Certainly the development here should proceed cautiously.

Already a similar procedure has been introduced for the intravenous treatment of other subacute and chronic infectious diseases, such as arthritis, and some observers have asserted that the amelioration of the symptoms in the joints following the treatment is sufficient to establish it as a worthy routine treatment. The fact that in the subjects of arthritis and even in normal persons the intravenous injection of bacterial or other protein is followed by a rather characteristic sequence of phenomena of fever, chill and leukocytosis by no means stamps the method as a justifiable type of empiricism. Indeed, other observers have noted that patients so treated relapse, and that the number of those who do not relapse is apparently no greater than the number of untreated patients who recover spontaneously. Such treatment, ineffective in itself, actually hinders recovery by distracting attention from the search and removal of the cause of the arthritis.

The fact that much time and effort of the past ten years appear now to have been wasted, so far as positive results go, should make us doubly cautious in accepting a new and somewhat similar procedure until opportunity has been afforded for its verification under conditions favorable for scientific control.

1. Hektoen, Ludvig: Vaccine Treatment, THE JOURNAL A. M. A., this issue, p. 1591.

FACTORS CONCERNED IN WATER PURIFICATION

The amount of water needed by large communities for varied purposes is decidedly greater than is suspected by those not familiar with the problems of municipal water supplies. The estimates made in different cities to meet all legitimate requirements place the quantity at not less than 750 quarts a head, daily. A large part of this is, of course, devoted to other than domestic purposes — to manufacturing, sprinkling and fire protection, for example. Such water would not necessarily be expected to have the same degree of purity as that required for household uses and drinking purposes. As usually it is not convenient or practicable to have separate supplies for the specific needs in the present stage of water supply management, the source of supply must generally be considered as a single problem. The surface area that is necessary in order to furnish a supply sufficient for a large city is correspondingly enormous.

As a result of these conditions, not infrequently watersheds which provide the larger supplies cross the borders of individual states. The problems of pollution thus become complicated by the intricacies of interstate relations, which are frequently the subject of legal and political disagreement. An exceptionally prominent instance is afforded in the case of the city of Washington. This is outside the jurisdiction of the surrounding states. It derives its water supply from the Potomac River, which drains an area extending into several states. The city discharges its sewage products ultimately into the same stream, which, in turn, is the source of edible shellfish that can carry infection. A comprehensive examination of the sanitary problems of the Potomac River, therefore, has features of widespread importance. It involves the question of pollution, direct or indirect, of navigable waters of the United States, and implicates certain sanitary features which because of their magnitude or character, are national in scope, and the solution of which devolves on the federal government.

Several years ago a comprehensive study of the subject was undertaken by the U. S. Public Health Service. This study was prompted by the publication of statements to the effect that the sewage from the city of Washington and other communities along the Potomac River polluted the waters of the lower river, producing danger of water-borne diseases, such as typhoid fever, by the eating of raw oysters taken from the oyster beds in the lower river. These beds are extensive, as they may be found from Lower Cedar Point, about 65 miles below the sewer outlets of Washington, to the mouth of the river, which is about 100 miles below the outlets. The District of Columbia was interested both because many of the oysters from the lower river are distributed and consumed in Washington, and because suggestions had been made that an elaborate sewage-disposal plant, to cost several million dollars, be installed for the treatment of Washington sewage. Although many exhaustive studies of pollution of rivers and shellfish beds and many studies of industrial wastes have been made, few if any investigations have included the study of an entire river over a period of a year, and a still smaller number have embraced so many of the problems involved in the pollution of rivers.

The coordinate effort of the federal government to collect and interpret sanitary data of the Potomac River as a whole so that the interplay of the various factors could be comprehensively understood is timely. It is an appropriate extension of earlier important, though far less comprehensive, examinations of more limited questions, such as the influence of the water supply on the prevalence of typhoid fever in the District of Columbia.[1]

The Hygienic Laboratory of the U. S. Public Health Service has now made public the results of the investigation[2] of the pollution of the Potomac River and its tributaries which was begun by the Public Health Service June 2, 1913, and continued until May 31, 1914. The investigation included a sanitary survey of the Potomac River watershed and laboratory studies of the water, mud, plankton and shellfish. The sanitary survey included investigations as to the number of persons on the watershed, the prevalence and distribution of typhoid fever, the water supplies, sewage-disposal systems, and character and amounts of trade wastes.

As a result of the survey, it was found that about 94.7 per cent. of the population were served by public water supplies, and that a smaller proportion, 38 per cent., were served by sewage-disposal systems. While typhoid fever was especially prevalent throughout the upper basin, the installation of water and sewerage systems and the increased activity of state and municipal health authorities have been followed by a decreasing typhoid rate, especially in the urban population, and the disease is now chiefly a rural one.

Among the more detailed findings in the report on the Potomac problem is the evidence that at no point above Washington is the water of the Potomac River safe for use as a public water supply without reasonable treatment. Even during the period of lowest stream flow and highest temperature, the river in the area of heaviest pollution — that is, between Giesboro Point and Fort Foote — has at all times sufficient oxygen available for the sewage now discharged into the

1. Rosenau, M. J.; Lumsden, L. L., and Kastle, J. H.: Report on the Origin and Prevalence of Typhoid Fever in the District of Columbia, Bull. 35, Hyg. Lab., U. S. P. H. S.; Report No. 2 on the Origin and Prevalence of Typhoid Fever in the District of Columbia, Bull. 44, 1907; Report No. 3 on the Origin and Prevalence of Typhoid Fever in the District of Columbia, Bull. 52, 1908. Lumsden, L. L., and Anderson, J. F.: Report No. 4 on the Origin and Prevalence of Typhoid Fever in the District of Columbia, Bull. 78, 1909.

2. Cumming, H. S.: Investigation of the Pollution and Sanitary Conditions of the Potomac Watershed, Bull. 104, Hyg. Lab., U. S. P. H. S., 1916.

river, and enough to take care of the sewage which will probably be added for several years to come.

Oysters in the lower reaches of the Potomac River form the basis of a large and important industry. Large numbers of men gain a livelihood from this source, and the product is shipped, chiefly through Washington and Baltimore, to many parts of the country. In order to protect the ultimate consumers of the oysters, and thereby protect the industry itself, it is essential that the sanitary quality of the shellfish be known, and when necessary improved and protected. The oyster beds extend from the mouth of the river about half way to the city of Washington. In the upper few miles they are used almost solely for the growth of spat, and the oysters developing here are used chiefly for planting the lower beds, and rarely reach marketable size. From data on pollution and purification of the river, detailed in the preceding sections, it is evident that by the time the water reaches the area of the oyster beds it has undergone its maximum purification. Although during the winter months the increased stream flow shortens the time during which purifying agencies may act, any anticipated danger of pollution of shellfish from this cause will be shown to be without foundation. It is gratifying to learn that in an examination of oysters from all the beds in the whole river and its tributaries, extending over an entire season, no dangerously polluted oysters were found in the Potomac River proper. The very few polluted samples found came from localities from which few oysters are shipped.

The government bacteriologists have pointed out that the factors concerned in the purification of streams as it occurs in Nature are many, but are reducible on analysis to two main elements — the dying off of the bacteria of pollution and the oxidation of the organic constituents. All agencies of purification require time for their action, and in flowing streams it is important to appreciate the fact that it is the distance in time between successive points of observation and not the distance in miles which is significant. Moreover, the death rates of bacteria in water and the rapidity of oxidation are influenced by the temperature.

The report of the Hygienic Laboratory concludes that notwithstanding the especially favorable natural conditions attending the present disposal by dilution of the sewage of the District of Columbia, it is inevitable that, in consequence of a continued increase in the population of the District of Columbia, the capacity of the river to dispose of sewage without nuisance or danger will eventually be overtaxed. It is desirable, therefore, that primary treatment works should be installed in the near future sufficient to clarify the sewage up to the limits to which plain sedimentation may advantageously be carried. The cost of construction and operation of these treatment works would not be such as to be prohibitive when considered in connection with the benefits to be derived. They should be so designed as to work in harmony with the favorable conditions locally afforded by Nature for sewage disposal. These works should be sufficient to maintain a reasonable constant as to the amount of organic matter dependent on the river for purification. Their construction is also desirable in recognition of the advancing standards as to hygienic cleanliness of river waters, as well as for the example in such matters which should be afforded by the national capital.

STRAY DOGS, THE PUBLIC HEALTH AND PUBLIC DUTY

The association of rabies with the presence of our canine population was one of the first experiences which brought home the possible necessity of paying some attention to the uncurbed liberty of this loved and hated domestic animal. Rabies appears as an easily preventable disease when one recalls that such a minor restraint on the dog as muzzling was sufficient to eradicate it from England. By rigid enforcement of muzzling ordinances, rabies has also been practically or completely eradicated from the Scandinavian countries.

Although the foregoing feature of danger and the possibility of relief are at length rapidly being appreciated in the United States, it is not equally understood that the dog may also be of major importance as a carrier of parasites dangerous to man and the domestic animals. A zoologist in the Bureau of Animal Industry[1] has compiled the list of important diseases and parasites which are conveyed by the dog to man and the domestic animals, and which are present in this country: rabies in man and stock; hydatid in man and stock; gid in stock (and possibly also in man); muscular cysticercosis, or so-called "measles," in sheep; muscular cysticercosis, or "measles," in reindeer; cysticercosis of the liver and mesenteries in stock; tapeworm in man, especially in children; roundworm in man; tongueworm in man and stock, and fleas and ticks which transfer from dog to man and which may in this way transmit disease and parasites. Furthermore, in the recent outbreak of foot-and-mouth disease, it was determined beyond any reasonable doubt that dogs were responsible in some instances for the spread of the disease, not only from one farm to another, but also from one state to another.

It is unnecessary to elaborate the details of the harmful results here indicated as a possible outcome of the unrestrained wanderings of "man's faithful servant." We must not let either a maudlin sentiment or an unwholesome indifference blind us to the duty of modern communities and the rights of their citizens to live amid a minimum of preventable menaces

1. Hall, M. C.: The Dog as a Carrier of Parasites and Disease, Bull. 260, U. S. Dept. Agric., Nov. 23, 1915.

to health and happiness. The family dog, properly restrained and kept where he will not even become a potential danger to the other members of society, needs no severe indictment at this time. But the case against the unrestricted, vagrant, ownerless stray dog is based, says Dr. Hall,[1] on two counts — that he is a nuisance and that he is dangerous. Speaking with the authority of expert knowledge, Hall adds that the stray dog which recognizes no owner must be eliminated. The irresponsible dog, with no owner to care for him, to look after his health as it concerns the dog and other animals and man, and to restrain him and stand sponsor for his acts and especially the damage he may do, does not fit into a scheme of civilization which is based on law and the responsibility of individuals for themselves and others. Of course, a little serious consideration of the actual hygienic value of a restriction of the dog's unwarranted liberty must suffice to convince any thoughtful person. Usually, however, no reform in established customs can make great headway without a vigorous campaign of education to justify it. Are we not ready for this? Need we hesitate to agree with the government experts that "the time seems to be at hand when the stray dog, the sheep-killing cur, the vagrant carrier of dangerous parasites and of the horrors of rabies should be exterminated? The destruction of such dogs would mean a saving of hundreds of lives and the saving and making of millions of dollars." Let us believe that this is not an age of indifference.

Current Comment

CENSUS BUREAU LIFE TABLES

The Bureau of the Census of the Department of Commerce is about to publish a set of life tables for the United States compiled by Prof. James W. Glover of the University of Michigan. These tables are unique in that they deal with the whole population of the region covered instead of being, as are the actuary tables of insurance companies, restricted to selected lives. Death rates and the expectation of life are shown, at all ages, for the population of the original death registration states, namely, the six New England states, New York, New Jersey, Indiana and Michigan. The basis of computation is the population as shown by the census of 1910 and the mortality for the years 1909, 1910 and 1911. Examination of these tables brings out, once more, the familiar fact of the greater longevity of women. It is shown that, taking all races together, the expectation of life of a female at birth is more than three and one-half years greater than that of a male. This difference persists throughout life, and in the case of native white persons, up to the age of 94. The death rate in the first year of life is more than 20 per cent. higher among native white boys than among girls. Of equal importance and interest are the figures for infantile mortality; 5 per cent. of native white boys and 4 per cent. of girls die in the first month; 12.6 of the former and 10.5 of the latter during the first year. This high rate falls for both sexes to a minimum about the twelfth year, after which it again rises gradually. The relatively lower mortality among rural residents is strikingly brought out by these tables. The expectation for white males at birth in rural localities is 7.7 years greater than in cities. At the age of 39 there is still a margin of five years in favor of the country. Thereafter the difference diminishes, but the country holds the lead until the age of 88, when the urban residents commence to have slightly the advantage. These few figures have been extracted to illustrate the nature of these remarkable tables. The bulletin in which they are published contains sixty-five pages of information of direct interest and utility to the physician, and is offered by the government to the medical profession gratuitously.[1] These tables are intended primarily to be of service as a source of information to the public. They should be particularly useful to public health officials, students of vital statistics, physicians, sociologists, actuaries, statisticians and others interested in the improvement of the public health of the nation. Their uses for legal purposes, valuation of reversions, annuities, retirement funds and old age pensions are obvious.

KIDNEY METABOLISM IN NEPHRITIS

The ultimate source of the work done in the process of secretion by glandular tissues lies in the chemical energy utilized in the cellular functions. It is not an easy task to estimate this change in a quantitative way. The energy at the disposal of the cells is derived from the oxidation of complex organic compounds to products of low chemical potential value, such as carbon dioxid and water. Oxygen is requisite for the continuance of such activities; and the measurement of oxygen consumption by a gland gives some indication of the nature and extent of its cellular reactions. The expenditure of energy required for a particular sort of activity can be determined indirectly by measuring the difference between the oxygen consumption of the resting and the active organ under investigation. Most of our knowledge in this field is due to the work of the English physiologist Barcroft and his co-workers. Their measurements consisted essentially in determining the oxygen content of the arterial blood supplied to this organ, and the oxygen content of that leaving it by the vein, together with the amount of blood passing in a given time. In a study of the gaseous metabolism of the kidney, Barcroft and Brodie[2] found that, taking all the experiments together, the output of carbon dioxid was equivalent to that of the oxygen taken in. The respiratory quotient, CO_2/O_2, is therefore practically unity, as it would be from the oxidation of carbohydrate alone. This result supports the belief that the substance oxidized in the functioning kidney is of a carbohydrate nature and that it is completely oxidized in

1. A copy may be obtained on application in writing to Mr. Samuel L. Rogers, director, Bureau of the Census, Washington, D. C.

2. Barcroft, Joseph, and Brodie, T. G.: The Gaseous Metabolism of the Kidney, Jour. Physiol., 1905, xxxiii, 52.

the processes connected with secretion. It is not unlikely that glucose is here concerned. Recently the known facts regarding the vascular and metabolic conditions in the kidneys have been extended by an investigation of the oxygen consumption in nephritis of the type induced in rabbits by uranium salts.[3] In these cases the histologic examination of the kidneys showed that the spaces round the glomeruli were much enlarged, the glomeruli themselves being shrunk. There was some breakdown of the convoluted tubules, the other parts of the tubules being unimpaired. The blood vessels contained an abnormal quantity of blood, the corpuscles in many cases forming a lining to the vessels. In spite of this fact the blood flow was if anything faster than in the normal rabbits, the oxygen consumption was lower (0.046 c.c. per gram per minute as compared with 0.082 c.c.), and the venous blood emerging from the kidney was markedly redder. The evidence thus obtained in the domain of cellular metabolism corroborates the known facts regarding the lessened work of the nephritic kidney as judged by quite different criteria.

THE TYPHOID RATE IN PITTSBURGH

Owing to a misstatement in the number of deaths originally reported to us by the office of the Department of Public Health, Pittsburgh, the rate for this city for 1915 appeared in our recent summary as much higher than was actually the case. The number of deaths as first reported to us was 159. The actual number, as given to us this week in a letter from Dr. Edwards, director of the Pittsburgh Department of Health, was 59. The rate should consequently be 10.3 instead of 24.7. This correction raises Pittsburgh from ninth to seventh place in Group 1, and marks the lowest point reached in the history of the city. Although this error was not made in THE JOURNAL office, we are glad to give special publicity to the excellent record made by Pittsburgh in 1915. The corrections in other averages, made necessary by the newer return from Pittsburgh, will be made in our next summary.

3. Tribe, E. M., and Barcroft, J.: The Vascular and Metabolic Conditions of the Normal Kidney in Rabbits, Jour. Physiol., Proc. Physiol. Soc., Jan. 22, 1916, p. x. Tribe, E. M.; Hopkins, F. G., and Barcroft, J.: Vascular and Metabolic Conditions in Kidneys of Rabbits Injected with Uranium Acetate, ibid., p. xi. Tribe, E. M.; Harvey, W. H., and Barcroft, J.: Vascular and Metabolic Conditions in Kidneys of Rabbits Injected with Diphtheria Toxin, ibid., p. xii.

Death Rates.—It should not be understood, however, that the death rate from the infectious diseases is a measure of individual, so much as of community, intelligence. In this country the wonderful reduction in the death rate from infectious diseases in the past fifteen years has been confined largely to the great cities. Smaller cities, villages and rural communities have improved but little. The larger cities are establishing effective health departments. Building regulations prevent the construction of unsanitary houses, either public or private. Schoolchildren are inspected by competent medical men and first cases are detected and isolated. Proper hospitals for the infectious diseases are provided and scientifically administered. The children of the poorest and most ignorant go to sanitary school buildings and when infected, are scientifically treated. The health officer of the smaller city is a joke and that of villages and rural communities exists, for the most part, only in name.—Vaughan.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Eradication of Malaria.—Two communities in the state, one urban and one rural, namely, Crossett, Ashley County and a district in Chicot County, including the Red Leaf plantation, have been selected as sites for the model demonstration areas for the control and eradication of malaria, under plans outlined by Surg. Rudolph H. von Ezdorf, U. S. P. H. S. The work will be along the lines of drainage, screening and the eradication of mosquitoes. The supervision will be maintained for two years and it is expected to demonstrate that malaria can be eradicated by making each of the test communities 100 per cent. proof against malaria.

State Society Meeting.—The fortieth annual meeting of the Arkansas Medical Society was held in Texarkana, May 2 to 4, and the following officers were elected: president, Dr. Merrieman L. Norwood, Lockesburg; vice presidents, Drs. James M. Lemons, Pine Bluff; W. A. Purifoy, Chidester, and William R. Brooksher, Fort Smith; secretary, Dr. Clinton P. Meriwether, Little Rock (reelected); treasurer and editor of the *Journal of the Arkansas Medical Society*, Dr. William R. Bathurst, Little Rock (reelected); councilors, second district, Dr. Joseph C. Cleveland, Bald Knob; fourth district, Dr. William Breathwit, Pine Bluff; sixth district, Dr. John H. Weaver, Hope; eighth district, Dr. Earle H. Hunt, Clarksville, and tenth district, Dr. Joseph T. Clegg, Siloam Springs (reelected); delegate to the American Medical Association, Dr. Clinton P. Meriwether, and alternate, Dr. Robert Caldwell, both of Little Rock. Little Rock was selected as the place of meeting for 1917.

Free Clinic at Hot Springs.—Through the efforts of Dr. Loyd Thompson of Hot Springs and Dr. William P. Parks, superintendent of the United States Hot Springs Reservation, a free clinic has been established at the government free bath house. The purposes of this clinic are to furnish free medical aid to the indigent patrons of the government free bath house, to study the clinical efficacy of the waters of the Hot Springs and to exclude from the bath house cases which might menace the safety of its patrons. The following clinics will be maintained for the present: medical, dermatologic and syphilis, genito-urinary and neurologic. The medical clinic will be under the direction of Drs. William H. Deaderick and John M. Proctor; the dermatologic and syphilis clinic under the direction of Dr. Loyd Thompson; the genito-urinary clinic under the direction of Drs. Edward H. Martin and Ernest A. Purdum, and the neurologic clinic under the direction of Dr. James L. Greene. Assistants to the various clinics will be chosen from among the physicians of the city. Dr. William H. Deaderick was elected chief of the clinic and Dr. Loyd Thompson, secretary.

DISTRICT OF COLUMBIA

Washington's Baby Week.—Baby Week was scheduled to close on May 13, but to meet a popular demand the exhibit was kept open on Sunday, May 14, and ministers, physicians and others delivered addresses there on that day. A novel feature of Baby Week as celebrated in Washington was a portable exhibit, in charge of a trained nurse, used for demonstrations in various parts of the city. This served not only to instruct those who saw it but also to interest them and their friends and acquaintances in the Baby Week exercises generally.

ILLINOIS

State Laboratory Branch Opened.—A new branch laboratory of the state board of health was opened, May 15, at Champaign under the charge of Dr. F. S. Sperry. The new laboratory is to be known as the East State Laboratory.

Personal.—The Crane Company of Chicago is making extensive improvements at its sanatorium, Buffalo Rock. Dr. Andrew M. Harvey, Chicago, is in active charge and has taken up a plan with the company for the housing of women and children and families. Heretofore, provision has been made only for men.——Dr. John T. Montgomery, Charleston, formerly a trustee of the State University, is reported to be critically ill as the result of a fall.

Chicago

Tuberculosis Sanatorium Changes.—Dr. Martin I. Marshak has resigned from the staff to become superintendent of the Jewish Consumptive Relief Society Sanatorium, Edgewater, Colo.; Dr. Francis F. Callahan has accepted a position on the staff of the Sea View Hospital, New York; Dr. Arthur G. Compton is now a member of the staff of the Washington (D. C.) Consumptive Hospital, and Dr. Robert G. Allison has notified the directors that he will leave in a few days to become superintendent of the Pokegema Sanatorium near St. Paul.——Dr. John W. Coon will, it is understood, build and manage a private tuberculosis sanatorium in the lake region of Waukesha County, Wis.

INDIANA

Health Conference.—The twenty-second annual conference of health officers of Indiana was held in Indianapolis, May 2 and 3, with an attendance of about 300.

County Tuberculosis Hospital.—Bids were opened, May 2, for the construction of a tuberculosis hospital for Marion County, near Oaklandon. The contracts apply to the erection of an administration building with two lateral wings, one for male and one for female patients, the two wings to accommodate eighty patients. The bids for the general construction varied from $55,183 to $66,469.

Personal.—Dr. Charles P. Emerson, dean of the Medical Department of Indiana University, delivered an address before the Saturday Lunch Club of the Indianapolis Chamber of Commerce, March 6, on "The Physician's Duty to the Community."——Dr. Walter H. Baker, South Bend, who has been ill with septicemia due to an infected wound of the hand, is reported to be improving.——Dr. Bernard J. Larkin has been retained by the Indianapolis Board of Health to investigate conditions in factories and too closely populated districts for sources of trachoma.

IOWA

Hospital News.—The Serving Sisters of the Holy Ghost of Techny, Ill., have begun the erection of a new hospital at New Hampton. The building will be fireproof and modern, and will represent an outlay of about $75,000.——The new Marengo Hospital opened to receive patients, May 1, under the charge of Drs. Erie N. Brown and Ira N. Crow, Marengo, and Charles A. Manahan, Brownsdale, Minn.——The State Board of Education has authorized that work be begun as soon as possible on a hospital building to be erected at the Iowa State College, Ames. The structure was authorized by the last general assembly, and will cost about $35,000.

Personal.—Dr. Charles W. Ellyson, Alta, has disposed of his practice to Dr. David A. Herron of Comfrey, Minn., and, after taking a postgraduate course, will locate in Waterloo. ——Dr. William A. Stoecks, Davenport, has been appointed city physician.——Dr. Harris A. Newell, assistant surgeon of the Iowa Soldiers' Home Hospital, Marshalltown, has resigned, becoming effective May 1.——Dr. Alfred O. Williams, Ottumwa, was given a dinner by the Wapello County Medical Society in appreciation of his forty years of service as a physician in Ottumwa. Dr. Williams was presented with a silver loving cup.——Dr. Mary K. Heard has resigned her position in the eye, ear, nose and throat department of the university, to devote her entire time to practice in Iowa City.——Dr. Clifford L. Bartlett, instructor in pathology and bacteriology in the University of Iowa, Iowa City, has resigned and accepted a position as bacteriologist in a hospital in Clinton.

State Society Meeting.—The sixty-fifth annual meeting of the Iowa State Medical Society was held in Davenport, May 10 to 12, under the presidency of Dr. William B. Small, Waterloo. On Wednesday evening an address on "Cardiac Pain" was delivered by Dr. Alexander Lambert, New York. The oration on surgery was delivered by Dr. Henry H. Clark, McGregor, and that on medicine by Dr. Edward T. Edgerly, Ottumwa. Dr. J. Rilus Eastman, Indianapolis, delivered the address on surgery, his subject being "The Alimentary Drainage Scheme in Man." The following officers were elected: president, Dr. John F. Herrick, Ottumwa; president-elect, Dr. John N. Warren, Sioux City; vice presidents, Drs. Charles B. Taylor, What Cheer, and Clyde A. Boice, Washington; secretary (to fill the vacancy caused by the resignation of Dr. James W. Osborn, Des Moines), Dr. Tom B. Throckmorton, Des Moines; councilors, third district, Dr. William A. Rohlf, Waverly; seventh district (to fill vacancy caused by death of Dr. Corwin S. Cornell, Knoxville), Dr. Channing G. Smith, Granger; and tenth district, Dr. Watson W. Beam, Rolfe; trustees, Drs. James W. Cokenower, Des Moines, and Dr. Thomas E. Powers, Clarinda (to fill vacancy caused by the election of Dr. Warren to the presidency); delegates to the American Medical Association, Drs. Lawrence W. Littig, Davenport, and M. Nelson Voldeng, Woodward, and alternates, Drs. Daniel H. Bowen, Waukon, and J. Lynn Crawford, Cedar Rapids.

KANSAS

Typhoid at State Hospital.—An epidemic of typhoid fever was reported, April 21, from the Osawatomie State Hospital, where twenty-five cases are said to exist. The state board of health is investigating the cause of the disease.

Health Officers Hold Meeting.—The Kansas State Association of Public Health Officers held a meeting in Kansas City, Mo., April 26, and elected the following officers: president, Dr. Forrest A. Kelley, Winfield; vice president, Dr. Burton K. Kilbourne, Minneapolis, and secretary-treasurer, Dr. J. Carroll Montgomery, Manhattan. A committee was appointed to endeavor to secure needed public health legislation in the state.

Personal.—Dr. Lloyd G. Campbell, senior assistant surgeon at the Soldiers' Home, National Military Home, Leavenworth, has resigned, to take effect May 24, and will practice in Detroit.——Dr. Henry M. Stewart, Hutchinson, who has been for a year at Pass Christian, Miss., has returned to Hutchinson and resumed practice.——Dr. Walter C. Palmer, Hiawatha, has gone to Europe, where he will serve in a war hospital in France.

Semicentennial of State Society.—At the fiftieth annual meeting of the Kansas Medical Society, held in Topeka, May 3 to 5, the following officers were elected: president, Dr. James W. May, Kansas City; vice presidents, Drs. Mervin T. Sudler, Lawrence; Alfred O'Donnell, Ellsworth, and Thomas A. Jones, Liberal; secretary, Dr. Charles S. Huffman, Columbus (reelected); treasurer, Dr. Lewis H. Munn, Topeka (reelected); councilors, first district, Dr. Charles W. Reynolds, Holton (reelected); second district, Dr. Clarence C. Goddard, Leavenworth (reelected); third district, Dr. Hugh B. Caffey, Pittsburg (reelected); fourth district, Dr. O. Portis Davis, Topeka (reelected); fifth district, Dr. William E. Currie, Sterling (reelected); sixth district, Dr. Erastus S. Edgerton, Wichita, succeeding Dr. Archibald D. Jones of the same city; seventh district, Dr. Kirk P. Mason, Cawker City (reelected); eighth district, Dr. Howard N. Moses, Salina (reelected); ninth district, Dr. Chauncey S. Kenney, Norton (reelected); tenth district, Dr. David R. Stoner, Quinter (reelected), and eleventh district, Dr. John A. Dillon, Larned (reelected); delegates to the American Medical Association, Drs. Oliver D. Walker, Salina, and William F. Sawhill, Concordia. The society adopted a resolution advocating the asexualization of all sexual perverts and degenerates of criminal tendencies. Dr. Fred H. Albee, New York, delivered an address on "Bone Grafting." Dr. Bransford Lewis, St. Louis, gave a lantern slide review of cystoscopic methods in the diagnosis and treatment of ureteral stone and stricture, and Dr. George W. Crile, Cleveland, spoke on "The Method and Results of Surgery of the Stomach and Intestines."

MARYLAND

Dr. Winslow Honored.—A testimonial bespeaking his activity and efficiency in medicine and as a teacher of medicine was presented to Dr. Randolph Winslow, May 8, when he celebrated his twenty-fifth anniversary as a member of the faculty of the University of Maryland, at a complimentary dinner at the Belvedere Hotel, Baltimore.

Higher Preliminary Requirement.—A report from the secretary of the Maryland Board of Medical Examiners states that beginning with January, 1918, two years of college work will be required as the standard of preliminary education for all students matriculating in medical colleges recognized by that board. This will apply to all graduates after Jan. 1, 1922.

Japanese in Baltimore.—Dr. Yasuo Ikeda and Dr. Ginsuburo Totani, Japanese physicians, the former connected with the Imperial University at Tokyo and the latter with the Imperial University at Kioto, have arrived in Baltimore to inspect the Johns Hopkins Hospital. They are on their way back to Japan after having done research work at Cambridge University, England.

Personal.—Dr. Frederick Williams has been appointed one of the health wardens of Baltimore, to succeed Dr. John F. Byrne, who resigned to take up duties in the surgical and medical department of the Baltimore and Ohio Railroad.——

Dr. Robert J. Henry, Glyndon, has been appointed a justice of the peace of the Fourth District of Baltimore County.——Dr. William F. Clayton, Overlea, has been appointed health officer of the fourteenth district.——Dr. James M. H. Rowland has succeeded Dr. William F. Lockwood as dean of the medical faculty of the University Hospital, Baltimore.

Hygiene and Bath Convention.—The fifth annual convention of the American Association for Promoting Hygiene and Public Baths was held, May 9, in Baltimore. Among those who read papers were Dr. Eleanor Keller of the Vanderbilt Clinic, New York, who spoke on the effect of baths on backward children; Dr. James A. Nydegger of the U. S. P. H. S., Dr. Donald B. Armstrong, director of the Department of Social Welfare, New York, who spoke on the "Social Aspects of School Hygiene"; Dr. John D. Blake, health commissioner of Baltimore, and Dr. William Burdick, physical director of the Public Athletic League. Dr. Simon Baruch, president of the association, delivered his annual address and spoke on the duties of the association in regard to the furthering of hygiene and cleanliness.

MASSACHUSETTS

Medical Reserve Corps for Massachusetts.—An order has recently been issued by the adjutant general's office establishing a Medical Reserve Corps and specifying the conditions necessary for entrance into the Medical Corps.

Milk and Baby Hygiene Association Appointments.—The board of trustees of the Boston Milk and Baby Hygiene Association has appointed Dr. Charles W. Eliot and Dr. George H. Ellis members of the advisory committee, and has also appointed the following conference physicians: Drs. Richard S. Eustis, William John Hammond, H. Howard Flagg, Harry L. Rothblatt, Williston W. Barker, Harold A. Gale, William W. Howell, Mitchell Sisson, C. R. Draper, Orville R. Chadwell, James K. Wardwell and Hyman Morrison.

Personal.—Dr. Hugh Cabot, professor of surgery in Harvard Medical School, will be the head of the third medical unit of thirteen surgeons which sails for England from New York on the *Andania*, May 20. This unit will continue the work of the second unit, which went to Europe last November. ——Dr. Alphonse H. Pettit, Lawrence, has moved to Ware. ——B. D. Roberts, a student at Harvard and specialist in the line of public health, has been appointed health officer of Oskaloosa, Iowa, succeeding Dr. A. L. Washburn, resigned. ——Dr. William J. Gallivan, Boston, has been appointed a member of the Public Health Council.

Milk Plant Inspected.—On invitation of the proprietors of Hood's West Lynn Milk Plant, a number of physicians inspected the plant, May 3, and after a buffet dinner, Dr. John J. Dowling, superintendent of the Boston City Hospital, spoke on "Safeguarding the Hospital Milk Supply"; Dr. William H. Watters, professor of pathology in Boston University, read a paper on "The Bacteriology of Milk"; Dr. William C. Hanson discussed "Pasteurized Milk as a Food for Infants and Children," and then, after remarks by Dr. Charles H. Hood, a discussion of milk methods was opened by Drs. Nathaniel P. Breed, Lynn, and J. Forrest Burnham, Lawrence.

MICHIGAN

Laboratory Stays at Houghton.—The state board of health, at a recent meeting, by a tie vote refused to reconsider the moving of the State Laboratory for the Upper Peninsula from Houghton.

State Tuberculosis Survey.—A special meeting of the Michigan-Oceano Medical Society was held, April 21, at Muskegon at which the topic for discussion was "The State Tuberculosis Survey."

Sanatorium Notes.—A new tuberculosis hospital unit, to cost $125,000, is to be erected by the city of Detroit. The item has been approved by the Council Committee and Health Committee of the Board of Estimates.——Kalamazoo Free Tuberculosis Dispensary has been discontinued, but the work will be carried on temporarily at the offices of the society in the public library building.

Personal.—Dr. Henry B. Baker, Holland, for many years secretary of the state board of health, delivered an address before the Civics Study Club, Detroit, May 4, on "Early Health Work in Michigan."——Dr. Angus McLean has been elected vice president of the Detroit Board of Health.——Dr. William A. Wilson, Detroit, has resigned as medical superintendent of the Florence Crittenton Home, after nineteen years of service with that institution.

Mental Clinic.—A clinic for the examination and investigation of mental diseases was held in the Court House of Grand Rapids, May 8, by Dr. Herman Ostrander, superintendent of the Kalamazoo State Hospital, and members of his staff.——The fourth of the series of outclinics conducted by members of the medical staff of the Kalamazoo State Hospital was held in the Juvenile Court room of the Kalamazoo County building, April 12.

MINNESOTA

Personal.—Dr. Alonzo T. Conley, Cannon Falls, is reported to be critically ill as the result of a cerebral hemorrhage.——Dr. Herbert L. Hulburd, Morris, is reported to be seriously ill at his home with septicemia due to an infected wound of the finger.

Health Survey.—Surg. George B. Young, U. S. P. H. S., has begun the sanitary survey of Minneapolis, which will be continued throughout May. The work will have to do chiefly with the control of contagious diseases and the safeguarding of the milk supply of the city.

Sanatorium Items.—Application has been made by the Ottertail County Sanatorium Board to the State Advisory Commission for authority to increase its charge of fees from $10 to $15 a week.——The State Board of Control has asked for an additional building, to cost $75,000, at the State Hospital, Fergus Falls, for male tuberculosis patients.——The county boards of Marshall, Pennington and Roseau counties have passed resolutions providing for the erection of a tri-county tuberculosis sanatorium at Thief River Falls, toward the building fund of which Marshall County will contribute $10,000 and the other counties $5,000 each. Drs. Wilhelm S. Anderson, Warren, and Oscar F. Mellby, Thief River Falls, are the medical members of the sanatorium commission.

MISSOURI

Hospital Notes.—Petitions have been presented to the court of Greene County bearing the names of voters who are in favor of calling a special bond election for the erection of a tuberculosis hospital in Springfield.

Site for Tuberculosis Hospital Selected.—The site offered by J. A. Dougherty, Carterville, for a tuberculosis hospital at Jasper County, has been accepted by the County Tuberculosis Hospital Commission. The site is 6 miles from Joplin and a mile north of Webb City. The hospital is expected to cost about $80,000.

Hospital Dedicated.—The Christian Church Hospital, located at Twenty-Seventh Street and the Paseo, Kansas City, was formally dedicated, April 9. The building, equipment and furnishings have cost about $330,000, and there is already an endowment of $150,000. Dr. Jabez N. Jackson delivered an address on behalf of the staff.

Personal.—Dr. Earl H. Welcome has been appointed city physician of Joplin.——Dr. J. Frank Harrison has been elected mayor of Mexico.——Dr. Edgar A. Dulin has been reelected mayor of Nevada.——Dr. John W. Perkins, Kansas City, is reported to be ill at the University Hospital.——Dr. Lake Brewer has been appointed city physician of Ridgeway. ——Dr. Charles E. McBride, city physician at Webb City for eight years, has resigned.——Dr. Thomas C. Unthank has been appointed assistant superintendent in charge of the negro hospital, Kansas City, succeeding Dr. William J. Thompkins.

State Association Meeting.—The fifty-ninth annual meeting of the Missouri State Medical Association was held at Excelsior Springs, May 8 to 10. The second "Health Sunday" conducted by the association was observed May 7, when the pastors of the churches at Excelsior Springs opened their pulpits for members of the medical association to deliver lectures on health topics. The following program was carried out:

Presbyterian Church; 11:00 a. m.; speaker, George H. Hoxie, M.D., Kansas City; subject, Keeping the Body Under.

Presbyterian Church; 8:00 p. m.; speaker, Mazyck P. Ravenel, M.D., Columbia; subject, Prevention Better Than Cure.

First Baptist Church; 11:00 a. m.; speaker, William F. Kuhn, M.D., Kansas City; subject, The Relation of Heredity to Health.

First Baptist Church; 8:00 p. m.; speaker, Jabez N. Jackson, M.D., Kansas City; subject, The Preservation of Health.

Christian Church; 8:00 p. m.; speaker, Charles R. Woodson, M.D., St. Joseph; subject, Protection of the Nervous System of the Young.

Methodist Church; 11:00 a. m.; speaker, Jacob J. Singer, M.D., St. Louis; subject, The Tuberculosis Problem.

Methodist Church; 8:00 p. m.; speaker, Nimrod P. Wood, M.D., Independence; subject, Better Living.

Christian Union Church; 8:00 p. m.; speaker, Thomas F. Lockwood, M.D., Butler; subject, Maternal Impressions and Other Health Items the Public Should Know.

A memorial meeting for members who had died since the last annual meeting of the association was held on the evening of May 8. Among the deceased members were two ex-presidents, Drs. Frank J. Lutz and Walter B. Dorsett, both of St. Louis. The following officers were elected: president, Dr. J. Franklin Welch, Salisbury; first vice president, Drs. Thomas B. M. Craig, Nevada; Reuben Barney, Chillicothe; Roger W. Gay, Ironton; Thomas Chowning, Hannibal; Thomas N. Bogart, Excelsior Springs; councilors, first district, Dr. Eugene L. Crowson, Pickering; tenth district, Dr. Edward S. Smith, Macon; fourteenth district, Dr. Caius T. Ryland, Lexington; sixteenth district, Dr. Edward N. Chastain, Butler; nineteenth district, Dr. Stephen V. Bedford, Jefferson City; twentieth district, Dr. Albert H. Hamel, St. Louis, and delegates to the American Medical Association, Drs. Wilson J. Ferguson, Sedalia; Henry L. Reid, Charleston; William J. Frick, Kansas City. An appropriation of $1,500 was voted for the use of the defense committee and an additional $1,500 was placed in the sinking fund, which now amounts to $2,500. The attendance was 499. The next meeting will be held in Springfield.

St. Louis

Dyer in St. Louis.—At the meeting of the St. Louis Medical Society, April 15, the guest of honor was Dr. Isadore Dyer, New Orleans, who described "Some Interesting Dermatologic Cases" with lantern slide illustrations.

Personal.—Dr. Malvern B. Clopton has returned after service with the American Ambulance, Paris.——Dr. Frederick C. Brooks, for five years medical director of the Employes Mutual Aid Association of the Stix, Baer and Fuller Dry Goods Company, was given a dinner, April 25, by fifty-five members of the association on the occasion of his retirement.

Military Medicine.—A series of lectures on military medicine under the auspices of the St. Louis Medical Society was inaugurated, May 11, when Lieut.-Col. Thomas U. Raymond, M. C., U. S. Army, spoke on "The Military General Hospital"; Lieut. William A. Hardaway, M. R. C., U. S. Army, presided. May 18, Maj. James M. Kennedy, M. C., U. S. Army, spoke on "Medical Service in Campaigns, Including Field Hospitals and Sanitation"; May 25, Capt. Frank N. Chilton, M. C., U. S. Army, will speak on "Medical Service in the Tropics"; on June 1, Lieut.-Col. Thomas U. Raymond, M. C., U. S. Army, will discuss "The Medical Supply of an Army"; June 8, Capt. Will L. Pyles, M. C., U. S. Army, will consider "The Food and Water Supply of an Army and the Disposition of Waste at Camp"; June 15, Capt. Charles E. Freeman, M. C., U. S. Army, will review from a military standpoint "Preventable Diseases, Including Venereal Diseases, Alcoholism and Other Drug Habits," and on June 22, Maj. James M. Kennedy, M. C., U. S. Army, will deliver the final lecture of the series on "The Recruitment of an Army and the Relation of the Medical Department to it, Including Moral, Mental and Physical Training of a Soldier, and the Relation of Clothing and Equipment to the Efficiency of a Soldier."

NEBRASKA

State Association to Meet.—The annual meeting of the Nebraska State Medical Association will be held at Omaha, May 23 to 25, under the presidency of Dr. Edward W. Rowe, Lincoln, with headquarters at the Hotel Fontenelle.

Hospital News.—Bids have been asked by the board of control for the construction of a new three-story building at the Norfolk State Hospital, to accommodate 100 patients. The plans include a large enclosed porch on each floor.—— The new hospital recently built at Wayne by Dr. Anson S. Lutgen was opened for inspection, April 7 and 8.

Personal.—Dr. Robert Retzer, dean of the Creighton University Medical College, Omaha, has resigned.——Dr. George E. Charlton, Ingleside, for many years second assistant physician at the Ingleside State Hospital, has been appointed superintendent of the Norfolk State Hospital, succeeding Dr. William D. Guttery.

NEW YORK

Sanitary Officers to Meet.—Saratoga Springs has been selected as the place for the 1916 convention of the New York State Sanitary Officers Association, which will meet in June under the presidency of Dr. Montgomery E. Leary, Rochester.

New York City

Honor to Pilcher.—The celebration of the semicentennial of the entrance into the professional field of Dr. Lewis Stephen Pilcher, Brooklyn, continued from May 11 to 13. On these days surgical clinics were given in all the principal hospitals of the burough. May 12, a banquet and reception was tendered Dr. Pilcher by his associates and friends in the medical profession, in club life and in Grand Army circles.

Red Cross Hospitals.—The New York County branch of the American Red Cross, which has been working for some time for funds to establish three military base hospitals in this city, announces that gifts amounting to $50,000 have been received and that orders have been placed for the equipment of two base hospitals, of 500 beds each. Efforts are now being made to obtain funds for the equipment of the third hospital. Three full staffs of surgeons, nurses and orderlies have been organized for these hospitals under the direction of Dr. George E. Brewer, Dr. George D. Stewart and Dr. Charles L. Gibson.

How to Feed the Family.—This is the title of a little booklet published under the auspices of the Public Health Education Bureau of the Department of Health. It presents a list of foods and the recipes for their preparation which will provide sufficient food for a family of five at a cost of $7.31 per week. Careful attention has been given to the proper balance of the different food elements and the list has been tested practically for about two years by the Social Service Department of the Beth Israel Hospital. The health department is desirous of spreading this knowledge since they find that many instances of malnutrition encountered in the clinics are due to ignorance as to what constitutes a proper diet.

Dr. Jacobi's Birthday.—Dr. Abraham Jacobi celebrated his eighty-sixth birthday anniversary, May 6. A dinner was given in his honor at the Ritz-Carlton by the board of directors of the Hospital for Deformities and Joint Diseases in which Dr. Jacobi has taken great interest from its start in 1907. Contributions of $112,000 were received toward the $1,000,000 fund for the institution. Dr. Jacobi was presented with a gold-handled cane on behalf of the board of directors by Paul M. Herzog. May 6, Dr. Jacobi was the guest of honor at a testimonial dinner given by the New York Yacht Club at which were present more than twenty physicians who have acted as his assistant in the hospital and college in which he has worked.

Baby Week.—The week of May 6 to 12 was Baby Week in this city and in this connection infant mortality studies have been made by Registrar Guilfoy of the department of health which reveal the very remarkable fact that the death rate from congenital defects is greater among babies of the rich than among babies of the poor. The infant mortality rate for the whole city, based on 141,256 births reported during the year, was 98 per 1,000. In several of the better districts of the city only 25 to 50 per 100 die in the first year of life, while in a district inhabited largely by negroes and Italians, 314 babies out of every 1,000 died during the first year of life. The death rate from infectious and diarrheal diseases in nearly all the so-called well-to-do districts is far below the average for the city. In all districts where the colored population represented at least 10 per cent. of the entire population the rates varied from 124 to 314 per 1,000. The reason for the preponderance of deaths from congenital causes among the well-to-do is to be further studied. Dr. Bolduan has suggested that the later age at which people of this class marry may prove to be the deciding factor.

OKLAHOMA

Inspection of Schoolchildren.—The state board of health has recently examined 4,000 schoolchildren in Kiowa, Roger Mills and Washita counties and has found that 15 per cent. have defective sight; 12 per cent. defective hearing; 25 per cent. nasal trouble, and 35 per cent. defective teeth.

Personal.—Dr. Walter Penquite, Chickasha, is spending the spring in San Angelo, Texas, on account of his health.—— Dr. Edwin W. Van Brunt, Watonga, has been appointed health officer of Blaine County.——Dr. Charles W. Bacon, Yale, fractured both bones of the right forearm while cranking his automobile recently.——Dr. McDonald Looney, Burneyville, who was recently injured by the falling of a horse which he was riding, is convalescent.

PENNSYLVANIA

Insane Patients to Pay.—Reversing the Delaware County Court in three lunatic support cases, Justice Potter of the Supreme Court filed opinions clearing the way for the state

to obtain reimbursement of thousands of dollars for the support and maintenance in the state hospitals of mentally afflicted persons who were admitted as "indigent" but who had estates at the time or who received inheritances subsequently.

Personal.—Dr. Milton C. Dunnick, Shrewsbury, is convalescent after an operation for appendicitis which he underwent recently at the West Side Sanitarium, York.——Dr. George W. Harrington, Hazleton, was seriously injured by a fall down stairs, May 2.——Dr. D. E. Sable, chief of police and fire surgeon of Pittsburgh, was seized with appendicitis, May 4, and removed to the South Side Hospital where operation was performed.——Dr. Malcolm C. Grow, Media, arrived in New York, May 11, after four months' service as surgeon with the Russian army. Dr. Grow has been decorated with the Cross of St. George for bravery and intends to spend seven weeks in this country, and to purchase medical supplies before returning.——Dr. Louis J. Burns, Philadelphia, has been appointed laryngologist to St. Mary's Hospital.——Dr. James M. Torrance of the Hospital for Contagious Diseases has been appointed second assistant physician of that institution.——Dr. Krusen of the Department of Health and Charities has announced three appointments: Dr. Robert G. Torrey to succeed Dr. William Pepper as visiting physician to the Philadelphia General Hospital; Dr. E. J. G. Beardsley, as visiting physician to the Tuberculosis Department of the Philadelphia General Hospital, and Dr. Theodore T. Melnick to be intern at the Philadelphia Hospital for Contagious Diseases.

Philadelphia

Hospital Items.—A $75,000 Lincoln Memorial Building is planned for the Mercy Hospital.——The Friends' Hospital, Frankford, is turning over 900 acres of woodland at Fox Chase to the State Forestry Department as a Forest Reserve. The hospital managers will plant 16,000 trees this year, the state furnishing the saplings.

Health Education Experiment.—Health Director Krusen has announced that an experimental health district is to be established in South Philadelphia so that the plan of health education may be given a thorough trial under municipal direction. The district will be under the supervision of Dr. Krusen and his assistants, and the work to be done will be the intensive education of the people in matters of health and hygiene.

Today and Tomorrow Exhibit.—The West Philadelphia Hospital for Women, the only one west of the Schuykill River which is operated exclusively for women, will have an exhibit at the Philadelphia Today and Tomorrow Exhibition held in the Commercial Museum Building, May 15 to June 10, showing the maternity work done in 1889, when the hospital started, and what is being done today by its staff of women physicians. The hospital has just broken ground for a new $75,000 Maternity Building in connection with its present equipment.

Conference of Teachers of Blind.—A two-days conference of teachers of the blind was held, May 11 and 12, under the auspices of the Pennsylvania Institution for the Instruction of the Blind. Members from Delaware, New Jersey and Maryland were present. The majority of the teachers themselves were sightless. The conference proceedings were in charge of Mr. Maloney, of the Pittsburgh Institute for the Blind, and Dr. L. Webster Fox, of Philadelphia, president of the society. The problem of what to do with children of the "Twilight Zone" was discussed, as education of blind children in public schools is not compulsory and the many children who can see a little have no means of getting an education, for the Pennsylvania schools for the blind do not take children who have more than one tenth of the normal vision owing to the lack of room.

SOUTH DAKOTA

State Medical Society Meeting.—The annual meeting of the South Dakota State Medical Association will be held in Aberdeen, May 23 to 25, under the presidency of Dr. James B. Vaughn, Castlewood, with headquarters at the Elk's Club.

Honor State Hospital Superintendent.—In honor of the twenty-fifth anniversary of the superintendency of Dr. Leonard C. Mead of the State Hospital for the Insane, Yankton, 120 members of the Eighth District Medical Society and other guests assembled at a banquet in the new women's building of the hospital to pay tribute to Dr. Mead. A number of eulogistic addresses were delivered, and a handsome loving cup was presented by the society to Dr. Mead.

CANADA

Hospital News.—Western University, London, Ont., is organizing a stationary hospital for overseas service. Dr. Edwin Seaborn is commanding officer with the rank of lieutenant-colonel. Dr. Clarence E. Brown, London, is senior major, and Dr. John Cameron, Wilson, who has just returned from France, is junior major. The captains are Drs. James Moriarty, Mimico, and Dr. Ernest H. Young, Kingston.

University of Toronto Base Hospital.—The report that this hospital was to be moved to France proves incorrect. The hospital will remain at Saloniki for some time to come. Its position, however, has been changed. It is now on the east side of Saloniki, 10 miles from its former position, and is situated on a promontory of land with a bay on each side. This hospital is said to have done magnificent work, as have the other Canadian hospitals.

Personal.—Col. Murray MacLaren, M.D., St. John, N. B., Commanding Officer of No. 1 Canadian General Hospital, has been appointed deputy director of the Canadian Medical Services.——Dr. Walter S. Verral, Vancouver, M. C., has been appointed superintendent of the Toronto Orthopedic Hospital, in succession to the late Dr. B. E. Mackenzie.——Capt. S. G. Chown, Winnipeg, Man., has been appointed Advance Department Medical Officer in France.——Dr. G. Stirling Ryerson, Toronto, has resigned the presidency of the Canadian Red Cross Society.

Untrained Midwives in Toronto.—Dr. Edmund E. King, vice president of the Ontario Medical Council, and a member of the Council of the Academy of Medicine, Toronto, addressed the medical commission on behalf of these bodies recently with regard to the proposal to license midwives in Ontario. Dr. King told the commissioner that there were no licensed midwives in Ontario, and that it was a dangerous thing for mother and babe to have an untrained woman in attendance on them. He further said that untrained women did much work among the foreign population in Toronto with unfortunate results. The opinion seems to prevail among practitioners in Ontario that if midwives are to be licensed that an act should be framed so as to copy the act now in force in Great Britain.

GENERAL

Correction.—The general superintendent of the Medical Department of the United Fruit Company writes that the obituary notice of Dr. Francis T. B. Fest, which appeared in THE JOURNAL of April 8, was incorrect in two particulars: Dr. Fest had been an assistant surgeon in the service of the United Fruit Company and had resigned from the service in December, 1913.

Pharmacopeia Adopts Metric System.—The revised edition of the United States Pharmacopeia, now in preparation, will make exclusive use of the metric system and in order to aid in its transition, the United States Bureau of Standards has prepared a circular on weights and measures for pharmacist and physician. The bureau has also furnished the committee on revision of the Pharmacopeia with definitions of the several degrees of fineness of drug powders and methods to be used in their determination.

Immunologists Convene.—At the third annual meeting of the American Association of Immunologists held in Washington, D. C., May 11 and 12, under the presidency of Dr. James W. Jobling, Nashville, Tenn., Dr. Richard Weil, New York, was elected president; Dr. John A. Kolmer, Philadelphia, vice president; Dr. Martin J. Synott, Montclair, N. J., secretary (reelected); Dr. Willard J. N. Stone, Toledo, Ohio, treasurer (reelected), and Drs. William H. Park, New York, and Arthur F. Coca, Flushing, L. I., were elected councilors.

Conference of U. S. Public Health Service with State Health Officers.—The fourteenth annual conference of the U. S. Public Health Service with state and territorial health authorities was held in Washington on May 13 and 15. Representatives of twenty-three states and territories were present. Among the more important topics discussed were uniformity of interstate and intrastate regulations for the prevention of the spread of communicable diseases through common carriers, the collation and use of morbidity reports, and health insurance.

Throat, Nose and Ear Men Elect.—At the annual meeting of the American Laryngological, Rhinological and Otological Society, held in White Sulphur Springs, W. Va., May

5 and 6, under the presidency of Dr. Seth M. Smith, Philadelphia, the following officers were elected: president, Dr. Thomas J. Harris, New York; vice presidents, Drs. John F. Culp, Harrisburg, Pa.; John E. Brown, Columbus, Ohio; Richmond McKinney, Memphis, Tenn., and James A. Patterson, Colorado Springs, Colo.; secretary, Dr. William H. Haskin, New York, and treasurer, Dr. Ewing W. Day, Pittsburgh.

Conference of State and Provincial Boards of Health.—The annual conference of secretaries of state and provincial boards of health was held in Washington on May 16. This is a voluntary association of the health agencies of the several states of the United States and of the provinces of Canada. In that respect it differs from the annual conference of the health agencies of the states and territories with the United States Public Health Service, referred to elsewhere in this issue, which is a strictly official organization, created by the law under which the Public Health Service is now organized.

Community Experiment on Tuberculosis.—The National Association for the Study and Prevention of Tuberculosis has been presented with $100,000 by the Metropolitan Life Insurance Company to demonstrate by a community experiment, for three years, that tuberculosis can be controlled as any other infectious disease, if right methods and adequate resources are available. It is planned to select a town or city of about 5,000 inhabitants, probably in New York or Massachusetts, and to apply there all the knowledge and treatment of tuberculosis available with a view to the ultimate eradication of the disease.

U. S. P. H. Service Personal.—Senior Surgeon Fairfax Irwin began a month's tour of inspection of the coast guard service along the New Jersey coast on May 5.——Senior Surgeon Charles E. Banks has been appointed sanitary inspector and medical officer in charge of the United States Safety First special train which is now making an educational tour of the country carrying hundreds of exhibits illustrative of the methods employed by the federal government for saving human life and property, both at sea and on land.——S. A. Surg. Joseph R. Ridlon, Savannah, has been placed temporarily in charge of the work of Dr. D. B. Moss, state bacteriologist of Alabama, Montgomery.

Bequests and Donations.—The following bequests and donations have recently been announced:

Eaglesville (Pa.) Sanatorium for Consumptives, $6,000, the receipts from a benefit performance at a Philadelphia theater, April 27.

Camden (N. J.) Municipal Hospital, an appropriation of $8,000, by councils, for furnishing and equipment.

Philadelphia Home for Incurables, $2,000, by the will of Elizabeth M. Henderson.

Philadelphia Orthopedic Hospital, Presbyterian Hospital and Hospital of the University of Pennsylvania, Philadelphia, each $15,000, for the establishment of free beds in memory of Henry Davis, Mary S. B. Davis and Mary Davis Tenbrook, the Hospital of the University of Pennsylvania to use the income for aiding worthy students, preferably residents of Maine; Philadelphia Home for Incurables, $1,000, by the will of Mary D. Tenbrook.

Louisiana Methodist Orphanage, Ruston, a donation of $5,000, by Dr. Luther Sexton, New Orleans.

Associated Jewish Charities of Chicago, twelve-thirtieths; Alexian Brothers Hospital, Chicago; Jewish Orphan Asylum, Cleveland; German Old Peoples Home, Forest Park; Home for Jewish Friendless and Working Girls, and Chicago Home for the Friendless, each one-thirtieth; Chicago Home for Jewish Orphans, and Chicago-Winfield Tuberculosis Sanatorium, each two-thirtieths; Jewish Training School, Jewish Aid Society for Relief, and Home for Aged Jews, Chicago, each two-thirtieths, of the income of the estate of Hyman Lowy, appraised at $300,000, twenty-one years after the death of the last grandchild now alive.

Presbyterian Hospital, New York, $100,000, by the will of Charles W. Harkness.

Massachusetts Medical Benefit Society, $1,000, and Dr. John W. Pratt, Dedham, $500, by the will of Virginia Carpenter, Dedham.

Temple University, Philadelphia, $2,000, by the will of Adeline Winters.

Hahnemann Hospital, Philadelphia, $12,000, by the will of Isabella T. McQuade.

Wills Eye Hospital, Philadelphia, a contingent bequest of $2,250, by the will of Eloise King.

Wine of Cardui Suit.—Since the publication of the last item concerning this suit (The Journal, May 13, 1916, p. 1560), following the testimony of Dr. Torald Sollmann, there were called to the stand for the defendant—the Association—Dr. Paul N. Leech, Dr. Lewis E. Warren and Dr. Arthur J. Cramp, who identified specimens and connected up points in the testimony for the defendant. There were then introduced into evidence various exhibits for the defendant. Mr. E. A. Wheatley, advertising counsel for the Chattanooga Medicine Co., was asked concerning the billboard advertisements used by the Chattanooga Medicine Co. Mr. Hough admitted, on behalf of the plaintiff, without conceding that it was an issue in the case, that Wine of Cardui was advertised as extensively as possible. There was then called to the stand Dr. W. S. Leathers. Before this witness' evidence was taken the Court intimated that it was disposed at this point to limit further expert evidence. After some discussion, the defendants rested their case. Mr. Hough stated that at this stage of the trial it was proper to inquire to what extent the defendant has justified; in other words, whether any evidence has been produced which would justify the jury in returning a verdict. The Court stated if the defendants have not justified as to everything then there is something where the jury must find a verdict. Argument was made on this question and the Court finally stated that he would let the case go to the jury.

There were then called as witnesses for the plaintiff up to the time of going to press, Dr. Francis P. Mason, chemical engineer; Dr. George W. Funck, Dr. Francis E. Thornton, Dr. Albert F. von Zelinski and Dr. George C. Amerson, Chicago. There were also read numerous depositions from various women who had used Wine of Cardui.

Medical Museums.—The ninth meeting of the American Section of the International Association of Medical Museums took place at the Army Medical School, Washington, D. C., May 8. Dr. Aldred S. Warthin, Ann Arbor, Mich., was in the chair, and the following officers were elected: president, Dr. Oskar Klotz, Pittsburgh; vice presidents, Drs. W. M. Late Coplin, Philadelphia; H. E. Robertson, Minneapolis, and Daniel S. Lamb, Washington, D. C.; councilors, Dr. Aldred S. Warthin, Ann Arbor, Mich.; W. M. Late Coplin, Philadelphia; Howard T. Karsner, Cleveland; Milton C. Winternitz, Baltimore, and Robert A. Lambert, New York; secretary-treasurer, Dr. Maude E. Abbott, Montreal, and assistant secretaries, Drs. Joseph Kaufmann and William W. Francis, Montreal. An important discussion took place on the standardization of square glass museum jars and the problem of obtaining a source of supply of these under existing war conditions. It was decided to simplify the problem by reducing the large number of miscellaneous sizes, now in use among museums, to from 11 to 16 sizes and a committee was appointed, consisting of Drs. Klotz, Winternitz and Abbott, whose business it should be to approach local glass manufacturers on the one hand and members of the American Section of the Museums Associations on the other and thus attempt to secure a supply of the selected sizes, which it was felt should be obtainable in this country as soon as the large demand which exists becomes definitely formulated. A fine series of exhibits was on view from the Army Medical Museum, Washington University Medical School, McGill Medical Museum, Montreal, and various members of the American Association of Pathologists and Bacteriologists. This exhibiton remained open during the three days of the congress.

FOREIGN

Pathologic Professorship Endowed.—In the will of the late Mr. Stanley Bode, who left an estate valued at about $160,000, after providing for certain legacies, the residue of the property was left in trust for his mother and sister and to the survivor of them and subject thereto, a bequest of $10,500 to Epsom College for one foundation scholarship and the ultimate residue to the University of London for the endowment of professorship in pathology in the Medical School of Charing Cross Hospital. Of the property bequeathed to him by his wife, he gives, in addition to the number of legacies to her relatives, $5,000 each to the London School of Medicine for Women, the New Hospital for Women, and the pathologic department of the New Hospital for Women, and any residue to the New Hospital for Women.

New American Hospital in Panama.—The new buildings of the Colon Hospital have been completed and turned over to the United States medical authorities for Colon Christobal. The patients will be transferred from the old quarters this month and the old wooden structures will be removed. The new hospital will then have an unbroken sea front and full advantage of the prevalent ocean breezes. The buildings are four in number, of reinforced concrete with tile roof, arranged on the pavilion plan, with an administration building in the center; an east wing for wards and a west wing for dispensary and private rooms and a service building in the rear. There are also an emergency ward, laboratories, Roentgen-ray room, dark room and all other modern hospital conveniences. The buildings are thoroughly screened

have ample protecting verandas the entire length of the building and an enclosed sun porch at the end.

Protest Against British Holding up Supplies.—The chairman of the Central Committee of the American Red Cross has forwarded a letter to the secretary of state, dated May 8, in which he submits the facts that since the beginning of the present war the American Red Cross has invited contributions of money and supplies for the wounded and sick of all belligerent powers; that it has shipped to these powers the supplies contributed; that it has had no difficulty in sending such articles to the entente allies, but that since September, 1915, there has been delay in granting permits by Great Britain for shipment by the American Red Cross to the central powers. Since January of this year only one permit has been granted. The Red Cross is now in receipt of a communication from the state department enclosing a dispatch from the British government in which it definitely withdraws its consent for the shipment of such articles by the American Red Cross and this in effect announces its purpose to treat them as contraband of war. As the American Red Cross considers it to be in the interest of the humane conduct of wars that the principles of the Geneva Convention shall obtain, it urges on the state department the propriety and wisdom of directing the matter again to the British government with the hope that it may change the attitude maintained by it, which appears to be based on a misconception of the attitude of the central powers in respect to Article 29 of the Declaration of London. This article provides that articles serving exclusively to aid the sick and wounded shall not be treated as contraband of war.

LONDON LETTER

LONDON, May 1, 1916.

The War

THE HEALTH OF THE BRITISH EXPEDITIONARY FORCE IN FRANCE

As stated in previous letters, the health of the soldiers, thanks to protective precautions, has been remarkably good. Typhoid fever, which caused 8,000 deaths in South Africa, has been almost absent. The greatest precautions are taken against carriers; no soldier who contracts the disease is allowed to mix with others till he has satisfied the bacteriologists that he is free from the bacilli, and even the civilians in the villages in the war zone are examined bacteriologically, and if found to be carriers are removed. This work is done in laboratories which at first were mobile but now are stationary. There are fourteen in which about 2,000 samples are examined weekly.

NERVOUS DISORDERS

Nervous disorders due to the shock and strain of bombardment are conditions which cannot be affected by hygienic precautions. With the modern development of big guns and high explosives, shell shock has become frequent. A committee has been appointed to investigate the subject in cooperation with the leading French neurologists. The cases have shown great divergence from the disorders observed in civil life. When exposed to concussion of a high explosive, a variety of symptoms may be produced. All consciousness of the explosion may be obliterated, or the soldier may simply become dazed, and afterward his conduct may be "curious" and his actions indeterminate. For these conditions the only treatment is rest. After a heavy bombardment a healthy man may break down, and if removed to a place of safety collapse and fall asleep in spite of the noise that is going on. Some men then recover, but others cannot support noise for a long time. They show overreaction to noise. A cab whistle or an exploding tire outside a convalescent home will bring some patients from their beds. In another group a condition of nervous irritability rather than exhaustion is produced. Thus continuous shelling, even though it produces few casualties, has a wearing down effect. In men with a stable nervous system the effect is temporary, but it is not so in those with neurotic tendencies. Hence our neurologists who are familiar with the nervous systems of our men and our enemies predict that the imperturbable British temperament will confer an advantage in the coming struggle.

THE EFFECTS OF THE WAR ON THE MEDICAL PROFESSION

The results achieved by the Central Medical War Committee of the profession in organizing a medical service for the greatly expanded new army are gratifying. We have reached a stage of preparedness, and are ready for any measures the government may consider necessary. Most of the physicians now remaining in civil practice are married men, and many of these have enrolled for service. If a measure of compulsion should prove necessary, the profession will offer no opposition. Indeed, the number of men who can thus be obtained cannot now be considerable.

DEARER DRUGS

In THE JOURNAL, Jan. 29, 1916, p. 368, was a table showing a great increase in the cost of drugs since the outbreak of war. The following more recent list shows how many times dearer the most commonly used drugs are. It contains some new items and also shows a diminution in some cases and an increase in others of the cost:

NUMBER OF TIMES THE PRICES OF DRUGS HAVE INCREASED OVER THE PRICE AT OUTBREAK OF WAR

Drugs	Times	Drugs	Times
Acetanilid	11	Phenol (carbolic acid)	6
Acetphenetidin (phenacetin)	26	Potassium bromid	16
Acetylsalicylic acid	25	Potassium chlorate	7
Antipyrin	12	Potassium permanganate	27
Caffein	3½	Quinin	3
Calomel	2½	Salicylic acid	20
Citric acid	2	Sulphonal	5
Cocain	7½	Tartaric acid	3½
Cod liver oil	11	Thymol	3½
Cream of tartar	2	Veronal	3

The most remarkable advance is in the case of potassium permanganate, which used to be sold at the rate of 40 shillings a hundredweight. Now it is quoted on the wholesale market at 10 shillings a pound, and dealers who used to traffic in ton lots are glad to pick up a few pounds here and there from retail pharmacists.

THE WORK OF BRITISH ARMY SURGEONS FOR FRENCH CIVILIANS

In a previous letter, reference was made to the work done by British Army surgeons among the French civilians in the area occupied by our troops. Deprived by mobilization of their ordinary medical advisers, the French population would in many cases be unable to obtain advice but for British help, which is gladly and freely given and has evoked expressions of gratitude from the French authorities. Moreover, a considerable amount of drugs and dressings has been supplied. This service has been organized in various ways. In some cases individual medical officers are told off for civilian duty in rotation, a month at a time. In other cases it is caused to be generally known that two will be in attendance to receive civilian patients during a specified hour of the day. In not a few instances, when an epidemic of typhoid or other disease has been suspected, very vigorous sanitary work has been prosecuted over a given district, and there is no doubt that more than one epidemic has been successfully averted. Besides ordinary illnesses there are, of course, casualties among civilians as a result of shelling. One class of work rather foreign to their ordinary vocation, which the physicians have had regularly to do in the absence of the usual practitioners, is midwifery. The gratitude for the work done is marked, cases being recorded of fees, after the usual refusal to accept them, being anonymously deposited in officers' billets at night when it has been impossible to trace their origin. No less pleasant, perhaps, is the fact that no official records have been kept of the work done. As one officer, apologizing for not being able to give accurate figures, phrases it, "It seemed so natural to do it that it was hardly thought of." And this has been almost universal. One army, indeed, is able to report that the average number of civilian cases treated has been about 245 a day. Another can testify to 463 major operations performed of which there would necessarily be records, and estimates about 16,000 cases in all. Much good work has also been done in helping the poorer sections of the people. Subscriptions in special cases have been made on the spot, and in other instances money has been raised for local needs by appeals in England. A certain medical officer has been so active in connection with a children's hospital that he is known in the neighborhood as "English Papa."

The Neglect of Science by the Government

At the Royal Institution H. E. Armstrong, the chemist, recently delivered a lecture on "Organic Products Used in Medicine." In referring to the results obtained through the feverish activity of German laboratories in the production of artificial drugs, he said they were based on hydrocarbon originally obtained by our Faraday as a by-product of oil gas. He pointed out that benzene, the foundation stone of

the organic chemical industry, was discovered and defined in that institution ninety years ago. Through Faraday's pioneer work the light hydrocarbons of coal tar were investigated at the College of Chemistry in 1846. Ten years later the first artificial dye was discovered and manufactured, and a perfume was also artificially made near Harrow. The connection between chemical constitution and physiologic action was first brought into prominence in Edinburgh. Abel developed the gun cotton industry into a stable existence in the sixties, and its application in conjunction with nitroglycerin to military purposes resulted from the work of Abel and Dewar. Why, after having done so much, had we allowed ourselves to fall behind? If we were not to get what we wanted from Germany after the war, we must, as the Australian prime minister had said, attack the problem systematically and scientifically. The universities and public schools placed so high a premium on classical studies that ability was attracted away from science. With no regular remunerative outlet for science, few took it up, and workers found little opportunity in industry. The Royal Society had become the preserve of the academic worker; consequently it had been reduced to impotence, and no sufficient use was made of its great resources. Though 999 out of every 1,000 suggestions brought before the Inventions Committee were useless, as Mr. Balfour had stated, distinguished scientific men were wasting their time on such committees, and the country was misled into supposing that it was receiving the help of science. The casual inventor has been considered, but not those who could give efficient assistance. It was not that science was unable to help; it was simply not allowed to. It was, however, useless to complain of government apathy and of public ignorance as to the application of science to industry, when the body scientific itself remained unorganized. Science, he feared, was losing rather than gaining ground in this country. Through being ineffective collectively, science was voiceless in the councils of the nation.

BERLIN LETTER

Berlin, April 18, 1916.

Personal

Professor Hofmann, director of the physiologic institute at Königsberg, has succeeded to the position held by Professor Schenck in Marburg.

Prof. A. Wolff, director of the dermatologic clinic in Strassburg, died, aged 65 years. In addition to a textbook on skin and venereal diseases, Wolff has written much on the heredity of syphilis and on gonorrhea in women.

The successor to Professor Plehn, recently called to Berlin, is Professor Jürgens, formerly director of the medical division of the New Cologne city hospital.

The Feeding Problem

In order to facilitate the problem of feeding the poor, several of the suburbs of Berlin have provided transportable kitchens. These kitchens, popularly termed "goulash cannons" are driven through the poor parts of the cities and a good noonday meal is furnished at the rate of 35 Pfennige (8 cents) per liter (quart). This meal consists of vegetable soup cooked with potatoes and meat.

The Future of Disabled Soldiers

Every effort is being made to lessen the difficulties confronting the invalid by providing suitable occupation for him and also encouraging him in taking up a homestead, thus insuring permanent citizenship. The government recently proposed to the Reichstag that there be enacted a law which would make it possible to advance a certain sum of money to those injured in the war. This will encourage these persons to buy homes, and from the medical and sanitary points of view much is to be gained thereby for public welfare. It will make it possible to have better homes and to observe proper sanitation and hygiene. The medical profession has repeatedly pointed out that in order to combat tuberculosis, and the mortality of infants and children, better homes must be provided. The loan which the government proposes to make is available to all invalids between the ages of 21 and 55 who propose to use money for a definite and approved purpose. A civil as well as a medical examination will be made. Furthermore, such applicants will not be given any pensions unless their earning capacity has been diminished at least 10 per cent. by their invalidism. The highest loan will be given to invalids who are not more than 21 years of age. Such a loan will be sixteen times greater than the war pension; that is, 2,880 marks ($720). It will diminish with age so that the invalid of 55 will receive the smallest sum, seven and one-half times the war pension. Each applicant will be permitted to capitalize his field allowance and "mutilation" allowance so that a man aged 29 who has lost his right hand may be given a loan of 7,056 marks ($1,764).

Cooperation Between Chemistry and Biology

Emil Fischer, a chemist of Berlin, recently delivered an address on organic synthesis which portrayed a rather hopeful state of affairs for future cooperation between chemistry and biology. His concluding remarks were as follows: "Biology has profited much from the chemical examination of the purins. It is known that the purin of nucleinic acid in man furnishes the material from which uric acid is made. If the amount of uric acid becomes large, or if for other reasons the excretion of uric acid is interfered with, then, because of its very slight solubility, it is deposited in the joints, in the urinary bladder, kidneys, blood vessels, heart muscle, etc., and causes gout, kidney and bladder stones. Such patients are today given a diet containing very little nucleoprotein, and every effort is made to administer substances which will increase the solubility of the uric acid and further its excretion from the body. On the other hand, debilitated patients will be given nucleinic acid. The decomposition products of nucleinic acid—sugar, purin bodies and phosphoric acid—may be produced synthetically. Why not then make nucleinic acid synthetically? This has, in fact, already been done, and a sample is at hand of a synthetic nucleinic acid which is even crystallizable (theophyllinglukosidphosphorsäure). The war has stopped further research in this direction, but the work done thus far shows what can be accomplished by synthesis. Other substances, doubtless, will be produced in a similar manner, and it is to be expected that before many years have elapsed the chapter on synthesis of nucleinic acid will be as extensive as that on carbohydrates, fats and purins. No one will doubt that biology will derive much benefit from these chemical researches because they bear directly on metabolism and similar problems. Chemical synthesis is far and away ahead of Nature in many respects, because it can avail itself of other aids. One needs but to call attention to vegetable dyes, indigo and alizarin, or the agreeable odors of plants. Synthesis is responsible not only for artificial manufacture but also for a wonderful variety of products. Synthesis in its present state of development gives rise to much speculation. If by means of synthesis these vital products may be reproduced, why should not synthesis have a radical chemical influence on the development and growth of the human body? Experimental biology has shown remarkable results in cultivation, crossing and heredity. The Munich zoologist, R. Hertwig, was able to produce male or female at will from frog's eggs. Jaques Loeb experimented with the sea urchin, using salt solutions which enabled him to develop unfertilized eggs. By actual injury or mere handling of eggs, Roux and others were able to produce curious and unusual malformations. But, as compared with the question of synthesis, spoken of above, all of these efforts are really very crude. What will be the result when the chemical building material of the cell can be changed? This opens up a great field of activity for the research worker and investigator. It will necessitate close cooperation between the biologist and the chemist, and when this is obtained and expended in the proper direction, good results may be expected."

Beer Consumption in Munich

The statistical report of the city of Munich for the year 1914 contains some rather interesting information with regard to the consumption of beer in that city. During 1914 there were twenty-three breweries in Munich. They produced 1,130,723 hectoliters (one hectoliter equals 26⅘ U. S. gallons) of which all but about 10,000 hectoliters were used for making lager beer. There were manufactured 2,998,700 hectoliters of beer; 1,463,823 hectoliters were exported and 22,928 were imported, so that about 1,557,805 hectoliters of beer were consumed in Munich. The population of Munich in round numbers is 645,000. Therefore the per capita consumption of beer would be about 242 liters (quarts) per year. Of course, in defense of the inhabitants of Munich it must be said that these figures are not a reflection on them because the many visitors to the city render able assistance in disposing of the beer. Furthermore, the per capita for beer has been diminishing steadily. As stated, it was 242 liters in 1914; in 1913, 295 liters; in 1912, 312; in 1911, 320; in 1900, 381, and in 1890, 487, more than double the per capita for the year 1914.

Association News

THE DETROIT SESSION

Boat Trips to the Convention City

The local Committee on Arrangements calls the attention of the Fellows of the Association to the delights of a boat trip to Detroit. It is suggested that other cities follow the example of Chicago and charter passenger boats for a lake trip to Detroit, retaining the boats in Detroit as floating hotels during the meeting. It has been done on previous occasions in that city, and has helped out hotels in somewhat relieving congestion.

While the hotels of Detroit have ample accommodations for large meetings such as that of the American Medical Association, the advance reservations have poured in so rapidly that in order to insure every one satisfactory accommodations, the local committee recommends that those who enjoy a boat trip shall come to Detroit by boat and occupy their staterooms during the meeting.

Deaths

Thompson Elbridge Potter, M.D., St. Joseph, Mo.; Jefferson Medical College, 1875; aged 66; a Fellow of the American Medical Association; professor of physiology and diseases of the nervous system in Northwestern Medical College, St. Joseph; one of the founders of Central Medical College and professor of surgery and president of the institution; and on the merger of Central and Ensworth Medical Colleges in 1905, he became professor of principles and practice of surgery and secretary of Ensworth Medical College, St. Joseph; surgeon to St. Joseph's and the Ensworth hospitals; from 1882 to 1886 local surgeon of the Hannibal and St. Joseph Railroad at Cameron, Mo., and mayor of that city in 1884-1885; founder in 1880 and for several years editor of the *Western Medical and Surgical Reporter;* died at his home, April 29, from nephritis.

Frederick Townsend, M.D., Sault Ste. Marie, Mich.; New York University, New York City, 1894; aged 47; acting assistant surgeon, U. S. P. H. S.; a Fellow of the American Medical Association and American College of Surgeons; formerly professor of anatomy in the Detroit College of Medicine; assistant surgeon to the Upper Peninsula State Hospital, Newberry, and in charge of the local work of the United States Public Health Service at Sault Ste. Marie and examining surgeon for the immigration department; local surgeon for the Duluth, South Shore and Atlantic, and Minneapolis, St. Paul and Sault Ste. Marie railways, and the Trans-Ste. Marie Traction Company; died at his home, April 26, from pneumonia.

Amos P. Dodge, M.D., Oneida, N. Y.; University of Maryland, Baltimore, 1874; aged 62; a Fellow of the American Medical Association and once vice president of the Fifth District Branch of the Medical Society of the State of New York; a charter member of the New York and New England Association of Railway Surgeons and of the Oneida Medical Club; for four years health officer of Oneida and for thirty years division surgeon of the New York Central Lines and the West Shore system; died at the home of his daughter in Oneida, May 3.

Elbert Wing, M.D., Los Angeles; Northwestern University Medical School, 1882; aged 63; a Fellow of the American Medical Association; for several years professor of nervous diseases and medical jurisprudence in his alma mater, and attending neurologist to St. Luke's and Provident hospitals; who moved to California in 1904 on account of ill health; vice president of the Sewell-Clapp Envelope Company; died at home, May 8, from cerebral hemorrhage.

William Howard McKenzie, M.D., Newark, N. J.; College of Physicians and Surgeons in the City of New York, 1892; aged 48; a member of the Medical Society of New Jersey; physician of Essex County for more than ten years and president of the medical board of St. Barnabas' Hospital, Newark; was seized with a cerebral hemorrhage while attending a meeting of the board and died a few hours later in the institution.

Charles Frederick Osgood, M.D., Ogden, Utah; Rush Medical College, 1896; aged 48; a Fellow of the American Medical Association and a prominent practitioner of Utah; a member of the Board of Medical Examiners of the State of Utah; a specialist on diseases of the ear, nose and throat, was shot and instantly killed in his automobile, May 2, by a man supposed to have been of unsound mind.

Robert B. Turner, M.D., Waco, Texas; Medical College of Ohio, Cincinnati, 1874; aged 65; formerly a member of the State Medical Association of Texas; chairman of the McLennan County Lunacy Board since 1913; was found dead in his office, May 2, from a gunshot wound of the head, believed to have been self-inflicted, with suicidal intent while despondent on account of ill health.

John Davidson Jones, M.D., Cleveland; Western Reserve University, Cleveland, 1866; aged 78; a Fellow of the American Medical Association; for ten years a member of the Board of Education of Newburg, Cleveland, and for ten years thereafter a member of the Cleveland board; died in the Charity Hospital, Cleveland, May 4, four weeks after a surgical operation.

William Henry Sledge, M.D., Mobile, Ala.; University of Mobile, Ala., 1881; aged 60; formerly a Fellow of the American Medical Association; a member of the Medical Association of the State of Alabama and once president of the Mobile County Medical Society; for thirteen years president of the Board of Education of Mobile County; died at his home, April 30.

Francis Besant Bishop, M.D., Washington, D. C.; University of Maryland, Baltimore, 1883; aged 62; a Fellow of the American Medical Association and formerly president of the Medical and Surgical Society of the District of Columbia and of the American Electro-Therapeutic Association; died at his home, April 30, from meningitis following mastoid abscess.

Jesse Edwards Hunt, M.D., Kansas City, Mo.; Western Reserve University, Cleveland, 1902; aged 37; formerly a Fellow of the American Medical Association; a member of the Missouri State Medical Association; professor of pediatrics in the University of Kansas and a member of the staff of Mercy Hospital; died at his home, April 29, from diphtheria.

Burwell Alexander Duncan, M.D., Morehouse, Mo.; Medical College of the State of South Carolina, Charleston, 1857; aged 80; a Fellow of the American Medical Association; an esteemed practitioner of Aberdeen and Columbus, Miss., until 1902 when he located at Morehouse; died at his home, April 14, from cerebral hemorrhage.

John Gibson, M.D., St. Albans, Vt.; University of Vermont, Burlington, 1898; aged 48; a member of the Vermont State Medical Society; formerly adjunct professor of materia medica and therapeutics in his alma mater; a member of the medical staff of St. Albans Hospital; died suddenly at his home, May 3, from heart disease.

George Augustus Quinby, M.D., New York City; New York University, New York City, 1857; aged 84; said to have been the oldest alumnus of his alma mater; surgeon on the staff of the New York Hospital in 1856 and a member of the staff of St. Luke's Hospital from 1865 to 1867; died at his home, May 3.

Adolph G. Beyer, M.D., Milwaukee; Milwaukee Medical College, 1909; aged 45; formerly a Fellow of the American Medical Association; at one time a member of the faculty of the Wisconsin College of Physicians and Surgeons; died in the Emergency Hospital, Milwaukee, April 29, from pleuropneumonia.

Albert S. J. Burchett, M.D., Memphis, Tenn.; Meharry Medical College, Nashville, Tenn., 1884; aged 55; a colored practitioner; was found dead in Wills Park, Memphis, April 29, from a gunshot wound believed to have been self-inflicted with suicidal intent while despondent on account of business affairs.

Alexander H. Hepburn, M.D., Chicago; Northwestern University Medical School, 1899; aged 41; a member of the Illinois State Medical Society and a veteran of the war with Spain in which he served as a member of the First Illinois Cavalry, U. S. V.; died suddenly, May 9, from diphtheria.

William Stanford Stevens, M.D., Boston and St. Albans, Vt.; Harvard Medical School, 1883; aged 56; in 1891 a member of the Massachusetts Legislature and in 1888 and 1889 a member of the Common Council of Boston; died at his home in Boston, April 29, from myocarditis.

Charles Poplin Harvielle, M.D., Salt Lake City; Washington University, St. Louis, 1899; aged 40; a Fellow of the

American Medical Association; assistant county physician of Salt Lake County; who had suffered for several years from disease of the throat; died in Denver, May 2.

George Augustus Fagan, M.D., North Adams, Mass.; McGill University, Montreal, 1898; aged 45; a member of the staff of the North Adams Hospital and chairman of the North Adams Board of Health; died in the Samaritan Hospital, Troy, N. Y., April 1, from Pott's disease.

Albert O. Ward, M.D., Indianapolis; Medical College of Indiana, Indianapolis, 1874; aged 73; for forty-nine years a practitioner of Indianapolis; a Fellow of the American Medical Association and a veteran of the Civil War; died at his home, May 1, from myocarditis.

Edward Mortimer Paterson, M.D., Oakland, Calif.; Harvard Medical School, 1871; aged 71; formerly professor of physiology and histology in the College of Physicians and Surgeons, San Francisco; died at the home of his son in San Jose, Calif., April 24.

Buel Smith Bigelow, M.D., Chicago; University of Vermont, Burlington, 1863; aged 76; died in the Henrotin Memorial Hospital, Chicago, April 24, from cancer of the cecum for the relief of which an operation had been performed a few days before.

Herbert Stanley Monkman, M.D., Vegreville, Alta.; Trinity Medical College, Toronto, 1906; aged 39; at one time a practitioner of Bottineau, N. D.; captain in the Third Canadian Mounted Rifles; was killed in battle "somewhere in Flanders," December 2.

Millard Fillmore Crawford, M.D., Wray, Colo.; College of Physicians and Surgeons, Keokuk, Ia., 1878; aged 60; for several years a practitioner of Yuma, Colo.; for a month before his death a resident of Wray; died May 2, from influenza.

Felix Amabile, M.D., New York City; New York University, New York City, 1884; aged 54; died in his office, May 8, from the effects of hydrocyanic acid, self-administered, it is believed, with suicidal intent while despondent on account of ill health.

William Henry Harrison Warman, M.D., Washington, D. C.; Howard University, Washington, 1880; aged 75; a medical examiner in the United States Pension Office, Washington; died at his home, April 17, from cerebral hemorrhage.

Maurice Feiman, M.D., Canton, Ohio; Cleveland College of Physicians and Surgeons, 1910; aged 27; formerly a Fellow of the American Medical Association; who was taken ill in Switzerland two years ago; died in Silver City, N. M., May 2.

John J. Mugan, M.D., North Battleford, Sask.; formerly of Langdon, N. D.; Manitoba Medical College, Winnipeg, 1906; aged 46; formerly a Fellow of the American Medical Association; died at his home, February 5, from nephritis.

John Erle Kenney, M.D., Cheslea, Mass.; University of Burlington, Vt., 1882; aged 54; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; died at his home, May 3.

Ernest Clifton Morris, M.D., Hephzibah, Ga.; Medical College of Georgia, Augusta, 1899; aged 36; formerly a Fellow of the American Medical Association; died at the home of his father-in-law near Hephzibah, April 28.

John A. Hunter, M.D., Philadelphia; University of Pennsylvania, Philadelphia, 1866; aged 78; formerly an assistant in his alma mater and visiting physician to Moyamensing Prison; died at his home, April 29.

William H. Yelton, M.D., Butler, Ky.; Cincinnati College of Medicine and Surgery, 1869; aged 72; a member of the Kentucky State Medical Association; died at his home, January 18, from cirrhosis of the liver.

Axel Fridolf Swanson, M.D., Southampton, Mass.; Albany (N. Y.) Medical College, 1913; aged 24; a member of the Massachusetts Medical Society; died at his home, March 19, from pulmonary tuberculosis.

C. J. Renfro, M.D., North Pleasureville, Ky.; Jefferson Medical College, 1867; aged 73; a Confederate veteran; formerly a Fellow of the American Medical Association; died at his home, recently.

George Lane Fenton, M.D., Kingsley, Mich.; Eclectic Medical Institute, Cincinnati, 1893; aged 67; a member of the Michigan State Medical Society; died at his home, April 29, from pneumonia.

Barton M. Fletcher, Middlesboro, Ky. (license, Tennessee, 1889); aged 79; a Confederate veteran; died at his home, April 19, from senile debility.

Caleb M. Emert, M.D., Elizabethton, Tenn.; College of Physicians and Surgeons, Baltimore, 1884; aged 75; a veteran of the Civil War; died at his home, April 25, from cerebral hemorrhage.

Bertram Leslie Longenecker, M.D., North Stonington, Conn.; College of Physicians and Surgeons in the City of New York, 1890; aged 48; died at his home, April 29, from pneumonia.

Franklin T. Fenton, M.D., Detroit; Pulte Medical College, Cincinnati, 1891; aged 51; formerly a member of the Michigan State Medical Society; died at his home, May 7, from pneumonia.

Hugh Francis Quinn, M.D., Bangor, Me.; Medical School of Maine, Brunswick, 1909; aged 36; a member of the Maine Medical Association; died at his home in Bangor, about April 30.

Samuel McGogney, M.D., Castle Shannon, Pa.; Jefferson Medical College, 1879; aged 59; died in the South Side Hospital, Pittsburgh, May 4, a few hours after a surgical operation.

Robert Lee Tays, M.D., Herkimer, Kan.; Northwestern Medical College, St. Joseph, Mo., 1893; aged 66; for several years coroner of Marshall County; died at his home, April 30.

Garland Silvia Saylors, M.D., Floral, Ark.; University of Arkansas, Little Rock, 1914; aged 28; a member of the Arkansas Medical Society; died suddenly at his home, May 4.

Henry H. Miller, M.D., Rossville, Kan.; University of Pennsylvania, Philadelphia, 1872; aged 64; for forty-four years a practitioner of Kansas; died at his home, May 1.

Joseph Oswalt, M.D., Irving, Kan.; Kansas City (Mo.) Hospital College of Medicine, 1888; aged 78; a practitioner for more than forty years; died at his home, April 29.

John M. Mulholland, M.D., Pittston, Pa.; Eclectic Medical Institute, Cincinnati, 1875; aged 65; a member of the City Health Board of Pittston; died at his home, April 25.

John M. Lisle, M.D., Columbus, Ohio; Starling Medical College, Columbus, 1875; aged 68; a veteran of the Civil War; died at his home, May 4, from heart disease.

John Deal, M.D., Riverton, Ill.; Vanderbilt University, Nashville, Tenn., 1878; aged 67; a Fellow of the American Medical Association; died at his home, February 3.

Charles Sinclair Stone, M.D., Boston; Harvard Medical School, 1886; aged 56; a Fellow of the American Medical Association; died at his home, April 22.

George W. Metzgar, West York, Pa.; (license, Pennsylvania, 1881); aged 61; a practitioner since 1877; died at his home, March 31, from pericarditis.

John Aubrey Vaughan, M.D., Brooklyn; Eclectic Medical College of the City of New York, 1891; aged 70; died at his home, January 29, from nephritis.

John G. Nugent, M.D., Chipman, N. B.; Cincinnati College of Medicine and Surgery, 1876; aged 74; died at his home, January 10, from pneumonia.

George Franklin Ritchey, M.D., Mechanicsburg, Pa.; Jefferson Medical College, 1889; aged 50; died at his home, April 23, from heart disease.

Andrew Albert Johnston, M.D., Unity Station, Pa.; University of Pittsburgh, Pa., 1891; aged 61; died in the Columbia (Pa.) Hospital, April 24.

Cyrus W. Shafto, Asbury Park, N. J. (license, New Jersey, 1892); aged 44; died at his home, April 25, from cerebral hemorrhage.

David Duncan, M.D., Chicago; Hahnemann Medical College, 1887; aged 68; died at his home, May 3, from heart disease.

Marriages

WALTER LOUIS MACHEMER, M.D., Buffalo, to Miss Fanny Carter of Canisteo, N. Y., at Bath, N. Y., May 1.

WILLIAM OSCAR BENJAMIN, M.D., Detroit, to Miss Helen M. Foote of Minneapolis, April 22.

WILLIAM THOMAS DEAN, M.D., to Miss Frances M. Claiborne, both of St. Louis, May 1.

FLOYD H. SPENCER, M.D., to Miss Mary Dalgarn, both of St. Joseph, Mo., April 29.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE WINE OF CARDUI SUIT

(*Continued from page 1575*)

April 20, 1916, Afternoon

TESTIMONY OF DR. JOSEPH BOLIVAR DE LEE

The Court met pursuant to recess. Dr. Joseph Bolivar De Lee was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. De Lee testified that he graduated from the Northwestern University Medical School of Chicago in 1891, was intern in the Cook County Hospital for a year and a half. For nearly one year, he was engaged in general practice and then did postgraduate work abroad in the universities of Vienna, Berlin, Paris and London. He was attending obstetrician at the Cook County Hospital for several years and has been consulting obstetrician for ten or fifteen years. He is also attending or consulting obstetrician in the Chicago Lying-in Hospital, Mercy Hospital, Provident Hospital and Evanston Hospital, and Silver Cross Hospital in Joliet. He practices obstetrics as a specialty and has held the chair of obstetrics in the Medical School of Northwestern University since 1897.

Q.—Doctor, will you tell the jury approximately, if you can remember, the number of obstetrical cases which you have had charge of, or have been under your direction? *A.*—The word "obstetrical" cases is a little bit too broad, I will specify, if you please.

Q.—Very well. *A.*—The number of actual confinements or deliveries that I have conducted myself with my own hands would be approximately thirty-five hundred—three thousand, five hundred—and in addition to that I have been called in as counsel, or I have attended as instructor or as spectator in four or five thousand other cases, that occurred in the various hospitals with which I am connected, or that occurred in consultation, as I say, where I did not have the direct care of the patient, but, as you may say, "sat in" on the case. Four or five thousand.

In addition to that, the institutions with which I am connected, of which I was the head, would represent between twenty and twenty-five thousand cases, and in these cases, I would have the responsibility in directing the course of practice of that institution, and in that way the pathological cases—the complications—would come to my notice, and thus I would get the experience from the pathological cases.

Dr. De Lee then described to the jury what is meant by pregnancy and labor, and mentioned some of the various complications which might occur. He illustrated with a mannikin and with charts to the jury the normal female pelvis and the changes which the uterus and other organs undergo during pregnancy. He showed the pelvis in a normal woman and the head of a baby and indicated the mechanism of normal labor. He then showed to the jury the many complications which may occur due to various presentations, etc., stating that there are 136 different positions in which the baby can present. He then showed to the jury a contracted pelvis and the impossibility of normal labor when such a contraction occurs.

Dr. De Lee said that he has had no experience with carduus benedictus.

Q.—Have you had any experience with the use of viburnum prunifolium? *A.*—Yes.

Q.—What experience have you had with it? *A.*—Years ago I gave large quantities of extractum viburnum prunifolium for the prevention of miscarriage.

Q.—Well, what was your experience with it, Doctor? *A.*—I found that it was useless and expensive, and discontinued it.

There was then read to Dr. De Lee a hypothetical question similar to that which has been read to other witnesses, and a statement from the Home Treatment Book under the heading, "Disorders of Pregnancy." He stated that in his opinion the hypothetical medicine would not "assist in making childbirth easier by reason of its gentle, building, tonic, strengthening effect on the female organs and sexual parts concerned in the birth of the coming child."

His reason is that it is impossible for such a combination of drugs to correct a malpresentation and relax a rigid cervix. It would not make child birth easier. There was then read to Dr. De Lee a second statement from the "Home Treatment for Women" under the same heading "Disorders of Pregnancy." In reply he stated that the hypothetical medicine would not have a good effect in giving health and life force to the woman.

A.—I would consider it would have a bad effect on the child. It is generally believed that alcohol should not be given during pregnancy because of its effect on the child, that is, given continuously, because of its effect on the child. And this question is just with reference to the child, is it not?

Q.—Yes. Well, both mother and child. Well particularly, with reference to the added health, strength and life force of the mother? *A.*—The life force of the mother—no, I would say that alcohol would be not the best remedy to be given continuously during pregnancy for its effect upon the strength of the mother.

He was then read a third statement from the "Home Treatment for Women" to the effect that "No one need be afraid of taking Wine of Cardui during pregnancy. Its action is gentle and strengthening and it can never do anything but good."

Q.—What is your opinion? *A.*—That that statement is erroneous and misleading. The medicine, the hypothetical medicine which you have given me to consider has both actual and potential qualities for doing harm.

Dr. De Lee then defined for the jury puerperal eclampsia and the general understanding of this condition.

ECLAMPSIA

Q.—Now, Doctor, during pregnancy, and when these kidney conditions to which you have referred, or these cases which may lead to eclampsia are present, how can you determine that fact in advance of labor? *A.*—By careful watching of the patient for symptoms of the poison, and also by taking her blood pressure regularly, and by examining her urine for albumin.

Q.—Now, when you discover a condition of abnormal blood pressure, or blood pressure that is not satisfactory, or albumin in the urine, what do you do? *A.*—We put the patient on a very strict diet, put her in bed, and unload her bowels, and we try and get her emunctories, that is her organs which throw off poisons, very active, and failing to get rid of the poisons in this way, we occasionally interrupt the pregnancy, because it is the pregnancy which is developing these poisons, and since we cannot remove the poisons we have to remove the pregnancy.

Q.—Now, doctor, assuming that Wine of Cardui corresponds to the hypothetical solution which I have described to you, have you an opinion whether or not the use of Wine of Cardui would have any effect in correcting the kidney condition which you have just described, if taken during pregnancy? *A.*—Yes, I have an opinion about that.

Q.—What is that opinion? *A.*—That it would be not alone useless, but harmful.

Q.—In what way would it be harmful? *A.*—In two ways. The kidneys during pregnancy are the most vulnerable portion of the woman's system. Any bad condition that affects the woman during pregnancy is most likely to settle on her kidneys. Alcohol administered continuously during pregnancy has a bad effect on the kidneys. And the kidney is already overworked during pregnancy; it is generally admitted that the kidney is overworking, it is excreting for the baby and for the mother, and an organ that is already overworking should not be given alcohol—that is should not be given additional work in excreting alcohol.

And while that is a real objection, there is another objection which is none the less real, in fact, more active, and that is the covering up of the symptoms and lulling the woman into a sense of security. You give a remedy that may be useful, and tell a woman: "now take this and you will be all right," and she is likely to accept it as a fact and neglect to bring her water to the doctor for examination. "Oh, I am going to be all right; I am taking this medicine." She won't go to have her blood pressure taken. And a contracted pelvis of that class (illustrating with pelvis) may pass unnoticed until labor comes on and the time is gone to do anything.

Or a diabetes, for example, might pass unnoticed. A woman with diabetes during pregnancy. If she were to take this hypothetical medicine, with the alcohol and the bitter stomachic, it would increase her appetite, perhaps, and she would eat more food of an antidiabetic nature — that is not of a diabetic nature — I mean something that should not be taken in diabetes. She will eat more food than she should. Whereas, if she had not taken this medicine she would not have had such an appetite. That is the reason I say that it has both actual and potential bad effects.

The witness then defined and illustrated with the aid of the mannikin extra-uterine pregnancy.

Objection was made to the introduction of the witness' opinion as to the use of Wine of Cardui in extra-uterine

pregnancy, the court stating that the witness had already stated that in his opinion it would not benefit a woman in any kind of a pregnancy.

TREATMENT OF CONTRACTED PELVIS

Q.—Doctor, in cases of contracted pelvis in connection with childbirth, what do you do under such circumstances? *A.*—It is very necessary to discover a contracted pelvis early in pregnancy. We let the woman go on to term, except when there are other conditions which indicate the termination of pregnancy before term, which term means the end of pregnancy, nine months. We let her go to term. Then knowing that she has a contracted pelvis we do not always let her go into labor, but we either do a cesarean section, take the baby out through the belly, or else we so conduct the labor that the woman should not get into a precarious condition before it is too late to do anything to save her and the baby. There are a great many methods. Sometimes we leave the woman go to labor and see if she cannot deliver herself. Then we do a pubiotomy, that is, we cut the bone here. Or occasionally we apply instruments like forceps.

Q.—Now, during your experience have you ever performed that operation? A.—I have performed 85 cesarean sections, and over a thousand forceps operations, and innumerable other operations for this purpose.

Q.—I suppose, doctor, you have written considerably on these different subjects, have you? *A.*—Yes, yes.

CROSS-EXAMINATION BY MR. HOUGH

Dr. De Lee testified that he recommends that a woman should apply to her physician as soon as she knows she is pregnant. This should be done with a view toward nipping in the bud such complications as may affect her life or that of her baby.

A.—The second proposition, as to when the patient should enter the hospital, that is more or less domestic. A woman that lives out of town—and thousands do come every year to Chicago—is requested to live in a hotel near the hospital and bring her urine every two weeks to the hospital, and have her blood pressure taken. Then if she already has any serious trouble she is put in the hospital to await the confinement in the hospital. A case that I am going to do cesarean section on I would like to have in the hospital for three weeks, to avoid the possibility of marital relations, to get the patient into good physical condition for the coming event.

Q.—In this connection, in your book you say you frequently treat the husband. What do you mean by that? *A.*—In what connection was it said?

Q.—Don't you recall that statement in your book? *A.*—Oh, yes; I have treated the husband in many different connections.

Q.—What did you mean when you said that? *A.*—I will have to give you all the conditions. If the husband has gonorrhea I would like to cure him up before the wife gets pregnant. If the husband has syphilis I would like to cure him up before he impregnates his wife.

Q.—You mean treat the husband then before the wife becomes pregnant? *A.*—Of course.

Q.—You don't refer to a treatment of the husband after the wife was pregnant? *A.*—Well, you might stretch it to mean that. As far as treating the husband is concerned for any condition affecting the woman's labor, I would say by the time the child was conceived that he had passed out of the range of treatment. During pregnancy I could imagine certain conditions where I should recommend treatment of the husband.

Q.—I know what you mean by that statement. You mean treat him before pregnancy? *A.*—Yes, as a rule.

Q.—And not treat him after pregnancy? *A.*—I could still imagine a condition where I would treat a husband after pregnancy.

Q.—I am not asking you what you could imagine. I am asking you what you mean by the statement in your book. You mean treating him before pregnancy? *A.*—In that particular connection.

Q.—Yes. *A.*—It is pretty hard for me to answer a question that generalizes on all the subjects or conditions where I would treat a husband—to answer that in one answer. If you will tell me just what you want I will answer it.

Q.—Now when you are not going to perform cesarean section how early do you want the woman in the hospital? *A.*—The majority of women in Chicago wait until the labor pains begin, and then they come to the hospital.

Q.—How soon is that before delivery, as a rule? *A.*—Varies all the way from—well, sometimes they are delivered in the taxicab or on the stairs of the hospital. Again, they may be in the hospital two or three days in labor.

Q.—But that is not what you recommend? *A.*—No, that is not what I recommend. And what I recommend, and what nature does, are two different things.

Q.—I am asking you how early you want them to come to your hospital? *A.*—The minute they know that they are in labor. As soon as they think that the labor has begun, that moment. They should not wait. They should come to the hospital. And if they have been mistaken, why all right, come there, and then they can go home the next night.

Q.—Well, would you like them there three days before? *A.*—If I can have them there then, yes. If I knew exactly when labor was going to occur I would say, "Yes, please be in the hospital three days before labor is due." That would be very nice.

Q.—The practice of obstetrics is on a very low plane, isn't it? *A.*—The practice is still on too low a plane. It ought to be higher, and it is going higher every day.

Q.—You mean by that every woman who is about to have a child should go into a hospital and have a doctor on hand all the time? *A.*—That would be ideal.

Dr. De Lee described his method of examination and treatment of a patient who comes to a physician after the first month of pregnancy. If drugs are given they are given for conditions that are pathologic. Asked concerning disturbances of urination, he stated that the subject would have to be considered separately in each case and that discrimination must be made very careful. Nobody but a doctor could tell just what medicine to give in any single case.

Q.—Do you mean all doctors could do that, or only a few? *A.*—Not all doctors. I wish they could.

Q.—You mean only a few doctors in your class? *A.*—No, a lot of them besides me.

Q.—Do you mean a lot of them? *A.*—Yes, I am happy to say, a lot of them.

Asked to suggest drugs which would permit the flow of urine, he mentioned hot tea, saffron tea, camomile tea and infusion of digitalis. He would avoid tinctures and extracts because of the irritant action of the alcohol. In cases of constipation he would modify the diet, give liquid petrolatum for its lubricant effect and recommend stewed prunes, perhaps with addition of a little senna.

Q.—Did you ever give regulin? *A.*—Regulin—I gave it some years ago. I forget now what it is. I think it is a sort of agar-agar preparation. Chinese preparation—agar-agar—

Q.—No. *A.*—Well, sulphate, phenolphthalein.

Q.—No. *A.*—Then I don't know what it is.

Q.—Do you mean to say you gave it and didn't know what it was? *A.*—No, my brother asked me about it, and I confess I don't know what Regulin is. I don't believe I gave it. But as a rule I stay away from cathartics. Then if I have to give a cathartic I have a very favorite combination. It contains nux vomica, cascara, rhamnus purshiana and rhubarb. It works very nicely in combination. It is a sort of a synergetic affair.

Q.—Did you say synergetic? You mean synergistic, don't you. *A.*—Well, you can say synergetic.

Q.—It is not a question of etymology. *A.*—I say synergetic. If you want to say synergistic you may do so.

Q.—Do you mean to say that they mean the same thing? *A.*—I will not haggle with you on a question of etymology.

Q.—The etymology is not involved. I am simply asking you if you mean synergistic. *A.*—I won't argue that with you. Have it synergistic or synergetic.

Q.—Go ahead. *A.*—They act synergistically or synergetically; they act together, one helping the other.

Q.—Any other medicines that you give? *A.*—I don't give it as a continuous cathartic.

Q.—Any other medicines you give for that condition? *A.*—Do you mean of constipation?

Q.—Yes. *A.*—I give milk and molasses enemas. Enemas of milk and molasses, and water.

Q.—That is all you can recollect? *A.*—That is all I can recollect now.

Q.—What did you give before you knew anything about Russian oil? You haven't known about it always? *A.*—No, that is a rather recent application. I gave the tonic laxative which I have mentioned to you, and I gave agar-agar, which I thought was regulin when I mentioned it, because it is given under a great many different trade names. And Pluto water. Epsom salts.

Q.—You are not opposed then to proprietary or secret remedies, are you? *A.*—Well, if I know what is in it. I don't oppose them on general principles. If they do the work.

Q.—It doesn't make much difference what is in them, if they do the work? *A.*—Oh, yes; it makes a difference.

Q.—If it does the work? *A.*—Oh, yes; it makes a difference.

Q.—If it does the work? *A.*—I am careful.

Q.—Even if it does the work? *A.*—Oh, yes, it makes a difference. It does not always follow there, because sometimes they may do the work and they do harm at the same time.

Q.—You mean because of another ingredient? A.—Because of another ingredient. That is the objection to prescribing things that have several ingredients. You get the effect of the one that you want, but you have to take the effect of other things that you do not want. Now if the disease that you are prescribing the remedy for is so bad that you are willing to take the effects of the other remedies in order to get the good effects of the one, that is the doctor's business to decide, and he can decide it as a rule.

Q.—Now are there any other conditions than constipation and bladder trouble which would require medical treatment, that is medicines given through the mouth, during pregnancy? *A.*—Yes.

Q.—What other conditions? *A.*—One of the most common conditions which I have met is frequent miscarriage. Women have a history of frequent miscarriage for apparently no reason, and if I can find syphilis, as a cause of that, why, of course, I give antisyphilitic medicines. If it is malaria—sometimes they have that.

Q.—You do not give that in the mouth? *A.*—What?

Q.—Antisyphilitic medicines? *A.*—By mouth.

Q.—Do you? *A.*—Why, of course.

Q.—You do not believe in salvarsan? *A.*—Yes, yes.

Q.—You do not give salvarsan by mouth, do you? *A.*—No, you give that intravenously.

Q.—I thought nobody gave anything but that nowadays. *A.*—I will not testify as an expert for the genito-urinary specialist; but, if I had syphilis, I believe, from what I know of the remedies, I would rather take the old-fashioned treatment by mouth and the inunctions, instead of salvarsan; but, as I say, I do not testify to that as an expert.

Q.—What is the next then? *A.*—If a woman has malaria, I try and treat the malaria as a cause of these frequent abortions. If she has tuberculosis, I try and treat the condition that it presents; in brief, in any pathological condition that requires the use of medicines by mouth, I do not hesitate to give them, providing the medicines do not interrupt the pregnancy—they don't have a bad effect on the pregnancy.

Q.—But you never give any medicines which contain any alcohol because the alcohol is dangerous during pregnancy? *A.*—That is too broad. Occasionally, you have to give a medicine containing a small amount of alcohol.

Q.—What would you call a small amount of alcohol? *A.*—Ten or fifteen drops.

Q.—Well, what per cent? *A.*—Wouldn't the per cent. depend upon the amount of the remedy? Ten or fifteen drops of alcohol, two or three times a day, a couple of weeks or a month, will not hurt the patient in my opinion. More might. But, as I say, I avoid those remedies.

Q.—What is that? *A.*—I avoid, as a matter of practice, the use of alcohol in pregnant women.

Dr. De Lee was then cross-examined as to the percentage of alcohol in the infusion of digitalis. He said that he prepares an infusion by pouring some boiling water over an ounce of leaves.

Q.—You said the infusion of digitalis does not contain alcohol; you are mistaken about that, aren't you? *A.*—Very well, I would be glad to admit I was mistaken. I know I made the infusion, the last infusion last time I used it.

Q.—Well, but the Pharmacopeia prescribes how it should be made, doesn't it? *A.*—Very good.

Q.—And it requires 100 c.c. of alcohol, doesn't it? *A.*—I do not know. I never read the Pharmacopeia.

Q.—You mean you practice without reference to the pharmacopeia? *A.*—Yes.

Q.—Or the National Formulary? *A.*—Yes.

Q.—Or any medical book that anybody ever wrote? *A.*—Oh, that is different.

Q.—What medical books do you rely on, or do you have confidence?

After objection which was overruled, the witness answered:

Mr. Hough: *Q.*—What do you mean by that "that is different"? *A.*—I mean this, that when I read a medical book, I take the man who is writing it, and see what I consider his value as an authority is; and if he says something that I don't agree with, I don't accept it in practice. He may say a whole lot of things in that book which I know, from my own experience, are fallacious; so, when you say, don't I practice according to medical books, I say right off, "that is different."

Q.—What use do you make of medical books? *A.*—To add to my general knowledge.

Q.—You mean merely to find out who agrees with you and who disagrees? *A.*—No, no, that is different. I want to know what people are doing. And when I find something in a medical book that appeals to me as being reasonable, I will use it in my practice. If I find it unreasonable, I discard it.

The witness was asked which medical books contain anything which he regards as reasonable. Objection was made to the question and sustained. He was then asked whether he did not start with some list of books when he first began to study to which he answered that he did. Objection was made to the question but was overruled.

Mr. Hough: *Q.*—Then you followed in your original practice what the medical books said? *A.*—Yes; every doctor does that.

Q.—Then you formed your opinion later from your own experience? *A.*—Exactly.

Q.—Which might have the effect of modifying what some medical books said? *A.*—As a rule.

Q.—But, has your experience taught you to disbelieve the majority of things that are in medical books? *A.*—I would hardly know how to answer that. That is too sweeping a generalization.

DEATHS IN LABOR

Q.—Well, I will not insist upon your answering it. When you say in your book that "20,000 women die in the United States every year from direct or indirect effects of labor," what do you mean? *A.*—These statistics furnished us by the United States Census Bureau of last year—that is, the last time they came out—enumerated the deaths of 10,010, I think that is about it—it is around ten thousand deaths of women in childbirth. Those are reported deaths. We know they died, because the death certificates came in. That represents the returns from the registration area of the United States, of 60 odd per cent. — I am not sure of the exact figures; if I had known I was going to be asked this question I would have brought them down.

Now, then, if 60 per cent. area of the United States is registered and the women dying in that area are reported to the Washington Census Bureau, the other 40 per cent. of deaths not being reported, it would be pretty safe in saying that if ten thousand women die in the registration area, another four thousand every year will die in the nonregistration area, which would give us 14,000 women that die in the nonregistration area — that is, I mean in the total United States. That is general, and I will not insist on the accuracy of all those things, but it is general. Now, every year, gentlemen, a certain number of women die during childbirth and after, where their deaths are not reported to the authorities, because they die under conditions that might be suspicious; child bed fever, for example, or somebody made a mistake; and they are reported as dying from typho-malarial fever, or some other condition. A certain proportion of those are so reported.

Then again a woman will have a contracted pelvis, and some doctor will use forceps, where he should have done cesarean section, and tore that poor woman all to pieces. She has to go back again in a year or so and be repaired, those stitches put in, and the uterus that has been misplaced, put in order by an operation, and she dies as a result of that operation. Now, that operation, while it was the immediate cause of death, dates back and should be quoted in this six thousand. And my judgment is that another six thousand would be a very small estimate to put upon those women that die from the immediate and remote effects of childbirth.

Q.—Were they all cases where the doctors were in charge? *A.*—No; doctors and midwives.

Q.—Doctors and midwives? *A.*—Yes.

Q.—Those are the reportable cases? *A.*—Well, they were reported cases, as they came within the knowledge of the Health Department.

Q.—What did you mean about the number of women who died in childbirth, but who were operated on under another diagnosis? *A.*—I just told you that, that they— .

Q.—You mean when it was a mistake in diagnosis? *A.*—Yes, through a mistake—yes, a mistake in diagnosing.

Q.—You don't include the abortions in that, do you? *A.*—I would have to look at the statistics to see if abortions were included in that. The American statistics are not very useful to draw positive conclusions from.

The witness was then asked concerning the various types of anemia and he said that he usually gives an alterative tonic, for example, a mixture of iron, arsenic, mercury and iodin. He was asked concerning the preparation of digitalis and he stated he has prescribed an infusion made up according to the pharmacopeial preparation.

There was read to the witness a prescription for atonic constipation attended with flatulence which he is said to have prescribed consisting of fluidextract of cascara sagrada, 30 c.c.; tinctura rhei aromatica, 30 c.c.; tinctura nucis vomicae, 20 c.c.; elixir taraxaci comp., N. F., enough to make 120 c.c.

The witness was asked how much alcohol is contained in these preparations. He answered that the patient gets 30 drops of the medicine three times a day. He was questioned specifically concerning the percentage of alcohol in each ingredient. He finally stated that the total amount of alcohol represented in a dose would be not more than 15 drops. The patient is instructed not to take that continuously. She is given only enough to last ten days and is instructed to discontinue it as soon as possible.

Council for the plaintiffs argued that there were 24½ drops, finally agreeing that he made a mistake, the witness stating:

The Witness:—I granted you fifteen drops, and, as a matter of fact, it is 7½ drops of pure alcohol.

Mr. Hough: *Q.*—Now, are there any other prescriptions? Does that remind you of any other prescriptions containing alcohol? *A.*—I prescribe very little drugs. I am rather opposed to indiscriminate drugging, and I am therefore very discriminating in using them. I use alcohol in a nipple wash compound, spirits of lavender.

Q.—I don't mean outside. I am talking about in the mouth. *A.*—Yes, yes. Oh, yes; I use ergot, fluidextract of ergot for postpartum hemorrhage. Is that what you wanted me to answer?

Q.—Yes, that is one. *A.*—And I also use ergot for the abortion—

Q.—How much ergot? *A.*—The patient gets ten to fifteen drops three times a day.

Q.—Of alcohol? *A.*—No, fluidextract of ergot. If she took more than that, she would get ergot poisoning.

Q.—How much alcohol does that contain? *A.*—I think ergot contains about 50 per cent. of alcohol, and so she gets 5 to 7 drops of alcohol.

Q.—Doctor, it has been testified to here that pregnancy is a normal function. What is your opinion about that? *A.*—You have opened up a very interesting subject.

Mr. Hough:—I thought I would.

Mr. Walker:—And you did not have to go to the figure.

Mr. Hough: *Q.*—Your opinion is that it is pathological, is it not? *A.*—With certain modifications, pregnancy is a natural function.

Q.—Pregnancy and puberty are both natural in a state of nature? *A.*—Yes.

Q.—But in our state of civilization they are both really physiological—

Mr. Walker:—Pathological.

Mr. Hough:—Pathological, I should say.

The Witness:—They are very often pathological; so often that they require medical attention from start to finish, if it is possible to give the patient the medical attention.

Q.—Now you have been testifying, Doctor, with reference to ideal conditions, haven't you? *A.*—We always strive for ideals.

Q.—What do you suppose the poor woman who lives back in the country is going to do if she cannot come to your sanitarium? *A.*—Well, most of the women don't come to my sanitarium or any sanitarium—

Q.—I mean any sanitarium. *A.*—At least I have no sanitarium. And what a woman in the country should do would be, as soon as pregnancy has declared itself, to go to the nearest reputable physician and let him give her whatever care it is possible under the circumstances then and there existing; warn her against the complications which are likely to arise; insist that her husband when he comes to town, as he probably does frequently, bring to him a bottle of her water and at least examine the urine. These few things any woman can get, no matter where she is; and pretty nearly every doctor, cross-roads doctor, knows enough to manage those cases.

The witness then testified again as to the number of deaths occurring from childbirth, and as to the symptoms of extra-uterine pregnancy.

The average physician can tell on examination whether or not the woman is going to have a difficult time in labor. He stated that the head of the fetus might be compressed to a thickness of three sheets of paper.

Q.—Doctor, when you said that this hypothetical medicine, taken during pregnancy, would have no effect whatever, except the effect of the alcohol, did you mean in any condition attending pregnancy? *A.*—Let us separate that into two parts.

Q.—First, did you make that statement? *A.*—Not exactly.

Q.—How did you state that? *A.*—I do not remember exactly how I stated it. I can answer the question, however to your satisfaction, if you will let me separate it into two parts.

If a woman needed a little appetizer, and I gave her some bitter medicine, whether it is viburnum or anything else, it might stimulate her appetite a little. If the woman needed alcohol in the medicine, and I gave her alcohol—I would give her alcohol if she needed it by the prescription, and then it would have the effect of the alcohol.

Q.—Well, suppose the medicine was hepatic? *A.*—An hepatic stimulant, is that what you mean?

Q.—Yes. *A.*—How much would I have to give her in order to get the hepatic stimulant?

Q.—No, suppose it was hepatic in the doses in which it is given, an hepatic stimulant in the doses in which it is given. *A.*—In order to give that dose, I would have to give of that particular hypothetical medicine, so much that the alcohol in it would be prohibitive.

Q.—Well, you lose sight of the hypothesis you are supposed to assume. You know nothing about carduus benedictus. *A.*—Practically.

Q.—You have never used it? *A.*—Practically none.

Q.—Well, have you ever used it? *A.*—Yes, I prescribed carduus benedictus once.

Q.—When was that? *A.*—About two weeks ago. Interested in what was going on, I had a case which I thought might be useful.

Q.—Where did you get the carduus benedictus? *A.*—What?

Q.—Where did you get the carduus benedictus? *A.*—If you will allow me, I will tell you. So I prescribed it, and before the patient—it was a case of hemorrhage, threatened abortion, and I told the woman to go home and go to bed, and rest in bed, and I gave her this prescription, and her husband went to fourteen different drug stores, and could not get it. In the meantime the patient got well. So that when I say that I have practically no experience, that is what I mean.

Q.—Then you have no experience at all? *A.*—Well, that is for you to decide. You asked me, and I am telling you.

Mr. Walker:—Why sure, she was cured by the mere prescription. He has got the experience. All you had to do was to suggest it, and the woman got well.

The Witness:—Well, the woman did not know it.

THE COURT:—Why, he only told her husband.

The Witness:—Her husband did not know what was in it.

Mr. Walker:—She got cured by telepathy.

Mr. Hough: *Q.*—Do you mean the woman herself, did not come to you? *A.*—What do you mean?

Q.—This patient, she herself, did not come to you? *A.*—Oh, yes; sure.

Q.—You gave the prescription to her, didn't you? *A.*—No.

Q.—You mean her husband came with her? *A.*—Now, wait a minute. I want to recall the incident. I don't remember whether her husband was there or not, but anyway she was an ignorant Russian, Jewish woman, and I doubt if she could read and I doubt if her husband ever looked at the prescription, and I am telling you I gave her the prescription, and she went home and went to bed, and did not get the medicine until late the next night. They had to send to the wholesale druggist, I guess, to get it, and by that time the hemorrhage had stopped.

Q.—Did you call on her the next day? *A.*—No, the husband telephoned me at the end of the week. I told him to call me up and let me know the effect of that medicine, and he told me what I told you. So I said, "Wait another week and bring your wife down." He went away and so I examined her and she was all right. That is all the experience I have had.

Q.—You did not see the medicine that she got, did you? *A.*—No. Well, that she did not get.

The witness was asked concerning the dosage which he prescribed. He stated that he could not give sufficient of the hypothetical medicine mentioned to get the effect of either of the principles mentioned without giving more alcohol than he would wish to prescribe.

He was asked whether he assumed that volatile oil in the hypothetical medicine had no effect. He stated that volatile oils in the combination were so small in quantity as to be negligible. He stated that volatile oils as usually given are inert. He was asked what volatile oils that he could remember that had any effect. He stated that even supposing that the diuretic and diaphoretic principles are present in sufficient amount to give that action he still considered this mixture would not be safe to give in pregnancy not only because of the amount of alcohol but also because diuretic or diaphoretic drugs must not be given without the physician knowing what he is giving them for.

The further hearing of the case was adjourned until April 21, 1916, 10:30 a. m.

April 21, 1916, Morning

TESTIMONY OF DR. JOSEPH B. DE LEE (*continued*)

The Court met pursuant to adjournment. Dr. Joseph B. De Lee resumed the stand for the defendants.

CROSS-EXAMINATION BY MR. HOUGH

Dr. De Lee was asked as to his knowledge of alcohol. He stated that it was general. He was asked:

Q.—Are you familiar with the statement of Dr. J. Clarence Webster on the subject in his book on "Diseases of Women"? *A.*—I don't know what he says about it.

Q.—Well, is this statement a fact: "Brandy or whiskey is valuable where there is much exhaustion. As much as 10 or 12 ounces, or even more, may be administered in 24 hours, chiefly for the food value, though the stimulant action is also important." Is that a fact?

Mr. T. J. Scofield:—I object to that question, if the Court please.

THE COURT:—What is the objection?

Mr. T. J. Scofield:—I don't see how it is cross-examination in any way, or how it is material.

THE COURT:—Well, this is not what Dr. Webster said, I mean so far as the question is concerned. The witness said he did not know what Dr. Webster said in his book. Now, Mr. Hough has a right to ask him whether alcohol in these doses, under these conditions he regards as proper.

Mr. Hough: *Q.*—Is that a true statement, in your opinion?

THE COURT:—Do you agree with that statement?

The Witness:—Since that is an important statement, and I want to know the details, might I ask you to read it again?

Mr. Hough: *Q.*—Well, the statement that is important, is the fact that it may be administered in as large quantities as 10 or 12 ounces in each 24 hours for its food value, as well as for its stimulating value. *A.*—Under what subject, may I ask, is that recommendation given?

Q.—Now, would a woman during pregnancy be able to oxidize or assimilate freely less alcohol than she would in any other menstrual disturbance? *A.*—You have assumed that pregnancy is a menstrual disturbance. That is an erroneous assumption.

Q.—Well, leave out the word "other." Any menstrual disturbance? *A.*—Offhand I would say that the woman's power of assimilating and getting rid of toxic (poisonous) matter—toxic means poisonous—I would say that a woman's power of assimilating and getting rid of toxic products during pregnancy would be diminished on account of the weakness of the kidneys, the vulnerability of the kidneys to toxic influence.

Mr. Hough:—I ask that that answer be stricken out as not responsive.

THE COURT:—It is not directly responsive.

Mr. Hough:—And it has no bearing on what I asked, which was whether a woman in pregnancy would assimilate more or less alcohol than in menstrual disturbances without pregnancy? *A.*—Assimilation—I would like to explain to the jury—consists in the using up of a medicine and its removal from the body. That is part of the function of assimilation. And I have not made any pharmacological experiments to determine how much alcohol a woman can assimilate and get rid of during pregnancy as compared with the same woman during the menstrual periods. I doubt if such pharmacological experiments have been made. So that I can only generalize in that way and use my general information regarding poisons, and we do know that all forms of poison are less easily gotten rid of during pregnancy. That is generally understood.

Objection was made to the witness stating whether the statement of Dr. Webster was true or untrue.

Mr. Hough: Q.—Will you state then, whether in your opinion a woman suffering from any female disease can assimilate so much as ten or twelve ounces of brandy or whisky a day? A.—That is not a statement for an expert on obstetrics to decide. That is a pharmacological—

Q.—Have you no opinion on the subject? A.—What?

Q.—Have you no opinion on the subject? A.—The general impression is that a woman can assimilate two ounces of alcohol, two or three ounces of alcohol in a day. Whether or not it is advisable to give that amount of alcohol depends on the case. The olden time treatment for childbed fevers was alcohol. They would give as much as a quart of whisky a day, and it was said that women could absorb and assimilate as a food a quart of alcohol in a day — or whisky, not alcohol. Now my opinion is that that amount of alcohol—and I base my opinion on my own experience as I have tried it—that that amount of alcohol is harmful and not good.

Q.—What is the maximum amount, in your opinion, which is not harmful? A.—Well, I have given in the form of an eggnog to stimulate the appetite, or to produce a little change in the diet, or to encourage the condition, I have given as high as an ounce, possibly two ounces, in a day. But if the woman has a tendency to—

Q.—Before you go on, will you just explain how many drops there are in an ounce, or two ounces? A.—Oh, I should say in an eggnog a woman gets a teaspoonful of whisky, sometimes two teaspoonsful of whiskey, to brace her up over a depressed period.

The witness was then asked if he relied on any statements made by THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION in forming his opinion. He answered that he relied on all the literature he has read; things that he has heard in court and from various people. He would not assume anything regarding a statement, he would wish to know who made it and would study each individual experiment and see whether the experiment suited him.

Dr. De Lee was asked if he would give the name of the woman for whom he prescribed carduus benedictus. He stated that he preferred not to do so, and would not care to give it privately to the counsel for the plaintiff. The Court stated that where the case was brought out on cross-examination he doubted much if the Court should be required to direct the witness to furnish the name. In the case in question Dr. De Lee examined the patient in his office, for which the patient paid $2. He was questioned specifically regarding the details of the examination.

Q.—When she came back did she tell you what she had paid for the prescription? A.—No, I didn't ask her.

Q.—But you didn't expect it to do any good when you gave it to her? A.—That is one of the reasons I prefer not to give you her name.

Q.—Why? A.—I rather hesitate to let her know that I gave her a medicine that I did not think was going to do her any good.

Q.—Well, but you charged her for it too, didn't you? A.—No, I beg your pardon.

Q.—Didn't you charge her $2? A.—I charged her $2. I gave her a thorough examination. I advised her to go to bed—a remedy which I believed was going to cure her.

Q.—Aren't you going to give her back the price of the prescription?

Mr. T. J. Scofield:—Oh, I object to that if the Court please.

The Witness: A.—Did I give her back the price of it?

M. Hough: Q.—You will, won't you? A.—If she should ask me I would gladly give her back. But I gave her more than $2 worth of service, I assure you. I didn't charge her for the telephone calls. Let us call that square on the prescription.

Q.—You mean you didn't charge her for the prescription then, you charged her for talking to her? A.—Oh, yes, I get a lot of money for that.

Q.—When the husband telephoned to you what language did he use? A.—I really don't know. It may have been English or German. I understand both equally well.

Q.—Did I ask you if you were continuing to attend her? A.—Yes, she is on my book. I haven't heard from her. She may have had her abortion and called in a local doctor. That often happens. Or she may be well and may have her abortion later, and I may be called. That class of patients are very uncertain. They leave one doctor very often for another.

Dr. De Lee was asked to define eclampsia and state its causes. He stated that the cause is said to be a poison or toxin. The exact chemical nature of the poison is not understood.

Q.—Now under the head of "eclampsia" on page 362 of your book is this statement:

"Eclampsia and allied conditions. It is impossible to classify these diseases because the causes are unknown."

That is a correct statement, is it? A.—Oh, yes, in a general way. I think it is impossible to classify disease.

Q.—At least it was a correct statement when you wrote the book? A.—Yes, it must have been or I probably would not have put it in.

Q.—Now since hearing Dr. Kay testify on the stand yesterday you know what the causes are, don't you?

Mr. T. J. Scofield:—I object to that, if the Court please.

THE COURT:—Objection sustained.

Mr. T. J. Scofield:—He is testifying from his own experience.

Mr. Hough: Q.—You heard Dr. Kay testify? A.—I heard Dr. Kay. Very good testimony.

Q.—You heard the testimony? A.—Yes; pretty good testimony.

Q.—You heard him testify as to the causes of eclampsia, didn't you? A.—He said something about constipation causing eclampsia. I thought I mentioned that too, as one of the causes.

The witness was then asked whether extractives from viburnum prunifolium could be of any benefit in eclampsia. He stated that they could be of the slightest imaginable benefit. He stated that he did not believe that 48 drops of alcohol three times a day would produce eclampsia, but he recited a case in which larger doses of alcohol did produce eclampsia. He stated that there is authority for believing that alcohol should not be taken during pregnancy. He was asked whether or not there is more eclampsia in Europe He stated he did not know that there was. He stated that there was perhaps one case of eclampsia in 600 cases, but that statistics vary. In Baltimore, for example, there is more eclampsia.

The witness was then asked as to his knowledge of the treatment prescribed in the Home Treatment Book. He stated that he knew in a general way that the knee-chest position is recommended and keeping the bowels open. He is not so expert on the Home Treatment Book as he is on his own book. He understood from the Home Treatment Book that without taking Wine of Cardui a treatment could not do very much good.

The witness was then asked as to his treatment of threatened abortion. He defined habit-forming drugs and as the greatest habit-forming drug he mentioned alcohol. He was then read extracts from the Home Treatment Book prescribing the diet suitable for the first months of pregnancy and stated that it is a very liberal dietary, but certain pregnant women ought not to be put on that diet.

THE MIDWIFE

Q.—Doctor, is a midwife an obstetrician? A.—Is a midwife an obstetrician? In the olden times before we had obstetricians, the midwives did the work and they got various names and the first was "The midwife," which means a wife that stands midway between the husband and the real wife. She was a mid wife. In the olden times, the husbands took care of the babies. They were delivered sitting on the husband's lap. Then came the midwife, and they sat on her lap, and in the 16th and 17th century the French midwives were called *sage femme*, meaning wise woman. They were also called *accoucheuse*, which means to put a woman in bed.

When the men, in the beginning of the 16th or 17th century, began to dabble in this particular branch (they had before, but not to any particular extent) they chose the name "accoucheur," which means a man that puts a woman to bed. In England they were called "men midwives," but the men did not like that, so they decided they ought to be called something else, and they selected the word "obstetrician" which comes from the Latin word "obstetrix," to protect or assist and the Latin word "status," to stand as a protection. And I might say that that meaning of the word "obstetrician" is not sufficiently understood and practiced. The obstetrician's business is to protect the patient from dangers threatening her and the baby.

A great many men think that it is their business to help some woman out of trouble, and of course it is to the extent of protecting them from trouble, but they give medicines and things which are not necessary. So you see the origin of the word "obstetrician."

Now, whether a midwife should be entitled to the term "obstetrician" would depend on how you take my description. Her antiquity would certainly entitle her to a great deal of honor, but her actual capacity nowadays would not entitle her to any high degree of honor.

Q.—You mean unless they have had some education along the lines of that subject? A.—Oh, no. The usual obstetrician, or the usual midwife of today, is a very ignorant, unconscientious and really impossible person, the usual one.

Q.—They graduate then, don't they? A.—They do in Europe, and they have some schools for midwives, but the class of women who undertake the study is not of a high grade and they forget very rapidly.

Q.—They graduate then in America? A.—There is only one midwife's school in America of any standing whatever, and that is the Bellevue Hospital in New York.

He was then asked some general questions as to the status of obstetrics in this country today.

TESTIMONY OF DR. G. FRANK LYDSTON

Dr. G. Frank Lydston was called as witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. G. Frank Lydston has been practicing medicine for 37 years. He is a graduate of Bellevue Hospital, New York. He served at the State Hospital in New York, on Blackwell's Island; in the penitentiary hospital, and had for six months charge of the maternity service at Blackwell's Island. He also served for a time as resident surgeon at the State Immigration Hospital, Ward's Island, New York. For 30 years he was connected with the College of Physicians and Surgeons, of Chicago, as a professor in the Department of Diseases of the Genito-Urinary Organs. He has seen perhaps from thirty thousand to fifty thousand cases in his practice and has written various articles on his subject.

Dr. Lydston defined inflammation and their causes and named some of the various bacteria which produce inflammations. He mentioned some of the most common organisms which he finds in his practice: gonococcus, colon bacillus and the spirochete. He was asked to describe gonorrhea in the female. The counsel for the plaintiffs admitted there would be no dispute on this question so that the answer was passed. He was then asked to describe the syphilitic infection in the female, which was described extensively. He described syphilis of the neck of the womb and defined leukorrhea as a symptom of a disease. He has not had any experience with cnicus benedictus or viburnum prunifolium.

The witness was then asked a hypothetical question similar to those asked of other witness and whether a hypothetical medicine such as had been described would cure inflammations of the female genital organs. He stated that it was his opinion that it would not.

Q.—Why not, Doctor? *A.*—Simply because, as you have read the hypothetical question involving this particular drug or preparation, you have shown nothing that would have any effect upon the cause of gonorrhea.

Q.—The cause of gonorrhea being what, Doctor? *A.*—The cause of gonorrhea being a micro-organism that would not be reached by this remedy taken internally, even though the remedy had any germicidal properties, which, in my opinion, it has not.

Q.—Now, Doctor, in reference to gonorrhea in women, I will ask you this question, whether this hypothetical medicinal solution, which I will ask you to assume corresponds to Wine of Cardui, will act upon the cause of the disease and is, therefore, not a mere palliative, but a scientific and specific remedy, with a curative effect upon the seat of the trouble?

Mr. Hough:—What are you reading from, Judge?

Mr. T. J. Scofield:—From the Cardui Home Treatment, page, I think, 6.

Q.—Have you an opinion, Doctor, on that subject? *A.*—I have.

Q.—What is that opinion? *A.*—That it will not.

Q.—Doctor, what would be the effect, if any, of the alcohol content of such a medicine upon the gonorrheal condition—upon the condition of gonorrhea? *A.*—That would depend largely upon what complications existed; and it would depend also upon the amount that was given. You have stated how much there was in the single dose, but you have said nothing about how frequently it is given.

Q.—Yes. The doses being repeated from three to four times every day. *A.*—In my opinion, the alcohol content would be injurious.

Q.—In what way, Doctor, and in what complications? That is a double question, perhaps. *A.*—Well, take for example the infective inflammation resulting from gonorrhea of the uterus. It would tend to increase congestion, tend to increase nervous excitability and sensibility, and in that way would lessen the resistance of the tissues to the inroads of the germ. Anything which tends to produce congestion in the presence of infectious micro-organisms almost invariably tends to increase the virulency of the infection, make it worse.

The witness was then asked particularly concerning the effects of the hypothetical medicine on syphilitic infection. Objection was made to the question, and, after argument, he was asked whether the hypothetical medicine would have effect on any inflammation of the womb. He stated that in his opinion it would not have a beneficial effect.

Q.—Would it make any difference in answering your question—in your answer, Doctor, whether the inflammation was produced from syphilitic causes or other causes? *A.*—It would make a difference in this respect, that the use of that particular remedy, this hypothetical solution, would be even more illogical in the case of a syphilitic inflammation or ulcer of the neck of the womb, than it would be in other conditions—conditions from other causes—and it would be more likely to be injurious.

There was then read to the witness a section from the Ladies' Birthday Almanac for 1913, concerning pain in the small of the back, and the witness was asked to state two or three conditions which come in the line of his special work which might cause such a pain.

PAIN IN THE BACK

A.—Pain in the back is not a disease, but a symptom of a multiplicity of diseases. It may not be a symptom of any one or more of a multiplicity of diseases, not only two or three, but a large number; and especially in the female; for example, all sorts of displacements of the uterus; anything that increases the weight of the uterus and brings tension to bear upon the ligaments or supports of the uterus is very likely to produce pain in the back. That is a very frequent symptom. And it may produce pain in the back not only by its direct dragging, but by its reflex effect upon the nerves supplying the back, and the reflex effect upon the nervous system in general.

Abscesses in the pelvis; abscesses in the fallopian tubes; chronic inflammatory conditions of the pelvis; tumors of the pelvis; cancer of the ovaries; cancer of the uterus; cancer of the tubes; cancer of the cervix; cancer of the vagina; cancer or hemorrhoids or any other morbid condition of the rectum.

Cancer of the bladder may produce it; stone in the bladder may produce it; inflammation of the bladder may produce it; gonorrheal infection may produce it in two ways, by increasing the weight and producing irritation of the uterus in one way, and it may produce it in the other way by infection through the blood, producing it in that way, affecting the muscles of the back, the sheaths of the muscles of the back, the tendons of the muscles of the back and ligaments of the spine.

It may result from stone in the bladder, or stone in the ureter, particularly a stone in the ureter; a stone in the pelvis of the kidney. It may result from sarcoma or a cancer of the kidney, or a stone in the kidney. It may result, and very frequently does in women, from a displacement of the kidney.

That is about all I can think of offhand. There are some more, I suppose.

Q.—Doctor, can you tell now—

Mr. Walker:—What is the matter with lumbago? Isn't that one?

Mr. T. J. Scofield:—Can you tell from the description of the pain—

The Witness:—I should speak of rheumatism of the back. Lumbago is not definite.

Mr. T. J. Scofield: Q.—Can you tell from the description of the pain, as described in the Birthday Almanac, what the cause of that pain is—from the description given there—could you diagnose the condition, and tell the cause of the trouble, without examination?

Mr. Hough:—Objected to as incompetent, irrelevant and immaterial.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

The Witness:—No, sir; I could not. I don't think that any scientific physician would undertake to make a diagnosis of any condition merely from the symptom of pain in the back.

Mr. T. J. Scofield: Q.—Doctor, what in your opinion would be the effect of the hypothetical and medicinal solution which I have described to you, assuming that it corresponds to Wine of Cardui, in the treatment of this pain in the back? *A.*—Well, I think from the position of it, if it were given freely, that there might be some temporary alleviation of the pain, by virtue of the effect of the alcohol.

Q.—Where it is given, of course, in the doses I have already referred to. *A.*—I should think that might be so, yes. I should think, however, the secondary effect of the alcohol—in fact, I am confident it would be in the majority of these cases, if not all the instances I stated, be injurious; particularly so, where there is any inflammation of the urinary way, where a very small quantity of alcohol may result in extreme irritation.

Mr. T. J. Scofield: Q.—Now, Doctor, would it have any effect on the underlying cause of the pain, whatever that underlying cause might be? *A.*—In my opinion it would not.

The case was then adjourned until 2 o'clock the same day.

April 21, 1916, Afternoon

The Court met pursuant to adjournment. After discussion the Court adjourned until Tuesday Morning, April 25, 10 a. m.

April 25, 1916, Morning

TESTIMONY OF DR. G. FRANK LYDSTON (*continued*)

Dr. G. Frank Lydston resumed the stand in behalf of the defendants.

CROSS-EXAMINATION BY MR. HOUGH

Dr. Lydston was asked as to the best treatment for gonorrheal infection. He outlined what he would do in the case of a woman patient afflicted with gonorrhea. He outlined the diagnosis, describing the use of the microscope and mentioned the use of the complement fixation test. If the case was in its incipiency he would hope to cut the disease short by germicidal drugs; for example, permanganate of potassium varying in strength from one to five thousand to one in one thousand. Douches should be given in the recumbent position with large quantities of hot water. He would advise the patient concerning the danger of infecting others, particularly with relation to danger from gonorrheal conjunctivitis. He would say to the patient: "You must avoid absolutely stimulants of all kinds, even tea and coffee. You must avoid all

sorts of excitement, particularly of a sexual character. The best thing that you could do, would be to rest quietly in bed." If the disease had reached a moderate start, he would advise the patient to rest in bed in order to avoid a number of very serious complications which he mentioned. If the patient were depleted he would prescribe tonics containing iron, arsenic, etc., and perhaps bitter infusions of quassia, columbo or gentian. If the patient suffered from sleeplessness he would prescribe such sedatives as bromids and gelsemium, or small doses of chloral and veronal. He would prescribe prolonged sitz baths. He would attend to the condition of the bowels; if there was fever he would attend to that by appropriate remedies. The treatment would be directed chiefly toward destruction of the gonococcus.

The witness would consider also the question of infection of Bartholin's glands, which he described. He also described endometritis and its treatment, and spoke of extension of the inflammation to the fallopian tubes, with the formation of pyosalpinx.

He then considered secondary peritonitis and appendicitis and discussed a case of this character in which he had recently performed an operation.

He was then asked whether gonorrhea ever produced vaginitis. He replied that vaginitis in gonorrhea is not an important element; more important are secondary infections of the glands, etc. He was asked whether he ever treated gonorrheal infection by simply keeping the parts clean. He had not done so but practically always prescribed an antiseptic douche unless there were distinct contraindications.

Q.—Now, you stated the micro-organisms to be the cause of these infections. Is it not also the nonresistance of the tissues, does not that have something to do with it? *A.*—That is obvious, if the tissues were resistant to the micro-organisms, we would never have any disease at all.

Q.—And it is possible— *A.*—And you would not eat unless you were hungry, either.

Q.—Is it not possible to so strengthen the resistance of the tissues as that they can oppose the micro-organism? *A.*—You are speaking of strengthening the tissues in general? We can so increase—we cannot increase the resistance of the tissues, we have no method of increasing the resistance of the tissues so that we could be certain that we could prevent the inroads or action of any micro-organism, pathogenic micro-organism, disease producing micro-organism, but we can relatively increase the resistance in reference to many of them.

For instance, tuberculosis. A lack of resistance to the tubercular—the bacillus tuberculosis or the germ of tuberculosis or consumption, is the primary condition. That, however, is an entirely different thing. There is nothing particularly virulent about the tubercular micro-organism, as compared with this.

Q.—Would that be true in cases of gonorrhea? *A.*—I am going to give that. In the case of gonorrhea, I don't care how you may increase the resistance; I don't care how you may lower the resistance. Whenever a virulent gonococcus attacks your mucous membrane—good-night. You are going to have gonorrhea, and that is all there is to it.

Dr. Lydston stated that everyone who is exposed to gonorrhea does not become infected because of resistance of the tissues and variations in susceptibility.

Dr. Lydston described leukocytes and their relation to combating infection. Hyperemia in the beginning of infection would tend to aid the conditions, but is rapidly superseded by congestion which is not beneficial.

Dr. Lydston stated that he sometimes prescribes tincture of gelsemium, but that he does not know the exact alcohol content of it. He gives quassia in the form of infusion. He gives digitalis in the form of infusion. He stated that it is not necessary that the infusion contain alcohol.

Q.—When you prescribe medicine, Doctor, don't you pay any attention to whether there is alcohol in it, or not? *A.*—I might or I might not. That depends entirely on the condition for which I prescribe the medicine, the complications and the amount of alcohol in the preparation, the frequency of the dose and the duration of the treatment. I will state incidentally, however, that I avoid alcoholic preparations wherever I can.

Q.—Here is a preparation that you prescribe, or that you recommend containing fluidextract of ergot, tincture of gelsemium, potassium bromid, hyoscyamus, aurantii; do you know how much alcohol there is in that preparation? Now, once again, what is it? I will just let you read it. (Handing book to witness.) *A.*—Thank you very much. I was about to ask for that book. I have not seen it for a long time.

Q.—You will find the prescription referred to on page 141 of your book. *A.*—(Examining book). Well, you have helped me out here; you have gotten it all written out.

Q.—I did not intend to give you any help, but you can take advantage of it, if you like. *A.*—Oh, I don't care to take advantage of it. Something like 25 minims it would figure up.

Dr. Lydston did not consider that the alcohol in this prescription had any deleterious effect, as the bromid present was an antidote.

Q.—Would that amount of alcohol be cumulative, so that its effect would run over to the next dose? *A.*—You mean cumulative in that it would stay in the system?

Q.—Yes. *A.*—I have my serious doubts of it, but the effect of it would be cumulative.

Q.—That is, the beneficial effect would be cumulative? *A.*—Let us speak of the deleterious effect, please.

Q.—Well, would the deleterious effect be cumulative? *A.*—It would.

Q.—So that the time you gave the second dose of it, it is worse than the time you gave the first? *A.*—Please stick to your question, and don't try to trap me, because I am not here for that purpose, Mr. Hough.

Q.—I don't want to trap you. *A.*—You are trying to, and there is no use in it, because you and I are reasonable men. I am not going to lay any traps for you.

Q.—I am not trying to lay any trap for you. *A.*—The deleterious effect of the alcohol given as alcohol in 25 minim doses, either in one dose or however many times a day, if you will put your question in that way, then I will answer it.

Q.—Why not answer me whether the time you gave it, the second dose, it would be worse in its effects than when you gave the first dose? *A.*—Are you speaking of that prescription or the alcohol?

Q.—I am speaking of the alcohol in this prescription. *A.*—I have already eliminated that prescription, and told you that the alcohol in it produced no injury in that at all.

Dr. Lydston was repeatedly cross-examined concerning the action of the alcohol and the bromid in the prescription mentioned.

Q.—How can you say, if you know nothing about viburnum prunifolium, and carduus benedictus, that it might not counteract the effect of alcohol, as well as the bromid? *A.*—I do not believe that I said that, did I? Did we take that up?

Q.—Didn't you state— *A.*—I was asked whether I had ever used those preparations, I believe, and I was asked whether those preparations would cure gonorrhea. I said that preparation would not cure gonorrhea, and I stated my reason.

Q.—Didn't you say that the amount of alcohol in there was absolutely dangerous, on account of the inflammation? *A.*—I did.

Q.—Well, then, how can you say that it would be dangerous or would not be dangerous, without knowing whether or not the viburnum prunifolium or the carduus benedictus might not act on the alcohol the same as the bromid does on your alcohol? *A.*—Because bromid of potassium is a very powerful sedative, a very powerful sedative, and, as I remember, the hypothetical question there was nothing said about this remedy being a powerful sedative. Somewhat sedative.

Numerous questions were asked in relation to the hypothetical question and the amount of cnicin, carduus benedictus and viburnum in it in their relation to the alcohol.

Dr. Lydston testified that he has prescribed Hayden's Viburnum Compound perhaps half dozen times years ago.

Q.—In what case did you prescribe it? *A.*—I prescribed that several times before I was advised of its composition, under the inference that it contained viburnum. I do not now think it does—and I am sure that it does not. I think I prescribed it in a case of ovarian neuralgia, or something of that sort. I prescribed it very infrequently.

Q.—Well, you prescribed it for young girls for amenorrhea, haven't you? *A.*—No, I don't think I ever did.

Q.—Are you positive of that now? *A.*—I am not sure.

Q.—You won't say you have not? *A.*—I don't recall it. No, I would not say I have not. No, I would not say that, because I have used Hayden's Viburnum Compound on a moderate number of occasions—very little of recent years.

Q.—I hand you a bottle, and ask you if that is the medicine referred to? *A.*—Yes, that is Hayden's Viburnum Compound. (Examining bottle).

Q.—What is the percentage of alcohol? *A.*—Fifty per cent.

Q.—Without reference to whether you knew what the other ingredients were, you did know that it contained 50 per cent. of alcohol, didn't you? *A.*—No, I did not.

Q.—You did not even know that? *A.*—I did not; I have never seen the label of Hayden's Viburnum Compound since the Pure Food Act compelled them to put the percentage of alcohol on it.

Q.—How long have you used medicines without knowing what the ingredients were? *A.*—Oh, I very seldom have used medicine without knowing what the ingredients were. I cannot, however, always be absolutely certain as to a preparation, and we have to take even our official remedies—we have to take them very often without absolutely investigating to see what the proportion of this and that and the other is, excepting as regards the active principles.

Q.—Doctor, are you the author of a brochure entitled, "Why the Medical Association is Going Backwards, A Critique of the Medical Trust?"

Mr. T. J. Scofield:—That is objected to.

Mr. Hough:—He has testified that he is the author of certain publications.

THE COURT:—Has this anything to do with this case?

Mr. Hough:—I think it has, your Honor; I think it has a good deal to do with the case.

Mr. T. J. Scofield:—It is not cross-examination, and it is utterly immaterial.

Mr. Hough:—Can't I identify these by this witness?

Mr. T. J. Scofield:—Wait until I get through. It is an effort to bring in here an immaterial issue into this case, that is entirely collateral and it would require, if there is any investigation of it, going out a good distance, far afield.

Mr. Hough:—I should like to identify those two pamphlets by the witness. (Handing pamphlets to the Court).

THE COURT:—Yes, he may identify them. I do not see at this time that they are competent.

To which ruling of the Court in permitting the identification of said pamphlets, the defendants, etc., excepted.

THE COURT:—And of course it is understood that no use shall be made of the titles of those unless they are received in evidence.

Mr. Hough:—Yes.

Q.—Is that the name of it? *A.*—It is.

Q.—And you said you were the author of that? *A.*—I am.

(The pamphlet referred to is marked Plaintiff's Exhibit A. April 24, 1916.)

Q.—And you are also the author of that pamphlet entitled "How Simmons, Our Peerless Leader, Became Regular"? *A.*—I am.

Q.—Is that a copy of the brochure? *A.*—It is. (Having examined pamphlet.)

(The pamphlet last above identified is marked Plaintiff's Exhibit B. April 24, 1916.)

REDIRECT EXAMINATION BY MR. SCOFIELD

On redirect examination Mr. Scofield asked Dr. Lydston to explain the use, periods of dosage, and the number of doses per day of the prescription read by Mr. Hough. He stated that the book was written in 1899 and the prescription ordered one dose at bed time to get the sedative effect of the bromid and hyoscyamus.

TESTIMONY OF DR. W. W. CORNAG

Dr. Cornag was called as witness for the defendants.

DIRECT EXAMINATION BY MR. WALDO

Dr. W. W. Cornag testified that he has been practicing medicine for twenty-six years in Lavonia, Ga. He has had some experience with McElree's Wine of Cardui. He was called to see a Mrs. J. S. She related that she was suffering with falling of the womb and hemorrhage, pains in the pelvic organs and in the back. She had been taking Wine of Cardui for about a year without relief. He made a pelvic examination and found her womb down to a small extent, enlarged, and there was a slight hemorrhage that had been going on at irregular intervals. He advised her to have an operation. A surgeon was called and he suspected there might be cancer of the womb. At the time of operation the surgeon found what he thought was the beginning of a cancer of the uterus and a small cyst of the ovary. He amputated the body of the uterus and removed the cyst. The woman has been in good health since.

Mrs. G. R. told the witness that her menstruation had stopped for a year and she had been gradually getting weaker. She thought she had some uterine trouble and had been taking Wine of Cardui, but without relief. He found that her weakness and suppression of menstruation was due to consumption. The woman died of this disease about four months after he first saw her. Mrs. G. R. told him that she had taken several bottles of Wine of Cardui for about a year.

Mr. McW. was a patient of the witness for alcoholism. This patient stated that when he could not get whisky, he would drink Wine of Cardui. The occurrence was seven or eight years ago. The witness saw McW. drink perhaps one-fourth of a bottle on one occasion.

The witness stated that he was called to see Mrs. Y., who was complaining of pains in the region of the uterus, with burning sensations, pains in the back, and whites. On pelvic examination he found a gonorrheal infection of the womb and tubes. This patient stated that she had been taking Wine of Cardui off and on and she had been ill for eighteen months. He treated her for a heart disturbance. The patient died about two weeks ago of pneumonia.

Another patient, Mrs. C. R., complained of pains in the pelvic region, painful menstruation and whites. He found on examination that she had a syphilitic ulcer of the mouth of the womb. The patient stated that she had taken Wine of Cardui without being relieved. He was able to get her in pretty good shape with specific treatment for syphilis.

Another patient was F. M., who complained of scanty, irregular and painful menstruation and sterility, for which she had taken Wine of Cardui, without relief. On examination he found that the mouth of the womb was small—there was no diseased condition. He advised her to have an operation which she refused.

CROSS-EXAMINATION BY MR. WALKER

On cross-examination the witness testified that he came to Chicago about four weeks ago. He received a notice from the secretary of the state medical society asking if he knew anything about the use of Wine of Cardui, and later he met Dr. Heizer in Atlanta, Ga. The witness is a member of the American Medical Association. He has not resubscribed for THE JOURNAL, which he has taken off and on at various periods. He understands that his expenses will be paid and that he will receive a reasonable per diem for the time lost during his attendance in Chicago.

He was repeatedly cross-examined concerning the names and addresses of his patients and he promised to give this information to the counsel for the plaintiff. He was also repeatedly examined concerning the incidents described in the direct testimony.

Q.—Doctor, do you keep a drug store? *A.*—Yes, sir.

Q.—At Lavonia? *A.*—Yes, sir.

Q.—You still run it? *A.*—Yes, sir.

Q.—How long a time have you been running a drug store? *A.*—Ten years about.

Q.—During all the time that you were treating the patients that you have named here, you had that drug store? *A.*—Yes.

Q.—Who is taking care of your drug store, and of your business? *A.*—My daughter is in charge of it.

Q.—She is a pharmacist, is she? *A.*—No, sir, I don't run a prescription business; I run a retail "patent medicine" and stationery business.

Q.—You sell "patent medicines"? *A.*—And carry my own pharmaceuticals.

Q.—Well, do you sell Peruna? *A.*—Oh, yes, sir.

Q.—Lemon Extract? *A.*—Yes.

Q.—Aletris Cordial? *A.*—No, sir.

Q.—Hayden's Viburnum Compound? *A.*—No.

Q.—You don't sell anything that doctors ask for on prescription? *A.*—I don't fill prescriptions, I am not licensed.

Q.—Do you carry Lydia Pinkham? *A.*—Yes, sir.

Q.—Her remedy? *A.*—Yes, sir.

Q.—What others? *A.*—Wine of Cardui.

Q.—How long have you carried Wine of Cardui? *A.*—Oh, about eight or nine years.

Q.—What others? *A.*—I don't know; I have got—

Q.—Duffy's Pure Malt Whiskey? *A.*—Sir?

Q.—Duffy's Pure Malt Whiskey? *A.*—No, they would not let me sell that in my town.

Q.—Hostetter's Bitters? *A.*—No.

Q.—What other medicines, besides those named? *A.*—I got Harder's Iron Tonic.

Q.—How much alcohol is in that, do you know? *A.*—I do not know.

Q.—What else? *A.*—I could not tell you, just a small line of patent medicines that people ask for mostly, that is all.

Q.—Do you carry any drugs yourself? *A.*—I carry my pharmaceuticals, that I use in my practice.

Q.—What school did you graduate from? *A.*—Atlanta Medical.

Q.—What is that, Regular? *A.*—Yes.

The witness was then asked questions regarding the various sects in medicine. He was asked concerning the disposition of his practice while he was attending the trial in Chicago, and questioned in detail concerning his treatment of Mrs. Y, who suffered with gonorrhea. He gave her an astringent douche, digitalis and salines. He also gave her Blaud's pills. He did not prescribe "Cardoseptic."

Q.—You mentioned some iron remedy that you keep there, some patent or proprietary medicine? *A.*—Harder's Iron Tonic.

Q.—Did you give her that? *A.*—No, sir, I don't prescribe patents.

Q.—How much alcohol was in that? Well, you recommend them, don't you? *A.*—No, sir, I do not.

Q.—You just sell them? *A.*—Yes, I sell them, when they ask for them.

The witness was then questioned in detail concerning the case of Mrs. C. R., who had syphilis. He treated her with mercury and iodids, and prescribed an antiseptic douche.

The witness was then asked if he recognized the signature of Mr. McW. He could not identify the signature.

Q.—He told you that when he could not get whisky, he would take anything that had it in it? *A.*—He preferred Wine of Cardui.

Q.—Did he also tell you that he would take anything that had alcohol in it? *A.*—Well, he said he had to have alcohol.

Q.—Did he buy it of you? *A.*—Yes, he did.

Q.—Over what length of time had be bought Wine of Cardui from you? *A.*—He was the first man that ever I knew of buying a bottle in my place for intoxicating purposes, and right then I instructed my clerk not to sell him any more.

Q.—When did he first buy Wine of Cardui from you? *A.*—It was about seven years ago.

Q.—You say be bought it then for intoxicating purposes? *A.*—He did.

Q.—How did you know that? *A.*—He told me he did.

Q.—Did he drink it there in your store? *A.*—No, he drank it in his room.

Q.—Is that the occasion that you saw him drink a quarter of a bottle? *A.*—Yes.

Q.—How much did he buy? *A.*—That one bottle, is all I can testify to.

Q.—Had he bought Wine of Cardui before? *A.*—I think he had.

Q.—Is that the reason that you think—that is the first time you knew he bought it to drink himself? *A.*—It is the first time I knew anybody was using it for that purpose in my community.

Q.—How long had you carried it then? *A.*—I had carried it about three years.

Q.—When was the last time you sold McW. any? *A.*—That was the last time I think.

Q.—Has McW. ever purchased any for his wife or daughter? *A.*—He has not got a wife.

Q.—Has he got a daughter? *A.*—No, sir, never has been married.

Q.—Does he live with his sisters? *A.*—No, he was boarding at a hotel.

Q.—A hotel in the town where you are? *A.*—Yes.

Q.—What hotel? *A.*—The Lavonia Hotel.

Q.—Did you have a clerk at your store? *A.*—Yes, sir.

Q.—Other than your daughter? *A.*—Yes, sir.

Q.—Seven years ago? *A.*—Yes, sir.

Q.—Who? *A.*—J. T. Holland.

Q.—How long did he work for you? *A.*—He worked for me about three or four years.

Q.—When did he quit? *A.*—About a year ago is the last time he has been with me.

Q.—What is his full name? *A.*—John T. Holland.

Q.—Where does he live? *A.*—At Lavonia.

Q.—Is he there now? *A.*—He is the man that sold McW. this bottle of Wine of Cardui. He asked McW. why he was buying it, and he says—

Q.—There is no question pending. Did you see McW. drink that bottle? *A.*—Yes, he drank part of it.

Q.—Were you there when he drank it—when he bought it? *A.*—No.

Q.—Well, did this clerk that was working for you, see him drink it? *A.*—No, sir.

Q.—How did you come to see him drink it? *A.*—I was called out to his room that evening.

Q.—At the hotel? *A.*—Yes, sir.

Q.—And you went over to the hotel? *A.*—Yes, sir.

Q.—Who told you the conversation that he had, between the clerk—*A.*—The clerk.

Q.—Well, what was it he said? *A.*—I asked the clerk if he had not made a mistake in charging it, wasn't it a mistake about him getting that bottle of Wine of Cardui. I saw it on the book there, and he says, "No, he come in here and went behind the counter and looked around the shelves and he pulled down a bottle of Wine of Cardui, and told me to charge it to him. I asked him what he was buying that stuff for, and he says 'I am buying it because it has got more alcohol in it than anything on that shelf'." That is what the clerk told me.

The witness stated that he sold about eighteen bottles of Wine of Cardui a year.

Whereupon the further hearing of the case was adjourned until 2 o'clock the same day.

April 24, 1916, Afternoon

TESTIMONY OF DR. ALONZO C. TENNEY

Dr. Alonzo C. Tenney was called as a witness for the defendant.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. Tenney testified that he is a practicing physician residing in Chicago. He graduated at the Hahnemann Medical College in 1895. He is a homeopathic practitioner. After graduation, he spent a year as intern at the Hahnemann Hospital. He is a member of many homeopathic medical societies and has held office in practically all of them. He has done postgraduate work at the University of Chicago, the Chicago Clinical School, the Chicago School of Electro-Therapeutics, the Graduate School of Harvard University and the New York Postgraduate School.

Q.—Doctor, will you explain what are the fundamental principles of the law of similars, the homeopathic law, as I understand it, of drugs and cure? *A.*—I did not quite get the first part of that question.

Q.—Doctor, what are the fundamental principles of the law of similars? *A.*—The homeopathic practice is based upon what we call the law of similars. That law is exemplified in this way: We give the drug that we want to learn about to a healthy human being. This healthy human being we call a prover. And the conditions which are produced in his body or her body as the result of the administration of a drug, we call a proving. These provings are shown by symptoms, or they are results recorded by symptoms, changes in the feelings and condition of the prover; that is our guide to the administration of a drug. When we find in a sick person a set of symptoms produced by a disease which are the parallel of a set of symptoms which we have produced artificially by the administration of some drug, we think of that drug as the one which will produce changes in the patient's body leading to recovery. Now, in proving our drug we give material doses, that is, we give big doses. We begin carefully and keep on increasing and increasing the dose, always being careful not to poison the person fatally. This work has not been done much of recent years.

But when we come to prescribe for a sick person we do not use a large quantity of the drug. We use very small quantities. And now here is a second point in our belief. A drug may be so altered, we believe, by dilution, by attenuation, by grinding up with sugar of milk or diluted with alcohol and water, to such an extent that its molecular parts are separated, and that the chemical affinities which exist in that drug become active in the human body to cure disease. A more recent method of describing this process is to refer to what is known as the ionic theory, but that is a rather complicated thing, and I do not think it is necessary.

Q.—All right, Doctor, are you familiar with the homeopathic method for prescribing viburnum prunifolium? *A.*—No, I am not.

Q.—Why not, Doctor? *A.*—Because viburnum prunifolium has never been proven. It has never been tested on a healthy human body, and there can be no homeopathic basis without this preliminary knowledge of the drug's action.

Q.—Then you are not familiar with the indications for that drug? *A.*—No, there are no homeopathic indications for it. It has never been proven.

Q.—Now, in your experience of 20 years or more in the practice of medicine, have you ever used viburnum prunifolium? *A.*—Yes, I have used it empirically on the ground given me when I was a student.

Q.—To what extent have you used it, Doctor? *A.*—Well, when I first began practicing, over 20 years ago, I used it quite frequently. It was then given in the books on materia medica as a drug for certain ailments with which women were suffering. I used it repeatedly. I had no results from it. It proved absolutely worthless in my hands, and very unfortunately so.

Q.—Doctor, are you familiar with the homeopathic method of prescribing cnicus benedictus? *A.*—Yes, I am.

Q.—Upon what are these indications based? *A.*—They are based upon the provings of cnicus benedictus.

Q.—Well, are you familiar with what you call the provings, the homeopathic provings of cnicus benedictus? *A.*—Yes, I am familiar with those provings.

Q.—Now, what do those provings show, Doctor, with reference to the effect of the drug upon the reproductive organs of the female? *A.*—It shows no effect upon the pelvic organs at all.

Q.—Well then, what are your conclusions with reference to the clinical value of this drug in the treatment of pelvic diseases of women? *A.*—My conclusions are that the provings of this drug do not point to them at all, and that it could have no basis in homeopathy whatever for prescription in that condition, in that class of diseases or ailments; pelvic troubles.

Q.—Doctor, according to the homeopathic theory of medicine, should drugs ever be used in combination? *A.*—No, we give, according to our strict homeopathic theory, only one drug at a time.

Q.—Now, take these two drugs which I have mentioned, namely, viburnum and cnicus benedictus, and suppose these drugs are used in doses of approximately three grains of the extractives from the bark of viburnum prunifolium, and the extractives from approximately 30 grains of cnicus benedictus, and that they are combined in these proportions with 48 drops of alcohol to each dose of a tablespoonful, in your opinion could such a combination be used for the treatment of pelvic disorders of women on the homeopathic theory of practice? *A.*—No, absolutely not on the homeopathic theory.

Q.—Now explain why. *A.*—Well, to begin with, we have no proving of one of them, so we do not know what is its field of action. In the second place we are given drugs in combination and even if we credit these two drugs with the virtues which in some instances they are supposed to have, their field of action is different; one affects one set of organs, the other, if it affects anything, affects another set of organs. There would be no excuse, according to our homeopathic theory and practice and experience, to combine these drugs. In the third place, they are made with a twenty per cent. alcohol, as I understand the question. Now, our homeopathic tinctures are made with a much stronger amount of alcohol; they are made with the strongest alcohol used in ordinary pharmaceutical work, running 93 per cent. by weight and 98 per cent. by volume pure alcohol. That alcohol, with our homeopathic tinctures will extract resins and other alcoholic extract. Therefore, our provings of cnicus benedictus would be provings of an entirely different substance from a 20 per cent. alcoholic extract of cnicus benedictus. It would have things in it which would not and could not, by any stretch of the imagination, be in this hypothetical solution.

The homeopathic method of prescribing is different. We use the drug in attenuations. The dose here would be altogether too large to

have any of the therapeutic effects which we expect to get by the administration of our drugs homeopathically. And it occurs to me that there would be serious doubt whether the dose is large enough to have the physiologic effect which we sometimes endeavor to get. So on every count there is no possible application of this substance you have described in homeopathic practice.

Q.—Now, Doctor, you have stated that on the strict theory of homeopathic practice medicines are not given in combination. In actual practice do conditions ever arise under which you do prescribe drugs in combination? *A.*—Yes, such conditions do arise.

Q.—Explain why, and under what circumstances? *A.*—Sometimes we want to physic a patient, we want to stimulate the kidneys, we want to quiet the nervous system. Take a physic, for instance, to illustrate the point. We might use what is prepared by our homeopathic pharmacists for that purpose, a combination of two or three or four drugs, all of which act upon the liver of the intestines and the liver, but using small doses of each individual drug so as to avoid any of its poisonous effects and combining it with other drugs acting upon the same organ or related organs to get nothing but the stimulative, laxative effect. In that way we may use drugs in combination.

The witness was then asked a hypothetical question similar to that asked of previous witnesses and he stated that he had an opinion as to the physiologic action and therapeutic value of the hypothetical medicine on the homeopathic theory of practice. He stated that there was no foundation whatever for this hypothetic prescription.

Q.—Well, now, a little more in detail, Doctor. In what way, Doctor, does it fail to comply with the principles of homeopathy? *A.*—It is not a tincture, to begin with. It is not a homeopathic tincture. There is a 20 per cent. solution; 20 per cent. alcoholic extract of the drug prescribed in it—or of these two drugs. There are two drugs combined, which is antagonistic to the homeopathic practice. There is no proving. The dose is too large for the homeopathic effect, and even if we credit the cnicus benedictus here with having the same effect as we would if it were a homeopathic tincture, it is faulty because it is a combination of two drugs at the same time, and as I have already said, the tincture derived homeopathically by the homeopathic pharmacist would be an entirely different substance from that described here.

Dr. Tenney stated that the hypothetic medicine could not affect gonorrhea either in acting on the germ or through any action on the tissues of the body. He stated that it would not have any effect on uterine prolapse nor would it cure retroversion or retroflexion nor sterility nor menorrhagia nor metrorrhagia.

A.—In dysmenorrhea there could be no effect on any of the causes which I have in mind for dysmenorrhea, except possibly the effect of the alcohol, the same as when a patient takes a little hot gin for a painful menstrual period, something of that sort.

The hypothetic medicine, he stated, would not cure amenorrhea and there is no occasion for its use in puberty or in pregnancy. Such a medicine could not be used according to the homeopathic school as no routine prescriptions are used by that school. Dr. Tenney described the method of preparing homeopathic tinctures.

CROSS-EXAMINATION BY MR. HOUGH

On cross-examaniation, Dr. Tenney stated that in a dosage of 5 drops of alcohol and one one-thousandth part of viburnum, the dose would be given perhaps at intervals of fifteen minutes for one hour or two and then gradually lengthening the interval to two hours, three hours, etc., but it is not practicable to give such large doses. The effect of those doses would be that of alcohol only as though no viburnum was present. He stated that the fact of a drug appearing in the homeopathic pharmacopeia means that the druggist has it to sell. The publication of the drug does not mean that it has been proven. He described the use of the homeopathic pharmacopeia of 1914 and stated that like himself, the great majority of homeopathic physicians with whom he is acquainted have discarded viburnum prunifolium. He has prescribed carduus benedictus a few times and it gave no good results, so he discontinued its use. In place of carduus benedictus he uses mercurius corrosivus, mercurius dulcis, mercurius iodatus. There is no alcohol in these preparations. They are reduced to the third X with sugar of milk. Among other remedies which contain alcohol he uses gelsemium, bryonia, chelidonium. Lycopodium which he gives is prepared in powder.

The witness stated that he has never made provings of any drug; if the drug, as mentioned in a textbook, appeals to him, he tries it.

Q.—Well, to commence with, all you know about it is what your literature, that is, homeopathic literature, shows to have been proven, don't you? *A.*—Well, the literature does not always show things to have been proven, you know. Because a thing is written don't make it so.

Q.—You mean the book of provings in the homeopathic school is not accepted by you? *A.*—Oh, no, I don't mean that. You must understand these provers were people who made their living to a very great extent, by proving, and some of them were very profoundly affected by the drugs they took. Some of them were rendered sick and remained so the remaining portion of their lives. Now, these people sometimes did not recognize the fact that the effect of a drug like mercury or iodin or arsenic had not passed off, and they would be proving another drug and reading into the provings out of their own ignorance—possibly of the man who was employing them at that time—they would be reading into the provings these provings of the previous drug possibly, so that our old provings, although we regard them with a great deal of respect, and take them with a great deal of consideration, are not, in the light of our modern knowledge, to be relied upon absolutely. And that is the consensus of the homeopathic physicians who are up to date today.

The witness stated that he had not heard of anyone using viburnum prunifolium in cases of threatened miscarriage. The witness testified that according to his present knowledge, viburnum prunifolium was not used for a number of complications mentioned by Mr. Hough. He stated that carduus benedictus had been proven but this does not mean that it was not inert. There are several hundred drugs in the homeopathic pharmacopeia and there are others besides viburnum prunifolium and carduus benedictus which are inert. Asked to mention some, he stated:

A.—Well, I will give you a few examples, but to go through the whole pharmacopeia, I am not competent to do. But there is an instance: Somebody made a proving of the effect of the steel taken from the north pole of the horseshoe magnet. This fellow was a long haired enthusiast, in my opinion; those who know anything about him or his provings or the things he claimed for that drug do not pay any attention to it. In regard to viburnum prunifolium, there has been no proving of it. We disregard that. And as to cnicus benedictus, I think that the majority of us know that it has no effect. And in regard to—

Q.—I am asking you about something that is in the pharmacopeia. Aren't you naming something that is not in the pharmacopeia? *A.*—Well, I don't know as to that. I am thinking of the things that have been discarded by the majority of us.

Q.—Well, I am not asking about anything that has been discarded and is not in the pharmacopeia. *A.*—Now, there is sugar of milk, that is in the pharmacopeia. I think somebody made a proving of sugar of milk once. You see we have enthusiasts in all walks of life, and some of them have brought the homeopathic school into disrepute, which we very much regret.

Q.—I don't see it here. *A.*—All right. Possibly you had better let me have the book, and look through it for a few of those drugs. I cannot recall them off hand.

Q.—Sugar of lead is the only one in fact— *A.*—Sugar of lead would be an active drug.

Q.—You spoke of sugar of milk, which I don't see there. (Handing book to witness). *A.*—Carbo-vegetablis, vegetable carbon. We will call that out of the active drugs.

Q.—Well, is that sugar of milk? *A.*—That is vegetable carbon; charcoal.

Q.—I say, is that sugar of milk? *A.*—No, it is not. I have answered that.

Q.—You don't find sugar of milk there? *A.*—I have not looked for it. You said it was not there, and I took your word for it. We will look for saccharum lactis; that is the homeopathic name for sugar of milk. I don't find sugar of milk.

Dr. Tenney was then asked concerning extracting of drugs with alcohol. He recognized that there is such a thing as synergism. He is not a member of the American Medical Association unless some of his connections automatically make him a member. He is a subscriber to THE JOURNAL and is a member of the Chicago Medical Society. He was then cross-examined in detail concerning assumptions in the hypothetic question.

He was then asked to state in brief his method of treatment of gonorrhea. He gives an antiseptic douche and by mouth he gives laxatives, also iron or any tonic which may be necessary, and advises the patient to avoid exercises, alcohol and coffee. He put her on a simple nutritious diet. He usually gives iron hypodermically.

Q.—Is there any alcohol in the tonics you give? *A.*—In any of the tonics that I give in gonorrhea, you mean?

Q.—Yes. *A.*—Not that I know of. I try to avoid all alcoholics in my remedies.

Q.—What do you mean by "not that you know of?" *A.*—Well, here is the idea. Once in a while some detail man comes along from Parke-Davis & Company and says, "Doctor, here it is at last." He

will leave a sample bottle, and later when I am in a hurry, some people will come in with a condition he has just described, and you will say, "How fortunate that is, here is a patient here that we have just been told how this medicine will act on him." And we give him that, and possible find out the next day that it contains alcohol. May be it is a good remedy and may be it is not. That sort of thing, of course, is not in accord with the kind of work which we aim to do all the time. But those are the circumstances when these little things creep in, under your guard, as it were.

Q.—But you know how much alcohol is in it at the time you prescribe it, don't you? *A.*—Well, we do now, if we prescribe those things, because the pure food and drug law has been in operation—

Q.—And you have known it since 1906? *A.*—Well, with that correction, I should say I never prescribe alcoholics, without knowing it, since 1906.

Dr. Tenney was asked concerning his treatment of prolapse of the uterus. He described the various degrees of prolapse and mentioned the treatment. He mentioned certain cases of sterility which might be cured by medical measures, for example, obesity as a case may be cured by thyroid extract; anemia by administration of iron and arsenic, etc. He would treat stenosis of the cervix by surgical or mechanical means. He described stenosis of the cervix and its complications and the method of treatment. In treating dysmenorrhea, he would give something to relieve the pain. He could not think of a single case of stenosis which would not be benefited by an operation. He was asked as to the treatment of hematometra. He would give ergot or pituitrin and perhaps pack to prevent bleeding.

Q.—You mean you would use a uterine medicine? *A.*—A uterine medicine?

Q.—Yes. *A.*—Well, as homeopaths, we don't know uterine medicine. We use some remedies that act upon the womb, like pituitrin, for instance, or ergot; but they act upon all parts of the unstriped muscle tissue equally as such.

Q.—Those are allopathic remedies? *A.*—No, no; they belong to any physician who wants to use them. They are not allopathic. There is no such thing as allopathic any more.

Q.—What do you call it now? *A.*—Well, we have the—we are physicians. There are a few who still cling to certain of their homeopathic belief, and homeopathic practice, and so we sometimes are mentioned or spoken of as homeopathic physicians; but we don't—we don't divide the thing up into a lot of wrangling sects.

THE COURT:—You mean that nobody is so bigoted today that he is unwilling to make use of somebody else's medicines, if he believes it is best for the particular disorder that he has in charge?

The Witness:—That ought to be published, Your Honor; that is very excellent.

Mr. Hough: Q.—Well, when you say you don't know any such thing as uterine medicine, you are speaking as—not as an allopath, but as a homeopath? *A.*—No, sir. I am speaking as a physician. I don't recognize anything as being especially a uterine medicine. There are certain medicines which act upon the uterus more apparently than they do upon other tissues; because the uterus is the biggest mass, outside of the heart, of unstriped muscle tissue in the body. And ergot contracts unstriped muscle everywhere. It blanches the fingers, the nose, the ears, the tongue, the lips, and it contracts the uterus. Why does it blanch these parts? Because it contracts the unstriped muscle tissue in the arterial vessels. And it contracts the unstriped muscle tissue of the womb. It is a remedy which acts upon the whole circulatory apparatus. The same is true of pituitrin; the same is true of adrenalin chlorid. The same is true in a lesser degree of hydrastis, or hydrastinin.

Q.—Any others you can think of? *A.*—Those are the drugs upon which I depend more especially. I will mention another, eserin sulphate has that effect.

Q.—Did you ever use apiol? *A.*—Apiol?

Q.—Yes. *A.*—Yes, I have used it. It is a French preparation that has failed me.

Q.—Failed you? *A.*—Yes; it has not given the results it was supposed to give.

Dr. Tenney was asked concerning his treatment of amenorrhea; he stated that if due to anemia, he would give iron, arsenic, and quinin; if tuberculous, he would use outdoor treatment and diet; if stenosis, he would operate on the stenosis; if chlorosis, he would give iron, arsenic and an extract of bone marrow; if due to obesity, he would treat obesity. He would treat amenorrhea as a symptom.

Q.—Don't you prescribe according to the symptoms? *A.*—And we treat the underlying cause back of this symptom in order to correct the symptom.

Q.—Don't you prescribe according to symptoms? Isn't that homeopathy? *A.*—Well, yes—you know—I think the best illustration of the difference in the line of attack of the homeopathic physicians and the rest of the medical world, may be well illustrated in this way. You go to church, and you hear the minister preach about Noah building the ark. One minister begins with Noah, and another begins with the Ark, and tells all about it; but they are both talking about the same subject. In some things homeopathy starts after the symptoms first; but we are always looking for the underlying cause, trying to relieve that; otherwise, we would not be able to hold our heads up in this modern world. The old school men very frequently start right after the diagnosis and explain the symptoms from their diagnosis. But we are all working to the same end.

Q.—Well, the practice of homeopathy teaches the prescribing for the symptoms, doesn't it? *A.*—Well, the original teachings, yes. You must remember that the progress of medicine in the last fifty years has been very great—

Q.—Well, are you practicing homeopathy now? *A.*—I am practicing homeopathy plus. I am practicing medicine, and I use my homeopathic remedies, my homeopathic philosophy and my homeopathic lines of procedure, where they do good for my patients. Where they don't do good, I discard them.

Dr. Tenney testified as to drugs mentioned in the homeopathic pharmacopeia for the treatment of amenorrhea and as to the quantities of alcohol in these preparations. He stated that alcohol would have no effect on the condition.

Q.—Did I understand you to say that pregnancy is not a pathological condition? *A.*—Certainly you did understand me to say that, if I have been asked that question. Pregnancy is a normal condition—if it is a normal pregnancy.

Q.—And therefore would not be considered pathological? *A.*—Certainly not.

Q.—But purely physiological? *A.*—Purely physiological.

Q.—Did you hear Dr. De Lee's testimony? Were you in court? *A.*—I heard a portion of it.

Q.—You disagree with him?

Mr. T. J. Scofield:—If the Court please—

THE COURT:—He said the same thing.

Mr. T. J. Scofield:—Dr. DeLee said the same thing.

THE COURT:—He said an absolutely normal case was not pathological.

Mr. Hough:—I did not ask him about an absolutely normal case.

THE COURT:—That is what this witness said. He said the normal pregnancy is physiological.

Mr. Hough:—I asked him if pregnancy is pathological—is it ever pathological?

The Witness:—You asked me if a normal pregnancy was a diseased condition, or something of that kind.

Mr. Hough:—I did not use the word normal.

The Witness:—A normal pregnancy is normal.

Mr. Hough:—Of course.

The Witness:—Yes.

Mr. Hough: Q.—If it is pathological—

The Witness:—A pathological pregnancy is pathological.

The witness then mentioned some of the complications of pregnancy. He described the care of a patient in a pregnant condition. If patients require tonics he usually gives them in powdered form without alcohol.

Q.—How long have you been giving medicine without alcohol, since this case started? *A.*—No, no, indeed. I have not even—I don't think about the amount of alcohol—I just did that to save you the trouble of asking me how much alcohol there was in it.

Q.—You mean you never give any medicine you think there is any alcohol in, in any of those conditions? *A.*—No, no—I might give something containing alcohol. Some of them I prescribe alcohol for, but that is very rare.

Whereupon the hearing of the above case was adjourned until Wednesday, April 26, 1916, at 10:30 o'clock a. m.

April 25, 1916, Morning

The Court met pursuant to adjournment. On motion by Mr. Walker, who informed the Court of the death of one of the plaintiffs, the Court was adjourned until Tuesday, May 2.

May 2, 1916, Morning

The Court met pursuant to adjournment. Mr. Walker informed the Court of the death of the plaintiff, Mr. John A. Patten, and stated that it was desired to proceed in the partnership case.

(To be continued)

The Work of the Young.—The fact that young persons' fingers are nimble, and their actions quick should not be taken advantage of by allowing disastrous exhaustion to lessen their vitality at this most important period of life. Particularly does this apply to the permitting of piece-work, and monotonous or steady, straining processes.—Hayhurst.

Correspondence

What Is a Vitamin?

To the Editor:—The following statements I wish to make in justification of my position as the author of the term "vitamin" as well as in refutation of some of the statements printed in your editorial entitled "What is a Vitamin?" (THE JOURNAL, May 6, 1916, p. 1470). I have no doubt that the sense of justice and fairness which have always impressed me in your publication will guide you to publish my letter in an early issue of THE JOURNAL.

When early in 1911 I started the research which led to the isolation of the vitamin-fraction from various foodstuffs, my work was inspired by the remarkable results of Eijkman, Grijns and Schaumann, who were able to prove that in rice-polishings and in yeast, substances are present which protect fowls, pigeons and men against beriberi. My task was then to find out to which chemical group these protective substances belong, and this has been successfully accomplished and described in two publications (*Lancet,* London, Nov. 4, 1911; *Jour. Physiol.,* Dec. 22, 1911). From reasons unknown to me, references to these two early publications are usually omitted in the literature, and the paper of Hopkins (*Jour. Physiol.,* 1912, xliv, 425) is quoted, which has been undoubtedly partially influenced by my work. It was only in 1912 (*Jour. State Med.,* June, 1912) after a careful revision of my experimental data that I introduced the term "vitamin" for these protective substances which are indispensable for life and which, judging from their chemical reactions, belong undoubtedly to the group of organic nitrogenous bases. Later on I went farther, and a few substances were isolated and analyzed which, I have reasons to believe, are chemically related to the original vitamin present in less purified fractions. I am glad to say that even now, after five years, there is not a single paper in the existing literature able to refute my experimental data. That the introduction of the term "vitamin" was justified we can judge from the quick succession of terms used to designate the same substances: torulin of Moore, Oryzanin of Suzuki, antiberiberin of Tsuzuki, accessory substances of Hopkins, and finally substances A and B of McCollum. If terms could only be applied to chemically pure, fully identified substances, 90 per cent. of the already existing names in the physiologic chemistry would have been discontinued (examples: names of ferments, hormones, proteins, nucleins, polysaccharids, lipoids, cerebrosids, etc.).

As to the necessity of two different substances (one soluble in alcohol and the other in water) for growth of young animals, the work done in conjunction with A. B. Macallum was not able to substantiate it. Vitamin is soluble in alcohol and more so in water, but we are dealing here with one and the same substance. Our present results so far show that the beriberi-vitamin suffices for growth of young rats; for long maintenance (over sixty days) a small supply of antiscorbutic vitamin seems necessary; otherwise scurvy with even slight rachitic symptoms occurs in rats. This condition can be avoided by using autolyzed (wet) yeast or orange juice, in difference to dried yeast, which apparently possesses no antiscorbutic properties for rats. So far in our experiments butter was found to have no action on the growth of rats, but was found to have slight antiscorbutic effect (scurvy-vitamin carried down from milk). In order to avoid further complications and fallacies in the already complicated problem of growth in rats, we wish to test our preliminary results in all directions before final publication; but we find that some of the recent results on the growth of rats, on which your editorial is based, give not the slightest justification for the discontinuation of the term "vitamin."

In the same issue of THE JOURNAL, Dr. E. J. Wood deals with pellagra as being due to a deficiency of vitamin. Apparently by mistake my name was omitted as the originator of this hypothesis (*Jour. State Med.,* June, 1912; "Die Vitamine," Wiesbaden, 1914). Later on I pointed out (*Jour. Physiol.,* December, 1913; *München. med. Wchnschr.,* 1914, No. 13) that the acute form of pellagra prevailing in the United States might be due to the use of extensively milled corn, to which conclusion Dr. Wood also arrives.

CASIMIR FUNK, M.D., New York.

Teaching Units and Mergers of Medical Colleges

To the Editor:—I have read the Current Comment on this subject (THE JOURNAL, May 6, 1916, p. 1471) with much interest. It points the direction that medical education will have to take, but a word of warning should be sounded lest a fetish be made of the word "university," and weak medical schools be linked together without having real university methods and equipment. Medical teaching cannot be improved until the unit system is established in the clinical as well as in the laboratory branches. How many universities have put their clinical teaching on a university basis? How many provide their professors in the clinical branches either directly or indirectly with hospital wards, dispensaries and laboratories? How many are prepared to meet the university ideal that a professor in a clinical branch shall have an active service of at least sixty beds and shall not attempt to give bedside instruction to more than a proportion of one student to three beds? Here is where the application of the unit system is needed. The old idea that there should be but one professor, *the* professor, must go. A university must increase its units in the clinical branches because of the very nature of things. A professor cannot *properly* look after more than sixty bed patients, and a patient can be observed and studied by only a few students at the same time and then only once in a day. It is this feature that makes proper medical education so costly. In dealing with inanimate objects, the same apparatus and equipment can be used over and over again even on the same day, but, of course, patients cannot be so used.

By all means let us have university control of medical schools, but let us be sure that the university will assume the same degree of responsibility in teaching the clinical branches that it does in teaching the other sciences. Let us make sure that universities are not used as a cover for concealing inadequacies in financial resources or control of clinical material.

OTTO V. HUFFMAN, M.D., Brooklyn.
Secretary of the Faculty, Long Island College Hospital.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

OWNERSHIP OF ROENTGENOGRAMS

To the Editor:—I am writing to inquire whether or not there has been at any time a court decision with regard to the ownership of roentgenograms. As a rule, there are three claimants, each presenting arguments which to him seem conclusive, namely, the roentgenologist, the physician and the patient. The situation has been a nuisance to several of us in this community at various times.

A. B. DIEFENBROCK, M.D., Sacramento, Calif.

ANSWER.—We can find no cases touching directly on this subject. A few cases have been found in regard to the ownership of photographic plates, but even these are indefinite and uncertain in their meaning.

As regards photographic plates the courts have recognized the fact that authorship and originality of intellectual creation have the right to protection. This gives a photographer the right to have ideas, as exemplified by photography, protected by law. But this position of the courts does not import that a photographer has any title in the plates per se. His title is in the concept with some exceptions. Whatever title a photographer may have in a photographic plate depends on the contractual relation between himself and the subject of the picture. When a person sits for a photograph he does not usually vest the photographer with the right to use the plate as he may see fit. The same, broadly speaking, may also be said of a person who permits a roentgenogram to be made of his body. The idea and method of posing belongs

to the operator, and the title of the plate in the absence of a special contract, at least so far as the absolute disposition is concerned, belongs to the patient. The physician would not be prevented, probably, from using the plate for clinical purposes or lectures if the name of the patient was not disclosed, as the plate, unlike a photograph, can be recognized and understood only by experts. The layman would not know to whom the plate had reference. The courts have held that persons may enjoin the use of their photographic likeness by a photographer when such use may cause them injury.

Similarly a court might enjoin the use of a roentgenogram by a roentgenologist, who made it, or the physician for whom it was made, when the physician's agreement with the patient was that the plate was to be used for diagnostic purposes only. But if it was generally understood that the patient permitted the roentgenogram to be made for such diagnostic and other purposes as the physician may see fit, then there is for all practical purposes a vesting of title or at least user in the physician. This would not, however, give the roentgenologist title other than to the concept unless he has a special contract with the physician, as he is in no way privy to the contract between the physician and the patient. The argument that the patient is not paying for the plate but only for the benefit he may derive from that method of diagnosis would go the length only of supporting a right to possession in the person making the plate, supposing his contract with the physician, for whom the case is being diagnosed, would permit such a construction, and would not give either the roentgenologist or the physician the right to use the plate in any way either might see fit. It may be true that the patient cannot demand and obtain possession of the plate; but neither can the operator or the physician have an unlimited user. In reality, therefore, there is a joint ownership: the operator, depending on his contract with the physician, having perhaps the general right to protection for the concept; the physician who diagnosed the case having a right of possession with a limited user as per contract with the patient, and the patient having a supervisory interest in the plate.

See the following cases:

Am. Mutoscope Biograph Co. v. *Edison Mfg. Co.*, 137 F. 262.
Itzrovitch v. *Whitaker*, 39 So. 499; 115 La. 479; 1 L. R. A. 1147.
Schulman v. *Idem*, 39 So. 707; 115 La. 628.
In re *Whitaker Idem.*
Burrow-Giles Lith. Co. v. *Sarony*, Ill., U. S. 53.
Thornton v. *Schrieber*, 124 U. S. 612.
Nottager Jackson, 11 Q. B. Div. 627.

BLOOD VISCOSITY

To the Editor:—Can you give me some references to English literature on blood viscosity, especially methods of measuring viscosity? All the references that I have been able to find are from foreign journals, to which I have no access.

R. M. C., M.D., Newark, N. J.

ANSWER.—The following is a list of references to articles on blood viscosity. In the Therapeutics Department of THE JOURNAL this issue, p. 1622 there appears a discussion of this subject.

Burton-Opitz, Russell: The Viscosity of the Blood, THE JOURNAL, July 29, 1911, p. 353.
Sadikoff, V. S., and Lozinsky, A. A.: Determination of Viscosity of the Blood, *Russky Vrach*, 1914, xiii, No. 19; abstr., THE JOURNAL, Oct. 31, 1914, p. 1615.
Bucco, M.: Viscosity of the Blood and the Blood Pressure, Riforma med., March 28, 1914; abstr., THE JOURNAL, May 9, 1914, p. 1517.

Milk-Borne Typhoid Fever at Northbridge.—An epidemic of typhoid fever in Northbridge illustrates the necessity for caution in making an epidemiological diagnosis. Polluted river water was regularly introduced into the town mains for fire purposes. A history of a fire within the period of incubation of typhoid fever, plus the wide distribution of cases, pointed to water as the carrier of the infection. Yet careful analysis of the milk supply accounted for every case. Sixteen out of the twenty-two patients received milk from a dairy in which a milker and pedler was discovered ill with ambulatory typhoid, confirmed by Widal and examination of urine and stools. Even the six cases not receiving milk directly from the infected dairy had been subjected to the infection by the exchange of milk. These cases developed too soon to have been secondary infections.—*Public Health Bulletin*, Mass. State Dept. of Health, March, 1916.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

DELAWARE: Dover and Wilmington, June 20-22. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.
FLORIDA: Jacksonville, June 13-14. Sec., Dr. E. W. Warren, Palatka.
GEORGIA: Atlanta and Augusta, June 1. Sec., Dr. C. T. Nolan, Marietta.
ILLINOIS: Chicago, June 21-23. Sec., Dr. C. St. Clair Drake, Springfield.
IOWA: Iowa City, June 8-10. Sec., Dr. Guilford H. Sumner, State House, Des Moines.
KANSAS: Topeka, June 13. Sec., Dr. H. A. Dykes, Lebanon.
KENTUCKY: Louisville, June 13-15. Sec., Dr. A. T. McCormack, Bowling Green.
LOUISIANA: New Orleans, June 8-10. Sec., Dr. E. L. Leckert, 716 Macheca Bldg., New Orleans.
MICHIGAN: Detroit, June 1-3; Ann Arbor, June 19-21. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.
MINNESOTA: Minneapolis, June 6-9. Sec., Dr. Thomas S. McDavitt, 814 Lowry Bldg., St. Paul.
MISSISSIPPI: Jackson, June 20-21. Sec., Dr. J. D. Gilleylen, Jackson.
MISSOURI: St. Louis, June 13-15. Sec., Dr. J. A. B. Adcock, Jefferson City.
NEBRASKA: Lincoln, June 8-9. Sec., Dr. H. B. Cummins, Seward.
NEW HAMPSHIRE: Concord, June 26-27. Sec., Dr. W. T. Crosby, The Beacon, Manchester.
NEW JERSEY: Trenton, June 20-21. Sec., Dr. Alexander MacAlister, 429 E. State St., Trenton.
NORTH CAROLINA: Raleigh, June 27-30. Sec., Dr. H. A. Royster, Raleigh.
OHIO: Columbus, June 6-9. Sec., Dr. George H. Matson, State House, Columbus.
SOUTH CAROLINA: Columbia, June 13. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.
TEXAS: San Antonio, June 27-29. Sec., Dr. John S. McCelvey, Temple State Bank Bldg., Temple.
VIRGINIA: Richmond, June 20-23. Sec., Dr. J. N. Barney, Fredericksburg.
WISCONSIN: Milwaukee, June 27-29. Sec., Dr. J. M. Dodd, 220 E. 2d St., Ashland.
WYOMING: Laramie, June 14-16. Sec., Dr. H. E. McCollum, Laramie.

California December Report

Dr. Charles B. Pinkham, secretary of the Board of Medical Examiners of the State of California, reports the written examination held at Los Angeles, Dec. 13-17, 1915. The total number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 54, of whom 37 passed, including 20 osteopaths, 10 of whom were granted physician and surgeon's license, and 17 failed, including 13 osteopaths, of whom 9 failed to pass the physician and surgeon's examination. Thirty-four candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
California Eclectic Medical College.....(1913) 75;	(1915)	85.4
College of Phys. and Surgs., Los Angeles (1914) 81.3;	(1915)	92.2
College of Phys. and Surgs., San Francisco.....	(1914)	81.3
Oakland College of Medicine and Surgery.....	(1914)	79.4
University of California.....(1914) 92.2;	(1915)	88.2
Rush Medical College.....(1913) 89.7;	(1915)	89.9
State University of Iowa, Coll. of Med.....	(1915)	87
Tufts College Medical School.....	(1903)	75.1
Saginaw Valley Medical College.....	(1902)	82.1
Medico-Chirurgical Coll. of Phila.....	(1914)	77.2
University of Pennsylvania.....	(1915)	86.4
Marquette University	(1915)	84.1
University of Toronto.....	(1902)	80.2

FAILED

College of Phys. and Surgs., Los Angeles.....	(1914)	71.8
Coll. of Phys. and Surgs., San Francisco.....	(1914)	66
Chicago College of Med. and Surg.....	(1911)	38.1
Tokyo Charity Hosp. Special Med. School.....	(1911)	52.9

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
College of Phys. and Surgs., San Francisco.....	(1902)	Nevada
Cooper Medical College.....	(1903)	Nevada
Coll. Phys. and Surgs., Chicago.....	(1899) (1901)	Illinois
Hahnemann Med. Coll. and Hosp., Chicago...	(1882) (1893)	Iowa
Northwestern University	(1898)	Illinois
Kentucky School of Medicine.....	(1881)	Illinois
University of Louisville (1882) Indiana.....	(1893)	Kentucky
Johns Hopkins University.....	(1899)	Illinois
Univ. of Mich. Medical School.....	(1888) Utah (1898)	Michigan
Minnesota College of Phys. and Surgs.....	(1896)	Minnesota
American Medical College.....	(1898)	Illinois
Hahnemann Med. Coll. of Kansas City Univ.....	(1901)	Missouri
Kansas City Medical College (1894) Nevada	(1896) (1897)	Missouri
Marion-Sims College of Med.....	(1892) Missouri (1895)	Illinois
Missouri Medical College.....	(1881)	Illinois
St. Louis Coll. of Phys. and Surgs.....	(1895)	Nebraska

University Medical College, Kansas City	(1899)	Missouri
Omaha Medical College	(1896)	Nebraska
Long Island College Hospital	(1886)	Ohio
University of the City of New York	(1894)	Mass.
Homeopathic Hospital College, Cleveland	(1893)	Kentucky
Ohio Medical University	(1898)	Ohio
University of Oregon	(1905)	Oregon
Hahnemann Medical Coll. and Hosp., Phila.	(1883)	Penna.
Jefferson Medical College	(1899)	Michigan
University of Pennsylvania	(1898)	Penna.
University of Nashville	(1902)	Washington

District of Columbia January Report

Dr. Edgar P. Copeland, secretary of the Board of Medical Supervisors of the District of Columbia, reports the oral and written examination, held at Washington, Jan. 11-13, 1916. The total number of subjects examined in was 15; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 13, of whom 9 passed and 4 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University	(1914)	85.7; (1915)	77.5
Howard University		(1915)	79.2
Tufts College Medical School		(1910)	77.1
Cleveland College of Phys. and Surgs.		(1904)	90.2
Jefferson Medical College		(1915)	87.1
Royal Coll. of Physicians, London	(1911)	82.2; (1913)	87.9
University of Munich		(1883)	79
	FAILED		
Howard University		(1914)	65.3, 72.2
Maryland Medical College		(1913)	52.9
Meharry Medical College		(1912)	61.4

One candidate, a graduate of the University of Maryland in 1901, was licensed through reciprocity with Virginia, Feb. 6, 1916.

Michigan Reciprocity Report

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports that 21 candidates were licensed through reciprocity from January 7 to March 3. The following colleges were represented:

College	PASSED	Year Grad.	Reciprocity with
Howard University		(1907)	Penna.
Bennett College of Eclectic Med. and Surg.		(1901)	Illinois
Chicago College of Medicine and Surgery		(1914)	Illinois
Rush Medical College		(1911) (1914)	Illinois
University of Illinois		(1914) (1915)	Illinois
University of Louisville		(1912)	W. Virginia
College of Phys. and Surgs., Baltimore		(1913)	W. Virginia
Johns Hopkins University		1913)	Maryland
Detroit College of Medicine		(1910)	Illinois
Univ. of Mich. Med. School	(1889)	Wisconsin (1908)	Ohio
Barnes Medical College		(1909)	Illinois
Washington University		(1907)	Missouri
University of Nebraska		(1914)	Nebraska
Miami Medical College		(1908)	Ohio
Jefferson Medical College	(1887)	Pennsylvania; (1912)	Missouri
Woman's Medical College of Pa.		(1914)	Penna.
University of Toronto		(1907)	Idaho

Oregon January Report

Dr. L. H. Hamilton, secretary of the Oregon State Board of Medical Examiners, reports the written examination held at Portland, Jan. 4-6, 1916. The total number of subjects examined in was 15; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 22, of whom 14 passed and 8 failed. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Examined
College of Medical Evangelists		(1914)	1
Leland Stanford Junior University		(1914)	1
College of Phys. and Surgs., Chicago		(1892)	1
University of Minnesota		(1910)	1
Western Reserve University		(1890)	1
Willamette University		(1913)	1
University of Oregon		(1910) (1915, 3)	4
Jefferson Medical College		(1910)	1
Temple University		(1909)	1
University of Virginia		(1910)	1
University of Glasgow		(1901)	1
	FAILED		
State Univ. of Iowa College of Med.		(1897)	1
Hospital College of Medicine, Louisville		(1907)	1
College of Phys. and Surgs., St. Louis		(1915)	1
Albany Medical College		(1914)	1
University of Oklahoma		(1911)	1
Willamette University		(1905) (1907)	2
Tennessee Medical College		(1901)	1

Book Notices

MOSQUITO CONTROL IN PANAMA. The Eradication of Malaria and Yellow Fever in Cuba and Panama. By Joseph A. Le Prince, C.E., A.M., Chief Sanitary Inspector, Isthmian Canal Commission, 1904-1914, and A. J. Orenstein, M.D., Assistant Chief Sanitary Inspector, Isthmian Canal Commission. With an Introduction by L. O. Howard, LL.D., Entomologist and Chief, Bureau of Entomology, United States Department of Agriculture. Cloth. Price, $2.50. Pp. 335, with 100 illustrations. New York: G. P. Putnam's Sons, 1916.

The senior author, Mr. Le Prince, was the right-hand man of General Gorgas in the cleaning up of Havana; when the work on the Panama Canal was inaugurated, he was made chief sanitary inspector of the Isthmian Canal Commission. This volume records in a clear and thoroughly scientific fashion the methods adopted to free the Canal Zone from the mosquitoes responsible for the transmission of malaria and yellow fever. Many of the methods used in this work are valuable to sanitary inspectors as well as interesting to general readers. Numerous illustrations made clear the conditions under which the work was carried out and the methods of overcoming the numerous difficulties caused by the dense tropical foliage and by the constantly changing topography along the canal. The result obtained by the campaign for the control of mosquitoes is now a matter of common knowledge. But for this work the cost of the canal in human life and in money would have been far higher than was the case. In fact, it is not certain that the canal could have been built under the conditions prevailing before American occupation. It is estimated, for instance, that if yellow fever had occurred at the rate prevailing among the French company employees, the mortality from this cause alone between 1905 and 1915 would have reached a total of 14,000. Le Prince and Orenstein's book will long remain of interest to sanitarians as a vivid, first-hand record by participants in one of the greatest sanitary achievements of all time.

WHO IS INSANE? By Stephen Smith, A.M., M.D., LL.D. Cloth. Price, $1.25. Pp. 285. New York: The Macmillan Company, 1916.

Stephen Smith, a former commissioner in lunacy of the state of New York, has written quite a readable volume, mostly reminiscent of his activities as an officer. In it is reflected his knowledge of the subject as current during his term of service. In fact, the author says in the foreword: "This book is a commentary on my experiences as an official visitor of the institutions for the insane and the charities and reformatories of the state. Its intent and purpose are to illustrate with as few technicalities as possible the illusive nature of insanity, its origin in the derangement of the functions of the brain cells, the extreme impressibility of these cells and our power to increase or repress their activities. In these facts, which modern science has developed, are found the scientific principles on which the prevention of insanity, and its successful treatment, must be based. The same principles are shown to be applicable to the education of the mentally defective classes and to the reform of criminals." While this part of the introduction promises more than any author can possibly furnish in such a small book, the treatment of the subject is stimulating, and should lead to further research on this most fascinating subject.

FIRST AID IN EMERGENCIES. By Eldridge L. Eliason, A.B., M.D., Assistant Surgeon, University of Pennsylvania Hospital. Cloth. Price, $1.50 net. Pp. 204, with 106 illustrations. Philadelphia: J. B. Lippincott Company, 1915.

The strenuous times through which we are passing have made preparedness the watchword of the day, and a knowledge of first aid seems to be interesting all classes, both young and old. This little book on first aid in emergencies has appeared, therefore, at a very opportune time, and as it is written for the public in terms that can be understood by all, it ought to find a ready sale. The text is elaborate enough to meet the needs of the first-aider without attempting to make a physician of him, nor does it presume to take the place of the physician except pending the arrival of one, or when one is not to be procured.

Medicolegal

Liability of a Railroad Company for Malpractice

(Boring vs. Chicago & Erie Railroad Co. (Ind.), 110 N. E. R. 545)

The Supreme Court of Indiana reverses a judgment sustaining a demurrer interposed by the railroad company to a complaint seeking damages for the death of an employee alleged not to have been properly treated after he fell from a hand car and struck his head on one of the rails of the track, thereby suffering a rupture of a blood vessel in his head, from the effects of which he died on the following day. The court says that it is well settled that a railroad company is not liable to an injured employee for the negligence of a physician called by it to render medical or surgical aid, if it was not negligent in selecting and employing an incompetent and unskilled physician. If, however, the company knowingly selects an unskilled and incompetent surgeon, a different rule applies, for his negligence then becomes the negligence of the company and it is responsible for resulting injury. The complaint in this case charged that the injury stated caused the employee to become unconscious, and thereby rendered him unable to provide for and take care of himself in the emergency, whence it became the duty of the company to take care of and provide him with competent medical care and services; that with full knowledge of all the facts the company selected an incompetent and unskilled physician to treat him, and that by reason of the negligence of the physician he failed to recover from his injuries; that the physician permitted him to go to his shanty, in which he was living, alone and unattended, and permitted him to stay there over night and through the next day without any medical attention whatsoever; that the company well knew, or by the means of exercising reasonable care and diligence could have known, that the accident to the skull would cause a rupture of the blood vessel and cause death by pressure on the brain, etc. The facts alleged in the complaint must be treated as admitted, as against the demurrer, and, if sustained by proof, were sufficient to warrant a finding on the part of a jury that the circumstances surrounding the injury occasioned an emergency in which it became the duty of the company to take reasonable steps to prevent an aggravation of the man's injuries through exposure or neglect. It is held, further, that the complaint sufficiently charged negligence on the part of the company, and that the trial court erred in sustaining the demurrer to it.

Validity of Rat-Proofing Ordinance to Prevent Spreading of Bubonic Plague

(City of New Orleans vs. Sanford et al. (La.), 69 So. R. 35)

The supreme court sets aside a judgment of conviction for violation of Ordinance 17, as amended by Ordinance 21, of the Board of Health of the city of New Orleans and Parish of Orleans, or the rat-proofing ordinance, adopted as a precautionary measure against bubonic plague. The ordinance was held invalid on the ground that some of its provisions were illegal and oppressive. The ordinance was assailed on the ground of its unreasonableness. It professed to be a measure for protection against rats by destroying their harboring places, while it was, in the nature of things, inoperative as against certain state and federal government buildings and structures, which were admittedly the main source of danger. This included, also, the garbage dumps, which were admittedly the common resort of rats. The city did not rat-proof these foci of infection, because there were no funds available for the work. The ordinance thus compelled the property owners to rat-proof their premises, whether or not they had the funds to do it with, while those public foci of infection, the most dangerous, were left in full operation, scattered as they were throughout the city. This was claimed to be an unreasonable exercise of the police power, especially when attended with so great expense, and in many cases at so great personal sacrifice. A police measure dictated by some evil to be remedied should be commensurate with the necessities of the occasion. Where the same feature which operates as a public menace is present in all premises alike, the police measure for correcting this feature should operate as against all premises alike, or else against none. And the public is no exception to this rule. But if, as the evidence in this case showed, this rat-proofing, coupled with rat-catching, was the only practicable mode of fighting the spread of this disease, and if, as was the case, the board of health was powerless to make this mode compulsory either against the federal, the state or the city government, what was it to do? However oppressive, however discriminating, however unreasonable this ordinance apparently might be, there was nothing else for the board of health to do, under the circumstances, than to adopt it; and hence the adoption of it was justified. But it stood to reason that the peaceful homes and business places of the inhabitants of this large city, constructed in conformity with the rules and regulations theretofore prescribed by the public authorities, could not be, overnight, by a stroke of the pen, converted into unlawful structures, so that such inhabitants, on reading their morning paper containing the promulgation of the ordinance, would be liable to a fine and to imprisonment for every day they continued to live in or own said structures. Moreover, while the board of health, or the city council, might validly clothe the health officer with the authority to ascertain and determine whether any particular building fell into the one prescribed class or the other, as, for example, the class to be concreted, or that to be merely tar-cindered, it could not invest him with authority to withdraw any particular building from the one class and place it in the other. The board of health could not delegate to a subordinate the power to create exceptions to any rule it had established, or, which was the same thing, the power to stay the operation of any rule in cases falling within the terms of its ordinances.

Restriction of Evidence to Charge of Malpractice—Giving Eggs and Toast Too Soon

(Ennis vs. Banks et ux. (Wash.), 152 Pac. R. 1037)

The Supreme Court of Washington reverses a judgment obtained by the plaintiff for alleged malpractice in the treatment of her husband during an attack of typhoid fever, which resulted in his death. The court says that Dr. Banks was charged with having negligently, carelessly and unskilfully directed, prescribed and commanded that the patient be given a diet of poached eggs and toasted bread, after which he became very sick and suffered great pain and his bowels were perforated and torn. Having charged said defendant with a specific act of negligence, the plaintiff might not under that charge introduce evidence of other acts, and attempt to show negligence therein, and have the jury instructed to find for her if they found that the defendant failed in any respect to exercise the degree of ability, skill and judgment ordinarily possessed and exercised by members of the medical profession practicing in his own and similar localities. The evidence should have been restricted to that tending to prove that the giving of a toast and egg diet was in this particular case unskilful and negligent treatment, and the jury should have been instructed to find for the plaintiff only if they so determined. While this rule would permit the plaintiff to introduce evidence of the defendant's treatment of her husband prior to the giving of the toast and egg diet, it would permit such evidence only for the purpose of showing that the diet given was improper in his condition at that time. Testimony given by the nurse as to the length of a rubber tube used in giving enemas, and by the plaintiff as to the heart action of her husband, had no bearing on the issue to be determined, and could only have been confusing to the jury, and should therefore have been excluded. The defendant urged that the trial court should have granted his motion for a nonsuit at the close of the plaintiff's case. There was evidence, however, that the toast and egg diet was, under the circumstances, an improper treatment. A physician so testified. This was evidence that the specific act alleged was negligent, and this evidence should have been submitted to the jury under proper instructions.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, DETROIT, JUNE 12-16.

Alpha Omega Alpha Society, Detroit, June 12.
American Academy of Medicine, Detroit, June 9-12.
American Association of Anesthetists, Detroit, June 12.
American Proctologic Society, Detroit, June 12.
American Therapeutic Society, Detroit, June 9-10.
Maine Medical Association, Portland, June 7-8.
Massachusetts Medical Society, Boston, June 6-7.
National Association for Study of Epilepsy, Detroit, June 16.
Nebraska State Medical Association, Omaha, May 23-25.
New Jersey Medical Society, Spring Lake, June 20-22.
Rhode Island Medical Society, Providence, June 1.
South Dakota State Medical Association, Aberdeen, May 23-25.
Western Roentgen Society, St. Louis, June 9-10.

NEW YORK ACADEMY OF MEDICINE

Meeting held April 20, 1916

The President, DR. WALTER B. JAMES, in the Chair

Vitamins a New Factor in Nutrition

DR. CASIMIR FUNK: Besides the ordinary food constituents, such as proteins, fats, carbohydrates, lipoids and inorganic salts, to which the value of our food is due, a number of substances can be found in small quantities which are as indispensable to life as the former constituents. These substances I have designated "vitamins," and the diseases which arise from their lack as deficiency diseases or "avitaminoses." I am surprised that the introduction of this term has aroused animosity since it is quite customary to give a name to a substance the presence of which is merely assumed before its actual isolation, and such terms are usually accepted until further evidence disproves their presence. The evidence of the existence of the vitamins is many times stronger than in most cases in which similar terms have been introduced. There is some difficulty in fractionating and identifying substances obtained in such small quantities; the vitamins, however, are sometimes stable at higher temperatures in the presence of acids, and can be thrown down by phosphotungstic acid or analogous reagents which are so largely used for the isolation of nitrogenous substances, and afterward it can be fractionated by means of mercuric chlorid and silver nitrate and baryta. This precipitation is specific for vitamins; other precipitating agents which carry down heavy precipitates do not carry down the vitamins.

With reference to the action of the vitamins in the tissues, nothing definite is known, except that they bear a certain relation to carbohydrate metabolism. If a pigeon is fed on polished rice, it is possible to tell approximately when the symptoms of beriberi will appear when a given quantity of rice is metabolized. It is also found that the blood sugar content in avian beriberi is greatly increased. This fact has a practical bearing on infant feeding; a certain amount of vitamin can take care of only a limited amount of carbohydrate, and when starch is increased in the diet, the amount of vitamin-containing foodstuffs must be increased in proportion. A second fact has been established in connection with the metabolism in the deficiency diseases, which is that in the absence of vitamin we not only obtain a negative nitrogen balance, but the whole metabolism goes wrong; this is particularly noticed in the negative balance of inorganic constituents. The addition of vitamin puts the whole metabolism again on a normal basis. Vitamin, when properly prepared and added to a diet of polished rice, makes that diet complete. I have shown that no animal has yet been found able to live more than a short time on a vitamin-free food.

When I first expressed the opinion that pellagra was a deficiency disease, I encountered great opposition; but now the etiology of this disease as a deficiency disease seems to be established. It seems possible that pellagra is nothing but a chronic scurvy, whereas what we formerly knew as scurvy is only an acute form of the same disease. The vitamin theory as to the etiology of rickets is at present merely a working hypothesis, but the results of animal experiments suggest that we are dealing with a deficiency disease due to a deficiency of vitamins which are not essential to life, or a partial deficiency of the ordinary vitamin. The opinion of certain workers that rickets is due to a lack of calcium is very largely due to a misinterpretation of their experiments. McCollum, and Osborne and Mendel have tried to demonstrate that butter has a decided effect on the growth of rats, and have stated that butter fat does not contain nitrogen. I have succeeded in demonstrating that rats can grow very well without butter when a sufficient amount of vitamin is added to the diet of the rats, and hence I am unable to confirm the results of McCollum. When working with yeast it has been noticed that rats fed on dried yeast grew well, but showed slight symptoms of scurvy, which disappeared when autolyzed yeast was used. This possibly shows that rats require for their well-being both the beriberi and the scurvy vitamins. Successful growth was also obtained by using phosphotungstic precipitate decomposed from autolyzed yeast, while the filtrate had no action whatever. The fraction used was entirely free from material which could be extracted with lipoidal solvents, and this alone proved that the water-soluble portion of yeast is the only one responsible for the growth of the rats, in direct contradistinction to the statements of McCollum. Experiments conducted in association with Dr. Morris Stark show that McCollum's statement that casein loses, when heated with alcohol, its nutritive value is baseless. We have shown, however, that by means of a suitable diet we can make rats grow twice as fast as on a diet regarded heretofore as normal; at the same time we have been able to stunt animals on a diet which might be designated as normal. This result has been obtained in chickens fed on unpolished rice and still better by feeding unpolished rice and cod liver oil. The same may be accomplished in rats on a diet of oats. While cancer has nothing in common with the deficiency diseases, we have shown that tumors in rats and chickens do not grow so extensively on a stunting diet as on a rich diet. This makes it seem extremely probable that cancer is not of infectious origin but is due to a chemical cause.

Group Similarities of the Deficiency Diseases: A Study of Infantile Scurvy

DR. ALFRED F. HESS: There has been a difference of opinion as to whether or not the use of pasteurized milk can induce scurvy in infants. The commission on milk standards, in its report of 1912, states that pasteurization of milk does not destroy its chemical constituents. Determined to test the validity of this statement, we took a certain number of inmates of an infants' home, where all babies were fed on Grade A pasteurized milk which had been heated to 145 F. for thirty minutes, and discontinued the use of orange juice. No other change in the diet of the infants was instituted. Almost all the infants who did not receive the orange juice developed a more or less marked form of scurvy, whereas those who continued to receive the orange juice were entirely free from this disorder. The results of this investigation were questioned by some who were loath to believe that pasteurized milk could in any way lead to scurvy, and hence we extended the observation during the subsequent year. The results were the same, so that I feel safe in saying that a diet of pasteurized milk leads to the production of scurvy in infants unless some antiscorbutic food is also given. This scurvy is not, as a rule, of the florid type found in infants fed for months on a proprietary food, but may be described as latent or rudimentary scurvy. It seems probable that this insidious type of the disorder is far more common than is generally recognized by physicians. Raw milk is by no means comparable to orange juice as an antiscorbutic. It is not to be inferred from these conclusions that the use of pasteurized milk is fraught with danger, but merely that it is an incomplete diet for babies and must be supplemented by an antiscorbutic food. Secondary food factors seem also to play a part; malt preparations seemingly predispose to scurvy, and it seems probable that there is an intimate relation between the development of scurvy and the amount of carbohydrate in the dietary. In considering the clinical relationship between beriberi and infantile scurvy the current clinical view which regards infantile scurvy almost as one

of the hemorrhagic diseases, and the current pathologic view which centers its attention on the changes in bone structure are far too limited in their scope. Signs of the involvement of the nervous system are the characteristic manifestation of beriberi, and infantile scurvy is not entirely free from nervous signs. The knee jerks are frequently found exaggerated, and in some instances there is involvement of the optic disks and sensitiveness of the cutaneous nerves. These symptoms disappear when the nutrition again becomes normal. Dilatation of the right heart has been described in beriberi, and a like condition has been demonstrated in infantile scurvy. Edema is also a common symptom of the two conditions. There is evidence demonstrating essential differences in the vitamins controlling the development of these allied disorders. Observations have also been carried out as to the effect of infantile scurvy on growth. It was found that although infants continued to gain for a few weeks following the discontinuance of orange juice, they soon reached a stationary plane and for months were unable to rise above this level, but increased in weight promptly when the antiscorbutic food was again added to their diet. It is very probable that infants cease to gain during the third quarter of their first year of life for the want of this essential addition to their food, and fail to progress until mixed feeding is begun some months later. The infant is protected during the first few months of life by the store of antiscorbutic material which it has inherited from its mother, and there is a constant negative balance of these essential substances dating from the earliest beginning of artificial feeding. There is no reason why an infant should not receive orange juice when it is a month old. Observations were also made on the growth in length, as a result of which it was found that scurvy has a direct effect on such growth. There was an exception to this, however, which shows that lack of growth does not play an essential part in the constitution of this disorder.

DISCUSSION

DR. JOHN R. MURLIN: I have had the opportunity of observing pellagra in the U. S. hospital for the study of pellagra at Spartanburg, S. C. So far it has not been proved that pellagra is a result of vitamin deficiency; neither has it been proved that vitamins are essential to life. Dr. Funk has shown the specific effect which can be obtained from extract of yeast, and that added to the diet of polished rice it will cure polyneuritis in fowls; but it is a far cry from polyneuritis in fowls to pellagra. In pellagra there is a perfectly symmetrical distribution of the lesions on the skin which must be attributed to the effects on the central nervous system, but the gastro-intestinal symptoms are equally as prominent. Goldberger has shown that when normal persons are placed on a restricted diet, such as is habitual among the poor of the South, they develop symptoms of pellagra, and when an abundance of animal proteins are added to their diet, the pellagra can be cured. To prove that the absence of vitamins produces the disease, it will have to be shown that food lacks vitamins and that the proteins which prevent the disease contain vitamins. In pellagra the diet and the climate conduce to a peculiar gastro-intestinal condition. The flora of the intestines is peculiar and may give rise to acid bodies which may be toxic, but there is no justification for the belief that the lack of vitamins is the sole cause of pellagra.

DR. P. A. LEVENE: From the academic standpoint, the process of nutrition consists of two phases: One is concerned with the production of energy required for the normal course of the functions of the organism, the other with the growth and repair of the tissue elements. The first is a process of degradation, the second of synthesis. There are many substances which can be converted into tissue elements by plants or bacteria, but which cannot be made use of for the same end by man. A most perfect food is one which furnishes all the energy requirement with the least tax on the integrity of the tissues, and which at the same time contains in ready form all the elements required by the organism for the normal repair of its tissue elements. In the light of these requirements a diet composed of homologous tissues approaches nearest the ideal. On the other hand, a diet composed of an unusually large quantity of a single foodstuff is most taxing to the activities of the tissues. It not only lacks some of the elements necessary to tissue repair, but also lowers the efficiency of the supply of these substances deposited in the tissues. Such is the case in experimental polyneuritis. Fasting is much less harmful than a diet consisting of polished rice alone. A large intake of rice is more effective than a small one in producing beriberi. Beriberi once produced may be cured by a well balanced diet; it may also be cured temporarily or partially by a minute quantity of certain tissue extract. It is one of Dr. Funk's merits to have introduced the name "vitamin" for these substances. The clinician for the present has to deal cautiously with the problem of vitamins. Wherever possible he will have to avoid the one-sided monotonous diet.

DR. L. EMMETT HOLT: Scurvy has been much more frequently seen since the general introduction in this city of pasteurized milk. To my mind the evidence is conclusive that the connection is one of cause and effect. Boards of health have been properly impressed with the part that milk has played in the transmission of septic sore throat and typhoid fever, but it is unfortunate that they should have neglected to warn the public that pasteurized milk may produce scurvy. It has been asserted that if scurvy occurs in an infant it is always the fault of the milk formula and cannot be ascribed to the heating. This is a difficult position to maintain. While it is certainly true that the occurrence of scurvy shows that the food is not proper, this is far from proving that other proportions of the fat, protein and carbohydrate used would have given a different result. The addition of cereals to milk as commonly employed in infant feeding does not seem to give any protection against scurvy if the milk is heated, but rather that additions of considerable amounts of carbohydrates, particularly in the form of starchy foods and maltose mixtures, increase the liability to scurvy in heated milk. I have now under observation an infant who has developed scurvy on a diet of heated milk and high carbohydrate in spite of the fact that 1 ounce of orange juice had been given daily for a month before the first symptoms were seen. There is certainly an individual predisposition to scurvy which is of some importance. Only a small proportion of the children fed on pasteurized milk develop the condition, but the point to be emphasized is that it occurs in some infants even though fruit juice is given in the usual amounts, and that this is more likely to occur if the carbohydrates in the food are high. I do not wish to be understood as voicing an indictment of pasteurized milk, but simply to call attention to the disadvantages which must be considered as well.

DR. WARREN COLEMAN: One of the most interesting phases of the vitamin problem for clinicians is the question whether the diets used in the treatment of any of the commoner diseases are deficient in these important substances. There is no common disease of adults in this latitude which is recognized to be due to the lack of vitamins. Yet, it is not impossible that ill defined types of disorders now thought to be due to disturbance of function, or some of the symptoms of well established diseases, may have this origin. I am more ready to credit this possibility because of my experience with typhoid fever. I believe the very course of the disease has been altered by giving patients all the food they require instead of only a part of it. I no longer consider diarrhea a symptom of typhoid fever, except, perhaps, in the prodromal stage, but think it is the result of improper diet, and it ceases when the diet is arranged properly. Delirium and the typhoid state are not essential symptoms of the disease. When delirium occurs it is due to the fact that either the temperature is elevated above a certain height for a particular individual, or to the elevated temperature plus starvation. If in so well known a disease as typhoid fever such prominent symptoms could have been considered essential symptoms of the disease, it is quite possible that some of the symptoms of other diseases, or at least some disorders not now understood, may be found to be due to diets deficient in vitamins. It may be well, however, to direct attention to the fact that the so-called bland diets of the textbooks ordinarily consist of foods with a high vitamin content, unless they have been heated too long.

Dr. Morris Stark: There is enough evidence in the literature to tempt one to assume that rickets is a metabolic deficiency. If experiments now being conducted can definitely show, and I have no doubt they will, a change in the mineral metabolism as a result of the administration of vitamin substances in themselves free from these salts in any appreciable amounts, in addition to the diet which produced the deficiency disease, the point is proved and the mystery surrounding rickets solved. Experiments have shown that boiling casein does not destroy its food value, but it does destroy the vitamins. From many authoritative sources we are led to believe that yeast contains a large proportion of vitamin. The effect of the administration of autolyzed yeast to rachitic children is a distinct increase of appetite.

Dr. Abraham Jacobi: Scurvy is frequent nowadays when so many babies are artificially fed. Pasteurized milk with a cereal will sometimes prevent or cure scurvy, but not every overrefined cereal will do this, only cereal in the raw state. If there is no husk left on it there is no advantage to the baby. Raw oatmeal or barley are the most efficacious materials to add to the milk. Breast-fed infants rarely have scurvy, probably because the milk from day to day and from morning to night is never the same; it has the advantage of being changed frequently.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Insanity, Baltimore

April, LXXII, No. 4, pp. 591-715

1 Pathologic Findings in Sympathetic Nervous System in Psychoses. A. Myerson, Boston.
2 *Wassermann Test in Practical Psychiatry. L. G. Lowrey, Hathorne, Mass.
3 *Sensibility of Nipple Area with Reference to Mental Disease. M. E. Scheetz, Washington, D. C.
4 *Treatment of Paresis. B. D. Evans and F. H. Thorne, Morris Plains, N. J.
5 *Intracranial Injection of Salvarsanized Serum. D. M. Wardner, Cedar Grove, N. J.
6 Study of Aphasia Apropos of Case of Verbal Amnesia and Alexia. A. Gordon, Philadelphia.
7 Unique Murder Case with Application of New Law Governing Expert Testimony. J. W. Putnam, Buffalo.

2. **Wassermann Test in Practical Psychiatry.**—Statistics are presented by Lowrey dealing with the results of the Wassermann test on the blood serum of 1,600 cases admitted to Danvers State Hospital. Of 864 male cases tested, 164, or 19 per cent., were positive. Of 736 female cases, 92, or 12.5 per cent. gave positive tests. Of the 1,600 cases tested, 256, or 16 per cent., were positive. Doubtful tests occurred in 3.87 per cent. of the cases. Including cases with positive spinal fluid test and negative or doubtful blood test, 273, or 17 per cent. of 1,600 admissions, give a positive test at some point. Of 164 positive blood tests among males, 113, or 68.8 per cent., occurred in cases of nervous syphilis. Of 92 females with positive blood test, 32, or 34.8 per cent., were paretics. Of 256 cases with positive blood test, 145, or 56.7 per cent., are cases of nervous syphilis. Excluding paretics from all figures, positive tests occurred in 7.6 per cent. of 1,455 admissions. Of the nonparetic cases with positive blood, 20 are "organic," 80 are "functional" and 10 are "unclassed." It appears that, if an insane man has a positive blood test, the chances are better than even that he will be a paretic; while if a positive test appears in an insane female, the chances are that she will not be a paretic. When paresis is excluded, the chances are about three in four that the person with positive blood will have a "functional" psychosis. Among the paretics of this series, the blood test was positive in 87.5 per cent. and negative in 10.3 per cent. The spinal fluid test was positive in 87.2 per cent. and negative in 8.5 per cent., while the test was positive in both fluids in 75 per cent. of the cases. Of 276 cases with test on the spinal fluid, there are 126 positive results. Of these, 109 had blood and fluid test both positive; five had doubtful blood and positive fluid test; 12 had negative blood and positive fluid test. Of the 126 cases with positive fluid test, 121 were paretics; two imbeciles; one was organic dementia; one a heroin case; one psychoneurotic. The latter five may in the course of time develop paresis.

3. **Sensibility of Nipple Area.**—The ten cases examined by Scheetz show the following: A decrease or lack of sensitivity to light touch throughout the whole areola nipple region. The retention but inaccurate localization of pressure sensation under normal conditions. The exaggeration of pain sensations, both in the erected and in the unerected states, but more intense in the former. The increase in sensitivity for pressure and pain stimuli when an erection of the nipples was induced. The "reference of the sensations to the true sexual organs; at times by the stimulation of the unerected nipple, but in nearly every case when the erected nipple is stimulated. That diseases of the sexual organs tend to influence mental life has long been recognized, but little is known scientifically regarding the normal sexual feelings and sensations. This report aims to give for one of the accessory sexual organs a beginning of this information, without which there will persist a sharp clinical distinction between mental and physical, which does not in reality exist.

4. **Treatment of Paresis.**—In the New Jersey State Hospital at Morris Plains, Evans and Thorne have treated fifteen patients suffering from paresis with salvarsan and neosalvarsan. Fourteen of these patients were treated by the intraspinous method of Swift and Ellis and one by the intraspinous and intracranial methods combined. With the latter method two intracranial treatments were given at four weeks interval along with three intraspinous treatments. The largest number of intraspinous treatments given to one individual was ten and the smallest number three. Three of these patients showed mental and physical improvement; five showed physical improvement only; two died during the course of treatment; two died ten and thirteen months, respectively, after treatments were discontinued; the remainder showed no improvement whatever. Of the three who showed mental and physical improvement one was discharged and still remains in good physical and mental condition, having returned to work. One showed the first signs of improvement three months after receiving last treatment. The third died with convulsions ten months after treatment. The number of treatments given to each patient was insufficient to reduce the intensity of the Wassermann reaction either with the blood or the cerebrospinal fluid. The improvements observed following the treatments may be seen among the same number of paretics who have received no special treatment. The authors believe that the amount of salvarsan which can be introduced safely into the central nervous system is too small, and the intervals are too long between the treatments, to be of great value in moderately advanced cases. The intracranial method seems unnecessary. The same results can be obtained with the intraspinous method.

5. **Intracranial Injection of Salvarsanized Serum.**—Of fourteen patients treated by Wardner five improved sufficiently to be able to go back to their work and to date have remained well for from seven to eleven months. At the end of eleven months, one of these patients had a bad relapse. He was immediately brought back to the hospital and he responded immediately to additional applications of the serum. At present he is well, mentally and physically, and has parole of the grounds. Three other well developed patients have improved sufficiently to be put on parole of the grounds and are doing efficient work about the hospital. Three others have shown fairly marked physical and mental improvement but cannot as yet be trusted at large. Two have died. In both of these patients, necropsies were performed and both showed, grossly and microscopically, changes suggestive of general paresis. The immediate cause of death was in one case bronchopneumonia and in the other, who had right-sided convulsions at intervals, there was found a large cyst underlying the left motor cortex. This last case had previously shown a well marked improvement and at the time of death was on parole. Two cases have shown no improvement. Both mental and physical improvement has generally been observed after the second or third operation, and has followed

so closely on the treatment as to practically preclude the idea of coincidence. The maximum amount of improvement has occurred as a rule after six or seven treatments.

American Journal of Orthopedic Surgery, Boston

May, XIV, No. 5, pp. 259-318

8 Advantage of State Hospital for Indigent Crippled and Deformed Children in Advancement of Orthopedic Surgery in State. A. J. Gillette, St. Paul.
9 *Loose Bodies in Knee Joint; Report of Cases. M. S. Henderson, Rochester, Minn.
10 Effects of Motion and Rest in Surgical Diseases. J.-P. David, Paris.
11 *Results of Fracture of Os Calcis; Report of Cases. F. J. Cotton and F. F. Henderson, Boston.
12 Fracture of Tuberosities of Tibia; Report of Three Cases. J. W. Sever, Boston.

9. **Loose Bodies in Knee Joint.**—Cases are reported by Henderson to illustrate the various types of loose bodies to be found in joints. He says that loose bodies may have as their primary cause some condition such as osteo-arthritis or Charcot's disease, but the secondary cause is direct or indirect trauma. Osteochondritis dissecans is a group standing more or less distinctly out from the rest. The bodies seem to be produced by very slight indirect trauma. It is, however, difficult to estimate the degree of indirect trauma, and for that reason they had better be considered as due to trauma rather than to an actual disease. Trauma, direct or indirect, is essential to the production of a loose body. Henderson is convinced that surgery offers the only permanent relief, and the general condition of the patient being satisfactory, the bodies should be removed.

11. **Fracture of Os Calcis.**—Os calcis fracture of the usual compression type, Cotton and Henderson regard as being one of the most serious lesions met with, so far as future function is concerned. It is of as serious prognosis (not as to life, but as to use) as fracture of the femur at the hip. Ordinarily speaking, the man who breaks his heel bone is "done," so far as his industrial future is concerned. Late operations for correction are useful, but far from ideal in results; palliatives (plates, pads, braces and shoe modifications) are usually useless. Out of one series of sixteen cases cited only eight got even a useful result, and in one of these the displacement was so slight that one of the authors felt that no reduction was called for. Of the other seven, four recovered in spite of "conservative" treatment, but of these four, three still had trouble. The other three were cases that had been properly reduced, and in all three the result seems excellent. In four which had been "manipulated" only, the result was poor, and of these eight practically untreated only four got any kind of result. In a second series of twelve cases none had been treated, and there were no decent results at all. Out of the twelve, nine are definitely permanent cripples. Two are due to improve and may possibly work again—one probably will get back to work.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

April, III, No. 10, pp. 529-578

13 Case of Mycetoma in Hawaii; Its Etiology. M. T. Clegg and W. C. Hobdy, Honolulu.
14 Intravenous Mercuric Chlorid in One Hundred Cases of Malaria. (To be continued.) N. Barlow, St. Louis.

Arizona Medical Journal, Phoenix

April, IV, No. 4, pp. 1-17

15 Duodenal Feeding in Treatment of Gastric and Duodenal Ulcers and Some Other Conditions. J. R. Arneill, Denver.
16 Cerebral Anemia. C. S. Vivian, Humboldt.

Boston Medical and Surgical Journal

May 4, CLXXIV, No. 18, pp. 633-666

17 *Use of Duodenal Tube for Diagnosis and Treatment. (To be continued.) F. W. White, Boston.
18 Hallux Valgus. C. F. Painter, Boston.
19 Choice of Climate in Cases of Bright's Disease and Nephritis. G. Hinsdale, Hot Springs, Va.
20 *Pituitary Body and Renal Function. K. Motzfeldt, Christiania, Norway.
21 *Simple After-Treatment for Perineal Wounds. E. B. Young, Boston.
22 Exostosis of Upper Angle of Scapula. L. T. Brown, Boston.

17. **Use of Duodenal Tube for Diagnosis and Treatment.**—White regards the duodenal tube as being a real contribution to medicine, although the field for its use, both in diagnosis and treatment, is somewhate limited. He used the tube in 90 cases; fifty-six for diagnosis, in thirty-four for treatment. The tube reached the duodenum in about 30 per cent. of the cases within fifteen minutes; in about 30 per cent. more within a half hour, and in about 20 per cent. more of the cases within one to six hours. In about 20 per cent. of the patients the tube had to be left in over night in order to reach the duodenum. Some difficulties were met in adapting the routine to different sizes of patients and different sizes and shapes of stomachs. The quickest way to enter the duodenum White found is to get the tube close to the pylorus within a short time. This is best accomplished by using a light tube with a heavy tip, swallowed by the fasting patient in the erect position, feeding the tube in slowly and steadily.

20. **Pituitary Body and Renal Function.**—In one case of diabetes insipidus studied by Motzfeldt feeding the patient with the posterior lobe of the pituitary body checked the diuresis, while administration of the anterior lobe had no such effect. In a second case four posterior lobes of the pituitary body taken in the evening proved to be sufficient to diminish the output of urine to such an extent that she could sleep comfortably every night. In a third case the diuresis went down from 6,000 to 1,500 c.c., and the specific gravity increased from 1,003 to 1,007 on subcutaneous administration of pituitary extract (1 c.c. by 3).

21. **After-Treatment for Perineal Wounds.**—It is Young's aim to maintain the greatest possible degree of cleanliness and dryness as under such conditions infection and irritation are least likely to occur. After twenty-four hours, when the bleeding has ceased, the gauze perineal pad is omitted and the genitals and fissure between the buttocks kept liberally covered with a drying and antiseptic powder, the best being the compound stearate of zinc with boric acid. The powder is best applied with the patient lying on the side, the upper buttock being raised and the powder thrown into every fold. It is not sufficient to dust lightly or use a powder blower. The parts must be covered thickly, especially between the buttocks, and kept so throughout the healing if the best results are to be obtained. Although the powder gradually becomes moist, it gives excellent protection to the skin, is mildly antiseptic, and sheds water to an amazing degree. With reasonable care it is usually possible to maintain absolute dryness. If there is considerable tendency to moisture and maceration of the skin, the application of a 10 per cent. aqueous solution of icthyol before dusting with the powder will be found effective. The patient, free from any dressing, lies on a small pad which collects any discharge from the vagina or elsewhere, and can be changed whenever necessary. The genitals are carefully washed after urination and defecation, and as often as may otherwise seem necessary.

Delaware State Medical Journal, Wilmington

January, VII, No. 2 pp. 1-10

23 Organization of National and Local Forces in Campaign Against Cancer. C. E. Lakeman, New York.

Illinois Medical Journal, Chicago

April, XXIX, No. 4, pp. 241-320

24 Every Day Factors Affecting Health and Longevity. C. J. Whalen, Chicago.
25 Treatment of Extra-Uterine Pregnancy. A. P. Heineck, Chicago.
26 Diagnosis and Treatment of Ectopic Gestation. E. E. Montgomery, Philadelphia.
27 Technic of Enucleation Thyroidectomy. P. Gronnerud, Chicago.
28 Thyroid Enlargements. S. C. Bradley, Marshall.
29 Hydrotherapy. W. G. Russell, Fortress Monroe, Va.
30 Heredity and Evolution. C. L. Redfield, Chicago.
31 Why We Need System in Physical Examinations. T. P. Foley, Chicago.
32 Hypertension. J. G. Carr, Chicago.
33 Hemolytic Icterus and Other Anemias, With Special Reference to Fragility of Red Corpuscles. D. J. Davis, Chicago.
34 Follicular Tonsillitis in Its Relation to Systemic Infections. L. E. Barnes, Chicago.
35 Preliminary Report on Graduated Exercise as Inaugurated at Cook County Tuberculosis Hospital. H. H. Bay, Oak Forest.

36 Bad Stomach and Its Interpretation. W. F. Grinstead, Cairo.
37 Removal of Two Nails From Bronchi in Child Two Years Old. R. H. Good, Chicago.

Journal of Cancer Research, Baltimore

April, I, No. 2, pp. 125-308

38 *Tumor Immunity. E. E. Tyzzer, Boston.
39 Renal Tumors in Rabbit. E. T. Bell and A. T. Henrici, Minneapolis.
40 *Tissue Cultures in Investigation of Cancer. R. A. Lambert, New York.
41 Thyroid Tumor in Sea Bass (Serranus). M. C. Marsh and P. Von Willer, Buffalo.
42 So-Called Carcinoma of Thyroid In Fish. H. R. Gaylord, Buffalo.
43 *Effects of Cancer Tissue and of Normal Epithelium on Vitality of Protozoa. G. N. Calkins, Columbia, Mo.
44 Effect of Phlorhizin on Tumors in Animals. S. R. Benedict, New York.
45 Studies on Crown Gall of Plants. Its Relation to Human Cancer. E. F. Smith, Washington, D. C.

38. **Tumor Immunity.**—Both susceptibility and nonsusceptibility, or the ability to acquire immunity, Tyzzer says, are inherited, not as a single unit factor but apparently as a complex of mendelizing factors. Nonsusceptibility and susceptibility are apparently based on factor differences, or, in other words, on unlikeness or foreignness. Nonsusceptibility may thus depend with one tumor on a difference with respect to few factors, and with another tumor on a difference with respect to many factors. In the comparison of a stock of Japanese waltzing and several stocks of common mice, the nonsusceptibility of the latter to a carcinoma, J.w.A., is based on a difference with respect to a large number—probably twelve to fourteen—of independently inherited factors. Susceptibility is in this material a dominant character, since it is manifested when its factors are present in a single representation, as in the F hybrid. The presence of a single representation of the factors of nonsusceptibility in the F hybrid apparently stimulates the growth of the tumor, for its rate of growth is more rapid than in the Japanese waltzing mouse in which the factors of susceptibility are doubly represented. There are marked differences in the behavior of various tumors on transplantation in given classes of mice. Even tumors arising in homogeneous races show such differences, and this may be attributed to the acquisition of new characteristics by the soma which are manifested in the development of the tumor. The tumor, since it breeds true with respect to these characteristics in the course of artificial propagation, may be regarded as a modification of the somatic tissue which may be termed somatic mutation.

40. **Tissue Cultures in Investigation of Cancer.**—As the result of his own studies, Lambert is inclined to endorse the view that the cancer cell is a cell of relatively low resistance and that malignancy is to be attributed entirely to the capacity of the cells for unlimited growth.

43. **Effects of Cancer Tissue on Protozoa.**—One fact stands out sharply as a result of Calkins' studies, namely, the presence of a lethal factor in cancer tissue and its absence in normal tissue. Speaking of the relationship of irritation to cancer, he says: Chronic irritation means killing of cells more or less continuously in a localized area. Localized centers of autolysis, or protoplasmic breakdown, are formed and the products are absorbed by the surrounding normal cells and by the blood. Some of these products have a stimulating effect on normal cells; these divide and the process of regeneration is started. Calkins believes that this regeneration is called forth by the stimulus of chemical products of autolyzing dead protoplasm. With chronic irritation we have the continued repetition of this process of cell death and regeneration from surrounding cells, until hyperregeneration results and a mass of cells of like kind is formed, and added to by continuation of the process. Central cells of the mass, or others cut off from blood and food supply, autolyze in situ forming centers of necrosis, and the tumor, having reached this stage, is self-perpetuating. The products of necrosis, in addition to the stimulating effect on normal vitality, also include lethal factors capable of producing the morbid symptoms in the organism as a whole, and capable also of cytolytic functions whereby cell boundaries are dissolved, thus providing the invasive power so characteristic of malignant tumors. Unless the mass of cells is enclosed by a protecting connective tissue capsule, a cancer is the result.

Journal of Cutaneous Diseases, Boston

May, XXXIV, No. 5, pp. 343-414

46 *Case of Pityriasis Lichenoides Chronica (Juliusberg). J. H. Stokes, Chicago.
47 Bones in Congenital Syphilis. A. Post, Boston.
48 Case of Gangrenous Syphilitic Gumma of Thigh. A. Ravogli, Cincinnati.
49 Use of Mercury in Verrucae Planae Juveniles. C. J. White, Boston.
50 Trichotillomania; Report of Two Cases. J. H. Blaisdell, Boston.

46. **Pityriasis Lichenoides Chronica.**—In this case Stokes found it impossible to demonstrate any interaction between emulsions of the patient's lesions and his serum, in suitably prepared guinea-pigs. It was found possible, however, to elicit in the patient himself, by intradermal injection of emulsion of his own or of psoriatic lesions, a reaction resembling a papular luetin reaction, which did not occur, on the injection of an emulsion of normal skin. Subsequent experiments, however, led the author to call in question the absolute specificity of several well known cutaneous tests. Viewed from the conventional conception of the mechanism of allergic reactions, the result obtained in the present case might be regarded as evidence of the basic identity of psoriasis and parapsoriasis. When the recently developed physical theory of the mechanism of anaphylactic phenomena is applied to the interpretation of the present result, it seems to Stokes to be reasonable to regard it simply as a local adsorption phenomenon, the result of the action of an antiferment adsorbent. The reaction thus might occur as a result of the uncovering of proteolytic enzymes in serum or tissues, or a disturbance of the normal colloid equilibrium of the body at the site of injection.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

April, VIII, No. 4, pp. 175-203

51 *Peripheral Point of Attack of Strychnin. F. S. Hammett, Los Angeles.
52 Artificial Cerebral Circulation After Circulatory Isolation of Mammalian Brain. E. D. Brown, Minneapolis.
53 *Effect of Epinephrin on Medullary Centers. E. D. Brown, Minneapolis.

51. **Peripheral Point of Attack of Strychnin.**—The experiments made by Hammett showed that strychnin injected into a curarized frog does not increase the irritability of muscle tissue. In a strychninized frog previously subminimal stimuli become effective when applied to a nerve connected with its muscle. When the muscle of a strychninized frog is stimulated through its nerve the onset of fatigue is delayed and more work is accomplished. When the muscle of a strychninized frog is directly stimulated there is an initial increase in capacity for muscular work with earlier fatigue. The total work done is not changed. Therefore, Hammett concludes that the site of the peripheral action of strychnin is the receptive substance of the neuromuscular junction.

53. **Effect of Epinephrin on Medullary Centers.**—Summing up the results of his experiments, Brown says, that they tend to show that when epinephrin is perfused through the cerebral circulation, it may in a certain per cent. of cases cause a slowing of the heart and that this slowing is at least in part due to a direct stimulation of the vagus center. There is certain evidence which strongly suggests the probability that the drug also stimulates the vasomotor center. The effect on the respiratory center is very variable. There is evidence of both stimulation and depression and neither of these effects appear to be governed by the size of the dose of the drug.

Kentucky Medical Journal, Bowling Green

April XIV, No. 4, pp. 169-234

54 Perforation of Gastric and Duodenal Ulcers. I. Abell, Louisville.
55 Endometritis in Virgin. J. O. Jenkins, Newport.
56 Use of Iodin and Iodids in Medicine. E. W. Jackson, Paducah.
57 Significance of Pain in Chest. H. C. Chance, Cumberland Gap, Tenn.
58 Roentgenology. W. E. Irvin, Owensboro.

59 Chronic Hypertension. A. E. Threlkeld, Wheatley.
60 Surgery in the Country. B. Overby, LaCenter.
61 Use of Pituitary Extract in Medical and Surgical Practice. D. W. Gaddie, Hodgenville.
62 Management of Newborn. E. L. Gowdy, Campbellsville.
63 Local Anesthesia. G. Aud, Louisville.
64 Vaccines and Serums. C. F. Clayton, Balkan.
65 Skull and Brain Injuries From Surgical Point of View. C. E. Vidt, Russell.
66 Lesions of Right Iliac Fossa Other Than Appendicitis. O. W. Brown, Lenoxburg.
67 Early Symptoms of Tuberculosis. B. M. Taylor, Greensburg.
68 Normal Puerperal State. J. F. Dunn, Arlington.
69 Asthma. J. M. Hamilton, Shawnee, Tenn.
70 Appendicitis. G. W. Payne, Bardwell.
71 Colds, Their Significance and Treatment. H. T. Crouch, Bardwell.
72 Roads, Their Diseases and Treatment. T. T. Gibson, Middlesboro.
73 Injury to Intestine Followed by Volvulus. C. A. Vance, Lexington.

Maine Medical Association Journal, Portland

April, VI, No. 9, pp. 325-354

74 Intestinal Stasis. E. D. O'Neill, Biddeford.
75 Intestinal Toxemia. H. H. Roberts, Poland Spring.

Michigan State Medical Society Journal, Grand Rapids

May, XV, No. 5, pp. 219-272

76 *Scleral Trephine Operation for Detachment of Retina. Results Obtained in Twelve Patients. W. R. Parker, Detroit.
77 Puerperal Eclampsia; Its Treatment by Combining Venesection With Stroganoff's Narcosis; Report of Case. G. Kamperman and C. C. Benjamin, Detroit.
78 Obesity; Its Related Pathology. L. E. Axtell, Marinette, Wis.
79 Medical Teaching in Detroit at Present and in Future. J. W. Vaughan, Detroit.
80 Therapeutic Indications in Appendicitis. H. B. Knapp, Ionia.
81 Aseptic Technic Method in Management of Contagious Hospital. D. M. Cowie, Ann Arbor.
82 Case of Dibothriocephalus Anemia. H. B. Schmidt, Ann Arbor.
83 Puerperal Inversion of Uterus; Report of Case. R. A. Bartholomew, Ann Arbor.
84 Lantern Slide Review of Month's Roentgenograms. J. G. Van Zwaluwenburg, Ann Arbor.

76. Abstracted in THE JOURNAL, Sept. 25, 1915, p. 1136.

Military Surgeon, Washington

April, XXXVIII, No. 4, pp. 377-483

85 Coordination of Medical Departments of Army and Navy in Campaign. H. P. Birmingham, U. S. Army.
86 Army and Navy Medical Departments in Joint Campaign. D. N. Carpenter, U. S. Navy.
87 Lot of Innocent Bystander in War. T. W. Jackson.
88 Deficiency of Sanitary Units of Organized Militia. L. T. Hess, U. S. Army.
89 Organization and Problems of War Hospital. J. M. Flint.
90 Practical Utilization of Vital Statistics in Prevention of Disease and Control of Epidemics. J. W. Trask, U. S. P. H. S.
91 Proposed Equipment for Hospital Corps Soldier. R. B. Miller, U. S. Army.

Missouri State Medical Association Journal, St. Louis

May, XIII, No. 5, pp. 197-250

92 *Sodium Citrate Transfusion for Hemorrhage; Report of Cases. L. H. Hempelmann, St. Louis.
93 Management of Gonorrheal Urethritis. M. Goldman, Kansas City.
94 Choice of Operation in Various Classes of Cases of Retrodisplacement of Uterus. (To be continued.) H. S. Crossen, St. Louis.
95 Cases of Brain Surgery in Country Physician's Practice. E. E. Liggett, Oswego, Kan.
96 *Treatment of Ozena and Asthma With Autogenous Vaccines; Report of Cases. C. L. Klenk, St. Louis.
97 Essential Hemorrhage of Uterus; Report of Case. C. H. Wallace, St. Joseph.
98 Pneumonia of Childhood. A. C. Ames, Mountain Grove.
99 Responsibility of Surgeon. W. A. Duringer, Fort Worth, Tex.
100 Unusual Cardiogram in Case of Mitral Stenosis and Insufficiency. W. E. Muns, Columbia.
101 Relation of Rectum to Female Pelvic Organs. W. H. Stauffer, St. Louis.

92. **Sodium Citrate Transfusion for Hemorrhage.**—The first patient whose case is cited by Hempelmann had been bleeding from the bowels for seven days and seemed to be in a dying condition. The physicians in attendance had used morphin, horse serum, saline solutions and all the things usually employed to check hemorrhage, but without success. A citrate transfusion of 250 c.c. was carried out; the bleeding ceased and the man made an uninterrupted recovery. The second patient was a man whose septum had been removed. He had been given calcium forty-eight hours prior to the operation. Eight hours after the operation the patient vomited a large quantity of blood and the nose was repacked. However, in spite of this and of morphin, saline solution, horse serum, etc., the oozing continued uninterruptedly for nineteen hours after the first vomiting of blood. The patient was almost exsanguinated by this time, 320 c.c. of citrated blood was injected. The patient improved immediately and made an uninterrupted recovery. In each case the transfusion was followed by slight fever which lasted only a short time.

96. **Asthma and Ozena Treated with Autogenous Vaccines.**—After numerous experiments with rabbits Klenk concluded that the coccobacillus of Perez was the true cause of ozena. In nearly all cases treated he used vaccines composed of a pure culture of the coccobacillus isolated from the patient's nose. The vaccines are usually prepared from the semiliquid portions of the greenish, stinky crusts. At least ten to twelve cultures are made on albuminized agar contained in large wide tubes. In several instances absolutely pure cultures were obtained with the somewhat modified typical odor of the original condition. If the patient's serum from which the organism has been isolated agglutinates the bacteria obtained from the rabbit in a dilution of at least 1 to 30 the findings are positive and the organism is used in preparation of the vaccine. The results thus far are very gratifying. Klenk is certain that after a time with improved technic most cases of ozena will be markedly improved and ultimately cured. Many of the patients who have been under treatment, with the exception of the atrophy, appear cured. Some of the patients who are not doing well did not give positive agglutination tests and in others he was not able to isolate the coccobacillus. The autogenous vaccine for the treatment of asthma is at present in the experimental stage. Klenk has not had the opportunity to try the vaccines on more than twelve or fifteen patients but the results obtained are very gratifying. He has not been able, nor has he attempted, to isolate a specific organism in the preparation of the vaccine, but he uses all pathogenic bacteria found in the material submitted.

Modern Hospital, St. Louis

April, VI, No. 4, pp. 235-310

102 Analyses and Evaluation of Proprietary Infant Foods. J. P. Street, New Haven, Conn.
103 Municipal Tuberculosis Hospital of Kansas City. E. P. Madorie, Kansas City, Mo.
104 Intern Question — Where Lies Trouble? A. B. Tipping, New Orleans.
105 Laundry in Thousand Bed Hospital. C. B. Bacon, New York.
106 Application of Principles of Organization to Hospital Service. R. G. Valentine, Boston.

New Mexico Medical Journal, Las Cruces

April, XVI, No. 1, pp. 1-26

107 Strabismus or Squint. S. C. Clarke, Albuquerque.
108 Rational Treatment of Snake Bite. E. L. Ward, Santa Fe.
109 Indications and Counterindications for Chloroform and Ether. W. W. Phillips, Roswell.

New Orleans Medical and Surgical Journal

April, LXVIII, No. 10, pp. 629-691

110 History of Two Uncinaria Patients Treated With Thymol at U. S. Marine Hospital, Wilmington, N. C. F. Grave and H. M. Slater, Wilmington, N. C.
111 Epidemic of La Grippe. C. S. Holbrook and W. B. Terhune, Jackson.
112 Two Cases of Trachoma in Native Born Louisianians. T. J. Dimitry, New Orleans.
113 Case of Bilateral Colonic Pyelitis. H. W. E. Walther, New Orleans.
114 Case of Syphilis, With Secondary Involvement of Heart and Kidneys. A. Eustis, New Orleans.
115 Dislocation of Temporomaxillary Interarticular Fibrocartilage. J. T. O'Ferrall, New Orleans.
116 Operative Treatment of Cranial Injuries. C. W. Allen, New Orleans.

New York Medical Journal

May 6, CIII, No. 19, pp. 865-912

117 Treatment of Cardiac Syphilis. J. M. Anders, Philadelphia.
118 Seven Glass Urinary Test. V. C. Pedersen, New York.
119 Can Errors in Diagnosis and Indication be Minimized by Cooperative Method? C. Beck, Chicago.

120 Case of Pulsating Exophthalmos. F. Krause, Philadelphia.
121 Technic of Secondary Nephrectomy. E. Gauraz, Mennecy, France.
122 Compensation and Insurance in Eye Injuries. C. B. Meding, New York.
123 Cases of Reflex Irritation of Urinary Bladder. J. N. Upshur, Richmond, Va.
124 Diathermia in Tuberculosis. A. C. Geyser, New York.
125 Source of Pains in Head. A. D. Mittendorf, New York.
126 Id. J. L. Courrier, Newark, N. J.

Ophthalmology, Seattle

April, XII, No. 3, pp. 437-592

127 Mirror Writing. S. H. Brown, Philadelphia.
128 Relation Between Surgical Operations on Eyeball and Pyorrhea Alveolaris. L. W. Fox, Haverford, Pa.
129 New Method of Dressing Eyes After Cataract Extraction. F. P. Maynard, Calcutta.
130 Gas-Oxygen Analgesia in Eye, Ear, Nose and Throat Surgery. W. Walter, Chicago.
131 Multiple Wounds of Eye Due to Broken Spectacle Lens. A. Murray, Chicago.
132 Eye Injuries and Treatment in Present War. S. Walker, Jr., Chicago.
133 Retained Foreign Bodies in Orbit. F. W. Miller, Los Angeles.
134 Massage in Glaucoma. A. A. Bradburne, Manchester.
135 State Legislation Concerning Trachoma. F. Allport, Chicago.
136 Pulsating Exophthalmos Treated by Slow Occlusion of Common Carotid Artery With Neff Clamp. S. D. Brazeau, Spokane, Wash.

Pennsylvania Medical Journal, Athens

April, XIX, No. 7, pp. 483-580

137 Morbidity of Acute Appendicitis. G. P. Muller, Philadelphia.
138 Involvement of Pectoral Muscle in Cancer of Breast; Report of Examination of One Hundred Specimens. J. Speese, Philadelphia.
139 *Free Transplantation of Fascia Lata in Treatment of Inguinal Hernia. F. T. Stewart, Philadelphia.
140 Pancreas and High Intestinal Obstruction. J. E. Sweet, Philadelphia.
141 Case of Palsy of External Rectus Muscle With Operation. C. M. Harris, Johnstown.
142 *Treatment of Tuberculous Peritonitis; Medical vs. Surgical. T. J. Elterich, Pittsburgh.
143 *Tertiary Manifestations of Syphilis as Seen in General Medical Ward. J. H. Musser, Jr., Philadelphia.
144 *Chronic Arthritis. T. McCrae, Philadelphia.
145 Case of Scurvy With Amebae Found in Gums. T. M. Tyson and H. D. Jump, Philadelphia.
146 *Report of New Method of Treating Gonococcic Purulent Conjunctivitis by Exclusive Use of Iced Normal Salt Solution. E. B. Heckel, Pittsburgh.

139. Abstracted in The Journal, Oct. 23, 1915, p. 1483.

142. Abstracted in The Journal, Oct. 30, 1915, p. 1578.

143. Abstracted in The Journal, Oct. 9, 1915, p. 1304.

144. **Chronic Arthritis.**—On the basis that chronic arthritis may be of infectious origin, McCrae, says, one should give up the habit of calling such conditions "rheumatism." This only means a hazy conception in the minds of most of us and we need clear ideas and definite conceptions in dealing with chronic arthritis, which has nothing to do with rheumatic fever, a definite infectious disease readily recognized in the majority of cases. If there is doubt in the diagnosis of an acute arthritis, as there may be for some days, it is wiser to feel that other forms of arthritis have to be excluded and it is better to make the diagnosis of rheumatic fever last rather than first. The occurrence of permanent changes in or about a joint, even though very slight, speaks against rheumatic fever. The finding of the original focus of infection is more essential. It is not well to think that this is an easy matter; sometimes it is, but more often the search is difficult. In general, the measures to be adopted are: (1) early recognition before material damage is done so that the proper measures can be adopted at the onset; (2) thorough search for the focus of infection and efficient treatment of this if found; (3) every effort to improve the patient's powers of resistance, and this is particularly important if the source of infection cannot be found, in the hope that the patient may overcome the infection by his own powers of resistance. This involves the best possible nutrition, good hygiene, free elimination and the blood in good condition; (4) the effort to lessen the damage to the joints, under which head come the proper uses of exercise and rest; local measures, such as aid the circulation or relieve pain; (5) the relief of pain both for the sake of the patient and to allow of movements in some cases; (6) the prevention of deformities.

146. **Gonococcic Purulent Conjunctivitis Treated by Iced Normal Salt Solution.**—The temperature which can be maintained with cold is almost 0 C., under which the gonococci are killed instantly. On this assumption and the assumption that gonococci are found only in superficial epithelial tissues and do not penetrate deeply, Heckel says, that we have in iced normal salt solution a harmless effective germicide, easily produced, maintained and easily applied. He cites two cases in which its use was followed by excellent results.

South Carolina Medical Association Journal, Greenville

April, XII, No. 4, pp. 95-126

147 Medical Preparedness in South Carolina. G. A. Neuffer, Abbeville.
148 Ignorance, Superstition, Quackery. R. B. Furman, Sumter.
149 Preparation of Patient for Surgical Operation. F. L. Potts, Spartanburg.
150 Care and Treatment of Patients at State Hospital for Insane, Columbia, S. C. C. F. Williams, Columbia.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

April, XXIV, No. 4, pp. 101-128

151 Food Poisoning and Its Relation to Cold Storage; Its Medicolegal Importance. T. W. Schaeffer, Kansas City, Mo.
152 Early Recognition of Some Serious Affections of Eye. G. A. Landes, Parsons, Kan.
153 What Patients Swallow. S. H. Landrum, Altus.
154 Tracheobronchoscopy and Esophagoscopy; Report of Cases. D. L. Shumate, Kansas City, Mo.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

April 15, II, No. 2885, pp. 541-576

1 Colds and Influence of Atmosphere on Nasal Mucous Membrane. L. Hill.
2 Soldier's Heart and Its Relation to Thyroidism. J. Barr.
3 Penetrating Wounds of Abdomen; Report of Cases. H. H. Sampson.
4 Two Cases of Removal of Bullet from Upper Surface of Diaphragm. E. D. Telford.
5 Value of Time in Surgery. R. P. Rowlands.
6 *Nature and Treatment of Concussion. T. E. Harwood.
7 Three Cases of Paroxysmal Hemoglobinuria in Soldiers. D. MacManus.
8 Case of Heart Block in Jaundice. R. D. Rudolf.

6. **Nature and Treatment of Concussion.**—Harwood believes that there is some relationship between errors of refraction and concussion in its expression of a neurasthenia. A patient suffering from head injury or shell shock is usually put to bed and rested in every possible way; almost the only organs of his body on which any constant voluntary effort falls are his eyes. In fact, throughout his convalescence his chief energies are, consciously or unconsciously, being spent on his eyes, because without the use of his eyes he can do little or nothing, and during all his waking moments a large proportion of his diminished available energy is being spent on them, the result being that the rest of his body is starved. Various functional effects follow, and the patient falls a ready victim to organisms normal to the body and their toxins. But by correcting the refractive error the work which the eyes have to do can be reduced to a minimum.

Dublin Journal of Medical Science

April, CXLI, No. 532, pp. 227-294

9 Fat Supply of Germany. A. D. Waller.
10 Therapeutics of Distilled Water. G. A. Stephens.

Edinburgh Medical Journal

April, XVI, No. 4, pp. 257-336

11 *Nonprotein Nitrogen of Blood, Especially in Its Relation to Nephritis and Renal Function. F. D. Boyd.
12 Case of Enteric Intussusception. J. Fraser.
13 Cases of Perforating Pyloric and Duodenal Ulcers. W. A. Mackay and I. Macdonald.
14 Flash Boiler as Field Equipment. W. Robertson.
15 Royal College of Surgeons of Edinburgh. C. H. Creswell.

11. **Nonprotein Nitrogen of Blood.**—Boyd is convinced that nitrogen retention does not occur in all nephritics. He says that when the nonprotein nitrogen of the blood rises to 50 mg. per cent. it is a distinct warning of grave renal inadequacy, and is an urgent call for a rigid nonnitrogenous regimen. Nitrogen values round about or over 100 mg. per cent. justify the gravest prognosis, but there is no definite relationship between nitrogenous retention and high blood pressure. The estimation of nonprotein nitrogen of the blood is of great clinical value as a guide to prognosis and to treatment in all cases of nephritis. The treatment of nitrogen retention must be principally dietetic. When a nephritic with nitrogen retention comes under observation it is well, if strength permits, to withdraw all nourishment, satisfy thirst with distilled water, and administer purgatives. Considerable nitrogenous waste can be withdrawn by the bowel. Hot-air baths or hot packs are of value. After a period of twenty-four hours' rest nonprotein diet is commenced, consisting of water arrowroot, cream, sugar and such stewed fruits as are poor in benzoic acid, namely, apples, prunes and figs. This diet can be kept up for a week or even two weeks without the patient suffering. It supplies sufficient energy for the bodily requirements, and if nitrogen retention is not excessive may cause a definite fall in blood nitrogen. At the end of the period milk may be added and more inspiring farinaceous foods than water arrowroot. In the early stages of an acute nephritis, even when there is no nitrogen retention, such a diet is always desirable, for even though the kidney may be able to excrete waste nitrogenous bodies, in doing so it is working, not resting, and work is not good for an organ in an active state of inflammation. In chronic nephritis dietetic treatment must largely be governed by an estimation of blood nitrogen. If there be no nitrogen retention it is inadvisable to keep the patient on a strict nonprotein diet, as nutrition suffers. Short periods of nitrogen-free diet are often useful and beneficial to the renal function and the cardiovascular symptoms, but the patient's nutrition must always be kept in view.

Journal of Tropical Medicine and Hygiene, London

April 1, XIX, No. 7, pp. 77-88

16 *Vaccine Treatment in Streptococcal Puerperal Fever. A. J. Chalmers and O'Farrell.
17 Blastomycosis (?) in Central Africa. A. Y. Massey.

16. **Vaccine Treatment in Streptococcal Puerperal Fever.**—Chalmers and O'Farrell cite two cases of puerperal fever caused by the fecalis group of streptococci in which vaccine therapy was successful. The first patient, a multipara, had an easy confinement which was conducted without intravaginal examination. She kept quite well for seven days, when for the first time she received an intravaginal douche, after which the fever began. No organisms were obtained from the peripheral blood, but an intra-uterine swab produced a pure growth of a streptococcus, which eventually proved to be *Streptococcus versatilis,* belonging to the fecalis group. She at first only received antistreptococcal serum, but on admission into the hospital the uterus was thoroughly cleansed. An autogenous vaccine was given in a 5 million dose six days after the preliminary dose of *Streptococcus salivarius* (stock vaccine). This vaccine also appeared to do no good, and five days later the patient became obviously worse, when 200 millions of the fecalis group vaccine was administered. She made a good and rapid recovery. This is obviously a chronic case in which the treatment of uterine cleansing and antistreptococcal serum did much good, while the heterologous vaccine did no good, but a large dose of the homologous vaccine produced a cure.

The second case was a very severe type of fever which had lasted six days, and when first seen had a temperature of 104.6 F. There was much purulent discharge from the uterus. The uterus was douched out with antiseptics, but this had to be stopped on the third day as the patient's friends refused to allow it to be done, and she had to trust entirely to vaccine therapy. As some human fecal matter had been observed in the vagina, it was decided to treat her at once with the same vaccine as that made from the first case, and this was done in less than twenty-four hours after the case had been first seen. She received a 5 million dose, and, as the effect was to slightly lower the temperature, and as the patient showed some improvement, three days later she received 50 millions, when the temperature gradually fell, reaching 100 F. on the sixth day after the first vaccine dose. On the next day it rose to 102.6 F. in the evening, and next day (eighth day after first injection), she received 200 millions, the temperature declined and reached normal on the third day after this dose, and the eleventh after the commencement of vaccine therapy, she made a good recovery.

Lancet, London

April 15, II, No. 4833, pp. 809-848

18 Acute Poliomyelitis. F. E. Batten.
19 *Importance of Auscultation in Diagnosis of Vascular Injuries Accompanying Gunshot Wounds. G. Makins.
20 Shock and Soldier. (To be continued.) G. E. Smith.
21 Standard Method of Testing Antiseptics for Wounds, with Some Results. W. d'E. Emery.
22 Treatment of Hemorrhoids by Injection of Two Per Cent. Phenol. F. S. Edwards.
23 Methods of Preparing Sphagnum Moss as Surgical Dressing. C. W. Cathcart.
24 *Precipitin Reaction in Tuberculous Fluids. S. R. Gloyne.
25 Imperforate Hymen in Baby. H. R. Spencer.
26 Case of Imperforate Hymen. W. Robertson.

19. **Auscultation and Gunshot Wounds.**—Well recognized and charactertistic as are the murmurs produced by the existence of traumatic openings in the walls of the blood vessels, Makins is of the opinion that the routine employment of the stethoscope for their detection seems hardly so generally adopted as should be the case. The importance of this method of examination is obvious in any class of wound, but it is especially valuable in the case of the multiple wounds inflicted by the various forms of fragments derived from the bursting of high explosive shells and bombs. Three cases are cited to emphasize the value of this method of physical examination and to impress the fact that in any case of swelling of a limb in connection with a gunshot wound the stethoscope affords a ready and certain means of establishing a diagnosis. Further, observation of the point at which the bruit is loudest and highest pitched will serve to localize the exact position of the lesion. Makins points out that the method is far more reliable than the uncertain practice of examining for the state of the distal pulse, for this is obliterated only if the vessel has been completely severed, or in the rarer instances in which large masses of hard clot exist to compress it, while diminution of size and force is more likely to be due to moderate pressure from without than to the existence of a lateral wound in the wall of the artery.

24. **Precipitin Reaction in Tuberculous Fluids.**—Four definitely tuberculous fluids were tested (three contained bacilli, and the fourth, though no bacilli were found, was verified postmortem) by Gloyne. Of these four fluids three gave positive reactions (75 per cent.). Fourteen fluids were also tested in which the diagnosis could not be definitely proved by the finding of bacilli, but in which a lymphocyte count, high protein content, etc., strongly suggested a tuberculous origin. Of these, five (36 per cent.) gave a positive reaction, two (14 per cent.) a doubtful and seven (50 per cent.) a negative result. Four nontuberculous fluids used as controls were all negative. Gloyne is of the opinion that the test may be of some use in cases of tuberculous effusion in which bacilli have not been found in the fluid.

Practitioner, London

April, XCVI, No. 4, pp. 347-446

27 Clinical Electrocardiography: A Résumé. S. R. Wells.
28 Common Aids. Venesection; Purgation; Massage; Blistering, etc. L. Williams.
29 Genito-Urinary Surgery: A Review. J. W. T. Walker.
30 Hexamin: Its Use and Misuse. A. S. Erulkar.
31 Citrated Whole Milk Feeding for Infants. C. W. Vining.
32 Children's Diseases: A Review. H. Thursfield.
33 Retrospect of Otology, 1915. M. Yearsley.
34 Treatment of Rheumatic, Neuralgic and Allied Pains by Ionization with Sodium Salicylate. C. W. Budden.
35 *Rôle of Pyorrhea Alveolaris in Causation of Chronic Bronchitis and Asthma. S. P. Shivdas.
36 Syphilis and Yaws in Tropics. S. Vassallo.

35. **Pyorrhea Alveolaris in Causation of Bronchitis and Asthma.**—Cases are cited by Shivdas to show that pyorrhea alveolaris is a most potent etiologic factor in the causation of these diseases. In the cases in which the pyorrhea alone was treated, either a marked improvement or disappearance of the lung affection was observed, with the arrest or improvement of the pyorrhea. When the lung affections alone were treated without any attention to the pyorrhea, hardly any good results were obtained, except a slight temporary relief in the symptoms in consequence of the administration of soothing and anodyne remedies. When both the pyorrhea and the lung affections were treated, the asthma or chronic bronchitis either disappeared or showed improvement, with arrest or improvement of the pyorrhea.

Bulletin de l'Académie de Médecine, Paris

April 4, LXXV, No. 14, pp. 373-395

37 *Magnet for Extracting Projectiles in the Brain. L. Rocher.
38 Local Anesthesia for Prostatectomy. F. Legueu.
39 *Prophylaxis of Scarlet Fever by Milne's Method. G.-H. Lemoine and Devin.
40 Abscess in the Liver with Trench Diarrhea. F. Rathery and L. Bisch.
41 Amebic Dysentery in France. (Sur la dysenterie amibienne autochtone.) A. Orticoni and P. Ameuille.
42 Surgical Treatment of Pseudarthrosis After Fracture of Lower Jaw. (Traitement chirurgical des pseudarthroses dans les fractures du maxillaire inférieur.) Cavalié.

37. **The Giant Magnet as Aid in Extracting Scraps of Metal from the Brain.**—Rocher shows by illustrations how the magnet causes waves in the brain tissue which help to mobilize the bullet or scrap of shell. The attraction should always be applied so as to draw the bullet out by the path it entered. He has made a special study of the subject on cadavers, and points out the dangers to be avoided. When the foreign body is in quite deep, he interposes a narrow steel funnel, 5 cm. long, fitting over the tip of the magnet. It is important to draw the bullet out by its tip, and under control with the Roentgen rays it is possible to guide and draw the tip around to the best position for its extraction from the tissues.

39. **Prophylaxis of Scarlet Fever, Diphtheria, etc., in Hospital.**—Lemoine and Devin relate that last January a large number of cases of scarlet fever, diphtheria, measles and mumps were brought to the improvised hospital in their charge, and there was only one large hall where the men could be placed. They had a few low partitions put up to mark off the sick with the different diseases, but isolation was out of the question. The sole reliance was on the Milne method of prophylaxis, veiling head and chest with a gauze curtain which was sprayed with tincture of eucalyptus and an antiseptic three times a day. Every three hours the throat and nasopharynx were painted with iodized glycerin and an antiseptic oil was instilled into the nasal passages. These measures were done by the physician himself or by a nurse tending exclusively one group of patients. When the man was allowed to get up, he had to stay in part of the room given up to suspects, and three times a day, the throat, nasopharynx and the nose were disinfected. During the month this treatment was applied to 10 men with measles, 18 with scarlet fever, 16 with mumps, and 12 with diphtheria, and no case of contagion and no complications developed. The method must be applied painstakingly by one who believes in it and it takes patience and perseverance. When this can be realized, the period of isolation after infectious disease can be materially shortened.

Progrès Médical, Paris

January 5, XXXII, No. 1, pp. 1-8

43 Spontaneous Fracture of Bones in Foot in Tabes. (Les fractures spontanées des os du pied dans le tabès.) C. Roubier.
44 Correction of Cicatricial and Other Constriction of the Jaws. (Constriction des machoires.) G. Pitsch.
45 The Evolution of Military Surgery. P. Bonnette.

January 20, No. 2, pp. 9-16

46 Tuberculous Perinephritis. M. Loeper.
47 Technic for Intravenous Injections. H. Gallais.

February 5, No. 3, pp. 17-24

48 Transient Malignant Edema of the Eyelid. (Pustule maligne des paupières à guérison rapide.) M. Loeper and J. Carlotti.
49 Chaulmoogra Oil in Intravenous Treatment of Leprosy. M. Vahram.
50 *Tests to Control the Hearing Capacity. (Contribution à l'étude expérimentale du controle auditif.) H. Gosset.
51 Balsam of Peru Specific Against Pyocyaneus Infection of Wounds. (Le pansement des plaies.) H. Bourgeois.
52 *Sodium Perborate in Treatment of Wounds. (Le perborate de soude dans le pansement des plaies.) H. Bourgeois.

February 20, No. 4, pp. 25-32

53 *Operation on Hydrocele by the Inguinal Route. (La cure radicale de l'hydrocèle vaginale par la voie inguinale. J. P. Tourneux.
54 *Differential Diagnosis of Syphilis of the Mouth. (Syphilis de la bouche. Gommes perforantes du voile du palais.) Gaucher.

50. **Tests to Control the Hearing.**—Gosset mentions a number of means with which simulation or exaggeration of deafness is readily detected during lip reading exercises.

52. **Sodium Perborate in Treatment of Wounds.**—Bourgeois applies the sodium perborate as a dry powder. As it becomes moistened by the secretions it generates oxygen and acts like the ordinary solution of hydrogen dioxid, only that it is alkaline. He fills up the wound cavity with the powder, without draining, with a flat dressing above, renewed every day at first.

53. **Operative Treatment of Hydrocele by the Inguinal Route.**—Tourneux comments on the disadvantages and complications liable to follow an operation on the scrotum to cure hydrocele, especially the difficulty of ensuring and maintaining asepsis in this region. There is often a tendency to inguinal hernia, also, in men with hydrocele, especially the congenital. There are thus a number of advantages in operating on the hydrocele through an inguinal incision, as Gomoiu and Phocas have been doing with great success. They had published by 1914 sixty-eight cases with unfailingly excellent results. It is very easy to draw up the testicle through an incision in the inguinal or inguinal-pubic region, an assistant pushing it up from below. The tunica vaginalis soon presents in the incision and is seized with two forceps and evacuated. Then the testicle is drawn out and the serosa is turned as by the usual technic, resecting it or not as indicated. Phocas punctures and evacuates the hydrocele as the first step, but Tourneux does not think this is necessary but rather a drawback as it is easier to find and hold the vaginalis when it is distended. He has been much impressed with the ease, simplicity and ideal results of this method of treating hydrocele. It takes only a few minutes and the incision heals promptly as held together with clips. The reaction inside the scrotum is much less than with the scrotum incision; the patient is kept in bed but a few days—Phocas says only two or three—and he can leave the room in seven or eight. Tourneux thinks that this principle of access through the inguinal region could be applied to a number of other affections of the testicle and cord.

54. **Syphilis of the Mouth.**—Gaucher expatiates on the necessity for bearing the possibility of syphilis in mind whenever a sore throat shows a median predominance of the lesions, or when a syphilitic complains of sore throat. Ordinary sore throat usually concentrates on the tonsils and their vicinity. When the finger feels a deep hardness in the velum you are justified in asking as you palpate the palate "When did you get your syphilis?" Tuberculous ulceration of the velum is rare and is more painful than the syphilitic, and is surrounded by yellow points, the miliary tubercles. Syphilitic lesions of the tonsils are rare, but there is a febrile type, a type that resembles epithelioma, and a gangrenous type usually from secondary infection. The limitation to one side and the absence of glandular involvement help in differentiation. Gaucher adds that as potassium iodid is said to promote epithelioma, it is better not to give it in dubious cases; mercury is always available. A solitary gumma in the pharynx is liable to be mistaken for an ordinary tumor. Diffuse syphilitic lesions of the palate and pharynx have such an insidious onset that irreparable damage may have been done before their presence is suspected. Any change to a more nasal tone to the voice is suspicious, and redness or other sign of anything wrong in the mouth or throat of a syphilitic calls at once for careful palpation throughout.

Monatsschrift für Kinderheilkunde, Berlin

XIII, No. 11, pp. 477-516

55 *Epidemiologic Study of Measles. (Masernfragen.) H. Wagener.
56 *Extractives in Infant Feeding. (Bedeutung der Extraktivstoffe für die Ernährung.) P. Heim.
57 *Intussusception in Infants. (Darminvaginationen im Kindes- und Säuglingsalter.) M. Nagel.
58 *Anemia and Enlargement of the Spleen in Girl of Nine. (Hochgradige Anämie mit Milztumor—Pseudo-Banti—beim älteren Kinde als Folgeerscheinung septischer Infektion in den ersten Lebenswochen.) H. Kleinschmidt.
59 *Is There an Initial Fever in Tuberculosis? (Zur Frage des Tuberkulose-Initialfiebers.) H. Kleinschmidt.

55. **Measles Problems.**—Wagener studied some epidemics of measles in five different towns during 1913 but was unable to find anything to confirm the assumption that measles can be transmitted by inanimate objects or by healthy persons. A schoolroom of children becomes infected by one or more of the children having been exposed outside the school. Each infects those in its immediate vicinity alone, and these in turn others, until all in the room have been infected by the end of three weeks. This phase is followed by the period in which the children at home, too young to go to school, and the adults become infected. This sequence of events can be clearly traced in places with a one room schoolhouse. An epidemic develops only after an interval of at least three years since the last general epidemic of measles. Those who escape a general epidemic are the children under 5 months old at the time. All who escape are thus below the school age, as all the schoolchildren who have not already had measles contract it without exception during a village epidemic. The epidemic reaches its height in twenty-five or six days and then declines, the younger children and adults' infection representing the declining period. Among the 694 cases of measles in the five different localities, complications were observed in 27.26 per cent., including 77 cases of otitis media, 54 of conjunctivitis, bronchitis in 18 and pneumonia in 9, while 27 children were left with chronic enlargement of lymph glands, 15 with severe anemia, and 12 with chronic disease of the middle ear. He found no instance of primary immunity. The exanthem showed invariably in the throat when the children were examined during the days just preceding the skin eruption; in one case it appeared before Koplik's spots.

He found no instance in which a child escaped the disease when exposed for the first time after the age of 5 months. None under 4 months old developed measles and only one infant of five months, although all were in constant contact with brothers or sisters with the disease. He thinks it is possible that young infants escape because they breathe only through the nose, and thus the measles germs do not have free access to the throat. If an infant's nose is stopped up this protection is lost; the infant is as liable then to contract measles as older children. Wagener is convinced that transmission by fomites is practically impossible, and he has long omitted precautions in this line and has never had a case of transmission traceable to this omission. He calls attention further to the fact that over 49 per cent. of persons who had already had typical measles in former epidemics, developed symptoms on the part of the upper air passages, digestive tract, sore throat or conjunctivitis, while other members of the family were having measles. These disturbances were observed exclusively in 183 families where there were cases of measles, and they never reached a degree beyond that observed with such phenomena as complications or part of measles. They coincided, further, with the measles in the family. There is little doubt that the disturbances were the work of the measles germ, and hence that the individuals were carriers—for the time being—and liable to spread the disease. There is much evidence to prove that these carriers are responsible for the instances of transmission of the disease which have been attributed hitherto to transmission by fomites or healthy third parties.

56. **Importance of Extractives in Infant Feeding.**—Heim relates that twenty-five guinea-pigs fed exclusively on cow's milk all died in from four to fifteen days, others died promptly likewise when cellulose was added to the milk, but the animals developed normally when malt extract was added to the milk-cellulose mixture. He prepared an alcoholic extract of the germinating barley, and this seemed to contain some substance able to compensate for the deleterious action of the cow's milk. Seven infants not thriving on cow's milk seemed to benefit likewise from this extract of germinating barley, his results confirming those of Aron and emphasizing that we must pay more heed to the extractives henceforth in artificial feeding of infants.

57. **Intussusception of the Intestines in Children.**—Nagel reports three cases in infants six or seven months old, one his own child. The invagination corrected itself spontaneously in one, the nature of the disturbance not being recognized. In the others it subsided in less than thirty hours under injections of water or oil, a pint and a half, from a height of 30 inches, with the pelvis raised. The injection was repeated every two or three hours until the desired result was attained; five or six were generally enough. The intussusception is reduced the more readily the nearer the anus. Blowing air into the intestines with a T tube and bulb has also proved successful in some instances. With much vomiting, lavage of the stomach is useful. To quiet the bowels after the injections, small doses of opium may be useful. Hirschsprung recommends cautious massage. This is scarcely feasible, however, unless the invaginated portion can be palpated. Nagel strongly advocates examining the abdomen and rectum under general anesthesia. This alone may break up the invagination.

There is scarcely any other affection in infancy which strikes so like lightning from a clear sky. Nagel's own healthy infant was nursing happily in perfect health, when it suddenly screamed, became livid, its limbs hanging loose, the breathing deep and slow, the pulse imperceptible, the abdomen relaxed. The child lay in complete apathy, its body cool. This state lasted for three minutes and then a few slow movements of its limbs followed. Then it screamed again and sank anew into the alarming apathy and atony, which lasted five minutes this time. Then came a restless sleep during which it moaned and grimaced. A third attack followed, succeeded by a brief, leaden sleep. The pallor was not so extreme by this time but the pulse was small and fast, the limbs relaxed and no attempt to move them was made. Palpation of the soft abdomen seemed to hurt the child a little but no special tender point could be found. While being examined it vomited and then had another attack of pain after which it slept again. As it slept it seemed to be regaining its normal aspect and when it woke, sat up and played as if nothing had happened. It passed a few hours later a stool of almost exclusively fresh blood and mucus, and the stools showed mucus for several weeks but no blood. The boy is now 4 years old, strong and well, and has never presented any such symptoms since. In the second case, there were four or five of the attacks and one followed an enema of ¾ liter of tepid water, but then there were no more. The first day there had been three stools of almost exclusively blood and mucus. There was no fever in either case and no recurrence during the years since. In the third case the attacks continued for a day and a half, diminishing in intensity. Enemas of a liter of tepid water seemed to relieve, but there is nothing to show that they corrected directly the invagination. Hirschsprung's eleven cases all terminated fatally.

58. **Intense Anemia with Enlarged Spleen in Girl of 9.**—Kleinschmidt describes the puzzling syndrome and the numerous futile attempts to explain it before it was finally traced to the results of severe and protracted septic suppuration of the umbilical cord, the inflammatory process evidently having involved the portal vein. Türk has published two similar cases and Epstein one in which there had been multiple phlegmonous processes. The syndrome is characterized by recurring hemorrhages in the gastro-intestinal tract, entailing extreme anemia with exhaustion of the bone marrow and enlargement of the spleen. The child has improved and is doing well on a diet rich in vegetables, for the iron in them and for correction of constipation; the tendency to hemorrhage is combated by continuous systematic administration of calcium chlorid.

59. **Initial Fever with Tuberculosis.**—Kleinschmidt thinks that the assumption of an initial fever in tuberculosis will have to be deferred until more data have been accumulated. He reports the case of an infant nursed by the mother in the last stages of consumption. After her death the child seemed to be thriving and its temperature was constantly normal until the fifty-first day when the Pirquet test elicited a positive reaction. The temperature persisted normal for another two weeks, but then rose and other symptoms of generalized tuberculosis rapidly followed, fatal at the age of 3 months.

Münchener medizinische Wochenschrift, Munich

February 8, LXIII, No. 6, pp. 185-224

60 Removal of Foreign Bodies Under Direct Roentgen-Ray Control. (Die operative Aufsuchung der Fremdkörper unter unmittelbarer Leitung des Röntgenlichtes.) Holzknecht.
61 Zinc Filters for Roentgen Rays. (Das zweckmässige Filter der Röntgentiefentherapie.) H. Wintz and L. Baumeister.
62 Intramuscular Colloidal Silver in Small Doses in Treatment of Inflammatory Processes. (Einige Beobachtungen bei Kollargolinjektionen in kleinen Dosen.) Gellhaus.
63 Interim Spring Artificial Leg. (Eine federnde Uebergangsprothese.) G. Frank.
64 Severe Poisoning with Acetylene Gas; Two Cases. (Ueber Vergiftung mit Azetylengas.) Nicol.
65 Functional Capacity and Development of Organs. (Arbeitsleistung und Organentwicklung.) M. Gerhartz.
66 Filters in Phototherapy. (Lichtfilter.) C. Dorno.
67 Legal Decisions of Interest to Physicians. (Der Arzt in der Rechtsprechung.) P. Kaestner.
68 Fistulas and Abscesses After Wounds of the Skull. (Die Schädelfistel und der Gehirnabszess nach Schussverletzung.) O. Witzel.
69 Sequesters Keep Up Persisting Fistulas After Fractures in War. (Die abschliessende Sequestrotomie nach Schussfraktur.) P. Janssen.
70 Treatment of Contractures. P. Erlacher.
71 Aneurysms of Femoral Artery. (Zur Kasuistik des Aneurysma der Schenkelarterie.) M. Flesch.
72 The Task of the Assistant at a Trephining Operation. (Merkblätter für Feldunterärzte. X.) E. Rotter.
73 Improved Litter for the Trenches. (Verbesserung an der behelfmässigen Trage.) H. Hamann.
74 Orthopedics for the Wounded. (Kriegsorthopädie in der Heimat.) G. Hohmann, F. Lange and F. Schede. To be continued.
75 *Prolonged Warm Soapy Bath in Treatment of Gas Phlegmon. Nahmmacher.

75. **Treatment of Gas Phlegmon.**—Nahmmacher placed the leg in a tub of soapy water, kept constantly warm for two hours and gave camphor and morphin. The gas phlegmon had developed after a shell wound of the calf, and extended from toes to knee, having developed suddenly. The leg was amply incised and drained and, after the bath, was kept raised and hydrogen dioxid poured freely every half hour on a gauze sheet laid over it. Improvement was prompt and pronounced.

Gazzetta degli Ospedali e delle Cliniche, Milan

March 31, XXXVII, No. 26, pp. 401-416

76 Study of the Urine Albumin Soluble in Acetic Acid. (Sulla cosidetta albumina acetosolubile della orine.) E. Cavazzani.
77 Vaccine Therapy of Typhoid. (La vaccinoterapie del tifo nella pratica medica.) G. De Lucchi.

April 2, No. 27, pp. 417-432

78 *Premature Menopause From Pituitary Derangement. (Menopausa precoce. Sindrome ipofisaria. Opoterapia.) G. Jona.

78. **Premature Menopause and Pituitary Treatment.**—Jona relates that the menopause came on after an attack of puerperal fever at the age of 29. Besides the amenorrhea, a tendency to obesity, hypertrichosis and polyuria developed, with vascular crises and change of character. After ten or twelve years pituitary treatment was begun, and before long menstruation returned and the general health improved, the menopause thus retrogressing. This case of premature and pathologic menopause emphasizes anew the share of the mechanism for internal secretion in the normal menopause, and it accentuates the pituitary element. The case is further interesting as showing the possibility of menstruation returning, after a pause of twelve years, under the influence of hypophysis treatment, which caused also the subsidence of certain still persisting climacteric disturbances. The woman was under intermittent pituitary treatment from August to March, and menstrual hemorrhages had returned regularly the last five months, to date of writing.

Policlinico, Rome

April 2, XXIII, No. 14, pp. 421-452

79 Influence of Staphylococcus Aureus on Rat and Mouse Cancer. (L'influenza dello stafilococco aureo sui tumori maligni.) P. Mariconda.

Riforma Medica, Naples

February 14, XXXII, No. 7, pp. 169-196

80 Gas Gangrene from Wounds in War. (Su 4 casi di gangrene degli arti da ferite d'arma da fuoco.) P. Guizzetti.
81 Pathogenesis and General Etiology of Deformity of the Human Body. C. Romano. Commenced in No. 5.

February 21, No. 8, pp. 197-224

82 *Grafts and Implants in Biology and in Surgery. (Dei trapianti ed innesti in biologia ed in chirurgia.) R. Minervini.
83 *The Protective Ferments in Tuberculosis. (Ricerche sulla reazione di Abderhalden nella tubercolosi.) L. Datta.
84 Epidemic of "Fourth Disease." A. Montefusco. Concluded in No. 9.

February 28, No. 9, pp. 225-252

85 Phenol in Treatment of Tetanus. (Sulla terapia del tetano.) S. Fichera.
86 Case of Interlobar Purulent Pleuritis. L. Pedrini.

March 6, No. 10, pp. 253-280

87 To Get Rid of Lice. (Sulla profilassi del pediculus hominis.) G. Izar.
88 *The War and Venereal Disease. (Guerra e problema sessuale.) F. De Napoli.
89 *Splenectomy in the Pathology of the Liver and Blood. (Estirpazione della milza nella patologia del fegato e del sangue.) L. Silvestrini.

82. **Grafts and Implants in Biology and Surgery.**—Minervini has had considerable experience in this line and here reviews the results accomplished by himself and others. He declares that as the capacity for growth of the tissues is greater the younger the tissues, there is every reason to assume that grafts from fetus and newly born cadavers offer the maximum prospects for success. He has been thus using for ten years embryonal tissues for free grafting in his surgical work. Skin from fetuses and still born infants proved exceptionally useful to cover the raw spaces after extensive burns. The skin of fetuses of the seventh, eighth or ninth month was used fresh or after having been kept for a few hours or days. Flaps transplanted from the back or chest of the fetus or new-born infant grow rapidly to the tissues and become solidly fastened in a few days. His communication commending the use of embryonal tissues was published in 1911 and a later report was read at the last international medical congress.

83. **Abderhalden Reaction in Tuberculosis.**—Datta got positive results in the early stages of tuberculosis but not in the advanced cases. The findings were positive also in some of the supposedly healthy persons tested and also in some patients with nontuberculous affections.

88. **War and Venereal Disease.**—De Napoli discusses the general measures for prophylaxis of venereal disease adopted in recent wars and in the present war. He advocates in prophylaxis means to prevent clandestine prostitution, collecting the women in brothels kept under strict medical supervision, with medical inspection at regular and unexpected hours, each establishment to be equipped with a sanitary toilet room near the entrance where a trained attendant should inspect the man as he enters and apply measures to sterilize and protect, and again as he is ready to leave, in addition to the hot water and mercuric chlorid solutions for immediate cleansing which should be always in readiness for immediate use. De Napoli relates that he knows of instances in which venereal disease was intentionally acquired to obtain sick leave. In his service at Bologna he has been impressed not only with the frequency of venereal diseases, but with the predominance of the ulcerating forms.

89. **Splenectomy in the Pathology of the Liver and Blood.**—Silvestrini found that rabbits bore the removal of the spleen without disturbance, but they did not develop quite as well as the controls. The liver showed no signs of anything wrong at first, except possibly a lesser production of bile. But gradually hyperplasia of the lymphatics developed, first in the vicinity of the portal vessels and then inside the liver lobes. This hyperplasia is evidently a compensating process in the lymphatic elements in the depths of the liver; it explains the increase in size of the liver which follows removal of the spleen. There were also slight changes evi-

dent at certain points in the liver, suggesting that the liver tissues had become less resistant to abnormal influences. These changes occurred indiscriminately in the different lobes of the liver. On the basis of these findings and those reported by others, Silvestrini advocates splenectomy in chronic hemolytic jaundice with enlargement of the spleen, also in hemolytic anemia, and in malaria with much enlarged spleen, and rejects it in generalized leishmaniosis, in infantile anemia with splenomegaly; hyperglobulia with splenomegaly, and in leukemia. He presents the arguments for operation or abstention in these conditions, emphasizing the class of cases in which this "medical surgery" is especially indicated in the hope to act on the general disease by removing the spleen.

Brazil-Medico, Rio de Janeiro

March 11, XXX, No. 11, pp. 81-88

90 Prophylaxis of Tuberculosis. (Sobre a profilaxia da tuberculose. A vida ao ar livre e a cultura fisica.) P. Barbosa. Commenced in No. 9.

91 Atypical States of Degeneracy. (Estados atypicos de degeneração.) H. Roxo.

March 18, No. 12, pp. 89-96

92 *Syphilis of the Stomach. (Contribuição ao estudo clinico da syphilis do estomago.) O. Clark. To be continued.

March 25, No. 13, pp. 97-104

93 Flies and Carriers as Sources of Typhoid at Rio. (Febre typhoide no Rio de Janeiro.) E. Gomes.

92. Syphilis of the Stomach.—Clark advocates a course of treatment as for syphilis in all cases of stomach trouble before resorting to operative measures, as syphilis of the stomach assumes such protean manifestations. The chronic nature, the exacerbations at night, absence of free hydrochloric acid, and gastric achylia are presumptive evidence of syphilis of the stomach, especially when the Wassermann test is positive. In one of his own cases the syphilitic stenosis of the pylorus in a tabetic was accompanied by a negative Wassermann. He comments on the exceptional frequency of syphilis of the stomach at Rio; he encountered six cases last year. The general practitioner is the one who sees these stomach cases first and hence his proper differentiation of them is of paramount importance. Clark is convinced that the number of cases which escape detection is considerable. They may run an entirely latent course until suddenly they entail severe hemorrhage. This occurred in two of his cases. In two others there was likewise severe hemorrhage, but it had been preceded by violent pains in the stomach. None of these four patients succumbed to their profuse hemorrhages. Another patient had had severe hematemesis on three occasions in the course of several months before the syphilitic nature of the trouble was suspected. Treatment as for syphilis was then given, and there has been no further trouble from this cause during the three years since. He gives an illustration of the necropsy findings in a case of supposed chronic ulcer of the duodenum. After a profuse hemorrhage, operative treatment was applied and the patient died. Necropsy revealed a large and ulcerating gumma close to the pylorus, adherent to the pancreas. No one had thought of applying the Wassermann test. In some other cases, tentative mercurial treatment just before a contemplated operation, rendered the latter unnecessary.

Two of his patients had been martyrs for years to chronic dyspepsia, with nausea and vomiting, and had run the gamut of therapeutic measures, none giving relief until specific treatment was tried, when a cure soon followed. The cure has been complete during the several years to date. He reports with much detail his various cases, emphasizing the differential points.

Mitteilungen a. d. med. Fakultät der k. Univ., Tokyo

XV, No. 1, pp. 1-241. German ed. Last indexed March 18, p. 929

94 *Two Cases of Progressive Inflammation and Hypertrophy of Interstitial Tissue of Nerves, With Necropsy in One Case. (Ueber Neuritis interstitialis hypertrophica et progressiva—Dejerine und Sottas.) K. Yokomori.

95 Atypical Congenital Myotonia With Tetanic Symptoms. (Zur Kenntnis der atypischen Thomsenschen Krankheit, kompliziert mit Pseudohypertrophie und Atrophie der Muskulatur und tetanischen Symptomen.) Y. Kato.

96 *Blastomycosis of the Meninges. (Ueber Blastomycetenmeningitis.) K. Goto.

97 *Bradycardia From Deficient Thyroid Functioning. (Die durch die Hypofunktion der Schilddrüse bedingte atrioventrikuläre Automatie des Herzens.) S. Sakai.

98 *Total Heart Block. (Klinisch-experimentelle Beiträge zum totalen Herzblock.) K. Marui.

99 *Substance in Expired Air Inhibiting Catalysis of Blood and Platinum. (Ueber eine Platin- und Blutkatalyse hemmende Substanz in der Ausatmungsluft des Menschen.) Y. Takasaki.

100 *The Internal Secretion of the Kidney and Its Influence in Regulating the Sugar Content of the Blood. (Zur Kenntnis der inneren Sekretion der Niere und ihre Bedeutung für die Blutzuckerregulation.) T. Itakura.

94. Progressive Neuritis with Hypertrophy.—Yokomori reports two cases of the affection described in 1893 by Dejerine as *névrite interstitielle hypertrophique et progressive.* Yokomori's patients were a farmer of 74 and his son, a bank clerk of 38. The first symptoms developed in the forties and twenties, a weakness in the legs, with gradual inability to hold the foot up—paralytic talipes equinus varus. Atrophy of the muscles in legs and hands followed in time. The tendon reflexes were all abolished, but the coordination of muscular movement was unimpaired, as also sphincter functioning. Most of the peripheral nerves could be palpated as thickened and hardened, and necropsy in the first case showed that this was due to peculiar changes in the sheath of Schwann and the interfascicular connective tissue. The cases are compared with the few analogous ones on record and the points differentiating them from somewhat similar nervous affections are emphasized. Five plates accompany the article, one colored to show the contrast staining.

96. Blastomycotic Meningitis.—Goto's patient was a member of the legislature, 61 years old. A three page clinical chart of his case is given, with three colored plates showing the necropsy findings in the brain and meninges and in the lungs of mice inoculated with the cerebrospinal fluid. The main symptoms had been headache, tinnitus, deafness, persisting "cold in the head," anosmia and diplopia, with pains in the right leg and reduced sensibility in the right trigeminal region. During the seven month's course there was no fever until toward the last, when symptoms of meningitis became pronounced. From the first were noticed right abducent paralysis and atrophy of the right half of the tongue. The fluid at lumbar puncture the fifth month was under high pressure and contained blastomycetes and 3 or 5:1,000 albumin. No point of entry for the blastomycetes could be discovered, but innumerable blastomycotic nodules were found on the pia, containing blastomycetes and giant cells in profusion.

97. Bradycardia of Thyroid Origin.—Sakai gives several charts and tables to show the course and details in a case of disturbance of impulse production, auriculoventricular automatism, with pronounced bradycardia—pulse 42—all evidently traceable to irritation of the vagus nervous system. The data presented demonstrate that this irritable condition of the vagus is the result of lack of the normal thyroid secretion. The thyroid functioning was at a very low ebb, and the heart disturbance could be corrected at will by injecting atropin, by exercise and baths or by thyroid treatment. The patient was a woman of 42 who had long had an apparently ordinary goiter, and complained of loss of hair and menorrhagia. Sakai says that he knows of no analogous case on record in which impaired functioning of the thyroid was responsible for abnormal impulse production of this type in the heart.

98. Total Heart Block.—Atropin had no appreciable influence on the total heart block in one of Marui's two cases. In the second the ventricle beat increased by eight beats, showing that even with total heart block the vagus may yet exert a certain control over the ventricle. Injection of epinephrin in the first case, a working man of 59, induced the bigeminus picture; the extrasystoles with the total heart block are ascribed to stimulation of the accelerator nerves. Under the influence of the epinephrin the pulse became accelerated and at the same time the rare phenomenon of interference was observed. There was evidently pronounced sympatheticotony, with extreme susceptibility to epinephrin. The electrocardiograms and other tracings show the peculiar features of the two cases.

99. **Chemical Action of Substances in Expired Air.**—Takasaki reviews the literature on the toxicity of expired air and reports personal research in this line. Ikeda recently found that some substance in expired air was able to inhibit the hydrogen dioxid-splitting power of colloidal platinum. Takasaki has been repeating his experiments and has confirmed his statements. The substances condensed from the water with the expired air check catalysis of colloidal platinum and also of blood catalase. This substance in the expired air cannot be either ammonia or carbon dioxid. The inhibiting property was found least pronounced in persons with diabetes insipidus and adiposogenital dystrophy, and greatest in patients with cirrhosis of the liver. The substance in question is probably formed in the gastro-intestinal tract and eliminated through the lungs. On the other hand, none of the animals injected with the substance showed any signs of toxic action.

100. **The Internal Secretion of the Kidneys in Connection with the Sugar in the Blood.**—Itakura relates that the sugar content of the blood became much higher in an hour or hour and a half after the veins or arteries of the kidneys had been tied off. The increase was much higher after ligation of the veins than of the arteries. This effect was less apparent when much blood had accumulated around the kidney. These facts are accepted as evidence of an internal secretion in the kidney which keeps the blood sugar within normal range. Even the extravasated blood from the kidney is capable of maintaining the control. Still more striking testimony is the fact that the abnormally high sugar content in the blood after ligation of the renal vein could be brought down to normal by subcutaneous injection of blood from the renal vein of another, nontreated animal.

Prakticheskiy Vrach, Petrograd

XV, No. 1, pp. 1-12

101 Case of Complete Transposition of Viscera With Duplication of Left Ureter. (Situs inversus completus s udvoeniem lievago mochetochnika.) Komendantoff.

No. 3-4, pp. 21-32

102 Spina Bifida; Three Cases. D. E. Gorokhoff.

No. 5, pp. 33-44

103 Chronic Pancreatitis. M. Einhorn (New York). Commenced in No. 2.

No. 6, pp. 45-56

104 Diagnosis of Localization of Point of Injury of Blood Vessel in Wounds of the Legs. (K diagnostiki miesta zakuporki sosudov pri gangrenie nizhnikh konechnostei po dannim, poluchennim pri perevyaskie sosudov.) V. M. Volkovitch. Commenced in No. 5.

No. 7, pp. 57-68

105 Conservative Treatment of Acute Otitis Media With Opium. L. N. Kogan. Commenced in No. 6.

Russkiy Vrach, Petrograd

XV, No. 7, pp. 145-168

106 *The Pediatrician in the Campaign Against Infant Mortality. T. D. Roumianzeff.

107 Foreign Bodies in the Eye. (Ob inorodnikh tielakh v glaznitzie.) A. M. Nikolsky.

108 *Elimination of Sodium Chlorid in Scarlet Fever; the Chlorometer of Dr. R. Weiss. (O vidieleniij povarennoi soli pri scarlatinie.) S. E. Ostrovsky. Commenced in No. 5.

109 Case of Natural Separation of Vermiform Appendix. P. A. Gloushkoff.

110 Technic for Bloodless Operations on the Skull. (K tekhnikie predvaritelnago obezkrovlivania pri operatziakh na cherepie.) U. U. Djanelidze.

111 Registration of Respiration in Frogs. (Registratzia dikhanii u liagushek.) I. P. Michailovsky.

No. 8, pp. 169-192

112 *Recurrence of Gallstones After Removal of the Gallbladder. (O vozvratakh zhelchnokamennoi boliezni poslie udalenia zhelchnago puziria.) A. A. Kadian. Commenced in No. 7.

113 Explosive Bullets in the Present War. E. V. Pawlow.

114 Possible Droplet Transmission of Typhus Fever. (K voprosu o zarazhenii cipnim typhom.) V. K. Stefansky.

115 Prophylactic Inoculations Against Typhoid and Cholera. V. I. Nedrigailoff.

116 *Iodin in Ophthalmic Surgery. (Opit primienenia sposoba Grossich'a v glaznoi chirurgiy.) B. B. Orechkin.

106. **High Infant Mortality in Russia.**—Roumianzeff points out in his article the fact of the tremendous infant mortality in Russia. He says that it is higher there than any where else in the world among civilized nations. Of the five or six millions of new-born children each year, a million and a half die before they reach the age of one year. In some regions of European Russia up to 600 of every 1,000 succumb, that is, over 50 per cent., in contrast to the 7 or 8 per cent. infant mortality in Sweden and Norway. The causes he traces to poverty, ignorance, and lack of suitable social and economic factors, combined with insufficient and improper infant nursing and care, and also the frequency of gastro-intestinal disorders in children. These dangers are multiplied by severe infectious diseases, such as scarlet fever, measles, etc. Measures for infant welfare and for reduction of infant mortality are now realized as matters of national importance in Russia, and have been officially taken up by the government.

108. **Elimination of Sodium Chlorid in Scarlet Fever.**—Ostrovsky's conclusions are as follows: In the initial stages of scarlet fever there is retention of chlorids, as well as in relapses of scarlet fever; from the tenth to the twentieth day of the disease the amount of sodium chlorid eliminated rises in waves. In some cases the wavelike rise is followed by a wavelike fall. A surplus amount of sodium chlorid given with the food is eliminated by the patient during the two or three following days. Weiss' apparatus was found very accurate and superior to any other method of which he knows for quantitative determination of the sodium chlorid in the urine.

112. **Recurrence of Gallstones After Removal of Gallbladder.**—Kadian reports in detail a case of cholelithiasis successfully operated on with removal of the gallbladder. Six years after the operation the patient returned to the clinic with new symptoms of cholelithiasis. Operative treatment was applied anew and at the second operation a new formed gallbladder was found, continuous with the common bile duct. The latter contained about ten cholesterin stones (cholesterin 76 per cent. and bilirubin 17 per cent.). Kadian gives a review of 28 cases somewhat similar which he gathered from the literature. In his case a small stone must have been, he thinks, left in the common bile duct. It kept gradually increasing in size, during the six years, because of deposits of bilirubin salts. The origin of the gallstones he ascribes to the liver itself. True relapses with new formation of stones are exceedingly rare. To prevent recurrence, the operation must include not only the removal of the gallbladder and the stones within, but opening up of the common bile duct and removal of all concretions. The cystic duct must be ligated as low as possible to avoid formation of a diverticulum to form a new gallbladder. No ligatures, sutures or gauze threads should be left in the duct.

116. **Iodin in Operating on the Eyes.**—Orechkin used 5 per cent. alcoholic tincture of iodin with brilliant results in numerous ophthalmologic operations. The patient's lids, portion of forehead, corresponding side of the nose, cheek and temporal region were painted with the 5 per cent. tincture. Moist regions and the eye secretions are dried previous to the application of the iodin solution. The latter must be always freshly prepared. The burning sensation caused by the iodin may be quite severe, in spite of preliminary cocainization, but disappears in a few minutes. After the painting with iodin, the conjunctival sac, in operations on the eyeball, is flushed copiously with a sterile 1:5,000 solution of cyanid of mercury. None of the 237 cataract operations gave suppuration, while with other antiseptic methods he had suppuration in 2 per cent., with subsequent loss of the eye. In 1,200 other operations on the lids and adjacent portions only in five cases was there suppuration in the sutures, and he explains this complication by the low grade of intelligence of the majority of his patients. He comes to the conclusion that Grossich's method of disinfection of the operative field is the best and that it should be given preference also in ophthalmic surgery.

Hygiea, Stockholm

LXXVIII, No. 6, pp. 353-416

117 Colon Entirely on Right Side in Young Woman. (Om ett fall av dextroposition av colon.) S. Tengström.

118 Anthropologic Study of Tubercles on Inner Surface of Lower Jaw Bone. (Typologiska studier över spina mentalis interna hos människan.) G. Backman.

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 22 CHICAGO, ILLINOIS MAY 27, 1916

A STUDY OF 1,153 CASES OF SCARLET FEVER

WITH ESPECIAL REFERENCE TO THEIR SEQUELAE *

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It is the primary purpose of this paper to report on an investigation into the sequelae of scarlet fever. It has been possible, in addition, to examine some general characteristics of the cases under review, and these, too, will be considered in the report. The plan which has been followed was developed in a study of the sequelae of typhoid fever,[1] namely, to trace the condition of the survivors of the disease as far as is possible through an interval of four or five years subsequent to recovery, and to note especially the occurrence of any undue number of deaths during this period from causes which may be considered sequelae of the primary disease. In the case of typhoid fever, I was able to show that, in a series of 1,428 cases in which the patients had survived the attack of that disease, the mortality during the three following years was twice as great as was to be expected from the age, sex, and color of the group. This high rate of mortality resulted from an increase in the number of deaths from tuberculosis and organic heart disease. In view of the well known effect exerted by scarlet fever on the heart and kidney tissues, it seemed likely that an analogous condition of high subsequent mortality might be found to prevail. In any case, it was desired to measure exactly the conditions which actually arise.

The records of the Visiting Nurse Service of the Metropolitan Life Insurance Company again gave us the original material for the investigation. There were 1,153 cases of scarlet fever in the two years 1911 and 1912 among white persons. The patients were all treated by physicians. The accuracy of the diagnosis was in little or no doubt, and the records in other respects were fairly complete and trustworthy. The patients were all policyholders of the company, and their whereabouts and physical condition could readily be traced during the subsequent years. For those patients who died, full and comprehensive medical records were at hand for examination.

Table 1 shows the distribution of the 1,153 primary cases by sex and by age period.

Nearly 82 per cent. of all the cases were among children between 2 and 10; the company has no policyholders in the first year of life. The greatest disposition to the disease is found among children from 3 to 7 years of age; 637 cases, or 55.2 per cent. of the total, were found within these five years of life. The period 11 to 15 presents an appreciable number of cases; but after this period the cases are few and far between, all of them amounting to only 6.9 per cent. of the total. We are, therefore, concerned primarily with children. In this respect our series agrees substantially with other scarlet fever series. McCollom, for example, reports that 75 per cent. of his patients treated at the Boston City Hospital were between the ages of 2 and 10, and 50 per cent. between the ages of 3 and 7. The figures for Willard Parker Hospital cases are very similar. There is apparently no important distinction in this respect between the two sexes.

TABLE 1.—DISTRIBUTION OF 1,153 CASES OF SCARLET FEVER BY SEX AND AGE

Age	Males and Females		Males		Females	
	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.
All Ages.....	1,153	100.0	501	100.0	652	100.0
2 to 10.....	941	81.6	433	86.4	508	77.9
2 to 5.....	503	43.6	254	50.7	249	38.2
2.....	103	8.9	63	12.6	40	6.1
3.....	132	11.4	57	11.4	75	11.5
4.....	148	12.8	73	14.6	75	11.5
5.....	120	10.4	61	12.2	59	9.0
6 to 10.....	438	38.0	179	35.7	259	39.7
6.....	123	10.7	54	10.8	69	10.6
7.....	114	9.9	47	9.4	67	10.3
8.....	76	6.6	31	6.2	45	6.9
9.....	65	5.6	22	4.4	43	6.6
10.....	60	5.2	25	5.0	35	5.4
11 to 15.....	132	11.4	53	10.6	79	12.1
16 to 20.....	43	3.7	11	2.2	32	4.9
21 to 30.....	24	2.1	4	0.8	20	3.1
31 to 40.....	13	1.1	..	....	13	2.0

Not only are the children at the youngest ages more susceptible to scarlet fever, but it appears that these children also take the disease in the severest form. This is evidenced by Table 2, which presents lethal rates for the number of deaths per hundred cases treated, classified by age.

There were in all ninety deaths in the total of 1,153 cases; this represents a lethal rate of 7.8 per cent. At age 2, next birthday, 15.5 died out of every hundred treated. For the age period 2 to 5 the lethal rate is 10.1, and for the entire period 2 to 10 the lethal rate is 8.8. Thereafter the lethal rate decreases very appreciably. The very high figure for the age period 31 to 40 is of no significance, since the number of

* The writer is indebted to Dr. Lee K. Frankel for his courtesy in putting the records of the Visiting Nurse Service of the Metropolitan Life Insurance Company at his disposal for this study.

1. Dublin, L. I.: Typhoid Fever and Its Sequelae, Am. Jour. Pub. Health, 1915, v, No. 1.

cases was only thirteen and the number of deaths one; altogether too small a group to give reliable returns.

The figures for our series are again in close agreement with those of other observers. The lethal rate of scarlet fever varies considerably with time and place, depending on the severity of the epidemic. An average of 8.4 per cent. is given by McCollom on the basis of over 37,810 cases in Boston, covering a period of twenty-eight years. Some hospital figures show a somewhat higher lethal rate. According to Osler, 90

TABLE 2.—LETHAL RATES PER HUNDRED CASES TREATED FOR SCARLET FEVER, CLASSIFIED BY AGE

Age	Number Treated	Number Died Under Treatment	Lethal Rate per 100 Cases Treated
All ages	1,153	90	7.81
2 to 10	941	83	8.82
2 to 5	503	51	10.14
2	103	16	15.53
3	132	16	12.12
4	148	11	7.43
5	120	8	6.67
6 to 10	438	32	7.31
6	123	14	13.38
7	114	7	6.14
8	76	3	3.95
9	65	6	9.23
10	60	2	3.33
11 to 15	132	4	3.03
16 to 20	43	1	2.33
21 to 30	24	1	4.17
31 to 40	13	1	7.69

per cent. of all the scarlet fever deaths are of children under 10; our figure was 92 per cent. As our cases were drawn from all parts of the country, no particular epidemic is unduly represented, and the findings are close to the best previously reported averages for large series of cases covering many years.

The 90 deaths showed complications in 62 cases. In 11 of these there was a distinct kidney involvement. Heart conditions were recorded in 7 fatal cases. Pneumonia was present in 13 cases. There were 4 cases of meningitis and 1 case of otitis media. In 9 cases the scarlet fever was complicated by the presence of other acute infections like diphtheria or measles. The other complications are few in number, and are too vaguely stated to justify special attention. Among the 1,063 survivors we find similarly a record of 31 cases of nephritis, 31 cases of otitis media, 22 cases of adenitis, and 11 cases of pneumonia. It is very probable, however, that in the nonfatal cases the complications were not stated as fully as could be wished, certainly not as fully as is usually done in hospital practice. Osler, for example, records the presence of nephritis in from 10 to 20 per cent. of his cases. Heart complications are also recorded in higher proportions in other series. Middle ear trouble is reported in 20 per cent. of all cases by Fisher, and the same author, in a series of over 6,000 cases, records 14 per cent. that had adenitis. We must not infer, however, from the smaller number of complications recorded by us that the cases were less severe than is usual. We have already shown that the lethal rate is very close to the average obtained by other investigators on the basis of large exposures over long periods.

We are now concerned with the tracing of the 1,063 cases in which the patients survived, and we shall see whether, during the following years, the complications or impairments which they suffered really affected their chances of life to any appreciable degree. There were represented, during the entire subsequent period, 3,583 years of life. This means that the 1,063 persons were under observation for an average period of 3.4 years. The expected number of deaths for this group of survivors was then calculated. The mortality rate actually experienced by the company for corresponding age, sex and color during the years covered by the study was used as a standard. According to this measure, we had a right to expect 18.6 deaths. As a matter of fact we experienced only 18 deaths. Far from showing a higher mortality, as was the case in the typhoid fever study, we found a death rate almost identical with the expectation based on our general mortality experience. The actual mortality was 97 per cent. of the expected. We may, therefore, say that during the period covered by our observations the mortality of the survivors as a group shows apparently no increase. Table 3 presents a comparison of the actual and expected mortality among the 1,063 survivors, classified by age period.

The most favorable condition is found in the age period 2 to 5 years. The actual number of deaths is somewhat higher than expected in the age period 6 to 10 (117 per cent.). The deaths are considerably higher in the period 11 to 15 (244 per cent.). In view of the small number of persons exposed in this age period the figures must not be considered as entirely decisive, although they are suggestive.

It is of interest to find that, of the eighteen deaths which occurred in the four years, three showed a record of endocarditis on the death certificates; these cases may reflect the impairment resulting from the original scarlet fever. There were five deaths from respiratory diseases and four from tuberculosis. The remainder were scattered among a number of causes which have no particular interest for us. Strangely enough, there were no deaths from kidney diseases. Apparently, among the survivors of the primary disease, the kidneys were not sufficiently impaired to cause early death.

TABLE 3.—COMPARISON OF ACTUAL AND EXPECTED MORTALITY AMONG 1,063 PERSONS IN FIVE YEARS FOLLOWING RECOVERY FROM SCARLET FEVER; CLASSIFIED BY AGE PERIOD

Age Period	Number of Years of Life	Number of Expected Deaths	Number of Actual Deaths	Actual Deaths per 100 Expected
All ages	3,583.46	18.61	18	97
2 to 5	908.29	9.16	7	76
6 to 10	1,614.35	6.00	7	117
11 to 15	699.53	1.64	4	244
16 to 20	194.88	0.62	..	...
21 to 30	105.66	0.67	..	...
31 to 40	60.75	0.52	..	...

We are concerned, therefore, with explaining the difference between the actual experience and that which was expected on the analogy of our typhoid fever investigation. A comparison of the two sets of conditions is useful, moreover, because it helps to a clearer insight into the kind of impairment which results from scarlet fever. In the typhoid fever cases there was, after recovery, a marked increase in the number of tuberculosis deaths. An increase was also noted in the number of deaths from organic diseases of the heart, but this was not so great. In our scarlet fever cases, on the other hand, there is no positive evidence of an increase in the number of tuberculosis

cases. The three deaths from endocarditis are too few to justify any conclusion as to serious heart impairment in the survivors. The interesting fact is the absence of deaths from kidney diseases. It would seem, then (and this is confirmed by clinicians), either that impairments of the kidneys, which are so common in scarlet fever, are severe enough to cause immediate death, or that in the survivors the injurious effect is not sufficiently great to kill within the next five years. Apparently, in the cases in which there was recovery, there has not been enough destruction of kidney tissue to prevent subsequent regeneration. It is quite possible, of course, that ultimately there may be an increase in the expected number of deaths from kidney lesions, although such a consequence may not manifest itself until ten or more years have elapsed after the initial incidence of the scarlet fever. We hope to clear up this possibility in the future.

DEATH RATES FROM SCARLET FEVER

Although, as I have indicated, the sequelae of scarlet fever are apparently not an appreciable factor in the mortality of survivors, it should not be overlooked that the disease itself still constitutes an important factor in child mortality. The disease has not shown the same amount of decrease in frequency during the last fifteen years that has been observed in connection with other infectious diseases. The death rate fluctuates about the figure of 10 per 100,000. In 1900 the scarlet fever death rate in the registration area was 10.2; in 1913 the rate was 8.7. In spite of this drop, there were a number of years in the intervening period when the rate was even higher than the 1900 figure. Light is cast on the mortality conditions from this cause by the industrial mortality experience of the Metropolitan Life Insurance Company, the figures for which are presented in Table 4. These rates are new and have the particular advantage of accuracy. The count is correct not only for the number of deaths from scarlet fever, but also for the number of persons living in the various classes by which the mortality is enumerated. We are able to present rates by age, period, sex and color.

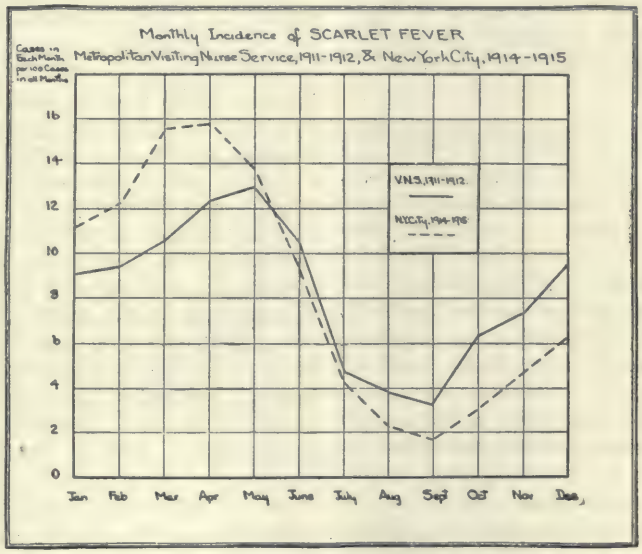
The most interesting fact indicated by this table is the markedly lower mortality of the colored. Generally speaking, the death rate for colored children is about one fourth that of the whites. This fact may serve medical investigators as a point of departure for a study of the etiology of this still obscure disease.

TABLE 4.—MORTALITY EXPERIENCE FROM SCARLET FEVER, 1911-1914, 3,778 DEATHS CLASSIFIED BY COLOR, BY SEX AND BY AGE PERIOD; DEATH RATES PER HUNDRED THOUSAND; METROPOLITAN LIFE INSURANCE COMPANY—INDUSTRIAL DEPARTMENT

Age Period	Persons	White Males	White Females	Colored Males	Colored Females
All ages	11.1	13.8	11.2	2.7	2.2
Under 5	64.4	71.1	64.7	17.4	21.9
5 to 9	29.5	27.3	31.0	10.3	7.3
10 to 14	8.0	7.2	9.7	5.3	2.4
15 to 19	3.5	3.8	3.7	0.5	2.2
20 to 24	1.8	1.1	2.9	....	0.4
25 to 34	0.9	0.7	1.3	0.3	0.2
35 to 44	0.5	0.6	0.5	....	0.5
45 to 54	0.2	0.2	0.1	0.5	....
55 to 64	0.3	0.2	0.3	....	0.7
65 to 74	....	....	....	....	....
75 and over	0.8	....	1.4	....	....

TABLE 5.—INCIDENCE OF 1,153 SCARLET FEVER CASES, 1911-1912, BY MONTHS

Month of Occurrence	No. of Cases	Month of Occurrence	No. of Cases
January	105	July	53
February	111	August	45
March	133	September	36
April	141	October	71
May	149	November	82
June	119	December	108



Seasonal distribution of scarlet fever cases.

SEASONAL DISTRIBUTION OF SCARLET FEVER CASES

Our study has also made possible a presentation of the seasonal distribution of the 1,153 cases of scarlet fever. This distribution is shown in Table 5.

From January the frequency of the disease rises rapidly until May, when the maximum number of cases occurs. Thereafter there is a rapid drop in the number until September, which is marked by the minimum. For the remainder of the year there is a rise in the curve which stops at a point which is slightly higher than that experienced in the previous January.

The accompanying chart shows the seasonal distribution of these scarlet fever cases compared with the distribution of 20,984 cases reported by the Department of Health of New York City for the two years 1914-1915. The cases which were reported in each month, per thousand occurring in the entire year, are shown.

The two series are clearly similar in their distribution. The largest number of deaths occurs, in both, during the months of April and May, and the fewest number in September. It is during the summer months that the cases are rarest in their occurrence, and it is quite possible that this condition is correlated with the absence of children from school during the vacation period. With the opening of school in September the number of cases begins to increase rapidly, reaching the maximum in the spring. Of course, attendance at school is not the only factor, since certain respiratory diseases show a similar seasonal distribution, and are clearly subject to the weather conditions.

THE MUNICIPAL HOSPITAL AS A FACTOR IN CLINICAL TEACHING*

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Since the establishment of the first medical school in America, there has been a tacit understanding that the patients in public institutions should be placed at the disposal of medical colleges for clinical instruction. While this understanding has been more or less indeterminate and has been, in fact, frequently set aside by public or private action, there has been in the main an admission of the right of medical education in this particular.

This right has not infrequently been subject to revision or abrogation by officials temporarily in power; in some cases the exercise of the right has been attended with difficulties, complex in character, and in other cases the right was established or implied by statute. For instance, as far back as 1876, the St. Louis city charter, adopted that year, specifically gave to the medical schools of the city the authority to conduct clinical instruction in the city hospital, but denied it in the Female Hospital, which was at that time a social evil hospital.

Until the adoption of the staff plan, six years ago, the St. Louis City Hospital was under the direction of a superintendent, often the mayor's personal physician, who was clothed with the business management of the institution, subject, however, to considerable political pressure. The superintendent was the sole arbiter of the medical care of the patients of the hospital, unhampered by any interference on the part of politics, which, however, still continued to be impressively concerned with the business side of the institution.

The consequence was that each four year period found a new incumbent, generally without business or institutional experience, with an overweaning desire and hope to achieve triumphs in surgical practice when the turn of politics brought forth his successor. In a few instances — by accident, let us say — a trained surgeon secured the position, but these were the few hopeful exceptions. As to the nonsurgical care of the patients in the early days, it was either ignored or placed entirely in the hands of the interns. Later, however, a more or less irregular attendance on the part of a few earnest physicians of the city, without official appointment or without official authority, supplemented the service and improved it to a great extent. Later still, the medical service was placed under the charge of one of the assistant superintendents.

This type of organization, if so it can be called, offered very little hope for clinical instruction in the municipal institutions of St. Louis, and as a consequence the private hospitals of the city were utilized by the better medical schools, the municipal hospitals being either ignored or used only in a perfunctory and certainly in an unsatisfactory manner. At one time, there were eight colleges using the city hospital, and as many as eight lectures delivered in one week on one poor patient — without harm to him of course, for he was not examined by the multitudes of eager aspirants for knowledge in the eight different colleges, but he was *looked at* from a distance by eight more or less sleepy crowds and *talked about* by eight professors, who were prepared to lecture on the patient, even if their examination consisted of a few minutes' previous conversation with the intern in charge.

Instruction was practically limited to amphitheater talks and discussions by men who had no professional charge of any patients in the hospital, and bedside work was absolutely prohibited.

I have given this short sketch of the teaching history of the St. Louis City Hospital because, in great measure, it is the history of such institutions in other cities, somewhat modified, it is true, by the local environment and by the reactions consequent on local medical activity.

Apart from the futility of appointing an inexperienced man to be both adminstrator and sole surgical operator in an 800 bed hospital, there existed the stupid provision of changing him every four years for another, who was almost necessarily less trained in hospital administration, if not in operative work.

While admitting the doctrine of equality before the law, the appointing power does not and often cannot exercise a proper discrimination between the qualified and the unqualified, owing to the exigencies of political administration and party patronage. As a consequence, when, by way of exception, a really good man was made superintendent, it was due either to an unusual ability and foresight of the authorities with a strong regard for justice to the community or to a strange concatenation of circumstances that political sleight of hand sometimes sets in motion.

Where the staff plan has been in evidence, the scheme of appointment has been subject to the same objection as in the other plan, for the qualification of the appointees was not the basis of selection except in rare instances; generally the designation of the degree "Doctor of Medicine" satisfied the question of qualification, and political relations determined the appointment. But in the last ten years a tremendous change has taken place, brought on perhaps by the drift of medical education and perhaps also by an awakening sense on the part of the profession which has influenced the powers that be in the proper direction.

The truth of this is shown in the responses to the following question, which I submitted, among others, to the Class A schools of this country: "Have you more control over the material in the municipal hospitals today than you had ten years ago?"

Some of the colleges in the larger communities where there has been no need of the municipal hospital for the purpose of clinical instruction, and institutions such as Tulane, Texas, etc., which have had for years the fullest control over the municipal hospital, note no improvement in this regard. This is also true of the colleges in New York which share the material at Bellevue Hospital. The answers of the other colleges, however, indicate a tremendous increase of the college influence, and manifest the growing tendency all over the country of the feeling that the best interest of patients in municipal hospitals is conserved and promoted by a closer relation with medical colleges both in treatment and in clinical instruction.

About six years ago, the system in vogue in St. Louis for many years was changed, and the municipal hospitals were placed under the control of a hospital board and hospital commissioner. In place of a single superintendent with both medical and administrative func-

* Read before the Association of American Medical Colleges, Chicago, February, 1916.

tions, the medical control was vested entirely in a staff of physicians who were appointed by the board, and a superintendent was placed in charge of the administration.

This was a tremendous step in advance, for such attending physicians as were connected with medical colleges had under this new arrangement the necessary control over their patients to use them for clinical instruction if they so desired. While, here and there, men were appointed without the proper qualification, a group of men were gathered together eminently fitted for the work. Naturally, the college men were in larger number than those not attached, and it was therefore possible to utilize the institution better for clinical purposes than ever before.

The new charter adopted in 1914 made the foregoing plan a part of the organic law of the city, except that the director of public welfare was given general direction, taking the place of the hospital board, which was abolished, and the hospital commissioner was given full power of appointment.

While the latter arrangement was a great improvement over the preceding system, there still remained much to be achieved, more particularly with respect to organization. The positions on the staff belonged, as it were, to the attending physicians and not to the colleges, and hence the colleges were obligated for the material to the attending physicians, and were dependent on their good will for clinical instruction, so far as the municipal hospitals were concerned. This was, to say the least, not conducive to efficiency or coordination of teaching. Furthermore, the appointments were for two years, and therefore there was no assurance that even the best clinical instructor would be continued in office for a longer period. This made it impossible either to perfect an efficient organization or to establish a definite policy. While enthusiasm and activity of a corps of instructors may make up for deficiency of organization, these good qualities may be in time supplanted by indifference or neglect.

To obviate this and to provide a plan of appointment subject to less pressure from friends and political associates, the hospital commissioner (Dr. C. H. Shutt), with the consent of the director of public welfare, accepted a plan which was the result of numerous conferences with the deans of the Washington University and St. Louis University medical schools — a plan which could not have been adopted if the representatives of these two institutions and the hospital commissioner had not kept constantly in mind the civic responsibilities brought about by the situation.

The plan adopted is as follows: The hospital is divided as equally as possible into three units. For Unit 1, the appointments are made, without reserve, on nomination of Washington University; for Unit 2, they are made similarly on nomination of St. Louis University, and for Unit 3, the hospital commissioner appoints whom he pleases, no instructors in either of the universities being eligible. Units 1 and 2 are entirely under the control of the respective universities, and thus it has been possible to establish the rank of appointees which was impossible heretofore. Hence it is that in each of these units there is a complete organization in each department, and each clinician's position in the unit is dependent on the university controlling it. Furthermore, as a later development, definite members of the resident staff have been attached to the different units, and definite wards have been assigned.

While the outside unit cannot possibly effect an organization similar to that of the teaching units, especially in view of the equality of rank and the absence of institutional control of the clinicians, much has been done to establish its efficiency. In the assignment of wards, Units 1 and 2 have properly given first selection to Unit 3.

The immediate policy of the staff is under the charge of an executive committee composed of two representatives from each unit, and I may say that there has been the utmost harmony in all of its transactions. Although the plan has now been in operation for but eighteen months, it has been productive of good results, not only as to clinical teaching, but also in efficiency, which is even more important. Without giving the details of this improved order of things, which must be manifest to any one who understands the value of organization, I content myself with mentioning that during the year ending Dec. 1, 1914, there were 5,238 visits made by the staff, whereas during the following year under the new plan there were 10,930.

It is true, the continuance of this whole plan is dependent on the will of the hospital commissioner and the director of public welfare, but we feel that the value of a consistent organization to the patients of the municipal hospitals will become increasingly manifest, and that the influence of the two universities cooperating in this great civic and educational activity will be potent enough to cause its permanent adoption.

This same plan can be adopted in other large centers, provided the medical colleges of the highest class work together to the end that public charges in municipal hospitals shall be under the direction of a staff that is appointed on the basis of a definite policy, which comprehends only the highest ideals of medicine, always bearing in mind that provision must be made for the large number of medical men who are not connected with medical colleges, and who possess ideals and qualifications equal to those of the instructors in recognized medical schools.

The dean of a certain medical college writes me of his most excellent plan by which, under private arrangement made with the constituted authority, the college makes the appointments. He asks me not to mention the name of the institution for fear that, if it were known, the privilege would be lost. Without knowing the local conditions, I venture the opinion that publicity in this regard, fortified with the civic and professional validity of such practice, will do more to perpetuate it than the secret understanding, which is likely to be abrogated in time, as the arguments for its continuance have been carefully concealed.

In administering the St. Louis University unit, we have kept in mind the two important organization requirements, first the patient's welfare and second the student's opportunity. We have felt that these could be best achieved by organizing each department on the basis of a head, responsible to the institution, with associates and assistants under his direction. As our appointments are not limited to any specified number, except as to the minimum, we can exercise our best judgment as to the personnel.

It was soon determined that the organization in prospect required far more of the clinician's time than under the previous plan. For this reason, it was found advisable to provide compensation for some of the men in medicine and surgery, at the same time requiring them to spend from three to five hours a day

in attendance on patients and in instructing students assigned to work at the City Hospital.

At present, three of the attending physicians and three of the attending surgeons are paid, not an extravagant amount, but at least enough to justify them to give the time which the service and instruction require. In addition, there are two men in medicine and two in surgery who are not paid. Our purpose is to increase the number of men who are paid for part time, and to add men with proper compensation in these two departments who will give their full time to the work. At present, no provision has been made for compensation in the specialties; in fact, under our conditions, it is hardly necessary; still, it would not be amiss if full or part pay men were provided in children's diseases, obstetrics and nervous and mental diseases.

It is thus seen that our institution is provided with 350 beds in the municipal hospitals, entirely under our charge, with paid instructors in medicine and surgery, with definite assignment of wards under our own members of the resident staff, and with authority to train our students according to the opportunities presented.

I would not have it understood that this implies that the condition is absolutely satisfactory or that there are not many difficulties in the way of an ideal accomplishment; but at any rate we are approximating the rational solution of the question.

The type of clinical material in municipal hospitals in America has not been altogether the best for teaching purposes, especially in the surgical service. The variety is limited, and the stay of patients in the hospital is too short, for few, except those who find it impossible to go elsewhere, apply for admission to the city hospital. Why should it be otherwise in an institution which can have no definite policy, which has no consistent organization, and which is administered by men who, whether they are qualified or not, are in the main appointed by those who do not know and cannot know? Why should the people, if they can avoid it, place themselves under the care of physicians whose appointment is not on a qualification basis, and whose tenure of office does not depend on the presence or absence of their efficiency or attention to duty?

How much better is it to hold the universities or medical colleges of the highest class responsible for a definite portion of a hospital, bringing to the institution the influence, the organization and the efficiency which this plan assures, not by concealing its potentiality, but by openly advocating the measure on the well grounded, easily proved claim that it is the best for the people and for the hospital. A general adoption of this plan (particularly if the clinicians are paid by the universities) must be followed by an improvement in the character of the clinical material and a more perfect fulfilment of the function of the city in respect to its indigent wards.

Under present general conditions there is an economic waste of thousands of patients in municipal hospitals who are lost as material for instruction to students in medicine. Add to this the vast amount of funds required by the more fortunately endowed institutions to furnish their students with material for study. How much less money would be required and how much more material would be available, if these same institutions could perfect a proper organization of their legitimate share of the municipal hospitals!

Nor may we evade this issue by saying that the municipal hospitals are necesarily a part of the municipal political machine, and therefore unworthy of our concern. Our obligation as educators and citizens demands of us that we exert our utmost to the end that these institutions be made to serve their highest functions in medicine and pedagogics.

Politics and practical politicians have the greatest regard for the demands of the people, and they listen with keen ears to those who are honestly working for the public good. For this reason, cooperation and public propaganda of the good to be accomplished by this plan of organization, efficiency and consistency of policy will be followed by its adoption and continuance, without any opposition or with only the feeblest protest on the part of those who are looking for personal perquisites.

The result will be that American medical institutions, like the European, will be able to bring the highest ideals of medicine into municipal hospitals, and to provide their students with what is absolutely essential, if the physician of the future is to be the beneficiary of the best sources of instruction in his profession.

A "GROUP STUDY" PLAN FOR A DIAGNOSTIC TEAM ACTING AS A LABORATORY FOR THE PROFESSION*

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Since the idea of pay clinics, group study, diagnostic team work, medical attention to the middle class, and the limitations of physicians have been frequently and openly agitated in the medical journals and the lay press, it is deemed advisable to present for consideration the San Francisco St. Luke's Hospital Clinical Club's plan for diagnostic group study in general hospitals. This plan provides a type of group consultation for the general practitioner with the aim of preserving the advantages of specialism and eliminating the disadvantages.

There are a few private pay clinics in this country where patients may go and be completely examined by a number of specialists. At these clinics the majority of cases remain under the care of the doctors of the institution, passing out of the hands of the referring physicians. St. Luke's Hospital, San Francisco, is the only institution reported to have organized specialists to act as a laboratory for diagnostic purposes, returning the patient after investigation to the referring physician with a protocol of the findings and recommendations for the treatment of the case.

Two of Dr. Richard C. Cabot's articles[1] are of interest in this connection. His ideas in the first appear to be sound in theory, but the subsequent discussion of the paper clearly indicates that no definite plan for the solution of the problem was received. The second article undoubtedly contains many ideals far in advance of present medical practice, but in it are many things which would have been better unsaid. Dr. Cabot makes destructive criticism of the profession without balancing it by constructive criti-

* Read before St. Luke's Hospital Clinical Club, San Francisco, March, 1916.

1. Cabot, R. C.: The Need of Pay Clinics for Persons of Moderate Means, Am. Hosp. Assn., 1915, xvii, 411. Better Doctoring for Less Money, Am. Mag., April, 1916, p. 7.

cism. He has sought to teach the laity to distrust the general practitioner, without giving the doctor a concrete plan for the correction of his faults. If Dr. Cabot will continue his articles on this subject in medical journals and construct a plan whereby group study can be practically carried out by the profession, he will do much toward obtaining better medicine for the masses.

This new era in medicine is very young; the medical universities are not yet teaching this type of medicine; they have not even accepted it, and in fact, there is no definite instruction to be had on the subject. The method of group study now employed in hospitals, by referring the patient from one department to another without joint discussion of cases by the heads of these departments, is open to as severe a criticism as Dr. Cabot applied to the methods of the general practitioners. But publications on these imperfections which will stimulate the laity to pass laws and regulations on medical matters, before the profession has had an opportunity to study the problems and make recommendations, will prove detrimental to the best interests of progressive medicine.

It has not been long realized that the three great classes of patients, the rich, the poor, and the middle class, are receiving quite different medical attention. The rich man, while he is able to pay for the services of a large number of high-priced specialists, presumably gets the best medical consideration; but unfortunately the highly paid specialists are individuals who are not organized, and their work is not correlated. Consequently, consultations are often perfunctory and unsatisfactory to both physician and patient. The pauper, on the other hand, gets the very best that medicine has to offer. He goes to the free clinics, where all branches of medicine are represented, and is carefully examined by the various clinicians. The individuals of the middle class, constituting about 90 per cent. of the sick, are getting the worst medical care. They cannot afford to pay large fees for high class specialists, nor will they accept charity. They are compelled to accept incomplete examinations, erroneous deductions, and, what follows: inappropriate treatment. The great mass of the people, however, will not endure this long. The solution of the problem will soon be found, and it will come as the result of search from an economical, if not from a humanitarian, standpoint.

Dr. E. V. Knapp, our pathologist, has aptly said in an unpublished paper:

> Specialization is a necessity depending on human mental limitation. If a clinician had a mind sufficiently endowed by nature, and sufficiently cultured by study to be able to appreciate all that is known about anatomy, surgery, pathology and all other divisions of medicine, and he also had at his disposal time to make examinations of his patient in each of these branches, he would then have a most comprehensive, correlated clinical picture; but each division of medicine has developed so extensively that it is impossible to ascertain full knowledge of any one. Furthermore, no individual could cover all divisions of medicine in all cases even though he had the ability to do so. Consequently, the general practitioner is no longer able to depend upon himself completely to guide his patient through any obscure illness.

Specialism, however, has many disadvantages. The specialist often views the cases from his branch of medicine to the exclusion of others. The physician who interprets the condition of his patient, partly through written reports of the specialists who have not considered the patient as a whole, will frequently draw false conclusions. These reports might be added to or subtracted from, if the specialists had viewed the case from all angles. Consultations are also expensive and tend to make doctors employ them only when they seem indicated. If group consultations could be a routine procedure, frequently pathologic conditions which are not suspected would be found. The great disadvantage of the present day consultations with specialists is that they seldom meet to discuss their findings, and the case is rarely reexamined in the light of new evidence, remaining hazy and incomplete.

Realizing their limitations and the disadvantages of the present day consultations, the profession in this vicinity, nearly three years ago, organized the San Francisco St. Luke's Hospital Clinical Club for the purpose of remedying such conditions. There were no guides and no landmarks, and a new trail had to be blazed. It was decided to meet once a week to discuss cases, work them over, and try various plans of study. Cases were studied single handed, in groups, by recommendations, by referring to specialists, and in every conceivable way, until at last "group study" was decided on as a partial solution of the difficulties. Here is an outline of the method used:

A diagnostic section was organized out of the San Francisco St. Luke's Hospital Clinical Club. This section consists of ten men, each having special training along some particular line. The members of the profession refer obscure cases to this section for diagnosis. These patients are placed in the hospital for observation, and each member of the diagnostic team makes an individual examination and a written report of his findings. At noon each day the team meets to discuss the cases. If the case is not clear at the first consultation, further investigation is recommended, and any new discoveries are reported the following day. This method of procedure is continued day after day until some conclusion is reached. The physician who referred the case is asked to be present at all of these consultations. Finally, the patient is referred back and a written report of the findings and recommendations for treatment are mailed to the attending physician. Thus the specialists make of themselves a diagnostic laboratory.

All of this work is being done by the diagnostic team for a fee commensurate with the patient's income. The amount collected is not sufficient to pay for the time of the clinicians. However, the good that is being accomplished by this method of study and the educational returns for each member of the team in daily discussion with his colleagues amply repays the clinicians.

In our experience the success of a plan of this kind depends briefly on the following conditions: The diagnostic team must accept, from the profession, cases for investigation at a price consistent with the income of the patient; cases should be examined by all the members of the team; the results of their findings must be written; the specialists meet in daily consultation over the cases, and investigations continue until all possible evidence is discovered. The case is returned to the physician who sent it and a report is mailed, together with the conclusions and suggestions for treatment.

The results to be expected from such a scheme are these: The general practitioner will gladly accept it;

the good influence of the family physician will be preserved; medical men in the community will take advantage of the daily discussions and gradually broaden their point of view of medicine; this method of group study will maintain the advantages of specialism and do away with the disadvantages. Clinical reports from this work bearing on these predictions are now being prepared for publication.

It may be said that the type of group study as now practiced in general hospitals is unsatisfactory. The assignment of cases to departments for treatment is often determined by the patient's complaint without previous investigation by the various departments, which is comparable only to the methods employed by the general practitioner. Group study to be profitable must not only provide for the treatment of the complaint which causes the patient to seek advice but also aim at the discovery of hidden departures from the normal in order that proper therapeutic and prophylactic measures may be recommended to the end that the individual's future health may be conserved.

St. Luke's Hospital.

THE TREATMENT OF INTERNAL HEMORRHOIDS, BLEEDING SPOTS AND VILLOUS TUMORS OF THE RECTUM BY THE HIGH FREQUENCY CAUTERY *

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No matter what the argument, there will always be a number of people who will balk at the word "operation." In the palliative treatment of hemorrhoids the best that can be expected is relief, as the name implies, and the degree of this palliation is speculative. If the piles are of the external variety, whether the tumors are inflamed or not, the subcutaneous injection of a 2 per cent. solution of cocain, alypin or other local anesthetic, followed by excision and the loose horsehair suture of the edges of the wound, will give good results, and the patient scarcely realizes he has had an operation.

In the treatment of the internal variety the quacks have always been popular, in that they risk infection, abscess and other dangers when they inject their patients with phenol (carbolic acid) solution. There is no doubt that they have cured some patients, but it is equally true that they have produced intense suffering, and in many cases their treatment has led to fistula. I recall one case in particular of a patient who, after injection for hemorrhoids, developed a fistula with an opening larger than the index finger. Strange to say, the quack "got away with it." However, the lucky patient, who escapes the dangers mentioned, and obtains a cure without the dreaded operation, forgets his suffering and sings the praises of the one who cured him. I am not decrying the radical operation for hemorrhoids. Excision and suture quickly disposes of these tumors. But for the patient who cannot or will not take an anesthetic the method I describe will efficiently, though slowly, give a radical result, and the patient need lose no time from his work.

Several years ago Beer of New York described a method of removing villous tumors, or papillomas, of the bladder by the use of the high frequency current of Oudin, that is, the single pole current, and cited cases. Later, he published case reports of other operators, among which he included some of my work. This method is now a recognized mode of treatment for these tumors. About two years ago I tried this method in the treatment of a case of bleeding from a nevus growth in the rectum. The usual treatment of this condition has been the application of pure nitric acid by means of a glass rod, with the possibility that the acid might not limit itself to the growth. The result of the application of the high frequency current was excellent. This success led me to try it in a case of internal hemorrhoids. My patient was a man who was willing to try anything except an operation. He had one tumor larger than a pecan and several small ones. It took ten treatments covering three months. (Less than half that time would now be necessary.) The cure was radical and the man did not lose a day from his office. This was in September, 1914. Since then I have operated on quite a number of other patients with internal hemorrhoids, in many of whom bleeding was the chief symptom.

In this work I use the Wappler portable transformer, with Krafft spark gap, and the 110 volt alternating current. This current, stepped up on the rheostat to number 3 or 4 and a very narrow gap, gives a very hot spark at the aluminum electrode, which quickly sears the flesh, with the odor of burning meat. A foot switch is convenient, but not absolutely essential. An electrode of $\frac{3}{32}$ inch aluminum rod set in a hard rubber handle and bent to an angle of 135 degrees with the handle, and covered with thick-walled rubber tube, can easily be procured. This electrode is about 4 inches long, and to make a large burning surface a small shepherd's crook should be made on the end. One can readily try out its cauterizing effect on callus found on nearly every doctor's hand since the advent of the automobile. With the patient in the knee-elbow position and sway-backed, a toothpick around which is wound absorbent cotton, making an applicator $\frac{1}{4}$ by $1\frac{1}{2}$ inches, is soaked in a 4 per cent. solution of any of the previously mentioned local anesthetics and pushed into the anus, being allowed to remain there for about ten minutes, while the apparatus is made ready. The anal tube or speculum is now introduced, the light attached, the anus wiped out if necessary and the electrode applied. (I use a Martin's anal tube, to which is attached my own lamp arrangement, although even a head mirror may be used.)

The application of the electrode differs from that of the electrocautery. The electrocautery is applied to tissue after it becomes red, but with the high frequency electrode the cauterization is accomplished in the gap or arc between the electrode and the tissues. The electrode is of aluminum and does not even become discolored. It is applied to the tumor and then carefully withdrawn until its highest efficiency is secured, as determined by the eschar and smoke. One tumor is thoroughly burned longitudinally with the axis of the bowel. When this tumor has become black, another is given a light dose; that is, one tumor is burned quite energetically and one or two lightly at a sitting, and then the burned area is painted with liquid petrolatum, or, as I prefer, with oil of eucalyptus, 1 in 8 of the oil, and no further treatment of the parts is given for two weeks, or until the sloughs have come away and the parts are clean. There is little or no pain ten

* From the Surgical Department, South Side Hospital.

minutes after a treatment, and the local anesthetic lasts that long. One can hardly believe the statement that the pain of the high frequency burn is so transient; but the burn is severe for a few minutes unless anesthesia is secured.

Having used this method of treatment for several years in the removal of bladder tumors and for nearly two years in the treatment of rectal hemorrhages and tumors, I cannot speak too highly of the results.

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ACUTE PELVIC APPENDICITIS

WITH CASES IN POINT

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An acutely infected appendix is the most frequent and one of the most serious acute abdominal lesions demanding surgical attention. The laity is not alone responsible for the present-day mortality being higher than it should be; this is due in part, I think, to the frequency with which the appendix lies in the pelvis, thereby changing the classic picture of acute appendicitis so materially that we do not always recognize the source of the symptoms sufficiently early to avoid disaster.

We all know how deceptive may be the symptoms in acute simple appendicitis. When the appendix lies in the pelvis the picture may be even more deceptive, since the clinical manifestations are largely dependent on (1) the site of the appendix, (2) the severity and duration of the infection, (3) the presence or absence of adhesions, (4) the state of health of adjacent organs, and (5) the character of the treatment. The cases herein reported emphasize these facts.

Pain is invariably a prominent symptom. It differs from the classic in being situated lower in the abdomen and more diffuse in character; in many cases it is referred to adjacent organs. The absence of localized pain at McBurney's point is one of the most frequent causes of our failure to recognize the disease. In many cases the pain will be most severe just above and to either the right or left of the pubes. In several of my cases it was referred to the bladder, while in others the patient complained of persistent severe pain in the epigastrium. Sudden cessation of severe pain may signify perforation; in any case it does not necessarily mean improvement.

Abdominal rigidity is nearly always present, but the impressive feature in these cases is the finding that both recti are rigid; the rigidity is not limited to the right rectus, although it usually is more rigid than the left because the site of inflammation is usually to the right. The left rectus may, however, be more rigid than the right. This is a frequent cause of confusion in making a diagnosis in these cases.

The characteristic point tenderness midway between the umbilicus and the anterior superior spine of the ileum, as described by McBurney, is absent because the field of action has shifted to the pelvis. This finding is quite misleading unless the practitioner recalls that the appendix frequently lies in the pelvis. Pressure made over McBurney's point may not cause any pain whatsoever; pressure over a corresponding point on the left may incite severe pain. Rectal examination may show an inflammatory mass in the pelvis.

Vomiting is usually not a persistent symptom. When the inflammatory process is advancing upward it may be more or less constant. It usually follows the initial pain of onset, but may precede the pain. If the appendix becomes adherent to coils of small intestines causing ileus, vomiting becomes a very prominent and persistent symptom.

Flexion of the right leg is usually absent in cases of acute pelvic appendicitis. The reason is obvious. Late in the disease, however, both limbs will be found flexed.

The pulse, temperature and blood findings do not differ from those observed in classic cases.

The diagnosis of acute pelvic appendicitis requires a careful consideration of the previous history, the mode of onset of the present attack and the shifting of the symptoms from the epigastric to the hypogastric and inguinal regions instead of to midway between the right anterior superior spine of the ileum and umbilicus; the physical findings will eliminate primary involvement of the adjacent pelvic organs. The mere fact that the symptoms began as an appendicitis and the picture still resembles the clinical manifestations of a diseased appendix, although the characteristic McBurney point tenderness, etc., are absent, should lead us to make a provisional diagnosis of acute pelvic appendicitis. This is especially true if examination then shows absence of disease of the adjacent pelvic organs; an immediate operation is called for. It is not necessary to have the classic picture of appendicitis to make a diagnosis of appendicitis. The preponderance of the symptoms, and the fact that the patient is suffering from some acute pelvic lesion which is not due to an acute pus tube, should warrant immediate attention. We all know that when the appendix is adherent to the bladder or to the peritoneum overlying the ureter, the patient will often complain of bladder symptoms and the urine may contain blood and pus (Cases 1 and 4). We also know that the appendix may become adherent to the rectum or ovary, or possibly to an infected tube, thus causing symptoms of acute infection in the respective organ.

In any case the clinical manifestations indicate clearly an acute abdominal lesion demanding early attention. If in doubt as to the diagnosis, the physician should place the patient in Fowler's posture, administer saline proctoclysis according to Murphy's method, and withhold all purgatives, food and opiates. Purgatives only increase peristalsis and the possibility of perforation. An enema is preferable. If the symptoms persist at the end of six hours, a consultation should be held.

The treatment of acute pelvic appendicitis does not need comment. We all know that immediate operation saves practically every case of appendicitis. The contention that we should wait until the inflammatory process becomes localized is simply preposterous; Murphy has shown how erroneous is this thought. Morphin administered before operation kills many patients. I do not think it necessary for the practitioner to make an accurate diagnosis before he recommends operation in these patients presenting the clinical picture of an acute abdominal condition. We really best serve the patient by calling surgical consultation in these cases before the distended abdomen, the persistent, agonizing pain, the high temperature, the vomiting, the rapid pulse and the anxious expression tell the tale of too much "watchful waiting."

CASES IN POINT

A brief report of a few of the recent cases will suffice to impress the picture in these cases of acute pelvic appendicitis:

CASE 1.—*History.*—A. R., white man, aged 30, gave a history of previous attacks of pain in umbilical region, nausea, pressing desire to urinate, followed by vomiting, severe pain just above pubes and passing of bloody urine. The present attack began twenty-four hours ago with sudden severe pain in umbilical region followed by nausea, vomiting and shifting of the pain to just above the pubes. Dr. Westrup found patient suffering intensely; both recti were intensely rigid; pressure over lower abdomen incited desire to urinate even though the patient had been catheterized; pulse 90, temperature 100. On the following morning the symptoms had somewhat subsided. Dr. Westrup diagnosed case as one of appendicitis.

Examination.—When I saw patient twenty-four hours after onset the abdomen was soft, but pressure near insertion of the right rectus muscle caused considerable pain and a desire to urinate; no tenderness at McBurney's point; temperature 99, pulse 80, and symptoms subsiding; leukocyte count 14,000. Small mass found on rectal examination.

Operation.—Patient felt so well on the following day that he wanted to go home but finally consented to operation. The appendix was found gangrenous and partially surrounded by omentum and adherent to the right posterior surface of the bladder.

CASE 2.—*History.*—O. H., white girl, aged 13, was suddenly seized with chill and fever followed by severe pain in umbilical region and vomiting three days prior to consulting Dr. Washington; the usual home remedies had been given without avail; her menstrual period was due and she thought her trouble was possibly due to this.

Examination.—Dr. Washington found pulse 120, temperature 104, abdomen distended and very rigid; there was no point tenderness in area described by McBurney; in fact, pressure over left rectus induced more pain than pressure over McBurney's point, bowels had moved but the pain was so severe and paroxysmal in character that patient complained a great deal. I saw the patient a few hours later and was impressed by the absence of pain at McBurney's point, the diffuse character of the pain and its location just above the pubes; also by the diffuse rigidity and high temperature and pulse rate. Patient was sent to the hospital, where a blood count showed leukocyte count of 18,000.

Operation.—Median incision confirmed Dr. Washington's diagnosis; the appendix was gangrenous and lying low down in the pelvis; numerous coils of distended small intestine were found glued together by fibrin.

CASE 3.—*History.*—A. F., white woman, aged 26, had been complaining for two days of discomfort just above pubes; the pain was not constant or severe, but the usual home remedies had not brought relief. Patient had vomited once, bowels had acted and she walked to the bath room without discomfort. Dr. Bewig saw the patient a few hours before I did; he found pulse 78 and temperature 100. The abdomen seemed slightly distended, but patient insisted that such was not the case; both recti were flaccid; deep pressure above the pubes caused pain, whereas pressure over McBurney's point was negative.

Operation.—Two days later the patient consented to operation because the pain had persisted and she was afraid of appendicitis. Median incision showed a swollen, slightly gangrenous appendix lying low down in the pelvis; there were no adhesions.

CASE 4.—*History.*—M. G., white man, aged 32, gave history of previous attacks, and had been told that he had appendicitis. The present attack began thirty-six hours before with severe pain in lower abdomen; pain became more or less constant; vomiting frequent.

Examination.—Expression was somewhat anxious; abdomen distended; both recti intensely rigid; tenderness over greater part of lower abdomen; rectal examination negative; pulse 110; temperature 102; leukocyte count 18,000; urine contained pus and casts.

Operation.—Immediate operation revealed swollen gangrenous appendix lying behind and to the right of the bladder; the omentum was adherent to base of appendix and bladder.

CASE 5.—*History.*—H. H., white man, aged 21, had been sick three days. Illness began with cramplike pains in lower abdomen followed by nausea. Purgative had been given but bowels had not acted. The fact that examination did not show rigidity of right rectus and McBurney point tenderness confused the medical attendant. Patient entered hospital with a diagnosis of intestinal obstruction.

Examination.—Expression was very anxious, abdomen greatly distended, legs flexed, pulse 130, temperature 101, leukocyte count 16,000, mass in pelvis, both recti intensely rigid; patient presented usual picture of advanced peritonitis.

Operation.—A gangrenous perforated appendix was found lying in pelvis; intestines intensely congested and of a mahogany color; parietal peritoneum intensely congested; the pelvis was filled with pus.

COMMENT

Numerous additional cases would only tell the same story. We must not expect the classic picture in these pelvic cases. I am confident that the mere dissemination of the knowledge that it is possible to have appendicitis without the classic McBurney point tenderness, right rectus rigidity, etc., and that the appendix frequently lies in the pelvis and may cause left sided pain and left rectus rigidity, etc., will be the most potent factor in bringing these cases of acute pelvic appendicitis to surgical attention sufficiently early to enable us to reduce the mortality to the minimum.

CIRCUMSCRIBED PURULENT LEPTOMENINGITIS DUE TO FRONTAL SINUSITIS

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Circumscribed leptomeningitis of rhinogenous origin has been rarely noted by the neurologist, and only in the last decade or so by the rhinologist. The literature on intracranial, oculo-orbital and cerebral complications secondary to disease of the accessory sinuses of the nose has become so extensive that more recent writers have concerned themselves with complications arising from individual sinuses.

Purulent leptomeningitis from frontal sinusitis may occur with or without brain abscess; it may be in association with pachymeningitis or with an extradural abscess.

The seat of the lesion is chiefly on the convexity of one or both frontal lobes, with varying involvement of other portions of the brain. The symptomatology is that of sinus disease with accompanying meningitis. Three forms may be distinguished, a sudden apoplectic, quickly terminating; a slow, insidious, protracted type; and an intermittent form, with long interval before the meningitic attack.

Case 1 illustrates the sudden onset of meningitis, after a period of intermittent sinus trouble.

CASE REPORTS

CASE 1.—R. K., errand boy, aged 14, was seen by Dr. G. on Nov. 20, 1914. The boy was suffering with pain in the head, the right eye was swollen and there was pain over the right orbit.

He gave a history of repeated head colds. In the latter part of September, 1914, he developed a severe head and chest cold, which continued for two weeks and was accompanied by profuse purulent discharge from the nose.

On November 14 he contracted fresh head cold, and on the next day he complained of pain shooting through the head, eyes and teeth. The following day there was swelling around the right eye and slight exophthalmos.

At the time of the patient's first visit he complained of pain over the right frontal sinus region, intense frontal headache, and there was closure of the right eyelid, with some bulging of the eyeball.

Examination of the right frontal sinus showed pus. A portion of the middle turbinate was removed and considerable pus drained away. On Saturday he was examined again. His symptoms had improved, but protrusion of the eye was still marked. The swelling over the right orbital ridge was incised, but no pus was found. The next day he developed severe headache over the frontal and occipital regions, and a deeper incision over the frontal sinus released considerable pus.

Several days later he developed paralysis of the opposite side of the body, of the leg chiefly. The temperature became from 102 to 104, pulse of from 90 to 100. A Killian operation was performed. There was a great quantity of pus, and the septum between the sinuses was found necrosed; so the sinuses were entered and cleansed. The temperature dropped to normal and the patient felt much better. For two days his condition was good. The next day his temperature rose suddenly, he became stuporous, and his pulse became rapid and weak.

I first saw the patient the afternoon of the day he died. He was stuporous, showed paralysis of the left leg and partial paralysis of the left arm. He had ankle clonus and the Babinski sign, with rigidity of neck.

A diagnosis of circumscribed purulent leptomeningitis was made, but operation was not advised, owing to the moribund condition of the patient. He died two hours later.

Necropsy.—On opening the cranial cavity, the dura was found smooth and glistening, but bulging. On opening the dura, a purulent exudate was found over the right frontal lobe, extending as far as the postcentral gyrus. A small exudate was noted over the right temporal lobe and over the superior surface of the cerebellum. The pus had also escaped into the right middle fossa. The anterior and posterior fossae were free. The frontal sinus was free of pus, but showed a thick clot of blood and some granulation tissue. The diploic veins were markedly congested. The longitudinal sinus was filled with pus. The roof of the orbit showed necrotic bone, and there was pus in the orbit. The right anterior and posterior ethmoid sinuses, as well as the sphenoid sinus, showed normal mucous membranes.

Pathologic Summary.—The pathologic findings revealed a purulent leptomeningitis, limited chiefly to the right frontal lobe, extending as far as the central gyri. There was some basal meningitis and a small exudate on the superior surface of the cerebellum. The longitudinal sinus was filled with pus. Necrotic bone was found in the orbital roof at the juncture with the ethmoid.

CASE 2 illustrates sudden onset, without showing any localizing symptoms, death occurring within a few days. I had the opportunity of studying only the brain. The clinical notes were obtained from the hospital record.

The patient, a young woman of 22, was taken ill with cold in the head, severe headache, some nausea and vomiting. There was no record in the history referring to nasal trouble. On admission to the hospital her condition was that of semistupor, alternating with delirium. The pupils were equal and reacted to light and in accommodation. There was some rigidity of the neck, and the knee jerks on both sides were exaggerated. Kernig was obtained on the right side. The Babinski sign was absent on each side. Lumbar puncture showed cloudy cerebrospinal fluid, polymorphonuclear cells 89 per cent., lymphocytes 10 per cent. No tubercle bacilli or meningococci were found. Patient could be made to talk, but remained usually in semistupor. The pulse was from 100 to 140, and the temperature varied between 100 and 103. Death occurred in five days.

Necropsy.—On opening the skull, the dura was found smooth and free from adhesions. The veins were congested. Removal of the dura showed a thin, purulent exudate over the convexity of both frontal lobes, reaching as low posteriorly as the central convolutions, and extending laterally to the sylvian fissure on each side. The remaining surface of the brain, as well as the base, was free from exudate. Examination of the frontal sinuses revealed a congestion of the mucous membrane, but no free pus. There was some exudate over the cribriform plate of the ethmoid, and the longitudinal sinus was distended with blood.

Diagnosis.—Influenzal meningitis following frontal sinusitis and ethmoiditis.

Pathologic Summary.—Purulent leptomeningitis, confined chiefly to the convexity of both frontal lobes; frontal sinusitis, and ethmoiditis.

These two cases, as well as a study of the literature, show that the symptoms, as revealed in Case 1, are frequently preceded by weeks, or even months of nasal catarrh, with frontal headache; or, as in Case 2, they may occur after only a few days, following an attack of influenza. The edema and discoloration of the eyelid, with tenderness over the orbit, as in Case 1, frequently precede the cerebral symptoms when disease of the wall of the sinus or orbit is present. The frontal headache is present in nearly all cases, though pain in the head is not limited to that region. The pulse and temperature are not characteristic. Rigidity of neck and Kernig's sign, though noted in both my cases, are not frequent symptoms. Paralytic symptoms are noted usually in a later stage of the disease. Irritability and restlessness, alternating with clouding of the sensorium, are sometimes the only meningitic symptoms present; and death sometimes comes, as in Case 2, before the development of paralytic symptoms.

The pure meningitis following frontal sinus disease is less frequent than brain abscess, but much more frequent than thrombophlebitis. This is analogous to Korner's statistics on otitic meningitis. In 140 cases analyzed by Gerber, there were sixty-five cases of brain abscess, to fifty-one of meningitis.

The explanation of this phenomenon depends on the route of infection, which may be direct, through the interstices or necrotic walls, or indirect, through the venae perforantes of the sinus and orbit, or through the lymphatics. According to Gerber, the most frequent route in the production of leptomeningitis is through disease of the dura, following disease of the posterior wall of the sinus. Disease of the anterior wall, with thrombosis of the longitudinal sinus, may produce it indirectly; and disease of the inferior wall, with necrosis of the orbital roof and thrombophlebitis of the veins, may also indirectly produce leptomeningitis. It is possible that the lymph channels may play as important a part as the diseased walls and veins. Zwillinger, in some recent experiments on animals, has investigated the relation of the perimeningeal lymph spaces — the subdural and the subarachnoid — with the lymph vascular nests of the frontal sinus, and has shown that a direct connection exists. This may explain the route of infection in Case 2, as well as in many others reported, in which the route was not clearly demonstrated. Logan Turner thinks that they play a subordinate rôle, for the operating table and necropsies have shown the infection spread as the result of caries of the contiguous bone.

There have been few cases reported in which operation led to recovery. Gerber found three out of fifty-one cases of meningitis, those of Herzfeld, Piffl and

Luc. To this we would add the case of Spiller, Shields and Martin, reported in 1908. This case, not noted in the reports of Gerber and Onodi, was the first case with recovery reported in America. The recovery in this case was supposed to be due to exposure of the diseased area to the air, but recent studies in experimental meningitis, by Kopetzky and Haynes, show that relief of intracranial pressure can cause recovery.

It seems that in many cases the dura escapes involvement, that incision is necessary in all cases in which absence of lesions on the surface is noted. This holds true, not only for the meningitic cases, but also for the subdural and frontal lobe abscesses.

The failure of recovery in most of these cases may be traced to several factors — the virulence of the infection, frequently streptococcic, with rapid termination of the case in several days (cases of Mahu, Wertheim and others); the absence of meningitic symptoms (cases of Blessig-Tiling, Lendentu and others); the failure to recognize the underlying process sufficiently early; and finally, the presence of an apparently normal dura, preventing further operation.

FREE TUMOR DIAGNOSIS AS A FUNCTION OF STATE PUBLIC HEALTH LABORATORIES *

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This study and report is based on a survey of the various states in regard to the existing facilities for the laboratory examination of specimens of suspected cancerous tissue. Through the agency of this report, it is the intention of the American Society for the Control of Cancer to consider the need for a general extension of such facilities under public auspices, and the means by which it may be accomplished.

METHODS OF INVESTIGATION

To obtain information as to what is being done in the different states at the present time, a questionnaire was sent to the directors of the various state public health or hygienic laboratories, and in some instances to the secretaries of the state boards of health. Answers to the following questions have been received from all of the forty-eight states:

1. Do you make pathologic diagnosis of tumor tissue in your state public health laboratory, or in any other state institution?
2. If these examinations are made, is the work done free of charge, or what is the amount of special fee asked for same?
3. Do you believe that such work should be done free of charge, either by state public health laboratories or other institutions in each state, as an important aid in the campaign against cancer?

In order to determine the value of free tumor diagnoses made by a state public health laboratory from the standpoint of the practicing physician and surgeon, a second questionnaire was sent to a large number of North Dakota doctors. The free diagnosis of tissues by the public health laboratory is required by law in that state, and has been carried on for nine years. The following questions were asked:

1. Do you send your suspected tumor specimens to the state public health laboratory for diagnosis?
2. If not, who makes your pathologic diagnoses?
3. Do you believe the average practitioner is prepared to make accurate microscopic diagnosis of cancer?
4. Do you think that early diagnosis is an important step in the prevention and cure of cancer?
5. Have the tumor diagnoses of the state laboratory been satisfactory in the past?
6. Do you believe that the doing of such work, free of charge, is of value as a public health measure in helping to control cancer?

RESULTS OF INVESTIGATION

Present Facilities for Pathologic Examinations in State Laboratories.—Of the forty-eight states, twenty-four have facilities for the diagnosis of suspected cancerous tissue either in their state public health laboratory or in some other state institution; while twenty-four do not attempt such work. Table 1 gives the names of such states.

TABLE 1.—FACILITIES FOR TUMOR DIAGNOSES IN PUBLIC LABORATORIES

States Which Have Facilities	States Which Do Not Have Facilities
North Dakota, Wisconsin, Indiana, Minnesota, South Dakota, Mississippi, Iowa, Florida, Alabama, Arkansas, Pennsylvania, New Hampshire, New York, Missouri, Michigan, North Carolina, Rhode Island, West Virginia, Kansas, Louisiana, Vermont, Delaware, Texas, Oklahoma. Total, 24.	Nebraska, Illinois, Virginia, Connecticut, Oregon, Colorado, Montana, Massachusetts, Washington, Idaho, Maine, Ohio, Nevada, Maryland, California, South Carolina, New Jersey, Georgia, Kentucky, Utah, Wyoming, Tennessee, Arizona, New Mexico. Total, 24.

Of the twenty-four states which have facilities for such work, nineteen carry on the work in their public health or hygienic laboratories, while five do the work in their state university laboratories of pathology or preventive medicine. Table 2 gives the names of such states.

TABLE 2.—METHOD OF MAKING TUMOR DIAGNOSES

States in Which They Are Made in State Public Health or Hygienic Laboratories	States in Which They are Made in State University Laboratories
North Dakota, South Dakota, Kansas, Vermont, Louisiana, Michigan, Indiana, Wisconsin, Mississippi, Florida, Alabama, Pennsylvania, New Hampshire, New York, North Carolina, West Virginia, Rhode Island, Delaware, Oklahoma. Total, 19.	Iowa, Minnesota, Arkansas, Missouri, Texas. Total, 5.

Of the twenty-four states which have the facilities mentioned above for making tumor diagnoses, five charge specified fees, six charge all persons except indigents, and thirteen make no charge in any case. Table 3 gives the names of such states.

Value of Free Tumor Diagnosis as an Aid in the Campaign Against Cancer.—General Opinions of State Authorities: From information available, it seems that opinions of authorities differ somewhat as to whether or not tumor diagnoses should be made free of charge either by state public health laboratories or other state institutions, as an important aid in the campaign against cancer. Table 4 gives the ideas of the various state authorities on this point, showing that more are in favor than against the plan; in all instances these

* Report of a committee (consisting of Dr. F. C. Wood, Columbia University; Dr. James Ewing, Cornell University, and Dr. L. D. Bristol, chairman, University of North Dakota) appointed by the American Society for the Control of Cancer.

are the personal opinions either of the director of the laboratory or of the executive officer of the state board of health.

TABLE 3.—CHARGES FOR MAKING DIAGNOSES

States Charging Special Fees for Tumor Diagnoses	States Charging Fees for All Except Indigents	States Charging No Fees for Tumor Diagnoses
West Virginia, New Hampshire, South Dakota ($3), Wisconsin ($5), Michigan (free if specimen is sent by health officer). Total, 5.	North Carolina ($5), Arkansas ($5), Alabama ($5), Indiana, Vermont ($2), Texas. Total, 6.	North Dakota, Rhode Island, Missouri, New York, Pennsylvania, Florida, Mississippi, Iowa (if gross specimen is sent for teaching purposes), Minnesota, Louisiana (work done only for indigents), Kansas (work done only for indigents), Delaware, Oklahoma. Total, 13.

TABLE 4.—OPINIONS AS TO VALUE OF FREE DIAGNOSES

States Approving the Plan of Free Tumor Diagnoses as an Aid Against Cancer	States Not Approving the Plan of Free Tumor Diagnoses as an Aid Against Cancer	States Giving No Opinion
North Dakota, Kentucky, Rhode Island, Missouri, Maine, New York, Idaho, Washington, Montana, Colorado, Pennsylvania, Connecticut, Florida, Illinois, Mississippi, Delaware, Tennessee, Indiana, Michigan, Louisiana (for indigents), Utah, Vermont, Kansas, Texas, Arizona, Oklahoma. Total, 26.	Iowa, Georgia, New Jersey, South Carolina, California, West Virginia, Maryland, Nevada, Ohio, Massachusetts, Oregon, Arkansas, Alabama, Virginia, Nebraska, Wisconsin, Minnesota, South Dakota. Total, 18.	North Carolina, New Hampshire, Wyoming, New Mexico. Total, 4.

The chief arguments received from the sources named above against the free diagnosis of tumor tissue in state laboratories are as follows:

1. "Diagnosis of tissue for cancer is merely a private consultation and is not regarded as public health work."

2. "The plan would savor too much of state medicine."

3. "As a rule the appropriation for the state laboratory does not warrant the doing of more work, and tumor diagnosis should not interfere with the diagnosis of the so-called communicable diseases."

4. "There is danger of spreading cancer cells into other parts of the body by the excision of small specimens for diagnosis."

The arguments in favor of the free diagnosis of tumor tissue as an aid in the campaign against cancer may be summarized as answers to the foregoing four objections:

1. Surgeon Carroll Fox of the U. S. Public Health Service says, in regard to the diagnosis of tissues for the presence of malignancy by state public health laboratories: "Such work is the legitimate work of the health department. The ultimate object of all health officers is to prolong life, and to secure this result in the case of cancer, an early diagnosis is necessary. It is, therefore, only right that the health officer, through his diagnostic laboratory, should lend all the assistance possible." This also is the opinion of a large number of other authorities who look on cancer as a public "menace" to be attacked by public officers, with public money.

2. From the foregoing point of view, if it is the duty of the health officer to prevent premature death from all causes, it is as much his duty to prevent death from cancer as from tuberculosis. For this reason, facilities for the diagnosis of suspected cancerous tissue should be offered free of charge in a state laboratory, just as facilities are offered for free sputum examinations without the cry of "state medicine" being raised.

3. It is to be conceded that tumor diagnoses should not interfere with the work more strictly related to the communicable diseases, and the latter should always have priority. Furthermore, it is not to be expected that such pathologic work can be carried on without sufficient appropriation to warrant it. This is not an argument against free tumor diagnosis in public health laboratories, but is simply an indication that the people of the state should be educated to the point where they will be willing to appropriate more money to cover this extra work.

4. It must be admitted that there is some chance that by cutting through healthy tissue into a malignant tumor, for the purpose of obtaining a specimen, metastases may be more rapidly spread. But in a large percentage of cases the advantage gained by a microscopic diagnosis is very much greater than the risk of spreading the disease by its proper removal for such a purpose. On this point Sondern has briefly stated the conservative opinion of a committee of the American Society for the Control of Cancer:

> In the removal of tumor tissue for diagnosis, the advantage of such microscopic examination, as well as the danger of aggravating the disease by this procedure, must be considered. In many cases the advantage of diagnosis outweighs the danger of removal of tissue for this purpose, and the procedure is justified in the opinion of the majority. The necessity for this may be determined by the skill of the clinician. Opposed to the procedure in general is the danger of aggravating the condition by the excision, and this varies according to the nature and the position of the growth. To cut through the skin into a malignant tumor of the breast in order to remove a piece for examination is generally discountenanced. Errors in diagnosis result from the excision of inflammatory tissue on the margin of a tumor when the section does not include tumor tissue, this being most frequent in the breast and prostate. Incisions into actively growing, deep-seated malignant tumors should be avoided, as this may disseminate infection through the vessels, may permit extension or accelerate growth by relief of capsular tension. There is little danger, however, from the proper removal of tissue from any superficial growth of the skin or mucous membrane. Crushing or kneading malignant tissue should be carefully avoided under all circumstances.

Admitting the foregoing statements, and giving wide publicity to them does not argue against the doing of such diagnostic work in public laboratories as an aid in the campaign against cancer. It simply means that physicians and surgeons should use judgment as to the specimens which they wish to remove for diagnosis.

We do not desire to argue against the value of frozen section work, or against any physician making his own pathologic diagnosis *if he is qualified to do such work*, any more than we would argue against his making bacteriologic diagnosis of sputum or throat cultures if he has had sufficient training to be accurate.

Other points have been raised by various authorities in support of the value of tumor diagnosis in public health laboratories, the most important of which are:

"It would tend to raise the general tone of surgical practice among men who have no hospital or laboratory affiliation."

"It would tend toward the diversion of material from strictly commercial laboratories, some of which are known to be grossly incompetent from the standpoint of their pathologic work."

Even to educate the public and the profession to *demand* a confirmation of a clinical diagnosis by a microscopic finding after operation would be of inestimable value in the recording of accurate vital statistics relating to cancer, in assisting the physician or surgeon to make reliable clinical diagnoses in the future, and in protecting the public from cancer quacks who always shun the microscope. It is difficult to collect a fee for a pathologic diagnosis after an operation has been performed; hence the value to the public and the profession at large by the doing of such work free of charge in public health laboratories. If clinical diagnoses were thus improved and cancer quacks were thus eliminated, the death rate from cancer would fall. Furthermore, if accurate mortality statistics are of value in combating all diseases (including cancer), and if the state health department is chiefly responsible for gathering such statistics, it would seem that it might be of great value even for the state to *require* the sending in of pathologic specimens from all persons dying of suspected, or clinically diagnosed, malignant disease. It is obvious that such required work would have to be done free of charge by state laboratories under the direction of competent pathologists.

Opinions of Physicians in One State in Which the Plan of Free Tumor Diagnosis Has Been Carried on for Nine Years: As a final argument in favor of our report, it may be of interest to give a few facts concerning the working of this plan of free tumor diagnosis in the public health laboratory of the state of North Dakota during the nine years since the laboratory was opened.

Replies to a questionnaire (outlined previously under "Methods of Investigation") were received from 175 physicians and surgeons from all parts of the state. Of this number, 125 send all of their removed tumor specimens to the state laboratory, ten send some of their material, and thirty-five do not send any of their specimens to that laboratory, while five give no information on this point.

Of those not sending their specimens of tumor tissue to the state laboratory for diagnosis, twelve make their own pathologic diagnoses, twelve send their specimens to commercial laboratories outside of the state, eight send their tumor tissue to some other surgeon of recognized ability in pathology, and three to a university pathologic department outside of the state.

Practically all (170) believe that the average practitioner in such a state as North Dakota is not qualified, nor has he the facilities, to make accurate microscopic diagnosis of cancer. Nearly all (168) agree that an early diagnosis is an important aid in preventing the spread of cancer, and in curing the disease. Of 175 physicians who answered the questionnaire, 170 thoroughly approve of the doing of such work, free of charge, in a state laboratory as a public health measure in helping to control cancer. With a few exceptions, practically all who have sent their specimens to the state laboratory have been satisfied with the diagnosis as made. In one or two instances the pathologic diagnosis did not coincide with the subsequent clinical history, but the few complaints made were chiefly based on the length of time occasionally necessary before a diagnosis could be received in parts of the state far removed from the laboratory.

Since the opening of the North Dakota Public Health Laboratory in 1907, about 1,000 specimens of tumor tissue have been examined free of charge, the number of specimens the first year (1907-1908) being twenty-four, while the number for 1914-1915 was 218, thus showing a decided growth in the amount of tumor diagnostic work demanded of the public health laboratory.

Undoubtedly the same results and opinions as given above would be obtained from the majority of states which have been undertaking such work, if a canvass of the practitioners of each state could be made.

RECOMMENDATIONS

Based on the foregoing study, the following recommendations are submitted as worthy of consideration in the campaign against cancer:

1. So far as consistent with local conditions, facilities should be offered under public auspices in each state for the diagnosis of tissue suspected of being cancerous. Preferably, these should be made free of charge.

2. The logical place for the doing of such work is the laboratory of the state health department. It is not to be supposed that such work will be given the preference over other work now being done by these laboratories.

3. To cover this work, in those states which have no such facilities, additional money should be appropriated.

4. Judgment must always be used by surgeons in the removal of suspected cancerous tissue for diagnosis, and the value of a microscopic diagnosis should appear to outweigh the risk involved before such a procedure is adopted.

VESICAL DRAINAGE

HISTORICAL REVIEW AND PRESENTATION OF A NEW APPARATUS *

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The numerous forms of apparatus that have been devised for the purpose of disposing of urinary drainage following suprapubic cystostomy are evidence of the difficulty of the problem. When we consider the conditions to be met, it is hardly to be hoped that an entirely satisfactory apparatus is possible, if by this we mean an apparatus that will permit no urinary leakage whatever, from the time of operation until the fistula is healed. The method of choice is that which most nearly approaches this ideal efficiency, which requires the least attention and which causes the patient the least inconvenience. In addition to the above requirements, the apparatus should be reasonably inexpensive and not too elaborate.

BRIEF REVIEW OF METHODS PREVIOUSLY DESCRIBED

Of the various forms of apparatus, the simplest is a rubber tube through the suprapubic wound draining the urine into a receptacle beneath the bed. This method works well temporarily, but the impossibility of maintaining a tight fit makes it unsatisfactory, because good siphon action depends on a constant supply of fluid and the exclusion of air from the bladder. The first mention of the suction exerted within the bladder by a column of urine descending in a tube was

* From the James Buchanan Brady Urological Institute.

made by Chiene[1] of Edinburgh in 1880. His article, however, referred, not to suprapubic drainage, but to drainage through the urethra by means of a retention catheter, the siphon action being dependent on the fact that the lower end of the drainage tube was immersed in a bottle of carbolized water, which overflowed into a basin. Clogging of the tube with mucus was prevented by "raising the bottle night and morning in order to make a back-flow, which cleans the instrument." When this natural siphon is used for suprapubic drainage, a loop or a U-bend in the descending arm, which has been frequently described, is an improvement, because here the urine collects until a sufficient quantity has accumulated to descend in the form of a solid column, or fluid piston, which exhausts the air behind it, thus producing intermittent suction within the bladder. Even up to the present time there appear in the literature occasional articles[2] calling attention to this natural siphon method of suprapubic drainage, and claiming for it advantages over other methods on account of its simplicity. Burckhardt[3] in 1889 solved the problem of suprapubic drainage by making also a perineal incision and inserting a tube. He stated that for five years he had made a practice of combining perineal drainage with every case of suprapubic cystostomy, following a method first used by Frère Côme (Jean Baseilhac) in the eighteenth century.

Numerous modifications have been described of the form of apparatus dependent in principle upon the suction exerted in a tributary tube by a column of water descending through a vertical tube from an overhead reservoir. Such forms of apparatus are familiar to all. This principle was first applied to surgery by Potain[4] in 1869, who used siphon suction for the drainage of empyemas. The earliest available description of such an apparatus applied to suprapubic drainage was that of E. H. Fenwick[5] in 1888, who says, "An irrigating can is placed on a chair at the bedside, and its tube, with a clip affixed to regulate the outflow, dropped into the chamber under the bed. The drainage tube from the bladder is then connected with it at an acute angle." An improved apparatus, utilizing the same principle, was described by Cathcart[6] of Edinburgh in 1895, and a modification of this the following year by W. W. Keen[7] of Philadelphia, who acknowledged Cathcart's priority. This was challenged by Dawbarn,[8] who described his own apparatus immediately after Keen's publication, stating that he had made use of it for four years. Referring to Cathcart's apparatus, he further stated that the idea of siphon drainage did not originate with Cathcart in England, but was first used in America about 1875 by Dr. Snow, a dentist in Buffalo. As a matter of fact, Cathcart and Dawbarn were both preceded by Fenwick and also by Spehl,[9] who in 1889 described a "siphon-laveur de la vessie." Since 1895 modifications have been described by Heaton, Walker, Wacobarn, Clerc-Dandoy, Connel, Hamilton, Chenoweth and others.

These methods are all essentially similar, in that they employ an overhead reservoir of water which is refilled at intervals, the tube descending from the reservoir being connected by a T to the tube from the bladder. They differ in their methods of mechanically interrupting the flow from the reservoir, with the object of producing intermittent siphonage. Chenoweth's[10] apparatus combined irrigation with drainage. Clerc-Dandoy[11] employed a urethral catheter for continuous irrigation of the bladder, the excess of fluid being drawn off by a suprapubic siphon. Kenyon and Poole[12] in 1909 described methods of making use of suction for various purposes in the operating room, and four years later Kenyon[13] described the application of the same principle to postoperative treatment. The form of suction was that produced by a filter pump or by a steam ejector, the suction being piped from the pump to the operating room or to the ward, and distributed along the baseboard to several beds. This form of suction was used not only for suprapubic drainage, but also for the drainage of various wounds from which the discharge was profuse and irritating to the skin, as in the case of fecal fistula. In order to render the excessive suction harmless, he devised an outer perforated tube, embodying the same principle as that described by Heaton[14] in 1898, which surrounded the inner suction tube in the wound, thus providing for a free circulation of air and preventing contact of the wall of the cavity with the suction tube. Heaton says: "The fluid, as fast as it collects in the cavity, trickles through the perforations of the outer tube and is then sucked up by the open end of the inner tube."

Kaczkowski[15] in 1899 used the same suction method, combined with a dumbbell-shaped rubber balloon, which was inserted into the suprapubic wound and then inflated, the suction catheter passing in through the center. The idea was that the balloon approximated the bladder wall and the abdominal wall, preventing urinary infiltration. Probably the most elaborate suction apparatus is that of Chetwood,[16] who in 1914 described a low-speed motor and pump constructed specifically for the purpose. The motor and pump are run continuously, the amount of suction being reduced by means of a needle valve between the pump and drainage bottle, the lowered pressure within which is measured by means of a vacuum gage. He also mentions having used a hydraulic suction pump applied to a water faucet in the patient's room and connected directly to the drainage bottle. In 1915 Ballenger and Elder[17] again described the use of the hydraulic suction pump in the patient's room, combining the drainage with irrigation. According to their method the tube is removed from the bladder after about ten days and

1. Chiene, J.: Bladder-Drainage, Edinburgh Med. Jour., 1880, xxvi, 516.
2. Madden, F.: A Plea for the Simple Method of Bladder Drainage, Lancet, London, 1908, i, 48.
3. Burckhardt, H.: Ueber Blasendrainage nach Sectio alta, Zentralbl. f. Chir., 1889, xvi, 737.
4. Potain: Bull. thérap., lxx, 66; quoted by Bryant: Aspiration Drainage in Empyema, Surg., Gynec. and Obst., iii, 296.
5. Fenwick, E. H.: Illust. Med. News, 1888-1889, i, 2; abstr., Ann. Surg., ix, 312.
6. Cathcart, C. W.: A Simple Form of Exhaustion Pump for Use after Suprapubic Cystotomy, Brit. Med. Jour., 1895, ii, 968.
7. Keen, W. W.: An Improved Apparatus for Drainage by Siphonage in Operations on Bladder, Chest and Other Cavities, Ann. Surg., 1896, xxiii, 174.
8. Dawbarn, R. H. M.: A Simple and Reliable Means of Bladder Drainage, Ann. Surg., 1896, xxiii, 499; A Simple Method of Drainage of the Bladder after Suprapubic Incision, ibid., 746.
9. Spehl, E.: Siphon-laveur de la vessie, Ann. d. mal. d. org. génito-urin., 1889, viii, 114.
10. Chenoweth, J. S.: A Device for Prolonged Irrigation and Drainage of the Bladder, Kentucky Med. Jour., July, 1908, vi, 313.
11. Clerc-Dandoy: Drainage de la vessie par l'irrigation continué après la taille suspubienne, xiii Cong. internat. d. méd., Sect. d. chir. urin., 1900, 143.
12. Kenyon and Poole: An Apparatus for Aspiration, Surg., Gynec. and Obst., 1909, ix, 675.
13. Kenyon, J. H.: Continuous Suction and Its Application in Postoperative Treatment, Surg., Gynec. and Obst., 1913, xvii, 115.
14. Heaton, G.: Note on the Drainage of Large Cavities after Surgical Operation, Brit. Med. Jour., 1898, i, 207.
15. Kaczkowski: New Method of Drainage of the Bladder after Sectio Alta to Prevent Urinary Infiltration, Centralbl. f. Chir., March 18, 1899; abstr., THE JOURNAL A. M. A., 1899, xxxii, 783.
16. Chetwood, C. H.: Drainage of the Bladder Following Suprapubic Operations, Med. Rec., New York, 1914, lxxxv, 602.
17. Ballenger and Elder: Jour. Med. Assn. Georgia, 1915, v, 132.

"the urine collected from the outer part of the incision under a glass bell-shaped cover . . . held in place with adhesive strips."

The methods dependent upon other means than suction are not so numerous. Fowler[18] in 1899, employing the principle of capillary drainage, used strips of gauze, one end tucked into the bladder and the other end lying on a rubber sheet, from which the urine drained into a urinal. For permanent suprapubic drainage, Gerrish[19] in 1892 used a silver plate rimmed with rubber and held in place by a belt and perineal straps. Through the center passed a tube which led from the bladder to a urinal. For the period immediately following operation he used a flexible siphon. In 1895 Dugan[20] described his modification of an S-shaped tube of hard material previously described by Senn, which retained itself in the bladder by virtue of its curve. Bloodgood's[21] apparatus, devised in 1896, for both "immediate and permanent" drainage, consists of a rubber bag held to the suprapubic region by a belt, and draining the bladder through a hard rubber tube inserted in the fistula. In England several forms of apparatus were described, dependent on a tightly fitting nonleak dam about the suprapubic wound. Colt's[22] article in 1905 described an oval inverted cup of glass, open at the top and grooved around the base for a tightly fitting rim of sheet rubber which was cemented to the skin by a solution of pure rubber dissolved in naphtha. Finckh,[23] in Germany, later reported favorable results from the use of Colt's apparatus. In 1907 Irving[24] devised a celluloid cap which depended upon elastic bands around the buttocks for its tight fit around the suprapubic wound. This was connected by two rubber tubes to a urinal between the patient's legs. A method of cementing a perforated piece of sheet rubber to the skin around the fistula and then folding the free edges of the rubber over to form a flattened tube which conducts the urine to a bottle was described by Sinclair[25] in 1909. McKenna[26] used a double rubber apron applied to the suprapubic region, the inner surface fitting closely to the skin.

VACUUM METHOD

The following is a description of the vacuum method as used at present in the James Buchanan Brady Urological Institute. This apparatus I have previously described,[27] but without the improvement in the form of a mercury manometer, which acts as a safety valve, permitting air to pass either in or out of the urine bottle as occasion requires. A glance at Figure 1 will give a general idea as to the principle of the apparatus. Within the large bottle is a vacuum, which is very gradually decreased in strength by leakage of air, through a minute capillary glass tube, from the smaller bottle, so that within the smaller bottle there is maintained an air pressure which is slightly less than one atmosphere. By virtue of this very slight difference in pressure, the urine is drawn out of the bladder, through the catheter and tube, and drips down into the small bottle, replacing the air which has leaked into the vacuum. The only care necessary is to empty the urine bottle when it fills, and to exhaust the air from the vacuum bottle at intervals of not less than forty-eight hours.

In the diagram (Fig. 2) the relative proportions are somewhat distorted for the sake of clearness. The bottles V and U have a capacity of 8 and 2 liters, respectively. The larger (V) is known to the trade as a two-gallon, narrow-mouth packing bottle, and the smaller is an ordinary two-quart mineral-water bottle. Bottle V is provided with an air-tight, four-hole rubber stopper through which pass two L-shaped pieces of glass tubing, one straight piece and one T. Bottle U has a two-hole stopper with glass tubes, as shown in the diagram. Catheter C, at the very tip of which there are several small perforations, passes into the bladder through the suprapubic wound, where it is held by strips of adhesive plaster, and is connected with the urine bottle by a rubber tube, with a lumen not more than 5 mm. in diameter. The only means of communication between bottles U and V is through the minute capillary tube (CT), which hangs within the vacuum bottle and which makes the rate of air flow from the smaller to the larger bottle exceedingly slow. The small mercury manometer, which also hangs within the vacuum bottle, and which measures the air pressure within the urine bottle, will be described below.

The capillary tube is shown in detail in Figure 3. The outer protecting sheath is a large glass tube about 1 cm. in diameter and 10 cm. long, with a constriction at the middle to support the cotton filter (F). At either end this tube resembles the open end of a vial, the glass being grooved to fit a screw-cap which holds the rubber stopper tightly in and withstands the inside air pressure. Both stoppers and screw-caps are perforated for smaller glass tubing. The air, coming from the urine bottle, enters through the upper stopper, then passes through the tightly packed cotton plug (F), where it is filtered, and finally forces its way through the capillary tube (CT) and on into the vacuum. The capillary tube is made from a piece of glass tubing 6 mm. in diameter, which is drawn and then redrawn to form an exceedingly fine, flexible, hairlike tube, the actual lumen of which varies between 30 and 40 microns, according to its length. Since the making and testing of these capillary tubes is quite complicated and time-consuming, it is an economy to buy them.

The manometer, with its two bulbs, as described below, is also made with some difficulty. For these reasons, and on account of the inconvenience of assembling the various other small parts, arrangements have been made with the Willms Surgical Instrument Company of Baltimore to furnish the entire apparatus. The method of testing the capillary tube has been previously described[27] in detail. In brief, the rate of air flow through the capillary tube is determined and regulated by connecting the large end with a vacuum of known strength, and causing the air which enters through the tube to bubble through a column of water as it is drawn into the vacuum. The most satisfactory caliber of capillary tube has been found to be that which permits an air flow of such a rate that seventy to eighty air bubbles per minute pass through the

18. Fowler, G. R.: A New Method of Drainage of the Bladder after Suprapubic Cystotomy, New York Med. Jour., 1889, l, 257.
19. Gerrish, F. H.: An Appliance for Preventing the Chief Annoyance Attending a Permanent Opening in the Bladder, Tr. Am. Surg. Assn., 1892, x, 235.
20. Dugan, W. C.: Jour. Cutan. and Gen.-Urin. Dis., 1895, xiii, 249.
21. Bloodgood, J. C.: A New Apparatus for the Immediate and Permanent Drainage of the Urinary Bladder after Suprapubic Cystostomy, Bull. Johns Hopkins Hosp., 1896, vii, 64.
22. Colt, G. H.: The Suprapubic Dressing, Lancet, London, 1906, ii, 860.
23. Finckh, E.: Zur Nachbehandlung der suprapubischen Cystotomie, Beitr. z. klin. Chir., 1908, lix, 78.
24. Irving, H.: The After-Treatment of Cases of Suprapubic Cystotomy: a New and Economic Method, Lancet, London, 1907, ii, 1756.
25. Sinclair, H. H.: The Control of Urinary Drainage after Cystotomy, Ann. Surg., 1911, liii, 387.
26. McKenna, C. M.: A Device in Suprapubic Openings, Surg., Gynec. and Obst., 1912, xiv, 635.
27. Davis, E. G.: A Vacuum Apparatus for Suprapubic Drainage, Surg., Gynec. and Obst., 1915, xxi, 245.

water, from a tube with a lumen 4 or 5 mm. in diameter, into a vacuum that will sustain a column of mercury 60 cm. in height. The piece of rubber tubing (see Fig. 2) attached to the lower end of the capillary tube obviates danger of breakage, by swinging as the bottle is carried.

The small U-shaped manometer, of glass tubing with a lumen of 5 mm., shown in detail in Figure 4, both indicates and regulates the air pressure within the urine bottle. It is placed within the vacuum bottle, as is the capillary tube, merely that the apparatus may be compact and safe from danger of breakage, but it connects directly with, and is really a part of, the equipment of the small bottle. It is shown in Figure 2 that this manometer communicates directly, by means of the T-tube, with the urine bottle, and that one arm passes in through the stopper of the vacuum bottle, while the other passes out again and communicates with the outside air. In the horizontal portion of the U-bend is a small amount of mercury (Hg), which, if sufficient pressure is exerted, will permit air to pass in either direction. Just at the lower end of the arm which communicates with the outside air is a small bulbous swelling in the glass which acts as a reservoir for the mercury. The bulb in the other arm, located about 5 or 6 cm. from the bottom, is merely to prevent the mercury from jumping out of the tube when the air bubbles through. In case the vacuum draws the air from the urine bottle more rapidly than it is replaced by urine, there will be a gradual decrease in pressure within U, as will be indicated by a very slow rise of the mercury in the arm of the manometer with higher bulb. But this pressure cannot continue to decrease, because the amount of mercury is limited, and after it has attained an elevation of about 20 mm. the supply of mercury in the lower bulb or reservoir has been consumed and air is allowed to bubble through, passing into the urine bottle. The direction of the air flow is as shown by the upper arrow in Figure 4.

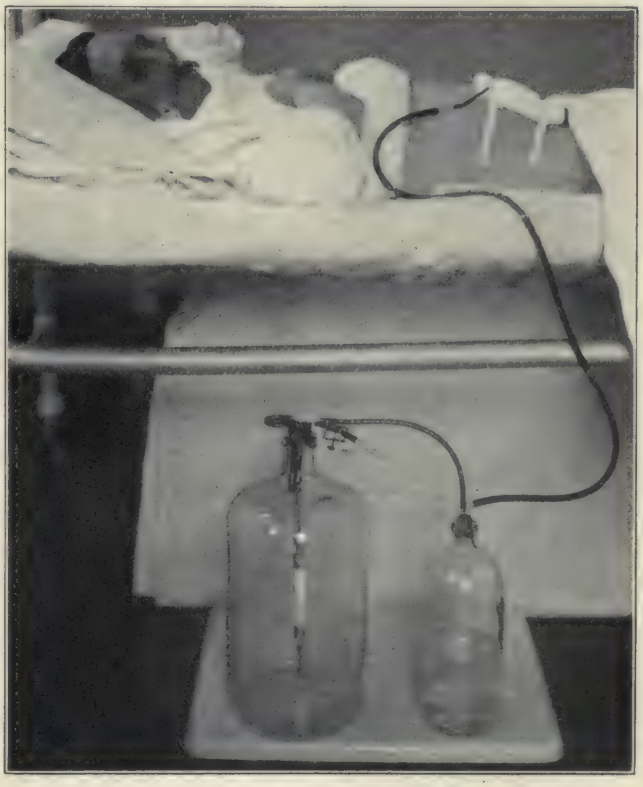


Fig. 1.—Entire apparatus in position. The bottles may be placed on the floor, or, in order to facilitate the moving of the bed, they may be suspended by an iron framework.

We thus have a safety valve which prevents the pressure within the urine bottle from differing from atmospheric pressure by more than 20 mm. of mercury, and which therefore prevents the catheter from exerting more than the gentlest suction within the bladder. Of course the amount of suction attainable varies directly with the amount of mercury placed in the manometer, and remains constant wherever desired. A very strong suction might be produced by making a manometer with a longer arm. For suprapubic drainage, a suction equivalent to 20 mm. of mercury, or even less, is sufficient. On the other hand, it is occasionally necessary that air pass through the manometer in the other direction, these occasions being when the rate of urinary secretion is sufficient to establish a siphon. The urine then flows into the urine bottle more rapidly than the air escapes through the capillary tube, and therefore the air pressure within the urine bottle becomes slightly more than one atmosphere. But this positive pressure does not immediately check the siphon flow, because the descending column of urine is about 40 cm. in height, which is equivalent to about 30 mm. of mercury. Before a positive pressure of more than perhaps 3 or 4 mm. has been attained, the mercury, with very little resistance, is displaced from the horizontal arm of the manometer into the lower bulb, where it spreads out, allowing the air to bubble by and escape through the open tube, and thus the siphon is permitted to continue to flow. This rapid siphon flow is only occasionally established; perhaps every other day or two with some patients, and not at all with others. The manometer, on these occasions, allows the escape of air and prevents leakage, which otherwise would occur in case the siphon flow should be checked by compressed air. In brief, the capillary tube takes care of the average urinary secretion, and the siphon action provides for any unusual excess, the mercury manometer making the siphon action possible.

During the preparation of this article I find that Perthes[28] in 1895 made use of a somewhat similar form of manometer, which permitted the entrance of air when a certain degree of lowered pressure was reached, and thus controlled the amount of suction produced by an apparatus devised for the drainage of empyemas. His manometer, however, made no provision for the escape of air, and his apparatus differed radically from the one I have described.

For renewing the vacuum, the ordinary laboratory hydraulic pump or filter pump (Fig. 6) is used, bottle V being disconnected from bottle U and carried to the pump, which may be located anywhere in the hospital. This filter pump is inexpensive and may be purchased from any laboratory supply house, together with a rubber-lined coupling which slips on to any water faucet; or, if a more permanent fixture than that shown in Figure 6 is desired, it is well to use a coupling which attaches to the faucet by means of screw threads. To exhaust the bottle the screw clamp is opened and the tube attached to the pump, the water

28. Perthes, G.: Ueber ein neues Verfahren zur Nachbehandlung der Operation des Empyems und zur Beseitigung des Pneumothorax, sofern er auf einem Defekt der Thoraxwand beruht, Beitr. z. klin. Chir., 1895, xx, 37.

being allowed to run perhaps seven or eight minutes, or any length of time in excess of this. The amount of time necessary, of course, varies with the size of the pump and the rate of the water flow. When the bottle has become sufficiently exhausted, a peculiar sucking noise is produced, similar to the sound caused by screwing the screw clamp shut while the water is running. The vacuum thus produced, which is of sufficient strength to sustain a column of mercury 750 mm. in height, will last at least forty-eight hours, providing the lumen of the capillary tube is of the correct diameter. Even after three days the vacuum bottle will not have become quite filled with air, and on two occasions, when the bottle was forgotten and allowed to run seventy-two instead of forty-eight hours, there was no leakage. After forty-eight hours, however, leakage might occur, because the rate of air flow, and therefore the amount of suction, varies inversely with the amount of air which is present in the vacuum bottle. For this reason the routine of renewing the vacuum every forty-eight hours was adopted.

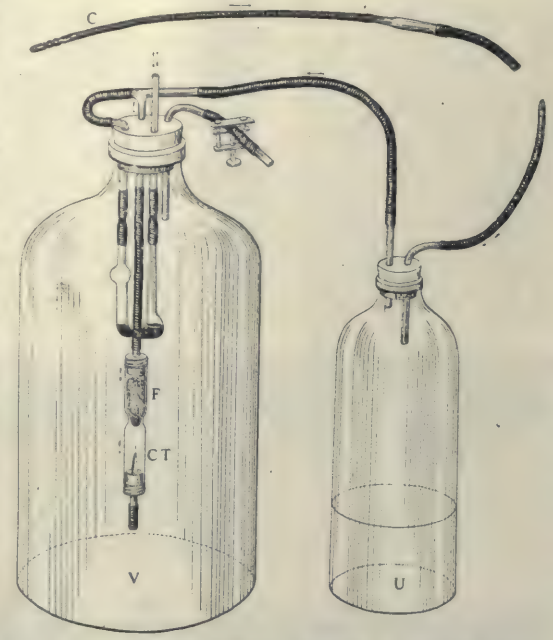


Fig. 2.—Diagram showing relations of various tubes. Arrows indicate direction of air flow.

The management of the apparatus is as follows: At the time of operation a small soft rubber tube or a large catheter, very near the tip of which are several small perforations, is left in the bladder. In case a prostatectomy has been done and there is much bleeding, it is necessary to use a large tube at first, and then substitute a smaller one later on. A tube with a lumen 5 mm. in diameter serves the purpose admirably, and, if there is no bleeding, may be used from the start. Bladder irrigations will prevent clogging of the tube with mucus and pus, but these are seldom necessary oftener than every three or four days, unless there is a marked cystitis. Most cases will drain well with no irrigations at all. When the tube or catheter is changed, which need not be more frequently than every three or four days, it should be replaced well down into the bladder. It should fit the sinus approximately, but, in order to insure perfect drainage, it need not fit tightly. Smaller catheters are substituted as the fistula granulates, one even as small as a 14 F. draining perfectly well. The rubber stopper must be kept tightly in the urine bottle. Care must be taken that the latter be emptied before it overflows, as otherwise urine would be drawn over to the vacuum bottle and the capillary tube clogged and ruined. For the same reason it is essential that, of the two glass tubes ending within the urine bottle, the one from which the urine drips should be the longer.



Fig. 3.—Detail of capillary tube, with outer protecting glass sheath; F, cotton filter; CT, capillary tube.

One may test the apparatus by simply compressing the tube connecting the two bottles, which has the same effect as a clogging of the catheter, and which should cause a slow rise of the mercury in the arm of the manometer up to a height of about 20 mm., and then a quick fall, due to the passage of an air bubble. Failure of the mercury to rise indicates either that the vacuum needs renewal or that the urine bottle has been allowed to overflow, thus clogging the capillary tube. The capillary tube and the manometer are delicate and should be handled with care. When once suspended within the vacuum bottle, they are safe and may remain permanently undisturbed. A small square pad of cotton or gauze, with a slit cut to the middle for the catheter, has been found to make a convenient dressing, strips of adhesive plaster holding both pad and catheter in place. Allowing the patient to sit up in a chair makes the drainage none the less perfect, the bottles being placed upon the floor by the side of the chair. A smaller, but shorter-lived, vacuum bottle has been used, and the patient allowed to roll about in a wheel chair with the two bottles upon the foot-board. While the patient is in bed, an iron framework is used, which suspends the bottles a few inches above the floor and permits the bed to be moved about with more convenience.

As the case records below show, the incisions are kept, not almost dry, but absolutely dry, and without a drop of urinary leakage for weeks at a time. The complete lack of moisture is shown by the fact that the dressing becomes adherent to the granulation tissue about the catheter. Another feature is the very slight amount of suction, which is just adequate and no more, and which permits the use of an unprotected suction catheter in the bladder with no damage to the mucosa and no discomfort to the patient. The catheter may therefore be decreased to a very small size as the fistula granulates, the interval between the removal of the catheter and the final healing being thus reduced to a minimum. Although the above detailed description is complicated, the apparatus itself is in a simple and compact form, and is automatic, being enclosed within a bottle which need never be uncorked. It requires minimum attention, and its action is not dependent on a water supply in the room, or on a motor. In all cases the sutured portions of the wound healed by first intention.

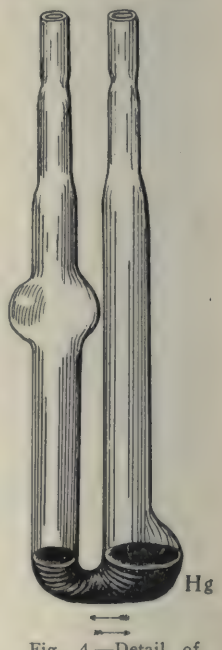


Fig. 4.—Detail of mercury manometer. Air may pass through in either direction, as indicated by the arrows; Hg, mercury.

CASE REPORTS

The following six cases are the last of a series of twenty-two. An accurate record of leakage was not kept in the other seventeen, but they did not differ materially from these here presented.

CASE 1.—The patient entered the hospital with a suprapubic cystostomy done elsewhere for drainage. The prostate was removed by the perineal route, and the vacuum drainage apparatus connected to a No. 14 French catheter in the suprapubic fistula. On the tenth day there was drainage of urine over the abdomen due to a clogging of the catheter with mucus, which was the only urinary leakage, during the entire convalescence, from either the suprapubic or the perineal wound. The suprapubic catheter was left in position for a period of thirty days, being changed every fourth or fifth day. Following its removal, the edges of the tiny fistula approximated, there being no urinary leakage whatever.

CASE 2.—A suprapubic cystostomy was done on account of a recto-urethral fistula. Continuous drainage was kept up for twenty-nine days. During this period the abdomen became wet once, on the fourteenth day, due to a clogging of the catheter, and with this exception remained entirely dry at all times. The catheter was changed every fourth or fifth day; there were no bladder irrigations.

CASE 3.—A suprapubic cystostomy was done on account of a periurethral abscess. From the viewpoint of efficient drainage this result was the most unsatisfactory of the entire series, probably because of the fact that the patient was continually delirious and in constant motion. He frequently tampered with the drainage tube and in fact pulled the catheter out of the bladder several times. The urinary leakage was quite marked on the third, fourth, fifth and sixth days, and also on the eleventh and seventeenth. Drainage on the other days, however, was perfect. There were no bladder irrigations. The patient left the hospital on the eighteenth day.

CASE 4.—A suprapubic prostatectomy was done following an incomplete perineal prostatectomy at another clinic some months previously. Continuous drainage was maintained for twenty-five days, there being urinary leakage on the first, second, and fourteenth days. The first leakage occurred by the catheter becoming clogged with mucus and pus, the result of an alkaline cystitis. This cystitis, which was quite severe, cleared up after three days. Leakage on the fourteenth day was due to the fact that the catheter was not placed well down into the bladder. Although the catheter was not removed until the fistula had become quite small, suprapubic drainage persisted until a retention catheter was placed in the urethra some days later. During the first ten days after operation, daily bladder irrigations were given.

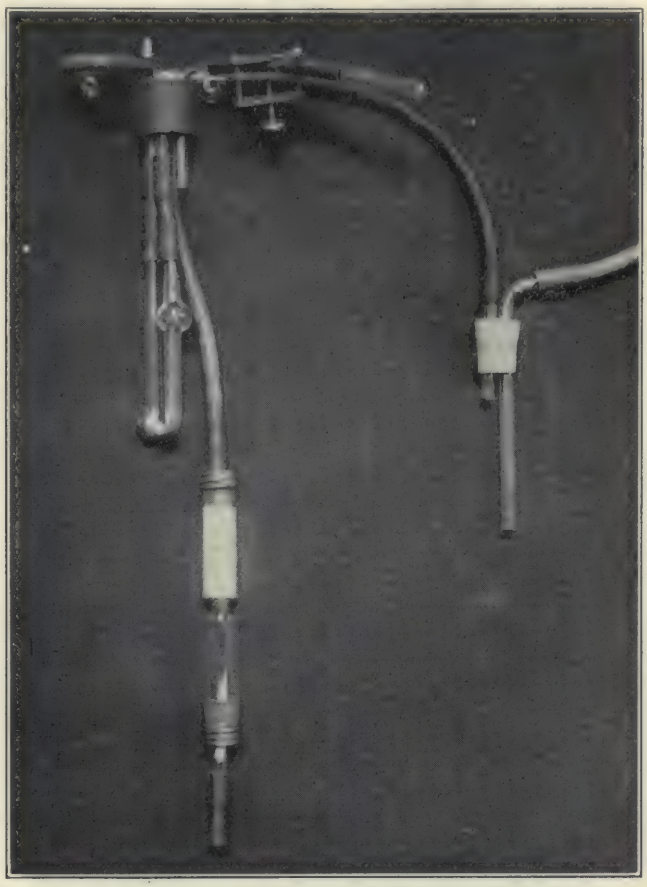


Fig. 5.—Capillary tube, manometer, rubber stoppers and connecting tubing, shown without bottles.

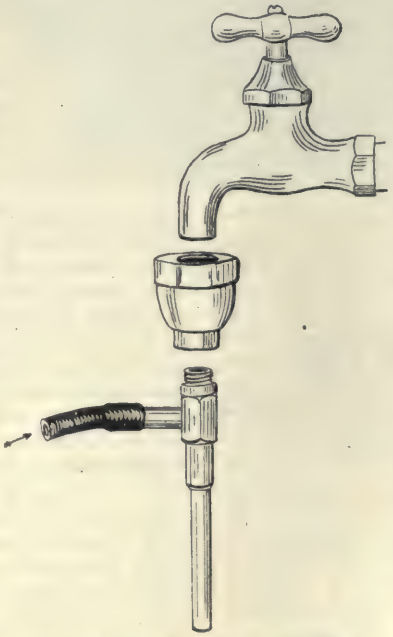


Fig. 6.—Filter pump and rubber-lined coupling for attaching to faucet without screw threads.

CASE 5.—Suprapubic drainage was necessary on account of an impermeable urethral stricture. Up to the present, the thirty-ninth day after the operation, the patient has been at all times entirely dry. The suprapubic catheter has been changed every fourth or fifth day.

CASE 6.—Through a suprapubic incision, a large pedunculated vesical tumor was excised with the cautery, and on account of the presence of mucus and blood and bits of slough, a drainage tube larger than usual was sutured into the bladder. A large tube, however, does not act well as a siphon. For this reason, the suction was connected to a catheter passed into the bladder through the large tube, the latter serving merely as a guide. Up to the present, the sixth day after the operation, there has been no leakage, the catheter having been changed once. When this method is used, it is necessary that there should be a water-tight joint where the catheter enters the larger tube. This is easily made by the use of a piece of large glass tubing about 5 cm. long, one end of which has been drawn out to such a size that it just admits the catheter, and the other end fitting tightly into the end of the large rubber tube. Where the catheter enters the glass tube, a small cuff of elastic rubber tubing, overlapping both, serves to prevent leakage and keeps the catheter from slipping. Thus, when it is necessary to remove the catheter, it may be easily replaced and retained at any depth in the bladder. It is advisable that the large tube be of such a length that this joint may lie in a horizontal position on the abdomen.

COMMENT BY DR. HUGH H. YOUNG

This ingenious apparatus, invented by Dr. Davis, has revolutionized the technic of urinary drainage at our clinic, completely transformed the postoperative treatment, changed the condition of the patient from soggy discomfort to cleanly comfort, and produced healthy dry granulating wounds in place of the unhealthy water-logged wounds with adherent urinary salts which we used to see. The devices upon which this automatic apparatus depends are as simple as they are clever; the preparation of the vacuum bottle every two days is an easy matter, and the man-

agement of the apparatus free from difficulties and complications. It is destined to do much for urinary surgery, as well as for other fields requiring constant drainage.[29]

THE SUPERNUMERARY URETER

REPORT OF A CASE OF COMPLETE UNILATERAL DUPLICATION

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Reports of supernumerary ureters are becoming more frequent, which very frequency demands records of all such cases, as it emphasizes the possibility of the existence of such an anomaly in every obscure condition of the upper urinary tract. While congenital change in a ureter may be associated with corresponding variation in the kidney, the ureteral condition, whether it be an alteration in form,[1] in location,[2] or in number,[3] will not infrequently be the principal factor in the production of a pathologic condition.

REPORT OF CASE

History.—Mrs. J. W., Polish, aged 26, with negative previous history, during the forenoon of April 15, 1914, experienced a sudden severe pain in the upper right abdomen, relieved somewhat by pressure, with no tendency to radiation and not associated with nausea or vomiting. The urine contained macroscopic blood, and a moving renal calculus was suspected; further diagnostic measures at this time, however, were refused. The patient was again seen, Aug. 7, 1915, when she came complaining of a marked dysuria with a constant throbbing pain over the bladder region. She was having frequent bladder spasms, at which time a few drops of bloody urine would be expelled. While the severe abdominal pain had not been repeated, during the past sixteen months she had had periods of bladder irritability. Her present attack began four months before, and gradually grew worse, until when seen she was having no rest night or day. She had missed the last two menstrual periods.

Physical Examination.—Palpation elicited tenderness over the bladder region, and vaginal examination, with pressure on the trigon of the bladder, was extremely painful. The terminal portion of the right ureter as palpated by the vagina was prominent and sore. There was a dull ache over the right kidney posteriorly, and deep fist percussion over this area produced pain. The temperature was 99.2, the pulse 100. The blood Wassermann was negative.

Catheterized bladder urine, 1½ ounces, contained 0.25 per cent. albumin, from five to ten pus cells and from ten to twelve blood cells to the ⅛ objective, with few short strings of streptococci. The last few drops of urine, as they flowed from the catheter, were red with fresh blood. Catheterization was painful.

Cystoscopic Examination.—Cystoscopy was performed, Aug. 14, 1915, and demonstrated a violently inflamed trigon with flakes of pus and mucus clinging to its raw surface. Just to the right of the median line, situated on the posterior margin of the trigon, was a small papilloma. Later twice applying the high frequency spark caused it to disappear entirely. The left ureteral meatus was normal in contour, but located at an abnormally high position in the bladder. On the right side of the bladder at its usual location was the right ureteral orifice, edematous and congested, while downward and inward from this meatus, in the substance of the trigon, was a third opening, almost round, larger than the normal and devoid of the normal liplike folds. The inflammatory process centered about this opening. There were two small ulcerations located as indicated in Figure 1. The remainder of the bladder was normal.

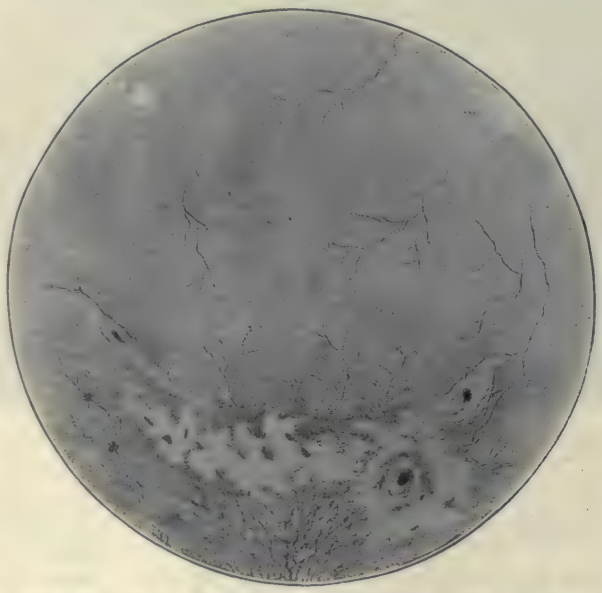


Fig. 1. — Cystoscopic findings demonstrating three ureteral meatuses. Note the irregularity of the bladder picture and that the inflammatory process completely surrounds the abnormal right opening, it seemingly being more intense in this region.

Urine was observed coming from the left and upper right openings in a normal manner, while from the lower right opening it could be detected only at long intervals and then not with normal force. At a later examination, Sept. 5, 1915, the opening was found entirely covered with mucus. It was watched for several minutes, but no urine was seen passing from this opening; but when with the tip of a ureteral catheter the mucus was removed, a larger quantity than had at any time previously been observed coming from it passed into the bladder. During ureteral micturition this opening did not advance into the cystoscopic field as does the normal, and it remained open when passive. The relative sizes of the three openings are accurately recorded in Figure 1.

Urine from the left kidney contained 2.6 per cent. urea. Phenolsulphonephthalein appeared from this kidney in three minutes, assuming a deep color in four minutes. Urine collected from the upper right opening contained an occasional short string of streptococci. Urea was 2.5 per cent., and phenolsulphonephthalein appeared in four minutes, assuming a deep color in seven minutes. Urine collected from the lower right opening showed an occasional pus cell, many strings of streptococci, urea only 0.3 per cent., and phenolsulphonephthalein appeared in fifteen minutes in traces only. The quantity of urine secreted was only one-third that collected through each of the other two catheters in the same length of time. Examinations for tubercle bacilli were negative.

Thorium nitrate was injected, and pyelograms were made of the right kidney (Fig. 2). Both kidneys were well up in place. The two pelves of the right kidney were completely separated, and the ureter from the rudimentary cephalic pelvis entered the bladder at the caudal opening. This ureter was the larger. The exact relative position of the two ureters in their course varied, as determined by roentgenograms taken at few minute intervals, the ureter from the lowermost pelvis being more mobile. Just before the ureters entered the bladder they crossed, the ureter leading to the lower-

29. In addition to the references already given, the following will be found of interest:
Hamilton, A.: An Apparatus for the Intermittent Postoperative Drainage of the Bladder, THE JOURNAL A. M. A., 1908, l, 962.
Connel, K.: A Suction Apparatus for Continuous Drainage, Ann. Surg., 1903, xxxvii, 886.
Wacobarn: Rev. méd., Jan. 1, 1899; abstr., THE JOURNAL A. M. A., 1899, xxxii, 432.
Walker, J. B.: Continuous Drainage of Bladder, Ann. Surg., 1899, xxx, 515.
Churchman, J. W.: The Use of Suction in the Postoperative Treatment of Bladder Cases, Bull. Johns Hopkins Hosp., 1916, xxvii, 69.
1. Eisendrath, D. N.: Ann. Surg., 1912, lv, 571.
2. Brewer: Ann. Surg., 1911, liii, 827.
3. Lewis: Med. Rec., New York, Oct. 6, 1906, p. 521.

most, supernumerary bladder opening passing posteriorly, a relation constant in all our roentgenograms.

In this review of our case, we wish to emphasize: (1) The frequency of the supernumerary ureter, (2) the surgical significance the anomaly may assume, and (3) the possibility of its recognition as a factor in the production of a pathologic condition early in the process.

THE FREQUENCY OF URETERAL DUPLICATION

Complete bilateral duplication of the ureters is rare. Levison,[4] in reviewing the subject in 1907, found only nine cases. Braasch[5] has observed only one case. The condition has been reported by Huntington,[6] Pawlow,[7] Wertheim,[8] Lydston,[9] Rumpel,[10] Kelly,[11] and others. A complete study of the anomaly was made by Brown, Englebach and Carmen[12] in reporting their case.

Complete unilateral duplication is more frequent. Motzfeldt[13] found twenty-three double ureters in 4,500 necropsies. Huntington,[14] in 5,000 dissections, is reported as having found only five cases of ureteral doubling. Wertheim,[8] in 500 operations for carcinoma of the uterus, records only six cases of complete unilateral duplication. In the clinical case demanding urologic investigation, the frequency is more marked. Pawlow[7] observed three cases and reports six others. Braasch, in 1912, reported seven cases of unilateral complete division of the ureter, and Weigert[15] saw seven cases in one year.

Huntington concludes from his dissections that the most common ureteral anomaly is a double pelvis and ureter, with the ureters uniting before entering the bladder. Cases of single pelvis with the ureter dividing above its insertion into the bladder have been reported. Ransohoff[16] states that a duplication of half of a ureter is present in 1 per cent. of all subjects.



Fig. 2.—Complete duplication of the right ureter and pelvis, as determined by ureteropyelography. A leaded catheter was inserted into the left ureter, and 2 c.c. of thorium nitrate were introduced that we might not fail to locate exactly the position of the left kidney.

THE SURGICAL SIGNIFICANCE OF THE SUPERNUMERARY URETER

Not infrequently ureteral anomalies, the surgical significance of which depends on the predisposition their very presence exerts on the development of hydronephrosis and infection, are associated with prenatal renal formations[17] which persist throughout life, rendering resistance to such changes below normal. The possibility of the existence of this congenital alteration of the kidney lends an added clinical importance to every case of supernumerary ureter. The surgical interest in a supernumerary ureter, however, is very much governed by the location of its meatus. Should the opening be extravesical, its correction is possible only by surgical intervention. When intravesical, its relative position in the bladder will influence its surgical importance. When located in the trigon near the vesical neck, the folds of the mucous membrane act as valves, closing the opening and resulting in hydronephrosis.[10] Should it be near the normal site of the ureteral meatus, this difficulty is not encountered; but if the opening be abnormally small, a condition which usually prevails, stasis is inevitable and infection is prone to occur. If the opening is of normal size and has its normal sphincterlike action, the condition can remain latent throughout life, and if discovered will be of no clinical interest; but when there are no liplike folds about the opening, and it remains open when passive, although of normal size, the condition becomes a potential one for harm. Draper and Braasch[18] assert that this "mechanical action of the valve can be dispensed with" if the "glomerulotubular pressure is maintained at normal."

In our case there was an absence of the sphincterlike action; the meatus did not grasp the introduced catheter as does the normal meatus; the orifice remained open at all times; it was the largest of the three meatuses, and we considered that the glomerulotubular pressure was lessened, as we felt justified in believing that merely sealing the meatus by mucus was sufficient to obstruct the flow of urine completely. The physiologic action[19] of the meatus being absent, and the force of the urinary efflux into the

4. Levison, referred to by White and Martin: Genito-Urinary and Venereal Diseases, Ed. 8, p. 506.
5. Braasch: Ann. Surg., 1912, lvi, 727.
6. Huntington: Harvey Lectures, Series II, 1906-1907, Philadelphia, J. B. Lippincott Co., 1908.
7. Pawlow: Deutsch. Ztschr. f. Chir., 1913, cxxi, 425.
8. Wertheim, quoted by Brown: Am. Jour. Obst., 1915, lxxi, 669.
9. Lydston: A Text-Book on Genito-Urinary, Venereal and Sexual Diseases, Philadelphia, F. A. Davis Co., 1900, p. 843.
10. Rumpel: Cystoscopy as Adjuvant in Surgery, New York, Rebman Co., 1910, p. 7.
11. Kelly and Burnam: Diseases of the Kidneys, Ureters and Bladder, New York, D. Appleton & Co., 1914, ii, 329.
12. Brown, Englebach and Carmen: Tr. South. Surg. and Gynec., Assn., 1909, xxii, 248.
13. Motzfeldt: Norsk Mag. f. Lægevidensk., July, 1914.
14. Huntington, quoted by Furniss: Am. Jour. Obst., 1915, lxxi, 669.
15. Weigert, quoted by von Bergman and Bull: System of Practical Surgery, Philadelphia, Lea Bros. & Co., 1904, v, 225.
16. Ransohoff: Keen's Surgery, Philadelphia, W. B. Saunders, 1909, iv, 203.
17. Losee: Am. Jour. Obst., 1915, lxxi, 672.
18. Draper, J. W., and Braasch, W. F.: The Function of the Ureterovesical Valve, THE JOURNAL A. M. A., Jan. 4, 1913, p. 20.
19. Kretschmer and Greer: Surg., Gynec. and Obst., 1915, xxi, 228. Pasteau, O.: Jour. d. 'urol., July 15, 1914; abstr., THE JOURNAL A. M. A., Aug. 29, 1914, p. 810. Eisendrath, D. N., and Kahn, J. V.: Rôle of the Lymphatics in Ascending Renal Infection, THE JOURNAL A. M. A., Feb. 19, 1916, p. 561.

bladder being below normal, conditions were ideal for regurgitation and infection from below, should such be possible.

As indicated, there was a wide variation in the character of the urine from the two ureters of the right kidney.

Certain writers[7] have suggested the possibility of the development of a constriction of one ureter at the point at which the two ureters cross, thus producing stasis, it usually being the ureter draining the cephalic pelvis most affected. In our case, because of the freely movable condition of the one ureter, such a complication would seem improbable.

In a partial duplication of a ureter, the narrowing of the canal at its point of division, and the change in its projection thus produced, will often lend the condition a surgical importance.

THE DETECTION OF THE SUPERNUMERARY URETER PRODUCING SYMPTOMS

The clinical history of a constant incontinence associated with periods of normal urination at once suggests the existence of a supernumerary ureter with an extravesical opening. It may be extremely difficult to locate the orifice of a supernumerary aberrant ureter. Furniss[20] and Kelly[11] have exhaustively reviewed the various locations of these meatuses and the difficulties encountered in their detection. When the opening is intravesical, this symptom does not obtain, and the determination that an existing renal stasis or infection is associated with a ureteral anomaly, by the symptomatology alone, is impossible.

Many such anomalies will at once be recognized by cystoscopy, and there is always some irregularity in the bladder picture. But should the opening of the third ureter be among the folds of the trigon or vesical neck, chromo-ureteroscopy may be necessary. Mucus covering the opening, as in our case, may prove confusing, and add to the difficulties in a diagnosis. Should a ureteral division exist above its vesical opening, the anomaly cannot be diagnosed by cystoscopy alone. Pawlow records a case of complete duplication of the ureter until the bladder wall was reached when the two ureters joined, having a common bladder opening. It is by the combined use of the cystoscope and Roentgen ray that such cases may be detected. In every cystoscopically diagnosable ureteral anomaly, the course of the ureters should be determined, by means of the roentgenogram with leaded ureteral catheters inserted; but in cases such as Pawlow[7] and Young[21] report, this may be insufficient and misleading, when pyelography will be necessary. Any anatomic or physiologic alteration in the pelvis can thus be determined also. That the case of partial ureteral duplication may be identified, the ureteral catheter should be introduced just within the meatus, and the thorium allowed to flow into the ureter. Findings at dissection would indicate that many cases of partial duplication are being overlooked by the clinician. The Roentgen ray alone, because of the enlarged kidney shadow, may suggest the anomaly, yet an accurate diagnosis cannot thus be made.[22] The functional and bacteriologic tests, possible with the separate collection of urine through the catheter, have the same diagnostic value as in other urologic cases.

20. Furniss: Surg., Gynec. and Obst., 1914, xviii, 584.
21. Young, quoted by Kelly and Burnam (Footnote 11).
22. Brown: Boston Med. and Surg. Jour., 1914, clxxi, 373.

It is most often the ureter draining the cephalic pelvis which has the abnormally placed opening, which is usually lower and nearer the midline, conforming to Weigert's rule. Braasch[5] reports by illustration two cases with the ureter draining the cephalic pelvis entering the bladder at the cephalic vesical orifice.

With the examination of a case as thus outlined, it is possible to recognize clinically every case of ureteral anomaly, and determine its surgical importance before a terminal pathology is encountered.

With all available data in our case, any explanation of the attack of abdominal pain in 1914 must be purely speculative. We had a complete duplication of the right ureter, with separation of the two pelves, the cephalic one being rudimentary. There was evidence of infection of this supernumerary pelvis, and the function of this portion of the kidney was poor. With the progress of pregnancy, postural treatments and the employment of urinary antiseptics, the bladder symptoms disappeared. The dull ache remained over the right lumbar region, and cystoscopy demonstrated, Dec. 20, 1915, the third opening still inflamed, with an existing edema of the subjacent mucosa. The remainder of the bladder was normal.

There was no special diagnostic significance in the presence of the papilloma.

CONCLUSIONS

1. Supernumerary ureters are more common than generally appreciated by the clinician.
2. They may be productive of a pathologic condition demanding surgical correction.
3. An otherwise benign condition may be rendered malignant through the association with a supernumerary ureter.
4. Their recognition is possible in every case.
5. In our case, the unilateral duplication had a direct bearing on the progress of the pathologic process.

THE TREATMENT OF GONORRHEAL FOLLICULITIS BY CAUTERIZATION WITH THE D'ARSONVAL CURRENT

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In July, 1915, Swinburne[1] directed attention to fulguration in the treatment of gonorrheal folliculitis. Since October, 1915, we have employed the method suggested by him and desire to record the unusually satisfactory results obtained by this treatment in recurrent and chronic gonorrhea.

For many years we have understood the part played by the glands of Littré and the crypts of Morgagni in harboring the gonococci where medication could not reach them. Knowing this, however, heretofore has been of small importance because there was no definite, dependable remedy to eradicate the organisms or destroy their foci. To Swinburne belongs the credit for evolving a method for the destruction of these protected recesses. This can be readily and certainly done by inserting an electrode into the follicle

1. Swinburne: Med. Rec., New York, July 31, 1915.

and applying the d'Arsonval bipolar current; this is much more satisfactory to deal with than the Oudin monopolar current. Within from two to ten seconds the follicle and tissue immediately around it have become white, and in about one to three weeks it sloughs away, leaving only a smooth granulating surface which finally becomes covered with epithelium and the follicle no longer exists. The patient's immunity, which was able to eradicate the organisms except in protected recesses, now completes the cure if all the recesses have been destroyed and the adnexa are not infected.

SELECTION OF PATIENTS

Naturally acute or subacute conditions should not be treated in this manner. There are many patients who remain free from discharge while under ordinary treatment, but who have a relapse when the injections and irrigations are discontinued, or after dissipation or coitus. If the prostate and seminal vesicles are eliminated as possible foci, the chances are about twenty to one that infected follicles keep up the inflammation. This is at times strikingly shown by the disappearance or great reduction in the discharge or shreds within one or two days after the cauterization of inflamed pockets. If the persistent discharge and shreds were not caused by these foci of infection, their disappearance after cauterization of the follicles could hardly have been expected to occur. Of course

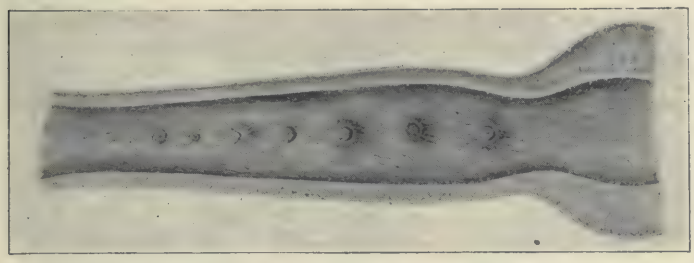


Fig. 1.—Diagrammatic drawing of a segment of the roof of the urethra, showing glands of Littré and crypts of Morgagni.

such a prompt improvement many times does not result, though when it does it proves our contention. At times, especially in subacute recurrences, with immunity lowered, the discharge may be made worse by endoscopy and high frequency. Irrigations and injections of mild remedies may be continued, however, just as if the high frequency treatment had not been administered. This will soon control the recurrence if it should develop.

When all the foci have been destroyed, a continuation of mild remedies will then effect a cure without further relapses. It does not seem difficult for Nature to secure immunity to gonococci on a smooth urethral mucosa. Infected follicles provide conditions which are unfavorable for the immunizing processes, especially in chronic infections. This probably accounts for the uncertain results in the treatment of gonorrhea and for the lack of uniformity with vaccine therapy. The average patient is largely immune to gonococci except on mucous and serous surfaces, and even here local immunity can be developed with a fair degree of ease if protected recesses are absent or can be destroyed. In terms of modern warfare, we may say that the organisms may be destroyed without much difficulty by Nature's medical artillery if the infection is not protected in the trenches. The high frequency current is the gonococcal trench destroyer. This becomes readily apparent when an endoscopic examination is made a few weeks after follicles have been cauterized, and at their former sites we find only smooth mucosa. Heretofore chronic and recurrent gonorrhea, even in the hands of experts, did not receive treatment that could be depended on to afford definite results in a very encouraging percentage of cases. We knew the advantage of massage of the prostate, and realized the persistent character of seminal vesiculitis; but many patients who did not have such complications were not infrequently refractory to treatment because of infected follicles. Since Swinburne has suggested to us an effective means of destroying these foci, this former bugbear of medicine can be placed on an accurate scientific basis which will

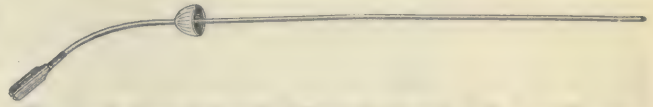


Fig. 2.—Ordinary fulgurating electrode, showing only a small amount of exposed wire beyond the insulation.

afford results as certain as our judgment is accurate in selecting appropriate cases and directly in proportion to the skill we exercise in detecting and destroying all of the protected recesses. As previously stated, we should not expect this treatment to cure prostatitis and seminal vesiculitis.

Fulguration is of particular value in chronic folliculitis in which there is a beaded condition of the urethral canal, although more frequently recurrent infections result from infected follicles which have not sufficient infiltration to render them palpable.

INSTRUMENTS

The most satisfactory urethroscope both for diagnosis and cauterization is McCarthy's improved cystourethroscope. This permits an easy examination and provides a constant flow of cool sterile water. The electrode should be one which may be inserted into the bottom of the follicle and thus cauterize the entire tract. The insulating sheath should extend only beyond the lever for controlling the distal point of the electrode. This kind of an electrode may be made by inserting a silver wire, of about 22 gage, through a urethral catheter. A small bulb may be made on the end of the silver wire by holding it in a Bunsen flame until it melts. Such a bulb on the end of the electrode facilitates its introduction into the depths of the folli-

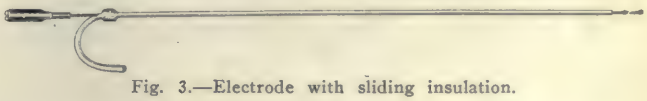


Fig. 3.—Electrode with sliding insulation.

cle. Some of the early failures were due to the fact that the electrodes used were placed only over the openings of the follicles and not inserted into their depths, as they should have been; for on subsequent examinations the follicles were still present.

By moving the silver wire up and down through the insulating sheath, the desired amount of exposed electrode may be obtained. The amount of exposure needed, of course, varies with the depth of the follicles to be cauterized. The sheath should be wrapped with adhesive plaster around its proximal end so as to form a bulbous mass to prevent its passing too far into the urethroscope when the wire is advanced. The illustrations show several types of electrodes we have made

with silver wire and small rubber tubing. A small rubber cap is placed over the electrode to prevent the irrigating solution from spraying on the surgeon's face. A rubber band rather tightly applied around the penis just back of the corona will cause good dilation of the urethra without unnecessary wastage of irrigating solution. Each follicle is cauterized until it becomes distinctly white.

REPETITION OF CAUTERIZATION

The treatment with the high frequency current may be repeated in from two to three weeks, as indicated by the reactions and by persisting manifestations of infected follicles. Inflammation of the prostate and seminal vesicles should receive appropriate treatment during this time.

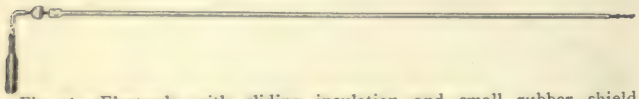


Fig. 4.—Electrode with sliding insulation and small rubber shield to prevent the squirting of irrigating solution into the examiner's eye.

The following case histories have been selected from fifty-four patients treated with the high frequency current for persisting or recurrent urethritis. Some had been treated for as long as six years by a number of physicians and specialists, but the discharge and urethral shreds still continued. Two or three treatments were the average required after we learned the importance of inserting the electrode to the bottom of the pocket and to apply the current until the mucosa overlying it turned white. A number of the patients returned to their homes and allowed their physicians to continue mild irrigations. During the two or three weeks' interval it was most gratifying to note the marked improvement in some of these patients who had for years been unsuccessfully treated by the usual measures. Without burdening the reader with the details of many of the histories, we should like merely to say that, in suitable cases, we have never been able to secure such definite and prompt results by any measure or remedy hitherto advised for this class of patients.

REPORTS OF CASES

CASE 1.—Mr. A., with gonorrhea of four months' duration, thought himself cured, and married without examination to determine the absence of gonococci. Recurrence developed on the wedding trip before he indulged in coitus with his wife, and he reported for treatment two days later with a slight purulent discharge with many typical intracellular diplococci. An examination was made with McCarthy's cysto-urethroscope, and two inflamed glands of Littré were found on the roof of the urethra about 1 inch back of the meatus. These were fulgurated until they became white. The discharge did not recur after this treatment. The urine has since remained clear in spite of alcoholic and sexual excesses.

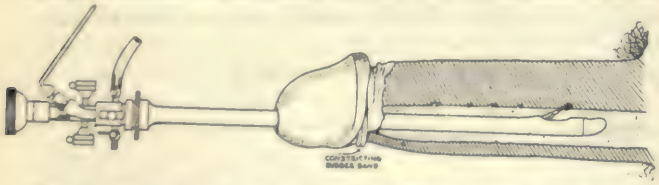


Fig. 5.—Sagittal section of penis with McCarthy's water dilating cysto-urethroscope in position, with electrode inserted into a gland of Littré ready for fulguration.

CASE 2.—Mr. B., with gonorrhea of four months' duration, thought himself cured three times, but on discontinuation of treatment the discharge would recur. Fulguration of six glands of Littré and one lacuna of morgagni in the roof of the urethra caused an increase in the discharge and shreds in the urine for four days. Mild irrigations of potassium permanganate soon cleared the urine of pus and shreds. There has been no further recurrence.

CASE 3.—Mr. C. had had gonorrhea three years ago, but a discharge had been seen more or less constantly in the mornings during this time, and the urine always showed mucous and pus shreds, though no gonococci could be found in the discharge. The prostate and seminal vesicles were normal. Endoscopy showed five distinctly inflamed glands of Littré. These were cauterized with the high frequency current, but the discharge continued though in a smaller quantity for three weeks, when another fulguration treatment was given to two follicles which had been incompletely destroyed. Within two weeks the discharge ceased, the urine became clear, and no further relapse has occurred.

CASE 4.—Mr. D. had gonorrhea six years ago, and had never been free from discharge since. Eight beadlike masses varying in size from a shot to a bean could be palpated along the urethra. These were treated by fulguration; there was a prompt reduction in the size of the lumps, though the discharge continued. In eighteen days another treatment was given with the high frequency current, and five inflamed indurated follicles were cauterized. While the condition was improved, there could still be felt two nodules at the end of three weeks when these were deeply cauterized. The urine is now nearly clear, and the morning discharge no longer appears.

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THE DURATION OF THE NURSING PERIOD IN WOMEN OF THE UNITED STATES

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It is of interest to know the present average length of breast feeding and to determine any change which has occurred in recent years.

Such a study is more readily undertaken because of the paucity of statistics on the subject in this country, and because of the difference of opinion which prevails regarding the increase or the decline of nursing ability in American women. This difference of opinion is well illustrated by comparison of the statements of two eminent authorities. Holt[1] says: "In spite of all effort to the contrary, it is nevertheless a fact that the capacity for maternal nursing is steadily diminishing in this country." On the other hand, Griffith[2] says: "The ability to nurse is no longer materially diminishing, provided the woman has been raised and continues under healthy normal conditions. These conditions are improving in the upper classes and are not changing for the worse in the poorer." Dr. Griffith's statement applies, not only to this country, but to civilized nations in general.

It is needless to call attention to the vast importance of such a subject. One realizes the great advantage of maternal over artificial feeding, but it is brought home very forcibly by statistics, such as those of Davis,[3] which show that above the age of two weeks the proportion of deaths in bottle-fed babies is six times that of breast-fed babies.

1. Holt, L. E.: Infancy and Childhood, D. Appleton & Co., New York and London, Ed. 4, 1908, p. 168.
2. Griffith, J. P. C.: The Ability of Mothers to Nurse Their Children, THE JOURNAL A. M. A., Nov. 23, 1912, p. 1874.
3. Davis, W. H.: Am. Jour. Pub. Health, 1912, ii, 67.

Our task in this matter is clear. Many times breast feeding is unnecessarily stopped. Most authors agree that in such instances the ignorance of the laity plays an important rôle, but that this is perhaps secondary to the lack of perseverence of the physician. Martin,[4] working in the Midwife School of Stuttgart, found that from 1884 to 1903, of 10,000 mothers, 88.2 per cent. nursed, 10.5 per cent. partly nursed, and 1.3 per cent. did not nurse at all. Later they were able to make all the mothers nurse. Thorn,[5] quoting Oppenheimer of Munich, says: "Of 1,000 mothers, 642 did not nurse, of whom only 31 had valid reason for not performing their maternal duty." Thorn believes that with encouragement, care and proper feeding, 90 per cent. of all mothers are able to nurse.

In our own studies it will be seen that about 20 per cent. of American mothers of a certain class never suckle their offspring. One cannot resist the temptation here to plead for a lessening of this number. Education of the laity to the advantage of breast feeding and the danger of bottle feeding; proper care of the breast during and after pregnancy; and regulation of the mother's health, habits and diet should help us to encourage and prolong lactation.

Many of the German statistics are taken from maternity hospitals. Absolutely accurate statistics are available practically only in such institutions, but patients are discharged from them usually at the expiration of ten days or two weeks. The problem obviously does not lie here, although it is important to remember that the foundation for successful breast feeding is often determined in this interval. It is at this time that the obstetrician might work in conjunction with the pediatrist with profit, and perhaps with some reduction in infant mortality.

Pistor[6] in 1894 collected 12,809 cases from the midwife tables in Freiburg, in 24 per cent. of which the mothers did not suckle at all. Wiedow[6] in 1895 recorded that of 525 women from the Frauenklinik at Freiburg, only one half could suckle after the first two weeks. Keller[7] found that about 30 per cent. of children were exclusively artificially fed. In Hohlfeld's[8] statistics on 5,023 nursing women, 27.5 per cent. continued to nurse over six months, and Weiss[9] in his studies on 1,622 cases reported that 25 per cent. nursed longer than this period. Bluhm,[10] from a review of German literature, concluded that a third of German women nursed sufficiently, somewhat more than a third were physically unable to nurse, and less than a third nursed insufficiently or not at all, from deficiency of intelligence and desire, or because of social conditions.

In England, Blacker[11] found that of 1,000 cases taken from the poor, only 2.4 per cent. never suckled; while 74.7 per cent. suckled their children seven months or longer. Fordyce,[12] in 374 deliveries of 100 mothers, stated that 69 per cent. of the babies were nursed on the breast wholly or partly for at least two months, the average being ten months; and that the average period of lactation was as long in later as in earlier infants.

4. Martin, G.: Arch. f. Gynäk., 1904-1905, lxxiv, 513.
5. Thorn: München. med. Wchnschr., 1907, liv, 513.
6. Pistor and Wiedow, quoted by Blacker, G. F.: Med. Chron., 1900, Series 3, ii, 323.
7. Keller, quoted by Thorn: München. med. Wchnschr., 1907, liv, 513.
8. Hohlfeld, M.: Deutsch. med. Wchnschr., 1905, xxxi, 1391.
9. Weiss, quoted by Griffith: Med. Klin., 1911, vii, 644.
10. Bluhm, A.: Ztschr. f. soziale Med., Berlin, 1907-1908, iii, 72, 161, 261.
11. Blacker, G. F.: Med. Chron., 1900, Series 3, ii, 323.
12. Fordyce, A. D.: Lancet, London, 1906, i, 221.

In this country some of the statistics are of interest. Dr. Eleanor Jones[13] quotes the studies of Schwartz of 1,500 women, of whom 96 per cent. nursed one month or less, 88 per cent. three months and 77 per cent. six months. The result of a questionnaire sent by Sedgewick to married physicians in the United States is also mentioned. It reveals that 80 per cent. of wives of American physicians succeed in nursing one or more children three months or longer.

Koplik[14] found of 1,007 infants, seen in private practice, 56 per cent. were breast-fed, and of these, only 40 per cent. longer than four months. According to Snyder,[15] a study of 1,000 mothers is contained in a recent pediatric work. Five hundred were poor and living in tenements, and 90 per cent. of these mothers nursed nine months. The other 500 mothers were prosperous and lived in healthy surroundings, but only 17 per cent. nursed nine months.

The value of statistics such as these depends on the number of cases, the memory and intelligence of the mother or person giving the history, and the accuracy with which the history is taken.

It is the object of this communication to present an analysis of almost 3,000 cases taken from the records of the Children's Hospital during the last fifteen years. As it was the desire to determine as far as possible the ability of the mother to nurse, many cases were excluded. It was the duration of the physiologic period of lactation, apart from disease or deliberate act of the mother, which was the problem to be solved. Thus, when the records showed that the mother stopped nursing from some such cause as going to work; or lactation was terminated by an acute infection, or mammary abscess, the case was not included.

It may certainly be stated, however, that the statistics to be presented show with reasonable accuracy the length of breast feeding in the hospital class of Philadelphia women. These women are of different nationalities, including Italian, German, Russian, Irish, Armenian and others. Many of them are native-born Americans, and a fairly large percentage consist of Jewish and colored women. They therefore should represent the same classes which are found in most of the large American cities, at least along the eastern seaboard.

It must also be remembered that many babies admitted to the hospital in the summer are suffering from gastro-enteritis or gastric and intestinal disturbance of some type. It is not to be denied that this condition is much more frequent in bottle-fed babies, and that the bottle-fed baby is more liable to acute infections and illness of any nature than the breast-fed baby. Reasoning from this, we must come to the conclusion that the average length of breast feeding in babies admitted to the hospital is less than for babies of the same class not admitted to the hospital. This statement is made advisedly. Consultation with social workers in Philadelphia shows that they seldom encounter mothers who never nurse their children.

One must understand that in getting a history of breast feeding the baby has not necessarily been wholly breast fed during the entire period stated, but has been receiving most of its nourishment in this way.

From the beginning of 1900 to the end of 1904 there were 734 cases in which the average length of lactation

13. Jones, E.: Arch. Pediat., 1914, xxxi, 24.
14. Koplik, quoted by Griffith, J. P. C. (Footnote 2).
15. Snyder, J. R.: The Breast Milk Problem, THE JOURNAL A. M. A., Oct. 10, 1908, p. 1212.

was 5.92 months. From the beginning of 1905 to the end of 1909 there were 827 cases with an average of 6.36 months. From the beginning of 1910 to the end of 1914 there were 1,258 cases with an average of 5.76 months. Therefore, of a total of 2,819 cases during the fifteen years, the average length of lactation was 6 months.[16]

Table 1 shows a study of the statements of 2,819 mothers when questioned regarding the length of time their children were breast fed. It is seen that there

TABLE 1.—PERIOD OF BREAST FEEDING IN THE CASE OF 2,819 MOTHERS, EXTENDING OVER A PERIOD OF FIFTEEN YEARS

Period of Breast Feeding, in Months	1900 to 1904 Per Cent.	1905 to 1909 Per Cent.	1910 to 1914 Per Cent.	1900 to 1914 Per Cent.
Not breast fed	21.117	18.256	19.713	19.695
1 wk. to 1 mo.	14.033	14.749	16.136	14.972
1 to 2	9.537	10.035	11.923	10.498
2 to 3	6.948	7.858	5.882	6.896
3 to 4	3.267	2.780	3.338	3.128
4 to 5	2.997	3.022	2.305	2.775
5 to 6	4.632	3.868	2.940	3.813
6 to 7	1.634	1.934	2.146	1.905
7 to 8	2.725	2.539	2.146	2.470
8 to 9	3.133	2.781	2.305	2.739
9 to 10	2.129	1.692	1.669	1.841
10 to 11	1.362	3.022	1.510	1.965
11 to 12	7.084	8.342	8.982	8.136
12 to 13	1.908	2.901	1.826	2.212
13 to 14	1.908	4.473	2.225	2.865
14 to 15	3.267	2.418	2.146	2.610
15 to 16	1.498	1.088	1.510	1.365
16 to 17	0.954	0.605	1.258	0.939
17 to 18	5.177	4.715	5.087	4.993
18 to 19	0.545	0.249	0.556	0.450
19 to 20	0.817	0.249	0.715	0.593
20 to 21	0.545	0.121	0.476	0.381
21 to 22	0.408	0.121	0.318	0.282
22 to 23	0.136	0.121	0.159	0.138
23 to 24	1.908	1.572	2.702	2.061
Over 24 mo.	0.272	0.487	0.397	0.385

has been no appreciable decline in the length of maternal nursing in the last fifteen years. The rather higher percentage of cases at from 11 to 12 months, from 17 to 18 months and from 23 to 24 months is caused by the fact that here the mothers' statements that "baby nursed a year," "baby nursed a year and a half," and "baby nursed two years," are included.

It will be perhaps more clearly shown, especially in comparison with other statistics, if the fifteen years' average is put in a different way. These averages are shown in Table 2.

TABLE 2.—PERIOD OF NURSING IN THE CASE OF 2,819 MOTHERS, SHOWN IN AVERAGE PERCENTAGES, COVERING A PERIOD OF FIFTEEN YEARS

Average Percentage	Period of Nursing, Months	Average Percentage	Period of Nursing, Months
19.69	Did not nurse	19.23	13 or longer
80.31	1* or longer	17.02	14 or longer
65.34	2 or longer	14.16	15 or longer
54.85	3 or longer	11.55	16 or longer
47.96	4 or longer	10.19	17 or longer
44.84	5 or longer	9.26	18 or longer
42.07	6 or longer	4.27	19 or longer
38.26	7 or longer	3.82	20 or longer
36.36	8 or longer	3.23	21 or longer
33.89	9 or longer	2.85	22 or longer
31.16	10 or longer	2.57	23 or longer
29.32	11 or longer	2.44	24 or longer
27.36	12 or longer	.38	Nursed over 24

* One week.

If it is borne in mind that we are studying the statements of the poorer class of city women, we may be justified in drawing the following conclusions:

1. There has been no decline in breast feeding in the last fifteen years.

2. The women of the poorer class compare favorably in the period of lactation with the women of the more prosperous class in this country.

3. The women of this country compare favorably in the period of lactation with European women.

4. The average period of lactation in children entered at the hospital was six months.

5. Twenty per cent. of the women did not nurse their children; 80 per cent. nursed one week or longer; 55 per cent. nursed three months or longer; 42 per cent. nursed six months or longer; 34 per cent. nursed nine months or longer; 27 per cent. nursed a year or longer, 9 per cent nursed eighteen months or longer, and 2 per cent. nursed two years.

6. For the reason previously pointed out, namely, the greater susceptibility of artificially fed babies to gastro-intestinal and nutritional disturbance, the infants brought to the hospital were, in the large majority of cases, bottle fed at the time of their entrance there. The conclusion is inevitable that the figures given represent the minimum of lactation.

1805 Pine Street.

16. In presenting these statistics, I realize they are open to criticism because they include the extremes. The average includes all cases.

THE ETIOLOGY OF TYPHUS FEVER IN MEXICO (TABARDILLO)

PRELIMINARY COMMUNICATION *

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BERNARD S. DENZER, M.D.
AND
CARLOS E. HUSK, M.D.
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The work covered by this report was begun in February, 1916, in Matehuala, Mexico, and was interrupted in the early part of March because of the necessity of Americans leaving that country. Studies were made of the blood of typhus fever patients to determine whether an organism could be recovered, and, if so, whether it conformed with the organism described by Plotz, Olitsky and Baehr[1] in the blood of endemic typhus fever patients in New York and in cases of typhus fever in Serbian immigrants quarantined in New York harbor. The blood of the patients when injected into guinea-pigs gave the characteristic typhus reaction. The first three blood cultures were made in a medium containing 0.5 per cent. glucose, and an organism was recovered in one case. Cultures were made in twenty-eight cases with a 2 per cent. glucose medium, which is the sugar concentration used in the earlier work in New York. Of the latter cultures only eight could be observed a sufficiently long time, and in all of them the same organism was found.

The organism is an obligate anaerobic gram-positive bacillus which in morphology and cultural characteristics, including acid production in various carbohydrates, is identical with the *Bacillus typhi-exanthematici*. The injection into a guinea-pig of a colony taken directly from the blood culture tube proved the organism to be pathogenic. Agglutination tests performed with serums taken in different stages of the disease showed negative results during the early part

* From the Pathological Laboratory, Mount Sinai Hospital.

* March 20, 1916, shortly after the departure from Mexico, Dr. Husk succumbed to an attack of typhus fever contracted in the prosecution of this work.

* This work was carried out with the aid of a donation made by a number of the directors of the Mount Sinai Hospital and the George Blumenthal, Jr., Fellowship in Pathology. We wish to express our indebtedness to the officials of the American Smelting and Refining Company, whose cooperation enabled us to undertake the work.

1. Plotz, Olitsky and Baehr: Jour. Infect. Dis., 1915, xvii, 1.

of the illness, an occasional positive reaction at or near the crisis, and uniformly positive results after the crisis.

In cultures made from lice taken from the clothing of typhus fever patients, the same organism was obtained. The injection of lice into guinea-pigs produced a febrile reaction, and at necropsy the characteristic splenic lesion was found. In cultures from the spleen, an organism was recovered showing the morphologic characteristics of the *Bacillus typhi-exanthematici,* but on account of the sudden termination of the work, the organism could not be further studied.

ELECTIVE LOCALIZATION IN THE BRONCHIAL MUSCULATURE OF STREPTOCOCCI

FROM THE SPUTUM OF CASES OF BRONCHIAL ASTHMA: PRELIMINARY REPORT

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According to the work of recent investigators and observations of clinicians, it has become evident that the phenomena observed in an attack of bronchial asthma are fundamentally due to a tonic spasm of the bronchial musculature. Just what is the cause of the spasm is still a matter of conjecture. Recently Koessler[1] has reported the finding of a fusiform anaerobic bacillus in the sputum of asthmatic patients which he regards as possibly specific, the evidence being mainly its presence in a large number of cases. He also reports the success of vaccine treatment, which has been especially marked in the cases in which this organism was present in the sputum. The sputum in these cases has, however, contained certain other organisms, notably the pneumococcus, *Streptococcus hemolyticus* and *Streptococcus viridans.* As further evidence of the bacterial origin of the disease is the presence in a large percentage of the cases of associated lesions, particularly of the nasal passages, which strongly suggests a primary focus of infection. The removal of such a focus has often caused a marked improvement in the condition of the patient.

The foregoing evidence suggested to me the possibility of the reproduction of the disease in lower animals by the intravenous injection of cultures of the sputum of asthmatic patients. The reproduction of Rosenow has shown repeatedly, and in a great variety of pathologic conditions, that bacteria (streptococci) display an elective affinity for certain tissues. In our work on herpes zoster[2] we have shown that streptococci isolated from the tonsils, the pyorrheal pockets, the spinal fluid and the sputum of cases of herpes zoster have an elective affinity for the posterior root ganglia. The technic employed in these experiments was essentially the same as that used in the experimental work cited above.

The three cases thus studied were selected to represent different types and stages of the disease. In the first case, a man, aged 39, has had asthma of a particularly severe type for seventeen years, and there is also present a marked bronchitis with profuse expectoration. The second patient has asthma of rather short duration (three years), and the lung changes, except during the active stage of the disease, are comparatively slight. The third case is of twelve years' standing, but is of the remittent type, and the sputum was collected during the latent stage. As an illustration of a case history, that of Case 1 is given in more detail:

CASE 1.—H. B., man, aged 39, referred to me in January, had had asthma since he was 22. Prior to that time, since the age of 14, he had coughing spells every night. He had croup during the first year of life; when 11 years of age he was taken to a doctor to be treated for "catarrh in the head." The attacks of asthma came on very suddenly; the patient remembers distinctly the first night when he had an attack. After that he had an attack some time during each twenty-four hours, usually after the evening meal; but the time of attack varied, showing a marked tendency to continue at the same time of the day for periods of two weeks or more. This condition continued for many years. At one time the patient sought relief by change of climate, going to northern Texas, which brought temporary relief; but after one month in that locality he says he was just as bad as ever. The attacks have never seemed to be influenced as regards onset by any external factor, psychic or otherwise. His father's father and two of his father's sisters had asthma; two sisters had had attacks of croup during childhood, and one brother died of tuberculosis at an early age.

At the time the patient came to my office he was suffering from frequent and severe attacks of asthma, and also had a marked bronchitis with profuse expectoration. The temperature ranged between 99 and 101.5. There was no active lesion to be found in the nasal passages, but the inferior and middle turbinates had been removed several years before. Over both lungs were sibilant and sonorous râles, of the vague character commonly present in advanced cases of bronchial asthma. The cardiac and hepatic dulness were almost obliterated by the resonance of the distended lungs. There were no cardiac murmurs, and beyond these chest findings the examination was practically negative. Cultures were made from the carefully washed sputum and a vaccine prepared directly from the ascites-dextrose-broth culture. After the first dose of vaccine the patient had a violent reaction with chills and marked rise of temperature. Since the beginning of the vaccine treatment he says "he has never had an attack of asthma." The bronchitis has persisted, however, although to a less degree, up to the present time.

No attempt was made to isolate any particular type of organism. Great pains were taken, by gargling and repeated washing of the sputum in sterile salt solution, to avoid mouth contamination, cultures being then made in ascites-dextrose-bouillon, and the twenty-four hour culture centrifuged and injected in varying amounts intravenously.

Of the twenty-one animals injected, all except three have shown typical lung lesions. In the three exceptions, the animals injected with the same strain from a twenty-four hour culture of lung tissue died a few hours later with an overwhelming septicemia. All of the other animals lived until chloroformed, which time varied from forty-eight hours to two weeks after injection. After the first twenty-four hours after injection most of the animals seemed to feel fairly well and would take nourishment. A distinct difference was invariably observed, however, in the manner of breathing, the respirations being markedly reduced in rate as compared with control animals, and intensely labored. Squeaking râles could be heard with the stethoscope, and in one of the rabbits there was an audible wheezing during expiration. Several of the animals would at times hold the head high in the air as if suffering from

1. Koessler, K. K., and Moody, A. M.: Etiology of Chronic Bronchitis, with Special Consideration of Those Forms Associated with Bronchial Asthma, abstr., THE JOURNAL A. M. A., March 27, 1915, p. 1104.
2. Rosenow, E. C., and Oftedal, Sverre: The Etiology and Experimental Production of Herpes Zoster, Jour. Infect. Dis., 1916, xviii, 477.

air hunger. At necropsy the lungs were found to be greatly distended, filling the chest cavity. They were in most of the animals of a dull grayish color, at times mottled brownish plaques. In some, however, in which large doses had been injected, the lungs were distinctly hemorrhagic and showed considerable infiltration, mingled with the emphysematous areas, in microscopic section. The grayish looking lungs were extremely light in weight, the smallest particles floating in water. Pressure elicited distinct crepitation, and all other signs of emphysema were present. On microscopic examination the main changes in these lungs were found to be: A marked distention of the alveoli, and a thinning and often rupture of the alveolar walls. The blood vessels were engorged and there was considerable perivascular round cell infiltration. A very marked change was seen in the bronchioles. These were contracted as if in spasm, and the mucosa was thrown into folds which almost completely obliterated the lumen. In the peribronchial tissue there were small areas of hemorrhage and marked round cell infiltration. In the substance of the musculature a considerable number of streptococci were found, usually lying between the muscle fibers and toward the inner margin of the muscle wall. In this connection may be mentioned an interesting observation in the animals injected from the sputum in Case 3. Here the sputum culture was largely composed of a short, plump, polar-staining bacillus, and very few streptococci were present. But tissue cultures of the lungs made forty-eight hours after injection showed a pure culture of streptococci, while stains of the lung tissue showed streptococci present in the musculature, just as in the animals injected with cultures from Cases 1 and 2, in which almost pure cultures of streptococci were present.

Cultures were made of the blood and other body fluids, and also of several of the other organs besides the lungs in order to disprove the possibility of a generalized bacteremia. In nearly every case the blood and all organs except the lungs were found to be sterile, while the lungs yielded a pure culture of streptococcus. One rabbit was kept for two weeks, being injected every two days with twenty-four hour cultures from the sputum in Case 1. Here the lungs were found to be markedly emphysematous, while some areas, especially around the larger vessels and bronchi, showed a marked tendency to atelectatic compression. Cultures from the lung tissue showed *Streptococcus viridans*.

As regards the morphology of the organisms, both the hemolyzing and green-producing streptococci were found, while in one case a pure culture of *Streptococcus mucosus* was obtained from the lung tissue.

The amount of hemorrhagic infiltration associated with the emphysema in these cases seemed to depend largely on the dosage of the organisms injected. Thus it was found that by injecting the growth from 1 ounce of a twenty-four hour culture of the sputum in Case 1 the typical and almost uncomplicated condition of emphysema could be produced repeatedly.

From an analysis of these findings, associated with a systematically studied history and examination of a considerable number of cases, it seems evident that the sputum of at least a large number of persons suffering from bronchial asthma contains organisms (streptococci) which have an elective affinity for the bronchial musculature and that the invasion of the lungs by these organisms, when made possible by any factor, psychic or otherwise, which tends to lower the resistance of the individual, will bring about a tonic spasm of the muscles of the bronchioles and cause the typical phenomena so commonly observed clinically in patients suffering with an attack of asthma. In other words, these experiments illustrate another example of elective localization of streptococci. There are no doubt a number of factors which must be taken into consideration. I would particularly emphasize a hereditary predisposition to weakness of the respiratory tract. In nearly all of the cases studied there is a family history of asthma or other respiratory tract disease. Many of the cases give a history of spasmodic laryngitis (catarrhal croup) during childhood, which strongly suggests a congenital lack of resistance, manifesting itself as bronchial asthma later in life with the development of a focal infection, or a weakening disease of the lungs, such as an attack of acute bronchitis.

MERCURIC CYANID POISONING WITH RECOVERY *

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Poisoning by mercuric cyanid is a rare occurrence. The case here reported is of interest because of the hopeless prognosis, subsequently followed by complete recovery, and the unusual opportunities at hand for making chemical and physical analyses of blood and excreta for a period of a month and a half.

History.—A German girl, aged 20, attempted suicide on the afternoon of Aug. 1, 1915, by entering the cabinet of the physician by whom she was employed as domestic, and taking therefrom one tablet from a bottle marked "Gift." Subsequently this was proved to be mercuric cyanid in 0.5 gm. (7½ grain) tablets. She was not found until several hours later, and then promptly brought to the hospital by an ambulance.

Clinical Course.—On admission to the hospital she was in a state of partial collapse; she responded well to stimulation, and was lavaged with a copious amount of potassium permanganate (1:1,000 solution), the vomiting and nausea continuing. We are not certain of the immediate action of the poison, as it was quite impossible, on admission, to get from her any description of the early symptoms. On several occasions later she said that as far as she knew, she had suffered no convulsions or loss of consciousness, but remembers only vomiting violently from the very first.

Twenty-four hours after ingestion of the poison, the patient had a general convulsion; vomiting continued and bowels were loose; the urine was "q. s."

On the third day a rash was present over the face and arms; no urine was observed on this day, but may have been voided with the stools, which were very loose and frequent.

On the fourth day the mouth was sore. The patient was salivated. She was drowsy and stupid. Vomiting continued. No urine was passed for twenty-four hours; a catheterized specimen was less than half an ounce.

On the fifth day the breath was fetid, the tongue swollen, the gums ulcerated. The patient was in coma most of the time. There was incontinence of feces. Phenolsulphone-

* From the Department of Pathology, Bellevue and Allied Hospitals, Dr. Charles Norris, director.

phthalein was injected, but no urine was recovered at the end of the first and second hours by catheter.

On the sixth day phlebotomy was done, 15 ounces being withdrawn. On this day the patient passed 2 ounces of urine after fifty hours' complete retention. The vomitus was green. The patient complained of headache.

On the seventh day the patient was menstruating. The bowels were very loose, and there were abdominal pain and tenderness.

From the eighth to the twelfth days the urine increased in quantity daily and was now 15 ounces. Vomiting was persistent.

From the thirteenth to the nineteenth days the vomitus was bloody. The urine amounted to about 24 ounces daily.

On the twenty-third day the vomiting had stopped. The phenolsulphonephthalein test revealed 12 per cent. in two hours.

On the twenty-ninth day the appetite was improving.

On the thirty-first day the patient was out of bed for half an hour. She was given a soft solid diet. She had lost 20 pounds.

On the thirty-eighth day she was about the ward most of the time, and was very cheerful.

On the forty-fifth day she was well, and was discharged to court for trial.

Throughout her stay in the hospital, pulse, respiration and temperature ranged within normal limits, except during the temporary periods of coma, convulsions, etc.

CHEMICAL AND PHYSICAL ANALYSIS OF BLOOD

Day of Disease	Nonprotein Nitrogen*	Urea Nitrogen†	Sugar‡	Refractive Index§	Freezing Point	Remarks
2	46¶	24¶	128¶	17.58	—0.573 C.	Convulsion; no retention
4	292	270	99	14.98	—0.601	Drowsy; retention 24 hrs.
5	288	263	148	14.61	.....	Coma; retention 50 hrs.
10	205	174	69	14.61	—0.609	Urine increasing daily
17	162	123	...	16.84	—0.625	Bloody vomitus
23	195	172	81	18.47	—0.660	Stopped vomiting
31	172	154	74	15.36	—0.772	Improved; patient up ½ hr.
38	65	51	64	16.58	—0.611	About ward; cheerful
45	45	24	76	17.68	—0.579	Discharged

* Method of Folin and Denis (Jour. Biol. Chem., 1912, xi, 527).
† Method of E. K. Marshall (Jour. Biol. Chem., 1913, xv, 487).
‡ Method of Lewis and Benedict (Jour. Biol. Chem., 1915, xx, 61).
§ Zeiss immersion refractometer, $\triangle Nd \times 10^3$.
¶ Milligrams per hundred cubic centimeters of blood.

Urinalysis.—Blood and albumin were present in the urine for the first fifteen days. From then on there was no blood, and albumin was present in decreasing amounts. On the day of discharge only a very faint trace was present.

Treatment.—Gastric lavage was performed on admission and the first day thereafter. The bowels were kept open by small doses of magnesium sulphate given in water at frequent intervals. Hot packs and high hot colon irrigations were administered regularly to aid elimination and as a general tonic. Cerium oxalate, 2½ grains, was given every four hours, but failed to control the vomiting, which persisted, notwithstanding, for twenty-three days. Nutritive enemas (eggs, milk and sugar) were resorted to when the vomiting was particularly severe. The patient was on a milk diet the first thirty days, and fluids were forced in the form of lemonade, cracked ice and water. The stomatitis was relieved by frequent gargling with potassium chlorate solution.

Toxicologic Findings.—The vomitus, stomach washings, urine and feces of the twenty-four hours after admission were analyzed for poison. In the combined lavage and vomitus, both the mercury and the cyanid were easily detected. The urine and the feces showed the presence of mercury, but no cyanid, the latter evidently being destroyed in passing through the organism. Analysis of the feces on the sixth day showed mercury present in traces only. The blood which was removed on this day (450 c.c.) was also analyzed for poison. Before starting on this venture, we knew that if any were present, it must be an extremely minute quantity, and therefore from the beginning the greatest care was applied in its detection. The most delicate method possible was used[1]; the blood was decomposed and brought into solution in the usual way by the use of previously tested mercury free reagents, potassium chlorate and hydrochloric acid. The mercury was then deposited on a thin strip of gold by means of the electric current, carefully washed, dried and placed in a glass tube previously drawn out to a capillary at one end, the hydrogen generator being attached to the other end. After pure hydrogen had been passed through very slowly for half an hour, the tube containing the gold foil was carefully heated, volatizing the mercury, which was then carried along in the slow stream of hydrogen and deposited on the cold drawn out end of the tube. With a strong lens, a few microscopic globules of metallic mercury were visible, which with iodin gave the red iodid of mercury reaction.

The combined feces, urine and vomitus of the sixteenth day were analyzed and found to contain no mercury.

Spectroscopic examination of the blood on the first day revealed no evidence of cyanhemoglobin.

COMMENT

Anuria began on the third day and lasted two days, the patient then being in typical uremic coma and presenting the characteristic picture of severe mercurial nephritis. The prognosis was extremely grave and a fatal termination was to be expected, from experience in poisoning with mercuric chlorid, in which recovery is extremely rare after onset of profound uremic coma and anuria.

Blood Findings.—The nonprotein nitrogen of the blood increased steadily with the urinary retention. The surprisingly high figure of 292 mg. per hundred c.c. of blood (the normal is from 35 to 45) was obtained. Although higher figures have been reported in the blood, this observation is of interest because of the subsequent recovery after so severe a degree of retention. In our previous experience all cases which presented values of 200 mg. or above terminated fatally.

The cryoscopic figures are noteworthy: From the normal average of —0.560 C. the depression of the freezing point was gradual as the blood retention increased. From the tenth day on, when the urinary excretion was increasing daily, the freezing point determinations were found to decrease steadily, the greatest depression being noted twenty-one days thereafter, namely, —0.772 on the thirty-first day. This would appear to us to indicate that the kidneys in resuming their function regained their water excretory power more rapidly than that of the crystalloids, retention of which caused the very low freezing point.

Chemical.—The toxic action of mercuric chlorid on the kidney is due to the positive Hg^{++} ion; while potassium cyanid exerts its extremely rapid lethal properties (acute respiratory death) through its negative CN^- ion. Mercuric cyanid, $Hg(CN)_2$, contains both of these, and *a priori* one would expect it to have the combined effect of the two. However, its toxic action resembles that of the chlorid and not that of the cyanid salt, as indicated by the clinical course of this case, which resembles strongly that of poisoning with mercuric chlorid (with the possibly notable exception of a single convulsion on the second day). This action of mercuric cyanid may be due either to its small degree of ionization, or to the isometric structure, $Hg(NC)_2$, which has been ascribed to it by some authorities.

1. Wolff, C. H.: Repertorium der analytischen chemie, 1883, iii, 114.

NOTES ON GRIP EPIDEMIC IN CHICAGO

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AND
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CHICAGO

The epidemic of grip seems to have spent its force in the months of December and January. Only sporadic cases have occurred since then. It is highly desirable that the records of this epidemic in various communities should be compiled as completely as possible by all those who have given the subject special study. Already valuable reports have come from the New York Department of Health, the Memorial Institute for Infectious Diseases of Chicago, and from the United States Public Health Service. The health departments, however, are handicapped by the fact that grip is not generally reported as a contagious disease. This places the greater responsibility on individual physicians who have had opportunity to observe many cases. In this spirit we desire to publish our data.

The frequency of the disease in private practice is not easy to determine without an extensive house to house canvass. In the absence of any large statistics, we submit the number of cases occurring in four institutions in which written records were kept of the clinical diagnosis.

OCCURRENCE OF CASES

	No. Persons	Grip Cases	Percentage Morbidity
Michael Reese	140	27	19
Illinois Training School for Nurses	275	24	9
Old Men's Home	112	69	61
St. Luke's Hospital Nurse's Training School	150	24	16
Total	677	144	21

Nearly all of the 144 grip patients here referred to were unable to report for duty. There were many others with colds who remained on duty and were not included in the table.

The leukocytes were estimated in fifty-three cases of grip, several counts being made in many of the patients.

Thirty cases had a leukocyte count of 10,000 or less. Many of these showed a leukopenia.

Sixteen cases had a leukocytosis of from 10,000 to 15,000.

Seven cases had a leukocytosis of 15,000 or more.

From these figures it is seen that leukocytosis is usually absent, although temperature of from 1 to 3 degrees above normal was the rule.

In thirty-one cases careful bacteriologic cultures were made on blood agar plates with the following results:

Streptococcus hemolyticus occurred thirty-one times.
Streptococcus viridans and the pneumococcus occurred thirty-one times.
Streptococcus mucosus occurred once.
Hemolytic staphylococci occurred nineteen times.
Influenza bacilli occurred two times.
Friedländer's bacillus occurred two times.
Micrococcus catarrhalis occurred once.

The streptococcus was the most constant organism present, usually accompanied by the pneumococcus.

The influenza bacillus was rarely found, and then only in small number, although in some of the cases cultures were made early in the disease, when they are most likely to be found. It seems to us improbable, therefore, that the influenza bacillus played an important rôle in the epidemic.

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PRESCRIPTION WRITING IN ENGLISH*

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In the report of medical curriculum of the Council on Medical Education of the American Medical Association, the following position is taken by the Subcommittee on Prescription Writing concerning the use of Latin:[1]

> The committee considers Latin desirable for the names of ingredients (inscription); indifferent as to the directions to the dispenser (subscription); and objectionable as to the directions to the patient (signature). The student should, however, know the meaning of the Latin phrases which are commonly used. This amount of Latin may be readily taught in the course, so far as this subject is concerned.

While this report was not acted on by the Council, it may be considered the most recent authoritative statement in this matter. It commits us to the use of Latin in at least a portion of the prescription.

The arguments advanced in favor of Latin prescription writing are as follows:

1. "The Latin names of drugs are more definite, concise and unchangeable."
2. "A Latin prescription can be compounded all over the civilized world."
3. "Latin prescriptions are used internationally in medical literature."
4. "It guards the patient against knowledge that might be prejudicial: (*a*) as to the physician's intention; (*b*) as to greater ease in securing the prescribed drug without a prescription, with possible formation of habit or other detriment."
5. Better form is preserved. "To encourage the use of English official names would easily lead to the use of unofficial English, or common names, which often are indefinite; less pains would be required in mastering the art, and the results would be probably greater laxity in prescribing and less familiarity with the official substances."

Let us analyze these arguments.

1. The first reason advanced cannot stand, as the *English official names for drugs and preparations are just as definite and concise as are the Latin names;* and the latter are no less changeable, as is evidenced by the changes in the official names occurring at pharmacopeial revisions. We must not confuse, in this connection, the English *official* names, which are given in the pharmacopeia alongside of the official Latin names, with the common English names, or synonyms, such as: Paregoric, Hoffmann's anodyne, Epsom salt, golden seal, Indian hemp, etc., which often are given in the pharmacopeia after the official English name.

2. As to the second reason, it may be considered very *doubtful whether it is ever desirable for a patient traveling abroad to have a prescription refilled without medical supervision.* Even when the patient stays at home, indiscriminate refilling of prescriptions is not desirable. When the patient travels, there is added the lack of international uniformity of strength of preparations (excepting in the case of some of the poisonous medicaments) that might lead to undesirable results, if a prescription calling for a U. S. P. preparation were filled with a preparation of another pharmacopeia having the same or similar name, but a different strength.

* From the Pharmacologic Laboratory, University of Illinois, College of Medicine.

1. Report of Subcommittee on Pharmacology, Toxicology and Therapeutics. Section 4 of Report of Committee on Standard Curriculum for Medical Colleges, American Medical Association, p. 7.

That there is a considerable disparity in the strength of preparations of various pharmacopeias may be seen from the few examples given in Tables 1 and 2. That there are not only differences in strength, but even

TABLE 1.—STRENGTHS OF PREPARATIONS IN VARIOUS PHARMACOPEIAS, GIVEN IN PERCENTAGE OF ACTIVE INGREDIENT

	U. S.	German	British	Others
Liquor sodii hydroxidi	5.	15.	20.0	
Oleum phosphoratum			1.0	0.1*
Syrupus ferri iodidi	5.	5.	5.0	0.5‡
Spiritus aetheris nitrosi	4.		1.52 to 2.66	
Fluidextractum nucis vomicae : strychnin	1.0		1.5	
Tinctura lobeliae	10.0		20.0	
Tinctura iodi	7.0	10.0	2.5† 10.0‡	
Unguentum sulphuris	15.0	33.0	10.0	
Vinum colchici	10.0§		20.0¶	
Vinum ipecacuanhae	10.0		5.0	

* Austrian. ‡ Fortis.
‡ French. § Seed.
† Mitis. ¶ Corm.

qualitative differences in composition, may be seen from the fact that the compound infusion of senna contains magnesium sulphate in the United States and British pharmacopeias, and potassium and sodium tartrate in the German and various other continental pharmacopeias. There is also a considerable difference in the use of correctives; but, most of all, a decided

TABLE 2.—STRENGTH OF PREPARATIONS EXPRESSED AS AMOUNT OF ACTIVE INGREDIENT PER UNIT DOSAGE FORM

Trochisci santonini	0.01 French 0.03 U. S. 0.06 British
Pulvis effervescens compositus	7.5 German, U. S. and British 10.0 Austrian

difference in strength: the United States preparation representing, for instance, 6 per cent. of senna, while the Austrian preparation represents 12 per cent. Fancy the predicament of a traveler who buys his compound effervescing powders or compound infusion of senna in different countries; he is doomed to either disappointment or discomfort. With troches of san-

TABLE 3.—OFFICIAL LATIN NAMES IN UNITED STATES PHARMACOPEIA AND IN FOREIGN PHARMACOPEIAS

Liquor calcis	Aqua calcariae—German
Kaolinum	Bolus alba—German, Austrian, etc.
Plumbi carbonas	Cerussa—German.
Cinchona	Cortex chinae—German, Austrian, etc.
Oleum morrhuae	Oleum jecoris aselli—German, etc.
Oleoresina aspidii	Extractum filicis liquidum—British
Ergota	Secale cornutum—German
Nux vomica	Semen strychni—German, etc.
Santonica	Flores cinae—German, etc.
Cambogia	Gutti—German, etc.
Hexamethylenamina	Hexamina—British
Hydrargyri chloridum mite	Hydrargyrum chloratum—German
Hydrargyrum ammoniatum	Hydrargyrum praecipitatum album—German
Aqua hydrogenii dioxidi	Hydrogenium peroxydatum solutum—German
Potassii chloras	Kalium chloricum—German, etc.
Sodii chloridum	Natrium chloratum—German, etc.
Oleum tiglii	Oleum crotonis—German, etc.
Acetphenetidinum	Phenacetinum—German, etc.
Antipyrina	Phenazonum—British
Benzosulphinidum	Glusidum—British Saccharinum—German, Austrian
Potassii bitartras	Tartarus depuratus—German
Potassii et sodii tartras	Tartarus natronatus—German
Antimonii et potassii tartras	Tartarus stibiatus—German

tonin, wine of colchicum, tincture of lobelia, or fluidextract of nux vomica, the result might easily be worse.

The one prescription in a hundred thousand or perhaps a million that is carried abroad and filled there should not only be translated into the pharmacopeial language of that country, but also revised, so as to be correct as regards the strength of the preparations of that pharmacopeia.

3. International use of Latin in medical literature would be an argument of some importance in favor of Latin prescription writing; but, as can readily be shown, the *Latin names of drugs are far from being international.* Examples are given in Table 3.

Any one who reads and understands English well enough to study English literature would surely have no difficulty in understanding a prescription written in English. Should other nations retaliate by using their language instead of Latin, that would hardly require a greater knowledge of the foreign tongue than would be needed for the use of the literature of that language. Should, however, the other nations persist in the use of Latin, the knowledge needed to translate these prescriptions into English would be much more easily acquired than the ability to write Latin prescriptions correctly. In point of fact, however, as one looks over current literature, in various languages, one finds very few Latin prescriptions. Generally, whenever medicines are mentioned, in German, French or English literature, dosage and method of administration are discussed in the language in which the article is written and not in Latin.

4. Inasmuch as it is the popular opinion that doctors use Latin in prescription writing to keep the laity in ignorance for selfish ends, it seems high time that we antagonize this idea; and we can do this most emphatically by using English. This we can also do with perfect safety, for *secrecy is very rarely, if ever, essential* in the practice of the up-to-date physician,

ILLUSTRATIVE PRESCRIPTIONS

Prescription in Latin

	gm. vel c.c.
℞ Ammonii chloridi	5
Syrupi ipecacuanhae	8
Aquae q. s. ad	60

Misce et fiat solutio.
Signa: Teaspoonful in water every two hours.

Prescription in English

	gm. or c.c.
℞ Ammonium chloride	5
Syrup of ipecac	8
Water to make	60

Mix and make solution.
Label: Teaspoonful in water every two hours.

Prescription in Latin

	gm. vel c.c.
℞ Hydrargyri chloridi mitis	.06
Sacchari lactis	2

Misce et divide in chartulas x.
Signa: One every hour.

Prescription in English

	gm. or c.c.
℞ Mild mercurous chloride	.06
Sugar of milk	2

Mix and divide into ten powders.
Label: One every hour.

Prescription in Latin

	gm. vel c.c.
℞ Morphinae sulphatis	
Extracti belladonnae, ana	.12
Olei theobromatis	.24

Misce et divide in suppositoria xii.
Signa: One every four hours, as needed.

Prescription in English

	gm. or c.c.
℞ Morphine sulphate	
Ext. of belladonna, each	.12
Oil of theobroma	.24

Mix and divide into twelve suppositories.
Label: One every four hours, as needed.

who generally prefers to take his patient into his confidence than to keep him in ignorance. Deception is not practiced by the true physician. Therein lies the special difference between the quack and the honest medical man. Furthermore, Latin prescription writing does not really contribute much more to secrecy than the use of English, for the *Latin and English official terms for drugs and preparations are often identical, generally very similar to each other.* So similar are they, that certain books on prescription writing advocate the use of synonyms, as pulvis Doveri, liquor Fowleri, etc., when it is undesirable in the patient's own interest for him to become acquainted with the treatment. When it is stated that self-medication might be encouraged by the use of English, I fail to see the force of the argument. Is the patient more likely to call for sodium bromid at the drug store when it is written "sod. brom.," standing for sodium bromid, than when it is intended to read "sodii bromidi"?

That, with few exceptions, the use of English gives the patient no more and no less information than the use of Latin, may be seen from the accompanying illustrative prescriptions.

In respect to the fifth reason, all that seems to be necessary is to call attention to the fact that the time allotted to the teaching of pharmacology and therapeutics is extremely limited, actually insufficient to teach the essentials. Is it not reasonable to suppose that a conscientious teacher, freed of the necessity of burdening his course with the teaching of Latin forms, would have more time to spare for the more important facts in connection with prescribing? Surely, making a subject more complicated does not lead to a better mastery of it.

It has been my experience that the teaching of Latin prescription writing makes it difficult to get into the students' minds the really important facts about prescribing, namely, the "art of prescribing," or more specifically, the "technic of medication," which has nothing to do with the language used. This is a matter that is not sufficiently studied by medical students or practitioners; and it is not improbable that focusing attention on the mere language of the prescription causes the really important question relating to the most efficient and most pleasant administration of the remedy frequently to be lost sight of.

It is true that students now come to us with better preliminary training than was formerly the case; it is also true, however, that even a professor of classical Latin would have to learn our prescription "Latin" almost as if he had not studied Latin before, for the Latin of prescriptions consists essentially of Latinized modern terms. One can find but few of them in a dictionary of classical Latin.

That the teaching of Latin prescription writing has so far contributed but little toward the preservation of good form will be admitted by any one who has had experience behind the prescription counter. An investigation[2] which I conducted on the quality of prescription writing in this country, to which 100 leading pharmacists in various sections of this country contributed and which represented an examination of 10,000 prescriptions, showed that less than one half of all prescriptions are written in correct Latin form, 36 per cent. of all prescriptions being written in English and 18 per cent. in poor Latin. If there is any error in this compilation — and it must be admitted that modern pharmacists generally have merely a knowledge of what might be called "prescription Latin," it is likely to be in the way of overlooking minor errors in Latin; so that probably much less than half of all prescriptions are written in correct Latin form — surely a poor showing for the time and energy invested in teaching Latin prescription writing.

Even the Latin prescriptions published in current medical literature, in periodicals as well as in textbooks, including those published in some books on prescription writing, contain enough errors to make their authors blush were they pointed out to them. Would it not be better to have prescriptions written in correct English than to have them written in the slipshod and at times ridiculous way in which so many of them are written at present?

While, therefore, none of the arguments in favor of Latin prescription writing can be said to be irrefutable, a number of arguments in favor of English prescription writing deserve consideration.

1. The Roman numerals, especially I and L (standing for 1 and 50) are apt to be mistaken for each other, while our common numerals are much more distinct from each other in appearance (E. G. Eberle).

2. Few of us are sufficiently versed in Latin to be able to express directions to the pharmacist that are in any way unusual. Even if we were capable of writing such directions in Latin, not one druggist in a hundred would be able to understand them. Unusual directions to the pharmacist are, therefore, generally written in English, even in Latin prescriptions, which, though endorsed in the committee report quoted above, is really less correct than using either language throughout.

3. New drugs are continually being introduced, the coining of the Latin names for which is an embarrassment to the prescriber.

4. It is probable that the fear of making mistakes in the Latin form is one of the contributing causes to that therapeutic abomination, the prescribing of ready-made official or proprietary mixtures. *Latin prescription writing absolutely stifles originality in prescribing.*

5. After all, the whole proposition of writing prescriptions in Latin is a pretense at a knowledge of Latin, of which most of us possess so little that we would be unwilling to have our ability tested by one who is a recognized authority in that language. Encouraging students to think that it is a creditable thing to shine in a veneer of knowledge as superficial as that of Latin usually is cannot but have a detrimental effect on the inculcation of the principle of thoroughness that should guide all good teaching.

6. By far the most important reason for writing prescriptions in English lies in the difficulty medical students have in learning the Latin form. To the student, prescription writing is a bugbear. When one thinks of the crowded medical curriculum and the comparatively small number of hours set aside for pharmacology and therapeutics, it seems a pity to waste any of it on the acquiring of an antiquated form of expression.

It appears that the real reason for prescription writing in Latin is historic. It originated in the days when Latin was the chief medium for exchange of scientific thought. No longer, however, are scientific lectures delivered in the Latin tongue, no longer are medical books written in Latin, no longer is it considered essential for an educated man to speak Latin; and yet we still feel bound to write prescriptions in that dead language. Is it not time to relieve our medical students of this useless burden that is put on them to the detriment of something else that would be much more useful to them and to their patients? *Let us at least admit that a prescription correctly written in official English is as good as one written in Latin.* Let us permit students and practitioners to use whatever form they prefer, and let us merely hold our students for a sufficient knowledge of the Latin form to enable them to translate and understand such prescriptions.

A DIGEST OF REPLIES TO QUESTIONNAIRE ON PRESCRIPTION WRITING IN ENGLISH

A preliminary draft of this article was sent to leading medical teachers, to deans of schools of pharmacy, and to secretaries of state boards of health. For the numerous replies obtained in return, and, most especially for a number of suggestions received from some of those in favor as well as some of those opposed to

2. Fantus, Bernard: What Instruction Ought Medical Colleges to Give in Pharmacology and Therapeutics, Part B of Symposium, The Viewpoint of the Pharmacist, Quart. Fed. State Med. Boards of U. S., 1914, p. 293.

the proposition, I wish to express my sincere thanks. An analysis of the reports gives the following results:

Of sixteen deans of colleges of pharmacy who responded, ten were in favor of the proposition, four were opposed, and two were neutral.

Among ninety-two medical teachers, who responded, sixty-seven were in favor, twenty-two opposed, and three neutral.

In two institutions, the question of prescription writing in English was taken up in faculty meeting. The faculty of the School of Medicine of Yale University voted, Jan. 24, 1916, that "it was the sense of the faculty that English be the language of choice in instruction in prescription writing." The faculty of the University of Michigan, on the other hand, passed a resolution, Jan. 25, 1916, opposing the writing of prescriptions in English. In its opinion, more time, instead of less, should be given to Latin.

An interesting reply was received from Prof. Gabriel Casuso, president of the University of Havana, Cuba, from which I quote: "I believe you are right in every respect — among us, the laws governing the matter, although they do not restrain the use of Latin, allow the employ of the vernacular tongue, and the pharmacists are not obliged to dispense prescriptions unless they are written in plain Spanish."

To secretaries of state boards of health, the question was sent, "Would your examining board give a candidate a low grade, should he, in an examination, write a prescription in correct English instead of writing it in Latin"?

In reply to this, the following state boards expressed, through their secretaries, presidents or examining officers, their willingness to accept prescriptions written in English at the same value as those written in Latin: Alaska, Arkansas, California, Connecticut, Florida, Louisiana, Montana, Minnesota, Massachusetts, New Mexico, Ohio, Rhode Island, Virginia, Vermont, Wisconsin and West Virginia.

The following state boards have declared their objection to prescription writing in English: Illinois, Iowa and New Jersey: This makes a total of sixteen in favor, and three opposed.

From this it will be seen that the sentiment in favor of English prescription writing is surprisingly general.

A CASE OF TORSION OF THE SPERMATIC CORD WITH TERATOMA OF THE TESTICLE *

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The combination of torsion of the spermatic cord with a new growth of the testicle seems so unusual as to warrant a report of this case. The search of the records of a few years, which were available to me, failed to reveal a report of this particular association of lesions, though, doubtless, it is not unique.

The subsequent course of the case should also be of interest, for the patient was operated on sixty-one days after the first symptom referable to the tumor of the testicle, only the more acute symptoms of torsion, however, causing him to consult a physician. The bad prognosis of new growth of the testicle, we hope, will not apply to this case on account of its early radical treatment. Bulkley[1] gives a record of eight deaths within one year following operation for malignant disease of the testicle, in fifteen cases, or 53⅓ per cent.; and only two of these patients, or 13⅓ per cent., were known to be alive and well after two years. Nearly all the other reported cases of malignant disease of the testicle are supplemented by accounts of subsequent and early death with recurrence, usually distant metastases. In the case reported the patient was seen five months after operation, and at that time showed no symptoms or signs of recurrence.

CASE REPORT

History.—C. C., man, white, aged 24, clerk, admitted to Presbyterian Hospital Oct. 8, 1915, injured the left testicle with his thigh six weeks before in sitting down, causing only slight pain. The next day a slight swelling of the left testicle was noted, which continued without appreciable change and was accompanied by slight soreness in the left testicle, radiating up to the left hip and lumbar region, but not incapacitating him.

On the morning of admission, on stretching, after getting out of bed, he was seized with an excruciating pain in the left testicle, and the testicle became hard and tender. He was seen by a physician, who said it was a hernia, and manipulated it without relief. There were no general symptoms.

The patient's past and family histories were negative, except that he had a small left inguinal hernia six years ago, which disappeared after wearing a truss for one year. Venereal disease was denied.

Examination.—The patient was well developed. He suffered acute pain. The left testicle was twice the size of the right and slightly tender; the left epididymis was posterior, slightly swollen and extremely tender. A tiny cystic mass was palpable just above the globus major. The spermatic cord was slightly thickened, not nodular, and very tender up to the internal abdominal ring. Rectal examination was negative. There was no discharge from the meatus.

Temperature, pulse and respirations were negative. Blood count showed 16,000 white blood cells with 88 per cent. polymorphonuclears. Examination of the urine was negative.

Treatment and Course.—The patient experienced great relief from pain after use of support to scrotum, an ice cap and ichthyol. The swelling, however, increased somewhat in size, owing to a collection of fluid in the tunica vaginalis. Some difficulty was experienced in reaching a diagnosis, but finally acute epididymitis and orchitis, with the possibility of an underlying tuberculosis of the epididymis was considered most probable, and the patient was allowed to go home, Oct. 16, 1915, to continue conservative treatment. It is interesting to note that the correct diagnosis was considered and thought improbable.

The patient was readmitted, Oct. 26, 1915, having had a sudden increase in his pain and the swelling six days before, relieved somewhat by aspiration of a small amount of clear yellow fluid from the tunica vaginalis.

Physical examination then showed a firm, moderately tender mass in the left side of the scrotum, not so heavy as solid tumors usually are, and showing a small amount of fluid without great tension, in the tunica vaginalis. The tenderness extended along a somewhat thickened and nodular cord up to 1 inch beyond the external abdominal ring. Rectal examination was negative.

Operation.—Next day, by courtesy of Dr. S. Burnap, I performed a left orchidectomy with high ligation of the cord, with the following findings: There was a moderate amount of serous fluid in the tunica vaginalis. The testicle was enlarged to about 2 inches in diameter, and on exploratory incision yielded only a few drops of dark blood. The epididymis was brown and not enlarged. The testicle was rotated 360 degrees counter-clockwise, and the veins in the spermatic cord above the twist were firmly thrombosed. There was no definite gangrene, and the existence of the teratoma was not suspected; but relief of the torsion did not improve the circulation, and the torsion showed a tendency to recur, so orchidectomy was deemed advisable.

The patient made a satisfactory recovery with no complications, and was examined five months later, when he showed no symptoms or signs of recurrence.

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* From the service of Dr. E. Eliot, Jr., at the Presbyterian Hospital in the City of New York, by permission of Dr. G. E. Brewer, Surgical Director.

1. Bulkley, K.: Malignant Disease of Retained Testicle, Surg., Gynec. and Obst., 1913, xvii, 703.

Pathologic Report (by Dr. F. B. St. John)—The specimen consists of a testicle and epididymis measuring 5.5, 5.5 by 4.5 cm., with 4.5 cm. of spermatic cord. Part of the wall of the tunica vaginalis is hemorrhagic. The surface of the testicle is shiny, reddish gray and smooth. It is rather soft and fluctuating in consistency.

Microscopic examination shows a normal testicular glandular arrangement, but the testicle proper is largely replaced by connective tissue, in the center of which is a large area of cells, made up almost entirely of cartilage cells. The periphery of this area seems to merge indefinitely into surrounding connective tissue. Outside of this rather dense central area is a large area of polymorphonuclear infiltration and round cells, beyond which is definite necrosis, consisting of poorly stained cell débris.

Diagnosis.—Teratoma of testicle with acute inflammation.

75 East Eighty-First Street.

Therapeutics

HEMORRHAGIC CONDITIONS

(*Continued from p. 1623*)

HEMOPHILIA (BLEEDERS)

Hemophilia is a condition, usually hereditary, characterized by a decrease in the coagulation time of the blood and frequently resulting in death from hemorrhage. The hemorrhage may be spontaneous, or it may be initiated by a cut, bruise or blow. The bleeding is not limited to any part of the body.

Hemophiliacs, commonly known as "bleeders," are of the male sex. Female "bleeders" have been reported occasionally, but not enough evidence is furnished to show that these are true hemophiliacs. Hess[1] characterizes some of these cases in females as hereditary purpura. The disease is transmitted through the female members of the families to their male offspring. Such cases can be traced through generations of families, several male members, but not all necessarily, of one generation being affected. Often the hemophilic tendency will make its appearance early in infancy, occurring at birth when the umbilical cord is severed. J. E. Welch[2] mentions such cases, and also bleeding from other parts in the new-born under the name of "hemophilia neonatorum."

Various theories have been advanced as to the etiology of this condition. These can be divided into two groups: (1) deficiency in one or more of the blood elements, and (2) deficiency in the elements of the cells of the blood vessel walls. In the first group the hemorrhage has been attributed to lack of calcium, deficiency or prothrombin, or to an excess of antithrombin. Weil[3] has even claimed the presence of anticoagulants in the blood. On the other hand, it has been asserted that there is abnormal fragility of the blood vessel or that there is lacking in the cells of the wall a fibrin-forming substance — thrombokinase. No doubt cases may be found that are explainable by any of these theories.

Certain factors relating to the blood in hemophilia have been definitely proved. It has been repeatedly shown that the coagulation time of the blood is prolonged. Normally blood will coagulate in from ten to twenty minutes; with the same methods for determining coagulation time of the blood in hemophiliacs, it has been shown that the coagulation time may be prolonged for as long as five hours. Hess states that the coagulation time should be taken at different periods, since occasionally it may approach normal. It is probable that on the occasions when it approaches normal there is admixture of juices containing thrombokinase from tissue at the site of puncture. Duke[4] and others have shown that the blood platelet count in hemophilia does not vary from the normal, whereas in purpura hemorrhagica it is lower than normal. In exceptional cases, such as one mentioned by Hess, the calcium content has been found unchanged. Howell[5] found a deficiency in prothrombin, the antithrombin being normal or only slightly increased.

A hemophiliac may be unrecognized until hemorrhage occurs, from any cause or spontaneously. Profuse epistaxis is frequent, or severe hemorrhage may follow tooth extraction, or there may be bleeding into the stomach or intestines. The hemorrhage may be subcutaneous, following blows, and resulting in the formation of hematomas. A well known symptom of hemophilia is effusion into the joints. The larger joints are most often affected, particularly the elbow, knee or ankle joint. This hemarthrosis may first manifest itself by pain in the joint, soon followed by swelling. Occasionally fever is associated with it. The true nature of the condition is often not diagnosed, a common diagnosis being articular rheumatism or tuberculous arthritis. Operations based on incorrect diagnoses have resulted fatally. If the joints are not opened, but are treated gently by massage or heat, the effusion of blood disappears, sometimes within a few days, or sometimes only after weeks or months. Recurrences may follow, but the tendency for this grows less as the patient becomes older. Following one absorption of blood there may be a partial ankylosis.

TREATMENT

The treatment of hemophilia up to within a recent period has been as varied as the theories of its cause. Recently it has become more uniform because of successful experiences covering a large number of cases. Treatment may be general and local. It depends to a great degree on the location of the hemorrhage. If there has been considerable loss of blood, the patient should be supplied with sufficient fluids to help make up this loss. Milk is recommended, both on account of its calcium content and because of its nutritive value. If marked anemia is present, iron in convenient form should be given. This may be administered by the saccharated oxid, in 3-grain tablet, crushed with the teeth before swallowing, one tablet two or three times a day, after meals; as the reduced iron in 0.10 gm. dose, in capsule, two or three times a day, after meals; the Blaud pill, 3 grains, two or three times a day, after meals, or the tincture of the chlorid of iron in 5-drop doses, in fresh lemonade or orangeade, three times a day, after meals. As has frequently been stated, there is no advantage in an organic iron over an inorganic iron, and there is no necessity of giving large doses of iron in simple anemia.

For directly diminishing the coagulation time of the blood two methods have been tried. The first consists

1. Hess, A. F.: The Blood and the Blood Vessels in Hemophilia and Other Hemorrhagic Diseases, Arch. Int. Med., February, 1916, p. 203.
2. Welch, J. E.: Am. Jour. Med. Sc., June, 1910, p. 800.
3. Weil: Press méd., 1905, xiii, 673.
4. Duke, W. W.: The Pathogenesis of Purpura Hemorrhagica with Especial Reference to the Part Played by Blood-Platelets, Arch. Int. Med., November, 1912, p. 445.
5. Howell, W. H.: The Condition of the Blood in Hemophilia, Thrombosis and Purpura, Arch. Int. Med., January, 1914, p. 76.

of the administration of empiric remedies supposed to supply one of the missing factors necessary for coagulation. Calcium in some form is frequently of benefit in these cases. It may be administered as simple lime water in tablespoonful doses, three or four times a day, given in milk or in water; or as calcium lactate, in dose of 0.3 gm. (5 grains) given in some solution three or four times a day. Calcium chlorid is perhaps most frequently used, but it is more irritant and of no greater efficiency than other forms of calcium. The dose should be about 0.3 gm., given very well diluted, and three or four times a day, as desired. This form of calcium is more likely to upset the stomach than are other forms.

Another remedy used for local application is epinephrin. Its value is based on its vasoconstricting action. In hemophilia it has been tried without apparent success.

The best results obtained have followed the use of serums. Various kinds have been administered, among which are rabbit, horse and normal human serum. The serum has been used in different forms freshly obtained from the blood in the form of plain horse serum or weak preparations of diphtheritic antitoxin when other serum is not available; also solutions of the dried serum. Of late controversy concerning serum therapy has been confined mainly to the kind of serum producing the best results. All are agreed as to the value of serum in hemophilia.

Serum may be administered intravenously, subcutaneously, or applied locally to the bleeding point, if it can be reached. When given intravenously or subcutaneously, proper aseptic precautions should be taken. For intravenous injection, from 10 to 20 c.c. can be given every day until the bleeding stops, whereas for subcutaneous injection this dose should be doubled. The intravenous injection has great advantage over other methods, since by mixing intimately with blood it supplies more rapidly the absent elements necessary to increase the coagulability of the blood. When given subcutaneously, the serum must first be absorbed into the blood stream from the tissues, and before this can occur it will probably undergo a certain amount of change from action by the tissue cells.

Normal human serum, if this can be obtained, is without doubt the best to use, since it contains no foreign proteins. Cooley[6] suggests that "the blood-forming tissues react to the stimulus of normal serum (or blood) by the formation of normal blood and that possibly there is a reaction between normal blood and the vessel-walls, lacking in certain abnormal states, which explains the complete cessation of hemorrhage."

It has been found that following the administration of either rabbit, or more particularly, horse serum there occasionally follows definite symptoms to which has been given the name "serum sickness." This consists of a rise in temperature and the formation of an urticarial rash, the rash often being surrounded by an area of edema. The urticarial rash often fades into a scarlatiniform rash that lasts for several days.

Horse serum (or diphtheritic antitoxin) is the most convenient form, as it is readily obtainable. There must be borne in mind, however, the possibility of anaphylactic shock, which should be carefully considered before the serum is administered to those patients who have more or less recently received injections of antitoxin. Also, before any horse serum is injected it should be known that the patient does not suffer from hay-fever or asthma from horse emanations.

Unless proper agglutination and hemolysis tests are first carried out, just as they are for transfusions, whole blood should not be injected into the veins.

Good results have been reported from the use of tissue extracts applied locally to the bleeding point. These tissue extracts have been thyroid, ovary, liver, pancreas, kidney and spleen. The thyroid extract has been used most frequently. No good reason has been offered for the hemostatic properties of tissue extracts. Not infrequently profuse hemorrhages have been stopped by the administration of thyroid. While thyroid extract increases a liability to hemorrhage in most individuals, and may even cause menstruation or increased menstrual flow in some instances, in hemophiliacs it has at times been successful in stopping bleeding when other treatments have failed. Also, occasionally in profuse bleeding occurring at the time of the menopause, thyroid substance given in large doses, as much as 4 grains of the desiccated thyroid three or four times a day for a few days and then the dose reduced, has stopped bleeding when all other medication has failed.

As a last resort, transfusion itself may be tried. The usual precautions should be taken, the blood of both patient and donor being tested for hemolytic and agglutinative properties. A Wassermann test of the donor's blood should also be made. Ottenberg and Libman[7] state that "every individual known to have hemophilia ought to have at his command several persons whose blood, by previous tests, is known to be compatible with his and who are willing, when called on, to give blood for transfusion." If these blood tests have been made a long time before, the character of the blood may have changed; therefore such tests should not be relied on, but fresh tests should be made. They also state that in transfusions some blood element is supplied that has been lacking, and on that account the cure is not always permanent as the supply is only temporary. They report a series of five hemophiliacs who were transfused, and in every case the hemorrhage stopped after transfusion.

Inasmuch as there is a high mortality in hemophilia, unless the hemorrhage is promptly and completely checked, advantage should be taken of every available means to obtain serum or to make arrangement for a transfusion. If there is no source from which fresh serum can be obtained, and if for any reason transfusion cannot be done, horse serum or antidiphtheritic serum, which can always be procured, should be injected. We would also refer a physician interested in this subject to a recent article by Hurwitz and Lucas (*Arch. Int. Med.*, April, 1916, p. 543).

(To be continued)

6. Cooley, T. B.: The Treatment of Hemorrhagic Disorders, THE JOURNAL A. M. A., Oct. 4, 1913, p. 1277.

7. Ottenberg and Libman: Am. Jour. Med. Sc., 1915, cl, 36.

The Economics of Hygiene.—The great preventable wastes in this world are, I believe, wastes which can be prevented only, or chiefly, by hygiene. Crime, vice, insanity, disease, death and poverty could be wonderfully reduced by applying hygienic knowledge, even the little already available. The economic cost from wrong habits and conditions of living is, I am convinced, on the basis of such fragments of evidence as are obtainable, so colossal that even workers in this field would be astonished if the whole picture could be revealed.—Fisher.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 27, 1916

THE RESTORATION OF THE BLOOD VOLUME AFTER HEMORRHAGE

Any considerable diminution of the total volume of the blood, as by bleeding, would obviously lead to serious consequences unless compensatory activities of some sort promptly ensued. Any resulting depression of the circulation through the brain, for example, would speedily be attended with deleterious effects of a far reaching character. Fortunately this is usually averted in part by the general vascular constriction which follows hemorrhage, diminishing the total capacity of the circulatory system and altering the distribution of pressures throughout it. In addition to this response, the deficiency of blood caused by removal of this fluid is soon remedied by a transfer of fluid from the tissues to the blood. The exchange goes on with surprising rapidity, often beginning even during the course of the hemorrhage.

How this transfer is accomplished has been somewhat of a physiologic puzzle. The passage goes on far too rapidly to be accounted for by the slow flow of lymph into the blood stream, and for a variety of additional reasons this factor can be excluded as being of primary significance. It was suggested by Landerer[1] that when the pressure in the blood capillaries falls, as the result of hemorrhage, below that in the tissue spaces, the fluid present there is forced back into the capillaries. This is the so-called backward filtration theory. According to Starling,[2] on the other hand, there is normally a balance in the production and absorption of tissue fluid between the filtration pressure in the capillaries and the osmotic pressure of the colloids of the blood and tissue fluid. Plasma and tissue fluid are practically identical in their composition in everything except protein. Starling showed that the blood proteins exert an osmotic pressure of about 4 mm. of mercury for every 1 per cent. of protein. Since the plasma contains more protein than the tissue fluid, its osmotic pressure is greater, and this greater osmotic pressure should cause an absorption of fluid when the capillary pressure is reduced.

Dr. F. H. Scott[3] of the University of Minnesota has pointed out that after hemorrhage, if the backward filtration theory is correct, the fluid which enters the blood should have some protein, while according to Starling's theory the fluid should be practically salt solution. Thus it seemed possible that a comparison of the protein content of the blood before hemorrhage and a short time after it might throw light on the nature of the fluid passing into the blood. In a newer investigation of the subject, Scott has indeed found that after hemorrhage an increase occurs in the total protein of the blood plasma, corresponding to a protein content of from 0.6 to 2.01 per cent. in fluid which has passed through the capillary wall from the tissue spaces to the blood. But similar increases of protein may also be observed after injection of Ringer's solution into the blood and when, as a consequence, the injected fluid instead of entering the blood is leaving it for the tissue spaces at a rapid rate. It has been shown that dilution of the blood in vitro with isotonic salt solutions may lead to an increase of the nitrogen in the plasma. The gain must, of course, be derived from the corpuscles. The dilution of the blood in the circulation itself, caused by the intake of fluid from the tissue spaces, produces a change similar to that caused by diluting the blood in vitro with isotonic salt solution. In the living circulation the endothelial cells of the blood vessels might also share in the contribution of protein to the diluting fluid. Consequently an increase of protein in the plasma after hemorrhage is no evidence of backward filtration, and is consistent with Starling's view that in restoring the volume of the circulation the fluid passes into the capillaries by osmotic action.

1. Landerer, A. S.: Die Gewebsspannung in ihrem Einfluss auf die örtliche Blut- und Lymphbewegung, Leipzig, 1884.
2. Starling, E. H.: Jour. Physiol., 1896, xix, 312.
3. Scott, F. H.: The Mechanism of Fluid Absorption from Tissue Spaces, Jour. Physiol., 1916, L, 157.

THE STRUCTURE OF THE THYROID IN RELATION TO ITS FUNCTION

Attempts to correlate the functioning of various glandular organs of the body with corresponding alterations in their structural make-up have been frequent in the modern history of the physiology of secretion. In this way it has been demonstrated that the histologic appearance of the cells of the secretory glands which discharge their product into the alimentary tract changes with the state of the glands in respect to rest or activity. The morphologic alterations incident to the secretion of structures of this type are of the same general character, whatever the class of digestive glands that is investigated. In the salivary glands, for example, the resting cells show a mass of highly refractive granules distributed in the protoplasm. After vigorous secretion, the individual cells are as a rule found to be smaller, and the simple protoplasm is

relatively increased in amount, while the granules are much fewer and are now confined almost entirely to the inner margins of the cells near which they are ordinarily discharged or converted into secretion. Activity is thus associated with a discharge of granules, and probably with some increased production of protoplasm. As one physiologist has expressed it, we may regard the act of secretion as determined by the alteration of the granules and their discharge, together with water and salts, to form the specific secretion of the gland. During rest the granules are formed anew by precipitation in the protoplasm surrounding the nucleus, or by modification of it. Although the granules form the secretion, presumably they represent, not the secretion as such, but a precursor of some of its constituents.

Inasmuch as the so-called ductless glands of internal secretion, or the endocrine glands, as they have been called of late, show many structural similarities to the familiar secretory glands, there has been a tendency to apply analogies derived from the latter to the functions of the former class. If it were possible to correlate definite changes of structure with functional phenomena, it would, of course, enable one to form some estimate of the "secretory potential" of a gland by a histologic examination of its cells. The thyroid gland contains cells which resemble those of an ordinary secreting gland in many ways, notably with respect to the granules and other cytoplasmic details as well as the arrangement of the cells in the organ. The search for histologic evidences of the secretory activity which is indicated by a variety of physiologic experiences has revealed rather conflicting results. The thyroids are composed of vesicles of different sizes, which are lined by a single layer of cuboidal epithelium and contain in their interior the material known as colloid. Inasmuch as the gland possesses no duct it has been supposed that the cells furnish their specific product, that is, an "internal secretion," to the blood along the lymphatic efferents of the gland. Accordingly, it is stated that the colloid which has been looked on as identical with the active substance of the secretion is formed in the lining epithelial cells, and that the vesicles finally rupture and discharge the colloid into the surrounding lymphatic spaces.

Bensley[1] has recently pointed out how baffling the interpretation of the presence of the storage product in the thyroid has been. The route and rate of absorption of the thyroid colloid have remained problematic after years of observation, though chemical and physiologic studies have indicated that it contains the physiologically active thyroid component. Bensley recalls that some observers have even doubted the resorption of this material, and have suggested that the function of the thyroid gland is primarily to withdraw toxic substances from the blood. Others have conceived the colloid as a sort of menstruum in which the real thyroid secretion is received and from which it may be withdrawn without visible change in the colloid itself. Still others have held the view that the colloid is the real secretion of the thyroid gland, and that the normal mechanism of thyroid secretion is by this indirect route, first secreting into the center of the follicle and then withdrawing this warehoused material, as functional needs require, by some unknown method and route.

The experimental prosecution of investigation in this field is rendered difficult by the fact that few, if any, reliable methods of provoking thyroid function are known, so that it is not easy to decide whether a given gland is in a state of normal activity or hypersecretion. In an elaborate research on the structure of the thyroid as modified by diet and drugs, Bensley[1] has succeeded in demonstrating histologically the presence of what he terms the "secretion antecedent." The substance occurs in vacuoles, present exclusively in the outer pole of the cell, which contain a dilute solution similar in its properties to the colloid of the follicular lumen, differing from the latter only in density. The secretion collected at the outer margin of the thyroid cells is believed to be destined to direct transport into the vascular channels. In accord with its endocrine function, the thyroid cell thus represents a true reversal of "polarity," unlike the exocrine glands of the alimentary tract, discharging its active product away from the real follicular cavity directly into the surrounding medium.

The theory just presented fails, however, to account for the occurrence of the intrafollicular colloid in contact with the inner surfaces of the cells. It has frequently been observed that stored colloid may be withdrawn from the gland in a short period, and that the thyroid may be maintained for months in a condition in which little visible colloid is present. Bensley has reached the conclusion that in addition to the direct mode of secretion already described, there is an indirect mode which consists in the condensation of the secretion into the form of droplets having a high content of solids, and the extrusion of these into the follicular cavity. This implies that when the rate of production exceeds the body needs, the product of secretion is condensed, as it were, and stored as the familiar colloid in the intrafollicular spaces. On this hypothesis iodin, either by accelerating the activity of the gland cells or by inhibiting the removal of the product, causes the cells to reverse their usual processes and store colloid in the cavities.

If Bensley's observations prove to be tenable, the much discussed colloid in the thyroid vesicles is, by itself, no measure of the momentary activity of the gland, though it may indicate the capacity of the gland for storage of its physiologically active secretory product. Conversely, lack of colloid need not imply

1. Bensley, R. R.: The Normal Mode of Secretion in the Thyroid Gland, Am. Jour. Anat., 1916, xix, 37.

a permanent depression of actual glandular function, but merely a temporary depletion of storage material. Dietary conditions, notably an excess of meat in the ration, may give rise to a condition of hyperplasia of the thyroid gland; iodids, on the other hand, facilitate the storage of colloid.[2] These suggestions place the rôle of the thyroid colloid in a new light. They permit the known facts, often seemingly contradictory, to be viewed in a new way, and may serve to illuminate what has long been a most perplexing theme.

THE INCIDENCE OF BOVINE AND HUMAN TUBERCLE BACILLI IN MAN

The controversy regarding the significance of the bacillus of bovine tuberculosis in relation to human hygiene, carried on ever since Theobald Smith, in 1898, made his systematic comparative study of bacilli isolated from man and cattle and pointed out differences between the two types, has lost much of its acrimony. From a practical standpoint it is, of course, very important to learn whether the bovine and human diseases caused by the respective bacilli are mutually interchangeable. At present it seems to be agreed that while cattle are to a considerable extent immune against the bacillus of the human type, human beings do not enjoy the same safeguard in respect to the bovine bacillus. During adult life, however, the danger of such infection is far less than it is during infancy and early youth.[3]

In the extensive investigations of Park and Krumwiede,[4] which have furnished some of the most important data respecting the types of tubercle bacilli which sojourn in the human body, it was found that out of a total of 1,042 cases, only 101 were bovine in origin, and over half of these occurred in children under 5 years of age. Incidentally it may be noted that fifty-one out of the fifty-nine cases occurring in the 161 infants examined were directly or indirectly traced to alimentary infection, thus emphasizing the importance of a rigid sanitary control of milk supplies, on which infants are so largely dependent.

More recently Eastwood and Griffith,[5] in Great Britain, have made a report of the relative distribution of the various strains of tubercle bacilli in human bone and joint tuberculosis, and likewise, in a smaller number of cases, in tuberculosis of the genito-urinary tract in man. For the former investigation the material examined was removed directly from an affected joint or bone, or from an abscess in the neighborhood of such lesion. Out of a total of 261 patients, fifty-five, or 21 per cent., were "bovine" cases. Ten were recorded as atypical. Only three of those reported on as harboring the bovine bacilli were over 16 years of age. The incidence of the types is further shown by the fact that whereas under 10 years of age forty-five out of 155 cases, or 29 per cent., were bovine, over 10 years only ten out of 106, or 9 per cent., were of this type.

In their report of 1910, Park and Krumwiede[4] described only two bovine cases out of a total of sixty-five cases of tuberculosis of bones and joints. Twelve patients with tuberculosis of the genito-urinary tract disclosed only one infection of the bovine variety, the persons examined being adults, with one exception. Seventeen cases, which were about equally distributed between the genital organs and the urinary tract, were investigated by the British bacteriologists. The bacilli obtained were of the "human" type in fourteen cases, and "bovine" in three, the latter involving affections of the kidneys in persons aged, respectively, 25, 19 and 20 years. Investigations of this sort, laborious as they are, seem well worth while from the standpoint of public health propaganda. They give added assurance that although human adults are perhaps reasonably insusceptible to bovine infection, this mode of transmission can take place even beyond the years of infancy and childhood, in which the danger is unquestionably great.

PELLAGRA IN NASHVILLE

An increase in the morbidity and mortality from pellagra in Nashville, Tenn., since 1911, provided the opportunity for a thorough survey of over half of the city, including 65,000 persons, by a pellagra commission, the results of which have recently been reported by Jobling and Petersen.[1] Starting out with no preconceived theory as to the etiology of the disease, the commission gathered data, in more than 500 cases of pellagra, as regards the manifestations of the disease itself, its possible relations to sex, age and race, the season of the year, social and economic conditions, housing, occupation, diet, milk and water supply, parasitic infestation, method of sewage disposal, and previous exposure.

The carefully analyzed statistics indicate that women from 20 to 50 years of age are affected from three to four times more frequently than men, though from 50 years on, the two sexes seem equally susceptible; that children, particularly during the second decade of life, are less subject to the disease than adults; that negroes are as susceptible as white people and that among them the mortality is higher; and that the majority of the pellagrins had their attacks during the spring and summer months, the white people more frequently during the spring, the colored people during the summer—a fact of interest in connection with the

2. Bensley, R. R.: The Influence of Diet and Iodids on the Hyperplasia of the Thyroid Gland of Opossums in Captivity, Am. Jour. Anat., 1916, xix, 57.

3. Compare Hiss, P. H., Jr., and Zinsser, H.: A Textbook of Bacteriology, New York, 1914.

4. Park and Krumwiede: Jour. Med. Research, October, 1910.

5. Eastwood, A., and Griffith, F.: The Characteristics of Tubercle Bacilli in Human Bone and Joint Tuberculosis, Jour. Hyg., 1916, xv, 257; The Types of Tubercle Bacilli Occurring in Tuberculosis of the Human Genito-Urinary Tract, ibid., 1916, xv, 310.

1. Jobling, James W., and Petersen, William: The Epidemiology of Pellagra in Nashville, Tenn., Jour. Infect. Dis., 1916, xviii, 501.

theory that pellagra is caused by "photodynamic substances."[2] Symptoms referable to the gastro-intestinal tract and nervousness frequently preceded the attacks for weeks or even months.

Among the possible causes of the disease — some of them given much credit in previous investigations — social and economic conditions, density of population, presence of silicates and absence of lime salts in the water (Alessandrini),[3] a deficiency of proteins in the diet, as regards both quantity and quality, and an excess of carbohydrates,[4] seem not to have been active. The social and economic conditions of the areas afflicted with pellagra are not inferior to those of certain areas not so afflicted. The water contains lime, and is used indiscriminately by both pellagrins and normal citizens. A careful study was made of the diet of the pellagrins. Accepting the conclusions of Chittenden[5] and McCay[6] that 40 gm. of protein a day are sufficient to sustain life, the investigators found that 66.8 per cent. of 421 pellagrins were consuming considerably more than this amount daily. From the standpoint of quality, also, the protein diet seemed to be reasonably varied; moreover, the height and development of patients compared favorably with the height and development of normal persons; and men with the same diet as women, with probably greater protein requirements than women, were yet less susceptible to the disease. Vitamin-containing substances[7] likewise were being obtained in the form of potatoes, milk, butter, fruit, etc. That there was an excess of carbohydrates in the diet of these people was evident, but "it is gradually being supplanted to such a degree in many pellagrous families by wheat flour that it can hardly be considered an etiologic factor."

The significant localization of this disease in certain areas of the city, and the fact that the social and economic conditions in these areas were the same as in other areas not subject to pellagra, pointed directly to the one factor of difference — the method of sewage disposal — as having an etiologic relation to the disease. Pellagra was largely confined to the unsewered areas of the city, and of those pellagrins who lived elsewhere, the majority had developed the disease while living in an unsewered neighborhood or on the edge of an unsewered area, or had been in the habit of visiting friends and relatives in an unsewered area. The sanitary conditions in the unsewered sections of the city were of the worst. In an area of a square mile in which pellagra and typhoid were most prevalent were found 1,500 privies, rarely cleaned and almost never enclosed so as to prevent the entrance of flies. These privies were located seldom more than 50 feet and frequently not more than 15 or 20 feet from the kitchens of the houses. Two per cent. of the kitchens were screened. Another significant fact brought out in the survey was that 78.8 per cent. of the patients had been in intimate contact with other pellagrins before they themselves had developed the disease. Finally, the installation of sewers in certain areas was followed by a decrease in the number of cases of pellagra originating therein, and the isolation of cases in certain institutions in which pellagra had made its appearance seemed to prevent further spread of the disease.

The results here outlined are highly interesting indeed, and will exercise much influence on investigation of the problem of pellagra, because they indicate that factors other than deficiencies in diet are concerned.

2. Raubitschek: Wien. klin. Wchnschr., 1910, xxiii, 23.
3. Alessandrini: Ann. d'ig., 1914, xxiv, 1.
4. Goldberger, Joseph; Waring, C. H., and Willets, D. G.: The Prevention of Pellagra, Pub. Health Rep., Oct. 22, 1915, p. 3117. Siler, J. F.; Garrison, P. E., and MacNeal, W. J.: A Statistical Study of the Relation of Pellagra to Use of Certain Foods and to Location of Domicile in Six Selected Communities, Arch. Int. Med., September, 1914, p. 293.
5. Chittenden: Physiological Economy in Nutrition, 1904.
6. McCay: Scientific Memoirs, New Series, Medical and Sanitary Department, India, 1908, p. 34.
7. Funk: München med. Wchnschr., 1914, lxi, 698.

SCIENCE AND PRACTICAL COMMON SENSE

Almost every one who is engaged in scientific work is certain sooner or later to find the impression, among people at large and even among some practitioners of medicine, that there is something unpractical and visionary about so-called scientific knowledge. This sentiment crops out in various ways. Sometimes it represents "the survival of the idea long held that science is a kind of hobby, chiefly for the men who pursue it; that while it may throw light on the abstruse problems of the universe it is not to be the guide of the practical man, and that its adherents are impractical." It is from such a view that the feeling of a sort of antagonism between science and what is called "common sense" derives its origin. Reference is sometimes made to "sound practice" as if it were something quite independent of scientific principles, or even superior to them. Another somewhat prevalent conception confuses science with theory, whereby the term "scientific" is regarded as synonymous with theoretical.

In a recent discussion[1] of these prevalent tendencies of opinion, it has been pertinently remarked that although theory and hypothesis aid in the development of scientific knowledge, pure theory is not science, nor is science mere theory. We wish that this might be more widely appreciated, for it would spare scientific workers from much undeserved criticism. Any one who will take the pains to review the history of experience in any field of endeavor can easily convince himself how little of permanence there is in many of the vaunted "common sense" plans, theories or procedures. The history of medicine or agriculture, for example, readily furnishes instances of the complete abandonment of "practical" methods discredited by scientific investigation.

1. Science and Common Sense, editorial, Exper. Sta. Rec., 1916, xxxiv, 401.

Though the claims of science for wider recognition in the everyday world are becoming more readily accepted, there is much inherited prejudice or temperamental inertia still to be overcome before the omnipresent "busy practical man" will permit the development of an inquiry attitude, a desire to understand. Has it not been said that "long-continued practice solidifies opinion and makes it impregnable to evidence, and that we come at length to substitute habit for reason?" Let us understand clearly, then, what are the real claims of science. The first aim of any genuine work of science, however popular, says Karl Pearson,[2] ought to be the presentation of such a classification of facts that the reader's mind is irresistibly led to acknowledge a logical sequence — a law which appeals to the reason before it captivates the imagination. Let us be quite sure that whenever we come across a conclusion in a scientific work which does not flow from the classification of facts, or which is not directly stated by the author to be an assumption, we are dealing with bad science. Good science will always be intelligible to the logically trained mind, if that mind can read and translate the language in which science is written. The scientific method is one and the same in all branches, and that method is the method of all logically trained minds.

What shall be said of the supposed "practical" competitors of the scientific spirit and the consequences which it portends? The editorial to which reference has already been made[1] deserves to be quoted because of its lucid exposition of the fundamental fallacies in some of the current reactionary ideas. Common sense, whether of high or low degree, it says, is in effect a product of reason and judgment applied to the facts and conditions as they are seen. It rests on information and its interpretation. So does science. There is some very bad common sense, as there may be bad science. Scientific facts are derived more accurately than personal impressions, by providing conditions which tend to guard against error or misconstruction. Because the facts developed by scientific methods are accurate, dependable, unprejudiced, and not influenced by purely local conditions, they furnish a safe basis for intelligent reasoning along either practical or scientific lines. The scientific method of deduction is more cautious and more restricted in its generalizations than personal judgment may be, but so far as it goes there is nothing antagonistic in it to good common sense. The substitution of facts derived in a manner to make them thoroughly reliable, in the place of current notions, traditions and observations, instead of detracting from the practical value and reliability of personal judgment, strengthens it and makes it a safer basis for action. There is no reason why the practical man's judgment should not be based on the best and safest sources of information available, and this is exactly what is taking place, whether it is fully realized or not. As a matter of fact, science is becoming more and more an aid to sane and practical judgment in all affairs. The more science furnishes the means for intelligent understanding and this understanding becomes disseminated among the people, the more common and reliable may "common sense" be, and the further will it be removed from the elements of mysticism, superstition and dogma. Confidence in it will not suffer by reason of this change, for it will then rest on intelligence in the things that actually are, combined with sound judgment and clear thinking.

2. Pearson, Karl: The Grammar of Science, London, 1900, p. 10.

RECENT NECROPSY RECORDS IN THE UNITED STATES

There is evidence that the publicity in respect to the discrepancies between antemortem diagnoses and necropsy findings in the United States, together with the propaganda for more postmortem examinations in hospitals and elsewhere, is beginning to produce a long desired improvement in the situation. Statistics gathered only a few years ago by competent investigators showed that the ratio of necropsies to deaths ranged above 25 per cent. in only four of seventeen large hospitals in this country.[1] Among the institutions surveyed by the committee of the New York Academy of Medicine, the two in America showing the highest percentage of necropsies to deaths were the Johns Hopkins Hospital of Baltimore, with a record of 62.7 per cent., and the Royal Victoria Hospital of Montreal, with a ratio of 67.6 per cent. These figures have been contrasted with the decidedly higher postmortem statistics from European public hospitals of similar status.

The desirability of checking diagnoses and the results of operative procedures by the necropsy findings needs only to be stated to most thoughtful practitioners in order to be appreciated. In pointing out the value of the necropsy as a public service, Wilson[2] of the Mayo Clinic has remarked that some physicians entirely lack an interest in necropsies because they are not interested in accurate vital statistics and in problems of heredity in disease, or because they do not appreciate the value of the necropsy in the correction of errors of diagnosis. Possibly some also hesitate, as Wilson remarks, to bring their diagnoses or operative procedures to the test of publicity in the necropsy. Furthermore, he contends that most intelligent laymen will respond to the argument that they ought to know the weaknesses of the members of their own families, but this argument is frequently omitted or subordinated by the physician proposing that a necropsy be made. Usually necropsies are asked for as a favor to the physician and rarely offered as a favor to the relatives.

1. Report of Public Health, Hospital and Budget Committee, New York Academy of Medicine, THE JOURNAL A. M. A., June 7, 1913, p. 1784.

2. Wilson, L. B.: The Necropsy as a Public Service, THE JOURNAL A. M. A., May 8, 1915, p. 1560.

The continued awakening in the matter of necropsies is indicated by some new statistics called forth by an editorial comment[3] in the *Modern Hospital* stating that one hospital in America had been successful in obtaining permission for postmortem examination in 58.5 per cent. of the patients dying there. The director of the Pathologic Institute of the Cincinnati General Hospital, Dr. Paul G. Wooley,[4] now reports that between June 1 and Dec. 31, 1915, 293 necropsies were held from a total of 465 cases—a percentage of 63. This improvement is ascribed in part to better cooperation between the undertakers and representatives of the institute staff. The value of the better opportunities for the intensive study of clinical cases from the anatomic standpoint is stated to be demonstrated already. For the Robert B. Brigham Hospital of Boston, Dr. F. H. McCrudden[5] likewise reports that since its opening, April 1, 1914, complete necropsies have been carried out on 70 per cent. of all those dying, that is, thirty-five necropsies for fifty deaths. We shall look forward to a succession of advances over even these greatly improved records. That this is not impossible of achievement is suggested by the reports of the Mayo Clinic.[2] Under the more favorable conditions developed there, 512 necropsies in 626 deaths, or 81.8 per cent., were made during the triennial period 1910-1912; in 1913 they represented 84.4 per cent. of 269 deaths; in 1914, 88 per cent. out of 293; while in the early months of 1915 there were 73 necropsies for 73 deaths — a remarkable record of achievement in the face of the existing obstacles.

3. Autopsies Increase in Number, editorial, Mod. Hosp., 1916, vi, 187.
4. Wooley, P. G.: Some Good Autopsy Figures, Mod. Hosp., 1916, vi, 377.
5. McCrudden, F. H.: More Good Autopsy Figures, Mod. Hosp., 1916, vi, 376.

Current Comment

THE BABY'S CHANCE FOR LIFE

"No community with an infant mortality rate of over 50 can claim that its babies are getting anything like a square deal." This statement accompanies a statistical bulletin and chart recently sent out by the New York Milk Committee, showing infant mortality rates in a large number of cities in the United States. The committee sent a questionnaire to the health officers of 252 cities. Of these, 108 either furnished no information or were unable to furnish any that was reliable. The statistics obtained from the 144 cities that furnished information are embodied in the committee's bulletin. According to these figures, only four of the 144 cities are giving babies "a square deal." These cities, with their infant death rates, are La Crosse, Wis. (30.6); Ogden, Utah (39.8); Omaha, (47.1), and East Orange, N. J. (48.8). The highest infant death rate in the whole series is that of Passaic, N. J. (193.5), but in this "bad eminence" Passaic is closely rivaled by Montgomery, Ala. (185.1), Nashville, Tenn. (182.3), and Perth Amboy, N. J. (176.6). No city with a population of 200,000 or over has an infant death rate as large as those just mentioned, but not one of them has the "square deal" rate of 50, and few even approach this limit. The lowest rates among cities of this class are those of Seattle, Wash. (53.1) and Portland, Ore. (57.7). The highest are those of Jersey City, N. J. (132.9) and Indianapolis (131.6). To quote the bulletin: "Of the cities with a population of 100,000 or more, a baby born in Omaha was found to have four times as good a chance to live to celebrate the first anniversary of its birth as a baby born in Nashville, Tenn., or Fall River, Mass. In the cities under 100,000 and over 50,000 population, a Salt Lake City baby has over three times the chance of surviving the first year of life that a Passaic, N. J., or Holyoke, Mass., baby has; while in cities between 25,000 and 50,000 population a La Crosse, Wis., baby has an advantage more than six to one over a Montgomery, Ala., or Perth Amboy, N. J., baby." The conditions that cause these high rates may be remedied by any community that is determined not to tolerate this waste of infant life. For instance, of the 6,900 infant deaths that occurred last year in the Borough of Manhattan, New York, alone, over half—at least 3,500—may be classed as preventable if the New York Milk Committee's rate of 50 be accepted as normal. If only six babies in the Borough of Manhattan were to be killed or even threatened with death by a bomb from an aeroplane, the country would be aflame with indignation. An observer from Mars might find this phenomenon curious when placed by the side of the calm unconcern with which we regard conditions that doom to death thousands on thousands of infants in this country.

TUITION FEES AND THE COST OF TEACHING MEDICINE

The rapid increase in medical knowledge during the last quarter of a century has led to the complete reorganization which methods of teaching medicine have undergone in recent years. This reorganization required the establishing by each school of special laboratories equipped with expensive and technical apparatus, and the payment of fair salaries to full time skilled teachers. Instead of generous profits to the proprietors of medical schools, which was the case only a short time ago, the adequate maintenance of a medical school at present requires the expenditure of more money than can be obtained from even the most exorbitant tuition fees. As shown in a report published recently,[1] the total expenditure for teaching in eighty-two medical colleges from which reports were obtained was about five and a half million dollars, as compared with less than two million dollars obtained from tuition fees. In other words, the average cost of teaching each student enrolled in the eighty-two colleges reporting was $419, as compared with $150, the average amount received from each student in tuition fees. Notwithstanding this greatly increased expenditure, tuition fees have been only moderately

1. Finances of Medical Schools, THE JOURNAL A. M. A., April 8, 1916, p. 1115.

increased. The average tuition fee in all existing colleges is about $145, as compared with $109, the average fee charged by the same colleges fifteen years ago. Tuition fees have been advanced by only about 25 per cent. in the last fifteen years, therefore, although the cost of teaching has been advanced from the point at which students' fees permitted a profit, to the present situation where it exceeds the income from students' fees by 280 per cent. This excess in expenditures has, of course, been met by state appropriations or by private gifts and endowments which, meanwhile, have not been obtained by the small and rapidly diminishing number of medical colleges still conducted for the direct benefit of their owners. Such aid has invariably been furnished to the medical colleges which were worthy of it — colleges which were furnishing the best medical training possible with the funds at their disposal.

HIGHER TUITION, SCHOLARSHIPS AND NEEDY STUDENTS

The increased tuition fees, referred to in the preceding comment, have caused the publication of occasional statements expressing concern lest a medical education hereafter will be available only to wealthy students. There is still no occasion to feel alarmed, however, regarding opportunities for deserving but needy students to enter on the study of medicine. In a previous comment,[1] attention was called to opportunities for such students to work their way through the medical school in whole or in part. It was shown that as a rule the majority of such students were found in the higher grade and better equipped medical schools, and that the best opportunities for student service were found in such colleges. In a later comment[2] it was stated that the attempt to earn all expenses while doing justice to the exacting work of the medical course meant a strain which few could endure, and that the solution of the problem of the "poor boy" lay in free scholarships to be awarded to good students of limited means. It was shown that 170 such scholarships had already been provided and that others were being added. A report on another page[3] shows that at the present time scholarships and loan funds have been established in forty-eight medical colleges for the use of students who are without means otherwise to procure a medical education. Altogether 296 free scholarships are now available, 116 more than were reported a year ago. The increase in the number of scholarships, therefore, has been far greater than the increase in tuition fees. It is a fact that students with limited finances frequently do better both in their studies and in their subsequent practice than some who have had ample funds at their disposal. In this democracy the way must be kept open so that every deserving student, regardless of his financial condition, may find a ready and welcome entry to the practice of medicine.

1. The Poor Boy and Medical Education, Current Comment, THE JOURNAL A. M. A., Jan. 28, 1911, p. 275.
2. Scholarships in Medical Education and the "Poor Boy," Current Comment, THE JOURNAL A. M. A., Feb. 13, 1915, p. 597.
3. Scholarships and Loan Funds in Medical Schools, THE JOURNAL A. M. A., this issue, p. 1735.

THE FALLIBILITY OF DRUG THERAPY IN TEXTBOOKS

Until very recently, we were compelled to acknowledge that little if any progress was being made in internal medicine so far as drug therapy was concerned. Everybody knows of the progress made in other branches—in bacteriology, in pathology, in biologic chemistry, in surgery, in etiology and in the application of technical methods to diagnosis. Recently, however, pharmacologic research and the application of scientific methods in the study of the physiologic action of drugs are resulting in definite, positive progress. An important lesson, incidentally learned through this scientific investigation, is the fallibility of the drug therapy described in textbooks. The explanation is, of course, that many of these textbooks are mere compilations containing false statements, unproved theories, and unverified clinical evidence representing the guesswork of ancient uncritical observers. Many drugs have been, and still are, vaunted in textbooks as valuable in a variety of conditions, whereas scientific investigation and controlled clinical observation have proved them to be totally worthless; others are proving to be of value in an extremely limited number of conditions. The sooner writers of textbooks realize this fact and enter into the spirit of the new era, the better for the public and for scientific medicine.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

New Attorney for the State Medical Board.—John W. Hart, Los Angeles, has succeeded Mr. Ray Nimmo, resigned, as attorney for the State Medical Board.

Personal.—Dr. Cornelius Van Zwaluwenburg, president of the Riverside Chamber of Commerce, fell down stairs at the Riverside City Hospital, fracturing his right femur.——Dr. William Palmer Lucas, San Francisco, professor of pediatrics in the University of California Medical School, has gone to Europe to aid in the organization of children's work for the American Commission for Relief in Belgium.——Dr. Hardolph Wasteneys has been appointed associate professor of pharmacology in the new department of biochemistry in the University of California Medical School.

Medico-Military Preparedness.—May 18, the scientific program of the Los Angeles County Medical Association was devoted to a symposium on "Military Medicine." Lieut.-Col. William E. Purviance, M. C., U. S. Army (retired), Los Angeles, delivered an address on "Medical-Military Preparedness"; Lieut. John J. Kyle, M. R. C., U. S. Army, Los Angeles, major surgeon of the One Hundred and Sixtieth Indiana Infantry, U. S. V., during the war with Spain, spoke on "The Making of a Medical Officer"; Maj. Harlan Shoemaker, Los Angeles, formerly M. C., N. G. Pa., now captain, M. C., N. G. Calif., and first lieutenant, M. R. C., U. S. Army, read a paper on "The Medical Corps of Our Army as a Career—With Some Recent Scientific Achievements by the Regular Medical Corps," and Maj. Charles W. Decker, M. C., N. G. Calif., first lieutenant, M. R. C., U. S. Army, discussed "Sanitary Organization and Military Administration."

COLORADO

New Meeting Hall and Library for Society.—The committee on raising funds for the new meeting hall and library building of the Medical Society of the City and County of Denver, met for organization, April 26. Dr. William H.

Crisp was elected secretary of the committee and Dr. Walter A. Jayne, treasurer. The week from May 21 to 27 was designated as the time in which an active personal canvass of each member will be made. The society is endeavoring to raise $500,000 for this purpose.

Personal.—Dr. Clarence D. Ussher, for eighteen years a medical missionary of the American Board at Van, Turkey, delivered an address at the Congregational Church of Colorado City, May 10.——Dr. Richard W. Corwin, chief surgeon of the Colorado Fuel and Iron Company, Pueblo, sailed for Europe, May 14, to inspect hospital methods in France and other European nations.——Dr. Raynor E. Holmes, Canon City, has been appointed physician at the State Penitentiary, succeeding Dr. Hart Goodloe.——Dr. Charles A. Powers, Denver, sailed for France, April 8, on the *Chicago,* to work in the American Ambulance, Paris.

FLORIDA

Health Train at Tampa.—The educational exhibit train of the state board of health visited Tampa, May 20 to 22.

Sanatorium Transferred.—The De Soto Sanatorium property, Jacksonville, which was purchased by the Sisters of Charity of Emmitsburg, Md., for $67,000, was transferred to the Sisters, May 1. The staff of the institution remains the same, with Dr. John E. Boyd, Jacksonville, as chief of staff.

New Officers for State Association.—The forty-third annual meeting of the Florida Medical Association was held in Arcadia, May 10 to 12, under the presidency of Dr. Robert H. McGinnis, Jacksonville. The following officers were elected: president, Dr. Edmund W. Warren, Palatka; vice presidents, Drs. John A. Simmons, Arcadia; E. Van Hood, Ocala, and John P. Long, Lake City; secretary-treasurer, Dr. Graham E. Henson, Jacksonville (reelected); delegate to the American Medical Association, Dr. John MacDairmid, Deland, and alternate, Dr. Frederick J. Walter, Daytona. Atlantic Beach was selected as the next place of meeting.

ILLINOIS

Foot and Mouth Disease Breaks Out Again.—A new outbreak of foot and mouth disease is reported in Christian County after a period of three months of immunity, and the Federal Bureau of Animal Industry has placed the county under quarantine.

Personal.—Dr. Edward H. Harton, director of the bacteriologic department of the Tri-Cities Hygienic Institute, LaSalle, has resigned to accept a position as bacteriologist in the Northwestern University Dental College, Chicago.——Dr. J. George Vaughan, Aurora, a medical missionary in Nanchang, China, for the last seven years, is now on a furlough in America.——Dr. Clarence W. East, Evanston, has been appointed district health officer for the northeast section of the state.——Dr. Edmund J. Burke, LaSalle, is reported to be ill with scarlet fever.

State Society Meeting.—At the sixty-sixth annual meeting of the Illinois State Medical Society, held in Champaign, May 16 to 18, Dr. William L. Noble, Chicago, president-elect, assumed the office of president and the following officers were elected: president-elect, Dr. Elmer B. Cooley, Danville; vice presidents, Drs. Cyrus F. Newcomb, Champaign, and Robert A. McClelland, Yorkville; secretary, Dr. Wilbur H. Gilmore, Mt. Vernon (reelected), and treasurer, Dr. A. J. Markley, Belvidere (reelected); councilors, fourth district, Dr. August H. Arp, Moline; fifth district, Dr. Charles S. Nelson, Springfield; seventh district, Dr. Charles F. Burkhardt, Effingham; eighth district, Dr. Cyrus E. Price, Robinson (unexpired term); delegates to the American Medical Association, Drs. Thomas O. Freeman, Mattoon; Charles W. Lillie, East St. Louis; Robert S. Denney, Aurora, and Alexander M. Harvey, Hugh N. MacKechnie and Jacob C. Krafft, Chicago; alternates, Drs. Alban L. Mann, Elgin; Frank C. Sibley, Carmi; William D. Chapman, Silvis, and Hugo E. Betz, Duncan R. MacMartin and Henry F. Lewis, Chicago. Bloomington was selected as the next place of meeting, and the date of the meeting was fixed at May 15 to 17. The oration in surgery was delivered by Dr. B. Merrill Ricketts, Cincinnati, who spoke on "Anesthesia From the Dawn and Its Relation to Surgery"; and that in medicine by Lieut.- Col. William B. Bannister, M. C., U. S. Army, Chicago, whose subject was "The Medical Mechanism of War in the United States." A committee was appointed consisting of Drs. John M. Lavin, P. J. H. Farrell and Charles C. O'Byrne, Chicago, to perfect plans for recruiting members of the profession for the preparedness parade in Chicago, June 3. The House of Delegates heartily endorsed the general movement for national preparedness.

Chicago

Presentation to Dr. Coon.—Patients of the Municipal Tuberculosis Sanatorium, May 14, presented Dr. John W. Coon with a written address of appreciation and an elaborate desk and filing cabinet system.

Expensive Epidemic.—Four scarlet fever epidemics at the University of Chicago this year are said to have cost the school $1,200, including the sums refunded to women students for rooms in campus dormitories and board.

Meeting of Internists.—The twelfth regular meeting of the Chicago Society for Internal Medicine was held, May 22. The program included papers by Drs. Charles A. Elliott and Walter H. Nadler on "The Effect of Castration on Osteomalacia in the Male"; by Drs. R. G. Hoskins and W. E. Morse on "The Effect of Acid on Gastric Discharge"; by Drs. Ernest E. Irons and P. J. Murphy, on "The Incidence of Localized Infection in Patients With and Without Apparent Metastatic Lesions," and by Dr. Ethan Allan Gray on "Intestinal Perforation in a Case of Pulmonary Tuberculosis."

INDIANA

Physicians Win Suit.—In the suit brought against Drs. George E. Lowe and Robert O. Alexander, by Mrs. Laura E. Karnes, in which damages of $25,000 were asked on account of alleged malpractice, the judge instructed the jury to find for the physicians.

Pasteurization Favored.—The State Conference of Health Officers was held recently in Indianapolis and passed resolutions favoring the pasteurization of milk, recommending to the legislature that whole-time health officers should be appointed and a better system of school inspection initiated.

Hospital Improvements.—The hospital building of the Odd Fellows' Home at Greensburg is to be improved by a two-story addition to cost about $25,000.——The contract has been awarded for the construction of the Tuberculosis Hospital for Marion County, for $55,183. The building will be erected in the suburbs of Indianapolis.

The Newcastle Clinic.—Seven physicians of Newcastle have formed a cooperative organization known as the Clinic and are erecting a building to be devoted to pathologic, bacteriologic and chemical laboratories, operating, Roentgen ray and consultation rooms. The members of the association are Drs. Julius E. Hiatt, D. S. Wiggins, Herman W. MacDonald, Edson K. Westhafer, Clyde C. Bitler, George H. Smith and G. A. Hiatt.

Milk Standard Raised.—The standard of milk has been raised in Indianapolis by a new city ordinance which requires the pasteurization and clarification of all milk sold in the city that does not have a bacterial count of less than 50,000 bacteria to the cubic centimeter. This is regarded by the board of health as the greatest victory won by the medical profession of the city for many years. The ordinance further requires the registration of all milk dealers with the board of health, giving the board authority to enforce sanitary regulations and to inspect all dairies where milk is produced for sale.

KENTUCKY

Vance Memorial.—May 15, the formal exercises were held at the Children's Free Hospital, Louisville, in memory of Dr. Ap Morgan Vance at which the Vance Memorial Ward was presented to the hospital, and a tablet, inscribed with the names of those who contributed to the fund for the equipment, was presented. Dr. Lewis S. McMurty made the principal address.

Louisville Antituberculosis Association.—At the annual meeting of this organization, which operates the Hazelwood Sanatorium, April 10, it was announced that the sanatorium is now under the supervision of the Medical Advisory Board, of which Dr. Cuthbert Thompson has been the chairman since the death of Dr. Ap Morgan Vance. Dr. Benjamin C. Frazier is vice chairman, and Dr. Oscar O. Miller, corresponding secretary and physician in charge.

Railway Surgeons Hold Meeting.—The twelfth annual session of the Kentucky State Association of Railway Surgeons was held in Louisville, May 11 and 12, under the presidency of Dr. Henry C. Jasper, Richmond, and the following officers were elected: president, Dr. Madison E. Alderson, Russellville; vice presidents, Drs. John Striegler, Elizabethtown; R. Lee Bird, Covington, and secretary-treasurer, Dr. Clarence

H. Vaught, Richmond. Dr. Joseph C. Bloodgood, Baltimore, read a paper on "Standardization of First Aid Packages."

Personal.—Dr. Archibald Dixon, Henderson, has been appointed a member of the State Tuberculosis Commission. ——Dr. Albert F. Cornelius, Hazard, a member of the American Sanitary Commission to Serbia, returned from Serbia, April 27, on the Cunard steamer *Orduna*.——Dr. Ralph Holt, Kevil, has been elected physician of McCracken County, succeeding Dr. Clifford E. Harkey, Paducah.——Dr. Hervey S. Keller, Frankfort, has resigned as a member of the Kentucky Tuberculosis Commission.——Dr. William T. Willis, Mt. Sterling, has been appointed chief medical director of the Inter-Southern Life Insurance Company, Louisville, and will move to that city.

MARYLAND

Funds for Contagious Wards.—A campaign to raise $30,000 to provide contagious wards at the Harriet Lane Home for Invalid Children at the Johns Hopkins Hospital has been begun. The home is asking for $10,000 a year for three years, the sum required to maintain its two wards for these diseases.

Weekly Health Bulletins.—Dr. John D. Blake, health commissioner, has been requested by the mayor to furnish a weekly bulletin outlining health conditions in Baltimore, and recommending how they should be handled. It is intended that the bulletin be a guide to the public for the maintenance of health conditions in the city.

Personal.—Dr. Frederick Williams has been appointed health warden for the Fourth Ward of Baltimore, succeeding Dr. John F. Byrne, resigned.——Drs. John K. Ormond, Frederick H. Haessler and David R. Murchison have been appointed members of the staff of the Ford Hospital, Detroit, and will assume their duties, July 1, and Dr. Russell H. Hayden, Baltimore, also appointed, will begin his service on September 1.

Sanitary Campaign.—Surg.-Gen. Rupert Blue, U. S. P. H. S., and a delegation of municipal officers and business men inspected the hospital and grounds at Quarantine, May 16, preparatory to turning the station over to the federal government. In the evening, General Blue and Dr. Lewellys F. Barker, Baltimore, spoke at a public meeting in the Auditorium Theater at which the sanitary campaign of the mayor was launched.

Noted Chemist Dies.—Harry Clary Jones, professor of physical chemistry in Johns Hopkins University since 1904, and a member of the faculty of that institution for twenty-one years; a recognized authority on physical chemistry; a member of many learned societies; editor of and contributor to numerous scientific journals; author of "The Modern Theory of Solutions," and "The Freezing Point, Boiling Point and Conductivity Methods"; translator into English of many chemical works; Langstreth medalist of Franklin Institute in 1913; died at his home in Baltimore, April 9, from cerebral hemorrhage, aged 50.

MISSISSIPPI

State Medical Meeting.—The annual meeting of the Mississippi State Medical Association was held in Greenville, May 9 to 11, under the presidency of Dr. Inman W. Cooper, Newton. The following officers were elected: president, Dr. Thomas M. Dye, Clarksdale; vice presidents, Drs. Thomas W. Reagan, Union; Richard C. Smith, Dwiggins, and Robert A. Strong, Pass Christian; councilors, first district, Dr. Lancelot L. Minor, Hollywood, succeeding Dr. Dye, elected president; fifth district, Dr. Sam J. Hooper, Kosciusko, and sixth district, Dr. Sydney W. Johnston, Vicksburg; delegate to the American Medical Association, Dr. Inman W. Cooper, Newton. The annual oration was delivered, May 9, by Dr. E. Denegre Martin, New Orleans. At the public meeting a loving cup was presented to Dr. Carroll Kendrick, Kendrick, the presentation speech being made by Dr. James W. Lipscomb, Columbus. Jackson was decided on as the meeting place for 1917.

NEW HAMPSHIRE

New State Officers.—The one hundred and twenty-fifth annual meeting of the New Hampshire Medical Society was held in Concord, May 16, under the presidency of Dr. Edgar O. Crossman, Lisbon. After the president's address at the banquet in the evening, Dr. David Cheever, Boston, gave an illustrated talk on his experiences with a Harvard Unit in the European war zone; and Dr. Frederick C. Shattuck, Boston, spoke on "The Modern Advances of Medicine." The following officers were elected: president, Dr. Emdon Fritz, Manchester; vice president, Dr. Fred S. Towle, Portsmouth; secretary, Dr. Dennis E. Sullivan, Concord (reelected); treasurer, Dr. David M. Currier, Newport, and delegates to the American Medical Association, Drs. Walter T. Crosby, Manchester, and Charles W. Hannaford, Portsmouth.

NEW YORK

Personal.—Drs. John H. Wild, Charles Leone, Leon S. Kurek and Herbert H. Bauckus have been appointed city physicians of Buffalo.

Laboratory Facilities of the Department.—The state department of health calls attention to the fact that adequate laboratory facilities are now available for the examination of specimens for diagnosis, especially of diphtheria, tuberculosis and typhoid fever. Physicians throughout the state are urged to take advantage of these facilities.

Warning to Physicians.—Asserting that more than one half of the cases of tuberculosis and nearly three fourths of the cases of typhoid fever are not being reported, Health Commissioner Biggs has sent a circular letter to all the physicians of the state warning them that continued laxity in this regard will result in prosecution under the public health law.

Women's Medical Society.—This society held its tenth annual meeting at Saratoga Springs, May 16, and elected the following officers: president, Dr. Eveline P. Ballintine, Rochester; vice presidents, Drs. Edith R. Hatch, Buffalo; Grace N. Kimball, Poughkeepsie, and Beatrice M. Hinkle, New York; secretary, Dr. Ethel Doty Brown, New York, and treasurer, Dr. Phoebe M. B. VanVoast, New York.

Trudeau Tuberculosis School Opens.—This postgraduate school for medical men who are specializing in tuberculosis was formally opened at Saranac Lake, May 17. Among the speakers on this occasion were Dr. William H. Welch, Baltimore; Dr. Hermann M. Biggs, New York; Dr. Walter B. James, New York, and Dr. Edward R. Baldwin, Saranac Lake. The school is a memorial to Dr. Edward Livingston Trudeau, and thus far $500,000 has been subscribed toward its support. This fund is to be known as the Edward L. Trudeau foundation.

Social Insurance Inquiry.—Under the auspices of the Committee on Insurance of the New York Chamber of Commerce, arrangements are being perfected for a comprehensive investigation into all essential phases of the subject of social insurance, between this and the next meeting of the New York legislature, with special regard to health insurance. Dr. J. F. Crowell, executive officer of the chamber of commerce, to whom communications may be addressed, will have charge of the inquiry. This inquiry will extend not only to the actual developments in countries where health insurance has made some progress, but will also include a critical examination of the conditions, causes and effects of the different systems with a view to their availability for American communities. It is intended to test the claims which existing systems made at the time of their origin in the light of results.

Bills Vetoed.—Governor Whitman has vetoed the bill known as the Elon R. Brown bill which was amended in the legislature to meet the views of those who were endeavoring to prevent the pollution of the city's water supply by the sewage of the Mohansic State Hospital and the New York State Training School for Boys. The governor states that he vetoed the bill because it fell far short of properly safeguarding and protecting the lives of the citizens of the state of New York. It seems that there was nothing in the bill to prevent the commission selecting new sites for the institutions which are considered objectionable within the same watershed. He also disapproved the plans and specifications for the new Mohansic State Hospital and the Boys' Training School which will prevent the starting of work on that institution until the legislature provides for the abandonment of these projects. He has also vetoed the Simpson bill which would have granted to public service commissions instead of to health boards the power to make an order directing the maximum number of passengers to be carried in street cars.

New York City

Fourth Base Hospital Unit.—A completely equipped base hospital of 500 beds has been presented to the New York County Chapter of the American Red Cross by Mr. and Mrs. George Blumenthal of this city. This unit will cost $24,000, and will be organized in connection with Mount Sinai Hospital. The staff will be recruited from the surgeons and nurses of the institution, and will consist of twenty surgeons, forty-six nurses and 125 orderlies. Mobilization plans of the

three units already organized are complete and the units are ready for service, either in the field in time of war or in the case of extreme emergency at the scene of a great disaster.

NORTH DAKOTA

Hospital Items.—The seventh day adventists of Harvey have secured control of the Harvey Hospital by the purchase of the majority of the capital stock.——Col. Alexander Scarlett, Minot, has deposited $250 for the benefit of the building fund of the new Catholic Hospital in Minot, subject to the receipt of ninety-nine subscriptions of similar amount before July 4.

State Society Meetings.—The North Dakota State Medical Association held its twenty-ninth annual meeting at Devils Lake, May 9 to 11, under the presidency of Dr. Victor H. Stickney, Dickinson. New Rockford was selected as the place of meeting for 1917, and the following officers were elected: president, Dr. Victor J. LaRose, Bismarck; vice presidents, Drs. George M. Williamson, Grand Forks; Edgar A. Pray, Valley City, and William A. Gerrish, Jamestown; secretary, Dr. Hezekiah J. Rowe, Casselton (reelected), and treasurer, Dr. William F. Sihler, Devils Lake (reelected). The annual banquet was held at the Great Northern Hotel on the evening of May 10.

OREGON

Meeting of Southern Oregon Physicians.—The annual meeting of the Southern Oregon Medical Association was held in Roseburg, May 9. Grants Pass was selected as the next place of meeting and Dr. Frederick D. Stricker, Grants Pass, was elected president; Dr. Victor L. Rocho, Yoncalla, vice president, and Dr. Alvane C. Seely, Roseburg, secretary-treasurer.

Personal.—Dr. Ralph Charles Matson, Portland, will be a member of the staff of the research laboratory conducted by Col. Sir Almroth E. Wright, consulting physician with the British Expeditionary Force at Bolougne. Dr. Matson left Portland, May 15, and sailed from New York for England five days later.——Dr. Urling C. Coe, Bend, has been appointed a member of the State Board of Medical Examiners, succeeding Dr. Henry L. Henderson, Astoria, term expired.

PENNSYLVANIA

Personal.—Dr. Edgar M. Parlett, Newcastle, has been appointed chief of the Bureau of Welfare of the Baltimore and Ohio Railroad with headquarters in Baltimore.——Dr. Evan O'Neill Kane of the Kane Summit Hospital returned from abroad on the *Finland*.——Dr. Clyde Brooks of the University of Pittsburgh has resigned to accept a position as head of the department of physiology, pharmacology and physiologic chemistry in the School of Medicine of the Ohio State University, Columbus.

Factory Surgeons' Conference.—The second conference of physicians and surgeons employed by the large industrial plants of the state was held in Harrisburg, May 18. Dr. Francis D. Patterson, Philadelphia, chief of the division of industrial hygiene and engineering, presided. The speakers at the morning session were Dr. Alfred Stengel, Surg. Joseph W. Schereschewsky, U. S. P. H. S., Frederick S. Crum, assistant statistician of the Prudential Insurance Company, and Dr. Elizabeth B. Bricker Lititz of the department of labor and industry. The speakers of the afternoon session were all surgeons and physicians employed by the industrial plants of the state.——It was announced that a clinic for the exclusive study of industrial and occupational diseases will be established in Philadelphia through the cooperation of Dr. Alfred Stengel, commissioner of labor and industry, Jackson, and Dr. Francis D. Patterson, chief of the division of industrial hygiene and engineering of the same department. This clinic with Dr. Stengel at its head will be opened at the University Hospital, Philadelphia, about June 1. An entire ward will be devoted to patients suffering from diseases presumed to be the result of their working conditions. Two physicians from the hospital and a score of social service workers will assist Dr. Stengel in his study of vocational diseases which medical experts declare have never been thoroughly investigated.

Philadelphia

Hospital Building to be Dedicated.—The Mitchell Memorial Building of the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases, Seventeenth Street, north of Summer Street, will be formally dedicated, June 1.

Personal.—Dr. Malcolm C. Grow has returned after a prolonged service with the Russian army on the eastern war front.——Dr. Max M. Peet has been appointed instructor in the surgical department of the University of Michigan, Ann Arbor.

Clean Up Week.—May 18, Clean Up Week was officially opened by the parade of the street cleaning forces reviewed by the mayor and his cabinet. The street cleaning contractors are all required to have their full complement of men in the parade, and each year there has been a noticeable improvement in the equipment and efficiency of the forces.

Work Resumed.—Within a short time work will be resumed on the unfinished surgical wing of the Hospital of the University of Pennsylvania, on which work was stopped two years ago, when the board of managers ran out of funds to carry it on. Three floors are completed and friends have since been successful in raising funds to complete the walls of the fourth and fifth floors.

College Commencement.—The Ninety-First Annual Commencement of the Jefferson Medical College will be held, June 3, in the Academy of Music. Dr. William W. Keen, emeritus professor of surgery in Jefferson Medical College, and president of the American Philosophic Society, will deliver the valedictory address. His topic will be "The Doctor's Duty."

Free Baby Lectures.—A campaign for better health among mothers and babies, and those in any way connected with children, was inaugurated, May 18, by the Child Federation in the Widener Building. A store on the ground floor was obtained and daily talks were given to the public by physicians and health officials. In order to make the campaign a popular one, an orchestra was obtained and a concert given every day at 11:45 a. m. There was a course of ten lectures, the first being given by Dr. Joseph Neff, president of the federation and former director of health and charities. Among other speakers at these noon meetings were Dr. Judson Daland, May 19, and John M. Patterson, judge of the court of common pleas, May 20.

TENNESSEE

Funds for Galloway Hospital.—It is reported that the recent ten-day campaign in Nashville resulted in raising $270,000 for the completion of the Galloway Memorial Hospital, the teaching hospital of Vanderbilt University, Medical Department. This was $70,000 more than the sum contemplated.

State Board Meeting.—At the semiannual meeting of the state board of health held in Nashville, May 9, it was announced that arrangements had been made to secure five experts from the United States Public Health Service, working with a like number from the state department, to make a sanitary survey of Obion County.——It was also reported that a hospital would be established at a cost of $9,000 in the mountain district of East Tennessee for the treatment of trachoma.

Personal.—Senior Surg. Joseph H. White, U. S. P. H. S., in charge of the Marine Hospital, Memphis, delivered an address at the health exhibition, May 8, on "Malaria, the Malaria Mosquito and Preventive Measures." Dr. White has been detailed as director of the field campaign against malaria.——Dr. John R. Thompson, Nashville, has succeeded Dr. Blackburn G. Tucker, resigned, as full time health officer of Davidson County.——Dr. Reese Q. Lillard, Nashville, secretary of the state board of health, is making an official inspection of the water supply of Bristol and a sanitary survey of the town of Kingsport.

TEXAS

Personal.—Dr. Manton M. Carrick, Dallas, is having erected a public drinking fountain in memory of his mother, Mrs. Camie Howard, at Waxahachie.——Dr. Edgar W. Loomis has been appointed health officer of Dallas.

State College Alumni Organized.—An association of Dallas alumni of the University of Texas, Medical Department, was organized at Dallas, April 28, at which Dr. William C. Swain was elected chairman, and Dr. John M. Boyd, secretary.

Health Officers' School Opened.—The second annual course of instruction for health officers under the auspices of the University of Texas Medical Department, Galveston, began, May 12, under the charge of Dr. Burdett L. Arms, professor of preventive medicine. During the course the mornings are spent in clinical and laboratory work, the afternoons being devoted to lectures.

Quarantine Authority Defined.—The attorney general's department on May 10 made a ruling that in establishing a general quarantine in a county or a political division thereof, the county health officer shall be required to act under directions from the county commissioner's court, but that in isolated cases the county health officer may establish and maintain quarantine on his own initiative.

Texas Surgeons Elect.—At the annual election of the Texas Surgical Association held in Dallas, April 24 and 25, the following officers were elected: president, Dr. James E. Thompson, Galveston; vice presidents, Drs. Joseph H. Reuss, Cuero, and Frank Paschal, San Antonio; secretary, Dr. W. Burton Thorning, Houston; treasurer, Dr. John B. Smoot, Dallas, and recorder, Dr. Charles S. Venable, San Antonio.

County Secretaries Hold Meeting.—The annual meeting of the State Association of County Secretaries wes held in Galveston, May 11. An amendment was adopted changing the name of the association to the State Association of Medical Secretaries of Texas. Dr. Alfred W. Davisson, Corpus Christi, was elected president; Dr. Edgar F. Gough, Waxahachie, vice president, and Dr. H. Lawler Wilder, Glen Rose, was reelected secretary.

Health Survey.—Dr. Platt W. Covington of the International Health Commission, Dr. B. W. Collins of the State Health Department, Dr. Burdett L. Arms of the Medical Department of the University of Texas and Ernest Breihan have started a health survey of Leon County. It is being conducted in three districts, each containing about 10 square miles, and each family in the districts to be surveyed has expressed willingness to submit to treatment when cases of disease are found and to observe, as nearly as possible, the sanitary regulations prescribed.

Semicentennial of State Society.—At the fiftieth annual meeting of the State Medical Association of Texas, held in Galveston, May 9 to 11, under the presidency of Dr. George H. Moody, San Antonio, almost 800 delegates were present, and the following officers were elected: president, Dr. James M. Inge, Denton; president-elect, Dr. Edward H. Cary, Dallas; vice presidents, Drs. Robert Y. Lacy, Pittsburg; Charles R. Johnson, Gainesville, and William L. Brown, El Paso; secretary, Dr. Holman Taylor, Fort Worth (reelected); treasurer, Dr. Wilmer L. Allison, Fort Worth (reelected); chairman, board of trustees, Dr. John T. Moore, Houston (reelected); member, Council on Medical Defense, Dr. William A. King, San Antonio (reelected); councilor from third district, Dr. Charles R. Hartsook, Wichita Falls (reelected); councilor from fifth district, Dr. Charles S. Venable, San Antonio; councilor from sixth district, Dr. William N. Wardlow, Corpus Christi (reelected); councilor from twelfth district, Dr. Arthur C. Scott, Temple (reelected); councilor from fifteenth district, Dr. Charles E. Seale, Daingerfield; delegates to the American Medical Association, Drs. George H. Moody, San Antonio, and Marvin L. Graves, Galveston; alternates, Drs. Charles M. Rosser, Dallas, and Bacon Saunders, Fort Worth, and member of the Council on Legislation and Public Instruction, Dr. Ben H. Turner, Cleburne (reelected). Dr. Holman Taylor, Fort Worth, was also reelected editor of the *Texas State Medical Journal*. On the evening of May 9, memorial services were held in honor of the thirty-six members of the association who had died since the last meeting.

WISCONSIN

Y. W. C. A. Infirmary.—Dr and Mrs. Harold C. Bradley, Madison, have offered to build and completely equip three rooms to be used as an infirmary in the Young Women's Christian Association Building, Madison.

State Health Conference.—A conference of the field men of the state board of health was held in Madison, May 5 and 6, presided over by Dr. Guy W. Henika, deputy state health officer for the district, and Frank R. King, state plumbing inspector.

Postgraduate School Organized.—At a meeting of physicians of Marshfield, the Physicians Postgraduate School of Marshfield was organized, and the following officers were elected: president, Dr. Karl W. Doege; vice president, Dr. John C. Hayward; secretary, Dr. Victor A. Mason, and treasurer, Dr. William Hipke.

Personal.—Dr. John R. McDill, Milwaukee, has been selected as surgeon in chief of two field hospitals of 500 beds each, to be established in Germany and Austria, by the American Surgeons' Expeditionary Committee. Dr. McDill, with forty surgeons and nurses, sails from New York, May 27, on the *New Amsterdam*.——Dr. Albert F. Young, Wauwatosa, has resigned as house physician of the Milwaukee County Detention Home.——Dr. John J. McShane, health commissioner of Kenosha, has been appointed director of public health of Akron, Ohio.

State Surgeons Hold Meeting.—The annual meeting of the Wisconsin Surgical Association was held in Milwaukee, May 10 and 11, under the presidency of Dr. F. Gregory Connell, Oshkosh, and the following officers were elected: president, Dr. Charles H. Lemon, Milwaukee; vice presidents, Drs. Reginald H. Jackson, Madison; George W. Nott, Racine; Karl W. Doege, Marshfield, and Dennis J. Hayes, Milwaukee; secretary-treasurer, Dr. Daniel Hopkinson, Milwaukee, and member of the board of regents, Dr. John F. Pember, Janesville (reelected). At the close of the banquet a paper written by Major James R. Scott, M. C., Wis. N. G., Appleton, was read by Major James W. Frew, M. C., Wis. N. G., Milwaukee, assigned First Infantry, and this was followed by a discussion on the general topic of preparedness.

CANADA

Grenfell Speaks.—Dr. Wilfrid T. Grenfell, Labrador, recently returned from the battlefront in France, lectured in Convocation Hall, University of Toronto. He spoke of the work of the Red Cross, to which he paid a high tribute, as well as to the Canadian Army Medical Corps.

Hospital News.—The Massey-Harris Hospital at Kingswood, England, will be opened, June 1.——The Canadian Women's Club at Folkestone, England, is building and furnishing an assembly center for tuberculosis patients at Moore Barracks Hospital, England.——Lieut.-Col. John R. Spier, Westmount, Que., has been appointed head of No. 2 Canadian Hospital in France.

Personal.—Prof. Archibald B. Macallum of the University of Toronto has been elected president of the Royal Society of Canada.——Dr. W. Harley Smith, Toronto, writing to the Hon. Mr. Hanna from the Ontario Military Hospital at Orpington, England, says it just recently received its first quota of patients—two dozen cases of incipient tuberculosis contracted within the past six months.——Dr. Gordon J. Ferrier, Toronto, Ont., was reported dangerously wounded on Good Friday "somewhere in France."——Dr. Charles K. Clarke, superintendent of the Toronto General Hospital, has been elected president of a Toronto society to promote the interests of the feebleminded.

University News.—Every member of the graduating class of the medical department at the Western University, London, Ont., has offered his services to the militia authorities at Ottawa for immediate overseas service if required. There is a great shortage of young doctors in the field hospitals.—— The annual convocation of the Western University was held, May 18. Dr. William J. Roche, M.P., Minnedosa, Mann., new chancellor of the university, delivered an address on the aspirations of the institution. Dr. Edward A. Braithwaite, Edmonton, Alta., president of the university, outlined the progress made in the past year. The following members of the profession received the honorary degree of doctor of laws: Dr. Hugh A. McCallum, London, Ont.; Dr. Friend R. Eccles, and Dr. Walter H. Moorhouse. The honorary degree of doctor of science was conferred on Dr. Leonard G. Rowntree, professor of medicine in the University of Minnesota.——Speaking at the annual meeting of the Alumni Association of the University of Toronto, held last week, President Falconer stated that the war had taken over 2,500 graduates and undergraduates of the university into active service.

GENERAL

Anesthetists to Meet.—The second annual meeting of the Interstate Association of Anesthetists will be held in the Hotel Seelbach, Louisville, July 25 to 27, in conjunction with the meeting of the National Dental Association. Dr. F. Hoeffer McMechan, Avon Lake, Ohio, is secretary-treasurer of the association.

Instruction Camps for Medical Reserve Corps Abandoned.—Owing to the withdrawal of troops from their regular stations for duty on the Mexican border, the War Department has been compelled to abandon the camps of instruction for officers of the Medical Reserve Corps that were to be held during the coming summer.

Harvard Unit Sails for Europe.—The Cunarder *Andania*, which sailed on May 20, had aboard fifty-seven of the Harvard Unit, bound for the Western battle front, among them

being: Drs. Hugh Cabot, George C. Shattuck, Charles W. Peabody, Lyman S. Hapgood, Edward M. Harding, Dennis R. W. Crile, Allen Greenwood and George M. Sheahan.

Hygiene and Public Baths.—At the annual meeting of the American Association for the Promotion of Hygiene and Public Baths, held in Baltimore, May 9 and 10, Dr. Simon Baruch, New York, was reelected president; J. Leonard Mason, Newark, N. J., secretary; August P. Windolph, New York, treasurer, and Dr. Joseph E. Gichner, Baltimore, was elected vice president.

Southern Medical Association Meeting.—Plans for the tenth annual meeting of the Southern Medical Association to be held in Atlanta, November 13 to 16, were discussed at a meeting of the local committee of arrangements, Dr. Seale Harris, Birmingham, Ala., secretary of the association, and editor of its official organ, and the business manager of the journal.——Dr. Stewart R. Roberts, Atlanta, Ga., has been made general chairman of the committee of arrangements.

National Tuberculosis Association Elects Officers.—The National Association for Study and Prevention of Tuberculosis, at its meeting in Washington, D. C., May 9 to 12, elected as president, Dr. Edwin R. Baldwin, Saranac Lake, N. Y.; as vice presidents, Dr. Watson S. Rankin, Raleigh, N. C., and Dr. James A. Miller, New York, and as executive committee, Dr. George Thomas Palmer, Springfield, Ill.; Mr. Homer Folks, New York; Mr. John M. Glenn, New York; Mr. Lee K. Frankel, New York, and Dr. David R. Lyman, New Haven, Conn.

Medical Jurisprudence Association Elects Officers.—The American Association of Medical Jurisprudence, at its annual meeting held in Washington, D. C., May 6, elected the following officers: president, Mr. Oscar W. Ehrhorn, New York; vice presidents, Dr. Philip Coombs Knapp, Boston, and Mr. Bartow S. Weeks, New York; secretary, Mr. Charles P. Blaney, New York; treasurer, Mr. John C. West, New York, and councilors, for the term ending 1917, Mr. Raphael Tobias, New York; for the term ending 1920, Mr. W. O. Hart, New Orleans, and for the term ending 1921, Dr. William C. Woodward, Washington, D. C., and Mr. John S. Durand, New York.

Bequests and Donations.—The following bequests and donations have recently been announced:

Presbyterian Hospital, Chicago, $150,000, by the will of James Longley, Boston.

Guilford County (N. C.) Tuberculosis Sanatorium, a donation of $10,000 toward a $30,000 fund for erection and equipment.

Children's Memorial Hospital and United Charities of Chicago, each $25,000, by the will of Bryan Lathrop.

Massachusetts Medical Society, $1,000, by the will of Mrs. Virginia Carpenter, Dedham.

Mt. Sinai Hospital, New York, a gift of $150,000, for the endowment of a department of surgery of the stomach.

National Association for the Study and Prevention of Tuberculosis, a donation of $100,000, from the Metropolitan Life Insurance Company, to demonstrate by community experiment the possibility of the control of tuberculosis.

National Conference of Charities and Corrections.—This meeting was held in Indianapolis, May 6 to 19. Pittsburgh was chosen as the place of meeting for 1917, and the following officers were elected: president, Mr. F. A. Almy, secretary of the Charity Organization Society of Buffalo; vice presidents, Mr. Joseph Lee, Boston, president of the Playground and Recreation Association of America; Miss Julia C. Lathrop, Washington, D. C., head of the National Children's Bureau, and Rabbi Emil W. Leipziger, New Orleans, head of the Louisiana State Conference of Charities and Correction. The program was accompanied by national exhibits in the State House, occupying three floors of the building. Many other corelated conferences were held during the meeting. A district branch of the conference was created in the form of the National Society of Medical Social Service Workers.

Army Medical Corps Examinations.—The surgeon-general of the army announces that preliminary examinations for appointment as first lieutenants in the Army Medical Corps will be held, July 17 and August 14, at points to be hereafter designated. Full information concerning these examinations can be procured on application to the Surgeon-General, U. S. Army, Washington, D. C. Applicant shall be a citizen of the United States, betwen 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of Doctor of Medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training as an intern, after graduation. In order to perfect all necessary arrangements for the examination, applications must be completed and in possession of the adjutant general at least three weeks before the date of examination. There will be more than 100 vacancies to be filled after July 1, when the bill for the reorganization of the army becomes a law.

Wine of Cardui Suit.—Since publication of the last item concerning this suit (THE JOURNAL, May 20, 1916, p. 1634) the following witnesses have appeared for the Chattanooga Medicine Company in rebuttal: Dr. George C. Amerson, Chicago; Dr. Henry H. Rusby, New York City; Mrs. James H. McFall, Sladen, Tenn.; Dr. Walter R. Schussler, Orland, Ill.; Dr. Effie L. Lobdell, Chicago; Mrs. John F. Brownell, Franklin Parish, La.; Mr. Daniel Coit Campbell, Chesterfield, S. C.; Mr. W. G. White, Chesterfield, S. C.; Mr. W. A. Watson, Chesterfield, S. C.; Mr. R. T. McCreight, Ruby, S. C.; Mr. Spencer Sellers, Ruby, S. C.; Dr. W. J. Perry, Chesterfield, S. C.; Dr. C. A. Glover, Chesterfield, S. C.; Mr. Clarence L. Goldstein, Oakdale, Tenn.; Mr. W. J. Johnson, Oakdale, Tenn.; Mr. J. H. Lynch, Oakdale, Tenn.; Mr. H. J. Ellis, Ashford, Ala.; Mr. G. M. Gresham, Cottonwood, Ala.; Mr. H. B. Williams, Ashford, Ala.; Mr. Dow Harrelson, Charleston, S. C.; Mr. William Marbury, Sylacauga, Ala.; Mrs. E. E. Gilliand, Kellyton, Ala.; Mr. Arthur Hill Grimmer, Chicago; Mr. Joseph A. Dickson, Heston City, Tenn.; Mr. Newt C. Gailbraith, Sunny Point, Tenn.; Mr. L. V. McMurray, Sardis, Tenn.; Mr. J. W. Hassel, Sardis, Tenn.; Mr. A. S. Montgomery, Sardis, Tenn.; Mr. J. W. Knight, Inverness, Fla., and Mr. O. A. Pierce, Tuca, Fla. Besides the above testimony, depositions were read.

Conference of Boards of Health.—The thirty-first annual meeting of the Conference of State and Provincial Boards of Health of North America was held in Washington, D. C., May 16, following the Conference of State and Territorial Health Authorities with the United States Public Health Service. While a certain overlapping in the programs and proceedings of these two conferences seems unavoidable, the fact that the Conference of State and Provincial Boards is essentially an international body has in the past given its proceedings a color not obtainable in the strictly official conference of United States health authorities with the United States Public Health Service. At the recent conference, presumably owing to the unusual conditions now prevailing in Canada as a result of the war, but one Canadian province was represented.

In his presidential address, Dr. Ennion G. Williams, Commissioner of Health of Virginia, urged the importance of coming to some understanding as to the exact limits of the work that is to be undertaken as "public health work." He pointed out the predominant importance of the educational activities of public health agencies at the present time and urged their enlargement and continuance until they are taken up in a satisfactory manner by educational authorities and by private educational institutions. The address suggested the advisability of cooperation between federal and state authorities, or between groups of state and territorial sanitary authorities, in intensive campaigns to be carried on in the several jurisdictions simultaneously against certain definite diseases, in order that the efforts of any one state might not be rendered unsuccessful or diminished in their effectiveness by the introduction of disease from beyond its borders. The use of salvarsan as a public health agency was urged by Dr. Allan J. McLaughlin, Commissioner of Health of Massachusetts, who pointed out that if this remedy or some efficient substitute for it could be made generally available to all persons suffering from syphilis, without reference to their ability to pay for the drug, its more general use would limit the duration of the infective period of the disease in many cases in which this cannot now be accomplished and would thus tend to diminish the number of infections. Massachusetts has already taken action toward this end.

Officers were elected for the coming year as follows: president, Dr. Thomas D. Tuttle, Seattle, commissioner, state board of health, Washington, D. C.; vice president, Dr. Samuel L. Jepson, commissioner of health of West Virginia, and secretary, Dr. Eugene R. Kelley, chief of the division of communicable diseases, state department of health, Massachusetts.

Conference of Health Authorities With the Public Health Service.—The Fourteenth Annual Conference of State and Territorial Health Authorities with the United States Public Health Service was held in Washington, D. C., May 13 and 15. Twenty-nine states and territories and the District of Columbia were represented.

With a view to increased efficiency and economy of work in the field of rural sanitation and to prevent overlapping of various fields of sanitary effort, the conference recommended that the surgeon-general appoint a committee to define the limits of the activities that might properly be regarded as coming within the purview of the work of a bureau on rural sanitation, and to define methods and standards for work in that field. In order to simplify and to make uniform administrative measures pertaining to the sanitation of travel, the conference recommended the appointment of a committee to study the regulations

of the various states and territories for the sanitary control of travel and of common carriers and the federal interstate regulations pertaining to the same matter, and to report at the next annual conference a draft of standard regulations. In so far as uniformity can be brought about in interstate and intrastate regulations, the duties of common carriers, travelers and shippers will be simplified, and the enforcement of such regulations by the authorities charged with such work will be facilitated. The conference went on record as believing in the present feasibility of establishing a morbidity registration area for reportable diseases, analogous to the registration areas established by the Bureau of the Census for births and deaths, and requested that the surgeon-general of the Public Health Service determine the practicability of this project and to fix standards for the admission of states and cities to such a registration area if established. The appointment of a committee was recommended to formulate standard methods of recording public health data, with particular reference to cost accounting by public health agencies, and of a committee to report on feasible methods of increasing the efficiency and extending the influence of future conferences. As a public health measure adopted to prevent and cure pellagra, the conference endorsed the use of a properly balanced diet as the only method now known to be effective. The sanitation of schools and the protection of the health of schoolchildren are, according to a resolution adopted by the conference, proper functions of health authorities rather than of educational authorities, but the latter should cooperate in the planning and execution of such work. Health insurance received the formal endorsement of the conference in a resolution declaring it possible, in the opinion of the conference, for health insurance operated by governmental systems to improve the economic status, efficiency and health of individuals through better treatment of the sick, and to make disease prevention by communities, states and the nation more efficient than at present. Members of the conference were urged to impress on those planning legislation looking toward the establishment of health insurance to incorporate in such legislation provisions to establish effective and close cooperation between the officials in charge of the administration of health insurance and the health officials of local, state and national government.

FOREIGN

Institute for Tropical Medicine at Granada.—Dr. F. F. Martinez, who has published several works on tropical medicine, has been appointed director of the newly organized Instituto de Medicina Tropical y Mediterranea at Granada, Spain.

Physician Temporary Governor of German Province.—Dr. Max Bierfreund was appointed by the military authorities governor of Insterburg, his home, at the time of the Russian invasion of eastern Prussia. Insterburg is not far from Königsberg, threatened by the Russians. He has recently published a book on his experiences, *Meine Erlebnisse als Gouverneur von Insterburg,* which has attracted considerable attention, according to our Dutch exchange.

Deaths in the Profession Abroad.—E. Jungfleisch, professor of organic chemistry at the Collège de France at Paris, with a chair also at the Conservatoire des Arts et Métiers and for thirty years at the Ecole de Pharmacie.——M. Straub, professor of ophthalmology at the University of Amsterdam, aged 57. He was editor of the *Nederlandsch Tijdschrift voor Geneeskunde* for the eight years ending with 1903, and was secretary of the international ophthalmologic congress at Utrecht in 1899, and has published numerous works on ophthalmology.——T. Guilloz, professor of radiology at the University of Nancy, recently died a martyr to his study of the Roentgen rays, aged 48. He has contributed much to their technic and clinical application, and our Paris exchanges relate that although suffering since 1900 he organized the Roentgen-ray service for a large division of the army, and to the very last utilized his sleepless nights in promoting the welfare of the wounded and in scientific research.

PARIS LETTER

Paris, April 20, 1916.

The War

BLOOD VESSEL SUTURE IN WAR SURGERY

Functional troubles from alteration in the vessels are particularly frequent after traumatisms of war. Dr. Victor Pauchet of Amiens remarked before the Société de chirurgie de Paris that often it is possible to make an end-to-end or lateral suture even if the vessels are separated, for the arteries are elastic. The reason that the surgeon does not do so is that the procedure is delicate and tedious, and requires a scrupulous technic and a special instrumental equipment. If the continuity of the vessels is reestablished, circulatory troubles are less frequent and gangrene rarer than after obliteration of the vessel. This is ample argument in favor of suture, which is to be advised whenever the arterial walls and the neighboring tissues are in such condition as to permit it. Pauchet showed before the Société de chirurgie two cases of popliteal aneurysm, one arterial, the other arteriovenous, both treated by suture with recovery.

Dr. Souligoux of Paris does not agree with Pauchet. He thinks that there are few indications for blood-vessel suture in the cases seen in the base hospitals.

At the Réunion médicale de la IV-e armée, Dr. Séjournet emphasized the advantages of suture for wounds of veins. For wounds of large veins he rejects massive compression because it does not insure drainage and favors infection while not avoiding the risks of secondary hemorrhage. His preference is for lateral suture, which decreases the caliber of the veins but slightly and reestablishes the circulation. This operation demands the nicest care in order not to dislodge a clot of recent formation which may partly obliterate the orifice.

Dr. Brechot of Paris does not agree with Séjournet. He believes that in military surgery suture of the large veins of the neck and limbs should be prohibited. Under peace conditions in aseptic cases with a special technic it may produce a good functional result and the caliber of the vein may remain permeable.

Dr. Potherat of Paris also believes that while, in civil life, suture is advisable in certain cases of lateral wounds, especially wounds made by sharp weapons, this is not the case in military surgery. While simultaneous ligature of the principal artery and of its collateral vein is more likely to produce gangrene of the limb than ligature of the artery alone, this does not mean that ligature of the vein alone will have the same consequences.

Dr. Schwartz of the Faculté de médecine de Paris also thinks that ligature should be preferred to suture for wounds of the veins.

In answer to these objections, Dr. Séjournet explained that he had in mind only partial wounds of the large veins. He did not minimize the indications for ligature, but he did not believe it to be so benign or free from danger to the venous circulation. Moreover, nothing in his three cases gives reason to suppose that suture was followed by the formation of an obliterating clot. No disturbance of the venous circulation occurred.

RESECTION OF THE ELBOW FOR ARTHRITIS CAUSED BY A PROJECTILE

To moderate the enthusiasm of advocates of immediate or very early resection of the elbow in arthritis produced by a wound from a projectile Dr. Bégouin of the Faculté de médecine de Bordeaux reported before the Société de chirurgie de Paris the results of seventeen resections of this class performed by various surgeons, which he had occasion to observe some time after the operation. These results were truly deplorable: In fifteen of the seventeen cases the forearm swung inertly like a flail, even during muscular efforts. In the two other cases the arm was better, but quite unserviceable; neither patient could carry a spoon to his mouth, write or button his clothing. Bégouin believes that the good results reported hitherto were obtained, not in large series, but in isolated cases, in the hands of surgeons who are specially familiar with resection and who had sufficient time —rare now in these times of excessive overwork—to oversee the details of the necesary after-care. He fears that most of the results obtained by average surgeons can scarcely be better than those reported by him. If this be so, there should be no delay in recognizing that the functional results of resection of the elbow performed at this secondary period are clearly inferior to those obtained by permitting ankylosis in good position. During this secondary period of the course of cases of arthritis, comprised between the third or fourth day after the patient's arrival in the base hospital and the second or third month, resection should be performed only exceptionally, if the extent of the lesions and the severity of symptoms make it necessary for saving life or limb. Such cases, however, are rare, and Bégouin has been impressed by the relative benignity of the cases of arthritis of the elbow that he has seen. Under treatment by liberal incision, lavage, especially with hydrogen peroxid, removal of fragments and careful attention, with curettage finally in some cases, uncomplicated recovery has occurred in all cases, with ankylosis as a final result much superior to the swinging forearm mentioned previously.

Professor Quénu believes that Bégouin's warning is timely but should not be exaggerated, especially since the swinging forearm is not an incurable infirmity, but may be corrected without great trouble. The question of the superiority of ankylosis over the mobility given by resection is another matter; the cases should be classified according to the

patient's occupational requirements as to whether strength is needed rather than mobility or vice versa.

Dr. Routier of Paris agrees with Quénu, although he himself has never performed resection of the elbow during suppuration. It should not be forgotten, moreover, that the swinging forearm bears at its end a hand, which is worth more than the best orthopedic apparatus furnished after amputation.

Dr. Broca of the Faculté de médecine de Paris believes the results of arthrotomy with removal of fragments to be better than those of resection in traumatic arthritis of the elbow. He agrees with Bégouin that generalization should not be too sweeping in these cases.

Professor Hartmann does not believe that systematic resection is indicated in suppurating arthritis of the elbow. His patients have recovered under treatment by drainage combined with removal of fragments and immobilization of the elbow, which is always possible, no matter what the extent of the wounds, with a plaster splint. The reason that good results have not always been obtained in suppurative arthritis of the elbow is that immobilization has not been combined with drainage; this immobilization is a necessary feature. It is true that recovery under such conditions leaves the patient with an ankylosis, but if the arm is in good position it gives the patient a firm elbow which is sufficient for the requirements of many callings, even that of a soldier. If the patient later, in civil life, desires to take up a vocation requiring a movable elbow rather than strength, there is nothing to prevent a secondary orthopedic resection.

TREATMENT OF SUPPURATIVE ARTHRITIS RESULTING FROM FIREARM WOUNDS

The Société de chirurgie de Paris continuing the discussion on resections in arthritis, Dr. Auvray of the Faculté de médecine de Paris brings forward statistics of twenty-eight cases of suppurative arthritis of the elbow which he has had occasion to treat since the commencement of the war. He has often sought to obtain, by resection, a better drainage of the articulation than could be obtained by arthrotomy alone in some cases. He feels sure that he has been able, by resection, to save many limbs and several lives.

Professor Kirmission is of the opinion that early resections for extensive crushing fractures of a joint ought to be practiced only as operations of necessity in order to search in all the remote corners for bony fragments or separated portions of soft tissues. Numerous wounded men have been rendered cripples, with dangling limbs, forever dependent on orthopedic apparatus, because of such imperfectly performed operations. For such persons an ankylosis in good position would have been preferable. Secondary resections are done to give a free exposure for the purpose of combating the suppurating arthritis and the grave septicemia which the latter often provokes. But, here, again, antiseptic dressings properly applied, and especially, rare (sic) dressings, free exposure and thorough drainage suffice in the majority of cases to effect a cure. For his own part, while he has had a large number of crushing articular fractures and cases of suppurating arthritis of the elbow, of the shoulder and of the knee, Kirmisson has been able to obtain cures though he has never performed resection in these cases. Late or orthopedic resections in war surgery have all the value that they have in civil surgery, and are capable of yielding the best results. It is especially at the elbow that orthopedic resection is most useful and most frequently indicated. Dr. Picqué, surgeon of the hospitals of Paris, shows by his personal experience the necessity and advantages of immediate treatment of joint wounds in the ambulances at the front, in the same way as injuries of the long bones, of the skull, of the chest and of the abdomen. This treatment should, above all, be prophylactic and conservative. Arthrotomy is the first step. By it access to the joint is obtained, and the opening must be large enough to permit of exploration. In the rare cases of simple synovial lesions it will suffice, and its nonsuccess in other cases is sufficiently explained by the coexisting bony lesions. Arthrotomy in these cases is but the prelude to an operation on the bone. What form should this latter take? The surgeons of Lyons are frankly in favor of typical resections. Their colleagues of Paris more generally prefer atypical resections. The latter may be anything between a simple cleaning out and an extended resection of the whole of the articular extremity of the bone, determined naturally in each case by the extent of damage. Conservative treatment may also be attempted by such an atypical resection, not only in the case of a wounded man who arrives at the ambulance a few hours after the receipt of his wound, but also when he comes under observation during the first days, though already suffering from a suppurating arthritis or a threatening septicemia; but in this case the vigilance of the surgeon must always be maintained, in order to detect in the course of frequent dressings the earliest indications for a more radical intervention. Conservative policy becomes dangerous as soon as the surgeon relaxes his guard. Indeed, in many cases, it should be but the prelude for a more energetic attack on the condition, in the course of which total extensive resection, supplemented by the usual counteropenings for drainage, may be practiced in accordance with the well-established rules of operative technic. Finally, when, with judicious local treatment and the utmost subsequent care, the infection fails to be localized, one must not await septicemia before amputating. Partial resection, total resection and amputation must be substituted one for the other, successively, to meet the dangers, respectively, of arthritis, of septicemia and of death.

MORE RATIONAL UTILIZATION OF THE SERVICES OF MEDICAL STUDENTS

The minister of war lately received a delegation from the medical group in parliament, which demanded better employment for medical students, who ought to be used as technical assistants and not as mere nurses. The delegation also demanded that the students should be grouped under the name of *élèves aspirants du Service de Santé* near a hospital where they should receive special instruction and, after examination, the title of *aspirants*.

THE EVACUATION OF HOSPITALS NOW LODGED IN HIGH SCHOOLS

The Association des parents d'élèves des lycées de Paris has just passed a resolution demanding the removal from school buildings of the military hospitals that might be lodged in other convenient buildings. The resolution mentions the pedagogic, hygienic and moral disadvantages, the dangers of contagion, the crowding of classes, etc., which result from the prolonged lodgment of hospitals in high school buildings.

Social Hygiene Dispensaries

A law has just been passed establishing public dispensaries for social hygiene and for antituberculosis compaigns to be carried on by means of education, and advice on prophylaxis and hygiene, as well as by assuring institutional care to those ill with infectious diseases. Further, when necessary, the dispensaries will place their services at the disposition of the public for disinfection of clothes and other materials as well as dwelling houses and other places which have been infected. For the indigent sick they arrange free consultations and distribution of medicine. They may place their services at the disposal of mutual benefit societies and charitable organizations.

LONDON LETTER

LONDON, May 8, 1916.

The War

THE NEW BRITISH HELMET AS A PROTECTION AGAINST HEAD WOUNDS

On the Allied side the French were the first to adopt a steel helmet in consequence of the large number of wounds of the head. The British then devised a helmet which has not the surprising lightness of the French, but it is considered to be better designed to meet its purpose. It has a wide downward sloping brim, and thus protects the side and back of the neck and the temples and upper part of the face, as well as the top and sides of the head. This breadth of brim makes the crown look shallower than that of the French helmet, but a more real difference is that the British helmet has a smooth round top, while the crown of the French presents a prominent ridge tapering centrally backward. This ridge was originally intended to strengthen the helmet, but being hollow and open at one end, it also provides a means of ventilating its interior. In addition, it adds to the head dress a style that the English helmet lacks. But it is open to question whether these advantages are not outweighed by the fact that a fragment which would glance harmlessly off the smooth round British crown might be stopped by this ridge on the French helmet, and inflict on the wearer a stunning jar, if not worse. The British helmet stands away from the head about one third inch all round, the weight being borne by a padded leather band fixed to the inner side of the surrounding steel by a series of india rubbia buffers, each about the thickness of a lead pencil, and about 1 inch long. This detail constitutes perhaps the most important

difference between the British and French helmets. The buffers are capable of diffusing and neutralizing the force of a blow which, falling on the closely fitting French helmet, would be conducted direct to the brainpan. The heaviness of the British helmet is a drawback. Possibly its protective effect would be increased by lowering the brim still further so as to guard against bomb fragments or other missiles rising upward from a point within a yard or two of the wearer. The experience of recent wars shows head wounds amounting to 15 per cent.; but recent data of the present trench warfare show a percentage of about 25. The introduction of helmets was followed by a considerable reduction. The cases at one clearing station were analyzed, and it was found that penetrating gunshot wounds of the head formed only 0.5 per cent., while the total fractures of the skull were under 1 per cent. Moreover, there was the direct evidence of the helmets of men who had been struck on the head by missiles of various kinds, but who sustained no injury more serious than a scalp wound. Indeed, some men whose helmets had been dented or pierced or broken were not even aware they had been struck. Though the helmets were by no means bullet proof, they commonly offered such resistance that a missile which penetrated them lost most of its force.

MILITARY ORTHOPEDICS

One of the new features of army medical organization is the extent to which the War Office has used specialists of all kinds. Our leading orthopedic surgeon, Mr. Robert Jones, has been appointed inspector of military orthopedics. He has been surgeon to the military orthopedic center at Alder Hey Military Hospital, near Liverpool, since its establishment. He is also a member of the staff of the hospital at Roehampton for men who have lost a limb in the war. This is a special hospital for men who have undergone amputation of a limb. Accommodation is provided for 300. The men are retained until the artificial limbs they need have been made and adjusted under the supervision of the experienced staff of orthopedic surgeons. A hospital on similar lines is being established in Glasgow, where the same system of supervision and construction of artificial limbs on the spot will be followed. Cases of this class are being reported at the rate of 300 a month. In addition to the men who have undergone amputation there are among those returning from abroad to military hospitals at home many cases of injuries of limbs, especially of joints, varying in severity but all more or less interfering with the ability to work in civil life. Recognition of the fact that these men can be greatly benefited by skilled orthopedic treatment begun as early as possible is shown by the appointment of an inspector of military orthopedics, who will exercise general supervision of the treatment of orthopedic cases in the various military hospitals and sections of hospitals, and arrange for the transfer of suitable cases to selected centers of orthopedic treatment. The types of cases which will come within the scope of the scheme are: (1) derangements and disabilities of joints, including ankylosis; (2) malunited and ununited fractures; (3) injuries to ligaments, muscles and tendons; (4) cases requiring tendon transplantation or other measures for irreparable destruction of nerves; (5) nerve injuries by fractures or stiffness of joints; (6) certain complicated gunshot injuries to joints, and (7) cases requiring surgical appliances. The Hammersmith Military Hospital (in London) will be the first military orthopedic hospital to be organized under the supervision of the inspector of military orthopedics. The buildings consist of the Hammersmith Infirmary and Workhouse, and will hold a total of about 800 men. In addition to the ordinary surgical orthopedic service, there will be departments for treatment by massage and mechanotherapeutics, electric treatment, and radiant heat, whirlpool and other forms of baths, each in its own quarters. There will also be a large and well fitted gymnasium. The workshops of the buildings are large, and it is hoped to be able to fit them in such a way that all splints, surgical appliances, special boots and instruments, etc., may be made on the premises. Special accommodation is to be made for plaster-of-Paris work, including the taking of plaster-of-Paris casts. The staff of the hospital, apart from the administrative officers, will consist in the first place of four surgeons, a consulting neurologist, physicians in charge of the massage, electric and balneologic departments, Roentgen-ray specialist, anesthetist, gymnastic instructor, and four resident medical officers.

THE SUPPLY OF MEDICAL OFFICERS FOR THE ARMY AND NAVY

A considerable number of physicians are still required for service in the army medical corps. The development of military operations has caused a large proportion of the medical officers who have hitherto been serving in this country to be detailed for service abroad, and it is essential that there should be others ready to meet future demands. This request for officers has come before the enrolment scheme (described in previous letters to THE JOURNAL) of the Central Medical War Committee has been completed. The committee is therefore compelled to ask for volunteers from among both the enrolled and the unenrolled. The present condition is well described by Sir Clifford Allbutt and Sir William Osler in a letter to the *Lancet*. During the next few weeks the course of events seems certain to lead to renewed fighting, to many casualties, and to a call for more and more physicians to tend the sick and wounded. The supply could be met—as, if other methods fail, doubtless it would be met—by conscripting physicians; but some time ago the War Office recognized that a scheme of voluntary enrolment could be made to give them what they wanted and in a better way. The working of the scheme was entrusted in England and Wales to the Central Medical War Committee, a committee representing the profession at large and the several medical corporations and schools, and in close touch with the insurance commission and the great government departments which employ physicians. This scheme of voluntary enrolment, as contrasted with conscription, appears to present certain great advantages, in which both the community and the physician share. In any circumstances some physicians must go, and some be kept at home; but whereas with conscription the task of selection might fall into the hands of local lay tribunals, the voluntary scheme provides that in each district it falls to a local committee of physicians whose knowledge of the profession and of local conditions enables them to form a better judgment both of the needs of the civil community and the difficulties of the individual physician. This scheme has been framed to secure also a due rotation of work and sacrifice, so that when the volunteer has completed the year of service for which he signs, he is free to return home, his place in the army being taken by another, an arrangement fairer to himself and better for his civil patients than indiscriminate compulsion. Now the success of the scheme obviously depends on the number of enrolments. If the response is meager the army medical department will be starved, or rather conscription must come. Moreover, the correlative provision for the civil population and the fair distribution of sacrifice will be imperiled. It is true that the response so far has been fair; but with the spring campaign on us, the need for more men, and yet more, is so pressing that there is considerable anxiety even in respect of the immediate future. The scheme can work well only if all, or practically all, physicians of suitable age enroll themselves. However, not unnaturally, some are hesitating to enroll lest a lack of enrolments should expose them unfairly to be summoned. This cannot, in any case, happen, since the committee has decided that no calls shall be made until 75 per cent. are enrolled. Every physician of military age is therefore urged to enroll.

Marriages

JOHN MOORE CONWAY, M.D., Pittsburgh, to Miss Theresa Straitiff of McCalmont township, Jefferson County, Pa., recently.

WALTER H. PARCELS, M.D., Lewistown, Pa., to Miss Mary B. Cummings of Readsville, Pa., at Atlantic City, N. J., May 11.

HERMAN H. DIGHT, M.D., Titusville, Pa., to Miss Lucille Walker of Emlenton, Pa., at Brookville, Pa., May 4.

CARL SCHUMANN, M.D., Greene, N. Y., to Miss Alice C. Selle of Akron, O., at Warrensville, O., May 17.

HENRY BARBER RICHARDSON, M.D., Boston, to Miss Margaret Carpenter of New York City, May 2.

NICHOLAS AUGUST JAMES, M.D., to Miss Mabel Elisbeth Becker, both of Tell City, Ind., recently.

RUSSELL BOWER LYNN, M.D., Elmira, N. Y., to Miss Ethel Isabell Raul of Easton, Pa., May 17.

HOMER P. YEATER, M.D., Maysville, Mo., to Mrs. Essie Welsh of St. Joseph, Mo., April 24.

HOWARD ELMER CAMPBELL, M.D., Anita, Ia., to Miss Anna Laura Smith of Ames, Ia., May 10.

ARTHUR RAYMOND MOON, M.D., to Miss Beatrice Clara Jackson, both of Detroit, May 8.

Deaths

William W. Reed, M.D., Jefferson, Wis.; College of Physicians and Surgeons, Keokuk, Ia., 1863; aged 91; for many years a Fellow of the American Medical Association; a member of the State Medical Society of Wisconsin; for four years a member of the General Assembly; eight years state senator; twelve years mayor of Jefferson; health officer of Jefferson and Jefferson County for about thirty-six years, and for twenty years a member of the State Board of Charities; an active practitioner for sixty-six years; died at his home, May 10. In 1909 the Jefferson County Medical Society gave a banquet in honor of Dr. Reed to celebrate the sixtieth anniversary of his arrival in Jefferson, and on this occasion presented Dr. Reed with a silver loving cup.

John D. Zwetsch, M.D., Gowanda, N.Y.; Cleveland University of Medicine and Surgery, 1882; aged 57; a member of the Medical Society of the State of New York; formerly a Fellow of the American Medical Association; local surgeon at Gowanda for the Erie Railroad; a member of the consulting staff of the Gowanda State Hospital, and a member of the International Association of Railway Surgeons; was instantly killed by the overturning of his automobile near the Gowanda State Hospital, May 6.

Edward Leaming, M.D., New York City; College of Physicians and Surgeons in the City of New York, 1892; aged 54; a Fellow of the American Medical Association and Royal Photographic Society; professor of photomicrography in the department of pathology of his alma mater and the Rockefeller Institute; president of the Roentgen Society of New York; visiting roentgenologist to Roosevelt Hospital; an expert in roentgenology and photography; died at his home, May 11.

James Ross, M.D., Halifax, N. S.; McGill University, Montreal, 1890; aged 48; lieutenant colonel, C. A. M. C.; for many years editor of the *Maritime Medical News* which was amalgamated with the *Canadian Medical Association Journal;* extra-mural lecturer on dermatology and genito-urinary diseases in Halifax Medical College; surgeon to the Dermatological Department of Victoria General Hospital; died suddenly, May 8.

James Robert Jones, M.D., Winnipeg, Man.; University of Toronto, Ont., 1878; L. R. C. P., London; aged 67; professor of theory and practice of medicine in Manitoba Medical College, Winnipeg; physician to the Winnipeg General Hospital and president of the College of Physicians and Surgeons of Manitoba; died in St. Paul, Minn., January 11, from cerebral hemorrhage, secondary to arteriosclerosis.

Victor Alexander Bles, M.D., Denver; University of Colorado, Boulder, 1895; aged 43; a Fellow of the American Medical Association; formerly assistant to the chair of neurology of St. Louis University and assistant neurologist to St. John's Hospital; later a member of the staff of the Elgin State Hospital; died in St. Luke's Hospital, Denver, May 9, from tuberculosis.

Joseph S. Baldwin, M.D., Freeland, Md.; University of Maryland, Baltimore, 1874; aged 69; sanitary officer of the Sixth District of Baltimore County; for many years a practitioner of Elko, Mo.; died, May 6, in the James Buchanan Brady Institute, Johns Hopkins Hospital, Baltimore, from malignant disease, for which operation had been performed seven days before.

Abner Howard Powers, M.D., Boston; Boston University School of Medicine, 1885; aged 60; professor of surgery in his alma mater; surgeon in chief and dermatologist to the Homeopathic Medical Dispensary and medical director of the Medical Mission Dispensary, Boston; died at his home, May 13, from injuries received in an automobile collision a month before.

William Rufus Hedgpeth, M.D., Paso Robles, Calif.; Missouri Medical College, St. Louis, 1891; aged 60; a Fellow of the American Medical Association; formerly local surgeon to the Southern Pacific System; a well known specialist on diseases of the eye, ear, nose and throat; died at his home, April 22, from angina pectoris.

N. Noble Vance, M.D., Bement, Ill.; Medical College of Ohio, Cincinnati, 1868; aged 71; formerly a member of the Illinois State Medical Society and one of the organizers of the National Association of Railway Surgeons; a veteran of the Civil War; for more than forty years a practitioner of Bement; died at his home, May 10, from cerebral hemorrhage.

William H. Sparling, M.D., Moweaqua, Ill.; Detroit College of Medicine and Surgery, 1872; aged 66; a Fellow of the American Medical Association; and formerly president of the Central Illinois District Medical Society; local surgeon to the Illinois Central system; a member of the National Association of Railway Surgeons; died at his home, April 3.

Auren Alfred Stafford, M.D., Alameda, Calif.; Cooper Medical College, San Francisco, 1896; aged 46; a Fellow of the American Medical Association; formerly president of the Alameda Board of Health; physician to the German Old Peoples Home of California; died at his home, May 7.

Willis Edward Crane, M.D., Hamill, S. D.; Rush Medical College, 1879; aged 59; formerly a member of the South Dakota State Medical Association; died at his home, April 6, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent.

Oliver Henry McMichael, M.D., Minneapolis; University of Michigan, Ann Arbor, 1871; aged 70; a Fellow of the American Medical Association; a practitioner of Vernon Center, Minn., for forty-three years; died at the home of his daughter in Minneapolis, May 10.

Herbert Lucius Hulburd, M.D., Morris, Minn.; Long Island College Hospital, Brooklyn, 1875; aged 64; a Fellow of the American Medical Association; physician to the Government Indian School and Hospital, Morris, Minn.; died at his home, May 13, from septicemia.

John Robert Everitt, M.D., Jersey City, N. J.; Long Island College Hospital, Brooklyn, 1872; aged 69; surgeon to the Jersey City and Emergency hospitals; for thirty years a member of the Jersey City Board of Health; died at his home, May 15, from diabetes.

James Scott, M.D., Portland, Ore.; State University of Iowa, Iowa City, 1873; aged 72; for many years a practitioner of Grant, Ia., but for the last four years a resident of Portland, Ore.; died suddenly in a bank in Albany, Ore., May 10, from heart disease.

Francis William Campbell, M.D., Brooklyn; College of Physicians and Surgeons in the City of New York, 1909; aged 31; visiting anesthetist to St. Catherine's Hospital, Brooklyn, and gynecologist to St. Catherine's Dispensary; died at his home, May 9.

Charles S. Meahl, M.D., Buffalo, N. Y.; University of Buffalo, 1890; aged 47; city diagnostician of Buffalo and for many years a city examiner in lunacy; died at his home, April 17, from cirrhosis of the liver associated with pulmonary tuberculosis.

Norman James Lang Yellowlees, M.D., Toronto, Ont.; University of Toronto, 1909; aged 29; captain in the Canadian Army Medical Corps and on duty with the University of Toronto Base Hospital; is reported to have been accidentally drowned at Saloniki.

Manfred Robert Martin, M.D., Vernal, Utah; College of Physicians and Surgeons, Chicago, 1904; aged 36; a member of the Utah State Medical Association; died in the Garfield Park Hospital, Chicago, May 8, from heart disease associated with diabetes.

Willis W. Barnes, Louisville, Ky.; (license Kentucky, 1903); aged 63; a practitioner since 1882; also a dentist and professor of dental surgery in the University of Kentucky Medical Department; died at his home, March 1, from endocarditis.

Isaac Newton Power, M.D., Cle Elum, Wash.; Willamette University, Salem, Ore., 1877; aged 64; formerly a Fellow of the American Medical Association; a member of the local board of education; died at his home, May 6, from pneumonia.

Albert Wickman, M.D., Newark, N. J.; New York University, New York City, 1894; aged 48; a Fellow of the American Medical Association; physician to the Newark General Hospital; died suddenly at his home, May 13, from heart disease.

Edward A. Fox, M.D., Cincinnati; Medical College of Ohio, Cincinnati, 1905; aged 34; local surgeon to the Big Four System; physician to the Hamilton County Infirmary in 1909 and 1910; died at the Bethesda Hospital, Cincinnati, May 7.

Vincent West McNeill, M.D., Prospect, Ohio; Starling Medical College, Columbus, 1892; aged 45; also a graduate in pharmacy; formerly a member of the Ohio State Medical Association; died at his home, May 12, from uremia.

Johnson W. Pettijohn, M.D., Hoyt, Kan.; Georgetown University, Washington, D. C., 1864; aged 82; a member of

the Kansas Medical Society and a pioneer practitioner of Hoyt; died at his home near that place, May 14.

Robert G. Schaller, M.D., Alton, Ill.; University of Munich, Bavaria, 1889; aged 66; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; died suddenly at his home, May 11.

James Edwin Weller, M.D., Richmond, Ind.; Jefferson Medical College, 1901; aged 41; a member of the Indiana State Medical Association; a surgeon of volunteers during the war with Spain; died at his home, May 10.

Arad A. Simons, M.D., Cloverport, Ky.; University of Louisville, Ky., 1892; aged 57; a Fellow of the American Medical Association; surgeon to the Henderson and St. Louis Railroad; died at his home, May 7.

Henry L. Donsife, M.D., Frederick City, Md.; University of Maryland, Baltimore, 1864; aged 73; died in the Montevue Hospital, Frederick, May 10, from shock from scalds believed to have been accidentally received.

John F. Hanifin, M.D., Holyoke, Mass.; College of Physicians and Surgeons, Baltimore, 1911; aged 30; a member of the Massachusetts Medical Society; died in Saranac Lake, N. Y., May 7, from tuberculosis.

Stephen Elvaro Webber, M.D., Calais, Me.; Harvard Medical School, 1894; aged 55; a Fellow of the American Medical Association; died at his home, January 11, from chronic interstitial nephritis.

Pierre Valance Roudiez, Denver; (license Colorado, 10-year clause, January, 1891); aged 81; surgeon of volunteers during the Civil War; died at his home, May 13, from pneumonia.

James D. Peters, M.D., Renton, Wash.; Eclectic Medical Institute, Cincinnati, 1868; aged 80; for more than forty years a practitioner of Grand Rapids; died at his home, April 13.

Marcus Barclay Dwight, M.D., Philadelphia; Jefferson Medical College, 1875; aged 64; a member of the Medical Society of the State of Pennsylvania; died at his home, May 8.

William Merrill Bullard, M.D., Flatbush, Brooklyn, N. Y.; University of Göttingen, Germany, 1867; aged 74; died at the home of his daughter in Brooklyn, May 12, from heart disease.

Daniel E. Evans, M.D., Nanticoke, Pa.; Baltimore University, 1892; aged 66; formerly a member of the Medical Society of the State of Pennsylvania; died recently at his home.

Adam Ramsey Insley, Little Rock and Redfield, Ark.; (license, Arkansas, 1903); aged 80; a veteran of the Civil War; died at his country home at Redfield, April 27.

Samuel W. Sigler, Warren, O.; (license Ohio, 1899); aged 78; for more than fifty years a resident of Niles, O.; died at his home in Warren, May 12, from uremia.

Ludwell Yancy Browning, M.D., Mays Lick, Ky.; University of Pennsylvania, Philadelphia, 1866; aged 75; died at the home of his son near Elizaville, Ky., April 29.

Joseph Rowe Webster, M.D., North Lexington, Mass.; Harvard Medical School, 1859; a member of the Massachusetts Medical Society; died at his home, May 9.

Joseph N. Charbonneau, M.D., Worcester, Mass.; Victoria University, Toronto, Ont., 1874; aged 65; died at his home, February 9, from valvular heart disease.

William Henry Hoyt, M.D., Wenham, Mass.; New York University, New York City, 1886; aged 53; formerly of Sioux City, Ia.; died at his home, May 3.

Thomas S. Gibson, M.D., Alexandria, Va.; University of Maryland, Baltimore, 1887; aged 56; died at his home from cerebral hemorrhage, April 26.

Edward Milton Duff, M.D., Hollidaysburg, Pa.; University of Pittsburgh, 1892; aged 49; died in his office, May 4, from cerebral hemorrhage.

John Huntington Van Kleeck, M.D., Brooklyn; University of Buffalo, 1872; aged 67; died at his home, May 2, from pneumonia.

George Washington Morgan, M.D., Keener, Ala.; University of Tennessee, Nashville, 1889; aged 60; died at his home, April 30.

Isaac Cheney McCoy, M.D., Fort Worth, Texas; Medical College of Georgia, Augusta, 1870; died at his home, April 29.

Sheldon S. Thayer, M.D., Paisley, Ore.; University of Oregon, Portland, 1899; died at his home, April 15.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE WINE OF CARDUI SUIT

(*Continued from page 1649*)

May 2, 1916, Morning

TESTIMONY OF DR. NATHANIEL H. ADAMS

Dr. Nathaniel H. Adams was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. Nathaniel H. Adams testified that he resides in Oak Park, Ill., and has an office in Chicago. He has been practicing medicine for twenty years. He was graduated from the Northwestern University Medical College in 1896. He taught in the Illinois Medical College, the Chicago Dental College, and has attended patients in various hospitals for ten or fifteen years. He taught chemistry for fourteen years and anatomy for three. He is a member of the Chicago Medical Society, Illinois State Medical Society, the American Medical Association, and the Therapeutic Club. He has done a general practice until within the past few years in which he has specialized somewhat in nervous diseases. His treatment has been almost exclusively medical, and surgical cases have been referred elsewhere. He knows of cnicus benedictus, but has never used it as a medicine. He has had much experience with viburnum prunifolium, which he has used in various forms. This experience has been that used alone it has no medical value. If it is associated with an active drug it does not seem to add or detract from the potency of that drug.

Q.—In other words, if I understand you, you don't see any benefit—or have had no benefit from it either alone or in combination? *A.*—Not from a drug standpoint, no sir.

Q.—Now, explain, doctor, what you mean by that, "not from a drug standpoint." *A.*—I mean this; that I have been disappointed in the use of the drug for any therapeutic value. I will say, however, that black-haw has a clean bitter taste, and that this clean bitter taste with the slight flavoring of valerianic acid which is present, that it makes it a modifier of other tastes. It is a drug that can be used in combination for the sake of its flavor and for the sake of adding a clean bitter to nauseous drugs, without having any medicinal value itself.

The witness was then asked as to whether he had any opinion as to the value of a hypothetic medicine similar to that about which other witnesses were questioned.

Q.—Doctor, is there any ingredient as described, or ingredients, aside from the alcohol in this solution, that, in your opinion, would prevent the preparation being used in larger doses than in tablespoonful doses. *A.*—In my opinion, this preparation contains a simple herb, and a simple bark, which are not potent; which have no strong medicinal value and are not poisonous. For that reason there is nothing in these two drugs to prevent the taking of this medicine in increasing doses for its alcoholic effect.

The witness was asked to distinguish between the cure and relief of various conditions, using as an example the treatment of a syphilitic ulcer of the cervix.

Dr. Adams then defined the word "tonic." He would not give a tonic for the cure of uterine prolapse, gonorrhea, uterine retroflexion, or an uterine inversion. Tonics are rarely necessary in the treatment of such conditions.

Ergot, pituitrin and hydrastis might be considered utérine tonics, he said. He then described the way in which ergot acts as a uterine tonic.

There was described to the witness an experiment similar to that performed by Dr. J. Clarence Webster, and he stated that a drug injected into the uterine wall which would produce no observable effect within ten minutes would be an inert drug. It is not a uterine tonic or a uterine sedative.

The witness then stated that the official fluidextract of ergot contains approximately 50 per cent. of alcohol, and that amount is required to extract the virtues and preserve the preparation.

Q.—Doctor, is there any disadvantage in using 50 per cent. of alcohol as you find it in the fluidextract of ergot? *A.*—Yes, indeed there is.

Q.—What is it? *A.*—Why, the disadvantage—there are several disadvantages. One is that ergot is nearly always used hypodermically, and alcohol is an irritant in that use. Then again, alcohol is a direct antagonist to the proper action of ergot. Alcohol tends to relax the vessels of the womb, and the action of ergot which is sought is to contract them. The drug value of the fluid of ergot, however, is great enough to overcome the disadvantage of the presence of alcohol. So, if the fluidextract of ergot is used, you have to tolerate the bad effects of the alcohol for the good effects of the ergot.

Q.—Now, doctor, is that the reason that you use the ergotin instead of the fluidextract? *A.*—Yes.

Q.—In what dose, when you use the fluidextract of ergot, in what dose do you prescribe it? *A.*—Ordinarily, half a teaspoonful.

Q.—Under what conditions, and under what circumstances do you prescribe the fluidextract of ergot? *A.*—In the great majority of cases, it is prescribed after childbirth to shut down the womb, tighten the womb, so that the blood will be squeezed out of it. It favors involution of the womb.

Q.—To what extent do you use it, under such circumstances, how long? *A.*—One dose, as a rule, following delivery.

Q.—Did you ever give it in a tablespoonful dose? *A.*—Never in my life.

Q.—Why? *A.*—Why, that is tonic, that is a poisonous dose; verging on a dangerous dose.

There was then read to the witness an advertisement from the New Orleans *Picayune* similar to those read to previous witnesses. He stated that the hypothetic medicine corresponding to Wine of Cardui is not an absolutely natural vegetable food tonic for starved female functions. The statements in the advertisement he considers absolutely false and vicious as leading to false hope.

He described the way in which a bitter might be considered a tonic, but stated it could not be considered restorative. He regards alcohol as an exhilarant and not a tonic. He considers it absolutely detrimental in cases of inflammation of the pelvic organs of the female. He considers that alcohol in the strength mentioned would brace up a patient suffering from some form of uterine displacement, the exact nature of which was not known, and that after the bracing effect there would be depression so that there would form a tendency toward increasing the frequency and the amount of the dose.

Dr. Adams then described the various reflex effects on the breasts of tumors of the womb, pregnancy, etc. There was read to him from the Home Treatment of Female Diseases, 1912 Edition, an article under the general subject of the female breasts. Dr. Adams mentioned some of the various diseases of the reproductive organs in the pelvis as well as local conditions in the breasts which are evidence of disease. It was his opinion that the use of this medicine would be to mask these conditions, not to relieve them.

ALCOHOL AT PUBERTY

Dr. Adams then described the condition of puberty. He considers it a natural physiologic condition, and stated that a young girl in good health does not require any medicine at that time.

He was asked as to his opinion of the advice that the hypothetic medicine could never do anything but good if taken by a girl at puberty. He stated that the recommendation is vicious and the advice is outrageous.

CROSS-EXAMINATION BY MR. HOUGH

Q.—You are the Nathaniel H. Adams who testified in the Jiroch case in Washington, are you? *A.*—I am the man who went to Washington for the attorney in that case to help him in regard to drug matters.

Q.—That was in April, 1914? *A.*—I think that is right.

Q.—You testified in that case that treatment by mail was a proper legitimate way to treat, didn't you? *Q.*—No. I testified as to the value of drugs, and I testified that the drugs which they used were good drugs, and all right, and that if they were able to make a diagnosis by—in that manner, that such drugs could be properly used.

Q.—You testified that they would be entitled to form an opinion from the symptoms given by a patient by mail, or over the telephone or any other way? *A.*—I testified that that would be one of the methods by which they might make a diagnosis, yes.

Q.—You testified that viburnum prunifolium was a good remedy for uterine troubles, did you not? *A.*—No, I don't remember that. I think there was a preparation of Parke, Davis tablets.

Q.—What was that answer? *A.*—There was a preparation of Parke, Davis tablets some of which contained viburnum prunifolium with other drugs. There was no viburnum prunifolium alone to my knowledge.

Q.—Did you not testify that the fluidextract of viburnum prunifolium was recognized medicine for these conditions? *A.*—The fluidextract?

Q.—Yes. *A.*—Not to my knowledge, no sir. It was a matter of tablets. They were compound tablets, they were not viburnum alone.

Q.—What were they compounded with? *A.*—I have forgotten.

Q.—You manufactured "patent medicines" at one time yourself, didn't you? *A.*—I never manufactured "patent medicines," but I have manufactured proprietaries, which were used by physicians.

Q.—When was that? *A.*—Well, for many years I was in the drug business, and I am a graduate of the College of Pharmacy, and I was quite interested in the combination of various drugs and bringing out the best value of various drugs and I was also interested commercially in trying to make compounds which would be of use to physicians and compounds for which I could get a sale from which I could make a living by their real value and merit.

Q.—You manufactured some for home treatment, did you not? *A.*—For home treatment?

Q.—Yes. A.—Not myself, no, sir. I may have done so in other drug stores where I was employed. I may have manufactured them for druggists, but not for my own self.

Q.—You were being examined with reference to symptom blanks and advertisements of the Dr. Jiroch Company, were you not, at that time? *A.*—Well, in this hearing before the Master, it was a hearing—

Q.—It was before the Attorney General and in the Postoffice Department in Washington, was it not? *A.*—Yes, that is right.

Q.—And was a proceeding for the alleged misuse of the mails? *A.*—Well, I went there to testify as to my knowledge of drugs.

Q.—You testified that that way of prescribing was legitimate and proper, didn't you? *A.*—No. I testified that it was a method by which they could prescribe, but I did not testify that it was the best method or a good method, or the method employed by me.

Q.—I am not asking you whether you said it was the best method. I am asking you whether you said that it was a legitimate method? *A.*—No, I did not use that term.

Q.—What did you say about that? *A.*—I said— I stated that a physician could give drugs for the treatment of disease, when the symptoms were thoroughly described to him, sufficient for him to make a diagnosis, and I stated that that might be applicable, under certain circumstances. I stated it was not my method, and I did not consider it a good method, and it was not one in ordinary use. My object there was to testify as to the value of these drugs.

Q.—Did you state this:

"For instance, it is possible and practicable for a doctor to treat many patients in the space of an hour or two who comes to his office, and he will often accept their statements, and he may even accept their statements over the telephone. For instance, it is a common every-day practice for some one to call up and say 'I have a cold or a headache, or I am vomiting' or some thing like that, 'tell us something to do.' That is done over the telephone. That is not the ideal, but it is the practical method. A busy man will run into the office, perhaps a lawyer, and will say 'I have to go out on an argument this afternoon. My head is throbbing, give me something for it.' We do not go over the man's body very much, but give him something to meet the symptoms. That is ordinary practice, and we could not be in business if we did not do that sort of thing." Did you make that statement? *A.*—Oh, I think I did, it sounds right.

Q.—Now, on the question of "cure" you testified as to the meaning of that on that occasion, didn't you, or do you recall. *A.*—I do not recall that.

Q.—I will read to you from the report of your testimony: "In the general run of medical practice, in your treatment, when you speak of curing a disease, what is the usual meaning or significance of that term? In general, what is meant by that?" And your answer: "Of course, among physicians, it would mean relief of the diseased condition. For instance, if we cure a boil by lancing and leave a scar, the word 'cure' could only mean relief in the sense that we would have relieved the condition." You stated that, didn't you? *A.*—I think that is very likely that physicians do not consider a cure to be a cure unless they relieve the disease, unless the disease is cured.

Q.—You made that statement, didn't you? *A.*—I do not know whether I made that or not. I think very likely I did.

Q.—In answer to Mr. Dobbyns' question, "All I want to get at is what is generally understood by the treatment of disease?" your answer was "My only answer to that question is this: that the object of the practice of medicine is to relieve human suffering and prolong human life and we cannot perfect the bunged up damaged machines that come to us. We patch them up and try to relieve their symptoms and do to a certain extent." You made that statement, didn't you? *A.*—Oh, sure, that is right.

Q.—And furthermore: "In the practice of medicine, the important thing, as I understand it from the standpoint of the physician, is to relieve the symptoms and relieve the human suffering?" And your answer is, "Yes, sir." *A.*—You mean that was a question asked of me?

Q.—That was a question asked of you, and your reply is "Yes." *A.*—Well, that is my opinion, that to relieve the human suffering is very, very important, if the disease cannot be relieved.

Q.—Well, it was in that sense that you used the word "cure" was it not? *A.*—I used the word "cure" only in the sense of curing the disease. Otherwise it is relief or partial cure.

Q.—On that occasion you testified in that way, didn't you, that that was the sense in which you used the word "cure?" *A.*—That

was not my conception; it was partial cure or relief of the symptoms. We cannot always cure individuals, but we can often relieve them.

Q.—Well, then, you stop treating them, don't you? *A.*—Why, no.

Q.—If they are relieved of the symptoms? *A.*—Why, it depends upon whether—we do not if the symptoms recur. If the symptoms recur they have to have further treatment.

Q.—Suppose they do not recur; suppose the symptoms do not recur? *A.*—Well, if the disease—if the disease has abated so that it has become a condition which gives no active symptoms which demand treatment, then of course treatment should not be given until that disease gets in condition where the patient is suffering again, or where they need treatment.

Q.—Then, if a woman has symptoms in connection with some pelvic disturbance, and she is treated for the symptoms, and her pain is relieved, that woman considers that she is cured, and the doctor considers she is cured so far as those symptoms are concerned. Isn't that a fact? *A.*—That does not apply to her disease. That applies merely to her symptoms.

Q.—That is what the doctor treats, isn't it? *A.*—The doctor treats the disease, but he also treats the symptoms, because it is impossible to separate the two.

Q.—Didn't you testify on that occasion that the practice was to treat the symptoms? *A.*—Why, very often we have to treat the symptoms, because the disease cannot be relieved. For instance, in advanced cancer, where a woman is going to die of cancer, you can relieve the painful condition, but you may not be able to cure the disease.

Q.—I am talking about the menstrual disturbances or pain in connection with them or inflammation of the pelvic organs or the pelvic cavity which produces pain. You do treat the symptoms in that class of cases, don't you? *A.*—Why, the painful symptoms—

Q.—I am talking about a case without a cancer. *A.*—The painful symptoms have to be treated; you have to relieve those and then you must cure the condition underlying it, if it is possible.

The witness was then asked concerning his testimony regarding a number of remedies advised in the above-mentioned cases. It was his recollection that there were tablets containing viburnum prunifolium with other drugs.

The witness testified that he spends part of his time testifying in the court. He probably testifies on an average of two or three times a week.

Q.—You were asked further: "I will ask you if in your opinion, the treatment or the carrying on of a business through advertisements of this kind, and with this kind of treatment, is likely to be in any way dangerous to the party?" And your answer: "I have thought that question over and I do not see how a thing which requires ten days use and then another application and the length of time—I do not see how any very acute illness could fall within the range of this treatment, because first, they must write for the remedy, and then get it back, and then take it. The most acute cases would have been developed or terminated within the time. The length of time necessary for the correspondence practically throws out that sort of ailment. I do not see where the public life or public health, or the health of the patient would be greatly endangered, if at all, by this method. There was a question brought up the other day that maybe a person would delay his treatment, and die of the disease by reason of the delay, notably cancer was quoted, that during the delay occasioned by this remedy a person might die of that disease or it might mature to such an extent that he had gone by the hopeful period. I think the possibility of that happening with the type of cases which would answer this advertisement is almost infinitesimal. I think that would happen so seldom that it is hardly to be considered." You made that statement, did you? *A.*—Why, I think that is right.

The witness then testified that in answering as to his opinion as to the use of the hypothetic medicine he based his opinion on his personal use of viburnum prunifolium and not on reading, but that he accepted everything stated in the hypothetic question concerning viburnum prunifolium as fact. He knew of cnicus benedictus from instruction which he had received. He formerly sold the drug in the form of a herb. He sold it under the name of centaurea and chadron. The people who used it were foreigners. The witness testified that he does not know that all the pharmaceutical houses of the country make tinctures of carduus benedictus. He has never experimented with the volatile oil.

The witness was questioned specifically as to the content of carduus benedictus which is represented by cnicin and the relation of this portion to the entire extracted matter.

Dr. Adams mentioned the various conditions of the female uterus in which tannin might be used. He defined a hepatic stimulant and stated in what way such a stimulant might be of service in the treatment of female diseases. His remembrance of carduus benedictus is that it was used as a simple bitter, usually in the form of infusion.

The witness does not know of any similarity between cnicin and quinin. He defined a diuretic and a diaphoretic. He stated that he used viburnum prunifolium for a number of years.

Q.—During that time you gave it to women with menstrual troubles? *A.*—Yes, I used the drug quite a little.

Q.—And it contained 50 per cent. of alcohol? *A.*—Not always. I have used the fluidextract.

Q.—But that is only recently? *A.*—And, Mr. Hough, the fluid extract contains more than 50 per cent., if I remember right.

Q.—Fifty-five per cent., is it not? *A.*—It is 600 c.c. of alcohol to 300 c.c. of water, I think is the menstruum.

Q.—You did not think, in giving it to women, that you were doing anything vicious, did you? *A.*—Why, I tried the drug in that proportion, giving it in half teaspoonful doses, not in tablespoonful doses, and I did not decide that the effect of this drug was largely—in that form—was largely alcoholic, and not due to the drug value.

Q.—You say that there is, in your opinion, absolutely nothing in Wine of Cardui which would prevent a woman from taking it in constantly increasing doses? *A.*—Nothing that I know of, no sir.

Q.—Did you ever drink it yourself? *A.*—I have.

Q.—Did you increase the dose? *A.*—No.

Q.—You say alcohol itself is not a food under any circumstances? *A.*—My opinion is that it is not a food, because it poisons the individual before it can act as a food.

Q.—It does what? *A.*—Because it poisons the individual before it acts as a food, and it is never a food except in a very limited sense indeed.

Q.—How does it poison the individual before it can act as a food? *A.*—Well, it—that is, in small quantities it affects the will and lessens self control. It has an effect upon the nervous system, especially in the young.

Q.—Does the percentage make any difference in your opinion? *A.*—Naturally the larger the dose, the greater the amount of alcohol, the greater its effect.

Q.—Have you experimented any yourself in determining the physiological effect of alcohol in various proportions? *A.*—In various proportions?

Q.—Yes? *A.*—No, I cannot say that I have.

Q.—Has your knowledge on that subject been gained by reading the literature? *A.*—No, sir, it is based entirely upon what experience I have had with the use of alcohol and alcoholic substances.

Q.—How can you express any opinion on the subject if you have never experimented yourself? *A.*—Well, the use of a remedy or the use of a drug in your practice, to my mind, is not the same as experimentation. There you carry out a series of experiments to determine a point. These are observations which I record from having used the drug.

Q.—Did the women that you gave the medicine containing alcohol to, acquire the alcoholic habit, any of them? *A.*—I have never used alcohol or alcoholic drugs in sufficient quantity, or over a long period of time. I have never given drugs indiscriminately to everyone, or other medicines. I have always kept them under control.

Q.—Just answer my question? *A.*—That is my answer.

Q.—Then you say they have acquired the alcohol habit? *A.*—They have not.

Q.—Did any of the women you treated during the 30 years get well, or get relief from their symptoms? *A.*—Yes, sure.

Q.—What percentage got well? *A.*—Of all kinds of cases?

Q.—Of female troubles which had — which required no operation. *A.*—Oh, I think a large proportion of women recover under medical treatment.

Q.—I am asking you what proportion of yours got well? *A.*—Well, of purely functional troubles, without displacements, tumors or anything of that sort, I believe that fully 50 per cent., perhaps more than that, would recover under proper treatment.

Q.—Then you mean you handed over the other 50 per cent. to surgeons after trying to cure them or did you let them go? *A.*—No, I do not mean that a certain amount went to surgeons. A certain amount of cases were relieved by mechanical supports, and a certain amount of cases would carry their defects through their lives, because it was not possible to operate, or it was—their mechanical supports would give them the needed relief.

The witness was then cross-examined concerning the difference between relief and cure of various female diseases. There was then read to the witness a statement from his testimony in Washington regarding what he meant when he used the words "bladder trouble." He replied that the remedies under discussion were to alleviate and were very seldom specific remedies. The same thing was there stated regarding female troubles.

Dr. Adams stated that Mr. Hough was reading symptoms from a card that were not in his statement. Mr. Hough replied that these were in the witness' statement and asked him if he wishes to change it. He replied that it was immaterial.

Further hearing of the case was adjourned until 2 o'clock the same day.

May 2, 1916, Afternoon

Court met pursuant to recess. Dr. Nathaniel H. Adams resumed the stand for further cross-examination by Mr. Hough.

CROSS-EXAMINATION BY MR. HOUGH (*continued*)

Dr. Adams testified that a woman as a rule cannot diagnose her own case. She can state when she has suppressed menstruation.

Q.—Now, what medicines do you usually give her for that? *A.*—Why, we must know. If it is due to pregnancy, absolutely nothing. If it is—

Q.—Well, suppose it is a young girl who is unmarried? *A.*—Why, my habit is to give her a good dose of quinin, about two grains three times a day. Give her a hot foot bath, or mustard water, to give a hot drink of hot lemonade, and to put a hot water bottle at her back, the lower part of her back, and sometimes over her abdomen. That is my custom and habit with young girls.

Q.—It is considered a safe thing to prescribe on account of the symptoms given by the patient, is it not? *A.*—Such treatment with a young girl I should think would be safe.

Q.—Now, when a woman has painful menstruation, she tells a doctor that she has trouble at her menstrual period, and she is able to diagnose that symptom and that condition, isn't she? *A.*—Not the condition. She is only able to diagnose the pain.

Q.—Well, I am not talking about the thing that caused it. She knows that that is the symptom? *A.*—Yes, she knows she is in pain, yes.

Q.—Now the first thing to do is to treat that symptom, isn't it? *A.*—The symptom has to be treated. And I will not say that that is the first thing to do, but it has to be treated, the pain has to be relieved until you find out what is the trouble, what is causing the pain.

Q.—Well, what medicines do you give in that class of cases when you reach the conclusion that it does not require a surgical operation? *A.*—Well, if it is due to a flexion of the womb, to a bending of the womb, why I give a sedative treatment, and I have the woman go to bed, and use hot applications over the abdomen, have her take hot drinks. If there is a great deal of pain I give her sedative medicines.

Q.—Name some, doctor. *A.*—Why, one that I am very apt to give is to give aspirin, and sometimes a mixture of caffein and aspirin and acetanilid.

Q.—But you used to give viburnum compound? Haven't you? *A.*—I have given viburnum compound, yes.

Q.—And you used to give fluidextract of quassia? *A.*—Of quassia?

Q.—Yes. *A.*—I have never given quassia for that purpose alone.

Q.—And you have given fluidextract of pulsatilla, haven't you? *A.*—I have used pulsatilla in combination with other drugs, yes, sir.

Q.—And you have given fluidextract of gelsemium, haven't you? *A.*—I have given gelsemium alone, yes.

Q.—And you have given fluidextract of black haw?

THE COURT:—Do you mean fluidextract?

The Witness:—Fluidextract, yes, sir.

THE COURT:—Try and answer the questions, doctor.

The Witness:—Yes, sir, I want to.

Mr. Hough: *Q.*—And also black haw? *A.*—I have used all of those remedies.

Q.—For female diseases? *A.*—I have tried them in female diseases, yes, sir.

Q.—Now you would give the same remedies for metrorrhagia and menorrhagia, wouldn't you, as far as the symptoms are concerned? *A.*—Well, I would if they had the same cause.

Q.—There is usually inflammation of the womb or the pelvic cavity in connection with all of those conditions, is there not? *A.*—No, I don't think there is usually so. I think it is often so. There is often inflammation.

Q.—Well, in what per cent. of the cases? *A.*—Why, I think there is pelvic inflammation in dysmenorrhea in perhaps half the cases.

Q.—Now, by the way, pulsatilla is what you call a home remedy for those things, isn't it? *A.*—No, sir, pulsatilla is a powerful, dangerous drug with a dose of two to ten drops.

Q.—Didn't you testify in Washington that it was a home remedy? *A.*—Pulsatilla?

Q.—Yes, sir? *A.*—No, not alone, no, sir, it is not.

Q.—Well, we will see if we cannot find it for you. Speaking of female diseases, the Assistant Attorney General says: "Is there any other prescription, Doctor, you would use for that type, any internal remedies?"

"The Witness: (Meaning yourself)—Yes, sir. They have a remedy similar to Hayden's Viburnum Compound. Here is a tea. This tea is used, and is Remedy No. 39. It contains cimicifuga, gelsemium, Jamaica dogwood, fennel, anise, caulophyllum, viburnum prunifolium, squaw vine, aletris, pulsatilla, celery seed.

"The Assistant Attorney General: *Q.* — That is another home remedy?

"The Witness: *A.*—No, your Honor, pulsatilla is a home remedy, but this is a tea. The herbs are cut up and set out in dry packages, so much to a cup."

Mr. Hough: *Q.*—You made that statement, didn't you? *A.*—But not in the sense that you asked me, as though that was a simple remedy. No, it is a remedy that is used alone, and I didn't mean that anybody puts pulsatilla in the hands of a family, because it is a powerful, dangerous drug.

Q.—What are the other home remedies which you referred to, for female diseases? *A.*—Well, home remedies are the simple teas. There is for instance, the pennyroyal, and things which can be used as hot drinks, and which have no danger connected with them. Such things are safe in the hands of families.

Q.—You did not consider that the alcohol in the medicines which you gave for those female troubles had any specific action as alcohol, did you? *A.*—Well, I would if I ever had given it in quantity to get the alcoholic effect, but when I used the alcohol in these remedies the alcohol carried its full drug content. And the dose would be represented by half a teaspoonful or a teaspoonful.

THE COURT:—May we have a definition here of what is meant by a "home remedy?"

Mr. Hough: *Q.*—What do you mean by a home remedy? *A.*—Why, I mean by a home remedy, a simple drug which can be put in the hands of a family for use in simple ailments without any danger of its doing harm if they make a mistake and take an overdose.

Q.—What would be a home remedy for amenorrhea or suppressed menstruation? *A.*—Quinin, mustard foot baths, hot drinks, or a little gin with an adult, with a grown person, and hot lemonade, where the trouble is purely functional.

Q.—What would be a home remedy for dysmenorrhea?

THE COURT:—Well, let us get away from these indefinite terms. What do you mean by "a little gin?"

The Witness:—Yes, I mean this, that gin is an alcoholic drug containing juniper, and juniper in the quantity that is contained in gin, and given in a hot drink, and given in one or two doses to a grown person, and not continued, has a tendency to make an easy flow.

THE COURT:—Well, how do you square that with your definition of a home remedy, which as you have defined it, includes some simple drug that cannot be harmful if you take an overdose? *A.*—Well, gin, of course, could be harmful if it was taken in an overdose, there is no doubt about that. They can get drunk on it. And the reason of my mentioning gin is that it is a very commonly used preparation, and I mentioned it because it has alcohol in it, and it has another drug, and I think the knowledge of it is so general, I think everybody knows it as well as a doctor, almost, that they don't take that in a poisonous dose, unless they want to get drunk.

Mr. Hough: *Q.*—The effect of 48 drops of alcohol by itself is altogether different from the effect of 48 drops of alcohol in enough water to reduce the percentage to 20 per cent., isn't it? Or would you say the effect is just the same? *A.*—Why, my opinion is that the effect is about the same.

Q.—Now, do you think that you could take down in your mouth 48 drops of pure alcohol? *A.*—Oh, do you mean the effect in my mouth?

Q.—Well, anywhere inside of you? *A.*—Well, I misunderstood you. Of course the local effect of 48 drops of alcohol is burning, and you have to add enough water to it so as to permit you to swallow it.

Q.—Therefore you couldn't take 48 drops of pure alcohol in your mouth, could you? *A.*—I wouldn't want to.

Q.—Do you think anybody could? *A.*—Yes, I think they could, but I don't think it would be advisable.

Q.—Now, when it is reduced to 50 per cent. it is easier to take that amount in your mouth, isn't it? *A.*—Well, 50 per cent. is pretty strong. That is the strength of whisky.

Q.—Yes, and it is also the strength of the gin that you have just been talking about? *A.*—The strength of gin, yes, sir.

Q.—Then when you reduce it to 40 per cent. its effect is less marked, isn't it? *A.*—Well, the local effect, the local effect is less marked. The general effect, in my opinion, would be about the same.

Q.—And the effect, when reduced to 20 per cent. would be less still, wouldn't it? *A.*—There would be very little local effect, and you would have only the general effect to deal with.

Q.—Now, how much alcohol can a person oxidize in the system freely? *A.*—Freely?

Q.—Yes? *A.*—Well, I think under the most favorable circumstances a 150 pound person in 24 hours can actually oxidize about an ounce and a half.

Q.—How many drops would that be? *A.*—Four hundred eighty and 240—that would be 720 drops.

Q.—Of pure alcohol? *A.*—Yes.

Dr. Adams was then asked concerning diagnosis as to the cause of a bearing-down feeling and pains during the menstrual period. He stated in what way he would arrive at a diagnosis.

The witness stated that he makes a distinction between the classes of patients, as drugs and general treatment must be adapted to the circumstances of the patient. He was asked to what extent he would say that a woman with female trouble could diagnose her own case.

The witness was asked if he did not testify in Washington that it would be proper to treat on the diagnosis sent in by the patient. He replied that in certain cases when the patient had described the case completely and under certain conditions if one can arrive at a diagnosis and if he is sure of the case it would be proper to treat it. He was asked whether there would be danger in this way of overlooking consumption or cancer. He replied that the likelihood of missing such conditions is greatly reduced by a physician's examination. He was asked concerning the use of medicines to make the breasts full. He stated that drugs are given when there is insufficient lactation after childbirth, and that certain drugs may be taken for cosmetic purposes.

Q.—What do you mean by "cosmetic purposes?" *A.*—Why, I mean that by rubbing in ointments, and perhaps there are one or two drugs, they have a tendency to make a full breast which women sometimes desire.

Q.—Well, you also take medicines by the mouth for those things, don't you? *A.*—There are one or two drugs. There is a drug called Goat's-rue or galega which has a reputation for doing that sort of thing.

Q.—And Heminal? *A.*—What?

Q.—Heminal? *A.*—Heminal, that is an iron preparation.

Q.—It is a hemoglobin preparation, isn't it? *A.*—Yes.

Q.—And it is used to develop the bust? *A.*—Why, it is used to improve the quality of the blood. If a woman was anemic, why, I presume it would have that effect.

Q.—Didn't you testify it was used to develop the busts. *A.*—Why, not to my knowledge. It is a blood remedy. If I testified to anything like that it was in some other connection, of which you have not given me the distinction. You have picked that out and not given me what goes before and of what follows.

Mr. Hough: (Reading)—"I show you also two other prescriptions marked 2-B and 1-B? *A.*—2-B is heminal, three grain tablets.

"What is that prescribed for? "*A.*—Heminal is practically a Parke-Davis preparation. Made for the blood. It is a hemoglobin preparation and contains iron and is prescribed to enrich the blood. One-B contains extract of galega, one and one-half grains, calcium lacto phosphate, two grains, and oil of fennel, one-tenth grain. This remedy is used to develop the bust and to cause an increase in the quantity of milk in a nursing woman."

The Witness: A.—That applies to that latter description. Yes, sir, I think that is all right. That is what I stated, and is what I still believe.

Mr. Hough: Q.—Well, that is proper to give to a woman who is nursing, isn't it, to develop the bust? *A.*—Galega—why, it has a reputed action in that way. It is reputed to be able to increase the size of the bust.

Mr. Hough:—Well, didn't you say—I will read further: (Reading):

"*The Assistant Attorney General:*—Is it proper to give that to a woman who is not nursing?"

And the witness (meaning yourself). "*A.*—Yes, your Honor, it is."

Mr. Hough:—You made that statement, didn't you? *A.*—Well, I have just stated it is reputed to have a good effect.

The witness was then asked concerning his testimony at Washington regarding the use of certain drugs for restoring sexual function on the basis of a filled out blank sent in by the patient defining his condition.

Dr. Adams defined his understanding of uterine tonics and uterine sedatives. He had used liquor sedans in the past because it contains hydrastis, which he considers a valuable drug. He knew the amount of alcohol in this preparation. He gave it three times a day, but did not consider it wise to place it in the hands of a patient. Ordinarily he used no treatment at the time of the menopause. As a rule he used sedatives to allay nervous irritability. It was brought out at Washington that the witness had answered that he considered the use of the mixture under the name of Mother's Cordial highly beneficial to a woman in the change of life period.

The witness then discussed the composition of this preparation further with reference to its alcohol content and stated that to his knowledge it need not necessarily have alcohol.

Q.—Well, at any rate that medicine, in your opinion, would be highly beneficial to women in change of life period? *A.*—Why, I think there are some valuable drugs in that prescription, yes, sir.

THE COURT:—You mean generally, in the absence of any symptoms whatever? *A.*—Oh, no, no. If they need it. If there is a need of medicine. If she did not need medicine, if there are no symptoms, it should not be given.

THE COURT:—I mean symptoms other than the normal symptoms of change of life? *A.*—If she has just the normal change of life she should not have any medicine. It is not indicated.

Mr. Hough: Q.—Well, the change of life in a perfectly normal woman, of course, is not—I mean it is purely physiological? *A.*—Yes, sir.

Q.—And the same is true of menstruation, and the same is true of puberty, and the same is true of pregnancy, isn't it? *A.*—True.

The witness stated that it was his opinion that 75 per cent. of the women go through the menopause without trouble. About 75 per cent. of all women are apt to have simple nervous manifestations which do not need any particular treatment. It was brought out that at Washington the witness stated: "I think in fully 75 per cent. of the cases this medicine 'Mother's Cordial' would be beneficial."

Q.—Well, you made that statement, didn't you, that 75 per cent. of the cases; in 75 per cent. of the cases it would be beneficial? *A.*—Well, that was asked in regard to that particular tea, and I don't see why that should not be used.

Q.—It is a medicine, isn't it? *A.*—Yes.

Q.—And you would not give medicines when they were not needed at all, would you? *A.*—Well, I don't believe in giving medicines where they are not needed. But that is about the possible use of such a preparation.

Mr. Hough:—And the Assistant Attorney General then said: (Reading)

"In old women after change of life?" And you replied:

"If they had any female trouble, yes, your Honor."

"*The Assistant Attorney General:*—They may have female trouble which is not amenable to treatment of that kind?"

"*The Witness:*—This happens to be treatment which practically is indicated in almost every case."

The Witness: A.—Well, it is all right. It is harmless.

Mr. Hough: (Continuing reading)—"Just think of that wide range of possibilities in that jurisdiction. It is soothing and there is an eliminative treatment and a gentle cathartic. There is a whole drug store in that."

The Witness:—I think that is right.

Mr. Hough: Q.—And, Dr. Kebler then said to you: (Reading) "What good would it do in ovarian troubles?"

"*The Witness:*—I think it would allay the pains. Jamaica dogwood and those remedies—just turn to the uses of them. That would be an ideal symptom for Jamaica dogwood. It is soothing and quieting."

Mr. Hough:—Is that correct? *A.*—I think that is right.

Mr. Hough:—(Continuing reading):

"*Dr. Kebler:*—How would they help in tumor or in prolapse of the uterus or lots of other things?"

"*The Witness:*—No, just limit me to one at a time. Take cancer. Of course, by their method you would soon eliminate cancer, because that is a disease which would put that woman beyond reach of this condition, but here is the eliminant medicine and the medicine to gently relieve the bowels and the medicine which would soothe and quiet the part. It might be argued that delay in this matter would put her beyond the pale of health, that delaying treatment by such a method as this would remove her chances. I will say this about cancer, that any treatment of this sort over the time it extends, if it was unrecognized, it would certainly delay the case some, but I do not think practically we ever get hold of cancer of the womb until they are pretty far advanced. I think that is where we are all weak and a large proportion of cancer of the womb cases that have come to us have gotten beyond the operation stage by the time we reach them. But this treatment will never replace surgery in cancer of the womb."

Mr. Hough: Q.—You made that statement, didn't you? *A.*—I think that is true, that cancers come to us so far advanced—I mean speaking as a general physician—that cancers come to the office in a majority of cases so far advanced that they have to be simply relieved. That the hope of cure is by. That is the one thing we all are hoping for, to get at these cases early, and to recognize them so we can do some good.

Q.—Now, then, did you say also that "it would be useful, this medicine, if it was inoperable cancer. It would be useful in any kind of cancer, but if it would in any occasion delay it would not be useful in that instance"?

The Witness: A.—Why, that is true. If it would delay the recognition of cancer in any way it would be absolutely wrong.

Q.—But you also stated that you thought that would be true in a very small proportion of cases? *A.*—Well, because I—I stated that if they had cancer, I thought they would go to the doctor, and the doctor would recognize it.

Q.—You stated that would be a very small proportion of cases, didn't you? *A.*—Yes, because they would go to a doctor; it would be so serious they would go to a doctor and have it recognized.

Q.—You use medicine for apparently opposite conditions, don't you, the same medicine? *A.*—Well, there are a few drugs that—

Q.—Just answer that question? *A.*—Yes, there are a few drugs that will act in apparently opposite conditions.

The witness was then asked concerning empiricism in medicine and the distinction between "patent" and proprietary medicines. He stated that for some time he has been connected with the manufacture of proprietary medicines which were for sale to anybody that would buy them. The witness stated that it is a question of dispute whether all proprietary medicines are ethical or unethical.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

On redirect examination Dr. Adams stated that he would not give a medicine containing alcohol to a pregnant woman with Bright's disease because it would be dangerous. He stated that digitalis is a medicine which may act in opposite conditions, meaning at the same time a heart sedative and a heart tonic. A uterine sedative which will keep the womb quiet may give the blood vessels sufficient time to nourish the womb and remove the waste, and in that sense it may be considered a tonic.

RECROSS-EXAMINATION BY MR. HOUGH

The witness testified that even though all the alcohol given to a pregnant woman with Bright's disease were oxidized it still would have a bad effect because of its action on the

nervous system and because it adds a poisonous drug to the system. There is more work thrown on the kidneys because of the ash produced by the cells in oxidizing alcohol.

TESTIMONY OF DR. G. M. GODDARD

Dr. G. M. Goddard was called as witness for the defendants.

DIRECT EXAMINATION BY MR. LOESCH

Dr. Goddard testified that he resides in Waxahachie, Texas, where he has lived for nearly four years. He has practiced medicine since 1890; first in Van Zandt County, Texas, later in Ovilla, then in Oak Cliff and then in Boyce. Later he practiced in Taylor County in West Texas and then moved back to where he is now living. He was graduated from the Kentucky School of Medicine, Louisville, Ky., in 1895. He has had several cases in which Wine of Cardui figured. The first was Mrs. W., whom he treated in 1892. She was suffering with uterine hemorrhage and painful menstruation as well as other pains accompanying these conditions. He ascertained from her that she had been in ill health with dysmenorrhea and hemorrhage for three or four years, and that she had been taking Wine of Cardui almost incessantly. Sometimes she would consume a bottle in a day. Mrs. W. was about 35 years old.

The witness then mentioned a Mrs. D., whose condition was similar to that of Mrs. W., only not so exaggerated. He stated that she had been taking Wine of Cardui a little more than a year without any improvement. He gave her practically the same treatment that was given to Mrs. W., an antimalarial treatment, packing of the uterus with gauze. She became well. He diagnosed her condition as malaria with hemorrhage. He had seen Mrs. D. pour one half or two thirds of a teacup of Wine of Cardui and drink it. This case was also in 1892. When he was living at Walton Mrs. D. was about 30 years old.

The next case was a widow, Mrs. B., who had a similar condition. He gave her iron, quinin and arsenic in pill form and she recovered. She had been taking Wine of Cardui for about a year, and claimed that it did not do her any good.

The next case was a step-daughter of a man named Mr. L. Dr. Goddard attended her in confinement. At that time she had puerperal convulsions. She said she had been taking Wine of Cardui since the third of fourth month of her pregnancy because of headaches and swelling of the feet.

The witness then mentioned the case of Mrs. Du. She had prolapsus and severe hemorrhage at each menstrual flow and at each time she would have to go to bed. He advised operation, to which the patient would not consent. He used tampons, ichthyol and glycerin, but did not do much good. The patient told him she had been taking Wine of Cardui for three or four years off and on. She also stated that she had not obtained any relief from Wine of Cardui.

Q.—What was your next case, Doctor? *A.*—The next case I had was a Mrs. J., who had a case of gonorrhea. She had been taking—she had had the gonorrhea about three months before they consulted me, and had been taking Wine of Cardui during the time. Now, she didn't know that she had gonorrhea, and doesn't know it to this day. She was inoculated by her husband, infected by her husband. I was treating her husband at the time and cautioned him about his wife. She contracted the gonorrhea from him, and had had it for about three months before they came to me, and she stated that she had been taking the Wine of Cardui during this time, thinking that it was the change of life working on her, and that was her condition. She had a real bad case of gonorrhea when I saw her.

Q.—Did you treat her so as to produce a cure? *A.*—Yes, sir. Well, I got her in much better condition. Now we thought she was cured, at least.

Q.—How old a woman was she? *A.*—She was about 40—she was between forty and forty-five years old. Really I believe 42 or 43 years old.

The next case was Mrs. J. B.—a young woman with a gonorrheal infection. She suffered with pain, burning sensation and discharge. In this case also Dr. Goddard had been treating the husband. The patient had been taking Wine of Cardui for two or three months, but it did not do any good. If taken over a long time he believed it seems to aggravate the condition.

Dr. Goddard stated that the patients told him that the longer they take it the more they take of it and the worse the conditions become.

The next case was that of Miss Du.—daughter of Mrs. Du. previously mentioned. She suffered from delayed menstruation. She had been taking Wine of Cardui more than a year without benefit. She was about 19 years old. She had malaria and was given antimalarial treatment and recovered.

The next was the case of a Mexican girl, the daughter of a man named Mr. P. She was pale and anemic, had a cough and had never menstruated. He diagnosed the case as tuberculosis and the patient died of this condition six months later. She had been using Wine of Cardui for two years. They told Dr. Goddard it had done no good.

Q.—What was the next case, Doctor? *A.*—Another Mexican girl. She was seventeen years old. That was just about the same case as this one. The Mexicans were all in a bunch, they were a bunch of cotton pickers. She came to me about two or three months later than the first one did, and with just about the same history, only she had been taking Wine of Cardui a year, she claimed. That is the history she gave me.

Q.—What was her condition? *A.*—She had tuberculosis, and died in six or eight months or a year, something like that, after I saw her.

Another case was Miss M.—a young lady about 18 years old. She gave the history that she would menstruate about three or four times a year. She had been taking Wine of Cardui about four years. This patient died of tuberculosis and had no beneficial effect from the Wine of Cardui.

The next case was Mrs. W. C. S., who suffered with frequent miscarriages. She had taken Wine of Cardui but it had not done her any good. He advised her to quit taking Wine of Cardui. About a year and a half later he waited on her in a full term confinement.

A Mexican woman came to Dr. Goddard with a baby 3 weeks old. She had taken Wine of Cardui during pregnancy with a view to making her labor easy. After the baby was born she had an abscess of the breast. She was taking Wine of Cardui and had a high fever. The abscess was opened, the pus withdrawn and the patient had no further trouble.

Q.—What is the next case you have, Doctor? *A.*—Well, I had a case of pellagra, a negro, A. K.'s wife that had pellagra for quite a long time, a year or better, and she had an awful bad prolapse before she died. The womb was protruding clear out. And she had been taking the Wine of Cardui during the time, this period of about a year before I saw her, with a view that she had some female trouble, that was what she thought. But she had pellagra and died of pellagra.

Q.—To what extent had she been using Wine of Cardui? *A.*—She had been using it steady for—for about a year—the history they gave me.

Q.—Did she tell you what doses she took? *A.*—She had been taking it in pretty big doses; she used to take a third of a teacup full.

Q.—You saw her take it? *A.*—I saw her drink it out of a bottle.

The wife of a negro named W. H. was suffering with an enlarged uterus and would have severe cramps at the time of menstruation. Dr. Goddard testified that he advised an operation, but the patient would not have it. He saw her pour Wine of Cardui into a cup, add water and drink the mixture. She stated that she had been taking it for two or three years, but it did not do her any good.

The next case was Mrs. W. She gave a history of scant menstruation and wanted tonics. She was married and was anxious to become pregnant. She had been taking Wine of Cardui for more than a year. The patient refused to be examined. Dr. Goddard was again called about three months later and he made an examination and found the mouth of the cervix tight. He dilated and curetted the uterus. About four or five months later the patient became pregnant and was later delivered of a full term child.

Dr. Goddard was then asked to describe instances in which Wine of Cardui was used as a beverage.

Q.—Well, tell the instances where you know of it being used as a beverage. *A.*—Well, I had a man by the name of Nelson that came to me up in Oklahoma Territory—it was a territory then. He was a man who was addicted to the whisky habit, and he could not get whisky at all times in his section of the country, and he used to use—he got to drinking Wine of Cardui; so he stated. And when he came to me, he was—came to me for treatment for the alcoholic habit—alcoholism.

Q.—How long had he been drinking Cardui? *A.*—I believe he told me that he had been drinking it for better than a year—not all the time, now, but when he could not get whisky.

Q.—And he used it—didn't he state to you that he used it for three or four years?

Mr. Walker:—Well—what's the use?

The Witness:—I don't call that to mind. He had been drinking for longer than that, but now—I don't—but he had been using the Wine of Cardui for a year—for about two years.

He also recalled a case of a man named B. R., who drank lots of whisky; when he could not get whisky he would drink anything he could get hold of.

THE COURT:—Now, is this what you know of your own knowledge, or as his general reputation?

The Witness:—I know that he has drunk different "patent medicines," your Honor, and he has come to my house just as drunk as you ever saw a man, most, drinking Wine of Cardui. He would have it in his buggy. I have seen the bottles in his buggy. I have taken him out of his buggy—taken the man out of his buggy and put him on a pallet on my porch, and kept him there half a day at a time. I have done that, I will say, as many as half a dozen times; till he would get sobered up. I have seen him drink a bottle of Wine of Cardui at one time; just take the cork out of the bottle and clean it up at one drink.

Dr. Goddard testified that he has also seen a man named W. who would drink large quantities of Wine of Cardui. He has seen him empty a bottle in three or four drinks.

Dr. Goddard then described the case of B., who was addicted to morphin and would also drink whisky when he could get it. He would drink Wine of Cardui.

He also described the case of S., who lived in a dry territory. He would drink whisky when he could get it, but when he could not get it he would drink Wine of Cardui.

The latter cases were treated in a sanitarium for drug addicts which Dr. Goddard conducted.

Q.—Have you an instance of any woman using it as a beverage? *A.*—Yes, sir. Some of the women—patients that I would have.

Q.—Mention them? *A.*—Why, I had one, an old lady—I don't remember her name. Her daughter lived in Dallas, and brought her over to the sanitarium; and I could not give you her—I don't know her daughter's name. They lived—that is, the daughter lived in Dallas. And in giving her history, she said that she had been back some years before that—that woman was then about 55 years old—that she was using Wine of Cardui. She was taking morphin, and at the same time was using—she would drink Wine of Cardui. She said that when she—back before her menstrual period—I mean, before her menopause—that she suffered so that she got to taking Wine of Cardui to tide her through her change of life, as she gave it to me; and it got to where she would not—she could not—she got no relief from it, and she would keep increasing the doses—and she got to using—mixing morphin with it. She would take morphin in small quantities with her Wine of Cardui to get the ease—to get relief; and from that she went on and got in the habit of using morphin, and when she would run shy of morphin—that is, could not get enough of it, or she did not have as much as she wanted or needed, she could take the—increase the dose of Cardui, and could get along on less morphin. And her daughter—she or the old lady, stated that she would take the Cardui, that it would make her dizzy when she would take big doses of it, it would make her dizzy, make her head swim. She did not say she was getting drunk on it, or anything like that, but that is the statement that she and her daughter both made to me in my office.

Q.—Did you ever see her drink it? *A.*—Yes, sir.

Q.—That is, drink Cardui? *A.*—Yes, sir. I saw her drink Wine of Cardui.

Q.—How much have you seen her drink at a single time? *A.*—I have seen her drink a third of a bottle.

Q.—How long was she under your care, Doctor? *A.*—She was there about a month with me. I usually kept them about a month.

Dr. Goddard also described a patient—wife of a traveling man—who was a morphin patient and had been using Wine of Cardui for painful menstrual disorders, and later began to take morphin. This woman would drink as much as one-third of a bottle at a dose.

Another woman named Mrs. S. would pour Wine of Cardui into a teacup, add water, and drink the mixture. When drinking this mixture she could get along with less morphin.

Another patient, a woman from Denison, Texas, stated that she commenced using Wine of Cardui to help her through painful menstruation and finally drifted to mixing morphin with it. She would drink it out of the bottle, taking three or four tablespoonfuls, perhaps, at a dose.

Another case was a woman from East Texas with the same history. This patient would turn up a bottle and take two or three swallows from it.

The witness stated that he has been in Chicago several weeks, perhaps three weeks or more, and that he had remained in Chicago since the adjournment at Mr. Loesch's request.

The court was adjourned until 10:30 o'clock Wednesday, May 3, 1916.

May 3, 1916, Morning

The Court met pursuant to adjournment. Dr. G. M. Goddard resumed the stand.

CROSS-EXAMINATION BY MR. WALKER

Dr. Goddard testified that he received a letter from Dr. Taylor, secretary of the Texas State Medical Association. He met Dr. Heizer at a meeting of the Southern Medical Association in Dallas. He testified that Dr. Heizer asked him if he knew of any people who used or drank Wine of Cardui and requested him to look up the matter.

Dr. Goddard was cross-examined concerning the names of the persons mentioned in the direct examination. The witness arrived in Chicago about March 21 and has been here about five weeks. He is receiving his expenses and a per diem. He was cross-examined concerning his various locations in practice and his connection with the sanatorium at Oak Cliff. He was then cross-examined concerning the names of various people whom he treated at the sanatorium. He testified that he had made no special endeavor, after he was asked by Dr. Heizer to do so, to look up the persons mentioned in the direct testimony.

Q.—Will you tell the jury how it is that you remember their history, when you cannot remember their names? These people from the various points of the compass in Texas? *A.*—These people would come in and, getting the history of them—why I just call to mind from memory we would make a record of the case. The old lady in using the morphin, she was the first patient that I had gotten hold of that come to my institution—

Mr. Loesch:—A little louder.

Mr. Walker:—Speak out loud, we don't hear you.

A.—The old lady that came was the first woman that come to my sanitarium that gave a history of having used—having been using Wine of Cardui and went to taking morphin. That first attracted my attention to it in making out the history of these. I don't just—it is just the particular condition of the case is all that I can call to mind that makes me remember it. I remember these distinctly, the morphin patients, and having the stuff in their grip calls it to my mind. Now, as to just any special thing that just calls to mind—without quite a number of patients that we had—we had quite a number but these were the only ones that used the Wine of Cardui in connection with morphin.

Q.—The list that you made up of those names, when did you make it up, in reference to your coming to Chicago? You say you made it up before you came? *A.*—Well, I don't know that I could—that there was any certain day I had it. I made out the list of names, some of these—which do you mean, do you mean all of the names, or do you mean—

Q.—Was there any of them that you recollect that you made out after you came to Chicago, and heard some of the testimony in this case? *A.*—No, sir.

Q.—Then I take it that all the names that you have mentioned to this jury were listed by you before you came to Chicago, and after Sizer saw you, is that right? *A.*—Yes, sir.

Mr. Loesch:—Heizer.

Mr. Walker:—What did I call him?

Mr. Loesch:—You just leave off the "Doctor" and say, Sizer, instead of Heizer.

Mr. Walker:—Yes, Sizer examined the evidence on the drunks and the doctor got them.

Mr. Loesch:—Sizer and Heizer, lawyer and doctor.

The Witness:—Sizer never examined them.

Mr. Loesch:—Well, they are here.

Mr. Walker:—Yes, and they are some specimens to be proud of.

Dr. Goddard was then again repeatedly cross-examined in an endeavor to recall to his memory the names of the patients treated in the sanitarium. The witness then testified on cross-examination as to the various places in which he practiced from 1890 up to the present time.

Q.—Can you give me the name of any one person that you ever saw drink Wine of Cardui, or any woman that gave you in her history that drank Wine of Cardui, that is now living anywhere that you can tell us the location and name of? *A.*—I can tell you where they were when I saw them last. I do not know where they are now.

Q.—But I am asking you about now? *A.*—No, sir.

Q.—Is there any one whose name you can give us that is living, who used Wine of Cardui as a beverage, or any woman who gave it as a part of her history, that you can tell us, that you know was living and where the person lived when you first met Heizer? *A.*—No, sir, I don't know where they lived.

Q.—When was the last person, the date now, that you ever saw drink Wine of Cardui, as a beverage, or any you have named? The last date? *A.*—That was when I was running the sanitarium, 1900 and 1901.

Q.—That is the last date of any man you ever saw drink it as a beverage? *A.*—Yes, sir.

Q.—Give me the name. Was that man or woman? *A.*—Both.

Q.—At the sanitarium. One of them was an alcoholic, and the other ones were morphin fiends when they came to see you? *A.*—Yes, sir, there was two of them, two of them.

Q.—Now— *A.*—Wait a moment, what was that you asked me?

Q.—I say, one of them was an alcoholic, S. from Oklahoma? *A.*—B. from Oklahoma. B. was a morphin fiend, and the rest of the men were alcoholics. You have just got it reversed.

Q.—When was it that you saw N? *A.*—N. was in 1902.

Q.—Where was that? *A.*—That was in my house. He called on me to treat him for alcoholism, and he stayed in my home.

Q.—At which place were you then living? *A.*—I was living in Oak Cliff then, and I was running the sanitarium.

Q.—Did he live in your house, while he was there? *A.*—He had a room in my house, yes, sir, boarded with me.

Q.—S.— *A.*—N., his name was, N.

Q.—Did any member of your family see N. drink Wine of Cardui? *A.*—I don't know about that; I don't suppose they did.

Q.—Is there any other member of your family here? *A.*—No, sir.

Q.—Any of these cases that you have named, can you give me the name of any other individual on earth that saw them drink Wine of Cardui as a beverage, any one of them? *A.*—All the people now that you are talking about?

Q.—Any one of them. I am speaking now of the people that drank it as a beverage. Can you give me the name of any one that you have named, of any person? *A.*—Well, the help that I had in the sanitarium might have seen them. I do not know whether they did or not. I could not say for that.

Q.—As far as you know, nobody else but yourself ever saw these people drink Wine of Cardui? *A.*—No, I do not know that they did, not around me, not only the ones that was in the sanitarium.

The witness was then again cross-examined concerning the names of the patients whom he treated who took Wine of Cardui.

TESTIMONY OF DR. C. HUGH M'KENNA

Dr. McKenna was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. McKenna testified that he has resided in Chicago for sixteen years. He devotes more attention to surgery than to general medicine. He graduated from the Rush Medical College in 1903. He then spent a year as intern and assistant to the late Dr. Nicholas Senn, later for about four years was assistant to the late Ferdinand Henrotin. He was abroad in 1909 and again in 1910. In 1909 until about 1913, he was associated with Dr. John B. Murphy in the capacity of associate chief of St. Joseph's Hospital. In 1913, Dr. McKenna was appointed surgeon in chief, and president of the staff of St. Joseph's Hospital.

In the treatment of diseases he uses both mechanical and medical means if indicated. Dr. McKenna testified that he has had no experience with cnicus or carduus benedictus.

Q.—Now, doctor, will you tell the jury what experience you have had in the use of viburnum prunifolium, and what conclusions you have reached as a result of your experience with it, as to its therapeutic value? *A.*—Early in my practice I used viburnum prunifolium, and I used it particularly in the extract, in the dry form. I should say that I used it over a period of probably five years, and owing to the fact that I had no results from it at all, I discontinued its use.

Q.—Now, when you say you used it in the dry form, what do you mean by that, doctor? *A.*—Well, I mean that, if I remember correctly, I had Burroughs & Wellcome, an English firm, put up viburnum prunifolium in the form of tablets, used in connection with small doses of the tinctura opii camphorata, also in a powdered form, making it more easy to be used by the patient.

After using it for a time, I figured that the only effect I got from it was the paregoric and then trying the drug alone, I got no effects and discontinued its use.

Q.—Then in your use of viburnum prunifolium, you did not use it in the form of a fluid at all? *A.*—Well, I might say that I probably have written ten or a dozen prescriptions of the fluidextract of viburnum prunifolium.

Q.—But, with the exception of those prescriptions, your experience in the use of the drug, was in the dry form? *A.*—Yes, sir.

There was then asked the witness a hypothetical question similar to that asked of previous witnesses and he stated that he had an opinion as to the physiologic action and therapeutic value of the hypothetical medicine.

Dr. McKenna testified that such a medicine would not be proper scientific treatment for the various uterine displacements.

Q.—Why, not, doctor? *A.*—It would have absolutely no effect upon the organ. They are out of place. That is to say, retroversion, retroflexion, anteversion and anteflexion, and if they are caused by certain inflammatory conditions, pressing down upon them, such as pyosalpinx or any other pathological conditions within the pelvis, it would be absurd to feel that any medicine would have any effect upon these conditions.

There was then described to Dr. McKenna an experiment similar to that described by Dr. J. Clarence Webster and he stated that such an experiment would confirm the opinion which he had expressed. Such an experiment would cause him to believe that the hypothetical medicine was not a uterine tonic. Dr. McKenna testified that puberty, pregnancy, the lying-in period and the menopause are normal physiologic conditions and that in a large majority of cases they require no medication whatever. The menopause is a very dangerous time to give any medicines that might mask the symptoms of some pathologic condition which might occur.

Q.—I say, but going back to the age of puberty, you say that it is an impressionable period in the history of a girl, and that it is the one period particularly when no alcohol should be administered. Now, why is that, Doctor? *A.*—Well, it is at a time when the young girl is going through a change that psychologically, or so far as the question of her mental makeup is concerned, she should not receive anything that is of a stimulating character, because of this change through which she is passing at that period.

Q.—What would be the effect, if anything, of the alcohol contained in such a medicine at such a time, used as frequently as is advised here, three to four times a day, three times a day, upon the question of the excitability of the girl's passions? *A.*—I did not catch the last part.

Q.—Upon the question of the excitability of her sexual passions? *A.*—I said that at that time young girls are of a very impressionable age. They are very apt to acquire a habit, and particularly at a time when a new period has come into their lives from the standpoint of the change in the sexual organs and it is very likely of course to stimulate them markedly in that respect.

Dr. McKenna testified that menorrhagia and metrorrhagia are symptoms of disease. In explaining he descrjbed:

Q.—Now, when you say they are symptoms of disease, what do you mean by that, doctor? *A.*—I mean that there is a varying number of abnormal conditions occurring in the female organs which may cause a woman to flow; that may cause an increased flow at the normal period, the monthly period, or it may cause a flow between the periods. The conditions that bring about this flow are varied. They come on sometimes very insidiously, without a woman noting any condition herself at all. I might refer to a patient that I have had in my experience within the last few weeks. A woman 42 years of age.

Q.—Have you got anything here to illustrate that case? *A.*—Yes, I have.

Q.—Will you please produce it, bring it up here.

The Witness:—May I stand up?

THE COURT:—Certainly?

Mr. T. J. Scofield:—Doctor, stand on this side (the witness produced three glass jars, each containing certain specimens hereinafter referred to and described, and the said jars and their contents were within view of the jury.)

The Witness:—This woman that I refer to is 42 years of age approximately. She came into my office at 104 South Michigan Avenue, about two and a half weeks ago. Practically the only history that she gave was the history of flooding, as she expressed it. She had no pain, no pain referable to her pelvic organs.

She said that she had been flowing for a matter of over two weeks, and was flowing so heavily on that day, that she did not wish me to examine her, as she expressed it, and I told her that under those circumstances that it would be well for her to go somewhere where she could be put to rest immediately.

I recommended that she go to the hospital, which she consented to do. I examined her at the hospital. However, she did not go to the hospital directly that night, but rather came there the next morning, and under the proper aseptic conditions, I examined that patient, and found a small submucous fibroid, which is a small growth, presenting in the canal of the womb; presenting somewhat in that manner (the witness illustrates by encircling the end of his little finger with the first finger of the left hand so that the tip of the little finger protrudes about one quarter of an inch) through the opening of the canal, leading down from the womb.

Upon further bimanual examination I found that she was suffering with a good sized fibroid, as represented in this jar. (Referring to one of the jars hereinbefore produced). Now, the only symptom that that patient complained of was the question of flooding. She had no pain; no other symptom at all, and I felt that it was a very important case, particularly from the standpoint of showing that there is absolutely no way in which a woman can tell whether that is an operative case or not.

I present here also a second case that was operated on; pathological number 5070, was operated on April 15 of this year; the fibroid of the uterus and the small submucous fibroid of the cervical canal. I present also a second specimen—

Q.—Doctor, is this the fibroid here, taken away from the woman? (Referring to contents of one of the jars) *A.*—That is the fibroid. She was operated on October 15. (The witness apparently intended to say April 15.)

Q.—What is her condition now, Doctor? *A.*—She was discharged today feeling perfectly all right.

Q.—Go ahead? *A.*—I present also a second specimen. This represents what is known as a double dermoid cyst of the two ovaries, and was operated by me on March 14 of this year.

Mr. Walker:—That is the middle one? (Referring to the position of the jars.)

The Witness:—That is these two. This is the right ovarian tumor, and this is the left ovarian tumor. (Indicating contents of jar No. 2.)

Mr. T. J. Scofield: Q.—The same patient? A.—The same patient. Now, this woman I saw on the morning of March 14 and the only symptom she had, referable to her pelvis, was slight metrorrhagia, or flowing between the periods. She had some cramps in the abdomen, but so far as the pelvis was concerned, her symptoms were a slight metrorrhagia.

Now that patient was examined, and it was decided that it was one of two conditions: either a strangulated or twisted pedicle of a hemorrhagic ovarian cyst, or an ectopic pregnancy.

She was immediately sent to the operating room and operated and we found blood flowing freely into the abdomen from a twisted ovarian pedicle, the upper half of the tumor being made up of what is known as dermoid and containing hair, and in this instance some bone and various other tissues, which comes about in conditions (if we bring it down to a question of the development of the fetus) where certain layers come together while the fetus is still in utero or within the womb and there is malformation at that time.

Now this, on the right side, was a mixed dermoid and hemorrhagic cyst and on the left side, was a large tumor taking up the entire ovary. The entire ovary—in fact, there was not any true ovarian tissue at all. As I stated before, this case was ruptured and was bleeding into the abdomen, and if it had not been recognized within a period of a day or such a matter, she could very easily have bled to death.

Now the patient was immediately operated and made a good recovery and left the hospital I think in a period, I think, of about three weeks or three and a half. I do not know the exact date. The number of the second set of specimens is 5020. I gave the first one, 5070, I guess, did I not?

The Reporter:—Yes, I think so.

The Witness:—The second one is pathological number 5020. The history and names of these patients are here for anybody who wants them.

Mr. T. J. Scofield: Q.—Now, doctor, let me ask you whether or not these cases that you have just been describing are illustrative of many other cases which you have had in your practice? A.—Many, and I—

Q.—Now, I suppose—go ahead. A.—and I particularly wish to point out to this jury the fact that it is impossible not only for any patient suffering with the condition as described in the second set of specimens there, namely, the hemorrhagic cyst of the ovary, to determine what that condition is, but it is practically impossible for a medical man after he has given the patient the most searching examination, to say whether that is an ectopic pregnancy, by that I mean, a conception without the womb, or a hemorrhagic cyst, so that the question of stating that certain conditions are not treated because they are operaive conditions—here is a condition in point, that nobody but the doctor and under the most searching examination can tell what the condition is.

Q.—Now, doctor, as I understand it, you, as a surgeon, and as a doctor, could not diagnose the condition from the symptoms which the patient disclosed to you? A.—In no way.

Q.—And as to at least one of these cases, you, as a physician and a surgeon, could not with certainty diagnose the exact condition there after examination, until after you had opened the abdomen? A.—In the case of the second case, that is the hemorrhagic cyst of the ovary, no.

Q.—You were able to determine— A.—I expected that it was an operative case, and that it should be operated immediatly.

Q.—Now, how could you tell that it was an operative case, from what the patient told you? A.—No, from my examination, which consisted in the bimanual examination, placing one hand in the uterus of the patient, or in the vagina of the patient, and the other hand over the abdomen, and examining in what we call a bimanual way, and in addition to that, making the necessary laboratory examinations, such as the blood count, that go with that type of examination.

Q.—Then, if I understand you aright, doctor, in the treatment of those two cases, you did by your examination discover abnormal conditions that the symptoms as manifested, or told you by the patient, did not disclose? A.—Exactly.

Q.—So far as the complaints—

Mr. Hough:—I do not see that this is material.

THE COURT:—Which?

Mr. Hough:—His question, and the answer.

THE COURT:—I do not think it is myself, but nothing was said about it, until it got by us.

Mr. Hough:—I did not catch it.

Dr. McKenna testified that the hypothetical medicine would not be a proper scientific treatment in cases of menorrhagia and metrorrhagia.

There was then read to him a statement from the Ladies Birthday Almanac concerning flooding. He stated that it was absolutely incorrect and misleading to state that:

> "Flooding is always a sign of danger. The best treatment is complete rest in bed, and Wine of Cardui three times a day."

Dr. McKenna then described other conditions such as sarcoma, or cancer, which might bring on similar symptoms as those of the cases previously mentioned. These symptoms might also be produced by inflammation of the fallopian tubes. He stated that a medicine similar to Wine of Cardui would do no good in cases of menorrhagia or flooding.

There was then read to Dr. McKenna a statement from the Ladies' Birthday Almanac and he was shown a picture from the pamphlet illustrating a woman with her hand at the small of her back. He was asked to state to the jury the conditions which might arise within a woman which might be the underlying cause for such a pain in the back as the picture and the paragraph described. He stated that there were many conditions. He mentioned particularly tuberculosis of the spine and metastatic infection of the intervertebral spaces. He treated cases of this kind by removal of the focus of infection. An early recognition of the condition is necessary. He mentioned also the mechanical treatment by immobilization; also the use of vaccines. He mentioned the use of the steel corset in the treatment of metastatic infection of joints. He also described in general the treatment of tuberculosis of the spine.

Mr. Hough:—Just one moment. Do I understand the witness to say that when a man or a woman has a pain in the back, that this is his condition?

The Witness:—No, sir, I did not say any such thing.

Mr. Hough:—Then this is immaterial.

THE COURT:—I thought it was immaterial. This is one of the things that may cause pain in this particular point in the back, shown in the picture.

Mr. Hough:—Anything can cause a pain in the back. I thought he said if any one had a pain in the back, they had to have this thing.

Mr. T. J. Scofield:—He did not say that, and from what you inferred it, I do not know. But he said that a pain in the back might be due to, or result from such a condition. Then I asked him what different conditions might produce such a thing and now he is answering.

Q.—Now, Doctor, let me ask you whether or not such a condition as you have been describing would produce the sort of symptoms of pain that has been described and read to you, from this Ladies' Birthday Almanac? A.—It would.

Q.—Would that case be a case that a woman could diagnose and determine herself the condition that you have described? A.—She could not.

Q.—Would that case be a case for medical, mechanical or surgical treatment, in its origin, and throughout the history of the case? A.—It would.

Q.—That is, you would use medicinal and mechanical means and possibly surgical means? A.—I would.

Q.—In what stages of that disease would you use medicine? A.—If, as I stated—

Mr. Hough:—That is objected to as incompetent, irrelevant and immaterial.

THE COURT:—It seems to me that the only important thing is to show that the doctor believes there are some disorders of women, that will show a symptom of pain in the back, and then give his opinion whether or not this hypothetical medicine, assuming that it is Wine of Cardui, will have any effect on it.

To which ruling of the Court the defendants, etc., excepted.

Mr. Hough:—I do not think that it is contended that Wine of Cardui will cure every pain or disease that a person might have.

Mr. T. J. Scofield:—As far as that is concerned, I am objecting to any statement by Mr. Hough as to what they claim or don't claim. Here is their advertisement.

THE COURT:—Counsel has a perfect right to disclaim always.

Mr. T. J. Scofield:—Yes, at the proper time, and under proper circumstances.

Mr. Hough:—The point is that the inquiry should be based upon the literature which says that this medicine might be the medicine which would do the good. It don't say that it would be absolutely.

Mr. T. J. Scofield:—This is based absolutely on your literature.

Mr. Hough:—It says it might be, don't it? You ought to base your question on that.

Mr. T. J. Scofield:—Well, let us read it and see what it says there?

Mr. Hough:—Go ahead.

Mr. T. J. Scofield:—(Reading.) "That is where the pain is, in the small of your back. It is terrible, nerve racking and unbearable. You just cannot work. Don't let it keep up. Stop it. Take a dose of Cardui, the Woman's Tonic. Lay down for a short rest. In a few minutes you will feel much better." You will feel much better, not might feel better.

"Take Cardui regularly for a few days. It will make all the difference in the world. Keep it up till the pain is gone, and you have got back your strength. Won't you thank Cardui."

Q.—Now then, Doctor, having heard —

Mr. Hough:—Will you finish the rest of that?

Mr. T. J. Scofield:—I will with pleasure, if you care to have it read.

Mr. Hough:—Why, yes.

Mr. T. J. Scofield: I read it to the jury. (Reading): "Yes you will." Will what? "Thank Cardui as thousands of others have done and are doing every day. Try this plan of treatment, it may be just what you need."

Mr. Hough:—It says, "It may be just what you need."

Mr. T. J. Scofield:—Sure.

Q.—Doctor, would you consider the hypothetical solution, which I have mentioned to you, proper treatment for such a condition as that which you have described? *A.*—I would not.

Q.—Would you consider, assuming that the hypothetical medicine and Wine of Cardui, are practically the same, that Wine of Cardui would be a proper scientific treatment for that condition. *A.*—It would not.

Q.—Would you think, Doctor, that the hypothetical solution or Wine of Cardui (assuming that they are practically the same) might be just what was needed for such a condition as you have described?

Mr. Hough:—One moment. Do you mean the pain in the back?

Mr. T. J. Scofield:—The condition that you have described?

Mr. Hough:—I object until that is made more specific.

Mr. T. J. Scofield:—The condition which produced the pain in the back, under the conditions which you have described.

THE COURT:—The objection will have to be sustained to that.

To which ruling of the Court the defendants, etc., excepted.

Mr. Hough:—We don't claim it will cure curvature of the spine.

THE COURT:—Ask the doctor as to whether this hypothetical medicine would be indicated for any kind of a pain in the back.

Mr. T. J. Scofield: *Q.*—Have you an opinion, doctor, as to whether or not this hypothetical solution, and Wine of Cardui (assuming that they are practically the same) are indicated for any sort of a pain in the back, such as has been described here? *A.*—I have an opinion.

Q.—What is that opinion? *A.*—That it would do no good.

Whereupon the further hearing of the case was adjourned until 2 o'clock p. m. the same day, May 3, 1916.

May 3, 1916, Afternoon

The court met pursuant to adjournment.

TESTIMONY OF DR. C. HUGH M'KENNA (*continued*)

Dr. C. Hugh McKenna resumed the stand for the defendants. He testified that he supplied to the attorneys for the plaintiffs the names of persons on whom he operated.

CROSS-EXAMINATION BY MR. HOUGH

Dr. McKenna testified that the first case on which he operated came to him direct and had not been under the care of any other physician. The second case was a ward case and had been under the care of Dr. A. A. Small, who had been treating her for rheumatism. Dr. Small discovered the dermoid cyst and called in Dr. McKenna to see the patient. The patient had not complained of any symptoms other than flowing of blood from the uterus and of pain in the abdomen. Dr. McKenna was shown the picture of a woman with her hand on her back and was asked whether the location of the hand pointed toward pain due to menstrual disturbances or whether to the conditions which he described.

Q.—Well, if a woman came to you and said she had a pain in her back, and she put her hand down there, would you first think of menstrual disturbance, or would you first think of this tuberculosis of the spine, or metastatic infection of the spine? *A.*—I would think of all the conditions that I know that might cause a pathological condition of the spine.

Q.—You mean you would think of all of them at the same time? *A.*—Yes, just in a general way, yes. I think that we are concerned with that situation in every case we see, and we must necessarily take them all into account; otherwise we are apt to run off at a tangent.

Q.—Now, is metastatic infection of the spine a very common trouble, or is it very rare? *A.*—It is common enough, and I think I can describe that best by saying that I have heard, in some of the leading clinics, the expression used that those cases come in in crops.

Q.—Come in in what? *A.*—Come in in crops.

Q.—In crops? *A.*—Yes.

Q.—Is that because they are suggested by the Doctor to the patient, or— *A.*—It simply means that they come in large numbers. They come at definite periods of the year; following certain infections that I described this morning—that inflammatory condition of that kind, of the spinal vertebra may be caused by infection to the nose and throat, and the fallopian tubes or the Bartholin glands, or the gall-bladder infection, or appendix infection—any of those; and, certain changes in the weather, and atmosphere is apt to stimulate.

Q.—Well, what is the best crop season, Doctor, for that? *A.*—I beg your pardon?

Q.—What is the best crop season for that? *A.*—As I said this morning—the question first is to determine—

Q.—Well, you said certain seasons of the year. What is the best season for that crop? *A.*—Well, I misunderstood your term when you said the best season. I would say the worst season. They come in, as a rule, shortly after the time that the crops are harvested; and they come particularly from the farming communities; and it is supposed that the kind of work that is done on the farm, all the lifting and bending and perspiring freely, and probably catching cold, has to do with the question of forming what we please to term as the locus minoris resistentiae, meaning the point of least resistance, and, consequently, the infection, being present in some of those places, is deposited in this point of least resistance, which, in these instances happen to be the joints along the vertebra.

Q.—Have you ever practiced in the country, Doctor? *A.*—No, I never have.

Q.—Are country doctors, as a rule, prepared or equipped to handle cases like that? *A.*—Country doctors—and I say this through my society connections — have done a great deal, ever since I have been in medicine, toward the question of perfecting themselves, so that they can take care of those cases in a scientific way. There is not anything that I have described, that they cannot carry out and are carrying out, as far as I know, in most of the country places.

Dr. McKenna was then cross-examined concerning the condition of the case in which the blood was flowing into the peritoneal cavity. He stated that if the patient bled for a day or two she would probably be dead from hemorrhages. He was asked to name other conditions producing pain in the back which were worse than those already named. He mentioned carcinoma and sarcoma of the spine and crushed spine.

PAIN IN THE BACK

Q.—Well, do you mean to say then that when a woman has a pain in the back she might have almost anything the matter with her? *A.*—Well, we must take the position, as examining physicians, that she might have any of these conditions, and I would say that it is very essential that we take into account all of these things, in order that we may not—although it might only occur once in a thousand times—miss that case, which, if taken in the beginning, might be saved, and a deformed spine saved.

Q.—Would you say that would be about the proportion in which those cases would occur, once in a thousand times? *A.*—No, I would not say that. I said, even in the case that it only occurred in that proportion. These cases occur much more frequently.

Q.—Well, how much more would you say? Twice in a thousand times? *A.*—I said that I believed—that I put it in a way that we could get a conception of it by saying that they come in in crops after the—particularly from the farming communities—after the harvest is over; and I think that gives you a very good idea of the frequency, particularly of the metastatic type of spine. That is a condition, of course, that had gone unrecognized formerly and treated as lumbago and different forms of rheumatism, and so on, until scientific medicines have put it on a very definite basis, and—

Q.—How late is that, that it has put it on a definite basis? *A.*—Well—

Q.—Recently? *A.*—Within the last ten or twelve years.

Q.—Now, taking the cases coming in crops, as you say; what would the proportion be through a year? *A.*—Well, what way do you mean?

Q.—Would the average—where a woman had a pain in the back—would there be one case in a thousand— *A.*—Oh, yes, very much—

Q.—Where it would be this metastatic infection of the spine? *A.*—Yes, it would be very much more frequent.

Q.—Two cases in a thousand? *A.*—Much more frequent than that, I should say.

Q.—Well, give me an idea; a hundred cases in a thousand? *A.*—I—it is rather difficult, because of lack of specific statistics at this time to say definitely what proportion of cases, or what the percentage of spinal pathological—or what percentage these make of the pathological conditions of the spine; but I would say that of the injuries or pathological conditions of the spine, that they are relatively frequent.

Q.—Well, what do you mean by relatively frequent; as many as ten in a thousand? *A.*—Well, I would say much more frequent than that—

Q.—As many as— *A.*—I do not know that I can give you the percentages.

Q.—You would say—

THE COURT:—Mr. Hough, I think the witness has made it pretty plain that he has no general statistics to go by. He does not know the number of women in the world that have backache, and he cannot know the number of people that have these particular disorders of the spine.

Mr. Hough:—How can he say it is general then?

THE COURT:—He has told you in general terms. Now, there is no use trying to get down to specific terms, because the witness says he cannot give them.

Mr. Hough: *Q.*—Do you say you are unable to give the percentage of cases? *A.*—I said very definitely I could not give the percentages;

and I doubt very much whether there are any compiled statistics on that line of surgery, at this time.

Q.—As a matter of fact, is it not very rare with this condition, when a woman has a pain in the back, in comparison with all the other conditions? *A.*—No, I should say it was not.

Dr. McKenna then stated that dermoid cysts are uncommon, relatively speaking. Hemorrhagic cysts of the ovary are not uncommon. Development of such growths might go on for a long time without the woman knowing anything about it. Dr. McKenna stated that physicians sometimes might operate thinking that a fibroid tumor was present when actually the patient was pregnant.

Q.—Do you know what is referred to as the Podsnapion plan of ignoring the function of menstruation? *A.*—The which?

Q.—The Podsnapion plan? *A.*—No, I do not.

Q.—You say menstruation at puberty is always physiological? *A.*—No, I do not say so.

Q.—In what percentage of cases would you say it is pathological? *A.*—Oh, I would say probably in the neighborhood of fifteen to twenty per cent.—something like that; in my experience.

Q.—Would you say that—or would you not say that amenorrhea, as a disorder of puberty, is very common? *A.*—No, I would not. I have so stated.

Q.—Is that stated upon your own practice and experience, or upon reading? *A.*—That is based upon my own experience and my associations with other men in clinics; in a general way on my knowledge of such conditions.

Q.—Would you say it was based in any degree upon the experience of others who have written medical works? *A.*—No, it is not based upon the—I said it was based upon my own experience and upon my association—as I learned it from other men in clinics.

Q.—Have you ever talked with Dr. J. Clarence Webster on that subject? Have you ever learned anything from him about it? *A.*—I have talked to Dr. Webster many times. I do not know that I have talked to him specifically on those conditions.

Q.—Doesn't he say it is very common? *A.*—I don't know what he says.

Mr. T. J. Scofield:—I object to that question, if the Court please.

THE COURT:—Objection sustained.

To which ruling of the Court the plaintiffs, etc., excepted.

The witness stated that he had referred as a student to a book of Dr. Webster on diseases on women but he does not know what the book states on this subject. The witness was asked if he had ever read "Case Histories of the Diseases of Women," by C. M. Green of Harvard. He does not know this book. The witness has heard of hot gin being used for girls having amenorrhea or delayed menstruation at puberty. He does not consider it a common remedy. He would consider the alcohol in it as having a deleterious effect. He does not consider alcohol as a food. He is not familiar with the experiment of Atwood and Chittenden on this subject nor with Cushny's experiment.

He has not read any editorial statement in the Journal of the American Medical Association as to the amount of alcohol which may be taken into the system in food without a deleterious effect but such a statement would not affect his opinion in any way. The witness defined his belief as to what the pharmacopeia and National Formulary represent. He believes that every patient should be treated as a patient and does not follow these books in prescribing.

The witness does not remember that he has used fluidextract of cimicifuga nor that of cinchona.

Q.—Did you ever use the fluidextract of ergot? *A.*—Yes, I think—yes, I know I have.

Q.—Well, you know that there is fifty-seven drops of alcohol per dose in that, don't you? *A.*—Yes. I would say in that connection, that as far as the alcohol is concerned, that it has a deleterious effect, but, in order to get the effect of the ergot, over a certain period of time, we permit the deleterious effect of the alcohol to go on, in order that we may get the effect of the ergot; because it is given in conditions of flowing, as a rule, and in severe conditions where we must take that chance with it; but I should say that if the fluid extract of ergot was given, and the patient could go out and buy it and take it just as they wanted to, that I would condemn it just as much as I would any patent nostrum.

Q.—You mean that if the physician prescribes it, it is not deleterious, but if taken without the physician's— *A.*—I do not say that at all. I said that it was—that it has a certain deleterious effect, as far as the alcohol is concerned, even though the physician prescribed it; but I said, in order to get the effect of the ergot in that solution, we forego the deleterious effect, for a short period of time, because it is given under a physician's orders and directions, and is not given and left to the discretion of the patient.

Q.—Did you ever give tincture of cimicifuga? *A.*—No, I don't think I have.

Q.—Did you ever give spirits of juniper? *A.*—No, I do not think I have. I may say, in that connection, that we are concerned more in finding out the cause of the disease, and we find that after we have gotten at the bottom or cause of the disease; and then the cause of medication is rather a simple condition.

Q.—When you say "we," what do you mean? *A.*—I mean that in connection with my associates in hospital work, in a regulated hospital.

Q.—Are you speaking of the profession as a whole, or just of your associates? *A.*—I mean that as these things are carried out in the larger clinical centers—the cross-way roads physician can, too, take those things up in a certain way—and that the best example of that situation is the manner in which the clinic has been built up here in Rochester, a little city of only 6,000.

Q.—Do you mean in Minnesota? *A.*—Minnesota, yes.

Q.—Are you connected with Mayo brothers? *A.*—No, I am not.

Q.—Do you refer—you refer to the Mayo brothers? *A.*—I do.

Q.—Have you used the compound tincture of gentian? *A.*—No, I do not believe I have ever used it.

Q.—Did you ever use tincture of hydrastis? *A.*—I have used the fluidextract of hydrastis.

Q.—How many drops of alcohol were there in each dose of that? *A.*—Well, that was immaterial; I do not know how much; it was immaterial, because it was always given in a limited number of doses; usually given in combination with the fluidextract of ergot.

Q.—In combination with that? *A.*—Yes, sir.

Q.—In combination with anything else? *A.*—No; I don't think I have.

Q.—Each dose contains 45 drops of alcohol, does it not? *A.*—It may be. I said I am not a pharmacist, and I don't—

Q.—You don't pay attention then to the— *A.*—and I want to get the reaction of the drug—and, as I stated before, I am willing to forego the deleterious effect of the alcohol to get that, over a limited period; because I am watching that patient, and if there are any symptoms that lead me to believe that this is causing certain pathological conditions to occur—the deleterious effect, in different parts of the body—I immediately stop it.

Q.—You are talking about in your hospital work? *A.*—Well, I would do that anywhere.

Q.—Before you got into hospital work. Then you mean when you want to use a certain drug, you absolutely ignore the amount of alcohol that may be used with it? *A.*—Well, I state that if I want to use a given drug I use it in such small quantities, as far as the amount of alcohol is concerned, that it will not produce any very bad effects.

Q.—But you say you do not know how much alcohol there is in it? *A.*—Well, I know this, that if the amount would be used for a short time, that it will not cause any very bad effect.

Q.—Well, you know that in some you use as much as 115 drops to a dose, don't you? *A.*—No, I don't.

Q.—What is the largest amount that you know that is in any medicine that you use? *A.*—Well, if you will ask me the drugs that I have used, I will tell you the amounts I have used.

Q.—Well, you have used spirits of ether? *A.*—In what way?

Q.—Any way? *A.*—I have used ether as an anesthesia.

Q.—Only in that way? *A.*—That is all.

Q.—Compound spirits of ether? *A.*—No.

Q.—Taraxacum? *A.*—No.

Q.—Compound spirits of juniper? *A.*—No, I have not used that.

Q.—Cannabis indica? *A.*—I probably used cannabis indica.

Q.—Well, the main point is that you absolutely ignore the amount of alcohol, and you don't even know what there is in a dose, if you prescribe a certain remedy? *A.*—I mean to say that the amounts that I give it in, and the length of time that I give it, that it would not have any deleterious effect, or, if it does have a deleterious effect, if it is noted, I would immediately discontinue its use.

Q.—You have used Warburg's tincture, have you? *A.*—No, I do not think I have.

Q.—Do you know what it is? *A.*—I do not know it by that name.

Q.—Did you ever use bitter tincture? *A.*—No, I don't believe so.

Mr. T. J. Scofield:—Of what, Mr. Hough?

Mr. Hough:—That is the name in the National Formulary, just bitter tincture.

Q.—Compound cathartic elixir? *A.*—No, I don't think so.

Q.—Doctor, if you regard alcohol as deleterious in all cases, why don't you use a glycerin preparation of hydrastis or of ergot? *A.*—Well, I may use them in some cases.

Q.—Have you ever used it? *A.*—I may have.

Q.—Well, don't you know whether you have or have not? *A.*—No, I don't recall—

Q.—Don't you know that you never have used it? *A.*—I don't recall. I could not say definitely. That would be a very difficult thing, Mr. Hough, to say.

Q.—Why would it be difficult for you to recollect whether you used the one with alcohol, or one with glycerin? *A.*—I think that would be a very difficult thing to state; when a man has been in active practice, and seeing a lot of cases in a large hospital over a period of twelve or thirteen years, just exactly what medicines he has used; that would be a difficult thing. I said that I did not regard the amount of alcohol that I gave in a fluidextract of hydrastis or a fluidextract of ergot, over the period of time, even though it may be deleterious to a certain—to a slight degree—I said that I would forego the deleterious effect for the action of the drugs that were in the alcoholic solution.

The witness defined the reason for his belief that the giving of alcohol in appreciable amounts for a long period is de-

terious, and he stated that to give alcohol to a girl at the time of puberty without any control would be vicious. If it were controlled by a physician, the patient would not have an opportunity to form a habit. The witness stated that from two to three years are required for the changes which the girl undergoes in passing from girlhood to womanhood—puberty. He distinguished between what is normal and what is pathologic at that period.

He stated that even in a normal condition there might be some pain during the establishment of menstruation. He has even had cases in which, during the entire life of the woman, there was slight pain during the period and this was not considered pathologic and no medicine was indicated for it. He stated that if there are chlorosis or anemia, medicine can be given.

Dr. McKenna stated that he had used viburnum prunifolium for about five years but that he got no effect from it either in tablet form or as fluidextract. He does not consider it likely that something was left out in the tablet form which was in the liquid tincture or fluidextract. He does not know if other physicians have reported effects obtained with this drug, but even so it would not change his opinion.

The witness has treated cases of uterine displacements which were not operative cases. He has used mechanical means but did not use any drugs by mouth with the idea that they would act on the condition. If there was enlargement of the uterus, he might give ergot to contract it down. Ergot is a uterine tonic. If it was indicated he would prescribe an antiseptic douche. He has used pessaries and he considers the following statement read from the Cardui Home Treatment as a truthful one.

"No one should ever apply a pessary without the advice and under the constant supervision of a physician."

Mr. Hough: *Q.*—Well, can't they be applied by a midwife or a nurse? *A.*—I would say—my experience has been that if the pessary is going to give the proper support, it means that the uterus must be in the proper position, and the physician is the proper one to determine that.

Q.—Can you answer the question just as I asked it, doctor, whether it could not be just as well applied by a nurse or a midwife? *A.*—I should say it could not.

Q.—Could not?

THE COURT:—Or anybody else, if they knew how?

Mr. Hough: *Q.*—Or anybody else, if they knew how, other than a physician? *A.*—I would say that nobody would know how as well as a physician.

THE COURT:—Well, that is not the question. If anybody knew how couldn't anybody do it? *A.*—Yes, anybody could if they knew how.

Mr. Hough: *Q.*—Then that sentence is misleading, isn't it?

THE COURT:—Well, if it is you may so argue to the jury, Mr. Hough.

Mr. Hough:—Can't I argue it to anybody else?

THE COURT:—Not with the witness, certainly.

There are cases of pain in the back which may be treated by medicine and which are not operative. The experience of the witness has been that the majority of cases should be treated by mechanical supports and by medicines. The majority of cases which he sees are hospital cases which are classified in his service because they require a combination of mechanical and medicinal treatment.

The witness does not remember that he has used wine of ipecac. The only preparation of ipecac that he has ever used, was many years ago in connection with a cough mixture.

Q.—Now, in cases of flooding that are not operative cases—first let me ask, do you have any cases as a rule that are not operative cases, or are the majority of your cases only operative cases now? *A.*—I have a great many cases that come to me for examination, and as I stated before, that one of the real functions of my work is the question of going over those cases and getting at the cause of the trouble, and I stated before that after the cause was ascertained, that many of those cases were treated very simply, even in a medical way, and that as we have gone on in this scientific way, the number of cases to be operated—

Q.—Now will you explain what you mean by "we" right there? Do you mean the entire body of physicians, or you, yourself? *A.*—No, I mean myself and my associates in the hospital. That the number of cases operated are less today than they were five and ten years ago, because of the fact that we have better methods of determining the cause of disease.

Q.—You mean you don't act so quickly in the matter of performing operations as they used to? *A.*—Yes, that is right. In other words, we determine the cause, and we can definitely establish whether it is necessary to operate or not, or whether the patient will get well without.

Q.—Well now, when a patient comes to you today, you not being in the general practice, and you decide that it is not an operative case, do you keep the case and treat it medicinally, or send it to another doctor? *A.*—Well, that is determined entirely by the history and the examination, and all. Those patients are ordinarily sent out to the hospital, and they are worked up there probably in combination with other men.

Q.—Then you keep them there after the examination, whether they need an operation or not? *A.*—Oh, that all depends upon what the condition is. It may be that in an office examination, after a history and all, that you can determine definitely what that case is, and I may go on and treat the case myself.

Q.—You mean medicinally? *A.*—Yes.

The witness stated that he has cases of menorrhagia which were not surgical cases. In the treatment he first determines what is a case of tuberculosis or case after pregnancy. He believes that a large majority of the inflammatory conditions in the pelvis that cause menorrhagia are operative. He has had cases of metrorrhagia which were not operative cases. These were treated by mechanical methods but he does, if there is reason for it, prescribe medicines by mouth. He may have prescribed viburnum prunifolium for that condition before he found out that it was inert and worthless.

Q.—Did your patients get well, any of them, at the time you were giving them viburnum prunifolium? *A.*—Oh, they may have and they might have gotten well if I didn't give them anything, but—

Q.—Well, did they get well while you were giving it to them? *A.*—I found that in the majority of the cases, that it didn't do them any good.

Q.—Did they get well when you were giving it to them? *A.*—Well, I can't answer that question by saying that they all got well or that they didn't all get well. I am stating that the majority of them were not affected by the—

Q.—I am not asking you whether they were affected. I am asking you whether the majority got well or whether the majority did not get well? *A.*—The majority did not get any better by that form of treatment.

Q.—That is not the question. Did the majority of them get better after you gave them that treatment? *A.*—I stated that the majority did not.

Q.—Did not get better? *A.*—Were not affected by the—

Q.—I am not asking you whether that treatment did it; I am asking you whether as a matter of fact they got better? *A.*—I stated that they did not, the majority.

Q.—They did not get better? *A.*—That is why I discontinued it.

Q.—After using it for five years? *A.*—I stated in a general way, as nearly as I can remember, that I used it during that period. I never used it very extensively.

Q.—And during five years you continued using it without getting any good results from it, or getting results which you considered were due to it? *A.*—Yes, in a general way. I used it over that peroid, during that time. Of course I was developing the work in the hospital, and was subjecting most of those patients to a more careful scientific scrutiny, and was finding that if you determine the cause definitely, and all that, it was possible to treat those patients very much better in that way than it was to try and give them any medicine.

Q.—Have you ever had any cases of dysmenorrhea which you treated by medicine given in the mouth which were not operative cases? Or cases which you thought required an operation? *A.*—Oh, I would say—I do not recall that I have treated many such cases. I probably have seen and treated some cases that had a painful menstruation that was brought on by the question of a certain amount of congestion, and any type of a hot drink would seem to do some good, but I have felt that most—

Q.—What medicines did you ever give? *A.*—I beg your pardon?

Q.—What medicines did you ever give? *A.*—Oh, I have probably had them take a little hot brandy.

Q.—Hot brandy? *A.*—Yes.

Q.—Anything else? *A.*—No, I don't recall. Probably hot tea.

Q.—Anything else? *A.*—I don't recall of anything else.

Q.—And you probably gave viburnum for some of those cases too, didn't you? *A.*—I may have. I probably did, but it didn't do any good.

Q.—You are sure of that, are you? *A.*—Yes, I am sure.

Q.—Did the brandy do any good? *A.*—Well, they probably thought it did.

Q.—Did you think it did? *A.*—I didn't know. But the fact that—do you mean to say the brandy?

Q.—Yes. *A.*—Why yes. I wouldn't mind, if a patient were suffering with a dysmenorrhea that I knew was not organic in character, I wouldn't mind giving that patient some hot brandy.

Q.—Did you ever treat any woman with medicine in the mouth during the menopause? *A.*—Oh, I suppose I have. It all depends on the condition for which I was supposed to treat her.

Q.—Did you ever give her any brandy at that time? *A.*—I don't know that I have.

Q.—Did you ever give her any gin at that time? *A.*—No, I have not. I have never recommended gin.

Q.—You have tried viburnum prunifolium? *A.*—Well, you are asking me just in a general way a lot of things that I have done, and it is very difficult for me to answer that question unless you give me some specific reason for giving a thing. Now, if I have given medicine at the menopause—why, I may have treated cases of conditions in the

abdominal region anywhere, and given those patients medicine during the menopause. Certainly I have.

The witness was then asked as to the treatment of dysmenorrhea with drugs and also at the menopause. He stated that he treated dysmenorrhea at the menopause just as he would at any other time. If there was only discomfort, he would not give any medicine; if there was real pain, he would give something to relieve the pain. He stated that it is his opinion that the hypothetical medicine would do just what it was assumed to do in the hypothetical question. He was then cross-examined as to the quantities of drugs in the hypothetical medicine.

Dr. McKenna reiterated that it was his opinion that in the quantities present the drugs in the hypothetical medicine would not produce their therapeutic effects which it was assumed they would have.

The witness was repeatedly cross-examined as to his statement concerning his opinion as to points in the hypothetical question. He stated finally that he does not know of any combination of the two drugs in the hypothetical medicine that would accomplish anything.

The further hearing of the case was adjourned until 10:30 o'clock the following day, May 4, 1916.

May 4, 1916, 10:30 o'clock a. m.

Court met pursuant to adjournment.

TESTIMONY OF DR. FRANK BILLINGS

Dr. Frank Billings was called as a witness on behalf of the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Q.—What is your given name? *A.*—Frank Billings.

Q.—You are professionally a physician, are you? *A.*—I am.

Q.—I take it you are a graduate of some medical college or colleges? *A.*—I am.

Q.—Of what, doctor? *A.*—Why, I am Professor of Medicine in the University of Chicago, and in the Rush Medical College and Dean of the Faculty of Rush Medical College.

Q.—Now, Doctor, may I ask you to talk loud, louder than you are talking; it is difficult to hear back here, and, if you will, speak a little louder, please. *A.*—I did not hear you. I have not heard you quite.

Q.—I say, speak a little louder.

THE COURT:—You better be fair with the witness, Mr. Scofield.

Mr. T. J. Scofield: Q.—What college are you a graduate of, Doctor? *A.*—Northwestern University Medical School.

Q.—What year? *A.*—1881.

Q.—Since your graduation, have you pursued your studies of medicine? *A.*—I have.

Q.—Where? *A.*—In Chicago.

Q.—Have you studied abroad, also? *A.*—In the years 1885 and 1886, I spent those years chiefly in Vienna, Paris and London.

Q.—Have you had any hospital experience, Doctor? *A.*—I have.

Q.—With what institutions? *A.*—I was House Physician, Resident, at Cook County Hospital for eighteen months in 1881 and 1882. I was Attending Physician at the County Hospital for about ten years, about 1890 to 1900. I was Attending Physician at the Mercy Hospital from 1888 until 1898. I was Attending Physician at St. Luke's Hospital about ten years, I have forgotten the exact dates, and Consulting Physician of St. Luke's Hospital until last year, from the time I retired as Attendant. I have been an Attending Physician, and still am, of the Presbyterian Hospital, since 1898.

Q.—I did not understand what your connections are as stated by you, with the Medical Colleges at the present time. Please state them again. *A.*—I am Professor of Medicine at the University of Chicago, also Professor of Medicine at Rush Medical College, which is a part of the University of Chicago, affiliated with it, and Dean of the Faculty of Rush Medical College.

Q.—Now, in your work, Doctor, do you give any special attention to any particular department of medical practice? *A.*—I devote my time chiefly to what we call internal medicine. That means, general diseases, as a whole, with diagnosis. In other words, I exclude as a rule, from any treatment, the so-called specialties and surgery. I diagnose, devote my attention partly to diagnosis in the whole field.

Q.—Where you speak of diagnosis, will you tell us what you mean by diagnosis? *A.*—By diagnosis, one means the recognition of the morbid conditions in the human individual, which cause the symptoms of disease.

Q.—Now, Doctor, in making a diagnosis of a condition, what is it that you do? *A.*—We usually first obtain the account of the patient, or, if the patient is not able to give it, of someone who is acquainted with the conditions from which the patient has suffered. In other words, the history, the past history of the patient, which includes always the symptoms as the patient has observed them himself.

Next a physical examination is made of the patient, and that physical examination is supplemented by—if necessary—by laboratory examinations of the blood, of the urine, if necessary of the stools, or if the individual happens to have suffered from something in which there is a fluid in the joint or in the chest, that is sometimes withdrawn and examined in the laboratory. That is what we call a general examination.

Q.—Doctor, are you familiar—you use medicines, of course, in the treatment of disease? *A.*—I do.

WHAT IS A TONIC?

Q.—Now, are you familiar with the action of drugs and of tonics? *A.*—I am familiar with such drugs as I use.

Q.—What is meant by the word "tonic," Doctor? *A.*—In medicine, the word "tonic" has practically two designations as we use the word. In one sense the word "tonic" is used with the adjective "stimulating," a stimulating tonic, meaning that by the use of the tonic one would stimulate the functions, some of the functions of the organs of the body.

For instance, a tonic for a muscle, would be one which would make the contraction of that muscle more firm than it would be without the tonic. To stimulate the secretion would mean that one would stimulate, for instance, the juices of the stomach and make more of them, more of the juices to help indigestion or, in the case of excretions from the kidneys, to improve or increase the excretions, practically secretions of the kidney.

Or, for instance, to increase the nerve tone. Some remedies will act upon the centers of the brain and spinal cord and improve the impulses, nervous impulses that go out. Those things we designate as stimulating tonics.

Then we have another kind of tonic which we call restorative. A restorative tonic is one which adds to, as for instance—the best example would be with an individual suffering from a poverty of the blood, which we technically call anemia, and we give iron, an actual ingredient of the blood, and try to improve the quality of that blood. Iron is a good example, therefore, of a so-called restorative tonic.

AMENORRHEA

Q.—Doctor, we have heard something in this case about amenorrhea. Will you tell the jury briefly what the term "amenorrhea" means and what is the most common cause of it. *A.*—Amenorrhea — the actual derivation of the word means "without menstruation," the absence of menstruation.

When the menses fail to appear at the proper time or when they miss during the menstrual period of a woman, we call it "amenorrhea," and the causes are various. Certain constitutional diseases, with or without poverty of the blood, usually with poverty of blood, anemia, will cause it.

For instance, tuberculosis of the lungs, or a general tuberculosis, is associated with anemia, and one of the most common and early symptoms of that is amenorrhea.

People who suffer from diseases in which there is what we call secondary anemia — by that term I mean an anemia that is dependent upon some disease which is destroying the blood all the time, or is preventing the formation of new blood all of the time. Those are called secondary anemias.

As an example, malaria is associated with anemia because the parasite which causes malaria is in the blood stream; actually gains entrance to the blood corpuscle and destroys it. Therefore anemia occurs.

In the hookworm disease, of which we occasionally have an example in Chicago, imported from tropical or semitropical regions of the South, the worm sucks the blood from the intestine and commonly a bleeding occurs around the head of the worm, so that anemia is very common.

Pellagra, a disease due to a faulty balance of diet, not enough animal food, as a rule, is associated with anemia, secondarily, want of nutrition.

Bright's disease, one form of it especially, is associated with anemia, because the poisons in the blood due to the Bright's disease cause anemia.

Then young girls in their formative period, as they are developing, will sometimes suffer from a want of general development of the womb, of the heart, or blood vessels, of the blood-making organs, and they suffer from an anemia peculiar to them, and they do not menstruate.

Those are the general causes, due to a want of blood, poverty of blood, or anemia, and amenorrhea occurs.

Amenorrhea also occurs toward the woman's change of life, at periods sometimes extending over two or three years. Sometimes the menopause will occur immediately, and sometimes it will take one year or two years, and I have seen it occur over three or more years in time in which the woman would miss for six months at a time.

That is merely apparently the readjustment of the organs of her body to meet these new changed conditions, but that description may not meet it in some other woman, because occasionally she menstruates with the amenorrhea between. That does not mean that that is associated with poverty of the blood. It is more directly related to the nervous mechanism of the body, to the physiology of the body, and its physiological processes. Does that answer in full, sir?

Q.—I think it does, Doctor, sufficiently. Doctor, are you acquainted with the drug known as cnicus benedictus? *A.*—I am not acquainted with it from my own personal knowledge of the drug.

EXPERIENCE WITH VIBURNUM PRUNIFOLIUM

Q.—Well, are you acquainted with the drug known as viburnum prunifolium? *A.*—I am.

Q.—Will you state your experience, if you have had any experience with the drug, and your conclusion as to its therapeutic value, if any? *A.*—Viburnum prunifolium is the bark of black haw. It is drug which has been known for a great many years. It was — it has been recommended for many years by teachers of materia medica, the materials of medicine, and at one time recommended by specialists who made a study of woman's diseases, so that at one time it was rather commonly used, either in the form of what we call the solid extract of it, or the fluidextract of it.

When used, it at first was supposed to help stop hemorrhages from the womb. It was supposed to help stop pain during menstruation. It was supposed to tone up a good deal. But, like other drugs that we had in our earlier days, proved out more therapeutically, it has not to-day the same standing that it had twenty-five or thirty years ago, or twenty or even fifteen years ago perhaps.

Formerly it was prescribed a good deal by general practitioners and by specialists for these conditions that I have named, painful menstruation, dysmenorrhea, or hemorrhage of the womb, but it has gradually dropped out.

I have used it myself either in the form of the solid extract—sometimes in the form of the fluidextract. It is a nasty drug, about one of the nastiest things that anyone can put in their mouth, that is, to taste; almost nauseating in its effect, so that instead of using the fluidextract, I have been in the habit of ordering the empty capsules in which the patient could put the 20 or 25 drops necessary to take three or four times a day, as the case may be.

Like all things, it apparently sometimes had an effect in relieving pain in connection with what one was doing beside for painful menstruation. It sometimes—the woman sometimes would apparently cease to flow to some degree while one was using it coincident with the use of other things, but practically—I think I can speak for myself—

Mr. Hough:—I have difficulty in hearing you. If you can talk a little louder, I would be obliged.

The Witness:—My own opinion is that it is a drug that has mighty small potency for the things for which we formerly used it.

Mr. T. J. Scofield: Q.—Doctor, do you still continue to use it? *A.*—I used it this last year on one patient, that is, in 1915.

Q.—Now, under what circumstances did you use it there, Doctor? *A.*—And I have occasionally prescribed it, but very rarely, perhaps once or twice a year in recent years.

Q.—Formerly you prescribed it more often, did you? *A.*—In earlier years I did.

The witness was then asked a hypothetic question as to his opinion of a hypothetic medicine similar to Wine of Cardui.

Q.—Now, doctor, what is that opinion? *A.*—I would say it would have practically no effect upon a dysmenorrhea due to an anemia.

Mr. Hough:—On which? *A.*—Amenorrhea, due to anemia.

Mr. T. J. Scofield: Q.—Why not, doctor? *A.*—Because it would have no restorative effect upon the blood.

Mr. Hough:—Did you say restorative effect? *A.*—Yes.

Mr. T. J. Scofield: Q.—Now, doctor, is there any single form of medicine, or of medicinal treatment, a single form of it that would be applicable for an anemia which is due to such a very large variety of causes? *A.*—No, there is no single remedy that could be applied to all of the different types of anemia, which I have named a moment ago.

THE COURT:—You have used the word "anemia" in your question and I am sure that you mean "amenorrhea." I think the reporter ought to correct it.

Mr. T. J. Scofield:—Yes.

Mr. Hough:—Which way did the witness understand it?

THE COURT:—I do not think there is any doubt but what the witness understood it, Mr. Hough.

Mr. T. J. Scofield:—Now, doctor, in amenorrhea—

Mr. Hough:—One moment.

The Witness:—If I would substitute the word "amenorrhea," for the word "anemia," it would be the same answer.

Mr. Hough:—The answer would be the same in either case? *A.*—Yes.

Mr. T. J. Scofield: Q.—Now, Doctor, is amenorrhea, which is due, as you have described, very frequently to anemia, properly treated by any one form of tonic? *A.*—No.

Q.—Why not? *A.*—Because of its various causes, and the treatments must be based upon the underlying causes.

TREATMENT OF ANEMIA

Q.—Now, in treating anemia, let me inquire whether or not iron and arsenic and strychnin would constitute good treatment. *A.*—Iron is one of the chief drugs which we use because the blood contains iron, in its corpuscles. Arsenic is used because it stimulates the bone marrow and other blood making organs to make more cells. Strychnin is not a restorative tonic. It may be placed in these restorative tonics to stimulate nerve sensations or something of that kind, but of itself it is not a direct restorative tonic. It is a stimulating tonic.

Q.—Now, Doctor, suppose that you had an amenorrhea that was a result of anemia, or due to anemia, and that the cause of that anemia is malaria, as you have stated in your previous answers. What would be the proper treatment there? Would iron be proper treatment? *A.*—Not at the beginning. One must get rid of the malaria first. One must give the patient the remedies which will destroy the malarial parasites which are in the blood, and in the spleen and in the bone marrow, and elsewhere in the body, before one can expect a restoration of the blood by means of so-called tonics, iron, and so forth.

Q.—Well, suppose now, Doctor, that you have an amenorrhea from an anemic condition and the anemia is due to hookworm, as the underlying cause. What would be the treatment which you would have to give under those circumstances, or what would it be necessary to do? *A.*—There it is absolutely necessary that one must get rid of the hookworms which are in the intestinal canal, before any more blood is made, that is, before blood will accumulate in any quantity, and the amenorrhea due to the poverty of the blood in that case would remain until one got rid of the hookworms, and built up the blood.

Q.—Now then, doctor, suppose that you had an anemia that was due to syphilis, would that require a special form of treatment or not? *A.*—It would.

Q.—What would it require? *A.*—Antisyphilitic remedies must be used until the patient is at least partly restored to health, to overcome the anemia which is not infrequently present in syphilis.

Q.—Now, doctor, is the same thing true of all constitutional diseases that result in anemia? *A.*—It is. We sometimes are not able to overcome the constitutional disease, and therefore we cannot then get rid of the amenorrhea. Tuberculosis of the lungs, as you know, is very frequently a fatal disease, and if the patient continues—if the disease continues to progress, the amenorrhea persists till death, and all the remedies in the world won't start it.

Q.—Now, under such circumstances as that, doctor, that you have last referred to, would it be good practice in your judgment, to undertake to stimulate the menses by any means? *A.*—Well, it would do no good, and it would be simply a question of the judgment of the doctor who did it—that would be all. It would be a question rather of the judgment of the man who had the management of the patient. Inasmuch as it would be ineffectual, it would be pretty bad judgment in my opinion.

Q.—Now, doctor, would you consider viburnum prunifolium, and carduus benedictus, in an alcoholic menstrum, such, for instance, as in the hypothetical medicinal solution, which I have described to you, as a tonic in any sense? *A.*—It may be a moderately stimulating tonic, because of the amount of alcohol in it, that is, stimulating with its bitter principles—possibly it might be an appetizer. I suppose that it is dependent, somewhat, upon the palate of the individual who takes it. But I would not consider it a restorative tonic in restoring anything to the body, blood, or power or anything of the kind.

Q.—Are you familiar with the condition known as inflammation as it affects the generative organs of a woman? *A.*—With several forms of inflammation, yes, sir.

Q.—Well now, doctor, when inflammation passes up through the uterus and involves the lining membrane of the fallopian tubes, what name do you apply to that condition? *A.*—The general term salpingitis, meaning an inflammation, of the fallopian tubes.

Q.—With reference to the escape of the product of inflammation, or the discharge which results from it, do those products of inflammation ever become locked up in the fallopian tubes, or in any of the other closed cavities of the body? *A.*—They do.

INFECTION OF FALLOPIAN TUBES

Q.—Now, have you had any special experience or given any special study to the subject of locked up septic matter in the various closed cavities of the body, such, for instance, as the fallopian tubes? *A.*—I have.

Q.—Well, tell us about it, doctor. *A.*—Such locked up material due to infection—by "infection," I mean, due to pus bacteria, to minute organisms—when locked up, form what we call a focus of infection. That is, it is circumscribed, it is held in, it cannot get out, it is locked in.

The fallopian tube is a tubular affair with an opening at either end, one in the uterus, and one outside toward the general peritoneal cavity. Those two openings may be closed and, within that tube, is this septic secretion going on, and it may be small in amount, or it may be large in amount. I have seen them swollen up to that size (apparently indicating a diameter of about three inches), as big around as a pear, a large sized pear.

In that condition, when such secretion cannot get out, the germs that are in them are apt to pass into the general circulation, into the blood vessels, and they may lodge anywhere in the body. They may lodge in the joints and produce a type of infection of the joints. They may lodge in the heart, and produce a type of malignant heart disease. They may lodge in the blood vessels of the kidney and produce a type of infection of the kidney, and so on all over the body. But more particularly in the fallopian tube and there are two kinds of infection that are the worst to do that.

One is the germ that causes gonorrhea. We call it the gonococcus. That, locked up in such a place as the fallopian tubes, may escape into the blood stream and produce malignant heart disease, as any practitioner—I have seen and I think one could say that any practitioner of wide experience has seen a fatal disease result, as a rule.

It may go to the joints, and produce what is commonly known as gonorrheal rheumatism. That is a wrong term to use. It is gonorrheal joint disease, it is not related to rheumatism at all. It is a gonorrheal infection of the joints, sometimes attended with pus in the joints, a serious disease, and painful, prolonged for long periods of months, and sometimes years, crippling in its effects.

Then in addition to that, locked up in here, it may suddenly leak out of the outer end of this tube and produce peritonitis, a gonococcal peritonitis. That is not an uncommon condition at all among children in public institutions.

In our public institutions, even in our own state, as high as 40 to 50 per cent. of the young girls that are in our public institutions have acquired gonorrhea, and many of them suffer from this infection of these tubes and peritonitis and joint troubles and all of that.

The other infection, which is important, of the fallopian tubes, is tuberculosis. Tuberculosis, which either comes from the uterus, or from the blood stream and lodges in the fallopian tube which becomes the center of a generalized tuberculosis. It may go to the peritoneum, this lining of this great cavity, and infect it and we have what we call tubercular peritonitis, or it may spread to the lungs or anywhere else in the whole body, it may spread anywhere.

Now, besides those two main things that I have named, any other kind of a germ that is pathogenic for man, that is, that will produce disease, and particularly the kind of germs that cause pus. There are several of those varieties. One of them grows in a chain, and the word "streptos" means "chain," so we call them streptococcus, because

it is a little round ball. Those produce pus and they are common, and where they get into the uterus or where they get into the fallopian tubes they produce pus there, and while that is common, it is not as common as gonorrheal infection of women.

Gonorrheal infection of women is one of the commonest things that we have to meet. It is almost a shame to mankind, the number of women that suffer from gonorrheal infection of those tubes. I think that covers it, sir.

AN ILLUSTRATIVE CASE

Q.—Now, doctor, have you any special case in mind that you came in contact with recently, in your hospital work or otherwise, that illustrates the matters which you have just been describing? *A.*—One meets this type of infection in women very commonly in the hospital practice in which this gonococcus infection, unknown to the woman many times, sometimes an innocent wife suffers from infection of the womb, infection of the fallopian tubes and infection of the ovaries—and with that infection the womb, getting bigger, will often take a malposition, usually backward, carrying with it the tubes and the ovaries, carrying them down with it, and they become inflamed and matted together.

We have that very commonly, producing generalized symptoms, which are probably not necessary to name to you, simply naming that general thing.

Recently, that is, within the last few months, I had a patient, a young woman in the Presbyterian Hospital, who had had this infection of the fallopian tubes and of the ovaries, secondary to a general infection coming from her head.

The infection was in her tonsils, which had been removed at her home in Texas. It was in her teeth, in her jaws. It was in one of these sinuses up here, these little hollow places in our heads and, as a consequence she had a joint infection.

The general infection had become so severe in her joints that some of the joints were ossified. Some of her finger joints were ossified, so that she could not bend her fingers. The knees and ankles were involved in it, so that she was unable to walk. She was bedridden.

In the examination of that woman, it was also found that she had this pelvic condition, the matting together of these tubes and ovaries and that she suffered also from menorrhagia, and excessive flow. The excessive flow was of such a degree that she was anemic, that is, had poverty of blood. The cell count went down to about three million, where it should have been four and a half or five millions, in a certain amount of blood. The color of her blood—the hemoglobin, as we call it, was reduced from an average normal of 85 in the woman, to 35 with her, and she was weak and bedridden and almost helpless, almost a helpless invalid because of those general conditions.

Necessarily her treatment had to be long to get rid of the joint infection which was the cause undoubtedly; the result—that in her pelvic organs and about her head.

Finally, however, because the hemorrhage continued, and did not respond to any form of drug treatment to stop that hemorrhage, or to build up her blood, it forced an operation, and, in the treatment of that woman, she was the one that I gave the viburnum prunifolium to, without any result upon the hemorrhage.

She had painful menstruation; it had no result there. Even ergot, given under the skin, or into the muscles, so as to get its intense effect, in addition to its use by mouth—a drug that is potent to cause contraction of the womb, would not stop it.

Finally I asked Dr. Webster, Dr. Clarence Webster, who is the surgeon for diseases of women in the hospital, to look the patient over with me, and advise what we could do for that womb, to stop the hemorrhage. In his opinion, after the use of these drugs, such as I had given her, operation alone would relieve her.

In the operation these conditions were found, and the cause of the hemorrhage was proved to be a hardening of the blood vessels that go to the womb, and in the womb itself, and so much were the walls hardened, that they could not contract to stop the hemorrhage. Consequently there was an anatomical condition there, a condition of the womb and ovaries, under which that hemorrhage would have gone on until the girl would have bled to death, in all probability, and the only relief came from tying off those blood vessels, and removing one diseased ovary and both fallopian tubes because of the conditions in them.

Following that, that girl steadily progressed toward health. That operation was done a year ago tomorrow, the 5th of May. In September she left the hospital, or sometime in August, and came back to have her blood examination, and in September her red cells had mounted up to nearly five million, four million one hundred thousand, or something like that, hemoglobin 85 per cent. She had gone from 115 pounds in weight to 125, and while she had still this irreparable joint trouble in her hands, and some in her feet, she was restored to her friends as cured as anybody can be.

Q.—Now, doctor, having this hypothetical solution in mind, and assuming that it is taken three or four times a day, in tablespoonful doses for such a condition of pyosalpinx, or other forms of inflammation, or locked up infection, such as you have been describing, where the products of inflammation are enclosed in the cavities of the body, have you an opinion as to whether the use of this medicine will (quoting from the Cardui Home Treatment Book, page 13) "restore the patient to health"? *A.*—I have.

Q.—What is that opinion? *A.*—I think it would have no effect in the restoration to health.

CURE

Q.—What is your opinion as to the difference between the cure of a disease and the relieving of symptoms of disease? *A.*—I think in the first place, that the word "cure" is a bad one. People are restored to health, or the near-health. The word "restoration" is a good deal better than to say "cured."

We assume a good deal if we say that we are the active agents in absolute curing. We help toward restoration. To palliate means to relieve the symptoms. Palliation means simply to relieve one of suffering. It does not mean at all that you have even restored the patient to health.

THE PERIOD OF PUBERTY

Q.—Do you recognize the condition known as the period of puberty in girls as a natural physiological development in their lives? *A.*—It is.

Q.—Do you think a medicine, such as I have described to you in the hypothetical question, should be recommended for all girls during the whole period of puberty? *A.*—I do not.

Q.—Why not, doctor? *A.*—Because puberty is a physiological and normal development in a woman, in a girl. It is when she passes from girlhood into womanhood. When it does not occur normally, there is some constitutional thing back of it that prevents that. I named one to you a moment ago.

Certain girls are defective in physical development. The womb remains infantile, that is, like that of an infant. The blood vessels, the heart and other organs do not develop the way they should, and yet that girl has the external appearance of being pretty nearly normal. One would get at it, if you made a physical examination—that these things were at fault.

But that girl will fail to menstruate and will fail to develop, because her genital organs have not developed nor her body developed at the period of puberty.

Girls suffer; a girl at her time of puberty is just as apt to suffer from malaria, from hookworm disease or from tuberculosis—yes, God help us, too many of them suffer at that time. Puberty apparently does not develop.

You have got to get at the underlying disturbing thing that prevents that girl from showing a normal physiological puberty. That is the whole point. No one drug, or anything else is going to meet it.

Q.—Now, Doctor, on the assumption that the hypothetical medicinal solution which I have described to you, corresponds to Wine of Cardui, let me read to you the following statement from the Cardui Home Treatment, published in 1912 and copyrighted by the Chattanooga Medicine Company. I read from page 24 as follows:

"Every girl should take Cardui at the time of puberty. It can never do her anything but good."

What is your opinion, Doctor, as to the truthfulness of this statement? *A.*—My opinion is that that is pernicious advice to go out to anybody. I could paraphrase it in the terms of the street, as saying, "Being done good."

PREGNANCY

Q.—Now, let me call your attention to another paragraph from the same book, copyrighted in 1912, by the Chattanooga Medicine Company. I read from page 26, at the bottom of the page, under the heading of "Disorders of pregnancy."

> "No one need be afraid of taking Cardui during pregnancy. Its action is gentle and strengthening, and it can never do anything but good."

Assume again, Doctor, that the hypothetical medicinal solution corresponds to Wine of Cardui. What is your opinion in reference to that statement? *A.*—That again it is bad advice. A woman in pregnancy is fulfilling again a physiological function. Unfortunately and rarely, she suffers some of the accidents of pregnancy. She may have some faulty implantation of the afterbirth that might make hemorrhages.

Unfortunately, a woman that is pregnant sometimes has Bright's disease develop, a horrible thing. Sometimes a woman gets, because of the pressure of the womb upon the tubes that run from the kidneys, the ureters—will get stagnation of the urine and will have infection of one kidney and pass into chills and fever in consequence.

Sometimes a woman pregnant has already a disease. She has heart disease from some old rheumatism—old heart disease from a past rheumatism—or she has tuberculosis, or she has malaria.

She is subject to disease as any other woman. But, with these exceptions that I have named, anywhere from 90 to 95 per cent. of the women pass through pregnancy without any disease. They suffer some, as women alone can bear suffering, but it is the natural state of motherhood that she is suffering and if she is suffering that way she takes many simple remedies.

That mother is delivered in 90 to 95 per cent. of the cases normally, and by that word "normally" I mean without any interference with the labor, as an instrumental delivery, and she is delivered without injury to herself or to her child.

That is normal, and 90 to 95 per cent. of women pass through their pregnancy without any abnormality, and are delivered normally. Therefore I answer the question that, to take any medicine—I don't care what it is—because it can do no harm, and will always do her good, is absolutely bad.

PAIN IN THE BACK

Q.—Doctor, I read from the Ladies' Birthday Almanac, published by the Chattanooga Medicine Company, the 1913 edition. I read from page 3. "Right there." There is a picture of a lady standing erect with her hand on her back. (Pamphlet shown to witness.)

Just look at the picture, Doctor. (Reading):

> "That is where the pain is, in the small of your back. It is terrible, nerve racking and unbearable. You just cannot work. Don't let it keep up, stop it. Take a dose of Cardui, the Woman's Tonic. Lie down for a short rest. In a few moments you will feel much better. Take Cardui regularly for a few days. It will make all the difference in the world. Keep it up till the pain is gone, and you will have got back your strength. Won't you thank Cardui? Yes you will, as thousands of others have done, and are doing every day. Try this plan of treatment. It may be just what you need."

In the same Almanac, Doctor, I read from page 27.

"Those dizzy spells. Liver trouble is the cause mostly of those dizzy spells. It also causes nausea or sick stomach, and bad breath; yellow eyes and complexion. Headache. Constipation, chills and fever, rheumatism, indigestion, and similar symptoms. When your liver is wrong, you cannot be right. It is the largest organ in your body."

I read from page 27—

Mr. Hough:—Have you finished that?

HEADACHE

Mr. T. J. Scofield:—I see that it relates to black-draught and that is not the quotation that I desire. Omit the last, Doctor, which I have just been reading to you, in regard to those dizzy spells. I now read from page 27:

"Oh, that headache. Of course headache is only a symptom, but it is a mighty miserable thing to have, and when it becomes a regular visitor, it begins to be a calamity.

"Wine of Cardui will not act like a nerve deadener to kill the pain of headache, but it goes down to where the real trouble is, and begins at once to remove the cause, the female inflammation, irregularity or other form of womanly disease. In this way, after a few days, the headache most likely disappears, and when the real trouble is cured, it stops those regular visits. Try the Cardui treatment for headache and other womanly pains."

Assume now, Doctor, that this pamphlet, the Almanac of 1913, is printed in quantities of approximately twenty millions of copies, and is distributed to the women all over the country. Have you an opinion as to what the effect of reading such a statement would be on women who are not suffering from any definite disease, but who may be influenced by suggestion?

Mr. Walker:—That is objected to.

THE COURT:—Have you finished your question?

Mr. T. J. Scofield:—Yes sir.

THE COURT:—He may answer.

Mr. Walker:—"Have you an opinion of what women will think after reading that?" That is what the question amounts to.

THE COURT:—He is giving his professional opinion, that is all.

Mr. Hough:—That is not his professional opinion at all. That is not a professional opinion as to what a woman would think from reading that.

THE COURT:—But what he thinks she would think is his opinion.

Mr. Hough:—I know, but that is not his professional opinion.

THE COURT:—Based upon his experience.

Mr. Walker:—If he has had any experience with women that have read that, that would be something in reference to that subject, but he has not, and he is asking him now to pass on what a woman might think after reading it, which is something that is not even involved in the book.

THE COURT:—Why don't you change the form of the question, Mr. Scofield? In the first place you have two extracts from the book, and they involve perhaps different disorders. Why not separate them, and find out first if the witness has any opinion as to what effect Wine of Cardui would have for that particular disorder.

Mr. T. J. Scofield: Q.—Doctor, do you have in mind the last excerpt which I read.

"Oh, that headache. Of course headache is only a symptom, but it is a mighty miserable thing to have, and when it becomes a regular visitor it begins to be a calamity. Wine of Cardui will not act like a nerve deadener, and kill the pain of headache right off, but it goes down to where the real trouble is, and begins at once to remove the cause, the female inflammation, irregularities, or other form of womanly disease. In this way, after a few days, the headache most likely disappears, and when the real trouble is killed, it stops those regular visits. Try the Cardui treatment for headache and other womanly pains."

Now then, Doctor, assuming that Wine of Cardui, is practically the same thing as the hypothetical medicinal solution, which I called your attention to, have you any opinion as to whether Wine of Cardui will do these things that are claimed for it in this excerpt, which I have just read. *A.*—I have.

Q.—What is that opinion? *A.*—In the first place, it assumes that the cause of headache in woman is a pelvic condition, which is not true. It may be a cause of headache, but there are many others.

It assumes that if a woman has pelvic disease—and I assume, I suppose it assumes an organic disease—that it will remove that, and therefore remove that cause of the headache, with which I disagree.

It is altogether bad because a woman is just as subject, or more subject to headache from various causes, as a man, and if that headache—if she suffered from an organic disease that was removable that might be removed, if attended to properly, it would be absolutely harmful for her to play with medication applied to some part of her body which she thinks is the cause of her headache.

Bright's disease, with the poison which comes from it, is common to man and woman, and headache is one of the most common symptoms of the severe intoxication of that disease, fearful headaches. No medicine you could apply would entirely stop it. It may relieve by relieving the conditions temporarily, of the poison in the body.

Tumor of the brain, to which any of us are subject, causes pressure within the skull, and excrutiating headache.

There is a type of headache from which many human beings suffer, that is periodical. People are sick at the stomach. They are depressed physically and mentally, they have disturbed vision. This is one-sided often and therefore is called hemicranial, meaning half skull, or half side of the head. That runs frequently in families. They don't inherit the headache, but they inherit a nervous constitution, which don't stand the wear and tear of life, and if they abuse themselves in any way, knowingly or unknowingly, they have some of those headaches.

If they suffer from disease, whether of the pelvic organs, or of the kidneys, or of the stomach, or anything else. If they have faulty vision. If they have bad hearing, and have to strain to hear. If they have trouble, business or domestic. If they overeat or if a man oversmokes. If a woman overdrinks tea or coffee, they have headaches. The underlying cause always has to be approached and the remedies are nothing compared with the correction of the habits in that condition.

So I could go on and talk to you for half an hour or longer about headaches of different varieties, to which all of us, including men and women, are subject. One must remove the cause, if it can be done, before one can relieve the individual permanently.

We can palliate, we can relieve for the time being, a headache, with various things. But that does not restore the individual to a condition of health when he no longer has headaches. That is mere relief, palliation.

Q.—Now, Doctor, have you an opinion, as to what would be the effect, if any, of such an excerpt as I have read here, if it should fall into the hands of a woman, by way of suggestion.

Mr. Hough:—That is objected to.

Mr. T. J. Scofield:—Well, who had the underlying conditions which you have just been describing?

THE COURT:—It seems to me the proper way to effect that is to have the doctor state what his experience has been with women in general as to what susceptibility they may have to suggestion. Then, when you argue to the jury, you may apply the evidence in this case. But Dr. Billings of course cannot tell what any individual woman thinks, or what women in general think. He may tell his experience as to the susceptibility of women to lend themselves to suggestion.

Mr. T. J. Scofield:—Well, just answer the question, as it has been suggested by the court.

Mr. Walker:—May we take an exception?

THE COURT:—Yes, the point will be saved.

To which ruling of the Court the plaintiffs, etc., excepted.

A.—Women, like all other parts of human kind, are apt to believe what they read, and especially to believe what we read about health and disease. It has been my experience that people will believe what they read in print, rather than to believe someone who is absolutely qualified to tell them about themselves by word of mouth.

Consequently, people reading of remedies of any kind, are more apt to take them than if they simply heard of them by word of mouth, and especially, if in the wording of the remedy described, many symptoms are enumerated, which may, like a shot gun, hit something that individual has once in a while, and they therefore will apply the remedy.

Mr. T. J. Scofield: Q.—Now, Doctor, what would be the effect in your opinion, of a woman taking a medicine containing the equivalent of 96 drops of whisky, three or four times every day during pregnancy, during puberty, and during the menopause, with reference to the danger of causing the formation of an alcoholic habit? *A.*—That would depend upon the individual. Some people will form a habit easily with any drug that affords any sort of a pleasurable or comfortable sensation. Other people do not.

The effect is also, in a sense, different upon different individuals. A small quantity of alcohol, as much as named, 48 drops, three or four times a day, may be of inestimable harm to some people, and apparently another individual will take it for a long time without any perceptible effect upon him.

To illustrate: I have known—I had a patient under my charge who suffered from what we call hardening of the liver, sclerosis of the liver who took one drink of whisky a day for years. That is all he ever permitted himself to take, and as I knew him intimately, I know he told me the truth.

Sclerosis of the liver is an increase in the fibers in the liver until it shrinks down into a hard mass all covered over with little lumps like the hob nails of a shoe, and it shrinks down until it no longer functionates, and the individual gets dropsy and dies.

I have known also a man whom I had under my charge for years, with his family, who drank one quart of whisky a day for twenty years before he got sclerosis of the liver. He drank whisky for years in enormous amounts.

So that no one can say that, taking a group of individuals, that 48 drops of alcohol could not make a habit with that group of individuals. It may. It may make it in more than one. It may have harmful effects upon the stomach, upon the liver, upon the kidneys in that group of individuals. On some of them it may have no effect at all.

But it is a bad thing to ask anybody, or a community of individuals, or an individual to take a dose of alcohol or that amount of alcohol, because it is surely apt to do damage to some of them.

Mr. T. J. Scofield:—That is all, Doctor.

(To be continued.)

Correspondence

Treatment of Incised Wounds Involving Tendons

To the Editor:—That the usual treatment of incised wounds involving tendons at their primary dressing is faulty is attested by the fact that a large number of fingers have to be amputated because of subsequent infection. While a large number of cases are infected from beginning, a certain percentage become infected from improper handling under unfavorable surroundings. There is abundant evidence to prove that the operating room is the place to suture tendons, and that only a limited number of cases are favorable for the immediate repair of the severed tendons.

In my hospital service I have insisted that patients with these injuries be sent at once to the operating room, simply a sterile dressing being applied in the dispensary.

Absolute asepsis in the handling of these clean tendon cases is the first requisite, for the delicate endothelial lining of the tendon sheaths has little or no resistance against invading organisms. If the tendon is sutured in the face of any infection, or if infection subsequently develops, there is distinctly more loss of tendon and hence greater impairment of function than in cases in which no primary repair was attempted. Although good results have been obtained in the primary suturing of tendons when done in the physician's office or the surgical dispensary, yet the fact remains that an unnecessary risk is taken, and the practice is to be condemned.

Patients applying for treatment can be roughly grouped into three classes:

1. Clean cases.
2. Cases in which infection is liable to occur.
3. Cases in which infection is already present.

In all cases coming under Class 1, the physician should carefully scrub his hands and put on gloves before making any examination. The surrounding skin is painted with 5 per cent. tincture of iodin, the wound washed out with normal saline solution at body temperature, and a sterile dressing applied. The part is dressed on a splint and the patient taken to a hospital for the repair of the tendons. If hospital facilities are not available and the physician has to suture in his office, the same aseptic technic should be carried out as if the peritoneum was to be opened.

Cases coming under Class 2 are treated in the same manner as those in Class 1, except that no attempt at suturing is done. Also the patient is instructed to keep the parts soaked with a mild antiseptic solution. If no infection occurs, suturing is permissible after seven days, the same rules holding good as in clean cases. If infection does occur, the wound is kept wide open and the parts soaked for fifteen minutes in every hour in a weak antiseptic solution. The various conditions arising must be cared for as they occur. These patients have their secondary operation for the repair of the tendons in about six to eight weeks after the wound has healed.

For those cases in which infection is already present, the treatment will depend largely on conditions found, the principal point being to supply adequate drainage. Bier's hyperemia, wet dressing and rest will in the majority of cases assist in getting rid of the infection. In these cases it is well to wait about three months after the infection has subsided before doing a secondary tenorrhaphy.

Clean cases referred to me at the hospital are taken at once to the operating room, the dressings removed and the hand painted (wound excepted) with 5 per cent. tincture of iodin. The wound is gently irrigated with a mild antiseptic solution for about fifteen minutes. Under nitrous oxid anesthesia the tendons are sutured, fine arterial needles and 00 catgut or silk being used. To bring the torn flexor tendons into the wound, the hand is strongly flexed; for the extensor, strongly extended. No instruments are used to grasp the tendons, and the practice of grasping the severed ends with hemostats is mentioned only to condemn it. Two or three mattress sutures and one or two interrupted ones are used on the tendons. The wound must be [illegible]tely dry before it is closed. If this is impossible, a few strands of silkworm gut are inserted to prevent blood clot. The hand is dressed on a splint; in the case of the flexed tendons, over a rolled bandage so as to relieve tension on the tendons.

GEORGE M. DORRANCE, M.D., Philadelphia.

Exhaustion of the Supply of Ichthyol

To the Editor:—Owing to the restrictions which the belligerent countries have placed on the shipment of drugs and chemicals to the United States, we have recently found it necessary to advise the drug trade that we can no longer supply ichthyol. Ichthyol is manufactured only in Germany, from raw material found only in Austria. We are the sole importers, and our supply has become exhausted. You are aware, of course, that both national and state officials are at present engaged in prosecuting dealers in fraudulent substitutes for ichthyol.

We believe that it is to the interest, not only of Merck & Co., but also of the medical profession, that this state of affairs should be known to physicians.

MERCK & CO., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INOCULATION FOR HAY-FEVER

To the Editor:—Where can I find information bearing on the subject of inoculation for hay-fever?

J. S. CARPENTER, JR., M.D., Pottsville, Pa.

ANSWER.—The following is a partial list of references on this subject, covering 1915 and 1916.

Oppenheimer, S., and Gottlieb, M. J.: Pollen Therapy in Pollinosis, *Med. Rec.*, New York, March 18, 1916; abstr., THE JOURNAL, April 1, 1916, p. 1058.

Strouse, S., and Frank, I.: Pollen Extracts and Vaccines in Hay-Fever, THE JOURNAL, March 4, 1916, p. 712.

Noyes, M. L.: Report of Two Hay-Fever Cases Treated With the Pollen Extract, THE JOURNAL, March 4, 1916, p. 738.

Morrish, R. S.: Treatment of Asthma and Hay-Fever by Active Immunization, *Michigan State Med. Soc. Jour.*, August, 1915.

Iskowitz, H.: Multi-Pollen Vaccines in Treatment of Hay-Fever, *Med. Rec.*, New York, Aug. 14, 1915.

Oppenheimer, S., and Gottlieb, M. J.: Immunization of Pollenosis, *New Jersey Med. Soc. Jour.*, September, 1915; abstr., THE JOURNAL, Sept. 25, 1915, p. 1142.

Goodale, J. E.: Pollen Therapy in Hay-Fever, *Ann. Otol., Rhinol. and Laryng.*, June, 1915.

Goodale, J. L.: Pollen Therapy in Hay-Fever, *Boston Med. and Surg. Jour.*, July 8, 1915.

Oppenheimer, S., and Gottlieb, M. J.: Pollinosis (Hay-Fever): Consideration of Its Treatment by Active Immunization, *Bull. Med. Chir. Fac. Maryland*, July, 1915; abstr., THE JOURNAL, July 31, 1915, p. 460.

Oppenheim, Seymour, and Gottlieb, Mark J.: The Active Immunization of Hay-Fever, *New York Med. Jour.*, Feb. 6, 1916.

Manning, E. T.: Hay-Fever: Its Treatment by Injection of a Solution of Ragweed Pollen, THE JOURNAL, Feb. 20, 1915, p. 655.

Cook, R. A.: Treatment of Hay-Fever by Active Immunization, *Laryngoscope*, February, 1915.

LITERATURE ON PITUITARY BODY

To the Editor:—Please refer me to recent articles, last year or so, in THE JOURNAL, on the pituitary body, pituitrin and pituitary extract.

PEYTON GREEN, M.D., Wytheville, Va.

ANSWER.—The following is a list of references to articles on this subject:

Kahn, H., and Gordon, L. E.: The Use of Pituitary Extract as a Coagulant in the Surgery of the Nose and Throat, THE JOURNAL, Jan. 23, 1915, p. 301.

Weed, L. H., and Cushing, H.: Studies on Cerebrospinal Fluid: Effect of Pituitary Extract on Its Secretion (Choroidorrhea), *Am. Jour. Physiol.*, January, 1915; abst., THE JOURNAL, Feb. 20, 1915, p. 693.

Simpson, S., and Hill, R. L.: Effect of Repeated Injections of Pituitrin on Milk Secretion, *Am. Jour. Physiol.*, February, 1915; abst., THE JOURNAL, March 6, 1915, p. 856.

Robertson, T. B., and Burnett, T. C.: Influence of Anterior Lobe of Pituitary on Growth of Carcinomata, *Jour. Exper. Med.*, March, 1915; abst., THE JOURNAL, March 27, 1915, p. 1108.

Quigley, J. K.: Pituitary Extract in Obstetrics, THE JOURNAL, April 10, 1915, p. 1222.
Pituitary Standardization, editorial, THE JOURNAL, April 10, 1915, p. 1249.
Hewlett, A. W.: Effect of Pituitary Substances on Fever Pulse, *Michigan State Med. Soc. Jour.*, April, 1915; abstr., THE JOURNAL, April 17, 1915, p. 1360.
Drugs Which Stimulate Sympathetic Endings: Pituitary, THE JOURNAL, April 24, 1915, p. 1399.
Norris, R. C.: Use and Abuse of Pituitrin in Obstetrics, *Am. Jour. Obst.*, May, 1915; abst., THE JOURNAL, May 29, 1915, p. 1874.
Ludlum, S. D. W., and Corson-White, E. P.: Thymus and Pituitary in Dementia Praecox, *Am. Jour. Insan.*, April, 1915; abstr., THE JOURNAL, June 5, 1915, p. 1939.
Züllig: Rupture of Uterus Under Hypophysis Extract, *München. med. Wchnschr.*, June 1, 1915; abstr., THE JOURNAL, July 24, 1915, p. 367.
Fry, H. J. B.: Pituitary Gland in Diabetes Mellitus and Disorders of Glands of Internal Secretion, *Quart. Jour. Med.*, July, 1915; abstr., THE JOURNAL, Aug. 7, 1915, p. 561.
Sewall, E. C.: Operation on the Hypophysis According to Hirsch's Method, Presentation of Case with Brain, Eye and Other Symptoms, THE JOURNAL, Aug. 21, 1915, p. 681.
Composition of the Pituitary Body, editorial, THE JOURNAL, Sept. 4, 1915, p. 882.
Kupferle, L., and von Szily, A.: Radiotherapy of Hypophysis Tumors, *Deutsch. med. Wchnschr.*, July 29, 1915; abst., THE JOURNAL, Sept. 11, 1915, p. 985.

CORNEAL TRANSPLANTATION

To the Editor:—In THE JOURNAL for April 29, p. 1419, you say:

> "Recent improvements in the technic of corneal transplantation have made this a useful surgical procedure in some of these conditions."

Kindly advise me if you were referring to a particular operation that is successful in corneal transplantation, or were making a general statement?

D. W. STEVENSON, M.D., Akron, Ohio.

ANSWER.—The general operation of keratoplasty was referred to. This operation would be justifiable only in selected cases in which the leukoma was extensive enough to cover the entire cornea, and in which an operation for optical iridectomy would not offer any prospect of success. The original answer covered a lesion probably more extensive than it was intended to convey.

EYE, EAR, NOSE AND THROAT JOURNALS

To the Editor:—Please give me the name and address of all the journals published in this country devoted to the eye, ear, nose and throat.

SAMUEL KENNEDY, M.D., Shelbyville, Ind.

ANSWER.—The following is a list of such journals:

Ophthalmic Literature, Majestic Building, Denver. Established 1911; Edward Jackson, editor and publisher; monthly; $5.

Ophthalmic Record, 7 West Madison Street, Chicago. Established 1891; H. A. Fox, publisher; Frank Brawley, editorial secretary; monthly; $4.

Journal of Ophthalmology and Oto-Laryngology, 32 North State Street, Chicago. Established 1906; Willis O. Nance and Albert H. Andrews, editors and publishers; monthly; $2.

The Index of Oto-Laryngology, 108 North State Street, Chicago. Established 1911; Joseph C. Beck, editor and publisher; monthly; $5.

American Journal of Ophthalmology, Metropolitan Building, St. Louis. Established 1884; Adolf Alt, editor and publisher; monthly; $3.50.

Annals of Ophthalmology, Mermod-Jaccard Building, St. Louis. Established 1892; Mr. Jones H. Parker, publisher; Meyer Wiener and Clarence Loeb, editors; quarterly; $4.

Annals of Otology, Rhinology and Laryngology, St. Louis. Established 1892; Mr. Jones H. Parker, publisher; H. W. Loeb, editor; quarterly; $4.

Laryngoscope, 3858 Westminster Place, St. Louis. Established 1896; M. A. Goldstein, editor and publisher; monthly; $5.

Archives of Ophthalmology, New York. Established 1869; G. P. Putnam's Sons, publishers; Arnold Knapp, editor; bimonthly; $5.

Journal of Ophthalmology, Otology and Laryngology, 414 Walnut Street, Cincinnati. Established 1889; Cramer Publishing Company, publishers; G. W. Mackenzie, editor; monthly; $3.

Ophthalmology, Cobb Building, Seattle. Established 1904; H. V. Würdemann, editor and publisher; quarterly; $5.

ERADICATION OF TATTOO MARKS

To the Editor:—Can you supply us with any references on the subject of the eradication or obliteration of tattoo marks. We have gone over our files, but have failed to find any references on the subject.

FRANCES FRISBEE, Tacoma, Wash.
Librarian, Tacoma Academy of Medicine.

ANSWER.—Articles on the removal of tattoo marks appeared in THE JOURNAL, in the Queries and Minor Notes Department, Aug. 22, 1911, Sept. 12, 1912, and Jan. 24, 1914. In these articles the treatment of this condition was discussed.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALASKA: Juneau, July 5. Sec., Dr. H. C. De Vighne, Juneau.
CALIFORNIA: San Francisco, June 27. Sec., Dr. Charles B. Pinkham, R. 527 Forum Bldg., Sacramento.
COLORADO: Denver, July 4. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
DELAWARE: Dover and Wilmington, June 20-22. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.
FLORIDA: Jacksonville, June 13-14. Sec., Dr. E. W. Warren, Palatka.
GEORGIA: Atlanta and Augusta, June 1. Sec., Dr. C. T. Nolan, Marietta.
ILLINOIS: Chicago, June 21-23. Sec., Dr. C. St. Clair Drake, Springfield.
IOWA: Iowa City, June 8-10. Sec., Dr. Guilford H. Sumner, State House, Des Moines.
KANSAS: Topeka, June 13. Sec., Dr. H. A. Dykes, Lebanon.
KENTUCKY: Louisville, June 13-15. Sec., Dr. A. T. McCormack, Bowling Green.
LOUISIANA: New Orleans, June 8-10. Sec., Dr. E. L. Leckert, 716 Macheca Bldg., New Orleans.
MAINE: Augusta, July 6-7. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.
MICHIGAN: Detroit, June 1-3; Ann Arbor, June 19-21. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.
MINNESOTA: Minneapolis, June 6-9. Sec., Dr. Thomas S. McDavitt, 814 Lowry Bldg., St. Paul.
MISSISSIPPI: Jackson, June 20-21. Sec., Dr. J. D. Gilleylen, Jackson.
MISSOURI: St. Louis, June 13-15. Sec., Dr. J. A. B. Adcock, Jefferson City.
NEBRASKA: Lincoln, June 8-9. Sec., Dr. H. B. Cummins, Seward.
NEW HAMPSHIRE: Concord, June 26-27. Sec., Dr. W. T. Crosby, The Beacon, Manchester.
NEW JERSEY: Trenton, June 20-21. Sec., Dr. Alexander MacAlister, 429 E. State St., Trenton.
NORTH CAROLINA: Raleigh, June 27-30. Sec., Dr. H. A. Royster, Raleigh.
NORTH DAKOTA: Grand Forks, July 4. Sec., Dr. G. M. Williamson, Grand Forks.
OHIO: Columbus, June 6-9. Sec., Dr. George H. Matson, State House, Columbus.
OREGON: Portland, July 5-7. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.
RHODE ISLAND: Providence, July 6-7. Sec., Dr. Gardner T. Swarts, Room 313 State House, Providence.
SOUTH CAROLINA: Columbia, June 13. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.
TENNESSEE: Knoxville, Memphis and Nashville. June 16-17. Sec., Dr. A. B. DeLoach, Scimitar Bldg., Memphis.
TEXAS: San Antonio, June 27-29. Sec., Dr. John S. McCelvey, Temple State Bank Bldg., Temple.
UTAH: Salt Lake City, July 3. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.
VIRGINIA: Richmond, June 20-23. Sec., Dr. J. N. Barney, Fredericksburg.
WASHINGTON: Tacoma, July 4. Sec., Dr. C. N. Suttner, Walla Walla.
WISCONSIN: Milwaukee, June 27-29. Sec., Dr. J. M. Dodd, 220 E. Second St., Ashland.
WYOMING: Laramie, June 14-16. Sec., Dr. H. E. McCollum, Laramie.

Scholarships and Loan Funds in Medical Schools

Official statements received from the various medical colleges show that of the ninety-five now holding sessions, forty-seven have provided free scholarships or loan funds, or both, for deserving students who are without means otherwise to procure a medical education. In two instances (Alabama and Georgia) the scholarships are for residents of the state, but in the other colleges they are, with a few possible exceptions, open to all applicants. These scholarships sometimes merely cover tuition fees, but most of them cover all fees for the year, and some cover fees for the four years. A few furnish the student in addition with funds for part or all other expenses. Altogether the reports received indicate that there are 296 scholarships in forty-two medical schools, and that loan funds have been provided by eighteen medical schools. It is quite evident, therefore, that no students who deserve to succeed need to be shut out from obtaining a medical education. It is interesting to state that all but three of the institutions providing scholarships are high grade medical schools, having been rated in Class A by the Council on Medical Education. The colleges having scholarships and loan funds are as follows:

SCHOLARSHIPS IN MEDICAL SCHOOLS

University of Alabama, School of Medicine	66
Leland Stanford Junior University, School of Medicine	3
University of California Medical School	1
University of Colorado, School of Medicine*	1
George Washington University Medical School*	2
Georgetown University, School of Medicine	2

Atlanta Medical College	12
University of Georgia, Medical Department	1
Hahnemann Medical College and Hospital, Chicago*	5
Northwestern University Medical School	9
Rush Medical College	6
University of Illinois, College of Medicine*	7
Indiana University, School of Medicine*	10
Bowdoin Medical School	1
Johns Hopkins University, Medical Department	7
University of Maryland, School of Medicine	6
Boston University, School of Medicine*	30
Medical School of Harvard University*	27
Detroit College of Medicine and Surgery	3
University of Minnesota Medical School*	1
Washington University Medical School	1
University of Missouri, School of Medicine	1
Dartmouth Medical School	2
Columbia University, College of Physicians and Surgeons	36
University of Buffalo, Department of Medicine	1
New York Medical College and Hospital for Women	1
Syracuse University, College of Medicine	1
University of North Carolina, School of Medicine	1
University of Cincinnati, College of Medicine	10
Western Reserve University, School of Medicine	1
University of Oregon, Department of Medicine	2
Hahnemann Medical College and Hospital of Philadelphia*	3
Jefferson Medical College	2
University of Pennsylvania, School of Medicine*†	3
Woman's Medical College of Pennsylvania*	1
Medical College of the State of South Carolina	7
University of Tennessee, College of Medicine	1
Meharry Medical College	5
Vanderbilt University, Medical Department	4
University of Texas, Department of Medicine*	1
Medical College of Virginia	10
University of Virginia	2
Total in 42 medical schools	296

* Have loan funds also.

† Has fifty or more scholarships for graduates of Philadelphia high schools.

LOAN FUNDS

The colleges above which are marked by an asterisk (*) also have loan funds for deserving but needy students. Such funds are available also at other medical schools, as follows:

Yale University, School of Medicine, New Haven, Conn.
Howard University, School of Medicine, Washington, D. C.
Tulane University of Louisiana, School of Medicine, New Orleans.
University of Nebraska, College of Medicine, Omaha.
University of North Dakota, College of Medicine, University, N. D.
University of Wisconsin Medical School, Madison, Wis.

Proportion of Physicians to Population in the United States

The accompanying table shows that the present proportion of physicians to population in the United States ranges from one to 365 in the District of Columbia to one to 1,217 in North Dakota, the average in the entire country being one physician to every 691 people. In his report on Medical Education in Europe, Abraham Flexner showed that in 1912 the proportion of physicians to population in the German empire was one to 1,940; in Austria, one to 2,120, and in France, one to 2,834. In the table the figures regarding population are from the 1915 estimate of the United States Census Bureau and the totals of physicians are from the fifth edition of the American Medical Directory, just published. The table follows:

PROPORTION OF PHYSICIANS TO POPULATION

State	Population	Physicians	People to Each Physician
Alabama	2,301,277	2,569	892
Arizona	247,299	307	806
Arkansas	1,713,102	2,637	649
California	2,848,275	5,687	501
Colorado	935,799	1,733	540
Connecticut	1,223,583	1,678	728
Delaware	211,598	261	811
District of Columbia	358,679	1,482*	365
Florida	870,802	1,321	659
Georgia	2,816,289	3,421	823
Idaho	411,996	439	939
Illinois	6,069,519	10,648	570
Indiana	2,798,142	4,872	574
Iowa	2,221,038	3,751	592
Kansas	1,807,221	2,683	674
Kentucky	2,365,185	3,584	660
Louisiana	1,801,306	2,060	874
Maine	767,638	1,205	637
Maryland	1,351,941	2,292	546
Massachusetts	3,662,339	5,869	624
Michigan	3,015,442	4,360	692
Minnesota	2,246,761	2,447	918
Mississippi	1,926,778	2,048	941
Missouri	3,391,789	6,399	530
Montana	446,054	636	717
Nebraska	1,258,624	1,911	659
Nevada	102,750	154	667
New Hampshire	440,584	690	639
New Jersey	2,881,840	3,239	889
New Mexico	396,917	430	923
New York	10,086,568	15,670	646
North Carolina	2,371,095	2,102	1,128
North Dakota	713,083	586	1,217
Ohio	5,038,627	8,045	626
Oklahoma	2,114,307	2,634	803
Oregon	809,490	1,187	741
Pennsylvania	8,383,992	11,502	729
Rhode Island	602,765	772	781
South Carolina	1,607,745	1,399	1,149
South Dakota	680,046	676	1,006
Tennessee	2,271,379	3,457	657
Texas	4,343,710	6,240	693
Utah	424,300	465	912
Vermont	362,452	668	543
Virginia	2,171,014	2,547	852
Washington	1,471,043	1,695	868
West Virginia	1,359,474	1,729	783
Wisconsin	2,473,533	2,803	882
Wyoming	174,148	251	694
Totals	100,399,318	145,241	691

* This total includes about 500 physicians who are connected with the government medical services and who are not in practice among the civilian population of the District of Columbia. Including these, there would be one physician to every 242 people.

Minnesota January Report

Dr. Thomas S. McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the oral, practical and written examination held at Minneapolis, Jan. 4-6, 1916. The total number of subjects examined in was 16; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 6, of whom 5 passed and 1 failed. Eleven candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Chicago College of Med. and Surg.	(1915)	81
Harvard University	(1915)	91
St. Louis University	(1915)	88
University of Pennsylvania	(1914)	90
University of Toronto	(1906)	87

FAILED

College	Year Grad.	Per Cent.
Hamline University	(1904)	67

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Northwestern University	1907)	Illinois
Rush Medical College	(1912)	Illinois; (1914, 2) Wisconsin
University of Illinois	(1915)	Illinois
State University of Iowa College of Medicine	(1898)	Iowa
College of Phys. and Surgs., Baltimore	(1904)	Illinois
Johns Hopkins University	(1913)	Maryland
Washington University	(1908)	Illinois
Marquette University	(1913)	Wisconsin
Western University, London	(1907)	Iowa

New Mexico January Report

Dr. W. E. Kaser, secretary of the New Mexico Board of Health and Medical Examiners, reports the written examination held at Santa Fé, Jan. 10-11, 1916. The total number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 2, both of whom passed. Two candidates were licensed through reciprocity and 14 on satisfactory credentials. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Bennett Medical College	(1911)	80
Medico-Chirurgical College of Kansas City	(1901)	79

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
John A. Creighton Medical College	(1915)	Kansas
Gate City Medical College*	(1904)	Oklahoma

LICENSED ON SATISFACTORY CREDENTIALS

College	Year Grad.	Total No. Licensed
University of Alabama	(1909)	1
College of Physicians and Surgeons, Los Angeles	(1914)	1
University of Southern California	(1904)	1
Denver College of Medicine	(1899)	1
University of Colorado	(1913)	2
Northwestern University	(1912)	1
Tulane University of Louisiana	(1886)	1
University of Louisville	(1911)	1
University of Buffalo	(1912)	1
Cleveland College of Physicians and Surgeons	(1910)	1
University of Oklahoma	(1912)	1
Medico-Chirurgical College of Philadelphia	(1913)	1
National School of Medicine, Mexico	(1913)	1

* This college was officially reported as not recognized by the Texas State Board of Medical Examiners.

Medicolegal

Duty to Discharge Persons Restored to Sanity

(Lawrence vs. Barlow et al. (W. Va.), 87 S. E. R. 380)

The Supreme Court of Appeals of West Virginia reverses a judgment which dismissed habeas corpus proceedings instituted by the petitioner to secure his discharge after he had been committed to a hospital for the insane; and it orders his release. Many witnesses were examined in relation to the sanity of the petitioner. The physicians called by the defendants said that he had paranoia. The superintendent of the hospital thought that he had been suffering from it since 1887. But it was said that this theory was repelled by the fact that he was in an insane asylum in Pennsylvania in 1887 and released as restored; that he was again in a hospital in 1895, and in an insane asylum in California for a period in 1902, and again released as restored; that he was not afflicted this way again until 1913; that during the lucid periods he was a good citizen and prosperous business man; that he was released on bond from the hospital in January, 1914, and his trial was had in November, 1914; and that he was out of the hospital about ten months without injury to himself. From this undisputed history it would seem, the court says, that the hospital physicians were mistaken in their diagnosis, or in the progressive nature of the disease. But without discussing or calling into question the correctness of their theories, it was quite certain that there was abundant reliable testimony in the case to show conclusively that, if the petitioner was insane when he was committed to the hospital in 1913, he had been sufficiently restored at the time of the trial on the habeas corpus proceeding to make it improper to continue him in confinement. Should the theory of the hospital physicians prove correct, and the malady from which they said he was suffering progress until it should reach the stage that he would be unable to care for himself or his property, and it should become necessary for some one to care for him, then the hospital for the insane provided for such purpose by the state would be to him a haven of mercy; until then it would be a place of torment. Under the code of West Virginia any person confined in one of the hospitals for the insane of the state as an insane person, "except in the case of a person charged with crime and subject to be tried therefor, or convicted of a crime and subject to be punished therefor, when in a condition to be so tried or punished," may be delivered to any friend who will give bond and security with the conditions mentioned in Section 10 of Chapter 58. If such person shall be restored to sanity while in the custody of such bondsmen, it is the duty of the persons having control of such hospital to discharge him from such custody and give him a certificate thereof. If the persons in charge of such hospital fail or refuse to release such person from custody after reasonable demand, the writ of habeas corpus is a proper remedy to secure such release.

Sufficient Evidence of Violating Medical Act — Instructions to Jury

(State vs. Booher (Iowa), 155 N. W. R. 167)

The Supreme Court of Iowa affirms a judgment of conviction of practicing medicine without a license. The court says that the defendant contended that the evidence was not sufficient to show that he was guilty of violating the state medical act, or that he held himself out as a physician and surgeon, or that he publicly professed to cure and to heal, or that he made a practice of healing and curing. The evidence was short. The substance of it was that one witness went to the defendant's house for the purpose of ascertaining if the defendant would treat him for rheumatism; he said he did not remember what the defendant told him, but he took four or five treatments, the treatments being performed while the witness was lying on a sort of cabinet or bench, and the defendant worked on his spine and legs. The witness did not have any arrangement as to charges, and never paid the defendant anything. Another witness testified that the defendant came to his house and gave him a treatment. This was done by an adjustment of some of the joints of the witness' spine. He was stretched out on a bench which the defendant had brought with him. This witness took three or four treatments and gave the defendant $5. A third witness said that the defendant treated his wife for goiter; treatment was administered by rubbing the goiter and rubbing the spine; the patient also had gas on the stomach, and the defendant rubbed the stomach. She took twenty-four treatments, and for the services rendered to her the defendant received $20. A fourth witness testified that he had one of his arms out of place; that he had sought treatment without avail, and, finally, meeting the defendant on the street, asked him to see if he could put his arm in place, which he did. The court thinks the evidence was sufficient to take the case to the jury on the question as to whether or not the defendant assumed the duties of a physician, and that he publicly professed to cure and heal. Nor was an otherwise correct instruction given to the jury erroneous because it omitted the thought, embodied in a similar instruction requested by the defendant, that it must be shown by the state that the defendant did publicly profess to be a physician, or surgeon, or obstetrician, and assume the duties of such, or that he made a practice of prescribing and furnishing medicine for the sick, etc. These things are prohibited by the statute, but the statute provides that any person shall be held as practicing medicine, surgery or obstetrics who shall publicly profess to be a physician, surgeon or obstetrician, and it also provides that if a person practices medicine, surgery or obstetrics, or publicly professes to cure or heal, he is guilty, etc. Neither was there error in a refusal to give an instruction which embodied the same thought and the further thought that the defendant did not tell the patients that he could cure or heal them. An instruction was given that "the word publicly means openly, a declaration made in a public manner," while an instruction was requested by the defendant to the effect that the word publicly means "openly, a declaration publicly made, or in a public manner." There was no material difference in the two.

Burden of Proof in Actions for Negligence

(Niebel et al. vs. Winslow (N. J.), 95 Atl. R. 995)

The Court of Errors and Appeals of New Jersey, in reversing a judgment recovered by the plaintiffs, holds that, in an action for damages against a physician for the negligent performance of a surgical operation, in that a gauze sponge was negligently left in the abdomen of the plaintiff, it was injurious error to charge the jury at the request of counsel that, "If you find that the gauze was left in the abdomen of plaintiff and the incision sewed up by defendant or allowed to heal over it, the burden of proof is on defendant to show that it was not left there by any carelessness or negligence of his." In an action of negligence, the burden of proving the negligence of the defendant is on the plaintiff, and, as a proposition of law for the jury's guidance at the close of the case, it never shifts to the defendant. This right of the defendant to have the plaintiff bear the burden of the affirmative is a substantial one, the denial of which is injurious error. Neither the single fact nor the group of facts stated in the requested charge shifted to the defendant the burden of proof which, notwithstanding such facts, remained with the plaintiff. The facts recited were a part of the plaintiff's case, in that they were steps in the establishment of the negligence of the defendant, the burden of proving which was on the plaintiff; the effect therefore of the request was that the jury was told that, if the plaintiff had established these steps in her proof of the defendant's negligence, the burden of exculpating himself from the complete charge of negligence was shifted to the defendant. The practically injurious nature of the request will at once be apparent when it is remembered that in this case the operation, although performed by the defendant, a private practitioner, was performed by him in a hospital where he was assisted by trained, resident nurses, presumably in the employ of the hospital and familiar with their duties. While the testimony was meager as to the precise nature of these duties, it was infer-

able from the evidence and from the terms "operator" and "assistants" that it was the duty of the latter at or just before the close of the operation to count the sponges in use, which at that critical stage the operator himself could not do without jeopardy to his patient. The very meagerness of the proof and the fact that presumptions had to be met and inferences to be drawn made the question of the burden of proof all the more important, since it may well be that the state of the proofs was such that whoever had to bear the burden of proof must fail because of such burden. In such a case the burden must remain where the law places it, or the resulting judgment must be reversed. Nor was the injurious error of charging the plaintiff's request in any wise cured or rendered harmless by the fact that the correct rule had been stated to the jury in the body of the charge, for how was the jury to know which was the law?

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, DETROIT, JUNE 12-16.

Alpha Omega Alpha Society, Detroit, June 12.
American Academy of Medicine, Detroit, June 9-12.
American Association of Anesthetists, Detroit, June 12.
American Proctologic Society, Detroit, June 12.
American Therapeutic Society, Detroit, June 9-10.
Maine Medical Association, Portland, June 7-8.
Massachusetts Medical Society, Boston, June 6-7.
Montana State Medical Association, Miles City, July 12-13.
National Association for Study of Epilepsy, Detroit, June 16.
New Jersey Medical Society, Spring Lake, June 20-22.
Rhode Island Medical Society, Providence, June 1.
Washington State Medical Association, Seattle, July 12-14.
Western Roentgen Society, St. Louis, June 9-10.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS

Tenth Triennial Session, held at Washington, D. C., May 9-10, 1916

The President, DR. WILLIAM S. THAYER, Baltimore, in the Chair

SYMPOSIUM ON SYPHILIS

Diagnosis and Treatment of Syphilis

DR. JOHN A. FORDYCE, New York: The future of the syphilitic individual depends on the early diagnosis of his infection and the intensity with which treatment is carried out in the first six months. In the accomplishment of this purpose, the modern aids to diagnosis have rendered great service. In primary syphilis, when the spirochetes are demonstrated and the Wassermann reaction is negative, it is possible to cure syphilis with salvarsan alone. It cannot be determined how many doses are required. It is better, therefore, to err on the side of safety and to give, at least, eight or ten doses and follow this with mercury for six months. In secondary syphilis, when the early rash is present and the Wassermann reaction positive, it is better to precede the salvarsan with several injections of a mercurial salt, preferably a soluble one, on account of the economy of time. In this way an effect is produced on the spirochetes, and when salvarsan is given the temperature reaction and an intensification of the rash, that is, a Herxheimer reaction, can be avoided. After the salvarsan is begun the combined treatment is continued. Salvarsan is given in doses of from 0.3 to 0.5 gm. for men and from 0.25 to 0.4 gm. for women at intervals of one or two weeks, depending on the tolerance of the patient. Two or three such courses are given with rest periods of six weeks. The mercurial injections are given every day if a soluble salt is employed, or once a week if an insoluble one. My preference in case of the former is mercuric chlorid in courses of from twenty to thirty injections, given daily or every other day. Of the insoluble preparations, gray oil (in the form of mercurial cream, of which 5 minims represent 1 grain), in series of ten to twelve injections, or mercuric salicylate (40 per cent.), from 1 to 3 grains gradually increased, from ten to twelve injections constituting a course. Each series is followed by a rest period of six weeks and then the procedure is repeated. Wassermann tests are made periodically, but treatment is not interrupted in spite of a negative reaction until the adequate amount of medication has been given.

We should keep in mind the possibility of involvement of the nervous system in secondary syphilis. A complete record should be made when the patient comes under observation so that it can be compared with any subsequent developments. In this way it is possible to detect the very earliest changes which manifest themselves objectively in the nervous system. The most frequent are irregularity of the pupils, persistent headache, and optic neuritis or auditory disturbance. In latent syphilis, with a positive Wassermann reaction, an investigation should be made of the cardiovascular and nervous systems or of previous involvement of any of the viscera, as, for instance, syphilitic hepatitis. In cardiovascular syphilis or bone involvement, the prolonged use of mercury in connection with potassium iodid is probably of more value than the haphazard use of occasional doses of salvarsan. The criteria of cure are a negative Wassermann reaction for, at least, a year, continuing so after a provocative injection of salvarsan, and a normal spinal fluid, with the exceptions noted.

Treatment of Syphilis of the Central Nervous System

DR. HOMER F. SWIFT, New York: The best treatment of syphilis of the central nervous system is the prophylaxis of syphilis; next in importance is the proper treatment of syphilis in the early stages. No patient should be released from treatment until his cerebrospinal fluid has been normal, in so far as pleocytosis and the Wassermann reaction are concerned. At times, there seems to be a slight excess of globulin which cannot be eradicated. The problem is complicated by the peculiarities of the subarachnoid space, which is directly continuous with the perivascular, perineural and perineuronal lymph spaces. Probably the spirochetes are carried along these channels, as the various lesions can be explained most easily in this way. The plugging of these channels probably not only comprises the nutrition of the nerve cells, but also increases the difficulties of bringing the therapeutic agents in contact with the exudate. The separateness of the subarachnoid space from the blood vessels and general lymphatic system is well known. Antibacterial immune bodies, vital stains and most drugs are not excreted into the cerebrospinal fluid. Even drugs which act on the central nervous system when given by mouth or subcutaneously act in much weaker concentration when injected subdurally. In many cases general treatment affects the course of syphilis in the cerebrospinal axis favorably; this is especially marked in the early forms of the disease. The tendency of cerebrospinal syphilis to relapse has long been known, while the failure of tabes to respond to mercurial treatment has made therapeutic nihilists of most neurologists. Even the marked improvement of most cases of cerebrospinal syphilis is often not followed by a parallel improvement in the cerebrospinal fluid.

The desirability of subarachnoid therapy is evident. The problem is to find some beneficial therapeutic substance which can be introduced repeatedly without injury to the delicate nerve tissue. The preparations used today are (1) the serum obtained from patients shortly after intravenous injections of salvarsan; (2) serum to which small quantities of salvarsan have been added; (3) neosalvarsan in small quantities and weak concentration, and (4) mercurialized serum. The direct application of mercury is theoretically of value. There is, however, danger of repeatedly injecting mercurialized horse serum because of the liability to the development of a general anaphylactic state. In the general treatment of syphilis of the central nervous system, if the patient shows signs of involvement of the cerebral meninges, or brain, salvarsan should be preceded by a short course of mercury to prevent the occurrence of a Herxheimer reaction in the region of the vital centers. If the presence of gummas is suspected, a vigorous course of potassium iodid is of value. In the meningitis of the secondary period, the response to alternate courses of salvarsan and mercury has been prompt and permanent in a number of my cases. In the tertiary form of the disease, alternate courses of mercury and iodid and of salvarsan are usually followed by decided improvement. The fluid should

be examined before and after each course. If it becomes normal after a few months' treatment, the prognosis is good.

In tabes, because of the apparent sensitiveness to mercury, it is better to start the treatment with small doses of salvarsan intravenously, gradually increasing and giving an injection a week for six or eight doses. If at the end of this course the Wassermann reaction is weaker, then a course of mercury may be tried, followed by another course of salvarsan. If the reaction does not change appreciably, intraspinal therapy is of value. The aim should be to bring the fluid to normal and keep it there. This can be done in a majority of cases; 75 per cent. of our cases have a negative reaction with 1 c.c. of fluid; half of them have a negative reaction with 2 c.c. Fourteen of these remain negative with 2 c.c. Only four have shown slight relapses. Relapses in the fluid are usually accompanied by clinical relapses. In only one patient with normal fluid have there been advanced signs of degeneration; in the presence of rapidly advancing tabes or of optic atrophy, it is desirable to introduce intraspinal therapy in addition to general treatment from the beginning. The treatment of paralytic dementia has been disappointing, although the number of remissions and the amount of improvement under salvarsan and serum intraspinally is many times greater than the number of remissions in untreated paretics, and although occasionally the Wassermann in the blood and spinal fluid is negative, the ultimate outlook is usually bad. In the treatment of syphilis of the central nervous system, the objects of therapy are threefold: (1) the cure of disease; (2) the amelioration of symptoms, and (3) the prolongation of life. With the possible exception of paresis, all of these objects may be obtained.

Syphilis and Society

DR. HUGH CABOT, Boston: At the outset of any attempt to estimate the value of reporting syphilis as a public health measure, it is necessary to distinguish between true reporting and false reporting. True reporting requires that the case be reported to the health authorities by name and address precisely as are cases of other contagious diseases. False reporting is reporting by number or by some quasisecret method. The opinion of the public health officer is generally in favor of reporting. The opinion of the practicing physician, and particularly of those physicians who deal with syphilis on a large scale, has been almost unanimously opposed to reporting. They reason that if physicians are required to report these patients by name they will in a short time have no patients to report. After a careful study of the question of reporting, I cannot avoid the opinion that it has been worthless as a method of assisting in the control of this particular variety of contagious disease. Public opinion has stamped syphilis as a shameful disease, without sufficient justification, and has therefore driven these unfortunate persons into hiding. Nine states have legislation which purports to make syphilis a bar to marriage, but in most of them the laws are such as to be absolutely worthless.

To sum up the question of the benefit to be derived by reporting cases of syphilis to the public health authorities and the requiring of certificates for marriage, my opinion is this: In the present state of public opinion the reporting of syphilis can have no scientific value in the production of statistics and can have no medical value in the control of the disease. Scandinavian countries have undertaken the wholesale treatment of venereal disease as a public undertaking, and though much difference of opinion exists in regard to the details, I have heard no adverse opinion in regard to the principle. Here, therefore, lies a most fruitful field of effort. The state, the municipality and the university or corporation hospital must prepare to deal with syphilis on a large scale not only in regard to diagnosis but also with reference to treatment and subsequent supervision. There is no reason why society should fear to separate a patient from the private physician. The management of syphilis by the private practitioner has fallen far short of reasonable success, in large part because the interests of the community can in no way be safeguarded. If public or quasipublic institutions should offer as part of their hospital system thoroughly competent treatment of syphilis, it can hardly be doubted that the public in general would at once take advantage of such an offer.

Discussion on Symposium on Syphilis

DR. ISADORE DYER, New Orleans: In a review of a large number of general hospitals it was ascertained by me that practically all of them refused admission to early or incipient cases of syphilis; that the ambulant case was generally not wanted, and that all cases of syphilis, as such, are accepted on sufferance. The outdoor clinics everywhere show great preponderance over the cases of syphilis in indoor services, and where any statistics could be had, the clinics handled early syphilis almost always without the proper consideration of their danger to the community. In spite of these facts, there are many hospitals which practice routine Wassermann tests for one or another reason, but apparently without any purpose directed to the control or prevention of the disease, so far as the early cases are concerned. If every case of syphilis with a chancre, or with an early eruption, were hospitalized and treated under compulsion, the disease could be controlled far better than through any system of legislation regulating the report of cases or determining the eligibility of persons for marriage. All general hospitals should have special provisions for the indoor care of incipient or acute syphilis, and all men who treat syphilis in public practice should encourage and enforce indoor care of such patients with the object of getting these subjects under proper control, and thereby minimize the spread of the disease. Legislation should be directed at enforcing the hospitalization of cases of acute syphilis coming under public charge. Educational movement should encourage the public to recognize syphilis as a communicable disease and amenable to isolation just as are scarlet fever, measles and other contagious diseases.

DR. HUGH T. PATRICK, Chicago: I agree that the secret in treating syphilis of the central nervous system depends on early, intensive and individual treatment. The question is, What treatment fulfils these requirements? The administration of mercury with potassium iodid will fulfil the necessary requirements in the majority of cases, provided enough mercury is given. What is enough? Enough is to be determined by the results, and not by any given dose. To the vast majority of men affected with syphilis one may give two huge inunctions a day without detrimental effect. It takes as much as that to constitute adequate treatment of syphilis in man. When mercury is given in these doses the mouth must be attended to carefully, which does not mean merely the use of any of the known mouth washes, but it means scrubbing the teeth and the gums thoroughly, three times a day, after the intelligent labors of a dentist have preceded. In the majority of cases of syphilis of the nervous system, tabes and paresis, subsequent administration of mercury or salvarsan is a matter of indifference and convenience. In some cases experience shows that mercury accomplishes more than salvarsan, and vice versa. Again, experience shows that some cases do best by alternating one and then the other. As regards tabes dorsalis and paresis, a number of cases are incorrectly diagnosed as cerebrospinal syphilis or paresis. The Lange gold test is not infallible for paresis.

DR. ABNER POST, Boston: Much trouble comes from the classification of syphilis as a venereal disease. When we think of the accidental inoculations, of conjugal syphilis, of hereditary syphilis, and syphilis communicated in some other way, it is unfair to classify all syphilitics under the term "venereal." We ought to consider syphilis as a communicable disease and have it so recognized in hospitals and in reports of vital statistics.

DR. WILLIAM G. SPILLER, Philadelphia: I am not a strong advocate of the intraspinal treatment of syphilis because I have had brilliant results in a number of cases by other methods. It is possible to get brilliant results in cases of nervous syphilis provided the treatment outlined by Dr. Fordyce is begun in the early stage of the disease. It is impossible, however, to get satisfactory results when destruction of nerve cells and nerve fibers has occurred. The most that can be hoped for in such cases is an arrest of the pathologic process. As to laboratory findings, these are sometimes positive in the cerebrospinal fluid when there are no symptoms of syphilis of the nervous system. These cases should be regarded as suspicious. There are many cases which are probably late manifestations of syphilis in which the findings are negative.

Dr. George Walker, Baltimore: In a recent examination of 1,080 patients, regardless of the diseases for which they sought treatment, 10.8 gave a positive Wassermann reaction. In an examination of 327 prostitutes, 67 per cent. gave a positive Wassermann reaction. Of 480 inmates of an institution for the feebleminded, boys and girls, representing state charges, less than 3 per cent. showed positive Wassermann reactions. In an examination of sixty of the lowest grade of imbeciles there was only one that showed a positive Wassermann reaction.

IMMUNIZATION AND ITS PRACTICAL APPLICATIONS

The Underlying Problems of Immunization

Dr. Theobald Smith, Princeton: The underlying principles of immunization are twofold: 1. To prevent or to check disease by applying the methods copied from nature and improving on them in the interest of man, if possible. 2. To discover the modus operandi of resistance to disease, the sequence of events which is associated with recovery on the one hand, and with complete resistance on the other. The object of immunization is to raise the resistance of the body. The remarkable effectiveness of smallpox vaccination has left the impression that immunization toward any disease always means complete protection from that disease. We miss here the quantitative concept which is involved in all life processes. We must accept the fact that no kind of vaccination is invariably and completely protective. We may, however, hope to convert a fatal into a nonfatal attack, a mild attack into one so mild as to remain unrecognized or into complete protection. As long as the susceptibility of individuals varies toward the same infecting agent, we cannot expect the same treatment to bring all to the same level of resistance. Nor is it possible with the same treatment to protect equally well against agents of high and low virulence. To neglect the quantitative side of immunization is to bring the process into discredit because our claims cannot be justified. One of the problems bearing on this phase of the subject is a better study of spontaneous mild disease as a result of exposure in the vaccinated individual and of attacks which may not be recognized by older clinical methods, and which even the patients themselves may overlook. Our present conception of acquired immunity assumes that, after every exposure, there is some, however slight, multiplication of the virus necessary to wake up the immunizing mechanism.

The essential factor to be kept in mind is to raise such resistance with the least injury to the subject. The direction which immunization is to take depends on the etiologic factors involved. There are primary and secondary infectious agents in most diseases. It is generally conceded that if we protect against the primary agent, the others are thereby kept suppressed. The assumption underlying this view is that the secondary agents play no part in giving the primary agent an opportunity to infect, but that the reverse is true. This, however, has not been proved. When it comes to an actual outbreak of such a possible change of diseases, the situation is changed; the main or primary disease will run its course satisfactorily if the complications can be kept away. The question, then, at issue becomes a choice of vaccine toward possible secondary invaders. The general rule that a single attack of a disease protects for life is subject to many limitations. All acquired immunity is a perishable commodity. This question is complicated by several factors, among which are the following: (*a*) The human body becomes more resistant to infection with age. (*b*) There is a possibility of reinfection without clinical signs which will maintain and strengthen any immunity obtained in infancy and childhood.

There is a clearly marked distinction between groups of micro-organisms as to the capacity of the host to be immunized experimentally. With some the attempt is much more readily successful than with others. Those bacteria which act only through their toxins are most easily kept in check by immunization. Bacteria producing diseases of longer duration appear difficult to suppress in proportion to the chronicity of the affection. To these general rules there are exceptions. Endemic disease leads to relatively heightened resistance. Since most of the diseases in question are due to parasites which survive and may persist in the blood during a lifetime, which, in other words, are able to subsist in an immune host, the most rational explanation is that based on the transmission of immune bodies to the offspring.

Among the established facts in immunology is the greater efficacy of living virus over any other; the practical application of this fact, however, encounters many obstacles. There are the degree of permanency of the attenuation, and besides the attenuation of homologous viruses, the finding of naturally attenuated strains. The preconception that strains of low virulence cannot immunize toward highly virulent strains should not stand in the way of actual trials. Next to living virus, the bodies of bacteria killed by heat seem to have the best chance of producing immunity. The success or failure of this method will depend theoretically on what is the important antigen. If the aggressive activity or virulence of micro-organisms is rapidly lost after isolation from the tissues, the effectiveness of cultures killed by heat, or otherwise, will naturally depend on the total age of the cultures used, provided the factor of virulence is not completely destroyed when the bacteria are killed. The evident success of this method in preventing an attack of typhoid fever is encouraging for this method of vaccination. The relative efficiency of sensitized vaccines probably depends on a quantitative relationship between the antiserum and the bacilli. For diphtheria toxin and antitoxin this can be controlled definitely. It is difficult to see just how a similar accurate titration of immune serum and bacteria can be made in terms of any assignable units at present. The only way open is to inject series of mixtures of variously sensitized bacteria and await results. The explanation for the very effective immunizing power of sensitized toxins depends on the greater penetrating power of such mixtures. The toxin appears to travel farther in combination with the antitoxin than when free. Perhaps the last word in immunizing methods is the use, not of living or dead virus, but of distinctive parts thereof. Theoretically, the attempt to find the chief antigen of a micro-organism and exclude all others as either unimportant or harmful is just as justifiable as the attempt to immunize the body toward the chief or primary infection, letting the secondary infection alone. Of a series of antigens there may be one which represents the primary and, therefore, the most important aggressive or protective agency of the virus and which, if introduced in abundance, might produce that degree of resistance which later will interfere with the beginning of the infective process.

The recent developments in immunologic research indicate that medical science is moving away from the doctrine that the toxins or poisons of bacteria are the chief substances against which immunization is to be directed. That they are responsible for most of the injury inflicted must be granted, but the injury may be a side issue not in line with the main events. The object of immunization is to suppress the invader; the problem underlying is to find the precise aggressive weapons which permit the invader to multiply. The capacity of micro-organisms to enter and multiply in the tissues of the host may or may not be due to the direct action of the toxins. If not, it would be useless to immunize them. However, when we come to treat disease in actual progress, the neutralization of toxins may be a very important step.

Serum Therapy

Dr. William H. Park, New York: The advisability of using serums in any particular disease is influenced by a number of considerations. The primary one is whether a serum is available which contains antibodies of suitable kind and amount to neutralize the toxins or aid the body cells or ferments in destroying the micro-organisms; others, whether the infection can be identified from clinical signs alone, or only after additional laboratory examinations, and whether the serums can be brought into contact with the toxin or organisms at the essential points in the necessary concentration and within the required time. Dr. Rufus I. Cole believes that 75 per cent. of all lobar pneumonia cases are caused by pneumococci of three strains which he has called Types 1, 2, and 3, and that the remaining 25 per cent. are caused by a multitude of strains so numerous that in a moderate number of cases no repetition of the same type is likely to be encountered. About 30 per cent. of the cases of

pneumonia, and about one third of the total deaths are caused by infections with Type 1. The results of serum injection seem favorable in Type 1, doubtful in Type 2, and absolutely negative in Types 3 and 4. The mortality up to the present time has been much less in the treated than in the untreated cases. Serum sickness occurred in about 50 per cent. of the cases, and while very annoying was not dangerous. The serum should be standardized so that 0.2 c.c. of a recent serum will protect 100,000 fatal doses of a very virulent type of pneumococcus, and no serum should be put out that contains less than half that strength. Cole advises 80 c.c. of serum diluted with 80 c.c. of salt solution injected intravenously, and repeated about every twelve hours until permanent improvement is noted. Usually he gives from three to five doses. He recommends that the serum be given only after the bacteriologic test has shown the type, while I believe that in a severe case a first dose of Type 1 serum should be given as soon as possible and the later injections only after a bacteriologic report.

The treatment should be considered from two points, one the good of the patient, the other the advance of knowledge. The severe cases that receive an injection of Type 1 serum are considered only from the first standpoint. With the antistreptococcic serums the same reasoning applies as with the pneumococcic serums, and the same dosage and method of administration. If it is suspected that the infection is with the hemolytic type, we can rightly give this type of serum with the hope of some good results. If we suspect the *Streptococcus viridans* type, a polyvalent serum of this type might be given with slightly less prospect of help. Before giving further injections the organisms should be identified.

In epidemic meningitis the spinal fluid in every case should be examined microscopically, for only in this way can a correct diagnosis be made. Here, too, the strains differ; they have group relationships, and intravenous injection of suitably selected strains causes the horse to produce a serum capable of almost all strains. The reports from England of failure to get good results under the serum treatment of meningitis may be explained by the great demand for the serum which leads to the attempt to replenish the stock of serum and which in turn leads to a too frequent bleeding of the horses, resulting in a serum which is found later to be poor in antibody content.

I should like to refer to the favorable results obtained in the treatment of early toxic cases of scarlet fever with convalescent serum, or whole convalescent blood, by saying that from 100 to 300 c.c. of fresh whole blood injected intramuscularly can also be used in acute and chronic exhausting diseases in which the nutritive and bactericidal value of homologous protein is distinctly indicated.

As to the Schick reaction and dosage of antitoxin in diphtheria, a single large dose of antitoxin has been shown to be more effective than a larger amount of antitoxin administered in several successive doses. Were it not for the disadvantages inherent in the intravenous method, it would be the method of choice. In patients who have been sick for from twenty-four to seventy-two hours and show a great extent of disease and symptoms of toxic absorption, from 3,000 to 10,000 units of antitoxin intravenously is imperative. On the other hand, the mild or moderate cases may be treated by a subcutaneous or, better intramuscular injection.

As to the methods of administering tetanus antitoxin, experiments demonstrate conclusively the superiority of the intraspinal method.

DR. LUDVIG HEKTOEN, Chicago, delivered an address on "Vaccine Therapy," which was published in THE JOURNAL, May 20, 1916, p. 1591.

Discussion on Immunization and Its Practical Applications

DR. FRANK BILLINGS, Chicago: In chronic affections, both local and acute, more particularly the infectious arthritides, and in cases of furunculosis, alveolar abscesses, sinusitis, pyelitis, cystitis, etc., we have attempted to carry out treatment by autogenous vaccines. We tried to make our autogenous vaccines by the injection into animals of strains obtained from the tissues of man. Furthermore, we immunized the horse with polyvalent strains of the so-called *Streptococcus viridans*. We had that serum standardized. We used serum to sensitize vaccines of the type we are using. We used serum in connection with the vaccines to attempt to arouse the defenses of the individual. We have kept records of all of that work. We have treated over 500 cases of chronic infectious arthritis, a number of cases of infectious endocarditis with *Streptococcus viridans,* a number of patients suffering from pyelitis, colon bacillus infection, and other infections. While this work was going on, especially with the arthritides, I have attempted to see what could be done with the same class of patients without vaccines.

Before we knew much of bacteriology or vaccine or serum treatment, we recognized that certain individuals were more susceptible to disease than others because of exposure to cold, to extreme fatigue, to any kind of mental or physical strain, to poor general nutrition, and to many other causes. Age in such cases plays an important part, and especially as to the resistance of the tissues and the possibility of tissue regeneration when once infected. Alongside with vaccination we have attempted to find out conditions of that kind in patients and have sought by hygienic and other measures of treatment to remove them, and I find, so far as I can determine, that patients who had no vaccines with these general processes had their defenses aroused quite as quickly and fully as those who received vaccines. If one did not pay attention to general hygiene and to the building up of these patients, the vaccines of themselves did not bring forth a response. The use of autogenous vaccines in chronic processes, both local and general, is so limited that their employment has not justified the expenditure of labor and the price necessary to carry on the work. That is a general statement, subject to modification that in certain instances, under certain conditions, and in certain individuals the use of vaccines seems to be of benefit; but take them as a class in general disease, I have yet to see the benefit of them.

Vaccination, as practiced all over the country by the use of commercial vaccines, is a disgrace to the medical profession. The fault is not to be laid at the doors of the people who manufacture these things; they would not continue to manufacture them if the doctors did not use them, and that is not the worst of it. Not only do they manufacture them and put them up in polyvalent forms and advise them to be used in this and that way, but these firms make the diagnoses for the doctors and tell them when and how to use them. The great trouble is that the average doctor is unthinking and unscientific enough to use a method of treatment which costs him but little thought, and he is so thoughtless that he disregards the results on his patients.

DR. RUFUS I. COLE, New York: So far as producing immunity of any kind in an acute infection is concerned, we must keep in mind that the only evidence we have justifying vaccine treatment is the results which have been obtained by the experiments of Dr. Gay and Dr. Jobling. From a study of the literature and from many experiments, it seems to me that there is very little justification for the use of vaccination in acute lobar pneumonia. I have tried to produce active immunity in animals within a few days by various methods, but we cannot bring about that grade of immunity which one would expect to do any good within six or seven days. In regard to serum therapy, here again we must be sure we have the same experimental justification for going ahead with any method of serum therapy. The facts on which we can hope to justify any method of treatment are simply two: 1. We cannot render animals immune or render them resistant to infection with the pneumococcus by treatment with living or dead organisms. 2. By transferring the serum of the animals to the normal animal we can render the animal resistant, and, finally, we can, by transferring this blood to the animal which has already been infected, cure that animal, provided the dose of infection of the organisms is not too great, or that we have not delayed too long after infection. In pneumonia I feel convinced that the use of serum in Type 1 infection, referred to by Dr. Park, is efficacious. That statement, however, is based on a comparatively small experience. When one considers the great frequency of pneumonia, with 6,000 deaths in New York City annually,

2,000 of that number being Type 1 infection, and Type 1 infection causing more deaths than typhoid fever, scarlet fever and all forms of meningitis combined, it seems quite important that serum therapy be given independent consideration.

Dr. Thomas W. Hastings, New York: For years specific therapy, particularly in the form of vaccine therapy, has been abused, mainly because care has not been taken to determine the specific factor involved. This is just as important in using serums as in employing vaccines. Discredit has been brought on the use of them because frequently specific diagnoses of the factors concerned are not made before serum is employed. The day has come when the rank and file of physicians in this country should recognize the fact that it takes specialists to do this work, if it is done at all, and that the commercial use of polyvalent vaccines, without specific diagnoses, should be discontinued.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

May, CLI, No. 5, pp. 625-780

1 Some Phases of Nephritis Problem (A Review). H. A. Christian, Boston.
2 *Surgical Significance and Operative Treatment of Enlarged and Varicose Veins of Spinal Cord. C. A. Elsberg, New York.
3 *Rôle of Sympathetic System in Diagnosis of Abdominal Diseases. J. F. Binnie, Kansas City, Mo.
4 *Endothelial Phagocytes in Pleural Exudate Due to Bacillus Typhosus. O. H. P. Pepper, Philadelphia.
5 *Prophylactic Use of Tetanus Antitoxin. H. E. Robertson, Minneapolis.
6 *Localization of Cerebellar Tumors; Pointing Reaction and Caloric Test. E. G. Grey, Boston.
7 *Case of Primary Splenic Hodgkin's Disease. R. R. Mellon, Ann Arbor, Mich.
8 *Results With Cholesterinized Antigens in Nonsyphilitic Serum. C. W. McClure and E. S. Lott, Iowa City, Iowa.
9 Cases of Dilatation Aneurysms of Descending Thoracic Aorta. S. Neuhof, Lebanon, Ala.
10 Direct Blood Transfusion With Kimpton-Brown Tubes; Report of Nine Cases. F. R. Barnes and M. A. Slocum, Philadelphia.
11 *Time Relations of Gastric Pains, With Special Reference to Gastric Adhesions. J. C. Friedman, Chicago.

2. **Operative Treatment of Varicose Veins of Spinal Cord.**—The posterior spinal veins are sometimes considerably enlarged below the level of the spinal compression. On account of interference by the pressure of an extramedullary neoplasm with the return venous flow, the veins become much enlarged and engorged with blood for a considerable distance below the level of the tumor. When the cord of such a patient has been exposed, Elsberg says, one or both veins appear very large and very prominent; they are often more tortuous than normal. In intradural inflammatory processes—meningitis and meningomyelitis—the cord has a pink color due to the fine network of distended arteries and veins in the hyperemic area. The appearance is not the same as that below a spinal compression in which distended veins stand out prominently on the creamy-white background of the cord. Therefore, Elsberg says, it is important for the operator to recognize and to understand the significance of these distended posterior spinal veins and to differentiate a venous engorgement due to pressure from an ordinary inflammatory hyperemia of the cord. More or less localized enlargement or varicosity of one or both posterior spinal veins is a condition which is not very rare; it may be the cause of local spinal symptoms, and complete relief from the symptoms may follow an operative interference. Among 130 laminectomies for spinal disease Elsberg has six times found one or several enlarged spinal veins on the posterior surface of the cord. All of the patients had the signs and symptoms of a level lesion, and the greatest or only enlargement of the vein was found at the part of the cord which corresponded with the symptoms. Two of the patients suffered from severe root pains and large veins were found to accompany the affected spinal roots.

Elsberg believes that it is fair to conclude that there was some connection between the enlargement of the vein and the cord symptoms. The enlarged veins were excised. Of the six patients, two had a spastic paraplegia with sensory level symptoms of long standing, and their condition was unchanged after the operation. One patient with a tuberculoma of the cord improved very much, but the improvement was due to the removal of the growth. A patient who had suffered from severe root pains confined to the distribution of the left eighth dorsal root, and in whom a much enlarged vein ran with the root, was entirely relieved by the laminectomy and excision of the large vein. Two patients were suspected of a spinal tumor, but nothing excepting the localized venous enlargement was found at the operation. Both of the patients had well-marked sensory and motor signs, and marked improvement followed the surgical interference. One of the patients recovered entirely.

3. **Rôle of Sympathetic System in Abdominal Diseases.**—The incidence and distribution of pain produced by disease affecting the abdominal organs supplied by the sympathetic nervous system is discussed thoroughly by Binnie. "Reflex pain" and "referred pain" are analyzed from the anatomic basis. He says, for instance, that the complexity of the nerve connections of the viscera, the perfection attained in the fulfilment of their vegetative or automatic functions, and the rarity of the higher centers being given cognizance of what is going on in the digestive tract, apart from a feeling of well being or satisfaction, excuse if they do not explain the confusion in the differential diagnosis of such distinct anatomic entities as appendicitis, pancreatitis, cholecystitis, gastric and duodenal ulcers. "Referred pains" may be simulated closely by other very important pain. Inflammation extending from the organ primarily involved may of course come into a region supplied by spinal nerves and thus pain result, such as the lumbar pain experienced in cases of retrocecal appendicitis, or the inflammation may spread to another organ adherent to that primarily involved, and thus a secondary "referred pain" may be noted. An example of this latter condition is in cases in which an inflamed appendix becomes adherent to the prostate and gives rise to pain at the point of the penis. In appendicitis pain may be experienced on the left side of the abdomen through direct extension of peritonitis or possibly, in the absence of such extension, by allochiria, because (Head and Howell), when from any cause one or other of the cutaneous senses is depressed in a given area stimulation in this region may give sensations which are referred to a symmetrical area on the opposite side of the body. Impulses passing up from the ureter to the aortic plexuses may produce a disturbance there, sufficient to cause the transmission of motor impulses through the hypogastric plexus to the rectal sphincters and thus set up a tonic contraction. Such tonic contraction is present in the cases in which renal colic is mistaken for obstruction.

Binnie points out that originally the gastro-intestinal canal was a straight tube developed in the dorsal region and pushed into the primitive body cavity in such a fashion that it became enveloped with peritoneum but retained its connection with the dorsal structures by means of blood vessels and of nerves which lay between the layers of the primitive mesentery. As development proceeded the various organs assumed the positions in which they are found in the normal individual. The viscera ultimately normally take up positions which may be remote from the middle line, yet their telephone supply remains the same except for the necessary elongation of the wires. Binnie suggests that this may explain why the early pain of most visceral lesions is generally median.

4. **Pleural Exudate Caused by Typhoid Bacillus.**—Pepper cites the case of a man who had been ill with fever and chills for three weeks. He complained of no localizing symptoms, and on questioning admitted the presence of a slight pain in the chest for a day or two. The temperature and pulse were elevated. Physical examination revealed nothing abnormal other than the signs of a small effusion at the base of the right lung. On aspiration a few cubic centimeters of hemor-

rhagic serous fluid were withdrawn, and from the cytology of this a diagnosis of pleurisy due to the typhoid bacillus was ventured. This diagnosis was promptly verified by finding that both the blood serum and the effusion gave a positive agglutination test with typhoid bacilli and later by obtaining the *B. typhosus* in pure culture from both the blood and the effusion.

5. **Prophylactic Use of Tetanus Antitoxin.**—It is held by Robertson that in the large majority of cases the subcutaneous injection of twenty units of tetanus antitoxin immediately after the injury will prevent with certainty the occurrence of tetanus. The delay of a few hours in making the injection may mean the loss of life. Local applications of fluid antitoxin on the wound are efficacious but unnecessarily wasteful and not always practical. In cases in which injections cannot readily be made, especially in time of war, the immediate application to the wound of dried antitoxin tampons moistened by clean fluid may be used as a temporary substitute until fluid antitoxin can be injected, but powdered antitoxin on the wound is not, as a rule, dependable. Its one useful field is perhaps the prevention of tetanus neonatorum. The protection afforded by antitoxin lasts from two to three weeks. Hence in cases of protracted suppuration or in cases in which for other reasons secondary surgical interference is contemplated, either second injections of antitoxin should be made or dried antitoxin tampons freshly moistened should be placed on the wound.

6. **Localization of Cerebellar Tumors.**—Grey's report has to do with the results obtained from using these tests in thirty-one patients with cerebellar or extracerebellar tumor. The caloric test has proved to be an important means of differentiating labyrinthine from intracranial disease. Together with the pointing reaction, this test has been found of value, furthermore, in localizing circumscribed lesions in the cerebellum. In most of the patients having cerebellopontine new growths and in certain of those with tumors of one or the other hemisphere, the reactions were sufficiently characteristic to be of supplementary value in localizing the disease. In other patients with intracerebellar or extracerebellar tumor, on the contrary, the results were often ambiguous and afforded no assistance in establishing a diagnosis. In fact, in numerous instances the conclusions drawn from these results were at variance with the other physical findings, and, had any great reliance been placed in them, would have led to erroneous results. Grey suggests that there are probably a number of factors responsible for the occurrence of atypical reactions in patients with certified cerebellar tumors. As the more important he mentions first, the great increase in intracranial pressure due to an internal hydrocephalus which ultimately accompanies new growths in the posterior fossa, and second, the diffuse nature of many of the tumors common to the cerebellum.

7. **Primary Splenic Hodgkin's Disease.**—Mellon reports what he believes is the first case of the kind on record. The entire clinical history covered a period of not over two years, the lymphatic glandular involvement of chest, abdomen and inguinal regions, all showed changes decidedly younger than those in the spleen.

8. **Cholesterinized Antigens in Nonsyphilitic Serum.**—Nonspecific reactions were obtained by McClure and Lott with antigens representing additions of 0.0125, 0.0248, 0.0496, 0.0502 and 0.0996 gm. of cholesterin to 100 c.c. of the alcoholic extract of syphilitic livers; also, with an addition of 0.101 gm. of cholesterin to 100 c.c. of the alcoholic extract of guinea-pig hearts. The conclusion is drawn that cholesterin additions in the amounts above employed render the alcoholic extract more sensitive but somewhat less specific, and therefore of questionable value in the diagnosis of syphilis.

11. **Time Relations of Gastric Pains.**—Gastric discomfort of the intragastric and perigastric regions is divided by Friedman into continuous and intermittent varieties. The continuous pains are most frequently due to carcinosis, to marked pyloric obstruction, and to penetrating ulcers, with peritoneal involvement. The intermittent pains may be divided into immediate, early and late. The immediate are found frequently in ptosis, neurosis, obstruction of the cardia, besides other conditions, not considered here, as achylia gastrica, etc. The early pains including those occurring fifteen to sixty minutes after eating, are most often due to adhesions in any part of the stomach, including ventral hernias and pericholecystitis. These are to be thought of particularly in those cases in which the changes in secretion and motility are too slight to account for the distress complained of. Late pains include those occurring one to three hours after eating, and indicate an increase in intragastric pressure or pylorospasm, of which the most frequent cause is hyperacidity. It is occasionally due to slight pyloric obstruction or pyloric adhesions or reflex causes.

American Journal of Roentgenology, New York

April, III, No. 4, pp. 191-242

12 *Roentgen Deep Therapy in Malignant Tumors. A. F. Holding, New York.
13 Roentgen Diagnosis of Obscure Lesions of Gastro-Intestinal Tract. W. H. Stewart, New York.
14 Comparative Value of Roentgen Ray and Radium in Therapeutics. W. S. Newcomet, Philadelphia.
15 *Roentgen Studies of Effect of Moderate Doses of Some of Opium Derivatives on Gastro-Intestinal Tract of Man. H. K. Pancoast and A. H. Hopkins, Philadelphia.
16 Use of "Polygram" in Gastroduodenal Roentgenography. I. Gerber, Providence.

12. Abstracted in THE JOURNAL, Nov. 6, 1915, p. 1669.

15. Abstracted in THE JOURNAL, Oct. 30, 1915, p. 1581.

Archives of Ophthalmology, New Rochelle, N. Y.

May, XLV, No. 3, pp. 205-305

17 Declinations of Vertical Meridians of Retina. G. T. Stevens, New York.
18 Frozen Carbon-Dioxid in Treatment of Trachoma, Vernal Catarrh and Pterygium. A. E. Prince, Springfield, Ill.
19 Localization of Streptococci in Eye. E. V. L. Brown, E. E. Irons and W. H. Nadler, Chicago.
20 Anilin Injuries of Eye; Report of Case With Deep Ulceration of Lower Lid. R. J. Curdy, Kansas City, Mo.
21 Optic Neuritis After Influenza, With Changes in Spinal Fluid. A. Knapp, New York.
22 Two Cases of Metastatic Ophthalmia Consecutive to Pneumonia. M. Cohen, New York.
23 Correct Use of Giant Magnet in Operations on Eye. O. Haab, Zürich.
24 Examination of Color Sense With Pigment Colors. R. Helmbold, Danzig.
25 Description of Exophthalmometer. W. Lohmann, Münich.

Archives of Pediatrics, New York

April, XXXIII, No. 4, pp. 241-320

26 *Studies in Spinal Fluid. (I) Alkalinity of Spinal Fluid; (II) Report of Cases. A. Levinson, Chicago.
27 *Some Important Factors Affecting Incidence of Measles and Fatality Therefrom. J. G. Wilson, U. S. P. H. S.
28 Value of Wassermann Reaction in Mental Deficiency in Children. Study of Seventy-Eight Cases. A. Gordon, Philadelphia.
29 *Recovery of Colon Bacillus From Spinal Fluid of Five Months' Old Infant. M. Michael, Chicago.
30 Short History of Infant Feeding. H. R. Mixsell, New York.

26. **Studies in Alkalinity of Spinal Fluid.**—Levinson believes that methyl red is the most sensitive and most suitable indicator for determining the alkalinity of the spinal fluid. It is one of very few indicators that is sensitive to organic substances. It gives a straw color to water, a strongly yellow color to alkaline and a bright red to acid. The change from neutral to acid or alkaline is very sharp and can be used even for the determination of ammonia. Levinson used 1 drop of a 2 per cent. solution of methyl red in alcohol and adopted sulphuric acid for titration of the spinal fluid and that in one-hundredth normal solution. He describes his method in detail. The result of his study thus far seems to be that the alkalinity of the spinal fluid varies in different diseases. The alkalinity bears a certain relationship to diseases of the meninges. Furthermore, some diseases influence the alkalinity in a characteristic manner. The determination of the chemical reaction of the fluid thus becomes of value in establishing the diagnosis of some forms of meningitis. Fifty cases of spinal fluid were tested for its alkalinity, some of which were nonmeningeal in character, while others were true meningitis. In nonmeningeal cases

the alkalinity varied from 1.5 to 2.6 c.c. Normal alkalinity varying between 2.0 and 2.4. In the meningeal cases the alkalinity was lower. Epidemic meningococcus meningitis shows a lessened alkalinity of the spinal fluid. Of 8 cases tested none reached to 1.5 c.c. the highest being 1.3 c.c., the lowest 0.7. Pneumococcic meningitis also shows a lessened alkalinity from 0.9 to 1.1 c.c., but tuberculous meningitis shows no decrease in alkalinity. One case of influenza meningitis gave a 1.45 c.c. alkalinity. The administration of serum had an increasing effect on the alkalinity of the spinal fluid.

27. **Factors Affecting Incidence of Measles.**—From a study of his own cases and a survey of the literature, Wilson feels that both the incidence and the case mortality rate of measles are subject to extreme variations and that the cause of these variations is not understood. He says that cross infection, especially that of diphtheria, is the most serious event that can occur in the course of measles. Suppurative otitis media, although the most frequent complication of measles, is not of grave prognostic import when properly treated. Bronchopneumonia complicates about 10 per cent. of all measles cases, being but little influenced by weather conditions in the frequency of its occurrence or its fatality. The fatality of measles complicated by bronchopneumonia is 58 per cent., but this fatality varies in an exceedingly erratic manner and without marked relation to the total case fatality of measles. The incidence rate of bronchopneumonia as a complication rather than its case mortality appears to be an index to the severity of any particular outbreak of measles.

29. **Colon Bacillus in Spinal Fluid.**—Michael reports this as a case of colon bacillus meningitis of hematogenous origin.

Arkansas Medical Society Journal, Little Rock

April, XII, No. 11, pp. 269-295

31 First Medical Faculty Elected in Arkansas. L. P. Gibson, Little Rock.
32 Mastoiditis. J. W. Ramsey, Jonesboro.
33 Tonsillectomy With Local Anesthesia. H. H. Rightor, Helena.
34 Importance of Treating Diseases of Accessory Sinuses of Nose. L. H. Lanier, Texarkana.

Boston Medical and Surgical Journal

May 11, CLXXIV, No. 19, pp. 667-702

35 *Methods for Testing Donors for Transfusion of Blood and Consideration of Factors Influencing Agglutination and Hemolysis. G. R. Minot, Boston.
36 Use of Duodenal Tube for Diagnosis and Treatment. (To be concluded.) F. W. White, Boston.
37 *Gastric Ulcer Experimentally Produced by Means of Staphylococcus Organism; Preliminary Note. E. C. Steinharter, Cincinnati.
38 Fallacies of Group Treatment. H. J. Cronin, Cambridge.

35. **Testing Donors for Transfusion of Blood.**—The various tests employed to test blood for its power to agglutinate or hemolyze other blood are described by Minot, including his modification of the Rous and Turner test, which he has found may be performed without the need of accurately diluting the blood by white counters, so that the disturbing factor of clotting is done away with. Minot places 3 to 4 drops of a 1.5 per cent. citrate solution in 0.9 per cent. salt solution in a short (about 2 cm.) test tube, with a relatively large diameter (about 1 cm.); then collect in this tube 9 drops of blood from the recipient and one from the donor, and in another tube similarly collect 9 drops from the patient and one from the recipient. The drops of blood are collected from a prick in the ear, trying to allow the blood to fall directly into the citrate, but it makes no difference even if the blood runs down the side of the glass. The drops need not be of exactly the same size, and the amount of blood does not need to be accurate, but approximate. After the mixtures have been mixed by shaking, and have stood for about fifteen minutes, take out a drop and examine it microscopically for agglutination.

37. **Gastric Ulcer Experimentally Produced by Means of Staphylococcus Organism.**—The organism used by Steinharter was obtained from a case of septicemia in man. At first cultures of it injected intravenously into rabbits were found to produce a septicopyemia, but later, after cultivation in the wall of the living stomach of the rabbit, it showed on intravenous injection an affinity for the intestinal tract, locating most often in the appendix and occasionally in the stomach. Typical peptic ulcers varying from one quarter of an inch to 1 inch in diameter were produced by injecting locally into the stomach wall the staphylococcus organism of certain grades of virulence and a weak acetic acid solution. The injection of the organism alone usually caused the development of a small localized and firmly walled off abscess at the point of injection. Such an abscess, as a rule, was absorbed in the course of four to six days and never showed any involvement of the mucous or peritoneal coats. In some cases no abscess was formed. The introduction of the acid alone into the stomach wall beyond causing more or less edema provoked no gross pathologic change in the tissues. It never caused an ulcer; but it did seem to increase the susceptibility of the area for localization of the staphylococcus injected into the general circulation. The tendency of selective localization in certain organs was found to depend among other things on the virulence of the organism and could be modified by cultivation in functionating tissue. In the light of these results, it seems to Steinharter that it is possible that the staphylococcus is responsible for certain cases of gastric ulcer in human beings. If by some means (through an erosion or trauma, etc.), a hyperacid gastric juice enters the tissues of a limited area of the stomach wall and the staphylococcus of proper virulence (for example from the appendix) finds lodgment there, it does seem quite probable that the necessary conditions used in producing the experimental ulcer would be duplicated. This point is still under study.

Florida Medical Association Journal, Jacksonville

May, II, No. 11, pp. 321-352

39 Plastic Tendon Surgery. R. C. Turck, Jacksonville.
40 Direct Transfusion With Bernheim Tubes. H. M. Ginsberg, Pensacola.
41 Ovarian Cysts. D. Forster, Hawkes Park.
42 Influenza. A. R. Bond, Tampa.
43 Imperforate Anus. E. T. Campbell, Starke.
44 Appendicitis. J. W. Hargis, Pensacola.

Iowa State Medical Society Journal, Des Moines

April, VI, No. 4, pp. 147-198

45 Some Later Adaptations of Gastro-Intestinal Surgery. C. A. L. Reed, Cincinnati.
46 Surgical Treatment of Old Gonorrheal Infection in Women. S. A. Spilman, Ottumwa.
47 Two Cases of Madelung's Disease. E. C. McClure, Bussey.
48 Case of Intra-Ocular Sarcoma. W. J. Bussey and J. W. Shuman, Sioux City.
49 Effects of Workmen's Compensation Law on Profession. D. S. Fairchild, Clinton.
50 Infection, Cause of Local and General Disease. C. H. Mayo, Rochester, Minn.
51 Medical Treatment of Gastric Ulcer. E. D. Tompkins, Clarion.
52 Series of Brain Cases. A. M. Pond, Dubuque.

Journal of Parasitology, Urbana, Ill.

March, II, No. 3, pp. 99-148

53 Seasonal Distribution of Some Acanthocephala From Fresh Water Hosts. H. J. Van Cleave, Urbana.
54 Intermediate Hosts of Lung Distome, P. Westermani Kerbert. S. Yoshida.
55 *Gongylonema in Rôle of Human Parasite. H. B. Ward, Urbana.
56 Are Sarcosporidia Aberrant Forms of Cnidosporidia of Invertebrates? B. Galli-Valerio.
57 Three New Gregarines From Marine Crustacea. M. E. Watson, Long Island, N. Y.
58 Pajaroello Tick (Ornithodorus Coriaceus Koch). W. B. Herms, San Francisco.
59 Etiology of Verruga as Deduced From Study of Asexual Stages of Bartonella. C. H. T. Townsend, Washington, D. C.
60 New Infusorian Parasite in Sand Fleas. M. E. Watson, Long Island, N. Y.

55. **Gongylonema Human Parasite.**—A specimen of *Gongylonema*, probably *G. pulchrum*, according to Ward, has been recovered from man. This species is normally a parasite of the pig. Infection of the human host in Ward's opinion was brought about probably by the ingestion of larvae in the infective stage which had developed in some insect. Very likely the croton bug, known by experiment to be able to serve as intermediate host for this species, was the source of the infection which might readily occur by accident. The presence of the parasite was accompanied by clinical symp-

toms indicating marked digestive and nervous disturbances, associated with anemia. These symptoms disappeared with the removal of the worm. The parasite displayed a tendency to wander through the submucosal connective tissue from the lips to the throat.

Journal-Lancet, Minneapolis

May 1, XXXVI, No. 9, pp. 247-278

61 Clinical Observations and Deductions of Some Obscure Infections. A. E. J. Sohmer, Mankato.
62 Recent Advances in Therapy of Syphilis. J. Butler, Minneapolis.
63 Some Common Errors in Infant Feeding. G. E. Zimmerman, Sioux Falls, S. D.
64 Open-Air School Movement. P. L. Benjamin, Minneapolis.

Kansas Medical Society Journal, Topeka

April, XVI, No. 4, pp. 97-130

65 Future Prospects of Medical Education in Kansas. E. T. Hackney.
66 Medical Teaching and Its Future. F. Strong, Rosedale.
67 Plans for Future Development of Buildings and Equipment of School of Medicine, University of Kansas. M. T. Sudler, Rosedale.
68 Small College and Medical School. J. Sundwall, Rosedale.
69 Work at University Medical School and Hospital at Rosedale. R. H. Major, Rosedale.
70 What Is Medical Education? S. A. Matthews, Rosedale.
71 Relations of Medical School to Profession of State. M. T. Sudler, Rosedale.
72 Premedical Entrance Requirements. F. B. Dains, Rosedale.
73 Summer School for Physicians and Health Officers. S. J. Crumbine, Rosedale.

Medical Record, New York

May 6, LXXXIX, No. 19, pp. 807-852

74 *Treatment of Pyorrhea Alveolaris and Its Secondary Systemic Infections by Deep Muscular Injections of Mercury. B. L. Wright, U. S. Navy.
75 Nurse in Peace and in War. J. L. Corning, New York.
76 References to Anatomy in Rabelais' Works. D. W. Montgomery, San Francisco.
77 Dementia Praecox Studies. B. Holmes and J. Retinger, Chicago.
78 Causation and Treatment of Pellagra. H. E. Bond, Kingston, Jamaica.
79 Climate in Treatment of Pulmonary Tuberculosis. W. S. Mills, New York.
80 Urinary Test for Syphilis and Its Comparison With Wassermann Reaction. C. D. Gray, Portland, Me.
81 Intravenous Administration of Mercury in Syphilis. T. Shaw, San Antonio, Tex.
82 Report of Fatal Case of Angina Pectoris. J. J. Gingles, Seattle.

May 13, No. 20, pp. 853-894

83 Chronic Trigonitis. H. W. E. Walther, New Orleans.
84 Rôle of Wish in Manifestations of Epileptic Type of Nervous Constitution. R. G. MacRobert, New York.
85 What Life Insurance Companies Can Do to Assist in Control of Cancer. H. W. Cook, Minneapolis.
86 Radium and Symptomatic Blood Pressure. D. C. Moriarta, Saratoga Springs.
87 Dividing Line Between Medical Charity and Medical Business. E. A. Codman, Boston.
88 Practicability of Ratings in Appointment and Promotion of Members of Visiting Staff. R. L. Dickinson, Brooklyn.
89 What Is Meant by Hospital Efficiency and Some of Factors Which Are Often Responsible for Lack of Efficiency. W. H. Smith, Baltimore.
90 Etiology of Recent Epidemic of Pseudo-Influenza. W. W. Williams and W. Burdick, Denver.

74. **Pyorrhea Alveolaris Treated by Muscular Injections of Mercury.**—Wright is convinced that mercury properly administered is a cure for the various infections produced by the vegetable parasites, among which pyorrhea, as a primary focus of infection, is of the utmost importance.

New Jersey Medical Society Journal, Orange

May, XIII, No. 5, pp. 209-258

91 Diabetes. W. W. Beveridge, Asbury Park.
92 Starvation Treatment in Diabetes. F. J. McLoughlin, Jersey City.
93 Epidermolysis Bullosa Hereditaria; Report of Case. E. D. Newman, Newark.
94 Physician's Idea of Preparedness. P. A. Potter, East Orange.
95 Case of Gastric Hemorrhage With Transfusion and Recovery. E. A. Ill, Newark.
96 Diaphragmatic Hernia. E. Field, Red Bank.

New Orleans Medical and Surgical Journal

May, LXVIII, No. 11, pp. 693-764

97 Early History of Malaria. C. Wesselhoeft, Boston.
98 Discovery of Cinchona Bark. C. Wesselhoeft, Boston.
99 Introduction and Early Use of Cinchona Bark. C. Wesselhoeft, Boston.
100 Arsenobenzol. J. P. Lobenhoffer, New Orleans.
101 General Status of Immunity From Laboratory and Clinical Standpoint. A. M. Rovin, Detroit.
102 Pituitary Extract. H. R. Cogburn, Bayou La Batre, Ala.
103 Two Cases of Bone Grafts. J. T. Nix, Jr., New Orleans.

Oklahoma State Medical Association Journal, Muskogee

May, IX, No. 5, pp. 107-135

104 Vesical Calculus. W. E. Dicken, Oklahoma City.
105 Intestinal Obstruction. F. J. Wilkiemeyer, Muskogee.
106 Pneumonia in Country. J. C. Watkins, Checotah.
107 Vesiculitis and Belfield Vasotomy and Vasostomy. B. W. Randel, Muskogee.
108 Treatment of Burns With Bicarbonate of Soda. C. von Wedel, Oklahoma City.
109 Hydrotherapeutics in General Practice. C. W. Jamison, Alva.
110 Prostatectomy; Report of Two Cases. F. L. Watson, McAlester.

Surgery, Gynecology and Obstetrics, Chicago

May, XXII, No. 5, pp. 507-634

111 Report of Unusual Fecal and Genito-Urinary Cases Treated With Bismuth Paste. E. G. Beck, Chicago.
112 Shockless Surgery With Aid of Paravertebral Anesthesia and Scopolamin and Narcophin. B. Kroenig and P. W. Siegel, Freiburg, Germany.
113 *Final Results in Twelve Cases of Colectomy. J. G. Clark, Philadelphia.
114 Surgery of Infants and Small Children. C. G. Buford, Chicago.
115 Pathologic Findings in Retro-Inguinal Hernias. R. Finochietto, Buenos Aires, Argentine.
116 Treatment of Chronic Nontuberculous Empyema. S. Robinson, Rochester, Minn.
117 *Effect of Foreign Substances in Peritoneal Cavity. W. R. Cubbins and J. A. Abt, Chicago.
118 Psychiatry and Gynecology. F. M. Barnes, Jr., St. Louis.
119 Hernias of Urinary Bladder. A. P. Heineck, Chicago.
120 *Value of Sodium Citrate Solution in Prevention of Peritoneal Adhesions. D. C. Straus, Chicago.
121 *Heterogeneous Intramedullary Bone Peg; Its Possibilities and Limitations. G. de Tarnowsky, Chicago.
122 Technic of New Procedure for Subtotal Abdominal Hysterectomy in Uterine Fibroma or Inflammation of Adnexa. C. Carvallo, Lima, Peru.
123 Improved Towel Clip. F. E. Locy, Evanston.
124 *Case of Dystocia Due to Ascites in Fetus With Persistent Cloaca; Report of Case. K. M. Lynch and A. J. Jervey, Charleston, S. C.
125 Internal Sphincter After Prostatectomy. G. S. Gordon, Vancouver, B. C.

113. **Final Results of Colectomy.**—In only six of the twelve cases operated on by Clark was the result entirely satisfactory. In all cases there has been great improvement in the constipation for a time, to be followed at variable intervals in four by a gradual recurrence of the constipation. In some cases this has not been so severe as formerly, whereas in others it is quite as intense. Roentgen ray examinations in three cases showed in two decided dilatation of the ileum to a size closely resembling that of the colon. In none of these cases has there been diarrhea of long standing, and none that was not controlled by simple medicinal measures. In none of the cases has there been undue thirst. In six cases there has been marked improvement in nutrition. In the remainder there was no visible effects so far as physical improvement is concerned. Clark feels that total removal of the colon is justifiable only in severe cases of obstructive constipation and that a less radical procedure must be employed. He inclines to the limitation of the colectomy to the ascending and the middle of the transverse colon, with a lateral anastomosis of the ileum into the transverse colon. In this way the omentum is preserved, and there is far less traumatism to the mesentery, with its very important sympathetic nervous system. The ileum will not uniformly assume the vicarious function of the colon, and the backward pressure from the colon through the anastomotic opening, when it is low down, in a definite proportion of cases causes dilatation and permanent impairment of the ileum.

117. **Effect of Foreign Substances in Peritoneal Cavity.**—Cubbins and Abt claim that iodin is an intense irritant to the peritoneum and favors rather than inhibits bacterial action. It will produce firm fibrous adhesions, either with or without any manipulation of the peritoneum. Nor can they see the value of the use of ether in the peritoneal cavity, and it is their opinion that individuals in whom it is used will recover

in spite of it and not because of it. Petrolatum they found is an intense irritant to the normal peritoneum of a dog, and is absorbed very slowly, if at all. They have had two cases of petrolatum in the peritoneal cavity of humans, in which it was necessary to open the belly and allow the petrolatum to escape practically in the same condition as it was when it had been put in three and four months before. The walling off of the petrolatum in the belly of these two humans was just as firm as if it had been around an abscess. Paraffin oil, too, is relatively nonabsorbable, and will not prevent adhesions, although it is far less irritating to the peritoneum than petrolatum. Olive oil has little, if any, value in preventing adhesions, although it has little or no irritating effect on the peritoneum.

120. **Sodium Citrate in Prevention of Peritoneal Adhesions.**—Sodium citrate solution Straus found is of no value at all in preventing the reformation of adhesions which have been separated. It is of little value, if of any at all, in preventing the primary formation of adhesions, and may interfere somewhat with wound healing.

121. **Heterogeneous Intramedullary Bone Peg.**—De Tarnowsky reports six intramedullary soup-bone peg cases in which he obtained good results. Any of the long bones of a steer will answer the purpose. For repair of a femur, the splint should be 4 inches long for transverse fractures, 5 or even 6 inches for very spiral or comminuted fractures, and approximately one-half inch in diameter; for the tibia or humerus, 4 inches long and one-third to one-fourth inch in diameter. The splint is denuded of its periosteum, cut to the proper size, and boiled two consecutive days for two hours and one hour just before the operation. At the time of the operation, it has been the author's custom to fit the peg to the medullary canal and not to drill the canal to fit the peg.

124. **Dystocia Due to Ascites in Fetus.**—This was a case of monochorial twins, one a well-developed female, the other, also a female, with failure of development of the pelvic viscera beyond a certain point and a marked edema. Lynch and Jervey believe that the underlying factor in the maldevelopment and the edema was one of poor circulation with impoverished blood by reason of the stronger sister usurping the cream of the nutrition from the common supply or even bringing about a relative stagnation of the circulation in the weaker by reason of its superior power.

Texas State Journal of Medicine, Fort Worth

May, XII, No. 1, pp. 1-54

126 Family Physician in Memoriam. F. J. Mayer, Opelousas, La.
127 Modern Country Physician. J. E. Dildy, Lampasas.
128 Plea for Cleanliness in Obstetrics. C. R. Johnson, Gainesville.
129 Pituitary Extract. R. A. Duncan, Graham.
130 Important Points in Bone Transplantation. W. L. Brown and C. P. Brown, El Paso.
131 Regeneration of Long Bones Following Infection. S. P. Cunningham, San Antonio.
132 Relative Value of Tests for Occult Blood. T. C. Terrell, Fort Worth.
133 Splenic Anemia; Report of Case. O. N. Mayo, Belton.
134 Common Errors in Practice of Medicine. K. H. Beall, Fort Worth.
135 After-Treatment in Submucous Resection of Nasal Septum. S. N. Key, Austin.
136 Turbinectomy and Its Results. W. G. Hartt, Marshall.
137 Nasal Affection in Relation to General Medicine. D. L. Bettison, Dallas.
138 Gunshot Injuries of Eyeball. J. O. McReynolds, Dallas.
139 Results That May Be Expected in Operations for Strabismus. R. B. Sellers, Fort Worth.
140 Subconjunctival Injections. R. H. T. Mann, Texarkana.
141 Dionin Subconjunctivally. E. H. Cary, Dallas.
142 Subconjunctival Injections in Plastic Iritis. J. L. Burgess, Waco.
143 Few Facts Concerning Eye, Worth Knowing By All Physicians. L. H. Lanier, Texarkana.

West Virginia Medical Journal, Huntington

May, X, No. 11, pp. 363-398

144 Tuberculosis of Bladder and Kidneys. T. E. Vass, Bluefield.
145 Local Applications in Treatment of Pulmonary Conditions. J. A. Graham, Fairmont.
146 Treatment of Pulmonary Tuberculosis. E. E. Watson, Salem, Va.
147 Laboratory and Clinical Diagnosis. M. L. Heidingsfeld, Cincinnati.
148 Value of Canadian "606" (Diarsenol). W. S. Robertson, Charleston.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

April, XX, No. 11, pp. 357-392

1 New Roentgen Method of Bullet Extraction. A. E. Barclay.
2 Roentgen Ray in Tuberculosis of Bones and Joints. (To be continued). R. W. A. Salmond.
3 Light from Simpson Arc Lamp. Its Nature and Therapeutic Properties. A. MacGregor.

British Medical Journal, London

April 22, I, No. 2886, pp. 577-608

4 *Treatment of Gunshot Wounds of Spine; Report of Case. A. J. Hull.
5 Toxic Effects of Ethylhydrocuprein on Eye. G. H. Oliver.
6 Notes From Battle Front in Northern France. A. L. Smith.
7 *Fecal and Intestinal Vomiting and Jejunostomy. V. Bonney.
8 Case of Marked Temporary Aphasia After Ligature of Common Carotid Artery for Traumatic Aneurysm. F. C. Madden.
9 Fatal Case of Acute Nephritis Occurring in Expeditionary Force. R. C. Clarke.
10 Injury to Internal Ear Presenting Some Unusual Features. H. L. Whale.
11 *Treatment of Diabetes. J. Hume.
12 New Forms of Plating Dishes for Cultivation of Bacteria. S. Delépine.

4. **Treatment of Gunshot Wounds of Spine.**—The position taken by Hull is that the majority of cases of gunshot injury to the spine require excision of the wound and exploration at the earliest favorable opportunity. The diagnosis is not so gloomy as past experience teaches. Local anesthesia is practically essential. The administration of hexamethylenamin should be begun as soon after the injury as possible. The presence of a missile together with severe pain are indications for immediate operation. Accurate localization of foreign bodies is of the utmost moment. A lateral as well as an anteroposterior view is desirable.

7. **Fecal and Intestinal Vomiting and Jejunostomy.**—In all cases of paralytic intestinal obstruction (whether primary, or secondary to an organic obstruction or to peritonitis), when advanced to the stage of fecal, or short of fecal, intestinal vomiting, jejunostomy should be done says Bonney. In all cases of obstruction, the stomach and jejunum will eventually be included in the fluid containing segment, and as soon as this occurs the fact is made patent by the change in the character of the vomit, which at first becomes intestinal and finally fecal. This upward extension of the limits of the fluid containing segment is due to a rapid upwardly extending infection of the canal by organisms of the lower intestine. This conversion by bacterial agency of the normal contents of the small intestine into a highly toxic fluid Bonney claims is the essential factor in the production of the symptoms of acute intestinal obstruction. The presence of the toxic substances in the bowel excites the mucosa to exude a copious watery secretion which, mingling with the infected fluid already there, itself undergoes corruption. Thus the upper intestinal tract becomes converted into a great toxic reservoir. The death of the patient is due to the absorption of this toxic material, and the vomiting is Nature's desperate attempt to rid the organism of the poison. It is here that surgery should step in and drain the reservoir and the drainage opening must tap the fluid containing segment.

11. **Treatment of Diabetes.**—For several years Hume has treated his diabetic patients by fasting, and cleansing of the alimentary tract, at the same time allowing a diet from which starch was not entirely excluded. The fast is generally of about fourteen hours' duration. The best time to commence is in the evening by a light meal about 5 p. m. and is followed in two hours by a dose of castor oil. At 9 the next morning a second dose of castor oil is given and then no food for two hours. By 11 a. m. the bowels have, as a rule, acted, and the patient receives breakfast. There is, therefore, a period of absolute fasting between the two medicines. In succeeding fasts salines are used, the object being to secure a thorough evacuation and to reduce the intestinal flora so far as possible. The patient can easily go through the same routine every second night, and after he has become accustomed to the treatment the duration of the fasts should be prolonged

by beginning earlier in the afternoon and extending them next day. At the end of a fortnight a fast of twenty-four hours can easily be done two or three times a week. If a small quantity of sugar persists Hume recommends two fasts each week of about fourteen hours, and finds this quite sufficient to prevent the other symptoms of the disease from manifesting themselves and to allow the patient to attend to his duties.

Journal of Tropical Medicine and Hygiene, London

April 15, XIX, No. 8, pp. 89-100

13 Case of Vaginitis Probably Due to Monilia Pinoyi Cast. 1910. A. Castellani.
14 Prevention of Conception Among Natives of Kasai Basin, Central Africa. W. E. Masters.
15 Madura Foot in Trinidad. R. Seheult.
16 Beriberi Early Diagnosed and Readily Curtailed. A. P. Draper.

Lancet, London

April 22, I, No. 4834, pp. 849-894

17 Infantile Mortality and Relative Practical Value of Measures Directed to Its Prevention. S. G. Moore.
18 Shock and Soldier. G. E. Smith.
19 Preparation and Use of Certain Agglutinating Serums. H. Chick.
20 Intramine (Diorthoaminothiobenzene), New Antisyphilitic Remedy; Report of Cases. H. Spence.
21 *Results of Treatment of Chronic Joint Diseases by Certain Physical Measures. J. J. Grace.
22 Case of Heart Block Showing Large Auricular Waves in Femoral Tracing. A. W. Falconer.
23 Latent Gas Bacillus Infection in Healed Bullet Wound. D. P. Penhallow.
24 Case of Intussusception of Vermiform Appendix. W. A. Curry and E. H. Shaw.
25 Case of Tetanus-Like Spasm Localized to Wounded Limb. G. T. Mullally.
26 Work of Royal Free Hospital Unit in Serbia. J. Berry.

21. **Treatment of Chronic Joint Diseases.**—Grace has treated twenty-four cases of chronic joint disease by radiant heat and static electricity, with in a few cases electrothermic penetration (diathermy) also. Among these were 2 ankle-joints, 11 knees, 7 hips, 1 phalangeal joints of hand, 1 elbow and 2 shoulders. The ankles did fairly well, knees very well, hips uniformly badly, elbow-joints and finger-joints badly, and shoulders fairly well. These results are obtained with a high candle power lamp giving at least 500 candle power from a single filament. Grace uses 3,000 candle power and thinks it is better than the lower candle power lamp. The static machine used should be capable of giving at least an 18 inch spark between prime conductors with one side grounded. With suitable electrodes and a sufficient interval between contraction, very powerful and penetrating currents are tolerated. In treating the knee, for instance, an 18 inch spark gap is borne with ease.

Sei-I-Kwai Medical Journal, Tokyo

April, XXXV, No. 4, pp. 17-22

27 Tubercular Peritonitis and Its Surgical Treatment. Y. Takaki.

Bulletin de l'Académie de Médecine, Paris

April 11, LXXV, No. 15, pp. 397-424

28 Cortical Hemiplegia; Recovery After Bilateral Trephining. (Syndrome de Weber d'origine corticale. Trépanation bilatérale. Guérison.) P. Peugniez.
29 *Test for Functional Capacity of Vestibular Labyrinth. (Nouveau mode d'examen du labyrinthe vestibulaire.) E.-J. Moure.
30 *Carrel's Method for Abortive Treatment of Infection in Wounds. (Résultats obtenus par l'emploi de la méthode Carrel en chirurgie de guerre.) M. Perret.
31 Nervous Affections Consecutive to War Wounds of the Head: (Au sujet des séquelles nerveuses des traumatismes cranio-cérébraux de la guerre d'après une statistique de 256 cas.) M. Villaret.

29. **Test of Functioning of Vestibular Labyrinth.**—Moure relates that, in addition to the usual tests, including induced nystagmus, he has found very useful a test based on a children's game. The individual with eyes shut turns five or six times around a stick or cane which he touches with his head. Then he opens his eyes and tries to walk straight forward. The normal are unable to do this, always being propelled in the direction in which they have just been turning, and sometimes falling in this direction. But when the labyrinth is more or less impaired, there is none of this propulsion, and the individual can walk off straight or nearly straight as soon as he stops turning and opens his eyes.

30. **Carrel's Abortive Treatment of Infection.**—Perret emphasizes that the success of Carrel's method depends on whether the wounded get the proper treatment within six hours. Also that the wounds must be completely cleared out from all foreign matters before beginning the continuous irrigation with Dakin's hypochlorite solution. He has applied the method in 111 cases of very severe wounds, including bones in 33 of the cases. All the men recovered and amputation was not required in any case. In short, he declares, with this method we are masters of infection of wounds. Among the illustrative cases described is that of a man whose patella had been reduced to a pulp (*réduite en bouillie*) by a shell wound, the lateral ligaments alone not being completely severed. The wound was cleared of bone and metal splinters and scraps of clothing, and Dakin irrigation kept up continuously. The temperature did not go above 38 C. except on the day the drain was removed and the day the man got up. There was no reaction in the joint at any time. It was exercised from the twenty-second day on; he was allowed to get up after thirty-one days, and was discharged the fifty-fourth day after the wound, his gait, without support, absolutely normal.

Journal de Médecine de Bordeaux

April, LXXXVII, No. 6, pp. 101-120

32 War Wounds of the Ears. (Les blessures des oreilles en temps de guerre.) G. Canuyt.
33 Severe Poisoning and Asphyxia in Eight Men Traveling in Closed Army Automobile for Over three Hours. (Sur un cas d'asphyxie multiple et compliquée observé sur le front.) A. Teynac.

Lyon Chirurgical, Lyons

January-February, XIII, No. 1, pp. 1-212

34 Advantages of Metal Plates to Aid in Fixation of Fragments After Fractures in War. (De la fixation métallique des fragments osseux dans les fractures compliquées, infectées, consécutives aux blessures de guerre.) E. Villard.
35 *Technic for Access to Urethra at Junction With Bladder. (Désinsertion ischio-pubienne totale de l'aponévrose périnéale moyenne, pour mobiliser l'urètre profond et extérioriser la région prostato-vésicale.) Rochet.
36 *Biologic Study of War Wounds. (Les premiers stades de l'évolution des lésions dans les blessures par éclats d'obus.) A. Policard and A. Phélip; (Recherches sur la suture secondaire des plaies de guerre.) A. Policard and B. Desplas; (De l'asepsie pure et des moyens physiques dans le traitement des plaies de guerre à leurs différents stades. Chimiothérapie ou physiothérapie?) R. Leriche.
37 Wounds of the Knee in War. (Traitement des plaies pénétrantes de l'articulation du genou dans une ambulance chirurgicale de l'avant.) G. Gayet; (Idem.) P. Santy; (Traitement des plaies articulaires du genou dans les formations de l'avant.) G. Cotte; (Comment améliorer le pronostic des lésions articulaires du genou en chirurgie de guerre?) G. Tisserand; (Résultats des interventions précoces dans les plaies articulaires par projectiles de guerre.) B. Desplas and D. Chevalier.
38 The Clearing Ambulance. (Le fonctionnement d'une ambulance de triage du 25 au 30 septembre.) A. Latarjet.
39 The Field Hospital. (15 jours de chirurgie dans un centre hospitalier de l'avant au moment d'une offensive.) G. Cotte.
40 The Base Hospital. (Statistiques opératoires intégrales d'un service de chirurgie de l'arrière au moment d'une offensive.) R. Leriche.

35. **Access to the Prostate Region.**—Rochet discusses the various technics for this purpose, commenting on the narrow space available by way of the perineum, and the disadvantages by other routes. He suggests as an improvement over them all, to mobilize *en masse* the entire perineum by separating from the side the middle fascia from its peripheral attachment to the entire ischio-subpubic triangle. This releases the rigid support of the urogenital diaphragm which shuts off the small pelvis in this ischio-subpubic triangle. He commences with Young's V incision. The various steps of the technic are described in detail, and the advantages of the ample access afforded are extolled. In two cases of cancer of the prostate he was much impressed with the facility of the *extériorisation énorme* permitted by this mobilization of the entire urogenital diaphragm.

36. **Biologic Research on Wounds in War.**—Forty-one articles on various aspects of military surgery were pub-

lished in the *Lyon Chirurgical* during 1915 and this number contains thirteen more. Three are devoted to research on the biologic evolution of shell wounds, the general course, the initial proliferation of microbes, the natural curative processes, and the means to promote them. Policard and Phélip demonstrate anew that the ulterior evolution of the wound is determined by what happens during the first four to six hours. Substances to dissolve rather than to sterilize are needed at first, to clear the wound of mortified and dead tissues. The dissolving action of hypochlorite gives better results later than measures to sterilize or tan the tissues. The toxins absorbed from necrotic masses are responsible for the fever and collapse which develop before the germs have had a chance to proliferate much in the wound.

Policard and Desplas report excellent results when they have ventured to suture extensive wounds without leaving the healing entirely to Nature. There is always an inflammatory reaction, but it is usually insignificant and causes no general symptoms. But it is always present, and always requires close supervision. This is possible by repeated microscope examination of the serous fluid that oozes between the stitches. It can be obtained with a pipet from quite a depth below the surface, and the microscope will show the defense the leukocytes are presenting and the increasing or decreasing numbers of germs. A favorable sign is when the nuclei in the leukocytes take the stain intensely and seem to be more condensed and as if contracted.

Leriche is convinced that mechanical cleansing of wounds and keeping them open to the sun and air are the ideals in military surgery. Physiotherapy should supplant chemotherapy entirely as a rule, he reiterates.

Lyon Médical, Lyons

April, CXXV, No. 4, pp. 105-140

41 *Reaction to Vaccination Against Typhoid and Paratyphoid. (Etude des réactions humorales dans la vaccination antityphoidique et antiparatyphoidique A B — sérum de Vincent.) Tonnel.
42 War Wounds of the Chest. (Les plaies pénétrantes de poitrine par projectile de guerre.) Piéry. To be continued.

41. **Reaction to Antityphoid Vaccination.**—Tonnel has been studying the reaction as 5,000 men were vaccinated against typhoid and paratyphoid, and he here summarizes the detailed findings as recorded with minute care in thirty healthy soldiers and in twenty who were already under hospital care. There was always more or less of a reaction evident in the blood and urine, but in some of the men it was so exaggerated as to be actually pathologic. He noted with surprise that the reaction was least intense in the tuberculous and those with albuminuria, while some of the apparently healthy responded with a pathologic reaction. There is always more or less destruction of red corpuscles; a loss of half a million may be regarded as the average. This suggests the necessity for caution in vaccinating persons known to have unusually fragile corpuscles. Kidney trouble also calls for caution. After the vaccination the urine becomes much less toxic. His test for this was with infusoria placed in the urine. They die in a few seconds in normal urine. The reduction in toxicity may be estimated from the length of the survival of the infusoria. With a pathologic reaction to vaccination, the infusoria persist unharmed in the urine while the uric acid and urobilin content of the urine is much increased, and the red count is much less.

Paris Médical

April 15, VI, No. 16, pp. 377-392

43 Piping Drinking Water in the Trenches. (Une installation urbaine de distribution d'eau dans les tranchées.) G.-H. Lemoine and C. Duplessis.
44 Heart Murmurs as Impairing Fitness for Service. (Souffles cardiaques. Aptitude militaire.) O. Josué.
45 *Acute Nephritis in Troops on Active Service. (Les néphrites aigues des troupes en campagne.) M. Gaud and P. Mauriac.
46 Rat-Bite Fever. (Cas de sokodu — septicémie éruptive par morsure de rat — observé dans la zone des armées.) J. Fiévez.

45. **Acute Nephritis in Troops on Active Service.**—Gaud and Mauriac state that of the 2,000 sick and wounded who passed through their hands in the course of three months last fall, 6.5 per cent. had acute nephritis and the proportion has grown larger since. Acute nephritis was a rarity during the early part of the war. After from three to six days of lassitude, headache and pains in the lumbar region, the edema develops in the course of a few hours, the face generally puffing up first. This nephritis runs its course like an infectious disease, with a rapid and cyclic course. The fever at first, the extensive edema, high blood pressure, high albuminuria and traces of blood in the urine are its main features.

Under the influence of repose and milk diet, recovery was the rule in two weeks in an average; no case lasted longer than four weeks. No complications were noted except in two cases; these men were in coma when brought in and had had several uremic convulsions and the urine contained up to 8 gm. of albumin to the liter. Venesection twice repeated brought rapid improvement and recovery in one case but the other patient succumbed. This has been the only death from nephritis in the service. No drugs were used except a little theobromin. The hardships of the campaign reduce the resisting power of the kidneys so that albuminuria is frequent among the apparently well soldiers. When some infection happens along the kidneys bear the brunt of its attack. In five of these nephritis cases bacilli resembling those of typhoid and paratyphoid were isolated from the blood or urine.

Presse Médicale, Paris

April 13, XXIV, No. 21, pp. 161-168

47 Facial Paralysis From War Wounds. (Paralysies faciales de la guerre.) E.-J. Moure.
48 Operative Treatment of War Wounds of the Chest. (Du traitement chirurgical des plaies pénétrantes de poitrine.) Gasquet.

April 17, No. 22, pp. 169-176

49 *Amebic Dysentery. (Pourquoi avons-nous failli méconnaitre la dysenterie amibienne?) P. Ravaut and G. Krolunitsky.
50 Evils of Abuse of the Sling. (Les écharpés.) Rochard and Stern.

49. **Amebic Dysentery in France.**—Ravaut remarks that the war has signally modified many old medical as well as military conceptions. As a typical instance he mentions a small epidemic of amebic dysentery in northern France, in persons who had never been in the tropics. The stools contained the dysentery bacillus, and at first this was regarded as the agent of the dysentery, when in fact it had nothing to do with it. The benefit from emetin helped to differentiate the amebiasis. Even this fails at times or loses its efficacy; too long kept up it may act injuriously on the heart and impair the appetite. Ravaut found it of great advantage in ensuring a permanent cure to combine salvarsan with the emetin.

Progrès Médical, Paris

March 5, XXXII, No. 5, pp. 33-40

51 Colloidal Sulphur Intravenously in Ophthalmology. (Traitement des sclérites, kératites et iritis dites rhumatismales, par le soufre colloidal.) Carlotti.
52 *Silver Nitrate in Treatment of Vincent's Angina. F. Ramond.
53 Training Mind and Muscles to Overcome Radial Paralysis. (Traitement des impotences consécutives aux blessures de guerre par la rééducation psycho-motrice.) H. Gosset.

52. **Vincent's Angina.**—Ramond has usually found the lesions of Vincent's angina unilateral or much more pronounced on one side. The gland below the jaw is involved constantly and early. The ulceration soon burrows deep while the exudation covering it grows thinner. The ulceration takes two or three weeks or a month or two to heal, and leaves a deep cavity; sometimes the tonsil is almost totally destroyed. In a third of his cases there were other lesions in the throat of another nature; in one case a syphilitic chancre on the tonsil. In a recent small epidemic of diphtheria, there were five cases of associated diphtheric and Vincent's angina. Of all the methods of treatment proposed, methylene blue, salvarsan and silver nitrate have given the best results, and Ramond is loyal to the last mentioned. He paints the ulceration with a 2 per cent. solution of silver nitrate. The part is first wiped dry with cotton and then the ulceration is dabbed with a pad of cotton moistened with the silver solution. The application is repeated twice a day for two days, then once a day till the fifth day. By that time healing is well inaugurated.

Archiv für Gynaekologie, Berlin

CV, No. 2, pp. 151-315. Last indexed April 15, p. 1277

54 *Human Ovum Only Two or Three Weeks Old. (Ein junges menschliches Ei.) S. Schlagenhaufer and J. Verocay.
55 *Treatment of Genital Tuberculosis. M. Kröner.
56 Factors Influencing Presentation of Fetus. (Die Ursachen der Kindeslagen. II. Physikalisch-experimentell Untersuchungen.) F. Schatz. Conclusion of Part II.
57 Early Stages of Corpus Luteum Production. (Frühstadien der Corpus luteum-Bildung beim Menschen.) W. Reusch.
58 *Ossification Process in Fallopian Tube. (Zur Kenntnis der Knochenbildung in den Tubae uterinae.) H. Lehmacher.
59 Fetal Ascites as Obstacle to Delivery. (Geburtshindernis infolge von fötalem Aszites.) J. R. E. Meumann.

54. **Young Human Ovum.**—An otherwise healthy woman died three hours after drinking lysol with suicidal intent and sections of the uterus revealed an embedded ovum of perhaps two to three weeks, one of the youngest that have been studied. Colored plates show the details of its structure. Most of the other specimens of the kind on record were from pathologic cases.

55. **Treatment of Genital Tuberculosis.**—Kröner reports the present status of 25 women with genital tuberculosis for which he operated from fifteen months to over four years ago. Two have died since and the objective findings are not good in 5 others, although they feel well, 18 are practically cured and have gained materially in weight, with earning capacity restored. In his total 32 cases of genital tuberculosis in women in the last three years, the lungs were only slightly if at all affected in 3. The cases in which there had been perforation of the intestines, or tuberculous material had been left behind, gave naturally a less favorable outlook, and the course of the cases confirmed the gravity of such conditions. The clinical picture of genital tuberculosis is often that of inflammatory processes in ovaries or tubes with extensive destruction of tissue and large collections of pus in ovaries or tubes or both. The danger is great unless the whole can be resected. But when both ovaries and tubes and the uterus down to the cervix are removed at a laparotomy this guarantees in most cases—when the genital affection dominates the clinical picture—a prompt and complete subjective cure with restoration of earning capacity and freedom from subjective disturbances. The 32 cases described formed 14 per cent. of his operative cases of diseased ovaries or tubes during this period. Five of the women were between 15 and 20, and fifteen were between 20 and 30. One was over 50. Menstruation had been normal in 66 per cent.; in 4 cases there had been amenorrhea for a few months, and in 2 there had been excessive bleeding. In some cases there was no pain; in others much sacral pain and more or less abdominal pains. All the women were ailing and weak, some actually confined to bed. There was fever in 4 of the 21 cases of pure genital tuberculosis, and in 5 of the 11 with complicating tuberculous peritonitis. Both tubes were always seriously involved. Differential diagnosis is immaterial as the clinical picture of chronic disease in the uterine adnexa calls for a laparotomy regardless of its etiology. If adhesions contraindicate excision of the focus, intervention must be limited to local medication of the abdominal cavity. Kröner makes a point in all operations on the adnexa to wait until the temperature is brought down to normal before attempting to operate.

58. **Ossification in Fallopian Tube.**—Lehmacher has found five cases on record and adds two more to the list. In his cases, the tubes had been removed from a married woman of 47 who had never borne children, and from the cadaver of a woman of 56 who had succumbed to heart disease. Both tubes in each case were found obstructed with lime detritus around which bone had developed, with marrow.

Berliner klinische Wochenschrift

April 17, LIII, No. 16, pp. 413-440

60 Sclerous Eczema. (Das schwielige — callöse — Ekzem.) P. G. Unna. To be continued.
61 *Prophylaxis of Tetanus. (Die Erfolge der Schutzimpfung gegen Wundstarrkrampf.) Kümmell.
62 *Improved Technic for Roentgenography of Fistulas. (Die radiologische Darstellung der Ursprunge von Fistelgängen mittels einer vereinfachten und verbesserten Füllungstechnik.) G. Holzknecht, L. Lilienfeld and F. Pordes.
63 *Connection Between Tonsillitis and Articular Rheumatism, and Danger for Military Efficiency. (Zur Kenntnis des kausalen Zusammenhanges zwischen Angina und Gelenkrheumatismus und deren mögliche Folgen auf die Wehrfähigkeit.) Brodzki.

61. **Prophylaxis of Tetanus.**—Kümmell has been making special inquiry in various German hospitals as to the occurrence of tetanus during the ten or eleven months since the wounded have been given a prophylactic intramuscular injection of 20 units of tetanus antitoxin as a routine measure. In one hospital that had previously had numerous cases of tetanus, the only case since among 700 severely wounded was in the one man who by some blunder failed to get his intended injection. Among 1,555 severely wounded men, only one case of tetanus developed, but this proved fatal. He has found that during the period in question, only 42 cases have been known in army circles, although the soil, the weather conditions, etc., are practically the same as the year before when the disease was so prevalent. Of this 42, only 7 of the men had received a prophylactic injection. The incubation period ranged from five to twelve days. Aschoff and Robertson last year reported a compilation of 66 cases of tetanus which had developed notwithstanding a previous prophylactic injection; 36 terminated fatally, but the injection was made very late in all but 18, and 9 recovered in this group of 18. Kümmell emphasizes further that according to all reports, the protection conferred by the antitoxin lasts for only fifteen days, and, if the wound is very much soiled, only a week's protection can be counted on. Hence it is necessary to repeat the injection a week later if any operative measure, even the slightest, is contemplated. It is better, also, to repeat the injection before any operation for a person who has had tetanus, even though a long interval may have elapsed. Kümmell concludes by warning that a few persons seem to be especially susceptible to tetanus infection, and that it is impossible to count on effectual prophylaxis for them. It is also difficult to realize when tetanus germs are harbored in overwhelming numbers. He cites the statistics in this country of Fourth-of-July tetanus as further testimony to the value of antitetanus serum prophylaxis. As to treatment, he says that no dependably favorable results have been realized to date with any method of treatment for tetanus when it is once under way. (See abstract 5 in American Current Literature Department, this issue.)

62. **Roentgenoscopy of Fistulas.**—Instead of bismuth paste, Holzknecht and his co-workers use cocoa butter bougies containing bismuth or other opaque substance, with a little antiseptic. The bougies are made 8 mm. long and 2 mm. in diameter, and they are easily pushed up into the fistula, one after the other, until the fistula is filled up. The bougie melts from the warmth of the body and flows into the recesses of the fistula, while the outer end of the last one, in contact with the air, does not melt and thus it plugs the orifice. A wash button is fastened over it, with plaster strips, to hold it in place. A number of roentgenograms are reproduced with the bougie filling and with the ordinary bismuth paste filling, clearly showing, they say, the advantages of the former. Bismuth paste is liable to run out and give misleading shadows.

63. **Tonsillitis and Articular Rheumatism.**—Brodzki relates that among the 1,200 sick marines in the navy hospital in his charge in the seventeen months of the war, no less than 610 were cases of tonsillitis, and in 10 per cent. of these articular rheumatism followed. He expatiates on the importance of rendering the tonsils less permeable to microbes, and insists that every recruit with enlarged tonsils or history of tonsillitis should have the tonsils removed as a prophylactic measure, or at least they should be thoroughly seared to provide a cicatricial barrier against infection from all sides.

Deutsche medizinische Wochenschrift, Berlin

April 13, XLII, No. 15, pp. 437-468

64 *Treatment of Puerperal Infection. P. Jung. Concluded.
65 Parasite Found in the Louse as Possible Typhus Germ. (Ueber einen als Erreger des Fleckfiebers verdächtigen Parasiten der Kleiderlaus.) W. Stempell.
66 Diagnosis and Epidemiology of Dysentery. (Ruhr.) F. Schütz.

67 Products of Disintegration of Blood Corpuscles in the Ultramicroscope. ("Ueber eine neue, dem Rückfallfieber ähnliche Kriegskrankheit.") A. V. Knack.
68 Amputations and After-Treatment. (Grundsätzliches zur Frage der Amputationen im Felde und der Nachbehandlung Amputierter.) G. Seefisch.
69 Present Status of Military Surgery. (Ergebnisse der bisherigen kriegschirurgischen Erfahrungen.) H. Matti. Concluded.
70 Portable Extension Appliance for Fractured Arm. (Behandlung der Schussfrakturen der Oberextremität mit Extensions-Brückenschiene.) G. Frank.
71 *Tuberculin Does Not Mobilize the Tubercle Bacilli. (Zur Frage der Mobilisierung der Tuberkelbazillen durch Tuberkulin.) B. Möllers and A. Oehler.
72 Improved Counting Chamber. (Eine Zählkammer für zytologische und bakteriologische Zwecke.) E. Liebreich.

64. **Puerperal Fever.**—Jung concludes his long study of puerperal infection by emphasizing the paramount importance of the nursing of patients, care to ward off bed-sores, and nourishment at frequent intervals, possibly every hour, giving some nourishment even through the night. The heart must be constantly supervised. The puerperal fever may run a rapidly fatal course, but sometimes it drags along for weeks and months, the family alternately in hope and despair, and constantly urging the physician to "do something more," give intra-uterine douches, collargol intravenously, etc. In yielding to these lay demands we must guard against doing harm. By giving the intra-uterine douches ourselves, we can restrict them to the vagina and leave the uterus to its indispensable repose. If the patient happens to improve after any remedial measures, Jung begs us to be critical enough to distinguish between *post hoc* and *propter hoc* and not to rush into print with the case.

The tendency to remove the uterus in every severe case is less evident now than some years ago as we have no means for determining which are the really desperate cases until too late for hysterectomy to do any good. The same objection applies to ligation of the pelvic veins. Any chill may be the last one and recovery ensue, with or without the ligation. The operation in itself has a high mortality, but it might be ventured in chronic cases with many chills but comparatively good resisting powers. He adds that gonorrhea may induce a syndrome resembling the classic puerperal fever. When preexisting gonorrhea is known the diagnosis is easy, but otherwise it is seldom thought of. Women known to have gonorrhea should be kept in bed longer and special care be taken to avoid stagnation of lochia. Ergot and the ice bag are especially useful here. Bacteriologic examination of the secretions is the only means to positively differentiate gonorrhea. This is important for various reasons, not the least of which is the exoneration of the physician or midwife for responsibility for the puerperal fever. Gonorrheal puerperal fever almost invariably terminates in recovery, although it usually entails local changes. The local gonorrheal affections require only conservative measures during their acute phase. The woman is generally left incapable of further childbearing. He warns further that the virus of tetanus is extremely hard to get out of a room that has once been infested with it. Puerperal tetanus is almost inevitably fatal. When typhoid is epidemic, it might be advisable to vaccinate the parturient against it.

71. **The Tubercle Bacilli Not Mobilized by Tuberculin.**—Möllers and Oehler report that examination of the blood of fifty-four tuberculous patients before and after injection of tuberculin failed to show any evidence that the tubercle bacilli are mobilized and driven into the blood by the injected tuberculin.

Medizinische Klinik, Berlin

April 16, XII, No. 16, pp. 407-432

73 Traumatic Fistulas and Their Treatment. A. Hoffmann.
74 Organization of the Vienna Orthopedic Hospital and Training Schools for the Maimed. (Organisation und Aufbau des Orthopädischen Spitales und der Invalidenschulen.) H. Spitzy.
75 *Febrile Infectious Jaundice; Thirteen Cases. (Zur Klinik der Weilschen Krankheit.) F. Trembur and R. Schallert.
76 Narrow Aorta and Fitness for Military Service. (Aorta angusta und Kriegsdienst.) H. Strauss.
77 Unrecognized Perforation of Small Intestine in Ambulant Typhoid; Four Cases. (Nicht erkannte Dünndarmperforation nach Typhus ambulatorius.) Fuhrmann.

75. **Acute Infectious Jaundice.**—Trembur and Schallert remark that the recent discovery of the spirochete causing Weil's disease was made on the group of cases they here report in detail, eleven in all, scattered through five months. The illness came on suddenly, with headache, sacral pains and leaden fatigue in the limbs, soon changing to pains, especially in the calf muscles and thighs. The pains were sometimes so severe that the men cried out, and the muscles were unbearably tender to the lightest touch. The jaundice did not develop until from three to seven days after the onset of symptoms. Vomiting, nose-bleed, mucous diarrhea followed by constipation, swelling and redness of the conjunctiva and throat, vertigo and pains in swallowing were other features of some of the cases. An initial chill was noted in three cases; in the others there was merely a sensation of chilliness before the fever came on. The fever charts show one or more relapses of the fever in some cases; bronchitis was evident in all. Necropsy revealed pneumonia in the one fatal case, and hemorrhagic erosions and follicular ulceration in the mucosa of the large intestine from the rectum to the ileocecal valve. The liver was enlarged in all but three and the area of heart dulness was enlarged, the pulse small, rapid and irregular. An operation for gallstones was done in one of the earlier cases, but none were found and the diagnosis was then corrected to Weil's disease. In treatment, stress was laid on food that promoted coagulation of the blood, red wine gelatin and meat juice jelly. Convalescence was slow. Air cushions were used to prevent bed-sores, the position was frequently changed and the men were urged to "breathe deep." Diuresis was promoted by subcutaneous injection of 0.85 per cent. salt solution.

Münchener medizinische Wochenschrift, Munich

April 18, LXIII, No. 16, pp. 557-592

78 *Edema of the Kidney. (Ueber Nierenödem.) E. Meyer.
79 *The Eosinophils as Guide in Tuberculin Treatment. (Ueber die Bedeutung der eosinophilen Leukozyten bei der Durchführung einer Tuberkulinkur.) O. Brösamlen.
80 Photo-Activity of Body After Exposure to Mesothorium. (Verbreitung von Mesothoriumenergie im Körper der therapeutische Bestrahlten nachgewiesen durch Photoaktivität.) B. Schweitzer.
81 Streptococcus plus Diphtheria Bacillus Meningitis. F. Reiche.
82 *Treatment of Vulvar Pruritus. (Zur Aetiologie und Therapie des Pruritus vulvae.) H. H. Edenhuizen.
83 Psychologic Considerations on the War. (Kriegspsychologisches.) W. Fuchs.
84 Official Prophylaxis of Typhoid. (Die amtsärztliche Bekämpfung übertragbarer Krankheiten. VII.) M. Henkel. Concluded.
85 Means to Determine Presence of Metallic Iron in the Eye: Portable Sideroscope. (Ueber Sideroskopie.) E. Hertel.
86 Bullets Lodged in the Tissues. (Das Steckgeschoss.) O. Witzel.
87 Traumatic Shock and Collapse. (Traumatische Gefässkrisen.) S. J. Thannhauser.
88 Appliances to Correct Brachial Paralysis. (2 Apparate bei Verletzungen des Plexus brachialis — C_5, C_6.) O. Stracker.
89 Operating Under First Whiffs of Ethyl Chlorid. (Der Chloräthylrausch in der Kriegschirurgie.) G. Hosemann.
90 Bone Flap From Skull Near by to Close Gap in Skull. (Zur Deckung von Schädeldefekten.) H. Rühl.
91 Management of Fracture of the Femur in War. (Ueber die Versorgung der Oberschenkelschussfrakturen im Kriege.) L. v. Stubenrauch.
92 Bile Agar for Cultivation of Typhoid Bacilli. (Ueber die Koenigsfeldschen Galleschrägagarröhrchen zur Typhusbazillenzüchtung.) L. Löhner.

78. **Edema of the Kidney.**—Meyer applies this term to serous infiltration of the kidneys themselves. The kidneys of persons who have died from chronic parenchymatous nephritis are often enlarged and abnormally heavy from this serous infiltration, and he thinks that this is responsible for more of the various symptoms than is generally recognized. In a typical case of renal dropsy in a young woman who had long refrained from salt in her food, he scarified the legs and in forty-eight hours 11,700 c.c. of edema fluid thus drained away and by the fourth day she had lost in this way 14 liters of fluid. Diuresis improved at once and the general condition. After five days of improvement the condition grew worse again, the urine output declined to 500 c.c. and the anasarca increased again. On repeating the scarifications, the condition improved remarkably anew and has persisted good during the year since. Except for occasional slight swelling of the ankles and legs the aspect is normal, the urine output keeps between 1,600 and 1,800 c.c., the specific

gravity about 1.010, the albumin content between 5 and 8: 1,000. The blood pressure and fundus of the eyes have shown no pathologic changes. The case is cited as confirming the assumption that the kidneys were suffering from serous infiltration, as well as the other tissues and organs. The edema included the kidneys, and the functioning of the kidneys had suffered in consequence. The condition was similar to that with stasis in the kidneys which can be relieved by venesection or decapsulation. The benefit from the latter is probably due to the same mechanism, relieving the tension from the edema of the organ. When diuresis sets in after decapsulation and the kidney functioning improves miraculously, as many have reported, Meyer thinks that the same result might probably have been attained by breaking up the vicious circle at some other point. Scarification seems to be the simplest and most harmless of all means for this purpose. At least, he insists, it should be given a trial before resorting to an operation.

79. **Behavior of the Leukocytes as Guide in Tuberculin Treatment.**—Brösamlen has found the changes in the morphologic blood picture useful as biologic criteria for the effects of tuberculin treatment. He examined the blood three times a day after the daily injection of tuberculin. There was always more or less leukocytosis, most marked and most durable when the temperature reaction was most pronounced. The neutrophils and the eosinophils showed the greatest proportional increase. Those patients who bore the tuberculin well and showed improvement under it, both subjective and objective, always reacted to the injection with an increase in the eosinophils. There was no increase when the therapeutic effect of the injection was interfered with by an intercurrent affection or other cause. It proved possible by this regular examination of the blood to foretell—from the absence of any increase in the eosinophils—when an intercurrent affection or the like was impending, and, by reducing the dosage or lengthening the intervals, be prepared to meet it. Those patients who showed no increase of eosinophils or a decline did not thrive under the tuberculin treatment. It seems probable that the eosinophilia may be regarded as an index of the development of certain protective forces. Cases in which these do not develop—as indicated by the absence of an increase in the numbers of eosinophils—he regards as unsuited for tuberculin treatment, other things being equal.

82. **Treatment of Vulvar Pruritus.**—Edenhuizen is convinced that most cases of vulvar pruritus are due to irritation from the secretions. Hence she combats it by careful cleansing, painting with tincture of iodin, and keeping all moisture away from the region. All cleansing of the anus and vulva is done with cotton wads dipped in oil. Exercise is restricted to avoid perspiration, and the vagina and entire genital region are kept powdered dry, three times a day. Tampons in the vagina collect the discharge during menstruation. With this combined treatment kept up for six or eight weeks, the irritation subsides completely and the pruritus is permanently cured after possibly years of torment. The details of six typical cases are given. She warns that the iodin may smart for an hour or so; in two cases she had to inject a sedative on this account. In these cases there was eczema in the vulvar region. The iodin and powder applications were repeated every third and later every fifth day when there was eczema. Zinc oxid was the powder used mostly. The cure, she reiterates, depends on keeping all moisture away from the region. After urination and defecation the meatus and anus are wiped with oiled cotton, then with dry cotton and then powdered.

Gazzetta degli Ospedali e delle Cliniche, Milan

April 8, XXXVII, No. 28, pp. 433-448

93 *Tuberculosis in War. (Tubercolosi in guerra.) A. Fagiuoli.

April 9, No. 29, pp. 449-464

94 Examination of Infants' Stools as Aid in Diagnosis. (L'esame delle feci nelle malattie gastrointestinali del lattante.) G. Funaioli.

93. **Tuberculosis and War.**—Fagiuoli in commenting on the numbers of soldiers found to be tuberculous, says that the hardships and vicissitudes of the campaign are ample to explain the rousing of latent tuberculous processes to an active destructive course, but that probably direct recent contagion is responsible for a certain proportion of the morbidity. On the other hand, he knows of instances where the camp life seems to have given the finishing touch to the cure started under sanatorium or dispensary treatment, and the men are now found rugged and free from any signs of tuberculosis. He urges that every province should make arrangement for one or more sanatoriums for tuberculous soldiers, and that measures should be taken to make the soldiers take the needed courses of sanatorium treatment. The soldier has but one wish, he says, and that is to return to his family, and the sick long for this even more than others. So it will be a difficult matter to get them to take proper sanatorium treatment. The military authorities may have to refuse to discharge the man from the army after the war until he has taken the required course of treatment. The sanatorium physician should be empowered to keep the man three or six months as his condition requires.

Policlinico, Rome

April 9, XXIII, No. 15, pp. 453-484

95 Aphasia in Typhoid in Children. (Contributo clinico allo studio dell' afasia nella febbre tifoide dell'infanzia.) F. Laureati.

April, Medical Section, No. 4, pp. 97-128

96 *Tuberculous Meningitis Simulating Incipient Tabes. (Meningite tubercolare emorragica a lungo decorso, con sindrome e lesioni istologiche di tabe iniziale.) F. Alzona.

97 Endoscopy in Diagnosis and Treatment of Bacillary Dysentery. G. Izar.

96. **Tuberculous Meningitis Simulating Tabes.**—Alzona describes the case of a girl of 15 who developed pains in the spine and legs, headache and vomiting after meals, with delirium. These occasional symptoms kept up for six months. The Romberg and Westphal signs were positive and there were also pronounced ataxia, gastric crises and girdle pains. The cerebrospinal fluid was hemorrhagic but inoculation of animals was always negative. Necropsy revealed tuberculous foci in the lungs and meninges but other lesions suggested those of tabes. The case confirms the assumption that the hemorrhagic type of tuberculous meningitis is liable to induce lesions in the nerve roots like those of tabes.

Brazil-Medico, Rio de Janeiro

April 1, XXX, No. 14, pp. 105-112

98 *Ileosigmoidostomy for Extreme Ptosis of Transverse Colon. (Um caso de constipação rebelde pela ileosygmoidostomia.) C. Werneck and C. Bicalho.

98. **Ileosigmoidostomy for Intractable Constipation.**—The man of 41 for ten years had sometimes had intervals of thirty or more days between stools, up to forty-five days. The trouble was extreme ptosis of the transverse colon; as the simplest means to remedy it, the ileum was divided and both stumps were implanted in the sigmoid flexure. This ensured the drainage of the excluded portion, and the man was restored to clinical health at one stroke.

Semana Medica, Buenos Aires

XXIII, No. 1, pp. 1-30

99 Treatment of Diffuse Aneurysms. (Tratamiento del hematoma arterial o arteriovenoso.) R. A. Marotta.

100 Reforms in Midwife System. (Nuestro gremio de parteras. Reformas necessarias para su mejoramiento y dignificacion.) J. A. Beruti.

101 Antipertussis Vaccine. (A proposito del suero contra la coqueluche.) P. Ivanissevich.

102 The Defensive Rôle of the Anterior Epithelium of the Crystalline Lens. F. M. Urra.

No. 2, pp. 31-58

103 Operative Treatment of Hemorrhoids. (Tecnica facil para operar hemorrhoides.) B. Vassallo and S. P. Lavallen.

104 Intravenous Iodin Treatment of Tropical Sore. A. A. da Matta.

105 Abortionist Midwives. (La obstetricia ilegal. Observaciones del medio rural.) B. Bosio.

106 Amebic Dysentery in Spain. F. F. Martinez.

Mitteilungen a. d. med. Fakultät der k. Univ., Tokyo

XV, No. 2, pp. 243-395. German Ed. Last indexed May 20, p. 1665

107 Racial and Sex Variations in the Bone Framework of the Legs. (Ueber das Unterextremitätenskelett.) K. Shiino.

108 *Pathogenesis of Epithelioma. (Experimentelle Studie über die Pathogenese der Epithelialgeschwülste.) K. Yamagiwa and K. Ichikawa.

109 On the Fifth Lumbar Vertebra of Adult in Radiography. S. Jinnaka. (In English.)
110 *Action of Epinephrin on Secretion of Sweat. (Ueber die Wirkung des Adrenalins auf die Schweisssekretion; zugleich ein Beitrag zur Kenntnis der doppelsinnigen Innervation der Schweissdrüse.) K. Muto.
111 Phenolsulphonphthalein Tests of Kidney Efficiency, Especially in Beriberi. (Phenolsulfonphtalein als funktionelles Nierendiagnosticum. Klinische Untersuchungen über die Funktion der Nieren bei Kakke mit seiner Hilfe.) K. Goto.

108. **Pathogenesis of Epitheliomas.**—This communication reports the results of research financed by the Japanese Cancer Research Society. It is profusely illustrated with twenty plates which show the successful outcome in 61.5 per cent. of the experiments. It was found possible to induce the production of an epithelioma at will on the ears of rabbits painted systematically with tar. This occurred on thirty-two of the fifty-two ears thus treated for several months. In three cases the epithelioma showed the typical infiltrating growth of carcinoma, but there was no tendency to metastasis apparent in any case, and attempts at transplantation never gave positive results. The experiments related are said to confirm Yamagiwa's statement that no superposed specific irritation is necessary for carcinoma to develop; all that is necessary is to continue the irritation that has brought the soil into the precancer stage. The experiments further confirmed the importance of age in development of cancer. The increased keratosis under the influence of the tar applications may be regarded as an artificial senility of the skin in the region painted.

110. **Action of Epinephrin on Secretion of Sweat.**—Muto's sixteen mostly two-page charts show the increase in sweat production when epinephrin, atropin, chloral or pilocarpin was injected intravenously or subcutaneously into twenty horses, four sheep, three calves and two cats. Photographs are also given showing the pools of sweat under one of the horses under the influence of epinephrin, and the pool of saliva under pilocarpin. He collected the sweat with a large funnel-shaped leather bag extending under the entire body and neck of the horse. The total amount of sweat from one horse under the epinephrin was 1,230 c.c. The research was undertaken to ascertain whether or not the sweat glands are innervated by the sympathetic system exclusively. The findings indicate that both the sympathetic and the parasympathetic systems are involved. The latter predominates in man, cats and cattle, while the former is chiefly involved in the horse and sheep.

Russkiy Vrach, Petrograd

XV, No. 9, pp. 193-216

112 Iron Atoms in the Blood. (O sostoyanii atoma zhelicza v krovi.) A. I. Danilevsky.
113 The Therapeutic Value of the Sand Baths of Enotaievsk, Astrakhan. (Estestvennia pesochnia vanni.) V. A. Skvorzoff.
114 *Suture of Vessels. (O sosudistom shvie.) V. N. Novikoff.
115 The Mode of Action of Vasoconstrictors and Vasodilators With Internal Hemorrhage. G. A. Lubenetzky.

114. **Suture of Vessels.**—Novikoff found in Carrel's method of suturing injured vessels an ideal physiologic procedure which deserves widespread use, even in the absence of suitable instruments and silk. Suturing of even small vessels gives excellent results if the edges of the torn vessels are freshened and cut obliquely, or in any other way to prevent narrowing of the lumen. Traction on the ends of the vessel must be avoided. Suppuration does not prevent vessel suturing, but Esmarch's band must be ready for use in order to prevent a possible secondary hemorrhage. He gives histories of 8 cases with complete success in 5. In 2 the suture yielded, and secondary hemorrhage occurred on the seventh day in one case after the operation, which necessitated ligation of the vessel. One patient died the day following the operation because of severe loss of blood before and during the operation. In the other 5 cases smooth recovery followed.

Hospitalstidende, Copenhagen

March 29, LIX, No. 13, pp. 273-303

116 *Low Gravity Abscess From Tuberculous Process in Sacrum. (Pyriformis-Abscessen.) T. Rovsing.
117 *Dyspepsia With Chronic Alcoholism. F. Vogelius and G. Wiltrup. Commenced in No. 11.

116. **Pyriform Abscesses.**—Rovsing applies this term to the puzzling abscesses and fistulas above and near the hip joint which return with exasperating persistence again and again after being curetted and apparently healed. He had about given up the hope of ever curing cases of this kind, when the introduction of bismuth paste as a diagnostic measure cleared up the puzzling syndrome at once. It showed that the low abscess was merely the lower part of an hour-glass abscess, the upper and primary process being in the inner surface of the sacrum. The pus sinks down along the pyriformis muscle and emerges with this muscle through the greater foramen. It collects below where it is usually mistaken for a primary process in the trochanter or hip joint or for bursitis. He reports four cases with a typical recurring course for eleven, eighteen and twenty years before the bismuth paste revealed the true nature of the trouble. It was an easy matter then to cure it permanently by curetting and providing ample drainage. This cannot be realized with a parasacral incision, so he incised on the median line and resected the coccyx. The focus was then reached by working subperiosteally from the lower margin of the sacrum. The focus was thoroughly scraped out and the fistula below flushed with 6 per cent. aqueous solution of phenol. The pelvic fascia were left undisturbed and a stout-walled drain was introduced into the focus, the lower end brought out through the incision below. The skin was sutured around it with aluminum-bronze wire. He says that Beck's book on the use of bismuth paste gives illustrations of two typical cases of this pyriformis abscess. Rovsing does not agree with Beck, however, that bismuth paste is an effectual therapeutic measure; on the contrary, as it plugs the fistula, the secretions accumulate above and dire damage may result. With the above described operative measures his four patients were entirely cured in about seven weeks.

117. See abstract 61, page 1498.

Svenska Läkaresällskapets Handlingar, Stockholm

1915, XLI, No. 3, pp. 411-550. Last indexed Sept. 4, 1915, p. 914

118 Report of Medical Committee on Measures to Check the Spread of Venereal Diseases. (Medicinalstyrelsens utlåtande angående reglementeringskommittens underdåniga betänkande. Till Konungen.)
119 Research on Immunity to Pneumococcus Infection. (Studier över pneumococc-immuniteten.) J. Tillgren.

No. 4, pp. 551-652

120 Ligation of Splenic Vessels as Effectual and Harmless Substitute for Splenectomy in Blood Diseases. (Om underbindning av mjältkärl såsom ersattningsoperation for splenektomi vid blodsjukdomar.) A. Troell.
121 Inflammation of Tendon and Sheath With Crackling Sounds. (Om den s. k. tendovaginitis crepitans.) A. Troell.
122 Gage for Angles of Joints. (En ny goniometer för mätning av de länga skelettbenens vinklar.) G. Backman.
123 Gage for Angle of Torsion. (En ny tropometer.) G. Backman.

XLII, No. 1, pp. 1-308

124 *Operative Treatment of Glaucoma. (Om sklerektomi vid glaukom.) K. G. Ploman.

124. **Sclerectomy for Glaucoma.**—The 308 pages of this number of the *Handlingar* are all devoted to the experiences of K. G. Ploman with operative treatment for glaucoma. He reviews the history and the literature, and compares the results of Holth's sclerectomy and Elliott's trephining operation and other measures. He also reports considerable experimental research. Over forty pages are given to the tabulated details of his 151 cases, and a six-page summary in German is appended. His conclusions from this material are that the danger of tardy infection renders it necessary to be extremely chary with sclerectomy. It should never be done in prophylaxis. With acute glaucoma, only when other measures have proved ineffectual should sclerectomy be considered. With chronic glaucoma, however, Holth's sclerectomy is followed by permanent reduction of tension in a large proportion of cases. In chronic cases rebellious to other methods, sclerectomy must be undertaken regardless of risk of tardy infection. The younger the patient, the greater the reserve necessary on account of the dangers from infection later. With chronic glaucoma and contraction of the field of vision to near the point of fixation, sclerectomy with peripheral iridectomy may be preferable to simple iridectomy.

1753.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 23 CHICAGO, ILLINOIS JUNE 3, 1916

THE NONSPECIFIC FACTORS IN THE TREATMENT OF DISEASE*

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As a natural consequence of the phenomenal advances of the past thirty or forty years in our understanding of disease processes and in what may be termed therapeusis by means of biologic products — advances largely the result of laboratory and more especially immunologic research — medical consciousness, if we may so regard the literature, has rather wholly centered about ideas of specificity, and, taking its cue from the laboratory, has regarded with considerable skepticism and frank disapproval any reference to observations, especially if clinical, at variance with the current trend of thought. And yet one finds a not inconsiderable accumulation of evidence, both from the laboratory and from the clinic, forming in a measure an undercurrent, definitely indicating a much larger share of certain nonspecific and as yet ill defined factors in recovery from disease. While the emphasis placed on certain phases of immunology and specificity, more especially the fruitful antigen-antibody conception of Ehrlich, has been of inestimable value, we rather believe that it has resulted in the neglect of certain perfectly obvious lines of approach to medical problems.

Quite early in the development of the tuberculin therapy it will be recalled that Matthes[1] demonstrated conclusively that to all intents and purposes the reaction considered specific for tuberculin could be produced when deutero-albumose was used, and showed that whatever difference occurred could be explained by the fact that the tuberculin fraction contained certain toxic peptones in addition. Matthes went even farther, expressing the idea that fever in general was produced by protein split products and suggested the importance of proteolytic ferments in this connection, thus foreshadowing the work of Vaughan in this country and the later German workers in anaphylaxis.

The history of the treatment of typhoid fever with vaccines is quite similar. Fraenkel many years ago demonstrated, in a convincing series of cases, the therapeutic value of typhoid vaccine used subcutaneously. Directly Rumpf followed him with a series of cases treated with a vaccine of *Bacillus pyocyaneus* with equally favorable results. But since the medical profession could see no merit in a nonspecific method, the entire subject was dropped for a considerable period of time. In this country, too, the controversy occasioned by the Schäfer vaccine is pertinent. Here was a biologic product, which, according to the observation of many competent observers, did at times produce striking results in a variety of infectious diseases; whether or not it was a safe remedial measure, and whatever may have been the defects, is not pertinent in this connection. The very fact that it did do certain things at times should have led to a study of why such favorable changes were brought about. The fact that it was palpably nonspecific, however, was sufficient to warrant the stamp of disapproval by the medical profession.

It is only within the last two years that a certain definite movement away from this rather narrow point of view has occurred, and it is significant to note that Wright,[2] than whom, of course, no one man has stood out more emphatically for specific therapy, recently made the following statement in this connection:

> All those who have had much experience with vaccines will have seen cases where therapeutic effects, lying quite outside the range of the particular vaccine employed, *and therefore, as we thought, not quite creditable to science,* have been obtained by vaccine therapy.

Schmidt[3] is among those who have called attention to the fact that following vaccine therapy of any kind the body becomes resistant to a variety of the commoner infections. So too, it seems that during carcinoma and pregnancy (both, by the way, conditions distinguished by their high antiferment titer) a relatively low "infection index," as Schmidt terms it, is established.

Von Wagner utilized a similar nonspecific method when he obtained favorable results in paretics treated with tuberculin; and only recently Blach[4] has reported a series of cases of early syphilis treated with tuberculin.

We cite these not to recommend the treatment, because it hardly seems warranted, possessing as we do much more efficient agents, but to indicate the same general phenomenon of a therapeutic effect from a nonspecific method.

It is in the domain of coagulation disturbances that therapy of this nature has received particular attention in the past. The beneficial effect of subcutaneous serum injections in hemophilia is well recognized, although here too the exact mechanism is unknown. Originally the slight leukocytosis was regarded as the potent factor, but for this there is no warrant. Results

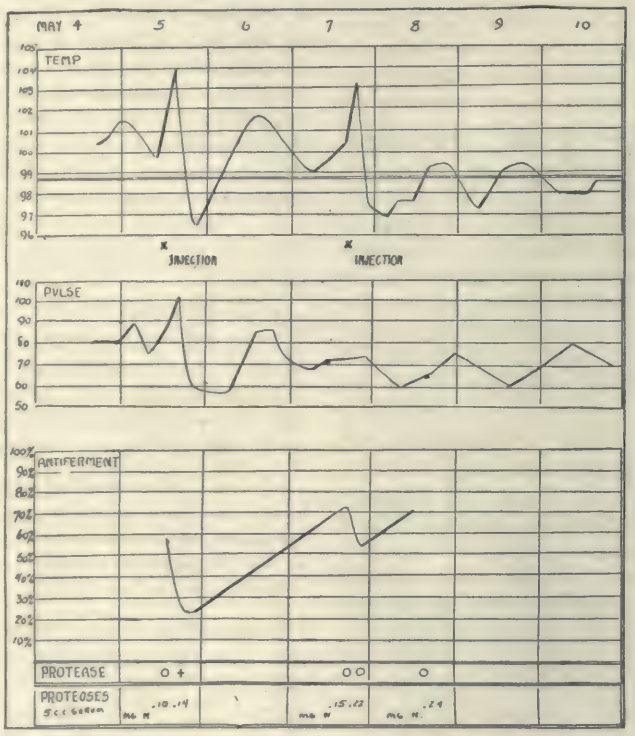
* From the Department of Pathology, Vanderbilt University, Medical Department.

1. Matthes, M.: Deutsch. Arch. f. klin. Med., 1895, xlv.
2. Wright, A.: Brit. Med. Jour., 1915, ii, 629.
3. Schmidt, R.: Med. Klin., 1910, No. 43.
4. Blach, M.: Wien. klin. Wchnschr., 1915, No. 49.

have been obtained with homologous and heterologous serum, and with whole blood; but decisive results depend considerably on the dosage, and marked fluctuations in coagulation time frequently occur following such injections. That such injections do not alter the disease process through supplying directly some deficiency, but rather through stimulating the elaboration of some substance before lacking, would seem to be the conclusion reached by recent workers. This would agree with the stimulating effects observed from injecting serum and whole blood subcutaneously in tuberculosis and pernicious anemia (Esch, Busse, Weber).

The dermatologists have within the past two years had similar results in a variety of diseases, including some cases of psoriasis which had proved refractory to other methods of treatment. As a rule the homologous serum was injected intravenously in these cases.

The therapy of typhoid fever has so far been the chief avenue of approach to the problem. A number of vaccines have been elaborated and used subcutaneously during recent years for therapeutic purposes, and the results have been, in general, very encouraging. It was not, however, until such vaccines were used intravenously that the striking pictures of complete abortion of the disease were obtained. Then Kraus[5] observed that colon vaccines gave an identical result, while the typhoid vaccine was of marked benefit in certain cases of pelvic infection. Ichikawa[6] found that his paratyphoid patients recovered with a typhoid vaccine, while Lüdke[7] went a step farther, using a nonbacterial protein split product—a deutero-albumose — with equally favorable results, in typhoid fever. The effect of such an injection of secondary proteoses in typhoid fever is shown in the accompanying chart.



Intravenous injection of secondary proteoses in typhoid fever: J. S. (City Hospital, courtesy of Dr. McCabe). Illness commenced April 29, one week before admission to hospital; Widal positive on admission; 1.5 c.c. proteoses injected intravenously May 5 (2 per cent. solution); 2 c.c. proteoses injected intravenously May 7 (4 per cent. solution). Protease became positive after first injection. Lipase titer increased from 0.6 c.c. hundredth normal sodium hydroxid, May 5, to 1.9 c.c. hundredth normal sodium hydroxid per cubic centimeter of serum, May 8. Proteoses in the serum increased from 0.1 mg. (nitrogen) per 5 c.c. serum to 0.24 mg., May 8.

Apart from the action of the vaccines, the protein split products, and the effect of both homologous and heterologous serums, observations are recorded of the effect of milk injected intramuscularly (Schmidt), salt solution (Mitlander), dextrose solution, colloidal metals, distilled water (animal experiments) and ferments (including the leukocytic extract of Hiss and Zinsser). It seems probable that the reaction and beneficial effects observed from these substances is based on a similar mechanism in all cases.

SELECTIVE STIMULATION

Latterly the hematopoietic organs have come to be recognized as the chief source of antibodies, a recent paper by Becht and Leuckhart[8] demonstrating in a convincing way that the circulating antibodies are not derived from the tissue cells in general, an origin that would presuppose the discharge of these substances into the general circulation by way of the lymph stream. As a corollary of this idea concerning the source of the antibodies, it would seem reasonable to suppose that any disturbance of the hematopoietic system might alter the antibody formation; an observation of Moreschi[9] quite bears this out. Moreschi noted the persistent absence of agglutinins in leukemic patients suffering from a superimposed typhoid infection.

In view of these facts, it would seem possible that the various agents act as stimulants of the hematopoietic tissue, which, as a consequence, suddenly floods the body with antibodies, thereby overcoming the infection. According to the idea of Wright, vaccine injections were supposed to be followed by a negative phase, at least as far as the opsonic power was concerned. Contrary to this generally accepted view, Bull[10] has recently shown that this does not hold true following the intravenous injection of a typhoid vaccine in immunized rabbits. Bull noticed that the antibodies were not diminished; on the contrary, they were rapidly increased following the injection. If this is the mechanism involved, it is important to keep in mind that the stimulus itself is not a specific factor, but that the hematopoietic system has been attuned to respond to a nonspecific stimulus with the production of specific substances. Dunklin, working in this laboratory, finds that a marked increase in antibodies follows the intravenous injection of proteoses in immunized rabbits. In a general way this mechanism of recovery would consist of a selective stimulation of the hematopoietic system by nonspecific substances.

THE LEUKOCYTOSIS

The importance of the leukocytic reaction has been emphasized by Gay and his associates. They believe that the recovery following such intravenous therapy (they worked with a modified typhoid vaccine) is due to a specific hyperleukocytosis. More recently, however, McWilliams[11] has observed that this hyperleukocytosis is apparently not specific to the degree indicated by the work of Gay and Claypole,[12] and that even nor-

5. Kraus, R.: Wien. klin. Wchnschr., 1915, p. 29.
6. Ichikawa, S.: Ztschr. f. Immunitätsforsch., Orig., 1914, xxiii, 32.
7. Lüdke, H.: München. med. Wchnschr., 1915, lxii, 321.
8. Becht, F. C., and Leuckhart, A. B.: Am. Jour. Physiol., 1916, xl, 366.
9. Moreschi, C.: Ztschr. f. Immunitätsforsch., Orig., 1914, xxi, 410.
10. Bull, C. G.: Jour. Exper. Med., 1916, xxiii, 429.
11. McWilliams, Helen: Jour. Immunol., 1916, i, 259.
12. Gay, F. P., and Claypole, E. J.: Specific Hyperleukocytosis, Arch. Int. Med., November, 1914, p. 662.

mal rabbits respond with a marked leukocytosis to the intravenous injection of typhoid vaccine. This coincides with our own experience. We must keep in mind, too, the fact that in typhoid fever particularly, the normal course of recovery is not marked by a leukocytosis; on this ground alone we might be justified in seeking the influence of some other factor or factors in the recovery following intravenous therapy.

THE HYPERPYREXIA

It is a common clinical experience that in some diseases, among them subacute joint diseases, neuralgia, diabetes, pernicious anemia, certain dermatoses, sarcoma, etc., distinct beneficial results follow at times on some intercurrent febrile condition. Is it possible, therefore, that these varied agents influence the course of the disease by producing a high temperature?

A long list of investigators, among them Walther, Hildebrand, Englehardt, Rolly and Meltzer, have reached the conclusion that a high temperature (from 40 to 42 C. or 104 to 107.6 F.), artificially produced, has a favorable influence on an established infection. Lower temperatures, on the other hand, as recently noted by Winslow and his associates,[13] would seem to retard the formation of immune bodies. Inasmuch as a very sharp febrile reaction almost invariably follows the intravenous injections, the importance of this phase of the subject cannot be overlooked. In our own cases we have at several times observed a reaction temperature of 107 F. within one-half hour following a proteose injection (in typhoid patients); unaccompanied by a change of the pulse rate of any moment or other untoward symptoms.

THE MOBILIZATION OF FERMENTS

We have already[14] pointed out that in experimental animals the intravenous injection of bacteria, kaolin, protein split products and trypsin is almost invariably followed by more or less marked mobilization of serum protease and usually of lipase (esterase).

In the patient a similar reaction occurs following the intravenous injection of vaccines and proteoses, but not to the same degree nor with the same regularity as in animals. In considering the possible effects of such a mobilization of ferments, both protease and lipase, we must keep in mind that a variety of reactions may occur. The serum protease, as other tryptic ferments, is without effect on bacteria; but if we consider the source of the intoxication occurring in the diseased organism as primarily due to protein split products, then such a mobilization of protease may be of considerable importance in the process of detoxication, in that the toxic fragments are hydrolized to lower and nontoxic forms. We have discussed this possibility in detail in its relation to pneumonia.[15]

As a result of this effect the diseased organism would rid itself for the time being of the toxic substances circulating at the time of the injection, although the disease process itself, and the infecting organisms, would possibly continue in existence capable of further injury. This would seem to be the explanation for the clinical picture obtained after intravenous therapy in such instances in which only an incomplete or transitory effect results. In all these cases the patients present a considerable improvement, both subjectively and objectively, on the day or days following the injection, despite the fact that the temperature may recur or even continue uninterruptedly.

The influence of the fat-splitting ferments mobilized is as yet obscure. In the ultimate analysis, of course, we must turn to ferments of this nature for the attack on the invading organism, because it is more than probable that the actual surface of the bacterium consists largely of lipoids, or intimate lipoprotein combinations, for the destruction of which fat-splitting ferments are essential. In certain infections with lipoid-rich organisms, such as tubercle and lepra bacilli, the clinical demonstration of the association of a high lipase titer in the serum, with a favorable prognosis, has been well established. At present, however, the subject is still one in which only diligent inquiry will furnish definite knowledge.

THE INCREASE IN ANTIFERMENT

When discussing the low "infection index" observed during the course of certain conditions, among them carcinoma, pregnancy and following vaccine therapy (Wright emphasized the latter finding particularly in his report on the antipneumococcus vaccination at the Premier Mine), we called attention to the fact that during such states a relatively high antiferment index is a well recognized accompaniment. The question arises whether this is a mere coincidence or whether there is some causal connection between the antiferment increase and the increased resistance to infection.

We have previously shown that the antiferment power of the serum depends on the amount of unsaturated lipoids present in a highly dispersed state in the serum.[16] Consequently, any factor that will tend to increase these lipoids, be it by increasing the supply or by decreasing the utilization (as when the lipase in the serum is decreased) by injuring tissue cells and causing them to discharge such lipoids to the blood stream, will increase the antiferment titer; while conversely, any influence decreasing these lipoids, their dispersion or their unsaturation, will tend to decrease the titer.

It is particularly the state of dispersion of these lipoids that is ignored by most investigators of their physiologic properties. Serum lipoids in coarse dispersion are inactive as antiferments as well as in the mechanism of coagulation, a fact that should be kept in mind when the effects of lipemia are considered.

Wright worked with saprophytic and serosaprophytic organisms, and noted that the addition of antiferment to the culture medium completely checked the growth of the serosaprophytic bacteria, and found that even the saprophytic bacteria grew less luxuriantly when no trypsin was added. In view of the results obtained by Rettger, Berman and Sturges,[17] showing that the ordinary infectious organisms are not able to derive their protein requirement from native or even partly hydrolized proteins, but probably solely from the lowest degradation products, the direct influence of the antiferment cannot be so simple as Wright would assume. The antiferment inhibits only the action of the tryptic and not the peptolytic and ereptic ferments. Of course, when we are dealing with a definite tryptogenic organism it becomes apparent that an increase in antiferment would offer an increased factor or resistance against its growth.

13. Winslow, C. A.; Miller, J. A., and Noble, W. C.: Proc. Soc. Exper. Biol. and Med., 1916, xiii, 93.
14. Jobling, J. W., and Petersen, William: Bacteriotherapy in Typhoid Fever, THE JOURNAL A. M. A., Aug. 7, 1915, p. 515.
15. Jobling, J. W.; Petersen, W., and Eggstein, A. A.: Jour. Exper. Med., 1915, xxii, 568.
16. Jobling, J. W., and Petersen, William: Jour. Exper. Med., 1914, xix, 459.
17. Rettger, L. F.; Berman, N., and Sturges, W. S.: Jour. Bacteriol., 1916, i, 15.

An increase in the serum lipoids affects bacterial growth, however, in another way, since an adsorption of lipoids occurs at the surface of the bacteria. The relation of this adsorption, seemingly a nonspecific and purely physical process, to the phenomenon of sensitization, is as yet not clear. It is reasonable to suppose, however, that the metabolic exchange of the bacterial limiting membrane is markedly influenced by increased lipoidal adsorption on the surface, resulting not only in influencing the metabolism unfavorably, but possibly preventing the excretions of substances protective for the bacterium (leukocidins, virulins, etc.).

The immediate effect of the vaccine and proteose injections is not an increase, but a distinct decrease in the antiferment titer for a short period of time, followed later by a rise. It is probable that the decrease is due to the chill which occurs after the injections, the increased metabolic demands of the organism being met in part by the rapid utilization of the serum lipoids.

CONCLUSION

It seems probable that the fundamental change on which the majority of the above described biologic reactions are based is one of colloidal dispersion, in that the injections bring about a less dispersed state affecting not only the serum proteins but also the serum lipoids. Such an alteration is sufficient to account for the fluctuations in the ferment-antiferment balance, and in the coagulation mechanism, as well as in the opsonic and complement powers of the serum, although it does not at present explain the increased antibody titer. With this as a basis we can understand that so many and diverse substances can bring about a reaction almost identical clinically and therapeutically. But here, as in so many other biologic problems which have to do with that most complex of tissues, the blood, it seems probable that no single factor can be identified as responsible for all the changes which occur, but that a whole train of events is inaugurated when the equilibrium of some of the delicate serum balances is disturbed, all of which tend toward a condition favorable for recovery from infection.

THE TREATMENT OF ARTHRITIS BY THE INTRAVENOUS INJECTION OF FOREIGN PROTEIN *

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During the past year attention has been called to the value of intravenous typhoid vaccine in the treatment of typhoid fever. The early reports by Penna, Kraus and Mazza of Buenos Ayres, and the independent investigation by Ichikawa, demonstrated clearly that by this method of treatment a certain percentage of typhoids might be brought to an immediate termination. Kraus and somewhat later Lüdke were able to show that similar results could be obtained with a vaccine made from colon bacilli, this showing definitely that the reaction was not due to a specific vaccine. Lüdke later was able to show that a solution of albumose would accomplish the same results.[1]

During the past summer we used the intravenous typhoid vaccine, 200,000,000, in the treatment of typhoid. Later, following the suggestion of Lüdke, we thought it might be of interest to compare these results with a series treated with albumose. We were unable to obtain any of Merck's albumose, but through the courtesy of Drs. Jobling and Petersen of Vanderbilt University we secured some proteose which they had prepared for their experimental work. By giving from 1 to 2 c.c. of a 4 per cent. solution of this proteose, we obtained the same results as with the typhoid vaccine, 20 per cent. of the treated cases terminating by crisis after a single injection. In addition, in about an equal number following the injection there was a termination by rapid lysis, and in a third group, which again equaled approximately 20 per cent., following a single injection, the continuous fever was changed to a very irregular type, which continued until the termination of the disease. The remaining cases, while reacting with a chill and rise in temperature, continued their febrile course in an uninterrupted manner. As stated, the proteose, in its chill, temperature reaction, leukocytosis and percentage of cases in which the course of the disease was modified, gave the same results as the typhoid vaccine.

These results are simply confirmatory of those already recorded, making it quite apparent that the sudden termination of the disease is not due to the specific character of the vaccine, but probably to the action of a foreign protein. It was decided to apply this method of treatment to another infection, and we selected for this purpose acute, subacute and chronic arthritis. In the selection of our material, the patient after entering the hospital was kept in bed for two or three days without special medication for observation as to how much improvement might follow simple rest. It was quite surprising to see how many patients with acute arthritis, after two or three days' rest in bed, were so much improved that we did not consider them suitable subjects for testing out the value of a therapeutic agent. Selecting, then, only those cases for study in which the disease was of a persistent type, we gave a 4 per cent. proteose solution, in doses of 2 c.c., intravenously. The patient reacted by a chill, rise in temperature and moderate leukocytosis. The day following the injection there was a moderate but definite improvement in the joint symptoms.

As our supply of proteose was limited, and as we believed that the reaction was due solely to the foreign protein, a typhoid vaccine was substituted for the proteose. This vaccine was prepared from the Rawling's strain, killed by heating to 55 C. and preserved by 0.5 per cent. phenol (carbolic acid). In the preliminary cases a dosage of 150,000,000 was given intravenously. The reaction was the same as when the vaccine was given to a typhoid patient except that the leukocytosis was much more marked, in two instances reaching 52,000. Immediately following the injection there was a moderate leukocytosis which increased slightly until the chill, which usually occurred in from five minutes to one hour. During, or immediately following the chill, there was a rapid drop in the leukocytic curve, resulting either in a normal count or a leukopenia, followed promptly by a rapidly developing leukocytosis which reached its maximum usually at the end of four and occasionally at the end of twelve hours, gradually returning to normal in from twenty-four to forty-eight hours.

* From the Medical Clinic of Cook County Hospital.

1. For complete references to the literature the reader is referred to the paper by Frederick Gay, Journal of Laboratory and Clinical Medicine, 1915, i, 13.

The degree of leukocytosis was dependent in a measure on the acuteness of the infection. Twice in acute arthritis the leukocyte count reached 52,000, while with the subacute forms it rarely passed 25,000. Following the chill there was a profuse sweat which continued for several hours, in three patients a second chill, with slight leukocytosis, from six to seven hours after the injection was recorded. When a patient received daily injections there was a gradual lessening in the duration of the chill, and finally the patient failed to react with a chill. As an illustration, following the first injection the chill lasted one hour, after the second thirty-five minutes, after the third fifteen minutes, and after the fifth injection rigors did not occur. The maximum temperature was reached, not at the time of the chill, but three to five hours after the injection. In several instances a leukocytosis occurred without chill, but in none of these was there improvement in the patient's condition. In acute arthritis a temperature of 105 was not unusual. Subacute arthritis gave a milder reaction. When the vaccine was repeated daily with each successive dose the degree of febrile reaction grew progressively less. To illustrate, in one case the temperature after the first injection reached 105, after the second 103.4 and after the third 102. Nausea and headache were noted practically constantly after early injections, the headache continuing at times for twenty-four hours. The pulse rate during the height of the fever never exceeded 120, and in no instance was there evidence of collapse or serious consequences.

Later the dosage was reduced to 75,000,000. With this amount the reactions were possibly slightly less violent, whereas with the proteose the results were definite but not striking; with the typhoid vaccine they were quite as remarkable, as is noted in typhoid patients treated in the same manner and according to our experience much more constant. In three of our ten cases of acute articular rheumatism, immediately following a single intravenous injection of 150,000,000, the fever terminated by crisis, the joint tenderness began to disappear, and within from twelve to twenty-four hours the joints were apparently normal. In these three cases the results were permanent. All of the seven remaining patients were very much benefited following a single injection, but the results were either not permanent, or soreness still remained in some of the affected joints. Three or four injections, however, sufficed to relieve all symptoms. Some of these patients after treatment remained in the hospital a week or more apparently well. After discharge, mild recurrences took place and the patient returned for further treatment. We wish to emphasize that in all this series, great relief followed one, or at most two treatments; relapses, however, were frequent. Five weeks have now elapsed since some of these patients were discharged, and no relapse has occurred. We are, therefore, justified in saying that recovery in some cases following even a single injection is permanent. We are now giving all our patients, even if the symptoms all disappear after a single injection, daily injections until four or five have been taken in order to see if relapses can be avoided.

Results quite as satisfactory were obtained in six cases of subacute arthritis of from three to nine months' duration. These patients all received several injections. Here, as in the acute cases, great relief followed a single injection, and after three or four injections had been given, the patient could move his joints with comfort, could dispense with his cane, and in every way the results were most gratifying. It is scarcely to be expected if these cases are due to a chronic focus of infection that the results will be permanent. We are keeping in touch with these patients, and up to the present time (four weeks) no evidence of marked recurrence has been noted. One patient with chronic arthritis of three years' duration received considerable relief after five injections.

Results even more striking were noted in cases of chronic gonorrheal arthritis of from two months' to three years' duration. One of these patients, who had a wrist involvement of three months' duration with complete disability, recovered apparently completely within forty-eight hours after a single injection, with free movement of the affected joint, and now after a lapse of four weeks there has not been any recurrence. The seven other patients in this series all received decided benefit following a single injection, and after repeated treatments (one having received thirteen) the results have been such as to encourage further use of the vaccine. None of these patients failed to receive decided benefit. On the other hand, two patients with acute gonorrheal arthritis were only moderately benefited.

The nature of the reaction effecting these changes, it is difficult to explain. That the same process is active here that is responsible for the termination by crisis in typhoid, following intravenous vaccine, is highly probable. That the reaction here and also in typhoid is a foreign protein, and not a specific protein, is probable. Vaughan has shown that animals immunized to *Bacillus prodigiosus* and *B. subtilis* also have a certain degree of immunity to typhoid and cholera. He was also able to obtain the same degree of transitory immunity to colon bacilli in animals, by the use of egg albumin, as he had been able to obtain with the products of the colon bacillus. In our cases of arthritis, while the joint manifestations might permanently disappear after one or more injections, in case the patient had an endocarditis or pericarditis this would run its usual course (and it was these patients who showed a marked tendency to relapse), or in case of gonorrheal arthritis following the injection the discharge would be temporarily increased rather than diminished. This localized immunization recalls to mind Faber's work on joint sensitization in arthritis, and suggests the question whether as a result of the vaccines it was possible the joints might become desensitized. That the febrile reaction following injection is not due solely to the foreign protein injected is suggested by the much milder reactions in patients with low degrees of infection. Jobling and Petersen suggest that for this reason part of the reaction is probably due to the foreign protein in the bodies of the destroyed bacteria exciting the infection, the destruction being due to mobilization of antibodies. While our results with proteose were slight, they were nevertheless definite. When the splitting of the protein can be properly adjusted, it is highly probable results similar to those following the typhoid vaccine may be obtained, with possible elimination of that portion of the reaction arising from the injected material.

Whether or not further experience will show that this method of treatment is of value as a therapeutic agent, it will at least give further evidence of the non-specificity of vaccines. It does not, however, involve the specificity of vaccines for preventive purposes.

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THE VALUE OF ANAPHYLAXIS IN THE TREATMENT OF GONORRHEAL COMPLICATIONS

ALLERGY, A THERAPEUTIC AGENT?*

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Serum therapy in infectious diseases has earned a justly prominent place. Passive immunization in diphtheria and tetanus is an established fact. Excellent results have been obtained with this form of immunization in epidemic meningitis, although the *Diplococcus intracellularis-meningitidis* elaborates no ectotoxin. Less certain immunization therapy, in the nature of bactericidal, bacteriolytic or agglutinative serums, has been accomplished in streptococcic bacteremia, Asiatic cholera, bacillary dysentery, pneumonia and other infectious diseases. In gonorrheal complications, such as rheumatism, beneficial results have been obtained with antigonococcic serum, and the assumption is that with the administration of the serum there has been the introduction of specific antibodies.

Serum therapy is not limited in its field of usefulness to specific immunity. Diphtheria antitoxin has been employed successfully by Noel Paton[1] in various septic conditions. He further found the same good results when employing normal horse serum in tuberculosis, arthritis deformans and cerebrospinal meningitis. Normal human serum has found a most favorable field in scarlet fever and even in systemic and nervous syphilis. Further, Herescu and Strominger,[2] in the exploitation of the meningococcus on grounds of morphologic relationship with the gonococcus, investigated antimeningococcus serum in its effect on gonorrheal complications, with the discovery that most excellent results were obtained in arthritis, ophthalmia, septicemia, ureteropyelitis and meningitis of gonorrheal origin. One must be struck by these bizarre findings, and the temptation presents itself to investigate the cause. While working with antigonococcic serum in the treatment of gonorrheal complications, my attention was attracted to the fact that the individuals who were markedly affected by anaphylaxis were the ones who responded to the treatment with the serum. Furthermore, the severer the manifestations, such as temperature, urticaria, joint pains, etc., the better the result. Again, no marked effect was noticeable until these anaphylactic manifestations appeared. Lastly, in the absence of the allergic symptoms no effect on the disease, subjectively or objectively, was obtained.

This seemed more than a coincidence, and in reverting back to my older records of all such cases, it was evident that the same conditions had obtained in the majority of the cases so treated. The following two cases typify what is meant:

Case 1.—E. B., a printer, aged 22, had had gonorrhea for nine weeks when he developed right-side epididymitis, with all the subjective and objective signs and symptoms typical of that complaint. The first, second and third glasses of urine were turbid. He was immediately given 15 c.c. antigonococcic serum intramuscularly, followed by 24 c.c. the next day. There was no change in his condition until six days after the last injection, when he developed a temperature of 101.6, had a generalized urticaria and felt very sick. He appeared for examination the second day of his illness with all the soreness in the scrotum gone, the swelling markedly reduced, and the second glass of the two-glass test perfectly clear. In two weeks he was completely cured with routine treatment.

Case 2.—G. A., had had gonorrhea for seven weeks, and presented the usual signs and symptoms of a posterior urethritis. He developed a left-side epididymitis three days after coming under my observation, and was immediately given 36 c.c. antigonococcic serum extending over a period of four days. Two days following the last injection, he was taken alarmingly ill with a temperature of 104, dyspnea, general malaise, joint aches, and a violent urticarial eruption. These symptoms subsided after the third day, when he reappeared for examination. I was astonished to find a complete recovery from the infection, including even the anterior urethritis, all facts having been verified by continued observation for a period of six months.

The following case is even more striking in that it gives unimpeachable evidence of the dependency of the beneficial results on the appearance of serum sickness.

Case 3.—A. R., a salesman, developed epididymitis twelve days after the inception of the urethritis. The day following the onset of the complication, he was given 24 c.c. antigonococcic serum, and 12 c.c. the next day. This was followed in a few hours by acute retention, due probably to swelling of the posterior urethra, necessitating catheterization. There was no temperature rise and no perceptible change in the symptoms of the epididymitis. After waiting in vain, the average incubation period, nine days, for the appearance of serum sickness, a third injection of 4 c.c. was given. He developed chills thereafter and a slight itching over the body. Forthwith the pain in the scrotum abated somewhat and the swelling subsided materially, but there was no change in the appearance of the urine. In five days he was again given an injection of 1½ c.c. serum. Within three hours he developed chills, a generalized urticaria, and joint pains. Following this there was a total relief of pain and tenderness in the scrotum, and in forty-eight hours after the last injection the scrotum returned to its normal size. Coincident with this improvement, the posterior urethritis disappeared and the second glass in the two-glass test cleared perfectly. In the space of three weeks there was complete recovery from the urethritis, with the employment of the usual forms of medication.

It is important to note that during the course of serum injections no local or other treatment was employed.

With the result of these representative cases in mind, it appeared that whatever effect was produced by the serum was not directly attributable to any true antitoxic or antibacterial elements embodied in the serum, because it in no way resembled the immediate action of diphtheria antitoxin or other antiserum. Was it possible that the beneficial results obtained were in reality due to anaphylaxis, or were they favorable phenomena that accompanied the unfavorable allergic symptoms? Could the rise in temperature exert a destructive effect on the gonococcus? It is believed that owing to the high point of temperature equilibrium in the pigeon, for example, a protective influence against infection exists. Again, the gonococcus can not withstand high temperature. These questions cannot at present be answered, but are still being investigated.

To prove that other factors than antibacterial of the specific serum played an important, if not the most important, part was easy. Normal horse serum was substituted for antigonococcic serum. The following records will show that there was no result obtained with the antigonococcic serum which was not equally well effected with normal horse serum. To place the

* Read before Douglas Park Branch Chicago Medical Society, Feb. 15, 1916.

1. Paton, Noel: Australasian Med. Gaz., 1910, xxix, 601.
2. Herescu and Strominger: Verhandl. d. deutsch. Gesellsch. f. Urol., 1913 and 1914, iv, 102.

experiment on the same basis throughout, all serums were obtained from the same firm.

CASE 4.—E. C., of the hospital service of Dr. Stillians, had developed signs and symptoms of acute epididymitis one month after the onset of the urethritis, and had had no treatment therefor. Nine days after the onset of the complication the symptoms were still acute. He was then given 10 c.c. normal horse serum. In twenty minutes he became markedly dyspneic, developed swelling of the eyelids, and was in great distress. The temperature and pulse were normal. These symptoms subsided within an hour. Two days later he developed an urticaria, with no temperature rise, and coincident with this all pain, tenderness and swelling of the scrotum disappeared. The posterior urethritis cleared completely. The patient then passed from observation.

This case was rather striking in the rapid onset of anaphylaxis after one injection of serum, with the rapid improvement in the patient's condition. Upon inquiry it was learned that he had never before received serums, but was a hostler by occupation, thus accounting for his idiosyncrasy to horse serum.

CASE 5.—S. D., had acute epididymitis on the left side, which had developed two months after the onset of the urethritis. Two days later he was given 5 c.c. normal horse serum, which in turn was followed by 8 and 9 c.c. on the two subsequent days. Two days after the last injection he developed a generalized urticaria and pruritus. There was no temperature rise or other ill effects. Upon this day the pain and swelling of the scrotum almost entirely disappeared, as did the posterior urethritis. While continuing treatment for the anterior urethritis, along with prostatic massage, he developed an epididymitis on the opposite side two weeks after the healing of the side first affected. This was preceded by the redevelopment of the posterior urethritis. With caution he was given 1 c.c. normal horse serum, and in the absence of any ill effects, this was followed by 2 c.c., and this in turn by 5 c.c. on three consecutive days. Slight erythema and pruritus developed after this course, with coincident subsidence of all scrotal disturbance, including a disappearance of the posterior urethritis. In two weeks complete recovery was secured.

If the serum really provoked or stimulated the formation of antibodies, the concentration of the latter was such as not to afford immunity or protection, after the first administration series, against the involvement of the opposite side, or perhaps the protection was too ephemeral.

CASE 6.—W. A. S. had gonorrhea of ten weeks' duration, in which time he developed two urethral fistulas and a paraphimosis, and then a right-side epididymitis. On the first day of the last complication he was given 10 c.c. normal horse serum, the second day 12 c.c. and the third day 10 c.c. There was no change in his condition until six days after the last injection, when he developed hypogastric colic and a slight eruption over the buttocks. When seen at this time, the posterior urethritis had resolved, and the scrotal condition had improved. In three days there was a slight relapse, with recurrence of the posterior urethritis and scrotal tenderness, but upon administration of 4 c.c. normal horse serum the condition again resolved within twenty-four hours. A second relapse occurred in three weeks, whereupon 4 c.c. horse serum were again administered, followed again in twenty-four hours by a clearing up of the posterior urethritis and epididymitis. At this stage the patient left town and passed from observation.

A review of this case brings to light the interesting data of repeated relapses and improvements, the latter following closely on the administration of small doses of serum. The allergic reaction was but slight after the first series, and also after the other injections, yet the change in the patient's condition was marked in each instance.

CASE 7.—J. B. had gonorrhea one month when he contracted right-side epididymitis. On the first day of the complication he was given 8 c.c., on the second, 7 c.c., and on the third day, 5 c.c. normal horse serum. Six days following the last injection he broke out into generalized urticaria, with temperature of 100.8, but coincident with that all tenderness in the scrotum disappeared. In five days, however, he developed gonorrheal rheumatism in the left knee, with a recurrence of the posterior urethritis, but no more serum was administered. Complete recovery was obtained, however, in a month.

In this case the effect of the serum, though temporary, nevertheless affirms the corelation of allergic symptoms and improvement.

CASE 8.—J. H. had posterior urethritis twenty days, when he developed right-side epididymitis. On the second day of the complication he was given 10 c.c. normal horse serum, and this dose was repeated on the two days following. Five days after the last injection an urticarial eruption appeared, and he had a temperature of 101.8. Twenty-four hours later all pain disappeared and the scrotal swelling receded markedly. The urine was almost cleared in both glasses, with the exception of threads in the first. Within three weeks, with ordinary treatment, including prostatic massage, the patient was discharged as cured.

The relation of serum sickness to improvement in this case is so apparent as to require no comment.

CASE 9.—H. F. developed a posterior urethritis three months after the appearance of the initial discharge. He was given 10 c.c. normal horse serum, followed the next day with 8 c.c. of the serum of the patient in Case 6, the latter's blood being withdrawn at the stage of recovery from the first relapse. Within eight hours of this dose the urgent symptoms of the posterior urethritis were ameliorated. Four days later 2 c.c. normal horse serum were given. This was followed in two days by a florid generalized urticarial eruption, with a temperature of 101.2. Coincident with this reaction, all signs and symptoms of posterior urethritis ceased. The second glass of urine completely cleared, while the first was but slightly turbid. Pus in the prostate was still abundant, however.

In this case the effect of the serum from a convalescent case was very noticeable within a few hours. That the influence was not more marked may be attributed to the fact that the donor was not putting up much resistance to the disease, as was evidenced by several relapses, and the protective substances provoked in his blood were insufficient in power or number or both. It must be noted, also, that the allergic reaction in this instance was slight. The change in the receptor's condition was nevertheless marked. The effect of the serum sickness in this patient is noteworthy, for the reason that even with the employment of antigonococcic serum, acute posterior urethritis is usually not benefited.

CASE 10.—W. H. Mc., a medical student, developed acute epididymitis one month after the onset of gonorrhea. He was then given 8 c.c. of normal horse serum. The next day he developed chills, headache, temperature of 102, and a florid generalized urticarial eruption. The day after the onset of these symptoms the urgency of urination began to subside, as did the pain in his scrotum. The temperature persisted for four days, but then the tenderness and swelling had completely disappeared; the second glass of urine was clear. The prostate showed very few pus cells.

This case resembled Case 4 somewhat, in that allergy was aroused by one injection of serum, although more delayed. It happens that this student

is a farmer during vacation. In that light his association with horses may explain his susceptibility to horse serum.

CASE 11.—Patient of Dr. M. S. Oliver developed acute posterior urethritis with edema and retention on the fifteenth day of his gonorrhea. On the eighteenth day he developed arthritis in the left tarsometatarsal joints and also in the left knee. On the twentieth day 10 c.c. normal horse serum were administered. On the twenty-first day a second injection of 10 c.c. was given, and on the twenty-second day a third 10 c.c. On the twenty-third day the right knee and ankle became involved. This patient had had similar complications with an attack of gonorrhea two years before, and antigonococcic serum injections had been of no avail. On the thirty-sixth day, in the absence of any serum reaction and any change in his condition, 3 c.c. serum were given. In six hours he developed a rash on his face and body, and there was increased pain in the affected joints, but no temperature rise. On the thirty-seventh day the joints felt better, but the urine was still cloudy in both glasses. On the thirty-eighth day 1 c.c. horse serum was given, and again a rash appeared with increased joint pain, but without temperature rise. The thirty-ninth day found the patient with joint pains alleviated and the second glass of urine perfectly clear. On the fortieth day 2 c.c. serum were injected, without provoking eruption or temperature, but causing joint pain, with extension to the finger and shoulder. joints. The urine remained clear. Within a week all joint trouble disappeared, and the urine was still clear.

This case is of interest for two reasons: first, because of the prolonged period over which the serum was administered without any serious effects, and second, because of the favorable influence exerted by the serum the days following the injections after the slight allergic reactions.

A summary of these cases discloses the facts that normal horse serum can entirely replace the antigonococcic serum, the content of specific bactericidal properties of which is questionable. As a matter of fact, in view of recent work by Warden,[3] it appears doubtful that there are contained any antigonococcic properties in the serum, since in reality merely the metabolic products of the readily autolyzed gonococcus are injected into the horse in the preparation of the specific serum. To what factor we can attribute the beneficial results of normal horse serum, we cannot definitely state. That allergic phenomena play a rôle seems evident, since the best results were obtained at the time of the onset of serum sickness, and the greater the reaction the better the result. An attempt at explanation of this factor leads into the depths of the study of the nature of anaphylaxis. It is possible that certain elements in the serum itself exert a favorable influence. This has been found true, as before mentioned, in other infectious diseases, in which, too, the blood of convalescents has proved of great value. A suggestion of this influence was noticed in the patient of Case 9.

As investigation along this line is still being conducted, we can at this time offer nothing more than evidence sufficient to favor normal horse serum in place of antigonococcic serum, whose value as a specific is questionable. If allergy is in reality of therapeutic value, its employment is nevertheless hazardous. It is a question whether any gonorrheal complication requires the use of such heroic treatment. Safety cannot be sacrificed for speed.

25 East Washington Street.

3. Warden, C. C.: Vaccine Treatment of Gonorrhea, THE JOURNAL A. M. A., Dec. 11, 1915, p. 2080.

A STUDY ON FOOD

AND THE FUEL VALUE OF THE DIETARY AT THE NEW YORK CITY MUNICIPAL SANATORIUM

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The dietary question is fraught with many difficulties in an institution for the treatment of tuberculosis, and is a problem which is never entirely solved. Just when the responsible party is congratulating himself on a satisfactory, as well as an economical solution of the proposition, trouble appears from the most unexpected sources, varying from a bug in the cereal to a jump in the cost per capita. During recent years the consensus of opinion has changed from superalimentation in tuberculosis to the more rational procedure of feeding three generous meals a day, with extra diets only when indicated by poor appetite at the meal periods, accompanied by a markedly substandard or steady loss of weight. Some patients with poor appetites will eat as much as usual during meal periods, even if given extra between-meal diets, and when the nourishment is required and well borne, its administration is indicated. However, if the total caloric intake is not increased, the extra diets should be discontinued.

It has been pointed out by competent observers, notably by King and Bardswell and Chapman, that the strain of forced feeding on the organs of assimilation and elimination is so great that it becomes a source of danger rather than benefit in many cases, and its use should be the exception rather than the rule. While this is generally true, I have observed many patients who were capable of assimilating enormous quantities of nourishment without any apparent primary or secondary deleterious effects on their organisms. I believe, however, that conservatism should play a large part in the feeding of the tuberculous, and as the disease generally persists for a long period, the gastro-intestinal tract and kidneys should be spared all extra strain, if they are to be expected to continue a successful struggle after the first acute onset of the disease has been overcome. The patient who emerges from the preliminary fighting with a damaged gastro-intestinal tract is in an unfortunate position, with poor prospects of becoming a comfort to himself or a permanently self-sustaining member of the community. His chances for an early exacerbation are excellent, and for final recovery, to say the least, are compromised. It seems only rational that the stomach should have a maximum amount of rest after a heavy meal, and for this reason alone the routine administration of milk and egg diets between meals would seem to be strongly contraindicated. In this connection, I should like to mention Dr. E. S. McSweeny's interesting studies at Otisville in 1908, for they are very convincing, and established the point just made as applied to patients in the Municipal Sanatorium. At that time reports from other institutions[1] indicated a number of objections to forced feeding, but it was felt that possibly some of these reasons did not neces-

1. Newton, R. C.: The Diet and Régime in Vogue in Thirty-Four Tuberculosis Sanatoria, Proc. Sixth Internat. Cong., Part 2.

sarily apply at Otisville, where all afebrile patients are compelled to do a certain amount of work.

McSweeny's experiment was as follows:

Two groups of patients were selected. Group 1 was allowed milk and eggs in addition to the three meals, while Group 2 received only three regular meals daily. It was found that the patients in Group 2 (those who ate only three regular meals) averaged larger weight increases than those in Group 1. It was decided to discontinue the milk and egg diets that had been administered as a routine morning and afternoon since the institution was opened, and to depend on the regular meals in all but exceptional cases. This policy was proved, by later experience, to be sound, and has been continued to date.

A study of the caloric content of our dietary was carried out at the Women's Unit in 1910, but the results were not published. The work was resumed two years ago and, owing to the paucity in the literature of studies in connection with the dietaries of tuberculosis institutions, it was decided to publish our results with the hope that such a step would promote discussion and criticism along this line. It was felt that so important a function as the dietary, which is one of the fundamentals of sanatorium treatment, deserves more comprehensive and collective study than it has received in the past, and that an exchange of ideas by the various workers in tuberculosis institutions is particularly desirable, for such an exchange will not only tend to lead to economy in administration, but will eventually provide a scientific basis on which to construct the future dietaries. Dettweiler said, "My kitchen is my pharmacy," and Osler[2] is quoted as follows: "As a healing of tuberculous process is largely dependent upon the state of nutrition, the question of diet becomes of the very first importance."

In spite of the fact that the dietary has been recognized for many years to be of prime importance, one finds but few studies, by men in this country, of a character that deserve more than passing attention. It seems deplorable that so little effort has been expended in this field during the past eight or ten years while the tremendous activities in connection with other phases of the tuberculosis problem have been in progress. Nothing tends to conserve the provision supply to such an extent as an active interest in the actual amount by weight of food consumption and food waste.

The aim of those in control of institutional dietaries should be: (1) to supply the food needs of the patients as economically as is consistent with the quantity, quality and service required for the treatment of the disease from which the patients suffer; (2) to avoid too frequent repetition of any particular foodstuff, and (3) to keep a close check on the amount of plate, general table, kitchen and ice box waste. When our dietary studies were resumed in 1914, we were guided by these principles.

The most costly item of the dietary is meat, and this was our first point of attack. It was found that egg breakfasts were entirely satisfactory to the patients; therefore eggs were served in various styles for from four to five of the morning meals each week. Steak and chop breakfasts were entirely eliminated, and other meat orders were gradually cut down to the minimum. The per capita per diem consumption of meats and fish fell from an average of 19.9 to 14.5 ounces during the course of six months. The eggs which are used for cooking purposes at the Municipal Sanatorium are of cold storage variety (fresh gathered extra), and are contracted for (1915) at from 25.5 to 26 cents per dozen. These are recandled after delivery to the institution. The substitutions above referred to and the routine serving of small initial meat orders, which cuts down the plate waste of those who have small appetites, but who, on general principles, take a large slice of meat when it is immediately available, accomplished the reduction in meat consumption and was mainly responsible for lowering our cost per capita for foods from 42 cents for the first nine months of 1913 to 37+ cents for the same period in 1914 (Table 1). Care was taken to keep the average number of calories up to a reasonable standard, and that this was satisfactorily accomplished is indicated by the fact that our patient weight reports continued to be entirely satisfactory.

TABLE 1.—SAVINGS FOLLOWING SUBSTITUTION OF EGGS FOR MEATS AT BREAKFASTS COVERING A PERIOD OF FOUR WEEKS

No. of Meals	Variety of Food	Per Meal	Total	Price, cts. (1914)	Cost
8	Steak	260 lbs.	2,080 lbs.	20 per lb.	$416.00
8	Chops, loin	145 lbs.	1,160 lbs.	19.3 per lb.	223.88
	Chops, rib	125 lbs.	1,000 lbs.	10 per lb.	100.00
Total for meat					$739.88
16	Eggs	80 doz.	1,280 doz.	23.6 per doz.	302.08
Total savings for period of four weeks					$437.80

We have felt for several years that it is not only entirely unnecessary, but also undesirable to serve meat and eggs at every meal; in fact, in 1910 meat and eggs were eliminated from the breakfasts at the women's unit for several weeks. During this time the weight increases and general physical condition of the patients were entirely satisfactory. In September, 1915, after an explanatory talk with the patients at the women's unit, it was decided to substitute 8 ounces of milk per capita for eggs on four mornings in the week, and this has not only proved to be a satisfactory change, but has, in addition, resulted in a weekly saving of 11.3 cents per patient per week.

TABLE 2.—COMPARATIVE FOOD VALUE AND COST OF MILK AND EGGS

		Protein	Fat	Carbohydrate	Total Calories	Cost per Capita per Diem
Eggs, 2 per portion	Grams	13.50	10.54	.....	...	(Eggs 26 cts. per dozen) 4.33 cts.
	Calories	55.31	105.46	.....	161	
Milk, ½ pt. per portion	Grams	7.48	9.08	11.34	...	(Milk at 6 cts. per qt.) 1.5 cts.
	Calories	30.66	84.44	46.49	162	

Saving per capita per diem, when milk is substituted, 2.83 cents.

Table 2 demonstrates that by substituting milk for eggs it is possible to save $16.41 a day in an institution of 580 beds (the capacity of the Municipal Sanatorium) without changing the caloric value of the dietary. If this substitution was made on four mornings each week, the annual saving would be approximately $3,500. Another factor of importance in connection with the substitution of milk is that good milk is easily procurable (at least in this vicinity) at 5.5 cents a quart at all seasons, while satisfactory eggs

2. Friedenwald and Ruhräh: Diet in Health and Disease.

are very often unobtainable, in sufficient quantities, at any price. A further result was an increased consumption of cereal, which we feel is particularly desirable and which has practically no effect on the cost per capita. The breakfast menu on the four days referred to consists of milk, 16 ounces; a good variety of hot cereal and rolls; butter; coffee, and occasionally fruit.

TABLE 3.—COMPARISON OF CARVING WASTE AT MALE AND FEMALE UNITS, NOV. 1 to 7, 1915

Variety	Male Unit		Female Unit	
	Amount Received from Storehouse, Pounds	Carving Waste, Pounds	Amount Received from Storehouse, Pounds	Carving Waste, Pounds
Roast beef	167	14	96¾	1½
Corned beef	203	44½	95	12½
Roast lamb	182	19	94½	5
Pot roast	164½	27	99½	2½
Boiled ham	138½	33½	63	13

A factor worthy of mention in connection with the utilization of our meats, which applies more especially to the women's unit, is the large children census. We have seventy-two children, between the ages of 5 and 14 years, and all of the meat which cannot be served to adults in the form of slices is cut up into small pieces and served to our juveniles. Table 3 represents the amount of carving waste which is eliminated by this procedure, and demonstrates to some extent the advantage, from the standpoint of economy, of treating small children in institutions with adults.

Much of the roast meat which is close to the bone and which is of fine quality is available for this use. The utilization of "left overs," which are bound to be ever with those who serve large numbers of persons, is a hard problem to handle in a state, county or municipal tuberculosis institution, where the stay is for a comparatively long period and where those who are catered to are posessed of their normal amount of gray matter, in addition to a highly specialized sense of their rights as citizens and former tax payers. Many economical and delectable dishes of high food value which are prepared from "left overs" and which are eaten with relish in most well to do households are scouted by a large majority of the patients. Those culinary connoisseurs have very definite ideas on the subject of dietetics, and as their forcefully expressed likes and dislikes are the governing factors in the formation of the institutional menu, it behooves the food purveyor to watch that infallible barometer, the garbage can, with ever increasing interest, and to catch the rumblings of any approaching storm from the distance. This precaution often saves the situation before any real serious developments occur, and, besides, keeps the responsible party in a continual state of preparedness. In our experience, hash has always been mistrusted in spite of the excellence of its ingredients, and it became necessary for us to discontinue it over two years ago, after our unsuccessful efforts to please with various "hashy" combinations had been paraded before the Board of Estimate through the agency of a former patient. The patients gave abundant evidences that they would not eat it, and although the "hash meal" was an economy, it was felt that it did little to further the results of treatment, so it was stricken from the menu. It is easy to carry economy too far in the planning of an institutional dietary. It is also necessary to bear in mind the fact that the physical well being of the patients is of first importance, and that no one thing tends to cause more dissatisfaction among the patients than an unsatisfactory menu.

The most reliable criterion for checking up the adequacy and esthetic qualities of the dietary is a computation of the actual food consumption and its value in calories, combined with a careful per capita study of the plate waste. If the number of calories is up to the standard, the food waste low and there has been a dearth of justifiable complaints, the person or persons responsible for the dietary can rest assured that all is well.

TABLE 4.—PER CAPITA CONSUMPTION OF FOODS AT BOTH UNITS AMONG THE VARIOUS CLASSES OF PATIENTS

	Adults				Children					
	Men	%	Women	%	Boys 9-15 Yrs.	%	Girls 5-9 Yrs.	%	Girls 10-14 Yrs.	%
Protein (grams)	127.2	..	107.4	..	105.5	..	84.9	..	91.9	....
Fat (grams)	154.5	..	121.8	..	129	..	99.3	..	102.3	....
Carbohydrates (grams)	425.7	..	288.9	..	413.88	..	254.4	..	267	....
Protein (calories)	521	14	440	16	432	13	348	15	376	15.5
Fat (calories)	1,436	39	1,132	41	1,199	36	923	40	951	39.5
Carbohydrates (calories)	1,745	47	1,184	43	1.696	51	1,043	45	1,094	45
Average calories per diem	3,700+	..	2,750+	..	3,300+	..	2,300+	..	2,400+	....
Average number calories per pound of body weight	27	..	23	..	43.5	..	33.8	..	34.5	....

Calories for male and female adults combined, 3,200.

Table 4 presents one of our dietary studies. In Table 5 are given King's and Bardswell and Chapman's diets. It will be seen that our protein content is considerably lower than Bardswell and Chapman's, and slightly lower than King's; the fats are lower than Bardswell and Chapman's, and higher than King's, and the corbohydrates about equal to King's, while much higher than Bardswell and Chapman's. Our dietary, however, is giving excellent satisfaction with a minimum of gastro-intestinal disturbances, and the comparative results tend to show that no trouble may be expected so long as the protein, fat and carbohydrate content of a dietary is kept within certain bounds.

TABLE 5.—KING'S AND BARDSWELL AND CHAPMAN'S DIETS

	King's Standard Diet Annex,* Grams	Bardswell and Chapman's Standard Diet,† Grams
Protein	131	144
Fats	113	160
Carbohydrates	385	270
Calories	3,166	3,186

* King: The Construction of an Economic and Efficient Diet in Tuberculosis. Tr. Nat. Assn. S. and P. Tuberc., 1909.

† Bardswell, N. D., and Chapman, J. E.: Diets in Tuberculosis. New York, Oxford University Press, 1908.

It has been stated that children require 80 calories per kilogram (36 calories per pound) of body weight, and adults, moderately active, from 35 to 40 calories per kilogram (16 to 18 + calories per pound) of body weight.[3]

Rubner's figures for a man of 65 kg. (140 pounds) are given in Table 6.

TABLE 6.—RUBNER'S FIGURES FOR A MAN OF 140 POUNDS

	Total Calories	Calories per Kg. of Body Weight	Calories per Lb. of Body Weight
During rest in bed	1,800	28	13
In repose	2,100	32	14½
Light work	2,300	33	15
Moderate work	2,600	40	18+
Hard work	3,100	48	22

Our average for men, 26 calories per pound of body weight, is well above the figures given for men at hard work, and the average for women about equal to it. The male children consume far above the average calories per pound as given by Pattee, and the female children slightly less than her figures. It would seem as if from 3,100 to 3,200 calories is about the normal average for the mixed sexes in tuberculosis institutions, as our food consumption was controlled entirely by the appetites of the various patients, and I presume that such was the case in the other institutions mentioned above.

If this premise is true, then the ability of the various patient groups to select the amount and variety of food necessary to yield what is considered to be the proper number of calories from entirely different dietaries is remarkable, and confirms the experiences of other observers in this field. In contrast to these figures, the reader may be interested to learn that Fisher gives 300 calories as a hypothetic figure for the amount of protein needed in the diet of the tuberculous or, as he states, 50 per cent. more than is required for a healthy man. In answers to a questionnaire which he sent to fourteen tuberculosis institutions in this country and abroad, it was found that the number of calories furnished by the various dietaries varied from 410 to 1,200 for protein, from 750 to 2,200 for fat, and from 560 to 2,100 for carbohydrates. In thirteen institutions the number of calories of protein exceeded 500, in thirteen the number of calories of carbohydrates exceeded 1,100, and in twelve the fats ranged from 1,100 calories up. The calories varied from 2,400 to 5,500 in all, ten institutions averaging 3,500 calories and up.[4]

CALORIES PER POUND OF BODY WEIGHT

As might be expected, the number of calories consumed per pound of body weight was found to be much greater in children than in adults, but we were surprised by the marked excess of calories consumed by the group of male children between the ages of 9 and 14 years over the female group of the same ages, which amounted to 10 calories per pound of body weight. The average gain in weight, however, was 1¼ pound for the female group and $^{73}/_{100}$ for the male group. This may be accounted for by the greater activity of the boys, although one would think that the excess of calories consumed by them should be sufficient to neutralize the effect of this activity to some extent. A study of the weight records of the male and female units covering four years is of interest in connection with the foregoing. These units are separate institutions so far as the records are concerned, and our opportunity for watching the weight increments of the two sexes is peculiarly favorable. It will be seen that our records prove conclusively that the capacity for accumulating weight is markedly in favor of the females in spite of the monthly menstrual drain, and is enough to lead us to believe that it is a characteristic of the female sex. I believe it is the general opinion that males gain more on the average than females, and our studies have shown that the consumption of calories per pound of body weight by males is in excess of that of the female sex: 27 calories per pound for men and 24 for women. In spite of the greater tissue bulk in males with the capacity for greater food consumption, our results prove that females gain the most weight.

REPETITION OF FOODSTUFFS

Care in the avoidance of repetition has been the saving grace of many splendid culinary combinations. No matter how infatuated patients may be with a certain foodstuff, if it is served too frequently their ardor will soon wane, and a good thing is lost to the menu. Much of the monotony of the institutional dietary is due to repetition, and the fact that the menu is not so varied as to prevent patients from making a fair guess as to what they will receive at a certain meal on a certain day. With this in mind, about two years ago, we constructed a four weeks' menu which covered all of the foodstuffs available on our yearly contract. During the late spring, summer and early fall months, we have an abundance of green vegetables from our garden, and these are added to our menu as they are produced. We have from one to two vegetables besides potatoes for dinner and supper. For the first four weeks of operation the menu starts with the first week and ends with the fourth; for the second four weeks it commences with the second and ends with the first week; for the third four weeks, it begins with the third week and ends with the second, etc. This arrangement makes it practically impossible for any patient to surmise what food is to be served at any time. Moreover, the plan facilitates the ordering of supplies, and enables one to work out a daily ration with very little difficulty.

TABLE 7.—WEIGHT

	Average Increase of Those Gaining, Pounds	Gained		Lost	
		Number	Per Cent.	Number	Per Cent.
1912: Male unit	7.15	419	80.11	104	19.89
Female unit	12.23	276	91.39	26	8.61
1913: Male unit (adults)	9.84	357	83.02	73	16.98
Male unit (children)	5.21	48	97.96	1	2.04
Female unit (adults)	13.48	228	87.36	33	12.64
Female unit (children)	10.03	106	96.36	4	3.64
1914: Male unit (adults)	9.46	305	78.41	84	21.59
Male unit (children)	7.20	39	97.50	1	2.50
Female unit (adults)	10.71	200	83.68	39	16.32
Female unit (children)	10.25	104	96.30	4	3.70
1915: Male unit (adults)	10.62	350	85.37	60	14.63
Male unit (children)	9.48	36	97.30	1	2.70
Female unit (adults)	11.69	232	85.29	40	14.70
Female unit (children)	11.49	70	97.22	2	2.78

Our experience has taught us that it is good judgment to stop for a while, at least, any particular combination that the patients begin to tire of. A good illustration of the evil of repetition is our experience with codfish balls at the men's unit several years ago, where

3. Pattee, Alida Frances: Practical Dietetics with Reference to Diet in Disease, Mount Vernon, N. Y., A. F. Pattee, 1910.
4. Fisher, Irving: Proc. Sixth Internat. Cong. Tuberc., i, Part 2.

it had been customary to serve them about four times each month. It is a cheap meal, and was appreciated by the patients for a time; but they finally developed a marked aversion to salt cod, and on one occasion a few outraged "citizens" waylaid a whole meal of carefully prepared uncooked codfish balls and threw them into the refuse pail. The miscreants were apprehended and punished, but nevertheless the hint was taken and salt codfish did not appear on our menu again for a considerable period. It is now alternated with other salt fish and is appreciated.

PLATE WASTE

The work reported by Wright on plate waste is of value to those employed in insane hospitals, but of practically no use to workers in tuberculosis institutions. It is to be expected that the per capita waste will be greater in a tuberculosis institution than in an institution for the care of insane or in an acute hospital, owing to the fact that much larger quantities of food, a great deal of which is especially rich in wastage, is served to the tuberculous. Meats furnish an especially large amount of waste, owing to the comparatively large percentage of uneatable portions, such as gristle, fibers, small bones, etc., and this food forms a conspicuous part of the dietary of the sanatorium. We have no means of checking up our waste with that of other institutions for the treatment of tuberculosis, as our review of the literature has failed to reveal any studies on this problem. We feel that periodic studies of the per capita food wastage will do much to stimulate those in charge of the dietary to further efforts toward economy, and are sure that the result of food waste studies by the various large sanatoriums would be of great service to all. Our dietitians are instructed to serve as much of any particular food as a patient desires to eat; but to reduce useless waste to a minimum by serving it in small portions. This rule has proved to be satisfactory to the patients, and is bound to effect economy of foodstuffs.

TABLE 8.—AVERAGE PERCENTAGE OF MEAT CONSUMPTION AND SHRINKAGE

Meat	Consumption, Per Cent.	Shrinkage and Wastage, Per Cent.
Roast beef	36 to 39	64 to 61
Pot roast	28+	71+
Beef steak, sirloin	25.5	74.5
Roast lamb	29.5	70.5
Lamb chops	31	69
Liver	44.5	55.5
Roast chicken	26	74
Bacon, fried	30.5	69.5
Salt pork	54	46

Our average per capita per diem waste of solid foods is for male adults, $^{45}/_{100}$ pound; for boys from 9 to 15, $^{27}/_{100}$ pound; for females, entire dining hall, $^{41}/_{100}$ pound, and for female children, $^{335}/_{1000}$ pound. It is noticeable from this that children "clean their plates" much better than adults, although the smaller amounts served accounts for a part of this.

In connection with our plate waste studies we carried on investigations covering the shrinkage in meats, which were followed up from the time the meat was cut from the side of the carcass until the remnants were accounted for as plate waste.

The following headings used in our tables illustrate the method of procedure:

Date.
Varieties of meat.
Amount received from storehouse, including butchering waste, pounds.
Kitchen trimmings, pounds.
Weight before cooking, pounds.
Shrinkage, pounds.
Plate waste, pounds.
Surplus, pounds.
Amount consumed, pounds.
Percentage of consumption.

We found that the percentages given in Table 8 represented the average percentage of meat consumption and shrinkage (including wastage). These percentages of consumption seem to be absurdly low; but when we consider the butchering waste, the large amounts of water and fat which are eliminated by the cooking, and the weight of the bones, fiber and gristle, which appears as plate waste, the figures assume more reasonable proportions.

TABLE 9.—FORM OF TABLE FOR COMPUTATION OF DAILY CALORIES AND FOOD WASTE*

Date									
Menu for Day	Pounds Eaten	Chemical Composition			Number of Pounds Eaten			Plate Waste	Space Used for Computing Number of Calories
		% P	% F	% C	P	F	C		
Column for various foods		Percentage not totaled			These four columns are totaled				
Total No. of pounds									

* Abbreviations: P, protein; F, fat; C, carbohydrate.
Method of procedure for computing number of calories in dietary:
Number of pounds of protein plus number of pounds of carbohydrate × 1,820 (number of calories in 1 pound of protein or carbohydrate) = total number of calories of protein and carbohydrate.
Number of pounds of fat × 4,080 (number of calories in 1 pound of fat) = total number of calories of fat.
Total number of calories of protein and carbohydrate plus total number of calories of fat = total calories consumed for day.
Total calories consumed for day ÷ number of persons served = average calories per patient per day.
Total pounds of plate waste ÷ number of persons served = average per capita plate waste per day.

ROUTINE FOR DETERMINING THE CALORIC VALUE OF FOOD

Our routine for determining the caloric value of the food served, which is similar to that in general use, except that we do not use the metric system, follows:

The various classes of foods are weighed separately before service. After the meal is finished all of the foods which are suitable for future use (such as meats on the platters, etc.), are weighed separately and the weights deducted from the original amounts. The foods which are left as "plate waste" are now separated out and placed in marked containers (one for each article), which are weighed individually. The original amount served minus the "left overs" minus the "plate waste" equals the actual amount of food consumed. It is, of course, necessary to determine the percentage of protein, fat and carbohydrate in each combination of foodstuffs served, and this is very easily accomplished as tables are available which cover almost every possible ingredient. The amount of protein, fat and carbohydrate is determined by multiplying the number of pounds of each foodstuff on the daily menu by its percentage of protein, fat and carbohydrate, and totaling the three separately. The total

number of calories for the day is obtained by multiplying the number of pounds of protein and carbohydrate consumed by 1,820, as both of these have the same caloric value, and the number of pounds of fat by 4,080. The results are then added and the sum represents the number of calories consumed. The total number of calories, divided by the number of persons served for the day, gives the average number of calories consumed per person. Table 9 is used at Otisville for the computation of the daily calories and food waste. The calories are figured out for each meal and then totaled.

CONCLUSIONS

1. In all institutions for the care of the tuberculous, food studies, including the caloric content of the dietary and food waste, should be carried on at regular intervals, preferably for one week or more during the various seasons of the year, and these records should be made available for comparative purposes.

2. Special training, though advisable, is not a necessary requisite for the carrying out of a successful dietary study in an institution. It is, of course, essential that the doctor who directs the work should be thoroughly familiar with the problem. It is only necessary that the person or persons who are doing the work should be intelligent, careful and willing to follow conscientiously the "rules of the game."

3. The elimination of meats and eggs from the morning meal and the substitution of milk is a sound and justifiable economy.

4. The dietary of the tuberculous should be high in caloric value, but confined to three daily meals in all but exceptional cases.

5. Males consume more food than females, both in total amount and in number of calories per pound of body weight, but in spite of this fact, females make much larger gains than males, enough so as to indicate that rapid accumulation of weight is a characteristic of the female sex.

6. The avoidance of frequent repetition of foodstuffs is very important.

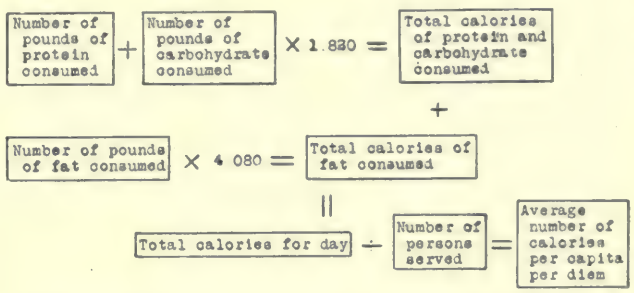
7. A four weeks' menu, when used as suggested, is of great aid to those controlling the dietary, and tends to do away with repetition.

8. The treatment of small children, in separate units, in institutions with adults, is both feasible and advantageous in that it results in economy of foodstuffs.

9. Small initial servings with as many "seconds" as may be desired is satisfactory to the patients and prevents much plate waste.

10. The plate waste in institutions for the tuberculous is of necessity higher than in hospitals for the insane or in general hospitals.

Much credit is due to Miss Marguerite Brady, who has been in charge of the dietary work at the male unit since the work was started, and to Miss Carlotta Nellis, Miss Beatrice Cummings and Mrs. Catherine Stoltzenberg, who served in turn as dietitians at the female unit. We wish to express our thanks to Dr. Herbert M. King for his assistance, to Graham Lusk for reviewing the results of our work, and to Miss Charlotte Strickland of Loomis Sanatorium for many useful suggestions.



Diagrammatic scheme for computing the caloric content of a dietary. Pounds are converted into grams by multiplying by 453.5925.

Necessity of Cultivation.—Cultivation is as necessary to the mind as food to the body.—Cicero.

VARIATIONS IN RENAL FUNCTION DEPENDENT ON SURGICAL PROCEDURES *

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This report is based on the investigation of changes in renal function produced by operations performed under general anesthesia, and of the variations in renal activity dependent on relief from back-pressure of urine. For this work, the rate of excretion of phenolsulphonephthalein and the concentration of urea in the blood have been taken as the indexes of renal activity. These tests were chosen because of their recognized value and because they are so easily performed. The phenolsulphonephthalein test was carried out by the technic of Rowntree and Geraghty.[1] The determination of the urea concentration in the blood was made by the urease method introduced by Marshall.[2] The concentration of total nonprotein nitrogen in the blood is probably a better index of renal efficiency, but the urea determination is made with less difficulty and can easily be made a routine clinical procedure. It is true that the proportion of urea nitrogen in the total nonprotein nitrogen varies considerably, but usually it forms from 50 to 70 per cent. of the nonprotein nitrogen, the percentages increasing with the total nitrogen retention. This has been shown by Folin and Denis,[3] Foster,[4] Christian, Frothingham, O'Hare and Woods[5] and others. In infants the urea nitrogen percentage is appreciably lower as a rule, according to the results obtained by Schlutz and Pettibone.[6] But on the whole the concentration of the urea in the blood may be taken as a fair index of renal function.

Although the question as to the agreement of phenolsulphonephthalein and blood urea tests is beyond the scope of this paper, still Table 1, giving the results of these two tests performed simultaneously on the same patient, is of considerable interest.

Throughout these tables blood urea concentration is reported in milligrams of urea per hundred c.c. of blood. Of the phenolsulphonephthalein figures, the first represents the time in minutes elapsing between the injection of the substance intramuscularly and its appearance in the urine; the second figure is the percentage excretion in the first hour after appearance in the urine, and the third figure is the percentage excretion in the second hour. For the arbitrary grouping, a phenolsulphonephthalein excretion of less than 50 per cent. in two hours is considered "diminished,"

* From the Brady Urological Institute of the Johns Hopkins Hospital, and the University Hospital, Minneapolis.

1. Rowntree, L. G., and Geraghty, J. T.: The Phthalein Test, Arch. Int. Med., March, 1909, p. 284.
2. Marshall: Jour. Biol. Chem., 1913, xv, 487.
3. Folin and Denis: Jour. Biol. Chem., 1913, xiv, 29.
4. Foster, N. B.: Uremia, Arch. Int. Med., March, 1915, p. 356.
5. Christian, Frothingham, O'Hare and Woods: Am. Jour. Med. Sc., 1915, cl, 655.
6. Schlutz, F. W., and Pettibone, C. J. V.: Quantitative Determinations of Nonprotein Nitrogen in the Blood of the New-Born, Am. Jour. Dis. Child., September, 1915, p. 206.

and a blood urea of fifty or over is considered "increased."

In the consideration of the foregoing results, it is to be noted that the patients on whom these tests were made were persons suffering from some surgical disease of the urinary tract, that their average age was about 55, and that all grades of arteriosclerosis are represented. With the exception of the patient in Case 29, no other showed any signs of cardiac decompensation or edema. With the exception that a considerable number of patients who had high phenolsulphonephthalein excretions did not have a blood urea test made and so are not reported here, there was no selection of cases for Table 1.

TABLE 1.—RESULTS OF PHENOLSULPHONEPHTHALEIN AND BLOOD UREA TESTS

GROUP I, WITH APPROXIMATELY NORMAL PHENOLSULPHONEPHTHALEIN EXCRETION AND BLOOD UREA CONCENTRATION

Case No.	Phenolsulphonephthalein Time	1st Hour	2d Hour	Blood Urea
1	10	58	14	28
2	10	42	15	34
3	10	45	19	43
4	10	45	10	36
5	8	52	17	30
6	10	40	20	42
7	10	52	10	34
8	10	45	15	36
9	11	40	22	56
10	9	28	28	44
11	9	40	18	31

GROUP II, WITH DIMINISHED PHENOLSULPHONEPHTHALEIN EXCRETION, BUT WITH APPROXIMATELY NORMAL BLOOD UREA

Case No.	Phenolsulphonephthalein Time	1st Hour	2d Hour	Blood Urea
12	13	25	21	39
13	34	16	11	53
14	20	17	7	53
15	17	19	17	42
16	10	18	24	32

GROUP III, WITH DIMINISHED PHENOLSULPHONEPHTHALEIN EXCRETION AND INCREASED BLOOD UREA

Case No.	Phenolsulphonephthalein Time	1st Hour	2d Hour	Blood Urea
17	21	7	12	94
18	18	12	10	105
19	33	8	9	91
20	18	12	11	83
21	25	Trace	Trace	205
22	20	5	6	164
23	..	Trace	Trace	430
24	..	Trace	Trace	290
25	32	9	10	90
26	15	8	10	89
27	8	25	18	80
28	11	21	14	62
29	18	6	9	84
30	32	9	10	90

In looking over the results obtained in this series of cases, one will notice that a high phenolsulphonephthalein excretion was always associated with a normal or only slightly increased blood urea concentration, and that a low phenolsulphonephthalein excretion was usually associated with a very definite increase in blood urea concentration, although in a small number of cases the blood urea was not much increased, if at all (Group II).

The foregoing conclusions in the main are in agreement with those of most investigators; however, it is known that discrepancies are encountered somewhat more frequently when the tests are performed on patients suffering from the various forms of nephritis complicated by cardiac decompensation, with chronic passive congestion and edema. For further comparison of these tests see the work of Frothingham and Smillie,[7] Rowntree, Marshall and Baetjer,[8] and of Hopkins and Jonas.[9] It is interesting to note that the four cases of superpermeability reported by Baetjer[10] showed normal or only moderately increased nonprotein nitrogen with the hypersecretion of phenolsulphonephthalein.

FUNCTIONAL CHANGES FOLLOWING RELIEF FROM BACK-PRESSURE OF URINE

It is well known that an increased phenolsulphonephthalein excretion and a decreased nonprotein nitrogen retention are usually associated with improvement in renal function. But nowhere is this change so well shown as in persons relieved of some form of urinary obstruction. In Table 2 is shown the result of preliminary treatment of patients with urinary obstruction due to prostatic hypertrophy. The treatment consisted in bladder drainage by means of an inlying catheter. Most of the patients were able to be up in chairs or walking about during the period of this treatment. In most cases there was very little or no change in the physical signs.

In Table 2 the determinations on each patient were made at intervals of from four to seven days, the corresponding phenolsulphonephthalein and blood urea tests being made approximately simultaneously. Similar tests, made on quite a number of other patients who did not have so high an initial nitrogen retention, showed exactly similar but less marked changes. It is also worthy of note that a fall in blood pressure generally accompanied the improvement in condition; in Case 1 the blood pressure dropped from 210 to 155 mm. Hg. Excepting in Case 4, the patients whose tests are given in Table 2 were all operated on, a prostatectomy being done, and all recovered normally with no uremic symptoms. In Case 4 the patient was very drowsy on admission; his mental condition, however, improved markedly, but he was considered too poor a risk for operation.

TABLE 2.—RESULT OF PRELIMINARY TREATMENT OF PATIENTS WITH URINARY OBSTRUCTION DUE TO PROSTATIC HYPERTROPHY

	Phenolsulphonephthalein Time	1st Hour	2d Hour	Blood Urea
Case 1	21	7	12	94
	15	19	10	72
	12	23	15	64
	13	23	12	47
Case 2	18	12	10	105
	20	14	11	80
	19	18	15	64
	15	24	11	55
Case 3	33	8	19	91
	18	26	25	53
Case 4	25	Trace	Trace	205
	20	Trace	Trace	200
	25	Trace	Trace	158
Case 5	32	9	10	90
	34	16	11	53
	20	17	7	53

During this preliminary treatment the patients received the routine hospital diet, which contains the normal amount of nitrogenous food. Folin, Denis and Seymour,[11] Frothingham and Smillie[12] and others,

7. Frothingham, Channing and Smillie, W. G.: The Relation Between the Phenolsulphonephthalein Excretion in the Urine and the Non-Protein Nitrogen Content of the Blood in Human Cases, Arch. Int. Med., October, 1914, p. 541.

8. Rowntree, L. G.: Marshall, E. K., Jr., and Baetjer, W. A.: Further Studies of Renal Function in Renal, Cardiorenal and Cardiac Diseases, Arch. Int. Med., April, 1915, p. 543.

9. Hopkins, A. H., and Jonas, Leon: Studies in Renal Function with Special Reference to Non-Protein Nitrogen and Sugar Concentration in the Blood, Phenolsulphonephthalein Elimination and Blood Pressure, Arch. Int. Med., June, 1915, p. 964.

10. Baetjer, W. A.: Superpermeability in Nephritis, Arch. Int. Med., June, 1913, p. 593.

11. Folin, Otto; Denis, W., and Seymour, M.: The Non-Protein Nitrogenous Constituents of the Blood in Chronic Vascular Nephritis (Arteriosclerosis) as Influenced by the Level of Protein Metabolism, Arch. Int. Med., February, 1914, p. 224.

12. Frothingham, Channing, Jr., and Smillie, W. G.: A Study of Different Nitrogenous Diets in Chronic Nephritis, Arch. Int. Med., February, 1915, p. 204.

have shown that marked changes in the nonprotein nitrogen of the blood may be produced by variations in the nitrogenous intake. But the changes recorded occurred while the patients were on the same diet. The great importance of these tests in the selection of the most opportune time for operation is obvious, for often there is very little or no change in the appearance of the patient or in the physical examination or urine analysis.

EFFECT OF ANESTHETIC AND OPERATION ON BLOOD UREA

1. Nitrous Oxid-Oxygen-Ether Anesthesia, with Rebreathing: Very little ether was used, occasionally none at all, and never so much but that the patients were conscious in five or ten minutes after operation. The blood urea determinations were made twenty-four hours or less before operation, and again from twenty-four to forty-eight hours afterward, and on some of the patients subsequent determinations were made at three and five day intervals. The results are shown in Table 3.

TABLE 3.—BLOOD UREA FINDINGS WITH NITROUS OXID-OXYGEN-ETHER ANESTHESIA, WITH REBREATHING

Case No.	Operation	Blood Urea Before	Blood Urea Afterward	Subsequent Determinations
1	Excision of sinus tract to kidney.	28	38	
2	Nephrectomy	34	44	
3	Nephrectomy	43	68	
4	Pyelotomy	36	70	
5	Prostatectomy	30	59	
6	Prostatectomy	64	87	
7	Prostatectomy	47	57	
8	Prostatectomy	53	48	
9	Nephrectomy	79	..	192,202,159,104,53
10	Nephrectomy	63	..	130,170,104,79
11	Vesical lithotomy	181	227	262,300,413
12	Prostatectomy	47	..	198,103,67
13	Prostatectomy	49	76	

In Table 3 it will be noticed that all patients except one showed a more or less marked rise in blood urea immediately following the operation, the average being 21 mg. per hundred c.c. This increase must be considered all the more real when it is remembered that immediately after operation each patient receives from 1,000 to 1,500 c.c. normal salt solution infusion, and that they are all on a very low protein diet for at least forty-eight hours after operation. The average age of these patients was about 50. The kidneys which were removed had all been shown previously by separate phenolsulphonephthalein tests to have markedly diminished function. For some reason not obvious, the patients in Cases 9, 10 and 12 developed a very high nitrogen retention after operation. They showed definite but not marked uremic symptoms. All recovered except the patient in Case 11. This patient was moribund on admission. A chronic and extreme grade of urinary obstruction due to a vesicoprostatic calculus developed suddenly into a complete obstruction, and the patient died following an emergency suprapubic cystostomy.

2. Ether Anesthesia, Open Method: From the nature of the operations in Table 3 it is evident that only the first six cases of Table 4 are comparable with the former. These six cases show an average increase of 13 mg. urea per hundred c.c. of blood following operation, compared with an average of 21 mg. increase in the former series. The remainder of the series in Table 4 shows an average increase of 9 mg. per hundred c.c. blood, although here it is not unusual to meet with cases showing a slight decrease even in the blood urea. In very few of the cases from 7 to 25 was any infusion of salt solution given. A routine infusion as was given the patients reported in Table 3 would doubtless have lowered still more the slight increase in blood urea. The average age of these patients, exclusive of the first six, was about 35. It is interesting to note that the patient in Case 16 who showed a 34 mg. rise was in profound shock for some time during and after the operation. His blood pressure fell to 40, but later was kept at about 90 by intravenous infusion of salt solution with epinephrin. Cases 18 and 19 represent the effect of anesthetic alone and anesthetic with operation on the same patient. At the first attempt satisfactory anesthesia could not be induced, although the patient was incompletely anesthetized for over an hour, and a slight decrease in blood urea resulted. Two days later a craniotomy was performed, requiring four and a half hours. The blood urea was only slightly increased. From this table it is seen that in persons suffering from the ordinary surgical diseases there is, as a rule, only a slight, if any, increase in blood urea concentration following an operation under ether anesthesia. Even in those patients undergoing an operation on the urinary tract in whom, on account of the age and the nature of the operation, one finds, as a rule, the maximum postoperative rise in blood urea, in this small series of cases, at least, this rise was not as high as that observed in similar cases in which nitrous oxid-oxygen-ether anesthesia was employed. This series of cases is evidently too small to serve as the basis for very positive conclusions; but it may be stated that the results obtained here fail to support the contention that nitrous oxid-oxygen-ether anesthesia has a less deleterious effect on renal efficiency than has a pure ether anesthesia.

TABLE 4.—BLOOD UREA FINDINGS WITH ETHER ANESTHESIA, OPEN METHOD

Case No.	Operation	Blood Urea Before	Blood Urea Afterward
1	Prostatectomy	63	102
2	Prostatectomy	39	60
3	Prostatectomy	29	35
4	Prostatectomy	43	34
5	External urethrotomy	56	68
6	Pyelotomy	35	46
7	Appendectomy	29	48
8	Salpingectomy	30	40
9	Lane plate	28	34
10	Bone graft	27	33
11	Fracture	29	39
12	Appendectomy	35	40
13	Cholecystotomy	32	43
14	Hysterectomy	28	41
15	Splenectomy	33	64
16	Splenectomy	36	70
17	Plastic	27	25
18	None	31	30
19	Craniotomy	30	33
20	Osteomyelitis	18	32
21	Gastro-enterostomy	42	42
22	Fracture	41	32
23	Goiter	27	28
24	Gilliam	34	35
25	Hernia	37	58

The effect of operation under gas and ether anesthesia on phenolsulphonephthalein excretion has been studied by Sanford,[13] Block[14] and Miller and Cabot.[15] There is a general agreement that, as a rule, there is a definite decrease in phenolsulphonephthalein excretion after ether anesthesia, the decrease varying roughly with the amount of anesthetic and length of operation.

13. Sanford: Cleveland Med. Jour., 1912, xi, 763.
14. Block, F. B.: The Effect of Operation on Kidney Excretion as Indicated by the Phenolsulphonephthalein Test, THE JOURNAL A. M. A., April 25, 1914, p. 1309.
15. Miller, R. H., and Cabot, Hugh: The Effect of Anesthesia and Operation on the Kidney Function, as Shown by the Phenolsulphonephthalein Test, Arch. Int. Med., March, 1915, p. 369.

Occasionally, however, there is a temporary increase in postoperative phenolsulphonephthalein excretion. In the consideration of the effect of gas oxygen anesthesia on the phenolsulphonephthalein excretion, Miller and Cabot say, "It would seem natural to expect the kidneys to show little or no effect after this anesthesia, whereas our few cases (nine) show even more decrease in output than after ether." It is worthy of note that this statement is confirmed by the results of the small series reported here, in which the increase in blood urea concentration following operation under gas-oxygen-ether anesthesia was slightly greater than the increase following similar operations under ether.

Opportunity has recently been afforded to investigate changes in blood urea following major operations performed under local anesthesia. It is suggestive that in three consecutive cases operated on under local anesthesia there was no postoperative rise in blood urea.

BLOOD UREA DETERMINATIONS IN CASES OF UREMIA

In the series of patients examined, only six showed definite symptoms of uremia. The blood urea findings are given in Table 5.

TABLE 5.—BLOOD UREA FINDINGS IN CASES OF UREMIA

Case No.	Blood Urea at Different Stages	Results
1	190, 220, 260, 290	Died
2	181, 227, 262, 300, 413	Died
3	350, 400, 460	Died
4	146, 255, 293, 104	Improved
5	205, 200, 158	Improved
6	198, 115, 44	Improved

The patients in Cases 2, 4 and 6 were operated on; operations on the other three were not advised. The first figures given are the blood urea values at the onset of definite uremic symptoms, except in the patient in Case 3 who was uremic on admission. The patient in Case 1 had an extensive vesical carcinoma, and developed suddenly an almost complete anuria, possibly from occlusion of the ureters. Case 2 was the emergency suprapubic cystostomy case mentioned before. Case 3 was in a patient with marked arteriosclerosis and urinary obstruction due to prostatic hypertrophy. The patient in Case 4 had a functionless left kidney, and a ureterolithotomy on the right side was necessary. This was followed by a temporary occlusion of the ureter with development of uremic symptoms. The obstruction disappeared and the patient improved rapidly after having had a maximum blood urea of 293. This is the highest blood urea with subsequent recovery encountered in this work. Case 5 was in a patient with prostatic hypertrophy and urinary obstruction. Case 6 was a prostatectomy case in which the patient developed a marked nitrogen retention, but with recovery. The parallelism between the clinical picture and the blood urea findings in all these patients was very striking. Foster[4] emphasizes the possibility of failing to recognize uremic states in patients with only a slightly increased nonprotein nitrogen, and believes that uremia in such persons occurs more frequently than is generally supposed. In all the cases of uremia met with here, there was a very marked increase in blood urea.

CLINICAL SIGNIFICANCE OF PHENOLSULPHONEPHTHALEIN AND BLOOD UREA TESTS IN SURGERY

In the consideration of the value and application of these tests one may assume that a high phenolsulphonephthalein output is practically always associated with a normal blood urea concentration and indicates that the patient has no renal lesion of sufficient importance to contraindicate operation under general anesthesia. Of course, a routine urinalysis should always be made. The rare cases of nephritis with superpermeability may be encountered. On the other hand, a low phenolsulphonephthalein output does not necessarily contraindicate operation; for patients with a low phenolsulphonephthalein output but who have a normal or only slightly increased blood urea concentration often withstand an anesthetic and operation very well, other conditions being normal. A low phenolsulphonephthalein output with a high blood urea concentration, however, does contraindicate an operation under a general anesthetic. Of course, no absolute line can be drawn, but it is just this class of cases which show a marked increase in nitrogen retention after operation. It is to be noted that often a thorough physical examination and urinalysis by themselves will fail to distinguish these cases.

Blood urea tests are of especial importance in following a certain class of cases after operation, namely, those patients whose operations are such that extra-urethral drainage at various points of the urinary tract must be provided. In such cases it is generally impossible to obtain a twenty-four hour specimen of urine; single specimens are often contaminated by discharges from the operative incisions, and it is impossible to do a phenolsulphonephthalein test because the specimens cannot be collected accurately. In such cases blood urea tests are of very great importance as indicators of renal efficiency, and not infrequently it becomes advisable to operate on a patient who already has a ureteral, vesical or urethral fistula. In these cases, as a rule, the blood urea or nonprotein nitrogen determination is the best indicator of the renal condition.

SUMMARY

The agreement between phenolsulphonephthalein and blood urea tests is, as a rule, very striking, though not infrequently a low phenolsulphonephthalein excretion is associated with a normal or only moderately increased blood urea concentration.

These tests are of great importance in selecting the most opportune time for operation so far as renal function is concerned.

Following an operation under a general anesthetic there is, as a rule, an increase in blood urea concentration. This increase is most marked after operations on the urinary tract and especially on patients who already have diminished renal function. In a small series of cases this increase was slightly more marked following operations under gas-oxygen-ether anesthesia than following similar operations under ether.

Blood urea determinations are of great value in the diagnosis and prognosis of uremic states. Not infrequently blood urea concentration can be determined when other renal function tests are very difficult or impossible.

In this investigation definite symptoms of uremia in uncomplicated cases appeared when the blood urea concentration reached 180 to 200.

There is a definite group of patients who have a low phenolsulphonephthalein excretion but a normal or approximately normal blood urea concentration. Many members of this group withstand a general anesthetic without any complications due to renal insufficiency.

PARALYSIS DURING PASTEUR ANTIRABIC TREATMENT

WITH REPORTS OF SEVEN PERSONAL CASES, ONE TERMINATING FATALLY, AND SIX OTHER PREVIOUSLY UNREPORTED CASES *

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In the vast majority of instances, the Pasteur antirabic treatment is neither accompanied nor followed by any complications of importance. The slight pain of the injections, some degree of local or constitutional reaction, occasionally a fairly marked urticaria, and possibly a localized abscess, if the physician is careless in the care of his syringe, are all the discomforts that are likely to be encountered.

There is one rare complication, however, the so-called "treatment paralysis," which has long engaged the attention of those in charge of antirabic institutes, and the true nature and cause of which are not fully understood.

This complication occurs with great rarity, and usually terminates in recovery, so that it should be considered no bar to antirabic treatment when this is evidently needed; but the possibility of paralysis should always be explained to those in whom infection is doubtful, or who are inclined to insist on being treated merely as a sentimental matter of precaution.

The symptoms vary all the way from a slight degree of neuritis, with little or no motor involvement, to an acute ascending paralysis which may be fatal.



Fig. 1 (Case 6).—Spinal cord: cervical cord, considerably crushed, showing dark streaks of fresh softening, which follow in a general way the lines of the connective tissue septa; right lateral column (of the illustration) more swollen than the left.

An analysis of the parts of the body involved in thirty-seven of forty cases reported by Remlinger[1] in 1905 is as follows: legs and sphincters, 17 cases; legs alone, 6; legs, sphincter, arms, face, 4; legs, sphincters, face, 4; arms and face, 1; arms alone, 1; face alone, 1; legs, arms, sphincters and bulbar symptoms, 1; legs and face, 1, and legs, sphincters and bulbar symptoms, 1 case. Thus, in 37 cases, the legs were involved in 34, sphincters in 27, face in 10 and arms in 7 of the cases, while bulbar symptoms were present in only 2.

The frequency of paralysis as a complication of antirabic treatment is variously estimated by different writers, but its real frequency is unknown, since many cases, especially the mild ones, are doubtless not reported.

Remlinger,[1] in 1905, collected 40 instances of paralysis out of 107,712 patients treated, 2 of these being fatal. Stimson,[2] in 1910, stated that later reports had brought the total up to 76 cases, with 4 deaths. Simon,[3] in 1913, collected data up to and including 1911, showing the occurrence of 100 cases among 217,774 persons treated, and mentioned 3 other cases, without indicating the number treated. In this series there were 19 deaths. The incidence of paralysis, however, is evidently different under different methods of antirabic treatment. Simon's[3] figures showed 6 cases among 32,676 patients treated by the classical Pasteur method, 16 cases among 8,659 patients treated by the modified (more intensive) Pasteur method, and only 3 cases among 51,417 patients treated by the Högyes method, with dilutions of fresh fixed virus.

Hasseltine,[4] in a brief review of the literature since Simon's report, mentions cases reported by Higier,[5] Hudovernig,[6] Sterling,[7] Kozewalow,[8] Mucharinski, Abramov, Jochmann,[9] Goldberg and Oszesalski,[10] and Fabricius.[11] Hasseltine adds four cases of his own, one of which was fatal, and states that he has knowledge of two other cases, reports of which are as yet unpublished. He quotes Park and Williams,[12] who state that there have been seven cases of paralysis with two deaths among 6,850 cases treated by the Pasteur clinic of New York City health department, including the year 1913. Hasseltine thus brings the total to 133 cases, up to and including 1913, with twenty-five deaths.

Poor,[13] in 1909, re-

* Owing to lack of space, the complete case reports and the pathologic report of a fatal case are omitted in THE JOURNAL. These will appear in full in the author's reprints, a copy of which can be had by sending a stamped, self-addressed envelope to him.

1. Remlinger: Accidents paralytiques au cours du traitement antirabique, Ann. de l'Instit. Pasteur, 1905, xix, 625.
2. Stimson, A. M.: Facts and Problems of Rabies, Hyg. Lab. Bull. 65, U. S. P. H. S., 1910.
3. Simon: Ueber Lähmungen im Verlauf der Tollwutschutzimpfung, Centralbl. f. Bakteriol., Orig., 1913, lxviii, 72.
4. Hasseltine, H. E.: Paralysis During Antirabic Treatment, Pub. Health Rep., Oct. 24, 1913, p. 2220; ibid., July 30, 1915, p. 2226.
5. Higier, Heinrich: Akute Aufsteigende Landrysche Paralyse im Verlauf von Lyssa humana, Ztschr. f. d. ges. Neurol. u. Psych., Orig., 1912, xii, 353.
6. Hudovernig: Polyneuritis im Anschlusz an antirabische Schutzimpfungen, author's abstract in Neurol. Centralbl., 1912, xxxi, 1166.
7. Sterling: Ueber die akuten Paralytischen Syndrome nach Wutschutzimpfungen, Ztschr. f. ges. Neurol. u. Psych., Orig., 1913, xvii, 160.
8. Kozewalow, S.: Zur Virulenz des fixen Virus der Tollwut für den Menschen, Centralbl. f. Bakteriol., Orig., 1914, lxxiii, 54.
9. Jochmann, G.: Ueber atypische Lyssaerkrankungen und ihre Beziehungen zur Wutschutzimpfung, Deutsch. Ztschr. f. Nerven., 1913, xlvii, 267.
10. Goldberg, J., and Oszesalski, K.: Ein Fall von Lyssa mit meningitischen Symptomen, Wien. klin. Wchnschr., 1913, xxvi, 1981.
11. Fabricius: Acute Ascending Lethal Paralysis After Antirabic Treatment, Arch. Diagnosis, 1909, p. 181.
12. Park and Williams: Pathogenic Microorganisms, Ed. 5, Lea & Febiger, New York, 1914, p. 585.
13. Poor, D. W.: An Occasional Complication of Pasteur Antirabic Treatment, Col. Studies, Research Lab., Dept. of Health, New York City, 1908-1909, p. 121.

ported eight cases of neuritis without paralysis, and four of paralysis, one of which was fatal, among 2,300 patients treated by him at the New York City health department. The figures of Park and Williams, quoted above, include Poor's four cases of paralysis, and three of the cases, including the fatal one, which are reported in the present paper.

My seven personal cases, together with the six other cases which are here first reported, thus bring the total up to 143 cases with twenty-five deaths. This should be corrected to 142 cases with twenty-four deaths, since Poor's fatal case and that of Fabricius were the same.

The mortality among these published case reports, 16.2 per cent., must not be taken as representing the true mortality incident to this complication of antirabic treatment, since it is certain that many mild cases are not reported, while it is likely that reports of most of the severe and fatal ones have been published. Although the average mortality among published reports of paralysis is from 15 to 20 per cent., this is reduced to a negligible figure when compared with the total number of cases treated. Simon's[3] figures, 100 reported cases with nineteen deaths among 217,774 patients treated at various institutes, show a mortality of 19 per cent. among the patients developing paralysis; but so rarely does a case occur that the incidence of the disease in his series was only 0.048 per cent. and the mortality but 0.00812 per cent. of the total number of cases treated.



Fig. 2 (Case 6).—Spinal cord: acute softening, showing as darker staining polycellular strips on either side of the connective tissue septa; the rest of the section, except for numerous small holes, looks practically normal, and shows plain axis cylinders surrounded by their sheaths.

As regards prognosis, the cases may be roughly divided into three classes. The mild ones with transitory paralysis of face or limbs all recover. The acute paraplegias of the lower extremities with or without the involvement of the sphincters usually recover. Death, if it occurs, is likely to be due to cystitis or bedsores after a prolonged illness. Remlinger[1] reported two deaths in forty cases, and Simon[3] three deaths in twenty-four cases of this type. The severest cases presenting the clinical picture of an acute ascending paralysis of the Landry type have a bad prognosis. Simon reported fifteen deaths among thirty-six such cases, a mortality of 41.6 per cent. The deaths in this group occur in a few days from respiratory or cardiac paraysis, or later, from inhalation pneumonia, cystitis or bedsores.

The time of development of symptoms is fairly characteristic. According to Simon,[3] they usually make their appearance from eleven to thirty days after the bite, and between ten and twenty days after the beginning of the injections. Only one quarter of the cases develop after the completion of a full course of treatment, and most of these within seven days thereafter.

In the thirteen cases reported in the present paper, the development of first symptoms of paralysis in relation to the date of the bite, and to the beginning of treatment, is as follows: My seven personal cases: Symptoms first appeared during treatment in six cases, and three days after its completion in one case. Average, twenty-three days after the bite and seventeen days from beginning of treatment. Among the six other cases, symptoms first appeared during treatment in four cases. In two cases they appeared two and ten days, respectively, after treatment. Average, twenty-six days after the bite and seventeen days from the beginning of treatment.

These figures tend to bear out Simon's statement that whether counting from the date of the bite or from the beginning of treatment, the incubation is shorter than in most cases of rabies. This fact is important in view of the contention of some writers that the condition is one of true rabies caused by the bite, but rendered mild by the antirabic treatment.

The onset of the symptoms is usually acute, with pain and numbness of the affected parts, followed by muscular weakness. Prodromal symptoms if present are mild, and consist only of malaise and nervous depression, with perhaps some restlessness, insomnia and anorexia.

Males seem to be affected much more frequently than females. In Simon's[3] publication, among 84 cases there were 60 males and 10 females; 6 of the remaining 14 were unknown. Hasseltine's[14] 4 cases were all in males. Of my 7 personal cases, 5 were male, and of the 6 additional cases reported, all were male. This preponderance of males is probably partly due to the fact that undoubtedly more males are bitten and thus more are treated. Unfortunately, available statistics do not state the relative proportion of males and females in the total number of cases treated.

Young children are rarely affected. Most of the cases occur in adults of varying ages. All of the thirteen cases reported in this paper were in adults between 23 and 62 years of age, the average being 41 years. Seven of the patients were in the thirties.

It is stated that persons who are alcoholic, syphilitic or neurotic are more likely to be affected than those

14. Hasseltine, H. E.: Paralysis During Antirabic Treatment, Pub. Health Rept., Oct. 24, 1913, p. 2220; ibid., July 30, 1915, p. 2226.

who have no such taint, but exceptions to this rule occur fairly often. Paralysis occurs so rarely in proportion to the total number of cases treated that a special idiosyncrasy on the part of the patient must be assumed.

PATHOLOGY

Jochmann,[9] in a careful study of a fatal case, found the lesions disseminated, but especially localized in the lumbar and cervical cord, and associated with a perivascular serous transudation and with marked edema of the meninges of the dorsal and lumbar cord. Small foci of softening were present in the lumbar cord. The large ganglion cells of the gray matter had partly disappeared; some were atrophied and their chromatin had gone into solution. A mild round cell infiltration was noticeable throughout the whole cross-section of the gray matter. The same changes were found in the cervical cord, but to a much less degree. The brain findings were not described, except that Negri bodies were not demonstrated. Rabbits, rats and dogs were inoculated by Joseph Koch from the lumbar cord in this case. Some of the animals, after a long incubation, died of rabies. In two of the rabbits, Negri bodies were found in size and shape as they occur in inoculation rabies.

The serous exudation and meningeal edema which occurred in the lumbar cord in this case would explain the otherwise puzzling clinical fact that in spite of a most severe syndrome, such as complete flaccid paralysis of the extremities, colon, bladder, etc., the symptoms may begin to abate within a few days, and a rapid cure result.

ETIOLOGY

The etiology must still be considered as not definitely settled. The principal explanations advanced for the phenomena observed are:

1. *Anaphylaxis,* due to repeated injections of foreign protein as contained in the rabbit cord employed. This explanation was advanced by Harvey and McKendrick,[15] and entertained by Müller.[16] It is conceded that the Högyes method of treatment with diluted fresh fixed virus, in which the proportion of nerve substance is at a minimum, is far less often complicated with paralysis than is the Pasteur method in which the amount of nerve tissue is much larger. The summary from Simon[3] (Table 1) shows this:

TABLE 1.—INCIDENCE OF PARALYSIS UNDER DIFFERENT METHODS OF ANTIRABIC TREATMENT

Method	Number of Cases Treated	Cases of Paralysis	Proportion
Classical Pasteur method	32,676	6	1:5446
Modified Pasteur method	8,657	16	1:541
Högyes method	51,417	3	1:17139

If the foreign protein material in itself were the cause of "treatment paralysis," the percentage of cases occurring under the classical and modified Pasteur methods should be approximately the same, since they contain about the same amount of nerve substance, differing only in the strength of material used. Yet, as shown by Table 1, paralysis occurs ten times as often under the modified (intensive) as under the classical Pasteur method.

15. Harvey and McKendrick: Theory and Practice of Antirabic Immunization, Scientific Memoirs, Gov't India, New Series No. 30, Calcutta, 1907.

16. Müller, E.: Ueber akute Paraplegien nach Wutschutzimpfungen, Deutsch. Ztschr. f. Nervenh., 1908, xxxiv, 252.

Another point against the anaphylaxis theory is the fact that paralysis has not been produced in animals by the injection of large amounts of normal nerve tissue.

2. *The specific action of a "rabies toxin"* which is in combination with the fixed virus used for treatment. Remlinger[1] and Babes[17] have held that this, together with an idiosyncrasy on the part of the patient, is responsible for the symptoms. Babes showed that animals injected with fixed virus which has been filtered or otherwise treated so as to eliminate infection by a micro-organism do not die of rabies, but develop fever, emaciation, cachexia and paralysis, and die after a protracted period. The theory of a toxin is a plausible one, but there is no agreement in regard to it.

3. *Street virus infection,* received from the biting animal, and so modified by treatment that the disease runs an atypical and usually mild course ending in recovery.

This view was held by Joseph Koch.[18] He inoculated animals from the lumbar cord in a fatal case. Some of these, after a long incubation, died of rabies. He explained the negative results obtained by Babes in four cases by the fact that Babes had used only the brain and medulla for inoculation, whereas it is the cord in these patients that is infective.

More lately Jochmann[9] has defended the same view and has attempted to explain in accordance with this theory the cases such as Franca's[19] case quoted below, which seem to others to disprove it.

Against this view are the following facts: A number of cases have occurred in which the biting animal was not mad, and others in which the patients were not bitten, but had taken antirabic treatment merely as a precaution. Pain at the site of injury is rarely felt in paralysis cases. The incubation period is usually too short for infection with street virus. Paralytic rabies in animals is regarded as an intense rather than an attenuated form of the disease; therefore street virus rabies, modified by treatment so as to become mild, should not be of the paralytic type.

4. *Fixed virus infection due to the treatment.* It is held by some writers that the unusually early appearance of symptoms in occasional cases is against this view. Strong emulsions are not commonly injected during the first days of treatment, yet the paralytic symptoms sometimes appear within seven days after the first injection of strong cord material. They also insist that if fixed virus possessed virulence for man, paralysis would be of frequent occurrence among the thousands of persons treated every year, whereas it is well known that it is very rarely seen.

Among others, Kozewalow[8] holds that fixed virus infection is responsible for most instances of paralysis incident to antirabic treatment. In defense of his position he cites several fatal cases with necropsies followed by animal inoculations:

(*a*) A case of his own with symptoms of ascending paralysis. No Negri bodies were found in the patient's brain. Animal tests comprised thirty-three rabbits inoculated with the brain material. Twenty-four of these died of rabies with an incubation of from six to seven days. The others died of sepsis.

17. Babes and Marinesco: La paraplégie ascendante mortelle survenue après le traitement antirabique, Compt. rend. Soc. de biol., 1908, lxiv, 964.

18. Koch, Joseph: Ueber abortive Tollwut, Ztschr. f. Hyg., 1909, lxiv, 258; Ueber die Entstehung der akuten Periplegie nach Lyssainfektion, Centralbl. f. Bakteriol., Abt. I, Orig., 1912, lxiv, 199.

19. Franca: Du danger de l'emploi des moelles plus virulentes dans le traitement de la rage, Centralbl. f. Bakteriol., Abt. I, Orig., 1910, lv, 154.

(*b*) Five cases from Bareggi[20] following treatment with fresh fixed virus. The patients died within a week of acute ascending paralysis. Rabbits inoculated from their brains showed symptoms of rabies in from five to six days.

(*c*) Franca's[19] patient, bitten by a dog not rabid (microscopic and inoculation tests negative). Patient developed ascending paralysis on the fifteenth day of treatment. She had received a one-day cord injection for the first time three days previously. On the sixth and eighth days of illness, spinal fluid was withdrawn and injected into the anterior ocular chamber of three rabbits. After eleven days one of these died with symptoms of rabies. Two other rabbits were inoculated subdurally with the cord of this rabbit. Both developed rabies on the seventh day, and died on the ninth day after vaccination. A rabbit injected intramuscularly with the cord of this rabbit died nine days later with typical symptoms of rabies. The patient died on the fortieth day of illness. It is said that this case has modified Koch's view so that he has admitted the possibility of fixed virus as well as street virus infection in these cases.

(*d*) The case of Goldberg and Oszesalski,[10] a boy of 13 years, bitten by an unknown dog which was not captured. He received six injections in the next four days in a Warsaw institute. He then stopped treatment and walked 200 kilometers to his home. Thirteen days after the bite, and twelve days after the first injection, he was taken sick with symptoms resembling cerebrospinal meningitis. The cerebrospinal fluid, however, was negative bacteriologically, and consciousness was retained throughout. The boy died suddenly from respiratory paralysis after five days. No Negri bodies were found. The emulsified spinal cord produced rabies in rabbits in from seven to eight days.

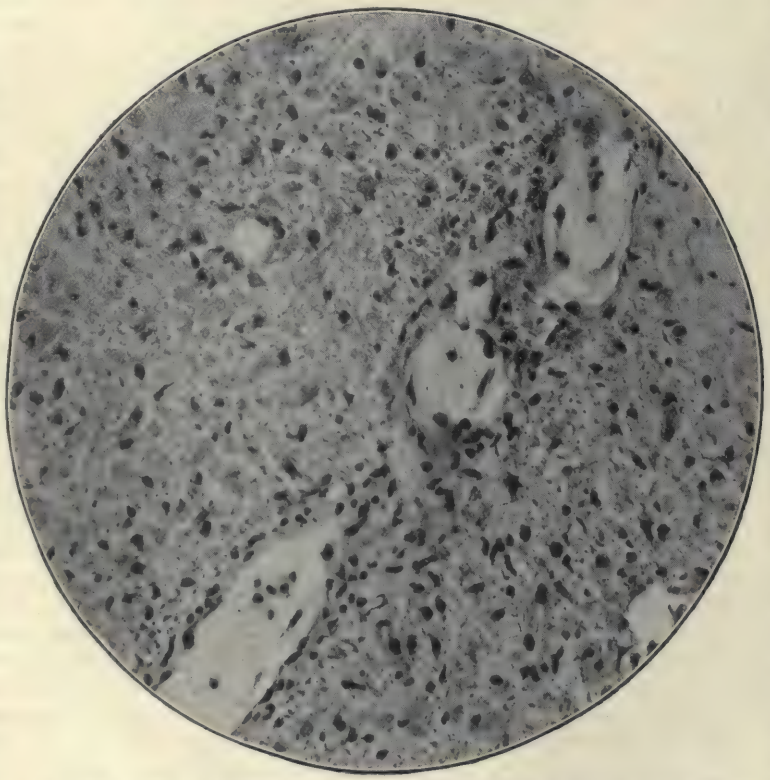


Fig. 3 (Case 6).—Spinal cord: a softened area, more highly magnified than in Figure 2, showing, very poorly, the Gitter or granule cells; these are best seen perhaps in the right lower quadrant; in the left upper corner of the illustration, axis cylinders and myelin sheaths which still retain their form may be seen; note lymphoid cells in the sheaths of the blood vessels.

Kozewalow[8] holds that the short incubation of rabies in the animals inoculated from these cases demonstrates that these paralyses are directly due to fixed virus infection. As further proof of his position, he states the following facts: At the beginning of 1909 the treatment in Cracow was intensified, and the use of a one-day cord begun, whereas, before that, nothing stronger than a two-day cord was used. Shortly afterward they began to have cases of paralysis. Not less than twenty persons were affected in the course of a month. The symptoms were mild, and consisted of paresis of the arm or leg, or partial urine retention, and passed off in one or two days. The use of the one-day cord was then discontinued, and the symptoms stopped. He cites experiments of Kraus and Fukuhara,[21] who proved that different strains of fixed virus in different institutes vary in virulence, since some are virulent subcutaneously in rabbits and white mice, while others are nonvirulent. He gives the results of some experiments of his own, and states that each institute should analyze its own virus and determine whether it can or cannot use an intensive treatment.

In connection with these statements of Kozewalow, the experiences of Poor[18] and of myself are very suggestive. Of Poor's twelve cases, one occurred in 1906, four in 1907, and seven during the nine months between February and October, 1908, after which, up to the time of his report, nine months later, no more cases had occurred. About October, 1908, he began to inoculate rabbits from the cord rather than from the brain of the rabbit of the preceding series. Thus he undoubtedly used a weaker virus, as the rabbits did not show initial symptoms until a day, sometimes two days later than by the other method. He also gave smaller and weaker doses to those who were but slightly bitten.

I have used three different schemata of Pasteur treatment, the full course in each being twenty-one days.

Table 2 will show their comparative strength by indicating the number of injections of each cord in a full course of twenty-one days' treatment. It also shows the number of cases of paralysis and of rabies which occurred among the patients treated under each scheme.

Thus it will be seen that Scheme 2 is somewhat stronger than Scheme 1, since it contains three more injections of two-day cord, and much stronger than Scheme 3, which includes nothing more active than three-day cords. Scheme 2 is very similar to the one employed by the Hygienic Laboratory of the U. S. Public Health Service, Washington, D. C., and by most of those who produce antirabic vaccine in this country, with the following differences: 1. The amount of cord per dose was only two thirds as much as that employed in the Washington scheme. 2. We used a two-day cord instead of one-day cord on the eighth and twenty-first days of treatment.

One of my cases of paralysis, Case 1, occurred in 1912 while Scheme 1 was in use. Other cases may have occurred under this plan previous to 1912, but the records were not available for examination.

Five of the remaining six cases, including the one terminating fatally, occurred between Aug. 15 and Oct. 17, 1913, in the early weeks of the employment of Scheme 2. Although the plan was not changed,

20. Bareggi: Sur cinque casi di rabbia paralitica (da laboratorio) nell'uomo, Gaz. med. lombarda, xlviii, 217.
21. Kraus and Fukuhara: Ueber das Lyssavirus Fermis, Wien. klin. Wchnschr., 1908, p. 1698.

another case did not develop until the following spring. Strangely enough, in November and December, 1913, the rabbits used for producing the antirabic vaccine showed a tendency to develop initial symptoms in five or even four, instead of six days, and it was necessary to use lumbar cord and sometimes cord dried one day, instead of medulla, for inoculation, in order to bring the incubation back to six days. Still no paralysis cases occurred during this period. Finally, May 1, 1914, at a time when the rabbits were coming down in exactly six days, another case of paralysis developed (Case 7, a severe one, with recovery).

TABLE 2.—SCHEMES OF PASTEUR TREATMENT USED BY NEW YORK CITY HEALTH DEPARTMENT

Cord Dried	Scheme 1	Scheme 2	Scheme 3
	Jan. 1, 1912, to Aug. 2, 1913	Aug. 3, 1913, to May 6, 1914	May 7, 1914, to Mar. 7, 1916
	Number of injections in 21 days	Number of injections in 21 days	Number of injections in 21 days
Ten days	3	0	0
Nine days	3	0	0
Eight days	1	1	2
Seven days	1	1	2
Six days	1	1	2
Five days	1	2	2
Four days	5	5	9
Three days	5	7	8
Two days	5	8	0
No. of patients treated	1,408	811	911
Cases of paralysis	1	6 (one fatal)	0
Cases of rabies	4	2	4

Scheme 3 was then adopted. In this no two-day cords are used except occasionally in a case of very severe face bite. Since then no instances of paralysis have occurred (from May 7, 1914, to March 7, 1916, a period of twenty-two months).

In my one fatal case of paralysis, the brain and cord were unfortunately put into liquor formaldehydi, so that no opportunity of trying animal inoculation was afforded. I therefore can express no opinion, based on experience, on the important question whether or not these paralyses are due to fixed virus infection. However, there is no doubt in my mind that in most of the cases, at least, the symptoms are caused, not by street virus infection, modified by the treatment, but by the treatment itself either through the medium of fixed virus infection or through the action of a toxin, or both. In any event there must be a special idiosyncrasy on the part of the patient. Otherwise the cases would be enormously more frequent than they are.

Table 3 shows, as in Simon's series,[3] that the lower extremities, sphincters and face are most often involved, in the order named.

TREATMENT

The treatment of these patients is to be conducted on general principles, according to the parts of the body involved. No special type of treatment based on the peculiar etiology of the condition has been developed.

If the patient has been bitten by a dog known to have been rabid, the preventive inoculation should not be discontinued, since in numerous reported cases they have been persisted in without apparent detriment. They may be discontinued if the biting animal was probably not rabid.

CONCLUSIONS

1. Paralysis complicating the Pasteur antirabic treatment is very rare, but doubtless occurs in mild form more often than is known. It affects adults chiefly, young children almost never.

2. The prognosis is good in cases of mild or moderate degree, but the mortality among the severe cases is high.

3. The administration of antirabic treatment is therefore not entirely devoid of risk.

4. The possibility of the occurrence of paralysis in any particular case, however, is so slight that it should not deter those who evidently need antirabic treatment. A person bitten by a rabid animal is much more likely to develop rabies, which is certainly fatal, than paralysis, which usually ends in recovery.

5. The slight risk of paralysis should always be explained to those who are inclined to insist on antirabic treatment in the absence of clinical or laboratory evidence that the biting animal was rabid.

6. In most instances this paralysis is caused by the antirabic treatment itself (fixed virus infection, or toxin, or both). It is not often due to street virus

TABLE 3.—BRIEF SUMMARY OF CASES FIRST REPORTED IN THIS PAPER

	Case No.	Symptoms Began: Days After Bite	Symptoms Began: Days After Beginning of Treatment	Parts of Body Involved	Improvement Began After	Termination
Author's Personal Cases	1	23	19	Both legs below knees	Few days	Recovery after a few weeks
	2	14	13	Lower extremities and bladder	Few days	Recovery after a few weeks
	3	17	15	Upper and lower extremities, trunk, throat	Few days	Recovery after a few weeks
	4	53	18	Face, both sides	Few days	Recovery after a few weeks
	5	17	13	Both legs below knees	Two days	Recovery after a few days
	6	14	13	Lower extremities, abdominal muscles, intestines and sphincters completely paralyzed. Upper extremities weak	No	Died after 11 days*
	7	20	15	Lower extremities and sphincters completely paralyzed	After 2 weeks	Recovery practically complete after 6 months
Additional Cases	8	54	23	Face, right side	?	Recovery after 4 weeks
	9	14	12	Lower extremities and sphincters	After 9 days	Recovery complete after a few months
	10	53	31	Face, right side	Few days	Recovery after 2 weeks
	11	29	16	Face (slight); legs weak	?	Recovery gradual; complete after 6 months
	12	19	14	Left leg and bladder	?	Poor condition after 10 days; no further report
	13	16	12	Legs and bladder	?	Symptoms persisted after 8 days; no further report

* Necropsy showed spinal pachymeningitis macroscopically. No inoculation tests, as brain and cord were put into liquor formaldehydi by mistake. Stained sections of hardened brain showed no Negri bodies and no special lesions. Cord showed acute softening, most marked in cervical, well marked in dorsal, and less marked in lumbar region.

infection modified by the treatment. Its incubation is shorter than that of most cases of street virus rabies.

7. Variations in the strength of the fixed virus used are probably a factor in the etiology.

8. Personal idiosyncrasy is an important predisposing condition.

CONGENITAL STENOSIS OF THE DUODENUM IN AN ADULT*

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Congenital stenosis of the duodenum is an uncommon condition, almost always fatal in early life. The reported cases, collected in several careful reviews, have all been in infants dying under 6 months. No new review will be attempted here, except briefly to summarize the conditions described. Louise Cordes[1] found fifty-seven cases reported to 1901 — forty-eight of complete atresia fatal in less than nine days, and nine cases of stenosis without complete blocking, the longest duration of life in which was 6 months.

The literature later has been reviewed by Meusberger[2] and Weber,[3] who found that to 1910 there had been reported between sixty and seventy cases of congenital duodenal stenosis, this number representing from one fourth to one third of the total number of cases involving all parts of the small intestine — about 200. Since 1910, several additional cases have been reported by Roe and Shaw,[4] Gray,[5] Weber[6] (who operated in his case but without success), Hauser,[7] McDonald,[8] White,[9] and others, bringing the total number up to about seventy-five.

In all of the cases reported in the reviews mentioned and in the cases which we have found reported since, the condition has been fatal in from a few days to a few months at the longest.[10] Kermauner[11] states that congenital stenosis of the duodenum may be of such mild grade that it is not discovered until later in life; but he cites no cases. The case we have to report, therefore, is unlike any that we have been able to find described.

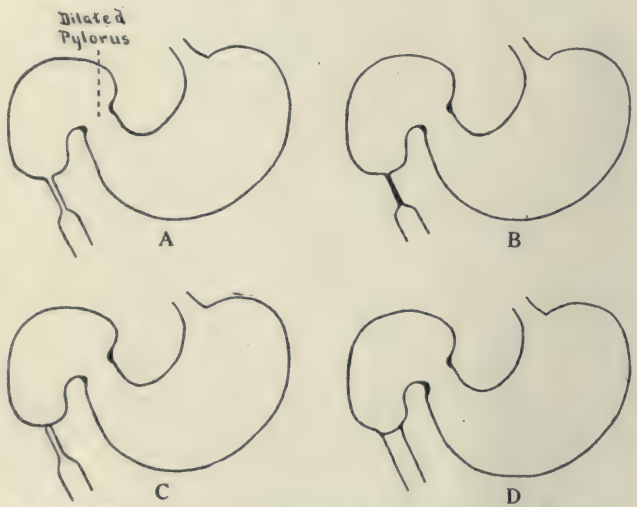


Fig. 1.—Various forms of occlusion: *A*, constricted canal; *B*, fibrous cord; *C*, blind pouch; *D*, transverse membrane.

VARIETIES OF STENOSIS

The occlusion may take any one of varied forms, but most of the cases can be grouped according to a few common types as follows:

1. There is a constricted canal, lined with fairly normal intestinal mucosa (Fig. 1 *A*). The occlusion is incomplete.

2. A fibrous cord represents the constricted intestine. It may be 1 or 2 cm. in length, or may extend from the pylorus to the papilla of Vater (Fig. 1 *B*).

3. The duodenum may end as a blind pouch, and the intestine begin again with a constricted lumen from the tip of this pouch, like an appendix springing from the cecum (Fig. 1 *C*). Such a case is reported by Roe and Shaw.[4]

4. Two cases have been reported of occlusion by a comparatively thin transverse membrane[12] (Fig. 1 *D*); in one of these,[13] there were found smooth muscle fibers between the layers of epithelium, indicating the structure of actual intestinal wall in the membrane.

5. The relation of the occlusion to the common duct is of interest. Most of the obstructions occur in its immediate neighborhood, either above or below the papilla, though they may occur in any portion of the duodenum. In four cases of partial occlusion,[1] the common duct opened into the stenosed portion. Cordes also reported a case in which the blind pouch of duodenum was connected with the papilla of Vater by a small canal having the microscopic characteristics of the gallduct. She found two or three similar cases reported, and considered that in several other instances such a connection must be assumed to explain the vomiting of bile-stained material in cases in which the duodenal occlusion was above the papilla. No satisfactory embryologic explanation of this curious anomaly of the gallduct has been offered.

The possible causes of congenital stenosis of the duodenum suggested in the literature were: (1) errors of embryologic development of the duodenum; (2) volvulus in fetal life; (3) fetal peritonitis (usually tuberculous or syphilitic); (4) ulceration; (5) pressure from new growths; (6) abnormal persistence of the omphalomesenteric duct; (7) traction on the intestine, due to hernia; (8) circulatory anomalies (absence of arterial branches); (9) embolism of the superior mesenteric artery, and (10) pressure from an enlarged head of the pancreas.

In forty-nine of the fifty-seven cases, no evident cause could be found except faulty development of the duodenum itself. That this is the usual cause is also suggested by the most common location of the constriction, near the orifice of the common duct, that is,

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* From the Surgical Service of the University of California Hospital.

1. Cordes, Louise: Arch. Pediat., 1901, xviii, 401.
2. Meusberger: Virchows Arch. f. path. Anat., 1910, cxcix, 401.
3. Weber: Med. Klin., 1910, vi, 1294 and 1334.
4. Roe and Shaw: Lancet, London, Sept. 30, 1911.
5. Gray: Glasgow Med. Jour., August, 1910.
6. Weber: Med. Klin., 1913, ix, 411.
7. Hauser: Monatschr. f. Geburtsh. u. Gynäk., 1911, xxxiv, No. 6.
8. McDonald: Am. Jour. Med. Sc., July, 1913.
9. White: Jour. Obst. and Gynec. Brit. Emp., 1912, xxi, No. 4.
10. Ochsner (Ann. Surg., 1906, xliii, 80) has reported a condition of thickening of the circular muscle fibers of the duodenum, which he considers to be the cause of symptoms in adult life. But this condition, he stated, was constantly found below the papilla of Vater, thus differing from true congenital stenosis, which occurs with equal frequency above and below the common duct. Boothby (Boston Med. and Surg. Jour., July 18, 1907) was unable to confirm Ochsner's findings.
11. Kermauner: Virchows Arch. f. path. Anat., 1912, ccvii, No. 3.
12. Weber (Footnote 3). Keith: Brit. Med. Jour., Feb. 5, 1910, p. 301.
13. Keith (Footnote 12).

at about the junction of the embryonic foregut and midgut, and at a point where very active embryologic processes take place — the development of the liver and pancreas — and where other congenital anomalies (diverticula) are prone to occur. Furthermore, atresia of the duodenum is frequently associated with other defects which are clearly developmental. The developmental origin is also indicated by the work of Tandler and later by Forssner,[14] who found that the second portion of the duodenum, which is at first open during the latter part of the first month of embryonic life, becomes occluded by proliferation of its own epithelium, and remains so during nearly the whole of the second month. It is suggested that a failure in the absorption of this occluding plug of epithelium is responsible for some of the atresias found at birth.

The only constant symptoms of the condition are persistent vomiting of everything ingested, beginning at birth, with emaciation and death in a few days (the symptoms being somewhat modified, of course, in the few cases of incomplete obstruction). Cases in which the obstruction was below the orifice of the common bileduct have been diagnosed during life by the passage of white meconium and the vomiting of bile-stained material.

The treatment is, of course, only operative, but so far has not had success. Braun[15] in 1902 collected from the literature the reports of twenty-five operations for congenital intestinal stenosis of all parts of the small intestine — enterostomies, gastro-enterostomies, and entero-anastomoses—with a mortality of 100 per cent.

CASE REPORT

History.—F. S. (U. C. Hospital No. 8686), man, aged 24, American, transferred from the medical service of Dr. H. C. Moffitt, presented essentially negative family and past history and habits. His illness began twelve years ago at the age of 12, with a year of intermittent, rather indefinite pain in the lower abdomen, followed by three and a half years of freedom, and then four years more of similar attacks at intervals of from three to four weeks. The pain was always below the umbilicus, extending 5 cm. to either side of the midline without radiation. There was no definite relation to food. It was relieved by hot drinks and occasionally by defecation. It was usually worse at night.

He had had no definite pain for five years, but four years ago vomiting had begun, and had grown progressively worse, usually coming after the evening meal, sometimes after other meals. There had never been hematemesis or melena. During this four years there had been progressively increasing weakness, with dizziness, etc. His appetite had been good, but he had limited his diet through fear of vomiting, finding that liquid food gave him least trouble. He had lost 15 kg. in the past seven years, 6 kg. of this during the past six months. He now weighed 51 kg. (112 pounds).

Physical Examination.—This showed much emaciation. The abdomen was scaphoid except for a prominence about the umbilicus (distended stomach), over which there was marked peristalsis from left to right. The lower border of the stomach was seen and percussed midway between the umbilicus and the symphysis. Liver, spleen and kidneys were not felt. The reflexes were normal. There was, however, a slight but definite Chvostek's sign. No Trousseau's sign was made out. Erb's was doubtful. Physical examination otherwise was not remarkable.

Wassermann test on blood serum was negative.

Stomach wash, fasting, yielded 80 c.c. of reddish brown fluid, with free hydrochloric and lactic acid present but no occult blood. Sarcinae were present in large numbers. There were no Oppler-Boas bacilli.

Ewald meal showed: Free hydrochloric acid, 22; total acid, 42 (low normal).

Blood and urine were normal.

Stool examination was negative to guaiac.

Unfortunately a bismuth roentgenogram of the gastro-intestinal tract could not be obtained.

A diagnosis of pyloric stenosis was made, thought to be due either to an old ulcer or to a congenital condition.

Operation.—The stomach was found to be much dilated and low in the abdomen. There were some old adhesions across both the anterior and posterior aspects of the stomach toward the pyloric end, but none about the duodenum except two very thin strands between the pylorus and gallbladder. The pyloric ring was much dilated. The first portion of the duodenum was dilated, the upper wall forming a definite pouch. Just distal to this dilated portion at about the junction of the first and second portions of the duodenum and above the entrance of the common duct, the intestine was evenly constricted to one third or less of its normal diameter for about 1.5 cm. There was no thickening of the wall, and no scars could be found and no abnormalities of the peritoneum to account for the constriction.



Fig. 2.—Conditions found at operation (semidiagrammatic).

The gallbladder was free, not distended or thickened. There was a slight constriction, causing a suggestion of sacculation of the outer third of the fundus (probably congenital).

The appendix was long, atrophic and buried in old adhesions (probably the explanation of the patient's earlier attacks of pain).

A posterior gastro-enterostomy was done, and when the stomach was cut into, marked thickening of the wall was noted in spite of the dilatation of the organ, indicating long-standing obstruction.

The patient vomited during the first forty-eight hours following the operation, the vomitus containing considerable blood. Following this he was delirious much of the time, and on this account was given occasional nasal feedings. On the fifth day he was apparently much improved and took considerable nourishment, but vomited small amounts twice during the afternoon. Quite suddenly in the evening, the pulse rate increased and respirations became shallow and rapid, and he gradually sank into coma and died in six hours.

Necropsy.—The necropsy performed by Dr. J. V. Cooke showed the conditions described at operation. In addition there was marked dilatation of the stomach with partial breaking down of the gastro-enterostomy wound, leakage of stomach contents into the peritoneal cavity, and beginning peritonitis.

14. Forssner, quoted by Keith (Footnote 12) and also by Shaw and Baldauf: Albany Medical Ann., 1908, xxix, 148.
15. Braun: Beitr. z. Chir., 1902, xxxiv, 993.

When preserved in liquor formaldehydi, the constriction of the duodenum presented the appearance of an obstructing fold of the duodenal wall rather than of a narrow tube, 15 mm. long, as it had appeared before fixation. Grossly and microscopically the constriction was covered with normal mucous membrane, and careful search failed to reveal any scar tissue or other evidence of old ulceration. The condition was therefore considered to be congenital in origin, the type of occlusion corresponding to that represented in Figure 1 *A*. The possibility of the condition being caused by an old ulcer which had disappeared without leaving any trace of itself was, of course, considered; but this is quite improbable, and is all the more unlikely in view of the rarity of duodenal ulcer in early youth.

In 302 cases of ulcer of the duodenum reported by Moynihan,[16] there were but three occurring under 20, his youngest patient being aged 17. In the case here reported, symptoms of stenosis had already developed by the age of 20.

Why symptoms due to congenital duodenal stenosis should appear only after several years of life and then grow progressively worse is difficult to understand. It is possible, however, that in the process of growth the constricted portion may not have increased in diameter in proportion to the rest of the duodenum, so that the *relative* degree of obstruction was increased. Then, too, as the obstruction began to affect the patient's nourishment, dilatation and ptosis of the stomach were undoubtedly increased and, in turn, tended to aggravate the stasis, thus producing a vicious cycle.

It is of interest to compare the history of this case with those of five cases reported by Harris[17] of constriction of the duodenum by what he considered to be a congenital fold of peritoneum derived from the lower border of the embryonic ventral mesogastrium. This fold extended from the gallbladder across to the mesocolon in such a way as to constrict the duodenum at the second portion. The duodenal wall itself was normal, the lumen of normal size, and the condition was relieved in each case by dividing the constricting fold. The histories of his cases were similar to that of our case — characterized by their chronicity, symptoms beginning in youth or early adult life and growing progressively worse, with periods of improvement but not of complete freedom from distress. They presented rather indefinite epigastric distress, often with a few attacks of quite sharp pain. They differed, however, from the case here reported in that vomiting was not a characteristic symptom. The point of interest is that, if Harris is right in considering the condition to be congenital, his cases show the possibility of congenital constrictions of the duodenum causing symptoms which do not begin until after several years of life.

SUMMARY

1. Congenital duodenal stenosis is a rare condition, almost invariably fatal in infancy.

2. A case is reported in an adult, characterized by a history beginning in adolescence before the usual ulcer age and growing progressively worse, the symptoms and findings indicating benign pyloric stenosis.

16. Moynihan: Ulcer of the Duodenum, Ed. 2, 1912, pp. 317 and 428.
17. Harris, M. L.: Constrictions of the Duodenum, THE JOURNAL A. M. A., April 18, 1914, p. 1211.

Influence of Digestion.—A light supper, a good night's sleep and a fine morning have often made a hero of the same man who, by indigestion, a restless night and a rainy morning would have proved a coward.—Chesterfield.

PNEUMOTHORAX OF UNCERTAIN ETIOLOGY *

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Pneumothorax is said to be spontaneous or natural when there is no evident external or internal cause. There must be a cause, but in many cases it is difficult to find and impossible to prove. The report of the following case very well illustrates these points:

History.—The patient is a man, aged 25, who has been under my observation for three years with several routine physical examinations. Nothing abnormal has been detected in heart or lungs. He was always considered a healthy, active young man. His father died of heart trouble several years ago; his mother is living and well. He has no brothers or sisters. There has been no tuberculosis or cancer in the family.

His habits are good. He has never had syphilis. He smokes a pipe four or five times daily and takes an occasional glass of beer. There has been no recent change in weight or mode of living. He has had a few colds lasting only a few days, and also some very slight digestive complaints. There is no history of infectious diseases. There has been no chronic cough, loss of weight, continued fever, night sweats or suspicion of tuberculosis. The patient complained one year ago of some pain and tenderness directly over the ensiform cartilage. This lasted three weeks unassociated with cough or fever, and was diagnosed as a strain.

Present Illness.—On the day previous to examination the patient took his usual cold shower, and without any unusual muscular or respiratory effort felt something "give way" or "grow loose" in his episternal region, inside of him. This gave him a queer indescribable sensation as of something having gone wrong. It caught him to draw a deep breath, and full inspiration was attended by a short, dry, expiratory cough. He went to bed directly, but had to lie perfectly quiet, any change in position being uncomfortable. If he attempted to rise it caught him in his back like a lumbago. He did not consider himself seriously ill, and did not feel sick; yet he believed that something had gone wrong inside of him. There was no dyspnea, nausea, chill, fever or sweat, and the patient was comfortable when quiet.

Physical Examination.—The temperature was 98.6; pulse, 80; respiration, 20. Inspection revealed a well developed young man, not sick and yet worried, somewhat pale and anxious. There was no dyspnea or cyanosis when he remained quiet, but rather marked dyspnea on the slightest exertion. The left chest was fuller than the right, the intercostal spaces bulging rather than concave, and no expansion. The right chest was normal in shape and respiratory excursion. There was no visible apex impulse to the left of the sternum but some cardiac impulse in the substernal notch. The apex impulse was not palpable. Fremitus was absent over the entire left chest, and normal over the right chest. There was no expansion of the left chest, and 1 inch expansion of the right chest. Percussion revealed a dull tympany from the apex to the base of the left chest, with no area of cardiac dulness. The right chest was normally resonant, with cardiac dulness extending 2 inches to the right of the sternum in the fourth intercostal space. Breath sounds were inaudible around the base of the left chest. About the middle of the left chest there was amphoric breathing with a metallic echo. Coin sound through the left chest gave a typical metallic click. There were no râles. Whispered voice over the entire left chest had the same amphoric character as breath sounds. The right chest was normal. There were no succussion and no metallic tinkle. Roentgenoscopy revealed the left chest full of air, the lung being displaced upward and inward, and the heart displaced slightly to the right. This slight displacement of the heart to the right did not accord with the entire absence of cardiac dulness to the left of the sternum.

* Read before the Washington Heights Medical Society, April, 1915.

Subsequent History.—One week later: Temperature, pulse and respiration have always remained normal. The patient has felt daily improved. Pain on sitting up has become less noticeable. Cough on full inspiration is less marked. Physical examination has showed continuation of air in left chest, though amphoric sounds in upper chest have become fainter and fainter. A few subcrepitant râles have been heard from time to time in the fourth and fifth intercostal spaces just outside the nipple line. These entirely cleared. There is still no appreciable expansion of the left chest, and cardiac dulness remains to the right.

Two weeks later: Temperature, pulse and respiration have remained normal throughout the week. Left chest has regained an expansion of one-half inch. Breath sounds have gradually returned to the left upper chest anteriorly and posteriorly, but are still faint with bronchovesicular character below. Cardiac dulness is now elicited 3 inches to the left of the midsternal line in the fifth intercostal space, and heart sounds are now audible to the left of the sternum instead of on the right, as previously.

Three weeks later: Patient is feeling about normal. Roentgen and physical signs show normal chest except for a very small amount of air in left costophrenic chink.

Four weeks later: Lungs are absolutely clear. Heart is normally situated. Patient is feeling fine. There is no dyspnea or cough.

Five weeks later: Patient is normal.

Six months later: Patient is normal.

COMMENT

The etiology of pneumothorax in this case must have been one of the following conditions:

1. Generation of air within the pleural chink.
2. Entrance of air from below the diaphragm or from the esophagus.
3. Entrance of air through the chest wall.
4. Entrance of air through the lung.

In order to be generated within, there must be air-forming organisms present, in which case there would be some fluid and some infection. Physical signs and roentgenoscopy show no fluid, and symptoms show no infection. The sudden onset of symptoms would also be against infection.

Air from below the diaphragm or a hernia would show in the roentgenogram and not heal quickly. Esophageal lesion would be detected in the same manner.

Air through the chest wall would necessitate some injury such as a stab wound. This case shows none.

There remains as the causative factor air from the lung. There must, then, have been a break in the lung surface. This might have been caused by injury, deformity, neoplasm or inflammation. Deformity or a neoplasm would have persisted. Injury to the surface of the lung would have been due to so great a difference between intrapulmonary and intrapleural pressure as to cause rupture. This would not have been sufficient to rupture the lung unless there were some structural weakness brought about by some inflammatory surface lesion. Such a lesion might have been tuberculous or nontuberculous. Against tuberculosis are the following:

No history of tuberculosis in the family, no previous history of tuberculosis in the patient, no subsequent history of tuberculosis in the patient, no symptom or localized sign of tuberculosis, no sign in the roentgenogram, and the acute condition of the case. This, therefore, leaves as the cause some inflammatory lesion of the lung surface, nontuberculous probably, very small with pin point rupture and prompt closure.

MECHANICS

The lungs are suspended within a noncollapsible chest wall. They tend to collapse because of their elasticity. This collapsing force equals about 4 mm. of mercury at the end of expiration and about 8 mm. of mercury at the end of inspiration; on forced inspiration it may fall to 30 mm. of mercury. So long as the glottis is open, allowing free communication with the outside air, there is no greater variation of pressure within the pleural spaces; when the glottis is closed, as in coughing or sneezing, then intrathoracic pressure is increased; also when the glottis is closed during inspiration, then intrathoracic pressure is lessened. That the normal lung will stand considerable variation in pressure may be demonstrated by forcibly inflating the excised lungs of a dog with a pair of hand bellows.

CONCLUSION

On taking his cold shower the patient may have suddenly taken a deep breath, thus lowering the pressure within the pleural space, rupturing a small point of the lung surface. This may also have been brought about by sudden coughing or sneezing. Inasmuch as the variations in pressure are not sufficient to rupture a normal lung, there was probably a small focus of nontuberculous softening on the surface of the lung. While there was prompt healing of the communication between the intrapleural and intrapulmonary air, it does not seem correct to term the case spontaneous pneumothorax, any more than that a fire of unknown origin should properly be called spontaneous combustion.

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A CASE OF PHLEBITIS MIGRANS*

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A married woman of 26 was in her fourth pregnancy in five years. The first two babies had died of marasmus; the third was living and well. The husband was in good health. There had been no known tuberculosis or cancer in the family. Except for measles and scarlet fever in childhood, and malaria five years before, the patient had never been ill. General physical examination showed normal findings excepting for rather marked anemia.

The patient did not menstruate between the last two pregnancies. She presented herself for admission one week before the onset of labor because the "waters had broken." There had been only a little dribble, but it continued in small amounts until labor set in.

At admission the temperature was 99.2. Labor pains had begun three hours before. The abdominal tumor corresponded to that of an average sized baby in cephalic presentation. Only vaginal examination was made seven hours after onset of labor. The cervix was found to be three fourths dilated, and the vertex presenting in the occipitolevoanterior position. The labor progressed without incident, and a 7¼ pound baby was born at the end of the twelfth hour by normal mechanism. No laceration of the perineum occurred. The placenta came away after ten contractions. The uterus was atonic, and in spite of ergot and massage there was rather more than the average amount of bleeding, but the pulse did not go above 90.

The temperature remained between 99 and 100.2 for the first ten days of an otherwise uneventful convalescence. On the eleventh day the patient had a drenching night sweat, and there was a sharp rise of temperature to 104, pulse 110. The breasts were normal, the fundus well down and not tender. The white count was 17,000, hemoglobin 60 per cent. There was marked tenderness and some induration over the course of the right saphenous vein, and the leg soon became swollen and edematous. Treatment consisted in elevation, use of the ice bag, absolute rest, etc. After three days there was a marked drop in temperature and pulse, and although the tenderness and swelling extended progressively down to the foot, there was a gradual but steady improvement until the beginning of the fourth week. At this time the temperature again rose sharply to 104.5, pulse 135, and marked tenderness, induration and swelling developed in the right thigh. The patient was nauseated a great deal during the next two

* From the Hospital of the Harvard Medical School of China.

weeks, vomited at intervals, and complained of pain in the epigastrium much aggravated by food. The pulse remained at about 130, became weak and irregular, and there was increasing prostration in spite of the fact that the swelling and tenderness in the legs all but disappeared.

During the sixth week of illness these symptoms recurred first in the left, and then in the right leg, with pain in both legs and feet, which became so severe as to prevent sleep, except after morphin. By this time the patient had lost much weight and strength, and several consultants gave a very gloomy prognosis. There followed, however, a period of general improvement, during which the patient was again able to take food, and for several days the pulse and temperature remained at about normal. During the eighth week induration, tenderness and swelling appeared progressively over the left side of the neck, axilla, arm and left chest. There was also increased swelling in the left flank and lower abdominal wall, which was spastic and very tender to palpation. The swelling in both legs increased, and pain in the legs and feet became so severe as again to require the administration of morphin. The temperature was from 102 to 103, the pulse from 130 to 140, and at times almost impalpable. During this recrudescence, which lasted about two weeks, gangrene developed over the anterior aspect of both feet, which resulted finally in the separation of the whole thickness of the skin and partial sloughing of the tendon sheaths.

After another interval of improvement, there was a fourth relapse, during which the right side of the neck, right axilla and arm became involved, and then successively the occiput, whole scalp and face. During the height of this attack, sharp pain developed in the chest, aggravated by deep respiration; but no friction rub or other signs were elicited. There were nausea and vomiting lasting several days. The voice became husky and the patient complained of severe headache, and pain in all affected parts, but most marked in the feet. The symptoms abated toward the end of the tenth week, for a period of about twelve days. This was followed by the sixth and last relapse, characterized by abrupt rise of temperature from normal to 102; the pulse was accelerated from 120 to 140, and again became irregular and at times almost impalpable. At the beginning of this attack there was a good deal of vomiting and violent headaches. The swelling in the neck and scalp, which had begun to subside, also increased. After four days the patient became very drowsy, suffered lapses in memory, and finally became partially irrational for several days. Ophthalmoscopic examination: "Papillitis of both optic nerves. Outline of both disks entirely lost. Vision almost normal, but patient troubled with duplication of objects." There was no neck rigidity or abnormality of reflexes. No food could be taken by mouth, but rectal alimentation was retained. At the beginning of the thirteenth week the temperature fell to normal, where it remained. The patient became clear mentally and began to take food. From this time improvement was slow but uninterrupted. The swelling and tenderness gradually disappeared except in the legs, which remained edematous for several months.

During the first relapse, blood culture revealed a nonmotile spore-forming bacillus which did not correspond to *B. subtilis* in its cultural characteristics. An autogenous vaccine was prepared and given in large increasing doses. Goat's serum was also prepared from time to time, and injected subcutaneously all without apparent effect. The granulations on the feet were grafted by the Thiersch method.

The patient was discharged in the nineteenth week in good general condition. Nine months after the onset of the illness there was no swelling or disability, the patient was in excellent health and of maximum weight, and was able to play golf and tennis. She was admitted two months after this time and an appendectomy done for subacute appendicitis.

SUMMARY

In a case of phlebitis, there were involved, successively, and during the course of six fairly definite attacks, both legs, the left flank and abdomen, the chest, the axillae, the arms and hands, both sides of the neck, the scalp and the face, with eye and mental symptoms, complicated by gangrene of both feet. There was complete recovery.

ABORTIVE TREATMENT OF SYPHILIS

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Oppenheim says that 80 per cent. of cases of syphilis can be aborted if treatment is begun in the early stage of the chancre, three or four weeks after infection, when spirochetes are positive, the Wassermann test negative, and no glandular enlargement and chancre can be excised. If the chancre is not excised, only 30 per cent. can be aborted. The abortive treatment consists of four injections of salvarsan and twelve injections of mercuric salicylate given weekly.

For the past two years I have used the following combination to destroy the chancre when excision is not possible: calomel, 10 parts; zinc sulphate, 10 parts, and chlorin water, 50 parts. The combination has a selective action on the chancre, rendering the entire chancre necrotic, and has no effect on the healthy tissue. It is applied on a pledget of cotton and covered with the prepuce or a piece of oiled silk and left in place for twenty-four hours. In another twenty-four or thirty-six hours the chancre can be lifted out of its bed, leaving a healthy ulcer which heals in a short time under simple dressings. I believe this destruction is as effective as excision.

The same combination will also destroy a chancroid in one application, converting the soft chancre into a simple ulcer, and reducing the danger of a bubo to a minimum. The application causes considerable smarting and swelling of the prepuce, and the patient should be informed that it will do so in order that he may not become frightened and remove the dressing.

Therapeutics

HEMORRHAGIC DISEASES

(*Continued from page 1701*)

PURPURA HEMORRHAGICA

The name purpura hemorrhagica is often loosely applied to any condition in which there are hemorrhagic spots in the skin. It has been used in connection with various idiopathic purpuras such as purpura simplex, characterized by small isolated petechiae in the skin and with either no symptoms or very slight symptoms. It has also been wrongly used when petechiae have been present in an arthritic condition such as Schönlein's disease or Henoch's purpura. The true purpura hemorrhagica, also known as morbus maculosus of Werlhof, is a clinical entity with characteristic signs, symptoms and blood changes.

Purpura hemorrhagica is usually characterized by severe small hemorrhages not only into the skin but also into and from the mucous membranes. Cases have been known in which the hemorrhages were confined to the mucous membranes and were absent from the skin. In this condition also occur slight or severe constitutional disturbances. Fever may be present, and also nausea and vomiting. The hemorrhages may be present in any of the mucous membranes, the commonest being the mucosa of the nose with resulting epistaxis. There may be hemorrhages from the rectum or from the stomach. The orbits and the mucosa of the mouth and throat may be studded with the petechiae. In the larger number of cases the skin is involved, and the skin in no part of the body is immune from these hemorrhages. The hemorrhages may be present as blebs or as petechiae of varying size.

The etiology is unknown. It has been attributed to changes in the blood or in the walls of the blood vessels. A bacteriologic etiology has never been given much approval, although purpuric conditions have

been produced by the injection of different bacteria. Such purpuras are not true purpura hemorrhagica, as they are also found in infections and result from the bacteremia.

The common belief has been that the disease is caused either by changes in the walls of blood vessels, probably of a degenerative nature, or by some change of the constituents of the blood. Pathologic studies show that the alterations in the walls of the blood vessels are not constant. Experiments have been tried to produce changes in the vessel walls by injection of toxic substances. In some of these, small multiple hemorrhages have resulted; but the evidence obtained has not definitely shown these experimental conditions to be true purpura hemorrhagica. There is, however, one constant change in the blood in every case of purpura hemorrhagica. This has been very well demonstrated by Duke,[1] who, in a series of cases, studying various factors involved in hemorrhagic disease, found that all of the cases of purpura hemorrhagica showed a marked diminution of the blood platelets. Whereas in normal cases the count is between 200,000 and 400,000, in purpura hemorrhagica it is below 10,000, many of the counts even below 1,000, and occasionally nearer zero. He found the coagulation time normal and the clot at any bleeding point firm and without retraction. In this way a differential diagnosis could be made from hemophilia, in which the blood platelets are normal in number but the coagulation time is delayed.

Duke also noticed that the lower the blood platelet count, the more severe were the symptoms. In patients with a blood platelet count of 40,000 or over, there was no tendency toward hemorrhage. That blood platelets are concerned in some way or other in purpura hemorrhagica has been shown in another way by Ledingham,[2] who was able to produce in guinea-pigs a disease similar to purpura hemorrhagica by the injection of antiblood platelet serum prepared by immunizing rabbits with guinea-pig blood platelets.

The conclusions drawn by Duke were substantiated when two cases were transfused directly with immediate relief, and it was concluded that the improvement was due to the increase in blood platelets. Emsheimer[3] more recently reported a case of purpura hemorrhagica, in which intramuscular injections of whole blood were given with marked improvement, after other methods had failed. He was led to employ this means because the injection of blood is considered to be a stimulus to the production of thromboplastic substances, and the intramuscular method is so much easier and more rapid than transfusion. His method was very simple, and consisted of drawing 20 c.c. of blood from the median cephalic vein of the donor with a syringe and injecting it immediately into the gluteal muscle. This was followed by a gradual disappearance of the petechiae and a clearing up of the urine, which had been black at times from the blood contained in it.

Howard[4] obtained good results from four subcutaneous injections of whole blood in amounts varying from 28 to 90 c.c.

Goldstein,[5] in a case of purpura hemorrhagica with marked purpuric blotches in the mouth and spontaneous bleeding from the nose and gums, caused cessation of the bleeding by the subcutaneous injection of 20 c.c. of antidiphtheritic serum.

Frank[6] administers arsenic in conjunction with local or intravenous injection of an extract of blood platelets. The blood platelets are contained in normal human blood plasma, which is rich in them. About 400 to 500 c.c. of blood from a donor is collected in a vessel containing herudin (an extract of leech) to prevent coagulation. Ten mg. of herudin are used for every 75 c.c. of blood. The blood is placed on ice and slowly centrifugalized, after which the plasma is drawn off and used for injection. This is all done under strict aseptic conditions. Before it is used, blood tests should be conducted to ascertain if there is any hemolytic or agglutinative action of the prepared plasma on the patient's blood corpuscles.

Bodenheimer,[7] in a severe case of purpura hemorrhagica, obtained excellent results by the intramuscular injection of horse serum. He used 10 c.c., and with it he administered calcium lactate in 2 grain doses, every two hours, and gave gelatin by the mouth. Hemorrhagic blisters in the mouth showed a marked improvement, and the epistaxis ceased. A second administration of 10 c.c. of horse serum caused the cessation of bleeding by rectum.

Another method reported with very good results is the one described by Halpern,[8] in which coagulen is injected subcutaneously. Coagulen is prepared from the blood platelets of animals. It is a yellow powder, readily soluble in water and not destroyed by sterilizing. It may be used intravenously or subcutaneously, and when ready for use, 1 grain is dissolved in 10 c.c. of distilled water.

The most striking results in purpura hemorrhagica were obtained by Ottenberg and Libman[9] by means of transfusions. They report nine patients in whom transfusions were made twelve times. Of these six recovered completely, and one other left the hospital improved.

The prompt cessation of the hemorrhages in all of the patients seemed remarkable. The two cases in which there was no improvement were of an unusual form of purpura hemorrhagica, both being post partum. It is very likely that their pathogenesis was different from that of the other cases.

(To be continued)

1. Duke, W. W.: The Pathogenesis of Purpura Hemorrhagica with Especial Reference to the Part Played by Blood-Platelets, Arch. Int. Med., November, 1912, p. 445.
2. Ledingham: Lancet, London, 1914, clxxxvi, 1673.
3. Emsheimer, H. W.: Intramuscular Injections of Whole Blood in the Treatment of Purpura Hemorrhagica, THE JOURNAL A. M. A., Jan. 1, 1916, p. 20.
4. Howard: Kentucky Med. Jour., 1914, xii, 606.
5. Goldstein: Laryngoscope, 1914, xxiv, 1.
6. Frank: Berl. klin. Wchnschr., 1915, lii, 500.
7. Bodenheimer: New York Med. Jour., Oct. 17, 1914, p. 774.
8. Halpern: Beitr. f. klin. Chir., 1915, xcv, 324.
9. Ottenberg and Libman: Am. Jour. Med. Sc., 1915, cl, 36.

Thymol.—Thymol was first obtained from thyme—whence its name. Commercially it has been made almost entirely from ajowan seed. This seed, which grows in northern India, is manufactured into thymol in Europe, chiefly in Germany and France. As soon as the European war broke out thymol became a scarce drug because the war prevented the importation of ajowan seed. It is stated that the importations fell from 18,000 pounds in 1914 to a little more than 2,000 pounds in 1915. Now it is announced (U. S. Department of Agriculture, Bulletin 372) that the production of thymol may be made profitable in the United States, the source being the common horsemint (*Monarda punctata*). The government bulletin describes how by cultivation the plants have been improved to a point which, it is said, makes the manufacture of thymol from horsemint profitable in the United States.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET . . . CHICAGO, ILL.

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SATURDAY, JUNE 3, 1916

THE RELATION OF THE SPLEEN TO HEMOLYTIC JAUNDICE

Among the positive results which have been described as a sequel to the removal of the spleen are not only an increased resistance of the red blood cells but also a decreased tendency to the jaundice that follows the destruction of these cells by hemolytic agents. The spleen is regarded by many investigators as the natural location for the disintegration of erythrocytes after administration of hemolytic poisons.[1] The hemoglobin there liberated is carried directly by the portal system to the liver, where it may be in large measure removed, converted into bile pigment, and thereupon excreted in the bile. It is readily conceivable that if liberated hemoglobin is thus present in large quantity, some of it may escape this sequence of events; and the pigment appearing in the tissues and the urine may thus produce jaundice. Inasmuch as after splenectomy the occurrence of jaundice of this sort appears to be lessened, it may be assumed that in the absence of the spleen the blood cells undergo disintegration elsewhere. Their pigment could thus reach the liver indirectly only through the general circulation. Traveling in this way, the free hemoglobin would tend to reach the liver much more gradually and at a rate which will lie within the capacity of the hepatic organ for complete excretion as bile pigment; hence no return of the latter into the circulation would occur, and jaundice would fail to develop.

The foregoing hypothesis, of course, is not the only one which is suggested in explanation of the lessened tendency to the hemolytic jaundice after splenectomy. It may be assumed that some peculiar function of blood cell destruction resides in the spleen, and is consequently lost with the removal of this organ. As a matter of fact, hemolytic agents produce disintegration of erythrocytes even in splenectomized animals, though the effect is a distinctly lessened one. These circumstances have led a group of investigators, in the department of research medicine at the University of Pennsylvania, to inquire whether or not the lessened tendency to jaundice after splenectomy is due, in part at least, to a mechanical factor dependent on the relation of the spleen to the blood supply to the liver.

Splenectomy itself has no influence on the fate of hemoglobin injected into the general or portal circulation. Bile pigments are formed from at least a part of it. Austin and Pepper,[2] under experimental conditions in which hemoglobin was introduced into the blood stream, found that the resulting jaundice was distinctly more persistent after mesenteric than after femoral injection. It will be noted that whereas the latter procedure brings the jaundice-provoking substance into the general circulation first, the former path leads directly to the liver. The Philadelphia investigators therefore summarize the outcome as follows: When the hemoglobin is set free in the portal circulation, a larger amount is held by the liver and converted rapidly into bile pigment than is the case when it is set free in the general circulation. Through the direct portal path, overloading of the liver may thus occur more readily, and jaundice is more apt to develop.

The purely mechanical influence of the path of entry to the liver must therefore be a factor in the lessened tendency, after splenectomy, to the jaundice which follows blood destruction by hemolytic agents. As Austin and Pepper further remark, whether the spleen is an active factor in destroying erythrocytes, or whether it plays merely a passive part as a place for the deposition of the disintegrating cells, there can be no question that in this organ, when it is present, a large number of cells undergo their final disintegration after the action of hemolytic poisons, and that the hemoglobin there liberated passes by the portal system directly to the liver. When the spleen is removed, the disintegration occurs in other organs, notably in the lymph nodes and bone marrow; and from these organs the hemoglobin passes not into the portal blood stream but into the general circulation, from which it reaches the liver more gradually and in a more dilute form.

The view here presented is fortified by additional experiments in which the venous drainage of the spleen has been altered without the actual removal of this organ. Krumbhaar, Musser and Peet[3] have diverted the venous outflow to the liver by the ingenious surgical device of either ligating the splenic vein or trans-

1. Compare Pugliese, A., and Luzzatti, T.: Contributo alla fisiologia della milza; milza e veleni ematici, Arch. p. le sc. med., 1900, xxiv, 1. Pugliese, A.: Rate et poisons hématiques, Arch. ital. de biol., 1900, xxxiii, 349; La secrezione e la composizione della bile negli animali smilzati, Policlinico, Sez. med., 1899, vi, 121; La secretion et la composition de la bile chez animaux privés de la rate, Arch. Ital. de biol., 1900, xxxiii, 359.

2. Austin, J. H., and Pepper, O. H. P.: The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice, XII, The Importance in the Production of Hemolytic Jaundice of the Path of Hemoglobin to the Liver, Jour. Exper. Med., 1915, xxii, 675.

3. Krumbhaar, E. B.: Musser, J. H., Jr., and Peet, M. M.: The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice, XIV, Changes in the Blood Following Diversion of the Splenic Blood from the Liver, A Control Study of the Effects of Splenectomy, Jour. Exper. Med., 1916, xxiii, 87. Krumbhaar, E. B., and Musser, J. H., Jr.: The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice, XV, The Resistance to Hemolytic Agents of Dogs in Which the Splenic Blood has been Diverted from the Liver, ibid., p. 97.

planting it into the vena cava, instead of removing the spleen. Obviously, if the removal of the spleen as an organ furnishing some chemical hormone, is responsible for the effects of splenectomy on jaundice, the usual results obtained with hemolytic agents should not follow when the spleen is left intact in the way described. But the animals with transplanted splenic circulation actually show a lessened tendency to jaundice, similar to that exhibited after simple splenectomy. This experience thus serves to confirm the probability that the altered course of the blood supply to the liver plays a part in the phenomena discussed.

THE NONPROTEIN NITROGENOUS COMPONENTS OF THE BLOOD

If the routine detailed analysis of the blood is to prove of value in the future in the field of diagnosis, as urinary analysis has demonstrated its usefulness in the past, it will be necessary to have elaborate fundamental studies of the normal composition of the circulating fluid and its variations under known conditions of physiologic disturbance. Data obtained from this standpoint in respect to the sugar content of the blood have repeatedly been discussed in THE JOURNAL.[1] Since the introduction of suitable micromethods of analysis, the quantitative aspects of the nonprotein nitrogen of the blood — the index of that fraction of its constituents which includes the circulating amino acids, urea and other products of metabolism — have claimed special attention. The technic of the estimations is beginning to share a place in the larger clinical laboratories and is receiving application in particular in the investigation of renal function.

An elaborate investigation of the nonprotein nitrogen of the blood recently published by Bang[2] of Lund, Sweden, has brought a confirmation of some of the earlier chemical statistics of the blood as well as an addition to the known facts. Thus the average figure for the total nonprotein nitrogen is placed, as the result of numerous new analyses, at 25 mg. per hundred gm. of blood; out of this an average of 15 mg. is apportioned to urea. These values correspond fairly closely with those first established in this country for man by Folin and Denis.[3] The latter found results varying between the narrow ranges of from 22 to 26 mg. for total nonprotein nitrogen and from 11 to 13 mg. for urea nitrogen, which lead them to conclude that the perfectly normal kidney maintains a remarkably constant level of these components in the blood.

It has been demonstrated that both amino acids and urea, representing food and waste, respectively, from the standpoint of nitrogenous metabolism, occur in the corpuscles as well as in the plasma of the blood,[4] the formed elements being permeable to such compounds. An analogous behavior is known in the case of the blood sugar. According to the newest analyses of Bang, both the corpuscles and the plasma of human blood as a rule contain practically the same content of total residual nitrogen, urea and amino acids. In several instances Bang has observed an increase in the urea content of the blood without any comparable change in the other nonprotein nitrogenous constituents during starvation. This was demonstrated, however, to be associated with a lack of water, and disappeared as soon as a suitable intake of water was assured. The ingestion of protein did not lead, in Bang's experience, to any noteworthy concentration of amino acids in the blood unless the intake was inordinately large. Evidently a renal loss of amino acids is thus averted so long as the blood content does not rise to an excretion level. The urea content may be decidedly increased, however, thus showing the speedy conversion of amino acid nitrogen into its characteristic end-product of nitrogenous waste. The center of interest in reactions of nitrogenous metabolism is for the time shifting to the study of the chemistry of the blood.

NEW RESEARCHES ON THE BILE

Recent progress in our knowledge of the physiology of alimentation has been characterized in particular by a better insight into the mechanism of the secretion of the digestive glands. For more or less obvious reasons, the production and properties of the gastric juice have experienced the greatest elucidation. Pawlow's epoch-making observations have been followed by numerous others that help to make clear the functions of the various digestive secretions and the activities of the secretory apparatus which produces them.

Much has been written about the physiology of the bile; but the literature of the subject still abounds in contradictory statements involving some of its fundamental features. There is, accordingly, a peculiar and timely appropriateness to a renewed investigation of the problems of the bile and biliary secretion such as has lately been undertaken in the Institute of Physiology at University College, London.[5] Under Starling's leadership it has been shown, contrary to widespread statements, that there is little difference in the

1. Dietary Treatment and the Sugar Content of the Blood in Diabetes, editorial, THE JOURNAL A. M. A., Aug. 22, 1914, p. 688; The Absolute and Percentile Amounts of Sugar in the Blood, Sept. 19, 1914, p. 1036; The Normal Blood Sugar Content, Sept. 11, 1915, p. 958; The Pancreas and Sugar in the Blood, Oct. 2, 1915, p. 1187.

2. Bang, I.: Untersuchungen über den Reststickstoff des Blutes, I, Biochem. Ztschr., 1915, lxxii, 104; II, ibid., p. 119; III, ibid., p. 129; IV, ibid., p. 139; V, ibid., p. 146.

3. Folin, O., and Denis, W.: Protein Metabolism from the Standpoint of Blood and Tissue Analysis, VI, On Uric Acid, Urea and Total Non-Protein Nitrogen in Human Blood, Jour. Biol. Chem., 1913, xiv, 29.

4. Costantino, A.: Untersuchungen über die biologische Bedeutung und den Metabolismus der Eiweissstoffe, VII, Der durch Formol titrierbare Aminosäurenstickstoff im Blutserum und in den Blutkörperchen von verschiedenen Tieren, Biochem. Ztschr., 1913, li, 91; II, Der durch Formol titrierbare Aminosäurestickstoff in den Blutkörperchen und im Serum des Blutes von hungernden und ernährten Tieren, ibid., 1913, lv, 402; III, Die Permeabilität der Blutkörperchen für Aminosäuren, ibid., p. 411.

5. Okada, S.: On the Secretion of Bile, Jour. Physiol., 1915, xlix, 457; On the Contractile Movement of the Gall Bladder, ibid., 1915, L, 42; On the Reaction of the Bile, ibid., 1915, L, 114.

effects, on the secretion of bile during the first six or seven hours after meals, between the diets of bread, butter and meat, if these substances are administered in quantities of corresponding caloric value. In the case of bread the diminution in secretion occurs sooner than in the case of butter or meat. Starvation tends to diminish the secretion of bile and the excitatory effect of feeding on the liver cells.

Precisely as special food products are now well known to have a specific effect on gastric secretion, so that meat extractives and dextrins, for example, increase the flow quite pronouncedly and can accordingly be employed in therapeutic ways, certain products also affect the biliary secretion. Of white of egg, fats and oils, acids, "peptones," extract of meat, and bile salts or bile, all produce an increased secretion of a more dilute bile, with the exception of bile and bile salts, which produce a bile lighter in color but with a larger percentage of solids. Among the substances eaten or introduced into the stomach, on the other hand, producing little or no effect are water, sucrose, cakes of starch and sugar, and sodium bicarbonate. As in the case of the pancreas, so with the liver, secretin which finds its way into the circulation promotes the activity of the gland involved, causing in this case the secretion of a more dilute bile. Familiar facts in relation to hematogenous jaundice make us ready to understand that injection of the blood pigment hemoglobin into the blood stream increases the pigments of the bile without marked change in the amount. This is quite in harmony with the current view that the biliary pigments function as excretory products of hemoglobin.

The therapeutic agents capable of promoting the flow of bile are still a subject of controversy. About the potency of bile itself as a cholagogue there is no question. When fed, as noted above, it causes an unmistakable increase in the secretion. Okada[5] has arrived at the conclusion that calomel — the much vaunted drug for biliousness, whatever that may mean — is without effect on biliary secretion, thus confirming other earlier evidence of the same sort. Sodium salicylate and chloral hydrate are reported to provoke biliary flow markedly; phenyl salicylate (salol), cream of tartar, and alcohol in large doses are likewise reported to be distinct stimulants; atropin causes a slight diminution of secretion.

When a meal is taken, the ejection of the chyme into the duodenum is followed by an ejection of bile as the result of contractions of the gallbladder. According to Okada's newest observations, during digestion there is an increase in the force of the rhythmic contractions of the gallbladder.

The reaction of the different alimentary secretions is a matter of considerable physiologic significance; and about this aspect of the bile, also, the statements are anything but concordant. The older methods of estimating the reaction have given way to the more exact procedure of determining true acidity or alkalinity in terms of hydrogen ion concentration. It is now evident that the reaction of the bile from the gallbladder and from the liver is different; the reaction of the former is more variable and always inclining more to the acid side than that of the latter.[6] Okada has pointed out that the facts that bile, in so many animals, is poured into the intestine by an orifice common to it and the pancreatic juice, and that these two fluids cooperate in their actions on the ingested foodstuffs, suggest that they must have a reaction which is optimal for their action in the processes of digestion. As a matter of fact, the reaction of bile from the liver is alkaline during digestion and corresponds to that of pancreatic and intestinal juices and with the optimal point for trypsin, pancreatic lipase and erepsin.

THE CAUSE OF TYPHUS FEVER

Much progress has been made in recent years in solving the problem of the cause of typhus fever. Perhaps the most important demonstration from a practical point of view is the discovery by Nicolle, Ricketts and others that the disease is transmitted by the body louse. The demonstration also that apes, monkeys and guinea-pigs are susceptible to the typhus virus makes it possible to conduct systematic experiments on animals, and in the course of such experiments it has been shown quite conclusively that the disease is not caused by a filterable virus as we ordinarily understand it. And so the search for a bacterial cause has continued.

In 1914, Plotz described a gram-positive anaerobic bacillus obtained in culture of the blood from patients with endemic typhus in New York and of typhus fever in immigrants in quarantine. The medium consisted of glucose agar and unheated, unfiltered ascitic fluid with a specific gravity of about 1.015. Subsequently the same bacillus was recovered from guinea-pigs and monkeys inoculated with typhus blood, and specific agglutination and complement fixation obtained with the blood typhus patients after the crisis. The evidence is consequently strongly in favor of at least some close relationship between this bacillus — the *Bacillus typhi-exanthematici* — and typhus fever; it can hardly be asserted, however, that it has been demonstrated conclusively to be the specific cause of typhus fever. It is not apparent that injections of this bacillus in animals give rise to the same reactions which occur after the injection of typhus blood; of course it must be acknowledged that failure to produce reaction and failure to protect animals against the virus in typhus blood do not necessarily imply that the bacillus is not the cause of typhus, but they make the demonstration of the true relation of this bacillus to typhus fever difficult.

6. Okada, S.: On the Reaction of Bile, Jour. Physiol., 1915, L, 117.

The extensive outbreaks of typhus in European countries involved in the war, especially Serbia, would seem to offer unexcelled opportunity for the further work necessary to settle the etiologic problem of this disease; in spite of the abundance of the material, however, the conditions in war do not seem to be favorable for scientific investigation. Thus we are informed that the American Red Cross Commission found it practically impossible to do systematic work during the last typhus epidemic in Serbia, and the recent work in Mexico by Olitsky[1] and others was interrupted very soon after it had been started. From the latest Mexican work we see that the results again indicate the close relationship between the bacillus of Plotz and typhus, and we may hope that independent workers under favorable conditions will secure results before long of definite significance.

In connection with this work on typhus we note the melancholy fact that another investigator has died from the disease. Carlos E. Husk died, March 20, 1915, from typhus fever contracted in the course of the work mentioned in the foregoing. There is probably no disease that has claimed so many victims among physicians and nurses as typhus. It is said that during twenty-five years, of 1,230 physicians attached to institutions in Ireland, 550 died of typhus. Since the war, again, typhus has claimed many victims from physicians, among them, for instance, Jochmann, who was doing splendid work in the study of infectious diseases. And the martyr roll of typhus now includes three American investigators who have died from typhus contracted while voluntarily investigating the disease in Mexico — Conneff of the Ohio State University expedition, Ricketts, who accomplished so much, and now Husk.

FEVER-PRODUCING SUBSTANCES — PYROGENS

The scientific literature on fever, considered as a pathologic phenomenon quite independent of the ulterior cause, abounds in the rival claims of the so-called toxogenic and neurogenic theories. Virchow, as early as 1853, looked on fever as a neurosis — the condition being considered analogous to a paralytic state, with a failure of the control of some physiologic processes in the organism. This attitude has been attacked particularly on the ground that there is no very definite proof of the existence of special nerves which preside over the production of heat. Accordingly, it has seemed more likely to many students of fever that circulating poisons affect directly all the cells of the body, so that the latter react with a febrile intensification of their metabolism.[2] A peculiar significance was given to the toxogenic theory, particularly with reference to the reported results of the fever-producing effects of extracts of certain tissues and other substances, by the observations of Hort and Penfold[3] in 1911. These showed that when ordinary water, after it is sterilized, is injected intravenously into rabbits, the result is usually a short febrile reaction, whereas the injection of pure sterile water, carefully distilled from glass, fails to produce such a result. This work has in the main been corroborated.

Evidently, then, water may readily be contaminated with micro-organisms which produce some pyrogenic substance which is not destroyed by the heat employed in sterilization. From a practical standpoint this fact has emphasized the necessity of using freshly distilled (as well as sterilized) water for the preparation of fluids for injection. On the theoretical side, moreover, it suggests the existence of relatively stable substances which must require a dosage extremely small at best to produce febrile responses independent of the introduction of living organisms into the body.

In harmony with this are the more recent experiments of Jona[4] at the Lister Institute in London. From *Bacillus coli* he obtained a substance of remarkable potency. On injection in a minimal amount of Ringer's solution, fever or collapse can be produced by it in experimental animals, a dose equivalent to 0.000004 gm. of bacterial bodies producing fever, and 0.002 gm. producing marked collapse or even death. The dosage feature becomes even more striking on contemplation of the fact that the bulk of the weight of the bacteria must be something other than the incidental pyrogenic substance yielded by them. According to Jona, the substance or substances in the bacteria responsible for the rise in temperature are either of a colloidal nature or adherent to colloids, so that they may be almost entirely removed by a collodion filter. They are not destroyed in boiling water or by dry heat of 110 C. (230 F.), and they are insoluble in organic solvents such as alcohol and ether. The rise in temperature ordinarily produced by these products (in rabbits) lasts a few hours, and is principally due to a diminution in heat loss, the heat production remaining sometimes unaffected and sometimes increased.

On the basis of such facts, some of the reputed pyrogenic effects attributed to a variety of substances — proteoses, enzymes, etc. — may perhaps find an explanation in their association with these subtle impurities of bacterial origin. Although Krehl and others have long claimed fever-producing properties for digestion products of ordinary proteins, Gibson[5]

1. Olitsky, P. K.; Denzer, B. S., and Husk, C. E.: The Etiology of Typhus Fever in Mexico (Tabardillo), THE JOURNAL A. M. A., May 27, 1916, p. 1692.
2. An interesting discussion of the subject will be found by MacCallum, W. G.: Fever, the Harvey Lectures, 1908-1909, Philadelphia, 1910, p. 27.
3. Hort, E. C., and Penfold, W. J.: The Dangers of Saline Injections, Brit. Med. Jour., 1911, ii, 1510; A Critical Study of Experimental Fevers, Proc. Roy. Soc. London, 1912 (B), lxxxv, 174; The Pyrogenetic Properties of B. Typhosus, Brit. Med. Jour., 1912, ii, 1300. Fevers Following Subcutaneous Injections, editorial, THE JOURNAL A. M. A., Dec. 14, 1912, p. 2156.
4. Jona, J. L.: A Contribution to the Experimental Study of Fever, Jour. Hyg., 1916, xv, 169.
5. Gibson, R. B.: Proteoses and Fever, Philippine Jour. Sc. (F), 1914, viii, 475.

has shown that only slight, if any, pyrogenic effects are produced with carefully purified proteoses. He concludes, therefore, that any rise in temperature which may have been observed is insufficient to warrant the opinion that proteoses cause the severe natural fevers. If we are dealing with impurities in such reputed cases of fever-producing products, it is nevertheless possible, according to Jona, that in cases of burns to the body, substances of a nature similar to the bacterial "pyrogen" are set free and may give rise to the fever seen in milder cases as well as the collapse in the severer ones. All suggestions of this character contribute to the probability of toxogenic factors which deserve wider consideration in the speculations of the future on the subject of febrile reactions.

Current Comment

NONSPECIFIC FACTORS IN THE TREATMENT OF DISEASE

There is a growing interest in the scientific investigation of the nonspecific elements in recovery from infectious disease, and a close examination of clinical facts suggests that some of the therapeutic effects which have been attributed to action, specific in the sense of Ehrlich, may have resulted from physicochemical changes of a less specific and more general nature. Jobling and Petersen[1] review the evidence, both clinical and laboratory, which points to the importance of nonspecific elements in biologic therapeutic reaction, and suggest that in the past we have adhered perhaps too closely to the narrow view of specificity, and have refused to consider evidence of nonspecific therapeutic results, particularly if such observations originate from clinical sources. They then discuss some of the ways in which nonspecific effects become evident clinically by hyperpyrexia, by leukocytosis and by laboratory tests for changes in the serum suggesting the mobilization of ferments. While this discussion is timely, a word of caution may not be amiss. While it is probable that much important information will come out of this line of investigation, our present information is meager, and we must not at once cast aside all of our conceptions of specificity in disease, for it is under the guidance of these conceptions that we have made progress up to the present time. Nor does it seem wise to accept clinical evidence alone as conclusive, unless confirmed by many observers under varying conditions. Miller and Lusk,[2] in a paper dealing with one phase of such nonspecific therapy, report improvement lasting as long as five weeks in patients suffering from arthritis, following intravenous injections of typhoid vaccine. These observations afford an example of what appears to be a favorable nonspecific therapeutic action of foreign protein. It would be of interest, however, to know how permanent the improvement in these patients was, and in how many the cause of the arthritis was found and removed. Finally, we must bear in mind the query propounded by Theobald Smith in another connection: How much energy does a reaction of this sort cost the patient, and is the final result worth the cost?

1. Jobling, J. W., and Petersen, William: The Nonspecific Factors in the Treatment of Disease, THE JOURNAL A. M. A., this issue, p. 1754.
2. Miller, J. L., and Lusk, F. B.: The Treatment of Arthritis by the Intravenous Injection of Foreign Protein, THE JOURNAL, this issue, p. 1756.

MINERS' NYSTAGMUS

In view of the enactment of the workmen's compensation laws in more than thirty states, miners' nystagmus may at any moment become of immediate interest. No investigation has been made in the United States (except in Illinois) as to the existence of this disease; still less has a thorough survey been undertaken. The Bureau of Mines has recently published a monograph by Frederick L. Hoffman[1] in which are reviewed the various opinions as to the causation and prevention of nystagmus. It is estimated that, if cases of nystagmus occurred in American mines to the same degree as they do in Europe, there should be a number of cases each year which may be estimated as between 25,000 and 40,000. It would seem improbable that such a large number could escape notice; but experience in Europe has shown that very little attention is paid to the disease until it becomes a question of compensation. The conditions to which the occurrence of nystagmus are generally attributed are rare in this country. These are hand undercutting, the working of extremely narrow seams, and entire dependence on the feeble light of the miners' lamp. But it must be remembered that, according to Elworthy, the true determining cause is total absence of color in coal mines, combined with the fact that the majority of miners prefer to work in daytime, so that they have very little opportunity for relief of the retina. This view is to a certain extent supported by the absence of nystagmus in miners working in mines other than coal mines under conditions which should produce nystagmus, except that the monotonous blackness is absent. In this respect, it would be interesting to know what is the condition as to nystagmus of the miners of Mansfeld, whose copper seams are notoriously the thinnest in the world, and who work in inconceivably cramped quarters.

GOA POWDER AND CHRYSAROBIN

Among the drugs which have increased in price since the outbreak of the war in Europe is chrysarobin, which, formerly about $3 a pound, wholesale, is now, when quoted at all, held at $6.75 a pound.[2] Chrysarobin, widely used in psoriasis, is manufactured from goa or araroba powder, which is said to come entirely from the American continent — from the state of Bahia, Brazil. According to a report by Consul Robert Frazer, Jr.,[3] this substance is found in the form of a pulp or small solid masses, supposed to constitute a morbid growth, in crevices of the heart wood of a leguminous tree known locally as *amargoso do matto*

1. Hoffman, Frederick L.: Bulletin 93, Bureau of Mines.
2. Red Book Price Lists of Druggists Circular, 1914 and 1915, and price lists of Mallinckrodt and Powers-Weightman-Rosengarten.
3. Frazer, Robert, Jr.: Commerce Reports, May 12, 1916, p. 568.

(*Vouacapoua* or *Andira araroba*). The yield sometimes amounts to 60 or 65 pounds a tree. The trees are not cultivated, but grow abundantly in the forests, attaining great size. To obtain the powder, the full-grown trees are felled and split, and the araroba deposits removed, dried and powdered. The product yields about 50 per cent. of chrysarobin. Goa powder is dangerous to handle; Frazer says that those who work with it for any length of time, even though protected by gloves and masks with glass eyepieces, invariably lose hair, eyebrows and eyelashes, and sometimes become blind. Just before the war broke out, large shipments of the powder were made to Europe. According to Frazer, ample supplies are now obtainable.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

COLORADO

Successful Campaign for Society.—The Denver and County Medical Society started, May 22, to raise $5,000 to furnish and equip its new meeting hall and library in the building now being erected for it. By May 29 it had raised $5,200 for this purpose.

CONNECTICUT

Personal.—Dr. Edward J. Lynch, Norwich, has been appointed superintendent of the sanatorium at Shelton, succeeding Dr. William M. Stockwell, transferred to the Hartford Institution; Dr. James P. McManus, Stamford, of the Shelton Sanatorium has been appointed assistant at the Hartford Sanatorium; and Dr. William C. Schroeder, assistant at the Hartford Institute, has been transferred to the Norwich Sanatorium.——Dr. Simon R. Klein, Norwich, has been appointed pathologist to the Arkansas State Hospital, Little Rock.

New State Society Officers.—The one hundred and twenty-fourth annual meeting of the Connecticut State Medical Society was held in Bridgeport, May 17 and 18, under the presidency of Dr. Max Mailhouse, New Haven, whose presidential address was on the subject of "Some Defects and Inconsistencies in Connecticut Statutes and Medicolegal Proceedings." Dr. David L. Edsall, professor of clinical medicine in Harvard University, delivered, by invitation, an address on "The Clinical Study of Respiration." The following officers were elected: president, Dr. Samuel M. Garlick, Bridgeport; vice presidents, Drs. George M. Burroughs, Danielson, and John C. Kendall, Norfolk; secretary, Dr. Marvin M. Scarbrough, New Haven (reelected); treasurer, Dr. Phineas H. Ingalls, Hartford (reelected). The next meeting will be held in New Haven, May 23 and 24, 1917.

DELAWARE

New Health Boards.—Dover has selected the following physicians as members of its board of health: Drs. L. August H. Bishop and Edwin S. Anderson, and at the meeting of the board for organization, Dr. Bishop was elected president and Dr. Anderson, vice president.——Dr. Silas C. Frederick and Dr. Harry M. Frist have been appointed members of the Wilmington Board of Health.

Epidemics in Delaware.—The Seaford Board of Health, in cooperation with the town council, has established a quarantine against Laurel, where there are said to be six cases of smallpox.——Wilmington, after a protracted siege, has apparently conquered the epidemic of smallpox which has persisted for about six weeks, and the public schools, churches and places of amusement have been reopened.——The epidemic of measles at Wilmington has been checked after 749 cases had been reported.

ILLINOIS

State Leprosarium.—The state board of administration announced, May 22, the establishment of the Illinois Leprosarium on the grounds of the Watertown Hospital. The institution has already two occupants.

Practitioners' Club Election.—At the meeting of the Elgin Practitioners' Club, May 15, Dr. Harry E. Kerch, Dundee, was elected president; Dr. Howard T. Knight, Jr., Elgin, secretary-treasurer, and Dr. Howard K. Scatliff, Elgin, chairman of the executive committee.

Ambulance Company at State University.—An ambulance company of the Illinois National Guard is to be organized in Urbana-Champaign, with headquarters at the University of Illinois, between the two cities. Dr. John C. Dallenbach, Champaign, is in charge of the project.

Survey of Subnormal Projected.—A survey of Illinois on the question of subnormality is to begin in a few days under the auspices of the Illinois Society for Mental Hygiene. Chicago will be the center of the work, and it is expected that a year will be spent in gathering data on this question. Dr. Sydney Kuh, Chicago, and Dr. Sidney Wilgus, Rockford, are members of the committee which has the matter in charge.

New Hospital.—Plans for the erection and endowment of a hospital in Highland Park have been completed, and June 8 has been selected as the date of launching the four-day campaign to raise a fund of $100,000 by popular subscriptions among residents of Highland Park, Highwood, Deerfield and a portion of Ravinia. Dr. Lloyd M. Bergen is chairman of the executive committee, and Drs. Henry S. Haskin, Harry B. Roberts and Albert R. Sheldon are medical members of the committee.

Personal.—Dr. and Mrs. Archie B. Atchison, Oregon, and family have returned after two years spent in Alabama.——Dr. Morris Finkelberg, Spring Valley, was seriously injured, May 23, when his motor car plunged down a 35-foot embankment. He suffered a comminuted fracture of the inferior maxilla and concussion of the brain, and is under treatment in St. Margaret's Hospital.——Dr. Herbert B. Henkel, Springfield, has been elected president of the County Secretaries' Association.——Dr. David B. Penniman, Rockford, who has been a patient at the Rockford Hospital for several weeks, has returned home, greatly improved.

Indicted on Diploma Mill Charge.—It is reported that, April 24, at Chicago, two indictments were voted by the April grand jury in connection with an investigation of an alleged "diploma mill." Drs. Amante Rongetti, Gastano Ronga and Amos de Feo were charged in one indictment with conspiracy to aid August Steinlage and Vincenzo Scaletta in qualifying falsely for examination by the Illinois State Board of Health, having sold them diplomas, it is said, which were stolen. The other indictment alleged the operation of a confidence game. In this instance Joseph Glaser, son of a Chicago physician, was jointly indicted with Drs. Rongetti and Ronga.

Chicago

Medical Staff at Republican Convention.—Commissioner of Health Robertson announces that fifty physicians will be on duty with the Emergency Hospital staff at the Coliseum during the Republican Convention.

Physician for Court of Domestic Relations.—Acting on a request from Judge Newcomer of the municipal court, Health Commissioner Robertson has assigned a physician for duty in the court of domestic relations, where each day from twenty to forty infants are present, many of whom are suffering from communicable or other diseases. The physician's duty will be to take up, with the mothers, the health of the children and advise the mothers how to proceed.

Personal.—Dr. James F. Churchill announces his removal to San Diego, Calif.——May 25, a banquet was tendered Dr. John McLean, for thirty-five years a physician of Pullman, at the Hotel Florence in that suburb. The banquet was given under the auspices of the Calumet Branch of the Chicago Medical Society.——Dr. Orville W. McMichael was the guest of the evening at the first meeting of the advisory staff of the Rockford Sanitarium, May 22, and described certain phases in the diagnosis and treatment of tuberculosis.——Dr. Charles Davison read a paper before the Wayne County (Mich.) Medical Society, Detroit, May 22, on "Bone Transplanting in Fractures."——Dr. Nelson M. Percy, Chicago, delivered an address on "Surgery Management of Pernicious Anemia" before the Kalamazoo Academy of Medi-

cine, May 23.——Dr. William A. Evans delivered an address before the White County Medical Society, May 17, and in the afternoon addressed a public meeting regarding health conditions in White County.

LOUISIANA

Move Against Illegal Practice.—The State Board of Medical Examiners, April 19 and May 1, respectively, filed petitions asking for injunctions to prohibit F. H. Seeley, a truss "expert," and Dr. M. M. Odom, McDonoghville, from further practicing medicine in Louisiana.

Report on Midwifery.—The State Board of Medical Examiners has recently made an extensive study of the midwifery problem. The report states that "midwives attended approximately 50 per cent. of the births in this country," nevertheless the investigations prove that "with few exceptions the midwife is dirty, ignorant and totally unfit to discharge the duties which she assumes." Reports show they are practicing in all states, mostly among immigrants and negro women. The board concludes that the first thing necessary is to insist on their being better trained, and a school for them has been opened in New Orleans.

MARYLAND

Fund for Johns Hopkins Training School.—A campaign has been started among the alumnae of the Johns Hopkins Training School for Nurses to help raise an endowment fund of $500,000. More than $1,700 was raised at the annual meeting of the alumnae of the training school, and $8,000 had already been pledged to this fund, making the total $9,700.

Legal Recognition of National Board.—What appears to be the first legislative action giving recognition to the National Board of Medical Examiners appears in an amendment secured recently to the medical practice act of Maryland. This amendment provides for the licensing without examination of applicants who present certificates issued by the national board.

Personal.—Dr. Howard A. Kelly will sever his connection at the Johns Hopkins Hospital for a year, in order to devote all of his time to further research work in radium.——Dr. Thomas S. Cullen will be in charge of Dr. Kelly's classes in the gynecologic department.——Dr. Martin F. Sloan, superintendent of the Eudowood Sanitarium, Towson, has opened offices in Baltimore for the private practice of medicine. He will limit his practice to diseases of the chest.——Dr. Frederick Williams has been appointed health warden of the fourth ward of Baltimore, succeeding Dr. John F. Byrne, resigned.

MASSACHUSETTS

Cornerstone Laid.—The cornerstone of the new Winchester Hospital was laid recently with impressive ceremonies by Governor McCall. During the exercises it was announced that a gift of $50,000 had been received from George Harrington, a resident of Winchester, the hospital association to have the interest on that sum for two years and if, at the expiration of that time, the mortgage of $15,000 has been paid off, the principal will be turned over to the association. The building will contain two wards with eight patients each, private rooms and operating and maternity departments and, equipped, will cost about $67,000.

Personal.—Dr. Howard S. Holloway, Boston, announces that his reported appointment as bacteriologist of the state board of health of Alabama was an error.——Dr. Lewis M. Palmer, Framingham, has been appointed medical examiner, that is, coroner of Middlesex County.——Dr. Allen Greenwood, Boston, who was a member of the First Harvard Unit to serve in the war zone, has returned to Europe as a member of the Third Harvard Unit.——Drs. John W. Lane, Michael J. Cronin, Thomas F. Greene, Andrew F. Downing and Herbert L. C. Johnson have resigned as members of the staff of St. Elizabeth's Hospital, Brighton, Boston.

MISSOURI

New Arrangements of Health Department.—Dr. Paul Paquin, health commissioner of Kansas City, announces that a new department of hygiene is to be built up, dividing the city into seventeen districts, over each of which will be placed a sanitary officer, who will have charge of all details of sanitary inspection in his district.

Mental Hygiene Society Organized.—The Missouri Society for Mental Hygiene was organized in St. Louis, May 24. Missouri is the fifteenth state to organize such a society in affiliation with the National Committee for Mental Hygiene. Mr. Clifford W. Beers, secretary of the national committee, was present to facilitate the organizing. A committee was appointed to proceed with the completion of the organization, with Dr. Malcolm A. Bliss, St. Louis, as chairman, and Dr. Francis M. Barnes, Jr., St. Louis, as secretary-treasurer. This society will work along the lines similar to those followed by the National Committee for Mental Hygiene and other state societies for the prevention of mental diseases and betterment of the present conditions of care and treatment of the insane and feebleminded in Missouri.

St. Louis

Memorial for Dr. Jesse S. Myer.—The friends of the late Dr. Jesse S. Myer have raised a fund to establish a memorial for Dr. Myer in the library of the St. Louis University Medical School, in celebration of his graduation twenty years ago. The fund now amounts to $1,181. Contributions may be sent to Dr. Hanau W. Loeb, 1402 South Grand Avenue.

Personal.—Dr. Fred T. Murphy of the department of surgery of Washington University Medical School has returned from France, where he served in the American Ambulance since February.——Dr. Philip A. Shafer, dean of the Medical School of Washington University, has been elected secretary of the American Association of University Professors.

Workmen's Compensation Law.—Dr. Robert M. Funkhouser has been appointed a member of the executive committee having in charge the work of drafting a Workmen's Compensation Law for Missouri. Dr. Funkhouser will represent the Missouri State Medical Association. The other members of the committee are Alroy S. Philips, from the Bar Association; W. C. Essemueller, representing the employers; Reuben T. Wood, representing the employees, and E. B. Thompson, representing insurance companies.

Washington University Items.—The Washington University Corporation announces an anonymous gift providing for a research fellowship in surgery for 1916. This fellowship has been awarded to Dr. Philip R. Green of the class of 1914.——Dr. Philip C. Jeans has been promoted from instructor to associate in medicine; Dr. Howard H. Bell from assistant to instructor in pathology; Dr. Charles H. Danforth from associate to associate professor of anatomy; Dr. Edwin A. Baumgartner from instructor to associate in anatomy; Dr. Louis H. Hempelmann from assistant to instructor in medicine; Drs. Theodore C. Hempelmann and Adrien S. Bleyer from assistants to instructors in pediatrics; Dr. Maurice Flexner has been appointed assistant in medicine; Dr. Oscar F. Bradford, assistant in pathology and resident pathologist, and Drs. Herbert V. Wiehrauch and William T. Wilkening, assistant residents.

NEBRASKA

Change in State Hospital Staff.—Dr. William A. Danielson, Stromsburg, has been appointed third assistant physician at the Hastings State Hospital, succeeding Dr. Grover C. Rice, Doniphan.

New State Society Officers.—The forty-eighth annual meeting of the Nebraska State Medical Association was held in Omaha, May 23 to 25, under the presidency of Dr. Edward W. Rowe, Lincoln. At the annual banquet Dr. James B. Herrick, Chicago, delivered an address on "Clinical Studies of Angina Pectoris." Lincoln was selected as the place of meeting for next year and the following officers were elected: president, Dr. William F. Milroy, Omaha; vice presidents, Drs. Miles S. Moore, Gothenberg, and John I. McGirr, Beatrice; secretary, Dr. Joseph M. Aikin, Omaha (reelected); treasurer, Dr. Alexander S. von Mansfelde, Ashland; corresponding secretary and librarian, Dr. William P. Wherry, Omaha (reelected). The association has its own official journal, of which Dr. Irving D. Cutter is editor and Dr. Joseph M. Aikin, Omaha, business manager.

NEW YORK

Personal.—Dr. Freeman S. O'Brien, Wappingers Falls, who disappeared on the eve of his marriage, was found, May 21, in a New York hospital suffering from concussion of the brain due to an automobile accident.——Dr. Edward Torrey, president of the Olean Board of Health, has resigned.

Health Officers Association.—At the annual meeting of the Health Officers School Association held in Syracuse, May 12, Dr. Albert L. Hall, Fulton, was elected president; Dr. Francis W. St. John, Weedsport, vice president; Dr. Willis

G. Babcock, Cleveland, secretary, and Dr. Le Roy F. Hollis, Lacona, treasurer.

Dispensary Cornerstone Laid.—The cornerstone of the Baden Street Dispensary, Rochester, was laid, May 15. Addresses were made by Dr. William Kirk, Jr., of the United Charities, and Dr. George W. Goler, city health officer. The occasion also celebrated the fifteenth anniversary of the founding of the Baden Street Social Settlement.

Annual Conference of Sanitary Officers.—This conference will be held in Saratoga Springs, June 6 to 8. The meeting will be devoted wholly to matters affecting the routine work of the health officer and opportunity will be given for the health officers to discuss their problems with the sanitary supervisors and various members of the department staff of the Albany office.

Alumni Meeting.—The Alumni Association of the Medical Department of the University of Buffalo held its forty-eighth annual meeting, May 30 to June 2, under the presidency of Dr. Lesser Kauffman, Buffalo. Dr. Milton J. Rosenau of Harvard University delivered the Harrington lectures, the first two on "Anaphylaxis," and the third on "Educational Public Health Service as a Career." The annual alumni oration was delivered, May 31, by Dr. Charles D. Aaron, Detroit, on "Chronic Intestinal Stasis from the Viewpoint of the Internist." June 1, the memorial portrait of the late Dr. Roswell Park, professor of surgery in the university, was unveiled. In the evening the annual alumni dinner was held at which toasts were responded to by President Rush Rhees of the University of Rochester, Herbert P. Bissell and Dean McKee.

New Officers for State Society.—At the one hundred and tenth annual meeting of the Medical Society of the State of New York held in Saratoga Springs, May 16, under the presidency of Dr. William Stanton Gleason, Newburgh, the following officers were elected: president, Dr. Martin B. Tinker, Ithaca; vice presidents, Drs. Henry L. Winter, Cornwall; J. Richard Kevin, Brooklyn, and Montgomery E. Leary, Rochester; secretary, Dr. Floyd M. Crandall, New York; assistant secretary, Dr. Albert E. Sellenings, New York; treasurer, Dr. Alexander Lambert, New York (reelected); assistant treasurer, Dr. Harlow Brooks, New York, and delegate to the American Medical Association, Dwight H. Murray, Syracuse. President William S. Gleason in his annual address emphasized the need of preparedness and noted that, in the tentative plans drawn up for enactment by Congress, no attempt has been made to provide the increased military force with adequate medical attendance.

New York City

New Post-Graduate Hospital Building.—A gift of $100,000 from Mrs. Alfred G. Vanderbilt will make possible an addition to the Post-Graduate Hospital buildings. The new structure will cover a twenty-foot plot adjoining the present hospital building, and will be equipped as a babies' ward. This structure will be five stories in height.

Babies Welfare Association Meets.—This association, which is a clearing house for all the infant welfare societies in the city, held its annual meeting at The New York Academy of Medicine recently. The program included an address by Dr. Henry L. K. Shaw of the state department of health, Albany, in which he compared the problems connected with infant welfare work in rural and urban communities. The annual report of this association showed that there had been active cooperation among 100 organizations during the year, and that more than 8,000 cases had been handled during the central office. The officers chosen for the following year are: honorary president, Mrs. Henry Villard; president, Dr. S. Josephine Baker; secretary, Dr. Reuel A. Benson, and treasurer, Mrs. Richard Irvin.

Personal.—Dr. Henry H. M. Lyle has returned to France where he will remain for a short time in Paris in connection with the work of the French Commission for the furnishing of artificial limbs for the French wounded. He will then go to the front where he will take the position of chief surgeon of the de Annel-Annel Hospital, Oise.——Dr. H. Sheridan Baketel of Brooklyn has been elected professor of preventive medicine and hygiene in the Long Island College Hospital, to succeed the late Dr. Joseph H. Raymond.——Dr. and Mrs. Frederick Kammerer have returned from Scandinavia.——Dr. Clarence A. McWilliams, who has recently returned from service in the war hospitals of France, gave an account of his experiences liberally illustrated by lantern slides before the Medical Society of the County of New York at its meeting, May 24.

OHIO

Sanitary Study of Youngstown Begins.—Surg. Carroll Fox, U. S. P. H. S., arrived in Youngstown, May 16, to inaugurate a survey of local sanitary conditions, working in cooperation with the public health committee appointed by the chamber of commerce, of which Dr. Sidney M. McCurdy is chairman.

Personal.—Dr. John W. Kannel, Bucyrus, has left that city for Nevada County, Calif.——Dr. Edwin A. Hamilton, Columbus, who has been with the American Red Cross unit in Germany, has returned, and delivered an address on "Hospital Experiences" at a meeting of the Wyandot County Medical Society at Upper Sandusky, May 10.——Dr. George W. Crile, Cleveland, gave a talk before the Alumni of Creighton Medical College in Omaha, April 24.——Dr. Jacob A. Sargis, formerly of Columbus but more recently in Persia, has returned to the United States and is visiting in Columbus.

State Society Meeting.—The seventy-first annual meeting of the Ohio State Medical Association was held in Cleveland, May 17 to 19, under the presidency of Dr. William E. Lower, Cleveland, who, in his address, lamented the passing of the country doctor. Springfield was named as the place for the 1917 meeting, and the following officers were elected: president, Dr. Harmon B. Gibbon, Tiffin; president-elect, Dr. E. Otis Smith, Cincinnati; secretary-treasurer and delegate to the American Medical Association, Dr. Clarence D. Selby, Toledo (reelected); executive secretary, George V. Sheridan, Columbus (reelected); delegate to the American Medical Association, Dr. Benjamin R. McClellan, Xenia; councilors, first district, Dr. Robert Carothers, Cincinnati; third district, Dr. William B. Van Note, Lima; fifth district, Dr. Milton J. Lichty, Cleveland; seventh district, Dr. James S. McClellan, Bellaire; ninth district, Dr. Joseph S. Rardin, Portsmouth, and eighth district, Dr. Henson M. Hazelton, Lancaster, succeeding Dr. William E. Wright, Newark, resigned. The newly created committee for medical defense consists of Dr. Jacob E. Tuckerman, Cleveland; Willard J. Stone, Toledo, and Charles J. Souther, Cincinnati.

Cincinnati

New Officers.—Cincinnati Medical Society, May 5: president, Dr. Cloyce Wilson; vice president, Dr. George Hughes; secretary-treasurer, Dr. Albert J. Nunnamaker.

New Medical College Portrayed.—Dr. Christian R. Holmes gave a lantern demonstration of the new medical college, to be built near the General Hospital, in the pathologic building of the hospital, May 16. The demonstration was given for the benefit of the faculty of the medical school.

Personal.—Dr. Augustus Ravogli was elected president of the American Dermatological Society at its recent meeting in Washington.——Dr. Christian R. Holmes was elected president of the American Otological Society at its annual meeting in Washington, D. C., May 10.——Drs. Arthur E. Koch, Samuel Zielonka and Ralph W. Staley have applied for the position on the junior staff of the General Hospital made vacant by the resignation of Dr. Guy G. Giffin.

OREGON

Alumni Association Meeting.—The fourth annual meeting of the Alumni Association of the University of Oregon will be held in Portland, June 6 to 8. The program includes clinics, scientific sessions and a banquet at the Benson Hotel. The scientific sessions will be held at the Benson. Dr. Ben L. Norden, Portland, is president of the association.

PENNSYLVANIA

Mellon Lecture.—The second Mellon Lecture was delivered at the Mellon Institute, Pittsburgh, May 17, by Dr. Theobald Smith, who is in charge of the Departmenof Animal Pathology of the Rockefeller Institute, Princeton, N. J. His subject was "Clinical Aspects of Naturally Acquired Resistance to Tuberculosis and Their Bearing on Preventive Measures."

Eighteen Maternity Cases Required.—An official communication from the Bureau of Medical Education and Licensure of Pennsylvania states that all candidates graduated after Jan. 1, 1917, who seek licenses to practice medicine in Pennsylvania, will be required to have attended personally not less than twelve maternity cases in their undergraduate medical course. They must also have taken in charge six additional cases during the year's internship in an approved hospital, which is also required.

Personal.—Dr. William J. Crookston, Pittsburgh, who has been a member of the American Red Cross Hospital in Budapest, Hungary, since December, 1914, has returned home after stopping in Russia and Siberia to make inspections of war hospitals and military camps.——Dr. and Mrs. Frank P. Lenahan, Wilkes-Barre, have moved to San Diego, Calif.——Dr. Benneville H. Miller, Mohnton, is ill as the result of a slight cerebral hemorrhage.——Dr. Theodore L. Hazlett, Pittsburgh, who has been serving with the Russian army, is reported to be ill with typhus fever.——Dr. Weir M. Hamilton has been relieved from charge of the Pittsburgh Tuberculosis Hospital and the institution has been placed in charge of Dr. Richard G. Burns.

Philadelphia

Alumnae Meet.—The Alumnae Association of the Women's Medical College of Pennsylvania held its forty-first annual meeting at the College Building, June 1 and 2, under the presidency of Dr. Elizabeth L. Peck. The morning sessions were devoted to business, and the afternoon sessions to scientific papers and discussions. The annual reception and banquet were given on Thursday evening at the Ritz-Carlton.

SOUTH DAKOTA

Hospital Notes.—Dr. Leonora C. Mead is contemplating the construction of a new building at the State Hospital, Yankton.——The Bison Hospital, Lemmon, was destroyed by fire recently.——A new state tuberculosis sanatorium is to be established at Pringle in the Black Hills, which is to be known as the Black Hills Sanatorium.

New State Officers.—At the thirty-fifth annual meeting of the South Dakota State Medical Association held in Aberdeen, May 23 to 25, the following officers were elected: president, Dr. Francis M. Crain, Redfield; vice presidents, Drs. Herman J. G. Koobs, Scotland, and Daniel L. Scanlan, Volga; and secretary-treasurer, Dr. Robert D. Alway, Aberdeen (reelected).

WEST VIRGINIA

West Virginia Physicians Elect.—At the forty-ninth annual meeting of the West Virginia State Medical Association, May 16 to 18, at Wheeling, under the presidency of Dr. Arthur P. Butt Davis, the following officers were elected: president, Dr. Joseph E. Rader, Huntington; vice presidents, Dr. Wade H. Young, Sistersville; Edward H. Thompson, Bluefield, and Reed M. Baird, Wheeling; secretary, Dr. J. Howard Anderson, Marytown (reelected); treasurer, Dr. Hugh G. Nicholson, Charleston; councilors, first district, Dr. James W. McDonald, Fairmont; second district, Dr. Cyrus H. Maxwell, Morgantown; third district, Dr. Morgan T. Morrison, Sutton; fourth district, Dr. Robert H. Pepper, Huntington; fifth district, Dr. Wade H. St. Clair, Bluefield; sixth district, Dr. Peter A. Haley, Charleston; delegate to the American Medical Association, Dr. Chester R. Ogden, Clarksburg, and alternate, Dr. Benjamin B. Wheeler, McKendree. Fairmont was selected as the place of meeting for 1917. The association adopted resolutions setting forth the inadequacy of the existing facilities for tuberculosis patients in the state and advocated that provision be made at the State Tuberculosis Sanatorium for free beds; that wards be provided at the sanatorium for children under 15 years of age; that a state tuberculosis sanatorium for negroes be established; that county officials be prohibited from admitting cases of pulmonary tuberculosis to county almshouses, and that counties be authorized to establish local tuberculosis hospitals for the care of advanced cases.

GENERAL

Salvarsan Received.—A shipment of salvarsan was received in New York from Germany, May 25.

Catholic Hospital Association to Meet.—The Catholic Hospital Association will convene in the auditorium of the Gesu School, Milwaukee, Wis., June 7, for a three-day session.

New Gynecological Officers.—At the annual meeting of the American Gynecological Society held in Washington, D. C., May 9 to 11, under the presidency of Dr. J. Wesley Bovée of that city, Dr. Frank F. Simpson, Pittsburgh, was elected president; Dr. George G. Ward, Jr., New York, secretary, and Dr. Brooke M. Anspach, Philadelphia, treasurer.

Examination Fee Waived.—At a recent meeting of the National Board of Medical Examiners it was determined to waive, for the present at least, the examination fee and to charge each applicant only a nominal registration fee of $5. This will be welcome news to many of those expecting to take the examination, since the expenses without an examination fee are heavy because of railway fare and hotel bills. The first examination, it is stated, will be held in Washington, beginning Oct. 16, 1916. The secretary of the board is Dr. J. S. Rodman, 2106 Walnut Street, Philadelphia.

Cancer Specialists Elect Officers.—At the annual meeting of the American Society for the Control of Cancer held in New York, May 18, the following officers were elected: president, George C. Clark, New York; vice presidents, Drs. Lewellys F. Barker, Baltimore; Arthur Dean Bevan, Chicago; Lewis S. McMurty, Louisville, Ky., and Edward Reynolds, Boston; secretary, Thomas M. DeBevoise, New York; treasurer, Howard Baine, New York; executive secretary, Curtis E. Lakeman, New York, and directors, Prof. C. E. A. Winslow, New Haven, Conn., and Drs. Charles J. C. O. Hastings, Toronto; Martin F. Engman, St. Louis; Robert B. Greenough, Boston; Joseph Ransohoff, Cincinnati; William D. Haggard, Nashville, Tenn., and Palmer Findley, Omaha.

Bequests and Donations.—The following bequests and donations have recently been announced:

Methodist-Episcopal Hospital, Indianapolis, $2,000, by the will of Mrs. Anna M. Seger.

Country Home for Convalescent Children, Chicago, $13,500, the net receipts of the patriotic war song concert recently given.

Fund for Suffering Jews in the European War zone, up to May 23, $481,000.

Mt. Sinai Hospital, New York, $150,000, for the endowment of a department of abdominal surgery, from Charles A. Winpfheimer.

St. Luke's Hospital, Chicago, property valued at $2,000, the income to be used for beds for poor and deserving patients, and a $2,000,000 trust fund, the income from which is to be used equally for the benefit of ten Illinois institutions, including the Home for Crippled Children, Chicago; the Chicago Orphan Asylum; the Old People's Home and the Episcopal Home for Aged Persons, a gift from Hobart Williams, Cheshire, Conn.

Pediatric Teachers to Meet.—The Association of American Teachers of the Diseases of Children will hold its tenth annual meeting at the First Presbyterian Church, Woodward and Edmund Place, Detroit, on the morning and afternoon of June 12, under the presidency of Dr. Julius P. Sedgwick, Minneapolis. The address of the president will be on "The Pediatric Control of the New-Born Teaching Clinic" and the program will include the following papers:

"An Obstetrician's View of the Pediatric Control of the Newborn Teaching Clinic," Dr. Jennings C. Litzenberg, Minneapolis.

"An Adaptation of Some of the Modern Mechanical Devices to Clinical Teaching," Dr. Julius H. Hess, Chicago; and a paper by Dr. Isaac A. Abt, Chicago.

"Postgraduate Teaching in Pediatrics," Dr. John Lovett Morse, Boston.

"The Postnatal Clinic," Dr. John M. Dodson, Chicago.

"The Relative Importance from a Teaching Standpoint of the Different Branches of Children's Diseases," Dr. Clifford G. Grulee, Chicago.

"The Place of Pediatrics in the Organization of a Medical School," Dr. Borden S. Veeder, St. Louis.

Examination for Medical Corps of the Navy.—The legislation now before Congress contemplates an increase in the medical corps of the navy from its present strength of 347 to approximately 500. This will materially increase the opportunity at present afforded for entering the medical corps of the navy and also the prospects and rewards for those in the service. An examination will be held, June 19, to fill vacancies in the medical corps. Candidates must be between 21 and 30 years of age, graduates of reputable schools of medicine, and must apply for permission to appear before an examining board. The assignments to these boards, which convene in various parts of the country, will be arranged to suit the convenience of the candidates. The pay of medical officers of the navy is at the rate of $2,000 per annum with ample allowances and they are rewarded in due course by the usual promotions with increase in pay and allowances. Those who intend to take advantage of this opportunity should communicate promptly with the Surgeon-General, U. S. Navy, Navy Department, Washington, D. C.

FOREIGN

Our Foreign Exchanges.—As is evident from our Foreign Current Literature Department, recently the German weeklies have been conspicuous by their absence. Since Nos. 9 or 10 of the *Berliner, Deutsche,* and Munich medical weeklies and the *Medizinische Klinik,* only No. 13 of two of them and No. 15 or 16 of the four have been received. Some of our French exchanges have omitted certain departments recently, saying merely that the medical editor who has charge of that department "is at Verdun." No Austrian journals have been received since No. 10. The numbers correspond to the numbers in this volume of The Journal, No. 10 being the issue for the week of March 4, and No. 16 for April 15.

Homage to Professor Kitasato in Japan.—Ever since Professor Kitasato resigned his office as the director of the Imperial Institute for the Study of Infectious Diseases, which had been founded and cared for, the past decade, in consequence of the amendment of the Imperial Ordinance which took place quite against his and his followers' wishes, public sympathy has been aroused to help him in completing his new enterprise in establishing an institute, which was completed in December last. His merit has been appreciated and recognized by over 400 noted diplomats, statesmen, business men and others of his native province, Kumamoto, who held a meeting at the Central Terminus Hotel, April 10, at which they presented him with a medal in order to express their recognition of his achievements in promoting bacteriology, public health and medicine.

The "Apotheosis" of Guido Baccelli.—This is the term applied by Italian exchanges to the memorial ceremony held recently at Rome in honor of Senator and Prof. Guido Baccelli, who was also prime minister at one time, and always took a leading part in the administration of the state, in medicine and in scientific innovations. His son presented the state with the uniform worn by Guido Baccelli as minister, his numerous decorations from national and foreign authorities, and the souvenir medals struck off on various occasions, as when the excavations of the Roman forum were completed. This work was initiated by him and conducted under his superintendence. All these mementoes are to be preserved in the Capitoline Museum. His obituary notice in these columns, Jan. 22, 1916, p. 288, states that in 1901 he had published over sixty works on different phases of medicine and anatomy. Professor Maragliano is now compiling a collection of his works and letters.

Discoverer of the Infectious Jaundice Spirochete Awarded Asakawa Prize.—The seventeenth annual meeting of the Kitasato Institute Alumni Association was held on April 3 and 4, and at the general meeting held on the afternoon of the second day the discoverer of the cause of infectious jaundice, Professor Inada, and his assistant, Dr. Ido, were awarded by Professor Kitasato the prize of the late Professor Asakawa fund. The prize consisted of a gold medal and a sum of money. It is offered for the best work on bacteriology, parasitology, immunology and study of infectious diseases carried out and published in Japan during the preceding year. The work consisted of the discovery of the cause of the infectious jaundice, which prevails endemically not only in Japan but also in other countries. The causative agent has been discovered to be one of the species of spirochetes which he named *Spirochaeta icterohemorrhagica* n. sp. His first report appeared in the *Fukuoka Ika-Daigaku-Zasshi* (*Journal of the Medical College of Fukuoka Imperial University*) on Jan. 20, 1915, and is entitled "Preliminary Report on the Study of the Spirochetosis that Develops Icterus and Hemorrhages that Prevail in Japan: syn. Weil's disease, Febrile Jaundice or Icterous Plague."

WAR NOTES

Ambulances for War Zone.—Madam Daisy Mazzuchi, who has been raising funds for the Italian Red Cross, has sailed for Italy, taking with her ten automobile ambulances which she has purchased with the money subscribed.

Personal.—Dr. Malcolm C. Grow, Philadelphia, who has recently returned after service with the American Red Cross in Russia, advocates the establishment of more Red Cross stations in Russia.——Dr. Wilfred T. Grenfell of Labrador, who has just returned after a tour of duty in France with the Harvard unit, spoke in St. Paul's Cathedral, Boston, May 14, advocating preparedness. Dr. Grenfell has returned for the summer to his work in Labrador.

More Surgeons for German Hospitals.—Units No. 4 and 5 of the German-Austrian-Hungarian Relief Society were given a dinner at the Hotel LaSalle, Chicago, by Drs. Carl Beck, Otto L. Schmidt and L. Saurenhaus. Unit No. 4, which sailed for Europe from New York on the *New Amsterdam*, May 27, is in charge of Dr. John R. McDill, Milwaukee, Wis., and the other medical members of the units are Drs. Frank Hegler, St. Louis; Edmund H. Mensing, Rochester, Minn., and Harry C. Rolnick, Chicago, together with four nurses. This unit is assigned to duty in Germany. Unit No. 5, which sailed from New York on the *Frederick*, May 31, is to work in Austria and is in charge of Dr. Paul F. Martin, Indianapolis, whose assistants are Drs. W. H. Moore, Indianapolis, and Drs. Jacob J. Minke, and George E. Kirby, Chicago, with three nurses from Chicago and one from Indianapolis.

LONDON LETTER

LONDON, May 15, 1916.

The War

THE SUPPLY OF MEDICAL OFFICERS

The adoption by Parliament of conscription for all men between the ages of 18 and 41 has altered the problem of obtaining sufficient medical officers for the army. Curiously, a physician connot be compelled to serve in his professional capacity, but only as a combatant. Needless to say, he is not likely to choose the latter when his services are required in the former capacity. Under the enrolment scheme of the Central Medical War Committee, described in previous letters to THE JOURNAL, a pledge was given that physicians who enroll would not be called up until 75 per cent. of the possible constituency had enrolled. But before this percentage had been reached, the War Office asked for more medical officers, which must render the keeping of the pledge difficult unless, in order to avoid combatant service, more physicians enroll.

THE DUBLIN REBELLION

The short-lived Dublin rebellion was responsible for a large number of casualties, of which 521 occurred among the soldiers, police and loyal volunteers. Of these 133 were fatal. There is no means of estimating the casualties among the rebels, who concealed them when possible, but they must have considerably exceeded those on the other side. The number of civilians reported as dead in the hospital amounted to 160. How many of these were harmless civilians shot in the streets and how many were rebels is not known, as many of the latter did not wear uniform, or may have exchanged it for civil attire. A very sudden strain was imposed on the Dublin hospitals near the fighting area, to which they responded admirably. One hospital, the Richmond, was seized by the rebels, and three of the visiting staff who happened to be there were kept prisoners for a whole week. The rebels brought their wounded into this hospital and removed them as soon as they could. Many physicians and nurses were absent from Dublin on the Easter Monday of the outbreak, but they returned as rapidly as possible to their posts. From Monday to Sunday the medical staffs worked almost incessantly, and the Red Cross and St. John Ambulance organizations did splendid work in removing the wounded under fire. The rebels respected the Red Cross, but in the darkness men bearers were unrecognizable and fired on. Then the nurses repeatedly ran out with stretchers and carried in the wounded. To add to the horrors, the immense fire which devastated Sackville Street crept nearer and nearer to the Jervis Street hospital, causing great anxiety; but fortunately the building escaped. In this hospital, as well as in the Mater Misericordiae, the staffs were for days virtual prisoners, because of the danger of passing through the streets. Many of the hospitals were repeatedly struck by bullets, and one was threatened by the fire of a big gun, the officer in charge of which was unaware of the proximity of the hospital. As the city gas supply was cut off early in the week, operative work in the hospitals was rendered very difficult. One ambulance worker was killed and also one nurse, and three army surgeons were wounded. One of the buildings occupied by the rebels was the Royal College of Surgeons. Little damage was done, however; some of the windows were riddled by rifle and machine gun fire, and some damage was done to the walls and furniture. Some of the library books were taken to form barricades, and were more or less damaged. The ammunition used by the rebels was of all kinds, from the modern nickel-covered rifle bullets to large soft lead bullets with the point cut off, and even 12-bore cartridges filled with buckshot and slugs. Some of the wounds inflicted on the military were consequently severe, especially those traversing the chest and head. At the Royal City of Dublin Hospital all the wounds were washed with hypochlorite solution, and extensive wounds were left open and packed with gauze wet with hypochlorite solution, the surrounding skin being in all cases painted with tincture of iodin. This treatment appears to have been successful, even extensive wounds usually healing without much sepsis. Proximity to the hospitals gave the great advantage of early operation. In one case a man was brought into the Royal City of Dublin Hospital within half an hour of being shot in the back; the bullet had emerged under the right costal margin. He was immediately taken to the theater and the abdomen was opened; the right lobe of the liver was so extensively torn that it was impossible to suture it, but by

packing both the torn cavity and all around they were able to check the hemorrhage, and the patient is now recovering.

CEREBROSPINAL MENINGITIS AMONG TROOPS

An important report on the epidemic of cerebrospinal fever among the British and Canadian troops stationed in England during the latter part of 1914 has just been issued. During the years 1913 and 1914, cerebrospinal fever prevailed in this country to a somewhat greater extent than had previously been experienced, and in the first half of the year 1915 this increase assumed large proportions. In 1913, 305 cases were reported, and in 1914, 315. In 1915 the number of cases in the civil population had increased to 2,565. This increase coincided with the military mobilization of a large part of the male population. Although the disease was present in England and Wales during 1914, and before that time, it is suggested that a fresh strain of infection was brought from Canada at the end of 1914 to this country by the first Canadian contingent which came to Salisbury Plain to undergo their final military training. It appears that cases had occurred among the Canadians in their camp at Valcartier before embarkation, and that other attacks occurred among them during the voyage to this country and just after their arrival. About twenty-nine cases had been observed among the Canadian troops up to the middle of February, and twenty-five had proved fatal. The predisposition to this infection may perhaps have been increased by the unavoidable overcrowding in camp, which at first took place, as also by the occurrence of cold, wet and inclement weather, and by the unusual exertion and fatigue incidental to the military training of young recruits. No fewer than 2,290 cases were reported in the civil population from January to July, 1915, and 1,088 among the military, a total of 3,378 cases in seven months.

WOMEN PHARMACISTS

The war has caused a large increase in the number of women students of pharmacy, and at present there are as many women students as men at some of the principal schools of pharmacy. Before the war there were at the most only a few hundred women on the pharmacists' register, and very few were actually employed in shops. Now such is the demand for women assistants to take the place of young men that a woman pharmacist who advertises for an appointment receives several offers at salaries ranging from $500 to $1,000 a year.

Clean Milk

At a meeting of the National Clean Milk Society, Sir Thomas Barlow spoke on the failure of the various tests to produce a good imitation of mother's milk during the past twenty-five years, the greater number of infants' foods being deficient in fats. There should be as little tinkering as possible with food intended for children. As the sterilization of milk and the use of dried foods spread in upper class nurseries, infantile scurvy was seen. Milk should be pure, even if it was sometimes diluted or modified, but it must not be tinkered with. There must be cleanliness of the byre, the cow, the cow's food, the vessels from which it drinks, and the hands of the milker.

Mr. Wilfred Bucklet, chairman of the Council of the Society, said that within the last forty-eight hours he had had a sample of certified milk tested at the Lister Institute, which contained 12,500,000 bacteria to the cubic centimeter. After describing the dangerously unclean conditions under which milk was produced on farms, he said that he had seen a man bottling milk over a gutter and pulling the covering disks from his pocket. In New York four years ago twenty-four men were imprisoned without the option of a fine for bottling in the streets. The society was advocating the use of the score card system of dairy farm inspection by local authorities as in America, where marks were given for milking with a dry hand, among other things. This has been already introduced in Bradford and in Birmingham, and was being considered in Manchester. They were advocating that assistance should be given to owners of herds who wished to free them from tuberculosis, and they wished to induce railway companies to provide refrigerated cars to be used solely for the transportation of milk and to offer reasonable rates for the carriage of milk in bottles or other special vessels. It was sought also to make it illegal to open churns in transit and to promote compulsory annual licensing of all dairy farms and milk shops. The society was also advocating the authorization by legislation of definition of a grade of milk inferior to "certified" milk, which shall be produced from herds free from tuberculosis and contain not more than 60,000 bacteria per cubic foot.

PARIS LETTER

Paris, May 4, 1916.

The War

A NEW SOCIETY FOR MILITARY SURGEONS

In previous letters I have spoken of the formation of several societies composed of military surgeons for the discussion of medical and surgical questions raised by the war. In addition to societies of this kind connected with the armies, others have been formed in the interior. Thus, at a recent meeting of military surgeons of the sixteenth region, which includes the five departments of Hérault, Aude, Lozère, Tarn and the Pyrénées-Orientales, it was decided to have a medico-chirurgical meeting twice a month at Montpellier. In view of the special object of these meetings, which is the interchange of medical and surgical knowledge particularly useful to military surgeons, the scientific side of the discussions will not be developed to the exclusion of their utilitarian aspect. It is intended the morning after each meeting to have practical lectures and demonstrations in the service of one of the "specialist" centers. In order to facilitate the attendance of the practitioners of the region at these meetings, the regional director of the public health service intends to give leave of forty-eight hours as freely as the necessities of the service will permit it. The proceedings of these meetings will be published in the *Montpellier médical,* which will reappear for this special purpose (it has ceased publication since the commencement of the war). Membership in the society will include subscription to the journal. Each member will make a small three-monthly payment, varying with his rank. This is, exclusively, to cover the cost of printing and mailing the *Montpellier médical.*

A RUSSIAN MEDICAL MISSION IN FRANCE

The union of the Russian zemstvos has sent a mission to study the general organization of the French medical service, both in the provinces and in the armies. This mission is engaged in the study of the public health service in Paris, of the Saint-Maurice school for the reeducation of cripples, of the blind asylum at Reuilly, of the convalescent home at Clignancourt and of the Pasteur Institute. It will next visit the 14th region (Lyons), and thence it will go to the front.

HELP FOR THE BLINDED VICTIMS OF THE WAR

A new organization called L'Aide aux aveugles de guerre, with headquarters at 2 Rue Balzac at Paris, has just been formed. The object is to get into touch with blinded soldiers, whether reeducated or not, with a view to providing them with immediate moral and material support and also to investigate the means available to remedy as far as possible the misfortunes of these victims of the war.

VACATION ARRANGEMENTS FOR THE RED CROSS NURSES

Several owners of large hotels in Switzerland are offering to ladies of the French Red Cross accommodation at exceptionally low prices during the months of July, August and September. Under arrangements made by a committee of Swiss lady patrons, the choice of the nurses, who are to benefit by this arrangement which permits of a stay of three weeks, will be made by the French Red Cross committees. M. Gustave Ador has accepted the honorary presidency of this new organization.

VALUE OF VARIOUS DRESSINGS IN WAR SURGERY

Dr. Le Für has communicated to the Société de médecine de Paris his observations of eighteen months of dressings in war surgery. In the first place, with the exception of certain bullet wounds which remain aseptic throughout, war wounds are, as a rule, seriously infected and antisepsis and not asepsis is required. Simple aseptic dressings are wholly useless in the majority of such cases, especially in wounds due to shell fragments complicated by bone or joint injuries. Among the antiseptics which have given the best results in Le Für's practice are hydrogen peroxid, dilute solutions of silver nitrate (for sloughing and suppurating wounds) phenol solutions and various chlorinated solutions (Labarraque's solution and Javelle water). He advises, after thorough washing with one of these, the application of wick drains saturated with concentrated solutions. In case of excessive suppuration, free drainage, continuous aspiration and sometimes continuous irrigation are indicated; finally, when the wound is well disinfected and exposed freely, wet aseptic dressings, using common salt solution, chloroform water, very dilute silver nitrate or dry dressings to hasten cicatrization (iodin and zinc peroxid). Indolent wounds should be stimulated by hot air and especially by exposure

to the sun (heliotherapy). Long-standing fistulas should be cauterized energetically with zinc chlorid or silver nitrate; it is sometimes advisable, after scrupulous disinfection, to close them by paraffin or one of the special waxes made for this purpose; this is especially the case in bony cavities. If they persist, they must be curetted or excised. In case of pleural suppuration and fistula the ordinary dressing must be supplemented by ether wick drains to promote drying, and, especially, by respiratory gymnastics. It is very important, in old wounds, to vary the dressing, as the benefit obtainable from one kind of dressing, frequently repeated, seems to be rapidly exhausted.

Death of Professor Jungfleisch

M. Jungfleisch, professor of organic chemistry at the Collège de France, is dead at the age of 77. Born in Paris in 1839, Jungfleisch was for more than thirty years professor at the École supérieure de pharmacie de Paris. His work on organic chemistry, written in collaboration with Berthelot, had, at one time, a great vogue in scientific circles. Jungfleisch was a member of the chemical section of the Académie des sciences and, since 1880, a member of the pharmaceutical section of the Académie de médecine.

Anaphylaxis and Prophylactic Injections of Antidiphtheric Serum

The minister of the interior, having requested the Académie de médecine to report to him on the accidents following the injection of antidiphtheric serum, Dr. Netter of the Faculté de médecine de Paris has deposited a report on this subject in which he puts the matter in its proper perspective. The fear of these accidents, which is very widespread, both in the medical profession and among the people, has too often formed an obstacle to the use of the serum in cases in which this was absolutely necessary. Still more has it obstructed the use of antitoxin for prophylaxis. It is, of course, known that disagreeable sequelae, and even death, have been observed as the result of a single injection. With injections spaced out at intervals of more than ten days, these accidents are more immediate and more alarming. This is the phenomenon of anaphylaxis. Nevertheless, serum anaphylaxis is far less frequent and less grave in man than in the guinea-pig. In children after subcutaneous injections, serious results are extremely rare. Only two well proved deaths are known as the result of several hundred thousand reinjections. It will not be reasonable, therefore, because of these altogether exceptional dangers, to give up reinjections and, still less, first injections. Experiment has shown that in animals, which have previously received horse serum, antitoxins introduced in later injections are very rapidly eliminated. There has been a tendency to conclude from this that a previous injection diminishes the efficacy of new ones. A study of the course of 123 cases of diphtheria, occurring in persons who had previously received curative or preventive injections, has shown that there is no foundation for this apprehension. The ill effects of therapeutic serums can be attenuated or warded off by various means. Whenever possible, for reinjection and even for first injections, one should use Besredka's method; that is to say, commence by the injections of extremely small quantities of serum.

The preventive efficacy of antidiphtheric serum was fully confirmed last year in the schools of the department of the Seine where, on the initiative of Dr. Dubief, 2,582 prophylactic injections were given.

The Académie de médecine, considering Netter's report, passed unanimously the following resolutions:

1. Serious accidents caused by a first injection (serum sickness) or by a reinjection (anaphylaxis) are very rare, especially if the injection is made into the subcutaneous cellular tissue. The fear of such results should never be allowed to interfere with the use of serotherapy.

2. The Académie de médecine maintains, with regard to the advisability of prophylactic injections of antidiphtheric serums, the opinion which it pronounced in 1902. These injections should be practiced on children in all families or institutions in which cases of diphtheria have occurred. They should also be recommended in children's schools when diphtheria assumes an epidemic character. The académie is of the opinion that, concurrently with these injections, disinfections, isolation of the sick, and the searching for, isolation and treatment of carriers should be carried out whenever possible.

Association News

THE DETROIT SESSION

Hotel Reservations

LOCAL COMMITTEE REQUESTS CONFIRMATIONS

The Committee on Arrangements for the Detroit session reporst that it desires to take every precaution against errors and confusion in arranging for the accommodation of those who attend the coming annual session. In order to do this, the committee requests the cooperation of the physicians who have made hotel reservations and have been asked by the hotel management to confirm these. It will be of assistance in guaranteeing such reservations if those who hold these will make reply to the request of the hotel management that these reservations be confirmed.

In addition, the local committee will appreciate it if those who hold reservations but who will not be in attendance at this coming session will write to the subcommittee on hotels, addressing Dr. Rolland Parmeter, 33 East High Street, Detroit, returning the slips which have been forwarded assigning hotel reservations.

SPECIAL TRAIN FROM ST. LOUIS TO DETROIT

The outlook is promising for a special train from St. Louis to Detroit for Fellows and their wives from Missouri, Arkansas, Kansas, Oklahoma and Texas. The train will leave via the Wabash Railroad Sunday, June 11, about 6:30 p. m., arriving in Detroit Monday, June 12, 7:30 a. m. Option of return via Chicago without additional fare, or return via lake steamer from Detroit to Chicago for $5 additional fare. All passing through St. Louis en route to Detroit with tickets over the Wabash Railroad are invited to reserve space on this special train. Communications should be addressed to Dr. Edward J. Goodwin, 3517 Pine Street, St. Louis.

PHYSICIANS' SPECIAL LAKE CRUISE

The Steamer *South American* will leave Chicago Saturday, June 10, arriving in Detroit Monday, June 12. The rate is $30, and includes transportation, meals and berth en route Chicago to Detroit, also use of state room and berth and breakfast while steamer is at Detroit, June 12, 13, 14 and 15.

Passengers leave steamer after breakfast Thursday morning, June 15. The steamer does not return to Chicago after the meeting.

The round trip rate, by boat Chicago to Detroit, and rail Detroit to Chicago, is $36.80.

At time reservations are made passengers may purchase one way or round trip tickets.

DETROIT CLINICS

From June 7 to 12, inclusive, and on June 17, a series of clinics will be given in Detroit. Those attending the Detroit Session are invited to these clinics. Programs can be obtained from the Local Committee on Arrangements, 33 High Street East, Detroit.

Marriages

P. A. SURG. CARY TRAVERS GRAYSON, U. S. Navy, to Miss Alice Gertrude Gordon of Washington, in New York City, May 24.

FRANCOIS JOHN THEODORUS WAS, M.D., Chicago, to Miss Josephine Von Swartzenberg of Paterson, N. J., May 20.

WILLIAM CARL GOENNE, M.D., Eldridge, Iowa, to Miss Norma Otto of Davenport, May 24.

FRED AUGUST THYSELL, M.D., to Miss Myrtle Graham, both of Rhinelander, Wis., May 10.

CHARLES STOLTZ, M.D., to Miss Mary Lou Foster, both of South Bend, Ind., May 17.

JOHN A. TAMISIEA, M.D., to Miss Mary E. Burns, at Omaha, May 12.

Deaths

Col. John Leighton Phillips, M. C., U. S. Army, Takoma Park, D. C.; aged 57; commanding the Walter Reed General Hospital, Takoma Park, D. C.; a Fellow of the American Medical Association; died in the grounds of that institution, May 23, from the effects of a gunshot wound of the heart, self-inflicted, it is believed, with suicidal intent, while despondent on account of ill health, the result of a fall three or four months before. Colonel Phillips was a native of Chapel Hill, N. C., was graduated from the College of Physicians and Surgeons in the City of New York in 1882; entered the army as assistant surgeon a year later; was made captain and assistant surgeon in 1888; major and surgeon in 1900; lieutenant colonel in 1908 and was promoted to colonel, April 13, 1912, and served for three years as assistant chief sanitary officer of the Isthmian Canal Commission and chief surgeon of the Ancon Hospital.

John Chamberlain Hollister, M.D., Pasadena, Calif.; Northwestern University Medical School, Chicago, 1900; aged 43; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of California, Chicago Surgical Society and a fellow of the American College of Surgeons; formerly instructor in gynecology in his alma mater and assistant professor of gynecology and surgery in the University of California; for several years a practitioner of Chicago; surgeon to the Home for Crippled and Destitute Children; adjunct surgeon to St. Luke's Hospital and surgeon to St. Luke's Hospital and Dispensary; died at his home, May 6, from pneumonia.

Elmer M. Brown, M.D., Tacoma, Wash.; Willamette University, Portland, Ore., 1879; aged 58; a Fellow of the American Medical Association; a member of the North Pacific Surgical Association and a Fellow of the American College of Surgeons; surgeon of United States Volunteers during the Spanish-American War with service in the Philippine Islands; at one time health officer of Tacoma and physician of Washington County, Ore.; dean of the medical profession of Tacoma and prominent in civic work; died at his home, May 12, from carcinoma of the superior maxilla.

Lieut. Luther Mitchell Ferguson, M. R. C., U. S. Army, on duty at the Walter Reed General Hospital, Takoma Park, D. C.; aged 27; died, May 23, in that institution, from the effects of injuries received in a fall from his horse. He was born in Chin Kiang, China, July 2, 1888, and was graduated from Harvard Medical School in 1915. He was graduated from the Army Medical School in 1916. He was a Fellow of the American Medical Association and a member of the Association of Military Surgeons of the United States.

Robert Lee Bowcock, M.D., Anniston, Ala.; University of Virginia, Charlottesville, 1886; a member of the Medical Society of Virginia and International Association of Railway Surgeons; and formerly president of the Calhoun County (Ala.) Medical Society, Board of Health, and Medical Examining Board; local surgeon of the Southern Railway and division surgeon of the Louisville and Nashville System; died at his home, May 16, from pneumonia.

William Hillkowitz, M.D., Cincinnati; Medical College of Ohio, Cincinnati, 1888; aged 49; a Fellow of the American Medical Association; and a member of the Cincinnati Academy of Medicine; physician to the Jewish Foster Home and consulting obstetrician to the Ladies' Society for the Relief of the Sick Poor and the United Jewish Charities; died at the Bethesda Hospital, Cincinnati, May 14, from heart disease.

William M. Harvey, M.D., Detroit; Detroit College of Medicine and Surgery, 1887; aged 52; formerly a Fellow of the American Medical Association; a member of the Michigan State Medical Society; for eight years city physician of Detroit and for twelve years a major in the Medical Corps of the Michigan National Guard; died at his home in Grosse Pointe, Mich., May 13, from cerebral hemorrhage.

S. M. LeCrone, M.D., Tacoma, Wash.; Starling Medical College, Columbus, Ohio, 1878; aged 69; for five years a member of the board of health of Columbus and later assistant city physician; president of the Washington State Pharmaceutical Association in 1904; a member of the Washington Legislature in 1899 and 1903; died at his home, May 17, from arteriosclerosis.

Ralph Aaron Grigsby, M.D., Scottsbluff, Neb.; Tulane University, New Orleans, 1905; aged 33; a Fellow of the American Medical Association; died at his home, May 5, from postpharyngeal abscess.

Clarence Percival Bulson, M.D., New York City; College of Physicians and Surgeons in the City of New York, 1896; aged 50; also a graduate in pharmacy; formerly a member of the staff of St. Luke's and Harlem hospitals; died at his home, May 18.

Frank A. Jordan, M.D., Pecatonica, Ill.; Rush Medical College, 1864; aged 76; a veteran of the Civil War in which he served as assistant surgeon of volunteers; died at the home of his daughter in Freeport, Ill., May 15, from cerebral hemorrhage.

William H. Gibbins, M.D., Clinton, Mo.; Medical College of Ohio, Cincinnati, 1873; aged 64; a member of the Missouri State Medical Association and for many years president of the Clinton School Board; died at his home, May 15.

Edward R. Bragg, M.D., Biloxi, Miss.; Tulane University, New Orleans, 1888; aged 54; formerly a Fellow of the American Medical Association; for several years a physician in the Isthmian Canal Zone; died at his home in Biloxi, May 12.

Edgar Rush Burns, M.D., El Paso, Texas; Chattanooga (Tenn.) Medical College, 1901; aged 41; formerly a practitioner of Cullnan, Ala., and a member of the Medical Association of the State of Alabama; died at his home, May 10.

George L. Hoel, M.D., Fort Collins, Colo.; Barnes Medical College, St. Louis, 1898; aged 54; a Fellow of the American Medical Association; was killed in an automobile accident at Fort Collins, May 22.

Guy Marion Black, M.D., Pocahontas, Ark.; College of Physicians and Surgeons, Memphis, Tenn., 1910; aged 40; a member of the Arkansas Medical Society; died at his home, May 12, from heart disease.

Thomas A. Welch, M.D., Groesbeck, Texas; Tulane University, New Orleans, 1897; aged 46; a Fellow of the American Medical Association; died at the home of his sister in Groesbeck, May 11.

John Preston Deckard, M.D., Mattoon, Ill.; University of Louisville, Ky., 1880; aged 59; a member of the Illinois State Medical Society; died at his home, May 13, from cerebral hemorrhage.

Louis Young, Wise River, Mont.; (license, Montana, 1874); for forty years a practitioner of Orleans, Vt.; aged 75; died in a hospital in Butte, Mont., May 17, from malignant disease.

John George Horne, Coffeyville, Kan.; (license, Kansas, 1901); aged 58; a practitioner for thirty-five years; died at his home, May 16, from carcinoma of the stomach.

Joseph H. Jones, Fort Wayne, Ind.; (license, Indiana, 1897); aged 84; for more than fifty years totally blind; died at his home, May 17, from heart disease.

James Evert Simmons, M.D., Rockport, W. Va.; University of Louisville, Ky., 1909; aged 27; died suddenly at his home, April 21, from heart disease.

James W. Reader, M.D., Maryhill, Wash.; Rush Medical College, 1870; a veteran of the Civil War; died at his home, May 16.

Norman K. Morris, M.D., Denver; Cleveland University of Medicine and Surgery, 1876; aged 64; died at his home May 12, from cerebral hemorrhage.

Thomas Clayton McCarty, Spottsville, Ky. (license, Kentucky, examination and twenty-seven years of practice, 1894); aged 76; died at his home, May 10.

Frank Grider, M.D., McKinney, Ky.; University of Tennessee, Nashville, 1892; aged 48; died at his home, May 10, from cerebral hemorrhage.

Joseph Jones, M.D., Stockbridge, Mass.; Eclectic Medical College of Philadelphia, 1861; aged 75; died at his home, March 20, from nephritis.

Benjamin F. Richards, M.D., Pullman, W. Va.; Lincoln, Neb., Medical College, 1897; aged 81; also a druggist; died at his home, April 27.

Robert A. Duke, M.D., Lake Charles, La.; Nashville, Tenn., Medical College, 1866; aged 85; died at his home, March 21; from senile debility.

Vincent H. Rose, M.D., Ladoga, Ind.; Rush Medical College, 1869; aged more than 80; died at his home from senile debility, May 8.

Hugo Speier, M.D., Minneapolis; University of Minnesota, Minneapolis, 1884; aged 65; died in a hospital in Rochester, Minn., May 7.

Daniel Harley Kent, Boston; (license, years of practice, Massachusetts); aged 83; died at his home, May 9.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE WINE OF CARDUI SUIT

(*Continued from page 1733*)

CROSS-EXAMINATION BY MR. HOUGH

TESTIMONY OF DR. FRANK BILLINGS (*cont.*)

Q.—Doctor, you are a member of the A. M. A., are you? *A.*—I am.
Q.—Are you an officer of it? *A.*—Not now.
Q.—Have you been? *A.*—I was President of the American Medical Association, in 1902 to 1904, and Treasurer of it, custodial treasurer—I cannot remember exactly how long, but I think until 1910.
Q.—Are you a trustee? *A.*—I am not.
Q.—Have you been? *A.*—I have not.
Q.—Do you read THE JOURNAL regularly? *A.*—I do.
Q.—Do you know when they first commenced to attack viburnum prunifolium? *A.*—No, I do not.

Mr. T. J. Scofield:—That is objected to. It is not cross-examination of anything.

THE COURT:—He has answered the question.

Mr. T. J. Scofield:—All right.

Mr. Hough: Q.—You are familiar with the working of the Propaganda Department? *A.*—You mean of the Council on Chemistry and Pharmacy? I am.
Q.—You know that it is attacking all proprietary medicines that are sold to the consumer?

Mr. T. J. Scofield:—That is objected to.

THE COURT:—Objection sustained. Dr. Billings was not asked anything about the American Medical Association, on his direct examination.

Mr. Hough:—I was under the impression that I was entitled to show the environment of the witness for the purpose of determining—

THE COURT:—You may show his connection with the Association.

Mr. Hough:—for the purpose of determining the value of his opinion that he has expressed. If he has a prejudice, I am entitled to bring it out.

THE COURT:—He has told you that he has read the magazine of the American Medical Association.

Mr. Hough:—I want to find out if he is familiar with the propaganda work and if he endorses the propaganda work?

Mr. Walker:—May I make a suggestion?

THE COURT:—He may answer the question.

Mr. T. J. Scofield:—What was the question?

(The pending question was then read.)

Mr. T. J. Scofield:—There is a false assumption contained in the question.

Mr. Walker:—This is cross-examination, and we have a right to assume things in the question, and the witness can answer as he sees fit.

THE COURT:—I think counsel has a right to object on the ground that there is an assumption of fact in the question; that is not in the case.

Mr. Hough:—I think the witness is amply able to take care of himself, and if he thinks that I have assumed something in the question that he does not want to include in his answer, he can exclude it.

To which ruling of the Court the defendants, etc., excepted.

A.—I do not know that they attack all proprietary and "patent medicines." The purpose of the Council on Chemistry and Pharmacy is to investigate so-called proprietary and "patent medicines," and, after analysis, to advise the members of the association and the other readers of THE JOURNAL that certain of those proprietary remedies are of value and that certain of them are without value.

Mr. Hough: Q.—What article do you know of in the Propaganda Department that states that a medicine concerning which it writes is of value?

Mr. T. J. Scofield:—I object to that as not cross-examination.

THE COURT:—Objection sustained.

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. Hough: Q.—Have they ever held any proprietary medicine in the Propaganda Department to be valuable?

Mr. T. J. Scofield:—I object to that as not being involved here, and not cross-examination.

THE COURT:—Objection sustained.

Mr. Hough:—Why, that is brought out by his answer.

THE COURT:—No, he stated what the purpose was. He stated that the purpose of the Propaganda Department—

Mr. Walker:—Don't you ordinarily tell what the purpose is, the act? And if they have acted directly to the contrary of what he states is the purpose, that refutes his statement as to what the purpose is.

THE COURT:—Why, Mr. Walker, if you have the magazines here, and want to introduce them you may show what the Propaganda Department has done.

Mr. Walker:—We want an opportunity to show his information about it. If he testifies that the purpose is one thing, if your Honor please, and the purpose is to inform doctors what are good proprietary medicines and to condemn what they think are bad, then sometime in their history they must have been able to endorse some proprietary medicine as good. If they never did, then the policy of the paper refutes what the witness has said.

THE COURT:—The difficulty with the question is that it is not proper cross-examination, and it does not follow at all from the answer given by the witness.

Mr. Loesch:—What are we here for?

Mr. Walker:—It only goes to the attitude of the witness, that is all.

Mr. Hough:—And usually some latitude is allowed.

THE COURT:—You may save the point.

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. Hough:—What was the last question?

THE COURT:—The last question was, did the witness know of any article in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION that ever endorsed any proprietary medicine, The objection to that is sustained.

The Witness:—There are certain—

Mr. Hough:—Never mind, you are not now asked anything.

The Witness:—Beg pardon.

ATTITUDE TOWARD SECRET PREPARATIONS

Mr. Hough: Q.—What is your own attitude towards such medicines offered to the consumer? You are opposed to them, are you not?

Mr. T. J. Scofield:—That is objected to.

THE COURT:—He may answer that.

To which ruling of the Court the defendants, etc., excepted.

A.—Certain proprietary medicines—

Mr. Hough: Q.—I am talking about those that are sold to the consumer as distinguished from those which are sold to the doctors to be dispensed on prescription. *A.*—No, I am—

THE COURT:—Just a minute, Mr. Hough. Are there any medicines that are sold to the consumer that are not sold to the doctors?

Mr. Hough:—There are medicines called proprietary medicines which are deemed ethical, because they are sold only to the doctors and not to the public.

THE COURT:—That was not the question.

Mr. Hough:—Then there are certain—

THE COURT:—Just a moment. Your question assumed that there were some medicines that the consumer could buy which the doctor could not buy.

Mr. Hough:—No. There are none, of course, which the consumer can buy which the doctor cannot buy. Any citizen can buy, no matter what his vocation, or profession is, but I am asking the doctor, with reference to his attitude about secret proprietary medicines, which are offered to the general public, whether the purchaser is a doctor or a sick woman.

Q.—What is your attitude toward them, you are opposed to them, aren't you? *A.*—Absolutely.
Q.—Now, when you answered the last question—
THE COURT:—Let me interrupt the cross-examination long enough to ask the doctor to explain why he is opposed to them. *A.*—I am opposed to any medicine that is secret.

Mr. Walker:—May we note an exception there.

THE COURT:—Certainly.

To which ruling of the Court in propounding his question to the witness, as last hereinabove appears, the plaintiff, etc., excepted.

The Witness (Continuing):—That is secret in its preparation. I will not give myself, nor will I advise anyone else to take remedies the character of which I know nothing about, and a proprietary medicine that is a secret medicine is in a sense a nostrum. I not only am opposed to them, but I object to them, and I will do anything I could to overcome their influence.

Mr. Hough:—Doctor, you have used Warburg's Tincture in your practice? *A.*—Perhaps once or twice in my life.
Q.—Now, you know that Warburg's Tincture was originally a secret formula medicine, don't you? *A.*—Yes.
Q.—And you know that Warburg was induced to make the formula public and then he lost the rights which he was entitled to in the

medicine, and the profession adopted it, isn't that so? *A.*—I do not know that.

Q.—Haven't you read that? *A.*—No.

Q.—You know nothing about that? *A.*—No.

Q.—Now, in answer to the last question—was that in the same sense in which you would say it would be bad to advise everybody in Chicago to take beefsteak once a day? *A.*—No.

Q.—Not in that sense? *A.*—No.

Q.—Would it be in the sense in which you would say it was bad to advise them to take any particular kind of food three times a day, because the food might agree with some, this particular kind, and disagree with others? *A.*—No, not in that sense.

Q.—Not in that sense? *A.*—No.

OXIDIZED ALCOHOL

Q.—Now, it is an established fact, or a recognized fact, in your profession, isn't it, that a certain amount of alcohol is freely oxidized in the system, isn't it? *A.*—It probably is.

Q.—And the amount of alcohol which is recognized as freely oxidized in the system is never considered dangerous, is it? *A.*—I would not say that.

Q.—When a person taking alcohol, which has a bad effect, that is always because it has not been freely oxidized in the system, isn't it? *A.*—Not necessarily.

Q.—What do you understand by being oxidized in the system? *A.*—I understand that alcohol may be burned up in the body, oxidized as we say, into carbonic acid and water. The carbonic acid is thrown out through the lungs and the water is thrown out through the skin and kidneys, it is no longer alcohol. It is burned up.

Q.—Well, doesn't that mean—I mean, doesn't the term mean that it does not throw any extra burden upon any of the organs? *A.*—Not necessarily.

Q.—Does it in any case? *A.*—Yes, sir. In that term—alcohol comes under what we call carbohydrates because it is burned up into carbonic acid and water, and the effort of the body to do that may overstrain. No one can say—you cannot say it won't be harmful and no one can say in any given individual how much of the alcohol you take is burned up, and how much of it may be converted into fat in his body, or how much of it may be—may go out, and exist in the tissues and irritate them.

Q.—In other words, you mean that there are exceptions to all rules? *A.*—Yes, sir.

Q.—But the general rule is that there is a certain amount of alcohol which is regarded as being freely oxidized? *A.*—That is its natural disposal in the body.

Q.—Now, when you take forty-eight drops of alcohol by itself, is the physiological effect precisely the same as though you took that alcohol with five times the amount of water? *A.*—Not exactly. When alcohol is taken in a concentrated form, its first effect is to irritate the mucous membrane of the mouth, esophagus, the gullet and the stomach.

Q.—You are talking now about the 48 drops of alcohol alone? *A.*—Yes, I understand the question to be whether it has the same effect, whether concentrated or diluted.

Q.—That is right. *A.*—When concentrated, it will irritate the tissues it touches. That affects the nerves and at once, after the concentrated dose, the heart will go more rapidly for a period of a few minutes and the patient will be flushed and the temperature raised for the time being. That is the first effect of concentrated alcohol.

If it is diluted, dependent upon its dilution, it will have less irritating effect and, finally, the effect of both will be the same, as it reaches the blood stream and undergoes the change in the liver and in the blood stream which alcohol does. But the effect, the physiological effect, would depend upon its dilution.

Q.—Now, is it not an accepted theory among the profession, that is, among your profession, that up to 20 per cent.—that alcohol up to 20 per cent. hastens the absorption of the medicines which are in it? *A.*—No.

Q.—Is there a theory on that subject with reference to any per cent. of alcohol? *A.*—No, not that I know of.

Q.—Then you would say that alcohol in no per cent. hastens the absorption of medicine? *A.*—Not necessarily.

Q.—Does it in any case? *A.*—Not that I know of.

Q.—Are you familiar with the Atwater and Chittenden experiments as to the physiological effect of alcohol?

Mr. T. J. Scofield:—Wait a minute; it don't make any difference whether he is familiar with it or not.

THE COURT:—He may answer.

To which ruling of the Court the defendants, etc., excepted.

A.—I did not get the question.

Mr. Hough:—Atwater and Chittenden. *A.*—I am to some degree, I have read both of them.

Q.—Are you familiar with Cushny's statement on those subjects? *A.*—I have not read Cushny's last statement on that.

Q.—If they should state a contrary opinion, would it affect your opinion? *A.*—Not at all.

Mr. T. J. Scofield:—Wait a moment. I wish to interpose an objection there.

Mr. Walker:—What is the matter with the question?

THE COURT:—Go ahead, Mr. Hough.

To which ruling of the Court the defendants, etc., excepted.

Mr. Hough: Q.—You said you had not read Cushny's last statement. Have you read any of his other statements? *A.*—I read his first work on pharmacology, but I don't remember anything in it concerning that particular thing.

Q.—You mean the alcohol hastening the absorption of medicine? *A.*—Yes.

Q.—Doctor, what combination of these two drugs named in the hypothetical question, would produce the best physiological results in amenorrhea due to anemia? *A.*—What combination?

Q.—Yes. *A.*—I don't know of any combination.

Q.—In any amounts? *A.*—In any amounts.

Q.—Or in any proportion? *A.*—Or in any proportion.

KNOWLEDGE OF CARDUUS BENEDICTUS

Q.—Is your knowledge of carduus benedictus based upon your experience with it, or upon your reading about it? *A.*—I have no experience with it.

Q.—Have you any knowledge on the subject at all? *A.*—Only as I have read it in the literature of the Chattanooga Medicine Company.

Q.—Is there anything in the literature of the Chattanooga Medicine Company which says anything about carduus benedictus? *A.*—No, only as in that combination, as I understood it to exist.

Q.—What literature of the Chattanooga Medicine Company said anything about carduus benedictus? *A.*—I did not say that it said anything particularly about carduus benedictus, but about Wine of Cardui, which I understand contains carduus benedictus.

Q.—I asked you what knowledge you had about carduus benedictus? *A.*—And I answer that I know nothing practically from my own experience about it. That the only literature I have read upon it is in going over the literature of the Chattanooga Medicine Company, about the Wine of Cardui, which I understand contains carduus benedictus.

Q.—Well, is there any literature of the Chattanooga Medicine Company which mentions carduus benedictus? *A.*—I think not.

Q.—Well, then, you could not have read anything about carduus benedictus in the literature of the Chattanooga Medicine Company, could you, doctor? *A.*—Excepting from what I have learned of the testimony here, by reading of the testimony, the analysis of the remedy, which is said to contain carduus benedictus.

Q.—Is there any part of the testimony which says that the literature of the Chattanooga Medicine Company mentions carduus benedictus? *A.*—In the question, yes, sir.

Q.—Sir? *A.*—The question; yes, sir.

Q.—I did not understand that. *A.*—The question of the attorneys; yes, sir.

THE COURT:—The hypothetical question.

The Witness:—The hypothetical question.

Mr. Hough:—I am asking whether the literature—

THE COURT:—He said there was nothing in it, he has answered that twice. He said that he assumed from what he had heard that the Wine of Cardui contained carduus benedictus.

Mr. Hough:—I did not so understand the witness, but if the Court understood it that way, we will let it go.

Mr. T. J. Scofield:—That is what he said.

Mr. Hough:—No, he said he read in the testimony a reference to carduus benedictus in the literature of the Chattanooga Medicine Company; that is what he said.

The Witness:—I said the testimony given here in this court.

Q.—Well, then, you mean you have not read anything in the literature of the Chattanooga Medicine Company about carduus benedictus? *A.*—Not naming the drug as carduus benedictus.

Q.—Have you ever read about the drug in any medical literature? *A.*—No.

Q.—Would your opinion as to the therapeutic value of the medicine, based we will say principally upon carduus benedictus, be affected by what any medical writer would say about the therapeutic value of carduus benedictus?

Mr. T. J. Scofield:—That is objected to if the Court please.

THE COURT:—He may answer.

To which ruling of the Court the defendants, etc., excepted.

A.—It would not.

Mr. Hough: Q.—In other words, without knowing anything about carduus benedictus, or having read anything about carduus benedictus, you expressed the opinion that it is utterly worthless as possessing medicinal value? *A.*—No, I would not say that. It might have certain tonic properties but as a curative agent of any organic disease, such as I have been interrogated about here today, I would say it is worthless under those conditions.

Q.—Well, but outside, doctor, of the hypothetical question, if you have had no experience with carduus benedictus, yourself, and have read nothing in medical literature about the experiences of others with it, how can you say what would or would not be its therapeutic value? *A.*—Well, because neither that nor any other drug will affect the anatomical conditions about which I have been interrogated in this court.

Q.—That was not what I asked you, whether it would affect anatomical conditions or not. The question is, how could you say under those circumstances that the drug did not possess any medicinal or therapeutic value whatever? *A.*—I have already qualified it by saying that I did not say that; that I said it might have certain tonic or other qualities of which I know nothing.

Q.—Will you eliminate from your consideration, for a moment, the statement in the hypothetical question, and answer this question outside of that, as to how you can state what the therapeutic or medicinal value of that drug would be, if you have never read of the experience of others with it, or had no experience yourself with it? *A.*—I cannot answer that outside of the hypothetical question.

Q.—Then you mean that outside of the hypothetical question you could not express any opinion, could you? *A.*—I can express an opinion concerning these conditions about which I have been interrogated.

Q.—I am talking now about the medicinal value or the therapeutic value of carduus benedictus? *A.*—No.

Q.—You could not, could you? *A.*—No.

Q.—Now then, do you know, for instance, how much extractives 20 per cent. of alcohol would take from 30 grains of carduus benedictus? *A.*—No, sir.

Q.—Do you know how much extractives a larger amount of alcohol would take from 30 grains of carduus benedictus? *A.*—I do not.

Q.—Do you know whether a larger amount of alcohol would take any more extractives from carduus benedictus than 20 per cent. of alcohol? *A.*—I do not.

Q.—Now, the hypothetical question is based upon the assumption that the bitter principle is cnicin, which is present in approximately one tenth of a grain per dose. Would your opinion about the medicine be any different—I am talking now not about anatomical conditions, or its effect upon moving bones, but as to the therapeutic value—if the other extractive matter other than the cnicin, possessed properties which acted upon the womb and the generative organs of woman? *A.*—Do I understand you to ask if the other extractives of carduus benedictus, with the exception of cnicin, would—

Q.—If they had the reputation of acting upon the womb of a woman, would your opinion as to the value of the medicine be different? *A.*—Naturally it would, and that would depend too upon what action it had upon the womb necessarily. To act, assume—it may be several things.

Q.—A headache might be due to a menstrual disturbance might it not? *A.*—It might, yes.

Q.—If a medicine contained an ingredient which acted upon those conditions, it might be a medicine which would relieve the headache that was due to those conditions, might it not? *A.*—It might palliate or relieve the headache for a time.

Q.—The word "cure" is used carelessly by both the laity and the profession, or has been in times past, has it not? *A.*—I stated that to the jury.

Q.—I did not hear what you said. *A.*—I stated that to the jury in my direct testimony.

Q.—That that is true? *A.*—Yes.

Q.—Now, there are some conditions of menstrual disturbance or inflammation in the female pelvic cavity which might cause a pain in the back of a woman, might there not? *A.*—Yes.

Q.—If a medicine contained an ingredient which had the reputation of acting upon the womb, or upon the inflammation of those parts, it might be just the medicine she needed to cure that pain, might it not, or relieve that pain? *A.*—Yes, or it might not cure. It might palliate. There are remedies which will relieve backache due to pelvic diseases of women, which have no effect whatever upon the pelvic disease of itself, and so reduce the sensation of the nervous apparatus that the woman has no conception of the ache or pain in her back.

Q.—Don't you think a woman would usually know whether her headache was due to some female trouble, or any of the irregularities of menstruation? *A.*—I do not.

Q.—You do not think that she would know that? *A.*—No.

HEADACHE

Q.—Could a woman ever know, ever have a headache, which she would know the cause of? *A.*—Yes.

Q.—What kind of a headache might she know the cause of? *A.*—It is possible that a woman might so suffer, knowing by examination that she had pelvic disease, like a retroversion, that is, a backward displacement of the womb and some other woman, if it annoyed her constantly, and she was tired out having headaches, might have headaches because of the nervous irritation in the pelvis, and she might learn to know that.

She might learn that she had a headache, because she knew that she had bad eyes, and that the oculist was almost unable to fit her or the eye muscles were unbalanced and he had difficulty in fitting glasses to such an individual, and she would know that her headache was due to the constant eye strain, human fallibility not permitting her to be entirely fitted with glasses. So that there are conditions in which an individual can know the causes of a headache.

But, take it as a general proposition, a woman is not a judge of the cause of the headache any more than a man. A man or a woman cannot tell why they have headaches. Even we doctors sometimes have difficulty in finding out why an individual has a headache. It takes long study.

Q.—If a headache in a woman comes regularly every month at her period, would she not naturally understand, and would not the doctor naturally suppose that it was due to the menstrual period? *A.*—Yes, but that does not necessarily follow that it is because she has got a disease of the pelvic organs that she has a headache. A woman is naturally more nervous at her menstrual periods, more excitable. The whole nervous apparatus is disturbed and in that very case, the headache may become intensified, and while she or somebody else might ascribe the headache to the menstruation, it is the effect of the fundamental cause.

Q.—Is there any medicine which might relieve a headache which was due to a menstrual disturbance? *A.*—Yes.

Q.—And that would be, I take it, a medicine which the woman would take for the menstrual disturbance? *A.*—Yes. Many do.

HOME REMEDIES

Q.—You said something about a woman during pregnancy taking many simple remedies at her home. What kind of remedies did you mean? *A.*—Oh, simple household remedies. She may be nauseated, and she might take a little essence of ginger, or she might take a little essence of peppermint, or she might apply a little mustard plaster over her stomach for a little while, or she has a headache, and she has, through her family physician some little household remedy which she will take for it. She may take a hot foot bath.

Q.—You have prescribed essence of ginger and peppermint under those conditions? *A.*—Why, certainly, if they were—if the conditions needed them.

Q.—Do you know how much alcohol there was in those essences? *A.*—Yes, sir.

Q.—How much? *A.*—Well, the essence of peppermint is an essential oil, that requires practically all the alcohol to hold it.

Q.—A very large amount of alcohol? *A.*—Yes, but the essence of peppermint would be taken in a few drops, three or four.

Q.—How many drops? *Q.*—Oh, anywhere from three or five or six drops.

Q.—Frequently? *A.*—No, about once or twice a day, or perhaps—and perhaps not again.

Q.—That is practically all alcohol, isn't it? *A.*—Yes.

Q.—And in the ginger? *A.*—And ginger has also a large quantity of alcohol, but the amount of those drugs taken at a time is infinitesimal, and they are not prescribed to be taken three or four times a day, so that the total quantity of alcohol, taken by the individual, is not much over any given period of time. It makes all the difference in the world whether you are taking alcohol of a certain big dosage or a small dosage, with regularity.

Q.—Well, Doctor, what is the largest dose of ginger you have ever prescribed, essence of ginger under those conditions? *A.*—Oh, usually I just simply use a few drops, because it is usually given for its sense of warmth that it causes in the stomach. It has what we call a carminative action, that is, it stimulates the stomach to move, and the woman will belch gas, or, if it is in the intestines, they will pass flatus or they are relieved by it. It is simply a palliative medicine, given for that purpose.

PHYSICIANS' PRESCRIBING ALCOHOL

Q.—Do you think that alcohol given in a medicine, which a doctor prescribes, has any different effect from alcohol which is taken in some home medicine that a person bought without a prescription? *A.*—In single doses, no, but the doctor usually prescribes a certain amount with directions as to when to take it, and when to stop. The patient that buys his "patent medicine" with its alcohol in it takes it of his own volition at any time he choses, as much as he choses, and as long as he pleases. It makes all the difference in the world.

Q.—Well, you could ignore the directions of the doctor, or the patient could, as well as ignore the directions on the bottle, couldn't he? *A.*—He could, yes.

Q.—Do you know how many of the pharmacopeial preparations containing alcohol, contain more than 48 drops of alcohol per dose? *A.*—I do not know just how many of them. I know there are a good many of them. There are some of them contain pure alcohol, some of them contain 80 per cent., 75 and 60 per cent. You cannot speak of it in percentage. It is put in in their making as equal parts of water and equal parts of alcohol, or two parts of alcohol and one of water, three parts of alcohol and one of water, or four parts of alcohol and one of water, and so on, so it is not exact percentage.

Q.—You are talking, I think, about percentages. I was asking you if you knew how many of the pharmacopeial preparations such as fluid extracts or tinctures contained in a dose, as laid down either in the pharmacopeia, or the dispensatory, or the National Formulary, contain in a dose more than 48 drops of alcohol. *A.*—No, I do not; because it does not interest me. I use so few of any of them that I cannot spend the time to look up such a question.

Q.—You have used cimicifuga, haven't you? *A.*—Very rarely.

Q.—That is the fluidextract? *A.*—Yes, sir.

Q.—Well, you know that each dose of that contains 57 drops of alcohol, don't you? *A.*—I do not know the exact amount of alcohol it contains, but it is a drug that is very rarely used. When it is used it is not usually used in more than 10 or 15 or 20 minim doses, because it is used in mixtures with other things. Therefore, while it may contain—

Q.—Doctor, would you talk a little louder. *A.*—Although it may contain therefore, more than 48 drops in a teaspoonful of it of the simple drug itself, it is usually used in less dosage than that in mixtures and not for any length of time.

Q.—Did you ever use the fluidextract of cinchona? *A.*—No, sir; I do not use it in that form?

Q.—In what form do you use it? *A.*—I usually use it in the form of a tincture.

Q.—How much alcohol is there in the tincture? *A.*—That has a high percentage.

Q.—That has a higher percentage than the fluidextract, hasn't it? *A.*—It has; I think it has.

Q.—In a dose of that, how many drops of the alcohol would a patient get? *A.*—Well, if you take a teaspoonful dose, I suppose he would get more than the 48 drops. I do not know exactly, but again that is not a drug that is used often. It is only used sometimes as a so-called stomachic tonic, that is, as a bitter tonic for a period and then usually not in its plain dose, but with other bitter tonics mixed up, and taken as a mixture. When we want long continued use for the effect of cinchona we use its active principle, quinin, which we can give in powder or capsule or pill having no alcohol whatever.

Q.—But quinin don't represent all the properties of cinchona, does it? *A.*—It represents the most valuable principle in it.

Q.—It represents a certain active principle only, don't it? *A.*—And the most valuable one.

Q.—Isn't there a difference in medical opinion on that subject? *A.*—Not at all.

Q.—You think not? *A.*—No, sir.

Q.—Why do they ever prescribe cinchona then, instead of just quinin? *A.*—Because of its price more than any other thing.

Q.—Its which? *A.*—Price.

Q.—You mean because it is cheaper? *A.*—It is very ineffectual in its effect, as compared with quinin.

Q.—Is there anything for which cinchona would be prescribed or used, for which quinin would not be used? *A.*—No, not that I know of. There is one exception I would make to that answer. Some people may have uncomfortable symptoms from quinin that are produced by it, like ringing in the ears, and occasionally it makes a hive-like eruption on the skin that is a peculiarity of some people in reference to quinin. In that event, often, as one cannot overcome it by any other medication, or combination with it, a less effective drug like cinchonidin may be given in its place, but the strength, the comparable strength is very different, but the effect is intended to be the same.

Q.—Now, when you give a drug which in one dose contains more than 48 drops of alcohol, does that one dose have any bad effect or any deleterious effect? *A.*—As a rule, I should say not.

Q.—Now, suppose you gave that three times a day, and the patient did not take it any more than three times a day, would the second or third dose have any deleterious effect? *A.*—I do not know. You are asking the question in so general a way that I cannot answer you definitely. It would depend on the patient.

Q.—Let us take a patient now in whom the 48 drops would be freely oxidized. The effect of that alcohol would have passed off before the expiration of three or four hours, would it not? *A.*—I cannot assume that. I cannot assume that any patient, or any individual, can take 48 drops of alcohol three or four times a day and say that it will be all oxidized or that it won't do any harm, I cannot say that.

Q.—Let us take one time only. You have given it more than one time, haven't you? *A.*—Yes.

Q.—Now, when you gave it one time, it did not have any bad effect, did it? *A.*—Not so far as I could say, but I do not know.

Q.—It did not produce an alcoholic habit, did it? *A.*—No.

Q.—It did not interfere with the action of the drug which you gave in it, did it? *A.*—I cannot conceive of answering that question. I don't give a drug of that kind once. If I am giving alcohol, I am giving it for a purpose.

Q.—You mean you are giving it more than once? *A.*—Yes, if I was going to give alcohol at all.

Q.—I am talking about what is going to be the effect of the first dose? *A.*—I don't know what the effect of the first dose is. I have tried to answer and say here that alcohol acts different on different individuals as to any evil effect or good effect or no effect at all, so far as one can see.

Q.—When you have given any of these drugs that I have just mentioned to you, and which you said you gave in alcohol, you did not give them for the alcoholic effect, did you? *A.*—No.

Q.—You regarded the alcohol as negligible, did you not? *A.*—I gave them because it is necessary to have preparations of drugs with alcohol to preserve the drug. We have them given to us by our pharmacological manufacturers and our druggists, who put them up for us in that form. We prescribe them in that form, disregardful usually of the alcohol in the amount which we give, excepting in that instance where if one prescribes the alcohol, you will be careful of how you are going to give it, just as you would be careful of any other habit forming drug.

Q.—That is, when you prescribe alcohol as alcohol. *A.*—No, I said these drugs containing alcohol. You would have the same thought in mind.

Q.—Well, you say that when a drug contains the alcohol which is indicated in the pharmacopeia, it would be regarded by the profession as negligible? *A.*—I cannot say what the profession might think.

Q.—Well, yourself then? *A.*—Well, myself, the way I prescribe it, I would say that it would be negligible.

Q.—When it came time to take the second dose, would there be in the patient's body any condition due to the alcohol alone? *A.*—I cannot answer that question, because I am not around. When I prescribe a drug that has got to be taken, it usually means for a day or two days or a week, and I am not around to see what the effect of that drug is on the patient every dose that he has taken.

Q.—Then you assume, as a matter of course, that where you give a drug containing alcohol in which there would be as much as 48 or more drops per dose, to be taken two or three times a day over a week, that the alcohol would not have any deleterious effect. *A.*—In the first place, I answer that by saying that I don't prescribe a drug that contains that amount of alcohol that I give a week at a time, and that if I did prescribe it, I probably would satisfy myself that it was not doing any harm on days subsequent to the day on which I prescribed it.

Q.—Well, now, when you give a drug that contains alcohol, do you have it in mind to go and see that patient very soon, and see if the alcohol is having any deleterious effect? *A.*—I don't take care of any patients, sir, except those that I see daily, except Sunday, and even Sunday—

Q.—Would you mind sort of spreading your voice out this way, half way between me and the jury, so that we can both hear? I did not hear the last. *A.*—All right, sir. My practice of medicine lies entirely, sir, at the Presbyterian Hospital in Chicago, and in consultation with other physicians and in opinions given in the office practice, a few hours a week. Consequently all patients that I have under my charge, I see practically every day.

Q.—But there was a time when you were in the general practice, like a country doctor. *A.*—No, I never was just like a country doctor.

Q.—I don't mean like a country doctor, but you would go around and see your patients? *A.*—I used to do a large family practice, sir.

Q.—Of course, then, you saw your patients daily? You did not see your patients daily then, as you do in the hospital, did you? *A.*—If they were very ill I did. If they were not very ill I sometimes would not see them once a week. But I am quite peculiar, if you will permit me to say that, in that I don't give very many drugs.

Q.—You mean that is now? *A.*—No sir, my patients, many of them, are carried through under a management which does not require the use of drugs often.

Q.—You mean you differ in that respect from the rank and file of doctors? *A.*—I do not know in what I differ from them; I do not know what the opinion or practice of some other men may be.

Q.—Then why did you say you were peculiar? *A.*—I am peculiar in the sense—you asked me the question whether I gave drugs every day, and whether I watched their effects every day, and if I had a family practice and did not see the patients I could not do it. I say that in many instances I did not give drugs always in such treatment.

Q.—Well, if all physicians do the same thing, you could not say you were peculiar in that respect? *A.*—Well, I will retract the "peculiar" if you want me to.

Q.—I think that is a good retraction. Did you give more drugs when you were in the general practice than since you have been in the hospital practice? *A.*—No.

Q.—When you first started to practice? *A.*—No.

Q.—You never gave any more at any time? *A.*—Perhaps when I was younger and without as much experience, I may have had a little more confidence in drugs or confidence in things I would read about drugs than I have now.

Q.—How long did that condition continue? *A.*—Oh, that is a developmental period you know, sir. I could not say. It has been thirty-six years since I began, thirty-five.

PUBERTY

Q.—Did I understand you to say that puberty as a rule is normal, and not pathological? *A.*—Yes sir, it is a normal physiological process.

Q.—Is it not a fact that amenorrhea is common in puberty? *A.*—No sir.

Q.—Did you say that you had heard Dr. J. Clarence Webster testify? *A.*—No sir.

Q.—Did you read his testimony? *A.*—I had that offered to me and read it.

Q.—Well, don't Dr. Clarence Webster say that amenorrhea is common in puberty? *A.*—I don't remember.

Mr. T. J. Scofield:—That question I object to. It don't make any difference whether he says it or not.

THE COURT:—The witness says he does not know.

Mr. T. J. Scofield:—But what is the use, your Honor? It is not a proper question.

THE COURT:—I do not think it is proper.

Mr. Hough:—What was that?

Mr. T. J. Scofield:—Your question, I say, was an improper question.

Mr. Hough:—He said he had read the testimony here, and he said he is associated with Clarence Webster.

THE COURT:—No, he said he had been in consultation with him. But what difference does it make? Dr. Billings has made his statement here and if Dr. Webster said something different, apparently they disagree. The Jury has heard it.

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. Hough: *Q.*—Doctor, is your opinion on any subject ever affected by the opinion or influenced by the opinion of any other doctors? *A.*—Oh, sure.

Q.—Either expressed to you verbally or expressed in some book they wrote on the subject? *A.*—Expressed both ways.

Q.—Well, suppose Dr. J. Clarence Webster should say that amenorrhea is common in puberty. Would that affect your opinion on the subject?

Mr. T. J. Scofield:—That is objected to.

THE COURT:—He may answer.

To which ruling of the Court the defendants, etc., excepted.

A.—It would not affect my—my answer is based on my own experience. It does not affect it therefore.

AMENORRHEA

Mr. Hough: *Q.*—How many cases of girls at puberty have you had, would you say, roughly, for amenorrhea? *A.*—That would be difficult to answer. I could not answer that definitely.

Q.—Well, say in the last ten years? *A.*—In ten years I have not done family practice, and therefore I have not seen many, excepting as they would be admitted to the hospital. Before that, with a large family practice, helping parents to bring up their children, I saw many girls, and I have seen occasionally amenorrhea, but not a constant thing, and I want to repeat what I said, that when amenorrhea occurs at puberty, there is an underlying constitutional condition which prevents the development of puberty, and the word "amenorrhea" should not be used there at all.

Q.—What is that? *A.*—Its true function is gone.

Q.—You mean the term "amenorrhea" should not be applied to it? *A.*—Amenorrhea is but a symptom and not a condition with a girl. It is but a symptom of general conditions, as I reiterated this morning. The girl may have tuberculosis, the girl may have an anemia due to a faulty development of the blood, her bone marrow may not be acting right. She may have some other constitutional disease, which prevents the appearance of the menses. Every one is alarmed because

it is amenorrhea in the girl, when the thing to be alarmed about is her general condition, and the amenorrhea don't mean anything. That a girl may be a little late in the development of puberty, or that she may be irregular at the beginning, is as a rule nothing to be considered as to drugs, but as to the correction of habits of life and diet and everything else.

Q.—Do you define amenorrhea and suppression as the same thing? *A.*—Yes, practically. They are the same thing. Amenorrhea means absence of menstruation. Suppression of menstruation means absence of menstruation.

Q.—Suppression means the absence after it has once been established. *A.*—No, it is simply another word to express the same thing. But amenorrhea covers the whole subject of the absence of menstruation.

Q.—Whether before the establishment or after the establishment of menstruation? *A.*—Before or after.

Q.—Within what time, as a rule, is menstruation established in young girls? *A.*—Oh, puberty differs in different people and different climates. Among the Orientals, it is early.

Q.—I don't mean at what age. I mean, is it established sometimes immediately right off, suddenly? *A.*—Sometimes it comes without symptoms at all, the girl menstruates.

Q.—That would be normal? *A.*—That would be normal. Sometimes it will come with more or less pain, dependent on the new function being established.

Q.—That would not be normal? *A.*—It would be in a sense the normal puberty, the normal menstruation.

Q.—Normal in the sense that she must menstruate? *A.*—Normal in the sense that she must menstruate, and normal in the sense that it is flowing and properly. That she may have pain don't indicate that she has got anything wrong about her pelvic organs.

Q.—It at least indicates that it is not normal, doesn't it? *A.*—It does not follow that the menstruation is not normal.

Q.—I don't mean the menstruation— *A.*—Or that the puberty is not normal. That don't follow at all. A girl, for instance, in our modern life is off at some boarding school and allowed to go into society too much at that early age, and her nervous apparatus is irritable with the congestion down here, although it is normal, that menstruation affects the nerves of her pelvis and she has got pain there when there is not anything the matter with her at all.

Q.—Garments and corsets would have some effect? *A.*—Regardless of everything, it don't make any difference. She has got pain because of her habits of life, and because she does not recognize things that she ought to recognize, and she has got pain because of a live battery up here (apparently indicating the head), which recognizes things that it ought not to recognize.

Q.—That is a condition that requires some sort of treatment, doesn't it? *A.*—It requires general treatment.

Q.—Tonic treatment? *A.*—To teach parents, for one thing, how to take care of their girls, and to teach the girls what to do. It doesn't necessarily mean medicine.

Q.—Not necessarily? *A.*—Not necessarily.

Q.—But you would not exclude medicine, if it was indicated? *A.*—If her condition indicated that she needed something to correct the condition when I found it, I would give the proper medicine.

Q.—And if anemia was one of those conditions— *A.*—Anemia was not there. The question was asked me here, if the girl had painful menstruation, but was menstruating. Now, if you bring in anemia again, she needs something to restore that blood.

Q.—Well, I am doing it now. When she is nervous and excitable, and has headaches, without having anemia, all due to the fact that she is not menstruating normally, you would not give her any medicine or treatment at all? *A.*—I cannot accept that statement. If her headache or backache was due to her nerves, or is due to the nervous condition—

Q.—But I thought you said that was the condition. The girl is at school; she is wearing tight clothes, going out into society, or she don't have the fresh air that she ought to have at that period, and she has this physiological condition, which you have just described? *A.*—The question which I understood to be asked by you was that the girl menstruated, but it was painful. I tried to say to you that the pain was not necessarily indicative of any disease about her genital organs; that she might well have pain with the natural congestion of the womb and ovaries at that period, which she would unduly feel because of her nervous irritability due to these extraneous things that I named.

Q.—Let us get our bearings again. Menstruation may be established suddenly, and without any pain. That is true, isn't it? *A.*—Yes sir.

Q.—When that occurs it is normal? That is the way it ought to occur in a state of nature, ought it not? *A.*—Yes.

Q.—Now, when it don't occur that way, there is a departure from the normal condition, without reference to whether it is yet pathological, it is a departure from the normal condition? *A.*—It is a departure from what would be considered the normal that would come in a perfect individual without pain.

Q.—Now, then, when it is delayed in that way, would you or would you not call it amenorrhea? *A.*—If it is delayed for the time being, no. Simply delayed menstruation.

Q.—Well, in what case would you call it amenorrhea? *A.*—When it goes on for month after month without the appearance of having had it, regularly month after month, suddenly a month drops out, and the menses did not appear, she had amenorrhea for that month.

Q.—Of course it is a recognized fact that it don't commence at the same age in every girl? *A.*—That is right.

Q.—But there is something to indicate in each girl when the time has come for her to menstruate? *A.*—Yes.

Q.—It is usually a little flow, isn't it? *A.*—No.

Q.—What is it? *A.*—Usually the development of the other organs of the female. The breasts enlarged and she rounds out in form, and her whole aspect is changed, and she passes from girlhood into womanhood.

Q.—Well, that would merely indicate that it was about the time? *A.*—And then when the menstruation appears, it may be the appearance first of a flow of blood, the first that she would know about it.

Q.—That would indicate the first month when it was due with her, wouldn't it? *A.*—On the other hand, it may even with a healthy girl appear—

Q.—Did the doctor answer that question?

(The pending question was then read.)

A.—That would indicate it, yes.

Q.—Go ahead, excuse the interruption. *A.*—It might be attended with more or less nervousness, irritability, headache or something of that kind, because it is a new thing to her, and Nature has not yet got around to establishing it.

Q.—Now then, suppose when the month comes around she is irritable in the meantime and has headache, would you say that it was then pathological? *A.*—No, not necessarily.

Q.—Would you say that it would then require any treatment at all? *A.*—Not unless I made an examination of that individual and found out what the true condition was.

Q.—Now then, suppose the third month comes around, and she is still in that condition, with some headache, would you give her any treatment? *A.*—I would not until I had acquainted myself with the facts of her condition.

Q.—Well, after you had acquainted yourself with the facts of her condition, what treatment would you give her? *A.*—Then I would give the treatment based on those conditions.

Q.—We will say now that it is the third month. What would be some of the treatment you would give her? *A.*—Well, it would depend on the cause. Sometimes they are delayed from general constitutional things. A girl may be housed in school or at home, and she may not have enough out-of-door exercise. On the other hand, she may be a poor girl earning her living in a store or somewhere else, and she is overworked and tired physically and mentally. She may have faulty methods of life, as to diet, and as to bowel movements, and one would have to ascertain all of those facts and treat the patient accordingly, rather than to drive at once at the pelvic organs to find what was the cause.

Q.—Would you wait three months to ascertain the facts? *A.*—I don't wait at all, sir, as a rule.

Q.—Then you would ascertain the fact before the expiration of three months? *A.*—I would try to, if the patient were under me, yes sir.

Q.—How long would you then wait before you would give her any medicine? *A.*—That would depend on what I found. I cannot answer the question, because you are assuming a hypothetical girl, without my knowing what the matter is with her. I cannot answer that question.

Q.—What conditions did you ever find in a girl at puberty which required the giving of medicine? *A.*—Anemia, such as I have named, is one of the most common causes. She either suffers from malnutrition because of faulty habits of eating, diet and exercise, and all that, or her blood making organs are not making blood fast enough, and in that event one corrects whatever the condition may be.

Q.—Let us suppose that the condition was not due to any malformation or any condition which required a surgical operation. *A.*—There is sometimes—

Q.—There is sometimes what? *A.*—A malformation.

Q.—Let us exclude those. Suppose the condition which you discovered her in was not due to malformation and was not one which required a surgical operation, and still the girl dribbled and had some pain and had headaches and was irritable and nervous. Is that a condition which calls for any treatment? *A.*—I have already answered that in saying that the underlying cause would have to be sought for and removed. Those may be numerous. I do not know what it may be.

Q.—Without reference to the underlying cause, could there be any underlying cause which would necessitate any treatment for that condition of symptoms? *A.*—I have already stated that I would give iron if she had anemia and needed a tonic, or give her some other restorative tonic if iron was not needed. If she had tuberculosis, we would treat that.

PREGNANCY

Q.—Is it not true that pregnancy in the civilization today is pathological rather than physiological? *A.*—No sir, only to a certain extent it is a pathological condition.

Q.—Is that based on your reading, or your own experience? *A.*—On my own experience and reading, and association with men whose practice is the care of women who are pregnant.

Q.—If Dr. DeLee should state that pregnancy should be regarded as a pathological condition, would it affect your opinion? *A.*—Yes—or no, I would not say it affected it. I believe that pregnancy is a normal physiological condition.

Q.—I say, suppose Dr. DeLee said in our present-day civilization that it should be regarded as a pathological condition? *A.*—Does he say that it usually is?

Q.—I say, suppose he said—I will read it to you if you want me to. *A.*—I say, does he say that it is usually a pathological condition?

Mr. T. J. Scofield:—That is objected to.

Mr. Hough:—He says it is.

A.—Does he say it is usually so? Then I differ with him.

Q.—You would differ with him? *A.*—Yes.

Q.—Now, have you had in your general practice, before you went into the hospital, many cases of pregnancy? A.—As they occurred in the families, I attended a good many.

Q.—That is where you had a family practice? A.—Yes.

Q.—How soon, as a rule, would the woman consult you? A.—Usually almost at once.

Q.—You mean as soon as she discovered that she was pregnant? A.—Yes sir.

Q.—Possibly to ascertain from you whether she was or was not pregnant? A.—Miss a menstrual period and usually want to find out if she was pregnant, or why she had missed it.

Q.—What do you do when a patient consults you under those circumstances? A.—When they did consult me under those circumstances, I usually examined them.

Q.—I mean, when they did. A.—I examined them to find out what the conditions were.

Q.—Were there any cases of pregnancy in which you ever gave medicine? A.—Yes, occasionally.

Q.—What were the circumstances, the conditions? A.—A woman would have disturbed functions. It is a common thing for a woman to be constipated; one would naturally attend to that in a woman in pregnancy. You always refer them to a diet. I said in pregnancy that one of the dangers from which a woman suffers is kidney disease, and so usually when I was a family physician I usually had the pregnant woman, or women, begin to send their urines to me and have them keep it up during the whole pregnancy, so that I could know what the conditions were and then anything that I found wrong with the urine I would correct. But there was not any specific thing that one would say that you could give to any pregnant woman. It is an individual equation.

Q.—What other medicines have you ever given in pregnancy? A.—Well, I have given iron. If I found a woman anemic, I would give iron. I have given them medicine to increase the urine outflow. I have given them medicines to palliate headache or backache that might be present, in the form of some palliative thing like salicylate of soda, some simple thing, as I have answered before. I cannot name any drug that I would say was specific, because the woman was pregnant.

Q.—Have you never had a case of morning sickness? A.—Oh, yes.

Q.—What do you give in those cases? A.—Well, it is a very difficult condition to handle. We usually try to give a general management, try to keep the woman quiet if her place in life would permit her to do so, on a light diet. Popcorn is one of the best remedies, and a little charcoal, one of the best remedies for a woman who has sour stomach and nausea when she is pregnant. There is not any specific medication for it.

The further hearing of the case was adjourned until 2:15 o'clock p. m. the same day, May 4, 1916.

Thursday, May 4, 1916, Afternoon

The court met pursuant to recess. Dr. Frank Billings resumed the stand as a witness in behalf of the defendants.

FURTHER CROSS-EXAMINATION BY MR. HOUGH

Q.—Do you give anything besides popcorn, doctor, in those conditions? A.—Yes, carbo lignum, charcoal and small doses, one drop doses, of carbolic acid in water, cinnamon water, any other simple thing.

Q.—I didn't hear that last. What was it? A.—Cinnamon water.

Q.—I have forgotten when you said you quit using viburnum prunifolium in your practice? A.—That I had quit?

Q.—Have you quit? A.—I said that I had used it last during the last year. I have therefore used it in recent time.

Q.—Have you made up your mind to quit? A.—No.

Q.—The last time you used it was on this woman from Texas? A.—Yes sir.

Q.—Whose patient did you say she was? A.—She was my patient.

Q.—Didn't she come to you from some other doctor? A.—I can't recall whether she came with a letter to the hospital or whether he sent her directly there without any word from him, but I have since corresponded with the doctor at her home concerning her. She has her physician there.

Q.—Well, what I meant was, did she have a physician before she came to you? A.—She was at one time in the Mercy Hospital under Dr. J. B. Murphy.

Q.—How long before she came to you? A.—She came to me first in July, 1914, and was under Dr. Murphy some time in 1913, from her account of herself.

Q.—That is, she had been under the care of Dr. Murphy here in Chicago? A.—At the Mercy Hospital.

Q.—And then she went back home to Texas? A.—Yes sir.

Q.—And then she came back to you? A.—Yes.

Q.—Now do you know whether she had any medical treatment in Texas between the two times? A.—Not from my own knowledge, no sir.

Q.—Did she tell you? Was it part of the history of her case? A.—I don't recall.

Q.—Do you recall what she told you about herself? A.—Excepting as to her general condition.

Q.—Well, did she tell you what treatment she had had previously? A.—She told me what treatment she had had in part. She said that about three years before she came to me, which would make it 1911, she had an acute rheumatism with inflammation of the tonsils, and the doctors in Texas had taken her tonsils out about three months after she recovered from the rheumatism.

Q.—That was in 1911? A.—Well, she stated—the general term was three years before. Then at Mercy Hospital in Chicago Dr. Murphy treated her joints with the injection of some material with the object of trying to cure the joints.

Q.—And how long was she here at that time? A.—I don't know that. Several weeks—perhaps two or three months.

Q.—And then she went back home? A.—Then she went—as I remember it she went back home and remained during the winter in Texas, and then came north and came into the Presbyterian Hospital in July, 1914.

Q.—Now, during all that period, or during any part of it, did she have any menstrual disturbance? A.—Her menstrual disturbance occurred beginning in 1913, I think. At any rate, she had it when she came to me.

Mr. Walker: Doctor, I think you mistook a date there. You said July, 1914. You meant 1915? A.—No, July, 1914, she came to me first.

Mr. Hough: Well, she had it in 1913, that is, when she went to Dr. Murphy? A.—I think she had it then. I am not certain, but she gave a description of her symptoms, that she had painful menstruation when she came to me.

Q.—Had she had any treatment for that at all? A.—That I don't know.

Q.—Now, was she cured when she went back after the first trip here? A.—No.

Q.—Did she take any treatment in Texas? A.—She took restorative tonics, iron, and at her periods, which were excessive, she was given ergot in the intervals.

Q.—That is in Texas? A.—That is in Texas. That is as I learned it from her.

Q.—Did she state she got any relief from those drugs? A.—She did not.

Q.—Did she state during what period of time they were given to her? A.—Usually during the menstrual period when she was overflowing, the iron being given between.

Q.—Being given a few days before and up to the time when it should occur? A.—She was given the iron in the interval between because she had poverty of blood, and she was given the ergot, as I understood it, a little before and during the period.

Q.—And did she continue that treatment until she came up to you? A.—I think so.

Q.—And when she came to you how long did you treat her for those conditions before operating? A.—She was under my management for her general condition, which you will recall was for general joint trouble, as well as for the anemia and for the pelvic condition, and the attempt was made to improve her general condition and to save her from operation, if possible, by tonics, by ergot, and at that time I tried the viburnum prunifolium.

Q.—How long was she kept on that treatment before the operation? A.—Well, as I recall it now, it was during about two periods, that is, beginning with one and running through and then over the other period. Not all of the time.

Q.—About six weeks? A.—Not all of the time. A part of the time leaving it off, and trying it again.

Q.—About six weeks? A.—Something like six weeks. But let me correct that. Not continuous six weeks. Trying it for the period until it ceased, and then letting her alone, and then giving it again when the flow began.

Q.—And did you give her no other medicine between the periods? A.—Iron.

Q.—Only iron? A.—Yes.

Q.—What other medicines besides the viburnum prunifolium did you give her? A.—I gave her ergot.

Q.—Anything else? A.—Not that I recall. No specific remedies applied to the hemorrhage.

Q.—Was the viburnum prunifolium in the fluidextract or tincture form. A.—In the fluidextract.

Q.—And the ergot, was that fluidextract or the tincture? A.—That was a neutral preparation, ergotol, a part of it, so that it could be given with a hypodermic syringe, and a part of it was the solid extract of ergot given by mouth.

Q.—Now for what period of time would you say you gave her the viburnum prunifolium? A.—Probably for seven or eight, possibly even ten days. I can't recall the exact time. While the excessive flow was going.

Q.—While the excessive flow was going; only through one period? A.—No, I then repeated it, as I recall, through a second period.

Q.—Were you giving any other medicine at the time you were giving her the viburnum? A.—I was giving her the ergot also, because the viburnum did not apparently control.

Q.—Well, you say the ergot did not control either? A.—Nothing controlled in the way of medicines.

Q.—How many doses, doctor, of the viburnum did you give? A.—Three, as I recall it.

Q.—And how much at a dose? A.—Twenty minims.

Q.—Twenty minims? A.—That is equivalent to about 20 drops; not quite.

Q.—And you didn't try increasing the dose? A.—No.

Q.—And you say you had given it for the previous period also? A.—I gave it, as I recall it, for two periods when she was flowing excessively.

Q.—Doctor, is there difference in the action of drugs when taken in small quantities during a long period of time as compared with large quantities over a short period? A.—Difference in effect?

Q.—Yes sir. A.—Yes, there may be some difference in effect.

Q.—Isn't viburnum prunifolium one of the drugs that is referred to as the kindlier drugs, which have to be given over a considerable period of time to get the effect? *A.*—I don't know.

Q.—Don't all the medical writers who recommend it make that statement? *A.*—I don't know.

Q.—You don't know. Now you say that you have heard from her. When did she go back to Texas? *A.*—Went back in September or October.

Q.—Of 1915? *A.*—1915.

Q.—And do you know what her condition is now? *A.*—She was in Chicago in April, two or three weeks ago.

Q.—And what was her condition then? *A.*—Excellent, excepting that she has some bony changes in joints, which are as irreparable as if she had been born with stiff fingers.

Q.—Is she under the care of a doctor now? *A.*—She has her own home physician, and I don't know whether she goes to him regularly now or not.

Q.—Would you mind giving us her name and address? *A.*—I can give you her name. I can't give you her address in Texas now. Her name is ————————.

Q.—I mean privately. *A.*—Oh, privately.

Q.—Yes. *A.*—I can give you her name and let you know her address.

THE COURT:—All that is necessary is to supply it to Mr. Hough at your convenience, if you will do so.

"VICIOUS OR PERNICIOUS"

Mr. Hough: *Q.*—Doctor, why did you use the word "vicious" in connection with the recommending of Wine of Cardui during puberty and pregnancy?

Mr. Walker:—"Pernicious" I think he said.

Mr. Hough: *Q.*—Did you say "vicious" or "pernicious"? *A.*—In what connection?

Q.—I understood you to say that recommending the taking of Wine of Cardui during the establishment of the menstrual period, or during pregnancy, or during the menopause, I understood you to say was vicious.

Mr. Walker:—He said "pernicious."

A.—I think I used the word "vicious."

Mr. Hough:—Vicious? *A.*—I think I did.

Q.—I am a little hard of hearing, but that is what I thought. *A.*—Yes. And with the purpose in view of giving my opinion that any remedy that is ordered or advised for wholesale use during the puberty, during the period of puberty of young women, or during the menopause, is absolutely wrong, probably detrimental to the health of a lot of people, and therefore I would call it vicious.

Q.—Had any one suggested the use of the word "vicious" to you? *A.*—No sir.

Q.—You had read the article in THE JOURNAL? *A.*—No, I don't think I have seen that word.

Q.—You hadn't seen it. Well, now, was it vicious on—first, is the opinion that a thing is vicious a medical opinion or an ethical opinion? *A.*—Why, I would say an opinion as a humanitarian.

Q.—But not as a medical opinion? *A.*—As a medical opinion—as a qualified medical opinion, yes.

Q.—Now does that opinion presuppose that the drugs in the medicine are absolutely inert and worthless? *A.*—No.

Q.—Is that based on the opinion that the drugs have some potency? *A.*—I would be willing to assume that they had some potency.

Q.—Well, do you know whether those drugs in that quantity have potency or not? *A.*—In the hypothetical question it was stated that they were present in, as I understood it, amount to physiologic effects, but in a small dose, and I would say that the use of any remedies advised generally for the use of women suffering, whether in puberty or any other time — it don't make any difference what the drugs — I don't care what they are—is wrong.

Q.—Well, doctor, assuming that the hypothetical medicine is Wine of Cardui, have you an opinion whether or not it is a potent medicine, apart from the alcohol? *A.*—Upon the assumption included in the hypothetical question—

Q.—Either on that assumption or based on your own knowledge? *A.*—And it was stated in that hypothetical question that the drugs named in it were practically Wine of Cardui, as I understood it.

Q.—Well now, assume that they were Wine of Cardui. *A.*—And I was given to understand that the physiologic effect of those drugs, as named there were certain things—a certain sedative effect on the spinal cord from the viburnum; a certain sedative effect on the organs in the pelvis; that the other ingredient, the carduus benedictus, had a bitter principle, a certain bitter tonic principle. Therefore, as far as those things go, they have a medicinal effect.

Q.—What would be the medicinal effect of the hypothetical medicine? *A.*—Just what is stated in the hypothetical question.

Q.—Well, what would be the effect, so far as the medicine itself is concerned—and eliminating the alcohol as having any effect—on a woman who had amenorrhea? *A.*—I don't think it would have any.

Q.—On a woman who has menorrhagia? *A.*—I don't think it would have any.

Q.—On a woman that has metrorrhagia? *A.*—I don't think it would have any.

Q.—On a girl or a woman who has dysmenorrhea? *A.*—It is a possibility that, given enough of it, that it might have enough sedative effect on the spinal cord, and with the alcohol in it, to relieve the pain.

Q.—I am eliminating the alcohol, so far as the physiological effect is concerned. *A.*—As far as the physiological effect is concerned, it is assumed in that question that it had an effect on the spinal cord. The spinal cord is the path through which pains and other sensations pass to the brain, so that a woman may recognize them. If it had a sedative enough effect on the spinal cord to interrupt those impulses, or the knowledge of pain, it would relieve the pain.

Q.—Would it have any effect on a girl in puberty where the establishment of a menstrual period was with some difficulty. *A.*—I think not.

Q.—And suppose she had pain in connection with the establishment of the period? *A.*—The same answer would apply to a dysmenorrhea or painful menstruation, that it is possible that the drug named, having a sedative effect on the spinal cord, might palliate pain.

Q.—Now is your opinion with reference to the bad effect of giving it at such time based on the effect which you expected the medicine to exert apart from the alcohol, or based on the effect which you understood or thought the alcohol itself would effect or have? *A.*—First of all, I would consider that the alcohol given in that amount to a young girl right along would be harmful, at least with certain individuals, as I explained about the use of alcohol. If used over a long time in puberty, which may be a long period in a girl's life, it may extend from the quick establishment of it to the development over three or four years of time before that girl is rounded out into her full womanhood, and during that period she might be irregular, and to take that amount of alcohol steadily over a long period of time might establish a habit of alcoholism. And certainly in the amount given one cannot say how much irritant effect that would have on the tissues of that girl's body to do her harm. As far as the other medicinal ingredients are concerned—that is a part of the question—I don't think they would have any effect in establishing menstruation.

Q.—Would it have any effect on her at all? *A.*—It might have some sedative effect, as I have explained.

Q.—Would it have any deleterious effect on her at all? *A.*—That I can't answer. I would say this, that any drugging, it don't make any difference if the remedies were not potent, were not harmful—to think of an individual taking the drugs along three or four times a day week after week and month after month, as would be necessary in certain conditions of the development of a girl, would be harmful. A bad habit established; looking to drugs for help, even when they had no effect at all.

Q.—Well, if they were inert, it would be no more harm than taking water? *A.*—No, but it would be taking drugs just the same.

Q.—You mean so far as name is concerned? *A.*—It is a bad habit.

Q.—Well, would there be any other physiological effect, except the habit of taking something which was called a drug? *A.*—I can only assume the physiologic effect named in the question, and if the drugs have that effect, they would continue to have that effect physiologically.

Q.—You mean the sedative effect? *A.*—The sedative effect, unless long continued use of it, habitual use of it, it would finally lose that effect, not react on the individual who was taking it.

Q.—Now which do you think is the greatest danger to the girl, the effect of the drug that is in the hypothetical medicine, or the effect of the alcohol in which it is given? *A.*—I think the alcohol would be the more harmful thing, but as the two were given together, that was beside the question. That is, they are given together, and any harmful effect must be the total bad effect of the whole thing.

Q.—Well, now, neither carduus benedictus nor viburnum prunifolium is regarded as a habit-forming drug? *A.*—No.

Q.—So that if there is no deleterious effect from the alcohol there would not be any serious, objectionable or deleterious effect in giving the medicine, would there? *A.*—Yes, but there will be an ill effect from the alcohol.

Q.—From 48 drops in five times that amount of water three times a day? *A.*—Given indiscriminately and over—

Q.—Well, I am asking, taking it just three times a day for five days, and then stop. *A.*—Probably not.

Q.—And then if it was given at the next period three times a day for five days, and then stopped, would there be any deleterious effect? *A.*—I think not. Maybe or may not. But—

Mr. Hough:—That is all. Thank you.

REDIRECT-EXAMINATION BY MR. T. J. SCOFIELD

Q.—Doctor, just one or two questions. Now in speaking of the effect of viburnum prunifolium and carduus benedictus in this medicine, Mr. Hough asked you as to its sedative effect. The hypothetical question which I put to you concedes a sedative effect when the medicine is given in from 30 to 60 grains or a full dose. Now when you answered as to the sedative effect you had reference to the full doses, I assume, did you? *A.*—I did.

Q.—Yes, sir. And not to the amount of the medicine, approximately 3 grains, contained in the hypothetical question? Is that right, doctor? *A.*—That is right.

Q.—Now if 30 to 60 grains was required in order to produce a sedative effect, would there be any sedative effect—how much of a sedative effect do you think there would be if taken in the extractives from 3 grains? *A.*—There may be a sedative effect proportional to the dose, of course.

Q.—Doctor, Mr. Hough has asked you if a medicine which contains carduus benedictus contained extractives other than cnicin which were active on the womb, whether or not it might be effective. And you answered that in the affirmative. Now, doctor, assume, without knowing what those other extractives might be, assume, doctor, that a woman's abdomen should be opened, and her uterus should be exposed—

Mr. Hough:—I object to this as improper cross. That is direct examination.

THE COURT:—Let him finish the question, Mr. Hough.

Mr. Hough:—All right. I know what he is going to say.

THE COURT:—Yes. Let him finish.

Mr. Hough:—All right, finish the question.

Mr. T. J. Scofield:—Shall I go ahead with the witness, your Honor?

The Court:—You may ask the question for the record, but it is not redirect-examination. It does not cover anything that the cross-examination brought out.

Mr. T. J. Scofield:—I think it is, if the Court please.

The Court:—Let him ask the question.

Mr. T. J. Scofield:—And I will state why.

The Court:—Finish your question.

Mr. T. J. Scofield:—I will finish the question.

Q. (continuing)—And there should be injected into the uterus 45 grains of this preparation containing the extractives that Mr. Hough interrogated you concerning, and that as a result of the injection of that quantity of the solution into the uterus there was not, within the space of ten minutes, any action of contraction or relaxation whatever. Now what would you say as to whether or not the extractives of cnicus benedictus was a tonic, or produced a tonic effect on the uterus?

Mr. Hough:—Now that is objected to.

The Court:—I will let him answer on the theory that it was overlooked on the direct examination.

Mr. Hough:—Very well. Very well.

Mr. T. J. Scofield:—We didn't ask him anything about cnicus benedictus.

Mr. Hough:—If it was overlooked, let him answer.

Mr. T. J. Scofield: Q.—Answer the question, doctor. *A.*—I should say that would indicate that the extractives, or that the virtues of the medicine were not tonic, would not contract the uterus and would not contract the blood vessels.

Q.—Well, suppose that under similar circumstances there was nothing to indicate any sedative effect on the uterus. *A.*—Inasmuch as I understood in the question that no relaxation occurred, that would indicate that there was no sedative effect.

Q.—Now, doctor, Mr. Hough also asked you about the condition of pregnancy, and as to whether or not it was a pathological condition, or frequently so, and he also asked you whether or not your own opinion would be influenced on that proposition by the opinion of others. Now what have you to say about that, explaining fully your views on that subject? *A.*—I said before that I considered pregnancy a physiologic, normal condition. That there were a few exceptions, anywhere from 4 to 10 per cent., in which women developed some disease as a result of pregnancy, and I named Bright's disease, the wrong implantation of the after-birth, and other things. Now there are other conditions that occur that perhaps would make one state that pregnancy was an abnormal condition, or had symptoms connected with it; that is due to the fact that the woman before she became pregnant, and while she is pregnant, is suffering from a constitutional disease. A woman can suffer from tuberculosis, from malaria, from hookworm disease, from typhoid fever, from other things while she is pregnant, and even with these more chronic things like malaria and hookworm disease and tuberculosis which have existed for months, perhaps years before she became pregnant. Now she is an ill woman. She is bodily ill; she is suffering from malaria. She is suffering from hookworm disease. She is suffering from tuberculosis. And she doesn't feel well while she is pregnant, and she may have some abnormal things develop in that pregnancy because she, herself, is not well. Now that occurs to a large extent in some parts of our country. Those who have been qualified to make the surveys show that there is about 21 per cent. of malaria carriers in the south in Tennessee, and in Mississippi, Louisiana and Texas, and through the malarial districts; 20 per cent. of the population are malarial carriers. In Kentucky and in the South beyond that there are something like 30, 33 to 35 per cent. of hookworm sufferers among women and men. You know how prevalent tuberculosis is with us everywhere. And women have those diseases as well as men, and the women become pregnant while they are in that condition. Now that is not a pathological pregnancy, that is a pathological individual who has become pregnant, and suffers in consequence. And the remedy given for any symptoms that she suffers from during that pregnancy has got to be applied to the condition which makes her ill while she is pregnant. She will remain ill as long as she carries hookworm; she will remain ill as long as she has got malaria; she will be more or less ill during her pregnancy if she suffers from tuberculosis, which you cannot remove.

Mr. T. J. Scofield:—I think that is all, doctor.

RECROSS-EXAMINATION BY MR. HOUGH

Q.—Doctor, while pregnancy, of course, is not a pathological condition, most women who are pregnant have a pathological condition, don't they? *A.*—You asked me that question, sir, and asked me if it was not usually a pathological condition.

Q.—Well, but I didn't mean to indicate that pregnancy itself was a pathological condition. *A.*—I so understood it.

Q.—No, I mean whether the woman has not usually a pathological condition while she is pregnant? *A.*—No.

Q.—Never? *A.*—Oh, I have already answered that, that in certain places in the country there are 20 to 33 per cent. of the women that are probably ill, but in our great Northwest and through here, with the 9,000,000 nearly of farmers all over this country, the women bear and they do not need a doctor half of the time.

Q.—Of course in that condition it would not be pathological? *A.*—Naturally it is not pathological.

Q.—Now, in referring to that district, isn't all you could say about that, that that medicine did not act in that case? That would not prove that that medicine would not act in any case, would it? *A.*—Not at all.

Mr. Hough:—That is all.

Mr. T. J. Scofield:—That is all.

The Court: *Q.*—Dr. Billings, you said with reference to reaching the age of puberty that if the menstrual flow established itself at once it was normal. Now do you mean by that that in an instant, or over night the girl becomes a normal, grown woman, or does it begin with the small flow, increasing as the period goes on, and gradually becoming normal? And over what time would you regard the maturity of the girl established, generally speaking? *A.*—Generally speaking, we speak of puberty as a period when the girl changes to womanhood. In some girls that may be rapid, in the change. A girl takes on all of the characteristics of a woman in her breasts, and menstruates, menstruates regularly. It is normal for that girl.

Mr. Hough:—You mean right from the start?

The Court:—What I wanted was—

The Witness:—Now the other girl, just as healthy as that one, will take one year, two years, three years for that womanly development. It is an individual characteristic. It is a familiar characteristic. She may menstruate in that two or three years a half a dozen times; she may menstruate twenty times; she may menstruate regularly. It doesn't make any difference. If she is normal she may have that whole period of development. Now she may have at any time pain, as I have explained to you, because of certain general conditions, because of her environment, of her parentage, of what her surroundings are at home, and what she is doing. We have girls go out here at early puberty, working as cash girls in stores; they are working their heads off, they get bad air, they do not get the proper rest; they may have pain, but that girl is a normal girl. It may be she has got no menstruation, but she is just as normal as the girl that lives on Lake Shore Drive.

The Court:—What I wanted to get at was whether your experience would give any average time from the beginning of the change to the end, the normal beginning to the normal end? *A.*—The normal end of menstruation?

The Court:—No, the change. *A.*—One can only say that it may—

Mr. Hough:—I think the Court means the establishment of menstruation.

The Court:—Yes.

The Witness:—Yes. That may be anywhere from two or three months, or a month, as we would say that begin suddenly, or two or three years or four years. That is the state of puberty, and the menstrual period is not necessarily an index that that girl's sexual organs are not developing properly. That girl, getting married even in that state of puberty, when she may be irregular, is able to conceive although she is not menstruating.

Mr. Hough: Q.—But the normal condition, doctor, in a state of nature, means that as soon as a girl starts to menstruate she menstruates completely? *A.*—Yes, but when you say normal you can hardly use the word as a unit to compare everybody with. There are people that say that none of us are normal mentally, not one of us. That we do not find the perfect individual. So when you say a normal menstruating girl, a girl at puberty, who are you going to set up for the normal?

NUBILITY

Mr. Hough: Q.—Just before you get off the stand, doctor, will you explain to the jury the difference between puberty and nubility? *A.*—And what?

Q.—The difference between puberty and nubility? *A.*—I don't get your last word.

Q.—Nubility. *A.*—Nubility?

Q.—N-u-b-i-l-i-t-y? *A.*—Nubility; you've got me.

TESTIMONY OF DR. H. L. APPLETON

Dr. H. L. Appleton was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. LOESCH

Dr. H. L. Appleton testified that he resides in Gadsden, Ala., and has been a practicing physician for about twenty-four years. He graduated from Vanderbilt University in 1892. He went to Cedar Bluff, Ala., where he practiced eight years, then to Center, Ala., and next to Gadsden. He is familiar with the use of Wine of Cardui. The first case which he described was that of Mrs. A.

A.—Mistress A.; age 26, married, one child. The family history negative. She called on me in the spring of 1909 for consultation. I asked for an examination, after going over her family history, and she refused, but returned, and the examination was made the next day, as I remember it. I found a mass in the lower abdomen which seemed to be about the size of a pint, or between a pint and a quart cup. She was complaining of headache, pain in her back and legs, and scanty menstruation. After getting the history as carefully as I could I advised an operation, which was refused, and she returned to her mountain home, which was about 18 miles from our town. In the fall of the same year I got a phone message to go out on Alabama street, and I found it was the same patient. Her condition was worse. I found her in bed. She claimed to have had a chill, but I found no temperature. I went over the case carefully, and made the bimanual examination. I found the mass had grown larger and her condition was worse. I asked her why she had not returned sooner, and she

said that she had been advised by her friends, and reading of advertisements, to try Wine of Cardui for her relief. She did so as directed on the bottle. She kept it up until I was called in. I asked her if it had done her any good. She said she did not think so because she had grown worse, as she thought, all the while. I again advised the operation, which she consented to after consulting her family, and removed a dermoid cyst—to my recollection it was from the right ovary, the right side, and a part of the left ovary was left. I removed the tube and part of the left ovary. To-day, as far as I know, she is alive and well.

Mr. Loesch: Q.—How long was it between the time of the operation and the preceding time that you had seen her? A.—I don't quite understand you.

Q.—How long a time had elapsed between the time you saw her when the operation was performed, and the preceding time? A.—To my recollection it was just about five months.

Q.—About five months? A.—Yes, sir.

Q.—And during that time she stated she had used Wine of Cardui? A.—She had used Wine of Cardui.

Q.—Did the history indicate that she had used it previous to that time? A.—She gave no history of that time; just between those times.

Q.—Was the dermoid cyst that you removed similar to the one that Dr. McKenna showed here? A.—There was no bone in mine. I don't remember whether he showed—

Q.—There was no bone in yours? A.—No, mine was just a brown, curly hair — a whisp.

Q.—What is your next case, doctor? A.—Number 2, a girl 13 — she gave her age from 13 to 15. She was not positive, nor neither was her mother, as to her age. She was the daughter of what we call a woodchopper.

Q.—A woodchopper. A.—Yes, sir; a woodchopper, and making my rounds I was called in to see her in a convulsion. I relieved the convulsion as readily as I could, and made an examination and found her with a high temperature, quick pulse, and very tender over the abdomen. I asked her for an examination, bimanual examination, which was consented to, and I found an imperforated hymen. I punctured that and I suppose there was about a pint of pus, or a fluid with a very bad odor to it, about the consistency—it looked like coffee grounds, something to that effect, as near as I can state. I found after passing my finger in, following up the canal as far as I could, that it was a contracted canal of the vagina. I dilated that with what is known as a vaginal speculum, or virgin speculum; washed it out with a normal salt solution, hot water, and left some bromid with instructions for her to be brought to town for further treatment as early as possible. She gave a history of never having menstruated, having had pains for two or three years, from, as her mother expressed, the blood flowing to her head, and that was what she laid to the cause of the convulsions. And I asked her what she had been doing, and she said he had been using, among other things, Wine of Cardui. I asked her for how long. She said for some — about eighteen months. And I asked her how long it had been since she took the last of it; if she had a bottle of it in the house. No, she said she hadn't had any, she said she had got a bottle of Wine of Cardui that her husband traded a rattlesnake for. And I suppose that was about two months before that he was in town.

It was brought out that the father of the patient traded a rattlesnake for a bottle of Wine of Cardui.

The next patient was Mrs. S.

A.—Mistress S. told me to see her in a case of hemorrhage, she was having a severe hemorrhage. She was nervous, anemic, yellow in color, cast, and upon a bimanual examination I found the vagina almost filled with a cauliflower formation. The odor was very bad. She was suffering with pains in the head and back, her extremities and the lower bowel. I advised an operation, and the family refused. She passed from under my care, and about four or five months later I was called back to the same patient at the same place, for the treatment for the controlling of another hemorrhage which was more profuse than the one previous. I still insisted on the operation, and asked her why she had not had something done sooner. I told the family that she was beyond my reach, as I considered it. She said that she had relied on the use of Wine of Cardui to relieve the symptom that she complained of, so she had taken it according to the directions on the bottles, for two or three bottles, I don't remember just which, and then increased it, but got no results. They consented to consultation, and she was carried to Birmingham, to the South Highland Infirmary, and what is known as the ——— operation was done by Dr. Prince at Birmingham. As far as I know she is alive to-day. We only promised her from one to three years of relief.

This patient was operated on later in the same year. The next patient was Mrs. B.

A.—Mistress B.; aged 30, married. Called to see her in 1914. Found her in bed, pale, nervous, severe cough, complained of headache, scanty menstruation, had occasionally high temperature, had a hectic flush. When asking for an examination she refused. She said that she did not send for me to treat her medicinally. She only wanted me to treat her for the Wine of Cardui — for laudanum habit which she had gotten into. She asked me to keep—she said her husband knew nothing of her condition, and did not want him to know, and she knew she could not live long, and wanted to die sober. I told her I would do the best I could for her. I put her on treatment, and advised her to leave off the laudanum and the Wine of Cardui, which she promised to do, and she went on and died.

Q.—Now, did she state to you how long she had been using the Wine of Cardui? A.—About a year and a half.

Q.—Did she state how long she had been using it before she used the laudanum with it? A.—No, sir; she was trying to reduce the Wine of Cardui, that is how come it she got into the habit of laudanum.

Q.—She claimed she reduced to one bottle a week with the use of the laudanum? A.—Yes. I asked her how she managed to get it. She said it was bought by a neighbor for her.

Q.—What year was that, doctor? A.—That was in 1912-1913. That was in an adjoining county.

The witness testified that his driver, a man named W. N., would drink Wine of Cardui as a beverage when he could not get whisky. A woman named S. H. he also saw drink Wine of Cardui as a beverage. He also saw a young man named W. W. drink Wine of Cardui as a beverage.

Mr. Loesch: Q.—What year was that? A.—That was 1906. He came in the drug store and asked for a bottle of Peruna. I told him I didn't have it. Then he asked for alcohol, and I told him I couldn't let him have it, as he was a chronic alcohol—

Mr. Walker:—I object to that.

THE COURT:—Yes, strike that out. What we want to know is, did you see him drink the Cardui.

Mr. Loesch: Q.—Yes.

THE COURT:—Strike out everything after he said he came into the drug store.

The Witness:—He split a bottle with a friend of his, and they drank it there, in the drug store; and I have another case, Mr. P——, a painter.

He also saw S. P. drink Wine of Cardui out of the bottle.

CROSS-EXAMINATION BY MR. WALKER

The witness testified that he left Alabama on the 27th day of March, that he has been in Southern Illinois part of the time, and that he went to Southern Illinois at his own expense.

Mr. Walker: Q.—Do you know how you were found to have any information?

THE COURT: Q.—How did you happen to come up here, that is what we want to know.

The Witness:—Well, Judge, I bought a ticket and came up on the—

THE COURT:—How did you happen to come. A.—I came as a witness for the American Medical Association.

THE COURT:—We want to know who asked you, and what were the circumstances.

The Witness: A.—Well, I got a letter from Dr. Heizer.

THE COURT:—I want facts.

The Witness: A.—I paid no attention to the first letter, and I got the second one asking me to meet him at the Detweiler Hotel in Birmingham, Alabama.

Q.—Yes. Do you know how Mr. Heizer got your name? A.—I do not.

Q.—Or how he happened to write to you? A.—I do not.

Q.—Have you got a copy of the letter that he wrote you, the first time, with you? A.—No, sir; unfortunately my grip was went into, and I lost it.

Q.—Was Heizer with you on that occasion? A.—No, sir; there was nobody with me when it was done.

Q.—When did you get the second letter from Mr. Heizer? A.—It was some time in '14, or—

Q.—What? A.—Some time in 1915. I don't remember the exact date.

Q.—Can you give us the date when you got the first one? A.—No, sir; I didn't pay any attention to the first one.

Q.—You didn't pay any attention to that one? A.—I beg your pardon?

Q.—How much time elapsed between that one and the second letter? A.—I couldn't tell you.

Q.—Where did you first meet him? A.—I met him at Birmingham, the Detweiler Hotel.

Q.—Did you go there in response to the letter? A.—My recollection is he asked me to meet him at my office, or in Birmingham, and I replied—I think it was by wire though—I replied that I had to be in Birmingham, and I would meet him there.

Q.—Now then, did you give him, on that occasion in Birmingham, these names that you have testified about here? A.—No, sir.

Q.—Of these persons? A.—No, sir; not all of them.

Q.—Did you give any of them? A.—Part of them.

Q.—Were you then asked by him to look up other cases where people had drank Wine of Cardui? A.—I was not.

Q.—Do you know Dr. Goddard? A.—Dr. who?

Q.—Dr. Goddard. A.—I know of him.

Q.—You and Dr. Goddard had been together while you have been in town? A.—Considerably so, yes, sir.

Q.—And at the same hotel? A.—Yes, sir; under the supervision of a detective most of the time I think.

Q.—Yes?

Mr. Loesch:—And pursued by detectives most of the time? A.—Under the supervision.

Mr. Walker:—I don't wonder that they had you watched.
The Witness:—I am not sure—
Mr. Loesch:—It is about time that the jury finds out they are all watched.
Mr. Walker:—I don't know why you should hire men to watch your witnesses, but I am sure that you may if you want to.
Mr. Loesch:—I don't know who is doing it, but I know we are all watched. And I know that I am not having myself watched.
The Witness:—It was not at my solicitation that I was watched.
Mr. Loesch:—It is not at my solicitation that I am being watched, either.
Mr. Walker:—It might be better if you would do that.
Mr. Loesch:—It might be, that might very well be.
Mr. Walker:—Now I apologize for their putting detectives on to you.
The Witness:—Oh, there is no apology necessary at all.

The witness was then cross-examined concerning S. P. He stated that S. P. drank part of the contents of the bottle and put the bottle in his pocket the first time the witness saw him drink it. He testified that he sold to S. P. a part of the Wine of Cardui which the latter drank. He was cross-examined concerning each occasion when S. P. drank Wine of Cardui. The witness testified that he himself has not drunk Wine of Cardui, but he is not a prohibitionist.

The witness testified that S. H., W. W., S. P. and W. N. are all dead.

Q.—W. N.—the driver that drove for you? The man that used to stop the rig and get out and take a drink when he was driving you, who would stop and get out and take a drink of Wine of Cardui, and then get in and drive you to the next place. *A.*—He never had a family, so far as I know.

Q.—Didn't he use to take a bottle of Cardui, when he was driving, and take a drink, and then go a little further along with you, and then take another drink of Cardui out of his bottle? *A.*—Yes, sir.

Q.—Did he drive you every day? *A.*—No, not every day.

Q.—Over how many years did W. work for you? *A.*—Two years.

Q.—Two years? *A.*—Yes, sir.

Q.—Was it a buggy or a horse or an automobile that he drove? *A.*—Well, sometimes one horse and sometimes two horses.

Q.—Would he drink more Cardui when he was driving two horses than he did when he drove one? *A.*—Well, I did not take any notice of that.

Q.—Well, did you sell W. N. this Cardui? *A.*—I beg your pardon?

Q.—Did you sell him the Cardui? *A.*—No, sir.

Q.—Did he use to get it from your drug store? *A.*—Sometimes. Sometimes in the country store.

Q.—Stop on the way, when you were driving somewhere? *A.*—Yes, sir.

Q.—And get out and get a bottle? *A.*—Yes, sir.

Q.—And come back and get in and drive you along again? *A.*—That is correct.

Q.—Didn't you make any objection to his buying the Cardui from the country drug store, instead of buying it at yours? *A.*—I did not.

Q.—Where was your store when W. N. was alive? *A.*—It was at Cedar Bluff, Alabama.

Q.—The same place, Cedar Bluff? *A.*—Yes.

Q.—Did he die while he was still in your employ? *A.*—No, sir.

Q.—How long after he quit you did he die? *A.*—I could not tell you.

Q.—When did you last hear of him? *A.*—Oh, 19—, somewhere in 1900.

Q.—Where was he then? *A.*—He was at Cedar Bluff.

Q.—The same place? *A.*—Yes, sir.

Q.—Was he married or single? *A.*—He was single.

Q.—Now, your first experience, as I remember it, ever seeing anybody drink it, was in 1894.

Mr. Hough:—'93.

Mr. Walker:—'93 the first? Is that right? *A.*—That is right, 1893.

Q.—W. N. was the first one? *A.*—Yes.

Q.—Now, that is 23 years ago. Well, will you name any human being in any place that you have ever lived in the last 23 years that you ever saw take Cardui as a beverage, that is, alive, or who has a relative alive, that you can tell us of; and give us his name and address? *A.*—I don't know that I can.

Q.—These four dead ones are all that you ever saw drink it, are they not? These four dead ones are all you ever saw take it? *A.*—All I call to mind just now.

Q.—Is your compensation here in Chicago based at all on the number of dead ones you can testify about?

Mr. Loesch:—I object to that.
Mr. Walker:—I am just asking him if it is a fact.
Mr. T. J. Scofield:—That is not a proper question.
The Court:—That is not the way to get at it, Mr. Walker.
Mr. Walker:—All right.
Mr. Loesch:—If you want to make fun of it, that is a little different.
Mr. Walker:—He is not at all amusing to me.
Mr. Loesch:—It must be very amusing.

The witness then stated that he would give to the attorneys for the plaintiff the names of the women to whom he referred, also the names of their husbands and addresses, so far as he is able. He was then cross-examined concerning the case of Mrs. A. and the case of the woodchopper's daughter. He answered in detail questions concerning the various examinations and the pathologic conditions found in these cases. He also gave the names of the physicians who performed the operations on these cases.

The witness was then questioned in detail concerning the case of Mrs. B. He gave her strychnin as a tonic and advised a diet. This patient had tuberculosis but did not wish to be cured of the tuberculosis; she wanted to be cured of the laudanum and Wine of Cardui habit. The witness last saw her husband in 1913.

TESTIMONY OF DR. JAMES W. FENNELL

Dr. James W. Fennell was called as a witness on behalf of the defendants.

DIRECT EXAMINATION BY MR. LOESCH

Dr. James W. Fennell testified that he is a physician residing in Landersville, Ala. He graduated from Birmingham Medical College in 1901, and has been practicing in Landersville since that time. He was called to see a Mrs. E. W. at night and found that she had taken about two thirds of a bottle of Wine of Cardui. The patient feared a miscarriage. She had been taking the Wine of Cardui for three or four weeks off and on and that day had secured a fresh bottle, of which she had taken about two thirds. He stated that she was disgustingly drunk. She was a woman about 25 or 26 years of age. He treated her in 1906.

Another case was that of Mrs. B. He examined her and found that she was pale and anemic. She gave a history of amenorrhea, for which she had been taking Wine of Cardui. She had had a miscarriage the year before and had been attended by an old negro woman. The abdomen was distended similar to the condition in pregnancy. On examination he found the cervix completely closed. He called consultation, the cervix was opened up and perhaps a gallon of an offensive semifluid mass passed off. The patient promptly recovered. This case was seen in 1907. The patient had been using Wine of Cardui five or six months.

Dr. Fennell was called in consultation to see Mrs. S., who had been suffering with pelvic pains for nearly a year, and had been taking Wine of Cardui without improvement. Her family physician told her she had cancer. On examination Dr. Fennell found she had cancer, which was too far advanced for operation. The patient was a woman between 45 and 50 years of age. She had children and grandchildren. The patient died. This case was seen in 1910.

Mrs. J. H. consulted Dr. Fennell in 1902. She was about three months pregnant and had had four miscarriages previous to that time. The previous pregnancies had not gone longer than the fifth month. The patient had been taking Wine of Cardui each time. Dr. Fennell forbade the Wine of Cardui, put the patient under treatment, and she went the full term, and has had four or five children since that time. The patient stated that she had used the Wine of Cardui to prevent miscarriages.

The witness was called to see Mrs. P. B., who suffered with profuse menstruation and hemorrhages. She was weak and had been taking Wine of Cardui for five or six months without relief. On examination he found that she had pellagra from which she died in an insane asylum. She was about 27 years of age, and had been using Wine of Cardui for five or six months.

Miss M. F. was an orphan girl 27 years of age, suffering with amenorrhea, who had been taking Wine of Cardui off and on for years. She took it when she could get money to buy it. She was pale and anemic. On examination he dis-

covered she had hookworm, for which she was treated and recovered.

Mrs. A. L. B. he saw in 1912. She had profuse menstruation with hemorrhages. On one occasion when she fainted Dr. Fennell was called. She had been taking Wine of Cardui to correct this condition for seven or eight months. Dr. Fennell stopped the Wine of Cardui and the patient recovered under treatment.

The next case was Mrs. C. F. She was having convulsions when Dr. Fennell was called. Labor had started and the convulsions were those of puerperal eclampsia. The feet and legs of the patient were swollen. He found that she had been taking Wine of Cardui. On examination of the urine it was found to contain albumin. Dr. Fennell and another physician treated the patient for several days. She became well. The mother and baby both lived. She had been taking Wine of Cardui about six months.

Mrs. H. S., 38 years old, also had puerperal eclampsia convulsions, albuminorrhea and swelling of the feet and limbs. Dr. Fennell saw her in 1903, at the termination of the pregnancy. The patient was saved, but the child died. It had been dead for two or three days, according to the opinion of the physicians.

Mrs. B. C., a colored woman, Dr. Fennell saw in 1910. She had been suffering with convulsions due to eclampsia. She had been taking Wine of Cardui for four or five months. Both mother and baby recovered under treatment.

Dr. Fennell was then asked to describe any cases in his knowledge in which Wine of Cardui had been used as a beverage. In 1904 a man brought his wife to consult Dr. Fennell. They gave the history that she had been suffering with a run down feeling. She decided she had female trouble and had taken Wine of Cardui. At first it seemed to help or relieve her. Later she doubled the dose and finally began to take a third of a bottle at a dose twice a day.

Mr. Loesch: Q.—Did she come to you for treatment for alcoholism? *A.*—She did not know what it was. Yes, she came to me for treatment for whatever was in that Wine of Cardui.

Q.—That is it. Now, tell what you did there. *A.*—And she stated after she got her dose that morning, she and her husband were going to church, and she was not able to go, but he told her they would stop up here and see if they could get a tonic. She got there, and opened the bottle, and took two or three doses before it had the desired effect. And then it had such an exhilarating effect it made her so talkative that it aroused her husband's curiosity, and they got talking over it, and they decided—

Mr. Walker:—She was telling you this, the woman, or her husband.

The Witness:—Her and her husband—and decided she had formed a habit, and brought her to me to treat her for it.

Mr. Loesch: Q.—What did you do? *A.*—I stopped the Wine of Cardui, and gave her some sedatives and bromids.

Dr. Fennell stated that at one time he saw several men drink Wine of Cardui in back of a store.

CROSS-EXAMINATION BY MR. WALKER

On cross-examination the witness gave the names of several of the persons whom he saw drinking Wine of Cardui behind the store as well as other persons.

The witness stated that his father and mother also saw the men drinking the Wine of Cardui. He keeps some drugs, but does not conduct a drug store. He has been a member of the American Medical Association for five or six years. He first heard that a suit had been brought against the American Medical Association when it came out in THE JOURNAL of the AMERICAN MEDICAL ASSOCIATION. He received a letter from the Secretary of the Alabama State Medical Society. There was no letter from Dr. Heizer enclosed. Later the witness received a letter from Dr. Heizer, whom he met in Birmingham. He gave to Dr. Heizer the names and addresses of patients concerning whom he testified.

The witness came to Chicago during the last part of March, remained here a few weeks, returned home, and came back to Chicago again. His expenses are to be refunded.

The witness was then cross-examined in detail concerning the case of Mrs. E. D. and Mrs. M. B., which he described as on direct examination. In treating Mrs. M. B. he gave her syrup of iodid of iron and some quinin in capsules in powder form.

The witness was cross-examined concerning the date on which he treated Mrs. S. He was asked in detail about the cancer growth in this case. He was then asked concerning the date on which he treated Mrs. J. H. and Mrs. P. B. He answered as on the direct examination.

Q.—Now, M. S.—she had hookworm? *A.*—Yes, sir.

Q.—How long did you say she had been taking Wine of Cardui? *A.*—She had been taking it off and on for four or five years.

Q.—For what? *A.*—Four or five years taking Wine of Cardui off and on, irregularly.

Q.—Well, does the hookworm disease last that long. *A.*—It lasts a lifetime, if you don't remove it, remove the cause.

Q.—Yes, it lasts a lifetime, but how long do you die after you get it? *A.*—Some people die with old age, I guess, that have the hookworm.

Q.—You treated the hookworm, and did you say she got well? *A.*—Yes, sir.

He was then asked in detail concerning Miss M. S. and Mrs. C. F.

Q.—Do you know what causes eclampsia? *A.*—It is disputed, Judge. There are several theories. It is supposed to be toxins, faulty elimination, the kidneys and liver failing to do their duty, failing to throw the poisons out, and they remain in the system and cause it.

Q.—The toxic condition coming from the fetus in the womb—isn't that it—from the child? *A.*—No; but where it fails to throw the toxins out — uric acid, and others — I think uric acid, they claim, plays an important part in it.

Q.—Now, did you ever see any one besides these two women with eclampsia? *A.*—Yes, sir; there are a lot of cases of it.

Q.—A lot of cases? *A.*—Yes, sir; a good many cases.

Q.—Those are the two, however, that had taken Wine of Cardui— *A.*—Yes, sir.

Q.—What had the other one taken? *A.*—There are three of those eclampsia cases that had taken Wine of Cardui.

Q.—What had they—you have seen a great many of them where they had spasms in pregnancy— *A.*—They may have taken Wine of Cardui too, and I don't know.

Q.—You don't know that they had taken it? *A.*—No, I don't know that they had—

Q.—If you had a history of Wine of Cardui in any of those other eclampsia cases, you would have given them here, wouldn't you? *A.*—A lot of times I don't take down memorandums—nobody could remember all the Wine of Cardui cases we have in our country.

Q.—If you had a case of eclampsia where the person had been taking Wine of Cardui— *A.*—If I remembered positively that they had—

Q.—If they had told you about it, you would have testified about it here? *A.*—Yes.

The witness stated that he had had seven or eight cases of eclampsia of his own and had been called in consultation with other doctors when they have had cases. The witness could not begin to guess how many patients he attended who had menorrhagia or how many with amenorrhea. He has not had many pellagra cases. He treated Mrs. H. S., who suffered with eclampsia, with veratrum and morphin. Instruments were used and the uterus was emptied. In most of the cases of eclampsia the child died. He has not had a case in which the mother died. He was once called in consultation to a case but before he arrived both the mother and child died. He cannot remember how many patients suffering with pelvic difficulties he has seen altogether. It would be safe to say at least fifty a year and this will be true over the last fifteen years.

Adjournment was taken until May 5, 1916, at 10:30 a. m.

May 5, 1916, Morning

TESTIMONY OF DR. WILLIAM O. KROHN

The court met pursuant to adjournment. Dr. William O. Krohn, Chicago, was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. William O. Krohn testified that he is a physician practicing in Chicago. He received his doctor's degree in Yale, 1889. He then taught for two years at the Western Reserve University, Cleveland, Ohio. He spent a year abroad in various German universities. Returning to this country, he was made senior teaching Fellow at Clark University, Worcester, Mass. In 1892 he became head of the department in the State University of Illinois, which position he held for five years. From 1897 to 1900 he examined patients for admission to the State Asylum at Kankakee. He did two years medical work at Northwestern University Medical School, receiving his degree in 1905. For six years he was medical juror in the Insanity Court of Cook County. He has been clinical instructor in dispensary work at the Northwestern University. His time is largely given to nervous and mental diseases but he also does some general work.

Q.—Doctor, what has been your experience, if any, with reference to the relation between abnormal conditions in the female pelvic organs and nervous affections in woman? *A.*—My experience has been quite extensive in that connection. We find a great many nervous conditions that are traceable directly to abnormal conditions in the pelvic organs of woman, depending in kind and degree somewhat upon the cause, somewhat upon the time that it is existent, somewhat upon whether it is an organic change in structure progressively receding, or growing worse. But we have all sorts of nervous diseases, nervous conditions, resulting from upsets and abnormalities or disturbances in the pelvic organs of woman.

Q.—How are these troubles or conditions treated, doctor, in a general way? *A.*—In a general way you take each nervous disease as it is when it presents itself, as perhaps it may be more aggravated in its symptoms, and the symptoms will have to be alleviated for the time being. But your fundamental, or your ultimate object is definitely to find the cause of a particular disease, and remove that cause. That is, the particular disease, and remove that cause. That is, the cause of the particular disease or of the particular nervous manifestations. When you find the cause, no matter what pelvic condition it may be, you seek to eradicate that in so far as possible.

Q.—As a condition to the further treatment of the nervous condition? *A.*—As an essential prerequisite to the cure of the nervous condition.

Dr. Krohn testified that he has had no experience with cnicus benedictus. He used viburnum prunifolium for a year or two but found that it did not succeed so he discontinued its use nine or ten years ago.

There was then read to Dr. Krohn a hypothetic question similar to that asked of other witnesses. He stated that he had an opinion as to the physiologic and therapeutic value of the hypothetic medicine.

Q.—What is that opinion? *A.*—In my opinion you have described in your hypothetical question an alcoholic bitter; that is, an alcoholic solution, 20 per cent. alcoholic solution, that contains a dash of bitters.

PUBERTY

Q.—Doctor, I wish you would explain what is meant by the term "puberty" in conjunction with the special experience which you have had, if you have had any? *A.*—By "puberty" we mean the developmental change that takes place in the unfolding of the boy and the girl from childhood to manhood and womanhood. More particularly in this connection, I was a director of the work of examining, making physical tests and measurements, also mental examinations and tests as to memory, power of attention and various mental faculties in 40,000 schoolchildren, showing the particular changes that take place at puberty, or pubescence.

More particularly in the girl, we found that this developmental change is characterized by certain periods or lunges of growth, physically first; that this period of growth is an unfolding in a certain definite order; that all children grow in exactly the same order but grow at a different rate, so that we have a different length of time for the period of the female unfolding.

We have at this period certain manifestations of this development. In the first place there are certain changes in contour, in form and in size. The child will shoot up like a weed for a little while, and then he will grow in breadth of chest and depth of chest and then in the contour of the body.

The girl evidences it in the fulness of the breast, and in both boys and girls, there are certain other manifestations. We find certain manifestations that are peculiar to the girl. To illustrate, the establishment of menstruation, which comes on some months, even as long as a year and a half, after the period of puberty has begun to be initiated. This may be established in the course of one month or two months — that is, the menstruation, I mean, may be established in the course of one month or two months or six months or a year or more, but the period of pubescence is a period of development including these physical and mental changes that take place before the establishment of menstruation and certain other changes that take place after the establishment of menstruation.

We have, on the nervous system side, certain peculiarities that are due to this period in its unfoldment. We have the instability, we have the irritability; we have what the Germans call "the period of storm and stress," where these emotional outbursts, these emotional and erratic tendencies show and when certain characteristics assert themselves which are developing in them as they become sexed and which cause them to clash with school discipline, with authority at home and in school and they come in clash with the discipline and they drop school because of this irritability and these conditions that are the result of the reaction of their nervous system peculiar to the period of puberty.

Q.—Now then, Doctor, you have described, as I understand it, the period of time that may be required for the establishment or development of the menstrual flow. But I do not understand that you have stated the length of time that may be required for the establishment or development of puberty itself. *A.*—Puberty in Illinois — that is the result of the measurements on 40,000 schoolchildren, the average time is three years. That varies a little in different latitudes. I am speaking of the girl now. With the boy it takes a little longer to be established and there are some other things, the change of voice and so on, that are included in the puberty period in a boy. But speaking of girls, the average length of time is two and a half to three years in the United States.

Q.—Now, Doctor, have you an opinion as to whether every girl should take such a medicine as I have described to you in the hypothetical question, at the time of puberty? *A.*—I have an opinion; yes, sir.

Q.—Well, what is that opinion, Doctor? *A.*—In my opinion, when we recall that this is the normal, natural, physiological evolution of the growth of the child from girlhood into womanhood; when we recall the peculiar state of unrest that the nerve cells are in; when we recall the particular groups of muscles that are undergoing growth changes at different periods; when you recall the changes in circulation, and in the various functions of the body, leading up to the establishment of menstruation and the settling into the individual's trend and bent afterward, to my mind the prescription or advice of giving such medical contents as you have described in the hypothetical question is absolutely and positively wrongful advice.

It has no basis whatever—no justification and no basis at all for its being given, because of the vast possibility of harm that it will work out; harm, physical harm, I mean, merely physical harm and harm to the nervous system, I mean mentally and emotionally. You have a high degree nervous condition and you give a medicine that is so largely alcoholic in content, you add fuel to the flame in these explosive nerve cells and you start certain nerve diseases that would otherwise be unknown in the life of that individual. You instigate certain abnormalities, certain morbidities and certain deviations from the normal type that would otherwise—a type that would otherwise remain normal except for the giving of such a drug.

Q.—Now, Doctor, are there any special troubles that sometimes occur in young girls at this period, at the period of puberty? *A.*—There are distinct diseases that are characteristic, at least are common to this period, more common to this period than others, and some that are characteristic of this period.

There are certain nervous diseases that attach themselves to this period in the life of every developing girl. There are certain blood states that are peculiar to this period. I might mention chlorosis; I might mention the disease involving nerve tremors; the diseases that are the result of malnutrition in the changes that take place at this period.

The growing girl at this period requires her food not only for relieving the waste of destroyed tissue each day, but has to have material to supply the growth as well. It is a period of most rapid growth in the life of a girl, and because of the instability there are certain nervous diseases that are peculiar to this time.

Q.—Now, Doctor, what is the effect of alcohol as contained in the hypothetical medicinal solution, in these conditions, on the conditions which you have described? *A.*—Alcohol given at this period of instability, at this period of unrest, at this period of storm and stress, cannot help but cause a greater instability and also interfere with the normal functioning of the body that would ensue were there not this alcoholic interference, so that you have certain diseases of an explosive type, certain forms of hysterical manifestations, certain forms of nervous weakness and tremors that are directly ascribable to an alcoholic medicine at this time.

Q.—Now, Doctor, have you an opinion as to whether a medicine, such as I have described, which contains 48 drops of pure alcohol to each dose should be taken by every girl, including the normal girl, at the time of puberty, and that such medicine can never do her anything but good? *A.*—I have an opinion.

Mr. Hough:—I object to that, if the Court please.

The Witness:—I beg your pardon.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. T. J. Scofield: *Q.*—What is that opinion? *A.*—In my opinion, as I have already indicated, the statement that it cannot do any harm is absolutely unfounded in fact, is untruthful in other words and has no basis in medical fact, has no basis in—when we come to understand the physiological organization of the girl, and that, to prescribe that or advise that as a general method of procedure is vicious. It is more than vicious, it is absolutely wrong from a medical and psychological standpoint.

MENOPAUSE

Q.—Now then, Doctor, you have described the period at the beginning of the menstrual development in a woman. Will you kindly tell us something about the end of the menstrual life in a female. *A.*—The period at the end of the reproductive cycle in woman, known as the menopause or change of life, or climacteric, is a period that again is fraught with a host of regressive changes as distinguished from the changes at puberty.

At puberty there is this hurrying up in growth, the impulse to grow and become larger and bigger. It is the growing impulse. In the woman, we have the loss of certain activities, the loss of certain functions. We have coupled with that the reflex effects of that loss or the reflex effects of the inactivities.

So that during this period that obtains from three to five years, that is, the climacteric, the change of life or menopause, you have any possible nervous diseases from headache to forms of unconsciousness; from mere minor pains to convulsive seizures; from merely temporary weakness to complete prostration, the exhaustion diseases; the diseases that are the result of the fatigue poisons; the diseases that are the results of malnutrition and the malnutrition is accentuated because of these modifications that are going on within the organism.

You have all forms of vascular changes, blood circulation changes. We have the hot and cold flashes and we have the spinal symptoms. You have the lead-cap headache at the top of the head, pressing and pressing. The disturbances that are associated with lack of the power of initiation, the inertness that some women have at this period, the

lack of ability to initiate something new. They simply drag along as a result of the nervous modifications of these regressive changes in the organism.

We have of course these changes in the circulation in the pelvic organs, causing changes of circulation in the adjacent viscera, and as a result of that you have a looseness of the intestines, the lax ligaments of the intestines and the liver dropping down, and the abdominal organs and then you have that dropping down of the stomach and intestines and then you have the poisons locked up in the body, the fermentations from the decay of food, and a host of diseases that are attributable to this period and are because of these changes.

Q.—From your experience what would you say is the average length or duration of the menopause? *A.*—The average, did you say?

Q.—Yes. *A.*—From three to five years.

Q.—Have you an opinion, Doctor, as to whether a medicine, such as I have described, should be taken regularly on the first sign of the change of life, and its use continued throughout the whole period. Have you an opinion? *A.*—I have an opinion, yes.

Q.—What is that opinion? *A.*—In my opinion, that is again very wrongful advice. It is wrong as against the woman's own condition, that is, her physical condition. It is wrong in its disguising of the true condition. An alcoholic medicine or preparation, such as you have indicated in your hypothetical question, may make the person temporarily seem to be well, when actually they are not well, and are becoming less and less well, and more and more sick.

And then again, the peculiar nervous depression and the peculiar physical depression that is characteristic of a large number of those cases make the ingestion or the taking in of any alcoholic medicine, or alcoholic preparation, a serious proposition, for, while the momentary effect of the alcoholic preparation would be exhilarating, the reaction is more pronounced in a woman of this type, in a woman at this period, and so, while she may in the course of time, for a moment or a few moments, or a few minutes, as the result of this alcoholic preparation, feel better, she will partake of it regularly—but she will sink down in the trough of the sea further, between the doses, and she will seek to obviate this increased depression that is caused by this form of medication; she will seek to obviate it by more frequent doses, or by larger doses.

Q.—Doctor, I want to read a quotation from the Ladies Birthday Almanac for the year 1907, copyrighted by the Chattanooga Medicine Company. I read from page 9, under the heading, "Untold Misery."

> "Woman. Why let yourself be dragged down, made miserable, sere, yellow, withered, wrinkled and gray-haired before your time, by the pain you think you have to endure. Untold misery is suffered every month by thousands of women for want of the right medicine to help their troubles, Wine of Cardui. Take it and it will help you as it has helped many others in the past 30 years. No matter what the pain, headache, backache, waist pain, bearing down, cramps, colic and so forth, caused by weakness or irregularity of your womanly functions, Wine of Cardui has been proved a successful treatment for their relief or cure."

Now then, Doctor, assuming that the hypothetical medicinal solution which I have described to you corresponds to Wine of Cardui, have you an opinion as to whether the statement which I read to you is true? *A.*—I have an opinion, yes.

Q.—What is that opinion? *A.*—My opinion is that it is not true.

Q.—Why not? *A.*—For the reason that you have listed there a host of groups of complaints of various headaches and symptomatic complaints that you have mentioned there that are due to countless varieties of causes.

If you would put in all of the drugs in the pharmacopeia, you could not in any one solution cure all of those things. It would be impossible to reach and attack all those.

In the second place it is untrue in alleging benefit, because it suggets to women, at a period of life when they are most suggestible, that there is something that will relieve anything that they may have. It first suggests that they have these things, and the suggestion becomes more potent, more forcible as they read it over and over. In fact the psychology of advertising is to list as many as possible and then as they read of these complaints, they find that they have not only one, but they have two or three of these various things, and they are induced to take something at this period when these changes are most pronounced at the climacteric or menopause that will do them harm.

Mr. Hough:—I suggest that that be stricken out, as not responsive to the question. He was not asked to testify as an expert on advertising.

THE COURT:—No, but he was asked why it was his opinion that the statement was not true.

Mr. T. J. Scofield:—That is the question.

Mr. Hough:—The issue in the case is what the medicine will do.

THE COURT:—Yes, and this statement—

Mr. Hough:—Not what advertising might suggest.

THE COURT:—This statement was taken from one of the advertisements of the plaintiff in this case.

Mr. Hough:—The point I make is, that it is not an issue in the case.

THE COURT:—It stated certain things that this medicine would do, as I recall the extract that was read.

Mr. Hough:—And instead of saying that the medicine won't do it, he undertakes to say that that suggestion of a lot of things is one of the purposes of advertising, and that is not responsive.

THE COURT:—That was the opinion of the witness as to why he gave his answer. It may stand, and you may save your point.

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. T. J. Scofield: *Q.*—Now, Doctor, I wish to read to you from the Ladies' Birthday Almanac, for the year 1911, copyrighted by the Chattanooga Medicine Company. I read from page 9.

"Whatever you do, don't be nervous."

The quotation from the Almanac, is under the head of "Nervous Women."

> "Whatever you are, don't be nervous. Nervous people don't live long, they grow thin and tired and irritable, lose sleep, catch cold and other troubles as soon as these ailments attack them and nearly always suffer from womanly weaknesses. To relieve nervousness, take Cardui, the Woman's Tonic. By helping build up the nerves, Cardui helps the rest of the body and health is the result. Are you nervous, weak, irritable, sick? Take Cardui regularly, and you are well. It is harmless. It does not cause a habit. Take Cardui regularly until you are well. It is harmless, it does not cause a habit. It acts gently and naturally, not like a powerful drug, but just like a mild herb remedy, which it is."

Doctor, assuming that the hypothetical medicinal solution corresponds to Wine of Cardui, what is your opinion of the advice given in this quotation, to take Cardui to relieve such nervousness? *A.*—In my opinion, the advice is wrongful and without justification, for several distinct reasons.

In the first place, the statements upon which it is predicated are, to a certain extent, in error; that nervous people don't live long, and certain other things that are absolutely in error; that nervous people are thin. Some of the worst cases of nervous diseases are in fat men and fat women. The premise is wrong to begin with.

In the second place, you have described here what to my mind is a distinct, general—distinct type of nervous complaints which we group under the term or disease "neurasthenia," by which I mean a disease that is characterized by increased exhaustibility, and also by increased irritability. Those are its nervous manifestations.

You will find, underlying those nervous manifestations, certain pathological changes that are distinct and characteristic of neurasthenia. You will find, for example, a process of fermentation going on in the bowel tract. You will find the distended, baggy, boggy stomach, with its fermentation, and with the retained toxins. You examine the urine of such a person, and you find the indican, the product of the fermentations that are going on.

You find that the liver has dropped down, and the ligaments have become lax. You will find that there is a general ptosis, bearing down of all these organs.

Now, the hypothetical medicine that you have described, and which you have characterized as being of the type as was prescribed under these directions that you have read, or the quotation, cannot get at these underlying causes, and cannot relieve the increased excitability, and cannot relieve the increased irritability that is characteristic of the disease.

Q.—Now, Doctor, what is your opinion of the following statement in the same quotation, assuming that the nervousness is due to some female trouble: "Take Cardui regularly until you are well." On the same assumption, what is your opinion of the following statement: "It is harmless, it does not cause a habit." If you have an opinion, state it. *A.*—Yes, I have an opinion. My opinion is this: That it will do harm and that it will tend, in this nervous type that you have described or assumed, that it will tend to the forming of habits.

The taking of any exhilarating remedy, any remedy with alcohol content, or any other exhilarating agent that makes a person seem more comfortable for a brief period, and then the reaction—they slip down and a nervous person will slip down further below the level that they were before they took the medicine—the pendulum swings back further and, as a result of that, they feel a sort of need to get more exhilaration, and they take more medicine, and they keep on taking it because as they take it they are sure to get more reaction in between. To obviate that reaction, they will take it more and more frequently, and you have a habit formed as a result and the harmful effect.

In other words, the harmful effect of such a plan of procedure is such that the person makes their nervous system their enemy rather than their ally. They have a nervous system that drags them down and hinders them and injures them in all of their activities rather than one that helps them and benefits them.

Q.—Now, Doctor, calling your attention to the Ladies' Birthday Almanac for 1913, copyrighted by the Chattanooga Medicine Company, and on page 27 of that book, I read from an article under the heading, "Oh, that headache."

> "Of course headache is only a symptom, but it is a mighty miserable thing to have and, when it becomes a regular visitor, it begins to be a calamity. Wine of Cardui will not act like a nerve deadener to kill the pain of the headache right off, but it goes down to where the real trouble is, and begins at once to remove the cause, the female inflammation, irregularity or other form of womanly disease. In this way, after a few doses, the headache most likely disappears, and, when the real trouble is cured it stops those regular visits. Try the Cardui treatment for headache and other womanly pains."

Now, Doctor, assuming that the hypothetical medicine, which I described to you in my hypothetical question, corresponds to Wine of Cardui approximately, will you let us have your opinion as to whether

such a medicine will cure the real trouble, as stated in this quotation. *A.*—I have an opinion.

Q.—Will you tell us what that opinion is? *A.*—In my opinion the statement is not borne out by the facts at all, for the reason that, in the first place, you have as many as fifteen different causes of headaches. Many of these causes, of course, you can find out from the location of the headache.

That is, we know, if a headache is at the top of the head, that it is due to anemia or excitement or worry. We have also a large number of headaches that are toxic, the cause of the headache is toxic, by which I mean either poisons that are developed within the body from fermentations, autointoxications, or poisons that are ingested with the food, from improperly prepared or improperly cooked food or food that is improperly contained in cans.

You get your generally described frontal headache. You have certain headaches that are due entirely and wholly to eye disease, that is, diseases of the eyeball. You have other headaches that are due entirely to a shortening or lengthening, at least the incoordination of the external muscles of the eye. You have certain headaches that are due to decayed teeth. You have certain headaches that are due to ear disease. You have certain headaches that are inherited with a nervous condition, the migraine headaches and other headaches of that type.

Now the medicine that is advised, the hypothetical medicine and the medicine that is advised in this statement that you have quoted to me about going down to the origin or the seat of the trouble, does not reach and could not possibly reach the larger, perhaps the larger number of groups of headaches which I have listed.

Then there are a host of reflex headaches, due to reflex irritation of the pelvic organs, that would be really accentuated by such a remedy. There are certain headaches, where if you give any medicine that contains the least alcoholic content whatever, they will become more booming, more thumping, more painful, and more excruciating.

Q.—Now, Doctor, I read to you from the Ladies' Birthday Almanac of 1910, copyrighted by the Chattanooga Medicine Company, page 19, under the heading "Can't sleep."

> "When nature is too exhausted for sweet sleep to come and rest the weary mind and frame, take Cardui, the Woman's Tonic. Sleeplessness is usually a sign of tired nerves. It is one of the symptoms of a nervous breakdown, and should have immediate attention. By building up the nerves and womanly system, Cardui soon brings balmy sleep and restores the weary body to fullfledged energy and refreshment. This method of treatment is safer and better in every way than the use of drugs, opiates, bromids, and nerve sedatives. It creates no habit, but gently helps every part of the body to do the work as Nature planned it to do. You cannot fail to get Cardui if you ask for it in any drug store."

Now then, Doctor, on the same assumption, that the hypothetical medicinal solution corresponds to Wine of Cardui, I would like to get your opinion in reference to the statement in this quotation that it builds up the nerves and womanly system, and restores the weary body to fullfledged energy and refreshment. *A.*—I have an opinion, and, in my opinion you have there stated in the first place a more profound form of this nervous disease, neurasthenia, of which I have already spoken.

Now there is nothing in the hypothetical medicine that you have assumed, or the hypothetical solution that you have assumed, there is nothing there that will build up or increase the nervous strength of the individual. It rather operates the other way.

You have a case of profound fatigue in this nervous condition that you have described. It is like whipping a tired horse to make it go a little further, because—to give a medicine that has the alcoholic content that you have assumed, you make it more tired.

Instead of building up, there is nothing in it that will reconstruct. You have not assumed any element in that that reconstructs the tissues, but you have simply given or used a sort of a whip to whip an overfagged, overtired nervous system.

Now fatigue always engenders a poison in the organism. You cannot be fatigued without having poisons develop in the body. The more profound that fatigue, the greater or more intoxicating is the poison. The blood of a fatigued animal will poison another animal if injected into it.

Now, this fatigue that you increase by your treatment by your whipping up will simply cause more destruction of tissue, more destruction of vitality, more weakness and all of those qualities that you have described in the condition of the woman in that quotation.

EXPERIENCE WITH WINE OF CARDUI

Q.—Now finally, Doctor, have you had any experience with Wine of Cardui? *A.*—I have in two instances only.

Q.—Will you please relate your experience? *A.*—The first is a case of acute alcoholism, and it came under my direction as an emergency matter while I was visiting or attending to some of my—well, it was a farm or plantation down South, at Summerdale, Alabama. There was no physician located there. The woman had become very much disturbed and was showing certain marked signs that alarmed a neighbor woman, and also alarmed her own family. I was called in simply as an emergency matter, not as practicing in Alabama, but to afford what relief I could.

I found a case of acute alcoholism. She was drinking nearly an entire bottle of Wine of Cardui in one day and I had to treat her for the acute alcoholism.

Another case was in this same town, a case where a young woman of 23 or 24, evidently without any peradventure of a mistake, suffered from pellagra, and had been taking Wine of Cardui for three or four months, on the idea that it would build her up, and the Wine of Cardui had at least some—the habit of taking it, and the continued taking of it, and her faith in it for the time being, had obviated the treatment that she should have had in all those three months, to build her up and to obviate the actual fundamental effects of the disease.

Mr. T. J. Scofield:—I think that is all, Doctor.

CROSS-EXAMINATION BY MR. HOUGH

Dr. Krohn was cross-examined in detail concerning the time when he first began to practice and the various positions which he had held since that time, which he described as in the direct testimony. He testified that if he had a case which required gynecologic treatment, he would turn it over to a gynecologist. In prescribing viburnum prunifolium he used the fluidextract. This he did in certain functional disturbances of the pelvic organs associated with certain nervous conditions. The results were unsatisfactory. He used it about a year and a half in fifty-five or sixty cases, covering the years from puberty to the menopause but not the whole range of female troubles. He feels that he gave it a sufficient trial to justify his conclusion that it was not therapeutically active. The longest period of time in which he used it was about eight days in the same individual and twenty-four days within a period of three months, given three times a day and two teaspoonfuls at a dose. When he gave the drug he expected to get the effect of the whole prescription and did not consider the question of the alcohol. He does not know whether the alcohol had any deleterious effect.

Q.—If a doctor gives a medicine, or prescribes one, which has three or four different ingredients, he expects that each ingredient will have some definite action, don't he? *A.*—No, not necessarily, because there are certain aromatics and certain menstruums and so on that are in the preparation. They are not all—

Q.—You mean you consider the alcohol in this purely as a menstruum? *A.*—No, I did not. I thought it was preservative of the drug and extractive, perhaps. That is my impression now. I don't know really what I thought about it, ten years ago. I know I did not think very much of the medicine, but what I thought about it, I do not know.

The patient to whom the viburnum extract was given as described is now alive. She did not get well of her pelvic trouble. The nervous trouble was corrected in about four weeks. The patient was a young woman, 20 years of age, a patient at Mercy Hospital, now residing in California. Dr. Krohn treated her in 1906. He did not in any case continue the viburnum more than a week. He cannot remember that he used it through a menstruation period. He did not figure how much alcohol the patient was getting.

Dr. Krohn was asked what medicines he used that were better than viburnum prunifolium when he abandoned it. In menorrhagia he found fluidextract of ergot better. In dysmenorrhea he secured better results with cannabis indica.

Q.—When you defined puberty, don't you think you confounded it with pubescence? *A.*—Puberty and pubescence are the same thing, sir. The period of puberty and the period of pubescence are the same, though the term "pubescence" is used oftentimes in contradistinction to adolescence or senescence and is given a wider latitude, but really they mean the same thing.

Q.—Isn't puberty, properly speaking, simply the establishment of the menstruation? *A.*—Not at all, sir; no more than the mere change of the voice of a boy is the establishment of puberty or the growth of hair on certain parts of the body is the establishment of puberty.

Q.—Wouldn't you say that the completion of the establishment of menstruation has been called puberty? *A.*—I might say that it might have been so called, possibly erroneously so called, but puberty is, as I have defined it, the whole period of developmental change with all the incidents that occupy the time of this change from girlhood to womanhood and from boyhood to manhood when these nerves and organs are making their rapid growth and the groups of muscles, the canalization of the heart is changing, the blood changes and all that is included in the term "period of puberty."

Q.—You say, then, that the period of puberty could never be limited to one month or two months, or even three months? *A.*—The period of puberty can never be correctly limited to one month or two months or three months.

Q.—What do you mean by "correctly limited"? *A.*—Because it would be a misuse of the term "period of puberty." It is impossible for all the changes that are included in the term "puberty" to take place in three months, or to take place in one year.

Q.—Would you not say that puberty is the appearance of the menses, or menstruation, and that when that is established, that covers puberty? *A.*—Not at all, sir. As I have sought to answer explicitly before, that is not at all the meaning of puberty.

Q.—Is the definition of puberty a matter of individual opinion or is it based upon the definition given the term in medical works? *A.*—

It is based upon—by "period of puberty" you mean to include the changes that take place at this period. Now then, to take your question a moment before and we apply puberty to the boy as well, and "puberty" if it meant only the establishment of menstruation—we would have to have a male term and "puberty" would be the female term. But puberty means all of those changes that take place at this time.

Q.—But when you use the term as applied to the female, don't it relate to the establishment of the menstruation? *A.*—There is no warrant in the world, Mr. Counsel, for making it a more limited term in the life of the girl than in the life of the boy, so far as the time element is concerned, because it includes, in addition to the changes peculiar to sex, it includes also the same changes that take place in the boy.

Mr. T. J. Scofield:—Doctor, won't you turn a little more this way, so that we can hear you.

The Witness:—I was getting interested in the question, that is all.

Mr. Hough: Q.—Would you say that this definition is correct or incorrect: "The age at which"—under the term "puberty"—

"The age at which the reproductive organs become functionally operative. It occurs between 12 and 17 years of age and is indicated in the male by change of voice and seminal discharge, and in the female by the occurrence of menstruation."

Is that an incorrect definition? *A.*—That is not technically a definition of puberty at all. I do not think as you read it, really, it defines puberty. I wish you would read it again, sir.

Q.—"Puberty, the age at which the reproductive organs become functionally operative." *A.*—There is the point, exactly, Mr. Counsel.

Q.—Wait till I finish. *A.*—Oh.

Q.—"It occurs between 12 and 17 years of age, and is indicated in the male by change of voice and seminal discharge, and in the female by the occurrence of menstruation." *A.*—Now, if you analyze that definition yourself, Mr. Counsel, you will see that it is the period at which such and such takes place, and it is indicated—that is, the expression of puberty in the boy is so and so, and the expression of puberty in the girl is so and so, and as you read that language, as I understand the way you read it, it does not mean what you are trying to have me say it means.

Q.—Do you make a distinction between "at the period of puberty," and "during the period of puberty"? *A.*—No. A distinction can be made. At the period of puberty and during—

Q.—Not "at the period of puberty"— *A.*—Well, at puberty means at the period of puberty.

Q.—Then you make no distinction between those two expressions? *A.*—Not as a general proposition, no.

Q.—May menstruation be established in one or two months' time? *A.*—Menstruation?

Q.—In a girl? *A.*—Menstruation itself, yes, may be established in a short time.

Q.—Well, when menstruation has been established, isn't that the end of puberty? *A.*—It is not. It is simply a sign that puberty has gone so far, that the menstruation is established, but it is not complete, it has not completed itself.

Q.—Is nubility a part of puberty? *A.*—I do not know what you mean by "nubility."

Q.—You do not know what nubility is? *A.*—I heard of it yesterday for the first time.

Q.—You never read it in any of the medical books? *A.*—Oh, I never recognized—I have never recognized the word as you have given it; no, sir.

Q.—Have you ever read Dr. DeLee's book? *A.*—Which book?

Q.—"The Principles and Practice of Obstetrics"? *A.*—No. I read his original manuscript, however, the notes of which that book is the outgrowth, that is, the typewritten copy some years ago.

Q.—Did you ever read Dr. Webster's book, J. Clarence Webster? *A.*—No, I have not read much gynecology of recent years.

Q.—At any rate, you do not know what nubility means? *A.*—I have so stated.

Q.—Well now, in common parlance, isn't "puberty" used as referring to the establishment of the menstrual period? *A.*—Common parlance—you mean among the mass of people that have to do with children?

Q.—Yes. *A.*—No, it is not so used. Every schoolteacher knows better.

THE COURT:—Is it not generally understood by the laity that when a young girl begins to menstruate, that she has reached the age of puberty?

A.—Yes, she has reached that age, your Honor. But I did not so understand the Counsel's question.

Mr. Hough:—Now, no matter what might be said in any advertisement, a girl is not likely to take any medicine at that period, unless she has some symptoms, which she regards as painful or distressing, is she? *A.*—Well, she is not likely unless—this is what would happen naturally; a girl at that time has all sorts of erratic symptoms, chiefly nervous, however, and her mother or guardian or friends, or some neighbor will say, "Why, such and such is good for it," and they take it or send for some of it, and they get the directions that it is very good, cannot do anything but good, can do no harm, and that it is of great benefit.

Dr. Krohn stated that if the patient went to a physician he would give her medicine if medicine was indicated; if there was malnutrition or anemia certain drugs would be prescribed. In chlorosis, drugs are given to increase the volume of blood and to increase the oxygen carrying capacity of the corpuscles. In anemia due to the result of hemorrhages, blood transfusion may be indicated. In other anemias, beefsteak, lettuce, spinach and green vegetables containing iron might be given.

Q.—You mean you don't give medicines now as a rule? *A.*—I did not so state, but I say I would try to give the medicine in a way that would cause the least change of program in that girl's life. In other words, I never like to impress a pubescent girl with the idea that she is sick, or is an invalid, because at this stage she is so impressionable, and so I like to make my remedial agencies fit into her daily life and program.

Q.—One moment. When you give a diet that way, you don't call that drugs, do you? *A.*—I said remedial agency.

Q.—I asked you, did you ever give drugs for those conditions, drugs by the mouth? *A.*—I have so stated, and I say, in addition—

Q.—I am not asking you anything in addition. *A.*—I thought you said you wanted my entire treatment.

Q.—Do you give drugs by the mouth for any of those conditions? *A.*—Yes.

Q.—What drugs? *A.*—I have already stated that I gave bromid of gold and arsenic, I have already stated that I gave iron, I have already stated that I gave magnesium sulphate, and I think almost any of the salines increase the volume of blood.

Q.—Have you at any time ever given any of the fluidextracts to a girl at puberty? *A.*—No, not for anemia.

Q.—Have you for any purpose? *A.*—I thought you were still talking of anemia. I do not recall any specific fluidextract that is specially given at that period.

Q.—I don't mean whether you recall any that is especially given. I say, have you ever given any at that period? *A.*—Oh, yes.

Q.—What have you given? *A.*—As I stated before, I temporarily gave this fluidextract of viburnum for a year or so to certain pubescent girls. I have given, as I said before, the extract of cannabis indica for certain other conditions. I have given—if at the puberty period they would have certain congestion of the lungs and so on, there are some of the fluidextracts in the loosening cough mixtures that I would give. If a heart tonic were indicated—the mere fact that she was at puberty would not put her outside of the domain of receiving proper drugs for that condition.

Q.—You did not consider it dangerous when you gave her that drug, did you? *A.*—Gave her what drug?

Q.—The drug which you say you gave. The fluidextract of viburnum among other things, and other drugs containing alcohol, you did not consider that you were doing a dangerous thing for the girl?

A.—No, not for the time, and in the amounts I gave them, as I said. Six or eight drops of cannabis indica for four or five days, and the other medicines for a few days. I did not consider that I was working any harm.

Q.—You know that cannabis indica is indicated as a habit forming drug, do you not? *A.*—Not in the time I gave it.

Q.—Without reference to the time, it is indicated as a habit forming drug, isn't it? *A.*—It is a drug that is used habitually by certain people.

Q.—Well, it is hasheesh, isn't it? *A.*—Not exactly, but here to explain myself—

Q.—Why don't you answer whether it is indicated or is not indicated as a habit forming drug? *A.*—I am trying to answer.

Q.—Well, answer "yes" or "no"? *A.*—It is not indicated in the way I gave it, and under my directions. In the first place—

Q.—You mean then, that a habit forming drug, a certain drug might be habit forming, if given by one person, but as given by you, it would not be habit forming? *A.*—If you will let me complete my answer—

Q.—Just answer that question. *A.*—that last question will not be necessary.

Q.—Just answer that. Do you mean to say that a drug would be habit forming if given by somebody else, but if given by you, is not habit forming. *A.*—I did not so state, and I do not intend to so state. What I mean, if I may explain—

Q.—Go ahead. *A.*—is this: in giving cannabis indica, the fluidextract, the maximum dose of eight drops for four or five days, the patient not knowing what it is, not knowing what the solution is, or what it contains, and not having the solution that is accessible to them, or that they can give any definite amount of, and giving it under the restriction I was, or that it would be given, in the first place only enough of it prescribed, only enough of it given for that case, and for that particular instance, and no one knowing what it is, that is being given them or that is giving them the effect of freedom from pain, there is no way in the world in which they could increase the use of it, because it is properly safeguarded in the way it is being administered.

Q.—That is just lately that it is being properly safeguarded, isn't it? *A.*—I do not think so. I have always properly safeguarded it in my method of giving it.

Q.—It is known as a habit forming drug, is it not? *A.*—And I repeat that it has been used as a habit forming drug.

Q.—Is it not a habit forming drug? *A.*—It has the possibility of being a habit forming drug when it is given promiscuously, without restriction and without any safeguard whatever as to amount. To give it to your little pubescent girl, and say "Now here is some cannabis indica, now take it," and give her a whole lot of it—then she can take it more, and more and more. But that is not the way you give it. Cannabis indica, as I give it, is not a habit forming drug because of the method of my giving it.

Q.—Referring to this habit forming drug, you mean the cannabis indica, and not the alcohol? *A.*—Well, the alcohol in eight drops of cannabis indica—

Q.—That is mostly alcohol, isn't it? *A.*—Well, if it were all alcohol, I would not consider eight drops of alcohol given at the most three or four times in any one course of illness, would be considered in any sense as a habit forming drug, as part of a habit forming picture, or of a deleterious picture.

Q.—You have given as much as eight drops at a dose of cannabis indica? *A.*—I have, yes.

Q.—Don't you know that that is regarded as a dangerous dose? *A.*—I know that it is not regarded as a dangerous dose.

Q.—Is it not so marked, as a dangerous dose, in the pharmacopeia? *A.*—It is a dangerous drug, but you don't give eight drops at the first dose, as a rule, unless you know your patient; but the dose is anywhere from three to four or five to ten drops.

Q.—How many drops of alcohol at one time would you regard as a dangerous dose of alcohol? *A.*—I don't regard—

Q.—I mean, diluted with five times the amount of water? *A.*—I don't regard, in terms of drops, using the term "drops" as you seem to indicate, that any drop dose of alcohol was a dangerous proposition, unless you would run it up into the hundreds or scores or thousands of drops. Then you would get to the danger point.

Q.—If you should take 48 drops of alcohol— *A.*—In one dose?

Q.—and add five times the amount of water, so that you would have a tablespoonful of liquid, would you regard that in one dose, as a dangerous medicine or drug? *A.*—In one dose? Not necessarily.

Q.—Then you did not mean what you said on direct examination, that giving any medicine with alcohol in it was dangerous? *A.*—I meant exactly what I said on direct examination, and everything that I said.

Q.—Do you now say that giving any medicine—giving any person any medicine which contains alcohol is dangerous? *A.*—If you give it as medicine, as giving medicine as ordinarily employed, giving more than one dose. If you restrict it to one dose, then I would accept your corollary.

Q.—Suppose a patient comes to you, and you give them medicine to be taken three times a day, which contains as much as 48 drops of alcohol with other things, would you consider that you were giving them a dangerous medicine, or that it was an improper thing? *A.*—I would, if I gave them a pint or a quart of it, I certainly would.

Q.—I am talking about the first dose. *A.*—Just the dose, one dose, I would say 48 drops of alcohol—I would not think that giving it in that one dose would be a dangerous proposition.

Q.—Suppose you would give them that same medicine every four hours for four or five days. Would you consider that dangerous? *A.*—I would not give it.

Q.—You would not give it? *A.*—No, sir.

Q.—What is the largest amount you would give them for as long a period as four or five days? *A.*—It would depend entirely on the patient. If it were an old drunkard that I was treating for some disease, I would have to put more alcohol in it.

Q.—We are talking about a girl at puberty, and I am confining myself to that. *A.*—I did not so understand you.

Q.—What is the largest amount of alcohol by percentage which you would consider safe to give a girl during that period, if you were going to keep up the treatment for as long as five days at a time? *A.*—The largest amount I would give would be the least amount I could possibly give, and give the remedy that was indicated.

Dr. Krohn then stated that he is familiar with the drugs that fall in his own line; that he knows that there are drugs in the pharmacopeia that contain more than 48 drops of alcohol per dose, but they are not given without prescription. He then testified concerning the quantity of alcohol received by the patient to whom he prescribed viburnum prunifolium for eight days in the various dosages given. He gave the drug on the assumption that it would do good.

Further hearing of the case was adjourned until 2 o'clock of the same day.

May 5, 1916, Afternoon

TESTIMONY OF DR. WILLIAM O. KROHN (*continued*)

Dr. William O. Krohn resumed the stand for the defendants.

CROSS-EXAMINATION BY MR. HOUGH (*continued*)

Dr. Krohn stated that he might give a different medicine for malnutrition at puberty than what he would use in cases of chlorosis or anemia. He defined the difference between malnutrition and anemia. He stated that the words "at the time of puberty" and "during the period of puberty" would mean the same thing unless qualified. He would say that puberty is not pathologic, and that the processes which occur at puberty are not pathologic although certain individuals may have pathologic processes. Pain may occur but is not necessarily pathologic. He could not conceive of any condition in which viburnum prunifolium or drugs of this class would be indicated for anemia at puberty. Medicines may be used during puberty for pathologic conditions.

Q.—For what conditions would medicines—or is medicine ever given by yourself, or the doctors, that you would not consider are pathological? *A.*—Well, I would say, for example, there are certain times when a laxative is indicated; the condition is not pathological, in the sense that there is any disease or a disease element; but you wish to avoid pathological conditions arising, and you discount them by treating them in advance. There might be some congestions—some that we would require to prevent pathological conditions arising. There are certain congestions. There might be certain nervous indications of an oncoming pathological condition that you can obviate by a little treatment. You can prevent the full explosion of a possible disease focus.

Q.—There is such a thing then as preventive medicine, is there? *A.*—There is distinctly so, yes, sir.

Q.—And is that ever practiced in case of girls at puberty? *A.*—Yes.

Q.—That is, to prevent something that might happen? *A.*—It is to prevent something that you think is likely to happen, if you don't interfere.

Q.—What class of medicines would be used for that purpose as preventive medicines? *A.*—It depends entirely on what the conditions are in each individual case. There is no general medicine that you can prescribe for any period or for any sex or for any age; but you have to take up each individual, each distinct diseased condition as it presents itself.

Q.—When you were using viburnum, did you use it for any such condition as that, as preventive medicine? *A.*—No, I do not think so. I used it largely on its reputation; I used it as an entirety, a medicine that was expected to do certain things.

Q.—Have you ever used preventive medicines for girls at puberty? *A.*—I have so stated—yes.

Q.—What medicines have you used? *A.*—Well, it depends entirely again on what condition is presented at first. There are certain conditions that are due to stagnation of the intestinal tract. There are certain conditions that are due to improper habits of sitting and dressing, which require a certain stimulation; the result of methods of living have to be corrected, in order to make their puberty life normal, animal development.

Q.—Now, what medicines have you used for any of those conditions? *A.*—Well, as I have stated, if a laxative was indicated, I would give the best one that is appropriate at that period; saline laxatives, with perhaps iron, if there is any indication of chlorosis—if the blood examination showed any anemia—

Q.—Outside of laxatives, what medicines have you given? *A.*—If it was a congestion due, say, from functional retardation—

Q.—Now, one minute. You are talking about preventive medicine? *A.*—Yes; and to obviate—

Q.—That is where no pathological conditions exist? *A.*—I understand.

Q.—Yes, all right. *A.*—But there are nerve signs, or other signs that a pathological condition may be imminent, and in order to prevent its realization, then you meet the condition.

Q.—Now, there are symptoms, I take it, which suggest the use of preventive medicines, are there? *A.*—Symptoms, or signs, physical signs.

Q.—What would you call the symptoms or signs? What would they usually be? *A.*—They would be—they might be one of many things, or might be a group of many things. If, for example, you find as one sign, the school headache, a typical disease entity; as another sign you would find lack of—well, a sort of stasis, because of lack of proper exercise; the enforcement of certain conditions—or, as you take it in these girls that work in the stores in unhygienic surroundings, you have to assist by supplying the thing that is called for. We have signs that this girl is becoming pale, that she is becoming tired easily, that she has a certain type of headache, that she has a certain muddiness of the skin, that she has a certain paleness of the lips, that she has that greasy white tongue; all of these things are signs or indications that something should be done to prevent the girl from becoming a less efficient wage earner.

Q.—And viburnum has been, in the past at least, a very common remedy for that condition, hasn't it? *A.*—I don't know of any case where it is a remedy for that condition.

Q.—Don't you know that it has been very generally used in that condition? *A.*—I do not know it.

Q.—Have you ever been connected with any girls' schools? *A.*—Yes.

Q.—Don't you know that it is always kept and given there? *A.*—I do not know that it is.

Q.—Don't you know that Hayden's viburnum compound is? *A.*—I do not know that it is. I do not know—I know that where I was associated, at any rate, it was not in evidence.

Q.—What schools were you associated with where there were girls at puberty—the age of puberty? *A.*—Well, I had charge of the examination of physical condition of the students that were indulging in gymnastics, et cetera, at the Hyde Park High School in this city; and one or two of the district schools in my vicinage; and also at Cleveland I had some work in that connection.

Q.—Was there a medical department in connection with these schools? *A.*—You mean a medical man—

Q.—Or a medical woman who dispensed drugs to girls who needed it for the purposes we have been talking about? *A.*—Not so much drugging, as proper advice and reference.

Q.—Is there not a medical department in connection with large stores in which they dispense medicine? *A.*—There is, yes.

Q.—And don't they always give the viburnum in some form? *A.*—I don't know that they do. I do not know.

Dr. Krohn has not been connected with any school in which there are dormitories for girls. He was connected with the

medical department of Northwestern University and not with the College of Liberal Arts. The latter has a medical department but he does not know that they dispense drugs.

The menopause is frequently attended with pathologic conditions but it is a normal condition.

Dr. Krohn has used pulsatilla but he did not prescribe it for women. He has also used cimicifuga. He testified that alcohol is always a physical exhilarant in the initial stages. The reaction is one of depression. A large enough dose of a sedative drug in an alcoholic solution would counteract the effects of the alcohol. He used remedies as combined and noted their final effect, without reference to the percentage of alcohol.

Dr. Krohn was then cross-examined in detail concerning the case which he saw at Summerdale, Ala. He does not know whether the husband of the woman is still living at that place. He still owns property in that vicinity. He was last there in March, 1914.

He testified in detail concerning the incident in which he saw this woman. She was in a state of confusion and delirium when he first saw her and began to show signs of coherency and clear perception about six hours afterwards. The history of the case was given to him in part at each of his four visits. The husband of the woman told Dr. Krohn that she was a "Cardi Fiend." Dr. Krohn saw a Cardui bottle in the room; there was about an inch of fluid remaining in the bottle. The room was 12 feet wide. There was no carton on the bottle. Dr. Krohn believed that he could not have been mistaken. The patient stated that she had not taken any Cardui for some weeks before but she felt she had to have it; procuring it, she took more than she should have taken. The patient stated that she had not been drinking anything else for about a month prior to this time. She had taken the contents of the Cardui bottle with the exception of the fluid that remained, in ten hours time. He knew what was meant when the husband of the patient called it "Cardi" as he had heard it called that by other natives in the same district.

The patient was not well when Dr. Krohn left as she had nausea and vomiting but she was beginning to take nourishment without regurgitating it.

Q.—Now, would you say that that amount of this hypothetical medicine, containing 20 per cent. of alcohol, taken through a period of ten hours, would produce delirium in a person who was normal? *A.*—Well, it could and would in some individuals. It would not in every individual. It would not in the vast majority; but there are those who have such little toleration of alcohol, taken on an empty stomach, that it would.

Q.—Well, let us take a woman who had not had any alcohol for a month, would you say that amount would produce delirium? *A.*—Yes, it would in an impoverished person, a hungry person, a person without food in the stomach—it would do it—could do it in a great many cases.

Q.—Did you ascertain that she took no food during those ten hours? *A.*—I know this, they had no money for food. I know, as a matter of charity, some of us people bought food, and I know the women of the town were supplying food to this woman who spent her money for Cardui.

Q.—How much money had she spent for Cardui? *A.*—I know she spent for that one bottle, that is all I know.

Q.—How much was that, one dollar? *A.*—That was the information they gave me.

Q.—That is, one dollar for Cardui in one month—is that the only money they had? *A.*—Only that one day.

Q.—But they had not had any for a month before that? *A.*—They had not had any dollar before that.

Q.—That is what I say, they had not had but a dollar for a month—you ascertained that, did you? *A.*—I ascertained from the history that that was the first she had had for a month.

Q.—The man was working in the turpentine camp, all the time? *A.*—No, it was not the turpentine camp; as I stated—the man was working for this laboring crew that were gathering these fat stumps, and shipping them to this turpentine factory.

Q.—At any rate, he was working steady? *A.*—Steadily, as work was offered.

Q.—Was he a white or black man? *A.*—White.

Q.—How many children did they have? *A.*—Four.

Q.—And what was his name? *A.*—Well, I have been trying for the last two minutes to think of the name. I think I can secure it for you.

Q.—Well, Doctor, you have known for quite a while you were going to testify to this? *A.*—No, I did not.

Q.—You didn't? *A.*—No.

Q.—Did you try to think of it before today? *A.*—Well, no, I had not thought especially with reference to the name, it is simply the incident that impressed me. But, as I said, Mr. Counsel, I think I can secure the name for you, and be very glad to supply it to you.

Q.—When did you first think of referring to this incident? *A.*—Why, I had not thought of referring to it—I simply—it made an impression upon me at the time, and I think perhaps this morning a little discussion as to the testimony of some of these southern physicians as to what Cardui had done in certain instances—I simply spoke of one or two instances in which I had seen it.

Q.—Did anyone go there with you? *A.*—There were ladies of the neighborhood, or the village that took food there.

Q.—You mean at the hotel? That took food at his place? *A.*—Took food to—from the hotel to this cottage home. A little girl came over and asked for food first—that is the first that we knew they were in poor circumstances—they asked for food three or four days before this incident.

Q.—Do you know the name of the little girl? *A.*—Her first name?

Q.—Yes? *A.*—No, sir, I don't believe I do.

Q.—Is there a doctor in that place? *A.*—There was no doctor there; and I believe there is none there now.

Q.—You did not go there prepared to practice? *A.*—I have already stated I was simply there on a business trip.

Q.—Where did you get the stomach pump to pump out the stomach? *A.*—Well, that was not a real stomach pump. It was one that I improvised.

Q.—Well, what did you improvise? *A.*—I improvised a rectal tube in the end of a funnel.

Q.—But you said you used a stomach pump, didn't you? *A.*—Well, it was a stomach pump for that day, and that night.

Q.—Now, just how did that work? It was not a pump at all, was it? *A.*—It was a stomach pump, yes, sir.

Q.—How did you work it? *A.*—Filled the siphon full of water, with soda in it, and held it up, after I pushed this tube down and held it up, after it was filled full, turned it over and the contents of the stomach ran out.

Q.—That is you— *A.*—Siphoned it out.

Q.—You mean you sucked it out? *A.*—Siphoned it out.

Q.—How did you start it? *A.*—As you start any siphon. You have a tube full of water, and then let go of it, and it runs right out.

Q.—Well, you have got to have the receptacle from which the liquid is drawn higher than the highest point of the tube, don't you, to siphon it out? *A.*—Well, that is easy, if the person is in bed, you can put the end of the tube on the floor where the basin is.

Q.—And lift her up? *A.*—No; you do not have to lift her up; just lift the tube down on the—

Q.—But it has to come out of her mouth, doesn't it, so that the mouth must be lower than the stomach? *A.*—No. You can bring it right up from below, it will come up through the mouth—

Q.—Quite right, but when you do that, you have got to start to suck it, haven't you— *A.*—No.

Q.—to get it up there? *A.*—You are mistaken.

Q.—Do you do anything of that kind? *A.*—I said I did not, and it was not necessary. You don't have to.

Q.—That is, it will run uphill first, by itself, and then run down? *A.*—It will run out on the floor, and run out in the pan.

Q.—Now, what else did the man tell you about how frequently his wife had gotten drunk on Cardui? *A.*—There was nothing else as to any frequency.

Q.—Just one time? *A.*—Yes, sir. He was simply alarmed about her condition at that time.

Q.—Now, what was the name of the company for which he was working? *A.*—I say, I think that he was working for individuals who took contracts like—probably one man who had a team would take a contract to haul out so much, to haul at so much a cord, haul this fat wood from the pine woods and pine stumps. That is the way it is usually done there. There is Pete Johnson—and four or five fellows that had teams that would hire these men to gather these stumps.

Q.—Did this man work for Pete Johnson? *A.*—I do not recall.

Q.—What was the name of the—any of the ladies who took food to this family? *A.*—A Mrs. Barnes.

Q.—What Barnes is that? *A.*—Mrs. A. B. Barnes.

Q.—Do you know whether she lives there now or not? *A.*—The last I heard of them they did. She was there.

Q.—Did she have a husband? *A.*—She was in New York last summer with her little child — at Montclair, N. J.; but her husband was still living there. He was the superintendent of the tobacco plant, and I think she has returned there, after the summer's heat was over.

Q.—You mean the tobacco plant near there? *A.*—Sir?

Q.—You mean the tobacco plant where? *A.*—The tobacco plant is at Summerdale, that is the warehouse of the tobacco company.

Q.—What were the names of the other ladies? *A.*—Mrs. Francher and Mrs. Barnes are two that I remember as taking food there.

Q.—Did the both of them—or rather, Mrs. Francher, does she still live there? *A.*—I think so, sir.

Q.—Was she a resident there then? *A.*—Yes, sir.

Q.—What was—what did her husband do? *A.*—He was a land agent.

Q.—You say you think you can get the name of this person? *A.*—Yes, I shall endeavor to do so, sir.

Q.—In what way do you think you can get it? *A.*—Well, I will write—I thought first of writing to Mr. Barnes, because of his wife being concerned in taking food there—I thought I would write and find the name through them.

Q.—Did Mr. Barnes go with you or know that you went over there? *A.*—No—oh, he probably knew that I was going there, yes.

Q.—Do you recall the name of the hotel keeper where you stayed? *A.*—Yes; Mr. Morgan.

Q.—Morgan? A.—Yes, sir.

Q.—Do you know his first name? A.—Now, wait, I do—oh, yes, H. B. Morgan, we used to call him Highball Morgan.

Q.—H. B. Morgan? A.—Yes.

Q.—What was the second case, Doctor? A.—The case of a young lady about 23 years of age.

Q.—The same place? A.—Same town, yes, sir.

Q.—At the same time? A.—No. My recollection is that that was about the middle of September, or the first of October of the same year, 1913.

Q.—How long did you stay down there, that trip? A.—Well, I was going and coming a good part of the time. I think that the first time I was there was when they were paying out for the tobacco—O. K.'ing the payments for the company. I was there probably four weeks from the—

Q.—That was in August? A.—from the 15th of July, approximately, until about the 20th of August. Then I returned. I came here to Chicago to be operated upon; and returned there about the 1st of September, and stayed until Thanksgiving—or the day before Thanksgiving.

Q.—And that was on the occasion of this second visit, was it? A.—The second—yes, sir, the second sojourn there.

Dr. Krohn was then cross-examined in detail concerning the second case. He was called by a man to attend a young girl who had engaged a room in his house. This man was a sheepman reputed as being the dog poisoner of the community. The girl's people were of ordinary means. Dr. Krohn could not recall the name of the girl and her mother. He saw them two times, at night and the next morning. He got the history of the girl from the mother.

Q.—What did she say? A.—She told me of the fact that the girl had been feeling badly for some four or five months, and that about three months prior to the time I saw her she was starting to take the Cardui tonic, and was taking it.

Q.—Did she say whether she—whether the mother had given it to her, or whether anybody else had given it? A.—No. That was not stated. She simply had taken it.

Q.—Did you ask anything about the previous history of her case? A.—Yes, I did.

Q.—Whether she had been under the care of a physician or not? A.—Yes. I asked as to what symptoms had been manifested earlier, as to whether she had been a healthy girl, and as to whether she was married or single, as to whether she had had any emotional shocks, or disturbances; because she appeared in this hysterical nervous condition, to be like a person who had suffered some great grief, or anxiety; and that is one thought that occurred to me when I saw the girl there.

Q.—Was she lying down? A.—Lying and tossing.

Q.—Lying and tossing? A.—Yes. And would get up—

Q.—You mean on a bed? A.—Would get up, and then would fall. She was in a weakened condition, and I found pellagra.

Q.—Was she able to talk to you? A.—She talked to me some, but she was not very responsive to questions.

Q.—Then what did her mother tell you? A.—Well, I started to say that she started this Cardui treatment three months before, and had been taking it up to this time, but she had not taken any that day.

Q.—For what purpose had she taken it? A.—For her weakness.

Q.—Did she say what the weakness was, how it was indicated? A.—No; but just simply she was all fagged out and weak.

Q.—Did she say she had any menstrual disturbances? A.—She did not.

Q.—Did you ask whether she had any disturbances of that kind? A.—I asked her whether she was menstruating at the time, but she was not. There was no examination made of the gynecological condition.

Q.—She was merely nervous? A.—Very nervous, but she had the disease, pellagra.

Q.—How did you ascertain that? A.—Well, the condition of the skin, the whole condition, the nervous condition and all were like the cases we have here at Bartonville and Dunning.

Q.—At Bartonville and Dunning? A.—Yes.

Q.—Where is that? A.—Two state hospitals.

Q.—Here in the state? A.—Yes, we had 400 cases at Bartonville, and we had twenty-three cases at Dunning.

Q.—Now, did the girl herself tell you anything about her history, after you saw her, the next day? A.—I say, she went the next morning on the train north. On account of the illness that night her mother said she would take her home. I saw her about six o'clock one evening, and half past five next morning.

Q.—At that time she did not give you any history? A.—No, she did not, sir.

Q.—At that time did she say how much Cardui she had taken at the last time? A.—No; only it was a period of three months—and had not taken any the day before.

Q.—Had not taken any the day before? A.—Yes.

Q.—When had she taken some before that? A.—Well, I assumed that she had taken it up to the day before.

Q.—Do you mean daily? A.—What?

Q.—Did she take it daily? A.—Why, her mother said she had taken it three months, but did not take any yesterday—that is all I know.

Q.—You did not make any inquiries to ascertain whether she was taking it at the monthly periods, or between periods? A.—No, I did not. I was not interested even in that at that time, at all.

Q.—Did you see any bottles of Cardui there? A.—No; there were none there. They just came that night, so had not taken any of it. There was no evidence of it, except the mother's statement.

Q.—Did you get the impression that she came there for her health? A.—I did not get any impression of that kind. I do not know that it occurred to me to ask what they came there for.

Q.—Is it a health resort? A.—No. It is a healthy place, but it is not a health resort.

Q.—It is not a place that people go for a sojourn for the summer or for their health? A.—No, it is not.

Q.—They only go there for work? A.—Well, a lot of people bought property there on the idea that it was going to be a great agricultural community; and some of them go down there to look at their property; some go to see how badly they were skinned when they bought the property; and some go to see whether they have anything left there.

Q.—Do you know whether she had bought any property there? A.—I do not know at all the occasion of her being there.

Q.—Is there any way in which you could find out her name? A.—Well, this village of Cantonment is a small place, not over 55 or 60 people. I think it would be easy to find her.

Q.—Did I ask whether she told you she had a husband or not? A.—I did not ask that. I do not know—I think you asked me and I answered that.

Q.—That you did not know whether she had or not? A.—I did not know whether she had or not.

Q.—Is there any way you can suggest by which she can be located in Cantonment? A.—I think it could be done through the postoffice—or through the postmaster or the storekeeper.

Q.—Would you ask the postmaster to enable you to locate her? A.—That is up to you—

Q.—I am asking you if you know of any way— A.—Oh—I don't know—I would ask about a girl that had pellagra there—perhaps you could get her that way.

Dr. Krohn stated that he did not think that this girl had an alcoholic habit.

The witness indicated on the label of a bottle of Wine of Cardui about how much fluid was remaining in the bottle which he saw on the table when he attended the first case.

He took the hypothetical question as it was stated. If there had been a material increase in the quantities of the drugs in the hypothetical medicine its medicinal value would only have been increased as alcoholic bitters. It might be more of a hepatic stimulant. He stated that if he assumed the drugs to have a sedative action on the uterus in the usual dose of 30 to 60 grains he believed that 3 grains would be negligible. If carduus benedictus were used as an adjuvant to another medicine that had a sedative action he believed that it might possibly have a synergistic action.

The witness stated various conditions which might cause a headache in a woman. The witness read a statement from the Ladies' Birthday Almanac for 1913 concerning headaches. He believed that this statement gave the impression that all these headaches were due to female diseases. The witness testified that about one fifth of his time is taken in examinations in legal cases.

Adjournment was taken until Monday, May 8, 1916.

(To be continued)

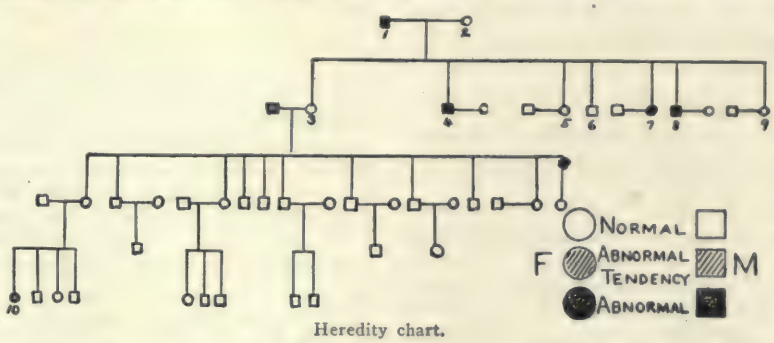
Physical Defects and Truancy.—At the request of the Department of Education the Bureau of Child Hygiene of the department of health of New York City has made a study of the causes of truancy. It was recognized that home environment undoubtedly was a factor but physicians have felt that physical defects might also play a considerable part. It was found that last year, among 800,000 pupils in the public schools of this city, there were 21,942 truants, less than 3 per cent. A physical examination of these truants was undertaken, and thus far eighty-five have been examined, and while this number is too small to warrant definite conclusions, the results of these examinations are not without interest. In nine instances the family history seemed to have a definite bearing on the truancy, the father being alcoholic in five cases, insane in one and tuberculous in another. In two cases the brother of the truant was epileptic. In eight instances the physician reported stigmata of degeneracy. There were sixty-four truants with some obstruction to nasal breathing, and the eyesight was defective in twenty-seven out of seventy-seven truants. The proportion of bony deformities was high, twenty-six cases, in ten of which the truants showed scoliosis. An irritable heart was reported in seven cases, and endocarditis in ten. Pulmonary tuberculosis was encountered in only one individual.

Correspondence

Endocrinopathic Inheritance

To the Editor:—In an article on this subject (THE JOURNAL, May 6, 1916, p. 1438), Dr. Walter Timme analyzed a family history which apparently followed the mendelian laws of heredity. Timme concluded, on the basis of this analysis, that one may be able to forecast to some degree the characteristics of the offspring in certain marriages.

I enclose a chart drawn similarly of a family originating in the union of a diabetic man (No. 1) and normal woman (No. 2). There were seven children in this family, three of whom (Nos. 4, 7 and 8) were diabetic. The oldest in this family (No. 3) married a man with a large simple goiter, and from this union eleven children were born, all apparently normal; the ages of these range from 18 to 40 years. Six of these were married and gave rise to twelve children with abnormality in only one—a moderate obesity (No. 10). Of the remaining six individuals in the first family, five were married, giving rise to fourteen children in the second and one in the third generation, all of whom are apparently normal, their ages ranging from 3 to 33 years.



Heredity chart.

According to the conclusions of Dr. Timme, the family of No. 3 should offer a fruitful field for endocrinopathic inheritance; but in the total number of twenty-one individuals arising from this union in two generations, only a single abnormality arose, and that a slight one.

IRVING F. STEIN, M.D., Chicago.

The Effect of Adenotomy on the Hypophysis System

To the Editor:—The fact that after adenotomy, an operation which impinges on the periphery of the hypophysis system, the hypophysis system shows a strikingly increased activity in the direction of growth and development, is explained by the fact that the pharyngeal pituitary and probably the entire glandular portion of the pituitary system is stimulated through the excision of "adenoids." The anatomic explanation of relationship between the pharyngeal hypophysis, adenotomy and more rapid growth is the fact that the pharyngeal pituitary is located close to, if not actually in, the "adenoid" tissue. Further justification for this relationship is the well recognized axiom that following adenotomy, children immediately take on a greatly increased rate of growth.

The cases of retarded growth relieved by adenotomy suggest that the condition of "adenoids" inhibits the nutritional or developmental function of the pituitary system which we have come to understand as necessary for normal development.

In a former article (*Am. Jour. Med. Sc.*, July, 1914) I pointed out that the "adenoid" region is the part of the nasopharynx most assailable by infection, and that the angle of this region is the most vulnerable spot in the whole body. When, therefore, it is considered that the infections of this region not only have an influence on the organism in the shape of metastatic infections, but may involve the hypophysis system as well, the relation of "adenoids" and adenotomy to growth and normal well-being assumes vital importance.

W. SOHIER BRYANT, M.D., New York.

The Excesses of Youth.—The excesses of our youth are drafts on our old age, payable with interest, about thirty years after date.—Colton.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

LOCAL DENTAL ANESTHETIC

To the Editor:—What is your opinion of the following formula for use as a local dental anesthetic?

Cocain hydrochlorid, 1½ grains.
Adrenalin, 1/200 grain.
Hydrogen peroxid, 60 minims.
Before using add to three parts of this, solution of boiling water.

A. Is there any incompatibility between hydrogen peroxid and adrenalin?

B. Is there any formula preferable from the following points of view: (1) less toxicity; (2) greater anesthetic power; (3) comparable antiseptic power?

H. GRIGNON, M.D., St. Jovite, P. Q., Canada.

ANSWER.—A. Adrenalin (epinephrin) is readily decomposed by oxidizing agents. Hence it should not be mixed with hydrogen peroxid.

B. From 0.2 to 0.3 c.c. of 1:1,000 solution of epinephrin may be added to a solution of cocain for subcutaneous injection to delay absorption and prolong local anesthesia. Solutions of cocain hydrochlorid for subcutaneous injection vary in strength from 0.5 to 4 per cent. In the infiltration method, solutions of 1:1,000 in physiologic saline are are used in larger doses. Smaller amounts are used when solutions of 1:1,000 are employed. Novocain is usually said to be from one sixth to one tenth as toxic as cocain, but the toxicity of novocain depends strictly on the way in which it is administered. The subject is fully discussed in the Pharmacology of Useful Drugs, by Hatcher and Wilbert.

SCANDINAVIAN MEDICAL JOURNALS

To the Editor:—Please furnish me a list of medical journals published in the Scandinavian countries, Sweden, Norway and Denmark.

D. L. TILDERQUIST, M.D., Duluth, Minn.

ANSWER.—Following is a list of periodicals and the place of publication:

Allmänna svenska läkartidningen, Stockholm.
Bibliotek for Læger, Copenhagen.
Finska läkaresällskapets handlingar, Helsingfors.
Helsovännen, Stockholm.
Hospitalstidende, Copenhagen.
Hygiea, Stockholm.
Jordemodern, Stockholm.
Medicinsk Månadsrevy, Stockholm.
Medicinsk Revue, Bergen.
Nordisk Tidsskrift for Terapi, Copenhagen.
Nordiskt Medicinskt Arkiv, Stockholm.
Norsk Magazin for Lægevidenskaben, Christiania.
Norsk Tidsskrift for Militærmedicin, Christiania.
Svenska Läkaresällskapets Handlingar, Stockholm.
Tidsskrift for den Norske Lægeforening, Christiania.
Tidsskrift for Jordemødre, Copenhagen.
Tidsskrift for den norske Lægeforening, Christiania and Copenhagen.
Tidsskrift i militär Helsovård, Stockholm.
Tidsskrift for Jordmødre, Christiania.
Ugeskrift for Læger, Copenhagen.
Upsala Läkareförenings Förhandlingar, Upsala.

DR. GROEDEL

To the Editor:—About a month ago I clipped from THE JOURNAL (Queries and Minor Notes, April 22, 1916, p. 1343) an inquiry concerning Dr. Groedel of Bad-Nauheim, and sent it to the doctor's brother. I am enclosing his reply.

SUMNER SHAILER, M.D., New York.

My Dear Doctor:—Referring to the clipping from THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, I am very glad to report that I received a letter from my brother post-marked Munich, in which he stated that he, as well as his son, Dr. Franz Groedel, are enjoying the best of health. He further stated that he intended opening his sanatorium at Bad-Nauheim on the 20th of April. . . .

THEODORE GROEDEL.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, July 10. Chairman, Dr. W. H. Sanders, Montgomery.

ALASKA: Juneau, July 5. Sec., Dr. H. C. De Vighne, Juneau.

CALIFORNIA: San Francisco, June 27. Sec., Dr. Charles B. Pinkham, R. 527 Forum Bldg., Sacramento.

COLORADO: Denver, July 4. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: Regular, New Haven, July 11-12. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven; Homeopathic, New Haven, July 11, Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven; Eclectic, New Haven, July 11, Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

DELAWARE: Dover and Wilmington, June 20-22. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

DISTRICT OF COLUMBIA: Washington, July 11-13. Sec., Dr. Edgar P. Copeland, The Rockingham.

FLORIDA: Jacksonville, June 13-14. Sec., Dr. E. W. Warren, Palatka.

ILLINOIS: Chicago, June 21-23. Sec., Dr. C. St. Clair Drake, Springfield.

INDIANA: Indianapolis, July 11-13. Sec., Dr. W. T. Gott, 84 State House, Indianapolis.

IOWA: Iowa City, June 8-10. Sec., Dr. Guilford H. Sumner, State House, Des Moines.

KANSAS: Topeka, June 13. Sec., Dr. H. A. Dykes, Lebanon.

KENTUCKY: Louisville, June 13-15. Sec., Dr. A. T. McCormack, Bowling Green.

LOUISIANA: New Orleans, June 8-10. Sec., Dr. E. L. Leckert, 716 Macheca Bldg., New Orleans.

MAINE: Augusta, July 6-7. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MICHIGAN: Ann Arbor, June 19-21. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, June 6-9. Sec., Dr. Thomas S. McDavitt, 814 Lowry Bldg., St. Paul.

MISSISSIPPI: Jackson, June 20-21. Sec., Dr. J. D. Gilleylen, Jackson.

MISSOURI: St. Louis, June 13-15. Sec., Dr. J. A. B. Adcock, Jefferson City.

NEBRASKA: Lincoln, June 8-9. Sec., Dr. H. B. Cummins, Seward.

NEW HAMPSHIRE: Concord, June 26-27. Sec., Dr. W. T. Crosby, The Beacon, Manchester.

NEW JERSEY: Trenton, June 20-21. Sec., Dr. Alexander MacAlister, 429 E. State St., Trenton.

NORTH CAROLINA: Raleigh, June 27-30. Sec., Dr. H. A. Royster, Raleigh.

NORTH DAKOTA: Grand Forks, July 4. Sec., Dr. G. M. Williamson, Grand Forks.

OHIO: Columbus, June 6-9. Sec., Dr. George H. Matson, State House, Columbus.

OKLAHOMA: Oklahoma City, July 11. Sec., Dr. R. V. Smith, 502 Daniel Bldg., Tulsa.

OREGON: Portland, July 5-7. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 11-13. Sec., Mr. Nathan C. Schaeffer, Department of Public Instruction, Harrisburg.

RHODE ISLAND: Providence, July 6-7. Sec., Dr. Gardner T. Swarts, Room 313 State House, Providence.

SOUTH CAROLINA: Columbia, June 13. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

SOUTH DAKOTA: Deadwood, July 11. Sec., Dr. Park B. Jenkins, Waubay.

TENNESSEE: Knoxville, Memphis and Nashville. June 16-17. Sec., Dr. A. B. DeLoach, Scimitar Bldg., Memphis.

TEXAS: San Antonio, June 27-29. Sec., Dr. John S. McCelvey, Temple State Bank Bldg., Temple.

UTAH: Salt Lake City, July 3. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

VERMONT: Burlington, July 11-13. Sec., Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 20-23. Sec., Dr. J. N. Barney, Fredericksburg.

WASHINGTON: Tacoma, July 4. Sec., Dr. C. N. Suttner, Walla Walla.

WEST VIRGINIA: Charleston, July 11. Dr. S. L. Jepson, Charleston.

WISCONSIN: Milwaukee, June 27-29. Sec., Dr. J. M. Dodd, 220 E. 2d St., Ashland.

WYOMING: Laramie, June 14-16. Sec., Dr. H. E. McCollum, Laramie.

Indiana January Report

Dr. W. T. Gott, secretary of the Indiana State Board of Medical Registration and Examination, reports the written examination held at Indianapolis, Jan. 12-14, 1916. The total number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 8, of whom 7 passed, including 1 candidate who was granted a registration license, and 1 failed. Twenty-two candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Woman's Medical College, Chicago	(1890)	75
Indiana University	(1914)	84.6
Harvard University	(1913)	89.1
University of Michigan Medical School	(1915)	85.4
University of Toronto	(1906)	84.1
National School of Medicine, Morelia	(1912)	82.7
FAILED		
Kentucky School of Medicine	(1890)	61.7

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Bennett Coll. of Eclectic Med. and Surg.	(1885)	Wisconsin
Chicago College of Medicine and Surgery	(1914)	Illinois
Hahnemann Med. Coll. and Hosp., Chicago	(1901)	Illinois
Hering Medical College	(1913)	Illinois
Northwestern University	(1913)	Illinois
Rush Medical College	(1913)	Illinois
Fort Wayne College of Medicine	(1891)	Ohio
University of Louisville	(1907) Illinois; (1912) (1913)	Kentucky
College of Phys. and Surgs., Baltimore	(1912)	W. Virginia
Maryland Medical College	(1902) West Virginia; (1913)	Penna.
University of Maryland	(1900)	N. Carolina
Eclectic Medical College, Cincinnati	(1896)	Illinois
Starling-Ohio Medical College	(1912)	Ohio
Pulte Medical College	(1896)	Ohio
University of Cincinnati	(1914, 2)	Ohio
Jefferson Medical College	(1914)	Penna.
University of Pittsburgh	(1912)	Penna.
University of Tennessee	(1879)	Kentucky

College	Year Grad.	No. Licensed
LICENSED ON SATISFACTORY CREDENTIALS		
University of Louisville	(1868)	1

Pennsylvania January Report

Mr. N. C. Schaeffer, secretary of the Pennsylvania Bureau of Medical Education and Licensure, reports the written examination held at Philadelphia, Jan. 18-20, 1916. The total number of subjects examined in was 5; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 67, of whom 59 passed and 8 failed. Eight candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Total No. Examined
PASSED		
American Med. Missionary College	(1902)	1
Chicago College of Med. and Surg.	(1914)	1
Hahnemann Med. Coll. and Hosp., Chicago	(1905)	1
University of Louisville	(1902) (1912)	2
College of Phys. and Surgs., Baltimore	(1914)	1
Johns Hopkins University	(1914)	1
University of Maryland	(1914)	1
Boston University	(1914)	1
Harvard University	(1912)	1
Tufts College Medical School	(1913)	1
Columbia University, Coll. of Phys. and Surgs.	(1913)	1
Fordham University	(1913)	1
University of Bellevue Hosp. Med. Coll.	(1911)	1
Jefferson Medical College	(1913, 2) (1914, 18)	20
Medico-Chirurgical College of Philadelphia	(1914)	8
Temple University	(1913) (1914, 3)	4
University of Pennsylvania	(1913, 1) (1914, 7)	8
University of Pittsburgh	(1914)	2
Woman's Medical College of Philadelphia	(1914)	2
University of Texas	(1912)	1
FAILED		
University of Louisville	(1912)	1
College of Phys. and Surgs., Baltimore	(1914)	1
Maryland Medical College	(1912) (1913, 2)	3
Woman's Medical College of Pa.	(1908)	1
McGill University	(1915)	1
University of Genoa, Italy	(1912)	1

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
George Washington University	(1911, 2)	Dist. Colum.
Howard University	(1910)	W. Virginia
Washington University	(1913)	Missouri
Ohio State University College of Medicine	(1914)	Ohio
Jefferson Medical College	(1912) Maryland; (1913, 2)	Delaware

South Dakota January Report

Dr. Park B. Jenkins, secretary of the South Dakota State Board of Health and Medical Examiners, reports the practical and written examination held at Pierre, Jan. 11-12, 1916. The total number of subjects examined in was 13; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 5, of whom 4 passed and 1 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Bennett Medical College	(1914)	87.4
College of Phys. and Surgs., Chicago	(1905)	81.2
Rush Medical College	(1913)	92.6
University of Illinois	(1913)	87.7
FAILED		
Baltimore Medical College	(1901)	60.4

Book Notices

THE DUCTLESS GLANDULAR DISEASES. By Wilhelm Falta. Translated and Edited by Milton K. Meyers, M.D., Neurologist to the Lebanon Hospital, Philadelphia. Foreword by Archibald E. Garrod, M.D., F.R.C.P., F.R.S., Physician to St. Bartholomew's Hospital, London. Second Edition. Cloth. Price, $7 net. Pp. 674, with 101 illustrations. Philadelphia: P. Blakiston's Son & Co., 1916.

The book contains an introductory chapter on the embryology and general physiologic relations of the ductless glands. This is followed by two chapters on the diseases of the thyroids. The diseases of the parathyroids, thymus, hypophysis, pineal body, suprarenals, pancreas and the gonads are each accorded a chapter. There is one chapter on pluriglandular diseases (multiple glandular sclerosis, giantism), and three chapters on diseases which, according to Falta, are not directly traced to disarrangement of the endocrine glands, such as status lymphaticus, infantilism, mongolism, chondrodystrophy, and the different forms of obesity.

A careful perusal of the volume leaves the impression that the author is too dogmatic in a field in which so much is as yet unsettled. Thus he states (p. 24) as demonstrated facts that all the ductless glands "are supplied with vegetative nerves, and their function is thus in a great measure regulated by the nervous system"; and further that "the ductless glandular system influences the excitability of the vegetative (sympathetic) nervous system by the hormones they give off to the circulation." Both of these generalizations, as applied to all the endocrine glands, are quite in advance of facts, and time may prove them in part contrary to facts.

Falta regards all endocrine gland diseases as due either to a hypo-activity or a hyperactivity of the glands. Thus he speaks of diseases due to hyperfunction of the parathyroids and the suprarenals, "hypergenitalism," etc. This is logical, and may be a useful working hypothesis; but the author does not always distinguish between working hypotheses and conclusions based on facts. In the chapter on diseases of the suprarenals the author bases all his discussion on the old vascular tonus theory of suprarenal function, despite the fact that this theory is rendered untenable by the work of Cannon, Hoskins and others in recent years. The absence of even a reference to such fundamental work can hardly be excused in a monograph of the ductless glands published in 1916.

The numerous illustrations are excellent, and would in some cases have been more useful if accompanied by more detailed explanations. The sixty-eight pages of references constitute one of the most useful parts of the volume. Many important papers are not found in this list, but are cited in the addenda given by the American editor at the end of each chapter.

COLON HYGIENE. Comprising New and Important Facts Concerning the Physiology of the Colon and an Account of Practical and Successful Methods of Combating Intestinal Inactivity and Toxemia. J. H. Kellogg, M.D., LL.D., Superintendent of the Battle Creek Sanitarium. Cloth. Price, $2 net. Pp. 393. Battle Creek: Good Health Publishing Company, 1915.

This book is written for the layman, yet "the writer does not desire to convey the impression that the sufferer from severe constipation can safely undertake to act as his own physician, but rather to enable him to cooperate with the wise up-to-date physician." The subject of constipation is discussed thoroughly in all its phases; but what is said could have been said in much less space, had there not been so much repetition. Many statements are repeated over and over again. The author may have thought this necessary to impress them on the lay mind; but too much repetition becomes tiresome, even to the layman. If the object of the book is to make the layman believe that he is sick and that his sickness is due to the fact that his bowels do not move often enough, it will probably accomplish its purpose. It is quite proverbial that when a lot of symptoms are detailed in an enticing manner to the layman the imagination immediately becomes active, and the symptoms are at once appropriated and become a part of the individual. If such is the case when a few symptoms are mentioned, what must be the effect when almost all of the ills to which flesh is heir are vividly described as due to constipation, "a disease so universal in civilized communities," that it "may justly be looked upon as among the fundamental causes of the race degeneracy which is becoming every day more apparent in all highly civilized communities." It is certainly assuming much to say that all highly civilized races are degenerating. It is freely admitted that constipation is a very common complaint, but its consequences are not nearly so calamitous as a few writers would have us believe. It seems to be a fad nowadays to attack the colon. Just because a few patients have had their colons removed and have lived, behold, the colon is a useless organ; the changes taking place in it are the cause of old age, ergo, take out the colon and live forever. Constipation is a common condition, and it is frequently harmful; but it is not the cause of all the ails of the flesh. If the constipated layman could only skip the parts that are overdrawn and read those that relate to proper exercises, diet, etc., he might profit by the book.

Miscellany

The Industrial Incidence of Tuberculosis

Some of the state laws provide for compensation to workmen, not merely for accidental injury, but for any disability arising out of and in the course of employment; that is, compensation for disease, provided it can be shown to be due to the work in which the employee is engaged. This makes the question of the incidence of disease in industry an important one in the administration of the law. It is also a complex problem; for a man who is failing in health owing to his occupation may change employment repeatedly, and the occupation in which he is engaged when he finally becomes incapacitated may not be responsible for his condition. E. F. McSweeney, who, with Prof. Selskar M. Gunn, was commissioned by the Massachusetts State Board of Labor and Industry and the Industrial Accident Board to investigate the industrial bearings of tuberculosis, in a preliminary report (Industry and Tuberculosis, *Journal of Outdoor Life*, April, 1916, p. 99), says that labor and occupation undoubtedly constitute an important factor in the "causes" of tuberculosis, but that no particular kind of work can be said to "cause" the disease. In the records of all the hospitals and sanatoriums examined, women of the home—housewives and domestics—led the list of occupational classes affected by tuberculosis, constituting from 22 to 28 per cent. of the total. Clerks, including salespeople, bookkeepers and stenographers, came next on the list in all sets of records. These two classes—houseworkers and clerks—show the influence of indoor confinement in the production of tuberculosis. Day laborers—workers on streets, roads, railroads, subway excavation, etc.—constituted the third largest class; in their case the favorable influence of outdoor occupation was offset by exposure to dust, long and uncertain hours, night work, temptation to drink, etc. Miscellaneous factory workers, including those employed in the making of buttons, corsets and typewriters, but not in the leading industries of the state, came next. The shoeworkers were fifth on the list, furnishing more tuberculosis patients than any other single industry in the state. Dust and poisons from blacking, dyes, polishes, etc., were regarded as the unhygienic elements in this industry. Mill operatives—workers in the cotton, hosiery, paper, silk, wool and worsted industries—came next. Teamsters, waiters and waitresses, seamstresses and dressmakers, tailors and tailoresses, stoneworkers, woodworkers, bakers, metalworkers, printers and jewelers are among the workers whose occupations show unduly high tuberculosis incidence. Tuberculosis seems to be the most serious occupational disease, but, owing to the difficulty of putting exact responsibility for the condition on the industry in which it occurs, McSweeney believes that tuberculosis workers will seldom be able to benefit from the Massachusetts compensation law. There is much need, he concludes, for the study of the exact effect of occupation on disease.

Medicolegal

Injury Followed by Gonorrheal Infection—Not Loss of Eye

(Cline vs. Studebaker Corporation et al. (Mich.), 155 N. W. R. 519)

The Supreme Court of Michigan reverses and sets aside an award, under the workmen's compensation act, that treated the injury as the loss of an eye, rather than as a partial loss. The court says that the fact that a piece of steel flew into the claimant's right eye in the course of his employment seemed fairly well established. But it was not shown that this flake of steel directly caused the subsequent impairment of vision; that, on the contrary, must be attributed to a gonorrheal infection which set in. Nor was it probable, from the testimony of the physicians, that the germ which caused the infection was on the steel itself. They stated, however, that such a germ might get into the eye from a towel, from washing utensils, from the straps or rails of a street car, and in similar ways. The burden was therefore on the claimant to show by a preponderance of evidence that the infection arose out of and in the course of his employment, instead of at some other time and in some other way. In short, under the circumstances, it was for the claimant to show that the infection was connected with the accidental entry of the steel into his eye. In instances like this, where the claimant himself is personally free from the disease, it is hardly possible that the source of infection can be shown absolutely by direct evidence. Nor is that necessary. That the claimant was himself free from the disease up to the time of the accident was the testimony of the physician who attended him, and the finding of the industrial accident board. The gonorrheal germ must have come from some outside source. It must also have been received not later than the time of the accident to have developed into the condition found by the physician two days afterward, according to his testimony. These conditions, in connection with the fact, as shown, that an injured eye is more susceptible to the infection than a normal eye, and with the further fact that at once, after the accident, a fellow workman examined the eye, using for the purpose a match wrapped in a piece of cloth, created a considerable degree of probability that the germ got into the eye in the attempt to remove the steel. And this probability was sufficient to warrant the board in finding that "the infection which destroyed the sight of the eye is not reasonably accounted for except as coming through or resulting from the accident." If the germ was introduced in an attempt to remove the flake of steel from the eye, it was a direct consequence of the accident, and arose out of and in the course of the employment. The attempt to remove the particle of steel was a natural and necessary result of its entry into the eye. The net result of tests by two experts was that, when using proper glasses, the claimant had 50 per cent. of his sight, while without them he had only 10 per cent. Under these circumstances it seems impossible to say that the injury resulted in the loss of the eye. The use of glasses is a very ordinary occurrence, both by the young and the old. Ninety per cent. of the sight is not lost when it can be diminished to 50 per cent. by the use of common appliances. And it is the duty of the sufferer to minimize the injury as much as he reasonably may. The statute does not provide compensation for the partial loss of an eye under such circumstances.

Restricting the Use of Second Hand Material to Protect Public Health

(People vs. Weiner (Ill.), 110 N. E. R. 870)

The Supreme Court of Illinois reverses a judgment of conviction of the defendant of violating the statute which took effect July 1, 1915, regulating the making and renovating of mattresses, quilts or bed comforters, and regulating the sale thereof. The court says that the provisions of Sections 1 and 2 of the statute are arbitrary and unreasonable, and must be held unconstitutional and void. The evidence showed that second hand bedding does not necessarily convey infectious or contagious diseases, and that a lawful business of selling or dealing in such may be carried on without danger to the public health. It is the nature of the previous use, condition or exposure in respect to contagious or infectious diseases which makes the use of second hand material dangerous in the manufacture of mattresses, comforters and quilts, and not the mere fact of the previous use of such material by other persons. It is eminently proper to require that material be free from germs of contagion and infection before being used in mattresses, comforters or quilts, whether the material be second hand or new; but the possible danger to health or safety does not justify the absolute prohibition of a useful industry or practice where the danger can be dealt with by regulation. The statute does not attempt to prohibit the use of second hand mattresses, but does prevent their ever again being used in the manufacture of other mattresses which are to be sold. To prohibit absolutely the use of such material in the manufacture of mattresses for sale when not inherently dangerous and when it may be rendered safe by reasonable regulation is an invasion of personal and property rights within the meaning of the federal and state constitutions. Again, it was argued that there was a discrimination between the manufacturers and dealers in pillows and manufacturers and dealers in mattresses, comforters and quilts, especially after they had been used, as there was no provision made as to pillows; that, so far as this act was concerned, material made second hand in the same way as the material in mattresses might again be made into pillows and sold without any regulation whatever. Under the decisions of this state this is class legislation. But the provision in Section 3 of the act requiring that material used in remaking mattresses, quilts and comforters for the person's own use must be sterilized does not violate any constitutional prohibition, and is a proper exercise of the police power. That same requirement could be made in an act with reference to the manufacture and sale of mattresses. Regulations to prevent fraud and deceit in such manufacture and sale could be very readily provided, so as to protect the public, without prohibiting the use of second hand material if properly renovated and sterilized.

A Waiver of Privilege

(Dewey vs. Cohoes & L. Bridge Co. (N. Y.), 155 N. Y. Supp. 887)

The Supreme Court of New York, Appellate Division, Third Department, reverses a judgment obtained by the plaintiff on account of a personal injury, and grants a new trial, because of what it holds was error in sustaining an objection to a hospital surgeon testifying for the defendant. The court says that the plaintiff swore to the facts of the injury and his condition, and called physicians who had attended him who swore minutely as to his condition. Some of them took, or assisted in taking, roentgenograms of the organs and parts of the body claimed to be injured. The testimony of his physicians put before the jury, with great minuteness and circumstance, his physical condition, especially at the time when he was at the hospital. The defendant called a surgeon, connected with the hospital, who had examined the plaintiff there at his request, and he was asked, "What did you find the man was suffering from?" Objection to the question was sustained, but the court thinks that the actual physical condition of the plaintiff while he was at the hospital was very material, and the defendant had the right to have the testimony of the surgeon on that subject. The plaintiff put his person before the jury as a basis for damages, and had it described by his physicians, and thereby waived any privilege, not only of the physicians he called, but also of other physicians, who examined him about the same time. It did not appear that the surgeon called by the defendant made his examination at the same time that the other physicians made theirs, but it does not seem that that fact was controlling. The examination was at the same time the doctor was treating him for the same trouble. It seems unfair that he could call certain of his physicians and refuse to permit others to testify, on the ground of professional privilege.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, DETROIT, JUNE 12-16.

Alpha Omega Alpha Society, Detroit, June 12.
American Academy of Medicine, Detroit, June 9-12.
American Association of Anesthetists, Detroit, June 12.
American Proctologic Society, Detroit, June 12.
American Therapeutic Society, Detroit, June 9-10.
Maine Medical Association, Portland, June 7-8.
Massachusetts Medical Society, Boston, June 6-7.
Montana State Medical Association, Miles City, July 12-13.
National Association for Study of Epilepsy, Detroit, June 16.
New Jersey Medical Society, Spring Lake, June 20-22.
Washington State Medical Association, Seattle, July 12-14.
Western Roentgen Society, St. Louis, June 9-10.

MEDICAL SOCIETY OF THE STATE OF NEW YORK

One Hundred and Tenth Annual Meeting, held at Saratoga Springs, May 16-18, 1916

The President, DR. W. STANTON GLEASON, Newburgh, in the Chair

Examination of Eyes of Schoolchildren

DR. F. PARK LEWIS, Buffalo: In order that we may know how much importance to attach to defects of the eyes, we must have exact data as to their incidence, their character, their corrigibility and their influence in retarding the normal progress of a large number of individuals. Careful work has been done in Pennsylvania. In the report of 1914-1915, in the fourth class districts, 269,199 pupils were inspected; visual defects were found in 83,748, or 17.8 per cent.; 5,512 pupils had other eye defects. What disposition shall be made of such pupils in the classification and arrangement of the school? The methods employed in the correction of eye defects are not always well done; when the work is done for a poor child, the patient is usually referred either to a public dispensary or to an optician. The refractive work done in public dispensaries is too frequently done in a hurried and careless way.

Very few children beginning school life know how the eyes should be used, and it was suggested by a committee chosen by the National Educational Association, and later by a committee of women school principals in New York City, that the child, when he begins to use books, be taught how they should be used, and the following simple recommendations be printed on the first blank page of every schoolbook:

1. Take care of your sight; upon it depends much of your safety and success in life.
2. Always hold your head up when you read.
3. Hold your book 14 inches from your face.
4. Be sure that the light is clear and good.
5. Never read in the twilight, in a moving car or in a reclining position.
6. Never read with the sun shining directly on the book.
7. Never face the light in reading.
8. Let the light come from behind you or over the left shoulder.
9. Avoid books or papers printed indistinctly or in small type.
10. Rest your eyes frequently by looking away from the book.
11. Cleanse the eyes night and morning with pure water.
12. Never rub your eyes with your hands or an unclean towel, handkerchief or cloth.

Another reason why permanent records should be made of all schoolchildren's eyes is found in the workmen's compensation act. With the assumption of responsibility on the part of the employer for injuries received by the employee in the performance of his duties, there must be an assurance of the existence of a normal physical condition on the part of the workman who is thus protected; but if there is an abnormal condition present this must be known in order that the extent of the injury may be ascertained. If the examinations of the eyes of schoolchildren are standardized, and if these records are permanent and available, they would give us the important and necessary data concerning every individual in the state.

Practical Experiences in Medical Inspections in Rural Sections

DR. WILLIAM A. HOWE, Albany: During the first year of the administration of the medical inspection law, many impressive and varied experiences have arisen. Many grateful parents have written the department thanking it for the wonderful relief extended to their children. Thousands of children have been placed on a higher plane of physical fitness, thus enabling them to make more normal progress in school. Two children with congenital cataract, whose vision amounted to practically nothing, have been operated on successfully, restored to vision, and placed in school, where satisfactory progress is now being made. Three others had so little vision as to render regular school work impossible. Two children of school age have recently been placed in the New York School for the Blind at Batavia, where they will receive an academic education, be taught some vocation and be made self-sustaining citizens. Another child with a badly disabled foot following infantile paralysis has been successfully treated by tendon transplantation. Two pupils, who were incorrigible, impertinent, backward and unmanageable in school, improved promptly after the removal of septic tonsils and obstructing adenoids. Several cases of tuberculosis have been found among our teachers, while in one district this disease had existed among the pupils for nearly fourteen years. Many pupils throughout the state in either the pretuberculous or incipient stage of the disease have been greatly benefited by sanitary or institutional treatment. A few days ago one village district reported fifty cases of obstructed breathing among children of foreign parentage or from dependent families. These will be referred to specialists who have generously designated free services to deserving children. In another village certain schoolrooms are being utilized as a temporary hospital in which, under the supervision of an experienced nurse, physicians and surgeons are administering relief to local children. In Schenectady, seven rural schools have united in the employment of a school nurse who is devoting her entire time to inspecting the children and to the improvement of school and home conditions. This nurse, though employed only for the past three months, has already accomplished such splendid results as fully to demonstrate the practical value of such services. In another section of the state we find a rural teacher referring many of her children to specialists in Buffalo where physical defects have been relieved, thus insuring to pupils far greater progress in school.

The Neuropathic Child

DR. EDWARD B. ANGELL, Rochester: The best description of the neuropathic child is that given by Dr. Francis Warner of London, England, who has examined 100,000 schoolchildren. He describes the characteristic manifestations of the neuropathic condition, as headache, difficulty in getting to sleep, grinding of the teeth, delicate physical condition without actual disease, lack of appetite, and tendency to be fatigued easily. These children are generally well made in body and have good heads, and they have well cut features and fine skin and usually light complexions. There is a weakness and an overspontaneity. There are uncontrolled movements without coordination. Impressionability and imitativeness show that the child's mind is impressed by what it sees. With growth development there is power to arrest the motor concept and to modify or even deny its inhibition. Requiring the child to raise its arms and hold them straight out in front in a horizontal position is a test of the nervous condition and the degree of fatigue. If the latter are present the child does not hold both arms parallel, or drops one arm, or one hand, or in the very neurotic the knuckles of the hand are pointed directly backward. Self-control cannot be established too thoroughly for the growing child, since without self-control there is an unstable equilibrium which later gives rise to the vagaries of neurasthenia and hysteria. If one studies the nervous child he will find that his position may be one of erectness, of assurance or defiance, or it may be dropping and self-conscious, or one of weariness, or fatigue, the latter being more common in girls. Another habit easily acquired by the nervous child is that of introspection, and

this leads later to unstable equilibrium and self-consciousness to the detriment of efficient mental activity. I have observed seventy-five or eighty cases of typical nervous children and have found that alcoholism and insanity have entered in as factors in about one third of the cases, while the arthritic diathesis was present in about 30 per cent. In only one case did I find tuberculosis in the family, but tuberculosis probably played a more important part than this indicated in the transmission of an unstable nervous constitution. In about 25 per cent. of these cases the condition can be traced to abnormalities in pregnancy or delivery. Faulty metabolism, such as constipation, headaches, mental depression, irritability and a poor circulation are characteristic evidences of disturbed nutrition. There is defective nutrition in about two thirds of the cases, and nearly one third are the victims of night terrors. Fresh air is a most important factor in the treatment of this type of child. The Boy Scout movement is excellent in developing the correlation of muscular and physical activities, and teaching the boy self-control and how to adjust himself to life.

The Open Air School Child as a Type

DR. EDWARD DURNEY, Buffalo: Children of a certain type are being segregated and are regarded as unsuitable for treatment in fresh air schools. They are the children who are living under the wrong conditions of life, who have a heredity of alcoholism or epilepsy, are the subjects of faulty nutrition, and have abnormal nervous activities. Some of these children are the spoiled children of the so-called better families. The nervous conditions in these children range anywhere from chorea to partial recovery from infantile paralysis. The defects brought out by present methods of school inspection must be corrected if the children are to receive the full benefit of the fresh air treatment. The attitude of the children themselves toward these schools is the best argument in their favor. Records of the weight of these children have been kept, and the gain in weight that has been shown is a positive index of the improvement in their condition. The change from the ordinary school to the fresh air school is frequently accompanied by an increased interest in both work and play. There is often a mental deficiency accompanying the physical defects, and with the methods used in the open air schools these defects are sometimes benefited or removed. Among the children who would be improved by the open air school may be included a large number of children in the ordinary school.

The Effect of Malformations and Infection of the Oral Cavity of the Child on Its Future Health

DR. STEPHEN PALMORE, Poughkeepsie: Nothing is so important as the hygiene of the mouth of boys and girls, for on that depends the health of the men and the women of tomorrow. Malformations are of the utmost importance, and are so common that one rarely sees a normal conformation of the mouth and teeth. This I attribute to the mixing of the races and the fact that not enough time has elapsed to evolve a definite type. To the proper molding of the human face a full complement of teeth is requisite. Where there is malformation there is malocclusion, and the latter condition is the rule rather than the exception. The anatomy of the mouth and teeth is such that the loss of one tooth ultimately disturbs the balance of the whole. Therefore, one cause of dental deformity is the loss of one tooth. Thumb, lip and tongue sucking are another cause of deformity, bringing about malocclusion and a narrowing of the palatal arch, and nasal obstruction. It is important, therefore, for the rhinologist to work with the dental surgeon when it comes to the treatment of mouth deformities involving the palatal arch. In the demonstration of alveolar abscesses, the Roentgen ray has been a great help. Pyorrhea alveolaris is not a disease of childhood, but with proper prophylaxis and the correction of malocclusions it can be prevented. A clean tooth never decays; teeth in good occlusion are easy to keep clean, and therefore teeth in good occlusion never decay.

DISCUSSION

DR. JOHN L. HEFFRON, Syracuse: Refraction work is being done in Buffalo by a volunteer staff of dispensary doctors. This year the Department of Education of the city has undertaken to employ these doctors from the dispensary at a nominal salary as part time medical inspectors to care for the eyes of the schoolchildren. These men have had a good training in the dispensary, and as a consequence the school board gets good service.

DR. MOSES KESCHNER, New York: As a rule, the general practitioner gives the neuropathic child scant attention. When the mother brings such a child to me complaining of night terrors, bed wetting and nervous symptoms, I usually prescribe bromids and Fowler's solution and let it go at that. In this class of children one often has a greater problem to solve than in actual organic disease. The many details of environment and economics must be taken into consideration. These are the children that later fill the asylum, homes for epileptics and reformatories, and their treatment should be regarded as an important and serious problem.

DR. B. W. WHITBECK, New York: The records of the New York schools show that about 60 per cent. of the children present a condition of weak foot or flatfoot. I have inquired at Washington as to the disabling effects of flatfoot in the United States Army and Navy, and find that they are throwing out many candidates on account of this defect. Children with this defect are often backward in school, are tired, and will not play or eat. I saw a boy, who had been treated with tonics, sent to an oculist who prescribed glasses for the relief of headache, but all without avail. The boy finally went to the family physician who found that he had a hollow back and flat feet. This boy was treated with proper orthopedic appliances, and in a short time his general condition improved and he took off his glasses. It is not merely a question of whether the foot is flat but whether it is functionating. It is not so much a question as to whether the feet are flat as whether they are weak. Many persons have flat feet and yet go through life without symptoms. It all depends on whether or not the foot functions.

DR. FRANK OVERTON, Patchogue: I have been interested in the reference to cases in which private physicians failed to detect the defects of schoolchildren. In my own town there is efficient cooperation between the private physicians and the school inspectors. I understand that there are places where there is not this cooperation. It is one of the functions of this society to bring about such cooperation.

DR. EDWARD B. ANGELL, Rochester: We should call the attention of the general practitioner to these cases. There are many conditions that I did not refer to in my paper; I did not refer to dementia praecox. It is sometimes very difficult to tell whether one is dealing with neurasthenia or dementia praecox. I have had a case of dyspituitarism in a boy who presented feminine characteristics and an utter lack of any sense of responsibility. In this case treatment with pituitary extract has brought about great improvement both physically and mentally. Such cases show that something can be done by a careful study of these cases in youth. The points brought out as to the relation between flatfoot and hollow back and their effect on the general health are very important. Dr. Warner, of London, to whom reference was made in my paper, states that he has found many cases of hollow back and has observed that it bears some relation to flatfoot, but he has not attempted to explain it.

DR. JULIUS SCHILLER, Amsterdam: Physicians know what should be done for these children, but they are unable to do it because they do not have the means. The medical inspector knows the children in his schools who need glasses or need to have other defects corrected, but the parents do not have the means to have the work done. They cannot do much until basic economic conditions in the home are improved.

DR. A. P. SQUIRE, Rotterdam: Has any one tested for the Wassermann reaction in children having Hutchinson's teeth? What does this sign signify in schoolchildren?

DR. JOHN L. HEFFRON, Syracuse: I feel that the sign known as Hutchinson's teeth is sometimes due to a delay in the eruption of the teeth. I have not been able to discover that any one has made observations on this point.

DR. WILLIAM A. HOWE, Albany: The state department of health stands ready to make the Wassermann tests. They

have found a reasonable number of children with syphilis and have treated them in a successful manner.

DR. B. W. WHITBECK, New York: The examination of the teeth is very important. In orthopedic work all patients with arthritis are examined by the Roentgen ray in order to ascertain the condition of the teeth. When a focus of infection is found, the patient is put under treatment until this condition clears up.

DR. L. DUNCAN BULKLEY, New York: Nothing has been said as to the importance of thorough mastication. Mothers should be instructed to teach children to chew their food properly. Some device, such as aluminum or celluloid balls or a cardboard cuff around the upper arm, would prevent the child from thumb sucking.

(To be continued)

AMERICAN GYNECOLOGICAL SOCIETY

Forty-First Annual Meeting, held at Washington, D. C., May 9-11, 1916

The President, DR. J. WESLEY BOVÉE, Washington, D. C., in the Chair

SYMPOSIUM ON SYPHILIS IN ITS RELATION TO OBSTETRIC AND GYNECOLOGIC PRACTICE

Syphilis in Its Relation to Obstetrics

DR. EDWARD P. DAVIS, Philadelphia: Modern knowledge on this subject dates from the discovery of the *Spirochaeta pallida* in 1905-1906 as the cause of syphilis. The discovery of the Wassermann reaction as a means of diagnosis, and salvarsan in treatment are also important factors. Syphilis can be diagnosticated positively in a new-born infant by finding the spirochetes in the blood taken from the umbilical vein and from the tissues about the umbilicus and umbilical cord. Examination of the bodies of infants dying from syphilis soon after birth show the spirochetes abundantly present in the important viscera. A woman, apparently healthy, giving birth to a syphilitic infant is herself syphilitic, although she may show no clinical signs or symptoms for years. In these cases syphilis is conveyed from the ovum to the mother through the medium of the placenta. The mother is said to have latent syphilis and can nurse her child without disturbance in her own health, and with positive benefit to the child. She may, however, at any time develop symptoms of secondary or tertiary syphilis. The Wassermann reaction is unreliable as a positive test for syphilis in parturient women. It may give a positive reaction in cases of severe toxemia and eclampsia when syphilis is absent, and in some other conditions in which the mother's health is seriously disturbed. In the lack of a more reliable means of diagnosis, the Wassermann test should invariably be made in selecting wetnurses and in all suspicious cases.

Syphilis in the acute stage attacking a pregnant woman can often be checked promptly by the use of salvarsan. While the germs destroying syphilis may be destroyed, the toxins which they produce will usually cause death of the fetus. If syphilis occurs early in pregnancy, the best results for the mother and child are procured by mercurial treatment and potassium iodid. While skin lesions are present, hypodermic or intravenous injections of mercurial solutions are useful. In treating active syphilis in the new-born, salvarsan has been given in the cubital vein with good results. When salvarsan is used with the mother and child, the urine should be examined repeatedly to determine the presence or absence of arsenic, and the presence or absence of signs of irritation of the kidneys. Should traces of arsenic disappear from the urine, arsenic poisoning may be feared. Syphilis in parturient women greatly increases the mortality and morbidity for the mother on account of mixed infection and lesions of the genital organs. Unless promptly detected and treated, it is one of the most important causes of fetal death. No syphilitic man or woman should be allowed to marry unless he or she has been under observation for six years after the last appearance of symptoms of syphilis.

Syphilis in Relation to Some Social Problems

DR. SIGMUND POLLITZER, New York: The fact that syphilis can be transmitted from the syphilitic mother to her unborn child was recognized 400 years ago, but the fact that syphilitic children are born of apparently healthy mothers leads to the conclusion that syphilis may be transmitted to the offspring by way of the semen of the father without infecting the mother. In fact, paternal syphilis is regarded as the most frequent form in syphilitic heredity. More extended and clinical observation, the discovery of the spirochete on the maternal aspect of the placenta, and the results of the Wassermann test have completely changed our views in this respect. The transmission of spirochetes to the ovum may be regarded as a physical impossibility; a spirochete is three times as long as the diameter of a spermatozoid head, and, furthermore, an infected ovum will not develop into a fetus. Colles' and Profeta's laws are true only in the sense that the mother of a syphilitic child and the child of a syphilitic mother already have syphilis, and therefore apparently cannot acquire it. The apparently healthy mothers of syphilitic children invariably have a positive Wassermann reaction and generally present symptoms of syphilis if we follow them long enough. A Wassermann test should be made in every case of unexplained abortion.

A syphilitic man may marry if he has received three years of treatment and has remained free from symptoms for another year or two. Millions of happy marriages prove the wisdom of the rule, but the thousands that result in infection of the wives and birth of syphilitic children prove its inadequacy. The attempt to control the incidence of syphilis by segregation has proved of slight value, and, moreover, in Anglo-Saxon countries has encountered too much prejudice to permit of its enforcement. The control of syphilis must come through education of the public in the risks and dangers of illicit intercourse, and education of the physician in the importance of early diagnosis and proper treatment. I cannot refrain from contrasting the generous provision made for the care of the syphilitic in the hospitals of European cities with the attitude of our American hospitals, in most of which the patient with an active syphilis is refused admission.

Syphilis of the Internal Genital Organs in the Female

DR. GEORGE GELLHORN and DR. HUGO EHRENFEST, St. Louis: Syphilis is common enough in women to constitute a gynecologic problem in the widest sense. Not every disease in a syphilitic woman is syphilitic in nature, but syphilis, if present, will exert an influence of its own on coexisting diseases. Latent syphilis prevails more in women than in men. The course of syphilis in men differs in many points from that in women. To instance but one of the differences, the relative frequency of tabes and paresis in the two sexes is well known. Primary chancres of the vagina are rare, probably because of certain histologic and biologic characteristics of the vagina. Tertiary manifestations of the vagina are also extremely rare. They represent, as a rule, the continuation of secondary lesions in the vulva, uterus or adjoining organs. The isolated submucous gumma breaks down early and appears in the form of a more or less characteristic ulcer. The more destructive processes which eventually lead to the formation of fistulas and strictures almost always originate in structures surrounding the vagina. Tertiary lesions of the vagina do not exhibit characteristic symptoms, such as pain or discharge.

The primary chancre of the cervix represents the best known and most common type of the syphilitic affections of the female internal genitalia. Its frequency has probably been overestimated. Statistics based on a large number of observations have never shown a frequency over 1.5 per cent. of all primary chancres found on the genitalia. Syphilis manifests itself on the cervix in the form of macules, papules and ulcerations. These forms probably represent three successive stages in the development of a lesion caused by scattered accumulations of the spirochete in the squamous mucosa of the cervix. The parasite can readily be recovered from the secretion of any of the three forms, and this explains the great infectiousness of secondary lesions. The Wassermann reaction is positive in this stage.

Syphilis of the pelvic cellular tissue appears in the form of a diffuse gummatous infiltration which secondarily involves the pelvic peritoneum. In almost all instances a diagnosis of malignancy has been made. In our case the positive outcome of the Wassermann reaction, together with other unmistakable signs of tertiary syphilis about the outer genitals, aided in arriving at a correct diagnosis. Specific treatment produced amazingly quick improvement of an apparently hopeless condition.

Occurrence of Syphilis in the University of Michigan Obstetric and Gynecologic Clinic

DR. REUBEN PETERSON, Ann Arbor, Mich.; Out of 2,000 inpatients in the University Hospital, the proportion of syphilitics is 6 per cent. The percentage of syphilis in 381 cases in the university maternity was 4.7. In eighteen cases of syphilis among the number examined, only eight, or less than half, gave a history of syphilis. In only the same number (eight) were there positive physical signs of syphilis. As shown by the histories of the eighteen cases, there was a greater chance for the syphilitic mother treated by salvarsan and mercury to give birth to a living full term child than when no treatment was given during pregnancy. The newborn infants of the mothers so treated did not give positive Wassermann reactions, although undoubtedly they were syphilitic and later would probably show signs of the disease. A certain proportion of the new-born children of untreated syphilitic mothers will give positive Wassermanns. Out of 390 gynecologic patients subjected to the Wassermann test, twenty, or 5.6 per cent., gave positive reactions. In only five of the twenty-two syphilitic patients was there a history of syphilis.

Relationship of Syphilis to Miscarriage and Fetal Abnormalities

DR. F. L. ADAIR, Minneapolis: Among 1,095 obstetric cases there ewere 2,422 full term pregnancies, 197 abortions, 62 miscarriages, 84 premature births, and 8 unclassified cases. There were 76 still-births and 16 fetal malformations. These cases were studied for evidences of syphilis by the Wassermann reaction, and clinical and necropsy evidence. In those cases giving a history of abortion there were 621 pregnancies in 109 cases. There were 197 abortions in these cases, or approximately one to every three pregnancies. There were 13 syphilitic cases in which there were 74 pregnancies with 23 abortions, or approximately 1:3. In 83 cases without evidence of syphilis there were 464 pregnancies, and 142 abortions, or about 1 to 3. Apparently pregnancy does not end much more frequently during the first three months in those affected with syphilis than in those who are free from the disease. Forty patients had 62 miscarriages in 202 pregnancies, or approximately 1:3. Seven patients with syphilis had 10 miscarriages in 27 pregnancies, or about 1:3. Thirty patients without syphilis had 49 miscarriages in 161 pregnancies, or approximately 1:3. There were 68 cases with 84 premature births in 241 pregnancies, or 1:3. There was evidence of syphilis in about one third of these mothers. Congenital syphilis appeared in 5 of 50 infants born in the hospital. Of the 50 who were stillborn, syphilis was demonstrated in 4. This means that 9 of 50 premature infants were proved syphilitic. There were 64 mothers who had 76 stillbirths. The Wassermann reaction was positive in about one tenth of these cases. Four of 34 infants born in the hospital were proved to be syphilitic, or about 1:8. Two of 15 deformed infants were born to syphilitic mothers. There was evidence of syphilis in 2 of 11 cases of hydramnios. Two of 5 cases of hemorrhage of the new-born were apparently due to syphilis.

How Closely do the Wassermann Reaction and the Placental Histology Agree in the Diagnosis of Syphilis?

DR. J. MORRIS SLEMONS, New Haven, Conn.: The Wassermann reaction in the mother's blood and the microscopic examination of the placenta were carried out in 360 consecutive confinements. There was absolute agreement between the serologic test and the result of study of the chorionic villi in 345 cases, or 95 per cent. Occasionally the placental findings are more reliable than the Wassermann. Then, again, the Wassermann may be more accurate than the placenta, and this is most likely to be true in postconceptional syphilis. Accurate diagnosis of syphilis in obstetric patients requires both the Wassermann reaction and the study of the placenta. The freshly teased chorionic villi should be examined as a routine. If their appearance raises suspicion of syphilis, hardened and stained sections of the placenta must be studied and the Wassermann reaction in the mother's blood must be determined. Irrespective of the teased villi, both these observations should be made whenever the fetus is premature, macerated or stillborn.

Experimental Syphilis

DR. F. W. BAESLACK, Detroit: Attempts at immunization by means of *Spirochaeta pallida* vaccines were made and the occurrence of agglutinins in the serum of animals treated with suspensions of dead spirochetes was noted. The absence of immunity was demonstrated by the ability to reinoculate animals which had recovered spontaneously or subsequent to treatment. An altered reactivity of the body is the possible explanation for the occurrence of the lesions peculiar to the various stages of syphilis.

Syphilitic Fever

DR. FREDERICK J. TAUSSIG, St. Louis: The rare mention of this symptom in gynecologic literature is out of proportion to the comparative frequency of its appearance. A positive diagnosis of syphilitic fever can be made only rarely, but the diagnosis can be made with great probability in certain groups of cases. Syphilitic fever may be divided into: 1. Secondary syphilitic fever occurring at the outbreak of the eruption, lasting usually only three to four days with a rise of temperature of 99.3 or 100 F. Fournier estimates that the symptom occurs in 20 per cent. of all syphilitics. 2. Late secondary syphilitic fever may complicate pregnancy or gynecologic conditions; it is usually prolonged with a higher degree of temperature. In these cases the diagnosis is based on the positive history and evidence of a syphilitic infection, the exclusion of other febrile diseases, and the immediate and permanent result of antisyphilitic treatment. 3. Tertiary syphilitic fever is of greater diagnostic importance than the two previous groups because the symptoms and history of syphilis are often absent and only the four plus Wassermann points the way to an interpretation of the continuous fever. The cause of syphilitic fever is, in all likelihood, to be found in the entrance of spirochete toxins, in addition to the organisms themselves, into the circulation. Probably individual predisposition is also an important factor in the rise of temperature. That fever occurs occasionally after injections of mercury or salvarsan, when it may be fairly assumed that large quantities of endotoxins are liberated from the dead spirochete, is additional confirmation of the toxic interpretation of syphilitic fever.

(*To be continued*)

Campaign Against Degenerative Diseases of Adult Life.—The April number of the *Monthly Bulletin* of the department of health of New York City contains interesting statistics with reference to the mortality from chronic disease of the heart, kidneys and arteries and a careful analysis of their significance by Dr. Charles F. Bolduan, director of the Bureau of Public Health Education. These form the basis for a plan of education for the control of this class of diseases. This plan includes the devices that have been employed in campaigns directed against tuberculosis and infant mortality. It would also include a large exhibition of adult hygiene on the lines of the exhibition held in Dresden three years ago, the key of the exhibition being prevention, early recognition and competent medical care. In connection with this plan the department of health announces that it is prepared to undertake a sanitary survey of any industry, trade or group of manufacturing or mercantile establishments with a view of appraising existing conditions and in order to show employers and workers alike what can be accomplished through a system of voluntary hygienic and sanitary control.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

May, XL, No. 3, pp. 373-501

1 Falling Reflex of Cats. H. R. Muller and L. H. Weed, Baltimore.
2 *Circulation of Blood in Man at High Altitudes. Effects of Physical Exertion on Pulse Rate, Arterial and Venous Pressures. E. C. Schneider, G. E. Cheley and D. L. Sisco, Colorado Springs, Colo.
3 *Appearance of Sugar in Secretions of Digestive Tract Following Administration of Phlorhizin. R. G. Pearce, Chicago.
4 *Destruction of Hormones, Proenzymes and Enzymes by Ultraviolet Radiation. W. E. Burge, W. R. Fischer and A. J. Neill, Urbana, Ill.
5 Excitation of Phrenic Nerve by Action Current of Heart. F. H. Pike, New York.
6 *Character of Innervation of Kidney. R. Burton-Opitz, New York.
7 Some of General Physiologic Properties of Diaphragm Muscle as Compared With Certain Other Mammalian Muscles. F. S. Lee, A. E. Guenther and H. E. Meleney, New York.
8 *Some Chemical Properties of Certain Mammalian Muscles. F. S. Lee, E. L. Scott and W. P. Colvin, New York.
9 Action of Temperature and Humidity on Working Power of Muscles and on Sugar of Blood. F. S. Lee and E. L. Scott, New York.

2. **Circulation of Blood at High Altitudes.**—The observations recorded in this paper were made on Pike's Peak. Briefly, Schneider's study shows that by the first morning spent at the high altitude the pulse rate had accelerated in the group that ascended by train and remained well to from 4.5 to 15.6 per cent., in the mountain sick group to from 22.4 to 46.6 per cent. and for those who walked up to from 26 to 66 per cent. The mean pulse rate showed the same group differences, while the variations throughout the day were the same for each. The frequency of the heart beat due to changes in posture was not materially different at the two altitudes. The observations on the after effects of walks for fifteen minutes at the rate of three and four miles per hour and of a short rapid run show that physical exertion accelerated the heart rate more at the high than at a low altitude, and that the altitude influence was disproportionately increased as the amount of work was increased. For moderate exertion the effects were greater during the first days of residence. After a time the three-mile walk did not call forth the altitude acceleration, but it persisted after the four-mile walk even after two weeks of residence. The time required for the heart rate to return to normal was also prolonged during the first days but was reduced with acclimatization. The short rapid runs were exhausting at the high altitude; the heart was accelerated on an average of 120 beats per minute and the rate remained high for several hours thereafter. During work on a stationary bicycle at the high altitude the heart rate increased to the maximum in the primary rise; while at the low altitude the maximum came later, in the secondary rise.

Arterial pressures were higher after a given form of work at the high than at the low altitude. The influence of lowered barometric pressure was the more pronounced the more vigorous the exertion. The reaction was most conspicuous during the first days of residence, but while lessened by acclimatization it did not wholly disappear after a residence of two weeks. The average rise in the systolic pressure after a short quick run was 61 mm., while the average pressure for each of three men was 177, 195 and 197 mm. Hg. These high pressures were similar to those caused by a maximum lift of weights. The delay in the return to normal was as prolonged as after exhaustive exercises. During work the arterial pressures rose more rapidly at the high than at a low altitude; the rate of rise was not as rapid as that of the pulse rate. Ordinarily at the low altitude the arterial pressure reaches its maximum before the pulse rate, but at the high altitude the pulse rate first comes to the maximum. Physical work caused in five out of seven subjects a greater rise in the venous pressure at the high than at the low altitude. The maximum, however, was on the average less than at the low altitude because of the fact that the normal venous pressure was lower on Pike's Peak. The exertion of walking up the Peak is exhausting and puts a serious strain on the heart.

3. **Effect of Phlorhizin on Digestive Secretions.**—The reducing power of the pancreatic, gastric and salivary secretions in normal and phlorhizinized dogs was investigated by Pearce and he found that they do not contain an appreciable amount of reducing substance. The pancreatic and gastric juices and sometimes the salivary juice of dogs rendered glycosuric by phlorhizin, contain a reducing substance. In the case of the pancreatic juice, this is dextrose.

4. **Action of Ultraviolet Radiation on Enzymes, Etc.**—According to Faraday's law the amount of silver deposited on the cathode, when an electric current is passed through a solution of silver salt, is proportional to the amount of current passed, that is, to the energy applied. It has been shown that this same relation exists between the amount of current passed and the destruction of enzymes. In view of these facts it would seem that the relation between the decrease in enzyme activity and exposure to ultraviolet radiation should be linear. The experiments reported by Burge, Fischer and Neill were carried out to see if this was true. They tested epinephrin secretion and cholagogues, trypsin, trypsinogen, pepsin, ptyalin, amylopsin and enterokinase. The rate of destruction was found to be proportional to the amount of energy applied, except that the cholagogic activity of bile was not affected by exposure to ultraviolet radiation.

6. **Innervation of Kidney.**—The experiments cited by Burton-Opitz confirm his previous contention that the innervation of the kidneys is unilateral and enable him to explain the peculiar changes in the blood supply of these organs which he obtained on contralateral stimulation of the splanchnic nerves. The initial increase in the flow is attributed correctly to the rise in the general blood pressure, because as the kidney on the opposite side is not directly affected by the stimulation, its vascularity must be subject to the changes in the arterial driving force. The subsequent decrease in the blood supply is caused by the secondary constriction of the renal blood vessels by the epinephrin.

8. **Chemical Properties of Certain Mammalian Muscles.**—This paper contains the results of a determination of the chemical elements other than carbon, hydrogen and oxygen and of the glycogen occurring in four muscles of the cat, namely, the diaphragm, the extensor longus digitorum, the sartorius and the soleus; together with an endeavor to correlate those results with certain of the physiologic properties of the same muscles. The authors found that the quantity of lipin sulphur and of water-soluble sulphur is least in the diaphragm, greatest in the soleus, and intermediate in the extensor and the sartorius; that is, the quantity of nonprotein sulphur varies inversely to the order in which most of the general physiologic properties of the muscles are expressed. The ratios betwen the lipin sulphur and the lipin phosphorus and between the water-soluble sulphur and the water-soluble phosphorus vary directly as most of the general physiologic properties of the muscles. The protein sulphur varies directly as most of the general physiologic properties of the muscles, and is possibly to be correlated with muscular respiration. The glycogen content is greatest in the diaphragm, least in the soleus, and intermediate in the extensor and the sartorius. It thus varies directly as most of the general physiologic properties of the muscles, and is to be especially correlated with their reducing power and their working power. For each muscle there seems to be a specific ratio between the potassium and the sodium.

Boston Medical and Surgical Journal

May 18, CLXXIV, No. 20, pp. 703-738

10 How Massachusetts Provides for Its Mentally Ill. L. V. Briggs, Boston.
11 Hallux Rigidus; Report of Cases. C. F. Painter, Boston.
12 Use of Duodenal Tube for Diagnosis and Treatment. (Concluded.) F. W. White, Boston.
13 Chronic Inversion of Uterus; Report of Cases. J. C. Hubbard, Boston.
14 Case of Pregnancy and Labor Following Resection of Ovary. F. W. Johnson, Boston.

Bulletin of Johns Hopkins Hospital, Baltimore

May, XXVII, No. 303, pp. 121-156

15 *Nitrogen Metabolism During Pregnancy. K. M. Wilson, Baltimore.
16 *Functional Significance of Mitochondria in Toxic Thyroid Adenomas. E. Goetsch, Baltimore.
17 *Renal Diabetes; Report of Case. D. S. Lewis and H. O. Mosenthal, Baltimore.
18 Bilateral and Complete Trigeminal Paralysis Without Involvement of Other Cranial Nerves. C. M. Byrnes, Baltimore.
19 Digestion; Historical Survey. R. J. Cary, Lake View, Wash.

15. **Nitrogen Metabolism During Pregnancy.**—Observations were made by Wilson on the nitrogen metabolism in three normal pregnancies; in one patient for a period of four weeks, from the tenth to the fourteenth weeks of the pregnancy. The other two patients were studied for the last 133 and 101 days of their respective pregnancies and also for a short time in the puerperal period. A fairly liberal diet was allowed, both in quantity and character of foodstuffs used. The urine was collected for twenty-four hour periods, and carefully preserved; of these specimens daily analyses were made. The feces were preserved and analyzed weekly. Wilson found that in the perfectly normal pregnant woman, storage of nitrogen begins at a much earlier period than has hitherto been supposed; possibly the organism may acquire the capacity for storing nitrogen from the very beginning of the pregnancy. In the early months this storage is far in excess of the actual needs of the developing ovum, and the excess must be added to the general maternal organism. Storage of nitrogen continues throughout the entire duration of pregnancy, being most marked during the last few weeks, when the fetal needs are at a maximum. The nitrogen stored is greatly in excess of the actual needs of the developing ovum, so that, apart from the amount needed for the hypertrophy and development of the genitalia and breasts, a large proportion of the nitrogen stored is added to the general maternal organism as "rest material," though, concerning the form in which the reserve is stored, the author is unable to make any positive statement. The nitrogen capital of the maternal organism is thus increased, though the reserve supply may possibly be entirely exhausted during the puerperium and period of lactation.

In the healthy woman, who goes through a normal pregnancy, the period of gestation does not necessarily represent a "sacrifice of the individual for the sake of the species," but may actually be a period of gain. There is a relative increase in the percentage of urinary nitrogen excreted in the form of free amino-acids, though not necessarily an absolute increase in this form of nitrogen. There is also a tendency for the precentage of ammonia nitrogen to become increased during the last weeks of pregnancy, although at other times during the pregnancy there is practically no variation from the percentages noted in nonpregnant individuals on a similar diet.

16. **Significance of Mitochondria in Toxic Thyroid Adenomas.**—Attention is directed by Goetsch to the determination of glandular function, especially in a gland presenting so many variations in its pathologic anatomy as the thyroid gland. He feels that in the study of the pathologic anatomy of the thyroid gland, the mitochondria will prove to be a better index of the thyroid activity than the histologic criteria heretofore applied. Since the mitochondria occur normally in the thyroid cell, and since they are present in greatly increased numbers in the adenomas associated with symptoms of hyperthyroidism, it would seem probable that they are correlated with an overproduction of an otherwise normal secretion produced by the thyroid cell. It is interesting that exophthalmos is so rarely, if ever, associated with thyroid adenomas. Goetsch suggests that perhaps there is a very different form of intoxication in the true Basedow's disease. In the latter the thyroid gland, just as in the case of the toxic adenomas, shows a marked increase in mitochondria over the normal. There are, however, several differences in these two conditions in the number, morphology, size and distribution of the mitochondria, a description of which is promised in a later report.

17. **Renal Diabetes.**—The patient whose case is cited by Lewis and Mosenthal showed glycosuria, but none of the other abnormalities characteristic of an impaired carbohydrate metabolism. A slightly diminished phenolsulphonephthalein excretion, the slight elevation of Ambard's constant above the normal, as well as the glycosuria, point to a depressed kidney function. The absence of any further subjective or objective signs, past or present, leads the authors to the conclusion that a renal glycosuria is an interesting anomaly, but of no importance to the organism as a whole.

Colorado Medicine, Denver

May, XIII, No. 5, pp. 135-166

20 Some Points in Eye Diseases for General Practitioner. F. E. Wallace, Pueblo.
21 Few of Many Lessons in Medicine and Surgery Taught by Present European War. C. Powell, Denver.
22 Silent Features of Tuberculosis of Kidney. O. Lyons, Denver.
23 *Rest of Individual Lung by Posture. G. B. Webb, A. M. Forster and F. M. Houck, Colorado Springs.
24 Osteo-Arthritis. H. W. Wilcox, Denver.
25 Mortality in Abdominal Surgery. E. C. Rich, Ogden, Utah.
26 Effects of Drying on Viability of Germs. J. M. Shapiro, Denver.

23. **Rest of Lung by Posture.**—The authors suggest to attempt to train tuberculosis patients to rest at night and during day time on the more afflicted side, and in addition to place a small firm pillow under this side to restrain to a greater degree its motion. The application of the principle suggested would seem to have been efficacious in many patients for a year past in reducing the amount of sputum, promoting healing, hindering relapses and diminishing fever.

Illinois Medical Journal, Chicago

May, XXIX, No. 5, pp. 321-400

27 Criminal Boy. Observations Based on One Hundred and Twelve Cases. W. O. Krohn, Chicago.
28 Ultraviolet Rays in Dermatology. E. A. Fischkin, Chicago.
29 Importance of Examination of Larynx in General Practice. N. Schoolman, Chicago.
30 Résumé on Foreign Bodies in Stomach; Report of Case. G. C. Amerson, Chicago.
31 Treatment of Nervous Diseases. J. Grinker, Chicago.
32 Neurasthenia. A. S. Hershfield, Chicago.
33 Meniere's Disease; Report of Case. O. Tydings, Chicago.
34 Advantages of Scientific Feeding in Certain Nervous States. A. R. Satterlee, Danville.
35 Bacteriology of Pneumonia. A. A. Day, Chicago.
36 Indications for Removal of Tonsils. F. J. Lesemann, Chicago.
37 Diagnosis and Elimination of Chronic Focal Infections Associated With Teeth. W. H. G. Logan, Chicago.
38 Some Common Errors in Practice of Obstetrics. H. M. Stowe, Chicago.
39 Prognosis of Nuclear Units. H. H. Seyl, Chicago.
40 Cases of Trichinosis With Remarks on Diagnosis. L. Bloch, Chicago.
41 Acute Otitis Media. R. H. Good, Chicago.

Journal of Bacteriology, Baltimore

January, I, No. 1, pp. 1-134

42 Genesis of New Science — Bacteriology. W. T. Sedgwick.
43 Pedagogics of Bacteriology. D. H. Bergey, Philadelphia.
44 Studies on Bacterial Nutrition; Utilization of Proteid and Non-proteid Nitrogen. L. F. Rettger, N. Berman and W. S. Sturges, New Haven, Conn.
45 Studies on Soil Protozoa and Their Relation to Bacterial Flora. J. M. Sherman, Madison, Wis.
46 *Culture Medium for Maintaining Stock Cultures of Meningococcus. C. G. A. Roos, Glenolden, Pa.
47 *Bile Compared With Lactose Bouillon for Determining Presence of B. Coli in Water. M. M. Obst, Washington, D. C.

46. **Stock Cultures of Meningococcus.**—The culture medium devised by Roos is a modification of the potato blood agar used by Bordet and Gengou for the isolation of *B. pertussis*. It permits of relatively slow growth of the meningococcus with apparent suppression of ferment formation, thus resulting in greater viability. Preparation of medium: 1. Prepare potato extract as follows: (*a*) Potato peeled, cut in small pieces and washed in running water for about two hours, 100 gm. (*b*) Water containing 4 per cent. double distilled glycerin free from acid, 200 c.c. (*c*) Mix and autoclave for forty minutes. (*d*) Allow to stand over night and strain through cheese cloth. 2. Make potato extract agar as follows: (*a*) Mix in an Erlenmeyer flask, potato extract, 50 c.c.;

sodium chlorid solution 0.65 per cent., 150 c.c.; agar 5 gm. (*b*) Heat in Arnold sterilizer until agar is melted, requiring from thirty minutes to one hour. 3. Tube without filtering, and sterilize, in autoclave for about forty minutes. 4. When wanted for use, melt the agar, cool to about 45 C. and add the desired amount of sterile defibrinated horse blood. The amount of blood to be added depends on whether or not the meningococcus has become accustomed to the medium.

47. **Bile Compared with Lactose Bouillon.**—Lactose bouillon used by Obst as a substitute for lactose peptone ox-bile permitted the development of about twice as many *B. coli* from water as the bile medium. Lactose bouillon costs less in money and labor. The difficulty of obtaining pure, fresh bile puts it almost out of the reach of many workers. The stored bile is proved to show progressive deterioration. Lactose bouillon can be prepared when desired and can be made more uniform. It need contain no precipitate to clog the inner tube or to affect the activity of the organism.

Journal of Biological Chemistry, Baltimore

May, XXV, No. 1, pp. 1-175

48 *Amino-Acid Minimum for Maintenance and Growth. T. B. Osborne and L. B. Mendel, New Haven, Conn.
49 *Synthesis of Hippuric Acid in Animal Organism. Excretion of Uric Acid After Ingestion of Sodium Benzoate. H. B. Lewis and W. G. Karr, Urbana, Ill.
50 Studies in Blood Relationship of Animals as Displayed in Compositions of Serum Proteins. Percentage of Nonproteins in Serums of Certain Animals and Birds. R. M. Jewett, Berkeley, Calif.
51 Toxic Action of Soluble Aluminium Salts on Growth of Rice Plant. K. Miyake, Berkeley, Calif.
52 Solubility Data for Various Salts of Lauric, Myristic, Palmitic and Stearic Acids. C. A. Jacobson and A. Holmes, Reno, Nev.
53 Separation of Lauric and Myristic Acids From Each Other and From Mixtures of Other Fatty Acids. C. A. Jacobson and A. Holmes, Reno, Nev.
54 Changes in H Plus and OH Minus Concentration Which Take Place in Formation of Certain Protein Compounds. C. L. A. Schmidt, Berkeley, Calif.
55 Fate of Normal A-Aminocaproic Acid in Phlorhizinized Dog. I. Greenwald, New York.
56 Admissibility of Ammonium Magnesium Phosphate as Form in Which to Weigh Phosphoric Acid. W. Jones, Baltimore.
57 Hydrolysis of Yeast Nucleic Acid With Ammonia. W. Jones and H. C. Germann, Baltimore.
58 Hydrolysis of Yeast Nucleic Acid in Autoclave. P. A. Levene and W. A. Jacobs, New York.
59 *Nature of Dietary Deficiencies of Wheat Embryo. E. V. McCollum, N. Simmonds and W. Pitz, Madison, Wis.
60 *Separation of Autogenous and Added Hydrocyanic Acid From Certain Plant Tissues and Its Disappearance During Maceration. C. L. Alsberg and O. F. Black, Washington, D. C.
61 Cyanogenesis in Plants. Studies on Tridens Flavus (Tall Red Top). A. Viehoever, C. O. Johns and C. L. Alsberg, Washington, D. C.
62 *Effect of Surgical Procedures on Blood Sugar Content. A. A. Epstein and P. W. Aschner, New York.
63 Formation of Specific Proteoclastic Ferments in Response to Parenteral Injection of Foreign Proteins. F. Hulton, Philadelphia.
64 Limit of Assimilation of Glucose. A. E. Taylor and F. Hulton, Philadelphia.

48. **Amino-Acid Minimum for Growth.**—Additional experiments are reported by Osborne and Mendel to show the part played by tryptophan and lysin in the metabolism of maintenance and growth. The quantity of these amino-acids available in the diet can be made the limiting factors which determine the nutritive equilibrium and possibilities for increment of size in an individual. They afford an important illustration of the "law of minimum" applied to essential nitrogenous components of the food supply.

49. **Excretion of Uric Acid After Ingestion of Sodium Benzoate.**—Coincident with the maximal elimination of the ingested benzoate during the first four hours after administration, the uric acid excretion was markedly diminished, a decrease of 50 to 70 per cent. as compared with the excretion during the corresponding periods of the fore and after days. No significant changes in the elimination of creatinin or uric acid resulted from the administration of large doses of sodium hippurate. The decreased uric acid excretion observed after benzoate ingestion would seem to be due to the effect of the benzoic acid itself and not to its conjugated, nontoxic derivative, hippuric acid. There was a slower elimination of the hippuric acid after the administration of sodium hippurate, than after benzoate administration.

59. **Dietary Deficiencies of Wheat Embryo.**—The experiments reported in this paper reveal the fact that the wheat embryo contains qualitatively all the factors essential for the promotion of growth and well-being in an animal, but these are not so proportioned that it can serve as a satisfactory diet without several modifications. The mineral content must be modified in certain respects before growth can proceed at all. The character of the proteins is excellent; no other proteins from plant sources which the authors have studied are superior to them. Rations containing but 10 per cent. of these proteins are wholly adequate for growth at the maximum rate. Both the fat soluble A and the water soluble B, the factors which must be supplied by an adequate diet, but whose chemical natures are as yet unknown, are present; the first, in moderate concentration; the second, in very high concentration as measured by the needs of the growing animal. Two per cent. of wheat embryo supplies enough of the water soluble B to promote growth at the normal rate for several months. There is contained in the wheat germ a substance which is distinctly toxic to animals. This is in great measure removed by extraction with ether, and is found in the fat fraction. The authors have not yet determined whether the toxicity is due to peculiarities in the chemical nature of the fats themselves or to something which is associated with the fats.

60. **Hydrocyanic Acid in Plant Tissues.**—Alsberg and Black show that the leaves of *Prunus virginiana* must be distilled with acid four hours before all of the hydrocyanic acid is liberated, whereas in Andropogon and Panicularia less than one hour is sufficient to liberate all hydrocyanic acid present. It is further shown that in macerating plant tissues that contain hydrocyanic acid a certain amount of the hydrocyanic acid present or of cyanid that may be added is so converted that it is not recoverable by distillation with sulphuric acid. This is not due to the action of enzymes or to the presence of glucose. It is here shown that in determining hydrocyanic acid in plants several methods in corroboration of each other must be used.

62. **Effect of Surgical Procedures on Blood Sugar Content.**—Seventy-seven cases were studied by Epstein and Aschner. In twelve cases in which they observed a hyperglycemia before anesthesia (a sugar content above 0.11 per cent.), it was evident from further examinations that the high sugar content was due to various associated factors, and not to any psychic disturbances. These were of the nature of obesity, nephritis, hypertension, fever and loss of blood as in menorrhagic conditions, in which a hyperglycemia is believed to be encountered frequently. That the hyperglycemia in these cases was due not to psychic factors was further evidenced by the subsequent determination of the blood of these patients, which showed that the hyperglycemia was persistent in many of them. Only four patients operated on under local anesthesia were examined, and from the results obtained it appears that not only was there no resultant hyperglycemia, but that a slight diminution in the blood sugar content takes place. Sixty patients operated on under general anesthesia were examined. In fifty-seven of the sixty cases there was a well marked increase in the blood sugar content after anesthesia and operation. In one case there was a rise of only 0.001 per cent. within the limit of error. In another case there was a decrease of 0.004 per cent., in a third a decrease of 0.006 per cent. The average results in all kinds of cases, regardless of duration, showed a decided increase after operation, and the persistence of a moderate increase twenty-four hours later. There was no difference between the effect of intraperitoneal operations and extraperitoneal operations on the sugar content of the blood. The anesthesia played the important rôle in the production of the hyperglycemia observed. The more marked increases in blood sugar content appeared when the anesthesia lasted one hour or more. The operation of nephrectomy had an especially marked effect in the blood sugar content and the operation of itself was responsible for a good part of the

hyperglycemia, over and above the effect of the prolonged anesthesia. Postoperative glycosuria was found in only one of fifty cases in which the postoperative urine was examined for sugar with Fehling's reagent. This was a plastic operation lasting fifty-five minutes.

Kentucky Medical Journal, Bowling Green

May, XIV, No. 5, pp. 235-290

65 Medical and Surgical Treatment of Tuberculosis. E. Morris, Oak Forest, Ill.
66 Purity in Life and Language of Physician. J. W. Crenshaw, Cadiz.
67 Hemophilia; Report of Case. H. M. Rubel, Louisville.
68 Care and Comfort of Surgical Patient. A. C. L. Percefull, Louisville.
69 Backache. S. P. Garrison, Bellevue.
70 What the Physician Owes Public. W. J. Gerding, Newport.
71 Commoner Diseases of Kidney. W. J. Gerding, Newport.
72 Medical Inspections of Schools. E. A. North, Newport.
73 Urinalysis in Life Insurance. L. T. Eckler, Falmouth.
74 Headache as Diagnostic Symptom. F. R. Burton, Chenoa.
75 Acute Rhinitis. J. F. Adams, Bagdad.
76 Eye Strain. J. P. Edwards, Middlesboro.
77 Acute Articular Rheumatism in Children. A. S. Brady, Greenup.
78 Condition for Which Hippocrates Bled. W. W. Morton, Bluefield.
79 Acute Septic Peritonitis. J. H. Caldwell, Cincinnati.

Laryngoscope, St. Louis

April, XXVI, No. 4, pp. 217-368

80 Index-Medicus and Digest of Otolaryngology for 1915.

Medical Record, New York

May 20, LXXXIX, No. 21, pp. 895-940

81 Some Mechanical Factors in Colonic Stasis. C. H. Peck, New York.
82 *Golfer's Foot. C. Cross, San Francisco.
83 Review of One Hundred and Thirty-Two Consecutive Operations for Fibroid Tumors of Uterus. E. G. Jones and D. F. Winn, Atlanta, Ga.
84 Two Cases of Syphilis of Lung. S. Bauch, New York.
85 Diet in Diabetes Mellitus as Modified by Considerations of Nitrogenous Metabolism. E. E. Cornwall, Brooklyn.
86 Salt Water Ear. (Infection Due to Sea Bathing). H. B. Blackwell, New York.

82. **Golfer's Foot.**—Golfer's foot is a term applied by Cross to an acute condition of the foot due to distortion as a result of broken arch in the anterior metatarsal curved area.

Military Surgeon, Washington, D. C.

May, XXXVIII, No. 5, pp. 483-600

87 Etiology of Typhus and Louse Extermination, From Viewpoint of Sanitarian. H. G. Beyer, U. S. Navy.
88 Instruction of Enlisted Sanitary Personnel of Organized Militia. C. W. Comfort, Jr., Conn. N. G.
89 Experiences in German Reserve Hospital Under Auspices of American Red Cross. E. A. Hamilton, Ohio N. G.
90 Organization and Problems of War Hospital. J. M. Flint.
91 American Surgeons Under Fire. J. S. Schmitt.
92 Epidemic of Dysentery at Fort Shafter, Hawaii; Three Cases of Hiss-Russell or "Y" Bacillus Infection. G. M. Van Poole, U. S. Army.
93 Epidemic of Bacillary Dysentery Due to Hiss-Russell Bacillus. M. A. Delaney, U. S. Army.
94 Bacillary Dysentery, Recent Epidemic at Fort Shafter, Hawaii Territory, From Laboratory Aspect. F. H. Foucar, U. S. Army.
95 New Rôle of American Red Cross. J. R. Kean, U. S. Army.

New York Medical Journal

May 13, CIII, No. 20, pp. 913-960

96 Action of Carbon Dioxid Baths. S. Baruch, New York.
97 Mineral Bath Therapeutics at Mount Clemens. W. T. Lungerhausen, Mount Clemens, Mich.
98 Value of Springs at Saratoga. A. S. Downs, Saratoga Springs.
99 Oertel System of Graduated Exercise. W. H. Deaderick, Hot Springs, Ark.
100 Waters at Paso Robles, California. M. C. Myers, Paso Robles, Calif.
101 Longitudinal Inversion of Colon. R. T. Morris, New York.
102 Five Glass Catheter Test. A. L. Wolbarst, New York.
103 Immune Response in Pulmonary Tuberculosis. E. Bonime, New York.
104 Surprises for Diagnostician Revealed by Pathologist. W. G. Baetz, Woodhaven.

Northwest Medicine, Seattle, Wash.

May, XV, No. 5, pp. 145-182

105 *Auricular Flutter; Report of Cases. M. H. Tallman, Boise, Idaho.
106 Appendicitis. P. Rockey, Portland, Ore.
107 Id. H. A. Shaw, Seattle.
108 Surgery of Alimentary Canal. C. P. Thomas, Los Angeles.
109 Backache From Viewpoint of Orthopedist. J. C. Graves, Jr., Spokane.
110 Vaccine and Serum Therapy. E. R. Dumke, Ogden, Utah.
111 Causes Underlying Migratory Diathesis in Physicians. J. P. Kane, Tacoma.

105. **Auricular Flutter.**—A classification by Tallman of fifty-eight cases demonstrates three different types: (1) flutter in an apparently normal heart; (2) auricular flutter supervening during the course of chronic heart disease; (3) auricular flutter with partial and complete heart block. The study of the radial pulse demonstrated that the rate and rhythm varies greatly in the different cases and at different times in the same case. When the pulse is responding at from 130 to 160 beats per minute, a 2:1 rhythm is present which is usually regular and presents many alternations. In only five cases were the polygraphic characteristics of auricular flutter definite and in accord with the clinical findings. The duration of flutter, Tallman says, has apparently but little effect on the results of medication. With the slowing of the ventricular rate the objective and subjective symptoms of flutter rapidly disappear. In his experience digitalis must be given in large doses, frequently increasing the dose to the point of physiologic tolerance. In cases of partial block, he says, it is well to proceed carefully and slowly, as in these cases life and comfort depend on the long continued use of this remedy. In many cases of auricular flutter there is a tendency to recurrence which responds to treatment equally as well as the first attack. When normal rhythm cannot be secured, sufficient digitalis should be taken to reduce the pulse rate to from 60 to 70 beats per minute. In cases of extreme urgency strophanthin intravenously has given marvelous results in his cases.

Ohio State Medical Journal, Columbus

May, XII, No. 5, pp. 305-376

112 Classification and Treatment of Diarrhea in Childhood. F. H. Lamb, Cincinnati.
113 Harrison Antinarcotic Act as It Relates to Practicing Physician. C. H. Wells, Columbus.
114 Treatment of Chronic Intestinal Intoxication. J. H. Schroeder, Cincinnati.
115 Coloboma of Eyelid. L. K. Baker, Cleveland.
116 Medical Fellowship, Need of Hour. B. R. Miller, Tiffin.
117 Lymphoblastomas of Gastro-Intestinal Tract; Case of Hodgkin's Disease of Stomach. E. Scott and J. Forman, Columbus.
118 What Constitutes Ideal Method for Admission of Mental Patients to State Institutions. E. L. Braunlin, Dayton.
119 Office Practice in Rectal Diseases. S. Englander, Cleveland.

Ophthalmic Record, Chicago

May, XXV, No. 5, pp. 217-270

120 Refraction of Myopes — Consideration of Current American Teachings. E. Hill, Chicago.
121 Etiology of Iritis as Determined by Laboratory Methods and Its Treatment, Especially by Bacterins. W. Reber, Philadelphia.
122 Linear Method of Cataract Extraction. Cases Suitable for It and Its Advantages. W. H. Wilder, Chicago.
123 Experience in Cataract Operations. S. B. Muncaster, Washington, D. C.
124 Case of Orbital Endothelioma. C. A. Leenheer, Chicago.

Public Health Journal, Toronto

May, VII, No. 5, pp. 231-286

125 Social Service and Hospital Efficiency. H. R. Y. Reid.
126 Feebleminded and Public Schools. C. G. Fraser, Toronto.
127 Woman's Work Before Marriage. J. Martin.
128 Physician in Industry. M. W. Alexander.
129 State Health Organization. C. V. Chapin, Providence, R. I.
130 Dental Path; Its Importance as an Avenue to Infection. T. B. Hartzell and A. T. Henrici, Minneapolis.

Southern Medical Journal, Birmingham, Ala.

May, IX, No. 5, pp. 387-478

131 *Dietetic Treatment of Bronchial Asthma. A. Eustis, New Orleans.
132 *Quinin and Urea Injections in Hyperthyroidism. L. F. Watson, Oklahoma City.
133 Relation of Eye Grounds to Work of Internist. G. C. Lechenger, Houston, Texas.
134 Etiology of Pellagra With Especial Consideration of Phenomena of Sensitization to Maize and Sugar-Cane Products. R. Blosser, Atlanta, Ga.
135 Possible Cure for Pellagra. W. F. Cole, Waco, Tex.

136 Negro a Menace to Health of White Race. M. L. Graves, Galveston, Tex.
137 Plea for National Committee on Eradication of Malaria. F. L. Hoffman, Newark, N. J.
138 Treatment and Complications of Malaria. W. E. Deeks, New York.
139 *Use of Sodium Citrate in Transfusion of Blood by Direct and Indirect Methods. W. S. Carter, Galveston, Tex.
140 *Reliable Method of Blood Transfusion; Report of Cases. A. O. Singleton, Galveston, Tex.
141 Fibroids Complicating Pregnancy; Report of Cases. W. Kohlmann, New Orleans.
142 *Arsenobenzol, Preliminary Report of Sixty Injections. L. Thompson, Hot Springs, Ark.
143 Study of Five Hundred Tonsil Enucleations With Beck-Pierce Tonsillectome. H. Dupuy, New Orleans.
144 Tonsillectomy According to Sluder Technic. P. M. Farrington, Memphis, Tenn.

131. Abstracted in THE JOURNAL, Dec. 11, 1915, p. 2119.

132. **Quinin and Urea Injections in Hyperthyroidism.**—Watson has used quinin and urea injections for hyperthyroidism over 400 times. He believes the greatest field of usefulness for the injection will be found in those cases of beginning hyperthyroidism not severe enough to justify operative treatment, and as a preparatory measure to partial thyroidectomy in chronic cases of toxic goiter too ill to warrant any form of immediate operative procedure.

139. **Sodium Citrate in Transfusion of Blood.**—Carter has found sodium citrate to be a satisfactory anticoagulant when used in the cylinder for direct transfusion in 2 per cent. solution. Transfusion can be continued from 2.5 to 3 times longer with a 2 per cent. citrate solution than can be done with physiologic solution. A solution of sodium citrate is as efficient as a solution of hirudin, as shown by the amount of blood transfused or by the time of transfusion. Sodium citrate does not lessen the coagulability of the blood and is not toxic in the amount used either for direct or indirect transfusion. The coagulability of the blood is temporarily increased immediately after transfusion in which sodium citrate is used, either by the direct or indirect methods. The lethal dose of sodium citrate in dogs is about 1.0 gm. per kilogram of body weight when dilute solutions are injected. Even when a concentrated solution is used it is not more than 0.5 gm. per kilogram. A 0.2 or 0.3 per cent. solution of sodium citrate is sufficient to prevent coagulation and does not have any toxic effect in the amount used for indirect transfusion in man.

140. **Reliable Method of Blood Transfusion.**—A glass graduated flask or container, open at the top, with the bottom drawn out into two arms, or in a "U" shape, is used by Singleton. The two ends of the "U" are inserted into the donor's and recipient's veins, respectively. A rubber connecting tube leads from the top of the container to the pressure bottles. These bottles give a more uniform pressure, exerted continuously, over a longer period of time, and the pressure can be changed from positive to negative, and vice versa, more rapidly.

142. **Arsenobenzol.**—The effects obtained by Thompson with this preparation, he says, were as good as those obtained with salvarsan of German make.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

April 29, I, No. 2887, pp. 609-640

1 *Positions of Election for Ankylosis Following Gunshot Injuries of Joints. R. Jones.
2 *Method for Preparation of Nontoxic Dysentery Vaccine. H. R. Dean and R. S. Adamson.
3 Therapeutic and Reaction Effects of Kharsivan (British Salvarsan). H. C. Lucey.
4 History of Organic Compounds of Arsenic in Treatment of Protozoan Diseases. B. Moore.
5 Prevention, Symptoms and Treatment of Tetryl Dermatitis. E. Smith.
6 Case of Relapsing Paratyphoid "A" Infection. A. M. Kennedy and B. R. G. Russell.
7 New Apparatus for Bacterial Fermentation Tests; Fermentation Bulbs. S. Delépine.

1. **Ankylosis After Gunshot Injuries of Joints.**—Wounds must inevitably end in bony ankylosis. In what position should the joint be placed in order to be of the greatest use to the patient? This question is answered by Jones as follows: The arm should be abducted to about 50 degrees. The elbow should be slightly in front of the coronal plane of the body so that when it is at right angles and the forearm supinated, the palm of the hand is toward the face. As for the elbow joint, by far the greater number of men would prefer the fixation to be at just below a right angle—that is, about 100 degrees. In cases in which both elbows will become ankylosed it is necessary to fix the one at an angle of 80 degrees and the other at 100 degrees. In the forearm, if the movements of pronation and supination are lost, the radius should be fixed midway between pronation and supination. All injuries of the wrist joint should be treated with the wrist dorsiflexed. This is a priceless surgical axiom, the neglect of which is grave. Ankylosis of the hip joint should be encouraged in a position of very slight abduction, with thigh extended and very slight outward rotation. The knee should be fixed in an extended position. In ankylosis of the ankle, the foot should be kept at a right angle with the leg, so that the sole impinges on the ground in a slightly varus rather than a valgus position. In gunshot wounds and other injuries of the tarsus and metatarsus, the deformities to be feared correspond to the common static deformity of flat or pronated foot—that is to say, to pronation at the mid-tarsal joint, flattening of the longitudinal arch, and sometimes flattening of the transverse arch associated with pain in the metatarsophalangeal joints. Callus exudation added to plantar malposition results in a very crippled foot. In all gunshot injuries of tarsus and metatarsus the surgeon should take care during the later stage of healing not to bandage the sole rigidly against a flat foot piece, for if that be done every irregularity of bone will conduce to callosity when walking is resumed. It is necessary, therefore, at this stage to adjust a splint having an inside arch padded to conform to the natural shape of the foot. Eversion of the foot should be guarded against, and the hollow of the arch should, when possible, be emphasized. Later, the heel of the boot should be raised on the inner side to obviate eversion, and, if the metatarsals are involved, in order to allow of early walking, a bar should be placed across the sole of the boot behind the tread.

2. **Preparation of Nontoxic Dysentery Vaccine.**—The results of their experiments on forty-seven rabbits have convinced Dean and Adamson that it is possible by the use of dilute solutions of hypochlorous acid to prepare a Shiga vaccine, the injection of which is practically harmless to the rabbit, but is nevertheless followed by the production of a satisfactory degree of immunity.

Indian Medical Gazette, Calcutta

April, LI, No. 4, pp. 121-160

8 Cataract Operations "Old" and "New." M. Corry.
9 *New Method of Dressing Eyes After Cataract Extraction. F. P. Maynard.
10 Hypochlorous Acid as Antiseptic in Wounds. E. A. R. Newman.
11 New Apparatus for Continuous Irrigation of Wounds in Field. J. A. Shorten.
12 Flies in Jail. T. S. Ross.
13 Case of Sarcoma of Dura Mater. S. B. Pal.

9. **Dressing Eyes After Cataract Extraction.**—In order to produce an even pressure over the front of the eyeball Maynard uses swabs of wet sterilized wool applied as follows: Wool pulled, not cut, into pads, about an inch thick and the size of the dry wool pads usually used 3 inches in diameter, are sterilized by boiling in 1 in 5,000 biniodid solution. After the completion of the operation two of these, sopping wet, not squeezed out, are laid on the two eyes. With the straightened fingers they are gently pressed down over the eyes, so that the swab becomes molded to the eye and fill in the hollows round it. Over this swab is placed a wet pad consisting of lint or six layers of gauze and then a figure of eight bandage is applied fairly firmly. On opening the dressing next day the wool gauze will be found dry

and forming a complete mold of the eyeball and orbital opening. This wet molding method is very comfortable and produces no feeling of uneven pressure while it allows the eye to move easily. It is almost impossible to open the eyelids.

Journal of Laryngology, Rhinology and Otology, London

April, XXXI, No. 4, pp. 121-176

14 Partial Resection or Window Resection of Larynx for Intrinsic Malignant Disease. H. L. Lack.
15 Removal of Carcinoma of Hypopharynx With Plastic Restoration of Lumen. W. Mollison.
16 Results of Submucous Resection of Septum in Children. C. H. Hayton.

May, No. 5, pp. 177-224

17 *Atrophic Rhinitis (Ozena) and Tuberculosis. D. McKenzie.
18 Operative Treatment of Fibroma of Nasopharynx. A. J. Brady.

17. **Atrophic Rhinitis (Ozena) and Tuberculosis.**—Postmortem evidence of the frequent association of tuberculosis and atrophic rhinitis (ozena) has been found by McKenzie as well as clinical evidence of the same (*a*) in the personal history and status of the ozenatous patient; (*b*) in the family history. Tuberculin tests showed active tuberculosis in the majority of cases of ozena. This was supported by the phenomena and results of the tuberculin treatment. There is some evidence tending to show that ozena is commoner in patients with phthisis pulmonalis than in the general community. There is also evidence tending to show that the acid-fast bacillus of the ozenatous crusts is an attenuated variety of the tubercle bacillus. Ozena resembles in many of its details other "paratuberculous" diseases. McKenzie's final conclusion is that ozena, as we see it in England, is a manifestation of tuberculosis.

Lancet, London

April 29, I, No. 4835, pp. 895-942

19 Infantile Mortality and Relative Practical Value of Measures Directed to Its Prevention. S. G. Moore.
20 Treatment of Gunshot Fractures. E. W. H. Groves and T. H. Brown.
21 Cases of Intestinal Ulcer Perforations at or Near Pylorus. W. H. Battle.
22 Cases of Pneumococcal Bronchitis. J. Goodhart.
23 Blood Findings in Epilepsy. R. H. Spangler.
24 *Significance of Presystolic Heart Murmurs. T. Lumsden.
25 *Typhoid Carrier. S. F. Dudley.
26 Case of Marked Postdiphtheritic Paralysis. W. A. Daley and C. V. McCormack.
27 Case of Os Tibiale Externum Simulating Fracture of Navicular Bone. C. P. G. Wakeley.

24. **Significance of Presystolic Heart Murmurs.**—It is most important from an insurance company's point of view, says Lumsden, that these cases should be carefully differentiated, but when the examiner is in any doubt it is wiser to treat all presystolic murmurs as serious than to risk accepting even at an increased premium patients suffering from so serious a condition as either mitral stenosis or aortic regurgitation. Even when after most careful examination it is ascertained that it is a case of "astenotic" presystolic murmur Lumsden recommends that several years should be added to the age of the patient when calculating the premium he ought to pay, since many of these cases have slightly abnormal mitral valves which are more apt to become incompetent than a normal valve. The number of years to be added must depend on the particular case, but should never be less than five. "Astenotic" cases can, however, be accepted for any ordinary occupations and even for posts of such importance as tramdrivers, chauffeurs, etc., since fainting is never a symptom of this condition per se. The existence of this murmur is not a bar to military service, nor to any form of sport or exercise. The murmurs discussed by Lumsden are: (*a*) Flint's murmur; (*b*) stenotic presystolic murmur; (*c*) astenotic presystolic murmur; (*d*) normal heart; (*e*) stenotic presystolic and systolic murmurs. The sound, he says, may be imitated by pronouncing; (*a*) Flint's: frrip, dupfrrrip, dupfrrrip; (*b*) stenotic: frrrip, dupup; frrrip, dupup; (*c*) astenotic: frrip, dup; frrrip, dup; (*d*) normal: lub dup; lub dup; (*e*) stenotic and systolic: frrripwhist dup; frrripwhist dup.

25. **Typhoid Carrier.**—The carrier whose case is discussed by Dudley was a sailor. His service on various ships was marked by the appearance of typhoid. He served on twelve ships on which fifty-three cases occurred subsequent to his enlistment. The following observations were made on this carrier while in the hospital: The urine was always sterile. Blood cultures were negative. The Widal reaction was positive up to a 1:150 dilution; it varied very slightly in strength. The appearance of typhoid bacilli in the stools was intermittent, three or four examinations being negative, followed by two or three positive results. In seventeen examinations of the feces at intervals of about three days *B. typhosus* was isolated seven times.

Medical Journal of Australia, Sydney

April 1, I, No. 14, pp. 277-296

28 Surgical Experiences at War. G. A. Syme.
29 *Meningococcal Carriers. S. T. Champtaloup and J. T. Bowie.
30 Insanity Due to Mitral Stenosis; Report of Cases. W. A. T. Lind.
31 Case of Paget's Disease (Osteitis Deformans). H. W. Connolly.
32 Case of Meningococcal Conjunctivitis. T. C. Ker and R. O. Douglas.

April 8, No. 15, pp. 297-318

33 Glancing Bullet Wounds of Skull. G. Owen.
34 Colloid Degeneration of Skin. L. Johnston and N. Paul.

April 15, No. 16, pp. 319-336

35 Neuroses and Psychoses in War. A. W. Campbell.
36 Bacteriologic Examination of Urines. L. B. Bull.

29. **Meningococcal Carriers.**—Forty-three civilian cases were fully investigated by Champtaloup and Bowie of which five (or 11.6 per cent.) were found to harbor the meningococcus in the nasopharynx. One individual developed meningococcal meningitis and died. Thirteen persons of the forty-three investigated had been in recent close contact with troopers on leave, and the bacteriologic finding was positive in three cases. Several of these contacts had been using antiseptic gargles and douches, however, before being examined. The remaining thirty had not to their knowledge been in contact with soldiers, and of these only two yielded positive results. Four of the civilian patients subsequently died. One developed meningococcal meningitis; a second, from whose nasopharynx a profuse growth of meningococci was obtained, developed a fatal streptococcal septicemia; a third, in whose nasopharynx no meningococci were found, developed acute hydrocephalus with no postmortem evidence of bacterial infection; and a fourth, also negative, developed tubercular meningitis. These fatal cases bear out the importance of a bacteriologic examination of all suspicious cases during an epidemic; otherwise they might have been returned as fatal cases of meningococcal infection.

Practitioner, London

May, XCVI, No. 5, pp. 447-572

37 *Some Surgical Procedures in Gunshot Fractures of Mandible. F. Eve.
38 Treatment of Venereal Diseases in the English Army. E. G. Ffrench.
39 Treatment of Syphilis in English Army. H. J. McGrigor.
40 Prevention of Venereal Diseases in English Army. O. May.
41 Eye Injuries of Warfare. A. W. Ormond.
42 War Neuroses. H. Campbell.
43 Dysenteries Other Than Amebic. G. C. Low.
44 Treatment of Tetanus. K. Goadby.
45 Epidemic Jaundice. A.-E.-A. Ismael.
46 Typhus Work in Serbia. L. M. Chesney.
47 Soldier's Heart. W. B. Thorne.
48 Case of Pneumothorax Secondary to Fracture of Ribs. A. Graham-Stewart.
49 Surgical Disabilities of Troops in Training. F. J. Cutler.

37. **Surgical Treatment in Gunshot Fractures of Mandible.**—Although he has used wire successfully in a number of cases, Eve considers transplantation of bone the ideal method for bridging over gaps in the mandible. He has not yet seen a case in which plating of a gunshot fracture of the mandible seemed advisable. He points out that in the earlier stage of the treatment of severe comminuted fractures of the mandible, special care should be taken to preserve fragments of bone which may be viable. If they necrose, removal may be effected later, and, meanwhile, they may prevent displacement while new bone is being thrown out.

Annales de Médecine, Paris

III, No. 1, pp. 1-108

50 Blood Plates in the Spleen. (Etude sur les plaquettes de la rate.) L. Le Sourd and P. Pagniez.
51 Typhoid and Paratyphoid Infections in the Vaccinated. M. Labbé.
52 *Mild Typhoid and "Febrile Disordered Digestion From Stomach Trouble." (Les formes légères de la dothienenterie et l'embarras gastrique fébrile.) L. Bernard.
53 *Influence of Antityphoid Vaccination on Sero-Agglutination and Course in Typhoid and Paratyphoid Fever. (Etudes sur la fièvre typhoide. I and II.) E. Rist.
54 Oculomotor Paralysis After Paratyphoid Fever. G. Guillain and J. A. Barré.

52. **Pseudo-Typhoid.**—Bernard says that it is often difficult to distinguish between mild typhoid and febrile gastric derangement, and yet they must be differentiated as the latter may reproduce the incomplete form of typhoid while in reality having no connection with typhoid. The colon bacillus is generally the one responsible for it.

53. **Typhoid After Vaccination.**—Rist comments on the fact that the number of typhoidal affections has apparently not diminished in the last year. The total number of cases averages about the same as before, but the cases of true typhoid are far below the usual number and paratyphoid cases have taken their place. Not much is gained, he remarks, if we merely substitute paratyphoid for true typhoid. This reduces the mortality of course, but the morbidity has not been modified, according to his statistics. Vaccination must ward off both typhoid and paratyphoid to accomplish its purpose.

Archives de Médecine des Enfants, Paris

April, XIX, No. 4, pp. 169-224

55 Pathologic Physiology of Defective Development and Debility in Infants. (Des hypotrophies et des cachexies des nourrissons.) P. Nobécourt. To be continued.
56 Anaphylaxis and Serotherapy in Children. J. Comby.

Archives Mens. d'Obstétrique et de Gynécologie, Paris

January-March, V, No. 1-2-3, pp. 1-92

57 Histology of the Uterine Mucosa in Normal Pregnancy. A. Brindeau and Nattan-Larrier.
58 *Ovarian Cysts Following Evacuation of Vesicular Mole. (Signification clinique des kystes lutéiniques des ovaires se developpant après l'évacuation d'une môle hydatiforme.) P. Bar.
59 *Modifications of Pulse and Blood Pressure During Menstrual Period. (Des modifications du pouls et de la tension artérielle pendant la période menstruelle.) P. Balard and J. Sidaine.

58. **Ovarian Cysts Following Mole.**—Bar remarks that a cyst developing in the corpus luteum after evacuation of a hydatidiform mole is of too frequent occurrence to be merely a casual coincidence. Kroemer found them in 59 per cent. of the cases of mole he had compiled. Bar has encountered a similar case. The patient was a young woman who had had a hydatidiform mole removed three months before. The adnexa seemed to be normal at that time but three months later both ovaries were found transformed into masses of cysts with hyperplasia of the corpus luteum tissue. A small mass of molar vesicles was also found in the uterus. This case and similar ones on record teach the necessity for removing the uterus and adnexa in operating for a mole when there is the least suspicion of cyst formation in the ovaries. Also that after removal of a mole from the uterus, if the ovaries display a tendency to cystic degeneration, we can assume that elements of the mole are still proliferating in the interior of the uterus. The significance of ovarian cysts in these circumstances is still more pressing when there is a tendency to persisting uterine hemorrhage. Prompt operative measures are required, including the removal of the uterus.

59. **Modifications in Pulse and Blood Pressure During Menstrual Period.**—Balard and Sidaine review the literature on this subject and give charts of the findings during a three months' period in five young and healthy pupils in the midwifery school. The pulse showed decided variations in all but one of the young women, and the blood pressure varied in all, but not to such an extent as the pulse. There did not seem to be any regular rules for all cases or even for one person at all times, except that the pulse increased just before the onset of the menses and dropped back to normal or transiently below at the close. The charts demonstrate anew the complexity of physiologic phenomena.

Bulletin de l'Académie de Médecine, Paris

April 18, LXXV, No. 16, pp. 425-452

60 Appeal for Suppression of Garbage Picking Inside City Limits. (Sur la suppression du chiffonnage a Paris.) Wurtz.
61 *The Prevalence of Syphilis Not Recognized Before the War. (La syphilis, avant la guerre: méconnaissance de son extreme fréquence.) L. Landouzy.
62 Cerebrospinal Meningitis; Sixty-Four Cases. Neveu-Lemaire
63 Rational Treatment of Syphilis Under Guidance of Wassermann Test. E. Jeanselme.

61. **Prevalence of Syphilis.**—For more than ten years Landouzy has examined all the patients in the Laennec clinic for general medicine, and has found a constant average of 5 or 6 syphilitics in every 32 women, that is, from 15 to 18.75 per cent., and of from 7 to 9 among every 32 men, that is, from 21 to 28.135 per cent. It should be more generally known he adds, that the so-called "smokers' patches" are practically pathognomonic of syphilis, and it is so easy to detect them at a glance. The Wassermann test will confirm their specific nature. The pandemic of syphilis even before the war demanded the public health measures which the war has imposed.

Le Nourrisson, Paris

March, IV, No. 2, pp. 65-128

64 Sterilization of Milk Without Heat Not Practicable to Date. (La stérilisation du lait: procédés dans lesquels on n'emploie pas la chaleur.) A. B. Marfan.
65 Localized Forms of Tuberculosis in Young Infants. (Formes cliniques de la tuberculose du nourrisson.) Combe.
66 Blood Serum More Reliable Than Milk for the Wassermann Test for Wetnurses. (La recherche d'une sensibilisatrice syphilitique dans le lait. Peut-elle servir au diagnostic de la syphilis des nourrices?) Merisset.

Paris Médical

April 22, VI, No. 17, pp. 393-408

67 Malaria in Flanders. (Le paludisme dans un coin des Flandres.) F. Rathery and R. Michel.
68 *Rapid Healing of Abscesses in the Neck Without Scars Under Filiform Drainage. (Guérison rapide et sans cicatrices des adénites et des abcès aigus et chroniques du cou.) H. Chaput.
69 Apparatus for Early Exercise of Wounded Leg in Bed. Amieux.

68. **Healing of Abscesses in the Neck Without Scars.**—Chaput refers to suppurating glands and abscesses in the neck of tuberculous or other origin. A small superficial abscess he pierces with a needle, drawing back with it two strands of silkworm gut which he knots to form a loop, repeating the process perpendicular to the first and thus providing crucial drainage. A deep abscess he lances at the tip, and through this minute incision he probes the depths and recesses; then with a Reverdin needle introduced through the incision he pierces the skin from within, at the poles of the abscess and the diverticula. Silkworm gut is drawn back with the needle and he ties the ends together at the central incision. This provides radiating drainage. A single drain may suffice if at the absolutely lowest point. A fine rubber bougie or spiral wire may answer likewise for the filiform drainage. With active suppuration, induration is liable to follow evacuation of the abscess if the patient is up and about. Hence it is better to leave the drains in place until all induration has subsided, keeping the patient in bed or at least confined to the room. Chaput says that filiform drainage is nothing new, but it has never been applied as generally as he advocates, and its advantages have not been appreciated.

Presse Médicale, Paris

April 20, XXIV, No. 23, pp. 177-184

70 Prophylaxis of Malaria. (La prophylaxie du paludisme.) H. Vincent.
71 *Causalgia and Its Treatment. (De la causalgie envisagée comme une névrite du sympathique et de son traitement.) R. Leriche.

71. **Burning Neuralgic Pain: Causalgia.**—Leriche states that this burning type of neuralgic pain has certain features which suggest that it is the result of irritation at some point of the sympathetic innervation of the limb involved. The war has rendered this causalgia comparatively common,

and has confirmed the assumption that it is a neuritis of some part of the sympathetic system. The most convincing argument in favor of this assumption is the success of therapeutic measures based thereon, aiming to modify the peripheral sympathetic. Leriche acted on the sympathetic by stripping the peripheral arteries, supplementing this denudation by severing the perivascular nerves and, when possible, removing the entire sheath of the vessel over a certain extent. In one case of agonizing causalgia from a gunshot wound, he denuded the humeral artery and excised its sheath for a stretch of 12 cm. Improvement followed at once. The pains were materially reduced, the vasomotor phenomena subsided and the relief has been permanent during the six months to date. In a second case there was complete lax paralysis of the left arm after a gunshot wound with fracture of the clavicle. The arm was constantly cold and various trophic disturbances developed, with paroxysms of burning pain in the hand. The causalgia by the sixth month was most distressing, and Leriche then exposed the humeral artery. There was no pulse or blood in it, and it was reduced to a cord scarcely 2 or 3 mm. in diameter. The neighboring nerves were soft. He removed the arterial sheath for quite a distance; there was no hemorrhage. The next day there was formication in the hand and it felt warmer. The trophic blisters and other disturbances retrogressed, and in a fortnight the man could move his arm a little. The pains had been materially mitigated from the first. The resection of the arterial sheath modifies the perverted sympathetic innervation by acting on the peri-arterial nerve plexuses involved. The mechanism and effect are similar to those of section of the cervical sympathetic in treatment of trigeminal neuralgia: suppression of certain diseased elements of the sympathetic innervation restores freedom of action to the other vasomotor ramifications. In both his cases the clammy, livid hand grew warm and normally pink, showing that the upset vasomotor balance had been restored.

For the leg, he would attack the sciatic or femoral artery, as these nourish the sciatic nerve from the rear and front. He has had no occasion to operate on the legs, but is convinced that this simple method of acting on the peri-arterial sympathetic innervation will relieve in many cases of sympathetic neuritis causing painful vasomotor troubles, especially after wounds of the hand and forearm in which the trunk nerves themselves are free from all injury. Possibly the procedure may benefit also in certain cases of reflex contracture and paralysis suggesting a vasomotor element. In short, he concludes, it is a new field to explore, and a promising one.

Progrès Médical, Paris

March 20, XXXII, No. 6, pp. 41-48

72 Diagnosis and Treatment of Gas Gangrene. A. Chalier.
73 *Stricture of the Rectum. (Rétrécissement du rectum.) Potherat.
74 *Pathogenesis of Tuberculous Rheumatism. (Pathogénie du rheumatisme tuberculeux.) Rathery.

April 5, No. 7, pp. 49-56

75 The Sputum With Old Wounds of the Chest. (L'examen histochimique des crachats dans les vieilles blessures du thorax.) M. Loeper, G. Verpy and L. Cosnier.
76 *Typhoid Orchitis and Epididymitis. (Orchi-épididymite typhoïdique.) D. Olmer and R. Voisin.
77 Simple Calculation to Locate Projectile in Tissues. (Radiologie sur une méthode de zéro fournissant immédiatement en vraie grandeur la profondeur du projectile à localiser.) G. Andrault.

73. **Cancer of the Rectum.**—In a typical case described the robust and vigorous man of 51 complained merely of "internal hemorrhoids," saying they had been troubling him for two years. His former physicians had treated him for constipation and congestion, but none had palpated the interior of the rectum. Potherat placed the man on his side, the thigh and leg completely extended while the upper thigh and leg were flexed. He then anointed the region and his rubber glove, and his finger found at once a large ulceration in the rectal mucosa, adherent to the prostate. He discusses the advisable technic in such cases and says that with a palliative artificial anus at the sigmoid flexure or descending colon one such patient survived in good condition for four years, another for thirteen months, taking walks of 16 kilometers a day. Potherat deplores that so few physicians make a routine practice of digital examination of the rectum, and thus cancerous growths reach an inoperable stage before they are suspected.

74. **Tuberculous Rheumatism.**—Rathery describes two cases of chronic rheumatism to illustrate one form and suggest its explanation. One woman of 32 at 18 had rheumatic trouble in the right hand for two months, and two years later in the right knee, and no further disturbance for twelve years. Then chronic bronchitis developed, with rheumatic pains in her fingers, and the joints swelled, with stiffness of the wrist and, finally, hydrarthrosis of the right knee. Radiography confirmed the deformity of the joints, but the process is not so extreme as with other forms of rheumatism. There are also signs of an apical process. A second case, in a man of 38, is practically identical. Rathery's explanation of such cases is that the early rheumatic phenomena were due to an arthritic soil. With this, chronic rheumatism develops on the occasion of any ordinary or specific infection or intoxication. In these cases tuberculosis was responsible.

76. **Typhoid Orchitis.**—The orchitis and epididymitis developed during convalescence from typhoid and left limited induration. The course was about six days. Others have reported three cases in the recent epidemic of typhoid. The affection was unilateral in all; but the cord was involved in three of the cases and the vaginalis in two. There was suppuration in two cases and a relapse in another case. None of the patients had gonorrhea. Typhoid bacilli were cultivated from the process in two cases; the colon bacillus in one, and the paratyphoid B in one. This typhoid complication resembles the orchitis of mumps by its rapid course, and the orchitis of gonorrhea by the involvement of the cord and epididymis, while the tendency to suppuration is peculiar to it.

Correspondenz-Blatt für Schweizer Aerzte, Basel

April 15, XLVI, No. 16, pp. 481-512

78 *Miliary Tuberculosis With Chronic Benign Course. (Ueber Miliartuberkulose.) L. von Muralt.
79 *Iodin in Treatment of Goiter. (Zur Joddarreichung bei Kropf.) Grumme.

78. **Benign Miliary Tuberculosis.**—Muralt describes a case which shows the possibility of miliary tuberculosis developing in a mild chronic form with ultimate recovery. The patient was a physician of 35 with an inherited neuropathic and tuberculous taint, but healthy, except for "children's diseases" and pleurisy at 22, until the age of 31 when, after several months of overwork as physician at a tuberculosis dispensary, with inadequate food, pleurisy with effusion developed insidiously and kept up for fifteen months without impairing the general health particularly. Then miliary tuberculosis developed with a stormy onset but soon subsided to such a mild course that the contrast between the Roentgen findings and the good general health was striking. The Roentgen picture was highly characteristic within three weeks of the first miliary onset. After two years of this, two tuberculous tumors in the scrotum required excision in turn and later tumors of the same kind developed in the spinal cord and medulla, one finally proving fatal after two had been removed. Miliary tuberculosis seems to be accompanied by tumors in the central nervous system comparatively often. Muralt has encountered a second case which demonstrates this anew. A young woman with acute miliary tuberculosis and night sweats presented symptoms of a tumor in the brain. On account of the septic condition no attempt at operation was ventured and death followed in less than a year from the first symptoms of the miliary tuberculosis. In the first case there were no night sweats at any time, and after the initial phenomena the disease subsided into an entirely latent course and death occurred eight months later, from the tumors, with no further signs from the miliary disease.

79. **Iodin Treatment of Goiter.**—Grumme insists that endemic goiter is due to a lack of iodin in the food, and hence that administration of iodin benefits endemic goiter. He regards it as probable that if Switzerland would promote

the importation of sea fish, so that they would be plentiful and cheap, goiter would become less prevalent. More than two thousand years ago the Greeks recommended sponge charcoal (*Schwammkohle*) for goiter, which was an iodin treatment, and experience has confirmed the value of iodin in prevention and cure of endemic goiter. Regions where goiter is endemic are usually free from the exophthalmic form, in which iodin does harm. Even the eating of sea fish aggravates Basedow's disease, as Grumme has confirmed in his own practice. It is important, therefore, to exclude any tendency to the Basedow type before permitting iodin. A tranquil temperament, a phlegmatic disposition, usually exclude exophthalmic goiter. The endemic mountain-goiter is generally inclined to be hard and sometimes knobby, while the Basedow goiter is soft. He warns in conclusion that the administration of iodin requires great care not only for those with goiter but in general practice as there may be a latent predisposition to Basedow's disease which iodin may fan into a flame. Oswald regards this danger as so serious that he advises against iodin for any form of goiter.

Gazzetta degli Ospedali e delle Cliniche, Milan

April 20, XXXVII, No. 32, pp. 497-512

80 Tracheotomy and Intubation in Laryngeal Diphtheria. (La tracheotomia e l'intubazione nelle stenosi laringee difteriche.) A. Franchini.

Policlinico, Rome

April 23, XXIII, No. 17, pp. 517-548

81 Case of Acute Myeloid Leukemia in Woman of Fifty-One With Necropsy. C. Romagnolo.
82 Wounds of the Knee in War. (Sull'indicazione operatoria nei casi di proiettili nell'articolazione del ginocchio e sulla tecnica adottata per praticarne l'estrazione.) M. Fasano.
83 Encouraging Results With Sodium Citrate in Treatment of Pellagra. (La cura della pellagra con le iniezioni di citrato trisodico.) A. Secchieri.

April, Surgical Section No. 4, pp. 97-128

84 Functioning of the Great Omentum With Strangulated Hernia. (La funzione del grande epiploon negli strozzamenti erniari dell'intestino. Ricerche e considerazioni cliniche e terapiche sopra 52 interventi per ernia strozzata.) I. Scalone. Commenced in No. 3.
85 *Comparison of Various Technics for Autoplastic Operations; Advantages of the Italian Method. (Il metodo italiano di autoplastica nelle estese asportazioni muscolo-cutanee.) O. Cignozzi.
86 Ligation of Coronary Arteries and Veins. L. Dominici. To be continued.

85. **Extensive Pedunculated Flaps for Autoplastic Operations.**—Cignozzi extols the advantages of the Italian method for autoplastics, describing an illustrative case. In an industrial accident the skin and muscle had been torn from the elbow and adjacent regions over an expanse 15 by 25 cm. in size. This was covered with a flap cut in the side of the chest and abdomen, the upper end not cut across, the arm fastened immovably to prevent any traction on the flap. In one week the flap was cut partly across, and the twelfth day was completely severed. By the twenty-fifth day the flap had grown entirely in place and by the fiftieth day healing was complete, the functioning of the elbow normal.

Riforma Medica, Naples

March 13, XXXII, No. 11, pp. 281-308

87 *Diabetes of Nervous Origin. (Del diabete neurogeno.) T. Silvestri.

March 20, No. 12, pp. 309-336

88 Agglutination After Vaccination Against Typhoid. (La reazione di Widal nei vaccinati contro il tifo.) L. Datta; (Idem.) A. Ceconi.
89 Studies on the Eosinophils and Basophil Leukocytes. G. Gross. To be continued.

87. **Diabetes of Nervous Origin.**—Silvestri reports the clinical course and necropsy findings in a case of diabetes in which there were no pathologic anatomic findings capable of explaining the diabetes. He assumes that it was of nervous origin, as the neurasthenic man of 53 had a family history of much nervous and mental disease. The literature on the subject of diabetes developing after disastrous speculation or other nervous shock is reviewed, and authors cited for and against the assumption that diabetes can be brought on by nervous factors alone. Silvestri's four other cases also apparently confirm this beyond question. One patient was a neurasthenic man with inherited psychopathic taint whose urine was found to contain sugar after a period of much worry. The urine after a medical examination always contained sugar. In the course of a few years the neurasthenia subsided, and the urine became normal. At present there is no further trace of the neurogenous "diabetes" of eight years before, although no attempt at dietetic treatment had been made. Another patient was a woman with a family history of diabetes. After an attack of pneumonia she had mild glycosuria which yielded promptly to restriction of carbohydrates until her son developed typical diabetes which ran its course to a fatal ending in three years. After this the mother's glycosuria became permanent, unmodified by dietetic measures. In the two other cases the glycosuria came on directly after a severe grief or fright. These experiences testify that diabetes may occur for the first time or be roused or aggravated by nervous shocks, and Silvestri explains the probable mechanism by which this is brought about. He has been unable to trace it to any one gland or other organ, but the influence of a hereditary taint is obvious.

Semana Medica, Buenos Aires

XXIII, No. 3, pp. 59-86

90 Osteoplastic Operations After Amputation of the Leg. (Operaciones osteoplasticas diafisiarias de la pierna.) O. Copello.
91 Treatment of Reflex Enuresis. F. A. Deluca.
92 Local Anesthesia in Extraction of Teeth. (Oportunidad de la extraccion.) O. F. Ferreira.

No. 4, pp. 87-114

93 Serotherapy in Pneumococcus Diseases. (Sobre terapeutica esencial de diversas neumococcis por el Haptinogeno Neumo Mendez.) N. S. Loizaga.
94 Antagonistic Action of Strychnin and Antitetanus Serum. (Investigaciones comparadas acerca del antagonismo de la accion contra la estricnina de los varios sueros antitetanicos.) G. Tizzoni and P. Perrucci.

Prakticheskiy Vrach, Petrograd

XV, No. 9, pp. 81-88

95 Heart on the Right Side. (K klinikie dextrocardia i dextroversio cordis.) E. J. Stolkind. Commenced in No. 8.

Russkiy Vrach, Petrograd

1915, XIV, No. 47, pp. 1105-1128

96 Effect of Asphyxiating Gases on the Nervous System. (K voprosu o vliyanii primienyamikh germantsami udushlivikh gazov na nervnuio systemi.) M. P. Nikitin.
97 Gas Gangrene. (O gazovom omertvienii u ranenikh.) V. P. Miroliuboff.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

March 25, I, No. 13, pp. 1057-1144

98 Differential Diagnosis of Smallpox. (Over de pokken te Amsterdam in 1903 en 1904.) A. Snoek.
99 *The Interval Leukocyte Picture in Epilepsy. (Het "witte bloedbeeld" bij lijders aan epilepsie.) A. Schoondermark.
100 Congenital Bilateral Microphthalmus With Cysts in Lower Lids and Left Harelip. H. Weve.

99. **Lymphocytosis in Epileptics.**—Schoondermark found in examining the blood picture of epileptics at the state hospital for epilepsy, that the number of leukocytes was constantly high. The increase was in the lymphocytes, which were both relatively and absolutely more numerous than in normal conditions. She gives the details from thirty-one cases examined during intervals between seizures. No characteristic differences between the blood pictures of the organic and the "genuine" types could be discovered.

Hospitalstidende, Copenhagen

April 5, LIX, No. 14, pp. 305-328

101 Improved Technic for Cultivation of Cholera Germs. (En Maade til Fremstilling af øjeblikkelig brugbart Dieudonné-Nærings-substrat til elektiv Dyrkning af Choleravibrioner.) H. C. Hall.

Hygiea, Stockholm

April, LXXVIII, No. 7, pp. 417-480

102 *Atrophy of the Small Muscles of the Hands in Consequence of Compression of the Spinal Cord in the Neck. (Om atrofier i handens småmuskler vid kompression av översta cervikalmärgen.) G. Söderbergh and C. Sundberg.

102. **Atrophy of the Hand Muscles from Compression of the Spinal Cord.**—The compression was from an extramedullary tumor in the neck in both of the two cases described. One has already been listed in these columns as a successful operative case (1912, LIX, p. 1414). The other patient was a man of 59 and the necropsy findings are discussed. The atrophy was so pronounced in both that a casual coincidence seems to be out of the question. Atrophy of the small muscles of the hands, especially of the thenar eminence and of the first interossei muscle, may thus aid in the diagnosis of compression of the upper segments of the spinal cord on that side. The tumor extended from below the arch of the second vertebra to above the atlas in one case, and from the second to the fourth segment of the cervical spinal cord in the other.

Ugeskrift for Læger, Copenhagen

March 30, LXXVIII, No. 13, pp. 459-492

103 Otogenous Subperiosteal Abscesses in Temporal Region; Thirty-One Cases. (Den otogene subperiostale Absces i Regio temporalis.) R. Lund.

April 6, No. 14, pp. 493-540

104 Technic for Gram Staining. G. Jørgensen.

105 *Rapid Technic for Determination of Albumin in the Urine. (En hurtig Metode til kvantitativ Bestemmelse af Aeggehvide i Urin.) K. L. Gad-Andresen.

April 13, No. 15, pp. 541-584

106 *The Residual Nitrogen in the Blood as Index of Kidney Efficiency. (Den kliniske Undersøgelse af Nyrefunktionen særlig ved Bestemmelse af Rest-Kvælstoffet.) V. Scheel. Commenced in No. 14.

107 Venereal Diseases at Copenhagen. (Kønssygdommene i København for og efter 1906.) S. Lomholt.

105. **Simple Test for Albumin in the Urine.**—Andresen has been giving E. Lenk's method a thorough trial. (It was described in these columns Jan. 1, 1916, p. 66.) He found it even more dependable than other technics if temperature, interval, etc., are uniform.

106. **Residual Nitrogen in the Blood as Index of Kidney Efficiency.**—Scheel's extensive research on the retention of "rest nitrogen" in the blood as an index of renal function has convinced him that determination of the residual nitrogen is as necessary a routine measure and even more important than to examine the urine for albumin. It differentiates nephritis from various conditions with hypertrophy of the heart and high blood pressure, which are so frequently mistaken for nephritis. It serves further as a guide to treatment, and throws light on the prognosis. It is important particularly because it shows to which of our patients with nephritis we can permit protein feeding freely and which must have their protein cut down. In his discussion of the various other tests of kidney function, he remarks that tests with substances alien to the body are never entirely satisfactory. Also that the functioning of an organ fluctuates at times, and a single test is of little value. Retention in the blood of substances normally eliminated in the urine, on the other hand, gives direct insight into the eliminating and excreting power of the kidneys, and Bang's micromethod for nitrogen determination has made it possible to detect every degree of retention of nitrogen in the blood serum. The details of a number of cases of nephritis are tabulated to illustrate the value of the findings in nephritis with and without uremia, compared with the rest nitrogen findings in 57 patients free from nephritis. In the 12 cases of uremia, the residual nitrogen was in abnormal amounts, over 100 up to 289, in 11 of the cases, but it ranged only from 27 to 45 in one man of 38. He had hydremia, the albumin content being less than half the normal figure. The case shows the necessity for estimating the proportion of water in the serum, as the dilution affects the proportion of nitrogen. The uremia in this case was mild and soon subsided.

When sodium chlorid is retained, it passes into the tissues and edema fluids; the proportion of sodium chlorid in transudates is often higher than in the blood. But this does not occur with retained nitrogen; if the proportion of residual nitrogen in the blood is approximately normal, and there is no edema, the conclusion is justified that the kidney functioning is adequate for the needs of the moment. Even with edema, the same conclusion is justified as the retention of fluids may be the result of causes other than insufficient kidney functioning. In the 66 cases of nephritis without uremia, the residual nitrogen figure was normal in a number—that is, below 40 mg. in 100 c.c. blood—but these were all cases of hydremia masking the retention, or else the nephritis was extremely mild. In dubious cases, a test meal of considerable protein, comparing the figure for the residual nitrogen before, a few hours afterward and the next morning, will show at once the functional capacity of the kidneys. There is no increase in the residual nitrogen in the healthy after a meal of 85 gm. protein, but in one man of 26 with nephritis the figure more than doubled in about twelve hours; in another case, apparently as severe, the figure remained unchanged and recovery was soon complete. This test proved particularly useful in distinguishing between albuminuria of the benign, orthostatic type and that due to actual nephritis.

The fourth table gives the details of 57 patients with various affections but apparently sound kidneys. The residual nitrogen was within normal range in all but a few. The exceptions were one of the four infants, some patients with liver disease (the bile in the blood possibly explaining the increased nitrogen figure); and two patients without symptoms of nephritis, but necropsy revealed far advanced disease of the glomerular apparatus. The more active metabolism in infants may render normal a high nitrogen content in the blood. The further course of all the cases cited confirmed the reliability of the residual nitrogen findings as an index of kidney efficiency, especially of the functioning of the glomerular apparatus. Even when the clinical picture includes albuminuria, tube casts and edema, if the residual nitrogen keeps within or close to normal range, we can conclude that the glomerular apparatus is intact and that the storm will blow over in time. Some striking instances are related in which the prognosis was based on the persistingly normal residual nitrogen content of the blood serum, and reexamination some months later showed the urine and blood findings practically normal, no edema, and the blood pressure only slightly above normal.

Scheel warns that the residual nitrogen content should be determined more than once as the figure may fluctuate with the amount of protein in the diet, and it may rise and fall abruptly with acute nephritis or acute exacerbations of chronic glomerular nephritis. In chronic nephritis a rise in the residual nitrogen figure may be the only sign to warn of impending uremia. In treatment, he recalls that Bang found that well fed rabbits bore without much harm induced nephritis to which the underfed invariably succumbed. Good nourishment is indispensable in treatment of nephritis, and we must ascertain what the patient can tolerate and not impose unnecessary restrictions. Retention of salt is easily determined from the urine salt content. The amount of protein to be allowed in the diet can be estimated from the behavior of the residual nitrogen in the serum. He suggests that it is a simple matter to send a specimen of serum to a laboratory for examination.

The residual nitrogen in itself does not seem to be responsible for any special symptoms, but serves merely as an index of the toxemia and its degree. It may sound the warning before the toxemia has begun to induce symptoms. The 155 cases on which Scheel's conclusions are based are particularly instructive as many of them were under prolonged observation, the ultimate course confirming the conclusions drawn on the basis of the proportion of the residual nitrogen retained in the blood. He says that he has been working for nearly two years with Bang's new method although Bang did not publish it until December, 1915 (*Biochemische Zeitschrift, lxxii*). It is on the same principle as his micromethod for determination of the sugar in the blood. The blood or serum is dropped on paper and a precipitating fluid is applied to the paper. This precipitates the precipitable elements in the blood while the nonprecipitable diffuse into the fluid. Bang at first used mercuric chlorid for the precipitating fluid but found that phosphomolybdic acid precipitates the albumin more perfectly. His formula for the solution is 0.5 per cent. phosphomolybdic acid; 1.5 per cent. sulphuric acid, and 0.5 per cent. sodium sulphate.

1829.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 24 CHICAGO, ILLINOIS JUNE 10, 1916

CASES ILLUSTRATING THE FAULTY TREATMENT OF SUPERFICIAL MALIGNANCY

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Within the past few years there has been much written concerning the prevention of cancer, its early diagnosis and its proper treatment. It is interesting to see just what fruits this propaganda is bearing. Unquestionably many more persons with premalignant conditions are consulting the surgeon and dermatologist than in former years; but that the situation is yet far from perfect will be revealed by a consideration of the following cases.

During the past three years I have been consulted by thirty-two private patients for malignant conditions of either the skin or mucous membranes of the mouth. Of this number only six consulted me for early, untreated stages of cancer. One of these had a cancer of the under surface of the tongue, while the remainder were suffering from cancer of the face.

The faults in handling the other cases naturally group themselves under three headings: first, neglect on the part of the patient; second, faulty diagnosis on the part of the physician; and, third, improper or insufficient treatment by either physicians or quacks.

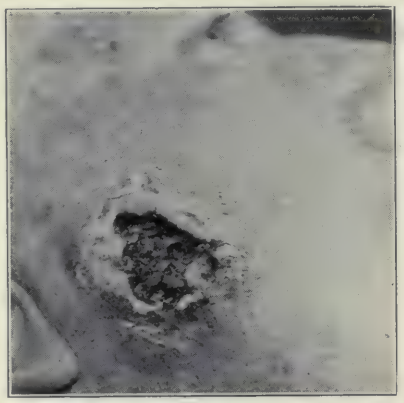


Fig. 1. — A prickle cell cancer of the cheek which was mistaken for a gumma.

In nine instances, patients had neglected themselves without seeking medical advice. One intelligent man had suffered from a cancer of the scalp for nineteen months, four patients had superficial growths of either the face or neck for over two years, one man had carcinoma of the lip for eight months, two had cancers of the face for six years, and one woman had five neoplasms of the face for seven years before seeking aid.

In this series there were six cases that had been wrongly diagnosed by the attending physicians:

One case of a basal cell growth developing in the nasolabial fold of a man, aged 40, was called lupus vulgaris and treated on the "expectant plan" for some years.

In another instance the development of a fungous cuboidal cell neoplasm in a chronic varicose ulcer was unrecognized for three months.

The third case occurred in my own practice. A man, aged 56, was referred to me by an excellent surgeon with a diagnosis of gumma of the cheek. The patient denied any venereal infection, and the Wassermann test was negative. However, he had pigmented scars over the upper third of both shins, and the tibiae were thickened and roughened. On the other cheek was a depressed scar, which he stated resulted from an ulcer that remained unhealed for six months. The lesion for which he was referred was horseshoe shaped; at one end it was cleanly punched out for a considerable depth, and at the other end the skin overhung the base, which was composed of a fairly clean granulation tissue which was not friable. There was no history of bleeding. The edges were considerably indurated, but there were no cancer nodules or plugs, and there was a zone of inflammatory redness for over half an inch beyond them. In view of the other findings I considered that the condition was syphilitic, so at once administered a full dose of salvarsan, with the result that the ulcer at once stopped discharging, and apparently began to fill in from the base. At the end of two weeks another injection of salvarsan was administered, but this time no improvement took place, and it was very shortly evident that the lesion was spreading. Ten days after the last injection a hard, pearly nodule appeared at the border of the ulcer, and this was excised with the electric cautery, and stained. It disclosed typical prickle cell epithelioma.

In the fourth case a man presented himself with an indurated, raised lesion about the size of a quarter on the edge of his tongue next a sharp tooth. The diagnosis of cancer was made and a radical operation advised, but the patient was not satisfied and went to another city, where he was put on injections of mercury. When he returned to Washington three months later the whole floor of the mouth and most of the submaxillary glands were involved.

The fifth case was one of retrotonsillar lymphosarcoma which was seen by a throat man and diagnosed as cold abscess despite a mass of adherent glands in the submaxillary region. This was lanced many times before the correct diagnosis was made.

The last instance was one of typical carcinoma of the tonsil, which was first treated for quinsy. Later the patient received several injections of salvarsan, and at the same time received one "massive dose" of Roentgen rays on the supposition that it might be malignant. Just what was the excuse for combining both methods of treatment would be rather interesting to know.

Twelve cases were either improperly or insufficiently treated after a correct diagnosis was made. In several instances more than one faulty method of treatment was employed.

Four cases had been treated by caustics:

One man with an early basal cell neoplasm of the nasolabial fold was treated by caustic potash, with the result that the lesion was spread.

A second small superficial lesion was treated with carbon dioxid snow, and within two weeks the growth was greater than it had been in the last six months. In passing I might remark that I have seen only four cases of epithelioma which were treated by this method, and that all of the patients were made much worse, although in each instance the remedy was employed by a well trained dermatologist.

Another small lesion in the nasolabial fold was twice treated by caustics, the first time by a regular practitioner and the second time by a cancer quack, and each time the resultant spread was rapid.



Fig. 2.—Effect of two years' treatment with small divided doses of the Roentgen rays.



Fig. 3.—Malignant melanoma which arose on a nevus which had been partially excised.

In the fourth instance an early growth at the inner canthus of the eye was cauterized with silver nitrate, with practically no results, either beneficial or otherwise.

Five patients had operations performed from which rapid recurrences took place:

In one instance a small growth was knowingly incompletely excised, the surgeon stating that he preferred to let the Roentgen rays take care of the remainder. Growth was rapid.

In another instance a neoplasm at the outer canthus of the eye was incompletely excised. As operation in this region is rather difficult because of the danger of deformity of the lid, it should be attempted only by a man skilled in such plastic work.

In the third case a fully developed cancer of the lower lip was treated by a small wedge shaped incision, with the result that in six months there was both local and glandular recurrence.

In the fourth case an attempt was made to excise the edge of a rapidly growing pigmented nevus, and a typical malignant melanoma promptly resulted.

In the last case a carcinoma of the tongue was treated by an excellent surgeon with a beautiful excision of the glands on both sides of the neck, but with a simple burning out of the primary lesion with the actual cautery in an attempt to save the tongue. Within six months the whole of the tongue and floor of the mouth were infiltrated in the cancerous process, while only one or two glands appeared in the neck. A patient without a tongue is a pitiable object, but a person with an extensive cancer of that organ is many times worse off!

One small basal cell lesion of the cheek had been treated by fulguration, with a recurrence in nine months, the recurrence being both deep and wide.

Four of the patients had been treated by small divided doses of the Roentgen rays. The new method of single heavy dose therapy has been in use such a short time that we have not as yet had a chance to study recurrences after it, although some will doubtless occur.

A patient with cancer of the nasolabial fold and adjoining parts of the cheek was not only not improved, but was made so radiosensitive that he could not stand even one unit of a hard filtered ray.

A basal cell cancer of the cheek was treated by one of the best roentgenologists in the country, and although a marked dermatitis resulted yet there was no shrinking of the growth.

The third case, one of basal cell epithelioma of the inner canthus of the eye, was temporarily healed by small divided doses of the Roentgen rays, but there was a worse recurrence in three months.

Another small growth of the nasofacial fold was treated by repeated small doses over a period of two years, and the condition much aggravated.

Special interest attaches to a series of four cases which were treated by the much vaunted radium, all of the patients being made much worse:

In the first instance a physician with a growth, basal cell in character, in the nasolabial fold had much treatment with Roentgen rays, and with various caustics. Several extensive operations, both with the curet and acid nitrate of mercury, and with the actual cautery, were performed, but there were persistent small recurrences, both in the cheeks, and in what remained of the nasal cavities. He was referred to one of the leading radium exponents who had large quantities of this material at his disposal. After several heavy treatments, the patient seemed improved, but after more applications the condition became much worse, and spread rapidly. The last three treatments caused marked general depression, and after the last he was confined to his bed, and eventually died from exhaustion.

In another instance a patient with a lesion about an inch in diameter in the left nasolabial fold consulted the same man, after caustics had been unavailingly applied. After several applications, none of which produced the slightest reaction, the whole of the upper lip and a large portion of the cheek became involved in the cancerous process. In other words, an operable lesion was made inoperable. It is rather interesting to note that the same patient had three other plainly evident cancerous lesions, one on each side of his neck, and one on his temple. Two of these were never treated in any way while he was under observation, which

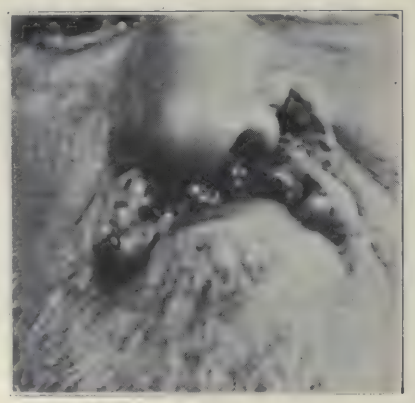


Fig. 4.—An operable basal cell cancer which was made inoperable by the injudicious use of radium.



Fig. 5.—In this instance a cancer of the floor of the mouth was greatly benefited by radium. Poor judgment was shown in attempting to control the glands with the same substance.

was probably just as well considering the results obtained. In this case one would guess that the amount of radium used was too small, and simply acted as a stimulant.

Still another patient with an extensive carcinoma of the floor of the mouth had been referred to the same physician, and radium had been applied to the trouble within the mouth with marked benefit, all of the lesion being at least healed over. The glands of the neck, however, were treated by the external application of radium with the most disastrous results, for they were simply stimulated, and speedily ruptured through the skin, as well as invading the deep planes of the neck. Here again a possible operable case was made inoperable.

The last case was that of an out of town physician who had a superficial basal cell cancer of the left cheek which had been treated with carbon dioxid snow, partially excised, and then radiated, all without benefit. Several treatments with radium at the hands of another exponent resulted in the temporary disappearance of the lesion, but each time it speedily reappeared. After the last course a nodule, not more than 7 millimeters in diameter, became at least 5 centimeters in diameter within two or three weeks.

In view of the very bad way in which at least three of these cases were handled, one must naturally wonder whether some of the so-called radium experts are not on the same plane with those advertising various nostrums, both local and internal, for the cure of the dread malady, cancer. If there is any difference it rests in the fact that they are more dangerous. One must also receive with some skepticism the report of cures of deep malignancies and of uterine fibroids.

CONCLUSIONS

1. The public is not yet sufficiently educated as to the importance of attending to superficial sores that will not heal.

2. While it must be admitted that some cases of superficial malignancy are difficult to diagnose, still entirely too many of them are mistaken for other affections, even by experienced physicians. All suspicious growths should be positively diagnosed at once.

3. Many cases are not treated radically enough; it should always be remembered that insufficient treatment of whatever kind is the worst possible thing for a patient suffering from a malignant condition.

4. Radium, even in large doses, and when administered by some of its greatest advocates, is by no means infallible in the superficial cases that it is stated to cure.

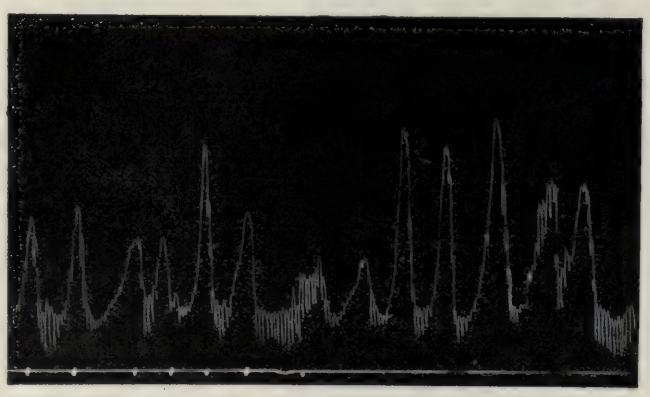


Fig. 1.—Record of the stomach contractions in Case 1. Patient pressed down key every time he noted an abdominal discomfort. As can be seen from the record, the abdominal discomfort coincided with the contractions of the empty stomach.

The Extinguishing of Small Gasoline Fires.—As a result of a series of tests, the British Fire Preventive Committee has found that a mixture of sawdust and sodium bicarbonate, in the proportion of twelve of the former to ten of the latter, has advantages over sand and similar materials as an extinguishing medium for small gasoline fires. The sawdust should be free from shavings or chips of wood, but does not require to be either dried or damped. The mixture is best kept in bins holding eight bushels. In regard to the application of the mixture, the committee recommend that, in order to be thoroughly effective, it must be applied rapidly and in large quantities but systematically, so as to produce a curtain effect. —*Lancet*, London.

CONTRIBUTIONS TO THE MOVEMENTS OF THE EMPTY STOMACH

XXXIV. A NOTE ON THE MOVEMENTS OF THE EMPTY STOMACH IN CERTAIN PATHOLOGIC STATES *

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AND
W. W. HAMBURGER, M.D.
CHICAGO

Up to the present, with the exception of five papers,[1] none of the contributions of this series has dealt with the activity of the empty stomach under any but normal physiologic conditions. It is perfectly plain, however, that the simple methods used in working out the essential features of the mechanism of hunger can be used equally as well in studying gastric motility under diverse pathologic conditions, especially when the general symptoms of the malady, disorder or disease refer directly or indirectly to pathologic states present in or involving the stomach. We refer chiefly to such disorders and diseases as gastric or duodenal ulcer, carcinoma of the stomach with or without pyloric obstruction, and acute gastritis. In short, the activity of the empty stomach might be profitably studied in conditions involving polyphagia on the one hand and anorexia on the other, as well as in those conditions which deal with pain referable for the most part to the epigastric region. Such a study made by a person having ready access to the wealth of material found in the larger hospitals would not only be of value in corroborating or modifying the interpretation of experimental work obtained from dogs, but also might lead to results that would direct therapeutic measures in the proper direction in the disease under observation. There is no question that the method employed would aid in the diagnosis and differential diagnosis of various gastric disorders.

The present communication has a triple object:

1. To point out to those interested in the clinical side of medicine the simplicity of the method, the small cost of the apparatus requisite for obtaining reliable and accurate results, and the value of the results obtained to the physiologist and to the clinician. A

* From the Physiological Laboratory of the University of Chicago, and Michael Reese and Cook County Hospitals.
* Read before The Chicago Society of Internal Medicine, March 27, 1916.

1. These five papers are:
Luckhardt, A. B.: The Cause of the Polyphagia of Pancreatic Diabetes, Am. Jour. Physiol., 1914, xxxiii, 313.
Carlson, A. J.: The Tonus and Hunger Contraction of the Empty Stomach During Parathyroid Tetany, Am. Jour. Physiol., 1913, xxxii, 398.
Carlson, A. J.: A Study of the Mechanism of the Hunger Contraction of the Empty Stomach by Experiments on Dogs, Am. Jour. Physiol., 1913, xxxii, 369.
Carlson, A. J., and Ginsburg, H.: The Tonus and Contractions of the Empty Stomach in Infants with Congenital Pyloric Stenosis and Pylorospasm, Am. Jour. Physiol., 1916, xxxix, 310.
Elsesser, O. J.: The Effect of Experimental Stenosis of the Pylorus on the Tonus and Contractions of the Empty Stomach, Am. Jour. Physiol., 1915, xxxix, 303.

limited experience has shown that the method is feasible for bedside work. Aside from the kymograph, most of the apparatus is found in every hospital, and what is not there can be easily made, or bought for a few dollars. Patience is a requisite of importance if anything of value is to result. Sacrifice of some time is a prime essential.

2. To put on record the result of an experiment on man beautifully corroborating the results obtained from dogs by one of us[2] during an investigation as to

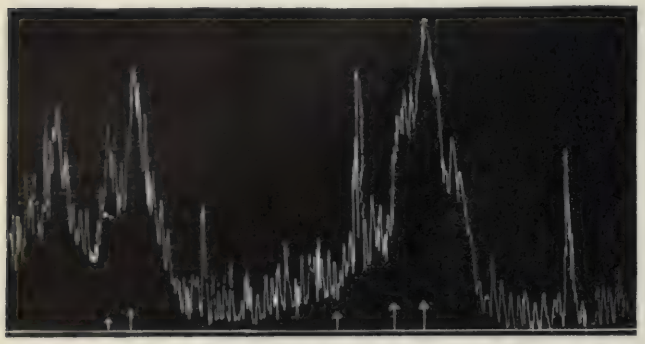


Fig. 2.—Record of the stomach contractions in Case 2. The various dots on the tracing indicated by an arrow represent occasions when the patient experienced abdominal discomfort the same in type as when he was hungry. As can be seen from the tracing, the contractions are moderately powerful, resembling in type those obtained by Elsesser in dogs following experimental pyloric stenosis.

the cause of polyphagia of diabetes mellitus and pancreatic diabetes.

3. To record the results obtained from the human stomach under several other pathologic conditions—results which check with our conceptions as to the nature and cause of hunger.

We earnestly invite the reader to examine the simplicity of the method described in detail elsewhere,[3] and we pass, therefore, directly to the results obtained by us in three patients under the care of one of us (W. W. H.):

REPORTS OF CASES

CASE 1.—M. O., man, admitted to Michael Reese Hospital, Jan. 29, 1914, complained of a slight loss of weight since the onset of his illness three or four years ago, which consisted of "pain in upper abdominal region" during the day (from 8 to 9 a. m.) and night. He characterized the pain as a dull ache which did not come on till late after meals. Aspiration seven hours after a motor meal was negative. The average results of two Ewald test breakfasts were: quantity, 190 c.c.; free acid, 37; total acid, 59. Weber test on gastric contents and feces was negative. A diagnosis of simple hyperchlorhydria, possibly neurotic in origin, was made, although chronic gastric ulcer was also considered.

Contractions of the empty stomach taken on several successive days were not more vigorous, nor were the periods more frequent than those taken from any normal person after the same period of abstention from food. As Figure 1 indicates, he felt distinctly each contraction as the pain which caused him to apply to the hospital for treatment. The fact remains that after the first day of observation (which, of course, as usual the patient considered a part of the gastric treatment) his vague sensations of discomfort gradually disappeared, and he left the hospital on the fourth day expressing himself grateful for what had been done for him. The patient was, therefore, judged a neurasthenic who had so focused his attention on his gastro-intestinal tract that he picked out and interpreted the sensations arising from the normal hunger contractions as the symptoms of a pathologic condition. His hunger contractions were normal, and his prompt "cure" was as significant to us as it was pleasing to him. Possibly an increased excitability of the central nervous system was responsible for sensations of abdominal *pain* (hunger pangs) which the normal person would *at the most* note as a vague sensation in the epigastric region and which by habit he alleviated by taking food. Especially so is this likely, since introspection and unconscious exaggeration of symptoms is a favorite occupation of the neurasthenic. If, then, the condition is chiefly psychic, our "treatment" might exert a favorable influence on such a patient and lead to the "cure" as described in this paper.

CASE 2.—T. K., an aged negro in Cook County Hospital afflicted with a carcinoma of the stomach without as yet grave signs of a pyloric obstruction,[4] had a tumor mass in the abdomen to the right of the median line the size of an orange, together with a gland in the supraclavicular region the size of an English walnut. Two Ewald breakfasts consisting of toast and 6 ounces of tea were analyzed with the following results:

First meal: aspirated at end of one and a half hours; quantity, 310 c.c.; free acid, 18; total acid, 41.

Second meal: aspirated at end of hour; quantity, 120; free acid, 10; total acid, 36.

The patient was emaciated, but took a lively interest in food, complaining on several occasions that the restricted hospital diet (soft diet) did not meet his hunger or appetite requirements. The contractions of his empty stomach taken about eighteen hours after his last meal were fairly powerful, as can be seen from Figure 2. Since such or similar contractions in the normal result in the sensation of hunger, it is important to add that he felt during the contractions an abdominal discomfort the same as when he experienced hunger. Feb. 23, 1914, his empty stomach showed no signs of activity during about three hours' continuous observation (Fig. 3). This deviation from the normal, however, was soon explained by an attendant who informed us that on the previous evening friends had smuggled into the hospital a bottle of wine which he drank and some cake which he munched under cover of his blankets. An acute gastritis developed soon after this indiscretion, and he spent the early part of the evening retching and vomiting. No doubt the acute gastritis was responsible for the absence of the usual

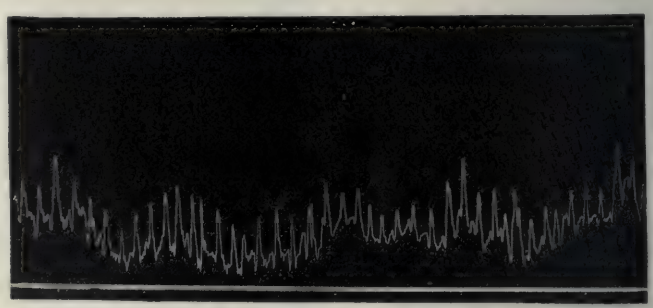


Fig. 3.—Record of the stomach contractions in Case 2 during an attack of acute gastritis. Slight tonus variations are in evidence. During the greater part of the period of observation the records show a simple respiratory rhythm.

hunger contractions and the presence of a perfectly atonic stomach. Parenthetically we might note that an acute gastritis induced in a dog by giving him whisky and alcohol through a gastrostomy opening led to an atonic stomach and a cessation of the normal hunger contractions for a period of forty-eight hours. But the complete results of this and similar experiments will be reported more fully at some future date. Experimental work on the action of certain drugs in allaying or increasing hunger contractions has been begun, but not advanced enough for even a preliminary report.

2. Luckhardt, A. B. (Footnote 1).

3. Carlson, A. J.: A Study of the Mechanism of the Hunger Contractions of the Empty Stomach by Experiments on Dogs, Am. Jour. Physiol., 1913, xxxii, 369; The Hunger Contractions of the Empty Stomach During Prolonged Starvation (Man, Dog), Am. Jour. Physiol., 1914, xxxiii, 95.

4. Subsequent necropsy (March 7, 1914) confirmed the clinical diagnosis.

CASE 3.—The most interesting results were obtained from C. A., man, aged 29, admitted to Cook County Hospital, Dec. 18, 1913, and assigned to the care of one of us (W. W. H.). Two weeks previously he had been at Mercy Hospital (Chicago) for excessive thirst, general weakness, and frequent urination. He had been sick seven weeks, and during that time had lost 20 pounds. He was hungry all the time and had been eating large amounts of food since leaving Mercy Hospital. He was in the last stages of a severe diabetes mellitus. In spite of a restricted carbohydrate and large doses of sodium bicarbonate, he was growing progressively weaker. His ketonuria was marked; and his dextrose to nitrogen ratio was 1:35.

Feb. 11, 1914 (first trial), the empty stomach possessed good tone and showed moderate hunger contractions. Five days later (Feb. 16, 1914) the empty stomach showed two moderate and one powerful period of hunger contractions in less than three hours. This is rather unusual; for after a twelve hours' fast, hunger periods recur about every two hours. During one of the three periods mentioned above, all but a few cubic centimeters of the chloroform was expelled from the manometer, so that the graphic record is not complete. The fact is significant that the patient became restless and irritable toward the end of the experiment, and continually asked for food. Because of this increasing restlessness and irritability, the experiment was discontinued for obvious reasons.

The patient went into diabetic coma five days later, and died the following evening (Feb. 22, 1914).

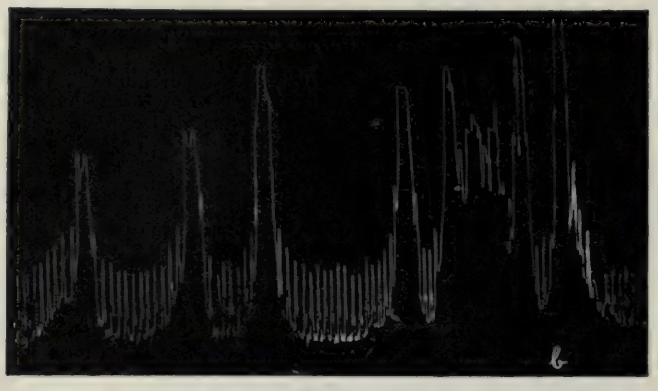


Fig. 4.—Record of the stomach contractions in Case 3. As can be seen, the period ends in tetany at the close of which (*b*) a powerful contraction forced a considerable amount of chloroform out of the manometer.

It is regretted that other duties prevented us from recording observations between February 16 and February 21. Our experiments surely indicate that the contractions of the empty stomach are responsible for the sensations of hunger experienced by diabetics. We do not expect to find that other patients so near death from other causes (save in special easily explainable instances) would speak of eating as often and as freely and exhibit hunger contractions of the same severe type as shown by this patient.

Incomplete as the results are, they nevertheless confirm the work on animals suffering from a fatal pancreatic diabetes when the polyphagia was attributed to the marked hunger contractions resulting from the inanition which is so prominent a feature of the disease.[1] For it was shown[5] that the blood of an animal showing the polyphagia of pancreatic diabetes similar to the blood of a starved animal possessed the property of increasing the vigor of stomach contractions when such blood was injected intravenously into a normal animal.

SUMMARY

The method employed in studying the movements of the normal empty stomach (hunger contractions) is feasible for use in the study of movements of the stomach in pathologic states which point either directly or indirectly to an involvement of the stomach. Patients experienced no difficulty in swallowing the balloon; the apparatus necessary is simple and inexpensive; the results obtained are of great interest and value both to the clinician and physiologist.

The results obtained so far warrant the following statements:

1. The hunger contractions obtained from a neurasthenic conformed to the normal, though interpreted by him as painful. They were neither more vigorous nor more frequently repeated than those of any normal person. His prompt "cure" justified our conclusion that we were dealing with a patient not suffering from any serious organic gastric disorder.

2. Hunger contractions were obtained in a case of cancer of the stomach without marked pyloric obstruction. The contractions were moderately powerful. The patient was quite emaciated (in a state of inanition), but took interest in food and experienced hunger during the contractions.

3. When, however, an acute gastritis is brought on by dietary indiscretions, there results a cessation of contractions of the empty stomach, and this is accompanied subjectively by a lack of interest in food and an absence of hunger (anorexia).

4. Most cachectic states are accompanied by an anorexia. Further work will no doubt show that this is due to the absence of well defined hunger contractions. The cachexia of diabetes mellitus, however, is accompanied by a more or less well marked polyphagia. We find that the latter results from frequent and vigorous contractions of the empty stomach (hunger contractions) which are responsible for the polyphagia exhibited by patients suffering with this disease.

5. Luckhardt, A. B., and Carlson, A. J.: On the Chemical Control of the Gastric Hunger Mechanism, Am. Jour. Physiol., 1914, xxxvi, 37.

CHYLOUS ASCITES AND CHYLOTHORAX

DUE TO CARCINOMA OF THE STOMACH

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Chylous ascites — the occurrence of ascitic fluid which is of a milky character, and the color of which is due to the presence of chyle or of fat globules (pseudochylous) — is a sufficiently rare condition to make a case of extreme interest, both clinically and physiologically. Several cases in which the condition resulted from a traumatic rupture of the receptaculum chyli have been studied by physiologists, who, assuming that they were dealing with pure chyle, have been interested in watching the effect of various diets on the composition of the chyle.

In 1910 Wallis and Scholberg[1] reported three cases and reviewed the literature, collecting reports of 173 cases; but they missed the cases reported by Hall and Morton,[2] Nichols,[3] Batty Shaw[4] and Edwards.[5]

1. Wallis and Scholberg: Quart. Jour. Med., iii, 301; iv, 153.
2. Hall and Morton: Northwestern Univ. Bull., June, 1910.
3. Nichols: Med. News, New York, Nov. 11, 1905.
4. Shaw, H. B.: Jour. Path. and Bacteriol., 1900, vi, 339.
5. Edwards: Practice of Medicine, 1909.

Since their article, cases have been reported by Gandin,[6] Calwell,[7] Marrack,[8] Lediard,[9] Collins,[10] and Huber and Silver.[11]

The article by Wallis and Scholberg is quite exhaustive, giving an abstract of all the 173 cases of chylous and chyliform ascites and the sixty cases of chylothorax, with complete analyses of the fluid obtained in their own cases and an extended discussion of the conditions.

In the cases abstracted by Wallis and Scholberg, there are seventeen in which the etiology is given as carcinoma of the stomach. Of these, in three — the cases of Zawadski (1891), of Lydhecker (1893) and of Menetier and Gauchler (1902) — there also was chylous fluid in the thorax. To these three we add here a fourth:

REPORT OF CASE

History.—W. T. B., man, aged 46, horse buyer, Anglo-Saxon, referred by Dr. Riley of Benedict, Kan., had a father, mother and one brother living and well. No brothers or sisters were dead. He possibly had a syphilitic infection fifteen or twenty years before. Some antisyphilitic treatment was carried on for a year, but not vigorously. He used to

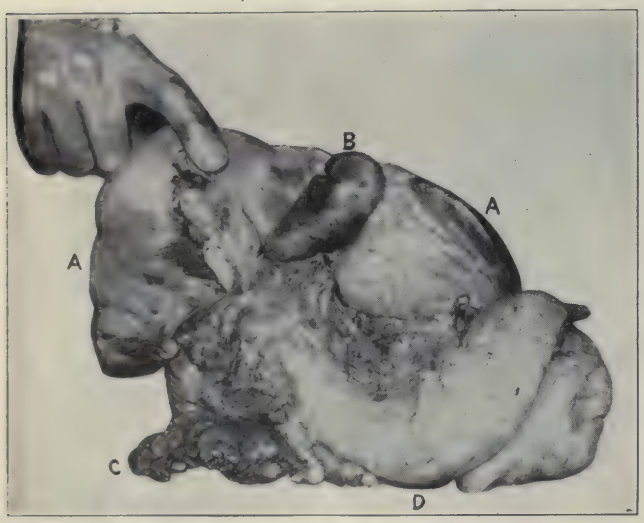


Fig. 1.—Gross specimen: *A, A,* liver; *B,* gallbladder; *C,* mesentery of the intestine filled with glands; *D,* stomach, with tumor in the pyloric region.

use whisky too much, but took a cure about five years before, and had not used it since. He had never been in tropical countries, other than Texas, where he has been within two years.

He felt well up to six months before examination (April 16, 1915). The onset of his illness was sudden. One day in the afternoon he felt dizzy and vomited. He did not go to bed, but was weak and dizzy and continued to feel much the same way for two months. He vomited three or four times in that period. He has never vomited blood. In the last three months he has been troubled with indigestion, pain after meals, belching and bloating. The bowels are constipated.

March 27, 1915, the abdomen began to swell very suddenly, and in a few days was enormously distended. It was tapped, April 1, and about a gallon of milky fluid was removed.

April 8, it was again tapped, and 1½ gallons of ascitic fluid of the same character were removed.

6. Gandin: Ergebn. d. inn. Med. u. Kinderh., 1913, xii, 219.
7. Calwell: Brit. Med. Jour., Feb. 21, 1914.
8. Marrack: Quart. Jour. Med., 1912, vi, 462.
9. Lediard: Clin. Jour., 1914, xliii, No. 9.
10. Collins: Ann. Surg., 1913, lviii, No. 4.
11. Huber, Francis, and Silver, H. M.: A Case of Acute Chylous Ascites (Non-Fatty, Pseudochylous, Latescent or Milky Type) in a Boy Eight Years Old, Am. Jour. Dis. Child., July, 1914, p. 50.

An edema of the scrotum and penis was observed at about the time of the appearance of the ascites.

April 16, he was removed to the Swedish Hospital from his home in Benedict, Kan.

Physical Examination.—At this time the temperature was 99; pulse, 110; blood pressure, 135. Urine: specific gravity, 1.020; acid; a trace of albumin; no sugar; no casts. Blood: hemoglobin, 105; reds, 4,000,000; whites, 17,000. Differential count of whites showed normal relationship. The Wassermann reaction was negative.



Fig. 2.—Duodenum, showing lacteal vessels engorged and lumpy in appearance over its surface.

The patient looked old for his age. His hair was white. The veins on the cheeks were dilated. Heart: The apex was just outside the nipple line. There were no murmurs. A diffuse and soft swelling was on the left side of the neck just below the clavicle. The lungs were clear with normal vesicular murmur everywhere except in back of left chest, where there was dulness with no breath sounds and evidence of fluid. There was edema of the scrotum and penis, and enlargement of the glands in both inguinal regions. The skin was slightly edematous everywhere, not more so in the legs than over the chest and in the skin of the abdomen. The abdomen was enlarged, with evidences of fluid. No filiariae were found in the blood.

Course.—April 17, the abdomen was tapped, and over a gallon of milky fluid withdrawn. The chest was aspirated at the same time, three and a half quarts being removed. This chest fluid was clear straw colored. The fluid removed from the abdomen was milky in appearance, with a tinge of pink. It contained 1.9 per cent. of albumin and fat, and did not react to Fehling's solution. Microscopically it showed small fat globules, and small specks in constant atomic motion. Leukocytes and erythrocytes were numerous.

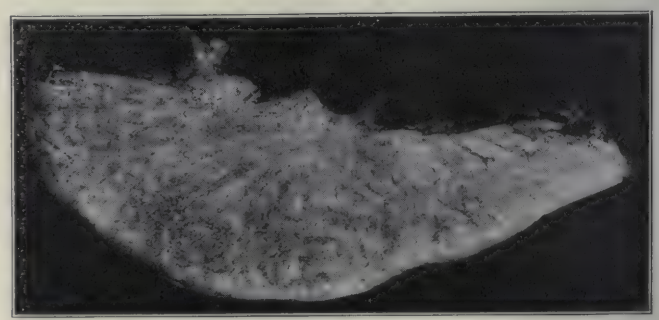


Fig. 3.—Small intestine, near end of jejunum; lymphatic vessels are stained with silver nitrate; note thickness of mesentery.

April 23, the abdomen and the chest were again tapped. Chylous fluid was found this time in the chest as well as the abdomen. A swelling in the left side of the neck the size of a small orange was observed. It receded in size when fluid from the abdomen was removed. After the fluid had been removed, a tumor extending across the upper abdomen, above the umbilicus and more marked on the left side, could be outlined on palpation. It was recorded that it felt like a tumor of the transverse colon. The liver was two fingers below the costal arch.

May 1, the abdomen and the chest were tapped. A large quantity of milky fluid was obtained from each.

May 12, the abdomen was tapped; 1½ gallons of chylous fluid were removed.

May 13, the patient died.

Necropsy.—A partial postmortem examination was made, May 13, at 8:30 p. m. The body was that of a middle-aged

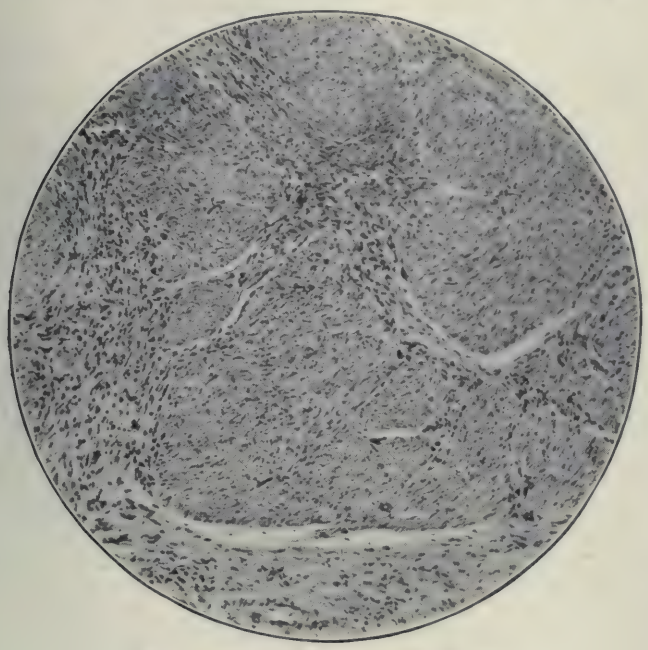


Fig. 4.—Section of tumor in the stomach.

man. There was no rigor mortis. There was edema of the penis and scrotum. There was a swelling on the left side of the neck. When the abdomen was opened, about 3 quarts of milky fluid escaped. The intestines were distended and covered with a lymphatic exudate. The cecum and appendix were enormously distended. Small lymphatic channels over the surface of the intestine were greatly distended. All the glands of the mesentery were enlarged. The entire mesentery was a thick mass of glands which were soft in consistency.

The liver was enlarged and edematous. The gallbladder was large. There were no gallstones.

A tumor was present along the lesser curvature of the stomach, extending from the duodenum to well within the pylorus. The glands of the gastrohepatic mesentery were enlarged. No growth was found in the rectum.

Milky fluid was found in the left side of the chest. The lungs everywhere were clear and crepitant. There was no enlargement in the mediastinum. There was no aneurysm. The thoracic duct could not be located. The entrance of the thoracic duct into the large veins could not be made out.

The entire small intestine, stomach, liver and mesentery, with the covering of the abdominal aorta, were removed in one piece.

COMMENT

The case was interesting. The shifting of symptoms from day to day was alone sufficient to make it such, and besides, the diagnosis was always in doubt, ranging from filiariasis to thoracic aneurysm. The case of Nichols,[3] of which we had a report, and in which the ascites was due to cirrhosis of the liver, influenced us to cling to that diagnosis most constantly in view of our patient's alcoholic history. After he had been a week in the hospital the tumor, felt in the upper abdomen, made the diagnosis of carcinosis of the abdomen seem very reasonable.

Of especial interest was the swelling on the left side of the neck just above the clavicle. Was this due to an enlarged or tense thoracic duct? It was noticed that it receded in size after tappings of the abdomen or chest. It extended gradually up the neck, day by day, between tappings, until it reached half way up to the sternomastoid muscle.

Was there an obstruction of the receptaculum chyli, either a thrombus or a metastatic plug? We are unable to state. The specimen removed from the body was taken with an especial view to a dissection of the great lymphatic duct, but while it was attempted no part of it was found. The demonstration of the receptaculum chyli or of the thoracic duct is one of extreme difficulty, and rarely satisfies any one but the dissector himself. After attempting it in this case we are regretfully inclined to take with a grain of salt the very glib reports of its condition made by other reporters of cases of chylous ascites.

As we did not find the receptaculum in the abdomen or the thoracic duct in the thorax, we feel inclined to believe that they were not affected in this case, as a metastasis of the tumor would have been seen in either of them. We believe that the chyle escaped into the abdomen through the small lymph vessels of the intestine and mesentery. We know, in support of this belief, that they were all very much dilated, that the lymph nodes all through the mesentery were enlarged, and that metastases were found in the small lymph vessels of the intestine and in the nodes from every portion of the mesentery (Figs. 2, 3, 4 and 5).

The fluid removed from the abdomen and the chest gave the evidence of being true chyle; it did not putrefy on standing, it did not clot, and it contained no macroscopic particles of fat. A great deal is made of the differences between chylous and pseudo-chylous and chyliform fluids by other authors. Huber and Silver make the following distinctions:

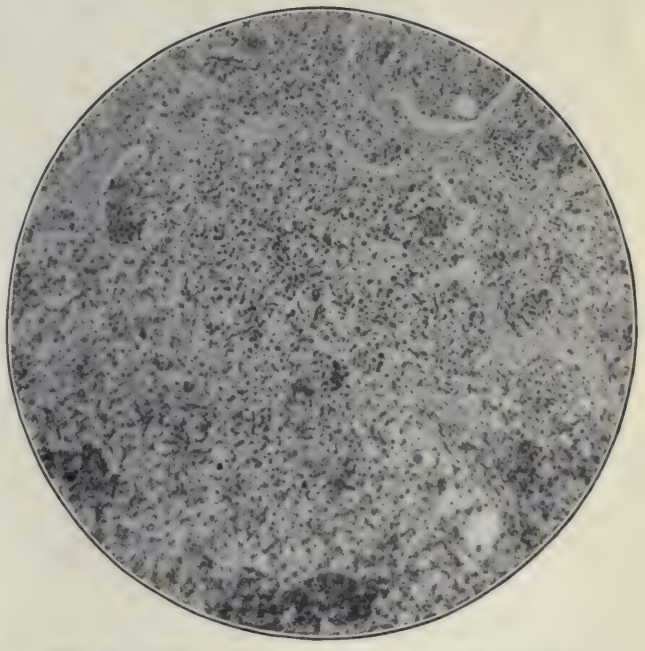


Fig. 5.—Section of mesenteric gland, showing metastasis.

1. True chylous effusion is due to the presence of chyle.

2. Chyliform or fatty, though resembling the first, owes its milky appearance to emulsified fat, the result of a fatty degeneration of cellular elements.

3. In the third variety "the opalescence is not due to the presence of fatty emulsion but is caused by the

presence of opalescent substances, the exact nature of which is still undetermined."

Wallis and Scholberg have a much simpler conception of the different nature of the fluids. "Chylous effusions would include, as before, those due to trauma or to the escape of chyle in diseases affecting the lacteal and lymphatic systems." Chyliform are all other kinds.

CASES IN THE LITERATURE

The article by Wallis and Scholberg, as we have stated above, is the most complete monograph in English on the subject. We have not attempted to confirm their references. The cases which we have found in the literature not included in their article, or reported since, are as follows:

Hall and Morton[2] report a case due to trauma; a wagon passed over the abdomen of a young boy. Many tappings were made, and true chyle obtained. The case was studied chemically by Hall in relation to diets.

Nichols[3] reports a case in a man, aged 74, due to cirrhosis of the liver.

Two tappings were made, and 5,700 and 6,200 c.c. of fluid, respectively, obtained. The man died, and there was a necropsy.

Calwell[7] reports a case due to nephritis (?). The patient was tapped once, and 3 pints were drawn off.

Marrack[8] reports two cases, one due to appendicitis and one to nephritis.

Lediard[9] reports four cases, one due to tubercular peritonitis, one to Hodgkin's disease, one to heart and liver disease, and one to a malignant cyst from the pelvis.

Collins[10] reports a case due to trauma.

Huber and Silver[11] report a case in a child, aged 8, due to no determinable cause. An operation was performed and an opportunity given to examine the intestines, when the lacteal vessels were seen engorged, as in our case. A subcutaneous drainage of the peritoneum resulted in a cure. They quote Gandin, a reference to which we do not have access.

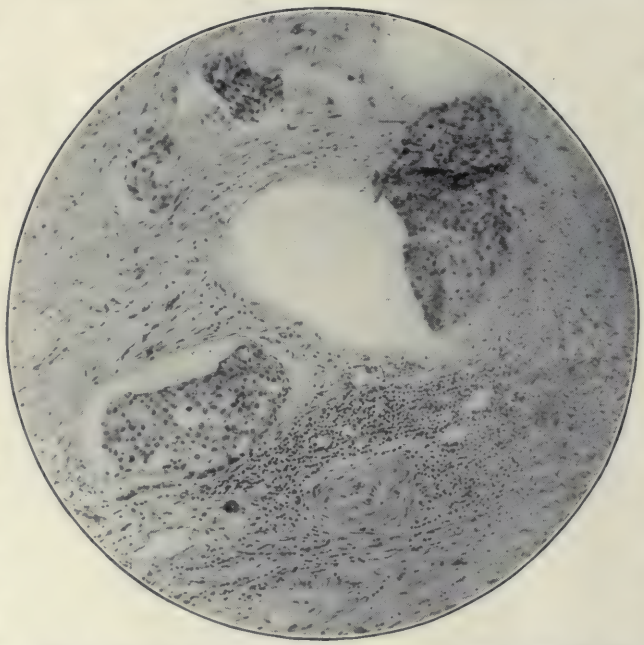


Fig. 6.—Section of intestinal wall, showing metastatic plugs in the lymph channels.

Lead Poisoning in Pottery Trades.—The causes of lead poisoning in the pottery trades are the lead ingredients, of which the glazes are partly composed. The most dangerous process is that of mixing the glaze, applying it to the ware and then removing the excess of the glaze from the ware, handling the ware while the glaze is still wet, decorating and painting the ware and also sweeping the rooms in which the glaze has been handled. Much of the glaze is without lead and is harmless; but in a large percentage of the various pottery wares, lead glazes are used. In only a few of the factories investigated by Dr. Hamilton did the percentage of lead exceed 20. In certain tile works, the percentage in the glaze ranges from 40 to 60. The workmen, besides being exposed to lead poisoning, also inhale much mineral dust and suffer from the effect of great heat in the firing of the enamels.—C. M. Price, *Modern Factory.*

DEVELOPMENT OF THE STATE HOSPITAL AT KANKAKEE (1880-1890) *

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In the latter half of the nineteenth century, many problems connected with the public care of the insane presented themselves for solution which developed conflicting views. Some of these questions were: the advisability of separate provision for the acute and chronic classes; the extent to which mechanical restraint was necessary or admissible; the need of establishing laboratories for psychopathologic research, of instituting training schools for attendants, of broadening and diversifying industries among the inmates and of increasing their privileges, and even of maintaining in some instances "open" instead of locked doors. Among all the questions, however, that which for a time took precedence of others concerned the introduction of a new type and style of building — the substitution of modern "segregated" or "detached" buildings, domestic in style, for the antiquated "congregate" structures previously in universal use. This paper is intended, among other things, to describe the new departure in architecture which was ushered in at Kankakee between 1880 and 1890.

Today, when this transformation has long been *un fait accompli,* it seems sufficiently simple; but in its inception it involved much controversy and debate which was at times tinged with acrimony.

After the close of the Civil War, a great mass of insane pauperism seemed to become suddenly a public burden. This incubus had been growing all along, but the people did not become aware of it until after the war and its all-absorbing issues had been disposed of. Then the necessity for asylums became apparent, and every state in the Union, in its turn, found itself engaged in a struggle with this unwelcome and ever increasing burden. In the several states one asylum after another was provided, but in nearly every instance, long before the doors were open, more than enough hapless defectives had accumulated in the almshouses and jails of the state to fill it to its utmost capacity. A grim struggle with this increasing mass of human driftwood has been constantly in progress up to the present time. The struggle seems absurdly unequal; for the forces of the state continually lag behind, balking at the enormous expenditures involved. The situation may be likened to a "forlorn hope" assailing an inaccessible height. It

* This article is a revision of the writer's history of Kankakee, one of the forthcoming series of histories of "The Institutional Care of the Insane in the United States and Canada," to be published this year by the American Medico-Psychological Association, under the editorship of Dr. Henry M. Hurd. Volume I has already appeared from the Johns Hopkins Press.

might be compared to the cutting of the Gaillard channel through the Culebra Mountain on the Isthmus of Panama: each time when a new opening has been cleared, another inert mass slowly accumulates, obstructing the path of progress. Vast treasure has gone into this great engineering enterprise, but the millions which have been poured into it are insignificant compared with the sums[1] which have been and will be expended in the conflict which civilization wages with the masses of defectives — its useless by-products, useless except as a test of the humanity

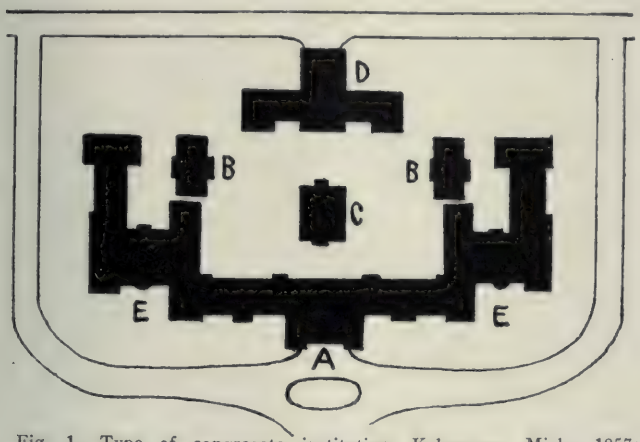


Fig. 1.—Type of congregate institution, Kalamazoo, Mich., 1857; scale, 100 feet equal 1 inch: *A*, administration; *B*, *B*, infirmary; *C*, chapel; *D*, service buildings; *E*, *E*, wards.

and efficiency of our civilization. We cannot doubt the ultimate victory of soundness and reason over disease and disorder, though at times conscious of anxiety and even alarm over the issue.

The institutions for the insane constructed in the United States prior to 1880 were always practically of one type, a massive, many-storied building with dominant central structure and wings extending far to right and left in sections and cross-sections wherein were gathered the hundreds of these incapables who fell to the grudging care of the state. This "central building with wings" was accepted as a sole and universal model up to the last quarter of the nineteenth century. Whenever and wherever a new insane hospital was wanted, it seemed to be a matter of course that an abject copy would be made of some one or another of the state hospitals already existing. This type of building, the congregate hospital, apparently first modeled after a medieval monastery, and later, though improved from time to time in many details, still in arrangement and design retaining an institutional rather than a houselike or homelike character, remained the example to be followed under all circumstances. It reached its highest development in the so-called "Kirkbride" plan, named after the late eminent Dr. Thomas Kirkbride of the Pennsylvania Hospital. This uniformity of building seemed to imply uniformity in condition of the inmates, and evidently they "all looked alike" to the legislative eye. All were considered dangerous, their principal need being confinement in a strong, secure building. It was long before the idea entered the minds of the statesmen, who controlled the appropriations, that the insane were possessed of many human attributes; that the dangerous ones were the rare exceptions, and that dangerous or vicious conditions were often due to the evil environment provided by the state itself.

Figures 1 and 2 show the two types of buildings. As provision for the insane was more and more demanded, the efficiency and appropriateness of the congregate style of building came more and more into question. The questioners were not the people identified with institutions, but, as is so often the case, outsiders were the critics. One criticism of the prevailing style of building was its cost. It required a minimum of a thousand dollars, and in some institutions three or four thousand dollars had been expended for every patient accommodated — enough to provide a house and lot for an ordinary citizen. Other criticisms began to be heard. It was claimed that a "sad idleness" instead of employment and diversion which would be both practicable and beneficial prevailed, and also that an unnecessary amount of mechanical restraint and confinement was used. Visitors to institutions in other countries brought back reports of large industries, "open doors," abolishment of mechanical restraint and a more homelike atmosphere; especially was the colony for the insane at Gheel, Belgium, brought up as an example, in which an insane population of over 2,000 was mostly quartered in the homes of the peasantry. All these discussions led to advocacy on the part of the public of "cottages" rather than "caravansaries" for the insane. At the same time, those identified with the institutions maintained a strict adherence to traditional lines. The advocacy of the so-called "cottage system" was "unorthodox," "impracticable," "theoretical." Discussion went on for years, and while changes were advocated from the outside, all was complacency within. The ancient monastic structure was well intrenched, and the assaults of the reformers made little impression.

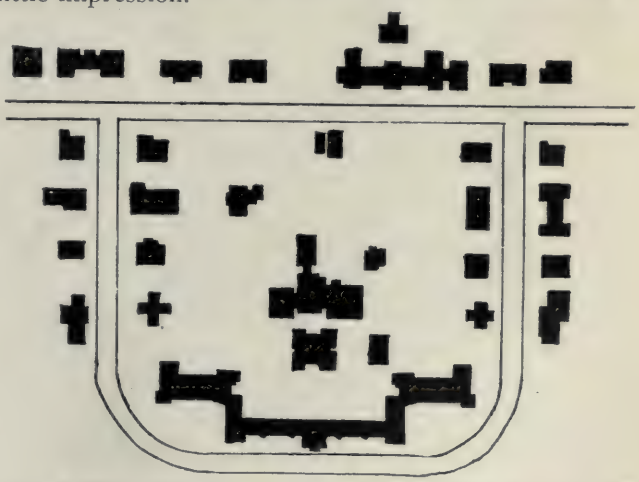


Fig. 2.—Type of segregate institution, Kankakee State Hospital, 1880-1890; scale, 500 feet equal 1 inch; village plan; first departure from congregate type. The small building in the congregate style was retained in avoidance of too radical a change.

In the meantime, the demands for additional institutions had to be met, and various expedients were discussed. The policy of separate and cheaper establishments for incurable cases was frequently proposed, and although this policy was ultimately discredited, yet in a notable instance it was adopted. The Willard Asylum for Chronic Insane was established at Ovid, N. Y. This institution developed rapidly, reaching in the end a capacity of more than 2,000 inmates. It was at first constructed in the well known congregate style, but a

1. For the support of 187,454 insane patients in public institutions of the United States, the sum of $32,804,450 was expended in 1910, and each successive year shows an increase in the number of patients and in the expenditures involved (the latest available census figures).

step in advance was secured in diminishing the cost of construction. Under the admirable management of Dr. John B. Chapin, these buildings were constructed at an expense per capita of about $500 — less than half the amount that had previously been considered necessary.

Turning now to the inception of the hospital at Kankakee, we note that the Board of State Commissioners of Public Charities of Illinois, and especially Mr. Wines, its secretary, had studied the question of buildings for the insane. This board had pondered over these problems from its first assumption of office in 1869. Its members were aware of the criticisms which were rife in the community, and they had invited, by correspondence and conference, expressions from many men of expertness and experience in this field. In that first year (1869) a meeting for discussion of this subject occurred at Chicago, at which Dr. Andrew McFarland, then superintendent of the state hospital at Jacksonville, Ill., said:

> The present system of architectural construction adapts the entire institution to the demands of its smallest and worst class, while for the great majority all these appliances are utterly unnecessary. We need more of the element of home life. I would not abolish the old form of institution. The two systems may exist side by side. I would have the central hospital in the foreground. At a little distance I would have a group, not of cottages; they should be houses of two stories in height. Under this system facility of extension would be great. Classification would be more complete.



Fig. 3.—Bird's eye view of Illinois Eastern Hospital for the Insane, Kankakee, as it appeared in 1887, with a capacity of 1,600 patients. The material of all buildings is either stone or brick, and the main building is fireproof throughout. The total cost of the institution, which was begun in 1878, to 1887, for every expenditure except running expense, amounted to an average for each patient of $754.50. The average cost per patient on construction account alone (excluding cost of furniture, land, etc.) was $590.18, cost of cottages under $500.

At a later date, in the report of the state board[2] for 1892, referring to the foregoing paragraph, Mr. Wines, in stating the case for detached construction, said:

> To Dr. McFarland, therefore, more than to any other man, belongs the credit of planting the germ which has developed into the hospital at Kankakee. His words passed unnoticed at the time, but they made a deep impression upon the state board, and especially upon its secretary, Mr. Wines, in whose brain they ultimately took practical shape.

The opinion arrived at by Mr. Wines as a principle for development of future institutions was thus expressed:

> The classification demanded (for the insane as a whole) was not in separate wards of one building nor in separate institutions (for acute and chronic), but in separate or detached buildings for the care of both acute and chronic cases in a single institution, under a single head.

In noting the further steps in the genesis of detached construction, the fact is to be emphasized that when the appropriation was made for the new institution at Kankakee in 1877, the law was so worded as to make it *obligatory* for the trustees of the new institution to secure the approval of the board of charities to any plan they might adopt. This practically made Mr. Wines, the secretary of the board of commissioners of public charities, arbiter of the building plans, and here, for fuller elucidation, a few words must be given to Mr. Wines, as he was a determining factor in the change of type in buildings for the insane.

Frederick Howard Wines, formerly a Presbyterian clergyman at the state capital, and previously, during the Civil War, a chaplain in a Missouri regiment on the Union side, had become secretary of the state board of commissioners of public charities at the request of Governor John M. Palmer. It was a case of the "office seeking the man." Mr. Wines was a brilliant writer and speaker, a man of broad sympathies and humanitarian motives. He was also possessed of a grasp of economic principles and administrative details unusual for a clergyman. Having familiarized himself with the subject of further provision for the insane, he had become an advocate of greater freedom and elasticity in constructive and administrative matters. In 1878 he had been delegated to attend the world's prison congress at Stockholm. Thus, while in Europe he had been able to study institutions and had become convinced of the practicability of the detached wards. He submitted to the legislature on his return a report which resulted in the first appropriation for detached buildings at Kankakee, and the sum of $30,000 was appropriated for "cottages" to accommodate there 100 patients in three separate buildings. Thus legislative approval was given for the first time to the detached ward idea.

There was even yet a certain measure of apprehension in the mind of Mr. Wines, as is shown by the following language in his report for 1882:

> The foundation of this experiment was laid in fear and trembling. The "cottage-system" had been a topic of discussion for many years, but the . . . sentiment of . . . the medical profession engaged in the care of the insane was adverse to it.

The tradition of the congregate style of building had been so strong that in 1877 the board of trustees of the Kankakee Hospital in a joint conference with the board of public charities had decided that the first building erected must be the stereotyped central building with wings. The board was unwilling to take the chance of so radical a departure from long usage as would be involved in total detachment. Thus the leading strings of custom prevented progress at first; but the successive additions, in 1881, of three buildings for 100

2. Page 112.

patients, in 1883 of ten buildings for 1,000 patients, and in 1885 and 1887 of further extensions were all in the detached style, so that in 1893, more than 1,600 patients were domesticated under the village or cottage plan of construction,[3] and the successful working of these wards through all the subsequent years vindicated the claims that their originators had made for them.

NONPARTISAN CONTROL

It is worthy of note here that the unusual conditions as to party control prevailing in the legislature at the time the institution was organized led to the appointment by the governor of a "nonpartisan" board of trustees, with two Republicans and one Democrat on this board of three members. In the light of subsequent events, this feature may be regarded as fortunate, since partly in consequence of the minority representation and partly by reason of the disposition of all three members of the board to ignore partisan politics and to hold the superintendent alone responsible, civil service principles were consistently maintained during the fourteen years' service of the first superintendent.[4] This fact had an important bearing on the development of the institution, as it enabled the administration to be free from all political interference.

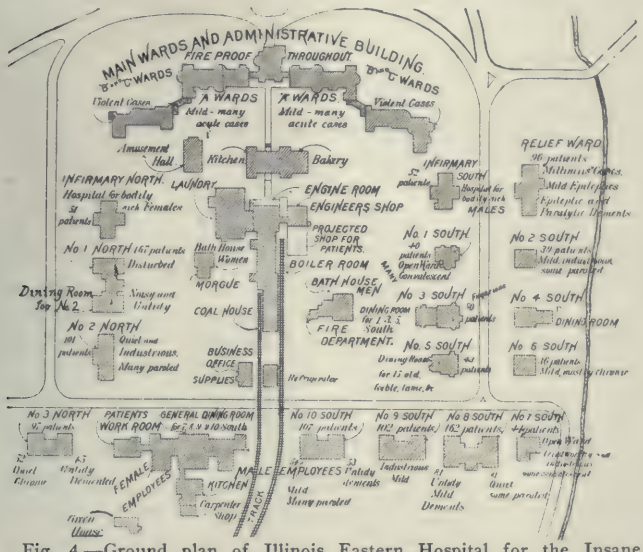


Fig. 4.—Ground plan of Illinois Eastern Hospital for the Insane, Kankakee.

REDUCTION IN COST

The cost of detached wards at Kankakee did not exceed $500 per capita. Up to the time when these buildings were erected, the congregate buildings universally in use had cost a minimum of $1,000 per capita. A reduction in cost of about 50 per cent. was thus effected, so that the amount formerly necessary for one patient would now provide for two. This was better than "two blades of grass where one grew before."

INCREASE OF INDUSTRY

The percentage of patients employed rose from 42 per cent. in the first biennial period to 57 per cent. in 1888, 68 per cent. in 1890, and 73 per cent. in the last period of my superintendency (1892). Space will not admit of details concerning the great variety of trades and handicrafts which were introduced.[5]

TRAINING SCHOOL FOR ATTENDANTS

In 1886 a training school for attendants was organized. At that time there were but four schools in existence in institutions for the insane in the United States. Up to March 31, 1893, 130 attendants had graduated, sixty-four men and sixty-six women. Sixty were still in the employ of the hospital. Eleven men and six women graduates were also employed in other capacities, having been promoted for merit.[6]

DR. ADOLF MEYER

An interesting fact in the history of Kankakee is the service there of Dr. Adolf Meyer as pathologist from 1893 to 1895. Dr. Meyer began at Kankakee a distinguished career, culminating in the professorship of psychiatry at the Johns Hopkins Medical School and the directorship of the Henry Phipps Psychiatric Clinic. He secured during 1893 the purchase from the German government exhibit at Chicago of valuable apparatus. He inaugurated staff meetings and a course of instruction for the medical staff, also greatly improved the case-taking system.



Fig. 5.—Interior of men's workshop.

3. As showing the somewhat far-reaching influence of the new departure at Kankakee, the following facts may be noted: The governors of Ohio and Indiana, accompanied by a state commission and an architect or engineer, each visited and inspected the detached wards at Kankakee in 1883. Later the institutions at Toledo (capacity 1,000), at Logansport (capacity 380) and at Richmond (capacity 400), all on the detached ward plan, were constructed. North Dakota employed Major Willett, architect at Kankakee, and in 1885 had 160 patients in three detached wards. New York constructed a new hospital at Ogdensburg built in detached blocks in 1890, capacity when complete 1,500 patients. Ontario at Mimico near Toronto in 1890 had 240 patients in detached wards. New York City in 1889 had 360 patients in detached wards at Central Islip. Any one interested in the views on building plans held at that period can find documents and discussions in the files of the American Journal of Insanity, and in the "Propositions and Resolutions" collected and published in 1876 by the Association of Superintendents; also the reports of the Board of Public Charities of New York, Massachusetts, Pennsylvania and Illinois (the only state boards of charities in existence up to 1869). The report for 1884 of the Illinois Board of Public Charities, Chapter III, p. 65, has a very full summary of the subject from the pen of Secretary Wines.

4. Having been the first superintendent, the writer well remembers one of his first official acts — the securing of a carpenter. After thorough inquiry, the man found by all odds best qualified was selected, but when later the appointment became known to the local "boss" of the political "machine," a period of consternation ensued, and the superintendent discovered that he had appointed a Democrat instead of a Republican carpenter. In local political circles this was felt to be a serious blunder. There was no interference with the appointment, however, and that same good craftsman remained in full exercise of his functions until fourteen years later, when a new governor (Altgeld) decapitated all the boards of trustees, in order to secure at each institution a superintendent who would do his bidding.

5. In addition to all the usual domestic and farm and garden employments, the following industries were regularly in use (see biennial report for 1890, p. 20): broom making, chair caning, upholstering, scroll sawing, rug and mat making, rag carpet weaving, tailoring, shoe and slipper making and repairing, harness making, tin smithing, wall painting and decorating, the making of paper flowers, basket making, knitting (all socks and stockings used), printing, engraving and picture-framing.

6. The training school fell into disuse for many years owing to political changes, but has been reestablished in all the institutions in late years.

LESSENING RESTRAINT AND INCREASING PRIVILEGES

Mechanical restraint (the use of straight jacket, muffs, etc.) in that day, as always considered an evil, was apt to be treated as a necessary evil and more or less a matter of course. The policy adopted at Kankakee resulted in making it a rare exception. No apparatus was kept in the ward. If used it was applied only by the physician personally after an investigation as to its need. This alone made restraint a rarity. A report and record were made and kept on file of all cases of restraint or seclusion that occurred.

To introduce more homelike atmosphere and soften the rigor of confinement and restraint was an especial object kept in view. The following notes, taken from the "Illinois Institution Quarterlies" of 1914 indicate the progress made, and show that it has been continued in late years:

"At this time there are 1,000 paroled patients. There are twelve "open" cottages, whose doors are never locked and whose windows are not barred or screened. Women attendants on male wards have been increased in number; ten wards have been put in charge of female nurses. Every screened door has been taken off. No patient's door has been locked at night. In two months there has been no seclusion and only one case of "mechanical restraint" among an average of over 2,000 patients."

These conditions were attained under the superintendency of Dr. Sidney Wilgus.

As the hospital at Kankakee was avowedly a departure from methods previously prevailing in architectural construction, and was administered with the purpose of putting to the test certain progressive ideas, the foregoing facts and statements are given.



Fig. 6.—View looking northwest.

CONCLUSION

In closing we may ask the following question: Was the more domestic style of construction, the so-called "cottage" or "detached ward," successful, and did it win general approval?

This question is answered by results immediate and remote so well known as to require only the briefest statement. The more simple, segregated and less expensive style of architecture employed in the detached buildings at Kankakee as a substitute for the many storied congregate central building with wings (previously considered necessary) was given immediate recognition in many states, as shown above, and is accepted today as a matter of course.

It may be said that *freedom* in construction rather than any stereotyped form of building resulted from the experience at Kankakee. The change in constructive ideas would have come in any event, but was helped quite decisively by the experience obtained at Kankakee. The fact was established that efficient care is the first essential, and is more important than any particular type of building.

The reader is now, I hope, in a position to form his own opinion concerning the institution at Kankakee.

In closing my account, as the person through whom the institution's plans and progress were carried out in its formative years, I desire to pay a tribute of honor to the memory of Frederick Howard Wines. His ability and force of character were the originating and sustaining power in inception of "segregated" construction at Kankakee, as opposed to the "congregate" style previously prevailing. His ideas, ably and eloquently presented, were the source of much that was new and valuable in the evolution of greater freedom, adaptability, intelligence and efficiency in constructing and organizing institutions for the insane in the United States.

THE ETIOLOGY OF IRITIS*

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This study was undertaken primarily to determine the causes of "rheumatic" iritis; but in the absence of any clear distinguishing features of this form apart from etiology, we have included all cases of non-traumatic iritis,[1] and after examining each patient as completely as possible, have grouped them in accordance with the causes discovered in each.

This report does not assume to be a complete survey of the causes of iritis, but is rather a recital of the infections which we found and of the evidence for and against the etiologic relation of each to the iritis. The final conclusion as to the relative importance of each cause must be left to future studies.

One hundred patients (forty-seven private and fifty-three clinical) have been thus studied.[2] Careful attention was given to the history, and a complete physical examination was made to detect the presence of syphilis, tuberculosis, gonococcal infection, and infections of teeth, tonsils, sinuses, prostate, pelvis or

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* Read at the Fifty-Second Annual Meeting of the American Ophthalmological Society, Washington, D. C., May 9, 1916.

1. The eye condition encountered has been for the most part "plastic" iritis. Certain cases showed a more marked involvement of the ciliary body or anterior choroidea, and the diagnosis was accordingly modified to "serous" cyclitis or to iridochoroiditis. All cases were studied during an active stage of iritis. No cases of sympathetic iritis or iritis following wounds, operations or ulcers have been included. We have not encountered any cases of fulminating suppurative panophthalmitis during the period of this study.

2. We are indebted to Drs. Wescott, Pusey, Wilder, Darling, Beard and Blue for the privilege of using the notes of cases referred to one of us (E. E. I.) for study. We are also indebted to a number of our colleagues, whose cooperation in painstaking and laborious clinical and laboratory examinations has added much to the completeness and accuracy of our study. Among others, we acknowledge the valuable assistance of Drs. Ormsby, Harris, McEwen and Stillians in the diagnosis of certain cases of syphilis; Drs. Shambaugh, Friedberg, Boot, Beck and Sonnenschein in examinations of the nose, throat and sinuses; Drs. Gilmer, Moorehead, Potts, Puterbaugh and McGuire for advice in and treatment of dental conditions; Drs. Potter and Blaine for many roentgenographic studies of teeth and sinuses, and Drs. Nicoll, Bissell and Moody for extensive serologic studies.

other structures which might give rise to lesions in joints or eyes. Laboratory examinations included Wassermann tests (ninety-eight patients) controlled by two laboratories, complement-fixation tests for gonococcal infection, roentgenograms of teeth and sinuses, and of the lungs when there was any question of pulmonary disease, and cultures of pus from tonsils, sinuses, prostate and other infected tissues. Tuberculin tests, 1, 3, 5 and 10 mg. being used, were made in suitable cases.

After a complete survey of the patient, appropriate measures were taken to remove all infections so far as possible. From the course of the iritis following these procedures, we obtained valuable evidence confirmatory of the etiologic diagnosis. In patients in whom we found but one source of infection, removal of which was followed by immediate improvement of a previously intractable iritis, no special difficulty was experienced in drawing reasonably safe conclusions as to the relation of cause and effect.

We found two or more infections associated in a surprisingly large number of patients. In many of these the reason of the association was obvious; thus, infections of tonsils, sinuses and teeth, or syphilis and gonococcal infection were often found together. In other instances, there was no apparent direct relation between two infections, such as syphilitic iritis from secondary syphilis, associated with a latent alveolar abscess.

THE CAUSES OF IRITIS IN ONE HUNDRED CASES

Infections	Alone	With Other Infections	Total	Coincident Infections						
				Syphilis	Gonorrhea	Tuberculosis	Dental	Tonsil	Sinus	Genito-Urinary
Syphilis	10	13	23	..	8	5	5	1	1	..
Gonococcal infection	7	2	9	..	..	..	1	1	..	..
Tuberculosis	8	..	8	..	..	..	..	..	..	..
Dental infection	7	11	18	2	2	2	..	7	1	..
Tonsillar infection	7	9	16	1	3	2	7	..	..	..
Sinus infection	1	2	3	..	..	..	1	1	..	..
Genito-urinary (nonvenereal)	3	..	3	..	..	..	..	..	..	..
Other infections	2	..	2	..	..	..	1	..	..	..
No cause found	1	..	1	..	..	..	..	..	..	..
Combined infections	..	..	17	8	9	7	8	13	5	1
			100							

By a careful weighing of all the evidence, we were able to determine in most cases which infection was probably responsible for the disease of the eye; but sometimes the available evidence was insufficient, and we have placed such cases in a "combined" group. Some of these patients suffered from several infections. Syphilis, active tuberculosis, gonococcal infection and alveolar abscess were repeatedly found in the same individual.

The accompanying table summarizes (1) the number of times each infection was found in direct etiologic relation with the iritis, and (2) the coincident infections found.

SYPHILIS

The relation of syphilis to iritis affords one of the most interesting studies in this series.

The history of infection, and the evidence of past and present infection, were carefully investigated in each case. In ninety-eight cases, Wassermann tests, usually controlled by two laboratories, and in doubtful cases repeated two and three times, were made. In the two cases in which this test was not made, there was no history or clinical evidence of syphilis, and the iritis in both was definitely ascertained to be due to other causes.

In thirty-nine cases, syphilitic infection had occurred either recently or years before. Of these cases, twenty-eight were dispensary and eleven private patients. In twenty of the thirty-nine cases, the iritis was clearly syphilitic; of this twenty, thirteen showed other clinical evidence of active syphilis. Of the seven in which other active syphilis was not apparent, the Wassermann reaction was positive in all. The iritis was recurrent and had been previously observed in association with acute syphilis in four, a condyloma of the iris was observed in another; in two the diagnosis would have remained in doubt without the Wassermann test. All seven recovered promptly on antisyphilitic treatment. Three other cases of the thirty-nine probably were due to syphilis, judging from the prompt relief following antisyphilitic treatment, although other possible causes, such as active gonococcal or tonsillar infection, were also present.

The remaining sixteen cases of the thirty-nine are of interest because they illustrate the obvious fact that a person infected with syphilis may also suffer from bacterial infections, which may be the real cause of secondary metastatic lesions. We shall refer later to the influence of one infection in the body on other subsequent infections.

Of the sixteen cases in which the iritis was not syphilitic, the grounds on which syphilis was excluded as the cause varied. In none were there signs of active syphilis. In five the time of infection was remote, seven, twenty-two, twenty-five, twenty-seven and forty-five years previous, and the Wassermann reaction negative. In all, there were other causes present, following the removal or appropriate treatment of which, where this could be done, the iritis subsided without antisyphilitic treatment. In several of these, the iritis had previously resisted antisyphilitic treatment in other hands. Among the causes of the iritis in these cases were tonsillar, sinus and gonococcal infection with arthritis. In three the iritis subsided at once after the drainage of alveolar abscesses. In one case due to alveolar abscesses, the iritis appeared contemporaneously with extensive arthritis, while the patient was receiving mercury for syphilis of twenty years' standing. Removal of the abscesses resulted in prompt cure of arthritis and iritis.

The distribution of syphilitic iritis between the dispensary group and the private group of cases is of interest. Of forty-seven private cases, syphilis was present in eleven, and was the cause of the iritis in six, while of fifty-three cases in the clinic, syphilis was present in twenty-eight, and was the cause of the iritis in seventeen. The patients in the clinic at Cook County Hospital were in part referred to us as outpatients, and in part came from the wards of the county hospital, including the venereal ward. The inclusion of several cases of syphilitic iritis from the venereal ward raises the proportion somewhat above what might be encountered in a hospital which does not receive patients with active syphilis. We have been able to discover no other reasons for assuming that the figures given do not fairly represent the proportion of syphilitic iritis in a metropolitan clinic, so far as conclusions may be drawn from a limited number of cases.

In unselected groups of cases syphilis is encountered more frequently in the wards of a charity hospital than in private practice, and in the latter also the disease is more likely to be efficiently treated, and the complications of untreated syphilis are therefore less frequent.

Out of 100 successive cases of iritis, there were only twenty-three in which syphilis was the cause of iritis, and sixteen others due to other causes in which syphilitic infection had occurred, making a total of thirty-nine patients in whom syphilis had to be seriously considered in the etiologic diagnosis. This leaves sixty-one cases in which a searching examination failed to reveal any evidence of past or present syphilitic infection, and in which, therefore, the iritis could not be reasonably thought to be due to syphilis.

So far as one may draw conclusions from this number of cases, it would seem that the widely accepted statement that 50 per cent. or more of iritis is due to syphilis may have to be revised. Certainly in the absence of other evidence of active syphilis in a patient with iritis, the assumption that the iritis is syphilitic is more likely to be wrong than right.

DENTAL INFECTION

Infections about the teeth occur in a large proportion of all persons, and care must be exercised in ascribing to such infections a causal rôle when they happen to be found in the subjects of iritis, or other metastatic lesions.

In this study we have not included peridental infections as possible causes unless they were closed processes, that is, apical infections (alveolar abscesses), demonstrated by roentgenograms and confirmed by the oral surgeon on extraction.

In certain cases of extensive pyorrhea, lateral abscesses occur, or the tissues may be deeply invaded with resulting metastatic lesions; but in the present series, such cases have not been encountered. In several cases, alveolar abscess was the only discoverable infectious process in the body, and the removal of the abscess was followed by prompt and permanent relief of the iritis.

Alveolar abscesses, or apical infections demonstrated by roentgenograms and confirmed by the oral surgeon, were found in forty-one patients (twenty-four clinical and seventeen private). In eighteen patients (ten private and eight clinical), we regarded the dental lesion as the source of the iritis. The evidence on which this conclusion was based varied in the several cases, but included such facts as the absence of other sources of infection and the prompt clearing of the eye on removal of the cause, or the association of the initial attack or recurrences of iritis with known dental infection; or, if other infectious processes were also present, the failure of treatment to relieve the iritis until the abscesses were discovered and removed.

In ten clinical and five private patients the iritis seemed to be clearly due to other causes, such as syphilis and tonsillar infection, and the dental infection relatively inactive so far as concerned the causation of metastatic lesions. Latent alveolar abscesses are often found in persons not suffering from iritis or other evident metastatic disease.

In the remaining nine patients (seven clinical and two private) the dental infection was associated with other infections, often two or more, including tonsillar, sinus, syphilitic or gonococcal, and we were unable to satisfy ourselves which infection was responsible for the disease of the eye. So far as possible, we tried to arrange the sequence of surgical and other treatment so that we could observe the effect of each procedure on the eye; but in a number of instances, considerations of expediency and the saving of vision made it necessary to proceed rapidly to the elimination of all possible causes of the iritis.

Cases of this type, in which the difficulty in assigning a cause for the iritis arose not from inability to find an infectious process but in deciding between several adequate causes, we have preferred to group under the heading of "combined infections," rather than to guess as to which of the infections was the exciting cause of the iritis. This group will be discussed later.

TONSILLAR INFECTION

Tonsillar infections appear to be as important an etiologic factor in iritis as in arthritis and other metastatic lesions. Under tonsillar infections, we have included deep infections of the tonsils, and intratonsillar and retrotonsillar abscesses, but have not included slight lesions such as small crypts containing "cheesy" material, unless accompanied by deeper infection. Superficial infections are not to be disregarded in the routine examination, however, for they often furnish a clue which leads to further investigation and the discovery of deeper hidden infection.

In some cases the history of previous tonsillar infections, the appearance of the tonsils, the enlargement of regional lymph nodes, and the associated arthritis and myositis point directly to the tonsils as the source of the iritis; but in other cases, careful and repeated search is required to discover the deep tonsillar abscess, the removal of which results in relief of the iritis.

The tonsil was clearly the source of infection in sixteen cases (twelve private and four clinical). In thirteen cases of the combined group, tonsillar infection was present with other infections; but, as in the case of dental infections, we were not able to determine whether tonsillar or dental infection was the immediate source of the iritis. It is of some interest to note that twelve of these thirteen combined cases were in the dispensary group, and if all the facts could be determined, it is probable that a number of these would fall in the tonsillar group, thus raising the proportion of tonsillar cases in the dispensary group from four clearly defined cases to a number more nearly corresponding to that in the private group (twelve cases), in which multiple infections were less numerous, and consequently an etiologic diagnosis more easily made.

In cases clearly due to other causes, tonsillar infection was found in several; in the syphilitic group, two; gonococcal, one; sinus, one, and dental seven. Tonsillar and dental infections are frequently found together, and the question may well be raised as to whether the dental infection may not have developed in previous months and years by the same mechanism as the iritis, by repeated infections from the tonsils. Cultures from tonsillar abscesses after tonsillectomy often showed hemolytic streptococci.

GONOCOCCAL INFECTION

Gonococcal infection was believed to be the cause of the iritis in nine patients, all male. In eight of these an active or recent, usually multiple, arthritis was present. In seven the iritis was recurrent and often associated with recurrent arthritis following exacerbations of urethritis. In one case the iritis occurred during an acute gonorrhea without arthritis. In

another a recurrence of the iritis was noted during a period of fever, with arthritis, and the gonococcus was isolated from the blood. A positive gonococcal complement fixation test was obtained in six of seven cases in which it was made. Three of these patients came to one of us for advice as to arthritis, so that it is possible that the proportion of gonococcal iritis is slightly larger than would be the case in a second hundred cases in which this element of selection was not operative.

In seven of the nine patients, infections other than gonococcal were not found; in the other two, both recurrent, tonsillar or dental infections were found, but the recurrences were closely associated with exacerbations of urethritis and arthritis. It is, of course, conceivable that a urethritis with general infection and arthritis might so depress the resistance of a patient to other infections that a latent infection in the tonsil might give rise to an iritis; but such an assumption seemed hardly justified in the two cases under discussion. All evidence in each case must be considered, however, for the mere finding of a positive complement fixation test in the subject of gonorrhea does not indicate a gonococcal origin of the iritis any more than a positive general tuberculin test alone indicates that an iritis is tuberculous.

In cases due to other causes, gonococcal infection was present in thirteen: eight of the syphilitic group, two of the dental, and three of the tonsillar, all dispensary patients.

In the combined or undetermined group, evidence of active gonococcal infection was found in nine, of whom eight gave a positive complement fixation test. All nine patients were in the dispensary group. One or more attacks of multiple arthritis with recurrences of urethritis had occurred in several of these patients. In one patient who had contracted syphilis twenty-two years previously, the initial attack of iritis occurred four years later coincidently with arthritis and directly following urethritis. During the year preceding the present attack, the iritis had recurred coincidently with the appearance of tertiary syphilitic lesions of the leg and mouth. At the time of examination the syphilis had healed under treatment, but the iritis was still active, the Wassermann was negative, and gonococcus complement fixation positive. The mouth was extremely foul with extensive caries and gingivitis (apparently not mercurial), but no alveolar abscesses were found. A positive tuberculin reaction followed the injection of 1 mg. O. T., and later an acute attack of tonsillitis occurred. Here it seems reasonable to assume that the initial iritis may have been gonococcal, but the possibility of the active participation of one of the other coincident infections cannot be excluded.

Such cases as the foregoing illustrate the difficulty of evaluating the several possible causes of iritis in patients, especially of the dispensary group, in whom multiple infections are frequently found.

TUBERCULOSIS

In eight patients (three clinical and five private) the iritis appeared to be tuberculous. In seven the evidence seemed clear, and in one presumptive. In two of the seven, active clinical tuberculosis was present; and in five positive tuberculin reactions, together with other evidence of tuberculosis, such as changes in the lungs, were demonstrated by physical examination and roentgenoscopy. In two cases focal reactions in the eye repeatedly occurred following tuberculin tests; in interpreting these reactions, care was taken to avoid confusing them with the sudden exacerbations of inflammation which may occur spontaneously in iritis. In none of the seven was there any other discoverable focus of infection.

Evidence of the presence of tuberculosis, usually latent, was found also in five patients in whom the iritis was due to syphilis; in two each of the dental and tonsillar groups, and seven of the combined group, the latter all dispensary patients.

SINUS INFECTION

In three patients the iritis was considered due to infection from the sinuses. In several others, the sinuses were infected together with other structures such as tonsils and teeth, but it was not possible to determine whether one or another of the lesions was the immediate source of the iritis, and these cases were accordingly placed in the combined group. For practical purposes the importance to the patient lies in the recognition of the presence of infection, whether it is in one or more places, and its eradication.

Abnormalities in the several sinuses were discovered on routine clinical examination or by roentgenoscopy in nineteen cases, in ten of which active infection was demonstrated. In spite of able assistance, and the recent advances in roentgenographic and clinical diagnosis of sinus disease, we have experienced more difficulty in determining the presence or absence of infection in the sinuses than in any other region of the body.

OTHER INFECTIONS

In three cases, the iritis was associated with nonvenereal infections of the genito-urinary tract, including two of the prostate.

In one instance no adequate cause for the iritis was found.

Diabetes was present in three cases, but in each instance, infections were also present, in one, alveolar abscess; in one, tonsillar abscess, and in one, tuberculosis, syphilis and tonsillar infection.

Several cases came to us with a provisional diagnosis of "iritis from autointoxication." In none of these did we fail to find active infectious processes, such as tonsillar or alveolar abscess, and the previously resistant iritis subsided on relief of the infection without measures specially directed toward the treatment of the supposed "gastro-intestinal autointoxication."

When anemia, weakness, anorexia, achylia, diarrhea or constipation occur in the course of an acute infectious disease, or in certain chronic but clinically evident infections, we recognize that they are the results of disturbance of the functions of the body arising from the infection; but when they are associated with unrecognized infections, together with metastatic lesions of the joints or eyes, we may be tempted to correlate the gastro-intestinal disturbance with the arthritis or iritis, and overlook their common cause. There is no question as to the importance of the regulation of diet, of the correction of constipation, and of all other measures which will improve nutrition and increase bodily resistance to infection; but even these important procedures should not be allowed to supplant or interfere with the search for infectious foci and their eradication.

COMBINED INFECTIONS

There were seventeen patients in whom several infections were present, or in whom there were several

foci harboring the same or different infections in such combination that we could not with certainty determine which infection had given rise to the iritis. These cases have already been referred to in discussing the incidence of the several types of infection.

The patients belonged largely to the dispensary group, and careless habits of life and the physical handicap imposed by the disability arising from some one infection, such, for example, as gonococcal arthritis or pulmonary tuberculosis, no doubt contributed to the lessening of resistance and made the sufferer more susceptible to subsequent infections. The unfavorable action, as regards the host, of one infection on another was probably also a factor in producing the large number of infections and their complications in this group.

But even in this unfavorable residue, the results of treatment directed toward the elimination of the infections were remarkably good, and we had the satisfaction of seeing many hitherto stubborn cases of iritis relieved.

In twelve of the seventeen, recovery followed the removal of infectious processes. In two cases satisfactory results were not obtained despite months of treatment; secondary glaucoma was present in both.

In two we were unable to complete the eradication of infections, and one patient is improving slowly under tuberculin.

THE MECHANISM OF THE PRODUCTION OF IRITIS

Focal infections are very frequent, and yet many persons do not suffer from iritis or other metastatic lesions. Sepsis, streptococcal or pneumococcal, is also frequent, but metastatic lesions of the eye relatively rare. Given an alveolar or tonsillar abscess, what are the causes which lead to the production of iritis or arthritis in one person and not in another, at one time and not at another? An adequate answer to this question requires a more complete knowledge of the mechanism of immunity than we now possess, and certainly a discussion of what is already known would require more space than is at our disposal. A consideration of some of the factors involved is possible, however.

Iritis can be produced in animals by intravenous injection of bacteria, as shown by Stock and others.

Bacteria reach the eye by the circulating blood, and can be recovered from the eyes of animals in which iritis has been experimentally produced.

In some recent experiments we have produced iritis in rabbits by intravenous injection of the streptococcus, *B. mucosus capsulatus* (Friedländer), *B. pyocyaneus,* and the gonococcus. Usually, however, in order to accomplish this, large doses must be given, so that a condition of sepsis is created, and then only in occasional animals is iritis produced. Certain of these animals recover, and the lesion of the eye heals.

If one of each of a series of rabbits is injured by intra-ocular injection of minute amounts of dead bacteria, and then after the eyes have healed and all active inflammation has disappeared, an intravenous injection of living bacteria is given, there follows an inflammation of a larger proportion of the injured eyes than of the control eyes. By this procedure we have produced ocular inflammations by the injection of staphylococci as well as streptococci. Such experiments bear directly on the problem of recurrences of iritis.

In addition to the factors of sepsis, fortuitous embolism, and previous trauma of the eye, changes in the organisms themselves must be considered in a study of the causes which determine the occurrence of lesions of the eye. In a case of streptococcal infection of the tear sac which had presumably given rise to iritis, we were able to produce iritis in rabbits by injection of streptococci when first isolated from the patient.[3] Later the same cultures and other cultures obtained at subsequent dates from the patient failed entirely to produce lesions of the eye. We were not able to make out any changes in morphology or cultural reactions coincident with the change in localization with respect to the tissues of the eye.

From our clinical study and from our experiments thus far, it would appear that not one but several factors are concerned in the production of iritis, among which may be noted the presence of a focus of infection in which bacteria may live and multiply, partially protected from the resisting forces of the host; the periodic entrance into the blood stream of these organisms and their lodgment in the eye, either by reason of their great number as in sepsis, or by fortuitous embolism; changes in the eye itself, either in vascular anastomoses, or in susceptibility of the ocular tissues owing to previous injury; and finally changes in the organism itself, whereby it becomes better able for a time to maintain itself in the tissues of the eye. Such adaptations on the part of the organism do not necessarily imply any demonstrable change in its morphology or cultural reactions.

CHYLOTHORAX, CHYLOUS ASCITES AND LYMPHOSARCOMA

REPORT OF CASE

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Chylothorax is a comparatively rare disease. The case herein reported was typical and was fortunately followed by a postmortem examination.

REPORT OF CASE

Clinical History (by Dr. Tuley).—Mrs. M., aged 58, married thirty-six years, with two children living, had five brothers and sisters, of whom one died of "brain fever," one of typhoid fever and one of pneumonia, those living being in good health. The menopause occurred seven years ago, without complications. The patient has always been robust, the normal weight being about 200 pounds. For several months she complained of pain in the scapular regions of both sides, and could not lie on her back. For a year she has had pain and fulness in the epigastrium after eating. She had had an acute attack of tonsillitis in September, 1915, being then attended by Dr. W. F. Boggess. Recovery from this was uneventful.

I first saw the patient, Oct. 4, 1915, for an attack of dyspnea, the cause of which seemed apparent as the chest was full of sonorous and sibilant râles, and the breathing was typical of asthma. She was given a calomel purge, kept quiet and improved, but on the 21st was seen by Dr. Frazier in my absence from the city, for a recurrence of the dyspnea. In view of the condition of the throat, one tonsil having a

3. Irons, E. E.; Brown, E. V. L., and Nadler, W. H.: The Localization of Streptococci in the Eye, Jour. Infect. Dis., 1916, xviii, 315; abstr., THE JOURNAL A. M. A., March 18, 1916, p. 920.

thin patch on it, and a severe pyorrhea alveolaris, it was deemed advisable to administer some autogenous vaccines, which was done, during the next ten days, with a cessation of the adventitious sounds, but no improvement in the dyspnea. November 1, a careful examination was made of the thorax, and the presence of fluid diagnosed in the left pleural cavity. A peculiar feature of the chest findings at this time was the presence of bronchial breathing over the entire left lung, anterior and posterior, with intense flatness over the left base. At this time she was seen by Dr. Weidner, and the diagnosis of pleural effusion confirmed. November 2, a thoracentesis was done through the eighth interspace, and 3 pints of thin milky white fluid were withdrawn. The appearance was that of pus, but an examination showed it to be free of cells and to be a sterile chylous fluid. The relief from the dyspnea was almost immediate, there being but little cough following the aspiration.

November 8, with a return of the dyspnea corroborated by chest findings, the left pleural cavity was again tapped and 3 pints of chyle removed.

November 14, 3½ pints were withdrawn; November 24, 4 pints; December 2, 4 pints; December 6, 4 pints; December 30, 3½ pints were withdrawn from the right pleural cavity; February 6, 4 pints of serous fluid from the right and 2 pints from the left; February 15, 2 pints of chyle from the right and 1½ pints from the left; February 20, 3 pints from the right; February 29, 3 pints; March 8, 4 pints; March 13, 3 pints; March 18, 2¾ pints, and March 26, 3 pints, all from the right. The total quantity of chylous fluid removed from this patient's chest was 48¼ pints.

TABLE 1.—CHEMICAL ANALYSIS OF THORACIC FLUID *

	Drawn			
	February 6			
	Left Side	Right Side	December 6	November 24
Specific gravity	1.0158	1.0178	1.013	1.0145
Total protein	3.9%	4.03%	3.43%	3.5%
Sugar	.295%	.257%	.4%	.49%
Ether soluble material	.567%	.307%	2.63%	2.33%
Ash			.91%	.79%
Total solids	5.26%	5.26%	7.64%	7.7%

* Analysis by Miss Francke in University of Louisville Laboratory of Chemistry.

TABLE 2.—BLOOD COUNTS

	November 24 Dr. Horine	December 9 Dr. Moore	December 22 Dr. Moore	March 26 Dr. Moore
Red cells	4,900,000	4,900,000	4,890,000	4,800,000
White cells	.....	10,000	9,520	25,200
Hemoglobin	78%*	85%	.....	.....
Polymorphonuclears.	89.1%	82%	88%	95.63
Small lymphocytes.	9.1%	6%	8%	6.
Large lymphocytes.	1.0%	3.5%	3.4%	3.6
Eosinophils	.5%	.7%	.2%	.....
Transitionals	.3%	1.5%	.4%	.....

* Sahli.

December 20, a spot developed on the right tonsil ¾ by 2 inches in size. The exudate was thick, dirty white, very tenacious, leaving a bleeding surface when removed, and looked very much like the membrane of diphtheria. At this time the patient was seen by Dr. A. O. Pfingst. Bacteriologic examination was negative for the Klebs-Löffler bacillus, but the typical spirilla and organisms of Vincent's angina were found, associated with all varieties of pus-producing organisms. At this time a chain of enlarged glands was found in the right neck, which remained large up to the time of her death.

The patient failed rapidly from the middle of March. Emaciation was progressive, and sedatives were required constantly to quiet the restlessness, though no great pain was complained of. Marked edema of the lower extremities developed, and a chylous ascites was present during the last two weeks. A small quantity of chylous fluid was aspirated from the peritoneal cavity a few days before she died. Death occurred quietly at 5 a. m., April 8, 1916.

The chemical analysis of the thoracic fluid (Table 1) follows closely that given by Wells.[1]

Urinalysis, November 23, revealed: specific gravity, 1.018; acid; no sugar; no albumin; triple phosphates; crystals; few leukocytes; hyaline and granular casts.

October 5, the specific gravity was 1.012, and the urine was negative except for crystals of ammonia, urates and a few leukocytes.

Dr. Bayless' report of the Roentgen-ray examination, December 3, showed the right side normal with a movement of 2 inches of the right diaphragm. On the left side from below the third rib in front, it was dark; above the third rib the lung was clear but somewhat emphysematous. The area was so dark that no details of the lung could be made out. It might have been a thickened pleura with fluid or some new growth. The heart was in the normal position. The posterior mediastinum above the third rib was clear. Below it was dark, but evidently from the same condition which caused the dark area in the left chest.

The Wassermann reaction on the blood taken December 1 was negative, and the cultures made from the fluid from the left pleural cavity were negative. A few lymphocytes were noticed.

A careful examination of the blood between the hours of 9 p. m. and midnight was made by Dr. Moore without finding any evidence of filariae.

REVIEW OF LITERATURE

The literature of chylothorax is very meager, though there are a number of references to chylous ascites.

The most complete report which has been accessible is by Sale,[2] who reported one case and reviewed the literature on the subject complete to the year 1899. He found a record of forty-one cases reported in the past 260 years.

The etiology of this condition is of interest, and the causes given by Sale in the recital of these reported cases are: new growths or tuberculous lymph nodes, 9; thrombosis of the left subclavian vein, 4; secondary growths in the duct itself, 9; perforating lymphangitis, 2; aneurysm of the duct itself, 2, and 1 each of: thrombosis of the duct; operation for removal of lymph glands of the neck; mitral disease; filariae, and inflammatory thickening of the mesentery.

Warthin[3] has a very complete description of the various anomalies and pathologic conditions of the thoracic duct which may result in escape of the chyle.

He describes thrombosis of the chylous duct as one of the most frequent complications resulting in chylothorax, and its etiology is given as hemorrhage into the duct, inflammation of its wall, trauma, tuberculosis, metastasis of malignant tumors, infection, filariae, pressure of neighboring tumors, aneurysms, anomalous vessels, exostoses of the vertebra, obliteration of the left subclavian vein, etc.

The symptomatology of thoracic duct thrombosis is purely one of obstruction so far as its distinctive features are concerned. Chylous ascites alone or combined with chylothorax or chyluria would point to such an obstruction. Obscure abdominal pains, intestinal disturbances, edema or elephantiasis of the lower extremities or external genitals may occur as features of the clinical picture.

In all cases in which the collateral circulation is inadequate there results a chyle stasis with dilatation of the duct and radicals. The chyle may escape from the distended vessels by transudation or rupture, and may infiltrate the tissues or collect in the serous cavities, giving rise to a chylothorax, chylopericardium or a chylous ascites.

1. Wells: Chemical Pathology.

2. Sale: Interstate Med. Jour., January, 1912.
3. Warthin, in Osler's Modern Medicine.

Dock[4] reports a case of chylous ascites and chylothorax in which there was a lymphosarcoma with lymphocythemic blood, though the white cells were not greatly increased.

From the few reports found in the literature it would seem that secondary sarcoma of the testis, lymphocytoma of the mesentery, osteosarcoma or chondrosarcoma of the pelvic bones and primary endothelioma of the peritoneum are the most frequent primary lesions found.

NECROPSY

The postmortem report is abbreviated to those conditions having to do with the chylothorax.

Examination (made April 8, 1916, three hours after death, at the home of the patient by Dr. Graves assisted by Dr. Moore).—The body was poorly nourished. There was marked edema in the lower legs and thighs.

Peritoneal Cavity: Superficial fat was 3 cm. thick and bright yellow. About 500 c.c. of thin, milky fluid was in the cavity. Small fatty globules floated on the surface of this fluid. The peritoneum was everywhere smooth and glistening. The liver reached 15 cm. below the base of the xiphoid cartilage, and 5 cm. below the costal margin in the right midclavicular line. Diaphragm: Left, sixth rib; right fifth interspace. The appendix was retrocecal, free, pale, curled on itself, lying toward the pelvis. The mesenteric nodes were enlarged. The foramen of Winslow was patent, but the lesser sac was encroached on by a moderately firm, nodular, retroperitoneal mass. The lymphoid tissue is described later.

Pleural Cavities: The right lung was pushed upward by a collection of milky fluid which filled the lower half of the right cavity so that the lower border of the organ lay opposite the fourth rib anteriorly and the sixth rib laterally. This fluid was similar to that in the peritoneal cavity except that some of it soon after the admission of air appeared clotted. Firm, fibrous adhesions bound the lung to the wall over the greater portion of its surface except the inner aspect of the apex. Between it and the wall there was no fluid or other obvious abnormality. The left pleural space was entirely obliterated with dense, fibrous adhesions except over an area about the size of the palm between the infero-lateral aspect of the lower lobe and the chest wall, where there was a shallow pocket filled with the same chylous fluid.

Pericardial Cavity: This contained about 15 c.c. of clear serous fluid.

Lungs: Both organs were compressed and covered with fibrous tags. Crepitation was much diminished. The organs were doughy and pitted on pressure. On section they were dark red and did not present a normal spongy appearance.

Spleen: This organ was enlarged, was firmer than normal, had a pale gray capsule, measured 6 by 9 by 18 cm. and, on section, presented a great many round or oval, fairly well circumscribed, raised, grayish, homogeneous nodules in dark red parenchyma. The largest deposit was about 25 mm. in diameter.

Pancreas: The head was involved in a tumor as described below. The tail was negative.

Tumor and Its Relations: The lymph nodes from the neck to the pelvis, especially those lying in the posterior mediastinal space and retroperitoneal, were involved in an apparently primary neoplasm which was growing around the structures in those regions but did not infiltrate any except the head of the pancreas. The cervical, axillary, supraclavicular and infraclavicular and bronchial nodes varied in size, the largest being about 2 cm. in greatest diameter, were encapsulated and moderately firm, and, on section, pale flesh color and homogeneous except the last, which were speckled with black. The posterior mediastinal nodes were much larger, reaching a maximum diameter of 4 cm., but were encapsulated and softer and paler on section. Below the level of the diaphragm the nodes seemed conglomerate in a mass larger than one's fist, and involved the head of the pancreas. On section this tissue was moist, pale, homogeneous and typically like fish flesh, while scattered in it could be seen lobules of pancreatic tissue. The lymph nodes along the lesser curvature of the stomach, in the gastrohepatic omentum and retroperitoneal along the aorta were enlarged, those in the gastrohepatic omentum reaching a diameter of 4 cm., while those about the abdominal aorta decreased in size to the region of the bifurcation, where they measured about 2 cm. in diameter, but were of the same appearance as those described above.

In situ structures about the innominate veins were dissected, primary incision being extended at right angles laterally along the left clavicle. No abnormality or rupture of the thoracic duct could be found. In posterior mediastinum duct, esophagus and vessels were surrounded by the tumor, but none of these structures was invaded macroscopically. The heart, lungs, trachea, esophagus, aorta, thoracic duct, pancreas, kidneys and suprarenals were removed en masse. The duct was slit open and followed to its beginning branches. Its mucosa was smooth everywhere.

Microscopic Examination.—Sections from the retroperitoneal mass just below the diaphragm and from the cervical, axillary, clavicular, mediastinal, gastrohepatic, abdominoaortic and iliac glands presented practically the same appearance. The normal markings were largely hidden by a diffuse accumulation of cells of the lymphocyte series, many of embryonic, undifferentiated type. They were mostly round, and varied considerably in size. The smaller cells were typical lymphocytes. The larger ones had less regularly outlined cytoplasm and nuclei. The cytoplasm was nongranular. The nuclei were paler, relatively larger and less distinct, and contained coarse chromatin granules. Many of the larger cells were multinucleated. Monasters and diasters were numerous, and an occasional multiple mitosis was seen. In a few places a moderate number of eosinophils were noted. In most of the lymph nodes, tumor cells were infiltrating the capsule and the surrounding fatty and fibrous tissue. Microscopic diagnosis, lymphoblastoma, malignant lymphosarcoma; round cell sarcoma.

Lung: At one side was an area of invasion by cells similar to those previously described as forming the tumor. These could be seen in the lymphatics along some vessels, but were also made out within the vessels. At the edge of this area these cells were advancing along the alveolar walls and into the alveolar spaces. Microscopic diagnosis. lymphoblastoma.

Spleen: One section showed loss of normal splenic structure, a few trabeculae and arterioles lying in the midst of a diffuse growth of lymphoblastic cells similar to those described in the tumor. The stroma in places had undergone fibrinoid change. Another section presented fairly well circumscribed islands of tumor cells, between which splenic tissue was compressed with a relatively increased number of trabeculae. In such interinsular splenic tissue some sinusoids were greatly dilated, and there were clusters of endothelial leukocytes filled with hemosiderin. In the islands of the tumor cells were spots of apparent hemorrhage. In others small areas of fibrinoid change of stoma were seen. Occasional eosinophils were noted. Outlying from the larger islands of the tumor cells were smaller aggregations of similar cells suggesting lymph nodules. Some of these, however, involved cross sections of two or three trabeculae and one or two arterioles. Microscopic diagnosis, lymphoblastoma.

Pancreas: Four sections showed diffuse infiltration of the fat about the pancreas by lymphoblastic cells like those previously described, and more or less diffuse infiltration of the pancreas itself by like cells. The cells seemed to be advancing from without by expansion. In places small islands of glandular tissue were surrounded by such cells. In other places such cells were infiltrating only in the connective tissue stroma between the glands. Occasionally a group of pancreatic cells showed karyolysis or karyorrhexis or complete granular degeneration. Such groups were invaded chiefly by polymorphonuclear leukocytes. In some places there was a relative increase of fibrous tissue in the stroma, in which regions some acini were dilated with secretion and contained a few polymorphonuclear leukocytes. Among the invading

4. Dock: Am. Jour. Med. Sc., 1907.

lymphoblastic cells eosinophils were not infrequent. Microscopic diagnosis, lymphoblastoma invading pancreas, causing injury, reaction and beginning sclerosis.

Final Diagnoses.—Lymphoblastoma of cervical, axillary, clavicular, mediastinal, gastrohepatic, abdomino-aortic and iliac lymph nodes, invading pancreas and lung, compressing other structures adjacent to them and metastasizing in the spleen. Chylothorax, bilateral. Chylous ascites. Gastric ulcers. Hemorrhage into intestine. Chronic endocarditis. Chronic aortitis. Edema of legs. Fibrous pleural adhesions, bilateral. Superficial ecchymoses. Acute dermatitis of left leg. Multiple leiomyomas of the uterus. Senile ovaries. Postmortem change in the suprarenals. Chronic gingivitis. Atalectasis of lungs.

AN UNUSUAL CASE OF CHRONIC INTERSTITIAL NEPHRITIS

WITH FINDINGS IN BLOOD AND URINE*

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History.—A man, E. O. M., aged 39, married nine years, with no children, fruit grower, an occupation which he had followed for ten years, whose father and mother were living and well, as were four brothers and four sisters, he being among the younger of the children, had measles when he was a child, but after that time had had nothing more serious than "colds" in the head, and had not found it necessary to consult a doctor until March, 1915. His habits had been good; he rarely took a glass of beer, used three cigars a day, never more, and drank coffee or tea at meals three times a day. He denied having had any venereal infection, and the Wassermann reaction was negative. His appetite had always been good, his bowels regular, and his weight practically stationary, 180 to 185, he being about 6 feet tall.

He believed his present trouble had begun in March, 1915, when he noticed his vision was becoming dim, for which he thought it necessary to consult an oculist at Poughkeepsie. His oculist directed him to give up the use of tobacco, which advice he followed, though he was smoking only three cigars a day. Soon after this he had periods of severe, persistent headaches, with complete remissions. The headaches were accompanied by loss of appetite, increasing weakness and loss of weight, until June, 1915, when he was examined by his family physician, who diagnosed Bright's disease and prescribed a diet free from meat and salt, and 2 grains of sodium nitrite three times a day. He had continued both the diet and medicine until he came under my observation. During the summer and autumn he had continued his daily outdoor work, but had yielded to the advice of his physician to spend the winter in Florida, whither he was bound when he came to me on Nov. 30, 1915.

He walked into the office and desired me to express an opinion as to whether it was necessary for him to continue his journey south. This is mentioned only to show that his symptoms were so slight as not to impress him or his family with the belief that he was seriously ill.

On being questioned, he said he was weaker than usual, and exertion made him a little breathless; at times his head ached, and he had a little vertigo after he stooped over. He could not see printed matter clearly to read. He had little appetite, but his bowels moved regularly. He had lost gradually some 15 or 20 pounds of weight in the course of the six months. He said that during the previous week or ten days whenever he was about to lose consciousness in sleep, something seemed to give way and he awoke with a start. This was particularly annoying at night, but during the day he might obtain, at intervals, a few minutes' sleep.

Examination.—The man was found to measure 6 feet tall and to weigh 165 pounds. He was evidently undernourished, and the skin and mucous membranes were very pale. The odor of the breath was distinctly urinous, the tongue was flabby and pale, with a moderate coating over the posterior half; the tonsils were not abnormal, and though several of his teeth had been filled, there was neither pyorrhea nor decayed roots. There was a very marked tremor of the muscles of the arms and legs. Examination of the eyes showed normal reflexes, but the eyegrounds, as subsequently corroborated by Dr. A. E. Davis, had several white areas, and three or four feathery hemorrhages. The temperature was 97, the respirations 16 per minute; there was a good Litten diaphragm phenomenon, and the signs of a moderate emphysema. The arteries were distinctly thickened and tortuous. The rhythmic apex beat of the heart was seen and felt in the fifth interspace within the midclavicular line. The orthodiagram of the heart measured 8.9 cm. from midsternal line to apex, and 4.3 cm. from midline to right border. The aortic shadow was 4.5 cm. wide. There were no thrills felt, and the first sound at the apex was loud and clear, with reduplicated second sound. At the junction of the third rib with the left edge of the sternum there was a distinct systolic blow, with a loud, ringing second sound. The measure of the blood pressure showed it to be systolic 270 mm., diastolic 140 mm. mercury, and there was a pulse frequency of 80. The electrocardiogram indicated a preponderance of the left ventricle. The abdominal examination was negative. There were no glandular enlargements. The deep reflexes were greatly exaggerated, and a fine tremor of the muscles could be felt when the extremities were held. There was neither Kernig nor Babinski phenomenon, and there was no edema of the ankles.

TABLE 1.—SHOWING AMOUNT OF BLOOD SUGAR, URIC ACID, UREA NITROGEN AND CREATININ, THE CARBON DIOXID COMBINING POWER OF BLOOD PLASMA, AND THE RATIO OF UREA OF BLOOD AND URINE, AS WELL AS PHENOLSULPHONEPHTHALEIN EXCRETION

Day in December, 1915	Sugar	Uric Acid, Mg. per 100 c.c.	Urea Nitrogen, Mg. per 100 c.c.	Creatinin, Mg. per 100 c.c.	Carbon Dioxid		Ambard Ratio	Phenolsulphonephthalein
					C.c.	Mg.		
1	0.18	6.5	97	17.5	0.36	0.50	....	0
4	0.225	6.4	129	21.5	0.33	0.44	....	0
7	0.18	6.3	129	21.8	0.35	0.48	1.58	0
10	0.22	7.0	132	22.3	0.38	0.53	....	0
14	0.21	6.1	144	28.9	0.36	0.50	....	..
17	0.20	5.6	150	24.2	0.27	0.33	....	..
21	0.18	5.0	186	28.6	0.30	0.38	....	..
24	0.24	7.7	200	26.7	0.24	0.27	....	..

The blood examination revealed a secondary anemia with hemoglobin 35 per cent., erythrocytes 2,800,000, and a normal white cell and differential count. The urine excreted in twenty-four hours was 2,200 c.c., with specific gravity 1.010, no albumin and no casts. The percentage of chlorid and nitrogen was not determined. No phenolsulphonephthalein[1] was demonstrated in the urine. The chemical examination of the blood[2] revealed a retention of the nitrogen[3] constituents as shown in Table 1. The urea nitrogen was 97, uric acid 6.6, creatinin 17.5, blood sugar 0.18, blood plasma carbon dioxid combining power 0.36 c.c., or 0.50 mg.

Treatment and Course.—Because of these findings, he was continued on a carbohydrate diet[4] of cane sugar 250 gm. and water 1 liter, and three days later a second examination of the blood was made. This showed an increasing retention of urea to 129, and creatinin 21.5, in spite of the absence of nitrogen intake. The carbon dioxid combining power of the blood plasma had diminished to 0.33 c.c., or 0.44 mg. There was no excretion of phenolsulphonephthalein on repeated tests.

* From the Medical Department of the New York Post-Graduate Medical School and Hospital.

1. Frothingham, Fitz, Folin and Denis: The Relation between Nonprotein Nitrogen Retention and Phenolsulphonephthalein Excretion in Experimental Uranium Nephritis, Arch. Int. Med., 1913, xii, 245.
2. Myers, V. C.; Fine, M. S., with the cooperation of Lough, W. G.: The Significance of the Uric Acid, Urea and Creatinin of the Blood in Nephritis, Arch. Int. Med., 1916, xvii, 570.
3. Frothingham, C., and Smillie, W. G.: The Relation between the Phenolsulphonephthalein Excretion in the Urine and the Nonprotein Nitrogen Content of the Blood in Human Cases, Arch. Int. Med., 1914, xiv, 541.
4. Frothingham, C., and Smillie, W. G.: A Study of Different Nitrogenous Diets in Chronic Nephritis, Arch. Int. Med., 1915, xv, 204.

Satisfied that his condition was desperate,[5] because of the marked retention of nitrogen in the blood, I considered a functional test of the kidneys, such as suggested by Mosenthal,[6] to be contraindicated, and was contented to have examined the two-hour specimen for volume, specific gravity, percentage of sodium chlorid and nitrogen, and the presence of albumin or casts (Tables 2 and 3). This examination showed an increased amount for the night urine, but this should not be emphasized, since he was permitted fluid whenever he wished and, as his nights were restless, he drank considerable. The inability of the kidneys to concentrate was shown by the specific gravity of the specimens, which was low, varied only slightly, and diminished as death approached. The low percentage of chlorids might be due to

TABLE 2.—SHOWING AMOUNT OF URINE VOIDED IN TWO-HOUR PERIODS AND THE LOW, SLIGHTLY VARYING SPECIFIC GRAVITY, AND PERCENTAGE OF SODIUM CHLORID AND NITROGEN (DEC. 9, 1915)

Time	Urine, C.c.	Specific Gravity	Sodium Chlorid		Nitrogen	
			Per Cent.	Grams	Per Cent.	Grams
8 to 10	50	1.010	0.30	0.150	0.44	0.220
10 to 12	130	1.008	0.40	0.520	0.39	0.507
12 to 2	160	1.008	0.30	0.480	0.41	0.656
2 to 6	350	1.010	0.35	1.225	0.42	1.470
6 to 8	165	1.010	0.35	0.577	0.43	0.709

the salt-poor diet to which he was restricted, as well as to the fact that he had been so restricted for five months. The nitrogen percentage remained low, even after increased intake.

After three days more of nitrogen-poor[7] diet, the blood examination showed the urea nitrogen to be 129 mg., uric acid 6.3, creatinin 21.8, blood sugar 0.18, carbon dioxid combining power of the blood plasma 0.35 c.c., or 0.48 mg. The restriction of his nitrogen intake was continued, and on December 10 examination of the blood showed the figure for urea nitrogen to be 132 mg., uric acid 7, creatinin 22.3, blood sugar 0.22, carbon dioxid combining power 0.38 c.c., or 0.53 mg. It is quite noteworthy that following the restriction of diet there was a slight rise in the carbon dioxid combining power, though an increased retention in the blood of urea and creatinin. Because the urea nitrogen had increased, the nitrogen-poor diet was continued, and on December 14 the blood examination showed urea nitrogen 144, uric acid 6.1, creatinin 28.9, blood sugar 0.208, carbon dioxid combining power of the blood plasma 0.36 c.c., or 0.50 mg.

It was now quite evident the patient's condition was becoming more serious, for the nitrogen was increasing and the carbon dioxid blood plasma combining power was diminishing. He had been on a protein-poor diet for fourteen days, and though the retention of nitrogen had continued to increase, it seemed unwise not to allow a small amount of protein to spare the body tissues; therefore he was permitted a diet containing some protein, though the nitrogen intake was still kept low, 30 gm. of protein with nitrogen content of 4.8 gm. and 1,800 calories. On December 17 the blood examination showed urea nitrogen 150, uric acid 5.6, creatinin 24.2, blood sugar 0.20, carbon dioxid combining power of blood plasma 0.27 c.c., or 0.33 mg. The restricted nitrogen intake was continued and on December 21 the blood examination showed urea nitrogen 186 mg., uric acid 5, creatinin 28.6, sugar 0.184, carbon dioxid combining power 0.30 c.c., or 0.38 mg. During the night of December 21 he had a profuse epistaxis and began to complain of precordial pain. On palpation over the second, third and fourth left interspace in the parasternal line, one could feel a friction rub, and on auscultation a to-and-fro friction sound could be heard. The venous pressure at this time had evidently increased, as shown by the marked engorgement of all the veins of the extremities. The pulse rate increased somewhat over 100, and the temperature rose from 96.4, which it registered on December 20, to 98.6. On December 24 the blood examination showed urea nitrogen 200, uric acid 7.7, creatinin 26.7, blood sugar 0.236, carbon dioxid blood plasma combining power 0.24 c.c., or 0.27 mg.

This examination showed the most critical condition, and death followed, December 25, at 10:40 a. m., without coma or convulsions, but with a very rapid failure of the heart, which was evident for about an hour and a half before death.

The pulse rate remained about 80 until December 23, when it began to increase and rose to 100, coincident with the development of his pericarditis. The rate of 100 to 110 was maintained until just before death, when it reached 120, and later became imperceptible at the wrist. The temperature remained about 98 until December 20, when it gradually sank to the point of 96.6, and on December 21 reached 96.4. Then with the onset of his pericarditis it gradually rose to 98.6, which it reached at the time of his death. Respirations were usually 18 to 20, except during the periods of sleep, when they rose to from 30 to 36, and were accompanied by vigorous twitching of the legs and arms, but at no time was there a Cheyne-Stokes phenomenon.

The intake of fluid varied between 1,000 and 2,500 c.c., and the output reached as high as 2,100 c.c., the amount usually being between 1,100 and 1,700 c.c., until the day before death, when it sank to 500 c.c., and this was obtained by catheterization, as he was unable to void during the last forty-eight hours. Twice during the period of observation he vomited, and there were several watery bowel movements in the day. Aside from the increasing uremia, this was unaccounted for.

The blood pressure when he first came under observation was, systolic 270, diastolic 140 mm. of mercury, with a pulse frequency of 80, gradually diminishing to systolic 215, diastolic 110, about December 10. Then the diastolic pressure rose to 130, systolic remaining at 220, until December 16, or nine days before death, when the systolic fell to 190 and the diastolic to 110 mm. of mercury, remaining so for two days. On December 18 the systolic pressure rose to 225 and the diastolic to 130 mm. of mercury, again gradually diminishing until December 24, when the systolic registered 175 and the diastolic 90. With the onset of the pericarditis there was a marked rise in the venous pressure.

Shortly after entering the hospital he began to have attacks of epistaxis, which were easily controlled by ice water applied

TABLE 3.—SHOWING AMOUNT OF URINE VOIDED IN TWO-HOUR PERIODS AND THE LOW, SLIGHTLY VARYING SPECIFIC GRAVITY, AND PERCENTAGE OF SODIUM CHLORID AND NITROGEN (DEC. 13, 1915)

Time	Urine, C.c.	Specific Gravity	Sodium Chlorid		Nitrogen	
			Per Cent.	Grams	Per Cent.	Grams
8 to 10	115	1.008	0.35	0.402	0.40	0.460
10 to 12	150	1.006	0.35	0.525	0.39	0.585
12 to 2	190	1.008	0.35	0.665	....	.....
2 to 4	50	1.005	0.30	0.150	0.30	0.150
4 to 6	170	1.008	0.35	0.595	0.36	0.612
6 to 8	180	1.008	0.30	0.540	0.35	0.630

to the face, until December 21, when he had a profuse hemorrhage. Subsequent to this the pericarditis became evident and the next day, December 23, he complained of a pain in his chest, and the same day the palate and uvula became edematous.

The first chemical examination of the blood (Table 1) shows urea nitrogen, uric acid, creatinin and sugar to be well above normal, and the combining power of the blood plasma to be at the low figure of 0.5. As subsequent examinations were made, each one of these figures showed a progressive impairment of his metabolism, as indicated by the increasing retention of nitrogen and decreasing combining power of the blood plasma. Of four tests of the phenolsulphonephthalein, after only one was a trace of the dye found in the urine, the others being absolutely negative. The ratio between the urea in the

5. Myers, V. C., and Lough, W. G.: The Creatinin of the Blood in Nephritis: Its Diagnostic Value, Arch. Int. Med., 1915, xvi, 536.
6. Mosenthal, H. O.: Renal Function as Measured by the Elimination of Fluids, Salts and Nitrogen, and the Specific Gravity of the Urine, Arch. Int. Med., 1915, xvi, 733.
7. Denis, W. J.: Effect of Ingested Purins on Uric Acid Content of the Blood, Jour. Biol. Chem., 1915, xxiii, 147.

blood and the urea in the urine, as suggested by Ambard, gave a figure of 1.58, while with McLean's index[8] the figure of 0.27 was obtained, both showing very strikingly the impaired secretory power of the kidney.

It is particularly interesting to note that during the time he was on the nitrogen-poor diet the creatinin jumped from 17.5 to 21.5 and remained at that figure for six days, subsequent to which it made a further increase to 28.9, at which point it remained until the day before death. The same temporary cessation of retention is shown in the urea figures, which for a week subsequent to the nitrogen-free diet remained almost stationary, but subsequently increased very rapidly, reaching the high point of 200 the day before death.

SUMMARY

A case of chronic nephritis with hypertension is described in which the following history was traced:

1. The respiration rate was of an unusual periodic type, increasing during sleep to almost double the frequency of the waking period, but not of the Cheyne-Stokes or Biot type, though uremia was the cause of death.

2. The blood sugar and the blood nitrogen, as well as the carbon dioxid combining power of the blood plasma, are shown as indicating the condition and course of the disease.

3. The absence of phenolsulphonephthalein excretion, together with other urinary findings, are recorded.

4. Though the arteriosclerosis, retinal changes and high pressure were extreme, there was the physical evidence of only the slightest hypertrophy of the heart.

5. Two days before death a profuse epistaxis occurred, followed by edema of uvula and palate and the development of fibrinous pericarditis.

CONCLUSIONS

1. With the examination of the urine only, the seriousness of this patient's condition would not have been discovered.

2. The phenolsulphonephthalein excretion test is of value to indicate the status praesens of the patient, but the amount of urea and creatinin in the blood, particularly the latter, give a definite clue to the progress and prognosis.

158 West Fifty-Eighth Street.

Preservative Value of Cleanliness.—Modern bacteriology has placed on cleanliness a preservative value which may appear surprising in respect to its efficiency, particularly in conjunction with low temperatures which inhibit the development of micro-organisms detrimental to foods. As an example of what such sanitary precautions can accomplish in the case of readily deteriorating milk Sherman states that "three American dairy farms exhibited raw milk at the Paris Exposition of 1900, one of them sending weekly shipments throughout the summer, each of which was kept on exhibition in the raw state without spoilage until the next shipment arrived. It was difficult to convince the jury of European experts of the fact that 'cleanliness and cold' were the only preservatives needed to accomplish the keeping of raw milk in a fresh, sweet condition for two to four weeks in midsummer." Precisely such methods, combined with modern transport facilities, have made it possible to extend the range of milk supply in our large cities literally hundreds of miles and to bring an indispensable food at a reasonable price into every home. There is, indeed, a profound difference between marketing milk in the familiar manner now practiced and the older mode of distribution when goats or cows were driven in front of the home to be milked there.—Changes in the Food Supply and Their Relation to Nutrition, Lafayette B. Mendel.

8. McLean, Franklin C.: Clinical Determination of Renal Function by an Index of Urea Excretion, THE JOURNAL A. M. A., Feb. 5, 1916, p. 415.

THE EXAMINATION OF NORMAL GASTRIC SECRETION BY THE FRACTIONAL METHOD

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In view of the peculiar advantages which might be gained from a study of the entire cycle of secretion during gastric digestion, a considerable number of both normal and pathologic stomachs have been analyzed at the Wesley Hospital during the last eighteen months, according to the method of Rehfuss. As the result of this work, it is believed that the method of fractional gastric analysis offers the only logical method of examination for determining the true secretory and motor state of normal and abnormal stomachs, and that consequently it should replace the older stomach tube method, by which merely the momentary secretory and motor condition can be estimated.

In all, about 150 cases have been examined by the fractional method. These include a normal series on proved healthy medical students and nurses, and an abnormal series on private and clinical hospital patients. The clinical diagnosis in the pathologic series, based on the symptoms, physical examination, laboratory and Roentgen findings, was checked in a large number of cases by a pathologic diagnosis at operation.

The technic employed was that of Rehfuss with a number of changes and additions. In all cases the tube was first inserted into the twelve hour fasting stomach, the entire content being removed, measured and examined for free hydrochloric, lactic and total acidity, and for mucus, bile and food particles. A straight Ewald meal consisting of two slices of bread and two glasses of water was immediately introduced into the empty stomach and the tube reinserted. At fifteen minute intervals, 5 c.c. specimens were withdrawn until the specimens were macroscopically free from food particles and until the free and total hydrochloric acid had returned to approximately their relative positions as found in the fasting content. Care was exercised against the swallowing of mucus throughout the examination, and the individual was protected as far as it was possible from all forms of psychic stimulation, especially that of the sight or smell of food. Titration was performed with tenth normal sodium hydroxid. Phenolphthalein was used as indicator for total acid, and dimethyl-amido-azobenzol for the free acid.

In this way a curve was constructed, beginning with the fasting content, and on fifteen minute analyses after the administration of the Ewald meal until the aspirations showed no further food remnants or until the secretion had returned to that of the fasting state.

Only by this method of introducing the test meal into the empty stomach can the true appetite secretion, or with this lacking, the secretory response to food stimulation, be ascertained.

In the normal series, consisting of twenty-four cases, care was taken to select only those subjects who were free from both general and gastro-intestinal abnormalities so far as history and physical findings disclosed. In six of the series a second analysis was run under as nearly the same conditions as the first as possible, in order to determine whether repeated examinations of the contents of the same stomachs would give the same secretory curve. At least two weeks

elapsed between the first and the second analysis in all cases.

Table 1 gives the results of analysis of the residuum in the series of twenty-four fasting stomachs: Summarized, the highest total acidity was 40 in terms of tenth normal sodium hydroxid, the lowest was 5, with an average of 17. The highest free hydrochloric acidity was 30, while in 62.5 per cent. the residuum contained no acid, giving an average of 6⅜ free acid for the series. The greatest quantity was 210 c.c., the smallest 5 c.c., with an average of 48⅛ c.c. Bile was present in the residuum in 41.66 per cent. of cases.

The surprising feature in this as in the Rehfuss series is the quantity of residuum which may be found in the normal fasting stomach by this method as compared with former ideas of the boundaries of normal, ranging for 20 to 60 c.c., according to various authorities. "The old tube which is propelled from above has its position always fixed"; consequently, if either too little or too much tubing is introduced, the eye of the tube, being above the most dependent portion of the greater curvature, is unable to take up the entire

TABLE 1.—RESIDUUM IN TWENTY-FOUR NORMAL FASTING STOMACHS

Number	Total Acid	Free Acid	Quantity, c.c.	Residue
1	15	9	10	Clear
2	5	0	18	Bile tinged
3	8	0	35	Bile tinged
4	9	0	30	Bile tinged
5	22	15	25	Clear
6	22	12	30	Clear
7	10	0	5	Clear
8	35	19	50	Clear
9	30	18	40	Clear
10	10	0	30	Bile
11	6	0	18	Clear
12	10	0	35	Clear
13	27	18	125	Bile
14	38	24	130	Clear
15	40	30	35	Clear
16	20	8	50	Bile
17	12	0	90	Bile tinged
18	6	0	15	Clear
19	5	0	28	Bile
20	12	0	32	Clear
21	20	0	55	Bile tinged
22	12	0	10	Clear
23	18	0	210	Bile tinged
24	16	0	50	Clear

amount of residuum. The eye of the Rehfuss tube, on the other hand, seeks the most dependent portion of the greater curvature by gravity, and remains in this position for a considerable time, as I have repeatedly proved by passing the tube before the fluoroscope and allowing a stream of bismuth suspension slowly to pass through the tube and settle along the floor of the stomach. Since the olive of the Rehfuss tube seeks the most dependent portion, it would seem quite an unnecessary procedure to aspirate with the patient standing or lying in the various postures, recommended by Rehfuss, unless an actual deformity were present in the contour of the stomach.

In Table 2 are recorded the essential features of the curves of secretion in the normal series.

A detailed study of the various normal charts, in the vast majority of cases, will show a considerable drop in both the total and free acid values at the first fifteen minute period as compared with the fasting residuum. This abrupt fall is undoubtedly due to the dilution of the appetite secretion by the Ewald meal. In seventeen of the cases, either the total or the free or both waves began to ascend within the first fifteen minutes; in four cases the rise began during the thirty minute period, in two cases in forty-five minutes and, in one, only at the end of one hour. Consequently it will be seen that in six instances in the series, there was either no appetite secretion evoked by the Ewald meal or that the reaction to the psychic stimulation was too slight to overcome the diluting action of the meal, and that the beginning of the wave occurred only as the result of the food stimulation.

The curves resulting from the absence or diminution of the appetite secretion closely resemble the delay of the secretory waves observed in the pathologic series

TABLE 2.—ESSENTIAL FEATURES OF THE CURVES OF SECRETION IN THE NORMAL SERIES

No.	Beginning of Rise	Time of High Point	Height in N/10 NaOH	Character of Wave	Empty of Food	End of Test	Gastric Cycle	Acid
17	60	1:30	60	Acute				
	*0	1:45	50	Acute	2:00	2*	Complete	
10	45	1:30	50	Curve	not at	....	25 c.c.	38
	60	1:30	28	Plat.	3:00	3	Small amt. of food	24
11	30	1:15	72	Acute				
	30	1:30	48	Curve	2:00	2	Complete	
12	15	1:45	72	Acute				
	15	1:45	62	Acute	2:45	3	Complete	
13	15	60	34	Plat. 1½ hr.				
	45	1:30	40	Plat.	2:45	3	Complete	
14	15	1:15	78	Acute				
	15	45	28	Plat.	2:30	3:30	Complete	
9	30	1:45	58	Acute				
	30	1:45	32	Plat.	2:30	3	Complete	
3	15	1:15	38	Curve				
	30	1:15	26	Apex	1:45	1:45	Complete	
4	30	1:15	52	Curve				
	30	1:15	24	Plat.	2:30	2:30*	Complete	
15	15	1:15	88	Acute	....	....	40 c.c.	82
	30	1:15	76	Apex	1:45	2	Clear	70
16	30	2:15	114	Acute	....	....	35 c.c.	82
	30	2:15	100	Apex	2:15	3	Clear	42
8	15	1:15	75	Acute				
	15	1:15	54	Apex	1:45	1:45	Complete	
1	15	1:30	45	Acute				
	15	1:30	38	Apex	2:00	2	Complete	
5	15	2:00	65	Acute				
	15	1:30	46	Plat.	2:30	2:30	Complete	
2	15	60	50	Curve	....	....	60 c.c.	34
	15	1:45	30	Plat.	3:00	3	Clear	14
7	0	1:15	68	Acute				
	0	1:15	28	Plat.	2:00	2:30	Complete	
6	15	1:15	50	Acute				
	15	1:15	28	Acute	2:30	3	Complete	
18	0	60	54	Acute				
	15	45	26	Curve	2:00	2:30	Complete	
19	15	1:30	38	Plat.				
	30	1:15	18	Plat.	1:45	3	Complete	
20	15	1:30	50	Acute				
	30	1:30	40	Acute	1:45	2:15	Complete	
21	15	1:45	38	Grad.				
	30	2:00	18	Plat. (1 hr.)	2:00	2:30	Complete	
22	45	1:30	46	Plat.				
	45	1:30	34	Curve	2:15	2:30	Complete	
23	30	1:15	50	Plat.				
	45	1:30	36	Curve	2:30	2:45	Complete	
24	15	1:45	38	Plat.	....	....	5 c.c. only	40
	45	1:45	18	Plat.	2:15	2:30	aspirated	22

* Empty.

in three chronic alcoholic gastritis cases with associated portal congestion.

The varying effect which the Ewald meal may produce on the appetite secretion in different individuals, and its consequent effect on the character of the secretory curve, should not be overlooked.

In not a single instance in the normal series did we record the early steep rise of either free or total acid, classified by Rehfuss as the hypersecretory type of normal curve. This form of curve, however, is frequently seen in pathologic cases, and the steep ascent is called an "irritable rise," since these cases almost without exception have shown a high free hydrochloric acid secretion in the fasting stomach.

In summarizing the time of occurrence of the high point in secretion in the series, it will be seen that in the case of the free acid, this occurred in twenty of the twenty-four cases between the one hour and fifteen minute and one hour and forty-five minute periods, with the greatest number occurring at one hour and a half; and that in not a single instance did it occur at the one hour period, the conventional time for removing the Ewald meal, with the old tube. On the other hand, in two instances the high point was attained in forty-five minutes. In general, the same holds true in the case of the high point of the total acid curve, this occurring in nineteen of the twenty-four cases between one hour and fifteen and one hour and forty-

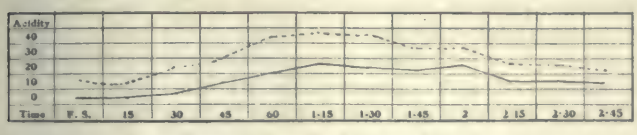


Chart 1.—Composite curve, made by plotting the average acidity of the twenty-four normal stomachs at each fifteen minute period: broken line, total acidity; solid line, free acidity; F. S., fasting stomach.

five minutes, with the greatest number at the one hour and fifteen minute period, and with but three instances in which the high point was at one hour. That the high point of both curves tends to occur at a later point than the one hour period is even more strikingly demonstrated in the pathologic series, in cases showing some form of continued gastric irritability. It is improbable that any abnormal delay in the occurrence of the high point of secretion was caused by the introduction of the test meal into the empty rather than the fasting stomach, since in fifteen of the twenty-four cases the fasting stomach showed no free hydrochloric acid which might have hastened the secretion, and since in the vast majority of cases the secretory response occurred at the normal time.

The high point of secretion varied from forty-five minutes to two hours and fifteen minutes after the test meal was taken. Since it is not at all unusual to see a difference of 30 or even 50 in acid concentration in a single fifteen minute period, the fallacy of attempting to determine the true secretory state of a stomach by the analysis of a single specimen taken at a fixed time is evident. In the pathologic series there are many curves, showing a normal or hypoacidity at one hour, which at one hour and fifteen minutes or one hour and a half show a marked hyperacidity; consequently it would seem that a hypothesis is erroneous which assumes on the basis of a single one hour analysis that a hyperacidity history with a hypoacidity finding is pathognomonic of an ulcer, since at one hour and a half there may be enough free acid present to cause this picture, especially if the acid is acting on a hypersensitive mucosa.

In eighteen cases of the normal series, the free acid ranged between 20 and 60, with an average of 35½. In one instance the free acid attained a height of 100 without producing symptoms. The height of the total acid curves ranged between 36 and 114, with the greatest number falling between 50 and 80.

An examination of the general character of the secretory curves shows that there is no one form of curve which is common to all normal stomachs, although in general the vast majority of the normal series bore certain similar characteristics. The pause before the evident secretory response, usually occupying the first fifteen to thirty minutes, was followed in most instances by a gradually ascending limb, the total acid curve usually rising first and diverging from the free wave. The summit of the ascending limb most frequently occurred in from seventy-five to ninety minutes. In one half of the series, the summit of the curve was sustained for from thirty minutes to two and one-half and even three hours, while in the other 50 per cent. of cases, a more or less acute summit was followed by relatively short descending limbs which tended to converge. Although we believe that Pawlow, Carlson and others have practically established the fact that normally "the gastric acid, as it flows from the glands, possesses a constant acidity," we do not believe that Rehfuss has substantiated this fact in his experiments. The determining factor as to whether the summit of a curve is sustained or abrupt is entirely dependent on the duration of the balance between the intensity and duration of acid secretion, food fixation and the emptying power of the stomach, and consequently a plateau curve is evidence only of a sustained equilibrium, and is no proof of a secretion of a uniform concentration.

In a number of cases, a temporary secondary rise of the curve took place after the stomach was empty of food, and apparently after the digestive cycle had been completed. This secondary rise usually occurred within the first thirty minutes after the return of the acidity of the secretion to that of the fasting stomach, but it has been noticed as late as one and one-half hours after the apparent completion of the digestive cycle. We attribute this secondary rise, which has been seen so frequently in the normal series, to a fluctuation in the rate of the continued secretion, during the period of cessation following the gastric cycle, rather than to mechanical irritation incident to the presence of the tube.

The motor power as demonstrated by the disappearance of all food particles from the fifteen minute samples was very uniform in the normal series. In twenty of the twenty-four cases, the stomach was empty in from one hour and forty-five minutes to two hours and a half. The emptying time was evidently unaf-

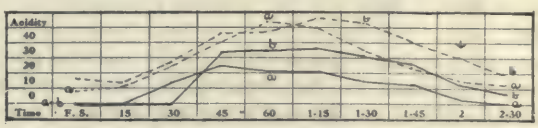


Chart 2.—Two curves from the same stomach, with sixteen days intervening: broken line, total acidity; solid line, free acidity; arrow, empty of food; F. S., fasting stomach.

fected by the duration of the pause before the secretory response, and by high concentration of the hydrochloric acid secretion. In one case in which the secretory response was delayed for one hour, the stomach was empty in two hours, while in another case in which the response occurred during the first fifteen minutes, the stomach was not empty for three hours. In the case in which the free acid attained a height of 100 the stomach was empty of food in two hours and fifteen minutes, showing that a high acid concentration per se in this case at least produced no delay in the emptying time. In only a very few instances did the presence of the tube cause gagging, and in these cases only during the first five or ten minutes, so that motility was probably not reduced by nausea.

The results of second examinations of the content of the same stomachs showed that although a normal

individual will not always give exactly the same curve, the general main characteristics of the curve are identical. The fasting residuum in both analyses gave total and free acidity of almost the same concentrations. The high points of the waves occurred in practically every instance at the same time, were approximately of the same height and were generally of the same character, whether acute, rounded or plateau. The greatest difference in emptying time in the two analyses was forty-five minutes, and this occurred in but one case. The main difference in the contour of the curves was apparently caused by a variable response to the appetite stimulation.

CONCLUSIONS

As the result of this work, we believe that the fractional method of gastric analysis should replace the old tube method.

The true secretory curve of digestion can be determined only if the test meal is introduced into the empty stomach.

A much larger quantity of residuum may be obtained from the symptom-free fasting stomach by the Rehfuss tube than was formerly considered to be within the limits of normal.

The intensity of appetite secretion is variably influenced by the Ewald meal in different normal individuals.

The difference in the time of occurrence of the high point of secretion and the rapidity of the change in acid concentration make it impossible to determine the true secretory state of a stomach other than by the fractional method of analysis.

A plateau type of secretory curve is no proof of the secretion of an acid of uniform concentration.

There is no one form of secretory curve common to all normal stomachs, although the vast majority of normal curves have certain characteristics in common.

The contour of a given normal curve is dependent on the following main factors—the intensity and duration of appetite secretion as influenced by the test meal, the amount of gastric mucus, the concentration of food secretion, and the emptying time of the stomach.

The emptying time of the normal stomach is fairly uniform.

Many phenomena associated with the normal gastric cycle of digestion as determined by the fractional method of analysis have yet to be explained.

122 South Michigan Avenue.

Psychology of the Witness.—The reports of the witness are always combinations of objective and subjective factors. Emotions, decisions, thoughts, may influence his account of the past experience, and, even where the interest is entirely devoted to the external stimuli, the subjective apprehension and attention must play a rôle. It is possible that the original sensory perception was defective; or, secondly, that the apprehension at the time of the perception was erroneous. Thirdly, the disposition for the memory images may have changed in the course of time so that a correct reproduction has become impossible. Fourthly, the will to reproduce the memory ideas may not have been intense enough to overcome suggestions or autosuggestions or to secure completeness. Finally, the witness may have lacked the ability to express his ideas correctly. Only if the process were free from disturbances at all these points can the testimony count as an objective report. Each of these sources of mistakes can be examined by the psychologist. It is clear, however, that three different types of psychological facts must be considered.—Psychology General and Applied, Münsterberg.

LAMINECTOMY WITH SIMPLE EXPOSURE OF THE SPINAL CORD

ITS EFFECT ON THE REFLEXES AND ON THE SYMPTOMS OF SPINAL DISEASE *

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We feel that the time has come for a distinction to be made between those laminectomies in which the operation relieves pressure exerted on the spinal cord, by tumors, by collections of fluid or in other ways, and those in which there are no evidences visible at the operation of any compression of the spinal cord. Hitherto, all such operations have been grouped under the general term of spinal decompression.

In 1912, we published a report of seven cases of spinal disease, in which great improvement followed the removal of the spinous processes and laminae, with incisions of the dura. Since that publication, we have had eight additional cases, and the course in all of them was profoundly influenced by the operative interference. The title of that paper was "Spinal Decompression," but in only two of the cases was any actual increase of intradural pressure found; in these two, we naturally inferred that the improvement which followed the primary operation was due to the relief of intradural pressure after the free removal of spinous processes and laminae, with incision of the dura. The improvement in the others, however, and in eight cases which we have had since, could be attributed to no such cause, for there was no compression of the cord.

The present paper concerns itself exclusively with the cases in which there is no compression and in which the exposure itself is the only agency which can account for the change in the symptoms which so frequently follows the operation. In this paper, therefore, in which we make use for the first time of the title of "Laminectomy with Exposure of the Spinal Cord," we shall limit ourselves to the considerations of the effects of spinal exposure in such cases of spinal disease in which there is no demonstrable increase of intradural pressure.

The postoperative results have been so striking that the conclusion is unavoidable that surgical exposure of the spinal cord, even in the absence of increased intradural pressure, may of itself effect some change on the spinal cord which benefits or checks the symptoms of certain forms of spinal cord disease; and we feel that the procedure merits a name to distinguish it from laminectomies which relieve pressure.

It is not always possible to determine before the exposure is actually made whether or not there is pressure to be relieved. Consequently, the term "laminectomy with exposure" can be used with certainty only after the operation is completed. We have no final physiologic explanation of the phenomena which follow such operations, although we shall suggest certain possibilities.

* Read at the meeting of the American Neurological Association, Washington, D. C., May 9, 1916.

THE IMMEDIATE EFFECT OF LAMINECTOMY AND INCISION OF THE DURA ON THE REFLEXES

As has already been pointed out by one of us,[1] laminectomy and incision of the dura often have an immediate effect on the spinal reflexes. In many cases the knee and ankle jerks become markedly depressed or disappear altogether within thirty minutes of the opening of the dura, and this depression or disappearance of the reflexes may persist for from six to twenty-four hours. These changes often affect all the spinal reflexes, whatever part of the spinal cord may have been exposed by the operation. We have seen the reflexes of both upper and lower extremities modified after an operative interference in the middorsal region, but more often the reflexes below the level of the operative exposure are affected.

These phenomena might be explained by trauma to the cord during the operation or by bleeding into the membranes. But often the diminution or loss of the reflexes occurs when the operation has been very simple without appreciable injury to the cord itself or bleeding into its membranes. Since a similar change in the reflexes may occasionally be observed after simple spinal puncture, it is fair to conclude that changes in intradural pressure conditions with resultant modification of the spinal circulation are the important etiologic factors. We have not observed these changes after operations in which the dural sac remained unopened; but a similar disappearance of the reflexes is often observed after severe trauma to the skull or spinal column.

It is more remarkable that pathologic changes in the reflexes, such as exaggeration of the knee jerks, ankle clonus and the Babinski phenomenon, which had existed, disappear and only the normal reflexes are obtainable for a number of hours or days after an operation on the spine which has consisted of a laminectomy and incision of the dura and at which no definite spinal lesion could be discovered. We have observed these changes in a large number of patients. One of us has performed an exploratory laminectomy in the upper dorsal region on a young woman who had symptoms of disseminated sclerosis with a distinct sensory level. The patient presented, among other physical signs, an inversion of the triceps reflexes, that is, percussion of the triceps muscle was followed by marked flexion at the elbow. After the operation, which failed to show any macroscopic abnormality, the normal triceps reaction (movement of extension at the elbow) returned.

In another patient, in whom the exploration failed to discover any lesion, ankle clonus, and the Babinski, Mendel and Oppenheim phenomena disappeared for thirty-six hours after the operation, during which period the reflexes were normal. We have twice, in cases of suspected multiple sclerosis, seen the abdominal reflexes return for twenty-four hours after an exploration. In one of the patients, horizontal nystagmus, which had existed before the operation, could not be obtained for more than one day after the surgical interference. Similar results have been obtained for motor power.

We recently operated on a man who had a spastic paraplegia of both upper and lower extremities with a marked stiffness of the neck; there were fleeting sensory disturbances affecting mainly the pain and temperature senses up to the level of the sixth cervical segment. In spite of the fact that the diagnosis of multiple sclerosis seemed most probable, an exploration was decided on. The surgical interference failed to demonstrate any macroscopic lesion of the cord, but a decided functional improvement occurred which lasted for almost two months before the former symptoms returned. After the operation, the movements of the neck were much more free. The fingers and the wrists, which before were held stiff and almost motionless, could be moved freely two weeks after the interference. The increase in the strength of both upper limbs was very distinct, and the strength of the hand grips became excellent. The patient was soon able to walk without a cane or other assistance, and whereas formerly he dragged his feet when he walked, he now lifted them quite normally. The spasticity had largely disappeared from the legs, although the knee jerks were still active, and clonus and the Babinski reflex existed. As stated above, the condition of the patient three months after the operation was as bad as before the laminectomy. We have seen this temporary improvement in several patients, and shall keep this patient under continual observation. In another one of our cases (Case 1 following), a second improvement began a few months later, and all of the symptoms of spinal cord disease disappeared within six months.

The exposure of the cord to atmospheric pressure and possibly to light must have a profound effect on the spinal circulation, and as a result, the irritability of the spinal tissue must be greatly modified. There can be no *direct* effect on the reflex centers (nerve cells) in the spinal cord because the changes in the reflexes occur both above and below the part of the cord exposed. For the same reason, the change cannot be due to a direct inhibition of the sensory parts of the reflex mechanisms. We are therefore forced to the hypothesis of an increased inhibition from the brain centers through the pyramidal tracts. This may be due to an increased irritability of the centrifugal fiber tracts. If the reflex stimuli which pass to the cord through the posterior spinal roots were activated and regulated by stimuli from higher centers, it is possible that a loss of such activation or stimulation might diminish the conductivity of the centripetal fibers in the posterior roots, which would then be followed by a diminution in the reflexes. All this is still in the realm of speculation; the problems form a promising field for experimental investigation.

EFFECTS OF LAMINECTOMY WITH INCISION OF THE DURA ON THE SYMPTOMS OF SPINAL DISEASE

In addition to the immediate and temporary modifications in the reflexes and motor power just described, there are other changes which are more permanent, and which we have observed after spinal operations in which nothing was found to explain the symptoms. Either the improvement has been immediate and marked, or an immediate improvement in motor and sensory disturbances was followed, in from one to two days, by a return to the conditions as they existed before the operation but with later gradual improvement; or a change for the better began a few weeks after the operation.

In several of the patients who were markedly improved, the indications for an operation were very indefinite and the operation was performed because

1. Elsberg, C. A.: Tr. New York Neurol. Soc.; Jour. Nerv. and Ment. Dis., 1911, xxxviii, 695.

we had had remarkable experiences in other patients. In several of the patients, satisfactory evidence of a localized lesion was not obtained, and the operator was led to expose the part of the cord which seemed most affected by the disease. Sometimes the operation was performed at the level of the greatest motor disturbance, at other times at the level of most marked sensory loss.

The improvement has generally been gradual, extending over many months or years. Within three months of the operation, we have seen exaggerated knee and ankle jerks return to the normal, and ankle clonus and the Babinski reflex disappear, at the same time that the spastic lower limbs gradually relaxed. In the case of a patient with flaccid paralysis of the lower half of the body and the extremities of three months' duration, improvement began a few weeks after the operation. Within six weeks the knee and ankle jerks had reappeared. Eight months later much power in the limbs had been regained, and the patient was able to walk around with the aid of a cane. The improvement is still continuing.

Reports of three cases, typical of the results we have seen, are given in detail:

REPORTS OF CASES

CASE 1.—(Med. No. 606; Surg., 249).—*Multiple sclerosis? Exploratory laminectomy, negative findings, temporary marked improvement in symptoms; relapse followed by improvement, and finally complete recovery.*[2]

History.—F. L. T., a clerk, aged 26, admitted to the service of Dr. Bailey at the New York Neurological Institute, Sept. 19, 1910, was an athlete, and declared that he had been perfectly well until about three months before admission. Then he began to be unsteady on his feet, and this was soon followed by a numbness in his lower limbs. The symptoms gradually grew worse, and he found that his lower extremities became tired on the least exertion. At times he would have a tingling and burning sensation in his lower limbs. He felt that the limbs were becoming weak and stiff. He was in the hospital for one month during which time he was found to have a spastic paraplegia of the lower extremities without any sensory disturbances. Wassermann tests of the blood and cerebrospinal fluid were negative, and the fluid was normal in all respects. He left the hospital in October, but returned, December 4, with all of the symptoms aggravated. At this time both lower extremities were very spastic, with exaggerated knee and ankle jerks, clonus and Babinski reflex. The abdominal reflexes were wanting. There was now a diminution of sensation up to the level of the twelfth dorsal spine, but tactile sensation was hardly, if at all, affected. After a short stay in the hospital, he again left, only to return, Jan. 8, 1911. The burning sensations in the lower limbs were worse, and were accompanied by shooting pain in the left groin, and the lower limbs were weak and spastic, so that he could hardly drag himself around with help. There was some slight sexual disturbance. The right lower extremity was now weaker than the left; both knee jerks were exaggerated, the right one more than the left. Ankle clonus and the Babinski reflex were elicited on both sides, more marked on the right. The abdominal reflexes could not be obtained. There was a distinct but not well marked diminution of all three sensations below the level of the tenth dorsal segment, but tactile sensation was only very slightly disturbed, while pain and temperature were definitely diminished. The case had been considered one of multiple sclerosis and not one for operative treatment, but the patient urgently requested that no matter how poor the outlook, he be given a chance by operation. This was finally acceded to, and Dr. Elsberg performed a laminectomy, January 20.

Operation.—The spinous processes and laminae of the seventh, eighth, ninth and tenth dorsal vertebrae were removed. Incision of the dura and exploration failed to reveal anything pathologic, excepting for the fact that the cord was of somewhat irregular consistency. The cardiac and respiratory pulsations were normal, and there was no excess of cerebrospinal fluid. All sides of the cord were carefully investigated, but nothing abnormal could be discovered. There were no adhesions between the membranes, and these seemed normal. The wound was closed in the usual manner.

Postoperative History.—Recovery from the operation was without incident excepting for the presence of a very distressing hiccup for a few days. The wound healed by primary union.

One week after the operation, the patient could recognize heat and cold on all parts of both lower limbs, and the hypesthesia and the hypalgesia were much less marked. He was able to move his lower limbs much more freely; a great deal of the spasticity had disappeared. Knee jerks were only slightly exaggerated, and there were no clonus, and no Babinski phenomenon. Three weeks later he could move his lower limbs quite freely, but the spasticity was more marked. When the patient was discharged from the hospital two months later, his condition was the same as before the operation. The lower limbs were again spastic, and he had exaggerated knee jerks, double ankle clonus and Babinski reflex. The abdominal reflexes were present and equal on both sides. Sensation was, however, normal over the entire body excepting for a small area of hypesthesia over the anterior surface of the left thigh and a very slight diminution of pain and temperature sense over the left lower extremity. The sensory disturbances were, however, so slight that their extent could not be determined. The case was now considered one of multiple sclerosis.

For about two months after leaving the hospital, the patient's condition was not much changed. Then improvement began and steadily progressed. Within four months he was practically well, all signs of spasticity had disappeared, and the reflexes in the lower extremities were normal on the right but still slightly exaggerated on the left side. When last seen (April, 1916) he was perfectly well and about to be married.

CASE 2.—*Syphilitic disease of the spinal cord with flaccid paraplegia. Exploratory laminectomy. Very great improvement.*

History.—E. D., aged 50, single, a patient of Dr. James Pedersen, was seen by us in 1914. The patient contracted syphilis in 1896 and was thoroughly treated for two years. In November, 1898, he began to notice a numbness in both lower extremities and began to have difficulty in walking. Intensive antispecific treatment was again begun, and the numbness and weakness in the lower extremities disappeared gradually during the course of three months.

In 1911 he developed diplopia and also began to have some difficulty in walking. The diplopia cleared up after antispecific treatment with salvarsan, mercury and the iodids, but some weakness in the lower extremities persisted. In September, 1914, the left lower extremity became rapidly worse. Two months later both lower limbs were paralyzed, and the patient had lost all control of the bladder and rectum. In spite of most energetic antisyphilitic treatment, the condition became steadily worse. The Wassermann reaction was negative in both blood and cerebrospinal fluid.

Physical Examination.—Nov. 18, 1914, the general condition was good. The cranial nerves and upper extremities were normal. The abdominal reflexes could not be obtained. The cremasteric reflexes were absent. The left lower extremity was completely paralyzed; on the right side, the patient was able to move his toes slightly. Neither knee jerks nor ankle jerks could be elicited. There was no Babinski or other pathologic reflex. There was a very slight disturbance of all three sensations up to the level of the sixth dorsal segment. The sensory loss was nowhere very distinct, but was more so on the right side than on the left, and the pain and temperature were more affected than the tactile sensation. Deep-muscle sense was normal. The diagnosis of a localized

2. Reported in part in our previous paper.

degenerative process on a syphilitic basis was made. The patient was informed that the outlook was very poor, but that we had seen beneficial results from decompressive laminectomy in this type of case, and that we considered the operation indicated.

Operation.—The patient was anxious to have everything tried, and after the matter had been explained to him, he asked to have a laminectomy performed. This was done by Dr. Elsberg, Nov. 28, 1914. The spines and laminae of the fourth, fifth, sixth and seventh dorsal vertebrae were removed. On incision of the dura a moderate amount of clear cerebrospinal fluid escaped. The vessels on the posterior surface of the cord were distinctly enlarged. There was no thickening of membranes or adhesion between them, no gross abnormality aside from a slight pinkish discoloration of the cord. The wound was closed in the usual manner.

Postoperative History.—Convalescence from the operation was uneventful. The wound healed by primary union. December 21 (four weeks after the operation), both knee jerks had returned, although they were elicited with difficulty and the right was more lively than the left. The ankle jerks were present and weak, and a Babinski reflex could be obtained on the right side. There had been a considerable return of power in the lower limbs. The patient could flex both lower limbs at the knee, but the left lower extremity was much weaker than the right. Stroking of the abdominal wall elicited distinct abdominal reflexes. Eight weeks after the operation, the patient was so much improved that he could raise both limbs from the bed, but the left limb was much weaker than the right one.

Four months after the operation, the patient was able to stand with assistance. The left knee was still weak, and the patient was given an appropriate brace for support. The power in the right lower extremity was almost normal. The patient now had some control of the vesical and rectal functions. The slight sensory disturbances which had existed before the operation had disappeared, and sensation was normal over all parts of the body.

Ten months after the operation, the patient was able to walk around with assistance. Extension at the left knee was still weak, so that the patient had to continue to wear a brace; but the power in the limb as a whole was much improved. The vesical and rectal functions were normal. The patient declared that he was improving slowly but constantly. His only treatment consisted of massage, electricity and regular exercises.

CASE 3.—*Multiple sclerosis. Exploratory laminectomy; great improvement.*[3]

History.—M. M., aged 30, an Italian, was admitted to the New York Neurological Institute on the service of Dr. Peterson, Dec. 16, 1914. Seven months before, the patient noticed that he was losing control of his bladder and that at times he was incontinent of urine. This was soon followed by constipation and by loss of control of the anal sphincters after taking a laxative. About six months ago, his legs became weak and stiff. The left limb was first affected, but the right leg soon became as bad as the left one. The patient also noticed that he had a numb sensation on some parts of his lower extremities. Walking became increasingly difficult on account of the stiffness of his lower limbs.

Physical Examination.—On admission, the patient presented all the signs of a spastic paraplegia; he was hardly able to drag himself along with the help of two canes. Cranial nerves and upper extremities were normal. The upper abdominal reflexes were present but weak; the lower abdominals and cremasterics could not be obtained. The lower extremities were weak and spastic, the left more than the right. The knee jerks were lively, the left more so than the right; the ankle jerks were lively, the left more than the right; double inexhaustible ankle clonus, and the Babinski and Mendel-Bechterew phenomena were present. There was no loss of deep muscle sense in the lower limbs. Tactile sensation was normal all over the body; there was a distinct diminution of the pain and temperature senses up to the level of the eighth dorsal segment. The disturbance of sensation was most marked over the right lower extremity, and over some areas there was complete analgesia. The sensory disturbance was most marked over the anterior surface of the body.

The Wassermann test and Roentgen-ray examination were negative.

Operation.—December 21, an exploratory laminectomy was performed by Dr. Elsberg. The spines and laminae of the fifth, sixth, seventh and eighth dorsal vertebrae were removed and the dura was incised. There was free escape of cerebrospinal fluid. No macroscopic change in the cord was observed; respiratory and cardiac pulsations were normal; the vessels were normal; there were no adhesions or other abnormality. A probe was passed upward and downward in front of and behind the cord without meeting any obstruction. The dura, muscles, fascia and skin were sutured in the usual manner.

Postoperative History.—Convalescence was uninterrupted; the wound healed by primary union.

January 14, control of the bladder was much improved; the patient had good control in the daytime. Sensation over the limbs was normal. The upper abdominal reflexes were present; the lower right were present and weak; the left could not be obtained. Power of extension and flexion of the lower limbs was now good. The knee jerks were lively and equal; double exhaustible ankle clonus was still present.

March 11, the patient could lift both limbs from the bed equally well. Walked around the ward without any evidence of spastic gait.

From this time on, the improvement was continuous. The patient was presented at the meeting of the New York Neurological Society in February, 1916, as almost well. His gait was normal; the power in the lower limbs was excellent; the reflexes were not exaggerated. The abdominal reflexes were present and equal. The patient stated, however, that he became tired very easily, and that at night he often had trouble with the bladder. He was much satisfied with his walking.

COMMENT

We shall not cite the histories of any other of our patients, but shall make those given above the basis for our comment.

What possible explanation can there be for these remarkable postoperative results? We do not believe that the results were mere coincidences or that in the first patient we had to do with a case of multiple sclerosis in which, coincidently, a latent period of the disease had begun. We have seen the effects described so often among more than 150 operations on the spine performed by one of us, that we have been forced to conclude that there was in our patients a direct connection between the laminectomy and the improvement. We believe it possible that changes in the spinal circulation which follow a laminectomy may have a profound effect on early pathologic changes in the cord, and that the course of a spinal disease may be modified or halted by the operative interference. We have not seen benefit in any patients in whom an exploratory operation exposed the conus and cauda equina. This portion of the cord is very sensitive to changes in pressure, and bladder and rectal symptoms are so apt to occur as complications of the operation that an exploratory operation is justified only when strict indications for it exist. In the cervical and dorsal regions, however, exploratory laminectomy may with less hesitation be performed in selected cases.

CONCLUSIONS

1. The free removal of spinous processes and laminae with opening of the dura, in the absence of increased intradural pressure or a discoverable lesion,

3. We are indebted to Dr. Peterson for permission to report this case.

may be followed by a disappearance of normal cutaneous and tendon reflexes for a number of hours, or may be followed by the temporary return to the normal of pathologic reflexes.

2. The operation of laminectomy may have a profound effect in certain pathologic states of the spinal cord and may so modify or check the disease that a return to normal conditions is even possible.

3. On account of the relative safety of laminectomy in experienced hands, except in the region of the conus and cauda equina, and for the reasons stated above, exploratory operations should be done more often.

TRICHINOSIS AND THE CEREBROSPINAL FLUID

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It is now over two years since I demonstrated for the first time the *Trichina spiralis* in the cerebrospinal fluid, in a patient suffering from trichinosis.[1] I then expressed an opinion that perhaps lumbar puncture may become a useful method for diagnosing this disease. My hopes were fully realized. Before this procedure can be a real factor in the diagnosis of this malady, however, the parasites must be found in the cerebrospinal fluid (1) sufficiently early in the disease and (2) with a fair degree of constancy. My findings of the *Trichina spiralis* in the cerebrospinal fluid have recently been confirmed by Leon Bloch, Young and others. It is noteworthy that in Young's case the parasites were readily demonstrable in the cerebrospinal fluid but not in the muscle tissue.

I wish to add three more cases in which I found the *Trichina spiralis* in the cerebrospinal fluid. I am indebted to Dr. Moshkowitz for the cerebrospinal fluid. The patients were all Italians and ate pork infected with *Trichina spiralis* twenty-one days prior to the lumbar puncture. The cases developed into typical cases of trichinosis and showed the usual subjective and objective symptoms of the disease, including the eosinophilia.

In performing the lumbar puncture every precaution was taken not to introduce into the trochar parasites which may happen to lodge in the muscle of the back. The trochar was introduced with its stilet, and the latter was withdrawn only after the trochar was successfully introduced into the cerebrospinal canal. The cerebrospinal fluid was collected into sterile test tubes.

In appearance the three fluids differed in no wise from that of normal cerebrospinal fluid. They were perfectly clear and contained no sediments. Chemically only one out of the three fluids failed to reduce Benedict's solution; all showed a faint trace of albumin and no increased amount of globulin. The specimens were centrifuged, and the sediments showed but an occasional lymphocyte and from one to four trichinae per field. These embryos were fairly motile and retained this activity to some extent at the end of three days when kept in the cerebrospinal fluid at room temperature. These embryos are not in the least affected when placed in normal urine, and have no effect on red or white blood cells in suspension.

Should the trichinae be found in the cerebrospinal fluid with a fair degree of constancy, this method clinches the diagnosis rapidly, as but few other single procedures do.

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1. Van Cott, J. M., and Lintz, William: Trichinosis, THE JOURNAL A. M. A., Feb. 28, 1914, p. 680.

A CASE OF TRICHINOSIS WITH EMBRYO IN THE SPINAL FLUID

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History.—G. F., man, aged 39, Greek, laborer, was admitted, Feb. 27, 1916. Family and previous personal history were negligible. January 22 he, together with five associates in the railroad section gang, ate some undercooked pork. The present illness developed thirty-two days later with pains and soreness in the flexor muscles of the arms and the calves of the legs. No history of initial abdominal pains and diarrhea could be elicited. On admission the muscular pains had increased in severity and had involved the muscles of mastication. Moderate frontal headache was present.

Examination.—The patient was well nourished and well-developed. There was no jaundice. Moderate periorbital edema was present. The pupils were normal. The tongue was red, moist and clean. There was slight dulness and roughening of breath sounds at both apexes. The heart and abdomen were normal. The spleen was not enlarged. Pressure over the biceps and leg muscles elicited well marked soreness. Urinalysis revealed specific gravity, 1.024; acid; albumin trace; glucose negative; phosphates, no casts. Blood pressure was 140 mm. systolic, and 90 mm. diastolic.

Treatment and Course.—After two or three days the periorbital edema disappeared, but the muscular pains and soreness increased, now involving the thighs and buttocks. From time to time there was some general abdominal tenderness. There was no diarrhea prior to the administration of purgatives. At the end of the third week after admission the patient was much improved so that there remained only slight tenderness of the biceps, calves and thighs.

Temperature, on admission, was 100.6, and for ten days maintained an average evening reading of 102, when it fell to normal and then maintained an average thereafter of 99. (The maximum temperature was 104.) The pulse was disproportionately low with an average of 95 during the highest temperatures; likewise, respirations, 21.

Castor oil, 2 fluidounces, was given on admission. Calomel and magnesium sulphate were given at intervals of a few days. Salol, 5 grains, was given three times a day. Free catharsis was maintained.

Laboratory Examinations.—The *Trichina spiralis* was not found in the feces on one examination during the period of catharsis and well marked muscular pains. Only venous blood was examined during the fourth week, following the technic of Stäubli, and was negative. At this time several specimens of sedimentized urine were examined and were likewise negative. The parasite was demonstrated in large numbers in the gluteus maximus muscle in the fifth week of the disease when there were definite muscular pains and tenderness.

On admission, the leukocyte count was 10,400, and rose to a maximum of 13,400 three days later. The minimum count was 7,900, six days later. The patient was discharged apparently well after thirty days in the hospital, the eighth week of the disease, with a leukocytosis of 9,600 and eosinophilia of 28 per cent. The maximum eosinophilia was 53 per cent.

The cerebrospinal fluid withdrawn during the fifth week of the disease showed after an exhaustive search of several sedimentized specimens one sluggishly motile embryo of characteristic appearance. Its length was 0.1 mm., breadth, 0.006 mm. The parasite in places appeared finely granular. The oblique, clear band, described by Stäubli, between the anterior quarter and the posterior three quarters was not observed. The motility was a slow, rhythmic bowing of the

entire body with a bending of one end and then the other. The spinal fluid was clear and under a moderately increased pressure. Cells 3; globulin (ammonium sulphate and butyric acid) negative. At this time there was no headache and all reflexes appeared normal. The Kernig sign was negative.

COMMENT

Since in this case at the fifth week there were negative cytologic and chemical findings, and sluggish motility of the parasite, earlier examinations would appear advisable. A routine spinal puncture (unless contraindicated) and neurologic examination of every trichinosis case may reveal much of interest in demonstrating the extent of parasitic migration into a hitherto unexplored field.

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A CASE OF BETA-EUCAIN POISONING

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The following case is reported from the Surgical Clinic of Dr. M. T. Sudler, in the Bell Hospital, University of Kansas:

A farmer, aged 60, admitted to the hospital for operation for double inguinal hernia and left hydrocele, with negative family history and negative personal history except for occasional palpitation of the heart, had had the left inguinal hernia for twenty-five years, the right hernia for two years, and the left hydrocele for ten years.

The patient was rather heavy, and was healthy looking. There were dilated venules on the face. The right eye was artificial. He had pyorrhea alveolaris. The heart was irregular, with an extrasystole from every three to six beats. The radial vessel walls were palpable. The blood pressure was 160. There was a moderate cloud of albumin in the urine. There were double inguinal hernia and left hydrocele.

On the day after admission, under beta-eucain, 0.25 per cent., anesthesia, the Bassini operation for indirect inguinal hernia and operation for removal of the hydrocele sac were performed. Twenty minutes before operation one-fourth grain of morphin was given hypodermically.

The local anesthetic was administered in the usual way, and the hernia operation completed. When the removal of the hydrocele sac was begun, it was noticed that the patient had begun to perspire freely, and he soon began to complain of being tired. When the patient left the table, at 10:40 a. m., he was perspiring profusely, and the skin had begun to feel clammy. Respirations were now and then sighing in character. The pulse was 88 and weak, the respiration 20 and regular, except for interruptions by sighing. At 11:30 the pulse was 84 and irregular, the respiratory rate slow and irregular. The venules of the face were much engorged. The skin over the entire body was cold and clammy. The pupils were contracted. Five minims of epinephrin chlorid were given in the vein, which caused a transient increase in the strength of the pulse. The patient complained of pain in the head and abdomen. At 12 o'clock it was impossible to feel the pulse, the respirations were of the Cheyne-Stokes type, and at times there were intervals of almost a full minute without breathing. Ten minims of epinephrin were then given, after which the pulse was 60. At 12:45 the pulse was 46. One one-hundredth grain of atropin was then given hypodermically. One thousand cubic centimeters of saline were given intravenously with 15 minims of epinephrin. At 5:30 p. m. the pulse was 46, and the patient's general condition somewhat improved, though he complained of numbness of the left hand and foot. At 7 p. m. he was more comfortable, his pulse 64. At 8:30 p. m. the pulse was 74, the respirations still of the Cheyne-Stokes type, but the period of complete cessation of breathing was not longer than fifteen seconds. At 10 p. m., almost twelve hours after the onset of toxic symptoms, the pulse was 76 and of good quality, and the respirations were 20 and regular. The next day he had apparently completely recovered.

The patient's improvement was uneventful until the fifth day after the operation, when at 2 o'clock in the morning, in the absence of the nurse, he sat up in bed to take a drink of water, and dropped back on his pillow dead. The necropsy showed an embolus in the left coronary artery.

The quantity of beta-eucain used in this case did not exceed 3 ounces of a 0.25 per cent. solution. Three ounces was the quantity placed on the instrument table for use. If all of the solution had been injected into the tissues, the quantity of the drug would amount to 3.4 grains. When waste is considered, it is highly improbable that so much was actually absorbed by the tissues.

Hertzler[1] states that "beta-eucain may be used in quantities up to 3 grains, it is said, and as much as 15 grains have been used without alarming effects." Barker[2] reports the use of as much as 6 ounces of a 0.2 per cent. solution of beta-eucain in a goiter operation without toxic effect. M. T. Sudler has used as much as 5 ounces without causing any symptoms of intoxication.

In a hurried review of the literature, I have found reference to six cases of intoxication due to beta-eucain. Way[3] reports a case of poisoning while doing a circumcision. In his case, less than 2 grains were used. Kraus[4] describes a case of poisoning from injecting 10 c.c. of a 2 per cent. solution into a urethra the day following an internal urethrotomy, which caused very distressing toxic symptoms. In the same article he refers to two cases reported by Marcinowski, one by Dolbeau, and one by Simon. In one of Marcinowski's cases only a transient syncope was noted, and the patient was subject to fainting attacks. In the other case, after injection of 1.5 c.c. of a 10 per cent. solution, the patient exhibited tonic and clonic spasms, which gradually subsided after fifteen minutes, but were followed by stupor and weakness, the symptoms all passing away by the end of six hours. Dolbeau's case was caused by the intravenous injection of the drug. The case reported by Simon was characterized by transient headache and vomiting in a man whose bladder had been filled with 80 c.c. of a 4 per cent. solution for a Bottini operation.

1. Hertzler: Local Anesthesia.
2. Barker, A. E.: Practitioner, London, September, 1907.
3. Way: Jour. Roy. Army. Med. Corps, August, 1914.
4. Kraus: Deutsch. med. Wchnschr., 1906.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

GLYCOTAURO (See N. N. R., 1916, p. 61).
The following dosage form has been accepted:

Enteric Coated Glycotauro Tablets.—Each tablet contains glycotauro 2 grains and is coated with salol. Prepared by Hynson, Westcott & Co., Baltimore, Md.

PETROAGAR.—Each 100 grams contains petrolatum 0.72, agar 0.22, with powdered licorice, cocoa and oil of anise sufficient to flavor. U. S. trademark applied for.

(Accepted for inclusion with the appendix to New and Nonofficial Remedies.)
Prepared by H. C. Merker Co., Chicago, Ill.

PETROBRAN.—Each 100 grams contains petrolatum 0.74, bran 0.22, with powdered licorice and "oil of pineapple" (ethyl butyrate) sufficient to flavor. U. S. trademark applied for.

(Accepted for inclusion with the appendix to New and Nonofficial Remedies.)
Prepared by H. C. Merker Co., Chicago, Ill.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET . . . CHICAGO, ILL.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, JUNE 10, 1916

THE FUNCTION OF THE OMENTUM IN PERITONEAL ABSORPTION

That substances in solution can be absorbed through the direct intermediation of the blood vessels from connective tissue interstices as well as from the larger spaces, such as the pleural and peritoneal cavities, has long been demonstrated beyond a doubt. There was a time when it was assumed with considerable confidence that the drainage from such tissue spaces is essentially a function of the lymphatics arising from them. It shall not be denied that the lymphatic circulation, sometimes even spoken of as the "absorbent system," may take part in this process of absorption. But the process of lymphatic absorption, even when aided by active or passive movements, is a comparatively slow one and will scarcely suffice to explain the rapidity with which a poison in solution can be removed from a tissue space and distributed in the body so as to exert its toxic action after a brief interval. When colored solutions are introduced into the peritoneal cavity, the dyestuff appears in the urine long before a trace of it can be detected in the lymph flowing from the thoracic duct. Absorption and manifestations of the distribution of the substance taken up can be demonstrated even when the lymph is conducted to the exterior of the body or when its channels are obstructed. In all such cases, then, the conclusion seems inevitable that absorption is by the blood vessels, and consists in an interchange between the circulating fluid of the vascular system and the extravascular medium.

It has not been equally easy to explain the removal of particles, such as micro-organisms or foreign precipitated matter, from the larger tissue spaces. Here, at any rate, it has seemed necessary to postulate the prominent cooperation of the lymphatics. Thus studies on the mechanism of removal of granules from the peritoneal cavity have indicated the participation of the diaphragmatic lymphatics as the channel through which suspended particles reach the lymph glands, where they are commonly deposited. The existence of peculiar stomata in the diaphragm has been debated, so that it has been necessary to relate the transport of suspended particles to the activity of migratory macrophages.

Shipley and Cunningham,[1] of the anatomic laboratory at the Johns Hopkins University, have pointed out that the question of the omentum's share in ridding the peritoneal cavity of foreign substances has generally been evaded. They state that those authors who admit the possibilities of the omentum as an absorptive pathway are unanimous in the belief that absorption of granules takes place by way of the omental lymphatics. In the absence of definite knowledge of the facts of the case, they add, such a conclusion as regards the absorption of particulate matter is logical when we consider the part which lymphatic radicles play in the removal of granules from any locality, and the ease with which granular material injected into the peritoneal cavity may be recovered from the lymphatic glands. It is by no means certain, however, that there are any lymphatics in the omentum at all.

It is obviously not easy to establish the special rôle of the omentum as a seat of absorption because of the ease with which foreign matter in solutions and suspensions brought into contact with it can find its way to nearby absorbing surfaces. Shipley and Cunningham have succeeded, however, in conducting experiments satisfactorily by withdrawing the omentum from the body cavity through a midline incision and keeping it immersed, under physiologic conditions, outside of the cavity in fluids which it was desired to study. Possible participation of lymphatics, if such there are, was excluded by ligation of the thoracic duct. Without giving the details of this novel investigation, it can be stated that true and pseudo solutions and granules of particulate material find their way through omental vessels to the organs of the body destined for their ultimate reception and storage or destruction and excretion, and the path by which they leave the omentum is not a lymphatic but a hemic one. The Baltimore investigators further remark that the drainage of particulate matter from the serous cavities by way of the blood stream is most extraordinary, and was most unexpected since the blood vessel wall is not credited with permitting the passage of anything but fluids with a possible exception in the capillaries of the intestinal mucosa. Lymphatic vessels could not be discovered in the omentum; and if they do exist they need play no important part in the actual drainage of the surrounding tissue space. It is confidently believed that a considerable amount of granular material may leave the cavity of the peritoneum through the omental veins, though the limits of granular size and the mechanism of transit have not yet been ascertained.

1. Shipley, P. G., and Cunningham, R. S.: Studies on Absorption from Serous Cavities, I, The Omentum as a Factor in Absorption from the Peritoneal Cavity, Am. Jour. Physiol., 1916, xl, 75.

CHROMOPHIL TISSUE AND EPINEPHRIN

The suprarenal capsules of mammals consist of two parts, the cortex and medulla. With the latter of these structures the presence of epinephrin is associated. There are various other evidences that the cortical and medullary portions of the suprarenals represent distinct tissues differing in function. Portions of the medulla stain darkly with chromates; hence the designation of chromaffin or chromophil substance has been applied to the areas involved. Chromaffin tissue is found in various situations throughout the vertebrate kingdom. In some invertebrates chromaffin nerve cells occur. This has raised the question as to whether the production of the potent epinephrin is a characteristic of chromaffin tissues wherever it may be found, so that the histologic demonstration of the latter would be an indication of the occurrence of a substance having the unique pharmacodynamic action of the "active principle" of the suprarenal medulla.

The evidence of a common origin and similar physiologic effect of such tissues with similar staining reactions is accumulating. In some fishes the two portions of the suprarenal gland remain separated throughout life, the cortex being represented by a series of paired interrenal bodies lying on the front of the spinal column, and the medulla by a number of collections of chromaffin cells lying in close juxtaposition to the spinal nerves. Extracts of these chromaffin tissues behave like those of the suprarenal medulla when they are injected into the blood stream. The same is true of the masses of tissue found in close association with the sympathetic system, which present the chromaffin reaction typical of the medulla.

The most recent investigations in support of the provisional assumption that chromophil tissues are specific in their nature, and everywhere of the same essential character, relate to the retroperitoneal tissues in man and other animals. Fulk and Macleod,[1] of the physiologic laboratory at the Western Reserve University, have repeated earlier experiments of Biedl and Weisel indicative of the presence of an epinephrin-like constituent. By the use of the most recent technic involving the physiologic action of suspected extracts on intestinal and uterine muscle, the pharmacologic identity of the chromophil tissue has been further established.[2]

In view of the apparent connection between chromaffin nerve cells and those of the medulla of the suprarenal bodies, and the relation between the action of epinephrin and that of the sympathetic system, J. F. Gaskell[3] has suggested a possible interrelation. He imagines that the chromaffin nerve cells of the invertebrate are the common ancestors of the epinephrin-secreting chromaffin system and the sympathetic nervous system of the vertebrate. Thus we find the contractile vascular system regulated both by the sympathetic nerves and by the secretion of epinephrin.

1. Fulk, M. E., and Macleod, J. J. R.: Evidence that the Active Principle of the Retro-Peritoneal Chromaphil Tissue Has the Same Physiological Action as the Active Principle of the Suprarenal Glands, Am. Jour. Physiol., 1916, xl, 21.
2. Vincent, Swale: Internal Secretion and the Ductless Glands, London, 1912.
3. Gaskell, J. F.: The Chromaffine System of Annelids, and the Relation of this System to the Contractile Vascular System in the Leech, Phil. Tr. Roy. Soc., London, 1914, ccv (B), 153.

THE NATIONAL DEFENSE BILL AND THE ARMY MEDICAL SERVICE

The national defense bill, signed by the president, June 3, fixes the proportion of medical officers at seven to each thousand of the enlisted strength of the army. This proportion, which existed at the outbreak of the Spanish War and was again restored in 1908, has been seriously reduced through gradual increase of the army, until the enlisted strength had grown 35 per cent. without the addition of a single medical officer.

The new law provides for a definite ratio rather than for a fixed number of medical officers. This will automatically prevent any changes in the ratio in the future. The period of service required of medical officers before promotion to the grade of captain has been increased from three to five years. The medical reserve corps is abolished one year after the passage of the act. Officers of the reserve corps may be appointed to the medical section of the officers' reserve corps, in which body commissions may be issued in three grades — lieutenant, captain and major. Officers of the dental corps are open to promotion to the grades of captain after eight years' service, and to that of major after twenty-four years' service, subject to the same examination conditions as obtain in the medical corps. Veterinary surgeons of the army are formed into a separate corps attached to the medical department, and are given promotion to the grade of major. The hospital corps is hereafter to be known as the enlisted branch of the medical department, and several new grades, such as master hospital sergeant and hospital sergeant, are created. Through a reduction in the proportion of privates first class in this department, the pay of 75 per cent. of the enlisted men in the medical service will be reduced from $18 to $16 a month. As the care of the sick is not particularly attractive work to the ordinary soldier, this reduction will probably increase the difficulty of obtaining recruits of fit character and intelligence for the medical service. The new law does not provide any promotion for medical officers above the grade of colonel, except the single position of Surgeon-General of the Army. Provision is made for the assignment of five officers of the medical corps for duty with the medical relief department of the Red Cross, and the erection of storehouses by the Red Cross on military reservations or the use of government buildings as such storehouses.

The new law is highly satisfactory in that it establishes a permanent ratio between medical men and

enlisted men, provides for an efficient medical reserve, raises the standard of dental and veterinary surgeons, and improves conditions regarding promotion and grade. It is unsatisfactory in that it reduces the pay of enlisted men in the medical corps and so increases the difficulty of securing satisfactory nurses and attendants in military hospitals. This defect, however, can readily be remedied by later amendment.

DIET AND METABOLISM IN CHRONIC INTERSTITIAL NEPHRITIS

It is a significant and fortunate circumstance that increased attention is being directed to the establishment of a rational basis for dietotherapy in many forms of chronic diseases. Customs of feeding and textbook admonitions are handed down from decade to decade, often involving systems or details of diet that are as unnecessary or ineffective as they may be irksome to the patient. A basis for the critical consideration of this has recently been furnished from the medical clinic of the Johns Hopkins Hospital by Mosenthal and Richards.[1] There is much diversity of belief and of practice regarding the amount of protein, and particularly of meat, which may be allowed to the chronic nephritic. In cases of the interstitial type, with which alone we are here concerned, it is frequently stated by clinicians of experience that the danger of the retention of waste products in the organism without elimination by the usual renal channel is always a serious one. Thus Strauss[2] raises the question whether the familiar polyuria is not to be interpreted as an "antiuremic" response, so that the restriction of fluids advocated by some in the management of the disease presents the added danger of intoxication from uneliminated poisons.

As a scientific basis for the supposed perversion of protein metabolism, it has been pointed out that when the food intake and urinary and fecal outputs are carefully measured, a gain of nitrogen to the body is not infrequently discovered. Storage of nitrogen is, of course, not a common or long protracted phenomenon in man except during the period of growth or during the convalescence from depleting disease; yet ordinarily one would hesitate to charge a positive nitrogen balance of this sort in a patient only moderately well nourished to any abnormality of metabolism unless the gain were so large as to become unduly conspicuous. Students of the metabolism of nephritis have nevertheless interpreted positive nitrogen balances in individuals with interstitial disease as indicative of abnormal retention; that is, they have assumed that the kidneys are insufficient and that consequently the urinary nitrogen cannot keep pace with the quantity ingested.

Mosenthal and Richards[1] have put patients with chronic interstitial nephritis of moderate severity on "low protein" diet and subsequently on "high protein" diet in order to control some of the factors just discussed. With daily nitrogen intakes ranging from 16 gm. to as high as 47 gm. they observed a positive nitrogen balance, as other investigators likewise have done. Shall it be assumed from this, as has heretofore usually happened, that the retained nitrogen circulates in the body as nonprotein nitrogen and manifests itself by a rise in its concentration in the blood? Here the newer methods of blood analysis afford a helpful solution to the question. It was calculated that the ingested nitrogen unaccounted for in the excreta would suffice, in the different cases investigated, to raise the nonprotein nitrogen of the blood of these patients to calculated values ranging from 78 to 148 mg. per hundred c.c. of blood; yet the actual values in no instance exceeded 38 mg. Mosenthal and Richards remark that even an extremely large error in their theoretical calculations would not invalidate the conclusion that the retained nitrogen was not circulating as waste nitrogen, but had been assimilated or stored by the body tissues.

A similar storage may occur in normal individuals on a high calory diet. It is therefore misleading to regard these retentions as an index of inability on the part of the kidneys to eliminate nitrogen. If it were such, then there must be compensatory action on the part of some cellular tissue or other which prevents the appearance of the excess in the blood as waste nitrogen. Mosenthal and Richards cautiously conclude that until these phenomena are elucidated, discretion must be exercised in interpreting a normal figure for nonprotein nitrogen of the blood as indicating that no nitrogen retention has taken place; likewise in considering a positive nitrogen balance as an absolute indication of the inability of the kidney to excrete this substance. It is almost needless to add that the ultimate solution of a suitable and theoretically defensible diet in such forms of nephritis must await the answer to the problems of intermediary metabolism which center in the disease. Perhaps one can already foresee a possible outcome in the apparent reaction against a too strict enforcement of the no-meat rule in nephritis.

1. Mosenthal, H. O., and Richards, Annabelle E.: The Interpretation of a Positive Nitrogen Balance in Nephritis, Arch. Int. Med., February, 1916, p. 329.
2. Strauss, H.: Diätbehandlung innerer Krankheiten, Berlin, 1912, p. 136.

Suprarenal Theory of Pellagra.—M. P. Modinos is convinced that pellagra is the result of defective functioning of the endocrine glands, especially the suprarenals. The sympathetic system suffers in consequence, and this might cause all the symptoms of pellagra. He practices in Egypt, where pellagra is not very common. The three cases of pellagra that have come under his charge apparently sustain his assertions, as two of the patients recovered completely under systematic suprarenal treatment. The third patient succumbed to a concomitant liver abscess, and the suprarenals were found double the normal size, hard and purple. His report appeared in the *Bulletins Soc. Méd. des Hôp. de Paris*, April 6, 1916, p. 440.

Current Comment

TRIPLE MERGER OF MEDICAL COLLEGES IN PHILADELPHIA

A noteworthy merger of medical colleges has just taken place in Philadelphia, by which the Medico-Chirurgical College, the Jefferson Medical College and the University of Pennsylvania, School of Medicine, have united to form one larger teaching institution. The Medico-Chirurgical College is to be the graduate school of medicine of the University of Pennsylvania, its corporate title to be "The Medico-Chirurgical College and Hospital, Graduate School in Medicine of the University of Pennsylvania." The Jefferson Medical College and the University of Pennsylvania, School of Medicine, will continue undergraduate medical teaching under a joint title, although retaining their individual identities so far as their properties and endowments are concerned. The union of these three institutions, therefore, will provide not only for the better instruction of undergraduates but also for the development on a high plane of instruction for graduates. The plan under which the Jefferson Medical College and the University of Pennsylvania, School of Medicine, have been merged is given on another page.[1] Since the University of Pennsylvania has recently found it necessary to limit the enrolment of medical students, the union with the Jefferson Medical College is opportune, and will provide the additional teachers, laboratories and clinical material by which larger numbers of medical students can be cared for. This merger provides a single management, a single curriculum and single standards for the admission, promotion and graduation of students. It also permits a single control, and, therefore, a more systematic and efficient use of the abundance of clinical material formerly controlled by three separate institutions. This merger marks a decisive step forward in medical education in this country, and will doubtless point the way to future mergers in other cities.

THE QUESTION OF SECRETORY NERVES FOR THE KIDNEY

The secretory activity of the kidney is so closely bound up with its blood supply, which in turn is so susceptible to regulatory impulses transmitted to it through the vagus or the splanchnic nerves, that the problem of the existence of specific secretory nerves for this organ has not been adequately answered. The vacillating views have been referred to from time to time in THE JOURNAL.[2] The supposedly positive findings were based on the outcome of changes in the water output of the kidneys after experimentation on the vagus and splanchnic innervation. One of these nerve groups was believed to carry secretory, the other inhibitory fibers. The failure to obtain evidence of any increased cellular metabolism which might be indicated in an increased gaseous exchange in the kidney as the result of nerve stimulation has led in turn to doubts regarding the existence of the secretory fibers believed by Asher to exist. A different sort of evidence has been furnished by Quinby[3] of the Johns Hopkins Hospital. By means of vascular suture he has removed the dog's kidney from the body and later restored it to its former position. Such a kidney is removed from the control of the nervous system, for a time at least. Examination of the renal function shows an initial period of overaction, as compared with that of the normal organ. This is followed by a balanced action. Evidence has now been furnished that a single implanted kidney is able to maintain normal life. Though the results throw no direct evidence on any possible secretory function of either the vagus or the splanchnic nerves, they suggest strongly that secretory nerves, if they exist, must play a minor part in renal secretion. No lack of their action is indicated in Quinby's experiments. When it is recalled that the existence of diuretics derived from special tissues in the body has been postulated of late, it becomes probable, quoting Quinby, that vasomotor conditions of the kidney, added to the chemical and hormone action of substances contained in the circulating blood, will be found entirely adequate to explain all the variations and types of normal renal function.

REINFECTION IN SYPHILIS

The question as to the possibility of the occurrence of more than one infection with the *Spirochaeta pallida* has always been a live one. Formerly syphilographers generally believed that cases of reinfection in this disease were exceedingly rare, some going so far as to deny their possibility. With the general adoption of more prolonged and vigorous treatment, however, and particularly with the recent advent of salvarsan, it has seemed probable that these views are subject to modification. The protean aspect of syphilitic lesions always renders their recognition on clinical grounds alone open to considerable question. For this reason the cases reported by some of the older writers, and particularly those occurring in the presence of obvious tertiary lesions, most likely represent recrudescences rather than true reinfections. Lately, however, particularly during the last year or so, many reports have appeared in the literature of apparently well authenticated cases of a second, and a few of even a third and fourth infection. Many of these cases have been studied both parasitologically and serologically. Those patients who give a history of a previous chancre, or have been examined at the time of their infection and have had a positive Wassermann reaction which has disappeared on treatment, who again evince the clinical manifestations of a primary infection in which the *Spirochaeta pallida* is demonstrated, and who subsequently develop a second posi-

1. Medical College Merger in Philadelphia, p. 1881.

2. Do the Kidneys Have Secretory Nerves? editorial, THE JOURNAL A. M. A., Dec. 6, 1913, p. 2073; Secretory Nerves for the Kidney, Dec. 11, 1915, p. 2093. To the literature there referred to may be added: Jost, W.: Die sympathetische Innervation der Niere, Ztschr. f. Biol., 1914, lxiv, 441. Jungmann, P., and Meyer, E.: Experimentelle Untersuchungen über die Abhängigkeit der Nierenfunktion von Nervensystem, Arch. exper. Path. u. Pharmakol., 1913, lxxiii, 49. Rhode, E., and Ellinger, P.: Ueber die Funktion der Nierennerven, Zentralbl. f. Physiol., 1913-1914, xxvii, 12.

3. Quinby, W. C.: The Function of the Kidney When Deprived of Its Nerves, Jour. Exper. Med., 1916, xxiii, 535.

tive Wassermann, apparently present cases of true reinfection. In the absence of an absolute means of determining when a cure is final and complete, however, there is even in some of these cases a possibility that it concerns a recrudescence of a previous infection rather than a reinfection, the weak point in many of the reports being the very short time between the first and second infections. Nevertheless the repeated occurrence of such cases tends to indicate that the present methods of treatment, if accurately carried out, are capable of eradicating syphilitic infection, and from this point of view true syphilitic reinfection may be regarded as encouraging evidence of the efficacy of the treatment.

COTTAGE SCHOOLS

The *Weekly Bulletin* of the New York City Department of Health calls attention to an article by Todd[1] urging the replacement of the present style of "tenement" schools by buildings erected on the cottage plan. In favor of this plan is the reduction of risk from infectious disease, particularly so far as such risk is due to the mingling of children from different rooms in the halls of the large buildings. Todd considers the ground necessary for the cottage school plan one of its chief assets. Much is to be said in favor of the idea that school buildings are a poor financial investment and that a simpler and cheaper as well as more hygienic style of construction would be preferable. The one story cottage school almost entirely eliminates danger from fire, especially when proper material is used in its construction. The elimination of stairs and basement increases sanitary merits and decreases the cost of construction. The elimination of elaborate and expensive ventilating systems also cuts down operating cost.

FRAUDULENT ADVERTISING IN THE DISTRICT OF COLUMBIA

Congress prohibits fraudulent advertising in the District of Columbia. Why not within the entire federal jurisdiction? Congress has passed a bill, which was signed, May 29, by the president, prohibiting "fraudulent" advertising in the District of Columbia. By this act it is made unlawful to display or exhibit to the public in any manner whatever, whether by handbill, placard, poster, picture, film or otherwise; or to insert or to cause to be inserted in any newspaper, magazine or other publication printed in the District of Columbia; or to issue, exhibit or in any way distribute or disseminate to the public; or to deliver, exhibit, mail or send to any person, firm, association or corporation any false, untrue or misleading statement, representation or advertisement, with intent to sell, barter or exchange any goods, wares or anything of value. The act further prohibits the use of any of the methods of advertising described above with the intent or purpose to deceive, mislead or induce any person, firm or corporation into employing the services of the advertiser. The House of Representatives committee report on the bill expressly states that it is designed, among other things, to prevent quack doctors and fake dentists from advertising their fraudulent nostrums, impossible methods and alleged results. If the president and Congress agree that a law to prevent fraudulent advertising is a good thing for the District of Columbia, will they not agree that a similar law would be equally good for interstate and foreign commerce and for the purification of the United States mails?

1. Todd: School and Society, iii, 617.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ILLINOIS

Personal.—Dr. Frank A. Stubblefield has been transferred from the staff of the Alton State Hospital to that of the State Hospital for the Criminal Insane, Chester. He has been succeeded at Alton by Dr. Van Pelt.

Typhoid Dangers.—The state board of health reports that Pana, Christian County, and Tuscola, Douglas County, are menaced by an epidemic of typhoid. At Pana there are thirty-eight clearly defined cases of the disease and at Tuscola fifteen cases have been reported. Sanitary inspectors are at work endeavoring to ascertain the cause of the epidemic.

Chicago

Memorial for Dr. Favill.—A committee has been organized to establish a memorial to Henry Baird Favill under the auspices of the City Club and Commercial Club. Drs. Frank Billings and Emilius C. Dudley are the medical members of this committee, which hopes to receive subscriptions amounting to $250,000.

Surgical Society Election.—At the annual meeting of the Chicago Surgical Society, June 2, the following officers were elected: president, Dr. William M. Harsa; vice president, Dr. William Fuller; secretary, Dr. Kellogg Speed, and treasurer, Dr. Frederick G. Dyas.

Mercy Hospital Wing Completed.—The completion of the new $300,000 addition to Mercy Hospital was announced, June 4, and the formal opening of the building will take place June 15. The new building is four stories in height, and is designed especially for the care of sick children. The outstanding indebtedness of the institution now amounts to more than $200,000, and the opening of the building will mark the beginning of a campaign to raise funds to wipe out this deficit.

MARYLAND

Transfer of Quarantine.—An ordinance authorizing the transfer of quarantine from the city of Baltimore to the federal government was introduced in the second branch of the Baltimore city council, May 22, and was referred to the committee on health.

Survey at Frederick.—A medical survey of Frederick is being made by officials of the United States Public Health Service, working in cooperation with the Franklin County officials, the secretary of the state board of health and Dr. William W. Ford, professor of bacteriology in Johns Hopkins University.

University of Maryland Alumni and Graduation Banquet.—The first alumni and graduation banquet of the medical and the general alumni association of the University of Maryland was held, May 31, at the Emerson, and was attended by over 500 alumni and graduates. The following officers of the general alumni were elected: president, E. John W. Revell; vice president, Dr. Albert H. Carroll; treasurer, William Stichel; recording secretary, Dr. F. V. Rhodes; corresponding secretary, Edward P. Crummer; and advisory council, medical, Drs. Charles E. Sadtler, Arthur M. Shipley and James M. H. Rowland.

Personal.—Dr. Eugene W. Heyde, Parkton, has been appointed one of the health officers of Baltimore County to fill the vacancy caused by the death of Dr. Joseph S. Baldwin,

Freeland.——The police commissioners have elected the following physicians as surgeons to the board: Dr. Caleb N. Athey, president, and Drs. James M. Craighill, William S. Gilroy, Thomas P. McCormick and Elliott H. Hutchins.——Dr. Phillip Bricsoe, Mutual, has been reappointed a member of the Board of State Aid and Charities by the governor.——Dr. Bowers H. Growt gave a reception to the members of the faculty and fifty-four members of the graduating class of the University of Maryland Medical School recently at his home.

MICHIGAN

Sterilization Law Ruled Unlawful.—Probate Judge Daniel Zuhlke Lapeer has declared unconstitutional the act of the legislature of 1913 which permits sterilization of inmates of state institutions. The state started the action in order to test the constitutionality of the law and the decision will be appealed.

Personal.—Dr. C. Hollister Judd, Detroit, has been elected chief of the medical staff of the Florence Crittenton Home, Detroit.——Dr. Frank B. Walker, Detroit, addressed the Kalamazoo Academy of Medicine, May 9, on "Fractures of the Base of the Skull." At the same meeting Dr. Archibald D. McAlpine, Detroit, read a paper on "Lung Abscess."——Dr. James C. Martin has been reelected health officer of Highland Park, Detroit.

MINNESOTA

Health Survey of St. Paul.—Surg. George B. Young, U. S. P. H. S., has taken active charge of the sanitary survey of St. Paul. The survey will occupy about three weeks, and is undertaken in cooperation with the heads of the state and municipal health departments.

Hospital Notes.—The new hospital of the Franciscan Sisters at Kettle Falls is now completed and the formal dedication exercises will occur June 15.——It is proposed to double the capacity of St. Luke's Hospital, Duluth, and to build a modern home for nurses at a cost of $125,000.

Pathologists Elect Officers.—At the annual meeting of the Minnesota Pathological Society in Minneapolis, May 23, Dr. Arnold Schwyzer, St. Paul, the retiring president, delivered the annual address, and the following officers were elected: president, Dr. Winford P. Larson, University of Minnesota, Minneapolis; vice president, Dr. John L. Rothrock, St. Paul; secretary-treasurer, Dr. Frederick L. Adair, Minneapolis (reelected), and councilor, Dr. Alexander R. Colvin, St. Paul.

NEW JERSEY

State Association Meeting.—The Medical Society of New Jersey has arranged to celebrate its one hundred and fiftieth anniversary at Asbury Park, June 20 to 22. Headquarters will be at the New Monterey Hotel. Dr. William J. Chandler, South Orange, is president of the organization.

Medical Inspector's Association Meets.—At a meeting of the New Jersey State Association for Medical Inspection and School Hygiene, held in Newark, May 20, Dr. Dana, Camden, was elected president; Dr. Fred M. Corwin, Bayonne, vice president, and Dr. Webber, Hoboken, secretary-treasurer.

Personal.—Dr. Charles S. Pancoast, Camden and Philadelphia, has returned after several months in hospitals in Hungary and Bulgaria.——Dr. Edwin H. Coward, health director of Atlantic City, has resigned.——Dr. Anthony Bassler has been appointed consulting gastro-enterologist to Christ Hospital, Jersey City.——Dr. Theodore J. Jacquemin, West Hoboken, has disposed of his property and has moved to California.——Dr. James K. Stoddard, Mount Holly, has gone to France to engage in hospital work in the war zone.——Dr. Bernard R. Lee, Atlantic City, suffered a fracture of the arm and other injuries in a collision between automobiles recently.

NEW YORK

Public Health Laboratory.—Governor Whitman signed the appropriation bill, May 27, which includes a construction item of $65,000 for the purchase of land and erection of a laboratory building in the city of Albany for the state department of health. The building will be located in the new Scotland Avenue section of the city.

The Prevention of Blindness.—The New York State Commission for the Blind has inaugurated a program and policy for the prevention of blindness. It announces that appointment of an advisory council, to which shall be referred all matters pertaining to the policy of the commission's work in prevention. The members of this council are: Dr. Linsly R. Williams, Albany, deputy commissioner, state department of health; Dr. Haven Emerson, commissioner, city department of health; Dr. Wilbur B. Marple, Dr. John E. Weeks, Dr. Alexander Duane, Dr. Herbert W. Wootton and Dr. Colman W. Cutler, all of New York. Very effective and compact exhibits in ophthalmia neonatorum, wood alcohol poisoning, midwives and trachoma have been prepared, and will be loaned by the commission for the use of local boards of health, civic organizations, clubs, or individuals interested and may be obtained by addressing the Secretary, New York State Committee for the Prevention of Blindness, 130 East Twenty-Second Street, New York.

New York City

Straus Milk Stations Open.—Nathan Straus opened ten infant milk depots, June 1, in addition to the eight that he maintains throughout the year. This makes the twenty-fifth year of his work of providing pasteurized milk in the parks and on the recreation piers for the poor children of the city.

New Hospital Building.—The directors of this institution recently announced that a new hospital building for Har Moriah Hospital will be erected south of Fourteenth Street and east of the Bowery. The new building is to cost $400,000, of which $50,000 is already in hand, and $50,000 more has been promised by an anonymous donor.

Proprietary Medicines.—*Bulletin 21* of the department of health states that since the ordinance has gone into effect requiring that all proprietary medicines shall either bear on their labels the name of the active ingredients or have them deposited in the confidential keeping of the health department, 3,197 preparations of this type have been registered with the department of health by 856 manufacturers.

Women Doctors Dine.—The alumnae association of the New York Medical College and Hospital for Women held its annual dinner at the Hotel Savoy on the evening of June 2. Twelve graduates of the class of 1916 were present. A silver loving cup was presented to Dr. Sidney Freeman Wilcox, who has been for twenty-five years professor of surgery in the college. It was announced that $62,000 has been received for the equipment of a new building for the college and hospital. Mrs. C. A. Wentworth and Mrs. W. S. Gray have each given $5,000 to endow a bed.

NORTH CAROLINA

Health of Winston-Salem.—Prof. Charles Wardell Stiles, U. S. P. H. S., has completed the sanitary survey of Winston-Salem.——Dr. Joseph J. Kinyoun, Washington, D. C., has accepted the position as whole-time health officer of the city, succeeding Dr. Eugene P. Gray, resigned.

News About Sanatoriums.—A tuberculosis sanatorium for colored people of Durham is to be established by the Civic League. The institution will be able to care for ten patients.——A sanatorium for Guilford County seems assured, as Mr. Caesar Cone, Greensboro, proposes to contribute $10,000 of the $30,000 needed; the King's Daughters have offered a site valued at $3,500, and one donation of $250 in cash has already been received.

Hospital Items.—A new hospital was opened in Goldsboro last month under the charge of Dr. John Rainey Parker.——The contract for the annex to the James Walker Memorial Hospital, Wilmington, has been awarded to the Northeastern Construction Company of New York.——The trustees of the Old Ladies' Home, Belmont, have offered to turn over its property to the city to be used as a charity hospital. The property will cost the city $9,825.

PENNSYLVANIA

Antispitting Signs.—At the suggestion of Dr. George J. Van Vechten, superintendent of the bureau of health of Scranton, 500 blue and white enamel signs, 6 by 8 inches in size, and calling attention to the prohibition of spitting on sidewalks or public places, are being posted throughout the city.

Personal.—Dr. Daniel A. Webb, Scranton, has arrived in Liverpool on his way to the war zone.——Dr. Theodore C. Harter, Bloomsburg, is a candidate for the Democratic nomination for Congress.——Dr. Daniel P. Gerberich, Lebanon, who has been a member of the state senate since 1904, has resigned his seat on account of ill health.——Dr. Daniel A. Webb, Scranton, left for Nova Scotia, April 13, to join the medical staff of the Eighty-Fifth Highlanders.

State Takes Charge of Health Affairs.—On account, it is said, of the inactivity and indifference of the health boards in five municipalties of Mercer County, they have been ordered discontinued, and the state is reported to have taken active

charge of the affairs. The boroughs affected are Fredonia, Sheakleyville, Jackson Center, New Lebanon and Clarksville. ——The state department of health took charge, May 22, of the administration of health affairs in Jennertown, Cassellman and New Baltimore, Somerset County, and Sistersville, Westmoreland County.

New Obstetric Test Demanded.—The following resolution was passed by the Bureau of Medical Education and Licensure of Pennsylvania at a recent meeting: "Resolved, that candidates for examination who graduate after Jan. 1, 1917, must produce evidence that, prior to graduation from a medical school, they have attended personally not less than twelve cases of obstetrics." This raises the standard of teaching of obstetrics in Pennsylvania from a minimum of six cases to a minimum of twelve cases prior to graduation with an additional minimum of six cases in the hospital in the hospital internship prior to licensure. This practically insures that each applicant for the medical examinations of Pennsylvania has had twenty-five or more cases of obstetrics prior to licensure.

Philadelphia

Officers Elected.—At the annual meeting of the alumnae association of the Women's Medical College of Pennsylvania, June 2, the following officers were elected for the ensuing year: president, Dr. Frances VanGasken; vice presidents, Drs. Martha Tracy and Lida Stewart Cogill; recording secretary, Dr. M. Taylor; corresponding secretary, Dr. Caroline Croasdale, and treasurer, Dr. Ellen C. Potter. Dr. Clara Marshall, dean of the college, announced a plan for increased endowment.

Personal.—Dr. Archibald G. Thomson is seriously ill in the Jefferson Hospital.——Dr. J. Torrence Rugh delivered an address before the graduating class of the Nurses' Training School of the Methodist Hospital, June 1.——Mr. William H. Hachenburg was elected president of the Jewish Hospital Association at the annual meeting, May 28. This is his fortieth year as president and his fifty-second year as a member of the executive committee.——The National Board of Medical Examiners has elected Dr. J. S. Rodman, permanent secretary, and has decided to hold its first examination in Washington, D. C., beginning October 16.

Jefferson Alumni Banquet.—The annual banquet of the Alumni Association of the Jefferson Medical College was held at the Bellevue-Stratford, Friday evening, June 2. Dr. B. Franklin Royer, president of the association, was the toastmaster and the speakers were Mr. Alba Johnson of the board of trustees; Dr. Wilmer Krusen, director of public health and charities; Dr. Edward P. Davis and Dr. William Westcott. At the business meeting held in the morning, the following officers were elected: president, Dr. J. Coles Brick; vice presidents, Drs. E. Q. Thornton and P. Brooke Bland; treasurer, Dr. Warren B. Davis, and recording secretary, Dr. H. K. Mohler.

Endowment for Jefferson.—Jefferson Medical College is now 90 years old, and has been a chartered university since 1838. It has graduated 13,278 physicians, of whom 4,678 are in active practice. Last session 676 students were enrolled. The real estate and the equipment are valued at over $2,000,000. A movement has been inaugurated to secure, as soon as possible, at least $2,000,000 additional endowment for the college. Mr. Daniel Baugh, a member of the board of trustees, and founder of the Daniel Baugh Institute of Anatomy and Biology, has subscribed $100,000, provided an equal amount is raised on or before June 16 next. The money so obtained goes to permanent endowment; the income alone will be used for such purposes as the trustees may from time to time designate. Only $20,000 remains to be raised and alumni are urged to subscribe.

Dispensary Dedicated.—June 1, a granite dispensary building opened a few weeks ago at Seventeenth and Summer Streets by the Philadelphia Orthopaedic Hospital and Infirmary for Nervous Diseases was dedicated to the memory of the late Dr. S. Weir Mitchell, who was one of the founders and for many years head of the staff. A dedication address was made by Dr. William W. Keen. Attached to the front of the dispensary is a stone tablet on which is inscribed in bronze, "S. Weir Mitchell Memorial, Philadelphia Orthopaedic Hospital and Infirmary for Nervous Diseases, 1915." Another tablet in bronze in the main waiting room contains the following legend: "This Building is Dedicated by His Friends and Patients in Memory of S. Weir Mitchell, Founder, Physician, Consultant, Manager, 1872-1914. Through these successive offices during forty-two years he gave to the sufferers within the hospital, learning, wisdom, tenderness, to ease their pain, to hearten the discouraged, to lighten their burden."

VIRGINIA

Health Bulletin.—The state board of health has distributed to the farms of Virginia a bulletin entitled "Farm Health Insurance" which explains the prevention of the common diseases of summer, and shows how farms can be made hygienic and flies abolished.

Personal.—Dr. Stuart McGuire was awarded the degree of LL.D. by Greater Richmond College at its closing exercises, June 7.——Drs. John B. Halligan, Smoky Ordinary, and William C. Powell have been elected city physicians of Petersburg, succeeding Drs. W. Preston Hoy and Claiborne T. Jones, resigned.

State Public Health Officers Meet.—At the annual meeting of the Virginia Public Health Association, held at Newport News, May 9 and 10, the following officers were elected: president, Dr. Ennion G. Williams, Richmond; vice presidents, Drs. C. Curtis Hudson, Danville, and W. H. Hick, University of Virginia; secretary-treasurer, Dr. W. Brownley Foster, Roanoke, and assistant, Dr. Roy K. Flannagan, Richmond. The principal address of the meeting was delivered by Asst. Surg.-Gen. Henry R. Carter, U. S. P. H. S., on "The Control of Malaria."

WASHINGTON

Antituberculosis League Consolidated.—At a joint meeting of the Antituberculosis League and the Red Cross Seals Bureau in Seattle, the two bodies were consolidated and Surg. Bolivar J. Lloyd, U. S. P. H. S., was elected president, and Dr. James E. Crichton, vice president.

Board on Medical Education.—At a meeting of the regents of the University of Washington, held in Seattle, the following advisory board on medical education, as related to the university, was appointed: Drs. Frederick Epplen and Wilson R. Johnston, Spokane; Dr. Cornelius J. Lynch, North Yakima; Dr. John R. Brown, Tacoma, and Drs. James B. Eagleson, Clarence A. Smith, Donald A. Nicholson, Curtis H. Thomson and Don H. Palmer, Seattle.

Personal.—Dr. Edward A. Rich has been appointed health officer of Tacoma, succeeding Dr. Edwin A. Montague, resigned.——Dr. Henri L. Petit, Chehalis, has been appointed local surgeon for the Milwaukee System.——Dr. Spiro F. Sargentich, Tacoma, who has recently returned from Serbia, was the guest of honor at a dinner given by Dr. James R. Yocom. After dinner he entertained the guests with stories of his experiences during the invasion of Serbia.——Dr. Edgar C. Lee, Seattle, has returned after Red Cross work in France.——Dr. E. Clements Leach has resigned as a member of the staff of the Seattle City Hospital and will practice in Mount Vernon.

WISCONSIN

Sanatorium Project Fails.—The Tri-County Tuberculosis Sanatorium scheme undertaken by Waukesha, Walworth and Jefferson counties has met with a serious check, as Jefferson County has turned down the project completely and Walworth County has postponed action until its November meeting. The Waukesha County Board, a short time ago, voted to bond the county for $50,000 in support of the sanatorium plan if the other counties agreed.

Clinical Tuberculosis Meeting.—The Wisconsin State Medical Society with other medical and surgical organizations of the state, and the Wisconsin Antituberculosis Society, held a clinical tuberculosis meeting in Milwaukee, June 6 to 10. On the first day a public meeting was held at which Dr. Francis M. Pottenger, Monrovia, Calif., delivered an address on "Tuberculosis, a Curable Disease." On Wednesday morning there was a clinical demonstration of diagnosis of tuberculosis at the Children's Dispensary and Hospital by Dr. Pottenger and others. At the same time there was a demonstration of surgical cases at the Children's Hospital. At noon automobiles were provided to transport the visitors to Muirdale Sanatorium, where they were the guests at luncheon of Dr. Glenford L. Bellis. Wednesday afternoon there was a physical diagnosis clinic of tuberculosis by Dr. Pottenger, checked by the Roentgen ray under the direction of Dr. E. H. Skinner, Kansas City, Mo. On Wednesday evening the dinner of the Milwaukee County Medical Society occurred, and on the three following days there were demonstrations of the diagnosis of tuberculosis and various medical and surgical tuberculosis clinics.

CANADA

Ontario Health Officers Meet.—The medical officers of health in Ontario met in annual session on May 30 and 31. In the absence of the president, Capt. Angus W. McPherson, Peterborough, in France, Dr. A. J. Macauley, Peterborough, presided. Dr. William H. Park, director of laboratories of New York, gave an address on the work of his department in reducing the death rate among children from diphtheria. A very spirited debate was launched on the question, Should the Breadwinner be Quarantined? Dr. George R. Cruickshanks, Windsor, discussed removal of tonsils. Maj. William D. Sharpe, Brampton, and Capt. Ruggles George, Toronto, the former from Serbia and the latter from France, gave some interesting details of sanitation in war time. Dr. Alan G. Brown of the Sick Children's Hospital, Toronto, advocated separate hospitals for children with tuberculosis. Dr. Kidd, Lambton, stated that 40 per cent. of the milch cows in Ontario were tuberculous. The following officers were elected: president, Dr. A. W. McPherson, Peterborough; vice president, Dr. Thomas A. Vardon, Galt, and secretary, Maj. John W. S. McCullough, Toronto. The next conference will be held in Toronto, May, 1917.

Personal.—Hon. Dr. Beland, M.P., ex-postmaster general of Canada, has been released by Germany as a prisoner of war. At the outbreak of the war Dr. Beland was in Belgium, where he had just been married. He immediately volunteered for service in the Belgian Army Medical Corps. He was taken prisoner at the capture of Antwerp. It is understood Dr. Beland has journeyed to Holland, where his wife has been ill for some months, and that he will return to Canada as soon as her health warrants the journey being undertaken. ——Lieut.-Col. John Taylor Fotheringham, Toronto, medical officer with the second Canadian Overseas Force in France, has been created a Commander of the Order of St. Michael and St. George.——Dr. Frederick Montizambert, director-general of public health, Ottawa, Ont., is listed among the recipients of King's birthday honors, having been created a C. M. G.——Lieut.-Col. Robert D. Rudolf, Toronto, who has been on active service since the outbreak of the war, has returned to Toronto. Leave has been granted him to remain for the present in Toronto so that his war experience may be of service to the University of Toronto during its summer session in medicine.——Dr. Norman K. Wilson, Toronto, who went through the Dardanelles campaign, has been appointed chief of the nose and throat department of the Ontario Military Hospital, England, with the rank of major. ——Dr. Edna Guest, whose home is at Lucan, Ont., is the first Canadian woman physician to receive a government military appointment since the outbreak of the war. She has been appointed by the War Office to a post in the Northamptonshire War Hospital at Duston, with the rank of captain.——Dr. Honoria Keer, who is now in Corsica with 6,000 Serbian refugees, was born in Toronto, but is a graduate of the University of Glasgow. Dr. Keer first worked in Serbia and for a time at Saloniki.——Lieut.-Col. Thomas Bedford Richardson, Toronto, who has been commandant of the hospital at Exhibition Camp, Toronto, has been appointed commandant of the new Convalescent Hospital in that city which is located in the building of the old Toronto General Hospital.——Dr. N. M. Keith, Montreal, has left that city to serve with the Harvard Medical Unit in the British Army Medical Service, and will shortly sail for England.——Dr. John L. Chabot, M.P., Ottawa, Ont., is to accompany the detachment of members of the Canadian and other overseas dominions' parliaments on a visit to the trenches in France.

GENERAL

Definitions and Standards for Milk and Milk Products.—The United States Department of Agriculture will give a public hearing in Chicago, June 13 and 14, on definitions and standards for milk, cream, condensed milk, and other milk products.

Growth of Red Cross.—The campaign to increase the membership of the American Red Cross to 100,000, which was inaugurated a few weeks ago, has been successful, and the membership has now passed the desired mark and the campaign is still going on.

The Fight Against Cancer.—The American Society for the Control of Cancer, which is directing a nation-wide campaign of education in this regard, notes the publication by the Central Midwives Board of England of a new circular on "Cancer of the Breast," prepared by Sir Francis H. Champneys, F.R.C.P., chairman, which has been distributed to the public as well as to the midwives. In this he urges the prompt and early treatment of all lumps in the breast.

Wine of Cardui Suit.—During the week ending at the time of going to press the attorneys for the plaintiff—The Chattanooga Medicine Co.—have read numerous depositions from Southern doctors and others, and have presented impeachment witnesses to contradict testimony given by witnesses for the defendants. Dr. Thomas G. Atkinson, Chicago, testified as an expert. The attorneys for the plaintiff announced that they expect to close their case by noon Thursday, June 8.

Railway Surgeons Organize.—The first annual meeting of the local surgeons of the Pere Marquette Railroad Company was held in Grand Rapids, May 24, under the presidency of Dr. Frederick C. Warnshuis, Grand Rapids, chief surgeon of the company. The following officers were elected: president, Dr. Virgil L. Tupper, Bay City, Mich.; vice presidents, Drs. John J. Reycraft, Petoskey, Mich., and Alexander J. Turner, St. Thomas, Ont., and secretary-treasurer, Dr. Lewis S. Ramsdell, Manistee, Mich. The association decided to hold meetings semiannually.

Procedure for Admission to the Government Hospital for the Insane to be Changed.—A bill has been introduced into Congress to authorize the admission of insane residents of the District of Columbia and of other insane persons found in the District to the Government Hospital for the Insane, without trial by jury as now required by law. If a person committed without a jury trial, or any relative or friend in his behalf, is dissatisfied with the order of commitment, he may within ten days appeal, and thereupon a jury must be summoned and the case tried by jury. The court is not to require the presence of the alleged insane person at the hearing unless for good reason it shall so direct.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession shows no contributions for the month of May, 1916.

Previously reported receipts			$7,941.86
Previously reported disbursements:			
1,625 standard boxes of food at	$2.20	$3,575.00	
1,274 standard boxes of food at	2.30	2,930.20	
353 standard boxes of food at	2.28	804.84	
Total disbursements			7,310.04
Balance			$ 631.82

F. F. SIMPSON, M.D., treasurer,
5 Jenkins Arcade Building, Pittsburgh.

Examination for Clinical Director.—The United States Civil Service Commission announces an open competitive examination for clinical director at the Government Hospital for the Insane, Washington, D. C., June 27. The salary is $2,000 a year with maintenance. Applicants must be graduates of medical schools of recognized standing; must have been in actual charge of the medical service of an institution for the insane for at least five years; must have received special training in psychiatry, and must have contributed to the medical literature on the general subject of insanity, or by report of cases; must be 35 years of age or over, and applications must be filed with the commission at Washington prior to June 27.

National Leprosarium Bill.—The House of Representatives, May 4, passed House Bill No. 193 providing for "the care and treatment of persons afflicted with leprosy and to prevent the spread of leprosy in the United States." The bill provides $250,000 for the preparation of a home for lepers, including the erection of necessary buildings, the maintenance of the patients, and the pay and maintenance of the necessary officers and employees until June 30, 1917. The bill further suggests that "any abandoned military, naval or other reservation suitable for the purpose, or as much of it as may be necessary, with all buildings and improvements thereon, be transferred to the secretary of the treasury for the purpose of said home or homes."

Examinations for Army Medical Corps.—Preliminary examinations for admission to the Army Medical Corps to fill more than 100 vacancies will be held July 17 and August 14. Applicants must be between 22 and 30 years of age, graduates of reputable medical colleges and must have had at least one year's experience as intern after graduation. Applicants successful in the preliminary examination to take a course of training at the Army Medical School, Washington, for eight months, during this time receiving the pay and allowance of a second lieutenant, which amounts to about $215 a month. Before entering the school the candidate must agree, if commissioned, to serve at least five years in the Medical Corps. At the termination of the course at the school, he is assigned to duty at a military post. Medical officers are furnished with best of current medical periodicals, recent books, ample equip-

ment for service and the laboratories at military posts are equipped for research work.

Warning.—It is reported that a young man is calling on physicians in various parts of the country, giving the names: L. D. Grant, H. E. Peters, R. A. Douglass or F. C. Schneider; and soliciting orders for subscriptions to medical journals and for medical books, for which he is not an authorized agent. He is slender, dark, with dark hair combed straight back, and he shows his teeth plainly when talking. He gives a receipt bearing the heading of some society or association such as the United Students' Aid Society, the Alumni Educational League or the American Association for Education. He represents himself as a student working his way through college and trying to get a number of votes to help him win a certain contest. The societies mentioned do not exist, and physicians should be on the lookout for him. When last heard from he was in Omaha and is believed to be working his way westward.

Bequests and Donations.—The following bequests and donations have recently been announced:

Home for Consumptives, Brooklyn; Home for Incurables, Brooklyn; Home for the Blind, Brooklyn, each $10,000; German Hospital, New York; Long Island College Hospital, Brooklyn, and St. John's Hospital, each $5,000.

Negro Hospital, Little Rock, Ark., a donation of $1,000, contingent on the subscription of a sufficient sum of money for reopening and maintenance.

University of Pennsylvania for the establishment and permanent endowment of a professorship of surgical research; $150,000 as a trust fund; Drs. William J. Mayo and Charles H. Mayo, Rochester, Minn., $10,000, by the will of Dr. J. William White.

Visiting Nurses Service of the Henry Street Settlement, New York, a donation of $100,000 for endowment, by Mrs. Elisabeth Milbank Anderson.

Asheville (N. C.) Mission Hospital, $10,000, to endow a bed in memory of Edwin Hayden Herrick, and $10,000 for the maintenance of a free bed or beds in memory of Leroy Herrick, by the will of Mrs. Jeanette H. Francis of Hampshire County, Mass.

Allentown (Pa.) Hospital, $5,000, by the will of Frank R. Stine.

Lutheran Hospital, New York, $3,000, by the will of Mrs. Anna Hess.

Montefiore Home, and Home for Aged and Infirm Hebrews, New York, each $1,000, by the will of Mrs. Rachael H. Pfeiffer.

Jewish Hospital Association of Philadelphia, $20,000 for the endowment of a perpetual free bed in memory of Martin and Theresa Siedenbach; Federation of Jewish Charities, Philadelphia, $20,000, and Jewish Foster Home and Orphan Asylum, $20,000, by the will of Henry Siedenbach.

WAR NOTES

Work of Surgical Dressings Committee.—The Surgical Dressings Committee of Boston appeals for further funds for the carrying on of its work and reports that since October the number of volunteer workers under this committee have increased from 400 to 740; that eighty-seven branches have been established and that the shipments of surgical dressings abroad since November have amounted to 1,169,067 dressings, all of which were sent to the war hospitals of the allies. The appeal for funds is endorsed by the Surgeons' Advisory Committee and by the Financial Advisors.

Red Cross Supplies Appreciated.—Letters of appreciation of the shipments of medical and surgical supplies to the Austrian Red Cross have been made on behalf of that organization to the American Red Cross by Gen. Oskar von Zednik in which he states that the consignment shipped February 4 has reached Austria in perfect condition.——The director of the Belgian Red Cross work in Calais, France, gratefully acknowledges the receipt of eight cases of war relief supplies shipped by the American Red Cross.——The receipt of six cases of clothing for destitute children in Flanders is acknowledged in a grateful note.—The Duchess of Sutherland, writing from Red Cross Hospital No. 9, British Expeditionary Force, sends her grateful thanks for three cases of supplies recently received.——Dr. Joseph A. Blake, surgeon in chief of the French Military Hospital, has received two cases from the American Relief Clearing House.——Sir William E. Garston, chief of the stores department of the British Red Cross, sends grateful thanks to the joint war committee for twenty cases of war relief supplies sent by the American Red Cross.——Dr. Ravenig writes from Rouen acknowledging the receipt of an American Red Cross shipment.——The Marchioness of Aberdeen acknowledges the receipt of nine cases of war relief supplies received through the British Red Cross stores department, London, from the United States.——Herr von Schelling, on behalf of the Central Committee of the German Red Cross, acknowledges receipt of seventy packages addressed to Dr. Frederick Cameron and forwarded from the American Embassy, Berlin. These packages have been forwarded to Frankfort, Hamburg, Wiesbaden, Bremen, Cologne, Hannover, Hirsau and Munich, as desired.

PARIS LETTER

Paris, May 11, 1916.

The War

TRENCH FOOT

Drs. V. Raymond, of the military hospital of Val-de-Grâce, and J. Parisot, of the Faculté de médecine de Nancy, have just communicated to the Académie des sciences an interesting study of trench foot. They consider the condition a peripheral neuritis. Among the various etiologic causes which have been invoked, Raymond and Parisot attach importance only to cold damp. They were led to the idea of a localized infection of the foot and set themselves to seek for the agent. They have isolated a mold from the lesions, and by inoculation of pure cultures of this fungus in animals have been able to reproduce typical lesions similar to those observed in man, that is to say, edema, blisters and eschars. They conclude that the condition called trench foot or frost bite of the foot is a mycetoma comparable to Madura foot. It is not really a frost bite but a mildew of the foot. The fungus is found ordinarily in the infected soil, in straw, manure, etc., and it is brought into contact with the feet by the mud of the trenches. It penetrates the tissues by excoriations or by the matrix of the nails. Almost all the men who have remained in the trenches any time are afflicted with onychomycosis. The local fall of temperature, resulting from standing in the water, favors the implantation of the fungus, for this parasite has its optimum development between 25 and 30 C. (77 and 86 F.).

These observations permit of indications for prophylaxis and therapeusis, namely, cleaning and disinfecting the feet by means of soap and camphorated alkaline, or better, borated solutions. The results have been excellent. Edema disappears in three days, and the neuritic pains in from fifteen to twenty days. The eschars, characteristic of the graver forms, are cured more slowly, but the treatment prevents the extension of the lesions, so much so that though the number of cases has been large, amputation of the foot has never yet been necessitated.

MEDICAL QUALIFICATIONS AND PROMOTION

In a previous letter I have dealt with the decree providing for the special promotion of physicians and pharmacists in possession of certain academic or institutional qualifications (The Journal, Feb. 12, 1916, p. 522). M. Prat, a deputy, has just drawn the attention of the minister of war to the fact that even though they may not belong to an academic body, physicians and pharmacists, owing to their academic qualifications and their scientific work, present special guarantees of knowledge and experience. The deputy suggested that these qualifications and work should be accorded a fixed value and not one varying with the personal ideas of district officials, so that those officers whose reputation was beyond dispute should be assured a rapid promotion to higher rank and a military situation equivalent to their scientific position, in the same way as has been done for members of the teaching body. M. Prat received the following answer: "In making promotions, special qualifications and scientific work of physicians and pharmacists are taken into account; but it does not seem possible to accord to these diplomas and work a fixed value giving the right to promotion."

THE ORGANIZATION OF THE CIVIL MEDICAL SERVICE

The minister of the interior and the undersecretary of state for the health service have been occupied with the organization of the medical care of the civil population, the supply of physicians having become insufficient in certain regions, owing to the call to the colors of a number of physicians belonging to the auxiliary service or to the reserve. It has been decided that the prefects and regional directors of the health service will deliberate on the distribution in the departments of the physicians who will be allotted to them. In sectors having an insufficient number of physicians, the work will be carried on by surgeons of the army or of the reserve. For recompense these will receive only their military pay and no fees. The municipalities will provide them with traveling expenses or will furnish the means of transport.

GRAFT TO SUPPLY LOSS OF A PORTION OF SKULL

At a recent session of the Société des chirurgiens de Paris, Dr. Maret showed several patients on whom he operated in May, 1915, after the following plan: The graft consists of a portion of the external table of the skull, cut so as to be of exactly the same form as the area to be covered and a little larger. This portion of the external table, covered with its

periosteum, is completely detached on three sides, but on the fourth side, that neighboring the lesion, the periosteum and fibrous adhesions are left and it is bent back on these as on a hinge. The result is remarkable. It is easier than would be thought to raise the external table of the skull bones (except, perhaps, those of certain regions, such as the wing of the temporal), especially in relatively young patients, those not over 40 years old.

Personal

The Académie des Sciences has elected, as corresponding member in the section of medicine, Dr. Yersin of Nha-Trang (Annam), former worker at the Pasteur Institute, well known for his work in bacteriology and especially on antiplague serum.

Medical Epigraphy

Dr. Raphaël Blanchard, professor at the Faculté de médecine de Paris, who interests himself greatly in the history of medicine, has undertaken the publication of a *corpus* of all the inscriptions concerning physicians and biologists or those connected with medico-biologic sciences. The first volume of this interesting work has just appeared and contains no less than 1,258 inscriptions.

LONDON LETTER

LONDON, May 22, 1916.

The War

THE EFFECTS OF THE WAR ON POPULATION

At the Royal Statistical Society, two interesting papers on this subject were read. Sir J. Athelstane Baines showed that the relative number of the marriageable of both sexes in the population has risen considerably since 1871, but that the number who marry is proportionally smaller. There is also a tendency to marry later, thereby shortening the productive period, and for the married to have smaller families. A great decline in the birth rate had been the result, especially since the beginning of the century. Owing, however, to a similar decline in the death rate, the rate of natural increase of the population, though generally on the down grade, had been falling more rapidly of late, as the births had been declining in number more than the deaths. The distribution of the population by age and sex had been materially affected. In regard to age, the diminution of the number of children, which set in in the late seventies of the nineteenth century, at first raised the proportion of adults in the prime of life, and at the most productive ages. It also tended to lower the death rate, which is at its lowest during adolescence and early middle life. But, as the diminution continued, the people of middle life began to pass into the ranks of veterans, among whom the mortality is almost as high as at the beginning of life; the death rate, therefore, tended to rise and the population to be older, not by reason of greater longevity, but from the lack of reinforcements from below. As the numbers at the productive ages grew smaller, the birth rate tended to decline, irrespective of less or later marriage or the voluntary restriction of childbearing. As the mortality of females is considerably lower than that of males, and as it is the men chiefly who emigrate, the balance of sex is slowly inclining more and more on the side of women. The short supply of children is not entirely irremediable, since it may be somewhat counteracted by the measures now being put into force for the preservation of infant life.

Mr. J. W. Nixon discussed the effect of war on national vital statistics. He analyzed the statistics of births, deaths and marriages in France and Prussia for the period of 1868-1873 and showed that both countries experienced a rise in the death rate in 1870 and 1871—the increase in the number of "civil" deaths being greater than the number of "military" deaths. This was especially marked in the case of France, the number of "civil" deaths being 437,000 more in 1870-1871 than in 1868-1869, when the number of "military" deaths was at the most 150,000. The rise in the death rate was felt at all ages and shared equally by the two sexes. Not only the two belligerents but the three surrounding neutral states of Belgium, Holland and Switzerland all showed a period of maximum mortality in 1871. England and Wales remained unaffected. After the war, rapid recoveries set in in all countries except Prussia, the death rate in France falling in 1872 to 22 per thousand, the lowest on record. A serious fall in fertility was experienced by France and Prussia in 1871, and the three neighboring neutrals similarly suffered a reduction in their birth rates. There was a sudden decrease in marriage rates in France and Prussia in 1870; it was partly made up in 1871 on the conclusion of peace; but the year 1872 was a "boom" year in both countries, the marriage rate reaching the highest on record. In the present war, England, France and Germany are experiencing a serious fall in the birth rate. The death rate has not been seriously affected in England, the slight rise in 1915 being due to some extent to the bad winter and to an epidemic of measles. On the marriage rate the effect has been the reverse of that in the Franco-Prussian war, a large rise having taken place last year. The theory advanced early in the war that it was having the effect of increasing the proportion of male births—an old superstition—was found to be groundless. The serious effect which the war has on the vital statistics of the nation is shown by the fact that the "natural increase" of population in 1913 was 377,000. In 1915 it fell to 252,000, exclusive of deaths of soldiers abroad.

THE TESTING OF RECRUITS' HEARTS

As shown in previous letters, the military authorities are employing to the full all kinds of specialists both at the front and in this country. The danger of accepting as recruits men whose hearts are not sound enough to stand the rigors of soldiering has been obviated in London by a new scheme. In addition to the routine examination which every recruit undergoes at the enlistment depots, it has been arranged that every recruit whose heart shows the least abnormality shall be examined by specialists at the National Hospital for Diseases of the Heart. "Please run up those stairs to the roof and back" the recruit is told. On his return to the ground floor his pulse rate, breathing rate and blood pressure are taken and compared with the pulse rate, etc., obtained before the candidate went stair climbing. After a rest of three minutes the pulse and blood pressure are again measured. The electrocardiograph is then employed and a tracing obtained of the heart's action. From all these data the specialists then decide whether the candidate is fit for Class 1, general service at home and abroad; Class 2, field service at home; Class 3, garrison service; Class 4, labor purposes and sedentary work, or is unfit for any army service. To make doubly certain of not admitting unfit men, each recruit is separately examined by two specialists.

Diphtheria from Cats

An outbreak of diphtheria in an orphanage has been traced to cats. Sixty-nine cases, which were the great majority of those which occurred, came from the boys' house. After many investigations and precautions, such factors in the production of the disease as sanitary defects, contaminated water supply and food were eliminated. Realizing that there must be a carrier of the bacillus, the physician in charge decided to turn his attention to the cats, and took swabs from all their throats. On bacteriologic examination it was found that the four cats from the boys' side of the orphanage were suffering from diphtheria; the four cats from the girls' side, although showing other micro-organisms in profusion, did not prove to have the true diphtheria bacillus. The cats were destroyed, and after that only ten more cases of diphtheria occurred. They occurred within a few days, showing that the patients had already been infected when the cats were destroyed. There have been no cases since.

Marriages

WILLIAM SIDNEY JOHNSON, M.D., Carbondale, Pa., to Miss Maude Irene Dakin of Washington, D: C., June 3.

ALFRED DEAN, M.D., Grand Forks, N. D., to Miss Helen LaRue Schurtz of Negaunee, Mich., May 24.

HAROLD WARD STONE, M.D., Minneapolis, to Miss Frances Carlin Murphy of Faribault, Minn., May 15.

LIONEL LOUIS ALBERT, M.D., Malden, Mass., to Miss Gertrude Steinmetz of Yonkers, N. Y., May 22.

HORACE A. LOWE, M.D., to Miss Pearl Lines, both of Springfield, Mo., at Monett, Mo., May 9.

ROBERT GRIER LECONTE, M.D., to Mrs. Susan Sturgis Stewart, both of Philadelphia, May 24.

MARTIN HENRY MERBITZ, M.D., Chicago, to Miss Norma Helen Irasek of Milwaukee, May 17.

HUGO MELLA, M.D., to Miss Pearl Weed, both of Bismarck, N. D., at Minneapolis, May 27.

OTTO CARL HORST, M.D., to Miss Rebecca Garrett, both of Springfield, Mo., April 27.

GEORGE NYE HISKEY, M.D., to Miss Stella Elizabeth Uthe, both of Chicago, June 3.

Deaths

William T. S. Dodds, M.D., Indianapolis; Medical College of Indiana, Indianapolis, 1898; aged 42; a Fellow of the American Medical Association; associate professor of clinical diagnosis in Indiana University School of Medicine, Indianapolis, and professor of bacteriology in the Indiana Dental College; pathologist to the Indianapolis City Hospital and Dispensary and instructor in bacteriology at the Deaconess Hospital, Indianapolis; a specialist in diseases of the chest; who started the tuberculosis clinic movement in Indianapolis and served for two years as deputy coroner of Marion County; died at his home, May 22, from heart disease.

Frank Parker Tays Logan, M.D., Gloucester, Mass.; Harvard Medical School, 1897; aged 49; a Fellow of the American Medical Association and a member of the Association of Military Surgeons of the United States; captain and assistant surgeon, Eighth Massachusetts Infantry, U. S. V., during the war with Spain, and assistant surgeon of the Eighth Infantry, Mass. V. M.; surgeon on the staff of the Addison Gilbert Hospital, Gloucester, and lecturer on materia medica and therapeutics in the training school of the institution; died at his home, May 26.

William Page McIntosh, M.D., Surgeon, U. S. P. H. S., College of Physicians and Surgeons, Baltimore, 1882; aged 60; a Fellow of the American Medical Association and an active member of the Association of Military Surgeons of the United States; who entered the United States Public Health Service in November, 1885, was promoted to passed assistant surgeon, Nov. 1, 1888, and to surgeon, May 20, 1890, and who was placed on waiting orders, April 15, 1915, on account of illness; died at Linwood, Howard County, Md., May 27.

John Louis Masters, M.D., Indianapolis; Louisville (Ky.) Medical College, 1885; aged 56; a Fellow of the American Medical Association and American Academy of Ophthalmology and Oto-Laryngology; a specialist on diseases of the eye, ear, nose and throat; professor of clinical otology, rhinology and laryngology in the Indiana University School of Medicine; a member of the consulting staff of the City Hospital and Deaconess Hospital, Indianapolis; died suddenly at his home, May 25, from cerebral hemorrhage.

Francis Barker Davison, M.D., Factoryville, Pa.; Pennsylvania Medical College, Philadelphia, 1853; aged 88; once president of the Lackawanna County (Pa.) Medical Society and a member of the State Medical Society and American Medical Association; surgeon of the One Hundred and Twenty-Fifth Pennsylvania Volunteer Infantry during the Civil War; for thirty-eight years a practitioner of Fleetville, Pa.; died at the home of his daughter in Factoryville, April 30, from senile debility.

Nathan Jenks, M.D., Detroit; Cornell University, New York City, 1899; aged 43; a Fellow of the American Medical Association; associate professor of obstetrics in the Detroit College of Medicine and Surgery; visiting obstetrician to the Women's Hospital and Infants' Home, Detroit; a member of the American Association of Obstetricians and Gynecologists and a fellow of the American College of Surgeons; died in Harper Hospital, Detroit, May 30, three weeks after a surgical operation.

Charles Theodore Benner, M.D., Tiffin, Ohio; Western Reserve University, Cleveland, 1878; Bellevue Hospital Medical College, 1882; aged 59; formerly a Fellow of the American Medical Association; a member of the Ohio State Medical Association, and once president of the Seneca County Medical Society; local surgeon of the Pennsylvania System; for one term a member of the city council of Tiffin; died in his office in Tiffin, May 23, from angina pectoris.

John R. McCullough, M.D., Chicago; College of Physicians and Surgeons, Chicago, 1883; aged 80; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society and Chicago Pathological Society; a practitioner for forty-three years; a veteran of the Civil War in which he served as assistant surgeon of the First Wisconsin Volunteer Infantry, and was a prisoner in Libby Prison; died at his home, May 4.

Victor Davis Miller, M.D., Mason and Dixon, Pa.; Jefferson Medical College, 1861; aged 78; a member of the Medical and Chirurgical Faculty of Maryland; assistant surgeon of the Seventy-Eighth Pennsylvania Volunteer Infantry during the Civil War; coroner of Franklin County from 1864 to 1866; died at his home in Washington County, Md., just across the Franklin County line, May 25, from peritonitis.

Lyman Ware, M.D., Chicago; Northwestern University Medical School, 1866; University of Pennsylvania, Philadelphia, 1868; aged 74; a Fellow of the American Medical Association and a member of the Chicago Ophthalmological and Otological Society; a specialist on diseases of the eye; hospital steward of the One Hundred and Thirty-Second Illinois Volunteer Infantry during the Civil War; died at his home, June 1, from heart disease.

Patrick M. Kelly, M.D., Kankakee, Ill.; Washington University, St. Louis, 1892; aged 55; a Fellow of the American Medical Association; for many years a practitioner of Litchfield, Ill., and health commissioner of that city; superintendent of the Kankakee State Hospital from August, 1913, until his resignation a few months ago on account of ill health; died in Colorado Springs, May 30, from nephritis.

Walter C. Overstreet, M.D., Sedalia, Mo.; Missouri Medical College, St. Louis, 1878; Bellevue Hospital Medical College, 1882; aged 58; a Fellow of the American Medical Association; and a member of the National Association of Railway Surgeons; consulting surgeon to the Missouri, Kansas and Texas system; formerly mayor of Sedalia; died in the Punton Sanitarium, Kansas City, May 25.

Alonzo Lemuel Leach, M.D., Cape May, N. J.; Jefferson Medical College, 1868; aged 71; formerly a member of the Medical Society of New Jersey; for twenty years a resident of Pennsylvania and surgeon of the First Pennsylvania Infantry; and demonstrator of the Philadelphia School of Anatomy; for several years president of the board of health of Cape May; died at his home, May 25.

Clark Wasgatt Davis, M.D., Cincinnati; Miami Medical College, Cincinnati, 1886; aged 52; a Fellow of the American Medical Association; medical director of the Union Central Life Insurance Company for many years; health officer of Cincinnati from 1900 to 1906; died at his home, May 25, from heart disease.

M. Fred Dattelzweig, M.D., Chicago; Bennett Medical College, Chicago, 1898; aged 46; a Fellow of the American Medical Association; for many years assistant county physician of Cook County in charge of the North Side division; died at his home, May 30, from heart disease, complicating ptomain poisoning.

Marion Delmar Ritchie, M.D., Pittsburgh; University of Pennsylvania, Philadelphia, 1899; aged 42; a Fellow of the American Medical Association and a member of the American Academy of Ophthalmology and Oto-Laryngology; laryngologist to the Columbia Hospital; died at his home, May 24.

William F. Toombs, M.D., Springfield, Mo.; University of Louisville, Ky., 1880; aged 73; for twenty-five years a practitioner of medicine and later a druggist who moved three years ago to San Antonio on account of his health; died in the Springfield Hospital, May 20, from senile debility.

Frederick W. Lee, Tiskilwa, Ill.; (license, Illinois, years of practice, 1877); aged 81; a practitioner for half a century; a veteran of the Civil War; formerly trustee and president of the village board of Tiskilwa; died at the home of his son in Tiskilwa, May 10.

Henry Hardenbergh, M.D., Port Jervis, N. Y.; College of Physicians and Surgeons in the City of New York, 1859; aged 81; vice president of the Barrett Bridge Company and director of the Port Jervis Waterworks Company; died at his home, May 29.

Edward A. Fox, M.D., Cincinnati; Medical College of Ohio, Cincinnati, 1905; aged 34; local surgeon for the Big Four System; county infirmary physician of Hamilton County in 1909 and 1910; died in Bethesda Hospital, Cincinnati, May 6, from septicemia.

Charles W. Hine, Lonoke, Ark. (license, Arkansas, 1886); aged 71; formerly a Fellow of the American Medical Association; for many years a practitioner and druggist of Stanton, Iowa; died in a hospital in Chicago, May 16, from malignant disease.

Willard Herbert Linder, M.D., Clinton, Iowa; Marion-Sims College of Medicine, St. Louis, 1896; aged 40; formerly of Des Moines and Story City, Iowa; died in the Agatha Hospital, Clinton, May 22, a few hours after an operation for appendicitis.

John B. Anderson, M.D., Chetopa, Kan.; Medical College of Ohio, Cincinnati, 1872; aged 68; died at his home, May 18.

William H. Davis, M.D., Corydon, Ind.; University of Louisville, Ky., 1882; aged 65; died at his home, May 18.

Samuel H. Bennett, M.D., Mendon, Mich.; University of Buffalo, N. Y.; 1865; aged 79; died at his home, May 14.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE WINE OF CARDUI SUIT

(*Continued from page 1810*)

May 8, 1916, Morning

TESTIMONY OF DR. R. L. THOMAS

The court met pursuant to adjournment. Dr. R. L. Thomas was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. R. L. Thomas testified that he is a physician practicing in Cincinnati, Ohio. He graduated in 1880 from the Eclectic Medical College, of which he is now dean and professor of the practice of medicine. He is on the staff of the Seaton Hospital. He treats diseases peculiar to women in his general practice, using medicines, local applications, etc.; he also uses mechanical means, such as pessaries and tampons. He has not had any experience with cnicus benedictus or with viburnum prunifolium.

There was then asked of the witness a hypothetic question similar to that asked of other witnesses. He stated that he did not think that the hypothetic medicine would have any value in the treatment of uterine displacements as it would be impossible for this remedy to restore the ligaments after they were relaxed or to repair the torn perineum. He did not think that the hypothetic medicine would be of any value in the treatment of vaginitis or in other forms of pelvic inflammations. He stated that most likely it would be harmful by the excitation to renewed activity of the gonococcus by the use of a large quantity of alcohol.

There was then read to the witness a quotation from the Home Treatment Book for Women concerning vaginitis. The witness stated that it would be impossible for Wine of Cardui to act on the cause of this disease in a curative sense. He believes it is not a scientific and specific remedy for this condition.

The witness then defined in brief, amenorrhea, dysmenorrhea, menorrhagia, and metrorrhagia, all of which are due to pathologic conditions. He believed that the hypothetic medicine would be worthless in these conditions. He considers the period known as puberty and menopause as normal and physiologic conditions. He stated that in his opinion, the remedy could not be any good and could not do any good to a physiologic condition and it might possibly do a great deal of harm by overstimulation, by disturbing the digestion, or disturbing the nervous system. The witness stated that the duration of the menopause is from one to three years and it is not necessarily a critical period in a woman's life. He stated certain pathologic conditions which might occur in the menopause and stated that in this sense it was a critical time. He stated that it was very inadvisable to take Wine of Cardui regularly throughout the entire period as recommended in the Home Treatment of Women, page 38, which was read to him.

Q.—Why do you think that, Doctor? *A.*—Well, in the first place a great many of these changes do not affect unfavorably and you would be taking a stimulant for a normal condition. In the cases that are inclined to be a degeneration, you have these conditions as I stated a while ago. You may have the degeneration of a malignant growth of the uterus, or you may have it of the breasts, or you may have it of the ovary and there is nothing in the remedy that I can see that would be efficacious in relieving those conditions.

The witness stated that there was nothing in the hypothetic solution which would tend to repel the attack of diseases in the change of life. He would object to the taking of the hypothetic medicine during the whole term of pregnancy. Unless there was special difficulty, medicine would not only be valueless but might do harm. He defined as a misstatement the following quotation from the Home Treatment for Women:

> "No one need be afraid of taking Cardui during pregnancy. Its action is gentle and strengthening, and it can never do anything but good."

Q.—Why do you think it is a misstatement, Doctor? *A.*—I think a patient that would take a remedy that contained 20 per cent. of alcohol for nine months—you might get a disturbance of the digestive apparatus, you might get overstimulation, you would get a change in elimination and you would be very apt to get an addiction to the drug or at least there might be—a patient might be led into a desire to take the stimulant constantly.

Q.—What, if any, might or would the effect be in your opinion of such a continued use of an alcoholic solution throughout the period of pregnancy of any of the special organs of the woman's body, that is, the organs of elimination? *A.*—It would impair the organs of elimination.

Q.—What would be the effect of it, do you think, if any, upon the kidneys? *A.*—The tendency would be to be harmful. We find nephritis—when we do find a morbid condition of the pregnant woman—it is very apt to be the kidney. In fact, even under normal conditions, we have our patients contribute samples every three or four weeks during the pregnant time to see whether there is any tendency to a nephritis, which is the most serious lesion of a pregnant woman. Alcohol tends towards nephritis, to produce it.

Q.—By alcohol you mean—or by nephritis you mean Bright's Disease, what we usually know as Bright's disease? *A.*—Bright's disease, commonly known as Bright's Disease.

Q.—I wish to read to you the following quotation, from the Ladies' Birthday Almanac of 1909 published by the Chattanooga Medicine Company, and copyrighted by the Chattanooga Medicine Company. I read from page 17.

> "Do you suffer from any of these symptoms of female complaints? Headache, backache, sideache, shoulder pains, breast pains, leg, hip or thigh pains; bowel pains, drawing pains, bearing down pains, dragging sensations, falling feelings, inability to walk, dizziness, numbness, nervousness, fainting spells, morning sickness, sleeplessness, tired feelings after walking, inability to lift weights, frequent urination, morbid distaste for walking, painful menstruation, irregular menstruation, unnatural stoppage, too profuse, too often, whites, flooding, weight of bowels, straining at stool, cramps, sterility, general weakness, change of life, hot flashes, cold flashes, capricious appetite, nervous delusions, indigestion, loss of appetite, sick headache."

Have you an opinion—what is your opinion as to the truth of these various statements?

Mr. Walker:—You did not give the date of that.

Mr. T. J. Scofield:—In conclusion, on page 17, following what I have just read to you, appears the following:

> "Thousands of ladies who suffer from the above symptoms, have obtained relief by taking Cardui, Woman's relief. Try it. It will help you."

Mr. Walker:—What date was that?

Mr. T. J. Scofield:—I am reading from the 1909 almanac, page 17.

Q.—What is your opinion as to the truthfulness of these statements, Doctor? *A.*—Well, the symptoms that are given there come from such a variety of causes, that it will be impossible for any one remedy or any combination of remedies to relieve all those conditions.

CROSS-EXAMINATION BY MR. HOUGH

Dr. Thomas testified that he does not know carduus benedictus or centaurea. Cnicus benedictus he stated is a principle of blessed thistle and he has never used it. He has not used carduus marianus to any extent. It is a vegetable remedy recommended for low conditions of the nervous system and atony of the liver. It has not to his knowledge, been used for dysmenorrhea, amenorrhea or irregular passive uterine hemorrhages. His knowledge, he stated, is limited to his own experience. He has not read Ellingwood's Therapeutics on this subject or King's American Dispensatory on this subject. He recommends carduus marianus in one place in his work as a compilation reputed to be used for atony of the liver. He does not use it himself at all.

Q.—Upon what authorities did you base your statement then? *A.*—From reading, from some prominent authors.

Q.—What were they? *A.*—Of the homeopaths. The homeopaths used carduus marianus for liver troubles, some liver troubles partly; despondency in liver troubles.

Q.—Do you know whether there is any difference in action between carduus marianus, and carduus benedictus? *A.*—No, sir, I do not know the difference.

Q.—If the hypothetical question had read "carduus marianus," instead of cnicus benedictus, would your opinion have been the same as you expressed it?

Mr. T. J. Scofield:—That is objected to.

A.—Just the same.

Mr. T. J. Scofield:—He has already answered it, but the hypothetical question did not say carduus marianus.

Mr. Hough:—I say, if it had said it. I am entitled to vary the question to test the knowledge of the witness.

The witness knows viburnum prunifolium, which he has used for dysmenorrhea. What he has written on the subject is based on his own experience and that of other physicians. Dr. Thomas does not agree with Ellingwood on all the uses of viburnum. He agrees that it is valuable as a uterine sedative in certain conditions.

Q.—Is viburnum prunifolium good in threatened miscarriage? *A.*—In some cases of threatened miscarriage.

Q.—Is it not particularly indicated in habitual abortion? *A.*—In a general way, depending upon the condition, abortion resulting from different conditions.

Q.—Is it not often efficient in controlling the morning sickness of pregnancy? *A.*—Not in my experience.

Q.—But I am not asking it on your experience alone, but your experience and reading? *A.*—That is all I can testify to, my experience in the use of the drugs.

Q.—No, your experience and reading. Your familiarity with the literature on the subject? *A.*—Yes, sir.

Argument was then made by attorneys concerning the introduction of evidence based on what the physician has read.

Q.—Is it not a fact that in a number of cases, when given for menstrual irregularities or for the distress induced by uterine displacements in previously sterile females, pregnancy has promptly occurred, proving the influence of the agent in restoring normal functional ovarian activity? *A.*—I do not know that it has had that effect.

Q.—Do you know that it has not had that effect? *A.*—No, sir.

Q.—Is it not a fact that it is the proper treatment of irregular, sudden menstrual flow occurring during repetitions and long continued or violent inflammatory fevers, especially in young ladies? *A.*—I did not catch that, the first part of your question.

Q.—It is the treatment of irregular, sudden menstrual flow, occurring during repetition and long continued or violent inflammatory fevers, especially in young ladies? *A.*—No, sir.

Q.—You say that is not the fact? *A.*—Not to my knowledge. I never used it for that in that way.

Mr. Hough:—Now I ask leave to read to the witness from Ellingwood on that subject.

Mr. T. J. Scofield:—I object to that, if the Court please. Dr. Ellingwood is right over here.

THE COURT:—You may read from any book that he has written.

Mr. Hough:—That the witness himself has?

THE COURT:—Yes.

Mr. Hough:—But the witness says he bases his opinion in part on what Ellingwood has written.

THE COURT:—As to viburnum prunifolium?

Mr. Hough:—I understood him so.

THE COURT:—He has not said that yet.

To which ruling of the Court the plaintiff, etc., excepted.

Mr. Hough: Q.—Don't you base your opinion in part on what Ellingwood says in his Materia Medica, and Pharmacognosy? *A.*—I base it so far as it meets the experience that I have had, certainly.

Q.—You mean you disagree with them if they state anything different from your own experience? *A.*—Not necessarily disagree, no, sir. but not necessarily believe all the statements.

Q.—In what cases have you yourself used viburnum prunifolium? *A.*—I have used viburnum prunifolium for the condition where we have as a result of neuralgic conditions irritation resulting in expulsive character of pains, for instance, in dysmenorrhea. If there is a sensation of bearing down, as if the patient was trying to pass something, expulsive pain, as an antispasmodic, in that condition. Not all conditions of dysmenorrhea do I use it in.

Q.—How much alcohol was in the preparation which you used under those conditions? *A.*—How much alcohol?

Q.—Yes. *A.*—In the preparation I used, the specific tincture, it contains about 46 per cent.

Q.—Forty-six per cent. of alcohol? *A.*—Of alcohol, yes, sir.

The witness stated that he has never used senecio aureus. It was used by the eclectic school as a uterine tonic. It is a vegetable drug. It is used in cases of leukorrhea.

The witness does not know the amount of alcohol in it.

Q.—When you have medicines containing alcohol and use them, do you consider that the alcohol has a deleterious effect? *A.*—I cannot say I use them in that way. Not in the way I use them.

Q.—You mean you can use alcohol with a deleterious effect—that is, your specific medicines, or you can use them with a beneficial effect, can you? *A.*—The way that the specifics are used, they are used with a beneficial effect. The way they are recommended, the short doses they are recommended in, it would have no deleterious effect.

Q.—Well, what is the dose recommended of cnicus benedictus? *A.*—I do not know.

ALCOHOL IN LLOYD'S PREPARATIONS

The witness does not know of Lloyd's cnicus benedictus but he has heard of it. The dosage of Lloyd's prunifolium is from 3 to 5 drops in the form of a tincture.

Q.—Isn't the dosage a teaspoonful every hour or two? *A.*—A teaspoonful of the tincture.

Q.—Of the specific medicine, viburnum prunifolium? *A.*—No, sir.

Q.—(Handing bottle to the witness). Is this the medicine that you use, or that you are referring to? *A.*—Yes, sir.

Q.—It comes in that form? *A.*—It comes in that form. That is never used a teaspoonful at a dose.

Q.—What does that say on there on the label? *A.*—It says it is a specific medicine, black-haw, one dram, which is a teaspoonful, water four ounces, and a teaspoonful of the mixture—

Q.—Read what it says on the bottom. *A.*—Every hour or two. A teaspoonful of the mixture, not the—

Q.—How much alcohol would there be in the mixture? *A.*—Well, there would be a teaspoonful of the mixture in four ounces of water. The 46 per cent. alcohol in four ounces of water and you would get a teaspoonful out of this water.

Q.—How much alcohol would you get in a day if you took that mixture every hour? *A.*—Every hour you would get about ten teaspoonfuls of the mixture, and you would get probably 25 or 30 drops of the medicine in the course of a day, which would include—

Q.—Did you say medicine or alcohol? *A.*—I said the medicine.

Mr. Hough: Q.—The dose you say is three to five drops of the specific tincture? *A.*—Yes, sir.

Q.—How does that compare in amount with the amount of viburnum prunifolium in the hypothetical medicine, which was asked about? *A.*—It would be much stronger.

Q.—Which would be much stronger? *A.*—The specific tincture.

Q.—How much stronger? *A.*—Well, I would say it would be a great deal stronger.

Q.—It is just about the same, isn't it? *A.*—No, sir, I think not.

The witness has not used carduus marianus. Most of the medicines which he uses contain alcohol. They run from 40 per cent. up.

Q.—Now, is the reason that the alcohol that is in the medicine which you use—does not have a bad effect—I say, is the reason that that amount of alcohol is thoroughly oxidized in the system? *A.*—No, there is a difference in the preparation of the medicines to begin with.

Q.—You mean in the percentages of alcohol? *A.*—In the percentages of alcohol.

Q.—Let us take the largest amount which is in any medicine you use? *A.*—You take the specific remedies as made by Lloyd, and it takes all the percentage of alcohol to extract the virtue of those drugs. You take viburnum prunifolium, for instance out of the green bark of the black-haw, which is the viburnum prunifolium, it takes 46 per cent. to extract all of the virtue of the drug, by that amount of alcohol. Twenty per cent. of alcohol will not extract it. Consequently you are getting more alcohol than you are getting drug.

Q.—You mean out of the green— *A.*—Out of the green bark, and the dry bark has less I think of virtue. The dry bark you can buy for 12 cents a pound, and the green bark you pay $1.50 a pound for. Lloyd pays $1.50 a pound for every pound of viburnum he makes.

Q.—You mean then, that if a large amount of alcohol is necessary to extract the virtues of any herb or drug, that that amount of alcohol is not dangerous, provided it is the amount which is necessary to extract the properties of the drug? *A.*—Provided this is the amount and you use it in the dilution we use it. We are not giving this in teaspoonful—

Q.—Now take—

Mr. T. J. Scofield:—I insist that the witness finish his answer.

The Witness:—I say, we are not giving this in teaspoonful doses of the tincture. We are giving the dilution, which is a very marked difference. If you put a teaspoonful of that tincture in four ounces of water and give a teaspoonful of that, you are getting a very small amount of alcohol, and that alcohol is diluted.

Mr. Hough: Q.—What is the largest amount of alcohol in any drug which you administer yourself? *A.*—I do not know the largest amount.

Q.—What is the largest amount that you recollect? *A.*—I am not sure; I believe in strophanthus the alcohol is possibly 70 per cent. I am not sure.

Q.—What is the dose? *A.*—From half a teaspoonful to a teaspoon, to four ounces of water. Usually a smaller dose.

Q.—How frequently? *A.*—Generally a smaller dose.

Q.—How frequently? *A.*—Every three or four hours.

Q.—What is the largest amount of alcohol, measured in drops, we will say, which an individual who is taking medicine can safely take into the stomach without getting a deleterious effect from the alcohol alone? I am talking now about one dose. *A.*—I do not know.

Q.—Could they take as much as 48 drops of alcohol diluted with five times that amount of water, at one dose, without having any deleterious effect from that one dose? *A.*—They might.

Q.—And if it had no deleterious effect, there would be no cumulative effect whatever, would there? *A.*—From the one dose, no.

Q.—No. Then, if they took it three times a day, there would be no cumulative effect? *A.*—Possibly not—and only took it for one day.

Q.—Well, if taken through the three to five days of the monthly period, it would not have any effect, would it? *A.*—It is not ever given that long. It generally relieves the first day, if it relieves at all.

Q.—How long is it usually given? *A.*—From eight to ten hours the first day, and generally relieves the trouble.

Q.—Well, if it were given through a period of three days, it would have no different effect than if it were given through a period of one day? *A.*—Possibly not.

Q.—Isn't it a fact that the specific medicine, black-haw, or viburnum prunifolium, exercises a direct influence over the sympathetic nervous system, preventing reflex irritation, especially of the stomach and heart?

Mr. T. J. Scofield:—Wait, Doctor, that is objected to. That is not cross-examination, and if they simply want to test the Doctor's ability—

Mr. Hough:—It certainly is.

Mr. T. J. Scofield:—They have gone far enough.

Mr. Hough:—I am talking about viburnum prunifolium.

Mr. T. J. Scofield:—We are not talking about a specific medicine here.

THE COURT:—You may ask him what he gives it for.

Mr. Hough:—I am asking what he knows about the virtues of viburnum prunifolium.

THE COURT:—Ask him if he gives it for these various disorders.

Mr. Hough:—It does not make any difference whether he gives it or not, if he knows. He may know a great deal about a great many medicines that he don't use.

THE COURT:—Ask him if he knows whether or not it is used for that purpose.

To which ruling of the Court the plaintiff, etc., excepted.

Mr. Hough:—Is it used for that purpose?

Mr. T. J. Scofield:—That is objected to.

THE COURT:—He may answer.

To which ruling of the Court the defendants, etc., excepted.

Mr. T. J. Scofield:—It is not the medicine involved here, and it is not material whether some other medicine is given for the same condition or not. We are not investigating that.

Mr. Walker:—He is talking about viburnum prunifolium.

Mr. T. J. Scofield:—No, he is not. He is talking about a different preparation.

Mr. Hough:—I am asking about viburnum prunifolium. Is that not true?

A.—Acts upon the sympathetic, in heart troubles? Is that your question?

Q.—On the sympathetic nervous system, preventing reflex irritation, especially of the stomach and heart? *A.*—I have had no experience in that line.

Q.—Is it not indicated for that? *A.*—It seems to be on the bottle, I do not know; I never have used it for that purpose.

Q.—Is it not indicated to correct morning sickness and palpitation during pregnancy? *A.*—Some use it for that.

Q.—Is it not used to prepare a patient for labor, and facilitate a safe, uncomplicated and normal labor and especially to prevent postpartum hemorrhage? *A.*—Some may use it for that.

Q.—Is it not used in threatened abortion in dram doses every half hour or so? *A.*—No, sir, not dram doses of the remedy, and there are only certain conditions of abortion where it would be. We do not use, as a school, or as physicians, we do not use any one remedy for diseased conditions. For instance, abortion; there are a number of remedies that could be used for abortion, and we use them in special conditions for abortion, not all cases of abortion. We claim that there is no one remedy that will cure—that will affect all conditions of any one disease.

Q.—You said this is what you used, didn't you (referring to contents of bottle heretofore handed to witness)? *A.*—Viburnum prunifolium.

Q.—Now, I will ask that you read here what is on that label.

Mr. T. J. Scofield:—I object to that, if the Court please.

THE COURT:—What is the purpose of this?

Mr. Hough:—To show—

THE COURT:—This witness has told you what he does. Now he says he does use it for certain conditions tending to produce abortion. He says he never uses any medicine to correct all the conditions that would produce abortion, any one medicine. Now that was the answer, a perfectly straightforward answer.

Mr. Hough:—As far as it went, it is a perfectly straightforward answer and satisfactory. But we are not limited in asking this witness about a certain medicine, to things that he has used it for, if he knows something about the medicine.

THE COURT:—Exactly, but what has this bottle to do with it.

Mr. Hough:—Because he says that what that bottle says is true.

The Witness:—Oh, no.

THE COURT:—No, he has not testified to that.

Mr. Hough:—Do you say that any statement that is on that bottle is not true?

Mr. T. J. Scofield:—That is objected to.

THE COURT:—Objection sustained. He may read that, and then, if he relies upon what it says there, and says that it is true, that settles that proposition.

To which ruling of the Court the plaintiff, etc., excepted.

Mr. Hough:—Well then, read that and state if you rely on anything that is on there?

THE COURT:—Ask him if he agrees with it.

Mr. Hough:—If you agree with anything that is on there.

Mr. T. J. Scofield:—There is another reason why I object to that.

THE COURT:—It is just like a book, and I have ruled against quoting from the book.

Mr. T. J. Scofield:—Excepting that this preparation is not the viburnum prunifolium concerning which the doctor has been inquired of, and concerning which Mr. Patten testified here that he used.

Mr. Hough:—We will connect that up at another time, and in a different way. We are entitled to ask about viburnum prunifolium.

Mr. T. J. Scofield:—You will certainly not contradict what Mr. Patten said about it, because Mr. Patten told you that he used the viburnum prunifolium from the bark of the limb. That is not this preparation.

Mr. Hough:—That has nothing to do with the question at all. That is neither here nor there.

Mr. T. J. Scofield:—Yes, it is right here.

Mr. Hough: *Q.*—Will you state that you disagree with the statements on the bottle which you say contains the preparation which you used.

Mr. T. J. Scofield:—That is objected to.

THE COURT:—Objection sustained in that form.

To which ruling of the Court the plaintiff, etc., excepted.

THE COURT:—You might just as well hand him Mr. Ellingwood's book, and say "Mr. Witness, please be good enough to read that book through, and tell me whether you agree with it."

Mr. Hough:—If he had told me first that he studied Ellingwood's book and agreed with some of it, and disagreed with the other— I am entitled—

THE COURT:—Has he told you that he agrees with everything on the bottle?

Mr. Hough:—He has told me that that is the medicine which he uses.

THE COURT:—Yes.

Mr. Hough:—And now I am asking him to tell me the conditions for which that medicine is indicated on the bottle, that he disagrees with.

THE COURT:—No, you may ask him what conditions mentioned on the bottle he has used it for.

To which ruling of the Court the plaintiff, etc., excepted.

Mr. Hough:—Or whether he believes in it, or whether he knows it to be a fact.

THE COURT:—Supposing he says that he does not believe in it—

Mr. Hough:—Then that ends it as to that.

THE COURT:—Then you cannot put on a witness to prove that this man did believe it.

Mr. Hough:—If he says that there is something on the bottle that he don't believe in, that ends it. But if he says he agrees with what is on the bottle—

THE COURT:—Well, read it over and see what you agree with. I will save the point on that. Mr. Patten's testimony, however, as to viburnum prunifolium, is as Mr. Scofield stated it.

Mr. T. J. Scofield:—Exactly.

Mr. Hough:—Some people use the dry bark, and some use the green. Some use the bark from the root, and some the bark from the tree and the pharmacopeias have been changing as to that.

Mr. T. J. Scofield:—What does the Chattanooga Medicine Company use?

THE COURT:—If you won't give me a chance to talk now and then, we will never get through. The difficulty with your position in this case is that it is Wine of Cardui that is under examination, and we are interested in what is in that, and what character of viburnum prunifolium is in that. Now, if that is one kind, and this preparation of Lloyd's—this tincture of Lloyd's is another kind—

Mr. Hough:—That is another matter again, your Honor. That is not another kind.

The Court:—We will go into that later.

Mr. Hough:—I say I will connect that up later.

The Court:—That is different from what Mr. Patten said.

Mr. Hough:—Both come from the same shrub or tree.

The Court:—Just read it over and tell us what you accept and agree with.

To which ruling of the Court the defendants, etc., excepted.

A.—Well, I agree with it in some phases, not all of it.

The Court:—Well, tell us the things that you do agree with.

A.—The latter statement, uterine disorders, inducing hysteria, hysterical delusions and petit mal shall be treated with the remedy, if they are due to spasmodic conditions or irritation or nervous conditions.

Mr. Hough: Q.—You mean to say that that is the only statement on that with which you agree? *A.*—That is what I use it for.

Q.—I asked you whether you agreed with the statements there and asked for you to state which ones you do agree with. *A.*—I agree with that, that where it is used for that condition, threatened or painful dysmenorrhea, painful affections of the uterus, that occur as a result of nervous irritation, as an antispasmodic, I use it in that condition.

Q.—You mean then, that you disagree with all the other statements on there?

Mr. T. J. Scofield:—That is objected to.

Mr. Hough:—We are entitled to have the witness' attitude correctly defined.

The Court:—He says that is what he agrees with.

Mr. Hough:—I can agree with ten things, and I can say that I agree with Number 1. That don't mean that I disagree with the other nine.

The Court:—If he says he knows nothing about the other nine—

Mr. Hough:—If he says he knows nothing about the other nine, or says he disagrees with the other nine, then his attitude is clearly defined.

Q.—Do you agree or disagree with all the rest? *A.*—No, sir, I do not know the effect of it on all the rest.

Q.—How many of the other statements do you agree with?

Mr. T. J. Scofield:—That is objected to.

Mr. Hough:—That is perfectly competent.

The Court:—He has told you all he agreed with.

Mr. Loesch:—That is it.

Mr. Hough:—He has told us what he used it for. He has not said—

The Witness:—I agree with the statement, that it is an antispasmodic for neuralgic conditions in the female, resulting in expulsive pains.

Q.—Are there any other statements there with which you agree? *A.*—No.

Mr. Hough:—Well, that defines it.

Mr. Hough: Q.—Doctor, you say that Lloyd's Specific Medicine, called viburnum prunifolium, is made out of the green bark? *A.*—Out of the green bark.

Q.—How do you know that? *A.*—He told me so.

Q.—He told you so? *A.*—Yes, sir.

Q.—It is not in any of his literature, is it? *A.*—I do not know.

Q.—Well, you only know from what he told you? *A.*—I know that he makes—that there is a marked difference between the virtues of a dried drug and a green drug—

Q.—A very marked difference? *A.*—I know that Professor Lloyd—that the dried bark, which is practically worthless, he said, can be bought for 12 cents a pound, and the green bark at a dollar and a half a pound; so that there must be a difference, a good deal of difference in the virtue of them.

Q.—Well, you don't know how it was made, except what he told you? *A.*—That is all I know.

Mr. Hough:—I ask that his testimony on that point be stricken out.

The Court:—Well, that would mean to strike out then all of his testimony on viburnum prunifolium.

Mr. Scofield:—They called that out.

Mr. Hough:—I did not call it out, whether it was green or dried.

Q.—Now, is it not a matter of fact that in the book which they publish, they say that in some cases the green bark is employed, and in other cases the dry bark is employed, and again a bark that is partly dried; and in a few cases a drug is better for age—

Mr. Scofield:—I object to that—

Mr. Hough:—and that no rule of thumb is possible in plant pharmacy—

The Witness:—Yes.

Mr. Scofield:—I object to the question.

The Court:—Objection sustained.

To which ruling of the Court the plaintiff, etc., excepted.

Mr. Hough: Q.—Well, independent of what Professor Lloyd says about it, don't you know that to be a fact?

Mr. T. J. Scofield:—I object to that as immaterial and not cross-examination.

Mr. Walker:—In view of what he just said.

Mr. Scofield:—That is referring to all other drugs. We are not interested in other drugs.

The Court:—This man does not pretend to be a druggist.

Mr. Hough:—He has undertaken to inject, when it was not asked for by any question of mine, the statement to the jury that Lloyd used the green bark, and we used a dried bark; and therefore the dried bark was of no account; when, as a matter of fact, he knows nothing about what Lloyd used, except what he says Lloyd told him; and Lloyd's own statements are published and are contradictory of what he says Lloyd told him.

The Witness:—No, sir—

Mr. Scofield:—No. I object to that statement. Lloyd's publications do not contradict what he said.

The Court:—What you read does not contradict it, as to viburnum prunifolium.

Mr. T. J. Scofield:—No.

Mr. Hough: Q.—Don't you know that to be a fact—

Mr. T. J. Scofield:—I object to that.

Mr. Hough:—That Lloyd—

Mr. T. J. Scofield:—Go ahead and ask the question.

Mr. Hough: Q.—Don't you know it to be a fact that Lloyd's Specifics are sometimes made out of green barks, and sometimes out of dried barks, and sometimes out of partially dried?

Mr. Scofield:—I object to the question, if the Court please.

The Court:—He may answer that, if he knows.

Mr. Scofield:—I object to it, unless he asks in regard to viburnum, if the Court please. Lloyd's Specific is a name that is applied to a very great many different medicines.

The Court:—I am letting him answer because the answer is perfectly harmless; it has nothing to do with this case—a general answer like that.

To which ruling of the Court the defendants, etc., excepted.

Mr. Hough: Q.—Do you know that that is a fact? *A.*—Repeat your question, please.

Q.—That in many instances dried bark is used, in many instances, and green bark in many instances, and in many instances the partially dried bark? *A.*—Yes, sir.

Q.—And that there is no rule of thumb applicable to that question in plant pharmacy—

The Witness:—Yes, but—

The Court:—In general, there is no rule that will cover all drugs?

The Witness:—No rule that will cover all the drugs—certainly not.

Mr. Hough: Q.—Now, is it not a fact that the bark of the root, stem and branches of the black haw are medicinal, so the root is preferred by eclectics? *A.*—I presume there is virtue in all parts of it; I don't know.

Q.—Now, is it not a fact that three drops of the Specific Tincture represents three grains of the drug? *A.*—Practically, yes.

Q.—And the dose is from three to five drops of the tincture; is it not? *A.*—Yes; diluted, yes, sir.

Q.—Now, the—is it not a fact that water, or alcohol, extracts the properties of the viburnum prunifolium? *A.*—No, sir; water will not extract it.

Mr. Hough:—Now, he has stated that this King's American Dispensary is an authority; and I ask to read the statement of Mr. King.

Mr. Scofield:—No, he has not said it was an authority.

The Court:—He did not state that he relied upon it.

Mr. Hough: Q.—Didn't you say you regarded that as an authority in your school? *A.*—No, sir; I did not make that statement.

Mr. Hough: Q.—Wasn't it, by resolution—

The Court:—Now, Mr. Hough, you may save the point; I don't want you to read this before the jury, because you are getting in indirectly before the jury things that I am unwilling to let you put in directly. When you read that resolution—it is very easy to get things into the mind of the jury, and very difficult to get them out.

Mr. Hough:—I was not going to get anything into the minds of the jury—I did not want to get anything into the minds of the jury; I was just going to ask this witness if his school did not adopt this.

The Court:—Suppose the school had?

Mr. Hough:—And you mean he discards it?

The Court:—No—he may or may not. He says now that he does not rely on it.

Mr. Hough: Q.—You don't regard it as an authority on this point? *A.*—Not now. Many things have changed, and that has been out ten or fifteen years. That was written years ago. Much has been changed.

Q.—Was there ever a time when water would extract the properties of viburnum prunifolium? *A.*—Not all of the properties.

Q.—Is it not a fact that the leaves of the black haw have been used for tea, made with water only? *A.*—I don't know.

Q.—Isn't that the way it originally started, as a home remedy? *A.*—I am sure I don't know.

Q.—Well, upon what do you base the statement that the properties are extracted only with higher per cent. of alcohol than 20 per cent? *A.*—By talking with Professor Lloyd, who has made a study of these plants, and the method of extracting the virtues of them, for fifty or sixty years—fifty years, I presume.

Q.—And that is all you know about it? *A.*—Yes, sir, I am not a pharmacist myself.

Q.—Then, as a matter of fact, you don't know whether less than 46 per cent. would extract all the properties or not, do you? *A.*—Not personally.

Q.—When did you talk with Professor Lloyd on the subject? A.—Last week.

Q.—Last week? *A.*—Yes, sir.

Q.—That is after you knew you were coming up to testify? *A.*—Yes, sir.

Q.—And you talked with him in order to enable you to testify in the case? *A.*—In order to know the amount of alcohol that was in—yes, sir.

Q.—That is a different proposition, the amount of alcohol that is in his medicines is stated on the bottle, 46 per cent. Do you mean to say that Professor Lloyd told you that nothing less than 46 per cent. would extract the virtue? *A.*—He stated that they used the smallest amount of alcohol possible to extract the virtues, and maintain it—preserve it — the smallest amount possible in the Specific Tinctures were used to extract the virtues of the root and preserve it.

Q.—Don't you know, as a matter of fact, that the method—that the process of manufacture for their medicines is secret, and nobody but them knows how it is done? *A.*—To some extent.

Q.—And all you do is buy these bottles in a drug store, or write your prescription for them? *A.*—No, sir. I know that these Specific Tinctures possess a virtue that many of the remedies under the same name do not possess, because they are made differently.

Q.—I say, don't you, as a matter of fact— *A.*—Many of them are inert, when they are not prepared in that way.

Q.—You stated that the cnicus benedictus contained 74 per cent. alcohol, didn't you? *A.*—No, sir.

Q.—Did you say that you knew what it contained? *A.*—No.

Q.—Did you say you had never seen it? *A.*—No, sir.

Q.—Can you identify this as a bottle of Lloyd's Cnicus Benedictus?

Mr. T. J. Scofield:—I object to that, if the Court please. That is the same sort of purpose that he is following through this case, in reading from the book—

THE COURT:—The objection is sustained, because how can he know? The label may say it does; he knows nothing except what he sees on the bottle.

To which ruling of the Court the plaintiff, etc., excepted.

The witness testified that he could not identify the bottle. The witness does not believe that anyone but a physician can buy Lloyd's specific in a drug store. The witness knows of Dr. J. William Fyfe. He has read to some extent Fyfe's book on "Modern Materia Medica and Therapeutics." He has not had the book in mind in giving his testimony. It is not a fact that in order to get the most beneficial influence from viburnum prunifolium in cases of threatened abortion, small doses must be given after conception until the fifth month of pregnancy unless certain conditions call for it. There might be conditions in which such treatment might be of value.

The amount of the alcohol in the medicine is dangerous in gonorrheal inflammation depending on the quantity of alcohol given. The witness does not believe that there is any difference in giving the patient 96 drops of whisky or in giving 48 drops of alcohol in five times that amount of water. There might be a difference in the physiologic effect of the two mixtures.

The witness then stated that practically all the tonics used by the eclectic school are made up with alcohol. Alcohol could not be deleterious in the dosage given.

The witness does not know the amount of alcohol that a person can freely oxidize in the system. In the treatment of gonorrhea, the witness does not use drugs in combination with alcohol. He uses local treatment. When he uses general treatment, he uses it for general symptoms.

The witness stated that only a small percentage of girls need treatment during puberty.

He has been called in cases of puberty to give medicine which he gave to correct the conditions which were responsible for the absence of the menstruation. He has given nux vomica, 5 drops to 4 ounces of water three or four times a day, usually only continued for a day. He has also given pulsatilla and gelsemium and other specific tinctures.

The witness stated that when women have trouble during menstruation they think of taking medicine. For hot flashes, he gives pulsatilla; if there is headache, he might give gelsemium, the treatment might be continued for a longer or shorter period of time.

The witness has not given alcohol in diabetes and he considers that opinion is divided as to its use as a food. The witness stated that the words "female complaints" might include leukorrhea or any of the conditions last mentioned and associated with the female generative organs.

All cases of malpositions of the uterus produce uncomfortable symptoms or are accompanied by inflammation. Dr. Thomas has given drugs during pregnancy to treat constipation, for nervous disturbances, etc. Not all of them are given any alcohol.

Q.—Now, when a woman has had a miscarriage previously, and fears a miscarriage at the next conception, what medicine or what treatment do you give them? *A.*—That would depend altogether on her general health. If her general health was good, I don't know that I would give her any medicine. If her general health was good, I would simply tell her to keep quiet as she approached that time—if she needed any medicine, she would have it. If there was any special call for medicine, she would have it.

Q.—As she approached what time? *A.*—As she—if she had had a miscarriage several times and she was pregnant again, when she approached that time she had it—

Q.—That is, the disposition is to miscarry at the same time, the tendency is— *A.*—Often it is, yes—the tendency is that, after a few miscarriages.

Q.—Now, suppose her condition was a little run? *A.*—She might have tonics, to sharpen the appetite.

Q.—How soon would you commence it? *A.*—Whenever that condition was present, whenever she began to complain that her bowels were not moving, or her kidneys were not working, or the digestion was not good. That would precede and accompany the run down condition, and she would be treated for those conditions.

During pregnancy, he would give natural tonics, fresh air, or exercise and medicinal tonics if they were needed. The tonics contain alcohol.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

The witness testified that in each dose of the tonic given there would be about one-tenth of a drop of alcohol.

Adjournment was taken until 2 o'clock the same day.

May 8, 1916, Afternoon

TESTIMONY OF DR. R. L. THOMAS (*continued*)

The court met pursuant to adjournment.

RECROSS-EXAMINATION BY MR. HOUGH

Dr. R. L. Thomas stated that the largest percentage of alcohol in any medicine which he has ever used would be a dram in 4 ounces, about one-sixth of a drop at a dose. He does not prescribe whisky or brandy, and has not prescribed any gin in twenty-five years.

TESTIMONY OF MR. J. E. KEETON

Mr. J. E. Keeton was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. WALDO

Mr. J. E. Keeton testified that he is sheriff in Calbert County, Alabama. He resides in Tuscumbia. He has had experience with Wine of Cardui.

Q.—Now, take your own time, and in your own way, and in your own language state to the court and jury what that experience has been. *A.*—Well, I had an experience with my wife. I gave it—my wife was taking Wine of Cardui for six years.

Q.—For six years? *A.*—Yes, sir; and she had taken it for whites and falling of the womb, and irregular monthly periods and she had taken it, she first began to take it about six years ago, probably a little more or a little more or a little less than six years ago, but right around six years ago, she began to take it in doses—from you know, a tablespoonful from one to four times a day and she got to increasing the doses on and on, and—well, she increased the dose and about four years ago we had a miscarriage in our family, and she grew worse all the time after that and she then increased the dose until she was taking something like half a tableglassful, something like one half of a tableglass, you know.

Mr. Keeton stated that his wife had been taking Wine of Cardui before the miscarriage occurred. She had been taking it between four and six months. After the miscarriage she discontinued for a couple of months and then began taking it again. The wife of Mr. Keeton is now dead. Dur-

ing her illness she saw Dr. Greer and Dr. Palmer. She was not at any time operated on. Mr. Keeton's wife took between 50 and 100 bottles of Wine of Cardui during six years. The witness was asked how his wife happened to begin taking Wine of Cardui.

A.—Well, she began to read the Ladies' Birthday Almanacs—and besides other older women told her and me both, that was the reason she began taking it.

Mr. Walker:—I move to strike that out.

THE COURT:—Strike out the matter of the advice from older women. You saw her read the almanacs? *A.*—Yes, sir.

Q.—And the literature of the Chattanooga Medicine Company? *A.*—Yes, sir.

Mr. Waldo: *Q.*—How long ago was that, Mr. Keeton?

Mr. Walker:—Your Honor, my objection particularly went to the reading of the literature.

THE COURT:—We will strike out of the record the witness' conclusion, that that is why she began. The fact that she read the literature of the plaintiff company may stand.

Mr. Walker:—Yes, and the fact that she talked with older women, which is his conclusion as to the reason why, that it was the result of that.

THE COURT:—That is stricken out.

Mr. Walker:—And the other stands, I take it?

THE COURT:—Yes.

Mr. Walker:—All right.

Mr. Waldo: *Q.*—Do you say that you and your wife read the Ladies' Birthday Almanac together? *A.*—Yes, sir.

Q.—How long after that reading did she begin the taking of Wine of Cardui? *A.*—Oh, I could not say, right after that.

Q.—Did she take it continuously from that time on, or only at periods? *A.*—Off and on, you know. She did not take it regularly, just owing to her feelings, you know.

Q.—Up to within what time of her death did she continue to take Wine of Cardui? *A.*—I could not hardly say, probably two months.

Q.—How long has she been dead? *A.*—Since the 23d of January.

CROSS-EXAMINATION BY MR. WALKER

On cross-examination Mr. Keeton stated that he and his wife read the Ladies' Birthday Almanac almost every year. He knew of two women with whom his wife talked who advised her to take Wine of Cardui. He was present when she talked with the women. They told her it was good medicine for female troubles. Mrs. Keeton was 38 years old when she died and 19 when she married. She had been suffering for almost a year before she began to take Wine of Cardui. This was between five or six years ago. She first began complaining of female trouble when 25 and would have a doctor when she needed him. Drs. Palmer and Greer were their family physicians and attended Mrs. Keeton just before her death. Mrs. Keeton would not have trouble at every menstrual period. The Wine of Cardui was purchased from Drisdoll's drug store in Tuscumbia. Some was bought from the Palace drug store. The witness bought Wine of Cardui in six bottle lots. He does not know how long it would last. The last time he purchased it before his wife's death was in October. He bought either two or three bottles. He does not know how many were left after she died. The duration of his wife's last illness was six months. Her trouble was cancer of the womb. This last answer was brought out after a statement by the Court to the effect that he wished to correct the ruling made on direct examination, namely: a man is entitled to tell as a matter of family history what the matter with his wife was and he may tell how long her last illness was and what she died of.

REDIRECT EXAMINATION BY MR. WALDO

Mr. Waldo asked the witness for what condition Mrs. Keeton saw Drs. Palmer and Greer. Objection was made to the question and sustained.

TESTIMONY OF DR. WILLIAM HENRY GREER

Dr. Greer was called as witness for the defendants.

DIRECT EXAMINATION BY MR. WALDO

Dr. Greer testified that he resides in New Decatur, Ala. He has been practicing medicine sixteen years. He graduated from Grant University, Chattanooga, Tenn. He has been practicing medicine in Alabama all the time since he graduated with the exception of one year in Oklahoma.

The witness had had experience with Wine of Cardui in his practice. The first case was a girl, Miss A. I., 15 years old. She was suffering from amenorrhea and had been taking Wine of Cardui for two years without relief. She was suffering intense pain in the abdomen and had ecchymotic spots all over her body. She had convulsions. He found atresia of the vagina and made an opening into the womb and relieved her temporarily until she could be taken to the hospital and operated on, and on opening the abdomen the uterus was found enlarged and filled with blood. One tube and ovary were removed and the patient made a good recovery.

THE CASE OF MRS. KEETON

The next case was that of Mrs. Keeton, wife of the previous witness.

A.—I saw Mrs. Keeton off and on for the last six years; that is to say, I would be called into the family, to see some other member of the family—other members of the family.

Mr. Loesch:—The witness is suffering from a throat affection.

The Witness:—I am sorry to put you to all this trouble. I will say that it is about two years and a half ago. Mrs. Keeton called my attention to her menstrual disturbances and I told her, I said, "Well," I said, "Probably you had better come to the office or I will examine you here at home and we will see what this trouble is." She said she had been troubled for several years. She said, "Well," she said, "The boy is sick now, and we will wait. I am taking Wine of Cardui, and I will see what it does for me." Well, I did not press the matter.

At other times she mentioned it to me, probably at some neighbor's house, or something was said and she was coming to have a treatment. She did not do it.

About eight months ago they called me to the home and I made an examination, an instrumental examination and I found a cancer of the cervix, probably the beginning of a cancer of the cervix, and I advised an immediate operation. She refused and persisted in taking Wine of Cardui. Doctor was called in and made an examination, and either went with her or sent her to Memphis, where Dr. G. M. Holder made the same diagnosis and told her that he could not do anything for her. It called for an operation. That was probably five or six weeks after I saw her. She returned to her home, and I went from Decatur down there several times to see her and she died in January of carcinoma of the uterus.

Mr. Waldo:—That is—carcinoma of the uterus?

THE COURT:—I cannot understand whether there was an operation performed.

The Witness:—No, sir; nobody would touch it.

Mr. Waldo: *Q.*—Why wasn't there an operation performed? *A.*—Well, she seemed to have faith in this medicine, that she was taking.

Mr. Walker:—I move to strike that out.

THE COURT:—Strike it out.

To which ruling of the Court the defendants, etc., excepted.

Mr. Waldo: *Q.*—I mean this, Doctor— *A.*—I answered that question previously that it was at an operable stage, before.

The next case was that of Mrs. J. E. W., who said she had taken considerable Wine of Cardui. She had two or three miscarriages and he did curettement after each miscarriage.

The daughter of Mrs. J. E. W—— developed chorea. When she consulted the doctor he advised her to quit taking Wine of Cardui, gave her tonics, advised rest in bed, gave her a diet and laxatives and she became well.

Q.—Now, have you another case, Doctor, that you remember of? *A.*—I have plenty of cases, but the next one I would give you is Mrs. W—— G——. I have her word for it, I have this as part of the clinical history of the case. She came to me after she had had an operation in Birmingham. She was very nervous and very much run down and she was suffering considerable pain in the abdomen.

From my examination I found that her abdominal contents were sagging very low and I inquired—she looked like an alcoholic and she said, "Yes," she says, "I drink some whisky." I found that she had been a sufferer for many years. She was a widow at that time, and after she had married her husband had had her operated on. She said that she had had this female trouble a long time. She took this Wine of Cardui and took some whisky with it.

Mr. Walker:—Took some whisky along with it? *A.*—Yes, I considered her an alcoholic case probably brought on from—

Mr. Walker:—That is objected to.

The Witness:—From the use of this medicine.

Mr. Walker:—I move that that be stricken out.

Mr. Waldo:—Just state what you know of the case, from your own experience with the case.

Mr. Walker:—That is out then?

The Witness:—Well, from the history, from the history she gave and from my observation, I considered it such a case.

Mr. Waldo: *Q.*—How long had she been taking Wine of Cardui? *A.*—I could not tell you.

Q.—She did not say? *A.*—No, sir.

Q.—What became of her, doctor? *A.*—Well, I had—I put her on some tonic and put an abdominal supporter or binder, a strong binder on her and rested her up in bed about a month, and she improved, I do not know to what extent. But she improved materially. She quit her habit.

Q.—Is that all the experience you have had with Wine of Cardui in your practice? *A.*—No, sir; that is not all the experience I have had.
Q.—Do you care to tell any other experience? *A.*—Well, I do not think it would be necessary.

CROSS-EXAMINATION BY MR. WALKER

On cross-examination, the witness gave in detail the names and residences of the patients mentioned on direct examination. He described in detail the various points mentioned in the direct examination.

In the case of Mrs. G——, to whom he gave tonics, he gave strychnin, arsenic, hypophosphites and phosferrol. The witness testified that he came to Chicago about April 22, stayed three days and went home, stayed home three or four days and then came back to Chicago. He first saw Mr. Keeton in Chicago on May 7. He, himself, spoke to Mr. Keeton about testifying for the American Medical Association. The witness belongs to his county and state societies and to the American Medical Association. He has had THE JOURNAL ever since he graduated. He read the articles on Wine of Cardui. He received a letter from Dr. Perry, secretary of the state association. He first met Dr. Heizer about two years ago in Sheffield, Ala. He had not received any communication from the American Medical Association asking him to help defend this suit.

Q.—When did you first know that the American Medical Association had been sued as a result of the articles that they published against Wine of Cardui? *A.*—When I realized it fully was when Miss Ervine came to my office asking—

Mr. Walker:—I am just asking you for a date.
Mr. Waldo:—Let the witness answer.
Mr. Loesch:—He has a perfect right—
Mr. Walker:—I called for a time. I asked him when and he started to tell me.
Mr. Loesch:—He started to fix the time by your woman detective coming around.
Mr. Walker:—Oh, now, here, here.
THE COURT:—When calls for a date.
Mr. Walker:—Yes. It don't call for anything else.
Mr. Waldo:—If that is the only way he can fix the date, I think he has a right to say it.
Mr. Walker:—If he cannot tell the date he can tell me so. (Addressing Mr. Waldo), Pardon me for being in front of you.
Mr. Waldo:—Excuse me for being behind you.

Mr. Walker:—Oh, that is all right, that is where I like to have you. What I would like to ask you, Mr. Juror—or Mr. Witness—is for the date. *A.*—I could not give you any date.

REDIRECT EXAMINATION BY MR. WALDO

Q.—From whom did you first learn—I withdraw that. By whom were you first approached to become a witness in this case?

Mr. Walker:—That is objected to.
THE COURT:—He may answer.
To which ruling of the Court the plaintiff, etc., excepted.
A.—Well—
THE COURT:—That calls for somebody's name. *A.*—Now I modify my answer in the way—
Mr. Walker:—You see, "approached to become a witness."
Mr. Waldo:—In this case.

Mr. Walker:—That calls for something that somebody said to him. It assumes from their own witness that he was approached by somebody to become a witness.
THE COURT:—You brought that out in a way in your question about Mr. Heizer. "When did you first hear about this case?"
Mr. Walker:—And that is on cross-examination.
Mr. Loesch:—Why—
Mr. Walker:—I have a right to assume on cross-examination, but I do not understand that they have, with their own witness.
Mr. Waldo:—They brought out the fact that their own emissary had been down to see this witness before he had seen Mr. Heizer.
THE COURT:—What difference does it make, gentlemen?
(Witness excused.)

TESTIMONY OF DR. EDMUND WEARING SIMMONS

Dr. Edmund Wearing Simmons was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. WALDO

Dr. E. W. Simmons testified that he is a physician practicing in Summerville, S. C., and a graduate of the Medical College of South Carolina and has been in practice eleven or twelve years. He has had some experience with Wine of Cardui.

Mr. Waldo: Q.—Doctor, will kindly state to the jury what that experience has been? *A.*—Well, the first case, I was called to see a woman who was supposed to have taken morphin. She was about six miles from Summerville, and when I got there I found on examination that the woman was practically under the influence of alcohol, acute alcoholism. I then administered a hypodermic of apomorphin and caused her to vomit, and when I did so, her husband, who was very much worried before, said: "Just a common drunk."

Mr. Loesch:—We will have to withdraw the witness if he cannot do better than that.
Mr. Walker:—I think it is more dialect than the voice.
Mr. Waldo:—We have no dialect in the South, sir.
Mr. Walker:—Well, it is something very much like it.
THE COURT:—Talk louder and slower so that everybody will be able to hear you.
Mr. Walker:—I think he is talking French.

Mr. Waldo:—Go ahead, and try to enunciate distinctly. *A.*—He simply said "plain drunk" and went out of the room. I inquired what she had taken and I found she had not any whisky there, but there was a bottle on a shelf near the bed, it was a bottle of Wine of Cardui, I asked her if she had been taking it, after about an hour and a half or so—if she had been taking this.

Mr. Walker:—That is objected to.

Mr. Waldo:—He says that it was an hour or two afterwards that he asked her.
The Witness:—I asked her what she had taken and she said she had taken this, about two-thirds of the bottle—about two-thirds of the bottle had been used.
Q.—Two-thirds of the bottle? *A.*—Two-thirds was empty and one-third was in the bottle. One-third was in the bottle on a shelf near the bed.
Q.—Of what? *A.*—Wine of Cardui.
Q.—Go ahead. *A.*—I asked her if she had been taking that all the time and she said she had been taking it for—about six months, and in regard to this she said that the usual dose was about a tablespoonful but she had gradually taken it in larger amounts, just from the bottle, no particular amounts, and that she had taken that probably that same day, two-thirds of the bottle, within a few hours probably.
Mr. Walker:—He says that she probably had taken it—
THE COURT:—Strike out the probabilities, Mr. Reporter. Did she tell you on that occasion how much she had taken? *A.*—No, she did not, sir.
Mr. Waldo: Q.—Didn't tell you how much she had taken out of that bottle? *A.*—No, sir. Only what I saw in that bottle—just taken that day.
Q.—She told you she had taken all except what was in the bottle that day? *A.*—Practically, yes.
Q.—What became of that woman? *A.*—That was the last I saw of her. She was just a transient when I saw her, and I have not seen anything further of her.
Q.—Have you had any other experience? *A.*—The case of a child about thirteen years old, a case of amenorrhea. I was called to see her and she was suffering from cramps. She had had a certain period, but she never had menstruated, they never had appeared. That was a case practically of hookworm. She had been taking Wine of Cardui for them, and I asked her if she had taken Wine of Cardui, and she had at these periods. I gave her the hookworm treatment and in the course of a few months, the periods were established. That is practically all the experience I have had.
Q.—How long had she been taking Wine of Cardui?

Mr. Walker:—That is objected to.

A.—Probably—
THE COURT:—What did she tell you? *A.*—Her mother told me about a year, a year to eighteen months, a year to eighteen months.
Mr. Waldo: Q.—What became of that patient? *A.*—She got all right.
Q.—Is that the limit of your experience with Wine of Cardui? *A.*—Practically the limit; yes, sir.

CROSS-EXAMINATION BY MR. WALKER

The witness testified that he commenced practice immediately after graduation. He sees practically 50 or 100 cases of menstrual disturbances in women and perhaps one third of these are young girls at puberty.

The first case he treated in 1910. The family were transients working temporarily on a farm. They live in a little hut. There was one child in the family. The woman was about 28 or 30 and did not have hookworm so far as he knew. The woman was under the influence of alcohol. He understood from the woman that she had taken Wine of Cardui that day. He saw her about 10 o'clock at night. He did not notice that there was a whisky jug in the hut and the patient told him there was none. The witness testified in detail concerning the operation of the patient. He was then cross-examined in detail concerning the case of the child with amenorrhea.

The witness testified that he came to Chicago at the request of Dr. Heizer after he received a communication from Dr. Hoyne, secretary of the state medical society. The witness came to Chicago on April 25 and left the day after Mr. Patten's death. He returned on Thursday night previous to testifying. The witness has heard of Wine of Cardui being used in menstrual disturbances all during his practice.

TESTIMONY OF DR. J. G. VANCE

Dr. J. G. Vance was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. WALDO

Dr. Vance testified that he resides in Marvel, Ala. He graduated from the Birmingham Medical College in 1905. He practiced two years in Warrior, Ala., and later at Marvel. He has had experience with Wine of Cardui in his practice. In reciting the history of his cases he referred to notes.

His first case was Mrs. D. H., a white woman, aged 40, suffering from hemorrhages at menstruation periods. She had a laceration of the perineum and a prolapse of the womb and she had four living children and had had eight miscarriages. She had received medical attention at each miscarriage. The patient stated that she had taken some six bottles of Wine of Cardui without relief. He saw her in 1914.

The Witness:—The next is Miss Ira H——. I will give you these names after I get down from the stand. White; age 34; pellagra, my diagnosis. I was called during the fall of 1913 to see this woman. Her mother gave the history of her having a hemorrhage at each menstrual period; her menses staying all the way from ten days to two and three weeks. She had been menstruating at this rate between two and three years.

I examined her. I did not make a digital examination. I noticed the redness of her hands and forearm. After that I got her history, a history with reference to a sore mouth and upset stomach. I made a diagnosis of pellagra, and put her on the treatment accordingly. At that time we did not know very much about the diet treatment of pellagra, but I put her on a nourishing diet because I felt that that was the thing to do. In addition to that, I put her on the arsenic.

This woman made a recovery. Today she is not having any hemorrhages at her menstrual period; and since Dr. Goldberger's theory came out with reference to diet, of course, I put her on forced diet, and she has improved. She is not a well woman, because her financial condition—her mother's financial condition is such that they cannot get nourishing food and a proper diet.

Mr. Waldo: *Q.*—Well, doctor, in that case did Wine of Cardui form any part of the clinical history which you got from her? *A.*—It did.

Q.—What part did it form? *A.*—Her mother got a bottle for her, and she took three doses, and it made her so dizzy—well, as she said, expressed it, it just made her drunk; so her mother told her not to take it.

Now, I will give you another—

Q.—Did she take any more, Doctor? Do you know? *A.*—Just the three doses. She took it all in one day.

The next case was Mrs. J. B——, a white woman, aged 35, he saw in 1914. She complained of pain in the lower part of the abdomen at the time of the menses. She had practically the same symptoms as those of her sister, the previous case, although she was better nourished. She had taken some three or four bottles of Wine of Cardui consecutively for pain in the abdomen. She, like her sister, stated that it stimulated her and made her face feel flushed and made her dizzy. She said that she seemed to forget that she had the pain around. While he did not make a positive diagnosis, symptoms showed that she had pellagra, and he put her on forced feeding.

The next patient was L. W——, colored, aged 35, whom he saw in 1915. She suffered with pain in the region of the appendix and ovaries at the menstrual periods. On examination he found a mass on the left side and a smaller mass on the right side and he told her that he thought she had a fibroid tumor. She went to a hospital and was operated on. She gave a history of having taken seventeen bottles of Wine of Cardui without any relief over a period of a year. The patient is well today and working in a camp at Marvel, Ala.

The next case is M. K., colored, aged 36, whom he saw in 1908. She complained of flooding and of pain on both sides during the menstrual period. On examination, he was convinced that she had pus tubes and advised operation. The patient was operated on in 1912, both tubes and both ovaries being removed. She had taken six bottles of Wine of Cardui without relief.

The Witness:—I asked her if she had taken any medicine, and she said she had taken this Wine of Cardui, six bottles. When I asked her if she had taken anything else, she said yes, she took whisky when she could get it, but her husband did not like to have her take whisky, she said, and took this Wine of Cardui, because she got practically the same benefit from taking Wine of Cardui as she did from the whisky. This woman, as I said, was operated on in 1912, and she is a well woman today, doing her own work.

The next case is Mattie D——; colored; aged 30. I doubted that age, but she gave me that as her age; and I, of course, had to put it down.

Mr. Waldo: *Q.*—How old did you think she was? *A.*—She looked to me to be about 36 or 38; but you cannot tell much about a nigger's age; I will be frank with you there.

I saw this woman in 1914. She gave me a history of smothering, and especially did she give that history of smothering if she ate anything after four or five o'clock in the afternoon. Her food, she said, did not seem to sit, and it lay very heavily on her stomach. In questioning her with reference to taking medicine, she said that she had taken nothing other than Wine of Cardui, except an occasional bottle of some form of pepsin. I believe it is syrup of pepsin—but I am not positive. Anyhow, it is bought in any drug store. It is just a laxative with some pepsin in it.

She had taken this Wine of Cardui for a period of eight years, if I am not mistaken—I think I have that down. Yes, a period of eight years, and no relief, other than a very happy feeling when she would take this Wine of Cardui.

She gave a suspicious history of possibly syphilis, so I sent her to St. Vincent's Hospital and had a Wassermann reaction made for syphilis, and it was positive, plus 4. She was given intravenous injection of salvarsan with follow-up treatment of mercury. This woman returned to our place, and she is living there; and from a woman of about 130 pounds, she weighs about 180 pounds at the present time. She has no trouble to amount to anything with her digestion at the present time.

I do not know whether this would be worth anything or not, but the intern at the hospital told me that—

Q.—Never mind what the intern told you. *A.*—Well, it is all right then.

Q.—You said you sent her to St. Vincent's Hospital? *A.*—St. Vincent's Hospital, Birmingham, Ala.

Q.—That is over on Red Mountain? *A.*—Yes, in Birmingham.

The next case was Mrs. G. R——, white, aged 31, whom the witness saw in 1911. She had flooding at every menstrual period since 1906. She was advised by a wandering herb doctor to take Wine of Cardui, which she took without relief. She had taken three and a half bottles over a period of eighteen months.

The next case was R. W——, colored, aged 35, whom he saw in 1915. From the symptoms, and examination, he diagnosed tuberculosis. The patient had taken Wine of Cardui. She had read one of the Wine of Cardui books and stated after reading this she thought that she had had everything in there and that the medicine would cure her.

The next case was L. H——, now dead, whom he saw in 1913, She told him that she had been menstruating for over two weeks and was wasting away. He examined her and found a cauliflower-like growth on the mouth of the cervix, and suspected cancer. The patient stated that she had taken six bottles of Wine of Cardui. She went to the hospital and was operated on. A microscopic examination showed cancer. The patient lived nine months after she was operated on.

The next case is A. F——, a negro, aged 41, complaining of pain in the lower part of the abdomen. There was distention of the abdomen and cessation of her menses of about three or four months. The witness saw her in 1915. On examination he found a growth on the left side, also one on the right. The patient was operated on for the removal of a pus tube on one side and a fibroid tumor on the other. The patient gave a history of having taken three and one-half bottles of Wine of Cardui without relief.

The next case was Mrs. H. B., whom he saw in 1905. She had been confined five or six months previously. At the time of confinement she had had fifteen convulsions. During pregnancy she had taken Wine of Cardui, as it had been recommended to her to make her pregnancy easier. She had taken it three or four months prior to the birth of the child, and she also took some after the birth of the child. On examination he found a complete laceration of the perineum. She went to Birmingham and was operated on. In 1907 she was again confined, although this time she had taken no medicine other than laxatives. She had an entirely normal delivery.

The next case was a Mrs. M. H., a sister of this patient whom he saw in 1907.

The Witness:—Mrs. M—— H——. On the morning that I confined Mrs. H—— B—— I received a call to the commissary of the

Sibley Brothers Coal Company at Warrior, to come there quickly, as a woman had fainted in the store. When I arrived, I found this woman lying on the floor. She was unconscious and did not know anything. I recognized her, knew where she lived and called a buggy and sent her home.

I left treatment for this woman. I recognized her condition as being serious, as she was bordering on puerperal convulsions. I left her and returned to my home. On arrival at my home I had a call from this woman's sister, Mrs. H—— B——, whose case I have just gave, and went there to confinement. While I was at Mrs. H—— B——'s, I got another call to come back to Mrs. M—— H——. I could not go, and another physician went and confined Mrs. M—— H——.

Mrs. M—— H—— died. I saw her about two hours after her death; she was jaundiced; very much swollen: her feet and legs were swollen, her face and hands were swollen; she died in convulsions.

Mr. Waldo: *Q.*—Now, did Wine of Cardui constitute any part of the clinical history of Mrs. M—— H——? *A.*—I only know what her sister——

Mr. Walker:—I object to it.

THE COURT:—You were sent for by the sister?

The Witness:—No, I was sent—

Mr. Walker:—He found her in the store, and she was sent home, and then he went to the sister's house and was sent for from there by Mrs. M. H——.

THE COURT:—Well, if he got the information from any member of the family during the time he was treating the patient, I would say that he could give that history; but, if he received it at some other time, why then it must necessarily come within the hearsay rule.

The Witness:—Well, I received this—your Honor, I received this information about two hours after I visited this woman, from her sister.

THE COURT:—Well, she was still alive?

The Witness:—Yes.

THE COURT:—And the information was given you for the purpose of enabling you to treat her?

The Witness:—I asked her if she had received any treatment from any one at all, and she said—

Mr. Walker:—I object to that.

THE COURT:—Yes, tell just what she said about Wine of Cardui.

The Witness:—She said she had taken some Wine of Cardui; that is all the treatment she had received.

Mr. Hough:—Well, the sister's statement is hearsay. She would not be competent to testify.

Mr. Walker:—He never went to treat this woman, he found this woman in a store.

Mr. T. J. Scofield:—He gave her treatment.

Mr. Walker:—No, no.

Mr. Hough:—It is not competent, but let it go.

THE COURT:—He never had an opportunity to treat her. As a matter of fact, the sister saying she had taken the Wine of Cardui, not knowing when and what amounts, the testimony is negligible anyway. It may be stricken out.

To which ruling of the Court, the defendants, etc., excepted.

The next case was that of Mrs. J. O——, whom he saw in 1908, a confinement case. The woman stated that she had had difficulty in carrying the child. She had received no other treatment than the taking of Wine of Cardui. He advised operation which she did not have and the last heard of, she was still in the same condition.

The next case was H. G. B., a man, whom he was called to see in 1908.

The Witness:—H. G. B——. His residence was at that time in Birmingham. I was called in 1908 to see this man, who wanted me to give him something to stimulate him, brace him up, so that he could go to work. He was a painter, under contract, painting the houses for the Roden Coal Company at Marvel, Ala., at that time. It had been several days since he had been at work, and he wanted something to brace him up, so that he could go back to work.

I asked him what he had been taking, and he said he had been taking whisky. When he could not get whisky, he would take Wine of Cardui.

Mr. Walker:—I move to strike it out.

Mr. Waldo: *Q.*—Did you ascertain how much Wine of Cardui he had taken, doctor? *A.*—I did not.

Mr. Walker:—Wait a minute. He had not been taking any then. He had been taking whisky. He had been taking whisky, I move to strike it out.

Mr. Waldo:—We will find out on this particular case. *Q.*—Did he state whether he had been taking Wine of Cardui or whisky? *A.*—Well, I could not say, at that particular period. He told me that he had taken Wine of Cardui, but he did not tell me at that period. He said—well, at that time, we were supposed to be dry, especially in that county.

Mr. Waldo:—What county in Alabama? *A.*—Bibb County.

Q.—Bibb County? *A.*—It was pretty hard to get whisky—

Mr. Walker:—I object to that, unless the man told you; and then it would not be competent.

Mr. Waldo: *Q.*—Did you see this man at Birmingham? *A.*—I have seen him in Birmingham.

Q.—But on this occasion, when he was suffering from— *A.*—I saw him at Marvel, Bibb County, Alabama.

Q.—Did he state at that time whether part of the spree had consisted of drinking Cardui? *A.*—He did not.

Mr. Walker:—That is objected to.

Mr. Waldo:—He said he did not; you ought to be satisfied.

Mr. Walker:—Well, he answered over my objection, and I don't know why that should make me content.

THE COURT:—Go ahead please, we are going to stop in a few minutes.

The next case was J. W. G——, whom he saw in 1910.

The Witness:—Mrs. J. W. G——. I was called to see her in 1910. I cannot say just exactly when in 1910 I saw her; but when I reached her I found her rolling and tossing from one side of the bed to the other; in a very filthy condition; had been spitting on herself; and she resembled a woman who had been on a drunk.

I could get no history from the woman, because she was in such a muddled condition that she could not give any account of herself.

On inquiry from her husband as to what she had taken, he produced a bottle of Wine of Cardui, and he said she had taken that.

Mr. Walker:—I object to that.

THE COURT:—This was at the time when you called?

The Witness:—At the time, your Honor.

THE COURT:—Was the bottle empty, or did it have the medicine in it?

The Witness:—Just about half—half full.

THE COURT:—Very well.

To which ruling of the Court the plaintiff, etc., excepted.

Mr. Waldo: *Q.*—Is that all of your cases, doctor? *A.*—One other case.

Q.—Let us have it. *A.*—Mrs. M. J. S.——. I saw this woman in 1910.

Q.—Go ahead, Doctor. *A.*—I saw this woman in 1910, and she was drunk. When I went in the room, she was standing upon the floor, had a bottle of Wine of Cardui in her hands, and just as I went in the door she drank some Wine of Cardui out of the bottle. I only saw this woman drink Wine of Cardui this one time. I do not know whether she became drunk from drinking this Wine of Cardui or not. I do know that she had been drunk at different periods during her residence at that place.

Q.—Did you say you saw her drink the Wine of Cardui out of the bottle? *A.*—I did.

Q.—How much did she take? *A.*—Well, I really could not say. She —from the time I walked in the door—I walked up to her, a distance of about I suppose eight or maybe ten feet, she kept the bottle to her lips, from the time I walked from the door to her. She drank two or three pretty healthy swallows.

Q.—You had been called there to treat her professionally? *A.*—I was treating her at that time, and merely called to see her.

Whereupon an adjournment was taken until Tuesday, May 9, 1916, at 10:30 o'clock, a. m.

May 9, 1916, Morning

TESTIMONY OF DR. J. G. VANCE (*continued*)

The Court met pursuant to adjournment. Dr. J. G. Vance resumed the stand for the defendants.

CROSS-EXAMINATION BY MR. HOUGH

In the absence of Mr. Walker, cross-examination of Dr. Vance was undertaken by Mr. Hough.

Dr. Vance testified that he is a company physician for the Roden Coal Company at Marvel, Ala., and is paid by assessments on the employees. When he was in Warrior, Alabama, he was employed by two brick yards and three coal companies. He testified that he is a member of the American Medical Association. He received a letter from Dr. Perry, secretary of the state medical society, and also had a letter from Dr. Heizer before he saw him.

Dr. Vance came to Chicago first on the 24th of April. He went home when the Court adjourned and returned later. When he wrote to the secretary of the state medical society he told of three cases. He did this without reference to his records. Dr. Vance then gave in detail the names and addresses of the patients described in the direct testimony. Practically all of his testimony was taken from the records of his cases. It was understood that the expenses were to be paid and that he received a per diem but this is not dependent on the number of cases concerning which he testifies.

The witness was then questioned in detail concerning the incidents described in the direct testimony. He was asked in minute detail concerning the symptoms of the various

patients. He does not keep a record of all his cases but only of those which are interesting.

The witness was then cross-examined in detail concerning each of the patients; as to the time he saw them and the statements made by the patients concerning Wine of Cardui, also the subsequent history of each patient.

TESTIMONY OF DR. TORALD SOLLMANN

Dr. Sollmann was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. Sollmann testified that he is a physician. He graduated in 1896 at the Western Reserve University, Medical Department, Cleveland, Ohio. He is a professor of pharmacology, and materia medica at the Medical Department of Western Reserve University, and also professor of Materia Medica at the Cleveland School of Pharmacy. He has taught continuously in the Western Reserve since 1895, the first two years in physiology and afterward in pharmacology.

Q.—Are you a member of any scientific societies? *A.*—Yes. I am a member of the Cleveland Academy of Medicine, Ohio State Medical Society, American Medical Association, American Association of Physicians, the American Pharmaceutical Association, the American Physiological Society, American Biochemical Society, American Society of Pharmacology and Experimental Therapeutics, and the Society for Experimental Biology and Medicine.

Q.—Since you have been connected with these various societies, have you held any official positions with them, or any of them? *A.*—Yes. I have been president of the Pharmacological Society; I have been the chairman of the Section of Pharmacology and Therapeutics of the American Medical Association; I am a member of its Council on Pharmacy and Chemistry, and chairman of the Committee on Therapeutic Research of the Council. I am a member of the Pharmacopeial Revision Committee; of its executive committee—of its Committee on Scope; and chairman of its Committee on Therapeutics and Pharmacodynamics.

Q.—Doctor, have you published any original investigations in pharmacology? *A.*—Yes. From my laboratory there have been published approximately, I should say, about two hundred pieces of scientific work, and in the most—most of those, I either did myself or was in direction of them—directed them.

PHARMACOLOGY

Q.—Define the term "pharmacology," so that the jury may understand what is meant by it, Doctor — and ourselves, as well. *A.*—Pharmacology deals with and investigates the actions of drugs on living organisms; and that includes portions—involves a knowledge of chemistry, or pharmacy, of physiology and the principles of the treatment of disease—scientific principles of the treatment of disease.

Q.—You say it involves the action of drugs on the living organisms. Now, what do you mean by that, living organisms—so that we may understand? *A.*—That means anything that has life in it.

Q.—Yes? *A.*—Of course as it is used, it—that is by members of the medical profession, it relates mainly—eventually at least to the effects on man and on the higher animals.

Q.—Then, if I understand you, that includes both human beings and the higher animals? *A.*—Yes; incidentally also lower animals, but that is the main thing.

Q.—Also lower animals? *A.*—Yes.

INVESTIGATING A REMEDY

Q.—Doctor, you said that pharmacology is concerned in investigating the action of drugs. Now, assume that a certain preparation, which we will call Wine of Cardui, is claimed to be a female tonic, and a scientific remedy against various diseases of the female generative organs. Will you explain to the jury how the action or value of such a preparation might be determined? *A.*—The real investigation of the action or value of such a medicine would have to be determined by the ordinary methods of pharmacological science. That would include an investigation of the composition of such a remedy—an investigation of its effect upon animals, and a clinical investigation.

Q.—Now, what would be the clinical investigation—what would the clinical investigation involve? *A.*—You say the clinical investigation?

Q.—Yes. *A.*—The clinical investigation would be the determination of its effects on patients in hospitals—preferably at least.

Q.—Now, in order to obtain proper and definite results from such investigation, what is it necessary to do to avoid complications and errors, if anything? *A.*—Before taking up such an investigation on patients, if one wishes to make, as I said, a valuable investigation, one would have to start out, as I pointed out before, by investigating chemically the composition of such a drug, and its effect upon animals. It is only when this has been done that it would be desirable to test such a drug on patients at all. Then, having laid a foundation for its clinical tests, one might proceed to make such tests—having assured oneself that it could do no harm — he could then proceed to make such tests and then he would be—especially when they were based upon the preliminary investigation—they would have value.

Q.—Now, Doctor, why would a chemical investigation be necessary to be undertaken in that connection? *A.*—A chemical investigation, I should say, would have to be the first step, because the first thing that an investigator would want to know, when he is trying a drug, is what he is really dealing with, the sort of a thing that he has in his hand. He can go at his investigation with very much better understanding in a case of that kind than if he takes a thing that he has absolutely no idea what it may contain, or what it may not contain.

Very often, if he knows what is in a mixture, he will know the particular direction of his investigation, the direction that his investigation ought to take, instead of having to feel his ways in a thousand different directions that would be conceivable—he knows definitely what particular direction he will now have to investigate.

And beyond that still is the fact that the actions of a great number of drugs, of course, are at present known. If, therefore, the investigation, the investigator is told, or determines by himself, that a mixture or preparation contains this or that drug, it will very much simplify his examination, because he will not have to repeat the things which the long history of medical knowledge have already determined.

In other words, what might take many years, if he knew nothing about the preparation, he could determine in a relatively short time, if he knew primarily what was in it. Still more, of course, if he knew exactly what was in it.

ACTIVITY OF A HYPOTHETIC PREPARATION

Q.—Now, Doctor, assume it to be the fact that the following substances are absent chemically in the preparation known as Wine of Cardui, namely: alkaloids, resins, emetics, saponins and emodin cathartics. Would this enable you to form an opinion as to the activity of the preparation? *A.*—Yes; it would enable me to form a fairly comprehensive opinion as to the activity of such a preparation. The classes of substances that you name—you have named most of them in classes like alkaloids, etc. These classes of substances that you say are excluded comprise the majority of the known active drugs. It would, therefore, be, as far as all these known drugs belonging to these various classes are concerned — the preparation would, as far as these are concerned, be inactive. For instance, it would definitely exclude the presence of emetic drugs, the presence of cathartic drugs, and it would also exclude the presence of all, or nearly all drugs that act upon the uterus—or are known to act upon the uterus; such, for instance, as ergot and its principles, hydrastis and its principles; pituitary, adrenalin, and opium—the opium derivatives, metals, cathartics which act upon the uterus indirectly. I cannot, at the moment at least, think of any drug that acts upon the uterus, which would not be excluded by this sort of an examination — any drug that acts definitely upon the uterus, that would not be excluded by this sort of an examination.

Q.—Doctor, what is the average dose of iron in the United States Pharmacopeia? *A.*—One grain.

Q.—Now, assume it to be a fact that Wine of Cardui contains six ten-thousandths per cent. of iron; have you an opinion as to whether this quantity of iron is of any importance medicinally, when Wine of Cardui is given in tablespoonful doses, three or four times a day? *A.*—I have an opinion.

Q.—What is it, Doctor? *A.*—The dose — the proportion of iron which you state there, six ten-thousandths of a per cent., would mean that in order to obtain the tonic dose of iron—one grain—a quantity of two and one-half gallons of the preparation would have to be consumed; or, putting it another way, it would mean that in a tablespoonful of this preparation, there would be less than $\frac{1}{600}$ of one grain; less than $\frac{1}{600}$ of the tonic dose of iron. Evidently such a small proportion of iron would have absolutely no significance whatever.

Q.—Doctor, do you know the ordinary dose of volatile oils? *A.*—Three drops.

Q.—Assume that Wine of Cardui contains four-thousandths per cent. of volatile principles, other than alcohol and water; can you tell the jury how much Wine of Cardui would have to be used in order to obtain the average dose, namely, three drops of the volatile oils? *A.*—One and a quarter gallons.

Q.—What fraction of three drops of volatile oil would be in a tablespoonful of Wine of Cardui? *A.*—One three-hundredths of three drops.

Q.—What amount, Doctor? *A.*—One three-hundredths of three drops.

Q.—Of three drops? *A.*—Approximately.

Q.—Have you an opinion as to whether the volatile oil would be of any importance when Wine of Cardui is taken in tablespoonful doses, three or four times a day? *A.*—Such a dose as you named to be present there would have absolutely no significance whatever.

Q.—Do you know the dose of valerianic acid? *A.*—About 7½ grains.

Q.—That is the average dose. *A.*—About 7½ grains.

Q.—Assume it to be a fact that $\frac{1}{60}$ of a grain of valerianate is found in a tablespoonful of Wine of Cardui, so that two gallons of Wine of Cardui would be required to obtain the dose of 7½ grains, or so that a tablbespoonful would contain $\frac{1}{450}$ of 7½ grains; have you an opinion, on this hypothesis, as to whether the valerianate in Wine of Cardui is of any importance, when the solution is taken in tablespoonful doses, three or four times a day? *A.*—It is evidently of no importance.

Q.—Doctor, do you know the characteristic principle of viburnum prunifolium? *A.*—Viburnum prunifolium contains a bitter principle, sometimes called viburnin. It contains resin, some tannin and some valerianic acids.

Q.—Would the tannin when taken by the mouth exert any action on the system? *A.*—No, not on the system. Large doses of tannin act as astringent locally, when it is applied, draw the tissues together;

but since it is destroyed before it is absorbed, it never reaches the system, practically speaking, and therefore has no action upon the system proper.

Q.—What is a resin, Doctor? *A.*—A resin is a substance that is soluble in water — no — withdraw that — a substance that is soluble in alcohol, and insoluble in water.

Q.—Would it be soluble in 20 per cent. of alcohol? *A.*—No, it would not.

Q.—Assume that the extractive substances contained in Wine of Cardui are practically completely soluble in water, glycerin and syrup; does this enable you to form an opinion as to whether Wine of Cardui contains the resins of viburnum? *A.*—Yes, it would enable me to form an opinion. You stated in your question that the substances — the extractives are soluble in water, and similar solvents. Now, since the resins are insoluble in water and similar solvents, it is evident that the solution — the Wine of Cardui does not contain the resin of viburnum, or anything else.

Q.—Now, why, why is that, Doctor? *A.*—I just explained, that the resin being insoluble—

Q.—Insoluble in water? *A.*—In water—and you were stating that the residue dissolved in water and there evidently can be no resin there.

Q.—And the menstruum being 20 per cent. alcohol? *A.*—In 20 per cent. alcohol, the same thing would be practically true.

Q.—Now, Doctor, you said that Wine of Cardui would, on the assumptions we have made, contain no resins from viburnum. In your opinion, then, would Wine of Cardui represent viburnum prunifolium? *A.*—No; it would not represent it.

Q.—Assume that a certain synthetic preparation is made according to a certain formula, which, for the purpose of this question, we will call "A." Assume that other synthetic preparations are made by other formulas, variously modified by varying the proportions, by varying the methods of extraction, and by omitting certain constituents. Assume that these preparations were made and analyzed by several chemists working independently of each other, and compared by them with a simultaneous analysis of another preparation, namely, Wine of Cardui. Assume that these chemists found marked differences in all the preparations except that which we named "A," but that the preparation made according to the formula A agreed completely with Wine of Cardui in the following respects, except for such small differences as exist in different samples of Wine of Cardui itself. Assume that the respects in which agreement was found are the following: Color; taste; valerianic odor; specific gravity; reaction; solid residue and ash; nitrates and nitrogen; reducing sugar; reaction of the distillate to acids and alkalies; and the presence of a bitter principle giving the reaction of cnicin. Have you an opinion as to whether the product prepared by formula A is or is not identical with Wine of Cardui? *A.*—I have an opinion. On the basis of what you said, I am prepared to assert that the formula A—preparation made by formula A—is identical with Wine of Cardui.

Q.—Do you state this, Doctor, now as a fact? *A.*—That I state as a fact.

DIFFERENCE BETWEEN CARDUUS BENEDICTUS AND CARDUUS MARIANUS

Q.—Are you acquainted with the drugs called carduus benedictus and carduus marianus? *A.*—Yes.

Q.—Are they identical? *A.*—No; they are not identical.

Q.—What are the differences between them? *A.*—The two drugs sometimes called carduus benedictus and carduus marianus—there are other names for them also—are derived from different species of thistles. Those different species of thistle differ amongst themselves like the various species of grain differ amongst themselves; and one might, for the sake of comparison, say that the benedictus is something like the wheat and the marianus is something like the oats. That, however, is not the extent — full extent of the difference between these two drugs.

In the case of carduus benedictus, the entire herb is used, the thistle, just as it stands, is cut off the ground and is used in that way, generally while it is in flower. In the case of the marianus, that is not done, but the seeds are collected. So that the two drugs bear about the same relation to each other as oat meal would to wheat straw. That I should say about expresses the differences between the two drugs.

Q.—Now, Doctor, are the constituents of these two drugs identical? *A.*—No, they are not identical.

Q.—Why? *A.*—The characteristic principle of cnicus benedictus, the principle to which the action, or any action that it may possess—or is said to possess—is attributed, is a neutral bitter substance that is called cnicin. The benedictus contains practically no fatty oil and substances of that kind.

On the other hand, the carduus marianus, which is prepared from a seed, contains, like most seeds, a great deal of fatty oil. It is sometimes used as a source of fatty oil, like sunflower or corn oil. That is its most abundant constituent. It is not definitely known to contain any cnicin. If it does, it must be a mere trace, the merest possible trace.

One can tell the difference at once, if one makes a tincture—an extract of the two drugs. One only has to look at them and taste them to realize that the constituents are entirely different. You take an alcoholic extract, for instance, made from carduus benedictus, and it forms a straw colored, or a little darker brown solution of very bitter taste. It looks a little like Wine of Cardui.

You make an extract of the carduus marianus with alcohol, and you get an almost clear—almost colorless, but somewhat milky fluid. If you taste the two, you get a very marked bitter taste in the carduus benedictus due to that principle that I said is called cnicin. If you taste the carduus marianus extract, you get the flat oily taste, practically without any trace of bitterness; making the two of the same strength, say ten parts of the drug in each case, and 100 parts of alcohol, or something like that.

Q.—Then this cnicin which you have been talking about, and which comes from the carduus benedictus, is the bitter principle, the neutral bitter principle you have been speaking of? *A.*—That is the neutral bitter principle that I have mentioned.

Q.—Now, is that, or is it not, the active constituent, if it has any active constituent, of carduus benedictus? *A.*—It is considered the active constituent, in so far as there is any active constituent present. I think one may say it is the active constituent.

Q.—Doctor, can you give us any idea of how much cnicin there is in 30 grains of carduus benedictus? *A.*—I think there would be about one fifteenth of a grain.

Q.—Is it soluble in water? *A.*—Fairly so; not freely soluble, but fairly soluble.

Q.—Do you know whether the so-called solid extract of viburnum prunifolium and carduus benedictus are used in medicines? *A.*—Both of these are used in medicines. That is, they are official in various pharmacopeias; and that means, of course, that they are medicinal, used in medicines.

Q.—How are they prepared, Doctor? *A.*—They are prepared by evaporating either the fluidextract or the decoctions of those drugs. The exact process varies in different countries.

Q.—Well, now, in this evaporation, is heat applied? *A.*—That is the way in which they are evaporated.

Q.—Well, does or does not the heat that is so applied injure the drug? *A.*—Apparently not.

Q.—Can these extractives be prescribed in the form of —

Mr. Hough:—Pardon me. Did he say apparently not?

The Witness:—Yes.

Mr. Scofield:—He said apparently not.

Q.—Can these extracts be prescribed in the form of pills, capsules and tablets? *A.*—Those are the forms in which they are commonly prescribed.

Q.—Doctor, do you know whether viburnum prunifolium and carduus benedictus are ever used in the form of teas? *A.*—They are commonly used that way.

Q.—Assume that the residue of the evaporation of Wine of Cardui is soluble in glycerin and in syrup; would there be any —

Mr. Hough:—In what?

Mr. T. J. Scofield:—Glycerin and syrup.

Q.—Would there be any disadvantage in administering them in this form, instead of in 20 per cent. alcohol? *A.*—There would be no disadvantage.

A.—Assume that the residue from a tablespoonful of Wine of Cardui could be perfectly dissolved in two teaspoons of 20 per cent. alcohol, therefore, containing one-half the quantity of alcohol to the dose. Would there be any disadvantage in administering it in that way? *A.*—No—if it can be dissolved in that—as you said—there would be no disadvantage in administering it in that way. And if, as you said, it is soluble in water, it could be dissolved in a teaspoonful of 20 per cent. alcohol, making the dose of one-fourth.

Q.—Making the dose of Wine of Cardui one-fourth of a tablespoon? *A.*—Yes, and the amount of alcohol one-fourth.

Q.—Or one-fourth of alcohol? *A.*—Yes.

Q.—And still obtain the action of the drug, if the drug has an action? *A.*—Fully—just the same.

Q.—Just the same as in the tablespoonful dose? *A.*—Just the same.

Q.—Now, Doctor, you stated that a second method of investigating preparations such as Wine of Cardui is by animal experimentation.

Whereupon an adjournment was taken until 2:00 o'clock p. m. of the same day.

(*To be continued*)

Machinery of Metabolism.—Carl Voit, to whom more than any one else the world owes its fundamental knowledge of nutrition, was accustomed to say in his lectures, "Continual decompositions of matter are always going on in the living cells, and the energy liberated in these decompositions is the power upon which the motions of life depend. Phenomena of life are phenomena of motion." In truly poetical language, Rubner, the most eminent of Voit's pupils, has written, "Mute and still, by night and by day, labor goes on in the workshops of life. Here an animal grows, there a plant, and the wonder of it all is not the less in the smallest being than in the largest." The workshops of life require fuel to maintain them, and a necessary function of nutrition is to furnish fuel to the organism that the motions of life continue. Furthermore, the workshops of life are in a constant state of partial breaking down and materials must be furnished to repair the wornout parts. In the fuel factor and the repair factor lie the essence of the science of nutrition. These two factors operate to bring about death from starvation, either the body's own store of fuel becomes exhausted or a part of the machinery necessary for life wears out.—Graham Lusk, The Fundamental Basis of Nutrition.

Correspondence

A Report on the Efficiency and Nontoxicity of Arsenobenzol

In THE JOURNAL, March 18, 1916, p. 867, Ormsby and Mitchell of Chicago reported on the comparison between salvarsan and arsenobenzol. I was one of the first who through Dr. Schamberg's kindness was able to give this drug an extensive trial, and according to his statement have at the present time had perhaps the largest experience with it. Inasmuch as the Philadelphia product is about to be issued to the medical profession at large, it seems proper to supplement the Ormsby-Mitchell report in order to apprise the profession that the remedy may be used with perfect safety. The cases reported herein have been studied with two main considerations in view: first, the possible toxicity of the new drug, and second, its relative therapeutic value as compared with old salvarsan.

During the past six months, 243 cases of syphilis have been treated at the University Hospital with arsenobenzol. These patients have received in all 612 injections. The accompanying table classifies the types of cases treated.

TYPES OF CASES TREATED

Type	No.
Cases of primary and secondary syphilis	98
Cases of gummous syphilis	18
Cases of latent syphilis	85
Cases of hereditary syphilis	14
Cases of tabes dorsalis	14
Cases of acute cerebrospinal syphilis	11
Cases of general paresis	3

In addition, I have given about sixty intraspinal injections, using the arsenobenzol in a dosage of from 0.00033 + to 0.0005 gm. Patients thus treated were for the most part tabetics and persons with cerebrospinal syphilis.

With regard to the efficiency of the drug, it was noted that the immediate lesions disappeared as promptly as though they had been treated with the older salvarsan preparation. In 116 cases in which there were manifest cutaneous syphilids, there have been but four recurrences. One of these was a malignant pustular syphilid which returned after three injections in four months with a large gumma of the forearm. The other three were in the nature of neurorecidives. At the outset, in order to test out the product, and not being familiar with its properties, I gave the drug in somewhat smaller doses than is my custom with the older preparation. Thus whereas I customarily give 0.3 mg. as an initial dose at the outset, I gave but 0.2 mg., and the succeeding doses were correspondingly smaller. I am inclined to regard the four cases of recurrence, therefore, as due to underdosage, and it is noteworthy in this connection that the four cases occurred among the first ones which I treated. At the present writing I am using the arsenobenzol in repeated doses equivalent to the dosage employed in the use of old salvarsan. In the 612 injections given we can attest to the fact that only three cases showed any reaction. These were in the nature of allergic reactions, dyspnea, slight cyanosis and slight cardiac depression occurring during the third injection. In a few other cases in which many lesions were present, a rather sharp Herxheimer reaction occurred, as of course happens with the older preparation as well.

The intraspinal treatments have all been well borne, have been unattended by any untoward accident, and the therapeutic results have been identical with those produced by similar injections of old salvarsan. The method employed has been a modification of the Ogilvie method, namely, the introduction of the salvarsan solution directly into the spinal fluid.

From my experience with arsenobenzol it may be concluded that:

1. The immediate therapeutic results are fully as good as those following the use of old salvarsan.

2. Given with the proper precautions, the drug has shown itself fully as little toxic as the older preparation.

These two conclusions refer to intraspinal medication as well as to intravenous.

UDO J. WILE, M.D., Ann Arbor, Mich.

Bothriocephalus Latus Infection

To the Editor:—In THE JOURNAL, May 20, 1916, p. 1618, Dr. J. J. Singer reported a case of *Bothriocephalus latus* infection. In view of the comparatively few cases that have occurred in this country, or at any rate have been reported, it might be well to place on record one of which the specimen is in the Army Medical Museum. The specimen was received Feb. 4, 1864, from Dr. Hennell Stevens, U. S. Army, then Medical Storekeeper at Memphis, Tenn. Unfortunately he failed to furnish a history, and none has ever been received. The specimen is in several pieces, in all about 80 feet. Its character as *Bothriocephalus latus* was recognized at once.

D. S. LAMB, M.D., Washington, D. C.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SOME CHAUCERIAN MEDICINE

To the Editor:—1. Can you give me any historical essay references based on the middle English literature, especially Chaucer's lines on the doctor in "Canterbury Tales"?

2. What is the significance of (*a*) "gold potable" and (*b*) "image making" in those lines? C. C. HINTON, M.D., Atlanta, Ga.

ANSWER.—1. Norman Moore's Fitzpatrick Lectures for 1905-1906, entitled "Medicine in the British Isles," Oxford University Press, and Walsh's "Old Time Makers of Medicine," Fordham University Press, may be referred to. A good edition of Chaucer for this study is that of W. W. Skeat, in the notes to which practically all the information requested is found.

2. (*a*) "Gold potable": The reference is probably to "Les remonstrances de nature," by Jean de Meun:

> C'est le fin et bon or potable
> L'humide radical notable
> C'est souverain medecine.

Throughout the middle ages and even much later it was supposed that aurum potabile was a sovereign remedy. It is referred to in "Humour Out of Breath," Act 1, Scene 1, in a footnote which calls it "the universal medicine of the alchemist prepared from gold, mercury, etc. The full receipt will be found in the fifth and last part of the 'Last Testament of Friar Basilius Valentin,' London, 1670." See also Thompson's "History of Chemistry," i, 164, and Burton's "Anatomy of Melancholy," Part 2, Section 4.

(*b*) "Image Making": The reference here is to the belief that by making images of persons from properly chosen materials and *at the right time,* effects, favorable or unfavorable, could be produced on the originals. The ascendant is the point of the zodiac which is rising from the horizon at any given moment, and serves as the means of fixing an astrologic epoch. The whole meaning of the passage, therefore, is that the doctor knew well how to choose a fortunate moment for making images to be used as charms to help his patients.

USE OF ANIMAL GELATIN

To the Editor:—1. What is the value of animal gelatin as a food?

2. In case it is desired to use gelatin, are commercial preparations such as "jello" sufficiently pure gelatin to be used? If not how is it best used. W. R. SMITH, M.D., El Paso, Tex.

ANSWER.—1. Gelatin is an artificial derivative of collagen, the essential basis of white fibrous connective tissue or bone. It is a readily digestible protein substance, long classed as an "albuminoid," and known to be inadequate as the sole source of protein in the dietary. Gelatin contains approximately the same amount of nitrogen as the more typical proteins, and yields most of the amino acids characteristic of this group of nutrients; but it does not contain the tyrosin, cystin or tryptophan groups, all of which are now believed to

be indispensable nitrogenous nutrient units for the body. For this reason when gelatin alone is supplied as the nitrogenous portion of the ration, nutritive failure ensues.

Although gelatin alone cannot maintain nitrogenous equilibrium in nutrition, it can replace a considerable part of the protein usually present in the diet without detriment to the organism. It can restore the nitrogenous waste of the body to a certain extent, and yields energy as other foodstuffs do. Gelatin attracts attention as a food because of the readiness with which it is digested and tolerated, its freedom from some of the more objectionable products of putrefaction such as indol (owing to the lack of the antecedent tryptophan group), and because of the culinary advantages that it possesses. When used liberally in the diet, gelatin should be furnished along with other more complete proteins, such as those of egg or milk. It should be noted that gelatin, like other proteins, may yield sugar in the diabetic. Inasmuch as gelatin is almost invariably served in the form of jellies which consist very largely of water (usually to the extent of 95 per cent.) the actual nutrient possibilities of an ordinary serving must not be overestimated. An ordinary 2 ounce package of gelatin may suffice for several pints of jelly. This bulk is often satisfying to the palate when small intake of nutrient is desired.

2. We assume that our correspondent refers to the use of gelatin as food. Most of the widely advertised commercial gelatin products are sufficiently pure to serve acceptably in the dietary. Flavors form an occasional adjuvant. There need be no difficulty in selecting a proper food specimen from among the various brands at present sold as gelatin by American makers. Brands bearing special trade names are usually considerably higher in price per unit of nutrient. They sometimes include flavoring or coloring products in separate packages in the containers. According to published analyses, some of the preparations of jelly powders, such as the one mentioned by our correspondent, widely used as quick desserts, consist chiefly of sucrose with sufficient gelatin to make a jelly, and are variously flavored and colored to simulate the color and flavor of natural fruits. As a rule their compound nature is more or less clearly indicated on the label. Analyses of gelatin preparations and jelly powders will be found in the reports of the Connecticut Agricultural Experiment Station, Food and Drug Products, for 1909 and 1913.

Preparations of so-called "vegetable gelatin" usually consist of agar-agar or the gelatinizing carbohydrates of Irish moss (*Chondrus crispus*) and are essentially without nutritive value, though they form attractive dishes and may serve as a vehicle for other nutrients or for laxative purposes.

PRACTICE IN GOVERNMENT LANDS

To the Editor:—Please give me information concerning the practice of medicine on government property, national parks, Indian reservations, etc. R. B., Denver.

ANSWER.—The U. S. Department of the Interior has just issued a bulletin covering the above. It states that no business for profit can be conducted on government lands without special permission from the department. That medical service may be available for tourists and others, however, physicians are granted permits by the department to practice in several of the national parks. A nominal fee is exacted for these permits, which are granted only to those who are licensed under the laws of the state in which the park is located. This relates chiefly to the Yellowstone National Park in Wyoming.

At the Hot Springs reservation, Arkansas, physicians who desire to prescribe the waters must register in the office of the supervisor. This requires the passing of a medical examination prescribed by the secretary of the interior. No fee is exacted for registration, but the applicant must be a physician registered under the laws of the state of Arkansas.

In the various Indian reservations contract physicians and full time physicians are utilized. Contract physicians are employed after bids have been obtained from reputable licensed physicians practicing in the vicinity where any vacancy occurs. Employment follows only after approval has been granted by the Civil Service Commission. Full time physicians are employed only after certification from the Civil Service Commission, which from time to time conducts examinations of physicians for the Indian Service.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, July 10. Chairman, Dr. W. H. Sanders, Montgomery.

ALASKA: Juneau, July 5. Sec., Dr. H. C. De Vighne, Juneau.

CALIFORNIA: San Francisco, June 27. Sec., Dr. Charles B. Pinkham, R. 527 Forum Bldg., Sacramento.

COLORADO: Denver, July 4. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: Regular, New Haven, July 11-12. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven; Homeopathic, New Haven, July 11, Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven; Eclectic, New Haven, July 11, Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

DELAWARE: Dover and Wilmington, June 20-22. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

DISTRICT OF COLUMBIA: Washington, July 11-13. Sec., Dr. Edgar P. Copeland, The Rockingham.

FLORIDA: Jacksonville, June 13-14. Sec., Dr. E. W. Warren, Palatka.

ILLINOIS: Chicago, June 21-23. Sec., Dr. C. St. Clair Drake, Springfield.

INDIANA: Indianapolis, July 11-13. Sec., Dr. W. T. Gott, 84 State House, Indianapolis.

KANSAS: Topeka, June 13. Sec., Dr. H. A. Dykes, Lebanon.

KENTUCKY: Louisville, June 13-15. Sec., Dr. A. T. McCormack, Bowling Green.

MAINE: Augusta, July 6-7. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MASSACHUSETTS: Boston, July 11-13. Sec., Dr. Walter P. Bowers, 1 Beacon St., Boston.

MICHIGAN: Ann Arbor, June 19-21. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MISSISSIPPI: Jackson, June 20-21. Sec., Dr. J. D. Gilleylen, Jackson.

MISSOURI: St. Louis, June 13-15. Sec., Dr. J. A. B. Adcock, Jefferson City.

NEW HAMPSHIRE: Concord, June 26-27. Sec., Dr. W. T. Crosby, The Beacon, Manchester.

NEW JERSEY: Trenton, June 20-21. Sec., Dr. Alexander MacAlister, 429 E. State St., Trenton.

NORTH CAROLINA: Raleigh, June 27-30. Sec., Dr. H. A. Royster, Raleigh.

NORTH DAKOTA: Grand Forks, July 4. Sec., Dr. G. M. Williamson, Grand Forks.

OKLAHOMA: Oklahoma City, July 11. Sec., Dr. R. V. Smith, 502 Daniel Bldg., Tulsa.

OREGON: Portland, July 5-7. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 11-13. Sec., Mr. Nathan C. Schaeffer, Department of Public Instruction, Harrisburg.

RHODE ISLAND: Providence, July 6-7. Sec., Dr. Gardner T. Swarts, Room 313 State House, Providence.

SOUTH CAROLINA: Columbia, June 13. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

SOUTH DAKOTA: Deadwood, July 11. Sec., Dr. Park B. Jenkins, Waubay.

TENNESSEE: Knoxville, Memphis and Nashville. June 16-17. Sec., Dr. A. B. DeLoach, Scimitar Bldg., Memphis.

TEXAS: San Antonio, June 27-29. Sec., Dr. John S. McCelvey, Temple State Bank Bldg., Temple.

UTAH: Salt Lake City, July 3. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

VERMONT: Burlington, July 11-13. Sec., Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 20-23. Sec., Dr. J. N. Barney, Fredericksburg.

WASHINGTON: Tacoma, July 4. Sec., Dr. C. N. Suttner Walla Walla.

WEST VIRGINIA: Charleston, July 11. Dr. S. L. Jepson, Charleston.

WISCONSIN: Milwaukee, June 27-29. Sec., Dr. J. M. Dodd, 220 E. 2d St., Ashland.

WYOMING: Laramie, June 14-16. Sec., Dr. H. E. McCollum, Laramie.

MEDICAL COLLEGE MERGER IN PHILADELPHIA

Three medical colleges in Philadelphia have just been merged into one larger teaching institution which now provides for both undergraduate and graduate medical instruction. The union of the Medico-Chirurgical College of Philadelphia with the University of Pennsylvania as its Graduate School of Medicine has been under advisement for several months and later efforts were made to bring Jefferson Medical College also into the merger. These efforts have been successful.

On Friday, June 2, a plan for the merger of the Jefferson Medical College with the University of Pennsylvania, School of Medicine, was submitted by a joint committee to the board of trustees of the two institutions and was unanimously adopted by those boards. The joint committee consisted of Provost Edgar F. Smith, Effingham B. Morris and Randal Morgan, representing the University of Pennsylvania, and President William Potter, Simon Gratz and Alba B. Johnson, representing Jefferson Medical College. The plan as adopted is as follows:

The Plan

The boards of trustees of the University of Pennsylvania and of Jefferson Medical College of Philadelphia have agreed that the facilities now possessed by them for instruction in medicine and surgery shall hereafter be utilized and enlarged in combination rather than in a continued distinctiveness.

The identity of the two institutions, with maintenance of the inherited values of their respective names, and without change in the rights, powers and authorities vested in them by their respective charters and organic laws, is hereby recognized and preserved inviolate.

The following plan is suggested for the accomplishment of these purposes:

First.—The united medical schools hereby established shall be named and known hereafter as: "The Medical School of the University of Pennsylvania and the Jefferson Medical College of Philadelphia."

Second.—The respective faculties of the two schools shall hereafter become one faculty for purposes of instruction to students, divided into groups of individual members from both, e. g., surgical group, medical group, anatomy group, physiologic chemistry group, research group, etc. Each group shall meet together annually and decide on a roster determining and providing what each individual professor shall teach, where he will teach, and the hours of his instruction. Students may then elect which professor or professors in given subjects they will hear throughout the term.

Third.—The government of the united medical schools in its general administration and in its business affairs shall be vested by action of the boards of trustees of the two institutions in a joint committee of eight to be known as the "United Medical Committee," of which the provost of the University of Pennsylvania shall ex officio be chairman, and the president of the Jefferson Medical College of Philadelphia shall be vice chairman, and the other six members shall be three trustees from each board—not of the medical profession—appointed by each of the boards of the two institutions and serving during the pleasure of the respective boards.

Fourth.—The supervision of academic work, of hospital work, and of research work shall be vested in a dean and a vice dean who shall discharge the usual duties incident to these positions, with jurisdiction over both of the present schools and of such others as may be established. They shall be elected annually by the United Medical Committee on the nomination of the chairman and vice chairman of that committee; each of the united medical schools being represented in such election.

Fifth.—The dean and vice dean shall constitute a curriculum committee, which shall be charged with the duty of making a roster that will properly divide the hours of instruction among the different groups and obviate any difficulties that may arise in the selection of hours.

Sixth.—Examination in course and for final degrees shall be conducted by a commission selected and agreed on from year to year by the dean and vice dean in consultation with the several groups.

Seventh.—Elections of members of the faculty of the school, or appointment of any person on the teaching staff, shall be made by the United Medical Committee, subject to confirmation of such elections or appointments by the respective boards of trustees of the two institutions, and subject to and in accordance with the provisions of their respective statutes and by-laws. In like manner changes which it may be desirable to make from time to time in the faculty or in the teaching staff, and retirement of all professors, assistant professors, or instructors, shall be made by appropriate action of the respective boards of trustees, in accordance with their respective statutes and by-laws, only on and after recommendation by the United Medical Committee.

Eighth.—The diplomas of graduates of "The Medical School of the University of Pennsylvania and the Jefferson Medical College of Philadelphia" hereby established shall be signed by the provost of the University of Pennsylvania, the president of the board of trustees of the Jefferson Medical College of Philadelphia, and by the dean and vice dean, and shall bear the corporate seals of both institutions.

Ninth.—The respective alumni associations of the two institutions may continue their independent existence; and any graduate of the united medical schools may join, at his pleasure, either or both of said associations.

Tenth.—There shall be a treasurer chosen by the United Medical Committee, and subject to the directions of that committee as to the receipt and expenditures of available resources.

Eleventh.—The budget of estimated income and expenditures of the united medical schools shall be presented, each year, by the United Medical Committee to the respective boards of trustees, for their consideration and approval; and said committee shall have no authority to expend any moneys, other than those provided by the said budget, without the approval of the respective boards of trustees.

Twelfth.—No moneys or real or personal property heretofore given, devised or bequeathed, or that may hereafter be given, devised or bequeathed to either of said institutions separately, for a specific purpose, shall be in any manner diverted from such purpose.

Subject to this provision, all tuition fees, income from invested funds, gifts by individuals, legislative appropriations, or receipts from any other source, shall be applied to the support of the united medical schools.

Thirteenth.—All moneys, or property of any description whatever, whether real or personal, now constituting the endowment fund of either of the hospitals connected with the two institutions, and all gifts, devises, bequests, or appropriations by the Commonwealth of Pennsylvania that may hereafter be made to either of them specifically, shall continue to be the separate property of such hospital; but wherever any such gift, devise, bequest or appropriation shall hereafter be made to said hospitals jointly, or as constituent parts of the united medical schools hereby established, a division shall be made between the two hospitals in accordance with their needs, by action of the United Medical Committee, and such division shall be set forth in the annual budget.

Fourteenth.—Except so far as they shall be used for clinical purposes and the instruction of students of the united medical schools, the respective hospitals of the two institutions shall continue to be under the charge and control of their respective boards. The use of these hospitals for clinical and teaching purposes shall be under the direction of the United Medical Committee, pursuant to such arrangements for such use as shall have been made by that committee with the respective boards of trustees.

Fifteenth.—The students of the united medical schools shall have the use of the libraries and museums of both schools. They shall also have the use of the university's dormitories, and all other privileges and relationships now enjoyed by the students of all other schools and departments of the university, or which may be hereafter enjoyed by them, and on the same terms and conditions.

Book Notices

THE INSTITUTIONAL CARE OF THE INSANE IN THE UNITED STATES AND CANADA. By Henry M. Hurd, William F. Drewry, Richard Dewey, Charles Pilgrim, G. Alder Blumer and T. J. W. Burgess. Edited by Henry M. Hurd, M.D., LL.D., Emeritus Professor of Psychiatry, the Johns Hopkins University. Cloth. Volume I. Price, $2.50. Pp. 497, with illustrations. Baltimore: The Johns Hopkins Press, 1916.

This series, of which only Volume I has been issued, will concern modifications of methods for the care of the insane in America. It is evident that during the past half century a gradual evolution has occurred in the care of the insane which points toward the ultimate cure of such persons. The authors state in the preface:

> The movement towards the prompt treatment of curable cases without the formality of legal commitment, and under the same conditions as in admission to a hospital for general bodily disease, gives every hope that at an early day cases of recent attack may be received everywhere promptly, and that greatly increased numbers can be cured. Cases of a chronic nature are also now much more satisfactorily dealt with in institutions on the cottage plan, with outlying colonies for the employment of patients, and have a correspondingly better opportunity to attain self-support. These movements promise to make material changes in future methods of caring for the insane.

Volume I takes up the history of the Association of Superintendents of American Institutions for the Insane which existed from 1844 to 1893, and the American Medico-Psychological Association which followed. The book considers the care of the insane from the early colonial days down to a more modern period. A special chapter is given to the work of Dorothea Lynde Dix; then follow the growth of the country system and colonies, and a discussion of the growth of hospitals and development of hospital architecture. Chapter VI is devoted to reforms in caring for the insane,

medical and nonmedical treatment, employment, individual treatment, and the growth of psychopathic hospitals and research work in hospitals. The next chapter considers the establishment of training schools for nurses and training schools for attendants, following which is a short chapter devoted to the private care of the insane. Then follows a chapter on the law of insanity, the commitment and discharge of the insane, admission of voluntary patients and the care of the criminal insane. Immigration and the care of the alien-born in relation to the state cost of insanity are the exceedingly important topics next considered. Another chapter is devoted to insanity among the negroes, North American Indians and those in South Dakota, the Chinese and Japanese in the United States. The last two chapters of this volume are devoted to a census of the insane, giving statistics of the population in various states; the final one is devoted to insanity in Canada.

The work is thorough, interesting and practical; a credit to all who have been concerned in its compilation.

HYSTERIA AND ACCIDENT COMPENSATION. Nature of Hysteria and the Lesson of the Post-Litigation Results. By Francis X. Dercum, M.D., Ph.D., Professor of Nervous and Mental Diseases, Jefferson Medical College, Philadelphia. Cloth. Price, $2. Pp. 120. Philadelphia: The George T. Bisel Company, 1916.

This book presents the subject of "accident hysteria," in as condensed and readable a form as possible, for legislators, lawyers and sociologists. "Railway spine" came with the advent of the railroad, and has frequently appeared in personal injury litigation. According to the author, after an accident there often develop cases of "traumatic hysteria" or, as the author tersely puts it, "litigation hysteria." This is a condition which preexists in the individual. It is not the same as hysteria caused by a bona fide injury or fright. It is produced by the psychology of compensation. The author's experience has shown that these imaginary ills take flight with the settlement of the case. The same situation is to be found under the workmen's compensation acts. Usually these laws have made no adequate provision for separating the spurious from the real. A detailed examination of the patient made by an impartial scientific specialist will usually distinguish between the two. In Germany, by reason of intensive industrial legislation, this so-called "pension hysteria" has developed to a greater extent, perhaps, than in many other countries. This seems to be by reason of the German method of paying compensation, which continues during the period of disability, while other countries have a cash settlement basis. Thus, in Denmark the percentage recovering from traumatic neuroses is 93.6. In Germany it is only 9.3 per cent. The author concludes that the solution of the problem is to deny compensation in cases of "litigation hysteria." This has been advocated in both Germany and France; in Sweden this method is actually pursued by the insurance societies. To bring legislator, lawyer and judge to a proper understanding of these cases in order that justice under the law may more nearly obtain is the work of the scientific expert. In the opinion of the author, this is a matter of education, and an immediate and concerted effort should be made by the medical profession to bring about its consummation.

A LABORATORY COURSE IN SERUM STUDY. Bacteriology 208, Being a Series of Experiments and Diagnostic Tests in Immunology Carried Out in an Optional Course Given to Medical and Graduate Students in the Department of Bacteriology, College of Physicians and Surgeons, Columbia University, New York, by the Writers. By Hans Zinsser, M.D., J. G. Hopkins, M.D., and Reuben Ottenberg, M.D. Cloth. Price, $1.25. Pp. 184. New York: The Macmillan Company, 1916.

The primary purpose of this book is indicated by the title, and seems to be to guide the student carefully in carrying out fundamental experiments, and to draw the conclusions indicated by the results. The book will be of much service to those planning similar courses, and to students and physicians who wish to become familiar with the technic of immunology and serology, not merely for the purpose of conducting diagnostic tests, but also in order to grasp the fundamental principles.

Medicolegal

Responsibility for Loss of Drainage Tube in Body of Child

(*Cyr vs. Landry* (*Maine*), *95 Atl. R. 883*)

The Supreme Judicial Court of Maine sustains a motion by the defendant for a new trial after a verdict against him for alleged malpractice in connection with the loss of a drainage tube in the body of a child. The court says that the only issue under the plaintiff's declaration was whether the tube was lost through the negligence of the defendant, but the case was tried also on the issue of whether, if the tube had entered the pleural cavity through accident, or the fault of another than the defendant, did the defendant then exercise such care to discover whether it was in the cavity, as ordinary skill and knowledge required? In other words, was he negligent, in view of the professional skill required, in not making a reasonable effort to discover whether the tube was in the cavity? Another surgeon had operated on the child, October 16, for the removal of fluid from the pleural cavity, and last saw the patient on the 31st. The plaintiff took charge of the case, November 2. If the drainage tube which the other surgeon left fastened with a safety pin through the gauze and the tube was in the body of the child when the defendant came, he was not guilty of malpractice. If he took the tube out and attempted to secure it by the mere use of sticking plasters and on that account it dropped into the cavity, he was guilty. The testimony in the case was conflicting, but the mere fact of conflicting testimony is not a sufficient basis, in all cases, for the foundation of a verdict. The evidence was ample to persuade a reasonable mind that the tube was lost through the improper manipulation of the dressing by the child's mother, and that the latter knew, or had every reason to know, that through her own fault it had dropped into the cavity. And in view of the fact that it was impossible for the tube to enter the cavity unless the safety pin was removed, and that the defendant was completely misled by the denial of the child's mother that she had interfered with the dressing, and that she was charged with every reason to believe that the tube was in the body, yet withheld the information, it is the opinion of the court that when the defendant directed her time and again to take the child to the hospital for an operation, if she believed the tube was in the body, he exercised such care, under the circumstances of the case, as ordinary medical skill and knowledge required. The verdict rendered against the defendant should be set aside on both issues.

Adulteration and Misbranding Due to Alcohol—Scope of Pure Food Law

(*Hoefler vs. Mickle* (*Ore.*), *153 Pac. R. 417*)

The Supreme Court of Oregon affirms a judgment in favor of the defendant, whom it was sought, as food and dairy commissioner of the state, to prevent from seizing and confiscating some candy manufactured by the plaintiff and styled "Centennial Chocolates," which contained not to exceed 1.05 per cent. by volume of alcohol, without its being mentioned in the label. The court says that this litigation arose under the pure food law of Feb. 26, 1915. The questions to be determined were whether the plaintiff had in possession with intent to sell or distribute an adulterated article of food or one which was misbranded. The object of the act is to promote purity of food products and to protect the public against deception in such articles. To this end the law has denounced adulterations and deceptive labels. In such cases as the one in hand, for instance, a parent buying candy for his children has a right to know whether it is indeed pure confectionery or a mixture of sugar and whisky or other intoxicating liquor. Chocolate, a product of cacao seeds roasted and ground and often mixed with sugar, is a harmless article of food and, if true to the label admitted in this suit, would not be harmful to any one. On the other hand, if it contains an ingredient "injurious or detrimental to health of consumers," as mentioned in Subdivision 16 of

Section 21 of the act, or, as stated in Subdivision 5 of Section 35 on misbranding, if it contains "any deleterious substance"; it is misbranded within the meaning of the act. Alcohol is classified by all toxicologists as a poison. Considered in the light of legislation from the foundation of the state to the present, it is a substance deleterious to health. It has always been under the ban of the law as an enemy to the physical welfare of the people. Without reference to whether or not a food commissioner has established a standard of purity for the article of food called "candy," the fact that the confection in question contained 1.05 per cent. of alcohol was sufficient to bring it within the sixteenth subdivision of Section 21 defining an adulterated article of food, for the simple reason that free alcohol is injurious and harmful to the health of any one who partakes of it. It was strongly urged that Section 35 of the act is indefinite and uncertain, and particularly that it is impossible to determine whether the third subdivision relates to drugs or to food. By its own terms the section is made to apply to all articles of food. Referring to the earlier Section 20, it is found that the term includes all articles used for food or drink, or intended to be eaten or drunk by man, whether simple, mixed or compound. This definition is wide enough to include within its terms drugs which are intended to be taken inwardly by individuals. In the statutory sense, therefore, such drugs are food, and for the purposes of Section 35, construed with Section 20, it matters not whether Subdivision 3, stating certain cases which shall be deemed misbranding, be applied to the bread of the baker, the candy of the confectioner, or the drugs of the physician. The stipulation of facts measured by this enactment disclosed that the article in question was not only adulterated, but also misbranded.

Violation of Medical Practice Act Sufficiently Alleged

(Young vs. State (Tex.), 181 S. W. R. 472)

The Court of Criminal Appeals of Texas affirms a judgment of conviction of defendant Young of unlawfully practicing medicine. The court says that the defendant moved to quash the information and complaint because they did not allege that he had not recorded a certificate or diploma in the county of his residence. They alleged that he practiced medicine "without having first obtained from an authorized board of medical examiners a certificate of professional qualifications, and without having a diploma from some accredited medical college." If he had obtained a certificate or diploma and failed to record it in the county of his residence, he would be guilty, and if he had such certificate or diploma, it would be necessary to allege that he had not recorded it in the county of his residence before a conviction would be authorized. But when the information alleged that he had never obtained a certificate or diploma, this language necessarily implied and charged that he had not recorded authority in the county of his residence. It is always better to follow the language of the statute, but this is not absolutely essential, if language of equivalent import is used. Nor did the court err in striking out a plea of former jeopardy or acquittal. This information alleged that on or about March 12, 1915, and thence continuously up to the date of filing the complaint in this cause, which was April 27, the defendant did unlawfully engage in the practice of medicine, and did prescribe for and visit Mrs. Thad Pines, etc. This covered a specific time from March 12 to April 27. The other information also covered a specific time, from May 10, 1915, to May 12, 1915, and alleged that the defendant engaged in the practice of medicine, and did treat one W. W. Prior. They were separate and distinct offenses alleged, and occurred at separate and distinct times. The state had to prove in one instance that the defendant treated and offered to treat Mrs. Pines, and in the other Mr. Prior. As the statute specifically defines the words "practicing medicine," the court did not err in not admitting testimony as to the general meaning of those words. Furthermore, there was no error in admitting the testimony of one Braden, which showed that the defendant treated his wife and that he received his board and lodging as compensation for the medicine furnished and services rendered.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, DETROIT, JUNE 12-16.

Alpha Omega Alpha Society, Detroit, June 12.
American Academy of Medicine, Detroit, June 9-12.
American Association of Anesthetists, Detroit, June 12.
American Proctologic Society, Detroit, June 12.
American Therapeutic Society, Detroit, June 9-10.
Montana State Medical Association, Miles City, July 12-13.
National Association for Study of Epilepsy, Detroit, June 16.
New Jersey Medical Society, Spring Lake, June 20-22.
Washington State Medical Association, Seattle, July 12-14.
Western Roentgen Society, St. Louis, June 9-10.

ASSOCIATION OF AMERICAN PHYSICIANS

Thirty-First Annual Meeting, held at Washington, D. C., May 9-11, 1916

DR. HENRY SEWALL, Denver, in the Chair

SYMPOSIUM ON ACIDOSIS

Biochemistry of Acidosis

DR. LAWRENCE J. HENDERSON, Boston: The equilibrium between acids and bases is essential to life. Fluctuations in equilibrium occur, but normally the limits of fluctuation are narrow. Wider fluctuations in these equilibriums occur pathologically, but the acid-basic fluctuations do not, as a rule, involve changes in the H-ion concentration. Acidosis is defined as any disturbance of the acid basic equilibrium whereby the power to resist acids in the body is lost. It is now possible to say that the main change in acidosis is the loss of blood bicarbonates. The bicarbonates are to be regarded as the *third* constituent of the blood: reckoning water first, salt second, and bicarbonate third. This third constituent is specially subject to fluctuations, owing to the constant physiochemical interchanges between blood and respired air. Since H-ion concentration is proportional to the reactions between bicarbonates and free carbon dioxid, the ratio of free carbon dioxid and bicarbonates is kept fairly constant by the mechanism of ventilation. Hence, H-ion concentration is now regarded as the hormone of respiration. The maintenance of the acid-base equilibrium becomes more complicated in pathologic states, and always is related to and dependent on the general metabolism of the body. Beneath all metabolism is a constant diminution of blood bicarbonates; unless repaired, this leads to acidosis. The carbon dioxid tension of alveolar air and of the blood, together with the measure of alkali ingestion, are the measures of acidosis. Neither ammonia concentration nor urinary findings are safe guides. Attempts to explain general pathologic states on basis of H-ion concentration or acidosis are not justified. Any attempt to treat a disease like nephritis by the indiscriminate administration of large amounts of alkali is malpractice. Small amounts of alkali, given over a long time, are allowable, and when they are so given, acidosis is impossible.

Acidosis in Infants and Children

DR. JOHN HOWLAND, Baltimore: Acidosis in children is a dangerous but often an acute, self-limited disease. It is not merely an acetonuria, but depends on a loss of the acid-base equilibrium of the blood. Hyperpnea is the clinical sign: laboratory tests are the indexes, these being carbon dioxid tension of alveolar air, H-ion concentration of blood, and alkali reserve of blood. The natural low level of carbon dioxid tension and low H-ion concentration in the young explain susceptibility to acidosis. Onset of acidosis is marked by hyperpnea; coma soon ensues: the alkali reserve may be restored, but unless done quickly, death follows. The presence of acid phosphates in the blood in excess (from five to fifteen times the normal), continued long enough, would rob the body of bases. Restoration of bases does not always stop the accumulation of acid phosphates. Acidosis is seen in many diseases of infancy and childhood, and should always be kept in mind; its early, rational treatment may be the means of saving life.

Acidosis in Diabetes

DR. R. T. WOODYATT, Chicago: The explanation of the occurrence of acidosis in diabetics depends on definition of difference between the diabetic and the normal individual. The proportionality between glucose utilization and wastage depends on rate of intake. It may be said that with a rate of glucose intake high enough, the normal individual becomes diabetic; with the intake low enough, the diabetic acts like the normal individual. The difference is in the wastage. The occurrence of acidosis in diabetics depends on this. It has been found that one molecule of carbohydrate must be burned to care for three molecules of higher fatty acids. If this ratio cannot be maintained, the body "smokes" with unburnt fats, and acetone, betahydroxybutyric acid, and diacetic acid appear in the urine. In diabetics the absolute rate of carbohydrate utilization is low, and it is necessary to bend down the rates of protein and fat metabolism to meet that of the carbohydrates. Thus the application of rest, warmth and fasting in the treatment of diabetes is rational. Acidosis in diabetes may always be accounted for in the way described, except in certain cases, as its occurrence in the course of septic processes; such cases may be called accidental rather than diabetic acidosis.

Acidosis in Acute and Chronic Diseases

DR. CHANNING FROTHINGHAM, JR., Boston: The finding of acidosis in other diseased states than diabetes led to a study of carbon dioxid tension of alveolar air, H-ion concentration of blood, acetone and ammonia-nitrogen output in urine, and soda utilization in a large and diversified series of cases. The results of the study may be summarized thus: In adults, acidosis of the diabetic type does not exist in a large number of miscellaneous diseases, but a certain form of acidosis does exist (as shown by Howland) which may be recognized by available tests.

Investigations in Diagnosis and Treatment of Acidosis

DR. LEONARD G. ROWNTREE, Minneapolis: The H-ion concentration of the blood must be kept at a normal level to maintain life. Studies with the electrometric method have established the fact that the dialysis-indicator method may be depended on. The method is simple and absolute. Studies of the "buffer" values of the blood (ability to care for acid-basic fluctuations without disturbance of the H-ion concentration) indicate the normal to be 0.36. In acidosis, the "buffer" value for both acids and bases is reduced or lost. The mechanism of changes in "buffer" value is not known. It may be said that true acidosis occurs when there is a change in H-ion concentration of the blood; compensated acidosis occurs when there is a change in the buffer value without change in H-ion concentration. In disease states, acidosis and disturbances of H-ion concentration may be corrected without benefit to the patient. The administration of alkalies beyond the point of correction of acidosis is harmful: alkali therapy, therefore, should be controlled by available tests.

Discussion on Symposium on Acidosis

DR. YANDELL HENDERSON, New Haven, Conn.: The acidosis we used to talk about is certainly not the acidosis of today. The acidosis of diabetes is not the acidosis of asphyxia, or of nephritis. We might better in one case speak of ketonuria, and in another, of low carbon dioxid states, and so on. In 1911 I was a member of Haldane's Pike's Peak expedition, and all of the party had acidosis when a sufficient altitude was reached, if the carbon dioxid tension is taken as the index. I am rather skeptical of the hurtful effects of acidosis. I have not seen figures indicating a more severe acidosis than I persistently had on Pike's Peak when I was feeling particularly well. The description given by Dr. Henderson was on the basis of sea level data. But on going above sea level one's acidosis increases with the altitude; in a caisson, acidosis diminishes. Miss Fitzgerald, of the Haldane expedition, has shown this as a result of hundreds of observations made at various altitudes. The net result of her work is that one can determine the altitude of any community by the measure of the carbon dioxid tension of the alveolar air of the inhabitants, or, in other words, by their acidosis.

It is safer to keep in mind the facts: From the urinary standpoint, acetonuria may be found; from the respiratory standpoint, variations in carbon dioxid tension or volume of ventilation may be measured; from the point of view of the blood, disturbances of H-ion concentration may be noted; and other measures of the body's alkali-acid balance may be made. But if all of these measures are to be accepted as measures of acidosis, we shall encounter cases of acidosis in which the acidosis is not a condition of acid blood at all, because the H-ion concentration of the blood may still be normal. It is necessary, therefore, to formulate and keep clearly in mind just what in the future shall be known as acidosis.

DR. E. J. VAN SLYKE, New York: Much of the discussion has dealt with the relations between the kidney, lung and blood functions in acidosis. The phenomena arising in these various systems are corollaries one to another. I agree with Henderson that acidosis is a loss of the normal relationship between acids and the bicarbonates of the blood. I also agree with Rowntree's classification of compensated acidosis and true acidosis on the basis of undisturbed and disturbed H-ion concentration, respectively. With regard to reduction of carbon dioxid tension of alveolar air, this is only an indirect measure of the H-ion concentration of the blood, and it cannot be regarded as synonymous with acidosis. It is an exact measure of the H-ion state of the blood only when the lungs are functioning normally and under fixed conditions of temperature and atmosphere. The same may be said of the urinary findings: certain urinary changes are recognizable and acceptable as indirect evidences of acidosis; but they are not synonymous with acidosis, and they depend on renal integrity and other factors for constancy.

DR. THEODORE C. JANEWAY, Baltimore: Thus far we have talked of acidosis in terms of ketonuria; but it has now been shown that the modern conception of acidosis, acidosis in its strict sense, is the true cause of diabetic coma. Most of the criticisms have been made on the fact that acidosis is merely a biochemical event and not a just measure of disease; but it is the acidosis that causes the hyperpnea, etc., and it is possible to conceive of acidosis as the cause of functional disturbances without sacrificing the truth of Henderson's remark about the nonspecificity of the blood changes in this condition. The newer types of acidosis have to be recognized: it is only necessary to remember that there are fundamental metabolic differences in the origins of the various types.

DR. E. P. JOSLIN, Boston: Two thirds of all diabetics (all diabetic children) die in coma; in fact, all diabetics dying in the first year of the disease die of coma. If it can be shown that the number of diabetic fatalities in the first year of the disease has been lessened, this must be because the treatment of acidosis has improved with the improved treatment of diabetes. Such statistics are now available and show that the mortality of diabetes in the first year has been greatly reduced.

DR. C. F. HOOVER, Cleveland: One point bearing on the relation between acidosis and carbon dioxid tension of alveolar air needs to be emphasized. There seems to be an impression that there is a definite relationship between carbon dioxid tension of alveolar air and the amplitude of ventilation. There is no such definite constant relationship. I have seen cases of hyperpnea without acidosis, and cases of acidosis with hypopnea.

DR. H. A. HARE, Philadelphia: Thirty years ago I learned in Ludwig's laboratory that the blood is the most carefully protected tissue of the body, and that one should be careful to do no harm by introducing strange substances into it. This warning should be heeded in view of what has been said here about the harmful effect of too active alkali therapy in acidosis.

DR. LAWRENCE J. HENDERSON, New Haven, Conn.: It is clear that in a great variety of diseases there is a loss of ability to protect the blood against acids; and this condition ought to be called acidosis. Because alkalies have been abused is no reason for refusing bicarbonates in small quantities and over long periods; for bicarbonate is the *third* constituent of the blood. While acidosis cannot be

held to be the cause of disease, it can be held to be the cause of syndromes in disease; for one, he believes that acidosis is the cause of diabetic coma. It is possible to overcome the acidosis of diabetic coma without curing the condition, as had been pointed out. This may be due to the fact that the cells of the body are not so readily and quickly influenced by substances introduced into the blood in treatment; and evidence of acidosis may disappear from the blood while the condition persists in the tissues.

(To be continued)

THE AMERICAN NEUROLOGICAL ASSOCIATION

Forty-Second Annual Meeting, held at Washington, D. C., May 8-10, 1916

The President, Dr. Lewellys F. Barker, Baltimore, in the Chair

Presidential Address: War and the Nervous System

Dr. L. F. Barker, Baltimore: So far as wounds of the brain and spinal cord are concerned, the accepted views regarding topical diagnosis are being corroborated. It has been established that certain organic lesions of the central nervous system may be caused by modern high explosives without external wound. Surgeons are unanimous in urging the thorough investigation of every head wound, no matter how trivial it may at first seem to be. As regards the peripheral nerve injuries, it has been shown that loss of power due to section of tendons or muscles may sometimes be confused with paralysis due to lesions of the nerves themselves. Contrary to what many expected, nervous states not due to organic lesions, though fairly numerous, have in reality made up but a very small proportion of the total number incapacitated by the war. All the well known types of the functional nervous disturbances have been encountered. As regards the psychoses, it is surprising that such a small number of cases of insanity have been reported. It is asserted that the majority of soldiers in whom psychoses have been observed either had symptoms of the disease before the war or had given definite evidence of predisposition to mental disorder. The evidence seems to favor the view that the human nervous system is today better able to stand strain than ever before in its history.

The Differentiation and Organization of Sensations

Dr. Stewart Paton, Princeton, N. J.: As the result of observations on the embryos of some of the higher vertebrates I want to emphasize two points: first, the great necessity of looking at the neurologic phenomena from a broad biologic standpoint; and second, the great value that still comes to us from a study of comparative neurology. In the chick embryo of from fifty-five to fifty-seven hours of incubation, the motor half of the reflex arc is developed far in advance of the sensory half. This tract is developed from the lower caudate quarter of the cord up to the level of the third nerve. At 120 hours the development of the third nerve to its terminal distribution can be followed. Evidently this is an ancestral inheritance. The sensory half of the arc is very gradually superimposed on the motor sector. When the embryo first responds to stimuli from the outside world the first organ to come in and modify responses is the thyroid; and a little later the suprarenals. At this period from 120 to 125 hours, there is an enormous differentiation in the sympathetic nervous system. Only very much later do the sex organs apparently come into the neural circuit.

Neuraxial Differentiation of the Fibers from the Horizontal and the Fibers from the Vertical Semicircular Canal

Dr. Charles K. Mills and Dr. Isaac H. Jones, Philadelphia: Cajal has shown histologically that fibers from the vestibular portion of the eighth nerve enter Deiters' nucleus and continue from the inferior cerebellar peduncle into the cerebellum itself. We believe that (1) this path includes the fibers from the horizontal semicircular canals exclusively, and that (2) the fibers from the vertical canals have an entirely different course. The former are confined to the oblongata, while the latter ascend into the pons. In twenty-eight cases in which the labyrinths themselves and the eighth nerves were normal and the horizontal canals gave normal reactions, the vertical canals failed in some or all of the well known responses. That the labyrinths themselves were normal was made probable by the presence of perfect hearing, and corroborative evidence of neuraxial lesions was additional confirmation. In five cases, stimulation of the vertical canals produced no nystagmus, no vertigo, no past-pointing and no falling, and yet violent projectile vomiting occurred. This showed that the vertical canals themselves were functionating; in fact, there was even a hyperactive response of the tenth nucleus to the stimulation of the canals. In one case in which the lesion was clearly thrombosis of the right posterior inferior cerebellar artery, the right horizontal canal failed to respond normally, whereas reactions from the right vertical canals were normal. Therefore, a central differentiation of the fibers from the different canals must exist. In a case of Mills the fibers from the vertical canals failed to respond, while those from the horizontal canals reacted. In this case a necropsy was obtained and a microscopic examination with serial sections was made. It shows a glioma of the upper part of the pons, the lower half of the pons and the oblongata being normal. This proves that the vertical canal fibers extend as far at least as the middle of the pons. In a case of Dr. T. H. Weisenburg, symptoms of involvement of the right sensory portion of the fifth nucleus and the right sixth nucleus and sensory symptoms in the left extremities indicated a lesion in the right side of the pons posteriorly in the region of the middle cerebellar peduncle. In this case, stimulation of the right vertical canals failed in all responses, whereas the right horizontal canal and all the canals of the left ear gave normal reactions. In our experience, interruption of the impulses from the vertical canals is produced by tumors of the cerebellopontile angle, internal hydrocephalus causing pressure on the floor of the fourth ventricle, and intracerebellar tumors causing pressure on the pons.

Sensory Disturbances of Cerebral Origin

Dr. Alfred Gordon, Philadelphia: I find that the generally adopted views concerning sensory disturbances of cerebral origin do not always present the real condition. For example, in one of my cases there was a large hemorrhage strictly limited to the parietal lobe; nevertheless, there was a hemiplegic condition on the opposite side. Also in a case with involvement of the very posterior portion of the internal capsule, which is supposed to be purely sensory in function, there were no sensory disturbances at all during life. My conclusions are that, in spite of the generally accepted views concerning sensations of cerebral origin, certain conservative reservations should be made whenever diagnostic deductions are to be made.

DISCUSSION

Dr. David I. Wolfstein, Cincinnati: A colored man came into our receiving ward but was not admitted because nothing could be recognized. He came a week later and we found that he had localized convulsion of the face and arm and there was very complete arteriosclerosis. He also had a loss of the position sense and impairment of the localizing sense. The Roentgen rays showed that he had been stabbed in the head with a penknife and that a piece of the blade was extending into the precentral convolution. The blade was extracted, and the man recovered promptly from the convulsions; but the arteriosclerosis and the disturbance of the sensations remained as before.

Dr. H. H. Hoppe, Cincinnati: I recall a case of tumor in the arm center in which the first manifestation was pain in the tip of the finger, this disturbance of sensation preceding the jacksonian seizures. The tumor was located in such a way as to cover both the ascending and the parietal lobe. It was impossible to tell where it originated.

Tic Spasmodique Produced by Cerebellopontile Tumors

Dr. Harvey Cushing, Boston: A patient was sent to the Brigham Hospital with the diagnosis of right parietal tumor

producing jacksonian attacks of the left face. He was conscious and could turn his head, even though the attack was going on. He was very certain on two or three occasions that the attack, and the spasm with the sensory disturbance, which he said came with it, had spread into the arm and side. A careful examination made it quite evident that this was a cerebellopontile tumor of the usual type. He was operated on and a tumor was found relatively early and removed, so far as one is justified in removing these things, leaving the capsule. In a series of from fifty to sixty pontine cases this was the only case in which I observed these definite attacks, and this began originally as nothing but a little blepharospasm of the left eye. The patient was having attacks every ten minutes when he came to us. They subsided after the operation. Since this I have seen one other example of almost exactly the same kind.

DISCUSSION

DR. J. RAMSAY HUNT, New York: In my papers on the sensory route of the facial nerve I have emphasized the production of reflex spasms of the face. I have had a series of cases of reflex quiverings and spasms of severe degree. In one case there was a spasm only of the auricular mechanism. Evidently only certain cells of the facial nucleus were in a state of excitability. Therefore I do not think that these cases necessarily depend on pressure on the pons.

DR. WILLIAM G. SPILLER, Philadelphia: Some years ago Dr. Mills had a case of spasm confined to one side of the face which at necropsy showed tumor of the cerebellopontile angle. I had a case of a man struck on the right side of the forehead. He said that the eyelids of both sides were affected. Dr. Jones concluded that there was a tumor of the cerebellopontile angle, and this was confirmed by necropsy.

DR. W. B. CADWALADER, Philadelphia: In a case which I have observed there were clonic movements of one side of the face without loss of consciousness. We decided that there was probably a cerebellopontile growth. Necropsy showed an endothelioma a short distance anterior to the eighth nerve.

Stock-Brainedness: The Causative Factor in the So-Called Crossed Aphasias

DR. FOSTER KENNEDY, New York: The cause of the indecision in regard to the location of the speech centers, and, therefore, the causation of aphasia, lies in the fact that apparently irrefragable evidence can be produce by the protagonists of each of the different views. The case used to disprove the validity of Broca's area only impugns the theory of constant conjunction of right-brainedness and left-handedness or vice versa. I want to suggest that the simple statement that a given patient is right-handed or left-handed is not adequate. After investigating the question of a patient's handedness only by investigating also the prevalence of the type of handedness in his stock shall we be able to throw some light on a very obscure chapter of neurologic medicine. In the literature of aphasia one finds that but few cases disagree with the general hypothesis that in right-handed persons the centers of language are situated on the left side of the brain. In the few instances in which aphasia has resulted from injury to the right brain, some anomalous and adventitious circumstance has usually been brought forward to account for the situation. It would appear that this trend when present in the stock may produce in a few right-handed individuals of the sinistral stock a condition of brain similar to their collateral relatives and ancestors, with the result that the speech area in such persons becomes developed in an ectopic position.

DISCUSSION

DR. HUGH T. PATRICK, Chicago: About thirty-three years ago Dr. Janeway gave us a sort of rule of thumb in deciding on who was right-handed and who was left-handed, that is, that a left-handed person must be a left-handed writing person. All other activities are of less importance.

DR. JOSEPH COLLINS, New York: It is currently reported that the majority of children are left-handed. However, credible statistics show that only about 5 per cent. of adults are left-handed. It is quite possible that some of these cases referred to by Dr. Kennedy are exceptions to the rule, which is that the speech area of left-handed individuals is on the right side of the brain. If Dr. Patrick will substitute "fighting" for "writing," I will agree with him. If a man fights with his left hand he is left-handed. If a man does the primitive things of life, the things that are necessary in order for him to continue his activities, he is a left-handed individual. I am a left-handed individual, and I do all such things as writing, golfing and drawing, with my right hand; but in striking, at least in doing any of the fundamental things, I am left-handed. I am inclined to believe that the executive speech area may be vicariously assumed by areas of the brain adjacent to the usual centers, which will explain the majority of cases which are exceptional to the generally established rule.

DR. E. B. ANGELL, Rochester, N. Y.: Some years ago a woman of 32 came to necropsy for brain tumor. As a child of 5 she had thrombosis of two thirds of the operculum and part of the motor tract of the left side. As a child she had been right-handed. As the result of the hemiplegia and loss of the power of the right arm, she had to develop the left hand. She regained the power of speech. At necropsy were found the remains of the destructive process of the old thrombosis. The right side corresponding to the right operculum and the right motor hemisphere were much enlarged. The cortex was much thickened, showing the influence of the change from right to left as she grew up to womanhood.

DR. CHARLES K. MILLS, Philadelphia: I think Dr. Collins is wrong about this thing of the primitive instinct of preservation. This does not have to do with the faculty of speech and development of one or the other hemispheres. It is the educational acquirements of the brain that have to do with this. If you have the inheritance of speech through many generations with the inheritance of right-handedness, the left-handedness in a given generation is then sort of an accidental deviation, and it does not have the force that it would have if the left-handedness had been inherited through many generations.

DR. J. RAMSAY HUNT, New York: I suggest that Dr. Collins is both right and wrong; that some of his functions he performs with the cortex and some with the globus pallidus. Many of the acts, for instance, fighting, must be referable to the automatic mechanism.

DR. BERNARD SACHS, New York: It is a fact that the majority of children are in the ordinary sense born ambidextrous, and the important thing is that most persons become later in life absolutely right-handed. Another point is that in the loss of speech the defect is associated with loss in the two hemispheres about equally, and it is only later in life that the preponderance of the left hemisphere has become well established. I believe that there are differnt groups of cases. The ordinary child born ambidextrous can be made a right-handed child. There are some persons who never can be made right-handed. I believe the larger number of persons are right-handed because they are made so by education.

DR. WILLIAM G. SPILLER, Philadelphia: A child born right-handed was burned in a gas flame and was unable to use the right hand for five or six weeks. During that time he used the left hand, and, when the bandage was removed, continued to use the left hand. It required training to induce the child to resume the use of the right hand. Undoubtedly if the effort had not been made to train the right hand, the child would have continued using the left hand.

DR. FRANCIS X. DERCUM, Philadelphia: If my recollection serves me correctly, the right side of the child is larger at birth. I think there is more muscle tissue in the right side than the left. It cannot be merely a matter of training, but, if the right hand is injured, the left hand is trained.

DR. HARVEY CUSHING, Boston: It may be of interest to call attention to the fact that right-handedness and left-handedness goes back into other forms of life than mammals. In certain shells, perhaps one out of 10,000, there is a left-handed spiral. Then, too, I believe that parrots are right-handed, or right-clawed, as a rule.

DR. ALFRED REGINALD ALLEN, Philadelphia: The blood supply of the human being and most mammals and verte-

brates is not symmetrical with the vertical axis. It is probable that the left side of the brain may get a better blood supply than the other side of the brain.

DR. ISAAC ADLER, New York: I have been making some cranial measurements and I ran across a peculiar relation of the right hemisphere. In the right-handed the right parietal lobe is more prominent than the left. In the left-handed person it is not so. It is about equal. The conclusion is that most left-handed persons, therefore, are ambidextrous.

Amyotrophic Lateral Sclerosis

DR. JOHN H. W. RHEIN, Philadelphia: The subject of this report was aged 56. The symptoms were atrophy of both arm muscles, including the small muscles of the hand, the flexors and the extensors of the forearm, the biceps, triceps, shoulder girdle, pectoralis and serratus magnus. There were fibrillary tremors of both arms. Both sides of the tongue were atrophied; the knee and arm jerks were exaggerated, but there was no Babinski sign or spasticity. The Wassermann reaction was positive. Death occurred about a year after the onset.

DISCUSSION

DR. F. R. FRY, St. Louis: Some years ago I reported a classical case of Friedreich's ataxia in a girl of 12 or 15 years of age. At a later period the mother of this girl, who was then about 42 years of age, developed amyotrophic lateral sclerosis. I simply mention that little coincidence as possibly interesting from an etiologic standpoint.

DR. SAMUEL LEOPOLD, Philadelphia: I have reported a similar case. The patient died within two years. I found some round cell infiltration. In about one third of these cases, syphilis plays a very important rôle.

Diffuse Endothelioma of Spinal Cord

DR. PETER BASSOE, Chicago, and DR. C. L. SHIELDS, Salt Lake City: The patient, a girl of 16 years, was taken with headache, vomiting and dizziness eight months before death. Later there were failing vision, two weeks of strabismus and finally complete blindness. Hearing also was lost. The optic disks showed secondary atrophy, and the tendon reflexes were lost. The spinal fluid showed lymphocytosis and increased albumin. There were convulsive seizures during the last two weeks before death. The necropsy revealed the unusual condition of a diffuse grayish-white thickening of the pia along the entire cord, most marked posteriorly. Histologically, this tumor proved to be endothelioma.

(*To be continued*)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

May, XIX, No. 3, pp. 353-506

1 Studies on Mammary Gland in Albino Rat From Birth to Ten Weeks of Age. J. A. Myers, Minneapolis.
2 Relation of Coronary and Hepatic Arteries in Common Ganoids. C. H. Danforth, Washington, D. C.
3 Cell Clusters in Dorsal Aorta of Mammalian Embryos. V. E. Emmel, Washington, D. C.
4 General Functional Significance of Mitochondria. E. V. Cowdry, Baltimore.
5 Embryology of Bird's Lung. W. A. Locy and O. Larsell, Chicago.

Annals of Surgery, Philadelphia

May, LXIII, No. 5, pp. 513-640

6 Suggested Operative Steps Dealing With Spontaneous Intracerebral Hemorrhage (Apoplexy). C. M. Remsen, Atlanta.
7 Case of Complete Branchiogenic Fistula. C. N. Dowd, New York.
8 Surgical Treatment of Suppurations in Posterior Mediastinum; Report of Two Cases. V. Gaudiani, New York.
9 *Removal of Bullet From Pericardium; Report of Case. W. E. Lower, Cleveland.
10 *Case of Intrahepatic Cholelithiasis. R. Lewisohn, New York.
11 *Method of Correcting Stomach Dilatation in Gastroptosis. R. J. Behan, Pittsburgh.
12 Etiology of Cysts Connected With Hernial Sacs. R. W. Murray, Liverpool, England.
13 Lumbar Hernia; Report of Case. E. H. Goodman and J. Speese, Philadelphia.
14 *Perforating Ulcer of Foot and Varicose Ulcers of Leg and Their Treatment by Nerve Operations. J. C. J. C. Smits, Sumatra.
15 Plea for Immediate Reduction of Fractures. W. Darrach, New York.
16 Treatment of Injuries in Vicinity of Elbow Joint. H. M. Armitage and G. L. Armitage, Jr., Chester.
17 Fracture Dislocation of Astragalus. E. F. Robinson, Kansas City, Mo.
18 *Simplified Preoperative Treatment of Hands and Field of Operation. A. D. Whiting and M. A. Slocum, Philadelphia.
19 Double Uterus and Vagina With New Bloodless Operation (Forceps Pressure) for Correction of Deformity. A. E. Rockey, Portland, Ore.
20 Toxicity of Novocain-Epinephrin Injected Intravenously. J. R. Eastman, B. Erdman and H. K. Bonn, Indianapolis.

9. **Removal of Bullet from Pericardium.**—The principal feature in this case to which Lower calls attention is the method of approach; that is, the division of the cartilaginous attachment to the ribs and of the muscles between the ribs, so as to make, by retraction, a "V" exposure. By this method ample room is secured and the ribs are not fractured, a circumstance which retards convalescence and makes it much more painful.

10. **Intrahepatic Cholelithiasis.**—Lewisohn operated on a case of intrahepatic cholelithiasis in which the preoperative diagnosis was acute gangrenous cholecystitis or perforated duodenal ulcer. At operation the gallbladder was found distended to about twice its normal size, not tense; its walls were thin and showed no external signs of inflammation. The stomach itself was normal and a careful examination of the duodenum failed to show any sign of ulcer or perforation. The liver was enlarged to about one and one half times its normal size and showed extensive adhesions between the upper surface and the diaphragm. The whole diaphragmatic surface of the liver felt nodular; these areas were hard, some of them whitish in color. On the inferior surface of the liver, toward the anterior border, there was a markedly inflamed area belonging to the right lobe; in this part was seen a small abscess cavity, which had perforated and opened into the free peritoneal cavity. At the base of the cavity two small black gallstones were felt; the liver tissue was incised, and the stones removed. One of the nodules on the right lobe of the liver was incised; after splitting the capsule, a small hard nodule presented itself, about the size of a pea; the mass was whitish and hard (fibrous tissue?). From the center of this mass four small, black gallstones were removed. They were exactly like those which had been found on the under surface of the liver. The gallbladder contained about 30 c.c. of a turbid fluid and one-half dozen yellowish gallstones. The mucosa was only slightly inflamed and not thickened.

11. **Correcting Stomach Dilatation in Gastroptosis.**—The method devised by Behan is as follows: The stomach is exposed and a flap of serosa is freed from its anterior surface. The flap (½ inch wide) extends from the lesser curvature downward obliquely toward the greater curvature and fundus for about 3 to 4 inches. This flap is then inserted in a reversed direction through two flaps raised from the subjacent muscularis and is sutured in place. The raw surface is puckered in and the wound closed. The stomach in one instance was removed and examined after this operation. It was remarkably decreased in size. At the area of operation there was a very long ruga which projected into the lumen of the stomach. After the plication the muscle contracted and threw the mucosa into deeper folds. To sight and touch the gastric muscle was absolutely normal. Behan has used this method on two patients and so far the results have been very satisfactory.

14. **Perforating and Varicose Ulcers of Leg.**—The only modern surgical method of treatment in Smits' opinion that reckons with etiology is local treatment of the sore combined with stretching or laceration of the nerve, in the region in which this sore is situated. In the twenty-five cases of perforating ulcer of the foot cited by Smits the mere local surgical treatment was shown to be useless in all these cases,

even when combined with an absolute rest cure. The same surgical treatment combined with a nerve operation, whether executed once or repeatedly, always led to cure. Eighteen cases of varicose ulcer similarly treated are cited. Locally he applied a liquefied medicated gelatin made as follows: Dissolve in a water bath 20 parts of gelatin in 40 parts of water. To this add 10 parts of glycerin; mix with 15 parts zinc oxid previously ground up with 15 parts glycerin and add water enough to make 100 parts. Smits spreads a thick layer of this liquefied medicated gelatin over the leg and covers this while still wet with a thin layer of cellulose wadding, which immediately sticks and forms an immovable dressing. Over the layer of cellulose wadding a bandage of well starched gauze is placed. The patient remains in bed until the dressing is thoroughly dry.

18. **Preoperative Treatment of Hands.**—As a result of their investigations Whiting and Slocum conclude that a solution consisting of acetone, alcohol and one of the coal tar disinfectants of a high phenol coefficient is more efficient than any other agent used for skin sterilization. In such a solution, the acetone (dimethylketone) acts as a solvent of the fatty or oily material of the skin and thus aids in exposing the bacteria to the germicides. The alcohol acts as a solvent; it has the power to penetrate into the cracks and crevices of the skin, through its ability to decompose and remove small particles of air that may be present; it is germicidal in solutions as weak as 30 per cent. With its strongest germicidal powers in solutions ranging from 60 to 70 per cent.; it also acts as a good vehicle. The coal tar disinfectant that may be used acts simply as a powerful germicide, destroying all bacteria with which it comes in contact in a length of time varying with its coefficient and the degree of dilution. The advantages of such a solution are many. Patients do not complain of any irritation following its use, although it causes a burning sensation when used on the scrotum. It does not stain the skin. It reduces to a minimum the time consumed in preparing the field of operation, and its method of application is the simplest. It may be used on a wet or dry skin, for emergencies or for cases in which the consumption of time in preparing the patient is not of great moment. There is no exfoliation of the skin as is seen after the use of iodin, nor is there any blistering. It may replace all other solutions in sterilizing the hands, although its continuous use causes some irritation in some instances; in others, no effect is noticed; others say the application of the solution gives rise to a decided feeling of warmth. The solution may be used repeatedly, any collected detritus being removed by filtration. The authors suggest that a solution consisting of 35 per cent. acetone, 1 or 2 per cent. of a coal tar disinfectant of a high coefficient, with enough alcohol to make 100 per cent., would answer the purpose. The method of application consists in rubbing the field of operation for two minutes with a piece of gauze saturated with the solution after either a wet or dry shave. A warm, cleansing tub bath is always advisable when not contraindicated.

Archives of Internal Medicine, Chicago

May, XVII, No. 5, pp. 591-710

21 *Case of Multiple Abscesses of Brain in Infancy. J. B. Holmes, Baltimore.
22 *Studies on Pineal Gland. Experimental Observations. G. Horrax, Boston.
23 *Id. Clinical Observations. G. Horrax, Boston.
24 Adjustment of Pressures in Induced Pneumothorax. C. D. Parfitt, Gravenhurst, Ont.
25 *Sino-Auricular Block Due to Tobacco Poisoning; Report of Cases. S. Neuhof, New York.
26 Studies of Heart's Functional Capacity as Estimated by Circulatory Reaction to Graduated Work. T. B. Barringer, Jr., New York.
27 Present Status of Magnesium Sulphate in Treatment of Tetanus. H. E. Robertson, Minneapolis.
28 *Basal Metabolism in Obesity. J. H. Means, Boston.
29 *The Typhoidin Reaction. C. R. Austrian and A. L. Bloomfield, Baltimore.

21. **Multiple Abscesses of Brain in Infancy.**—The case reported by Holmes represents a rare condition; multiple large abscesses in the hemisphere of an infant under 2 years of age. It ran its course under the picture of chronic internal hydrocephalus. That chronic internal hydrocephalus of the communicating type was not present was shown clinically by the phenolsulphonephthalein test. The condition found at necropsy resembled closely that of multiple pyogenic abscesses of the left hemisphere. It was not possible, however, wholly to exclude multiple tubercles which had undergone puriform softening. Microscopically, the case is noteworthy in the unusual number of Gluge's corpuscles that are present.

22. **Experimental Observations on Pineal Gland.**—The results of an experimental study are given by Horrax. He found that total experimental pinealectomy is possible in guinea-pigs and rats. Pinealectomized male guinea-pigs show a hastened development of the sexual organs, manifested before maturity by a relative increase in size and weight, both of the testes and seminal vesicles, over control pigs of the same litter. Histologically the testes and seminal vesicles of these animals, if taken before the age of sexual maturity, show a more advanced physiologic state than their controls. The pinealectomized females appear to show a tendency to breed earlier than controls of the same age and weight. For several reasons, young rats are likely to prove better subjects for experimental pinealectomy than young guinea-pigs, and some evidence of hastened maturity has been obtained in this species.

23. **Clinical Observations on Pineal Gland.**—Clinical study of three cases of supposed pineal tumor demonstrated that tumors of the pineal gland in children occurring before the age of puberty usually give rise to a syndrome characterized by precocious adolescence. In the first case, there were no positive means of knowing whether or not the pineal is the organ mainly at fault. The history and findings, however, are suggestive, and conform to the symptom complex of Frankl-Hochwart, except that the patient was a girl 11 years of age. Adiposity, though not great, was present to a definite degree, this, with the other points, making the case very similar to Marburg's. There was an increase in the eosinophilic leukocytes. The second patient was a boy, 7½ years of age. In this instance Horrax was unable to say what part the pineal may or may not be playing in the syndrome. Clinically, however, the symptom complex was similar to that characterizing a pineal lesion, but without adiposity. The sexual side of the picture is decidedly in the foreground. There has been little intellectual attainment, the latter sphere having been greatly limited by the boy's environment. In the third case the lesion was certified in full. The patient was a boy, 12 years of age. There was a precocious adolescence; intracranial symptoms with diagnosis of tuberculous meningitis; xanthochromia. Necropsy revealed struma of the pineal gland. A striking feature of the tumor as a whole was the great number of lymphoid cells it contained. These were present both in large masses grouped together, and also as scattered elements throughout the growth without definite arrangement. This enormous development of lymphoid tissue in a patient 12 years of age brings out the possibility of associated lesions elsewhere in the body, especially in connection with the thymus and lymph glands. The limited necropsy prevented studies of these tissues.

25. **Sino-Auricular Block Due to Tobacco Poisoning.**—A study of the history and clinical course of the two cases cited by Neuhof showed that the two distinct types of arrhythmia, sino-auricular block and ventricular extrasystoles, were apparently caused by two different factors, the former by tobacco, the latter probably by myocarditis and nephritis. The sino-auricular block disappeared very soon after smoking was stopped; the extrasystoles, only when compensation was fully restored. The cases seem to substantiate, in a degree, the results of animal experimentation. In Case 2, the extrasystoles were the result of decompensation. The sino-auricular block represented the effects of nicotin poisoning on the vagus alone. Patient 1 had no organic disease. The moderate acceleration interspersed with irregularly occurring sino-auricular block was apparently a clinical prototype of the two opposed experimental effects of the tobacco alkaloid on the vagus and accelerator.

28. **Basal Metabolism in Obesity.**—According to Means the majority of obese subjects show no alteration in the basal

metabolism, as expressed in terms of their surface area, even though the obesity is of a most extreme type. Occasionally a slight reduction occurs and in such cases clinical evidence of disturbed internal secretion is present.

29. **Typhoidin Reaction.**—The typhoidin reaction carried out by Austrian and Bloomfield in sixty-six individuals failed to furnish data by means of which it was possible to differentiate between those who had neither had typhoid nor received prophylactic vaccination and those who had either had the disease or had been artificially immunized against it.

Boston Medical and Surgical Journal

May 25, CLXXIV, No. 21, pp. 739-774

30 Pediatrics as Specialty in Smaller Cities. A. C. Eastman, Springfield.
31 Management of Gonorrhea. J. D. Barney, Boston.
32 Ophthalmia Neonatorum. G. H. Thompson, North Adams.
33 Ringworm in Children. E. L. Oliver, Boston.
34 Results of Open Air Treatment of Pneumonia in Children. A. R. Cunningham, Boston.
35 Tuberculous Infection in Children. H. W. Dana, Boston.

Cleveland Medical Journal

April, XV, No. 4, pp. 215-314

36 Treatment of Syphilis During First Six Months After Infection. W. T. Corlett, Cleveland.
37 Treatment of Peritonitis. G. W. Crile, Cleveland.
38 Effect of Vitamines on Body Growth. M. D. Shie, Cleveland.
39 Intraspinous Treatment of Neurosyphilis With Standardized Salvarsanized Serum. W. C. Stoner, Cleveland.
40 Pedicle Clamp, Specially Designed for Use in Nephrectomy. W. E. Lower, Cleveland.
41 Congenital Club Foot. G. I. Bauman, Cleveland.
42 *Compressed Air (Caisson) Disease, Discussion of Etiology From Standpoint of Physical Laws. T. S. Keyser, Cleveland.
43 Importance of Roentgen Ray Examination in Clinical Diagnosis; Report of Case. J. D. Osmond, Cleveland.
44 Trouble, Double, Double, Pathologic and Professional. M. J. Lichty, Cleveland.

42. **Compressed Air (Caisson) Disease.**—A typical case of caisson disease eventuating in recovery is reported by Keyser. It is shown that the various congestion theories are quite fully refuted by a simple application of certain fundamental laws of physics, while the gaseous theory is fully supported by these same laws. The characteristic pains and rigidity are considered to be due largely to the irritative nature of the cord lesions. The relief of urinary retention by the administration of pituitary extract is of special importance for the reason that cystitis is a most serious complication in the disease. The onset of recovery following lumbar puncture is an interesting observation in this case.

Indiana State Medical Association Journal, Fort Wayne

May, IX, No. 5, pp. 179-222

45 Surgical Diseases of Stomach. M. F. Porter, Fort Wayne.
46 *Some Points in Early Physical Diagnosis of Pulmonary Tuberculosis. A. C. Kimberlin, Indianapolis.
47 *Thoracoplasty for Chronic Empyema. W. D. Gatch, Indianapolis.
48 Value of Renal Functional Test in Surgery. T. M. Jones, Anderson.
49 *Some Surgical Disorders of Upper End of Femur. B. P. Weaver, Fort Wayne.

46, 47 and 49. Abstracted in THE JOURNAL, Nov. 20, 1915, pp. 1846 and 1848.

Journal-Lancet, Minneapolis

May 15, XXXVI, No. 10, pp. 279-308

50 Embryology and Medicine. C. M. Jackson, Minneapolis.
51 Extra-Uterine Pregnancy With Especial Reference to Early Diagnosis; Report of Seven Cases. D. L. Scanlon, Volga, S. D.
52 Study of Abdominal Wall in Its Relation to Hernia. E. R. Hare, Minneapolis.
53 Present Status of Immunology. L. D. Bristol, University, N. D.

Journal of Medical Research, Boston

May, XXXIV, No. 2, pp. 131-272

54 *Antagonistic Action of Negative Serum on Wassermann Reaction. A. W. Sellards and G. R. Minot, Boston.
55 Histopathology of Intestines in Young Chicks Infected With Bacterium Pullorum. G. E. Gage and J. F. Martin, Boston.
56 *Agglutination Reaction With Serum Derived From Human Cases of Leprosy and From Experimental Animal on Various Members of Acid Fast Group. W. H. Harris and J. A. Lanford, New Orleans.
57 *Simplified Method of Producing Potent Precipitin Serum. W. V. Smith, Louisville, Ky.
58 Pathologic Study of Naturally Acquired Chronic Nephropathy of Dog. W. deB. MacNider, Chapel Hill, N. C.
59 Pathologic and Physiologic Study of Naturally Nephropathic Kidney of Dog, Rendered Acutely Nephropathic by Uranium or by Anesthetic. W. deB. MacNider, Chapel Hill, N. C.
60 *Blood Lipase in Health and Disease. Z. Sagal, New York.
61 Toxic Lesions of Suprarenal Gland and Their Repair. G. S. Graham, Boston.
62 *Study of Acidosis in Three Normal Subjects, With Incidental Observations on Action of Alcohol as Antiketogenic Agent. H. L. Higgins, F. W. Peabody and R. Fitz, Boston.

54. **Antagonistic Action of Negative Serum on Wassermann Reaction.**—In the clinical application of the Wassermann reaction it is generally agreed that there are a relatively large number of cases of syphilitic infection especially in the tertiary stage, in which the test is negative. It would evidently be desirable to secure some method in which a negative reaction would justify the exclusion of syphilis. The possibility suggests itself to Sellards and Minot that syphilis could be excluded if the serum under examination gives strong hemolysis in the presence of a trace of positive serum. Indeed, when no trace of hemolysis occurs under these circumstances it is desirable to search especially carefully for evidences of syphilis. While it is certainly not desirable to increase the sensitiveness of the Wassermann reaction by reenforcing the antigen any further or by increasing the amount of patient's serum which is used, it is still possible that the addition of a trace of positive serum to a negative one might act in a very different direction and, by neutralizing the antagonistic property of normal serum, bring out obscure or weak reactions. This would be of interest, not in the routine Wassermann test, but only for purposes of experimental study.

56. **Agglutination Reaction with Leprosy Serum.**—The agglutinin present in the serum of the human subject affected with leprosy is usually low in titer and inconstant in its action. The employment of this procedure, therefore, has proved of no avail in serving to authenticate any of the various cultures isolated from the leprous lesion of the human as the Hansen bacillus. The serums derived from rabbits inoculated with various bacillary antigens yield agglutinins likewise inconstant in amount and erratic in their action. Serums derived from these inoculated animals do not serve to differentiate the various species employed in these experiments, but suggest a group relationship. Until some further refinement in these procedures is devised, Harris and Lanford assert that but little reliability can be placed on this type of test as a means of identification of any culture isolated from the lesion of leprosy as the bacillus of Hansen.

57. **Method of Producing Potent Precipitin Serum.**—Smith points out that in many places human blood, or human blood serum, cannot be readily obtained. When a quantity of blood can be gotten at once, such as is present in a placenta, it may be precipitated with ammonium sulphate and kept on hand for a long time, at least nine months, and no doubt indefinitely. The precipitated protein is capable of producing a potent precipitin rabbit serum, when injected intraperitoneally. The danger to the animal to be injected is reduced by using this precipitate, as a smaller quantity of material is injected and the precipitate thus prepared is sterile or nearly so. The precipitate can be kept on hand and be readily used in case of emergency.

60. **Blood Lipase in Health and Disease.**—The serum of patients suffering from bacterial diseases, Sagal claims, show a slight increase in enzyme activity, while the serum obtained from sufferers of diseases of nonbacterial origin show a slight depression. Bile stained serum and the serum from hepatic cirrhosis show marked decrease in enzyme activity. Lipase activity gradually decreases with increasing age. Variation of lipase activity in diseased conditions, as shown by the hydrolysis of ethyl butyrate, are so small as to be devoid of diagnostic or prognostic value.

62. **Study of Acidosis; Action of Alcohol as Antiketogenic Agent.**—In three healthy subjects studied by Higgins, Pea-

body and Fitz a carbohydrate free diet caused the development of varying degrees of acidosis. The acidosis was shown by a lowered CO_2 tension of the alveolar air, by an increased urinary excretion of ammonia nitrogen, and of acetone bodies and by the increase titratable acidity of the urine. The acidosis was accompanied by subjective sensations of malaise, an increased oxygen consumption, a negative nitrogen balance, increased pulse rate and increased ventilation. Alcohol given to the subjects on this diet in dosage comparable to that used for clinical purposes did not stop the progress of the acidosis or show any antiketogenic action. Coincidental with its administration there was further increase in the oxygen consumption, and in the disagreeable subjective symptoms.

Journal of Nervous and Mental Disease, Lancaster, Pa.

May, XLIII, No. 5, pp. 393-488

63 *Tabes Dorsalis. Pathologic and Clinical Study of Two Hundred and Fifty Cases. B. Lucke, Philadelphia.
64 Hydromyelia and Hydroencephalia; Report of Case. A. Gordon, Philadelphia.
65 *Abnormal Relation Between Liver and Brain Weights in Forty-Two Cases of Epilepsy. D. A. Thom, Palmer, Mass.
66 Case of Atypical Multiple Sclerosis With Bulbar Paralysis. S. Krumholz, Chicago.
67 Case of Peripheral Neuritis With Korsakow's Symptom Complex. A. A. Wilson, Washington, D. C.

63. **Tabes Dorsalis.**—The symptoms and pathologic findings of 250 cases of tabes dorsalis are analyzed by Lucke. Two hundred and seven, or 82.8 per cent., are white males; 29 or 11.6 per cent. are white females; 13 or 5.2 per cent. are black males; 1 or 0.4 per cent. is a negress. Only 141 or 56.4 per cent. admitted syphilis. The average period of years was 15.34 which elapsed between primary sore and beginning tabetic symptoms. There were no cases of so-called juvenile tabes. Lancinating pains, somewhere in the body, lead the percentages (31.2) of the initial symptoms and occupy first place in the total (71.6). In the 169 cases (67.6) which showed sphincter disturbances, the rectal sphincter was affected in 70 and the vesical sphincter was affected in 143. Girdle sensation was present in 31.2 per cent. Loss of sexual power was noted in 11.2 per cent. Anosmia and deafness were each observed in 2 cases or 0.8 per cent. Insanity, other than paresis in locomotor ataxia, occurred in 6 cases or 2.4 per cent.

Knee jerks were absent in 90 per cent. Romberg's phenomenon was present in 241 cases or 96.5 per cent. Arthropathies occurred in 23 cases or 9.2 per cent.; in 7 cases there was bilateral arthropathies. The joints affected were: right knee joint in 9 cases; left knee joint in 5 cases; both knee joints in 4 cases; right knee joint and metatarsophalangeal joints in 1 case; both ankle joints in 2 cases; left ankle joint in 1 case. In one case Charcot joint (knee) occurred as the first symptom of tabes. Spontaneous fracture occurred in but one case, a woman, who suffered about ten years after the onset symptoms, a fracture of the femur. This fracture was the result of a slight fall. The fracture caused but little, if any, pain. At the present time, six years after fracture, union has not taken place. Malperforant was found in 8 cases or 3.2 per cent. The perforant ulcer always occurred on the foot. Footdrop occurred in 9 cases or 3.6 per cent. Hemiplegia and tabes occurred in 6 cases or 2.4 per cent.

Visual disturbances occurred in 109 cases or 43.6 per cent. of these; failing eye sight occurred in 63 cases or 25.2 per cent.; diplopia occurred in 46 cases or 18.4 per cent.; optic atrophy occurred in 37 cases or 16.0 per cent.; nystagmus occurred in 23 cases or 9.2 per cent. It is of interest to note that in one of two blind cases Romberg's sign is not so great with eyes open, while he promptly will sway and even fall to the ground if he closes his eyes. The other case has a marked Romberg's, which is more decided with eyes closed. Typical Argyll Robertson pupil occurred in 200 cases or 80 per cent.; sluggish reactions or no reactions occurred in 32 cases or 12.8 per cent.; normal reactions occurred in 18 cases or 7.2 per cent.; unequal pupils occurred in 86 cases or 33.6 per cent.; irregular pupils occurred in 34 cases or 13.6 per cent.; unequal and irregular pupils occurred in 20 cases or 8 per cent.; ptosis of both eyelids occurred in 17 cases or 6.8 per cent.; ptosis of left eyelid occurred in 16 cases or 6.4 per cent.; ptosis of right eyelid occurred in 4 cases or 1.6 per cent.; and paresis of eye muscles occurred in 30 cases or 12.0 per cent.

65. **Abnormal Liver and Brain Weights.**—In twenty-six (62 per cent.), in this series of forty-two cases studied by Thom, the brain outweighed the liver. Of the sixteen cases in which the relative liver and brain weight was normal, in only two were the weights of the liver and brain both within the normal limits in the same case, namely, forty of the forty-two cases studied revealed either an abnormal relation between the liver and brain weights, or that one of the organs was of abnormal weight. In some cases both conditions were true. The most common gross abnormalities named in order of their frequency were as follows: atrophy of liver, atrophy of brain, overweight of brain (probably due to edema or hydrocephalus), hypertrophy of liver.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

May, VIII, No. 5, pp. 205-271

68 *Liberation of Epinephrin From Suprarenal Glands by Stimulation of Splanchnic Nerves and by Massage. G. N. Stewart, J. M. Rogoff and F. S. Gibson, Cleveland.
69 *Rôle of Liver in Acute Polycythemia. Relation of Plasma Volume to Number of Erythrocytes Per Unit Volume of Blood. P. D. Lamson and N. M. Keith, Baltimore.
70 *Action of Certain Volatile Oils on Isolated Intestinal Segments. A. L. Muirhead and H. F. Gerald, Omaha.
71 *Pharmacology of Ureter. Action of Drugs Affecting Sacral Autonomics. D. I. Macht, Baltimore.

68. **Liberation of Epinephrin from Suprarenal Glands.**—It is shown by the authors that the response of the denervated eye to stimulation of the peripheral end of the splanchnic nerves, is due solely to the passage of a substance in the blood stream from the suprarenals to the eyeball. When the venous path is blocked the response fails, but appears on releasing the block. When the heart is stopped by stimulation of the peripheral end of the vagus, stimulation of the splanchnics produces no effect on the eye. But on allowing the heart to beat again, the eye response occurs at approximately the same time from the moment of reestablishment of the circulation, as the time interval between stimulation of the splanchnics and the response with the circulation going on normally. When the circulation is slowed without being stopped, the interval between the beginning of stimulation of the splanchnics and the appearance of the eye response is correspondingly increased. When epinephrin is injected into the left renal vein, or into the central end of the femoral vein, in suitable amount to produce an eye response approximately equal to that produced by a given stimulation of the splanchnics, the interval of time after which the response follows is sensibly the same for epinephrin injection as for splanchnic stimulation. When the aorta is clamped, and the splanchnic then stimulated, a response may be obtained in the eye while the clamp is still on, or only after its removal, or both during the application and after removal of the clamp.

Circulation time measurements show that there is always more than sufficient time for a substance to have been carried in the blood from the suprarenals to the eye before the appearance of the eye reactions. The minimum period of stimulation of the splanchnics needed to liberate sufficient epinephrin to elicit a response in the denervated eye is very brief (a fraction of a second). Massage of one or both suprarenals causes definite eye response in an animal in which stimulation of the splanchnics has been causing it, and at the same interval of time. When, after repeated excitations of a splanchnic nerve, the reaction on the eye ceases to be obtained, it can still in general be elicited by massage of the corresponding suprarenal. But this reaction is soon exhausted.

69. **Rôle of Liver in Acute Polycythemia.**—It has been demonstrated by Lamson and Keith that when the hepatic artery is ligated, the intravenous injection of epinephrin causes a decrease in plasma volume, without an increase in the number of erythrocytes per unit volume of blood. Further plasma volume and the number of erythrocytes per unit volume of blood may vary independently of one another.

70. **Action of Volatile Oils on Intestinal Segments.**—The following oils were studied by Muirhead and Gerald: pennyroyal, tansy, wormwood, turpentine, rue, anise, savin and thymol. A number of these oils produce quite marked stimulation of isolated intestinal segments when applied in dilutions of 1 to 50,000 to 1 to 25,000. This is especially true of oil of anise, oil of turpentine and oil of wormwood. All of the oils produced relaxation of intestinal segments when applied in dilutions of 1 to 5,000 to 1 to 10,000.

71. **Action of Drugs Affecting Sacral Autonomics.**—Macht found that pilocarpin, physostygmin, muscarin, pseudomuscarin and cholin, in suitable doses all stimulate the rate and force of the ureteral contractions and increase the tonus of the excised ureter. Large doses of pilocarpin may, however, secondarily paralyze that organ. The pressor action of pilocarpin, physostygmin and muscarin, is not inhibited by previous exhibition of ergotoxin. Atropin in sufficient (rather large) doses, inhibits the contractions and decreases the tonicity of the ureter. Small doses of atropin may produce, though not invariably, a primary stimulation of the ureteral contractions. The same effects as in the ureteral preparations described by the author, were noted in rabbits by observing the ureters in situ, after administration of pilocarpin, physostygmin and atropin. The behavior of the ureter toward the drugs studied, Macht says, gives pharmacologic proof of its innervation by the sacral autonomics, and is also of some practical interest.

Modern Hospital, St. Louis

May, VI, No. 5, pp. 311-392

72 New York Orthopedic Hospital Has New Home. L. M. Franklin, New York.
73 Is Mechanical Ventilation in Hospitals Success? F. Sutton, New York.
74 Orange Memorial Hospital — Analysis of Statistical Data. F. L. Hoffman, Newark, N. J.
75 Cambridge Hospital's New Home and Fine Organization. C. N. Cogswell, Boston.
76 Some Convenient Accessories for Roentgenotherapy. E. Blaine, Chicago.
77 Coffee Substitutes and Hygienic Coffees. J. P. Street, New Haven, Conn.
78 Architecture of A. D. Price Memorial Hospital, Harrodsburg, Ky. H. E. Hannaford, Cincinnati.
79 Intern's Side of Hospital Service. G. K. Dickinson, Jersey City, N. J.
80 Residence Made Over Into Good Hospital. J. R. Kingsley, Three Rivers, Mich.

New York Medical Journal

May 20, CII, No. 21, pp. 961-1008

81 Tonsilloscope. T. R. French, Brooklyn.
82 Ineffective Appendicectomies. R. T. Morris, New York.
83 Specific Therapy in Certain Acute Infectious Diseases. F. J. Dever, Philadelphia.
84 Potassium Iodid Poisoning. R. W. Wilcox, New York.
85 Curatelle and Modern Psychiatry. (To be continued). G. W. Jacoby, New York.
86 Cancer of Breast. J. E. Jennings, New York.
87 Gas Gangrene. E. K. Tullidge, Philadelphia.
88 Collecting Blood by Venepuncture. L. Thompson, Hot Springs, Ark.
89 Concealed Measles. R. Opdyke, New York.
90 Pathologist, Family and Family Physician. M. T. Hansell, New York.

Providence Medical Journal

May, XVII, No. 3, pp. 125-172

91 Importance of Anaphylaxis in Clinical Medicine. G. Blumer, New Haven, Conn.
92 Intraspinal Treatment of General Paresis and Tabes Dorsalis; Report of Cases. F. E. Webb, Providence.
93 Laryngeal Paralysis in Tabes. F. M. Adams, Providence.
94 Primary Sarcoma of Sclerocorneal Juncture Treated With Jequirity. V. L. Raia, Providence.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

May, XXIV, No. 5, pp. 129-160

95 Acute and Subacute Metastases. A. L. Blesh, Oklahoma City.
96 Treatment of Nevus. J. L. McDermott, Kansas City, Mo.
97 Syphilis of Cardiovascular System. L. J. Moorman, Oklahoma City.
98 Trachoma. D. W. White and P. C. White, Tulsa.
99 Cerebral Syphilis. J. W. Duke, Guthrie.
100 Syphilis of Nervous System. A. D. Young, Oklahoma City.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

May; XIII, No. 149, pp. 129-160

1 Hearing Tests in School Children. M. Yearsley.
2 *Nephritis Without Albuminuria. J. P. Parkinson.
3 Case of Dyspituitarism in Girl, Aged Fifteen Years. S. Stephenson.
4 Retrospect of Otology, 1915. M. Yearsley.

2. **Nephritis Without Albuminuria.**—The case cited by Parkinson began as pneumonia in a boy of 3½ years of age. A few days after his recovery slight edema appeared on the face, and the next day the face was extremely swollen, as also were the arms, hands, feet and legs, and the wall of the trunk. There was no evidence of fluid in the chest or abdomen. From now the urine was examined daily, but no albumin was ever found. Microscopically a few granular and hyalin casts and an odd red corpuscle or two were found on centrifugalizing. The amount of urine passed daily was normal, and fairly abundant urates were deposited on standing. On the third day the patient got very stupid, but not exactly drowsy. The blood pressure on this date was 90 mm. The edema began to disappear after three or four days under hot air baths and saline purgatives, and after ten days all casts and blood had disappeared from the urine, only a few epithelial cells from the bladder being seen on centrifugalizing. Parkinson believes this child to have had an attack of acute nephritis following but not due to pneumonia, causing edema and the presence of casts and blood cells in the urine, but without albuminuria.

British Medical Journal, London

May 6, I, No. 2888, pp. 641-676

5 Suture of Nerves and Alternative Methods of Treatment by Transplantation of Tendon. (To be continued.) R. Jones.
6 *Case of Congenital Atresia of Duodenum Treated Successfully by Operation. N. P. Ernst.
7 Some Hints on Time Saving in Operations. E. Harrison.
8 Dressings Used in Casualty Clearing Station. A. Don.
9 Case of Acute Urinary Infection With Paratyphoid B Bacillus. C. Worster-Drought and A. M. Kennedy.
10 Case of Ganglioneuroma of Sympathetic. D. R. Adams.
11 Therapeutic Value of Hypochlorous Acid. R. F. Cordova.
12 Simple Method for Intravenous Injection of Eusol. J. M. Graham.

6. **Congenital Atresia of Duodenum.**—Ernst's patient was only 12 months old. From the first the child always vomited after suckling. On the third day it took the breast more actively than at first, but two or three hours later it began to vomit, with almost explosive violence. Very little urine was passed, and the motions were limited to a small amount of typical meconium, without a particle of digested milk. The child was treated both with castor oil and enemas. Rectal examination revealed no abnormal condition of the bowels. The child lost weight rapidly. Ernst made a diagnosis of high-seated intestinal stenosis or atresia and suggested an operation. On opening the peritoneum the dilated stomach protruded into the wound, and was traced along the dilated pylorus into the duodenum, which was uniformly of about two fingerbreadths in width, so far as it could be traced to the upper side of the transverse mesocolon. But below the colon, where the intestine reappeared, at the flexura duodenojejunalis, it was seen to have collapsed to the caliber of an ordinary pencil, about 8 millimeters in diameter. The remaining part of the small intestine was normal. Ernst made a duodeno-entero-anterior anastomosis—that is to say, a coil of small intestine about 4 inches below the flexura duodenojejunalis was drawn up in front of the transverse colon, and united to the duodenum about the junction of the pars superior and pars descendens. Anastomosis to the lower part of the pars descendens was impracticable. The child made a complete recovery and is now alive and well.

Edinburgh Medical Journal

May, XVI, No. 5, pp. 337-416

13 Crossed Aphasia. B. Bramwell.
14 Roentgenography of Thorax in Children. J. S. Fowler.

15 Enucleation of Eyeball Under Local Anesthesia. H. M. Traquair.
16 Physicians in Zola's History of Rougon-Macquart Family. J. B. Adams.
17 Case of Congenital Cutaneous Outgrowth. D. M. Greig.

Glasgow Medical Journal

May, LXXXV, No. 5, pp. 313-375

18 Prevention and Treatment of Some Obscure Conditions Complicating Convalescence After Gastro-Enterostomy. A. MacLennan.
19 *Subacute Anterior Poliomyelitis. A. W. Harrington and J. H. Teacher.

19. **Subacute Anterior Poliomyelitis.**—The patient whose case is cited by Harrington and Teacher was an elderly woman who presented a flaccid paralysis beginning in the peroneal group, extending rapidly to the upper extremities, and finally involving the muscles of respiration. The paralysis appeared first, and later atrophy of the affected muscles became marked. No fibrillary tremors were observed. Repeated and thorough examinations showed that there were no disturbances of sensation beyond occasional shooting pains. The sphincters were not affected. The reflexes were early abolished. An examination of the electrical reactions on admission showed reaction of degeneration fully developed in the affected muscles of the left leg and incomplete in the right leg. The Wassermann reaction was not ascertained, but there was no history or suggestion of syphilis. The patient died from involvement of the diaphragm and intercostal muscles, the duration of the illness being probably less than a year. Clinically, the diagnosis lay between peripheral neuritis and anterior poliomyelitis. The pathologic report was wholly in support of the latter diagnosis. The principal features were the advanced degenerative changes in the ganglion cells of the grey matter of the spinal cord, and to a less degree in the medulla and pons, and the absence of tract degenerations and peripheral neuritis. A second patient, a woman of 48 years, exhibited a flaccid paralysis beginning in the peroneal group of muscles, rapidly extending to the upper extremities, and finally involving the muscles of respiration. The paralysis preceded the atrophy. Reaction of degeneration was present, but there were no fibrillary tremors. There was no disturbance of sensation beyond occasional shooting pains in the right leg. The duration of the illness was less than one year. The diagnosis was indicated by the somewhat selective nature of the palsy, by the distinct atrophy which followed, and by the complete absence of sensory disturbance. Clinically, the case could be definitely distinguished from progressive muscular atrophy and peripheral neuritis. Pathologically there was degeneration of the lower motor neurones. The case probably should be regarded as a subacute poliomyelitis.

Journal of Tropical Medicine and Hygiene, London

May 1, XIX, No. 9, pp. 101-116

20 Epidemic Cerebrospinal Meningitis as Seen in Anglo-Egyptian Sudan. A. J. Chalmers and W. R. O'Farrell.

Lancet, London

May 6, I, No. 4836, pp. 913-980

21 Infantile Mortality and Relative Practical Value of Measures Directed to Its Prevention. S. G. Moore.
22 Some Factors in Pathology of Gas Gangrene. W. d'Este Emery.
23 Visual Standards Used in Medical Examination of Recruits in British Army and Continental Armies. J. V. Paterson and H. M. Traquair.
24 *Spinal Anesthesia With Special Reference to Use of Novocain. C. C. Holman.
25 Clinical Manifestations of Gas in Military Mines. C. E. Sundell.
26 Cases of Foreign Bodies in Bladder Resulting from Gunshot Wounds. G. G. Turner.
27 *Ulcerative Stomatitis. K. Goadby.

24. **Novocain in Spinal Anesthesia.**—Holman emphasizes the fact that spinal anesthesia is a method which must be employed with scrupulous care and attention to detail. He says that it is more suitable for use in hospitals in which the nursing staff is familiar with the technic and after-treatment, than it is for casual operations in private practice. Like many valuable operations it has sometimes obtained a bad reputation through improper performance.

27. **Ulcerative Stomatitis.**—Ulcerative stomatitis, often preceded by or accompanied with sore throat, is appearing sporadically among the troops in France as well as in some of the English camps. A smear preparation made by Goadby from the gums, cheeks, or throat and stained by Giemsa's method showed innumerable bacteria of two morphologic forms: (1) *Bacillus fusiformis* and (2) spirochetes, both gram-negative. Stained by Leishman's stain or Giemsa the fusiform bacilli were seen to be diplobacilli 6 to 7 microns in length, with pointed extremities; the thickened ends being in apposition with a small clear area between, somewhat resembling the sheath form of the *Bacillus diphtheriae*. The organism is longer and larger than the diphtheria bacillus and is slightly curved; plasmolysis is common. The second or spirillum form closely resembles the spirillum of relapsing fever as seen in blood films; it is wavy in outline, irregular in form, and without the characteristic regular "screw" form seen in *Spirochaeta pallida*. Many of the organisms show unmistakable spiral form; the "turns" of the thread are but four to six in number, the ends may be pointed, but the organism is usually about the same diameter throughout; in hanging-drop preparations from the tissue it is not motile. The organism is an obligatory anaerobe and is also serophile.

Quarterly Journal of Medicine, London

April, IX, No. 35, pp. 165-256

28 *Experimental Investigation on Diarrhea and Vomiting of Children. E. Mellanby.
29 *Quantitative Determination of Amylase in Blood Serum and Urine as Aid to Diagnosis. P. Stocks.
30 Urticaria Tuberosa of Willan; Report of Cases. J. A. Nixon.

28. **Diarrhea and Vomiting of Children.**—Some years ago an extremely active and toxic substance known as beta-imidazolylethylamin (throughout this paper called β-i) from ergot. It is derived from histidin, a harmless substance by the removal of carbon dioxid. The experimental portion of Mellanby's work was carried out on the assumption that β-i is one of the most important factors in epidemic diarrhea and vomiting. Various hypotheses involving β-i as the cause of such symptoms can be formulated: 1. That in diarrhea and vomiting there is excessive production of β-i in the intestine due either to: (*a*) a changed or increased bacterial flora; (*b*) a changed chemical or physical condition which prevents the absorption of histidin of the food and allows a subsequent increased production of β-i; or to (*c*) a changed condition which allows bacteria acting on histidin to produce a relatively large amount of β-i rather than innocuous products (such an innocuous product might be beta-imidazolylacetic acid). 2. That in diarrhea and vomiting there may or may not be an increase of β-i, but the β-i, present in the alimentary canal and mucous membrane, becomes active in some way, and is absorbed into the blood stream at a time when the animal is incapable of resisting its toxic action and rendering it innocuous.

The most important results obtained by Mellanby in this research from a practical point of view are as follows: First, as regards the absorption of toxins like β-i from the intestine: There is a marked delay in the absorption of toxic substances, normally in the intestine, when animals are injected with large quantities of fluid. Water in the intestine delays the absorption of toxic substances. During the digestion of foodstuffs generally, meat, milk, sugar and fat, there is a delay in the absorption of toxic substances. The presence of bile in the intestine delays the absorption of toxic substances. Magnesium sulphate, of a concentration of 2 per cent. or over, delays the absorption of toxic substances from the intestine. A less concentration of magnesium sulphate has no effect. Morphin below the point of being a serious menace to the respiratory center, has no effect on the absorption of toxic substances. Secondly, as regards the resisting power of the animal toward absorbed toxic substances: The resistance of an animal against toxic substances is very greatly increased by the injection of fluid into the circulation. An animal with a diminished amount of fluid, and particularly after the loss of a small amount of blood, has little power of resistance against toxic substances. An animal's resistance is greatly

increased after it has absorbed from the intestine food, and more particularly meat. During the digestion of fat, toxic substances absorbed from the intestine have a diminished action, at least for some hours. Clinically, a child suffering from diarrhea and vomiting owing to loss of fluid, loss of bile salts, with an empty intestine and in a starving condition, is in an ideal position for allowing toxic substances normally present in the alimentary canal and mucous membrane to be rapidly absorbed and have their full toxic action. The association of this disease with a high atmospheric temperature in an epidemic form is to be explained largely by the additional loss of fluid due to evaporation of water, whereby the child keeps down its body temperature. Hence, of all treatment in this condition, the one thing essential is to get the volume of body fluids of the child back to normal or above normal by intravenous or subcutaneous injection of saline solution.

29. **Amylase in Blood Serum and Urine.**—Amylolytic ferment is present in definite quantity 6.6 to 8 units according to Stocks in the blood serum and urine of all healthy individuals, and has also been found in all the body fluids examined. The level is practically constant in the blood serum—the level in the urine is subject to diurnal variations due chiefly to the digestive functions. The ferment is of pancreatic origin and is absorbed directly by the blood. No proof of the action of antiamylase has been found. Disease of the kidneys causing any diminished permeability of these organs reduces the amount of ferment in the urine and consequently raises the amount in the blood. Any disturbance in the ratio D (blood) : D and M (urine) indicates renal insufficiency in all such cases. Severe passive congestion also raises the amount of amylase in the blood. With these exceptions any increase of the ferment in the blood serum denotes pancreatic mischief. The values have been found raised by Stocks in all cases of pancreatic disease, the increase depending on the degree of obstruction in any part of the gland or its ducts, and on the acuteness of the condition. The highest values were found in a case of acute pancreatitis. The estimation of the amylolytic capacity of the blood serum and the urine is a most delicate test of the efficiency of the pancreas, and consequently is a most delicate and reliable test for disease of the pancreas. A simplified modification of Wohlgemuth's method was used by Stocks in his work.

Annales de Médecine, Paris

March-April, III, No. 2, pp. 109-191

31 *Congenital Ectasia of Pulmonary Artery in Man of 65. (Cas d'ectasie simple congénitale de l'artère pulmonaire observée chez un tuberculeux entaché de syphilis cérébro-spinale présentant des nodules kystiques à distribution symétrique sur tout le corps.) E. Lenoble.

32 *Cobra Venom Serum Test of Function. (Sur l'activation du venin de cobra par le sérum de malades atteints d'affections rénales.) E. Duhot.

33 *Action of Antiseptics in War Wounds. (Action des antiseptiques et plus spécialement des hypochlorites alcalins sur les leucocytes du pus et les albumines constitutées des plaies de guerre.) N. Fiessinger, C. O. Guillaumin, P. Moiroud and G. Vienne.

34 Paratyphoid Simulating Cholera. (Syndrome choléri forme et bacilles paratyphiques.) Grall and G. Laroche.

35 *Wounds of the Chest. (Notes à propos de 122 cas de plaie de poitrine.) M. Maillet.

31. **Ectasia of Pulmonary Artery.**—Lenoble's case was remarkable on account of the absence or mildness of symptoms from the combination of congenital ectasia of the pulmonary artery, cerebrospinal syphilis, pulmonary tuberculosis and about twenty cystic nodules scattered symmetrically over the body. The man of 65 was a day laborer and had raised fourteen children. One of the cysts was located in the fourth ventricle but the man succumbed to rapid pulmonary tuberculosis.

32. **Cobra Venom Hemolytic Test with Nephritis.**—Duhot gives the findings in the serum from twenty-six patients with kidney disease and seventy-seven with various other affections. The findings were positive with remarkable constancy in the serum from patients with kidney trouble of any kind. The reaction was also peculiarly prompt and peculiarly intense in them, regardless of the clinical severity of the kidney disease and of the absence or presence or degree of uremia. Positive findings to a lesser degree were obtained also in other conditions in which the lipoid content of the serum is generally augmented, as in pregnancy, diabetes and infectious diseases.

33. **Action of Antiseptics in War Wounds.**—The research here described was done with eight of the antiseptics currently in vogue, including 1 :1,000 mercuric chlorid and Dakin's hypochlorite solution. The effect on the leukocytes was estimated from the movements of the granules and the staining properties as well as from the breaking up of the cell. Illustrations are given of the aspect of the cell at different periods under the influence of the various antiseptics. The alkaline hypochlorite solutions have a prompt dissolving action, liquefying the pus, red corpuscles and blood clots in the wound. This dissolving action is the work of the sodium, and it is annulled by too much boric acid and by salt. Living tissue protects itself against this dissolving action by its salt content. Irritation of the tissues around a wound being irrigated with hypochlorite solution can be warded off by keeping them covered with a compress moistened with a 20 or 40 :1,000 salt solution. Charts and tables are given to illustrate this protective action of weak salt solution, effectually protecting the cells and tissues against harm from the hypochlorite solutions. Dakin's formula ensures sufficient dissolving action while but slightly irritating normal tissues, and this irritation can be warded off with the 2 or 4 per cent. salt solution, the hypochlorite and salt just balancing each other.

35. **Firearm Wounds of the Chest.**—Maillet's 122 cases illustrate anew the paramount importance of early and prolonged immobilization in treatment of wounds of the chest. Gelatin, calcium chlorid and other measures to check hemorrhages were always supplemented by emetin which seemed to have an especially favorable influence in combating a tendency to hemoptysis. In one case artificial pneumothorax succeeded when all else had failed. These patients are particularly sensitive to getting chilled, and they develop serious congestion at the slightest exposure. Quinin was given in the cases with congestion. When the effusion could not be tapped, injection into the pleural cavity of 10 c.c. of a 5 per cent. solution of methylene blue aided in warding off suppuration.

Bulletin de l'Académie de Médecine, Paris

April 25, LXXV, No. 17, pp. 453-490

36 Pseudo-Appendicitis: Diverticulitis; Two Cases. (Sur quelques traits de l'histoire clinique du diverticule de Meckel.) E. Kirmisson.

37 The Power of Microbes to Injure Leukocytes is Index of Their Virulence. (Du mode d'action de certains antiseptiques et des procédés destines à apprécier leur valeur thérapeutique.) Maurel.

Paris Médical

April 29, VI, No. 18, pp. 409-424

38 *Recovery Under Serotherapy of Tetanus. (Sérothérapie dans le tétanos declaré et traitements combinés.) G. Etienne.

39 Colloidal Iron in Treatment of Typhoid. Le Fèvre de Arric.

40 Abdominal Wounds in War. (La chirurgie abdominale à l'avant.) R. Grégoire.

41 Localization of Projectiles in the Tissue. (Méthode radioscopique de localisation des projectiles.) R. Desplats and R. Paucot.

May 6, No. 19, pp. 425-456

42 Skin Diseases During the War. (Les dermatoses pendant la guerre.) Milian.

43 Psoriasis Brought On by Fright or Trauma. (Le psoriasis émotif et traumatique.) M. Gaucher and R. Klein.

44 Treatment of Soft Chancre. F. Balzer.

45 *Prophylaxis and Treatment of Venereal Disease Among the Troops. (La syphilis aux armées.) E. Bodin; (Traitement de l'urétrite blennorragique aux armées.) Carle; (Le 102 ou luargol.) G. Milian; (2 recettes pour faciliter le traitement antisyphilitique en campagne.) G. Blechmann.

46 Suppurating Inguinal Glands. (Adénites chancrelleuses.) H. Gougerot.

47 *Torpid Wounds That Refuse to Heal and Their Treatment. (Les plaies atones.) F. Debat.

38. **Antitetanus Serum in Treatment.**—Etienne does not share the pessimistic views of many in regard to serotherapy of tetanus, having had five patients out of six recover under systematic administration of antitetanus serum. The men all

had fever except one, and this was the one fulminating fatal case. This patient proved to be a carrier of tetanus germs as he had no symptoms until, under a course of quinin, the fulminating tetanus developed. Salette has observed similar cases and Vincent has reproduced the same in animals, quinin injections arousing latent tetanus to a rapidly fatal course. In Etienne's five other cases, all with favorable outcome, the incubation period had been three, six, seven, ten or eleven days. Tetanus, he reiterates, is primarily an infectious disease, then an intoxication, and finally a nervous affection. The first calls for treatment of the focus, the second for antitoxin treatment and the third for chloral and morphin. With serotherapy, he adds, "it does no good to shoot at a lion with birdshot," and adequate dosage is the main point.

45. **Convenient Mercurial Treatment of Syphilis.**—Blechmann says that mercury can be administered by applying a lump of mercurial ointment to the sole of the foot before pulling on the sock or stocking. The constant stepping on it forces the drug into the tissues, and absorption is so complete that he has had stomatitis follow in some cases. The mercury can also be given in the form of a cocoa-butter suppository. It may induce transient diarrhea but has no other inconvenience. Both of these methods are effectual and discreet, while they are convenient for troops on active service, or under other exceptional conditions.

47. **Torpid Wounds.**—Debat declares that the lack of exercise and the congestion from gravity amply explain the refusal of certain wounds to heal. They drag along for months until active measures are applied. No drugs are needed, merely measures to promote the circulation while warding off harm from gravity congestion. Walking with the wounded leg too soon aggravates the gravity disturbances and undoes what has been accomplished. The limb should be kept raised enough to counteract gravity, and the muscles vigorously contracted five minutes every hour, with daily massage and brief hot air douches, but no drugs.

Presse Médicale, Paris

April 27, XXIV, No. 24, pp. 185-192

48 Operative Corrections of Ankylosis of the Elbow. (La résection de l'épiphyse humérale inférieure appliquée au traitement de l'ankylose ou des lésions ankylosantes du coude. Avantages de l'incision latérale externe pour l'opération.) P. Alglave.

49 Abdominal Wounds in War. (Traitement des plaies pénétrantes de l'abdomen.) J. Abadie.

Progrès Médical, Paris

April 20, XXXII, No. 8, pp. 57-64

50 Fistulas in or Around the Orbit From Wounds in War; Twelve Cases. (Fistules orbitaires et périorbitaires.) H. Bourgeois.

51 Combined Chloroform and Ethyl Chlorid for General Anesthesia. (Du choix d'un anesthésique et d'un analgésique général en chirurgie et en obstétrique: le chloroforme chloréthylé.) J. Regnault.

May 5, No. 9, pp. 65-72

52 Training the Motor Apparatus Anew. (Les rééducations de l'appareil locomoteur.) H. Gosset.

53 *Washtubs to Stand in the Trenches. (Prophylaxie des macérations et gelures des pieds.) A. Bailliet.

53. **Prophylaxis of Trench Foot.**—Bailliet suggests for the men in the trenches to stand in wash tubs, thus keeping dry and out of the mud. Planks laid from tub to tub will serve as seats. He suggests further that the tent cloth carried by the man be buttoned around the neck and around the top of the tub, this "empire robe," as he calls it, thus keeping all rain and wet out of the tub while keeping in warmth, especially if the tub is partly filled with sawdust.

Correspondenz-Blatt für Schweizer Aerzte, Basel

April 29, XLVI, No. 18, pp. 545-576

54 Extension Treatment of Fractured Femur. (Erfahrungen über die Behandlung der Oberschenkelbrüche mit der Extension nach Bardenheuer.) C. Kaufmann.

55 Technical Points in Meat Inspection. (Die Untersuchung auf Rinderfinnen—Cysticercus bovis s. inermis—in der Fleischschau.) R. Buri.

May 6, No. 19, pp. 577-608

56 Influencing of the Pulse by the Breathing. (Die Beeinflussung des Pulses durch die Atmung.) O. Roth.

Gazzetta degli Ospedali e delle Cliniche, Milan

April 23, XXXVII, No. 33, pp. 513-528

57 *Phagocytosis During Acute Infectious Diseases. (Alcune ricerche sul comportamento del potere fagocitario nelle malattie infettive.) C. Romagnolo.

April 27, No. 34, pp. 529-544

58 Improvised Arrangements for Isolation in the War Zone. (Come si puo costituire un locale d'isolamento in Zona di Guerra.) F. Pancrazio.

April 30, No. 35, pp. 545-560

59 The Vitamins. E. Bertarelli.

60 Recovery From Severe Puerperal Fever Under Intravenous Injections of Mercuric Chlorid. (Sopra un caso di setticemia puerperale guarito con le iniezioni endovenose alla Baccelli.) A. Sofi.

57. **Phagocytosis in Acute Infections.**—Romagnolo used Stuber's technic for determining the phagocytosis, and reports the findings and all details of twenty-four cases of typhoid, meningitis or other acute infectious disease. At first phagocytosis grows less, then the defensive forces rally and it increases notably and then gradually drops back to normal. The height of the phagocytosis may correspond to the period just preceding the crisis of the disease or it may occur while the fever is at its height or not until convalescence is well under way. In one case of erysipelas, phagocytosis kept on a very high level even after defervescence and this was explained by the return of the disease, a second attack following on the heels of the first. When the phagocytic power keeps low and grows lower as the disease progresses, the outlook is grave.

Policlinico, Rome

April 16, XXIII, No. 16, pp. 485-516

61 Influence of Quality of Peptone Used in Bacteriologic Work. C. Gorini.

62 Soldier's Heart. (Il cuore dei soldati.) G. Galli.

63 Importance of Collaboration Between Surgeons and Neurologists in Treatment of the Wounded. (Per una piu giusta e piu utile collaborazione fra nevrologia e chirurgia di guerra.) L. Bobbio.

64 Gas Gangrene. (Contributo alla cura della gangrena gassosa.) T. Giovanni.

April 30, No. 18, pp. 549-580

65 Ready-Made Culture Medium for Rapid Diagnosis of Cholera. (L'uso del terreno di Aronson nella diagnosi rapida del vibrione colerigeno.) G. Volpino.

66 *Virulence of the Blood in Animals With Foot-and-Mouth Disease. (La virulenza del sangue degli animali malati di afta epizootica.) G. Cosco and A. Aguzzi.

67 *Epinephrin in Treatment of Nephritis. (Cura della nefrite con la soluzione di adrenalina nella pratica di condotta.) G. B. Borelli.

66. **Virulence of the Blood in Foot-and-Mouth Disease in Animals.**—Cosco and Aguzzi have been conducting research on an extensive scale under the auspices of the national public health service. In 116 cattle examined the blood was found virulent during the entire febrile course of the foot-and-mouth disease, as virulent as the products of the aphthous eruption. The red corpuscles and the serum are equally virulent and the defibrinated blood kept on ice retained its virulence for over a month. Red corpuscles thoroughly rinsed from all traces of serum, and the serum alone, reproduced the disease on subcutaneous injection of other cattle in a dose as small as 1 c.c. They regard the red corpuscles thus as ideally adapted for production of a vaccine, and they are now working along this line.

67. **Epinephrin in Treatment of Nephritis.**—Borelli reports two cases of acute and one of chronic nephritis in which remarkable benefit was realized by epinephrin treatment. One patient was a child nearly 5, the others men of 50 and 62. He gave the child sixteen drops a day of a 1:1,000 solution of epinephrin, four drops at four hour intervals. The adults were given forty drops a day, eight at a time. Ercolani called attention in 1910 to the benefit from epinephrin by the mouth in nephritis, commending the harmlessness, ease and efficacy of this method of treating kidney disease, which has proved its usefulness again and again, and Borelli's experience has confirmed his statements.

Brazil-Medico, Rio de Janeiro

April 8, XXX, No. 15, pp. 113-120

68 Diphtheria Bacilli Not Found Invariably in Diphtheria. (Diagnostico bacteriologico da diphteria.) E. Gomes.

69 *Syphilis of the Stomach. (Contribuição ao estudo da syphilis do estomago.) O. Clark. Concluded.

April 15, No. 16, pp. 121-128

70 Principles for Protection Against Intestinal Parasites. (Os nematoides do tubo digestivo de que modo infestam o organismo? Prophylaxia.) A. A. da Matta.

71 Severe Polyarthritis of Gonorrheal Origin in Bride. (Arthrite blennorrhagica em uma recem-nupta, sem localisação primitiva apreciavel. Arthrotomia. — Cura.) F. L. Rodriques.

69. **Syphilis of the Stomach.**—The earlier instalments of Clark's article were summarized in these columns May 20, p. 1665. He here gives the minute details of his eleven cases, tabulating them for comparison. In three cases the patients had no suspicion of their syphilis; in five the disease had been acquired eleven, fifteen, twenty-seven or thirty years before. The stomach had given trouble for three months, eight days, ten months and eighteen months in these cases. In one case severe hematemesis on three occasions was the only symptom, and mercury soon conquered this. In another case the fatal hematemesis was the first sign of anything wrong. In conclusion Clark compares his experiences with the twenty-six cases reported by Smithies in The Journal, Aug. 14, 1915, and the cases referred to by others in the discussion. Clark emphasizes the resemblance between the clinical pictures in syphilis and in cancer of the stomach in certain cases.

In Clark's latest case there was stenosis of the pylorus from a tumor with much dilatation of the stomach and positive Wassermann reaction, but he was unable to determine whether the trouble was of syphilitic or malignant origin. There was no free hydrochloric acid and the man of 55 did not present the cachexia and pallor of cancer, the absence of anemia testifying also against malignant disease. The patient was ruddy and there was no trace of metastasis although the symptoms had been noted for eighteen months. He refused to take a hospital course of treatment so the diagnosis is still dubious.

Semana Medica, Buenos Aires

No. 5, XXIII, pp. 115-142

72 *Sclerosis of Pulmonary Artery; Two Cases. (Cardiacos negros de Ayerza.) C. P. Mayer.

73 Brazilian Mosquitoes. (El Anopheles albitarsis F. Lch. A.) J. Brethes.

No. 6, pp. 143-170

74 Intravenous Treatment With Autogenous Extract of Feces. (La Coproterapia endovenosa.) M. A. Marini.

75 Mechanism of Fractures in General. F. I. Castro.

No. 7, pp. 171-198

76 Edema of the Bladder. (Edema bullosum de la vejiga.) J. N. Posadas and E. Pozzi.

77 *Will Valid Made the Day Before Death From Typhoid. (Informe medicolegal sobre el estado mental y la capacidad de testar de un enformo fallecido de fiebre putrida.) J. J. Benitez.

No. 13, pp. 347-378

78 *Is Adiposis Dolorosa Connected With Syphilis? (Contribucion al estudio de la adiposis dolorosa.) R. G. Pizarro.

79 Remuneration of the Physician. (De los honorarios medicos.) A. Stucchi.

80 Ophthalmology in North America and in the Argentine Republic. (Viajes cientificos.) Juan Santos Fernandez.

72. **Sclerosis of the Pulmonary Artery.**—The cyanosis of persons with typical sclerosis of the pulmonary artery has won for them in Argentina the name of "black cardiacs," *cardiacos negros*. Ayerza applied this term to cases of secondary sclerosis and Arrillaga has published eleven typical cases. Mayer now adds two more to the list. His patients are men of 44 and 53. The cyanosis developed two or four years ago, but for some years before that there had been repeated "colds" and chronic bronchitis with tendency to emphysema and sometimes blood in the sputum and the men's endurance was reduced. Nothing in the heart or respiratory apparatus explains this intense cyanosis. The fingers and toes show the drumstick shape of chronic pulmonary disease, especially disease of the pulmonary artery, and the fundus of the eyes shows dilation of the veins. The blood is approximately normal except for marked lymphocytosis and positive Wassermann reaction. Both patients are extremely somnolent and are subject to painful spasms in the chest, a kind of angina pectoris from angioneurotic dyspragia of the pulmonary artery, without participation of the heart. The pain spreads from the base of the heart to the depths of the lungs. The pulmonary artery is always dilated as also the right ventricle, and the second pulmonary sound is accentuated. The absence of edema with the cyanosis, the constant drowsiness, the normal temperature unless there are complications and the Roentgen findings usually readily differentiate the trouble. Cupping and digitalis were the chief reliance in treatment and gave much relief.

77. **Validity of Will Drawn During Typhoid Fever.**—Benitez devotes nearly twenty pages to the evidence on record as to whether a will signed within forty-eight hours of death from typhoid is valid in law. He discusses what is meant by typhoid fever, the mental condition of typhoid patients, and the factors which entail death. His conclusion is that in the great majority of cases the mind is normal during the day or two before death.

78. **Adiposis Dolorosa in Relation to Syphilis.**—Pizarro summarizes the history and literature of Dercum's disease, and describes a case from his practice which seems to throw light on its etiology and treatment. His patient was a woman of 52 who had menstruated early and borne a child young. The child died in two hours, and there has been no pregnancy since except one possible early abortion. At 46 the first sign of the adiposis dolorosa developed, and menstruation ceased at 48. At the age of 52 the disease, in the mixed form of adiposis, was extreme, as also the pains, but the urine was normal. On one occasion the repeated Wassermann test elicited a positive response, and on the basis of the single Wassermann reaction vigorous mercurial treatment was applied and improvement was promptly evident. The blood findings on repeated examination confirmed the clinical improvement. The masses of adipose tissue retrogressed almost entirely. The patient had no further spontaneous pains, and instead of the huge unwieldy adiposis as shown in the illustrations she is said to have become agile and capable (*agil y dispuesta*). Her weight at any time is not mentioned. She had been given ovarian treatment at first, and this was kept up with iodid after suspension of the mercurial treatment. Pizarro presents his conclusions in the form of twelve questions, asking, Is it possible that adiposis dolorosa is of syphilitic origin? Has treatment as for syphilis been tried before in this disease? If it has been tried, and no benefit resulted, could this have been owing to inadequate dosage or other defective technic? In this case were the adiposis dolorosa and the syphilis independent or not of each other? Is it not a common occurrence that syphilis aggravates dystrophies and other manifestations of defective functioning of the ductless glands?

Russkiy Vrach, Petrograd

XV, No. 10, pp. 217-240

81 Pirogoff's Report on Garibaldi's Wound. S. Y. Streich.

82 *Agglutinins in the Blood of Children After Injection of Typhoid Vaccines. (O narostanii agglutininov v krovi u typhoznikh vaktzin.) P. S. Medovikoff.

83 Care and Evacuation of Insane Soldiers on Active Service in the Southwest. (Prizrienie i evacuatzie dushevnobolnikh voinov dieistvuiushtshikh army v C. Zapadnom raionie.) N. N. Reformatsky.

No. 11, pp. 241-264

84 *Influence of the War on Neurasthenia in Soldiers on Active Service. A. V. Gerver. Commenced in No. 10.

85 *Mental Derangement Caused by the War or Due to Brain Lesions. M. S. Urstein.

86 *Diagnosis of Aneurysm of the Pulmonary Artery; Necropsy Findings in One Case. P. N. Nikolaieff.

87 *Disturbance in Vision Caused by Denatured Alcohol. (O razstroistvakh zrieniya pri otravlenii denaturvannim spirtom.) V. N. Eleonskaia.

88 Complications of Vaccination Against Typhoid. (K voprosu a posliedstviyakh protivotyphoznikh privivok.) G. A. Akhiezer.

82. **Vaccination of Children Against Typhoid.**—Medovikoff vaccinated seventeen girls from 8 to 14 years old, in order to find out whether antityphoid vaccination produces in children any reaction, and whether agglutinins form and accumulate during the period of vaccination. He used Wright's bouillon vaccine, Kolle's agar vaccine or Vincent's vaccine, each in about a third of the children. Three injections were

made, each hypodermically, below the scapula, with eight day intervals. The dose for the first injection was 0.5 c.c. per 60 kg. of body weight; for the second injection, twice and for the third, three times the amount used for the first injection. The local reaction showed the next day in the form of redness, swelling and tenderness; in some cases the axillary glands became swollen. The general reaction was insignificant, merely slight headache, some malaise, and a very slight elevation of the temperature, which was somewhat higher after Wright's vaccine. Before the first injection it was established that the serum (1:20) dilution did not agglutinate typhoid bacilli. After the vaccinations, the agglutinins began to appear by the sixth day after the first injection and kept increasing after the subsequent vaccinations. Thus any of these varieties of vaccines can be used, as with each and all of them production of agglutinins takes place. His experience also shows that in children, as well as in adults, immunity against typhoid infection can be successfully induced, and thus they can be protected against this disease in case of an epidemic.

84. **Neurasthenia in Soldiers on Active Service.**—Gerver found from repeated observation of neurasthenia in soldiers that it manifests itself in the war environment with the same clinical symptoms as in time of peace. The specific features are impulsive ideas and phobias; even the entire sphere of consciousness may suffer. The existing conditions of warfare imprint special features on the neurasthenia. The forms with agitation show during periods of hot battling, while trench warfare elicits the more torpid forms of neurasthenia. The physical symptoms also are the same as in time of peace, headache, dizziness, tinnitus and diminished hearing. Clavus, that is, an acute sharply localized pain, especially in the occipital region, is also very common, and hysteria is a frequent complication.

85. **Mental Disturbance in Soldiers.**—According to Urstein's observation, psychic disorders caused by brain trauma develop usually only when more or less extensive portions of the gray matter of the cortex are involved, though it is possible for even circumscribed lesions of the brain as, for instance, fracture of the skull, hemorrhages, etc., to affect the mind. The immediate result of brain trauma is mental confusion. The patients appear somnolent, dazed, forgetful and absentminded. In severe cases unconsciousness may last for hours and even days. Other symptoms are headache, fainting, dizziness, vomiting, slow pulse, pupil disturbances, paralysis and convulsions. The mental confusion usually shows immediately after brain trauma, but in some cases only after an interval of hours or days. In addition there are observed changes in the character; excessive sensitiveness, excitability and irritability, exhilaration, maniacal states and hypochondriac ideas. In general, the clinical picture resembles that of traumatic delirium. The symptoms of delirium become more pronounced when the course is unfavorable, which may be due to abscess formation or to a meningo-encephalitis. In such cases somnolence sets in, followed by coma, convulsions, paralysis and rise in temperature.

The most frequently observed psychosis was catatonia, next in frequency, psychopathic constitutional anomalies, epileptic insanity and finally manic-depressive states. Urstein has also encountered cases of the so-called exhaustion psychoses, hysterical psychoses and progressive paralysis of the insane. The latter was observed only in soldiers over 30 years old. There does not seem to be any specific psychoses, according to Urstein. He claims that a psychosis develops only when there was a certain predisposition. That is, the elements of the psychosis were present before the man went to war; the latter but hastened its development. In general the so-called war psychoses do not differ from those in time of peace though the clinical symptoms may be somewhat peculiar depending on the character of the warfare.

86. **Aneurysm of Pulmonary Artery.**—In 271 cases of so-called internal aneurysms, Nikolaieff found aortic aneurysm in 86.3 per cent. of the cases, while the pulmonary artery was involved in only two cases, that is, in 0.7 per cent. He reports in detail a case of aneurysm of the pulmonary artery in which the diagnosis was confirmed by necropsy. The main symptoms were dyspnea, repeated and abundant hemoptysis which yielded to rest, and a marked systolic murmur heard at the back, especially in the interscapular space at the base of the lungs. The auscultation phenomena at the base of the heart were changeable; sometimes systolic, sometimes diastolic murmurs were heard, and they were very inconstant appearing only during disturbed compensation in the lesser blood circle. Necropsy revealed some narrowing of the aortic orifice, and considerable dilatation of the branches of the pulmonary artery. The diameter of the left branch was 2.5 cm. The right and left ventricle were considerably hypertrophied, the cavities not much dilated. Another feature of the case was the protracted course—six and a half years—and it might have been longer if the patient had not succumbed to intercurrent pneumonia. The Wassermann test was negative; Roentgen examination gave indefinite results.

87. **Poisoning from Denatured Alcohol.**—Eleonskaia comments on the extreme frequency of poisoning from denatured alcohol in the Petrograd hospitals soon after the sale of liquors was forbidden. From 123 to 332 persons per month were treated in one hospital, while in another during the six months, 1,292 cases were admitted. As denatured alcohol contains about 1 per cent. of wood alcohol which affects the vision, causing amblyopia, the latter was a very common occurrence in cases of denatured alcohol poisoning. Of 1,432 men treated during 1915 for poisoning from denatured alcohol, 6 per cent. suffered from amblyopia. Half of this number drank denatured alcohol only, while others used in addition cologne water and furniture polish. It required three or four months for the onset of visual disorders, and this occurred usually only after large quantities of alcohol had been imbibed. The main symptoms were decline in visual acuity, especially of central vision, and disturbances in color sense, especially for red and green. Occasionally central scotoma for all colors was observed, including white. Narrowing of the field of vision was observed in 15 out of 40 cases examined, and the fundus was found changed in 61 out of 96 cases (hyperemia of the papilla, blurred outline, pallor of the temporal half of disk, etc.) The pupils were usually normal. Abstinence from further use of denatured alcohol brought in many cases improvement of vision, but very slowly and imperfectly. In general, the visual disorders caused by the use of denatured alcohol are milder than those brought on by pure wood alcohol, but they are more severe than those from plain alcohol.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

April 1, I, No. 14, pp. 1145-1228

89 *Spasmophilia in Children Over Three. (Spasmophilie bij het oudere kind.) H. A. Stheeman.

90 Means to Maintain the Normal Body Temperature in Decerebrated or Decapitated Animals. (Twee methoden om de lichaamstemperatuur van gedecerebreerde of gedecapiteerde dieren langen tijd standvastig te houden.) W. S. Van Leeuwen.

91 No Benefit Apparent From Thyroid Treatment in Twenty-Two Cases of Dementia Praecox. (Mededeelingen over proeven van behandeling der dementia praecox met schildklierpraeparaten.) J. G. Schnitzler.

92 End-to-End Suturing of Vena Cava at Nephrectomy. (Een geval van circulaire vena cava-hechting bij nephrectomie.) J. W. Van Bisselick.

April 8, No. 15, pp. 1229-1312

93 *The Declining Birth Rate and Measures for Infant Welfare. (Geboorteachteruitgang en zuigelingenbescherming.) H. W. Methorst.

94 Influence of the Diet on the Response to the Cammidge Test. (Over den invloed van de voeding op den uitslag van de reactie van Cammidge.) C. J. C. Van Hoogenhuyze and S. Nagasaki.

95 Localization of Peripheral Facial Paralysis. (Bijdrage tot de localisatie van perifere facialis-verlammingen.) J. G. Drossaers.

89. **Spasmophilia in Children.**—Stheeman found in examining 100 children that the Chvostek and Erb signs were both positive in 32, the latter alone in 14 and the former alone in 17. Thus in 100 children, selected at random, 46 per cent. presented the Erb phenomenon—which is regarded as pathognomonic of spasmophilia—and 63 per cent. presented this or the Chvostek. Only 4 of the children had actual tetany. The larger proportion reacting, and the more pronounced reactions were in children between 7 and 12. His record

thus testifies to an unsuspected prevalence of a tendency to abnormal spasmophilic nervous conditions in older children. Children inclined to asthenia seem most predisposed to it. Chronic digestive disturbances and neuropathies also afford a predisposition. An unstable vasomotor system, excitability of the abdominal vagus or sympathetic system, and the facialis phenomenon suggest spasmophilia, and electric tests confirm the diagnosis. Treatment should be instituted without delay to correct whatever is wrong; with digestive disturbances, keeping the child in bed for a time with individualized dietetic treatment. With nervous loss of appetite or nervous vomiting, a change to another environment is indicated. Outdoor life is of paramount importance when the general condition permits, that is, when there is no serious intestinal disturbance. In all cases phosphorus-cod liver oil will be found of decided benefit.

A number of cases are reported in detail to illustrate the variety of clinical pictures that may be induced by the spasmophilic tendency, from spasmodic stenosis of the bowel, rotatory tic and petit mal, palpitations, gastric achylia, enuresis, hyperchlorhydria and spastic anemia to choreiform movements and the so-called umbilical colic. All of these yielded to the treatment outlined above. The spasmophilia of the vegetative nervous system, vagotonic spasmophilia, may cause severe and recurring abdominal pains. One girl of 10 was long treated for tuberculous peritonitis on account of a tumor palpated in the abdomen. The spastic constipation and Erb reaction, with the favorable action of belladonna and castor oil, finally cleared up the diagnosis as spasmophilic vagotony, and a complete cure followed systematic phosphorus treatment. Another typical instance is that of a boy of 10 with recurring attacks of vomiting, with fever, and severe pain at times, beginning to the left of the epigastrium and spreading through it, lasting for an hour or two. The sympathetic plexus was tender and the pillow was wet with saliva at night. Under phosphorus-cod liver oil and belladonna the pains subsided and have never returned, and the bowel function is regular. By the end of two weeks the previously lively Erb reaction had also vanished and the child seemed bright and well.

93. **The Birth and Death Rate in the Netherlands.**—Methorst gives a number of charts comparing the birth and death rates in the Netherlands with that in other countries through the five-year periods since 1840. Other charts and maps show the death rate by months, the various causes of infant mortality by districts, etc. In the Netherlands before 1898 the infant mortality in the cities was higher than in the small towns, but since then the proportions have been reversed. In 1911, the cities with over 100,000 inhabitants had an infant mortality of 9.88 per 100 born living, and by 1914 this had been reduced to 6.88. In the towns with less than 5,000 inhabitants the figures were respectively 15.81 and 10.60. The statistics cited from twenty-five countries place the Netherlands eighteenth on the list of high infant mortality, Russia heading the list with 25.8 mortality among 100 infants born living; Hungary and Spain, 18.4; Prussia and Japan, 15.9; Italy and Belgium, 14.1; France, 12.6; England, 11.7; Switzerland, 11.5; Netherlands, 11.4; Australia, 7.8; Norway and New Zealand, 7. The Netherlands stands twentieth in the figures for the general mortality. In the Roman Catholic families of the Netherlands 287 births are credited to each 1,000 married women under 50; in the Protestant families 219; in the Jewish, 157, and in other families 88. These figures are for 1909-1910. The infant mortality classified in this same way for about the same period shows that of 100 children born living in Roman Catholic families, 13.6 died within the first year; in the Protestant families, 9.5, and in the Jewish, 7.5. The general birth rate per 1,000 inhabitants was in 1840 about 34, and had dropped to 28 in 1914. The Netherlands thus stands fourteenth on the list of the twenty-five countries cited with high birth rate.

Hospitalstidende, Copenhagen

April 12, LIX, No. 15, pp. 329-368

96 Ionic Copper Medication in Abortive Treatment of Gonorrhea. (Resultaterne af min Abortivbehandling — Kobber-Jontoforese — ved Gonorré.) O. Jersild.

April 26, No. 17, pp. 393-416

97 Localized Traumatic Lesions of the Frontal Lobes. (Lokaliserede traumatiske Hjærnelæsioner.) A. Wimmer. Commenced in No. 16.

Ugeskrift for Læger, Copenhagen

April 20, LXXVIII, No. 16, pp. 585-630

98 *Congenital Talipes Valgus. (Om medfødt Pes valgus og calcaneovalgus.) H. C. Slomann.

99 The Extracardial Circulation. (Nyere Undersøgelser over Arteriernes Evne til at kunne befordre Blodstrømmen.) H. I. Bing.

98. **Congenital Talipes Valgus.**—Slomann comments on the scanty literature on this type of congenital clubfoot, declaring that congenital flatfoot is one of the most frequent congenital deformities, far more frequent than talipes varus, which the textbooks say is the most common form of clubfoot. At the same time the congenital flatfoot is of essential clinical importance. It is a deformity which calls for treatment and responds readily to it. He gives illustrations of two typical cases and the clinical details of these and three others out of his fifteen cases in infants in the last three years. During this period he has encountered 104 young children born with deformities, congenital dislocation of the hip joint in eighteen and only seven new cases of clubfoot. The latter was bilateral in all, but most pronounced on one side. Only one of the children had been born with breech presentation. One of the mothers also had congenital flatfoot. The deformity may correct itself in a few months from the exercising of the muscles when these alone are responsible for it. But when the bony framework of the foot is abnormal, spontaneous correction is out of the question. In any event, unless correction is complete before the child starts to walk, the deformity is fastened for life when the weight of the body is borne regularly on the foot. An instructive case of the kind is that of a girl of 13 born with left talipes calcaneovalgus which had apparently corrected itself and there seemed to be nothing abnormal about the feet. At the age of 12, however, the use of the left foot caused much pain, the findings and disturbances characteristic of tender and painful flatfoot.

In treatment of congenital flatfoot, the simplest means to correct the contracture are the best; operative means are unneeded and irrational when it is merely a question of shortening the overstretched muscles. They regain their elasticity when given a chance to contract. He has always been successful in correcting contracture of this kind by patient and cautious stretching of the muscles under general anesthesia—the muscles involved are small ones and the forepart of the foot affords a firm hold. He says that Stern found it necessary to do tenotomy in nine of his twenty-three cases, and possibly the deformity was so extreme that the knife may have been indispensable. But bloodless stretching should at least be given a trial in every case before resorting to the knife. Everything favors beginning the treatment early, so that the correction will be complete before the child starts to walk. The use of the foot with talipes varus aids in the correction but with talipes valgus it undoes what has been accomplished, unless correction is absolutely complete. The severer the deformity, the earlier treatment should be begun, but it is seldom necessary to begin before the child is 8 or 9 months old. During the preceding months daily manipulations of the foot along the lines of correction may accomplish alone the desired result, and will facilitate it in any event. General anesthesia is usually necessary for the complete correction. Several sittings may be required at eight or ten days intervals, the foot and leg in slight overcorrection in a plaster cast. This fixation is kept up for from three to six weeks and then a small leather correcting appliance is worn, removed every day to permit massage of the plantar muscles and of the leg and bathing. When this is discarded a flatfoot shoe is worn, and at night the overcorrecting bandage. This not only holds the skeleton in the corrected position but relaxes the weak and stretches the overstrong muscles. Any tendency to permanent overcorrection is soon overcome by the use of the foot. These measures must be kept up until the naked foot keeps the normal shape unmodified by excessive weight bearing. As a rule several years are required for this. But only by this means will they be saved from flatfoot distress in later life.

1899 /

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 25 CHICAGO, ILLINOIS JUNE 17, 1916

SOME OF THE LARGER PROBLEMS OF THE MEDICAL PROFESSION *

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WASHINGTON, D. C.

The profession of medicine enters into and touches every human activity from the first kindling of the vital flame until life's candle flickers out. The joys of being and the sorrows of life, the travail of labor and the relaxations of idleness, the opulence of riches and the meagerness of poverty have running through their web and woof the fine blue thread of the calling which has as its ideal the physical salvation of mankind. Throughout the nearly seventy years of its existence the American Medical Association has clung with unfaltering fidelity to the doctrine of the prolongation of human life and the relief of the miseries of man. In peace and in war, in prosperity and in public calamity, in crowded city and on isolated frontier, despite all opposition, it has moved steadily forward toward the goal of health, recognizing neither creed nor sect, neither school nor system, but solely the sacredness of its objects. The catholicity of its principles, the high altruism of its ideals, and the broad basis of its humanity have preserved it inviolate against the attacks of those who would revert to primeval incantations, ignorance and chicanery in the prevention and remediation of disease. The passage of the years is marked by a trail of discarded superstitions on the one hand and by the monuments of scientific progress on the other, and the very obstacles which have been thrown into the path which we have trod have proved stepping stones to higher ground.

Today, as we look back over the achievements of this Association, we receive inspiration from the work of those who have gone before us. The researches of our medical forebears are a priceless heritage, entailed for all future generations. But as we review the triumphs of the past and plan fresh victories for the future, our happiness in the joy of this pleasant reunion in the bonds of scientific fellowship is not without its note of sadness.

Since our last annual meeting death has called from our midst a number of the strong men of the profession of medicine. In the loss of that lovable and kindly gentleman, Dr. Edward L. Trudeau, the world has been deprived of a great leader in the antituberculosis movement. In the death of Surg.-Gen. George M. Sternberg our profession and the nation have lost an officer eminent in science and a pioneer in the field of military hygiene. In the passing away of Dr. Henry B. Favill the country has been robbed of a powerful intellect which was being more and more devoted to the cause of good government, clean politics, municipal improvement and sanitary progress. In the untimely death of Dr. William L. Rodman the Association has been bereaved of its President, and America has lost a distinguished surgeon and a public-spirited citizen. We would also remember at this time the members of our profession and Association who, through love of their fellow men, volunteered to serve mankind in those countries unhappily divided by war and stricken by pestilence, and who by so doing sacrificed their lives to the ideals of our profession.

By reason of their relation to the Association, we glory especially in the accomplishments of Rodman and Favill, and extend our condolences to their sorrowing relatives and friends, with whom we mourn. In the solemnity of this moment let us take inspiration from their lives, that their ideals may pass on to us, and that we may more faithfully discharge our duties to mankind.

The limitation of time does not permit the recitation of the scientific accomplishments since our last meeting, neither does it suffice to enumerate the fields of activity which lie fertile before us. The movement for race betterment, the increase of child hygiene and the restriction of child labor deserve and receive the approval and assistance of this body. The necessity for the advancement of the campaign for mental hygiene, the cure and prevention of tuberculosis and cancer, and the improvement in the collection of vital statistics, particularly morbidity statistics, is so great as to require no argument.

MEDICAL AND SANITARY EDUCATION

Since its inception the American Medical Association has endeavored in every way to raise the standard of medical education, and as the result of its labors there has been constant improvement, particularly in recent years. Not only are the graduates of today better qualified in the science of medicine than those of ten years ago, but they have a broader grounding in the general sciences as well. These are decided improvements, but should not satisfy us. As an Association, we should continue to urge and adopt every means which will better qualify medical men for their calling. Improved laboratory and hospital facilities are now being made available to medical students in greater degree, and the standard of medical practice is accordingly raised. Not enough attention is being paid, however, to the subject of hygiene, in either undergraduate or postgraduate courses. Thus far the members of the medical profession have been looked to

* President's address before the American Medical Association, at the Sixty-Seventh Annual Session, Detroit, June, 1916.

as the natural conservators of individual and community health. With the increasing interest in this subject, however, and the facilities for giving instruction in public health work being established in institutions other than medical schools, there is likelihood that in the future medical graduates will have sharp competition in a field which they should naturally occupy. The time is at hand when localities and states will demand the services of full-time health officers, and the medical profession should look forward to meeting this requirement. It is suggested, therefore, that the Council on Medical Education and the profession generally give greater attention to this growing need.

MEDICAL AND SANITARY PREPAREDNESS

The American Medical Association, as a national body, has come to bear an important relation to everything medical which affects the nation as a whole. It has, therefore, interested itself in the improvement of the Medical Departments of the Army and the Navy and the Public Health Service.

The Medical Department of the Army is charged with the duty of preserving the sanitary condition of the army and with certain important functions of administration and organization. In its relation to the people of this country by far its most important activity is along educational lines. Some thirty to fifty thousand young men join the army each year, and a similar number annually pass back to civil life. During the period these men remain in the army they come into direct contact with the medical department. Their ideas and standards as to housing, food, clothing, ventilation and lighting are all materially influenced by their sojourn in the army, and even more definite impressions are acquired from the medical department with reference to such matters as disease and its treatment, preventive medicine, temperance and recreations. At almost every point in his new environment the recruit comes into contact with the ideas and teachings of the army medical department, and he returns to civil life with a much broader and more enlightened view of hygienic principles.

The great lesson of the European war which we as medical men should take to heart is the importance of thoroughly preparing the medical and sanitary forces in time of peace, so that they may be ready to take their proper place and to efficiently relieve the sick and wounded and prevent disease in time of actual conflict. Not only must the land forces be put on the footing of highest efficiency, but it is perhaps even more important that the Medical Department of the Navy receive the active support of the entire citizenship. The multifarious character of the duties of the medical corps of the navy requires officers of broad training. This Association should continue in the future as in the past to afford to the Medical Departments of the Army and Navy every assistance in its power.

The problems which confront the Public Health Service are of a different character from those of the strictly military arms of the government. This organization is rapidly expanding to meet its duties in the protection of the health of the civilian population of the United States. The crying need of the Public Health Service at the present time is men and money. Congress has never been slow in imposing functions on the Public Health Service, but it has been extremely conservative in the matter of appropriations and increased personnel to discharge the added duties. As yet, Congress has not seen fit to establish a national department of health, and pending the creation of that much-needed department, the Public Health Service must perform the public health duties of the nation. It is incumbent on every citizen of this country who is interested in the conservation of human life to assist and cooperate with the Public Health Service.

ENLARGEMENT OF USEFULNESS OF HOSPITALS

One of the extremely important matters in which this Association should take an active interest is the utilization of hospitals in order that they shall not only have greater application in the relief of illness, but be of greater utility in times of national stress.

In many general hospitals there is opportunity to increase efficiency through organization. It is probable, for instance, that the most accurate knowledge of the distribution of certain preventable diseases could be obtained by regular reports from hospitals and dispensaries if these were comparable. Moreover, it should become possible in greater degree to admit many cases of illness, such as tuberculosis and venereal infections, now excluded, but which profoundly menace the public health. Hospitals are public servants and as such should be utilized to the fullest extent, not only in the relief of illness, but also for educational and public health purposes.

IMPROVEMENT AND STANDARDIZATION OF REMEDIAL PREPARATIONS

Further effort should be made to determine the availability and use of remedial preparations. The remarkably valuable work of the Council on Pharmacy and Chemistry is well known to you. As a result of its untiring efforts for more than a decade, our knowledge of useful remedies has been increased, the Pharmacopeia improved and the physicians' armamentarium made more serviceable. Much, however, remains to be done. The determination, for instance, of the value of biologic products used in the prevention and treatment of the diseases of man and the elimination of those which are without worth is a matter of urgent need, meriting the earnest consideration of this Association. While it is the province of the federal government to promulgate standards for these preparations, the determination of their therapeutic value is a function of the medical profession.

In the enforcement of the law regulating the propagation and sale of viruses, serums and toxins, it is possible for the Public Health Service to guard against the sale of contaminated preparations. It insures to physicians the full strength of those preparations for which standards have been devised, but it cannot guarantee the potency of preparations for which standards have not been fixed, and which practitioners generally are being urged to use in greater degree. In order to determine this potency, the medical profession has a duty to perform.

By encouraging therapeutic research along broad lines through hospitals and clinical laboratories, the Council on Pharmacy and Chemistry would facilitate the standardization of useful biologic preparations and restrict the exploitation of doubtful ones, thereby saving millions of dollars annually to the country. I would accordingly suggest that this be made the subject of intensive study, thus supplementing the researches already under way in respect to other preparations.

Through its helpful attitude, the medical profession has contributed to the enforcement of the antinarcotic

law. As a result, a multitude of data are being recorded to show not only the public health importance of the control of habit-forming drugs, but the additional measures that are necessary to this end. I doubt if any of us here present comprehend fully the social and sanitary significance of this vast problem and the relation of individual practitioners thereto. It should be our earnest effort to aid in restricting the use of narcotics for other than medicinal purposes, and thus aid in overcoming an evil of the gravest menace. While as an organization we may not influence specific legislation, it is entirely within our province to strive to mold public opinion, which will beget wise laws and proper provisions for their enforcement.

HEALTH INSURANCE

As a result of recent workmen's compensation laws and the increasing interest in the health of wage-earners, the subject of health insurance is rapidly coming to the front. This is a question which we as a profession will be called on to face in the not very distant future.

Studies of the economic and sanitary conditions affecting the health of the industrial population have shown the urgent need for more effective methods for the relief and prevention of disease among the 30,000,000 of persons who comprise this group. The unskilled, low-paid workers in every community have an excessive morbidity and mortality rate, which is largely accounted for by their economic status and living environment. A large proportion of this class have incomes insufficient to maintain healthful standards of living, much less to provide adequate medical and surgical care. This places a serious handicap on the medical profession, as well as a financial burden on the poorly paid wage earner, which neither should be wholly required to bear. The public, industry and the workers themselves are at least partially responsible for the faulty conditions, and in consequence should share in the remedial measures.

To meet the situation, there are unmistakable signs that health insurance will constitute the next great step in social legislation. Experience has shown that an adequate health insurance system should distribute the cost of sickness among those responsible for conditions causing it and thereby lighten the burden on the individual. Financial incentive may thus be given for the inauguration of comprehensive measures for the prevention of disease. I would accordingly suggest that the American Medical Association continue the studies, which have been as splendidly begun, of the results of health insurance in all its aspects in this and in foreign countries, so as to decide on a program which would properly coordinate any proposed health insurance system with existing agencies for the cure and prevention of disease.

INDUSTRIAL HYGIENE

Closely allied to this is the study of industrial hygiene, a subject which will receive careful consideration in the Section on Preventive Medicine and Public Health at this session. Too many safeguards cannot be thrown about the health of operatives in industry, but we should consider the problem as it relates, not only to the workshop and factory, but to home conditions as well. Factory sanitation will fail of the highest accomplishment unless the workman is educated in the hygiene of his body and the sanitation of his home. The relation of the wage to disease, the housing problem and the health training of operatives are therefore matters which I would commend to the attention of the Council on Health and Public Instruction.

RURAL SANITATION

Rural sanitation is a matter of even greater importance. Over 53 per cent. of the population of the United States dwells in communities of less than 2,500 inhabitants, in many cases under most insanitary conditions. This is a menace not only to the health of the rural dweller, but also to that of the urban resident. The next great point of attack against infectious diseases is the small town and village. The work which the Public Health Service has been carrying on in cooperation with state and local health authorities in rural counties shows not only the necessity for increased and more widespread activity in this direction, but also that great good may thus be accomplished at relatively little cost. It is incumbent on this Association, possessed as it is of the machinery for popularizing health movements, to undertake a definite campaign for bringing health education to our rural population. If this is well done there will be a direct result in the reduction of typhoid fever, malaria and hookworm disease in the country and an increased safety in the food supplies of cities. I cannot too strongly urge on this body the necessity for intensive efforts toward the improvement of rural sanitation.

PUBLIC HEALTH ORGANIZATION

In the accomplishment of this purpose, however, we cannot stop with the sanitary enlightenment of the country inhabitant. Much he can and must do for himself, but lasting good cannot be accomplished in the absence of adequate state and local health organizations. An examination of existing laws and regulations shows that some of the states have an abundance of public health legislation. In fact, in many instances the powers and duties of the sanitary authorities far exceed the appropriations for their execution. Still others have defective laws and low appropriations, while some have little law and almost no appropriations.

In many instances considerable improvement in organization will be necessary before health authorities can functionate properly. These defects are being remedied, and many states are rapidly approaching a high degree of efficiency in their public health administration. In the counties and small municipalities, however, the greatest need for reform exists, and this Association should cooperate to the fullest extent in creating a public sentiment for thoroughly prepared, adequately salaried, full-time health officers. Indeed, it should not only create such sentiment, but, as previously stated, it should take active steps to provide without delay a large share of these public servants. The production of well-qualified men for such positions is not keeping pace with the demand. Sanitation is as much a specialty as is surgery, and simply because a physician is a successful practitioner is no guarantee that he will make a qualified health officer.

Through improved medical education and the cooperation of health departments with universities, properly qualified physicians should become available to meet this growing need. It is important also that states and localities should be able to secure the services of sanitarians without reference to legal residence. It is equally as important that medical hygienists, as well as physicians generally, should be able to practice their profession anywhere within the

confines of our country without undue restriction as to academic examinations. It is not at all improbable that this thought imbued our late President in founding the National Board of Medical Examiners. This body, which promises so much benefit both to the medical profession and to the American public, stands as a monument to the industry and clarity of vision of our lamented colleague, Dr. William L. Rodman. I would commend to the Council on Medical Education the study of the problem of devising some uniform means of certifying and training prospective health officers.

The great effort of the future must be in the direction of the improvement of the internal health of the nation. We are possessed of an adequate coast defense against disease from abroad, and what we must now do is to control those diseases which are already with us. In this we require the qualified health officer and the educated public. A part of this education may be secured by the printed and the spoken word, but the great agent in public education is demonstration. This Association is in a position, touching as it does every stratum of society in this broad land of ours, to carry this work forward to ultimate fruition. This is an obligation on our profession, a sacred duty laid on the followers of the healing art. Though we minister to the sick and bind up the wounded, though we bring sight to those who see not and alleviate the suffering on the bed of pain, yet our duty is not done until we have put forth our best endeavor to the end that sickness and pain and blindness be not. Poverty and ignorance, squalor and intemperance, cruelty and greed, these are the enemies which we as individuals and as a profession must combat. As citizens who would maintain our nation in a condition of preparedness against its greatest enemy, disease, it is our duty to perform not only our legal obligations as physicians, but to bend our every energy to the prevention of disease. No selfish or half-hearted service will suffice. Nothing short of whole-souled devotion to this duty will satisfy the ideals which have been passed down to us by generations of self-sacrificing, public-spirited physicians who love their fellow men. The American Medical Association represents the crystallization of these ideals. If it permits no self-seeking interest to dominate its actions, if it maintains its plane of high altruism, if it devotes itself with strength of purpose to the betterment of the public weal, it will prosper in the future as in the past, serene and sure in the satisfaction of work well done. Let our deliberations be so imbued with that broad spirit of charity and brotherhood that the name of the physician shall be revered.

Beriberi.—Eykman, in 1897, called attention to the fact that the disease beriberi was prevalent among those rice-eating nations which partook of rice prepared in a certain way. The Bengali eats unpolished rice, that is, rice of which the red husk or pericarp has not been removed, and he does not suffer from beriberi. When the native of the Philippines pounds his rice in a large mortar with his own hands, the milled product is never so thoroughly freed of its husk as happens to that milled by machinery, and hence these natives are partly protected from the disease. A diet which is based almost exclusively on white rice causes beriberi with certainty. Eykman also found that when chickens or pigeons were fed on white rice they developed a disease similar to beriberi. General weakness, with paralysis of the legs and wings, due to a polyneuritis, developed, which could be cured by a change in diet.—Graham Lusk, The Fundamental Basis of Nutrition.

DISPENSARY ABUSE AND CERTAIN PROBLEMS OF MEDICAL PRACTICE*

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It is with great pleasure that I preside over the one hundred and eighteenth annual meeting of the Medical and Chirurgical Faculty of Maryland, and I take this opportunity to thank my friends for the honor which they have conferred upon me. The Faculty means more to me than to many, for I was brought up in its atmosphere, and among my earliest recollections are some of the conferences held in my father's home, incident to its reconstitution after the close of the Civil War. Consequently, I esteem it a peculiar privilege to occupy the chair which my father once held, and I can assure you that in doing so I recall affectionately many of our departed members, whom some of us can visualize vividly, but who represent mere names to the majority of those present. While many of them knew less medicine than we, they strove for ideals which, if anything, were higher than ours, and it is with a sense of reverent affection that I acknowledge my obligations to many of them.

I propose to address you briefly on "Dispensary Abuse and Certain Aspects of Medical Practice," a topic which I have selected for two reasons: first, because several members of the Faculty have asked me to use my influence to check the so-called abuse; and, secondly, because my interest in medical education has caused me to consider seriously how the medical care of the poor can be best effected in the interest of the community and of the medical profession. Furthermore, an apprenticeship of several years as director of the Johns Hopkins Dispensary, and years of service as a member of the Board of Charities of Baltimore City have given me an insight into many of the problems concerned. I shall speak frankly on the subject, for, between my grandfather, father and myself, I have behind me the traditions of ninety-six years of continuous practice of medicine in this city, which should enable me to face the problem more sympathetically than a mere layman, or even than a physician who bases his conclusions solely on his own experience.

During this century Baltimore has grown from a village to a great metropolis, and the practice of medicine has undergone equally great changes.

As a boy, I remember that the only specialists in the city were a few men who devoted themselves to the treatment of diseases of the eye, and that every one else, even the surgeons, practiced general medicine, including obstetrics. At that time there were few hospitals, and they so crude that no one thought of using them, except the stranger within our gates, the friendless man and the abject pauper. Hospital fever still raged, so that the few major operations, which the surgeon thought to be indicated, were performed in the patients' homes. The few dispensaries were rudimentary and dirty, and, as their name implied, were places for the dispensing of drugs rather than for the investigation and cure of disease. I think that I am safe in stating that fifty years ago no dispensary was equipped for a thorough physical examination of its patients. Trained nurses were unknown, but "Sairey Gamps" were familiar figures, and a serious illness

* Presidential address delivered before the Medical and Chirurgical Faculty of Maryland, April 25, 1916.

was usually followed by the collapse of several female relatives of the patient who had volunteered their willing, but inefficient, nursing services. Organized charity had not been dreamed of, and the beginnings of social service were still a generation distant.

The town was small, and the physician had a patriarchal sense of obligation to his neighbors and the feeling that he was really a public servant. I know that my father and grandfather held that it was their duty to respond to any call, and to refuse to visit a poor patient from whom a fee could not be expected represented the sin which could hardly be forgiven. Up to the time of his death, my father never refused his services to such patients, and I well remember hearing it said in my boyhood that a certain man, who later attained great eminence in the profession, had a "fine line of darky practice."

With the growth of the city, the expansion of medicine, the development of specialists, and particularly with the extended organization of hospitals and dispensaries, together with the development of trained nursing and the various social agencies, all this has changed, and the old fashioned, kindly and self-sacrificing family physician has disappeared, never to return. Now, except for distinctly personal reasons, no city physician has any hesitancy in refusing to attend undesirable or unremunerative patients, but refers them to the nearest hospital or dispensary, and feels that he will give his charity the next day in the shape of a few hours of hospital or dispensary service rendered under the least onerous conditions. Doubtless the patients are better off and receive more efficient treatment than ever before, but I sometimes wonder whether our moral status is as fine as that of the old worthies who were members of the faculty before many of us were born, and whether it is well for those of us who have attained prominence in our profession to see poor patients only in the wards of the hospital.

These changes in the conditions surrounding the practice of medicine constitute one of the causes of the so-called dispensary abuse. What is the abuse? As I understand it, general practitioners living in the less prosperous sections of the city complain that a certain proportion of persons in moderate circumstances take advantage of institutional facilities, which were primarily intended for the very poor, and thus escape the payment of fees which they might otherwise earn. Again, young men who are perfecting themselves in some specialty claim that large numbers of persons are operated on without charge in hospitals or dispensaries when they could afford to pay a moderate fee.

Undoubtedly both of these conditions obtain to some extent, but in my experience they are less general than is commonly believed, and when they occur they are due less to the desire to escape the payment of fees than to the hope of obtaining better treatment. This opinion is based on the following considerations: In the first place, the prosperity of industrial workers is in general overestimated, as the great majority of married workers scarcely earn enough to support a family with the greatest economy. Scott Nearing has estimated that one half of all industrial workers in this country earn less than $600, and three quarters less than $750 per year, while less than one tenth earn as much as $1,000. In my experience, married workers who earn less than $750 a year cannot afford to make any considerable expenditure for medical services. Consequently, it becomes apparent from the figures just quoted that not more than one fourth of all industrial workers can be involved in dispensary abuse, and I believe that physicians practicing among that class of our population will testify that considerably more than that proportion make an honest attempt to pay for medical services. In the second place, I do not believe that there is much abuse among the small clerk class, as investigation will usually show when its members apply for dispensary aid that prolonged illness or financial reverses have so impaired their ability to pay that they are, temporarily at least, worse off than those who all agree are entitled to assistance. In many other instances they have exhausted their available resources in paying physicians for inferior services, and, as a last resort, go to the dispensary in search of better treatment. On the other hand, I am prepared to admit that a considerable number of patients who could afford to pay a small fee to some young specialist resort to hospitals and dispensaries for free operations.

Consequently, while it may be admitted that glaring instances of abuse are occasionally encountered, it is my experience that the greater part of the so-called abuse is due less to a desire to escape the payment of fees than to the realization that the sick frequently receive inadequate services from their physicians. This is partly the result of poor work by imperfectly educated practitioners, and is partly attributable to the increasing complexity of medical practice, in which the knowledge of one man, no matter how extensive, no longer suffices to establish a diagnosis or to lead to the rational treatment of many conditions. Who can blame a well paid worker or a clerk in modest circumstances for seeking dispensary aid after he has compared notes with less favored friends, who have utilized the services of a well organized dispensary? The former knows that he has been long treated by his physician without relief, and that all he had received for his money was to have his pulse felt, his tongue inspected and to receive a prescription; while the latter will relate that in his case a thorough physical examination had been made, the blood and urine examined, and possibly a Roentgen-ray picture taken or the stomach contents analyzed. The first man must inevitably feel that he has been neglected, while the second realizes that all of the resources of science have been utilized in the investigation of his malady. Whether his symptoms have been relieved is another matter, but until human psychology has radically changed, the result of the comparison is inevitable.

Or, to choose an example from my own work, let us take the wife of a workman whose wages are $15 a week. She is to be confined and expects to pay a fee commensurate with her circumstances. She engages her doctor, who neglects her during pregnancy, attends her at the time of labor, makes a few postpartum calls and sends his bill at the proper time. Later she compares notes with a friend whose husband's wages are $10 a week and who was attended by a well conducted outpatient obstetrical service. She is told that at the first visit to the dispensary a thorough physical and pelvic examination was made, and that a few days later a tactful nurse called at her friend's home and inquired into her conditions of life, advised her concerning the hygiene of pregnancy, and instructed her to return to the dispensary at the end of each month for inspection, advice and a urinary examination. Furthermore, she hears that three days

after failing to follow these instructions, her friend received a post card reminding her of her omission, but having postponed the visit the nurse again called, and so impressed the patient with the importance of prenatal care that each month thereafter she gladly went to the dispensary to consult the doctor. Then our woman is told that four or five weeks before the expected date of confinement her friend received another visit from the nurse, who called to ascertain whether suitable preparations had been made for the birth of the baby. She is also told that the labor was conducted by a bright young doctor, a student and a nurse, and that for the next ten days a daily visit was made by the student and the nurse. And finally, that a few days after these visits had ceased, the social service nurse called again to inquire as to the treatment she had received, and to arrange for the supervision of the baby during the following year.

When our woman has heard this recital, and has compared the treatment which her friend received for nothing with that for which she paid her physician, can she be blamed for feeling that she did not have a fair deal, and for wanting to become a dispensary patient should she become pregnant again? And are the best interests of the community served if she is prevented from so doing?

Naturally, the physician concerned will reply that the value of his services was far in excess of the fee he had received, that it is not fair for a philanthropic institution to offer services with which he cannot compete, and that it is immoral to educate patients to expect services far in excess of what their means can command. Were we concerned solely with the interests of the physician, only one reply would be possible; but, on the other hand, when the subject is approached from the point of view of the community, a different answer must be given, for no one not blinded by self interest would contend that it is not highly advantageous for all classes of the community to obtain the best possible medical and nursing care.

Accordingly, for the sake of argument, if you please, we shall admit that as dispensaries continue to improve, a larger and larger contingent of the working classes will avail themselves of their benefits, and that the question of dispensary abuse will come to be limited to those who earn more than $2.50 a day. Furthermore, the only means of limiting the more extended utilization of dispensaries will consist in hampering their development by lack of means and by the absence of idealism in the conduct of their work.

It would lead too far afield to consider critically at this time the proper organization and scope of dispensaries.[1] I cannot, however, leave the subject without briefly directing your attention to several points which I believe are fundamental to the organization and conduct of a well regulated dispensary. In the first place, it should be an integral part of a well organized general hospital, or, when that is not feasible, it should be closely affiliated with such an institution, so that all the facilities of the latter may be promptly available for the treatment of seriously sick patients. The dispensary should be provided with adequate facilities, should have a suitable nursing staff, and above all a well organized social service department; as, in my experience, the work done by the latter adds to the comfort and education of the patients quite as much as the strictly medical service. In the second place, poorly run and inadequately equipped dispensaries should not be tolerated and should not receive public support. Complaints of dispensary abuse are rarely made concerning such institutions, as they are patronized only by the most ignorant stratum of the community, do little good to their patients and lead to rapid deterioration and loss of clear thinking on the part of their medical staff. Furthermore, I feel very strongly that in order to insure a high type of medical work, even in good dispensaries, it will be necessary to pay suitable salaries to all physicians who are expected to give several hours each day to the routine care of patients. Otherwise, the work must be done by constantly changing groups of young men, who tend to become slack in interest and attendance as soon as they realize that they have mastered the details of their work.

In other words, I am pleading for the maintenance of dispensaries of the highest type, with the knowledge that the better they become, the greater will be the cry of dispensary abuse, which to my mind will not disappear until the conditions of medical practice in our large cities have undergone radical reorganization.

I can be much briefer concerning the second variety of dispensary abuse; namely, free operations on persons who can afford to pay a small fee. In my experience this class of patients frequently consult the young specialist in his office and pay a fee for his advice, but when they learn that an operation is necessary they go to a dispensary or hospital. As far as I am able to ascertain, one of two motives leads to this action: a feeling that the operation will be better and more safely done at the hospital, or a desire to escape the payment of an operative fee. In neither event should the patient be treated free, but a mechanism should be devised for the investigation of his circumstances and the charging of an equitable fee by the institution. In many cases such a fee will cover only the outlay for anesthesia, supplies, and a few days' stay in the hospital, but in other instances a balance will be left for the payment of professional services. Naturally, this balance will be so small that the operator could not accept it as a fee without a distinct loss of self-respect, so that the question arises as to its disposition. If the matter were properly handled, I feel that the aggregate of such fees would be considerable, and that such money, along with other available funds, could be utilized for the payment of moderate salaries to the members of the staff who do the work, with the understanding that the salary was in lieu of all fees from patients, except those occupying private rooms at full rates.

While such an arrangement would not put the fees into the pocket of the young specialist, who is complaining of dispensary abuse, it would do away with an unjustifiable abuse of charity and would compel the patient to pay what he could afford for operative treatment.

With the increasing complexity of medical knowledge, the development of specialists, the necessity for their cooperation in the diagnosis and treatment of many conditions, and the relatively high fees which they are compelled to charge, another serious question arises, and that is, how is the individual of moderate means, who is self-supporting and self-respecting, but who cannot afford to expend $50 to $100 in payment of specialists, to obtain the necessary diagnosis?

1. I would refer those interested in this aspect of the subject to the report on The Function of the Dispensary, which was made at the 1916 meeting of the Association of American Medical Colleges.

I believe that this will eventually be effected by the establishment of pay dispensaries, somewhat similar to the one inaugurated at the Massachusetts General Hospital in Boston on Jan. 1, 1916. In such institutions a group of thoroughly competent young men representing the various specialties will come together on certain evenings each week and will be prepared to examine such patients as may apply. The patient should be accompanied by his physician, or at least bring a letter from him asking for a report, and should not be treated except on his direct request. A fee of from $10 to $25 should be charged for the complete examination, and the dispensary staff should be compensated either by fixed salaries or by a pro rata division of the fees after a proper deduction has been made for maintenance charges.

While the suggestions which I have made may appear radical to some of you, I feel that they barely scratch the surface of the question, and even if adopted, would prove to be but temporary expedients, as I consider that our entire system of treating illness is defective and cries out for radical revision.

That something is seriously wrong becomes apparent when a man like Cabot of Boston feels it necessary to contribute to a lay magazine an article entitled "Better Doctoring for Less Money." I earnestly recommend you to read it, as I am sure, whether you agree with what is said or not, that you will admit that the author has put his finger on a sore spot and has raised questions which demand solution.

As medicine is now organized, only three classes of our population receive the best institutional care, namely, the rich, the pauper, and those who are willing to abuse medical charity; but no adequate provision is made for the care of the great middle class, which forms the self-respecting backbone of our nation. The consequence is that additional terrors have been lent to illness, more particularly when operative treatment becomes necessary for its relief. Ask any man with an income of from $1,500 to $4,000 what it cost him to be relieved of his appendix, or to have his wife treated for a complicated nervous breakdown, and you will have the question clearly set before you. Only recently a prominent banker told me that I would be surprised, did I not already know, what an appalling condition exists and what a large proportion of our self-respecting citizens are compelled to ask long-term loans in order to tide them over such emergencies. The result is that the old feeling of personal friendship for the doctor is fast disappearing, and each year an increasing number of persons come to regard him as one who is likely to take advantage of their necessities. I shall not dwell further on this aspect of the question at this time, but I shall return to it before closing.

On reverting to the question as it affects the working classes, I feel that the present system of free dispensary and hospital treatment is based on fundamentally incorrect principles. As it now is, except for a nominal charge of 10 cents for each prescription filled, the maintenance of such patients is borne by the interest on endowment funds, contributions by charitable persons, and subventions from the city and state, so that for practical purposes the recipients of such aid are as much paupers as the inmates of the poorhouse, the only difference being that the former are temporary and the latter permanent paupers. Consider, for example, the case of a workman earning $3 a day. Ordinarily he should be able to pay the necessary expenses of himself and his family. But let him have a prolonged illness; his pay stops, his small savings are soon exhausted, and he applies to the hospital for relief. He is admitted without question as a city patient, if the institution has a contract with the board of charities, and the cost of his maintenance is then borne partly by the city and partly by the institution, which in turn may be the recipient of state aid. The individual may not realize it, but he has become a pauper patient, and is the recipient of charity, just as much as the beggar on the streets.

For the year 1916 the city of Baltimore and state of Maryland are contributing $1,200,000 for the relief of suffering inhabitants of Baltimore, including the insane and those suffering from tuberculosis, while private philanthropy and charity is giving still more. Much good of course is effected by the expenditure of this money, but still larger amounts are necessary if the work is to be well done; yet a large part of it goes to pauperize patients who should in great part be able to help themselves, and this will continue to be the case until some mechanism is developed which will make it possible for the wage-earner and the small-salaried man to accumulate a reserve, during the period of productive activity, which will serve, at least in part, to defray his expenses during illness. In other words, I believe that our problem will never approach a definite solution until some form of sickness or health insurance is made compulsory on all who earn less than $1,000 or $1,200 a year.

As is well known, such insurance is in vogue in all European states, and is conducted either by the state, or at least is under its supervision. In France, Germany and Scandinavia it is voluntary and is conducted by private local societies under the strictest governmental control. In Germany the system has been in operation for over thirty years, and while nominally voluntary, is practically compulsory, and covers all persons whose income falls below $625 a year. The individual societies are designated as *Krankenkassen,* which are held in bad repute among medical men in this country on account of the difficulties which they have had with the physicians. These disputes were in great part inevitable, as the societies were originally managed entirely by laymen from the less intelligent classes, who attempted to ignore the medical profession and to pay as little as possible for its services. Latterly, however, a more liberal spirit has become manifest, so that representatives of the physicians practicing in the various communities now take part in the deliberations of the boards of control.

From what I have learned by personal inquiry in Germany, as well as from Gibbons' "Medical Benefit in Germany and Denmark," the general effect of this system is excellent, in that the medical needs of the working classes are in great part paid for by their own contributions. Moreover, another aspect of the system impressed me greatly, and that is, as the *Krankenkassen* pay, either entirely or partly, the expenses of their members while undergoing hospital treatment, the German working man regards the hospital very differently from the American, and, instead of feeling that he is there on sufferance as a pauper, considers that he is a pay patient and is entitled to great consideration. I know that it will surprise many to learn that in autocratic Germany it is not unusual for patients to complain of their treatment, and the influence of the *Krankenkasse* is such as to insure a respectful hearing, and furthermore that such patients

cannot be utilized for purposes of instruction, unless they give their consent.

In Russia and England, on the other hand, sickness insurance is compulsory, and the National Health Insurance Act, which Lloyd George forced on the latter country in 1911, is in many respects a model for such legislation, and should be read by all intelligent persons.

Under the act, which Lloyd George prefers to call health insurance, as its object is to promote the health quite as much as to provide care for the sick, all persons, with certain exceptions, in receipt of a yearly income of $800 or less must insure. During the period of insurance weekly payments of 9 pence are demanded, of which the state contributes 2 pence, while the remaining 7 pence are paid by the workman and his employer in proportions varying according to the amount of wages. When these are very small the entire contribution is paid by the employer, but when large, entirely by the workman.

The funds are handled in two ways: in great part by acceptable friendly societies, which are under strict governmental supervision; while in the case of persons who are not members of such societies, the matter is entirely in the hands of the government. It would take more time than is at my disposal to go into the details of the scheme, and I shall merely state that it provides for medical, sickness, disablement, and maternity benefits.

Naturally, we are most interested in the medical benefit, and under this the insured are guaranteed medical treatment at the physician's office, in their own homes, or in sanatoriums or hospitals, according to the exigencies of the case, together with such nursing as may be essential, and the necessary medical and surgical supplies. In each community all reputable physicians are entitled to go into the scheme, and such as agree to do so are placed on a panel and are paid according to a fixed schedule for such services as they may render. The insured may select any physician on the local panel and must retain him for a specified period of time, except for good and sufficient reasons; while the physician may refuse to accept any patient he pleases, but once having accepted him must respond to his calls until the time agreed upon has expired.

This system has been in operation too short a time to justify an authoritative verdict as to its merits, but so far as I can ascertain it has proved acceptable to the physicians, as statistics show that over nine tenths of the general practitioners are enrolled on the panels, and, as a result of doing away with gratuitous services, their average income has shown a very considerable increase.[2]

I feel that some such system must ultimately be adopted in this country, and that the question of dispensary and hospital abuse will not disappear until after it has been put into operation. Owing to our political organization, the necessary legislation must be inaugurated by the individual states, instead of being nationwide, as in Great Britain.

Of course it may be urged that legislation of this kind is socialistic, and is contrary to the individualistic tendencies characterizing American life, and could never be carried out in this country. The first objection must be granted, but it is my conviction that it is only along such lines that far reaching plans for the improvement of mankind can be carried out. The second objection, however, does not hold, as a little reflection will convince you that many socialistic or semisocialistic activities have already become engrafted on our civilization without arousing the outcry that they are un-American. Witness, for example, the beneficent effects of state care for the insane in Maryland, and the substitution of well-equipped and humanely conducted state hospitals for the county almshouses. What intelligent person would advocate a return to the old conditions? Yet the former is socialistic and the latter individualistic. Recall, moreover, the various ways in which the state and city have invaded our individual freedom for the good of the community. Think of what the state and city boards of health are doing. Would any one advocate the abolition of full-time health officers, or of attempts to control infectious diseases, or to do away with the infectious disease and tuberculosis nurses of the city health department? Medical socialism has also invaded our schools, but does any one complain that the activities of the school physicians and nurses are un-American? To my mind all of these tendencies are to be encouraged, as fostering the health and happiness of the community, and as a manifestation of the tardy recognition by the state and city of the obligations they owe to the people.

One of the most striking examples of the spread of social legislation consists in the enactment of workmen's compensation laws, which are based on the conception that loss of life and injury to the body in industrial occupations are to be reckoned just as much a part of the cost of production as the wear and tear and replacement of machinery or as the damage to wagons and mules. Up to December, 1915, thirty-one out of our forty-eight states, as well as Alaska and Hawaii, had passed such laws, which have done away with the barbarous doctrine of contributory negligence, and have provided some form of compulsory insurance in the case of injury or death, instead of the employee or his dependents being compelled to resort to the uncertain remedies of the law.

Do you know that the legislature of 1914 passed such a law for Maryland? According to this law, all employers of persons engaged in hazardous industrial work — and the definition of hazard is very broad — are compelled to insure them against accident and death. These policies, which are written either by private corporations or by the state, make provision for medical and surgical treatment; in case of permanent or partial disability, provide for the payment of half wages for specified periods of time; and in case of death, provide for funeral expenses and for the payment of either a fixed sum or an annuity to the dependents. Of course such legislation is socialistic, but what right thinking person would advocate a return to the old method of compensation only after tedious and tortuous legal procedure?

Furthermore, the legislature which has just adjourned has passed a mother's pension law, according to which all dependent widows in the state with minor children are entitled to receive from $12 to $40 each month, according to the size of their families. This legislation has not yet come into force, so that its effect cannot be anticipated, but it affords an accurate indication of the attitude of our lawmakers toward such questions.

2. Full information concerning the workings of health insurance in Great Britain may be obtained from the fourth edition (1914) of Carr, Garnett and Taylor's monumental work on National Insurance; while a short but accurate sketch is contained in the Report of the Judicial Council of the American Medical Association, published in the Bulletin for May 15, 1915.

One of the most interesting developments along these lines was the decision in 1909 of the Metropolitan Life Insurance Company to provide its industrial policy holders with free visiting nursing services during illness. Baltimore was one of the first cities in which the experiment was tried, and a contract was made with the Instructive Visiting Nursing Association to care for sick policy holders at so much per visit. This service has rapidly grown, and the company states that during the year 1914, 1,060,288 nursing visits were paid in this country and Canada at an expense of $527,861. While it is not permissible to scrutinize too closely the motives which induced the company to embark in the enterprise, it has doubtless saved much money by shortening the duration of sickness, and at the same time it has indicated an excellent method of improving the condition of the community; as the nursing service, in addition to adding to the comfort of sick policy holders, must exert a widespread educative influence.

I think, therefore, that it can be fairly claimed that the instances just adduced give a fair indication of the trend of social legislation in this country; and that I am not alone in my advocacy of some form of health insurance is shown by the fact that Dr. Alexander Lambert, in the report of the Judicial Council of the American Medical Association last year, stated that the question was not merely of academic interest, but predicted that it might at any time become a burning professional problem.

This prediction has in part come true, for in November, 1915, the social insurance committee of the American Association for Labor Legislation prepared a tentative draft of a health insurance bill to be submitted to the New York legislature, and which was also intended as a tentative model for other states contemplating such legislation. The committee consisted of ten members, and included such men as Drs. Alexander Lambert and S. S. Goldwater, and Messrs. Ed. T. Devine and I. M. Rubinow, the latter being a statistical expert and the author of numerous works on the history of social insurance. It would lead too far to attempt to discuss the provisions of this bill in detail, and I can only summarize its most important features.

The draft provided that all persons earning less than $1,200 must be insured, and recommended that one fifth of the yearly premium be borne by the state and the remainder equally divided between the employer and the employee. The committee estimated that the premium necessary to provide for the family would amount to 3 or 4 per cent. of the income, and calculated that $24 paid in behalf of a workman earning $600 a year would suffice to provide the following benefits: (1) medical, surgical and nursing benefit, (2) medical and surgical supplies, (3) hospital treatment, (4) cash benefit (two thirds of wages), (5) cash benefit to dependents, (6) maternity benefit, and (7) funeral benefits. After carefully weighing the pros and cons, the committee decided that in so large a state as New York it would probably be better to have the details administered by local approved societies, under strict state supervision, rather than by a central state organization, although it was clearly realized that the latter would present many advantages, particularly in the direction of uniform administration.

If some such system were put into effect in Maryland, I imagine that it would operate somewhat as follows in Baltimore City. In the first place, a panel of physicians would be formed, just as in England, and a schedule arranged for their compensation. The entire city would then be divided into a number of insurance districts, each comprising so many thousand insured persons. In each district there would be a thoroughly organized dispensary with a competent paid medical staff representing the various branches, adequate nursing facilities, and a social service organization. If possible it should be connected with a hospital, but if not, the necessary affiliations could be made. The dispensary should also house representatives of the various philanthropic and social agencies, and provide quarters for the local administrators of the health insurance fund, as well as for a substation of the health department. In other words, it would represent a community health center, and from it should radiate all the medical and socialized activities of the district.

The care of the patients might be organized somewhat as follows: Each insured family would be allowed to choose as its medical attendant any physician on the panel living within a certain radius. In cases of minor illness the patient would visit the physician in his office or go to the dispensary, while in more serious cases he would go to the dispensary for diagnosis or treatment. If the patient were ill in bed, he would be cared for at home by his medical attendant and a visiting nurse, or sent to the hospital if the physician deemed it advisable.

Under such a system there would be no possibility for dispensary or hospital abuse, as the expenses would be borne by the insurance fund and indirectly by those insured, no matter whether the patients were treated at home or at the dispensary or hospital. Nor would the doctor suffer. As probably two thirds of the residents of each district would be in the insured class, large numbers of physicians would be necessary for the conduct of the dispensary and hospital, and as they would be paid for such services, as well as for visiting the patients in their own homes, and would have no bad bills, they would probably consider it a matter of indifference where the patients were seen. It is my conviction that a plan conducted somewhat along these lines would result in greatly improved medical service for the insured class, and at the same time would tend to elevate the professional standard of the physicians, as they would be stimulated by constant contact with the accurate work of the dispensary and hospital, instead of feeling, as is now so often the case, that their interests are antagonistic.

This would mean that the great majority of physicians would become state officials and would devote their entire time, or at least a considerable proportion of it, to their official duties, and that the present type of medical service would be available only for the rich and for those in comfortable circumstances.

To many here present, I am sure that such a proposition appears as a Utopian socialistic dream, but I am convinced that if I live to a moderately old age I shall see some such scheme in operation. When health insurance comes to be seriously talked of in Maryland, I hope that it will be faced as a state-wide proposition, and that this faculty will do its part toward drafting satisfactory legislation; and if the law provides that the plan shall be put into effect and administered by a commission, that we shall see that it is stipulated that at least one third of its membership shall be physicians elected by this body, very much as the members of the State Board of Medical Examiners are chosen. If some

such arrangement is not made, and the administration of the law is entrusted entirely to laymen, I can foresee years of just such trouble as Germany is now recovering from. There is one other point which I regard as fundamental, and that is that in this country no plan will be acceptable which does not guarantee to the insured a reasonably free hand in the choice of the attending physician.

Such dreams may seem far removed from the solution of the problems of dispensary and hospital abuse, but until they are fulfilled, I see no prospect of checking it, but on the other hand, every probability that it will expand as the dispensaries and hospitals become more efficient and the practice of medicine more complicated.

One word more and I have done. The remedies here suggested will care for the industrial worker, the school teacher and the small clerk, while the well-to-do can take care of themselves. But what about the person in moderate circumstances, who wants to pay for what he gets, but at present finds it difficult to do so? For his ordinary illnesses he can continue to employ the present type of practitioner, for his troubles do not commence until diagnostic difficulties occur, or a surgical operation or prolonged stay in a hospital becomes necessary.

I believe that the final solution of this aspect of the problem will ultimately be found in the development of a new type of hospital, in which the substitution of cubicles for the expensive private room will make a moderate charge possible. In such institutions a mechanism should be developed by which the fees for professional services will be automatically regulated in accordance with the patient's financial standing. If this were combined with a cooperative diagnostic institute with moderate inclusive fees, sickness would lose the additional terror of financial pressure which of late years has been imposed upon it.

THE DUODENAL TUBE AS A FACTOR IN THE DIAGNOSIS AND TREATMENT OF GALLBLADDER DISEASE *

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As a rule, we can say that the nearer we get to an organ and the fluids within it, the better we can deal with it diagnostically and therapeutically. The duodenal tube has brought us to Vater's papilla. It enables us to obtain the secretions from this important source in a direct manner. It also allows us to instil fluids in its immediate vicinity and thus exert a beneficial influence on the tissues in its neighborhood.

About two years ago[1] I discussed the subject of the direct examination of the bile as an aid in diagnosis. In the present paper I intend to give my further experiences regarding this point in gallbladder diseases, and then speak on the treatment of these affections by means of the duodenal tube.

Since May, 1914, I have diagnosed probable cholecystitis by the direct examination of the bile in conjunction with the usual symptoms in forty cases. Thirteen patients with cholecystitis and allied diseases, whose bile was directly examined, were operated on. Outlined reports of the latter cases are given in the accompanying table.

Of the thirteen patients operated on, eight had stones in the biliary apparatus; one of the latter showed clear bile, while the other seven presented a turbid state of the duodenal fluid. Five of the patients operated on, with turbid bile, had no stones: two of these had malignant tumors, one of the liver, the other of the stomach and pancreas. One had tuberculous peritonitis and adhesions over the gallbladder, one chronic appendicitis, and one hour-glass contraction of the duodenum below Vater's papilla.

In the majority of cases in which turbid bile is found in the duodenum in the fasting condition, cholecystitis with gallstones is encountered. Turbid bile may, however, exist without gallbladder disease, when the liver itself is seriously diseased (neoplasms or echinococcus of the liver or high grade cirrhosis) or in stricture of the duodenum below the papilla of Vater.

On the other hand, clear bile may exceptionally be found in association with biliary calculi. There are two possibilities: Either the gallbladder is not inflamed, notwithstanding the presence of the stones, or the gallbladder is entirely filled with the calculi. In this case no bile enters the organ, and it therefore appears in the duodenum in the same state as excreted by the liver, without any admixture of the gallbladder secretions. Such occurrences, however, are rare.

In any event, the macroscopic appearance of the bile is of great import in the diagnosis of gallbladder disease or grave diseases of the liver. A clear golden yellow bile speaks well for the functions of these two organs, while a turbid, greenish or dark brown looking bile, perhaps mixed with mucus, speaks for a diseased state of either the gallbladder or liver or both. Again, in gallbladder affections the bile is liable to change in character, for its turbidity, when present, is then due to an admixture given it during its sojourn in the vesicula fellis. In permanent affections of the liver we can expect a stationary appearance of the bile, as its character is given it at the place of production.

The diagnosis of cholecystitis or cholelithiasis cannot be made from the appearance of the bile alone. The latter, however, in conjunction with the other clinical signs, will be of great assistance in establishing a correct diagnosis.

As the duodenal contents change very quickly in appearance, it is essential to examine them immediately after withdrawal. In order to preserve a specimen for demonstration or later consideration, an artificial reproduction of the sample by means of anilin dyes can be made. I use for this purpose these stock solutions: (1) yellow (MXX); (2) red (eosin); (3) naphthol green anilin; (4) nigrosin black; (5) methyl blue, and (6) French chalk and water.

A small vial is filled two thirds with clear water, and as much of the yellow to correspond with the sample to be represented is added. Thereupon is added whatever mixture is needed: red to represent a brownish tint, green to effect greenish discoloration, and French chalk to imitate turbidity. After a little practice the imitated samples will resemble more closely the real contents. These artificial samples can be kept indefinitely without change, and will bring back to memory

* Read before the American Gastro-Enterological Association, Washington, D. C., May 8, 1916.

1. Einhorn, Max: Direct Examination of the Duodenal Contents as an Aid in the Diagnosis of Gall-Bladder and Pancreatic Affections, Am. Jour. Med. Sc., October, 1914, p. 490.

the exact appearance of the original fluid, immediately after its withdrawal from the duodenum.

We now come to the use of the duodenal tube in the treatment of gallbladder lesions. In a number of patients with cholecystitis an attempt was made to instil either a weak solution of ichthyol or argyrol into the duodenum just above Vater's ampulla. This I did first in catarrhal jaundice, later also in other minor affections of the gallbladder, not requiring surgical aid. The plan of this mode of treatment is based on the idea that an astringent effect on the duodenum and the papilla of Vater will exert a beneficial effect on the bile duct. The clinical experience seems to favor this view.

The mode of treatment is carried out in the following way: The patient is given the duodenal tube either

CASES IN WHICH THE DUODENAL CONTENTS WERE EXAMINED PREVIOUS TO OPERATIVE INTERVENTION

Case	Name	Diagnosis	Examination of Duodenal Contents				Appearance of Duodenal Contents	Microscopic Examination of Duodenal Contents	Remarks
			Date	Amylopsin, mm.	Steapsin, mm.	Trypsin, mm.			
1	Mrs. L.	Icterus due to obstruction of common duct; cholelithiasis	9/21/13	8	Trace	0	Slightly reddish; no bile	.....	At operation, stone found in the common duct
			9/23/13	0	5	Trace			
2	Mr. H. D.	Cholelithiasis.....	4/27/14	15	1	2	Yellowish, turbid....	.....	Gallstones found at operation
3	Mr. H., Jr.	Cholelithiasis.....	11/27/14	6	15	20	Turbid, milky, yellow; alkaline	.....	Operated on 1/14/15; gallstones found
			1/12/15	8	2	1	Yellow, green, turbid; alkalinity = 10		
4	Mr. H. E.	Ulcus ventriculi and cholecystitis	11/28/14	4	25	3	Golden yellow, clear; alkaline	.....	Operation; gallstones found; also ulcer of the stomach
			12/ 7/14	5	18	5	Golden yellow, clear; Alkalinity = 40		
			12/10/14	4	1	0.5	Yellow, alkaline; alkalinity = 15		
5	Mr. L.	Cholelithiasis; icterus; gallbladder filled with stones and palpable	11/12/14	10	0	1	Watery, turbid; alkalinity = 55	.....	Operation; stones removed
			11/14/14	4	0	1	Greenish yellow		
			11/16/14	10	4	1.5	Yellow, turbid, neutral		
6	Mrs. P.	Icterus; obstructive jaundice; chronic pancreatitis	1/ 4/16	0	0	0	Clear, watery	Few bile stained epithelial cells	Operation; big stone found in the hepatic duct
		Postoperative biliary fistula	1/11/16	0	0	0	Turbid, dark blackish green; alkalinity = 10		
7	Mr. M.	Cholecystitis.....	1/22/16	2	0	0	Yellow, slightly turbid; alkaline	.....	Operation; tuberculous peritonitis
			1/29/16	0	0	0	Whitish; no bile; neutral		
8	Miss G.	Cholelithiasis; pancreatitis	3/28/16	0	2	1	Dark greenish yellow; turbid; alkalinity = 10	Swarming with micrococci and bacilli	Operation; enlarged gallbladder; 2 large stones; head of pancreas indurated
		Postoperative biliary fistula	4/17/16	0	2	0	Dark golden yellow; alkalinity = 35		
9	Mr. K.	Cholecystitis.....	3/14/16	8	6	6	Yellow, tinged with green; turbid; alkalinity = 10	Few cholesterin crystals, bilirubin crystals, leucin crystals, epithelial cells	Operation; tumor of left lobe of the liver
10	Mr. D.	Neoplasma ventriculi et pancreatis	9/11/13	5	3	4	Brownish green; alkalinity = 40	.....	Operation; tumor of stomach, encroaching on the pancreas
			9/13/13	8	3	2	Brownish, turbid; alkaline		
11	Mr. C.	Cholecystitis; chronic appendicitis. X-ray diagnosis: defect in pyloric region, probably cancer	4/16/15	7	2	5	Yellow, turbid; alkalinity = 75	.....	Digestive test capsule, after 29 hours, potato, catgut, fat; trace present; thymus and nuclei partly present. Operation 4/23/15, negative; appendix removed
12	Mr. T.	Cholecystitis.....	3/28/16	4	0.5	1	Greenish yellow, cloudy; alkalinity = 45	Filled with micrococci and bacilli	Operation, 4/21/16; hour-glass contraction of duodenum below Vater's papilla
			3/30/16	10	2	4	Dark green (methyl blue); alkalinity = 50	Cercomonas hominis present	
			4/19/16	6	4	5	Dark brown, tinged with yellow green; Alkalinity = 50; rennet +	Numerous bilirubin calcium crystals; cholesterin crystals of irregular shape; few bacteria; epithelial cells	
13	Mrs. K.	.....	4/29/16	5	1	0	Light yellow, not turbid; alkalinity = 20	.....	Operation, 5/5/16; gallbladder enlarged, sausage like, containing about 150 c.c.; 25 stones found in gallbladder and cystic duct
			5/ 4/16	4	8	8	Yellow, tinge of green, turbid; alkalinity = 20		

at night before retiring, or about 5 a. m. He takes it with a glassful of water. About 8 or 9 a. m. the patient is then examined in the fasting condition, and the position of the capsule end of the tube ascertained. If found in the duodenum, the tube is slightly withdrawn (about 1 inch), so that Mark III is outside of the lips. The barrel of the syringe is now filled with a 0.25 per cent. argyrol solution (blood temperature), and the latter instilled into the duodenum by raising it. As soon as the contents disappear, the barrel is refilled with the same solution, and now the tube is pulled out about 1 or 2 inches more and the instillation repeated. From 20 to 30 c.c. of this solution may be thus injected. Ichthyol may be given in the same manner. I have used this mode of treatment every other day in a number of cases with benefit.

Among the many cases of duodenal alimentation carried out, mainly for the relief of gastric or duodenal ulcer, there were quite a number of patients (twenty) who had gallstones at the same time. (This diagnosis was made by the clinical history and symptomatology, in some by positive Roentgen findings, and in some by the passage of calculi.) The latter were benefited not only with regard to their digestive disorders but also in reference to their gallbladder condition. This occurred in a striking manner in such frequency that I feel inclined to attribute to the duodenal alimentation a decidedly beneficial influence also on the gallbladder lesion.

This might be explained by the partial rest afforded the liver in keeping the portal supply at low ebb. The improved condition of the liver, in turn, acts beneficially on its appended organ, the gallbladder.

The duodenal alimentation will, therefore, find an appropriate place in some forms of cholecystitis, particularly when complicated with ulcers of the stomach or duodenum.

ACIDOSIS IN DIABETES*

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THE ABSENCE OF A SHARP LINE OF DIVISION BETWEEN DIABETIC AND NONDIABETIC STATES

As a basis for the discussion of acidosis occurring in diabetes, I will first develop certain views regarding the points of difference between a diabetic and a nondiabetic individual and then return to the subject proper.

In the normal individual there exists a proportionality between the rate at which glucose is utilized or stored, and the rate at which it is excreted unchanged in the urine. This proportionality differs with different rates of glucose supply to the cells. When the rate at which glucose is brought into the tissues from both external and metabolic sources is below a certain minimum (expressed in terms of the weight of glucose per unit weight of tissue and unit of time), nearly all the glucose is utilized or stored, and only a trace escapes in the urine unchanged. When the rate of glucose supply to the cells (from both external and internal sources) is above this minimum, then the percentage of wastage increases rapidly; and when the rate of supply rises above some 3.5 gm. per kilogram per hour, as it can be made to do by intravenous administration, then, in a normal, well-nourished individual, from 35 to 50 per cent. may be excreted.[1] Under these conditions a normal individual is, as it were, from 35 to 50 per cent. diabetic, and he has the intense glycosuria, polyuria and thirst found in a genuine case of diabetes with a lower rate of glucose supply.

In cases of so-called "total" human diabetes there also exists a proportionality between the rate at which glucose is stored or utilized, and the rate at which it escapes in the urine; as in health, this proportionality varies with the rate of glucose supply to the cells (the grade of the diabetes and other factors remaining the same). If the rate of supply is below a certain minimum, then, as in health, most of the glucose supplied is stored or utilized, and only a trace appears in the urine.

The so-called "total" diabetic differs from the normal person only in the fact that this minimum is absolutely lower than in health. In order to reduce the rate of glucose supply to the cells below the minimum necessary to make a case of so-called "total" diabetes free from glycosuria, it is necessary to stop entirely all intake of sugar and sugar-forming elements in the form of food, and also to cut down the rate of endogenous glucose formation. This means fasting and rest with the exclusion of cold and every other influence which may stimulate metabolism. Fasting, rest and warmth, however, do not wholly stop the endogenous formation of glucose. They only decrease it. As Lusk has pointed out, during a fast, glycogen reaccumulates in dogs which have previously been deglycogenized by the use of phlorizin plus cold or epinephrin, a fact which we have several times confirmed. In these cases the glycogen comes, for the most part, from the protein metabolism which persists during fasting. Yet uncomplicated cases of "total" human diabetes become nonglycosuric during a fast in spite of this endogenous glucose supply.

Cases of severe diabetes rendered nonglycosuric by fasting, rest and warmth lose all the ordinary symptoms of diabetes, even the respiratory quotient rising to a degree which suggests some glucose utilization. This latter effect has been shown by Benedict and Joslin and by Du Bois.

It is accordingly clear that the state of every normal individual becomes diabetic when the rate of glucose supply to the cells is high enough, and every case of human diabetes passes into the nondiabetic state when it is possible to make the rate of glucose supply to the cells low enough. The difference between a "total" diabetic, so called, and a healthy person is purely relative.

ACIDOSIS IN GENERAL

Returning now to the subject of acidosis, I would emphasize the point that acidosis in diabetes occurs under the same fundamental conditions and conforms to the same general laws which pertain to acidosis in nondiabetic individuals. That particular type of acidosis which is so commonly seen in the severer cases of diabetes, the type characterized by the appearance in the blood and urine of beta-ketobutyric and beta-hydroxybutyric acids and acetone, might appear to have laws of its own and to differ specifically from the same type of acidosis when seen in nondiabetics during the course of simple fasting or one-sided diets.

* Read before the Association of American Physicians, Washington, D. C., May 8, 1916.

1. These statements are based on studies with sustained intravenous injections of sugars carried out by Sansum, Wilder and Woodyatt, 1915 and 1916. These studies are in part unpublished.

The writings of certain authors would encourage this idea, but the difference is only a matter of degree.

Our knowledge of diabetic acidosis began with Hallervorden's discovery of increased quantities of ammonia in the urine in cases of severer diabetes. Previous experimental studies by Hallervorden and Coranda having demonstrated that an increase of urinary ammonia was commonly associated with an increased excretion of acid radicals, it was suspected that this might be the case in diabetes. Following the idea that the increase of urinary ammonia might signify an increased excretion of the ammonium salts of unknown acids, Stadelman and Hallervorden proved that large quantities of alpha-crotonic acid could be distilled from acidified diabetic urine, this acid arising from the decomposition of beta-hydroxybutyric acid, as was later shown by Külz and Minkowski. It was to this condition that the term "acidosis" was first applied, and, in this paper, for the sake of convenience, the term will be used in this original sense, although it is clearly recognized that an increased production and excretion of acid radicals partly combined in the form of ammonium salts is not inevitably associated with an increased hydrogen ion concentration in the blood or with a depletion of the blood bicarbonate, because, if the body is adequately supplied with suitable bases during the course of the acidogenic process, the latter phenomena need not develop.

ORIGIN OF THE ACIDOSIS COMPOUND

It is at present common knowledge that beta-hydroxybutyric acid and its two congeners, beta-ketobutyric acid and acetone (known collectively as the "acidosis compounds" or "acidosis bodies" in accordance with Naunyn's suggestion, and less aptly as the "acetone bodies," after Geelmuyden), arise from products formed in the catabolism of fats and proteins and more specifically from certain of the lower fatty acids containing an even number of carbon atoms, in particular, perhaps, butyric acid. The chemistry of the formation of these lower fatty acids from the higher fatty acids and from certain of the amino acids, as well as the mechanism by which the lower fatty acids are converted into the acidosis compounds, cannot be discussed here.

CONDITIONS FAVORING THEIR APPEARANCE

It has long been known that one fundamental prerequisite for the accumulation in the tissues and subsequent excretion of abnormally great quantities of the acidosis compounds is a relative diminution in the rate of carbohydrate utilization. When, for any reason whatsoever, the rate at which glucose is utilized in the body falls below a certain minimum, relative to the rate of the fat and protein catabolisms, then the acidosis compounds appear in the blood and urine. It is worthy of emphasis that, when we speak of a decreased rate of carbohydrate utilization in this connection, we should have in mind specifically the catabolism of *glucose* and think, not merely of an *absolutely* decreased rate of glucose catabolism, but of a diminution *relative* to the existing rate of lower fatty acid (for example, butyric acid) oxidation.

In 1914 Zeller[2] fed patients isocaloric, nonprotein diets. He varied the proportions of fat and carbohydrate and first noted an increased output of ammonia when the proportion of carbohydrate was less than 1 part by weight to 4 parts by weight of fat. He reckoned that for the complete utilization of two molecules of the fat which he employed, at least one molecule of glucose must oxidize at the same time. Lusk suggests rereckoning these results somewhat as follows: Two molecules of fat can yield by saponification six molecules of fatty acid and two of glycerol. The two molecules of glycerol can yield in the body one molecule of glucose. Adding this to the glucose derived from the diet directly, it would appear, if we accept Zeller's results (and leave out of consideration for the moment the protein metabolism), that six molecules of higher fatty acid required for their complete oxidation the simultaneous utilization of at least two molecules of glucose. One might accordingly say: *When the mixture of metabolites oxidizing in the body contains more than three molecules of higher fatty acid to one of glucose, then the body "smokes" with acidosis compounds like an automobile with too much oil in the cylinders.* It follows that some equally definite, but not identical, relationship exists between the number of glucose molecules necessary for the complete utilization of a given number of molecules of a lower fatty acid, such as butyric acid.

ACIDOSIS IN FASTING

During a period of fasting the cells naturally continue to oxidize foods. Before the fasting begins, the proportions of fat and carbohydrate catabolized are determined roughly by the proportions of fat and carbohydrate in the diet supplied from the outside world. After fasting begins, the proportions of fat and carbohydrate catabolized must be fixed by the proportions in which these stuffs are supplied from the tissues themselves. The cells will be fed with what there is, and the proportions in which they catabolize carbohydrate and fat during starvation must therefore depend in the end on the proportions in which these stuffs have been stored. R. M. Lang[3] has confirmed these principles by direct experimental studies.

It is accordingly clear how, with respect to acidosis, fasting may produce a variety of effects in different individuals depending on how their bodies may assay for fat and glycogen at the time fasting begins, and this must depend to a large extent on the previous diet.

A person in whom there is no appreciable fat and only a trace of glycogen will necessarily during a fast subsist wholly on body protein. It is very doubtful whether this is productive of any acidosis of the type we are discussing, because from 45 to 58 per cent. of the protein is capable of conversion into glucose, and of the remaining 55 to 42 per cent., only a fraction consists of ketogenic amino acids, that is, of amino acids capable of yielding acidosis compounds. Unless something interferes with the oxidation of the glucose derivable from protein, this glucose probably suffices for the complete oxidation of the ketogenic fraction of protein. This also would seem to be verified by the experiments of Lang. On the other hand, if the body at the beginning of a fast contains a considerable glycogen reserve and also a normal amount of fat, we would expect at first no significant acidosis because there would be at first enough glycogen for the proper burning of the fat. But later, since the glycogen reserves tend to run low sooner than the fat reserves, we might expect an increasing preponderance of fat in the metabolism, and hence a rising acidosis.

2. Zeller: Arch. f. Physiol., 1914, p. 213.
3. Lang, R. M.: Biochem. Jour., 1915, ix, 456.

If the fasting were pushed until the fat reserves were also depleted, one might again anticipate a decline of the acidosis as the metabolism returned to an almost purely protein basis. Again, if the body at the beginning of a fast contained an excess of fat in proportion to the glycogen, a quicker and higher acidosis during starvation than in a strictly normal person would not seem strange. Perhaps the sudden and sharp fasting acidosis observed by Folin in the obese is due simply to the fact that these persons, thrown back on a diet consisting of their own tissue materials, find them excessively fatty. But of course it is conceivable that two bodies containing the same amount of fat might during a fast use it with different degrees of rapidity.

ACIDOSIS IN DIABETES

Acidosis develops in diabetics under exactly the same fundamental conditions which cause acidosis in nondiabetics. In diabetes, however, owing to pancreatic insufficiency, the maximum rate at which glucose can be oxidized in the body is fixed at some level which is absolutely lower than in health. The limited amount of glucose which the diabetic can oxidize per kilogram of body weight per unit of time fixes the amount of fat which he can oxidize (without developing acidosis) during the same time. He can burn only about four times as much fat as carbohydrate without developing acidosis. It therefore happens that in the severer cases of diabetes a rate of fatty acid metabolsm, which in the absolute sense is not greater than what might occur in health, becomes excessive in proportion to the amount of oxidizing glucose, and so acidosis develops.

In order to check a diabetic acidosis, it is necessary to restore the proper ratio of fatty acid to glucose oxidation by reducing the fatty-acid metabolism to whatever level is fixed by the existing rate at which glucose is oxidizing. In diabetes, protein alone, if metabolized in sufficient amounts, may be productive of acidosis as well as fat, because, although protein in breaking down liberates plenty of glucose for the complete oxidation of its own ketogenic fraction, in diabetes not all of the glucose so formed can be oxidized, owing to the lessened ability of the body to split it open. Accordingly, to check a diabetic acidosis it is necessary to reduce both the protein and the fat metabolism. Fasting, rest and warmth accomplish this, and it is easy to understand how this procedure might cause a reduction of acidosis in many cases of diabetes, just as the same treatment causes a cessation of glycosuria. The fact that it commonly does so is well verified by the recent studies of Allen, Stillman and Van Slyke.

It would not be expected, however, that in diabetics, any more than in nondiabetics, fasting would always have exactly the same effect on acidosis. We should always have to consider what the previous diet of the diabetic had been and how his body would assay for fat and glycogen at the beginning of the fast, not merely the amount of glycogen (as stated by Allen in a recent quotation from the work of Landergren and Forsner), but the relative quantities of both glycogen and fat.

If the diabetic patient were emaciated and his body contained little fat, fasting would be equivalent to throwing him on almost purely protein metabolism; and unless some toxic factor maintained too high a rate of protein metabolism in spite of the fasting, we should not expect a fasting acidosis. For probably protein alone does not cause acidosis if all the glucose derived from it is oxidized, and when the absolute rate of protein metabolism sinks low enough, even the severest cases of diabetes can oxidize all the glucose that is formed from protein. This follows from what was said at the beginning of the paper. In a case recently studied by Geyelin and Du Bois, fasting caused a marked diminution of the acidosis even while the protein metabolism was relatively high and the G : N ratio in the urine was still 3.65 : 1. The fasting in this instance doubtless served to cut down the great preponderance of fatty acids in the metabolic mixture, leaving the patient more nearly on a purely protein metabolism. This case, as Geyelin and Du Bois remarked, gave evidences of a toxic (infectious) factor which served to keep up a relatively high rate of protein metabolism in spite of fasting. Hence the persistent glycosuria with some acidosis.

I have not been able to share the view expressed by some, that the lessening of diabetic acidosis during starvation is in any sense paradoxical, or to see the truth of generalities to the effect that fasting lowers acidosis in diabetics while in nondiabetics it causes acidosis. Our own experience is that diabetics have acidosis about as soon and in about the same degrees as nondiabetics *when there is reason to think that they are metabolizing similar mixtures of foodstuffs during the fasting.*

Fasting will lower acidosis either in health or in diabetes if it has the effect of stopping a one-sided metabolism and throwing the tissues on a more nearly balanced ration of fatty acids and glucose. To be sure, diabetics far and wide are much more likely to have lost a considerable part of the body fat, and so in fasting they are more frequently thrown back on an almost purely protein metabolism of low absolute magnitude. This is not a condition productive of acidosis. But normal persons in comparable states of nutrition behave in exactly the same manner. And if diabetics are very fat it may happen that fasting results in a persistence, yes even in a sharp increase of acidosis, as it does with the nondiabetic obese. In this connection it should be recalled that in every case of severe diabetes, if the patient receives any diet whatsoever, he promptly loses most of that which is already carbohydrate or which can be converted into carbohydrate in the body, and the tissues are left on what is tantamount to a purely fat diet. Fasting in the case of severe diabetes, therefore, is in effect comparable to the discontinuance in health of a heavy diet consisting wholly of fat.

In perfectly normal persons it is not possible, by the use of ordinary foods and methods of feeding, to cause excretions of acetone beta-ketobutyric and beta-hydroxybutyric acids in such amounts as may occur with similar diets in the severest forms of diabetes, even if the nondiabetics receive forced feedings consisting wholly of fat. This is due primarily to the fact that in normal persons, even on such diets, the rate of oxidation of glucose derived from body protein and from glycerol is considerable and suffices for the complete oxidation of some of the fatty acid; and secondarily, to the fact that there is a limit to the height to which the fat metabolism can be driven by fat feeding, a limit fixed by the limited rate at which fat can be absorbed from the bowel, no matter how much may be fed. Wherefore, it is impossible by fat feeding in health to

create so *wide* a discrepancy between the fatty acid and the glucose oxidation rates as that which can occur in diabetes. Nevertheless, the fat-fed person may develop a far greater surplus of fatty acids in the metabolic mixture while on a wholly fat diet than the same person will have during a fast, particularly if he happens to be a lean subject. Moreover, if the fat-fed person fasts, the acidosis diminishes or wholly disappears. This phenomenon is the equivalent of the cessation of acidosis during a fast in diabetes.

Similar comments might be made concerning the increase of the respiratory quotient. As fasting in diabetes frequently leads to a lessening or disappearance of acidosis, by cutting down the amounts of fatty acids in the metabolic mixture until even such little glucose as still smolders in the cells suffices for their complete combustion, so fasting in diabetes might be expected, under the same conditions, to cause at least *some increase of the respiratory quotient*. While the patient is being fed and the metabolism is running high with a very great preponderance of fatty acids undergoing oxidation, the absolute quantity of glucose oxidizing is too small to be recognized in the respiratory quotient by existing methods, but usually as the total metabolism drops and drops chiefly by virtue of an absolute and relative lessening of the fatty acids, the percentage of glucose in the mixture rises correspondingly. Althought the total metabolism is now low, the percentage of carbohydrate entering into it is increased, and there must be some increase of the respiratory quotient for this reason alone.

Occasionally we have encountered diabetic persons in whom the acidosis has shown anomalous variations difficult to explain in terms of the proportions of glucose and fatty acids undergoing simultaneous oxidation in the body as a whole. How are these variations to be interpreted? Dr. Howland has spoken of acidosis occurring in infants without diabetes and in spite of balanced diets. Analogous phenomena may be seen in certain types of infection in adults, notably in the so-called "milk sickness" studied by Jordan and Harris, and in some streptococcus infections, especially it seems to me in migrainic or hepatargic cases. In such instances there need be no disproportion of glucose in the diet, the acidosis may antedate the abstinence from food, and there is no proof of a disability on the part of the body as a whole to utilize glucose.

It is here interesting to consider the question of where in the body acetone, beta-ketobutyric and beta-hydroxybutyric acids are chiefly formed, and where under ordinary conditions glucose exerts its normal antiketogenic effect. There are ample experimental reasons for assuming that the greater proportions of all the acetone bodies formed in the body are created in the liver and muscle cells. The liver especially, if we may judge from perfusion experiments, seems to constitute the largest acetone factory and the principal site of the normal interaction between oxidizing fatty acids and oxidizing glucose. In such cases of acidosis we might therefore think of infections or of inherited abnormalities, or of both together, affecting particularly the liver cells and so preventing locally that reaction between oxidizing glucose and fatty acids which normally inhibits any considerable accumulation of the acidosis compounds. How such an interference might be effected is a question which would involve a detailed discussion of the nature and the mechanism of the phenomena known as "antiketogenesis." This time prohibits.

Whatever the mechanism in these cases may be, it can be assumed with safety that no person, merely because of an accident to the pancreas of such a nature that symptoms develop which justify a diagnosis of diabetes, will by virtue of this accident become immune to infections. There is accordingly reason to expect that occasionally a person who happens to have a subnormal endocrine function of the pancreas may also develop an infection of the kind mentioned, and that this may start an acidosis, or, if an acidosis is present already, augment it.

It would seem desirable in all discussions of acidosis in diabetes to make a clear distinction between true diabetogenous acidoses and nondiabetogenous acidoses occurring by accident in diabetic individuals.

104 South Michigan Avenue.

LARGE ENDOTHELIOMA OF THE DURA COMPRESSING BOTH FRONTAL LOBES *

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Neurologic literature is rich in reports of cases of tumors of one frontal lobe, but reports of involvement of both frontal lobes are rare.

CASE REPORT

F. P., woman, colored, aged 30, a domestic, admitted to Dr. Abrahamson's service of the Central Neurological Hospital, June 23, 1915, complained of severe frontal headache, blindness, difficulty in walking, weakness and incontinence. The family history and antecedent personal history were unimportant. Her habits were good. She was well up to five months previous to admission, when she began to have frontal headaches and pains in the eyeballs. These pains were constant and became progressively worse. Her vision at first was dim, and two months before entrance she became totally blind. At this time she began to vomit her food, her memory began to fail, locomotion became awkward, and just prior to admission she became incontinent. All these facts were obtained from the patient.

The patient was found on examination to be well developed and moderately well nourished. She was totally blind, and the head was bent forward, hanging loosely and at times swaying to and fro in an anteroposterior direction, that is, nodding. The temperature was 98, the pulse rate 68 with the patient standing, 60 when sitting, and the pulse was small in volume and regular. The respiration was 16 per minute and regular. The systolic blood pressure was 120, diastolic 85. The tongue was moist and coated and had a fine, regular tremor. The hands were dry. The heart, lungs, abdomen and pelvis were negative. The skull was normal.

Innervation was equally poor on both sides, and was also poor on the forehead. Deglutition, mastication and articulation were normal. The voice was nasal, and the speech whining in character. The expression of the eye was vacant, and the eyeballs were protruding and tender, both equally so. Von Graefe's sign was present, and also slight nystagmoid movements in the vertical direction. No strabismus and no ptosis were found. The pupils were widely dilated and unequal, the left smaller than the right, and there was no reaction to light or to accommodation, a case of total amauro-

* Read before the New York Academy of Medicine, Section on Neurology and Psychiatry, April 11, 1916.

sis. The ophthalmologist reported bilateral postneuritic atrophy.

Hearing was normal. There was no hydrorrhea, but there was total bilateral anosmia. The patient could not distinguish by taste between sugar, salt and vinegar, but she said strychnin was bitter, and spit it out.

The muscles of the upper extremities were flabby, with a tendency to hypotonicity. The muscles of the lower extremities were well developed with a tendency to hypotonicity. The hips, knees and ankles were spastic, both during active and passive movements. The gait was of the spastic ataxic type, the patient reeling as if drunk, but not always in the same direction. She walks with a broad base, very unsteady, and is not certain when the foot has reached the floor. That this uncertainty is not due altogether to her blindness is proved by the fact that she has the same difficulty in moving her legs when lying in bed, in spite of the fact that her postural sense is good.

Romberg's sign is markedly prominent. The plantar and knee reflexes are exaggerated and the gluteal reflexes are present.

Kernig (resistance to extension of leg or flexed thigh) and Bechterew's signs, Babinski, Oppenheim and Gordon's reflexes are absent. Abdominal reflexes present. The ankle reflexes were present and exaggerated. There was no ankle clonus and no sensory disturbances could be elicited. The mental condition of the patient should be borne in mind. There was no motor aphasia, no astereognosis (failure of tactile perception), no adiadokocinesis (failure to alternately extend and flex joints quickly and repeatedly, particularly supination and pronation).

Cerebration was slow, cohesion of ideas poor, and there was emotional instability. The patient answered questions slowly, became irritated when asked to repeat an answer, and cried and laughed without sufficient cause. When reproached by the examiner for her lack of cooperation, she answered: "I am doing the best I can." She was poorly oriented as to time, place and person. Her memory was so poor that she did not remember her present address, her husband's or her child's name. When asked to mention her birth place, she answered: "I can't keep so many things in my mind." When asked to give the names and addresses of two nearest friends or relatives, she answered: "When you are sick you have no friends."

The sleep of the patient was restless, with moaning. She was drowsy by day and dizzy.

A Wassermann test was negative. The cerebrospinal fluid was under considerable pressure, but negative both as to the Wassermann reaction and cytologically.

The patient was admitted June 23, 1915, at 3 p. m., and lumbar puncture was performed on the same day at 5 p. m. During the remainder of that day she appeared to be in a dazed condition, but took nourishment fairly well. On June 25 she got up, after having spent a very restless night, complaining bitterly of severe frontal headache and at 10 a. m. she asked to be put to bed, as she felt very weak. She ate her dinner, and died suddenly at 2:20 p. m., without having had any general or localized convulsion at any time.

From the examination and history it was evident that we had to deal with some intracranial condition, probably a rapidly growing neoplasm, most probably nonsyphilitic in nature, quite extensive in size and bilateral in character. The exact location of this neoplasm, owing to the fact that intracranial growths give a variety of distant (remote) symptoms that sometimes overshadow the direct symptoms, was not a very easy matter to determine.

To exclude the middle cranial fossa was comparatively easy. It was not so easy, however, to exclude the posterior one. Growths in this fossa usually give severe pains in the nape of the neck, yet pains in the front of the head are just as common. The position of the pain, therefore, could not be used as a localizing symptom. The symptoms of cerebellar tumors are so allied to those of frontal tumors that errors are not always avoidable.

Oppenheim found repeatedly unilateral or bilateral anosmia in cerebellar tumors, a condition due to flattening of the olfactory nerves by pressure exerted on them by the base of the brain.

One must bear in mind the relative value of early and of late symptoms of brain tumors. The vast majority of late symptoms have little focalizing value. The distortion of the brain and the marked internal hydrocephalus, occurring in the later stages of tumor, produce a variety of symptoms due only to the distortion and internal hydrocephalus, and not due to the position of the tumor. Late symptoms, however, occurring according to anatomic contiguity, may have considerable value. Stewart and Holmes long ago called attention to the fallibility of diagnosis depending on late symptoms in tumor of the brain. Anosmia, squint, particularly of the external rectus muscle, tinnitus, convulsions, general or jacksonian,. are late symptoms of importance in tumors of the cerebellum, but have no definite focal significance.

The symptoms of corpus callosum tumors are bilaterality, apraxia or dyspraxia. The symptomatology depends on whether the anterior, middle or posterior portion is involved. Involvement of the anterior portion gives rise to leg, the middle to arm, and posterior portion to face symptoms. Corpus callosum tumors are also characterized by their long duration without choking of the disk, by the frequency of growth in the longitudinal sulcus, and by their extension to and even through the vault of the cranium. These tumors also give rise to jacksonian fits, which are usually bilateral, a peculiar mental state, with apathy, and the lack of harmonious interaction of both halves of the body.

Liepman has shown that a lesion situated in the right frontal lobe may cut across the path of fibers passing from the left frontal lobe, via the corpus callosum to the right arm center in the right hemisphere, without injuring the projecting fibers from that arm center to the left hand, so that we would have a left dyspraxia from a right frontal lobe lesion.

When tumors grow from the meninges or bone (extramedullary tumors) toward the brain and do not involve the brain itself, the Babinski phenomenon may be absent, and the abdominal reflexes present on the opposite side. This is particularly true if no secondary softening of the brain substance has occurred. In intramedullary conditions the reverse is true, except in postcentral tumors which do not involve the pyramidal tracts. Our case showed the absence of Babinski, preservation of the abdominals, with no sensory involvement, and thus pointed fairly definitely to an extramedullary growth.

Various attempts have been made to attribute the mental symptoms occurring in brain disease to frontal lobe involvement, but without success. It is inconceivable that such matters as the intelligence, emotions, judgment, will or self control should be localized in the frontal part of the brain. They are no more localized than the ego itself; nevertheless, it has been established that when the frontal lobes are affected, the mental symptoms are somewhat more in evidence. Almost every syndrome of psychic disease has been described by observers as characteristic of frontal lobe disease.

When one bears in mind the long duration of these tumors, the large size attained by them, the marked

internal hydrocephalus and edema of the brain, so commonly present, and the distortion of the brain, one is not surprised at the appearance of mental symptoms due to the involvement of almost the entire brain. But cases are found in the literature in which all the above factors were present, and yet mental symptoms remained in the background.

General convulsive movements and focal twitchings have frequently been noted in deep seated frontal tumors. Later, when the rolandic area or pyramidal tracts are encroached on, convulsions of jacksonian character occur along with the other convulsions. However, it must be borne in mind that jacksonian convulsions occurring late in the course of the disease have often no focal importance.

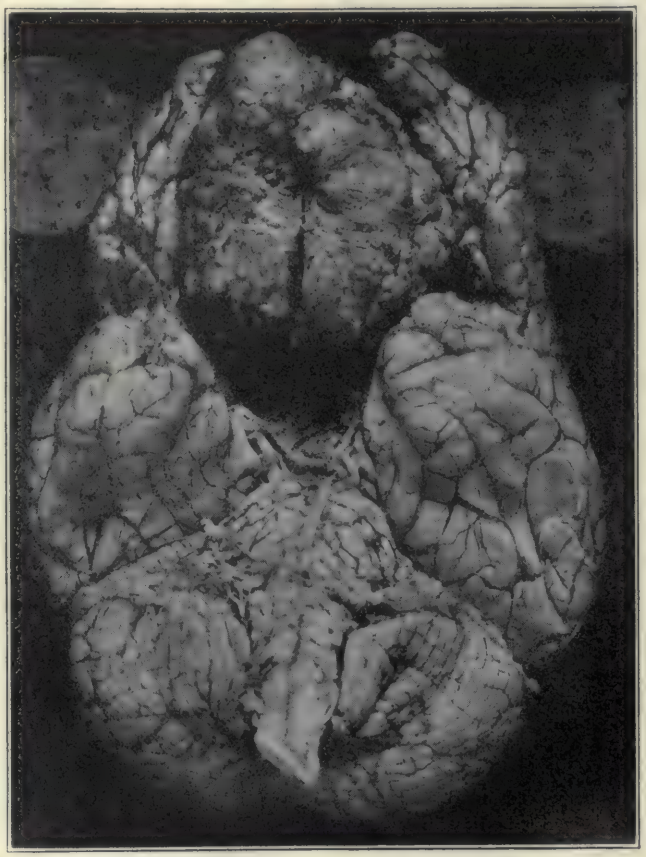
The bilateral ataxic gait could not be explained by frontal involvement, unless one were to suppose that both frontal cortices or subcortices were involved. It was best explainable as a variety of apraxia affecting both legs, the location of which is the anterior portion of the corpus callosum.

Bearing all these facts in mind, and taking into consideration the fact that in our case exophthalmos was an early symptom, and a postneuritic atrophy has resulted within a period of five months in total blindness, we thought, in the absence of symptoms pointing to cerebellar involvement, that this atrophy was one of the most important localizing symptoms, indicating some increasing direct pressure either on the entire chiasm or on both optic tracts or nerves. The important point brought out by Foster Kennedy, that tumors in the frontal region compressing the optic nerve produce a central scotoma on the side of the tumor and a papilledema on the other side, could not be utilized as a diagnostic point, the patient at the time we saw her being totally blind. We thought it improbable, if not impossible, that such rapidly onsetting blindness could be a nonfocal symptom, and this, with total bilateral anosmia, and ataxia of the legs, justified a tentative diagnosis of involvement of either both frontal lobes or a neoplasm between them, compressing both the olfactory and optic tracts and nerves. The absence of a Babinski and the presence of the abdominals were not at this time easy to explain, but were suggestive of an extramedullary growth.

The pathologist's report of the necropsy, which was confined to the head, is as follows:

The brain measured 17 by 12 by 9 cm., and with the exception of the tumor mass and the depression at the point of its attachment, appeared normal. The weight was not determined.

There was a median depression measuring 7 by 6.5 by 5 cm. which involved the inferior surface of both frontal lobes. The surface was concave and smooth, the convolutions and sulci being obliterated. The circle of Willis was enlarged, but complete, the anterior cerebral and anterior communicating arteries in normal position, the former elongated, due to displacement backward of the posterior cerebral, with consequent lengthening of the posterior communicating artery. The optic chiasm was displaced backward, being 10.5 cm. from the anterior margin of the frontal lobe, the normal distance being from 7½ to 8 cm. Lying within this depression was a globular mass 7 by 6.5 by 5 cm., the surface of which was irregularly roughened, showing numerous slight elevations, some of which were circular in outline and others irregular, and which measured from 2 mm. to 1 cm. in diameter. The tumor was attached to the dura mater in the center of the olivary process of the sphenoid for a distance of one fourth of an inch and connected with the brain by a few vascular strands.



Base of brain, showing displacement of medulla, and the tumor pushing the thinned-out frontal lobes apart. Dark line within the tumor is portion from which section was made for microscopic examination.

Microscopically, the tumor cell was elongated and spindle shaped, containing much protoplasm and an egg-shaped or rod-like vesicular nucleus filled with minute chromatin granulations. The cells were arranged in irregular, twisting strands or in concentric whorls typical of the endotheliomas of the brain membranes. The tumor had a slender, cellular connective tissue framework, which contained an abundant supply of thin-walled blood vessels.

The diagnosis was endothelioma.

It was unfortunate that the patient's early death deprived us of sufficient opportunity to study the case further, and that no Roentgen-ray examination could be made.

After studying the postmortem brain many of the symptoms obscure at first became clear. Evidently the peculiar gait and the leg apraxia were due to involvement of the corpus callosum. The conclusion that because of the absence of the Babinski sign and the preservation of the abdominal reflex the growth was extramedullary was correct.

The specimen further showed that the duration of the disease was much longer than that given by the patient in her history, because it is a well-known fact that frontal tumors may exist a very long time, and that in this situation they may attain a considerable size without giving the slightest focal symptoms.

264 Seventh Street.

Time for Rest.—There should be hours for necessities, not for delights; times to repair our nature with comforting repose, and not for us to waste these times.—Shakespeare.

TRENCH FOOT TETANUS

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AND
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It is the purpose of this paper to report a case of tetanus, occurring as a complication of "trench foot,"



Fig. 1.—Superficial abrasions on instep and dorsum of feet and blackening of toes (gangrene) in case of trench foot in which tetanus developed. The discoloration of the feet up to the malleoli is due to the application of picric acid. Patient died.

and to emphasize the importance of an early prophylactic dose of antitetanic serum in this type of case.

In using the term "trench foot" we refer to the lesion of the feet which has occurred so frequently in soldiers in the trenches during the cold and rainy weather. In the milder cases the feet present no obvious changes, but anesthesia of the functional type is present, or the feet are edematous and definite organic sensory changes can be detected. In more severe cases marked cyanosis, gross edema, bleb formation and serious organic sensory changes are present. In the worst cases, dry gangrene of the frost-bite type develops, leading to the death of considerable areas of skin, the loss of one or more toes, or massive gangrene of the feet, even extending to the lower third of the leg.

The facts of interest in our case are as follows:

REPORT OF CASE

Rifleman E. C., No. 34,946, Company D of the Twelfth Rifle Brigade, aged 20, entered this hospital with the diagnosis of "trench foot," Feb. 18, 1916. About February 2 the patient was with his regiment in the trenches near Ypres for five days, during which time he was exposed to the cold and his feet were wet almost constantly, and during the period of five days he changed his socks only twice. Then for four days after this he was cut off by the Germans from the rest of his regiment and did not have his shoes off at all during this time. He was not wounded and gave no history of injury. He remained four days at the casualty clearing station and then was brought here. He had no pain in his feet but complained of being unable to go to sleep.

On entrance, February 18, the patient had a temperature of 102.4, pulse 120, and respiration 24 per minute. The face was rather flushed, and the pupils were equal and reacted equally to light and accommodation. Heart and lungs were negative except for the rather rapid rate and a few râles at the base. The patient was rather restless, especially at night. Both feet were reddened and edematous, which condition extended well up over both ankles, higher on the left leg, where it extended 6 cm. above the internal malleolus and 4 cm. above the external malleolus. The great toe of the right foot was slightly blackened on the dorsal and inner side, and all the toes were more or less cyanotic. Anesthesia was present over all the surfaces of both feet, and extended up on both legs about 2 cm. Above the anesthetic area was a hyperemic zone, and above this again was a zone of hyperesthesia. Over the dorsum of both feet the edema was most marked, and hemorrhagic blebs were present over both insteps. Large but superficial fissures were present over the middle of the plantar surfaces of both feet. February 22, it was noted that the third, fourth and fifth toes of the right foot, and the great toe of the left foot, became extremely cyanotic, and that insomnia and restlessness continued.

February 25, the patient noticed stiffening of the jaw muscles, and 2,000 units of antitetanic serum were given. February 26 the jaws were tightly set, and there were slight twitchings of the muscles of the lower extremities. The patient caught his tongue between his teeth and slightly injured it. There were occasional clonic spasms of the muscles of the back of the neck. All toes were now noted to be gangrenous, and 10,000 units of antitetanic serum were given intravenously. February 27, the respiratory muscles became involved, and opisthotonos became more pronounced, and the spasms more frequent and had to be controlled by chloral and chloroform. The patient died, February 28.

Immediately after death cultures were made from the tissue from three places in each foot, the gangrenous great toe, the instep where the blebs were, and from fissures on the sole of the foot. All six cultures gave the tetanus organism.

COMMENT

This patient had not had a prophylactic dose of antitetanic serum. It has not been the practice to give it in trench feet cases. In all cases in which the patient



Fig. 2.—Superficial abrasions on soles of feet and blackening of toes (gangrene) in case of trench foot in which tetanus developed.

has been wounded, it is the custom to give a prophylactic dose of 500 units at the front. The value of this procedure can be estimated by observation of patients who have passed through this hospital.

Out of a large number (statistics are not popular at the present writing) of sick and wounded which have passed through this hospital in the last nine months, there have been only eight cases of tetanus, and only in

two cases did tetanus develop when the prophylactic dose had been given.

In considering the fatal outcome of this case of trench foot tetanus, in which a prophylactic dose of antitetanic serum had not been given, and in view of the excellent results obtained by prophylactic doses in the wounded, the conclusion is that it would be a reasonable rule in military surgery to consider all cases of trench feet as in a class with the wounded, and give these patients also a prophylactic dose of antitetanic serum.

EARLY DEATH FROM CEREBRAL SYPHILIS, WITH SUCCESSFUL RABBIT INOCULATION

REPORT OF A CASE *

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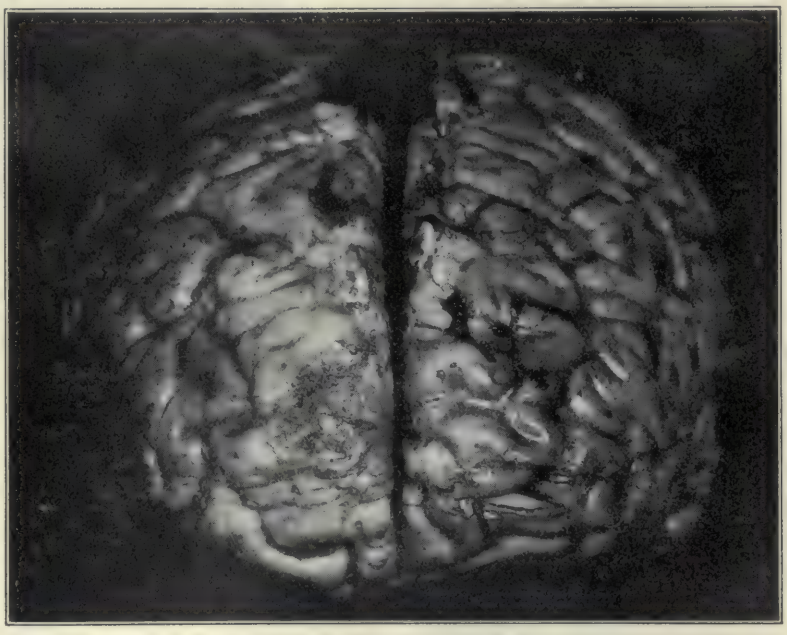
History.—Mr. X., aged 30, after intercourse Jan. 1, 1915, had a large indurated lesion on the penis about Feb. 13, 1915. On the request of his physician, Dr. Victor H. Esch of this city, I made a dark-field examination Feb. 27, 1915. The examination was negative, probably due to the prior use of calomel powder. The Wassermann reaction showed complete fixation.

Between February 27 and June 1, 1915, the patient received two intravenous injections of 0.9 gm. neosalvarsan and twenty-four intramuscular injections of salicylate of mercury. Wassermann tests made on June 2, 7 and 8 were all negative. The patient now believed himself cured and stopped treatment, despite the advice of his physician to the contrary.

During August, 1915, he developed severe headaches, which were more acute at night. He had several attacks of vomiting. He also had two convulsions, during which he lost consciousness. He described the headaches as being so severe that he felt impelled to strike his head against the wall to relieve the pain.

About September 1 he returned to his physician, who at once began the use of inunctions of mercury. I saw the patient in consultation on September 7, at which time a lumbar puncture was performed. Examination of the spinal fluid gave the following results: globulin + +, Lange colloidal gold test, 2-3-3-2-1-0-0-0-0-0, cells 184, Wassermann, complete fixation in 0.5, 0.3 and 0.1 c.cm. quantities. The blood Wassermann reaction also showed complete fixation. I believe good judgment was shown in starting the treatment on September 1, with mercury. In cases of nervous involvement, it seems to me that there is less danger from a Herxheimer reaction, following the use of salvarsan, if there has been some preliminary mercurial treatment. At this time, on the request of Dr. Esch, the patient was transferred to my care. The following day, September 8, he was given an intravenous injection of 0.3 gm. salvarsan, without untoward manifestations resulting. His headaches ceased within twenty-four hours; but again he neglected continuous treatment. He returned at the end of two weeks with his headaches as severe as before and with a history of having had several convulsions. He was at once given another 0.3 gm. salvarsan injection intravenously, and the inunctions and injections of mercury were resumed. The mercury was given to the limit of toleration, and again his symptoms rapidly subsided. He had three or four convulsions during the first two weeks, and after that seemed to be doing quite well. His mental condition improved, though he still remained somewhat forgetful and apathetic. He gained 8 pounds in weight and returned to work. The patient objected both to another lumbar puncture and to intraspinal medication, which seemed advisable, but, due to his apparent general improvement, this was not insisted on. The patient, however, agreed to have this done later if necessary. At no time were there localizing manifestations or disturbances of vision or hearing. At the end of six weeks, the Wassermann reaction still showed complete fixation.

On the night of Nov. 18, 1915, he developed a series of epileptiform convulsions. He did not regain consciousness and died at the end of about six hours.



Photograph of brain showing lesion.

Postmortem Examination.—The postmortem was performed by Dr. William H. Hough after embalming. The brain was moderately congested, but there was no flattening of convolutions. There was slight opacity of the arachnoid membrane over the anterior half of brain, more noticeable over the rolandic area. The base showed no abnormalities. The only gross lesion manifest was located, as will be noted in the illustration, in the anterior portion of the convex surface of the right frontal lobe and was about 3.5 cm. in diameter. Firm adhesions existed between the lesion and the overlying dura. The ventricles, as well as the choroid plexus, were apparently normal. On section, the lesion was seen extending through the cortex to the medullary substance and appeared as a grayish-red discoloration Sections examined were from the lesion, rolandic area, normal frontal, occipital, cerebellum and hippocampus. Microscopic examination of the lesion showed several small gummas in the pia and extending into the cortex, with the presence of many newly formed blood vessels and endothelial proliferation and thickening of the walls of the older vessels, some of these vessels being apparently thrombosed. The pia-arachnoid showed in places marked round cell production and new blood vessel formation, and many of the blood vessels of the cortical portion showed circumscribed round cell infiltration. One spirochete was found in Levaditi section. Microscopic examination of other parts of the brain was negative except for slight evidences of meningeal inflammation (endothelial proliferation, thickening of blood vessel walls and some round cell production) noticed over the rolandic area.

Here, then, is the interesting condition of a man whose death was due to cerebral syphilis, ten and one-

* From the Department of Pathology, Army Medical School, Washington, D. C.
* Presented before the District Medical Society, Washington, D. C., Jan. 19, 1916.

half months from the date of infection. He was treated adequately during the first three and one-half months, and received intensive mercurial treatment and two salvarsan injections during the last two months. He presented no signs of spinal irritation, special sense involvement, or other localizing manifestations. His only gross lesion has been described.

The spinal fluid in this case contained the *Spirochaeta pallida* as was shown by injection into the testicles of a rabbit. If there be such a thing as a highly invasive strain or one having a predilection for the nervous system, any characteristics peculiar to such a strain should be manifest in this one. Two other cases, in which infection was contracted from the same source, are now being followed. The results of the study of this strain in the rabbit will be published later in conjunction with the findings from a number of other strains, obtained from various sources. It is interesting to note that this strain shows the same tendency toward eye involvement in the rabbit, noted by Nichols[1] in the Nichols and Hough strain, obtained from the spinal fluid of a neurorecidiv.

AN UNUSUAL STOMACH CASE

WITH ROENTGENOGRAPHIC FINDINGS

GEORGE E. BROWN, M.D.
MILES CITY, MONT.

History.—G. R., woman, aged 29, came to my office with a history of chronic stomach trouble dating back fifteen years. Family history was negative. Personal history contained nothing of importance except the excessive use of beer and cigarets. There was no history or evidence of syphilis. The patient had noticed the present stomach trouble for fifteen years, consisting of attacks of epigastric pain and vomiting. The pain was of the burning type without relation to meals, nor was relief obtained by food. Excessive belching and regurgitation of food were also present at times. The vomiting took place directly after meals and twice was pure blood. One year ago, fainting followed the vomiting of a large amount of fresh blood. The patient was examined by prominent surgeons in the Middle West eleven years ago, and the condition diagnosed as gastric ulcer. Six months ago, the patient had an acute attack of appendicitis, and the appendix was removed by another physican. This was actively inflamed, according to her statement, but its removal had no influence on the gastric symptoms.

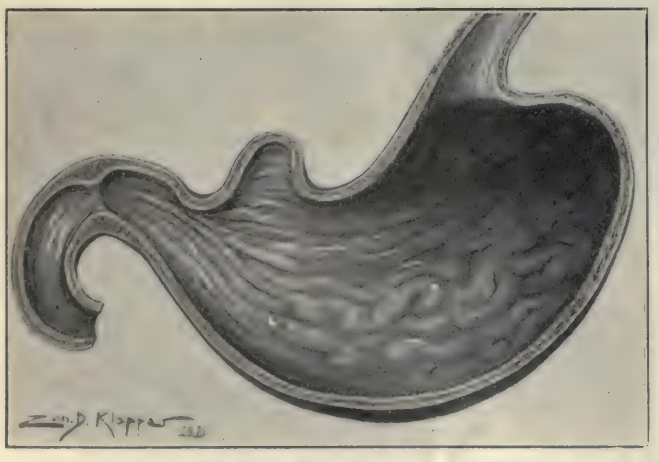


Fig. 1.—Artist's drawing, showing pouch involving all coats of stomach; no spasm was present when stomach was explored.

Examination.—Physical findings were negative. There was no abdominal tenderness. Gastric findings: Lavage was bloody after a test meal; the meal also contained red blood. Total acid was 40, and free hydrochloric acid 20. At a second examination, total acidity was 67, free, 45. There was an excess of mucus, and microscopic examination showed a few yeast cells, many diplococci and staphylococci. The stools gave a positive benzidin test for occult blood. The urine was negative.

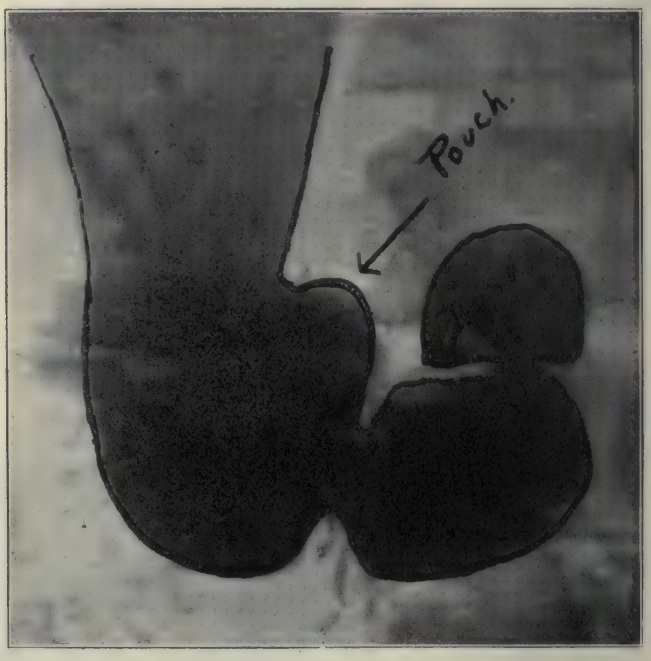


Fig. 2.—Roentgenogram of pouch; on fluoroscopic examination, a more oblique view brought the pouch into greater prominence. Print retouched.

Roentgenoscopy.—The stomach was high in the abdomen; there was no incisura; peristalsis was normal. The duodenum and pylorus were negative. On the lesser curvature was seen a projection which was quite marked. This shadow was permanent, and peristalsis on the lesser curvature seemed to commence on the pyloric side of the mass which did not partake of any peristaltic wave, while on the greater curvature waves started at the usual site. There was no marked tenderness over this area. There was no 6 hour residue. The stomach was freely movable. The patient was reexamined two weeks later with similar findings regarding the mass on the lesser curvature. A series of six plates showed this very distinctly and constantly.

Operation.—The diagnosis was in doubt. We decided that gastric ulcer was the most logical diagnosis, and as her condition was unsatisfactory on medical treatment, an exploratory operation was done by my associate, Dr. W. H. Buskirk. I will report his operative notes verbatum: "Median epigastric incision, stomach delivered into wound. No external signs of ulcer. On lesser curvature a small outpouching of stomach wall was found, corresponding to deformity shown in x-ray plates. This was about the size of an English walnut, and resembled a hernialike weakening of the stomach wall. No evidence of ulcer near this pouch. A transgastric incision 1½ inches long made into stomach, and interior carefully explored. No ulcer nor growth found. Mucous membrane bleeds with most gentle handling. Pylorus admits index finger. Duodenum negative. Stomach incision closed. The hernia on lesser curvature plicated with three linen sutures."

Postoperative Course.—The patient made a rapid and uneventful recovery and left the hospital in ten days, feeling fine. She was seen at varying intervals in the following

1. Nichols, H. J., and Hough, W. H.: Demonstration of Spirochaeta Pallida in the Cerebrospinal Fluid, THE JOURNAL A. M. A., Jan. 11, 1913, p. 108.

year, and was much improved; but an indiscretion in diet or an excess of alcohol would bring on many of her original symptoms, as it was impossible to control her habits and mode of living.

COMMENT

This case is of interest not alone because of its clinical rarity, but also from the fact that the roentgenologic findings were deceptive. The mass on the lesser curvature resembled the roentgenologic picture of penetrating ulcer, though no incisura was present.

The clinical findings were also deceptive, namely, hematemesis, occult blood in stools, gastric pain and vomiting.

I can find no mention of any similar condition in the textbooks, though I have not made an exhaustive search of the literature.

The diverticulum was very pronounced, when the stomach was examined. The examining finger of the surgeon could be inserted into this pouch, which was apparently a hernia of the stomach wall.

FECAL CONCRETIONS OF THE APPENDIX

DEMONSTRABLE BY THE ROENTGEN RAY *

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Fellow of the American College of Surgeons
AND
LEON THEODORE LE WALD, M.D.
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NEW YORK

Concretions in the appendix, formed, as they are, of hardened, more or less inspissated fecal matter, are rarely opaque to the Roentgen ray, and are therefore usually not demonstrated by roentgenographic examination. If bismuth or barium has been previously given for gastro-enterologic examination, a persistent residue in the appendix may sometimes be due to the coating of the concretion with the opaque substance.

When, however, owing to the inflammatory reaction of the tissues, calcium salts are deposited on the surface of the fecalith, it may become demonstrable. The condition is similar to that which occurs in cholelithiasis. Gallstones forming as a result of pure cholesterin precipitation cause no shadow. Those in which infection and resulting inflammation of the gallbladder have caused a deposit of calcium salts to coat or become mixed with the cholesterin become opaque.

The following two cases are reported to show the possibility of such a fecalith being mistaken in a roentgenogram for a ureteral calculus on the right side, unless the roentgenogram is taken with opaque ureteral catheters in the ureters. One case from the literature, however, and one case from a personal communication, show that even this is not an infallible means of differential diagnosis.

CASE 1.—A man, C., aged 21, a painter, became ill three weeks before admission to the hospital, with pains in the right iliac region, vomiting and fever. The attack lasted five days. Pain gradually disappeared, but reappeared two days later in the same spot and persisted up to his admission to the hospital. There was no further vomiting or temperature elevation, his appetite was fair, and his bowels had been irregular. On admission his temperature and pulse were normal. The leukocyte count was 15,500 with 78 per cent. of polymorphonuclear cells; on the following day the leukocyte count fell to 10,000, with 66 per cent. of polymorphonuclears.

Physical examination demonstrated slight rigidity and tenderness in the lower part of the right inguinal region, but no mass could be felt. On rectal examination a sense of resistance was felt in the right side of the pelvis above the prostate, and a slight mucopurulent discharge from the rectum was present.

Roentgenographic examination showed a shadow in the right side of the pelvis (Figs. 1 and 2), and a diagnosis of acute appendicitis with abscess which had probably perforated into the rectum was made. The shadow was believed to be a fecalith.

On operation it was found that the appendix had sloughed off about 1 cm. from its base, and a fecalith about 2 by 1.5 cm. in diameter was found in a cavity below the cecum between the rectal wall and the right pelvic wall. It appeared as if the fecalith might have been formed by leakage from the appendix stump, which was still patent.

CASE 2.—W. T., aged 23, was admitted to St. Luke's Hospital with a history of acute appendicitis of three days' duration. Temperature on admission was 102.8; pulse, 128.



Fig. 1.—Arrows point to shadow in the region of the appendix diagnosed as fecalith by Roentgen examination; diagnosis confirmed at operation. For appearance of fecalith after removal see Figure 3.

Physical examination revealed an indefinite mass in the right lower quadrant with marked rigidity and tenderness over the whole abdomen. No Roentgen examination was made.

On operation a gangrenous appendix was found which had perforated but still contained a large, hard fecalith. A spreading peritonitis was present.

The concretion was so hard that it prompted the idea of testing its density in comparison with the concretion from CASE 1 and that of two ureteral calculi which had been demonstrated by roentgenographic examination before removal from other patients. The result, illustrated in Figure 3, showed that this also would certainly have appeared on a roentgenographic plate.

Pfahler and Stamm[1] state that "only one case has been diagnosed before operation. This was discovered accidentally by Weisflog in 1906 who, while searching for a ureteral stone by means of the Roentgen ray,

* Read before the Surgical Section of the New York Academy of Medicine, April 7, 1916.

1. Pfahler and Stamm: Diagnosis of Enteroliths by Means of the Roentgen Ray, Surg., Gynec. and Obst., 1915, xxi, 14.

found two stones in the appendix." They report two other cases, one of an enterolith in the cecum, the other of two fecaliths in the appendix.

In addition to these reports, isolated cases have been reported within the last few months. Hunner[2] of Johns Hopkins reported a case of fecalith of the appendix demonstrated by the Roentgen ray but diagnosed as a probable ureteral calculus, although the

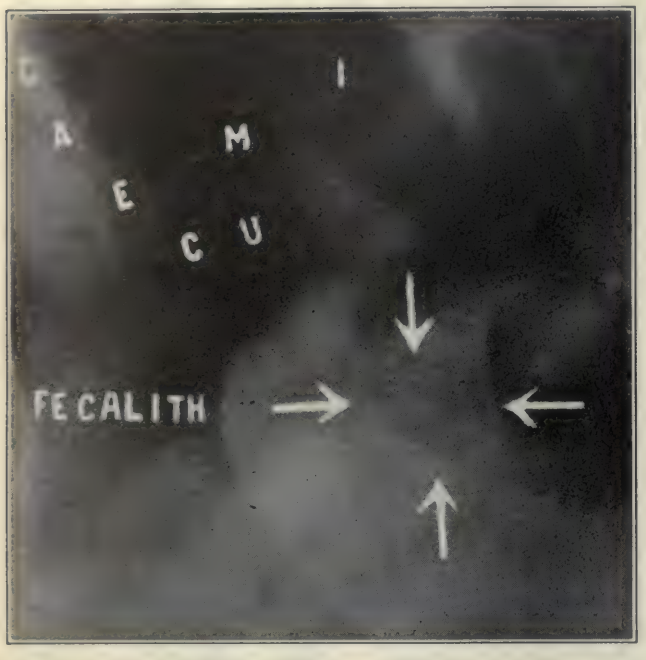


Fig. 2.—Arrows point to shadow in the region of the appendix diagnosed as fecalith by Roentgen examination; exposure made six hours after opaque meal; diagnosis confirmed at operation. For appearance of fecalith after removal see Figure 3. I, ileum.

possibility of its being in the appendix was stated. Stewart[3] reported a case in which a shadow in the right inguinal region was diagnosed as a possible concretion of the appendix, and at the operation it proved to be such, and had apparently escaped from a ruptured gangrenous appendix.

Case[4] reported two cases in which a concretion in the appendix had been correctly diagnosed by Roentgen examination and afterward confirmed at operation.

Seelig[5] reported a case in which the history, physical signs, ureteral catheterization and Roentgen examination all indicated ureteral calculus, but on operation none was found. The obstruction in the ureter was caused by a subacutely inflamed appendix being adherent in front of the ureter, and the shadow in the roentgenogram was due to a fecal concretion in the appendix.

Eastmond[6] reported a case almost identical with that of Seelig:

> The patient, man, aged 38, had several attacks of pain high up on the right side. Roentgen examination showed a shadow just above the transverse process of the third lumbar vertebra on the right side about the outer margin of the psoas muscle. Exposure made with the opaque catheter in the ureter showed an apparent obstruction at the point of the suspicious shadow and close approximation of the catheter and the shadow, so that the suspicious shadow was believed to represent a stone in the ureter. At operation, an anterior incision having been made, the appendix was found with its tip firmly adherent to the ureter and compressing it, causing obstruction. The tip of the appendix contained a concretion which accounted for the shadow noticed in the roentgenogram. The concretion was oval with its longest diameter vertical, so that this very much simulated a ureteral calculus.
>
> On removal of the appendix, a catheter passed up from the bladder showed the ureter free.

It would appear, therefore, that in a small number of instances a fecalith of the appendix may be demonstrated by roentgenographic examination, and that this fact must be taken into consideration when making a diagnosis.

Usually the passage of opaque ureteral catheters will be of the greatest assistance in differential diagnosis, but the two cases reported by Eastmond and Seelig demonstrate that even with this assistance a mistake may be made.

As a further aid in Roentgen diagnosis, we would suggest that when the shadow is above the crests of the iliac bones, a *lateral* stereoscopic roentgenographic examination be made, preferably with an opaque catheter in the ureter on the suspected side. In a case recently examined in this way we were able to distinguish what is probably a calcified lymph node from a supposed ureteral calculus.

If there is still doubt, a Roentgen examination, combined with an opaque meal or enema, may show the relationship of the suspicious shadow to the appendix or cecum, as in Case 1 (Fig. 2).

Finally, we would call attention to the possibility of one encountering a left sided appendix due either to a nonrotation of the colon or to a complete transposition of all the viscera. One of us (Le Wald) has encountered the former condition in three persons, and the latter condition in twelve. A shadow on the left side, therefore, may represent a calculus in the appendix unless a Roentgen examination shows the cecum on the right side.[7]

51 West Fifty-Fourth Street — 99 Claremont Avenue.

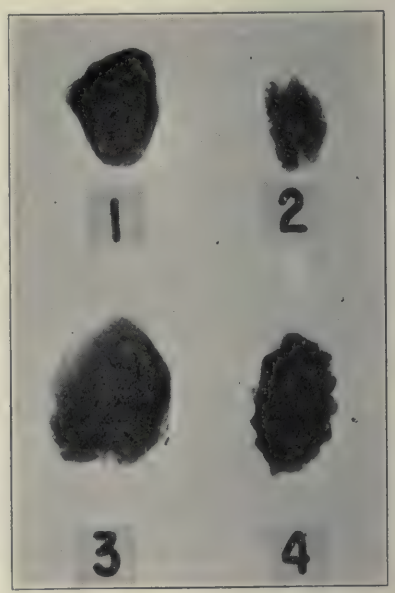


Fig. 3.—Roentgenogram of four bodies of about equal density, two from the appendix and two from the ureter: 1, an appendix concretion in a case of acute gangrenous appendicitis; 2, ureteral calculus; 3, concretion from the appendix diagnosed by Roentgen examination as a concretion prior to operation; 4, ureteral calculus. Exact size.

2. Hunner: At a meeting of the Genito-Urinary Section of the New York Academy of Medicine, Jan. 19, 1916.
3. Stewart: At a meeting of roentgenologists at Atlantic City, Jan. 22, 1916.
4. Case: At a meeting of roentgenologists at Detroit, Feb. 5, 1916.
5. Seelig: Surg., Gynec. and Obst., 1908, vii, 485.
6. Eastmond, Charles: At the meeting of the New York Roentgen Ray Society, Feb. 21, 1916.

7. Since the preparation of this article for publication, a third case has come under our care. D. F., a girl, 2 years of age, was referred to St. Luke's Hospital by Dr. J. F. Bell of Englewood, N. J., with a diagnosis of acute appendicitis. A Roentgen examination made for the purpose of excluding the possibility of a right side central pneumonia (two previous cases of this nature having come under our observation) disclosed a shadow in the appendix region and no pneumonia. Operation revealed an acutely inflamed, gangrenous appendix containing a concretion corresponding in size to the shadow on the Roentgen plate. Roentgen examination of the removed appendix further confirmed the identity of the shadow.

New Instruments and Suggestions

A SIMPLIFIED METHOD OF ADMINISTERING SALVARSAN

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For eighteen months I have been administering salvarsan intravenously by the means of a 30 c.c. syringe. The manufacturers of this product have always advised that larger amounts of water be used (250 c.c. for 0.5 gm.). I have no hesitancy in giving 0.6 gm. in 30 c.c. of water. The results obtained have been so consistently successful that I think a description of the method employed not amiss.

In the directions for giving neosalvarsan it is advised that the drug (0.9 gm.) be given in 150 c.c. of water. In connection with my associates in the Bobbs and City Dispensary, I have given 3,000 injections of neosalvarsan (0.9 gm.) in 10 c.c. of water, using an ordinary glass syringe. The number of reactions was much less in this series of cases than when the gravity method was used and the solution was made up to 150 c.c., owing to the fact that the so-called "water-faults" were eliminated. I am confident that the same holds true for salvarsan.

The apparatus necessary for preparing the solution and administering the injection is very simple, as shown by the illustration:

1. One 30 c.c. Lüer syringe with needle.
2. One glass-stoppered 60 c.c. shaking bottle.
3. One bottle of 15 per cent. sodium hydroxid with medicine dropper.
4. One 50 c.c. funnel.

TECHNIC

The apparatus is sterilized by boiling in freshly distilled water in an 8 inch aluminum pan. The shaking bottle containing approximately 30 c.c. of boiling water is removed from the pan, and the salvarsan is added. It is then shaken until a clear solution is obtained. Glass beads in the shaking bottle facilitate the preparation of the solution. Fifteen per cent. sodium hydroxid is added until the precipitate which at first forms is dissolved. The solution is then filtered through a pledget of sterile cotton in the funnel directly into the barrel of the syringe. The plunger of the syringe is inserted and the needle attached. The air is expressed from the syringe, and the solution is then ready for injection. The procedure is the same as for any intravenous injection in which a syringe is used. Any all-glass syringe is suitable.

TABLE 1.—PRIMARY STAGE, FORTY-SIX PATIENTS

Dose, Gm.	Number of Injections	Reaction*			
		Slight	Moderate	Severe	None
0.4	154	4	3	...	149
0.6	36	1	2	...	31

TABLE 2.—SECONDARY STAGE, FORTY-FOUR PATIENTS

Dose, Gm.	Number of Injections	Reaction*			
		Slight	Moderate	Severe	None
0.4	190	6	5	...	179
0.6	36	1	2	...	33

TABLE 3.—TERTIARY STAGE, FORTY PATIENTS

Dose, Gm.	Number of Injections	Reaction*			
		Slight	Moderate	Severe	None
0.4	178	4	5	...	169
0.6	10	1	...	...	9

* By "slight reaction" is meant flushing of face, nervousness, and slight acceleration of pulse lasting only a few minutes. By "moderate reaction" is meant headache, chills, fever and pain lasting not over four hours. By "severe reaction" is meant headache, chills, fever, vomiting, diarrhea, vasomotor disturbances and collapse.

The accompanying tabulations of 604 injections show the reactions obtained.

These tables show that seventeen reactions were observed classed as slight. In the true sense of the word, they should not be classed as salvarsan reactions, but as psychic manifestations due to fright, etc. All patients who have complained of a "sense of fulness" in the face, slight dizziness, or "funny sensations" are recorded under this heading.



Apparatus used for administering salvarsan with a 30 c.c. syringe.

In seventeen instances, moderate reactions are recorded. None of these lasted over four hours, and the majority not over two hours.

In 570 injections, no reactions were observed.

ADVANTAGES

The chief advantages of this method are:

1. Time and labor are saved. The apparatus can be sterilized, the solution prepared, and the injection given in seven or eight minutes. This is especially desirable in dispensary practice where the time is limited and several injections must be given. There is no complicated and cumbersome apparatus to be sterilized. The solution may be administered in thirty or forty seconds with the syringe, whereas with the gravity apparatus it often takes from twelve to fifteen minutes for the solution to run through the needle, which must of necessity be of small caliber in some cases.

2. The method is less dangerous than the gravity method. In the latter an untrained and inexperienced operator is not always certain that he has entered a vein, nor does he know when the needle has slipped from or pierced through the vein during the procedure. When using the syringe, if he is at any time in doubt, he may readily assure himself that the injection is moving properly by pulling back the piston and noticing the return of blood into the glass tip of the barrel of the syringe. Further, there is no danger of air entering the vein.

3. The number of salvarsan reactions is less than when larger amounts of water are used. The greater the dilution, the greater will be the number and severity of reactions due to the so-called "water faults." In 30 c.c., "water faults" are practically eliminated.

4. By using this technic, the giving of salvarsan becomes a one-man operation.

ADDENDUM

Since writing this paper, I have given to sixty-five patients a series of 342 injections of arsenobenzol, the arsenic com-

pound prepared by the Dermatological Research Laboratories of the Philadelphia Polyclinic under the direction of Dr. Jay F. Schamberg. The 0.4 gm. dosage was used in the 30 c.c. dilution, and the injection given with a syringe in all cases. In no one of these patients has there been a reaction of note. Seven of these patients following the injection at varying intervals of from one to four hours have complained of headaches which might or might not have been due directly to the administration of the drug. Clinical results accomplished by the use of arsenobenzol have been equally as good as the results obtained from the use of salvarsan. I am firmly convinced that its toxicity is lower than that of salvarsan, as can readily be seen by comparing the results of these 200 injections with the 600 injections reported above.

330 Newton Claypool Building.

MODIFICATIONS OF MacKENZIE INK POLYGRAPH

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Teaching Fellow, University of Minnesota Medical School, Minneapolis

Certain modifications of the MacKenzie ink polygraph have been made and have proved of definite value in our work in the University Hospital. These are as follows:

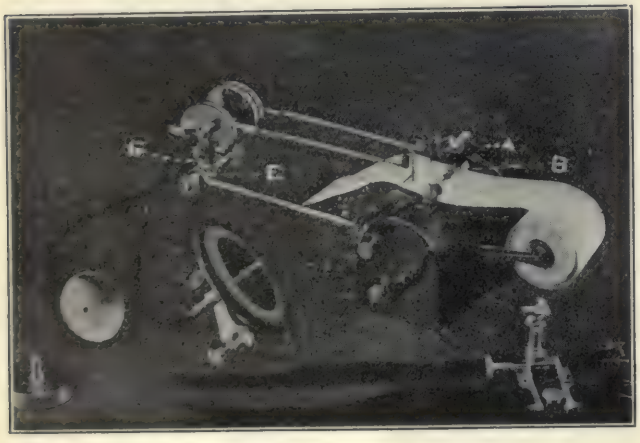


Fig. 1.—Original MacKenzie polygraph.

1. The spring *A*, which holds the roller *B*, has been replaced by a bridge *C*, which is provided with set screws *D;* these

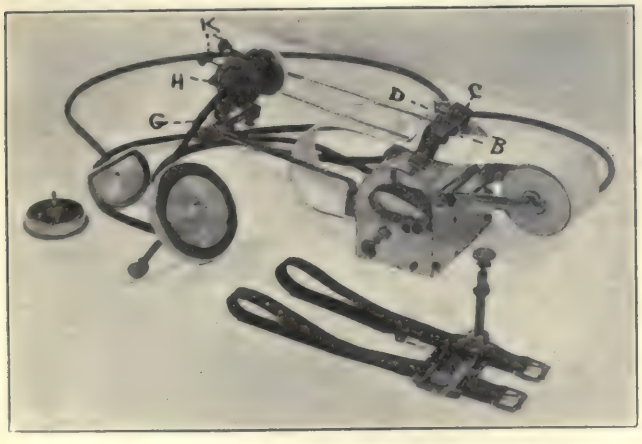


Fig. 2.—Modified polygraph, dismounted. Showing modifications.

can be adjusted so as to regulate at will the pressure on the axle by the spring, thus adjusting the paper feed. This substitution has resulted in a much more perfect control of rate in supplying the paper.

2. The distal portion of modification ring *E* (Fig. 1), has been removed, with part of the outer surface of the ring, thus leaving a shoulder (*F*, Fig. 3), which permits tension. These changes permit the tambours to be detached much more readily and allow definite ease of adjustment.

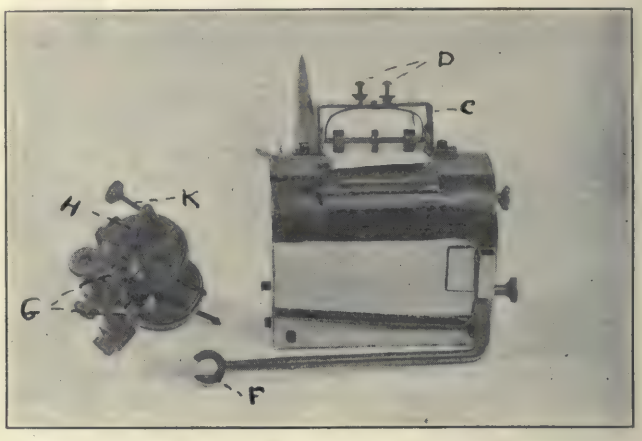


Fig. 3.—Modified polygraph assembled.

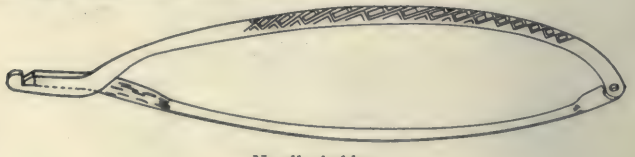
3. To the upright (*G*) of each tambour support a stationary vertical bar (*H*) has been attached, through the upper end of which runs a micrometer screw (*K*) which permits a delicate and accurate control of the pens. This modification corresponds to the fine adjustment of a microscope and permits rapid, accurate and independent adjustment of the pens at will.

NEEDLE HOLDER

W. P. MEGRAIL, M.D., WHEELING, W. VA.

This needle holder consists of two blades and a screw or rivet which connects the blades and forms a hinge at the proximal end of the instrument. The rigid blade has a suitably curved handle and a hook shaped jaw at the distal end, and near the jaw is a slot through which passes freely the opposite spring blade, which has a jaw on its distal end.

Very slight pressure on the handles tends to straighten the spring blade, and forces its jaw against the hooked jaw of its rigid opposite blade.



Needle holder.

A slight projection near the distal end of the spring blade prevents the jaws from opening too wide.

The advantages of this instrument are:

It is simple, having only three parts.

It is not apt to get out of order.

It has a powerful grip, which is the application of what is known in mechanics as the "toggle joint."

It will hold any needle, and is not so liable to break them because it grasps them on the edge instead of on the thin, flat or curved sides.

Consumptive Wins Suit.—A citizen of Toronto a short time ago brought action against a well known manufacturing jewelry firm charging that he had contracted tuberculosis while in the employ of the company. This, he claimed, was the result of negligence on the part of the employers in not providing proper ventilation of the building; dust and fumes being not properly removed. The jury deliberated for several hours and brought in a verdict in favor of the plaintiff, awarding him damages to the extent of $3,000. This is believed to be first case of its kind ever tried in Toronto.

HISTOLOGIC TECHNIC

L. W. STRONG, M.D., NEW YORK
Pathologist, Woman's Hospital

The following modifications of current histologic methods were devised to shorten the time for making routine reports on histologic specimens. It is always possible to harden and embed any individual specimen rapidly, but this implies a departure from the regular routine.

These modifications are adaptable as regular routine, and reduce the time for reports to three days, with an additional saving of labor and reagents, very considerable in itself. The resulting hardening, fixation, dehydration and clearing of the tissues leave nothing to be desired:

1. Ten per cent. liquor formaldehydi in 80 per cent. alcohol, over night.
2. Ninety-five per cent. alcohol until, say, 4 p. m.
3. Acetone, from one half to two hours, at convenience.
4. Chloroform-paraffin over night in a warm place.
5. Paraffin, four hours.
6. Embed.

This embodies the least handling and the most convenient intervals.

It will be found of the greatest convenience to have a wooden rack made with cells just large enough to hold the proper stock laboratory bottle, three rows deep and, say, twelve long. The first row of bottles contains formol-alcohol, the second 95 per cent. alcohol, and the third acetone. This wooden rack obviates the necessity of writing numbers on bottles or labels, prevents error from misplaced bottles, and enables the reagents to be used repeatedly or until weakened. Case numbers are printed for a thousand or more in advance on small slips, and each new case has its slip placed in the front row of cells, where it stays until the specimen leaves the rack.

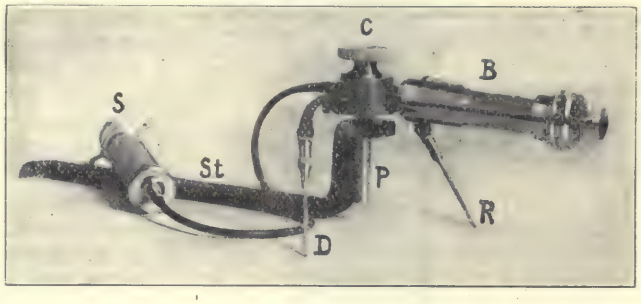


Fig. 1.—Unger's instrument for syringe transfusion: *C*, stop-cock; *B*, blood syringe connected to blood outlet; *S*, saline syringe connected to saline outlet; *D*, donor's cannula connected to donor's outlet; *R*, recipient's cannula connected to recipient's outlet; *St*, stand; *P*, pedestal by which the stop-cock is raised or rotated.

In embedding in paraffin, aluminum muffin tins will be found most serviceable, one sheet holding from six to eight cases.

All specimens coming to the laboratory during the day are described at a set time, late in the afternoon. Sections are taken then and placed in the formol-alcohol. The following morning they are advanced into 95 per cent. alcohol, where they remain until just before the day's specimens are described, when they are advanced into acetone. After the day's specimens are described, the acetone specimens are placed in chloroform-paraffin on the top of the paraffin oven over night.

On the following morning they are placed in 48 degree paraffin for two hours, and 52 degree paraffin for two hours, and are then embedded.

An Inexpensive Container for Use in Staining Acid-Fast Bacilli.—Often in the daily routine it becomes necessary to make a stain for acid-fast bacilli. We are familiar with the ordinary method of preparing the slide or cover glass with the addition of the stain and consequent heating. To avoid the usual phenomenon, that of spilling the stain, an ordinary nickel plated metal shaving stick soap container may be employed. These containers are in one piece with or without hinged cover (the latter preferred), and have a capacity of over 50 c.c. Several slides may be stained at one time. When not in use, the containers are practically air-tight, preventing evaporation of the stain.—GEORGE D. HORTON, Bacteriologist, Missouri State Poultry Experiment Station, Mountain Grove, Mo.

Therapeutics

HEMORRHAGIC CONDITIONS

(Continued from p. 1779)

TRANSFUSION OF BLOOD

The idea of introducing healthy blood into the circulation of a person threatened with death either from chronic disease or from some acute accident is not a new one. Early it became evident that there were certain objections to the introduction of the blood of lower animals into man, and the practice fell into disuse. During the last century, experiments were made on the direct transference of the blood from one person to another. This was attempted by means of rather complicated apparatus and under certain handicaps which, now, may be avoided. The earlier attempts of this sort were made before the days of perfect aseptic technic, and infection sometimes followed the operation of transfusion. Recently, because of an increased interest in the possibilities of transfusion, there have been published descriptions and results of several new methods. These methods tend to the elimination of those factors that are responsible for untoward symptoms following transfusion. As a result, transfusion in the hands of a trained and experienced operator is fraught with little or no danger to either the donor or the recipient of the blood. This fact has led investigators to experiment on many different types of disease in which previously it would not have been deemed advisable to transfuse.

When transfusions were first attempted, and even up to recent years, little thought was given to the physiology of the blood and to the part played by changes produced in the blood during the progress of the transfusion. With a knowledge of the processes concerned in coagulation, and also with the perfection of simple and reliable methods for testing the properties of the blood plasma and red blood corpuscles, unfavorable results, due to the infusion of the blood itself, are uncommon. Untoward symptoms do not occur in more than 10 per cent. of the transfused cases. Some of these are trivial and do not last long; others, however, may be of a serious nature. Some of the symptoms resemble those seen in serum sickness, with a rise in temperature, chills, and the appearance of an urticarial rash. Others are of an anaphylactic character, accompanied by shock. However, with properly conducted tests it may be stated that there need be no fatal cases traceable to the transfusion itself.

Whatever untoward symptoms or fatal cases occur as a result of the transfusion may be traced to some disturbing element in the introduced blood; to the formation of a thrombus; to the introduction of an embolus, or to the dilation of an already weakened heart by too large an injection of blood or by a too great pressure exerted in the introduction of the blood.

The introduced blood may have the property of agglutinating or hemolyzing the blood of the patient. Recently, Satterlee and Hooker[1] have suggested three possibilities: (1) a disturbed trypsin-antitrypsin balance in the recipient's blood resulting in the formation of a serotoxin; (2) the disturbance of the protective colloids in the body cells of the recipient, exposing them to a reaction of antigen and antibody in the circulation of the recipient, and (3) a toxic disturbance resulting from incipient coagulative changes produced by physical influences arising during the process of the transfusion.

Agglutination and hemolysis can be avoided by preliminary tests. Infusion of syphilitic blood can also be prevented by a complement-fixation test of the blood of the donor. The problem of eliminating any other disturbing factors in the blood is still one to be investigated. Although several anticoagulants have been suggested for the prevention of coagulation, so far only two have been advocated, herudin (an extract of leech) and sodium citrate, and of these the sodium citrate has been shown to be the safer and more reliable. It has been found that herudin preparations, particularly those which have been prepared for some time, undergo a certain amount of chemical change with the production of a toxic substance. Sodium citrate, on the other hand, has been used very successfully with no, or but very few, untoward effects.

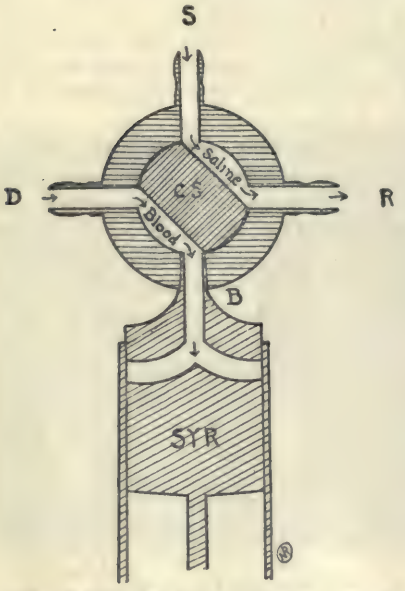


Fig. 2.—Unger's instrument. Donor's position: *D*, donor's outlet; *B*, blood outlet; *Syr.*, blood syringe. Blood passes from donor's vein through *D*, out at *B* into *Syr.* *S*, saline outlet; *R*, recipient's outlet. Saline is forced from saline syringe through *S*, out at *R*, into recipient's vein. Channel between *D* and *B*, donor blood circuit; that between *S* and *R*, recipient saline circuit. *CS*, central stopper (rotates through an arc of 45 degrees).

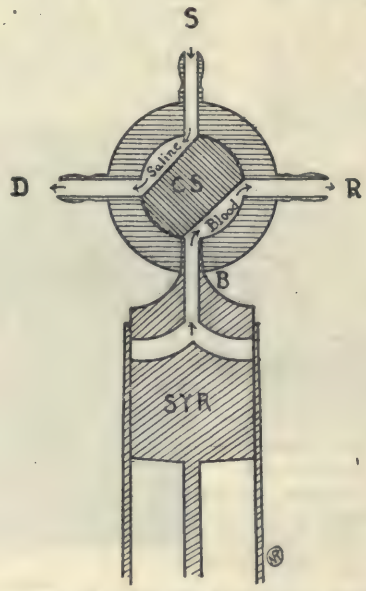


Fig. 3.—Unger's instrument. Recipient's position: *Syr.*, blood syringe; *B*, blood outlet; *R*, recipient's outlet. Blood is forced out of *Syr.* through *B*, out at *R*, into recipient's vein. *S*, saline outlet; *D*, donor's outlet. Saline is forced from saline syringe through *S* out at *D* into donor's vein. Channel between *B* and *R*, recipient blood circuit; that between *S* and *D*, donor saline circuit. *CS*, central stopper.

METHODS

Transfusion methods may be divided into two kinds, the direct and the indirect. By the direct methods are meant those in which the artery of the donor and the vein of the recipient, or the veins of each, are brought into contact either by being sutured or by being connected with a tube or with a cannula. Carrell was perhaps the first to suture the vessels together, and although this method has been successful in some cases, nevertheless it has the disadvantage that it is too time-consuming, and that the amount of blood passing from donor to recipient cannot be measured. This can also be said of most direct methods. Time is consumed in dissecting out sufficient lengths of the vessels so that they can be easily handled. A method of calculating the amount of blood transfused by means of frequent hemoglobin readings has been devised by Libman and Ottenberg.[2] For the purpose of preventing clotting of blood during its passage, when the cannula or straight tube is used, these are treated with sterile paraffin or albolene. These substances work admirably.

The cannula method described by Crile[3] is typical of other cannula methods. He uses a cannula through which he draws the proximal end of the divided vein and then turns back the end of the vein like a cuff over the end of the cannula. Over this he then draws the proximal end of the divided artery. The radial artery of the donor and the median basilic or cephalic of the recipient are used. This is rendered comparatively easy by having the patients lie beside each other, but with their feet in opposite directions. This operation brings into contact the intima of the artery with the intima of the vein and this greatly minimizes the liability to clotting of the blood.

Transfusion by means of a connecting tube is described by Vincent.[4] This consists in the use of glass tubes which are used to connect the vein of the recipient with the artery of the donor. These tubes are usually from 3 to 8 cm. in length. In order to avoid clotting, the tubes are coated with various preparations, such as liquid petroleum, petrolatum, stearin or paraffin. It was found that petrolatum made too soft a covering, and stearin too hard and rough a covering. A mixture of petrolatum, paraffin and stearin in 2:2:1 proportions gives the smoothest and a sufficiently hard covering. The blood was found to run well in plain glass tubes; they might be used with a fair chance of success if it were not practicable to use the coated tubes.

Probably the first indirect method was the use of defibrinated blood, the fibrin having been removed after whipping up the blood. This method, on account of the possibility of infection and red blood and platelet destruction, was given up. In 1913, Lindeman[5] announced a simple method of transfusion which did not necessitate cutting down on and dissecting out the vessels of the donor and recipient. Other advantages of the method were that it could be carried out rapidly, and that the amount of blood used could be accurately measured. Lindeman's method consists of the use of several record syringes, each with a capacity of 20 c.c.

1. Satterlee, H. S., and Hooker, R. S.: Transfusion of Blood with Special Reference to the Use of Anticoagulants, The Journal A. M. A., Feb. 26, 1916, p. 618.

2. Libman, E., and Ottenberg, R.: A Practical Method for Determining the Amount of Blood Passing Over During Direct Transfusion, The Journal A. M. A., March 7, 1914, p. 764.

3. Crile: Ann. Surg., 1907, xlvi, 329.

4. Vincent, Beth: Blood Transfusion in Infants by Means of Glass Tubes, Am. Jour. Dis. Child., May, 1911, p. 376.

5. Lindeman, Edward: Simple Syringe Transfusion with Special Cannulas, Am. Jour. Dis. Child., July, 1913, p. 28.

Two operators are required, and special cannulas are used. After the donor and recipient have been placed in recumbent positions, the veins to be used are selected. As a rule the median basilic is the vein of choice. In infants the external jugular is better on account of its large size and easy accessibility. A

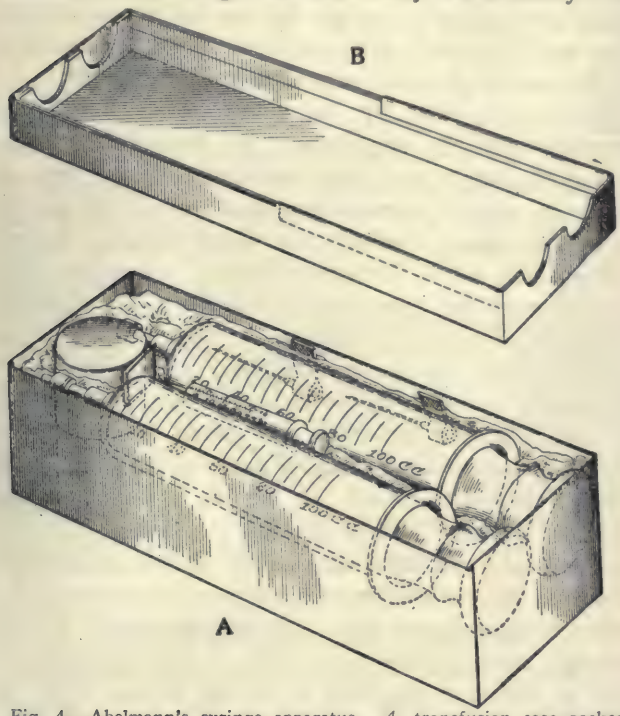


Fig. 4.—Abelmann's syringe apparatus. *A*, transfusion case packed, which can be carried in the coat pocket; *B*, cover for case which, when extended, serves as syringe tray (Fig. 5 *A*).

tourniquet is placed around the arm of the recipient, the skin sterilized, and the cannula inserted into the vein. The tourniquet is removed, and to avoid escape of blood, a syringe filled with sterile saline solution is attached to the cannula until ready for use. The arm of the donor is treated in a similar manner, with the tourniquet above the site of puncture. After this has been done, the syringes are rapidly filled with blood from the donor's vein and injected through the cannula into the vein of the recipient. To prevent clotting, after each injection of blood a little sterile saline solution is injected into the cannula in the recipient's vein. Before a syringe is used a second time, it must be cleansed with sterile water. Dexterity and speed are necessary. Other advantages in this method are that both arms of the donor can be used at the same time, and that there is no permanent injury to the blood vessels. The same vein can be used repeatedly for other transfusions. In 155 cases in which a total of 136,800 c.c. of blood was transfused, there was not one death referable to the transfusion.[6] The adults received from 1,000 to 1,800 c.c. at each transfusion.

The Lindeman method, however, was open to several objections. These were the constant connecting and disconnecting of the syringe, namely, inability to gage the force with which the blood was injected each time and the risk of clotting, inasmuch as the blood was exposed to the air when the syringes were disconnected. It also required the services of two operators both expert in the handling of the syringes.

To obviate these objectionable features, Unger[7] devised an apparatus with a central stopcock arrangement, the stopcock of which could be arranged so that the blood drawn out from the vein of the donor with a 20 c.c. syringe could be injected into the vein of the recipient with the same syringe. Needles or cannulas are inserted into the veins of both donor and recipient as in the Lindeman method, and these are connected with the apparatus. Only one syringe is required for this, and at no time is the blood exposed to the air. Another feature of the apparatus is that the passages traversed by the blood can be kept clean by flushing them occasionally with sterile saline solution by means of another syringe attachment. Very good results without secondary symptoms have been reported with Unger's apparatus.

A somewhat different method of indirect transfusion is the use of blood to which has been added an anticoagulant. It has already been mentioned that the anticoagulants which have proved most successful are herudin and sodium citrate. Herudin, however, under certain conditions develops toxic properties which should exclude it for transfusion purposes. Sodium citrate has proved very favorable, and has some good features to commend it. One of these features is that blood may be drawn from a donor into the citrate solution and carried to another place for use. It may be kept on ice for a week and used. It does away with the usual operating room technic, and may be injected into the vein of a patient at his home.

In describing this method, Weil[8] states that it is simple. "Blood is aspirated from a vein and is at once well mixed with sodium citrate in 10 per cent. solution in water, in the proportion of 1 c.c. of solution to 10 c.c. of blood. Exceptionally one encounters blood which requires slightly more or slightly less

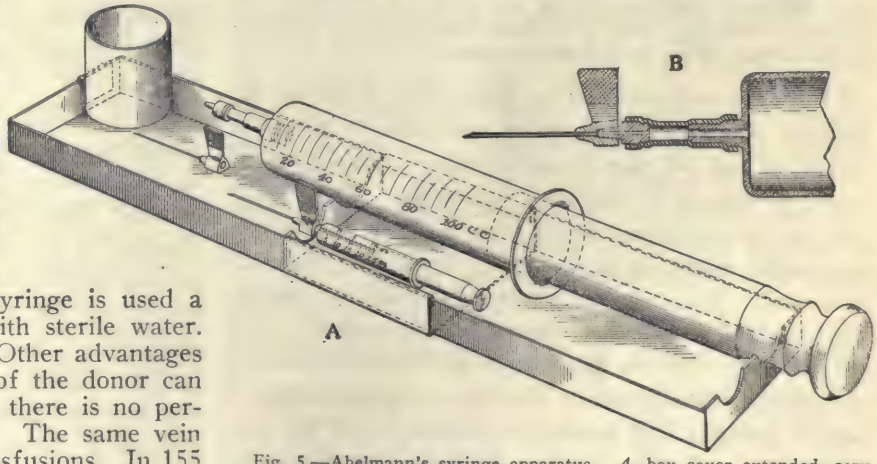


Fig. 5.—Abelmann's syringe apparatus. *A*, box cover extended, serving as syringe tray and dip pan; *B*, longitudinal section of syringe.

citrate proportionally." Lewisohn[9] has used this method, with slightly different proportions of sodium citrate, in twenty-five cases, the amounts of blood transfused varying from 900 to 1,600 c.c. In most of these cases there was a diuresis lasting not over twenty-four hours.

(To be continued)

6. Lindeman, Edward: Reactions Following Blood Transfusion by the Syringe Cannula System, THE JOURNAL A. M. A., Feb. 26, 1916, p. 624.

7. Unger, L. J.: A New Method of Syringe Transfusion, THE JOURNAL A. M. A., Feb. 13, 1915, p. 582.

8. Weil, Richard: Sodium Citrate in the Transfusion of Blood, THE JOURNAL A. M. A., Jan. 30, 1915, p. 425.

9. Lewisohn: Med. Rec., New York, 1915, lxxxvii, 141.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET . . . CHICAGO, ILL.

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SATURDAY, JUNE 17, 1916

THE TREATMENT OF EPIDEMIC MENINGITIS

Epidemic cerebrospinal meningitis is still sufficiently common in this country, as elsewhere, to create an interest in the therapy of this formidable disease. The success of the antimeningococcic serum devised by Flexner has made other modes of combating the infection seem superfluous, for the time at least. In harmony with what has been attempted in the case of other bacterial infections, compounds with antiseptic properties were long ago suggested as of possible value in treatment. Salicylates of mercury were included in the list. Even before the advent of the current serum therapy, however, clinicians questioned the value of the antiseptic substances. Thus Koplik[1] wrote, in 1907:

> The treatment of cerebrospinal meningitis in the past proves to the mind of the writer the futility of drugs. The disease is a self-limited one, much like pneumonia, its duration practically uninfluenced by any mode of treatment, the patients recovering with or without complications independently of the effects of any known drug.

Flexner and Amoss,[2] of the Rockefeller Institute for Medical Research, have called attention to a recent revival of the old plan to use antiseptic drugs directly in the treatment of epidemic meningitis. They point out two circumstances which from a purely theoretical standpoint might be expected to favor the chemical treatment. The infection tends to be local, within the cerebrospinal membranes, rather than general throughout the body; and the membranes involved are directly accessible from without so that the chemical substance can be brought into immediate relation with the seat of infection. To this may be added the fact that judging from its behavior outside of the body the meningococcus is not a highly resistant micro-organism; it is readily injured by chemical action and damaged by the products of its own growth. In the second place, there are immunologic differences between the different types or varieties of meningococcus known to occur as etiologic agents in the production of the disease. Inasmuch as such micro-organisms are subject to therapeutic influence through antiserums only when correspondence exists between the infecting type of micro-organism and the particular specific antibodies present in a serum, it would not seem unlikely that bactericidal chemicals might be less specific and therefore more certain in their curative effects, irrespective of the variety of micro-organism to be combated.

In harmony with the foregoing views, Wolff[3] has recommended the employment of protargol, a compound of protein and silver containing 8.3 per cent. of silver in organic combination and said to be useful as a nonirritant substitute for silver nitrate. Before the working out of the serum therapy, compound solution of cresol had been employed in the direct chemical treatment of epidemic meningitis as early as 1902. The demonstration of the susceptibility of two types of laboratory animals, monkeys and young guinea-pigs, to meningococcic infection has made it possible to institute more exact studies of curative measures than limited statistics on man can furnish in such a highly variable disease. When cultures of meningococci are injected into the peritoneal cavity in the guinea-pigs and into the subarachnoid space in the monkeys, the micro-organisms set up local inflammations, in the exudate attending which, the fate of the meningococci can be followed precisely as in the human cases of epidemic meningitis in which the cerebrospinal fluid is removed from time to time by lumbar puncture.

The results of tests conducted by Flexner and Amoss[2] with protargol and compound solution of cresol are consistent in showing that the chemicals are not curative but rather injurious in the experimental meningococcic infection of animals. The symptoms of the treated animals were intensified rather than ameliorated. In explanation of this result, the reverse of what might theoretically be expected, it must be understood that the key to recovery from meningococcic infection is furnished by the phenomenon of phagocytosis. Whatever promotes phagocytosis, under conditions in which the beneficent leukocytes remain potent, facilitates recovery. Flexner and Amoss have found that the chemicals are antileukotactic and antiphagocytic; they are cell poisons of considerable power. Hence, when the drugs are brought into relation with the seat of infection, they prevent the immigration of leukocytes on an adequate scale, and they reduce phagocytosis by such leukocytes as have entered the serous cavities. Moreover, they also injure and bring about degeneration of the leukocytes themselves.

The New York investigators explain that the resultant of this set of injurious activities is to open the way for a free invasion of the blood by the meningococci and for almost unrestrained multiplication in the serous cavities. Undoubtedly the chemicals do exert a direct bactericidal action on such meningococci as

1. Koplik, H.: Epidemic Cerebrospinal Meningitis, Osler's Modern Medicine, 1907, ii, 517.

2. Flexner, Simon, and Amoss, H. L.: Chemical Versus Serum Treatment of Epidemic Meningitis, Jour. Exper. Med., 1916, xxiii, 683.

3. Wolff, G.: Deutsch. med. Wchnschr., 1915, xli, 1486.

come under their influence under conditions of suitable concentration, but not all the meningococci are thus destroyed. Those which survive multiply almost without hindrance, while the absence of detoxicating power on the part of the chemical permits the disintegration products of the destroyed bacteria to exert their poisonous effects on the animal organism. This is in marked contrast with the effect of the antimeningococcic serum which attracts leukocytes into the infected serous cavities, facilitates phagocytosis by supplying opsonin and promoting agglutination of the diplococci, and further exerts a direct antitoxic action on the toxins liberated by the disintegrated micro-organisms.

If, in the light of these newer experiments of Flexner and Amoss, the theoretical advantages expected to accrue from the action of bactericidal chemicals is more than offset by the harmful effects which they cause, the antiserum still seems to provide the logical therapeutic agent with which to combat epidemic meningitis. Innocuous in itself, it promotes those processes essential to recovery from the disease.

LOW EARNINGS AND DISEASE

The enthusiasts who emphasize, quite properly, the benefits which arise from the conservation of health often attempt to strike the popular imagination by venturing money estimates of the preventable wastes from disease and death. The Report on National Vitality, prepared for the National Conservation Commission by Irving Fisher,[1] finds one and a half billions of dollars as the lowest estimate of the avertable loss from disease and death in this country. It is even asserted that the true figures from the statistics available may well amount to several times this figure; but when statistics are based more or less on conjecture, they need to be stated with special caution.

Of course, such figures have little significance beyond emphasizing the overwhelming importance of human vitality compared with those interests which are usually measured in money. Disease means human misery which cannot be measured; it also means poverty and crime, twin evils, each playing into the hands of the other. Although the pauperizing effects of ill health are indicated in such allusions as have been cited, it is not always recognized with equal force that there is a "vicious circle set up between poverty and disease, each of which tends to produce the other." Poverty is by no means always the outcome of a lack of earning capacity attributable to disease. For this reason it is sometimes advisable to emphasize the fact that although the practice of hygiene need not be a luxury of the rich alone, yet wealth may promote health. To what extent the unfortunate poor may be able to remedy their hygienic lot need not be considered here. The facts of the interrelation of poverty and disease need to be known first of all. An interesting contribution of a statistical sort in this field has just been issued by the United States Public Health Service.[2] It considers the health of garment workers in New York City in relation to their economic status. Intensive budgetary investigations of wage earners' families in that large metropolis have afforded bases for several determinations and estimates of a minimum "adequate" family income in which a fundamental consideration was the minimum annual amount necessary to maintain the wage worker's family of five persons (man, wife, and three dependent children under 14 years of age) under healthful conditions of living. These determinations and estimates agree that an annual family income of between $800 and $900 is the minimum amount necessary for this purpose in New York City. If the statistics are classed in three groups according to the annual earning of family heads, under $500, from $500 to $700, and $700 and over, it appears that the poorest group has the largest average number of children per family. The percentage of mortality of children in the group in which heads of families earned less than $500 a year was 82 per cent. greater than, or nearly twice as high as, the percentage of mortality of children in the group in which the family heads earned $700 or more a year. These data indicate the same general variations in child mortality among families of different incomes as those shown by some other recent investigations. Approximately twice as great a proportion were poorly nourished in the group earning less than $500 a year as in the group earning $700 or more a year. The proportion of individuals having hemoglobin percentages under 80 was over twice as high in the group earning less than $500 a year as in the group earning $700 or more a year. It is interesting to note that not only was the proportion of anemic individuals greatest in the lowest income group, but also the average hemoglobin percentage was lowest in that group.

TUBERCULOSIS AMONG HEADS OF FAMILIES ACCORDING TO INCOME

Annual Earnings of Family Heads	Total Number	Percentage of Family Heads Tuberculous
Under $500	372	5.64
From $500 to $699	566	5.30
$700 and over	456	.44

Even more striking are the findings regarding the prevalence of tuberculosis. The proportion of tuberculous individuals among the garment workers who were heads of families showed extremely wide variations when the highest and lowest income groups were compared. The accompanying tabulation exhibits this comparison.

1. Fisher, Irving: Bulletin of the Committee of One Hundred on National Health, Being a Report on National Vitality, Its Wastes and Conservation, Prepared for the National Conservation Commission, July, 1909, No. 30.

2. Schereschewsky, J. W.: Health of Garment Workers, The Relation of Economic Status to Health, Pub. Health Rep., May 26, 1916, xxxi, 1298.

The significance of this wide difference is further seen when the tuberculosis rate in the lowest income group is compared with the average rate found among large numbers of wage earners, without regard to income. The rate for all male garment workers who were examined, including the single as well as the married, was 3.11. The examination of about 20,000 workers in the varied industries in Cincinnati by Robinson showed a tuberculosis rate of 1.1 per cent. The rate of 5.64 per cent. in the lowest income group is much higher than the rate found in several other physical examinations of large numbers of wage earners.

The government investigators have clearly presented the situation. The greatest number of poorly nourished, anemic, tuberculous workers in an extremely seasonal industry were in that group composed of the lowest paid and the least regularly employed.

THE INCREASING WASTE OF ADULT LIFE

Thanks to recent public health work, infant mortality, as well as that from tuberculosis and preventable diseases in general, has shown a marked decline. If this told the whole story it would be splendid. But it does not. The child born in 1916 has about ten times the expectation of life possessed by its predecessor of 1886. On the other hand, the man of 40 has probably fewer years to live than had the man of the same age thirty years ago. A study of this phase of the question has been made by Dr. Bolduan,[1] director of the Bureau of Public Health Education of the New York City Health Department.

From a comparison of the expectation of life for 1879-1881 with that for 1909-1911, for the city of New York, it appears that there has been a gain of 26.6 years of expectancy for the years from birth to the age of 35, as against a loss of 16.6 years for the period from the age of 40 on. In the most useful thirteen years of life there has been a loss of some two years. Dublin's figures for the registration states, quoted by Bolduan, show a parallel increase in the mortality for the years immediately after middle age.

Since man is mortal, life saved in the early period must accumulate in the mortality returns of the later periods. It is unlikely, moreover, that those who would have been eliminated but for the activities of preventive medicine and the improvement in methods of treatment will have the same average vitality as that displayed by those who survive into middle age in virtue of their own unaided powers of resistance. From these considerations alone we can deduce the practical certainty of a reduction in the expectation of life for the ages from the fortieth year on. For several reasons the extent to which this factor is operative in producing the diminution actually noted is, at present, largely a matter of speculation.

In the first place, the study of the sequelae of acute diseases from the actuarial point of view is only in its infancy,[2] so that figures as to impaired lives are not yet available. Nor is it easy to imagine any process whereby an accurate estimate may be made of the effect of preventive medicine in increasing the carrying into middle age of lives of subnormal resistance.

When every allowance has been made for these sources of error, there still remains a residue of wasted lives. A closer analysis reveals the fact that this is due to the insidious advance of the degenerative diseases and of cancer. Unfortunately, we do not possess statistics as to the age distribution of the population of all the states. This is a matter of such special importance in relation to the diseases in question that, until such figures are available, that is, until the registration area covers the whole country, we cannot estimate the gravity of this waste of adult life.

THE CENTENNIAL OF THE STETHOSCOPE

One of the great steps in the advancement of internal medicine was the discovery of auscultation. One hundred years ago, in 1816, Laennec, a favorite pupil of Corvisart, was appointed to the position of chief physician at the Necker Hospital in Paris. He was then 35 years of age. There he began his early studies on mediate auscultation with an instrument to which he gave the name of stethoscope, derived from the words στῆθος, the breast, and σκοπέω, examine. Hippocrates, says Sir Benjamin Ward Richardson, himself might have invented it, and would at once have understood it. Then followed the naming of sounds natural and diseased, throughout all the respiratory divisions, and after them the sounds of the heart, internal and external. We hold the literature thus founded, the language thus invented, to the present hour, the biographer writes; it is as familiar in our mouths as household words.

Immediate auscultation — the direct application of the ear to the chest — was tried by Hippocrates. We are told of this by Laennec himself, who quotes a passage from "De Morbis" to substantiate the statement. The limitations of such a method were clearly described by the French clinician. The process of mediate auscultation was therefore invented by him. It is worth while to read the early story of the stethoscope in Laennec's own words:[3]

In 1816 I was consulted by a young woman labouring under general symptoms of diseased heart, and in whose case per-

1. Bolduan, Charles F.: Chronic Diseases of the Heart, Kidneys and Arteries from the Standpoint of Etiology, Prevalence, Mortality and Prevention, Monthly Bull., New York Dept. of Health, April, 1916.

2. Dublin, L. I.: Typhoid Fever and its Sequelae, Am. Jour. Pub. Health, 1915, v, No. 1; A Study of 1,153 Cases of Scarlet Fever with Especial Reference to Their Sequelae, THE JOURNAL A. M. A., May 27, 1916, p. 1667.

3. The original account first appeared in Laennec's Traité de l'auscultation médiate et des maladies des poumons et du coeur, 1819, i. The translation here quoted is from Richardson, B. W.: Disciples of Aesculapius, 1900, i, 302.

cussion and the application of the hand were of little avail on account of the great degree of fatness. The other method just mentioned — immediate auscultation — being rendered inadmissible by the age and sex of the patient, I happened to recollect a simple and well-known fact in acoustics, and fancied, at the same time, that it might be turned to some use on the present occasion. The fact I allude to is the augmented impression of sound when conveyed through certain solid bodies, as when we hear the scratch of a pin at one end of a piece of wood on applying our ear to the other. Immediately, on this suggestion, I rolled a quire of paper into a kind of cylinder, and applied one end of it to the region of the heart and the other to my ear, and was not a little surprised and pleased to find that I could thereby perceive the action of the heart in a manner much more clear and distinct than I had ever been able to do by the immediate application of the ear. From this moment I imagined that the circumstance might furnish means for enabling us to ascertain the character, not only of the action of the heart, but of every species of sound produced by the motion of all the thoracic viscera, and, consequently, for the exploration of the respiration, the voice, the rattle, and perhaps even the fluctuation of fluid extravasated in the pleura or pericardium. With this conviction I forthwith commenced, at the Hospital Necker, a series of observations, which have been continued to the present time. The consequence is that I have been enabled to discover a set of new signs of diseases of the chest, for the most part certain, simple, and prominent, and calculated, perhaps, to render the diagnosis of the diseases of the lungs, heart, and the pleura as decided and circumstantial as the indications furnished to the surgeon by the introduction of the finger or the sound in the complaints wherein these are used.

With the stethoscope in its various improved, modern forms as a daily — almost hourly — aid to every practitioner of today, it is needless to point out the part which this simple instrument plays in clinical medicine. Laennec's invention was individual in an unusual degree. No one could exhibit jealousy or display rivalry or claim priority. The actual simplicity of the discovery, coupled with its overwhelming usefulness, says Richardson, concealed its greatness until its history was made, and its originator stood alone in his glory. The history of the adoption of the stethoscope into practice shows that men in medicine, like those in other walks of life, may show a pronounced capacity for resisting the inroads of knowledge. Mental inertia does not always fade in the light of novel and progressive ideas. So the "listening tube" of Laennec found its critics in the olden days. It was looked on by a few as a toy. Others complained that it was inconvenient to carry the original instrument — a cylinder of wood a foot long, divisible in the middle to make it easily portable. It was easier, so the statements went, to apply the ear directly to the chest of the patient, and furthermore, one thus perceives more sounds at the same time. It is no longer necessary to explain and reply as Laennec did. What he wrote in his classic work on "Mediate Auscultation" still holds good:

I do not hesitate to affirm that physicians who confine themselves to immediate auscultation can never acquire very great accuracy of diagnosis, and will from time to time be liable to commit serious errors.

Current Comment

THE BLOOD SUGAR AFTER SURGICAL PROCEDURES

Variations in the sugar content of the blood have recently[1] been investigated particularly on animals subjected to a great diversity of experimental conditions. The conclusion has been reached that departures from the normal range of sugar concentration, particularly in the direction of hyperglycemia, may readily arise. Alterations in temperature, hemorrhage, anesthesia, drugs, operative procedures and psychic disturbances exemplified in fear and rage have been reported to lead to a more or less marked transient increase in blood sugar content. With perfected technic it has become possible to test some of the claims and hypotheses by a comparison with statistics derived from the human subject. Among the recent reports the data obtained by Epstein and Aschner[2] at the Mount Sinai Hospital, New York, are of particular value in respect to the number and diversity of the clinical conditions observed in man. As examples of normal averages, these figures, obtained in seventy-seven cases studied after a period of starvation varying from twelve to twenty hours, are corroboratory of the now generally accepted values: The sugar content of the blood in males (ranging in age from 15 to 74 years) varied from 0.074 to 0.109 per cent. In females (ranging from 15 to 60 years), the readings varied from 0.066 to 0.104 per cent. Thus the average for males was 0.096 per cent., and for females 0.084 per cent., giving a general average of 0.09 per cent. for both sexes. It appears from these newer data that the influence of psychic factors, such as pain, fear of operation, and fear of anesthesia, on the blood sugar content apparently is negligible. With respect to other incidents, such as the nature and duration of anesthesia, the location of operations and the degree of shock incidental thereto — factors which have been widely discussed in connection with blood sugar — the results are more significant. There is a decided increase after anesthesia and operation in all kinds of cases. Where the anesthesia lasted more than one hour the average percentage increase of sugar in the blood varied from 32 to 89 per cent. As the outcome of their observations, Epstein and Aschner conclude that there was no difference between the effect of intraperitoneal operations and extraperitoneal operations on the sugar content of the blood. The anesthesia played the important rôle in the production of the hyperglycemia observed. The more marked increases in blood sugar content appeared when the anesthesia lasted one hour or more. The operation of nephrectomy had an especially marked effect in the blood sugar content, and the operation of itself was responsible for a good part of the hyperglycemia, over and above the effect of the prolonged anesthesia. Precisely why glycosuria does not appear more frequently in these hyperglycemic conditions is still a problem.

1. Compare, for example, Bang, I.: Der Blutzucker, Wiesbaden, 1913.
2. Epstein, A. A., and Aschner, P. W.: The Effect of Surgical Procedures on the Blood Sugar Content, Jour. Biol. Chem., 1916, xxv, 151.

THE BACTERIA OF MILK FROM NORMAL UDDERS

That the milk of healthy cows, even under ideal dairy conditions, is contaminated as soon as secreted was established in 1899.[1] More recently, epidemics of sore throat[2] and appendicitis,[3] traced to milk, have drawn particular attention to the presence of streptococci in normal udders; with respect to the nature and frequency of other types of bacteria in milk, almost nothing is known. Yet in view of the fact that the number, especially of streptococci, in milk is proposed as an index to its healthfulness, and in view of the wide consumption of milk as the chief sustenance of infants and many invalids, the question of the frequency and the types of bacteria in certified milk calls for definite investigation. Such an investigation has been reported by Evans[4] of the U. S. Department of Agriculture. In a study of 192 samples of freshly drawn milk from 161 healthy cows of five different dairies supplying milk to Chicago and to Washington, D. C., she has found a definite udder flora comprising bacteria of a parasitic nature — streptococci, micrococci and bacilli. Long-chain streptococci, which may be virulent, were isolated from twenty-nine, or 15.1 per cent., of the 192 samples, including milk from all five dairies, and in numbers ranging from very few to 264,000 per cubic centimeter. The milk-souring organism, *Streptococcus lacticus,* was not found. Micrococci—mostly pyogenic staphylococci, the organisms which, when virulent, cause furuncles, abscesses, suppuration and septicemia — were found in 113, or 58.8 per cent., of the samples, and in numbers up to 80,000 per cubic centimeter. Animal inoculations proved some of these to be virulent; the majority were nonvirulent. Bacilli — chiefly of a type related to the bacillus of contagious abortion — were isolated from forty-five, or 23.4 per cent., of the whole number of samples, and in numbers as high as 50,000 per cubic centimeter. One type, designated *B. abortus var. lipolyticus* because of its activity in decomposing butter fat, manifests its presence in the unpleasant flavor and odor of ripened cream. Two other *B. abortus* types resembled comparison cultures isolated from pathogenic sources. The investigator points out that when organisms enter into the digestive tract with other food, the body tissues and fluids are protected by the mucous membranes against the ravages of the bacteria, and that therefore it cannot be assumed that bacteria which are pathogenic for inoculated animals would be injurious to human beings when thus taken into the body in milk. Nevertheless, the fact that the bacteria which she found commonly present in milk from healthy udders were parasitic and, in some cases, virulent in type, should hasten the growing conviction that milk is certified only when it is pasteurized.

1. Moore: Proc. Soc. for Promotion of Agr. Science, 1899, p. 110. Ward: Bull. 178, New York (Cornell) Agr. Exper. Sta., 1900.
2. Capps, J. A., and Miller, J. L.: The Chicago Epidemic of Streptococcus Sore Throat and Its Relation to the Milk-Supply, The Journal A. M. A., June 15, 1912, p. 1848. Rosenow, Edward C., and Moon, V. H.: On Milk Epidemic of Sore Throat and the Virulence of Streptococci Isolated from the Milk, Jour. Infect. Dis., 1915, xvii, 69.
3. Rosenow, Edward C., and Dunlap, Stella I.: An Epidemic of Appendicitis and Parotitis Probably Due to Streptococci in Dairy Products, Jour. Infect. Dis., 1916, xviii, 383.
4. Evans, Alice C.: The Bacteria of Milk Freshly Drawn from Normal Udders, Jour. Infect. Dis., 1916, xviii, 437.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

DISTRICT OF COLUMBIA

Society News.—At the twentieth annual meeting and banquet of the Washington Medical and Surgical Society held at the Hotel Raleigh, loving cups were presented to the secretary, Dr. Walter Van Sweringen, and the treasurer, Dr. Frank E. Gibson, in appreciation of their work on behalf of the organization. The address of the evening was made by Dr. Edward Martin, Philadelphia, on "Psychologic Surgery."

Personal.—Dr. Harvey W. Wiley, Washington, president of the United States Pharmacopeial Convention, gave a dinner to the trustees of the organization, May 5.——Dr. George M. Kober, Washington, has been elected president of the Washington Sanitary Housing Company, and Mrs. George M. Sternberg has been elected a member of the board of directors to fill the vacancy caused by the death of her husband, General Sternberg.——Dr. Carroll E. Bingman, Washington, has accepted a position with the First Aid Department of the American Red Cross.

ILLINOIS

Physicians Vindicated.—At the completion of the testimony for the plaintiff in the damage suit of $25,000 brought by Oscar Oserud against Drs. Emanuel M. Rundquist and C. Olof H. Nordwall for alleged malpractice in performing a surgical operation, Judge Frost on May 31 ordered the jury to bring in a verdict for the defendants, stating that the testimony had failed to substantiate the claim, that the physicians had erred in their conduct of the operation.

Hospital News.—The final campaign to raise a fund of $100,000 for the establishment of a nonsectarian hospital in Highland Park opened June 8, and it is announced that more than $60,000 has already been subscribed.——The Julia Rackley Perry Memorial Hospital has been incorporated at Princeton, and Messrs. H. H. Priestly, Cairo A. Trimble and H. U. Bailey have been named as the first board of directors. In the will of Mrs. Perry $52,000 was devised for the building of the hospital, and the work of establishing the institution will be commenced without delay.

Chicago

Women's Board at Hospital.—Women interested in the Henrotin Memorial Hospital met at the residence of Mrs. Edwin Ryerson, June 4, to organize a woman's board for the institution.

Personal.—Dr. David O'Shea, who was recently seriously injured with a resulting traumatic pleurisy, has recovered and resumed practice.——Dr. Demetrius Staneff, who recently returned from service in the Balkans, gave a talk on the causes of the European War before the Hamilton Club, Brooklyn, May 31.

Addition to Mercy Hospital.—The new convent wing and addition to Mercy Hospital, which makes up the third unit of the new system, was opened to the public, June 15. The building corresponds in style to the two units previously built, has a frontage of 160 feet, and cost $275,000. The building will contain accommodations for sixty sisters and a hospital addition providing thirty private rooms and four private wards and a maternity department.

Graduate Lectures at the College of Physicians and Surgeons.—At the University of Illinois, College of Medicine, Chicago, during the graduate summer quarter (June 20-September 12), in addition to the scheduled courses, a series of lectures will be given before the faculty and students to which physicians and all others interested are especially invited. The series will include about twenty lectures on special research topics in the preclinical sciences by men from various institutions throughout the country. Detailed announcements of these lectures will be published from time to time. The opening of the graduate quarter will occur, June 20, and the first lecture of the series will be given on that date at 11 a. m. by Dr. Frank Billings on "The Relation of Graduate Work in the Fundamental Sciences to Clinical Study." President James will preside and will give an introductory address on "Graduate Work in Medicine."

INDIANA

Tuberculosis Societies Hold Joint Meeting.—At a joint meeting of the Indiana and Marion County societies for the prevention of tuberculosis, held in Indianapolis, May 24, a committee was appointed to study the bills which are to be presented before the 1917 legislature. Drs. Roscoe L. Sensenich, South Bend, and Henry B. Shacklett, New Albany, are members of this committee, and Dr. Alfred Henry, Indianapolis, is an ex officio member. A resolution was adopted on the death of Dr. William T. S. Dodds, a pioneer antituberculosis worker of Indianapolis.

Personal.—Dr. William T. Gott, Crawfordsville, secretary of the State Board of Medical Registration and Examination, has been reappointed a member of the board for a term expiring April 23, 1920.——Dr. Joseph Rilus Eastman, Indianapolis, has been selected to take full charge of all hospital units of the American Physicians Expedition Committee in Austria. Dr. Eastman sailed for Europe, June 17, accompanied by a staff of fifteen assistants from Chicago and Milwaukee.——Drs. James J. Stanton and Rodney E. Troutman, Logansport, received slight injuries by the overturning of an automobile near Remington, June 1.——Dr. Gustavus B. Jackson has been reelected president; Dr. Thomas B. Eastman, vice president, and Dr. Herman G. Morgan, secretary, of the Indianapolis Board of Health.——Dr. Charles W. Shill, La Fayette, had a slight cerebral hemorrhage, May 31.——Dr. George H. Brodbeck, Roann, was painfully injured in a collision between automobiles, 10 miles north of Wabash.

MARYLAND

Personal.—Dr. N. M. Keith, assistant to the director of the Brady Urological Clinic at Johns Hopkins Hospital, is on duty in France with a section of the Harvard unit.——Dr. Caleb N. Athey has been appointed chief police surgeon, and Drs. William S. Gilroy, James M. Craighill, Elliott H. Hutchins and Thomas P. McCormick have been appointed police surgeons of Baltimore.——Dr. Ferdinand O. W. Reinhard, Baltimore, has returned after five months' Red Cross service in Serbia.

Families to Report Diseases.—Heads of families are to be held responsible by the health department for the reporting of contagious and infectious diseases, in their homes, that are not reported by physicians. This statement was made in the first of a series of health bulletins issued by the health department and written by Dr. William T. Howard, Jr., assistant commissioner of health. Diseases that the law designates as reportable are: smallpox, cholera, yellow fever, measles, whooping cough, pseudomembranous croup, scarlet fever, diphtheria, mumps, varioloid, typhoid fever, tuberculosis, chicken pox, infantile paralysis, epidemic cerebrospinal meningitis and affections of the eye.

MASSACHUSETTS

Personal.—Dr. Rufus W. Sprague has been appointed medical inspector of the health department, to succeed the late Dr. Thomas H. O'Connor. Dr. Sprague has been medical examiner of the fire department for thirty-two years.——Dr. Lewis Fish, district health officer for the state department of health at Fitchburg, has resigned to devote his entire attention to private practice.

Harvard Appointments.—Dr. George Richards Minot, who was awarded a James Jackson Cabot fellowship last year, will work at the Massachusetts General Hospital under the direction of Dr. David L. Edsall.——Dr. Lawson Gentry Lowrey, who was also awarded a Cabot scholarship, will pursue his research work at Danvers State Hospital, under the direction of Dr. Elmer E. Southard.——The George Cheever Shattuck Memorial fellowship of $250 was given to Thomas F. Wheedon, Brookline; the Charles Elliott Ware memorial fellowship of $275 was awarded to James H. Brown, Jamaica Plain; the research fellowship in genetics, of the cancer commission of the university, was given to Clarence Cook Little.——Dr. Ernest G. Martin has resigned as assistant professor of physiology.

Hospital News.—Burrage Hospital for Boys and Girls on Bumkin Island in Boston Harbor was opened for the season, June 9. Dr. Philip A. Shinn, Boston, is resident physician, and the institution opened with sixty sick children. The hospital is H-shaped, 175 feet by 153 feet, two and three stories in height and fireproof.——The Boston Floating Hospital will open this season on June 28. The medical corps will be in charge of Dr. Henry I. Bowditch, and seventy nurses will be provided.——The fourth annual conference on the medical and social work of the Psychopathic Hospital, Boston, was held under the auspices of the trustees of the Boston State Hospital, June 10. Henry Lefavour, chairman of the board of trustees, presided and six papers were presented during the afternoon.

State Society Meeting.—The one hundred and thirty-fifth annual meeting of the Massachusetts Medical Society was held, June 6 and 7, in Boston, under the presidency of Dr. Charles F. Withington, Boston. At the meeting of the council, Dr. Samuel B. Woodward, Worcester, was elected president; Dr. Fred W. Taylor, Cambridge, vice president, and Dr. Philemon E. Truesdale, Fall River, orator. On the morning of June 6, clinics were held at the various hospitals of the city and in the afternoon there were symposiums on diabetes, nephritis, fractures and tuberculosis. On Tuesday evening the Shattuck lecture was delivered by Dr. Theodore C. Janeway, Baltimore, on "The Etiology of Diseases of the Circulatory System." The annual discourse was delivered Wednesday by Dr. David L. Edsall, Boston, and in the afternoon there was a symposium on "Goiter," and in the evening the annual dinner was served.

MISSOURI

Personal.—Dr. Paul Paquin, director of health of Kansas City, is reported to be critically ill with paralysis following an attack of meningitis.——Dr. Fabian L. Pratt, Kansas City, who has been on duty for a year and a half in the French army, has returned home on a six months' furlough.——Dr. Daniel R. Hill, Joplin, has been appointed district physician for the Jasper County Public Health Committee.

St. Louis

Personal.—Dr. Frederick Hagler, who recently returned after a year's service in Serbia, sailed from New York on the steamer *Frederick VIII* for Germany. He will work in connection with the American Physicians Expeditions Committee, at a base hospital in Munich.

Myer Memorial.—The committee in charge of the collection of a fund for a memorial of the late Dr. Jesse S. Myer, and which decided on an addition to the library of the Medical Department of St. Louis University, presented the memorial and a portrait of Dr. Myer to the university, at the commencement exercises, June 3.

Gift to Medical School.—It is announced that at a recent meeting the General Education Board appropriated $250,000 for the Medical School of Washington University. This makes a total of $1,000,000 which has been given to this medical school by the General Education Board towards a total of $1,500,000 for the purpose of placing the teaching of medicine, surgery and pediatrics on the so-called full time basis.

NEW YORK

Personal.—Dr. George P. Paul, formerly of Round Lake, Boston, has started for Trinidad in the service of the Rockefeller Foundation.——Dr. George E. Blackham, Dunkirk, delivered the commencement address at St. John's Military Academy, Delafield, Wis., June 10.——Dr. Albertus L. Fagan has been reappointed health officer of Herkimer for a term of four years.

Dental Education in New York.—Recent amendments have been made to the New York Public Health law relating to the practice of dentistry. The principal change is the requirement of three years' work in a registered medical school, or graduation before the student begins the dental course, which has been extended from three to four years. For graduates in medicine, a special course of study covering two years in a registered dental school is demanded.

New York City

Free Beds at Park Hospital.—The Park Hospital, 395 Central Park West, has available a number of free beds for the care of acute, noncontagious cases among the worthy poor. Admission will be made on application of the family physician, and on presentation of a letter from the physician, containing diagnosis assurance that the case is a proper one for free hospital treatment.

New Floating Hospital.—The new floating hospital of St. John's Guild, the *Helen C. Juilliard,* a model of its kind, built and equipped at a cost of $125,000, was shown to the public at a reception given on board the vessel on the afternoon of June 7. The boat has a legal carrying capacity of 2,400 but

it is proposed to limit the number to 1,800 in order to improve the service. The boat is equipped to care for more serious cases than floating hospitals have been able to handle before and is fitted for service the year around.

Personal.—Dr. Henry W. Wandless has been appointed clinical professor of ophthalmology in the University and Bellevue Hospital Medical College.——Dr. Carroll Chase, Brooklyn, sailed for France on the *Chicago*, June 4. He will do hospital work under the auspices of the American Relief for France and her allies.——Dr. Bernath Weiss, Jamaica, sailed for Europe, May 29, on the *Nieuw Amsterdam*, and expects to join the sanitary corps of the Austrian army.——Dr. Harold Neuhof was awarded the Alumnus Association prize of $500, awarded biennially to an alumnus of the College of Physicians and Surgeons for the best medical essay submitted on any subject the writer may select.——Dr. Vera Dantaschakoff has been elected instructor in surgery at the College of Physicians and Surgeons, and Dr. Rosalie Slaughter Morton, attending physician at the Vanderbilt Clinic. This is the first time in the history of the college that instruction will be given by women lecturers.

Typhoid Fever Among Hospital Employees.—Two orderlies employed at St. Mary's Hospital, Jamaica, have typhoid fever, a nurse is employed at Riverside Hospital who gives a history of having had typhoid fever some four months ago, and in addition there are several other cases of typhoid fever in the city hospitals. In view of these facts the department of health has sent a letter to all the hospitals in New York calling attention to the unprepared condition of the hospitals, from a defensive point of view, as shown by the fact that several employees have contracted the disease from patients suffering from typhoid fever. The department requests that an investigation be made of the previous histories of all employees coming into contact with patients in any way, whether or not they have typhoid fever, and that examinations of feces and urine be made to determine if they are carriers. I. is further urged that all employees be at once immunized against typhoid fever. The necessary vaccine will be furnished gratis by the department.

OHIO

Gorgas in Dayton.—At the annual meeting and banquet of the Engineers Club of Dayton, May 31, Maj. Gen. William C. Gorgas, Surgeon-General, U. S. Army, was the guest of honor. His address detailed the benefits of sanitation and medical discovery in Cuba and Panama.

Personal.—Dr. John C. Reeve, Sr., Dayton, celebrated his ninetieth birthday anniversary, June 5, and was the guest of honor at a dinner given by the Medical Society of Dayton at the Dayton Club.——Mr. A. G. Lohmann, superintendent of the German Deaconess Hospital, has been elected president, and Dr. Eli R. Crew, superintendent of the Miami Valley Hospital, a member of the executive committee of the Ohio Hospital Association.

Cincinnati

New Rule at General Hospital.—It is announced that a rule is to be enforced that no physician or surgeon of the Cincinnati General Hospital can hold a similar position on the staff of any other hospital. It is also proposed that a chief of service in each department shall be appointed who will be a whole time officer and be in supreme control of that department.

Personal.—Dr. William Muhlberg, assistant medical director of the Union Central Life since 1907, has been elected medical director, succeeding the late Dr. Clark Wasgatt Davis.——Dr. Walter H. Stix has been appointed junior to the medical department of the Cincinnati Hospital, succeeding Dr. Louis G. Heyn, promoted to the senior staff.——Dr. Joseph Ransohoff has been appointed director general and Dr. Nora Crotty, secretary, for the state of Ohio, of the National Society for the Control of Cancer.——Dr. Derrick T. Vail has resigned as a member of the senior staff at the Cincinnati General Hospital after a service of fifteen years.

The Drake Memorial.—The memorial tablet of Dr. Daniel Drake at the Cincinnati General Hospital, which was presented by Mrs. Elizabeth Drake Morrill Edwards, great granddaughter of Dr. Drake, was unveiled with impressive ceremonies, June 10. After introductory remarks by Mayor Puchta, Dr. Joseph Ransohoff delivered an address on "Dr. Daniel Drake, the Founder of Medical Education in Cincinnati." The tablet was then presented to the medical faculty of the University of Cincinnati by Mr. Burgess Allison Edwards, son of the donor, and was accepted on behalf of the medical faculty by the dean, Dr. Christian R. Holmes. The tablet was then unveiled by Elizabeth Drake Morrill, great, great granddaughter of Dr. Drake. The tablet is the work of Clement J. Barnhorn and bears the legend "1785-1852, Creator of the Cincinnati Hospital and Ohio Medical College, Builder of Civilization in the Ohio and Mississippi Valleys, Daniel Drake, M.D."

PENNSYLVANIA

Adopts Higher Requirement.—An official communication from the Hahnemann Medical College of Philadelphia states that two years of college work will be required for admission to that institution for all students who matriculate in the session of 1917-1918 and thereafter.

Personal.—Dr. Edgar M. Green, Easton, has been appointed a member of the advisory board of the state department of health, succeeding the late Dr. George W. Guthrie, Wilkes-Barre.——In the suit for damages for alleged malpractice against Dr. James W. G. McLaughlin, Beaver Falls, by Ira L. and Anna Clear, the jury brought in a verdict, May 31, in favor of the physician.——Dr. William S. Wheeling, Spangler, chief surgeon of the Windber Hospital, is convalescent after a serious surgical operation.

Philadelphia

Hospital Buys Building Site.—The Rush Hospital for Consumptives at Thirty-Fourth Street and Lancaster Avenue has purchased a plot of ground 175 by 100 feet on Lancaster Avenue, east of Thirty-Fourth Street, adjoining the hospital building. The site will be used for an addition to the buildings of the institution.

Tablet Unveiled.—At the annual commencement exercises of the Women's Medical College of Pennsylvania, May 31, the epitaph bas relief tablet, "The Woman Physician," was unveiled with appropriate ceremonies. The tablet was presented by Dr. Rosalie Slaughter Morton, New York, of the class of '97, and is the work of Miss Clara Hill.

Completes Endowment Fund.—Jefferson Medical College will take with it into the merger with the University of Pennsylvania an endowment fund of $200,000. A year ago Daniel Baugh promised to give the college $100,000 if a like sum should be subscribed by June 16, 1916. The last $1,400 of the sum was raised at the annual dinner of the Jefferson Alumni Association on the evening of June 2.

Personal.—Dr. Albert P. Brubaker received the honorary degree of Doctor of Laws at the graduating exercises of the Franklin and Marshall College, June 8.——Dr. R. Tait McKenzie, head of the Physical Education Department of the University of Pennsylvania, who has been in the British service during the past year, will return and resume his duties at the university next September.

Correction.—In the issue of THE JOURNAL of the American Medical Association, May 27, p. 1735, under the caption of "Scholarships and Loan Funds in Medical Schools," the Woman's Medical College, Philadelphia, is credited with just one scholarship. During the session of 1915-1916, seventeen students were assisted to the following extent: one student received $75; three, $100; one, $125; one $150; ten, $175; (full tuition); one, $250; total, seventeeen, $2,650.

Public Health School.—The merger of the Medical School of the University of Pennsylvania with the Medico-Chirurgical and Jefferson Medical Colleges may be the means of securing for this city a school of public health which the Rockefeller Foundation has signified its intention of placing in an Eastern university. For several months a committee from the Rockefeller Foundation has been contemplating the University of Pennsylvania as a site for the school.

Medical Club Holds Reception.—The guests of honor at the reception of the Medical Club of Philadelphia, held at the Bellevue Stratford, June 9, were Dr. John B. McAlister, Harrisburg, president of the Medical Society of the State of Pennsylvania; Dr. Charles A. E. Codman, president-elect of the Medical Society of the State of Pennsylvania; Dr. Alexander Marcy, Jr., Riverton, N. J., representing the president of the Medical Society of New Jersey, and Dr. George I. McKelway, Dover, Del., president of the Delaware State Medical Society.

Dr. White's Benefactions.—In addition to the bequests of $160,000 in the will of the late Dr. J. William White for the University of Pennsylvania and its hospital, the university

has been bequeathed all medical pictures in Dr. White's office and home, the death mask of Dr. D. Hayes Agnew and the cast of his hand; the medical faculty of the university is authorized to select from Dr. White's library any books it may desire for the library of the medical school, and a fund of between $3,000 and $4,000, made up of gifts from patients, is turned over to the University Hospital. Charles S. W. Packard is named as trustee to succeed Dr. White in a declaration of trust covering the Weightman donations of $50,000, and the residue of the estate is left in trust for the benefit of the widow, and at her death, $5,000 is to be paid to the University of Pennsylvania on condition that the trustees invest it for a period of one hundred years after Dr. White's death. At the end of this period, the fund is to be added to the general endowment fund of the University Hospital.

RHODE ISLAND

Mental Hygiene Society Organized.—The Rhode Island Society for Mental Hygiene was organized and incorporated, March 21. Its aims and purposes are to work for the conservation of mental health; to assist in raising the standards of care and treatment for those individuals who suffer from or are in the danger of developing a mental disorder; to study and assist in the proper care of the delinquent child, one of the most important social and humanitarian problems; to promote the study of feeblemindedness, epilepsy and inebriety, and to distribute knowledge concerning the causes, the treatment and prevention. The officers are: president, Rathbone Gardner; vice presidents, W. H. P. Faunce, and R. H. I. Goddard, Jr.; treasurer, Zechariah Chafee; executive committee, Dr. G. Alder Blumer, Providence; Dr. Arthur H. Harrington, Howard; Dr. Charles A. McDonald, Providence; Dr. Arthur H. Ruggles, Providence; Prof. James Q. Dealey, Judge Howard P. Gorham, and secretary, Dr. Frederic J. Farnell, Providence.

New Officers for State Society.—At the annual meeting of the Rhode Island Medical Society, held in Providence, June 1, the following officers were elected: president, Dr. Edmund D. Chesebro, Providence; vice presidents, Drs. John Champlin, Westerly, and Gardner T. Swarts, Providence; secretary, Dr. James W. Leech, Providence, and treasurer, Dr. Winthrop A. Risk, Providence. Dr. William McDonald, Jr., Providence, read a paper on "The Light Under the Bushel," and Arthur L. Hill, Boston, made an address on "Some Randon Thoughts on Law and Medicine." At the annual dinner, Dr. G. Alder Blumer, Providence, served as anniversary toastmaster. The principal speaker of the evening was Dr. Frederick M. Allen of the Rockefeller Institute for Medical Research, New York, whose subject was "Diabetes." The Fisk fund prize for the year was awarded to Dr. Allen G. Rice, Springfield, Mass., for his essay on "The Value of Blood Pressure in the Diagnosis and Prognosis of Disease."

CANADA

Personal.—Dr. Alex D. W. Kay, resident physician at the Victoria Hospital, London, Ont., has been appointed superintendent of St. Luke's Hospital, Ottawa.——Maj. William E. Nelson, Westmount, Montreal, has gone overseas and will be attached to one of the hospitals in France.——Dr. Charles E. A. Trow, Shakespeare, Ont., has joined the Canadian Army Medical Corps.——Capt. W. Thomas B. Edmison, Hastings, Ont., is attached to the Ramsgate Military Hospital, Ramsgate, England.——Dr. David Donald, Victoria, B. C., has returned from the front and is now attached to the Canadian Headquarters Staff, London, England.

Ontario Medical Association Meeting.—The annual meeting of the Ontario Medical Association was held in Toronto, May 31 to June 2. Considering the fact of war time, the attendance of over 450 was very gratifying to the officers in charge. Dr. Harry B. Anderson, Toronto, presided. Referring to medical education in the province, he advocated a strict uniform examination for the practice of medicine, and no granting of special privileges to those not properly trained. On organization of the medical profession, Dr. Anderson stated there were now thirty-five local medical societies in the province ready to affiliate with the Ontario Medical Association. Dr. Elliott P. Joslin, Boston, read a paper on the "Treatment of Diabetes Mellitus." Prof. Alexander D. Blackader, Montreal, delivered an address on "Drugs and Medicinal Agents." After the war he thought that the Canadian physician should favor the home-made or British made product, as certain lines of drugs commenced to be manufactured in Canada had proved eminently satisfactory. The president stated after this paper had been discussed that the Dominion government had notified him that it purposed revising the "patent medicine" act and advised the association to make representations to the government along such lines. The following committee was appointed to take charge of the matter: Drs. Robert D. Rudolf, Charles P. Lusk, John Ferguson, Toronto; James Third, Kingston; Paul L. Scott, Toronto, and James H. Mullin, Hamilton. Prof. Solomon Solis Cohen, Philadelphia, gave an address on "The Treatment of Pneumonia."

A very interesting and profitable demonstration of the use of moving pictures in showing the surgical technic as used in the New York Polyclinic was given by Drs. John A. Wyeth, John A. Bodine and Charles H. Chetwood, all of New York. Dr. Weston A. Price, Cleveland, introduced an intesting paper on "Mouth Infections and Some of the Mechanisms by Which They Produced Localized and Systemic Diseases." Senator J. S. McLennan, vice chairman of the Dominion Military Hospitals Commission, spoke at some length on the plans of the commission in dealing with invalided soldiers. Drs. George W. Ross and Herbert K. Detweiler, Toronto, told how common "colds" could be prevented by inoculation. Their method consisted in the inoculation of a mixed vaccine prepared from the culture of different strains of organisms obtained from patients suffering from colds. The following officers were elected: president, Dr. A. Dalton Smith, Mitchell, Ont.; general secretary, Dr. F. Arnold Clarkson, Toronto; assistant secretary, Dr. Frederick C. Harrison, Toronto, and treasurer, Dr. Jabez H. Elliott, Toronto. The social functions consisted of two garden parties, one at Dentonia Park farm, and the other on the beautiful grounds of Sir John Eaton.

GENERAL

Wine of Cardui Suit.—At the time of going to press the defendants—the American Medical Association—have presented evidence in surrebuttal and have closed their case. On Tuesday, June 13, Mr. Hough, attorney for the Chattanooga Medicine Co., addressed the jury, opening the argument for the plaintiff. On Wednesday, Mr. T. J. Scofield, attorney for the American Medical Association, presented the argument for the Association.

Medical Men of District and Virginia Meet.—At the biennial session of the Medical Society of Northern Virginia and District of Columbia, held at Herndon, Va., June 2, the following officers were elected: Dr. Harry A. Fowler, Washington, president; Dr. Charles Franklin Russell, Herndon, and Llewellyn Powell, Alexandria, Va., vice presidents; Dr. Joseph D. Rogers, Washington, corresponding secretary, and Dr. William I. Robey, Herndon, treasurer.

Divisions of Mental Hygiene and Rural Sanitation for Public Health Service.—The House of Representatives, June 8, passed the bill to provide divisions of mental hygiene and rural sanitation in the Public Health Service. The division of mental hygiene is to study and investigate mental disorders and their causes, care and prevention. The division of rural hygiene is to investigate improved methods of rural sanitation, and the prevention and suppression of communicable diseases. A similar bill is already pending on the Senate calendar.

Military Training for Medical Men.—Physicians and medical students will have an opportunity of receiving training at Fort Benjamin Harrison, Ind., where a military training camp will be opened, July 5. Field Hospital No. 1, under command of Maj. William W. Reno, M. C., U. S. Army, has been ordered to Fort Benjamin Harrison from its station at Fort D. A. Russell, Wyo. Ambulance Company No. 1, also stationed at Fort D. A. Russell, will be at the camp in command of Capt. Condon C. McCornack, M. C., U. S. Army. All information regarding this camp may be obtained on application to headquarters, Central Department, U. S. Army, Federal Building, Chicago.

Antinarcotic Law Construed.—The United States Supreme Court, June 5, affirmed the decision of the United States District Court in the case of the United States versus Jin Fuey Moy, and decided that the words "any person not registered" as used in Section 8 of the law "cannot be taken to mean any person in the United States, but must be taken to refer to the class with which the statute undertakes to deal —the persons who are required to register by Section 1." Under this decision a person who does not import, produce, manufacture, deal in, dispense, sell or distribute the drugs cannot be convicted of violating the Harrison Narcotic Law merely because he has some of the drugs in his possession.

Is the Hot Springs Reservation a Park or a Sanatorium?—Representative Sherley of Kentucky has suggested that the Hot Springs Reservation, Ark., is a sanatorium rather than a park, and that it should therefore be under the supervision and control of the Public Health Service rather than of the Interior Department. The suggestion was made in the course of a debate on a bill to authorize the Secretary of the Interior to furnish hot water from the hot springs, free of cost, to the Leo N. Levi Memorial Hospital Association. The bill had already been passed by the Senate and was passed by the House after a committee amendment had been added requiring the hospital association, on request of the superintendent of the Hot Springs Reservation, to send an ambulance for and to accept and treat without charge therefor any emergency patient sent to the hospital for treatment. The bill now goes back to the Senate for action with respect to the House amendment.

Coca Cola Case Reversed by U. S. Supreme Court.—For several years past the United States has been pursuing "Forty Barrels and Twenty Kegs of Coca Cola, The Coca Cola Company of Atlanta, Ga., Claimant," through a libel for condemnation, in the federal courts. The district judge directed a verdict in favor of the claimant, the Coca Cola Company, and judgment was entered accordingly. The Circuit Court of Appeals affirmed the judgment, and the case was then carried to the Supreme Court of the United States. May 22, the Supreme Court reversed the judgment and remanded the cause for further proceedings in conformity with its opinion. Mr. Justice Hughes delivered the opinion of the court.

In the prosecution of this case the government alleged in substance that Coca Cola was adulterated in that it contained an added deleterious ingredient, caffein, which might render the product injurious to health and that it was misbranded in that the name "Coca Cola" was a representation of the presence of coca and cola, whereas it contained no coca and little if any cola and was thus an imitation of these substances and sold under their distinctive name. The Coca Cola Company admitted the presence of caffein but denied that it was an "added" ingredient within the meaning of the law and that it was a poisonous or deleterious ingredient which might make the product injurious. The company denied that there were substances known as coca and cola "under their own distinctive names" and averred that Coca Cola did contain certain elements derived from coca leaves and cola nuts.

Whether caffein was or was not a poisonous or deleterious ingredient which might render Coca Cola injurious to health was not determined at any point in the case, since the courts below decided that it was not an "added" ingredient within the meaning of the law, thus sustaining the contention of the Coca Cola Company. The contention of the company was based on the claim that Coca Cola was a compound, known and sold under its own distinctive name, of which caffein was a usual and normal ingredient, and that therefore caffein could not be an "added" ingredient. The Supreme Court disposes of this contention in the following language:

"The fundamental contention of the claimant, as we have seen, is that a constituent of a food product having a distinctive name cannot be an 'added' ingredient. In such case, the standard is said to be the food product itself which the name designates. It must be, it is urged, this 'finished product' that is 'adulterated.' In that view, there would seem to be no escape from the conclusion that however poisonous or deleterious the introduced ingredient might be, and however injurious its effect, if it be made a constituent of a product having its own distinctive name it is not within the provision. If this were so, the statute would be reduced to an absurdity. Manufacturers would be free, for example, to put arsenic or strychnin or other poisonous or deleterious ingredients with an unquestioned injurious effect into compound articles of food, provided the compound were made according to a formula and sold under some fanciful name which would be distinctive."

In the courts below the right of the Coca Cola Company to use the words "coca" and "cola" for its product was sustained, irrespective of the presence or absence of either of the substances named, or of any product of either of them, on the ground that the name "Coca Cola" was a "distinctive" name and therefore within the protection of the proviso relating to articles sold under distinctive names. The government contended that these words were descriptive, conveying to the purchaser the impression that the article contained coca and cola; that in so far as they were distinctive of anything they were distinctive of coca and cola, and that an article sold as "Coca Cola" that did not contain coca and cola was therefore misbranded. On behalf of the company, it was claimed that while "coca" indicated one article and "cola" another, the two names taken together did not constitute the distinctive name of any other substance or combination of substances. Of this the Supreme Court says, in part:

"To call a compound by a name descriptive of ingredients which are not present is not to give it 'its own distinctive name'— which distinguishes it from other compounds — but to give it the name of another compound."

This decision of the Supreme Court materially strengthens the hands of the government in its operations under the Food and Drugs Act.

FOREIGN

Identification Records of the Insane and Feebleminded in Spain.—The province of Madrid is collecting finger-prints and other identification data of the inmates of all the asylums for the insane and feebleminded, etc.

Deaths in the Profession Abroad.—H. G. Blessing of Christiania who was physician and botanist to the Nansen polar expedition in the nineties.——P. Redard, medical superintendent of the Cannes health resort in France, and physician in chief to the state railroads.——V. Campenon, until recently professor agrégé of clinical surgery at the University of Paris, aged 70.

Physicians Elected Members of Spanish Legislature for Life.—Our Madrid exchange, the *Siglo Medico,* congratulates the profession on the recent elections which have added materially to the number of physicians in the Spanish senate. The Spanish universities are each entitled to a representative in the senate, and five have selected physicians for this position. There are now sixteen medical senators, most of them *senadores vitalicios,* that is, elected for life. Two of the latter, Cortezo and Pulido, are the editors and publishers of the *Siglo Medico.* The list of life senators includes also Cajal, Morejon and Ocaña.

WAR NOTES

French Hospital Needs Funds.—An appeal for funds to be used in the maintenance of the Ris-Orangis Military Hospital, near Paris, of which Dr. Joseph A. Blake, formerly of New York, is the head, has been issued by Harold J. Reckitt, the treasurer of the fund in this country. It is estimated that $60,000 will be needed for the maintenance of the institution during the next twelve months.

Contributions Gratefully Acknowledged.—Receipt of the second contribution of $5,000, made by the American Red Cross toward the support of the International Prisoners Bureau in Geneva, has been acknowledged. This bureau is conducted by the International Red Cross Committee as a clearing house of information between relatives of soldiers and sailors of all countries engaged in the war.——A letter has been received from Henryk Sienkiewicz, president of the Polish War Committee, acknowledging the receipt of $8,000 transmitted by the American Red Cross for the relief of Polish war sufferers.

LONDON LETTER

LONDON, May 29, 1916.

The War

THE WAR AND THE PROFESSION

At the general medical council the president, Sir Donald MacAlister, in his address reviewed the position of the profession with regard to the war. He pointed out that the demands of the military and naval services continued to put a severe strain on the resources of the profession. The central and local committees have been established to recruit for these demands, and at the same time to leave a fair provision for the medical needs of the civil population. It was expected that in 1915, the first complete year since the war began, the number of physicians added to the register, and available for military or civil work, would show a perceptible decrease. This would probably have been so but for the decision to recall from the combatant ranks medical students of the senior years, and but for the establishment of reciprocity with the dominions and with Belgium. In the result, the number of registrations in 1915 was 1,526, or 354 in excess of the average (1,172) for the preceding five years. The question of maintaining, in this and in future years, a supply of newly qualified physicians sufficient for the needs of the country, continues to engage attention. The calling-up of junior medical students, under the successive systems of recruiting, has given rise to some anxiety. The number of

students who during 1915 began medical study was 1,935. The number of first-year women students was 456—an enormous increase. The number of second-year students was 1,020. The average annual entry of first-year students registered during the preceding five years was 1,441. In 1915 there were thus nearly 500 first-year medical students in excess of the average annual number registered in the preceding five years. At the beginning of the present year the number of first-year students in actual attendance on instruction at medical schools (apart from teaching institutions) was 1,626. The expected depletion of students, as compared with normal years, had thus been more than compensated by new entries, and if things remained as they were, the position four years hence would not be unsatisfactory. It was thought advisable, however, to recommend that exemption from military service, already conceded to fourth-year and fifth-year students, should be extended to third-year students who showed their proficiency in the earlier subjects of the curriculum by passing a third-year professional examination at the end of the winter session. An order to this effect was accordingly issued from the War Office.

AMERICAN MEDICAL MISSION IN ENGLAND

A medical mission appointed by the United States government to study war conditions in Europe has arrived in England. Its members are Colonel Bradley, Major Lyster and Major Ford of the United States Army, and Surgeon Pleadwell of the United States Navy. They were entertained at dinner at the Athenaeum Club, May 24, by Director-General of the Army Medical Service, Sir Alfred Keogh and Sir William Osler, when they had an opportunity of meeting a number of officers of the Royal Army Medical Corps, the Canadian Army Medical Corps, and the Medical Service of the Royal Navy. The American ambassador was also present and paid a tribute to the work of the medical services of the United States Army and Navy in suppressing yellow fever and malaria and in bringing ankylostomiasis under control in Porto Rico and the Southern States. The mission will begin by inspecting the system of treating the sick and wounded in this country and then go to France to study the hospitals and medical arrangements.

The Suitability of the White Man for the Tropics

At a meeting of the British Science Guild, Mr. Andrew Fisher, high commissioner for Australia, delivered a remarkable address in which he described the operations of the Institute of Tropical Medicine in Queensland, part of whose investigations related to the effect of climatic conditions. As far as their statistics guided them, he said, it would appear that Europeans had a better chance of life in the tropical portions of Australia than in the temperate zone of that continent. It was remarkable, as the latest figures showed, that Queensland, largely a tropical state, had at once the highest birth rate and the lowest infantile death rate in Australia. This was a matter of worldwide importance. It was an interesting human experiment, confined not merely to a selected locality, but applied to a country three times as large as the United Kingdom. It was also of vital interest to Australia, for it was hoped that it would decide the question of climatic influence on the white man in the tropics, the maintenance of whom was a principle to which Australia has pinned her faith as a nation.

PARIS LETTER

PARIS, May 25, 1916.

The War

THE MEDICAL RECORDS OF THE WAR

M. Justin Godart, undersecretary of state for the medical service of the army, has just decided to collect the medical archives of the war at the Military School of Practical Medicine and Pharmacy at Val-de-Grâce. The object is not merely to put on record the activities of the medical service, but also, and more especially, to communicate the lessons of the war immediately to practitioners. For this purpose, military surgeons have been requested to send at once to Val-de-Grâce all documents and exhibits of interest. The matter so collected will be divided into three categories: (1) exhibits, (2) archives and (3) library. The exhibits will deal with the general organization of the material of the medical service at the front and in the interior of the country (models, of full or reduced size, of transports and hospital material); hygiene and epidemiology (models of sanitary installation); military surgery (weapons, projectiles and their relation to wounds); instruments and apparatus of all kinds (surgery, radiology, physiotherapy, and mechanotherapy); prostheses and casts; anatomic specimens; chemistry and pharmacy (asphyxiating gases, etc.). In the archives will be assembled instructions and circulars of the heads of the medical service. The papers of the sanitary formations (these will be deposited after the end of the war); reports of specialists; reports explaining the exhibits; graphs, diagrams, drawings and photographs of all kinds relating to the organization of the service (photographs of sanitary formations, transports and hospitals, hygienic installations, etc.), as well as the material for the anecdotic history of the service in the field. The library will contain books concerning the medical service as well as reprints from the medical publications relating to the war.

ANTITETANIC SEROTHERAPY AND ANAPHYLAXIS

At the Réunion médico-chirurgicale de la V-e armée, Dr. Genouville described five cases in which he employed, with antianaphylactic precautions, the injection of antitetanic serum in cases of wounded men who had already received an injection of this serum for previous wounds. First the injection of 1 c.c. was given very slowly in a vein of the elbow, and a few minutes later an injection of 10 c.c. hypodermically. The only phenomena noted were a slight serous eruption in one; a transient fever in another; a third person, a few minutes after an intravenous injection, developed a cough and slight faintness which lasted a quarter of an hour. This man had received a wound of the thigh from a fragment of shell two days before. He had breathed tear-producing gases, and showed signs of bronchitis. The subcutaneous injection was postponed until the next day, and produced no inconvenience. It is fair to ask oneself, in this case, whether the inhalation of the gases had not some causal relation with the phenomena observed. At any rate, these new observations show that, if appropriate antianaphylactic precautions are taken, one can without danger practice antitetanic injections on every wounded soldier, even if he has received an injection of the same serum several months before.

Dr. Dupérie remarked that there was no theoretical reason why the irritation of the respiratory apparatus by asphyxiating gases should be regarded as a contraindication to antitetanic serotherapy. The irritation, even generalized, of the broncho-alveolar structures does not seem to produce a condition of anaphylaxis in the same way that infectious diseases do when there is pulmonary localization, such as tuberculosis and its larval form, asthma. There is, however, some fear that a second injection of serum in those who are suffering from "gassing" may provoke serious symptoms owing to the congestion of the pulmonary system, as a result of asphyxiation. In this case, one is justified in guarding against anaphylaxis by using Besredka's method. On the other hand, the mildness of the immense majority of anaphylactic incidents which occur after the second hypodermic injection of serum seems to justify, in the present circumstances and in ordinary cases, the omission of Besredka's precautions. This, however, is not true for reinjections given intravenously or intraspinally. The severity of the anaphylactic symptoms in these conditions calls for the greatest prudence.

NONMAGNETIC STEEL INSTRUMENTS

Dr. Bergonié, professor of biologic physics and medical electricity at the Faculté de médecine of Bordeaux, has presented, to the Société de chirurgie de Paris, instruments in appearance similar to those in daily use, but which have the peculiarity that they do not start vibrating in the neighborhood of electromagnets. This property allows of their use in the extraction of projectiles by means of Bergonié's electrovibrator. It was indeed one inconvenience of Bergonié's method that, during the exploration in this operation, it was necessary to put aside forceps and so to deprive oneself of the aid of separating the lips of the wound, because even any nonmagnetic substances such as copper and silver will vibrate and cause error. Bergonié has used a new metal which is not affected either by attraction or vibration caused by electrovibrators. This metal is a steel alloy.

Death of Dr. Assicot

The death is announced of Dr. Assicot, intern of the Paris hospitals and of the ophthalmologic clinic of the Faculté. He had been professor of clinical ophthalmology of the school of medicine at Rennes since 1907. After serving through the first part of the campaign, he was appointed chief of the ophthalmologic center at Saint-Malo. From there he was sent as battalion surgeon to Verdun, and was killed at his post four days after his arrival at the front.

(*Continued on page 2000*)

PROCEEDINGS OF THE DETROIT SESSION

MINUTES OF THE SIXTY-SEVENTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, HELD AT DETROIT, MICH., JUNE 12-16, 1916

HOUSE OF DELEGATES

First Meeting—Monday Morning, June 12

[NOTE.—Practically all of the minutes as they appear this week are the official reports of committees as originally prepared and appearing in the Handbook of the House of Delegates. During their presentation slight additions were made which are noted as addenda at the end of the report of the first session.]

The House of Delegates met in the auditorium of the Wayne County Medical Society Building, and was called to order at 10:15 a. m. by the President, Dr. Albert Vander Veer, Albany, N. Y.

Dr. D. Chester Brown, Connecticut, chairman, reported that the Committee on Credentials had examined and approved the credentials of delegates which conformed with the rules of the House. One hundred and ten delegates were seated. The President thereupon declared the House duly organized.

The Secretary called the roll and announced a quorum present.

The next in order were the presentation, correction and adoption of the minutes of the sixty-sixth annual session, held at San Francisco.

The Secretary stated that the proceedings of the House of Delegates of the sixty-sixth annual session, held at San Francisco, had been published and a copy sent to each member of the House of Delegates. There were but two suggestions made in the way of correction of the minutes, one of which was received from an Eastern state, and the other from a Southwestern state, asking the Secretary why the record of the executive session of the House of Delegates had not been incorporated in the official minutes as published. The Secretary stated that the record of this executive session was not incorporated in the minutes because in accordance with usage and custom, minutes of such executive sessions were treated as is a committee of the whole.

The Secretary further stated that the Judicial Council in presenting that section of its report dealt with the discipline of members, adding to the published report the names of those disciplined.

Dr. Edward Guion, New Jersey, moved the adoption of the minutes of the San Francisco session as printed. Seconded.

Dr. Herbert B. Gibby, Pennsylvania, moved as an amendment that the minutes of the sixty-sixth annual session be corrected so as to include other minutes of the executive session. Seconded.

Dr. Guion having withdrawn his motion, the motion of Dr. Gibby was put and carried.

Dr. Guion moved that the minutes as printed and corrected be approved.

Seconded and carried.

Address by the President, Dr. Albert Vander Veer

Reports of officers being the next order, President Vander Veer delivered the following address, which was referred to the Reference Committee on Reports of Officers:

President's Address

To the Members of the House of Delegates of the American Medical Association:

I approach the duties of today with great sorrow. Our late President, Dr. Rodman, was a dear friend of mine, and the news of his death, while he was engaged in the activities of his professional responsibilities, was a shock to us all. Let us perpetuate his memory through our earnest desire to continue his labors, without their excellence.

Obituary notices have been presented to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, and to his bereaved family we can only express our deep sympathy.

If one reads with care the necrology list of the past year, in THE JOURNAL, it is exceedingly impressive. In addition to President William L. Rodman, Fellows like Samuel B. Ward, Wisner R. Townsend and Henry L. Elsner of New York State, Henry B. Favill of Illinois, Frank J. Lutz of Missouri, and many others will be greatly missed. "Lest we forget," may the heritage of their "work well done" be an incentive to those of us yet remaining.

While not taking too much of your time, let me bring before you some of the important questions which, to me, seem worthy of your consideration.

MEDICAL LAWS

Members of such a representative body as this House of Delegates should ever be on the alert favoring good, and opposing evil laws, and it would seem that, in consultation and discussion with each other, it is possible for us to succeed in framing such acts as are best suited to meet the conditions existing in each particular state.

The consolidation of medical colleges, the requirements in preparation, exacted from the medical student, and limited enrolment, while all tending to increase the efficiency of the graduate, must also necessarily lessen their numbers.

It would seem proper for our educators to move somewhat cautiously in too severely limiting our output of physicians. At the present time, there is quite a demand for a good, reliable doctor, at many of the so-called country crossroads.

Dr. Horner, in charge of the Department of Professional Examinations, Education Department of New York State, informs me that a recent amendment to the public health law of New York relates to the legal requirements of the beginning of medical study. It does not materially advance the present requirements, but places in the hands of the Board of Regents of the University of the State of New York the power to do as they deem proper from time to time. This act of the legislature will place the state of New York on the same plane as high as any other in the Union.

It must be a great source of comfort to our President-Elect to note how rapidly the quarantine stations of our larger cities are coming under government control. Very recently Governor Whitman signed the bill placing the port of New York under United States supervision. All of this means harmony of action in preventing the entrance and spread of diseases of a contagious and infectious nature. Only recently has the legislature of the state of New York enacted laws permitting the state board of health to enforce its rules regarding vital statistics, especially in births and deaths.

MEDICAL INSPECTION IN SCHOOLS

Two years ago the legislature of the state of New York passed a law appointing a state medical inspector of schools.

Dr. Finegan, our assistant commissioner of education, has tabulated much of the work accomplished by medical inspection, at various times, and finds that over 90 per cent. of the

schoolchildren are physically deficient in some form or another, that is, enlarged tonsils, adenoids and such various conditions as are incident to early childhood; but this is also to be observed, that in cities in which medical inspection has been going on for a few years, there is a much smaller percentage of these children than in the rural districts where inspection is not yet made so thorough.

In a recent letter from Dr. Howe, the inspector, he makes the following statement:

"It is indeed gratifying to know the material progress being made in many sections in medical inspection in schools.

"More than one half of our states now recognize its great value and have provided for its enforcement by statutory measures, while most cities are conducting a systematic plan to better conserve the health of the schoolchild. This health service is really at the foundation of true preparedness of our country, as without strong bodies little could be accomplished in national strength.

"Closely allied to this special feature of educational work —for it is largely educational and made possible by its success—we find physical education and physical training provided for by the legislature of the state of New York.

"As a medical profession we will, I am sure, welcome the opportunity to lend our united influence to the upbuilding of any system having for its sublime purpose the welfare of the children of our country."

INDUSTRIAL DISEASES

This new classification, or addition to our previous nomenclature, should receive more serious consideration.

In this connection, our laws relating to workmen's compensation—the subject that is now so prominently presented —should receive greater attention from the medical profession. This duty is plainly manifest in the administration and settlement of claims. Much thought is also now being given to the investigation of health insurance.

TRUDEAU SCHOOL OF TUBERCULOSIS, SARANAC LAKE, N. Y.

This institution promises to be one of the most important that has yet been organized for the study and treatment of tuberculosis. It was opened May 17, 1916, its object being to give instruction to graduates and students who are desirous of understanding more thoroughly the treatment of all forms of tuberculosis. Among its teachers are some of the most eminent men in America. It was organized as a memorial to Dr. E. L. Trudeau. It was proposed to raise the sum of $500,000 as an endowment, and this amount is nearly completed, the income of which is to be used for conducting the school. The announcement and circular give an exceedingly complete outline of the work intended and the encouragement already given.

An additional factor in medical education is presented in a summer school, in connection with the Rome Custodial Asylum, for teaching special classes in the public schools and institutions for the feebleminded. Dr. Bernstein, the superintendent, will be pleased to give full details regarding this work.

I should be pleased to have these few remarks received as suggestions that as soon as the delegates from the different states and the sections forming the American Medical Association are appointed, they meet as separate bodies, prepare a report regarding the work accomplished in their particular territory, and send this to the President of the Association for his consideration, he to report on it to the House of Delegates.

PREPAREDNESS

How much is implied by this term at the present time! Patriotism defines the situation exceedingly well, and is to be noticed in the parades of citizens in our cities, and the efforts that are being completed for observance of Flag Day in so many of our states. Business and professional men in every walk of life have united with an earnestness most impressive. My vivid personal remembrances of our unpreparedness in the beginning of our Civil War, and what has been told me by my late associate, Dr. Macdonald, and my son, Dr. Edgar A. Vander Veer, regarding the unpreparedness they had to contend with as medical officers in the Spanish-American War, lead me to call your attention to the situation as it exists today of that exceedingly important aid to our government, in time of distress, namely, the medical profession of this country. Surgeon-General Gorgas is thoroughly alert, and his strong stand in his strong position has been of great help to Congress in framing suitable legislation.

The American Medical Association has a strong organization in connection with Red Cross work.

As will be noted by the report of the Committee on Red Cross Work presented at this meeting, the committee is thoroughly alive to the situation, and when once it is indicated what the classification of the work is that is required from the medical profession, the machinery will be started with, no doubt, excellent results following.

During the fall of 1915 the Clinical Club of Albany, composed of about fourteen of the younger men in the profession, discussed the situation, and by December had formulated a plan which they considered of sufficient importance to present to the Surgeon-General's Office. This outline has been much admired and discussed by those in authority in the surgeon-general's department, and it seems very proper to present the following editorial, entitled "The Albany Idea," which appeared in the June, 1916, number of the *Military Surgeon:*

"A very practical method of instruction in the methods and purposes of medical preparedness is being employed by the Clinical Club of Albany, N. Y. There is first a preliminary course, by reading, lectures and discussions on the various subjects necessary to the training of medical reserve officers. To facilitate this work, typewritten pamphlets, which are brief digests of the subjects of which they treat, are prepared and distributed among members to be read at leisure. For example, one on organization has already been issued, and others on the duties of medical officers, etc., are nearly finished.

"The club then proceeds to the solution of definite problems such as might reasonably arise in war, are of local importance and are within such limitations as could be expected in actual service. It is assumed, for example, that both New York and Boston have been occupied by the enemy and that our forces are retiring from these points, slowly and in good order, toward Albany, in the vicinity of which a strong defense is planned. An hypothetical enemy sympathizer is detected contaminating the local water supply —and the club sets itself the task of determining the nature and degree of contamination and restoring purity. The assumption is made that Albany is suddenly called upon to care for 100,000 refugees from New England and Southern New York, largely destitute women and children—and the club works out the local resources probably available for the food, shelter and care of such persons. Engagements resulting in 100,000 wounded in the course of a few days, from actions near Hudson, N. Y., and Pittsfield, Mass., are assumed, and the club, dividing itself into committees, ascertains the local resources available to assist in their care, including transportation, medicines, dressings, operating and hospital facilities, antitoxins, and vaccines, food, clothing, milk, nurses, beds and bedding, buildings especially suited to hospital purposes, etc. All these main subjects are further

gone into under many subheads, and the study is carried out with much detail and thoroughness. For example, the milk question alone is handled under fourteen subheads.

"This is the kind of practical study which we want. It not only visualizes the problem but gives it a local color which cannot fail to add greatly to its interest. Whether war conditions would create exactly such a problem as is assumed is of no importance. It serves its purpose if it shows the need of preparedness, if it demonstrates the importance of cooperation, if it trains the mind not only to conceive of the various difficulties which may arise but to progress in logical way to their solution. Solving one problem makes the next easier. Solving them in theory in time of peace facilitates their solution in reality in time of war.

"A great thing is to accustom one's self to new ideas and unfamiliar mental processes. Another most valuable result in this connection is the working out of methods and the enumeration of local resources—in which it is safe to say that many surprises would develop.

"The plan contemplates the institution of like inquiry to that begun in Albany throughout the country. If it were carried out generally and a summary of the results turned in to the government, these would constitute a mass of information which would be very instructive and valuable. If Medical Reserve Corps divisions generally would set themselves to finding out what part their communities were prepared to render in war, and if general medical societies would—say twice a year, devote an evening to the discussion of such subjects, it would be a long step in preparedness and patriotism. We earnestly commend this matter to their attention."

At the last meeting of the Clinical Congress of Surgeons of America, in a general way there was much discussion relative to the efficiency of our medical preparedness in case of any complication that might arise. About this time the government appointed an advisory committee of its most prominent citizens as consultants on various industrial subjects.

Later, when need for prompt action seemed urgent, I was asked as President of the American Medical Association to cooperate with the presidents of the Congress of American Physicians and Surgeons, the Clinical Congress of Surgeons of North America, and of the American College of Surgeons in appointing a strong committee of American physicians for the purpose of considering plans for civilian medical preparedness. At that time, the following communication was sent to those selected:

"Dear Doctor:

"In view of the fact that the work of this committee may meet any possible military emergency that may arise, the presidents of the American Medical Association, the Congress of American Physicians and Surgeons, the Clinical Congress of Surgeons of North America and of the American College of Surgeons have thought it wise to appoint a representative ad interim committee to tender the good offices of the medical profession to the War Department.

"In view of the fact that the work of this committee may assume official form, it is important that no phase of the subject may become known before it reaches the hands of the president.

"Very sincerely,

"ALBERT VANDER VEER,
"WILLIAM S. THAYER,
"FRED B. LUND,
"J. M. T. FINNEY.

"April 9, 1916."

A brief outline of some phases of the subject which will come up for consideration follows:

1. To provide a carefully selected list of highly efficient men, especially in the essential lines of work as follows:

(*a*) A body of men whose training and experience would fit them peculiarly for sanitary work, etc. (*b*) A group whose training, experience and life's work show them to be especially equipped for duty in the line of internal medicine. (*c*) A list of men whose surgical training, experience and practical results show them to be eminently qualified for surgical work.

2. In addition to the foregoing, the committee could classify its lists according to age, etc., thereby aiding in the selection of civilians suitable for military duty at the front and at base hospitals, make a classification of hospitals, their capacity and efficiency, and aid in developing at as many hospitals as seems advisable, units composed of surgeons, internists, assistants, nurses, orderlies, and others, with drills, suitable to military requirements. (Motion pictures of such work would materially aid civilian units in learning military necessities.)

3. The committee could urge the great technical advantage of having trained medical, surgical and sanitary observers at every military and naval front and at base hospitals for the purpose of noting and reporting to the United States government the actual advances and deficiencies daily arising in the management of those most important features of warfare, the prevention of outbreaks of disease; the best handling of the wounded; the prompt healing of wounds; the conservation of limbs, etc., and the prompt return of fighting men to the front. It seems that in view of potent possibilities now so apparent, this field of preparedness—the humanizing life-saving feature—should keep pace with the plans for destruction. If we should become entangled in a serious conflict, the one certain thing is that our men as well as those of our adversaries will be wounded in large numbers. The prevention of disease and the proper care of the sick and wounded will have much to do with the outcome.

In addition to the evident advantages of systematic preparation, two practical facts seem apparent: In the first place if the committees from the medical profession are working in harmony with the committee on industrial preparedness (composed of representatives of the American societies of civil engineers, of mechanical engineers and of mining engineers and of the American Chemical Society) during times of peace, their mutual needs will be fully understood and can be accomplished with a minimum of friction and waste of energy. Secondly, such a critical classification of civilian positions, according to their individual efficiency would materially aid in assimilating any volunteer army with a maximum of speed and efficiency.

Following this, a meeting was held at the Union League Club, Chicago, April 14, 1916. The meeting was called to order, and Dr. J. M. T. Finney was chosen as temporary chairman. Dr. Frank F. Simpson was chosen as temporary secretary. The object of the meeting was stated and approved, and a permanent organization was then perfected by the election of the following officers: chairman, Dr. William J. Mayo; secretary and treasurer, Dr. Frank F. Simpson; executive committee, the officers, and Dr. Albert Vander Veer, Dr. William S. Thayer, Dr. Fred B. Lund, Dr. J. M. T. Finney, Dr. Franklin H. Martin, Dr. George W. Crile, Dr. George E. Brewer and Dr. Robert G. LeConte.

On motion, duly carried, the executive committee was requested to confer with the authorities at Washington regarding the advisability of the general plan as outlined in the call for the meeting to formulate such plans as may be deemed advisable after a conference and to call a meeting of the whole committee in the near future, probably at Washington, D. C. And the following is the list of names of those to whom the foregoing communication was sent: Frank Billings, John F. Binnie, Joseph C. Bloodgood, George Emerson Brewer, George W. Crile, George E. De Schweinitz,

J. M. T. Finney, Charles Gibson, Fred Bates Lund, Edward Martin, Franklin H. Martin, Rudolph Matas, W. J. Mayo, Charles H. Mayo, John B. Murphy, Lewis S. McMurtry, Albert J. Ochsner, Charles Allen Porter, Charles A. L. Reed, Emmett Rixford, Hubert A. Royster, F. F. Simpson, Richard P. Strong, William S. Thayer and Albert Vander Veer. And there was also appointed an auxiliary committee.

April 26, the executive committee conferred with the president of the United States. They called attention to the fact that in times of peace as well as in time of war the medical profession has always held itself in readiness out of a spirit of patriotism to serve the best interests of the government; that the European war has demonstrated the greater need for medical men and supplies than formerly was thought adequate or necessary, and lines of service which the civilian medical profession might render were indicated. The president expressed himself as being much pleased with the patriotic action of the medical profession, and assured the committee that the government would avail itself of the services tendered.

Late in April a number of conferences were held with Col. J. R. Kean, Director-General of Military Relief for the American Red Cross.

The question of cooperation between the committee of American physicians (on preparedness) and the Red Cross was considered carefully by the executive committee at its meeting in Washington, May 8. The conclusion reached was that while it is best for the two organizations to maintain their separate identity and to pursue their separate purposes diligently, hearty cooperation between the two organizations will result in their mutual advantage and in furthering their common cause. To that end, the Red Cross has appointed all the members of the National Committee to membership in the National Committee on Red Cross Medical Service, and Colonel Kean has been appointed an Associate Member of our National Committee.

As the following letter from Colonel Kean explains:

"May 31, 1916.

"Dr. Albert Vander Veer, 28 Eagle Street, Albany, N. Y.
"Dear Sir:

"The Executive Committee of the American Red Cross, at its meeting, May 26, 1916, appointed you a member of the National Committee on Red Cross Medical Service. This committee consists of thirty-six appointed and ten ex officio members. It includes in its membership all the members of the "Advisory Committee of Civilian Physicians and Surgeons on Medical Preparedness"—it having been decided, on consultation with the executive committee of that advisory committee, that in this way could be best secured the objects which the American Red Cross and the advisory committee have in common and have determined to work for in unison.

"As a member of this committee you will be asked to advise with the Department of Military Relief of the American Red Cross in the selection of physicians and surgeons for Red Cross organizations and in the enrolment of the profession.

"It is requested that you advise this office of your acceptance of this appointment.

"Very respectfully,

"J. R. KEAN,
"Colonel, Medical Corps, U. S. Army,
Director General of Military Relief."

One element of great importance is the working out of the units forming base hospitals.

Fourth Base Hospital Unit: Already New York City is thoroughly alive to the situation, public-spirited citizens having furnished the necessary funds for a completely equipped base hospital of 500 beds. This was given to the New York County Chapter of the American Red Cross by Mr. and Mrs. George Blumenthal of that city. This unit will cost $24,000, and will be organized in connection with Mount Sinai Hospital. The staff will be recruited from the surgeons and nurses of the institution, and will consist of twenty surgeons, forty-six nurses and 125 orderlies. Mobilization plans of three units are ready for service, either in the field in time of war, or in the case of extreme emergency at the scene of a great disaster.

Reference Committees

At the conclusion of his address, the President announced the appointment of the following reference committees:

RULES AND ORDER OF BUSINESS

Dwight H. Murray, Chairman.....Syracuse, N. Y.
G. Wythe Cook.....Washington, D. C.
Sol G. Kahn.....Salt Lake City
Jere L. Crook.....Jackson, Tenn.
S. D. Swope.....Deming, N. M.

MEDICAL EDUCATION

L. W. Littig, Chairman.....Davenport, Iowa
A. H. Levings.....Milwaukee, Wis.
William H. Seaman.....New Orleans
Hugh Mackechnie.....Chicago
William S. Lalor.....Trenton, N. J.

LEGISLATION AND POLITICAL ACTION

E. J. Goodwin, Chairman.....St. Louis
H. R. McGraw.....Denver
F. L. Van Sickle.....Olyphant, Pa.
C. P. Meriweather.....Little Rock, Ark.
Charles W. Hannaford.....Portsmouth, N. H.

HYGIENE AND PUBLIC HEALTH

A. T. McCormack, Chairman.....Bowling Green, Ky.
John W. Kerr.....Washington, D. C.
Eugene R. Kelly.....Boston
W. S. Sawhill.....Concordia, Kan.
John A. Ferrell.....North Carolina

CONSTITUTION AND BY-LAWS

Floyd M. Crandall, Chairman.....New York
E. A. Hines.....Seneca, S. C.
Jefferson R. Kean.....U. S. Army
C. L. Stevens.....Athens, Pa.
J. J. McLoone.....Phoenix, Ariz.

REPORT OF OFFICERS

A. R. Mitchell, Chairman.....Lincoln, Neb.
E. R. Stitt.....U. S. Navy, Washington, D. C.
W. E. Anderson.....Farmville, Va.
B. R. McClellan.....Xenia, Ohio
John O. Polak.....Brooklyn

CREDENTIALS

D. Chester Brown, Chairman.....Danbury, Conn.
W. A. Coventry.....Duluth, Minn.
J. H. J. Upham.....Columbus, Ohio
H. E. Randall.....Flint, Mich.
H. P. Newman.....San Diego, Cal.

MISCELLANEOUS BUSINESS

L. J. Hirschman, Chairman.....Detroit
Dean D. Lewis.....Chicago
Floyd W. McRae.....Atlanta, Ga.
Don Palmer.....Seattle, Wash.
A. E. Bulson, Jr.....Fort Wayne, Ind.

The President announced the following Committee on Awards for Scientific Exhibit: John B. Blake, Boston, Chairman; W. T. Williamson, Portland, Ore.; Harlow Brooks, New York.

Reports of Officers

Report of the Secretary

The Secretary presented the following report, which was referred to the Reference Committee on Reports of Officers:

To the Members of the House of Delegates of the American Medical Association:

For the year 1915-1916, I submit the following report:

ORGANIZATION OF CONSTITUENT ASSOCIATIONS

Constituent Association of	No. Counties in State	No. Component Societies in State Assn.	Number Counties in State Not Organized 1915	Number Counties in State Not Organized 1916	No. in State (5th Ed. Physicians Directory)	Number Members of State Association 1915	Number Members of State Association 1916	No. A. M. A. Fellows in State	No. Subscribers to Journal in State*
Alabama	67	67	.....	.....	2,569	1,744	1,760	380	217
Arizona	14	11	3	3	307	165	147	129	75
Arkansas	75	66	7	9	2,637	1,169	1,091	354	203
California	59	37	20	20	5,687	2,523	2,703	1,990	899
Colorado	63	23	27	34	1,733	708	811	499	222
Connecticut	8	8	.....	.....	1,678	922	970	529	229
Delaware	3	3	.....	.....	261	107	101	67	21
Dist. Columbia	.....	.....	.....	.....	1,482	559	572	364	224
Florida	52	30	19	20	1,321	532	530	236	168
Georgia	152	84	56	56	3,421	1,757	1,415	573	437
Idaho	37	6	20	20	439	138	133	84	125
Illinois	102	98	0	1	10,648	6,501	5,934	3,791	1,781
Indiana	92	87	3	1	4,872	2,441	2,474	1,147	491
Iowa	99	97	2	2	3,751	2,061	2,186	1,235	507
Kansas	105	70	39	27	2,683	1,323	1,475	798	440
Kentucky	120	117	4	2	3,584	1,813	2,373	838	446
Louisiana	64	40	22	22	2,060	803	821	387	288
Maine	16	14	0	2	1,205	625	717	325	135
Maryland[1]	23	21	2	3	2,292	1,166	1,198	744	472
Massachusetts[2]	14	18	.....	.....	5,869	3,505	3,620	2,094	985
Michigan	83	57	2	2	4,360	2,506	2,892	1,565	588
Minnesota	86	38	3	3	2,447	1,569	1,416	1,128	381
Mississippi	80	48	1	4	2,048	979	1,068	238	178
Missouri[1]	114	98	13	11	6,399	3,053	3,097	1,487	672
Montana	42	14	25	25	636	275	220	201	122
Nebraska	93	56	23	25	1,911	1,047	953	540	312
Nevada	16	3	12	13	154	49	40	55	30
New Hampshire	10	10	.....	.....	690	495	508	325	92
New Jersey	21	21	.....	.....	3,239	1,607	1,673	957	417
New Mexico	26	10	15	16	430	154	185	128	75
New York	62	59	2	2	15,670	7,904	8,191	4,777	2,326
North Carolina	100	79	12	12	2,102	1,216	1,211	404	305
North Dakota	52	13	3	3	586	312	351	278	113
Ohio	88	87	2	1	8,045	3,987	4,398	2,153	1,098
Oklahoma	77	74	3	3	2,634	1,270	1,506	743	287
Oregon	35	13	1	3	1,187	520	590	291	302
Pennsylvania[3]	67	63	4	4	11,502	6,157	6,202	3,808	1,531
Rhode Island[2]	5	6	.....	.....	772	412	417	258	102
South Carolina	44	41	5	3	1,399	755	685	323	159
South Dakota	67	9	7	7	676	317	343	255	159
Tennessee	96	60	33	36	3,457	1,150	1,355	625	710
Texas	250	147	73	70	6,240	3,362	3,450	1,532	637
Utah	28	5	24	23	465	216	266	173	76
Vermont	14	11	.....	.....	668	391	384	165	79
Virginia[4]	100	46	51	51	2,547	1,694	1,775	610	336
Washington	39	20	18	18	1,695	896	825	540	298
West Virginia	55	30	12	12	1,729	842	997	541	245
Wisconsin	71	54	1	0	2,803	1,821	1,816	1,063	456
Wyoming	22	5	17	17	251	119	117	63	52
Canal Zone	.....	.....	.....	.....	97	48	61	20	27
Hawaii	5	.....	.....	.....	162	109	69	30	30
Porto Rico	.....	.....	.....	.....	292	198	115	38	35
Philippine Is.	.....	.....	.....	.....	735	98	94	27	77
Totals	3,013	2,074	586	586	146,527	76,020	78,301	41,505	20,033
Fellows listed at foreign addresses, Honorary and Affiliate Fellows								97	.....
Fellows in government services								1,179	.....
Number on Fellowship roll, May 1, 1916								43,181	.....
Number on mailing list of THE JOURNAL, May 1, 1916								.....	64,200

* Not including Fellows of American Medical Association.

Note.—The number of members of the different associations stated in this table is in accord with the membership of the several associations as they were reported to the Secretary on May 1, 1916.

The lack of an effective uniform system for reporting the membership of the state associations accounts for whatever discrepancies this table shows and detracts from the value of the statement.

Component societies are those societies which compose the state association. A component society may include one county or more.

1. The state of Maryland has 23 counties and the city of Baltimore; Missouri has 114 counties and the city of St. Louis.
2. These state associations are divided into district societies, and these are listed in the table as component societies. Some of these districts are smaller and some larger than the county, the county lines being ignored.
3. Provision is made for the physicians in each of these counties to join the component society in an adjoining county.
4. Virginia has recently adopted the plan of organization and is now establishing component county medical societies.

MEMBERSHIP

The membership of the various constituent state associations, which constitutes the membership of the Association, according to the records in the Secretary's office, May 1, 1916, is shown in the following table:

FELLOWSHIP

The Fellowship of the American Medical Association on May 1, 1915, was 42,366. During the past year, 441 Fellows have died, 1,540 have resigned, 713 have been dropped as not eligible, 658 have been dropped for nonpayment of dues and 17 have been removed from the rolls on account of being reported "not found," making a total of 3,369 names to be deducted from the Fellowship roll. There have been added 4,184 names to the Fellowship roll, of which 3,293 were transferred from the subscription list. The Fellowship of the American Medical Association on May 1, 1916, was 43,181, a net increase for the year of 815.

This gain in the number of Fellows is due largely, as in previous years, to circularizing subscribers to THE JOURNAL who were eligible, urging them to become Fellows.

It becomes necessary to report that the Wyoming State Medical Society is no longer active. No meeting of this constituent state association has been reported for the past three years and a number of Fellows who hold their Fellowship through membership in other constituent state associations and who have moved to Wyoming, write that they have not been able to obtain membership in the constituent association of that state. A number of letters addressed to the secretary of this constituent association have not been answered.

This state of affairs in the organization in Wyoming prompts the suggestion that the House of Delegates refer to the Judicial Council the question of whether or not a more compact organization than that at present defined in Art. IV of the Constitution is advisable, and that the Judicial Council, if it determines a closer affiliation is wise, be instructed to take up the question with the constituent associations. It is suggested, further, that the status of the Wyoming State Medical Society be referred to the Judicial Council with power, at the discretion of this Council, to revive the present organization or to arrange for a new organization of the profession in Wyoming to become the constituent association of the American Medical Association from that state.

Other matters in which the office of the Secretary of the Association has been concerned are reported to the House of Delegates from other sources.

Respectfully submitted.

ALEXANDER R. CRAIG,
Secretary.

Report of the Board of Trustees

Dr. W. T. Councilman, Chairman, read the following report which was referred to the Reference Committee on Reports of Officers:

To the Members of the House of Delegates of the American Medical Association:

During the past year the many activities of the Association have been followed with the usual diligence and with good results. Full reports of all these you will hear through the chairmen of the various councils. Considering the work of the Association as a whole, what it has accomplished in the past and the promise of the future, one is filled with a sense of pride in being a member of the body. This work, while of benefit to the medical profession, extends much wider than this and benefits the nation. It is only by means of the organization of the profession, so that its combined force is at the back of these reforms, that this work is possible. The reforms that have been brought about—notably that of medical education—have come slowly, thus producing no violent disturbances. The manner of procedure has been to acquire full and accurate information of the subjects in hand, to give out

this information, and with this as a basis to proceed. By the reports of chairmen the members are kept fully informed as to details as the work progresses. These reports form valuable contributions to knowledge on the subjects considered. In any review of the progress of education in this country the reports of the Council on Medical Education and the various subsidiary papers and reports proceeding from this must be considered. The same is true of the work of the other councils, particularly that on Health and Public Instruction and that of the Judicial Council. The reports of the chairman of the latter are valuable studies of the relation of the profession to the social state. This relation, which must become ever more important with the advance in social organization, has been fully recognized by your trustees, who this year have granted a considerable sum of money which will be expended mainly in acquiring information.

We are entering on a period of great changes in social organization; a period which will necessitate a far closer organization of the people in all forms of activity, and this particularly calls for united strength in opposing disease. It is true we have not so strongly felt the necessity for this as have other nations, but the time has come when we can no longer resist the social movement, and it is better that we should initiate the necessary changes than have them forced on us. On such information, laws regulating social medicine, which will be just both to the medical profession and to the public, whom it serves, must be based. All of our councils have worked in perfect harmony with other bodies, often outside of the profession, which have had the common good in mind.

The great agent by which all this has been accomplished is our journal. It has furnished the material ,means; it is the bond of union. Not only this, but medical men cannot afford to be ignorant of the information it conveys. The careful reading of THE JOURNAL will keep a man fully informed of the advance in medical knowledge and give him the stimulus which comes from the relation of research. THE JOURNAL is today the most valuable medical journal in the world, and a profession which it fully represents must be on a high plane. Throughout the entire field of medicine it has been a leader and not a follower. No one can have a prouder monument than this journal will give to the man who has for so many years directed it and under whose fostering care and high ideals it has become what it now is. The Association, as the need for them arose, has also undertaken the publication of journals devoted to more special branches of medicine. These also have been successful and fulfil a useful purpose.

In considering the work of the Association, may we not say that it has accomplished a still higher task, that of uniting the medical profession? There has never been a time when it has been so free from faction. And the great idea on which this unity is based is that of service. No ignoble aim could have accomplished it, and the ideal of service is evident in all the activities of the medical profession as represented by this Association.

PUBLICATIONS

THE JOURNAL

The weekly average of the issue of THE JOURNAL during 1915 was 67,390, which was distributed to 64,859 Fellows and subscribers. The difference between the issue and the subscriptions is accounted for by copies to exchanges, libraries, advertisers and the reserve copies kept on hand for future orders. The receipts for advertising during the year were $204,837.20—an increase over the previous year notwithstanding the fact that the character of the advertisements is carefully scrutinized and all those are rejected which for sufficient reasons seem not to conform to our high standard.

The percentage of physicians in the United States who are receiving THE JOURNAL is 45.3. At first thought it would appear that this was a comparatively small percentage, considering the value of THE JOURNAL and the position it occupies. However, on several occasions pains have been taken to ascertain the number of physicians who read THE JOURNAL, and from the information gathered we can conservatively state that at least 75 per cent. of the physicians of the United States have access to it. As a matter of fact, THE JOURNAL reaches a larger percentage of its clientele and covers its particular field more thoroughly than does any other journal issued for any other class, profession, trade or specialty.

THE ARCHIVES

THE ARCHIVES OF INTERNAL MEDICINE now has on its mailing list 2,053 names, including foreign exchanges, libraries, etc., which shows a net loss as compared with 1914 of twenty-four. This is more than covered, however, by the foreign loss, due to war conditions. There were 958 names added to the mailing list during 1915, and 982 removed. The total number of copies printed during the year, 28,713, was 1,119 less than those printed the previous year.

AMERICAN JOURNAL OF DISEASES OF CHILDREN

On the first of January there were 2,198 names on the mailing list, indicating a loss of fifty-four names, which also is due to the foreign loss. There are 357 physicians who are taking this journal as Fellows of the Association, substituting it for THE JOURNAL, whereas in 1914 there were 263. The total number printed during 1915 was 29,757, or 1,911 more copies than in 1914.

THE AMERICAN MEDICAL DIRECTORY

The American Medical Directory, just off the press, merits more than a passing notice. It is the fifth edition, and as each preceding edition has been improved over its predecessor, so also this one is better than its predecessors. There is a better arrangement of the preliminary matter and greater accuracy in the personal information. Prior to the publication of this edition, a special effort was made to verify the credentials of physicians who graduated abroad, and as a result the information about such physicians is now dependable. By the use of symbols and abbreviations, a large amount of information is included in small space. The European war, however, prevented the use of the specially imported thin paper used in the previous edition. This and the addition of several thousand names have caused an increase in the size of the directory.

We are confident that those who have received the book and have examined it carefully regard it as a credit to the Association, not only because of the character and accuracy of its contents, but also from the mechanical point of view. As with previous editions, all the work on the directory except the binding was done in the Association's own building.

While no edition of the directory has entirely paid for its publication, the fifth edition gives promise of being more nearly self-supporting than the preceding volumes, but it is impossible at the present time to make a financial statement regarding this edition of the directory.

ORGANIZATION WORK

The Association has continued its endeavors to increase the membership of the organization. This work is undertaken only after the assistance of the constituent state association has been secured. With the cooperation of the officers of the state organizations and the officers and members of the component societies, men in the employ of the Association have been sent into certain of the states to solicit subscriptions to THE JOURNAL and Fellowship in the Association, as well as to present the advantages of membership in the organization to physicians of the localities visited. As suggested above, this work has not been undertaken except where it has been agreeable to the officers of the constituent state associations, and when these officers have agreed both to cooperate by assisting the organizers, and to pay a small fee to these organizers for each member who qualifies and whose application is obtained through the efforts of the organizer. The American Medical Association pays the organizers a weekly expense allowance and a salary for the organization work they perform, as well as a percentage on "new business" obtained for the Association. The state associations pay for each new member one half or less than one half of the per capita assessment for the first year received from each new member, while this work costs the American Medical Association practically the first year's return from the "new business" obtained. Where the local officers have counseled with and directed the organizers,

the work has been mutually advantageous; but the success of the endeavor is conditioned on such cooperation.

Cooperative Medical Advertising Bureau

The Cooperative Medical Advertising Bureau is doing a good work. All of the journals owned by the state associations, with the exception of the Illinois journal, are now in this bureau. The bureau, in addition to securing advertisements for the state publications, which during 1915 amounted to $16,830.65, also collects data of all sorts relating to advertisements, giving important information. There was a net loss to the Association through the bureau of $708.30, which is probably more than offset by the indirect gain, and there is a reasonable prospect that the bureau will soon be self-supporting.

Propaganda Department

The Propaganda Department continues its work with regard to medical frauds. The layman's interest in the work is shown by the increasing number of inquiries concerning advertised substances which are received: In 1915, 1,612 such inquiries, as compared with 525 such letters in 1910. Newspapers and magazines also continue to call almost daily for information regarding "patent medicines," and the vigilance committee of the Associated Advertising Clubs of the World is taking advantage of the data this department is able to furnish it. People who advertise are recognizing the fact that for their own protection the advertisements cannot be fraudulent. A paper which habitually fills its columns with glaring announcements of fraudulent articles is not so good a medium for legitimate and honest advertising. There is a growing interest in the subject among educational institutions. State and municipal boards of health, civic organizations, women's clubs, etc., continue to call on the department for information.

Council on Pharmacy and Chemistry

The Council on Pharmacy and Chemistry has continued its work, and has published reports on practically all the widely advertised proprietary mixtures. It is confronted with many difficulties, not the least of which are the questions of radium and the mixed vaccines. Only time can establish the true place of these substances as remedial agents. The little book on "Useful Drugs," which the Council has published, is fulfilling an important purpose and will tend to eliminate the use of the multitude of inert substances which still have a place in pharmacopeias. The committee of the Council on Therapeutic Research has secured the investigation of a number of problems regarding the therapeutic value of many widely used but insufficiently understood drugs. The problems selected for investigation deal with the determination of the clinical action of drugs, and in this way many therapeutic points are being definitely decided.

The work of the Council has reached a stage when little more can be done by the efforts of the Association as a whole; the continuance of the work and the final accomplishment depends on the individual members. There is much evidence that the individual members of the profession are prescribing and using the very substances which as a combined body they condemn, and many of the journals which they support advertise and recommend these substances. There are many reasons for this, and none of them creditable. The first is the financial power of the interests of the manufacturers, and its influence on medical journals. This is a constant positive pressure; that opposing is inconstant and negative. The leading lay publications of the country show cleaner advertising pages than many of the medical journals. The second is due to a credulous order of mind not capable of distinguishing evidence from mere statement, and rendering its possessor an easy victim to the lures of the promoter. The third is indolence, which finds it easier in treating patients to follow advice given in advertisements of proprietary drugs than to undertake the arduous task of ascertaining the condition of the patient and to base thereon a sound scientific, therapeutic treatment. No great progress can be made until the medical profession awakes to the fact that the remedy against fraudulent proprietary medicines lies in its own hands—until the profession resolves to believe rather the evidence which is presented by the scientific investigation of the substances than the biased statements of the agents, whether presented by word of mouth or by advertisements.

Memorial to Congress Regarding Proprietary Medicines

In accordance with your action on the subject of a memorial to Congress regarding "patent" and proprietary medicines, the Trustees appointed a committee consisting of President Rodman, Dr. Alexander Marcy, Dr. George H. Simmons, Dr. Hiram Woods and Dr. Councilman to present the matter to the President. Owing to the death of Dr. Rodman and the illness of Dr. Woods, only three members of the committee could serve. A memorial, which has appeared in The Journal, was presented.[1] The president seemed interested, and there is prospect that the request for a government investigation will be granted. Such an investigation will lead to a wider knowledge of the matter and possibly some remedial legislation. But even this will not avail unless the individual members of the profession will act on the information obtained. Great assistance in procuring such a commission can be rendered if the members of the House will bring the matter to the attention of their congressmen and urge the measure.

Financial

The report of the finances of the Association continues to be favorable, although this year there is a slight loss instead of a gain. This is due solely to the expenses connected with the lawsuits. A stage has been reached in the contest against "patent medicines" when all the resources and methods of the law backed by almost unlimited means will be invoked by threatened interests. These suits must be met and defended by the Association, and if necessary the other welfare work must be temporarily curtailed. Without the unusual expenses mentioned, the year would have shown a handsome surplus.

Deaths

It is with a feeling of personal sorrow as well as of the great loss which the Association has met that the trustees pay tribute to the character and work of those leaders in the conduct of the affairs of the Association who have died in the past year. Dr. William L. Rodman, the President of the Association and at one time a member of the Board of Trustees, has done work of importance for the medical profession of the country, the last being an endeavor looking toward the formation of a national board of medical examiners. He met with the Board of Trustees at the principal meetings, and his counsel, which was practical and conservative, was of great value. The Association in his death has experienced a loss not easily repaired. Dr. Frank J. Lutz will be remembered by his colleagues as a sincere, able man, kindly in his nature, with a keen sense of humor, conversant with the best literature of the past, always willing to do the work which fell to him. He entered freely into the discussions of the board and his opinions were highly valued. The older members of the board will well remember Dr. Wisner R. Townsend, who for several years was its most efficient secretary; an active, energetic man, who attended well to his duties, bringing to bear on the work an orderly, active and capable intelligence. With this there is also to each member of the board a sense of personal loss. The trustees also wish to pay a tribute to Dr. Henry B. Favill, whose death came just at the time when he was capable of the greatest service to the profession. To the study of the problems of social medicine he brought to bear knowledge derived from close study of the problems, a warm human sympathy, and a rare intelligence. It is sad that he could not live to see the fruition of his work.

Respectfully submitted,

W. T. Councilman, Chairman.
M. L. Harris, Secretary.
Thomas McDavitt.
W. W. Grant.
Oscar Dowling.
Philip Marvel.
Philip Mills Jones.
W. T. Sarles.

1. U. S. Commission to Investigate the Proprietary Medicine Business, The Journal A. M. A., March 25, 1916, p. 974.

Addenda to Trustees' Report

SUBSCRIPTION DEPARTMENT

The regular weekly issue of THE JOURNAL of the American Medical Association, from Jan. 1, 1915, to Dec. 31, 1915, inclusive, fifty-two issues, was as follows.

January 2	71,840	July 3	63,786
January 9	64,681	July 10	63,792
January 16	64,604	July 17	63,583
January 23	64,746	July 24	63,965
January 30	64,620	July 31	64,058
	330,491		319,184
February 6	65,311	August 7	63,891
February 13	64,724	August 14	63,834
February 20	62,922	August 21	65,593
February 27	62,704	August 28	64,011
	255,661		257,329
March 6	63,674	September 4	64,283
March 13	63,811	September 11	73,303
March 20	63,473	September 18	72,704
March 27	63,379	September 25	72,607
	254,337		282,897
April 3	63,926	October 2	74,150
April 10	64,080	October 9	75,191
April 17	63,694	October 16	76,043
April 24	63,550	October 23	74,921
		October 30	71,995
	255,250		372,300
May 1	63,412	November 6	65,166
May 8	63,776	November 13	65,092
May 15	71,770	November 20	76,565
May 22	64,119	November 27	80,754
May 29	63,397		
	326,474		287,577
June 5	63,807	December 4	75,850
June 12	63,283	December 11	81,105
June 19	63,826	December 18	75,600
June 26	63,485	December 25	75,873
	254,401		308,428
Total			3,504,329
Weekly average			67,390

PERCENTAGE OF PHYSICIANS RECEIVING THE JOURNAL

This table gives the number of physicians (based on the fourth edition of the American Medical Directory) in the United States, the number receiving THE JOURNAL and the approximate percentage in each state. Copies to physicians in the United States Army, United States Navy, Public Health Service, etc., omitted.

State	Number Receiving JOURNAL	Number of Physicians in State—5th Ed. A. M. Dir.	Approximate Per Cent. 5th Ed. A. M. Dir.
Alabama	638	2,569	25
Arizona	199	307	64
Arkansas	608	2,637	23
California	2,960	5,687	52
Colorado	760	1,733	43
Connecticut	771	1,678	46
Delaware	105	261	40
District of Columbia	598	1,482	40
Florida	446	1,321	41
Georgia	1,037	3,421	30
Idaho	220	439	50
Illinois	5,613	10,648	52
Indiana	1,697	4,872	34
Iowa	1,791	3,751	47
Kansas	1,100	2,683	41
Kentucky	1,337	3,584	37
Louisiana	722	2,060	30
Maine	472	1,205	39
Maryland	1,222	2,292	53
Massachusetts	3,118	5,869	53
Michigan	2,221	4,360	51
Minnesota	1,530	2,447	62
Mississippi	446	2,048	21
Missouri	2,201	6,399	34
Montana	325	636	50
Nebraska	873	1,911	43
Nevada	90	154	58
New Hampshire	420	690	60
New Jersey	1,413	3,239	43
New Mexico	206	430	48
New York	6,892	15,670	43
North Carolina	737	2,102	35
North Dakota	395	586	67
Ohio	3,288	8,045	40
Oklahoma	1,101	2,634	41
Oregon	566	1,187	47
Pennsylvania	5,385	11,502	46
Rhode Island	371	772	48
South Carolina	511	1,399	36
South Dakota	420	676	63
Tennessee	1,096	3,457	31
Texas	2,182	6,240	31
Utah	249	465	53
Vermont	250	668	37
Virginia	961	2,547	37
Washington	815	1,695	48
West Virginia	826	1,729	47
Wisconsin	1,514	2,803	56
Wyoming	123	251	49

The following table shows the number of Fellows and Subscribers for each year commencing with 1900.

Year	Fellows	Subscribers
Jan. 1, 1900	8,445	4,633
Jan. 1, 1901	9,841	8,339
Jan. 1, 1902	11,107	10,795
Jan. 1, 1903	12,553	12,378
Jan. 1, 1904	13,899	14,674
Jan. 1, 1905	17,570	15,698
Jan. 1, 1906	20,826	17,669
Jan. 1, 1907	26,255	20,166
Jan. 1, 1908	29,382	20,880
Jan. 1, 1909	31,999	18,983
Jan. 1, 1910	33,032	19,832
Jan. 1, 1911	33,540	20,504
Jan. 1, 1912	33,250	21,620
Jan. 1, 1913	37,493	19,863
Jan. 1, 1914	41,203	19,751
Jan. 1, 1915	42,956	20,430
Jan. 1, 1916	43,927	22,919

TREASURER'S REPORT

Report of the Treasurer of the American Medical Association for the year ending Dec. 31, 1915.

1915			
Jan. 2—Invested Reserve			$118,832.50
Certificate of Deposit			20,000.00
Checking Account			7,301.62
			$146,134.12
RECEIPTS			
Interest on Invested Reserve		$ 5,175.00	
Interest on Certificate of Deposit		881.66	
Interest on Bank Balance		125.13	
Interest on Uninvested Reserve		52.96	
		$	6,234.75
			$152,368.87
SUMMARY OF BALANCE			
Dec. 31—Invested Reserve			$118,832.50
Uninvested Reserve			5,227.96
Certificate of Deposit			20,000.00
Checking Account			8,308.41
			$152,368.87
DAVIS MEMORIAL FUND			
1915			
Jan. 2—Balance		$	3,241.82
Interest			97.97
Dec. 31—Balance		$	3,339.79

WM. ALLEN PUSEY, Treasurer.

AUDITOR'S REPORT

MARWICK, MITCHELL, PEAT & CO., CHARTERED ACCOUNTANTS
105 SOUTH LA SALLE STREET

CHICAGO, ILL., Jan. 24, 1916.

To the Board of Trustees of the
American Medical Association, Chicago, Ill.

Dear Sirs:

In accordance with your instructions, we have audited the accounts of the American Medical Association for the year ended Dec. 31, 1915, and now submit our report thereon, together with the following statements:

Exhibits
"A" Balance Sheet as at Dec. 31, 1915.
"B" Income and Profit and Loss Account for the year ended Dec. 31, 1915.

Schedules
"1" Journal Expenses for the year ended Dec. 31, 1915.
"2" Particulars of Provision for Depreciation during the year ended Dec. 31, 1915.

The balance sheet as submitted herewith, Exhibit "A," in our opinion, correctly reflects the financial position of the Association as at Dec. 31, 1915, subject to provision for accrued interest, taxes and Journal subscriptions paid in advance, less subscriptions and memberships due and unpaid.

The following is a condensed comparative balance sheet as at Dec. 31, 1915 and 1914:

	DECEMBER 31—			
ASSETS:	1915	1914	INCREASE	DECREASE
Property and Equipment	$317,685.05	$328,656.60	.....	$10,971.55
Investments	138,832.50	138,832.50	.....	.....
Current and Working Assets	106,148.43	75,849.62	30,298.81	.....
Prepaid Accounts and Reserves	10,233.08	4,794.56	5,438.52	.....
Total Assets	$572,899.06	$548,133.28	$35,737.33	$10,971.55
Liabilities	154,871.52	123,287.59	31,583.93	.....
Surplus	$418,027.54	$424,845.69	$ 4,153.40	$10,971.55

SUMMARY

Assets:		
Increases		$35,737.33
Decreases		10,971.55
Net Increase		$24,765.78
Liabilities:		
Increase		$31,583.93
Surplus Decrease		$ 6,818.15

The net loss for the year ended Dec. 31, 1915, amounted to $2,489.20, particulars of which are shown in Exhibit "B."

The securities representing the investments of the Association were produced for our inspection and found in order.

We verified the cash on hand by actual count and the cash in bank by certificate obtained from the bankers, which we duly reconciled with the cash records.

The following is a summary of the cash on hand and in bank, exclusive of the insurance cash fund, which was verified by certificate obtained from the depository:

Cash on Hand	$ 1,346.85
Cash Fund	50.00
Continental and Commercial National Bank	9,343.44
First Trust and Savings Bank	8,308.41
Total	$19,048.70

EXHIBIT "A"

BALANCE SHEET AS AT DEC. 31, 1915

ASSETS

PROPERTY AND EQUIPMENT AT COST, LESS DEPRECIATION:		
Real Estate and Buildings		$249,498.79
Machinery		43,285.65
Type and Metals		8,117.42
Furniture and Fixtures		13,585.49
Chemical Laboratory		1,612.20
Library		1,585.50
Total Property and Equipment, less Depreciation		$317,685.05
INVESTMENTS:		
Invested Reserve	$118,832.50	
Certificates of Deposit	20,000.00	
		$138,832.50
CURRENT AND WORKING ASSETS:		
Inventory of Materials, Supplies and Work in Progress	$37,568.82	
Accounts Receivable:		
Advertising	$17,254.09	
Reprints	1,538.39	
Miscellaneous	2,054.73	
Cooperative Med. Advertising Bureau.	2,301.87	
	$23,149.08	
Notes Receivable	191.25	
Directory, 5th Edition (Labor and Material)	26,190.58	
Cash in Bank and on Hand	18,998.70	
Office Fund	50.00	
Total Current and Working Assets		$106,148.43
Liability Insurance Fund in Bank		4,776.22
Uninvested Reserve		5,227.96
Prepaid Insurance		228.90
Total		$572,899.06

LIABILITIES

ACCOUNTS PAYABLE:		
Sundry		$ 416.32
General		19,359.92
Cooperative Medical Advertising Bureau		1,836.04
		$ 21,612.28
Advance Payments on Publications		4,422.56
Association Reserve Fund		124,060.46
Liability Insurance Reserve		4,776.22
SURPLUS:		
As at Dec. 31, 1914	$424,845.69	
Less: Adjustments	4,328.95	
	$420,516.74	
Deduct: Loss for year ended Dec. 31, 1915	2,489.20	
		$418,027.54
Total		$572,899.06

EXHIBIT "B"

INCOME AND PROFIT AND LOSS ACCOUNT FOR THE YEAR ENDED DEC. 31, 1915

JOURNAL:		
INCOME:		
Fellowship Dues		$ 40,681.42
Subscriptions		254,689.41
Advertising		204,837.20
Jobbing		2,598.75
Books		4,906.50
Reprints		2,873.16
Buttons		97.47
Miscellaneous Sales		4,627.40
Interest		1,298.12
Children's Journal		453.92
Total Income		$517,063.35
EXPENSES:		
As per Schedule "1"	$417,577.48	
Provision for Depreciation—Schedule "2"	16,598.41	
Loss on Bad Debts	2,105.88	
Total Expenses		$436,281.77
Net Income, JOURNAL		$ 80,781.58
ASSOCIATION:		
EXPENSES:		
Propaganda		$ 9,112.70
Association		28,957.81
Health and Public Instruction		13,643.75
Pharmacy, Chemistry and Chemical Laboratory		14,208.27
Medical Education		8,743.28
Organization		8,395.72
Therapeutic Research		1,663.00
Session 1915		1,793.04
		$ 86,517.57

SCHEDULE "1"

JOURNAL EXPENSES FOR THE YEAR ENDED DEC. 31, 1915

Wages and Salaries	$147,949.10
Editorials, News and Reporting	11,427.85
Paper—Journal Stock	115,797.02
Paper—Miscellaneous	3,029.91
Electrotypes	5,278.88
Binding	165.25
Ink	4,012.77
Postage—First Class	18,334.93
Postage—Second Class	27,621.02
Journal Commissions	8,821.82
Collection Commissions	3,473.60
Discounts	4,076.86
Express and Cartage	2,471.18
Exchange	1,706.91
Office Supplies	704.97
Telephone and Telegraph	778.21
Office Jobbing	3,532.11
Miscellaneous	6,753.88
Power	2,636.45
Light	895.84
Fuel	2,116.47
Factory Supplies	4,447.71
Insurance and Taxes	5,366.21
Legal	28,837.63
Repairs and Renewals—Machinery	3,335.76
Building—Maintenance	1,831.71
Archives	465.13
Cooperative Medical Advertising Bureau	708.30
Liability Insurance	1,000.00
Total	$417,577.48

SCHEDULE "2"

PARTICULARS OF PROVISION FOR DEPRECIATION DURING THE YEAR ENDED DEC. 31, 1915

PROPERTY AND EQUIPMENT	RATE	AMOUNT
Building "A"—Old	2.5 per cent.	$ 408.28
Building "B"—New	2.5 per cent.	4,512.10
Machinery	15 per cent.	7,638.65
Furniture and Fixtures	15 per cent.	1,767.54
Factory Fixtures	10 per cent.	396.60
Type	15 per cent.	799.82
Metal	20 per cent.	896.28
Laboratory Equipment	10 per cent.	179.14
Total Depreciation		$16,598.41

We verified the cash disbursements with proper vouchers on file and an exhaustive test of the various sources of income was made.

We found the accounting records to have been maintained in the usual good order.

In conclusion, we beg to express our appreciation of the courtesies extended to us during the course of our examination and to state that we shall be pleased to furnish any additional information that you may desire.

Yours truly,

MARWICK, MITCHELL, PEAT & Co.,
Chartered Accountants.

Report of the Judicial Council

Dr. Alexander Lambert, New York, Chairman, read the report of the Judicial Council which was referred to the Reference Committee on Amendments to the Constitution and By-Laws.

The report follows:

To the Members of the House of Delegates of the American Medical Association:

In presenting its report to the House of Delegates, the Judicial Council desires to call attention to certain amendments to the Constitution and By-Laws which, in its opinion, are advisable both to expedite the increasing volume of business which is necessary to consider in the House of Delegates and to afford greater opportunity to the members of the House of Delegates to take part in the Scientific Assembly of the Association; and also further amendments to separate more clearly the functions of certain officers of the Association.

AMENDMENTS TO CONSTITUTION AND BY-LAWS

As the volume of business coming before the House of Delegates has grown, there has been a growing realization from year to year that the mass of business was having an

undesirable effect in that it crowded, often into hurried discussion, many important matters. The first day of the meeting of the House of Delegates is taken up in receiving reports and in other business, referring this to the various committees; and then, in order that the matters brought before it may be properly digested, considered in committee and brought back to the house for action the house adjourns until the following day. On the following day, in the morning, the General Meeting of the Association takes place, the house not assembling until the afternoon when, at the same time, the sections of the Scientific Assembly begin. The real business of the House of Delegates, therefore, is not finished before the beginning of the Scientific Assembly and really begins coincident with it. This practically prevents any participation of the delegates in the Scientific Assembly and deprives them of one of the main objects for which they would wish to come to the annual session of the American Medical Association. In reality it places a burden on them, at the same time depriving them of certain privileges which they should have the opportunity to enjoy.

There has been a growing feeling among the delegates that this situation should be remedied and that it would best be remedied by pushing forward the meeting of the House of Delegates, bringing the first day on the Saturday before the general meeting of the American Medical Association. This has come up for decision at various times and been voted down. In considering the matter it seems to the Judicial Council that it were wiser to push on to a later day the general meetings of the Association and the first meeting of the Scientific Assembly, that is, that the House of Delegates should continue to meet on Monday and Tuesday, taking two whole days to complete its work, and the Scientific Assembly, opening with the general meeting of the Association, should begin on Wednesday and continue through Friday of the week, breaking up Friday evening instead of Thursday evening, as is now done. Those desiring to come to the Scientific Assembly alone would be present the usual three days, from Wednesday until Friday, instead of from Tuesday until Thursday, and the House of Delegates would be present from Monday until Friday. This seems more desirable than that the delegates should be forced to come on Saturday, wait over Sunday, again meet on Monday, and stay until Thursday. The method here recommended saves twenty-four hours of absence from home duties and does not increase it by twenty-four hours as the former suggested amendments to the By-Laws did. To bring this change about, the following amendments to the By-Laws are necessary and are therefore recommended by the Council:

That in Chapter III, Section 1, the word "day" be stricken out and the words "two days" be substituted, so that the section which now reads: "Regular Sessions.—The House of Delegates shall meet annually on the day preceding the opening of, and at the same place as, the Scientific Assembly of the Association," shall read:

"The House of Delegates shall meet annually on the two days preceding the opening of, and at the same place as, the Scientific Assembly of the Association."

This would assign the general meeting of the Association to Wednesday and would throw the election of the officers of the Association in the House of Delegates to Friday afternoon, for Chapter IV, Section 3 of the By-Laws reads, "The election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the afternoon of the third day of the Scientific Assembly." There is nothing at present in the Constitution and By-Laws which fixes the first day of the Scientific Assembly on Tuesday. The Constitution and By-Laws wisely has given to the Board of Trustees full power to control all arrangements for the annual sessions of the Association, as in the By-Laws Chapter VI, Section 2. All elections and time of the meetings are designated in the By-Laws as being required to be held on the first, second, or third days of the meetings of the Scientific Assembly. The following further amendment to the By-Laws is, however, necessary:

In Chapter II, Section 2, the limit of time for introduction of new business into the House of Delegates is designated as follows: "No new business shall be introduced into the House of Delegates after the second day of the Scientific Assembly (third day of the House of Delegates), unless with unanimous consent," etc. It is therefore recommended that this By-Law shall be changed to read:

"No new business shall be introduced in the House of Delegates after the second day of the annual session of the House of Delegates unless by unanimous consent; and such new business, so presented, whether in the form of a motion, resolution or memorial, shall require a two-thirds affirmative vote for adoption; provided, however, that unless otherwise provided in these By-Laws, new business referred to the House of Delegates by the officers of the sections or by formal action of the sections themselves may be presented to the House of Delegates any time preceding the meeting at which the election of officers takes place."

ELECTION OF A SPEAKER

At various times in the past few years there has come up the question of the election of a speaker for the House of Delegates, and with it necessarily the election of a speaker pro tem. as a possible substitute. In the second year of the existence of the Judicial Council this matter was referred to it for decision. The Council was unwilling at that time to decide the question and reported it back to the House of Delegates for its own decision, the house at that time deciding against it. Since then each year has emphasized the desirability, if not the necessity, of having a presiding officer who shall be familiar with the transaction of the business of the House of Delegates and be familiar with the business that recurs year after year, and one who may also be familiar with the best methods of expediting business in the house. There has been a growing conviction among many delegates that a great deal of time was unconsciously and unavoidably wasted in the House of Delegates in the transaction of its business. The Judicial Council, therefore recommends to the House of Delegates that it take up the question of the election of a speaker of the house. This requires a change of the Constitution, if the speaker of the House of Delegates shall be put under the general officers of the Association, and to Section 1, Article 9 of the Constitution there should be added the words "a Chairman of the House of Delegates," so that the section shall read:

"The general officers of this Association shall be a President, four Vice Presidents, a Secretary, a Treasurer, and a Chairman of the House of Delegates."

At the San Francisco session an amendment to this effect was submitted, so it is within the power of the House of Delegates to act on this matter at this session. The Council would also recommend that a new section be inserted under Chapter IV of the By-Laws to read as follows:

"Section 2. The House of Delegates shall annually elect a Chairman and a Vice Chairman, these officers to serve for one year, or until their successors are elected and installed. These officers must be Fellows of the American Medical Association and must have been Fellows of this Association for at least the two years immediately preceding their election to this office. They need not, however, be members of the House of Delegates, but they shall possess all powers of the presiding officer of this parliamentary body. These elections shall follow the election of the treasurer of the Association."

If this is adopted, the Council also recommends the renumbering of the present sections under Chapter IV.

One objection which was formerly brought against the election of a speaker of the House of Delegates was that the speaker would necessarily be elected by the house which preceded the one over which he was to preside. This objection is more theoretical than practical, for each House of Delegates is now presided over by two presidents neither of whom was elected by the house over which he presides. Moreover, at each session of the House of Delegates a still more incongruous situation is in vogue. One president nominates all the reference committees of the house to do the work of the house, nominating whom he chooses and rightly so, so far as he is concerned, but the president, through whose term of service all the active business must be done, has no voice in naming the reference committees with which he must work. Section V, Chapter 4, now reads: "The General Officers of the

Association, except the President, shall assume their duties at the close of the last meeting of the annual session at which they are elected," and Section 6, "The President shall be installed at the general meeting of the annual session following that at which he was elected."

APPELLATE JURISDICTION OF JUDICIAL COUNCIL

At the Atlantic City session of 1914 the Judicial Council made the recommendation that it be given certain appellate jurisdiction as follows: "In all cases which arise between a constituent association and one of its component county societies, between component county societies of the same constituent state association, between a member of a constituent state association and the component society to which said member belongs, and between members of different component societies of the same constituent state association, the Judicial Council of the American Medical Association shall have appellate jurisdiction." This was laid on the table and referred back to the various constituent state associations for consideration and action before it should be finally passed on by the House of Delegates of the American Medical Association. It was not brought up for action in San Francisco in 1915.

This recommendation as it stands at present is, in the opinion of the Judicial Council, too broad, because it refers to all cases, both of law and procedure, and also to all cases of fact. In the opinion of the Judicial Council it should be limited to cases of law and procedure and the question of the settlement of facts should not be brought before it. This reopening of questions of fact before the Judicial Council is, in its opinion, very undesirable, because it means the opening of the entire details of the cases brought before it and the going over and the reiteration of evidence already brought out before the councils or the censors of the constituent state associations or the county societies composing them. Such questions of fact are best considered and decided in the places where differences of opinion concerning them have arisen. They are best decided where knowledge of the credibility of the witnesses can be best appreciated. Questions of fact should be considered and decided before being brought to the Judicial Council. The questions, however, that come up as to whether or not an aggrieved member has obtained the justice which he sought, or whether or not a just decision has been reached in the matter of law or procedure between societies and individuals, may well be a question which can be appealed from the decision of the first courts which decided it.

The Judicial Council does not bring this before the House of Delegates with any desire to obtain new power or more power than it now has. The Council believes that the House of Delegates intends and desires that the Judicial Council shall be a dignified court to which disputes may be referred for decision, but as at present constituted, the Judicial Council has only original jurisdiction within clearly limited fields. There is no question that at present it has only the power and half the functions which a final court of decision should possess; that is, there is no mechanism by which appeals may come up from the constituent state associations to it. It has already been forced on certain occasions to ask as a favor the reconsideration of cases by state associations which, in an appeal, would naturally have come to the Council if it had had appellate powers. Thus it can be readily appreciated by the House of Delegates that responsibilities are demanded of the Judicial Council and thrown upon it without adequate authority to deal with these responsibilities. The position of having responsibility without authority has been forced upon it. Such a situation places the Judicial Council in a false and undignified position, which the Council believes the House of Delegates should remedy.

ELIGIBILITY OF PRESIDENT

The question of whether or not a member of the Board of Trustees is eligible under the existing Constitution and By-Laws to election to the office of president or vice president during his term of office as trustee came up at the meeting in San Francisco. This question created such a wide difference of opinion that it was very evident it was not clearly stated in the Constitution and By-Laws whether or not a trustee was thus eligible. A question such as this cannot recur without detriment to the harmony and welfare of the American Medical Association. The Judicial Council believes, therefore, that it should be definitely decided and that positive statements thereon should be inserted in the Constitution and By-Laws and should be brought before the House of Delegates for its decision.

The greatest honor that the Association can pay to any member is to elect him president, and during the tenure of his office a president should be permitted to give his entire time to the honorable and honorary duties of his office in presiding at general meetings, in nominating for the consideration of the House of Delegates such candidates for election on the councils and various bodies that are to be confirmed by election of the House of Delegates. During the annual session of the Association he should be relieved of the hard work and often wearisome duties of presiding in the House of Delegates and should be able to devote his time to the social and scientific side of the meetings. Between the annual meetings of the Association it would seem wise that it should be part of the duties of the president to become familiar with all the varied activities of the American Medical Association. The Board of Trustees always extends an invitation to the president to be present at the meetings of the board. By attending these meetings the president can familiarize himself with the work the Association is doing.

A place on the Board of Trustees is a very honorable position. It is particularly honorable because with it goes the responsibility of the care and management of all the activities of the Association. The Constitution wisely provides for the election of trustees for a term of three years. A term of some years is necessary to obtain the best services from any trustee. It requires continuous tenure of office to give the best service to the Association and often for these reasons a trustee is continued in office for several terms. After the House of Delegates has bestowed its confidence upon any individual by honoring him with the position of trustee for a definite term of years, and he has accepted the same, it would seem wise that he should fulfil the expectations of serving out his term of years with which the House of Delegates has honored him. The Judicial Council would recommend that Article X, Section 2, of the Constitution be amended by adding to the section, as it now reads, the following:

"No trustee shall be eligible to any other elective office the term of which runs concurrently with the term for which the said trustee has been elected."

It would seem wiser to reiterate in the By-Laws by adding to Section 2, Chapter IV, the following:

"No member of the House of Delegates shall be eligible to the office of president or vice-president, nor shall a member of the Board of Trustees be eligible for election to any other elective office the term of which runs concurrently with the term for which the said trustee has been elected."

The Judicial Council calls the attention of the House of Delegates to the report of the Committee on Social Insurance of the Council on Health and Public Instruction. This Committee on Social Insurance coordinates the consideration of this subject which has been given by both Councils.

Respectfully submitted.

ALEXANDER LAMBERT, Chairman,
JAMES E. MOORE,
HUBERT WORK,
A. B. COOKE,
RANDOLPH WINSLOW,
ALEXANDER R. CRAIG, Secretary.

Report of Council on Health and Public Instruction

Dr. H. M. Bracken, Minnesota, temporary chairman, read the report of the Council on Health and Public Instruction which was referred to the Reference Committee on Legislation and Political Action.

The report follows:

To the Members of the House of Delegates of the American Medical Association:

The Council on Health and Public Instruction has, during the past year, suffered the greatest loss that could possibly befall it. The death of the chairman, Dr. Henry B. Favill, Feb. 20, 1916, not only deprived the Council of its chairman

and its chief inspiration, but also deprived the American Medical Association of one of its strongest, most effective and valuable members, and the medical profession of the country of one of its finest representatives. It is impossible to express adequately the loss which we have sustained. In order that a proper appreciation of the life, character and professional activities of Dr. Favill may appear on the records of the Association, the Council requests that a committee be appointed to draft suitable resolutions for adoption by the House of Delegates.

The work of the Council during the past year has differed from that of previous years in that many of the plans which have been under consideration and development in the last five years have this year produced definite results, while the formulation of new plans and activities has been somewhat checked, for the time being, by reason of the necessarily limited appropriation made for the Council's work this year, and by the amount of time required on the part of all those officially connected with the Association to look after the details of the libel suit now pending in the courts.

The Council is endeavoring to develop the program outlined in 1914 and reaffirmed in 1915. This program includes:

1. A thorough investigation of present public health conditions in the United States with a view to securing more accurate information on all phases of the public health program than is now available.

2. Education of the public by every possible means in order that the people may understand the enormous advances in scientific medical knowledge during the last generation and the possibility of utilizing such knowledge in the prevention of disease, the reduction of the death rate and the prolongation of human life.

3. The crystallizing of such educated public sentiment in necessary public health laws, regulations and ordinances which will render possible a conservation of human life, commensurate with our advancing knowledge, and which will render such laws more effective through an educated and enlightened public opinion.

Investigation of Present Public Health Conditions

As stated in previous reports, this subject naturally divides itself into four parts, namely, the investigation of federal health activities, state health activities, municipal health activities and voluntary public health activities carried on by independent organizations. In two of these subdivisions, distinct progress has been made by the Council during the last year. The other two, while of equal importance, have not as yet been developed, for reasons which will be apparent.

1. The study of federal public health activities and the inauguration of a survey of the work being done by the different departments of the federal government for public health are still under consideration. A tentative plan has been formulated for carrying on this work which it is hoped can be developed during the next year.

2. The survey of state public health activities made in 1914 by Dr. Charles V. Chapin, commissioner of health of Providence, R. I., as a special representative of the Council, has been summarized in a comprehensive report by Dr. Chapin, including a rating sheet of the forty-eight state health organizations and exhaustive tabulations of their various activities, appropriations, expenditures, etc. This report, submitted to the Council by Dr. Chapin, was ordered published. A preliminary edition of 1,000 copies was issued in February and distributed shortly before the midwinter conference to members of state boards of health and officers of the Association. The first edition was distributed largely for the purpose of securing suggestions and criticisms. Communications on various phases of the report have been received from twenty-three states. These have been referred to the members of the Council and to Dr. Chapin for consideration, and will be taken up in detail at the meeting of the Council to be held during the Detroit session. It is probable that the Council will order a revised edition for general circulation.

The survey of Dr. Chapin and the publication of this report will, it is hoped, mark the beginning of as distinct a movement in the public health field as the first report and classification of medical colleges by the Council on Medical Education inaugurated in the educational field. The situation is, in many ways, identical. Neither the Council nor Dr. Chapin as its representative has, or possibly could have, the slightest authority. All that we can do is to secure the facts regarding the work being done in each state, and so far as possible tabulate and summarize these facts so as to arrive at some kind of average or standard which can be used for the purpose of grading the work in different states so as to institute a comparison that will be not only illuminating but also stimulating. Prior to the publication of Dr. Chapin's report, there was no possible way in which the public health work being done in different states could be compared and estimated. It is now forty-seven years since Massachusetts in 1869 established the first state board of health. Each state has followed its own ideas and inclinations in establishing and developing its state public health work. It is today impossible to determine, except in terms of individual opinion, what is the ideal or desirable form of state public health organization, what such an organization should include, how many men are required to conduct it, or what should be its cost. For states like Nevada, Montana, Arizona and New Mexico to undertake to model their state public health organization on the same plan as that of New York and Pennsylvania is manifestly absurd. It is impossible to say how many men an adequately organized state health department should have, how many of them should be full time men, what equipment such a department should have, what relation it should bear to local or county health administration, and how much it should cost the people of the state, either totally or on a per capita estimation. It is also impossible to determine whether, for the amount that is being spent, the people of any state are getting value received for their money or how near they are coming to such a realization. Dr. Chapin's study of this entire field is the first effort that has been made to obtain a comprehensive view of the entire subject. Necessarily limited as to time and funds, the survey and the report have already proved of the greatest value and interest to those interested in state public health work. This interest will increase with the publication of a larger revised edition of the report. Through the rating sheet, which is the summing up of the entire report, it is possible to compare the work done in any state with that done in any of the other forty-seven, not only as to the total value of such work, but also on each of twenty different points. This makes it possible not only to compare state with state, but also to say wherein each state excels or is deficient in each detail. The Council hopes at the end of two or three years to make another survey for confirmatory and comparative purposes, the second survey to be used as a basis for classification of the states according to the character of the public health work being done, somewhat along the same lines as the classification by the Council on Medical Education of medical schools into A, B and C classes.

3. As stated in last year's report, the Council has been desirous of inaugurating a survey of municipal public health work similar to that made by Dr. Chapin in state public health work, but so far has been unable to devise any feasible plan for this purpose. The same situation is manifest in the municipal field. Practically all of our leading cities and many of the smaller ones have during the past twenty-five years established some kind of municipal health organization, either through definite organization or by slow development. The form which this organization has taken, however, has been largely accidental or determined by the views of those responsible for the organization or administration of each individual local department. In many of our cities, there are today local health organizations that are completely manned and equipped and giving excellent and efficient services to the people for the protection of the public health. On the other hand, there are many local public health organizations which exist on paper only, which consist of so-called health officers without adequate training, owing their appointment to political influence, drawing in some cases ridiculously small salaries for an indefinite amount of services, having no adequate machinery or properly equipped laboratories to carry on their work, and entirely unable to protect their community against disease. Not only is it impossible to say what are

today the actual facts regarding municipal health work, but it is equally impossible with the data at our disposal to determine what should be the ideal conditions. During the past year, the secretary has received a number of requests for information and advice as to what kind of a health department should be organized in a town of a given size, how many men would be required, how much should be spent for equipment, and how large an appropriation should be made to cover the annual cost of operation. These questions cannot be answered definitely at present. During the coming year the Council hopes to make a definite study of this problem and to present a report which will show what is actually being done in municipal health work, how much it is costing, and what kind of health organization should be established for cities of different sizes.

4. In the fourth field of investigation, that of voluntary public health organizations, the report of the Central Committee on Public Health Organization, referred to in our report for 1915, was published in pamphlet form in the fall. Two editions have been printed and distributed, and the supply is practically exhausted. This pamphlet, containing the tabulated reports of forty-six voluntary public health organizations, was immediately accepted as authoritative and has been in great demand. At the Rochester meeting of the American Public Health Association, held in September, 1915, a conference of executive officers of voluntary public health organizations was held, at which the Central Committee presented its report. After general discussion, the report was accepted and the committee discharged and a new Committee on Coordination created with power to act. This committee consists of Dr. Charles J. Hatfield, Philadelphia, secretary of the National Association for the Study and Prevention of Tuberculosis; Prof. Selskar M. Gunn of Boston, secretary of the American Public Health Association; Dr. W. F. Snow of New York City, executive secretary of the American Social Hygiene Association; Mr. Curtis E. Lakeman of New York City, secretary of the American Association for the Control of Cancer, and Dr. Frederick R. Green, secretary of the Council. This committee has had two meetings since its appointment, and is carrying on a discussion by correspondence as to the best means of promoting cooperation between existing organizations. The proposition for a joint meeting of all the organizations interested in connection with the 1916 session of the American Medical Association could not be carried out. The efforts of the Council during the last three years in the direction of cooperation, however, have borne fruits in the cultivation of a spirit of cooperation among many of the leading organizations to an extent that amply justifies the efforts that have been made. The death of Dr. Favill and the necessity of taking up other lines of work for the time being have prevented the further development of this plan, but we hope that, during the coming year, further efforts in this direction may be undertaken.

PUBLIC EDUCATION

PRESS BULLETIN

The *Press Bulletin* was published regularly during the latter part of 1915. Since the first of January, 1916, however, the bulletin has been temporarily suspended, owing partly to the necessity of overhauling and revising the mailing list and changing the form of the bulletin, but principally to the fact that the secretary's time and efforts have been necessarily diverted into other channels.

SPEAKERS' BUREAU

Owing to the limited appropriation given to the Council this year, the secretary recommended to the Council at its October meeting that the Speakers' Bureau be put on a self-supporting basis, namely, that the local organization and committees asking for speakers be asked to pay the actual traveling expenses and entertainment of the speaker. This recommendation was made for several reasons. It has been apparent for several years past that the amount of money available for the payment of speakers' expenses would be at best entirely inadequate for the amount of work which should be done. If this work had been pushed during the last five years, it would be possible to use practically all of the available surplus of the Association each year in supplying speakers for local public health meetings. This is manifestly impossible. It is equally impossible for the Council to use any large portion of its appropriation for this purpose. If only one or two thousand dollars a year can be spent in this work, the amount available would generally be completely exhausted in the first six months of the year, leaving nothing for the remainder of the year, and at best it would be possible by such a plan to provide only a small portion of the speakers asked for and desired. In a word, for the Council to attempt to finance a speakers' bureau, which would cover the entire country, would mean either that it would need a very large appropriation for this purpose or that it would be compelled to limit its work in this direction to the very narrow boundaries of a small appropriation. On the other hand, if the bureau is made self-supporting, there is no limit to the extent to which it can be developed.

The Council approving of this proposition, it was necessary to revise and reprint the speakers' list, also to advise each one of the 250 speakers on the list that the plan of operation had been changed and to secure his consent to fill appointments under the new plan. This has been done during the winter. Early in the summer it is hoped that we can issue a new announcement which can be distributed in large numbers throughout the country.

PAMPHLETS

The most marked development of the past year in the educational work of the Council has been the number and variety of pamphlets on different subjects printed and distributed by the Council. The list in Table 1 will show the number

TABLE 1.—NUMBER AND CHARACTER OF PAMPHLETS PRINTED AND DISTRIBUTED, JUNE 1, 1915, TO MAY 16, 1916

Defense of Research, Pamphlet XXVIII. "Biological Research: Its Value and Dangers"	2,000
Report of the Committee on Conservation of Vision, 1915	1,000
Conservation of Vision, Pamphlet I. "Schoolchildren's Eyes"	1,000
Conservation of Vision, Pamphlet III. "Wearing Glasses"	1,000
Conservation of Vision, Pamphlet IV. "The Relation of Illumination to Visual Efficiency"	1,000
Conservation of Vision, Pamphlet V. "Trachoma in Eastern Kentucky"	1,000
Conservation of Vision, Pamphlet VI. "Auto-Intoxication and the Eye"	1,000
Conservation of Vision, Pamphlet VII. "Eye-Strain"	1,000
Conservation of Vision, Pamphlet XII. "Ordinary Eye Diseases"	1,000
Conservation of Vision, Pamphlet XIV. "Visual Requirements of Transportation Employees"	1,000
Conservation of Vision, Pamphlet XVI. "How Whisky, Tobacco and Drugs Affect the Eyes"	1,000
Conservation of Vision, Pamphlet XVII. "Oculists and Opticians"	1,500
Conservation of Vision, Pamphlet XVIII. "Preparations for the Oncoming of Blindness"	1,000
Conservation of Vision, Pamphlet XIX. "What to Do for Blind Children"	1,000
Conservation of Vision, Pamphlet XX. "Blindness from Wood Alcohol"	1,000
Prevention of Cancer, Pamphlet VIII. "What Every Woman Should Know About the Breast"	7,000
Sex Hygiene. "Margaret, the Doctor's Daughter"	6,000
Sex Hygiene. "Life Problems"	6,000
Sex Hygiene. "John's Vacation"	6,000
Sex Hygiene. "Chums"	5,000
TABLE 1—(*Continued*)	
Public Health. "Baby Welfare"	4,100
Public Health. "Hookworm"	1,000
Public Health. "House-Fly"	2,600
Public Health. "Measles"	3,500
Public Health. "Pure Water"	500
Public Health. "Scarlet Fever"	6,500
Public Health. "Small-Pox"	1,000
Public Health. "Tuberculosis"	8,100
Public Health. "Typhoid Fever"	6,100
"Save the Babies"	281,000
"Baby Health Conferences"	6,000
"Minimum Health Requirements for Rural Schools"	750,000
"The Present Condition of Public Health Organization in the United States"	1,500
Sample pages, "Regulation of the Practice of Medicine"	1,000
"Regulation of the Practice of Medicine"	1,000
"The Public and the Medical Profession"	1,000
"A Report on State Public Health Work"	1,000
"What Is Chiropractic?"	2,000
"Facts for the Tuberculous"	500
"Public Health Cartoon Prints"	2,600
"An Outline for a Study Course on Public Health" (for women's clubs)	3,000
"Some Essentials to the Development of Efficient Health"	1,000
"State Regulation of the Practice of Medicine"	1,000
"State Health Organization"	1,000
Total	1,133,500
Score Cards	55,000
Grand total	1,188,500

and character of such pamphlets printed and distributed from May 22, 1915, to May 16, 1916.

The largest two items on this list require some explanation. The pamphlet on "Minimum Health Requirements for Rural Schools" printed last year was the first of a series of four pamphlets prepared by the Committee on Health Problems in the Public Schools appointed jointly with the National Educational Association. As last year's report shows, 55,000 of these pamphlets were printed, of which 40,000 were sent to Hon. P. P. Claxton, the federal commissioner of education, for distribution through his bureau. At the meeting of the National Council of the National Educational Association, held in Cincinnati, Feb. 23, 1915, it was agreed that the widespread distribution of this pamphlet was the most important single work to be undertaken by the committee. Dr. Claxton asked for an edition of 750,000 at an estimated cost of $3,000. The publication of this large edition was made possible through the generosity of the Elizabeth McCormick Memorial Fund of Chicago, as stated in last year's report. Following the San Francisco session, the preparation of this edition was undertaken, and by the last of December, 1915, the entire edition of three quarters of a million pamphlets had been printed, bound, addressed and mailed to every rural schoolteacher and rural school board member throughout the country, as well as to every state and county superintendent of education and every state normal school. The addressing and franking was done through the federal Bureau of Education.

This work is a striking example of the value of intelligent cooperation between various organizations interested in the same line of work. The pamphlet was prepared by a joint committee of the American Medical Association and the National Educational Association. The funds for printing an edition of three quarters of a million copies were supplied by the Elizabeth McCormick Memorial Fund of Chicago, and the addressing and distributing was done through the federal Bureau of Education. In this way, at an actual expense of $3,000, 750,000 pamphlets were placed in the hands of those most interested in the problem of rural school conditions and those most capable of remedying conditions.

The second instance of cooperation is to be found in the printing and distribution of 281,000 copies of the "Save the Babies" pamphlet. This pamphlet, originally issued by the Committee on Women and Children's Welfare, as an adjunct of baby health conferences, has proved exceedingly popular, and has created a demand for itself far in excess of the original plan. Here again, the problem of cost enters into the situation, but in this instance this difficulty was solved in an unexpected manner. Mr. G. F. Earnshaw of the Earnshaw Knitting Company, Chicago, a firm engaged partly in the manufacture of children's garments, became greatly interested in the entire problem of child conservation, and suggested the possibility of utilizing the dry-goods stores of the country in a systematic campaign for the education of mothers. This plan was suggested too late in the year to permit of full development in time to coincide with the proposed Baby Week of the federal Bureau for Child Welfare. Owing to the short amount of time available as well as the expense involved, it was not possible for the Council to take up Mr. Earnshaw's first proposition, namely, that the Speakers' Bureau of the Council furnish speakers on public health for mothers' meetings to be held in all the large dry-goods stores during the proposed Baby Week. The secretary, however, offered to bring the local dry-goods men and the officers of the local medical organizations into communication with each other and to turn over to the local societies in each case the task of furnishing speakers for these meetings. This was done in a large number of instances.

In twenty-nine cities, cooperation was established between the dry goods stores and the local medical organizations; the medical society furnished speakers, and the dry goods stores furnished a meeting place and advertised the meetings to the public. Women and especially mothers were urged to attend. In some cities, meetings were held daily or twice a day. In seven other cities, meetings were held by the local dry goods stores, and addresses made by speakers selected by the proprietors. In a number of cases, baby health conferences, children's clinics and health exhibits were held in connection with the baby week observances. Cooperation was established not only with local medical societies, but also with local health departments, public schools, public libraries, commercial clubs, trained nurses' organizations, day nurseries, hospitals and other philanthropic organizations. Over 200,000 copies of the "Save the Babies" pamphlet were sold to dry goods stores for free distribution to mothers. The cooperation shown in working out this plan has been most gratifying, and the possibilities of further development in succeeding years are encouraging.

Attention should also be called to the nine public health pamphlets prepared and printed for the use of state boards of health. Of these, over 30,000 have been printed and distributed during the past year. Further additions to this series are in preparation.

Work of the Medicolegal Bureau for the Year Ending May, 1916

During the past year, work on the three digests, as mentioned in the report for the year ending May, 1915, has been in progress. These are the digest of the Supreme Court decisions on the medicolegal relation of physicians, the digest of Supreme Court decisions with reference to malpractice, and the digest of Supreme Court decisions on the powers and duties of state boards of health. The first of these digests is about half completed, 874 cases out of a total of 1,697 having been abstracted and cited. This digest covers the personal rights and liabilities of physicians for personal injuries, exclusive of malpractice, crimes and contract; physicians as witnesses, and miscellaneous medicolegal relations of physicians, chiefly statutory. On the subject of professional malpractice we had on hand at the last report 261 cases; these have been added to. It is estimated that there are between 1,200 and 1,500 cases on record on this subject. On the powers and duties of state boards of health there are 396 decisions on hand and abstracted, 100 decisions which have not as yet been abstracted, and 256 citations for which we have not as yet been able to secure the decisions, making a total of 752 cases under this head. These have been materially added to since the last report, making approximately 800 cases in all.

During the current year, approximately eighty-nine inquiries have been received and answered on medicolegal subjects.

These inquiries embrace requests for information as to the liability of physicians in contract and malpractice, and various miscellaneous subjects, such as advertising, anesthetist's fees, powers and duties of medical examiners, obligation resting on physicians to care for patients, laws affecting Christian Scientists, chiropractors and other cults, embalming, fee-splitting, use of narcotics, marriage, sterilization, midwifery, mental defectives, nurse registration, pharmacists, ownership of Roentgen-ray plates, vital statistics, and miscellaneous inquiries in regard to nuisances and public health in general.

Legislation

Federal

Quite a number of laws have been introduced into Congress during the past winter touching on public health matters and of interest to physicians. To date none of these have passed excepting a bill providing for the national control of leprosy.

State

During the past winter the legislatures in ten states have been in session. The following summary shows the principal legislation as far as it has been reported up to the time of drafting this report:

Ten states have been in session, and of these from the reports so far received, five have adjourned. Laws have been enacted as follows:

Kentucky: Adjourned. Laws limiting the right to bring an action for malpractice to one year; providing penalties for fee-splitting; forbidding illegal advertising, and regulating the sale and manufacture of food supplies.

Louisiana: Still in session.

Maryland: Adjourned. A law increasing the appropriation for the state department of health, $18,000, and Johns Hopkins University, $15,000.

Massachusetts: Still in session. Measures have been enacted amending the drug laws, the laws specifying the duties of local boards of health, the law for the care of tuberculous cases and regulating the stamping and labeling of receptacles for food and the like.

Mississippi: Adjourned. Laws were passed increasing the appropriation for the state health department from $23,000 to $32,000 annually; establishing a sanatorium for the care of incipient tuberculous patients, and one for the prevention of blindness.

New Jersey: Still in session.

New York: Still in session. A measure transferring the state quarantine to the federal government has been passed.

Rhode Island: Adjourned. No report.

South Carolina: Still in session.

Virginia: Adjourned. Laws were enacted to provide for the control of potable waters, authorizing counties and cities to establish tuberculosis sanatoriums; to restrain persons suffering from tuberculosis; providing fees and maintaining indigent consumptives; amending the law defining the powers and duties of the state board of health, and prohibiting the use of roller towels.

New Committees

November 11, the secretary received from Dr. John B. Andrews, secretary of the American Association for Labor Legislation, a pamphlet containing a tentative draft of a model bill for industrial insurance, together with an editorial for publication in The Journal and the *Press Bulletin*. In this tentative bill, the provisions regarding medical services were intentionally omitted in order that this entire question might be taken up by the representatives of the organized medical profession and properly discussed. Realizing the importance of this subject to the physicians of the country, and knowing that these questions had been practically ignored in the passage of the national insurance acts in Germany, England, Denmark, Norway and other European countries, the secretary at once wrote to Dr. Andrews proposing the appointment of a committee to represent the American Medical Association and to work with him in the elaboration of the details of the model bill affecting physicians. A cordial reply was at once received from Dr. Andrews, stating that he would be very glad to have such a committee appointed. After discussion with the chairman and Dr. Craig and some correspondence with Dr. Alexander Lambert, it seemed obvious that this entire question, being both an ethical and an economic one, should be in the hands of a committee that would be recognized as representative and authoritative. The Judicial Council has no authority under the by-laws to appoint committees, while our Council has such authority. The secretary, therefore, proposed to Dr. Favill and Dr. Lambert that the Council on Health and Public Instruction appoint a Committee on Industrial Insurance to consist of Dr. Alexander Lambert, chairman of the Judicial Council, as chairman; Dr. Henry B. Favill, and a third member to be selected by Dr. Lambert, who could cooperate with him in New York. After some correspondence, Dr. Lambert suggested Dr. Frederic J. Cotton of Boston, and in accordance with this recommendation, the chairman appointed such a committee. This action was confirmed by the Council, and the committee appointed. The death of Dr. Favill makes a vacancy on the committee which will be filled in the near future. Dr. Lambert as chairman of the committee has secured the services of Dr. I. M. Rubinow of New York as the executive secretary of the committee, has established headquarters, has begun the collection of material on social insurance, and is now prepared to make an exhaustive and authoritative study of the subject for the benefit of the Association and its members. The Council urgently recommends that the House of Delegates request all state and local organizations to suspend action on this important subject until the special committee has formulated a definite platform on which the United States medical profession can stand, and a definite program for looking after the interests of physicians in this work. The details of the work of the committee will be found in the special report by Dr. Lambert.

Standard Study Program for Women's Clubs

In 1913, at the annual meeting of the Conference of State and Provincial Boards of Health, Dr. S. J. Crumbine, secretary of the State Board of Health of Kansas, presented a program which he had prepared at the request of the women's clubs of Topeka, consisting of study outlines for eighteen meetings of the club to be devoted to the study of public health. This program proved so popular that in a short time Dr. Crumbine received requests for it from clubs in all parts of the state. Impressed with the value of this method of public education, he recommended, as president of the Conference of State and Provincial Boards, that a committee be appointed to prepare a standard program for those women's clubs desiring to take up the systematic study of public health conditions. This recommendation being approved, the committee was appointed, consisting of Dr. Crumbine, Dr. J. N. Hurty of Indiana, and the secretary of the Council. In 1914, at the biennial meeting of the General Federation of Women's Clubs, this subject was discussed with Mrs. S. S. Crockett, chairman of the Department of Public Health, and Miss Helen Louise Johnson, chairman of the Department of Home Economics of the General Federation, as well as with the members of the general board. Miss Johnson on the unanimous request of the committee agreed to cooperate with us. Since that time, three meetings of the committee have been held and a considerable amount of correspondence has been carried on, which has resulted in the preparation of a provisional program for public health study in women's clubs consisting of programs for eighteen meetings. An advance edition of this program has been printed and 3,000 copies distributed at the New York biennial of the General Federation.

Midwinter Conference

By special arrangement, the Midwinter Conference this year was held not only in connection with the Council on Medical Education, but also with the Federation of State Medical Boards and the American Association of Medical Colleges. By agreement between the four secretaries interested, the time was divided up so that the joint meetings could be held with separate business meetings of the four organizations. The second day of the conference was devoted to public health and legislation, the morning being occupied by a discussion of the state regulation of the practice of medicine. The program this year was especially significant. Gov. George H. Hodges of Kansas presented the opening address on the subject, giving his experience as an executive, and Prof. Irby R. Hudson of Nashville, Tenn., secretary of the new Board of Preliminary Examiners of that state, presented a year's experience with this new law. These addresses were discussed by Dr. Horace D. Arnold, representing the Council on Medical Education; Dr. Walter L. Bierring, representing the Federation of State Medical Boards of the United States; Dr. W. J. Means, representing the American Association of Medical Colleges; Dr. Royal S. Copeland, representing the homeopathic school, and Dr. John K. Scudder, representing the eclectic school. The afternoon was devoted to a discussion of state public health organizations, Dr. Charles V. Chapin of Providence, R. I., discussing this subject, and Dr. J. W. Kerr, Assistant Surgeon-General of the United States Public Health Service, discussing some essentials to the development of efficient health organization. The program was on the whole one of the most profitable which has been presented on these subjects.

Special Activities

Public Health Sunday

Following the custom of the past five years, the secretary of the Council, with the cooperation of the local committee, arranged to furnish a speaker on some appropriate public health topic for every church in Detroit desiring such an address, Sunday, June 11. The indications at the time this report is drafted are that this occasion will be quite as successful as in previous years.

Public Health Meeting

One of the most serious defects in our annual program in past years has been that there was no marked event which

brought the annual session of the Association to a close. The success of the Commemoration Day meeting at San Francisco last year, and the growing interest in the public health addresses in the different churches, suggested the idea of holding a general meeting open to the public for the presentation of appropriate public health topics on Friday afternoon, as the closing event of the session. This plan having been approved by the Council and the Board of Trustees, arrangements were made for securing the Lyceum Theater, and through cooperation with the Michigan State Board of Health and with the Detroit Department of Health, plans have been made to observe Friday, June 16, as a special public health day. A public health parade under the auspices of the state board of health will be held just before the meeting. An appropriate program has been arranged, and through placards, newspaper notices, special announcements, etc., an invitation has been issued to the people of Detroit to attend this meeting as the guests of the Association. It is hoped that the success of the first meeting will justify the Council in making this meeting a permanent feature of the annual sessions of the Association.

OFFICE WORK

During the past year, the secretary has received 6,000 letters and has written 7,638. Requests for information from the sources indicated in Table 3 have been received and answered.

TABLE 3.—REQUESTS FOR INFORMATION

Source	Number
Attorneys	2
Boards of education	10
Boards of health	94
Clubs	33
Federal departments	10
Hospitals	11
Libraries	108
Life insurance companies	7
Medical Societies	14
Ministers	6
Nurses	37
Physicians	552
Publications	33
Universities, colleges, high schools, etc.	134
Y. M. C. Associations	18
Miscellaneous	673
Total	1,742

SUBCOMMITTEES

The reports of the various subcommittees are appended herewith. The members of these committees have labored faithfully and enthusiastically to advance the special lines of work assigned to them, and the results of their labors are herewith submitted for the careful consideration of the House of Delegates and its reference committees.

Respectfully submitted.

HENRY M. BRACKEN, Chairman,
WALTER C. CANNON,
WATSON S. RANKIN,
MILTON BOARD,
FREDERICK R. GREEN, Secretary.

REPORTS OF SUBCOMMITTEES OF THE COUNCIL ON HEALTH AND PUBLIC INSTRUCTION

REPORT OF COMMITTEE ON SOCIAL INSURANCE

To the Council on Health and Public Instruction:

In January, 1916, the chairman of the Council on Health and Public Instruction, Dr. H. B. Favill, wrote to the chairman of the Judicial Council asking that the chairmen of the two councils join together in forming a committee to study social insurance in its relation to the medical profession. The importance of this work had recently grown more and more evident and it seemed that in all probability this subject would be, in the next few years, one of the most important that would occupy the attention of the profession both from an economic and a purely medical and surgical point of view. Dr. Favill appointed as a third member of this committee Dr. Frederic J. Cotton of Boston, who had been chairman of the Committee on Compensation of the Massachusetts State Medical Society for a number of years. Dr. Lambert, chairman of the Judicial Council, was appointed chairman of this committee. The committee was appointed under the power invested in the Council on Health and Public Instruction to appoint committees to carry on the respective purposes of the Council, and it seemed evident that any subject such as social insurance, affecting so intimately the health of the community and the interests of the profession, was one which clearly came under the duties of the Council to study and to assist in its development, and especially to safeguard the interests of the profession in this development.

At a meeting on Feb. 9, 1916, the Board of Trustees confirmed the appointment of this committee by the adoption of the following resolution:

"That the committee appointed jointly by the Council on Health and Public Instruction and the Judicial Council, consisting of Drs. Alexander Lambert, Frederic J. Cotton and H. B. Favill, be approved, and that the purpose and duties of this committee be understood to be the careful compilation of information in *re* social or health insurance and the relations of physicians thereto; and to do everything in their power to secure such constructions of the proposed laws as will work the most harmonious adjustment of the new sociologic relations between physicians and laymen which will necessarily result therefrom, and that this committee be authorized to carry on its work wherever seems most desirable."

The services of I. M. Rubinow, M.D., Ph.D., who was Chief Statistician of the Ocean Accident & Guarantee Corporation and President of the Actuarial Society, were secured as Executive Secretary, and a bureau has been opened at 131 East Twenty-Third Street, New York City.

The Committee on Social Insurance presents to the House of Delegates a statistical study of the medical profession of the United States in its various relations, both in the ratio of physicians to population, their geographic distribution, and the various other statistical facts that are of importance and interest to the profession. There are at present no reliable figures concerning the income of physicians and other economic facts of interest. The committee is endeavoring to obtain reliable information concerning this matter.

In the near future it is the intention of the committee to undertake the following duties:

First—to educate the American medical profession in the general principles of social insurance, particularly health insurance, the economic and social significance of the movement to obtain such insurance throughout the United States, and the absolutely essential part which the medical profession must play in a successful adaptation of this new legislation to American conditions;

Second—the bureau will consider it as part of its work to answer all questions which any physician may desire to write to it, asking for information, facts or figures bearing on social insurance in any of its phases, and to be in reality a bureau of information for the medical profession in regard to the details of organization, of medical aid in various forms of social insurance, both in European countries and the United States;

Third—the committee considers it its duty to appear when advisable before the legislative bodies in this country with a view to bring about friendly understanding between all parties concerned and to protect the legitimate economic interests of the profession in the laws coming up for discussion concerning social insurance.

The work of this committee should be directed in such channels as to avoid the conflict which has arisen in England at the beginning of a similar movement and which has resulted in a very large amount of bitterness between the profession and the public that might easily have been prevented by appropriate timely action.

It is further the intention of the committee to undertake the following lines of work without assuming the obligation of completing them within any specified time:

First—to collect a bibliography on social insurance with special reference to medical questions involved;

Second—to undertake, by correspondence, to get in touch with the various sickness insurance organizations in Europe so as to obtain first hand information as to their experience;

Third—to undertake a statistical study of hospital and dispensary facilities in this country in view of the possibility of

these institutions assuming a broader function under health insurance;

Fourth—to study the conditions of lodge practice both from the point of view of the physician and the patient;

Fifth—to gather all available information regarding the status, earnings, etc., of the medical profession in regard to which problem the wildest statements are current without any basis of fact underlying them.

The work of the Judicial Council on social insurance which has appeared in the reports of 1915 and 1916 will be transferred to the Committee on Social Insurance. As this work has been done by the chairman of the Judicial Council, the transfer of this activity from the Judicial Council to the Committee on Social Insurance will not in any way hinder this work.

A year ago the Judicial Council presented for the consideration of the House of Delegates a report on the various laws of social insurance which had been put in force in the old world, and, beginning with workmen's compensation laws, were gradually coming into force in this country. The more these laws are considered the more evident does it become that the medical profession not only is affected very materially by them but is in reality an absolutely essential part of the working mechanism by which these laws succeed or fail in their endeavor to bring about social improvement.

During the past year the number of states and territories having workmen's compensation laws has increased from twenty-three to thirty-three. In 1915 laws were enacted in Alaska, Colorado, Hawaii, Indiana, Maine, Montana, Oklahoma, Pennsylvania, Vermont and Wyoming. Only three of the new acts are compulsory for the industrial workers, that is, those of Hawaii, Oklahoma and Wyoming.[1] The law of Wyoming is interesting in its method of administration, being a straight insurance measure, all indemnities being paid out of a state fund made up by assessments imposed on employers, and an additional 25 per cent., not, however, to exceed $40,000, contributed by the state. In Pennsylvania, Colorado and Montana there are state funds created. Indiana, Oklahoma and Maine permit voluntary benefit schemes as a substitute for the statutory provisions. Alaska confines its compensation law to the mining industry, and Alaska and Wyoming do not provide medical aid; but the maximum compensation in Alaska is fixed at $6,000, which is the largest compensation payable under any of the existing compensation laws. Medical aid is provided for in all the other states and territories.

The waiting period in Colorado is lengthened to three weeks, and in the case of permanent total disability the compensation continues until death, only in Colorado and Montana. Colorado, also, is the only state which allows compensation until death in the case of partial disability. The cash benefits are 55 per cent. in Indiana, 60 per cent. in Hawaii, and 50 per cent. of the wages in all the other new laws.

In some of the states already having compensation there have been important amendments passed in the last year, particularly in California and New York. In California, an amendment allows that in defining injuries no reference should be made to accident, thus allowing compensation for loss due to disease contracted in consequence of employment. It is believed that about 2 per cent. of the cases affected would be thus benefited. The California law also gives full jurisdiction over all medical bills and attorney fees, and also definitely states that in the hearings by the commission the admission of hearsay evidence shall not be regarded as reversible error. In New York the amendment permitted a direct payment between employer and employee, where formerly it had to be done through the commission. These settlements remain subject to the approval of the commission, and if unjust to the employee the commission is given the power to add 10 per cent. to the award by way of penalty. The effect of this direct payment has been to clear up enormously the work of the commission, which had become clogged and in a seriously delayed condition. The New York law has been further amended in that if, in a second accident, a disability is acquired, it shall not be added to any previous disability acquired in an earlier accident.

1. Andrews, I. O.: American Year Book, 1915, p. 448.

There has been further shown, in the decisions of the courts in various states, an evident desire to broaden the protection of the wage earners. In New York it has been held that in the absence of federal legislation the state compensation law should cover the employees of interstate steamships and railroads. The Massachusetts Supreme Court sustained an award to the widow of a superintendent who was killed by a trespasser whom, under instructions, he had ordered away. In Wisconsin the courts ordered compensation paid when a worker died from typhoid contracted from drinking water supplied by the employer. In Minnesota the court gave compensation for death by lightning on the ground that the occupation exposed the workman to more than ordinary hazard. The compensation for occupational diseases was further emphasized by the New York Industrial Commission giving compensation for disability resulting from anthrax, declaring that occupational diseases fall under the head of accidents when the time of injury causing the disease can be definitely fixed.[2]

There has further developed an evident antagonism between the advocates of the insurance by the state and the private casualty companies. This, in Ohio, has developed into a legal controversy.

There has developed in the past year a further tendency toward other forms of social insurance besides the workmen's compensation. In Massachusetts, in the November election, six cities and towns voted to instruct their representatives to support old age pensions. This, apparently, is the beginning of a discussion on this subject. Bills have been introduced in eleven legislatures in 1916, the passage of which would bring compulsory health insurance into existence in these states. Compulsory health insurance brings such demands on the medical profession that these bills become immediately of the greatest interest to the profession. The Committee on Social Insurance believes it necessary, therefore, to discuss fully the relations of health insurance to the public and to show how necessary an administrative part of these laws the medical profession is and how necessary it is that the medical regulations arising from these laws should give both justice to the profession and to the sick to whom the services must be rendered.

Social Insurance in Europe

As was shown in the report of the Judicial Council, submitted in 1915, compulsory health insurance has been long known abroad. Germany and Austria-Hungary, England, Norway and Russia had before the present war definitely working health insurance laws, the study of which gives valuable information of things both to avoid and to follow.

VOLUNTARY INSURANCE

Considering first the question of voluntary insurance, subsidized state insurance and compulsory insurance, it is evident, as was emphasized last year, that the voluntary insurance as seen in Germany and Great Britain previous to the adoption of compulsory insurance secures protection against sickness only to the thrifty and well paid industrial workers. It does not reach those who need it most. Even when subsidized by the state, a voluntary sickness insurance, as seen in France, Denmark, Sweden and Switzerland, has this same inherent fault. Those who are the least able to stand the individual calamity of illness are the least protected against its occurrence. Those of the working classes who, through thrift and good wages, are able to lay aside some funds against possible sickness and calamity, are the ones found grouping themselves together in the great friendly societies of Germany, England and the United States which, in Europe, have been the forerunners of the comprehensive national scheme. The very poor, living from hand to mouth by daily wage, with no savings to protect them and tide them over any cessation of daily income, whose small wage does not give them more than the bare necessities of life, denying them almost all pleasures and recreations, are the ones to whom sickness is a personal calamity against which they can make no preparation, and when it comes, have no protection and from whose meager wages nothing can be deducted for their protection. These are the ones that necessarily must suffer the most. Only compulsory state insurance reaches this group of people.

2. Andrews, John B.: American Year Book, 1915, p. 438.

In considering the figures of any country, while we may realize that the funds invested in voluntary insurance may be huge, as the accumulated funds in Great Britain previous to the national scheme of $200,000,000 protecting 6,000,000 families a year, or in France, ten years ago, where the assets amounted to $82,000,000 and the expenditures to some $10,000,000, protecting about three quarters of a million people, compared with the total mass of wage earners they are really small. In Denmark, after thirty years' experience, and in Sweden, we find actually, although subsidized by the government, voluntary sickness insurance does not protect more than 20 per cent. of the population of Denmark and only about 10 per cent. of the population of Sweden, even though in Denmark this insurance extends not only to the wage earner himself but also to those dependent on him.

COMPULSORY INSURANCE

Compulsory sickness insurance in Great Britain in the last four years has brought out the fact that previous to the universal insurance huge masses of the poor never had had any medical care. There had been a vicious circle of poverty, disease and unemployment which had constantly reacted one on the other, each factor intensifying the other two and producing as a result a huge mass of the poorest members of the working class unprotected against sickness, uncared for when sick, living an existence in civilized communities little better than savages. Few stop to realize the economic necessity of health to the wage earner. With the poor all that separates their poverty from absolute destitution and want is the ability to go to work each day. If sickness deprives the poor man of this daily ability to work, he faces destitution, which means that unless he soon recovers his health he must turn to public charity to help him in the care of his family.

To appreciate fully the difference between the voluntary subsidized insurance of the countries mentioned and compulsory insurance, and the details of the way they are managed, it is necessary to consider each country somewhat in detail.

Denmark.—In Denmark official recognition and state subsidy is granted to such registered mutual insurance societies as comply with certain simple conditions. As is described in Frankel and Dawson's "Workingmen's Insurance in Europe," we see that the societies contain at least fifty members and that the societies may organize either by localities or by industries, the maximum age limit of entrance being 40. No person may be a member of more than one society. There is no medical examination, and even the chronically ill may be admitted; these, however, are not entitled to benefits for their chronic illnesses. Members and their children under 15 years of age are entitled to medical treatment. To those living in the country, free transportation to physician or midwife is given. In addition to medical care, sick cash benefits are paid, ranging from 11 cents per day for those in the country to a maximum of 54 cents for men in the cities such as Copenhagen. The sum paid, however, is limited to the member's average daily wage. The rate of sickness seems to vary from 2 days per man per year in Jutland, that is, rural districts, to over six days in Copenhagen, that is, urban districts, averaging an annual paying of $2.70 per member through the kingdom. To meet this there was an income of $2.97 per member with a subsidy from the government of 54 cents per member and an amount equal to one fifth of his contribution. In 1907 there were 1,500 such societies, the membership being entirely voluntary and no obligation being imposed on workmen or their employers to contribute. In 1907 these 1,500 societies had 514,000 members aggregating about 30 per cent. of the adult population, and a large number of children were also entitled to benefit.

Practically all these societies are insolvent, from an actuarial point of view, with insufficient funds accumulated to meet their claims permanently. Many societies for this reason have at times been forced to suspend, and many of these suspended societies have joined to form a central reinsurance society by which they hope to maintain an average condition. Associated with the sickness insurance societies are a large number of funeral and burial organizations. In most cases they are merely adjuncts to the former; in other cases they have an independent existence. Entrance to them is limited to men under 40.

Belgium.—Just previous to the war Belgium had found that even after an endeavor to encourage and establish friendly societies, and sickness insurance through them, the plan was a failure. Among the registered societies which were recognized, their operations were defined in part as follows: "The payment of sickness and burial benefits, the temporary assistance of families of disabled members, and the aiding of members and their dependents to make use of the governmental savings and annuity bank; cattle and crop insurance; encouragement of savings; granting loans to members; not to exceed $60 to each." The so-called recognition carried with it the right to sue and be sued and exemption from taxation as well as a state subvention. Such societies could also form federations, and while the state supervised their investments, it left their management autonomous. In 1907, it is stated, there were 3,330 associations with a membership of 400,000, the total population of Belgium at this time being 7,300,000 and the wage earners 1,200,000, thus leaving two thirds of the wage earners unprovided for. Of the unregistered societies there were approximately 800 with only a membership of 50,000.

France.—The development of sickness insurance in France has been through various mutual sickness societies, and at present there are two classes, known as approved or free, corresponding to the registered and unregistered societies of England. These societies have corporate existence but with strictly limited powers. They may undertake any form of insurance authorized by law. The management of their funds is supervised and regulated; they may form federations for mutual purposes, distributing among constituent societies the burden of each, thus securing a basis large enough to furnish reliable averages permitting free movement of members from one district to another without loss of privileges. In France, honorary members of societies play an important part. These are usually men of means who give largely of time and money, and in any community nearly every benevolently inclined person is an honorary member of one or more societies. Owing to the cooperation of these honorary members and of the schoolteachers, there have been formed societies of children in the schools—boys and girls between the ages of 6 and 16—who are taught to save money for old age and to provide against disability by means of insurance. At 16 they are enrolled in adult societies. This early membership is of the greatest importance from the actuarial point of view as enabling old age annuities to be more easily obtained because the premiums against sickness and disability almost entirely absorb contributions that the wage earners of older years are able to make. The membership of the children seems to amount to over 25 per cent. of the total. Employers contribute only when the societies are founded in connection with a particular establishment. The societies are practically controlled by their members, who contribute about 1 franc (20 cents) per month. If the wife and children are insured with the husband, an additional contribution is required. Trade associations may obtain a legal standing similar to the free sickness societies; they are permitted to acquire property and to provide any benefit, industrial, commercial or agricultural, which they see fit. They may also form federations and organize special benefit and insurance funds. Some of these associations have been established by employers; some are composed solely of employees; some are of mixed membership, and there are agricultural associations. In 1905 there were nearly 11,000 of these associations with over 1,700,000 members. The activities of these societies include 1,366 employment bureaus, 929 sickness benefit funds, 718 unemployment funds, 695 funds to support workmen traveling in search of employment, 76 old age pensions, 26 funds insuring against industrial accidents.

The seamen and the miners are the best protected against sickness of all these trade groups, because for them obligatory sickness insurance schemes have been established by law to which both employers and employees contribute. Disabled seamen are compensated by the ship owners for a period up to four months, at the end of which time obligatory accident and invalidity insurance applies. Among the miners,

mutual sickness societies exist to which both employers and employees must contribute; medical attendance is furnished and medicines and sick benefits to disabled members, and in case of death, relief to their families. Cash benefits or annuities to widows and orphans or dependent parents may also be paid. Assistance for wives and children of members called into the territorial or reserve military services may also be provided, and special pensions for widows and orphans of such deceased members.

These obligatory societies are maintained by deductions from wages which must not exceed 2 per cent. of the wages nor $9.60 per year; by payments by the employers of a sum equal to one-half the aggregate amount paid by members; by subsidies from the government; by sums donated or bequeathed by charitable persons, and by fines incurred for infringement of rules or regulations. The government looks on these societies with great favor. In 1907 about 6,000,000 wage earners were thus protected, leaving probably an equal number of the industrial workers of France still uninsured against sickness.

Switzerland.—Switzerland, having passed its law of subsidized sickness insurance in 1912, has the latest and best law of this type. According to Rubinow, the Swiss law not only aims to stimulate the formation of sick benefit societies but also to improve the nature of their service. This law provides a schedule of subsidies adjusted to the extent of the society's activities, 67.5 cents for children under 14 and the same amount for each male adult, 77.2 cents for each female adult if only one of the two mentioned functions—sickness benefits or medical aid—is provided, and 96.5 cents if both features are furnished, and $1.06 if sick benefits are furnished for 310 consecutive days. This subsidy may be increased in mountainous districts to $1.35. An additional subsidy of from $3.86 to $7.72 is given in cases of confinement. The Swiss law further stipulates that sick benefits shall not be less than 19.3 cents per day. It requires, also, that not less than three months must expire after entrance into the society before the new member may draw benefits; but a waiting time after falling sick must not be longer than three days, and the confinement benefits must be granted for at least six weeks. The law also requires that the society shall be financially sound, and it prescribes a definite system of organization of medical and pharmaceutical help which prevents excessive cost of services and gives to the sick member a certain selection of physician. This last factor of cost and choice of physician, we shall see later, has been the stumbling block in all countries.

It has been a noticeable feature in the subsidized state insurance schemes that the rapidity and energy of their growth seems to have been in ratio to the subsidies obtained from the state. Without state aid only the more thrifty and well-paid of the workers seem voluntarily to insure, and many of these often are unable to keep up their insurance, and drop it. As long as the state held aloof and simply regulated the control without giving assistance, the growth of this voluntary insurance has always been slow. The more the state has given assistance, the greater has been the number of workmen who have been able to obtain the protection they seek. After twenty-five years' experience in various voluntary forms of sickness insurance, subsidized or not, several nations in Europe have realized that the logical conclusion was compulsory state insurance in which workmen and employers alike contributed and the state assisted with amounts sufficient to insure the payment of the management of the huge machine. The ratio of those insured to the total population is interesting, comparing it in the countries of voluntary insurance and compulsory insurance.

Denmark has a total population of 2,757,000; insured 710,000, which is 25.8 per cent. of the population. In France the 6,000,000 insured equals about 10 or 12 per cent. of the population; in Great Britain the 14,000,000 insured of the 45,000,000 population is 31 per cent. of the population. In Germany, in 1912, there was a total population of 64,000,000 and there were 19,000,000 insured, giving about 31 per cent. insured. It is very noticeable that five countries of Europe between 1909 and 1912 passed acts of compulsory insurance: Norway in 1909, Serbia in 1910, Great Britain in 1911, Russia in 1912, and Roumania in 1912.

In discussing workmen's compensation last year, it was shown that 6 per cent. of the industrial workers suffered from accident during the year, and it was also stated that from 40 to 50 per cent. suffered from some form of sickness. It was shown last year how clearly certain occupations increased the liability to accident, and attention was drawn to a table published showing the influence of sex and occupation on certain diseases. Every important occupation has its own definite sickness rate. This is outside of the so-called well recognized occupational diseases These two tables are published in page 39 of the Judicial Council Report for 1915.

In the Report on Sickness Insurance of the Committee for Immigrants of America, discussing these same tables, it is shown that the data coming from the Leipzig sick fund eliminate the variations produced by race, sex and age. The industrial factor is isolated and is evidently a strong one. The variation between industries is less marked than in the case of accidents. All excess of sickness found above the minimum rate of those of office employees can be charged in a great measure to industrial conditions. For example, if the chance of taking sick is only 21 per cent. for office employees, for men, and 21.4 per cent. for women, and in hotels and restaurants the rate is 32.5 per cent. for men and 40.9 per cent. for women, and the annual loss of days through sickness per person is, for the office employees, 5.8 for men and 7 for women, and for hotels and restaurants it is 8 days for men and 12.2 for women, then the extra 2.2 days' loss per person per year for men and 5.2 per person per year for women can be justly laid to the difference in the environment of those working in hotels and restaurants and those working as office employees. The loss, therefore, should be distributed as in accident insurance, so that the industry may bear its just share and the state not only accept equal responsibility for sickness as for accidents to assist those who need it. It would also seem that there was equal justification for such aid as that in which the states and municipalities now accept the responsibility of spending large sums in preventive hygiene, as seen in health department work, and also large sums in public hospitals and dispensaries.

COMPARISON OF METHODS ABROAD

To understand compulsory insurance and its workings, a comparison of the methods of Norway, Russia, Austria-Hungary, Germany and Great Britain will give the clearest idea.

Russia.—The mining industry was the first one of the great industries to develop in Russia, and as long ago as 1806 there was a law requiring proprietors of mining and metallurgical industries to establish hospital facilities for sick or injured employees, and many of these establishments were owned by the state or crown. This idea was developed further in 1866 when an epidemic of Asiatic cholera broke out in Moscow. The governor of Moscow, considering the large factories where the insanitary conditions and large number of workers were the means of spreading the cholera epidemic, in a letter to the minister of the interior requested that they be required to establish hospitals and employ physicians in connection with their industrial hospitals. The law of 1866, therefore, provided that there should be established in connection with each factory employing 1,000 workers a hospital with ten beds, and at each factory employing more than 1,000 workers fifteen beds or more, and at each factory employing less than 1,000 workers five beds or more at the rate of one for each hundred workers. Although this law was declared to be a temporary measure, it is still in force. The establishment funds connected with all large industries in Russia are based on the existence of this original order of the emperor.

Outside of the city of Moscow the following regulations established by the provincial factory commission is given as a type.[3] Factories employing 500 or more workmen are required to have a factory hospital with one bed for each hundred workmen, a resident physician and a "feldsher," who is a medical assistant of higher grade than a trained nurse. When the number of workmen exceeds 3,000, two physicians must be employed, one of whom must reside at the factory. Factories employing from seventeen to 500 workmen may make arrangements with the zemstvo hospi-

3. Twenty-Fourth Annual Report, Commissioner of Labor, vol. ii.

tals, or several factories may combine for establishing a common hospital. When the factory hospital has less than five beds, the physician need not reside at the factory but must not live more than 7 versts (4.7 miles) from it and must visit it at least three times a week, but the hospital must have a resident feldsher. If the factory has no hospital of its own and is more than 2 miles from the hospital to which it can send its workmen, this factory must have an emergency room with all necessary appliances for first aid, and if the number of workmen exceeds 200, it must also have a feldsher. The hospital which cares for more than 500 workmen must have a general ward and contagious ward with facilities for isolation, and a dispensary for outside patients; where both men and women are employed, there must be wards for each six. In factories employing from 200 to 500 workmen, the hospital must contain at least two wards, an examination room, and a waiting room for outside patients. In factories employing less than 200 workmen two wards are required, one for the beds and one for the outdoor patients. Where 200 or more women are employed, a special maternity room must be provided and also the services of a resident trained midwife; where less than 200 women are employed, such room and the services of a midwife must be furnished by the employer when necessary.

While these regulations here are given as a type, apparently only the commissions of Petrograd, Moscow and the Warsaw provinces require maternity wards in factories, and the regulations by different commissions vary considerably in detail. The factory owners are forbidden by the law of 1866 from charging their employees for this hospital service. There is a tax in sixteen of the large industrial centers of Russia, which is a hospital tax on the wage earners, and in return for this tax the wage earners obtain the right of free medical treatment in hospitals not only for themselves, but also for their minor children. In Petrograd there are sufficient municipal hospitals so that the factories are relieved of their responsibility in this matter. Moreover, the employees are not taxed as in other cities, and because they have no right of free medical treatment in the municipal hospitals, the factory owners are required to meet the cost of treatment of their employees in the hospitals and the factory physician must visit the factory at stated intervals, for the factories are required to provide for treatment of outside patients by a physician as well as an emergency ward for first aid. Besides the daily visits to the factories employing over 1,000 persons, the factory physician must treat the patients at his house or at their houses.

In the rural parts of Russia there has developed a system of state medicine under the zemstvos, which are equivalent to our board of overseers of each county, and are elective in character. These zemstvos have established hospitals presided over by physicians who are men or women, with whom there are nurses and feldshers, and midwives. These give the entire medical care free to the peasant population of the district. The well-to-do nobles employ other physicians or the same physicians on a fee system. Thus it seems that 90 per cent. or more of the people of Russia are cared for under a system of free state medicine. Often there is a combination between the special factory hospitals and the establishment funds and the zemstvos supplying hospital and medical facilities to the employees of the establishment funds. The Russian system of compulsory health insurance, therefore, seems to be a combination of establishment funds, especially in the urban districts, and a rural system of free state medical service. This, in practice, seems to give excellent results.

Norway.—In Norway, when the workmen's insurance against accident was considered, compulsory sickness insurance was also recommended. This, however, was not adopted until some years later. The organization of that is a series of district or communal organizations with a central state body. This state organization has an equalization fund taken from part of the contributions for the state which protects the different communal societies against excessive sickness and mortality losses. The societies pay benefits for the first six months of illness, with not more than thirteen weeks in the second half year, if sickness continues that long. Industrial and agricultural workers are included, as well as unskilled laborers and inland sailors under certain conditions, but the insured must have been employed at least six days, which excludes a certain number of day laborers. But if these are not insured under the sickness insurance, they are provided for under the accident insurance law. Seamen engaged in foreign trade are excluded, but sailors engaged in coastwise trade are included, even though they visit foreign shores for a period of ten days. The workmen pay six tenths of the cost under this law, the employer one tenth, the state two tenths, and the commune one tenth. For voluntary insured persons, not included under the compulsory section, the workman pays seven tenths, the state two tenths, and the commune one tenth. All disputes between societies, workmen and employers are settled by a jury of those chosen by the communal authorities for three years, one a member of the committee, one an employer, and one a workman. These decisions may be final or appealed to the Royal Institution of Insurance. In case of questions of law, the appeal goes to the courts. If a commune is a party in the case, the appeal goes to the Commission of Royal Insurance. About 1,000,000 persons are insured under this law. Besides this state law, there are some mutual insurance societies in Norway not under the state commission.

Germany.—Just prior to the passage of the sickness insurance law in Prussia, statistics show that 839,602 members belonged to registered friendly societies, 220,000 to miner societies, and about 200,000 to nonregistered friendly societies. Only about half of those for whom the insurance law was intended had availed themselves of its protection.

In the sickness insurance law first passed in 1883 no attempt was made to centralize control. It apparently was realized that it was wisest to utilize existing agencies as far as possible. The aim sought was mutual insurance with self-administration, and the development was through the already existing societies, and the various associations composed of members of the same trade or locality best lent themselves to this purpose. Eight distinct classes of society, each absolutely independent of the other, were recognized, the only common requirement being that they should make annual reports and conform to provisions of the law with reference to minimum benefits and methods of investing funds.[4]

1. Communal societies (*Gemeindekrankenkassen*). These were not really societies but local institutions, founded by the authorities and required to accept all, of whatever occupation, who were obliged to insure but did not belong to any other sickness insurance society.

2. Local societies (*Ortskrankenkassen*), established by townships, for the various trades, two or more townships often uniting to form one society. At present the most popular of all because of their elastic management.

3. Factory societies (*Betriebskrankenkassen*), created by proprietors of factories in which more than fifty workers are employed, particularly in trades in which the risk of sickness or accident is high. Management is under the joint control of the workingmen and the employers.

4. Builders' societies (*Baukrankenkassen*), which are practically establishment funds founded by contractors in building operations and in public works because of the great risks of these trades.

5. Guilds, sick-clubs, or trade societies (*Innungskrankenkassen*), authorized by the national trades regulation law. These do not possess legal personality, but are considered a mere function of the guilds or trade unions.

6. Miners' societies (*Knappschaftskassen*), formed in accordance with the mining laws of the several kingdoms.

7. Voluntary mutual aid societies (*Hilfskassen*). These are the friendly societies supported and controlled solely by members without any participation by employers. Membership is usually without regard to trade. They are not under the control of authorities except that they must grant the minimum benefits required by law.

8. Independent state societies (*Landesrechtlichehilfskassen*). These are voluntary associations, organized under the auspices of certain kingdoms of the empire.

The act of 1911 included the two large groups of domestics and farm hands which led to the establishment of a new type of so-called rural fund, which is also a local fund for workers

4. Frankel and Dawson: Workingmen's Insurance in Europe.

of a lower wage scale. Out of some 20,000,000 insured, about 7,500,000 are insured in local funds, another 7,500,000 in rural funds, and 3,000,000 in establishment funds, leaving only 2,000,000 for all other forms of funds. Membership in mutual aid funds, which are equivalent to the friendly societies or fraternal orders, as a substitute for insurance in the compulsory institutions is only tolerated and at the price of forfeiting the employer's contribution.

Contributions to voluntary societies are not fixed, but those to the communal societies are limited by law to from 1 to 2 per cent. of the daily wages of daily laborers. In others, contributions must not exceed from 3 to 4 per cent. of the same. In this the workingmen pay two thirds and employers one third. In practice, employers pay all and deduct the proper amount from wages. This method avoids all necessity for collectors, contributions both of employers and employees being turned over to the societies at convenient intervals.

The employer must enforce on his men the duty of insuring. The workingman may or may not insure, as he pleases. But whoever employs an uninsured workingman renders himself liable both to a fine and to the payment of all costs in case of sickness or accident. In such cases the communal society of the district assumes the entire care of the employee, gives medical care, and gives the usual cash benefit during disablement, for all of which the employer becomes liable to the society.

Frankel and Dawson further draw attention to the strong tendency toward the disappearance of smaller societies by consolidation into larger central organizations, and in Leipzig and Dresden, where the sickness societies have merged into one local organization, the work is most effectively carried out. The administration of a single large society has proved much more economical than in the numerous smaller societies displaced. In 1907 there were 23,271 total societies with 8,972,210 men and 3,166,757 women members. Table 1 shows the percentage and duration of sickness and the percentage of deaths in sickness insurance societies from 1888 to 1907.

TABLE 1.—PERCENTAGE AND DURATION OF SICKNESS AND PERCENTAGE OF DEATHS IN SICKNESS INSURANCE SOCIETIES, 1888-1907 *

		1888	1892	1903	1904	1905	1906	1907
1. Cases of sickness per year per 100 insured	Men	33.5	36.8	38.3	40.9	41.4	39.4	42.7
	Women	28.8	31.3	33.0	35.4	35.0	33.4	35.6
	Both sexes	32.6	35.6	37.0	39.5	39.8	37.8	40.8
2. Average number of days of sickness per case	Men	16.6	17.0	18.1	18.7	18.7	18.5	18.5
	Women	17.7	18.3	21.9	23.2	23.5	24.1	23.4
	Both sexes	16.8	17.3	19.0	19.7	19.8	19.8	19.6
3. Days of sickness per annum per 100 insured	Men	555.6	626.6	695.3	762.1	775.9	728.6	788.7
	Women	508.3	569.7	720.4	822.9	921.9	804.7	833.1
	Both sexes	547.0	614.7	701.5	777.4	787.5	748.1	800.3
4. Deaths per 100 insured	Men	1.00	1.03	.86	.84	.86	.81	.84
	Women	.77	.74	.61	.65	.64	.60	.61
	Both sexes	.96	.98	.80	.80	.81	.76	.78

* Frankel and Dawson: Workingmen's Insurance in Europe, Table 70.

In Division 1 of this table there is a steady progressive increase in the amount of sickness in the period under observation, women enjoying more freedom from sickness than men not only in the total but also in each type of society. This is probably due to the greater risk of accident in the trades in which men are employed, because for the first thirteen weeks the sickness society cares for both accident and sickness. It is also due to the higher average age of the men. The number of cases of sickness among the two sexes, as shown by Frankel and Dawson, differs considerably with the type of society.

It is evident that the average duration of sickness, in the division of Table 2, so-called, has also increased, showing longer periods. This is so marked that in spite of the fewer cases of sickness, the duration of sickness per member each year is greater than among the men. This is probably due to the fact that the cases of brief duration are almost twice as numerous for males as for females; the cases of sickness of longer duration (lasting over three weeks) show the contrary.

Austria-Hungary.—Austria-Hungary follows closely the plan of Germany. Previous to the passage of the compulsory law, Austria also had had large establishment funds and voluntary organizations, in some of which the employers were contributing, in some only the workmen, and in some instances both. The number of workmen thus insured was relatively small, for there were only about 300,000 members in 748 societies, and the benefits given were inadequate to meet the situation. All workmen and working women are included, as well as the employees in all branches of industry, trade and transportation; those engaged in navigation, forestry, agriculture and home industries, as well as those employed by the states and communes, may insure voluntarily. Trade guild societies, private friendly societies and miner's societies which were willing to grant the minimum benefits of the new law, were continued. District, building, trade and factory societies were distinctly the creations of the compulsory law. The following six types of societies are recognized:

1. District sickness insurance societies (*Bezirkskrankenkassen*) which, like the local and communal sickness societies of Germany, correspond to geographic districts.

2. Factory sickness insurance societies (*Fabrikskrankenkassen*) organized by owners of large factories, not connected with trade guilds.

3. Building trades sickness insurance societies (*Baukrankenkassen*), usually temporarily established by builders.

4. Trade-guild sickness insurance societies (*Genossenschaftskrankenkassen*), corresponding to Class 5 of the German system.

5. Private friendly societies (*Vereine*).

6. Miners' societies (*Bruderladen*).

To these original six classes there have since been added mutual sickness insurance societies comprised chiefly of employees, and there is also an eighth class—societies composed of apprentices. The latter are offshoots of the trade-guild sickness insurance societies and are associated with them.

In all organizations, except in the private friendly and miners' societies, contributions of employers and workingmen amount to two thirds and one third, respectively. In private friendly societies, the employers need not contribute at all, and in the miners' societies only as required by separate statute. In practice, the employers' friendly societies do more than the law requires, paying more than the legal proportion in the various organizations. As in Germany, it is obligatory on the employer to enforce payments of workingmen. If a newly engaged employee does not already belong to some society, the employer must report his name to the authorities not later than three days after work is begun. For each neglect to do this, he may be compelled to pay a fine of about $5 and suffer imprisonment for two days.

The system of sickness insurance is less developed in Austria than in Germany. In Austria the first four weeks of accident insurance are taken care of by the sickness societies, and in Hungary the first ten weeks.

Great Britain.—In Great Britain, previous to 1911, insurance was carried on by so-called friendly societies, the membership of which was made up of the able-bodied active workingmen of England.

The most complete and most recent scheme of social insurance is the national insurance act of Great Britain, of 1911.

In the *Bulletin* of the United States Bureau of Labor, which gives this law in full, it is shown that the title of the act is to provide for the insurance against loss of health and for the prevention and cure of sickness and for insurance against unemployment, and for purposes incidental thereto. Under its provisions health insurance is compulsory on all employed persons aged from 16 to 70, except those in the naval or military services of the crown, those in other employment under the crown or under local or other public authorities for whom adequate provision already exists, employees of railway companies and the like provided for by suitable benefits, teachers provided for under other acts, etc. Those affected by the exceptions are comparatively few, and may, in the discretion of the insurance commissioners, be transferred to the compulsory insurance scheme. Persons who are not subject to the compulsory insurance may voluntarily insure if they are engaged in some regular occupation and are wholly or

TABLE 2.—AVERAGE NUMBER OF CASES OF SICKNESS FOR BOTH SEXES PER HUNDRED INSURED IN SICKNESS INSURANCE SOCIETIES, 1888-1907 *

Sex	Communal	Local	Factory	Building	Guild	Mutual Aid	Independent State	Total
Men ...	27.3	37.5	44.7	58.3	34.4	37.3	31.2	38.0
Women .	22.2	33.6	37.4	47.3	26.6	33.7	28.8	32.1

* Frankel and Dawson: Workingmen's Insurance in Europe, Table 71.

mainly dependent for their livelihood on their earnings in such occupation or have been insured persons for a period of five years or upward; no person may become a voluntary contributor whose annual income from all sources exceeds $778.64, that is, 160 pounds, unless he has been previously insured for a period of five years or upward. There is no discrimination in respect of sex or of citizenship, but all insured persons must be residents of the United Kingdom.

The standard rates of insurance are 14 cents for men and 12 cents for women. This amount is made up of contributions from employer, employee and public funds, the amount paid by each depending on the insured person's rate of wages. If this reaches or exceeds 60.8 cents per working day, the employer pays 6.1 cents, male employees pay 8.1, and female employees 6.1 cents per week, nothing being contributed from the public funds. If the rate of wages falls between 49 and 61 cents a day, the employer pays for male employees 8 and for female employees 6 cents a week, and the employee, regardless of sex, pays 6 cents. When the rate of wages is between 37 and 49 cents a day, the employer pays 10 cents per week for men and 8 cents for women, the employee pays 2 cents, and 2 cents is contributed from the public funds. When the rate of wages does not exceed 37 cents a day, the employer pays for men 12 and for women 10 cents a week, the employee pays nothing, and 2 cents a week is provided from the public funds. These provisions relate only to employees of the age of 21 or upward. Employers are authorized to make payments in behalf of their employees and to deduct the employees' contributions from any wages payable by them to such employees. Contributions by voluntary contributors are made at rates fixed in accordance with a table prepared by the insurance commissioners, and are payable weekly or at other prescribed intervals by the contributors themselves. No contributions shall be payable in behalf either of employed persons or of voluntary contributors after they have attained the age of 70 years.

A central administrative body known as the insurance commissioners was created as a body corporate, with the power to appoint officers, inspectors, referees, etc., subject to the approval of the treasury. An insurance committee was also constituted for every county and county borough, its membership consisting of not less than forty nor more than eighty persons, some of whom must be women. These committees are authorized to subdivide the counties or boroughs into areas over which district insurance committees shall have supervision, and are required to make reports as to the health of insured persons and the conditions affecting the same within their respective counties and county boroughs, and also to disseminate information on matters relative to health, cooperating, if thought best, with local educational and other institutions. Causes of excessive sickness may be inquired into at the instance of insurance commissioners or of an approved society or by an insurance committee, and where such excess is due to neglect or insanitary conditions the costs of any extra expense may be demanded from the persons chargeable with such neglect, and an inquiry may be made by a special appointee of the secretary of state or local government board to determine as to the facts in the case and the justice of such claim.

The administration of the sickness, disablement and maternity benefits is committed, in the case of insured persons who are members of an approved society, such as friendly societies, trade unions, provident societies, etc., to the societies of which they are members, which societies are also charged with the duty of receiving contributions of their members in this behalf. Medical and sanitary benefits are administered through the insurance committees described below. This separation of the bodies administering the medical benefits from those administering the sick cash benefits has been the cause of serious administrative trouble. Persons not members of an approved society may pay their contributions through the postoffice, the fund thus created being subject to the control of the insurance committees.

There is a second part of compulsory insurance providing for benefit in cases of unemployment in certain trades. The board of trade administers this portion of the act, and the list of trades may be extended by this board. At present there are seven in number: building, including the construction, alteration and demolition of buildings; construction of works; including railroads, docks, harbors, canals, etc.; shipbuilding; mechanical engineering, including the manufacture of ordnance and firearms; iron founding; the construction of vehicles; sawmilling, and machine woodwork. Employers and workmen pay equal shares of a weekly contribution of 10 cents for this form of insurance. While Parliament contributes annually a sum equal to one third of the total contributions received from employers and workmen during the year, in general the employer is expected to pay the contributions of both himself and his workman, deducting the workman's portion from wages payable to the latter.

Applicants for benefits under this branch of the act must show they have been employed in an insured trade in each of not less than twenty-six separate calendar weeks in the preceding five years, that they are capable of working but unable to obtain suitable employment, and have not exhausted their

TABLE 3.—PROPORTION OF CASES OF SICKNESS LASTING OVER THIRTEEN WEEKS, BY SEX *

Duration of Sickness	Per 100 Cases of Sickness: Males	Females
From fourteen to twenty-five weeks.....	3.5	5.7
Twenty-six weeks and over.....	2.3	2.8

* Twenty-Fourth Annual Report Commissioner of Labor, vol. i.

right to benefits under this part of the act. Workmen are not required to accept employment in place of striking workmen, or at a lower rate of pay than is customary in their line of employment in their district. Where, however, the employment is lost by reason of a stoppage of work due to a trade dispute in the establishment in which the workman was employed, he can receive no benefits so long as such stoppage of work continues, unless he has during such stoppage become actively employed elsewhere in an insured trade. Workmen losing employment through misconduct, or voluntarily leaving employment without just cause, may receive no benefits for a period of six weeks from the date of such loss of employment. The benefits payable in cases of unemployment begin after the first week of the period of unemployment, and are fixed at $1.70 per week unless some other rate is prescribed. Employment benefits are not payable for more than fifteen weeks within a period of twelve months unless some other benefit period is prescribed, nor shall workers in general receive any unemployment benefit in excess of one week's benefit for every five contributions paid by them under the act.

Provision is made for the determination of claims and the arbitration of disputes in both branches of the act. It was estimated that there were 14,000,000 insurable persons in the compulsory class and approximately an additional 2,000,000 who could become voluntary members. According to the Fabian Society report, only about 21,200 did actually in the first two years become voluntary members.

The approved societies mentioned here are the various friendly societies equivalent to our fraternal societies and trade unions, provident societies and lodges, which had been giving sick benefit and insurance in England for so many years, and also specially approved societies of the Prudential Insurance Company called into existence to care for persons already insured in this company. These societies differed from the German approved societies in that they were not necessarily confined to any locality or trade, but their membership was scattered through many trades all over the kingdom. Some contained women and men; some had lodges of women and men separately; most were probably confined to men alone. All these societies were actuarially independent.

These approved societies[5] operating in 1914 in England ranged in size from the great centralized societies and the great affiliated orders with many hundreds of thousands of members down to the small village or local clubs whose membership in some cases did not exceed 100. Every conceivable variety or type of administration seems to be allowed. Some societies are centralized both as to control and as to finance; some permit their lodges to control the funds, and some have a central body supervising and equalizing the funds that are managed by the local lodges. This last method has given the best results. The trade union societies are composed usually of workers engaged in one occupation or a number of allied occupations, and therefore the risk of the industry is relatively evenly distributed and constant. In some of the big friendly societies, all trades are mingled together in one lodge and the uneven hazard of the various trades causes serious actuarial difficulties in the administration. This lack of homogeneity in many of the societies and local lodges, the scattering of the membership of the societies all over the United Kingdom, has proved to be a real defect in the English law.

ADMINISTRATION AND EXTENT OF BENEFITS

Sickness insurance, as is pointed out by Rubinow, is primarily a matter for local administration. Political exigencies forced the British government to accept the friendly societies as approved societies, because it is doubtful if any bill could have passed against the opposition of five or six million members of these friendly societies, one result being the establishment of approved societies of private industrial life insurance companies the membership of which exceeds 4,000,000. It is doubtful if this use of the private industrial casualty companies was contemplated or expected in England. Germany, on the other hand, used the same established funds and societies, but insisted on their localization either by trade establishment or geographic distribution. The great advantage of localization is that the administration of benefits—both medical and cash benefits—is greatly simplified. The establishment fund is less desirable because of the predominating importance of one employer and the financial danger which may develop out of one localized epidemic.

Considering the benefits given in the various countries under the sickness funds, Austria insists that the benefits provided by a sick fund must not be less than the following: From the beginning of a sickness free medical treatment, as well as free medicines and therapeutic appliances, as eye glasses, crutches, etc. Medical treatment includes lying-in treatment. In case the sickness lasts more than three days and the sick person is unable to work, he shall receive a cash benefit equal in amount to 60 per cent. of the current wages for ordinary day labor in that district, this cash benefit to be paid for a period of twenty weeks. In cases of normal childbirth, sick benefit is to be paid for at least four weeks after delivery. In case of death, the heirs shall be paid a funeral benefit not less than twenty times the rate of wages for ordinary day labor, as above. The benefit is paid if the death occurs after the twenty weeks, provided the sick person has retained his membership in the sick fund by continuing payment of dues; and if the disability is caused by an accident covered by the accident insurance laws, the funeral benefits may be claimed both from the sick fund and from the accident insurance institution. This rate of wages is revised from time to time, and under both sexes is rated as for adults and for young persons, that is, 16 years of age or younger. Apprentices are rated as young persons.

Hospital treatment may be given at the expense of the sick fund with the consent of the sick person, if the latter is living with wife or husband or with other member of the family in the household, or otherwise receiving home care; without the consent of the sick person when the nature of the sickness requires special treatment; in other cases regardless of whether the sick person consents thereto. If a person placed in a hospital has dependents on him, the sick fund must provide the dependents with at least half the sick benefit. The sick funds are expressly prohibited from engaging in invalidity insurance or the insurance of widows and orphans.

No sick fund can use as a basis for computing a sick benefit an average rate of wages lower than the official rate or higher than 81 cents per day; the sick benefit cannot exceed 25 per cent. of the wage rate used as a basis for computation, and the benefits cannot be paid for more than a year, and the funeral benefit cannot exceed $20.30.

The workmen and physicians have advocated free choice of physicians on the part of sick persons, but the funds have insisted on retaining the system of a corps of fund physicians, to any one of whom the sick person may apply for treatment. The compensation of the physician who is under contract with the fund is in the form of a fixed salary or in the form of a salary varying with the membership of the fund, although occasionally in the form of a fee for services in each individual case. In rural districts where there is a scarcity of medical practitioners, there are other systems of payment in vogue. Any expense which may be caused through the treatment of a member by any other than a fund physician will be reimbursed by the district sick fund only if the treatment has taken place at its order or by direction of the board of directors in case of emergency.

In Germany the sickness insurance includes the first thirteen weeks of accident insurance. Such accident must have taken place in the course of the employment; it must have befallen an insured person, and the death must have a causal connection with the industrial accident. The term "sickness" is defined to be an abnormal condition of health to remove which necessitates medical attendance and medicine. The period of convalescence following a sickness is not properly sickness, but when there is a recurrence of sickness during the convalescence, the disabled person becomes entitled to relief. Thus the sickness insurance in the first thirteen weeks provides benefits for both the disability of sickness and accident. As a measure of administrative convenience, maternity benefits paid in case of normal childbirth are provided for by the sick funds; in other words, maternity insurance has been combined with sickness insurance. If childbirth is not normal, it is a basis of claim to the regular sick benefits. The cost of burial of insured persons is defrayed by the funds, but not by the communal benefits.

The minimum benefits provided by the sickness insurance system consists of medical attendance, medicines and therapeutic supplies, and from the date the sickness or disability begins, regardless of whether it causes inability to continue working. If the sickness or disability prevents the insured workman from continuing work, he must be granted a pecuniary benefit which must not be less than half the rate of wages paid in the locality for ordinary unskilled day labor, this benefit to be paid for disability of not less than twenty-six weeks and not more than fifty-two. A pecuniary benefit of the same amount is paid for six weeks after the date of confinement to a female insured person in case of childbirth; and funeral benefit of twenty times the rate of wages in computing the benefit, but not less than $11.90. A person included in both the sickness and accident insurance, who is disabled by industrial accident, receives sickness insurance for thirteen weeks and in addition receives, at the beginning of the fifth week,

5. Report of Departmental Committee on Sickness Benefit Claims Under National Insurance Act, 1914.

the accident benefit. If, at the end of thirteen weeks, the disabled person has not recovered, the accident insurance or other associations then provide the regular accident benefits. A person included in both sickness and invalidity insurance, who is disabled by sickness, receives the regular sick benefit for a period of twenty-six weeks. If he has not recovered at that time, the invalidity insurance institutes then provide the regular invalidity benefits. If there is good reason to believe that by special courses of treatment a person disabled either by industrial accident or disease, causing extended invalidity, can be restored to health, then the agencies conducting the invalidity insurance are authorized to relieve the sick fund of the care of the disabled person and provide the treatment at their expense, or they may authorize the sick fund to provide such treatment at their expense. A pecuniary benefit, but not the medical benefits, may be refused by the sick funds if the disabled person has purposely caused the sickness or accident, or if the disability results from rowdyism or similar misconduct, or results from intoxication.

The services of physicians are to be provided in accordance with the regulations established by each fund. The usual plan is for the fund to make contracts with a number of physicians who give their services in return for an annual sum fixed in advance or for a specified sum per patient also fixed in advance. That is, in Dresden the physicians are under stated salaries, or, as in Leipzig, there may be a capitation fund of a stated amount divided according to services rendered to each patient, each medical service rendered counting so many points; that is, a day visit one point, a night visit two points, etc. In no instance is a charge fixed on the number of visits or number of prescriptions. Many of the sick funds, as in Leipzig, make contracts with a large number of physicians, and the insured persons may choose among them. In Leipzig the fund employs the services of 80 per cent. of all physicians in the city, while other funds, in order to secure through competition low rates of fees from physicians, provide only the services of a limited number of physicians. The competition among physicians to secure the position of medical officer has reduced the cost to funds to a very low level, but on the other hand it has caused intense quarrels between physicians and the funds. Such disputes were discussed last year in the case of the Leipzig and Cologne societies. The determination on the part of the sickness funds to control the physicians and the resentment on the part of the physicians to such control is shown in the number of disputes that continually arise. Up to 1911 in some 1,020 disputes, 961 have been decided in favor of the physicians. There is no question that some control, either medical or lay, must be exerted over the carrying out of any insurance scheme. It is also unfortunately a fact that a small percentage of all professions is dishonest and such dishonesty must be controlled.

In Leipzig the control of the medical service is brought about through the following committees*: a representative medical committee of the society doctors, a conciliation committee and an arbitration committee. The representative medical committee of the society doctors consists of twelve members chosen every two years by the doctors in the service of the society, four deputy members being elected at the same time to take the place of members who cease to hold office. A quorum of the committee consists of the chairman or vice chairman and not less than six members. Clerical work is provided for by the society if required by the committee. The duties of the committee relate primarily to the constant supervision and control of the society doctors, also to calculating and dividing the remuneration of the doctors and to the maintenance of their rights and interests. The committee controls all the accounts of the doctors after they have been checked so far as the figures are concerned at the office of the society. The committee sees that the charges are right and reasonable; amounts in excess of what should be charged are deducted, and it supervises the prescriptions of the doctors for drugs and other medical and surgical requirements, medicinal baths, etc. After audit of the figures and statistics of the society, the committee judges whether or not the prescriptions are economical, whether they are within the limits fixed, and whether proper provision is made for reuse of bottles, etc. The committee objects to the use of secret remedies, and deducts from the remuneration of the doctor for the benefit of the society, the amount of charges which should not have been incurred.

The committee supervises the number of persons certified by each doctor as unable to work and the length of time of the inability, according to statistics prepared by the society. The committee determines whether there has been an improper excess of the normal average. In case of serious default, such as wrongly certifying patients as unable to work, the society deducts from the remuneration of the doctor, for the benefit of the society, the excess charges incurred. The committee communicates semiannually to all society doctors the results of the statistics prepared to which reference has been made above. If the committee finds that a doctor has been seriously at fault in the foregoing matters, it may take one of the following actions, in addition to making the deductions from the doctor's remuneration: give advice or written warning; after two unheeded warnings, temporary suspension for from one to twelve months from attendance on society patients. Before giving warning of suspension, the doctor concerned must be heard. If a doctor has been twice temporarily excluded from the society practice without result, and if the society does not give the doctor notice to terminate his contract, the committee may make a request to the Arbitration Committee that the doctor be permanently excluded from society practice. Complaints made by a patient or by the society with regard to the practice of a doctor are to be brought before the Representative Medical Committee for its opinion. The opinion on the case is to be communicated to the doctor by the committee. The rights of the society with regard to giving notice to terminate a contract are not affected by any action under this provision. The society has to prepare for the committee all the information necessary for the duties imposed on it by the foregoing rules. Circulars and directions which the society proposes to issue to its doctors are first to be submitted to this committee for its information. Complaints by the doctor against the society have first to be submitted to the committee which gives an opinion to the doctor on the complaint. Complaints by doctors of members of the society have to be communicated to the committee only if the managing committee of the society does not give satisfaction to the doctor in regard to the complaints.

The Conciliation Committee is appointed for deliberation on questions which appear to require consultation between the society and its doctors, and for the friendly consideration of all kinds of differences. This committee consists of two chairmen, two deputy chairmen and one member each, to be chosen for a year, of the managing committee of the sickness society and of the Representative Medical Committee. The deputy chairmen act as deputies for the chairmen. Persons specially appointed for the purpose, and for the same term of office, shall act as deputies for the deputy chairmen and for the other members. Either one of the two chairmen may call a meeting of the committee. Resolutions are valid only if all six members or their respective deputies are present and if at least four votes are cast for them.

The Arbitration Committee is composed of nine members. The chairman of the managing committee of the sickness society, the deputy chairman, and one other member of the managing committee chosen by the committee for a year, are the members of the Arbitration Committee. Three other members of the managing committee are chosen in case any of the other three are prevented from doing so. The chairman of the District Medical Association of Leipzig Town, the District Medical Association of Leipzig Rural District and the Representative Medical Committee are also members of the committee, and each of these are represented by his deputy chairman if the chairman is prevented from acting. To these six representatives of the society and of the doctors are added two members of the royal district government, and the medical councilor of that authority for the district. The material expenses of the Arbitration Committee are borne by the doctor whose appeal is being considered if his appeal is not upheld; if his appeal is upheld, by the two doctors' associations and by the society in equal shares.

* Gibbon: Medical Benefit in Germany and Denmark.

The Arbitration Committee meets on the invitation of the local royal insurance authorities on their premises. A member of this local insurance office is chairman. Five members are a quorum and resolutions are valid if passed by a majority. If the votes are equal, the chairman shall have a casting vote. The Arbitration Committee decides definitely on matters referred to it in accordance with the agreement of Dec. 31, 1910, or in accordance with individual agreements made with the doctors, or on such matters as may in future be referred to it; also on appeals against measures taken by the Representative Medical Committee; also, on any proposal for permanent exclusion of a doctor, or for any change of the present stipulations. The committee also decides definitely on the interpretation of the various provisions of the agreement or agreements with the individual doctors, or of these conditions. The ordinary courts of law decide disputes which may arise in regard to remuneration and claims of those doctors who are employed at fixed salaries. These agreements are to remain in force until the end of 1916 and then continue in force for another year, unless a written notice to terminate the agreement is given by the society or by the district medical association, and the notice must be submitted to the Arbitration Committee for an expression of its opinion. The Arbitration Committee may decide to make its decisions public, but not decisions which touch the failure of duty or other personal circumstances of a doctor, or which, if published, would touch the interests of a third person. All appeals to the Arbitration Committee, to prevent their being excluded, are to be made to the chairman of the committee within four weeks after the decision against which appeal is made has been communicated to the doctor.

LEIPZIG REGULATIONS

The following extracts from the regulations relating to the medical practitioners of the District Sickness Society of Leipzig are given as being useful for reference in compiling such regulations[6]:

The Representative Medical Committee has to take notice, not only of contraventions of the terms of the agreement itself, but also of the regulations relating to doctors.

Medical Treatment.—If it is not clear from the membership book that the insurance contributions have been made in respect of the person up to the date on which medical assistance is sought, or if the receipted membership book cannot be produced, the doctor shall give to the person requesting treatment such primary treatment as may be necessary, if there is any danger in delay, but any further treatment, especially the giving of a prescription or a sickness book, shall be expressly contingent on the production of receipts in the membership book.

The treating doctor shall enter in the sickness card of the membership book the date of every first consultation, and, if possible, the date of every last consultation (or visit). Medical attendants at polyclinics shall do likewise.

Change of Doctor.—Patients may change their doctor in the course of an illness only with the consent of the society. The society shall not exercise any influence in the choice of doctor, and, if a change of doctor is approved, shall at once inform the doctor changed, with a statement of the reasons for the approval, according to the provisions of these regulations. The sending of a patient by one doctor to another society doctor does not require the approval of the society, but the change must be noted in the membership book and, if the patient is unable to follow his employment, in the sickness book.

The following rules shall apply to the granting or refusal of approval of a change of doctor:

1. Approval shall be given to the change of doctor by a member or dependent:

(*a*) If the society doctor refuses to continue the treatment of a patient and does not send him to another doctor, or if the patient does not wish to go to a proposed doctor.

(*b*) If the patient cannot be required to retain the same doctor because of the change of address of the doctor or of the patient, or of a change in the consultation hours.

(*c*) If the doctor who has given the first attendance in the case of an illness resides so far away, or his consultation hours are so inconvenient that there would be undue difficulties to the patient in being attended by him.

(*d*) If the contemplated change is from a general practitioner to a specialist, or from a specialist to a general practitioner.

(*e*) If change of treatment is contemplated, more particularly when the doctor advises a course of treatment or an operation which the patient rejects.

(*f*) If the deputy of the treating doctor does not possess the confidence of the patient.

(*g*) If the treatment has continued for a long time without apparent result (to give ease of mind to the patient).

2. In addition, change of doctor shall be approved in the case of members who continue at work and of dependents:

(*a*) In case of differences between the doctor and the patient (in order to prevent further difficulties).

(*b*) In all other cases in which the foregoing conditions seem to exist. (In doubtful cases, the approval shall only be given after inquiry has been made of the treating doctor, and, in suitable circumstances, also only after a certificate has been obtained from a confidential medical adviser.)

3. Approval to change of doctor shall be refused:

(*a*) If the patient is not satisfied with the prescriptions of the doctor, or if he desires particular drugs or other means of cure.

(*b*) If the patient has made improper proposals to the doctor.

(*c*) In the absence of any adequate reasons.

4. In addition, approval to change of doctor shall be refused in the case of members who cannot follow their employments:

(*a*) If there is suspicion of malingering.

(*b*) While examination by a confidential medical adviser is pending.

(*c*) In case of dispute with the doctor as regards inability to follow employment. (In these cases the patient shall be speedily examined by a confidential medical adviser. The result of the examination shall be immediately communicated to the treating doctor. If the result agrees with the diagnosis of the latter, the refusal to a change of doctor shall hold good. Otherwise approval is to be given to the change . . . .)

The following cases are not considered to constitute a change of doctor and do not require approval:

(*a*) If at the commencement of an illness, notwithstanding repeated requests, the doctor does not attend and the patient goes on to another doctor.

(*b*) If a patient, in consequence of a sudden change in his condition and inability to obtain readily the services of the treating doctor, obtains the services, for the time, of another doctor.

(*c*) If a doctor discharges a patient from his care as cured and the latter still considers himself ill. (If a patient in such a case is certified as unable to follow his employment by the new doctor, he shall forthwith after receipt of his sickness book be examined by a confidential medical adviser.

The Sending of Patients to Hospital.—The doctor shall send sick members to hospitals, etc., (even against the will of the member in the circumstances set out in Section 12, Part 3, of the rules of the society) in cases of:

1. Illnesses which require long surgical attention or serious operations.
2. Illnesses of all kinds when, because of the conditions of the dwelling place and the like, treatment in a hospital is desirable.
3. Infectious venereal diseases, especially if the patient is unable to follow his employment.
4. Enteric fever, cholera, smallpox, scarlet fever, diphtheria, epidemic cerebrospinal fever.
5. Suspicion of malingering.
6. Request of the managing committee of the society.

Members who, according to Section 12, Part 3, of the rules of the society, have the right to refuse hospital treatment may be treated in their homes, after the advantages of hospital treatment have been repeatedly brought to their notice. Since patients who have not the right to refuse hospital treatment lose their claim to money benefit in case of refusal, the doctor must forthwith report to the society any such case of refusal.

Members who are declared able to follow their employment but who assert that they are still unable to do so are as a rule to be sent to hospital for observation if they so desire.

Request for reception into a hospital has to be made as a rule to the administration of the society. As an exception members may be sent directly to a hospital when there is danger in delay as at times when the offices of the society are closed. The necessity for conveying the patient by ambulance or carriage is to be indicated on the certificate.

Dependents of members cannot compulsorily be sent to a hospital, but, in circumstances such as those mentioned above, the doctor shall also in these cases endeavor to persuade such patients to go to a hospital.

When patients are recommended to go to a private clinic, they shall be informed that treatment in a public institution is without charge to them, but that they have, as a rule, to pay (in part) for treatment in a private institution.

6. Gibbon: Medical Benefit in Germany and Denmark.

Certification of Inability to Follow Employment.—Care is to be exercised in determining the first day when the patient is able to resume work, and, in doing this, account is not to be taken of the first day of the week, but the first day shall be certified which succeeds the last day of inability to follow employment, even when the day is a Sunday or a holiday.

Sickness Book.—. . . If there is any suspicion of malingering, the patient shall as a rule not be allowed to go out, at least not beyond the visiting of the doctor during his consultation times; in suitable cases, the patient is to be ordered to remain in bed.

In recording diagnosis, general indications are to be avoided as much as possible—for example, recording simply lead poisoning, nervous disease, stomach trouble, throat trouble, kidney disease, abdominal complaint, venereal disease. Occupational accidents are to be indicated as such.

During the continuance of inability to work, the doctor shall give to the patient, after examination, a certificate of sickness at the end of every week, as a rule not before Friday.

Control Inquiries.—The time and place of the control inquiries respecting patients unable to follow their employment will be communicated to the treating doctor beforehand, and it is permitted to him to attend. If he, the treating doctor, does not agree with the results of the inquiry and is not satisfied with the action taken by the society, he shall inform the latter of the grounds of his objections. If an agreement cannot be reached between the confidential medical adviser and the treating doctor, the patient shall be sent by the society to a medical arbitrator, whose decision shall be final. These arbitrators shall be annually appointed by the committee of the society in agreement with the Representative Medical Committee, and an arbitrator and a deputy shall be appointed for each specialty in which question may arise.

The services of the arbitrator may also be requisitioned by the society in cases in which a member who has been certified able to work strongly declares his inability, and this notwithstanding that the treating doctor and the confidential medical adviser agree on the case.

ADDITIONAL BENEFITS

The insurance of dependents mentioned here ranks among the additional benefits for which the law provides. A sickness fund desiring so to extend insurance must adopt a rule to that effect which may provide for the granting of family benefits generally or only to those members who especially apply. Where sickness funds provide family benefits, they either pay the doctor an inclusive fee for his attendance on family and dependents, if any, or separate fees for members and families. The former method of payment appears to be the more common, and the effect of this arrangement is that the accounts of sickness funds seldom afford any indication as to the actual cost to members of attendance on dependents. The medical benefits to dependents are limited in some instances to ordinary attendance; in others, drugs are given in addition, and some even give appliances. The benefits are given, however, for thirteen weeks only instead of twenty-six applicable to members. Sometimes hospital treatment is given or a contribution is made toward its cost.

Family insurance seems to be common in Leipzig, Stuttgart and Dresden, but rare in Berlin. Of twenty local sickness funds for large towns, twelve give and eight do not give family benefits. Of twenty-three important factory funds, each having over 1,000 members, eleven give and twelve do not give this benefit. The foregoing twenty local sickness funds had, in 1911, an aggregate membership of 1,218,048; those with family benefit having 740,000 members, or 60.8 per cent., of the whole, and those without family benefit having 337,000 members, or 22.9 per cent., of the whole. The factory funds had an aggregate membership of 140,223; those with family benefit having 86,636, or 61.8 per cent. of the whole, and those without family benefit having 53,517, or 38.2 per cent., of the whole. Combining the two groups of funds, 60.9 per cent. of their members received family benefit and 39.1 per cent. did not. This is too small a number from which to draw any general conclusions as to the extent to which family benefits are given throughout Germany, but are given as types.

The amount of medical attendance necessary where family insurance is provided is probably determined more by the definition of the term "dependents" than by the duration of medical benefits. Every sickness fund defines this term for itself. For instance, in Bremen the following dependents are given the foregoing insurance: wife or husband and children, including adopted children; in Dresden, wife or husband, and children and stepchildren under 15 years; in Leipzig, wife or husband, parents, grandparents, parents-in-law and children under 16 years; in Stuttgart, wife and children under 14 years; in Remscheid, wife or husband or relative in charge of household, children and foster children, parents and parents-in-law, and in the case of unmarried members having their own households, the mother or sister in charge; in Essen (Krupp), wife, children and other relatives of member by blood or marriage resident with him and wholly or mainly dependent on his earnings, but not a housekeeper or a servant.

An estimate of the cost of medical attendance per head on members and dependents together can be made, but no accurate data are available to separate the difference between the dependents and the members where such additional benefits are given. The data[7] available, however, seem to justify the assumption that one third of the members of the large federations of sickness funds, formed for miscellaneous trades and occupations, are married, and that three dependents per household is not an excessive average. On this basis of computation where a sickness fund provides family insurance, any given number of members would double that number entitled to medical attendance. Applying this numerical test it is possible to form an approximate idea of the cost of attendance per person entitled to it. In 1911 the federation of local sickness funds at Leipzig, Dresden and Stuttgart, with an aggregate membership of 412,000, paid $1.82 per member for general treatment by general practitioners and specialists, exclusive of dental treatment. Counting one dependent extra for every member, this would be equal to about 91 cents per individual entitled to attendance. On the other hand, eight other important sickness funds dealt with in this report paid separate fees for attendance on dependants, the mean rate being $2.06 per family exclusive of the insured head. Assuming an average of three dependents per family, the cost per individual would be 68 cents.

There is considerable variation in the cost of medical attendance in Germany between sickness funds of the same type and also those of different localities. In Berlin, where attendance to members only is provided, the cost of attendance by general practitioners and specialists, dental treatment being excluded, ranges from 91 cents to $1.15 a head; and the mean rate expenditure on this point of six important funds is $1.08 per head. In other parts of the country the cost of similar attendance for members only ranges from $1.095 in the case of the Frankfort-on-the-Main Federation of Sickness Funds to $1.43 in the case of the Munich federation and $1.44 in the case of that at Düsseldorf. Similarly, the cost of ordinary medical attendance where dependents are treated ranges from $1.40 per member in Dresden, where the system of district doctors with fixed salaries prevails, to $2.065 per member in Leipzig, where the doctors are engaged on the organized free choice principle.

The data available indicate that the extension of medical treatment to dependents greatly swells the drug bill. In Leipzig of a total payment for drugs and dressings 39.5 per cent. was incurred on behalf of dependents; in Stuttgart, 43 per cent. on account of dependents.

REMUNERATION OF PHYSICIANS

In considering the methods of remuneration of physicians which had been adopted under the German sickness insurance law, it has to be remembered that the practitioner does not dispense his own prescription but refers his patients to the pharmacist of his choice. Another thing to remember is the existence of official scales of medical, surgical and dental fees for use in the absence of agreements for fixing a minimum and maximum charge, as a rule within a very large range. The government of each state has the right to use an independent scale of charges, and while the larger states—as Prussia, Bavaria, Wurttemberg, Saxony and Baden—have their own scales, many of the smaller states adopt the scale of Prussia. In some towns the doctors, when organized, agree to the modification of the official scale, but they cannot increase the minimum fees. The law requires that these minimum fees

7. National Health Insurance, Cd. 6581.

must be charged to workmen's sickness insurance funds, poor law administrations and poor persons.

Each sickness fund has an entirely free hand in the method of remunerating the physicians. The law does not set the amount of payment, although in the absence of formal agreement with the physicians it follows that payment will be by attendance according to the minimum fees of the official scale. The adoption of this scale as the basis for payment or for the division of the medical remuneration fund is one of the demands on which the medical profession, as organized on the Leipzig basis, is most insistent. In few towns is the system of medical remuneration uniform. Owing to the multiplicity and diversity of the sickness insurance societies, each independent and free to make its own arrangements with the physicians, various systems exist side by side. Whatever the method on which the physicians are paid, no restriction is made on private practice, and if physicians devote their whole time to attending members of the sickness funds, and this is often the case, it is done voluntarily.

The various methods of remuneration are as follows: Payment by attendance; under this system the fees charged are as a rule the minima of the official scale, though in some cases a reduction is made on these minima in the case of often recurring services; or, again, an agreed reduction varying from 10 to 20 per cent. may be allowed on all official minimum fees alike. Here the position of insured persons is exactly like that of private patients. The only large federation of sickness societies known to pay its medical staff unconditionally on this principle, though there may be others, is that of Bremen with a membership of about 30,000. On the other hand, the unattached factory and trade guild funds of the town very commonly pay the physicians on this principle. In the rural districts the plan of payment by attendance is common and often found to be a condition of efficient medical service or any service at all. In Stuttgart the factory and guild funds, as a rule, pay for all attendances at the minimum rates less a deduction of 20 per cent. and this is the case with many of these funds in Munich. In Leipzig the reduction is usually 5 or 10 per cent.

The sickness fund federation in Bremen serves for all trades and occupations and includes also most municipal work people. Voluntary arrangements are made for the treatment of dependents; 3,000 members paid special contributions for family treatment in 1911. All services of general practitioners are paid for separately, according to the schedule of fees embodied in the agreement with them. Specialists are not paid by agreement. The average inclusive cost of medical attendance for members only, in 1911, was $1.522, made up of $1.004 for general practitioners, 31.4 cents for specialists and 20.4 cents for dentists, etc. The cost of medicines and appliances for members only was 97.6 cents a head, and hospital treatment cost $1.474 a head. Although there are striking exceptions, it is found that sickness funds which pay the physicians by attendance without the common device of a pooled capitation payment, limiting their liability in advance, have to spend more on medical treatment than those which stipulate for this protection. Where in Munich sickness funds pay for medical attendance according to the minimum rates of the official scale, the cost per member usually ranges from $2 to $2.50 per annum; where the system of remuneration is a pooled capitation payment plus fees for special services, the cost usually ranges from $1.43 to $1.87 per member, and where the capitation fee includes all services, the usual cost is $1.50 per member.

In other towns it was possible to compare the experience of funds which under pressure had changed the method of a pooled capitation payment for that of payment according to attendance without limit. In the case of a large factory fund the effect was an increase in the cost of medical treatment from $2.33 per member, including attendance on dependents, on the average of the years 1906-1908 to $3.95 on the average of 1909-1911. The cost of medicine and appliances also increased from an average of $1.31 to $1.44 per member, while the cost of hospital treatment remained unchanged. Conversely, a fund which sometime ago commuted its payment for special services into a fixed annual sum finds that by so doing it has prevented an increase of 40 per cent. in that item.

CAPITATION FEES TO THE INDIVIDUAL PHYSICIAN

Under this system each physician engaged receives a fixed fee per head per year in respect of all insured persons whom he undertakes to attend, with or without certain special services according to the terms of the agreement. If there be a choice of physician, it is made at the beginning of each year. This is the method of remuneration adopted by the miners' societies in Prussia and by some of the railroad employees. It also occurs in many factory funds. The specialists were paid $1.62 or $2.50 for the treatment during six months, if necessary, of each case referred to them by a general practitioner, the lower fee being paid to oculists and the higher to the specialists for ear, nose, throat and genito-urinary diseases. Surgeon dentists are paid $1.25 per case, this fee covering six months' treatment if necessary. Each general practitioner is appointed to a district, and capitation fees are paid to him for all the insured miners in the district.

In Cologne the State Railroad Board pays the physicians on the same system. The physicians are appointed for fixed districts. In the towns of the district the insured persons have free choice; in the rural districts they call in the nearest physician. The general practitioners are paid as a rule $1 each for single members, with modifications according to local circumstances; for married members $1.75, with additional fees of $3.50 for confinements, night visits $1.99, night consultations 50 cents, and for assistance to other physicians and attendance on members of other sickness funds. A physician also receives a free ticket entitling him to travel second class by all trains within his district. Specialists are paid the minimum fees of the Prussian official scale.

Capitation payments into a pooled fund, with or without extra fees, for prescribed reserved services is another system. The pooled fund is divided among the physicians according to the services performed, and the extra fees are paid to the physicians who have earned them. In some cases special fees are deducted from the pool before it is divided. The physicians usually are paid quarterly, the capitation fees being based on the monthly average membership figure reckoned for each quarter separately. This method is the most frequently adopted. From the point of view of the sickness funds it has the advantage that liabilities can be estimated in advance within narrow limits from year to year and their budget arranged. From the standpoint of the physicians, remuneration is proportionate to services performed. The extra services most commonly paid for are obstetric services, night and urgent visits, attendance on members of other sickness insurance funds, and sometimes mileage allowances are added to these extra services. Where a sickness fund pays for operations outside the pool, it is usually stipulated that extra charges shall be paid only for services carrying minimum fees in excess of 75 cents or $1, according to the official scale.

The Munich Federation of Sickness Funds with a membership in 1911 of 136,477, which does not provide family benefits, pays a capitation fee of $1.06 and in addition pays for all operations carrying fees from 75 cents upward, according to the official minimum rates. These special fees are laid down in an exhaustive schedule and are in some cases below the official minimum. The total cost in 1911 of all medical attendance, including dental treatment, massage, etc., was $1.658 per member. The Stuttgart Federation of Sickness Funds, with an average membership in 1911 of 89,777, which provides attendance to all dependents, pays capitation fees of $1.072 and $1.25 for single members and $2.68 to $3.75 for married members, these fees being pooled, and extra fees to the physicians earning them for operations and certain special services. But all operations carrying a fee in excess of $3.75 are performed in the municipal hospitals. The total cost of medical attendance cannot be separated as between members and dependents, but togther it averaged, in 1911, $2.41 per member.

The Essen Federation of Local Sickness Funds, with an average membership of 27,158 in 1911, though paying nominally under a pooled capitation fee arrangement, guarantees to the physicians remuneration equal to 90 per cent. of the value of their individual services based on the rate of 25 cents for a consultation and 37 cents for a visit. The pooled capitation payment is now 87 cents in respect of general practi-

tioners and 7.2 cents in respect of specialists, or together 94.2 cents with $1.87 extra where attendance is given to dependents, family insurance being voluntary. The total cost of medical treatment, including 1,300 families, was $1.29 a head; the cost of medicine and appliances 85 cents, and the cost of hospital and other institutional treatment $2.22.

In Düsseldorf the capitation payment is based every year on the average value of the services performed during the three preceding years when charged according to an agreed scale of fees. On this sliding scale of payment, the capitation payment ranges from $1.50 to $1.62 without family attendance.

PAYMENT PER CASE OF SICKNESS ATTENDED

This is an uncommon method of remuneration, adopted under special conditions which make the other methods inapplicable, though pooled funds are often divided on this principle. The Frankfort Federated Sickness Funds use this method in treating their members in the rural districts. The fee in this case is $1.25 per case of sickness subject to the conditions that for this fee a patient must be attended for twenty-six weeks if necessary, and that three cases of sickness at the most may be charged for in one year in respect of the same member. Specialists also are paid by this method; for example, the specialists who attend the members of the General Miners' Sickness Fund at Bochum in Westphalia. The Bochum Sickness Fund formerly paid specialists $2.50 per case attended, but at present pays by a pooled capitation system of 7.2 cents per member, being the ratio per member set aside by the fund for this payment.

Payment by fixed salaries is an unusual method of payment, although adopted by some sickness funds and by some of the miners' funds. The Dresden Federation of Sickness Funds is the best known example of this, which had an average membership in 1911 of 127,938 and which gives medical attendance, without medicine or appliances, and partial hospital treatment to dependents. The area served by the Dresden fund is divided into 160 districts of unequal extent, and a physician is assigned to each district. The insured persons in a given district are expected to consult the physician in that district. In case of dissatisfaction, their wishes are considered as far as possible. All appointed physicians, as a matter of fact, engage in private practice. Salaries range from $1,250 a year to $150. The only extra payments are fees for night visits in special cases of 75 cents and mileage in the case of rural physicians, and also all dressings and drugs needed by the physicians as distinguished from those prescribed.

In the beginning of 1912 there were 109 town physicians engaged by this federation, fifty-four country doctors, sixty-five specialists, with two whole-time confidential or certifying physicians. The salary of town physicians in 1911 averaged $939, the country physicians $377.75, and the specialists $754.25. The total cost of medical attendance, including attendance on dependents, averaged $1.592 per member, the cost of medicine and appliances as supplied to members only $1.106, and the cost of hospital and institutional treatment, only partially given to dependents, $1.322. Some towns vary the Dresden system by guaranteeing the physicians appointed a minimum salary with an addition depending on the number of their services.

The plan of employing whole time physicians at fixed salaries has been adopted at different times and places, but only experimentally. At Remscheid, in Prussia, it was tried from 1898 to October, 1905. Six physicians were appointed to attend about 10,000 members and their families, but the number was later increased to eight. These physicians were paid fixed salaries of $1,500, increasing to $1,750, except an eye and ear specialist, who received $1,750, increasing to $2,000. Each physician had an assigned district, but in case of excessive work a physician could assign to a colleague. During the time this method of appointing and remunerating physicians was in force, the cost of medical attendance, including attendance on dependents as stated, ranged from $1.436 to $1.814 per member. During 1905 the system of limited free choice of physicians was introduced with payment out of a pooled fund according to the number of cases attended. In Table 4 is given the cost of attendance for members and dependents from 1896.

In medical benefit associations in several towns—Berlin, Munich and Cologne, for instance—groups of sickness funds have established associations for the provision of medical attendance, with or without medicine and appliances, independently of the other benefits secured to insured persons by statute, leaving these other benefits to be administered by the affiliated funds in the usual way. An old established association of this kind in Berlin, comprising forty-eight sickness funds with an aggregate of 191,000 members, administers all the statutory medical benefits on behalf of the affiliated funds; but while it concludes agreements with and pays the physicians, the cost of medicine and hospital treatment is paid direct by the funds concerned. Attendance on dependents is not provided. The city and suburbs are divided into medical districts, and at least one physician is appointed for each at a fixed salary. In 1912 the number of physicians was 200, of whom 160 were general practitioners and 40 specialists. All members are free to consult any physician on the list, but if visits are desired, a physician of the neighborhood must be called in. The affiliated sickness funds paid to the association for medical attendance 93 cents for each member, and the physicians received on an average a salary of $750. The physicians were free to attend members of other sickness funds.

A somewhat similar association in Munich undertakes to provide medical attendance for twenty-six weeks, exclusive of medicine and hospital treatment, on behalf of a number of factory and other sickness funds. It deals with a membership

TABLE 4.—COST OF ATTENDANCE FOR MEMBERS AND DEPENDENTS

Year	Amount	Method
1896	$1.048	Limited number of physicians paid by pooled capitation fee, plus extra fees.
1897	1.422	
1898	1.44	
1899	$1.52	Whole-time physicians, paid fixed salaries.
1900	1.546	
1901	1.446	
1902	1.476	
1903	1.388	
1904	1.658	
1905	1.814	
1906	$1.93	Free choice among all organized physicians, and payment by case from pooled fund, with special fees.
1907	1.956	
1908	1.926	
1909	1.968	
1910	1.966	
1911	2.02	

of 26,000, with about 44,000 dependents; $1.31 a head is paid for individual members, and $2.75 for dependents, wife and children, with no extra payments for operations. The physicians are paid by a pooled capitation system according to the services they perform. Office visits are reckoned as worth 18 cents, house visits at 50 cents, and operations according to the Munich schedule of medical fees. In the early days of compulsory insurance in Germany, some of the largest funds were able to obtain medical attendance at a cost of 25 cents a head. In 1891, when the Berlin free choice association of physicians was formed, the average cost was 39 cents per member. The largest of the Berlin sickness funds, that for commercial employees, working under a system of district physicians, did not for several years pay more than 25 cents per head for medical service; in 1894 it was paying 75 cents; from 1902 to 1909 the pooled capitation fee was 81 cents, with fees for a few special services, although in the meantime the duration of treatment had been doubled, and in 1912 the capitation fee was $1; and, exclusive of dental treatment and massage, in 1911 the total cost of medical treatment was $1.074 per member.

SCOPE OF TREATMENT

This increase in the cost of medical treatment has been due only to a certain extent to the higher fees paid to physicians. The main increase has evidently been due to the broader scope of treatment due to the progress of therapeutics, to the extension of treatment by specialists, and to the increased recognition by the working classes of the importance of health and their willingness to make large sacrifices to obtain it.

The sickness funds are usually disposed to give a very liberal interpretation to medical treatment. The treatment by specialists under most funds depends on the recommendation

by the general practitioner first consulted, but in some towns, such as Munich, members are allowed to go directly to any specialist on the medical list without previous recommendation. Specialists with whom the large sickness funds conclude agreement are those for eye, ear, nerve, skin, throat, stomach and women's diseases. Medical treatment often comprises Roentgen-ray applications, electric treatment, mechanical exercises, such as the Zander institutes, and the like. In 1912 the central committee of the sickness funds of Berlin completed the equipment of an establishment for general use, including Roentgen-ray, hydrotherapeutic, electric and physical treatment on a large scale, and in the course of the first fifteen months, 6,800 persons were treated. Some of the large federations of sickness funds, like those of Leipzig and Dresden, have well equipped rooms attached to their central offices in which mechanical treatment is given in the most approved methods. The large sickness funds in the towns also provide their sick members with medical baths of great variety.

The accident funds also are insisting more and more that they shall take charge in the early weeks of many of the fractures and other injuries in order that they may obtain, by proper surgical care and exercises, better results and less total permanent or partial disability. The treatment of teeth is usually regarded as falling within the scope of medical benefit, but artificial teeth are seldom provided, though some funds make a contribution toward their cost. Some large federations of local sickness funds, like those of Stuttgart and Düsseldorf, have their own dental clinics, equipped and worked at great expense.

The drugs which may be prescribed by authorized doctors include not only all the drugs scheduled in an imperial rescript as being reserved for sale by qualified pharmacists, but also medicaments in general. The rules of some sickness societies prohibit the use of drugs, the therapeutic value of which has not been sufficiently proved, and of certain expensive drugs. There are certain rules, and definite care is required of the physicians that they shall prescribe economically, and the medical controlling committees criticize closely the economy or lavishness with which the ingredients of prescriptions are chosen. In Frankfort all physicians about to enter the funds must spend six months in attending the meetings of the committee, during the sessions of which discussion of prescriptions takes place. The appliances usually given include trusses, spectacles and similar appliances. There may, however, be provided larger appliances in the way of additional benefit. When this is done, a limit, of course, is usually fixed. The Berlin local sickness fund for commercial employees, in addition to minor appliances, supplies artificial limbs, appliances for flat feet, corsets and other supports to a maximum cost of $12.50 for any one person. The sickness fund of the General Electric Company of Berlin supplies artificial limbs to the amount of $12.50 for any one person. The Leipzig federation of sickness funds provides artificial limbs and teeth and other larger appliances to a value of $18.75 for any one person. Some funds leave a provision for larger appliances to the discretion of the executive. The law of 1911 uses the term "other minor appliances" instead of "similar appliances." It empowers sickness funds to supply appliances to cripples to enable them to obtain employment, to fix a limit of value up to which minor appliances are provided, and to contribute up to that amount toward the cost of more expensive appliances.

HOSPITAL AND INSTITUTIONAL TREATMENT

Although hospital treatment as an alternative to home treatment now ranks as a minimum benefit, the law reserves to sickness funds an unconditional right to decide as to whether the alternative shall be offered or not. Hospital treatment, however, is very widely given, and the expenditure under this head forms an important part under the cost of medical benefits. The provision of hospitals is, in Germany, a duty of the local government authorities, and the public hospitals are used for the great majority of patients so treated. In the larger towns a certain proportion are treated in institutions managed by ecclesiastical bodies, and in state, university and private clinics. Such treatment is usually made dependent on the prior consent of the executive of the fund except in urgent cases. Hospital maintenance is paid for by fees which usually vary from 50 to 75 cents per day both in public and in private institutions. Sometimes sickness fund patients are treated in public hospitals at bare cost or even under cost. There is no extra charge for operations in public hospitals, but in private clinics these are generally paid for extra.

Pension boards which administer the invalidity insurance law supervise the sanatorium treatment under the German insurance system. As a rule a sickness fund and the pension board for the district agree to bear a portion of the cost of their institutional treatment. The cost of curative treatment of all kinds given by the pension boards of Germany in 1910 amounted to over $6,000,000, and after the deduction of all refunds, the cost to the pension boards themselves was $5,250,000.

The large sickness funds themselves do a similar curative work, and this is one of increasing importance. Thus the Leipzig Federation of Sickness Funds has the use of five sanatoriums and convalescent institutions, to which 3,038 patients were sent in 1911, while 2,602 of its members were sent to baths and health resorts. The Düsseldorf fund has a convalescent home, and other large funds are in the same position.

MEDICAL BENEFITS IN NORWAY

In Norway the local insurance societies are required to render the following aid: to a member himself free medical attendance and the first supply of such accessories as eye glasses, trusses, etc., and when surgical treatment is required, bandages and the medicaments required for such treatment according to the surgeon's order. In cases of sickness coming under the accident insurance law, free medicine; in cases of invalidity, pecuniary aid equal to 60 per cent. of the average daily wages of one of the four income classes defined in the law; but the pecuniary aid, together with any payment the person concerned receives for work during his sickness, or with any pecuniary aid he may receive from private sickness insurance, shall not amount to more than 90 per cent. of his actual income at the beginning of his sickness. For persons who work for no wages and voluntarily insured persons who have no income, the total pecuniary aid shall not amount to more than 16 cents per day. In the case of confinement, pecuniary aid for six weeks and, if necessary, physician's attendance. These grants are made on condition that the woman has been a member of a public or recognized private or communal sickness society for at least ten consecutive months immediately preceding. If sickness results, the usual sickness aid shall be given in place of the confinement aid. Burial aid equal to twenty-five times the average daily wages in the income class concerned, but not more than 50 crowns, or $13.40. To the wife or husband of the member for whom he or she provides, and to children under 15 years living at home, free medical attendance only.

In place of the benefits just mentioned, hospital or asylum care may be given by the advice of the physician. In the case of an industrial accident, the Royal Institution of Insurance may, in accordance with the industrial insurance law, require that this be done. During a person's care in a hospital, no pecuniary aid is given to him. If he has relatives dependent on him, they are given pecuniary aid equal to 20 per cent. of the average daily wages if there is only one dependent, 35 per cent. if there are two, and 50 per cent. if there are three or more.

Money benefit is paid for six days in the week while the person is incapacitated for work, but not for the first three days of sickness and not to exceed twenty-six weeks in any one case of sickness. A recurrence of the same sickness in the year is regarded as a continuation of the first case, and pecuniary aid shall not be given for more than twenty-six weeks altogether. If a member has received pecuniary aid for twenty-six weeks, he shall not receive pecuniary aid for more than thirteen weeks for new attacks of the same sickness during the following year; but if no such attack occurs during this year, a subsequent attack is regarded as a new case and treated accordingly. If, for the same case of sickness, a member has received aid for the thirty-nine weeks altogether, he shall receive no more aid for this sickness until two years have expired and he has been during this time free from the sickness in question. Every day in the hospital is counted as one day of pecuniary aid.

In the case of sickness due to industrial accident, the local sickness society is not required to give assistance for more than four weeks, but the national society, that is the Royal Institution of Insurance, may require that aid be continued beyond this time with the assurance of reimbursement by the royal institution from the funds of accident insurance. In case of an injured person who did not have sickness insurance at the time of the accident and is not assured of full wages for three months, the Royal Institution of Insurance may require that the local society shall care for such person on the conditions mentioned above. If a workman, while temporarily employed in a foreign country, is entitled to aid under this law, his employer is under obligation to render this aid himself and he shall be reimbursed by the local society. If a servant is receiving care in sickness in the home of his master, the latter receives the pecuniary aid due the servant under the law. The master must give such servant care for six weeks unless the sick person can, with the approval of a physician, be put into a hospital.

BENEFITS IN ENGLAND

Under the present English law the benefits conferred on insured persons are of two kinds: the minimum benefits to which, with certain qualifications, every insured person is entitled, and the additional benefits to which an insured person may be entitled if he is a member of an approved society which shows a surplus on valuation. In each case a contribution of two ninths in the case of a man and one fourth in the case of a woman will be made by Parliament toward the cost of benefits. The minimum benefits are, first, medical benefits, that is, the right throughout life to free medical attendance by any physician who applies to the insurance committee for the county or county borough in which the insured person resides for a place on their list, and who consents to accept him as a patient. If the physician of his choice refuses him, he will be assigned by the committee to one or other of the physicians on the list. Medical benefit includes free medicines and drugs, and such appliances as the insurance commissioners may allow. It does not include any right to attendance in respect of a confinement. As one of the additional benefits, the right to medical treatment may be extended to the dependents of an insured person. Second, sanatorium benefit, which is the right throughout life to treatment in a sanatorium or otherwise for an insured person suffering from pulmonary tuberculosis or any other disease which the local government board may appoint. The insurance committee which administers this benefit may also pay or advance the traveling expenses of an insured person to and from the sanatorium. This benefit may be extended to his dependents if the sums available for it allow, independently of any surplus in the member's own society. Third, sickness benefit: a payment of $2.50 a week for a man and $1.87 for a woman beginning on the fourth day of illness and continuing for twenty-six weeks; notice of the illness must be given before the claim can be allowed. An insured person will not be entitled to this benefit until twenty-six weekly contributions have been paid in respect of him, and it is this benefit which, in the case of a member of an approved society, will be reduced if he is in arrear. Fourth, disablement benefit, which is a continuation of sickness benefit at the rate of $1.25 a week for a man or woman, lasting as long as the illness. The right to this benefit does not accrue until 104 weekly contributions have been paid in respect of the insured person, but both sickness and disablement benefit will become payable as soon as the necessary period has elapsed and the necessary contributions have been paid, although the illness began before that time. The right to both of these benefits ceases at the age of 70. The test for both of them is that the claimant must be rendered incapable of work, that is, of any work whatever, by some specific disease or by bodily or mental disablement; but any disease or disablement in respect of which he is entitled to compensation or damages from his employer or any other person under the workmen's compensation act of 1906, or the employer's liability act of 1880, or at common law, is excluded. In that case, however, his society or insurance committee may assist him to enforce his rights. Any approved society may substitute for sickness or disablement benefit or part of them any of the additional benefits, and may give its members an option in the matter. Fifth, maternity benefit, which is a payment of $7.50 in the case of confinement of the wife, or where the child is a posthumous child, the widow of an insured person, or of any other woman who is herself an insured person. Where a married woman, or in the case of a posthumous child, a widow, is herself an insured person, she will be entitled to sickness or disablement benefit as the case may be during her confinement, in addition to her maternity benefit; but any other woman, that is, any unmarried woman, will not be entitled to those benefits for four weeks after her confinement unless suffering from some illness not connected with it. The right to maternity benefit will not accrue until twenty-six, or in the case of a voluntary contributor fifty-two, weekly contributions have been paid. The benefit will be administered in cash or otherwise at the discretion of the society or insurance committee concerned, but in every case the mother will have the right to choose a physician or midwife to attend her whose fee must be paid out of the $7.50 benefit.

Sickness, disablement and maternity benefits will not be paid to a person in a hospital, infirmary or sanatorium, but may be applied for the maintenance of his dependents, if any, or if he has none, may be paid for the upkeep of the hospital or infirmary, or, in the case of a sanatorium, to the insurance committee. Where a married woman who is herself insured and entitled both to maternity and sickness or disablement benefits goes into a hospital or infirmary for her confinement, the maternity benefit will be paid to the hospital or infirmary, but the sickness or disablement benefit will be applied for the maintenance of her dependents, if any.

Besides minimum benefits, there are additional benefits which an approved society can give to its insured members if at the end of each three years it is found to have a surplus available. These include an increase of the minimum cash benefits, allowances for partial disablement and during convalescence, pensions, distress payments, and remission of contributions, but not death benefits. It can give him, in fact, all benefits that the money will pay for, that is to say, all benefits which can be given to a man joining at 16 and paying a contribution of 14 cents a week, the amount depending on the management of the society and the health of the members.

Finally, there is a prospect of extended benefits at the close of a period of eighteen years. To the worker who joins as a young man and who does not expect in the course of nature to draw heavy sick pay before reaching the age of 40 or 45, this prospect of extended benefits is of real value. The fact is that for a period of eighteen years a part of the contributions goes to a fund for equalizing the benefits of old and young; at the end of that time, when the process of equalization is complete and the fund provided, the whole of the contribution of 14 cents a week and the whole of the state grant of 4 cents will be available for the purpose of paying benefits unless some further small accumulation is made and the benefit so extended will be paid to insured persons when the period is complete. It is important to remember that all these benefits are guaranteed, within limits, to members of approved societies only. The deposit contributor will get only benefits to the extent of his balance at the postoffice, plus the state grant, and is therefore not really insured. The position of deposit contributors must be reviewed by Parliament before Jan. 1, 1915. Whether, owing to the war, this was done or not, it is impossible to say.

There are, however, six classes of insured persons, in addition to those already mentioned, who will not receive all the benefits in full. First are persons under the age of 21, not married, and having no members of their families dependent on them; second, employed contributors who become insured within one year after the commencement of the act and are then over the age of 50; third, employed contributors who enter when above the age of 17 after one year from the commencement of the act; fourth, employed contributors whose employers with or without their consent exercise the option of undertaking the liability to pay full wages during about six weeks of sickness. During the six weeks, when full remuneration is received from the employer, no sick or disablement pay will be due to the insured person, but it will begin when the liability of the employer ceases. Fifth, those of men over 65 and under 70 at the commencement of the act; sixth, those of aliens.

All these six classes have certain qualifications and certain conditions under which they are partially insured, the details of which are unessential for the purpose here and must be obtained from the act itself.

WORKING OF THE BRITISH NATIONAL INSURANCE ACT

There is a great advantage in studying the workings of the English sickness insurance law. We are able to study a law which is in the process of reaching its equilibrium. To obtain this equilibrium there has been an intense and bitter fight of the medical profession for its rights, for the government was endeavoring to bring the insurance act into operation without consultation with the profession whose duty it was to administer it. To appreciate what it means to administer such a huge machine as this government insurance scheme is, a statement of the Committee on Inquiry instituted by the Fabian Research Department in July, 1913, is very instructive:

"The immense organization required for issuing the benefits to these 13,700,000 of insured persons, of whom nearly 11,000,000 are in England, appears—so far as the actual payment of the money by the approved societies is concerned—to be working on the whole with a fair degree of efficiency. We gather that in the aggregate something like 80,000 new claims per week are made in the United Kingdom for sickness benefit and 18,000 for maternity benefit on the 23,500 approved societies and autonomous courts, lodges or branches; and that the total number of claims paid, new or old, for both benefits amounts each week to between $1,250,000 and $1,500,000, representing a total payment that often exceeds $750,000 in a single week. The 23,500 societies, lodges and courts evidently differ greatly in the rapidity with which they deal with their claims, the stringency of the examination to which these are subjected, and the promptitude with which the decision is carried out. But regarding England as a whole, with respect at any rate to four fifths of the cases, the large sum involved is being got into the hands of the sick persons, and in the case of maternity benefit now into the hands of the mothers themselves, with commendable regularity and promptitude. The doctors, after some initial objections, are now giving their certificates without charge in terms enabling the great majority of the claims to be at once admitted."

The last sentence is equivalent to saying that the individual animosity and antagonism to the insurance act among the physicians has practically subsided. To understand the antagonism with which the insurance act was received in England by the physicians, one must understand the situation that existed previous to the passage of the act and also some of the contentions that arose before the act went into effect.

CONDITIONS BEFORE THE ACT

About ten years ago it became very evident in England that the circumstances under which the general practice of medicine could take place were rapidly becoming less and less advantageous to the profession.[8] The result of preventive medicine and public hygiene had brought about such a diminution of the infectious diseases that there was a very noticeable diminution in the income and in the medical practice from these sources, especially since in a vast majority of these cases, when they occurred, the patients were sent to isolation hospitals to be cared for and were not kept in the hands of the practitioners. It is said that where many practitioners among the poor had ordinarily received $700 or $800 a year from this source alone, they now hardly receive $50 a year. It is also said that twenty years ago the obstetric practice of a general practitioner was an important part of his income, and that at that time it was thought that 70 per cent. of the confinements were attended by physicians. At present, especially in the large towns, 80 per cent. of the confinements are attended by midwives, and even when physicians are called in, the fees are much lower than they formerly were. Not only had it become noticeable that practice among the poor meant very small fees with many bad debts, but also it was well recognized that the poor could not pay for their medical services without crippling themselves for many months to come after any illness of more than ordinary length. This had caused various forms of clubs, associations and medical benefit societies to spring up, and what had been undertaken in many instances as part charity had become settled as a method of taking care of the poor, the medical fees for which were notoriously inadequate for the services rendered. Lodge practice and club practice were so prevalent that the British Medical Association undertook to investigate the situation, and made a report in 1905. It is evident from this report that the usual method of payment was by capitation with all its usual evils, inadequate payment for excessive work, and the resulting poor medical return to the patient. This, in return, placed the club physician on a contemptible footing, and if anything serious was the matter, in which an ordinary fee would be paid, the patients invariably sent for what they called a "proper doctor." There was no possible security of tenure of the position as physician to these lodges, and physicians were under lay control and were liable for the most trivial causes to be dismissed. As the complainants were also the judges, physicians were dismissed for what patients considered to be harshness when the physician was often conscientiously endeavoring to prevent malingering. The remuneration in the lodge practice was difficult to obtain, but in 269 clubs providing attendance for males only, records were kept, and Table 5 shows the results.[8]

The average fee obtained, according to this table, per visit is almost exactly 21 cents, and each club member on the average had been attended four times during the year. This table does not take in the attendance for giving of certificates for unfitness to work, as the physicians did not keep record of these visits because they did not charge for them, but making out certificates, as is well known, is time consuming. It was further stated that most club physicians did not keep record of attendance on club patients when no medicine was given, so these statistics are understatements rather than overstatements of the situation. Moreover, when the club or lodge only cared for the head of the family, the lodge physician had no guarantee, if he cared for the insured, that he would be called in to care for the rest of the family, because, as stated above, the lodge physician was looked down on even by the patients as being an inferior sort of doctor.

TABLE 5.—REMUNERATION IN LODGE PRACTICE BEFORE THE NATIONAL INSURANCE ACT, 1911

Annual Capitation Fee	Members	Average Capitation Fee	Average Attendances per Member per Year	Average Fee per Attendance
$0.50 to $0.75	9,630	$0.59	$3.59	$0.159
.75 to 1.00	9,311	.81	3.67	.211
1.00 to 1.25	17,741	1.02	4.46	.2196
1.25 and upwards	4,211	1.35	5.43	.2672

The reasons given for the hold the lodge practice had on the profession were the usual ones that the lodge work forms only part of the practice and can be done in the midst of the daily routine of visits, or that it is undertaken by beginners to gain a foothold and a living until they can obtain a better practice, and among the older practitioners it is done because, if they are willing to do it, there will be less likelihood of other physicians settling in that district and competing in other practice—all of these reasons being the practical, everyday economic questions of existence. One of the practical results of the investigation of lodge practice was that the contract practice committee of the British Medical Association had obtained the approval of the Representative Meeting, equivalent to the House of Delegates of the American Medical Association, to a scheme to establish what was called a Public Medical Service organized by the profession, and in a few towns, such as Norwich, a medical association on the Association lines was actually established by the medical profession and several such services successfully competed with the friendly society clubs. The lodge practice report of the British Medical Association contains a majority and a minority report. In the majority report the association recommended the extension of the contract system of the clubs, and while this was preferred rather than the minority report, the British Medical Association preferred the scheme as spoken of above which it itself had started, and had it not been for the appearance of the insurance law, this undoubtedly would have been put into effect. The minority report recommended that a unified medical service should be established under the control

8. Carr, Garnett and Taylor: National Insurance.

of the county and county borough public health authorities. It was felt that the minority proposal for a system of whole-time medical officers could not be confined to the poorer classes and that a free medical service open to all would result. The profession in general was opposed to this system because of the opposition which had arisen between the health officers and the general practitioners, and they feared that domiciliary medical attendance would arise under the control of the boards of health which the profession had universally so far opposed.

CONTROVERSY BETWEEN THE BRITISH MEDICAL ASSOCIATION AND THE GOVERNMENT

It was during the discussion of the majority and minority report that the principle of free choice of physician became prominent, and it was felt that any salaried public service would prevent this freedom of choice. When the insurance act was proposed, the British Medical Association presented six cardinal points which it considered as essential to be incorporated into the act. First, an income limit of $10 a week to those entitled to medical benefits; second, free choice of physician by the patient subject to consent of physician to act; third, medical benefit to be administered by insurance committees and not by friendly societies; fourth, method of remuneration of medical practitioners adopted by each insurance committee to be according to the preference of the majority of the medical profession in the district of that committee; fifth, medical remuneration to be what the profession considered adequate with due regard to the duties to be performed; sixth, adequate medical representation among the insurance commissioners on the central advisory committee and on the local insurance committees and statutory recognition of a local medical committee representative of the profession in the district of each insurance committee. Moreover, it was agreed by the majority of the profession, in the signed agreement with the British Medical Association, that they would undertake no medical service unless under such agreement as this.

Without going into all the details of the dispute, four of these six demands of the medical profession were granted by the government and incorporated into the act. The first one that the act be limited to patients having a maximum of $10 a week income was not granted; it was finally decided to include up to $15 a week. In the beginning the government contemplated allowing a capitation fee of $1.12, but after a final refusal by the physicians to act, and within a very few days before the act was to go into effect, the government compromised and allowed a straight capitation fee of $1.62; and this further sum could be increased by 12 cents per capita to any panel physician for treating tuberculous patients. A minimum capitation of 8s. 6d., or $2.12, was claimed, not including extras, medicines for members of approved societies; and the recognition of payment per attendance was also claimed, in which case the fees would be on the basis which should be deemed an equivalent to the foregoing by the State Sickness Insurance Committee with the recognition of a $10 maximum in a week income limit.

There was also an ingenious scheme put into effect to tempt the physician to be economical in prescribing drugs. The amount allowed for each patient was 37 cents per patient for drugs and appliances. There was set apart 12 cents for each patient which was called "the floating sixpense." If, by economical prescribing, the 37 cents was adequate for the drug bill, then the full 12 cents went to the physicians. If the latter by extravagant prescribing raised the drug bill higher than 37 cents per patient, then the excess was taken out of this "floating sixpense fund" and paid to the pharmacist, the remainder going to the physicians. The straight capitation fee, therefore, became $1.74 if a man took care of tuberculous patients, and a possibility of $1.86 if the physician attained the full amount of the "floating sixpense." The British Medical Association refused these demands, advising that the medical men should demand free choice of physicians with remuneration for attendance and not capitation. This the government refused. The second day after the act had gone into effect, 10,000 physicians had accepted service, and a week later 15,000 were on the panels. The British Medical Association acknowledged its defeat by releasing its members from their pledges, thus permitting any physician to enroll. This controversy between the British Medical Association and the government was, however, the cause of many of the difficulties arising in the administration of the act which might otherwise have been avoided, and produced regulations for medical benefit that were hastily drawn.

REGULATIONS FOR MEDICAL ATTENDANCE

The English act guarantees adequate medical attendance and treatment to the patient, but the panel physician contracts to give only such treatment as is of a kind which can consistently with the best interests of the patient be undertaken by a general practitioner of ordinary competence and skill, and, further, when the condition of the patient is such as to require services beyond the competence of an ordinary practitioner, the practitioner shall advise the patient what steps to take so as to obtain the treatment his condition may require. These medical regulations are made by the English Insurance Commission so they are uniform throughout England. On this basis, therefore, Roentgen-ray diagnoses, pathologic and bacteriologic examinations, major operations or other operations requiring an assistant in addition to the practitioner and the anesthetist are not included under these ordinary services. Any physician is not expected to render any service that an ordinary practitioner cannot render even if the doctor possesses the adequate skill. However, if an emergency arises which makes this extra service imperative, if the doctor is able to supply it, he is in duty bound to perform it. To all patients needing more than the ordinary care of the average general practitioner, the act and regulations simply provide that this general practitioner shall furnish advice as to how these extra services may be obtained; but there is no provision in the medical regulations or act for the furnishing of these extra necessary services. Herein lies a serious weakness of the English insurance act.

These regulations state that the normal method by which the insured persons may obtain their care and treatment is by the panel system. Every insurance committee is required to adopt this panel system unless the commissioners are satisfied, on inquiry, that it does not afford adequate medical service, when other medical methods may be adopted, provided these give as good service as the panel system should give. The insurance committees form the panels of practitioners. There may be formed by the committee different panels for each convenient district of the area under the committee. Every practitioner has the statutory right to act on any panel on the terms and conditions offered by any insurance committee in respect to that panel. The committee cannot exclude any practitioner or remove a practitioner. A practitioner may, if he sees fit, be a member of more than one panel. Thus a physician living near the boundary between two counties may be on the panel of each county. Every insured person who is entitled to attendance and treatment from the practitioners on the panel is free to select his own physician subject to that physician's consent. Those who make no choice and those who are refused by the physicians to whom they first apply will be distributed to the physicians on the panel. This distribution as far as practicable will be made by the practitioners on the panels themselves. Each physician must fix hours of attendance for seeing at some place appointed by him persons requiring his services, whose condition does not necessitate his visiting them. Practitioners in the district arrange with the insurance committee for an hour to be fixed on or before which messages for visits must be sent by the insured person whenever practicable. In a district where partial or complete payment per attendance is adopted, special fees will be paid for visits made in response to a message received after the hour thus fixed and on the same day on which the message is received. Physicians have to keep certain definite prescribed records, and each insurance committee makes provisions for the infliction of penalties on insured persons who make unreasonable demands on the physicians to whom they are assigned.

In 1912, disputes between two practitioners on the panel were referred to the local medical committee to take such action as they might think necessary. Questions arising

between physician and patient which cannot be adjusted through the principles of free choice and the physician's right of refusal of a patient may be referred by either party to the medical service subcommittee, which consists of three physicians chosen by the local medical committee, three insured persons and a chairman chosen from those members of the insurance committee who are appointed by the county or county borough council or from those appointed by the commissioners. If the insurance committee finds the insured person at fault, it may transfer him to another practitioner or fine him or, in the case of repeated offense, suspend him from benefit. If the practitioner is found at fault, the patient may be transferred to another practitioner, but the committee cannot remove the practitioner from the panel or inflict any penalty beyond the transfer of the patient. The removal of a practitioner can be made only after an inquiry conducted by a committee of inquiry especially appointed by the insurance commissioners for the purpose. This committee of inquiry must consist of two members of the medical profession and one barrister or solicitor in actual practice appointed by the insurance commissioners. The commissioners can proceed only on the result of such an inquiry.

After a year's working of the act it was found that this local medical committee, which was composed of all the practitioners in any county or county borough, was insufficient to give justice to physicians working on the panel, and a special panel committee was passed in the amendment to the national insurance act in 1913 and all questions regarding the attendance and treatment of the insured persons must go through this local panel committee. Where no other local medical committee had been appointed, this panel committee should be recognized as the local medical committee. It was further provided in 1914 that all disputes were referred to medical service subcommittees appointed by the insurance committees as follows: each committee to consist of three persons or, by consent of the insurance commissioners, five persons; one person appointed by the local medical committee and a sufficient number of the panel committee so that the representatives of the local medical committee and panel committee shall equal the number appointed by persons representing the insured persons, "provided that unless the person appointed by the local medical committee or one of the persons appointed by the local panel committee is a woman, at least one of the persons of the committee representing the insured persons shall be a woman, but the woman so appointed may be a person who is or is not a member of the committee." The chairman shall be selected from the members of the committee who are not insured presons, practitioners or registered pharmacists. Similar pharmaceutical service subcommittees are appointed for dealing with any complaint from a person entitled to receive treatment from a practitioner on a panel against a person supplying drugs or appliances in respect of the quality of the drugs or appliances supplied or in respect of the failure to supply such articles. These committees are made up of three members of the committee representing the insured persons and three members of the pharmaceutical committee. There is the same proviso that one member of this committee must be a woman. There are also provided the joint service subcommittees between the medical service subcommittees and the pharmaceutical service subcommittees. These joint service subcommittees deal with any disputes in which pharmacists or physicians are both involved. Questions arising between two practitioners involving questions of the efficiency of the medical service of insured persons still come before the local medical committee, not before the panel committee, and the local medical committee may request the commissioners to remove any practitioners from the panels. The panel committee has the further duty of investigating the character and amount of drugs and appliances ordered for injured persons by practitioners on the panel, and if it is found that the cost has been in excess of what may be reasonably necessary, the panel committee can recommend to the insurance committee the amount that should be recovered from the practitioner. This may be recovered by deduction from the amount payable to him in respect of any year, and the funds so recovered shall be paid to the practitioners' fund.

All decisions between the panel committee's subcommittees and insurance committees are subject to appeal to the insurance commissioners. If a question arises that a practitioner has failed to perform any operation or service which can consistently, with the best interests of the patient, be undertaken by a practitioner of ordinary competence and skill, the question should be referred to the local medical committee. If the local medical committee and the insurance committee cannot agree, the questions are referred by the commissioners to referees especially appointed. These referees shall be chosen as two practitioners selected from any panel of practitioners set up by the joint committee for the purpose, or if no such panel exists, from any practitioners in Great Britain and one barrister of law or solicitor in actual practice. The joint committee here referred to is the joint committee panel of insurance commissioners of England, Ireland, Wales and Scotland. The decision of these referees shall be final, and the referees in giving any decision shall state whether in arriving at their decision they took into consideration the practice and medical customs peculiar to the area in which the question arose. When appeals are taken to the commissioners, the commissioners may authorize any two or more of the commissioners to hear and determine questions or appeals, and any decision of the commissioners or any of them made under this article of appeal shall be final. The insured persons, unless through an appeal to the local committee, cannot change their panel except at the end of the year, and must notify the committee by the first of December of each year if they so desire to change. A practitioner cannot retire from the panel except at the end of the year, and must give notice not later than six weeks before the commencement of the year. If, however, a practitioner wishes to discontinue practice, he must give two month's notice or, by special arrangement with the committee, he may discontinue at shorter notice.

Any insured person may, on application, be allowed by the insurance committee to make his own arrangements for medical treatment, receiving from the medical benefit funds of the insurance committee of his area a contribution toward the cost. If the income limit has been fixed locally, those whose incomes exceed that limit will be required to make such arrangements if they desire to be insured.

METHODS OF REMUNERATION

Remuneration to the practitioners is made through the insurance committees. The method which is adopted rests with the insurance committee, subject to the approval of the insurance commissioners; but in practice it was decided in accordance with the preference of the practitioners on the panels, the amount received by each doctor depending on the method adopted. As a matter of fact, a straight capitation system has been adopted in all except Salford and Manchester, where a payment by attendance has been chosen. The methods permitted under the law are straight capitation, that is, so much per patient per year. This is simply for attendance on the insured person and does not include any income derived from attendance on wives and families of the insured, and on the uninsured classes. The physician is paid for the number of patients on his panel at a certain definite time, the payment for each quarter being the average of those on his list on the first day of the quarter and those on his list on the last day of the quarter. The regulations further provide, besides this capitation schedule called Schedule A, other schedules of B, C, D and E. Schedules B and C are schedules of capitation system plus the payment for special services, the details of the special service simply being different in the two schedules, Schedule C dividing more minutely than Schedule B the special work which, according to the schedules, should be left to the choice of the practitioners of the neighborhood. Capitation plus special services, however, can be regarded from two standpoints. They can be regarded from the standpoint that the general capitation fund shall take priority over the special service fund and shall be paid first to the practitioners. In occasions in which there is insufficient amount to pay for special services given, the value for each

service shall be reduced but the capitation prices shall remain fixed. On the other hand, in Schedule D of the regulations, the reverse is made possible so that the fund for special services shall take precedence and be paid in full, and if there be excess of such services, then the amount in the capitation fund shall be proportionately diminished and be paid last. The regulations provide for the appointment of practitioners on the panel to protect against the overcharge of any individual practitioner.

The other method allowed is payment by attendance. Here all services are paid according to rates fixed for special services, that is, visits to patient's residence, attendance on patient at the practitioner's residence or dispensary, special visit—that is, visit paid by the patient's desire on the same day as the call received after a certain designated hour in the morning or on Sunday; night visits—that is, calls between 8 p. m. and 9 a. m. in response to a call received during those hours; or treatment of abortion or miscarriage so far as not included in maternity benefit, setting a fracture, reduction of dislocation, administration of general anesthetic for the purpose of any operation included in any medical benefit treatment, or tuberculosis so far as the patient is not entitled to receive sanatorium benefit. There is also in the regulations a fee bill entitled "A Scale for Calculating Remuneration in Respect of the Treatment of Temporary Residents."

DRUGS AND APPLIANCES

The insurance committees have drawn up a list of drugs ordinarily supplied. Anything not included in the list must be subscribed on a special form. This list is a matter of agreement between the physicians, the pharmacists and the insurance committee of each area. Physicians cannot dispense medicines. Except in certain rural areas, by special permission of the insurance committee, they can supply drugs and will be given a capitation fee of $2.12 per person. If they care for tuberculosis in this area, their capitation fee becomes $2.25. There are also special regulations for certain sparsely populated areas in which there are special grants made for mileage.

The working of the insurance act of Great Britain has brought out many unexpected factors. First, that the amount of sickness among the people was vastly more than even the physicians working among the poor had any conception of. It was calculated that 60 per cent. of those on a physician's panel would come to him during the year for treatment. It was found with those caring for women that the sick rate among them was as high as 100 per cent. more than was calculated, and many were surprised to find how really ill and ailing many of these women had been, although dragging on with their work. In some panels in London the sickness was as high as 81 and 88 per cent. of the panels, and among the very poor in the city it was realized that they really had not been able to earn enough money to give them proper food by which they could be nourished to do their work; and there was a vicious circle of poverty, starvation and unemployment and sickness which began to be broken only when medical care attempted to increase the nourishment necessary to gain some measure of health.

In the drug tariff in which certain lists of appliances are given, consisting of bandages and surgical dressings of simple kind, ice bags, splints and catheters were the only other appliances furnished. Trusses and spectacles were not included, even in the first instances of injury. This is widely different from the German system, in which the spectacles and trusses are furnished in order that the workmen may go back to their work as soon as possible and keep off the sick lists. In England there has been rather a "penny wise pound foolish" policy pursued because many insured persons have been kept on the weekly sick benefit lists who would have gladly gone to work but have been unable to do so because unable to buy spectacles or trusses out of their own pocket, and the societies have been unwilling to furnish them, although the price for these appliances was no more than a single week's illness of an individual.

FACTS BROUGHT OUT BY FABIAN COMMITTEE

In general, according to the Fabian Committee report, the free choice of physician has not produced anything like an even distribution of the patients among the physicians. The Fabian Committee asserts that in town after town for which it has the figures, about one fifth of the physicians on the panel were caring for one half of the insured persons, while four fifths of the physicians divided among themselves in comparatively small numbers the other half. This gives the inevitable results of capitation and the same evil results as under the old lodge practice. The report goes on to say that there is one case of the physician who pays, it is true, four assistants whose names are on the panel, together with a secretary and a nurse, having on his list just under 9,000 insured patients in addition to an extensive private practice. There are many instances of physicians undertaking from 3,000 to 4,000 insured persons, sometimes without regular assistants. "We notice with some surprise that even with these crowded lists, and in addition to waiting for hours, only the smallest fraction of insured persons have for any reasons whatsoever taken the trouble to change doctors. Judging from the statistics we have seen, the changes do not average from 1 per cent. to hardly 2 per cent. per doctor. We consider that the medical attendance and treatment thus provided has various defects and shortcomings, in small matters and in great, not perhaps wholly or mainly the fault of the doctors themselves, which call for prompt amendment, and that it falls far short of the medical attendance guaranteed by the Act." The Fabian report also explains that the kind of service given was only for relatively slight ailments, and that the special treatments of eyes, ears, etc., and the really serious cases requiring hospital care, were not properly cared for.

The working of the act brought out the fact that England lacked adequate hospital accommodations. Previous to this the Fabian Committee asserts that not one county in England had a number of hospital beds equal to the low standard of two per thousand of the population. In France the law requires that there shall be one bed for every 500 or fraction of 500 inhabitants; in Germany the necessity is reckoned as at least five per thousand in towns and three per thousand in the country.

THE MATERNITY BENEFIT

The most serious breakdown in the English law has been in the administration of the maternity benefit. It was early found that it was a necessity that the money payment should be made to the woman herself and not to her husband except by her order. In calculating on the premiums and not including the actuarial calculation for the sickness benefits of the English insurance act, the statistics of the Manchester Unity Society were taken. This was a society composed entirely of men, and the actuaries loaded the benefits of these selected lives, allowing for various contingencies. The actuarial errors were that no account was taken of the varying difference in sickness of different trades and the big variation of sickness occurring between men and women and married and unmarried women. Calculating from the lives of selected men, the actuaries had forgotten all about pregnancy and sickness pertaining thereto.

The sum total of sickness calculated for occurred as figured. Many approved societies, finding that their reserves were disappearing and that they were liable to be bankrupt, decided that pregnancy or any sickness due to it was not a disease but a disturbance of the normal functions, and refused to pay for sickness due therefrom. This has caused a great deal of hardship and indignant criticism. In the report of the Departmental Committee on Sickness Benefit Claims, under the national insurance act, it was recommended that the financial burden of benefits necessary to provide the proper care for pregnant women should be removed from the funds of the approved societies and placed under the insurance committees, special funds being provided for this purpose. They made the further recommendation that the new benefit to be created should be paid to a pregnant woman in the last four weeks of pregnancy whether she was incapacitated or not, and that payment should be paid to the woman who was incapacitated from following her occupation the month previous to the last month, whether she was incapacitated by her pregnancy alone or by pregnancy accompanied by some other condition.

REFEREES

It has further been found that the panel physician cannot adequately cope with the decision when a patient shall go back to work. In disputed cases there must be referees, and the committee just referred to recommended that referees be appointed by the commissioners and not by the approved society or by the physicians. The referees should either be paid for full time or should be part-time referees, but should have the power of deciding when the patient shall be put off the rolls and be put back to work, and should be used also as consultants when a second opinion was needed by the panel physicians.

The experience of the English law shows also the necessity of the referee to prevent valetudinarianism and malingering. This is in accordance with the German experience already mentioned. As, for instance, insurance companies in London and Bristol appointed referees to whom both physicians and societies could send doubtful cases for a second opinion. In London 700 applications were made in two months' trial of the system. Of the 375 persons who were examined, 208 were declared capable of work, 167 remained on the funds of their societies, and 76 other persons failed to attend the examination, saying they were going to declare off.[9] In eleven months the Bristol referee had 600 cases sent him, 197 by local physicians, and 403 by approved societies. Of this number 240 were declared fit, 205 unfit, and 145 either did not attend the examination or returned to work.

Another valuable work of the referee would be to standardize the giving of certificates by physicians and the standardization of what constituted "incapable of work." At present there is no control of the physicians on the panel in this respect.

MATERNITY INSURANCE

Maternity insurance is of such importance that it seems wise that special attention should be paid to it and that it should not be passed over with a mere casual reference in considering the insurance laws in Europe. Dr. Lee K. Frankel[10] sums up as follows, what has been done in this subject both in Europe and in the United States.

"The industrial code of Germany forbids women's work during four weeks after confinement, and permits it during the next two weeks only on the certificate of a physician. In Austria the law requires a rest period of four weeks after childbirth, and in Switzerland there is a rest period of two weeks before and six weeks after childbirth. France has also enacted a compulsory rest period of eight weeks, which are to be equally distributed before and after childbirth. Seven weeks of rest are required in Italy. A rest of four weeks after childbirth is demanded by the Belgian and Portuguese laws, and the same period, which may be extended by one or two weeks through a medical certificate, is required under the law of Spain. Holland and Norway have both instituted a compulsory rest period of four weeks, and Sweden has a six weeks' rest period law. Great Britain prohibits the employment of women within four weeks after childbirth. It is of interest to note that in the maternity insurance legislation which has resulted from these attempts to protect motherhood, the unmarried mother, as a rule, is given the same consideration as her married sister."

In Germany the war at first cut down the sick benefits considerably and especially the maternity benefits, but in December, 1914, these confinement benefits were again voted in the war relief. Those uninsured wives of insured participants in the war are entitled to a single payment of 25 marks toward the cost of confinement, with 1 mark a day for a period of eight weeks, of which at least six must be after the actual confinement, and aid up to 10 marks for the ailments of pregnancy and nursing pay up to the conclusion of the twelfth week after confinement, to the amount of one-half mark a day. The maximum expenditure permissible in each case is 133 marks. All costs are borne by the empire. In the case of insured wives of insured participants, the confinement pay is furnished by the society and the remaining benefits are given by the empire. The insured wives of uninsured participants are entitled only to the benefits guaranteed by the society, and all costs must be borne by the societies.

"In the United States, legislation directly affecting motherhood is much less common than in Europe, owing in all probability to the more recent entrance of married women into factory life. Laws regulating rest periods before and after confinement have been enacted in Connecticut, Massachusetts, New York and Vermont. In Connecticut a compulsory rest period of four weeks before and four weeks after childbirth is provided. In Massachusetts there is a compulsory rest period of six weeks, two weeks of which are before childbirth. New York does not provide for a rest period before childbirth, but the employment of women is forbidden for four weeks after this time. The requirements of the Vermont statute are the same as those of Massachusetts.

"Indirect provision for the protection of motherhood is found in the statutes of various states. Conditions of labor of women are carefully regulated in a great many. Women are forbidden to engage in certain occupations. For example, in Alabama mine work is not allowed; in Arizona women are not allowed to work in saloons. Colorado, Illinois and Indiana have a provision similar to that of Alabama. Iowa and Louisiana forbid work in saloons. These laws, as well as many others for the protection of the woman wage earner, while not primarily designed to protect working mothers, have, it is safe to say, the indirect effect of protecting the children of the next generation.

"Another group of laws more general than these limiting occupation, but with probably the same indirect intent and effect, are those specifying the maximum working day. These laws are general in almost all states. California and Washington limit the working week of eight hours a day, while South Carolina has a maximum of twelve hours a day and sixty hours a week.

"It is interesting to note in these various laws that the lowest number of hours and the most stringent regulations of the conditions of work are found in the Far West. Specific regulations forbidding work during and after pregnancy, however, appear only in a few of the most densely settled manufacturing states in the East.

"Minimum wage legislation, although not specifically directed toward the protection of mothers, aims very definitely to provide women with a sufficient salary so that their health and morals may be preserved. It seems reasonable to suppose that one of the underlying purposes of this is to protect the future mothers. The following states have enacted such legislation: California, Colorado, Massachusetts, Minnesota, Nebraska, Oregon, Utah, Washington and Wisconsin."

Frankel further quotes Mayet of Berlin that it is self-evident that the physiologic needs of the mother and of the child are fundamental at the threshold of the infant's life, and that sickness and death are the punishment for the neglect of these laws. Maternity insurance is a necessity to assure the working classes of the physiologic needs of the pregnant woman and her infant. The Bohemian Sanitary Report is quoted to prove that the high rate of stillbirths in northern Bohemia is explained by the fact that women work up to the end of pregnancy in order not to forfeit their membership in the societies, and in France it has been found that the average duration of pregnancy is within the normal period of 269 days among women who observe a rest period before confinement but only 247 days among those who do not. It is also said that the large measure of the abdominal diseases of the women of the working class is attributable to the fact that they are unable to obtain that rest after confinement which Nature demands. The extent to which this is true cannot be deduced from statistics, but in the testimony before the Departmental Committee on Sickness and Benefit Claims, in England, it was brought out that the large increase of sickness among the married working women was due, in a great measure, to the lack of care in childbirth and to their returning to work too early. Moreover, the English insurance act has brought out these facts to a degree which has astonished the physicians.

In the care of children after confinement, the mortality among the bottle fed is notoriously greater than the breast fed, and the mortality is determined not only by the fact of breast feeding but also by its duration. Roese of Dresden found that the extent of dental decay and rickets varied

9. Halsey, Olga S.: Thesis on the British Health Insurance Act.
10. Frankel, L. K.: Maternity Insurance, New York Med. Jour., Dec. 18, 1915.

inversely with the duration of breast feeding. On the basis of statistics of military recruits it has been proved that the weight, chest and other measurements of adults varied greatly with the duration of the period which, as infants, they were fed at the breast. The same relationship is evident between breast feeding and efficiency in school. These facts have been found by Friedjung, Groth and Hahn.

The following benefits and protection are deemed by Mayet a necessity in any scheme of maternity insurance: a rest period before childbirth, with full compensation for wages lost; aseptic conditions of birth, and obstetric aid by a midwife and, if necessary, by a physician; a rest period after childbirth, with full compensation for wages lost; in case of necessity maternity care, either at home or in an institution; extension of the period of breast feeding by means of nursing benefit, and, if necessary, a pecuniary aid toward the nourishment of the infant.

"In Australia an entirely different philosophy underlies the maternity allowance provision, which also dates from 1912. In all other countries there are salary limits to the employment benefits; contributions are made by the workers, or by the employers and employees, and, in some cases, there are state subsidies. In Australia, however, a gift of 5 pounds is made by the Commonwealth to each mother on the birth of a child. This covers all classes in the community, and cannot properly be classed as insurance."

HEALTH INSURANCE IN THE UNITED STATES

The general situation in the United States today is similar to that in England and Germany before the passage of their comprehensive health insurance laws. No state, municipal or other government in any way provides for or aids health insurance, according to the latest bulletin on health insurance of the Treasury Department. Medical benefit, however, is generally granted by both state and municipal authorities in the public hospitals which are supported so generally throughout the Union, for hospitals are nothing more or less than that amount of medical benefit which the community is willing to give for its own or neighboring sick poor. And the same can be said of the free dispensaries. Both state and municipalities go further and provide sanitation and preventive medicine through the various departments of health. As a rule, this extends only to the communicable diseases under the sanction of the police power of the state. In some instances, as in the New York City health department, therapeutic procedures are also added to the benefits given often in the homes, as, for instance, free diphtheria antitoxin and free meningitis serum given by trained inspectors on the advice of any physician to the poor at any time. The New York health department goes farther and manufactures these substances, its laboratories adding also in no small degree to the scientific advancement of medicine in subjects relating to communicable diseases. New York City also supervises the health of the children in the public schools both by physicians and by nurses. Its services are mostly toward the prevention of disease, but in the special group of communicable diseases an enormous mass of work is done in their care and treatment. This care has developed from the necessity of absolute control if real prevention and limitation are to be obtained. Public care of the insane is in reality the permanent care of mental invalidity, and the public epileptic colonies are founded on a similar basis.

Other evidences of health insurance are shown in the benefits given by the trade unions, both national and local, by employers' organizations for benefit of employees, such as the railroad funds and the establishment funds, mutual societies—that is, the fraternal orders, local lodges, general benefit societies and special sick benefit funds—and commercial companies operating for profit or on a mutual principle, that is, industrial insurance companies and casualty companies doing industrial insurance. The trade unions probably take in about 10 per cent. of the total number of the wage earners. They are the only organizations which so far have successfully dealt with unemployment insurance. They are especially fitted for the carrying out of sickness insurance through their local lodges because members of the local lodge have a mutual supervision and restraint on each other. All are practically subject to the same environment, and all possess approximately equal chances for health or sickness.

BENEFITS BY TRADE UNIONS

In some of the large national trade unions the national body pays the disability and death benefits while the local bodies control the sick benefits. Many of these unions do not pay for sickness for less than a week, and a week's waiting period is required. Others begin payment after fourteen days, but pay then from the first day of illness. Death benefit of various amounts is the most universal benefit paid. Temporary disability, which is really sickness insurance, is not as commonly paid as permanent disability, and this last serious condition is paid by lump sum of the same amount as the death benefit; sometimes the payment of this permanent disability benefit disentitles the member to any other form of benefit, and unions paying the permanent disability benefits usually require a longer term of paid premiums for members who become entitled to this benefit than is required for members who become entitled to death benefits, the usual requirement being from one to two years. In the report of the commissioner of labor,[11] it is stated that the generally accepted definition of permanent disability is the loss of a hand at or above the wrist joint, the loss of a foot at or above the ankle joint, the loss of one eye or both eyes, or a permanent disability caused by paralysis. A few unions pay superannuation benefits as a lump sum per month through life; there is one union that pays $10 per month for six months in the year. The cigar makers' union disguises this old age pension under the form of "out of work benefits," and a large number of recipients of this relief (according to Henderson in "Industrial Insurance") are infirm persons who cannot earn the average wages, and many of these are advanced in years. This keeps them from going into the market on very much reduced wages, which they must take if unable to subsist.

Table 6 shows the kind of benefits paid in the 530 funds of the trade unions reported on nine years ago (1907) in the Twenty-Third Annual Report of the Commissioner of Labor. It is given here as showing the type of relief which the trade unions give to their members.

TABLE 6.—BENEFITS PAID BY TRADE UNIONS

Kind of Benefit Paid	Number of Funds	Number of Members	Number of Persons to Whom or on Account of Whom Benefits Were Paid
Temporary disability	346	102,800	9,117
Death of member.....	401	133,821	1,472
Death of member's wife..	86	26,790	111
Death of other dependents	40	10,190	179
Unemployment	10	3,398	424
Permanent disability in lump sum	3	1,730	.....
Permanent disability in form of pension.....	7	10,374	106

Of the 530 funds investigated, 346 paid benefits on account of temporary disability of members, and of the 102,800 in the 345 funds which reported the number of benefits paid, 9,117, or nearly 9 per cent., received benefits for temporary disability during the year previous. It is further shown by this table that the death rate among these unions was about eleven per thousand members, for the death benefit funds have in the 395 trades reporting concerning this item 133,821 members and had paid 1,472 death benefits. It is further interesting to note that in the ten funds paying benefits to members when out of work, nine reported statistics on this point that out of a membership of 3,898, unemployment benefits were paid to 424 members, or about 12 per cent., during the year. It so happened that in the three funds paying permanent disability in a lump sum no member was entitled

11. Twenty-Third Annual Report of the Commissioner of Labor, 1908.

to this benefit. The seven funds that gave pensions for permanent disability gave these pensions to about 1 per cent. of their members during the year previous. Of course, if figures on similar points could be obtained today, there would be a great variance with these figures of ten years ago, especially in the number of members in the trade unions. Whether or not the ratio of temporary disability and permanent disability would be the same, it is impossible to say.

In considering the amount of temporary disability benefits, the recent passage of the workmen's compensation laws has modified greatly statistics obtainable on this point. It is interesting, however, to note that of the 530 funds included in the report, 346 paid benefits on account of temporary disability. Four of those paid for disability resulting from sickness only, thirty-eight for accident only, and 304 for disability resulting from either sickness or accident. The amount paid usually ranged from $2 to $5 a week. The time for which these benefits were paid varied greatly in the funds, some funds having first, second and third periods for which they paid the disability. The majority of the funds limited the periods to a stated number of weeks in each year or days in each month, while others limited them to disability. In twenty-three funds the period for which payments are continued is unlimited. Sixty-one of the 346 paying temporary disability limit the payments to thirteen weeks in each year; fifty-three limit them to a period not exceeding ten weeks in each year. In some instances the duration of the period is determined by the age of the beneficiary when he joined the organization; in others the payments are continued to the end of the working season without regard to the time of the beginning of the disability. There is further variation in the length of membership required before a member is entitled to temporary disability benefit. In 157 of the 346 funds, members do not become beneficiary until six months from date of admission; in seventy-one, however, they are entitled to benefits at once. In sixty a three months' membership is required; twenty-four funds require one year membership.

To prevent malingering and valetudinarianism or fraud of any kind, some sort of supervision is exercised over members who claim benefits on account of temporary disability. Of the 346 funds investigated, 279 require that patients be visited by sick committees; 257 require physicians' certificates; in twenty-seven, physicians' certificates may be required if deemed necessary; eight require visits by some officer of the society. Many of the funds have more than one form of supervision, that is, more than 200 of the 257 funds which require physicians' certificates also require visits by sick committees.

Many of the trade unions place certain restrictions on the action of members during the time they are drawing pensions for temporary disability. In twenty-seven funds they are forbidden to use intoxicating liquors to excess, in one to frequent drinking places after 9 o'clock at night, and in twelve to frequent such places at all. In fifteen they are forbidden to leave home at night, and in eighteen to leave home at any time. There are various other restrictions, the violation of which usually causes a discontinuance of the benefits. These funds vary greatly as to a continuance of benefits after the limit allowed is reached. In 214 of them, members who draw benefits for the entire period are entitled to no more benefits for the same year; but in twenty-three of these there is provision for extending the time by vote of the members, and the twenty-three funds there is no limit to the time for which benefits may be paid. In fourteen funds, after benefits are paid for the maximum period, no more are paid for the same disability.

The amount of death benefit paid by the trade unions varies greatly. In twenty-four funds there are more than one class of members, and each class is entitled to a different amount of death benefit. In 322 of the funds mentioned here which have but one class of death benefit and pay a stated amount, benefits range from $375 to $20; about one third of the number pay $100; in eighty-two funds the benefit paid is $50; in fifty funds the benefit paid is $75. An amount based on membership is paid by fifty-one funds. Ten of these funds pay an amount equal to 50 cents per member, and thirty-one pay $1 per member. Ten funds have provisions for paying benefits to members who are permanently disabled by chronic illness or by the loss of some part of the body. How much the latter clause may be affected by the workmen's compensation law it is impossible to say. In four of these ten the benefit payments were made in lump sum, the amount in one being $40 and in another $100. In the third an amount is paid equal to 50 cents per member for certain disability by accident, such as one hand and one foot, or $100 per member for the loss of both hands, eyes or feet. In the fourth, the amount of benefit depends on the length of membership of the beneficiary, ranging from $50 for six months' membership up to $100 for five years' membership. In six funds the benefit payment is in instalments, the period for which payments are continued being unlimited in each case. The amount paid is $4 per week in one fund, $3 in another, and $1 in another, $10 per month in two, and $1 per month in the other. These statistics are sufficient to give an idea of the kind and amount of benefits paid by these funds.

Besides the benefits on the death of members, eighty-six of the funds have provisions for paying benefits on account of the death of a wife of a member, and one fund for female members pays benefit on the death of the husband of a member, the amounts paid varying from $12.50 to $112.50. The most common benefit is $50. Forty of these 530 funds have further provision to pay benefits to members on account of death of dependents other than wives, these dependents being children, parents, brothers, sisters, fathers-in-law, mothers-in-law and other relatives. Few funds include all of these, and about one half of the funds pay only for children, the amounts of the benefits varying from $10 to $100. Most of the funds pay more than one amount of benefit, the amounts varying according to the age or relationship of the dependent. To give some idea of the amount paid during the year 1907 by the 530 funds investigated, Table 7 is self-explanatory.

TABLE 7.—AMOUNTS PAID BY FUNDS

Kind of Benefit	Number of Funds		Amount Paid During Year
	Having Provision for Paying Benefits	Paying Benefits During Year	
Temporary disability	346	334	$198,189.50
Permanent disability	10	4	20,964.00
Death of member.....	401	311	181,643.81
Unemployment	10	8	29,417.60
Death of member's wife..	86	47	6,470.50
Death of other dependents	40	32	3,859.00
Expenditure for hospitals.	7	7	16,261.50
Total			$457,493.81

EMPLOYERS' ORGANIZATIONS

In the class of associations which the employers have organized for the benefit of employees are the railroad relief funds and the establishment funds. Of the first, in 1907, the United States Bureau of Labor could only find fifty relief funds connected with thirty-seven railroad systems. Thirty-six of these funds are insurance funds to which the employees contribute all or part of the revenues; fourteen are pension systems maintained entirely by the companies. Of the 500,000 eligible employes, 300,000 were members of these funds. Thirty-one funds pay benefit for temporary or permanent disability; thirty-four for death, and one for superannuation. For thirty-six of these insurance funds there is a managing board, some members of which are chosen by the employees. In the majority of circumstances these boards pass on the claims to benefits. Twenty-two of the funds are managed by the employees alone, and fourteen jointly by employees and company. In each of these fourteen, some officer of the company is the supervising officer of the fund, the company often taking charge of the funds and guaranteeing the benefit payments. The companies generally make substantial contributions.

In thirty-three of these insurance funds the membership is optional. The maximum age for admission to membership is generally the same as the company's service age limit; in

eighteen funds it is 45 years; in four, 50; in one, 55, and in three, 60 years. Eighteen of the funds require a medical examination for applicants, and nine others require that the applicant be in good health. Three funds exclude colored employees. In ten funds, persons leaving the service forfeit membership. All other funds permit members leaving the service to retain membership or natural right death benefit, that is, death from natural causes. Eight funds managed jointly contain provisions in their constitutions releasing the funds from all claims for benefits whenever a suit for damages is brought against the employing company. In these eight funds the companies make contributions as follows: one company duplicates the employees' contributions; one contributes 20 per cent. as much as the employees; three, 15 per cent.; one, 10 per cent.; one, 2 per cent.; and one, less than 1 per cent. Dues and assessments are usually paid in advance and deducted from the pay of the employees. Thirty-one funds pay benefit for temporary disability. The periods during which benefit payments may continue range from six to fifty-two weeks in one year. The payments range from $2.50 to $20 per week. Usually after the first fifty-two weeks, the payments are half the original rates. This unlimited period makes these payments in reality a permanent disability benefit. Beneficiaries are visited usually each week by the sick committee and must furnish a doctor's certificate as often as required. Benefits are forfeited when a disability is caused or prolonged by carelessness, intemperance, immorality or unlawful conduct.

Of the thirty-four funds paying death benefits, seventeen pay sums from $50 to $400; the other seventeen pay regular benefits of a maximum from $1,000 to $3,000, and of these seven (in all of which the company has a controlling interest) have optional additional death benefits for which additional dues are paid. The highest total insurance which may be taken out in any fund is $6,000.

Besides the continuation of temporary disability or permanent disability, five funds pay lump sum benefits for various permanent disabilities ranging from $100 to $6,400, and one pays a monthly benefit of $5. To the fourteen railroad pension systems the employees do not contribute; they are all controlled and maintained by the companies. These pensions are usually based on age and length of service, monthly payments for life usually being made on 1 per cent. of the average monthly wage for the ten years next preceding retirement for each year of service. In most of the systems, pensions for superannuation are granted to employees retired at 65 or 70 years of age for from ten to thirty years of service and after incapacity of employees of from 60 to 69 years of age of like service. The age limit for entering the service of these companies is usually 45 years. The pensioners are allowed to engage in gainful occupatious, but may not reenter the company's service.

ESTABLISHMENT AND NEEDS

The greatest growth probably in recent years has been in the formation of establishment funds or special insurance funds in which the employees of a single commercial manufacturing establishment or business form a more or less complete social insurance scheme for their protection. Some of these are contributed to only by the employees; some are joint contributions of employer and employee; some funds are run entirely for the employees by the employer. The membership in some is voluntary; in others, compulsory. The method of contribution varies, and the method of management varies. It is impossible to go into the enormous details necessary to describe the many kinds of funds and benefits given under the separate establishments in this country. The benefits vary all the way from sick benefits and death benefits up to the complete systems of accident and sickness insurance, maternity benefits and hospital benefits, permanent disability and old age pensions; some establishments having practically the most modern, complete social insurance systems with compulsory insurance, or all members of the establishment forced to go in and protect themselves. These are in some cases connected with welfare work among the families of the employees, and with district nursing.

There has been a growing realization in this country that a cheerful willingness to work goes with a healthy mind in a healthy body. Public hygiene in communities and the full benefit of the protection that social insurance gives has been sought and used as a wise business policy. A state wide health insurance would, in many instances, only carry out what has already been accomplished in many of these establishment funds.

FRATERNAL SOCIETIES

There are other industrial benefit societies which differ from labor unions and establishment funds in that the membership, although composed generally of wage earners or of those on small salary, is not as a rule dependent on membership in any particular union or employment in any particular establishment. The management of these societies and the administration of their affairs is entirely in the hands of the members. It is also true that the membership of some of these societies is limited to the employees of a certain industry; the membership of others is limited to employees of certain industries of a certain locality. Other such funds limit their membership to the employees of any industry of a certain locality while others extend their membership to the employees of any industry without reference to locality. Some of these societies have restricted their membership to males while others admit both males and females. In others, the membership is composed exclusively of women. Some of these societies provide cash benefits in case of sickness, injury and death; some for sickness and injury only, and some pay only death benefits.

TABLE 8.—UNITED STATES FRATERNAL ORDERS*

Year	Number of Orders	Assessments (Millions)	Total Income (Millions)	Claims Paid (Millions)	Total Disbursements (Millions)	Assets End of Year (Millions)	New Business (Millions)	Number of Certificates in Force, End of Year (Millions)	Amount in Force, End of Year (Millions)
1914	498	$125	$144	$ 98	$121	$189	$1,079	7	$9,171
1913	509	129	144	101	121	183	1,065	8	9,622
1912	397	123	132	95	114	163	1,023	9	9,472
1911	396	117	130	84	113	148	1,200	10	9,839
1910	497	114	128	92	110	129	1,331	8	9,562
1909	645	82	120	89	104	117	1,203	7	8,920

* American Year Book for 1915, p. 377.

In 1914, in 122 mutual sick benefit associations operating in the United States, the number of certificates in force at the end of the year was 1,072,764. Their total income was $7,246,000, and their premiums $646,588; their total expenditures were $6,169,000; they had paid to agents and for medical examination $1,587,000; and the expenses of management were $1,608,000. Table 8 best expresses the number of fraternal orders in the United States and the amount of business done by them.

It is interesting to note that during the past year two of the oldest fraternal societies realized that they had become insolvent and were liquidated. These societies had been in existence for over forty years, and had been managed with integrity and economy; but the inadequate rates and the gradually increasing cost, with the increase in age of the members and the steady withdrawal of sound risks, caused their insolvency. The assets amounted to a little over one half of the accumulated death claims in one case and something more than half in the other. In the case of both these societies, however, those living received nothing in the liquidation except the

privilege of still having the insurance by being taken into another order by arrangement made in the liquidation. These two societies are fair examples of instances in which, with inadequate rates, an attempt is made in voluntary insurance to keep up the increasing strain of advancing age and the increasing death rate. Many of these fraternal orders, outside of their social or religious ceremonies, give life insurance; many of them in their lodges give medical benefits and cash benefits during sickness or injury. They have generally among their membership the better paid classes of workmen and the more thrifty of employees on small salaries.

Important and large as their insurance business is, it does not reach the really poor whose need is greatest, both for the protection against sickness and for death when it occurs. Although many local lodges of the fraternal societies give, as it has just been said, sick benefits and medical benefits, they do not compose the majority of the so-called lodge practice. When one speaks of lodge practice, what is usually referred to are usually small localized mutual benefit societies. These are often formed of various races in which the binding element is origin from a single region abroad or the bond of one language at a time when its members are too recently arrived in this country to speak or understand English, or where, in the large cities, many foreigners are massed together living on low wages, and find that some form of mutual insurance against the calamity of individual sickness must be obtained to protect them from the necessity of using the dispensaries for their minor ailments and going to the public hospitals when seriously ill. Their object in the latter regard is not always obtained, but it is an expression of the economic necessity which these people seek in the insurance idea for their protection.

These lodges are almost invariably run on the system of capitation payment to the physicians, that is, so much per head per year. There is competition among poor physicians, themselves struggling to obtain several lodges that they may eke out a meager income, and the commercial haggling by the officers of these lodges bidding down the struggling doctors to a minimum so that all the evils of the system are brought out in full force. Underpaid physicians, enormously overweighted by large panels of people to take care of, result in inadequate remuneration to the physicians and inadequate care to the sick. The physician loses his self-respect from knowledge of the kind of service he is giving: he is held in contempt by his patients. The whole service and the capitation system under which it is possible is held as the criterion of what is dishonorable and contemptible in the practice of medicine. The results to the unfortunate physician who must give this service are disproportionately severe for his responsibility in the matter. The vicious circle is formed by certain economic situations, and this circle cannot be broken except by a change of the economic forces. Compulsory insurance by the state can alone solve these economic problems of the very poor and release the unfortunate physician who, facing starvation, must accept this lodge practice.

COMMERCIAL INSURANCE COMPANIES

There remain to be considered the commercial insurance companies giving so-called industrial insurance or giving health insurance. The so-called industrial insurance is practically funeral insurance or death benefits among the poor. This amounts to enormous sums in the United States. In 1881 the average per policy was $91; in 1911 this had risen to $138. This does not mean any increase in the protection that a person in his last illness may obtain, but it means the increased amount of extravagance with which the standards of burial have risen among the poor. The self-respect among the poor demands that their dead shall be decently buried at their expense, and a pauper burial is considered with horror among them.

The proportion of the population carrying industrial insurance in the United States is nearly 27 per cent. Thirty-two companies in 1911 were doing this business. There was about $785,900,000 worth of insurance written during the year. There were about 24,700,000 policies in force; the amount of insurance in force was about $3,423,000,000; the premiums received amounted to about $183,500,000, and the losses paid amounted to about $50,231,000. As Dr. Rubinow expresses it, "It is too well known that the greatest portion of money paid out in industrial insurance claims readily finds its way into the pockets of undertakers as a result of deplorable extravagance in funeral arrangements, encouraged by a lifelong insurance for the purpose of a decent funeral." In New York State alone, in 1914, $29,223,000 was given in premiums for this burial insurance to the four companies doing this business. The recent Mills bill for health insurance in New York State, if it had passed, it is calculated would have cost $30,000,000. That is, this law offered to the people of New York State, having an income of $1,200 a year or less, sickness insurance, funeral benefits and maternity benefits for only $1,000,000 more than they now squander in funerals alone. The $183,000,000 paid in 1911 in this country for funeral insurance almost equals the total cost of the German social insurance system. Thus the American working class pays for funeral insurance as much as is contributed in Germany by all three parties concerned—the wage-earners, the employers and the state—for accident insurance, sickness insurance, maternity insurance, invalidity insurance and old age insurance combined.[12]

The insurance companies which give the industrial insurance, or burial benefit, attempted in their earlier history to provide sick insurance; but the amount paid for burial insurance alone absorbs practically the greater part, if not all, of the available resources for insurance purposes in the families of small income. There was, however, an attempt made by these companies to provide sickness insurance, but the effort generally failed and had to be abandoned. Henderson[13] quotes President Dryden of the Prudential Insurance Company of New Jersey as saying that a company which has its business scattered over a wide territory, and must act through salaried agents, cannot undertake sickness insurance, and that this form of insurance is possible only in brotherhoods or small groups in which the members know each other and can detect and discipline malingerers. There is no question that these industrial insurance companies are at an enormous disadvantage in their endeavor to furnish any adequate sickness insurance that is at all available to the poor.

At a hearing before the Committee on Labor of the Sixty-Fourth Congress, held April 6, 1916, the testimony of the Hon. Charles F. Nesbit, superintendent of insurance of the District of Columbia, brings out this point in a very striking manner. This testimony says that there are about 90,000 wage-earning negroes in Washington. They form most of the casual labor, not skilled labor, but servants and day laborers and drivers, and such workers as those. Among these people there has grown up a system of insurance against sickness largely confined to the District of Columbia, Maryland, Virginia and the Carolinas, and somewhat in Tennessee. The greatest problem with these people is that when they become sick their pay stops. This insurance is not confined to the negroes, but is used by the poor white people of the District of Columbia as well. Mr. Nesbit further says that there is a very strenuous effort on the part of these poorly paid people to provide against sickness, but this commercial insurance is a very inadequate way of providing it, since they pay $500,000 a year in premiums and out of that all they get back is $200,000. The companies pay practically sixteen claims out of every seventeen claims made to them, practically 94 per cent. of all claims put in, and yet the result is that every time $100,000 is collected from the poorest citizens of the foregoing territory, it costs $60,000 to collect it and $40,000 is all that is paid back. The expenses, of course, of collecting this amount are extremely high because the premiums are collected in small amounts, of 10, 15 and 25 cents a week, and agents must collect it by going from house to house. This 60 cents out of every dollar is made up of the administration expenses of overhead charges, of fees to the agents and of profits.

This shows the difficulties of the situation of the insurance companies endeavoring to give sickness insurance. Because of inadequacy of control by the companies of their insured people scattered over wide areas, because of the necessities of the manner in which they must carry on their business, it is an impossibility, with the best of intentions, to give an

12. Rubinow: Social Insurance, p. 420.
13. Henderson: Industrial Insurance in the United States, p. 162.

adequate health insurance to the really poor who are in the greatest need of this protection.

REPORT OF THE COMMISSION ON INDUSTRIAL RELATIONS

These statistics show in general the mass of systematic and yet incoordinated attempts that have been gradually developing to bring about health insurance in the United States. In the final report of the Commission on Industrial Relations, which was formed by act of Congress in 1912, we find the following conclusions based on the findings of Dr. B. S. Warren of the Public Health Service:

"Each of the thirty-odd million wage earners in the United States loses an average of nine days a year through sickness. At an average of $2 per day, the wage loss from this source is over $500,000,000. At the average cost of medical attendance ($6 per head per year) there is added to this at the very least $180,000,000.

"Accidents cause one seventh as much destitution as does sickness and one fifteenth as much as does unemployment. A great deal of unemployment is directly due to sickness, and sickness in turn follows unemployment. Sickness among wage earners is primarily the direct result of poverty which manifests itself in insufficient diet, bad housing, inadequate clothing, and generally unfavorable surroundings in the home. The surroundings at the place of work and the personal habits of the worker are important but secondary factors."

This emphasizes the well known vicious circle of sickness, unemployment and poverty.

The commissions recent study in Indiana showed that 17.9 per cent. of the unemployment among women in stores in that state was due to illness. In 1901, a federal investigation of 25,440 families showed that 11.2 per cent. of heads of families were idle during the year because of sickness, and the average period of unemployment was 7.71 weeks. Other investigations show that from 30 to 40 per cent. of cases requiring charitable relief are immediately due to sickness.

The responsibility for the disease-causing conditions rests on the employer, the public and the employee. The employer's responsibility includes, besides conditions causing so-called occupational diseases, low wages, excessive hours, methods causing nervous strain, and general insanitary conditions. The public has in part recognized its responsibility in such matters as housing, water supply, foods, drugs and sanitation. The greatest share of the responsibility rests on the individual, and under present conditions he is unable to meet it. This inability exists on the fact that the majority of wage earners do not receive sufficient wages to provide for proper living conditions, and because the present methods of disease prevention and cure are expensive, and sickness is most prevalent among those who are least able to purchase health. The worker is expected to provide for almost certain contingencies in the future, when he lacks means of existing adequately in the present. If a rapid increase of wages were made to all classes of workers to a standard which would permit proper living conditions and adequate medical attention, it is believed it would solve the problem; but there is no indication that this will occur. The remedial measures for existing conditions must, therefore, be based on the cooperative action of those responsible for conditions; must be democratic in maintenance, control and administration; must distribute costs practicably and justly, and must provide a powerful incentive for sickness insurance.

A system of sickness insurance is the most feasible single measure. This conclusion is based on the following:

"The losses occasioned by the wage earner's sickness affect employee, employer and community, all of whom share in the responsibility. Insurance is the recognized method of distributing loss so as to reduce individual risk to a minimum.

"The strongest incentive—that of lessening cost—is given to efforts to diminish frequency and seriousness of losses; sickness insurance in this respect is a preventive measure of a positive and direct kind. The lower the morbidity and mortality rates, the less the amount necessary for benefits and the lower the insurance rate.

"Sickness insurance is no longer experimental in the United States, there being several million workers so insured. The cost would be no greater than at present. The conclusion appears sound that medical benefits of $7 per week for a period not exceeding twenty-six weeks in one year, and death benefits of $200, can be provided at a total cost of 50 cents per week per insured person. Budgetary studies of large numbers of workingmen's families show that under present conditions from 25 to 50 cents a week, up to 70 cents and even $1.86, is spent for little more than burial insurance. Workers would thus receive immeasurably greater benefits for much less than they now pay."

It is suggested that the commission recommend a federal system of sickness insurance constructed along the lines here briefly summarized:[14]

1. Membership.—The membership shall comprise all employees of persons, firms, companies and corporations engaged in interstate commerce, or whose products are transported in interstate commerce, or which may do business in two or more states. The employees of interstate establishments to be permitted to be insured if they so elect, under regulations to be prescribed by the commission.

2. Fund.—The fund is to be created by joint contributions by employees, employers and the government, the last named sufficient for expenses of administration. Such contributions should probably be in the proportion of 50 per cent. from workers, 40 per cent. from employers and 10 per cent. from the government. Individuals or groups desiring larger benefits may arrange to make larger payments, and the rate in any trade, industry or locality may be reduced where conditions so improve as to make a lower rate adequate. The contributions are to be secured through taxing each interstate employer a certain amount weekly for each employee, the part contributed by workers to be deducted from their wages, thus using the regular revenue machinery of the government.

3. Benefits.—Benefits to be available for a limited period in the form of cash and medical benefits during sickness, nonindustrial accidents and childbearing; death benefits to be of limited size and payable on presentation of proper evidence.

4. Administration.—The administration of the insurance funds is to be carried out by a national sickness insurance commission. The national commissionn should be composed by presidential appointment with senate confirmation, of a director (who would be chairman), representatives of employers and representatives of employees in equal ratio, and, as ex officio nonvoting members, the federal commissioner of labor statistics and the Surgeon-General of the Public Health Service. The commission should be empowered to supervise all funds and determine their character and limits of jurisdiction; promulgate all regulations necessary to enforce the act; establish and maintain hospitals; maintain staffs of medical examiners, specialists, dentists and visiting nurses; provide for medicines and appliances; make contracts with local physicians; cooperate with local funds and health authorities in disease prevention, and provide for collecting actuarial data.

Correlation of the insurance system with the medical profession, the lack of which has been a serious defect in German and British systems, is absolutely necessary. Contracts with physicians should allow to each a per capita payment for the insured persons under his care, the right of selection of physician to be retained by the insured. For the signing of certificates entitling the insured to benefits, and for treating the insured in hospitals, the surgeon-general should detail physicians from the Public Health Service, their entire time to be given to these and other duties (consulting with local physicians, enforcing federal laws and regulations, and cooperating with local authorities).

ADVANTAGES OF A GOVERNMENTAL SYSTEM

Warren and Sydenstricker,[15] in their report on "Health Insurance: Its Relation to the Public Health," further point out that the democratic character of an effective health insurance system is most pronounced in a governmental system. The wage earner has a more real basis for feeling that the benefits he receives are rights to which he, as a citizen, is entitled. A governmental system removes all trace of the taint of charity which so often accompanies employers' welfare work and which might accompany a private plan supported in part by employers. Certain features necessary to the success of health insurance which are obnoxious

14. Final Report, Commission on Industrial Relations, 1915.
15. Warren, B. S., and Sydenstricker, Edgar: Health Insurance: Its Relation to the Public Health, Bull. 76, Treasury Department, U. S. P. H. S., pp. 63-64.

to private health insurance plans—for example, compulsory membership—are largely removed when health insurance is a public institution and a governmental affair. Furthermore, experience has shown that there is a much higher degree of efficiency in management, and at much less cost, in government than in private health insurance plans. The necessity for maintaining large reserves, providing profits, paying high salaried officers, soliciting agents, commissions, and general duplication of overhead expense is done away with in a governmental system. The cost of administration is further reduced since already existing machinery for collection of the funds can be employed through the taxing power of the government, and a less complicated and elaborate organization of administration is necessary.

It is further pointed out that it is a significant fact that the experience of European nations with health insurance has shown governmental systems to be the only systems which accomplish the purposes desired. In European countries in which private health insurance plans existed, or in which there were private systems subsidized by governments, the experience has been that discouragingly small enrolments in membership resulted and that the workers who were on the border line of poverty and in the greatest need of insurance were the very ones who did not insure. Great Britain, when it adopted a system of health insurance in 1911, did not subsidize private plans, as some of the European nations had done, but advanced at one step to a highly developed form of a governmental system. Several other nations which subsidized private insurance plans have rejected that method and adopted a governmental system. Governmental health insurance systems have unquestionably come to be recognized as the most satisfactory method of dealing with the problem of sickness among wage earners.

SICKNESS SURVEY OF ROCHESTER, N. Y.

In studying any system of health insurance in this country, the lack of morbidity statistics has been a great drawback in calculations of the ratio of expense and the probable occurrence of disease. No country, however, has had morbidity statistics until compulsory health insurance was put in force. There have been two studies in New York State recently which show, in certain localities, the occurrence of sickness and, in one instance, the possibilities of existing institutions to provide adequate care for the sick both in their homes and in hospitals. The Metropolitan Life Insurance Company made one of these investigations[16] in the city of Rochester during the week of Sept. 13, 1915; 7,638 families were reached, including 34,490 persons. This was 14 per cent. of the total population of Rochester and was considered a sufficiently large sample to give a fair degree of accuracy in judging the measure of the amount of sickness in the industrial community as a whole. It is stated that an analysis of such items as occupation and the general characteristics of the families as to size confirm this conclusion.

Of the 789 cases of sickness found, 82.8 per cent. were unable to work; 8.8 per cent. were able to work though sick, and the ability to work was not specified in 8.4 per cent. It is further interesting to note that there were 356 men sick and 442 women. Of the men, 83.4 per cent. were sick and unable to work and, of the women, 82.4 per cent. Of these, 24.7 per cent. of the men were sick in bed and 29.9 per cent. of the women, and of these, 13.2 per cent. of the men and 19.9 per cent. of the women were at home. There were up and about, though sick, 58.7 per cent. of the men and 52.5 per cent. of the women; sick but able to work, 9 per cent. of the men and 8.6 per cent. of the women. Taking adults of 15 years and older, it was further found that the rate of sickness and inability was 27.3 per thousand for males and 31.2 for females, including all sicknesses. For sickness involving incapacity for work, the rates for ages of 15 and over were 23.2 per thousand for males and 25.7 per thousand for females. Broadly speaking, over 2.5 per cent. of the working population canvassed were sick and unable to work at the time of the survey. The rates of sickness among females incurring disability were distinctly higher than for males up to the age of 54; from 55 onward the rate of sickness in males exceeds that of females. This is especially marked at the age period between 25 to 34, when twenty-five cases of childbirth and its complications increased the rate. This rate, even with an allowance for puerperal conditions, is in excess of that for males at the same age period.

The chief causes of disability were seventy-three cases of rheumatism, and tuberculosis, cerebral hemorrhage and insanity, in the order named. The transmissible diseases, such as typhoid and acute infectious diseases of children, were relatively few, there being but four cases of the former and sixteen of the latter.

Of the 661 persons unable to work, eight were incapacitated for one day; forty-one, or 6 per cent., for less than one week, and 149, or 22.5 per cent., for less than one month. On the other hand, persons able to work show a smaller proportion of cases under one month in duration. Rheumatism, neuralgia, neuritis, neurasthenia and headache, which constitute the bulk of the cases sick and unable to work, were in most instances longer than one month in duration and influence the figures of the entire group, a large percentage of the cases being of longer duration, 128, or 19.4 per cent., lasting between one and three years.

Without distinction of the extent of disability, in 61 per cent. of the cases of sickness the patients had a physician in attendance; 50 per cent. of the total sick outside of institutions were in the care of physicians, but only 45.3 per cent. of those sick but able to work were thus cared for; 63.8 per cent. of the sick persons incapacitated for work employed physicians or were being treated in institutions. There was but slight variation for sex in these figures.

The sickness rates of this survey are minimal. The survey was made in a month which, for Rochester, has less mortality than the average month for the year. The figures, therefore, are conservative, and on the basis of the foregoing sickness rate, it may be concluded that throughout the year there are at least 2,147 males constantly sick and 2,400 females. In adults of 15 years of age and over, the male population of Rochester is calculated at 92,552, and of women, 93,392.

Small as these statistics are, they present practically the same percentage of sickness in relation to sex and age as do the statistics of the Leipzig Society and the Sickness Insurance Funds of Austria.

SICKNESS SURVEY OF DUTCHESS COUNTY, N. Y.

Of special interest in connection with health insurance is a study of sickness in Dutchess County, in New York, made by the State Charities Aid Association. This study was an attempt to secure reliable data in regard to sickness which had occurred in certain selected communities in Dutchess County during a sixteen month period in 1912 and the first four months of 1913. It was made at the request of the trustees of the Thomas Thompson Trust. The report says:

"It was important to have more exact knowledge of the sickness which had occurred in the county, in order to draw trustworthy conclusions as to how adequately or inadequately the existing public and private facilities were meeting the needs of the community. With the exception of certain contagious diseases, reported incompletely, at best, to the health officers, there are no public records of sickness in Dutchess County—a condition true of the rest of the country as well. The method usually employed of estimating the amount of sickness is to assume a certain sickness rate for each disease, based on the recorded death rate for that disease. This method is arbitrary and, of course, fails to throw any light on the kind of care the patients received or on the conditions surrounding or contributing to their sickness.

"It was planned in this investigation to secure, directly from the families in which it had occurred, as full and accurate data as possible concerning sickness, including the medical and nursing service obtained, its efficiency and cost, the need of and the demand for domestic assistance in the homes where sickness existed, and the efficiency with which the demand was met . . . It was believed that data might thus be obtained which, when analyzed, would point to improvements in the methods of caring for the sick and of

16. Frankel, L. K., and Dublin, L. I.: Community Sickness Survey, Pub. Health Rep., Feb. 25, 1916.

preventing disease. . . . The attending physician was consulted either personally or by letter about each recorded case of sickness."

It was not always possible to obtain accurate data even with the best of cooperation among the people and physicians. In the field which was selected in Dutchess County it must be taken into consideration that the line of hills runs north and south, dividing the eastern and western sections, so that communication between them is difficult. The section to the west of the hill, toward the Hudson River, on which the town of Poughkeepsie is situated, contains 88 per cent. of the population of the county, and this section was chosen for the field of inquiry. The towns of Rhinebeck, Milan, Stanford and Clinton are typical rural communities with a total population of 7,223. Stanford is a country town of about 1,520, of whom 700 live in two adjoining villages, and the remaining population is scattered around the dairy farms throughout the hills. Stanford has one resident physician.

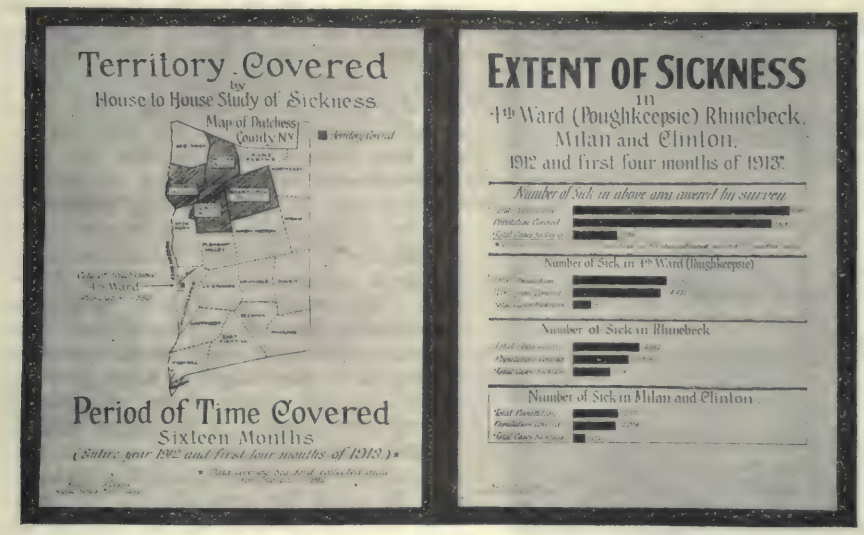


Chart 1.—Details of sickness survey.

The towns of Milan and Clinton are typical farming sections. Milan has a population of 893, and Clinton of 1,278. In none of these towns is there district or school nursing. The water supply of these towns is drawn from private wells. A relatively small number of houses are connected with cesspools, and the others still have only surface drainage with the old fashioned privy with a dug vault.

The same may be said of Rhinebeck Town, and an epidemic in the village furnished seventeen out of twenty-nine cases of typhoid. The water supply in this town is from wells and a public water supply from wells a few miles out of town.

The fourth ward of Poughkeepsie contains a population of 4,580, which is 16 per cent. of the population of the city. It contains a representative part of the main business section of the city, a wealthy residence section, and a fairly proportionate number of the homes of the poor and of those of moderate means. The ward contains an average number of the colored and foreign population of the city. Poughkeepsie has had a filtration plant connected with its water system for some years. The city's water supply is drawn from the Hudson River. Its sewage is emptied into the same river.

The term "sickness" includes only that which was so serious that it necessitated or should have necessitated the patients going to bed or securing medical aid. Slight ailments were not taken into account. By the term "adequate service" is meant that service which results in the patient's recovery when recovery can be expected, and which is of such a character that neither the patient nor the community incurs avoidable risks.

Of the 1,600 cases of sickness which occurred, 305 were men, 605 were women, and 690 were children; 506 occurred among those who were able to pay for any desired service; 882 among those able to pay for ordinary service, such as ward service in a hospital; 212 occurred among those unable to pay for any service; 920 of these obtained adequate service; 620, inadequate. In the fourth ward of Poughkeepsie, 13 per cent. of the patients were cared for in the hospitals; in Rhinebeck, 10 per cent.; and in Milan and Clinton, 3 per cent. It is interesting to note that only 55 per cent. of the 1,441 patients who remained in their homes throughout their sickness were cared for adequately; 45 per cent. received inadequate care. Only 80 per cent. of the hospital patients were cared for adequately; 20 per cent. were cared for inadequately, mainly because the patients returned to their homes before their homes were ready for them, so that proper convalescence was impossible; the care while in the hospital was adequate. Combining home and hospital care, 57.5 per cent. of the recorded patients were cared for adequately, and 42.5 per cent. inadequately.

It has been said that the very rich or the very poor are well cared for in the big cities, and those possessing moderate means find inadequate accommodation during illness. It is interesting to note that of the 506 patients of this study who could have paid for any necessary service, 81 per cent. were cared for adequately and 19 per cent. inadequately. Of the 882 patients of moderate means who could not have stood any prolonged drain on their income, 50.5 per cent. received adequate care and 49.5 per cent. inadequate. Of 212 patients who could not pay for any medical or nursing service, 32 per cent. received adequate care and 68 per cent. inadequate. It is also to be noted that of the 680 cases out of the total number of 1,600 recorded who were inadequately cared for, 21.3 per cent. occurred among those who were unable to pay for any care; 14.4 per cent. were among those who were able to pay for any necessary service, while 64.3 per cent. were among those who could pay ordinary charges but not for any length of time. In other words, it is stated that in nearly 79 per cent. of the

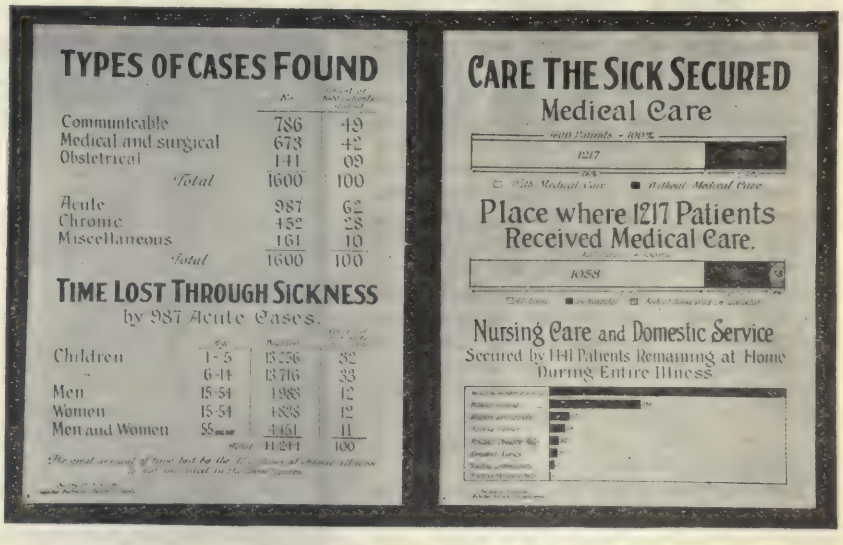


Chart 2.—Details of sickness survey.

cases in whicn there was found to be lack of proper services, poverty was not a controlling cause of that lack. There were in most cases no facilities for services to be had, and in other cases there was a lack of proper knowledge of what service to seek for and how to seek for it.

Four hundred and forty two patients, that is, 28 per cent. of the 1,600, could not have been cared for adequately in their own homes. Two hundred and thirty-six of these—15 per cent. of the total 1,600—who suffered from noncontagious diseases, could have been cared for adequately only in hospitals because of the nature of their cases from a medical standpoint. The other seventy-three patients, 4 per cent. of the total, who suffered from contagious diseases, needed hospital care for the same reason. One thousand, one hundred and fifty-eight, or 72 per cent. of the total, could have been cared for adequately in their homes. Of these, 1,128, or 97 per cent., required efficient medical care, while the condition of thirty patients, 3 per cent., was such that extra medical care or nursing was necessary. One hundred and sixty-five patients should have been cared for by a trained nurse. Of these, thirty-three required resident service and 132 visiting service. In 115 instances, the services of an untrained nurse or attendant were necessary. In 131 homes the adequate care of the patient implied the employment of a resident domestic helper, and in fifteen homes the services of a domestic helper on part time. Twelve per cent. of the resident service involved should have been trained, and 88 per cent. untrained attendants or domestic helpers. Of the visiting service essential, 86 per cent. should have been trained, and 14 per cent. could have been untrained.

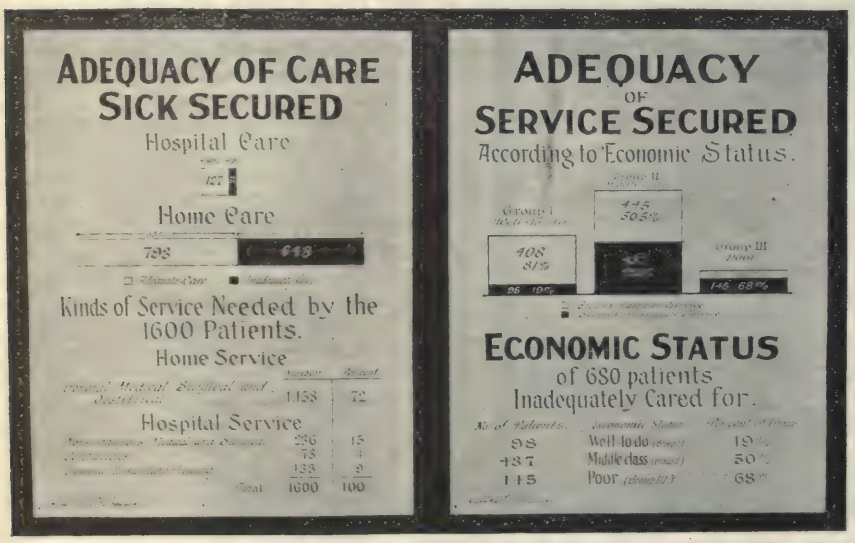


Chart 3.—Details of sickness survey.

The importance of the findings of the house to house canvass of selected districts of Dutchess County lies in the fact that there is every reason to believe that the amount of inadequately cared for sickness discovered is typical of what one may expect to find in many other communities through the state and nation. Here is a small group made up of a small city and several country communities in normal times—no unusual epidemics, no extraordinary social or industrial conditions—during a period shown by reported deaths, reported cases of contagious disease, and the unanimous testimony of physicians to have been a light year for sickness. The accompanying charts give these facts graphically, and the situation in Dutchess County can be well considered as typical for the average condition of affairs outside of big cities. Among those of moderate incomes, the majority of whom probably would come under health insurance, the chances are even whether or not a person at present receives adequate care for sickness. Among the poor the chances are two to one against their receiving proper care. It is a noticeable feature that 24 per cent., or practically one fourth of the 1,600 patients here sick, received no medical care whatever.

In general, after enumerating all the agencies now acting in the county, it is found that in most instances these agencies are doing their work well in their separate fields. Organization, however, is needed to bring about cooperation on the part of existing agencies, provide for facilities that are now lacking and stimulate the provision of such new means for the care of the sick and the prevention of disease as may be found desirable. A county health association is therefore recommended as the form of organization which is desirable. This might at first be a private organization and might remain such permanently, although many of its activities from time to time might be taken over by public agencies, which is not an unusual line of development. It is further recommended that the proposed organization should cover the entire county, but to begin with it would be more feasible to organize these facilities in one or two of the districts in such a way as to admit of gradual growth and extent of the organization throughout the county without radical change. The report states that "the health association would have as its objects the coordination and development of existing facilities of the community for the care of the sick and the prevention of disease, in order to make them thoroughly efficient and readily available to all, and the development of such additional facilities as study and experience may indicate are needed. The association, however, cannot attain these objects unless it has the sympathetic interest and cooperation of the physicians of the county. Their interest and cooperation must underlie all its work and are vitally essential to its success.

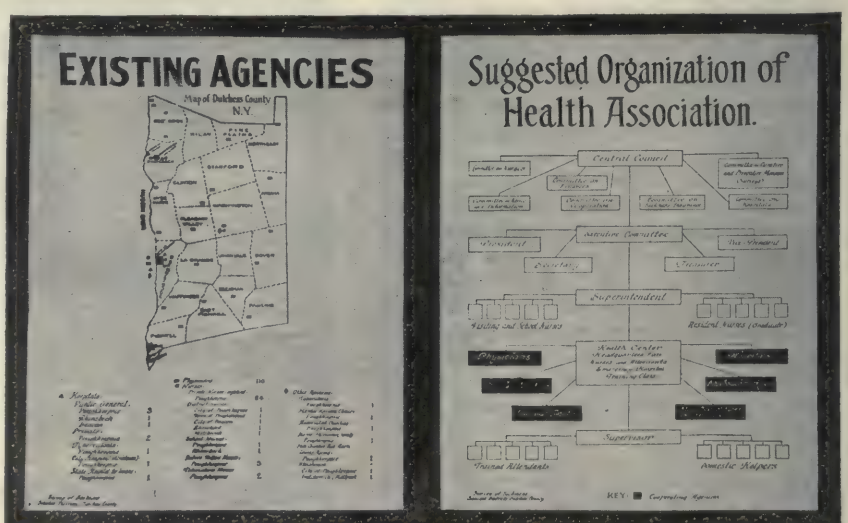


Chart 4.—Findings and suggested organization.

In order to do its work most efficiently, the association should cooperate with all the public and private medical and social service agencies at work in the county, as follows:

A. *Remedial Work.*—1. Establishing an efficient system of medical, nursing and social service for the care of the sick in their own homes.

2. Securing the cooperation of the existing hospitals. Stimulating the provision of additional facilities where and when clearly needed.

3. Maintaining a proper distribution of patients as between home and hospital care, based on a study both of the patient's disease and of his social and economic circumstances.

B. *Preventive Work.*—1. Educating the individual: (*a*) as to personal hygiene and the observation of its laws; (*b*) as to the nature of communicable diseases and the means of avoiding them as well as the necessity of collective action to safeguard health and avert danger from these sources; and (*c*) as to the bad housing and unfit social and industrial conditions in which he lives and the means that can be employed to improve those conditions.

2. Securing the adoption and strict enforcement of public health measures, i. e., public hygiene."

Further details of this interesting investigation must be obtained from the report itself, as space does not permit further discussion. This work is best explained in the graphic charts.

PROPOSED HEALTH INSURANCE ACT

For the past year a committee of the American Association for Labor Legislation has been working to obtain a definite measure to prevent as embodying certain health insurance standards that could be modified to meet the situation in the various states of the Union. The following health insurance standards have been adopted, and the following tentative draft of a health insurance act has been agreed upon as a standard act which could be modified as the exigencies of the various states required. It is noticeable that in this draft of a bill the medical and surgical requirements are not fully formulated. This has been intentional because it was deemed necessary that the physicians of any state should be required to consult with the authorities in formulating the regulations under which they are to work.

Following are the health insurance standards and the draft of a health insurance act:

HEALTH INSURANCE STANDARDS

1. To be effective, health insurance should be compulsory, on the basis of joint contributions of employer, employee and the state.

2. The compulsory insurance should include all wage workers earning less than a given annual sum, where employed with sufficient regularity to make it practicable to compute and collect assessments. Casual and home workers should, as far as practicable, be included within the plan and scope of a compulsory system.

3. There should be a voluntary supplementary system for groups of persons (wage workers or others) who for practical reasons are kept out of the compulsory system.

4. Health insurance should provide for a specified period only, provisionally set at twenty-six weeks (one-half year), but a system of invalidity insurance should be combined with health insurance, so that all disability due to disease will be taken care of in one law, although the funds should be separate.

5. Health insurance on the compulsory plan should be carried by mutual local funds, jointly managed by employers and employees under public supervision. In large cities such locals may be organized by trades, with a federated bureau for the medical relief. Establishment funds and existing mutual sick funds may be permitted to carry the insurance where their existence does not injure the local funds, but they must be under strict government supervision.

6. Invalidity insurance should be carried by funds covering a larger geographical area, comprising the districts of a number of local health insurance funds. The administration of the invalidity fund should be intimately associated with that of the local health funds and on a representative basis.

7. Both health and invalidity insurance should include medical service, supplies, necessary nursing and hospital care. Such provision should be thoroughly adequate, but its organization may be left to the local societies, under strict governmental control.

8. Cash benefits should be provided by both invalidity and health insurance for the insured or his dependents during such disability.

9. It is highly desirable that prevention be emphasized, so that the introduction of a compulsory health and invalidity insurance system shall lead to a campaign of health conservation similar to the safety movement resulting from workmen's compensation.

HEALTH INSURANCE TENTATIVE DRAFT OF AN ACT

SECTION 1. TITLE.—This chapter shall be known as the Health Insurance Act.

SECTION 2. DEFINITIONS.—When used in this act:
"Commission" means the Social Insurance Commission.
"Fund" means a local or trade fund, as the case may be.
"Society" means an approved society.
"Carrier" means the society or fund which carries the insurance.
"Insurance" means health insurance under this act.
"Disability" means inability to pursue the usual gainful occupation.

SECTION 3. COMPULSORY INSURANCE.—Every person employed in the state at manual labor under any form of wage contract, unless exempted under Section 4 of this act, and every other employee whose remuneration does not exceed $100 a month, shall be insured in a fund or society, except employees of the United States and except employees of the state or of municipalities for whom provision in time of sickness is already made through legally authorized means which in the opinion of the Commission are satisfactory.

SECTION 4. HOME WORKERS AND CASUAL EMPLOYEES.—Special regulations shall be made by the Social Insurance Commission for the insurance of home workers and casual employees, or for their exemption from compulsory insurance.

SECTION 5. VOLUNTARY INSURANCE.—Self-employed persons whose earnings do not exceed $100 a month on an average; persons formerly compulsorily insured who, within one year from the date on which they cease to be insured, apply for voluntary insurance; members of the family of the employer who work in his establishment without wages may insure themselves voluntarily in the local or trade funds of the locality in which they live and of the trade at which they are employed, subject to conditions of this act.

SECTION 6. CASES IN WHICH PAID.—Insured members shall receive benefits in case of any sickness or accident or for death, not covered by workmen's compensation.

SECTION 7. MINIMUM BENEFITS.—Every carrier must provide for its insured members as minimum benefits: Medical, surgical and nursing attendance; medicines and surgical supplies; cash benefits; maternity benefits; funeral benefits; medical and surgical attendance and medicines for dependent members of their families.

SECTION 8. BEGINNING OF RIGHT.—Insurance, with the exception of maternity benefits, begins with the day of membership. The maternity benefits shall be payable to any woman insured against sickness for at least six months during the year preceding the confinement, or to the wife or widow of any man so insured.

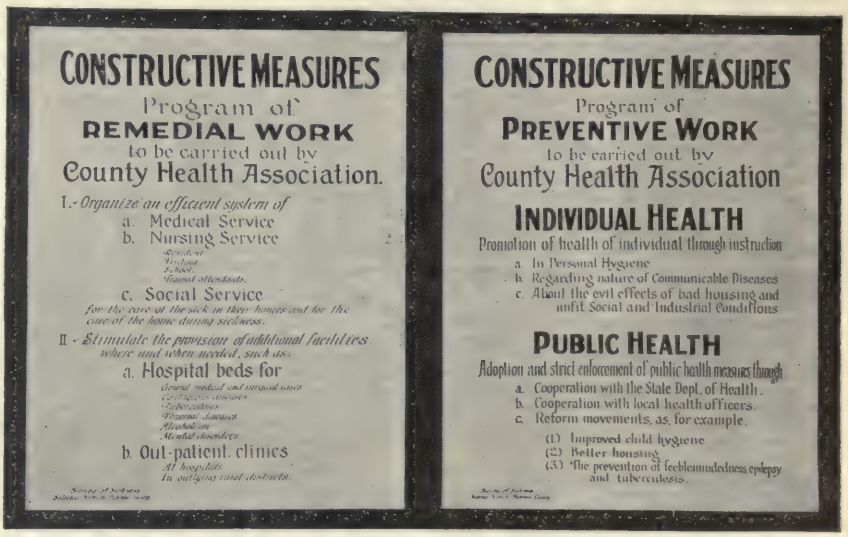


Chart 5.—Constructive measures suggested by State Charities Aid Association.

SECTION 9. MEDICAL, SURGICAL, AND NURSING ATTENDANCE.—All necessary medical, surgical and nursing attendance and treatment shall be furnished by the carrier from the first day of sickness during the continuance of sickness, but not to exceed twenty-six weeks of disability in any consecutive twelve months. In case the carrier is unable to furnish the benefit provided for in this section, it must pay the cost of such service actually rendered by competent persons at a rate approved by the Commission.

SECTION 10. MEDICAL SERVICE.—The carriers, subject to the approval of the Commission, shall make arrangements for medical, surgical, and nursing aid by legally qualified physicians and surgeons, and by nurses or through institutions or associations of physicians, surgeons, and nurses. Provision for medical aid shall be made by the carriers by means of either:

1. A panel of physicians to which all legally qualified physicians shall have the right to belong, and from among whom the patients shall have free choice of physician, subject to the physician's right to refuse patients on grounds specified in regulations made under this act; provided, however, that no physician on the panel shall have on his list of insured patients more than 500 insured families or more than 1,000 insured individuals.

2. Salaried physicians in the employ of the carriers, among which physicians the insured persons shall have reasonable free choice.

3. District medical officers, engaged for the treatment of insured persons in prescribed areas.

4. Combination of above methods.

SECTION 11. MEDICAL OFFICERS.—Each carrier shall employ medical officers to examine patients who claim cash benefit, to provide a certificate of disability, and to supervise the character of the medical service in the interests of insured patients, physicians, and carriers.

SECTION 12. MEDICAL AND SURGICAL SUPPLIES.—Insured persons shall be supplied with all necessary medicines, surgical supplies, dressings, eyeglasses, trusses, crutches and similar appliances prescribed by the physician, not to exceed $50 in cost in any one year.

SECTION 13. HOSPITAL TREATMENT FOR ONE PERSON.—Hospital or sanatorium treatment and maintenance shall be furnished, upon the

approval of the medical officer of the carrier, instead of all other benefits (except as provided in Section 16), with the consent of the insured member, or that of his family when it is not practicable to obtain his consent. The carrier may demand that such treatment and maintenance be accepted when required by the contagious nature of the disease, or when in the opinion of its medical officer such hospital treatment is imperative for the proper treatment of the disease or for the proper control of the patient. Cash benefit may be discontinued during refusal to submit to hospital treatment. Hospital treatment shall be furnished for the same period as cash benefit. This benefit may be provided in those hospitals with which the funds and societies have made satisfactory financial arrangements which have met the approval of the Social Insurance Commissioners, or in hospitals erected and maintained by the funds and societies with the approval of the Commission.

Section 14. Arbitration Committee.—All disputes between the insured and physicians, or between funds and physicians concerning medical benefits, shall be referred to special committees composed of representatives of the interests concerned, with an impartial chairman appointed by the Commission, with an appeal to the Commission.

Section 15. Cash Benefit.—A cash benefit shall be paid beginning with the fourth day of disability on account of illness; it shall equal two thirds (66⅔ per cent.) of the weekly wages of the insured member. It shall be paid only during continuance of disability, and shall not be paid to the same person for a period of over twenty-six weeks in any consecutive twelve months.

Section 16. Cash Benefit to Dependents.—A cash benefit equal to one third of the wages of an insured member receiving hospital treatment shall be paid to his family or other dependents while he is in the hospital.

Section 17. Periods of Payment.—Cash benefit shall be paid weekly where possible, and in no case less frequently than semi-monthly.

Section 18. Maternity Benefits.—Maternity benefits shall consist of:

All necessary medical, surgical and obstetric aid, materials and appliances, which shall be given insured women and the wives of insured men.

A weekly maternity benefit, payable to insured women, equal to the regular sick benefit of the insured, for a period of eight weeks, of which at least six shall be subsequent to delivery, on condition that the beneficiary abstain from gainful employment during period of payment.

Section 19. Funeral Benefit.—The carrier shall pay the actual expenses of the funeral of a deceased insured member, as arranged for by the family or next of kin, or in absence of such by the officers of the fund, up to the amount of $50. The funeral benefit shall be paid in case of death of a former member while in receipt of sick benefits, or death within six months after discontinuance of sick benefits because of the exhaustion of the time limit, provided he has not, within those six months, returned to work.

Section 20. Additional Benefits.—The carriers may grant additional or increased benefits, with the consent of the Commission.

Section 21. Extension of Insurance.—When contributions cease on account of unemployment not due to sickness, the insurance shall continue in force for one week for each four weeks of paid up membership during the preceding twenty-six weeks.

Section 22. Division of Expenses.—The expenses of the funds shall be met by contributions from employees, employers and the state. The state shall contribute one fifth of the total expenditures for benefits, subject to the provisions of Section 42; one half of the balance shall be paid by the employer, one half by the employee, except that if the earnings of the insured fall below $9 a week, the shares of the employer, employee and state shalll be the proportion indicated in the following schedule:

If earnings are under	But not under	Employer	Employee	State
$9	$8	48%	32%	20%
8	7	56%	24%	20%
7	6	64%	16%	20%
6	5	72%	8%	20%
5	..	80%	0%	20%

In all cases the contributions shall be computed as a percentage of wages.

Section 23. Amount of Contributions.—The amount of the contributions shall be computed so as to be sufficient for the payment of benefits and the expenses of administration of the fund and necessary reserve and guarantee funds.

Section 24. Rates of Contributions.—In funds in which employees in several industries are insured, the percentage rates of contribution may be different for different industries, according to the sickness experience.

Section 25. Division of the State Into Districts.—The Commission shall, within six months after this act goes into effect, divide the state into districts, no one of which shall contain less than five thousand persons subject to compulsory insurance; and shall establish one or more local or trade funds in each district.

Section 26. Authorization By Commission.—No fund shall begin business until it is authorized by the Commission. The Commission shall authorize a fund only after approval of its constitution and after the names and addresses of the board of directors elected for the first year have been filed with the Commission.

Section 27. Powers of Funds.—Funds shall have all the power necessary to the carrying out of their duties under this act.

Section 28. Constitution of Fund.—Subject to the provisions of this act, the constitution of a fund shall contain: Name of the fund and location of its principal office; if the fund is a trade fund, designation of the trade or trades for which it is created; maximum percentage of wages in each occupation at which the regular contribution may be fixed; nature and amount of benefits and length of time during which they shall be given; manner of election, number, powers, duties, and time of meeting of the committee; number, powers, duties, and time of meeting of the board of directors; method of amendment of constitution; and such other provisions as may be directed by the Commission.

Section 29. Committee of the Fund.—There shall be a committee of each fund which shall consist of not less than twenty and not more than one hundred members, to be elected annually in the manner provided in the constitution, one half by and from the employer members of the fund, one half by and from the employee members. The committee shall pass upon the annual account and report submitted by the directors.

Section 30. Employers' Votes.—Each employer member shall have as many votes for employer members of the committee as he employs workmen subject to the insurance and members of the fund, except that no one employer shall have more than 49 per cent. of the total vote cast by employers unless otherwise provided in the constitution.

Section 31. Board of Directors.—The board of directors shall be elected by the committee for a period of one year. All directors must be citizens of the United States. The board shall consist of not less than eight and not more than eighteen directors, one half of whom shall be elected by employer members of the committee, and one half elected by employee members of the committee. No one shall be a member of the committee and a director at the same time, The compensation of members of the board shall not be more than $5 a day for each day of attendance upon the meetings of the board.

Section 32. Reserve.—Every local or trade fund shall accumulate a reserve. The board of directors shall transfer to such reserve one twentieth of the annual income of the fund until such reserve is equal to one sixth of the total expenditures for the preceding three years. The reserve shall be maintained at this level. Any surplus which may accrue from the investment of such reserve may be transferred into the general account of the fund.

Section 33. Payment of Contribution.—Every employer must pay to any local or trade fund on the date on which he pays his men, or at least monthly, the total contributions due from him and from his employees to such fund. He may deduct the sum paid as contribution due from each employee from his wages, but must inform him, in a method to be approved by the Commission, of the amount so deducted.

Section 34. Membership in Fund.—Every person subject to insurance shall be an insured member of the trade fund of the trade at which and in the district in which he is employed; or if there be no such fund, of the local fund of such district; provided that while he is a member of an approved society he shall be excluded by the board of directors from membership in the fund. The Commission shall provide by regulation for the case of persons regularly occupied at one trade but temporarily employed at another. Membership in a local or trade fund shall cease as soon as the insured becomes a member of another local or trade fund. Any employer shall be an employer member of all funds of which any of his employees are members.

Section 35.—Voluntary Insurance.—A person entitled to voluntary insurance must be admitted on application to membership in the trade fund of his trade in the district in which he is employed, or if there be no such fund, then in the health fund of such district: provided, that, except for persons who have been compulsorily insured members within the last twelve months, the by-laws of any fund may prohibit the admission to voluntary insurance of a person who has not passed a satisfactory medical examination by its medical officers, and that the application for admission be subject to the same condition as an application for ordinary life insurance. The contribution of the voluntary member shall be equal to the contribution required of the employer and employee for a compulsory member of the same trade and earnings.

Section 36. Loss of Voluntary Membership.—A person voluntarily insured loses his membership if he acquire membership, either voluntary or compulsory, in another fund or society, or if he be in arrears for one month in the payment of his contributions, unless this period be extended by the constitution.

Section 37. Fines and Penalties.—Funds may fine their employer and insured members and suspend insured members from benefits for violation of their rules or regulations or for fraudulent representations made with the intent of securing or aiding another to secure benefits, in acordance with rules approved by the Commission providing for such fines or suspensions. If an employer fail or refuse to pay the contribution which he is required to pay under this act the carrier to whom they are due may recover the whole sum with interest at 6 per cent. by suit in a court of competent jurisdiction, and the employer shall not be entitled to deduct any part of the sum from the wages of his employee or employees.

Section 38. Approved Societies.—A labor union, benevolent or fraternal society or an establishment society shall be approved by the Commission only after hearing the local or trade funds affected and only if:

It is not carried on for profit, but reasonable salaries paid officials shall not be considered profit.

It is under the absolute control of the insured members in so far as the insurance regulated by this law is affected, except that the employer may appoint one half of the governing body of an establishment society.

It shall satisfy the Commission that it is in a sound financial condition.

It grants at least the minimum benefits provided in this act.

It has a membership of at least five hundred persons insured for at least the minimum benefit provided under this act or their equivalent, except that in the case of establishment societies in which the employer satisfactorily guarantees the payment of benefits, the number of members may be fixed by the Commission.

Its operation will not, in the opinion of the Commission, endanger the existence of any local or trade fund.

In case of an establishment society, a majority of the employees subject to insurance request approval, and the employer's contribution is at least equal to that of all the employees.

The approval of the Commission may be withdrawn at any time upon its finding, after hearing the society affected, that any of the required conditions are no longer satisfied. The Commission may, after a hearing, permit an establishment society to accept, on conditions satisfactory to the Commission, as members all persons subject to insurance in its district.

Section 39. Employers' Contributions.—The Commission shall assess upon every employer any of whose employees are insured in labor union, benevolent, or fraternal societies a sum equivalent to the employers' contributions had such employees been members of funds. This sum shall be paid in monthly instalments into the guarantee fund establishhed by the Commission.

Section 40. State Contributions.—The state shall contribute to every approved society one fifth of its total expense for benefits and for the expense of health insurance under this act, subject to the provisions of Section 42.

SECTION 41. HEALTH INSURANCE UNION.—Two or more health insurance carriers within a district may combine for the administration of the medical benefit subject to the approval of the Commission. The Commission may, after notice to and hearing of the parties of interest, withdraw its approval and dissolve the union, making such disposition of its property as may seem to it in the best interests of the insured.

SECTION 42. GUARANTEED FUND.—The Commission shall reserve 10 per cent. of the contributions of the state to the carriers and pay it into a fund to be known as the guarantee fund, from which it shall contribute for the relief of any carrier on the application of its board of directors after investigation by the Commission. A contribution shall be made only where, in the judgment of the Commission, the necessity arises from epidemic, catastrophe, or other unusual conditions, and shall never be made where, in the opinion of the Commission, the deficit is due to failure or refusal of the directors to levy proper rates of contributions. When and as long as, in the opinion of the Commission, the guarantee fund is sufficient, the Commission shall make no reservation for this purpose.

SECTION 43. STATE SOCIAL INSURANCE COMMISSION.—A state Social Insurance Commission is hereby created, consisting of three commissioners, to be appointed by the governor, one of whom shall be designated by the governor as chairman, and one of whom shall be a physician. The term of office of members of the Commission shall be six years, except that the first members thereof shall be appointed for such terms that the term of one member shall expire on Jan. 1, 1918; one on Jan. 1, 1920, and one on Jan. 1, 1922. Each commissioner shall devote his entire time to the duties of his office, and shall not hold any position of trust or profit, or engage in any occupation or business interfering or inconsistent with his duties as such commissioner, or serve on or under any committee of a political party. The Commission shall have an official seal which shall be judicially noticed.

SECTION 44. SECRETARY.—The Commission shall appoint and may remove a secretary, at an annual salary of ———. The secretary shall perform such duties in connection with the meetings of the Commission and its investigations, hearings and the preparation of rules and regulations under the provisions of this Act as the Commission may prescribe.

SECTION 45. OFFICERS AND EMPLOYEES.—The Commission may appoint such officers, other assistants and employees as may be necessary for the exercise of its power and the performance of its duties under the provisions of this Act, all of whom shall be in the competitive class of the classified civil service; and the Commission shall prescribe their duties and fix their salaries, which shall not exceed in the aggregate the amount annually appropriated by the legislature for that purpose.

SECTION 46. SALARIES AND EXPENSES.—The chairman of the Commission shall receive an annual salary of ——— and each other commissioner an annual salary of ———. The commissioners and their subordinates shall be entitled to their actual and necessary expenses while traveling on the business of the Commission. The salaries and compensation of the subordinates and all other expenses of the Commission shall be paid out of the state treasury upon vouchers signed by at least two commissioners.

SECTION 47. OFFICERS.—The Commission shall have its main office in the capitol of the state and may establish and maintain branch offices in other cities of the state as it may deem advisable. Branch offices shall, subject to the supervision and direction of the commission, be in immediate charge of such officials or employees as it shall designate.

SECTION 48. POWERS OF INDIVIDUAL COMMISSIONERS.—Any investigation, inquiry or hearing which the Commission is authorized to hold or undertake may be held or undertaken by or before any commissioner, and the award, decision or order of a commissioner when approved and confirmed by the Commission and ordered filed in its office shall be deemed to be the award, decision, or order of the Commission. Each commissioner shall, for the purpose of this Act, have power to administer oaths, certify to official acts, take depositions, issue subpoenas, and compel the attendance of witnesses and the production of books, accounts, papers, records, documents and testimony.

SECTION 49. POWERS OF COMMISSION.—The Commission may adopt all reasonable rules and regulations and do all things necessary to put into effect the provisions of this Act.

SECTION 50. JURISDICTION OF COMMISSION TO BE CONTINUING.—The power and jurisdiction of the Commission over each case shall be continuing, and it may, from time to time, make such modification or change with respect to former findings or orders thereto as in its opinion may be just.

SECTION 51. REPORT OF COMMISSION.—Annually on or before the first day of February the Commission shall make a report to the governor, which he shall lay before the legislature, which shall include a statement of the apportionment of the state contribution, statistics of sickness experience under this act, a detailed statement of the expenses of the Commission, the condition of the state guarantee fund, together with any other matter which the Commission deems proper to report, including any recommendations it may desire to make.

SECTION 52. SOCIAL INSURANCE COUNCIL.—The social insurance council shall consist of twelve members, six of whom shall be elected by employer directors of the local and trade funds and six by employee directors of the local and trade funds; their term of office shall be two years, except that in the first election three of the employer and three of the employee members of the council shall be elected for one year; they shall receive a compensation of ——— a day for each day spent on the business of the council and shall be reimbursed for reasonable expenses.

SECTION 53. OFFICERS OF COUNCIL.—The council shall elect a president from its own number; the secretary of the Commission shall act as the secretary of the council.

SECTION 54. MEETINGS OF COUNCIL.—The council shall meet during the first week of December, of March, of June, of September, each year. Special meetings shall be called by the president on the request of at least five members of the council or of two members of the Commission, at any time.

SECTION 55. DUTIES OF COUNCIL.—The annual report and recommendations of the Commission shall be laid before the December meeting of the council before transmission to the governor, and the council may approve them or make a separate report and recommendations to the governor. All general regulations proposed by the Commission shall be laid before the council at a regular or special meeting for discussion before final adoption, except in cases of urgency, to be determined by the Commission and in this case the regulation shall be laid before the next regular meeting of the council or a special meeting called for the purpose.

SECTION 56. MEDICAL ADVISORY BOARD.—The state medical societies shall choose a medical advisory board which shall be consulted on medical matters.

SECTION 57. SETTLEMENT OF DISPUTES.—All disputes arising under the act, except those provided for in Sections 14 and 58, shall be determined by the Social Insurance Commission either on appeal from the proper authority or from the carrier or, in case of disputes between carriers, by original proceedings. The Commission may assign any dispute for hearing and determination to a dispute committee composed of one employer and one employee member of the council, and a member of the Commission, as chairman, the members of the council to serve in turn on the dispute committee for periods of one month; either party may appeal from the decision of the dispute committee to the Commission within thirty days from the date of rendering the decision.

SECTION 58. MEDICAL DISPUTES.—All disputes regarding medical benefit which have been appealed to the Commission shall be referred by the Commission to the medical advisory board, which shall report to the Commission, and the Commission shall not decide any such dispute until after a report has been made by the board.

SECTION 59. SUITS AT LAW.—Suit shall not be brought in any court on any matter on which an appeal is allowed to the Commission, until after a decision by the Commission or of a dispute committee, and the statutes of limitations shall not begin to run in such cases until after decision of the Commission or dispute committee is filed.

RELATION OF PHYSICIANS TO HEALTH INSURANCE LAWS

It is axiomatic that the medical profession is a necessity in the carrying out of any health insurance laws. It is equally self-evident that any laws controlling medical benefits and the medical profession must be so formulated as to render justice to three groups of human beings with often diverse interests, that is, the insurance carriers, the workmen and the physicians. The interests of these three groups are not incompatible if the balance of strict justice is kept even, but there is endless friction and endless and bitter antagonism if this strict justice is not given. In the carrying out of these insurance laws in Europe the physicians have had to fight to obtain the justice that was due them. In Germany the friction has been between the insurance carriers and the physicians. The physicians have rendered adequate service to their patients. When in the struggles the adequacy of the service was questioned, the German government has forced the offending bodies, whether insurance carriers or physicians, to give in. The justice of the doctors' cause has been shown by the fact that they have won nine tenths of their struggles. In England, on the other hand, the struggle has been between the insurance carriers and the government against the physicians. The physicians have won against the carriers, divorcing themselves from that lay control, and have forced a compromise from the government, and in the net results have carried the majority of the contested points. The result, however, has been a compromise, since the physicians receive a better compensation than in Germany, although they do not give as adequate a service to the patients.

From the point of view of the insurance carrier, as economical a rate must be obtained as is compatible with good service to the sick, and here the question comes naturally of fairness of rates to the physicians and adequacy of service. The carriers will demand a machinery by which control of dishonest physicians is brought about and a similar control by which malingering and valetudinarianism on the part of the patients is reduced to a minimum or prevented altogether. The carrier, on the other hand, must be forced to render a fair remuneration to the physician for services given and must also be forced to give strict justice to the claims of sick benefits presented by the workmen. In England the Fabian report shows that in the early years of the insurance act there was often gross injustice done in the matter of granting and refusing sick benefits among the workers and also a great deal of justified criticism that many physicians were prolonging certificates for sick benefits beyond what could have been honestly given.

From the point of view of the wage earners, they will demand that an adequate medical service be given them and that they be treated justly in the consideration of incapacity for work by the physicians and equally justly in the granting of sick benefit claims from the carriers. On the other hand, they must acquiesce in the fair refereeing of doubtful claims of either question and must assist in the inspection and refereeing necessary to prevent malingering and valetudi-

narianism. The physicians on their part have a right to demand a fair remuneration for services given and must agree to give willing and adequate medical service. On the other hand, they must submit to strict control by the profession of dishonest or delinquent members or they must submit to lay control for the punishment of such members. Physicians in any given state may demand that certain fundamental principles regarding medical service shall be incorporated in the law itself. This has the advantage of being more difficult to change than regulations, and for certain broad general principles it may well seem to be advisable.

Following the example of the profession in England, the physicians will, without doubt, in this country demand that they have adequate representation on the various controlling bodies administering the law. This will probably be true for the representation on the insurance commission itself and then on down through the various arbitration and executive committees to their own committees composed only of panel physicians or physicians actually doing the insurance work among the workingmen. After the adequate representation specified in the law, it would seem wisest to leave further regulation of the medical work to be done under the Health Insurance Act, not to the hard and fast designation of the law itself, which must be changed only through legislative action, but to the medical regulations under the Commission, which would, therefore, be more flexible and could be changed easily by executive act. Thus the law could be made to run more smoothly because more easily changed, if it were found at any time to be bearing unjustly in the carrying out of its medical functions. It would seem wise to leave these regulations to a body composed in part of the representatives of carriers and of workmen of each district and representatives of the physicians elected by doctors working in the insurance district under the chairmanship of a member of the State Controlling Commission or a judge. Thus all interests—the employers, the employees, the state, and the physicians—would be represented in the discussion and formulation of these regulations and the desired working equilibrium of exact justice to all interests would be obtained.

It has been found necessary in all countries abroad to have committees of physicians who do the insurance work, who meet regularly and who have the power of scrutiny over the economy or extravagance in the ordering of drugs, and who have some degree of power for the discipline of physicians in minor matters and who hear and decide disputes among the physicians themselves. Complaints between the physicians and the societies, or between the physicians and the carriers, or between physicians and workingmen go to other committees composed both of the workingmen and the physicians. In England, particularly, there are committees representing all the physicians, whether on a panel or not, in a given neighborhood. There are also, as has been pointed out, other committees to which disputes go on appeal. These committees are either regularly instituted, as in Germany, and are permanent, or they may be formed as inquiry committees for the time being, as in England, to consider certain definite disputes or definite questions in dispute laid before them for referee decision under the Commission. The German method of appointment of committees is the simpler and more direct, that of the English law being much more complicated and demanding more detail in its regulations.

In both countries there are the registered chemists or pharmacists, and in neither country are the physicians allowed to dispense medicines except in England, in sparsely settled districts under certain definite rules. Again are disputes between pharmacists and the physicians regulated by committees, and regulations permitting appeals up to the Commission are formulated. All this intricate mechanism is necessary to bring about the smooth running of an intricate law.

One of the questions most persistently fought for by the profession in Germany, and one point which was won by the profession in England, is that of free choice of the physician by the patient. This, of course, must be within the limitations of consent by the physician to have the patient, and with the physician chosen especially within a reasonable distance of the patient, that he may give good service. Against this free choice one party in Germany, as represented by the Dresden Society, has insisted on having any given area divided into districts and a salaried physician placed in each district. All insured persons are expected to consult the doctor in their district, but in case of dissatisfaction their wishes are consulted as far as possible. All appointed doctors are free to engage and do engage in private practice.

Still another method sometimes advocated is that practically of a state medical service, with salaried physicians, in which all persons in a certain district are given the medical attention of certain specified physicians, or, of course, there may be free choice of physicians among a certain limited number of district doctors. This state service has best been exemplified in late years in the medical service rendered in the Panama Canal Zone. It was here shown how brilliantly and successfully such a generalized system of state medicine could be carried out in certain areas.

Left to the profession to decide, it is probable that free choice of physician, without limitation, will be chosen in the majority of instances. There is no question that the human relation between physicians and patient will be demanded and should be granted, even under health insurance laws or under state medicine where possible. This is particularly advisable where the care of families is in question, for justice demands that whatever may occur to the children of a family it should be the privilege of the parents to feel that they have had the physician of their choice and that no matter how unfortunate the outcome of any sickness may be they have done all that was possible for them to do and have blocked up all loopholes for regrets.

Even with the free choice of physicians there must be regulated the limit of the panel or the limit of the number that any one physician may enroll to whom he is willing to render service. It is a curious feature in the working of the English law that two years after the act had been in operation the Fabian Committee reported that one fifth of the physicians were caring for one half the patients and four fifths of the physicians for the other half of the patients. Thus there was the evidence of overcrowded panels and hurried and inadequate service, which is, as has already been said, the curse of the capitation system of payments and of lodge practice. There must, therefore, be the limitation of the number of patients or families that a physician can care for. Considering that in all probability each patient will be sick ten days in a year, one can calculate the probable number of patients that could be visited daily. For instance, if a thousand patients, or 500 families, with three to a family, that is, 1,500 patients, were permitted to each physician, he would have from 10,000 to 15,000 sick days a year to care for. That would be from twenty-eight to forty-two patients a day of minor and major ailments. This will be recognized as being all that can be conscientiously well cared for. It might be claimed that with one or two assistants a man might well care for more patients, but the question of assistants brings up the question of the lack of personal care that the physician gives, or does not give, to the patients he has contracted to serve, and probably it would be wiser that no assistants who are not on the panels should be allowed. Two or more panel physicians entering into partnership, and who were willing to pool their panels and render services of mutual aid to each other, would certainly not be objectionable.

REMUNERATION OF PHYSICIANS

In considering the remuneration of physicians under health insurance it is necessary to consider certain medical customs and habits of thought. The medical service is always an individual one, and the state requires it to be individual. Medical public opinion demands that the physician shall give an adequate and just service to his patient, and that the physician shall not permit himself to be placed in positions where he gives careless, incompetent service, to the injury of those under his care. Any physician neglecting this standard loses caste. He is condemned by his colleagues, and the position or system in which such service is likely to occur is held in contempt by the profession, and has been classified under the opprobrious name of "contract practice." All medical service is really a contract, and many physicians under salaries, such as with insurance companies or railroads, are

not condemned, nor do they lose caste, by accepting such contracts. But any contract which carries with it an unreasonable amount of work by the doctor, which in turn forces neglectful, hurried service to the patients, is always condemned. These situations are usually found in certain lumbering and mining camps and under other corporations, and in the familiar lodge practice in large cities.

Lodge practice and other condemned forms of contract practice are all under the capitation plan of remuneration, and the capitation idea of service under sickness insurance has necessarily these inherent faults, which cannot be eradicated and can be controlled only to a limited extent if they can be controlled at all. By this form of capitation is meant the per patient per year form of payment to the doctor. Another form of capitation which is used abroad is frequently used in a compromise with the free choice system of the doctor by the patient; that is, a sickness society has a certain amount of funds that it can pay for medical services to the doctors. This lump sum it gives to some association of doctors, and the physicians charge up each visit and each act of service rendered to each patient as so many points of work done against the medical society. Usually every three months each physician hands in his account to the medical society, and the total number of points are divided into the total amount of funds, and the remuneration paid to the physicians pro rata. The two faults in this country for this method are, that there is no society or association of physicians which is sufficiently universal in its membership to justify such a procedure, for many men who would work among the working classes do not belong to the medical societies, and if any control was attempted through the present societies, there would be many doctors working among the insured who would be beyond such control; and, furthermore, in times of great amount of sickness, the more work done the less is each point of service worth, and after a certain amount of service has been given by the physicians, the more work they do, the less money do they receive in ratio to work done. If the total amount paid by the societies remained the same, and if twice as much work were done by the doctors in an epidemic as in an average year, each point would be worth half as much and the remuneration would be the same under great stress of work as under an average year. This is not just remuneration, and would soon bring a resentment on the part of physicians because of undervaluation of their work and the injustice in it, and there soon would develop a situation similar to the other form of capitation of overcrowded work and the underpaid men.

There is, in some parts of Germany, the regularly paid physician under definite salary from the society. This might or might not work out well, because it would be a similar form of contract to that of the railroad surgeons, but it would be very liable in sickness insurance to be abused, and soon the inherent faults, as in capitation, would develop. Moreover, any sickness insurance society could hire only a certain number of physicians, and unless they arbitrarily refused free choice of physicians to their members and divided them in equal numbers among their salaried physicians, the natural difference in personality of the physicians would immediately cause the practice of some to be overcrowded while that of others would be neglected, and again the inherent faults under capitation would develop.

One comes to the other form of medical service—that of visitation, that is, a stated fee per visit per patient, or with a fee graded according to character of services, with free choice of the physician by the insured, either with an unlimited number of patients or with a limited number of patients under a panel system, by which a definite number of patients can be apportioned to any one doctor and under which all patients must be apportioned to some doctor—this with the consent of the physicians and patients; or, absolute free choice of the physician by the patient, with no panel and no control by the commission of the physician through his position on the panel; or free choice of the physician by the patient, with control of the physicians through a series of committees.

It has been generally claimed that free choice of physicians and this visitation method of so much per patient per visit always increases the number of visits and the expense of medical care to the insuring societies. These claims, however, were not substantiated in an investigation of the subject in Manchester, England. There is no question that from the medical point of view the visitation system is the most just. There is no question from the patient's point of view that they obtain by this means the best service. There is less danger of neglectful and overcrowded services being rendered to them; it eliminates the inherent faults of the capitation system, but increases the expense over capitation because it gives a fair return, which capitation does not do. It seems to increase the opportunity for malingering and simulation, which, unless controlled, become the bane and ruin of any social insurance system.

The ethics of any profession are but the moral customs of the general community modified to suit the peculiar services which that given profession performs, and the ethics of the average member of any profession will not rise any higher than the average of the community in which he lives. In any community, therefore, there will be dishonest physicians, whose acts must be controlled that they may render an honest return to the patients and to the insurance carriers. Therefore, this human factor necessitates a scheme by which this control can be most economically and efficiently exerted.

WHO SHALL DECIDE WHEN A PATIENT HAS RECOVERED

In all sickness insurance, there is one mooted question that constantly arises, and that is, who shall decide any dispute between a physician and an insured member as to whether or not this patient should go back to work and his benefits cease? There is always trouble if this work is left to the panel physician alone. Patients will demand leniency, will go to the doctors who are lenient, and physicians, unless of rugged character, will be afraid of losing their patients and injuring their income unless they are lenient, and thus the expense of the insurance carriers will be enormously increased by a continuance on the sick list of patients who should be at work. If, whenever this mooted point arises, the decision could be referred to some impersonal committee or to some regularly constituted salaried medical referee, it would enormously improve the working of the insurance act. There will probably be required a medical inspection department under a medical referee or referees to control malingering and valetudinarianism.

In considering this matter of dispute between the insured and the physician as to whether or not the patient is fit to work, some figures in the experience of the Leipzig and Königsberg societies are of interest. In the Leipzig society, in 1910, there were 8,497 requests made that the confidential medical advisers of the society should ascertain whether or not the patients genuinely were unable to work. Of these, 3,382 were made by the treating physicians and 5,115 by officers of the society. Those who did not come up for examination, but went to work of their own choice, numbered 2,670. Of the 5,827 examinations made, 47 per cent. of the patients were declared able to work forthwith, 12 per cent. were declared able to work at the end of the week, 10 per cent. were put off to be reexamined at the end of one or two weeks, and 31 per cent. were declared unable to work.[17] In the Königsberg society in 1909-1910 there were 4,937 who were examined by the confidential medical adviser. Of these, 2,527 were examined at the request of the society, 344 at the request of the attending physician, and fifty-seven at the request of the patients who considered that they had been wrongly certified as able to work. Of these, 33 per cent. were certified as able to work forthwith; 21 per cent. as able to work in from three to eight days; 23 per cent. as unable to work; and 18 per cent. went to work immediately and did not come up for examination.

The testimony concerning the medical referees taken before the Departmental Committee on Sickness Benefit Claims in England strongly favored referees paid by the central commission, not by the approved societies or the insurance committees under the commission. That is, referees were desired who represented the central body. There was a division of opinion whether these should be full-time referees or half-time referees. It has been said, and probably not unjustly, that if half-time referees were employed there would be a greater number of referees and probably a better class of physicians could be obtained than if full-time referees were employed.

17. Gibbon: Medical Benefits in Germany and Denmark.

It was further brought out that it would perhaps be possible to have members of the panel committee act as referees to decide cases that were not in their districts and among patients who could not possibly become their patients, so that in any given group of panel physicians there would be an interchange of the work of refereeing. This would have the advantage that the work would be done by men who would best appreciate all the necessary points of view which the special work demanded. On the other hand, this method of reciprocal refereeing would have the disadvantage that it would lack the element of medical inspection on the part of the commission, which referees working under and paid by the commission would possess. At first glance the addition of the expense of the medical referees to any insurance scheme would seem to add greatly to the expense of the medical administration, but the existence of the referees would save in sick benefits more than enough to pay for their salaries; besides, the salaries of the referees should not be charged to medical expense. They should be looked on from the administration point of view and charged to administration expenses, for they are necessary for efficiency and effectiveness in the administration of the law and are representatives of the executive department and should be so considered.

THE SPECIALIST IN HEALTH INSURANCE PRACTICE

From the patient's point of view, efficient medical service is necessary. Any general sickness insurance law among the poor will develop an increase of medical service and demands. Some form of sickness or injury has been the calamity through which the poverty of the poor has been changed to destitution in the majority of those applying to charity for aid, so that often all that has separated poverty from destitution has been the ability of the wage earner to go to work each day. Just so soon as the wage earners realize that they can have medical care as their due, without further expense than already borne by them, it is bound to increase enormously the demands on the medical profession. Of course, after a few years, when they become used to the idea, the mass of trivial and unnecessary calls will diminish, but a certain amount of unsuspected sickness among the poor will come to light and will probably increase the necessities of medical care beyond any calculated expectations. Adequate medical services to the patient must contain, at times, the possibilities of more than the average practitioner can necessarily furnish. The standard demanded from the individual practitioner will probably not exceed that demanded under the English act, which considers that adequate medical attention and treatment is that treatment of a kind which can consistently, with the best interests of the patient, be properly undertaken by a general practitioner of ordinary professional competence and skill. The physicians of the Book Printers' Sickness Fund, of Berlin, agree to care for all members not requiring hospital treatment, and to expedite recovery to the best of their power. In the Leipzig Sickness Fund, physicians agree to give requisite treatment in accordance with the recognized custom of the medical profession. The English act does no more than provide the advice of the panel doctor as to how further treatment may be obtained. It fails noticeably to furnish expert care or advice or adequate hospital accommodations; it only attempts to provide this in tuberculosis.

In the sickness societies of Germany there are many specialists to whom the patients may go. The Leipzig society employed 130 specialists and twenty-four dental surgeons out of its total of 400 doctors; the Dresden society sixty-four out of its total of 226. The ratio of specialists to general practitioners should be at least one to five. These necessary details of organization must be left to the arrangement of the local societies. There is no doubt, however, but that the details of what is ordinary and what is extra work, such as the difference between day calls and night calls, the difference between office visits and home visits, the detail of the ability of the general practitioner to call in a consultant if he or the patient shall demand it, what shall be the fees under these circumstances, or whether all consultation work shall be done by the medical referees, are all questions coming up for decision.

There is no question that modern medical treatment demands more team work among physicians than was formerly done. The bacteriologic examinations of sputum, of throat cultures, etc., are done in this country free of charge by the city and state departments of health. But Roentgen-ray diagnoses and any other special diagnostic procedures must still come under the specialist category.

HOSPITALS AND DISPENSARIES UNDER A HEALTH INSURANCE LAW

This brings us to the question of the dispensaries, and back of the dispensaries, the hospitals. Up to this time the dispensaries and the hospitals have been the expression of the amount of free medical care that the city or state governments, or private corporations, were willing to give to the poor. A well-conducted and well-organized dispensary offers the most economical and efficient method of giving to the patient the many specialized medical services that the varying nature of their illnesses may require. More diversified medical and surgical work is performed in the dispensary than is performed in the hospitals. There is less specialized service in the majority of the hospitals than in any dispensary of even moderate size. But there are more hospitals given over to special work than there are dispensaries so constituted, although most special hospitals have also a dispensary attached to them for the sake of obtaining patients to fill the hospitals. Most of the medical positions in dispensary or hospital are occupied without remuneration, the medical experience being sufficient compensation in this country for whatever time or knowledge the doctor may bestow. Abroad, in certain countries, similar positions have a salary attached to them, and medical men are not expected to give their medical or surgical knowledge and services uncompensated.

Under the sickness insurance law, the general dispensaries present opportunities for an adequate and well-developed method of furnishing abundant services in special branches of medical or surgical care to all patients who are not too sick for hospital care and who may require some special service which the average general practitioner cannot give them. The situation, however, will arise whether or not the dispensaries should be confined to the use of the development of the specialties and all the general medical care given in the homes of the patients, or whether patients shall be allowed to choose between their own doctor and some general practitioner in the dispensary as far as the general medical care is concerned. This is a question which contains serious possibility of dispute. It may be that the general medical classes of a dispensary may, in the end, be developed into a place where patients may go for expert diagnosis on the plane of the consultant, being referred back to their physician for care or being referred to specialists, if such be necessary; the dispensary becoming then an institution for special care or expert diagnosis and not containing, as now, classes in ordinary internal medicine. However this may be decided, medical services rendered in the dispensary must, in future, receive remuneration, and free dispensaries soon be a thing of the past. Physicians in the dispensaries, moreover, must be under control of the committees controlling the doctors in general insurance practice, and if the dispensaries are run by private corporations, it must be within the power of the Commission to forbid persons under the insurance act to go to dispensaries which do not give adequate medical service. In all probability, if the Commission should publish to the insured that a certain dispensary was failing to give adequate medical care, the stigma of such publication would soon force any private corporation to give adequate medical services. The rules and regulations by which patients are permitted to accept the hospital provision of the sickness insurance act will have to be under definite agreement and the care received in the hospitals under definite supervision.

Under the workmen's compensation law, disputes arise because in the same ward one patient will be under the compensation law and another not, and any surgeon is liable to be accused by the patient not under the compensation law of neglecting him and favoring the man under the compensation, because of the extra fee given to the surgeon. The workmen's compensation law makes certain poor patients pay patients and necessarily leaves others out of this category. Sickness insurance laws will probably act in the same way in the medical wards in the same hospitals, and the human element of envy and resentment on the part of the patients will bring many

disputes and complaints of the service rendered to them. It is doubtful if the attending physicians and surgeons in the large public hospitals should take positions on insurance panels. It would seem wiser if they did not. They usually have reached a position in their profession where their private practice is not among those persons who will be insured by the sickness insurance act. It would seem wiser, therefore, that it should become a custom that the attending physicans, at least, should care for all alike without remuneration, and that the special work required by the sickness insurance should be done by some assistant and not by the attending physician. The attending physician, therefore, in charge, would give his services to all alike, and there could be no criticism or envy on the part of the patient for care received. The decision required by the sickness insurance act as to when the patient was ready to leave the hospital and go to work, of filling out the certificate necessary under the working of the act, the special daily hospital care and attention required, should be done by some assistant against whom the question of unequal attention between patients could not arise. Adequate supervision of smaller hospitals in which there is no house staff must be formulated by the Commission, for there is no question, as stated above, that adequate medical and surgical service must be given and must be controlled, whether this service be in the homes of the patients or in the hospitals and dispensaries to which they may go.

We have considered here the working and necessities of medical care and control under a compulsory sickness insurance as exemplified chiefly in England and Germany, as these two types of compulsory insurance give the best examples of the results of the various methods employed for the carrying out of compulsory sickness insurance. Many difficulties of administration and many failures in administration have developed in both countries through the employment of the capitation plan of remuneration to the physicians. In Germany this has resulted in bitter animosity between the medical profession and the insuring societies, and bitter contests for increased remuneration in which, in the enormous majority of contests, the physicians have won. In England it has resulted in inadequate care being given to the majority of the insured under the act. In this country it would seem to be useless to attempt to repeat the inherent faults of capitation payment, and medical opinion and customs in this country are already in vigorous antagonism to this form of contract practice. It would seem unwise, therefore, to start with the bitter antagonism of the medical profession against capitation. This would seem to force the necessity in this country of a remuneration based on the visitation system. With this point of view clearly recognized, many difficulties experienced abroad will not occur, and, in fact, the chief stumbling block to the successful carrying out of the law is removed.

General Comment

This voluminous report has made no pretense of arguing for or against health insurance. It has made no attempt to bring together the advantages or disadvantages to be gained by the community, or its desirability as a measure of health or social necessity. The Committee on Social Insurance offers it as a compilation of what has been done abroad and of the present situation in the United States. It has brought forward only those points which would seem to be of interest to the medical profession and which will be useful to them in preparing a study of the situation in any given state in this Union where health insurance is likely to be brought up and placed on the statute books.

The effective administration of any health insurance law must be done through limitation by trade or geographic area of its application. This is clearly seen in the working abroad of the various laws in the different countries. The English law is difficult of administration because it violates this fact. Germany and Austria show marked effectiveness because their laws follow this peculiarity. Furthermore, the results obtained in working out the details of the law will be greatly influenced by the financial management of it. In Germany the percentage of expense borne by each member—the employer, the employee, and the state—is designated in percentage, the actual amounts necessary being left to experience and management to obtain. In England a definite monetary amount was laid down by law, and with the errors of actuarial calculation, it has been found that these amounts are insufficient to give the desired results to the workers. Eighteen cents a week as a premium was insufficient to give a full measure of sick benefits to the workers or just remuneration to the physicians and medical benefits to the sick, let alone the expenses for administration. The English law fails to give more than the ordinary medical service and gives but a minimum of surgical apparatus and appliances, with the result that the sick do not receive the care they should, though the physician is justly remunerated, and the lack of proper appliances keeps many sick on the sick benefit funds at the unnecessary expense of the insurance carriers. In Germany the generous application of medical benefit and surgical appliances brings back the tremendous saving in time and wages. As was pointed out by the Judicial Council last year, the expense of $8,000 to specialists saved over $160,000 in wages and sick benefits.

However one may criticize the details, the insurance act has unquestionably improved the condition of the working classes which have come under the law. This is a very noticeable feature in England. It will be of great interest to note in the future the effect of the great war on these countries and on the laws of social insurance.

The Committee on Social Insurance has endeavored to bring forward as much detail as possible regarding the remuneration of physicians under these laws in order that the economic results on the lives of the physicians could be fairly studied.

The more these laws of social insurance are studied the more it is evident how essential is the medical profession in their administration. It is equally essential that the profession should clearly understand these laws, and the Committee on Social Insurance, therefore, offers this study of health insurance for the assistance of the profession in obtaining this necessary information.

Respectfully submitted.

ALEXANDER LAMBERT, Chairman.

Committee on Women's and Children's Welfare

To the Council on Health and Public Instruction:

Three years ago, at the beginning of my chairmanship of the Committee on Women's and Children's Welfare, we adopted the policy of developing one line of action. At that time the baby health movement was of the most immediate interest, and offered, as it seemed to us, the greatest possibilities among the various phases of public health work then under consideration; we therefore centered our work on it.

By the end of the first year our official score card was in the hands of the public, together with Pamphlets 4, 5 and 7. Pamphlets 4 and 5 contain directions for measuring and scoring of babies, plans for conducting conferences, and book lists; Pamphlet 7 is devoted to care of the baby. At the close of the second year the movement had begun to swing from the contest to the conference ideal, thus establishing a more permanent and scientific basis for our work—that of development of the frail child, rather than recognition of the already healthy one. During the second year the women's clubs throughout the country began to grasp more thoroughly the possibility of the movement, and the Children's Bureau to give its active support. But to show how even our committee underestimated further development we quote from a concluding paragraph of the second annual report, p. 39:

"With contests giving way to conferences; with the gradual elimination of cash prizes; with the steady increase in number of permanent stations, and with increased legislation establishing bureaus and child hygiene departments, we feel that the baby health movement is sufficiently developed to be taken care of with ease, and to pass into a minor work of the committee."

With the women's clubs and the federal bureau thoroughly alive to the possibilities of the baby health movement, the last year has been by far the most profitable of my chairmanship. In November, 1915, Miss Julia Lathrop issued a bulletin, "Baby Week Campaign," stating the purpose in the introduction, as follows:

"The accompanying bulletin, entitled 'Baby Week Campaigns,' has been prepared for the purpose of presenting in

detail such practicable methods of organizing and carrying on a Baby Week as will be of general application and utility in cities, towns and rural communities throughout the country. It has been requested especially by the General Federation of Women's Clubs, which has announced its purpose to promote a nation-wide campaign for the observance of Baby Week."

In the same bulletin Miss Lathrop gives the place our work held in the week's campaign:

"The following suggestions for the organization, equipment and arrangement of a baby health conference of any type held during Baby Week are adopted from methods used in many successful conferences. The pamphlet of the American Medical Association on Baby Health Conferences has been of great assistance in drawing up this outline. Different communities may develop modifications of detail in accordance with local conditions. The Children's Bureau will be glad to receive reports of any important modifications which prove successful."

The bulletin later describes the three acceptable types of conferences, namely, "baby health conference without score card, baby health conference with score card, and baby-improvement contests."

The baby health conference without score cards is the ideal conference, and the one the federal bureau carries out:

"The record sheet used in these conferences gives space for notes on the age, height, weight, previous history, and any physical defects found in a thorough physical examination. It has a page on which the examining physician gives advice to the mother on the general hygiene necessary to better the physical condition of the baby or to keep the baby well. In a conference of this type no attempt is made to compare the development or condition of different babies; the object of the conference is rather to center the attention of the mother on the qualities and needs of her own child; to teach in a practical way the facts with regard to the care of babies and to point out the sources of assistance in making or keeping the baby well. These purposes should be made plain in the publicity material given out."

In a baby health conference with score card "the physical condition of the baby examined is recorded on a score card. For each defect found a certain amount is deducted from the perfect score of 100. When the examination is finished and the score computed, the latter expresses the general physical condition and development of the child. Many successful conferences have been held throughout the country during the past few years according to this method. The American Medical Association has prepared a standard score card which may be obtained for use at baby health conferences. This organization has also prepared a pamphlet giving instructions for organizations wishing to conduct a baby health conference according to this score card, suggestions on the use of the score card to physicians making the examinations, and suggestions upon the computation of the score."

The baby-improvement contest is another form of baby health conference "in which the babies are first examined and scored as in the above conference, and after an interval (one to twelve months) are again examined and scored, and a diploma, medal or prize is given to the babies showing the greatest improvement in score. The following resolutions were adopted by the council on health and public instruction of the American Medical Association, Feb. 24, 1914:

"That if the awarding of any medals or prizes seems judicious in the baby health conferences, they shall be given to the babies showing the greatest improvement in health between the various examinations rather than to the naturally healthy child who scores high at the first examination."

In compliance with these suggestions, our committee has realized the possibility of making our work in the movement yield nation-wide results. The American Medical Association has supplied score cards, anthropometric tables and Pamphlets 5 and 7 wherever desired throughout the United States, besides having the privilege of answering questions or giving advice wherever and whenever requested. The culmination of the preparation for the different baby week campaigns throughout the country has given us the keenest gratification of our three years' service on the committee, because it has made it possible for us to serve in a practical, concrete way the organizations, the women's clubs and the Children's Bureau, which we feel it is our especial function to serve.

From the beginning of this movement, state and county fair associations have been among our strongest cooperative influences. Through their support we have been able to work out many of our theories into practical results. The last year one state fair issued a baby book containing the American Medical Score Card, anthropometric table, list of books on babies, and a complete classification of the babies entering the conference. Ten thousand copies of these baby books were given out as programs to the audiences.

For portions of the country where it is still considered necessary to hold contests, we desire to emphasize the value of the improvement class, in which the subnormal child is given a chance to show development.

Following the examinations at one state fair conference, a questionnaire was sent out to the parents, and a large number of answers received. The questions, together with a few significant replies, follows:

1. What benefit did you expect to derive by entering your baby at the conference?
   1. To find his weak and strong points both physically and mentally and find a means of developing him along most needed lines.
   2. We wanted to know her defects and learn the way to remedy them, also how she would score compared with others her age, in short, how nearly perfect she was.
   3. To learn his condition mentally and physically.
   4. We had the satisfaction of knowing whether the babies were being properly taken care of or not, and how they compared with others.
   5. I wish for professional opinion concerning baby's health, weight, measurements, etc., also to compare him with other healthy babies of his age.

2. Did the benefit meet with your expectations?

Out of fifty-three answers, forty-two were positively "yes," five "No," and six "not entirely."

3. What phase of the examination appealed to you as the most satisfactory, and why?
   1. Every phase of the examination appealed to me as being extremely important.
   2. How to feed my baby properly.
   3. The advice and kindly talk the last doctor gave me.
   4. The psychologic examination, because I wanted to know if my child's mind was properly developed.
   5. The punctuality of appointment for examining. The thoroughness of examination. The interest shown the children and parents.

4. What phase the least satisfactory, and why?
   1. Points being taken off and no explanation.
   2. The child that will "show off" is the one who scores high, while a shy child falls short regardless of how much he knows.
   3. Examination of the throat.
   4. The mental development, because children under 3 years of age vary so greatly.
   5. The mental, because a baby will do things at home that he will not do for strangers.

5. If your child is of correct age will you enter him in the improvement class next year? Why?
   1. Yes, I want to know how much they have improved.
   2. Yes, because I am trying to bring him up to standard.
   3. Yes, to find out the defects as well as improvements.
   4. My boy is over age and being physically perfect, except for a birth mark, there is no chance for improvement.

6. Aside from your own experience what is your opinion concerning the value of measuring and scoring babies?
   1. It is one of the best and most helpful movements that has been undertaken in recent years.
   2. It will make the parents more careful of their condition before a child is born as well as after he is born.
   3. Parents take more interest in their children and try to develop them to exact measurements.
   4. It is a good movement in the right direction, as it induces thoroughness that might otherwise be overlooked.
   5. It will help mothers to raise a better generation of children.

7. Has the measuring and scoring of your baby had, so far, any practical value for you in its care? If so, what?
   1. Yes, in the care of her teeth, also teaching self control.
   2. Yes, that one should devote all thought and time possible to the child, training him both mentally and physically.
   3. Yes, in his diet and more regular feeding.
   4. Suggestions of the examining doctors have been carried out successfully.
   5. Yes, it has given us a keener insight of her physical training.
   6. Yes, the pointing out to us the danger of doing nothing for flat feet and weak ankles. We didn't realize the necessity for orthopedic treatment.

The second edition of Pamphlet 5 having been exhausted during the last year, we seized the opportunity to revise the pamphlet and make it more completely meet the requirements of the baby movement as now developed. The revised copy is now in the hands of the public.

In the second year of my chairmanship we issued an anthropometric table compiled by Mr. F. S. Crum. During the third year we have secured 10,000 score cards and have published a

new anthropometric table compiled by Mr. Crum which is now available. We are at present endeavoring to secure from different sections of the country several thousand score cards on which we wish to base still another table. It is also our intention to tabulate all remediable defects from these cards. If the results are significant, we shall print them and turn them over to the Children's Bureau and to the proper authorities of the states from which they come. We have already received 1,000 cards from one state, and the promise of 1,000 each from several other states. Seven states are planning to issue bulletins in which will be tabulated all facts of statistical value connected with this investigation of remediable defects. May we here urge that other states furnish us with the names of physicians who will be responsible for collecting and sending to us duplicates of score cards secured from contests or conferences in their locality?

During the past year all *orders* for contests and conferences have been filled by Dr. Frederick R. Green, Secretary of the Council on Health and Public Instruction, from the Chicago office. From our own office we have sent *sample* material *only*. The following represents the list of sample copies issued: score cards, 2,557; duplicates, 3,550; anthropometric tables, 504; Pamphlet 5, 555; Pamphlet 7, 608. Practically each of the foregoing samples was accompanied by a letter from our committee.

The Central Committee, which have given us valuable and steady assistance for this year is composed of: Rosa L. Gantt, Spartanburg, S. C.; Samuel Jay Crumbine, Topeka, Kan.; M. Nelson Voldeng, Woodward, Iowa; Grace L. Meigs, Washington, D. C.; Phoebe Van Voast, New York; Margaret V. Clark, Long Beach, Calif., and Frances Sage Bradley, Atlanta, Ga.

The members of the Score Card Committee are: Henry L. K. Shaw, Albany, N. Y.; Velura E. Powell, Red Oak, Iowa; Josephine Baker, New York; Howard Childs Carpenter, Philadelphia, and Lenna L. Meanes, ex-officio, Des Moines, Iowa. This committee is constantly at work revising and perfecting the score card. Dr. Henry L. K. Shaw as chairman of this committee has done much toward establishing the scientific value of this card, and in inspiring confidence in that value.

In conclusion we wish to acknowledge with hearty appreciation the support given us by our Council, the splendid recognition by the Children's Bureau, and the universal cooperation of the women's clubs.

Respectfully submitted.

LENNA L. MEANES, Chairman,
SOPHIE HINZE SCOTT, Secretary.

COMMITTEE ON CANCER

To the Council on Health and Public Instruction:

Your committee as a committee has done very little during the past year, but each individual has done his share in disseminating knowledge as to what can be accomplished when cancer is recognized early. Dr. Bloodgood has been particularly active, and in addition to numerous lectures in the East he has made an extensive tour of the Pacific Coast giving cancer talks to large lay and medical audiences.

Last year your committee reported the publication of several pamphlets, some dealing with the general subject of cancer, others with cancer of individual organs. During the last year we have published Dr. Bloodgood's article on "What Every Woman Should Know About the Breast," and the printer has in hand Dr. Julius Friedenwald's article on "Cancer of the Stomach." We have the manuscripts of several other important papers on cancer. These will be published as the demand increases for more literature on the subject.

Several years ago it was pointed out by Dr. Frederick R. Green and others that there was a great multiplicity of committees and organizations scattered throughout the United States, and that while each was doing its best for the public welfare, there was much overlapping in their labors—much useless labor, in fact—as a result of the lack of coordination. It was pointed out that with concerted action a great deal more could be accomplished with less labor.

When your committee was appointed, the committee of the Congress of the Surgeons of America had been in existence for several years, and the American Society for the Control of Cancer had recently been organized. After mature deliberation it was deemed best to let the American Society for the Control of Cancer take the more active part, as it in a large measure came into being through the efforts of the laity and they have contributed mainly to its support. This society during the year has been establishing state and local committees, and will soon have the country well supplied with local centers from which cancer knowledge will be distributed. It has been the desire on our part to avoid duplication of the work, and this accounts for our apparent inactivity.

The knowledge of the laity concerning cancer is being disseminated more and more each day. Your committee is doing excellent work in an advisary capacity and stands ready at any time to supplement the endeavors of the American Society for the Control of Cancer when it may be necessary. The Council of the American Medical Association has rendered signal service in the publication and dissemination of the various pamphlets on cancer. Just as soon as state and county organizations are fully completed and in action, the cancer reprints will have an ever increasing sphere of usefulness. The outlook in cancer is becoming more and more hopeful.

Respectfully submitted.

THOMAS S. CULLEN, Chairman,
HOWARD C. TAYLOR,
C. JEFF MILLER,
FRANK F. SIMPSON,
JOSEPH C. BLOODGOOD.

COMMITTEE ON CONSERVATION OF VISION

To the Council on Health and Public Instruction:

During the past year, I have kept the *Press Bulletin* supplied with popular eye articles for newspaper use and can only regret that the *Bulletin* is not distributed every week as before, as I believe it is a source of supplying the public with plain health literature, which is much needed.

Our committee and our state managers have had much to do with the enactment of eye legislation in several states. It has also had much to do with the prosecution of a number of individuals (physicians, midwives and others) who have disobeyed the state laws concerning the welfare of eyesight.

Our committee is endeavoring to teach the cheapness of health, but it is difficult to impress the public with this unanswerable truth. It is cheaper to keep people well than to allow them to be sick. It costs five times as much to educate a blind child as it does to educate a seeing child. Sixty-five per cent. of schoolchildren have some eye, ear, nose or throat defect that hinders education. Unprogressive schoolchildren are called "repeaters," that is, they keep repeating their studies. It costs $100,000,000 a year to educate 3,000,000 repeating American children. This is mostly unnecessary, as only about 3 per cent. are really mentally defective. If their physical defects are relieved, all but 3 per cent. will become average scholars. This would be a great boon to themselves, their parents, their teachers and their community. Over half of the criminals are poorly educated, and apparently mentally defective. It is probable that if their physical defects had been corrected in early childhood so that the easy acquirement of an education had been possible, most of them would never have become criminals at all, they would have been happier, and enormous sums of money would have been deflected into worthier channels. In such a reform, the eyes play an important part, for 87 per cent. of our knowledge comes to us through our eyes; hence the supreme importance of good eyes for schoolchildren.

Preventive eye work is very cheap, but its results are big. To drop silver nitrate into all new babies' eyes cost 2 cents per baby, but think of the misery and money it saves! It would remove 25 per cent. of the inmates of our blind asylums. There are now 300,000 dependent blind in America costing $15,000,000 a year to support. The wearing of goggles

in shops, and the use of protectives for dangerous machinery would cost but little, and would almost entirely prevent injury to eyes in shops. Control over the manufacture and sale of wood alcohol, in its various seductive forms, would save many eyes and many lives, and would cost practically nothing. Five hundred dollars a year, and the cooperation of teachers of a city the size of Chicago, would enormously improve the eye, ear, nose and throat conditions of the schoolchildren of that city, and would make teaching much easier, and much less expensive. The teachers can make health surveys easily and efficiently if they will. Plain instructions are printed, and there is no excuse for not doing it. No medical education is necessary, and the little time devoted to the work would be amply repaid by the added ease and comfort of the teachers' work, as stupid children are made bright by treatment, operations, glasses, etc.

No.	State	Manager	Number of Lectures	Number of Lecturers	Number of Cities	Size of Audiences
1	Illinois	P. Guilford	9	5	9	3,300
2	Wisconsin	N. M. Black	6	4	4	800
3	Missouri	C. Loeb	7	6	3	1,000[1]
4	New Hampshire	C. H. Babbitt	3	3	3	300[2]
5	Tennessee	E. C. Ellett	4	3	3	900[3]
6	Georgia	R. P. Cox	55	12	50	7,500[4]
7	Massachusetts	W. B. Lancaster	1	1	1	80
8	Michigan	W. R. Parker	4	4	4	1,300
9	Dist. Columbia	O. Wilkinson	2	1	1	100
10	Idaho	R. L. Nourse	5	1	1	800
11	Nevada	H. A. Brown	4	1	4	700
12	Ohio	G. C. Schaeffer	98	11	34	26,420[5]
13	Arkansas	H. Moulton	11	5	9	2,000[6]
14	New York	Lewis and Alger	100	25	100	27,000[7]
15	South Dakota	J. G. Parsons	13	3	10	3,000[8]
16	Maryland	J. J. Carroll	1	1	1	300
17	New Jersey	C. F. Adams	9	4	3	2,000
18	Kentucky	J. A. Stucky	42	2	18	7,000
19	Virginia	J. A. White	1	1	1	200
20	Oklahoma	E. F. Davis	3	1	3	1,500
21	Alabama	S. L. Ledbetter	6	4	5	700[9]
	Total		384	81	267	84,900

It will thus be seen that during the past year lectures have been delivered in 21 states. Three hundred and eighty-four lectures have been delivered by 81 lecturers, in 267 cities to audiences estimated at 84,900 people. In the two previous years of the existence of this committee, 829 lectures were delivered to 183,323 people. If we add to these figures the work of the past year, it will be seen that 1,213 lectures have been delivered to 268,223 people.

1. A local committee for the prevention of blindness has been formed at St. Charles, Mo., under the influence of our National Committee.
2. Through the influence of our National Committee much was said on ocular salvation by lecturers who talked throughout the state, during Baby Week.
3. Through our Committee, the Nashville Board of Education adopted the eye, ear, nose and throat examination of schoolchildren.
4. Through our Committee, many cities have adopted the examination of schoolchildren's eyes, ears, noses and throats.
5. Mostly accomplished by workers of the Ohio Commission for the Blind.
6. Survey of eyes, ears, noses and throats of schoolchildren commenced in Pine Bluff.
7. Given largely under the auspices of the New York State Committee for the Prevention of Blindness, the New York Association for the Blind, the National Committee for the Prevention of Blindness, etc.
8. Eye, ear, nose and throat inspection inaugurated in Mitchell, Aberdeen and Watertown. Dr. Parsons has organized a most successful society called the School Hygiene Association. It has a membership of 300.
9. Montgomery and Cloverdale County have begun the annual and systematic examination of schoolchildren's eyes, ears, noses and throats, A law is being introduced in the Alabama legislature for the examination of schoolchildren's eyes, ears, noses and throats.

Our committee is endeavoring to inspire the different states with the necessity for state activity along the lines of visual conservation. The most efficient manner of doing this is by means of lectures in the different towns and cities. These are arranged by the several state managers, whose duty it is to bring competent lecturers and receptive audiences together. This is frequently very difficult work, and the state managers deserve much credit for their devoted and unselfish labor. Many circumstances have conspired to make this rather a poor season for this work, and yet creditable work has been accomplished. I give here an incomplete account of the past season's lectures, and desire to say that the suddenness of the call for this report renders it impossible for me to give a full report of the lecture season.

Our committee has this season undertaken a most arduous but useful work, namely, the compilation of all the eye laws of the United States. It is astonishing how ignorant almost every one is concerning the laws of their own states. For instance, how many people in Idaho or New Jersey or Virginia could tell whether any law existed in their own state concerning trachoma or wood alcohol or schoolchildren's eyes; and still further, how many could tell what that law was, if any existed? It is to obviate just this ignorance that the committee is compiling the various eye laws. Even when such laws are on the statute books they are difficult to find. When this work is completed it will enable any one to tell at a glance if any law on any eye subject exists in any state, and if so just what is the reading of the law. The articles are appearing quarterly in *Ophthalmology*, and when completed, will be published by THE JOURNAL in book form as a work of reference. The titles of the articles are as follows:

1. State Legislation Concerning Schoolchildrens' Eyes, Ears, Noses and Throats.
2. State Legislation Concerning Ophthalmia Neonatorum.
3. State Legislation Concerning Trachoma.
4. State Legislation Concerning Wood Alcohol.
5. State Legislation Concerning Shop Accidents and Shop Conditions Affecting the Eye.
6. State Legislation Concerning Optometry.
7. State Legislation Concerning the Blind.
8. Model Eye Laws for State Legislation.

The first three of these articles have already appeared, and the others will follow in each issue of *Ophthalmology*. The work of collecting this material has been very arduous; each article represents about 500 letters sent out from my office.

In closing my report I wish to say that our work would be much increased if the Council could furnish us with even a little more money than is at present allowed. We need more stereopticon pictures and more pamphlets for liberal distribution. We need short leaflets for wide distribution, in several languages, on "Babies' Sore Eyes," "Shop Accidents," "Factory Conditions Favoring Eye Salvation," "Wood Alcohol," etc. The work of this committee should include conservation of hearing as well as the conservation of vision. These and other things we need to advance in our work, and unless such steps are taken, our committee will languish and eventually die of starvation. I earnestly recommend that these matters be taken into earnest consideration.

Respectfully submitted.

FRANK ALLPORT, Chairman.

REPORT OF COMMITTEE ON COOPERATION WITH THE NATIONAL EDUCATION ASSOCIATION

To the Council on Health and Public Instruction:

For four years the American Medical Association and the National Education Association have made special appropriations for the purpose of studying the hygienic and sanitary conditions of schools.

It was early ascertained that the country school was sanitarily and hygienically behind the city school, and that the city school was steadily improving while the country school was at a standstill. This has been stated in former reports of the committees. Last year, 750,000 copies of the report were printed by the American Medical Association press, the expenses were paid by the Elizabeth McCormick Memorial Fund, and the reports were circulated by the U. S. Bureau of Education.

This year's report of the committee, compiled by Thomas D. Wood, M.D., chairman of the National Education Committee, is now ready for the printer. It is far more comprehensive and important than any former report. It will be seen by the report that the work of the committees has just commenced. The methods suggested for improving conditions are simple, scientific and practical, but patient and careful supervision will be indispensable. It is sincerely hoped that the work so favorably launched may be continued until satisfactory results have been obtained in the rural schools throughout the land.

At the annual committee meeting in Detroit, the members present authorized for the work of the committee:

First, the printing of a small introductory edition of a second report (of twenty-four pages) of our committee on "The Health Care of Rural Schoolchildren."

Second, the reproduction of our committee charts in a pamphlet edition, to be distributed as effectively as may be and, if possible, through the Bureau of Education.

Third, the reproduction in actual size of an edition of 100 copies each of all or some of these charts, to meet the demands which we are receiving in considerable and increasing numbers for these charts. The plan is to lend some sets of these charts in answer to requests for them, and to sell the sets or individual charts at cost in response to requests that may be received. It seems desirable that the committee should have sets of these charts to lend to state and county fairs and to other exhibitions attended particularly by people from rural regions.

Fourth, to undertake (when there may be sufficient funds made available for this purpose) under the auspices and supervision of the committee, a national investigation (in from ten to fifteen states) of the health and welfare of teachers.

The principal obstacle in the way of further development of the committee's activities is lack of sufficient funds to finance the printing of a large edition of the second report, the reproduction of the charts for use in public health and educational exhibits, and the expenses of the nation-wide investigation of the health and welfare of teachers with the publication of a third pamphlet containing the results of this investigation. This committee for its important work should have at least $5,000 a year for the next three years. Unfortunately the resources of neither the American Medical Association nor the National Education Association will permit of such an appropriation. It must therefore be found through the assistance and cooperation of other bodies or through the broad spirited philanthropy of some individual citizen.

Respectfully submitted.

R. W. CORWIN, Chairman.

Dr. Ennion Williams, Virginia, asked permission to present a statement bearing on the Report of the Council on Health and Public Instruction just read and have it referred to the Reference Committee on Legislation and Political Action.

Dr. A. R. Mitchell, Nebraska, moved that Dr. Williams be permitted to present the report by title and that it be referred to the Reference Committee on Legislaion and Political Action.

Seconded and carried.

Report of the Council on Medical Education

Dr. Arthur Dean Bevan, Illinois, Chairman, presented the report of the Council on Medical Education, which was referred to the Reference Committee on Medical Education.

The report follows:

To the Members of the House of Delegates of the American Medical Association:

Each year since 1905, the report to this body has shown a continued progress in medical education. The large oversupply of medical colleges has given way to a more normal supply of greatly improved institutions. The fact that such progress has been possible in a brief twelve years reveals how serious had become, up to that time, the conditions underlying medical education.

In the thirty years following the Civil War, the number of medical colleges in the United States was rapidly increased, until in 1904 this country had over half of the world's supply. Only a few of these institutions were well conducted; the majority were owned by individuals or joint stock corporations and conducted for profit. In order to increase the profits, all methods were resorted to in the effort to attract students. The enrolment in the medical colleges of the United States in 1904, therefore, was much larger than normal conditions would have brought.

During the same thirty-year period, however, forces were being developed which would eventually demand an entirely different type of medical teaching institution. It was during this period that medicine was placed on a scientific basis through the developments in pathology, bacteriology, physiology, physiologic chemistry and pharmacology. These developments have revolutionized the study of medicine; they have made necessary a thorough preparation in the fundamental sciences and a longer and better correlated medical course. As a result, the practice of medicine hereafter will be by men more thoroughly trained in the medical sciences.

When the practice of medicine throughout the country is entirely on this scientific basis, the public will soon become familiar with the possibilities of modern medicine, and this, in turn, will eliminate once for all the dogmas and cults which have been and are doing so much harm. This is the problem of the organized medical profession, and the American Medical Association is attacking it through the Council on Pharmacy and Chemistry, the Council on Medical Education and the Council on Health and Public Instruction. The medical profession must clean its own house and get rid by education and propaganda of the ignorant, poorly qualified men in its own ranks as the first step toward placing the practice of medicine on a thoroughly sound, scientific basis. It is pleasing to report that great progress is being made.

THE CAMPAIGN FOR IMPROVEMENT

In 1905, conditions were ripe for the campaign which the Council on Medical Education has since been conducting, with the results of which you are already familiar. The results after eleven years of this campaign are shown in Table 1. Although the oversupply of medical schools has been reduced by about 40 per cent., the number of higher standard colleges has been increased by over 80 per cent. The figures in regard to medical students and graduates show an improvement in quality as compared with quantity in about the same proportions.

TABLE 1.—QUALITY VERSUS QUANTITY

THIS TABLE SHOWS THAT, ALTHOUGH THE TOTALS OF COLLEGES, STUDENTS AND GRADUATES HAVE BEEN DECREASED IN ELEVEN YEARS, THE NUMBERS OF HIGH STANDARD COLLEGES, BETTER EDUCATED STUDENTS AND BETTER TRAINED GRADUATES HAVE BEEN INCREASED

	1904	1915
Medical Colleges:		
Totals of medical colleges	162	95
Totals having higher entrance standards	4	83
Percentages having higher requirements	2.5	87.4
Medical Students:		
Totals in all colleges	28,142	14,891
Totals in high standard colleges	1,761	11,912
Percentages in high standard colleges	6.3	80.0
Medical Graduates:		
Totals from all colleges	5,747	3,536
Totals from high standard colleges	369	2,652
Percentages from high standard colleges	6.4	75.0

Notable improvements have been brought about through the Medical Students' Register, which was established in accordance with the action taken by the House of Delegates in 1910. Through the facts shown by this register and the information obtained by inspections, the conditions in all medical schools, regarding the administration of entrance requirements, methods of teaching, facilities, etc., are now well known. Practically all that was known prior to the organization of the Council was that standards were seriously low and that conditions were generally bad.

Although the number of medical colleges has been greatly reduced, there is still no dearth in the supply of colleges. Statistics show that fifty or sixty medical colleges could easily have cared for all students enrolled in the ninety-five which held sessions last year, without the expenditure of another dollar for teachers or equipment.

The number of medical colleges will doubtless be further reduced, but statistics show that the lowest ebb in the attendance of medical students has perhaps already been reached. Reports received from the ninety-five medical colleges now holding sessions show an increase over last year in the enrolment of freshman students. This is especially true in the colleges which put the higher admission requirement into effect two or more years ago. It is quite evident, therefore, that after a few years have been allowed for readjustment

under the higher entrance standards, the enrolments of students will become normal.

The "Ideal" and the American Standard

During the last twelve years the Council has endeavored to secure the general adoption of the standard referred to as the "ideal" standard, in our report to the House of Delegates in 1904. That standard was as follows:

(*a*) A four-year high school course;
(*b*) A year devoted to college courses in physics, chemistry and biology;
(*c*) A four-year medical course, and
(*d*) A year as an intern in a hospital.

The general adoption of this standard has been secured, so far as the year of physics, chemistry and biology and a four-year medical course are concerned. It has been adopted by eighty-five of the ninety-five medical schools in this country. As to the hospital intern year, a large majority of the medical school graduates voluntarily secure such work before beginning independent practice.

The American Standard of Medical Education

As a result of the influence of colleges and universities, the ideal standard urged by the Council has been somewhat modified. Educators generally advocated two years of premedical college preparation instead of one, and the medical schools gradually accepted that standard, so that at present fifty-four of the ninety-five medical colleges now require for admission two years of college work. It is evident also that the twenty schools which will survive out of the remaining forty will likewise adopt this requirement, and that standard of preliminary education has been adopted by fifteen state licensing boards. It is evident, therefore, that the American standard of medical education that is today most widely accepted and which in the near future will be legally required in every state of the Union is as follows:

(*a*) After a four-year high school course,
(*b*) Two years of collegiate work, including courses in physics, chemistry, biology and a modern language;
(*c*) A four-year medical course, and
(*d*) A year as an intern in a hospital.

It can be confidently predicted that such a standard will be the legal requirement in this country by 1920. The remaining steps that must be taken to bring this about are few and simple. The state licensing boards will doubtless eliminate about twenty schools that are still a menace to sound medical education and efficient medical practice. This will reduce the number of schools to about seventy, all of which will adopt acceptable requirements. The state boards throughout the country should require the completion of a hospital internship before a condidate is admitted to the examination for medical licensure. A study of the hospital year problem shows that the best solution is simply to insist on a hospital year as a necessary part of a medical training, and to urge the medical licensing board in each state to make it a legal requirement. When these requirements are adopted by all states, American medical education will be on as high a basis as that of any other country in the world.

The hospital internship has been developed in such a way that it affords a most valuable training. This is in marked contrast with the required hospital year in Germany, where the intern is elbowed out by the permanent assistants and given little work and little training. The hospital internship in this country is also more satisfactory than the plan of house physicians and surgeons in England which, as a rule, are appointments of only six months and open to a small proportion of graduates.

The inspecting and classifying of the hospitals of the country is an important matter, especially in connection with the value of an internship served in them. The Council has this work in hand. It has been progressing slowly because we have not had sufficient funds to carry on the work properly. The trustees of the American Medical Association have been requested to provide the funds necessary to prosecute the work more rapidly. In the meantime the Carnegie Foundation has given the American College of Surgeons $10,000 a year for three years to be devoted to hospital inspection. The Council will cooperate in every way possible to make this hospital inspection thorough and fruitful.

More Medical College Mergers Needed

The developing of satisfactory medical education in this country has been hindered by the fact that in some of our important centers instead of one strong medical school there are several which have different standards and conflicting interests. In most of the centers of medical education in Europe there is in each but one medical school, which receives the undivided support of the people, the profession, and as a rule the government. Such a situation has many advantages. There are in this country eleven states with no medical schools, twenty-one with but a single medical school and seventeen with two or more schools. There are twelve cities having two or more separate schools.

It would be desirable, therefore, to have in each medical center either one medical school, as exists in Berlin, Paris or Vienna, or a close affiliation of the existing medical schools. Would it not be possible to establish in each medical center a single, strong medical teaching institution with all the advantages that a well organized arrangement brings with it? In the smaller medical centers with a quota of not to exceed from 400 to 500 students and where existing conditions permitted, a medical school with a single teaching unit, with single departments of anatomy, pathology, medicine, etc., would suffice. In large centers with from 1,000 to 2,000 medical students, however, several teaching units would be needed, each with its separate laboratories of anatomy, pathology, etc., and a number of medical and surgical clinics, since in a single laboratory of anatomy, for example, or in a single clinic, 1,000 or more students could not be properly taught. Where there are now two or more universities with well established medical departments, a cooperative plan might be devised by which they could work in harmony and the several medical departments be made individual teaching units. This would insure uniform requirements and advantages which could be obtained without interference with established university organizations, and much confusion and expense might be saved by a common administration. They could with proper conditions exchange credits, municipal hospitals could be better utilized, endowments could be more easily secured, and postgraduate work could be better organized.

It should be no more difficult to get several medical schools to cooperate in this way than to get a number of railroads to cooperate in a great union depot plan or to get a number of steel plants to form a steel trust. It will require breadth of view, hard work and organizing ability, but the end sought is worth all the hard work necessary to accomplish it, and some such plan is necessary to bring about the best result in American medical education.

Improved Standards of Licensure

As shown in Table 2, there are now thirty-two states which have adopted one or two years of college work as a minimum standard of preliminary education for those who seek the license to practice medicine in those states. The table shows not only the number of years of premedical college work required by each state, but also the sessions in which students matriculating in medical colleges are affected by the increased requirement and the year in and after which it applies to all graduates. A remarkable progress has been made in state board requirements since 1908, prior to which no state was requiring more than a four-year high school education as the minimum standard of preliminary education. As will be noted, there are now thirty-three states which have adopted the higher standard, fifteen of which require as a minimum *two years* of premedical college work. In three states, Arizona, Maryland and Washington, the medical practice acts specify that the educational requirements for the applicant who seeks the license to practice in those states are to be the same as those held by the Association of American Medical Colleges in the year he graduated. The requirements in those states, therefore, are changed automatically with changes adopted by that association, which adopted the standards of one year of college work and two years of college work to take effect for all

matriculants respectively in 1914 and 1918. The standards apply to all *graduates*, therefore, respectively in 1918 and 1922.

The advances in standards of licensure since 1904 are further shown in Table 3. The most marked increase is in regard to the requirement of collegiate work, already referred to. The next greatest increase (twenty-nine) is in the number of states—thirty-three—which are now refusing to recognize low standard colleges.

CHARTERING OF EDUCATIONAL INSTITUTIONS

As a result of a special investigation, it is found that only ten states have provided any control over the chartering of educational institutions, and in two of these the restrictions do not apply to irregular professional schools or correspondence colleges. In thirty-eight states, therefore, it appears that any coterie of men, by paying an insignificantly small fee, can obtain permission to open an institution with the avowed purpose of granting degrees, no questions being asked as to whether the institution is properly equipped or has sufficiently qualified teachers to furnish the education usually demanded before such degrees are granted. After they are organized, such institutions are usually responsible to no one, and are free to make use of questionable practices even to the actual barter in degrees and certificates. Even after they are exposed, no legal machinery has been provided for revoking their charters or punishing the impostors. As a rule the fees charged by such institutions are far in excess of the tuition charged by some of the best teaching institutions in the land.

TABLE 2.—STATE REQUIREMENTS OF HIGHER PRELIMINARY EDUCATION

There are now thirty-two states which have adopted requirements of preliminary education in addition to a standard four-year high school education. These states, the number of college years required and the time the higher requirements became effective are as follows:

State Examining Board of	Number of Years Required	Affects Students Matriculating	Affects All Graduates
Requiring Two Years:			
Alabama	2	1915-16	1919
Arizona	2	1918-19	1922
Colorado	2	1910-11	1914
Indiana	2	1911-12	1915
Iowa	2	1911-12	1915
Maryland	2	1918-19	1922
Minnesota	2	1908-09	1912
New Hampshire	2	1915-16	1919
New Jersey	2	1917-18	1921
North Dakota	2	1908-09	1912
Oklahoma	2	1917-18	1921
South Dakota	2	1911-12	1915
Virginia	2	1917-18	1921
Washington	2	1918-19	1922
Wisconsin	2	1915-16	1919
Requiring One Year:			
Arizona*	1	1914-15	1918
Arkansas	1	1915-16	1919
California	1	1915-16	1919
Connecticut	1	1910-11	1914
Illinois	1	1915-16	1919
Indiana*	1	1910-11	1914
Kansas	1	1910-11	1914
Kentucky	1	1914-15	1918
Louisiana	1	1915-16	1919
Maryland*	1	1914-15	1918
Michigan	1	1914-15	1918
Mississippi	1	1915-16	1919
New Hampshire*	1	1914-15	1918
New Jersey*	1	1916-17	1920
North Carolina	1	1914-15	1918
Oklahoma*	1	1914-15	1918
Pennsylvania	1	1914-15	1918
Rhode Island	1	1914-15	1918
Tennessee	1	1915-16	1919
Texas	1	1914-15	1918
Utah	1	1913-14	1917
Vermont	1	1913-14	1917
Virginia*	1	1914-15	1918
Washington*	1	1914-15	1918
West Virginia	1	1917-18	1921

* The 2-year requirement also adopted; effective later.

NEW FORM OF QUACKERY

Through the lack of an adequate check on the chartering or conduct of such institutions, a new and popular form of quackery has been established, which provides the easiest present-day method of evading the educational requirements of the medical practice laws. "Colleges" and "schools" professing to turn out in a few brief weeks or months, by correspondence methods or otherwise, specialists in some branch related to medicine have been springing up in various states. Briefly, the conditions have become so bad as to cause unnecessary but serious demoralization in the field of medical education, in the licensing of physicians and in the practice of the healing art. The existence of such unregulated, unstandardized institutions is radically unfair to the ambitious students who have been beguiled into them; it has led to the development of an organized attempt to destroy or evade laws passed in the interest of the public and, worst of all, it is a serious menace to the public, since it is sweeping into the practice of the healing art large numbers of those who are insufficiently trained to assume responsibility for the care of the sick.

LARGEST NUMBER IN ILLINOIS

The largest number of these institutions at present is found in Illinois, where conditions are especially favorable. Besides the Class C medical schools which continue to exist, there are in Illinois colleges of osteopathy, chiropractic, chiropody, naprapathy, somopathy, physcultopathy, refraction, optics and a legion of others, most of which have for their chief inducement elegantly printed diplomas conferring the degree of "doctor" of this, that or the other. The courses offered for such degrees are in some instances so notably a makeshift as to be ridiculous, and an insult to education. Some are offering courses under two or more titles, and others appear to be doing a retail business in dispensing degrees in all the "forms" or "systems" of healing which may have been or ever shall be enumerated.

In Iowa several so-called chiropractic institutions have been chartered, which are reported to be without adequate equipment, and, with low entrance requirements, are turning out, by correspondence courses or other loose methods, relays of followers of that particular "school." Although "made in Iowa," these graduates are not permitted legally to practice in Iowa, but are turned into other states where adequate legal barriers have not been established against them. Such institutions are found also in California, Massachusetts, Michigan, Minnesota, Missouri, Oklahoma and Pennsylvania.

In the interests of the public there should be provided in every state some competent board or authority to have in charge not only the chartering of all educational institutions, but also the right to revoke the charter and close the doors of every institution which is not being conducted in an honorable manner and for a proper purpose.

The eleven states which thus far have provided any means by which the charter of educational institutions may be guaranteed are: Arkansas, Indiana, Maine, Maryland, Massachusetts, Nebraska, New Jersey, New York, North Carolina, Ohio and Pennsylvania.

TABLE 3.—ADVANCES IN STATE LICENSURE REQUIREMENTS IN TWELVE YEARS

Requirement or Provision	States Having Provision for			States Still Having No Provision for
	1904	1916	Increase	
Preliminary Education:				
Any requirement	20	45	25	4
A standard four-year high school education or higher	10	39	29	10
One or two years of college work as a minimum	0	32	32	17
That all applicants be graduates of a medical college	36	48	12	1
That all applicants undergo an examination for license	45	48	3	1
Requirement of practical tests in the license examinations	1	7	6	42
Full authority by board to refuse recognition to low-grade colleges	14	34	20	15
Boards refusing to recognize low-grade colleges*	5	34	29	15
Reciprocal relations with other states	27	40	13	9
Single boards of medical examiners	36	42	6	7

* In three states, Arkansas, Connecticut and Florida, each of which has three separate boards, only the regular (nonsectarian) boards have refused recognition to low standard medical colleges.

New York at present appears to have the most complete control of educational institutions. In Maine, Massachusetts and North Carolina a special act of the legislature is necessary before an educational institution can obtain legal authority to grant degrees. In Arkansas, Indiana, Maryland, New York, Ohio and Pennsylvania the charter must be obtained, directly or indirectly, through the state board, or department of education, or through a committee (Pennsylvania) closely connected with that department. In Nebraska, application must be made to the judge of the district court, whose duty is to appoint one or more commissioners to investigate and vouch for the claims of the applicant. Even in some of these states the authority has apparently been made to cover only so-called academic colleges and universities. It is clear that such authority should be extended to include all institutions professing to give instruction in any subject, especially those bearing the name of "school," "academy," "college," "university" or the like, and also all institutions granting degrees of whatever kind. The menace from such irresponsible, professedly "educational" institutions is much greater than is generally understood.

Relations with Canada

The professional relations between Canada and the United States have always been most cordial. For several years the medical schools of Canada have been regularly furnishing reports to the Council on Medical Education for publication with the statistics appearing annually in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. It is with surprise and with regret, therefore, that a discrimination against even the best medical colleges in the United States has been established in two provinces of Canada—Quebec and Ontario. Graduates from even the highest grade medical schools in this country in order to secure licenses in the two provinces named are required to have taken an additional year's work in one of the medical schools of those provinces. No objection could be raised if only graduates of some of the lower grade medical schools in the United States were thus debarred, but official information obtained makes it clear that no exceptions are made to the rule even for graduates of the medical schools of Johns Hopkins University, Leland Stanford Junior University, Cornell, Columbia, Western Reserve and other universities which require two, three or four years of collegiate work for admission to their medical departments, including not only thorough courses in physics, chemistry and biology but also a "reading knowledge" of French or German, or both, and the completion of other collegiate subjects. This Canadian attitude is more arbitrary than that by the Conjoint Board of London, which recognizes the premedical college courses in physics, chemistry and biology if taken in a recognized college, and which admits to its final examinations graduates of twenty or more medical colleges of the United States.

In Canada the student, after three years in high school, registers for a five-year course in the medical school, the first year of which is devoted largely to the premedical sciences, physics, chemistry and biology. In the United States at present, in fifty medical schools, in addition to a four-year high school course, the student is required to complete *two years* of work in a standard liberal arts college, which work must have included the premedical sciences, physics, chemistry and biology, before he is admitted to the medical school. For admission to thirty-five other medical colleges, one year of liberal arts college work beyond the four-year high school course is required, and this college year also must include courses in physics, chemistry and biology. All the medical colleges in the United States, therefore, require, so far as time is concerned, *one* more year of high school work than is required in Canada; and fifty of the medical colleges of the United States require *two more* years of high school and college work than are required in Canada. The courses in physics, chemistry and biology in both Canada and the United States are taught by university or college professors of those sciences, and not by teachers of medical subjects. It is fair to assume, therefore, that the science courses in both countries are taught with equal thoroughness. Such advantages as there may be would seem to be with the medical schools in the United States because of the additional training and the greater maturity of the students.

Different Grades of Medical Colleges

Along with the inspections of the medical colleges in the United States which have been made by the Council on Medical Education, two complete tours of inspections were made of the medical colleges in Canada, the second having been completed during the college session of 1913-1914. Those inspections revealed the fact that Canada, like the United States, has several grades of medical schools.[1] As already stated, not one of the medical schools of Canada requires for admission more than a high school education, represented by the completion of the eleventh grade. One or two of the schools in the provinces of Quebec and Ontario require in addition the passing of an examination referred to as the "junior matriculation."

American Medical Schools Greatly Improved

It will be seen from the foregoing statements that conditions in education in the two countries are quite parallel, except that entrance standards are now higher in the United States by one or two years. During the remarkable reorganization that has been going on in this country since the beginning of the Council's work, conditions in the United States have been extensively improved. There are now in the United States thirty or forty medical schools which will compare favorably with the medical schools of any other country. During this development of medical education in the United States, American schools have been careful to avoid the weakness of both English and German systems of medical education and, under able supervision, have established thorough and complete courses of medical education.

Considering all these things, therefore, it is hoped that our good friends in the medical profession of Quebec and Ontario will have their license laws so amended as to correct this unfair discrimination against the high grade medical colleges of the United States. Evidences of efforts in this direction have already been received which, it is hoped, will be successful.

Reciprocal Relations with Other Countries

This calls attention to the fact that the time has arrived when a more careful discrimination should be used by the licensing boards of this country in the acceptance of credentials from foreign medical schools and in the licensing of graduates from such institutions. There is certainly no reason why the states should keep a wide-open door for the heterogeneous stream of graduates from the medical schools of other countries, especially from those which do not show a disposition to return the courtesy. Then there is also the question of providing for reciprocal relations with other countries in the recognition of the graduates of high grade medical schools.

The National Board of Medical Examiners

As is doubtless well known to the members of this body, for fourteen years or more there has been talk of a national board of medical examiners. The confusion resulting from the fact that the licensing of physicians in this country rests with fifty individual licensing boards has emphasized the need for some national qualification which would be worthy of recognition by all states. It was seen that no national body with legal powers could be established without first securing an amendment to the national constitution. It was, therefore, quite evident that the board to have this matter in charge would need to be a voluntary organization and that its certificate, to be of value, would need to be based on unquestionable qualifications.

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1. The classification of Canadian medical colleges is as follows:
Class A: University of Toronto, Faculty of Medicine, Toronto, Ont.; McGill University, Faculty of Medicine, Montreal, Que.
Class B: Dalhousie University, Faculty of Medicine, Halifax, N. S.; Montreal School of Medicine and Surgery, Montreal, Que.; Laval University, Faculty of Medicine, Quebec, Que.; University of Manitoba, Manitoba Medical College, Winnipeg, Man.
Class C: Queen's University, Faculty of Medicine, Kingston, Ont.; Western University, Faculty of Medicine, London, Ont.
The University of Alberta at Edmonton, besides the premedical year, gives only the first two years of the medical course as measured by that of the medical schools of the United States. This college was not inspected.

This matter was brought into prominence a year ago when President Rodman, in his address, stated that such a board had been organized. So little was known at that time in regard to the details of the organization, however, that this portion of the President's address was referred to the Council on Medical Education for further information. The following report was adopted last year by the House of Delegates:

The scope of the address was very comprehensive and instructive. That portion which calls for the action of your committee, namely, the advisability of establishing a board of national examiners, contains material worthy of further consideration of the House of Delegates, and it is recommended that it be referred to the Council on Medical Education.

In accordance with these instructions, the Council on Medical Education held a business meeting in Washington, Nov. 27, 1915, the object of which was to examine into the organization, personnel and methods of the National Board of Medical Examiners. The executive committee of the national board as then organized, on invitation, was present.

It was learned that the completion of the organization of this board in so comparatively short a space of time was due to the fact that funds sufficient to allow the organization to be completed and to pay the running expenses for several years were generously donated by the Carnegie Foundation for the Advancement of Teaching. This information was obtained by Dr. Rodman only a few months prior to the giving of his annual address, and since the national board had been for so many years a matter in which he was personally interested, it was but natural that he desired to have the matter announced in his presidential address to the American Medical Association.

The Council was favorably impressed with the personnel of the membership of this board, which was as follows: Admiral W. C. Braisted, Surgeon-General, U. S. Navy, president; Commander E. R. Stitt, U. S. Navy; Gen. W. C. Gorgas, representing the U. S. Army; Col. L. A. LaGarde, treasurer, representing the U. S. Army; Surg.-Gen. Rupert Blue, representing the Public Health Service; Asst. Surg.-Gen. W. C. Rucker, representing the Public Health Service; Herbert Harlan, representing the Federation of State Medical Boards; Isadore Dyer, New Orleans; Victor C. Vaughan, Ann Arbor, Mich.; Henry Sewell, Denver; Louis B. Wilson, Rochester, Minn.; E. Wyllys Andrews, Chicago; Horace D. Arnold, Boston; Austin Flint, Jr., New York, and William L. Rodman, secretary, Philadelphia.

As a result of its business meeting, although the Council was in favor of the general scheme of a national board of medical examiners, nevertheless, it felt that further investigation was necessary before it could actually endorse the board as organized. Plans were completed at the Washington meeting for the symposium on the subject which was held at the twelfth annual conference in Chicago, Feb. 7, 1916. The Council also accepted the invitation to have a delegate present at a business meeting of the board which was to be held in Washington, November 29, just following the Council's meeting. At that meeting the Council was represented by its secretary and by Dr. H. D. Arnold, who as may be noted, is also a member of the national board.

The discussions at the board's business meeting favorably impressed the Council's representatives. It was seen that the members were determined to have the affairs of the board conducted in a manner above question. Instead of the original plan to have representatives on the board from certain organizations of physicians, it was decided to have six representatives from the government medical services, two each from the United States Army, Navy and Public Health Services; three members from the state licensing boards, chosen through their national organization, the Federation of State Medical Boards, and six other physicians to be appointed at large.

The surgeons-general of the Army, Navy and Public Health Services are to serve as long as they hold their respective offices. All other members were by lot divided into groups of four, their terms being two, four and six years, so that the term of office of four would expire every two years, and their successors would be appointed for a term of six years.

Another fact which was learned at the meeting of the board was that the qualifications of physicians admitted to the examinations were to be properly safeguarded. The discussions indicated also that the examinations were to be thorough and comprehensive. Although the investigation thus far had already produced favorable impressions in regard to the personnel of the board; its manner of perpetuation; its representation; the safeguarding of the applicant's qualifications, and the character of the examination, nevertheless, it was determined to make no expression of approval until after the symposium on the subject should be given in February, where there would be opportunity for a full discussion of the problem from every point of view.

The members of the House of Delegates who were in attendance at the February conference know how thoroughly the subject was discussed and how satisfactorily all criticisms of the board were answered. The last criticism which the Council might have made against the proposition was corrected by the announcement from the secretary of the board that it had been voted to require as a minimum standard of preliminary education two years of collegiate work in addition to a four-year high school education. This was important, since otherwise at the very beginning the board's certificate could not have been recognized in ten states, owing to the fact that that standard of preliminary education had been adopted in those states. In regard to the organization of this board, the facts are set forth in more detail in the constitution and by-laws, which are as follows:

THE NATIONAL BOARD OF MEDICAL EXAMINERS FOR THE UNITED STATES

PREAMBLE

The need of a standard licensing body for the whole of the United States and territories tributary has occasioned the organization of a voluntary board of examiners, selected from the Medical Corps of the Army and Navy and the Public Health Service, with the other members selected from the Federation of State Examining Boards and the medical profession of the United States. That the creation of this board may be certain and its continuance assured, it is proposed that it shall be governed by the following constitution and by-laws as set forth:

CONSTITUTION

I. *Name or Title.*—The name of this body shall be the NATIONAL BOARD OF MEDICAL EXAMINERS FOR THE UNITED STATES.

II. *Official Domicile.*—The domicile of this board shall be in Washington, District of Columbia.

III. *Objects.*—The objects of this board are (*a*) the establishment of a standard of examination and certification of graduates in medicine, through which the recipient may be recognized for the licensure in the practice of medicine in the United States, territories, and extraterritorial possessions on presentation of the proper credentials of this board.

(*b*) A cooperation with the Board of Medical Examiners in individual states, territories and extraterritorial possessions of the United States by which licensure may be effected through registration of the credentials of this board.

(*c*) A consistent high purpose of determining the qualifications of the candidate before this board so as to create his eligibility to the privileges above defined.

(*d*) A democratic administration of the operation of this board in its own executive function as well as in its examinations, which are to be conducted by all modern means to accomplish practical, oral and written tests of the candidates' efficiency and qualification.

(*e*) To hold examinations at the domicile of the board, and at such other locations as may be justified by the number of applicants, their residence, and the facilities for conducting examinations properly.

IV. *Personnel of the Board.*—This board shall initially consist of fifteen members as follows: Admiral William C. Braisted, Gen. William C. Gorgas, Gen. Rupert Blue, Commander Edward R. Stitt, Col. Louis A. LaGarde, Asst. Surg.-Gen. William C. Rucker, Dr. Victor C. Vaughan, Dr. Horace W. Arnold, Dr. Austin Flint, Dr. William L. Rodman, Dr. Henry Sewall, Dr. E. Wyllys Andrews, Dr. Louis B. Wilson, Dr. Herbert Harlan and Dr. Isadore Dyer.

SERVICES OF MEMBERS OF THE NATIONAL BOARD OF MEDICAL EXAMINERS

The three Surgeons-General are to serve as long as they hold their respective offices.

The others have been divided into groups of four, by lot, their terms being two, four and six years after incorporation, as follows:

	Two Years	Four Years	Six Years
Service	Pub. Health (Rucker)	Army (LaGarde)	Navy (Stitt)
Federation	.....	.....	Harlan
At large	Wilson	Vaughan	Andrews
At large	Rodman	Arnold	Sewall
At large	Flint	Dyer	.....

Hereafter the board shall comprise the Surgeon-General of the Medical Corps of the Army and one other representative of the same service to be appointed by the Surgeon-General, subject to the approval of the board.

The Surgeon-General of the Medical Corps of the Navy and one other representative of that service to be appointed by the Surgeon-General, subject to the approval of the board.

The Surgeon-General of the Public Health Service and one other representative of that service to be appointed by the Surgeon-General, subject to the approval of the board.

Three members appointed by the Federation of State Medical Examining Boards, subject to the approval of the board.

Six members at large elected by the existent National Board of Medical Examiners.

The terms of service of these members of the board shall be as follows: The Surgeons-General of the Medical Corps of the Army, the Navy and the Public Health Service shall continue as members of the board so long as they hold their offices as Surgeons-General. Nothing in this provision shall preclude their reappointment as members of the board.

The other twelve members of the board shall serve for six years each, with the provision that the first board shall be so constituted that four members shall serve for six years, four members for four years and four members for two years; these terms of office to be determined by the Executive Committee. The four new members appointed for a term of six years, as provided above, shall be one from the three federal services, one from the Federation of State Examining Boards, and two elected by the existent National Board of Medical Examiners.

There shall be nothing in this regulation which will prevent any one of the four retiring members of the board succeeding himself, if qualified by proper appointment; but no member of the board may serve more than two successive terms.

V. *Organization of the Board:* (*a*) The officers of the board shall consist of a president, a secretary and a treasurer, who, with two members at large, all annually elected by the board, shall constitute the Executive Committee of the board. The secretary need not be a member of the board. In such case he shall not vote.

(*b*) *The Duties of the President:* The president shall preside at all meetings of the board; he shall direct all business of the board ad interim; he shall be chairman of the Executive Committee; he shall decide all matters of rule and practice not provided for in these regulations and he shall represent, in person or by deputy, the board on all occasions when the board is officially engaged. With the secretary or treasurer he may issue and sign all fiscal documents for the disbursement of funds.

In the event of absence or death of the president, the board shall elect a chairman, who shall in all particulars fill the office of president pro tempore.

(*c*) *The Duties of the Secretary:* The secretary shall have conduct of all of the public relations of the board in conjunction with the president and the Executive Committee. He shall supervise and direct all arrangements for meetings of the board, examinations of candidates for licensure, and he shall fulfil the office of recorder and keeper of records. With the treasurer or president he may issue and sign all fiscal documents for the disbursement of funds. He shall be also secretary of the Executive Committee.

(*d*) *Duties of the Treasurer:* The treasurer shall be custodian of all funds; he shall deposit all moneys in a national bank in the city of Washington, keeping proper accounts of all receipts and disbursements. With the secretary or president he may issue and sign all fiscal documents for the disbursement of funds. Before each annual meeting of the board, he shall have a proper audit of his accounts by a qualified accountant, who shall make report through the secretary. He shall furnish bond, if the board so order.

(*e*) *Duties of the Executive Committee:* The Executive Committee in the intervals between board meetings shall transact all business of the board, directing, through the president and secretary, the detail of public announcements and operations as these may relate to the board, its objects, purposes and business. The operation of the Executive Committee shall be made a matter of record for report to the board at its stated meetings with a view to ratification, but without necessity of referendum of such business as may be regular or routine and not affecting the policy of the board.

The Executive Committee shall hold meetings on the call of the chairman, and as often as may be necessary or advisable.

VI. *Meetings:* The regular annual meeting of the board shall be held at the domicile of the board on ———— in each year. This annual meeting shall be held for the purpose of electing officers, of electing new members, of receiving reports of the several officers, of the Executive Committee, and for the transaction of any other business which may be on the table.

Other meetings may be called by the president on his own initiative, and other meetings shall be called on the demand of a majority of members of the board, provided such members give the president two weeks' notice of said meeting and provided the president thereafter give two weeks' notice before the date of the called meeting.

VII. *Amendments:* Amendments to this constitution may be made at any regular annual meeting of the board on thirty days' notice in writing and on a three-fourths' vote of the members present.

BY-LAWS

I. *Order of Business:*
- (*a*) Roll call.
- (*b*) Reading of minutes.
- (*c*) Communications.
- (*d*) Unfinished business.
- (*e*) New business.
- (*f*) Recommendation of candidates for licensure.
- (*g*) Election of licentiates.
- (*h*) Nomination of officers and members and Executive Committee.
- (*i*) Election of officers.
- (*j*) Adjournment.

II. *Conduct of Meetings:*

Parliamentary rules as set down in Robert's or Cushing's Manuals.

III. Dates of examinations for licentiates, regulation of examinations, detail of subjects, and their assignment, scope and time allowance shall all be determined by the Executive Committee.

IV. Amendments to the by-laws may be made at any regular meeting of the National Board of Medical Examiners by presentation in writing and by a two-thirds vote of the members present.

The thoroughness of the examination which has been planned by the board is set forth in the following:

GENERAL SCHEME OF EXAMINATION OF CANDIDATES FOR LICENTIATE OF THE NATIONAL BOARD OF MEDICAL EXAMINERS

I. PRELIMINARIES

Personal registration of candidates.

Review of credentials of candidates by board or by a qualification committee of the board.

Assignment of candidates in groups for examination.

II. ARRANGEMENT OF EXAMINATIONS ACCORDING TO SUBJECTS AND DAYS

	A. M.	P. M.
First Day:		
Anatomy and Its Divisions	Group 1	Group 2
Chemistry (and Physics)	Group 2	Group 1
Second Day:		
Hygiene and Its Divisions	Group 1	Group 2
Materia Medica, Pharmacology and Therapeutics	Group 2	Group 1
Third Day:		
Medical Jurisprudence (Forensic Medicine)	Groups 1 and 2	
Obstetrics and Gynecology		Groups 1 and 2
Fourth Day:		
Medicine and Its Divisions	Group 1	Group 2
Surgery and Its Divisions	Group 2	Group 1
Fifth Day:		
Pathology and Its Divisions	Group 1	Group 2
Physiology	Group 2	Group 1
Sixth Day:		
Medicine at Hospitals and Clinics	Group 1	Group 2
Surgery at Hospitals and Clinics	Group 2	Group 1

III. METHOD OF EVALUATING CREDITS IN EXAMINATION

Each examiner to base grades of paper on basis of 100.

Grouped examinations by different examiners to be collated or arranged on basis of 100 per cent., allowing rates of credit according to importance of the unit represented by subdivision of subjects (for example, Psychiatry, under Medicine; Operative Surgery, under Surgery).

All grades to be tabulated opposite the title or number assigned to candidate in separate lists for each general division of the examination.

All lists to be assembled and presented at a meeting of the entire examining board when each division should be reduced to a percentage based upon the following table of values.

SUBJECT VALUES

1. Anatomy	100
2. Chemistry (and Physics)	50
3. Hygiene (and Sanitary Science)	50
4. Materia Medica, Pharmacology and Therapeutics	100
5. Medical Jurisprudence	50
6. Medicine	200
7. Obstetrics and Gynecology	100
8. Pathology	100
9. Physiology	50
10. Surgery	200
Total	1,000

Passing grade to be 75 per cent. average.

One subject with grade below 50 per cent. fails.

Two subjects with grades below 70 per cent. fails.

Three subjects with grades below 75 per cent. fails.

Candidates failing at the *first* examination before board may take a *second* examination after one year; a *third* examination will not be allowed.

DETAIL OF SUBJECT-DIVISIONS AND SUBDIVISIONS

WITH SUGGESTED NUMBER OF QUESTIONS AND SCOPE AFTER EXAMINATION BRIEFLY STATED

1. ANATOMY:	
Microscopic:	
Embryology	3 questions. 3 specimens for determination, etc.
Histology and Organology	5 questions. 5 specimens for determination, etc.
Neurology	3 questions. 3 specimens for determination, etc.
Gross:	
Osteology	3 questions. 3 specimens for determination, etc.
Dissection	3 questions. Practical examination and demonstration to be determined by examiner.
Applied:	
Regional, Topographic, Surgical	3 questions. Practical examination, models, sections, etc., to be determined by examiner.
2. CHEMISTRY (AND PHYSICS):	
Organic	3 questions. Practical examination at desk.
Physiologic	3 questions. Practical demonstration at desk, or written detail of experiment on test.
Physics	3 questions. Practical demonstration at desk, or written detail of experiment, etc.
3. HYGIENE (and Sanitary Science)	5 questions on general hygiene.
Sanitary Chemistry	Demonstration in laboratory of public health, or 5 questions on laboratory tests, etc.
Vital Statistics	3 questions.
State Medicine	3 questions.

4. MATERIA MEDICA, PHARMACOLOGY AND THERAPEUTICS:		
	Materia Medica	5 questions.
	Pharmacology	3 questions and laboratory demonstration, or 3 questions on laboratory experimentation.
	Therapeutics and Prescription Writing	5 questions, with examples of application of prescription writing.
	Electrotherapeutics (including Radiotherapy)	2 questions.
5. MEDICAL JURISPRUDENCE:		
	(Forensic Medicine)	5 questions.
6. MEDICINE:		
	Theory and Practice	5 questions.
	Physical Diagnosis	Practical demonstration.
	Clinical Diagnosis	Practical examination on actual cases at bedside and clinic.
	Clinical Microscopy (Laboratory of Clinical Medicine)	Desk examination on specimens, etc., and three questions.
	Diseases of Nervous System (including Psychiatry)	3 questions.
	Diseases of Children	3 questions.
	Tropical Medicine	3 questions.
7. OBSTETRICS AND GYNECOLOGY		10 questions. Requirement of cases attended, properly certified.
8. PATHOLOGY (AND BACTERIOLOGY):		
	Bacteriology	5 questions and identifications of specimens, outlines, etc.
	Microscopic Pathology	3 questions. 3 specimens for determination, etc.
	Gross Pathology (Necropsy, Autopsy)	3 questions, and identification of specimens, etc.
	Surgical Pathology (Special Pathology)	5 questions, and identification of specimens.
9. PHYSIOLOGY		10 questions (5 of which on subjects of text, 5 on experimental or laboratory physiology).
10. SURGERY:		
	General (including Minor Surgery)	5 questions.
	Operative Surgery	Practical demonstration.
	Special Surgery	
	Ear, Nose and Throat	1 question.
	Eye	1 question.
	Genito-Urinary	1 question.
	Orthopedics	1 question.
	Radiology	1 question.
	Skin Diseases	1 question.
	Syphilis and Venereal Diseases	1 question.

Clinical diagnosis and treatment to be made subject of practical examinations at hospitals and clinics.

Although no examinations have as yet been held, the Council feels confident that the certificates granted by this board will be worthy of acceptance by every state licensing board. The Council believes, further, that through the examinations given by this board the number of physicians in the Medical Reserve Corps who can be called on to aid the government in any national emergency will be greatly increased. It was believed also that through the examinations conducted by this board an avenue will be provided by which reciprocal relations in medical licensure may be established with other countries, offers of which have already been made by some of the countries of South America.

RECOMMENDATION

Considering the well arranged plan followed in the organization of this board, representing, as it does, two legal forces, namely, the government medical services and the state licensing boards, and considering the personnel of the board as it is now constituted; the plan for its perpetuation; the fact that finances have been generously provided for its maintenance for a number of years; the safeguards which have been established for the securing of reasonably high preliminary qualifications, and the arrangement for a comprehensive and thorough examination, the Council is glad to report that it can recommend the endorsement of this national board as it now stands.

Respectfully submitted.

ARTHUR DEAN BEVAN, Chairman,
WILLIAM D. HAGGARD,
JAMES W. HOLLAND,
HORACE D. ARNOLD,
ROBERT C. COFFEY,
N. P. COLWELL, Secretary.

Report of the Council on Scientific Assembly

It was moved that the Report of the Council on Scientific Assembly be received as printed in the Handbook and referred to the Reference Committee on Reports of Officers.

Seconded and carried.

The Report is as follows:

To the Members of the House of Delegates of the American Medical Association:

The Council on Scientific Assembly was constituted at the San Francisco session. This, therefore, is our first report, and it must be regarded as a report of progress. We have held one meeting at which were discussed various problems connected with the section work of the annual scientific assembly.

You referred to the Council on Scientific Assembly the report of the special Committee on Sections and Section Work submitted to you at the San Francisco session. We carefully considered this excellent report, and in the main agree with it. As emphasized in that report, there is no doubt that too many meetings are being held at the same time, to the disadvantage of the Fellows who attend the annual session. We further agree with the report that the duplication of subjects presented in different sections at the same time could, and should, be avoided.

As to the former: The remedy, of course, is to reduce either the number of sections or the number of meetings and also of papers that shall be read in a section. As to reducing the number of sections: It does not seem feasible to do this, at least for the time being, although we might eliminate one, or possibly two. The Section on Hospitals was created five years ago and presented programs from 1912 to 1915 inclusive. The registration has been extremely small—in 1912, 25; in 1913, 22; in 1914, 24 and in 1915, 26. This year, no program has been provided. We recommend that this section be discontinued.

As to reducing the number of papers: We believe that this is possible, and that it could be done without in any way curtailing the value of the sections; in fact, that it would redound to the betterment of the sections.

As a basis for classifying the sections regarding the maximum number of papers to be read before them, we suggest that the term "unit" be recognized and defined as meaning one meeting of a section held either in the forenoon or afternoon. We recommend that the average number of papers assigned to a unit shall be six, and that the maximum number of units assigned to any one section shall be five. This will mean the discontinuance of the attempt to hold meetings on the morning of the fourth day of the Scientific Assembly. This is practically the arrangement now being carried out. Occasionally, one or two of the sections have met on the morning of the fourth day to complete their programs, but during the two annual sessions preceding this one, all the sections have adjourned on or before the close of the afternoon session of the third day.

We recommend that, for the time being, to the following sections shall be assigned the number of units indicated:

Practice of Medicine	5 units
Surgery, General and Abdominal	5 units
Obstetrics, Gynecology and Abdominal Surgery	5 units
Ophthalmology	5 units
Laryngology, Otology and Rhinology	5 units
Diseases of Children	3 units
Pharmacology and Therapeutics	3 units
Pathology and Physiology	3 units
Stomatology	2 units
Nervous and Mental Diseases	3 units
Dermatology	3 units
Preventive Medicine and Public Health	3 units
Genito-Urinary Diseases	2 units
Orthopedic Surgery	2 units

As to the duplication of subjects in different sections at the same annual session: We believe that with the cooperation that will undoubtedly be rendered by the officers of the sections, it will be possible in time so to arrange the programs that this duplication shall be entirely avoided. We are not prepared at this time to make definite recommendations as to how this shall be accomplished; it is rather an important and more or less complicated subject, and we hope to study into it further with the cooperation of the section officers and make a more

definite report later. Connected with the problem, of course, is the fact that certain subjects in the past have been neglected, while too much time has been devoted to others no more important.

Before the reorganization in 1901, the delegates met in general meetings to transact the business of the Association. At least one such general meeting was held on each of the first three days of the annual session, and at each of these general meetings an oration was delivered—one on practice, another on surgery, and another on state medicine. After the House of Delegates was constituted, the general meetings were devoted to a meeting opening the scientific work of the session and to evening meetings at which the orations were delivered. This proved unsatisfactory; it was overcrowding scientific work, and, as will be remembered, very few attended these evening gatherings to hear the orations. The practice was, therefore, discontinued, and the different orations were then made optional with the three appropriate sections, only one of which now attempts to keep up the old form. We, therefore, recommend that Section 3, Chapter XI of the By-Laws be amended by the elimination of the last sentence, which reads:

"The Sections on Practice of Medicine; on Surgery, General and Abdominal, and on Preventive Medicine and Public Health may each elect a Fellow to deliver at the ensuing Scientific Assembly the oration on practice of medicine, the oration on surgery and the oration on state medicine before their respective sections."

As stated at the beginning of this report, your Council on Scientific Assembly feels the responsibility that has been placed upon it, and realizes that changes should be made only after due deliberation both on the part of the Council itself and on the part of the House of Delegates. We therefore ask your action at this time on four things only: (1) adoption of the definition of the word "unit"; (2) The tentative adoption of the number of units assigned to the sections; (3) the discontinuance of the Section on Hospitals, and (4) the modification of the By-Laws regarding orations.

Respectfully submitted.

J. SHELTON HORSLEY, GEORGE H. SIMMONS,
E. S. JUDD, ALEXANDER R. CRAIG.
ROGER S. MORRIS,

Dr. Dwight H. Murray, New York, moved that the following be submitted to the Reference Committee along with the Report of the Council on Scientific Assembly, namely, a recommendation that the Section on Stomatology shall be modified by adding thereto the subjects of Gastro-Enterology and Proctology, and that the Section as reconstituted be accorded three units.

Memorial Resolution

Dr. Arthur T. McCormack, Kentucky, moved that when the House of Delegates adjourns, it adjourn in honor of the memory of Dr. William L. Rodman, Dr. Frank J. Lutz, and Dr. Henry B. Favill, who were respectively the President, a Trustee, and a Chairman of the Council on Health and Public Instruction.

Seconded and carried.

Report of Committee on Red Cross Medical Work

Dr. George M. Kober, District of Columbia, Chairman, presented the Report of the Committee on Red Cross, which was referred to the Reference Committee on Reports of Officers.

The report is as follows:

To the Members of the House of Delegates of the American Medical Association:

A Committee on Red Cross Medical Work was created at the 1912 session in accordance with Section 3 of Chapter VIII of the By-Laws.

The object of this committee is to stimulate in every county medical society the creation of a committee on Red Cross medical work so as to provide a body of representative physicians of approved qualification to direct or participate in medical work carried on by the Red Cross in different localities in times of war or emergencies and to advise with the representatives of that society in handling medical and sanitary problems incident to such an occurrence.

It is desired to have in every county a central committee of five physicians, two of whom shall be the president and secretary of the county medical society, ex officio. The president of the county medical society shall select the other three members, preferably from the list of councilors or of the executive committee. This committee shall be designated the "Committee on Red Cross Medical Work." The names and residences of the members, immediately after organization, should be reported to the chairman of the American Medical Association committee. In case of disaster requiring relief action by the Red Cross, these county committees will be called on to nominate qualified medical men in their respective counties for Red Cross service. The committees will also serve in an advisory medical capacity to the Red Cross in time of disaster and in other lines of Red Cross activity as indicated in a preceding paragraph.

Up to May 1, 1916, 588 county medical societies, located in forty-eight states, inclusive of the District of Columbia, have created committees on Red Cross medical work, and 2,940 representative men of the medical profession are available to render valuable assistance to the American Red Cross in any of its activities.

During the present European war many of these committees have been called on by Major Robert U. Patterson, Medical Corps, U. S. Army, and Chief of Bureau of Medical Service of the American Red Cross, to report on the qualifications of physicians and surgeons offering to serve the Red Cross in Europe. The indorsements have been invaluable in the selection of men, as it is highly important that reputable men only be chosen, in order to protect the American Red Cross and the reputation of the medical profession whom they represent abroad. Some of the committees have been called on to act as instructors and judges in contests organized by the First Aid Department of the Red Cross, for miners, railway service men, industrial workers, etc.

NUMBER OF COUNTY MEDICAL SOCIETIES BY STATES WHICH HAVE APPOINTED COMMITTEES ON RED CROSS MEDICAL WORK

Alabama	8	Nebraska	12
Arizona	7	Nevada	1
Arkansas	14	New Hampshire	5
California	16	New Jersey	8
Colorado	8	New Mexico	6
Connecticut	6	New York	31
Delaware	1	North Carolina	6
District of Columbia	1	North Dakota	5
Florida	6	Ohio	33
Georgia	11	Oklahoma	18
Idaho	1	Oregon	4
Illinois	43	Pennsylvania	35
Indiana	44	Rhode Island	6
Iowa	27	South Carolina	6
Kansas	12	South Dakota	5
Kentucky	14	Tennessee	13
Louisiana	6	Texas	42
Maine	5	Utah	2
Maryland	1	Vermont	5
Massachusetts	15	Virginia	10
Michigan	14	Washington	5
Minnesota	9	West Virginia	8
Mississippi	11	Wisconsin	11
Missouri	21	Wyoming	1
Montana	5		
Total	588		

The Reference Committee on report of the officers at the session of the House of Delegates held June 21 to 24, 1915, deemed it advisable that the activities of your committee be directed through the state association rather than with the county societies directly. This course will hereafter be pursued in spite of the considerable delay caused thereby.

The American Red Cross in order to aid in the general cause of preparedness will appoint a national committee on Red Cross medical work for the purpose of coordinating the work of state and county committees with the various activities of the Red Cross. A copy of the proposed regulations of the national committee on Red Cross medical service is herewith submitted (see Appendix A). It is believed that the central committee will approve these regulations at a meeting to be held during the month of May. Upon the approval of these regulations it is the intention of your committee to renew its activities through the state medical societies, with

the hope that the efforts will stimulate into existence the creation of committees on Red Cross medical work in all state and county societies which have not yet responded to the general call of preparedness.

Your committee respectfully recommends that the President of the American Medical Association invite the attention of the state medical societies to the desirability of prompt organization of state and county committees on Red Cross medical work, so that the American medical profession may be prepared to respond should the country need their services.

Respectfully submitted.

GEORGE M. KOBER, Chairman.
WILLIAM J. LYSTER,
Medical Corps, U. S. Army.
R. C. HOLCOMB,
Surgeon U. S. Navy.

APPENDIX A.

REGULATIONS OF THE NATIONAL COMMITTEE ON RED CROSS MEDICAL SERVICE

REVISED BY THE SPECIAL COMMITTEE TO WHICH THEY WERE REFERRED BY THE EXECUTIVE COMMITTEE, FEB. 12, 1916.
FINAL DRAFT AS APPROVED BY THE COMMITTEE, MAY 3, 1916.

Organization.—The National Committee on Red Cross Medical Service shall consist of forty-six (46) members, thirty-six (36) to be appointed by the Central Committee of the American Red Cross, and ten (10) ex officio members. The former shall be appointed, twelve to serve for one year, twelve to serve two years, and twelve to serve three years; and thereafter when vacancies occur the appointments to fill them shall be for three years. The ex officio members shall be:

The Surgeon General, U. S. Army.
The Surgeon General, U. S. Navy.
The Surgeon General, U. S. Public Health Service.
President, American Medical Association.
President, Congress of American Physicians and Surgeons.
President, American College of Surgeons.
The Director General of Military Relief.
The Director General of Civilian Relief.
The Chief of the Medical Bureau.
The Chairman of the National Committee on Red Cross Nursing Service.

The director general of military relief shall be the chairman of this committee, and the chief of the medical bureau shall be its secretary, and its records shall be filed in the office of the former.

No person shall be deemed qualified to be a member of the national committee who is not a member of the American Red Cross.

Duties of the Committee.—The duties of the national committee shall be as follows:

To organize the medical service of the American Red Cross.

To make uniform rules for enrolment.

To have general supervision over the work of state and other aids and committees organized for Red Cross work under agreement with the Presidents of the American Medical Association, the Congress of American Physicians and Surgeons, and the American College of Surgeons.

To aid the director general of military relief in the organization of field and hospital columns and the providing of the medical personnel for the same.

To study the medical service of the Red Cross in other countries.

The resolutions of the national committee shall be carried out as to administrative details by its secretary, and its routine business transacted by an executive committee of three appointed jointly by the President of the American Medical Association, the President of the Congress of American Physicians and Surgeons, and the President of the American College of Surgeons. The chairman of the national committee shall be ex officio chairman of the executive committee. This committee shall have authority to receive and file in the national office of the Red Cross the applications and credentials of all physicians who have been approved by local committees or aids for enrollment as Red Cross medical officers; to enroll them and to issue them cards of appointment; to keep at the national office card catalogues of state and local committees, aids, and of enrolled physicians; to distribute blank forms of enrollment, and to give the necessary instructions to state and county committees.

Assignment to Duty.—Assignment to duty in case of war will be by the director general of military relief, in consultation with the surgeon general of the military service to which assignment is to be made. Assignment in case of disaster to the civil population will be by him, in consultation with the director general of civilian relief.

Meetings and Reports.—The National Committee on Red Cross Medical Service will hold two meetings each year—one in Washington about the time of the annual meeting of the American Red Cross, and one at the time and place of the meeting of the American Medical Association. Special meetings may be held on the call of the chairman, or at the request of one third of the committee members. Nine (9) shall constitute a quorum at any meeting.

Reports of the year's work shall be made to the chairman of the central committee at the time of the annual meeting of the American Red Cross in Washington.

STATE COMMITTEES

State committees shall consist of not more than nine (9) physicians, who shall be members of the American Red Cross, and selected three members each by the President of the American Medical Association, the President of the Congress of American Physicians and Surgeons, and the President of the American College of Surgeons (one of them to be the president of the state medical society). This committee shall elect its own chairman and secretary, and shall hold annual meetings at the time and place of the state medical society meetings.

Each state committee of the American Red Cross Medical Service shall be entitled to one delegate to the annual meeting of the American Red Cross held at Washington on the Wednesday preceding the second Thursday in December.

Duties of State Committees.—State committees shall correspond with county medical societies and other individuals or societies with reference to the organization and work of local committees or aids.

They shall report to the chairman of the National Red Cross Medical Committee, at Washington, D. C., the formation of all local committees, with the names and addresses of the members of the same.

They shall have power to recommend to the national committee the dropping from a local committee of any member of such committee for reasons deemed by them sufficient, and shall report such action to the chairman of the National Red Cross Medical Committee at Washington.

LOCAL COMMITTEES

Local committees shall be identical in membership with the Committee on Red Cross Medical Work appointed by the presidents of the state committees, provided that each member so appointed is or becomes a member of the American Red Cross.

Duties of Local Committees.—Local committees, in their capacity as representatives of the National Committee on Red Cross Medical Service, shall distribute blank forms for enrolment, provided by the National Red Cross Medical Committee, such forms to provide for enrolment for service in case of war as follows:

Class A: To consist of physicians willing to serve wherever needed, at home or abroad, in field, hospital, supply columns, or intelligence sections.

Class B: To consist of those willing to serve in the home country only.

Class C: To consist of those willing to serve at place of residence only.

They shall distribute forms also for enrolment in case of disaster under the three classes above specified.

To determine whether applicants meet requirements and are desirable.

To forward to the state committee applications for enrolment, with credentials and proper recommendations, including applications not recommended for acceptance.

To recommend annulment of enrolment for sufficient cause, after proper investigation and granting a hearing to the physician concerned, forwarding all papers through the state committee to the chairman of the national committee at Washington for the final action of the national committee.

To disseminate among physicians in good standing information as to the requirements of the medical service.

Local committees shall meet at the call of the chairman, preferably at the time of the meeting of the county or other local medical society, and the secretaries of such committees may procure information, blank forms, necessary supplies, and the refundment of expenses and postage used in the correspondence of the committee about Red Cross matters, by application to the secretary of the National Red Cross Medical Committee, Washington, D. C.

RULES FOR ENROLMENT

Application for enrolment shall be made through the local committee, or on recommendation of a member of the National Red Cross Medical Committee.

Blanks shall be filled out in the applicant's own handwriting.

Requirements for Enrolment.—The candidate for enrolment must be between 25 and 50 years of age, a graduate of a recognized medical school, licensed to practice in one of the states, and must be recommended by a local or state committee, or a member of the national committee on medical service. In special cases physicians and surgeons may be enrolled by the national medical committee without reference to the above-named requirements, because of recognized special fitness and professional distinction.

Full details will be furnished by the secretary of the national committee, at Washington.

All persons, of whatever class, shall, if practicable, pass a satisfactory physical examination before being accepted for active service.

All physicians enrolling must become members of the American Red Cross.

Appointment and Badge.—Certificates of appointment will be provided to all who enroll themselves.

Resignation.—A physician may resign, but should do so in writing to the secretary of the national medical committee through the county committee.

Uniform.—The uniform prescribed by the American Red Cross, and approved by the War Department, will be worn during service in time of war. In time of disaster the usual civilian dress shall be worn. Uniforms will usually be worn by organized units, such as field columns for drill inspection, camps and parades.

Physicians are not at any time to wear Red Cross brassards without especial authority from the American Red Cross, and then only when engaged in active relief work. In the event of war, such brassards can be issued only with the consent of the War or Navy departments.

Physicians need not respond to a call for service in time of peace when such response would seriously interfere with duties already assumed; but in the event of war in which the United States may be involved, all Red Cross physicians would be expected to report to the chairman of the national medical committee at Washington, D. C., the earliest possible date on which they could be available for active service in the class in which enrolled, and should thereafter hold themselves in readiness.

Compensation.—An enrolled physician called on for active service under the Red Cross will receive the same pay as is provided by law for a major in the United States Army medical corps in case his appointment is as a director; the pay of a captain, medical corps, for an assistant director, and that of lieutenant in the medical corps for a staff physician or surgeon, with proper maintenance, traveling expenses and laundry allowance.

First Aid and Life Saving Courses.—The National Committee on Red Cross Medical Service should interest itself in extending to the industrial employees of the country instruction in first aid and in life saving which are under the direction of the Medical Bureau of the American Red Cross.

Dr. Aruthur T. McCormack, Kentucky, moved that the House of Delegates adjourn until Tuesday, 2 p. m.

Seconded and carried.

Accordingly, the House thereupon adjourned.

ADDENDUM

Report of the Judicial Council

[See page 1944, substitute for first four lines:]

Dr. Alexander Lambert, New York, Chairman, presented the Report of the Judicial Council, together with an addendum, reporting the action of the Judicial Council in disciplining members. He followed this report with the report of the sub-committee of the Council on Health and Public Instruction on Social Insurance. Following is the report on Discipline of Fellows:

DISCIPLINE OF FELLOWS

During the year there has come before the Judicial Council one case for discipline. During August and September, 1915, there was furnished to the secretary of the American Medical Association evidence in support of a charge that Dr. George Ben Johnston of Richmond, Va., had been guilty of unprofessional advertising; that in a certain daily newspaper in Richmond, Va., Dr. Johnston had caused to appear a cartoon of himself for medical advertising purposes and had paid for it himself. This evidence was in the form of a letter addressed to the secretary of the American Medical Association from Dr. Charles V. Carrington of Richmond, Va., and supported by copies of correspondence between Dr. J. Shelton Horsley and the office of the newspaper which printed the cartoon. The authenticity of these letters was confirmed by the secretary of the Association writing directly to Dr. Horsley. In addition, correspondence between the secretary of the Association and Dr. Robert C. Bryan, of Richmond, and other letters concerning this and other charges against Dr. Johnston were presented to the Council. In pursuance of the standing rule passed in San Francisco in June, 1915, that the secretary of the American Medical Association shall file charges with the Judicial Council against Fellows of the Association when overt acts on the part of such Fellows, supported by reasonable evidence, are brought to the attention of the secretary of the American Medical Association, the secretary of the American Medical Association transmitted the following letter to the Judicial Council:

"Gentlemen: The attention of the secretary of the American Medical Association has been called to a cartoon published in the Richmond *Evening Journal* for Jan. 15, 1915, the subject of which is Dr. George Ben Johnston of Richmond, Va., a Fellow of the American Medical Association; and to the photographic reproduction of the form of contract entered into by the Richmond *Evening Journal* and the subjects of a series of cartoons of which this of Dr. Johnston is one, for the publication of these cartoons; together with correspondence which seems to establish the fact that Dr. Johnston was a party to the publication of the cartoon in the Richmond *Evening Journal,* issue of Jan. 15, 1915.

"Consequently, in compliance with the standing rules adopted by the House of Delegates, the secretary charges Dr. George Ben Johnston of Richmond, Va., with unprofessional conduct, in that he caused to appear in Richmond, Va., a cartoon calling attention to himself and his professional work in a manner contrary to Section 4, Article 1, Chapter II of the Principles of Ethics of the American Medical Association."

A meeting of the Judicial Council was duly set for Nov. 5, 1915, to hear these charges. At this meeting of the Judicial Council Dr. George Ben Johnston appeared in person to answer to the charges. The charges were read. The chairman advised Dr. Johnston of his rights and of the procedure of the Council. Dr. Johnston then stated that he had contracted and paid for the caricature complained of, as had also many prominent and reputable citizens of Richmond, including two other reputable physicians, without, however, any thought or expectation of professional advantage to be gained from it, as, in his opinion, such newspaper notice could not be of any professional advantage to a physician but, on the contrary, it might work an injury. Dr. Johnston further stated that he was actuated solely by the fact that many of his friends and neighbors of the highest standing in his community had signed the same contract form for cartoons of themselves. He further stated that he did not see or instigate the reading matter attached to the cartoon

and had no intimation of what would be printed in connection with his caricature and that he was humiliated by what appeared in that connection.

There were further matters presented stating gross professional derelictions on the part of Dr. Johnston. These matters were not in the charges filed with the secretary of the American Medical Association and were therefore judged extraneous matter and could not come before the Judicial Council for its consideration. Dr. Johnston asked the opportunity to show animus in the matter of the charges, which opportunity was given him. Dr. Johnston produced a letter from Dr. Stuart McGuire of Richmond, Va., in which Dr. McGuire stated that he had been induced to permit a cartoon of himself to be published in this same *Evening Journal* of Richmond, for which he had also paid. Dr. McGuire went on to say that some weeks after the appearance of the cartoons of Dr. George Ben Johnston, Dr. W. T. Oppenheimer and Dr. McGuire, a letter was received by Dr. McGuire from Dr. H. C. Smith of Crewe, Va., who condemned his course for permitting the cartoon in the *Evening Journal* and who notified Dr. McGuire that he, Dr. Smith, had preferred charges to the Richmond Academy of Medicine and the Medical Society of Virginia against Dr. Johnston, Dr. Oppenheimer and Dr. McGuire for unprofessional conduct. Dr. McGuire replied to this that he would welcome an opportunity to explain the circumstances which had led to the alleged violation of the Principles of Ethics; that he had afterward received a message from Dr. Smith saying that the charges were withdrawn.

Dr. McGuire further stated that about this time Dr. Charles V. Carrington came to his office, the object being to ask Dr. McGuire to take no action that would revive the charges and lead to an investigation by the local society, and that Dr. Smith had been induced to withdraw his charges because it was believed that while the Judiciary Committee would exonerate Dr. Johnston, Dr. Oppenheimer and Dr. McGuire of having intentionally done anything wrong, the charges at that time would injure Dr. McGuire. Dr. Carrington said that while he did not wish to hurt Dr. Oppenheimer or Dr. McGuire, he did wish to use the incident at some future occasion to injure Dr. Johnston. This statement Dr. McGuire further said had been submitted to Dr. Carrington, and Dr. Carrington's recollection of the interview differed materially from Dr. McGuire's. Dr. McGuire attached Dr. Carrington's written version of the conversation, from which it appeared that when Dr. Carrington heard that Dr. Smith had preferred charges against Drs. Johnston, Oppenheimer and McGuire, that he, Dr. Carrington, had agreed with Dr. Horsley to make every effort to have Dr. Smith withdraw his charges against all these gentlemen, temporarily at least, because they believed the charges would injure Dr. McGuire, whom Dr. Carrington believed to be unjustly accused of wrong doing. Dr. Carrington further stated that he believed even if charges were not withdrawn and the Richmond Academy of Medicine entertained them, all three of them would be exonerated. Dr. Carrington said at the time he went to see Dr. McGuire to discuss these charges against Dr. McGuire, he had no idea of preferring charges in this matter against Dr. Johnston in any society, or of using it against Dr. Johnston in any way at any future time. Dr. Carrington acknowledges, however, that he told Dr. McGuire that while as Dr. McGuire's friend he was interested in trying to help Dr. McGuire out of an embarrassing situation, he had no such feeling for Dr. Johnston and did not care how badly Dr. Johnston was hurt. Dr. Carrington further states that after this conversation with Dr. McGuire, he (Dr. Carrington) and Dr. Horsley wrote a letter to Dr. Smith in consequence of which Dr. Smith withdrew his charges against all three.

The Judicial Council believes that this is a type of case that should have been dealt with by the local medical societies before it should have been brought for action to the Judicial Council. The Judicial Council, therefore, deprecates the withdrawal, without trial, or opportunity for defense by the accused, of these identical charges from the Richmond Academy of Medicine after being filed therein. The Judicial Council does not condone or minimize unethical advertising in this or any instance, but the Council does believe that the matter complained of was inadvertent and thoughtless and was done with no thought of professional gain or personal advantage. In view of this and the attitude of Dr. Johnston in the premises, the Council believes that the facts elicited do not constitute sufficient cause for action, and the Council therefore acquits Dr. Johnston of any intent whatsoever to violate the Principles of Ethics or to do an unprofessional act.

Respectfully submitted.

ALEXANDER LAMBERT, Chairman,
JAMES E. MOORE,
HUBERT WORK,
A. B. COOKE,
RANDOLPH WINSLOW,
ALEXANDER R. CRAIG, Secretary.

[See p. 1945. Add first column, four lines from the bottom, after the words "of the Scientific Assembly."]

It was further suggested to me this morning by Dr. Simmons that a further amendment to the By-Laws should be considered in this connection—namely, that the general meeting of the American Medical Association should be changed from Tuesday morning to Tuesday evening, making the general meeting occur the evening before the meeting of the sections. The Scientific Assembly, therefore, would begin on Wednesday morning and a half day of time could thus be saved.

[See p. 1985. Add second column following signature of Dr. Alexander Lambert.]

Dr. Arthur T. McCormack, Kentucky, moved that the House of Delegates extend its gratitude to Dr. Lambert and his Committee on Social Insurance for the complete and exhaustive report that they had made.

Seconded and carried.

The report was referred to the Reference Committee on Amendments to the Constitution and By-Laws.

(To be continued)

Factory Inspector's Report.—The report of the Illinois State Factory Inspector for 1914-1915 shows that 32,981 child labor inspections in 32,260 establishments were made during the year, which was an increase of more than 5,000 inspections over the previous year. There were 156 convictions for infractions of the Child Labor Law, which provides that children under 14 shall not be employed in the industries. At the sessions of the last legislature it was endeavored to have the limit raised to 16 years, but this failed. The chief factory inspector favors raising the working age, among other reasons, because a physical examination before entering employment will be required of all workers in the near future, and he believes that beginning work at too early an age will so weaken and prevent the development of children that later when examinations are required many of them will fail of employment. The state now has a ten-hour law for women, and inspections disclose that in many instances they are worked longer than that. Two hundred and eighty-one prosecutions were brought for such violations. The workmen's compensation act was improved by the last legislature and the minimum compensation for injury resulting in death was raised to $1,650, and the weekly compensation to $6 as a minimum. Under the occupational disease law, 595 inspections were made and a few orders for compliance issued. It is said more orders were not issued because many establishments have about completed installations in compliance with the law on previous general orders issued by the department. Under the Health, Safety and Comfort Law, nearly 7,000 inspections were made in as many establishments, and over 39,000 orders were issued to correct defective and dangerous conditions in buildings, with reference to sanitation, power transmission, dangerous machines, etc. The law allows thirty days to comply with such orders. On reinspection it was found that over 29,000 of these orders had been complied with. Ventilation inspections under this law showed 245 violations out of 254 workrooms examined.

Medical News

PARIS LETTER

(*Continued from page 1935*)

The War

VENEREAL DISEASES IN THE ARMY

The various districts have just made a statistical return of the venereal diseases treated during the months of January and February, 1916, and from these returns, which are for the whole of the troops, including those at the front and those in the interior of the country, the following figures have been taken:

Gonorrhea	7,813
Chancroid	962
Primary or recent syphilis	2,987
Total	11,762

Of this total of 11,762 infections, 9,419 have been proved to be contracted in the interior of the country. This figure serves as the best indication of the existence and persistence of foci of contagion in the different districts, outside of the zone of the army.

The undersecretary of state for the medical service has communicated these significant figures to generals in command of the districts, begging them to do their utmost, in cooperation with the civil authorities, to take every step necessary to stamp out the development of venereal diseases and to encourage every initiative and to avail themselves of every help with the view of checking the excessive prevalence of these diseases.

TREATMENT OF ABDOMINAL WOUNDS AT THE FRONT

This subject has given rise at the Société de chirurgie de Paris to a very interesting exchange of views. Dr. Tuffier of the Faculté de médecine de Paris was thought not to have been sufficiently categoric in the condemnation of the method of abstention, and had expressed himself as partisan of intervention only when the surgeon's equipment and the condition of the wound were such as to promote a favorable prognosis. Professor Quénu opposed this opinion vigorously. Quénu refuses to admit that soldiers with abdominal wounds should be abandoned to their fate because of insufficiency of the means of treatment. The means of treatment exist; it will be sufficient to multiply during the period of actual battle the organizations for using them and to accumulate the latter where the most wounded congregate. Drs. Delbet, Rochard, Monprofit and Broca were of the same opinion, and the latter moved a resolution for a public pronouncement on the part of the Société de chirurgie in favor of early intervention in abdominal wounds. The société passed this resolution unanimously. In addition, a resolution was passed that, in order to insure for the seriously wounded, and especially those in whom early intervention has a considerable influence on the possibility of success, the automobile ambulances should be concentrated at the point where the most wounded are assembled according to needs and for the time necessary.

RESECTION OR AMPUTATION

In serious wounds of the knee, elbow, hip and foot should the limb be amputated? Ought we to limit ourselves to the resection of the injured articulation? Drs. Tuffier and Nové-Josserand, in a communication to the Académie de médecine, as the outcome of the study of the functional results given by resections, conclude that this operation should always be preferred to amputation, for it always leaves a limb more useful than any apparatus, whatever may be the perfection of the latter. Amputation is justifiable only to save the life of the patient when, for that purpose, resection of the articulation would be insufficient. One may have to practice such a resection either immediately after the infliction of the injury or later, in consequence of serious suppuration, or still later to increase the mobility and strength of the limb. They give the results of 1,810 cases made up as follows: 630 elbows, 350 shoulders, 282 knees, 231 ankles, 152 wrists, 122 hips, 29 posterior tarsus and 14 anterior tarsus. Tuffier and Nové-Josserand state that for the shoulder joint the functions in the limb are good in 48 per cent. of cases. At the elbow results are variable, depending on whether or not the excision has taken place immediately after the infliction of the wound. In the former case the functional results are not encouraging (30 per cent. good), but still they are much better than would be given by an artificial forearm. Secondly, the results are but little better (32 per cent.). Approximately the same figures are obtained for the wrist. For the lower limbs, on which they have performed 20 per cent. fewer resections than on the upper limb, the operation at the hips gave about 75 per cent. of favorable results. A patient walking, with or without the help of an apparatus, is always at any rate better off than with a false limb. As to the knee, in this case mobility is not sought by the operation; on the contrary, to give a really useful limb rigidity is necessary. This result was obtained in 95 per cent. of the cases; but when this operation is performed immediately after the wound, the results, both as regards the life of the patient and the functions of the limb, are much superior to those which one obtains when the articulation is removed for suppuration. The same is true for the operation on the foot.

It is probable that the reason why these operations have not been more often practiced is that they are always laborious, very often difficult and can be carried out in a satisfactory manner only by experienced surgeons. The instructions given long ago by the Lyons surgeon, Ollier, are those which one should follow to obtain the best results.

INJUDICIOUS OPERATIONS ON THE EYE FROM A MILITARY POINT OF VIEW

In a previous letter I have mentioned Dr. E. Valude's opinion according to which wounded soldiers suffering from traumatic cataract of one eye should not be operated on if the other eye is intact and normal (THE JOURNAL, March 27, 1915, p. 1089). Valude insisted on the fact that in such cases intervention cannot possibly produce in the vision any improvement of military value, and that a slight advantage in case of a successful result had to be set off against the danger of serious sequelae in operating early on cataracts, these traumatic cataracts being particularly liable to infection, especially in young subjects. Finally, one has to face the possibility of a disastrous sympathetic ophthalmia consecutive to complications in the operated eye. In his original communication he spoke of this danger only as theoretical, but he has just observed a case in a soldier, aged 23, who, October 8, received from a shell fragment a serious contusion of the right ocular region without a wound. As a result of this there was a traumatic cataract of the right eye but absolute integrity of the left eye. He was transported to an ophthalmologic field hospital where he underwent an operation for the cataract, about December 7. Cyclitis resulted, and almost immediately an ultramalignant sympathetic ophthalmia of the left eye. This soldier presents the signs of iridochoroiditis of the most formidable hemorrhagic type. Blindness is, of course, inevitable. The result, from the point of view of the patient, is blindness at 23 years of age, and from the point of view of the state, first, a military unit lost, and, secondly, the highest pension to be paid to the patient, all because of an attempt to restore the vision which, in any case, would have been very imperfect and which would have been useless for military purposes.

Valude is also of the opinion that the operation for strabismus should not be practiced in a military hospital. The result cannot be of any military value.

THE OCCUPATION OF SCHOOLS AS MILITARY HOSPITALS

The minister of public instruction has just received from the Fédération des associations de parents d'élèves de lycées et collèges (Federated Association of the Parents of High School and College Pupils) a letter with regard to the prolonged occupation of a large number of schools as military hospitals. To this letter were annexed complaints from different associations concerning the high schools of Paris, Algiers, Bordeaux, Grenoble, Limoges, Marseilles and Montpellier. The inconvenience produced by the present situation was summed up in this way by the federation; overcrowding of the pupils in makeshift buildings which are altogether inadequate and very often insanitary, disturbance of the course of study, and dangers of epidemic.

DELAYED TETANUS

An interesting discussion took place at the Réunion médicale de la IV-e armée on the subject of delayed tetanus and of the preventive efficacy of antitetanic serum. Dr. Potherat, surgeon of the Paris hospitals, reported two characteristic examples. In spite of the treatment by Baccelli's method and the administration of large doses of chloral, one of the patients died, but the other recovered. In the first patient the tetanus manifested itself three weeks after the

receipt of the wound; in the second there was an interval of more than two months. In the latter a fragment of shell which had escaped notice was left behind and was removed after roentgenoscopy. The former, whose humerus had been smashed immediately below the tuberosities, had retained, among the irregularities of the scapular fragment, portions of clothing which were not detected by digital exploration or removed by washing. Potherat attaches great importance to the presence of foreign bodies and in particular to fragments of clothing as bearers of tetanus bacilli in suppurating wounds. Antitetanic serotherapy, however certain and undeniable may be its preventive value, can never be depended on to overcome all the causes favoring development of tetanus. It is efficacious but not infallible, and one must not neglect to supplement it by practices which have justified themselves in many a circumstance. These consist of free exposure of irregular and soiled wounds, the systematic ablation of necrosed or necrosing parts, the removal of all substances, such as foreign bodies, which can be bearers of the tetanus bacillus, and finally careful and abundant washing with solutions which set free oxygen. Though the objective phenomena are less violent in delayed tetanus than in the early form, it is erroneous to suppose that for this reason delayed tetanus is less serious, fatal results being quite common.

Dr. Paul Boucher has reported two cases of delayed tetanus differing much from one another. In the first case there was a penetrating wound of the chest due to a fragment of shell. This patient received a prophylactic injection of antitetanic serum (10 c.c.) on the day of his reception at the ambulance, which was also the day on which he was wounded. On the twentieth day, thoracotomy was performed for purulent pleurisy, and the projectile was removed. Tetanus made its appearance on the twenty-third day and was fatal. Only one injection of serum had been given. The second case belongs to a category which it will never be possible to avoid. A man suffered a fracture of the vertebral column. There was no perceptible external breach of continuity of the skin; nevertheless, the man developed tetanus on the tenth day after the injury and he died. One prophylactic injection had been given.

Dr. Vincentelli brought forward a case of a man, aged 32, wounded by shell fragments in the two calves, in the shoulder and in the buttocks. Each of these wounds, narrow but very deep, provoked a gangrenous phlegmon with fetid pus. In the twenty-four hours which followed the receipt of his wound, this man had one injection of antitetanic serum which was also the last. After five days' traveling he arrived at the hospital, where the four phlegmons were opened up, drained and freely washed. The pus and the fever disappeared almost completely. Ten days later fragments of shell, of clothes and of the right fibula were removed. Everything seemed to be going on normally except that there were a very marked pallor and bluish venosities over the whole body whose origin it was difficult to explain. Moreover, there was observed an excessive excitability of the muscles of the incised calf. Twenty-three days after the receipt of his wound, and after the only injection of serum, and eight days after the second surgical intervention, he was seized with tetanus which proved fatal in forty-eight hours.

From these facts it may be concluded that the prophylactic action of antitetanic serum is of short duration; in some cases it has not extended beyond eight days. Therefore, in wounds with persistent suppuration, the injection must be repeated every week.

Suppression of Rag Picking in Paris

At the Académie de médecine Dr. Wurtz of the Faculté de médecine de Paris in the name of the Section of Public Hygiene, Legal Medicine and Medical Police read an important report on the question of suppression of rag picking in Paris. The report demands that, for reasons of public health, this practice should be suppressed in the capital and its neighborhood, both on private premises and on the public streets. The sorting of garbage should be undertaken solely in the municipal destructor works. Garbage cans and wagons should be hermetically closed.

An American Honored

Miss Edith Wharton, an American citizen and writer, has just been appointed, by decree, chevalier of the national order of the Legion of Honor in recognition of her charity and her devotion to benevolent works.

Miscellany

Medical Supervision in Industry

Dr. A. B. Emmons, 2d, director of appointments for the medical alumni of the Harvard Medical School, in a recent article (Industrial Medical Supervision, *Boston Med. and Surg. Jour.*, April 6, 1916, p. 495) presents an account of the results of medical supervision in a factory employing from 700 to 1,100 workers, chiefly unskilled. The factory in question manufactures candy; about two thirds of the employes are women. The medical supervisor's duties are (1) to see that every employee who comes into contact with the candy or any of its ingredients is free from communicable disease; (2) to see that every new employee is physically fit for work, and (3) to keep the employees in good health. Foremen or forewomen are instructed to report any worker who presents a cough, a rash or any other sign of physical ailment; in addition, the medical supervisor inspects every department, besides keeping office hours three times a week in the factory. A graduate nurse is on duty all the time. Every employee must be successfully vaccinated before he enters on his position; if he is temporarily absent from work, his health must be certified by the medical supervisor before he is allowed to resume his task. All persons suffering from venereal disease or tuberculosis, or addicted to the habitual excessive use of alcohol, are discharged, the first class because they constitute a danger to others, the second because employment in a factory is injurious to themselves as well as dangerous to others, and the third because to keep such persons near high-power machinery is to court disaster. Employees affected with transmissible diseases are excluded from handling candy until they are well. If some particular form of work affects an employee injuriously—for instance, if a man strains his back lifting barrels or a girl develops flatfoot from too much standing—the physician confers with the superintendent and secures a change of work for that employee. The service is without cost to the employees. The testimony of all concerned is that the medical supervision is of value to the employer in the greater efficiency of the working force, to the employees in the increased comfort and physical well-being secured, and to the public in the guarantee of a sanitary product. It would seem that manufacturers of food products especially would find it to their advantage to install medical inspection, both for its direct and for its advertising value.

Principal Causes of Death

The Bureau of the Census has just issued a bulletin of the principal causes of death in the registration area in 1914. More than 30 per cent. of the 898,059 deaths reported from the registration area, which contains about two thirds of the population of the United States, were due to three causes: heart disease, tuberculosis and pneumonia. More than 60 per cent. of the total number of deaths were due to eleven causes. In addition to the three named they were: acute and chronic nephritis; cancer, diarrhea and enteritis, apoplexy, arterial diseases, diphtheria, diabetes and typhoid fever. The deaths from heart disease numbered 99,534, or 150.8 per hundred thousand of population. This is an increase over the rate of 1900, when it was only 123.1. The number of deaths from tuberculosis was 96,903, of which 84,366 were lung cases, including acute miliary tuberculosis. In the period from 1904 to 1914, the death rate from tuberculosis in all its forms fell from 200.7 to 146.8 per hundred thousand, the decline being continuous from year to year, a decrease of more than 25 per cent. Pneumonia, including bronchial pneumonia, was responsible for 83,804 deaths in the registration area, or 127 per hundred thousand, the lowest rate on record. Pneumonia, like tuberculosis, has also shown a decline since 1900, when it was 180.5 per hundred thousand. Acute and chronic nephritis had a death rate of 102.4 per hundred thousand, and is the only disease other than those named having a rate above 100. The total number of deaths was 67,545, an increase from 89 per hundred thousand in 1900

to 103.4 in 1905. Cancer and other malignant growths caused 52,420 deaths; 19,889, or almost 38 per cent., were the result of cancer of the stomach and liver. The rate for cancer has risen from 63 per hundred thousand in 1900 to 79.4 in 1914. Only two years during this time showed a decline as compared with the years immediately preceding, the increase having been almost constant. Apoplexy showed 51,272 deaths, or 77.7 per hundred thousand. The rate for apoplexy has also gradually increased, with only occasional slight declines since 1900, when it was 67.5. Arterial diseases caused 15,044 deaths, or 22.8 per hundred thousand. It is said that no epidemic disease produced a death rate as high as 18 per hundred thousand in 1914. A notable decrease in these diseases was that for diphtheria. In 1914 the deaths numbered 11,786, or 17.9 per hundred thousand, a fall from 43.3 in 1900, representing a decline of nearly 59 per cent. Diabetes caused 10,666 deaths, a rate of 16.2; in 1900 it was 9.7. Typhoid fever declined since 1900 from 35.9 to 15.4, a fall of 57 per cent. The epidemic maladies of childhood, whooping cough, measles and scarlet fever, caused 15,617 deaths, of both adults and children, or 23.7 per hundred thousand. In 1913 measles led in the death rate of these three diseases, but in 1914 whooping cough had first place. In every year since 1910 measles has caused more deaths than scarlet fever. Interesting figures are also shown in regard to railway and street car accidents. Railway accidents and injuries totaled 7,062, or 10.7 per hundred thousand. This includes deaths from collision between railway trains and vehicles at grade crossings. These figures are said to be the lowest on record. Street car accidents and injuries numbered 1,673, or 2.5. This is likewise the lowest on record for this character of accidents. There were 10,933 suicides, or 16.6 per hundred thousand.

Public Health Threatened

The public health committee of the New York Academy of Medicine protests very properly against the monstrous resolution lately introduced in Congress by Senator Works of California for no imaginable purpose except to injure or discredit the endeavors of the United States Public Health Service. If Senator Works were to have his way no officer or other person in this service would be permitted to join or be associated in any manner whatever with any public or private medical or scientific society.

A more preposterous and absurd proposal was never laid before a body of legislators for serious consideration. If the object is to separate the members of the Public Health Service from all others concerned in similar or kindred efforts it is rightly conceived, and, indeed, considering the whimsical views of the senator and his woeful ignorance of the problems of public health, it is clear that that is precisely what he aims at, his supposition being that the *American Medical Association* and all associations of scientific men are essentially evil.

No one who has ever heard or read the vain and extravagant rhapsodies of Senator Works is likely to mistake him for a thinker or one competent either by nature or training to form a reasoned opinion on public health; but there is some danger that he may impart to others who do not take the trouble to think for themselves some tincture of his own suspicion that the great medical societies are engaged in a conspiracy to control the administration of public health for their own profit.

Even the densest must see, however, that in an enterprise of this kind it is of essential importance that the officers of the government should be in close touch with those engaged in medical work throughout the country, and that nothing could be better calculated to paralyze the central body than to forbid association with learned bodies elsewhere. Without the cooperation of all concerned in work of this nature, the United States Public Health Service would be useless and might as well be abolished outright. Such an event would probably gratify Senator Works, but it may be hoped that few share his unenlightened conception of the matter.—New York *Tribune*, May 16, 1916.

Society Proceedings

ASSOCIATION OF AMERICAN PHYSICIANS

Thirty-Fourth Annual Meeting, held at Washington, D. C., May 9-11, 1916

(*Concluded from page 1886*)

Blood Sugar Estimations as a Test of Carbohydrate Tolerance

Dr. Louis V. Hamman, Baltimore: Frequent examinations of the blood and urine after the administration of glucose to fasting persons reveal four types of reaction: 1. Normal reaction: The blood sugar rises rapidly to a level not exceeding 0.15 per cent. From this point it again rapidly declines, the whole reaction being over in less than two hours. 2. Diabetic reaction: The blood sugar rises more slowly, but reaches a higher point, 0.2 per cent. and over. The high point is maintained for some time, and the decline occurs gradually, the whole reaction occupying three hours or longer. If the blood sugar rises above 0.175 per cent., sugar appears in the urine. 3. Renal reaction: In a small number of persons, although the blood sugar curve is in all other respects like the normal reaction, still sugar appears in the urine. In severe cases of diabetes the same low renal threshold is often found. 4. Nephritic reaction: In many cases of nephritis the blood sugar rises to a high level, often exceeding 0.2 per cent., and the blood sugar curve resembles the diabetic reaction; however, no sugar, or only a trace of sugar, appears in the urine. Studies of the blood sugar reaction after the administration of glucose and its relation to glycosuria give valuable clinical data in diabetes and other conditions.

Experimental Endocarditis: Its Production with Streptococcus Viridans of Low Virulence

Drs. H. K. Detweiler and W. L. Robinson, Toronto: The cultures of *Streptococcus viridans* obtained from the blood in cases of chronic endocarditis were injected intravenously into a series of rabbits, and endocarditis was produced in a large number of cases. The necropsy findings led us to believe that this organism has a special affinity for the heart valves. The *Streptococcus viridans* obtained from the normal mouth is equally productive of heart lesions, and any grade of endocarditis may be produced by any one organism, depending on the amount injected, the number of injections, and the length of time between the first injection and the death of the animal.

Starvation Treatment of Diabetes

Drs. C. F. Martin and E. H. Mason, Montreal: Observations of the metabolism in a number of cases of diabetes treated by the starvation method illustrate the speed with which one may arrive at the tolerance for various foodstuffs by this method, and also that hyperglycemia is a much better criterion of the dietetic needs than is the glycosuria. Starvation, too, affects acidosis in different ways. In diabetes it was found that the blood sugar curves, with the glucose test, differ constantly from those of the normal individual.

DISCUSSION

Dr. Abraham Jacobi, New York: The starvation treatment of diabetes is very satisfactory to the experimental doctor, but what happens to the patient? I have seen patients with 5 or 6 per cent. of sugar go along in satisfactory health for five or ten or even twenty years. I have also seen starved patients, emaciated, suffering with cerebral anemia, complaining bitterly of other symptoms of nerve exhaustion, and now they are dead. They would not be dead if they had not been starved. Are not those living patients with glucose in the urine better off than those who died?

Dr. S. J. Meltzer, New York: I know of several persons who would have lived comfortably with glucose in the urine; but who were starved, developed acidosis, which was not discovered early, and died. But they need not have died if the acidosis had been discovered. The starvation treatment ought not to be used indiscriminately, but only when the physician is on the alert for the first signs of acidosis. At

any rate, it does not do to use the words "acidosis" and "dying" as synonymous.

DR. J. VAN SLYKE, New York: The diabetic cases treated at the Rockefeller Institute are watched very carefully; some do well in acidosis, others much worse. If acidosis develops in the first fast, it may not occur in the second. But the fast is always broken as soon as acidosis is observed.

DR. M. HOWARD FUSSELL, Philadelphia: I have used the starvation treatment in a number of cases during the past year, and not all of the patients were treated in hospitals, though all have done extremely well. Some have had severe acidosis, but all came out satisfactorily and all are now as comfortable as possible.

DR. C. F. MARTIN, Montreal: I am sorry that Dr. Jacobi got the idea that I actually starved my patients; as a matter of fact they are not even hungry; they are not fasted to that extent.

Gastrohydrorrhea in Cirrhosis of the Liver Accompanied by Pyloric Stenosis

DR. MAX EINHORN, New York: A flow to the amount of from 1 to 1½ quarts a day was encountered in a patient suffering from cirrhosis of the liver accompanied by pyloric stenosis. No ascites had developed. At necropsy a typical cirrhotic liver and a pyloric tumor (cancerous) were found. The gastrohydrorrhea is explaind by a transudation process relieving the venous congestion in the stomach, and is akin to an accumulation of ascitic fluid from the intestines in cirrhosis of the liver without pyloric obstruction.

DISCUSSION

DR. H. A. CHRISTIAN, Boston: I have observed a similar condition in cirrhosis patients, both with and without ascites. I have always believed it to be a compensatory process.

DR. MAX EINHORN, New York: I have no doubt that the copious morning vomiting seen in many cases of cirrhosis and of cancer of the liver is due to failure of the portal circulation.

Effect of Exposure to Cold on Experimental Infection of the Respiratory Tract

DRS. JAMES ALEXANDER MILLER and WILLIS C. NOBLE, New York: Our experiments were carried out with rabbits inoculated with *Bacillus bovisepticus,* an organism which causes the laboratory disease in rabbits known as "snuffles." It was selected for experiment because it produces in rabbits conditions very similar to those in respiratory infections in man and because of the relative difficulty of producing pneumococcus pneumonia in rabbits. The animals were kept in a warm temperature for varying periods of time and were then inoculated by spraying the nose and throat with virulent cultures of the "snuffles" bacillus. They were then immediately chilled by exposing them to cold weather. Two series of experiments in two successive winters were carried out. The totals for the two series show that of thirty-seven experimental animals, fifteen, or 40.5 per cent., reacted to the infection, while of an equal number of controls, nine, or 24.3 per cent., reacted. The conclusion seems justified that exposure to cold after previous subjection to warm temperatures rendered rabbits somewhat more liable to infection with *B. bovisepticus.*

DISCUSSION

DR. HENRY SEWALL, Denver: Throughout life we are constantly receiving antigens which protect us if we are in training, and sensitize us if we let down the bars of hygienic indiscretions.

DR. S. J. MELTZER, New York: Experiments seeking to show the relations between exposure to cold and lung infection must all fail for the present, because the lungs are always maintained at the same temperature. But the same cannot be said of the nose and larynx; exposure to cold does cause a reaction in these parts, and we begin to sneeze or cough. These symptoms are not diseases, however; they are efforts of the body to get rid of undesirable substances. While these effects of exposure do not cause disease, they undoubtedly open the way to disease. The only way to prove the matter so far as the lungs or bronchi are concerned would require the introduction of hot or cold air through a tube to the lung or bronchus where organisms had previously been placed. This would not afford complete evidence, however.

The Expectorant Action of Ammonium Chlorid

DR. WARREN COLEMAN, New York: Observations were made on the expectoration in bronchitis before and after administration of ammonium chlorid. The sputum was subjected to chemical examination, which showed a large increase of ammonia nitrogen in sputum after the exhibition of ammonium chlorid. I took ½ grain doses of ammonium chlorid every two hours during the day (up to 7 p. m.). A distinct taste of the drug was perceptible in the sputum the next morning, but not in the saliva. Another subjective observation was that the sense of bronchial rawness and tightness in bronchitis was relieved in half an hour after taking ammonium chlorid. The explanation of this effect probably lies in the water carriage of the drug when excreted by the bronchial mucosa, the mucous membrane and secretion being softened thereby.

DISCUSSION

DR. ABRAHAM JACOBI, New York: Ammonium chlorid will do something in chronic bronchitis in which the sputum is sticky and hard to raise.

DR. S. J. MELTZER, New York: Dr. Coleman's interesting experiments do not decide the questions surrounding the expectorant action of ammonium chlorid. First, we should want a definition of expectorants; Dr. Coleman indicates that there are two kinds: secretion increasers and secretion removal helpers. The observation that a given substance is absent from a secretion is not evidence that the substance had no effect on the secretion; it may have done something in the blood. Physicians should not give up something that good clinical observers have found useful on the basis of mere experimental evidence. My observations for many years have been that ammonium chlorid does good in a "cold." It will not save a patient destined to die, but it is a good palliative remedy.

DR. JOSEPH ERLANGER, St. Louis: One could not be positive that the ammonium chlorid found in the sputum was excreted with it. What precautions were taken to see that no ammonium chlorid was retained in the mouth? Was any ammonium chlorid eliminated in the saliva?

DR. L. G. ROWNTREE, Minneapolis: At what stage in acute bronchitis does Dr. Coleman believe ammonium chlorid is indicated? Is its action central or peripheral?

DR. WARREN COLEMAN, New York: Careful examinations of both sputum and saliva were made. Only a very slight ammonia reaction was found in the saliva. As to the stage of bronchitis in which ammonium chlorid is indicated, benefit may be expected after the first few doses given as soon as the first dry rawness in the bronchi appears. The effect of the drug is probably due to its elimination by the bronchial mucosa, the water carried with it softening the secretion.

Coagulation Time in Lobar Pneumonia

DR. J. M. ANDERS and GEORGE H. MEEKER, Philadelphia: The so-called Boggs test was employed; the blood obtained by free puncture of finger tip or ear lobe. It was found that in pneumonia coagulation time is slightly shortened, the mean time being nearly two minutes. As to the cause of the shortened coagulation time in pneumonia, there is no definite evidence. It occurred to us that the rapid destruction of leukocytes in the exudate might set free much enzyme and so set up the process. Calcium is not increased in pneumonia, and therefore has no effect on the change in coagulation time.

DISCUSSION

DR. S. J. MELTZER, New York: In similar experiments I observed no increase of calcium in nonvirulent pneumonia; but there is an increase of this element in experimental virulent pneumonia. Starch pneumonia is not attended with fibrin increase.

DR. RUFUS I. COLE, New York: Douchez found that in blood obtained direct from the vein in pneumonia the fibrinogen is increased, but the coagulation time is prolonged.

Action of Certain Diuretics in Chronic Nephritis

DR. H. A. CHRISTIAN, Boston: The effects of theocin (as representing diuretics) were varying: there may be an increase or decrease of diuresis, of salt, of nitrogen; but sodium chlorid is more often increased than nitrogen, and tends to parallel water excretion. The conclusion seems justified that theocin causes an inconstant and not marked effect in acute nephritis in man. In chronic nephritis and chronic cardiorenal disease, theocin produces diuresis in inverse ratio to renal function. When diuresis is induced, it is followed by reduced renal functions, suggesting the advisability of intermittent use of diuretics. The fact that there may be diuresis without increase of nitrogen output makes questionable the use of diuretics for detoxicating purposes. In many cases with severe nephritis, diuretics are probably harmful, being followed by no diuresis, no increase of urinary ingredients, and by diminution of renal function.

DISCUSSION

DR. W. S. THAYER, Baltimore: I have noted the beneficial effect of diuretics in cardiac disease, and also the danger of the continuous use of diuretics in severe renal disease.

DR. J. M. ANDERS, Philadelphia: I have relied on saline diuretics. We should not employ diuretics unless the phenolsulphonephthalein test shows good functional capacity. To aid elimination we have been used to giving large drafts of water; was this taken into consideration in the studies?

DR. L. G. ROWNTREE, Minneapolis: Were there any observations on water alone as a diuretic?

DR. HENRY A. CHRISTIAN, Boston: The value of the phenolsulphonephthalein test will depend on whether a low output is due to chronic passive congestion or to tubular insufficiency. The influence of water was not studied; however, all of the patients were on a constant fluid intake. Water acts like other diuretics in shortening the lives of experimental nephritic animals.

Toxic Effects of Urea on Normal Individuals

DRS. A. W. HEWLETT, Q. O. GILBERT, and A. D. WICKETT, Ann Arbor, Mich.: In order to study the toxic effects of urea on man, about 100 gm. of urea were taken by mouth within a few hours. When the concentration of urea in the blood exceeded 160 mg. per hundred c.c. of blood, the subject usually complained of headache, dizziness, drowsiness, mental apathy, inability to concentrate the attention, muscular weakness and fatigue and slight muscular tremor. These symptoms are similar to those described in the asthenic types of uremia in which the blood urea approaches and often exceeds the threshold of symptoms observed in these experiments. It is probable, therefore, that in this type of uremia many of the symptoms can be attributed to the high concentration of urea in the body. In these experiments no nausea or loss of appetite occurred at the maximum level of urea in the blood, nor was there any marked rise of blood pressure.

DISCUSSION

DR. WARREN COLEMAN, New York: An instructive case was that of a girl, aged 13 years, who came to hospital in uremic convulsions. Blood taken for therapeutic purposes yielded of noncoagulable nitrogen a total of 20 mg. per hundred c.c. In later convulsions other observations never found the noncoagulable nitrogen above 30 mg. per hundred c.c. of blood. It is evident that in some cases urea is not a factor in the convulsions.

DR. HENRY A. CHRISTIAN, Boston: Dr. Hewlett's observations coincide with my own on the noneffect of diuretics on the removal of nitrogen, and of their failure to influence the symptoms of uremia. It is necessary to consider both blood accumulation of nitrogen and kidney excretion of nitrogen in these problems; storage is the factor rather than the amount in the blood. How long did it take for the level of blood urea to return to normal?

DR. CHARLES S. BOND, Richmond, Ind.: Did diuresis follow the ingestion of the urea, and how much water was taken during the experiments?

DR. A. W. HEWLETT, Ann Arbor, Mich.: It is necessary to keep in mind that more substances are concerned in uremia than urea. The time of the return of the urea level of the blood to normal was not ascertained; the observations were not continued long enough; the threshold of symptom production was passed on the down wave in six hours. Tissues were studied, and showed that tissue concentration of urea was equal to that of the blood. There was an enormous diuresis, shown to be independent of water intake in two cases.

Factors in Normal Blood Destruction

DRS. PEYTON ROUS and O. H. ROBERTSON, New York: Phagocytosis is not sufficient to account for blood destruction in man. There is a gradual disintegration of red blood cells, with removal in the liver.

The Metabolism and Treatment of Rheumatoid Arthritis

DR. RALPH PEMBERTON, Philadelphia: Fifty cases of rheumatoid arthritis were treated by curtailment of carbohydrates, with subsidence of symptoms and with exacerbations following renewed carbohydrate feeding. The restriction in diet may regulate the symptoms, whether or not focal infections are present. The diet may be supplemented by protein to the necessary requirement, and the caloric requirement brought to normal by butter and olive oil. There is a tendency of the urine to swing to alkaline with exacerbations of the disease.

Vital Capacity of the Lungs, and Its Relation to Dyspnea in Heart Disease.

DRS. FRANCIS W. PEABODY and JOHN A. WENTWORTH, Boston: The production of dyspnea in patients with heart disease depends, in part, at least, on inability to increase the minute-volume of air breathed to as great an extent as can normal persons. This is due to a decrease in the vital capacity which limits the depth of breathing. The tendency of a patient to become dyspneic on exertion varies closely with the degree of the decrease in vital capacity. The determination of the vital capacity gives an indication of the amount of exercise which will produce dyspnea, and is a guide to the severity of the functional disability of the case.

Action of Opium Alkaloids and Their Combinations on the Vomiting Center

DR. DAVID I. MACHT, Baltimore: Nausea and vomiting are the most annoying symptoms produced by opium and its derivatives. In a study of the seven principal alkaloids of opium, it was found that they could be divided into two groups: (1) morphin, which causes vomiting; (2) all the others, which produce nausea feebly. The minimal dose of morphin which produces vomiting in the dog was found to be (average) from 0.3 to 0.4 mg. per kilogram of body weight. Not only is vomiting produced by morphin, but the drug puts the vomiting center out of commission; no vomiting is induced thereafter by apomorphin. Morphin and narcotin given together produced less vomiting than smaller doses of morphin alone; moreover, the combination did not produce exhaustion of the vomiting center; the same holds true for morphin in combination with narcein, and even more remarkable effects are seen when a mixture of the total alkaloids is given; the vomiting center is not put out of commission by this preparation. The explanation of its favorable action probably lies in the molecular structure of the alkaloids. The combination of opposites reduces the tendency to provoke nausea.

Rôle of the Liver in Acute Polycythemia

DR. PAUL D. LAMSON, New York: As to the cause of the sudden increase of red cells in acute polycythemia, two theories are held: (1) that polycythemia is due to sudden diminution of blood fluid with concentration of cells, and (2) that there is a sedimentation of red cells somewhere in the body, which if stirred up will suddenly increase the red cell count. Epinephrin will cause a polycythemia in a few minutes; this reaches its height in fifteen minutes, and begins to fall in another fifteen minutes. Experiments were made to fix the liver as the source of the influx of cells. It appears that the increase of cells is not due to loss of plasma alone, but also to a sudden influx of stored cells. The liver seems to be the organ that is responsible for both factors. It is suggested that a physiologic influx of epinephrin may account for acute polycythemia, such as occurs after fright, etc.

(Continued on page 2030)

Marriages

LLOYD WARREN KETRON, M.D., Baltimore, to Miss Romola Cressey of Modesto, Calif., at Baltimore, May 21.

WALTER EDWIN KOPPENBRINK, M.D., St. Louis, to Miss Alice Miriam Lake of Higginsville, Mo., May 24.

RICHARD ORMOND LEAVENWORTH, M.D., Glencoe, Minn., to Miss Geneva M. Hilton of Minneapolis, June 14.

RAYMOND CLARE COLEMAN, M.D., Estherville, Iowa, to Miss Josephine Dean Smith of Minneapolis, May 24.

ELMER STANLEY BAGNALL, M.D., Roslindale, Mass., to Miss Aida H. Salmon of Boonton, N. J., June 3.

GEORGE EDWIN DEERING, M.D., to Miss Agatha Louise Small, both of Worcester, Mass., recently.

ABRAHAM SNELL PARK, M.D., Chicago, to Miss Laura Isabel Davidson of Owatonna, Minn., June 7.

FRANCIS GILMAN BLAKE, M.D., Boston, to Miss Dorothy Dewey of Springfield, Mass., June 1.

WILLIAM NELSON THOMAS, M.D., Oxford, N. C., to Miss Estelle Bullock, at Oxford, June 1.

WARREN YODER THOMPSON, M.D., to Miss Mary G. Kenworthy, both of Omaha, May 24.

CARY EGGLESTON, M.D., to Miss May Appleton Parker, both of New York City, June 3.

WALTER JOSEPH REAM, M.D., Ladd, Ill., to Miss Marie Hall of St. Paul, June 1.

Deaths

Ambrose Talbot, M.D., Kansas City, Mo.; Harvard Medical School, 1885; aged 55; a Fellow of the American Medical Association; visiting physician to St. Margaret's Hospital, Kansas City, Kan.; medical director of the Kansas City Life Insurance Company and medical referee of the National Life Insurance Company of New York; instructor in clinical medicine in the medical department of the University of Kansas; once president of the Medical Section of the American Life Convention; died in his office in Kansas City, June 1, from cerebral hemorrhage.

Edward Orlando Greer, M.D., St. Louis; Marion-Sims College of Medicine, St. Louis, 1893; aged 50; formerly a Fellow of the American Medical Association; a member of the Missouri State Medical Association; from 1907 to 1911 professor of hydrotherapy and diseases of the abdominal viscera in Barnes Medical College, St. Louis, and for a year thereafter professor of clinical medicine in the National University of Arts and Sciences, St. Louis; formerly chief of the obstetric and gynecologic clinics in his alma mater; died at his home, May 27, from nephritis.

Andrew M. Peables, M.D., Auburn, Me.; Dartmouth Medical School, Hanover, N. H., 1864; aged 80; a Fellow of the American Medical Association and vice president of the Androscoggin County Medical Association; attending physician to the Central Maine General Hospital, of which he was one of the founders; a member of the Auburn School Board and city council, and a representative in the state legislature in 1869 and 1870; president of the board of health of Auburn; a director in two local banks; died at his home, May 24.

Francis Foerster, M.D., New York City; College of Physicians and Surgeons in the City of New York, 1883; aged 61; a Fellow of the American Medical Association and New York Academy of Medicine, and of the American College of Surgeons; for ten years professor of gynecology in the New York Post-Graduate School; obstetrician and gynecologist to the German Hospital; died in that institution, June 1, after a long illness from abscess of the lung.

Edwin Alonzo Goodridge, M.D., Flushing, L. I., N. Y.; College of Physicians and Surgeons in the City of New York, 1871; aged 75; for thirty-four years a practitioner of Flushing; for five years president of the board of education and for many years trustee of the public schools; a veteran of the Civil War; at one time health officer of Flushing and surgeon to the Flushing Hospital; died at his home, May 31, from heart disease.

Thomas Elwin Murray, M.D., Great Falls, Mont.; Jefferson Medical College, 1908; aged 34; a member of the Medical Association of Montana; a registered pharmacist; health officer of Great Falls and vice president of the State Life Insurance Company of that city; who was operated on in April for relief of chronic appendicitis, died in St. Joseph's Hospital, Phoenix, Ariz., May 29, from endocarditis.

James Stenhouse, M.D., Denver; Denver College of Medicine, 1886; aged 56; head physician of the Pacific jurisdiction of the Woodmen of the World; visiting physician to the Denver City and County Hospital; founder of the People's Mission, Denver; formerly local surgeon for the Denver and Rio Grande and Union Pacific systems; died in St. Joseph's Hospital, Denver, May 24, from pneumonia.

John Evelyn Page, M.D., Santa Barbara, Calif.; University of Maryland, Baltimore, 1889; aged 49; surgeon (lieutenant-commander), U. S. Navy (retired); who entered the Navy June 18, 1890, and was retired on account of incapacity resulting from an incident of service, April 3, 1908, after seven years and eleven months' sea service and six years and eight months' shore or other duty; died May 28.

Albert Curtis Perveil, M.D., Brooklyn; New York University, New York City, 1894; aged 40; for two years surgeon of the Offin River Gold Mining Company in the Belgian Congo, West Africa; and who had been ill with sleeping sickness at his home in Brooklyn for several months; died in Roosevelt Hospital, New York City, May 31, from trypanosomiasis.

Walter John Wilson, M.D., Detroit; Detroit Medical College, 1879; aged 67; a Fellow of the American Medical Association and at one time president of the Detroit Academy of Medicine; while riding a motorcycle in Detroit, June 1, was struck by a street car and sustained a fracture of the skull from which he died in the Receiving Hospital, two hours later.

James Ferguson Vannice, Bishop Hill, Ill. (license, years of practice, Illinois, 1889); aged 76; a member of the Illinois State Medical Society; formerly a druggist; a veteran of the Civil War and a practitioner since 1867; for many years school director and clerk of the board of education of Bishop Hill; died at his home, May 25, from cerebral hemorrhage.

Charles Zeh Garside, M.D., New York City; College of Physicians and Surgeons in the City of New York, 1903; aged 37; a member of the New York Academy of Medicine, and New York Pathological Society; professor of pathology and bacteriology in Fordham University, New York City; died in the German Hospital, New York City, June 1.

Benjamin U. Jacob, M.D., Waukesha, Wis.; Northwestern University Medical School, Chicago, 1881; aged 66; formerly a Fellow of the American Medical Association; a member of the State Medical Society of Wisconsin; formerly a druggist, and physician to the Wisconsin State Industrial School for Boys; died at his home, May 28, from heart disease.

Alfred King, M.D., Portland, Me.; Medical School of Maine, Brunswick, 1886; aged 54; a Fellow of the American Medical Association and a member of the American Surgical Association, professor of surgery in his alma mater and consulting surgeon to the Maine General Hospital, Portland; died at his home, June 4, from pneumonia.

Moise Lafleur, M.D., New Orleans; Tulane University, New Orleans, 1915; aged 27; ship surgeon on the United Fruit Company's steamer *Suriname;* while engaged in scientific research work on the border between Guatemala and British Honduras, was shot and killed by Guatemalan soldiers.

Edward White Elliott, M.D., Turlock, Calif.; College of Physicians and Surgeons, Keokuk, Iowa, 1897; aged 49; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of California; died at his home, May 26, from cerebral hemorrhage.

Matta Louisa Berry Longwell, M.D., Wellsboro, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1905; aged 36; a Fellow of the American Medical Association; died in the Williamsport Hospital, June 3, from acute nephritis three days after an operation for appendicitis.

Louis F. Laudick, M.D., Lima, Ohio; Medical College of Ohio, Cincinnati, 1890; aged 49; formerly a Fellow of the American Medical Association; a member of the Ohio State Medical Association; at one time health officer of Lima; died in a hospital in Toledo, May 25, from paresis.

M. H. Verpoorten, M.D., Council Bluffs, Iowa; Catholic University, Louvain, Belgium, 1874; aged 68; a Fellow of the American Medical Association; for several years a practitioner and druggist of Laramie, Wyo.; died in the Jennie Edmundson Hospital, Council Bluffs, June 2.

William Pitt Cleveland, M.D., Fargo, N. D.; Medical School of Maine, Brunswick, 1879; aged 67; said to have been the first registered medical practitioner in Dakota territory; formerly physician of Caledonia and Traill County, N. D.; died at his home, May 30.

Francis M. Rose, M.D., Los Angeles; formerly of Faribault, Minn.; Starling Medical College, Columbus, Ohio, 1860; aged 74; formerly a Fellow of the American Medical Association; a veteran of the Civil War; died at his home, May 18, from paralysis.

David C. Stinson, M.D., Sioux City, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1874; aged 66; for thirty-two years a practitioner and druggist of Dakota County, Neb.; died at his home in Sioux City, Iowa, May 25, from malignant disease.

Thomas Perrin Kennedy, M.D., Union, S. C.; Tulane University, New Orleans, 1910; aged 30; a member of the South Carolina Medical Association; a specialist on diseases of the eye, ear, nose and throat; died at the home of his father-in-law in Union, May 21.

Chapman J. French, M.D., Huntington, W. Va.; University of the South, Sewanee, Tenn., 1904; aged about 40; a member of the West Virginia State Medical Association; died suddenly at a hotel in Kenova, W. Va., May 31, from cerebral hemorrhage.

Thomas J. Partlow, M.D., Newport News, Va.; Medical College of Virginia, Richmond, 1906; aged 33; a Fellow of the American Medical Association; for three terms city health officer of Newport News; died at his home, June 1, from cerebral hemorrhage.

Charles Turner Sands, M.D., Las Cruces, N. M.; Jefferson Medical College, 1907; aged 33; a Fellow of the American Medical Association; formerly of Pittsburgh; who went to New Mexico six years ago on account of his health; died at his home, May 14.

James S. Hanson, M.D., Sandusky, Ohio; Detroit College of Medicine and Surgery, 1891; aged 47; a member of the staff of Providence Hospital, Sandusky; a director of the Columbus Mutual Life Insurance Company; died at his home, May 31.

George Morris Eckels, M.D., Mechanicsburg, Pa.; University of Pennsylvania, Philadelphia, 1885; aged 59; a member of the state legislature from Cumberland County in 1891 and 1893; a member of the borough council; died at his home, May 24.

Thomas Hamlin Strohecker, M.D., Washington, D. C.; North Carolina Medical College, Charlotte, 1902; aged 63; also a lawyer and clergyman of the Lutheran Church; died in George Washington University Hospital, Washington, D. C., June 1.

Maurice J. Carey, M.D., Cleveland; Columbus (Ohio) Medical College, 1882; aged 71; formerly a Fellow of the American Medical Association; a member of the Ohio State Medical Association; died at his home, April 17, from pneumonia.

Paul Archibald Gillespie, M.D., Winburg, South Africa; University of Toronto, Ont., 1891; formerly of Cannington, Ont.; major in the South African Expeditionary Force for some time; died at Winburg, March 24, from bubonic plague.

James Stimson, M.D., Santa Cruz, Calif.; New York University, New York City, 1854; Victoria University, Coburg, Ont., 1855; aged 83; president of the Santa Cruz County Medical Association in 1892; died at his home, May 25.

James J. Gibson, M.D., Athens, R. D. 11, Lexington, Ky.; Hospital College of Medicine, Louisville, Ky., 1889; aged 47; a Fellow of the American Medical Association; died at his home near Athens, May 28, from cerebral hemorrhage.

Thomas E. Bales, McMinnville, Tenn. (license, Tennessee, 1889); aged 54; a Fellow of the American Medical Association; for many years a practitioner of Morristown, Tenn.; died at his home, May 24, from pernicious anemia.

William Ross Lee, M.D., Los Angeles; New York University, New York City, 1890; aged 53; died in the receiving hospital, Los Angeles, May 20, from the effects of morphin, self-administered, it is believed, with suicidal intent.

Matthew John Perkins, M.D., Spearville, Kan.; Trinity Medical College, Toronto, 1903; aged 43; a member of the Kansas Medical Society; founder of the Perkins' Hospital, Spearville; died at his home in that place, June 3.

Haakon B. Christensen, M.D., Los Angeles; University of Denmark, Copenhagen, 1894; aged 35; was accidentally drowned at Venice, Calif., February 27.

Leonard G. Hain, M.D., Shillington, Pa.; Jefferson Medical College, 1893; aged 43; coroner of Berks County; also a banker; died in St. Joseph's Hospital, Reading, Pa., May 23, after an operation for appendicitis.

Samuel P. Coffman, M.D., Sugar Grove, Ky.; Louisville (Ky.) Medical College, 1886; aged 58; a member of the Kentucky State Medical Association; died at his home, February 19, from disease of the kidney.

Ellet Joseph Wagner, M.D., Battle Creek, Mich.; Long Island College, Brooklyn, 1878; aged 60; physiologic chemist to the Battle Creek Sanitarium; died in that institution, May 28, from heart disease.

Joseph Riddle Gorrell, M.D., Newton, Iowa; University of Buffalo, N. Y., 1859; aged 79; surgeon of U. S. Volunteers during the Civil War; died at the home of his daughter in Newton, about May 26.

Elizabeth Jane Wiley Corbett, M.D., New York City, formerly of San Francisco; University of Michigan, Ann Arbor, 1879; aged 82; died at the Takoma Park Sanitarium, Washington, D. C., June 4.

Almon L. Bennett, M.D., Nickerson, Kan.; formerly of Greensburg, Kan.; Eclectic Medical Institute, Cincinnati, 1889; aged 65; died at his home in Nickerson, April 24, from cerebral hemorrhage.

Edwin Wilbur Higbee, M.D., Northampton, Mass.; University of Vermont, Burlington, 1871; aged 66; for more than forty years a practitioner of Northampton, Mass.; died at his home, May 21.

Douglas Waterston, M.D., Westmount, Montreal, Que.; McGill University, Montreal, 1914; aged 26; captain in the Canadian Army Medical Corps; was killed in action in France, May 22.

Edward John Ulrich, M.D., San Jose, Calif.; Homeopathic Hospital College, Cleveland, 1871; aged 83; for several years a clergyman of the Methodist Episcopal Church; died at his home, May 31.

Philip Henry Edwards, M.D., Newark, N. J.; New York University, New York City, 1895; aged 43; a member of the Medical Society of New Jersey; died at his home, May 26, from peritonitis.

Arthur Scott Reebel, M.D., Saranac Lake, N. Y.; formerly of Youngstown, Ohio; Tufts College Medical School, Boston, 1909; aged 30; died at the home of his parents in Youngstown, May 22.

James Turner Sherman, M.D., Dorchester, Boston; New York Homeopathic Medical College, 1869; aged 67; died at the home of his daughter in Newport, R. I., June 6, from pneumonia.

George C. Werner, M.D., Norwood, Cincinnati, University of Freiburg, Germany, 1888; aged 72; a veteran of the Franco-Prussian War; died at his home, May 31, from heart disease.

George Henry Carpenter, M.D., Cumberland, Md.; University of Maryland, Baltimore, 1868; aged 73; died in the Allegany Hospital of the Sisters of Charity, Cumberland, May 24.

Otis Lee Wingate, M.D., Albuquerque, N. M.; formerly of Philadelphia; Jefferson Medical College, 1904; aged 38; died recently at his home in Philadelphia, from tuberculosis.

John Luther Duryee, M.D., Newark, N. J.; College of Physicians and Surgeons in the City of New York, 1868; aged 70; died in a sanatorium in Orange, N. J., June 1.

Fletcher Smith, Dover, Ky. (license, Kentucky State Board of Health, forty-one years of practice, 1893); aged 92; died at his home, May 18, from senile debility.

Edmund P. Thomas, M.D., Bowling Green, Ohio; Hahnemann Medical College, Chicago, 1882; aged 62; died at his home, May 18, from erysipelas.

Carlton S. Shepard, M.D., Omaha; Rush Medical College, 1881; aged 64; was killed in an automobile accident near Red Willow, Alta., May 24.

Charles Jefferson Stovall, M.D., Bowling Green, Ky.; Kentucky School of Medicine, Louisville, 1891; aged 61; died at his home, May 25.

James Francis Costello, M.D., Wollaston, Mass.; Tufts College Medical School, Boston, 1913; aged 26; died at his home, May 23.

Arthur E. Dawson, M.D., Jersey, Tenn.; Chattanooga (Tenn.) Medical College, 1904; aged 36; died at his home, May 24.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE WINE OF CARDUI SUIT

(*Continued from page 1879*)

May 9, 1916, Afternoon

TESTIMONY OF DR. T. SOLLMANN (*continued*)

The Court met pursuant to adjournment. Dr. Torald Sollmann resumed the stand for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD (*continued*)

VALUE OF ANIMAL EXPERIMENTATION

Q.—Doctor, you stated that a second method of the investigation of preparations such as Wine of Cardui is by animal experimentation. Now, will you please explain to the jury what you mean by that, and what the value of animal experimentation is in such an investigation? *A.*—Experiments on the animals enable one to—

Q.—Doctor, may I interrupt you just a moment to warn you to keep your voice up, so that we can all hear. *A.*—Experiments on animals enable one to obtain definite information by methods that can be exactly controlled and that are not open to the same sources of error as are clinical experiments or clinical observations. Whilst, of course, the clinical test is the final test of the value of a medicine itself, in order to be safe, it has to be supplemented—or, better, preceded by experiments on animals that avoid, as I say, the errors that are very difficult to avoid in clinical experimentation—or clinical observation.

Q.—Now, doctor, can you illustrate this to the jury in any way? *A.*—Yes. In the scientific subjects one is only applying the same sort of reasoning, of course, that one applies in ordinary life. The field of that reasoning is a little different, but that is the only difference. The same sort of reasoning applies in the scientific fields of investigation as it does in every day affairs.

Now, one example that occurs to me in this connection, that illustrates very well the difference between the laboratory test and the clinical test, is the way in which the germinating quality of the seed corn can be tested. If a farmer buys some seed corn and sows it out in the field, and the corn comes up and he cultivates it and he harvests the crop, of course, he knows that was corn that was sufficiently good—the seed was sufficiently good.

That is one way of testing the quality of the corn. And it is rather a wasteful way, and it takes a long time, and it is not absolutely certain, because, if the corn should not come up it might not be the fault of the seed at all; the weather might be bad; it might have rotted in the ground; or some animals might have eaten it up; almost anything might have happened.

So that, whilst, to a certain extent, under certain circumstances, that field test which corresponds to the clinical test is a good test, under other conditions it is not.

Now, there is another way in which the quality of the seed can be tested, and that is to put it on a plate with a little water, behind a stove, and see, after two or three days, whether it has sprouted. Now, that corresponds to the laboratory test. You are subjecting this corn to rather artificial conditions, and not exactly the conditions under which you are going to use it in the field, but simpler conditions; conditions that you can control.

If you are doing the test on the plate, in the first place you know definitely whether that seed is a good germinating seed or not. If it has not germinated there, it would not be the fault of any crows or any bad weather—it was the fault of the seed, and nothing else.

Then again, the test is very much quicker. You don't have to sow it in the field, and if it does not come up, lose your whole season's work. It can be done inside of a very few days. Why? Because the conditions for the test are so much more favorable than they are in the field test. Therefore, if you are wise, you will make that test first, if you have any doubts as to the quality of that seed, if you bought it promiscuously—you will first make the seed test before you put it in the field.

Now, that is exactly the case with the laboratory experiments. The laboratory experiments bear exactly the same relation; they are quicker; they are more certain; they are more certain, because you are controlling, and you know you are controlling the conditions. You can watch that corn all the time. You cannot watch what is happening to it after you put it in the ground; you cannot see it.

Then there is another similarity between the two tests and the clinical experiments. That in your plate test—

Mr. Hough:—In your what?

The Witness:—In the plate test, when you put the seed on the plate.

Mr. Hough:—Plate?

The Witness:—Yes. If, in the plate test, that seed does not come up, then you are perfectly sure that the seed is not worth while planting; it is not any good; you can be absolutely sure of that.

Now, it is just the same here. If you make, under proper conditions, animal experiments, and you find that the drug has no action on the animals, you can be perfectly sure that it has not any action on the human, and that really—I mean clinically—and that really, it is not worth while trying it clinically.

Further, if you find that your seed germinates, that does not necessarily mean that you will have a good crop. That is not the only thing that is required to produce a good crop. You can put that in the ground—it may sprout, possibly—and then freezing weather may come in and your corn is cut off. So, simply the fact that you get a result in your laboratory test — in your plate test, does not mean that you will get a good result from the corn, if you plant it.

It is just the same in animal experiments. You may find that a drug has an action in an animal experiment. That does not necessarily mean that that would be a useful drug clinically. That depends on other conditions. It depends especially upon whether the clinical condition—condition of the patient demands that kind of an action. You can see there is that action. You can produce it under certain suitable conditions; but it does not mean it is a useful drug, because you may not want that action—very often you don't.

I think that is perhaps as well as I can make an illustration of the correspondence between the two.

ERRORS OF CLINICAL TRIAL

Mr. T. J. Scofield: *Q.*—Doctor, as I understand you, it may or may not be that clinical trials are sometimes subject to error. Now, will you explain that to the jury, or explain what these possible errors are? *A.*—Yes. Every physician recognizes clearly that his clinical experience has limitations, and the conclusions to be drawn from them also have their limitations. That has been known since the oldest times in medicine. The beautiful Hippocratean oath that was administered by Hippocrates at the beginning of medical history states that "Experience is fallacious and judgment is difficult."

He stated that, because he was an accurate, discriminating, clinical observer. He observed as well as anybody could observe with the means that were possible at that date. He was one of the best observers that has ever been in medicine. And that was the result — that was the conclusion that he arrived at from his clinical experience.

Now, the reason why he arrived at this conclusion was this — there are several reasons, in fact. The first is that the course of a disease is uncertain. In many cases you cannot predict how the patient will be the next day; and, if you cannot predict how the patient will be the next day — if he is different tomorrow from what he was today, and you have done something in the meanwhile, you do not know necessarily that that was due to what you did, or due to change in the patient himself. In other words, the fact that you give a drug to a patient, and that a certain result follows in a given time, does not necessarily mean that that result was due to that drug that you gave. It might have been due to something entirely different.

Now, let me give you an illustration of that. Take pneumonia. Pneumonia is a disease that runs a perfectly definite course. We know that. A patient gets a high fever; gets sometimes out of his head; he gets worse and worse for about for or five days. At the end of that five days a sudden change occurs; he either dies, or he gets well by himself, practically without any treatment. Before people fully realized that — they now know it, most of them, well enough — but before they realized that, they used to be giving all kinds of drugs in the treatment of pneumonia, drugs and other things, baths, and all sorts of things. They would give those, and the patient would go on, and after the five days, a certain number would get well, and a great many people attributed that to this drug, or that, or something else.

It has been now shown, had they left those patients strictly alone, they would have gone through exactly the same course of events. It simply shows what the natural course of the disease is. Now, in the case of pneumonia, we know that well enough now. That is one of the few diseases — many infectious diseases are the same way, they run an absolutely definite course, and we know what is going to happen. Take a patient who is bleeding from a large artery. Suppose you cut the artery in the hand and let the patient bleed. Now, one of two things is going to happen, and you don't know which it is; either the patient will bleed, or the bleeding will stop; it will be one or the other eventually. You give a drug between the times, and the patient stops bleeding, but you cannot tell from that that it was the action of the drug. He might have stopped anyhow — or he must have bled to death.

Now, all those things are along that same line. Now, that is one great source of error — I should say the most frequent source of error, that a man, physician or patient, or the laity — if they are sick, they use a drug, and if they get well, they conclude from that that they got well because they took that medicine. That may be so, but it need not be so. It takes more accurate, more careful methods of observation that will definitely fix the drug as the thing which did the trick—did the business.

Another difficulty in the — a source of error in clinical observation is the effect of suggestion. Now, a man or a woman differs from animals in the fact that they reason — at least they have very much more reason — and therefore they can be made to imagine things; and, if those things are sufficiently impressed on their imagination, they are very likely to happen.

If you take an individual who has been sleepless, and has not slept well for some time, and you tell him very emphatically, "That is all right, I know the reason for all that; to-night I know those reasons are going to be removed, and you are going to go to sleep to-night all right and will have a sound sleep,"— very likely he will have that sound sleep, no matter what else you do. If an individual has a pain, and you can only convince him, distract his attention from that pain, by occupying it with something else, that pain will disappear. Everybody knows the old trick of biting the bullet when you have pain. Now, the bullet has no effect on that pain. It does not remove the pain, it distracts the attention.

Now, all that sort of thing comes in when one gives a drug to the patient. The effect may be due simply to suggestion. That has to be guarded against. That is very difficult.

Another source of error is that very often that several things are varying in the treatment. The physician prescribes a drug, and together with the drug he prescribes a lot of other things. He tells the patient to go to bed, to remain quiet, to eat certain food and not eat certain food. Sometimes he gives them a mixture of medicines. Now, when all these things come together, of course, it is impossible practically to tell by ordinary observation what part the drug may have played in the effect, and what part it may not have played in the effect.

Now, all these sources of error — and there are some more that I do not think of at the moment — now, all these sources of error can be, to a large extent, counteracted or prevented by very careful, discriminating observation; observation that goes down into every detail, and which makes the conditions just as constant as they possibly can be; methods of observation that practically can only be carried out in hospitals, where the means of observation are such as will allow of that kind of experimentation.

But the ordinary observation is exposed to large sources of error, which must be taken into account when one draws any conclusion from them, and which do not occur in animal experiments; because, in animal experiments, in the first place, you are working for a short time, and you know that in that time, if the experiment is properly conducted, no spontaneous changes occur, and the animal's condition is absolutely constant. The only variation that occurs there is the introduction of the drug.

Therefore, since that is the only change that occurs — if a change occurs — in the animal, it must have been due to that drug, and cannot have been due to anything else.

Then in animals, again, you can introduce very much larger doses than you can in the human. Therefore, an effect which is so slight in the human that you cannot be sure it is an effect — so slight that you cannot decide "Did something really happen, or didn't it happen?" In animals you can use enough so that you can be sure that something happens. If nothing happens with these large doses, certainly nothing could have happened with the small doses.

Further, in animals, besides excluding the element of suggestion I have already mentioned, you can introduce a drug in a better way. You can introduce it, if necessary, directly into the tissue, where it will act. Now, if you give a drug to a human individual, it may happen that that drug is not absorbed at all. It has first to be absorbed. It has to go through all the tissues, and part of it is excreted in that time. You do not know, unless you can determine it directly, how much of that drug will reach any given organ.

Now, if you can take an animal, or under certain conditions, a human individual — but you cannot do it as often with humans as you can with animals — and introduce that drug directly into the circulation, or, still better, into the organ that you are studying, you know it is there, and it is there in the doses — the best concentration — the largest and most favorable condition that you can possibly place that drug in for the effect.

There is still another reason why animal experimentations are in certain directions superior. Often you cannot be sure of the action of a drug because it produces several actions at the same time. It acts on different things, and those different things interact, and you get a very complicated picture, out of which you can get but very little. In such a case, to know that an action occurs, or, still more, to know what that action is, you have got to separate out the tissues, and to do that, you have to do physiological procedures, operations, etc., that you can do perfectly well on an anesthetized animal, but that, of course, you could not do on a human individual.

In order to understand the action of a drug, the mechanism of the action of a drug, in other words, in order to really investigate the drug, you must use animal experiments.

That, I think, covers the substance of your question.

RELATION OF RESULTS ON ANIMAL TO EFFECTS IN HUMAN

Q.—Now, Doctor, can the results of animal experimentation be transferred to the human being? *A.*—Yes, they can. If the structure and the functions of the animal are the same as that of the human in the respects which you are investigating — if they are the same as in the human, the results can be transferred directly to the human, except, of course, the matter of dosage which differs in different animals, and differs as far as — so far as the effect, the action is concerned, that can be transferred directly, if the structure and the function of the organs are the same. If they are not the same, of course, one has to choose a suitable animal that has the same structure or function, or one has to take a larger series of animals, etc. It can be transferred either directly or indirectly, and if the function and structures are the same, they can be transferred directly from the animal to the human.

Q.—Doctor, are the actions of drugs the same in health and in disease? *A.*—Yes, the actions of drugs are the same in health as they are in disease. The effects, of course, may be different. They differ to some extent with conditions, the conditions that the action of the drug encounters — the actions are the same.

Q.—If a drug has no action on the normal animal, can it have any action, or does it have any action on the human disease, or any effect on human disease? *A.*—An instance in which a drug has no action on the healthy animals and has an action, demonstrable action, definite action, on the human, is not known. No such instance is known; and, furthermore, it is not only unknown, but it is inconceivable.

Q.—Why is it inconceivable? *A.*—Drugs act by affecting the chemical components of the body. That is the way in which drugs finally act. Now, the chemical components of the body are so nearly related in animals and in men, in health and in disease, that it is just as inconceivable—just as impossible to conceive that a drug would act in the one case and have no action at all in the other case, as it is impossible to conceive that fire would burn pine wood and would not burn oak wood. It does not burn them with the same velocity. They don't burn as quickly, one as the other, but they both burn. They don't burn as fast, because their chemical structure, and their physical structure is a little different; but they both burn, because their chemical structure is alike. The drug acts on the body essentially in the same way as the fire acts on the wood. Now, you can take your oak wood or your pine wood, and you can let it rot, then it is still there—it will still burn. There is no difference in that; the action is the same; and it is just as impossible to conceive of the one as it is to conceive of the other.

BY MOUTH OR BY INJECTION

Q.—Doctor, is there any drug which produces an effect or action when given by the mouth, which does not produce an effect when injected directly into the tissues? *A.*—There is no soluble drug which has that characteristic, namely, that it produces—that is the question—it produces an action when taken by mouth and not an action when it is injected into the system. That also is inconceivable, because, when you inject a drug into the system, it comes directly into contact with the tissues, much more directly than when you take it by mouth; when, in the first place, it slowly absorbs, instead of entering quickly, and, in the second place, it is excreted all the time. You never get as much at the time in the tissues.

My answer was—the question, as I understand it—was any action on the system. Of course, a drug will produce an action in the alimentary canal better when it is given by mouth, when it comes in contact with the alimentary canal, than when it is injected into the system. That is a local action. But an action on the system—you cannot conceive of it being easier to produce that, when the drug is given by mouth, than when it is injected into the system—speaking of soluble drugs.

Now, if you take the case of insoluble drugs, the condition may be different. Certain drugs may require for their solution that they should be digested, as it were. Then, of course, that is a different thing altogether. Then they will not act unless they are digested. But substances that are soluble will invariably, almost invariably, produce a greater action, or better action, if they are injected directly into the system, than when they are introduced indirectly by way of the alimentary canal.

Q.—Now, Doctor, Wine of Cardui is sold as a female remedy; claimed to be a female tonic; a uterine tonic acting on the portal system; acting on the womanly organs, just as a kidney remedy acts on the kidneys; curative in all sorts of menstrual disturbances; displacements of the uterus; inflammations of the uterus; gonorrheal vaginitis; sterility. Will you explain, if you have an opinion on the subject, how animal experimentation might throw any light on these claims? *A.*—These claims relate entirely to the female generative organs. They presuppose, as you state them, an action on the uterus. Now, effects on the uterus can be very well investigated in animals, perfectly well; and they—

Q.—Well, Doctor — go ahead. Answer. *A.*—They can be investigated, in the first place, by an action of the blood supply on the uterus or an action of the contractions of the uterus; all these claims practically come back to those two things, an action either on the blood supply or on the contractions of the uterus, and both these things can be perfectly well investigated in animals, with very definite results, or absence of results, as the case may be.

Q.—Well, what bearing has the blood supply of the uterus on these claims? *A.*—The blood supply of the uterus determines the blood flow to the uterus; and, therefore, would very markedly influence such female disturbances as amenorrhea, and menorrhagia and metrorrhagia. All these would be influenced, and would, to a certain degree, depend upon the blood supply of the uterus.

Q.—How may the blood supply of the uterus be varied, and how can this be shown by animal experimentation? *A.*—The blood supply of the uterus may be varied in several different ways. It may be varied in the first place by an action on the blood vessels, either directly on the blood vessels or through the central nervous system. That can be determined by the blood pressure and also by the color of the uterus. The more blood there is flowing through the uterus, the deeper the color of the uterus.

The second way in which the blood supply of the uterus may be affected is somewhat indirectly, through congestion of the intestines and perhaps also through congestion of the portal circulation, that is to say, the circulation of the liver. In intestinal congestion, or portal congestion, any such congestion would also be shown definitely by changes in the blood pressure and by changes in the color of the intestines.

Furthermore anything or most things or many things that alter the blood supply of the intestines do so by irritating the intestines and that means that the intestines will move more, so by watching the intestines, one obtains further light on that subject.

Another way in which the drug may act or influence the blood supply of the uterus is by acting on the muscles of the uterus itself — the uterus itself. The uterus is a muscular organ and consists of what is called smooth muscles or muscular fibers and between these fibers, or certain ones of these fibers, run the blood vessels.

If these fibers contract together that compresses the blood vessels and that is the way in which ergot acts after childbirth. When the uterus is large and the woman is bleeding a good deal, all you have to do to stop the bleeding is to contract the uterus down so that the fibers press on the blood vessels and squeeze them together.

Now, an action of that kind would be shown by increased contraction of the uterus. The contractions of the uterus can be increased.

That also can be very imminently and easily shown by animal experiments.

Q.—Now then, doctor, assume it to be a fact that Wine of Cardui has no effect on the blood pressure, even when it is injected into a vein in large doses. Assume further that neither Wine of Cardui nor viburnum prunifolium, the bark of the stem or of the root, has any effect on the blood pressure, nor on the uterine contractions, the color, nor on the intestinal contractions or color.

Assume further that Wine of Cardui, viburnum prunifolium and carduus benedictus and marianus have no effect on the contractions of the excised human uterus; both the alcoholic and the evaporated preparations being used.

Assume further that in the animal experiments the drugs were given by mouth, under the skin, and into the intestines.

Assume further that Wine of Cardui, when injected into the human uterus in the living subject, produces no effects of any kind.

With these assumptions in your mind, have you an opinion as to the effect of Wine of Cardui in menstrual disorders?, *A.*—Yes, I have an opinion.

Q.—Wine of Cardui and the other drugs which I have named. Have you an opinion? *A.*—You have in your question covered all the ways in which I can imagine a drug as affecting the blood flow of the uterus. You have in your question given these not only in the best possible method, but you have also given them by practically many essential modifications of the method or kinds of methods of administration.

You state that under those conditions, it produced no effects of any kind in any of these contractions. The only conclusion that I can draw from that is that it would not affect the menstrual flow.

Q.—Could it be possible in your opinion that a drug might act on the blood flow in diseased conditions of the human being and have no effect on healthy animals? *A.*—No, that is quite inconceivable. The structure and functions, and the distribution of the blood vessels are the same in the human and in animals, and therefore it would be quite impossible to make such an assumption.

MENSTRUAL DISORDERS

Q.—Doctor, are there any other ways in which a remedy might affect menstrual disorders than acting on the blood supply of the uterus? *A.*—Oh, yes. It might act upon the cause of those disorders.

Q.—Now, when you say the cause of the disorders, do you mean the cause which produces the trouble or disorders? *A.*—Yes, take tuberculosis, and that sort of thing, anemia.

Q.—Now, Doctor, would tonics be of any value in menstrual disorders? *A.*—So far as the menstrual disorder proper is concerned, they would be of no direct value. They might be of some use after the cause of the disorder has been removed. They might be of some use then by hastening the recovery of the patient, restoring her perhaps somewhat more rapidly in her general health. But, so far as the menstrual condition is concerned, they would have no effect on the menstrual disorders in the way in which I have mentioned here.

Q.—What is meant by tonic? *A.*—A tonic is a measure that increases the nutrition and vigor of the body at large. If you are using the term simply as a tonic, that is what it does.

As a matter of fact, the word "tonic" is used in two quite different ways, according to whether you speak of the body at large, or of a muscular organ in particular.

The meaning when we speak of a general tonic, or a tonic without qualification, is the definition that I just gave; something that increases the health and vigor of the body at large. The best example of that, to make my meaning clear, clearer than anything else, the best typical tonics are proper rest and exercise, proper food, outdoor air, sunshine and things of that kind, and, when they are indicated, such drugs as iron and arsenic. That is what we mean by a general tonic.

Now, in the case of a muscular organ, when we speak of a tonic acting on a muscular organ particularly, then we mean a drug that produces increased contraction of that muscle. For instance, a heart tonic would be a tonic that increases and strengthens the contractions of the heart. A uterine tonic, that is a muscular organ, would be a drug that strengthens the contractions of the uterus. There are those distinct two meanings, a general tonic and a muscular tonic.

BITTERS

Q.—Doctor, are carduus benedictus and viburnum prunifolium tonics? *A.*—Both of those drugs are bitters, and bitter substances generally are believed by some to act under certain conditions as tonics by improving the appetite and improving digestion.

Q.—Are the bitters contained in carduus benedictus and viburnum prunifolium superior to other bitters? *A.*—Whatever action is produced by bitters in that way, is owing solely to their bitter taste and only to their bitter taste. Therefore, one bitter is no better than another bitter. The only point is, are they bitter or are they not bitter? One bitter is as good as any other.

Q.—How do the bitter substances act as tonics, in what way? *A.*—That is not accurately known, and in fact there is considerable reason to doubt whether they do act in that way, or whether they don't act in that way. They have had a good deal of — considerable reputation since the oldest days of medicine, and before that probably, for improving the appetite and improving digestion and in that way, indirectly, improving the nutrition.

Q.—Is there any scientific evidence for such action, doctor? *A.*—Experiments have been made quite extensively to determine whether that action is possible, that action that is popularly assumed and stated to exist — whether it actually exists.

There has been a great deal of difference of opinion as to whether it actually exists or not, and a great deal of experimentation has been done about it.

The earlier literature in regard to that, the earlier statements and the earlier experiments generally are rather contradictory on that point. The latest work that has been done upon it — the earlier works, some say that they have and some not.

The latest work that has been done on that subject is by far the best that has been done. It shows conclusively, to my mind at least, that the bitters have no effect in increasing the appetite or increasing the digestion or any functions of digestion in normal animals or in normal man.

Therefore, if the actions occur at all, they must occur only under special conditions and those conditions have not been investigated.

There has been only one piece of work done on that particular subject and that has been done on extremely anemic animals, animals that were bled several times and reduced to a degree of extreme anemia. Those animals, when they received bitters, did show a slight effect. Their appetite did not become normal or anything like normal. Their digestion did not become normal or anything like normal, but it did improve a very very little.

Now that is the only positive evidence for the value of such tonics taking all the work into consideration, I mean the only one that is really conclusive work.

Now, as to how they act, as I said before, every one is agreed that the action is simply through or is connected with the bitter taste in some way or other if it occurs at all.

I have always thought that one possibility of the contradictory results was this; it is a peculiar fact that everybody has observed who has paid any attention to bitter tonics, it is a peculiar fact that they only act when they are taken half an hour or so before meals. If they are taken at any old time in the day, they do not act as tonics. Nobody has claimed that they act as tonics then. Everybody who has any acquaintance with the subject says that they must be taken at that particular time.

Now, it has always appeared to me that one possible explanation of the thing was this: the function of the stomach depends to a great extent upon one's eagerness to receive food. If you simply suggest to an individual, or even an animal by showing it meat (a dog for instance) that he is going to be fed, then his digestive juices begin to flow.

Now, it seemed to me that probably the action of the bitters simply consisted in sort of a bitter dinner bell. The suggestion is that bitter and half an hour after that, he knows he is going to get his dinner and under those circumstances the chemical juices start to flowing just as if you hold a piece of meat before a dog and the dog knows that in half an hour from that he is going to get his meal. If you do that with a dog, if you show him the meat and he is accustomed to it, that means to him that pretty soon it is feeding time, and then his juices begin to flow. Now, I rather think that that is the way the bitters act, but there is no positive work on that subject.

Q.—Then it is your opinion, if I understand you, that a medicinal solution directed to be taken three or four times a day, without reference to meals, would not be a bitter tonic? *A.*—Not unless it happened to be taken by accident at this particular time, and it must be taken regularly. That is another thing about tonics, they must be taken regularly. If they are going to produce any action, you must train your patient to accept that fact.

UTERINE TONICS

Q.—What is your opinion, Doctor as to the value of bitters as tonics in uterine displacements and disorders, or uterine diseases, I should say? *A.*—They would have no effect on the uterine disease as such, of course.

Q.—You spoke of the investigation of uterine movements. What light would they throw upon the value of a preparation that is claimed to be a uterine tonic to take in the slack of the muscles and nerves and have a sedative action on the uterus and act upon the womb itself to help pull up and replace the womb in its proper position? *A.*—The claims that you state there appear pretty inclusive, and it would be pretty difficult to imagine a drug that would have all of those actions at the same time. But if any of those actions did exist, they could undoubtedly be shown definitely by experiments on animals in which the uterine movements can be directly watched and recorded.

Q.—Doctor, define what you mean by a uterine tonic, stimulant and sedative? *A.*—A uterine tonic is a drug that contracts the uterus down, causes it to go into a more tonic state, as it is called, makes it more firm, makes the muscle contract more firmly.

A uterine stimulant is one that increases or heightens the contractions, the contractions go up and down, and it will go up higher and perhaps make them more frequent. It increases the individual contractions, whereas the tonic has more or less permanent reactions.

A uterine sedative or uterine depressant, as it is sometimes called, weakens the contractions of the uterus, so that instead of being this way, they will be only slight, or only very slow. (The witness apparently indicates with his hand without the sight of the reporter.)

Q.—Are the contractions of the uterus susceptible to the action of drugs? *A.*—Oh, very strongly so, yes.

Q.—How can these actions be investigated? *A.*—They can be best investigated on the animals. One can take a living animal, anesthetize it of course, and under a bath of warm saline solution, so that it does not get irritated by the air, attach a thread to one end of the uterus and let that go up to a lever and tie it to one end, and each contraction of the uterus will move that lever and make it write on the recording surface of a cylinder that revolves. That is one way.

Another way one can get a uterus right out of the body and suspend it in a saline solution that is kept warm and is supplied with oxygen and then tie it to a lever and it will write.

That can be done on the human uterus, uteri that have been removed by operation, for instance, as well as on the uteri of animals.

Any of these ways will give a very definite tracing. The uterus itself is made to record. Nobody is doing anything and it is made to record its own movements. It does that itself and there records them itself so that the observer or operator does not enter into the thing at all directly.

Q.—Is the uterus that is excised and taken out of the living subject alive after it is taken out? *A.*—Yes, as is shown by its contractions. Dead things don't move. It is just as alive as a rain worm when you cut off the head and it goes on wriggling, just as much alive.

Q.—Will an excised uterus, a uterus that has been removed from the body, actively respond to the drugs that act clinically on uterine movements? *A.*—All the drugs that are known to affect definitely the uterine movements clinically, do produce striking changes in the contraction of the animal uterus after it has been excised, under any of these methods that I have named.

Q.—Well now, doctor, let me ask you whether or not the uterus is alike in animals and in human beings? *A.*—The structure is the same, the functions are the same, the nerve supply is generally the same and the blood supply is the same. They are the same in every respect except the size and the shape.

EFFECT OF DRUGS ON UTERINE CONTRACTIONS

Q.—Have you made any experiments yourself on the effect of drugs on the uterine contractions? *A.*—Yes, sir.

Q.—What experiments have you made with Wine of Cardui, and the fluidextract of carduus benedictus, if any? *A.*—I have made a series of experiments on the excised uterus of a guinea-pig and also a series of experiments on the excised human uterus, both with Wine of Cardui, and with fluidextract of cnicus benedictus. The fluidextract of cnicus benedictus — I used two samples. One was prepared from the drug by the chemical laboratory of the American Medical Association, and the other was the extract marketed by Eli Lilly & Company, the fluidextract of Eli Lilly & Company.

Q.—Were the uteri that were used in those experiments normal? *A.*—I used three human uteri in these particular experiments. One of these was from a case of cancer. The other two uteri were normal in their structure. They had been removed on account of displacements, but their structure was normal.

Q.—How about the animals that you experimented on, if you experimented on animal uteri? *A.*—The guinea-pig uteri were strictly normal.

Q.—Well, did the different uteri and the uterus of the guinea-pig —or the uteri, as it may have been—I don't know whether you said one or more. *A.*—Several.

Q.—Did they react alike or not? *A.*—They reacted exactly the same way, yes. I will leave it that way for the present.

Q.—What was the effect produced by the use of Wine of Cardui in that way? *A.*—The Wine of Cardui I employed in concentration, adding it to the saline solution that was around the muscle in large quantities as compared with the volume of the muscle, I used that in concentration ranging from one part of Wine of Cardui to 1,500 of the solution, and strengthened that in different experiments so I got one part of Wine of Cardui to thirty in some of the experiments of the solution. In those various concentrations — that last concentration is much higher than anything you can conceive of, occurring in the actual body—in all of these experiments there was absolutely no effect on the contraction of the uterus, either in the guinea-pig or in the human.

Q.—Now, what result did you obtain with the fluidextract of carduus benedictus? *A.*—The fluidextract of carduus benedictus, I used somewhat the same concentration. I used it in the proportion of one to 1,500 up to a concentration of one to sixty-seven, that is, one part of the drug to sixty-seven of the saline. There was absolutely no effect.

From one to sixty-seven on to one to thirty-three, if you get above the concentration of one to sixty-seven, then you get a progressive depression of the movements, which was undoubtedly due to the alcohol in the fluidextract. A concentration of one to thirty-three would make about 2 per cent. of absolute alcohol in the solution directly in contact with the drug and permanently in contact with it and such a concentration undoubtedly depresses the contraction of the uterus, being in contact with it.

Q.—Doctor, did you make any tracings of these experiments? *A.*—Yes sir, I have some typical tracings with me that will illustrate the matter.

Q.—Have you got them with you there? *A.*—I have them with me, yes.

Q.—I wish you would produce them, doctor. (Papers produced.) These are made by you? *A.*—Those were made by me, yes, sir.

Mr. T. J. Scofield:—Mr. Reporter mark these Defendants' Exhibits 73 and 74.

(Papers marked as indicated.)

Q.—Doctor, will you take these and explain—

Mr. Hough:—Let me look at them for a moment.

Mr. T. J. Scofield:—Yes, this is the first one.

Q.—Doctor, I hand you now these exhibits, marked respectively 73 and 74. Will you indicate to the jury or explain what those lines indicate? Explain the tracing, so that they may understand the exhibits. *A.* (Exhibiting papers to jury.)—This first wave line here represents the contractions of the normal human uterus excised.

Mr. Walker:—Are you using 73? *A.*—73, yes. That was the Wine of Cardui itself. This wavy line on each of these tracings indicates the contractions of the uterus. (Indicating on tracing without the sight of the reporter.) Now, at this point here Wine of Cardui was introduced in a concentration of one to 150 and you see this contraction go on, there is no change. Here the concentration was strengthened to one part to fifty, one part to fifty and still the contractions go on without any change. Here it was increased to one to thirty, and you see these waves are still present, no stronger and no weaker, nor faster nor slower, just exactly the same.

Mr. T. J. Scofield:—Now, that Exhibit 73 represents experiments with what? *A.*—Wine of Cardui, and the human uterus.

Q.—Wine of Cardui on the human uterus? *A.*—Yes sir. Shall I exhibit 74 now?

Q.—If the gentlemen are satisfied with that.

The Witness:—The point is that the waves that are shown on this tracing, which are the normal contraction waves, are not changed at all by putting in the drugs. They continue just as they were before. Now, here is the same uterus—

THE COURT:—You are using what?

Mr. T. J. Scofield:—Wait till we get through with this one. Now Doctor, will you take Exhibit 74? Judge, do you care to look at that? What is that Exhibit 74? *A.*—Exhibit 74 shows the effect of the fluidextract of carduus benedictus on the same uterus.

Q.—Explain it to the jury. *A.*—The same uterus left in the same solution. That is to say, the Wine of Cardui was left in, and then, so that it could still act — this fluidextract of carduus benedictus was added to that. You see those waves are still the same. At that point the fluidextract of carduus benedictus, the Lilly kind was added, one to 150 and it still goes on, no change. At that point (indicating on tracing without sight of the reporter) some more was added so as to make a total of 1: 67 and it still goes on without any change. Now, after that there is one normal contraction, but then it gets weaker and here we put in a little more so as to make a total of one to thirty-three, added more to it and there the contraction disappeared, ceased altogether.

Mr. Hough:—I suggest that he just pass that around among the jury, and testify so that everybody can hear.

Mr. T. J. Scofield:—He has a right to explain it.

THE COURT:—Just so long as the reporter gets it all.

Mr. Hough:—And so that all the jury can see.

Mr. T. J. Scofield:—Doctor, you spoke of the Lilly kind. What did you mean by that, a preparation from the Lilly Laboratories? *A.*—Yes, sir; fluidextract prepared by the firm of Eli Lilly & Company.

Mr. T. J. Scofield:—If the Court please, I offer Exhibit 73 in evidence, and I also offer Exhibit 74 in evidence. They are admitted are they, your Honor?

THE COURT:—I think they were pretty effectually in before they were offered.

Mr. T. J. Scofield:—I thought so, but at the same time I do not want any question about that.

Mr. Williams:—Oh, we agree to it.

Mr. Hough:—For what it is worth.

Mr. T. J. Scofield:—You explained how these tracings were made, didn't you? *A.*—Yes sir, I think so.

Q.—In a question which I asked you some time ago, I described to you the results obtained in certain other experiments with Wine of Cardui, carduus benedictus, carduus marianus, viburnum prunifolium (the bark of the stem and of the root), in the form of fluidextracts or solutions in 20 per cent. of alcohol and evaporated solutions taken up in water. Do you still have these results in mind? *A.*—Yes.

Q.—Now, from those results, together with your own experiments, have you an opinion as to whether any of these drugs that I have named have a tonic action or a sedative action, or any other action on the uterus? *A.*—They all agree in showing that there is no tonic action, no sedative action and no form of action on the uterus, or uterine contractions under any conditions.

Q.—Have you an opinion as to whether Wine of Cardui could have any effect on the uterus when used according to directions, namely a tablespoonful three or four times a day? *A.*—I have an opinion.

Q.—What is the opinion? *A.*—That it could have no effect whatever.

Q.—Why? *A.*—Because the conditions that you named, if it is actually used according to directions, would not be nearly as favorable to producing an action as the experiments that you described, and the experiments that I explained. So that if there was no effect under these extremely favorable conditions, under the conditions of the directions, a tablespoonful three or four times a day to a woman, it could not have any effect.

Q.—Could these drugs, doctor, increase the nutrition of the uterus without increasing the uterine contractions? *A.*—No. The nutrition of a muscular organ is increased by drugs only by exercising the muscle of that organ; but throwing it into contractions, the muscle of the uterus or of the part—it is just like any other muscle. You cannot very much increase the nutrition of your biceps muscle and make it bigger and stronger, except in one way, and that is by exercising it and making it contract more. It is exactly the same way with the muscle of the uterus or the heart. The only way you can improve its nutrition is to make it contract more, by drugs.

Q.—Could a uterine tonic or any drug replace a displaced uterus? *A.*—No.

Q.—Why? *A.*—A misplaced uterus means a mechanical condition that could only be corrected by mechanical means by lifting it again into place.

Now, while it is true that there are certain ligaments attached to the uterus, those ligaments do not contain anything that could lift the uterus about. They contain, it is true, certain of them—only a few however—contain a very little muscular tissue; but that muscular tissue in the round ligament (that is the one which does contain muscle), that muscular tissue is so small in amount that it could not lift anything. More than that, it does not respond, it does not contract even to the stimulation of the most powerful drugs that act on the uterus, that muscle does not contract at all. So any way we look at it, there is no way in which a drug could replace a displaced uterus. It is a mechanical impossibility.

EMPIRICAL AND SCIENTIFIC MEDICINE

Q.—What is the difference between empirical and scientific medicine? *A.*—It depends on the way in which you use the term

"empirical." Empirical really means based on experience. Now all medicine is based on experience. Scientific medicine is based on experience, and on experiments so that there should be, if one properly uses the terms, there should be no difference between empirical medicine and scientific medicine.

Very commonly, however, the term "empirical medicine" is applied rather slurringly to superficial, slovenly observation; observations that are not thorough, and "scientific medicine" is applied to medicine that is thorough medicine, that takes into account chemistry and pharmacology, clinical observations and the whole range of medical science. It is simply a question of whether one is as thorough as you can make it, or whether it makes no attempt at thoroughness. That is the way the term "empirical" is sometimes employed.

DRUGS IN COMBINATION

Q.—Doctor, if two drugs are given together, does that influence the action of each of the drugs? *A.*—Oh, yes, it may be influenced in several different ways. It may influence it by simply adding the action of one drug to the action of the other drug. You take a drug that acts in one direction and another drug that also acts in the same direction, and you give them together and you may get twice as much action as you get from either one alone.

Or, again, you give a drug that acts in one direction, and another drug that acts in the opposite direction, and you give them together and they may neutralize each other and there may be no effect simply by adding the action of one to the action of the other. That is simple addition. That is by far the most common way in which the drugs influence the action of each other, simple addition.

Then, in a few instances relatively a curious thing happens. If you give one drug with another drug, you may produce a greater action than you would have produced with either drug alone, a greater action than with either drug alone, even if you doubled the dose. Take one drug and if you gave twice as much of that drug, you don't produce as much action as if you give that drug with another drug. That is what is called synergism.

Then there is another proposition. You give one drug to produce a certain action, and you give another drug and you find that the action is less than the simple addition of the two actions. That also occurs sometimes.

You have the simple addition. In fact you may get the simple plus or minus, or you may get a greater effect than you would expect, or you may get a smaller effect than you would expect.

The most common way, all things taken into consideration, is as I say simple addition, and that is what one expects to happen until one has direct confirmation that something else does happen. One is not justified in assuming synergism unless one has actually demonstrated that there is synergism and until one has demonstrated it, you must not assume it. There is no general rule which applies. It is a matter that has to be determined in every individual instance.

Q.—Assume that Wine of Cardui contains caramel. Will you tell the jury what caramel is. *A.*—Caramel is burnt sugar. The sugar has been heated until it has burnt to a certain degree and gotten brown or black.

Q.—Is it known to have any medicinal action? *A.*—No, it is not. It is simply used as coloring matter.

USE OF ALCOHOL

Q.—Wine of Cardui contains 20 per cent. alcohol. It is advised to be taken three or four times a day in tablespoonful doses, each dose corresponding to 48 drops of pure alcohol. Have you an opinion as to the effect of these doses of alcohol on female diseases? *A.*—Yes.

Q.—What is it, doctor? *A.*—It would be essentially the exhilarating and narcotic effect of the alcohol.

Q.—Would that action be of any benefit whatever to the female? *A.*—It certainly would not tend in any way to cure those various female disorders. It might make the patient feel better, it might exhilarate them and give them temporary relief, but it would not in any case improve the conditions, of course.

Q.—Would the character of relief which you say it might give, would that tend to cure the disorders? *A.*—Not at all.

Q.—Have you an opinion as to the general advisability of using alcohol in female diseases? *A.*—As a general proposition, I would consider it inadvisable.

Q.—Why not, doctor, why is it inadvisable? *A.*—I would consider it inadvisable because if you produce an exhilaration, or relief in that way, you are not doing the patient any good, and you may do the patient considerable harm.

There are many ways in which it may do harm, habit formation, and all that sort of thing, but it may do harm a little more directly in this way: the patient feels relief. The result is that she may not get the treatment that is really needed for the condition. The result of that would be that that condition would get worse naturally, or it might get worse, and in that way, relief that could be obtained would not be obtained, the real relief, and in that way the condition might become incurable. So besides from the deleterious effects of the alcohol as such, which would be taken into consideration, it might have a deleterious effect in this other indirect way by leading to the neglect of the proper treatment by making the patient feel that she has been relieved, when as a matter of fact, she has not been relieved.

Q.—What is the effect, if you know, of alcohol on the absorption of drugs? *A.*—The effect of alcohol on the absorption of drugs varies undoubtedly with conditions. It used to be the belief that certain concentrations of alcohol, diluted alcohol in other words, increased absorption. That belief was based on the experimental evidence on a very few conditions and on a very few drugs.

Subsequent work has shown that, under other conditions, and conditions which approach more nearly to the natural — that under other conditions the effect of alcohol is rather to hinder the absorption of drugs.

In other words, the effect on absorption cannot be predicted. It has to be observed actually by experiments, and unless these experiments have been made in a particular connection it would be quite unwise to predict what the effect of alcohol on absorption in that connection would be.

Q.—Doctor, would the alcohol in Wine of Cardui act just like its equivalent in whisky? *A.*—The effect on the system of stimulating, and the narcotic action, would be just the same. They would be indistinguishable.

Q.—Would its use strictly, according to directions, three or four tablespoonfuls a day produce the effect of alcoholic stimulation? *A.*—Yes, depending, of course, on the susceptibility of the individual.

Q.—Is it correct that a preparation containing 20 per cent. of alcohol is non-intoxicating? *A.*—No, that would not be correct.

Q.—Is it correct, in your opinion, to say that it contains no habit-forming drug? Is it correct in your opinion to say that Wine of Cardui contains no habit-forming drug, assuming that it contains 20 per cent. of alcohol? *A.*—In view of the wide prevalence of the alcoholic habit, that is certainly incorrect.

Q.—Assume, doctor, that an entire bottle of Wine of Cardui has been taken without producing nausea, or vomiting, diarrhea or any other effects other than those of alcohol. Assume also that Wine of Cardui contains in a tablespoonful approximately the extractives from 30 grains of cnicus benedictus and of approximately three grains of viburnum prunifolium extracted with 20 per cent. alcohol. Bearing all this in mind, have you an opinion as to whether Wine of Cardui contains anything that would prevent its use as an intoxicant, tipple or booze? *A.*—It contains nothing that would prevent its use as an intoxicant, tipple or booze.

Q.—Is ordinary alcohol destroyed in the body? *A.*—Yes, sir.

Q.—To what per cent., doctor, do you know? *A.*—Something like 90 to 98 per cent. is oxidized in the body to water and carbon dioxid. It is burnt.

Q.—Does this oxidization prevent the alcohol from producing its actions, alcoholic actions? *A.*—No. If it prevented the alcohol from producing its alcoholic action, then one could never get an effect from alcohol at all under any circumstances. The fact that one can get drunk on alcohol shows conclusively that the oxidation of it does not prevent it from acting. The explanation of that is that the action of alcohol occurs almost at once. Its oxidation is a slow process. In other words, a person becomes drunk before the alcohol is burned up.

Q.—Does the rate or degree of oxidation depend upon the dose and concentration of the alcohol? *A.*—To a slight degree on the dose; not at all on the concentration. In any case the greater part is burnt up, the greater part of the alcohol is burnt up anyway.

Q.—What becomes of the per cent. of alcohol that is not oxidized in the system? *A.*—That is excreted by the lungs and by the kidneys.

Q.—Would the stimulant and narcotic action of 48 drops of alcohol be greater or less if it is given in 20 per cent. or in 55 per cent. dilution? *A.*—It would be indistinguishable just as the narcotic and stimulant effect of the same dose of alcohol is indistinguishable whether it is given in the form of whisky, or in the form of beer.

Q.—Is alcohol a common constituent of official drugs? *A.*—It is a constituent of certain fluid preparations, the spirits and tinctures and elixirs and fluidextracts. It is not a constituent of other fluid preparations, glycerites, emulsions, syrups—those are all that I think of at the moment.

Q.—Infusions? *A.*—Infusions and decoctions, yes sir. There is one infusion—I may make an exception—there is one infusion which at present contains a small percentage of alcohol. Otherwise they do not contain alcohol.

Q.—Does the solid extract or solid drug contain any alcohol? *A.*—The solid drugs of course do not, alcohol being a liquid.

Q.—Now, are these various preparations that you have just referred to as containing alcohol, are they prescribed by physicians? *A.*—Oh, yes.

Q.—Do the same objections hold for the official alcoholic preparations as for Wine of Cardui? *A.*—In a way they do, and in a way they do not. It depends altogether on the conditions. If the official preparations are advertised like the proprietary preparations, if they are bought like the proprietary preparations indiscriminately over the counter, if they are used without fully taking into account the alcoholic effects, then the presence of alcohol in them is of course just as objectionable as it is in the case of proprietary preparations.

If on the other hand they are not used by the public in the same way, or if they are prescribed under certain conditions by physicians, namely where the physician knows the patient, and knows what the patient is, and what the effect is he wants to produce, takes the effect of the alcohol into account, where he uses the preparation over a limited time only and where he uses the preparation, the dose of which cannot be spontaneously increased by the patient because it contains active ingredients—where several or all of these factors obtain at the same time, then evidently the same objections do not hold to the official preparation, as do to the proprietary medicines that are not protected in these various ways.

Q.—Assume, doctor, that the following United States Pharmacopeia preparations contain more alcohol per dose than does Wine of Cardui:

Spirit of anise
Tincture of sweet orange peel
Spirit of juniper compound
Tincture cimicifuga
Wine of coca
Tincture of nut galls
Paregoric

How does the prescribing of these compare with the use of Wine of Cardui? *A.*—The first two preparations you mentioned were spirits of anise and spirits of orange. These preparations are used principally for flavoring, and in very small amounts, and contain much less alcohol of course than the 48 drops, because there are only 2 or 3 drops used. It is only under comparatively rare conditions that they are used in the full dosage, namely in cases of colic and things of that kind. In those cases, in the first place, they are only used for a short time. They are only intended to be used while the colic lasts, and everybody knows that colic does not last more than a day or two usually.

In the second place, it is the action of the alcohol that is there that is a part of the desired action. Alcohol relieves colic. There are two distinctions, one is that they are only used for a short time and the other is that they are used in such small quantities.

The next preparation you mentioned, I believe, was compound spirit of juniper?

Q.—Yes, that is right. *A.*—That is practically gin, and when it is used, it is used with a full realization that it contains alcohol and it is used under conditions where the alcohol plays a part in its action.

Q.—Tincture of cimicifuga is the next one. *A.*—Tincture of cimicifuga is a typical stomach bitter. It again is used partly for the effect of the alcohol that is in it. In other words, the alcohol there contributes to the effect. It is used in certain types of indigestion, and in certain types of indigestion, the alcohol helps as a sort of counter irritant. It irritates, just like a liniment helps a little sprain.

Q.—Wine of coca is the next one I mentioned. *A.*—Wine of coca was used to a small extent by physicians, mainly for its alcoholic stimulant. It is really a form of alcohol just like a form of wine, and when one uses Wine of coca, one uses it partly for the alcoholic effect, and partly for the stimulating effect of the cocain that is in it. I personally have never known of a physician that ever prescribed Wine of coca, and it is being dropped from the pending edition of the United States Pharmacopeia as an undesirable article.

Q.—It is being dropped from the pending edition of the United States Pharmacopeia. You mean the edition that is coming from the press? *A.*—The edition that is coming from the press, yes sir.

Q.—I next mentioned tincture of nut galls, doctor. *A.*—Tincture of nut galls is used as an astringent in diarrhea. Of course it would only be used for a short time. Furthermore, the very astringent that is there would preclude its use as a beverage in larger doses than the ones that I indicated practically. If it were tried in a large dose it would interfere with the patient's bowels, and they would become so locked up, that he would have to leave it off in a very short time. The last preparation, if I recall it, was paregoric?

Q.—Yes. *A.*—Paregoric contains alcohol, opium and camphor. Those are the essential constituents. It contains several others besides. It is used in colic and diarrhea, usually for the opium effect, and that very opium effect would preclude its abuse in larger amounts, except by morphin habitués, of course.

Q.—Now, doctor, assume it to be a fact that panopepton contains more alcohol per dose, than does Wine of Cardui. How does the prescribing of this preparation compare with the use of Wine of Cardui? *A.*—Panopepton is a proprietary preparation. It is practically an alcoholic food preparation. That is to say, it contains certain soluble food elements, sugar and digested meat, and that sort of thing, and alcohol. It is prescribed usually during convalescence, sometimes in fevers. When it is so prescribed, the alcohol plays a very distinct part in its action. It acts under those conditions, partly as a food and partly as a sedative and an exhilarant. Here again, the alcoholic action is a desired element, when it is prescribed. It is not simply an accident that creeps in but it is considered, or should be considered, when it is prescribed. Certainly it produces a positive part of the effect.

Q.—How does the dose of alcohol in tincture of iron, quinin and strychnin compare with the alcohol in Wine of Cardui? *A.*—The elixir of iron, quinin and strychnin, like most other elixirs, contains about 25 per cent. alcohol. The dose of quinin, iron and strychnin is a teaspoonful, so that the dose of alcohol never would approximate 15 drops per dose as compared with the 48 drops you are asking me to assume in the Wine of Cardui. The alcohol per dose would be about 15 drops.

Q.—Does it contain anything to prevent its excessive use? *A.*—Oh, yes, it contains the strychnin.

Q.—The strychnin you say? *A.*—Yes.

COUNCIL ON PHARMACY AND CHEMISTRY

Q.—Doctor, you state that you are a member of the Council on Pharmacy and Chemistry of the American Medical Association? *A.*—Yes, I have been since its foundation.

Q.—What are the functions of this Council? *A.*—The Council was founded by the trustees of the American Medical Association, I think in 1905, about 11 years ago, anyway, with the purpose of investigating the drugs that are prescribed by physicians, particularly I mean the proprietary, as distinguished from the official drugs and of informing the medical profession as to what it could find out about these drugs.

That was and is the purpose of the Council on Pharmacy and Chemistry, to collect and publish information about the drugs that are prescribed, proprietary drugs or unofficial drugs, rather—that is the exact definition, unofficial drugs that are prescribed or offered to be prescribed by physicians.

Q.—What was the occasion of this foundation, doctor? *A.*—As I understood it, the occasion of the foundation of the Council was a desire of the trustees of the American Medical Association to be informed regarding the remedies that sought advertising space in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

Before that time, THE JOURNAL tried to pass judgment itself on the character of the numerous preparations that are submitted to its advertising pages, and it found that that did not work out very well. Very often it was caught.

It therefore found that job was too large for it to handle, and therefore appointed a body of men who would make a special study of this subject of unofficial drugs and left the judgment of these drugs and the investigation of them to this council. That was the occasion of it.

The object into which it finally developed was not confined to THE JOURNAL at all, but to informing the profession in general as to what it could find out about the preparations that physicians were using.

Q.—Doctor, what is the book known as New and Nonofficial Remedies? *A.*—That is an annual publication of this Council on Pharmacy and Chemistry. It contains the descriptions of the articles that have been accepted by this Council, investigated and found on the whole worth while.

Q.—What determines the admission of a preparation to this book? *A.*—That is determined by whether the article complies with the established and printed rules of the Council for the admission of the articles?

Q.—What is the object of those rules? *A.*—The object of those rules is that the full truth, and nothing but the truth be told about an article that physicians are asked to use.

Q.—Are secret remedies admitted? *A.*—Secret remedies are not admitted, that is to say, remedies the composition of which is not known, are not admitted; they are not admitted to this book.

Q.—Now, why is this restriction made, doctor? *A.*—That restriction is made because no physician, with full understanding, prescribes a medicine unless he can find out about its composition. If he cannot find out about its composition, he lays himself, or rather he lays his patient open to numerous dangers.

In the first place, he cannot use the drug itself intelligently, if he does not know what it is. In the second place, he is apt to make very dangerous combinations if he does not know what is in the drug. He may add some drug to this mixture that he prescribes, that is in the mixture itself. He may thereby increase the dose. He may increase it above the safe limits, or he may add strength to it—he may add something to it, not knowing what is in it, that interferes one with the other and he does not get the desired effect in that case, without the medicine being at all at fault.

Then again it is a well known fact that quite a large number of people have peculiar susceptibilities to drugs which a physician must guard himself against—towards special drugs—that a physician must be on his guard against. If he does not know what is in that mixture, he cannot guard against them and he finds it very difficult to recognize them when they do occur.

For those reasons—there are probably some others that don't occur to me at the moment, but for those reasons amongst others let me say then, a physician should not really prescribe and certainly should not be asked to prescribe medicines, without being able to find out about their composition. In other words, he should not be asked to prescribe secret remedies, and for that reason secret remedies are not accepted by the Council.

Q.—Does the Council admit remedies that are advertised? *A.*—It admits remedies that are advertised to the medical profession. It does not admit remedies that are advertised to the public direct.

Q.—Why is this restriction made, doctor? *A.*—That restriction is made because, in the experience of the Council, remedies that were advertised, or are advertised to the public are very apt to be detrimental, to do more harm altogether than they do good.

Therefore, in the interests of public health, the Council would be inclined to take that action, especially as it is dealing only with remedies that should be used by physicians, and for those reasons that I started to state, physicians should not, in the opinion of the Council, use drugs generally that are advertised directly to the public. There may be individual exceptions to that, but as a general rule, physicians would not use them or should not use them.

Q.—Doctor, are the actions of the Council compulsory on the physicians? *A.*—Oh, no. The Council simply informs and in that way advises. Whether its advice is taken, or whether its information is considered, that is really not the affair of the Council, and it has not even any means of knowing what physicians, or whether any physicians for that matter, (except by some physicians writing in) follow its advice. It certainly has no means of compelling anyone to accept its opinions, even if it had the desire.

RULE OF THE COUNCIL

Q.—Now, are the reasons of the Council as to its actions in regard to direct advertising set out in the rules themselves? *A.*—Yes, they are fully explained in the rules of the Council.

Q.—Have you a copy of those rules? *A.*—Yes, I have.

Q.—Will you produce it? (Pamphlet produced by witness.) What rule is it, doctor? *A.*—The mention of the direct advertising, and the fact that remedies (with some exceptions) that are directly advertised to the public, are not admitted by the Council, is stated in Rule 3 of the Council. The reasons for this are stated in the explanations to Rule 3 which I have here.

Q.—Will you just read this, doctor, that is, the parts that bear upon this question. Rule 3. *A.*—Shall I read the rule first, and then the explanation, or will you take the rule for granted?

Q.—Yes, so as to get it in the record. *A.*—(Reading.) Rule 3. Direct advertising. No article that is advertised to the public will be accepted or retained; but this rule shall not apply (2) to disinfectants, germicides and antiseptics—

Mr. Hough:—You are not reading the whole of the rule there, are you? *A.*—Yes.

Q.—Isn't Rule 3 "Direct advertising, lay advertising?" *A.*—Yes, sir, that is what I am reading.

Q.—Are you reading the rule? *A.*—I am reading a copy of the official rules. I am reading the rules. Perhaps you are looking at the explanation.

Mr. Hough:—No, I am reading the rule. It says—

THE COURT:—What is the date of yours?

Mr. Hough:—1914.

The Witness:—Mr. Hough is reading out of the rules as they are contained in a book. I am reading out of a copy—

Mr. Hough:—They ought to be the same.

The Witness:—They are identical. There is some confusion. Perhaps if you give me the book I can clear it up.

Mr. T. J. Scofield:—I will hand you the book that I was examining you from, 1916, March 1.

The Witness:—You are reading from the explanation, and it is the rule proper that I was reading. Shall I read this again?

THE COURT:—Go ahead.

The Witness:—I read then from the beginning and go on. "Rule 3. Direct advertising. No article that is advertised to the public will be accepted or retained;"

Mr. Hough:—Accepted or what?

The Witness:—That means for this book, New and Nonofficial Remedies. These are the rules for the admission of articles for this book, New and Nonofficial Remedies.

Mr. Hough:—But you read something that I do not see in my book. Accepted or what? *A*.—Accepted or retained.

Mr. Hough:—That is new I guess "or retained," is new.

The Witness:—Have you 1916?

Mr. Hough:—1914.

The Witness:—It is 1916 that I am reading. There may be slight changes in the rule—

Mr. Hough:—The rules change every year?

The Witness:—There may be slight changes in the rules from year to year, yes sir. (Reading.)

"But this rule shall not apply (a) to disinfectants, germicides and antiseptics, provided that the advertising be limited to conservative recommendations for their use as prophylactic applications to superficial cuts, and abrasions of the skin and to the mucous surfaces of the mouth, pharynx and nose (but not to those of the eye and the gastro-intestinal and genito-urinary tracts) and provided they are not advertised as curative agents. (See Comments to Rule 3); and (b) to nonmedicinal food preparations, except when advertised in an objectionable manner."

Then the explanation of these rules state as follows: "Rule 3, Direct Advertising."

Mr. Hough:—Pardon the interruption. Is this part taken out, (c) and circulars when distributed solely to physicians.

The Witness:—Yes, sir, that has been taken out. The part I am coming to now, is on page 17.

"The impossibility of controlling the irresponsible claims which are usually made in advertisements to the public, the well known dangers of suggesting by description of symptoms to the minds of the people that they are suffering from the many diseases described, the dangers of the unconscious and innocent formation of the drug habit, and the evils of harmful self medication, including the dangers of the spread of many infections and contagious diseases, when hidden from the physician and similar well known considerations, are the reasons for discouraging, in the interest and for the safety of the public, this reprehensible form of exploitation. Advertising in medical journals etc., distributed solely to physicians does not come within the scope of this rule.

"In the case of subjects on which the public should be instructed as the use of disinfectants, germicides, antiseptics and foods, advertisements to the public, if not in objectionable forms, are considered admissible. In no case shall such advertisements include recommendations for use as curative agents, nor shall the names of any diseases be mentioned in exploitation. If the preparation is sufficiently toxic to require caution in its use to prevent poisoning, this fact shall be stated on the label."

The Witness:—The next part is a minor explanation, which I do not know whether it is desired to read, down to the bottom of the page, the third line from the end. I will be glad to read it if it is desired.

Mr. T. J. Scofield:—Yes, go ahead, I want it in the record.

The Witness:—(Reading.) "On account of the deplorable results which follow any abuse of this privilege, the conscientious cooperation of manufacturers and their agents in adhering strictly to the limitations laid down, is asked; and for the same reason the acceptance of an article which is so advertised as to infringe on these limitations in any essential way (as by naming diseases or by making false and exaggerated claims) shall be summarily rescinded, and the reasons for such action may be published without notice to manufacturers or agents.

"A disinfectant, germicide or antiseptic, will be accepted for description in New and Nonofficial Remedies and an article of this class, which has already been accepted will continue to be included with New and Nonofficial Remedies, only on the explicit understanding by the manufacturer and agent, that such infringements of the rule will be followed by deletion of the article and by publication of the facts as described."

The Witness:—Shall I continue?

Mr. T. J. Scofield:—Yes.

The Witness:—(Reading).

"We may divide the foods into three groups. The first group contains the ordinary groups, including the well known breakfast foods. These do not come under the supervision of the Council in any way.

"The second group includes a large and important class of manufactured products, such as invalid and infant foods, which in a sense stand between the first and third groups. The public has the same interest in these foods that the physician has, and usually is supplied with full information concerning them. While the primary recommendation of these articles should naturally come from the physician, it cannot be expected that their continued use should depend on repeated prescriptions. Information concerning this group of foods would come naturally and properly from a physician, and the collection and dissemination of this information may very properly be included in the work of this council.

"As the products in this case are used extensively, it is not proper to limit their advertising to medical journals, but the advertising should be permitted in the lay press, so long as it is conducted in a manner compatible with the rules of the Council.

"The third group includes medicinal foods proper, such as predigested foods. These have a relatively low food value, and are characterized by a high alcohol or preservative content. They frequently contain strictly medicinal substances or food substances for which distinct therapeutic properties are claimed. These products should be used only on the advice of the physician, and the advertisements should be restricted as in the case of ordinary medicines."

Mr. T. J. Scofield:—Now then, Doctor, let me ask you whether or not those are rules which relate to the admission of medicines in what you call the New and Nonofficial Remedies? *A*.—That was a rule and its explanation, and the book relates to that. Yes, the book relates to the admission—

Q.—First, if any person has a proprietary medicine, and desires to introduce it, or get it into that book, he submits his medicine for examination, and if it is right, it goes into that book, is that right? *A*.—That is the idea exactly.

Q.—Now, doctor, I will ask you whether or not physicians are opposed to "patent medicine"?

THE COURT:—Is this his opinion you are asking for now, or do you want him to tell you that as a fact?

Mr. T. J. Scofield:—I am asking for his opinion, whether in his opinion, physicians are or are not opposed to the use of "patent medicines"? *A*.—The answer must take into account whether you mean by "patent medicines" what the words should mean, patented medicines, medicines on which a patent has been granted by the government of this or a foreign country. In that sense it is very clear that the medical profession is in no sense opposed to them because of the extensive use of such patent preparations, or patented preparations as aspirin, salvarsan, sulphonal, atophan, and a very large number of patented articles, which will be found and a considerable proportion of which are very extensively prescribed.

Q.—That is true of adrenalin, isn't it? *A*.—Adrenalin belongs to that class, yes. If, on the other hand you mean by "patent medicine" what most people mean by it, a medicine that is generally not at all patented, but a secret medicine, that is advertised directly to the public, then I should say that the medical profession, as far as I know its sentiments, is opposed to the methods by which those medicines are brought on the market, and brought into the hands of the consumer. They are opposed to the "patent medicine" exploitation, but not necessarily, primarily to the "patent medicine" proper.

Mr. T. J. Scofield:—I think that is all, doctor.

Whereupon the further hearing of said cause was adjourned to 10 o'clock the following day, May 10, 1915.

May 10, 1916, Morning

TESTIMONY OF DR. T. SOLLMANN (*continued*)

Dr. Sollmann resumed the stand for the defendants.

CROSS-EXAMINATION BY MR. HOUGH

Q.—Doctor, as I understand you have never been in active practice? *A*.—No, I never have.

Q.—Your work has been confined entirely to experimental work? *A*.—Well, in a sense, yes. Of course I have watched the treatment of patients in the hospitals. I visit the hospitals and am consulted there about treatment and watch the results of the treatment.

Q.—You say you have been a member of the Council ever since it was formed; how long has it been in existence? *A*.—About 11 years, I think it was founded in 1905, if I am not mistaken it was in February, 1905, that it was founded. I think I am correct about that.

Q.—How many members has the Council? *A*.—It has 15 members with the secretary, that makes 16 in a sense.

Q.—Does that include the corresponding members? *A*.—No, it does not include the corresponding members, no.

Q.—How many corresponding members have they? *A*.—There are three I believe.

Q.—When did you first commence to publish New and Nonofficial Remedies? *A*.—I think, Mr. Hough, that was about two years after the foundation of the Council.

Q.—About 1907? *A*.—I think so. I might be mistaken, but that is my recollection.

Q.—Who appoints the members of the Council of Chemistry and Pharmacy? *A*.—The members of the Council are elected or appointed by the trustees of the American Medical Association.

Q.—That is controlled by the trustees? *A*.—It is controlled by the trustees, yes sir.

PHARMACOPEIA COMMITTEE

Q.—You are a member also of the United States Pharmacopeia Committee? *A*.—I am, yes sir.

Q.—Are you one of the trustees of the Pharmacopeia? *A*.—No.

Q.—Has there not been a controversy going on between the Council of Chemistry and Pharmacy and the Pharmacopeial body? *A*.—No, not as bodies. Of course, individual members of any two bodies may have had a difference in their opinions on certain special questions, but there has been so far as I know, no controversy between the two bodies whatsoever. They have no relation to each other and there is no occasion for controversy.

Q.—Well, the members of the Pharmacopeial Revision Committee are not confined to members of the American Medical Association, are they? *A*.—By no means.

Q.—It represents the entire field of medicine, pharmacists, doctors, chemists and pharmacologists. Is there any other classification except those, would you say? *A.*—I should think they would practically come in. They are elected from delegates that are sent by the medical bodies, various medical organizations and medical associations, pharmaceutical bodies and pharmaceutical associations and by the Government Medical Services and I think the Department of Agriculture also has representatives and the pharmaceutical schools.

Q.—That is, the Public Health Department of the Government and the Department of Agriculture both are represented in that body? *A.*—Yes, sir, and the Army and Navy Departments I think. They are elected, a body of delegates. Each organization that sends delegates are entitled to three delegates and those delegates vote and elect out of their number without any direct reference to chemists or pharmacists and so forth, a certain number of delegates. I ought to qualify that a little, because in the last pharmacopeia convention, there was a distinction made between pharmaceutical elections and medical elections. It was agreed that a certain number of the new Revision Committee—it was a new departure, the Revision Committee of fifty—it was a new departure, and in order to simplify matters it was agreed there that I think 35 of those should be elected by the representatives of pharmaceutical organizations and 15 by representatives of medical organizations, or some such number. I think it was 35 and 15.

Q.—When was the last Pharmacopeial Convention? *A.*—That was in 1910.

Q.—They meet every ten years and revise the Pharmacopeia, don't they? *A.*—Yes.

Q.—And then the Revision Committee is elected and the Committee works for five or six years before they finish the work? *A.*—This time it is nearly six years.

Q.—Your new Pharmacopeia is almost finished now, is it not? *A.*—It is going through the press, yes.

Q.—And in that all branches have participated, whereas in the New and Nonofficial Remedy list, only the American Medical Association appointees participate? *A.*—Yes, sir. Of course the medical and pharmaceutical professions and the chemists are represented on the Council still, but they are, as I say, appointed directly by the American Medical Association for a particular purpose and the others are elected at large.

Q.—Now, about five or six years ago, the American Medical Association made an effort to get control of the Pharmacopeia exclusively, didn't they? *A.*—No, Mr. Hough.

Q.—You don't know anything about it? *A.*—I know a great deal about what took place at that time, but I do not know of any such attempt at all.

Q.—What do you know about any effort of that character? *A.*—There was a question at that time to a considerable extent with the opening up of the new Pharmacopeia, this decennial revision—that it would be advisable perhaps to restrict the scope of the pharmacopeia. Certain people had that opinion, and other people had an opinion in the opposite direction.

The American Medical Association, as such, I think, took no part in it at all. The matters were discussed. Those two policies were discussed, but not at all, Mr. Hough, with the idea of getting hold of the Convention or putting it in the hands of the American Medical Association. That I have never heard discussed even or even the idea of it.

The scope of the pharmacopeia has been discussed in THE JOURNAL but all the suggestions that are made did not in the slightest degree contemplate a control of the Revision Committee by the American Medical Association. I never heard a suggestion that the delegates should be elected in any other way than the way that has been customary.

Q.—How many drugs were in the last Revision of the Pharmacopeia? *A.*—I happen to remember that there are 890 or 980 titles. I have a memorandum, if you wish the exact number.

Q.—That is sufficient. *A.*—Something like that.

Q.—The American Medical Association representatives on the Pharmacopeial Board at the last Revision attempted to cut those down to 44 drugs, didn't they? *A.*—Oh, no, Mr. Hough.

Mr. T. J. Scofield:—Doctor, speak louder and more distinctly, please.

A.—No, not at all. Never dreamed of such a thing. In the first place—

Mr. Hough: *Q.*—Did they ever attempt to cut them down at all? *A.*—I don't remember who the American Medical Association's representatives officially there were. I was not one of them. I was a delegate from the Ohio State Medical Association. But such an idea of cutting down the number of drugs in the pharmacopeia to 44, has never to my knowledge been advanced by anybody except as a straw man that was set up as something to be knocked down. No one on the side of the medical profession that I know of has ever suggested any such absurd thing.

Q.—Didn't such an article appear in THE JOURNAL itself? *A.*—Not to my knowledge, and I read THE JOURNAL pretty carefully.

Q.—Well, you say the suggestion was made by somebody, but you don't believe it was anyone from the American Medical Association? *A.*—I do not know, Mr. Hough, that it has ever been made or advanced from any responsible quarter. I am simply taking your statement that it has been made. If it has been made, it must have been made the way that I said. I personally never heard of it.

Q.—You personally knew nothing about it? *A.*—No.

Q.—Now, the significance of a drug appearing in the pharmacopeia is that it is being generally used by physicians, isn't it? *A.*—Not necessarily, Mr. Hough.

Q.—Not what? *A.*—Not necessarily. You mean, of the past pharmacopeia, or of the coming pharmacopeias?

Q.—The past pharmacopeias. *A.*—In the past pharmacopeias I have not been directly concerned in their revision. This was the first time I was a delegate and what may have been in the minds of the delegates to the previous convention of course I cannot speak of at first hand. I have never taken it that all the drugs that appear in the pharmacopeia are used extensively or at all, even by physicians. There are a number of drugs in the pharmacopeia that are put in there simply as reagents and again a number of things that are put in there for making pharmaceutical preparations.

Q.—I am talking about those things that are in the pharmacopeia that are to be prescribed in sickness, as distinguished from any reagents or chemicals, or chemical methods concerning the mixture of preparations of drugs. *A.*—Yes, I just wanted to get that clearly. I should say that that was the intention of the people that put them in, naturally that is what they would naturally have in their minds.

Q.—Viburnum prunifolium is contained in the present revision, is it not? *A.*—Yes, viburnum prunifolium is contained in the present revision. Now I can tell you what the intentions were of the present revision committee as to these matters, from my personal knowledge.

Q.—I am only asking you if it is contained there. *A.*—It is contained there, yes.

Q.—And they have taken out the requirement in the old pharmacopeia that it is the bark of the root. Now, it is just the bark, any part of the bark, isn't it? *A.*—That I do not know, Mr. Hough, at all.

Q.—Well you have seen it, the sheets are sent to you are they not? *A.*—I have seen the sheets, but I certainly have not noticed that.

Q.—You have not noticed that? *A.*—No. If that is there, I don't know it at all. It slipped by me, if it is there.

EARLY USE OF DRUGS

Q.—How did medicines come to be used in the beginning? *A.*—How did they come to be used in the beginning?

Q.—Yes. Was it not the result of home treatments, people in the country used weeds and herbs for certain conditions? *A.*—Of course I cannot give you any definite knowledge about those back times. I can only reason from what the probabilities are.

Q.—I mean, from your reading? *A.*—From the probabilities of what happened in the prehistoric times.

Q.—You know about Hippocrates? *A.*—Well, I guess they were used before Hippocrates no doubt.

Q.—Coming down to this country, viburnum prunifolium was introduced first as having been used in families in the country going out and getting the bark of a tree? *A.*—That is the way I think in which it came to their attention.

Q.—And after extensive use that way, it was taken up by physicians, wasn't it? *A.*—Of course I do not know how extensive the use was, Mr. Hough.

Q.—You do not know how extensively families used it at first? *A.*—No, it might have been used in just one locality, one man might have heard about it. I don't know. It might have been used very extensively. I have never heard a statement of that.

Q.—And your reading of the history of medication and drugs don't tell you anything about it? *A.*—About what, viburnum?

Q.—Yes, about how it was introduced in medicine. *A.*—Oh, yes, I have read the history of it.

Q.—Well, that was the way it was introduced, was it not? *A.*—The first mention I saw of it in the literature, was in the year 1850 or thereabouts.

Mr. T. J. Scofield:—A little louder, doctor.

A.—Was in the year 1850 or thereabouts, where, in a work on plants I believe—it is a little hazy in my mind—there occurs a statement that it is used in domestic practice, I mean in families. Then that I think did not obtain any great notoriety. Then there were—oh, a matter of four papers in the next 15 years and then a paper by Phares, I believe. That was rejected, but he, however, states that it was introduced in that way, that he learned of it through its being used in families; around in families where he was practicing, some village in Mississippi if I am not mistaken.

Then afterwards, for ten years, nothing further appeared about it, and then there came a group of papers. That is what I gathered from my reading, as to the history of its introduction.

Q.—Carduus benedictus was introduced into the practice of medicine in the same way, was it not? *A.*—I should imagine in some such way. The history goes back to a time when there is not any literature.

Dr. Sollmann was then questioned in detail concerning the literature on carduus benedictus. The first mention of it which he had found in connection with uterine diseases was that of Cooper in 1849. He did not remember reading Schroeder in 1693. He did read Sammon's "Herbal" in 1711. Out of forty-eight papers read since 1650, he found reference to uterine diseases in four.

He testified that both carduus benedictus and viburnum prunifolium are used as a tea.

Q.—That is, the virtues of the drug were extracted by the water? *A.*—Whatever virtues there were, if any.

Q.—And therefore water would extract all the virtues which viburnum prunifolium originally was supposed to possess? *A.*—If it possessed any such virtues, the use of hot water, the hot tea, would extract them.

Q.—Then, does the addition of alcohol help the extraction in any way? *A.*—Of what, Mr. Hough?

Q.—Of the extractives of any herb, such as carduus benedictus or viburnum prunifolium? *A.*—It all depends upon what the active constituents, if any, are.

Q.—Without reference to what they are, starting with the proposition that water alone extracts all that was originally known as medicinal, does the addition of any alcohol assist the action of the water in that extraction? *A.*—You ask me there to make an assumption that I have not granted, that there was any activity known to be present

in the drug originally. I would be prepared to deny that, so I don't believe I could answer the hypothesis in the way you put it.

Q.—Whatever reputation those drugs had before they got into the pharmacopeias was due to the extractive matter brought out by the use of water alone, wasn't it? *A.*—No, I don't believe so. I would not be sure of that point, and I do not think that the drug got into the pharmacopeia until the year 1880, and I don't believe it was used exclusively by the physicians who reported upon it previous to that time, in the form of infusions or decoctions. I would not be absolutely sure.

Q.—I am not talking about its exclusive use by physicians. I am talking about its home use, which preceded its use by physicians, country use? *A.*—I misunderstood it then. Will you repeat your question?

Q.—You said it was not used exclusively by physicians in the form of a tea at the time it went into the pharmacopeia in 1880? *A.*—So I believe.

Q.—I supposed some of them used it in the form of a tea? *A.*—I believe under certain conditions, at least, they did.

Q.—But the reputation of the drug was established as an infusion of that character, in its use by the women of the country before the doctors took it up at all? *A.*—I do not know, Mr. Hough, whether the reputation of it is established now, and I do not think it susceptible—

Q.—I am talking about whatever reputation it had at the time it first went into the pharmacopeia. It must have had a reputation or it would not have gotten into the pharmacopeia, isn't that true? *A.*—Yes, sir, that is true.

Q.—Now that reputation was based originally on its use in the homes of people who lived out in the country? *A.*—I would not say that.

Q.—Would you say it was not? *A.*—That undoubtedly started physicians to trying it. There are a good many things that are used in the homes of the people that are not effective; some are, and some are not.

Q.—Then, when the physicians commenced to use it, they would first use it in the way it was being used in the homes of the country and then they might vary the use, might they not? *A.*—Not necessarily, Mr. Hough.

Q.—Well, whatever reputation it had, prior to the time it went into the pharmacopeia, as a pharmacopeial drug, was based upon the extractive matters which were taken out with water? *A.*—I do not know that the matter is important, but I do not think I can grant that premise at all. It does not seem at all a logical sequence.

Q.—I don't want you to grant any premise at all. I want you to tell what you know as a fact, and what your judgment is from your reading, and what you believe is true. *A.*—I stated, I think, that I did not know exactly the form it was first used in by physicians. However, to cover it, I wish to make myself clear.

THE COURT:—Let me ask you, Dr. Sollmann; if the benefits from this herb were first discovered by women, may we not assume that they probably extracted whatever of the active principle they got out of it, with hot water and cold water and not by the use of alcohol?

A.—So far as the use by women is concerned, I think that is absolutely true, but I do not think that it necessarily follows that physicians also tried to extract the principles in the same way.

THE COURT:—Well, assume that for a moment. Now, if we assume that as true, how much of the active principle would you get out by the use of alcohol, how much more? I think that is what your question includes? *A.*—Is that the tendency of it? Well, since I do not know, Mr. Hough, what the active principle is, I cannot answer that question.

DRUGS IN PHARMACOPEIA

Mr. Hough: *Q.*—Now, the pharmacopeia is full of drugs of which the active principle is not known, isn't it? *A.*—Oh, yes. Not full of them by any means.

Q.—I don't mean that literally. *A.*—I took that question in the way I understood you to intend it. It contains such drugs.

Q.—And a large number of them? *A.*—Well, I would not say what proportion. It contains some. I could very easily agree to that, but I would not say, offhand, how large a proportion.

Q.—And drugs appearing in the pharmacopeia have been used for years without knowing how the action which is supposed to be brought about, is brought about, haven't they? *A.*—Oh, a good many drugs have been continued that way for a long time.

Q.—And that is not a reflection on the drug, that the method of its action is obscure, is it? That is, if you do not know how it acts? You do not know how it brings the results, which are attributed to it. That is not a reflection on the drug, is it? *A.*—Well, I would not say that it is a reflection on the drug, exactly, but it is a reflection on its use to a considerable extent.

Q.—It is a reflection on its use? *A.*—Yes.

Q.—Then why did you put into the New and Nonofficial Remedies, stypticin, with the statement that its method of action is obscure? *A.*—Yes.

Q.—I say, why did you put it in, if it is—if it should not be there? *A.*—I did not say that no drug should be used unless the method of action is known. I said it reflects upon the—

Q.—Upon the use of it? *A.*—That is, upon the use.

Q.—But when you put a drug in this, it is an invitation to a doctor to use that drug, isn't it? *A.*—It says that so far as the Council can ascertain, that sort of a drug is perhaps worth trying.

Q.—It is an invitation to use it, isn't it? *A.*—I would not put it in just those words.

Q.—Then of course it cannot be any reflection upon anyone who does use it without knowing how it acts? *A.*—I would not say it was a reflection upon anyone who uses it, but I think if he knew how a thing acted, he would prefer that and he should always be trying to find out how this does act.

Q.—Now, the practice of medicine has been carried on for a long time before physicians knew just how the drugs did bring about the results which they were supposed to bring about. That is a fact, isn't it? *A.*—In a sort of a general way it is. The physician will use the best means he can. He does not always choose to use those means, but if nothing better is available, he will use those means. He will try to find out how the drugs act. They have been trying to find out in a way since they began to use drugs, and have formed various ideas about it, but they did not have the means for finding out, and as soon as the means were furnished by the progress of science, they at once turned to them to try to find out.

Q.—They did not then prescribe the drugs they had been working on, or cease to prescribe them because they could not find out how they acted? *A.*—Not unless they found one that they could find out how it acted.

Q.—In other words, they might get a substitute and they preferred to use something that they knew how it acted rather than to use something that they knew did act, though they did not know how it acted? *A.*—I think in a general way I might agree to that. Of course it is rather an involved general statement, but I think I can agree to that.

Q.—You understand what I mean by the question, didn't you? *A.*—I think so.

Q.—How many of the drugs that are in the United States Pharmacopeia have been proved pharmacologically? *A.*—I never figured that out, Mr. Hough.

Q.—Ten per cent., would you say? *A.*—Oh, the majority of them, I should say, but that is an offhand statement. A considerable majority of them.

Q.—Do you think more than half have been proven? *A.*—I think so, yes.

Q.—Is there any list anywhere published of the drugs which have been proven pharmacologically? *A.*—Not that I know of, except, of course, all sorts of books on pharmacology which will give information as to what has been done on the subject. If work has been done on it, and that has led to any results so one could check it up—but I have not got it in my mind.

Q.—Do you now regard pharmacology as an exact science? *A.*—"Exact" is rather a relative term in human affairs.

Q.—I did not hear you. *A.*—"Exact" is a relative term in human affairs.

Q.—A relative term? *A.*—Yes. A thing that is exact in one connection is not exact in another. If you are weighing a ton of coal, a pound or two makes no difference. It is still exact. If you are weighing a diamond, a pound or two would make a fundamental difference, it would not be exact at all. It is all relative, so it is a very hard question to answer.

Q.—Well, in that sense, or in either sense, would you say that pharmacology was an exact science? *A.*—I don't believe I could answer that question as a broad proposition.

Q.—Well, like mathematics, say? *A.*—Oh, no, it is not like mathematics.

Q.—There are still many sources of error in it, are there not? *A.*—Well, it is susceptible to improvement, yes, Mr. Hough.

Q.—What is that? *A.*—It is susceptible to improvement like all biological science.

Q.—And proof by whatever method you achieve, or establish that a drug acts upon a lower animal, would be reasonable proof that it acts in some way upon the human being. That is one of the fundamental principles of the science, is it not? *A.*—That if it has some action on lower animals, that it will have some action on human beings I should state that as a broad proposition, yes.

Q.—Would you state that the negative or reverse of that is also true, without qualification? *A.*—That is to say, that if a drug has no action of any kind on a lower animal—

Q.—No action which you discovered by your tests? *A.*—Yes. Or any action that can be discovered by the methods of pharmacology elaborated up to the point where they are elaborated now, I suppose you wish me to assume?

Q.—Yes. *A.*—That where no action can be discovered that way, it still could have an action on a human being?

Q.—It still could have? *A.*—I mean, is that your question?

Q.—Yes, I asked that question. *A.*—I should say only through the imagination.

Q.—What is that? *A.*—Only through the imagination. I think. I could say that I think, without further qualification.

Q.—Did you test cactus pharmacologically? *A.*—Personally?

Q.—Or with any assistants? *A.*—No.

Q.—Or did you participate in such a test? *A.*—No.

CACTUS

Q.—Well, cactus was determined pharmacologically by your Society, or your Council as possessed of no therapeutic value whatever, was it not? *A.*—That was the conclusion, yes.

Q.—And an article to that effect was published in THE JOURNAL, was it not? *A.*—I think there were several articles to that effect published in THE JOURNAL, if I recollect.

Q.—And an investigation of its use among physicians showed after that time that it was used more than any other drug in their armamentarium. *A.*—Not to my knowledge, no.

Q.—Do you know anything about any investigation of that character? *A.*—I don't think so, Mr. Hough.

Q.—What is that? *A.*—I don't think so; it does not occur to me now.

Q.—Then, do you know that after you decided here that it had no therapeutic action under your pharmacologic tests, it was demonstrated in the pharmacologic institute of Berlin by Dr. Grever, that it had therapeutic action? *A.*—No, I don't think so, Mr. Hough.

Q.—You don't think so? *A.*—I don't think so.

Q.—You don't think what? *A.*—That it was demonstrated there that it had a therapeutic action.

Q.—Do you know the experiments that were made? *A.*—I think I know the experiments to which you refer. Well, I read a paper—I don't remember whether I read it in the original or in the abstract when it was published, and that must have been some four or five years ago, and I have not read it since, so I do not know how accurate my recollection of the details of that paper may be. The recollection—

Q.—Whether you agreed with the conclusions or not, it was reported at that Pharmacologic Institute that it had been determined there that cactus did possess therapeutic action. That was the effect and substance of that paper and report, was it not? *A.*—No, I would not say that.

Q.—Well, what was it? *A.*—My recollection of the general conclusion was that when used in large doses the particular drug that they were working with (which may or may not have been cactus)—

Q.—Which may or may not have been cactus? *A.*—Yes, sir, that is what I said.

Q.—Well, it may or may not have been cactus that you used here. *A.*—No, that was cactus. That was identified by competent botanists of the United States of the Smithsonian Institution, I believe it was, but the doubt on that subject is a very serious one, because there has been a great deal of confusion in the botany of cactus, a very great deal, and no work on cactus would deserve any consideration unless the species was definitely identified as the one that is supposed to be used in medicine.

Q.—Was that not definitely identified as cereus grandiflorous in that Berlin experiment? *A.*—Not that I recall.

Q.—Have you any reason to believe that in Berlin they would not be as accurate on that subject as in this country in the Pharmacologic Institute of Berlin? *A.*—That might easily be the case. There could not have been the great confusion that exists in that as we know it over here where the product has been more extensively employed.

Q.—All you now say is that you disagree with the conclusion or you don't remember— *A.*—Oh, yes, I recall the work. It did not say that the drug had any therapeutic usefulness directly. That question was not touched in that piece of work at all.

Q.—Did it say that it had any action on the lower animals? *A.*—In very large doses it did produce a result on the animals, but as I explained yesterday, that does not necessarily signify that the drug has any therapeutic usefulness.

Q.—But it does show that it does have some action on the human being? *A.*—If used in adequate doses and so forth. If I recall the papers that were published on the cactus, on the part of the Council, they also, I believe, showed that if you used enormous doses you got some sort of an effect. My recollection on that is not clear, but that is my general recollection.

Q.—Is not this what The Journal of the American Medical Association said— A.—I could not identify it, but if you have The Journal there and read it, then it is what it said, but I could not from my recollection of several years ago say whether what you read is what it said.

Q.—Do you recall that they said that it was absolutely inert on animals when used in a thousand times the amount of the dose on a human? *A.*—I don't recall, but that very likely is what they did say; I don't know.

DR. SOLLMANN'S BOOK

Q.—Doctor, in view of what you have testified to about the accuracy of deductions based on experiments on animals, what did you mean in your book, 1914 edition, under the head of "Effect of Drugs in Disease," when you said, "Animal experiments are of but limited value in this connection." *A.*—If you will read the remainder—

Q.—(Reading): "And we are forced to rely mainly on observation of patients."

Mr. T. J. Scofield:—What page is that?

Mr. Hough:—That is page 125.

The Witness:—If you will read that whole paragraph it will explain itself. I will try to give you an offhand explanation. It was written ten years ago, and agrees exactly with what I said yesterday.

Q.—Is it a fact that animal experiments are of but limited value in establishing the effect of drugs in disease? *A.*—That is what I said yesterday, too, Mr. Hough. That the effects in disease, as distinguished from the action, as I explained yesterday (drawing that distinction) might be different, and that would have to be determined by the direct trial, and that is why one could not tell from the fact that a drug had an effect on animals, that it would be a useful drug. I thought I explained that.

Q.—You testified yesterday that the action of drugs is the same, but the effect may be different? *A.*—Yes.

Q.—Well, now, you state in your book "The action of drugs is not the same in health and disease." *A.*—Exactly. It does not contradict it, strange as it may seem, and, if you read that whole paragraph, it explains itself as showing that here I used the term "action" rather loosely, which one often does. One often says that a drug has such and such an effect of course, and the drug has no effect. It has an action and that action produces an effect. Vice versa if one is not trying to draw the distinction between the two things, one often says "action" when one means "effect." If you will read this paragraph all the way through it will show. I happened to look it up last night.

Mr. T. J. Scofield:—Doctor, here is your book. Read the paragraph.

Mr. Hough:—Just let me finish.

Mr. Walker:—You have not any right to take the witness now. We have got the witness.

Mr. T. J. Scofield:—I have got the witness long enough to see that you don't—

Mr. Hough: Q.—You said yesterday that the action of the drug was the same, didn't you? *A.*—I said that the action of the drugs were the same.

Q.—Now, in your book there you say that the action of drugs is not always the same in disease, as in health? *A.*—Yes, and you are quibbling about a word there, Mr. Hough, which is fully explained in the context. It is the way in which a word is used. One can use the same word in different ways.

Q.—You mean when you testified on the stand, you meant the effect, and when you wrote the book, you meant the action? *A.*—When I wrote the book here, I meant the effect in the sense in which I explained it yesterday. I was not trying there to make a specific difference between the action and the effect, I was not trying to make that difference clear, and that paragraph explains itself, if you will read the whole paragraph, and the one following it.

Q.—I will read further from the paragraph. *A.*—You should begin at the beginning if you wish to get the meaning of that paragraph, and not begin in the middle.

Q.—I am going to read the next following paragraph. What I have just read is the first paragraph under the heading, "Effect of Drugs in Disease." *A.*—As it says—

Q.—The next paragraph says, "The differences are, however, as a rule, quantitative rather than qualitative." *A.*—Yes.

Q.—(Reading.) "Since drugs are in practice employed most extensively in disease, their action under those conditions is of the greatest importance. As a general rule it is possible to explain and even predict the action of drugs in disease from their action on normal tissues. However, the actual test must always be made. Animal experiments are of but limited value in this connection and we are forced to rely mainly on observation of patients." *A.*—Yes, of course, that is self evident, the reason for that. If we are going to see the effect of a drug in a disease, we must have that particular disease before us.

Mr. T. J. Scofield:—Read further there, read the whole paragraph, go right on.

Mr. Hough: Q.—You say this was written ten years ago? *A.*—That was written ten years ago.

Q.—In your preface, don't you say that this has all been rewritten? *A.*—Ten years ago it was rewritten.

Q.—In the 1914 edition, don't it say it has all been rewritten for the 1914 edition? *A.*—That title page there was absolutely a complete surprise to me. I may state as a matter of fact, that this book has not been revised or rewritten, or to my knowledge altered except that title page, since the year 1906. When I started to revise it I found that the subject at that time had so much advanced that I could more easily write an entirely new book, which is now in press, than to revise this. That is the reason why there has been no revision since that time, and this title page was put in there without my consent, and even without my knowledge, and when I saw it here a few weeks ago, it was a complete surprise to me.

Q.—Well, doctor, your book has a number of other mistakes in it. Have you discovered them in the new edition you are now working on? Have you discovered that there are a number of other mistakes in the 1914 edition? *A.*—I should not be surprised but what there would be quite a number of mistakes, but as I say—

Q.—I can hardly hear you. If you please, will you sit further out. *A.*—I cannot move the chair, Mr. Hough, it is nailed down.

Q.—Well, I will move forward then. *A.*—I rewrote it, and therefore, I would not be able to tell you whether I have corrected the particular mistakes that I made in this, or did not; I hope so.

Q.—Who wrote the statement that it had been thoroughly revised, and entirely rewritten for the 1914 edition? *A.*—No, sir, I did not.

Q.—Who did state that in your book? *A.*—That is the preface of the edition of 1906, Mr. Hough.

Q.—And it don't refer to 1914? *A.*—No, it does not.

Q.—Well, what about the young doctors who have been misled by these things in the book? They are misled, are they not? *A.*—They have not been misled by my fault, Mr. Hough.

The Court:—It is perfectly obvious that they will have to take their chances.

The Witness:—It is very strange what liberties publishers will occasionally take.

Mr. Hough: Q.—You mean, that was put in by the publisher, and not written by you? *A.*—No. That was put in by the publisher without ever consulting me, or telling me about it even. Of course the preface I put in in 1906.

Q.—Not rewritten, but in writing this new book you say you have rewritten this all again? *A.*—Yes, sir.

Q.—Well, in doing that, did you find that in a number of places you had misquoted the pharmacopeia? *A.*—I do not recall except one instance of that, and then it was not a quotation of the pharmacopeia, it was a synonym that got confused. I will be glad to have you call my attention to it.

Q.—I have a memorandum of it. *A.*—I will be glad to have it, and I will be sure to check them up.

Q.—Yes, I think that is important.

Mr. Walker:—Yes, help along the new edition.

The Witness:—Of course that might not apply, because that pharmacopeia will be out of print when the book gets published, I hope so, at least. Did you say I misquoted the pharmacopeia, did I understant you correctly?

Q.—I beg pardon? *A.*—Did you say I misquoted the pharmacopeia?

Q.—Yes, in the origin of plants, and in the percentages, the amount. *A.*—I would like to see that.

Q.—Well, for instance, on page 103 if you have your book. Would you like to look at the book, while we go over the mistakes?

The Court:—Mr. Hough, is the book on trial here?

Mr. Hough:—No, but the witness' accuracy is.

The Court:—He admits that he has made some mistakes in the book.

Mr. Hough: Q.—Doctor, in these pharmacologic tests which you made, the greatest accuracy is required, isn't it? *A.*—The greatest that is obtainable, Mr. Hough.

Q.—And if you make a little mistake, even of a small percentage, or the fraction of 1 per cent. in one case, it may make a totally

different result, may it not? *A.*—Oh, no, that all depends. It is the same story again as with the ton of coal and the carat of diamonds. Sometimes the fraction of a per cent. makes absolutely no difference, and in another case, it may make an enormous difference, just as with the diamond and the coal.

Mr. Hough:—I am willing to give the witness the benefit of the memorandum of mistakes that I have found, if he wants them.

The Witness:—I do not happen to see any pharmacological quotation—any pharmacopeial quotation on page 103.

THE COURT:—You are testing the witness' general knowledge. He may have made a few mistakes in that book, but he was asked certain things on his direct examination. Now, if he contradicts himself as to those, the point is important, or, if he contradicts himself in the book. But this is on a subject that is not at all allied with the matter before us now, that we are investigating. What difference does it make?

Mr. Hough:—Except to show the general method of work of the witness, who is testifying as to certain experiments which he has made, which require the greatest accuracy.

THE COURT:—If you deem it important, I am not going to stop you, but it seems to me that this Jury and the Court have a great deal to do besides that.

The Witness:—In that connection may I remark that page 103 does not seem to me to contain any quotation from the pharmacopeia whatsoever so far as I can notice here, and Mr. Hough calls my attention to misquotations from the pharmacopeia.

Mr. Hough:—That was the most insignificant one. In there you gave the botanical source of cochineal as coccus cacti, whereas the pharmacopeia gives it as false coccus cacti.

The Witness:—This is not intended to be a quotation from the pharmacopeia.

Q.—That is what you have there? *A.*—No sir. "Cochineal, U.S.P.—" I stop there and make a dash, and then give my own interpretation of what it is. It is not put in quotation marks, and in no way is it a quotation. It is simply my statement in a brief form of what that is, and, if the rest of them are that way, I would protest against their being called misquotations from the pharmacopeia.

Q.—You mean that you are making statements different from the pharmacopeia? *A.*—I may easily make statements different from the pharmacopeia.

Q.—But when you are doing so, after mentioning the pharmacopeia in such a connection that you would lead one to believe that that was in the pharmacopeia—

A.—I think anyone who is familiar with these books, the term "U.S.P." put after the name means nothing more than that the drug is contained in the United States Pharmacopeia, and that is where that part of the information stops. Whenever I quote from the Pharmacopeia, I follow the words "U.S.P." in connection with that particular quotation. For instance, when I say such and such a dose, "U.S.P."

Q.—Well, without running through them all, will you look at page 330, colchici semen is given as ".55" U. S. Pharmacopeia and you have it ".45" instead of ".55". *A.*—That is, in colchici semen?

Q.—Yes? *A.*—You say it is .45 instead of .55?

Q.—Yes? *A.*—That would be an error in that case.

DR. SOLLMANN'S EXPERIMENTS

Q.—Well, I won't run through all of them. Now, you made a test of Wine of Cardui on a dog in a saline solution? *A.*—No, I did not say that, MR. HOUGH.

Q.—What did you say? *A.*—I made some tests on the uteri of guinea-pigs, and on the human uteri, but I made no tests on dogs personally.

Q.—No tests on the live animal at all? *A.*—None at all, personally.

Q.—And the only tests you made were by putting strips of uteri in this solution? *A.*—That was the extent of my personal experience, yes.

Q.—What was that test that had the straight line on? *A.*—The wavy line, you mean?

Q.—Yes? *A.*—That was on the human uterus, excised, human uterus.

Q.—The excised human uterus? *A.*—Yes.

Q.—I thought you connected that with a dog? *A.*—No, I was asked a hypothetical question in which I was to assume certain other work that had been done, beginning with excised uteri, I believe, and leading up to animals, dogs—excised human uteri and, I believe, a uterus in the living subject, and I was asked to give an opinion on those experiments, in connection with my own experiments, as to whether the drugs would have an effect on the uteri movements, or whatever it was.

Q.—When you put the strips of uterus in this saline solution, you don't tie it to any string, do you? *A.*—Generally put a little hook, or hook a pin into it, and tie it to a lever.

Q.—On a string? *A.*—On a string.

Q.—And it runs into the solution? *A.*—It runs into the solution, yes.

Q.—And then you put in that solution a certain amount of the drug, in this case Wine of Cardui? *A.*—That was the idea, yes.

Q.—Considering the amount of solution in which the amount of Wine of Cardui was put, and including the alcohol that was in the Wine of Cardui— *A.*—Yes.

Q.—the percentage of alcohol to the whole volume was about 2 per cent., was it not? *A.*—No, much less than that.

Q.—Less than 2 per cent? *A.*—I think so. I think the strongest concentration I used in the case of Wine of Cardui was 1 to 30, so that would be only 3 per cent. of Wine of Cardui, and one fifth of that is alcohol, so it would be one fifth of—I must start again. One fifth of 3 per cent, that would be three fifths—six tenths of 1 per cent.

Q.—Was that the experiment in which there was a depression which you thought was due to the alcohol? *A.*—That was in the fluidextract of cnicus benedictus, which contained a much higher alcoholic percentage of course.

Q.—That was the case in which you said the alcohol was present in about 2 per cent? *A.*—I think it came to something like 2 per cent.

Q.—And 2 per cent. of alcohol in that saline solution had an effect on the uterus which was appreciable? *A.*—Yes. Coming to check up the subject, it was 1.5 per cent, but I consider that immaterial.

Q.—So that if 20 per cent. of alcohol was brought in contact with the human uterus, it would have a much more marked effect, would it not? *A.*—If it was left in contact with it, Mr. Hough, it would have. If the human uterus was placed in the same solution, in the salt solution where the alcohol would stay in contact with it. Then it would have a marked effect.

Q.—Does the salt solution help the action of the alcohol? *A.*—No.

Q.—Then if you put alcohol, 20 per cent. solution, on the human uterus direct, without any saline solution, the effect would be very much more marked? *A.*—No, not necessarily. It all depends on whether it would stay there.

Q.—Whether it would stay there? *A.*—Yes.

Q.—How long would it have to stay there? *A.*—In the case of alcohol, to get that depression, it would probably require—to get a noticeable depression—something like several minutes probably.

Q.—Ten minutes? *A.*—It might be less than that, likely less than that I should say.

Q.—If it stayed there that long, there would be a marked effect, would there not? *A.*—I think there would be a marked effect in that case, yes, sir.

Q.—Now, is it not a fact that there is a difference between the action of a drug on a diseased, and a healthy uterus? *A.*—I think not Mr. Hough. I think I stated—

Q.—Did you ever experiment on a healthy uterus? *A.*—On a healthy uterus?

Q.—Yes. *A.*—Well, I considered those uteri practically healthy.

Q.—You considered all of them so? *A.*—I think so. One of them was carcinomatous but the part of the tissue that we took, was, of course, not the carcinomatous tissue.

Q.—Well, would it not make a difference how long it had been out of the human body? *A.*—Not in the direction of the results. The direction of the results would be the same. The extent of the results quantitatively will be a little different.

Q.—How long would you say that the uterus remains alive after being taken out of the human body? *A.*—If you place it on ice, and leave it on ice, and then put it again in the warm solution—

Q.—I did not hear that word. *A.*—If you place it on ice, so it does not putrefy, if you keep it from putrefying, and if you put it on ice, then you can revive it by putting it in the warm solution after five or six days under favorable conditions.

Q.—Five or six days? *A.*—Yes, sir, five or six days.

Q.—How long had each of these uteri been out of the body that you used? *A.*—I think they had been out of the body several hours.

Q.—Several hours? *A.*—Yes, and one we might have used the next day. I do not clearly recollect, but I think these tests were made—I have made some other tests with other drugs so my recollection on that point is not clear, but I think all of those were on the same day that they were removed.

Q.—Was that experiment made in Cleveland? *A.*—Yes, sir, that experiment was made in Cleveland.

Q.—Or here? *A.*—Cleveland.

Q.—How did you happen to get the strips, did they take them out for the purpose of the experiments? *A.*—Oh, no, Mr. Hough.

Mr. T. J. Scofield:—Speak out loud. *A.*—They did not, of course.

Mr. Hough: *Q.*—They were going to take them out anyway? *A.*—And the surgeon who took them out absolutely did not know that they were to be used afterward even. I got them from the pathologist.

Q.—Is it not an unusual thing to remove a uterus where there is merely a displacement? *A.*—It depends on the extent of the displacement I would not be in a position to discuss the details of those clinical cases, but I know that they were taken out for the good of the patient in the direct line of the surgical work. The way I got them is—after the uteri are taken out at the advice of the surgeon, they are turned over to the pathologists for microscopical examination of the tissues, and he takes out a small piece that he uses for that examination, and the rest of it is ordinarily destroyed. Now, I asked the pathologist, who goes to several of the hospitals, for this material; asked him, instead of destroying what he did not need, to put it on ice for us or bring it directly to the laboratory, where we could work with it.

Q.—Do you know whether there is anything in a saline solution, such as you use, which would interfere with the action of either carduus benedictus or viburnum prunifolium? *A.*—No.

Q.—Do you mean that you do not know, or that there would not be? *A.*—There would not be.

Q.—You are positive of that? *A.*—I feel positive of that, Mr. Hough.

Q.—Did you ever make any experiments to ascertain that fact? *A.*—I have made numerous experiments with the different kinds of drugs, and saline solutions of various kinds, and all the drugs that could give an effect—that did give an effect in the intact animal also gave an effect of the same kind in the saline solution. Therefore, the saline solution had no essential effect—I might almost say no effect of any kind—on the character of response or on the presence or absence of response.

THERAPEUTIC INCOMPATIBILITY

Q.—Well, there is such a thing as therapeutic incompatibility, isn't there? *A.*—Oh, yes.

Q.—And that means that one substance, drug or otherwise, might be mixed with another drug so as to absolutely neutralize the action of the other drug? That is a fact, isn't it? *A.*—Well, I don't know

whether as a scientific general proposition I could exactly agree with that, but I think I can agree with what you mean by the proposition. That is to say—

Q.—In general? *A.*—That most of the actions of the drug might be removed by another one. It is hard to conceive of one drug absolutely removing every action of another drug, but for practical purposes I am willing to grant that you may make that assumption.

SYNERGISM

Q.—That is the basis of what you call synergistic action? *A.*—Yes. Of course, as I explained yesterday, the extent of that is comparatively unknown, and one has no right to assume anything of that kind, unless it has been shown.

Q.—You mean about the synergistic action, or the incompatibility? *A.*—About what you call incompatibility there.

Mr. T. J. Scofield:—Will you talk a little more distinctly, I want the jury and everybody to hear you.

Mr. Hough:—Has there been any experimentation to determine the synergistic action of drugs? *A.*—Oh, yes.

Q.—That is, more than has been carried on to determine the therapeutic incompatibility? *A.*—You don't mean these particular two drugs. You mean drugs in general?

Q.—Yes. *A.*—Of course the experiments that were made along those lines were made so that they would show either synergistic or antagonistic action, what we call—well, never mind the term. Of course they have been made so that they could show either—the direction of the same experiments would show either one. I think on the whole, more instances have been found of the synergistic action than what you call therapeutic incompatibility.

Q.—Now, the synergistic action is best where the two drugs are generally indicated for substantially the same conditions. Isn't that so? *A.*—You mean, it is most pronounced, or you would employ it, or what do you mean, "it is best?"

Q.—Well, most effective, or possibly most pronounced. *A.*—You are using the term synergistic action—or we are using it for producing an action greater than would be produced by either drug alone in the same direction.

Q.—The sum total of the two drugs. *A.*—Yes. Of course the answer to that question follows from the question. You may get a synergistic action of those two drugs that act in the same direction. If they act in opposite directions, then of course you would not get a synergistic action.

Q.—It goes without saying that the two drugs should be indicated for the same condition. *A.*—Yes, sir.

Q.—And according to the writing on carduus benedictus in some of the authorities, they were indicated—carduus benedictus was said to be good for the same thing that viburnum prunifolium was good for? *A.*—I don't believe I could agree to that. With all my reading on the subject I have not found a very clear idea as to the exact condition for which either of those drugs were indicated, and therefore I could not say really whether they were indicated for the same condition.

Q.—Well, suppose we use words. They were said to be good for menstrual disturbances. Those words were used, were they not? *A.*—Yes.

Q.—And said to be good for womb trouble. Those words were used, were they not? *A.*—Yes, sir. Shall we start on one of these, or do you want to give me the whole list?

Q.—I am talking about carduus benedictus. *A.*—Very well.

Q.—And it was good for inflammation of the womb? *A.*—Yes, sir.

Q.—And it was good for—

Mr. Walker:—He answered with a nod.

The Witness:—Yes, sir.

Mr. Hough:—So that in a general way and in that sense the literature recommends it for the same thing that the literature recommends viburnum prunifolium for, without reference to whether they have any action or not in your opinion, or in anybody's else opinion? *A.*—Yes.

Q.—They do, don't they? *A.*—I think we make some very broad assumptions in that, in assuming that they are recommended for the same thing. They recommend it, you might just as well say—you might just as well say that a drug is recommended for a headache to illustrate and give you an example that is sufficiently broad.

Q.—Well, maybe I can make it plainer. The same words are used in the book—

Mr. T. J. Scofield:—I did not understand that answer. Please read it.

(The answer was then read.)

Mr. T. J. Scofield:—Now what else, let him finish.

Mr. Hough:—That was not responsive anyway.

The Court:—Go ahead, Mr. Hough.

Mr. Hough: *Q.*—The carduus benedictus, to go back to words again then, is used or recommended in books or said to be good in books, those books that you read, for menstrual disturbances of women? *A.*—Yes.

Q.—And for womb troubles? *A.*—Yes.

Q.—And viburnum prunifolium is said also to be good for those same things, isn't it? *A.*—Yes, I assume that.

Q.—Now this synergistic action that I referred to would mean that when one was added to the other the combined effect was more than the addition of the co-efficient would it not? *A.*—I get the idea, yes.

Q.—That is true, isn't it? *A.*—That is the definition.

Q.—That is what is meant by synergistic? *A.*—I accept your definition. I think it is a very good one.

Q.—Now that condition is usually true with reference to two drugs that are mentioned for the same thing. You say of course they must be mentioned for the same thing? *A.*—That have the same kind of action. You are mentioning, for instance, the menstrual disorders. One thing may act on menstrual disorders, using the broad term you are using, in the one direction, and the other might act in an opposite direction. Those two things would not be synergistic, they would be antagonistic.

Q.—You mean they produce the same results by different means, is that what you mean? *A.*—No.

Q.—You mean that, to be synergistic, they must produce the same results by similar actions, similar properties? *A.*—Something of that kind.

Q.—If they produce the same results, but by dissimilar action, you would say then it is not synergistic? *A.*—They might still be synergistic in a sense. It depends—it must be an action in the same direction, however, or it becomes, by your very definition, an antagonism.

Q.—Now, have you ever made any experiments for the purpose of determining what would be the synergistic action of 6 grains of viburnum prunifolium to 30 grains of carduus benedictus to the fluidounce? *A.*—Before you add something you must have something to add. Now my experiments showed that you did not have any effect from the viburnum prunifolium, and you did not have any effect—

Q.—So you have made no experiments of that kind? *A.*—No.

Q.—Then that is all that is necessary. Have you ever heard of any other experiment— *A.*—May I explain why I did not make them, Mr. Hough? May I explain why I did not make them?

Mr. Hough:—One moment. Did I say 6 to 30?

The Reporter:—Yes.

Mr. Hough:—Well, that should be 60.

The Witness:—All the same. Now may I explain why I did not make them?

Q.—Well, as you have not made them, that is all that is necessary. Doctor, carduus benedictus is one of the highest priced drugs imported into this country, isn't it? *A.*—Carduus benedictus?

Q.—Yes, highest priced? *A.*—Why not according to what I have been told about it; I do not have any direct personal knowledge of it.

Q.—Haven't you read the report of the Department of Agriculture as to drugs, weeds and herbs, used in medicine? *A.*—I read that quite a while ago.

Q.—Didn't that state that it was more expensive than digitalis? *A.*—That I could not tell you, but that still would not make it one of the highest priced drugs imported into this country.

Q.—I don't mean highest priced drugs; I mean herbs, used as drugs. *A.*—Herbs used as drugs?

Q.—Yes. *A.*—If you use the term "herb" technically, which comprises only relatively a small number of drugs, that may be true for all I know. If you mean crude drugs, plant drugs, that certainly would not be true.

Q.—It is more expensive than digitalis, which is fox glove, isn't it? *A.*—I could not say whether it was or not. It depends of course on the quality of the digitalis leaves. I know we have paid quite high prices for some good quality digitalis leaves, and I doubt very much whether the other would come within a small fraction of that price.

EFFECTS ON ANIMALS AND MAN

Mr. Hough:—Doctor, how many drugs, if you know, have an important or positive effect on man, which do not have the same effect on animals? *A.*—The same effect, Mr. Hough? No, I would not say—I would not say off-hand that there are any. That is a pretty broad sort of question, without having any particular instance in mind.

Q.—Then let me put it more concretely. Potassium iodid has no action on a dog? *A.*—Oh, yes, it has, Mr. Hough.

Q.—In what way given? *A.*—Given in any shape or manner whatsoever.

Q.—Has that been tested on a dog? *A.*—Yes.

Q.—In what way was it tested? *A.*—It causes—for instance, I know—I made some experiments myself in that direction, and also experiments have been published a long time ago; when it is injected by stomach tube, it produces, in adequate doses, a pleural effusion, accumulation of fluid in the pleural cavity, over the lungs. That is one effect in particular that I know has been produced.

Q.—Well, that is used for gumma in men, is it not? *A.*—Yes, for certain syphilitic lesions.

Q.—Now, does the experiment on the dog indicate such use on a man? *A.*—I don't believe, Mr. Hough, that you would simply, from watching that action, think of its—of using it in gumma on man. But I believe that it tends to explain the mechanism of the action on man. Do you wish some other instance of its action on animals, Mr. Hough?

Q.—Does that explain its effect on gumma? *A.*—On gumma only?

Q.—Yes. *A.*—I would not say off-hand that the experiments that I have in mind explain it. They might have some bearing upon it. But they explain its therapeutic use, if you desire that.

Q.—Is it not a fact that rabbits may be fed for weeks on belladonna without showing any symptoms at all? *A.*—No, I would not say that, Mr. Hough—without showing any symptoms at all.

Q.—What would you say on that? *A.*—They would get a dilation of the—

Q.—Let me put it this way—I withdraw that question. How long may rabbits be fed on belladonna leaves without showing any symptoms? *A.*—That depends upon the dosage, how much they would eat, etc.

Q.—Are you familiar with Cushny's statement on the subject? *A.*—I may have read it a long time ago. I have not read Cushny's book since—in general since a long time ago, and not on that subject, I know.

Q.—Is there anything in your book on the subject? *A.*—There may be. Not as you put the question, Mr. Hough. The statement, as I would think it was in my book—I have not looked it up recently—would be to the effect—at least that would be the intention of it, though I don't recall the wording—that animals can be fed on bella-

donna—rabbits, you are speaking of, and, curiously, fed on belladonna leaves exclusively, and raise litters of young even, on that ordinarily poisonous diet, and yet remain alive. It does not show—it does not mean that there is no effect upon them. There is a quite distinct effect on them; and the reason why it has no effect is—I mean no fatal effect—is also quite interesting, that is known to a certain extent that I could explain, if you desire.

Q.—They use it as a food—the rabbits use it then as a food? *A.*—You give it to them as a food, and make them use it. I don't think they would spontaneously use it that way.

Q.—Well, do they object to using it as a food? *A.*—According to my recollection, I don't exactly know. I suppose, since they can be kept alive on it, they would have no very serious objection to it.

Q.—I mean they don't show aversion to it? *A.*—I don't know, Mr. Hough, at first, whether they do or not, but evidently, eventually they eat it.

Q.—How much is the dose for man, of belladonna leaves? *A.*—Of belladonna leaves?

Q.—Yes. *A.*—I could not give you that off-hand, Mr. Hough. I should imagine possibly something like 2 or 3 grains.

Q.—Is it not just 1 grain? *A.*—It might be 1 grain. Of course, the dosage of those things varies to some extent. In some conditions you employ larger doses and in some smaller. But it might be very well 1 grain—

Q.—That is the average dose given in the pharmacopeia, is it not? *A.*—I don't remember; but if you state so, I will very willingly accept your statement.

Q.—Speaking of the pharmacopeia, when the pharmacopeia—when the Pure Food Law was passed, there had to be a number of changes in the pharmacopeia, didn't there? *A.*—I don't know about that, Mr. Hough, whether there had to be any changes in it or not. That was before the time that I was connected with the pharmacopeia, I think—

Q.—Well, but— *A.*—In any way.

Q.—Haven't you a copy of the revised edition of 1907? *A.*—Yes. Now, when you mention it, I believe there had to be some little corrections, with a book of that size—

Q.—Well, there were more than 150 changes that had to be made in the pharmacopeia? *A.*—That, Mr. Hough, is scarcely a fair statement of the situation. That is to say, the same change had to be made often, quite a number of times. The real changes, if you do not count the number of times that the same statement is repeated, is not so many. I have no personal knowledge of it. Now take this number of changes and they would be considerably less. I have a vague idea of hearing Professor Remington say it was small, twenty or thirty; but I might be mistaken. My recollection is vague.

Q.—But whatever the number was, they were all included in a little pamphlet that was sent out, after they were agreed upon by the committee, to those who already had the pharmacopeia which had come out two or three years previous? *A.*—I do not know about that, Mr. Hough. I had several copies of the pharmacopeia, and I do not remember of receiving a pamphlet. It might have been sent. I do not remember, at least.

Q.—Then they were all embodied in a reprint and revision of the Pharmacopeia of 1907? *A.*—So I believe; or some such year; I do not know the year.

Q.—And these changes were necessitated by the passage of the Food and Drugs Act? *A.*—That was the occasion for them at least; but, really, Mr. Hough, I could not give you any information of any value on that subject, because I was not at all connected with it.

Q.—Can you think of any other drugs or substances which have a pronounced or lethal effect on man, which have no such effect on the lower animals? *A.*—I have not thought of one yet, Mr. Hough. You have not given me an instance, and I have not thought of any.

Q.—If you should inject some castor oil into the buttocks of a dog, what effect would it have? *A.*—I have not the slightest idea.

Q.—It would not have any effect at all, would it? *A.*—I do not know. I haven't the slightest idea.

Mr. T. J. Scofield:—Your Honor, we have been very patient here in listening to a lot of interrogations that are not suggested by the examination in chief at all, or by anything that was brought out in the examination in chief.

THE COURT:—I did not hear the question, Mr. Scofield.

Mr. T. J. Scofield:—He wants to know what would be the effect if you inject castor oil into the buttocks of a dog.

THE COURT:—He may answer.

Mr. Hough:—I want to take issue with Brother Scofield's statement that it is not material to anything brought out on direct examination. It is directly in point, in view of the witness' statements on direct examination.

Mr. T. J. Scofield:—From no standpoint is it material.

THE COURT:—He may answer:

To which ruling of the Court, the defendants, etc., excepted.

Mr. Hough: *Q.*—Well now, then, that would not prove, if that had no effect, that castor oil would not be good in a man, would it—in a human?

Mr. T. J. Scofield:—The injection in the buttocks, Mr. Hough?

Mr. Hough:—Yes; but I will let him inject it into any other part of the anatomy of the dog that he likes—for the purpose of answering the question.

The Witness:—If I had my way, Mr. Hough, and I wanted to determine the effect of castor oil on a dog, I would naturally give it by mouth, as the only way in which I would naturally think of giving it, that is, to act on the alimentary canal.

Mr. Hough: *Q.*—Did you ever give any other medicines to a dog by the mouth? *A.*—Oh, yes.

Q.—In testing them? *A.*—Yes.

Q.—Which other ones? Which have you given, I say? *A.*—Which have I given by mouth?

Q.—Yes. *A.*—Emetics and cathartics, in the first place, I naturally give those by mouth. Iodid I have already mentioned as a drug I have given by mouth. There is a large list I could not think of off-hand, but if you give me a list of drugs, I might remember what I have used. But it would be difficult to choose out of the large number of drugs, off-hand, and tell you those I have used by mouth and those I have not. It is a large list.

Q.—There are drugs, doctor, that can act on conditions—diseased conditions in the female pelvis, without acting directly on the muscle of the uterus; are there not? *A.*—That could act on the female—on the—

Q.—Diseased condition in the female pelvis, without acting—*A.*—Directly on those?

Q.—Without acting on the muscles of the uterus? *A.*—They might act on the blood vessels.

Q.—That would be taken through the mouth then, wouldn't it? *A.*—Through the mouth?

Q.—They would be taken through the mouth? *A.*—Might or might not.

Q.—For instance, a medicine which was—is an hepatic stimulant acts best taken through the mouth, doesn't it? *A.*—The term "hepatic stimulant" is a little vague to me Mr. Hough. If you could explain to me just what you mean by that—it is a term which is used here—I might be able to answer your question more intelligently.

Q.—Well, I am using words in medical literature, and I supposed you would understand the sense in which it was used. *A.*—I do not know whether—I do know ordinarily—

Q.—Well, if you don't—if there is a medicine which acts on the portal circulation, that would act best if taken through the mouth, wouldn't it? *A.*—It all depends upon the way in which it would act on the portal circulation, Mr. Hough. These are very indefinite ideas that you are dealing out here, and so I can only answer them in an indefinite way, by saying it might or might not. You will have to get a little more definite—if you want me to assume a definite case, or you want to present a definite case to me, but you will have to be a little more definite—

Q.—I am leading to the question which I asked before, which is: That there are other ways of medicines acting on this diseased condition in the female pelvis, than acting directly on the muscle of the uterus? *A.*—I so stated in the direct examination.

Q.—And when those medicines are given to act in that way, they are given best through the mouth, are they not? *A.*—In that particular way that I think you have in mind.

Q.—Doctor, you are a chemist, are you not? *A.*—Oh—to a certain extent at least, Mr. Hough.

Q.—Suppose you were given a chemist's report which says of a certain medicine or compound that it is a dark brownish liquid having a neutral reaction, a peculiar valerian-like odor and a bitter mawkish taste; arsenic, bromids, iodids, the potent alkaloids such as aconitin, morphin and strychnin, or the emodin-bearing drugs such as aloes, cascara and senna were not found. Potassium bitartrate (cream of tartar) was absent, thus indicating the absence of wine from grapes. Alcohol was determined and 20.36 per cent. of absolute alcohol by volume was found. The volatile matter amounted to about 97 per cent.— *A.*—97 per cent.?

Q.—Volatile matter. *A.*—Yes.

Q.—The nonvolatile residue appeared to consist of vegetable extractives. This had a bitter taste, and gave very faint reactions for alkaloids. The quantity of alkaloid was too small to possess any appreciable medicinal effect, whatever its potency might be. Small quantities of a nitrate were present. A trace of combined ammonia also was present. Could you state from that report what the herbs or drugs were from which that medicine was made?

Mr. T. J. Scofield:—If the Court please, I object to the question. If he wants to ask him the question—or ask him a question based on the chemical analysis, let him read it all, and not a part of it, and omit some of it.

Mr. Hough:—I have omitted only the comments. I have stated the facts.

Q.—I say, from those facts, could you state, or could any chemist state what the ingredients were, from which that medicine was made, other than the alcohol, which, of course, is indicated—specified? *A.*—Stating the results as you do, Mr. Hough—

Q.—What is that? *A.*—Stating the results as you do—

Q.—Yes. *A.*—Assuming these to be the things, I don't believe any one could say from that alone what particular drugs had been present there. You could say a large number that had not been present—a large number, very large number; but you could not say what particular drug, devoid of these active constituents might or might not be there.

Q.—And that would still leave a large number of drugs which might still be in there; I mean, excluding those which are specifically excluded. *A.*—Stating the thing without any other knowledge of the preparation, that I think would have to be said.

Q.—Now, when did you first learn that Wine of Cardui contained carduus benedictus and viburnum prunifolium? *A.*—When did I first learn that? My first knowledge of the subject at all came in the article from which I take it you are practically quoting.

THE COURT:—You mean the article in the American Medical Journal?

The Witness:—The first article in THE JOURNAL of the American Medical Association. That is the first I knew about the carduus benedictus at all.

Whereupon an adjournment was taken until 2 o'clock p. m. of the same day, May 10, 1916.

May 10, 1916, Afternoon

TESTIMONY OF DR. TORALD SOLLMANN (*continued*)

The Court met pursuant to adjournment. Dr. Sollmann resumed the stand for the defendants.

FURTHER CROSS-EXAMINATION BY MR. HOUGH

Dr. Sollmann testified that he first learned of the presence of carduus benedictus and viburnum prunifolium in Wine of Cardui when he read the article in THE JOURNAL. He could not tell absolutely from that article that such were the contents, but the article suggested strongly that these substances were there. His next information on the subject came in a conversation with Mr. Scofield in which he heard the deposition of Mrs. McElree. His next information on the subject came from reading the papers of the Chattanooga trial in which it was stated that it had been admitted for the purpose of that suit that there were contained in Wine of Cardui as essential ingredients carduus benedictus and viburnum prunifolium in the combined quantity of 66 grains per ounce. His next information came in a letter from Dr. Leech in which the latter stated that he had prepared a synthetic formula corresponding in analysis to Wine of Cardui.

SYNTHETIC PREPARATIONS

Q.—Doctor, couldn't you make a synthetic preparation out of other material than those two, which would compare exactly chemically with Wine of Cardui, and which did not contain any carduus benedictus or viburnum prunifolium? *A.*—By the exercise of considerable skill, and having an exact analytical scheme in mind, such a thing might be more or less remotely possible. It all depends upon how many data you have before you can see if you can match it. The hypothetical question that was asked me on that account assumed the presence of certain things which were found in this synthetic formula A and in no other.

Q.—Is it not a fact that one could extract a mixture of gentian and chiretta, with 20 per cent. alcohol in your product, yielding three to three and a half per cent. of residue when extracted, then adding a small amount of oxalates, a trace of valerianic acid, a trace of alkali, a trace of potassium nitrate, of citrates, malates; and then subject this product to the same chemical examination to which Wine of Cardui was subjected in the laboratory of the American Medical Association. Wouldn't the analytical results be the same as for Wine of Cardui, though, as a matter of fact, there was no carduus benedictus or viburnum prunifolium in it? *A.*—May I ask a question, what the two drugs were that you assumed there?

Q.—Gentian and chiretta. *A.*—Gentian and—

Q.—Chiretta. *A.*—Oh, yes. Corresponding to which analysis, Mr. Hough?

Q.—The one that was testified to, the one that was made in the laboratory of the American Medical Association. *A.*—I want to get the question right, Mr. Hough, as I believe there were several analyses testified to in regard to that.

Q.—Well, compare it with the one that was read to you here, with which you were to compare the synthetic medicine. *A.*—I don't believe so, Mr. Hough, not in all respects, possibly in the respects that you name, but not in all the respects that were intended in the question that was asked of me.

Q.—Now, in what respect would it differ? *A.*—I would have to review that question. And I do not know as I could definitely tell then in what respects it would differ. I say it is inconceivable to me that it would agree in all respects. You have added certain particular things to it now, and those particular things you might possibly—I don't say you would, but you might possibly make it agree in those particular things. That, however, you could strike on such a thing accidentally, that, of course, is an entirely different question. But I am granting that you might make it agree in those respects—but that you also having made it agree in those respects, make it agree in all the other respects, that I cannot possibly conceive.

Q.—Then, because the chemical analysis of the two—that is the Formula A and the Wine of Cardui—appeared to be identical, it would not necessarily follow that Formula A was made of the same ingredients that Wine of Cardui was made of? *A.*—It would follow as necessarily as the laws of probability admit, Mr. Hough.

Q.—Well, you have just said, haven't you, that it would be possible to have it made out of something else? *A.*—It would be possible, but it would be inconceivable.

Q.—Well, how is a thing that is possible inconceivable? *A.*—This way, Mr. Hough: Now it is perfectly possible that, coming out of the court here and going across the street, I might find a bag with a million dollars on the street. Now, theoretically, that is possible. At the same time it is absolutely inconceivable.

Now, in just the same way, it is possible that I might on the first trial of this kind strike a combination that agreed in every respect—you would, if you tried it—with all of the things that have been named—that cnicin-like residue, the products of the distillation, the reaction of the distillate; in all these respects, that it would agree, is theoretically possible, in just the same way as it would be possible for me to now cross the street and pick up a million dollars lying in a bag on the street.

Q.—Well, instead of inconceivable you mean probable, don't you? *A.*—Well, as you like to use the terms. But the analogy is fairly perfect in my mind, whatever terms or words you apply to it—that is perhaps a matter of choice.

Q.—Can you think of any other method from which a synthetic product could be made up which would analyze chemically the same as the analysis of the Wine of Cardui, which was read to you in direct examination? *A.*—I could not say, Mr. Hough. By feeling around I might try to construct such a formula, but I certainly could not say offhand what might be used. I do not know of anything that would give a cnicin-like residue, except the thistle species; that is all I know of, or have heard about—that would give a residue of the cnicin-like characters which I understand I was asked to assume are discovered in this mixture.

Q.—Don't you think the power of suggestion was the controlling thing in your mind? *A.*—No, I don't think so, Mr. Hough.

Q.—You don't? *A.*—No.

Dr. Sollmann was then asked concerning his comparison of oats and straw to carduus marianus and carduus benedictus. He stated that when he made this comparison he had in mind that an action had been attributed to carduus marianus on the basis of certain clinical observations which action had not been determined in carduus benedictus. He had not read Shoemaker or Reel.

The witness has not made any experiments on carduus marianus to determine its medicinal value. The witness could not tell the difference between cnicus marianus or cnicus arvensis. The latter is mentioned in his book, which is a book of reference. He is not personally acquainted with every drug mentioned in the book.

Q.—How did you happen to put in cnicus arvensis, and not put in cnicus or carduus marianus or benedictus? *A.*—I could not tell you that. I mentioned that in my book, in a list of bitters that had been used in domestic medicine, and that I considered of no particular value, and therefore I did not particularly take much pains to study more about them. I think I said so in the book.

Q.—Is that the reason you put viburnum prunifolium in the book, that you did not consider it of any particular value? *A.*—I don't put things in just because I consider them of no particular value. I did not put that in because I considered it of no particular value.

Q.—When you put viburnum prunifolium in this book, you thought it was of some value? *A.*—I doubted it.

Q.—You doubted it? *A.*—Yes.

Q.—But you put it in as good for menstrual disturbances and as a uterine tonic and sedative, didn't you? *A.*—No.

Q.—Did you put it in as a uterine sedative? *A.*—I put it in, Mr. Hough, because I was giving information there about what various drugs were used for. In the case of some drugs I had personal experience with them, and I gave that; in the case of other drugs, the reading that I had done on the subject, or the work I studied convinced me it was a good drug, and then I stated so. In the case of other drugs, I put them in, and the reading had not particularly convinced me, because I had no particular—made no particular study of the literature, or because the literature was so unconvincing and not decisive; in that case I simply made a statement of the uses to which it was put, and qualified that, if necessary, by what I thought about it, further. And it was in that way—

Q.—That is, it had not been proven pharmacologically? *A.*—It had not been proven pharmacologically, yes.

Q.—You stated— *A.*—Or clinically, as the case may be. If I knew it had not been proven clinically, or rather that it is practically valueless clinically, I would say that.

Q.—But, putting it in the book was suggesting to the student coming on to use it if it is necessary, wasn't it? *A.*—No, Mr. Hough.

Q.—What was your book written for? *A.*—Just information about things that are of known use.

Q.—Information to whom? *A.*—Students and practitioners. It is a reference book.

Q.—I beg your pardon? *A.*—It is a reference book, as well as a textbook.

The witness was then questioned concerning his assumption in the hypothetic question. The witness stated that he had assumed what the question had asked him to assume regardless of his belief. He has heard of other experiments made with the drugs mentioned all of which were negative with the exception of one experiment performed on the uterus of a virgin cat on which there was an action in large doses like the toxic action of ergot.

The witness was then asked in detail concerning the experiment which he performed on the guinea-pig. He stated that the uterus removed from the body and sliced in strips, in its response to the action of drugs, is the same as the uterus in a live woman's abdomen. This would be dependent on the condition under which the uterus is kept. The witness does not know of any medicine which acts on the uterus through the spinal cord.

The witness was again asked concerning his assumption in the hypothetic question and he stated that he assumed the actions that were submitted to him without assuming anything else about the constituents.

The witness stated in response to a question that under certain conditions alcohol in Wine of Cardui would make

the medicine inadvisable in female troubles and this would be true as a general proposition.

The witness was asked to name pharmacopeial preparations of which a person could take such an amount as would create intoxication. He mentioned whisky and brandy, also simple elixir. Taken in doses prescribed in the pharmacopeia he would not regard them as usually intoxicating although they might produce alcoholic effects.

ALCOHOL AS A FOOD

Q.—Is not alcohol a food, up to a certain extent, a certain per cent.? *A.*—Up to a certain per cent.—the percentage question has little to do with that, nothing to do with it.

Q.—Has nothing to do with it? *A.*—No.

Q.—What do you mean in your book by limiting it to 20 per cent.? *A.*—I don't recall that I did, Mr. Hough.

Q.—What is it? *A.*—I don't recall that I so limit it.

Q.—Reading from your book, page 414: "Small amounts of weak alcohol taken at meals cannot, therefore, have a bad effect upon digestion, and may even act favorably. The alcohol should not be taken in strength greater than perhaps twenty per cent." *A.*—From your reading, I hear nothing about food.

Q.—I am talking about whether or not the per cent. is indicated—you said it had nothing to do with it. Why, then, did you limit it to twenty per cent.? *A.*—That was the question of food, Mr. Hough. Your question applied to the food of the alcohol. Now, I tell you why I limit it there to 20 per cent. is because you are speaking of the local action on digestion there.

Q.—I was asking you about whether or not alcohol, in certain proportions, would be regarded in certain doses as intoxicating, or non-intoxicating; and I understood you to say that the percentage had nothing to do with it, that is, the dilution. *A.*—Not of intoxication, that is correct—but it does not say anything about intoxication there.

Q.—Now, in what connection and in what sense did you make this statement? *A.*—In the statement that you just read?

Q.—Yes. *A.*—That was in regard to its effects upon digestion, as you read it there.

Q.—Why did you limit it to 20 per cent.? *A.*—Because stronger concentration disturbs or tends to disturb digestion.

Q.—Then the percentage has something to do with it, hasn't it? *A.*—It has something to do with the effect on digestion, but you did not ask me at all about that; and I am trying to be responsive.

Q.—You say you were not asked about it— *A.*—Not in what you read.

Q.—What does this sentence mean: "By the chemical energy thus liberated alcohol can perfectly replace carbohydrates and fats in the diet, and is a typical non-nitrogenous food." *A.*—Yes, Mr. Hough, but—

Q.—Yes. *A.*—Now, may I discuss that a little?

Q.—Certainly, discuss it at your leisure. *A.*—In the first place, Mr. Hough, you started out from a question you asked me, what effect the alcohol would have—if I perfectly recall it—as a food, in certain dilutions; and I said the percentage has nothing to do with it; we are speaking of the food question; and I repeat again, that, as far as the food question is concerned, the concentration of the alcohol has nothing to do with it.

Then you read me a paragraph as to the effects of alcohol upon digestion, in which the concentration has something to do with it. Now, you have not asked me a word about digestion. You had asked me about its action as a food.

Q.—You said you were not talking about it as a food. *A.*—I am trying to be responsive to the question. I am perfectly willing to reply to any question you ask me, only you must ask it. Now—

Mr. Hough:—Now, I will ask you—

Mr. T. J. Scofield:—Let him finish.

The Witness:—Now, you come and read me a part of a sentence—I think it is a part of a sentence—but let me call it a sentence, if necessary, out of a paragraph; and, if you will have the kindness to read that paragraph through, you will see what I said about the subject of alcohol in the year 1906; and if you want to ask me directly about my present opinion as to the effects of alcohol as a food, I am perfectly willing to give you this—whichever you want, or both.

Mr. Hough: Q.—You mean this was a statement you made in 1906? *A.*—That was a statement I made in 1906.

Q.—And what you said in 1906 is now no longer true? *A.*—No. What happens is, my present opinion entirely agrees with what I said in 1906.

Q.—If it is your present opinion that it was not the truth at that time, you were giving misleading information, weren't you, to the students? *A.*—One gives the best information that one can in the stage of the science at that time—

Q.—Of course. *A.*—but Mr. Hough, that statement is perfectly true, if you will—

Q.—Why did you, reading this language—

Mr. T. J. Scofield:—Let him answer—

Mr. Loesch:—Let him finish.

Mr. Hough:—My, what a chorus.

The Witness:—But what I am asking you to do, Mr. Hough, is not to take out a part of a quotation, but to give the whole text. You know the old proverb about who can quote scriptures to suit his purposes—but I want you to give the whole text. Now, if you will be good enough to read that whole paragraph—and I do not remember whether the other paragraph is necessary to that, but I think the one paragraph at the bottom of that page, and the first part of the next page, you will get perfectly my opinion in the year 1906, and it expresses perfectly my opinion in the year 1916.

Mr. Hough: Q.—It is still your opinion then? Your opinion has not changed? *A.*—It has not changed.

Q.—I understood you to say it had changed. *A.*—No.

Q.—Now, I will read the rest of it: "It is even superior to other foods—." *A.*—Might I be permitted to have a copy of the book before me, when you read, Mr. Hough, so I can see—

Q.—Your counsel has a copy of the book, and you can follow me.

Mr. Walker:—Be sure you read it right.

The Witness:—I don't doubt but that Mr. Hough will read it right, only I want to get in all that particular place there about it.

Mr. Hough: Q.—Now, after "non-nitrogenous food" you say: "It is even superior to other foods in one particular, viz., in that it does not require digestion." *A.*—Yes.

Q.—You stated that? *A.*—Yes.

Q.—Is it a fact that it is superior to other foods? *A.*—In that respect.

Q.—Now, I skip down to— *A.*—No, no, Mr. Hough, I would not skip; I would not agree to that — I understood I was promised — I was desirous of having you read the whole thing, and I don't like the skipping after the promise was made.

Q.—Very well, I will read it all: "By its poisonous side-actions, however, it may at first cause an increased nitrogen excretion in individuals not accustomed to its use; but this action disappears in a few days, and it then saves nitrogen, like any other food." Does that suit you better? *A.*—That is what I want. Now, the remainder of the explanation comes in the large print on page 415, the first paragraph there, if you will read that.

Q.—It says: "Whilst there can be no doubt that alcohol is an excellent food in the sense of being a source of energy, other factors must be taken into consideration," is that the thing? *A.*—Yes, that is proper.

Q.—Now, you do say— *A.*—Oh, the rest of that paragraph, if you please; that whole paragraph.

Q.—All right. "The increased nutrition may itself be detrimental to the body, either by preventing the complete combustion of metabolites, which may possibly be connected with the origin of gout, or by leading to an abnormal deposition of fat. A still more potent objection to considering alcohol as a generally useful food lies in its toxic action, especially its psychical effects. Alcohol can therefore be employed as a food only when a sufficient supply of energy cannot be obtained from an ordinary diet; as, for instance, in digestive disturbances, or when the demands on the organism are unusually large, as in fever." *A.*—I think that sufficiently covers my opinion on the subject. I would be glad to explain it further if it requires any further explanation.

Q.—Now then, what do you mean when you say "Alcohol should not be taken in strength greater than perhaps 20 per cent."? *A.*—On account of the local effects on the gastro-alimentary canal.

Q.—Then, if not taken in quantities greater than 20 per cent., it would not have that effect— *A.*—It would—let me get that question.

Q.—Wouldn't that effect— *A.*—Let me have the question.

(Question read.)

A.—It would not have that deleterious local effect; that is right; yes, sir.

Q.—Now, is it a fact that you recommend alcohol in any inflammatory conditions? *A.*—In any inflammatory conditions? I could not say off-hand, Mr. Hough, whether I did or did not.

Q.—What does this mean, on page 416: "Use in fever, chills, inflammatory conditions, etc."? *A.*—Yes.

Q.—Does that mean that you recommend it in inflammatory conditions? *A.*—In certain kinds of inflammatory conditions.

Q.—Now, on the next page, 417: "In convalescence and general debility"— *A.*—Yes.

Q.—"The value of alcohol in these conditions is established by long experience." Is that a fact? *A.*—I think so. Let me see now, whether it is necessary to read the rest of that, to explain it, Mr. Hough.

Q.—Now then — well, you can read it if you like. *A.*—I think that is self explanatory. I will be glad to read it if you wish.

Q.—Now, did you say that 48 drops of alcohol, in a 20 per cent. solution, in a single dose, is intoxicating? *A.*—I say in a certain sense you can say it is intoxicating, but I would not say in the sense that "intoxicating" is commonly used; no.

Q.—Then you say it is nonintoxicating? *A.*—In the sense it is generally used.

Q.—In the ordinary sense? *A.*—Yes; in that dosage.

Q.—Did you make any experiments for the purpose of determining how rapidly the solid extracts from either carduus benedictus or viburnum prunifolium deteriorate? *A.*—No; and I would not know how to make such experiments, really.

Q.—Why does the pharmacopeia not make all their fluidextracts in solid form? *A.*—Because some people prefer to prescribe them in liquid form, I suppose.

Q.—Don't you say it is a good deal better in liquid form? *A.*—It may be, under certain circumstances, a good deal better in liquid form, yes, sir.

Q.—And will keep better? *A.*—That depends upon the drug.

Q.—Some drugs will keep better? *A.*—Some drugs undoubtedly will keep better in liquid form. Others undoubtedly will keep better in solid form.

Q.—Haven't you written, or stated, that medicine in tablet form is not scientific medicine? *A.*—I do not know as I have stated that, Mr. Hough.

Q.—What is your present opinion? *A.*—That for certain medicines it is a very good way of administering them. For instance, nitroglycerine tablets, if they are properly made, and not stored too long, are very well exhibited in that form.

Q.—Suppose they were prepared for a long storage, would they be good in that form? *A.*—A fairly long storage, Mr. Hough. The nitroglycerin tablets are rather susceptible to a variation that occurs during the manufacture, rather than in their keeping.

Q.—Now then, what medicines— *A.*—Then, of course, medicines that are given hypodermically are very commonly exhibited in tablet form. All drugs that dissolve very easily can very nicely go in tablet form, if not volatile.

Q.—If there are any volatile oils in medicine, it could not be in tablet form very well, could it? *A.*—Volatile oils can be given in that form. Soda mints are often used in that form, and they contain the volatile oil of peppermint.

Q.—Now, what kind of medicines could not well be given in that form? *A.*—Medicines that are not easily soluble, such as for instance, bismuth powder that will not spread over the intestines; things like salol which are not easily soluble, which tend to fuse into a mass of crystals if given in tablet form, and drugs that will volatilize pretty easily. Of course, one could not give the things like phenol (carbolic acid) in that form, because it volatilizes pretty easily.

Q.—Doesn't the fact that these different fluidextracts, tinctures and syrups which have alcohol in them are specified in the pharmacopeia in that form indicate that the pharmacopeial revision committee think that that is the best form? *A.*—Not necessarily, Mr. Hough.

Q.—Not necessarily? *A.*—A great many of these preparations are brought down from olden times, and people are used to prescribing, from the old days, and so they keep on prescribing that tincture, the way it is composed, although something else might answer the purpose just as well. Now, as long as they are prescribed, the pharmacopeial committee takes it for its function to introduce them into the pharmacopeia, as long as they are fairly good preparations; still, it does not mean that they are necessarily the best. In some cases they are the best. It depends upon what is in them.

Q.—What is that? *A.*—In some cases, the alcoholic preparations, of course, are the best.

Q.—Now, heat in making fluidextracts is never beneficial, is it? *A.*—Heat?

Q.—Yes. *A.*—Yes.

Q.—It is beneficial? *A.*—Oh, beneficial? Official I thought you said.

Q.—No, beneficial. *A.*—It would not be beneficial, but that does not mean necessarily it would be detrimental.

Q.—Didn't you read in some of those books on carduus benedictus, that heat was detrimental to it? *A.*—Some claim that heat is detrimental to it; but I don't know that the evidence for it is very good.

Q.—Do you know any evidence against it? *A.*—You refer, I imagine, to the work on cnicin in that connection, do you, Mr. Hough?

Q.—What is that? *A.*—The work on cnicin? that is, the—

Q.—Natavelle? *A.*—There is a very peculiar thing put in this work, which has prevented me from placing any confidence in it.

Q.—Well, but there were other works which referred to that, weren't there? *A.*—All the other works — that was work which was very indefinite — messy mixtures that really don't show very much of anything.

Q.—They have united in saying that heat is deleterious, haven't they? *A.*—It produces, as they claim, certain amounts and degrees of heat, under certain conditions, and the amount of heat, etc. — well, I have not been able to make much out of them.

Q.—Is it your opinion that the cnicin in carduus benedictus is the only active principle in that drug? *A.*—I doubt whether I would call that active.

Q.—You mean in your opinion there are no active principles? *A.*—I should rather — well, of course, the term "active" is always a relative term; but, my opinion — I at least doubt — I might say I think that there are no really active principles there. There is a bitter principle of some sort or the other that has been called cnicin.

Q.—Is there a bitter principle in carduus marianus? *A.*—Very, very little — in the seed, I am speaking of now.

The witness believes that the statement from his book that "it is often desirable to have the patient ignorant of what medicine he is taking," is still true; also

> "On the one hand if he possesses this knowledge, he very frequently has preconceived ideas of the action of the medicine, and will either take it in excessive amounts, or will neglect to take it entirely, or interfere with its action in some other way. On the other hand, it will encourage the habit of self-medication."

Dr. Sollmann was then questioned concerning his illustration about corn. He stated that he believes that it helped to make the subject clear. He was also questioned as to the drugs administered in self-limiting diseases such as pneumonia and whooping cough. He does not know that any one has made a statement that the self-limiting disease should never be treated by medicines.

Q.—Doctor, what is the effect of the trophic nerves of the various organs of the body? *A.*—The trophic nerves? That takes one into a subject of physiology with which in that particular I do not believe I am very familiar. I think there has been some doubt expressed as to whether such things actually exist as trophic nerves and the responses that have been attributed to them, which have been explained by effects on the blood vessels. But I would not presume to a sufficient acquaintance with that subject to make my testimony on it of much value.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

On redirect examination, it was shown that the statement concerning colchicum in Dr. Sollmann's book was copied from the pharmacopeia at that time and that there was a mistake in the pharmacopeia, later corrected by an addendum.

Dr. Sollmann had not made any revision of the book after publication which has been published. One revision is now in press.

Q.—Now, Doctor, something has been said to you about your views on the subject of alcohol in this examination, and excerpts have been read to you from your book? *A.*—Yes, sir.

Q.—From this place and that place, by gentlemen in their examination. Now, I will ask you if it is not true that in your textbook you did not say on page 419, on the subject of "Alcohol and its Habitual Use":

> "It may be considered as proved, some authorities to the contrary notwithstanding, that a certain amount of alcohol (variable in individual cases) may be taken daily without any demonstrable permanently injurious effect. But it stands equally certain that it is as dispensable to the organism as nicotine or caffein, and that it must be looked upon purely as a luxury. The injury done by such use of alcohol lies alone in the fact that it is so apt to lead to the use of immoderate amounts."

Did you say that? *A.*—I did.

Q.—And then did you say:

> "With such excessive use, a train of phenomena results, which may be grouped together under the name of chronic alcoholism, and which depend in part upon the irritant action of the alcohol and in part upon specific injury to the neurons."

Did you say that? *A.*—I did, neurons, meaning nerves.

Q.—And further:

> "The first effects are local and depend largely upon the concentration of the spirits. They consist of a catarrh of the whole alimentary canal, progressing from the pharynx downward. They are characterized by the usual symptoms of catarrhal gastro-enteritis; loss of appetite, gastric distress, irregularity of stools, longing for spices, etc. The chronic catarrh leads to malnutrition and emaciation when strong spirits are used. It also appears to constitute a predisposing factor to carcinoma of these organs. In the case of excessive beer drinking, the habitual overdistension of the stomach leads to chronic dilatation."

Did you say that, Doctor? *A.*—Yes, sir.

Q.—And carcinoma means a form of cancer, a malignant disease? *A.*—Yes.

Q.—And then did you say:

> "The continued presence of alcohol in the body sets up a series of irritant and degenerative phenomena in various other organs with which it comes in contact. These changes consist in fatty infiltrations, cellular degenerations and hypertrophy of connective tissues. The neurotic changes in the tissue cells must be attributed to the continued irritation from the constant presence of the alcohol; and to this must be added the interference with circulation due to the changes which alcohol causes in the blood vessels. These two—the direct irritant action of the alcohol on the cells, and the impaired circulation are inseparably connected in the production of the degenerations. Of these, the fatty are the most common, since alcohol, by its combustion, prevents the normal consumption of fat. Connective tissue formation results as the ordinary consequence of necrosis of the —"

The Witness:—Parenchyma. That means essential cell tissue.

Mr. T. J. Scofield:—That is too much for my medical learning. A gentleman whom I used to know sometimes when he could not pronounce a word, used to say "we will pass that by." (Reading continued):

> "These changes are proportional to the concentration of the alcohol. And since this is naturally greatest in the liver, kidneys and blood vessels, these organs show the action first and most prominently. And in the liver again, the periphery of the lobules is mainly affected, on account of the anatomic relation to the portal vein."

You said that, doctor, in regard to alcohol? *A.*—I did.

Q.—Now, then, doctor, I suppose you still hold and maintain those same opinions now, do you not? *A.*—I do, yes.

Q.—When you said in response to Mr. Hough, that 48 drops of alcohol in a tablespoonful dose of solution was not intoxicating, what did you mean by that? *A.*—He asked me in reference to one single dose, and my statement referred to the—

Q.—But suppose it is repeated three or four times a day, and advised to be continuously taken in that way over a long period of time, then what would you think and say about it? *A.*—Well, it might not produce the symptoms of drunkenness that are so often spoken of as intoxication, but it would produce the toxic, chronic effects of alcohol to a greater or less extent, depending upon the susceptibility of the individual.

Q.—Now, doctor, you used the word "toxic." What is meant by the word toxic? *A.*—Poisonous. The word "intoxication" means really poisoning.

Q.—Mr. Hough asked you if, in your book, you have not referred to viburnum prunifolium as being employed more or less as a uterine sedative in menorrhagia and dysmenorrhea, threatened abortion, and so forth. I will ask you if you did not say concerning viburnum prunifolium, and its use for such purposes, on page 510, that "there is no experimental foundation for its use," referring to these things which I have just called your attention to. *A.*—I so stated.

Q.—Is that true today? *A.*—That is more true today even than then.

Q.—It is true today that you have by some experiments that you have conducted found that it is not— *A.*—That it is useless.

Q.—good for those conditions. *A.*—Yes.

Q.—Doctor, you have stated also in answer to Mr. Hough on cross-examination, that since 1840 you have read some 40 papers or articles or some 44 articles or papers written by different people on the subject of carduus benedictus. *A.*—Since 1650, 48 papers.

Q.—Very well, since 1650. And that out of the 44, there were some four of them, as you recall, that seemed to indicate, or contend or state that it has some sort of uterine action. From the experiments which you have conducted, and from your knowledge derived from a study of carduus benedictus in connection with the pharmacological experimentation which you have recently made, with the opinion of these four gentlemen, whoever they were, that carduus benedictus might have some sort of action on the uterine organs of a woman, change the opinion which you have expressed here? *A.*—The four references to that subject that I recall gave no results of individual experiences of the authors. They gave no sign that the authors had ever observed these actions. On the other hand, they give considerable signs of confusion with the drug carduus marianus that had been used for menstrual disturbances to a greater or less extent.

Since then these mentions of the drug contain neither any evidence, nor any reference to any evidence, they would not alter my opinion at all. I would still think the drug is worthless as far as any knowledge of it is concerned. The papers that mention it I would neglect and feel quite justified in neglecting completely.

Mr. T. J. Scofield:—If the Court please, there was one question which I neglected to ask on the direct examination, and I would like the privilege of asking it now.

THE COURT:—Go ahead.

Mr. T. J. Scofield:—It is not in the line of redirect examination.

Mr. Hough:—I don't object.

Mr. T. J. Scofield:—I was asking the Court for that information.

Mr. Hough:—Don't you want to know whether I object or not?

THE COURT:—As a matter of course, counsel consents.

Mr. T. J. Scofield:—All right.

Q.—Doctor, do you know what, if anything, is being done today and has been done during the last number of years by the medical profession by way of preventing disease? *A.*—I know considerable about that in a general way.

Q.—I wish you would tell the jury what you know about it.

Mr. Hough:—I think that is irrelevant and immaterial.

THE COURT:—It strikes me, Mr. Scofield, that you are opening up a subject that will take the better part of the time between now and the adjournment of court for the summer, if it is to be discussed intelligently.

Mr. T. J. Scofield:—Your Honor will remember when the opening statement was made in this case—and I don't wish to speak in the presence of the jury—

THE COURT:—No, no, but this question seems to me to be a very comprehensive question. If Dr. Sollmann tells all he knows about that, we won't get through with this witness this week.

Mr. T. J. Scofield:—I am making my offer based upon what Mr. Walker stated reflecting upon the medical profession.

Mr. Hough:—Mr. Walker never meant to reflect on the medical profession, and I do not think he did.

Mr. T. J. Scofield:—Well, we will read it after a while, and see what he did say.

Mr. Walker:—All right.

Mr. T. J. Scofield:—I said to the court and jury that I would show or we would show in our case that the doctors were using every effort to prevent disease, and thereby curtail the amount of money which they might otherwise make, and it is for the purpose of placing ourselves upon the record now as we should be placed that we make this offer.

Mr. Walker:—Why it is not in the record anywhere, it has not been contested here.

THE COURT:—I recall distinctly, Mr. Walker, your statement to the jury.

Mr. T. J. Scofield:—May I be pardoned for one additional suggestion? The court will remember that when Dr. Webster was upon the witness stand, a question was asked as to the publication of certain articles, the $2,000 proposition, as your Honor will remember, by the American Medical Association through the columns of THE JOURNAL, where it was stated that physicians' incomes were reduced largely by reason of the fact that "patent medicines" existed, and that the American Medical Association, through THE JOURNAL and others, were therefore against "patent medicines" and proprietary medicines.

Mr. Hough:—That has nothing to do with this.

Mr. T. J. Scofield:—It has within this line—

THE COURT:—Mr. Scofield, you have not understood me. I said to Mr. Walker that I remembered distinctly the charge he made in his opening statement, and that I felt something of this sort was proper. But I am still of the opinion that your question is too broad.

Mr. T. J. Scofield:—I do not want to broaden it. I will confine it to the—

THE COURT:—Because, if the witness tells us everything that he has heard about it, that the doctors have been doing in the last ten or fifteen years, we will never get through.

Mr. T. J. Scofield:—I will simply ask him to confine himself to such preventive measures as relate to typhoid fever, diphtheria, tetanus and yellow fever, measures of that kind as to what is being done and then if they want to go into it on cross-examination, they can.

Mr. Hough:—I object to that. The public is doing those things, not the doctors. They are not going down in their pockets, and paying out their money to do this. The public is doing it. We are paying for it. We don't deny that those things are being done.

THE COURT:—You may ask Dr. Sollmann whether some public official discovered the matter of the typhoid prophylactics or some doctor in his laboratory did it, and so with others.

Mr. T. J. Scofield:—I will accept the court's suggestion. I will take the question as the Judge has suggested it.

The Witness:—Will you please repeat that.

(The statement of the court was then read.)

A.—The matter of typhoid prophylactics takes in two quite distinct phases; purification of the drinking water and the disposal of the garbage, sewage, rather, and the employment of typhoid vaccines. The matter of the purification of water supply and sewage has been elaborated by the bacteriologists, which were to a large extent physicians, and has received every encouragement from the health officers.

The people who were most instrumental in getting this pure water proposition put into practice were the health officers who were medical officers and who had the most active support of the medical profession—they had that support, although undoubtedly the cutting down of the frequency of typhoid fever has cut down the demand for physicians enormously.

The matter of typhoid vaccines was principally introduced by medical officers of the United States Army, by the Medical Service and has been widely adopted by physicians whenever it was possible to adopt it.

Mr. Walker:—Do we have an objection to that?

THE COURT:—Oh, yes.

Mr. Walker:—It does not come up in the form of a direct objection, but we object to the whole subject matter.

To which ruling of the Court in permitting said testimony to be given, the plaintiff, etc., excepted.

THE COURT:—Well, I presume that it is admitted by the plaintiff as to all the various preventive measures of disease that are known today, that the doctors even of the American Medical Association make use of them.

Mr. Walker:—Oh, sure.

Mr. Hough:—Certainly.

Mr. Walker:—But that don't affect the materiality of the subject matter as proper matter to be introduced in evidence.

THE COURT:—No.

Mr. T. J. Scofield:—I think, if the court please, that is all we care to inquire.

THE COURT:—I want to ask the witness one question. Going back for a moment to this synthetic proposition. Are there any other drugs, that is, other than viburnum prunifolium, having a valerianic odor, which are reputed to have, or have been reputed to have an action on the human uterus?

The Witness: A.—Nothing on the uterus. The drug that I think of at the moment, as having a valerianic odor, and not being viburnum prunifolium, is valerian itself, and it has, through its odor, probably, a certain use in hysteria.

THE COURT:—Well, has that an action, or has it a reputed action on the human uterus, valerian?

The Witness:—It has no reputed action, and it actually has no action.

THE COURT:—Are you enough of a botanist to tell whether the representation of the plant on the carton of the Wine of Cardui fairly represents the thistle, from which the carduus benedictus is made? *A.*—It does not represent it at all. That is probably an entirely fanciful representation.

Mr. Loesch:—What was that answer?

(Answer read.)

THE COURT:—That is all I want to know.

RECROSS-EXAMINATION BY MR. HOUGH

The witness was further questioned as to the dates of revisions and reprints of his book. He stated that he had not kept track of the dates when reprints were issued; but that the last revision was in 1906, as shown by the date of the copyright, as printed in the book.

Q.—Did you know it was being reprinted in 1912? *A.*—I think so. I don't know whether I did that particular year, but I knew reprints were being made.

Q.—After 1907? *A.*—After 1907.

Q.—And you did nothing to correct this statement in accordance with the correction that had been made in the pharmacopeia? *A.*—No, I did not make any revision at all. It stood in my mind as stated

here by the copyright, that there were no revisions made since 1906, "copyrighted 1906."

Q.—Now, did you mean by what Judge Scofield read to you, on the subject of alcohol in your book, to contradict what I read to you from your book, on the subject of alcohol, or were the two intended to be taken together and construed together? *A.*—You asked me only about one single dose.

Q.—No, no, I am talking about what you said about 20 per cent. of alcohol in foods. *A.*—I said, that as far as the food was concerned, 20 per cent. of alcohol, or the percentage of alcohol, made no difference. I think I said that.

Q.—But I say, as to this statement: you say, "Alcohol should not be taken in strength greater than 20 per cent."

Mr. T. J. Scofield:—That is not reexamination of anything I asked him.

Mr. Hough:—I am entitled to ask him whether the statement—

THE COURT:—Let me ask the witness, did you mean what you said in your book? *A.*—Yes, sir; I meant what I said in my book.

THE COURT:—Then, if your statements are contradictory, it will so appear. He meant what he said.

Mr. Hough: *Q.*—What I read, as well as what Mr. Scofield read? *A.*—Yes.

Q.—Were you discussing under the head "Habitual Use of Alcohol," alcohol as an alcoholic beverage, or alcohol in medicines, on page 419 of your book? *A.*—Any way in which it might be used habitually.

Q.—Either way? *A.*—Either way.

Whereupon the further hearing of said cause was adjourned until 10:30 o'clock the following day, May 11, 1916.

May 11, 1916, Morning

TESTIMONY OF DR. PAUL N. LEECH

The court met pursuant to adjournment. Dr. Paul N. Leech was again called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. T. J. Scofield stated that Dr. Leech was called to connect up a point overlooked when he was on the stand before. Dr. Leech testified that he sent samples of his synthetic preparation to Dr. Loevenhart at Madison, Wis., on December 10. This was the formula of which he spoke in his previous examination.

CROSS-EXAMINATION BY MR. HOUGH

Q.—What date was that, Doctor? *A.*—On or about the 10th of December. I could supply the date accurately probably this afternoon, if you so desire.

Q.—You think it was last December? *A.*—I know it was last December and know it was within five days of the 10th.

Q.—At that time you had learned the chief ingredients of Wine of Cardui from a faithless employee of the Chattanooga Medicine Company, who was then in the employ of the American Medical Association, hadn't you? *A.*—I learned the chemical ingredients of Wine of Cardui solely upon my own knowledge.

Q.—Didn't you learn it from that faithless employee? *A.*—In the first place I do not know to whom you refer, Mr. Hough.

THE COURT:—Better give the name, perhaps he may recognize the name.

Mr. Hough: *Q.*—Do you know Dr. Bicknell? *A.*—I have never met or seen Dr. Bicknell to my knowledge. I have read Dr. Bicknell's article as it appeared in Harper's Weekly, but before it appeared in Harper's Weekly I was making synthetic preparations of Wine of Cardui.

Q.—You are in the employ of the American Medical Association? *A.*—Yes, sir, I am in the employ of the American Medical Association.

Q.—You know that Dr. Bicknell came here and went into their employ, don't you? *A.*—I have not the slightest intimation of such a thing.

Q.—Didn't you see Dr. Bicknell up here in Chicago? *A.*—As I said before, I do not know Dr. Bicknell. I have never seen Dr. Bicknell, nor do I know a thing about it.

Mr. T. J. Scofield:—I want to say this, if the Court please; that Dr. Bicknell is not in the employ of the American Medical Association.

Mr. Hough:—I know he is not now.

Mr. T. J. Scofield:—And never was at any time, or under any circumstances, or for any purpose.

Mr. Hough:—Counsel will perhaps give us the evidence as to what he was doing up here with the Association.

Mr. T. J. Scofield:—When?

THE COURT:—You don't have to put in any evidence. We never heard of Dr. Bicknell before. Let us wait until something is said about it from the witness stand.

Mr. Hough:—I don't want Judge Scofield to testify all by himself.

Mr. T. J. Scofield:—Judge Scofield is speaking truthfully about it, and will testify if it be required or necessary.

TESTIMONY OF DR. L. E. WARREN

Dr. L. E. Warren again was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. Scofield announced that Dr. Warren was called to connect up some points previously mentioned. Dr. Warren testified that he purchased in the open market a bottle of Wine of Cardui which was sent in the original carton under seal. He made a memorandum by writing his name on the outside carton. A similar package was sent to Dr. Ralph Webster.

CROSS-EXAMINATION BY MR. HOUGH

On cross-examination the witness stated that it was his belief that the bottle sent to Dr. Loevenhart was manufactured since 1906. It was his belief that the bottle sent to Dr. Webster was manufactured subsequent to 1909. He was then handed a carton containing a bottle and stated that as far as he knew the carton was identical to that sent to Drs. Loevenhart and Webster. He marked this carton with his initial. He did not open the cartons sent to Drs. Loevenhart and Webster to look at the bottle. There was then handed to the witness the bottle from the carton which he had identified. He stated that he could not state whether the label on this bottle was identical to that taken from previous bottle. He was asked in detail concerning each statement on the labels. He did not state positively regarding any of the statements whether they were on the labels of the bottle before mentioned. He marked this bottle for identification.

TESTIMONY OF DR. ARTHUR J. CRAMP

Dr. Arthur J. Cramp was again called to testify for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

There was shown to Dr. Cramp a clipping from *Collier's Weekly* for June 8, 1912. He stated that he had endeavored recently to obtain a copy of that issue but was unable to do so. Mr. Scofield wished to offer the clipping in evidence. Objection was made and sustained after argument. There was then shown to the witness the Cardui Fashion Magazine. The witness stated that he believed that it was printed subsequent to 1909, as it contained testimonials dated October and December, 1909. There was then read into evidence an advertisement from page 4 of the Cardui Fashion Magazine.

Dr. Cramp then identified a bottle of Wine of Cardui stamped No. 6, 1915. He stated that the serial number A.171 indicates that it was made or put out subsequent to the change from the corporation to co-partnership on the part of the company. There was then handed to him a bottle of Wine of Cardui which he stated was put out previous to the other bottle because the alcohol percentage was not declared and the serial number was not on. On the first bottle was printed "for menstrual disturbances of women," on the earlier bottle "recommended for menstrual disturbances of women." These bottles were offered in evidence as exhibits. Dr. Cramp then identified a bottle which he purchased in the open market in 1913. He opened the carton, retained the carton in the Propaganda Department, floated off the labels from the bottle, put on his own label stating what was in the bottle, and turned it over to the laboratory for analysis.

CROSS-EXAMINATION BY MR. HOUGH

On cross-examination, the witness again gave the facts concerning the bottles mentioned in the direct examination and stated that when Dr. Warren commenced to analyze the preparation, he was told that it was Wine of Cardui.

STATEMENT BY MR. SCOFIELD

Mr. Scofield asked to strike out from the examination of Dr. J. Clarence Webster a statement containing the quotation "will cure falling of the womb in all its forms" as there was an error in putting on the quotation marks.

Mr. Scofield then introduced as evidence two photographs of billboard exhibits, used by Wine of Cardui Company. Objection was made, overruled and exception taken.

TESTIMONY OF MR. EDMUND ALBERT WHEATLEY

Mr. E. A. Wheatley was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. Wheatley stated that he is the advertising counsel of the Chattanooga Medicine Company and the advertisements were under his direction. He was asked how many billboards his company has which are 7 by 9 feet in size, similar to those shown to the jury.

Mr. Hough objected to this as irrelevant, calculated to confuse the issue and is not an issue in this case.

THE COURT:—There is one very well defined charge here, and that is, that the business is founded on fraud.

Mr. Hough:—On deceit is the language.

THE COURT:—Well, deceit.

On the question of the admissibility of this witness' evidence as to the extent of the plaintiff's advertising of Wine of Cardui, Mr. Hough argued to the effect that it was not open to the defendants to bring evidence on the point that the business had been built upon deceit, except such as might be introduced under the general charge that the business was a fraud, as based on specific facts stated in the argument. The defendants were entitled to introduce evidence only on those specific statements of fact, contained in the libel, which were set out in the plaintiff's declaration and which had been read into the plea of justification.

THE COURT:—How could you specify generally a combination of events from which possibly a conclusion might be drawn that the business was built upon deceit? Would you have to, in your plea of justification, set out every single link in the chain, and say "from this we draw the conclusion that the business was built on deceit?"

Continuing his argument, Mr. Hough replied to the Court that the difficulty of stating the necessary specific facts was indifferent and this necessity was incumbent on the defendants, who must state the facts, as distinguished from the conclusions that they would draw from them. If they could not state the facts, then they could not justify at all and no evidence would be permissible under the general charge. Mr. Hough having admitted on behalf of the plaintiff, without conceding that it was an issue in the case, that he had advertised Wine of Cardui as extensively as he could, Mr. Wheatley was allowed to leave the stand without testifying.

Mr. T. J. Scofield read from page 7 of the Ladies' Birthday Almanac of 1912, the almanac that is copyrighted and published by the Chattanooga Medicine Company.

Two pictures of the Exhibit of the defendants at San Francisco were introduced as defendants' Exhibit Nos. 78 and 79 and objected to by counsel for the plaintiff on the ground of immateriality. The Court overruled the objection but preserved the exception.

TESTIMONY OF DR. S. W. LEATHERS

Dr. Leathers was called to the stand for the defendants. Before this witness' evidence was taken, the Court intimated that it was disposed at this point to limit further expert evidence on the ground already covered. The defendants' counsel explained that Dr. Leathers was called to testify in reference to the relation existing between pellagra, hookworm and amenorrhea.

Mr. T. J. Scofield:—I think the suggestion made by your Honor is rather unfortunate for us, and particularly when we have been perfectly willing to reduce the number of expert witnesses which the rule allowed us to produce. I grant that this case has taken much time, but it has not been on our account, and if the record is examined here with care, you will see that, and that—

THE COURT:—It may be the Court's fault.

Mr. T. J. Scofield:—The cross-examination in this case has extended—I am not going to say for an unnecessary length.

After some discussion, out of the hearing of the jury, the Court suggested that defendants should stop, on the understanding that the plaintiffs would not put on a greater number of experts than the former had called.

On this the defendants rest their case.

The jury was excused until the next day and adjournment was taken until 2 o'clock p. m., of the same day.

(To be continued)

Correspondence

The Hospital Chemical Laboratory

To the Editor:—In a comparative study of hospital laboratories recently made by the writer, it became apparent that our present system provides but inadequately for the modern requirements of chemical routine and research in such institutions. In course of time the necessity for modern pathologic, bacteriologic and serologic laboratories has become so fully recognized that certain hospital laboratories devoted to these divisions of the medical sciences would do credit to a medical university. But little attention, however, has been as yet given to the development of the hospital chemical laboratory. This is probably due to the fact that the rise of biochemistry is as recent as it has been rapid, the result being that its importance in clinical medicine is only at present attaining full recognition. Thus it is only but a comparatively few years ago that a physician of some experience in general laboratory technic could be expected to carry out adequately the chief chemical examinations required of the hospital laboratory. The number of chemical examinations of clinical importance has steadily increased to the extent that this work now represents a large percentage of the total required of the hospital laboratories. Again, in some instances the analytic procedures have become of such complex nature that physicians with their necessarily generalized scientific training cannot properly be held responsible for accurate results without undue sacrifice of time and energy. Moreover, an increased amount of working space and apparatus is contingent to this augmentation in the chemical work of the modern hospital. These reasons, if briefly stated, may be regarded as sufficient to justify the presence in a large hospital of an adequately equipped chemical laboratory in charge of an experienced biochemist.

There are, however, various other grounds for encouraging the building up of such laboratories. Present day teachers and research workers in biochemistry are often beset by a certain onesidedness in their points of view and attainments. This tendency may incline either medically or chemically, but usually the chemical side predominates. The underlying cause of these difficulties is that it is by no means easy to acquire the ideal blending of chemical and medical experience most desirable for biochemists. The man of pure chemical training has far too few opportunities in the narrow confines of the university department of physiologic chemistry to acquire the needed balance of clinical experience: On the other hand, the physician entering into a biochemical career often lacks the necessary chemical training. If, however, our large urban hospitals possessed biochemical laboratories in charge of men of proper experience, no more ideal training could be afforded future workers in biochemistry than one obtained in such an environment. Here both the young chemist and the physician working in such a laboratory could acquire sufficient mutual experience in these branches to assure of an even future development.

Again, among the large collections of patients in our hospitals, many important and interesting research problems constantly present themselves, often only to remain unsolved for want of an experienced biochemist to undertake them. Many of such questions cannot be hopefully attacked by clinicians for want of sufficient chemical experience. These problems may likewise escape the attention of the university biochemical department. In this lies an additional reason for the existence of hospital biochemical laboratories.

The necessity of such a development having been emphasized, a few remarks as to a suitable organization may be added. The chief difficulty here to be encountered is the great scarcity of men in America sufficiently experienced in both medicine and chemistry to make ideal directors of such laboratories. In hospitals affiliated with universities, however, the director of the chemical laboratory might hold an assistant or associate professorship in the teaching institution. Such an arrangement would permit of medical and biochemical students doing chemical research work in the hospital laboratory, and thus become of distinct advantage

in their training. The minor positions in the laboratory can best be occupied by young chemists. Medical men connected with the hospital should, however, be encouraged to undertake research problems of chemical nature.

There is a frequent tendency to place too great control of the activities of hospital laboratories into the hands of the clinical staffs. In view of the modern development of medicine and its scientific branches, this course cannot but be followed by detrimental results. Perhaps the most judicious relation which can be proposed for the clinicians and biochemist would exist, if to the former were to be confined the seeking for and propounding of research problems, and to the latter the choice and solution of those suitable for chemical study.

With regard to the physical aspects of the hospital chemical laboratory, the following may be suggested: Even if available working space be limited, an effort should be made to give those workers engaged purely in research, room separate from that devoted to routine. The proper equipment of such a laboratory requires considerable judgment and experience, but a discussion of the technical details cannot be here entered into. A very essential adjunct is an experimental ward devoted *solely* to patients undergoing metabolic study. Complete segregation and constant control of such patients is indispensable for work of any value. If extensive studies are to be carried out, a specially trained dietitian is required in addition to nurses experienced in this kind of work. Proper provision for animal experimentation is seldom made in the modern American hospital. The actual requirements in this regard for the chemical laboratory are, however, usually but modest. A single room provided with metabolic cages frequently suffices even for a busy laboratory.

Finally, a working library should be regarded as essential in any completely equipped hospital laboratory in which serious research is attempted. A comparison of American and German hospitals strikingly illustrates the lack of such libraries in most hospitals in this country. This cannot always be ascribed to the usual excuse of shortage of funds, for $1,000 is quite sufficient to acquire a very useful nucleus of books and journals in any one of the medical sciences.

Nelson W. Janney, M.D., Ph.D., New York.
Physiological Chemist of the Montefiore Home and Hospital for Chronic Invalids.

Efficiency of the Rectal Examination in Obstetrics

To the Editor:—The value of a rectal examination in a normal obstetric case has been emphasized by several writers. The efficiency of the rectal examination is shown by the statistics from the outpatient department of the Presbyterian Hospital and Rush Medical College, where the standing order to students has been, no vaginal examinations after the fifth month. During the last six years there have been over 4,000 deliveries with but two cases of puerperal sepsis, and these two were cases in which vaginal examinations had been made by the same attending man in each case, and episiotomies done with subsequent infection of the episiotomy sutures. When we consider that these deliveries have been made in homes of the Ghetto district under insanitary conditions by students under supervision, the results seem worth while.

The method of making a rectal examination is not complicated. The gloved finger is carefully introduced into the rectum, following a recent enema, and, avoiding the almost constant hemorrhoids, the os is sought. When the edge of the ring is found, the finger is swept around to determine the amount of dilatation. Then the cervix is palpated to determine the amount of effacement and consistency. The sagittal suture and fontanel, or fontanels, can be located, depending on the amount of dilatation of the os. Palpation of the outlet is easily done. A marginal or central placenta praevia is easily palpated. A forelying or prolapsed cord may be found and, in short, almost any condition be ascertained as in a vaginal examination, with the exception of the best pelvic measurement we have—the conjugata vera. The distance of the head is measured in terms of phalanges, so that an intern, an obstetric nurse or a gas anesthetist, reporting a case, may say "1, 2 or 3 phalanges away," as the case may be.

The rectal examination takes less time than to prepare a patient surgically for a vaginal examination, it is less obnoxious to her, and it may be frequently repeated without danger of infection. This is advantageous in cases of contracted pelves, as there arises no contraindication to cesarean section from repeated vaginal examinations. If the patient develops a rise of temperature after delivery, the physician has no reason to reproach himself.

Recently there was a case of thrombophlebitis in a well known obstetrician's patient. It was a source of considerable satisfaction to him that no vaginal examination had been made since the fifth month.

While a rectal examination is aseptic, it is at least debatable whether a vaginal examination may be made aseptic. Nevertheless the remark is frequently made, "I use vaginal examinations entirely, and have no cases of puerperal sepsis. Why should I change to the use of rectal examinations?" The answer to this question is that many cases of low grade salpingitis are ignored by the accoucheur. A temperature of 100 or over on the third or fourth day does not always mean "lactation"; pains in the lower quadrant of the abdomen from the sixth to the fourteenth day do not always mean "constipation," or "muscular rheumatism," or "neuralgia. All of these phenomena often indicate a low grade salpingitis or pelvic peritonitis. This low grade salpingitis or pelvic peritonitis so contracted is just as important a focus of infection as the tonsils, sinuses, teeth and other foci of chronic infection. It seems more reasonable to suppose that the atrium of infection in a parous woman with nonsuppurative salpingitis is chiefly from her obstetric experiences, rather than distant foci in the body.

William F. Hewitt, M.D., Chicago.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ARTICLES ON SYSTEMIC BLASTOMYCOSIS

To the Editor:—Please publish a list of references to articles dealing with systemic blastomycosis, more particularly those describing recent work. W. F. Sihler, M.D., Devils Lake, N. D.

Answer.—The following is a list of references to articles on the subject:

Morris, R. T.: Case of Systemic Blastomycosis, The Journal, Dec. 6, 1913, p. 2043.
Stober, A. M., and others: Systemic Blastomycosis, *Arch. Int. Med.*, April 15, 1914; abstr., The Journal, May 9, 1914, p. 1505.
Hill, H. P., and Dickson, E. C.: Case of Systemic Blastomycosis, *California State Jour. Med.*, March, 1914.
Powers, C. A.: Two Fatal Cases of Systemic Blastomycosis, *Ann. Surg.*, June, 1914.
Hurley, T. D.: Unique Lesion of Heart in Systemic Blastomycosis, *Jour. Med. Research*, January, 1916; abstr., The Journal, Feb. 19, 1916, p. 603.
Massey, A. Y.: Blastomycosis (?) in Central Africa, *Jour. Trop. Med. and Hyg.*, April 1, 1916.

A MINOR NOTE IN A DIFFERENT KEY

To the Editor:—I thank you very much for your kind letter of sound advice and deserved criticism of my article. I can now see that I did stray away from the point that I should have centered my article about and that it hence was lacking that most essential element, complete coherence. I am sure that all authors, and particularly the young ones such as myself, must appreciate the policy of The Journal in thus giving counsel and pointing out mistakes. The writer is so liable to be blind to his own errors. A. B. C.

Ignorance of Anatomy.—It is shameful for man to rest in ignorance of the structure of his own body, especially when the knowledge of it mainly conduces to his welfare, and directs his application of his own powers.—Melancthon.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, July 10. Chairman, Dr. W. H. Sanders, Montgomery.

ALASKA: Juneau, July 5. Sec., Dr. H. C. DeVighne, Juneau.

ARIZONA: Phoenix, July 5-6. Sec., Dr. John Wix Thomas, 306 Goodrich Building, Phoenix.

CALIFORNIA: San Francisco, June 27. Sec., Dr. Charles B. Pinkham, R. 527 Forum Bldg., Sacramento.

COLORADO: Denver, July 4. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: Regular, New Haven, July 11-12, Sec., Dr. Chas. A. Tuttle, 196 York St., New Haven; Homeopathic, New Haven, July 11, Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven; Eclectic, New Haven, July 11, Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

DELAWARE: Dover and Wilmington, June 20-22. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

DISTRICT OF COLUMBIA: Washington, July 11-13. Sec., Dr. Edgar P. Copeland, The Rockingham.

ILLINOIS: Chicago, June 21-23. Sec., Dr. C. St. Clair Drake, Springfield.

INDIANA: Indianapolis, July 11-13. Sec., Dr. W. T. Gott, 84 State House, Indianapolis.

MAINE: Augusta, July 6-7. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MASSACHUSETTS: Boston, July 11-13. Sec., Dr. Walter P. Bowers, 1 Beacon St., Boston.

MICHIGAN: Ann Arbor, June 19-21. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MISSISSIPPI: Jackson, June 20-21. Sec., Dr. J. D. Gilleylen, Jackson.

NEW HAMPSHIRE: Concord, June 26-27. Sec., Dr. W. T. Crosby, The Beacon, Manchester.

NEW JERSEY: Trenton, June 20-21. Sec., Dr. Alexander MacAlister, 429 E. State St., Trenton.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 27-30. Chief, Examinations Division, Mr. Harlan H. Horner, State Education Bldg., Albany.

NORTH CAROLINA: Raleigh, June 27-30. Sec., Dr. H. A. Royster, Raleigh.

NORTH DAKOTA: Grand Forks, July 4. Sec., Dr. G. M. Williamson, Grand Forks.

OKLAHOMA: Oklahoma City, July 11. Sec., Dr. R. V. Smith, 502 Daniel Bldg., Tulsa.

OREGON: Portland, July 5-7. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 11-13. Sec., Mr. Nathan C. Schaeffer, Department of Public Instruction, Harrisburg.

RHODE ISLAND: Providence, July 6-7. Sec., Dr. Gardner T. Swarts, Room 313 State House, Providence.

SOUTH DAKOTA: Deadwood, July 11. Sec., Dr. Park B. Jenkins, Waubay.

TEXAS: San Antonio, June 27-29. Sec., Dr. John S. McCelvey, Temple State Bank Bldg., Temple.

UTAH: Salt Lake City, July 3. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

VERMONT: Burlington, July 11-13. Sec., Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 20-23. Sec., Dr. J. N. Barney, Fredericksburg.

WASHINGTON: Tacoma, July 4. Sec., Dr. C. N. Suttner, Walla Walla.

WEST VIRGINIA: Charleston, July 11. Dr. S. L. Jepson, Charleston.

WISCONSIN: Milwaukee, June 27-29. Sec., Dr. J. M. Dodd, 220 E. 2d St., Ashland.

ARTICLES OF AMALGAMATION

Between the University of Pennsylvania and the Medico-Chirurgical College and Hospital

The Medico-Chirurgical College and Hospital shall become the Medico-Chirurgical College and Hospital, Graduate School of Medicine of the University of Pennsylvania.

The following clinical professors of the medical department of the Medico-Chirurgical College—eight in number—shall automatically become members of the faculty of the Medico-Chirurgical College, Graduate School of Medicine, with the rank of full professors: James M. Anders, Ernest Laplace, W. Easterly Ashton, L. Webster Fox, George M. Boyd, Judson Daland, E. B. Gleason, George E. Pfahler.

The following scientific professors of the medical department of the Medico-Chirurgical College—five in number—shall at once be elected professors in the undergraduate school of medicine in the University of Pennsylvania with the same rank, title and salary as they now have: Seneca Egbert, John C. Heisler, Joseph McFarland, George H. Meeker, Horatio C. Wood, Jr.

Under the charter and statutes the ultimate control of all teaching in the University is vested in the Board of Trustees—subject to such control, and subject to the terms of donations, endowments made or to be made, the teaching of medicine and surgery to graduate students shall be under the direction of the Faculty of the Medico-Chirurgical College and Hospital, Graduate School of the University of Pennsylvania.

No future amalgamation between the university and any institution now existing shall operate to create within the university a similar but independent school for graduate teaching in medicine and surgery.

In any such case the graduate teaching in such school shall be done by this faculty as now composed or as from time to time constituted by action of the board of trustees.

The age limit prevailing in the University of Pennsylvania shall not be operative in the case of the professors who come in from the Medico-Chirurgical College until at least five (5) years from the time the new graduate school is built and opened for instruction.

The trustees of the university shall provide a new hospital containing 200 beds for ward patients and not less than 50 private rooms and a nurses' home. The hospital shall include on the staff or faculty a professor of biologic chemistry and a professor of physiology, pathology, and bacteriology and shall provide for them well-equipped and thoroughly organized laboratories. There shall also be a Roentgen-ray and electrotherapeutic laboratory and a department of physical therapeutics.

That there may be no interference with the hospital facilities now enjoyed by the clinical professors of the Medico-Chirurgical College, the new hospital shall be completed and organized before the present hospital is vacated, unless the city should in the meantime take possession of the property.

Subject to the agreement of merger with the Evans Dental Institute the dental school of the Medico-Chirurgical College shall merge completely in the dental school of the University of Pennsylvania, its faculty becoming a part of the dental faculty of the University of Pennsylvania, and the student body uniting with the student body of the university.

The following dental professors of the Medico-Chirurgical College shall be elected professors in the dental school of the university with the same rank, title and salary as they now have: I. Norman Broomell, R. Walter Starr, L. Ashley Faught.

The School of Pharmacy of the Medico-Chirurgical College may become a distinct branch of the University of Pennsylvania to be known as the department of pharmacy, and J. W. Sturmer shall be elected a professor in the department with the same title and salary as he now has.

The University of Pennsylvania shall carry out all contracts and obligations entered into with students who are registered in the Medico-Chirurgical College at the time the merger is accomplished. The trustees shall recognize new students who have registered and admit them to the university without further examinations. Students who have passed their examinations and who present certificates from their respective deans shall be admitted to advanced standing in the university without formality and given a diploma in course.

The graduates of the Medico-Chirurgical College shall be eligible to membership in the corresponding alumni societies and also in the general alumni society.

All assets, property and endowments held by the trustees of the Medico-Chirurgical College and Hospital corporations shall pass in absolute ownership to the corporation of the University of Pennsylvania, to be held as a separate fund and used exclusively for buildings, development and maintenance of the Medico-Chirurgical College and Hospital, Graduate School of Medicine of the University of Pennsylvania.

Representation of the Board of Trustees of the University of Pennsylvania shall be given to the Medico-Chirugical College if possible.

Teaching in the Medico-Chirurgical College shall end with the present session of 1915-16 and the university trustees shall take immediate steps to transfer the professors and students of the Medico-Chirurgical College in accordance with the articles of amalgamation.

The Alumnae of the Nurses' Training School of the Medico-Chirurgical Hospital shall become members of the reorganized alumnae association of nurses of the Medico-Chirurgical College and Hospital, Graduate School of Medicine of the University of Pennsylvania.

JAMES M. ANDERS,
Chairman Amalgamation Committee.
W. EASTERLY ASHTON,
Secretary.

Alaska January Report

Dr. Henry C. DeVighne, secretary of the Alaska Board of Medical Examiners, reports the oral and written examination held at Juneau, Jan. 4, 1916. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 2, both of whom passed. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Columbia University, Coll. of Phys. and Surgs.	(1907)	80
University of Edinburgh	(1872)*	75

* Graduation not verified.

California Reciprocity Report

Dr. Charles B. Pinkham, secretary of the California Board of Medical Examiners, reports that 43 candidates were licensed through reciprocity from December, 1915, to Jan. 1, 1916. The following colleges were represented:

College	Year Grad.	Reciprocity with
Denver College of Physicians and Surgeons	(1909)	Colorado
University of Colorado	(1911)	Colorado
Yale University	(1903)	Connecticut
Atlanta College of Physicians and Surgeons	(1913)	Georgia
American Medical Missionary College	(1901)	Illinois
Bennett College of Eclectic Medicine and Surgery	(1902)	Illinois
Hahnemann Medical College and Hospital, Chicago	(1891) (1903)	Florida Illinois
Northwestern University	(1907)	Missouri; (1906) (1911, 2) Illinois
Rush Medical College	(1908)	(1912) Illinois
Indiana University	(1908)	Ohio
Keokuk Med. Coll., Coll. of Phys. and Surgs.	(1902)	Iowa
Kentucky University	(1904)	Washington
University of Louisville	(1910)	Idaho
Johns Hopkins University	(1906)	Iowa; (1910) (1912, 2) Maryland
University of Maryland	(1894)	Washington
Tufts College Medical School	(1906)	Arizona
University of Michigan Medical School	(1911) (1912)	New York Michigan
Minneapolis College of Physicians and Surgeons	(1908)	S. Dakota
Kansas City Medical College	(1894)	Nevada
Marion Sims College of Medicine	(1895)	Illinois
Marion-Sims-Beaumont Medical College	(1902)	Missouri
University Medical College, Kansas City	(1898)	Ohio
Washington University	(1913)	Missouri
Omaha Medical College	(1896)	Nebraska
Columbia University, College of Phys. and Surgs.	(1905)	New York
Cornell University	(1908)	New York
Long Island College Hospital	(1885)	Nevada
New York Med. Coll. and Hosp. for Women	(1902)	New York
Western Reserve University	(1906)	Ohio
Jefferson Medical College	(1899)	Michigan; (1906) Penna.
University of Pennsylvania	(1902)	Illinois
Tennessee Medical College	(1906)	Washington

Rhode Island January Report

Dr. Gardner T. Swarts, secretary of the Rhode Island State Board of Health, reports the practical and written examination held at Providence, Jan. 6-7, 1916. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 80. The total number of candidates examined was 5, all of whom passed. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
College of Physicians and Surgeons, Baltimore	(1915)	82.4
Harvard University	(1915)	80
Tufts College Medical School	(1909)	81.2
Jefferson Medical College	(1914)	81.5
Medico-Chirurgical College of Philadelphia	(1915)	80

One candidate, a graduate of the Medico-Chirurgical College of Philadelphia in 1901, failed at the oral examination held Jan. 13, 1916.

Oklahoma January Report

Dr. Ralph V. Smith, secretary of the Oklahoma State Board of Medical Examiners, reports the oral and written examination held at Oklahoma City, Jan. 11-12, 1916. The total number of subjects examined in was 11; total number of questions asked, 100; percentage required to pass, 70. The total number of candidates examined was 4, of whom 2 passed and 2 failed. Twelve candidates were licensed through reciprocity. Four candidates were licensed through reregistration. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Tulane University of Louisiana	(1914)	91
University of Tennessee	(1915)	83
FAILED		
Birmingham Medical College	(1915)	79 *
University Medical College, Kansas City	(1897)	69

LICENSED THROUGH RECIPROCITY		
College	Year Grad.	Reciprocity with
Arkansas Industrial University	(1889)	New Mexico
Arkansas University	(1914)	Arkansas
College of Phys. and Surgs., Little Rock	(1911)	Arkansas
Rush Medical College	(1890)	Wisconsin
University of Louisville	(1896)	Missouri; (1913) Kentucky
Eclectic Medical University, Kansas City	(1911)	Arkansas
Lincoln Memorial University	(1914)	Tennessee
Meharry Medical College	(1912)	Texas
Memphis Hospital Medical College	(1913)	Tennessee
Marquette University	(1913, 2)	Wisconsin

* Fell below the required average in one or more subjects.

Book Notices

HARVEY'S VIEWS ON THE USE OF THE CIRCULATION OF THE BLOOD. By John G. Curtis, M.D., LL.D. Based on a Lecture Delivered in 1907, before the Johns Hopkins Hospital Historical Club at Baltimore. Cloth. Price, $1.50. Pp. 194, with illustrations. New York: Columbia University Press, 1915.

This interesting book was published after the death of the author, and the final touches necessary for publication have been supplied by Prof. F. S. Lee. The book represents a large amount of scholarly work, and as pointed out by Lee, is a more profound study of Harvey's ideas, as compared with the ideas of his most important predecessors, than has heretofore appeared. Lee says: "It is the work of one who from the background of the physiological science of today delighted in mastering the ideas of the fathers of modern physiology. If his work is to be summarized in a single sentence, it may be said that he has shown Harvey to be a disciple more of Aristotle than of Galen. Although Harvey had the courage and the originality to break away from him whose ideas had prevailed for fourteen centuries, and to find the truth in regard to the movement of the blood, he found much to approve in the master who had lived five hundred years before Galen. Harvey's true position in the world of physiological thought has not before been known. Herein lies Professor Curtis' contribution to the history of his science."

THE MORTALITY FROM CANCER THROUGHOUT THE WORLD. By Frederick L. Hoffman, LL.D., F.S.S., F.A.S.A., Statistician, The Prudential Insurance Company of America. Cloth. Gratis. Pp. 826. Newark, N. J.: The Prudential Press, 1915.

So far as we know to the contrary this book represents the most complete study of the incidence of cancer yet published. The literature on cancer statistics has been thoroughly reviewed, and figures are supplied on cancer in every aspect. There are 220 pages of the book devoted to a discussion of the results. The remainder, about 600 pages, contains charts and appendixes quoting actual statistics of cancer as it occurs in practically every part of the world where such studies have been made. Special appendixes are devoted to the recommendations and instructions of various societies for the control of cancer, and about twenty pages to a bibliography. The book is exceptionally worth while, and the Prudential Life Insurance Company is to be congratulated on the spirit that prompted the financial outlay involved in its production.

PRACTICAL PHYSIOLOGICAL CHEMISTRY. A Book Designed for Use in Courses in Practical Physiological Chemistry in Schools of Medicine and of Science. By Philip B. Hawk, M.S., Ph.D., Professor of Physiological Chemistry in the Jefferson Medical College of Philadelphia. Fifth Edition. Cloth. Price, $2.50* net. Pp. 638, with illustrations. Philadelphia: P. Blakiston's Son & Co., 1916.

The fifth edition of this book contains several new chapters on nucleic acids and nucleoproteins, on gastric analysis, on intestinal digestion, on blood analysis and on metabolism. It offers a short, concise treatment of physiologic chemistry, and is well adapted for use in schools. One of its best features is that it serves as a laboratory manual; the numerous experiments which it describes are well chosen.

Medicolegal

Diagnosis and Treatment of Fractures as Sprain

(Nickerson vs. Gerrish (Me.), 96 Atl. R. 235)

The Supreme Judicial Court of Maine overrules a motion for a new trial, after a verdict for $5,000 damages was returned in favor of the plaintiff, on condition that he remit all of the verdict in excess of $3,000. The court says that the plaintiff, in walking in a railroad roundhouse, January 5, stepped unawares into an ash pit about 3 or 4 feet deep, striking his full weight on his right foot flat on the brick bottom of the pit, and thereby fractured both bones of his right leg, the fibula and tibia, about 3 inches above their lower ends. About eight hours afterward, he was attended by the defendant, who diagnosed his injuries as a sprain and administered treatment accordingly. Subsequently the defendant visited him six times, the last visit being January 14 or 15. At that time the plaintiff was on crutches and suffering considerable pain; but, at his suggestion that he wished to get back to his office, the defendant advised that he might do so. The defendant did not see the leg again until February 4, when the plaintiff called at his office, and it was "obvious to the eye" that there had been a fracture as the result of the accident. The defendant did not, however, inform the plaintiff of that fact, or then propose any treatment to reduce the fracture, but advised him to have the leg massaged and report in three days. On the evening of the same day, the plaintiff consulted another physician, and a roentgenogram of the leg was taken. The next day the defendant was paid for his services and discharged from the case. There was considerable testimony of physicians, on the one side and the other, as to the difficulty of diagnosing injuries to the lower leg or ankle, and as to the methods of examination for such injuries, and the relative utility of the different recognized tests which are used to detect fractures in the lower leg or ankle. But, while that testimony was not altogether in harmony, it disclosed a consensus of opinion that there are certain recognized methods of examination or tests to be used when the nature of such injuries is not obvious, but hidden and difficult of diagnosis. That the defendant was perfectly familiar with all the methods and tests recognized by the profession to be used in such examinations, and understood their relative usefulness, was conceded. He concluded that it was unnecessary in the plaintiff's case to have a roentgenogram taken of the leg, or to etherize the patient, and he relied on his manipulation of the injured parts and his examination for deformity or other possible indication of fracture, as affording him sufficient information on which to base his diagnosis. He made a mistake, however, and his diagnosis was wrong. But that fact alone was not sufficient to render him liable. Something else must be shown. And the issue before the jury in this case necessarily was whether that mistake was the result of a failure of the defendant to use painstaking care and diligence, and to exercise the best of his admitted learning, skill and judgment in his examination and treatment of the plaintiff's injuries. That issue the jury found in the plaintiff's favor. A physician impliedly agrees with his patient that he possesses that reasonable degree of learning and skill in his profession which is ordinarily possessed by other physicians under like conditions, that he will use his best skill and judgment in diagnosing his patient's disease or ailment and in determining the best mode of treatment, and that he will exercise reasonable care and diligence in the treatment of the case.

Perforating Lining of Bladder — Abandoning Case

(Burnett vs. Layman (Tenn.), 181 S. W. R. 157)

The Supreme Court of Tennessee reverses a judgment entered on a directed verdict for the defendant, and remands the case for a new trial. The action was for alleged malpractice. The court says that the plaintiff was being treated for a bladder trouble, and it was thought necessary by the defendant to sound the urethra. In the performance of this operation there was some evidence tending to show that the lining of the bladder was "pocketed" or perforated by the sound. A physician does not guarantee the cure of his patients. Presuming a careful diagnosis, a physician is not liable for damages resulting from an honest mistake in determining on the character of treatment to be administered, or in determining on the necessity of an operation. These things are mere matters of judgment on which an action for damages cannot ordinarily be predicated. While it is sometimes difficult to distinguish between negligence and an error of judgment, it may be said, generally speaking, that in performing an operation the physician is employing surgery as an art, and he is liable for negligence in operating. So in this case, while the defendant could not be held liable for an error of judgment in determining on the sounding operation, he was liable for any negligence in the actual performance thereof. Some of the evidence introduced for the plaintiff indicated that the defendant did not exercise the care which an ordinarily prudent physician should have employed in his manner of using the sound. In fact, in the absence of any explanation whatever from the defendant, it might have been inferred by the jury that the lining of the bladder would not have been perforated if due care had been used.

Another count of the declaration sought to hold the defendant liable on account of his abandoning the case, and the court thinks there was evidence to sustain this count. It appeared that when this sound was introduced, the plaintiff heard something pop, and the withdrawal of the sound was followed by a flow of blood and pus. The defendant appeared excited, announced that he was no surgeon, and told the plaintiff that he must procure a surgeon. The defendant then hurriedly left, without any effort to relieve the plaintiff or to administer to him further. The plaintiff did not procure another physician until the next day or day thereafter. It is well settled that a physician who undertakes the treatment of a case may not abandon his patient until in his judgment the facts justify the cessation of attention, unless he give to the patient due notice that he intends to quit the case and affords the patient opportunity to procure other medical attendance. What is fair notice to a patient depends on the circumstances of each case. In this case the plaintiff appeared to have been suffering greatly, bleeding, and in need of immediate attention when the defendant abandoned him. Certainly the defendant should have done something in this pressing case to have relieved the distress of his patient. The court thinks the defendant was liable for his conduct. He should have remained with the plaintiff until immediate sufferings were relieved, or until another physician had been secured.

Contract with Health Officer to Treat Cases Against Public Policy

(Town of New Carlisle vs. Tullar (Ind.), 110 N. E. R. 1001)

The Appellate Court of Indiana, Division No. 1, reverses a judgment for $362.22 obtained by plaintiff Tullar against the town for professional services rendered and medicines furnished in treating certain smallpox cases. The plaintiff contended that he was first employed as a physician to treat the cases, and was later in the same day appointed to and accepted the position of health officer of the town, the salary of which was $15 a year. The court holds that the principle of public policy was involved, and that therefore the alleged contract under which the services were rendered was void if entered into after the plaintiff accepted the position of health officer, and, if entered into before he became such health officer and the services were rendered while he was such officer, the contract was thereby rendered invalid, and its enforcement would be against public policy. Whether the contract was entered into shortly before, at the time, or after the plaintiff's appointment as secretary of the board of health, was not material, for it was not disputed that he rendered the services while acting in his official capacity as health officer. However, the alleged contract did not come within the letter of the Indiana statute which prohibits officers from being interested in public contracts. But whenever a public officer enters into a contract, the execution of which may make it possible for his

personal interests to become antagonistic to his faithful discharge of public duty, such contract is held void on the ground that it is against public policy. The secretary of a board of health in his official capacity owes high and important duties to the public. His responsibiliy not only involves the health and sanitary conditions of the citizens generally, but in determining when it is necessary to act and the nature and extent of the measures to be employed he necessarily determines questions which reach and affect the public treasury. When measures have been taken and treatment given at the expense of the public, he is charged with general supervision and must likewise determine when such measures or treatment may safely be discontinued. The services for which a recovery was allowed in this case continued throughout the month of March. The plaintiff's duties as health officer were continuous throughout that time. The determination of the necessity for the continuation of the services at the expense of the municipality during that time was a question that devolved on him in his official capacity. Whether he acted honestly and in good faith was not material to the question under consideration. The question depended, not on what was actually done under the contract, but on what was made possible thereby. Recovery for such continued services could not be sustained on the ground of emergency. Cases dealing with emergency have been duly considered, but are not of controlling weight here, though they have application to many situations which arise in relation to public health.

Insufficient Evidence of Wife Promising to Pay Physician

(Vernaglia vs. Cirota (N. Y.), 156 N. Y. Supp. 432)

The Supreme Court of New York, Appellate Term, First Department, reverses a judgment obtained by the plaintiff, and grants the defendant a new trial, with $30 costs to the defendant to abide the event. The court says that the plaintiff, a physician, sued the defendant to recover the alleged reasonable value of professional services rendered to her husband at the joint request of the defendant and her husband, who had since died. It is well settled that the performance of services by a physician for a third person at the request of another gives rise to no implied promise to pay for the services by the person making the request, unless the relationship of such person to the plaintiff be one which imports a legal obligation to provide them. In order to support such a liability of a person under no legal obligation to provide the services of a physician, there must be an express promise on the part of such person to pay for the services, made before the services are rendered. The plaintiff recognized this rule, and that a wife is under no legal obligation to provide such services for her husband out of her own estate; but he relied on an alleged express promise of the defendant to pay for the services. The evidence of such express promise by the defendant was the testimony of the plaintiff that at the time he commenced the services he had a joint conversation with the defendant and her husband, the patient, in which they said: "Doctor, you are the one we have confidence in, and we want you to visit me, or the sick one, three times daily, and we will pay you for everything you do for us." He was asked to state exactly what each party said, and replied: "They all talked. They were both talking together. I cannot separate them." The defendant denied that she made any statement in regard to payment for the plaintiff's services, and testified that there were several other physicians in the room, who were all talking in consultation, and she had nothing to say to any one. Resolving this issue of fact most favorably to the plaintiff, the court is of the opinion that the testimony did not show an express promise by the defendant to be individually responsible for the debt. Assuming that the wife said, jointly with her husband, "We will pay you for everything you do for us," the court thinks that under the circumstances here disclosed the "we" clearly referred to the family, and to the husband as the responsible head of the family. In the absence of a separate statement by the wife, saying "I will pay you," or words to that effect, no express promise on the part of the wife to be personally liable for the physician's fees could be found.

Society Proceedings

COMING MEETINGS

Montana State Medical Association, Miles City, July 12-13.
New Jersey Medical Society, Spring Lake, June 20-22.
Washington State Medical Association, Seattle, July 12-14.

ASSOCIATION OF AMERICAN PHYSICIANS

Thirty-Fourth Annual Meeting, held at Washington, D. C., May 9-11, 1916

(Concluded from page 1886)

Treatment of Typhoid by Intravenous Injections of Sensitized Typhoid Vaccine Sediment

DRS. FREDERICK P. GAY and H. T. CHICKERING, Berkeley, Calif.: The majority of about seventy-five cases of typhoid were treated with intravenous injections of polyvalent, sensitized vaccine sediment. The mortality was about the same as the best hospital normal, from 9 to 10 per cent. Distinct benefit was seen in cutting short the disease. Over 40 per cent. of the cases were abortively cured, with normal temperature within a week after the first injection. In 25 per cent. more an early induced lysis was observed.

DISCUSSION

DR. LOUIS M. WARFIELD, Milwaukee, Wis.: Sixteen of the twenty-one patients treated with this vaccine recovered; two patients were cut short abortively, a man of 40 and a child; the man suffered a typical relapse which was uninfluenced by the vaccine. The five deaths were due, two to pneumonia, two to hemorrhage and one to long continued toxemia. The average duration of fever in this series was thirty-eight days, the same as in the prior series of unvaccinated cases. The shortest vaccinated case was seventeen days, the shortest unvaccinated case, sixteen days. The highest leukocytic crisis took the count to 42,000, and occurred five hours after vaccination. Two impressions were gained: 1. The general course of typhoid is milder after vaccination. 2. The subjective symptoms are ameliorated.

DR. JOSEPH L. MILLER, Chicago: Nonspecificity of the reaction needs emphasis. Lüdke obtained as good results from the use of albumose as from vaccine. I have seen as good results from the use of proteose. Recently I saw remarkably quick recoveries from acute infections following the use of chicken serum. In acute arthritis I have been able to induce very striking crises with injections of typhoid vaccine.

Physical Signs and Symptoms of Wounds of the Chest

DR. C. P. HOWARD, Iowa City, Iowa: This series comprised 107 cases, of which eighty-seven were thoroughly studied. The wounds were produced by rifle or machine gun bullets (forty-five) or by shell, as shrapnel, high explosive, or hand grenade (forty-two). In Group 1 (fifteen) no signs could be found; in Group 2, either pneumonia (four) or simple serous effusion (two); in Group 3, mediastinitis, one case. In Group 4 a hemothorax was found, which was either infected (nine cases) or noninfected (fifty-six cases). Infecting organisms varied. Symptoms were cough, pain, hemoptysis of varying degree, and dyspnea. There was usually fever. The physical signs suggested consolidation rather than fluid, owing to the great compression of lung. Cardiac displacement was often striking. In eight cases there were unequivocal and in five others suggestive signs of pneumothorax. In four cases pneumonia existed on the side opposite the hemothorax. Secondary hemorrhage into the pleural cavity was rare (one case). Simple fibrinous pericarditis occurred in three cases, and a pneumopericardium in one. Treatment consisted of free drainage in infected cases and of simple aspiration or of oxygen replacement. Mortality was only 7 per cent. in the entire series.

DISCUSSION

DR. DAVID RIESMAN, Philadelphia: I have observed the same physical signs described by Dr. Howard as occurring in hemothorax due to gunshot wounds in traumatic hemo-

thorax without penetration. They were left alone and got well by absorption.

Anaphylatoxins

DRS. F. G. NOVY and P. H. DEKRUIF, Ann Arbor, Mich.: An anaphylatoxin is a toxic substance developed in an organism as a result of the introduction into that organism of any one of various things. It is now possible to make in five minutes a constant anaphylactic poison which will kill a 250 gm. guinea-pig immediately in a dose of 0.25 c.c. If agar serum anaphylatoxin is centrifugalized, it may be used without harm; after fifteen minutes it kills; and this may be repeated: it is a true colloidal periodicity. Normal serums are all deadly poisons if treated right. Normal blood serum, which is harmless when freshly drawn into a syringe and for one or two minutes thereafter, after three minutes always kills. Rabbit's blood was divided into two portions; one part defibrinated by beads was harmless; another part defibrinated with a rod always killed. If serum can be so influenced out of the body, why not in it? The answer was found in the production of a constant poison by the use of agar as antigen, but only when it was employed in a certain way.

Various Proteose Intoxications

DR. G. H. WHIPPLE, San Francisco: The relation of proteose intoxication to general peritonitis, acute pancreatitis and acute intestinal obstruction was made the subject of study. The material used experimentally was obtained in cases of acute peritonitis and of acute pancreatitis: the proteose was one precipitated by five volumes of alcohol. Constant presence of this proteose in the organs concerned was noted in the processes studied; it was recovered from closed intestinal loops, from exudates in sterile peritonitis, and from the extracted pancreas in induced pancreatitis. It was absent in controls. A rise in noncoagulable nitrogen has been noted in the three conditions studied; induced peritonitis, pancreatitis and obstruction in dogs was followed by rapid rise of noncoagulable nitrogen. It is assumed that this is due to destruction of body tissue by a toxic agent, namely, proteose. It is concluded that the evidence leads to the idea that, in the three conditions mentioned, proteose intoxication plays a part.

The Food Problem in Dispensary Patients of Different Nationalities

DRS. H. R. M. LANDIS and F. A. CRAIG, Philadelphia: The proper utilization of food has an important bearing on the prevention of disease, notably tuberculosis. Are the people getting the right kind and amount of food for their money? Are foreign born dispensary patients adapting themselves well to American market conditions? A study was made of four groups of families: three Italian, three Jewish, three Negro and three Polish. Daily inventories of their food supply were made for three weeks by a nurse; calories, waste and cost were estimated. Adopting a standard calory value, including 340 calories represented by protein, it was found that all the groups approximated the desired calory value in the food purchased, but there was much variation in the protein content. The cost per head per day was as follows: Italian, 19 cents; Jews, 21.5 cents; Negroes, 24 cents; Poles, 34 cents.

DISCUSSION

DR. S. SOLIS COHEN, Philadelphia: The caloric content is by no means representative of the true value of food, especially of its dietetic value for tuberculosis. The therapeutic value of food in tuberculosis depends on its richness in nitrogen rather than the other ingredients.

Etiology of Pellagra

DR. E. J. WOOD, Wilmington, N. C.: Corn is regarded as bearing the same relation to pellagra as is borne by rice to beriberi. The correctness of this view is proved both by experiments on the pigeon and by evidence found in the literature of outbreaks of pellagra brought about by eating highly milled meal, which were promptly corrected by feeding whole meal. The fault lies in two factors: The first is the heating of the corn in kilns above 120 C., which is enough to destroy the vitamin. The second is the removal of the fat-containing germ from the grain. The remedy consists in feeding the victims the whole grain, and this plan is also prophylactic.

DISCUSSION

DR. JOSEPH SAILER, Philadelphia: I recently saw two cases in Philadelphia; both patients had lived in the city for thirty years; neither had ever used corn meal as food.

DR. NATHAN E. BRILL, New York: I recently observed pellagra in a man who had not been outside New York City in twelve years and had never tasted corn meal in his life.

DR. E. J. WOOD, Wilmington, N. C.: I have seen many pellagrins who have never eaten corn meal in their lives, but who nevertheless were relieved on being fed corn chops. Wheat germ will probably act in the same way. The very extensive use of baking powder and soda in the South may be a factor in the pellagra problem; these ingredients in bread may liberate enough sodium carbonate to destroy the vitamins in the best of grain. It is a fact that the sudden appearance of pellagra in the South was coincident with the disappearance of the old fashioned water-power grist mill.

Lipase in the Urine of the Tuberculous

DR. WILLIAM CHARLES WHITE, Pittsburgh: The study was undertaken while seeking a key to the disappearance of fat in the tuberculous. Little if any lipase is found in the urine of normal human beings; little, if any, in urine from afebrile tuberculous persons, progressing well; but there is a marked rise of lipase in urine from febrile tuberculous persons approaching death. Lipase rises in the urine before and during fever in the tuberculous, and declines with defervescence.

Leukemia, Lymphosarcoma and Hodgkin's Disease

DR. C. H. BUNTING, Madison, Wis., and DR. J. L. YATES, Milwaukee, Wis.: Leukemia, lymphosarcoma and Hodgkin's disease have in common: (1) a primary focus of infection; (2) progressive glandular enlargement; (3) a chronic course with late anemia and late fever; (4) eventual fatal termination; (5) early Hodgkin's blood picture or leukemia blood picture, and (6) all yield a diphtheroid organism. The leukemic blood picture may appear in all the groups. Shall we adhere to the classification of these diseases in three separate compartments, or shall they be regarded as variations of one process associated with the diphtheroid organism?

DISCUSSION

DR. H. G. WELLS, Chicago: In studying mice in the course of tumor work, a lymphatic condition, indistinguishable from leukemia in man, has been repeatedly observed. Nothing like lymphogranulomatosis or Hodgkin's disease has been found. Mice which develop leukemia do not have tumors.

DR. THEODORE C. JANEWAY, Baltimore: Our understanding of these conditions is not advanced by claiming that a diphtheroid organism is always present, or by explaining contradictory findings on the basis of technical errors. We have studied all sorts of lymph nodes without the finding of the diphtheroid organism with any degree of constancy.

DR. FRANK BILLINGS, Chicago: In forty-odd cases of Hodgkins's disease and other lymphatic diseases the diphtheroid organism was recovered from the lymph nodes in all except two. But the same organism has been found in goiters, in joints, in tuberculous glands, etc., so that I am inclined to the belief that it is a parasitic organism accidentally present in pathologic tissue. Animal experiments with the organism have not indicated any specificity, and I do not believe it has any etiologic relation to the lymphatic diseases.

Renal Function in Serum Disease

DRS. W. T. LONGCOPE and F. A. RACKEMAN, New York: With a constant salt-containing food, the sodium chlorid, water and phenolsulphonephthalein output were measured. Just as water and sodium chlorid output are diminished in pneumonia, so in eight of ten cases of serum disease there was a similar diminution, with salt retention in the tissues. The salt and water were liberated during convalescence. In another type (without edema) there was no salt retention,

and the administration of salt caused diuresis. Thus serum disease may act in two ways.

Occurrence of Living Tubercle Bacilli in a River Contaminated with Sewage from a Health Resort

Drs. Lawrason Brown, S. A. Petroff, and F. H. Heise, Saranac Lake, N. Y.: In 90 per cent. of cases of open tuberculosis, viable tubercle bacilli may be found in the feces. The Saranac Lake River is contaminated with sewage from Saranac village; the water was studied, samples being collected at various depths and distances. Acid fast organisms were found in all specimens taken below the sewer outfall, except in two taken below the surface of the stream. It was impossible to infect guinea-pigs with water taken 5 miles down stream. Guinea-pigs could be infected with specimens taken 2½ miles down stream on cloudy days, but not with specimens taken on sunny days. No acid fast bacteria were found in the water taken above the sewer outfall.

Polycythemia Treated with Radium

Dr. Joseph Sailer, Philadelphia: After the usual therapeutic measures had been exhausted, radium was carefully employed. The spleen greatly reduced in size; after four months, the red cell count dropped from 7,621,000 to 5,674,000. Lately the subjective symptoms have disappeared, and the patient has become a fairly active woman. When the treatments are suspended, symptoms recur.

DISCUSSION

Dr. Max Einhorn, New York: I saw a case of this kind a year ago in a man whose cells numbered 6,500,000; his principal symptom was dyspnea. He had sought to increase the fluids of the body and so dilute the blood by taking a quart and a half of milk daily. The symptoms were much improved by this simple expedient.

Bile Content of the Blood in Pernicious Anemia

Dr. M. A. Blankenhorn, Cleveland: While the nature of jaundice in pernicious anemia was being investigated, the observation was made that many patients, although distinctly jaundiced, showed no bile in the urine. The blood plasma, however, in every such case showed a corresponding jaundice. These plasmas, when presenting a jaundice of a certain intensity, all gave a positive test for bilirubin. Urobilin was found in the plasma of none. There was often found a higher concentration of bilirubin in the plasma, coincident with the absence of bile in the urine, than is found in the plasma of patients with certain lesions of the liver which are always characterized by bile in the urine. Bile salts were found in the plasma in ten out of thirteen cases. The cases showing the highest concentration of bilirubin in the plasma were those showing evidence of the most active blood destruction. The cases showing the highest concentration of salts were those in which nerve lesions predominated.

Some Blood Pressure Phenomena in Exophthalmic Goiter

Dr. A. E. Taussig, St. Louis: The vascular abnormalities in exophthalmic goiter are analogous to those in aortic regurgitation. Blood pressure changes follow the same course. Pulse pressures are high as compared with low or normal diastolic pressures. As in aortic regurgitation, so in exophthalmic goiter the blood pressure in the thigh is higher than in the arm, there being a difference of from 22 to 56 mm. In nontoxic goiters, as in normal persons, the arm and thigh pressures are equal. The diagnostic value of this inequality of arm and leg pressures is doubtful, but it may be useful in distinguishing between toxic and nontoxic goiter.

Function of the Thyroid, Normal and Abnormal

Dr. H. S. Plummer, Rochester, Minn.: The function of the thyroid is to furnish a hormone for the control of tissue metabolism. Hypothyroidism and hyperthyroidism are fluctuations in the reactions of tissue metabolism control. As to pathologic changes, inflammatory changes may stimulate hyperactivity of the gland. Both major and minor stimuli may lead to goiter. Normal stimuli overdone may lead to colloid or hyperplastic changes. Hypertrophy and hyperplasia may coexist, but it is doubtful if dividing cells can function. The evolution of hyperplastic and colloid goiters is discussed. The normal products of the thyroid are colloid and the hormone alpha-iodin of Kendall. Overactivity of metabolism is a manifestation of hyperthyroidism and depends on the thyroid hormone as to every tissue of the organism.

The Active Constituent of the Thyroid

Dr. E. C. Kendall, Rochester, Minn.: Investigation of the alpha-iodin compound, isolated from the thyroid, has shown that it possesses the characteristic activity of the gland and is its active constituent. Its isolation in pure crystalline form has been perfected, and preliminary experiments suggest that its function is concerned with the metabolism of amino acids.

Pathologic Changes in the Sympathetic System in Goiter

Dr. Louis B. Wilson, Rochester, Minn.: We made a study of cervical and other sympathetic ganglia removed at operation and necropsy from patients with goiter, the results being controlled by a study of ganglia from nongoitrous patients. Sections of the ganglia, stained by various methods, show extensive histologic changes, consisting of various stages of cell degeneration, namely, (*a*) hyperchromatization, (*b*) hyperpigmentation, (*c*) chromatolysis and (*d*) atrophy or (*e*) granular degeneration. So far as may be determined from the small number of specimens examined (twenty-five cases), the pathologic changes in the ganglia are parallel to the stage and intensity of the symptoms of hyperthyroidism and to the hyperplastic and regressive change in the thyroid.

Pancreatic Changes in Latent Syphilis

Dr. A. S. Warthin, Ann Arbor, Mich.: The histologic study of the material from seven necropsy cases of diabetes showed, in all, syphilitic lesions in the myocardium and aorta. The presence of spirochetes was demonstrated in five cases. In all of these cases marked changes were found in the pancreas of the nature of interstitial pancreatitis, both interlobular and intra-acinar. This led to the study of the pancreas in a large number of other cases of latent syphilis, with the result that in no case was a normal pancreas found. In all cases of latent syphilis this organ shows marked changes in the form of a diffuse or patchy fibrosis with active inflammatory foci corresponding to the localizations of the spirochetes.

Unilateral Renal Hypoplasia and Dysplasia; Relation to So-Called Hypogenetic Nephritis

Dr. W. M. L. Coplin, Philadelphia: The histologic findings in eleven cases suggest that kidneys of this type have origin in a defective angiogenesis; this occurs in intrauterine life and results in hypoplastic kidneys. The patients have high blood pressure, high protein content, and other evidences of defective elimination. Renal symptoms appear as soon as any unusual burden is put on the kidneys. In this class may be cases of painful kidney, nephritis dolorosa.

The Main Factors Affecting the Intensity of the Sounds as They Pass from the Interior of the Lungs to the Periphery of the Chest

Drs. George W. Norris and C. M. Montgomery, Philadelphia: The main factors diminishing the intensity of sounds as they pass from within the bronchi to the external chest surface are reflection and diffusion. Reflection may be a potent factor where vibrations pass between mediums of different densities, as air and fluid or air and tissue. Sound is not much affected in its passage between fluid and tissue because the differences in density are not sufficiently marked. Marked vocal resonance occurs over solid lung because the parenchyma is airless, thus eliminating reflection in this part of the lung. The vocal resonance may also be increased when fluid separates a solid lung from the chest wall. In the normal lung, on the other hand, reflection takes place between the bronchi and the surrounding air, between the tense membranous tissues of the parenchyma and the adjoining air, and between the air in the lung and the chest wall.

Diffusion, while more or less a constant factor in all conditions, plays a special part in pleural effusion, the sounds becoming spread out or diluted as they pass from the lung surface in contact with the fluid to the point on the chest revealing diminished vocal resonance.

AMERICAN GYNECOLOGICAL SOCIETY

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Variations in Blood Supply of Ovary

DR. JOHN A. SAMPSON, Albany, N. Y.: The material studied consisted of six fetal tubes and ovaries and thirty adult ones in which the arteries had been injected with bismuth, and ten adult tubes and ovaries in which the veins had been injected. The uterine artery directly or indirectly supplied a varying portion of the ovary in all, the entire tube in six, the greater portion of the tube in twenty-three, and the round ligament and greater portion of the broad ligament in all but one.

In twenty-four of the thirty specimens the ovarian artery divided into two main branches, a lateral tubo-ovarian or tubal branch and a mesial ovarian, the latter anastomosing with the ovarian branch of the uterine. In six specimens the lateral tubal branch was absent. The ovarian artery supplied a varying portion of the ovary in all, the distal portion of the tube in twenty-four and portions of the broad ligament in all, but the latter to a lesser degree than the uterine. In twenty-six of the thirty specimens the uterine supplied the proximal portion of the ovary and the ovarian the distal. In four specimens in which the lateral ovarian branch to the tube was absent, the lateral tubal artery arose from the main tubal artery (uterine artery) and supplied the distal portion of the ovary, taking the place of the lateral tubo-ovarian branch from the ovarian artery. In these four specimens the distal portion of the ovary was supplied by the uterine, the middle by the ovarian and the proximal by the uterine. As the blood supply of the broad ligament is both uterine and ovarian, as the usual blood supply of the tubes is both uterine and ovarian, as the arteries of the broad ligament communicate with each other and with those of the tube and round ligament, and as the tubal arteries communicate with each other, all these structures must be looked on as containing a potential blood supply to the ovary. The actual venous outlet of the ovary is partly through the ovarian veins, partly through the uterine. Anatomic studies suggest that if it is necessary to remove a tube without removing the ovary, it should be done with the least possible disturbance of the broad ligament, and even then occasionally the blood supply of the distal pole of the ovary will be cut off; also in hysterectomy with conservation of the ovary the accompanying tube should be saved, if possible.

Radium Treatment of Three Hundred and Forty-Seven Cases of Cancer of the Uterus and Vagina

DRS. HOWARD A. KELLY and G. F. BURNAM, Baltimore: The use of radium in sufficient quantities greatly enhances the chance of permanent recovery of patients with uterine and vaginal cancers. In early and good operable cases, the use of radium combined with operation adds greatly to the chance of recovery without a recurrence. The most remarkable fact about the radium treatment of uterine and vaginal cancers is that it often clears up those cases which have extended too far locally and become firmly fixed to the pelvic wall; in other words, cases which are utterly inoperable. We have had 327 cases, including borderline cases, cancer fixed to the pelvic wall, great massive cancers choking the pelvis, and many in which there were general metastases and the radium was used to bring relief alone. Over 20 per cent. of this group have apparently been cured. In a large number of those who were not cured, the discharges stopped, pain ceased, and health was built up.

Heat as a Method of Treatment in Inoperable Uterine Carcinoma

DR. JAMES F. PERCY, Galesburg, Ill.: The whole technic can be summed up in the one statement. Do not carbonize the tissues, for in the degree that this is done, in that degree is heat penetration inhibited, and heat penetration is the vitally essential thing.

High Heat Versus Low Heat in the Treatment of Cancer of the Uterus

DR. HERMAN J. BOLDT, New York: Low heat should be reserved principally for a second application, after rapid destruction has been accomplished with high heat, and the charred eschar that was caused by the high heat has been thrown off; and for those cases in which the cancer has so far advanced that the proper application of high heat will endanger the bladder or rectum. The danger from secondary hemorrhage is not less with low heat than with high heat. No evidence has been presented that shows the superiority of one method over the other. Heat properly used and applied in correctly selected cases sometimes gives remarkably good palliative effects, but it has been conclusively shown that cancer cells are not destroyed any appreciable distance from the surface of application, certainly not deeper with low heat than with high heat.

End-Results of Treatment of Sterility

DR. JOHN OSBORNE POLAK, Brooklyn: One hundred and thirty-two uterine, and three ectopics, are the sum total of pregnancies occurring in 358 women in whom conception was a probability, or 37 per cent. In a large number of sterility cases, the women applying for relief have no chance whatever of becoming pregnant, as the pathologic condition is such as to make conception impossible. The male is largely responsible for the poor results in treatment. There is a definite chemicophysiologic factor in conception, at present unexplainable, which is a cause of preventing conception. Operative procedures on the uterus, except amputation of the hypertrophied portion, have but a slight influence on the end-results in the treatment of sterility. Each case must be individualized, and both contracting parties carefully studied before any treatment is inaugurated.

Rupture of the Scar of a Previous Cesarean Section

DR. PALMER FINDLEY, Omaha: A perfectly healed cesarean wound may be relied on to resist the forces of labor, but in view of the fact that the integrity of the wound is an unknown factor in all cases, we are constrained to exercise the utmost caution in the conduct of every case in pregnancy and labor following cesarean section. Failure to secure perfect healing is accounted for by departure from the principles of suture proposed by Sanger and by septic infection of the uterine wound. The possible existence of latent gonorrheal infection may defeat the most painstaking efforts to secure perfect wound healing. When cesarean section has been followed by a fever course, the uterine wound should be regarded as insecure in event of a subsequent pregnancy and should call for a repeated cesarean section at the onset of labor. Sterilization and hysterectomy should replace conservative cesarean section when infection is known to exist. The alternative invites faulty wound healing, if not more disastrous results. Transverse fundal, extraperitoneal and cervical incisions have not lessened the liability of rupture in subsequent labors, but, on the contrary, have probably increased the hazard. The possibility of rupture of the scar following cesarean section does not justify sterilization, but rather calls for the exercise of masterly control in the event of a subsequent pregnancy. Version, high forceps, uterine tampons, hydrostatic bags and pituitary extract should never be employed in the presence of a cesarean section. The liability of rupture is a real danger and should stand as an argument against the increasing tendency to widen the scope of elective cesarean operations.

Painless Labor

DR. J. CLIFTON EDGAR, New York: Never before has the need for an artificial painless labor been more urgent. Shock from pain in labor in the highly civilized neurotic woman must be reckoned with in the general childbed mortality. Painless labor in these women is a life-saving measure. The only absolutely painless labor is the one terminated by sur-

gical means with complete anesthesia. The most satisfactory method combines opium and antispasmodics for the first stage, with possibly vapor narcosis toward the end of this stage, and nitrous oxid-oxygen analgesia or obstetric ether or chloroform for the second stage, pushed to anesthesia for the perineal stage. Possibly forceps delivery with vapor anesthesia may be used to eliminate part of the second stage. Lessening or abolishing the pain of labor may in the future limit birth control and criminal abortion. Drug addiction after a prolonged drug narcosis in the neuropathic, is a possible contingency. The dangers to the unborn or newborn child are negligible when drug narcosis is limited to the first stage.

THE AMERICAN NEUROLOGICAL ASSOCIATION

Forty-Second Annual Meeting, held at Washington, D. C., May 8-10, 1916

(Concluded from page 1888)

The Effects of Laminectomy and Simple Exposure of the Cord on the Reflexes and on Some Symptoms of Spinal Disease

DRS. PEARCE BAILEY and CHARLES A. ELSBERG, New York: In a large number of spinal operations, remarkable changes in the skin and tendon reflexes were observed. Laminectomy and exposure of the spinal cord frequently have a marked influence on the symptoms and physical signs of spinal disease. In some instances complete and permanent relief has followed the operation.

DISCUSSION

DR. ERNEST SACHS, St. Louis: There are two points which struck me forcibly, that is, these changes lasted at most only forty-eight hours, frequently only twenty-four, and in the second place, with one or two exceptions most of the changes recorded were changes in which spasticity improved to the point of normal reflexes or in which normal reflexes subsided and became really subnormal. I should like to ask Dr. Elsberg whether a possible explanation may be that it is due to a temporary loss of cerebrospinal fluid. I think it has been demonstrated pretty conclusively that it takes from twelve to forty-eight hours for cerebrospinal fluid, if it has been lost in a considerable quantity, to reform. In the second place, these symptoms that he has described may be due to a cutting of the inhibitory influence of the central nervous system. May it not be that the temporary removal of the cerebrospinal fluid opens these central paths again and in consequence the inhibition of the central nervous system comes into play again?

DR. JAMES J. PUTNAM, Boston: Many years ago Hitzig reported certain effects due to laying bare the cortex of the brain. Simple exposure had a very considerable effect. A great many years ago I had under my care a patient with an intramedullary spinal tumor which was operated for by Dr. Keen of Philadelphia, with the result of finding that nothing could be removed. The patient went on with complete paralysis of his leg, and then he developed very intense, almost unbearable, pain in the arms. Dr. Warren then operated. The spinal canal was reopened, and the patient's pain went away and never came back again. I have done quite a number of lumbar punctures for the relief of dizziness. In trying to explain the favorable result in these cases, I could not find any better way to account for it than that it broke up the "habit" of the nervous system. I think there is distinctly such a thing. At any rate, in a great many kinds of conditions one sees results which could not be explained under any other hypothesis.

DR. FOSTER KENNEDY, New York: I have seen in cranial cases, as well as spinal cases, when the patient was coming out of the anesthetic, that the reflexes were abolished, and I have seen an extensor plantar reflex and so-called Babinski sign not change to flexor, but become absent and later reappear as before. I would suggest to Dr. Elsberg the question as to whether or not the anesthetic had any influence.

DR. FRANCIS X. DERCUM, Philadelphia: This discussion recalls to my mind some experiences I had with the late J. William White at the Philadelphia Hospital, a number of years ago, in which we noted a quite persistent improvement in several of our cases for which we could not account. We found no lesion in the cord, and the patients simply got better after the laminectomy. We thought it due to some unexplained improvement of nutrition, something which brought more blood in the healing process to the wounded cells, and that the nutrition of the cord itself was raised and some restoration of function followed.

DR. E. W. TAYLOR, Boston: Work which I have been doing for a couple of years may perhaps throw a side light on this question. In cases in which the patients have been anesthetized, no matter what the operative procedure, invariably the acetone and diacetic acid varies anywhere from thirty-six to seventy-two hours, and the muscular and mental activity of these patients is pretty near parallel with the persistence and amount of acidosis. I should feel that the change noted in these cases is one of depression and that perhaps an investigation along the line of acidosis in the changes in the reflexes would be fruitful.

DR. JOSEPH COLLINS, New York: I think that the explanation which Dr. Taylor has just given is the proper explanation and the one that will stand the test. I would suggest, therefore, that sodium bicarbonate be given in moderate saturation. In a considerable number of cases of laminectomy done by Dr. Elsberg for me, there has been no improvement whatsoever in any of the morbid manifestations of disease.

DR. CHARLES A. ELSBERG, New York: We also have a theory to explain these symptoms, but I do not think it is worth very much more than the other theories proposed. I investigated these cases from various points of view. I have, for example, watched the condition of the reflexes in a considerable number of patients who were under prolonged anesthesia not only after operations on the cerebrospinal system, but also after other operations, and have seen suppression of the reflexes for a few hours until the patient was fully awake, but never after that. We thought very much over the question of whether the escape of cerebrospinal fluid had anything to do with it. We must remember that in opening the door we are exposing the cord to a higher pressure than it was before. In addition to that I have injected considerable amounts of saline solution just before the dura was closed in order to have it full of cerebrospinal fluid, and it showed nothing different from those in whom the spinal fluid had escaped. The question of acetone is one that I am unable to speak about. I have examined a number of patients who had acetonuria and who have regularly a depression of normal reflexes.

Progressive Atrophy of the Globus Pallidus

DR. J. RAMSAY HUNT, New York: Paralysis agitans undoubtedly includes a variety of types which are related clinically but which must present differences in the localization and character of the underlying pathologic lesion. I made an effort to isolate a special group of paralysis agitans cases, namely, the juvenile type, on the basis of certain definite changes in the motor cells of the corpus striatum. In one case, the sole lesion was atrophy and disappearance of the large motor cells of the globus pallidus system. The globus pallidus system is the motor center proper, while the neostriatum (caudate and putamen) forms an inhibitory and coordinating cortical mechanism. The mechanism which is involved in this disease is the motor or efferent system of the globus pallidus. A destructive lesion in the case of the globus pallidus produces not only paralysis of certain automatic and associated movements, a slowness of movement and loss of motor initiative, but a great increase of muscular tonus as well. An affection of the small cell system of the neostriatum releases the motor mechanism of the globus pallidus from control, and there result the phenomena of the chorea of Huntington. A destructive lesion of both types of cells produces chorea, athetosis, spasms, rigidity and tremor in various combinations.

DISCUSSION

DR. BERNARD SACHS, New York: I am absolutely in sympathy with Dr. Hunt's efforts to separate some of the groups of paralysis agitans. One of his cases I had an opportunity to study. The case of this boy impressed me at the time by the fact that here was a case of paralysis agitans appearing in early life and with some of the symptoms that we ordinarily associate with disseminated sclerosis. It may be due to changes in the globus pallidus, and there may be some explanation for the lesions in other cases of paralysis agitans. These changes in the globus pallidus are the only ones Dr. Hunt has found. There is danger of making that the seat of the chief pathologic lesion. The question arises whether they are not terminal changes. Have they any actual causative relation to the disease which has lasted twenty years? In a case of this sort it would be absolutely necessary to see the anterior pole of the brain and the very lowest part of the spinal cord in order to be sure that we had really got at the chief changes underlying the disease.

DR. J. RAMSAY HUNT, New York: Of course this is only one case; but one case, if thoroughly studied, is as good as a thousand, and I feel that I am right. As to the diminution of cells, I have been very careful in making comparison with the normal count, not just guessing. Then, the cells show all the changes of chronic atrophy. There are two great cell groups here, the large cell group of the globus pallidus and a smaller group. I specify their function, and it works with the other syndrome in interpretations. Then the phylogeny and anatomy all favor such an idea. These tracts of the system develop very early in the life of the fetus.

Werdnig-Hoffmann, Early, Infantile Progressive Spinal Muscular Atrophy

DR. M. A. BLISS, St. Louis: An apparently healthy and intelligent child, who has made the normal progress of an infant for the first few weeks or months of life, begins, without obvious cause, to lose power. The weakness is first noticed in the legs and in the hips; as the disease progresses, the lower portion of the back becomes affected, so that the child is no longer able to sit up. This disease pursues a progressive course, the shoulders, thighs, upper arms, forearms and legs being successively involved, and finally the muscles of the hands and feet. Fibrillar twitching of the muscles may be present, bulbar symptoms may supervene, and contraction of the limbs may be present in some cases. The limbs are usually absolutely flaccid, and the deep reflexes are abolished. There is no pain or tenderness, and no disturbance of sensation. Death takes place from failure of respiration or bronchopneumonia. Although pathologically these cases closely resemble the progressive muscular atrophy of adults, they present considerable differences. The disease starts in the proximal muscles, and only later affects the hands. The atrophy is not so striking as in adult cases; in fact, the infant often appears well nourished. Cases with spastic condition of the legs are rare.

Familial Spastic Paralysis

DR. C. EUGENE RIGGS, St. Paul: The classical syndrome of this disease is spastic paralysis of the lower extremities, often involving the trunk muscles, occasionally the upper extremities and sometimes the face muscles as well. The muscles of the upper and lower extremities are hard, and resist passive movements. Reflexes are increased; ankle-clonus and the Babinski reflex are commonly present. Pes equinus and adductor contractions occur. Some patients soon become bedridden, while others may walk for some time. Optic atrophy may occur, as may also weakness of the eye muscles, nystagmus, vertigo, idiocy, speech defects, bulbar symptoms, atrophy of the small muscles of the hand, bodily defects, kyphosis and scoliosis. Sensation is normal, and there are usually no involuntaries. I had three cases of the same parents; neither of the parents was alcoholic or syphilitic. They had three other children who did not become affected.

DISCUSSION

DR. JOHN H. W. RHEIN, Philadelphia: About two years ago I reported the case of a family of which five members were affected in the same way. One child escaped. All these children developed the disease in the fourteenth year of age. One of the children died at the age of 14 after a serious convulsion. The Wassermann reaction of the father and mother was negative. This was the only generation in which this occurred.

Diagnosis of Subacute Combined Sclerosis of the Spinal Cord Associated with Severe Anemia

DR. WILLIAMS B. CADWALADER, Philadelphia: I have the histories and the results of examination in nine cases which I believe conform to the type of combined sclerosis of the spinal cord associated with anemia. In each of these cases more or less disturbance of voluntary motor power of the lower extremities, with ataxia and moderate spasticity, was observed. The tendon reflexes were exaggerated, and in all but one the presence of a typical Babinski sign was demonstrated. Two types of sensory phenomena were recorded, subjective and objective. The patients all complained of subjective disturbances of sensation, variously described as numbness, burning, tingling, coldness and heaviness of the lower extremities or of the hands. Examination showed that tactile sensation and sensations for heat, cold and pain were normal in all but one case. Bone sensation, as tested by the appreciation of the vibrations of a tuning fork, was lost or modified in the lower limbs in every case. The inability to recognize posture of the toes, associated with diminished appreciation of passive movements of the toes or fingers, was present in all cases. The various deep sensations and stereognostic perceptions pass through only the long fibers of the posterior columns, and it is the long fiber system alone that is involved in this type of combined sclerosis. It is clear, therefore, that, by applying known pathologic and physiologic facts it is possible, in most cases, accurately to determine the location and extent of the sclerosis when it occurs within the posterior columns, and, by determining the location and extent of the sclerosis, a positive opinion as to the nature of the condition that has produced it can be given.

DISCUSSION

DR. JAMES J. PUTNAM, Boston: Many years ago I saw eight cases, and had four postmortem examinations. Dr. Cadwalader speaks of the whole picture as being that of a spastic trouble even in the early stages. Certainly in almost all the cases I have seen, and Dr. Taylor and I at one time reported fifty, that has not been the case. Whether we missed the early stage I do not know, but I do not see how that can have been, for I have seen these patients from the very earliest moment. I have seen a very considerable improvement in at least one of these patients through training similar to that one uses in tabes.

DR. C. EUGENE RIGGS, St. Paul: I have in one or two instances noticed very marked improvement from the intravenous injection of salvarsan.

DR. CHARLES L. DANA, New York: This seems to be a disease which is increasing in this country. If you see these patients very early and recognize their character, you can sometimes keep them well for years. I have a patient now in the fourth year, and he is distinctly better than when I first saw him.

DR. L. F. BARKER, Baltimore: In my experience there are two extremes of clinical symptoms. Sometimes the extreme is on the ataxic side, sometimes on the spastic side. In other words, sometimes the degeneration is more marked in the lateral funiculi and sometimes in the posterior funiculi. The emphasis placed on cases occurring without anemia is important. I believe it does make clear that the cord lesion is not due to anemia, but the cord lesion and the anemia probably have a common cause. It is a disease of the whole body. There is another factor which should always be kept in mind: All these patients have no acid in the stomach juice. It looks as though it were a toxic affair. Another point I should emphasize is the occurrence sometimes in families. I remember distinctly two instances in which two brothers were affected. I have seen the best results from large doses of hydrochloric acid after meals and arsenical preparations internally, through salvarsan, together with a period of rest

and general upbuilding. I have one man who has been very well for several years, his hemoglobin has gone to 108 and he is very robust now. His hemoglobin was down below 30 per cent. at one time. I cannot believe he will continue well. I think he will ultimately die of the disease.

Facial Diplegia in Multiple Neuritis

DR. HUGH T. PATRICK, Chicago: The combination of complete double facial palsy with less intense involvement of the extremities is the striking feature. In only one instance is the facial palsy partial. But the degree of quadriplegia is exceedingly variable. Assuming that multiple neuritis is always caused by a poison, and knowing that certain tissues are peculiarly vulnerable to certain poisons, perhaps we are equally reasonable in saying that certain poisons have a special predilection for certain tissues. This cannot confidently be answered in the affirmative. But the negative aspect is interesting. Apparently the most frequent causes of multiple neuritis do not cause facial diplegia. No case has been due to a metallic poison (except probably one of plumbism) and I believe no case is due to alcohol, although one patient was a wine dealer. I have found no typical case due to diphtheria. There is no case following typhoid unless my first case is one. The most frequently surmised cause has been influenza, but in no case was this definitely ascertained, and in only four out of thirty-four cases was it thought highly probable.

DISCUSSION

DR. SIDNEY I. SCHWAB, St. Louis: I have had two patients; one died. In both the bladder and rectal reflexes were lost. I have an idea that the method by which the spinal cord is finally attacked is through the sheath of some of the peripheral nerves attacked. I believe it is impossible anatomically to produce bladder and rectal insufficiency purely through the peripheral mechanism. We must conclude that in these cases there is some definite process which gets to the cord along the nerves which happen to be attacked. Another feature is the curious emotional state of these patients. The neuritis itself may be somewhat insignificant, but in the midst of this neuritic complication the sudden or even gradual paralysis causes in these patients a most profound emotional disturbance. The last patient I had became very emotional and very depressed, slightly maniacal, and with the disappearance of the facial diplegia these symptoms disappeared.

DR. WILLIAM G. SPILLER, Philadelphia: I can add another case of facial diplegia which occurred in neuritis. A year or two ago I had a man in my service with marked neuritis of the Landry type. There had been ascending paralysis. He had marked diplegia facialis. It was purely alcoholic. He had been admitted to the "drunk" wards many times. In regard to Dr. Patrick's statement regarding the possible toxic factor, during the past winter there has been an interesting case in the Philadelphia Hospital, that of a boy recovering from tetanus. A facial palsy developed during the fourth or fifth week from a draft. I thought that the tetanus intoxication predisposed the lad to the effect of the draft.

DR. ARCHIBALD CHURCH, Chicago: Last November I saw a young man who presented the condition Dr. Patrick outlined, rather mild multiple neuritis with diplegia. There was a most painstaking search of the secretions of the body, spinal fluid, blood and everything else which was open to laboratory investigation, but these were entirely negative. He was excessively fond of candy, and ate from 1 to 2 pounds a day. After the onset of symptoms, which were largely sensory at first, a severe diarrhea developed. He recovered rapidly and was discharged in ten weeks able to walk and feeling quite comfortable. Another case, which I saw many years ago, occurred with acute intestinal disturbance.

DR. CHARLES L. DANA, New York: I watched cases of neuritis in alcohol wards for twenty-five or thirty years, and there never occurred a case of facial diplegia. I used to look out for that phenomenon because many years ago I had a case which falls definitely into the group Dr. Patrick described. A young man, very active and a moderate drinker, went to North Carolina, and while there was exposed to a good deal of cold and wet, and possibly ate canned food. He developed a slight degree of multiple neuritis and very complete facial diplegia. He gradually but slowly recovered from his neuritis and almost completely from the diplegia. Though he was somewhat depressed, he apparently got well. About ten years afterward he developed melancholia and shot himself. I think the suggestion Dr. Patrick made that these things are toxic in character is in harmony with what we have been believing in regard to the pathology of paralysis. I have for a long time considered it an infectious neuritis, and I do not see that the fact that a neuritis is unilateral may exclude infection.

DR. SMITH ELY JELLIFFE, New York: What lies behind the individual susceptibility in these cases? It certainly is recognized that the toxic factor may be one of the links in the chain, but what about the nervous system itself? What about the variations in the nervous system? One must interpret the hysterical monoplegia of toxic origin, the diplegia cases of bacterial origin. In such cases one must go to the hysterical side of the mechanism.

DR. SAMUEL LEOPOLD, Philadelphia: I wish to place on record a similar case in which the etiology was clear. It showed the typical facial diplegic and multiple neuritic phenomena in which the origin was given as quinsy.

Obstetric Paralysis

DRS. JOHN JENKS THOMAS and JAMES WARREN SEVER, Boston: There is no evidence from our experimental work, or clinical observation, to support the theories of Lange and T. Turner Thomas that the primary cause of obstetric paralysis lies in an injury of the capsule of the shoulder joint, or a dislocation, with secondary damage to the nerve trunks. This theory gets no support from experimental work, and in addition does not account for the distribution of the paresis of muscles generally seen, such as the spinati, supplied by the suprascapular nerves, or the frequent involvement of the sympathetic fibers going to the pupil and eyelid, often seen in cases of paralysis of the whole arm, and of the lower arm group. The partial dislocation of the head of the humerus backward, the bending down of the tip of the acromion and the forward dislocation of the upper end of the radius are all secondary changes, due to the formation of contractures in the stronger or unaffected muscles. Dislocations of the shoulder, separation of the epiphyseal end of the humerus, or fractures of its shaft, like fractures of the clavicle, are infrequent accidents, and while they may be unaccompanied by an injury of the plexus, more frequently they are complicating injuries, which rarely cause permanent difficulties. The treatment, to be effective, must be adapted to the conditions in the individual case. Treatment by massage of the paralyzed muscles and development of them as they recover through educational exercises are necessary in all cases in which the plexus has been injured to more than a very slight extent. Resection of the plexus and transplantation of torn nerve roots of the plexus are to be reserved for cases which do not show evidence of recovery of function in definite groups of muscles within a reasonable time, generally not less than six months, though frequently this time needs to be extended to a year, a year and a half, or occasionally even longer. The late complicating deformities about the shoulder and elbow joints should be treated on orthopedic principles. We resort to division of the tendon of the subscapular muscles outside the joint. These cases need careful after-treatment by passive movement massage, and educational exercises to bring about free and natural movement in the joints and use of the extremity.

DISCUSSION

DR. CHARLES K. MILLS, Philadelphia: I believe that these obstetric palsies are due, in a large percentage of the cases, not to the direct lesion of the brachial plexus or of the shoulder, but to an avulsion of the nerve roots of the plexus. Traction on the plexus occurs, with avulsion of the nerve roots or a certain part of the nerve roots of the plexus and, therefore, a total and permanent destruction which can never be very fully or largely repaired except by adaptation or compensatory operation.

DR. E. W. TAYLOR, Boston: I was called to deliver a woman with a badly deformed pelvis. It was necessary to do version in which the extraction was breech extraction. Feeling that this type of lesion was exceedingly apt to occur, I put most of the traction on the lower extremities of the child until they were so damaged I did not dare continue; then the pressure was exerted over the shoulder, and a lesion of the brachial plexus occurred. After delivery we found symptoms of double hemorrhage from both hemispheres.

DR. JOHN JENKS THOMAS, Boston: The lesion in these cases is not a constant one. It varies in severity and in the situation of the injury. Occasionally avulsion of nerve roots is seen. Some of our cases have shown separation between the nerves of the plexus. I do not agree in the advisability of early exploratory operations in all cases. That should never be done in cases in which, at the time, soon after birth, we find the injury limited to the upper arm group of muscles. These cases practically all show partial recovery after operation. The question is somewhat different when we come to total arm paralysis. I think our work has given us a clue as to why this is so. In the upper arm paralysis, although the nerves are stretched, you have fraying out of the fibers and hemorrhage within the sheath, though there is no complete separation or tear of the plexus. The only complete injury we find, then, is the tearing off of the suprascapular nerve. To suture the suprascapular nerve, which is very small in the infant, I think is practically impossible. My plea is that we should make our treatments suit the individual case.

MEDICAL SOCIETY OF THE STATE OF NEW YORK

One Hundred and Tenth Annual Meeting, held at Saratoga Springs, May 16-18, 1916

(*Continued from page 1817*)

Metabolism in Gout

DR. NELLIS B. FOSTER, New York: In gout, as in health, the sources of uric acid do not differ; there is no new source of supply. It seems likely, then, that the uric acid increase in the blood in gout is due to defect in excretion. The same increase in the blood is noted in renal disease. For the deposition of uric acid as tophi, no explanation is at hand. It is not due to the blood being saturated; serum dissolves more uric acid than water because of the phosphate content. The explanation is probably to be found in the chemical state of uric acid, which exists in two forms in many animals, free and combined. This is not demonstrated in man as yet, but evidence pointing to this conclusion is accumulating.

Treatment of Gout

DR. ARTHUR F. CHACE, New York: Treatment is directed toward lessening the formation of uric acid and to facilitating its elimination. The elimination of uric acid is not increased by giving quinin, colchicum or diuretics. Alcohol, tea and coffee cause a retention of uric acid in the blood. A purin-free diet is given containing all foods except meat, meat extracts, peas, beans, spinach, tea, coffee and alcohol, and an accessory diet consisting of meats and fish, of which the uric acid forming possibilities are known. By determining the eliminative capacity of the body for exogenous uric acid, it is possible to keep the intake of purins well within the limit. Or the number of days required to eliminate the uric acid arising from a definite amount of purin substance can be ascertained, and articles on the accessory diet list given at such intervals that retention of uric acid is avoided. The continuous use of alkaline drinking waters induces a deposition of sodium biurate in the joints and cartilages and is capable of precipitating an acute attack of gout. The value of the periodic administration of atophan or, in nonnephritic cases, of salicylates, in depleting the blood temporarily of uric acid, is a means of giving symptomatic relief and preventing the deposition of uric acid in the joints; thereby aborting acute gouty attacks. Exercise, massage and hydrotherapy assist in the elimination of uric acid, while the treatment of acute attacks is limited to the giving of colchicum, large doses of hydrochloric acid, salicylates, water and the application of soothing lotions.

Torsion of the Pedicle of Ovarian Cysts Complicating Acute Appendicitis

DR. ROSS D. LOOP, Elmira: I have found eight cases in the literature, and can add four personal cases. In all these cases the appendix was primarily involved. The diagnosis of cysts should be made before acute symptoms supervene. The causes of torsion are many: The tendency for organisms to grow spirally, the length of the pedicle, the freedom from adhesions, the heavy lobular space of the cysts, all are predisposing causes. Emptying or filling of the bladder or rectum, violent peristalsis, increased pressure, coughing, vomiting, lifting, falls or jolts, all cause rotation in a cyst which is often insecurely balanced. Muscle spasm, vomiting and distention, so often accompanying appendicitis, are frequent features that will favor torsion. The results of sudden strangulation are gangrene, infection and peritonitis, without any increase in the size of the cyst.

DISCUSSION

DR. W. M. BROWN, Rochester: I have observed one case in which the only diagnosis made was appendicitis. There seemed to be a very marked right-sided pathologic condition. The patient was extremely ill. I opened the abdomen and found the appendix to be absolutely normal. There was a cyst of 6 ounces' content which evidently had ruptured shortly before the operation, because the viscid fluid was lying in the pelvis. The cyst was as large as a croquet ball, and gangrenous. The patient made a good recovery.

DR. GEORGE GRAY WARD, New York: I have known a game of golf to accomplish rupture of a cyst. There was violent pain, and at operation a strangulated cyst was found.

DR. MILO L. SECCOMB, Auburn: I had a case of a child of 9 years with an attack of apparent influenza. It was thought that the bladder was distended. At operation a cyst was found with a twisted pedicle.

(*To be continued*)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, Boston

May, VI, No. 5, pp. 431-532

1 Diphtheria Immunity. Its Determination by Schick Test. W. H. Park and A. Zingher, New York.
2 Health of Department Store Women in New York City. K. Mann, New York.
3 Heart Disease and Its Industrial Relations. W. Coleman, New York.
4 Classification of Hazardous Occupations. E. R. Hayhurst, Columbus.
5 Relationship of Impaired Physical Condition to Accidents. C. G. Farnum, Peoria, Ill.
6 Health Hazards of Metal Mining Industry. A. J. Lanza, Washington, D. C.
7 Some Aspects of Home Use of Proprietaries With Children. T. C. Merrill, Washington, D. C.
8 Grip Epidemic of Winter of 1915-1916. L. I. Dublin, New York.
9 Bacterial Counts in Water Examination. J. Race, Ottawa, Canada.
10 Public Health Publicity; Art of Focusing Public Opinion. E. A. Moree, New York.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

May, III, No. 11, pp. 579-624

11 *One Hundred Cases of Malaria Treated by Mercuric Chlorid Intravenously. N. Barlow, St. Louis.
12 Use of Alcresta Ipecac in Amebic Dysentery; Report of Cases. W. Allan, Charlotte, N. C.
13 Mosquitoes of Mecklenburg County, N. C. H. P. Barret, Charlotte, N. C.
14 Mycetoma in Western Panama. W. T. Burres, Panama.
15 Intestinal Bilharziosis in Western Panama. W. T. Burres, Panama.

11. Mercuric Chlorid Intravenously in Malaria.—A solution of mercuric chlorid in physiologic salt solution was used by Barlow of such strength that 10 c.c. of solution represented

⅛ grain of mercuric chlorid. The iodin used to disinfect the arm was washed off with alcohol, to avoid any possible formation of mercuric iodid. An analysis of all sixty-nine cases recorded indicates that when there were but a small number of parasites in the blood, mercury usually brought about a complete sterilization at the first injection. This result was obtained in some cases when there were as many as three parasites in each field. With much higher infections the fever was reduced, sometimes disappeared after a few days to return later, and sometimes after a reduction, again rose but not to the point which it had reached previous to the injection. Ill effects from mercury were seen in very few cases, and in these were very slight. Diarrhea was observed in eleven cases, but rarely persisted more than one day, was not violent, or severe in character, and indeed, could rather be welcomed than looked on with disapproval. Salivation occurred in but one case which was treated with three injections within five days. In this case, it was very slight and disappeared three days later. It seems that the constitutional effects of mercury, given intravenously, appear very quickly if they are to appear at all, and that their disappearance is equally prompt. There seems to be but little danger, therefore, of the cumulative effects if an interval of four days or over is left between the doses; if such effects do appear, they will be very slight and will be promptly noticed. Nephritis was not produced in a single case. Phlebitis, at the point of injection, was observed in only three or four cases, and should not occur if a small sharp needle is used with careful technic.

No routine treatment should be followed, says Barlow, but every case should be treated actively until all symptoms of malaria have disappeared, until the blood is practically normal, excepting for a moderate anemia and leukopenia consequent from the administration of quinin, and above all, until the spleen has returned to normal size and is not tender. During the fever all adjuncts to treatment, such as rest in bed, laxatives, restricted diet, and in severe cases, intravenous or multiple intramuscular injections should be used. Quinin should be given daily according to the method found most efficacious by the experimenter, and an injection of mercury of one-fourth grain for each 150-pound weight of patient should be given at such intervals as may seem best; Barlow advises weekly intervals. If the reduction of the size of the enlarged spleen be not very rapid and accomplished at the rate of at least 1 inch a week, he advises that search should be made for uncinaria, and if present this should be treated as soon as the fever has disappeared.

Arkansas Medical Society Journal, Little Rock

May, XII, No. 12, pp. 297-312

16 Acute Intestinal Obstruction. W. F. Smith, Little Rock.
17 Trachoma. C. N. Pate, Little Rock.
18 Sympathetic Ophthalmia. E. M. Hudson, Little Rock.

Boston Medical and Surgical Journal

June 1, CLXXIV, No. 22, pp. 775-814

19 Five Years' Progress in Diagnosis and Treatment of Tuberculosis by Massachusetts Physicians. J. B. Hawes, 2d, Boston.
20 *Disinfection of Septic Joints. F. J. Cotton, Boston.
21 Classification of Renal Infection, With Particular Reference to Treatment. H. Cabot and E. G. Crabtree, Boston.
22 *Bacilli Dysenteriae as Cause of Infectious Diarrhea in Infants. C. Ten Broeck and F. G. Norbury, Boston.
23 *Intraspinal Injections of Bichlorid of Mercury. E. L. Hunt, New York.
24 Loss of Sight From Retrobulbar Neuritis Due to Accessory Sinus Disease; Report of Two Cases. L. E. White, Boston.

20. **Disinfection of Septic Joints.**—Cotton emphasizes the fact that the joint itself—the closed joint—has a high resistance to septic infections, that the joint cavity is far more capable of disinfection than the surrounding muscular and intermuscular spaces; but only when it is kept apart—as a closed joint. Cotton cites cases in which the joint was irrigated for fifteen minutes with 1:15,000 of bichlorid in salt solution, then flushed with simple salt solution; the capsule was then accurately stitched together. This treatment is held to be harmless and efficacious. Cotton is not sure that corrosive is the last answer, but he is convinced that we should disinfect and then seal the joint to protect it.

22. **B. Dysenteriae as Cause of Infectious Diarrhea in Infants.**—In seventy-five cases of infectious diarrhea studied by Ten Broeck and Norbury the dysentery bacillus was recovered from the stool in fifty-one instances, or 68 per cent. In five other cases they were unable to isolate it from the stool, but found it in cultures made at necropsy, thus making a total of fifty-six instances, or 74 and 6.10 per cent. of the total number of cases in which the dysentery bacillus was found.

23. **Intraspinal Injections of Bichlorid of Mercury.**—Additional cases are cited by Hunt to show that the administration of bichlorid of mercury directly into the spinal fluid gives practically the same results as the administration of mercurialized serum. It has the advantage over the latter of simpler technic, shorter methods, and easier administration, with less opportunity of infection. Both methods, that of the mercurialized serum and that of the bichlorid directly injected into the spinal fluid, can be considered as valuable substitutes for the administration of salvarsan. Certainly no ill results can accrue from the direct intraspinous injection of one fiftieth of a grain of bichlorid of mercury in syphilis of the nervous system. It is well to make the initial dose small; it is therefore better to begin with a dosage of one sixty-fourth of a grain and later increase it to one fiftieth.

Georgia Medical Association Journal, Augusta

May, VI, No. 1, pp. 1-16

25 Review of Medical Affairs in Georgia. W. S. Goldsmith, Atlanta.

Iowa State Medical Society Journal, Des Moines

May, VI, No. 5, pp. 199-238

26 Surgical Treatment of Exophthalmic Goiter. C. J. Rowan, Iowa City.
27 Ectopic Gestation; Report of Three Cases. A. D. McKinley, Lawler.
28 Diseases of Maxillary Antrum. W. H. Johnston, Muscatine.
29 Appendicitis and Gallbladder Infection. N. Schilling, New Hampton.
30 *Strychnin Not a Stimulant. C. S. Chase and B. H. Schlomovitz, Iowa City.
31 Intranasal Treatment of Frontal Sinus Disease. E. Cobb, Marshalltown.
32 Educational Prophylaxis. E. L. Rohlf, Waterloo.

30. **Strychnin Not a Stimulant.**—The authors contend that strychnin unsupported by unquestioned, specific, selective stimulants in pathologic situations, merits condemnation, and that its supposed unaided supportive action might be positively dangerous.

Journal of Infectious Diseases, Chicago

June, XVIII, No. 6, pp. 569-684

33 *Immunologic Studies on Hodgkin's Disease. J. J. Moore, Chicago.
34 Study of Gas Production by Different Strains of Bacillus Abortivo-Equinus. E. S. Good and L. S. Corbett, Lexington, Ky.
35 *New Culture Medium for Isolation of B. Typhosus From Stools. J. E. Holt-Harris and O. Teague, New York.
36 *New Differential Culture Medium for Cholera Vibrio. O. Teague and W. C. Travis, New York.
37 Diphtheria in Cleveland; Diphtheria-Carriers. R. G. Perkins, M. J. Miller and H. O. Ruh, Cleveland.
38 Variation of Gemmation of Blastomyces Dermatitidis in Tissue Lesion. H. W. Wade, New Orleans.
39 *Coexistence of Antibody and Antigen in Body. B. S. Denzer, New York.
40 *Improved Brilliant-Green Culture Medium for Isolation of Typhoid Bacilli From Stools. O. Teague and A. W. Clurman, New York.
41 *Method of Preserving Typhoid Stools for Delayed Examination; Isolation of Typhoid Bacilli From Stools. O. Teague and A. W. Clurman, New York.

33. **Immunologic Studies on Hodgkin's Disease.**—Moore reports experiments made to ascertain whether an immune serum could be produced which would have either palliative or curative action in this disease. In April, 1914, immunization of a horse was commenced with sixteen strains of diphtheroid organisms obtained from cases of Hodgkin's disease. Killed bacilli were injected intravenously. The horses were immunized by repeated intravenous injections. In complement fixation tests this immune serum bound complement when used with these same organisms as antigens in amounts as small as 0.0005 c.c. Complete hemolysis occurred with control antigens of staphylococci; streptococci, diphtheria bacilli, gonococci, and lipoidal extracts and 0.1 c.c. of the

immune serum. Complete hemolysis resulted when control horse serums were added to the diphtheroid antigen in amounts of 0.1 c.c.

Agglutinin was found to be increased fourfold by the immunization. The refined serum produced fewer allergic reactions than the whole serum. Monkeys were immunized with the same organisms by both subcutaneous and intravenous inoculations. An increase in complement binding amboceptors was found in the serum after the injections. By similar methods immune serums were obtained from rabbits. Soluble toxins were not formed by these organisms when grown in glucose broth. Complement fixation tests were made on ten individuals having Hodgkin's disease and in no case was there inhibition of hemolysis with antigens of the mixed cultures isolated from Hodgkin's disease. In two cases antigens prepared from organisms cultured from the patient's glands were used, with negative results. Vaccination with these organisms did not appear to increase the complement binding antibodies in patients. Complement fixation tests on the serums of these patients with control antigens were negative in all except one instance in which positive Wassermanns were repeatedly obtained. Agglutination experiments with the serums of two patients were likewise negative. Complement fixation tests made on serum from cases of lymphosarcoma, lymphatic leukemia, chronic arthritis, and tuberculosis, diseases in which diphtheroid organisms have been isolated, all reacted negatively with the various antigens used.

35. **Medium for Isolation of Typhoid Bacilli from Stools.**—The medium devised by Holt-Harris and Teague consists of a combination of methylene blue and eosin in nutrient agar containing lactose and saccharose. On plates of this medium after eighten hours' incubation the colonies of typhoid are colorless and transparent, while those of B. coli are a deep black and do not transmit light. The medium immediately around the colonies of B. coli remains practically unchanged. Hence the plate is workable even when the colonies are close together. More of the feces, therefore, can be safely inoculated on this medium than on the Endo plate and it is to that extent more delicate and to be preferred.

36. **New Differential Medium for Cholera Vibrio.**—On sugar free nutrient agar to which Teague and Travis added 1 per cent. saccharose, 0.25 per cent. nutrose and 0.0625 per cent. bluish eosin, the cholera colonies have red centers, while the colonies of B. coli are uniformly pink.

39. **Coexistence of Antibody and Antigen.**—Antigen both in the cells and in the blood, and antibody, likewise, in the cells and in the blood, were demonstrated by Denzer during a period of three weeks succeeding the injection of a foreign serum into a guinea-pig. Antigen in the cells was demonstrated for a period of seventeen days after injection; antigen in the blood also for seventeen days. After this time these factors apparently disappear. Antibody was demonstrable in the cells from the ninth day onward, and was in the blood after the fourteenth day.

40. **Brilliant Green Medium for Typhoid Bacilli.**—The eosin brilliant green agar containing lactose and saccharose is the medium which Teague and Clurman recommend for the isolation of typhoid bacilli from stools. After eighteen hours' incubation the typhoid colonies by reflected light are grayish in color, while the colonies of B. coli have red centers. By transmitted light the typhoid colonies are transparent and colorless, while colonies of B. coli show dark centers. On further incubation the typhoid colony becomes pink and the whole colony of B. coli becomes dark red or dark purple in color; the typhoid colony remains translucent, while the colony of B. coli becomes more and more opaque. The typhoid colony may show the center somewhat darker than the periphery, but the whole colony is much paler than that of B. coli and is readily distinguished from it. If the colonies are packed closely together on the plate, this differentiation is obscured, the typhoid colonies assuming a darker color and those of B. coli failing to develop centers properly; however, on account of the inhibition which the medium exerts on the growth of most strains of B. coli, this is not likely to occur.

41. **Isolation of Typhoid Bacilli from Stools.**—Teague and Clurman advise that the feces be added to 30 per cent. glycerin not more than 1 part of feces to 2 parts of glycerin, in a bottle with a screw top such as is used for sputum. The bottle should be shaken well, to distribute the stool material throughout the glycerin. The 30 per cent. glycerin is prepared by adding glycerin to sterile 0.6 per cent. sodium chlorid solution.

Journal of Laboratory and Clinical Medicine, St. Louis

May, I, No. 8, pp. 541-630

42 *Experimental Cloudy Swelling of Kidney in Rabbit. W. R. Shannon, Minneapolis.
43 Progressive Lenticular Degeneration; Report of Case. F. J. Farnell, Providence, and A. M. Harrington, Howard, R. I.
44 *Specific Parenteral Digestion and Its Relation to Phenomena of Immunity and Anaphylaxis. J. Bronfenbrenner, Pittsburgh.
45 Serotoxin of Jobling. N. R. Smith, Ann Arbor, Mich.
46 Microscopic Study of Fresh Bile in Disease of Liver. H. L. McNeil, Galveston, Tex.
47 *Newer Laboratory Methods for Early Diagnosis of Pulmonary Tuberculosis. M. H. Kahn, New York.
48 Dissociation Curve as Index to Hydrogen-ion Concentration of Blood. R. W. Scott, Cleveland.
49 Simplified Hematocrit and Method for Determining Variations in Blood Volume. A. A. Epstein, New York.

42. **Experimental Cloudy Swelling of Kidney.**—The term "cloudy swelling" is used by Shannon to designate a turbid swollen organ without regard to the microscopic picture that may be present. To secure uniform results rabbits were used exclusively in this study. The normal rabbit kidney always contains, in the convoluted tubules, coarse albuminous granules. Usually these granules are so numerous in a few tubules that these appear dark in the fresh tissue. The granules are apparently thin-walled vesicles filled with fluid. They are best fixed by solutions containing formaldehyd. They are not fixed in solutions containing acetic acid. On the addition of 5 per cent. sodium hydroxid or potassium hydroxid these granules disappear suddenly. When one kidney is removed the dark tubules are increased in the opposite kidney during the first twenty-four or forty-eight hours, but the increase of albuminous granules is not sufficient to cause and definite change in the gross appearance of the kidney. Subcutaneous injections of tartrates produce a swollen, cloudy kidney, but there is no increase of albuminous granules. The cloudiness and swelling are apparently due to edema, anemia, tissue disintegration, etc. Intraperitoneal injections of autolyzed liver tissue produce a markedly cloudy and swollen kidney. The albuminous granules disappear entirely. The gross changes are apparently due to the same factors concerned in the tartrate experiments.

Chronic suppurative processes attended with marked emaciation cause an enormous increase of albuminous granules in the kidneys. These granules are often larger than the normal and irregular in shape, but they seem to have the same chemical composition. Acute toxemias cause a rapid disappearance of the normal albuminous granules. An acute toxemia superimposed on a chronic suppurative process causes a disappearance of the albuminous granules. Kidneys which show an enormous increase of albuminous granules usually give a normal phthalein output, and the cells are usually intact. This form of cloudy swelling is therefore probably not a degenerative change, but a physiologic response to an increase of protein waste products in the blood. There is no relation between the formation of albuminous granules and fatty metamorphosis. It is suggested by Shannon that the term cloudy swelling be discarded and that the several processes producing this appearance be considered separately.

44. **Specific Parenteral Digestion, Its Relation to Phenomena of Immunity and Anaphylaxis.**—In repeating the work of Abderhalden and his collaborators Bronfenbrenner found that, although under certain conditions of experiment, the antigen may be actually digested by the ferments of the blood of prepared animals, the ferments responsible for such digestion are not specific. In fact, as others have shown before, the digestive ferments are present in every fresh serum, and if set free, can digest any suitably prepared substratum in vitro, without any specific predilection. Bronfen-

brenner found that although the ferments concerned in the digestion are not specific (inasmuch as they can be made to digest any substratum), the phenomenon, as a whole is not devoid of a certain degree of specificity and therefore could not be reduced to mechanical absorption of antiferments.

A systematic study of this question brought him to the conclusion that the element of specificity lies, not in the ferment itself, but in the mechanism of its activation. Namely, he found that the apparent specificity of ferment action in vivo assumed by Vaughan, and demonstrated in vitro by the methods of Abderhalden, is due to the fact that the combination of specific serum with its corresponding antigen in vivo as well as in vitro, is followed by a radical change in the degree of dispersion of serum colloids. This physicochemical change in turn is followed by the activation of a normal, nonspecific ferment of the serum. If such a conception is correct, Bronfenbrenner says, the phenomenon of specific parenteral digestion may be explained on a basis very similar to that offered by the chemical theory of Vaughan, but instead of specific ferments, the digestion will be ascribed to normal nonspecific ferments, present in any fresh serum (complement?) and set free by a specific mechanism of combination between the antigen and antibody, very similar to that recorded by the meiostagmin reaction of Ascoli.

47. **Laboratory Methods in Pulmonary Tuberculosis.**—In fifty-nine cases of tuberculosis examined by Kahn, the serum test was positive in about 92 per cent. of the cases; while the Weiss test was positive in about 13 per cent. of the cases, and the diazo test in about 8 per cent. In first stage cases, the serum test was positive in 84 per cent., while the Weiss test was positive in 4 per cent.; in second stage cases the serum test was positive in 94 per cent. and the Weiss test was positive in 9 per cent., whereas in third stage cases, the serum test was positive in only 15 per cent. whereas the positive urochromogen test rose to 31 per cent.

Kansas Medical Society Journal, Topeka

May, XVI, No. 5, pp. 131-160

50 Nonunion of Fractures. L. T. Morrill, Peabody.
51 Case of Paralytic Ileus. G. R. Gage and C. W. Hall, Hutchinson.
52 Early Serum Treatment of Diphtheria in Children. F. C. Neff, Kansas City.
53 Tumors of Bladder. W. D. McVicker, Wichita.

Medical Record, New York

May 27, LXXXIX, No. 22, pp. 941-982

54 Public Health and Defective. M. S. Macy, New York.
55 Legacy of Intemperate Use of Tobacco. R. Abbe, New York.
56 Value of Examination of Applicants for Industrial Employment. A. H. Doty, New York.
57 Sterility in Female. W. P. Healy, New York.
58 Medical Literature as Specialty. F. Robbins, New York.
59 Arteriosclerosis. E. L. Hunt, New York.
60 Anatomic Cause of Frequency of Hydrocephalus in Childhood. W. Browning, Brooklyn.

June 3, No. 23, pp. 983-1028

61 Immunity, Natural and Acquired. W. H. Porter, New York.
62 Dietetic Treatment of Diabetes Complicated by Nephritis. H. S. Stark, New York.
63 Roentgen-Ray Treatment of Uterine Myomata. A. Stein, New York.
64 Nitrous Oxid Analgesia in Obstetrics. N. S. Heaney, Chicago.
65 Controlling Spread of Sputum. W. A. Manheimer, New York.
66 Epifascial Method of Injecting Mercury and Salvarsan Derivatives. A. L. Wolbarst, New York.
67 Therapeutic Value of Spleen Extract. H. R. Harrower, Los Angeles.

New York Medical Journal

May 27, CIII, No. 22, pp. 1009-1056

68 Hysterical Mutism. G. H. Makuen, Philadelphia.
69 Treatment of Muscular Rheumatism. W. F. Cheney, San Francisco.
70 Treatment of Tuberculous Adenitis by Roentgen Rays. R. H. Boggs, Pittsburgh.
71 Chorea; Its Treatment. M. Grossman, New York.
72 Tetanus; Surgical Complication in Present War. E. K. Tullidge, Philadelphia.
73 Antimeningococcic Serum in Joint Manifestations of Gonorrhea. F. Malleterre, Paris.
74 Addison's Disease of Syphilitic Origin; Report of Case. P. M. Schaffner and T. Howard, New York.
75 Curatelle and Modern Psychiatry. (To be concluded.) G. W. Jacoby, New York.

Surgery, Gynecology and Obstetrics, Chicago

June, XXII, No. 6, pp. 635-752

76 *Roentgen Ray Diagnosis of Gas and Pus Infections as Complications of Wounds With Deeply Buried Bullets or Shell Fragments. G. G. Davis, Chicago.
77 Fracture of Os Calcis. B. F. Lounsbury, Chicago.
78 *Origin of Hypernephroma of Kidney. A. Fraser, New York.
79 Twilight Sleep. C. B. Reed, Chicago.
80 Cases of End-To-End Suture of Bile-Ducts. T. F. Riggs, Pierre, S. D.
81 Simple Subparietal Rupture of Kidney; Report of Cases. F. G. Connell, Oshkosh, Wis.
82 *Bleeding Nipples; Report of Cases. D. Lewis, Chicago.
83 Dermoid Tumors of Mouth; Report of Case. P. K. Gilman, Manila.
84 *Hereditary Syphilis as Etiologic Factor in Spurs on Os Calcis; Report of Cases. P. P. Swett and H. F. Stoll, Hartford, Conn.
85 Thyroid Tumors of Bones. J. P. Kanoky, Kansas City, Mo.
86 Postoperative Ileus; Report of Case. W. M. Thompson, Chicago.
87 Old Art and New Science of Surgery. J. R. Eastman, Indianapolis.
88 Reflex Ileus of Renal Origin. D. N. Eisendrath, Chicago.
89 *Some Experiments With Rubber Gloves. C. E. Black, Jacksonville.
90 Injuries of Spinal Cord; Report of Case. A. Schachner, Louisville, Ky.
91 Thymus Death; Report of Case. F. H. Falls, Chicago.
92 Uterine Hemorrhages: Actinotherapy. H. Schmitz, Chicago.
93 Pyelitis of Pregnancy, With Special Reference to Its Etiology. W. C. Danforth, Evanston.
94 Primary Carcinoma of Urethra, Retention of Urine From Obstruction, Restoration of Function of Radium. G. E. Shoemaker, Philadelphia.
95 Infolding and Peritonealizing Stitch With Application of Same to Broad Ligament and Gallbladder. H. A. Shaw, Seattle.
96 *New Operation (Decoud's) for Treatment of Varicocele. D. Del Valle, Buenos Aires, Argentine.

76. **Roentgen Diagnosis of Gas and Pus Infections.**—In all cases in which the Roentgen ray has shown a "halo-like" shadow about the missile, Davis found clinically, at the operating table and in the laboratory, evidence of an infection caused by gas forming and pus forming organisms.

78. **Origin of Hypernephroma of Kidney.**—Of thirty-four so-called hypernephromas of the kidney studied by Fraser there is convincing evidence, from both the clinical and morphologic viewpoint, that one of the number was a neoplasm originating in an accessory nest of cortical suprarenal cells, although the possibility of origin from the cortical cells of a misplaced suprarenal composite cannot be denied. The patient in whom this tumor was found, was a female with pronounced male characteristics. In still another case of so-called hypernephroma of the kidney, the morphologic evidence tends strongly to support the view that the tumor arose from multiple nests of suprarenal cortical cells lying in or around the capsule of the kidney. In the remaining thirty-two instances, however, the morphologic evidence indicates that the tumors were derived from renal adenomas. In other words, it would appear from this that the majority of cases of hypernephromas is misnamed and should be classified as nephromas, the term hypernephroma being reserved for malignant tumors arising from cortical suprarenal cells.

82. Abstracted in The Journal, January 22, p. 303.

84. **Hereditary Syphilis; Spurs on Os Calcis.**—This paper is based on a study of nine cases, in three of which the symptoms recurred after temporary improvement, following the removal of the spurs. In the other six, no operations were performed. The diagnosis was confirmed in seven cases by Roentgen ray. As the result of the study of these cases of spur formation, Swett and Stoll believe that hereditary syphilis is responsible for many of these exostoses. The study of the family history suggests syphilis more frequently, perhaps, than does the examination of the patient himself, who rarely presents any obtrusive signs of hereditary syphilis; though a very careful examination will often reveal something that is suggestive. The Wassermann test was negative in all the cases.

89. Abstracted in The Journal, January 15, p. 218.

96. **New Operation for Treatment of Varicocele.**—This operation done by Del Valle diminishes the congestion of the veins by alternate ligatures and suspends the testicle at a convenient height, thus correcting the ptosis. He first exposes the external abdominal ring, then the spermatic cord. Then he dissects the veins, from the external abdominal ring to the

testicle, from the other parts of the cord. The operator carefully separates the veins into two groups, an anterior and a posterior. A catgut ligature is now passed and tied around the posterior group, one finger's breadth above the upper limit of the testicle. Another ligature (silk) is similarly applied to the anterior group but two fingers' breadth above the level of the catgut suture and left long. The anterior group of veins is passed through an opening in the fascia of the internal or external pillar so as to raise the testicle. The operation is finished by suturing the edges of the incision in the fascia together behind the loop of the veins, thus leaving each end of the incision open for the veins to pass through.

Washington Medical Annals

May, XV, No. 3, pp. 181-221

97 Case of Dystocia Following Ventral Suspension. W. S. Bowen, Washington, D. C.
98 Observations and Conclusions of Deputy Coroner. W. B. Carr, Washington, D. C.
99 Case of Fracture of Acetabulum. D. L. Borden, Washington, D. C.
100 Case of Mastoiditis, Complicated by Purulent Cerebrospinal Meningitis; Operation and Recovery. W. H. Huntington, Washington, D. C.

Wisconsin Medical Journal, Milwaukee

May, XIV, No. 12, pp. 487-524

101 Chronic Mouth Infection in Relation to Systemic Disease. R. H. Ivy, Milwaukee.
102 Wassermann Tests and Cerebrospinal Fluid Examinations Free of Charge. W. F. Lorenz, Mendota.
103 Cancer of Lower Lip. V. F. Marshall, Appleton.
104 Gonorrhea in Its Relations to Family. A. T. Holbrook, Milwaukee.
105 Case of Acute Ascending Paralysis Following Grippe. L. M. Warfield, Milwaukee.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

May 13, I, No. 2889, pp. 677-708

1 *Gerontal Constipation and Its Treatment. W. A. Hollis.
2 Sarcoma of Frontal Lobe Giving Rise to Ocular Signs Only. R. B. Hird.
3 Suture of Nerves, and Alternative Methods of Treatment by Transplantation of Tendon. R. Jones.
4 Importance of Method in Isolation of Pathogenic Organisms of Typhoid Group From Feces. C. H. Browning and L. H. D. Thornton.
5 *Examination of Fifty Dysentery Convalescents for Carriers. J. A. Arkwright, W. Yorke, O. H. Priestley and W. Gilmore.
6 *Easy and Rapid Method of Doing Widal's Reaction for Typhoid. A. C. Coles.
7 Treatment of Wound Infections. W. P. Morgan.

1. **Gerontal Constipation and Its Treatment.**—Among the causes of constipation in the aged, Hollis mentions prostatic enlargement, ineffective peristalsis and dryness of the intestinal mucosa which leads to excessive straining at stool, and may also account for the comparative frequency with which "volvulus" of sigmoid affects old men, the twisting of the gut being an immediate consequence of an overstrain. The treatment of gerontal constipation is medicinal, dietetic and manipulatory. So far as drugs in general are concerned, Hollis says, their action can at best be only palliative. Within these limitations and as a preventive of a colic cascara is very useful. It ought to be given in a full dose directly and falling off in quantity or quality of the daily evacuation is observable. The ordinary rules regarding the modified requirements of the aged man for meats and the satisfactory mastication of food should be in all cases carefully observed. Dental hygiene is also very important. The less stimulant the old man absorbs the better his ultimate chance of longevity. Cleanliness is undoubtedly the most important manipulative procedure. Congested piles, rents in anal mucosa, commencing prolapse, all rapidly yield as a rule to a régime of cleanliness. But in order that the hygienic procedure may produce the maximum effect, it must be started early. When there is much straining at stool, the gerontal right index-finger, well guarded, it may be, with two or three thicknesses of tissue paper, should be pressed on the perineum just behind the symphysis, and so relieve the abnormal pressure of an enlarged prostate on the rectum.

5. **Examination of Dysentery Carriers.**—Among fifty dysentery convalescents examined by the authors three to six months after the onset of their illness, nine were still excreting *E. histolytica*, two were still excreting *B. dysenteriae* (Shiga). These eleven men were therefore potential sources for the outbreak of fresh epidemics.

6. **Easy Method of Doing Widal's Reaction for Typhoid.**—The method devised by Coles is as follows: With a color grease glass writing pencil, or a piece of wax, draw a line across the middle of two slides at right angles to their long axes. Spread a film of the blood to be examined on one half of each slide, and, when dry, spread a film of normal blood as a control, on the other half of each slide. Dry. Place a small drop of an emulsion of killed typhoid bacilli on the center of each half of both slides, and rub the drop well over the film of blood, taking care not to pass from one half of the film to the other without sterilizing the needle. On one slide carefully place a cover glass on each half, taking care that the two cover glasses are well separated in the middle by the mark of the grease pencil. Place the other slide on a piece of wet blotting paper, and cover with a Petri dish to prevent evaporation for a period of fifteen to twenty minutes. At the end of that time dry carefully over the flame, and then stain. Examine both halves of the first slide under a moderately low power. At the end of fifteen minutes (often much sooner) distinct clumps of agglutinated bacilli will be seen, provided the case be one of typhoid or the blood of one who has been prophylactively inoculated with a typhoid vaccine, while on the other half, the control, the bacilli show no signs of clumping. The red cells are practically invisible, but the leukocytes are clearly defined, and it is quite easy, provided the film has been thin, to determine the presence or absence of leukocytosis, and to make, if necessary, a differential count of the various forms of white cells present.

Lancet, London

May 13, I, No. 4837, pp. 981-1024

8 Links in Chain of Research on Syphilis. J. E. R. McDonagh.
9 *Malignant Disease of Nose or Accessory Sinuses. S. Thomson.
10 Removal of Foreign Bodies From Esophagus and Bronchi. I. Moore.
11 *Presence of Lead in Urine in Four Cases of Trench Nephritis. C. P. White.
12 Unusual Case of Esophageal Cast. F. H. Jacob.
13 Case of Pleuropneumonia Treated With Phylacogen. F. Collins.

9. **Malignant Disease of Nose or Accessory Sinuses.**—The advantages of Moure's operation or lateral rhinotomy of the nose or accessory sinuses (through the face) are emphasized by Thomson and two cases are cited. In the first an endothelioma of the ethmoid and antrum. There has been no recurrence after five and a half years. The second case was one of epithelioma of left maxillary antrum. Moure's operation was done and there has been no recurrence after three and a half years.

11. **Lead in Urine in Trench Nephritis.**—White examined five specimens from trench nephritis (two of them from the same case at different times); two specimens from ordinary nephritis, each of them the mixed urines from two cases; and a normal urine to serve as a blank experiment. Lead was present in all the specimens from trench nephritis and in one of the mixed urines of ordinary nephritis. Iron was present in all the nephritic specimens and copper in most of them. Tin was also present in one specimen. This was the most recent case, and contained more lead than the others. A specimen from the same case a month later contained less lead, and tin was not found. White has come to the conclusion that copper is universally present in the tissues, and he has found it in normal urine to the extent of 0.2 mg. per liter. The iron, he says, can be attributed to the blood which was present in all cases, and possibly to the medicinal administration of iron. The presence of lead and tin in urine, however, he regards as abnormal. The constant presence of lead in these cases and the presence of tin in one of them suggests the possibility of the metals being derived from canned foods.

Bulletin de l'Académie de Médecine, Paris

May 2, LXXV, No. 18, pp. 491-533

14 *Abortive Treatment of Infection and Early Closing of War Wounds. (Désinfection et fermeture rapides des blessures de guerre. Résultats.) G. Dehelly.

15 *Operative Treatment of Detachment of the Retina. (Le traitement du décollement de la rétine et des choroidites exsudatives d'origine traumatique.) Bonnefon.

16 Gangrenous Process Over Arm and Back Following Vaccination of Adult Against Smallpox. (Cas de vaste gangrène phagédénique probablement causée par le "Bacillus pyocyaneus," à la suite de la vaccine.) Balzer and E. Moulard.

14. **Early Closure of War Wounds.**—Dehelly is surgeon at the hospital in charge of Carrel at Compiègne. He relates the ultimate outcome of Carrel's method of treating war wounds in 48 out of 76 cases. The 48 men had a total of 155 wounds, including a number with fractured bones. One hundred thirty-five of the wounds were closed before granulation had begun. (See abstract 36, THE JOURNAL, May 13, 1916, p. 1586). Of the 121 wounds closed before the twelfth day, healing was complete in less than thirty days in 119. This list includes 18 of the 22 with fracture. Of the total 155 wounds, it was thus found possible to close up early all but 12.6 per cent. and of the 135 thus closed, 88.25 per cent. were entirely healed by the end of the month. He adds that this shortening by two thirds the average healing period is far from being the only advantage of the Carrel method: The sterilization is so thorough that the lymph glands and bone surfaces heal without inflammation and hence there is no tendency to muscular contraction or stiffness from cicatricial tissue. The coaptation of the normal tissues causes them to grow together, retaining their suppleness, without an intervening stiff wall of scar tissue as when wounds are left to grow up spontaneously.

15. **Surgical Treatment of Traumatic Detachment of the Retina.**—Bonnefon emphasizes the way in which the war experiences are confirming the relative harmlessness of detachment of the retina following a trauma in comparison to that of endogenous origin. The condition is indispensable, however, that treatment be applied at once. The retina loses its vitality so rapidly after detachment that it must be restored to place on the spot. By the time the man reaches the base hospital the retina is injured beyond repair. He has cured completely three cases of extensive detachment of the retina with reduction of vision to perception of light. He obtains access by severing one of the rectus muscles as for an advancement operation. The region of the equator thus exposed is punctured deep at one or two points with the fine tip of the actual cautery at red heat. Two stitches are taken including muscle, aponeurosis and conjunctiva, to repair the breach, then absolute rest in bed, immobilization and atropin. The suture threads are removed the fifth day, and a few subconjunctival injections of saline after the eighth day may aid. In one of his cases vision had been reduced to perception of light but by the sixth day there was no visible trace of the detachment and visual acuity was 3/10 and became finally 8/10 and has persisted unimpaired during the three months since to date. This ignipuncture revulsion he has also found useful in treatment of contusion of the eyeball with intra-ocular effusion. It promotes absorption of an effusion either on the retina or in the vitreous body. In conclusion he reiterates the importance of promptness, saying that treatment of detachment of the retina is the only intervention on the eyes which should be undertaken at the front.

Presse Médicale, Paris

May 4, XXIV, No. 25, pp. 193-200

17 The Various Aspects of War Surgery. R. Le Fort.

18 Gas Gangrene in War Wounds. E. Sacquépée.

May 8, No. 26, pp. 201-208

19 *Prophylaxis of Spread of Infectious Diseases. (La méthode de Milne et la propagation des maladies contagieuses.) G. H. Lemoine and Devin.

20 Combined Arsenic-Mercury Treatment of Syphilis. Favre and Longin.

21 *Technic for Hypochlorite Sterilization of War Wounds. (Stérilisation des blessures de guerre; technique.) G. Dehelly and Dumas.

19. Already summarized as it appeared elsewhere. See abstract 39, p. 1662.

21. **Continuous Irrigation Method of Treating Wounds.**—This article is practically a continuation of the one reviewed above, abstract 14. The exact technic for the continuous irrigation is here described. Figure 1 shows the glass receptacle holding up to 1 liter of Dakin's hypochlorite solution, and the rubber tube, 2 meters long, with an interposed glass drop-counter about 20 cm. below the receptacle. Figure 2 shows the rubber tube about 25 cm. long and Figure 3 a section of the same. These short tubes are used of various diameters. The lower end is tied and above that the tube is perforated, and is fitted with the sponge tissue which is sewed solidly to the wall of the tube and closed below to form a bag. Other tubes are used to drain away the fluid. They are about 25 or 35 cm. long and have no side perforations. The dressings used are made of carded cotton with a thin layer of absorbent cotton and the whole is wrapped in gauze. The dressing when finished is about 3 cm. thick and is passed once entirely around the limb. The aim is to have the sterilizing solution in constant contact with every part of the wound all the time. For a superficial wound all that is necessary is to cover the wound with a single layer of gauze and lay along over the wound, above this, one of the rubber tubes perforated with minute holes the length of the wound. This keeps the entire wound well moistened, the single layer of gauze not permitting secretions to accumulate under it while it prevents the holes in the tube from becoming obstructed. A deep cavity with small opening is treated with tubes perforated only close to the tip. Enough are used to carry one into every compartment of the wound, as shown in a cut. The fluid entering below pours out of the opening above. It may be necessary to introduce a gauze wick with the tube, to hold the tissues apart enough for this to occur, or the tube may be wrapped with gauze to hold back the fluid if the wound is emptied by gravity too rapidly.



Figure 1



Figure 2.



Figure 3.

The receptacle stands on a shelf fastened to the foot or head of the bed, and there must be as many receptacles as there are tubes used for the irrigation. The connecting tube is attached to the tube in the wound as soon as the wounded patient is placed in bed. Attempts to divert the fluid from a single irrigator into more than one tube always proved a failure. If the tube in the wound becomes blocked with a clot, it should be syringed free. For a small cavity, 5 drops a minute have proved ample. For a large wound, 20 drops is the rule. The attendant must ascertain that the wound is thoroughly irrigated throughout but that the bed is not wet. The cotton dressing is changed twice a day. The skin around is protected with petrolatum. The continuous sterilization is kept up for three or four days. Bacteriologic examination of swabs will confirm the progressive diminution in the number of germs suspected from the clinical aspect.

When the microbes have disappeared from the secretions, the instillation tubes are removed and a gently compressing dressing is applied. The next day, if there has been no oozing from the depths, the cavity below may be regarded as closed; only the skin still gapes and the lips of the wound are brought together. This can usually be done by the fifth day. It is better to draw them together with strips of plaster than to suture as this permits coaptating all parts of the wound and by applying the compression all around the limb

helps to close all the cavities below. Strips about 20 or 25 cm. long by 3 or 4 cm. wide are used. Half of the strip is stuck to the limb on one side of the wound and then, as the lips are brought together, the rest is wound around the other half of the limb. For very large wounds, two strips of plaster 7 or 8 cm. wide are used, fitted with a row of hooks such as are seen on men's shoes. The wound is then laced up like a shoe. The lacing is done with heavy rubber bands like those used in boys' slings. The traction from the rubber soon draws the lips together. The plaster strips are kept in place, like sutures, for five or six days. If it becomes necessary on account of oozing to undo them at any point, great care is taken not to disturb the healing processes.

Revue Médicale de la Suisse Romande, Geneva

April, XXXVI, No. 4, pp. 209-272

22 Means to Detect Simulation of Blindness. (De la simulation de l'amaurose et de l'amblyopie.) T. de Speyr.
23 *Prophylactic Heliotherapy. (La cure de soleil preventive.) L. Jeanneret.
24 *Dosage of Polypeptids and Amino Acids in the Blood. (Le dosage des polypeptides et des acides aminés dans le sang.) J. Amann.
25 *Charcoal as Source of Error in Tests for Occult Blood. (Le charbon comme cause d'erreur dans la recherche chimique du sang dans les selles.) A. Rapin.
26 *Hydrorrhea During Pregnancy. L. Du Pan.
27 *Ultimate Outcome of Thyroid Autograft. E. Kummer.

23. **"Preventive Sun Cure."**—Every day one or more groups of from twenty to thirty children gather at a certain spot in their quarter where a guide and assistant meet them and conduct the party to the banks of a lake not far from town. Here they spend the afternoon in games and gymnastic exercises, clothed only in bathing trunks. The aim is to apply Rollier's system of heliotherapy as perfectly in the limited time afforded as is possible, and the work is all modeled on that in his institution. It was organized a year ago by Dr. L. Jeanneret for the more delicate schoolchildren of the city of Basel, and it has proved successful beyond all anticipations. He advertised for helpers in the papers, asking young men or young women to give up one afternoon in each two weeks to a group of frail children to help make them robust. Reflection from the lake doubles or triples the effect of the sunlight. There were only five days during the entire summer in which the trips could not be made on account of the weather. A group of children too small to take the half-hour walk were provided with a sanded and fenced space for the purpose in one of the public parks in town. A regular system was followed each day, the walk to the lake, then rest or quiet games, then gymnastics and games of all kinds. Efforts are made to train the children in good habits of breathing. The chest diameter of the 200 children increased by 2.03 cm. on an average between July 14 and September 4, and the average increase in weight was 825 gm. Only four children failed to show this increase. The entire expense from May to October was about $21. When cold weather came, the children had their walk and the games, Saturdays, but they did not remove their clothing. Jeanneret urges that gymnastic exercises in schools should be taken with the trunk bare and in the open air when possible.

24. **Dosage of Amino Acids and Polypeptids in the Blood.**—Amann has worked out a technic which requires only 1 c.c. of blood serum for the colorimetric quantitative test for amino acids, as a supplement to the Abderhalden ninhydrin test. The test takes only a few minutes and comparison of the amino acid content of the blood and of the urine may throw light on the functional capacity of the kidneys. He regards dialysis as the most reliable means to remove the albumin from the serum.

25. **Charcoal as Source of Error in Testing for Occult Blood.**—Rapin has found that the charcoal given to mark off the feces or for therapeutic purposes is liable to prove misleading. Even in minute proportions it acts as a catalyzer with the Weber, Adler and Meyer tests for occult blood. He tests for occult blood by triturating in a mortar a little of the feces and solid benzidin, with 1 or 2 c.c. glacial acetic acid. Then he adds 2 or 3 drops of peroxid of hydrogen and mixes it well. A change to a blue tint shows up even very minute traces of blood. He warns that the salts of metals act as catalyzers, and hence this source of error must be eliminated beforehand. Raw milk, certain ferments and certain drugs also have a catalyzing action, and with these known sources of error he now lists charcoal. Even traces of charcoal may cause a misleading positive reaction.

26. **Hydrorrhea During Pregnancy.**—Du Pan reports three cases. In two the hydrorrhea was evidently traceable to a pre-existing metritis which induced a pathologic secretion. This, accumulating between the ovum and the uterus wall, was the cause of the placenta becoming detached at this point. This entailed slight hemorrhage and contractions of the uterus, soon subsiding under rest in bed. The hydrorrhea may thus be regarded as of decidual origin in these cases, but in the third case there were traces of blood during the first two months at times corresponding to the menstrual periods, and during the following months there was a small watery discharge at these periods. At delivery only two or three tablespoonfuls of fluid were found in the bag of waters. He ascribes these phenomena to some slight early detachment of the placenta from contraction of the uterus at the time of the menstrual periods. The membranes were evidently torn a little during this, and later, at each recurrence of the time corresponding to the menstrual periods, the contractions of the uterus pumped out a little of the amniotic fluid. The laceration must have been so high up that no fluid escaped from it spontaneously.

27. **Thyroid Autograft.**—Kummer's patient was a woman of 36 with bilateral goiter compressing the trachea and extending outward beyond the ears. Both lobes were removed nearly completely but the structure of the thyroid seemed normal at certain points, and some segments of this were implanted under the skin over the right acromion by Cristiani's technic. The portion of the thyroid left undisturbed gradually enlarged as also the grafts in the acromion region. A scrap of the graft was excised three years later, and the microscope confirmed that it had not only taken root but had proliferated. The result, he says, was a kind of small neothyroid gland which had apparently shared in the total functioning of the thyroid gland. Nine years later, that is, twelve years after the operation, another scrap was excised, and the findings confirmed that the graft had continued its functioning. No sign of inflammation had been observed at any time. The case is illustrated.

Correspondenz-Blatt für Schweizer Aerzte, Basel

April 22, XLVI, No. 17, pp. 513-544

28 Experiences in Hygienic Mission in Serbia. (Aus meinen Erlebnissen als Hygieniker in Serbien.) L. Hirschfeld.

Pediatria, Naples

April, XXIV, No. 4, pp. 193-256

29 *Lymphogranulomatosis in Boy of Five With Necropsy. (Un caso di linfogranulomatosi infantile.) A. F. Canelli.
30 Alkaptonuria From Birth in Girl of Six. (Contributo allo studio dell'alkaptonuria nell'infanzia.) S. Maggiore.

May, No. 5, pp. 257-320

31 *Operative Treatmentt of Congenital Stenosis of the Pylorus. (La stenosi spastica ipertrofica congenita del piloro e l'operazione di Rammstedt.) H. K. Hirschfeld.
32 *Addison's Disease in Girl of Ten. G. Rutelli.
33 Present Status of Treatment of Spasmophilia. O. Cozzolino.

29. **Lymphogranulomatosis in Child.**—The history of infantile lymphogranulomatosis is reviewed and a case described with illustrations of the necropsy findings. The patient was a girl of 5 and the disease ran its fatal subacute course in seven months, with high fever and anemia but no hemorrhagic tendency. The histologic findings are discussed with much detail, comparing them with similar cases on record. The lungs showed miliary tuberculosis and atypical tuberculosis was evident in the lymph glands in the neck and lungs, lumbar and aortic regions and mesentery. Canelli adds a bibliography with titles in full of 159 articles on the subject, including a number from America.

31. **Operative Treatment of Congenital Stenosis of the Pylorus.**—Hirschfeld writes from Zurich to extol the benefits of Rammstedt's operation in rebellious cases of congenital

spastic stenosis with hypertrophy of the pylorus. She discusses the clinical picture and the various other measures that have been proposed to correct it. Rammstedt applied Weber's partial pyloroplastics in 1911, but found that the vomiting kept up afterward. In later cases he refrained from suturing the flaps and merely fastened a piece of omentum between them. This modification solved the problem, and the operation has proved unfailingly successful in his and others' hands. The musculature of the pyloric ring is incised lengthwise down to the mucosa, without opening the latter. The lips of the incision are not sutured; the pylorus is reduced and the abdomen closed. In the three cases reported the children were all males, all but one breast fed, and the signs of the stenosis became apparent the second or third week. The two preceding children in one of the families had also had this congenital stenosis of the pylorus. One succumbed and one recovered under internal measures alone. In all the cases the Rammstedt operation proved simple and harmless, even in the great debility of these children, and it was undoubtedly a life-saving measure.

32. **Addison's Disease in Little Girl.**—The tendency to bronzing was first noticed at about the age of 4. At 10 it was extremely pronounced, while the blood pressure was rather low and the child was growing progressively weaker. The appetite and digestion have always been good and the child has kept well nourished throughout. The hemoglobin and red count are normal. Tests for malaria and syphilis were constantly negative, but the Pirquet tuberculin skin test was strongly positive. An older child in the family had died of tuberculosis and the little patient had a history of enlarged glands in the neck and spina ventosa. The urine findings were apparently normal except for slightly subnormal figures for uric acid (0.3:1,000) and for creatinin (0.2:1,000).

Semana Medica, Buenos Aires

XXIII, No. 8, pp. 199-230

34 Vertebral Caries. (Consideraciones sobre el mal de Pott.) J. M. Jorge.
35 Correction of Abnormally Large Genital Vestibular Canal. (Caso de deformacion genital externa en la mujer por detencion en la evolucion morfologica.) J. Salvador.
36 Antigonococcus Vaccine. G. G. Soldevilla.

No. 9, pp. 231-262

37 Serotherapy of Pneumococcus Disease. (25 casos recopilados de neumonia fibrinosa tratados por el Haptinogeno-Neumo.) H. Dasso.

No. 10, pp. 263-290

38 *Cesarean Section on Account of Tumor. (Cesarea segmentaria suprasinfisiaria. E. Zarate.
39 *Paralysis From Vertebral Tuberculosis. (Paraplegias potticas.) J. M. Jorge.
40 Treatment of Whooping Cough by Subcutaneous Injection of Extract of Patient's Sputum. (Etiologia y tratamiento de la coqueluche.) J. Melfi.
41 To Protect Schoolchildren Against Malaria in Malarial Countries. (Higiene antimalarica escolar.) E. Cacace.

38. **Cesarean Section on Account of Tumor.**—In Zarate's case a tumor in front of the promontory impeded delivery and he extracted the child by an incision in the lower segment of the uterus according to the Fromme-Fraipont technics. The peritoneum had been sutured together above to shut off the peritoneal cavity, and the operation was extremely simple and easy, with very little loss of blood. The wound soon healed, with no impairment of the movability of the uterus.

39. **Paralysis from Vertebral Tuberculosis.**—Jorge discusses Pott's disease in general and a typical case in particular, theorizing as to causes, treatment, etc. Malignant tumors and parasitic cysts in the spine might present neuralgic, radiating pains like those in Pott's disease, but the pain is generally more intense. At a more advanced stage there may be motor, sensory and trophic manifestations as with vertebral caries, but the clinical picture is quite distinct. Syphilis, on the other hand, may present a practically identical clinical picture, especially as a tardy manifestation of inherited syphilis. The child may be apparently healthy until approaching puberty, when the gait may gradually assume the spastic type and the spine become semirigid with exaggeration of the tendon reflexes. Lumbar puncture may reveal lymphocytosis and the positive Wassermann reaction will confirm the diagnosis of tardy syphilis. Roentgenoscopy should never be omitted in these cases, but does not always give decisive findings. Paraplegia following an acute infectious disease generally subsides in a few weeks of repose. The spine is flexible in these cases. In all spinal troubles, Jorge remarks in conclusion, the surgeon should bear the possible medical affections in mind, and the clinician should never forget the possibility of vertebral tuberculosis alone or associated with other trouble.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

April 15, I, No. 16, pp. 1313-1408

42 *Epidemic Cerebrospinal Meningitis. J. P. Bijl and R. N. M. Eykel.
43 Experimental Research on Vaccinal Allergy. R. P. Van de Kasteele.

April 22, No. 17, pp. 1409-1500

44 *Importance of Immunity, Allergy and the Tuberculin Reaction for Dermatology. (Iets over de beteekenis der immuniteit, allergie en de Moro-reactie voor de dermatologie.) W. L. L. Carol. Concluded in No. 18.
45 Increase in Height of Male Population of the Netherlands. (De toeneming der lichaamslengte van de mannelijke bevolking in Nederland.) A. M. Benders.
46 Lipoma in an Inguinal Hernia in a Woman. (Een eigenaardig geval van liesbreuk bij een vrouw.) J. H. Hoogenboom.

42. **Epidemic Meningitis.**—Bijl is chief of the public health service and he here reviews the experiences in the Netherlands with epidemic cerebrospinal meningitis during the last ten years. There were no cases known in 1914, but fifty-four were reported in 1915 with a mortality of 92 per cent. without serum treatment, and of 30 per cent. with it. The incubation period was less than three days in some and over five days in others. Prussia had several hundreds of cases during this same year and England in the first seven months of the year had recorded 3,378. Bijl warns physicians in general to be on the lookout for imported meningitis, and that lumbar puncture should be done on mere suspicion of the disease. The fluid is examined free of charge at the central laboratory, and the trained officials of the public health service are empowered to assist the general practitioner in doing lumbar puncture on civilians on request. He suggests that the germs may linger in the accessory sinuses of the nose after clinical recovery. It is wise to commence serotherapy in severe cases without waiting for bacteriologic confirmation of the diagnosis. The antiserum usually should be injected daily for three days in succession, and then every day or second day. One soldier recovered after six injections, one girl of 6 after four. An English exchange reports recovery after seventeen injections in one case. In some of the Netherlands cases the patient might have recovered under the serotherapy if it had been commenced earlier or the doses had been larger or the intervals shorter. April and May are called the "meningitis months." Repeated examination seldom disclosed a carrier in the environment, but one "contact" was found whose serum agglutinated meningococci, although none could be discovered in his nasal secretions. Agglutination is not a positive sign of infection, but it may corroborate other signs. In one family the three smaller children developed meningitis within two days. No meningococci could be found in the nasal secretions of the parents and other children examined the sixth day, but the serum of all agglutinated at 1:50.

44. **The Tuberculin Ointment Reaction in Dermatology.**—Carol devotes nine pages to a tabulation of the details of fifty cases of various skin affections tested by the Pirquet tuberculin skin test and the Moro percutaneous tuberculin ointment test. A specific reaction was obtained regularly with lichen scrofulosorum, occasionally with tuberculids and repeatedly in the one case of lichen nitidus. With syphilids, the tests were usually negative, but occasionally a positive response was elicited. He reports further much benefit from the tuberculin treatment according to the Sahli-Ponndorf technic in cases of papulonecrotic tuberculids and of erythema induratum, although with the latter the bed rest was undoubtedly an important factor in the improvement.

Hygiea, Stockholm

LXXVIII, No. 8, pp. 481-528

47 Prophylaxis of Disease in Swedish Barracks. (Sjukligheten i våra kaserner och dess bekämpande.) N. Brinke.

2048.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 26 CHICAGO, ILLINOIS JUNE 24, 1916

FURTHER REFLECTIONS OF A MEDICAL TEACHER *

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BOSTON

The occasion brings to my mind an address which I heard, not in this noble hall, but in the building on the corner of St. Paul and Saratoga streets, nearly forty years ago. I had just graduated at the Maryland University, was working in the laboratory of Newell Martin in the Johns Hopkins University, and had come under the spell of the man and the place. The address by S. Weir Mitchell, a name equally renowned in medicine and literature, both in the subject matter and the grace of expression, made a deep and lasting impression on me. I very well remember the general subject concerned the renewal of the tissues, particularly the nervous tissue, after too great wear, and he showed the importance of exactly determining, not so much the nature of the disease as the condition of the diseased individual. He spoke also of the use of rational, but not necessarily pharmacologic, remedies, among which rest occupied a prominent place, to assist in the restoration to the normal. It was a view of disease which the medical student at that time did not have revealed to him, but which has now become fully recognized. I regret that I cannot hope to say anything that will be so remembered.

Some years ago, and the years now pass with such accelerating rapidity that the period seems remote, I gave an address entitled "Reflections of a Medical Teacher." Now, having attained greater age, a wider experience having given more material to reflect on, and having possibly wasted much time in reflection, to which I always devote a very delightful ten minutes after breakfast, I propose to speak to you today "On Some Further Reflections of a Medical Teacher." I find that my reflections follow along much the same lines as in the former address, though the views expressed there have in some cases undergone some alteration and repair, and in others have become deeper and stronger.

In teaching one is concerned, first, with the material, just as a farmer must consider first the character of the soil he tills; virgin soil, moreover, rarely presents itself to his hand; his fields have been tilled by previous possessors, sometimes the process enhancing, often injuring, the quality of the land, and what he does is influenced by the previous culture. Continuing the agricultural simile, we are secondly concerned with the tiller, his selection and training and his ability for his job. The third point is what sort of a crop he wishes to produce, and the fourth, what methods of culture he pursues.

During the thirty-five years of my life as a teacher I have come into pretty close relations with a large number of young men from all parts of this country, and a few from foriegn countries, of the average age of over twenty-three, and representing all kinds, both as to degree and quality of intellectual tillage. It seems almost absurd and indicative of a very faulty method in our educational system that these men should not earlier acquire the training which is supposed to fit them for the serious work of life.

While this is not the time when we should regard everything in the German system, as judged by some of the activities resulting therefrom, as worthy of imitation, nevertheless the difference in the character of the early education in Germany as compared with ours is striking, and I think not in our favor. Some years ago while visiting a friend in Germany I had the opportunity of seeing something of the German method at close range. The son, a vigorous youngster of 15 who was shortly to enter the gymnasium, spent in school thirty-four hours weekly, this including two hours of field-work in botany and two hours of religious instruction. In addition to this, he spent two hours daily in the evening in preparation. In the gymnasium the drill is fully as strenuous, and when the boy leaves this to enter the university he is fully two and a half years ahead of an American boy of a corresponding age; his education has been conducted along rigid lines and is thorough.

The boy spoken of had a fair knowledge of French and English and had been drilled in Latin to an extent that he was able to carry on a conversation with his father in that language. In history he was thoroughly steeped in that of the German Empire from the Treitsche point of view, but of the wider aspects of history he had little. His point of view had been absolutly formed for him and he had imbibed the Treitsche principles as a part of the sermon on the mount. What particularly interested me was his outdoor education, as revealed in the course of a long tramp we had together in the mountains, and which he had acquired as a part of his school-work. He knew the plants, the trees, the geology and topography of the country, the traditions and history associated with the region, and with and through this knowledge had acquired a love of home and country which we rarely see. Of athletics, he had the gymnastic drill in the school, which seemed to keep his body in good condition.

The religious instruction was obligatory, but there was a choice between the Roman Catholic and the Protestant point of view. The father talked to me seriously about the choice, and had concluded, not

* Address delivered before the Medical and Chirurgical Faculty of Maryland.

from the point of view of conviction, but from that of the material advantage to his son, that, since he might possibly enter into the Austrian service, it would be better for him to choose the Roman Catholic side. Of course the disadvantages of such a system as this, in which the boy at the period of lasting impression is rigidly trained in a system which has the state and not the individual primarily in view, are sufficiently obvious, but these disadvantages are not necessarily associated with the system. There is no reason why the historical and political instruction should not be as free as the botanical.

My reflections have led me to believe that it is in these early years that our educational system is most defective and will be most difficult to remedy. In contrast with this German boy, I think also of another friend's son, a boy with whom I was accustomed to talk when on my way to a club, where at stray times I endeavored to play golf. The boy, 16 years of age, pursuing his studies at a private school which prepared boys for college, played a fair game of golf and could talk of the game with some degree of interest, but knew nothing of its historical development or of the physical principles involved in its pursuit. Apart from a very superficial knowledge of one form of athletics, he seemed to have acquired little or nothing; indeed, I could not ascertain that he had ever voluntarily read a book. This early education is of vital interest to the teachers of medicine, for, in the first place, the age period at which men enter into medicine must be lowered, and the colleges can not turn out men with the training we require from the material they receive. There would seem to be hope in the large private schools of the country, but none of these could exist if they made adequate demands on their students, and there is, furthermore, a lack of properly qualified teachers.

There is no profession of teaching in this country and there are no rewards, either pecuniary or in position, on which such a profession could be based. Even in the private schools teachers are selected rather on a basis of athletics and social qualifications than on the ability to train and inspire youth. The possession of a "Ph.D." is also regarded as one of the desirable qualifications of a teacher; it looks well in school catalogues and certainly should not be held to be detrimental, but the character of work which the degree demands in no way qualifies a man to teach. How much better it would be for him to spend the time under a competent master in the study and practical exercise of teaching. Every one engaged in the tillage of the soil must study its character.

During a part of my teaching career my class included both those who had passed through college and had acquired the A.B. degree and those who entered the school after fulfilling certain more or less definite entrance requirements. Harvard having required the A.B. degree as a condition for entrance into the medical school since 1900,[1] my experience has been more extensive with students who have the degree. As far as I have been able to learn by careful study of results, on the whole the A.B. men are the better. In judging the material of college training one cannot say offhand whether the better material which comes from the college is due entirely to the training received there. The college has a certain advantage in that its material represents a selection. It embraces the congenital rich; others whose immediate forebears by the exercise of energy and thrift have accumulated sufficient means to give their sons a college course; and a large number of young men who by great sacrifices and hard work earn the money necessary.

On the whole, the hereditary element also will favor the college man. There are differences in environment of the three classes, so many advantages and disadvantages connected with each, that I am not sure whether it is better for a young man to select his great grandfather to meet his college expenses, or to place the burden upon the thrifty father, or to depend on his own efforts. I found also in my previous inquiry that there was little difference in the best men whether they had or had not the degree, but the average was cut down by the poor men, who were most numerous in those without the degree. Much depends on how the years which the college represents have been passed, and one can easily see ways in which they may be spent as advantageously or more so than in college. A man, however, does acquire in college certain traits difficult to characterize affecting his human relations and of advantage to his future career in any line whatever.

As I look back on my life and the friends I have made, many of them having attained distinction, I find that a large proportion have not had the college degree. It must be remembered, however, that the attainment of the college degree is becoming progressively more easy and that most of these men at present would have gone through college.

I have been greatly impressed with the evidence which college men often present of a lack of thoroughness in the instruction they have received. After two or more years of study of French and German, for instance, they have acquired no facility in the use of the language. They are also incapable of close and accurate observation and show a singular lack of facility and clearness of description. This comes out strikingly in one of the exercises of my course, in which the students are required to study under the microscope sections of diseased tissues with which they are not familiar and to give written descriptions of the conditions present. I have been reading these papers now for many years, each year with a hope that is continually disappointed, for it is difficult to believe that an education of twenty-three years can show so little effect. One learns almost to classify the students by the chirography. This is for the most part indistinct, without character, often only the beginning of a word written out, leaving the remainder to be guessed at. The matter is badly expressed, often obscure, diffuse and too voluminous. The greatest lack is an unfamiliarity with the methods which even the savage would use to obtain knowledge of an object. The method of analysis, the resolution of a problem into its single components, the study of these and the reassembling must be taught over and over again. A boy should in the beginning be taught to write legibly and to express himself clearly and succinctly. The only use students seem to know of books is to obtain by study the knowledge which is recorded within their pages, not to expand the knowledge they have acquired by the study of nature. They seem to have but little enthusiasm, little curiosity to know. Certainly a large part of a student's first years in a medical school is taken up with acquiring methods of study.

1. This has recently been modified to the extent that two years of college work are accepted, provided the standing of the student be high and the instruction of a certain character.

I remember that in a discussion on the subject of the desirableness of modifying to some extent the A.B. requirement a well-known professor of psychology objected to the proposition on the ground that the college degree indicated the possession of culture and that the lack of this desirable commodity would place the medical profession at a disadvantage as compared with the law, for the lawyers would have the degree and culture. It is possible to define culture as a state of mind which enables its possessor to recognize, appreciate and enjoy the best product of man's work in any direction, whether in literature, art or science. Culture is acquired, who can say how. Often when not consciously sought, and often when sought, it flees the pursuer. It is probably more often associated with the A.B. degree than not, and in the class seeking the college, heredity and environment are fully as important elements of culture as the college course. Certainly, as far as culture involves a knowledge and appreciation of literature the college men often seem to lack this part of it.[2]

The men, on the whole, are conscientious; they try to work, but they are childish and those methods of instruction which are unfortunately most used in the primary schools make the strongest appeal to them. They prefer assigned lessons, textbook recitations, and what are termed "quizzes" on lectures. I am accustomed each year, at the termination of the course, to ask of the class a criticism of both the matter taught and the method. Occasionally I have gotten very admirable, well-considered reports, containing suggestions which have been adopted with advantage. As a stimulus to the class I have been excusing from examination at the end those men who have shown excellence as determined by the weekly written work. This year the students have asked that this method be discontinued, on the ground that if no examination is given they would miss the valuable review made necessary in preparing for the examination. Of course what I have said does not apply to the entire class, a large number of whom are all that could be desired as students, since those giving the impression of the normal are probably not sufficiently considered in estimating the average, for after all, the abnormal makes the greater impression.

I have thought that something might be learned from a statistical inquiry regarding the colleges where the men were educated previous to their entry into the school. To this end I have gone over the graduating classes of the last ten years, taken the standing of the men while in the school and compared this with the colleges. Previously I had made the same inquiry based on the standing of the students in pathology alone. The results are similar. The number of educational institutions represented, 105, seems to be all-embracing, but of these, sixty-two gave us but one student apiece, and thirteen but two each. Occasionally the single representative of a college is an exceedingly good man, but the general average from these colleges is low. Most of our men come from the well-known colleges in New England, Harvard of course leading. These men all averaged very closely, there being a difference of only 3.86 per cent. in the standing between the highest and the lowest. Whether such a small figure has much meaning is doubtful, although the numbers were sufficient as to do away with the effect of very low and very high standing of individuals. The sectarian colleges fell 7.27 below the average of the New England nonsectarian colleges, but the whole average was not so marked as in pathology alone. Here again it is difficult to say that the character of the education received in the sectarian college is alone responsible, for the college population in these is largely represented by a race which, though abounding in admirable qualities, has not been prolific in the production of men of science.

The unfortunately small number of men whom we have received from the New England institutes of technology averages a little better than those from the colleges, one institute bing 3.1 better. It is rather interesting that the product of all these institutions should average so closely, but the methods of teaching are similar in each, and the men who go into medicine are fairly representative of the product. The inquiry also considered relative standing of the men from the different parts of the country. The men from New England were so greatly in excess to give but little value to the result. As compared with the other localities represented, however, New England stood 1.92 higher.

I still remain one of those who believe that teaching is a calling which if engaged in should be the paramount interest in life, that it is a responsible, serious and noble calling, and I regret the tendency which seems to prevail of disregarding teaching as a career. I have become aware of this in several ways. Numbers of men from my laboratory, after serving as assistants for about two years, have taken positions elsewhere. In the inquiries for men from other institutions, the ability to teach, and this means much both in the way of natural qualifications and training, is seldom inquired into, or at least little stress is laid upon it in the list of accomplishments demanded for small pay.

The young men themselves in seeking positions make very definite demands as to the hours which are to be devoted to teaching. Their ideal seems to be a life devoted to research. Why not research with teaching? Research is of fundamental importance for the teacher; the knowledge which he acquires from the study of nature is living, it is his very own and he can give it, together with the inspiration which has directed his search. What a change has taken place in the point of view of teaching and research during the past forty years. Research has now become dominant; it gives the individual pecuniary reward, place and position; it gives the institution reputation and endowments. It has been possible to apply the knowledge which has come from research to the prolongation of life, to the alleviation of human misery; this knowledge has also made habitable large and productive regions of the earth by the destruction of endemic diseases, and has in many ways enormously increased man's power in the use of the natural forces. Its

2. It is of course not to be commended that a lecturer on a medical subject should garnish his discourse with classical allusions, but it sometimes is difficult to avoid it and the result is apt to be disappointing. I remember that once when beginning some lectures on malformations it seemed to me eminently appropriate to begin the course by reading the first chapter of Tristram Shandy. This is amusing, interesting and instructive in that it gives an example of an abnormal course of development being initiated by the simple question which was propounded by Mrs. Shandy. As I proceeded to read the chapter an expression of utter bewilderment came over the faces, and I am sure that the bearing of Mrs. Shandy's question was entirely lost. On another occasion it seemed to me that it might be well to introduce the subject by some allusion to Greek mythology, by showing that such conceptions as the Cyclops, the Janus and Cerberus could never have arisen as a creation of the imagination, but were based on the existence of these forms in the malformations. It is very difficult to speak of the Cyclops without mentioning Polyphemus, and at the name the expression of bewilderment I have so often seen passed over the faces. After the first experience I asked one of the assistants if he had ever read Tristram Shandy, and he said he didn't remember, but he probably had, for he read many books when a child.

pursuit conduces to pleasure and the joy of life; other pleasures pale in contrast with that which the worker experiences when the solution of a problem to which he has given concentrated effort appears at hand. This it seems to me is the real fascination which research exerts, and when this is combined with rewards so much greater than can be obtained by teaching it cannot be wondered that it makes the stronger claim.

Individuals who have amassed fabulous wealth by measures which really seem simple, provided the natural endowment which makes possible their exclusive pursuit is at hand, have been led to apply parts of this wealth to the creation of institutes for research. Scientific research is a curious plant; it flourishes alike in the stony desert and in the hothouses; it is largely independent of environment and sometimes does not well bear transplantation. Under this stimulus to research, affecting the individual, the university, and the institute, it has enormously developed, to the extent that no one can keep pace with the literature in a single main subject. It is comparatively easy to increase quantity of a product, but the increase of quality is not so easy. To some of us the expression of organization of research, its creation at any spot under any circumstances, provided pecuniary means are at hand, seems rather shocking; it is true that the output of poetry and painting under such conditions might be greatly increased, but there might be some fear as to its quality. Poetry is useful to man; it has undoubtedly contributed to his happiness and has even alleviated human misery; but no magnate has ever made the experiment, which would be a very interesting one, of the creation of an institute to increase the output of this desirable product, of which the world at present is in great need.

These enormously endowed institutes can put out such a mass of research, and the primary and often sole measure is volume, that the university as a place where knowledge is advanced suffers in comparison. The institutes, moreover, attract young men in the most fertile periods of life, and offer greater emolument than the university, and freedom from what is too often regarded as the drudgery of teaching. The university, in comparison, falls somewhat behind in public esteem, and particularly so in that the institute is not disposed to hide its activities behind a modest veil. It must tell the public its accomplishments, because Croesus seeks to justify his appropriation of wealth by devoting some of it to a useful purpose. The university also seeks to meet this competition of the institute by increasing its volume of research output, and in various ways seeks to inform the public of its activities.

One leading university in the country goes so far in this direction as to publish the titles of the papers of all who have been in any way connected with it, no matter where the work was done, thus claiming that through the one time association of the author with the university this has in some way stimulated the production. The university has also created positions almost exclusively for research, which is very unfair to its teaching force, for there is too great a tendency to judge men solely by the standard of volume of output. The university has its place in training the individual by research and otherwise, toward the development of the best that is in him. The institute fills a proper place in providing facilities for research, and there are always those who will find there a suitable environment.

Teaching, however, should not be, and never has been, a bar to research, for student and teacher should seek knowledge together, and pedagogy involves so much of the unknown that to engage conscientiously in it is a form of research. Many of the great teachers I have known have been both teachers and investigators, and in both directions stimulating. There is too great a tendency to regard research and publication as synonymous. It is a laudable reputation to be known as a contributor to knowledge, and while teaching may impede publication, it is, if properly pursued, a stimulus to research. There are rewards, intangible, it is true, but the more valuable, which come to the teacher only. Who of us cannot remember certain teachers who have exerted an influence lasting through life, which has in some way made us better men?

It is difficult to attempt to define what should be the relation between teaching and research. There is at present an undoubted tendency to the separation of the two. Everything favors the man who holds research as an exclusive ideal and makes teaching a secondary consideration. There are men of wide vision, ingenious in devising methods, of great power of concentration, who are able to single out sharply the definite problems in a subject and follow them to the end, and who should find in the institute facilities for work. These men are not teachers, they aim not toward the higher development of the younger men, but regard them solely from the point of view of additional hands and eyes. They are ambitious, eager for reputation, inclined to insist on priority claims, and generally have a pretty high appreciation of their general excellence and the quality of their work. There are also men of wide culture, equally qualified for research, who are also great teachers and who teach through research. They have broader sympathies, the entire atmosphere about them is different, and even greater than their contributions to knowledge is the influence which they exert on their students. These men belong in the universities; they will find there the more congenial atmosphere, and when these rare individuals appear the university must even at the sacrifice of other things secure them and make their path easy. Teaching may also favorably affect research. A man who has made important contributions to knowledge as the head of a department in which the teaching is of the highest character told me that he finds in the review of the entire subject which the yearly course demands ever a new stimulus and fresh suggestions for the problems on which he is working.

There is another condition which one dislikes to mention and which is undoubtedly operative in the selection of teachers in a university. The university, recognizing that the salaries which it can afford to pay are not sufficient to render the recipients contented in the social environment which the position gives, rather seeks men who possess private means. That is, other things being equal, the man with private means will secure the position. It is true that the salaries given are sufficient for simple living and for family life, provided this is not too greatly extended; true also that food can be carefully selected and restricted to nutritive amounts and that the women of the household will be much happier in household employment than in social diversions; that public schools are very much better than private schools for

the children, and, if so placed, that a pension is available after retirement, and the teacher need not in his life fear starvation. It is, however, equally true that he cannot make these obvious truths recognized and accepted by the family. Discontent, unhappiness with impairment of usefulness and loss of ideals too often result.

It would be infinitely better if universities could be placed in a wilderness and withdrawn from the environment of idleness and wealth. Simple tennis courts and even golf courses could be created, provided the ideals of the games were not perverted by the courts and links which wealth provides. The women would undoubtedly find great diversion in the study of each other and in simple occupations. Not only this, but since the university gives to society much more than it receives, outsiders would probably pay a good deal for temporary admission into the Utopia, and thus might be made to contribute to the funds of the university. Such conditions are partly fulfilled in one of the great universities of Amercia, but I was not able to find that the social atmosphere differed a great deal, and that the air was always calm. The trouble seemed to be that there were a few servants available and friction was excited by these being stolen from the temporarily happy possessors.

What is the end sought in medical training? It is easy to say that it shall fit men to be of service in all the relations of man to disease. This concerns the prevention of disease, the medical and surgical care, the social factors involved, and the human relations of the diseased individual. It is impossible that all these can be fully united in the same individual, but they are all based upon knowledge and this can be attained only through the methods of science. It is obvious that for this medical service a great many different kinds of medical men will be required and it remains a question how early their differentiation should begin. Men will be needed in the public service to prevent disease and to take care of the sick. This public service has only begun, but is sure, with the establishment of sickness insurance and other forms of social legislation in which sickness is a factor, to become prominent. It will require men well trained both in the measures of preventive medicine and in the medical care of the sick. At the present time the sick are most uneconomically cared for; a large part of the sickness could be prevented and the care of the sick is to a great extent inefficient and far too costly. With economic conditions as they are, and there is little prospect of change, the earnings of 80 per cent. of the families in the country do not suffice for much to be devoted toward recompensing medical services. In the cities this condition is met by free medical service in the hospitals and by the charity of physicians.

In the country districts, and it is here that the social medical service is most needed, it is not provided for at all save in certain sections. Factories, mines, railroads and other large employers of labor, find it to their advantage to provide an organized medical service. Ultimately the state must in some way provide a proper medical service in country communities for those who are not able to pay. The schools must provide men suitable for such positions; they should be well trained in preventive medicine and capable of teaching the people the principles of right living. Such physicians should be able to meet successfully medical and the simpler forms of surgical disease and to see that patients with the more serious and complicated diseases are sent to hospitals established at centers, the number of such centers depending on the relation of population to area.

There must be provided capable surgeons. This demands a long course of training, extending over years, in a well-ordered surgical clinic. The exercise of the surgical art to obtain the best results in the more serious operations demands well-skilled assistants and attendants. The operations demanded are comparatively few and such surgical clinics may be established at the hospital centers. Highly trained medical men, internists, must be provided, men who are specially skilled in the cure of the diseases of children, obstetricians and specialists, and, finally, men whose work will lie exclusively in the care of the 20 per cent. for whom illness is often a sad pleasure, men who understand inherited constitutions, fat reduction, and the mysteries of high finance.[3] Above all, teachers must be provided.

Can all this be accomplished by a medical school? Yes, provided the age period of entrance be shortened and the premedical education be better adapted to the medical needs. All medical measures are based upon knowledge obtained by our senses, assisted by methods and instruments which extend their power. There are many facts which can be acquired as such, but disease always presents problems to be solved. It depends on so many factors which are often ill understood, which are variable in themselves and in the effect which they produce on the individual. Disease, as the physician sees it, affects not classes, but individuals, and the individual case is always a problem. The mere matter of diagnosis, as far as naming the pathologic process and ascertaining its situation, is to be regarded as comparatively easy, although every pathologist is aware of the number and the importance of the mistakes which are made. In disease certain conditions which bring about functional disturbance are produced and life goes on under conditions which differ from the normal. One of the distinguishing criteria of living matter is its variability, of which individuality is the expression, and the result of the abnormal environment of disease must differ in every individual. The condition of the diseased individual, on which rational procedures of relief are based, cannot be ascertained from previous experience or from the experience of others or from generalizations, but must be deduced from the investigation of the individual. There is no other road to the knowledge which gives power.

Medical education must provide that the main facts of the structure and function of the body shall be firmly acquired, and also constant exercise in the study of disease and practice in methods. One of the most important elements should be the recognition of knowledge and its separation from conjecture. This last, of course, is making pretty large demands on the system, but something might be done at it. The essential of the education in the medical school is the labora-

3. Lest too many should be attracted into this class of physicians, it must be remembered that there are obvious disadvantages associated with the practice. The life is a dull one, tending to intellectual decline, and the competition with Christian Science and various forms of medical cults is keen. A new element seems at present to have entered into the competition in Boston. A Chinese herb doctor, endowed with preternatural skill in feeling the pulse and diagnosing conditions thereby, who prescribes vegetable substances by the bag, is acquiring to himself the most lucrative practice in the Back Bay. It has not proved possible to remove this competition by legislative enactment, and with the opening of the door of China to let in the West, more of the Chinese doctors may escape to bring into this country competition with Chinese medicine. I mention this as a danger which has not been foreseen by those who are seeking to introduce western medicine into China.

tory, a place which affords facilities for the study of things and phenomena, and in which the student can be trained in the use of his senses and in the use of instruments by which the power of the senses is increased. In all the departments, in the clinics, in the hospital wards, the method is the same. In the early or preclinical studies the laboratory method is of the utmost importance, for it is there that the foundation must be formed. It necessitates teachers who can stimulate and extend to the students the enthusiasm in the pursuit of knowledge which they possess. With the students as we receive them a large number of teachers, at least one to twenty, are required, for the students are not sufficiently developed to work independently. The situation is unfortunate, moreover, in that the more help is given the students the more they require. Their previous education in some mysterious way, but effectively, has robbed them of the capacity of self-dependence. The unit system devised by Minot, in which the laboratory is divided into units, each consisting of a group of students under one instructor, would be admirable provided a sufficient number of capable instructors could be obtained. The absence of subdivisions enables the better teachers to be more fully used. Nor can the laboratory be a place for teaching alone, it must have an atmosphere, and knowledge must be sought within its walls by both teacher and student.

The lecture is an important part of teaching, provided its function is understood. It should not be used as a substitute for objective study, but to expand and coordinate the knowledge which the student has already acquired. It must also interest and stimulate. The lecturer must have a present and vital interest in the matter considered, and this demands a continual renewal. Once, early in my career, I wrote out with great care a series of lectures, and said at the end: "There, that job is finished, I can read these lectures with some slight additions year after year." I read them once, then again, and had I been obliged to read them a third time I should have sought another occupation. Curiously enough, I heard of them long afterwards. At a certain function I met a prematurely old man whose hard struggle with the world had left marks upon him, who told me how much as a student he had enjoyed those early lectures, that he had obtained a shorthand copy of them, and had made them the basis of his practice. In another way I became aware that copies were in existence. I was testifying in a medicolegal case, sharing in the plunder which the law extracts from the community, when the astute counsel from the other side — and the law compels a witness to be on one side or the other — interrupted with the remark, "but you said otherwise," and he proceeded to read to judge and jury extracts from a well-used and rather dirty book which he said I had written. It was the lectures again, and I was obliged to give the court a dissertation on the subject of lectures, and included a charge for this in the fee which the soulless corporation afterward paid.

One gains an interesting experience from lecturing. However good may be the descriptive power of the lecturer, however able he may be in interesting his audience, it is useless to attempt to give in a lecture information on a complex subject. For instance, I doubt if it would be possible for a lecturer, taking a group of men of the average intelligence, but coming from a world in which there were no trees, to enable them in an hour to form such a conception of an oak or elm that they could go out from the lecture and instantly recognize such a tree. I have arrived at this view from personal experience which may not be complimentary; I have endeavored to ascertain from students before whom I had lectured on a topic in which I was certainly interested, and they seemed to be, how much correct information they had acquired, and have found it surprisingly small in amount.

The lecture should also convey a stimulus to the student, and the lecture hour should form an agreeable interruption of the laboratory work. Unless the student can gain in the lecture mental recreation and stimulation, the lecture had better be left out, although it may have aspects which are not usually regarded as among its assets. One is its power of inducing gentle, refreshing, noiseless sleep in the audience, and the other is the educational value of the lecture to the lecturer. To one who is a poor sleeper there comes a great satisfaction to see sleep descend upon an audience. The lecturer experiences an exhilaration at the demonstration of the possession of a power which makes him akin to the God "who giveth his beloved sleep." I always insist that the sleep shall be noiseless, and position makes lecture room sleep usually of this character. The lecture has its value to the teacher also. How often the crudity of an idea becomes strongly apparent when the attempt is made in the lecture to convey the idea to others. How often have I seen a culdesac open before me, with walls so high that they could not be carried even by a flight of eloquence, and into which I was on the verge of a headlong plunge! How eagerly is a friendly alley utilized as a means of escape! The teacher should find in the lecture a means of clarifying his knowledge, and in the stimulus of lecturing, very often new and useful points of view present themselves.

Next to the lecture, in ascending value, comes the demonstration, also a method of value, but of overrated value. It is possible to gather a few men, not more than ten, around certain objects, point out the essential things, and enable them to see them as does the demonstrator. Such a demonstration can also be made the basis of an informal talk, and questions can be asked, but at the best it is little more than a projection of the ideas of the demonstrator.

Oral recitation — I greatly dislike the word quiz — by the class is also a valuable exercise provided it can be given in such a way as to bring out the conceptions which the student has formed and to correct those which are faulty. It is too apt to degenerate into a lecture or into a dry matter of question and answer. The student must also be shown how to use books properly and be referred to original sources of information.

The absence of teachers might be helped out by the aid of student instructors, for teaching is a most valuable discipline for the student. The limit of time, the pressure of the work would necessitate the student giving an additional year to the course, and the low esteem in which the teacher is held would limit the choice to those in need of the small pecuniary recompense that could be offered.

The education of the medical student so vaguely suggested should give a basis on which he can further develop the various forms of medical service.

The profession of medicine is a career full of interest, the social position of medical men is on the whole good, there is a general feeling of fellowship and comaraderie among them, fostered by frequent meet-

ings in societies. It is an eminently live profession, for knowledge is constantly growing and the opportunities for service are greater than in perhaps any other. Service involves also the element of combat, for there is a constant struggle against ignorance. All this attracts men to it. On the other hand, it is at present very greatly overstocked, the income to be derived from its exercise is small and failure is easy. No man can hope to succeed in it without industry, good mental endowment and without the possession of the quality of mind which recognizes, appreciates and seeks knowledge. To all this might well be added that he must have interest in and sympathy with his fellow man.

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THE RELATION OF GOUT TO NEPHRITIS

AS SHOWN BY THE URIC ACID OF THE BLOOD *

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Under the stimulus of the recently developed methods for quantitatively determining the uric acid of the blood, renewed interest has been shown in the diagnosis of gout, based on a retention of uric acid. From the normal variations of from 2 to 3 mg. per hundred c.c. of blood, the uric acid concentrations may be increased to as much as from 4 to 9 mg. in gout. Such increases are common occurrences in gout, but it does not follow, conversely, that these uric acid accumulations are infallible signs of gout. That uric acid, as well as urea, may be retained in nephritis was pointed out many years ago by Garrod,[1] this observation being recently confirmed by more exact methods.[2] It becomes essential, therefore, to eliminate the nephritic element as a factor in the retention of uric acid before the latter can be regarded as an indication of gout. Since gout, uncomplicated by nephritis, is characterized by an abnormally high uric acid concentration in the blood without any corresponding increase in the concentrations of other nitrogenous waste products, such as urea and creatinin, it would appear possible to eliminate the nephritic factor readily by obtaining normal values for the urea and creatinin of the blood. However, we have accumulated considerable evidence indicating that in the development of interstitial nephritis, uric acid is the first to be retained, this being followed by retention of urea and, lastly, of creatinin.[3] It is conceivable, therefore, that at an early stage in the progress of this type of nephritis, a blood examination would show retention of uric acid only, the concentrations of urea and creatinin being normal. This, it will be recalled, is precisely the blood picture regarded as characteristic of gout.

In the accompanying table are recorded two groups of cases, the first composed of five cases giving the typical classical histories of gout, and the second consisting of seven cases with some evidence of incipient nephritis, such as slight albuminuria, cylindruria or diminished phenolsulphonephthalein output. These patients all subsisted on a purin-free diet several days before the examinations were made. The first two cases of the first group, in addition to giving the typical histories of gout, also show one or more of these signs of nephritis, and from this point of view might be classed in the second group.

The blood analysis in Group 1 may be regarded as typical for gout, and those in Group 2 are what might be anticipated in very early interstitial nephritis, if our views regarding the order of retention of nitrogenous substances in nephritis may be accepted. The striking similarity in the blood pictures in the two groups is at once apparent.

Very close scrutiny does, indeed, indicate a tendency for the urea and creatinin concentrations of Group 2 to rise above those of Group 1. The differences, however, are slight. The uric acid figures for the first group average higher than those of the second group. Nevertheless, many cases of gout have been reported[4] with blood uric acid concentrations as low as or lower than the lowest in Group 2.

The data here presented raise the questions: 1. Is gout merely a stage in the development of interstitial

BLOOD PICTURES IN GOUT AND EARLY INTERSTITIAL NEPHRITIS *

Date 1915-1916	Case	Age	Sex†	Diagnosis		Uric Acid, Mg. per 100 C.c.	Urea N, Mg. per 100 C.c.	Creatinin, Mg. per 100 C.c.	Phthalein 2 Hrs. per Cent.	Systolic Blood Pressure	Urine	
											Albumin	Casts
9/ 3	M. K.	49	♀			9.5	13	1.1	48	230	+	—
10/ 5	T. B.	57	♂			8.4	12	2.2	35	164	—	+
3/24	H. L.	51	♂	Typical gout		7.8	12	2.9	59	120	—	—
10/ 6	L. J.	43	♂			7.2	17	2.4	..	200	—	—
10/ 8	C. P.	45	♂			6.8	14	1.7	..	...	....	....
3/31	B. D.	25	♀	Miscellaneous cases Showing some evidence of early interstitial nephritis	Slight edema	7.7	20	2.6	45	168	+	—
6/ 7	D. S.	56	♂		Hypertension	6.7	19	2.5	26	185	—	+
3/20	E. V.	14	♀		Endocarditis	6.3	12	3.6	32	120	++	+
3/28	H. B.	55	♂		Incipient nephritis	6.1	16	2.8	57	120	—	+
3/23	H. J.	50	♂		Diabetes	6.0	18	2.9	36	140	+	+
3/14	G. C.	40	♀		Incipient nephritis	5.5	15	2.1	46	147	—	+
3/22	M. S.	46	♀		Gastritis	5.0	12	2.5	52	190	+	+

* Normal findings: Uric acid, from 2 to 3 mg.; urea N, from 12 to 15 mg.; creatinin, from 1 to 2.5 mg.
† In this column, ♂ denotes male, and ♀ female.

* From the Laboratory of Pathological Chemistry, New York Post-Graduate Medical School and Hospital.

* Read before the Section on Medicine, New York Academy of Medicine, April 18, 1916.

1. Garrod, A. B.: Observations on Certain Pathological Conditions of the Blood and Urine in Gout, Rheumatism and Bright's Disease, Med. Chir. Tr., 1848, xxxi, 83. Von Jaksch, R.: Beitrag zur Kenntnis der Uriacidaemie der Nephritiker, Zentralbl. f. inn. Med., 1896, xvii, 545. Von Noorden, C.: Metabolism and Practical Medicine, 1907, iii, 669.

2. Folin, O., and Denis, W.: Jour. Biol. Chem., 1913, xiv, 29; ibid., 1914, xvii, 487.

3. Myers, V. C., and Fine, M. S., with the cooperation of Lough, W. G.: The Significance of the Uric Acid, Urea and Creatinin of the Blood in Nephritis, Arch. Int. Med., April, 1916, p. 570.

4. Folin, O., and Denis, W.: Jour. Biol. Chem., 1913, xiv, 40; Arch. Int. Med., 1915, xvi, 35.

nephritis, whose further progress may be indefinitely delayed? 2. Is early interstitial nephritis merely potential gout, in which the clinical symptoms may or may not eventually appear? 3. Is the uric acid retention of gout due to the specific condition, *gout,* or to a complicating early interstitial nephritis?

Daniels and McCrudden[5] have recently reported two cases of gout in women whose blood uric acid concentrations were quite normal. Pratt[6] has reported several similar cases. This would suggest the possibility that gout, unaccompanied by interstitial nephritis, may not necessarily be associated with high uric acid concentrations. However, in spite of the large number of examinations that we have made, I never encountered a case such as those described by these workers.

The two practical points brought out here are: 1. Since uric acid is the first of the nitrogenous substances to be retained in interstitial nephritis, its determination may give the first indication of this condition when other signs are uncertain or lacking. 2. Since gout and very early interstitial nephritis are characterized by essentially the same blood picture, it is necessary to employ every possible test to exclude nephritis before a high blood uric acid may be regarded as evidence of gout in the absence of the typical classical clinical manifestations.

Second Avenue and Twentieth Street.

THE TREATMENT OF CHRONIC COLON BACILLUS PYELITIS BY PELVIC LAVAGE *

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It is not our object to discuss the various forms of treatment advocated for pyelitis, but to present the results obtained by pelvic lavage in this series of cases.

It is well known that cases of acute colon pyelitis often clear up without medical treatment. This often occurs in children. Whether or not these patients may be considered as permanently cured is a question, many authors believing that pyelitis of adults, especially the pyelitis of pregnancy, is simply an exacerbation of a pyelitis of infancy, which has remained latent for years. With the exception of such cases of pyelitis of pregnancy which were severe enough to warrant local treatment, pelvic lavage was not instituted in acute pyelitis.

Nearly all the cases belong to the group usually designated as chronic pyelitis. The question of whether pyelitis can exist without involvement of the renal parenchyma is one which always results in a good deal of discussion. Undoubtedly, in a large percentage, the pyelitis is secondary to infection of the renal parenchyma: this, no doubt, often clears up, so that the pelvis and ureter remain the seat of infection. Instances in which this has occurred come to our notice usually without evidence of previous kidney involvement, and are grouped as cases of pyelitis.

In selecting patients for treatment by pelvic lavage, it is well to bear in mind that many cases of pyelitis are associated with organic disease of the kidney, its pelvis or ureter, such as stone, stricture, dilatation and tuberculosis. This group requires appropriate surgical treatment, and is not to be considered in this paper. Roentgen examination, pyelography, and guinea-pig inoculations, when necessary, must be resorted to when there is doubt.

When speaking of a cure, as a result of this mode of treatment, it is well for one to state just what is meant. We have not discharged as cured any patient who did not fulfil two requirements: First, the urine had to be free from pus, and second, cultures of the urine obtained by ureteral catheter had to be sterile. To free the urine of pus was a relatively easier task to accomplish than it was to obtain sterile cultures. We have repeatedly seen the urine free from pus and a disappearance of the clinical symptoms following one or two treatments, but the cultures still showed the presence of the causative organism. It is evident that too much stress cannot be laid on this fact, and it is easy to understand why many of the cases relapse if the treatment is stopped before the cultures are sterile.

As a rule, the growth of the colon bacillus was obtained readily on plain agar. However, in these cases several kind of mediums were used, namely, blood agar slants, aerobes and anaerobes, plain agar and in some instances blood agar plates, and dextrose broth, in order to meet any cultural peculiarities which the organism might have. In four cases we obtained growth on dextrose broth when the same specimen was sterile on all other mediums. We do not believe this due to any peculiar adaptability of this certain colon bacillus to dextrose broth, but rather attribute it to the fact that several inoculations were made. This conclusion was reached because the organism obtained in the broth grew readily when transferred to the mediums which had primarily given a negative culture.

We emphasize, therefore, the importance of making several inoculations rather than a single inoculation of each specimen. It has been our experience in this work that in rare instances the urine may contain pus and even motile bacteria, and still be repeatedly negative to culture; hence the value of staining the sediment for the presence of micro-organisms. This difficulty has been encountered by other workers, and as yet has not been explained.

Assuming that the colon bacilli present would grow in three days, the cultures were kept for this time, and not preserved longer for the development of slower growing bacteria. When occasionally a stray colony of staphylococcus was found on a tube of culture medium, it was regarded as a contamination.

In order to prevent recurrences, it is essential to relieve any focus which may be the cause of the relapse. In women, for example, we had no difficulty in obtaining sterile kidney specimens long before the bladder urine became sterile. It would seem, therefore, to be necessary to continue treating the bladder until it is free of the offending micro-organism. Bauereisen and others have shown the direct lymphatic connection between the kidney and the bladder, via the lymphatics of the ureter, and it seems reasonable to assume that

5. Daniels, A. L., and McCrudden, F. H.: The Relation of Uric Acid to Gouty Attacks, Arch. Int. Med., June, 1915, p. 1046.
6. Pratt, J. H.: Am. Jour. Med. Sc., 1916, cli, 92.

* From the Dane Billings' Memorial Fellowship and the Presbyterian Hospital.
* Read at the meeting of the Chicago Society for Internal Medicine, April 24, 1916.

the failure to cure the bladder infection accounts for a part of the recurrences.

In male patients we were impressed with the great frequency with which we found signs of an associated prostatitis and seminal vesiculitis. In one of our patients who had only one kidney, there were three distinct relapses due, we believe, to failure on his part to carry out treatment for his prostatitis.

As previously stated, this series deals only with chronic colon pyelitis, and most of the patients had resisted medical management. Therefore, it is not our object to discuss the various drugs which have been employed in either local or internal treatment, but to state briefly the technic as it has been employed by us in treating this series of cases. As a routine, a 1 per cent. solution of silver nitrate was used. In only one case did we use silver in stronger solution (2 per cent.). It did not seem to make any difference in the rapidity in which a cure was obtained. We cannot see any advantage in using a stronger solution, such as 5 per cent., recommended by Geraghty. The amount of solution injected varied from 5 to 10 c.c. As an average, we employ between 5 and 7 c.c. It is of the utmost importance, when carrying out this treatment, that great care be taken to avoid a rapid filling of the pelvis and not to use too large amounts. If the injections are carried out slowly and one avoids distention of the pelvis, there is practically no pain, except that incident to instrumentation. In one of the cases the pelvis was irrigated with 30 c.c. of boric solution before the silver nitrate solution was injected. This was carried out because there were large amounts of thick pus flowing out of the catheter and because of the presence of residual urine in the pelvis. Small ureteral catheters were used, so as to allow the fluid to flow from the pelvis down the ureter, thereby preventing overdistention of the pelvis. In some of the cases, catheters were passed into the pelvis, and, in others, only about half way. The treatments were carried out once every five or six days, until the urine was sterile and free from pus.

Autogenous vaccines were used in about half of the patients. The internal treatment was carried out with three drugs, which were administered as follows: During the first week, after the diagnosis was made, the patients were given 1 teaspoonful of sodium bicarbonate three times a day, so as thoroughly to alkalinize the urine. During the second week, the soda was stopped, and in its place acid sodium phosphate was administered, so as thoroughly to acidify the urine. During the second week, that is, the week of acid urine, hexamethylenamin was given, varying in amounts from 30 to 70 grains a day. When the hexamethylenamin produced vesical symptoms, the amount was naturally reduced. This form of internal treatment was continued during the alternate weeks, as long as the patient was under treatment. The hexamethylenamin and sodium bicarbonate were not given simultaneously. Our experience with other drugs has been too limited to permit of any definite statements relative to their merits.

Pyelitis of pregnancy, when severe, is sometimes treated by emptying the uterus and, as a rule, the pyelitis clears up. Whether or not the pyelitis is really cured is questionable. With the institution of pelvic lavage in the treatment of pyelitis and its application in the treatment of the pyelitis of pregnancy, one is justified in stating that the pregnant woman should be given the benefit of this form of treatment before the pregnancy is interrupted. Surgical attack of the kidney should also be considered only after a failure of pelvic lavage.

In this series of cases, cystoscopy was performed on 115 patients, and the ureters catheterized for diagnosis and culture. Of this number, thirty-eight proved to be chronic colon pyelitis. Pelvic lavage was instituted in twenty-one cases. In summarizing the results of treatment, however, we shall report on only fourteen patients, because we were able to follow this number to final results to ascertain whether or not they were bacteriologic cures. The cases in which only a diagnosis was made and only one treatment was given are not considered in this report, irrespective of the disappearance of the subjective symptoms or the disappearance of pus from the urine. Of the fourteen patients treated by lavage, bacteriologic cures were obtained in eleven cases. In the remaining three, it was possible to obtain positive cultures from the ureters, although subjective symptoms and leukocytes in the urine had long since disappeared.

The number of injections required varied. In four cases, one injection was given; in five cases, two injections; in three cases, three injections; in one case, four, and in another, eight injections.

CONCLUSIONS

1. From our results in this series of cases, we believe that pelvic lavage gives a greater number of bacteriologic cures in a shorter space of time than any other form of treatment. It is important that the urine be sterile, in order to prevent recurrences.

2. In several instances, we obtained sterile urine after one or two treatments of patients who had been on internal treatment for many months.

3. If patients fail to respond to this form of treatment, we may be dealing with a condition other than a simple pyelitis, for example, tuberculosis, stone, or stricture of the ureter.

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Sectionalism.—During all medical history there has never been a time when the difficulties of the profession were greater than they are today; when it was more imperative that it should stand with an undivided front. We are in a transition period of unprecedented gravity. The social order of things is being changed. The system of workman's compensation is but one manifestation of the social revolution that is quietly but resistlessly going on. These changes are rooted in a profound sociologic movement of world-wide extent. In the British Empire and on the Continent they are farther advanced than they are with us. They cannot be stayed, but they may be directed, and it behooves the medical profession to be alive to the changes going on and ready as an undivided body to meet them. Never has the need of unity been greater. If the profession shuts its eyes to these conditions and relapses into a state of guerrilla warfare within itself it will suffer irreparable harm. It is time that it woke up and came to itself and ceased bickering over nonessentials. This social revolution is profound in its nature and goes to the very foundation of organized modern society. The medical profession, while gravely affected by it, is but a factor in its causation. This cannot be too strongly impressed on medical men. We are in the grasp of powers wholly outside of our profession, powers that run as deep as society itself. Our present state of disquietude is not due to one or to a few superficial causes alone. Organizations which seek to remedy our ills by gross commercialism, by vituperation and indiscriminate attacks on everything and everybody, are foredoomed to failure. Their outlook is narrow, erroneous and futile.—*New York State Jour. of Med.*, February, 1916.

INTRACRANIAL TREATMENT OF SYPHILITIC AND PARASYPHILITIC OPTIC NERVE AFFECTIONS

PHYSIOLOGIC EVIDENCES: RESEARCHES ON INTRAVITAL STAINING OF THE OPTIC NERVE *

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I. INTRODUCTION

This paper is a report of experimental work pursued with the intention of finding a more efficient method of reaching the optic paths by curative agents, and ventures to suggest another way of treating optic nerve affections of syphilitic nature, which do not respond to the classical antisyphilitic treatment.

During an experimental study of a certain phase of ocular anaphylaxis, I learned that I could not produce an anaphylactic condition of the optic nerves in dogs by repeatedly injecting a foreign serum into the spinal canal, a supposedly good route of reaching various parts of the central nervous system. My failure prompted me to ask the following questions:

1. Does the foreign serum introduced into the spinal canal ever reach the optic nerve?
2. If the serum does not reach the optic nerve, does the medication, introduced intraspinally for intracranial conditions like general paresis, primary optic atrophy, etc., reach the cortex of the brain or the optic nerves?
3. If the foreign serum and medication introduced into the spinal cavity do not reach the optic nerves, what would be a good way of bringing into contact these substances with the visual paths?

The answer to the last two questions, a by-product of my study on anaphylaxis, constitutes the central idea of this paper. It is superfluous to dwell at length on the importance of this problem. The so-called primary optic atrophy is to the ophthalmologist what general paresis is to the neurologist, one of the saddest conditions to be contended with. It is by no means a rare affection. According to Uhthoff,[1] 9 per cent. of tabetics and 8 per cent. of paretics get optic atrophy, and 2 per cent. of paretics get optic neuritis. From 10 to 20 per cent. of all postmortems in tabetics show changes along the optic paths. Fifty per cent. of patients with cerebral syphilis have an involvement of the optic nerves, chiasm or tracts. Thirty-seven per cent. of all optic atrophies are in tabetics, and from 60 to 100 per cent. of tabetic optic atrophies are syphilitic. Our latest textbooks on ophthalmology are very reticent regarding the success in the treatment of primary optic atrophy. Everywhere, in books as well as in our own experience, we gather that failures amount to almost 100 per cent. Why? Is there really no way of reaching and treating such optic nerves?

The therapeutic problem is as difficult as it is important. There is no doubt that tabetic and paretic optic atrophies are of syphilitic nature. Why, then, do these conditions not respond to antisyphilitic treatment?

Anatomically, the optic nerves are very similar to the brain. In both we find a parenchymatous tissue with two systems of irrigation serving the double purpose of nutrition and drainage: blood vessels and spaces for the circulation of cerebrospinal fluid.

Pathologically, the optic paths as well as the rest of the central nervous system react to the syphilitic virus in almost identical manner. The changes appear mainly either in the interstitial tissue, blood vessels and meninges, or they are localized mainly in the parenchyma, ganglia cells of the cortex or of the retina and in the nerve fibers of the central nervous system or of the optic nerves. We deal with an interstitial or with a parenchymatous syphilis.

Therapeutically, we find the same striking similarity between the optic paths and the rest of the central nervous system. In both, the interstitial syphilis does respond, and the parenchymatous syphilis (paresis and primary optic atrophy) does not respond to antisyphilitic treatment.

Bacteriologically, there is no difference between tabes, general paresis and the cerebrospinal syphilis. Spirochetes have been found in the central nervous system, cerebrospinal fluid and blood of tabetics and paretics, and have been cultivated, thus proving their viability and virulence. There can be no doubt that spirochetes, and not "toxins" alone, are the causative factor of syphilitic "primary" optic atrophies. The fact that the micro-organisms have not as yet been demonstrated in the tissue of the atrophied optic nerves is just as little evidence against their existence there as was the fact that no spirochetes were demonstrable in the brain of paretics before the days of Moore, Noguchi and Levaditi, an evidence that they were absent in such brains.

The ideas from which we have to start in handling the problem of treatment of the so-called metasyphilitic, primary optic atrophies (in tabes, general paresis and some cases of cerebrospinal syphilis) would be about as follows:

1. The condition is due to spirochetes.
2. The syphilitic optic nerve affections are to be considered and treated in the same light and by the same methods as are the syphilitic manifestations of the rest of the central nervous system.
3. The general antisyphilitic treatment as administered before the era of intraspinal medication failed in a large percentage of cases, and always failed in parasyphilis of the nervous system and of the optic nerves.
4. The intraspinal method proved the efficacy of direct, local application of drugs on syphilis of the spinal cord.
5. What could we do in order to apply the antisyphilitic medication directly on the spirochetic affections of the optic nerves?

In order properly to grasp the last sentence, the main subject of this paper, it is necessary that the anatomic, physiologic and pathologic facts in connection with our problem shall be briefly stated. I shall, then, relate the experimental attempts and finally discuss the therapeutic suggestions to be drawn.

II. THE VENTRICULAR-SUBARACHNOID-PERINEURONAL SPACES OF THE CENTRAL NERVOUS SYSTEM AND OF THE OPTIC NERVES

Of the three meningeal sheets enveloping the central nervous system and the optic nerves, the arachnoid concerns us most. It is described (Cunningham[2]) as a thin, transparent membrane, which envelops both the

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* Read before the Section on Ophthalmology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.
* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped envelope.
1. Uhthoff: Handbuch der gesamten Augenheilkunde (Graefe Saemisch) Kap XXII, Part 2, and Vol. xi, Part 2, B.

brain and the cord between the dura and the pia mater. The cranial part of the arachnoid bridges over the inequities on the surface of the brain, and does not dip into the various fissures and sulci of the brain as the pia mater does. The spinal subarachnoid space is wide and partially subdivided into compartments by three incomplete, longitudinally arranged septa. It is continuous with that of the cranial cavity and with the ventricles of the brain.

Summary: The outer and the inner (ventricular) surface of the brain and of the spinal cord, the outer surface of the optic nerves, the perivascular spaces penetrating into the brain tissue and into the septa between the optic nerve bundles, and probably the spaces between the cells and possibly those between the nerve fibers (perineuronic spaces) form a system of spaces and channels which we may call the ventricular-subarachnoid-perineuronic system. This system is full of cerebrospinal fluid which serves to nourish the nervous parenchyma, and drains off its products of metabolism.

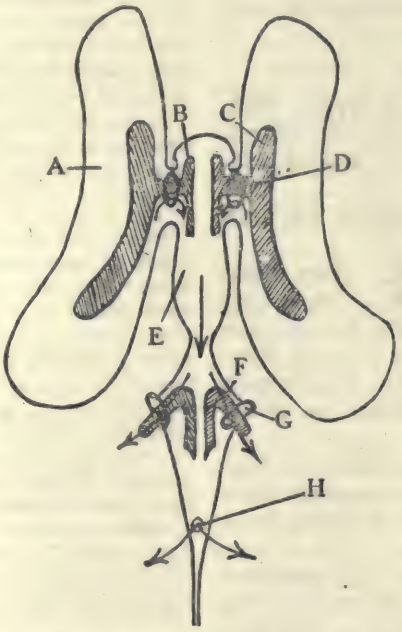
It is into this fluid that we have to introduce our medication if we intend to reach the nervous tissue itself.

III. THE CEREBROSPINAL FLUID

Function. — The cerebrospinal fluid is the medium of exchange between the blood in the capillaries and the neurons of the central nervous system.

It equalizes the pressure throughout the whole craniospinal cavity; acts as a water cushion, especially at the base of the brain, protecting the vital structures of the medulla from concussions; and maintains uniform equalization of the blood supply elements during the rhythmic variations of respiration and circulation (Mott[4]). It is the medium of conservation of the cellular excitability.

Distribution.—Mott[4] has demonstrated the existence of a system of canaliculi surrounding the neurons and the capillaries of the brain which is in direct communication with the subarachnoid space. Wegefarth[7] has obtained similar results from his study of the retinal neurons; these perineuronic spaces communicate with the optic nerves. The cerebrospinal fluid is distributed in the large spaces (ventricles and subarachnoid) as well as in the perineuronic spaces all over the central nervous system.



Schema showing general disposition of the ventricles in the brain and the choroid plexuses; circulation of the cerebrospinal fluid in the ventricles (after Mestrezat): *A*, lateral ventricle; *B*, plexuses of third ventricle; *C*, plexuses of the lateral ventricles; *D*, foramen of Monro (between lateral and third ventricles); *E*, third ventricle; *F*, plexus of fourth ventricle; *G*, foramen of Luschka, and *H*, foramen of Magendie (points of communication between fourth ventricle and subarachnoid space). Arrows show the direction of flow of the cerebrospinal fluid in the ventricles.

The cerebrospinal fluid has a double origin: the choroid plexuses and the perineuronic spaces. It is very rapidly reformed after a lumbar or ventricular puncture. This demonstrates the active secretion of the cerebrospinal fluid.

Circulation.—The cerebrospinal fluid is not stagnant. The reasons in favor of the idea that this fluid is in continuous motion are very plausible. Fluids are not compressible. Consequently, during each systole and expiration, when a larger amount of blood is in the cerebrospinal canal, the cerebrospinal fluid has to be temporarily and rhythmically displaced.

Since we accept that the main sources of the production of the cerebrospinal fluid are the choroid plexuses and the perineuronic spaces, we have to admit that the directions of flow will be, on the one hand, from the lateral ventricles into the third, then into the fourth. and from there into the subarachnoid spaces enveloping the brain, cerebellum and spinal cord, and, on the other hand, from the perineuronal spaces along the perivascular sheaths into the subarachnoid spaces.

In spite of these anatomic reasons, Mott, based on Golla's beautiful experiments, believes that there is a current of cerebrospinal fluid, starting from the subarachnoid spaces toward the perineuronic canaliculi. We shall see later, in discussing therapeutic considerations, the immense importance of such a conception.

Drainage or Resorption.—The cerebrospinal fluid, being continuously secreted, has to be steadily drained off.

Which are the paths of resorption of this fluid? Most of the physiologists, American and English, admit that the main avenue is the venous system of the craniospinal cavity, and the accessory avenues are the lymphatics along the craniospinal nerves. But voices of dissension are raised by no less an authority than Goldmann,[11] who believes that the lymphatics play the principal rôle of resorption, and Mott,[4] who suggests that the fluid is drained off mainly into the cerebral capillaries.

Cushing,[9] Weed,[8] Frazier and Peet,[12] Dandy and Blackfan,[13] Reiner and Schnitzler have conducted such conclusive experiments that there could be no doubt that the larger part of the cerebrospinal fluid drains off into the sinuses and venous plexuses of the cerebrospinal cavity, and that a very slow process of filtering takes place along the lymphatic system of the cranial and spinal nerves. The practical significance and application of this physiologic fact will be discussed in the consideration of therapeutics.

Permeability.—The choroid plexus is a very efficient barrier against the permeation of substances introduced into the blood. Chlorids, bromids, iodids, nitrates, ferrocyanids, salicylates, acetates, methylene blue, fluorescin, biliary pigments, mercury and arsenic, do not penetrate normally into the cerebrospinal fluid (Mestrezat,[6] Sicard[14]). Volatile substances like ether, chloroform and curiously enough hexamethylenamin, pass into the cerebrospinal fluid. The choroid plexus and its lining seems to have a selective power and does not give passage to

7. Wegefarth: Jour. Med. Research, 1914-1915, xxxi.

11. Goldmann, E. E.: Vital-färbung am Central Nerven System, Berlin, 1913.
12. Frazier, C. H., and Peet, M. M.: Factors of Influence in the Origin and Circulation of the Cerebrospinal Fluid, Am. Jour. Physiol., 1914, xxxv, 268.
13. Dandy, W. E., and Blackfan, K. D.: An Experimental and Clinical Study of Internal Hydrocephalus, THE JOURNAL A. M. A., Dec. 20, 1913, p. 2216.
14. Sicard: Thèse de Paris, 1899.

the antisyphilitic drugs into the cerebrospinal fluid (Ballance[15]).

In typhoid, the agglutinins found in all the humors of the body are not present in the cerebrospinal fluid. Toxins, hemolytic amboceptors, are also absent from the fluid, while they may be found in large amount in the blood.

Staining substances like methylene or trypan blue when injected into the blood do not pass into the cerebrospinal fluid. This power of retention by the choroid plexuses of substances injected into the blood stream is another very important point to be considered in our further discussion of the subject on therapeutics.

IV. EXPERIMENTS ON INTRAVITAL STAINING OF THE OPTIC NERVE

This part of my paper is concerned only with the relatively simple problem of solving by the intravital staining method, first, whether the spinal injections are an effective procedure of reaching the optic nerve and, second, which is the best method of staining the optic nerves intravitally.

AUTHOR'S EXPERIMENTS

A. Does the optic nerve stain when trypan blue, methylene or a suspension of very fine particles of coal is injected into the blood, spinal canal, cranial subdural cavity or lateral ventricles?

B. Which is the best route and method for vital staining of the optic nerves?

One cat, two rabbits, and twenty-five dogs were used. Injections were made into the veins, spinal subarachnoid, cranial subdural space and lateral ventricles. In two animals, methylene blue aqueous solution was the substance injected; in the rest, trypan blue (1 per cent.) in normal salt solution or in ox serum.

For spinal injection, a long spinal needle was introduced into the lumbar region; after cerebrospinal fluid ceased dripping, a variable amount of staining fluid was very slowly injected.

For cranial subdural injection, the skull was trephined about 1 cm. to the right side of the median line, over the parietal bone. The needle was carefully introduced under the dura and the fluid injected.

For injection into the lateral ventricles, the needle was introduced perpendicularly through the trephine opening into the ventricles; after cerebral fluid ceased dripping, staining solution was very slowly injected.

The animals were killed by chloroform or ether; postmortem examination immediately after the injections, or several hours, days or weeks later.

Group 1.—Two dogs were given an intravenous injection of 50 c.c. of methylene blue solution, 2 per cent. The postmortem performed right after the injection revealed no trace of stain in the cerebrospinal system.

Group 2.—Two rabbits and one cat were treated by a cranial subdural injection of trypan blue solution. One rabbit killed immediately after the injection exhibited a staining of the meninges of the entire cerebrospinal system. The other rabbit, killed three days, and the cat two days after the injection, showed no staining of the meninges (only a blue mark on the dura of the cat in the vicinity of the injection). What became of the stain? This is an interesting problem to be investigated further.

Group 3.—Twelve dogs received intraspinal injections of a 1, rarely a 5 per cent. solution of trypan blue or lampblack suspension. The amount varied between 2 and 32 c.c.

15. Ballance: Brit. Med. Jour., 1914, p. 596.

The postmortem was performed from ten minutes to twelve days after the injection. In eleven animals the meninges of the spinal cord, and on some of the cerebellum and of the medulla oblongata were more or less stained. The optic nerves were not stained.

Group 4.—Seven dogs received injections of trypan blue solution, and one dog an injection of lampblack suspension into the lateral ventricles. The amount of fluid ranged from 1 to 24 c.c., and the postmortem examination was performed, on some, from fifteen to thirty-nine minutes, on others, two to three hours, and, in still others, five to seven days after the injections. All the animals had the meninges of the entire brain and spinal cord and of optic nerves very intensely stained.

Microscopic Findings.—Specimens of chiasm, optic tracts, optic nerves and the posterior pole of the eyeballs of two dogs were examined microscopically.

Dog 1 had received an intraventricular injection of trypan blue and was killed two hours and five minutes later.

In the optic nerve section the microscopic specimens showed the pia deeply stained in diffuse fashion together with the more superficially placed septa between the nerve bundles. Vessels lying in the outer third of the nerve showed considerable of the stain in the walls; the intima cells of these vessels were stained faintly blue. The central two thirds of the nerve showed none of the dye anywhere. The arachnoid stained a pale blue purple, rather diffusely, its blood vessels taking on a still paler tinge.

In the chiasm section, the condition was substantially the same as in the optic nerve, except that the stain was everywhere less intense.

No trace of stain was found in the retina or other parts of the eyeball.

Dog 2 had been treated by an intraventricular injection of 1 c.c. of lampblack suspension, and was killed seven days later. The microscopic specimens showed the optic nerve fibers free from pigment. In the superficial layers on the pia there was a thin, irregular band of pigment. There were some scattering pigment spots in the surrounding areolar tissue (arachnoid spaces). The pigment did not penetrate the optic nerve at all. The blood vessels of the pia and arachnoid were free from pigment; there was no tendency to enter the perivascular sheaths. A section of the chiasm revealed the pia almost completely free of pigment; in spots there were considerable numbers of large and small granules crowded together, but free, not included in any cell bodies. The arachnoid was somewhat hypertrophied with dilated blood spaces containing many red blood cells and many scattered clumps of pigment.

COMMENT ON MACROSCOPIC AND MICROSCOPIC FINDINGS

As we have seen, the intraspinal or intravenous injection of the stain did not reach the optic nerve. In intravenous injection the staining substance is retained by the choroid plexuses and cannot enter the fluid in the ventricles; consequently it has no way of reaching the optic subarachnoid space. In intraspinal injections, on the other hand, the anatomic and physiologic data discussed in the consideration of cerebrospinal fluid and treatment find in this research an experimental basis. The fact is that, generally, the injection fluid does not go beyond the posterior cranial fossa. Some investigators have found cranial nerves stained by intraspinal injections of pigment. Others have obtained results similar to mine, a staining of the meninges of the spinal cord only, when the injections were made into the spinal canal. The discrepancy between these findings may be explained by the different methods of injections used, by the larger or smaller amount of fluid injected, or by the higher or lower pressure used. It is natural that large amounts of fluid and high pressure injections will drive the stain into the cranial cavity, but the procedure is entirely

unphysiologic. My experience with cranial subdural injections coincides with that of Ballance[15] and others who state that the fluid cannot be injected in any appreciable amount, and that in dogs the staining fluid does not reach the optic nerves. Finally, the cranial intraventricular injections have without exception given the best results. In all the experiments the postmortems showed the optic nerve sheaths intensely stained, and the microscopic findings illustrate very prettily that the course taken by the pigment was along the arachnoid and subarachnoid spaces down along the optic nerve.

Experiments 13 and 15 constitute a beautiful demonstration of this statement. In Experiment 13, a large dog's skull was trephined under general anesthesia and 2.5 c.c. of trypan blue injected into the lateral ventricle. Immediately following this, the right optic nerve was exposed by an extensive resection of the external wall of the orbit, and the nerve watched for the possible appearance of the stain. One hour and thirty-two minutes later the optic nerve began to stain bluish.

In Experiment 15 the optic nerve was exposed before the trephining. Two hours and eight minutes after the intraventricular injection of trypan blue the optic nerve began to stain bluish. At the postmortem the optic nerve which had been exposed intravitam was more intensely stained than the other optic nerve. In these two experiments I have been able to see for myself how soon the fluid penetrated from the ventricles into the optic nerves. The therapeutic application of these findings will be discussed in the consideration of treatment.

V. PATHOLOGY OF THE SO-CALLED METASYPHILITIC OPTIC NERVE AFFECTIONS

The universally accepted view of the pathology of tabetic and paretic optic atrophy is that it consists of a primary degeneration of the nerve fibers, beginning in the retina and extending centripetally to the optic nerve. Uhthoff[1] regards as a settled truth the conception that the tabetic and paretic optic atrophies are an ascending process of primary degeneration starting in the retina. Ginsberg, Greeff, Grosz, Virchow, Leber, Elschnig, von Leyden, Goldscheider and others are of the same opinion. Uhthoff accepts the general view that there are two types of syphilitic optic atrophies: ascending (tabetic and paretic) and descending (in cerebrospinal syphilis). In the latter type Uhthoff describes the postmortem changes ranging between basal meningitis, perineuritis, gummatous infiltration in and around the optic nerve, neuritis descendens and papillitis. Sometimes we find syphilitic changes in the intracranial portion of the optic nerve without the extension of the process to the orbital portion. At other times the gummatous infiltration is only in the trunk of the optic nerve without involvement of the sheaths. Most common is a primary process of the sheaths with a secondary involvement of the optic nerve. The chiasm is a point of predilection for gummatous infiltration. In other words, the optic atrophy follows an inflammatory process somewhere in or around the optic nerve or chiasm. In the other type, the taboparetic, the optic atrophy is primary in nature; there is no inflammatory process anywhere in the optic nerve, the ganglion cells of the retina degenerate, and the nerve fibers undergo the same process. In one type the changes begin in the blood vessels and connective tissue of the meninges and septa of the nerve. In the other type the changes are primarily in the parenchyma.

About two years ago, Head[19] published his very illuminating classification of syphilitic and so-called metasyphilitic conditions of the central nervous system and brought order out of the chaotic conceptions of the pathology of tabes, paresis and cerebrospinal syphilis. According to Head, the syphilitic changes are either mainly in the vascular interstitial tissue or mainly in the parenchymatous tissue (ganglion cells and fibers) of the central nervous system. We consequently deal with an interstitial or a parenchymatous process. The first constitutes so-called cerebrospinal syphilis, the second, tabes and general paresis. Along this line of thought, syphilitic optic nerve affections may be classified in the same manner, interstitial and parenchymatous. In one the process begins as a perineuritis and extends to the septa between the nerve bundles. In the other the process is limited to the retinal ganglion cells and extends upward into the optic nerve fibers. The first one, just as in cerebrospinal syphilis, is amenable to antisyphilitic treatment; the second one, the primary optic atrophy, like general paresis, does not respond to treatment. The one is due to spirochetes; the other was supposed to be due to toxins (a plausible reason why paresis and primary optic atrophy do not react well to mercury and arsenic). But the "Wassermann positive" findings in the spinal fluid and the demonstration of spirochetes in the spinal cord of tabetics and in the cortex of paretics have changed our idea about the toxic origin of these conditions. Neurologists have become accustomed to think of paresis and tabes as syphilitic manifestations in the parenchyma of the nervous system due to the direct action of a certain strain of spirochetes, still spirochetes just the same, not toxins.

While neurology was undergoing such radical changes, ophthalmology adhered to its conservative view that primary optic atrophy (tabetic and paretic) is due to some "toxic" substance, possibly of syphilitic nature, and the main reasons for persisting in this unfortunate view, paralyzing any new therapeutic thoughts, were first the old teachings on the pathologic anatomy of the primary optic atrophy and, second, the inefficiency of the antisyphilitic treatment.

Let us see whether this classical conception of ophthalmology is really unassailable. If it could be proved that the primary optic atrophy is a syphilitic manifestation due to the direct action of spirochetes, just as tabes and general paresis, then our feeling of helplessness would be relieved and we would enter the same road of therapeutic optimism that neurologists did lately.

A careful review of the literature on the microscopic examinations of atrophic nerves in tabetics and paretics reveals that our conception of tabetic atrophy as a primary degeneration of the retinal ganglion cells is based on the finding of twelve authors (Cruveiller, Virchow, Leber, Uhthoff, Popow, Moxter, Schlagenhaufer, Elschnig, Glicksman, von Grosz, Wilbrand and Saenger) in nineteen postmortems of tabes and three of general paresis. On the other hand, Kéraval and Raviart[20] in 1902 and Marie and Léri in 1904 have examined microscopically the atrophic nerves in five paretics and twenty-three tabetics and described an interstitial optic neuritis (Kéraval and Raviart), a meningitis and endovasculitis, and perivasculitis, fol-

19. Head, H.: Brain, 1914.
20. Kéraval and Raviart: Arch. de Neurol., 1902, xvi, 356.

lowed by interstitial optic neuritis, a thickening of the pia and arachnoid around the chiasm and optic nerves very similar to the meningitis of the spinal cord in tabes (Marie and Léri). These findings show that the so-called primary optic atrophy is due to a parenchymatous as well as an interstitial process and differs entirely from that described by the older authors. Furthermore, none of them have applied the methods of Nissl and Alzheimer to the study of the optic nerve and retina in tabetic and paretic atrophy, and Greeff[21] justly remarks that it is curious how few reliable microscopic examinations of the tabetic optic nerves we possess. This gap in our knowledge has been filled by the very able studies of Stargardt.[22] This author has examined the optic nerves, retinas, chiasms, tracts, brains and spinal cords of sixteen tabetics and paretics with optic atrophy in various stages, and eight normal optic nerves from the same class of patients. He calls attention to the fact that the descriptions of the retina given by previous authors are not reliable because they obtained their specimens too late, long after the cadaveric changes in the retina had set in. Stargardt's retinas had been fixed by injections of Birch-Hirschfeld fluid in the vitreous as early as from twenty to thirty minutes after death. Both for this reason and on account of the fact that he used the latest method of staining, Stargardt's findings are to be considered more reliable and more in accordance with the actual pathologic conditions.

Stargardt concludes from his studies that the tabetic as well as the paretic optic atrophy begins in the optic nerve and not in the retina. He saw specimens of optic nerves from tabetics with beginning atrophy without any changes in the retina; and other specimens of optic nerves completely atrophic but with many normal ganglion cells in the retina. He argues that if the retina degenerated first, the opposite condition ought to be found.

The examination of the atrophic nerves revealed that: 1. Nowhere were there degenerated nerve fibers to be found without a focus of exudation preceding the degeneration. 2. The most common seat of the exudative process is in the intracranial portion of the optic nerves. 3. In general paralysis the exudate appears in the brain and extends to the optic paths; in tabes, it appears independently in the optic paths and spinal cord. Everywhere the exudative process precedes the degenerative one. Stargardt is very emphatic in his belief that the tabetic and taboparetic optic atrophy is not the action of a "toxin," and his reasons seem very plausible:

First, the process appears as an exudate, irregularly in various parts of the nerve, a fact which is in direct contradiction with all we know about the action of toxic substances (wood alcohol, quinin, filix mas (male fern), tobacco, etc.), which always act in the same manner and on the same group of elements of the visual organ (maculopapillar bundle, retinal blood vessels, etc.). Second, of all the toxic substances we know as acting on the visual organs, none produces exudative foci similar to those described in taboparetic optic atrophies. Such foci can be produced only by micro-organisms (spirochetes). Although the presence of these micro-organisms has never been demonstrated in the optic nerves of tabetics and paretics, their probable existence in these tissues may be inferred from Noguchi, Moore and Levaditi's demonstration of the spirochetes in the cortex of such patients, and from the similarity of changes found in the optic nerves, and brain and spinal cords of these patients.

If Stargardt's work is confirmed by future investigations, we shall have to modify our ideas regarding the pathology and pathogeny of the so-called primary optic atrophies. These atrophies will cease to be called "primary" because they are secondary to an inflammatory focus somewhere along the optic nerve. They are not toxic in origin; most probably they are due to the direct action of the spirochetes. These micro-organisms are carried to the optic nerves along the cerebrospinal fluid, blood stream and by contiguity along the meninges. They reach first the sheaths and the septa of the optic nerve wherever there are blood vessels and cerebrospinal fluid. Later on they penetrate the neuroglial envelopes of the nerve bundles and safely lodge themselves where neither blood nor medication can reach them, at which stage of the game we become entirely powerless.

The importance of this conception cannot be overestimated; its influence on the therapeutics of syphilitic and parasyphilitic optic atrophies cannot be denied. It is only a matter of time to work out the two main questions: early diagnosis, while the spirochetes have not as yet entered the interior of the nerve bundles, and the effective treatment.

VI. TREATMENT OF TABETIC AND PARETIC OPTIC NERVE AFFECTIONS: A SUGGESTION

In 1902 at the Medical Congress of Cairo, Bouchard made the significant statement that in both local and general diseases which are localized, if a general drug treatment exercises a specific cure, one might as well confine the administration of the remedy exclusively to the diseased tissue and attempt the cure by injecting the medication into the affected part.

In case of acute articular rheumatism, a man weighing 135 pounds, who takes every day by mouth 90 grains of sodium salicylate, sees all his joints clearing up. Every day a grain of the drug has entered into every pound and a half of his body and, of course, a very small proportion of this has found its way into the soft parts surrounding the affected joints. Bouchard claims to have cleared up acute articular rheumatism by articular injections of extremely small quantities of sodium salicylate.

In syphilis the instances in which local treatment, besides the general treatment, is absolutely necessary to effect a cure are numerous. Bouchard recites several such cases.

A man with an ulcerating gumma of the back had been treated by mercury and iodids without any visible results. A few injections of a potassium iodid solution around the gumma healed the ulcer in a very short time.

A woman with deeply ulcerated condylomas distributed over various parts of the body did not get relief by a prolonged general antisyphilitic treatment. Injections of potassium iodid and mercury biniodid were begun, and the ulcer under the treatment disappeared in three days. Another ulcer disappeared promptly after six injections. The condylomas which were not treated did not undergo any change.

Local application of the specific drug, says Bouchard, brings it in direct contact with the affected tissue and acts without being diffused throughout the entire organism, where it may cause symptoms of intoxication.

Bouchard's ideas regarding the topical treatment of certain localized diseases have found their justification

21. Greeff: Pathologische Anatomie des Auges.
22. Stargardt: Arch. f. Psychiat., li, 711.

in our present experience with the intraspinal treatment of cerebrospinal syphilis.

Local Therapeutic Application in Certain Conditions of the Nervous System.—In patients with purulent meningitis, Flexner[23] has demonstrated the necessity of bringing the therapeutic serum directly into contact with the meninges by spinal subarachnoid injections.

Swift and Ellis[24] have cleared up syphilitic changes of the cerebrospinal fluid (pleocytosis, excess of globulin and positive Wassermann) by intraspinal injections of salvarsanized serum in patients in whom general treatment had completely failed.

Sicard[14] and others have shown how next to impossible it is to have the choroid plexuses transgressed by drugs introduced into the organism by mouth, skin, general circulation, etc. It has been found that at the appearance of the first symptoms of experimental tetanus, subcutaneous injections of antitoxins have no influence on the progress of the disease, while the local application of the antitoxin right to the central nervous system has a most beneficial effect on the tetanic manifestations.

Horsley[25] challenges any neurologist who can affirm that a gumma of the cerebrospinal system has ever been cured by a general treatment with mercury after the classical method.

Gowers long ago insisted on the fact that cerebral syphilis does not respond fully to the classical antisyphilitic treatment, and that after some subsidence it shows recurrences. Horsley agrees with Gowers that in many cases of gumma, pachymeningitis and syphilitic optic neuritis we do not obtain good results by the classical mercury and iodid treatment.

We see on the one hand, therefore, clinicians of the caliber of Horsley and Gowers declaring the ineffectiveness of the old way of treating certain conditions of cerebrospinal syphilis; and on the other hand authorities like Sicard, Flexner, Swift and Ellis and their large following asserting the marked effectiveness of the application of the medication right on the cerebrospinal system.

Best Method of Reaching the Central Nervous System With Our Medication.—In a previous chapter it has been shown by experimentation that the cerebrospinal fluid, which is the ambiant medium of the neurons of the central nervous system, cannot be reached by any other than the subarachnoid route. It follows that, since we admit that certain conditions of the central nervous system do not benefit by the administration of drugs by mouth, skin, blood, etc., we have to try the direct introduction of the curative agent into the cerebrospinal fluid. Through this medium the agent has more of a chance to reach the affected central neurons. Swift and Ellis have been perfectly logical in their intraspinal treatment of syphilis of the central nervous system.

Failure of Intraspinal Medication for the Treatment of Intracranial Syphilis.—Expectations, however, have only partially been realized. While various syphilitic conditions in the spinal cord and tabes have sometimes improved marvelously under the influence of intraspinal injections, intracranial conditions and mostly optic nerve affections of syphilitic nature did not respond to this treatment.

Noguchi and Moore's discovery of spirochetes in the brains of paretics has given a strong impetus to the intraspinal application of antisyphilitic drugs for general paresis; but the hope of those who tried this method of treatment has been completely disappointed. In the United States, Cutting and Mack, Markland, Beling, Wardner,[26] Mapother and Beaton, and in Europe, Wechselmann, Kleist, Marinesco,[27] Marie, Levaditi and Sicard,[28] have treated a number of paretics by intraspinal injections, and the invariable result was failure. This failure had to be explained.

Why does salvarsanized serum act well in a fair percentage of spinal syphilis and fail to give any satisfaction in an intracranial syphilitic condition, like general paresis?

The answer may be simple: The salvarsan introduced into the spinal canal does not reach the cranial contents (brain and optic nerves). Disappointing as this may sound to us, it is a fact sustained by both clinical and physiologic experience.

We have seen that small quantities of soluble and insoluble substances injected into the spinal cavity do not reach the brain or optic nerve. The pigment is anchored by the tissues in the immediate vicinity of the injected area and stains it. What is left diffuses upward, but is again taken up by the sheaths of the spinal cord, and there remains only a minute quantity of the substance injected, to reach the base of the brain, where it is anchored by the meninges in their turn. Nothing or almost nothing is left for the cortex or optic nerve.

The same thing happens with the mercurial or salvarsan solutions introduced into the spinal canal. It could not be otherwise, since the salvarsanized or mercurialized intraspinal injections work very well in spinal syphilis, mostly in meningeal conditions. Were the medication not anchored there, it would not have any beneficent effect. That cocain or its derivatives injected intraspinally are almost instantaneously anchored by the spinal cord in the vicinity of injection is a fact which has been known for quite a long time, and it illustrates very well the way intraspinal medication acts, when it has a chemobiologic affinity for certain tissues.

Another reason why the spinal injection does not reach the brain cortex and optic nerves is that the fluid would have to rise against the current. It is generally admitted that the center of secretion of cerebrospinal fluid is in the ventricles. In leaving the fourth ventricle it flows in various directions, upward around the brain, outward around the cranial nerves and into the venous sinuses, and downward into the spinal canal. The intraspinal injection has to be made under considerable pressure in order to overcome the downward tendency of the cerebrospinal fluid. The anatomic configuration of the subarachnoid spaces in the convexity of the brain and around the optic nerves explains the difficulty under which a spinal injection is laboring to reach the intracranial tissues. The greatest portion of the cranial subarachnoid space and that of the optic nerves is a spongy tissue consisting of an infinite number of cells intercommunicating with each other and separated by more or less delicate trabeculae. The circulation in these spongy tissues is naturally not as free as in the cisternae, ventricles or spinal canal. An injection of medication may diffuse with ease in the free subarach-

23. Flexner, Simon: Jour. Exper. Med., 1913.
24. Swift and Ellis: Jour. Exper. Med., 1913.
25. Horsley, V.: Neurolog. Centralbl., 1910, xxix, 1170.
26. Wardner, D. M.: Am. Jour. Insan., 1915, lxxi, 459.
27. Marinesco and Minea: Rev. neurol., 1913.
28. Sicard: Jour. méd. franç., 1913.

noid room, but with great difficulty in the spongy spaces of the convexity of the brain and surface of the optic nerves.

As we see, experimental research, physiologic considerations and anatomic arrangement of the subarachnoid spaces all argue against the efficacy of spinal medication for intracranial syphilis.

A similar reasoning could be used for the discussion of the treatment of the so-called metasyphilitic optic nerve affections (tabetic and paretic optic atrophies). Antisyphilitic treatment of the so-called primary optic atrophy in tabes and paresis has invariably been a failure in the hands of ophthalmologists. Mercury has been found to act injuriously on such nerves. Intraspinal injections have not been a success. The question may be repeated, Why does a parasyphilitic affection of the optic nerve not respond to treatment? The answer is the same as before: The medication does not reach the optic nerve, or if it ever reaches it is in such a small quantity that it has a rather stimulating (?) action on the growth of the spirochetes. Consequently, the spinal medication is not and cannot be efficient in the treatment of metasyphilitic or parenchymatous optic nerve affections. It is rather superfluous to mention the other routes of medication (cutaneous, digestive, circulatory); their notorious failure is an established fact.

VII. ADVANTAGES OF INTRACRANIAL TREATMENT OF THE SO-CALLED PRIMARY OPTIC ATROPHIES (TABETIC AND PARETIC)

The cranial contents and optic nerves cannot be properly reached by any other route but that of the cranial subarachnoid space or the ventricles of the brain.

Sharpe's and my own experiments have shown that intraventricular injections of trypan blue spread all over the cranial subarachnoid. Golla, Mott[4] and Weed,[8] making cranial subarachnoid injections, have been able to follow the pigment and stain even into the perineuronic spaces. Finally, I have actually seen in dogs, intravitam, the stain gradually spreading into the sheaths of the optic nerves a certain time after I injected it into the lateral ventricles.

All these experiments point to one central idea, namely, that if we wish to have the medication reach the cerebral perineuronic spaces and the sheaths and septa of the optic nerves, we have to introduce it right into the cranial cavity, by way of the subarachnoid spaces or lateral ventricles. For in the end the entire scope of the treatment is frustrated if the spirocheticide is not brought in immediate contact with the spirochetes, which are lodged in the perineuronic spaces of the brain in paretics and most probably in the sheaths of the optic nerve and between the neurons of the retina in the so-called primary optic atrophy.

The slow current of the resorption taking place along the lymphatics of the sheaths of the cranial nerves, especially of the optic nerves, may be utilized with advantage for the treatment of a syphilitic process in this locality. The medication, being in part slowly eliminated along the sheaths of the optic nerves, stays a longer time in contact with this nerve and is thereby given a better chance to act on the diseased tissues and their micro-organisms.

Early Diagnosis.—Like any other pathologic condition, syphilitic affections of the optic nerve have more chances to be attacked successfully when treatment is begun at the earliest possible moment before permanent damage is present. Neurologists begin to realize that the preclinical stage of general paresis, before the degenerative process in the cortex has advanced too far, is the ideal time to begin the antisyphilitic treatment.

Horsley[25] insists that the main thing in the treatment of syphilis of the central nervous system is early diagnosis and local treatment. Collins[33] says that the only chance of success in treating general paresis is to begin it at the earliest possible moment.

While this optimistic language regarding general paresis began to appear in the neurologic literature during the past few years, ophthalmologists remained as pessimistic as ever as to the outcome of primary optic atrophy (a condition so intimately allied with tabes and paresis).

Behr[34] has recently related four cases with beginning tabetic optic atrophy, progressing very rapidly to complete blindness during (in spite or because of) antisyphilitic treatment. The sad progress of the tabetic and optic atrophy, no matter what is done, has paralyzed for a long time the attempts of ophthalmologists to do something for this class of patients. In spite of all this, the great probability that this type of optic atrophies is due to the presence of spirochetes in the sheaths and in the interior of the optic nerves, that in the beginning these micro-organisms are localized at the periphery of the nerve mostly in its sheaths, and that only in a later stage they migrate into the nerve bundles and between the fibers, should cause us to double our efforts to recognize the earliest symptoms of optic nerve involvement and to attack the seat of lesion with the utmost vigor and in the most efficient way. From this point of view every contribution toward the early diagnosis of incipient atrophy has a direct bearing on the final success in the treatment of this condition. In other words, the therapeutic problem regarding the taboparetic optic nerve affections is a matter of: First, how to recognize the earliest involvement of the optic nerve before the spirochetes become inaccessible, before the degeneration of the optic nerve fibers takes place. Second, how best to get access to the spirochetes.

The earliest diagnosis and the cranial subarachnoid route will eventually be the solution of the problem.

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ABSTRACT OF DISCUSSION

DR. UDO J. WILE, Ann Arbor, Mich.: I have been impressed with three very patent facts: We should have had this information before we embarked on intraspinal or other subdural therapeutic measures; we are just on the threshold of the proper treatment of syphilis of the nervous system and of syphilis of the optic apparatus. The introduction of salvarsan or salvarsanized serum into the subdural space may be said to be the first step. The second I think will surely, as the results, perhaps, of Dr. Schoenberg's work, be the introduction intraventricularly, surely a simple operation, of some spirocheticidal substance. If one had had the careful anatomic and physiologic data which Dr. Schoenberg has offered us, much of the enthusiasm which followed the first efforts at any form of intraspinal medication would surely have been tempered. On the basis of the anatomic and physiologic data furnished by Dr. Schoenberg's work, and the very evident fact that at least in the laboratory animal staining substances do not reach the optic nerve

33. Collins, Joseph: The Recognition of General Paresis While It Is Still Susceptible to Treatment, THE JOURNAL A. M. A., March 18, 1916, p. 851.
34. Behr, C.: Klin. Monatsbl. f. Augenh., 1916.

itself when introduced intraspinally, how can one explain the very widely different clinical reports, many of them favorable, following the introduction into the spinal canal of salvarsan or salvarsanized serum? I think the explanation may be due partly to the new conception of syphilis of the nervous system. With the assistance of your chairman we have, at the University Clinic, demonstrated that in the optic nerve itself is the first clinical evidence of central nervous involvement, which takes place as early as three or four weeks after infection. We have three or four cases in which the retina itself showed evidence of inflammation. This is easily explainable if we assume that in the nervous system the roseola occurs as in other parts of the body. It is not simply a skin manifestation. It occurs in the nervous system and in 70 per cent. of cases of syphilis which go on to the seventh week. We must assume that as the roseola disappears from the skin it also disappears from the nervous system, and so from the optic nerve, and many of the earlier reports of beneficial results which followed the use of salvarsan intraspinally may, indeed, be due to the natural course of the disease. Any degenerative processes in the nervous system cannot be benefited by any form of treatment. With general paresis or optic atrophy the only possible benefit that may be derived from the introduction into the intraspinal or intraventricular space is spirochetal death and the transitory appearance of inflammatory reaction. Patients with certain diseases, among which is basilar meningitis, recover, because there is no degenerative process present. In general paresis the patient is not benefited and cannot be benefited.

DR. JAMES B. AYER, Boston: One cannot read Dr. Schoenberg's array of facts concerning the flow of cranial fluid and the necessary modifications of treatment in intracranial syphilis of the parenchymatous type without being greatly impressed by the truths expressed, especially if he has like myself been relatively unsuccessful in the treatment of these conditions.

In February of this year I decided that some form of intracranial lavage by salvarsanized serum was indicated but realized the difficulty of carrying out such procedure in early cases such as came to my hand. So a middle course was attempted. In two points craniotomy openings were made over the frontal pole and injections of serum given by the special route, followed by saline for a period of three quarters to one and one half hours under gradually increasing pressure up to 400-600 mm. Subsequent puncture of the cranial subarachnoid showed the presence of the serum at this high level, not of course undiluted, but clearly recognizable. It was clear that serum could be safely forced upward "against the currents," a fact noted experimentally by Weed, 1914. Four cases of optic atrophy and three of cerebral syphilis of other types are now under such treatment. Two cases of advancing optic atrophy have had six such injections each over a period of three months. Both show a stationary condition of vision, as tested by Dr. Derby with whose cooperation I have carried on the work, and both show an amelioration of the Wassermann test, a result we have hitherto been unable to accomplish. Whether direct cranial injections are more efficacious I do not know, but this relatively easier operation seems to offer a method well worth serious trial.

DR. JESSE S. WYLER, Cincinnati: The phorometric work by Carl Baer of Kiel impressed me. The connection of his work and that of Dr. Schoenberg is manifest, for by this means we should be able to make a rapid and early diagnosis of optic atrophies, and obtaining this diagnosis we may be able to get results which hitherto have been impossible. By means of a specially constructed phorometer it was found that long before any pupillary signs or other symptoms of tabes were manifest there was a notable impairment of the light sense, in the ability of the eye to adapt itself to varied degrees of light, and the degrees in this perception increased as the other symptoms increased. Baer concludes that in this early stage there is only a little nerve infiltration and very few spirochetes in the nerve, and if the antisyphilitics reach the diseased nerve at this time, results may be obtained; but at later periods where there is considerable infiltration and nerve degeneration, all antisyphilitic medication will be worthless, because salvarsan causes fresh infiltration and this merely blocks out some of the fibers which were still intact. The results obained were an improvement, on the average, and probably with this early means of diagnosis and Dr. Schoenberg's intraventricular therapy, a new era may be for those for whom in the past the prognosis has been most unfavorable.

DR. GEORGE S. DERBY, Boston: It may not be out of place simply to try to quote what Dr. Swift said in his address in Washington, that prevention is better than cure; that logically all patients with syphilis should receive spinal puncture before treatment is concluded to see whether involvement of the central nervous system has taken place, and if the examination of the spinal fluid gives a positive result, the patient should immediately be put under suitable medication.

DR. MARK J. SCHOENBERG, New York: It was my good fortune to find a number of patients in the clinic who came in with optic atrophies and who had had in the department of dermatology repeated spinal injections. Some of them did more or less well in the sense that those who had vision of more than $^{20}/_{100}$ kept that vision for a certain length of time. They received at least twenty-five intraspinal injections, and the man who administered the injections was enthusiastic over the results. My answer to this favorable report is that if we are able to maintain the vision of those who have beginning optic atrophy by injecting a chemical agent into the spinal canal, then so much the more should we obtain good results by addressing the curative agent direct to the seat of the lesion by intraventricular injections. We must not forget that when we inject any agent into the spinal canal it is immediately anchored by the meninges. Any of the substance which has not been anchored will go up into the cranial cavity, but how much will go we do not know; probably a small percentage. It depends on the affinity between the substance injected and the meninges of the cord. If some reaches the intracranial cavity, some of it will be anchored by the meninges of the brain and only a small portion of it will reach the optic nerve. So that if we get some result by the intraspinal injections, we should get more by the intraventricular.

I wish to protest against the term used by Dr. Wyler. There is no Schoenberg's intraventricular therapy. It is simply suggestions from experimental work which must be done by other men over and over again before we find a great deal to recommend it for the treatment of optic atrophy.

The earlier we begin our treatment the better. Dr. Ayer's work interested me immensely. I believe there is some value in his conception; but I must repeat the argument I made before, that if we are able to do good through the intraspinal route, then we should obtain still better results by introducing the substance directly into the cranial cavity.

Toronto and Typhoid.—Toronto had a total of 151 cases of typhoid fever in 1915. It was found that sixty-nine of the total number of cases were contracted outside of Toronto; thirteen were infected by contact; one was in a worker removing night soil; one was in a sewage worker; one drank raw lake water; no infections from oysters; none from milk, and the source of infection was not traced in sixty-six. There was a total of nine deaths. Of the sixty-nine outside cases, five patients died; of the eighty-two inside cases, four patients died. The following statitstics show how the death rate from typhoid fever has decreased since 1910, per 100,000: 1910, 40.8; 1911, 20.0; 1912, 12.1; 1913, 10.4; 1914, 7.5, and 1915, 1.9. This appears to be the lowest death rate from typhoid of any city in America, Newark, N. J., being 2.7, and Milwaukee, 4.6. Montreal appears high with a death rate of 22.7. Toronto has reduced its typhoid by effective chlorination of the drinking water; pasteurization of the city milk supply since 1912, except the certified milk; by education through circulars left in every house in which a case develops, and by urging hospitals to employ antityphoid inoculation for their nurses and orderlies. In 1910 there were 204 deaths in Toronto from typhoid.

REACTIONS FOLLOWING INTRASPINAL INJECTIONS OF MERCURY

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During the past few months we have had occasion to observe the immediate effect clinically following the intraspinal injections of different preparations of mercury. Before presenting our observations in a limited number of cases it may be of interest to call attention to similar uses of mercury by other authorities.

Sicard,[1] in 1913, reported the use of mercuric cyanid in doses of from 0.1 to 0.2 mg. combined with 1.5 cg. of novocain in 2 c.c. of normal salt solution raised to a temperature of 100 C. and injected intraspinally. He employed this preparation, stating that it did not precipitate the albumins, and that with these small doses the reaction was very marked as employed in cases of tabes and meningomyelitis. The general paretics did not show so marked a reaction even after doses of from 0.4 to 0.5 mg. At the same time the latter cases did not show any improvement, while the former showed great improvement, as evidenced in the pains being quieted and the gait and urinary trouble improved.

Sicard[2] stated that he treated four patients afflicted with syphilitic meningomyelitis by administering mercury biniodid intraspinally in doses of from 1 to 2 mg. mixed with the spinal fluid as a vehicle. Carrien[3] states that in cases in which he used mercuric cyanid in from 0.1 to 0.2 mg. doses intraspinally, on the following day he injected salvarsan or mercury intravenously, believing that the intraspinal injection had created an osmotic disturbance and thus rendered the meninges more permeable. In such instances he noted the efficacy of this method of treatment by the amelioration of clinical symptoms, the disappearance of the positive Wassermann reaction in the spinal fluid, and the diminution of lymphocytes in the spinal fluid. At the same time he warned against too large doses, and offers as proof an unfortunate case in which one of his students had injected intraspinally 1 cg. of mercuric cyanid which was meant for an intravenous injection. The pains following were very severe, requiring morphin, and some hours later sphincter disturbances developed, followed by coma and death on the fifth day. In that case there was an acute meningitis, especially in the posterior cord, with an intense hemorrhagic condition of the pia which extended to the first dorsal and to a less extent to the cervical and bulbar regions. The patient was a cachectic tabetic. Sicard never exceeded 0.2 mg. of mercuric cyanid. He mentions an increased cellular reaction consisting of polymorphonuclears and lymphocytes, sometimes one preponderating, at other times the other. The spinal fluid may become xanthochromic, and under such circumstances the polymorphonuclear cells predominate.

Ravaut,[4] in July, 1909, injected intraspinally 2 minims of a 1 per cent. solution of mercuric cyanid (about 1 mg.), and a few minutes later the patient complained of cramps in the lower extremities and contraction of the limbs commencing in the feet and spreading upward.

In November, 1909, a second injection, of about 0.5 mg., was accompanied by less severe contractions and other symptoms than noted previously. The author refers to another patient with secondary syphilis having some cerebral disturbance and pains in the lower extremities who received but one spinal injection of a solution containing about 0.1 mg. of mercuric chlorid. There was no serious reaction except for an exacerbation of the headache and pain in the lower extremities some hours afterward.

In giving a brief summary of some of the work that we have done in the wards of Cook County Hospital, we shall enumerate only the immediate results as shown by the complaint of the patient and by our findings in the spinal fluid. We used mercurialized serum, mercuric chlorid and mercuric succinimid. Six samples of the spinal fluid, three of which were taken twenty-four hours after the injection of mercury, and three twelve hours after the injection, were tested chemically for the presence of mercury. In only one instance, a sample taken twelve hours after the injection, was a faint trace of mercury found.

REPORT OF CASES

CASE 1.—The diagnosis was cerebrospinal syphilis with hemiplegia. There were 20 lymphocytes per cubic millimeter. The Wassermann reaction was 4 plus. The Nonne reaction was plus.

First Injection.—Dec. 10, 1915, at 2 p. m., 25 c.c. of mercurialized serum were injected.

Temperature Record: December 10, 8 a. m., 98; 8 p. m., 97.4. December 11, 8 a. m., 98.6; 4 p. m., 99.4; 8 p. m., 99.6. December 12, 4 a. m., 98.8; 8 p. m., 99.8. December 13, 8 a. m., 98.6; 8 p. m., 98.6.

Following the injection the patient slept well; the only symptom noticed was a tingling sensation occasionally in the legs. On the eleventh day following the injection, the patient had a generalized urticaria, with difficulty in breathing through the nose.

Second Injection.—Dec. 27, 1915, at 2 p. m., 24 c.c. of mercurialized serum were injected. There were 18 lymphocytes per cubic millimeter. The Nonne reaction was plus. The Wassermann reaction was 4 plus.

Temperature Record: December 27, 12 noon, 98.6; 8 p. m., 99; midnight, 99.2. December 28, 4 a. m., 99.4; 8 a. m., 99.4; 4 p. m., 100.8; 8 p. m., 100.2; midnight, 99. December 29, 4 a. m., 99; 4 p. m., 99.6. December 30, 4 a. m., 98; 4 p. m., 98.

Following this injection the patient had drawing pains in both heels, but slept well the first night. On the second day there was no complaint.

Third Injection.—Jan. 8, 1916, at 10 a. m., 24 c.c. of mercurialized serum were injected.

Temperature Record: January 8, 8 a. m., 98.6; 4 p. m., 101; 8 p. m., 101.2; midnight, 100.4. January 9, 4 a. m., 100; 8 a. m., 99.6; noon, 99.8; 4 p. m., 101; midnight, 100. January 10, 4 a. m., 99.2; 8 a. m., 99; noon, 99.4; 4 p. m., 99.8. January 11, 4 a. m., 99; 8 a. m., 98.6.

Following this injection the symptoms were more severe, and the patient complained of pains in the neck and legs, and was unable to sleep on the night following the injection. On the second day the patient had a slight headache. On the third day the patient was comfortable. Examination of the spinal fluid at the time of injection revealed 57 lymphocytes. The Nonne reaction was plus. Twenty-four hours later there were 1,970 cells, 60 per cent. polymorphonuclears and 40 per cent. lymphocytes. Six days later there were 100 lymphocytes per cubic millimeter. The Wassermann reaction was 4 plus.

Fourth Injection.—Feb. 3, 1916, at 4 p. m., 0.01 grain of mercuric chlorid in 20 c.c. of spinal fluid was injected.

1. Sicard: Jour. méd. franç., 1913, vi, 207; Bull. et mém. Soc. méd. d. hôp. de Paris, 1913, xxxvi, 681.
2. Sicard: Jour. méd. franç., 1913, vi, 207.
3. Carrien: Cong. int. de méd., Budapest, Aug. 30, 1909.
4. Ravaut: Lancette franç. Gaz. d. hôp. (Paris) 1913, lxxxvi, 1061.

Temperature Record: February 3, 4 a. m., 98.6; 4 p. m., 98; 8 p. m., 98.6; midnight, 100. February 4, 4 a. m., 99.2; 8 a. m., 99; 4 p. m., 100.6; 8 p. m., 100.6; midnight, 100. February 5, 4 a. m., 99; 8 a. m., 98.8; noon, 98.6.

Following this injection the patient complained of severe pain in the legs; it was necessary to give a sedative before the patient could sleep. Cell count at the time of injection revealed 21 lymphocytes per cubic millimeter; eight hours after injection, 1,280 cells: 94 per cent. polymorphonuclears, 6 per cent. lymphocytes.

CASE 2.—The diagnosis was general paresis. Examination of the spinal fluid revealed 16 lymphocytes per cubic millimeter. The Wassermann reaction was 4 plus. The Nonne reaction was plus. In the Lange test the first five tubes were affected.

First Injection.—Jan. 22, 1916, at 11 a. m., 0.01 grain of mercuric succinimid in 20 c.c. of spinal fluid was injected.

Temperature Record: January 22, 4 p. m., 98; 8 p. m., 100.6; midnight, 101. January 23, 4 a. m., 101.2; 8 a. m., 100.8; 4 p. m., 101.2. January 24, 4 a. m., 99; noon, 101.6; 4 p. m., 101.2; 8 p. m., 99.6. January 25, 4 a. m., 99.8; noon, 99.2. January 26, 4 a. m., 99.8.

The cerebrospinal fluid twenty-four hours following the injection of mercury showed 1,200 cells per cubic millimeter; 44 per cent. lymphocytes, 56 per cent. polymorphonuclears. During the first twenty-four hours there were insomnia and restlessness.

Second Injection.—Feb. 10, 1916, at 9 p. m., 0.01 grain of mercuric chlorid in 20 c.c. of spinal fluid was injected. Cell count revealed 6 lymphocytes. The Nonne reaction was plus.

Temperature Record: February 10, 4 a. m., 98; noon, 98.4. February 11, 4 a. m., 99.4; 8 a. m., 100.2; noon, 101.4; 4 p. m., 102.2; 8 p. m., 101.4; midnight, 99.2. February 12, 4 a. m., 100; 8 a. m., 99.6; 4 p. m., 101.4; 8 p. m., 99.6. February 13, 4 a. m., 99.8; noon, 99.4; 8 p. m., 99.4.

Following the injection the patient did not complain of any pain. There were insomnia and restlessness on the night following the injection.

CASE 3.—The diagnosis was tabes dorsalis.

First Injection.—Feb. 23, 1916, at 8:30 p. m., 0.02 grain of mercuric succinimid in 20 c.c. of spinal fluid was injected.

Temperature Record: February 23, 4 a. m., 98; noon, 98; midnight, 100.2. February 24, 4 a. m., 100.4; 8 a. m., 100.6; noon, 102.8; 4 p. m., 101.8. February 25, 4 a. m., 100.6; 8 a. m., 100; 4 p. m., 100.4; 8 p. m., 100.4; midnight, 98. February 26, 4 a. m., 98; 8 a. m., 98.6; noon, 98.6; 4 p. m., 98.6; 8 p. m., 98.

Following the injection the patient had severe pains during the night, lancinating in character. These continued the following day. The patient also had a drawing and aching sensation in the thighs, and vomited once in the early morning. February 25 the patient still had pain in the legs and thighs, but no nausea. February 26 the patient was quite comfortable. The spinal fluid findings at the time of the injection revealed 90 lymphocytes; the Nonne reaction was plus; the Wassermann, 4 plus. Forty-four hours following injection the fluid had a slight yellowish tint. Cell count revealed 446 cells (72 per cent. polymorphonuclears).

In fifteen cases treated in the same manner similar symptoms were noted.

Pain was rather severe, localized in the back and extending down the limbs in all of the cases.

There was retention of the urine in two cases which lasted for twenty-four hours, requiring catheterization. The patients had no trouble after the first twenty-four hours.

There were insomnia and restlessness in four cases.

There were headache and pain extending down the back in ten cases.

A rise in temperature ranging from 99 to 103 F. was noted during the first twenty-four hours in all the cases. The temperature began to rise about four or five hours earlier following the injections of the mercuric chlorid and succinimid than following the injections of mercurialized serum.

Nausea and vomiting occurred in three cases during the first twenty-four hours.

The cell count in the spinal fluid during the first twenty-four hours following injection ranged from 300 to 2,000 cells per cubic millimeter. During this period the polymorphonuclear leukocytes predominated with a gradual return to a lymphocytosis later. The period of increased cell count lasted on an average about seventy-two hours.

Urticaria was present in two cases following the injection of mercurialized serum. The patients, as a rule, did not complain of so much pain following the injection of the serum when administered for the first time, but seemed to show a stronger reaction with each succeeding injection; while with the salts of mercury the reaction did not appear quite so strong with each succeeding injection. Some of the patients expressed a feeling of improvement a week or two after the injection, and requested further treatment. No statement can be made at this time as to the ultimate results following these injections. However, if Lange's observations on reactions obtained from the spinal fluid, even when the blood showed negative findings, were accurate, it seems in order to employ some form of intraspinal treatment. In administering the mercuric chlorid we would recommend doses of $\frac{1}{100}$ grain when using the spinal fluid as the vehicle. This can be made up in a 1 per cent. solution so that 1 minim represents the dose. This should be thoroughly mixed with the spinal fluid before reinjecting. We would not advise using less than 20 c.c. of the spinal fluid as a vehicle for this amount of mercury. The technic which we have employed has been described in a previous article.

THE FREQUENCY OF UNSUSPECTED SYPHILIS

WITH SPECIAL REFERENCE TO ITS INCIDENCE IN SO-CALLED NEURASTHENIA *

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The routine use of the Wassermann reaction has brought about some interesting revelations, and, applied to large numbers of hospital patients, shows the surprising prevalence of syphilis. In private practice, however, observations are made on patients representing a different social level, and should offer light on this social disease from another angle.

The Wassermann reaction has been used in my private work in a routine manner, without regard to history or complaint, and I wish to report on 300 consecutive patients. It is only fair to state that practically all of these patients were seen in consultation or were referred by other physicians, and thus presented more or less difficult or obscure disease conditions. I assume, therefore, without entering on a discussion of the value of the Wassermann test, that the number of positive Wassermanns here reported gives a fair indication of the rôle played by syphilis in the more obscure syndrome of internal medicine.

The tests were done by Miss Blanche Frazier, who has had abundant experience, including several months' training with Professor Zinsser, and whose results are

* Read at the meeting of the American Society for Clinical Investigation, Washington, D. C., May 8, 1916.

* Case reports will appear in the reprints, a copy of which can be had on application to the author.

to be relied on. The half Wassermann was employed, using an antisheep hemolytic system, two units of amboceptor, and straight alcoholic extracts of both human and beef heart as antigens.

Of the 300 patients, fifty-six, or 18.8 per cent., gave a positive Wassermann reaction. In reviewing this series, one is tempted to paraphrase the familiar statement that hysteria can simulate any disease complex by saying that syphilis can produce any disease complex.

Of the fifty-six positive cases, twenty-two, or 39 per cent., gave a history more or less complete of syphilis, while thirty-four, or 61 per cent., gave no such history, either direct or suggestive.

The most important group — the subject of this report — was formed by the neurasthenics. There were thirty-two patients who, according to current usage, must be given the diagnosis of neurasthenia. I use the word "neurasthenia" for want of a better, in the general rather than the restricted sense, to indicate that indefinite group of emotionally unbalanced individuals who, given to introspection, come to the physician — in time to many physicians — with the greatest variety of complaints, none of which seem to rest on a demonstrable physical basis. Asthenia, bodily or mental, is not necessarily a prominent symptom, for many of these patients are vigorous and are of good judgment except where their own physical well-being is concerned. In a stricter sense, perhaps, some should be called hypochondriacs. In ordinary clinical experience, however, all patients with such functional neuroses are classed together as neurasthenics.

Of this group of thirty-two, fifteen, or approximately 50 per cent., gave a positive Wassermann reaction. Beyond this finding, none of these patients gave other evidence of disease. Three patients with apparent neurasthenia, each with a positive Wassermann reaction, of whom two have myocardial troubles and one arthritis, are not included. Other instances of neurasthenia with a positive Wassermann reaction have been observed in medical wards of the Hillman Hospital, but cannot fairly be included in this group of private patients.

Of the fifteen neurasthenics with a positive Wassermann reaction, only two gave a history of syphilis.

Slight myocardial incompetency and early tuberculosis have been given prominence as causes of neurasthenia, while syphilis in this connection has received but scant attention. Textbooks mention it casually, and I know of but one author who ascribes to syphilis anything like a leading rôle in the causation of functional nervous troubles.

It is unfortunate that the cerebrospinal fluid of only five of these patients was examined. One of these gave a positive Wassermann (four plus), cell count of ten, Ross-Jones three plus, Pandy two plus, and Lange's colloidal gold reaction showed a characteristic paretic curve. Another gave a four plus Wassermann, while the other three patients were negative to all of these tests.

THE QUESTION OF PARESIS

The question naturally arises, Are not some of these patients early paretics? It is, of course, impossible to answer with absolute certainty, since general paresis in the very beginning may present a "neurasthenoid stage," and such patients have the appearance of typical neurasthenia. I can only say that the mental and other symptoms by which we usually recognize general paresis were in these cases missing. The pupillary abnormalities, the characteristic mental and moral changes, the tremors, and the speech, trophic and sensory disturbances were all absent. The typical paretic's symptoms are elicited with some effort, while the neurasthenic forces on us a recital, frequently a long one, of his troubles. The one is indifferent to his disabilities, while the other is acutely conscious of them. Measured by such clinical standards, none of these patients are paretics.

How then are we to regard these so-called neurasthenics who give evidence of syphilis? Is the cerebrospinal nervous system under the influence, directly or indirectly, of some syphilitic toxin — a sort of focal infection? Is this a mild, an essentially chronic form of cerebrospinal syphilis? Or, are these patients, after all, paretics of a peculiar type? Perhaps both of the last two questions may at times be answered in the affirmative. Certainly, all such patients with a positive Wassermann reaction are potential paretics.

CONCLUSIONS

From a study of these 300 patients, two conclusions seem warranted: first, that syphilis is a vastly more important factor in internal medicine than is commonly thought and, secondly, that a large number of so-called neurasthenics are infected with syphilis and possibly present a mild form of cerebrospinal syphilis.

VACCINE THERAPY AND OTHER TREATMENT IN ACNE VULGARIS AND FURUNCULOSIS

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As a result of observations made in the medical advisers' office at Cornell University, the writer's attention was attracted to the great prevalence of acne vulgaris and furunculosis among young men. A study of the examination records of the entering students showed that 30.2 per cent. of the freshmen class suffered from acne vulgaris. Of this proportion, the distribution of the lesions in 17.8 per cent. was general and in 12.2 per cent. of the cases it was limited to the facial region.

In order to ascertain just what results could be expected from the different forms of therapeusis, and more especially to try out the efficacy of vaccine therapy in the treatment of acne vulgaris and of furunculosis, an analysis of 100 unselected cases of these two forms of pyogenic dermatoses was undertaken.

The cases were all considered chronic, in that they were all of six months' or more duration, and no case was included in which the eruption could possibly be ascribed to drugs, to occupation, or to syphilis. No attempt was made to study the bacterial etiology of either condition, except in so far as was necessary for the preparation of the autogenous vaccines, since that has been so well worked out by previous investigations, and also because ordinarily the stock vaccines are prescribed on the basis of a clinical diagnosis.

Previous consultations had shown that a large number of the patients ascribed their condition to dietetic errors, the most common of which was the ingestion to excess of sugar, candies, pastries; or to digestive disturbances, such as constipation. Consequently, all the patients studied were instructed before beginning

treatment to avoid such foods as seemed to disagree with them, not to eat to excess, to eat slowly and at regular intervals, to drink plenty of water, especially on rising in the morning, to see that the organs of elimination were functioning normally, or if they were not, to consult the physician in charge before resorting to medical correctives. Locally, they were to remove the comedones by gentle massage, after first having relaxed the skin by applications of towels wrung out in hot water. Following the removal of the blackheads, they were advised to apply to the face towels wrung out in cold water, in order to tone up the skin and cause a diminution in the size of the pores. Generally speaking, the directions were fairly well carried out.

For purposes of classification and study it was deemed advisable to group the cases in three tables. Table 1 shows the number of cases each of acne vulgaris and of furunculosis treated, their distribution, duration and certain apparent contributory factors in their etiology; and finally the form of treatment used, with the total number receiving such treatment.

Table 2 gives in detail the course and results attained by vaccine therapy, and the average number of days between treatments. The average number of treatments per case, and the total number of cases treated. Previous observations had led us to believe that the fine type of acne vulgaris responded less favorably to vaccines than the coarse variety; so in Table 2 the acne cases were divided into a coarse and fine type, and these two classifications were again subdivided into, first, those in which the majority of the lesions were pustular; second, those in which the majority of the lesions were papular; and third, those in which the pustular and papular elements were present in about equal proportions. Furuncles were not classified under subheadings.

Table 3 gives in percentages the results attained by the different forms of treatment three months or more after cessation of all treatment.

Further consideration of Table 1 exhibits, as perhaps its most striking datum and one not generally brought out by writers on the subject, the fact that in the seventy-four cases of acne treated not one of the cases developed in a student engaged in athletics. The writer does not mean to imply that acne has never occurred in athletes, but he wishes to point out that the table shows the great part athletics plays in the prevention of acne. This may be explained on Stein's[1] theory, that acne is caused in part by certain disturbances of the sexual functions, which in turn cause hyperactivity of the sebaceous glands; so that athletics, by furnishing a normal outlet for the superabundant energy, diminishes the production of sebum, and so prevents or cures acne. I am rather inclined, however, to accept the general view that the beneficial effect of athletics upon acne is due, not to the athlete's strenuous muscular exertion itself, but rather to the more regular habits and the strict personal hygiene required of the student representing his college in any form of athletics. On the other hand, however, it will be noted that nine cases of furunculosis, out of a total of twenty-six, occurred among students engaged in athletics. These cases, I believe, were due to direct infection, and without exception, occurred among the wrestlers and crew men, the location of the lesion being typical of the cause of the trouble, so to speak; among crew men, the lesions were on the buttocks, due to minute abrasions caused by sliding on the rowing seats, and consequent enforced entry of pyogenic bacteria. In wrestlers the lesions were of like nature, usually on the arms, neck and legs, the parts most

TABLE 1.—NUMBER OF CASES OF ACNE VULGARIS AND OF FURUNCULOSIS, THEIR DISTRIBUTION, DURATION, ETIOLOGY AND TREATMENT

Disease	Number of Cases	Facial	General	Average Duration, Years	Season When Worse		Sporadic	Comedones Marked	Athletics	Dietetic Errors	Digestive Disturbances	Therapeutic Measures			
					Winter	Summer						Vaccines	Local	Combined	Medical
Acne vulgaris	74	51	23	3 to 4	16	28	30	15	0	15	10	53	15	3	3
Furunculosis	26	4	22	6½ to 1	3	8	15	4	9	7	4	9	7	7	3

TABLE 2.—DETAILS OF TREATMENT BY VACCINE THERAPY IN CASES OF ACNE VULGARIS AND FURUNCULOSIS

Disease	Number of Cases		Average Number of Treatments per Case		Average Number of Days Between Treatments		Results Noted During Treatment			Results Noted Three Months After Cessation of Treatment				Percentage Improved After Three Months		Percentage Cured After Three Months	
	Autog.	Stock	Autog.	Stock	Autog.	Stock	Improved	No change	Worse	Improved	No change	Worse	Cured	Autog.	Stock	Autog.	Stock
Acne vulgaris, coarse:																	
Majority of lesions pustular	1	8	8	4	3	4.2	4	5	0	1	7	0	1	100	12.5	0	12.5
Majority of lesions papular	..	9	..	3.2	....	2.6	4	5	0	4	5	0	0	...	44+	...	0
Papular and pustular lesions evenly divided	2	15	6	4.6	3.76	3.39	9	8	0	3	14	0	0	0	2	0	0
Acne vulgaris, fine																	
Majority of lesions pustular	..	3	..	4	....	3	0	3	0	0	3	0	0	...	0	...	0
Majority of lesions papular	..	7	..	5+	....	3.9	3	4	0	1	6	0	0	...	14+	...	0
Papular and pustular lesions evenly divided	1	7	12	3.5	3	2.72	3	5	0	0	8	0	0	0	0	0	0
Totals	4	49	8	4.1+	3.38	3.3+	23	30	0	9	43	0	1	25	18+	0	2+
Furunculosis	2	7	10	4	4	3	4	3	0	0	4	0	3	0	0	0	42+

1. Stein, R. O.: Med. Klin., Jan. 23, 1915, p. 85.

frequently exposed to trauma. Dietetic errors and digestive disturbances accounted for from one third to one half the cases in each group. Comedones were not found so frequently as many writers would lead us to expect. A majority of the cases in each group were sporadic, but of those influenced by seasonal variation, the larger number of cases occurred in the summer. The cases of acne showed longer average duration than the cases of furunculosis, the period of duration being from three to four years for acne, for furunculosis six months to one year. It is interesting to note that although of the entire freshmen class the larger percentage of the cases of acne were of general distribution, over twice the number of students who applied for treatment did so for the facial type of acne.

Under the heading local treatment were included all applications made directly to the eruptions. In some instances this meant ointments or lotions; in others, particularly the coarse pustular type, and especially in furunculosis, local treatment includes evacuating the pus by free incisions, and applications of wet dressings. Combined treatment includes those cases in which the patient received the vaccines in conjunction with the local treatment. Medical treatment includes cases in which the patient was treated for stock, 3.3 days, 4.1 treatments, the period between treatments being governed by the reaction. We always waited, as advised by the manufacturers of the vaccines, until the severity of the reaction, if any reaction occurred, passed away, before giving a second dose.[2] In general, the directions given by the manufacturers for the dosage and administration of the vaccine were sedulously followed.

Dennie and Bufford[3] state that "autogenous vaccines were superior to stock, excepting in the treatment of furunculosis, in which no difference could be seen." As may be seen by comparing the percentage totals of the cases of acne and of furunculosis, as shown in Table 2, our results do not coincide with the latter portion of their statement. In our series none was improved or cured by autogenous vaccines. Of all the patients treated, in no instance did the eruption appear to be rendered worse by any form of treatment used. However, two patients who received the autogenous vaccine for acne developed such alarming symptoms, following the first injection, high fever, headache, nausea, dizziness, and very severe local symptoms, that the treatment was discontinued. Wallace,[4] Hitchins,[5] and others have reported cases manifesting untoward symptoms of like nature following the injections of bacterial vaccines, the reaction probably being of an anaphylactic nature, and the possibility of such an occurrence should be borne in mind.

TABLE 3.—CONDITION OF PATIENT THREE MONTHS OR MORE AFTER CESSATION OF TREATMENT

Disease	Results of Local Treatment, Percentages				Results of Combined Treatment, Percentages				Results of Vaccine Treatment, Percentages				Results of Internal Medical Treatment, Percentages			
	Improved	Cured	No change	Worse	Improved	Cured	No change	Worse	Improved	Cured	No change	Worse	Improved	Cured	No change	Worse
Acne vulgaris....	60	6+	33	0	100	0	0	0	17+	1+	81+	0	66+	0	33+	0
Furunculosis.....	14+	85+	0	0	14+	85+	0	0	0	33+	66+	0	66+	33+	0	0

A study of Table 2, or those cases in which the patients were treated by vaccines, shows that not one patient with acne seen three months or more after cessation of treatment was cured by autogenous vaccine; on the other hand, autogenous vaccines were credited with causing permanent improvement in 25 per cent., and stock vaccine in 18 per cent. of the cases. The coarse type of acne comprised cases in which the diameter of the majority of the lesions exceeded a pin head in size; 22.8 per cent. of these patients were permanently improved, 2.8 per cent. cured. The fine type, or those in which the majority of the lesions were pin head or less in diameter, exhibited but 5.5 per cent. of the patients improved, none cured.

A closer study of Table 2 will show what may be the explanation of the reason certain physicians so enthusiastically recommend vaccine therapy in acne and allied conditions, namely, that improvement is much more frequently noted during treatment than on examination of the patient at a much later date. In this series twenty-three out of fifty-three patients exhibited improvement during treatment, but three months after the treatment was discontinued only nine showed any change for the better. The average number of days between treatments and the average number of treatments per patient were respectively, for autogenous vaccines 3.38 days, and eight treatments; only by medicines taken internally, such as calcium sulphid and cod liver oil.

A comparison of the results expressed in percentages, as shown in Table 3, indicates that under the heading furunculosis there was no difference to be noted in the results of the local treatment and of the combined treatment. In each instance 14 per cent. of the patients were improved and 85 per cent. cured, leaving one the deduction that probably in the group of patients receiving combined treatment most, if not all those who responded favorably did so to the local treatment received.

The acne patients gave somewhat different results; every one was improved, but none cured, by the combined treatment. Local treatment, improved 60 per cent., cured 6 per cent. and produced no change in 33 per cent. In the group treated by vaccines alone, stock and autogenous, 17 per cent. of the acne patients were improved, only 1 per cent. cured and 81 per cent. showed no change. As might be expected, furunculosis showed much better results following combined treatment, 33 per cent. being cured. Internal medical treatment did not give the results hoped for. Calcium sulphid is not, as has been claimed, a specific for acne

2. Blatteis, S. R.: Med. Rec., New York, 1914, lxxxvi, 373.
3. Dennie and Bufford: Boston Med. and Surg. Jour., 1915, clxxiii, 910.
4. Wallace, R.: An Unusual Case of Vaccine Anaphylaxis, THE JOURNAL A. M. A., April 11, 1914, p. 1166.
5. Hitchens, A. P.: Interstate Med. Jour., 1914, xxi, 537.

or furunculosis. I believe that the favorable results classified as due to internal medicine could not be ascribed to any direct action of the medicine itself, but rather to the improvement of the physical condition of anemic patients by the use of such medicines as cod liver oil, iron, arsenic, strychnin, bitter tonics, etc., by stimulating the excretory organs, by regulating the habits, and by improving the personal hygiene.

CONCLUSIONS

Our investigation would seem to demonstrate, first, the important part played by personal hygiene in the cause, prevention, and treatment of acne vulgaris and furunculosis; second, the superiority of well-known therapeutic measures over vaccine therapy in the conditions studied; and third, the value of following up the cases to ascertain the number of permanent improvements, since experience has shown that the results attained during the time of treatment are no criteria of the changes to be seen in the eruption at a later date.

As T. J. Horder[6] has well said: "The failures of vaccine therapy are probably more numerous than its successes."

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A CASE OF GRANULOMA PYOGENICUM AFFECTING THE EYELID*

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May 16, 1914, Harold B., aged 9 years, was referred to me by Dr. George W. Webster of Chicago, because of a tumor of the eyelid. The history, obtained from Dr. Webster and the boy's guardian, was of a small tumor, apparently a sebaceous cyst, which was first noticed eight or ten weeks before, just above the cilia of the upper lid of the left eye. About two weeks before his visit to me the appearance had suddenly changed to that of a blood blister, which in a few days was so prominent that a silk thread was tied around it with the idea of strangulating and removing it. Instead of drying and dropping off, as had been expected, the tumor evidently became infected, grew larger and bled easily when it was touched.

On examination, I found a teat-shaped mass of dark red color projecting from above the lid edge, apparently coming through the skin rather than growing from it, being surrounded by normal integument, as with a collar. The boy's guardian was extremely anxious about his condition, as his father had recently died of carcinoma of the face. I had never seen such a tumor, and suggested that Dr. W. A. Pusey, professor of dermatology in the University of Illinois, College of Medicine, be consulted. He at once made the diagnosis of granuloma pyogenicum, and a slide which I had made from a bit of the tip of the tumor confirmed the diagnosis. The following is from Dr. Pusey's report to me after seeing the patient:

"Granuloma pyogenicum, of which this case is a type, is a condition which pathologically is very simple, but clinically is extremely confusing. The lesions first show as a minute, bright red to dark red tumor. This grows rapidly until it reaches the size of a half pea or hazelnut, or larger, and then remains stationary or, it may be, shrinks slightly and becomes denser. A developed lesion may be a prominent sessile tumor, popping up through a thick horny collar, or a flattened dome-shaped red mass of the diameter of a pea or hazelnut kernel with a similar collar. The early lesions are usually denuded of horny epidermis, bright red, soft, and bleed easily; the older lesions have a thin translucent layer of horny epidermis over them, and so are less intensely colored, are fairly firm to the feel and do not bleed unless wounded. In my experience, they are usually not painful or tender. They occur on the face and hands by preference. As they persist for weeks or months and stubbornly return if not completely destroyed, they are very apt to be a source of perplexity, if not anxiety.

"The two conditions which they simulate are malignant tumors and chancres. On the face they arouse fears of malignancy, and I recall one flattened round lesion on the finger of a dentist which I was able to differentiate from a chancre only by the most careful study. As the lesions are not infrequent, their recognition is a matter of considerable practical importance. The lesions are in the beginning masses of highly vascular granulations produced by infection with staphylococci of slight virulence. Later they become a mass of well organized connective tissue riddled with blood vessels. The most striking and characteristic feature is the great number of new blood vessels, which may be so numerous as to suggest an angioma.

"Simple as the lesions are, they have been the source of no end of clinical, pathologic and bacteriologic confusion. The cases were first described in 1897 by Poncet and Dor as botryomycosis hominis. By 1902 Bodin and others had demonstrated that the organisms producing the lesions were not botryomyces but staphylococci. And in 1904 Hartzell clearly established the true character of the lesions and suggested the name granuloma pyogenicum."

May 28, under ether anesthesia, I removed the tumor by a clean incision with curved scissors, down to the tarsus, curetted the base and skin edges and cauterized the wound with solid silver nitrate. The eye was dressed with White's ointment, and the wound healed without infection and with a very small scar.

The patient reported Sept. 13, 1914, and there had been no recurrence, and the cilia were only slightly disturbed. I have recently seen him again, and there is still no recurrence.

In 1906, Dr. Pusey[1] published an excellent paper on vegetating dermatoses in which reference is made to granuloma pyogenicum. In 1910, Wile[2] published an elaborate article on granuloma pyogenicum with complete bibliography.

22 East Washington Street.

ABSTRACT OF DISCUSSION

DR. LEE M. FRANCIS, Buffalo: As Dr. Wescott suggests, granuloma pyogenicum had had a clinical identity only since 1897. As far as I am able to gather, this is the first case involving the eyelids to be reported, although it is not clear why the growth should not have been more frequently observed in this area. The lids, frequently exposed to abrasion and infection from meddling fingers, with a very thin and loosely attached integument, offer a favorable site of low resisting power to bacterial invasion. As stated, the causal factor is probably a staphylococcus of low virulence implanted in an unfavorable soil. The lesions develop most frequently on the fingers, feet and face, although no part of the body is immune. Sutton (THE JOURNAL, May 20, 1916, p. 1613) has reported three cases occurring on the lips. Wile (*Jour. Cutan. Dis.*, December, 1910) has pointed out that granuloma pyogenicum presents a uniform histologic appearance, essentially that of circumscribed granulation tissue, rich in thin walled blood vessels with mononuclear and polynuclear infiltration. According to Wile, the condition also presents certain rather constant clinical aspects which serve to identify it, namely, a pedicle, tendency to hemorrhage when touched, rapid growth, and proneness to recurrence, if not thoroughly ablated and its base carefully cauterized. To this should be added the previous history of injury. It must not be forgotten that the latter may be very minute, as, for

6. Horder, T. J.: Lancet, London, Jan. 31, 1914, p. 310.

* Read before the Section on Ophthalmology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. Pusey, W. A.: Jour. Cutan. Dis., December, 1906.
2. Wile: Jour. Cutan. Dis., December, 1910.

example, an insect bite. Stellwagon has commented on the resemblance between granuloma pyogenicum and the raspberry or strawberry-like growth sometimes following vaccination (usually unsuccessful). As Dr. Wescott has said, granuloma pyogenicum might be confused with the initial lesion of syphilis and malignant growth. The lack of induration and of regional lymph involvement differentiates it from the former, while the patient's age, slower growth, and absence of a precancerous stage, such as hyperkeratotic patches, would differentiate it from the latter. The final analysis must be left to the pathologist and bacteriologist.

DR. UDO J. WILE, Ann Arbor, Mich.: The cases I described were three. It seemed a subject of more than unusual interest. The diagnosis of sarcoma has so frequently been made in cases of pyogenic granuloma that many persons have suffered the loss of a finger, hand or arm when sarcoma was suspected. Before I began the histologic study of this type of tumor it was known that the staphylococcus was the basis of it, but we did not know why it should produce a fungating type of lesion with a granulomatous base. If the explanation I have offered is correct, it would seem that the injury—the site of the injury—is a most important factor in the development of the tumor. The staphylococci are implanted in the intima of the blood vessels. We have an actual blood-vascular tumor. This explains why simple ablation does not result in a cure. If ablated level with the surface or even below it, the tumors usually return with an increase in their growth. If, however, the offending blood vessel focus of infection is cauterized, they are permanently cured.

DR. JOHN E. WEEKS, New York: In this connection I wish to inquire whether the so-called granuloma of the cornea or of the sclerocorneal margin is not akin to this granuloma that has been described as affecting the skin of the lids and the skin of various parts of the body. All who have dealt with granuloma of the cornea know that there is a marked tendency to recur. Some years ago I had opportunity to examine microscopically and bacteriologically two cases of sclerocorneal tumor. In one case operation had been performed twice, recurrence had taken place, and the eye was enucleated on the third recurrence. On examining that eye I found masses of staphylococci in the blood vessels and in the tissues at the base of the tumor. The tumor did not transcend into the true tissues of the cornea, and it occurred to me that the exciting cause of the tumor was the micro-organism. So in the next case that presented itself to me I excised deeply and cauterized the surface of the granuloma and succeeded in preventing a subsequent recurrence. On examining that tumor I found the same condition. It was a puzzle to me. The description of this growth beginning in the lid or in the skin makes it apparent to me that in all probability the so-called granuloma occurring on the cornea and limbus is of the same nature.

DR. HAROLD GIFFORD, Omaha: I saw one case of this affection a number of years ago which took a somewhat unusual course, in that the lid perforated entirely. This fungoid mass perforated first the outside and then the inner side and left quite a large hole through the center of the left upper lid. This was in a young woman who had a peculiar skin eruption which suggested secondary syphilis, and she came from a region just having smallpox. We never could tell just what she had. Whether it had any connection with the main cause I do not know. At that time we did not know about granuloma pyogenicum. I indexed this as a case of botryomycosis, which was the name under which it went at first. The patient made a perfect recovery. We simply cut out the hole and sewed up the lid. Since reading of Dr. Wescott's case it has occurred to me that any one reading this description might take cases of sporotrichosis for pyogenic granuloma, because in sporotrichosis there is sometimes a fungating mass covered with a coating of thin skin, and the description sounds quite similar. The course would probably be different, and so far as I know the staphylococcus has not been noticed; but I think it might be well to keep this possible mistake in mind.

DR. EDWARD JACKSON, Denver: I should like to mention a case which has taken a new significance for me from Dr. Weeks' remarks—a case I saw two months ago, in which the structure is clearly that of granuloma, but which was not stained and examined for the presence of micro-organisms. It was at the margin of the cornea. Two things which I have never seen before struck me in the clinical appearance of this little swelling. One was the markedly purplish red surface, and the other an edge that reminded me of the edge of an epithelioma but was perfectly soft, consisting of almost normal conjunctiva, an appearance recalled by the collar around the neck of the granuloma as spoken of. The structure, as far as histologic examination could determine, was clearly similar to the class of tumors under discussion. The history of this, of about six or eight weeks' standing, would place it as a comparatively early tumor of the sort.

DR. C. D. WESCOTT, Chicago: I have seen only one or two cases of sporotrichosis, and these I could easily differentiate after seeing this case and reading the description of the other cases. The rising of the tumor through a collar of skin is characteristic, and is described by every one who has seen the tumor.

Therapeutics

HEMORRHAGIC CONDITIONS

(Concluded from page 1925)

TRANSFUSION OF BLOOD—(CONCLUDED)

INDICATIONS

As technic improves and experience increases in transfusions, more and more indications for its use are being found. It is no longer used only as a last resort for life-saving purposes. It is finding its field of usefulness extended to diseases in which an influx of some new blood might hasten the progress toward improvement, or diseases in which it will tide the patient over a temporary relapse. In reviewing the results of 212 blood transfusions in 189 cases, Ottenberg and Libman[10] mention a large number of varied conditions in which transfusion was tried. They also discuss the results obtained in each condition. Their classification is as follows:

I. Transfusions for simple hemorrhage.
   1. Gastric and duodenal ulcer.
   2. Dysentery.
   3. Typhoid hemorrhage.
   4. Ectopic pregnancy.

II. Transfusions in connection with surgical operations.
   1. Preliminary to operation.
   2. For postoperative hemorrhage.
   3. For shock.

III. Transfusions for the cure of hemorrhagic conditions.
   1. Purpura hemorrhagica.
   2. Hemophilia.
   3. Hemorrhages secondary to:
      (*a*) Blood diseases.
      (*b*) Severe infections.
      (*c*) Jaundice (cholemia).

IV. Transfusions for blood diseases.
   1. Pernicious anemia.
   2. Leukemia.

V. Transfusions for infections.
   1. Infections with pyogenic organisms.
   2. Subacute streptococcus endocarditis.

VI. Transfusions for intoxications.
   1. Acute poisoning.
   2. Diabetic coma.

VII. Transfusions for debilitated conditions.
   1. Cancer.
   2. Malnutrition.
   3. Simple anemia.

10. Ottenberg and Libman: Am. Jour. Med. Sc., 1915, cl, 36.

The experience of Ottenberg and Libman in the foregoing cases was as follows:

In duodenal or gastric ulcer the hemorrhage was stopped in twelve of fourteen cases in which the conditions were desperate. The cases best adapted are those in which there has been repeated or prolonged bleeding. In acutely bleeding cases there is danger of increasing the hemorrhage through increase in blood pressure.

The dysentery cases were not so successful as to their final outcome. In four of six cases transfused, the patients died from a continuation of the dysentery.

In typhoid fever, in which nine transfusions had been performed in seven cases, two of the patients ultimately recovered. They state that "in all typhoid cases, the first appearance of blood in the stools should be an indication to make preparations so that transfusion can be done, if needed, at very short notice."

In bleeding in ectopic pregnancy, transfusion was life-saving in all of three cases transfused.

In transfusions done in connection with surgical operations, in thirty-three preoperative transfusions, thirteen patients recovered from the operation. Some of the others died from postoperative complications. They had three brilliant recoveries in five transfusions for postoperative hemorrhage. In shock, however, transfusion was disappointing.

With the hemorrhagic conditions, in nine cases of purpura hemorrhagica, six patients recovered completely. In hemophilia, in five out of six cases the hemorrhage ceased and the patients regained good health. In hemorrhage secondary to infection, in one, a case of a new-born, the hemorrhages were checked. In another with gonorrheal rheumatism, transfusion was followed by recovery, while in a third case of hemorrhagic diphtheria, the patient died.

In three cases of acute leukemia, the hemorrhages did not cease after transfusion, whereas in one chronic case it did.

Transfusions for hemorrhage in jaundice have been very disappointing, the hemorrhage persisting afterward, even in the nonmalignant cases.

The experience of Ottenberg and Libman with transfusions in pernicious anemia consisted of thirty-five transfusions in twenty-five cases. In no case was there a cure; in eleven cases no effect was observed, whereas in fourteen cases immediately following the transfusion, there were more or less prolonged remissions. They quote one case in which splenectomy was also done after the third transfusion, with a brilliant result, the patient returning to excellent health. In their summary they state that although transfusion never cures pernicious anemia, nevertheless it is the best remedy, for it leads to remissions in about half the cases.

In leukemia, the transfusion was performed in ten cases. In the acute cases, the patients did not fare well, whereas in the chronic cases of the lymphatic type there was a tendency for the blood picture to return to normal. This, however, was only temporary, as the leukemic blood picture ultimately returned.

Transfusions were also done in infectious diseases. It was done only as a last resort in some of the very desperate cases. There were ten cases, and four of these patients recovered. Three of these successful cases were osteomyelitic infections due to *Staphylococcus aureus*. The fourth case was a streptococcic infection.

In endocarditis, transfusing was resorted to to combat the anemia. There were four cases, all due to the *Streptococcus viridans*. In three of these cases there was temporary improvement, but all four patients succumbed to the disease.

Transfusion is of value in cases of poisoning due to carbon monoxid, hydrocyanic acid, benzene or nitrobenzene when the blood has been acted on by these to a marked degree. Preliminary phlebotomy, however, is very essential.

Diabetic coma offers a poor field for transfusion. In four cases in which transfusion was performed, not one patient recovered.

In debilitated conditions caused by cancer, transfusion without surgical interference is of no avail. On the other hand, it may relieve the anemia in tuberculosis. In the simple anemias due to malnutrition or other minor causes, transfusion is justified, and satisfactory results can be obtained.

In a series of fifteen cases of hemorrhagic disease of the new-born, Lespinasse[11] transfused by the direct method, and obtained recoveries in thirteen.

In 1911, Cole[12] transfused twenty cases of pellagra, with recoveries in 60 per cent. This is in marked contrast with from 10 to 20 per cent. recoveries obtained by other therapeutic means.

Bernheim[13] performed transfusion in a case of pemphigus and one of psoriasis, both, however, intractable to other measures. There was temporary relief in both, but no permanent relief. He also suggests the possibility of its use in temporarily anemic cases, in cases of chronic infection with consequent debility, or in cases of lowered resistance in which an infusion of good red blood would seem to be the only thing needed.

Lewisohn,[14] in children, using the citrate method described by him, obtained excellent results in four hemorrhagic cases, one case with extensive burns, and in two cases with severe anemia.

In a review of the most recent literature on the subject of transfusions, several facts stand out very impressively. These are the ease and safety of transfusions, the large number of varied conditions that are either cured or much improved by transfusion, and the large field of usefulness that lies open to those who are doing transfusion work.

11. Lespinasse, V. D.: The Treatment of Hemorrhagic Disease of the New-Born by Direct Transfusion of Blood, THE JOURNAL A. M. A., June 13, 1914, p. 1866.
12. Cole, H. P.: Transfusion in Pellagra, THE JOURNAL A. M. A., Feb. 25, 1911, p. 584.
13. Bernheim, B. M.: Therapeutic Possibilities of Transfusion, THE JOURNAL A. M. A., July 26, 1913, p. 268.
14. Lewisohn: Am. Jour. Med. Sc., 1915, cl, 886.

Brewers Forbid Methyl Alcohol in Varnish.—From time to time isolated instances of wood alcohol poisoning have occurred among men employed in varnishing the interior of vats in breweries, which stimulated the New York health department to eradicate the use of wood alcohol for the purpose of varnishing vats in breweries. Accordingly the commissioner of health addressed a letter to all breweries with offices in New York asking their cooperation in prohibiting the use of wood alcohol in their respective plants. At the recent meeting of the Brewers' Board of Trade, resolutions were adopted prohibiting the use of methyl alcohol in their plants for varnishing purposes to which thirty-seven New York and nine New Jersey breweries have pledged themselves. This action is significant as showing the superiority of the newer method of public health administration which makes effective use of persuasion rather than of legal compulsion.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET . . . CHICAGO, ILL.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, JUNE 24, 1916

ANNOUNCEMENT

Owing to the amount of space occupied in this issue of THE JOURNAL by the index and the proceedings of the Annual Session, certain departments are abbreviated and others omitted.

DISEASE DANGERS OF WAR WITH MEXICO

Two years ago THE JOURNAL[1] discussed the sanitary problems which must be met if our troops should have to go into Mexico for any length of time. Today these problems should be considered again. The state militia is mobilizing; large bodies of men are already being concentrated in camps and soon perhaps some will be moving to the Mexican border, if not into Mexico. The guarding of the border is likely to be the duty which will fall particularly to the militia and less trained troops. Actual invasion, if it should come, will no doubt devolve on the regular army.

Typhoid and smallpox vaccination have practically removed the menace to life from these diseases under military conditions. The militia, however, has not been immunized against typhoid even approximately to the extent that the regular army has been vaccinated. The danger from dysentery, which is still a menace to men in army camps, has been materially lessened through improvements in the preservation and protection of foodstuffs and through increased facilities for the transportation of supplies. Amebic dysentery may be prevented by strict supervision of water supply and filth disposal. The use of emetin in the treatment of this condition will aid in rapidly eradicating such cases as may occur. Malaria and yellow fever, conquered through eradication of the mosquito and prevention of mosquito bites, are no longer to be feared. Cholera, preventable by cleanliness, and typhus fever, the scourge of Mexico, also have been studied, and their prevention can be accomplished by the enforcement of adequate sanitary regulations.

The sanitation of camps has developed into a science. In the development of this science American investigators — many of them officers of the medical corps of the United States Army and of the Public Health Service — have led the way, and they may be depended on to carry out these measures to the fullest extent. Typhus fever is particularly a Mexican problem. It has been a factor in the present European war, and the measures instituted abroad show how completely this disease may be controlled. Much has been said in connection with the European war of gas gangrene, tetanus and secondary wound infection. The frequency of these infections has been attributed to the cultivation of the soil in the region in which the war is being conducted. If this be the cause, this condition is certainly not to be feared in Mexico. Much of the warfare in Europe has been trench warfare, and diseases peculiar to this method of warfare have frequently been discussed. The problem in Mexico would appear to be a different one. In any event, it hardly seems likely that the old saying that "disease kills more men than bullets" will hold true.

We can be sure that American medical officers of every branch of the service will do all that is humanly possible to protect our soldiers in the field. As a result of their service, the American soldier will be safeguarded so that the maximum number of efficient fighting units will be continually available to those concerned with the action of troops at the front.

1. Disease Dangers of Mexican Invasion, editorial, THE JOURNAL A. M. A., May 2, 1914, p. 1403.

TRENCH NEPHRITIS

Special vocations have long been associated with the occurrence of forms of disease directly attributable to the occupations involved. With the changes in the modes of life or kinds of work which they require and with the evolutions of new branches of industry and new forms of activity, the incidence and character of occupational diseases likewise may change. New conditions of employment and unusual demands on the physiologic mechanism may create unique dangers, increased bodily strains or unexpected risks. The professional neuroses have long been recognized under a variety of more popular names, such as writer's cramp, violinist's wrist, milker's cramp, tennis elbow, baseball pitcher's glass arm and dancer's cramp. These consist for the most part of tonic contractions, with or without pain, intermingled at times with clonic shocks or tremors. Practically every occupation has its neurosis. Another group of occupational maladies is represented in miner's disease, in painter's colic, and analogous incidents of environmental dangers. Not long ago the development of the new vocation of aviation called forth the report of a special disorder, mal des aviateurs, or aviator's disease, associated with aerial flights. Trench foot is a modern expression.

The practices and necessities in times of war likewise call forth innovations, not only in the character of the wounds received and the surgical aspects of the con-

bat, but also in the domain of internal medicine. Very striking in this respect are the reports, now published in some detail, of what has been termed trench nephritis for want of a more expressive name.[1] Acute nephritis is not sufficiently common in civil practice among men of military age to attract special attention. Among the older men, persons over 30 years of age, who have found their way into the troops engaged in warfare, there are undoubtedly cases of ordinary chronic renal disease in which the lesion was not very marked. It is quite probable that under the stress of the campaign the disease may progress quite rapidly in such cases; or an acute nephritis may in some instances be engrafted on the underlying chronic defect. In other cases, serious chronic renal disease of long standing may be present, but have failed of recognition earlier because of the absence of urgent symptoms prior to the onset of the subsequent uremia. Aside from all of these recognized possibilities, however, there have been discovered among the invalided troops a large number of cases of nephritis of a type and incidence sufficiently unexpected to command serious attention. Two prominent symptoms early attracted notice, the occurrence of edema and the presence of dyspnea, the onset of these manifestations often being quite sudden. Dyspnea is not usually regarded as a common feature of acute nephritis apart from uremia or cardiac failure. Possibly an outpouring of fluid into the lungs and pleural cavity may have been responsible for the shortness of breath. Epileptiform seizures of the uremic type were sometimes observed, but did not present an invariable feature. In defining the peculiarities which justify the designation of the cases as forms of a distinct nephritis, Sir John Rose Bradford has epitomized them as: rapid subsidence of well marked renal dropsy; frequent presence of bronchitis and dyspnea; severity and suddenness of onset of uremic manifestations, such as epileptiform seizures; rarity of occurrence of inflammatory complications, and an extraordinarily low mortality. With this the other observers, notably Capt. Langdon Brown, are in substantial accord. Most of them emphasize the ultimately favorable prognosis in the majority of instances. In the larger number of the cases there has been no evidence either in the physical signs or in the patient's history to suggest the presence of a latent renal lesion. The rapid subsidence of the severer symptoms and the disappearance of complications are not consonant with the existence of an acute nephritis complicating a chronic lesion of the kidney.

Trench nephritis affects men of all ages. A large number of cases occur in quite young men; over 70 per cent. out of 571 cases have been recorded in men under 35 years of age. The malady has by no means been limited to those actually serving in the trenches. Orderlies and others whose duties keep them at the base operations have succumbed. Only about 1 per cent. of the cases have occurred among officers, and these were not limited to any age. The disease has apparently not been limited to the British troops in Flanders. The German and Austrian armies also have been affected in the present war. Sir William Osler has stated that there can be no doubt that this epidemic acute nephritis is a disease not heretofore described except as occurring in our own Civil War. Langdon Brown is responsible for the statement that in the American campaigns over 14,000 cases were recorded. He recalls that in the American Civil War the military conditions resembled those of the present European conflict in some important particulars. There was the sudden dash of the Confederates northward, which was checked and followed by prolonged trench warfare.

The most natural tendency in explanation of the newly described disease is to attribute it to exposure. All of the close observers of the cases are, however, unwilling to accept this hasty conclusion. It is pointed out that the nephritis was absent among the Indian troops, although they suffered in common with the British at the front from other maladies — frostbite, bronchitis, pleurisy, pneumonia—commonly attributed to exposure. Furthermore, the number of cases of acute nephritis was very small until the spring of 1915. The disease did not attain epidemic proportions until after the days of severe exposure had been passed. The number of cases increased as the summer came on.

The facts at present available indicate that so-called trench nephritis or epidemic acute nephritis, a condition not frequently seen in civil life, is not merely accidental, but represents one with similar symptoms distributed over a large area and suggests that there is some common pathogenic factor responsible. The possible origin of the disease as the result of etiologic agents familiar in ordinary practice has been considered by Wallis. He believes that intestinal toxemias and mineral poisons, for example, can be excluded. Dysentery and typhoid fever have been suggested as causes; but there is a lack of agreement between the curves of incidence of the intestinal and renal disturbances. Alcoholism cannot be charged with complicity in this campaign; nor can such extensive outbreaks be attributed to intentional drugging by soldiers to render themselves unfit for service. The claim that the antityphoid inoculation is responsible is not consistent with the rarity of nephritis among inoculated troops training at home.

The simplest explanation of a common cause, not operative in all wars or in all places, and susceptible of variation apart from the clemency or inclemency of seasons and regions, would be a specific infection. This is at present the most popular interpretation

1. Bradford, J. R.: Nephritis in the British Troops in Flanders, Quart. Jour. Med., 1916, ix, 125. Brown, W. L.; Osler, W.; Andrewes, F. W.; Mackenzie; Wallis, R. L., and Abercrombie, R. G.: Discussion on Trench Nephritis, Proc. Roy. Soc. Med., March, 1916. Nephritis Among the British Troops in Flanders, editorial, THE JOURNAL A. M. A., March 11, 1916, p. 819.

among the British observers. This explains the designation "epidemic infectious nephritis," which has been received with favor. It helps to explain the slow and gradual rise of the epidemic, which may easily thus be associated with the multiplication and spread of some causal organism. Quite possibly this acts on the kidneys of patients who are particularly susceptible. Here cold and exposure may play some contributory part. The disease has not yet been experimentally transmitted to animals. As a problem of grave importance and unusual scientific interest, it has reached a stage at which symptomatology and statistics must be supplemented by epidemiologic and etiologic investigations.

DIABETES IN JAPAN

An unusual incidence of certain diseases has frequently been attributed in the past to an increased susceptibility or relative immunity, as the case might be, of certain races to the abnormal condition under consideration. As instances, the alleged relative susceptibility of Melanesians to measles, of negroes to tuberculosis, of Malaysians and other oriental races to beriberi, and of those of European descent to yellow fever may be cited. Some of these supposed correlations have been shown to be due to the inadequacy of statistics or the imperfections and shortcomings of diagnosis obtaining among the less civilized races in the past. In other instances the supposed racial peculiarities of disease have been connected with the peculiar dietary habits of certain peoples or some peculiarly enhanced possibility of infection due to modes of living or geographic conditions. In other words, the apparent interrelation between frequency of disease and races of people has doubtless often been due to enforced external or environmental factors rather than to actually inherited racial characteristics.

Diabetes is one of the diseases for which an unlike susceptibility has been charged to different races. Careful statistics are showing, according to the interpretation of Futcher, that the statement that diabetes is very uncommon in the colored race does not seem to be borne out by the facts. In India, where the disease is reported to be common among the educated and commercial classes, it is said to be the Hindoos chiefly who suffer. Diabetes has long been regarded as an uncommon malady in China and Japan. The disease has even been regarded as somewhat different in character in Japan from the manifestations seen in America and Europe. It is only in recent times, however, that useful statistics obtained in accord with the dictates of modern medical science have become available for some of the communities of the Far East. A recent contribution by Iwai[1] of Tokyo furnishes some highly interesting facts in relation to diabetic disease in Japan. Thus it is said to be uncommon either in hospital or in private practice to encounter diabetic patients presenting the classic symptoms of the disease: polydipsia, polyphagia, polyuria and emaciation. Consequently diabetes is rarely discovered except through the chance examination occasioned by some other simultaneous disorder. The fact that augmentation of the volume of urinary secretion is almost never observed presumably explains why the incipient cases have not been detected in the past in Japan; and it likewise suggests the relatively mild type of the perversion. Ketonuria is stated to be correspondingly uncommon as a symptom in those affected.

As an indication of the relatively benign character of diabetes in Japan, Iwai states that without examination of the urine for sugar it would as a rule not be detected; and a reduction of the carbohydrate intake suffices ordinarily to make the glycosuria disappear. The progressive increase in severity which is so familiar and difficult to combat is likewise not typical of the disease heretofore observed in Japan. This malady is only infrequently a direct cause of death. Out of 5,387 necropsies made in fourteen years at the University of Tokyo, only twelve cases of diabetes were reported; and death in these instances was due to complications, most frequently to pulmonary tuberculosis and chronic nephritis.

How is this infrequency and peculiarly mild type of diabetes among the Japanese to be accounted for? It can scarcely be associated with any natural restriction of carbohydrate in the diet. On the contrary, the Japanese, as a nation, are accustomed to consume a ration unusually liberal in carbohydrate, particularly in the form of rice. As a rule they eat somewhat less of the flesh foods. According to observations of Iwai, the Japanese usually exhibit a high tolerance to carbohydrate, as evidenced by the capacity to assimilate large doses of sugar without provoking an alimentary glycosuria. Pending a better solution of the question raised by these interesting facts, it may be permissible to ascribe the relative immunity of the Japanese from diabetes, especially of the severer types, to racial characteristics which cannot as yet be more scientifically defined.

1. Iwai, T.: Le diabète sucré, "tônyô byô" chez les japonais et son étude comparative avec le diabète observé en Europe et en Amérique, Etude clinique et expérimentale, Arch. de méd. expér. et d'anat. path., 1916,, xxvii, 1.

Social Causes of Insanity.—If certain occupations predispose to particular intoxications, if others facilitate special infections, or expose those concerned to intemperance, to overwork, or to insomnia, this does not alter in the slightest degree the biologic value of the intoxication, of the infection, of the overwork, as the cause of the insanity. Social position, conditions of misery or affluence, the professions, business occupations, tend only to provide a predisposing environment, by reason of which certain individuals are more exposed to one group of causes than to others. This is of the greatest importance from the sociologic point of view, and especially in regard to the question of prophylaxis, but it has nothing to do with the pathogenetic mechanism.—Lugaro, Modern Problems in Psychiatry.

Current Comment

THE PRESIDENT-ELECT

For the first time the presidency of the American Medical Association has been bestowed on the brother of a former president. So well known is the name of Mayo that it may seem unnecessary to present a biography of the President-Elect. The work that the Mayo brothers have done, the institution they have established at Rochester, Minn., are known throughout the country. Dr. Charles Horace Mayo was born in Rochester, Minn., July 19, 1865, the son of the late Dr. William Worrall Mayo and Louise Abigail Wright Mayo. He graduated from the Chicago Medical College in 1888, and at once began practice with his father and his elder brother, Dr. William J. Mayo, who was President of the American Medical Association in 1906. At that time St. Mary's Hospital in Rochester — which was the start of what has become known as the Mayo Clinic — had thirty patients. He was president of the Western Surgical Association in 1904; of the Minnesota State Medical Association in 1905; chairman of the Section on Surgery of the American Medical Association in 1907, and of the Surgical Section of the International Congress on Tuberculosis in 1908. The honorary degree of M.A. was conferred on him at the Northwestern University in 1902, and the degree of LL.D. at the University of Maryland in 1909.



PRESIDENT-ELECT CHARLES HORACE MAYO

A NEW DECISION UNDER THE HARRISON ACT

An important decision[1] interpreting the Harrison Narcotic Law was handed down by Mr. Justice Holmes of the United States Supreme Court last week. A Chinese doctor had issued to an alleged addict a written prescription for 1 dram of morphin sulphate. The addict was not registered with the collector of internal revenue of the district, and had not paid the special tax required of those who register under the act. The government argued that possession by the addict of this amount of opium came under Section 8 of the Harrison act, which declares it unlawful for "any person" (with certain specified exemptions) who is not registered and has not paid the special tax to have in his possession or control any of the drugs to which the act applies, "such possession or control" being held presumptive evidence of a violation of the act. The indictment charged the defendant physician with conspiring with the addict to place the drug in his possession. It was further alleged that the defendant physician did not issue his prescription in good faith for medicinal purposes, but for the purpose of supplying a morphin addict. The indictment was quashed by the district judge on the ground that the act was a revenue act, and that the words "any person" must be confined to the class of persons with whom the act previously had been purporting to deal. The contention of the government, on the other hand, was that the act was one of several passed in order to carry out the International Opium Convention; that, under the guise of a taxing measure, given to afford it "a coating of constitutionality," it really was a police measure that strained all the powers of Congress. The case came before the Supreme Court from the United States District Court for western Pennsylvania. The court in its decision stated that a statute must be construed, if fairly possible, so as to avoid not only the conclusion that it is unconstitutional, but also grave doubts on that score. On the hypothesis that opium is produced in the United States (which is assumed by Congress in the act itself), an attempt by Congress to make possession of opium a crime would raise a grave question of constitutionality. "Only words from which there is no escape could warrant the conclusion" that Congress meant to strain its powers almost to the breaking point to make the possession of opium a

1. The United States Plaintiff in Error vs. Jin Fuey Moy. In Error to the District Court of the United States for the Western District of Pennsylvania.

crime. Hence the Supreme Court, concluding that the measure is to be treated as a revenue measure, and that "any persons" refers to the persons required to be registered, affirms the decision of the lower court. We have gone thus far into the legal aspects of the case because of the importance of its bearings. It appears that, while certain classes of persons (including physicians) are amenable under the law for their dealings in narcotics, those classes of persons who are not named in the act are not accountable under it for the mere possession of such drugs. This decision, which places the more responsible classes of persons under the purview of the law, and exempts the irresponsible, is bound to create, at first, a certain amount of misunderstanding and resentment. Sober reflection, however, will remind us that the occasional occurrence of such anomalies is inevitable under our constitutionally limited federal government. In passing the Harrison act as a revenue measure, Congress has apparently done all that it could do toward placing the traffic in narcotics under control, and the courts, in interpreting the act as a revenue measure, are merely keeping it under the shelter of the constitution. Further police measures, if desired, must be enacted by the several state legislatures. It is worthy of note that the decision of the Supreme Court was not unanimous; Mr. Justice Hughes and Mr. Justice Pitney dissented.

THE DETROIT MEETING

The Detroit session of the American Medical Association was most successful, both in attendance and in scientific work. The attendance — 4,586 — marks the third largest meeting; the largest — 6,466 — being the Chicago meeting in 1908, and the second — 4,722 — the Boston meeting, held in 1906. Although the attendance was large, every one was provided with comfortable quarters because the local profession, influenced no doubt by the prevailing spirit of "preparedness," had made ample arrangements for those who could not be accommodated in the leading hotels. All the sections report unusually good attendance, excellent papers, and instructive and practical discussions. Detroit was generous in supplying automobiles for the transportation of physicians in attendance: most of the automobile manufacturers supplied cars and the local profession as well as the citizens of Detroit gave the use of their cars freely. In spite of the fact that the meeting places were scattered, physicians had no difficulty in going from one meeting to another. The local Committee on Arrangements is to be congratulated on its management: every detail had been considered and nothing was lacking to make things run smoothly. The entertainments were lavish, and the social functions most delightful. In a word, the meeting was a success in every way. The medical profession of Detroit and of Michigan is to be commended not only for its generous hospitality but for the constant courtesy accorded to those who attended the meeting. In these efforts the medical profession was heartily supported by the people of Detroit.

AN EPOCH-MAKING SESSION

The Detroit session promises to be the most epoch-making of any since 1901 for two reasons: First, and more important, was the creation of the office of Chairman of the House of Delegates. This will relieve the President of the Association of the task of presiding over the House of Delegates. The president is usually elected on account of his scientific attainments, and not because of his ability to preside over a deliberative body. This new order of things will be a great relief to the President, and will give him time to attend to and participate in the functions which naturally appeal to the presiding officer of a great scientific body such as the Scientific Assembly has become. On the other hand, the House of Delegates will be presided over by a man selected because of his knowledge of the activities of the Association, of the procedure of the House of Delegates, and on account of his ability as a presiding officer. The House selected as its first Chairman, Dr. Hubert Work of Pueblo, who for many years was a member of the House and who is thoroughly conversant with its procedures. The second epoch-making change is that which provides that the opening meeting of the Scientific Assembly — the General Meeting — shall be held on Tuesday evening, the scientific sections to convene on Wednesday morning instead of on Tuesday afternoon as heretofore. The main object of this change is to give the House of Delegates two days for its deliberations before the opening of the Scientific Assembly. It is unnecessary to dilate on the importance of this change so far as the House of Delegates is concerned; many men have hesitated to serve as members of the House because that work has prevented them from attending the sections. Under the new order of things the great probability is that the House of Delegates will complete its work on Tuesday, except for the election of officers, and business incidental to its closing meeting. The change will also be of decided advantage to the Scientific Assembly. Heretofore the Scientific Assembly commenced Tuesday morning, the first half day being taken up with the opening general meeting. Hereafter the opening exercises will take place on Tuesday evening, and the scientific sections will begin their programs on Wednesday, continuing through Thursday and Friday, meeting both morning and afternoon.

Philadelphia County's Burden for Dependent Children Increased.—An investigation into the causes of juvenile dependency undertaken by the committee representing allied organizations for child welfare in Philadelphia has directed attention to the startling growth in the financial burden of the County of Philadelphia for the maintenance of children of indigent and delinquent parents which has increased from $4,599.02 in 1909, to $290,924.07 in 1915. The result of the investigation showed that the county is being defrauded by parents who got rid of children from sheer avarice and that several institutions are receiving money for the support of children long past the age of dependency; that certain charitable organizations engaged in "farming out" dependent children to families in country districts are receiving money for the support of children who had returned to the care of their parents. Within a week following the establishing of the bureau of children's agents and investigators, the officers of various charitable organizations voluntarily asked the municipal court for the discontinuance of more than 500 orders for the support of children placed in their care.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ILLINOIS

Sanitary Survey.—The sanitary survey of Champaign-Urbana will begin, July 1, under the charge of the state board of health, working in cooperation with Dr. William E. Schowengerdt, Champaign.

Sanatorium Opened.—The formal dedicatory exercises of the Rockford Memorial Sanatorium for Tuberculosis were held, June 10, when Dr. Daniel Lichty, president of the board of trustees of the institution, tendered the property to the city, and Mayor W. W. Bennett accepted the institution on behalf of the city. Dr. George W. Webster, Chicago, formerly president of the state board of health, delivered the principal address.

Successful Four-Day Campaign.—The campaign undertaken in Highland Park to raise funds for the erection of a hospital culminated, June 12, at a mass meeting held at the Deerfield High School at which it was announced that instead of $100,000, the amount required, $167,000 had been subscribed by men and women of the north shore for this hospital, which is to be nonsectarian, and is to be used by residents of Highland Park, Deerfield, Highwood and Ravinia.

Chicago

Jackson Park Sanitarium Opened.—The Jackson Park Sanitarium for sick babies at LaRabida opened for the season, June 12.

Fund for Tuberculous Children Sought.—Thus far $2,500 has been obtained of the $3,000 required to send 250 tuberculous children from the stockyards district to Camp Harlowarden, near Joliet, where they will be cared for from June 26 until September 2. Donations will be received by Mr. George M. Benedict, Drovers National Bank, treasurer of the organization.

Personal.—Dr. John B. Murphy has been made knight commander of the Order of St. Gregory the Great by Pope Benedict XV. The collar and golden octagonal cross of the order were conferred on him by Archbishop Mundelein at the exercises attending the formal opening of the new addition to Mercy Hospital, June 15. Chancellor E. F. Hoban read the papal brief and the Archbishop invested Dr. Murphy with the collar and cross of the order.——Dr. Felix Kalacinski has been appointed a member of the state board of health, vice Dr. Adam Szwajkart, resigned, on his appointment as county physician of Cook County.

Sanatorium Committee to be Permanent.—The committee of one hundred created, March 31, for the benefit of the Municipal Tuberculosis Sanatorium met, June 16, and adopted an aggressively constructed program of action. Mr. E. A. Bancroft presided and Dr. Frank Billings, chairman of the executive committee, reported on the need of a permanent organization to discover and interpret facts and to help embody them in programs of action. Mr. Frank E. Wing, formerly business director of the sanatorium, was appointed executive officer of the committee of one hundred, and instructed to open offices in the loop district.

State University Medical School News.—Work on the first unit of the new University of Illinois Medical School plant is to be started immediately with the erection of an eight-story clinical building to cost $250,000. This building will provide a dispensary, operating rooms, a floor for medical cases, one for surgical cases and one for obstetric cases.—— The opening exercises of the Graduate School of Medical Science of the University of Illinois were held at the College of Medicine, June 20. After introductory remarks by President Edmund Janes James of the University of Illinois, Dr. Frank Billings delivered an address on "The Relation of Graduate Work in the Fundamental Sciences to Clinical Study." Announcement of the lectures for the graduate course quarter, which extends from June 20 to September 12, are to be made by weekly bulletins and all interested in graduate work are invited to attend.

Chicago Pledges Four Base Hospitals.—Mr. A. A. Sprague II, chairman of the Chicago Chapter, Col. Jefferson R. Kean, M. C., U. S. Army, director general of military relief, and John J. O'Connor, director of the Central Division, American Red Cross, held a conference, June 19, which resulted in the pledging by Mr. Sprague, for the chapter, of four base hospitals for Chicago, each containing 500 beds at a total cost of about $160,000. These hospitals, each with its attendant field columns, to be used in transporting patients from field hospitals to evacuation and base hospitals, will immediately be established and fully equipped. Contributions toward the establishment of the hospitals will be received by Mr. Orson Smith, treasurer of the local Red Cross chapter. At a later conference between Colonel Kean and Chicago members of the National Committee on Medical Red Cross service, including Drs. Frank Billings, John B. Murphy, Albert J. Ochsner, Arthur Dean Bevan, and Franklin H. Martin, the personnel of the hospital units and field columns was discussed. Each base hospital will consist of 196 persons, including a director, staff surgeons, nurses, nurses' aids, orderlies and cooks. The four hospital units suggested are: first, the combination of Wesley and Mercy hospitals under the charge of Dr. John B. Murphy; second, St. Luke's and Michael Reese hospitals in charge of Dr. Lewis L. McArthur; third, St. Joseph's, Augustana and St. Mary of Nazareth hospitals, under the control of Dr. Albert J. Ochsner, and fourth, Presbyterian Hospital in charge of Dr. Frank Billings.

INDIANA

Sanitary Inspection of Summer Resorts.—The state board of health has made sanitary inspection of all the summer resorts of Indiana, and has requested that employees of hotels and all who have to handle food be compelled to undergo an examination to determine if they are suffering from any infectious disease.

Fresh Air School Closes.—The Fresh Air School, Indianapolis, which has been in operation for two years, has closed its annual session with an attendance of fifty pupils, with an average gain of 8.18 pounds per pupil. The school is conducted under the supervision of the Marion County Society for the Prevention of Tuberculosis.

Personal.—Dr. James H. Taylor has been elected president of the Indianapolis Board of Trade.——Dr. Melville F. Johnston has been unanimously reelected a member of the Richmond school board.——Dr. Samuel E. Smith, superintendent of the Southeastern Hospital for the Insane, Richmond, has been elected alumni trustee of the University of Indiana.

MARYLAND

Personal.—Dr. Edward L. Whitney of the staff of the University of Maryland and formerly associated with the Baltimore Medical College before its absorption into the University of Maryland, has entered into private practice in Portland, Ore.——Dr. Thomas A. Ashby, who has been ill at his home in Baltimore for several weeks, is reported to be improving.

Staff Society Formed.—At a recent meeting of the Mercy Hospital staff, Baltimore, a society was formed to conduct scientific meetings and to meet monthly. The papers read and the cases presented are to be given by members of the house staff, while the visiting staff will open the discussions. All former residents of the hospital have been elected alumni members, and the visiting staff were elected honorary members of the society. The following officers were elected: chairman, Dr. Erwin E. Mayer; vice chairman, Dr. Richard O'B. Shea, and secretary, Dr. Thomas K. Galvin.

Hygiene School for Johns Hopkins University.—The Rockefeller Foundation will establish its School of Hygiene and Public Health in connection with the Johns Hopkins University, and Dr. William H. Welch will be the director of the school, with Dr. William H. Howell as head of the physiologic division. It is expected that the school will be opened in October, 1917, as it is estimated that a year will be required for the planning, construction, and equipment of the building and the gathering together of the staff of teachers. The necessary funds for construction, equipment, maintenance and expenses of the school will be provided by the Rockefeller Foundation. The school, while working in cooperation with the medical school, as well as with the school of engineering, will have an independent existence. Opportunities in each will be available to students in the other schools. The central and principal feature of the school will be an institute of hygiene housed in its own building, provided with the requisite laboratories and facilities and with its own staff of teachers giving their entire time to the work of teaching and investigating. There will be laboratories

of sanitary chemistry, of physiology as applied to hygiene, of bacteriology, and protozoology, and provision for epidemiology, industrial hygiene, vital statistics, a museum, library, etc. Additional facilities for instruction and research will be supplied by the medical and the engineering schools, the hospital, especially the newly opened wards for infectious diseases, and other departments of the university, which will be aided in undertaking the new work. It is anticipated that mutually helpful relations will be established with the municipal and state departments of health, and with the federal public health service, whereby opportunity will be afforded for field service and other practical experience in various branches of public health work. Especially advantageous will be the relations with the International Health Commission of the Rockefeller Foundation, which is engaged in the study of hook-worm, malaria, yellow fever and other tropical diseases, which will receive due attention in the work of the institute.

MASSACHUSETTS

Essex North District Society Doings.—At the annual meeting of the Essex North District Medical Society, May 5, it was voted that "the society instruct its councilors to urge the council of the Massachusetts Medical Society to use every legitimate means and procure an amendment to the Workmen's Compensation Act which will give the insured freedom of choice of medical attendance." Some of the insurance companies who carry all employer's risks are insisting that certain contract physicians only be allowed to treat the patients and are refusing to pay the family physicians. A recent decision of the supreme court of the state so interprets the present law.——The summer outing of the society was held on the grounds of the Merrimack Valley Country Club, Methuen, June 14, where a program of sports was provided, and dinner was served.

NEW MEXICO

Higher Preliminary Requirements.—An official communication just received from the New Mexico Board of Health and Medical Examiners states that beginning with January, 1918, the standard of preliminary education for all students matriculating in medical colleges recognized by that board will be two years of college work. The requirement will apply to all those who graduate after Jan. 1, 1922.

NEW YORK

Alumni Election.—At the annual meeting of the Alumni Association of the Medical Department of the University of Buffalo, held in Buffalo, May 31, the following officers were elected: president, Dr. Walter D. Greene, '76, Buffalo; vice president, Dr. William H. Bergtold, '87, Denver; secretary, Dr. Julius Richter, '04, Buffalo; treasurer, Dr. Frank E. Brundage, '09, Buffalo. At the annual dinner, held June 1, at the Hotel Stattler, Dr. John Parmenter, Geneva, presided.

Health Officers' Conference.—At the opening of the sixteenth annual conference of Health Officers of the State in Saratoga, June 6, Dr. Hermann M. Biggs, state commissioner of health, in his opening address, asserted that during the last two years notable advances have been made in combating all communicable diseases, and the death rate of infants has been reduced from 121 to 99 per thousand. The rate should, however, be brought down to 65 or 70 per thousand. June 7, the subject for the day was "Communicable Diseases," and on June 8, "School Hygiene."

New York City

Infantile Paralysis.—June 17, announcement was made of the discovery of a group of cases of infantile paralysis in Brooklyn. Up to that date, twenty-four cases had been reported, fourteen in the district lying between Henry Street and Seventh Avenue and Baltic and First streets. The cases are mild in character, and so far have appeared principally in infants and very young children. The department calls attention to the fact that diagnosis of suspected cases of infantile paralysis is aided greatly by an examination of cerebrospinal fluid; that such examinations are made free of charge in the laboratory of the department, and that physicians trained in the diagnosis of the disease will consult with any attending physicians on request.

NORTH CAROLINA

Commemorate Health Work in Bladen County.—At Elizabethtown, June 24, the first county health commencement ever held in the state was celebrated. The occasion is the culmination of a three months' health campaign which has been conducted by Dr. Thomas M. Jordan, Raleigh, against pellagra and preventable diseases. In addition to the commencement exercises there was a picnic and sports.

Medical Inspection of Schoolchildren.—In the May issue of *Our Communal Health*, the organ of the Consolidated Board of Health of Wilmington and New Hanover County, the medical inspection of schoolchildren during the past year is reviewed. Of the 637 children examined by Dr. John Thames, Wilmington, assistant health officer, there were found thirty-three cases of defective vision, four of which were corrected; seven cases of defective hearing, of which two were corrected; 160 cases of enlarged tonsils and adenoids with seventeen corrections; 281 cases of defective teeth with fifteen corrections; 134 cases of neglected and diseased scalps, of which eighty-five were corrected; twenty cases of pediculosis, all of which were corrected, and 114 cases of defective nutrition, of which eighty-six were corrected. A card index was prepared covering the personal and physical condition of each child, together with such disease history as could be obtained.

OHIO

Personal.—Dr. Frank G. Boudreau, Columbus, has been elected executive secretary of the state board of health, succeeding Dr. Eugene F. McCampbell.

Mental Hygiene Society Organized.—Forty-four physicians and sociologists of Ohio met in Cleveland, May 17, and organized the Ohio Society for Mental Hygiene. Mr. Clifford W. Beers, New York, secretary of the National Committee for Mental Hygiene, outlined the scope of the movement. Dr. Arthur F. Shepherd, Columbus, was elected chairman and empowered to name a committee on permanent organization to meet at call of the chairman.

PENNSYLVANIA

Dog Quarantine.—The state health department, June 16, established a general quarantine against rabies in Delaware, Chester and Camden counties. The Delaware County quarantine includes Chester and all boroughs. Notice of the quarantine is being posted in all districts where rabies has been discovered. The Media Council requested establishment of a quarantine because of six cases of rabies and as many dogs had been bitten.

Personal.—Dr. James E. Silliman, Erie, was elected medical director of the Pennsylvania Department of the Grand Army of the Republic at its fiftieth annual encampment held in Harrisburg, June 8.——Dr. Jonathan C. Biddle, superintendent of the State Hospital, Fountain Springs, was the guest of honor at a meeting held at the State Hospital, June 8, on the occasion of Dr. Biddle's sixty-second birthday anniversary.——Dr. Daniel A. Webb, Scranton, who sailed for Europe early in May, arrived safely in London and expects to be transferred to duty with the Harvard unit in France.

Philadelphia

Hospital Memorial Unveiled.—A stone brought from the battlefield of Gettysburg bearing a bronze tablet commemorating the service of the patriotic men and women who administered to more than 20,000 wounded soldiers during the Civil War at the Satterlee General Hospital, was unveiled, June 10, with impressive ceremonies. The memorial was erected by subscriptions conducted by the Forty-Ninth Street Station Association, the Cedar Avenue and Chester Avenue Improvement Associations.

Military Training Camp for High School Students.—Dr. Joseph Leidy, '87 M., has offered to place at the disposal of the board of education a tract of 40 acres of land at Penllyn for a military training camp for high school students during the summer months. In his letter, Dr. Leidy says in part: "The lay of the land adjacent to the upper Wissahickon, with ample supply of pure drinking water, makes it an admirable location for such use. The surrounding country is rich in Colonial history. If the students of our public schools are to profit from the advantages of a summer camp this year, the work should be undertaken immediately, and not postponed until the season is too far advanced."

Second Ward Has Own Health Bureau.—An experimental laboratory has been opened at the corner of Twelfth and Carpenter Streets, where the citizens of the Second Ward are being taught the reasons for cleanliness, the need of milk inspection, etc. Medical inspectors, district doctors,

visiting nurses in the employ of the city, members of the board of inspectors, and officers of the Bureau of Housing and Sanitation are all doing their work in the Second Ward, with the health center as their headquarters. The entire ward is included in the experiment. Housing conditions will be made the subject of study by the housing experts. The cleanliness of the streets, and the condition of the sewage will be studied.

Personal.—Dr. Herman A. Brav delivered an address recently before the first graduating class of the Nurses' Training School of the Lebanon Hospital, Philadelphia.——Dr. Levi J. Hammond of the Methodist Episcopal Hospital delivered an address before the Lancaster City and County Medical Society, June 7, on "Diseases of the Pancreas."——Dr. J. Stuart Rodman has been made permanent secretary to the National Board of Medical Examiners, which will hold its first examination in Washington, D. C., October 16.——Dr. Max Minor Peet, instructor in the Surgical Research Department of the University of Pennsylvania, will resign his post, July 1, to accept an appointment as instructor in surgery in the University of Michigan, Ann Arbor.——Dr. Earl C. Peck of the Germantown Hospital has been appointed chief assistant resident physician at the Hospital for Contagious Diseases.

Tribute to Dr. White.—Trustees of the University of Pennsylvania, June 12, paid a noteworthy tribute to the late Dr. J. William White, surgeon and author, who was a member of the board of trustees from 1911 until his death, when they adopted a memorial prepared by former attorney Dr. John C. Bell, in which is reviewed Dr. White's eminent service in behalf of the university, beginning with his career as student almost fifty years ago, and continuing through his life and in his will, which provides several endowments to the university activities. A high mark of respect also is paid to his career in many fields as a benefactor, surgeon, author, and public citizen.

TEXAS

Personal.—Dr. Edward H. Cary, Dallas, president of the State Medical Association of Texas, had conferred on him the honorary degree of LL.D. by Baylor University, Waco, June 7.——Dr. Walter H. Moursund, Dallas, pathologist of Baylor Medical College, has been appointed staff pathologist and placed in charge of the laboratory.——Dr. John M. Neel, Dallas, has been appointed county health officer, succeeding Dr. Taylor C. Gilbert, who has been called to San Antonio for service with the National Guard of the state.

Railway Surgeons Organize.—The Texas Railway Surgeons Association was organized at a meeting at San Antonio, June 1. The principal address of the session was delivered by Dr. William B. Collins, Austin, state health officer, on "Public Health and Railway Sanitation; Proper Handling of Typhus Fever." The following officers were elected: president, Dr. Robert W. Knox, Houston, chief surgeon of the Sunset-Central Lines in Texas; vice president, Dr. Joseph H. Reuss, Cuero, chief surgeon of the San Antonio and Aransas Pass Railroad, and secretary-treasurer, Dr. Douglas Largen, San Antonio, local surgeon of the San Antonio and Aransas Pass Railroad.

WISCONSIN

Typhoid Damage Suits Dropped.—Five suits against the city of Milwaukee, in which $50,000 damages were claimed for five deaths alleged to have been due to drinking water during the recent typhoid epidemic, were dismissed by Circuit Judge Gregory, June 1, on agreement of E. L. McIntyre, first assistant city attorney, and John A. Jastroch, council for the plaintiffs.

Personal.—Drs. Bernard H. Oberembt and John E. Rueth, Milwaukee, sailed for Germany, June 17, under the auspices of the American Surgeons Expeditionary Committee.——Dr. H. Christian U. Midelfart, Eau Claire, has been unanimously elected chairman of the council in charge of the Luther Hospital campaign.——Dr. Reuben J. Elliott, Milwaukee, past surgeon general of the United Spanish War veterans, and first assistant surgeon at the National Military Home, Milwaukee, was the principal speaker at the banquet of the organization in honor of Commander-in-Chief L. C. Dyer, June 1.——Dr. Thomas C. Clarke, Oconto, has assumed charge of the Oconto County Hospital.

Laboratory for Rhinelander.—The state board of health has established a laboratory at Rhinelander and has placed Mr. A. A. Sliwinski, formerly of the staff of the State Laboratory, Madison, in charge of the institution. This laboratory is ready to examine sputum for bacilli; to examine swabs for diphtheria or other significant organisms; to examine pus from gonorrhea or other pyogenic infections; to examine the central nervous system of animals suspected of rabies; to examine spinal fluid for the meningococcus or other organisms; to examine specimens and suspected cases of anthrax, glanders or actinomycosis; to examine feces and urine for suspected cases of typhoid carriers and in suspected cases of bacillary dysentery; to examine blood in suspected cases of typhoid, and to make bacteriologic and chemical examinations of water to ascertain its potability. All these examinations will be made free of charge, all that is required being that the specimens be sent prepaid, that accurate and adequate data accompany each specimen and that they be properly packed and marked.

CANADA

Hospital News.—The Ontario Military Hospital, Orpington, England, has now over three hundred patients, and the entire hospital of 1,040 beds will soon be filled.——Mr. Harold Kennedy, lumber merchant, Quebec City, who has already placed the Bromley Hotel, London, England, at the disposal of the Canadian Medical Service as a convalescent hospital, has now acquired an estate near Maidstone, England, for similar purposes. The estate comprises 5,000 acres.——Lieut. Col. Henry D. Johnson, Charlottetown, P. E. I., has been detailed for duty with the Canadian medical forces in France. Maj. Frederick Guest, St. Thomas, Ont., succeeds him as commandant of the convalescent hospital at Buxton, which is full with over 300 Canadian soldiers suffering from rheumatism and allied complaints.——The accommodation of the Canadian section of the hospital at Epsom, England, has been increased by 1,000, making the total now 2,500 beds. Epsom will soon be devoted entirely to Canadian soldiers which will give 3,800 beds.——Maj. Irving of Toronto, who is commandant of the Dalhousie University Hospital, Halifax, N. S., has embarked for France.——The Victoria Hospital, Fredericton, N. B., is to be enlarged by a new wing. This is rendered possible by a gift of the late Mr. Donald Frazer of that town. It will likely be completed during the present year.——The Orillia General Hospital (Ont.) is to be enlarged. The necessary funds for the enlargement of the Essex (Ont.) Tuberculosis Hospital having been provided by Mr. Gordon McGregor of the Canadian Motor Company, an addition is to be added in the near future. It is situated at Union-on-the Lake, Ont.——The town of Ingersoll, Ont., having failed in its application to the courts for the setting aside the terms of the will of the late Dr. Daniel W. Carroll of that town, his residence will be converted into a Protestant Hospital for Sick Children, and will be maintained partially out of the fund of $12,000 bequeathed by Dr. Carroll for the purpose.——The Jeffrey Hale Hospital, Quebec City, is to open a tuberculosis ward.——The legislature of British Columbia has granted $20,000 to the Vancouver General Hospital. Most of this amount will go for the new surgical wing. McGill University began a summer session in medicine on the first of May. By attendance at this session medical students may complete their course and so be available for overseas service in the Canadian Army Medical Corps. Several fifth year students recently returned from the front for this session.——The Medical Department of the University of Toronto is holding a summer session from May 1 to November 30, and about sixty men are in attendance. They will enlist for overseas service on graduation.——Queen's University, Kingston, Ont., is holding a summer session for second, third, fourth and fifth year medical students.——The Faculty of Medicine, Dalhousie University, Halifax, N. S., has inaugurated a course of lectures on medical ethics. Prof. D. Fraser Harris lectured on the relations of the practitioner to the patient; Prof. William H. Hattie lectured on the relation of the practitioner to his brother practitioners, and Dr. John G. McDougall spoke on the relations of the practitioner to the public.——The medical students of Manitoba University who were to have been graduated in 1917 are being given a summer session, and on receiving their degrees in the autumn, some will embark for overseas service.

GENERAL

States Have Adopted Army Standard.—The secretary of war, in a telegram received at the Central Department, June 18, advises that all states in the department have adopted,

for the militia, the standard physical examination prescribed for the regular establishment.

No Training Camps this Year.—On account of the precarious condition of affairs on our southern border, the sanitary training camps planned at Fort Benjamin Harrison, Indianapolis, from July 5 to September 5, have been abandoned and the post will be used as a mobilization camp for the Organized Militia of Indiana. Field Hospital No. 1, U. S. Army, under command of Maj. William W. Reno, M. C., U. S. Army, and Ambulance Company No. 1, under command of Capt. Condon C. McCormack, M. C., U. S. Army, which had been ordered to Fort Benjamin Harrison for duty during these camps, have been diverted and are waiting orders for the Southern frontier.

Southern Railway Surgeons Meet.—At the annual meeting of the Association of Surgeons of the Southern Railway, held in Chattanooga, June 7, the following officers were elected: president, Dr. Cooper Holtzclaw, Chattanooga; vice presidents, Drs. William H. Armstrong, Rogersville, Tenn.; Thomas F. Robinson, Bessemer, Ala.; Julius H. Taylor, Columbia, S. C., and Henry McHatton, Macon, Ga.; secretary-treasurer, Dr. Jacob U. Ray, Jr., Woodstock, Ala. (reelected for the twelfth term), and member of the executive committee, Dr. F. R. Gobbel, English, Ind. The prizes offered by the official journal for the best papers during the convention were awarded to Drs. Edwin T. Newell, Jr., Chattanooga, Tenn.; Julius H. Taylor, Columbia, S. C., and Martin D. Delaney, Alexandria, Va. Jacksonville, Fla., was selected as the next place of meeting.

Examination for Naval Medical Corps.—The next examination for appointment in the Medical Corps of the Navy will be held about August 7 at Washington, D. C., Boston, New York, Philadelphia, Norfolk, Va., Charleston, S. C., Great Lakes, Ill., Mare Island, Calif., and Puget Sound, Wash. Applicants must be citizens of the United States, and must submit satisfactory evidence of preliminary and medical education. The first stage of the examination is for appointment as assistant surgeon in the Medical Reserve Corps and embraces anatomy, physiology, materia medica and therapeutics, general medicine, general surgery and obstetrics. The successful candidates then attend a course of instruction at the Naval Medical School, which will begin about October 1. During this time candidates will receive a salary of $2,000 a year with allowances for quarters, heat and light, and at the end of the course, if successful, will be commissioned as assistant surgeons in the navy to fill vacancies. Full information regarding the physical and professional examinations, with instructions as to the proper method of submitting formal application, may be obtained by addressing the Surgeon-General of the Navy, Navy Department, Washington, D. C.

Personal.—Dr. Edwin D. Kilbourne, who resigned his commission in the Medical Corps of the United States Army, and moved to Honolulu, has been appointed superintendent of a large hospital in that city.——Dr. Frederick W. Shaw, Shiprock, N. M., has resigned from the United States Indian Medical Service to accept a position on the medical staff of the Missouri State Sanatorium, Mt. Vernon.——Dr. Charles H. Yeagle, Chin Lee, Ariz., has resigned from the United States Indian Medical Service to enter private practice.——Dr. Calvin J. K. Moore, U. S. I. M. S., has resigned as physician to the Good Samaritan Hospital, Indian Wells, Ariz., to accept a position with a mining company in New Mexico.——Dr. Walter S. Stevens has been transferred from Keshena, Wis., to Mt. Pleasant, Mich.——Dr. Walter K. Callahan has resigned from the United States Indian Medical Service at Owyhee, Nev., and returned to Oklahoma.——Dr. Fred L. McDaniel, formerly stationed at Crown Point, N. M., is now a member of the staff of the Ossawatomie, Kan., State Hospital.——Dr. Frederick Loe, U. S. I. M. S., Gila Crossing, Ariz., has been transferred to Cibecue on the White Mountain Reservation, Ariz., where he will also take up work formerly done by the agency farmer at that place.——Dr. Albert R. Warner, U. S. I. M. S., Stewart, Nev., has resigned to accept institutional work in Colorado.

Bequests and Donations.—The following bequests and donations have recently been announced:

University of Pennsylvania, to establish a professorship in surgical research, $150,000; Hospital of the University of Pennsylvania, to provide prizes for nurses and doctors, and Christmas presents for children, $10,000, by the will of Dr. J. William White.

St. Joseph's, St. Mary's, St. Agnes' and Episcopal hospitals, Philadelphia, each $200, by the will of Walter E. Mooney.

St. Agnes' Hospital, Philadelphia, $3,000; Orthopedic Hospital, Philadelphia, the clocks, furniture, books, pictures and remainder of the estate amounting to nearly $33,000, the latter to be used in the construction of private rooms "to be used exclusively by gentlefolks who have insufficient means and are not proper patients for wards," by the will of Josephine R. Monges.

New York Medical College and Hospital for Women, contributions of $62,000 toward the $200,000 fund expected to be raised during the year, including $5,000 to endow a bed, from Mrs. C. A. Wentworth, and $5,000 to endow a bed, by W. S. Gray.

St. Elizabeth's Hospital, Brighton, Boston, $1,000, by the will of Mary Murphy, Newton, Mass.

Bowdoin College, Brunswick, Me., a donation of $27,000 to build an infirmary in memory of his son, Dudley S. Coe, by Dr. Thomas Upham Coe, Bangor, Me.

Free Hospital for Women in Brooklyn, for the purchase of land if necessary, and for the erection and equipment of a suitable building to be used as a cancer hospital, interest in property at 511 Washington Street and 16-24 West Street, Boston, on the death of the daughter and sister of testatrix; Waltham (Mass.) Baby Hospital, $5,000, in memory of the daughter of testatrix, Alice M. C. Mathews; Convalescent Home of the Boston Children's Hospital, Wellesly, Mass., property at 9 Exeter Street; Children's Hospital, Boston, property at 1666 Washington Street; Boston Floating Hospital, property at 94 Beacon Street; Baldwinsville Cottage for Children, property at 71-73 Harvard Street, and 48-50 Burleigh Street, Cambridge; Vincent Memorial Hospital, property at 744-756 Washington Street, by the will of Mrs. Anna Bolton Mathews.

College of Physicians and Surgeons of Columbia University, New York, $100,000, as an endowment fund for cancer research, by the will of Emil C. Bondy.

St. John's Guild, New York, $3,000, by the will of Miss Lillian Payne.

New York Association for the Blind, the residuary estate amounting to about $100,000, by Mrs. Ellen Corbett Stevenson.

Methodist-Episcopal Hospital, Brooklyn, a trust fund of $100,000, on the death of the beneficiary.

New York Foundling Hospital, $10,000, by the will of Mrs. Lizzie H. Holme.

For Vivisection Inquiry.—Reference has heretofore been made (Feb. 19, 1916, page 585) to a bill introduced into Congress providing for an investigation by the secretary of agriculture into experimentation on living animals. Mr. J. M. Whitty, secretary of the Vivisection Investigation League of New York, has recently visited Washington, D. C., for the purpose of furthering the enactment of such legislation. On June 17 he addressed an audience of twenty persons assembled under the auspices of the Anti-Cruelty League, an organization recently formed for the purposes indicated by its name, making the usual criticisms of vivisection. The stock references to experimentation, so called, on human beings occurred during the course of the lecture, including references to Noguchi's inoculation of children with luetin; the intra-ocular use of tuberculin in an institution in Philadelphia, with alleged resulting impairment of vision in some cases and in others loss of sight; the subsequent use of tuberculin in a New York asylum; the use of a serum for immunization and cure of tuberculosis on children and the subsequent failure of the United States authorities to approve the preparation; the deaths of certain children in St. Louis, after the injection of antimeningitis serum; and the alleged serious illness of certain persons in Brooklyn after the injection of antityphoid vaccine prepared by the New York City Board of Health. The improvement that has followed the use of antityphoid vaccine in the United States Army and in other armies and under other conditions he attributed to sanitation, as he did also the improvement following the use of smallpox vaccine. The gentleman had never heard of the federal law regulating the production and sale of serums and vaccines. He made the remarkable statement that in New York City there are said to be 3,000 vaccines, antitoxins and serums on the market.

A public hearing was set by the senate committee on agriculture for June 19, at which it is understood Mr. Whitty was to appear.

WAR NOTES

Medical Unit for War Service.—Superintendent Dowling of the Boston City Hospital has organized a medical unit, for war service, composed of physicians and nurses, and reports that the organization is practically ready to take the field.

Appeal for Surgical Instruments.—Mrs. Russell A. Alger, Jr., 2039 Penobscot Building, Detroit, who has recently returned from a trip to France, in which she visited many hospitals, especially throughout Brittany, where thousands of wounded soldiers are being treated, makes an urgent personal appeal for the donation of all kinds of surgical instruments, which are greatly needed in these hospitals. She requests that such instruments may be sent to her at the address given above, whence they will be forwarded without expense to France, there to be distributed to the hospitals most urgently in need of them.

PROCEEDINGS OF THE DETROIT SESSION

MINUTES OF THE SIXTY-SEVENTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, HELD AT DETROIT, MICH., JUNE 12-16, 1916

(*Continued from page 1999*)

HOUSE OF DELEGATES

Second Meeting—Tuesday Afternoon, June 13

The House of Delegates met at 2 p. m., and was called to order by the President, Rupert Blue, Washington, D. C., who said:

Before proceeding with the deliberations of this meeting, I desire to thank the members of the House of Delegates for the honor which they have conferred on the Public Health Service by electing its Surgeon-General to the high office of President of this Association. While I cannot feel that this action is taken because of any worth of mine, I am none the less personally deeply grateful.

The secretary called the roll and announced a quorum present.

The minutes of the previous meeting were read and approved.

Supplementary Report from Committee on Credentials

Dr. D. Chester Brown, Connecticut, chairman, presented a supplementary report of the Committee on Credentials.

Report of the Committee on Scientific Exhibit

Dr. Frank B. Wynn, Indiana, chairman, presented the report of the Committee on Scientific Exhibit, which was referred to the Board of Trustees.

The report is as follows:

From the standpoints of variety, quantity and scientific excellence, the Scientific Exhibit is equal or perhaps superior to any previously given. Particularization as to the forty-odd exhibits is impossible at this time. To the local Committee on Scientific Exhibit, and to the hundred or more persons who, without money and without price, have labored so painstakingly and patiently in its preparation and presentation, the Association owes a profound debt of gratitude. Their reward must be in the consciousness of sacrifice and service to our great profession.

It is interesting to observe that in the early history of this department of the Association, exhibits were almost universally of the museum type, illustrating anatomy and gross pathology. Gradually these have given place to photographs, Roentgen-ray pictures and photomicrographs; to carefully worked out clinical and laboratory data. The microscopic and jar specimens today are more likely to be those showing the results of experimental study. This does not mean that museum specimens should be abandoned as a feature of this work. Carefully prepared and well demonstrated, they will always carry a message of value to many persons in the Association. They may not appeal to the laboratory experimentalist, but to the rank and file of membership they are good food, and the multitude of our profession must be fed on plain, wholesome scientific diet which all can digest.

On the other hand, it is difficult to understand the position of the so-called practical physician who fails to see, in a research problem, practical bearing. It is the keen edge of science which lays open the slough of ignorance and lets in the healing light of truth.

Another common delusion is that research investigations belong only to workers in hospitals and laboratories. The correction of this error is one of the problems toward which the committee has directed most earnest effort. In the highest sense of the words, every true and skilful physician is a research worker, every case a research problem. The more carefully he uses his five senses, records, analyzes and weighs clinical data, brings to his aid the far-reaching knowledge of laboratory methods, the nearer to truth will he attain and the better doctor he becomes. With these thoughts in mind, your committee has labored not in vain. Over a third of the exhibits presented at this session are by practitioners as distinguished from laboratory workers. More and more those appearing before sections are presenting exhibits illustrative of their papers. Thus does the scientific leaven grow.

Cooperation is a slogan of the day which applies alike to big business and to medical organization. It has occurred to your committee to inquire if the Scientific Exhibit might not be made the instrumentality for closer cooperation between the American Medical Association and the subsidiary societies. The national Association cannot do everything relating to the profession of medicine, any more than the national government can act in all things for all the people. As state and county organizations attack and master problems with local or general bearing, they will pave the way for unity and power in the profession through the national body. Accordingly, the committee has asked for exhibits from medical societies which would give evidence of initiative and activity along effective lines.

For many years medical societies everywhere have promoted the propaganda for disease prevention, so that this movement has now acquired the momentum of popular approval, and seldom needs medical society support. Closely related to the public health, but with social, moral and professional aspects, is the subject of criminal abortion. This should be made the subject of medical society agitation and investigation. The consensus of medical opinion is that there is an extreme laxness of public conscience toward criminal abortion. What general practitioner has not been approached on this subject, not merely by the unfortunate girl but many times more frequently by married people? The newly married excuse themselves on the ground of youth, multitudinous social obligations, apartment residence where children are not wanted, etc. A few years ago a distinguished member of this Association, impressed by the prevalence of this criminal practice, presented before a gentlemen's literary club in a large city an essay entitled "The Rights of the Unborn." The subject was treated in a scholarly and tactful manner, and deep was the chagrin of the essayist to have it received in a spirit of levity by those from whom a different attitude would have been expected. This much for the culpability of the laity. On the other hand, it is pertinent to inquire, if we are mindful of public duty, as individuals and as medical organizations, in proclaiming the wisdom and righteousness of the family and pronouncing always our condemnation of those evil tendencies which lead to a decadent nation. An exhibit is offered at this session dealing with this subject.

So often have we as individuals and through medical organizations aided movements for disease prevention, that it is well to ask, Is it not time we gave some attention to our own personal welfare? The motives which actuate commercial, industrial and labor organizations are self-interest. May it not be true that among the medical profession, conditions prevail which work hardships and injustice to our professional brethren and ought to be righted? Is not this an eminently proper subject for medical society investigation and action? An interesting and suggestive exhibit is presented by the Indiana State Medical Association, giving data collected dealing with this subject under the caption: "The Doctor's Welfare." It is interesting to observe that this same organization seventeen years ago inaugurated the first scientific exhibit in this Association.

There are two concrete illustrations showing how medical societies may reach out in unthought-of ways for the betterment of the profession and for the public weal. There are many statistical and cooperative investigations in which medical associations may engage; scientific, as opportunity suggests; economic as related to the doctor's physical welfare and comfort; social and recreational as bearing on his health, happiness and efficiency; sociologic as showing how the physician with sympathy touches the "underworld" and unfortunate; how in the highest and best sense he becomes "his brother's keeper." To bring about medical society activity and cooperation along these lines through the agency of the Scientific Exhibit is a question to which the committee has given most earnest thought and attention, with gratifying prospects of realization.

RECOMMENDATIONS

It is advised that the usual appropriation of $1,000 be made to cover the expenses of the Scientific Exhibit. It is urged that the President of the Association be empowered to appoint at once a committee on awards consisting of three members, to the end that ample time may be given to the difficult and responsible task on hand.

The committee deems it advisable to suggest the following changes in the method of organization and administration of the Scientific Exhibit:

1. *Committee on Awards.*—This committee should consist of three members, elected by The House of Delegates, on nomination by the Board of Trustees, each to serve a term of three years, the period of service of each to end on successive years.

Comment: This will insure greater thoroughness and continuity of effort, offering to exhibitors the satisfaction and stimulation which will be conducive to future endeavor.

2. *Manner of Selecting the Director and Committee on Scientific Exhibit.*—The director of the Scientific Exhibit to be elected by the House of Delegates on nomination by the Board of Trustees; he to select his colleagues on the Committee on Scientific Exhibit, subject to approval of the Board of Trustees.

Comment: This will safeguard the interests of the Scientific Exhibit and prevent the possibility at any time of a lapse through personal favoritism in the selection of the director or his colleagues.

3. *Publication of Names.*—The Committee on Scientific Exhibit should be published with the officers and other committees standing in THE JOURNAL regularly.

Comment: This will greatly aid the work of the exhibit. Its value is certainly as great as that of any section. Give it the dignity of the position it has won.

4. *Stipulated Honorarium for the Director.*—The committee is of the opinion that $1,000 or $1,500 would not be an exhorbitant sum for this purpose; in fact, it would comport with the type of man we believe should be selected to carry on this difficult and arduous task. Seventeen years of continuous service in the supervision of this work warrants the chairman in making this recommendation. For several years he has craved release from the burden of it all. From time to time the longing has come to participate with you in other features of Association work, and then the appreciative and encouraging words of the many friends of the exhibit would persuade him to "stay yet a little while." Length of service must now be the excuse for yielding to impulse in seeking to place the burden on others. Accordingly, I may speak frankly concerning matters which will affect my successor.

The director who undertakes this responsibility faces no easy task. Its success will involve not only constant thought and attention, but much real physical as well as mental strain. He must be resigned to labor arduously several days before, and throughout the annual sessions, denying himself the privileges of section or other phases of the Association's activities. He should attend meetings of medical men, and visit institutions and laboratory workers in the interest of the exhibit.

He cannot manage the Scientific Exhibit by commercial standards. In dealing with the clientele of patrons who make the exhibit possible, patience, tact and wisdom are necessary; sometimes real generalship is required to make it go. He should furthermore be a man to command respect and support from scientific workers throughout the country—with head and heart and unflagging industry for scientific ideals. Such labor and such sacrifices as he will be called on to make to insure the success and perpetuity of the Scientific Exhibit, the Association should not expect of him gratuitously. Grant an honorarium becoming the dignity of the man and the service.

Associated with the birth and growth of this child of the Association I would be recreant to duty and to the loyal support accorded all these years by the House of Delegates, the Board of Trustees and hundreds of scientific workers all over the country, were I to put this work aside lightly and without serious thought for its future growth and permanence. The Scientific Exhibit will live because of what it is and what the Association stands for. In sadness, but in confidence, I pass the reins to another—conscious that the idealism and virility of this great organization will ever insure the forward march toward scientific progress and service to our fellows.

Supplementary Report of the Board of Trustees

Dr. Philip Mills Jones, California, presented the following supplementary report of the Board of Trustees:

In 1914, the House of Delegates passed the following resolution:

Resolved, That the Board of Trustees of the American Medical Association shall be permitted to accept, at their discretion, patents for medical and surgical instruments and appliances, as trustees, for the benefit of the profession and the public; provided, that neither the American Medical Association nor the patentee shall receive remuneration from these patents.

For this, the Board of Trustees, in order to make possible the work of carrying out the desire of the House, requests that the following be now substituted:

Resolved, that the Board of Trustees of the American Medical Association may accept, at their discretion, to hold, to control and to manage, as trustees for the benefit of the people and the protection of the medical profession, such patents on chemicals, remedial or diagnostic substances, medical or surgical instruments or appliances, or anything whatsoever that may be used in the treatment of disease or infirmity and for which a patent may be issued, as the patentee may desire to convey to the American Medical Association for the public protection and benefit; provided, that the patentee shall surrender all claim to remuneration from the royalties or otherwise on such patent or patents to the Board of Trustees of the American Medical Association, which Board of Trustees shall not exact from the manufacturer or producer under any such patent or patents, any royalty or other pecuniary compensation or return therefrom, unless, in the judgment of the Board of Trustees, the exaction of such royalty shall appear to be wise and just and for the better protection of the public or the medical profession.

Dr. Wendell C. Phillips, New York, moved that the recommendation of the Board of Trustees be adopted.

Seconded and carried.

Report of Reference Committee on Legislation and Political Action

Dr. E. J. Goodwin, Missouri, chairman, presented the report of the Reference Committee on Legislation and Political Action, as follows:

To your Reference Committee on Legislation and Political Action has been referred the report of the Council on Health and Public Instruction and a statement from the Virginia State Board of Health.

The report of the Council on Health and Public Instruction is a voluminous document reporting progress on the activities of the Association which brings the organization more intimately in touch with the public than does any other department of our Association. The Council makes only one recommendation that requires action by the house, and that is in connection with the death of our beloved fellow worker Dr. H. B. Favill, which we quote: "In order that a proper appreciation of the life, character and professional activities of Dr. Favill may appear on the records of the Association, the Council requests that a committee be appointed to draft suitable resolutions for adoption by the House of Delegates."

Your Reference Committee, bowed with grief and sorrow by our great loss, approves the recommendation and suggests that the President appoint the four remaining members of the Council on this committee.

The effort to investigate present public health conditions, an undertaking endorsed by the House at the session of 1914 and again in 1915, is approved, and the program previously established by the Council to pursue this investigation is reaffirmed.

The Council reports the appointment of a committee on social insurance which has been confirmed by the Board of Trustees, and that committee has presented an exhaustive statistical study of the medical profession of the United States on the ratio of physicians to population, their geographic distribution, and other statistical facts of importance to the profession. This committee purposes to undertake in the near future (1) to educate the American medical profession in the general principles of social insurance; (2) to serve as a bureau of information for the medical profession in the various forms of social insurance both in European countries and in the United States, and (3) to appear before legislative bodies in this country when advisable for the purpose of fostering a friendly understanding between all parties concerned in health legislation and to protect the legitimate economic interests of the medical profession. The broad scope of this initial report gives us our first insight of a subject which will soon become an important factor in the

social and economic status of the practitioner of medicine, and prepares us to meet the new conditions as they arise. Your Reference Committee approves this undertaking, and in order that all members of the Association may be brought into close touch with the work of the social insurance committee, we recommend that each constituent state association be requested to establish a committee on social insurance to work in conjunction with the committee on social insurance of the American Medical Association.

The success and popularity of Public Health Sunday, as well as the resultant influence on the people toward observing the law of hygiene and sanitation, has induced the Council to close as well as begin our annual sessions with a public health demonstration. Therefore, with the approval of the Board of Trustees, arrangements have been made for addresses on public health topics on Friday afternoon, June 16, in the Lyceum Theatre. The Michigan State Board of Health and the Detroit Department of Health are cooperating with our Council, and have arranged for a public health parade just before the meeting.

Of the other activities of the Council itself we need mention, with our approval, only the work of the Medicolegal Bureau, the Standard Study Program for Women's Clubs, originated by Dr. S. J. Trumbine, Secretary of the State Board of Health of Kansas, which has been adopted by the Conference on State and Provincial Boards of Health and the General Federation of Women's Clubs for general distribution to women's clubs throughout the country, and the large number and great variety of pamphlets on public health topics printed and distributed, there being pamphlets on forty-five different topics with a total distribution of 1,188,500.

The subcommittees of the Council have continued their activities with most commendable zeal, and each shows very satisfactory progress. The Committee on Women's and Childen's Welfare, when Dr. Lenna L. Means was made chairman three years ago, centered its activities on baby health work. The committee now reports widespread interest in the baby health movement, and expects the work to "yield nation-wide results." Your Reference Committee desires to lay special emphasis on the great importance of this subcommittee, and in commending the members for their intelligent execution of their duties, urge on the constituent associations to seek first the assistance of this subcommittee and to use the American Medical Association score card in all local baby health movements. The committees on cancer, conservation of vision, and cooperation with the National Education Association are the other subcommittees, and their work is endorsed, and their members commended for their unselfish labors.

The statement from the Virginia State Board of Health, referred to your committee in conjunction with the report of the Council on Health and Public Instruction, we found consisted of a protest against the survey of Virginia by the investigator of state public health activities. The statement therefore should be lodged with the Council on Health and Public Instruction, to which your reference committee recommends it be now referred.

It was moved that the report be adopted.

Seconded and carried.

The communication follows:

We, the undersigned, members of the State Board of Health of the Commonwealth of Virginia and likewise members of the American Medical Association, hereby protest to the House of Delegates against the issuance, with the sanction of this association, of the report of Dr. C. V. Chapin of Providence, Rhode Island, on *"State Boards of Health."*

In making this protest, we beg leave to assign the following grounds:

1. Conditions in different sections of the United States are so diverse as to make it more than doubtful whether a system of comparative scoring or rating, fair to all the States and to all their sanitary work, can be devised.

2. If any fair system of comparative scoring be possible, it is submitted that the relative importance of the various units of rating will be differently estimated by sanitarians of experience and that the organization and scope of an ideal State Board of Health would be debatable.

3. Even were there substantial agreement as to the essentials, it is submitted that a system of scoring, if practicable at all, could only be devised by the united thought and labor of sanitarians familiar with the peculiar problems of all sections and able to determine, as far as may be possible, the importance of the various endeavors of the different boards.

4. It follows that a task of so much magnitude should not be left to one man, it matters not how eminent he may be, and that his system of scoring, in the circumstances, should not be published to the country as this association's deliberate judgment or as endorsed by its membership without further investigation.

5. In view of these facts, it is submitted that Dr. Chapin might at least have given the boards whose work he reviewed the opportunity of correcting plain errors into which he had fallen. Yet, in spite of the statement in the foreword of the report that six months were given for verification, the Health Commissioner of Virginia knew nothing of what was being done from the time Dr. Chapin spent a few hours in his office until the printed report was received.

6. As a result, and altogether apart from the unsatisfactory and arbitrary method of scoring adopted by Dr. Chapin, plain errors of statement exist in those parts of his text and tables relating to Virginia and efforts to have errors corrected by Dr. Chapin have been futile.

7. It is submitted, finally, that it is inadvisable for the American Medical Association to sponsor comparisons between the work of States, differently peopled and with different climate and wealth, certainly when such comparisons rest on the judgment of one man.

WM. M. SMITH,
President, State Board of Health
JOHN B. FISHER,
Secretary, State Board of Health
O. C. WRIGHT
STUART MCGUIRE
GEO. BEN JOHNSTON
L. T. ROYSTER

Report of Reference Committee on Amendments to the Constitution and By-Laws

Dr. Floyd M. Crandall, New York, chairman, presented the report of the Reference Committee on Amendments to the Constitution and By-Laws, as follows:

The Committee on Amendments to the Constitution and By-Laws respectfully reports as follows:

The Judicial Council, in its annual report, recommends that in Chapter III, Section 1, of the By-Laws, the word "day" be stricken out and the words "two days" be substituted. The reference committee recommends the adoption of the following substitute for this suggestion of the Judicial Council:

"REGULAR SESSIONS.—The House of Delegates shall meet annually on the Monday preceding the opening of, and at the same place as, the Scientific Assembly of the Association."

Amend Chapter IV, Section 3, of the By-Laws by striking out the word "third" and substitute the word "second," so that the section shall read:

The election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the afternoon of the fourth day of the session of the House of Delegates (the second day of the Scientific Assembly).

Amend Chapter X, Section 1, of the By-Laws by striking out the words "the general meeting shall be held at 10:30 a. m. on the first day of the Scientific Assembly," and insert the words "shall be held on the evening of Tuesday of the week of the Annual Session."

The remainder of the chapter shall remain as at present.

Amend Chapter II, Section 2, of the By-Laws by striking out the whole section, and substituting in its place the following:

SEC. 2. LIMIT OF TIME FOR INTRODUCTION OF NEW BUSINESS.—No new business shall be introduced in the House of Delegates after the second day of the Annual Session of the House of Delegates unless by unanimous consent; and such new business, so presented, shall require a two-thirds affirmative vote for adoption; provided, however, that unless otherwise provided in these by-laws, new business referred to the House of Delegates by the officers of the sections, the Trustees, or by formal action of the sections themselves may be presented to the House of Delegates at any time preceding the meeting at which the election of officers shall take place.

The Judicial Council recommends an amendment to Article 9, Section 1, of the Constitution by adding the words "a chairman of the House of Delegates." The reference committee recommends the adoption of the following substitute:

The general officers of the Association shall be a President, four Vice Presidents, a Secretary, a Treasurer, and a Chairman and a Vice Chairman of the House of Delegates.

As an amendment to this effect was submitted last year, it is within the power of the House of Delegates to act on it at this session.

The Judicial Council further recommends that the following section shall be added to Chapter IV of the By-Laws to read as follows:

SEC. 4. The House of Delegates shall annually elect a Chairman and a Vice Chairman, these officers to serve for one year, or until their successors are elected and installed. These officers must be Fellows

of the American Medical Association and must have been Fellows of this Association for at least two years immediately preceding their election to this office. They need not, however, be members of the House of Delegates, but they shall possess all powers of the presiding officer of that parliamentary body. These elections shall follow the election of the Treasurer of the Association.

Amend Chapter V, Section 1, of the By-Laws by striking out the words: "at the meetings of the House of Delegates, and shall perform such duties as custom and parliamentary usage requires."

Add to Chapter V of the By-Laws the following:

SEC. 5. CHAIRMAN OF THE HOUSE OF DELEGATES.—The Chairman of the House of Delegates shall preside at the meetings of the House of Delegates and shall perform such duties as custom and parliamentary usage require. He may at any time make suggestions in writing to the House of Delegates.

SEC. 6. VICE CHAIRMAN OF THE HOUSE OF DELEGATES.—The Vice Chairman of the House of Delegates shall officiate in the place of the Chairman during his absence or at his request. In case of the death, resignation, or removal of the Chairman, the vacancy shall be filled by the Vice Chairman.

Renumber Section 5 to be Section 7.

The committee approves these amendments and recommends their adoption.

Amend Chapter VII, Section 1, of the By-Laws by striking out the words "these Committees shall be nominated by the President and elected by the House of Delegates, unless otherwise provided for in these By-Laws."

Substitute in their place the following words: "The standing committees shall be nominated by the President and elected by the House of Delegates, unless otherwise provided for in these By-Laws."

"Reference Committees and special Committees shall be nominated by the Chairman of the House of Delegates, and elected by the House of Delegates unless otherwise provided for in these By-Laws."

The Judicial Council recommends that the following paragraph be added to Chapter VII, Section 4, of the By-Laws:

In all cases which arise between a constituent association and one of its component county societies, between component county societies of the same constituent state association and the component society to which said member belongs, and between members of different component societies of the same constituent state association, the Judicial Council of the American Medical Association shall have appellate jurisdiction in questions of law and procedure but not of fact.

The committee approves this amendment, and recommends its adoption.

The report of the Committee on Social Insurance having been presented in abstract by the Chairman of the Judicial Council, in connection with his regular report, it was referred to the Committee on Amendments to Constitution and By-Laws. After hearing the statement of Dr. F. L. Van Sickle of Pennsylvania, and on due deliberation, it was voted to refer that report to the Reference Committee on Legislation and Political Action.

The following amendment to Chapter VIII, Section 6, of the By-Laws was presented to the chairman of the committee yesterday by Dr. Robert M. Funkhouser of Missouri. As it was not presented to the House of Delegates, it could not be acted on. The committee, however, considered the question at considerable length and decided to present it to the House at this Session.

The amendment reads as follows:

No person can become an associate Fellow who can be a member of the American Medical Association in the regular way.

The Judicial Council recommends an amendment to Article X, Section 2, of the Constitution by adding to the section as it now reads the following:

No Trustee shall be eligible to any other elective office, the term of which runs concurrently with the term for which the said Trustee has been elected.

This being an amendment to the Constitution, it will necessarily lie over until next year.

The Judicial Council also recommends an amendment to Chapter IV, Section 2, of the By-Laws by adding the following:

No member of the House of Delegates shall be eligible to the office of President or Vice President, nor shall a member of the Board of Trustees be eligible for election to any other elective office, the term of which runs concurrently with the term for which the said Trustee has been elected.

The committee approves this amendment and advises its adoption.

The Reference Committee on Amendments to the Constition and By-Laws proposes the following amendment to Chapter VII, Section 3, Paragraph (*c*) of the By-Laws:

Eliminate the words "Committee on Transportation and Place of Session."

To bring the By-Laws into harmony, should this amendment be adopted, it further recommends that Chapter VII, Section 6, of the By-Laws, which defines the duties of the Committee on Transportation and Place of Session, be eliminated.

Also that the sections following be renumbered.

The report was read and considered seriatim. On several motions, which were duly seconded and carried, the separate sections of the report were adopted.

Dr. Arthur T. McCormack, a delegate representing the Kentucky State Medical Association, advised the House that the delegation from Kentucky, acting under instructions of that constituent state association, voted in the negative on the adoption of the recommendation of the Reference Committee on Amendments to the Constitution and By-Laws, giving the Judicial Council of the American Medical Association the appellate jurisdiction as recommended in the report of this Reference Committee, and asked that a minute be made recording this negative vote of the Kentucky delegation.

Dr. E. F. Howard, Mississippi, stated that the delegation from Mississippi desired that a similar minute be entered, noting the negative vote of that state medical association on this same subject.

Dr. W. E. Anderson, Virginia, moved that the report be adopted as a whole.

Seconded and carried.

Report of Reference Committee on Reports of Officers

Dr. A. R. Mitchell, Nebraska, chairman, presented the report of the Reference Committee on Report of Officers, as follows:

Your Committee on the Reports of Officers begs leave to submit the following:

MEMBERSHIP

We note with regret and with sorrow the loss of 441 Fellows by death. The other losses of 713 not eligible and 658 for nonpayment of dues but emphasizes the importance of holding close our present membership and also of the importance of continuing the campaign for adding every eligible physician to our ranks. The loss of 1,540 by resignation is a very small figure, and is largely accounted for by many who retire annually from active service in the profession. The addition of 3,293 to the Fellowship by transference from the subscription list is an evidence of the excellent business policy of the association—considering the fact that the number of graduates from medical schools has decreased from 8,035 in 1906 to 5,315 in 1915, or more than 33 per cent.—the net gain of 815 is very satisfactory.

The recommendation of your secretary that the affairs of the Medical Society of Wyoming be referred to the Judicial Council with power to act is endorsed by your committee.

We endorse the action of the Board of Trustees in its expenditures necessary to further the splendid work of the Council on Medical Education. This work is of such far-reaching importance and is being accomplished in such a thorough and methodical manner that it should receive the support and the commendation of all right thinking people.

Recognizing the truth and the importance of the suggestion that "we are entering on a period of great changes in social organization, a period which will necessitate far closer organization of the people in all forms of activity, and that this particularly calls for united strength in opposing disease and further—that it is better that we should initiate the necessary changes than to have them forced on us," we most seriously recommend a continuance of the work through the forces now having it in charge. Your committee endorses every word of the report which refers to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and of the master mind which directs it; it is a never failing fountain of scientific information, a bond of union between Fellows of the Association—and it is ours.

We recommend that the publication of the *Archives of Internal Medicine* and the *American Journal of Diseases of Children* be continued, and that the trustees supply the necessary funds to meet any deficiencies until the journals become

self-supporting. The American Medical Directory is a credit to our profession, and its publication should be continued. It is so valuable that it seems probable to your committee that a moderate addition to its selling price would not reduce the subscription list.

ORGANIZATION

While we deplore the necessity of forcing or coaxing enlightenment on a certain percentage of the profession, we commend the methods of organization work and recommend that it be continued until all eligible physicians are enrolled in the cause of scientific medicine. The Cooperating Medical Advertising Bureau should be continued. The work of the Propaganda Department is so well understood that to mention it is to endorse its work, and the same is true of the Council on Pharmacy and Chemistry. We advise that such books as "Useful Drugs" be more prominently advertised in THE JOURNAL with a view of increasing their circulation among the members of the profession. The Council, in the opinion of your committee, should keep the profession in close touch with the dangers as well as with the possibilities and limitations of vaccine therapy and of radium. THE JOURNAL should continue and increase its efforts to enlighten the profession on the clinical action of drugs and to show the members the fallacy and the wickedness, not to say the unscientific methods, which they use in their cases when guided by commercial literature in prescribing.

The memorial to Congress regarding proprietary medicines is referred back to the board without recommendation, which means that your committee has little confidence in the success of the effort.

We congratulate the profession that its business has been so well handled that it possesses means to defend itself against attacks of unholy and of vicious interests. The financial success of "patent medicine," for so many years, is a sad commentary on the lack of medical intelligence or want of medical enlightenment of the people. We hope that we may win in the contest now before the court and thus vindicate the efforts of the American Medical Association in its efforts to conserve the health and the dollars of the people. The good work should go on whether we win or lose.

REPORT OF THE COUNCIL ON SCIENTIFIC ASSEMBLY

Your committee recommends the adoption of the recommendations of the council so far as they relate to the Section on Hospitals, that is, that the section be discontinued, but it seems to us wise that this subject be discussed from time to time by assigning to it one or more units at the discretion of the Council on Scientific Assembly in some other section.

We endorse the recommendation that the term "unit" be used as a basis for classifying the sections covering the maximum number of papers to be read before them. The motion offered by Dr. Murray of New York, "that the Section on Stomatology shall be modified by adding thereto Gastro-Enterology and Proctology, and that the section as reconstituted be accorded three units," is recommended back to the council for action.

While the recommendation made by the council that Sec. 3, Chapter XI, of the By-Laws should really go to the Committee for Amendment to the Constitution and By-Laws, the rest of the recommendation, with the concurrence of the above committee, is recommended for adoption. The council should be granted the four requests it makes: (1) adoption of the definition of the word "unit"; (2) the tentative adoption of the number of units assigned to the sections; (3) the discontinuance of the Section on Hospitals, and (4) the modification of the By-Laws regarding orations.

We endorse the recommendations of President Vander Veer covering the subject of preparedness, and your committee cannot too strongly emphasize the importance of the cooperation of the American Medical Association with the Congress of American Physicians and Surgeons, the Clinical Congress of Surgeons of North America, and the American College of Surgeons and other organizations active in this movement for medical preparedness under the direction of the heads of the military services of the United States. "The Albany Idea" seems to your committee practical and worthy of consideration or adoption.

We unreservedly endorse the recommendation of the Red Cross Committee.

The following communication from the Women's Christian Temperance Union is recommended for reference to the Council on Health and Public Instruction:

Rest Cottage, Evanston, Ill.,
June 3, 1916.

To the House of Delegates of the American Medical Association, Detroit, Michigan.

Dear Sirs:—In view of the increasing desire on the part of the nations of the world for relief from the evil effects of alcoholic liquors on society, and in view of the fact that all the warring nations of Europe have found that liquor drinking must be curbed because of its interference with health, efficiency and safety, we, representing 400,000 women, members of the National Women's Christian Temperance Union, respectfully request that your honorable body give expression at this annual meeting of the American Medical Association to such a warning against alcoholic liquors as shall strengthen the hands of boards of health and temperance organizations now combating the liquor evil.

One of the chief causes of the alcohol habit is the ignorance of the mass of the people concerning the real nature of alcohol. They have been taught that alcoholic liquors give health and strength, that they are tonic and remedial. The brewing and whisky trades advertise that their products are foods and tonics and aids to digestion, and that they are endorsed and recommended by physicians the world over. The medical profession owes it to itself and to the public to offset this dangerous and misleading advertising by a statement of the truth.

The medical society of Russia at its meeting in 1915 issued a notable document against alcohol, a copy of which is appended for the information of any of your honorable body who may not have seen it. Your petitioners hope for as strong and helpful an expression from the great American Medical Association as that emanating from your Russian confrères.

Yours sincerely,
ANNA A. GORDON,
President
MARTHA M. ALLEN,
Supt. Dept. of Medical Temperance.

Respectfully submitted.

A. R. MITCHELL,
BEN R. MCCLELLAN,
E. R. STITT.

Dr. C. H. Good, Indiana, moved that the report be adopted. Seconded.

Dr. Dwight H. Murray, New York, moved as a substitute that that section of the Report of the Reference Committee on Reports of Officers, concerning the Section on Stomatology, be first considered, and that there be substituted for the recommendation of the Reference Committee the following, namely, the subjects of Gastro-Enterology and Proctology be added to the subject of Stomatology, and that a Section on Stomatology, Gastro-Enterology and Proctology be constituted and substituted for the present Section on Stomatology.

Seconded by Dr. Randolph Winslow, Maryland.

Dr. Dwight H. Murray, New York, moved that the House go into a Committee of the Whole.

Seconded and carried.

The House went into a Committee of the Whole.

When the House reconvened, a vote was taken on the substitute motion of Dr. Murray, and it was declared adopted.

Dr. Arthur T. McCormack, Kentucky, then moved that the report of the Reference Committee on Reports of Officers be adopted as amended.

Seconded and unanimously carried.

Report of Reference Committee on Medical Education

Dr. L. W. Littig, Iowa, chairman, presented the report of the Reference Committee on Medical Education as follows:

Your committee has carefully reviewed the report of the Council on Medical Education and begs to report as follows:

Your committee endorses the recommendation of the Council that a year's internship in an approved hospital be made an essential part of a medical curriculum, and that state licensing boards be urged to make such hospital year a legal requirement for the license to practice medicine in their respective states, and that such action be taken at the earliest practicable date. With this object in view, it is further recommended that legal authority be obtained by state licensing boards to inspect the hospitals in their respective states, to establish rules governing their conduct, and to list as approved only those complying with such rules. It is suggested that the Council cooperate with state licensing boards, and other agencies interested in this effort, to improve existing conditions in hospitals in this country.

Your committee recommends that after Jan. 1, 1918, no medical college be retained in Class A by the Council on Medical Education that does not require for admission at least two years of work in a college of arts and sciences

approved by the Council, or, in lieu thereof, have an education equivalent to the above, as demonstrated by a fitting and properly conducted examination, approved by the Council. Your committee believes that this standard should be adopted at this time so as to bring medical education into better coordination with general education in this country. Nevertheless, it should be understood that this represents the highest requirement of preliminary education that should be legally established in this country. Furthermore, it is recommended that the Council cooperate with the National Educational Association, with the North, Central and the Southern Associations of Colleges and Secondary Schools, and with other educational agencies, in the efforts now being made to save one or two years of the student's time during the period of elementary and high school education. This saving will enable students to graduate from the medical school at an average age of 24 or 25 years.

Your committee recommends that the Council cooperate with educational organizations, state medical societies, state licensing boards and any other interested organizations, in an effort to secure laws regulating the chartering of educational institutions, so that only those having adequate endowment, a reasonable equipment and an ample number of skilled teachers be given authority to confer degrees, or educational qualifications of any kind.

Your committee recommends that all legislation regulating the practice of the healing art, by whatever method or system, require the same educational standard as that with which physicians have to comply, and that this educational standard be the minimum that will guarantee the ability to differentiate between normal and abnormal conditions in the human body, to differentiate between and to recognize diseases and intelligently to apply treatment.

The Council has done well to call attention to the discrimination by certain Canadian provinces against the medical schools of this country. The adjustment of this matter has been properly referred to the state licensing boards, and an amicable adjustment of the difficulty is hoped for.

Your committee recommends that the Council secure such information as it can regarding all medical colleges abroad, and that it prepare a list of such institutions as it deems worthy of recognition, and submit such list to the state licensing boards of this country.

Your committee emphasizes the Council's recommendations that the National Board of Medical Examiners as it is now constituted be heartily approved. Such a board is in position to establish a medical qualification which may eventually not only be recognized by the state licensing boards of this country, but may also be looked on by medical authorities abroad as a qualification of unquestioned worth. This board is in position to develop methods of examination which may lead to their adoption by the various state licensing boards, or at least will be worthy of their most careful study and emulation. The qualification furnished by this board will also be a stimulus to ambitious and aspiring medical students, as its possession will be both an honor and an asset.

In conclusion, the committee wishes to congratulate the Council on Medical Education, and especially its distinguished chairman, for the splendid results obtained by its untiring and unselfish efforts.

Respectfully submitted.

L. W. LITTIG, *Chairman,*
W. H. SEEMANN,
HUGH N. MACKECHNIE,
A. H. LEVINGS,
WILLIAM S. LALOR.

Dr. E. J. McKnight, Connecticut, moved that the report be adopted.

Seconded and carried.

New Business

Dr. John F. Anderson, New Jersey, delegate from the Section on Pharmacology and Therapeutics, presented the following resolution, which was referred to the Reference Committee on Hygiene and Public Health:

WHEREAS, Methods for the bio-assay of certain drugs are to be included in the U. S. P. IX, although, with the exception of that for solution of hypophysis, they are optional, and

WHEREAS, It is important that uniform standards be employed for such assays; therefore, be it

Resolved, That the Section on Pharmacology and Therapeutics urgently recommends the House of Delegates to request the Secretary of the Treasury to authorize the United States Public Health Service to prepare and distribute for use in the bio-assay of cannabis, aconite, digitalis, strophanthus, squill, suprarenal gland and hypophysis, the standards as recommended in U. S. P. IX.

(The foregoing resolution was adopted by the Section on Pharmacology and Therapeutics, June 13, 1916.)

Mr. H. M. McClanahan, Nebraska, delegate from the Section on Diseases of Children, offered the following preamble and resolution:

WHEREAS, The problems of disease in children are peculiar and of far-reaching importance; therefore be it

Resolved, That the Section on Diseases of Children requests that the House of Delegates authorize and establish a Council on Infant Morbidity and Mortality.

The resolution was referred to the Reference Committee on Hygiene and Public Health.

Dr. Jere L. Crook, Tennessee, informed the House of Delegates that Dr. John B. Murphy, a Past President of the Association, was ill at Atlantic City, and moved that the House of Delegates direct that a telegram be sent to Dr. Murphy expressing sympathy and best wishes for a speedy recovery.

Seconded and carried.

Dr. Stewart J. Roberts, Georgia, moved that Dr. George H. Simmons, Illinois, editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, be asked to address the House of Delegates at this time.

Seconded and carried.

Dr. Simmons thanked the members of the House of Delegates for the compliment implied in the action taken, and stated he did not wish to occupy the time of the House of Delegates at this juncture.

Dr. Arthur T. McCormack, Kentucky, moved that the Reference Committee on Legislation and Political Action be instructed to bring before the House of Delegates, at the next meeting, a resolution endorsing pending legislation, giving greater scope and opportunities to the United States Public Health Service, and in maintaining the splendid work that is being done by that service.

Seconded and carried.

Dr. Charles J. Whalen, Illinois, moved that the House of Delegates adjourn until 2 p. m. Thursday.

Accordingly, the House of Delegates thereupon adjourned.

Third Meeting—Thursday Afternoon, June 15

The House of Delegates met and was called to order at 2:10 p. m. by the President.

The minutes of the previous meeting were read and approved.

Dr. F. C. Warnshuis, Michigan, rose to a question of personal privilege and presented the following communication:

To the House of Delegates, American Medical Association.

Gentlemen:—Having learned that the premature prediction in the *News* that Dr. Charles H. Mayo would be elected president of your association might lead to criticism of Dr. Mayo and his friends, I wish to say that the story printed in today's paper did not come from either the doctor or any of his friends.

The story was obtained by a *News* reporter independently of any members of your Association, and he was not aware that any impropriety was being committed in the publication of this report.

HENRY A. MONTGOMERY,
City Editor, Detroit *News.*

Dr. Warnshuis stated that he desired to advise the House that the unfortunate premature announcement, in the local newspapers, of the result of the election to be held this afternoon, was given publicity without the knowledge or consent of any member of the local or state profession, or of Dr. Charles H. Mayo himself, and that he desired to make this explanation in order that the members of the House might be fully informed, and that they might choose a President-Elect without bias which might be occasioned by this premature publication if this explanation was not made.

The secretary called the roll, and 128 delegates responded.

Election of Officers

The next order of business being the election of officers, the House proceeded with an election, which resulted in the choice of the following:

President—CHARLES H. MAYO, Rochester, Minn.
First Vice President—L. F. BARKER, Baltimore.
Second Vice President—JOHN LEEMING, Chicago.
Third Vice President—J. HENRY CARSTENS, Detroit.
Fourth Vice President—GEORGE F. KEIPER, Lafayette, Ind.
Secretary—ALEXANDER R. CRAIG, Chicago.
Treasurer—WILLIAM ALLEN PUSEY, Chicago.
Chairman of the House of Delegates—HUBERT WORK, Pueblo, Colo.
Vice Chairman of the House of Delegates—DWIGHT H. MURRAY, Syracuse, N. Y.
Members of the Board of Trustees—A. R. MITCHELL, Lincoln, Neb.; OSCAR DOWLING, Shreveport, La.; E. J. MCKNIGHT, Hartford, Conn.
Judicial Council—J. A. BLACK, Pueblo, Colo.
Council on Health and Public Instruction—FRANK BILLINGS, Chicago.
Council on Medical Education—WILLIAM D. HAGGARD, Nashville, Tenn.
Council on Scientific Assembly—J. SHELTON HORSLEY, Richmond, Va.

The secretary presented a list of applicants for Associate Fellowship endorsed by the Judicial Council and the officers of the Sections on Stomatology, on Pathology and Physiology, and on Pharmacology and Therapeutics.

Dr. Wendell C. Phillips, New York, moved that the secretary be authorized to cast the ballot of the House in each instance in which the applicant is not eligible for membership in the state association of the state in which he resides, and provided no objection to the applicant is filed by the officers of the said state association.

Seconded and carried.

Report of Committee on Transportation and Place of Session

Dr. J. R. Pennington, Illinois, presented the report of the Committee on Transportation and Place of Session, as follows:

Invitations have been received from Atlantic City, N. J., Chicago, Columbus, Ohio, and New York City, two of which —Chicago and Columbus—were from the commercial associations only, and two—those from Atlantic City and from New York City—were from the medical societies of these respective districts supported by the convention bureaus.

After carefully considering and fully discussing the advantages of both Atlantic City and New York City for the next annual session of the Association, your committee deems it best to recommend to the House of Delegates that both New York City and Atlantic City be placed in nomination, and that a ballot be taken.

By order of the committee.

J. RAWSON PENNINGTON,
Chairman.

On motion, duly seconded, and carried, the report was adopted.

Before a ballot was taken, the advantages of the two places in nomination were discussed by Drs. Floyd M. Crandall, F. E. Sandern, Wendell C. Phillips, and Dwight H. Murray, all of New York, speaking for New York City, and Drs. Emery Marvel, New Jersey, and Randolph Winslow, Maryland, speaking for Atlantic City.

A ballot was then taken which resulted in the choice of New York City as the place of meeting for the 1917 session.

On motion duly seconded and carried, the choice of New York City was made unanimous.

Report of the Reference Committee on Legislation and Political Action

Dr. E. J. Goodwin, Missouri, chairman, presented the report of the Reference Committee on Legislation and Political Action, as follows:

To your Reference Committee on Legislation and Political Action has been referred the following:

Dr. Arthur T. McCormack, Kentucky, moved that the Reference Committee on Legislation and Political Action be instructed to bring before the House of Delegates at the next meeting a resolution endorsing pending legislation giving greater scope and opportunities to the United States Public Health Service and in maintaining the splendid work that is being done by that service.

Seconded and carried.

Your reference committee has carefully considered the purpose of this motion and takes pleasure in recommending that the following resolution be adopted:

Resolved, That the House of Delegates of the American Medical Association in annual session assembled, endorses pending legislation in the Congress that will give greater scope and opportunities to the United States Public Health Service for protecting the health and lives of the people and maintaining the high standard of efficiency already established by that service.

E. J. GOODWIN, Chairman,
FREDERICK L. VAN SICKLE,
H. R. MCGRAW,
CHARLES W. HANNAFORD,
C. P. MERIWETHER.

It was moved that the report be adopted.

Seconded and carried.

Report of Reference Committee on Hygiene and Public Health

Dr. Arthur T. McCormack, Kentucky, chairman, presented the report of the Reference Committee on Hygiene and Public Health as follows:

Your Reference Committee on Hygiene and Public Health had submitted to it two resolutions, the one by the delegate from the Section on Diseases of Children, requesting that the House of Delegates authorize and establish a Council on Infant Morbidity and Mortality. Your committee recommends that this suggestion be not concurred in. The second, a resolution presented by the delegate from the Section on Pharmacology and Therapeutics, requesting that the House of Delegates memorialize the secretary of the treasury, asking that the United States Public Health Service be authorized to prepare and distribute for use in the bio-assay of certain drugs the standards as recommended in the Ninth U. S. P. Your committee recommends that the president and secretary of the association request the secretary of the treasury to take this action.

Signed by order of the committee.

A. T. MCCORMACK,
Chairman.

It was moved that the report be adopted.

Seconded and carried.

Report of Reference Committee on Amendments to the Constitution and By-Laws

Dr. Floyd M. Crandall, New York, chairman, presented the report of the Reference Committee on Amendments to the Constitution and By-Laws, as follows:

The following amendment was proposed at the meeting of the House of Delegates held Tuesday, June 13:

Amend Chapter VII, Section 3, Paragraph (*c*) of the By-Laws by eliminating the words "Committee on Transportation and Place of Meeting."

To bring the By-Laws into harmony, should this amendment be adopted, a further amendment was proposed to Chapter VII, Section 6, of the By-Laws by eliminating the section.

Also that the sections following be renumbered.

The committee approves these amendments and advises their adoption.

The following amendment was proposed at a meeting of the House of Delegates, held Tuesday, June 13:

To amend Chapter VIII, Section 6, of the By-Laws by adding the words "no person can become an Associate Fellow who can be a member of the American Medical Association in the regular way."

The committee recommends that the subject of Associate Fellowship be referred to the Judicial Council for report next year.

The Committee on Amendments to the Constitution and By-Laws directs me as chairman to present the following:

Moved, That the secretary of the Association be empowered to edit the amendments proposed and adopted at this session and to make such changes in numbering and arrangement as may be necessary to bring them into harmony with the Constitution and By-Laws

as they now exist, but he is not empowered to alter the sense or meaning of any amendment adopted.

This report was considered section by section, and on several motions, duly seconded and carried, each section was adopted.

Dr. Arthur T. McCormack, Kentucky, moved the adoption of the report as a whole.

Seconded and carried.

Dr. W. T. Williamson, Oregon, moved that the House of Delegates extend a cordial vote of thanks to the Wayne County Medical Society, the citizens of Detroit, especially those who took part in the opening meeting, and those who extended courtesies and entertainment to the American Medical Association.

Seconded by Dr. Thomas S. Cullen, Maryland, and unanimously carried by rising vote.

Supplementary Report of the Council on Scientific Assembly

The secretary presented a supplementary report from the Council on Scientific Assembly, which, on motion duly seconded and carried, was adopted.

Your Council on Scientific Assembly offers this as a supplementary report and recommends that in place of combining Gastro-Enterology and Proctology with Stomatology, the latter section be reconstituted, and that a Section on Gastro-Enterology and Proctology be established. This will not increase the number of sections, since the Section on Hospitals has now been discontinued.

Respectfully submitted.

J. Shelton Horsley,
A. R. Craig,
G. H. Simmons.

The secretary asked unanimous consent, which was granted, and presented a resolution from the Section on Preventive Medicine and Public Health, with the request that this communication be referred to the Council on Health and Public Instruction.

On motion, duly seconded and carried, the communication was so referred.

The resolution is as follows:

Resolved, That the Section on Preventive Medicine and Public Health recommends to the House of Delegates that the Council on Health and Public Instruction be instructed to consider the question of a Public Health Exhibit in connection with the next annual session.

The secretary, with the unanimous consent of the House, read the following telegram addressed to the President of the Association, which, on motion duly seconded and carried, was spread on the record:

There will be one Field Hospital and one Ambulance Company United States Army at Citizens Military Training Camp, Fort Benjamin Harrison, Indianapolis, Indiana, for instructing doctors and medical students in field hospital and sanitation work, four camps of fifteen days' duration each will be held, commencing with July 5, cost one dollar per day, in addition to cost of uniform. Urgently recommend attendance these camps every man interested in adequate national defense. Hope your Association will endorse this movement. Army Surgeon at Fort Wayne Detroit will furnish circulars.

William Stephenson,
Colonel Medical Corps Department Surgeon.

Dr. John Ridlon, Illinois, delegate from the Section on Orthopedic Surgery, asked unanimous consent, which was granted, to present two communications from this section and have them referred to the proper committees. These communications are as follows:

The Orthopedic Section having received a communication suggesting the advisability of reducing the number of sessions as well as the number of papers of this section, adopted the following resolution, unanimously:

The experience of the Orthopedic Section of the American Medical Association at both the Detroit Session and those which have gone before has shown that there is a great and growing interest in the work which it is doing. It is of the highest importance to the cause of the crippled and deformed that this work be popularized.

The average attendance at the Detroit session has been close to 100; the papers have without exception been of practical interest and the discussions most instructive.

The Orthopedic Section, therefore, asks that no action be taken by the House of Delegates which will in any way reduce the maximum number of papers and of sessions as set forth by the rules at present in effect.

The second resolution follows:

Whereas, The crippled and deformed children of the nation constitute a class among whom there are many neglected, dependents and defective, only five states and a few private institutions providing at all adequate care; and

Whereas, The work that is being done in their behalf proves that from 40 to 50 per cent. of them, if taken in time, may be wholly cured and made self-supporting, independent citizens while an additional 25 per cent. may be made self-supporting; and

Whereas, It is estimated that there are at least 300,000 crippled children in the United States, with proper institutional provisions for less than 3,000; therefore,

This association urges that the various state superintendents of education take the proper steps to take a census of crippled and deformed children under 18 years of age, with a view to ascertaining their number in order to provide proper hospital schools for their care and conservation.

Dr. Arthur T. McCormack, Kentucky, moved that the first communication be referred to the Council on Scientific Assembly, and the second one to the Council on Health and Public Instruction with power to act. Seconded and carried.

Dr. B. R. McClellan, Ohio, asked unanimous consent, which was granted, and presented the following:

The delegates to the American Medical Association from the Ohio State Medical Association were instructed at the last annual meeting in Cleveland to request the American Medical Association to refer to the Council on Health and Public Instruction a resolution requesting some action on a uniform effort for the formation of reserve surgical corps to cooperate with the medical departments of the United States Army and Navy. We, therefore, present the following resolution:

"That the president appoint a committee to confer with the medical departments of the United States Army and Navy to draw up a uniform plan for organizing in the various states reserve medical corps."

On motion, duly seconded and carried, the communication was received and referred as requested.

It was moved that the President of the Association be authorized to appoint all committees which have been authorized at this annual session of the House, and also the chairman, vice chairman, secretary and executive committee of the new section constituted this afternoon.

Seconded and carried.

Dr. Milton Board, Kentucky, presented the following which, on motion, duly seconded and carried, was adopted:

A Note on the Death of Dr. Favill to be Spread on the Minutes of the House of Delegates

The American Medical Association has suffered in the past year a serious loss by the death of Dr. Henry Baird Favill. Dr. Favill had been chairman of the Council on Health and Public Instruction since its establishment in 1910. He was a physician who had clear insight into the significance and growing importance of the relations of the medical profession to the public. In many different ways, he was responsive to the call to human service, not only for individuals but also for organizations for social betterment.

Dr. Favill's keen vision for things of fundamental value, his constructive idealism, which was made efficient by a large experience with men and affairs and by an ingenious practicality, his wide ranging interest in whatever might benefit mankind, his inspiring leadership and his tireless energy were nowhere else more effectively manifested than throughout his work in the Council on Health and Public Instruction.

The House of Delegates of the American Medical Association hereby registers its grateful appreciation of the beneficent and lasting service to his fellow men which Dr. Favill rendered by his activity both in the medical profession and in the community at large, and its feeling of poignant regret that a life so overflowing with unselfish devotion to high aims should have been so prematurely ended.

The following extract from an appreciation of Dr. Favill, written by Dr. Lenna Meanes, chairman of the subcommittee on women's and children's welfare, and published in the *Women's Medical Journal* well shows the esteem in which Dr. Favill was held by those associated with him in council work:

Dr. Henry Baird Favill was a man of unusual power and leadership. Over and again, we have read that tribute to his memory in the weeks since his death, and the tribute has come from sources as varied as his interests were. Wherever he allied himself, his keen sense of discrimination, together with his ideals of justice, compelled the immediate recognition of that power. Perhaps in no other place was his

leadership felt to be more valuable and desirable than in his chairmanship of the Council on Health and Public Instruction. Far visions and fair, he never was known to dictate and rarely to argue. No one could come in contact with Dr. Favill without getting glimpses of greatness—glimpses that changed professional ideals less worthy than his; glimpses that make faith more supreme in fair minded justice. The world has lost a man of service; we have lost a friend.

Dr. H. G. Stetson, Massachusetts, moved that a vote of thanks be extended to Dr. W. W. Grant for his faithful service as a trustee of the American Medical Association.

Seconded and carried unanimously by rising vote.

Report of Reference Committee on Scientific Exhibit

Dr. J. B. Blake, Massachusetts, presented the report of the Reference Committee on Scientific Exhibit as follows:

The Reference Committee on the Scientific Exhibit presents the following report:

The task placed by the House of Delegates on your committee was both difficult and delicate; only members of former committees can fully appreciate the true inwardness of this statement. It was difficult because of the number (more than forty) and quality of the exhibits, and of the time necessarily required to examine them; and it was delicate because when all is so very good, it becomes doubly embarrassing to discriminate.

Effort has been made to emphasize and encourage, by the awards, individuality, originality and research. A high standard of hospital and institutional routine is so constantly in evidence that particular notice seemed unnecessary.

The committee, as usual, recommends the award of both medals and certificates; and it wishes cordially to congratulate the exhibitors as a whole in that scarcely an instance has been noted of an exhibit of inferior value. It is sincerely to be hoped that every single member of the American Medical Association registered in Detroit has given at least a little time to the inspection of the scientific demonstrations in the balcony and basement of the armory.

The committee recommends the following awards:

1. Gold medal: Edward C. Rosenow, Rochester, Minn., on elective localization of organisms.

2. Silver medals:

(*a*) Martin H. Fischer, University of Cincinnati, on fatty degeneration and allied biological problems.

(*b*) Edward C. Kendall, Rochester, Minn., on active principle of the thyroid.

3. Bronze medals:

(*a*) C. V. Weller, University of Michigan Medical School, on the blastophthoric effects of lead.

(*b*) J. Shelton Horsley, Richmond, Va., on reversal of circulation in the leg, and reconstruction of the common bile duct.

(*c*) J. Walter Vaughan, Detroit, demonstration of the immune mechanism in cancer.

4. Certificates of merit:

(*a*) Leigh F. Watson, Oklahoma City, experimental and clinical results obtained with quinin and urea injections in certain types of goiter. Also recommended for consideration by the Committee on Scientific Research.

(*b*) J. H. Hathaway, Detroit Medical School, series of brain dissections for teaching anatomy.

(*c*) Exhibit from Pathological Laboratory, University of Michigan.

(*d*) Exhibit from the Augustana Hospital.

(*e*) Exhibit from the Mayo Clinic.

(*f*) Exhibit from the New York Lying-In Hospital.

(*g*) Exhibit of the Indiana State Medical Association.

(*h*) Ward J. MacNeal, New York Post-Graduate Medical School, on the epidemiology of pellagra.

In conclusion, your committee quotes the closing lines of the report of last year's committee: "Too much praise cannot be given to the untiring energy and efficiency of Dr. Frank B. Wynn, chairman of the Committee on Scientific Exhibit, and we desire to record our opinion that the Association owes him a debt of gratitude." In this opinion the present committee most enthusiastically concurs.

JOHN BAPST BLAKE, Chairman,
HARLOW BROOKS, W. T. WILLIAMSON.

Dr. Miles F. Porter, Indiana, moved the adoption of the report of the committee.

Seconded and carried.

On motion, duly seconded and carried, the House of Delegates adjourned, *sine die*.

THE SCIENTIFIC ASSEMBLY

THE OPENING GENERAL MEETING

Tuesday Morning, June 13

The opening meeting of the Association was held at the Lyceum Theater, and was called to order at 10:30 a. m. by the President, Dr. Albert Vander Veer, Albany, N. Y.

Prayer was offered by Bishop Charles D. Williams, Detroit.

Addresses of Welcome

Hon. Woodbridge N. Ferris, governor of Michigan, was introduced and delivered the following address:

ADDRESS OF WELCOME BY GOVERNOR FERRIS

Mr. President, Members of the American Medical Association, Ladies and Gentlemen: I do not need to consume valuable time in telling you about the great state of Michigan, nor do I intend to take up valuable time in telling you about the beautiful city of Detroit. I simply say to you, on behalf of the citizens of Michigan, through the immediate agency of the city of Detroit, I bid you welcome this morning. I speak to you this morning, briefly, as a layman, although long years ago I had a dream that I would like to be a physician, but my father took me by the nape of the neck and saved this country. (Laughter.) However, four years after his heroic effort, I entered the medical department of the University of Michigan in 1873 and 1874, pursuing one course of lectures. At that time, students enrolled without any large amount of preparation, and some of the freshmen—for we had only freshmen and seniors—went to Washtenaw County to teach school the first year of their life as medical students, while others went into other remunerative pursuits, and then came back the next year, purchased seniors' notebooks, passed the examinations, and went out as full-fledged physicians and surgeons. Those were delightful days of long ago when but little was required and little expected. (Laughter.)

You may ask what business I had in the medical department of the University of Michigan. I wish to say to you, I had already made preparation for educational work, and I concluded somehow or in some way that a course of medical lectures would be of special value to me. Permit me to say to you, medical men and women, I have found that course to be invaluable, and if I had my way, I would suggest to the educators of this country that such a provision be made generally in order that education may have a real and enduring foundation, because without health, without some knowledge of the laws of health, education availeth little. So much on the side for that, but I have pleasant memories of those days.

I shall never forget the work of Dr. Palmer, Dr. McLean, Dr. Gerrish, Dr. Frothingham, and others of the faculty. They were great teachers, and when I think of the requirements of today, when I think of the changes in the medical department of that university, I marvel. Those changes are indicative of the progress of your profession, the greatest profession, in my estimation, in the world. (Applause.) I do not even make an exception of the vocation that I pursue. It is not a profession of course, I am not making any allusion to politics. (Laughter.) I do not need to tell you men that medical literature since that time has been revolutionized. I went through a needless ordeal the last six weeks I was in the university. I lived on $1.25 a week for six weeks in order to purchase the two volumes of Gross' "System of Surgery," and the two volumes of Stille's "Materia Medica." I do not know whether any but the oldest members in the audience remember those names. After all, they were great names. There is no question about that, and in spite of that

seemingly superficial course in the medical department of the University of Michigan, there are some of the greatest physicians and surgeons of America who pursued this course; but when they got through, they did not stop studying or growing. They kept right on, they are still growing, and doubtless will keep on studying until they are ready to die.

I do not know whether you accept it or not, but seventy-five years ago, your profession was under a cloud of superstition. Most of the professions were under a cloud of superstition seventy-five years ago, and were seriously handicapped. Seventy-five years ago, some of the greatest gifts given to the world were absolutely unknown, and I stand here this morning and say to you that we shall never be able to show adequate gratitude to Charles Darwin, Thomas Henry Huxley, Herbert Spencer, Alfred Russell Wallace, Haeckel, and in our own country, Dana and Gray and Yeomans. The work of these men marked a new era in scientific research, and members of the medical profession are indebted to them for the larger outlook of their work and to a new regeneration, so to speak, of the scientific attitude of the world. It is modern science that gives you the high places that you occupy this morning, allowing me to be the interpreter.

I am going to mention briefly what you all know, but I do this because I feel it ought to be done on every possible occasion. I do not need to tell this audience that, Oct. 16, 1846, in the amphitheater of the Massachusetts General Hospital, a new Prometheus gave to suffering humanity the discovery of anesthesia. (Applause). The world prior to that time was literally a hell, and not even Jonathan Edwards would be able to describe adequately the sufferings of human beings who existed prior to the birth of anesthesia. This great discovery was widespread in its benedictions as embracing all races and all classes of society, relieving sufferings of patients who were compelled to undergo operations. The prevention of disease is the outcome of the growth of modern sanitary science, in which department you have accomplished some of the greatest victories in history. Anesthetics and asepsis have wrought a complete revolution in hospital life. It is not too much to say that the abolition of smallpox, typhus and typhoid fever have changed the character of medical practice in our hospitals, and it has been stated that typhoid fever in this country is in its last ditch, and although more difficult to conquer than typhus, we may evidently hope that before long it will be as rare. Through the researches of Robert Koch, the medical profession has been able to control cholera. An entire volume might be written on that subject.

Coming closer to our own times, I will say that the digging of the Panama Canal was a question of health. For centuries, it was the white man's grave. During the digging of this canal by the French, the mortality was 170 per thousand; but under more favorable circumstances, with sanitation conducted along more modern lines, through the members of your profession, the mortality among 54,000 employees was reduced to thirteen per thousand. The death rate, for March, 1910, was 8.9, a lower percentage than that of any city in the United States. This has been brought about in great part by researches into the life history of the parasite which produces malaria and the effective measures taken for its destruction.

The discovery of the cause of tuberculosis, one of the great scourges and infections of the world, is one of the triumphs of our generation. To speak conservatively, the mortality from tuberculosis has been reduced 40 per cent. And so, I might go on and speak of yellow fever and say to you medical men and women who are studying science, that your triumph over yellow fever is one of the finest illustrations of the methods and achievements of modern science. (Applause.)

In Michigan, our work along preventive and hygienic lines is progressing in a most magnificent way. I believe that before you leave the city of Detroit, you will get some definite knowledge of the work we are attempting to do. In other words, we are trying to help our people to know how to live. It is as important to take care of the sick as it is to cure the sick, and it is equally important to teach men and women how to care for themselves, to awaken the people to the protection of what God Almighty has offered to them in the way of healthful living. (Applause.) I do not hesitate to say that, as governor, I have tried to do something with our educational forces; I have followed the human element into our prisons and into our homes for boys and girls. (Applause.)

I had not anticipated using the word "preparedness," but I belong to a class of men who believe that there are certain kinds of preparedness just as important as carrying a gun on your shoulder. I do not frown on the gun, but I do not want it used unless it is absolutely necessary. (Loud applause.) But I do want somebody under the gun always—first, last, and all the time from the standpoint of health and citizenship, and from the standpoint of loyalty in the performance of everyday human service. (Applause.) So I imagine that your great field is along the lines of preventive medicine and hygiene. I welcome that day.

When I entered the medical department of the University of Michigan, I was a skeptic in regard to the use of drugs, and I am more than a skeptic now; but do not think that I belong to the paths or cults or quacks who, every once in a while, make hard faces at you, for I do not. You, as members of a great profession, progressive, and ever on the alert to do everything for the benefit and uplift of mankind, will win over all the quacks and cults that spring up from time to time. The great majority of the masses of people are with you and are in sympathy with your work.

You have some other gigantic problems to solve. You have already made great inroads on the white plague; but in my judgment, and I think in the judgment of a great many of you, there is a greater plague, and that is the black plague. How long will it take us to get at the foundation and, instead of attempting to cure men, to so teach them and so educate them that there will be no occasion for treatment? That is a dream, I suppose. (Laughter.)

I am praying that the magnificent men in your profession will by and by conquer that arch enemy—cancer. I might say something along that line on account of its personal relation to myself, but that is unnecessary. I am sure that ultimately you will conquer it, and that further, by and by, if the governor of Michigan should have an attack of pneumonia, you will be able to pull him through, and so on down the line. But let me beg of you, let your light shine aside from the practice of medicine. Get in touch with the people where you live. Let your light so shine that ignorance and superstition may not hang over the majority of our people as they do today. Let your light shine not only on the people of this country but on those throughout the world. Good morning! (Loud applause.)

In the absence of Hon. Oscar B. Marx, mayor of Detroit, Mr. Allen Frazer, representing the mayor, delivered the following address:

ADDRESS OF WELCOME BY THE REPRESENTATIVE OF THE MAYOR

Mr. President, Members of the American Medical Association, Ladies and Gentlemen: I was much pleased with the governor's address, because he has been quite a study to us Republicans, as Democratic office holders always are judged. Now, I have found out the secret. He was over there in the old medical department of the University of Michigan, and acquired a knowledge of medicine. He finally concluded that you never can persuade a man who is sick that he is all right, or, in other words, you cannot "kid" him into health; but when you can so induce the people to elect a Democratic governor to the same office twice in a Republican state, that is certainly going some. (Applause.) You are all right, Governor.

His Honor, the mayor, is out of the city and is unable to come here and extend to you a welcome as he desired, and I am in the unfortunate position of being a substitute. You doctors know what will happen if you prescribe a certain medicine and some one hands you a substitute. (Laughter.)

I knew I was in wrong because when I entered the door of this theater, someone handed me a sample of corn cure and called me doctor. (Laughter.) I got along a little farther and they called me professor. Probably, I looked to one of those boys as though I was going to instruct you in your science and art. I was getting along all right until you called on me to deliver an address of welcome for the mayor. I will do the best I can.

I am not going to take time to speak of the achievements of your profession, because you know more what you have done than I will be able to tell you. You look pretty good to me. It is not often a doctor looks good to a healthy man. It is only when we are sick that you doctors look to be the grandest fellows in the world. If you pull us through, then you are all right.

The city of Detroit is noted for its hospitality, and in behalf of the mayor and of the citizens of Detroit, I extend to you a most cordial welcome. No wonder the city of Detroit is one of the places where life is worth living. We have come from away back because originally, you know,

the Indians infested this part of the country. Then the French came along and Pontchartrain and Cadillac founded the city of Detroit in 1701. The name Detroit is from the French *détroit,* meaning the strait, and was so called because of its situation on the narrow strait connecting Lake St. Clair with Lake Erie. The history of Detroit is closely interwoven with that of the whole Northwest, which began as early as Canada and Virginia.

Though "the place called Detroit" had been known to explorers for many years, it was not until the New England and New York coasts were inhabited that it began to be of any importance. From the rough maps it was seen to be the easiest passage to the Mississippi Valley and Louisiana, and Cadillac, then commandant at Michilimackinac, first conceived the idea of a post at Detroit and prepared plans for a settlement. July 24, 1701, he arrived with his 13-year-old son, a nephew, Surgeon Henri Belisle, Capt. Alphonse de Tonty, Lieutenants Dugue and Chacornacle, Father Vaillant, a Jesuit missionary, Father De L'Halle, a Recollect, chaplain of the expedition, fifty soldiers, and fifty Canadian traders and artisans with equipment for settling.

For over 100 years after the first Frenchman came it was under the dominion of France, and during sixty years of this time, under a French governor. From 1760 to 1796 it was controlled by the British. The fort was commanded by English officers, and Scotch merchants began to change the character of the place. After thirty-six years of English rule the American flag floated over the fort and the New England influence came. The importance of the post brought as commanders the most noted officers, and some of the leading eastern families made Detroit their home. Again in 1812, the English flag waved over the fort for thirteen months to be replaced by the stars and stripes after Perry's victory in the Battle of Lake Erie.

We were born of romance, of war and fire, and out of that has come the splendid citizenship such as you see today. The class of people here are rugged and hearty, brave and courageous, until I think we now have what we may call a wonderful city. You may think that we are only an automobile city. Well, that is true, because Detroit makes more automobiles than any city in the world. We were on a solid financial basis long before the automobile came. We lead the world in many manufacturing products, like stoves, and in pharmaceutical preparations we are second to none in the world.

We have the vast factories which, I hope, you will be delighted with and take great pleasure in going through and seeing how automobiles are turned out, one every minute, starting at the beginning, with nothing at all, and passing along down to the end of the factory until you see the men turn out a complete automobile that runs under its own power. These vast factories are controlled by men that are strong and sturdy because no industry, my friends, can be greater than its source. It cannot be greater than what is behind it, namely, the men, and unless these men are people of character, people of integrity, people of broad spirit and great souls, that industry is bound to fail absolutely.

I am personally acquainted with all the gasoline kings of Detroit, and I am glad to say to you that they are men of the highest integrity, men who are looking and working for the betterment of the world because they do not look on the men who stand at the machinery and do the work as their serfs and slaves but they look on them as their fellow men—men who deserve and are receiving an honest living wage in order that they may live and grow up, not as slaves, but as good American citizens. They are paid enough money so that they can dress their wives and children in proper style and be self-respecting. The children are sent to school and are taught the constitution of Michigan and the constitution of the United States. They teach them the English language, and these children grow up to honor and respect the government, the law, and the flag under which they live. (Applause.) Now, my friends, that is true citizenship. That is preparedness which the governor talked about because you are making fundamentally stalwart men—men who not only become first class citizens but also self-respecting, moral, healthy people. All this is being done by the manufacturers here in the city of Detroit, and they are well worthy of the progress and of all the success they have attained. I want you to go among them. I want you to enjoy yourselves. Leave dull care at home. Do not think about the patients you have left at home sick in bed. They will all get well while you are away. (Laughter.) Give them a chance. Do not worry about them, because it is human nature, if you have fixed them all right for them to think they will be all right. You give them advice how to live and how to keep their health, but they will go right straight back and do the very things that you told them not to do, and you will be on the job and you will not lose a cent. (Laughter.)

The working men of this city, after being in hot places during the week in the factories, working hard, on Saturday and Sunday, with their wives and children, take their little baskets and go to the parks where they can all enjoy themselves to their hearts' content. For that reason, this is one of the greatest labor markets in the world. We very rarely have any trouble with labor of any kind in this city, especially any trouble with honest labor. Once in a while, an agitator thinks he has got to do something.

The mayor told me to tell you that he had instructed the police department not to interfere with anything you do. He said that boys will be boys, and that when they get away from home and have a good time, they are too level-headed to do anything which is indiscreet.

My friends, members of the American Medical Association, I thrice welcome you to the beautiful city of Detroit, and I hope you will enjoy yourselves immensely. (Loud applause.)

ADDRESS OF WELCOME BY PRESIDENT OF THE MICHIGAN STATE MEDICAL SOCIETY

Dr. A. W. Hornbogen, president of the Michigan State Medical Society, delivered the following address:

Mr. President, Fellow Members of the American Medical Association, Ladies and Gentlemen: I esteem it an honor that it has fallen to me, as president of the Michigan State Medical Society, to welcome you to this city.

Sixty years ago, in 1856, you met for the first time on Michigan soil. Your president, on that occasion, was Dr. Zina Pitcher of Detroit. It is not probable that any member here present was in attendance at that meeting.

Eighteen years later, you honored our state with your presence; Detroit was again chosen as the place of meeting, and Dr. Joseph Toner of Washington, D. C., was your president.

In 1892 Detroit was once more your meeting place, and Dr. Henry O. Marcy of Boston, one of the renowned surgeons of his day, was your presiding officer.

Twenty-four years have elapsed since your last visit, and I can assure you that after the close of this meeting, you, as members of the various state medical societies, remembering with gladness the royal welcome and entertainment tendered you by the medical men of Wayne County, will not forget to instruct your delegates to the American Medical Association not to have a quarter of a century elapse before coming to see us again.

We, the members of the Michigan State Medical Society, as proud citizens of one of the fairest states in the Union, and as brothers of a common profession, extend to you a most hearty welcome. (Applause.)

In closing, I wish to refer briefly to the herculean work accomplished by one of the members of our state medical society, Dr. Beverly D. Harison. He has probably done more for the medical profession in the United States, and the people of this country, than almost any other man present today. When you stop to consider that in June, 1901, the National Confederation of Medical Examining and Licensing Boards passed a resolution that medical reciprocity was an impossible proposition, you will find that in spite of all the pessimistic forecasts, Dr. Harison, at the instigation of the Michigan State Board of Registration, commenced in the same year his arduous work, which led in January, 1902, to the foundation of the American Federation of Reciprocating, Examining and Licensing Medical Boards in Chicago.

This federation from the membership standpoint was certainly a small one, but it has grown until now it is responsible for the present status of reciprocity throughout the United States, and includes four fifths of the states of the Union. (Applause.)

Dr. Vander Veer, in introducing and installing the President, Dr. Rupert Blue, said: Faithful in all things, successful in every mission given to him by this great United States government, I take great pleasure in introducing to you Dr. Rupert Blue, Surgeon-General of the United States Public Health Service, as your President. (Applause.)

President Blue then delivered his address, on "Some of the Larger Problems of the Medical Profession," which was published in THE JOURNAL, June 17, 1916, p. 1899.

Adjourned.

MINUTES OF THE SECTIONS

SECTION ON PRACTICE OF MEDICINE

First Day, June 13—Afternoon

The meeting was called to order by the chairman, Dr. Roger S. Morris, Cincinnati.

Dr. C. F. Hoover, Cleveland, was appointed on the Executive Committee in the absence of Dr. Charles Lyman Greene, St. Paul.

Dr. Walter V. Brem, Los Angeles, read a paper on "Blood Transfusion, With Special Reference to Blood Grouping." Discussed by Drs. Richard Lewisohn, New York; George R. Minot, Boston; F. G. Novy, Ann Arbor, Mich.; A. Jacobi, New York, and Walter V. Brem, Los Angeles.

Drs. Henry Sewall, William C. Mitchell and Cuthbert Powell, Denver, presented a paper on "Preliminary Observations on the Apparently Immunizing Behavior of the Mixed Serums of Immune and Hypersensitive Guinea-Pigs." Discussed by Drs. F. G. Novy, Ann Arbor, Mich.; Samuel J. Meltzer, New York, and Henry Sewall, Denver.

Dr. Downey L. Harris, St. Louis, read a paper on "Comparative Results in Antirabic Treatment with the Pasteur Method and with Desiccated Virus." Discussed by Drs. Samuel J. Meltzer, New York; William W. Tompkins, Charleston, W. Va., and Robert A. Peers, Colfax, Calif.

Wednesday, June 14—Morning

The following were appointed as a nominating committee: Drs. Nellis B. Foster, New York; Lawrence Litchfield, Pittsburgh, and Walter V. Brem, Los Angeles.

The following papers were read as a symposium on "Tests for Renal Function":

Dr. Nellis B. Foster, New York: "A Consideration of Types of Uremia."

Drs. Arthur F. Chace, New York, and Victor C. Myers, Albany, N. Y.: "The Value of Recent Laboratory Tests in the Diagnosis and Treatment of Nephritis, with Special Reference to the Chemical Examination of the Blood."

Drs. Herman O. Mosenthal and D. Sclater Lewis, Baltimore: "A Comparative Study of Tests for Renal Function."

These three papers were discussed by Drs. Henry A. Christian, Boston; Samuel J. Meltzer, New York; L. F. Barker, Baltimore; A. W. Hewlett, Ann Arbor, Mich.; H. J. Lehnhoff, Lincoln, Neb.; Nellis B. Foster, New York; Arthur F. Chace, New York, and Herman O. Mosenthal, Baltimore.

Dr. Edward C. Rosenow, Rochester, Minn., read a paper on "Lesions of the Nervous System Following Intravenous Injection of Bacteria." Discussed by Drs. Frank Billings, Chicago; Ernest Zueblin, Baltimore; Samuel J. Meltzer, New York; G. Canby Robinson, St. Louis; Henry A. Christian, Boston, and Edward C. Rosenow, Rochester, Minn.

Dr. Samuel Robinson, Rochester, Minn., read a paper on "Thoracic Disease—The Status of Surgical Therapy." Discussed by Drs. Willy Meyer, New York; F. T. Lord, Boston; Samuel J. Meltzer, New York, and Samuel Robinson, Rochester, Minn.

Wednesday, June 14—Afternoon

A joint meeting was held with the Section on Surgery, General and Abdominal. For a report of the proceedings, see the minutes of that section.

Thursday, June 15—Morning

The following officers were elected: chairman, Dr. Henry A. Christian, Boston; vice chairman, Dr. Douglas Vanderhoof, Richmond, Va.; secretary, Dr. James S. McLester, Birmingham, Ala.; delegate, Dr. Samuel J. Meltzer, New York; alternate, Dr. Herbert C. Moffitt, San Francisco.

Drs. Thomas McCrae and Elmer H. Funk, Philadelphia, presented a paper on "Localized Bronchiectasis Involving the Upper Portions of the Lung, with Report of Four Cases (Necropsy)." Discussed by Drs. F. T. Lord, Boston; Thomas McCrae, Philadelphia, and Elmer H. Funk, Philadelphia.

Dr. John E. Greiwe, Cincinnati, read a paper on "Premature Ventricular Systoles and Their Clinical Significance." Discussed by Dr. Charles F. Hoover, Cleveland, and Walter J. Wilson, Detroit.

The following papers were read as a symposium on "Disturbances of Cardiac Mechanism":

Dr. Albion W. Hewlett, Ann Arbor, Mich.: "The Significance of Pulse Form."

Dr. G. Canby Robinson, St. Louis: "The Relation of Changes in the Form of the Electrocardiogram to Functional Derangements of the Heart Muscle."

Dr. Francis W. Peabody, Boston: "Some Factors in the Production of Cardiac Dyspnea."

Dr. Augustus W. Crane, Kalamazoo, Mich.: "Roentgenograms: Polygraphic Strip Tracings of Heart Chambers by the Roentgen Ray."

These four papers were discussed by Drs. Frank N. Wilson, Ann Arbor, Mich.; S. Marx White, Minneapolis; Philip S. Roy, Washington, D. C.; Hugo A. Freund, Detroit; F. T. Lord, Boston; Albion W. Hewlett, Ann Arbor, Mich., and John E. Greiwe, Cincinnati.

Drs. Walter Hamburger, Harry Ginsburg and Isadore Tumpowsky, Chicago, presented a paper on "Mechanism of Hunger Pain in Chronic Ulcer." No discussion.

Dr. Willard J. Stone, Toledo, Ohio, read a paper on "Further Experiences with Carbohydrate Restriction in the Treatment of Hyperchlorhydria and Ulcer." Discussed by Drs. Samuel J. Meltzer, New York; M. H. Fussell, Philadelphia; Anthony Bassler, New York; J. W. Draper, New York; Isadore Tumpowsky, Chicago, and Willard J. Stone, Toledo.

Dr. Cabot Lull, Birmingham, Ala., read a paper on "Syphilis as a Probable Factor in Vague Stomach Disorders." No discussion.

Dr. H. L. McNeil, Galveston, Texas, read a paper on "Syphilis in the Southern Negro as Determined by One Thousand Wassermann and Luetin Reactions Done on Hospital Patients." Discussed by Drs. Frank Smithies, Chicago, and Fenton B. Turck, New York.

SECTION ON SURGERY, GENERAL AND ABDOMINAL

Tuesday, June 13—Afternoon

The meeting was called to order at 2:05 by the chairman, Dr. E. Wyllys Andrews, Chicago.

Dr. Andrews then read the chairman's address, entitled "The Relation of Practical Surgery to the Pure Sciences." No discussion.

Dr. George W. Crile, Cleveland, read a paper on "Practical Results of Newer Methods in Surgery of the Stomach and Intestines." Discussed by Drs. A. J. Ochsner, Chicago; R. C. Coffey, Portland, Ore.; Henry O. Marcy, Boston; John B. Deaver, Philadelphia; Alfred A. Strauss, Chicago, and G. W. Crile, Cleveland.

Dr. John A. Wyeth, New York, read a paper on "Some Observations on the Teaching of the Surgeon." Discussed by Drs. A. D. Bevan, Chicago; John D. Milligan, Pittsburgh; Thomas A. Stoddard, Pueblo, Colo.; H. O. Marcy, Boston, and John A. Wyeth, New York.

Dr. A. Bennett Cooke, Los Angeles, read a paper on "Nitrous Oxid-Oxygen Anesthesia in Major Surgery." Discussed by Drs. W. I. Terry, San Francisco; L. M. Gaines, Atlanta, Ga., and Mr. C. K. Teter, Cleveland.

Dr. Charles N. Dowd, New York, read a paper on "Tuberculosis of the Cervical Lymphatics." Discussed by Drs. John F. Golden, Chicago; Robert T. Morris, New York; W. E. Ladd, Boston; Willy Meyer, New York, and C. N. Dowd, New York.

Dr. Emil G. Beck, Chicago, read a paper on "Incorrect Technic as a Cause of Failure in the Application of Bismuth Paste in Chronic Suppurative Sinuses and Empyema." Discussed by Drs. A. J. Ochsner, Chicago, and Emil G. Beck, Chicago.

WEDNESDAY, JUNE 14—MORNING

Dr. C. A. Elsberg, New York, read a paper on "Some Technical Features of Spinal Surgery, with Report of Results in 150 Spinal Operations." Discussed by Drs. E. Sachs, St. Louis, and C. A. Elsberg, New York.

Dr. Arthur A. Law, Minneapolis, read a paper on "Surgery of the Brachial Plexus." Discussed by Drs. Dean D. Lewis, Chicago, and Arthur A. Law, Minneapolis.

Dr. Carl B. Davis, Chicago, read a paper on "Free Transplantation of the Omentum Subcutaneously and Within the Abdomen." Discussed by Drs. Alfred A. Strauss, Chicago; John Staige Davis, Baltimore, and A. T. Mann, Minneapolis.

Dr. J. Shelton Horsley, Richmond, Va., read a paper on "Operative Treatment for Threatened Gangrene of the Foot, with Special Reference to Reversal of the Circulation." Discussed by Drs. Dewitt Stetten, New York; Charles Goodman, New York; Nathaniel Ginsburg, Philadelphia; Carl Beck, Chicago; G. M. Dorrance, Philadelphia; E. Laplace, Philadelphia; J. F. Corbett, Minneapolis, and J. Shelton Horsley, Richmond, Va.

Dr. Charles C. Green, Houston, Texas, read a paper on "Stab Wounds of the Chest Involving the Diaphragm with Diaphragmatic Hernia." Discussed by Drs. J. E. Moore, Minneapolis, and Charles C. Green, Houston, Texas.

WEDNESDAY, JUNE 15—AFTERNOON

A joint meeting was held with the Section on Practice of Medicine.

The meeting was called to order by Dr. Roger S. Morris, Cincinnati.

The following papers were read as a symposium on the "Spleen."

Dr. George R. Minot, Boston, and Dr. Roger I. Lee, Boston: "The Immediate Effects of Splenectomy in Pernicious Anemia."

Dr. E. B. Krumbhaar, Philadelphia: "Late Results of Splenectomy in Pernicious Anemia."

Dr. Joseph L. Miller, Chicago: "Splenectomy in Chronic Anemia, Exclusive of Pernicious Anemia, and in Chronic Icterus."

Dr. Charles H. Peck, New York: "Splenectomy for Hemolytic Jaundice."

Dr. Donald C. Balfour, Rochester, Minn.: "Indications for Splenectomy in Pernicious Anemia and the Technic of the Operation."

Dr. Roy D. McClure, Baltimore: "Pernicious Anemia Treated by Splenectomy and Often-Repeated Blood Transfusions."

These six papers were discussed by Drs. Frank Smithies, Chicago; Beth Vincent, Boston; H. Z. Giffin, Rochester, Minn.; W. S. Thayer, Baltimore; G. A. Friedman, New York; S. J. Meltzer, New York; Walter V. Brem, Los Angeles; Roger I. Lee, Boston; Edward B. Krumbhaar, Philadelphia, and Joseph L. Miller, Chicago.

THURSDAY, JUNE 15—MORNING

The meeting was called to order at 9:15 by the vice chairman, Dr. Fred T. Murphy, St. Louis.

The following officers were elected: chairman, Dr. W. D. Haggard, Nashville, Tenn.; vice chairman, Dr. A. A. Law, Minneapolis; secretary, Dr. E. H. Pool, New York; delegate, Dr. Dean D. Lewis, Chicago; alternate, Dr. John T. Bottomley, Boston.

Dr. Charles H. Mayo, Rochester, Minn., read a paper on "Removal of the Right Colon: Indications and Technic."

Dr. John T. Bottomley, Boston, read a paper on "Some Results of Colectomy and Exclusion of the Colon in Cases of Chronic Arthritis."

These two papers were discussed by Drs. Rea E. Smith, Los Angeles; W. R. MacAusland, Boston; J. M. Lynch, New York; J. E. Tuckerman, Cleveland; J. Shelton Horsley, Richmond, Va.; J. W. Draper, New York; Joseph E. Johnson, Memphis, Tenn., and Charles H. Mayo, Rochester, Minn.

Dr. Raymond P. A. Sullivan, Brooklyn, read a paper on "Perforating Ulcers of the Stomach and Duodenum." Discussed by Drs. Charles H. Peck, New York; J. T. Bottomley, Boston; H. D. Johnson, New York, and R. P. A. Sullivan, Brooklyn.

Dr. John Staige Davis, Baltimore, read a paper on "Plastic and Reconstructive Surgery." Discussed by Drs. Emery Marvel, Atlantic City, N. J., and J. S. Stone, Boston.

Dr. W. W. Grant, Denver, read a paper on "Sarcoma of Intra-Abdominal Testicle." Discussed by Drs. William B. Coley, New York, and W. W. Grant, Denver.

Dr. F. Gregory Connell, Oshkosh, Wis., read a paper on "Chronic Appendicitis." Discussed by Drs. J. A. Black, Pueblo, Colo.; E. Laplace, Philadelphia, and M. H. Fussell, Philadelphia.

THURSDAY, JUNE 15—AFTERNOON

The meeting was called to order at 2:15 by the chairman, Dr. E. Wyllys Andrews, Chicago.

Dr. Emmet Rixford, San Francisco, delivered the oration on surgery, entitled "Surgical Aspects of the Industrial Accident Insurance." No discussion.

Dr. Lincoln Davis, Boston, read a paper on "Complications and Sequelae of the Operation for Inguinal Hernia." Discussed by Drs. Henry O. Marcy, Boston; Daniel N. Eisendrath, Chicago; Edward W. Lee, New York, and Lincoln Davis, Boston.

Dr. R. L. Payne, Jr., Norfolk, Va., read a paper on "The Surgical Problem of Symptomless Hematuria: Its Causes and Surgical Relief." Discussed by Drs. H. A. Royster, Raleigh, N. C.; J. S. Horsley, Richmond, Va., and R. L. Payne, Jr., Norfolk, Va.

Dr. A. R. MacAusland, Boston, read a paper on "A Consideration of Fractures and Other Injuries of the Hip."

Dr. John C. A. Gerster, New York, read a paper on "Nail Extension in Fractures of the Lower Extremity."

Dr. Arthur T. Mann, Minneapolis, read a paper on "Nails and Screws Through Joint Surfaces in Autografts and in Fractures Into Joints."

These three papers were discussed by Drs. Charles E. Thompson, Scranton, Pa.; R. H. Sayre, New York; F. H. Albee, New York; James T. Watkins, San Francisco; W. R. MacAusland, Boston; Charles A. Parker, Chicago; A. B. Fitch, Factoryville, Pa.; L. F. Schmauss, Alexandria, Ind., and A. T. Mann, Minneapolis.

SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY

TUESDAY, JUNE 13—AFTERNOON

The meeting was called to order at 2 p. m. by the chairman, Dr. Edward Reynolds, Boston.

Dr. E. E. Montgomery, Philadelphia, on motion, occupied the chair during the reading of the chairman's address. Dr. Reynolds expressed the hope that Dr. Montgomery might consider discussion of the chairman's address, although such discussion was contrary to custom.

Dr. Edward Reynolds then presented the chairman's address, entitled "The Uterine Secretions, Spermatozoa and Ovaries in Fertility and Sterility: From Microscopic Studies." Discussed by Drs. Emil Novak, Baltimore, and E. Gustav Zinke, Cincinnati.

Dr. Reynolds then resumed the chair.

Dr. Emil Novak, Baltimore, read a paper on "The Corpus Luteum—Its Life Cycle and Its Rôle in Menstrual Disorders." Discussed by Dr. Carey Culbertson, Chicago, and Dr. Emil Novak, Baltimore.

Dr. Henry T. Hutchins, Boston, read a paper on "The Rôle of the Anteposed Uterus in the Causation of Backache and Pelvic Symptoms." Discussed by Drs. Channing W. Barrett and Albert Goldspohn, Chicago; Dr. Walter P. Manton, Detroit; Dr. E. E. Montgomery, Philadelphia; Dr. J. H. Carstens, Detroit, and Dr. Henry T. Hutchins, Boston.

Drs. Frederick H. Falls and Josiah J. Moore, Chicago, presented a paper on "The Value of the Wassermann Test in Pregnancy," which was read by Dr. Falls. Discussed by Dr. E. P. Davis, Philadelphia; Dr. J. R. Losee, New York, and Dr. Frederick H. Falls, Chicago.

Dr. Thomas S. Cullen, Baltimore, read a paper on "Adenomyoma of the Rectovaginal Septum." Discussed by

Drs. Carey Culbertson, Chicago, and Thomas S. Cullen, Baltimore.

Dr. Frederick C. Holden, Brooklyn, read a paper on "Obstetrics and Gynecology Under Ideal Conditions in a General Hospital." Discussed by Drs. John Osborn Polak, Brooklyn; Charles S. Bacon, Chicago; H. P. Newman, San Diego, Calif., and Frederick C. Holden, Brooklyn.

WEDNESDAY, JUNE 14—MORNING

Drs. J. M. Lynch and W. L. McFarland, New York, presented a paper on "Colonic Infections: Some Seldom Described Nonspecific Types," which was read by Dr. Lynch. Discussed by Drs. J. W. Draper, New York, and J. M. Lynch, New York.

Dr. Joseph Rilus Eastman, Indianapolis, read a paper on "Congenital Inflammation, Deformation and Defunctionalization of the Caudad Ileum and Colon." Discussed by Drs. Albert Goldspohn, Chicago; F. Gregory Connell, Oshkosh, Wis.; J. M. Lynch, New York; J. N. Jackson, Kansas City, Mo., and Joseph Rilus Eastman, Indianapolis.

Dr. Charles A. L. Reed, Cincinnati, read a paper on "Anterior Parietal Implantation of the Colon for Ptosis." Discussed by Drs. Franklin H. Martin, Chicago; Robert T. Morris, New York; Emery Marvel, Atlantic City, N. J., and Charles A. L. Reed, Cincinnati.

Dr. Albert J. Ochsner, Chicago, read a paper on "The Prevention of Obstruction of the Passage of Gas Following Operations on the Colon." Discussed by Drs. W. D. Haggard, Nashville, Tenn.; Charles A. L. Reed, Cincinnati, and Dr. Albert J. Ochsner, Chicago.

Dr. Charles H. Mayo, Rochester, Minn., presented a paper on "Radical Operations for the Cure of Cancer of the Second Half of the Large Intestine." Discussed by Drs. Edward Martin, Philadelphia; J. M. Lynch, New York; R. C. Coffey, Portland, Ore.; J. W. Draper, New York; Julius H. Jacobson, Toledo, Ohio, and Dr. Charles H. Mayo, Rochester, Minn.

WEDNESDAY, JUNE 14—AFTERNOON

Dr. John W. Draper, New York, read a paper on "Intestinal Obstruction: Further Experimental Studies." Discussed by Drs. H. D. Johnson, New York; C. Hugh McKenna, Chicago, and John W. Draper, New York.

Dr. John Young Brown, St. Louis, read a paper on "The Superiority of the Right Side Anus in the Handling of Partial and Complete Obstructions of the Lower Colon and Sigmoid in Cases Unsuited for Radical Operation." Discussed by Drs. J. M. Lynch, New York; J. Shelton Horsley, Richmond, Va., and John Young Brown, St. Louis.

Dr. Thomas J. Watkins, Chicago, read a paper on "Pelvic Infection in Women; Notes on Some Features of the Disease." Discussed by Drs. E. P. Davis, Philadelphia; Thomas S. Cullen, Baltimore; F. F. Lawrence, Columbus, Ohio; James C. McMechan, Cincinnati; J. H. Carstens, Detroit; Channing W. Barrett, Chicago; John B. Deaver, Philadelphia, and Thomas J. Watkins, Chicago.

Dr. John G. Clark and Dr. Charles C. Norris, Philadelphia, presented a paper on "Results Following the Treatment of Pelvic Inflammatory Lesions By Surgical Measures," which was read by Dr. Clark. Discussed by Dr. L. S. McMurtry, Louisville, Ky.; E. W. Lee, New York; R. C. Coffey, Portland, Ore.; Gordon G. Copeland, Toronto; Albert Goldspohn, Chicago, and John G. Clark, Philadelphia.

THURSDAY, JUNE 15—MORNING

The following officers were nominated and elected: chairman, Dr. H. W. Longyear, Detroit; secretary, Brooke M. Anspach, Philadelphia; delegate, Horace G. Wetherill, Denver; alternate, Thomas S. Cullen, Baltimore.

Dr. Gustav E. Zinke, Cincinnati, read a paper on "The External Signs of Diagnosis of the Attitude of the Fetus in Utero." Discussed by Drs. Walter P. Manton, Detroit; John Osborn Polak, Brooklyn; Rachelle S. Yarros, Chicago, and Gustav A. Zinke, Cincinnati.

Dr. James W. Markoe, New York, read a paper on "Posture in Obstetrics." Discussed by Drs. Rudolph W. Holmes, Chicago; Charles S. Bacon, Chicago; E. W. Lee, New York; E. P. Davis, Philadelphia; Gustav A. Zinke, Cincinnati, and James W. Markoe, New York.

Dr. Isadore L. Hill, New York, read a paper on "The Use of Chloroform in the First Stages of Labor." Discussed by Drs. C. H. Davis, Chicago; Joseph B. De Lee, Chicago; John Osborn Polak, Brooklyn; Gustav A. Zinke, Cincinnati; J. H. Carstens, Detroit; Walter P. Manton, Detroit; H. O. Marcy, Boston; C. W. Simpson, Waxahachie, Texas; Chester R. Ogden, Clarksburg, W. Va.; Gordon G. Copeland, Toronto, and Isadore L. Hill, New York.

Dr. Edward P. Davis, Philadelphia, read a paper on "Obstetric Surgery, A Modern Science; Its Scope and Limitations." Discussed by Drs. Charles S. Bacon, Chicago; Rudolph W. Holmes, Chicago; Gustav A. Zinke, Cincinnati, and John Osborn Polak, Brooklyn.

With the consent of the section, the chairman announced that he would ask Dr. De Lee of Chicago to read his paper and that the discussion might be continued to include the two papers.

Dr. Joseph B. De Lee, Chicago, read a paper on "Meddlesome Midwifery in Renaissance," and the discussion was continued by Drs. A. J. Rongy, New York; Edward P. Davis, Philadelphia, and Joseph B. De Lee, Chicago.

THURSDAY, JUNE 15—AFTERNOON

Dr. Walter Lathrop, Hazleton, Pa., read a paper on "Umbilical Hernia and Lipectomy." Discussed by Drs. W. Wayne Babcock, Philadelphia; Henry O. Marcy, Boston, and Walter Lathrop, Hazleton, Pa.

Dr. John W. Keefe, Providence, R. I., read a paper on "Sheet Rubber Superior to Gauze Sponges in Abdominal Operation." Discussed by Drs. Richard R. Smith, Grand Rapids, Mich.; C. H. Magee, Burlington, Iowa; S. C. Stremmel, Macomb, Ill.; Stephen E. Tracy, Philadelphia; F. F. Lawrence, Columbus, Ohio; John J. Reycraft, Petoskey, Mich., and John W. Keefe, Providence, R. I.

Dr. Donald Guthrie, Sayre, Pa., read a paper on "Indications for Cholecystectomy." Discussed by Drs. John B. Deaver, Philadelphia; H. S. Noble, St. Marys, Ohio, and F. F. Lawrence, Columbus, Ohio.

Dr. Stephen E. Tracy, Philadelphia, read a paper on "A Report on One Hundred Consecutive Cases of Fibromyomata Uteri Subjected to Operation."

Dr. John B. Deaver, Philadelphia, read a paper on "Operative Treatment of Fibromyomatous Uterine Tumors."

Dr. Julius H. Jacobson, Toledo, Ohio, read a paper on "Recent Progress in the Surgical Treatment of Uterine Cancer." These three papers were discussed by Drs. Henry T. Byford, Chicago; J. H. Carstens, Detroit; Henry Schmitz, Chicago; F. F. Lawrence, Columbus, Ohio; E. W. Lee, New York; C. M. Echols, Milwaukee, Wis.; Stephen A. Tracy, Philadelphia; John B. Deaver, Philadelphia, and Julius H. Jacobson, Toledo, Ohio.

SECTION ON OPHTHALMOLOGY

TUESDAY, JUNE 13—AFTERNOON

The meeting was called to order at 2 o'clock, by the chairman, Dr. Walter R. Parker, Detroit.

Dr. Walter R. Parker, Detroit, read the chairman's address, entitled "The Relation of Choked Disk to the Tension of the Eyeball in Brain Tumor Cases." Discussed by Drs. James Bordley, Jr., Baltimore, and John E. Weeks, New York.

Dr. Mark J. Schoenberg, New York, read a paper on "Intracranial Treatment of Syphilitic and Parasyphilitic Optic Nerve Affections; Physiologic Evidences. Researches on Intravital Staining of the Optic Nerve." Discussed by Dr. Udo J. Wile, Ann Arbor, Mich.; James B. Ayer, Jr., Boston; J. S. Wyler, Cincinnati; George S. Derby, Boston, and Mark J. Schoenberg, New York.

Dr. Cassius D. Wescott, Chicago, read a paper on "A Case of Granuloma Pyogenicum Affecting the Eyelid." Discussed by Drs. Lee Masten Francis, Buffalo; Udo J. Wile, Ann Arbor, Mich.; John E. Weeks, New York; Harold Gifford, Omaha; Edward Jackson, Denver, and Cassius D. Wescott, Chicago.

Dr. George Slocum, Ann Arbor, Mich., read a paper on "A Study of Ophthalmoscopic Changes in Nephritis." Discussed by Drs. A. E. Bulson, Jr., Fort Wayne, Ind.; E. E. Blaauw, Buffalo; E. J. Bernstein, Kalamazoo, Mich.; George E. de Schweinitz, Philadelphia; S. D. Risley, Philadelphia; Edward Jackson, Denver; Walter R. Parker, Detroit, and George Slocum, Ann Arbor, Mich.

Dr. William L. Clark, Philadelphia, read a paper on "The Uses of the Desiccation Method in Ophthalmology, with Special Reference to Epithelioma of Lids, Canthi and Conjunctiva: Report of Cases," with lantern demonstration. Discussed by Drs. S. Lewis Ziegler, Philadelphia; W. C. Posey, Philadelphia, and by William L. Clark, Philadelphia.

WEDNESDAY, JUNE 14—MORNING

The following cases and new instruments were presented:

Dr. G. M. Waldeck, Detroit, presented a child with blue sclerotics, who was subject to spontaneous fractures.

Dr. Lucien Howe, Buffalo, exhibited an instrument involving thermocouples for measuring the temperature of the eye.

Dr. E. J. Bissell, Rochester, N. Y., presented an instrument for a two-point fixation test for campimetry.

D. J. E. Jennings, St. Louis, presented his latest modification of his skein colorblindness test.

Dr. G. C. Savage, Nashville, Tenn., presented an improvement on Dr. Vard H. Hulen's vacuum cup for use in extraction of the cataractous lens in its capsule. Discussed by Drs. G. C. Savage, Nashville, Tenn., and Vard H. Hulen, San Francisco.

Dr. Mark J. Schoenberg, New York, exhibited some specimens demonstrating the permeability of the optic nerve and its sheath by substances injected into the spinal canal and intraventricularly.

Dr. H. S. Gradle, Chicago, in discussing Dr. Schoenberg's specimens, suggested that the optic nerve might be reached by injections into the nasal and accessory sinuses, and described the anatomy of the parts.

Dr. Walter R. Parker, Detroit, exhibited a monkey in which a brain tumor had been induced by the introduction of a foreign substance under the dura, producing a swelling of the disk. After a month the swelling was shown to be subsiding, although the foreign substance was still within the cavity.

Dr. H. S. Gradle, Chicago, read a paper on "A New Instrument for the Clinical Measurement of Dark Adaptation." Discussed by Drs. E. A. Willis, Indianapolis, and Walter B. Lancaster, Boston.

Dr. Lucien Howe, Buffalo, read a paper on "The Fatigue of Accommodation as Registered by the Ergograph." Discussed by Drs. Hiram Woods, Baltimore; G. C. Savage, Nashville, Tenn.; Walter B. Lancaster, Boston; E. E. Blaauw, Buffalo; George H. Price, Nashville, Tenn., and Lucien Howe, Buffalo.

Dr. Edward C. Ellett, Memphis, Tenn., read a paper on "A Primary Intradural Tumor of the Optic Nerve: Removal with Preservation of the Ball." Discussed by Drs. G. E. de Schweinitz, Philadelphia, and Arnold Knapp, New York.

Dr. Harold Gifford, Omaha, read a paper on "Homatropin Glaucoma: Its Occurrence and Prevention." Discussed by Drs. Eugene Smith, Detroit; Charles H. May, New York; W. W. Kahn, Detroit; John Green, St. Louis; A. G. Bennett, Buffalo; Hiram Woods, Baltimore; A. E. Bulson, Jr., Fort Wayne, Ind.; E. E. Blaauw, Buffalo; John E. Weeks, New York; W. H. Wilder, Chicago; Frederick Frisch, Atlantic City, N. J.; J. W. Charles, St. Louis, and Harold Gifford, Omaha.

Dr. S. D. Risley, Philadelphia, moved that the executive committee or the committee on publication be instructed to confer with the author of the paper with a view to changing the title.

The author consented to a change in the title, and the motion, though seconded, was not voted on.

Dr. William Zentmayer, Philadelphia, read a paper on "Traumatic Pulsating Exophthalmos." Discussed by Drs. Frank E. Burch, St. Paul; W. H. Wilder, Chicago; M. H. Lebensohn, Chicago; Harold Gifford, Omaha, T. B. Holloway, Philadelphia, and William Zentmayer, Philadelphia.

WEDNESDAY, JUNE 14—AFTERNOON

Dr. Will Walter, Chicago, read a paper on "The Etiology of Nonparalytic Ocular Imbalance: Some Original Conceptions and Interpretations Based on the Physiology and Psychology of Ocular Movements." Discussed by Drs. G. C. Savage, Nashville, Tenn.; George H. Price, Nashville, Tenn.; Wendell Reber, Philadelphia, and Will Walter, Chicago.

Dr. Wendell Reber, Philadelphia, read a paper on "Heterophoria in Children." Discussed by Dr. George H. Price, Nashville, Tenn.; A. E. Bulson, Jr., Fort Wayne, Ind.; G. C. Savage, Nashville, Tenn., and Wendell Reber, Philadelphia.

Dr. F. C. Todd, Minneapolis, read a paper on "Strabismus Produced by Operations for Strabismus: A Consideration of Causes Producing Deformities Following Strabismus Operations, with Suggestions for Corrective Operative Procedure."

Dr. Roderic P. O'Connor, Oakland, Calif., read a paper on "A New Shortening Technic, with Report of Forty-Two Operations."

These two papers were discussed by Drs. H. W. Woodruff, Joliet, Ill.; W. C. Posey, Philadelphia; Oscar Dodd, Chicago; Lucien Howe, Buffalo; G. C. Savage, Nashville, Tenn.; Will Walter, Chicago; Wendell Reber, Philadelphia, F. C. Todd, Minneapolis, and Roderic P. O'Connor, Oakland, Calif.

At the close of the scientific program, Dr. Aaron Samuel Green, San Francisco, presented some moving pictures of India of Colonel Smith operating for cataract by his method, and some other operations showing the removal of the cataract in capsule according to the Smith method.

THURSDAY, JUNE 15—MORNING

Dr. C. H. Williams, Boston, chairman, read the report of the Committee on Color Vision. Discussed by Drs. F. Park Lewis, Buffalo; Walter R. Parker, Detroit, and Nelson M. Black, Milwaukee, Wis.

Dr. Walter R. Parker, Detroit, moved that the last paragraph of the report which recommends the use of additional field tests for enginemen be eliminated. Motion carried.

Dr. F. C. Todd, Minneapolis, moved the adoption of the report as amended, and the discharge of the committee. Motion carried.

Dr. Edward Jackson, Denver, chairman, read the report of the committee on Standardizing Test Cards for Visual Acuity. Discussed by C. H. Williams, Boston, and Edward Jackson, Denver.

On motion the report was adopted, to be printed in the transactions, and the committee continued.

Dr. Walter R. Parker, Detroit, chairman, read the report of the Committee on Elliot Trephining Operation.

On motion the report was accepted and the committee continued.

Dr. Lucien Howe, Buffalo, chairman, read the report of the Committee on Collective Investigation of the Ocular Muscles.

On motion the report was accepted and the committee continued.

Dr. A. E. Bulson, Jr., Fort Wayne, Ind., chairman, read the report of the Committee on Knapp Testimonial Fund. Discussed by Edward Jackson, Denver, and Casey A. Wood, Chicago. Dr. Jackson moved the acceptance of the report for publication in the transactions. Motion carried.

Dr. George E. de Schweinitz, Philadelphia, chairman, read the report of the Committee on Award of the Knapp Medal. It was moved and seconded that the report of the committee be accepted and the medal awarded in accordance therewith to Dr. George S. Derby, Boston. The motion carried, and Dr. A. E. Bulson, Jr., Fort Wayne, Ind., of the Committee on Knapp Testimonial Fund, presented the medal.

The report concerning a board on education in ophthalmology was summarized by Dr. Edward Jackson, Denver.

Dr. George E. de Schweinitz, Philadelphia, moved that the report be adopted and published. The motion was seconded. On objection by Dr. George H. Price, Nashville, Tenn., that the report could not be adopted without being passed on by the section, but that it could be accepted for publication,

Dr. de Schweinitz withdrew his motion. Dr. Edward Jackson explained that the report was the work of three different organizations and not of the Section on Ophthalmology alone, and was for the purpose of informing the section what had been done. It was not necessary for the section to adopt the report.

Dr. de Schweinitz then moved the acceptance of the report for publication. This motion carried.

Dr. Hiram Woods, Baltimore, chairman, presented the report of the Executive Committee on Nomination for officers of the section and one member of the examining board, Dr. E. C. Ellett's term having expired, as follows: chairman, Dr. William Zentmayer, Philadelphia; vice chairman, Dr. Cassius D. Westcott, Chicago; secretary for the term of three years; Dr. George S. Derby, Boston; representative of the section in the House of Delegates, Dr. F. Phinizy Calhoun, Atlanta, Ga.; member of the Board on Ophthalmic Examinations, Dr. E. C. Ellett, Memphis, Tenn.

Dr. Woods explained that the last was not unanimous, but that Dr. Todd and he thought it was important to keep Dr. Ellett on the committee.

On motion of Dr. Edward Jackson, duly seconded, the chairman of the section was directed to cast the ballot of the section for all of the officers named, which was done.

Nominations were called for the Committee on Award of the Knapp Medal, and the following were nominated: Dr. John E. Weeks, New York; Dr. Charles H. May, New York; Dr. George E. de Schweinitz, Philadelphia, and Dr. William C. Posey, Philadelphia.

Dr. de Schweinitz withdrew his name, and the nominations having on motion been closed, it was moved by Dr. A. E. Bulson that the other three men named be elected as members of the Committee on Award of the Knapp Medal. Motion carried.

Dr. Walter B. Lancaster, Boston, read a paper on "The Preparation of the Patient for Operation." Discussed by Drs. W. H. Wilder, Chicago; W. H. Snyder, Toledo, Ohio; H. S. Gradle, Chicago; M. C. Rose, New York; J. A. Donovan, Butte, Mont.; Aaron Samuel Green, San Francisco; Wendell Reber, Philadelphia; C. W. Hawley, Chicago; Lee M. Francis, Buffalo; M. Feingold, New Orleans, and Walter B. Lancaster, Boston.

Dr. William E. Shahan, St. Louis, read a paper on "Effects of Heat on the Eye." Discussed by Drs. Thomas B. Holloway, Philadelphia; John Green, St. Louis; Lucien Howe, Buffalo, and William E. Shahan, St. Louis.

Dr. Marcus Feingold, New Orleans, read a paper on "Progressive Macular Degeneration in Three Members of a Family." Discussed by Drs. J. E. Weeks, New York; Lucien Howe, Buffalo, and M. Feingold, New Orleans.

Thursday, June 15—Afternoon

Dr. Casey A. Wood, Chicago, gave a lantern demonstration on "A Comparative Study of the Fundus Oculi, Especially in Birds." No discussion.

Dr. Arnold Knapp, New York, read a paper on "Retinal Detachment in Hydrophthalmia." Discussed by Drs. Don M. Campbell, Detroit, and T. B. Holloway, Philadelphia.

Dr. Edward Jackson, Denver, read a paper on "Discission of the Crystalline Lens."

Dr. William Evans Bruner, Cleveland, read a paper on "Preliminary Capsulotomy in Immature Cataract."

These two papers were discussed by Drs. W. E. Gamble, Chicago; L. M. Francis, Buffalo; H. Gifford, Omaha; S. D. Risley, Philadelphia; J. G. Dorsey, Wichita, Kan.; D. C. Louchery, Clarksburg, W. Va.; E. J. Bissell, Rochester, N. Y.; C. W. Hawley, Chicago; Mary Buchanan, Philadelphia; G. C. Savage, Nashville, Tenn.; Edward Jackson, Denver, and W. E. Bruner, Cleveland.

The retiring chairman, Dr. W. R. Parker, thanked all who had contributed to the success of the meeting.

The chairman-elect, Dr. William Zentmayer, was inducted into office.

Dr. S. D. Risley, Philadelphia, moved a rising vote of thanks to the retiring chairman.

SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY

Tuesday, June 13—Afternoon

The meeting was called to order at 2 o'clock by the chairman, Dr. Hill Hastings, Los Angeles.

Dr. Hastings read the chairman's address, entitled "Purulent Infections of the Ear, Nose and Throat: Our Responsibility to the Public."

Dr. Chester C. Cott, Buffalo, read a paper on "Xanthosis and Causes of Septal Bleeding." Discussed by Drs. Emil Mayer, New York; Henry B. Hitz, Milwaukee; George F. Cott, Buffalo; Cullen F. Welty, San Francisco; C. M. Brown, Buffalo, and Chester C. Cott, Buffalo.

Dr. James J. King read a paper by himself and Dr. John J. Conellan, New York, on "Further Observations on the Connellan-King Diplococci Throat Infections and Their Sequelae, with Especial Reference to Arthritis" with lantern demonstration. Discussed by Drs. John J. Connellan, New York; Emil Mayer, New York; Virgil P. Gibney, New York; Isaac H. Jones, Philadelphia; George F. Cott, Buffalo, and James J. King, New York.

Dr. Thomas E. Carmody, Denver, read a paper on "Cleft Palate and Hare Lip" (lantern demonstration), with presentation of a case of cleft palate by Dr. Burt R. Shurly, Detroit. Discussed by Drs. Charles H. Oakman, Detroit; John F. Barnhill, Indianapolis; William W. Carter, New York, and Thomas E. Carmody, Denver.

Dr. Greenfield Sluder, St. Louis, read a paper on "The Method of Tonsillectomy by Means of the Alveolar Eminence of the Mandible and Guillotine." Discussed by Drs. G. Hudson Makuen, Philadelphia; George Paull Marquis, Chicago; W. Eugene Dixon, Oklahoma City; Eugene R. Lewis, Dubuque, Iowa; William W. Carter, New York; John O. McReynolds, Dallas, Texas; John F. Barnhill, Indianapolis; Hanau W. Loeb, St. Louis; William S. Tomlin; Indianapolis; Cullen F. Welty, San Francisco; Elmer E. Henderson, Chicago; Oliver Tydings, Chicago, and Greenfield Sluder, St. Louis.

The chairman appointed as a nominating committee Drs. Robert Levy, Denver; Burt R. Shurly, Detroit, and Norval H. Pierce, Chicago.

Wednesday, June 14—Morning

Dr. Emil Mayer moved that the papers of the morning be read, that the opening discussions be given, and that further discussion be postponed until after the Bárány pictures, to be shown at 11:30. Motion carried.

The following papers were read as a symposium on "Chronic Suppuration of the Nasal Accessory Sinuses":

Dr. Joseph C. Beck, Chicago: "The Evolution of the Frontal Sinus Operation, with Special Reference to the External Operation."

Dr. Lee M. Hurd, New York: "Intranasal Surgery for Relief of Chronic Frontal Sinusitis."

Dr. G. E. Shambaugh, Chicago: "Surgery of the Ethmoid."

Dr. William E. Sauer, St. Louis: "Surgical Treatment of Chronic Suppuration of the Maxillary Sinus."

Dr. Hanau W. Loeb, St. Louis: "The Sphenoid Sinuses; a Review of the Past with Suggestions for the Future."

Dr. Ross H. Skillern, Philadelphia: "Operations on the Sphenoid Sinuses."

Dr. Samuel Iglauer, Cincinnati: "Roentgenography of the Sphenoid and Ethmoid Cells by the Oblique Method (Lantern Demonstration)."

Dr. George F. Cott, Buffalo: "Ethmoid Empyema: Acute and Chronic."

These eight papers were discussed by Drs. H. P. Mosher, Boston; Lee Cohen, Baltimore; H. Y. McNaught, San Francisco; Francis W. Alter, Toledo, Ohio; Joseph C. Beck, Chicago; George F. Cott, Buffalo; G. E. Shambaugh, Chicago, and Samuel Iglauer, Cincinnati.

Wednesday, June 14—Afternoon

The following papers were read as a symposium on "Chronic Suppurative Otitis Media":

Dr. George W. Mackenzie, Philadelphia: "Chronic Middle Ear Suppuration."

Dr. Norval H. Pierce, Chicago: "Nonoperative Treatment of Otitis Media."

Dr. John F. Barnhill, Indianapolis: "End-Results of Treatment of Otitis Media."

These three papers were discussed by Dr. Francis T. Emerson, Boston.

At this time the Bárány pictures were shown, giving tests of vestibular apparatus.

Dr. Emil Mayer, New York, moved that a vote of thanks be extended to Dr. Isaac H. Jones, Philadelphia, for presenting these pictures, and that his remarks be incorporated in the transactions of this section. Motion carried.

The three foregoing papers were further discussed by Drs. W. E. Dixon, Oklahoma City; Cullen F. Welty, San Francisco; Emmett L. Jones, Cumberland, Md.; J. Holinger, Chicago; A. E. Prince, Springfield, Ill.; H. B. Harris, Dayton, Ohio; W. S. Tomlin, Indianapolis; Charles M. Robertson, Chicago; Clark W. Hawley, Chicago; George W. Mackenzie, Philadelphia; Norval H. Pierce, Chicago, and Joseph C. Beck, Chicago.

Dr. Philip D. Kerrison, New York, read a paper on "The Mastoid Operation of Ten Years Ago and Today: Gradual Changes in Operative Methods and Technic. Brief Estimate of the Advance as Measured by Practical Results." Discussed by Drs. R. B. Canfield, Ann Arbor, Mich.; Cullen F. Welty, San Francisco; Joseph C. Beck, Chicago; Wendell C. Phillips, New York, and Philip D. Kerrison, New York.

Dr. David J. Davis, Chicago, read a paper on "Vaccine Therapy: Its Possibilities and Limitations." Discussed by Dr. John A. Pratt, Aurora, Ill.

Dr. George M. Coates, Philadelphia, read a paper on "Clinical Experience with Use of Vaccines in Diseases of the Ear, Nose and Throat." Discussed by Dr. Daniel W. Layman, Indianapolis.

THURSDAY, JUNE 15—MORNING

The meeting was called to order at 9:15 by the chairman, the first order of business being the report of the Nominating Committee. This committee offered the following names for consideration: chairman, Dr. Francis P. Emerson, Boston; vice chairman, Dr. Greenfield Sluder, St. Louis; secretary, Dr. L. W. Dean, Iowa City, Iowa; representative in House of Delegates, Dr. Robert Levy, Denver; alternate, Dr. Elmer L. Kenyon, Chicago.

Moved and carried that the report of the Nominating Committee be accepted as read and that Dr. John J. Kyle of Los Angeles cast the ballot of the entire section for the names read. Motion carried.

The report of the Committee on Teaching Oto-Laryngology, was read by Dr. Robert Levy, chairman of the committee. Moved and carried that the report be accepted.

The chairman appointed Dr. H. P. Mosher, Boston, to fill the vacancy on this committee caused by the death of Dr. Ballinger.

The chairman appointed as an obituary committee, Drs. Joseph C. Beck, Chicago, and R. B. Canfield, Ann Arbor, Mich., with instructions to report at the afternoon section.

The chairman appointed Drs. Ross H. Skillern and G. Hudson Makuen, Philadelphia, as a committee to frame suitable resolutions expressing the appreciation of the section for the entertainment given them by Dr. Burt R. Shurly, Detroit.

The following papers were read as a symposium on "Examination and Treatment of the Bronchi and Larynx":

Robert F. Ridpath, Philadelphia: "The Possibilities and Limitations of Nonsurgical Bronchoscopic Treatment."

Robert C. Lynch, New Orleans: "Possibilities and Limitations of Suspension Laryngoscopy."

These two papers were discussed by Dr. W. B. Chamberlin, Cleveland.

Dr. Chevalier Jackson, Pittsburgh, read a paper on "New Solutions of Mechanical Problems of Foreign-Body Bronchoscopy," with lantern demonstration. Discussed by Drs. Thomas Hubbard, Toledo; Samuel Iglauer, Cincinnati; H. P. Mosher, Boston; Ross H. Skillern, Philadelphia; George F. Cott, Buffalo; W. E. Dixon, Oklahoma City; George F. Keiper, Lafayette, Ind.; Robert H. Good, Chicago; Lee Cohen, Baltimore; J. W. Murphy, Cincinnati; W. R. Butt, Canton, Ohio; Robert F. Ridpath, Philadelphia, and Chevalier Jackson, Pittsburgh.

Dr. Lee Cohen, Baltimore, read a paper on "Correction of External Nasal Deformities by Subcutaneous Method (Lantern Demonstration)." Discussed by Drs. W. W. Carter, New York; Elmer L. Kenyon, Chicago, and Lee Cohen, Baltimore.

THURSDAY, JUNE 15—AFTERNOON

From 1:30 until 2 o'clock opportunity was given members to present instruments, etc.

Dr. George F. Cott, Buffalo, presented an instrument to prevent snoring. This is an attachment to the nosepiece of eyeglasses.

Dr. Joseph D. Heitger, Bedford, Ind., presented a modification of Beck's tonsil instrument, providing better control of the instrument.

Dr. Frank C. Todd, Minneapolis, presented a tonsillectomy forceps which bites, not up and down as the ordinary forceps, but in the other direction.

Dr. Albin M. Painter, Youngstown, Ohio, presented an arrangement of ring to steady the carrying light on the nasal pharyngoscope to be used in removing the posterior tip under direct inspection.

Dr. R. E. Mercer, Detroit, showed a tube which is used for drain in the antrum.

Dr. Samuel Iglauer, Cincinnati, presented a "bronchoilioscope," a small tunnel which corresponds to the light carrier on the Jackson tube.

Dr. A. E. Rector, Appleton, Wis., showed a frontal sinus curet.

Dr. Robert Sonnenschein, Chicago, showed a small flexible hearing tube.

Dr. Clark W. Hawley, Chicago, presented an aluminum hearing fan.

Dr. Wendell C. Phillips, New York, read a paper on "Clinical Types of Labyrinthitis, with Comments on Treatment."

Dr. Isidore Friesner, New York, read a paper on "The Differential Diagnosis Between Purulent Labyrinthitis and Cerebellar Lesions."

Dr. Wells P. Eagleton, Newark, N. J., read a paper on "The Importance of Aural Symptoms in the Early Diagnosis of Pontile Cerebellar Angle Growths (Lantern Demonstration)."

These three papers were discussed by Drs. Horace Newhart, Minneapolis; I. H. Jones, Philadelphia; J. Holinger, Chicago; George W. Mackenzie, Philadelphia; L. Fisher, Philadelphia; Isidore Friesner, New York, and Wells P. Eagleton, Newark, N. J.

The following resolution was presented:

The Section of Otolaryngology of the American Medical Association desires to express its appreciation of the generous hospitality of Dr. Shurly and the other Detroit members during the session, and also to express its thanks to the management of the Hotel Statler for the excellent provisions made for the scientific proceedings.

The following resolution was presented by the obituary committee:

WHEREAS, The following members of this section have been called from our midst by death; and

WHEREAS, The loss of these worthy and distinguished gentlemen is keenly felt by the section and by the profession in general; be it

Resolved, That we, by rising, pay deference to the memory of William Ballinger, John O. Roe and John R. Fletcher; be it further

Resolved, That a copy of this resolution be spread on the minutes and that the Secretary be instructed to notify the families of the deceased of this action.

Dr. Burt R. Shurly, Detroit, read a paper on "The Relation of the Ductless Glands to Rhinology." No discussion.

SECTION ON DERMATOLOGY

TUESDAY, JUNE 13—AFTERNOON

The meeting was called to order at 2:20 p. m. by the chairman, Dr. Howard Morrow, San Francisco. Dr. Morrow then read the chairman's address, entitled "The Teaching of Dermatology."

The secretary read a letter from Dr. Martin F. Engman, St. Louis, addressed to the chairman, submitting his report

as chairman of the Committee on Leprosy, appointed by this section at the session of the American Medical Association held in 1914.

Dr. William A. Pusey, Chicago, moved that the delegate be instructed to report to the House of Delegates that it was the consensus of opinion of the section that the measure for a national leprosarium now before Congress should be endorsed.

Dr. Everett S. Lain, Oklahoma City, in seconding Dr. Pusey's motion, said he had recently learned from Dr. Engman that the outlook for this bill was extremely favorable; that it had passed the Senate and had been reported on favorably by the House committee, and that all that was required for its final passage was urging. Dr. Pusey's motion was thereupon carried, and the delegate of the section was requested to bring the matter before the House of Delegates.

Dr. Oliver S. Ormsby and Dr. James Herbert Mitchell, Chicago, presented a paper on "Ringworm of the Hands and Feet." Discussed by Drs. William T. Corlett, Cleveland; Henry C. Baum, Syracuse; Richard L. Sutton, Kansas City, Mo.; Jay F. Schamberg, Philadelphia; A. Ravogli, Cincinnati; William A. Pusey, Chicago; James M. King, Nashville; George M. MacKee, New York; Walter J. Heimann, New York; Ernest Dwight Chipman, San Francisco; Franklin W. Cregor, Indianapolis; Clarence J. Broeman, Cincinnati; James H. Mitchell, Chicago, and Oliver S. Ormsby, Chicago.

Dr. A. Ravogli, Cincinnati, read a paper on "Condyloma Acuminatum of the Anal Region." Discussed by Drs. Philip Kilroy, Springfield, Mass.; William A. Pusey, Chicago; William T. Corlett, Cleveland, and A. Ravogli, Cincinnati.

Dr. Ernest Dwight Chipman, San Francisco, read a paper on "Dermatologic Dietetics." Discussed by Drs. L. Duncan Bulkley, New York; Jay F. Schamberg, Philadelphia; William A. Pusey, Chicago; A. Ravogli, Cincinnati; Richard L. Sutton, Kansas City, Mo.; Marcus Haase, Memphis; Philip Kilroy, Springfield, Mass.; Everett S. Lain, Oklahoma City; H. H. Hazen, Washington, D. C.; Louis L. Seaman, New York; Henry C. Baum, Syracuse; James M. King, Nashville, Tenn., and Ernest Dwight Chipman, San Francisco.

The chairman announced that owing to sickness, Dr. Fred Wise of New York had requested to be permitted to read his paper out of the regular order of the program. This request had received the approval of the Executive Committee and of Dr. MacKee, who was willing to postpone his paper for the convenience of Dr. Wise.

Dr. Fred Wise, New York, read a paper on "Pityriasis Lichenoides Chronica: A Clinical and Microscopic Study." Discussed by Dr. Oliver S. Ormsby, Chicago.

Dr. George Miller MacKee, New York, read a paper on "Erythrodermia Congenitale Ichthyosiforme," with lantern demonstration. Discussed by Drs. Fred Wise, New York; William A. Pusey, Chicago, and Udo J. Wile, Ann Arbor, Mich.

Wednesday, June 14—Morning

The meeting was called to order at 9:30 a. m.

The chairman announced the following to serve as a Nominating Committee: Drs. Grover W. Wende, Buffalo; Richard L. Sutton, Kansas City, Mo., and Howard Fox, New York.

The following papers were read as a symposium on "Neoplasms:"

Dr. Meyer L. Heidingsfeld, Cincinnati: "The Etiologic Rôle of Scar Tissue in Skin Cancer," with lantern demonstration.

Dr. Clarence J. Broeman, Cincinnati: "The Treatment of Epithelioma."

Dr. George E. Pfahler, Philadelphia: "The Treatment of Malignant Disease About the Mouth by Combined Methods," with lantern demonstration.

Dr. Frank Edward Simpson, Chicago: "Radium in the Treatment of Cancer and Various Other Diseases of the Skin," with lantern demonstration.

Dr. Samuel E. Sweitzer, Minneapolis: "Leukemia Cutis: Report of a Case," with demonstration of patient.

These five papers were discussed by Drs. H. H. Hazen, Washington, D. C.; William H. B. Aikins, Toronto (by invitation); Richard L. Sutton, Kansas City, Mo.; Howard Morrow, San Francisco; George M. MacKee, New York; Walter I. Le Fevre, Cleveland; Meyer L. Heidingsfeld, Cincinnati; George E. Pfahler, Philadelphia; Frank E. Simpson, Chicago, and Samuel E. Sweitzer, Minneapolis.

The vice chairman, Dr. Everett S. Lain, Oklahoma City, introduced Dr. Charles R. Hume of Anadarko, Okla., the president of the Oklahoma State Medical Society.

Wednesday, June 14—Afternoon

The meeting was called to order at 2:15 p. m.

The following papers were read as a symposium on "Syphilis:"

Dr. Harold N. Cole, Cleveland: "Report of a Series of Sixty-One Extragenital Chancres," with lantern demonstration.

Capt. Mathew A. Reasoner, Washington, D. C.: "Some Phases of Experimental Syphilis, with Special Reference to the Question of Strains," with lantern demonstration.

Dr. Richard L. Sutton, Kansas City, Mo.: "The Dyschromias of Syphilis," with lantern demonstration.

Drs. Udo J. Wile and Joseph A. Elliott, Ann Arbor, Mich.: "An Analysis on One Hundred and Twenty-Five Cases of Tertiary Syphilis, with Particular Reference to Their Early Treatment."

Drs. Jay Frank Schamberg, John A. Kolmer and George W. Raiziss, Philadelphia: "The Administration of Dioxydiamido Arsenobenzol Dichlorhydrate by Mouth to Man and Animals."

Drs. William B. Trimble and John J. Rothwell, New York: "A Comparative Study of Salvarsan and Neosalvarsan in the Treatment of Syphilis."

Dr. H. G. Irvine, Minneapolis: "Notes on the Teaching of Syphilis."

These seven papers were discussed by Drs. William A. Pusey, Chicago: Udo J. Wile, Ann Arbor, Mich.; Walter J. Heimann, New York; Philip Kilroy, Springfield, Mass.; L. H. Cook, Bluffton, Ind.; Samuel E. Sweitzer, Minneapolis; Franklin W. Cregor, Indianapolis; Richard L. Sutton, Kansas City, Mo.; Henry C. Baum, Syracuse; David Lieberthal, Chicago; Harold N. Cole, Cleveland; Jay F. Schamberg, Philadelphia; Joseph A. Elliott, Ann Arbor, Mich.; John J. Rothwell, New York, and H. G. Irvine, Minneapolis.

On motion, a vote of thanks was extended to Captain Reasoner for his interesting paper and lantern demonstration.

Thursday, June 15—Morning

The following officers were elected: chairman, Dr. H. R. Varney, Detroit; vice chairman, Dr. Frank E. Simpson, Chicago; secretary, Dr. H. H. Hazen, Washington, D. C.; delegate, Dr. Richard L. Sutton, Kansas City, Mo.; alternate, Dr. Philip Kilroy, Springfield, Mass.

The following papers were read as a symposium on "Eczema":

Dr. Walter J. Heimann, New York: "The Pathology and Pathogenesis of Eczema in Dermatitis: The Identity of the Two Diseases."

Dr. Charles J. White, Boston: "Two Modern Methods to Be Employed in the Treatment of Chronic Eczema."

Dr. Frank C. Knowles, Philadelphia: "Eczema of External Causation."

These three papers were discussed by Drs. Ernest L. McEwen, Chicago; Jay F. Schamberg, Philadelphia; Henry T. Byford, Chicago; Richard L. Sutton, Kansas City, Mo.; B. E. Sager, Cleveland; M. L. Ravitch, Louisville, Ky.; Andrew P. Biddle, Detroit; Ernest D. Chipman, San Francisco; John G. Burke, Pittsburgh; J. M. King, Nashville; Lloyd W. Ketron, Baltimore; Isadore Dyer, New Orleans; Samuel E. Sweitzer, Minneapolis; H. H. Hazen, Washington, D. C.; H. C. Baum, Syracuse, N. Y.; Frank W. Cregor, Indianapolis; R. A. C. Wollenberg, Detroit; Walter J. Heimann, New York; Charles J. White, Boston, and Frank C. Knowles, Philadelphia.

Dr. David Lieberthal, Chicago, read a paper on "A Contribution to the Rarer Forms of Lichen Planus." Discussed by Drs. A. Ravogli, Cincinnati; Fred Wise, New York; Richard L. Sutton, Kansas City, Mo.; H. H. Hazen, Washington, D. C.; Walter J. Heimann, New York; Lloyd W. Ketron, Baltimore, and David Lieberthal, Chicago.

THURSDAY, JUNE 15—AFTERNOON

Dr. M. L. Ravitch, Louisville, Ky., read a paper on "Focal Infection in Relation to Dermatology." Discussed by Drs. Everett S. Lain, Oklahoma City; Richard L. Sutton, Kansas City, Mo.; Walter J. Heimann, New York; Ernest L. McEwen, Chicago; Howard Morrow, San Francisco, and M. L. Ravitch, Louisville.

Drs. Lloyd W. Ketron and John H. King, Baltimore, read a paper on "Gastro-Intestinal Findings in Acne Vulgaris." Discussed by Drs. M. L. Ravitch, Louisville; H. H. Hazen, Washington, D. C.; Walter J. Heimann, New York, and Lloyd W. Ketron, Baltimore.

Dr. Philip Kilroy, Springfield, Mass., read a paper on "Itching as a Symptom." Discussed by Drs. Everett S. Lain, Oklahoma City; Frank C. Knowles, Philadelphia; A. Ravogli, Cincinnati; M. L. Ravitch, Louisville, Ky., and Philip Kilroy, Springfield, Mass.

Before adjournment, a unanimous vote of thanks was extended to the resident members of the section for their many acts of kindness during the meeting.

FRIDAY, JUNE 16—MORNING

At a clinical session which convened at the Harper Hospital at 9 a. m., patients were presented by Drs. Udo J. Wile, Ann Arbor, Mich.; Andrew P. Biddle, Detroit; H. R. Varney, Detroit; Rollin H. Stevens, Detroit; R. A. C. Wollenberg, Detroit, and E. D. Tucker, Toledo, Ohio.

These cases were discussed by Drs. Richard L. Sutton, Kansas City, Mo.; Ernest D. Chipman, San Francisco; Frank C. Knowles, Philadelphia; H. R. Varney, Detroit; O. H. Foerster, Milwaukee; Andrew P. Biddle, Detroit; A. Ravogli, Cincinnati; H. H. Hazen, Washington, D. C.; J. M. King, Nashville, Tenn.; Howard Morrow, San Francisco; Samuel E. Sweitzer, Minneapolis; Philip Kilroy, Springfield, Mass., and Clarence J. Broeman, Cincinnati.

SECTION ON NERVOUS AND MENTAL DISEASES

TUESDAY, JUNE 13—AFTERNOON

The section was called to order by the chairman, Dr. George A. Moleen, Denver.

Dr. George A. Moleen, Denver, read the chairman's address, entitled "The Nervous System as Influenced by High Altitudes."

Dr. Peter Bassoe, Chicago, read a paper on "Tumors of the Third and Fourth Ventricles," with lantern demonstration. Discussed by Drs. Theodore H. Weisenburg, Philadelphia; Tom A. Williams, Washington, D. C.; Harold N. Moyer, Chicago; Lawson G. Lowrey, Hathorne, Mass.; A. L. Skoog, Kansas City, Mo., and Peter Bassoe, Chicago.

The chairman appointed the following members to act as a nominating committee: Drs. Theodore H. Weisenburg, Philadelphia, chairman; C. Eugene Riggs, St. Paul, and Walter F. Schaller, San Francisco.

Dr. R. Foster Kennedy, New York, read a paper on "A Further Note on the Diagnostic Value of Retrobulbar Neuritis in Expanding Lesions of the Frontal Lobes." Discussed by Drs. Francis R. Fry, St. Louis, and R. Foster Kennedy, New York.

The chairman referred to the recommendation received from the secretary of the Council on Scientific Assembly that the Section on Nervous and Mental Diseases be made a part of a general section on medicine with a view to condensation of the number of sections, stating that it would be well for those interested in the work of the section to give the matter thought, and in case any action were to be taken in the way of recommendations to the House of Delegates, he would be glad to entertain a motion to that effect.

Dr. Theodore H. Weisenburg, Philadelphia, read a paper on "A Clinical Study of Unusual Symptoms in Hemiplegia and Diplegia." Discussed by Francis X. Dercum, Philadelphia; Walter Timme, New York; George A. Moleen, Denver; J. Ramsay Hunt, New York, and Theodore H. Weisenburg, Philadelphia.

Dr. Charles K. Mills, Philadelphia, read a paper on "Some Clinical Studies of the Problems of Cerebral Tone." Discussed by Drs. William J. Hickson, Chicago; Julius Grinker, Chicago; R. Foster Kennedy, New York; J. Ramsay Hunt, New York, and Charles K. Mills, Philadelphia.

On motion, carried, the subject of the condensation of this section with a general section on medicine was made a special order of business to be considered at the termination of the scientific program Wednesday morning.

Dr. I. Leon Meyers, Chicago, read a paper on "Cerebellar Localization: An Experimental Study by a New Method." Discussed by Drs. Julius Grinker, Chicago; Charles K. Mills, Philadelphia; Tom A. Williams, Washington, D. C., and I. Leon Meyers, Chicago.

WEDNESDAY, JUNE 14—MORNING

The chairman announced that, in order to expedite matters, it had been suggested that a committee be appointed for the purpose of formulating and presenting to this body for its consideration a resolution with reference to the objections entertained by the members to condensation of this section with a general section on medicine.

Dr. Charles K. Mills, Philadelphia, moved that a committee of three be appointed to prepare such resolution, same to be presented at the end of this session. Motion carried.

The chairman appointed as such committee Drs. Francis X. Dercum, Philadelphia; C. Eugene Riggs, St. Paul, and J. Ramsay Hunt, New York.

Dr. Charles K. Mills further moved that the delegate of this section, Dr. J. H. McBride, Pasadena, Calif., be added to the committee named, making four on the committee. Motion carried. Whereupon the chairman added Dr. J. H. McBride to the committee as named by him.

Dr. Francis X. Dercum, Philadelphia, read a paper on "Epilepsy, with Special Reference to Treatment." Discussed by Drs. George A. Moleen, Denver; David T. Weeks, Skillman, N. J.; A. L. Skoog, Kansas City, Mo.; Francis R. Fry, St. Louis; Charles R. Ball, St. Paul; William Ravine, Cincinnati; Julius Grinker, Chicago; R. A. Greene, Palmer, Mass.; James H. McBride, Pasadena, Calif.; Joseph M. Aikin, Omaha; William J. Hickson, Chicago; Francis A. Ely, Des Moines, Ia.; I. Leon Meyers, Chicago; D. S. Booth, St. Louis; Robert McGregor, Saginaw, Mich.; J. Matthew Pulliam, Fort Wayne, Ind.; R. Foster Kennedy, New York; Walter Timme, New York; L. Kauffman, Buffalo, and Francis X. Dercum, Philadelphia.

The chairman announced that the National Association for the Study of Epilepsy had sent a cordial invitation to members of the section to attend a meeting of the association at the Hotel Tuller, Friday, June 16, at 10 a. m. and 2 p. m.

Dr. J. Ramsay Hunt, New York, read a paper on "The Progressive Torsion Spasm (Dystonia Musculorum Deformans)." Discussed by Drs. Hugh T. Patrick, Chicago; E. W. Haass, Detroit (with exhibition of patient); A. L. Skoog, Kansas City, and J. Ramsay Hunt, New York.

Dr. Hugh T. Patrick, Chicago, read a paper on "The Factor of Fear in Nervous Cases." Discussed by Drs. Frank P. Norbury, Springfield, Ill.; Harold N. Moyer, Chicago; Robert McGregor, Saginaw, Mich.; Walter B. Cannon, Boston; Tom A. Williams, Washington, D. C.; Walter B. Swift, Boston; R. Foster Kennedy, New York; Francis R. Fry, St. Louis; Charles R. Ball, St. Paul; U. G. Darling, Chicago; D. S. Booth St. Louis, and Hugh T. Patrick, Chicago.

Dr. J. Ramsay Hunt, New York, member of the committee appointed to prepare a resolution and report to the section in the matter of the proposed amalgamation of the section with the Section on Medicine, presented a report which was referred to the House of Delegates.

WEDNESDAY, JUNE 14—AFTERNOON

The chairman announced that the report of committee which was presented as the last order of business at the morning session would be placed in the hands of the dele-

gate from this section for presentation to the House of Delegates [not presented to the House of Delegates].

Dr. A. M. Barrett, Ann Arbor, Mich., read a paper on "Syphilitic Psychoses Associated with Manic Depressive Symptoms and Course." Discussed by Drs. Frank P. Norbury, Springfield, Ill.; Hugh T. Patrick, Chicago; W. F. Lorenz, Mendota, Wis.; Milton Board, Louisville, Ky.; Julius Grinker, Chicago, and C. Eugene Riggs, St. Paul.

Drs. James B. Ayer and Henry R. Viets, Boston, presented a paper on "Spinal Fluid Findings Characteristic of Cord Compression," read by Dr. Ayer. Discussed by Drs. Peter Bassoe, Chicago; Francis A. Ely, Des Moines; A. L. Skoog, Kansas City; Ernest Sachs, St. Louis; Charles R. Ball, St. Paul; W. F. Lorenz, Mendota, Wis.; Charles A. Elsberg, New York, and James B. Ayer, Boston.

Dr. Morris J. Karpas, New York, read a paper on "Constitutional Inferiority in the Light of Modern Conceptions." Discussed by Drs. Frank P. Norbury, Springfield, Ill., and Morris J. Karpas, New York.

Dr. Lewis J. Pollock, Chicago, read a paper on "Experimental Studies of Injection of the Gasserian Ganglion Controlled by Fluoroscopy." Discussed by Drs. Hugh T. Patrick, Chicago; Julius Grinker, Chicago; M. A. Bliss, St. Louis, Mo.; Charles R. Ball, St. Paul; Ernest Sachs, St. Louis; George M. Dorrance, Philadelphia, and Lewis J. Pollock, Chicago.

Dr. George M. Dorrance, Philadelphia, read a paper on "A New Method of Injecting the Facial Nerve for Relief of Facial Spasm." Discussed by Drs. Hugh T. Patrick, Chicago; A. L. Skoog, Kansas City; Julius Grinker, Chicago, and George M. Dorrance, Philadelphia.

Dr. William A. Jones, Minneapolis, read a paper on "Myasthenia Gravis." Discussed by Drs. Walter B. Swift, Boston; R. Foster Kennedy, New York; C. Eugene Riggs, St. Paul; George A. Moleen, Denver, and William A. Jones, Minneapolis.

Drs. Pearce Bailey and Walter Timme, New York, presented a paper on "A Contribution to the Pathogenesis of Progressive Muscular Dystrophy, with the Consideration of Evidence Connecting this Disease with Disturbances in the Endocrine Glands," read by Dr. Timme. Discussed by Drs. A. L. Skoog, Kansas City; M. A. Bliss, St. Louis; Lewis J. Pollock, Chicago; George A. Moleen, Denver; Albert E. Sterne, Indianapolis, and Walter Timme, New York.

THURSDAY, JUNE 15—MORNING

The chairman announced the appointment of Dr. William A. Jones, Minneapolis, on the Executive Committee, to take the place of Dr. Francis X. Dercum, who had found it necessary to retire; and that therefore, for the remainder of the session, papers would be approved by Dr. Jones as member of the Executive Committee.

The following officers were elected for the ensuing year: chairman, Dr. Bernard Sachs, New York; vice chairman, Dr. Charles W. Hitchcock, Detroit; secretary, Dr. A. S. Hamilton, Minneapolis; delegate, Dr. George A. Moleen, Denver.

Dr. Harry H. Drysdale, Cleveland, read a paper on "Conjugal Paresis: Report of a Case." Discussed by Drs. Julius Grinker, Chicago; J. Matthew Pulliam, Fort Wayne, Ind.; Lawson G. Lowrey, Hathorne, Mass.; C. C. Burlingame, South Manchester, Conn.; William Ravine, Cincinnati; W. F. Lorenz, Mendota, Wis.; Charles R. Ball, St. Paul; G. H. Moody, San Antonio, Texas; S. G. Burnett, Kansas City, Mo.; Robert H. Haskell, Ionia, Mich.; George A. Moleen, Denver, and Harry H. Drysdale, Cleveland.

Dr. Henry F. Stoll, Hartford, Conn., read a paper on "Syphilis as a Cause of Chronic Invalidism." Discussed by Drs. W. W. Graves, St. Louis; A. L. Skoog, Kansas City; William Ravine, Cincinnati, and Henry F. Stoll, Hartford, Conn.

Dr. Walter F. Schaller, San Francisco, read a paper on "The Early Diagnosis of Tabes Dorsalis."

Drs. C. Eugene Riggs and Ernest M. Hammes, St. Paul, presented a paper on "Shall We Treat the Paretic?" read by Dr. Riggs.

Dr. Charles R. Ball, St. Paul, read a paper on "A Consideration of the Serobiologic Reactions after Five Years of Observation."

Dr. L. B. Pilsbury, Lincoln, Neb., read a paper on "Mercurial Medication with Spinal Drainage."

These four papers were discussed by Drs. J. Henry Barbat, San Francisco; Tom A. Williams, Washington; Albert E. Sterne, Indianapolis; Julius Grinker, Chicago; Capt. M. A. Reasoner, Washington, D. C.; G. H. Moody, San Antonio, Texas; Henry F. Stoll, Hartford, Conn.; W. F. Lorenz, Mendota, Wis.; James B. Ayer, Boston; Robert H. Haskell, Ionia, Mich.; M. S. Woodbury, Clifton Springs, N. Y.; George A. Moleen, Denver; L. C. Bacon, St. Paul; Walter F. Schaller, San Francisco; C. Eugene Riggs, St. Paul; Charles R. Ball, St. Paul, and L. B. Pilsbury, Lincoln, Neb.

THURSDAY, JUNE 15—AFTERNOON

Dr. Walter B. Swift, Boston, read a paper on "A New Treatment of Paralysis Agitans." No discussion.

Dr. William Fuller, Grand Rapids, Mich., read a paper on "Necessity of Revising the Nomenclature of the Anatomy of the Brain." Discussed by Drs. I. Leon Meyers, Chicago; William A. Jones, Minneapolis; Walter B. Swift, Boston; D. S. Booth, St. Louis, and William Fuller, Grand Rapids.

Dr. Tom A. Williams, Washington, read a paper on "A Contribution to the Pathogenesis of the Migraines: Notes Concerning a More Efficacious Treatment." Discussed by Drs. J. Matthew Pulliam, Fort Wayne, Ind.; J. C. De Venney, Harrisburg, Pa., and Tom A. Williams, Washington, D. C.

The chairman announced the appointment of Dr. Ross Moore, Los Angeles, on the Executive Committee, to take the place of Dr. W. W. Graves, who had been obliged to go away before the meeting adjourned.

A vote of thanks was extended to the members of the profession of the city of Detroit for the entertainment furnished and for the comfortable surroundings in which the meeting of the section had been held.

A vote of thanks was extended to the retiring chairman of the section for his efficient services in connection with the meeting, and also a vote of thanks was extended to the secretary, whose efforts had made possible the very exceptional arrangement of the program and who had secured papers exhibiting such great variety in subject and serving to maintain so much interest in the discussions.

SECTION ON PHARMACOLOGY AND THERAPEUTICS

TUESDAY, JUNE 13—AFTERNOON

The meeting was called to order at 2:05 p. m. by the chairman, Dr. R. A. Hatcher, New York.

Mr. M. I. Wilbert, Washington, D. C., read a communication from the American Pharmaceutical Association moving that the members of this delegation who are not members of the Section on Pharmacology and Therapeutics be given the privilege of the floor. Motion carried.

He reported an application by Mr. Clarence G. Spalding of New Haven, Conn., a member of the American Pharmaceutical Association and endorsed by the Society of the County, and moved that it be further endorsed by the Section on Pharmacology and Therapeutics and referred to the House of Delegates. Motion carried.

Dr. R. A. Hatcher, New York, then read the chairman's address entitled, "The Medical Profession and Its Duty Toward the Work on Pharmacy and Chemistry."

Dr. John F. Anderson, New Brunswick, N. J., then read the following resolution, moving that the same be accepted and presented to the House of Delegates:

WHEREAS, Methods for the bio-assay of certain drugs are to be included in the U. S. P. IX, although with the exception of the solution of hypophysis they are optional, and

WHEREAS, It is important that uniform standards be employed for such assays, therefore, be it

Resolved, That the Section on Pharmacology and Therapeutics urgently recommend the House of Delegates to request the Secretary of the Treasury to authorize the United States Public Health Service to prepare and distribute for use in the bio-assay of cannabis, aconite,

digitalis, strophanthus, squill, suprarenal gland and hypophysis the standards as recommended in the U. S. P. IX.

Adopted on motion of the Section on Pharmacology and Therapeutics, June 13, 1916.

Prof. Joseph P. Remington, Philadelphia, then read the address of the chairman of the delegation from the American Pharmaceutical Association. No discussion.

Dr. Torald Sollmann, Cleveland, read a paper on "The Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association." Discussed by Drs. Francis E. Stewart, Philadelphia; Fred. I. Lackenbach, San Francisco; Irvin J. Moyer, Pittsburgh; Oliver T. Osborne, New Haven, Conn., and Torald Sollmann, Cleveland.

Dr. W. A. Puckner, Chicago, read a paper on "The Work of the Chemical Laboratory of the American Medical Association." Discussed by Drs. Francis E. Stewart, Philadelphia; Prof. Joseph P. Remington, Philadelphia; Oliver T. Osborne, New Haven, Conn.; Fred. I. Lackenbach, San Francisco, and W. A. Puckner, Chicago.

Mr. Martin I. Wilbert, Washington, D. C., read a paper on "Useful Drugs: The Origin and Development of the Book." Discussed by Drs. Oliver T. Osborne, New Haven, Conn., and Noble P. Barnes, Washington, D. C.

Dr. F. P. Morgan, Washington, D. C., read a paper by Dr. M. W Glover and himself on "Some Advantages of an Authoritative Publication on the Uses of Drugs." Discussed by Drs. Oliver T. Osborne, New Haven, Conn., and Francis E. Stewart, Philadelphia.

WEDNESDAY, JUNE 14—MORNING

The paper by Dr. William Worth Hale of Boston, on "The Action of the Cinchona Alkaloids on the Uterus and Their Possible Use in Obstetrics," was read in the author's absence, with the consent of the section, by the secretary, Mr. M. I. Wilbert, Washington, D. C. No discussion.

Dr. Louis A. Levison, Toledo, Ohio, read a paper on "The Results of Treatment in Cases of Arterial Hypertension Due to and Associated with Syphilis."

Dr. Loyd Thompson, Hot Springs, Ark., read a paper on "The Intensive Treatment of Syphilis."

These two papers were discussed by Drs. William W. Tompkins, Charleston, W. Va.; Noble P. Barnes, Washington, D. C.; Fred. I. Lackenbach, San Francisco; A. G. Shortle, Albuquerque, N. M.; G. Reese Satterlee, New York; Louis A. Levison, Toledo, Ohio, and Loyd Thompson, Hot Springs, Ark.

Dr. D. E. Drake, New Foundland, N. J., read a paper on "A New Development in Sanatorium Treatment."

Dr. G. Reese Satterlee, New York, read a paper on "Autogenous Colon Vaccines as Used in Chronic Intestinal Toxemia, with Special Reference to Diagnosis and Therapeusis."

These two papers were discussed by Drs. Ernest S. Bishop, New York; Fenton B. Turck, New York, and G. Reese Satterlee, New York.

WEDNESDAY, JUNE 14—AFTERNOON

The secretary, Mr. M. I. Wilbert, Washington, D. C., read a communication from the secretary of the American Medical Association, Dr. Alexander R. Craig, including three applications for Associate Fellowship through the Section on Pharmacology and Therapeutics. He moved that the applications if otherwise correct be endorsed by the Section on Pharmacology and Therapeutics to the House of Delegates. Motion carried.

Dr. E. L. Eggleston, Battle Creek, Mich., read a paper on "The Status of Physical Therapeutics in the Medical College Curriculum of Today." Discussed by Drs. Thomas Francis Reilly, New York; Noble P. Barnes, Washington, D. C.; Walter E. Simmonds, Chicago; Bernard Fantus, Chicago, and E. L. Eggleston.

Dr. A. G. Shortle, Albuquerque, N. M., read a paper on "Ultimate Results in the Treatment by Artificial Pneumothorax." No discussion.

Dr. Harvey G. Beck, Baltimore, read a paper on "An Apparatus Designed for the Use of Partial Vacuum in Diagnosis and Treatment." No discussion.

THURSDAY, JUNE 15—MORNING

The following officers were elected: chairman, Dr. A. W. Hewlett, San Francisco; vice chairman, Dr. Arthur D. Hirschfelder, Minneapolis; secretary, Mr. Martin I. Wilbert, Washington, D. C.; delegate, Dr. R. A. Hatcher, New York; alternate, Dr. John F. Anderson, New Brunswick, N. J.; executive committee, Drs. Ray L. Wilbur, San Francisco; John F. Anderson, New Brunswick, N. J., and R. A. Hatcher, New York.

Dr. Paul J. Hanzlik, Cleveland, read a paper on "Salicylate Albuminuria." Discussed by Drs. Torald Sollmann, Cleveland; Ray L. Wilbur, San Francisco; Irwin J. Moyer, Pittsburgh, and Paul J. Hanzlik, Cleveland.

The paper of Dr. Ernest S. Bishop, New York, on "The Rational Handling of Narcotic Addicts," was read by Dr. Paul J. Hanzlik, Cleveland, owing to the indisposition of the author, who was, however, present. No discussion.

SECTION ON PREVENTIVE MEDICINE AND PUBLIC HEALTH

TUESDAY, JUNE 13—AFTERNOON

The meeting was called to order at 2 p. m. by the chairman, Dr. William C. Rucker, Washington, D. C.

Moved by Dr. H. E. Dearholt, Milwaukee, Wis., that Dr. Charles B. Johnson, Champaign, Ill., be chosen delegate of this section in the House of Delegates. Motion carried.

Dr. William C. Rucker read the chairman's address on "The Health Education of the General Public.

The following papers were read as a symposium on "Health Administration":

Dr. Ernest C. Levy, Richmond, Va.: "Municipal Health Administration." Discussed by Drs. Guy L. Kiefer, Detroit; Francis E. Fronczak, Buffalo; Mr. I. M. Rubinow, New York; Drs. C. J. Hastings, Toronto, Ont., and Ernest C. Levy, Richmond, Va.

Dr. C. St. Clair Drake, Springfield, Ill.: "District Health Organization." Discussed by Drs. H. M. Bracken, Minneapolis; B. Franklin Royer, Harrisburg, Pa.; John N. Hurty, Indianapolis; W. J. Denno, New York; L. R. Williams, Albany, N. Y., and C. St. Clair Drake, Springfield, Ill.

Dr. Watson S. Rankin, Raleigh, N. C.: "County Health Organization." Discussed by Drs. James Adams Hayne, Columbia, S. C.; H. M. Bracken, Minneapolis; John N. Hurty, Indianapolis; O. B. Nesbit, Gary, Ind., and Watson S. Rankin, Raleigh, N. C.

WEDNESDAY, JUNE 14—MORNING

The report of the Committee on Industrial Sanitation was read by Dr. J. W. Kerr, Washington,. D. C. It was moved that the report be received. Motion carried.

The following papers were read as a symposium on "Health Problems in Industry":

Dr. Harry E. Mock, Chicago: "Industrial Medicine and Surgery—The New Specialty." Discussed by Drs. Joseph C. Bloodgood, Baltimore, and J. W. Schereschewsky, Pittsburgh.

A motion was carried that the section pass to the next paper, by reason of the lateness of the hour, and the two papers be discussed jointly.

Dr. W. Irving Clark, Jr., Worcester, Mass.: "Medical Supervision of Factory Employees: Result of Five Years' Experience."

These two papers were discussed by Drs. W. H. Price, Detroit; Frederick L. Van Sickle, Olyphant, Pa.; D. B. Lowe, Akron, Ohio; C. G. Farnum, Peoria, Ill.; Charles J. Hastings, Toronto, Ont.; Eugene L. Fisk, New York; C. A. Lauffer, Wilkinsburg, Pa.; W. H. Lipman, Chicago; Harry E. Mock, Chicago; John L. Burkhart, Lansing, Mich., and W. Irving Clark, Jr., Worcester, Mass.

On motion, duly carried, the discussion of the various papers in this symposium was deferred until the remaining papers in this symposium were read.

Dr. Charles H. Lemon, Milwaukee, Wis.: "Medical Supervision of Street Railway Employees."

Dr. Carl E. Smith, Akron, Ohio: "Bad Teeth and Their Effect on the Workman's Efficiency."

Dr. Benjamin S. Warren, Washington, D. C.: "The Relation of Health Insurance to National Health."

Mr. I. M. Rubinow, New York: "The Relation of Health Insurance to the Wage Earner."

On motion, duly carried, the time of Mr. I. M. Rubinow, New York, in reading his paper was indefinitely extended.

The chairman announced members of the Nominating Committee as follows: Drs. Henry M. Bracken, Minneapolis; C. G. Farnum, Peoria, Ill., and Dr. E. G. Williams, Richmond, Va.

The papers of Dr. Benjamin S. Warren, Washington, D. C., and Mr. I. M. Rubinow, New York, were discussed by Drs. Alexander Lambert, New York; Edwin V. Delphey, New York; Benjamin S. Warren, Washington, D. C., and Mr. I. M. Rubinow, New York.

It was moved that the delegate of the Section on Preventive Medicine and Public Health to the House of Delegates be instructed to consider the question of a public health exhibit in connection with the next annual meeting. Motion carried.

THURSDAY, JUNE 15—MORNING

By reason of the absence of the chairman of the Nominating Committee, the election of officers was deferred.

The following papers were read as a symposium on the "Sanitation of Food Supplies":

Dr. Hugh S. Cumming, Washington, D. C.: "Sanitation of the Shellfish Industry." Discussed by Drs. William W. Ford, Baltimore; B. Franklin Royer, Harrisburg, Pa., and Hugh S. Cumming, Washington, D. C.

The report of Dr. H. M. Bracken, Minneapolis, chairman of the Nominating Committee, was read and the following nominations made: chairman Dr. O. P. Geier, Cincinnati; vice president, Dr. Ernest C. Levy, Richmond, Va.; secretary, Dr. A. M. Harvey, Chicago; delegate, Dr. William C. Rucker, Washington, D. C.; alternate, Dr. John N. Hurty, Indianapolis; orator, Dr. W. S. Rankin, Raleigh, N. C. The report was received, and the secretary cast the ballot of the section. Those nominated were declared elected.

Dr. Robert T. Legge, Berkeley, Calif., read a paper by Dr. Donald B. Armstrong, New York, on "Sanitation of Markets." Discussed by Drs. John N. Hurty, Indianapolis; John Dill Robertson, Chicago; Harold B. Wood, Charleston, W. Va.; Mary Dunning Rose, New York; William W. Tompkins, Charleston, W. Va.; Charles J. Hastings, Toronto, Ont., and Dr. Robert T. Legge, Berkeley, Calif.

Dr. O. P. Geier, Cincinnati, read a paper on "Health Laboratory Organization" by William H. Park, New York. Discussed by Dr. O. P. Geier.

A motion that a vote of thanks be extended the retiring officers of the section was made. Seconded by Drs. John Dill Robertson and A. E. Campbell, Chicago. Motion carried.

SECTION ON STOMATOLOGY

TUESDAY, JUNE 13—AFTERNOON

The meeting was called to order by the chairman, Dr. Frederick B. Moorehead, Chicago.

The secretary, Dr. E. S. Talbot presented a number of applications for Associate Fellowship, and the applicants were approved.

The following papers were read as a symposium on "The Principles Involved in Chronic Mouth Infections in Their Relation to General Diseases":

Dr. Frederick B. Moorehead, Chicago: "The Prevalence of Chronic Mouth Infections and Their Management" (chairman's address).

Dr. Frank Billings, Chicago: "The Principles Involved in Focal Infections as Related to Systemic Disease."

Dr. Ernest E. Irons, Chicago: "Focal Infections and Dental Disease: Treatment and Results from Medical Standpoint."

These three papers were discussed by Drs. Robert Hestler, Logansport, Ind.; M. L. Rhein, New York; M. H. Cazier, New York; W. D. Caldin, Fort Wayne, Ind.; G. R. Satterlee, New York; William C. Fisher, New York; John E. Nyman, Chicago; William Price, Cleveland; Ernest E. Irons, Chicago; Frank Billings, Chicago, and Frederick B. Moorehead, Chicago.

Drs. M. L. Rhein and Arthur Black were elected members of the Executive Committee to fill the places of Drs. S. L. McCurdy and Virgil Loeb.

WEDNESDAY, JUNE 14—AFTERNOON

The meeting was called to order by the vice chairman, Dr. Arthur D. Black, Chicago.

The following papers were read as a symposium on "Interstitial Gingivitis and Pyorrhea Alveolaris":

Dr. Alexander W. Lescohier, Detroit: "Bacterial Findings and Their Relation to Pyorrhea Alveolaris and Interstitial Gingivitis."

Dr. Hollis P. Potter, Chicago: "The Roentgen Ray in Diagnosis."

Dr. M. L. Rhein, New York: "The Importance of a Correct Differential Diagnosis of the Predisposing Causes in Interstitial Gingivitis and Pyorrhea Alveolaris."

Dr. George B. Harris, Detroit: "Some Studies in the Treatment of Pyorrhea Alveolaris."

Dr. Eugene S. Talbot, Chicago: "The Etiology and Treatment of Interstitial Gingivitis."

These five papers were discussed by Drs. Arthur Black, Chicago; F. D. Leach, Chicago; R. W. Bunting, Ann Arbor, Mich.; E. S. Talbot, Chicago; M. L. Rhein, New York; George B. Harris, Detroit; C. H. Gint, Medina, Ohio; W. C. Fisher, New York; H. E. Potts, Chicago; Alexander W. Lescohier, Detroit, and Hollis P. Potter, Chicago.

THURSDAY, JUNE 15—MORNING

The following officers were elected: chairman, Dr. Arthur Black, Chicago; vice chairman, Dr. Henry Dunning, New York; secretary, Dr. Eugene S. Talbot, Chicago; delegate, Dr. W. C. Fisher, New York; alternate, Dr. R. W. Bunting, Ann Arbor, Mich.

Dr. C. J. Lyons, Ann Arbor, Mich., read a paper on "Ankylosis of the Temporomandibular Joint." Discussed by Drs. H. A. Potts, Chicago, and C. J. Lyons, Ann Arbor, Mich.

Dr. Jonathan W. Means, Columbus, Ohio, read a paper on "A Clinical Pathologic Study of Malignant Conditions About the Face, Mouth and Jaws." Discussed by Drs. Frederick B. Noyes, Chicago; Herbert A. Potts, Chicago; F. D. Leach, Chicago; Frederick B. Moorehead, Chicago, and Jonathan W. Means, Columbus, Ohio.

Dr. Herbert A. Potts, Chicago, read a paper on "Surgical Procedures Enhancing the Relation of Artificial Dentures, with Report and Illustrations of an Unusual Case." Discussed by Drs. C. J. Lyons, Ann Arbor, Mich.; Eugene S. Talbot, Chicago, and Herbert A. Potts, Chicago.

Dr. Frederick B. Noyes, Chicago, read a paper on "A Study of the Lymphatics of the Dental Pulp." Discussed by Drs. George V. I. Brown, Milwaukee, Wis.; Arthur Black, Chicago; Eugene S. Talbot, Chicago; Frederick B. Moorehead, Chicago, and Frederick B. Noyes, Chicago.

The secretary read the name of Dr. E. L. Singleton of Pittsburgh as an applicant for Association Fellowship. His name was unanimously voted on for the consideration of the House of Delegates.

SECTION ON ORTHOPEDIC SURGERY

TUESDAY, JUNE 13—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr. Russell A. Hibbs, New York.

Dr. Russell A. Hibbs, New York, read the chairman's address, entitled "The Problem of the Chronic Cripple." No discussion.

Dr. Robert W. Lovett, Boston, read a paper on "The Treatment of Infantile Paralysis." Discussed by Drs. E. W. Ryerson, Chicago; H. W. Frauenthal, New York; Frederick C. Kidner, Detroit; Albert H. Freiberg, Cincinnati; F. J. Gaenslen, Milwaukee, Wis.; A. L. Fisher, San Francisco; James T. Watkins, San Francisco; W. G. Stern, Cleveland; W. R. MacAusland, Boston; C. A. Parker, Chicago; F. E.

Peckham, Providence, R. I.; Roland W. Meisenbach, Buffalo; C. B. Francisco, Kansas City, Mo., and R. W. Lovett, Boston.

Dr. Frederick C. Kidner, Detroit, read a paper on "Calcified Hematoma: A Study of the Pathology." Discussed by Drs. W. C. Campbell, Memphis, Tenn.; James T. Watkins, San Francisco; J. D. Griffith, Kansas City, Mo., and Frederick C. Kidner, Detroit.

Dr. Wallace Blanchard, Chicago, read a paper on "Osteoclasis and Osteotomy." Discussed by Drs. J. Torrance Rugh, Philadelphia; Leonard W. Ely, San Francisco; Roland W. Meisenbach, Buffalo; Edward S. Hatch, New Orleans, and Wallace Blanchard, Chicago.

Dr. William R. MacAusland, Boston, read a paper on "Astragalectomy (Whitman's Operation) in Infantile Paralysis." Discussed by Drs. Frederick C. Kidner, Detroit; J. D. Griffith, Kansas City, Mo.; Albert H. Freiberg, Cincinnati; C. M. Jacobs, Chicago; E. W. Ryerson, Chicago; W. C. Campbell, Memphis, Tenn.; R. L. Hull, Oklahoma City; C. B. Francisco, Kansas City, Mo., and William R. MacAusland, Boston.

Dr. Walter G. Stern, Cleveland, read a paper on "The Prognosis in Infantile Paralysis." Discussed by Drs. H. W. Frauenthal, New York, and Walter G. Stern, Cleveland.

WEDNESDAY, JUNE 14—MORNING

Dr. Willis C. Campbell, Memphis, Tenn., read a paper on "Localized Osteospondylitis." Discussed by Drs. F. J. Gaenslen, Milwaukee, Wis.; A. H. Freiberg, Cincinnati; Roland W. Meisenbach, Buffalo; J. T. Rugh, Philadelphia, and Willis C. Campbell, Memphis, Tenn.

Dr. Arthur L. Fisher, San Francisco, read a paper on "Syphilitic and Bone and Joint Lesions Simulating Tuberculosis." Discussed by Drs. H. W. Frauenthal, New York; John Ridlon, Chicago; James T. Watkins, San Francisco; Edward S. Hatch, New Orleans; E. W. Ryerson, Chicago; Walter T. Stern, Cleveland; Reginald H. Sayre, New York; Clarence B. Francisco, Kansas City, Mo.; Leonard W. Ely, San Francisco; Emil S. Geist, Minneapolis; H. L. Taylor, New York; A. E. Horwitz, St. Louis, and Arthur L. Fisher, San Francisco.

Dr. Leonard W. Ely, San Francisco, read a paper on "Ankylosing Operations on the Spine." Discussed by Drs. Russell A. Hibbs, New York; Reginald H. Sayre, New York; James T. Watkins, San Francisco; E. W. Ryerson, Chicago; J. Torrance Rugh, Philadelphia, and Leonard W. Ely, San Francisco.

Dr. Henry Ling Taylor, New York, read a paper on "Results of Research on Conditions Affecting Posture." Discussed by Drs. Joel E. Goldthwait, Boston; E. W. Mosher, Brooklyn; Walter G. Elmer, Philadelphia; Roland O. Meisenbach, Buffalo; S. A. Knapp, New York, and Henry Ling Taylor, New York.

Dr. Melvin S. Henderson, Rochester, Minn., read a paper on "Mechanical Derangements of the Knee Joints." Discussed by Drs. John Ridlon, Chicago; J. P. Lord, Omaha; Willis C. Campbell, Memphis, Tenn.; Robert B. Osgood, Boston, E. W. Ryerson, Chicago; James T. Watkins, San Francisco, and Melvin S. Henderson, Rochester, Minn.

WEDNESDAY, JUNE 14—AFTERNOON

Dr. Mark H. Rogers, Boston, read a paper on "Sciatica: An Analysis of Fifty Cases." Discussed by Drs. Leonard W. Ely, San Francisco; Melvin S. Henderson, Rochester, Minn.; Joel E. Goldthwait, Boston; Roland O. Meisenbach, Buffalo; John Ridlon, Chicago; J. D. Griffith, Kansas City, Mo.; E. W. Ryerson, Chicago; Frank E. Peckham, Providence, R. I.; James T. Watkins, San Francisco; Albert H. Freiberg, Cincinnati; Reginald H. Sayre, New York; A. L. Fisher, San Francisco, and Mark H. Rogers, Boston.

Dr. E. W. Ryerson, Chicago, read a paper on "Fat Embolism in Bone Surgery: Incidence and Control." No discussion.

Dr. Robert B. Osgood, Boston, read a paper on "Orthopedic Surgery in War Time." Discussed by Drs. Nathaniel Allison, St. Louis; E. W. Fiske, Boston; J. D. Griffith, Kansas City, Mo.; Joel E. Goldthwait, Boston; J. Torrance Rugh, Philadelphia; John Ridlon, Chicago, and Henry W. Frauenthal, New York.

It was moved that Dr. Osgood be allowed all the time necessary to present his slides. Motion carried.

Drs. Robert E. Humphries and Henry A. Durham, New York, read a paper on "The End-Results of Tuberculosis of the Spine, Hip, Knee and Ankle Joints from the Records of the New York Orthopedic Dispensary and Hospital." Discussed by Drs. John Ridlon, Chicago; Reginald H. Sayre, New York; Charles M. Jacobs, Chicago, and Robert E. Humphries, New York.

Dr. Albert H. Freiberg, Cincinnati, read a paper on "The Evolution of Osteochondritis Deformans Coxae Juvenilis." Discussed by Drs. J. R. Kuth, Duluth, Minn.; Frederick C. Kidner, Detroit; John Ridlon, Chicago; Virgil P. Gibney, New York; H. L. Taylor, New York, and Albert H. Freiberg, Cincinnati.

Dr. Albert Ehrenfried, Boston, read a paper on "Hereditary Deforming Chondrodysplasia—Multiple Cartilaginous Exostoses." Discussed by Drs. Albert H. Freiberg, Cincinnati, and Albert Ehrenfried, Boston.

Dr. Charles A. Parker, Chicago, read a paper on "A Plea for the Prevention of Deformities Following Burns." Discussed by Drs. J. P. Lord, Omaha; Charles M. Jacobs, Chicago, and Charles A. Parker.

THURSDAY, JUNE 15—MORNING

On motion, the reading of the minutes of the previous executive session was dispensed with, and they were referred to the Executive Committee. Motion carried.

The following officers were elected: chairman, Dr. E. W. Ryerson, Chicago; vice chairman, Dr. Robert B. Osgood, St. Louis; secretary, Dr. Emil S. Geist, Minneapolis; delegate, Dr. John Ridlon, Chicago; alternate, Dr. Leonard W. Ely, San Francisco.

Dr. Ely, chairman of the Committee on Tuberculosis, reported that the committee had not done its work and was not ready with a report. On motion the committee was continued. Motion carried.

The Committee on Crippled Children, through its chairman, Dr. Nathaniel Allison, St. Louis, presented a report. It was not read in full, but only the concluding part, containing the recommendation of the committee. This report will be sent to the Association. A discussion ensued. On motion of Dr. Griffith, the report was received and adopted. Motion carried. A motion was then made that the committee formulate a resolution to be transmitted to the House of Delegates, and that the secretary be instructed to see that this was given to Dr. Ridlon for presentation at once. The motion was carried.

The secretary made a statement concerning the proper way for those desiring to obtain copies of the Transactions to proceed. He then brought up the subject of a letter that he had received, suggesting that the length of the meeting and the number of papers of the section be curtailed. Dr. Freiberg, in this connection, offered a resolution relative to the work of the section, which was referred to the House of Delegates.

Under new business, Dr. Allison made a motion that a committee consisting of five members, including the chairman and Dr. Goldthwait, as chairman, be appointed to consider, with the Committee of the American Orthopedic Association, the best method of establishing a system of preparedness in orthopedic surgery in this country. The motion was carried. Dr. Hess appointed, as the other three members of this committee, Drs. Melvin S. Henderson, Robert B. Osgood and Nathaniel Allison.

Dr. Charles M. Jacobs, Chicago, read a paper on "Compression Paralysis of Pott's Disease in Adults." Discussed by Drs. Henry W. Frauenthal, New York; J. Torrance Rugh, Philadelphia; A. L. Fisher, San Francisco; Reginald H. Sayre, New York; F. J. Gaenslen, Milwaukee, Wis.; James T. Watkins, San Francisco; Edward S. Hatch, New Orleans; Albert H. Freiberg, Cincinnati; C. M. Jacobs, Chicago, and Reginald H. Sayre, New York.

Drs. Nathaniel Allison and Herbert H. Hagan, St. Louis, presented a paper on "The Operative Treatment of Tuberculosis of the Spine." Discussed by Drs. Fred H. Albee, New York; J. Torrance Rugh, Philadelphia, and James T. Watkins, San Francisco.

Dr. John Ridlon, Chicago, read a paper on "A Report of Two Cases of Scoliosis with Pressure Paraplegia." Discussed by Drs. Leonard W. Ely, San Francisco; J. D. Griffith, Kansas City, Mo., and Reginald H. Sayre, New York.

Dr. George W. Hawley, Bridgeport, Conn., read a paper on "New Methods of Precision in the Treatment of Fractures."

Dr. Frank E. Peckham, Providence, R. I., read a paper on "The Treatment of Some Fractures of the Femur."

These two papers were discussed by Drs. Fred H. Albee, New York; James T. Watkins, San Francisco; J. Torrance Rugh, Philadelphia; John Ridlon, Chicago; H. R. Allen, Indianapolis; J. S. A. Gerster, New York; E. W. Ryerson, Chicago, and Frank E. Peckham, Providence, R. I.

SECTION ON GENITO-URINARY DISEASES

Tuesday, June 13—Afternoon

The meeting was called to order at 2:15 p. m. by the chairman, Dr. Louis E. Schmidt, Chicago.

Dr. Victor D. Lespinasse, Chicago, read a paper on "Studies in Sterility: An Outline of a Method of Diagnosis and Treatment." Discussed by Drs. W. C. Quinby, Baltimore; H. L. Sanford, Cleveland; A. L. Wolbarst, New York; Charles M. McKenna, Chicago; Leland Boogher, St. Louis; Granville MacGowan, Los Angeles; Louis E. Schmidt, Chicago, and Victor D. Lespinasse, Chicago.

Drs. Edward L. Keyes, Jr., and David W. MacKenzie, New York, presented a paper on "The Operative Treatment of Cryptorchidism." Discussed by Drs. Louis E. Schmidt, Chicago; Granville MacGowan, Los Angeles, and John A. Hawkins, Pittsburgh. Dr. Keyes showed moving pictures illustrating the operation for cryptorchidism.

Dr. J. Bentley Squier, New York, showed moving pictures illustrating nephrolithotomy and suprapubic prostatectomy.

Dr. Simon Englander, Cleveland, read a paper on "Diverticulum of the Urethra." Discussed by Drs. F. W. Robbins, Detroit; Arthur B. Cecil, Los Angeles; David W. MacKenzie, New York; Charles M. McKenna, Chicago, and Simon Englander, Cleveland.

Dr. Carl C. Warden, Ann Arbor, Mich., read a paper on "The Chemistry of the Gonococcus in Relation to Immunity and Therapeusis." Discussed by Drs. E. Schmidt, Chicago; E. L. Keyes, Jr., New York; Benjamin Gruskin, Chicago; Theodore Baker, Pittsburgh; John R. Brown, Tacoma, Wash.; Edwin Beer, New York; W. Jones Wallace, Oklahoma City; Martin Krotoszyner, San Francisco; E. G. Crabtree, Boston, and Carl C. Warden, Ann Arbor.

Dr. R. B. H. Gradwohl, St. Louis, read a paper on "The Hecht-Weinberg Test as a Control Over the Wassermann." Discussed by Drs. M. L. Heidingsfeld, Cincinnati; A. L. Wolbarst, New York; Leland Boogher, St. Louis; Carl C. Warden, Ann Arbor; Benjamin Gruskin, Chicago, and R. B. H. Gradwohl, St. Louis.

Wednesday, June 14—Morning

Dr. Arthur B. Cecil, Los Angeles, read a paper on "Reflex Urinary Retentions."

Dr. Oswald W. Lowsley, New York, read a paper on "Certain Obstructions at the Vesical Orifice."

These two papers were discussed by Drs. H. W. Plaggemeyer, Detroit; H. J. Scherck, St. Louis; Leland Boogher, St. Louis; A. J. Crowell, Charlotte, N. C.; Paul M. Pilcher, Brooklyn; Edward L. Keyes, Jr., New York; Arthur B. Cecil, Los Angeles, and Oswald W. Lowsley, New York.

Dr. Granville MacGowan, Los Angeles, read a paper on "Cancer of the Prostate."

Drs. Hugh H. Young and William Frontz, Baltimore, read a paper on "Preliminary Treatment Before Prostatectomy in Unfavorable Cases."

Dr. James A. Gardner, Buffalo, read a paper on "Postoperative Treatment of Patients Following Prostatectomy."

Dr. J. L. Crenshaw, Rochester, Minn., read a paper on "Postoperative Complications Following Prostatectomy."

These four papers were discussed by Drs. Paul M. Pilcher, Brooklyn; A. J. Crowell, Charlotte, N. C.; William F. Braasch, Rochester, Minn.; Charles E. Barnett, Fort Wayne, Ind.; Martin Krotoszyner, San Francisco; William E. Lower, Cleveland; David W. MacKenzie, New York; Edwin Beer, New York; John T. Geraghty, Baltimore; A. W. Nelson, Cincinnati, and Granville MacGowan, Los Angeles.

Dr. William E. Lower, Cleveland, showed moving pictures illustrating suprapubic prostatectomy.

Dr. Edgar G. Ballenger, Atlanta, Ga., showed moving pictures of various genito-urinary operations and procedures.

Wednesday, June 14—Afternoon

Drs. Ernest G. Crabtree and Hugh Cabot, Boston, presented a paper on "Colon Bacillus Pyelonephritis: Its Nature and Possible Prevention."

Dr. William C. Quinby, Baltimore, read a paper on "Pyelitis of Children."

These two papers were discussed by Drs. Irvin S. Koll, Chicago; Henry F. Helmholz, Chicago; William F. Braasch, Rochester, Minn.; Granville MacGowan, Los Angeles; Edward L. Keyes, Jr., New York; Edwin Beer, New York; E. G. Crabtree, Boston, and William C. Quinby, Baltimore.

Dr. Herman L. Kretschmer, Chicago, read a paper on "Hematuria: A Clinical Study Based on Two Hundred Cases." Discussed by Drs. William F. Braasch, Rochester, Minn.; Martin Krotoszyner, San Francisco; Charles M. Harpster, Toledo, Ohio; R. L. Payne, Jr., Norfolk, Va.; I. Simons, Nashville, Tenn., and H. L. Kretschmer, Chicago.

Dr. John R. Caulk, St. Louis, read a paper on "Ureteral Catheter Drainage in the Treatment of Renal Infections, with Special Reference to the Infected Hydronephrosis Complicating Pregnancy." Discussed by Drs. Edwin Beer, New York; William F. Braasch, Rochester, Minn.; A. J. Crowell, Charlotte, N. C.; Martin Krotoszyner, San Francisco; Herman L. Kretschmer, Chicago; F. R. Charlton, Indianapolis, and John R. Caulk, St. Louis.

Thursday, June 15—Morning

The Chair announced the appointment of the following nominating committee: Drs. James A. Gardner, Buffalo; John R. Caulk, St. Louis, and I. S. Koll, Chicago.

Dr. Edwin Beer, New York, read a paper on the "Surgical Therapy of Benign and Malignant Tumors of the Bladder." Discussed by Drs. Edward L. Keyes, Jr., New York; William F. Braasch, Rochester, Minn.; John A. Hawkins, Pittsburgh; F. R. Charlton, Indianapolis, Louis E. Schmidt, Chicago; Henry C. Evans, Youngstown, Ohio; G. Kolischer, Chicago; Frederick C. Herrick, Cleveland, and Edwin Beer, New York.

Dr. Gardner at this point read the report of the nominating committee, and the following officers were elected for the ensuing year: chairman, Dr. Hugh Cabot, Boston; vice chairman, Dr. Carl Wheeler, Lexington, Ky.; delegates, Dr. Edward L. Keyes, Jr., New York; alternate, Dr. E. O. Smith, Cincinnati; secretary, Dr. William F. Braasch, Rochester, Minn.

Dr. Martin Krotoszyner, San Francisco, read a paper on the "Cystoscopic Diagnosis of Contracted Bladder." No discussion.

Dr. Henry G. Bugbee, New York, read a paper on "Frequency of Urination in Women." Discussed by Drs. John R. Caulk, St. Louis; Irvin S. Koll, Chicago; A. W. Nelson, Cincinnati; Theodore Baker, Pittsburgh; Arthur B. Cecil, Los Angeles; F. R. Charlton, Indianapolis; James A. Gardner, Buffalo; Frederick W. Robbins, Detroit; H. J. Scherck, St. Louis, and Henry G. Bugbee, New York.

Dr. Daniel N. Eisendrath, Chicago, read a paper on "Clinical Aspects of Ascending Renal Infection Based on Experimental Work." Discussed by Drs. G. Kolischer, Chicago; E. O. Smith, Cincinnati; Edwin Beer, New York; Irvin S. Koll, Chicago, and Daniel N. Eisendrath, Chicago.

Dr. Irvin S. Koll, Chicago, read a paper on "Fat Transplantation in Renal and Prostatic Surgery." Discussed by Drs. G. Kolischer, Chicago; H. J. Scherck, St. Louis; David W. MacKenzie, New York, and Irvin S. Koll, Chicago.

Dr. J. Edward Burns, Baltimore, read a paper on "Further Observations on the Use of Thorium in Pyelography."

The discussion on this paper was postponed until the afternoon session.

THURSDAY, JUNE 15—AFTERNOON

Dr. Burns' paper, read at the morning session, was discussed by Drs. John T. Geraghty, Baltimore; William F. Braasch, Rochester, Minn.; Oswald S. Lowsley, New York; E. O. Smith, Cincinnati, and J. Edward Burns, Baltimore.

Dr. John T. Geraghty, Baltimore, read a paper on the "Rôle of Infection of Seminal Vesicles as a Cause of Persistent and Recurring Cystitis."

Dr. A. C. Stokes, Omaha, read a paper on "Removal Versus Drainage of the Seminal Vesicles."

Dr. Robert H. Herbst, Chicago, read a paper on "Seminal Vesicle Infections: The Cause of Persistent Urethral Discharge: Report of Cases.

These three papers were discussed by Drs. F. O. Smith, Cincinnati; V. D. Lespinasse, Chicago; John R. Brown, Tacoma, Wash.; Louis E. Schmidt, Chicago, and A. C. Stokes, Omaha.

SECTION ON PATHOLOGY AND PHYSIOLOGY

TUESDAY, JUNE 13—AFTERNOON

The section was called to order at 2 o'clock by the chairman, Dr. F. P. Gay, Berkeley, Calif.

On account of the absence of Dr. William Ophüls of San Francisco, a member of the Executive Committee, the chairman appointed Dr. E. P. Lyon, Minneapolis, as the third member, and the Executive Committee was instructed to bring in nominations for section officers for the coming year.

Dr. Frederick P. Gay, Berkeley, Calif., read the chairman's address, entitled "The Infectious Diseases as a Field of Investigation in Pathology."

Dr. Walter B. Cannon, Boston, read a paper on "Results of Recent Studies on Some Ductless Glands."

Dr. Walter W. Boothby, Boston, read a paper on "The Clinical Significance of Metabolism Studies."

These two papers were discussed by Drs. A. J. Carlson, Chicago; Emil Goetsch, Baltimore, and A. J. Carlson, Chicago.

Dr. A. J. Carlson, Chicago, read a paper on "Hunger and Disease," with lantern demonstration. Discussed by Drs. G. A. Friedman, New York; Dr. Walter B. Cannon, Boston; A. W. Cramer, and A. J. Carlson, Chicago.

Dr. H. Gideon Wells, Chicago, read a paper on "Is Uric Acid Destroyed in the Human Body?" No discussion.

WEDNESDAY, JUNE 14—MORNING

Dr. Victor C. Vaughan, Ann Arbor, Mich., read a paper on Additional Facts Concerning the Protein Poisons." Discussed by Drs. Frederick P. Gay, Berkeley, Calif.; R. C. Brown , Milwaukee, Wis.; F. A. Matthews, Chicago; F. M. Pottenger, Monrovia, Calif.; A. B. Wadsworth, Albany, N. Y.; A. W. Crane, Kalamazoo, Mich., and Victor C. Vaughan, Ann Arbor, Mich.

In the absence of Dr. Leila D. Jackson, Chicago, her paper on "Experimental Scurvy in Guinea-Pigs Produced by Milk and Milk Products," was read by Dr. J. J. Moore, Chicago. Discussed by Drs. Victor C. Vaughan, Ann Arbor, Mich.; W. W. Ford, Baltimore; L. R. Williams, Albany, N. Y., and J. J. Moore, Chicago.

Dr. Orville T. Manley, Cleveland, read a paper on "Tissue Transplantation with Reference to Permanence and Function." Discussed by Dr. Robert T. Morris, New York.

Dr. James T. Case, Battle Creek, Mich., read a paper on "Roentgenologic Studies of the Gastro-Intestinal Tract in Diabetes." No discussion.

WEDNESDAY, JUNE 14—AFTERNOON

Dr. Arthur H. Sanford, Rochester, Minn., read a paper on "The Geographic Distribution of Amebiasis." No discussion.

Dr. Gatewood, Chicago, read a paper on "Tuberculosis of the Mammary Gland." No discussion.

Dr. Alfred S. Warthin, Ann Arbor, Mich., read a paper on "Pathologic Changes in the Testes Produced by Syphilis, Leprosy, Typhoid Fever, Gonorrhea, Mumps and Roentgen Rays, with Comparative Study of These Lesions," with lantern demonstration. Discussed by Drs. W. T. Councilman, Boston; Charles Koenigsberger, Lead, S. D., and Alfred S. Warthin, Ann Arbor, Mich.

THURSDAY, JUNE 15—MORNING

The following officers were elected: chairman, Dr. James Ewing, New York; vice chairman, Dr. C. W. Green, Columbus, Mo.; secretary, Dr. Isabella C. Herb, Chicago; executive committee, Dr. William Ophüls, San Francisco; Dr. A. J. Carlson, Chicago, and Dr. F. P. Gay, Berkeley, Calif.; delegate, Dr. H. Gideon Wells, Chicago; alternate, Dr. Walter B. Cannon, Boston.

Dr. James J. Hogan, Vallejo, Calif., read a paper on "The Acute Delirium of Alcoholism." Discussed by Drs. M. H. Fischer, Cincinnati; F. A. Matthews, Chicago, and James J. Hogan, Vallejo, Calif.

Dr. Howard T. Karsner, Cleveland, read a paper on "The Vascular Reactions of the Kidney in Experimental Acute Tartrate Nephritis." No discussion.

Dr. Arthur D. Hirschfelder, Minneapolis, read a paper on "Studies on the Effects of Acids." Discussed by Dr. Martin H. Fischer, Cincinnati, and Arthur D. Hirschfelder, Minneapolis.

Dr. Murlin, New York, read a paper on "The Relationship of the Stomach to the Intestinal Functions of the Pancreas." Discussed by Drs. T. R. Williams, Albany, N. Y., and Murlin, New York.

THE REGISTRATION AT DETROIT

The total registration at the Detroit Session was 4,586. Below are given two summaries, one by sections and one by states:

REGISTRATION BY SECTIONS

Practice of Medicine	1,477
Surgery, General and Abdominal	1,043
Obstetrics, Gynecology and Abdominal Surgery	317
Ophthalmology	301
Laryngology, Otology and Rhinology	273
Diseases of Children	191
Pharmacology and Therapeutics	40
Pathology and Physiology	67
Stomatology	30
Nervous and Mental Diseases	140
Dermatology	79
Preventive Medicine and Public Health	139
Genito-Urinary Diseases	128
Hospitals	16
Orthopedic Surgery	68
Registrations without specifying any one section	277

REGISTRATION BY STATES

Alabama	5	New Jersey	24
Arizona	5	New Mexico	6
Arkansas	11	New York	306
California	75	North Carolina	10
Colorado	47	North Dakota	18
Connecticut	16	Ohio	648
Delaware	3	Oklahoma	31
District of Columbia	31	Oregon	10
Florida	9	Pennsylvania	309
Georgia	14	Rhode Island	16
Idaho	1	South Carolina	7
Illinois	411	South Dakota	9
Indiana	262	Tennessee	52
Iowa	96	Texas	39
Kentucky	38	Utah	3
Kansas	22	Vermont	3
Louisiana	16	Virginia	21
Maine	6	Washington	14
Maryland	49	West Virginia	29
Massachusetts	93	Wisconsin	100
Michigan	1306	Alaska	1
Minnesota	129	British Columbia	1
Mississippi	6	Canada	69
Missouri	139	China	3
Montana	14	Egypt	1
Nebraska	38	Norway	1
Nevada	5	Spain	1
New Hampshire	7		

Deaths

Frank Delos Gray, M.D., Jersey City, N. J.; New York University, New York City, 1883; aged 58; a Fellow of the American Medical Association; president of the Medical Society of New Jersey in 1915, and formerly president of the Hudson County Medical Society; attending surgeon to Christ Hospital, Jersey City, and city physician and president of the Jersey City Board of Health; died in Christ Hospital, June 11, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent while despondent on account of ill health.

John T. Montgomery, M.D., Charleston, Ill.; Northwestern University Medical School, Chicago, 1876; aged 63; a Fellow of the American Medical Association; a member of the Big Four Railway Surgeons Association, International Association of Railway Surgeons and Aesculapian Society of the Wabash Valley; founder and proprietor of the Charleston Sanitarium; local surgeon of the Big Four System and Mattoon and Charleston Interurban railroad; formerly president of the Illinois Fair Association; died at his home, June 14.

Eligio Osuna, M.D., Albuquerque, N. M.; School of Medicine of Nuevo Leon, Monterey, Mexico, 1891; aged 51; a Fellow of the American Medical Association; an esteemed practitioner of Albuquerque; Mexican consul in that city and a member of the Alianza Hispano-Americano; died at his home, June 2, from disease of the brain. At a meeting of the Bernalillo County Medical Society, resolutions were adopted setting forth the uniform courtesy and ability of Dr. Osuna and tendering the sympathy of the society to his stricken family.

Willard Parker Worster, M.D., New York City; College of Physicians and Surgeons in the City of New York, 1867; aged 73; a Fellow of the American Medical Association; instructor in hydrotherapy and clinical assistant in electrotherapeutics in the New York Post-Graduate Medical School and Hospital; a well-known roentgenologist; last surviving officer of the *Dunderberg,* a ram built for the United States Government by William H. Webb and sold to the French Government in 1867; died at his home, June 7.

Bartholomew E. McKenzie, M.D., Toronto, Ont.; McGill University, Montreal, 1880; University of Toronto, 1889; Trinity Medical College, Toronto, 1890; aged 64; senior surgeon to the Orthopedic Hospital, Toronto; orthopedic surgeon to Grace Hospital, Toronto, and professor of clinical surgery in the Ontario Medical College for Women, Toronto; president of the American Orthopedic Association in 1905; died at Toronto, April 21, after an operation for disease of the intestines.

Ernest Frothingham King, M.D., Washington, D. C.; Howard University, Washington, D. C., 1883; aged 57; a Fellow of the American Medical Association and a member of the American Urological Association; associate professor of surgery in George Washington University, Washington, D. C.; a specialist in diseases of the genito-urinary system; died in the Central Dispensary and Emergency Hospital, Washington, June 8, from atrophic cirrhosis of the liver.

Allen Augustus Greene, M.D., Anniston, Ala.; Vanderbilt University, Nashville, Tenn., 1891; aged 45; formerly a Fellow of the American Medical Association; a member of the Medical Association of the State of Alabama; a specialist on diseases of the eye, ear, nose and throat; oculist to the Western Steel and Car Company and Louisville and Nashville railroad; died in St. Luke's Hospital, Anniston, May 26, from heart disease.

Simon Cooley Beede, M.D., David City, Neb.; State University of Iowa, Iowa City, 1891; aged 51; formerly a Fellow of the American Medical Association; a member of the Nebraska State Medical Association, Western Surgical and Gynecological Association and American Association of Railway Surgeons; a fellow of the American College of Surgeons; founder of the David City Hospital; died at his home, June 1.

James Madison Boling, M.D., Tulsa, Okla.; Medical College of Georgia, Augusta, 1886; until two years ago a resident of Claremore, Okla.; vice president of the Mid-Continent Trust Company, Muskogee, Okla.; and a director of the Mid-Continent Life Insurance Company; a pioneer practitioner of Indian Territory; died in Barnes Hospital, St. Louis, June 8.

Frank Horton Foster M.D., New Carlisle, Ind.; Indiana Medical College, Indianapolis, 1907; aged 45; while attempting to cross the tracks of the Chicago, Lake Shore and South Bend railroad at New Carlisle, in his automobile, June 4, was struck by an interurban car and received injuries from which he died a few hours later at Epworth Hospital, South Bend.

James Elwood Stubbs, M.D., Chicago; University of Pennsylvania, Philadelphia, 1864; aged 78; a member of the Illinois State Medical Society and Physicians' Club of Chicago; formerly professor of theory and practice of medicine in the Harvey Medical College, Chicago; died at his home, June 15, from cerebral hemorrhage.

James Tyler Kent, M.D., Stevensville, Mich.; Eclectic Medical Institute, Cincinnati, 1871; Homeopathic Medical College of Missouri, St. Louis, 1889; president of the Board of Trustees of Chicago Homeopathic Hospital and author of many books on homeopathic materia medica; died at his home, June 5, from nephritis.

James Newton Nichols, M.D., Bangs, Tex.; Southern Methodist University, Dallas, Tex., 1912; aged 32; a member of the State Medical Association of Texas; for a year after his graduation an intern at St. Paul's Sanatorium, Dallas; died at the family home, May 31.

Francis M. Lewis, M.D., Little Rock, Ark.; Memphis, Tenn., Hospital Medical College, 1899; aged 56; for thirty-five years a practitioner of Pulaski County; died in St. Vincent's Infirmary, Little Rock, June 6, six days after an operation for appendicitis.

Albert C. Welch, M.D., Weeping Water, Neb.; University of Nebraska, Omaha, 1908; aged 62; a member of the Nebraska State Medical Association; died suddenly from heart disease while assisting in an operation near Weeping Water, June 2.

Frederick Grant Bryden, M.D., Morley, Colo.; American Medical Missionary College, Chicago, 1901; aged 41; mine surgeon for the Colorado Fuel and Iron Company; was killed by the overturning of his automobile at Wooten, Colo., June 6.

Arthur Justice Boren, M.D., Byers, Kan.; University of Kansas, Lawrence and Rosedale, 1910; aged 35; a member of the Kansas Medical Society; died at his home, June 3, from the effects of carbolic acid accidentally self-administered.

Louis K. Hirschl, M.D., formerly of Davenport, Ia.; University of Vienna, Austria, about 1880; aged 68; died in Bordighera, Italy, where he had practiced for thirty-five years, April 25, from kidney disease of long standing.

Ida C. Bender, M.D., Buffalo; University of Buffalo, 1890; for thirty years a teacher of English and history in the Buffalo public schools and author of textbooks on these subjects; died at her home in Buffalo, June 11.

Walter H. Bills, M.D., Allegan, Mich.; Buffalo (N. Y.) University, 1870; aged 69; a member of the Michigan State Medical Society and for more than forty years a practitioner of Allegan; died at his home, June 10.

Samuel Long, M.D., New Brunswick, N. J.; Hahnemann Medical College, Philadelphia, 1873; aged 64; died at his home, June 12, from heart disease.

Frank Atwater Elmes, M.D., Derby, Conn.; Yale University, New Haven, 1905; a Fellow of the American Medical Association; died at his home, May 20.

Ira T. Sage, Muncie, Ind. (license, Indiana, 1899); aged 80; for many years a practitioner of Red Key; died at the home of his daughter in Muncie, May 26.

William Cretcher Wren, M.D., Welshfield, Ohio; Eclectic Medical Institute, Cincinnati, 1899; aged 41; died at his home from angina pectoris, May 22.

Warren Carey, M.D., LaGrange, Ill.; Rush Medical College, 1883; aged 66; also a dentist; died at his home, June 5, from nervous breakdown.

Richard Frank Delano, Providence, R. I. (license, Rhode Island, act of 1895); aged 54; committed suicide in his office by hanging, June 2.

Dustan M. Greeley, M.D., Mt. Carroll, Ill.; Eclectic Medical Institute, Cincinnati, 1859; aged 81; died at his home, May 27.

George Horton Tilden, M.D., Boston, and Paris, France; Harvard Medical School, 1876; died in Paris, France, May 31.

Lewis H. Clark, M.D., Decatur, Ill.; Eclectic Medical Institute, Cincinnati, 1868; aged 71; died at his home, May 31.

Sterling Triest Smith, M.D., Dunlap, Tenn.; University of Nashville, Tenn., 1858; aged 78; died at his home, May 21.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE WINE OF CARDUI SUIT

(*Continued from page 2025*)

May 11, 1916, Afternoon

ARGUMENTS ON MOTION TO INSTRUCT FOR PLAINTIFF

Mr. Hough:—If the Court please: At this stage of the trial it becomes necessary and proper to inquire to what extent, if at all, the defendants have justified. In other words, whether sufficient evidence has been presented under their plea of justification to justify the submission of any question to the jury.

THE COURT:—Whether any evidence has been produced which would justify the jury in basing a verdict on it?

Mr. Walker:—Yes, if no other was introduced.

Mr. Hough:—I take it that we may regard as settled the law that, in an action for libel, where a plea of justification is filed, and the libelous article consists of many different libelous statements, it is not sufficient to aver and prove a part of those libelous statements, but they must allege the truth and prove or introduce evidence which constitutes prima facie evidence of proof of every single one of those libelous statements.

That is the rule as laid down in Odgers and that is the rule as laid down in Newell, the two books representing the English and American law on that subject.

In other words, if there are ten libelous statements in a libelous article—

THE COURT:—I do not think you need spend any time on that. If they have not justified as to everything, then there is something where the jury must find a verdict.

Mr. Hough enumerated the libelous statements in the article of which complaint was made in the plaintiff's declaration and which, he said, the defendants must prove. These were: that the Pattens were selling and making as a tonic Wine of Cardui, which is not a medicine at all, but as a booze or tipple: that the women who buy it, buy it for booze and consciously or unconsciously continue to use it for its alcoholic effect: that the statements on the bottles, before the passage of the Food and Drugs Act, were false and fraudulent and that the Pattens knew that they were false and that all the changes in these statements, alleged to have been false and fraudulent in the article, were made because of the Pure Food Act and because the Pattens knew that they were false: that all the money that they obtained, was fraudulently obtained from sickly women who thought that they were getting a bona fide medicine when all they were getting was alcohol: that one of the partners of this business used the tainted money to bribe the church for a position: that the plaintiffs offered their advertisements to the church publications and that they were refused because the business was dirty, vicious and fraudulent: that the Pattens knew that Wine of Cardui was utterly worthless as a medicine: that the method and manner of selling it was itself fraudulent: that the sale of the medicine in itself was vicious, and fraudulent.

"Now those, in substance, are the things which must be proven or, at least, concerning which sufficient evidence must be introduced to the court which would justify the submission of that question to the jury."

The arguments were long, taking up the greater part of two sittings. It is not possible here to do more than give the points raised and an outline of the arguments thereon with the rulings of the Court.

MEDICINAL VALUE OF WINE OF CARDUI MATTER OF FACT OR OF OPINION?

The first part of the argument opened with the question whether there was, in respect of the medicinal value of Wine of Cardui, any issue of fact which could be put before the jury. Counsel for the plaintiff submitted that, taking the evidence as given by the defendants' own witnesses, there was only a matter of opinion, of difference in medical opinion. Counsel cited Johnson's case (*U. S.* v. *Johnson*, 211 U. S. 488) in which the majority of the Supreme Court held that any effort of Congress to make a question, which was founded in opinion as distinguished from fact, a matter of fraud, would be unconstitutional; this case was on the Shirley Amendment and counsel cited the judgment of C. J. Hughes to prove the nature of the discussion that had taken place between the judges in deliberation. In support of the view that there was here matter of opinion and not of fact, the presence of cnicus benedictus in several official pharmacopeias and its mention as a remedy for uterine disorders in four out of forty-eight treatises perused by Professor Sollmann as well as the wide spread employment of viburnum prunifolium until quite recently, if not at present, for the same purpose, were brought forward as showing that there was still a body of opinion, however small, that cnicus benedictus and viburnum prunifolium were proper medicines to administer in these conditions. It was urged that even if the plaintiffs put on the stand as many expert witnesses as had the defendant and if these new expert witnesses testified that, in their opinion, these two drugs were proper drugs to use for the complaints for which they were recommended, this would not render the plaintiff's case any stronger than it was left by the evidence of the defendants own witnesses. That is to say, that the latter have given evidence that, in their opinion, these two drugs as combined in Wine of Cardui, are worthless.

"At most that is a question of opinion, purely of opinion, and that is what the Supreme Court has meant when it said in the Johnson case, and in the McAnulty case that there could be no charge of fraud based upon any such conditions.

"If the defendants in this case had come here and said in accordance with their first analysis, 'there is nothing in this medicine but alcohol and water, and a little coloring matter,' and the witnesses had said 'there is nothing in this medicine,' then it would have presented a fact to have been submitted to the jury.

"I say in this case that that is the duty of the Court, since it has come out from their witnesses' testimony alone, that the matter was one of opinion, it is the duty of the Court to direct a verdict to the effect that there can be no charge of fraud sustained on such evidence . . ."

THE COURT:—Well, on that proposition I am satisfied, Mr. Hough, that there is evidence in this record which would justify this jury in finding that the medicine, as described here, was worthless as a matter of fact. I am satisfied on that proposition. All of these expressions of opinion are to be used by the jury solely for the purpose of reaching their conclusion on the question of fact. We have had evidence that this synthetic medicine was absolutely worthless, that is was worse than worthless, that it was harmful. We have listened to that here for the last six weeks, and that is the evidence in this case, and it is evidence of fact, not of opinion. . . .

When you go to the jury the question will be whether or not Wine of Cardui is worthless, or of some therapeutic value. They will be required to determine between the two sets of experts, which opinion is the right opinion. When they render their verdict they will decide not a matter of opinion, but a question of fact.

On that proposition I am against you, Mr. Hough. I think there is a question to go to the jury.

THE QUESTION OF FRAUD

Mr. Hough read from the record the following statement of the Court:

"The jury will be instructed that fraud pre-supposes knowledge on the part of Mr. Patten, and that they cannot find that it is a fraud and they cannot find the truth of this plea unless they find from the evidence that Mr. Patten knew that this was a fraud." (March 28.)

Mr. Hough:—Now there are a number of other questions in the case.

The first one is as to the fraud. That involves some evidence other than evidence of the worthlessness of the medicine. That requires some evidence, I say, other evidence,

opinion or otherwise, as to the worthlessness of the medicine, to justify the submission, to the jury, of the question as to whether the plaintiffs knew that it was worthless.

Now I say, on that point, that there is not a scintilla of evidence on which this question should be submitted to the jury.

But that is not the only point in the case. There is not a scintilla of evidence upon which the question can be submitted to the jury as to whether the plaintiffs in this case, the Pattens, were intentionally selling this to be consumed as a booze instead of a medicine, and that is one of the charges in this case.

Now your Honor may think that the evidence as to the worthlessness of the medicine is strongly in favor of the worthlessness of the medicine as a matter of fact, as distinguished from a matter of opinion, and yet that fact alone don't justify the submission of these other questions to the jury, because those facts, alone, do not establish a condition from which the jury would be justified in inferring that they knew it was worthless in the first place, and secondly, that they were intentionally selling it to be consumed as booze.

Now, if there is no evidence from which the jury would be justified in drawing that inference, then notwithstanding there may be evidence to go to the jury as to the worthlessness of the medicine, the jury must be instructed that they must find for the plaintiff, because a plea of justification must be a complete plea of justification, and proof of justification must be complete as to every phase of the charge.

The plea of justification, as they have it in this case, is that it is true in all its meanings, interpretations and intendments which may fairly and reasonably be drawn from it, and that they draw all these from it, and in the argument before this court they have taken the position that that is right and that they meant all those things and they were going to prove all those things. What have they done? They have merely shown, if your Honor's view of the evidence is correct, merely shown that, in the opinion of some witnesses, the medicine is worthless.

That falls far short of making a prima facie case upon any of the other phases of the libel, which are just as libelous as the statement that the medicine is worthless.

There is the further charge that the plaintiffs have offered their advertisements to the church publications, and that they were refused, because those in charge of them knew that the business was fraudulent and worthless.

THE COURT:—I think we have had no evidence on that.

Mr. Hough:—No evidence whatever on that subject.

THE COURT:—As to that branch of the case, you need not go into it.

Mr. Hough:—Now, then, there is the further charge that the women who buy this medicine don't buy it—not only that the Pattens manufacture and sell it, intending that it shall be used as a booze, and knowing that it possesses no medicinal value—but that the women who buy it, buy it for booze, and not for its medicinal value.

Now I say there is no evidence which justifies the submission of that question to the jury. They have brought in five or six women concerning whom it has been said that they used it in excessive quantities or that, drinking it, they got drunk on it. But there is not a word in the evidence which justifies the allegation in the libel that the women who buy it—meaning all the women, not five or six out of a million or two—but all the women who buy it, buy it for booze and not for its medicinal effect.

On that charge alone your Honor is justified, nay, required by the law, to charge the jury that they must find for the plaintiffs.

Now there is the further charge that Wine of Cardui, when taken as recommended, is intoxicating, and your Honor's evidence on that charge is that, when taken as recommended, it is not intoxicating.

Now I think that roughly covers all the points that I care to raise. I respectfully submit that whether there is sufficient evidence to go to the jury— So that, notwithstanding your Honor may think that the evidence is strong that the medicine is worthless as medicine, there are four or five points upon which there has been an utter failure or proof, under the plea of justification.

THE COURT:—You mean not what I may think, but what I may think the evidence tends to prove.

Mr. Hough:—I mean what you think the evidence tends to prove.

At this point Mr. Walker made a formal motion to put on record that the argument was to have the Court instruct the jury to find a verdict in this case for the plaintiff. After asking for permission for Mr. Williams of Chattanooga to be heard on behalf of the plaintiff, Mr. Walker followed along the same lines as Mr. Hough. After counsel had spoken for some time:

THE COURT:—If I were sitting over there with eleven of my friends, I would listen to you, Mr. Walker, and be impressed with the argument, but it has not anything to do with the motion to take it from the jury on that point.

Mr. Walker:—I am arguing the proposition to the court now that there not only is not evidence in any affirmative sense to show that Mr. Patten or the Chattanooga Medicine Company put this out as a booze, sold it as such, did not believe it was therapeutically a medicine, or that they ever knew anybody was using it as a beverage. There is no evidence. And, on the contrary, there is evidence from the plaintiff in this case to justify its use as a medicine, and their belief in it. That is the reason why I am quoting that proposition.

ARGUMENT OF MR. C. J. SCOFIELD

The question before the court now on this motion to direct a verdict for the plaintiff is whether or not there is any evidence in the record at this time tending to establish the defense of justification, that is, reasonably tending to establish it. If there is, of course the question would be submitted by your Honor to the jury, otherwise it would not be submitted to the jury.

Now, I have nothing to say with reference to the question as to whether or not there is evidence in the record tending to show, or authorizing the jury to pass upon the question as to whether Wine of Cardui, in the doses prescribed, is worthless for the—is a worthless compound for the purposes for which it is given or intended.

I take it to be established that there is sufficient evidence in the record upon that question.

Now, another question that is argued by the gentlemen on the other side is the question of fraud. It is alleged here in this article that this is a fraud, a vicious fraud; and it is alleged that the business has been built on deceit. There are some other statements of that kind.

I would say, however, first upon this question, that the question before the Court and jury at this time is the partnership case. I am not here contending that the case does not have standing in this court—without the allegation and proof of special damage; but I am saying that there is no allegation of special damage, and there is no proof of any damage whatever, except what might be inferred from the fact that this statement was made concerning the corporation; and that is the situation—concerning the partnership, I mean.

Then, there is a serious question—but I do not wish to argue that at this time—as to whether, under the circumstances, even if they should succeed in overcoming our plea of justification, they would be entitled in this case to any verdict at all, under any circumstances. There is a serious question as to whether or not, in the partnership case, where there is no allegation or proof of special damages, even though the statements that are made in connection with one of the partners—now unfortunately deceased—would be beyond what ought to be said under ordinary circumstances, supposing that to be true, as to whether or not that can be imparted into the partnership case and made a part of the partnership case, where there is no allegation or proof of any damage whatever.

I have some authorities that sustain the theory that in that kind of a case there can be no recovery. But I have a very strong charge and opinion which will be presented to your Honor at some time, if you should desire to see it, before the case is concluded—you might have read it—in a libel case, by Lord Chief Justice Cockburn, where the very question is raised as to whether or not in a case of this kind, even though strong language is used in speaking of the medicine, or in denunciation of the corporation of persons who are putting it out upon the community—even though strong language, strong and stronger than this may be used, that it is immaterial, if the principal points in the case upon the pleas of justification or privilege—privilege there, as I remember—are in favor of the defendant.

Mr. Scofield then addressed the Court as to whether there was any evidence to be submitted to the jury as to the knowledge of the makers and vendors of Wine of Cardui of its real character and uses. He argued that, on this point, inferences are as much evidence as the facts from which

the inferences are drawn. This gentleman had been selling Wine of Cardui for a period of ten years and there was evidence that it was absolutely worthless. From this the jury had the right to infer, if it impressed their minds in that way, that the plaintiffs knew or ought to have known of the worthlessness of Wine of Cardui.

THE COURT:—Of course, it may be, it may all be a question for the jury—it is a question for the jury, as I look at it, to determine whether or not this medicine is worthless; and, on your theory, probably it would also be a question for the jury to say whether, on that evidence, it may or may not demonstrate, to their satisfaction, that the medicine is worthless—whether, assuming it was worthless, they would hold that the Pattens knew, or ought to have known it was worthless.

I would say now, it is not the kind of evidence that would warrant a conviction in a criminal case.

Mr. T. J. Scofield:—Now then, I take it that in this particular case, if the jury should find that it was absolutely worthless—that is a question for them to decide—that under the circumstances they would have a right to say whether or not, on this record, those who were making and selling it did know it, or ought to have known the facts. Of course, they may not have known it. I do not know what their evidence upon that point will be.

Counsel further argued that the jury would have the right to consider in connection with all the evidence of knowledge and fact, that after the articles were published, the plaintiffs deleted, from the "Ladies' Home Treatment," certain matters showing that they at this time had obtained knowledge. With regard to the Methodist Church journals and advertisements of Wine of Cardui, Mr. Scofield cited a case in support of the view that this matter might be treated as a secondary and subsidiary matter; and if the main statement was justified, that justified the libel. On the question of the use of Wine of Cardui as a tipple, Mr. Scofield said:

"I will just read this part of the articles: 'Wine of Cardui is one of those preparations that have more or less vogue among women who take their booze in the form of patent medicine, instead of whisky.' More or less vogue—that is, use, among women, who take their booze in the form of patent medicines instead of whisky. I submit that the jury has before them evidence that tends to sustain that fact."

THE COURT:—In other words, that the phrase "more or less" means some.

Mr. T. J. Scofield:—Yes, sir. I take it to be so. Now, it says this: "This, from a gentleman who was selling to unsuspecting women an alcoholic tonic under the claim that it was non-intoxicating."

Now, if it did contain the alcohol, and if it was advertised as nonintoxicating, and if he knew that it was worthless, or to have known that it was worthless as medicine, that meets the requirements of the situation.

Mr. Scofield laid before the Court argument that there was evidence to go before the jury on each of the other particulars.

May 12, 1916, Morning

ARGUMENT OF MR. WILLIAMS, FOR THE PLAINTIFF

In order that your Honor may at least see (as I hope your Honor will see) that I am not deceiving myself regarding the situation at the present time, I want to concede to begin with that there is proof here that our medicine, Wine of Cardui, is an utterly worthless medicine; that that has been proven at this stage of the proceeding. I want to concede full faith and credit to every one of the gentlemen who have been on the stand, pharmacologists, physiologists and therapeutists, who have testified both as to questions of fact and as to matters of opinion.

I want to concede further, for the purpose of this argument, that everyone of the witnesses who have been introduced on what we have called perhaps jocularly "the booze phase of the litigation," are entitled to full faith and credit, and that every circumstance that they have related here to your Honor and the jury has occurred exactly as it has been stated to have occurred.

Now, starting with that assumption, I think perhaps I am justified in saying that we have agreed with your Honor as to what has been proved or what there has been introduced tending to prove as to both of the propositions that the medicine itself is worthless, and that it has been used in isolated cases as a booze or tipple by men and in a few instances, perhaps, has been used to excess by women who have started taking it as a medicine.

Now my proposition, if your Honor please, and the first proposition is that, assuming that the proof here shows as a fact, at the present stage, that the medicine is worthless, that it has been proved to be worthless by those pharmacological tests and these other scientific tests that have been made since the institution of this suit and many of them just before the trial of the case, it nevertheless is a fact that we cannot ignore, it seems to me, that by the witnessess (not the same witnesses I mean with reference to the pharmacological tests perhaps), but by the defendants own witnesses, it has been proved that both of the ingredients which are used in our medicine and relied on for the medicinal effect (carduus benedictus and viburnum prunifolium) are well recognized drugs in medicine. That they have been used for a great many years, as one witness said, viburnum prunifolium for one hundred years, and carduus benedictus from time immemorial almost.

Counsel cited Dr. Sollmann's evidence as to the use and reputation of the two drugs.

Now then, may it please your Honor, those facts are facts in evidence just as much as the facts regarding the pharmacological tests and the physiological tests regarding the worthlessness of the medicine.

It is true, it seems to me, if we had brought this suit ten years ago, these witnesses, or most of them, would have been on the stand for us.

But, as I say, that simply illustrates, may it please your Honor, the fact that there is no foundation for the charge that the manufacturers of this medicine, Wine of Cardui, are guilty of practicing a wicked and vicious fraud on the innocent women of the country, because they have not known what these gentlemen have discovered in these tests made within the last few weeks, and have not known of the fact that these gentlemen, who formerly were using one of the ingredients (viburnum prunifolium) have recently, in recent years, found out regarding it and have discarded it from their practice.

Assuming that, are we to be charged by a public journal, circulating all through the United States, with practicing a vicious and wicked fraud, perpetrating such a fraud on the innocent women of the country, because we have not known that fact, and because we may be behind the times? And because we may see fit to agree with the minority of the medical profession or with the minority of the authorities on useful drugs? Is it not in testimony here, your Honor, that carduus benedictus is an official drug in all the European pharmacopeias?

THE COURT:—You may go a little further and assume that the evidence shows that at certain periods of a woman's life, that not only has this medicine no effect, but it is positively harmful. Now we have such evidence here, especially in the case of a young girl, and especially in the case of women with certain diseases, the symptoms of which are treated of in the "Home Treatment for Women," the "Ladies' Almanac," and also the conditions of a woman at her menopause. Now, if that is true; if it is a fact that Wine of Cardui is a positive detriment to the health under those circumstances, then is it not a vicious fraud for somebody to advertise that it will be of benefit in those cases? And isn't the bare statement of the fact some evidence of the intent of the people who put it out?

I think there is a great deal in what you say, but that is something for the jury to say, and you are making just the kind of an argument to me that I would expect to be made to the jury, analyzing the evidence and asking them the question that they must determine, whether it is a worthless medicine or whether its use will lead to the cure of these disorders; whether the Pattens had a fraudulent intent, or a malicious intent at the time they sold the medicine, and sent out the literature.

Mr. Williams:—Is it possible for your Honor to tell the jury that it would be a reasonable inference for them to draw from the facts, now in proof, that we were practicing a wicked and vicious fraud instead of making an honest mistake?

THE COURT:—Why, if you assume it to be a fact that this medicine is positively dangerous (and it has been so testified here) to give it to a young girl just reaching the age of puberty, then I think there is no difficulty in my mind in saying that it is a question of fact for the jury to determine

here. I will say that any medicine that was harmful to a young girl reaching the age of puberty, or to a woman arriving at the change of life, which was advertised to be a benefit—might it not be said that it is a vicious fraud? In other words, if it was not going to be of positive benefit, it was a fraud to advertise that it would be, especially where the evidence shows that it not only was not a benefit, but a positive harm. There is evidence to that effect here.

Mr. Williams:—If the Journal had said:

"This being so, this medicine ought not to be permitted to be marketed because it contains 20 per cent. of alcohol and it is dangerous for the public to have a medicine that they can go to drug stores and buy without a prescription, with 20 per cent. of alcohol in it."

Now that would not have made a libel *per se.*

That would not question, may it please your Honor, our intent. There has got to be some proof of intent, as the Court says in the Eckman case, where it undertakes to construe the McAnulty case.

THE COURT:—I think there is no question but what there must be some basis of fact from which the jury may find the intent or may legitimately infer it. Now, even in criminal cases, where the law is construed very much more favorably to the defendant, the intent is often found from the general circumstances. There must in a great many cases be proof of fraudulent or malicious intent. Now, in a case of this kind, if we assume that these gentlemen have told the truth and that this is positively detrimental to women at certain ages, that it cannot do anything but harm, has the jury no right to infer the intent of people who send it out under the statement that it can do nothing but good?

THE COURT:—It is peculiar in this case that—one phase of this case—deals with one of the greatest things in the world, human life, and the positive statements are made as to what this medicine will do. Now, then, assume—we may assume I think legally, that the assertion of the truth of a thing presupposes some investigation and knowledge on the part of the person who makes the assertion.

Now, in the face of the assertions made here about Wine of Cardui, we have the evidence uncontradicted that, no matter what the therapeutic value of the constituent drugs that go into this Wine of Cardui may be, that at certain times in a woman's life it not only is not beneficial, or has no beneficial effect, but it is a positive harm.

Now it seems to me that, under those circumstances, the jury would have a right to infer that a man who states a fact as a fact which he ought to have known was not proved—that is to say on the evidence we have here, it is so obviously false, these statements, that they ought to have known it, certainly there is evidence from which the jury could find their intent.

Mr. Williams:—But, if your Honor please, there is not a word of proof that the plaintiffs in this law suit ever heard tell of any of the circumstances or incidents that have been related here on the witness stand, and even if they had, may it please your Honor, if they had known of isolated cases in the millions of cases in which it is in proof that this medicine has been sold—if they had known of a hundred isolated cases of that kind, would it be a matter that the jury could reasonably infer that they were intentionally selling it as a booze or tipple and working it off as a medicinal compound?

This affects the personal character, your Honor, a broad statement that these people are practicing a moral turpitude, that they are doing something that is as villainous and dishonorable and unrighteous as anything that could be conceived of. That is the gist of this libel.

It is not the worthlessness of the medicine. It is not the fact that some people may use it indiscriminately, for that may be said of any medicine that is put out to the public, whether given by doctors on a prescription or not. But just as the Court says in this Eckman case, intent is a question of fact to be proved and while, of course, the jury may be justified in inferring the fact of intent from the circumstances in each particular case, the proposition here is, can the circumstances of this case warrant the jury under those circumstances in saying that these people are practicing a wicked and vicious fraud. If your Honor believes that, why I agree with your Honor that it is a question to be left to the jury.

THE COURT:—I have that feeling, Mr. Williams, because the evidence here is overwhelming that this medicine will not do the things that it is advertised to do. It also is overwhelming that, in a great many cases, it will do a positive harm. Now the jury will be safeguarded by the instructions of the Court, when the instructions are given on this question of intent, and they will be told that this amounts practically to a criminal charge in a civil case, and that they will have to find not only by the preponderance of the evidence, but by a clear preponderance of the evidence that it is true, but it is my judgment at this time that this question has got to go to the jury.

This involves a scientific subject. It involves the judgment of professional men, dealing, not with everyday affairs of human life, although human life is an everyday affair, and they could not have made these statements without investigation. I should say that a man who makes indiscriminate assertions, positive assertions about a medical proposition, a man of standing and position, which gives his words weight, is certainly doing a wrongful act and under certain circumstances, a fraudulent act, if he speaks otherwise. Now, when these statements are made by the Chattanooga Medicine Company, the people had a right to believe that they had investigated the subject, and had consulted physicians before making the statement, and were making statements of things that they knew to be true. Now the evidence shows that they not only were not true, but could not have been true in a great many instances.

Mr. Williams argued to some length on that point of the libel which dealt with the refusal of the advertisements in the papers of the Methodist Episcopal Church.

Mr. Hough:—I was going to say that notwithstanding I may think the Court's mind is made up, I would not feel that I would be doing my full duty by the Court if I did not call attention to that which, in my opinion, I think has not been sufficiently presented.

We may assume, for the sake of the argument, that all the libelous statements in the matter set out in the declaration are reduced to three.

First, that it is a fraud to recommend that this medicine be taken by a girl at puberty, or a woman at the menopause without reference to the medicinal ingredients of the drug, because it is a positive danger to those women at that time. We will say that is one distinct libel.

We may assume for the sake of the argument, that evidence has been introduced, uncontradicted evidence, sufficient to submit that question to the jury even though we eliminate from our thought and our minds the fact which is also brought out, that doctors do give medicines to those women at those times which contain as much alcohol as this, and therefore, that the plaintiffs would have a right to assume that if the doctors gave medicine containing alcohol, without any danger, that there would be no danger in the alcohol in their medicine, assuming that there may be valuable ingredients to the herb.

But eliminating that and assuming that that has been definitely established without contradiction, and in such a way as to cause any sane or reasonable man to know that he should not recommend any medicine at that time containing alcohol, that does not dispose of the other libel, which is just as emphatically asserted in the declaration.

They have stated that the alcoholic item is a minor indictment. That is what the article says, that it is a minor indictment. The medicine is *per se* a fraud because it does not contain any medicinal ingredients whatever.

Is proof of the fact that I am doing something fraudulent in recommending a medicine for particular women sufficient proof that the medicine itself is fraudulent, or, going a step further, is it sufficient proof from which a jury would be entitled to infer that I knew the medicine was absolutely worthless for all purposes?

I say there is no evidence from which that fact should be submitted to the jury, or upon which they would be entitled to draw that inference, because the foundation for belief has been introduced by the defendants themselves, notwithstanding, they may have proven that in the opinion of other witnesses it was absolutely worthless. That don't go to the essential thing which is necessary in this case, so far as the worthlessness of the medicine is concerned.

But that is not all. There is the statement which is equally libelous if we will assume, for the sake of argument, that both of those things have been sufficiently established to submit them to the jury, that is sufficiently established to submit to the jury the question as to whether or not it was a fraud to recommend the medicine without reference to its merits, to certain women at certain times, that is, assuming that sufficient evidence has been introduced to submit that to the jury, as to whether or not the medicine was absolutely worthless, there still remains a very serious charge

upon which no evidence whatever has been introduced, and that is, that the plaintiffs in this case were knowingly selling this to be used as a booze, intending it to be used as a booze.

Now, is there any evidence which can be submitted to the jury, or which should be submitted to the jury on that charge. I say, not a particle.

The isolated cases showing that some people have taken this for its alcoholic effect don't bring the knowledge home to the plaintiffs in the case.

It is in evidence that the plaintiffs, when they took charge of the business, took charge of a business the reputation of which was supposed to have been established for the purpose for which it was being sold, but that they submitted the question to one of the finest doctors and chemists in this country for the purpose of eliminating the alcohol, as far as it was possible to do so. Is that to be ignored in the question of establishing good faith? There is no contradiction of that whatever.

So I say that if all the other questions can be merged into the two which I have first stated, there still remains this other very serious charge, which has not been met in any way, and upon which no evidence has been introduced upon which a jury would be entitled to say that they knew that the plaintiffs were selling it, intending it to be used as a booze, and not as a medicine.

THE COURT:—Why, if you admit that the record shows that the medicine was worthless and had 20 per cent. alcohol in it, and take into consideration the enormous sales of this company, it must at least have been bought for some purpose and the jury would have a right to infer that the manufacturers knew what was in it.

Mr. Hough:—It still might have been bought for the medicinal effect, because it is in evidence in this case, that alcohol itself is a medicine and there is evidence to show, or at least nothing to justify them in assuming that it was not being sold to be used for its medicinal effect.

THE COURT:—I think there is some evidence here on which the jury could assume that this was sold purely for its alcoholic content.

Mr. Hough:—Now then, I told your Honor that the Supreme Court of the United States since the passage of the Food and Drug Act had affirmed the McAnulty case and the principles of the McAnulty case. That is in the case of the Eckman Alterative Company, wherein the Supreme Court said:

(Reading from citation last noted.)

THE COURT:—I have not any quarrel with that ruling, and I could not have if I wanted to, because it is the Supreme Court of the United States, but if the facts are assumed, as I believe here, that the evidence at the present time shows, that this was absolutely worthless, and that the plaintiff ought to have known it, then you come strictly within the terms of the Eckman case.

Mr. Hough:—Providing there is not proof going hand in hand with it, that there are others who honestly believe in the merits of the chief ingredients of this medicine. Now, when that goes hand in hand with it, how can it be anything but a question of opinion? At any rate, it does not lay the foundation for the charge that the plaintiffs had no ground for belief in their medicine.

THE COURT:—It depends altogether on how you look at the evidence. I think there is evidence to justify the jury in assuming that very thing. How they look at it, when the balance of the evidence is in, is another proposition. I shall let this case go to the jury, gentlemen. Do you want to go on this morning?

Mr. Hough:—We are ready to go on.

To which ruling of the Court the plaintiffs, etc., excepted.

May 15, 1916, Morning

TESTIMONY OF MR. FRANCIS P. MASON

The Court met pursuant to adjournment. Mr. Francis P. Mason was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. HOUGH

Mr. Francis P. Mason testified that he is a chemical engineer residing in Winnetka, Ill. He graduated in the University of Berne, in Switzerland. He studied three years at the Institution St. Cry, France; three semesters at the Laboratory of Prof. Fresenius at Weisbaden; one semester as private assistant to Prof. Fresenius; three semesters at the University of Basel in Switzerland; three and a half semesters in the University of Berne in Switzerland, where he received his doctor's degree. After graduation he spent one semester at the Polytechnicum at Carlsruhe, in Germany. He returned to the United States and worked in various laboratories, spending one semester at the University of Chicago, as private research chemist. During the last two months he has made a series of experiments attempting to determine the potency of Wine of Cardui. These experiments were made in Chicago.

The witness submitted a chart showing the results of his work. He took measured amounts of Wine of Cardui and evaporated them at known temperature and to a known concentration. In some of these experiments he used fresh extracts and in others extracts, after standing for three days. These were injected into guinea-pigs in certain doses. In the first case Wine of Cardui was measured and evaporated at body temperature, or below, to a concentration where one part of the extract was equivalent to 12 parts of the original Wine of Cardui. Of this extract four drops were injected into the guinea-pig. He stated that the animal was made ill and showed strong nervous symptoms, lasting about an hour. The animal recovered. In the next experiment a guinea-pig received 5.8 drops of this same extract after standing for three days. This animal was only slightly ill and recovered completely. In the next case an animal was given 24 drops of the extract evaporated to a concentration of one to 4.3. This animal died in seventeen minutes. In the next experiment an animal received half of the dose given to the previously mentioned animal. This guinea-pig died in 29 minutes. The next animal received 24 drops of a fresh extract. The concentration was 7.5, and the animal died three days later. Mr. Mason stated that after the evaporation was completed no alcohol was left in the solution.

In the next experiment Wine of Cardui was evaporated to a paste. The paste was diluted in water and injected into a guinea-pig to a concentration of one to 10.7 parts of water. The animal was visibly ill, but in time recovered. In the next series of experiments Wine of Cardui was evaporated to dryness at 212 F. The dry extract was taken up with water in concentration of one to 6.25. Eleven drops of this were administered to a guinea-pig subcutaneously without symptoms. The next day the guinea-pig received 24 drops more and showed no symptoms. A fresh extract was then prepared by evaporating Wine of Cardui to dryness, adding water to make a concentration of one to 16.6 of this. Sixteen drops were administered to a guinea-pig and it showed no symptoms.

Q.—Now, what do these experiments show, doctor? *A.*—These experiments show quite clearly that Wine of Cardui contains an active potent principle. That upon removing the alcohol the extract, fresh, has this potency, and that upon standing for a certain period of time—

Q.—When removing the alcohol at what temperature? *A.*—At 98 Fahrenheit, that is body temperature. Upon standing though, the potency of the active part of Wine of Cardui is injured. It is no longer as strong as it was when first, fresh prepared.

Q.—You mean when standing without any preservative? *A.*—As soon as the alcoholic protection is removed from the Wine of Cardui it seems to undergo some definite decomposition, because, as I say, after standing for three days, two and a half times the dose that made the guinea-pig very ill when it was fresh only made it slightly ill.

It is also shown here by this chart, that evaporating the Wine of Cardui to paste form at blood temperature, injures it, because, as will be readily seen here a dose equivalent to 260 drops of Wine of Cardui, evaporated under these conditions to a paste only made the animal ill, and it recovered. Whereas 56 drops of Wine of Cardui—

Mr. T. J. Scofield:—I do not think he ought to argue this matter. He can state what he found.

Mr. Hough:—He is stating a fact. This is not an argument. He is stating what he found.

Mr. Walker:—And what is a fact.

Mr. Hough:—Go ahead.

Mr. T. J. Scofield:—I think he is giving deductions from it, and I object to it.

THE COURT:—Overruled.

To which ruling of the Court, the defendants, etc., excepted.

Mr. Hough: Q.—State what the chart shows. *A.*—It shows here in the fresh paste experiment that 260 drops of Wine of Cardui do not affect the animal as much as 56 drops do, where it is evaporated only to a concentration of one to 4 and administered fresh.

The last series of experiments shows that by evaporating at 212 degrees, there is practically no potency left at all, because 270 drops of Wine of Cardui treated in this fashion show no effect, as against the 56 drops that kill.

Q.—That is, where you say it is evaporated to dryness? *A.*—That is where it is evaporated to dryness at 212 degrees Fahrenheit.

Mr. Mason stated that he purchased the Wine of Cardui in the open market. He also stated—after objection which was overruled—that he had read the analysis of Wine of Cardui in The Journal of the American Medical Association, and it was his belief that no one could state from that analysis what the material was from which the material was made.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

Mr. Mason stated that he had not studied bacteriology seriously and that he had never studied pharmacology. The animals on which he experimented seemed perfectly normal and healthy. They were observed by himself and a Mr. Devitt, who was a chemist, not a physician or a pharmacologist. The animals were purchased at an animal store and were kept about a week before the experiments were begun. The animals seemed normal.

Q.—How do you know they were normal, that is what I am trying to get at. Do you know anything about it? *A.*—I know that a sick animal exhibits without fail certain symptoms that anybody who is accustomed to handling animals can recognize.

Q.—Have you had much experience in experiments on guinea-pigs? *A.*—I had at one time.

Q.—When was that? *A.*—When I was assistant to Professor Stupple at the University of Berne.

Q.—How long ago was that? *A.*—The summer of 1895.

Q.—What experience did you have there? *A.*—We were working on snake venom, trying to isolate the active principle of snake venom.

Q.—How many pigs did you experiment on? *A.*—We used various animals, cats, guinea-pigs and rats.

Q.—How many did you experiment on? *A.*—Oh, perhaps 15 or 20.

Q.—Were they pharmacological experiments which you were conducting? *A.*—In a way, yes.

Q.—Who was the pharmacologist? *A.*—Beg pardon?

Q.—Who was the pharmacologist? *A.*—Well, Professor Stupple.

Q.—Now then, what did you mean by saying "in a way, yes"? *A.*—Well, as I remember we made between 15 and 18 experiments on this isolated venom, that is, we made various consolidations and preparations of snake venom, and tried it on animals to see if the process would be the same or would do the same work as the fresh venom would.

Q.—Did you isolate the active principle of the venom, doctor? *A.*—No, sir, we did not.

Q.—Why didn't you do it? *A.*—Because it does not seem that anybody has been able to do it, or at least not at that time they had not.

Q.—What was that, class work? *A.*—No, I was his private assistant.

Q.—In making these experiments on the guinea-pigs, what did you use, what sort of an instrument? *A.*—I used what is called a serum syringe, belonging to Doctor Funck.

Q.—How is that? *A.*—A serum syringe, a glass syringe.

Q.—Produced where? *A.*—From Dr. George W. Funck.

Q.—Will you describe, if you can, the manner in which that experiment is conducted with that instrument? *A.*—Why, the system was this, as used in these experiments. I prepared the extracts, measured them, and Dr. Funck made the actual injection in all cases, except on pigs 7 and 8.

Q.—Who made the injection on pigs 7 and 8? *A.*—I did.

Q.—Was anyone with you when they were made? *A.*—Yes, sir.

Q.—Who? *A.*—Mr. Devitt.

Q.—Did you use the same sort of an instrument on 7 and 8 that Dr. Funck used on the others? *A.*—We did.

Q.—How did you prepare the instrument for use on 7 and 8? *A.*—It was first boiled, that is, made sterile and filled with the extract. The guinea-pig had its head and front paws stuck into a wide mouthed bottle, so that its hind legs were exposed. The skin of the abdomen was sterilized with alcohol, and then pinched up and the needle inserted under the flap.

Q.—Do you know whether or not the instrument which you used there was sterile? *A.*—I just told you it was boiled.

Q.—How do you know? *A.*—Well, it was boiled, and boiling is supposed to sterilize anything.

Q.—Did you do it yourself? *A.*—Why, yes, right there under my supervision.

Q.—How long did you boil it? *A.*—About five minutes.

Q.—Will boiling an instrument of that kind for five minutes necessarily sterilize it? *A.*—I suppose it does.

Q.—You suppose it does. I asked you if you know? *A.*—I understand that it is the regular method.

Q.—I am asking you if you know whether or not that sterilizes it? *A.*—I know what the doctors have told me, and what I have read, that is all. I did not make a bacteriological—

Q.—Is it not a recognized fact that an instrument of that kind, in order to be sterilized, must be boiled 20 minutes? *A.*—I do not know that.

Q.—I asked you if it is not a recognized fact? *A.*—I do not know.

Q.—You do not know whether it is or not? *A.*—No.

Q.—Those instruments were boiled five minutes? *A.*—About five minutes, yes.

Q.—If that is true, and if it is also true, in order to have perfect sterilization, that 20 minutes of boiling is required, you don't know whether those instruments were sterile or not? *A.*—If they were not sterile by being boiled five minutes, I do not know. If they were sterile after being boiled five minutes, I know they were sterile.

Mr. Mason testified that the instruments used were sterilized by boiling. The syringe was put into the animal under the skin of the abdomen. The skin was carefully sponged off with strong alcohol. The hair was not shaved off. It was washed until it seemed perfectly clean. The alcohol was left on. He stated that no examinations were made of the animal after death. He personally was not competent to do it. He did not see the necessity of it. Neither Dr. Funck nor any one else made a postmortem of the animals. He does not know what was the cause of death. Tetanus may have been the cause of death. The witness stated that his knowledge of the matter is limited. The Court called to the attention of Mr. Scofield that the witness has not qualified on these lines.

The witness stated that in a way when he studied chemistry he studied the question of the potency of medicine or drugs. For example, he attempted to recover poisons from the bodies of rats when working under Prof. Fresenius. The organs were examined by various methods of analysis.

The witness stated that he does not know the effects of injecting protein into the guinea-pig. He does not know anything about anaphylaxis or its symptoms. He does not know the composition of the extract which he injected into the guinea-pig. He has not calculated the amount of extract per kilogram of weight injected. He wanted to find out whether the stuff would affect a guinea-pig at all.

The witness testified that the amount of extract injected into the first guinea-pig represented five drops of Wine of Cardui. He was asked to calculate how much it would represent for a person 150 pounds in weight. Objection was made to the question and overruled.

Mr. T. J. Scofield: *Q.*—Let me ask you, Mr. Mason, if it is not a fact, that, figured out in that way, it would require a dose of a gallon and a half to two gallons for a man of 150 pounds, or a woman 150 pounds in weight? *A.*—Of Wine of Cardui?

Q.—Yes? *A.*—It would be a large quantity.

Mr. Hough:—That is objected to.

Mr. T. J. Scofield:—What did you say?

Mr. Hough:—It is objected to as wholly immaterial, because Wine of Cardui is not given to human beings in lethal doses, and it is not intended to be given in lethal doses, and therefore it does not make any difference how much they would have to get in order to get the same action as on a guinea-pig.

Mr. T. J. Scofield:—This was not a lethal dose, because it did not kill the animal.

The Court:—There are a number of experiments here where the animal was only slightly influenced.

Mr. Hough:—The sole purpose of this was to determine that, under certain conditions, it had a marked potency and under certain conditions it made the guinea-pig very ill, and under certain other conditions it killed the guinea-pig. Now they can figure out how much that might take to kill an individual, or make them sick, but that is beside the question here entirely.

The Court:—I think it is quite important. We are not interested, to be sure, in the guinea-pigs that are dead any more than that this medicine did bring it about possibly. But as to those that are still alive, I think it is quite competent to show what proportion of the medicine that it took to make the small animal ill, what proportion that bears to the person weighing 150 pounds say, that is, provided it appears in any way that the proportion is probably true. In other words, that the same effect will happen on a guinea-pig, as will happen on a human being.

Mr. Hough:—We are not arguing from that, that a certain amount will kill a human being.

The Court:—As I understand Dr. Mason's evidence, it is merely as to one single fact, that Wine of Cardui has some potency in it, at least as far as guinea-pigs are concerned.

Mr. T. J. Scofield:—Now then, let the pending question be answered, your Honor.

Q.—I ask you, Doctor, if, calculated in that way, the dose for a person 150 pounds in weight would not be about to a gallon and a half, or two gallons?

THE COURT:—The doctor said it would be a large quantity.

The Witness:—It would be a large quantity. I am calculating it now, if you wish me to. I have not got the exact figures.

The witness had no information as to what was in the Wine of Cardui with which he experimented except what was on the bottle. He stated that he knows it contains carduus benedictus and viburnum prunifolium from the testimony given in the trial. The guinea-pigs were all females.

Q.—You do not know what it was that you injected that produced the illness? A.—It was the active potent principle of Wine of Cardui.

Q.—How do you know? A.—Because—

Q.—What is the active potent principle? A.—The thing that makes the guinea-pigs ill, and kills them.

Q.—What is the active potent principle of Wine of Cardui? A.—Chemically?

Q.—Yes? A.—I do not know.

Q.—You do not know? A.—No, sir.

Q.—Well, how do you know that it is potent then? A.—Because guinea-pigs die from it, and are made ill by it.

Q.—May they not die from the protein? A.—I do not know anything about protein; I do not know how it would affect a guinea-pig.

Q.—Is it not a well known fact, Mr. Mason, that when a protein matter is injected into an animal that they frequently die? A.—I do not know.

Q.—You do not know? A.—No, sir.

Q.—Well, now, suppose you injected white of egg, or material of that kind, into a guinea-pig, will it live or die? A.—I never did it, and I do not know.

Q.—You do not know, do you?

Mr. Hough:—That is objected to as not proper cross-examination.

THE COURT:—Objection sustained.

To which ruling of the Court, the defendants, etc., excepted.

The witness stated that he conducted the work described in the laboratory of H. M. Devitt, in the Rookery Building.

REDIRECT EXAMINATION BY MR. HOUGH

On redirect examination the witness testified that the same instruments were used for the injections in each case. He stated that probably if it had been an infection that caused their death, it would have caused the death of all of them, but he does not know. Further questions along this line were objected to. Objection was sustained.

The witness stated that there was no infection manifested at the point of injection.

RECROSS-EXAMINATION BY MR. SCOFIELD

The witness stated that there are many kinds of infections where there is absolutely nothing to indicate it on the surface.

TESTIMONY OF DR. GEORGE W. FUNCK

Dr. George W. Funck was called as a witness for the plaintiffs in rebuttal.

DIRECT EXAMINATION BY MR. HOUGH

Dr. George W. Funck testified that he is a physician residing in Chicago. He graduated from the University of Wisconsin, and then took one year's postgraduate work there. He graduated in 1903 from Rush Medical College. He is now Professor of and head of the Department of Therapeutics and Preventive Medicine at the Chicago College of Medicine and Surgery. He stated that in the point of students this college has as many as any in Chicago. It is the Medical Department of Valparaiso University.

Dr. Funck testified that he had done surgery and is familiar with the female genital organs. He has been teaching in various schools for about ten years and formerly held a similar position at the Bennett Medical College.

He is a member of the Chicago Medical Society, Illinois State Medical Society, the American Medical Association, and the Association of Military Surgeons of the United States.

There was shown to the witness the charts previously shown to witnesses who testified for the defendant. The witness stated that the charts are approximately correct, but that the uterus is exaggerated somewhat. He testified that the plaster cast shown by Dr. De Lee is as closely correct as any that could be made.

Q.—Doctor, would you say that uterine displacements are pathological that are unaccompanied by any symptoms such as would cause the woman discomfort, pain or distress? A.—That depends largely—

Mr. T. J. Scofield:—Let me hear that.

A.—It depends largely on the definition of pathological. If we call everything pathological that deviates in the slightest degree from the normal, then of course those deviations are pathological. But, in the ordinary meaning of the term pathological, as applied by physicians, I would hardly say that they are, unless accompanied by some other change which does produce symptoms. Or, we might as well further specify by saying that if the deviation from the normal is not accompanied by symptoms, ordinarily speaking we could hardly figure it as pathological. Strictly speaking, however, it would be.

Q.—Under the heading of uterine displacement, would you include prolapsus? A.—Yes, sir.

Q.—Now, are there cases of uterine displacement, including prolapsus of the womb, which can be treated without surgical operation? A.—Certainly.

Q.—What would be the symptoms of a case of that character as a rule? A.—Well, usually the symptoms do not refer to the displacement but rather to the congestion and inflammation that accompany the displacement, and it is the congestion and inflammation that accompany the displacement, that produce the symptoms.

Dr. Funck stated that the great majority of cases of menstrual disturbances do not require surgical treatment. He stated that there are ovarian troubles which do not require surgical treatment. He stated that there are a very large number of remedial agencies employed for uterine displacements which do not require surgical treatment, including cases of prolapsus.

The witness testified that viburnum prunifolium is employed extensively by nearly all practitioners of medicine. On objection the answer was stricken out. The witness stated that viburnum prunifolium is indicated for all cases of prolapsus and ovarian trouble which cannot be treated surgically. He stated that carduus benedictus is indicated for all cases which do not require surgical treatment.

Dr. Funck testified that if these two drugs were combined in one medicine we would get the combined action of the two, and as their action is similar we would get the synergistic action. By this he means that the sum total of the action of the two drugs is more than we would expect by simply adding the action of the two together mathematically. He testified that in his opinion the combination of these drugs in a preparation of 60 grains of one and six grains of the other—the latter being viburnum prunifolium—to the fluid-ounce with a 20 per cent. solution of alcohol is a useful combination. The alcohol is a negligible quantity, and physicians do not take it into consideration at all as contained in remedial agencies. Mr. Scofield moved to strike out the last part of the answer. The Court stated that it was not responsive, and instructed the witness to answer "yes" or "no." The witness answered that the alcohol has no part in it.

Q.—How would that medicine be of benefit in the various female diseases we have referred to, which would not require an operation, or which are not due to malformation? A.—Why, by its tonic action. The two do not act toxically in the same way, though, but they both have ultimately that effect.

Q.—What is a medicinal tonic? A.—A medicinal tonic is a drug or remedial agent or process that improves and increases the vitality of the body. That may be either of the entire body, or it may be of particular parts of the body.

Q.—Can the same medicine be both a sedative and a tonic? A.—Yes, sir.

Q.—What is the difference between a stimulant, on the one hand, and a sedative or a tonic on the other, if there is a difference? A.—All three terms are different. Each one refers to a different property. By a muscular stimulant we understand a drug that causes the muscle to contract more powerfully than it would otherwise, if a stimulant is applied to it. The term "tonic" has nothing to do with the contraction of the muscle. It concerns itself with the vitality of that muscle, improving and increasing the vitality of the muscle.

Q.—Then, would you say that a tonic had to have the power of contracting a muscle, in order to be regarded as a tonic? A.—In fact, it would not be a tonic. It would be a stimulant. The correct term for a drug having that sort of action is a stimulant, not a tonic.

Q.—What connection is there between the female generative organs and the breasts of a woman? A.—Through the sympathetic nervous system, the two are rather intimately related. It happens quite frequently that when there is some disorder of the female pelvis, that the patient will feel it in the breasts; as, for instance, inflammations and tumors, displacements and other diseases of the female pelvis are reflected in the breast; and the reverse is likewise true.

Q.—Is pituitrin a tonic? A.—It is a stimulant.

Q.—Is hanging breasts a disease, or symptoms of a disease? A.—Well, I should say it was rather a symptom.

Q.—A symptom? A.—Yes, sir.

Q.—Doctor, is medicine ever given to a woman during pregnancy? A.—Certainly.

Q.—For what condition? A.—Well, in the first place, for all the conditions that the woman may suffer from when she is not pregnant; and, in addition to that, from some of the conditions that she might suffer of because of her pregnancy.

Q.—Is medicine given for symptoms connected with the menopause? A.—Yes, sir.

Q.—And also at puberty? A.—Certainly.

Q.—Would this medicine I have referred to, in that combination, be indicated for those conditions? A.—That belongs to the general class of remedies that are used in all these conditions.

Q.—Doctor, is there any danger in giving to a woman at puberty, or during the menopause, a medicine of this character, which contains 20 per cent. of alcohol, in doses of a tablespoonful two or four times a day? A.—The alcohol is the negligible quantity.

Q.—Will you speak a little louder, doctor? Would that amount of alcohol have the effect of arousing the passions of a girl, taken in those doses? A.—I cannot conceive of such a thing.

Q.—Does a negative pharmacologic test establish the fact that a medicine is worthless? A.—If the negative test should include every possibility, then it might; but one or two or a half dozen tests certainly would not.

Q.—What is the difference between a positive and a negative pharmacologic test? A.—Well, by positive test we mean that by trying the drug on some lower animal some result is obtained; by negative test, that no result is obtained, in the particular experiment.

The witness stated that a female can determine for herself that she has amenorrhea and dysmenorrhea. This is true of many female disturbances. She might be suspicious that she had inflammation of the womb. She could certainly tell that she had leukorrhea.

The witness stated that he had read through the Home Treatment Book of the Chattanooga Medicine Company for 1913. He stated that the treatment therein described including Cardui, Black-Draught, antiseptic treatment, and diet and health treatment is a general average treatment for the conditions mentioned. He stated that Wine of Cardui would be a method of treating the conditions described. He stated that there are some cases of sterility which can be cured by use of medicine. Even all cases where medicinal treatment by mouth would be indicated would not necessarily mean that the female would be relieved of her sterility, but it would be a method of treatment that is used, and occasionally it would be successful. But, even if surgical treatment would be applied to sterility, in many cases it would fail.

Attorneys for the defendants moved to strike out the answer as to the surgical portion of the answer. The Court ruled that it may stand.

Dr. Funck testified that 20 per cent. of alcohol in a medicinal compound, taken in tablespoonful doses three or four times a day, would not tend to create an alcoholic habit. He stated that his knowledge of carduus benedictus is based on reading concerning this drug. He has never used it in his practice.

Q.—Doctor, would you say that the mere fact that a drug is injected into the uterus, either inside or outside of the human body, is any proof that it would or would not affect the uterus in a sick woman, when given in the usual way through the mouth? A.—No, sir; that is not proof.

Q.—Would you say that the fact that a drug injected into the body of an animal shows no change in respiration, pulse or blood pressure, is any evidence that it would have no effect upon a sick woman, when given in the usual way through the mouth? A.—No, sir; that is not evidence.

Dr. Funck stated that the same syringe was used on all the guinea-pigs described by Mr. Mason except one. He stated that there were no symptoms of infection in any of the guinea-pigs. The site of the injection of the guinea-pigs was washed with alcohol. To all appearances the guinea-pigs were normal.

Q.—Doctor, how might a woman tell for herself that a pain in her side, back or head was due to some menstrual disturbance? A.—Well, if it occurred periodically at her—the time of her menstruation, she probably would figure that the cause of it was the menstrual disturbance or pelvic disorder.

Q.—Would that be a fairly accurate diagnosis? A.—Reasonably so.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

Q.—Doctor, you are not a pharmacologist, are you? A.—Not so far as it concerns itself with doing the actual experiments.

Q.—Have you had any experience with work of that kind—much? A.—Not much, no sir.

Q.—How much have you had of work of that kind? A.—Very little; at the time I attended medical school, and since then, not actually doing them, but watching—not the identical experiments, but similar experiments, at the Medical College.

Q.—Under whom were you, doctor, at that time? A.—At that time, if I remember correctly, the Department of Pharmacology and Physiology were conducted together.

Q.—Well, under what professor? A.—That was Loeb, Dr. Loeb.

Q.—How do you spell that? A.—L-o-e-b.

Q.—And that was where, at Madison? A.—No; that was at Rush.

Q.—At Rush? A.—However, he did not do the—there were various instructors in the laboratory. He did not do the laboratory work himself.

Q.—I suppose he himself never gave a course in it, did he, Professor Loeb? A.—Sir?

Q.—Did Loeb give a course in pharmacology, himself? A.—No; but if I remember correctly, it was under his—in his department.

Q.—Yes. Well, do you remember who the person was that was in charge of the—of that particular work, under whom you studied? A.—No, I don't.

Q.—Well, it was not, as a matter of fact—what year was that that you were in that college? A.—Well, I graduated in 1903. Then that must have been about 1901, I think.

Q.—Well now, is it not a fact that there was no such course in Rush Medical College at that time? A.—Well, they had courses on lower animals, especially on frogs. However, as I say, it was conducted in the department of physiology.

Q.—Well, I am asking you if it is not true that at that time there was not a course on pharmacology, when you were in Rush Medical College? A.—No separate course.

Q.—Well now, is it mentioned at all as a course that was pursued in those years, in that institution—a study? A.—Whether it was labeled—I don't think it was labeled, "pharmacology."

Q.—Well, what was it labeled, then? A.—It was labeled Physiology.

Q.—When you say "labeled" what do you mean by that? A.—Well, I mean registered, the name that was applied to it.

Q.—Well, have you had any experience of that kind since you commenced work for the Chattanooga Medicine Company. A.—Not aside from what was done on these rabbits, here, strictly speaking—that is not in pharmacology—or, at least, it is very crude pharmacology.

Dr. Funck stated that the extractives used on the guinea-pigs were prepared by Mr. Mason and Mr. Devitt; he merely performed the injections.

The witness stated that he is not working for the Chattanooga Medical Company outside of his testifying in the trial. He has been advising the attorneys for the plaintiff during the course of the trial.

The witness testified that he talked with Mr. Hough before the trial and before he went to Chattanooga. He testified that he is on a salary with the Chattanooga Medicine Co. and that he has not practiced much since the beginning of the trial. His salary requires his attendance on the trial.

The witness testified that he is the same Dr. Funck who was employed in the defense of the Jiroch Medical Co.

Q.—Doctor, referring to the question—to the subject of vaginitis in women; are you familiar with the condition known as vaginitis? A.—Yes, sir.

Q.—Do you agree with the statement in Cardui Home Treatment, which is as follows: "The most frequent cause of vaginitis is gonorrhea." Do you agree with that? A.—Well, that depends entirely on what statistics are taken to base that opinion upon. In the—

Q.—I am not asking you what they base it upon. I am asking you if you agree with that, in your views—

Mr. Hough:—One minute. I object to the interruption of the witness. Let him finish his statement.

THE COURT:—Go ahead.

Mr. Hough:—Finish your first answer, Doctor.

Mr. T. J. Scofield:—I object to Mr. Hough directing the witness to do anything. I am asking him whether he agrees with that statement.

THE COURT:—It depends altogether on whose heifer gets gored. You object when Mr. Hough is examining a witness, that he does not let him answer. Now, Mr. Hough objects for the same reason, that you will not let him finish.

Mr. T. J. Scofield:—I was asking him—

THE COURT:—He can finish his answer.

Mr. Walker:—The Court said he could finish.

Mr. T. J. Scofield:—Mr. Walker, I am not at all deaf. I recognize the Court's authority, and what he said.

Mr. Walker:—Did you?

Mr. Hough:—Finish the answer you commenced.

The Witness:—It depends upon what statistics you take. In the experience of one physician, practicing in certain places, it might be very frequent, and then again in the experience of another physician practicing among a different class of people, it might be comparatively rare. You can get statistics either way.

THE COURT:—Now, Doctor—please read the question, Mr. Reporter; and then let this explanation stand, but just answer the question.

Mr. T. J. Scofield: Q.—Do you agree with the statement in Cardui Home Treatment, as follows, quoting from the Home Treatment: "The

most frequent cause of vaginitis is gonorrhea." Do you agree with that?

Mr. Hough:—Now, I object to the question, because it is not a correct statement of the Home Treatment Book. It is a part of the statement. And he is entitled to ask him the entire statement.

(Handing book to Court.)

Mr. Hough:—There are a number of different causes—

THE COURT:—Read the three lines to him, Mr. Scofield. I think that is proper.

Mr. T. J. Scofield:—Why, surely. Then I will modify the question as follows:

Q.—Do you agree with the statement in Cardui Home Treatment as follows: "The most frequent cause of vaginitis is gonorrhea, brought on by infection, sexual excess or unhealthy discharge from the womb, ovaries, tubes or bladder?" *A.*—I think—

Q.—Do you agree with that? *A.*—In a general way, yes. I think that probably most cases of vaginitis are due to some sort of discharge from the uterus.

Q.—What is gonorrhea? Is it a germ disease or not? *A.*—It is an infection caused by a micro-organism.

Q.—Now then, I will ask you—you agree then with that statement of the Home Treatment, do you? *A.*—I don't know just exactly what the statistics are as to the relative frequency; but, as a general proposition, yes.

Q.—I am not asking you— *A.*—Especially, when taken into consideration with a discharge from the uterus.

Q.—I am not asking you anything about statistics. I am asking you whether or not you agree that this is or is not true? *A.*—The only way I can determine the relative frequency of the various causes of vaginitis is by referring to the statistics.

THE COURT:—May I take the book, Mr. Hough?

Mr. T. J. Scofield:—Have you had any—

THE COURT:—Just a minute, Mr. Scofield. Will you be good enough to read the second paragraph there. That is practically the question.

(Handing book to witness.)

The Witness:—There might be an objection made there to saying unhealthy discharges from the bladder, probably. There are not very many cases of vaginitis produced by unhealthy discharges from the bladder. It is possible.

Mr. T. J. Scofield:—Very well.

Q.—Now, doctor, you do agree that sometimes it comes from gonorrhea, do you? *A.*—Yes, sir.

Q.—Very well, Doctor. Will you tell the jury your opinion, as professor of materia medica and therapeutics in the Chicago College of Medicine and Surgery, as to whether the use of a medicinal solution which contains the equivalent of 96 drops of whisky to each dose would be a scientific and a specific remedy with a curative effect in the treatment of gonorrheal vaginitis? *A.*—It would be one of the methods of treatment, and, when taken along with the rest of the treatment as outlined in the Home Treatment Book, it would be all right.

Q.—Now, then, doctor, will you please answer the question. I am not asking you whether it would be one of the treatments or not. I am asking you whether the use of a medicinal solution which contains the equivalent of 96 drops of whiskey to each dose, three or four times a day, would be a scientific and a specific remedy, with a curative effect in the treatment of gonorrheal vaginitis? *A.*—Yes, sir—the amount of alcohol we consider is—

Q.—I am just asking you if you consider that is a specific and proper treatment? *A.*—Yes, sir.

Mr. T. J. Scofield:—Well, that is all for you, Dr. Funck.

Whereupon the further hearing of the case was adjourned until 2 o'clock p. m. of the same day, Monday, May 15, 1916.

(To be continued)

Accident Statistics.—German statistics show that from 1901 to 1911 there was a decrease in accidents causing death, and partial or total permanent disability; but that there was a marked increase in accidents causing temporary disablement, lasting more than thirteen weeks. The increase of accidents is particularly due to the following causes: stricter control in regard to reporting accidents; employment of untrained and inexperienced workmen; more frequent prosecutions of claims by injured persons because of their better knowledge of the law; better knowledge of what is an industrial accident; increase of the cases in which the officials of the insurance system admitted a causal connection between existing malady or weakness and its aggravation by an accident; frequent granting of a transitory or accustoming pension, in cases where strictly speaking there was no longer a loss of earning power; and, finally, the frequency of changes in the personnel of the laboring forces of the plants.—Price, The Modern Factory.

Correspondence

"Stammering" and "Stuttering"

To the Editor:—May I call attention to the increase in the confusion in regard to stammering by the effort to substitute German usage (Fletcher, J. M.: The Etiology of Stuttering, THE JOURNAL A. M. A., April 8, 1916, p. 1079) for our well established English words "stammering" and "stuttering"?

Dr. F. A. Bryant, writing under date of 1913, says:

"The Century Dictionary and Cyclopedia" explains the terms by stating that "he who stammers has great difficulty in uttering anything; the result is broken and inarticulate sounds that seem to stick in the mouth, and sometimes complete suppression of voice. He who stutters makes sounds that are not what he desires to make, and the result is a quick repetition of some one sound that is initial in a word that the person desires to utter, as c-c-c-catch." . . . This is the attitude taken by every writer on the subject whose views have appeared in English in the last fifty or more years, with one exception.

Accurate definitions are one of the fundamentals of scientific investigation. Let us consider briefly some of the confusion which will be caused by adopting this single exception instead of a 50-year-old rule recognized by the whole English-speaking race.

The German word *Stottern* is equivalent to the English word "stammering." On this account it is proposed to use the English word "stuttering" in place of "stammering." In short, it is a proposal to abandon the established use of two important English words in order to use one of them in the sense of a somewhat similar German word. This unreasonable proposal has already caused so much confusion that no discussion of speech defects is now clear unless it is accompanied by definitions of the words "stuttering" and "stammering."

It will take decades to make the substitution, if it can be made at all. Every one who has to do with the subject must keep two meanings in mind, and even then much of what he reads will be uncertain. And when the change is made, what has been written up to date will be unintelligible.

A necessary consequence of this substitution of "stuttering" for "stammering" will be the use of "stammering" with the meaning of the German word *Stammeln*, baby talk. That is, we must use a word which formerly distinctly designated a speech disorder to designate a great variety of defects in pronunciation. Then lisping will be stammering, and we shall have no word for stuttering, that is, clear repetition. But we will have it, for stuttering is firmly fixed in the language; it is used in mechanics to designate the irregular chattering of a nonlubricated sliding member. For nonspasmodic speech repetition we shall have to introduce a word; and it will always conflict with the old meaning of the word "stutter."

If America is to win any real distinction in the investigation of the leading speech disorder, it must progress at a more rapid rate than it has done, and it cannot make rapid progress by introducing a confusion of tongues.

ERNEST TOMPKINS, Los Angeles.

Cataractous Families

To the Editor:—Previously I have reported in THE JOURNAL seven cases that seemed to indicate hereditary tendency to cataract in some families.

I operated lately on Mrs. T., aged 51, for cataract in the right eye that had been forming for four or five years. Recently the left eye became blind from the same cause.

Just twenty-one years ago I had operated on this patient's mother, who was blind in both eyes from cataract, and who was then 54 years old. Her mother, the present patient's grandmother, was blind from double cataract when she died at 65. A full cousin of the present patient, a daughter of her mother's sister, was blind from cataract when she died of an acute disease at 50. So this is evidently another cataractous family.

JOHN L. DICKEY, A.M., M.D., Wheeling, W. Va.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, July 10. Chairman, Dr. W. H. Sanders, Montgomery.

ALASKA: Juneau, July 5. Sec., Dr. H. C. De Vighne, Juneau.

ARIZONA: Phoenix, July 5-6. Sec., Dr. John Wix Thomas, 306 Goodrich Building, Phoenix.

CALIFORNIA: San Francisco, June 27. Sec., Dr. Charles B. Pinkham, R. 527 Forum Bldg., Sacramento.

COLORADO: Denver, July 4. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: Regular, New Haven, July 11-12. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven; Homeopathic, New Haven, July 11, Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven; Eclectic, New Haven, July 11, Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

DISTRICT OF COLUMBIA: Washington, July 11-13. Sec., Dr. Edgar P. Copeland, The Rockingham.

INDIANA: Indianapolis, July 11-13. Sec., Dr. W. T. Gott, 84 State House, Indianapolis.

MAINE: Augusta, July 6-7. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MASSACHUSETTS: Boston, July 11-13. Sec., Dr. Walter P. Bowers, 1 Beacon St., Boston.

NEW HAMPSHIRE: Concord, June 26-27. Sec., Dr. W. T. Crosby, The Beacon, Manchester.

NEW MEXICO: Santa Fé, July 10. Sec., Dr. W. E. Kaser, East Las Vegas.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 27-30. Chief Examinations Division, Mr. Harlan H. Horner, State Education Bldg., Albany.

NORTH CAROLINA: Raleigh, June 27-30. Sec., Dr. H. A. Royster, Raleigh.

NORTH DAKOTA: Grand Forks, July 4. Sec., Dr. G. M. Williamson, Grand Forks.

OKLAHOMA: Oklahoma City, July 11. Sec., Dr. R. V. Smith, 502 Daniel Bldg., Tulsa.

OREGON: Portland, July 5-7. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 11-13. Sec., Mr. Nathan C. Schaeffer, Department of Public Instruction, Harrisburg.

RHODE ISLAND: Providence, July 6-7. Sec., Dr. Gardner T. Swarts, Room 313 State House, Providence.

SOUTH DAKOTA: Deadwood, July 11. Sec., Dr. Park B. Jenkins, Waubay.

TEXAS: San Antonio, June 27-29. Sec., Dr. John S. McCelvey, Temple State Bank Bldg., Temple.

UTAH: Salt Lake City, July 3. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

VERMONT: Burlington, July 11-13. Sec., Dr. W. Scott Nay, Underhill.

WASHINGTON: Tacoma, July 4. Sec., Dr. C. N. Suttner, Walla Walla.

WEST VIRGINIA: Charleston, July 11. Dr. S. L. Jepson, Charleston.

WISCONSIN: Milwaukee, June 27-29. Sec., Dr. J. M. Dodd, 220 E. 2d St., Ashland.

Florida December Report

Dr. E. W. Warren, secretary of the Regular Board of Medical Examiners of the State of Florida, reports the written examination held at Jacksonville, Dec. 7-8, 1915. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 26, of whom 13 passed and 13 failed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
College of Physicians and Surgeons, Keokuk	(1881)	64.4*
Kentucky School of Medicine	(1904)	83
University of Louisville	(1915)	76.3
Tulane University of Louisiana	(1914) 82; (1915)	84, 89
Baltimore Medical College	(1903)	79.3
Johns Hopkins University	(1913)	90
College of Physicians and Surgeons, Boston	(1913)	81.5
Bellevue Hospital Medical College	(1881)	71.3*
Miami Medical College	(1880)	73.6*
Medical College of the State of South Carolina	(1915)	82
Meharry Medical College	(1915)	75
FAILED		
Birmingham Medical College	(1915)	53.3
Atlanta College of Physicians and Surgeons	(1911)	73.5
Atlanta Medical College	(1914)	73.5
University of Georgia	(1915)	73.6
Bennett Medical College	(1914)	67.2
Rush Medical College	(1899)	63
Hospital College of Medicine, Louisville	(1896)	53.6
Saginaw Valley Medical College	(1903)	45.2
Meharry Medical College	(1914) 51.5; (1915)	55, 67
University of the South	(1901)	62.1
Vanderbilt University	(1915)	73.2

* Credit allowed for years of practice.

The following questions were asked:

CHEMISTRY

1. Describe Marsh's test for arsenic. 2. What does the presence of an abnormal quantity of chlorin in drinking water indicate? 3. To what salts do most cathartic mineral waters owe their virtue? 4. What is the chemical antidote of mercuric chlorid and what is the treatment in case of poisoning? 5. What is the chemical treatment for carbolic acid poisoning? 6. What is formed when chloral is heated with caustic potash? 7. Define valence. 8. Mention six elementary substances commonly used in their pure state in medicine. 9. Describe two tests for albumin in urine. 10. Mention some substances used for disinfection after the prevalence of contagious diseases, and explain their action.

MATERIA MEDICA AND THERAPEUTICS

1. Give the therapeutic management of acute nephritis with edema. 2. Give some indications for employment of rectal alimentation, and what agents you regard as of value when thus employed. 3. In what class of anemias is iron indicated? Give reason for your answer. 4. Therapeutic management of acute chorea. 5. Write three prescriptions each of which shall contain two or more ingredients for: (*a*) 6 ounces of a solution (stimulating expectorant); (*b*) 8 powders (anthelmintic); (*c*) 8 ounces of an emulsion (50 per cent. cod liver oil). 6. Give therapeutic management of acute pyelitis in a child 3 years of age. 7. Describe the physiologic action of antitoxins. 8. Describe the physiologic action of vaccines, and under what conditions would you employ them. 9. Give preparations and uses of ipecac. 10. State the advantages and disadvantages of the use of condensed milk as a food for infants.

SURGERY

1. Give the symptoms in the order of their occurrence in a case of empyema. Give your treatment of a case. 2. Describe in detail a thigh amputation at the junction of the lower and the middle third. 3. Give technic for intravenous administration of salvarsan. 4. Describe operation for intestinal anastomosis, illustrating, by drawing, the sutures used. 5. Name the causes for gangrene of fingers and toes. 6. (*a*) Give your treatment of fractures involving the elbow joint; (*b*) Why is nonunion so common in cases of fractures of the condyles of the humerus? 7. Give the diagnosis and treatment of a knee joint infected with the Neisser bacillus. 8. Give your treatment of a case of cervical tubercular adenitis. 9. Describe the reduction of a subcoracoid dislocation of the humerus. 10. Give treatment for a burn of the second degree involving the elbow joint in a child.

OBSTETRICS

1. Describe the fetal circulation and state the changes that take place after birth. 2. Give symptoms of pregnancy and their relative importance. 3. What is "morning sickness?" Give its etiology, duration and treatment. 4. How would you determine the position of the fetus previous to labor? 5. How would you manage a case of labor with the occiput in the hollow of the sacrum? 6. What is the treatment in retained secundines after abortion? 7. Give differential diagnosis of ectopic gestation. 8. Give etiology, symptoms and treatment of inversion of uterus. 9. What conditions justify induction of premature labor, and how is it best done? 10. What is the "Abderhalden test" and its significance?

GYNECOLOGY

1. Trace the blood and nerve supply to the uterus and appendages. 2. Give the true anatomic relations of the normal uterus to the adjacent viscera. 3. Describe and differentiate two benign and two malignant forms of tumor. 4. What is the difference between a flexion, a version and a prolapse of the uterus? 5. Give the means of diagnosis and a description of the progress of a case of gonorrhea in the female. 6. Give the technic of securing a sample of urine from each kidney separately. 7. In what class of cases would you suspect a phimosis of the clitoris, and how would you relieve it? 8. How would you differentiate between a pus abscess of the tube and an extra-uterine pregnancy? 9. Give in detail a recognized theory of the cause and progress of menstruation. 10. What would be the indications for the removal of the ovaries, and why should we conserve in operating on them?

PHYSIOLOGY

1. What is the composition of normal blood? State its function. 2. What causes the coagulation of the blood? Why does it not clot within the blood vessels? 3. State the events that occur during a complete cardiac cycle. 4. What is the most plausible theory as to the cause of the heart beat? 5. What is the cause of the first respiratory movement after birth? Define the terms dyspnea, hyperpnea, apnea. 6. What is an enzyme? Name five of the most important ones, giving an example of each, and their functions. 7. Describe the normal mechanism of the secretion of the gastric juice, and state what circumstances favor gastric digestion. 8. State the influence of the blood circulation on the secretion of urine. Explain the effect of the division of the renal nerves on the secretion of urine. 9. Describe the physiologic changes that take place in the uterine muscles during pregnancy and puerperium. 10. What is the function of the thyroid gland? What effect does its removal have?

ANATOMY

1. What is the solar plexus? 2. Describe minutely the ovary. 3. What is the celiac axis? 4. What muscles form the calf of the leg? 5. Give the blood supply of the appendix. 6. Locate the portal vein and tell into what it empties. 7. Name the different classes of joints; of bones, and give an example of each. 8. Describe the greater omentum. 9. Give blood supply of kidney. 10. Name the muscles concerned in mastication.

Washington January Report

Dr. C. N. Suttner, secretary of the Board of Medical Examiners of Washington, reports the written examination held at Spokane, Jan. 4-7, 1916. The total number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 29, of whom 22 passed, including 1 osteopath, and 7 failed, including 3 osteopaths and 1 chiropractor. The following colleges were represented:

PASSED College	Year Grad.	Total No. Examined
College of Phys. and Surgs., Los Angeles	(1915)	1
Chicago College of Med. and Surg	(1912)	1

Rush Medical College	(1898)	1
University of Illinois	(1914) (1915)	2
College of Phys. and Surgs., Baltimore	(1882)	1
University of Maryland	(1915)	1
Harvard University	(1913)	1
University of Minnesota	(1905)	1
St. Louis University	(1905)	1
University of Oregon	(1914)	1
Jefferson Medical College	(1912) (1914)	2
University of Pennsylvania	(1914)	1
University of Pittsburgh	(1911)	1
University of Toronto	(1913)	1
Western Reserve University	(1914)	1
University of Munich	(1903)	1
Medical School of Nagasaki	(1904) (1911)	2
Tohoku Imperial University, Sendai	(1908)	1

FAILED

Rush Medical College	(1892)	2
Northwestern Medical College, St. Joseph	(1888)	1

Wisconsin January Report

Dr. T. J. Dodd, secretary of the Wisconsin State Board of Medical Examiners, reports the oral, practical and written examination held at Madison, January 11-13, 1916. The total number of subjects examined in was 17; total number of questions asked, 98; percentage required to pass, 75. The total number of candidates examined was 14, of whom 10 passed and 4 failed. One candidate's license was held for further consideration. Twenty-three candidates, including 2 osteopaths, were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
George Washington University	(1915)	86
Chicago College of Medicine and Surgery	(1915) 77,	77, 79
Syracuse University	(1913)	81
Medical-Chirurgical Coll. of Philadelphia	(1914) 89; (1915)	89
University of Pennsylvania	(1905) 93; (1913)	89
Meharry Medical College	(1903)	75

FAILED

Chicago College of Medicine and Surgery	(1910) 61; (1914) 64, 69; (1915)	71

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of Arkansas	(1911)	Arkansas
Denver and Gross College of Medicine	(1907)	Illinois
College of Physicians and Surgeons, Chicago	(1905)	N. Dakota
	(1908)	Illinois
College of Med. and Surg., Chicago (Phisio-Med.)	(1911)*	Tennessee
Chicago College of Medicine and Surgery	(1912)	Illinois
Dearborn Medical College	(1906)	Illinois
Hahnemann Medical College and Hospital, Chicago	(1913)	Nebraska
Jenner Medical College	(1906)	Illinois
Northwestern University	(1902)	Illinois
Rush Medical College	(1903) (1914)	Illinois
University of Louisville	(1913)	Kentucky
Boston University	(1904)	Illinois
University of Michigan Medical School	(1898)	Michigan
University of Michigan Homeo. Medical School	(1905)	Michigan
Ensworth Medical College	(1904)	Missouri
Washington University	(1911)	Kansas
Homeopathic Hospital College, Cleveland	(1887)	Ohio
Starling Medical College	(1884)	Illinois
Queen's University	(1905)	New York

* Graduation not verified.

Kansas February Report

Dr. H. A. Dykes, secretary of the Kansas State Board of Medical Registration and Examination, reports the written examination held at Topeka, Feb. 8-10, 1916. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 5, all of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Howard University	(1915)	76, 79
Hahnemann Medical College and Hospital, Chicago	(1915)	91
St. Louis University	(1915)	80
John A. Creighton Medical College	(1912)	81

Iowa February Report

Dr. Guilford H. Sumner, Secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Des Moines, Feb. 8-10, 1916. The total number of subjects examined in was 8; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 17, of whom 16 passed and 1 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
College of Medical Evangelists	(1915)	87.4
Chicago College of Med. and Surg.	(1914) 90; (1915)	90.4
Northwestern University	(1911)	89.5
Rush Med. Coll.	(1911) 91.5; (1914) 91.5, 92, 94.4; (1915)	88.1
Harvard University	(1913)	87.1
University of Michigan Medical School	(1903)	91.2
Barnes Medical College	(1904)	80.7
John A. Creighton Medical College	(1914)	89.2
Jefferson Medical College	(1915)	88.7
Vanderbilt University	(1912)	86.5
Western University, Ont.	(1912)	86.4

FAILED

Homeopathic Medical College, Missouri	(1903)	53.5

Vermont February Report

Dr. W. Scott Nay, secretary of the Vermont State Board of Medical Registration, reports the oral and written examination held at Montpelier, Feb. 8-10, 1916. The total number of subjects examined in was 12; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 3, all of whom passed. One candidate was licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Albany Medical College	(1915)	82.6
New York Homeo. Med. Coll. and Flower Hosp.	(1908)	84.8
University of Vermont	(1915)	83.3

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Yale University	(1897)	New Hamp.

Connecticut Homeopathic March Report

Dr. E. C. M. Hall, secretary of the Connecticut Homeopathic Medical Examining Board, reports the written examination held at New Haven, March 14, 1916. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. One candidate was examined and passed. Two candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
New York Homeo. Med. Coll. and Flower Hosp.	(1915)	90

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Boston University	(1909)	Mass.
New York Homeo. Med. Coll. and Flower Hosp.	(1882)	New York

Maine March Report

Dr. Frank W. Searle, secretary of the Maine Board of Registration in Medicine, reports the practical and written examination held at Portland, March 14-15, 1916. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 7, all of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Bowdoin Medical School	(1914)	86
Boston University	(1898) 81; (1914)	83
Tufts College Medical School	(1915)	82
Marions-Sims College of Medicine	(1896)	76
Albany Medical College	(1889)	85
University of Toronto	(1914)	85

Rhode Island April Report

Dr. Gardner T. Swarts, secretary of the Rhode Island State Board of Health, reports the practical and written examination held at Providence, April 6-7, 1916. The total number of subjects examined in was 7; total number of questions asked, 63; percentage required to pass, 80. The total number of candidates examined was 5, of whom 1 passed and 4 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Harvard University	(1914)	80.7

FAILED

Atlanta Medical College	(1915)	78.7
Tufts College Medical School	(1915)	75.2
Meharry Medical College	(1914)	63.8
University of Vermont	(1906)	78

Miscellany

Coffee Substitutes and Modified Coffees

The extensive use of coffee and the injurious effects attributed, in certain cases at least, to some of its constituents (caffeol, caffetannic acid and caffein), make the subject of coffee substitutes and "hygienic coffees" one of considerable importance. John Phillips Street, in a recent article (Coffee Substitutes and Hygienic Coffees, *Mod. Hosp.*, May, 1916, p. 330), gives the results of analysis of a number of such preparations. None of the coffee substitutes examined contained coffee. In some of the specially prepared coffees, however, wide differences were found between the claimed and the actual composition. Street's standard of comparison was a sample of commercial Java coffee, which was found to contain 1.2 per cent. caffein and 11.37 per cent. caffetannic acid. One brand (Granger's Fairy Cup Instant Soluble Coffee) from which, it is claimed, "nearly all the caffein and tannic acid is discarded," was found actually to contain 4.48 per cent. caffein and 45.48 per cent. of caffetannic acid—about four times as much as the amount found in the ordinary Java coffee examined! Similar percentages (4.96 per cent. caffein and 48.04 per cent. caffetannic acid) were found in G. Washington Prepared Coffee, from which, it is claimed, "Mr. Washington's refining process eliminates these harmful, indigestible substances." A slightly smaller caffein content than that of ordinary coffees was found in two brands (Hansley and Kinsella's Vacuum Coffee and Café des Invalides), the diminution of caffein in the latter case being due to the presence of 20 per cent. chicory and other vegetable matter. The claims for one brand (Richelieu Vacuum Coffee) are based on the removal of "caffeotoxins," including caffeol, which is alleged by the promoters to be the source of the deleterious effects of coffee. Street is inclined to doubt the importance of caffeol. In caffein and caffetannic acid content, this brand of coffee does not differ materially from the ordinary commercial Java. Kaffee Hag contains 0.03 per cent. caffein and 11.47 per cent. caffetannic acid, which agrees with the claim that 95 per cent. of the caffein is removed. [Street apparently did not examine Dekafa, one of the earliest caffein-poor coffees, which was shown by the Chemical Laboratory of the American Medical Association (Dekofa, A Caffein-Poor Coffee, THE JOURNAL A. M. A., July 1, 1911, p. 37), to contain about 0.13 per cent. caffein.—Ed.]

Control of Tuberculosis in Victoria

In an address before the North Atlantic and New York State Conferences on Tuberculosis in November, 1915, Dr. Victor G. Heiser spoke of the results of efforts to control tuberculosis in Victoria, Australia, which country he had recently visited. He believes that the United States has something to learn from the Australian state in regard to tuberculosis. He said that the death rate for the whole of Australia is 8 per thousand. This might be accounted for partly by reason of the fact that the people come to that country in the prime of life and that the birth rate is low, which would give a low death rate. The figures for fifteen years, however, show that the rate has slowly but steadily declined to the figure named. He was informed that every patient with tuberculosis in Victoria had been isolated. The enforcement of this, as well as other laws, is strict. At first in the effort to isolate tuberculosis cases, force was used, but this did not work well, and then a fee of $2.50 was paid to physicians for reporting the cases, which secured their cooperation. After the cases were reported it was not difficult for the authorities to follow them up. The patient in each instance was visited and given the choice of isolation in his own home, provided he rigidly carried out the regulations of the health authorities. Inspections were made frequently to see that they were complied with. If compliance was not satisfactory, then, without the consent of the patient, he was removed to a sanatorium where he was kept until no longer a menace to any one else. Although the state is anxious to have immigrants, every one must undergo a severe physical examination before being allowed to enter the country, and in this strict attention is paid to tuberculosis. In London a station is maintained for the examination of prospective immigrants before embarkation. In this way the state provides against reinfection. Dr. Heiser says that he has recently been informed that these measures have resulted in the disappearance of the disease from Victoria.

Accident Safeguards and Compensation in the Federal Service

The recent accident on a submarine in the Brooklyn Navy Yard, by which three men were killed and six seriously injured among the civilian employees, according to the *Survey*, should call attention to the inadequacy of safeguards provided by the federal government for the prevention of accidents and occupational diseases among its civilian employees. It is said that it has been agreed for years by informed persons, including the administrative officials at Washington, that the federal compensation law of 1908 is inadequate. Only one quarter of the government's 400,000 civilian employees are covered, and the maximum compensation allowed in case of a fatal accident is one year's wages. As some of the men in the Brooklyn accident were receiving $2 a day, their widows would receive only $600 or $700 for the loss of their husbands. The government makes no allowance for burial expenses or for medical treatment, and the victims of the submarine accident are being cared for in a Brooklyn hospital at the expense of the citizens of New York. The federal compensation law has been condemned by the United States Bureau of Labor Statistics and by the American Federation of Labor, as well as by many organizations of civil service employees. The Kern-McGillicuddy compensation bill for injured employees of the federal government, drawn by the American Association for Labor Legislation, said to be based on the best experience of American states and foreign countries, has been before Congress for three years, and although reported favorably by the judiciary committee, has not had congressional approval. It would seem that the government should set a good example by leading rather than lagging behind the states in so important a measure.

Fatal Mushroom Poisoning at First Presumed Arsenical

A dish of cooked mushrooms was eaten by Q—— about 6 p. m., October 4. An agitated night followed; then, at 5:30 a. m., diarrhea and colic and three stools in one hour; later, nausea and vomiting, rigors and sensation of cold. Burning sensation from throat to intestine was now complained of; then came cramps in the legs, continuous diarrhea and vomiting, with intolerance of all liquids. Treatment calmed the vomiting, but the diarrhea increased to ten and even fifteen stools in the hour. An attack of syncope occurred at 5 p. m. and another during the night. The next day, October 6, the symptoms persisted and on the morning of the 7th, sixty hours after the onset, death occurred. On postmortem examination there were found intense inflammation and congestion of the whole alimentary tract below the cardiac orifice. The stomach contained one-third liter (about 12 ounces) of chocolate colored fluid; the intestines were empty; the liver was enlarged and somewhat yellowish; the kidneys showed congestion and punctate parenchymatous hemorrhages. Poisoning by arsenic or some similar irritant being suspected, Leon Garnier analyzed the organs for arsenic and mercury. The result was negative. The mushrooms were not suspected because a number of other persons had eaten from the same dish. The negative result of the analysis, the long incubation period (eleven hours) during which the deceased suffered from headache, etc., the fact that diarrhea preceded the vomiting and the whole course of the case point to poisoning by phallin. This is one of the active principles of the amanitas, and being thermostabile it is not destroyed by cooking. There can be little doubt that the deceased was unfortunate enough to eat the only fragment of amanita there was in the dish. Amanitas are responsible for practically all the mushroom poisonings in France.—Leon Garnier, *Ann. d'hyg. pub.*, 1914, p. 85.

Medicolegal

Upholds Law Against Guaranteeing to Cure Incurable Diseases — Procedure

(Freeman vs. State Board of Medical Examiners (Okla.), 154 Pac. R. 56)

The Supreme Court of Oklahoma affirms a judgment sustaining the action of the board in ordering that the license of R. W. Freeman as a physician be revoked for unprofessional conduct. The court holds valid the provision of the Oklahoma statutes which defines "unprofessional conduct" of a physician as "the obtaining of any fee on the assurance that an incurable disease can be permanently cured." In the case of *Graeb* vs. *State Board of Medical Examiners* (55 Colo. 523, 139 Pac. 1099), the only case found passing directly on this point, a majority of the Supreme Court of Colorado held a similar statute to be too indefinite and uncertain to be valid. The only difference in the two statutes was that the Colorado statute had the words "manifestly incurable" instead of the word "incurable," but this is not regarded as affecting the applicability of the decision, since it is held in it that the words "manifestly" and "incurable" must be taken as applicable to the disease per se, or in and of itself, and not to the condition of the patient suffering with the disease at the time his treatment is undertaken by the physician. However, the Supreme Court of Oklahoma thinks that the majority opinion of the Colorado court does not rightly construe the statute, and it prefers to follow the dissenting opinion in that case, as it thinks the dissenting opinion correctly interprets the statute, and that such interpretation is equally applicable to the Oklahoma statute. As this court regards the Oklahoma statute, it thinks that it is not aimed at any unethical practices of physicians as interpreted by the medical fraternity, but was aimed to prevent acts on the part of physicians which are universally regarded as immoral and against good conscience, not only by the medical profession, but by laymen as well, and for which under the style of obtaining money under false pretenses the Oklahoma criminal code has provided the penalties of the law. The word "incurable" in the statute is to be interpreted in its ordinary acceptation; it must be deemed that the legislature did not intend to do a useless thing, but intended the statute to be enforced in accordance with an interpretation based on the ordinary understanding of the words used, both by laymen and by physicians. In that view of the case, the court is clearly of the opinion that the words "incurable disease" in the statute apply to the state of the disease which a patient may have at the time the treatment of it is undertaken by the physician, and that, if a physician undertakes to treat a patient who is suffering from a disease which has in its progress reached an incurable state according to the then general state of knowledge of the medical profession, and accepts a fee from the patient on the assurance that he can effect a permanent cure of such disease, he would be guilty of unprofessional conduct as defined by the statute. In this case there was introduced in evidence the following writing: "Absolute Guarantee. "————Okla., ————, 191—. I, R. W. Freeman, M.D., party of the first part, do hereby agree to refund all moneys paid to me by H. S. Hawkins, party of the second part, should he fail to receive a complete cure by my treatment. R. W. Freeman." Below this Hawkins signed an agreement to follow the directions given by Freeman "through a period of time sufficient as deemed by him to effect a complete cure," or the agreement should become void. It was claimed that this was not a guaranty of a cure, but the court declares it was a subterfuge which held out to the patient an assurance of a permanent cure. The state board of medical examiners in a proceeding before it to revoke the license of a physician acts in an administrative, and not a judicial, capacity, and it is sufficient if the accused is informed by the complaint of the wrong charged against him and the particular instances of its perpetration charged, and has an opportunity to defend against proof of such charges, and the proceedings are free from prejudice, fraud or oppression.

Admissible Evidence to Explain Roentgenograms

(Virginian Railway Co. vs. Bell (Va.), 87 S. E. R. 570)

The Supreme Court of Appeals of Virginia reverses a judgment obtained by plaintiff Bell, a railway mail clerk who claimed to have been struck by a sliding door to a car in which he was at work, fracturing the transverse process of the third cervical vertebra. The court holds that there was error in refusing to permit a Dr. Gray, an eminent Roentgen-ray specialist of large experience, to exhibit to the jury a roentgenogram taken by him showing a man's neck in normal condition. The court says that the plaintiff had produced in evidence two Roentgen-ray plates of the plaintiff's neck, taken by a Dr. Brady, a physician of high professional standing, but of limited experience as a Roentgen-ray specialist. These plates would doubtless have been meaningless to the jury without explanation, but as explained and interpreted by Dr. Brady they showed a fracture, and they went to the very heart of the case on the question of extent of damage. If Dr. Brady's interpretation of these pictures was correct, they were decisive of the vital and controverted question as to whether certain bones in the plaintiff's neck were broken. His attending physician did not suspect a fracture until after these pictures of his neck were taken and were said by Dr. Brady to show that a fracture had been sustained. Dr. Gray testified that the pictures did not support Dr. Brady's interpretation, and stated that he could demonstrate that fact from the pictures themselves, by showing to the jury a picture which he had taken of a man's neck in a normal condition. It was claimed for the plaintiff that it was proper to exclude the latter picture because to permit a comparison of the plaintiff's neck with other necks would lead to confusion and irrelevancy. It is difficult to see how this contention can be maintained. The very relevancy and probative value of the roentgenograms of the plaintiff's neck depended on the correctness of a presumption that as a rule and until the contrary appears every man's neck is normal, and that the general form and structure of every human neck is the same. Otherwise, Dr. Brady's pictures, which were offered to show an abnormal condition, proved nothing. So too, as to a skeleton the plaintiff introduced to show, by way of illustration and comparison, all the bones involved when in normal condition, and to give the jury an idea of their general formation and structure. The court thinks it was clearly proper to admit the skeleton to show a normal neck in contrast with the abnormal one which it was claimed Dr. Brady's picture showed, and that on the same considerations it was improper to exclude the roentgenographic plates offered by Dr. Gray which he said would enable him to demonstrate that Dr. Brady's roentgenograms did not disclose any fracture. The Roentgen-ray process is comparatively new, and is more or less occult, certainly to the lay mind. The plaintiff was properly given a free hand in developing the proof of his injuries by means of the roentgenographic pictures and an expert explanation of them: and similar freedom should have been accorded the defendant in testing before the jury the correctness of that explanation.

Employment of Physician by Superintendent

(Indiana Die-Casting Development Co. vs. Newcomb (Ind.), 111 N. E. R. 16)

The Supreme Court of Indiana affirms a judgment for $371 in favor of plaintiff Newcomb on an alleged contract entered into between him and the defendant company by its superintendent, for the care and treatment of an employee who was injured by an explosion of molten metal and suffered injury to his eyes. The Court says that some evidence was admitted relating to certain customs prevalent in the city of Indianapolis as to corporations, other than the defendant, employing physicians to treat injured employees. This would be error, which would require a reversal of the judgment, did it not affirmatively appear from the record that the admission was harmless. Other evidence complained of related to the manner and custom of the defendant in doing its business, and was to the effect that the board of directors very seldom met; that the whole management of the corporation developed on the superintendent, who owned 40 per cent.

of the stock; that when any matters arose pertaining to the management of its affairs, he would consult the directors individually, and follow their advice. It was contended by the defendant that without a regular meeting of the directors no authority could be given the manager to employ a physician, and without an order so made the superintendent could not bind his corporation, and that therefore the defendant was not liable for the services rendered by the plaintiff at the solicitation of the superintendent, regardless of the custom. But it was proper to admit this evidence. Moreover, in addition to proving the custom of the defendant in the management of its business, it was shown that in this particular instance the superintendent did consult individually a majority of the directors in relation to the employment of the plaintiff, and that no objections were interposed by any of said directors as to what had been done by the superintendent in employing the plaintiff, and after so consulting his fellow directors the superintendent again directed the plaintiff to proceed with the treatment of the case. It was further shown that this had been the custom of the defendant theretofore, and that it had paid bills for services similarly contracted for by said superintendent. The trial Court, in finding generally for the plaintiff found that the defendant had ratified the acts of its officers in entering into the contract, and the Supreme Court believes it was a just conclusion.

Treating Case as One of Appendicitis Instead of Ptosis—Evidence

(*Stout vs. Bowers et al. (Kan.), 154 Pac. R. 259*)

The Supreme Court of Kansas reverses a judgment entered on a verdict directed in favor of the defendants, who were sued for alleged malpractice in diagnosing the plaintiff's ailment as appendicitis, and operating on her therefor, when what ailed her was a condition of ptosis or falling of part of the intestines, which should have been tacked up and otherwise remedied. The Court says that it was true, as the defendants contended, that they could not be held liable if it appeared that they possessed a reasonable degree of skill and learning in medicine and surgery, and that they used ordinary skill and care in the diagnosis, operation, and treatment of the plaintiff. Much testimony of an expert character was produced as to the professional skill of the defendants, and which tended to prove that the operation was properly performed, and further, that an operation for ptosis of the bowels was not approved surgery, and was not warranted in the plaintiff's case. On the other hand, if testimony was produced by the plaintiff which fairly tended to prove the essential facts stated in her petition as to the defendants' negligence, although it may have been weak and inconclusive as compared with that produced by the defendants, the ruling directing a verdict in favor of the defendants could not be upheld. If the defendants' demurrer to the plaintiff's evidence could not be sustained, a verdict against her could not be directed, because of conflicting evidence subsequently produced in behalf of the defendants. Her case might have been strengthened by the testimony offered in their behalf, but on their motion to direct a verdict in their favor the prima facie case made by her testimony could not be weakened or destroyed by theirs. The fact that her testimony was opposed by much that was given by physicians of larger experience was no reason for taking the case from the jury. And the mere fact that the physician who testified in behalf of the plaintiff was led to say, in answer to one question on cross-examination, that the defendants made a mistake of judgment, and may have acted according to their best judgment, did not destroy the testimony tending to show that the defendants failed to use reasonable and ordinary care in the case. The plaintiff complained that she was not allowed to show the conditions developed by a subsequent operation and the fact that it resulted in effecting a cure. While the plaintiff might have given testimony as to some of the palpable facts, she was not qualified to testify as to the skill exercised in that operation, no more than in the one performed by the defendants. It was competent for her to state any manifest conditions observable by any one; but only witnesses having special skill and knowledge were competent to testify as to her ailment, or as to what was required in the way of surgery or treatment. However, it would seem that one having special skill and training might give testimony as to the conditions existing at the time of the different operations on the plaintiff, the treatment required, and the effects resulting from the operations. Where an expert witness testifies, and founds his opinion on standard medical authorities, it is competent for the opposing party, in cross-examining him, to read from the authorities, and to ask him if he agrees or disagrees with the opinions expressed by the authors.

What Constitutes "Consulting a Physician"—"Good Health"

(*New York Life Insurance Co. vs. Franklin (Va.), 87 S. E. R. 584*)

The Supreme Court of Appeals of Virginia says that the insured in this case made application, about the middle of June, for the reinstatement of a policy which had elapsed for a nonpayment of premium due on May 2. To the question as to what physicians he had consulted since the date of the policy, he answered: "None." And the question, Are you now in sound health? he answered, "Yes." It appeared, however, that on the 4th of April a physician examined him and found evidences which caused him to suspect nephritis. This examination was made at the request of the man's wife, who had telephoned to the physician that her husband was not well and requested that he arrange an interview with him, which he did by telephoning to him and having him come and submit to an examination. It did not appear that the physician advised the insured as to the probable consequences of the disease which he suspected. The examination was only partial. It was not certain that he then had the disease. He declined to be treated, and left the impression on the physician that he did not think he was sick. He died on July 17 of a complication of diseases, one of which was nephritis. It was contended, on the one hand, and denied on the other, that what occurred between the insured and the physician amounted to "consulting a physician" within the meaning of the question and answer appearing in the application for reinstatement. The Court holds that there was no error in an instruction which told the jury to find for the plaintiff, if they believed from the evidence that the company accepted the application for reinstatement and executed its receipt for payment, unless they believed that it had been proven by a preponderance of the evidence that the answers in the application were wilfully false or fraudulently made. Under the rule adopted in Virginia and supported by what seems to the Court to be the better considered authorities from other jurisdictions, "consulting a physician," within the meaning of an application for life insurance, depends on the character of the interview. This rule finds its foundation in the favorable construction always accorded to the insured, and the generally recognized principle that good faith and substantial truth are all that can be required of the insured in applications for insurance. If, therefore, it could be regarded under the evidence as beyond fair debate that the insured understood from the physician that his symptoms were serious and indicated a malady which involved real impairment of his health or might affect his longevity, then, as a matter of law resulting from this undisputed fact, this Court could say, and the lower Court should have said, if asked to do so, that there could be no recovery. But in the state of the evidence on this point the Court thinks the question was one for the jury to determine. As to the import of the words, "sound health," the Court refers to what it says in Greenwood vs. Royal Neighbors of America, 87 S.E.R., 581, decided at the same time with this case. There it says that the phrase "good health," as used in its common and ordinary sense by a person speaking of his own condition, undoubtedly implies a state of health unimpaired by any serious malady of which the person himself is conscious. When one says he is in good health, he does not mean, and nobody understands him to mean, that he may not have a latent disease of which he is wholly unconscious. The mere statement by a party that he fully warrants himself to be in good health is not sufficient to take the expression out of its common meaning and to make it cover every disease, whether latent and unknown or not.

Society Proceedings

COMING MEETINGS

Montana State Medical Association, Miles City, July 12-13.
Washington State Medical Association, Seattle, July 12-14.

MISSOURI STATE MEDICAL ASSOCIATION

Fifty-Ninth Annual Meeting, held at Excelsior Springs, May 8-10, 1916

The President, DR. C. R. WOODSON, St. Joseph, in the Chair

Cardiac Dilatation

DR. E. P. BUDDY, St. Louis: Cardiac dilatation is usually applied, clinically, to an enlargement of the heart cavities, giving evidence of a failing heart and of ruptured compensation. However, of possibly as great if not greater importance are those cases which give no signs of decompensation, and occur usually in healthy individuals. There is no demonstrable endocarditis or myocarditis. The prominent symptoms are those of cardiac irritability, fatigue or possibly exhaustion. The occurrence is often in the young well developed individual, especially in athletes, soldiers and swimmers. Evidence of rupture of compensation is not present, and the cardiac findings clinically are insignificant, confusing or absent. The chief and sometimes only complaints are shortness of breath on exertion, precordial pain, fatigue and palpitation. Frequently the only complaint is tiredness on the least exertion. Vasomotor changes, blanching of the face, cold hands, paleness around the mouth, giddiness and faintness sometimes occur. Symptoms of neurosis —neurasthenia—are often prominent and misleading. They invariably have low blood pressure and low pulse pressure.

The history of these cases is of primary importance, usually being one of various and multiple infections. Overwork, worry, strain, overindulgence and emotion are contributing factors. Temporary exhaustion of cardiac muscle, either in itself or as a manifestation of general exhaustion, is probably the real basis. Irritable heart often means a fatigued heart which may become exhausted. Hyperthyroidism, intestinal toxemia, tobacco and beer are factors in producing this irritability. The drop heart or the asthenic heart associated with visceroptosis is an example of atonic musculature in which symptoms of transient dilatation appear. Functional tests for efficiency are more important than percussion and auscultation of the heart. The treatment resolves itself into rest, treatment of the underlying condition, infection or toxemia and strengthening the heart muscle, increasing its tone by judicious, graduated exercises, together with means of improving general body well-being.

Diagnostic Value of Respiration Tracings

DR. GEORGE RICHTER, St. Louis: Inspiratory and expiratory dyspnea and asthma are caused either by mechanical interferences or by chemical changes in the blood. They may be due also to a pathologic condition of the nervous system, as the Biot and the Cheyne-Stokes type of respiration. It is an old teaching that in certain cases respirations are unequal in that the two sides will not always move exactly simultaneously. The diseased side occasionally appears to lag behind the other, while exhibiting a lesser expansion. To study and analyze such a phenomenon, receivers were applied on both sides of the thorax in a large number of cases to obtain a simultaneous tracing on the same strip of paper. It was found that the lagging behind is very rare, where it had been quite apparent on inspection. The illusion is due to the psychophysical law of relation between intensity of stimulus and apperception: the greater stimulus seems to occur earlier; it is only perceived earlier. It is the same with the radial pulses in certain cases of aneurysm. Another phenomenon was observed frequently but not so readily recognized by inspection, namely, that over certain diseased lungs, quite frequently in tuberculosis and not in acute inflammatory diseases, an inspiratory retraction of an interspace (not of all interspaces) occurs, frequently limited to a small area of such an intercostal space, while over all the other parts a distinct bulging is recorded. Thus one obtains opposite waves during the same respiratory phase; also waves of a curious, regular irregularity in shape on the diseased spot. This may serve a diagnostic purpose. As it is seen occasionally at a very early stage of infection, the cause may lie in an increased tone of the intercostal muscles, a tetanic state analogous to the muscular defense over an appendicitis. The respiratory muscular contractions have ceased locally, and the diaphragm now pulls the space inwardly. In some cases this respiratory stop is overcome by a more active breathing, or it may become exaggerated. It is probably due to vagus irritation which on moderate stimulation (also of the laryngeus superior) inhibits inspiration, and leads to expiratory standstill (the paralytic thorax in phthisis), while a stronger stimulation causes an inspiratory standstill (asthma). The tetanus means a fixation of both external (inspiratory) and internal (expiratory) intercostal muscles and sets the lung at rest, as in artificial pneumothorax. Incidentally the tracings over a normal intercostal space show a very fine, physiologic tremor and a greatly exaggerated tremor over a pathologic area—also of some diagnostic value. When the patient coughs we observe many rapid ups and downs in the curve, air being expelled with rapid intermissions—vibrations of the vocal chords.

Discussion on Papers of Drs. Buddy and Richter

DR. O. H. BROWN, St. Louis: The muscle rigidity in localized areas mentioned by Dr. Richter may be likened to the Pottenger sign and be of practical value by the simple use of the finger tips. There are many cases of cardiac incompetency of the types mentioned without marked signs. If recognized early, much can be done for them.

DR. N. P. WOOD, Independence: I have obtained good results from venesection in cases of dilatation. By taking away a pint or two of blood we reduce very considerably the amount of work required of the heart, which gives us an opportunity to get the benefit of therapeutic measures.

"Stomach Troubles" — Their Significance

DR. FRANCIS REDER, St. Louis: A lesion of any abdominal organ can, by reflex act, cause vomiting. In highly sensitive persons, mild peritoneal irritation may cause violent vomiting; in the phlegmatic, severe irritation may cause only mild vomiting. The definite nature of the lesion is not always indicated by the character of the vomiting. However, the vomiting of food little or not changed, from eight to ten hours after ingestion, usually points to gastric dilatation; persistent vomiting without bile points to pyloric stenosis. Cancer of the cardiac extremity gives food little changed; cancer of the pylorus, or duodenal ulceration, food more digested. Bloody vomitus suggests ulcer of the stomach or the duodenum, or hepatic cirrhosis; profuse, watery vomitus indicates ulcer or cancer of the stomach or pylorus. Gallbladder disease occasions vomiting of bile mixed with food. A grass-green vomitus is found in general peritonitis. Incessant, violent vomiting occurs in pancreatic disease; stercoraceous vomit, in intestinal trouble of an obstructive nature. These cases are usually chronic, and seldom exhibit well marked symptoms other than epigastric pain and vomiting. Appendicitis, especially chronic, is the foremost causative lesion, characterized by a feeling of emptiness not relieved by eating which excites vomiting. Gallbladder trouble is often accompanied by irregular paroxysms of vomiting, continuous and persistent in the severer type; projectile vomiting usually follows a duodenal perforation. Vomiting is an early and constant symptom of acute obstruction; frequent gastric uneasiness with vomiting on slight exertion, of chronic intestinal obstruction. Upper bowel obstruction is indicated by profuse, continuous vomiting; lower bowel lesion, by milder attacks. Aneurysm of the abdominal aorta, and ptosic kidney are other causes. The proportion of stomach lesions in cases showing stomach symptoms is believed to be about 1:10.

DISCUSSION

DR. HERMAN E. PEARSE, Kansas City: It is extremely rare to find an inflammation occurring from irritation along the alimentary tract reflected on the stomach, unless the irritation

occurs in some organ between the fundus of the stomach and the middle of the transverse colon. In some cases of ulceration of the descending colon and obstruction of the rectum, as well as in many ovarian and tubal inflammations, the patient vomits, but in every one of those cases it will be found that peritoneal inflammation has reached over and involved the peritoneal covering of the area mentioned. The reason of this is not hard to find. It is developmental. If the patient vomits from reflected irritation it will usually be found that it is from streptococcic infection on the right side, or along that portion of the intestinal canal. If it occurs from a pus infection of the tubes or ovaries, or from the lower bowel, it will be found to have spread to the peritoneal covering of the second portion of the intestine.

Atony, a Basic Factor in Most Gastro-Intestinal Pathology

Dr. John M. Bell, St. Joseph: Of the two factors which underlie all functions of the alimentary canal—secretion and motion—the latter is most frequently deficient. It exists as a result of the enervating life of the day. When food leaves the mouth it should be under muscular control until eliminated. Gravity plays no part in the onward movement of foodstuffs. Atony, the inability of a viscus to pass its contents onward after the chemical function has been performed, is the important factor. Food decomposition may take place if delay is a factor. Absorption of these products affects the portal circulation so that ulcers or denuded surfaces do not heal but more readily undergo malignant degeneration. Absorption from a baggy colon is the most potent factor in cholecystitis; from the duodenum, infection of gallducts and pancreatic ducts. The bacteria of a baggy cecum are the most frequent factor in appendicitis. Retention in the sigmoid means ultimately a denuding of the mucous membrane, which, with a polluted portal circulation, favors malignancy at this point. Treatment seeks to restore tone to the skeletal as well as abdominal muscles; an antitoxic diet, abdominal massage, life in the open air, exercise a part of the daily life, not merely an occasional effort. Medicine merely bridges over conditions until a hygienic life restores to normal.

DISCUSSION

Dr. Olney A. Ambrose, St. Louis: Two conditions cause apparent retention in the stomach; one is functional atony, the other is organic obstruction. The fluoroscope quickly differentiates those conditions. They are not so easy to differentiate clinically, but this is one very important point that can be depended on: The individual with atony is apparently acutely ill and not chronically ill, while the individual with obstruction producing retention is chronically ill.

Public Service Obligations of Physicians: How May They Best Be Met?

Dr. W. S. Allee, Olean: The state has given us some incidental protection by laws to govern the practice of medicine and surgery which were, of course, primarily intended to protect the public from impostors and incompetents. It is our duty to see that these good laws are not repealed or amended so as to render them useless for the purposes intended. Our medical schools have assumed a high rank and compare favorably with the best in our country; we should see that no backward step is taken and that our best schools shall not be hampered by opposition from sources influenced solely by selfish greed. We should form a closer alliance with the teachers of our state by helping to get their services proper recognition and better paid. We should take a more active interest in politics than we have done in the past. I should be glad to see every doctor become an active politician, using the word in its better sense. We should cultivate a closer relation with the public press, hoping to have fair treatment in the discussion of questions pertaining to medicine. We might influence the press favorably through information supplied by publicity committees from the several county societies. We should help to get good officials in city, town and village governments. At the primaries we can do our best work, get good men to accept the tender of a nomination and then use our utmost power to nominate and elect them. Our cause being just, we have but to place it before the public in a proper light and success is assured.

DISCUSSION

Dr. Herman E. Pearse, Kansas City: In the last fifteen years, since the beginning of the fight of the medical profession in Missouri for better things commenced, no one has taken a more successful part than Senator W. S. Allee; he has stood like a stone wall for the things that are right. The next strong force that has helped us so greatly in acquiring what we want has been the services of The Journal of the American Medical Association. When it began the campaign of publicity, the campaign against wrong, the campaign for public health, the campaign against nostrums and quackery, the Association was assailed from every quarter. The American Medical Association has been sued, threatened, and injured in every way possible; but never for a moment has it turned from the support given us. Whenever we tried to do what was better for the medical profession in our own communities, whenever we tried to support professional ethics and render public service, we have always found The Journal standing by us, ready to advise and to help.

Dr. C. H. Brown, Fair Play: I want to indorse particularly one part of Dr. Allee's paper, in which he referred to the establishment of a better understanding with the press. There should be a better cooperation of the medical profession with the press for the simple reason that through it we can reach the people and educate them in a way that we are not now.

Transplantation of Bone

Dr. Ernest F. Robinson, Kansas City: My experience in supplying bone defects consists in resection of the ulna, radius and inferior maxilla, and in the transplantation of bone in the treatment of ununited fractures. In most of these cases I have used the so-called medullary splint or "dowel peg," usually taken from the tibial crest. The periosteum has been left adherent to the transplant. Albee's "bone-inlay" I have found admirable for certain cases, and especially adaptable in the immobilization of the spine in tuberculosis of the vertebra. Reconstructive surgery is the highest aim of surgical art. Transplantation of bone is one of the great steps of this modern surgical progress, with infinite possibilities for good.

DISCUSSION

Dr. W. S. Sutton, Kansas City: Bone transplantation properly done is the nearest to a "sure thing" that surgery presents. The fact that bone grafts live is no better presented in any case than in badly comminuted fractures. The treatment of these fractures bears out fully the contention of Macewen that the implantation of small fragments of bone will in itself produce a large growth of bone. Why, then, do we use the large bone transplant? It is because we want something which will help to hold the bones in place. That means a long transplant.

Dr. J. J. Link, St. Louis: Bone grafting is a simple operation when done by a skilled operator and if done under favorable circumstances, under absolute asepsis.

Dr. Gordon Beedle, Kansas City: Operative work on bone fractures has been an evolution. The first object has been to get away from the metallic appliance; the second, to simplify the surgical procedure; third, to limit surgical procedure to the operative field if possible; and last of all, of course to get ideal results. Splinting of bone will give ideal results in some cases; even the Lane splint, inlay splint, or the medullary splint. Albee takes the graft from the proximal fragment and, bringing it down in slat form, bridges over the fracture. This is superior to the medullary transplant in that the field of operation is confined to one bone.

Dr. C. B. Francisco, Kansas City: You can get a better fit with the inlay splint, and in order to get 100 per cent. cures you have to have a good fit. That is illustrated best, perhaps, in cases of congenital fracture of the tibia.

Dr. Charles Geiger, St. Joseph: It is only a matter of time until the nail or the wire or the plate will become infected and will have to be removed. A bone peg is not a foreign body. The bone will become absorbed or will unite with the surrounding bone and never cause trouble.

Dr. Robert M. Funkhouser, St. Louis: There is a place for the Lane plates. I have used them in cases in which

nothing else would answer the purpose. Especially is that true in cases of fractures in connection with joints.

Sporadic Meningitis in Children

DR. PHELPS G. HURFORD, St. Louis: In five years I have seen forty-seven cases of meningitis in which the infecting organism was found. Twelve of these were cases of the epidemic form and are not considered as sporadic cases. Of the remaining thirty-five cases, twenty-two were due to the tubercle bacillus, seven to the meningococcus of Weichselbaum, and two each to the streptococcus, staphylococcus and pneumococcus. An interesting feature of the cases due to other cause than the tubercle bacillus is that they occurred in children under 2 years of age in all but four instances; and the tuberculous cases were in infants under 2 years of age in only ten instances. One case due to the staphylococcus was in an infant 12 days old. The only symptoms were frequent convulsions and irregular, low fever. There was no rigidity, no Kernig sign, no constancy about any of the reflexes. The baby developed a rapidly progressing hydrocephalus and died in about two weeks. No focus of infection could be demonstrated. Lumbar puncture done on the second day of observation showed a purulent fluid with pure staphylococcus culture. Of the nine infants with purulent meningitis, five showed definite hydrocephalus, two of them after the meningeal symptoms had entirely subsided. All the infants died. The four older children recovered. There were three cases of chronic posterior basal meningitis that were assumed to be due to the meningococcus; all terminated fatally; but as the organism was not found and no necropsy was obtained, they are not included. The most valuable lesson learned was the advisability of treating every case of purulent meningitis with Flexner's serum at once, unless the first examination shows another organism than the meningococcus. The serum should be given frequently, until fever and rigidity have disappeared. Spinal puncture is the only positive means of diagnosis. It should be performed in every case with meningeal symptoms, and the fluid examined chemically, microscopically and by culture. Meningeal symptoms may be present in almost any acute infectious disease. The intoxication of infants is likely to resemble meningitis.

Ankylostoma Duodenale

DR. A. H. THORNBURGH, West Plains: A man, aged 52, a well driller, who had worked during the past four or five years in an infected district in the South, had been in failing health for two years past. He had alternating attacks of diarrhea and constipation. I demonstrated the ova of hookworm in the intestine, and the state bacteriologist confirmed my findings. I gave him the thymol treatment, which was followed by a severe exacerbation of the bowel condition with mental derangement, severe diarrhea, and progressive and rapid weakness, which terminated in death in about four weeks.

Systemic Blastomycosis and Coccidioidal Granuloma

DR. SAMUEL T. LIPSITZ, St. Louis: My case was that of a negro man who lived about fifty-one days after the onset of his disease, the shortest course recorded. He developed signs of bronchopneumonia and numerous subcutaneous and intramuscular nodules appeared over various parts of his body. These suppurated and showed double-contoured, endosporulating organisms. These were also found in sections taken from the surrounding tissue and in the sputum. Characteristic cultures were grown. The disease was reproduced in a guinea-pig, the same bodies were again found and the organism again grown in pure culture. This is the first and only case of coccidioidal granuloma reported in Missouri.

Vaccination in Smallpox

DR. F. M. VESSELLS, Perryville: There is a growing sentiment among country physicians that our modern so-called smallpox is not smallpox but another and very much milder disease; that it is not necessary to vaccinate; that vaccination is more severe in its manifestations than the disease. Some physicians tell their patients not to be vaccinated. This is wrong, as can be shown by clinical reports and statistics.

Need of a Real County Health Officer for Rural Districts

DR. J. Q. COPE, Lexington: The sanitation of the rural districts is bad. It has never had any supervision and little advice from medical authority. Contagious diseases are seldom quarantined properly. Rural schools, mining camps, unincorporated villages and suburbs of cities are often in a deplorably insanitary condition, and there is no one in authority to correct this state of affairs or give relief. The water supply, the disposal of dead animals, precautions against the fly and mosquitoes, the proper construction of closets, and dangers of the ordinary kind are subjects for intelligent regulation, and a general system of education should be carried on in regard to all such matters. Under the present laws of Missouri the so-called county health officer has no authority in this broad and important field. About the only thing he can do is to quarantine contagious diseases, and that is seldom done because there is no law requiring that such diseases be reported. The county health board is composed of a physician and the three county judges. The judges are generally farmers and have not studied sanitation or preventive medicine, and therefore do not realize the importance of this work. They think what was good enough for their fathers is good enough for the people now. Consequently, they oppose the health officer in everything that is not absolutely necessary, and refuse to pay the bills for anything that the physician may do on his own initiative. A new law is needed prescribing the general duties of the county health officer, placing him on a fixed salary, and requiring him to give his entire time to the work, thus making him independent of the county court or any one else.

The law should require that all contagious diseases should be reported to him, that they be quarantined, and that all cases of tuberculosis be regulated. It should give the county officer authority to abate all conditions that are dangerous to the public health. He should be an advisory officer in all things pertaining to public sanitation and the prevention of disease, and it should be part of his duty to institute an educational campaign along these lines. Very few small villages have any board of health or health ordinances through which contagious diseases or other dangerous conditions can be controlled. Advice from the county health officer in such times would be a great benefit. Advice coming from an officer especially fitted for such work and with the authority of his office behind him would do much more good than if the advice was given by an ordinary physician. Such an officer would be a great help in driving out quackery and ignorant and dangerous opinions held by the common people. It would be a long stride in freeing the people from ignorance and superstition, without which quackery could not exist.

Rural Sanitation

DR. J. C. BOONE, Charleston: The difficulty of getting practical sanitary measures operative in rural districts is the lack of understanding of the many articles published on the subject; customs and habits of thought; indifference due to interest in other matters, and because a great many do not get the literature to read. The personal lectures from time to time given by the family physician are but half carried out, though effective in creating a desire for something to be done. Present laws are defective. Sanitary work is haphazard. Three methods to overcome this may be suggested:

1. The department of preventive medicine of the state university to send out lecturers to cooperate with the agricultural board at county fairs, agricultural meetings and by special arrangements when possible where exhibits are made and inspection of premises with instructions given. This would create a desire for more thorough work.

2. One or more counties to organize into sanitary districts with full time health officers paid by the districts. All sanitary affairs of county and towns and villages to be under the care of such officers. This would help, but it is slow and expensive to the organizer. Unless adjoining counties also organize, its effectiveness is hampered.

3. The state to be organized into full time health officer districts and the cost to be paid for out of the state funds.

This would systematize the work, conserve energy and be more economical. Cooperation with an international health commission would be advisable. District laboratories could be established to give quicker replies to the country doctor's specimens for aid in diagnosis. These laboratories to work under the state laboratory or the state university.

MEDICAL SOCIETY OF THE STATE OF NEW YORK

One Hundred and Tenth Annual Meeting, held at Saratoga Springs, May 16-18, 1916

(Concluded from page 2037)

Technic of Abdominal Cesarean Section

Dr. William M. Brown, Rochester: Patients who suffer from most shock, distention and pain are the ones who have had most traumatism and handling in the peritoneal cavity. To avoid the slipping down of the uterus in the pelvis before the incisions are closed, I devised a method of temporary suturing of the uterus to the abdominal wall which prevents emptying of the uterine contents, and protects the viscera from handling. Bleeding is more easily controlled than in pelvic delivery. Later a procedure was introduced which simplified the method still more. This was the use of from four to six of the ordinary power clamps of Moynihan or Backhaus. The uterus was clamped firmly to the abdominal wall, instead of sutures being used. Among fifteen cases treated in this way, there have been no deaths, and recovery has been remarkably smooth and free from vomiting and distention.

DISCUSSION

Dr. J. Wesley Bovée, Washington, D. C.: I should like to know the method of treatment of the abdominal wound and the uterine wound in operating in cases of suspected infection.

Dr. Sylvester J. McNamara, Brooklyn: By what method does Dr. Brown apply the forceps? How much abdominal wall is included in the grasp of the forceps? Has Dr. Brown any experience with tearing of the uterine wall by such forceps?

Dr. A. B. Miller, Syracuse: Does Dr. Brown select the cases in which he suspects infection, or does he apply this method in his general cases? Generally, I feel that the uterine contents will not give rise to infection in the peritoneal cavity, although they may give rise to endometrial trouble. The method of Davis, of upper abdominal operation, prevents adhesions from taking place. One may do cesarean section many times and not have any infection. I feel that nothing is gained by fastening the uterus to the abdominal wall.

Dr. William Bryan, West New Brighton: I have had better results since I have been doing the Davis operation with high incision, and I have paid very little attention to the contents of the uterus and whether they escaped or not. I have had no occasion to regret it. I have not clamped the abdominal wall to the uterine wall. I have attempted to suture the uterine wall to get a mechanical grip, but it takes extra time and traumatism. If one succeeds, one has not accomplished much. The uterine contents do not do much harm. Careful technic, rapid operation and a simple procedure, with less delay and less traumatism, give the best results.

Dr. William M. Brown, Rochester: About the treatment of the incision and suspected infection, I have practically made no difference, that is, unless I am certain that there is no infection. I have had one case of infected uterus in a hysterectomy. I did not know the patient had a rise of temperature. I was impressed with the fact that while the woman had a severe sepsis, chills lasting twenty-five minutes, and a temperature of 106 F., there was no infection of the peritoneum whatever. It was a pure septicemia. She recovered perfectly. In regard to tearing of the uterine wall, I have had nothing of that kind. We used Guy sutures, and they tore out because they did not go into the abdominal wall deeply enough. The clamps do not go into the endometrium at all. The abdominal incision is made and then the uterine, and the assistant picks up a comfortable portion of the uterine muscle and the whole abdominal wall half an inch from the edge of the incision and clamps it. I then finish my cut through the uterus. The main question is not so much one of infection as it is of handling the intestine; after the uterus is emptied it contracts, and the intestines will override unless you take a towel to pad them off. I then close the uterine incision.

The Influence of Syphilitic Invasion in Gynecology and Obstetrics

Dr. J. Wesley Bovée, Washington, D. C.: Syphilis is about eight times as frequent as admissions state. There is an alarming prevalence of syphilis among those who deny having it, or who present no symptoms of it. Morrow and Neisser state that 5 per cent. of the German population and 2 per cent. of the population of the United States have been infected. In 619 cases collected by me from gynecologic and obstetric clinics, there was a probable total of 38 per cent. infections; about 60 per cent. of these were white women. Syphilitic infection in females is much more obscure and easily overlooked or mistaken for other conditions than in the male. Cervical chancre closely resembles erosions and infiltrations. Local manifestations of syphilitic invasion of the female genital tracts are slight, disappear without leaving a trace, and hence commonly escape detection. Tertiary lesions of the cervix, however, are sometimes seen. Possibly spermatozoa carry spirochetes into the ovaries and tubes, but thus far this is unproved. Considering the relationship of syphilis, as regards obstetrics, we can discuss the probable routes of infection from mother to child. I feel that there is no such thing as a healthy mother with a syphilitic child, and vice versa. Infection is latent in one or the other. Once a diagnosis of syphilis is established, treatment should be as vigorous as is compatible with safety. It would seem beneficial, perhaps, to regard all patients as at least mildly syphilitic and to apply antisyphilitic treatment.

DISCUSSION

Dr. Thomas J. Watkins, Chicago: I believe that the frequency of lesions on the cervix is greater than stated. This emphasizes the risk of examining patients without gloves, and also the importance of sterilization of instruments between the examination of one patient and another. It is not too much to say that all obstetric and gynecologic cases should have the Wassermann test. A man who had made examinations of 4,000 cases found that of those who had a positive Wassermann, 50 per cent. were women in whom syphilis was not suspected.

Dr. George Gray Ward, New York: The matter is of interest in regard to the question of Colles' law. Recently Dr. J. Whitridge Williams reported a case which seemed to prove that this law might hold good. He had a case in his service of a negro woman who had had eleven labors under his control. She had had repeated Wassermanns, but all were negative. The first five labors were perfectly normal, the sixth was a twin birth, and one child was markedly syphilitic; the other was not. This was probably a case of superfecundation. Subsequent labors under observation gave no evidence of syphilis. The woman never showed syphilis. If the woman had two lovers at the time of conception, it would be the strongest evidence that there was reason to believe in the validity of Colles' law.

Vaginal Subtotal Hysterectomy for Procidentia and Cystorectocele Associated with Fibroid Growths or Fibrosis Uteri

Dr. Hiram N. Vineberg, New York: This method possesses advantages over total hysterectomy because it supports the bladder and it is attended by less hemorrhage. The technic is as follows: Longitudinal incision of the anterior vaginal wall, extending from near the urethral meatus within an inch or an inch and a half of the cervical os. Separation by sharp or blunt dissection of the vaginal walls from the underlying bladder. Pushing of the bladder up from the

uterus and base of the broad ligament by gauze dissection. Transverse incision of the vesico-uterine peritoneal fold. Delivery of the body of the uterus through the vaginal incision. If the ovaries are to be preserved, a ligature is passed around the ovarian ligaments and the tissues cut between the ligature and the uterus. If they are to be removed, the ligature is passed around the infundibulopelvic ligament. A ligature is passed at the level of the os internum; the body of the uterus is amputated at the desired level by a wedge-shaped incision, the thin edges of the wedge toward the cervix, the edges of the wound then brought down by continuous catgut suture and the raw area of the cervix sutured laterally in the same way. The cervical stump is then sutured to the subpubic fascia and anterior vaginal wall. Further modifications of this operation would be the shortening of the uterosacral ligaments to prevent the cervical stump from pushing downward. Of thirty-two cases treated in this manner, twenty-five have given excellent results. One was a failure.

Technic of Vaginal Plastic Operations for Cystorectocele and Prolapse of the Uterus

DR. R. T. FRANK, New York: The operation for cystocele is as follows: The anterior lip of the cervix is seized with volsella and pulled to the vulva; the mucosa is seized with artery forceps half an inch below the mucosa; the mucosa is incised between the two fixed points and resected on both sides half an inch along the line of incisions superficially; neither deep nor wide reflection is permissible; narrow flaps on each side are seized with two forceps by an assistant; at the lowest angle of the wound the bladder is freed from the cervix in the median line by the snips of scissors; the bladder is freed by pushing firmly up against the cervix until the lateral fibers become plainly demarcated. After exposure of these bladder pillars the vaginal flaps are to be separated more widely; a thin line of fascia continuous with the pillars is to be preserved. The repair is to be done as follows: Two transverse sutures of medium chromic catgut are passed, taking in first one pillar, then the cervix, then the opposite pillar; the upper suture is passed at the lower border of the peritoneal reflection, the next, half an inch below it; the pillars are united firmly in the median line by tying, thus raising the bladder to a higher level and making it flat instead of bulging.

For rectocele the repair is as follows: After exposure, the rectum should be pushed away from lateral structures with the finger. The approximation should take place at the descending rami of the pubis. The rectum should be held aside and the mass of tissue grasped and a heavy chromic catgut suture should be passed, taking in the lateral fascia and underlying muscle on one side, then forming a partial purse string suture, grasping the rectal fascia between the rectum and mucosa around the upper part of the rectocele, and again grasping the lateral structures on the opposite side, the suture being tied. The rectum is thus firmly held fixed and back. The gap in the mucosa should then be sutured with interrupted sutures, as this region later becomes less accessible.

Usefulness and Definite Limitations of the Pessary Treatment of Retroversion and Prolapse

DR. ROBERT L. DICKINSON, Brooklyn: In the group that can be taken care of by pessaries there should be included, first, the retroversions of early pregnancy; second, postpartum retroversions; third, bad risks, and fourth, a few cases in which retroversion has affected the bladder. In regard to the first group of cases the physician should examine the patient early, between the first and second omitted period, and give written directions as to treatment, as in this way serious retroversion can be prevented. In the postpartum group, examinations should be made at two weeks, six weeks and three months postpartum. If patients are well taken care of, then operation later can be avoided. Third, the bad risks, the women with diabetes, tuberculosis or with sclerosed arteries in whom resistance is poor, are poor subjects for operation. These naturally fall into the pessary class, and the pessary relieves constipation and improves general health. To the operative class belongs the cystocele and rectocele group. I am more inclined than formerly to operate on elderly women. Working women, as a rule, should be operated on. They have no time to keep coming to the physician to be examined. In the case of young girls it is better to do an operation rather than give them the office habit. There is distinct use for a pessary for a few months after operation until the organs have had time to recover tone. The kind of pessary which the patient wears with comfort and can handle herself with is the one most likely to suit that particular case. The patient should be instructed how to remove and cleanse it, that scrupulous cleanliness is important, and that she needs regular douching. If this is attended to, ulceration need never occur. The pessary can be taken out at night and put in again in the morning.

DISCUSSION ON THE PAPERS OF DRS. VINEBERG, FRANK AND DICKINSON

DR. J. RIDDLE GOFFE, New York: The pessary has a definite place in the treatment of these conditions, but speaking broadly, it is only a temporary device, to be discarded and supplanted by operative procedure when the time and place serve. Age is rarely a contraindication for surgical procedure in a woman who is able to be on her feet. Dr. Vineberg's operation seems to come into direct competition with supravaginal hysterectomy. There is no question about the superiority of the latter. In the completion of the operation the normal relation of parts is restored and the physiologic function of the ligaments and the bladder maintained.

DR. THOMAS J. WATKINS, Chicago: The pessary has a very important field, even if a limited one. Its use can only be decided by one who has done much work on the mechanics of the pelvis. As regards prolapse operations, conditions get worse, especially after the menopause, so that rectocele and cystocele conditions must usually be corrected before they become extensive; hence operative procedures in this class of cases give better results. There is no one operation that is best for prolapse of the uterus or of the bladder. Operative procedure should be modified to suit the case. I myself favor a modified transposition operation rather than hysterectomy.

DR. H. S. CROSSEN, St. Louis: The ball pessaries, the Smith pessary and other forms slip out. I have used the double horseshoe pessary to good advantage. No one can learn to use these pessaries by descriptions, but simply by personal practice. The horseshoe pessary can be left in place for a long time if the patient comes for observation at regular intervals.

DR. J. WESLEY BOVÉE, Washington, D. C.: The farther we get away from any one particular operation, or from any one form of treatment, the safer we are. Those who are addicted to one form of operation will find they will have to use pessaries later as reputation savers. The best time to use a pessary is before operation. A large proportion of patients can then be helped. If the pessary is the right one it will not cause inconvenience. If it causes pain it is not the right one. The soft pessary is to be condemned; the hard rubber pessary is the best in use at present. The Hodge modification of the Smith pessary is the best type.

DR. RICHARD R. SMITH, Grand Rapids, Mich.: I endorse most heartily what Dr. Dickinson said. In young girls and young married women before childbearing, there is nearly always a neurotic element, and the less attention is called to the pelvis the better. In older women operation alone should be used in certain complicated cases. But it would be well to bear in mind one thing: In women during the childbearing age there should be no operation done which would interfere with this important function. After this period is over other operations can be considered. I have had the best results from Dr. Watkins' operation.

DR. LEROY BROUN, New York: I cannot recommend Dr. Vineberg's operation in complete procidentia. The operation that will give the best results is complete hysterectomy, sewing together the broad ligaments and putting the bladder on top of them.

Dr. Samuel W. Bandler, New York: On the first sign of retroversion, the Smith-Hodge pessary should be introduced. When involution takes place, there is no longer retroversion but retroflexion. If the patient complains of pelvic pain, and retroversion is found, the patient can be directed to wear a pessary provided there are no complications, such as shortened ligaments. If the same patient comes back later and says that all her symptoms have disappeared, she may be given the choice of wearing a pessary for the next twenty-five years or of having an operation and dispensing with the use of the pessary.

Gynecologic Surgery in Hysteroneurasthenic Patients

Dr. H. S. Crossen, St. Louis: When the pelvic condition is seriously depressing the general health through blood loss, or pain due to lesions, the lesion must be removed, irrespective of the coexisting nervous disease. In markedly neurasthenic patients, where pain is of secondary importance, operation is contraindicated; but if prolonged treatment with all ordinary measures fails to relieve pain, then operation is indicated. When operation is necessary sooner or later, it had better be done before neurologic treatment. Rest in the hospital may give a good start to the recovery of the patient; but if the influence of the lesion is questionable, the neurologic treatment should come first, as with treatment, operation may be rendered unnecessary.

DISCUSSION

Dr. Leroy Broun, New York: What treatment should be given to these neurotics? If there are no local findings, the cases are undoubtedly for the nerve specialist; but if there are distinct local findings from the point of view of the gynecologist, he must attend to them, but patients must also be treated neurologically. Whatever affects the general health of these patients affects their nervous and mental status, and the gynecologic surgeon must remove whatever lesion may have a bearing on this. In my own experience, in operating on 500 insane patients, thirty-two were so much improved in general health that they were discharged from the hospital as temporarily cured.

Dr. Gordon Gibson, Brooklyn: The question to be asked is, "Is the patient neurasthenic?" Is it a mild pelvic lesion influencing an exhausted nervous system, or are the symptoms entirely due to the pathologic condition? The history of the neuropathic or psychopathic patient often discloses a slight pelvic lesion.

Dr. Samuel W. Bandler, New York: I believe there are no cases of pelvic disease unless associated with some form of ductless gland disturbance. Pain is often reflex in these cases. The condition of the patient is affected through the medium of the ductless glands, of which the ovaries and the thyroid are the most important. The nervousness is produced by the metabolic change. For that reason, the nervous patient is often better for an operation if one does not promise too much.

Dr. Richard R. Smith, Grand Rapids, Mich.: The first important point is the necesity of a thorough study of the physiology of the pelvis, and the second is the relation of the pelvic reflexes to the neuroses. The gynecologist should act in consultation with the neurologist rather than the reverse.

Practical Aspects of the Internal Ovarian Secretion

Dr. William P. Graves, Boston: In genital atrophy there may occur abnormalities of great importance to the gynecologist. Circulatory disturbance of the external genitals, such as kraurosis and furunculosis of the vulva, may be greatly relieved or cured by the administration of ovarian extract. Ablation symptoms, in the great majority of cases, are markedly relieved by administration of ovarian extract. After hysterectomy, vasomotor symptoms follow the transplantation of ovarian tissue and also of leaving the whole ovary in situ, similar in degree and frequency to those following total ablation of the ovaries. Functional amenorrhea in the young is often relieved by the administration of ovarian extract. Extracts of the whole ovary are more efficacious than extracts of the corpus luteum.

DISCUSSION

Dr. Samuel W. Bandler, New York: I agree with Dr. Graves that the extract of the whole ovarian tissue is more efficacious than that of corpus luteum alone. I do not use corpus luteum extract. In reference to operations done in the later years of a woman's life, such as hysterectomy for fibrosis uteri, I do a vaginal hysterectomy; and if the ovaries look normal, I leave them behind. I do not think it is wise to leave an inflamed ovary, for that would invariably necessitate a second operation. If, after the operation, the patient is put on ovarian extract, it will prevent the occurrence of flushes. If my surgical judgment so dictates, I am never afraid to remove both ovaries, and the treatment with ovarian extract is begun at once.

Dr. R. T. Frank, New York: I must protest against this statement of Dr. Graves that in ordinary hysterectomy it is unimportant whether the ovaries are removed. In my experience, if the ovaries are left behind, there is much less likelihood of these troubles occurring. Unless an ovary and tube in a healthy condition are left it will do no good to leave them; and if the woman is close to the menopause, it is certainly important to leave an ovary with good circulation.

Resection of the Pars Interstitialis in Diseases of the Fallopian Tubes, with the View of Preserving the Uterus

Dr. L. K. P. Farrar, New York: Many uteri recover after resection of the tubes. The operation consists of the following steps: Preliminary curetting and disinfection of the uterine cavity. Laparotomy incision, inspection of ovaries; oophorectomy only to be done where imperative. Ligation of the ascending branch of the uterine artery. Excision of tube down to the uterine mucosa. Closure of the wound with interrupted sutures.

Pelvic Infection

Dr. John O. Polak, Brooklyn: A study of results of conservation of ovaries with resection or suspension has caused us to swing toward more radical treatment, because it has been found that it is useless to conserve ovulation without menstruation, and that a conserved ovary behaves badly in cases of pelvic infection. It tends toward cystic formation and pain, and the trauma and circulatory disturbance disturb the functional activity. Another important point is that no operation should be undertaken during the acute stage of infection, or when exudate is present. Bacteriology of the infection is important as different organisms have different histories. Gonococcus and streptococcus infections differ widely, the former causing suppurative salpingitis, oophoritis and peritonitis; the latter lodge almost always in the parametrium.

Infection of the Uterine Appendages

Dr. E. E. Montgomery, Philadelphia: Infection of the appendages is favored by any condition that favors congestion of the pelvic structures. These conditions lower resistance of the tissues and promote nurture of the infecting elements. The infection spreads by the mucous surface, and is accentuated by the disturbing influence of menstruation. The most usual organisms are the gonococcus, staphylococcus, streptococcus, colon bacillus, tubercle bacillus, pneumococcus and influenza bacillus. The gonococcus is most superficial in its effect, but prepares the ground for other organisms and is thus more baleful in its work. Nature endeavors to protect herself by closing up the tubal ends against the invader. Sometimes the infection is so virulent as to prevent this, sometimes so slight that it does not take place. The peritoneum is sometimes directly infected through the wall, causing an extensive abscess involving the tube and ovary. Such effects necessitate the sacrifice of the organs.

DISCUSSION

Dr. F. F. Simpson, Pittsburgh: I would emphasize the extreme wisdom of avoiding operation until all inflammatory exudate has been absorbed completely, as its presence is Nature's positive statement that there are virulent organisms

present which she fears to admit into the circulation, and if Nature fears to admit these, the surgeon should be afraid to spread them on the peritoneal surface.

DR. THOMAS J. WATKINS, Chicago: I believe that for years we have been making mistakes and calling more of these cases gonorrheal infection than was necessary. Varieties of streptococcus infection that have been present in throats and mouths have given increase of infections in the peritoneum. I have had two cases of salpingitis secondary to throat infection. The knowledge that has been gained in the treatment of tuberculosis should be utilized in the treatment of acute pelvic infection. Outdoor treatment is as important for the one as for the other.

DR. HIRAM N. VINEBERG, New York: When the uterus and tubes have to be removed, the question is whether or not to leave a portion of the ovary. My experience agrees with that of Dr. Polak that the patient is very much worse off if we leave a portion of the ovary. It is liable to undergo cystic degeneration. If, when doing an operation for fibroid uterus, I can leave enough uterine tissue behind and enough ovary so that the woman can go on menstruating, it will do good; but if the uterus has to be removed entirely, it is a question whether what we can retain of the ovary will prevent menopause symptoms.

DR. H. S. CROSSEN, St. Louis: Preservation of the ovary is well worth the chance of a second operation from the psychic standpoint.

Renal Tuberculosis

DR. HENRY DAWSON FURNISS, New York: Of thirty-three personally observed cases, in 20 per cent. there was a history of other tuberculous lesions, and of these 15 per cent. were associated with pulmonary tuberculosis. In 50 per cent. of the cases, cystitis was the first symptom; in 15 per cent., microscopic hematuria, which was followed by cystitis. The hematuria is vesical rather than renal in origin. Renal or ureteral colic pain was seen in 15 per cent. of the cases. The cystitis was found to be the most distressing symptom, and engendered loss of sleep from frequent urination. Nephrectomy was advised for this, before extensive bladder involvement had taken place. Pyuria was present in every case. Tubercle bacilli were found in slides in 85 per cent. of the cases. In all except early cases there was bladder involvement, characteristic of tuberculosis. By the time the patients applied for treatment, the lesions were advanced enough to show characteristic changes. These were redness and induration of the ureteral orifice, often with nodular irregularities. With progress of the disease the induration increased, the meatus became more involved, the trigonum retracted, and the ureter shortened. Later ulceration occurred, and finally the whole bladder became lined with granulation tissue. In cases of long duration the ureter was involved, and in catheterized urine the finding of tubercle bacilli was evidence of tuberculosis of at least one kidney. The general health of these patients was usually good. In most cases nephrectomy was done, with ligation and division of the ureter. The percentage of postoperative fistulas was about the same whether drainage was used or not. Perhaps undrained cases gave better results. It seemed better to excise the ureter through an extra incision, extraperitoneally. Only one death occurred as a result of operation, but this was in a case complicated with pulmonary tuberculosis. About 30 per cent. of postoperative fistulas have been reported, but this did not seem detrimental to the health of the patients, even though it lasted for as long as two years. After the operation there seemed to be a typical tuberculin reaction, the exacerbation of other tuberculous processes, and rise of temperature, this being apparently due to liberation of tuberculous material into the body. About half of the patients seen were between 20 and 30 years of age.

DISCUSSION

DR. ALFRED M. WOSE, Syracuse: It is important to get these cases early, because if one delays in sending these patients for cystoscopy, the bladder will contract and in many cases it is impossible to make a differential diagnosis of the urinary secretion; in fact, one cannot find the ureters. One has then to base his observations on the bladder content and the clinical symptoms.

DR. HIRAM N. VINEBERG, New York: My experience has been that the earlier I saw the patient, the better was the result. The more the bladder is involved the less benefit the patient will have from the operation. In any case of cystitis lasting for some time one should suspect tuberculosis.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

June, CLI, No. 6, pp. 781-936

1 Respiration Calorimeter in Clinical Medicine. E. F. Du Bois, New York.
2 New (Histogenetic) Classification of Neoplasms and Its Clinical Value. W. C. MacCarty, Rochester, Minn.
3 *Saphenoperitoneal Anastomosis for Ascites. B. M. Bernheim, Baltimore.
4 *Therapeutic Possibilities of Antitetanus Serum. H. E. Robertson, Minneapolis.
5 Intestinal Stasis. H. Barclay and C. A. McWilliams, New York.
6 Wassermann Reaction in Pregnancy. A. M. Judd, Brooklyn.
7 Oxycephaly; Its Operative Treatment; Report of Cases. W. Sharpe, New York.
8 Cutaneous Tuberculin Reaction in Tuberculosis. F. H. Heise, Trudeau, N. Y.
9 *Nonteratomatous Bone Formation in Human Ovary. G. W. Outerbridge, Philadelphia.
10 Gangrene of Lung Following Artificial Pneumothorax. E. N. Packard, Jr., Saranac Lake, N. Y.

3. Saphenoperitoneal Anastomosis for Ascites.—Bernheim cites the case of a man, aged 68 years, who had suffered from ascites for over a year, the cause being an obstruction of the portal vein consequent on a cirrhosis of the liver. A Talma operation had been done some months previously without relief. Repeated tappings were the order of the day, at each tap several gallons of fluid being removed. Under local anesthesia, Bernheim exposed the left saphenous vein for a distance of about 6 inches and cut it off at the lower end of the wound, tying off both ends. The peritoneal sac was exposed through a 2 inch incision just over the external ring, at which point a very small hole (about 12 cm.) was made and the greater part of the ascitic fluid that was present—2 gallons—was drained off. This done, the tissues overlying Poupart's ligament were undermined by means of a curved clamp, and the proximal end of the severed vein pulled up into the small incision, where a lateral anastomosis was done between the blood vessel and the peritoneum, ordinary blood vessel silk being utilized. The patient died two days later. No cause whatever could be found to account for his death.

4. Possibilities of Antitetanus Serum.—Robertson proposes that every case in which symptoms of tetanus appear be treated at once, without delay, with an intravenous injection of 3,000 units of antitetanus serum. By this method every patient who exhibits the symptoms of tetanus is given the best possible opportunity of preserving his life. Difficult or dangerous surgical operations, such as the intracerebral method or intralumbar injection, need not be considered; the loss of time and local pain of subcutaneous injections are avoided, and, what is of less theoretical, but nevertheless often of more practical serious moment, the use of large amounts of serum is obviated. The method consists simply in the immediate insertion of 3,000 units of antitoxic serum into one of the veins of the elbow. Furthermore it is of little or no value to repeat this dose twice a day or every other day or, in the large majority of cases, at all. The one injection of 3,000 units is amply sufficient to neutralize the toxin which might be elaborated and absorbed from any ordinary tetanus infection, and this antitoxin will remain effective in the blood stream for at least one week, namely, long enough to decide the issue in almost all cases of human tetanus. If the case should become chronic or suffer a recurrence or any other special condition should develop which might indicate

the advisability of giving more antitoxin, there can be no objection to a second or even a third dose; but here again it should be emphasized that a small dose is fully as effective as a large one and a large dose is as unjustifiable the second time as it was the first.

9. **Bone Formation in Human Ovary.**—As a result of the study of fourteen cases from the literature and seven personal observations as recorded by Outerbridge it appears that true ossification of the ovary may occur independently of any neoplastic or teratomatous process. Such bone formation is probably metaplastic in character; it occurs chiefly in corpora fibrosa or fibrous portions of the stroma, and particularly in ovaries from cases of pelvic inflammation. In one instance of the personal series it involved the wall of a serous cystadenoma, and in one a spontaneously amputated ovary which was found adherent to the omentum at the bottom of Douglas' pouch, associated with complete atrophy of the corresponding tube.

Journal of Experimental Medicine, Baltimore

June, XXIII, No. 6, pp. 703-825

11 *Development of Malaria Parasites in Three American Species of Anopheles. W. V. King, New Orleans.
12 *Intestinal Obstruction. Study of Noncoagulable Nitrogen of Blood. J. V. Cooke, F. H. Rodenbaugh and G. H. Whipple, San Francisco.
13 Origin and Structure of Fibrous Tissue Formed in Wound Healing. G. A. Baitsell, New Haven, Conn.
14 *Absorption of Epinephrin After Intratracheal Injection. J. Auer and F. L. Gates, New York.
15 Production of Amyloid Disease and Chronic Nephritis in Rabbits by Repeated Intravenous Injections of Living Colon Bacilli. C. H. Bailey, San Francisco.
16 *Bacteriologic and Experimental Studies on Gastric Ulcer. H. L. Celler and W. Thalhimer, New York.

11. **Development of Malaria Parasites.**—The experiments reported by King were undertaken for the purpose of determining the susceptibility of any species of anopheles to infection with malaria parasites. As a result of these experiments *Anopheles punctipennis* is shown to be an efficient host of the organisms of tertian and estivo-autumnal malaria, *Anopheles crucians* of estivo-autumnal malaria, at least, and information has been obtained on the relative susceptibility of these two species and *Anopheles quadrimaculatus*. The latter species has been considered to be the principal species concerned in the transmission of malaria in the United States. With *Anopheles punctipennis*, developmental forms of the exogenous or sporogenic cycle of *Plasmodium vivax* were demonstrated in six (85 per cent.) of the seven mosquitoes dissected, and the development of *Plasmodium falciparum*, in four (20 per cent.) of twenty specimens. These four infections, however, occurred in a series of thirteen specimens fed on one person, so that the percentage was actually 33. With *Anopheles crucians*, oocysts or sporozoites or both oocysts and sporozoites of *Plasmodium falciparum* were found in nine (75 per cent.) of the twelve specimens dissected. No tests were made with this species and *Plasmodium vivax*. *Anopheles quadrimaculatus* was employed as a control species in the experiments and became infected in the following ratio: eight (66 per cent.) of twelve specimens with *Plasmodium vivax*, and three (15 per cent.) of nineteen specimens with *Plasmodium falciparum*.

12. **Intestinal Obstruction.**—This communication deals with analyses of the blood in intestinal obstruction, intestinal closed loops, and other acute intoxications. The authors found that most cases of intestinal obstruction, especially with signs of acute intoxication, showed a high noncoagulable blood nitrogen. If the reading is high, one may assume a dangerous grade of intoxication, but, on the contrary, one may not assume that a low reading gives evidence of slight intoxication, because a fatal outcome may be associated with a low reading. Acute proteose intoxication due to injection of a pure proteose will show a prompt rise in blood noncoagulable nitrogen, even an increase of 100 per cent. within three or four hours. These intoxications also show a high blood content of creatinin and urea. The residual or undetermined nitrogen may be very high. A human case of intestinal obstruction with necropsy presented blood findings exactly similar to those observed in many animal experiments. The kidneys in practically all these experiments are normal in all respects. The authors suggest that it is possible that protein or tissue destruction rather than impaired eliminative function is responsible for the rise in noncoagulable nitrogen of the blood in these acute intoxications. Transfusions of dextrose solutions often benefit intestinal obstruction, and may depress the level of the noncoagulable nitrogen in the blood. Some cases show no change in noncoagulable nitrogen following transfusions and diuresis, and, as a rule, such cases present the most severe intoxication.

14. **Epinephrin Absorption After Intratracheal Injection.**—It is shown by Auer and Gates that a simple intratracheal injection of a solution in a normally breathing rabbit penetrates within a few seconds to the alveoli, chiefly those of the left lower lobe; that absorption is rapid and well maintained, and that the procedure may be repeated effectively a number of times even with a substance like epinephrin, which decreases absorption. It was also shown that absorption of epinephrin from the lung could be obtained at a time when double the dose given intramuscularly exerted no blood pressure effect whatever, and that absorption could still take place after the development of pulmonary edema, when there was no undoubted dilution of the injected solution with a serum containing liquid and when a diminution of the absorptive field had occurred. Absorption of liquids injected into the lung probably takes place largely through the capillaries of the pulmonary veins, to a slight extent possibly through the capillaries of the bronchial veins which empty partly into the pulmonary veins, partly into the azygos veins; and probably some absorption occurs also through the lymphatics. By far the larger proportion of the absorbed material will thus be rapidly delivered to the left auricle and then to the left ventricle. At each succeeding systole, as long as absorption continues, a fraction of the drug will be driven into the coronary arteries and be able to affect the musculature of the heart pump. This fact ought to render the procedure of intratracheal injection a valuable method when it becomes imperative to stimulate a suddenly failing heart as promptly as possible by drugs of the digitalis group.

16. **Studies on Gastric Ulcer.**—Even though anhemolytic streptococci are present in practically all gastric ulcers, Celler and Thalhimer are not convinced that these organisms have been proved as yet to be the factor which either initiates the ulceration or prevents healing. Nevertheless, the constant presence of streptococci in this type of lesion is a suggestive fact and further experiments to determine their significance are being undertaken.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

April, X, No. 1, pp. 1-164

1 Vomiting Sickness of Jamaica. H. H. Scott.
2 *Ankylostomiasis; Simplified Diagnosis and Treatment. G. D. Whyte.
3 *Value of Differential Blood Counts in Diagnosis of Malaria. E. R. Armstrong.
4 Three New African Midges. H. F. Carter.
5 Work on Reduction of Alkalinity of Blood in Cholera; and Sodium Bicarbonate Injections in Prevention of Uremia. L. Rogers.
6 Technic of Estimations of Alkalinity of Blood. S. C. Banerjee.
7 Immunity to Yellow Fever. H. R. Carter.

2. **Ankylostomiasis.**—The test suggested by Whyte depends on two facts: (1) a trace of blood is constantly present in the feces of ankylostomiasis patients, and (2) there is a test for blood so sensitive as to reveal its presence in a dilution of 1:800,000. The only reagents employed are the test solution and hydrogen peroxid, and half a dozen specimens can be examined in ten minutes. The reagent is prepared as follows: 100 c.c. of a 20 per cent. solution of caustic soda treated with 2 gm. of phenolphthalein and 10 gm. of zinc dust. The bright rose colored solution is heated gradually until it has assumed a slightly yellowish tone. The supernatant

fluid is poured off into a colored glass bottle and the access of air is prevented by the addition of a little liquid paraffin which floats on the top. The test is made as follows: To 2 c.c. of a watery solution of the feces is added 1 c.c. of the alkaline solution of phenolphthalin (namely, reduced, and therefore colorless, phenolphthalein) and then 1 drop of hydrogen peroxid. In the presence of blood some of the phenolphthalin is reoxidized to phenolphthalein and a bright red color appears.

3. **Value of Blood Counts in Diagnosis of Malaria.**—Armstrong looks on a large mononuclear count of from 8 to 10 per cent. as suspicious of convalescence from malaria, and one of 10 per cent. or over as diagnostic of latent or actual infection. He considers it safer to place the figure on which to diagnose malaria at a percentage at least double that found as an average in normal bloods, in view of the many errors which may enter into such counts. The differential blood count has been the means whereby a diagnosis for or against malaria was arrived at in 103 cases. Forty-two cases were diagnosed as malaria by counts of 10 per cent. or over; sixty-one cases were diagnosed as not malaria by low counts. Of the forty-two cases, twenty-seven were correctly diagnosed. Of the sixty-one cases, six were definitely not malarial, fifty-two were followed for some months and did not relapse, and in three no further decision could be made.

Archives of Radiology and Electrotherapy, London

May, XX, No. 12, pp. 393-428

8 Tuberculosis of Bones and Joints. R. W. A. Salmond.
9 Roentgen Ray Department of Scottish Women's Hospital, Royaumont, France. A. Savill.
10 Clinical Significance of Roentgenograms of Orbital Region. H. W. Stenvers.
11 Case of Pin in Esophagus of Patient With Unsuspected Bilateral Cervical Ribs. F. Emrys-Jones.
12 Treatment of Scars of War. N. H. M. Burke.

British Medical Journal, London

May 20, I, No. 2890, pp. 709-744

13 Soldier's Foot and Treatment of Common Deformities of Foot. R. Jones.
14 Causes and Prevention of Trench Foot. B. Hughes.
15 Excystation of Entameba Histolytica (Tetragena) as Indication of Vitality of Cysts. W. J. Penfold, H. M. Woodcock and A. H. Drew.
16 *Amebic Dysentery in Man Who Had Never Left England. C. Worster-Drought and D. D. Rosewarne.
17 *Treatment of Puerperal Sepsis by Uterine Suction and Drainage. N. Porritt.
18 Use of Galvanometer as Aid to Diagnosis of Nerve Lesions. C. N. Longridge.
19 Simple Portable Refrigerating Box and Its Use as Temporary Incubator in Military Work. S. Delépine.

16. **Amebic Dysentery in Man Who Had Never Left England.**—The feces of the patient whose case is discussed by Worster-Drought and Rosewarne were frequently examined throughout the illness, and active forms of *Entameba histolytica* were found up till the tenth day of treatment with emetin, but at no time afterward. No cystic forms of the parasite were ever seen, although the motions were examined until three weeks after the patient's recovery, and no bacilli of the typhoid dysentery group were isolated. The blood tested as regards agglutinating power against the dysenteric organisms "Shiga," "Flexner" and "Y" types proved negative. The tongue, which was furred from the beginning, continued so until about the seventh day with emetin injections, when it began to clear. It was quite clean when they were stopped. The liver was frequently examined, but at no time was any enlargement noted. Abdominal pain persisted with diminishing severity until, practically, the motions were fully formed. During the first ten days in the hospital he frequently complained of considerable pain after defecation. The tenderness to the right of the umbilicus, mentioned on admission, had quite disappeared by the ninth day of emetin treatment, while that in the left iliac region did not disappear until three days after the motions were quite normal. It is believed that this case was caused by a "carrier."

17. **Puerperal Sepsis Treated by Uterine Suction and Drainage.**—Three cases are reported by Porritt in which he removed retained decidua from the uterus by means of the suction tube. He used a glass Budin's catheter, to which the inlet end of a Higginson's enema syringe was attached. It was passed into the uterus. To secure the syringe to the Budin's catheter the inlet valve was removed. The tube of the syringe between the bulb and the catheter was held firmly and the bulb squeezed, so as to drive out the contained air through the nozzle. On releasing the pressure on the bulb, the valve behind the nozzle closed and prevented the return of the air. There was then a vacuum in the syringe, and on releasing the pressure on the tube, between the bulb and the Budin's catheter, suction was exerted through the catheter within the uterus. No air was drawn into the uterus, although the suction drew into the orifices of the catheter thick, grumous, semipurulent masses, which were too big to pass through, and, when the catheter was withdrawn, came with it. Reintroduction of the catheter and suction drew out more of these thick pieces. The vagina was syringed, and a gauze drain was inserted into the uterus. Suction was applied to the uterus on two successive days. The patients made a good recovery.

Dublin Journal of Medical Science

May, CXLI, No. 533, pp. 299-369

20 Soy Bean; Its Uses; Action of Its Enzyme, Urease on Urea. W. G. Smith.
21 Some Points in Connection With Puerperal Eclampsia. W. Smyly.
22 Case of Ectopia Vesicae in Adult Treated by Transplantation of Ureters. H. Stokes.
23 Distribution of Cases of Cerebrospinal Fever in Military Camp. G. E. Nesbitt.
24 Fractures and Fracture Dislocations. (To be continued.) J. S. McArdle.

Lancet, London

May 20, I, No. 4838, pp. 1025-1068

25 Links in Chain of Research on Syphilis. J. E. R. McDonagh.
26 *Case of Syphilis of Aorta. C. Allbutt.
27 Treatment of Head Injuries in Casualty Clearing Station. A. Don.
28 *Two Cases in Which Lateral Ventricle Was Opened. H. F. Woolfenden.
29 *Treatment of Hepatic Failure in Yellow Fever, Malaria and Other Conditions. A. Balfour.
30 Hysterical Mutism in Boy. A. J. Hall.
31 Case of Palpebral Chancre. H. J. McGrigor and D. M. Livingstone.

26. **Syphilis of Aorta.**—Allbutt urges that in all necropsies on syphilitic cases one should submit the thoracic aorta, and especially the ascending arch, to minute scrutiny, to section and microscopic examination.

28. **Opening of Lateral Ventricle.**—Although the lateral ventricle was opened in the course of operations for removal of a bullet and indriven bone from the brain in both cases cited by Woolfenden, the patients survived and made an almost complete recovery. One patient was normal except for a slight affection of the higher speech centers. The other had some loss of sensation to pain on left side.

29. **Hepatic Failure in Yellow Fever, Etc.**—Balfour points out the necessity in cases of delayed chloroform poisoning and toxemic jaundice of keeping up the supply both of sugar and of protein food, the latter in peptonized form. The former is insured by the administration of glucose. It can be given by the mouth or as rectal enemas, solutions of 5 or 10 per cent. being used. If pure glucose cannot be obtained, preserved (candied) fruits may be given, or, indeed, sugar in any form. The necessity for protein is met by administering enemas of peptonized beef tea, eggs, or other protein material.

Archives des Maladies du Cœur, Etc., Paris.

May, IX, No. 5, pp. 189-236

32 Inversion of Viscera; Three Cases. (Inversion viscérale.) A. de Castro.
33 *The Oscillometer as Index of Permeability of Accessible Arteries. (L'exploration de la perméabilite des artères des membres par l'oscillométrie.) A. Cawadias.

33. **The Oscillometer in Testing the Permeability of the Arteries.**—Cawadias called attention in 1912 to the advantages of the use of Pachon's simple oscillometer in estimating the circulation through a vessel. Others have confirmed his statements, and the war has brought innumerable cases in which the information thus derived has proved of paramount importance. (Matas' study of the various tests for the pur-

pose was published in The Journal, Oct. 24, 1914, p. 1441.) The oscillometer findings on the side in question and on the sound side are compared, both for the arms and legs, and the extent of the oscillations is registered. The findings differentiate functional from organic lesions, and permit exact localization. The method is particularly useful in the study of aneurysms and as a guide to operative procedures.

Bulletin de l'Académie de Médecine, Paris

May 9, LXXV, No. 19, pp. 535-582

34 Roentgen Ray Localization of Foreign Bodies in the Head. (Nouvel appareil de M. Contremoulins pour la localisation radiologique des corps étrangers de la tête.) Routier.
35 *Wire for Suturing Fractured Large Bones. (La suture métallique dans les fractures des grand os.) O. Laurent.
36 *Vaccination Against Typhoid in Russian Army. L. A. Tarassevitch.

35. **Wire for Suturing Fractured Long Bones.**—Laurent extols the advantages of stout silver wire for suturing the fractured femur or humerus. It holds the parts firm and does not interfere at all with the production of callus while the twisted ends of the wire emerging between the lips of the wound provide an ideal drain. One suture is generally enough, or one suture supplemented by a ligature. He never used more than two sutures. The outcome is far better than with metal plates which are always more or less irritating. The wire seems to be borne without causing irritation during the month or two it is required and then it is easily removed. The wire suture is particularly advantageous when the focus has had to be opened up to remove sequesters, etc. Among the typical cases related is that of a fractured femur with excessive callus by the end of fifteen months. After osteotomy the stumps were held together with wire rings not drawn tight and extension was applied. The limb gained 10 cm. in length by this means. The provisional support from the wire rings enabled the muscles to regain their normal tonus and length under extension. In the discussion, Delorme referring to the ideal drain provided by the twisted ends of the wire, says that this "exteriorized metallic suture" offers better chances for proper treatment of sequesters than other technics.

36. **Vaccinations in the Russian Army.**—Tarassevitch relates that the Russian Medical Association passed a resolution in December, 1914, approving of antityphoid vaccination but not insisting on its compulsory application. The following five months, however, brought such an array of favorable testimony from different countries that the authorities made it compulsory in the army and more than 20,000 liters of vaccine had been used in military and civilian circles by February, 1916. A monovalent vaccine was used at first, and later one made from six or eight strains of typhoid bacilli. Vaccination against cholera was also introduced, and over half a million men have already been thus vaccinated, but without official consecration. Encouraged by Kabeshima's experience in Japan, Castellani's in Italy and some in Russia, attempts have been made to vaccinate at one time against both typhoid and cholera. The reaction was no more intense than to one vaccine alone. After two injections the serum agglutinated typhoid bacilli at 1:500 or 1:800 or even 1:2,000. Agglutination of cholera germs occurred only at 1:200. One entire army in the Caucasus was vaccinated in this way. A group of 25,000 men at Moscow were vaccinated the same day against smallpox, typhoid and cholera, and only 5 per cent. presented a moderate or severe reaction.

Presse Médicale, Paris

May 11, XXIV, No. 27, pp. 209-216

37 Reeducating the Maimed and Crippled to Use Their Limbs. (La rééducation motrice individuelle, collective et mutuelle dans les impotences de guerre.) P. Sollier and Chartier.
38 *Influenza in Infants. (La grippe chez le nourrisson. Etude clinique.) R. Raimondi.

38. **Influenza in Infants.**—Raimondi has found that infants may be affected with grip toward the end of October and later, but it is usually mild and lasts only three or five days. With the latter part of January it begins to be more virulent, and from March to May presents its severest forms; and then it seems to die out. Incubation may take from twelve to forty-eight hours. All the children present the same kinds of special manifestations at the same time, as a rule. One month all will have the tracheal type, with otitis, while at another time the bronchopulmonary manifestations will predominate, or the nervous manifestations will overshadow other symptoms, or the digestive apparatus may bear the brunt of the attack. Winter grip in infants lasts from ten to fifteen days, in the spring from eight to ten days. The highest and most tenacious fevers he has encountered were with the gastro-intestinal forms of grip, especially with involvement of the liver. Grip is a touchstone locating by preference in the organs that are below par naturally. He has had only one case of the nervous form of grip terminate fatally; the other children recovered in four or five days. The same child may have several attacks during one winter. Overheating and overcrowding favor its return. Infants that are kept in the house are more liable to it and its complications. He advises that at the first sign of trouble the mucous membranes must be sterilized with petrolatum or oil containing 2 per cent. resorcin, cleansing the tongue and mouth with a boric acid or bicarbonate solution. When the temperature goes up he gives a bath at 36 or 37 C. (98.6 F.) morning and night for five or eight minutes. If there is bronchial involvement, five or six tablespoonfuls of mustard flour may be added to the water in the infant's bathtub. If the temperature keeps high, a towel wet with water between 28 and 32 C. (82.4 and 89.6 F.) may be used to pack the child, with rubber outside. This pack may be left undisturbed for thirty or forty minutes or until the child wakes up. The pack may have mustard added at need. He says that cupping, especially when there is bronchitis, is efficacious even for children only a few days old. At the first signs of induration of the lung, he injects emetine, repeating the dose four or five days in succession (0.01 gm. per 1 c.c.), 0.25 c.c. the first month up to 1 c.c. from ten months to a year old. It is in grippal bronchopneumonia, he reiterates, that emetine hydrochlorid is most effectual. The heart may have to be sustained with one or two injections a day of camphorated oil. If the child is getting breast milk, the amounts should be reduced one half and milk should be diluted with water or mineral water or *bouillon de légumes*. After four days without fever the child may be taken outdoors but not for longer than ten minutes at first, even on a fine day. This must be done very cautiously to ward off relapses and complications. He refrains from vaccinating infants during the special grip months, February and March, unless there are special reasons.

Gazzetta degli Ospedali e delle Cliniche, Milan

May 7, XXXVII, No. 37, pp. 577-592

39 *Experimental Tetany During Pregnancy After Partial Removal of Parathyroids in Early Life. (Tetania da insufficienza paratiroidea sperimentale nella gravidanza ed eclampsia.) A. Massaglia.

39. **Inadequate Parathyroid Functioning as Cause of Eclampsia.**—The parathyroid theory of eclampsia and its corollary, parathyroid treatment, have long been advocated by a number of Italian and a few other writers. Massaglia here reports two experiments which sustain this view, the findings confirming those previously obtained by Vassale and others in this line. In the course of eighteen months Massaglia operated on two young female dogs, removing both external and one of the internal parathyroids, when they were about ten weeks old. Each bore the operation well and grew up apparently healthy except for traces of albumin in the urine. As the animals became gravid they seemed to thrive for about two months, and then each in turn developed severe tetany. Massaglia and Vassale regard this experimental tetany as the equivalent of eclampsia in women, and the fact is emphasized that the tetany retrogressed under parathyroid treatment. In both, the parathyroid insufficiency evidently remained latent until roused by the stress of the pregnancy to active manifestations. This is likewise the case with eclampsia in women, appearing only during a pregnancy or lactation. The two bitches had two or three litters each and a tendency to tetany was

apparent also in the later pregnancies but less marked than at first. It soon subsided under parathyroid treatment and it was never apparent outside of a pregnancy.

Policlinico, Rome

May, XXIII, Medical Section No. 5, pp. 129-160

40 *Symptomatic Importance of the Auricular Liver Pulse. (Il significato semeiotico del polso epatico auricolare con speciale riguardo alla sua presenza nel ritmo di galoppo e nei vizi congeniti del cuore destro.) C. Pezzi.
41 *When the Oculo-Cardiac Reflex Induces Extrasystoles. (Riflesso oculocardiaco e estrasistoli.) G. B. Ferralis and C. Pezzi.

40. **The Auricular Liver Pulse.**—Pezzi has had opportunity to study the liver pulse in a number of cases, and was impressed by the constancy of the auricular type in cases of gallop rhythm and of congenital deformity in the right heart. He gives the cardiograms and clinical details with the necropsy findings in four cases of gallop rhythm. They confirm the assumption that gallop rhythm is the result in most cases of exaggerated functioning of the auricle. It forces suddenly a large amount of blood into the ventricle, abruptly stretching it. This sudden distention is facilitated by the walls of the ventricle being somewhat relaxed, and it causes a perceptible sound. Pezzi's experience indicates that this presystolic liver pulse frequently accompanies chronic nephritis with gallop rhythm. Hence the discovery of the auricular liver pulse with gallop rhythm does not have the import in respect to tricuspid stenosis that has hitherto been accepted. It may be encountered also with congenital defects and other heart affections. When noted with mitral disease, it suggests concomitant tricuspid mischief, but with gallop rhythm it does not necessarily indicate tricuspid deficiency, and it usually diminishes as the gallop rhythm returns to normal. With congenital defects there is more liable to be tricuspid trouble when there is auricular liver pulsation.

41. **Oculocardiac Reflex and Extrasystoles.**—Ferralis and Pezzi have been studying on twenty persons the changes induced in the heart action by pressure on one or both eyeballs. The stimulation of the vagus which it realizes may induce various reflex phenomena involving both heart and respiration, similar to chemical or electric stimulation of the nasal mucosa or the sensory terminals of the peripheral nerves at other points. The work was undertaken to see whether the heart could be made to contract prematurely by pressure on the eyeballs. The tests were positive in five of the twenty persons examined, extrasystoles developing as the eyeballs were compressed. This positive series demonstrates the connection between extrasystoles and the pneumogastric nerve. In three patients with chronic nephritis and high arterial tension, pressure on the eyeballs had a marked retarding action on the heart. There was a tendency to spontaneous systoles in these cases but while pressure was being applied to the eyeballs no signs of premature contractions were evident. This shows the complexity of the mechanism of extrasystole production by means of the vagus system, but the facts cited apparently demonstrate that the pneumogastric is capable of creating in the myocardium a condition that favors the occurrence of extrasystoles. The spontaneous extrasystoles and those induced by pressure on the eyeball gave apparently identical tracings, showing a single center of impulse production.

As extrasystoles are most common in the nervous, this speaks also for their reflex origin. In some cases mere stimulation of the skin was enough to bring on premature contractions of the heart. These and other facts cited indicate that the pneumogastric has some action, at least indirect, in producing or maintaining extrasystoles, and hence atropin may be regarded as indicated in cases of pathologic contractions of the heart. Atropin has merely a symptomatic action, but as such it is useful in addition to its accelerating influence on the heart action. Digitalis in certain cases of the kind does actual harm. The details of the five positive cases are given. In one, as pressure was applied to the eyeball, the ventricle began to beat automatically and irregularly, interrupted by an extrasystole. The extrasystole occurred again in the same way on repeating the test later. This patient was a girl of 12, with an apparently sound heart, but the electrocardiogram shows that there was a brief period of auricular fibrillation following the retarding phase. This has been observed in animals when the stimulation of the pneumogastric surprised the nerve in a phase of overexcitability. In one young woman with Banti's disease, the oculocardiac reflex was elicited with slight pressure on the eyeballs, and the heart action was arrested for more than five seconds. Only one extrasystole occurred and the contraction started in the left ventricle. One extrasystole occurred also in a boy of 11 with mitral trouble left by articular rheumatism. No spontaneous extrasystoles were observed. A girl of 17 with acute rheumatism presented the liveliest reflex response of all to the oculocardiac test. The heart action was retarded and once completely arrested for the longest period of any of the tests. On two occasions there was a series of extrasystoles, starting in the right ventricle. This and similar cases testify that the action of infectious toxins on the pneumogastric may be responsible for more of the cardiovascular disturbances and hence that the latter may present a more favorable prognosis than is generally realized.

Semana Medica, Buenos Aires

March 16, XXIII, No. 11, pp. 291-318

42 Puericulture and Infanticide. A. D'Alessandro.
43 The Anti-Alcohol Year. (El año antialcoholico — 1915.) R. Hercod.

March 23, No. 12, pp. 319-346

44 *Treatment of Vertebral Tuberculosis. (Tratamiento del mal de Pott.) J. M. Jorge.
45 Principles and Technic of Roentgen Ray Examination and Treatment. (Radiologia.) C. M. Perez.
46 Progress of Prohibition. (Progresos del movimiento templario internacional.) V. Delfino.

44. **Treatment of Vertebral Tuberculosis.**—In concluding his general review of this subject, Jorge relates that he has performed the new operation for vertebral caries in a dozen cases and has found Albee's technic the simplest and best in its outcome. Only in one case, in which the patient failed to get the proper after-treatment, the gibbus increased.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

April 29, I, No. 18, pp. 1501-1588

47 *Deafness and Heredity. (Doofheid en erfelijkheid.) H. Burger.
48 *Dermatology and Immunity, Allergy and the Percutaneous Tuberculin Reaction. W. L. L. Carol. Commenced in No. 17.
49 *Revaccination Neuralgia and Other Complications. (Revaccineeringsneuralgieen.) G. A. M. Van Wayenburg; (De vierdaagsche ziekte na herenting.) P. W. C. M. Busch.

47. **Deafness and Heredity.**—Burger discusses the various types of deafness that occur with a familial and inherited stamp, and shows that it is a mistake to diagnose otosclerosis merely on the basis of deafness inherited in the family. The deafness is liable to be of quite another type, the trouble being in the sound-perceiving rather than in the sound-conducting apparatus. In the labyrinth type the deafness comes on about 30 or 38 and slowly progresses to the age of 50, when it grows rapidly more complete. The perception of high and low sounds, and bone and air conduction of sounds also differ from those with otosclerosis, as he describes in detail. He charts three generations of a family tree showing twenty-nine members more or less hard of hearing or totally deaf out of a total of eighty-seven members, not including three deaf in a previous generation. He examined five of the deaf members of the family and found in two the progressive internal ear type of deafness, in another, premature senile deafness, and in two others the otosclerosis type of deafness. It seems probable that in this family the organ of hearing is physiologically inferior and yields abnormally readily to morbid influences of various kinds. This predisposition is inherited, not any special type of ear disease. The predisposition may never encounter anything to rouse it to an active process, and, if this does occur, the active process may be of different types in different members of the family with the inherited taint. This assumption explains also, he says, congenital deafmutism, and he protests against the usual classification of this into the congenital and acquired types. A deaf child that has never spoken is regarded as a congenital deafmute, and the possibility of deafmutism as

the result of a brain or meningeal inflammatory process in early infancy is quite overlooked.

He is inclined to agree with Hammerschlag's dictum that the difference between deafmutism and progressive labyrinth deafness is one of degree only. The anatomic basis for each is strikingly similar. The fact that the labyrinth deafness does not develop until late in life is no sign that the sound-perceiving apparatus is not constitutionally inferior. Other arguments in favor of this assumption are the remains of hearing in certain deafmutes, and the cases of congenital partial deafness—this is always of the labyrinth deafness type, and in his cases of this kind the deafness displayed no progressive tendency. A still further argument is the labyrinth deafness which develops in the young and grows rapidly worse between 15 and 20. This latter has been observed as a familial affection. Other facts cited in evidence are that Kuiper found atrophy of the stria vascularis cochleae in the internal ear of Japanese dancing mice, and Mayer found the same in persons with otosclerosis, while this has long been known to occur in deafmutes. On the other hand, Politzer reported some years ago finding foci of new bone growth—spongiosa—in the labyrinth of deafmutes. Koerner advised persons with otosclerosis to refrain from marrying, so as to carry their otosclerosis into the grave with them. But Burger says that this prohibition, to be effectual, should extend also to the brothers and sisters of persons with otosclerosis, as they may have inherited the same tendency and be liable to transmit it, although this "determinant" has remained latent in them. "In fact," he exclaims, "think of the latent dangerous determinants any one of us may be carrying around! At the twelfth generation each of us has 4,096 ancestors!"

49. **Revaccination Neuralgia.**—Van Wayenburg relates that during the recent extensive revaccination of the adult populace at Amsterdam, a number complained of severe neuralgic pains starting in the back and spreading to the stomach and abdomen. They were like the pains of extensive herpes zoster, without the eruption, and in some cases were accompanied by vomiting. He was unable to discover any tender points. This neuralgia developed exactly on the fourteenth day in most cases, and lasted for five or six days, leaving merely a little lassitude. The puzzling syndrome suggested kidney or gallstone colic or a pancreas affection. He has been unable to find any record in the literature of this revaccination neuralgia.

Hospitalstidende, Copenhagen

May 6, LIX, No. 18, pp. 417-440

50 *Peritonitis From Gonorrheal Disease of Ovaries and Tubes. (Om akut diffus Peritonitis ved den gonorrhoiske Salpingo-Oophoritis.) P. Zachariae.

May 10, No. 19, pp. 441-464

51 *Cholecystitis Without Concretions in Paratyphoid Carrier. (Et Tilfælde af Cholecystitis perforans sine concremento hos en Paratyfusbaciludskiller.) J. Nordentoft.

52 *Single Intervention for Abortion and Preventing Further Conception. (Abortus provocatus og Sterilisation i samme Séance.) E. Hauch.

50. **Peritonitis from Gonorrheal Tube or Ovary Disease.**—Zachariae reports three cases of acute diffuse peritonitis developing suddenly from exacerbation of chronic gonorrheal salpingitis practically latent hitherto. No bacteriologic tests were made as negative findings are the rule at this stage of gonorrheal disease of the adnexa. The aspect of the lesions rendered gonorrhea absolutely certain. Whether to drain or not after the laparotomy, when the peritonitis is still in its first stage, is a matter of choice. He drained in his one case of the kind but saw equally good results and healing by primary intention in similar cases in which the wound was sutured at once. In his service, no morphin or other powerful sedative is given laparotomy patients until after flatus has been passed. At most they get 1 gm. aspirin. Saline infusion or the Murphy drip is a routine measure. Peritonitis from adnexa disease is of a milder course, as a rule, than when the source of the trouble is located higher in the abdomen. The peritoneum's absorbing properties are most pronounced in the upper abdomen and grow less proportionally downward. As to operative treatment, Zachariae comments on the remarkable success of bed rest, moist heat, douches, ichthyol tampons, etc., in inducing absorption of large effusions and tumors in the adnexa in a surprisingly large number of cases. The impacted uterus grows more movable while the enlarged tubes dwindle in size until they can no longer be palpated. He declares that as salpingitis is always bilateral and sooner or later both tubes will have to go, when removing one it is better to remove both. He advises also to remove one or both ovaries, saying that possible resulting deficit phenomena are not to be considered in comparison with the disturbance liable to be set up by a pathologic ovary left behind. Leaving the uterus does no harm as endometritis and metritis promptly subside after the diseased ovaries are gone. Only when the uterus can be removed with ease is it wise to do it. According to some recent statistics from Schauta's clinic, conservative treatment failed and operative measures became necessary in 11.3 per cent. of 6,000 cases. Radical treatment ensured a permanent cure in 93.5 per cent., while this was realized with conservative measures only in 72.2 per cent. The mortality was 3.5 per cent. Widespread diffuse peritonitis from gonorrheal adnexa disease should be operated, even during the acute phase, but circumscribed peritonitis generally subsides under rest and conservative measures, with or without paracentesis. But if the tumor persists unmodified through rational treatment kept up for months, then operative measures should be considered.

51. **Perforating Cholecystitis in Paratyphoid Bacilli Carrier.**—Nordentoft's patient was a primipara of 24 who had apparently recovered from paratyphoid a few weeks before. Then symptoms developed suggesting acute appendicitis or cholecystitis. The operation revealed the gallbladder distended and hard, with pus exuding from an opening in it. There was ulceration at two points and paratyphoid B bacilli were found in the gallbladder content. No gallstones could be discovered and there was no jaundice. No paratyphoid bacilli could be detected in the urine and stools later. Nordentoft compares his case with the literature on cholecystitis without gallstones but he has been able to find only one case of paratyphoid infection of the biliary passages on record. This was in a young woman with a history of both typhoid and paratyphoid. The gallbladder was removed on account of attacks suggesting gallstone cholecystitis. The patient ceased to pass paratyphoid bacilli in stools and urine thereafter, but cholecystectomy does not always prove effectual in this respect. Pribram and Messerschmidt have had disappointing experiences in this line. Kehr insists that when the gallbladder is removed for typhoid infection—as he has done in ten cases—the hepatic duct should be drained and the drainage kept up as long as the bacilli are found in the bile. In Nordentoft's case, after a brief respite the patient had new attacks of pain, starting in the right hypochondrium and spreading through the back and shoulder, with jaundice and high fever and paratyphoid bacilli were found again in the stools. It is evident that the paratyphoid bacilli are not restricted to the gallbladder but may lurk elsewhere in the body.

52. **Abortion and Sterilization at One Operation.**—Hauch analyzes the various procedures for this purpose and describes a method which he has applied in two cases, apparently demonstrating its efficiency. It is simple and easy when the pregnancy is not past the third or fourth month. Later than this it will have to be done by the abdominal route. Through an anterior colpotomy, the bladder is detached and the peritoneum is opened. The uterus is then palpated to see if it is loose and not bound down by adhesions. If any are found they are broken up. The fundus of the uterus is then brought down into the vagina and a small transverse incision is made in the fundus, and the ovum pops out entire as a rule. With a curet the relics of the decidua are removed also, and the incision is sutured in two tiers. The tubes are then resected for a space of 2 or 3 cm. and the uterine stumps allowed to slip back under the peritoneum. Two or three stitches are then taken in the peritoneum and the colpotomy incision is sutured. The whole procedure is complete in twenty or thirty minutes.

JOURNALS INDEXED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT JANUARY-JUNE, 1916

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American Journal of Anatomy. Bi-m. $7.50. 36th St. and Woodland Ave., Philadelphia.
American Journal of Diseases of Children. M. $3. American Medical Association, 535 N. Dearborn St., Chicago.
American Journal of Insanity. Q. $5. Johns Hopkins Press, Baltimore.
American Journal of the Medical Sciences. M. $5. Lea & Febiger, 706 Sansom St., Philadelphia.
American Journal of Obstetrics and Diseases of Women and Children. M. $5. William Wood & Co., 51 Fifth Ave., New York.
American Journal of Orthopedic Surgery. M. $4. 126 Massachusetts Ave., Boston.
American Journal of Physiology. M. $5. Johns Hopkins Medical School, Baltimore.
American Journal of Public Health. M. $3. 755 Boylston St., Boston.
American Journal of Roentgenology. M. $5. 67 E. 59th St., New York.
American Journal of Tropical Diseases and Preventive Medicine. M. $2. P. O. Drawer 1110, New Orleans, La.
Annales de gynécologie et d'obstétrique. M. 22 francs. Paris.
Annales de médecine. M. 23 francs. Paris.
Annals of Ophthalmology. Q. $4. Mermod-Jaccard Bldg., St. Louis.
Annals of Surgery. M. $5. J. B. Lippincott Co., 227 S. 6th St., Philadelphia.
Annals of Tropical Medicine and Parasitology. Q. $5. Liverpool.
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This is an index not only to the reading matter in THE JOURNAL, but also to original articles in the principal medical periodicals of this and other countries. The reading matter appearing in THE JOURNAL is distinguished by the use of **black-faced numerals.**

The letters used to explain in which department the matter indexed appears are as follows: "E," Editorial; "C," Correspondence; "T," Therapeutics; "Ml," Medicolegal; "P," Propaganda for Reform; "ME," Medical Economics; "ab," abstract; the star (*) indicates an "Original Article" in THE JOURNAL.

This is a subject index and one should, therefore, look for the chief word, with the following exceptions: "Book Notices," "Deaths" and "Society Proceedings" are indexed under these titles at the end of the letters "B" "D" and "S." Matter pertaining to the Association is indexed under "American Medical Association."

All matter is indexed under the most important word of the heading used in THE JOURNAL, and also under the subject heading. For instance, abscess of the brain will be found under "abscess," as well as under "brain." Such titles as "ocular manifestations, etc.," have been indexed under "Eye." Cross references have been liberally used.

An innovation in this index is the addition of the name of the author in brackets following the subject entry. In case there is more than one author only the first is given.

The figures in parentheses refer to the paragraph, the number following to the page in THE JOURNAL.

ACID, hydrochloric, as decolorizing agent for tubercle bacillus, [Keilty] *1619

This reference is to an original article in THE JOURNAL, as shown both by the star and by the black-faced numerals indicating the page.

ARSENIC in sodium cacodylate, iron cacodylate and potassium arsenite, amount of, 1343

This reference as indicated by the black-faced figures, is also in THE JOURNAL, and on turning to page 1343 we find an answer to a question in the Department of Queries and Minor Notes.

ABSCESS, tongue, [White] (86) 1167

In this reference, the (86) indicates that the article is in the Current Literature Department and the fact that the page number is in black-faced type shows that the article is abstracted and discussed in THE JOURNAL. Turning to page 1167, we find (86) refers to an article by J. V. White in the *Michigan State Medical Society Journal*, March.

ABDOMEN, wounds, gunshot, tabular statement of 500, [Wallace] (21) 1169

The fact that in this last reference the page is given in ordinary type indicates that only the title of the article is given. Turning to page 1169 we find that the numeral (21) refers to a paper on that subject by C. Wallace which appeared in the *Lancet*, March 4.

In the AUTHOR'S INDEX are the names of the authors of articles which have appeared in THE JOURNAL of the American Medical Association and of articles that have been listed from week to week in the Department of Current Medical Literature as having appeared in other journals. The black-faced numerals indicate that the article is in THE JOURNAL, either in full or in abstract. The star (*) preceding the page number indicates an original article.

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SOCIETIES

A.—Association.
Acad.—Academy.
Am.—American.
Coll.—College.
Conf.—Conference.
Cong.—Congress.
Conv.—Convention.
Dist.—District.
Hosp.—Hospital.
Internat.—International.
M.—Medical or Medicine.
Nat.—National.
Phar.—Pharmaceutical.
Phys.—Physicians.
Ry.—Railway.
S.—Society.
Surg.—Surgical, Surgeon or Surgery.

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